Before the United States
Department of the Interior
Minerals Management Service

Comments
of the
American Petroleum Institute,
Independent Petroleum Association of America,
Domestic Petroleum Council,
US Oil & Gas Association,
Independent Petroleum Association of Mountain States,
Western States Petroleum Association
and
California Independent Producers Association

Establishing Oil Value for Royalty Due on Federal Leases
64 FR 73820 (December 30, 1999)
30 CFR Part 206

Volume I – Text of Comments

January 30, 2000

American Petroleum Institute

ipaa America's Oil & Gas Producers

Domestic Petroleum Council

US Oil & Gas Association

January 30, 2000

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Minerals Management Service Further Supplementary Proposal for Royalty Due on Federal Leases 64 FR 73820 (December 30, 1999)

Dear Lucy:

On behalf of the American Petroleum Institute, the Independent Petroleum Association of America, the Domestic Petroleum Council and the U.S. Oil and Gas Association, we welcome the opportunity to file these comments on the MMS' December 30, 1999 proposal. In these comments we are joined by the Independent Petroleum Association of Mountain States, the Western States Petroleum Association and the California Independent Producers Association. Together our members account for virtually all of the royalties paid for oil production on Federal lands, onshore and offshore.

Our two volume comments augment the discussions held at the MMS public workshops held January 18 (Denver), January 19 (Houston), and January 20, 2000 (Washington, DC) and we incorporate by reference the many earlier comments filed by industry associations and individual companies in the course of this protracted rulemaking.

Our comments add important new information to the rulemaking record: Professor Kalt's declaration (**Appendix A**) shows there is a market at the lease, that comparable sales are viable measures of value and that market center spot prices are not. Mr. Deal's letter (**Appendix B**) describes the deep implications of the August 1999 <u>City of Long Beach</u> verdict. Professor Lowe's paper (**Appendix C**) shows that basing royalties on values greater than the value of production at the lease is antithetical to well-established oil and gas law. The Swanson report (**Appendix D**) offers a rationale for calculating rate of return for transportation allowance purposes. Finally, the Van Vactor report (**Appendix E**), shows that ANS spot prices are especially problematic for valuation of California crudes, but emphasizes that the MMS' proposed indexing methodology is problematic more generally.

The highlights of our attached detailed comments are as follows:

Part I Underlying Assumptions

Our comments show that from the outset the MMS oil valuation rulemaking has been based on three erroneous core assumptions. In rebutting these wrong assumptions, we show that:

- Record evidence establishes conclusively that an active, competitive market does exist at the lease.

- The City of Long Beach verdict shatters the premise that use of posted prices results in underpayment of royalties.

- Federal and state oil and gas law, Federal contract law, and recent Federal administrative law shows that the MMS cannot lawfully assert that there exists a duty to market free of charge.

Part II Core Issues

Our comments offer several suggestions for addressing the core substantive issues that emerged during the rulemaking:

- For **arm's length contracts**, the MMS should clarify several key definitions: "area," "affiliate" and "exchange agreement."

- For **non-arm's length contracts**, the MMS should abandon its presumptive use of spot prices in lieu of other better measures of value (e.g., comparable sales, tendering programs) and abandon regional differences in valuation standards (i.e., ANS spot prices for California and Alaska, unduly limited benchmarks for the Rocky Mountain Region), and clarify certain key terms ("index pricing point," "reasonable royalty value," etc**.).** However, indexing should be permitted as an option for a wide universe of arm's length transactions where tracing is impracticable.

- For **transportation allowances**, the MMS should recognize FERC tariffs or their equivalent, adopt a rate of return at least equal to twice the Standard & Poors BBB rate and, as proposed by the MMS, allow depreciation to start anew upon a change in ownership.

- For **location/quality adjustments**, the MMS should abandon, as it has proposed, Form MMS-4415 or any equivalent to eliminate the unnecessary collection and reporting of data, and clarify certain important details of its procedures for calculation of location/quality adjustments.

- For **binding determinations**, the MMS should broaden the universe of areas for which binding determinations are available, make assurances that necessary rescissions or modifications are prospective only, agree to issue them on an expeditious basis, make them appealable and preserve several aspects of the existing regulations.

- For **second-guessing**, the MMS should adopt and apply the principle that the mere existence of a higher selling price somewhere does not call into question the validity of the proceeds received in any transaction.

<u>Part III Procedural and Timing Matters</u>

Our comments urge the MMS to reexamine certain procedural and timing dimensions of the oil valuation rulemaking:

- The MMS should postpone completion of the oil valuation rulemaking until the circumstances surrounding payment of $700,000 to two Federal officials during the rulemaking are fully explained, either by convening its own public assessment or awaiting completion of the pending Congressionally-initiated investigation.

- The MMS should reexamine the economic impact of its proposed rule and more accurately estimate the administrative cost of compliance and royalty revenue impacts. Despite MMS claims, the economic impact is likely to exceed the $100 million threshold that triggers various Federal procedural requirements such as the Small Business regulatory Enforcement fairness Act. In addition, we concur with OMB that the proposed rule “raises novel legal or policy issues” deserving of OMB scrutiny under Executive Order 12866.

- The MMS should take the time needed to fully assess the public comments it receives which include substantial new information. Once the MMS promulgates the new rule, it should establish an effective date consistent with the time needed by Industry to make the system changes required and obtain the MMS approvals needed for implementation.

<u>IV Royalty-in-Kind</u>

- The MMS should continue a vigorous exploration of a comprehensive royalty-in-kind program to replace, to the fullest extent possible, inherently complex and uncertain valuation procedures, existing or revised. The MMS’ ongoing RIK pilot studies are encouraging and Industry will continue to participate fully.

* * * * *

In proposing to abandon the existing benchmarks altogether (except for limited use in the Rocky Mountain Region), the MMS would cast aside a powerful and efficient tool, the marketplace at or near the lease, and replace it with an inherently more complicated indexing system. Indexing depends on netback and creates uncertainty, perpetuates disputes, and leads to inaccurate determinations of value. Moreover, the MMS’ flawed valuation initiative would drive producers to revamp sound business practices, especially in the midstream marketing arena.

Our recommendations would move the MMS closer to a final crude oil valuation rule that is workable and fair, while decreasing the cost of administration, decreasing appeals and litigation, and satisfying the legal requirement that royalty obligations be based on the value of production at the lease. Our recommendations also minimize the need for unnecessarily disruptive changes in the business practices among producers.

We urge the MMS to carefully consider these recommendations and welcome any further questions you might have in order to reach a satisfactory resolution of this important rulemaking.

Sincerely,

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Comments of the American Petroleum Institute, Independent Petroleum Association of America, Domestic Petroleum Council, U.S. Oil and Gas Association, Independent Petroleum Association of Mountain States, Western States Petroleum Association, California Independent Producers Association on Minerals Management Service's Further Supplementary Proposal for Royalty Due on Federal Leases, 64 FR 73820 (December 30, 1999)

List of Appendices

Appendix A: Declaration of Joseph K. Kalt, Ford Foundation Professor of International Political Economy, John F. Kennedy School of Government, Harvard University and Kenneth Grant, Senior Consultant, Lexecon Inc.

Appendix B: Letter of API Assistant General Counsel, David T. Deal, to Associate Director for Royalty Management, Lucy Querques Denett, November 4, 1999, on Implications of the August 1999 Jury Verdict in City of Long Beach v. Exxon Litigation.

Appendix C: “The Royalty Bargain,” by John Lowe, George Hutchison Professor of Energy Law, Southern Methodist University.

Appendix D: “A Recommended Rate of Return Methodology for Calculation of Transportation Allowances in Non-Arm’s Length Crude Transportation Arrangements, by Elizabeth H, Crowe and Carl V. Swanson, Swanson Energy Group.

Appendix E: “Pricing Royalty Crude Oil,” by Samuel A. Van Vactor, President, Economic Insight, Inc.

Comments of the American Petroleum Institute, Independent Petroleum Association of America, the Domestic Petroleum Council, U.S. Oil and Gas Association, Independent Petroleum Association of Mountain States, Western States Petroleum Association, and California Independent Producers Association on Minerals Management Service's Further Supplementary Proposal for Royalty Due on Federal Leases, 64 FR 73820 (December 30, 1999)

To complement industry participation in the Minerals Management Service ("MMS") January 2000 public workshops, the associations listed above ("Industry") submit these comments on the MMS' December 30, 1999 proposal ("Proposal"). To the extent possible, these comments do not repeat the voluminous comments we submitted earlier in the rulemaking that we incorporate by reference. These comments do, however, include Appendices "**A"** through "**E**" containing extensive new materials generated in the course of this rulemaking.

I. Underlying Assumptions

Throughout this rulemaking the MMS has relied on several core assumptions as the foundation for its downstream-oriented valuation proposal: the factual assumption that there is no active market at the lease; the factual assumption that posted prices have led to systemic underpayment of royalties; and the legal assumption that lessees have a duty to market free of charge away from the lease. Despite voluminous and compelling industry comments and testimony during this rulemaking and some MMS changes to the original proposal, these erroneous core assumptions have gone unchanged and, for that reason, are addressed once again below.

A. Active Market at the Lease

In its Proposal the MMS asserts that industry comments submitted during the rulemaking have not yet demonstrated that "as a general rule a competitive market exists at the lease." Proposal ("Prop.") at 73820.[1] While too numerous to cite in these

[1] Unless otherwise noted, any citation in these comments to specific sections of 30 CFR Part 206 refer to the proposed regulatory language of the Proposal.

comments, the administrative record for this rulemaking is already full of comments from large and small producers, crude oil marketers and respected economists that vigorously support the thesis that there is an active market at the lease.

This active market at the lease makes it unnecessary, except in extraordinary circumstances, to use netback-type valuation methodologies like the market center spot price methodology proposed by the MMS. This active market at the lease makes the universe of arm's length transactions far larger than the MMS rulemaking implies. This fact would make more transactions eligible for valuation as arm's length transactions themselves and should also make it practicable for valuation of most non-arm's length transactions through use of comparable sales and without recourse to the MMS' flawed indexing approach.

The Kalt Declaration[2] amplifies information submitted by Industry earlier in the rulemaking[3] and draws on over 4 million outright transactions inclusive of 300 different companies across every domestic crude oil producing region, including the Gulf of Mexico, the mid-continent states, California and the Rocky Mountain Region. The Kalt Declaration shows that there exists a highly competitive market at the lease. Kalt Declaration at 6-11. It debunks the MMS notion that there is no price transparency and shows that comparable prices are a sound measure of value and are relied on by the Internal revenue Service. Kalt Declaration at 12-18, 25.

The Kalt Declaration flatly disagrees with the MMS' assumptions that outright sales are too few to rely on for valuation purposes, concluding, for example, that 15-25% of any given field's production is moving in outright lease-level commerce, with some fields going much higher. Kalt Declaration at 24. It also concludes that the MMS' spot market-based valuation methodology for valuation of oil from Federal leases is not economically valid and markedly inferior to using comparable sales at the lease. Kalt Declaration at 4. Whereas field-level transactions reflect local supply and demand forces, crude oil transactions at market centers reflect the value added by post-production middleman services, such as aggregation, storage, bearing risk and loss

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[2] Declaration of Joseph Kalt, Harvard University, and Kenneth Grant, Lexecon, attached as Appendix "A" ("Kalt Declaration").

[3] API May 1997 Comments at 13-14.

during post-production handling, transportation and marketing, transaction negotiation, etc. Kalt Declaration at 28-29.

Overall, the Kalt Declaration shows that the "MMS' assertion of a lack of a competitive market for crude oil in the field relies on unsubstantiated claims, contradictory arguments, and the misinterpretation of significant facts relating to the domestic crude oil market's structure and conduct." Kalt Declaration at 5.
The market in fact "includes significant and recurring volumes of crude oil at the lease moving in outright (i.e., cash-on-the-barrel) transactions between unrelated, well-informed buyers and sellers with access to the information and competition that allows each to protect their interests." Id.

The plain implication of this information is that there is a market at the lease and that use of downstream spot prices as the presumptive methodology for valuation of non-arm's length transactions unnecessarily injects downstream variables into the calculation and can lead to overvaluation through capture of post-production additions to value.

B. No Systematic Underpayment of Royalties

In its Proposal the MMS plainly adheres to the view that posted prices are no longer a reliable indicator of market value and that their continued use leads to underpayment of royalties.[4] Prop. at 73820-21. Conspicuously absent from its present rationale, however, is any recognition, let alone assessment, of the implications of the August 1999 jury verdict in City of Long Beach. As API's November 1999 letter points out,[5] the Long Beach litigation was used as recently as the Department of the Interior's May 1999 testimony before Senator Nickles.[6] Yet now, after a California jury has

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[4] Notwithstanding the MMS' categorical renunciation of posted prices, at least one of its own consultants agreed that "posted prices in many cases reflect the wellhead not delivered value." "Market Valuation of Domestic Crude Oil for Royalty Purposes," presentation to Minerals Management Service, Reed Consulting Group, August 22, 1997 at 8.

[5] API letter to MMS Associate Director Lucy Querques Denett, November 4, 1999, attached as Appendix ("**B**").

[6] Testimony of DOI then-Acting Assistant Secretary Sylvia Baca, Hearing of House Subcommittee on Government Management, Information and Technology, May 19, 1999.

rejected government criticism of posted prices and the substitution of Alaska North Slope ("ANS") spot prices for royalty valuation of crude oil, the MMS treats the Long Beach as irrelevant, even though it was the antecedent for the MMS' oil valuation rulemaking.

Use of posted prices aside, the MMS continues to ignore what has been a cornerstone of industry comments from early in of the rulemaking: *industry accedes to the future elimination of posted prices for Federal royalty purposes, provided that the substituted valuation methodology arrives at a reasonable "value of production" at the lease on which to base royalties*.[7] The elimination of posted prices, however, should not lead to the substitution of indexing as the valuation methodology for non-arm's length transactions when other truer to the statute and less costly measures of the "value of production" at the lease are available.

C. No Duty to Market Free of Charge

In its Proposal the MMS states anew its opinion that lessees have a duty to "place oil in marketable condition and market the oil for the mutual benefit of the lessee and lessor at no cost to the Federal Government (emphasis supplied)" even if that marketing occurs distant from the lease. Prop. at 73822-24, 73832; § 206.106 at 73845. The MMS' position trivializes the difference between the duty to put production in marketable condition and duty to market and includes claims that its rulemaking is directed at a methodology which will arrive at the "value of production at the lease."[8] In fact, the MMS' duty to market position is the foundation for an indexing methodology which, when coupled with plainly inadequate allowances and adjustments, leads to overstated values of production and overstated royalty obligations.

Inasmuch as the duty to market free of charge issue is now before a federal court in pending litigation,[9] our comments below are summary in nature. They draw on a

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[7] See e.g., API November 1997 Comments at 4 and API April 1999 Comments at 3-4.

[8] See, e.g., MMS *News Release*, February 5, 1998: "royalty payments [should be] based on no more than the value of production at the lease."

[9] IPAA v. Armstrong (Civ. No. 98-531, D.D.C., filed March 2, 1998) and API v. Babbitt (Civ. No. 98-631, D.D.C., filed March 13, 1998), consolidated and awaiting oral argument on cross motions for summary judgment.

combination of oil and gas law and more general principles of statutory construction, some of which are laid out in substantial detail in the Industry briefs filed in the pending duty to market litigation. All of these principles, some more directly than others, point in the same direction: whether as regulator or proprietor, in overstating the value of production the MMS' downstream-oriented rule unlawfully overstates the royalty obligation.

1. Bounds on MMS Statutory Authority

It is axiomatic that the governing statutes define the Department of the Interior's ("Department") ability to issue leases, regulate leased lands and determine royalty valuation. California Co. v. Udall, 296 F.2d 384, 386. The MMS may only impose a duty on lessees that is authorized by the governing statutes. The governing mineral leasing statutory authority requires a lessee to pay royalty on a percent of the value of production at the lease. See Mineral Lands Leasing Act ("MLA"), 30 U.S.C. § 226(b)(1)(A) (MMS' grant of oil and gas leases is conditioned upon payment of royalty "in amount or value of the production removed or sold from the lease"); Outer Continental Shelf Lands Act, 43 U.S.C. §§ 1335(a)(8), 1337(a) and 1337(b)(3) (lessee pays royalty "in amount or value of the production saved, removed, or sold" from leased premises).

Courts have interpreted these statutory provisions to mean that royalty should be based on the value of production at the lease. See, e.g., United States v. General Petroleum Corp., 73 F. Supp. at 235, 237 (holding that "value of production" under MLA refers to value of oil and gas at the wellhead); Marathon Oil Co. v. United States, 604 F. Supp. 1375, 1384 (D. Alaska 1985), aff'd, 807 F.2d 759 (9th Cir. 1986), cert. denied, 480 U.S. 940 (1987) (upholding netback accounting methodology, which allows lessees to calculate and pay royalty based on wellhead value of production where sales are not made at the wellhead; appropriately deducted costs include both transportation and "marketing" costs); Beartooth Oil and Gas Co. v. Lujan, Cause No. CV92-99-BLG-RWA (D. Wyo. 1993) (concluding that marketable condition rule does not require lessee to condition gas so that it is suitable for markets downstream of the wellhead).

Moreover, the MMS' own decisions and pronouncements corroborate the view that MMS' royalty interest lies in the value of production at the lease, and not in the enhanced value attributable to downstream activities free of cost. See Petro-Lewis Corp., 108 IBLA 20 (1989) (appropriate royalty must reflect market price at the lease); See also 52 FR 30776, 30797 (August 17, 1987) (noting that royalty values need be "adjusted for transportation and/or processing to determine value at the lease).

The implied duty to market that the MMS contends already exists does not exist and far exceeds the duties that MMS may impose under the governing statutes. Because royalty is due under the governing statutory terms on the value of oil and gas production at the lease, MMS has no authority to demand a royalty interest in value downstream of the lease without fully deducting the added costs of marketing downstream.[10] While the costs of marketing at the lease are not deductible, the added costs associated with marketing away from the lease, real or imputed (for transfers by a producer to its refiner) by the MMS through use of a downstream index, cannot be included in the value of production for royalty purposes if they enhance the “value of production.” The MMS cannot lawfully claim the windfall values added by downstream marketing.

In two closely related cases, reversing two Clean Air Act reformulated gasoline rules issued by EPA, the D.C. Circuit rejected sweeping agency claims of deference for interpretation of a federal statute. See API v. USEPA, 52 F.3d 1113 (D.C. Cir.1995) (RFG Ethanol) and API v. USEPA, __ F.3d __ (D.C. Cir. Jan. 4, 2000) (RFG Opt-in). Both of these cases emphasize the “plain meaning” of the statute in overturning agency initiatives that strayed into Congress’ legislative prerogatives.

In this rulemaking, what the governing mineral leasing statutes lack in the extraordinary detail offered by the Clean Air Act, they make up for through use of well-accepted terms of art: royalty is due on the “value of production.” And “production,” in oil and gas leasing parlance, means the oil as severed from the ground. What production does not mean is the crude oil after it leaves the lease and becomes the subject of several value-adding activities: transportation, storage, blending, inventory

[10] “This bill [S. 924] simply restates the fundamental longstanding principle that royalty is due on the valuation of production at the lease.” Hearings on S.924, “Federal Royalty Certainty Act,” before the Subcommittee on Energy Research, Development, Production and Regulation, May 18, 1999, at 7 (Statement of Senator Nickles) at 2.

management, trading costs, risk management, refining, etc. "If the meaning of [the governing statute] is clear, then the court must give effect to that meaning." RFG Ethanol at 1119, *citing* Chevron U.S.A. Inc. v. Natural Resources Defense Council, 467 U.S. 837, 843 n. 9.

To the extent that MMS' valuation methodology captures the value added by this post-production activity away from the lease, it is unlawful. And since the MMS' proposed valuation approach employs a downstream starting point with patently inadequate transportation allowances and other adjustments that together inflate the value of production and inflate the royalty obligation, it is unlawful. As the D.C. Circuit put it best and most simply: Congress "meant what it said." RFG Opt-in slip op. at 6.

2. Limits on MMS Contract Authority

The plain bounds of the governing mineral leasing statutes place clear limits on the MMS' contract authority. The Proposal would impose a requirement that lessees under Federal oil leases bear all of the additional marketing costs attributable to sales at downstream markets. The Proposal indicates that MMS has based this requirement on a covenant to market that it claims is implied in all oil and gas leases. Prop. at 73822. Contrary to MMS' claims, however, the MMS' existing regulations only impose upon lessees an express duty to market gas in order to avoid waste. See California Co. v. Udall, 296 F.2d 384, 387 (D. C. Cir. 1961) (citing 30 CFR. § 221.35, presently codified at 30 CFR § 202.150(c)). This express duty to market does not by its terms impose a duty on lessees to market production downstream of the lease at no cost to the lessor; there is no applicable authority that supports MMS' imposition of such an implied duty.

The Federal government has no authority to imply contractual duties. As the drafter of its leases, the MMS must be held to the express language of the lease, and cannot imply additional duties under the lease. As a general matter, contracts are to be construed against the drafter. See United States v. Seckinger, 397 U.S. 203, 216 (1970); Peter Kiewit Sons' Co. v. United States, 109 Ct. Cl. 390, 418 (1948). As the drafter of the federal lease terms, the MMS cannot now claim that implied duties should be imposed where it failed to spell out the duties expressly when drafting the lease.

With the exception of the general implied duties of good faith and fair dealing, the courts have properly declined to imply increased royalty obligations on Federal oil and gas leases that are not found in the express terms of the lease. See United States v. General Petroleum Corp., 73 F. Supp. 225, 234-38 (S.D. Cal. 1946), aff'd. sub nom., Continental Oil Co. v. United States, 184 F.2d 802, 809-810 (9th Cir. 1950). In Continental Oil Co., the Ninth Circuit Court of Appeals affirmed the district court's holding that leases are private, contractual matters, and as such, the Secretary cannot unilaterally imply obligations into the terms of a lease. See Continental Oil Co., 184 F.2d at 810.

The IBLA has also recognized that royalty obligations of a lessee under a Federal oil and gas lease are defined by terms expressly stated in the lease. In fact, the IBLA has specifically determined that the duty to market "is 'not a covenant read into the lease by implication' but rather is an affirmative duty expressly imposed under the terms of the lease via the incorporation of the Department's regulations into the lease." Viersen & Cochran, 134 IBLA 155, 164 n. 8 (1995) (citing The Texas Co., 64 I.D. 76, 79-80 (1957)). The IBLA's recent decision in Viersen & Cochran confirms that, as a general proposition, MMS may not impose an expanded duty to market on its lessees by implication.

These limitations on MMS' authority are especially true for existing leases. Such an imposition directly contradicts federal contract law. See General Petroleum Corp., 73 F. Supp. at 234, 250 (when the Federal government executes a lease, the lease becomes a "private, contractual matter" and the "government's role is taken to be no different from that of any private lessor or proprietor"); United States v. Winstar Corp., 64 F.3d 1531 (Fed. Cir. 1995), aff'd. 518 U.S. 839, 869-906 (1996). In addition, the Fifth Amendment and fundamental due process rights prohibit the Federal government from annulling previously created contract rights. See Perry v. U.S., 294 U.S. 339, 353-54 (1935); Lynch v. United States, 292 U.S. 571, 579-80 (1934). See also United States Trust Co. v. New Jersey, 431 U.S. 1, 25-26 n. 25 (1977). Courts interpreting Federal and Indian leases have also held that MMS may not adversely affect the rights of existing lessees through future or subsequent legislation or regulation. Conoco Inc. v. United States, 35 Fed. Cl. 309, rev'd. on other grounds sub nom., Marathon Oil Co. v. United States, 158 F.3d 1253 (Fed. Cir. 1998), cert. granted, _ U.S._, 120 S.Ct. 494

(1999); United States v. Wichita Indus. Inc., 390 F. Supp. 1154, 1157 (W.D. Okla. 1974) (holding that MMS was precluded from modifying its methodology for valuing royalty through subsequent regulation).

The terms of the MMS' lease forms not only fail to support the Proposal; they expressly foreclose MMS from imposing new royalty obligations on existing leases by new regulations. Therefore, even if the MMS had the statutory authority to impose an expanded duty to market on lessees, it would have no authority to impose such a duty under leases executed prior to the effective date of a new rule.

3. Inconsistent with Past MMS Regulatory Practice

The Proposal is not consistent with MMS' existing regulations and regulatory practices. Wherever possible, MMS has historically calculated royalty value on the gross proceeds of the sale of production, regardless of whether the sale occurred on the lease or at a downstream point. MMS' regulations have not imposed a duty to market downstream of the wellhead at no cost to the lessor, and MMS has not before required that the lessee bear all of the additional marketing costs attributable to sales at downstream markets.

The expansive Proposal contradicts MMS' longstanding acceptance of the gross proceeds received in a wellhead sale as reflecting royalty value. If the gross proceeds at the wellhead are an acceptable measure of royalty value, then any downstream costs incurred -- whether transportation or marketing -- may never be a permissible addition to royalty value -- whether the transaction is arm’s length or non-arm’s length. Such costs are not the lessee's sole responsibility, and they are properly shared with the lessor by inclusion in any deduction from the gross proceeds received in a sale downstream of the lease.

MMS' own decisions and pronouncements are consistent with the view that MMS' royalty interest rests in the value of production at the lease, and not in the enhanced value attributable to downstream activities. In establishing transportation allowances for downstream costs, MMS has expressly acknowledged that royalty is valued at the lease. In 1988 the MMS made comprehensive revisions to its royalty regulations pertaining to Indian and Federal offshore and onshore leases. See 53 FR

1230 (Jan. 15, 1988). These regulations established specific provisions permitting deductions from gross proceeds of the cost of transporting production from the lease to a point of sale. 53 FR 1230, 1259-66 (January 15, 1988). In response to isolated comments during the rulemaking leading to the 1988 rules urging the MMS to provide no transportation allowances, the MMS properly responded:

> The MMS believes generally that royalty should be free of cost. However, values may have to be adjusted for transportation and/or processing to determine value at the lease. The MMS believes that the policy of granting transportation allowances to properly value lease production is appropriate and should continue.

52 FR 30776, 30797 (Aug. 17, 1987) (emphasis added). See also Petro-Lewis Corp., 108 IBLA 20 (1989) (permitting deduction of downstream electric generation costs so that royalty may be valued by the market price at the lease). The MMS wrongly cites the decision in Marathon Oil Co. v. United States to show that its gross proceeds rule permits MMS to base royalty on downstream sales prices. What Marathon does illustrate is that higher downstream sales prices must be adjusted to yield a royalty value at the lease by allowing deductions for costs attributable to selling the production at a downstream sales point. Marathon, 604 F. Supp. at 1384.

All downstream costs are incurred by a lessee to enhance the value of production after it leaves the lease. This benefits both the lessor and lessee. By failing to allow full deductions for all such post-production costs, whether they be transportation or marketing-related, MMS unlawfully claims an interest in value greater than the value of production at the lease.

4. Inconsistent with IBLA Decisions

The Proposal cites several Interior Board of Land Appeals (“IBLA”) decisions for the purported "well-established principle that lessees have the obligation to market lease production for the mutual benefit of the lessee and lessor, without deduction for the costs of marketing." Prop. at 73822.

In its selective citation of IBLA decisions, MMS fails to include the IBLA's decision in Viersen & Cochran, 134 IBLA 155, 164 n. 8 (1995), which as noted above holds that the MMS may not impose an expanded duty to market on its lessees by implication. More fundamental, the MMS would bootstrap its position through decisions of its own appeals board to support the application of the implied duty to market. The IBLA decisions, without more, do not support the Proposal; pronouncements of an agency's own appeals board do not form an independent foundation for an agency regulation.

Even if IBLA decisions could be relied upon to substantiate the proposed rule, the IBLA decisions cited in the Proposal fail to support the imposition of an expanded duty to market free of charge to the lessor. The Proposal refers to Walter Oil and Gas Corp., 111 IBLA 260 (1989) and Arco Oil & Gas Co., 112 IBLA 8 (1989) for the proposition that the IBLA requires lessees to market production for the mutual benefit of the lessee and lessor without deductions for the cost of marketing. Prop. at 73822. However, these cases do not address the question of whether the duty to market entails the additional marketing costs that may arise in marketing downstream of the lease.

Walter Oil addressed the issue of a producer who sought to shift the costs of marketing gas at the lease by retaining an independent marketer to perform the marketing function. Arco required the lessee to include a marketing fee received from a gas purchaser as part of its gross proceeds subject to royalty. The IBLA concluded that the lessee "would have borne similar costs attributable to the creation and development of markets regardless whether production was sold on or adjacent to the lease." Arco, 112 IBLA at 11. Thus, Arco is also inapplicable to the issue of the duty to market production downstream of the lease. Moreover, Arco is inconsistent with the IBLA's own subsequent decision in Viersen & Cochran, where the IBLA rejected the applicability of implied duties under Federal oil and gas lease.

The Proposal cites several other IBLA decisions in support of its claim that marketing costs are not deductible. Prop. at 73822. But these cases rely upon the inapplicable Walter and Arco decisions and, therefore, add nothing to the ultimate issue of whether MMS may invoke an implied covenant to market. In sum, there is no relevant and determinant IBLA authority to support MMS' position that lessees have an obligation to market downstream of the lease at no cost to the lessor, or that lessees must add to royalty value the additional costs of downstream marketing borne by lessee's production purchasers.

5. Inconsistent with State Oil and Gas Law

The Proposal asserts that an implied covenant to market exists with respect to "virtually all oil and gas leases, whether the leases are private, federal, or State leases." Preamble at 73822. As shown above, MMS has not demonstrated why this statement is true for Federal leases. The Proposal also fails to explain how State case law supports this position. In fact, Professor Lowe's paper[11] shows that State courts have taken a more limited view of the scope of the duty to market than that asserted by the Proposal.

These state courts have been careful to ensure that an implied duty is not so broad as to contradict express terms in the lease or to expand the royalty interest beyond the reasonable intent of the parties under the lease. See e.g., Danciger Oil & Refining Co. v. Powell, 154 S.W.2d 632, 635 (Tex. 1941); Williamson v. Elf Aquitaine, Inc., 138 F.3d 546, 551 (5th Cir. 1998) (implied covenants are inapplicable when contracts contain express provisions). In large measure, the State cases involve the question of whether a lessee has the duty to place production in marketable condition. However, this debate has no relevance to Federal law inasmuch as MMS regulations already impose an express duty to place production in marketable condition. California Co. v. Udall upheld this obligation on grounds that royalty is due on the value of production at the lease and production is not complete until production is in marketable condition. California v. Udall, 296 F.2d at 387.

As the MMS itself recognizes, the duty to market and the duty to place production in marketable condition are not synonymous, Prop. at 73824. Unlike the MMS, however, State cases do not trivialize the difference, and do not support MMS' effort to impose an implied obligation on lessees to market downstream at no cost to lessors.

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[11] "The Royalty Bargain," by Professor John Lowe, Southern Methodist University, Appendix **C**" ("Lowe Paper").

6. Violative of Constitutional Non-Delegation Doctrine

In American Trucking Ass'ns. V. USEPA, 175 F.3d 1027 (DC Cir. 1999), the court remanded EPA's recent revisions to its national ambient air quality standards (NAAQS) invoking, among other things, the non-delegation doctrine. Although the non-delegation doctrine in its early years was employed to strike down statutes for which Congress had not established sufficient standards for delegation to agencies charged with its implementation, it has also been used to curb an agency from interpreting statutes so broadly that it gives itself unfettered lawmaking ability.

In remanding the EPA NAAQS regulations, the DC Circuit held that EPA had not developed an "intelligible principle" for application of the governing statute. American Trucking, 175 F.3d at 1034-38. In this case, the MMS has abandoned an intelligible principle that had existed for several years, namely, that royalty is due on the "value of production." By adopting for flawed reasons a valuation methodology that employs for the sales of most federal oil production a downstream starting point coupled with plainly inadequate allowances and adjustments, the MMS overvalues production and overstates lessees' royalty obligation. In so doing, the MMS would impose a de facto increase in the royalty rate, a decision that remains within the province of Congress, a legislative choice outside the province of the MMS and therefore unlawful.

II. Core Issues

To the fullest extent possible, the comments that follow incorporate by reference Industry comments and other materials filed earlier in the rulemaking.

A. Arm's Length Contracts

The Proposal includes several definitions, many of which have been revised to differ from existing regulations or prior proposals in this rulemaking. However, Industry urges the MMS to make several changes.

1. Definition of "Affiliate"

Industry favors the proposed definition insofar as it would eliminate the presumption in favor of control for the 10-50% zone, using the factors listed instead as the basis for MMS consideration of control. However, we suggest the MMS include in the preamble to any final rule any guidance that further clarifies what the phrase “controlled by” means. For example, at the January 19, 2000 in Houston, the MMS Associate Director stated that non-working interest owners who have an affiliate would not be deemed an affiliate of the producer.

2. Definition of “Area”

As proposed, §206.101 would define "area" to mean "a geographic region at lest as large as the limits of an oil field, in which oil has similar quality, economic, and legal characteristics." While nothing in the Preamble suggests any intent to change the meaning of the term as presently defined, Pr.73825, attempting to rewrite the §206.101 definitions in “plain English" leads to an important ambiguity.

The existing definition states that "area" means "a geographic region at lease as large as the defined limits of an oil and/or gas field . . . (emphasis supplied).” If the MMS is intending to abandon its reliance of the limits of oil and gas fields as "defined" by the States, it should say so, as this would be a substantive change affecting comparable sales, major portion, etc. If that is not MMS' intent, then the definition should be left as it is in the existing rule to avoid confusion and ambiguity.

Additional confusion and ambiguity is injected as a result of the preamble's use of the term "area" in a way that is inconsistent with the proposed regulatory definition of the term. For example, the preamble refers to "the Texas, Gulf Coast, or Mid-continent areas." Pr. at 73830. Since the definition limits an "area" to geographic regions "in which oil has similar quality, economic, and legal characteristics," it is incongruous to refer to a statewide or regional geographic region as being an "area." Indeed, the IBLA itself previously recognized that that the relevant field or area for the purposes of making value comparisons cannot be the entire Gulf of Mexico:

> Without embarking on a point-by-point refutation of appellants' assertions, we would suggest that the contention that the entire Gulf of Mexico is the relevant area for comparison of prices borders on the ludicrous.

Transco Exploration Co. & TXP Operating Co., 110 IBLA 282, 337 n.33 (1989). The MMS seems to recognize this in its discussion of its change of "Rocky Mountain Area" to "Rocky Mountain Region". Preamble at 73827. Nonetheless, without a clarification to correct the ambiguity created by the preamble's reference to "the Texas, Gulf Coast, or Mid-continent areas," the concept of "area" may invite second-guessing and misapplication by MMS auditors.

The regulatory limitation that an "area" be defined to include only areas where the oil has similar quality, economic, and legal characteristics is important because several provisions in the Proposal make sense only if "area" is defined as it is in the Proposal, i.e., "a geographic region at least as large as the limits of an oil field, <u>in which oil has similar quality, economic, and legal characteristics</u>." Some examples:

First, the benchmarks for the Rocky Mountain Region provide for the use of the unadjusted volume-weighted average gross proceeds accruing to the seller in all of the lessee's and its affiliates' arm's-length sales or purchases, not just those that may be considered comparable by quality or volume. In response to comments that this would result in improper valuation of some oil that was significantly different in quality than that associated with the “average" oil, MMS explained "we believe that production in the same field or area generally would be similar in quality." If "area" could be defined as an entire state, the commenter's point would be well taken.

Second, as proposed, §206.112(f) addresses situations where the lessee may not have access to differentials between the lease and the alternate disposal point or market center, or the lessee may not have access to the actual transportation costs from the lease to the alternate disposal point or market center. In such cases, MMS would permit the lessee to request approval for a transportation allowance or quality adjustment. In determining the allowance for transportation from the lease to the alternate disposal point or market center, MMS would look to transportation costs and quality adjustments reported for other oil production in the same field or area, or to available information for similar transportation situations. If MMS were without regulatory constraint and could define "area" as an entire state, the transportation costs could be very dissimilar, and this provision would not make sense.

Third, as proposed, §206.111 provides: "The fact that the cost you or your affiliate incur in an arm's length transaction is higher than other measures of transportation costs, such as rates paid by others in the field or area, is insufficient to establish breach of the duty to market unless MMS finds additional evidence that you or your affiliate acted unreasonably or in bad faith in transporting oil from the lease." This assumes "area" is defined in such a way that the transportation costs will be comparable.

Fourth, as proposed “marketable condition” is defined in §206.101 to mean “oil sufficiently free from impurities and otherwise in a condition a purchaser will accept under a sales contract typical for the field or area.” This makes sense only if "area" is defined in terms of comparable production.

For all of these reasons, we propose that the MMS include in the preamble to the final rule interpretive guidance that the MMS' determination of an "area" will be consistent with the regulatory definition of the term, which requires an "area" to be defined to include only geographic regions "in which oil has similar quality, economic, and legal characteristics." At the very least, we propose that the preamble to the final rule should eliminate all references to statewide or regional "areas" similar to the references in the preamble to the Proposal.

3. Definition of “Exchange Agreement”

Industry suggests that exchanges for product (“EFPs”) and exchanges of produced oil for similar oil produced in different months (“Time Trades”) be simply deleted from this definition since they are not germane to valuation of production. In addition, it appears that MMS plans to use exchange agreements only to extract location differentials. EFP is associated with satisfaction of a NYMEX contract and would most likely not have a differential; a Time Trade by definition would not provide a reliable location differential.

4. Definition of “Gross Proceeds”

Consistent with the Industry view that there is no duty to market free of charge, Industry suggests that the term “marketing” be deleted from the litany of activities “which the lessee must perform at no cost to the Federal Government.” Consistent with this suggestion, Industry urges the MMS to make conforming changes to §206.106 by eliminating the phrases “and market the oil” and “to market the oil.”

5. Inconsistent Valuation

The Proposal creates an inconsistency that must be corrected. Under proposed § 206.102(a)(2), a lessee entering into a non-arm's length exchange then selling in an arm's length transaction, would calculate royalty under §206.103 using the applicable index. However, under proposed §206.102(d)(1), a lessee also entering a non-arm's length exchange, then either directly, or through an affiliate, selling the oil in an arm's length transaction, can base royalty on gross proceeds or index.

6. Indexing v. Tracing

The Proposal would allow use of indexing in lieu of gross proceeds under certain circumstances where tracing would not be cost-efficient. Prop. at 73824. Specifically, such use of indexing would be limited to situations where a lessee has entered into an exchange agreement or multiple sequential exchange agreements and where the lessee or an affiliate ultimately sells the production under an arm's length contract. §206.102(d)(1) and (2). Such use of indexing would be further limited by the requirement that the election must apply to all of the lessee's production and may not be changed more often than every two years. §206.102(d)(1)(ii) at 73844.

While the comments in the succeeding section make it clear that Industry opposes the presumptive use of indexing for non-arm's length transactions, its optional use has some benefits. Industry suggests that consistent with the MMS' cost-efficiency objective, Industry suggests this option be adjusted in three respects: First, indexing should be available for any arm's length transaction, not only those involving affiliates; if tracing is difficult where affiliates are involved, it is even more difficult, and sometimes impossible, where non-affiliates are involved. Second, indexing should be available on a field-by-field basis, not all production. Especially for lessees whose production spans many areas, the production itself and the circumstances of the sales may differ radically, making an all or nothing approach impracticable. Third, indexing should not be limited to a universal two-year period; the indexing term should be tailored to conform to contract term circumstances. None of these suggestions, however, should eliminate the use of tracing where volumes are low enough to make it a practicable option.

B. Non-Arm's Length Contracts

Overall, the Proposal represents no appreciable change in the MMS point of view on valuation of non-arm's length transactions. The MMS remains wedded to spot prices generally, Prop. at 73821 and §206.103(c) at 73845, continues to promote ANS spot prices for Alaska and California, Prop. at 73830 and §206.102(a) at 73844, and offers a slightly modified hybrid scheme for the Rocky Mountain Region. Prop. at 73824, 73830-31 and §206.103(b) at 73844-45. In so doing, the MMS rejects the modified comparable sales approach of industry, strongly favoring a downstream indexing approach with its purported "transparency" as the device for capturing value added away from the lease.

1. Spot Prices v. Comparable Sales

Prior industry comments showed that while spot prices for natural gas could be a useful measure of the value of production for royalty purposes, spot prices for crude oil could not because of several fundamental differences between oil and gas.[12] But, as before, in the Proposal the MMS has yet to respond to industry's rationale for disfavoring use of oil spot prices.[13]

More fundamental, the MMS' professed reason for considering indices at all is its deeply rooted view that comparable sales are categorically an inadequate measure of value. Prop. at 73824. However, information provided by Industry early in this rulemaking[14] and additional information with these comments[15] belies the MMS' flawed assumption. There is an active, competitive market at the lease and the MMS should take full advantage of comparable sales to facilitate the estimation of the value of production for non-arm's length transactions.

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[12] API November 1997 Comments at 2-3.

[13] One of the MMS' own consultants illustrates a practical concern about using spot prices, namely that different publications report different prices for the same period. See "Comparison of Gulf Coast ANS Sales Reported by Petroleum Argus with Platts Weekly ANS Market Assessment, 1984-1985," in " U.S. Crude Markets and Values," presented to Minerals Management Service by Micronomics, Inc. August 1996.

[14] API May 1997 Comments at 11.

[15] Supra at 8-9; see also Appendix "**A**" and Appendix "**E**."

In addition, the MMS' latest proposal for valuation of oil on Indian leases contemplates majority pricing for individual areas which inherently involves use of comparable sales to arrive at a value of production for royalty purpose. 65 FR 403 (January 5, 2000); §206.52(c). However, nowhere in its Proposal does the MMS explain why comparable sales have such utility for crude oil on Indian leases (which have a statutorily higher standard for valuation) yet are not appropriate for valuation of crude oil on federal leases.

2. Regional differences

As to regional differences in valuation methodology, the MMS has yet to respond to the industry observation that non-uniform standards impose an especially difficult burden for companies operating across several regions.[16] In addition, prior Industry comments showed that ANS spot prices were an especially poor measure of value for Alaska and California.[17] Moreover, the MMS has yet to explain, in view of the August 1999 City of Long Beach decision, why ANS--or any--spot prices are necessary at all.

Consistent with the information previously submitted in this rulemaking, the Van Vactor Report[18] shows that ANS spot prices are a poor starting point for valuation of California crudes. For example, the Van Vactor Report explains that the relative values between ANS spot prices and California crudes fluctuates substantially, Van Vactor Report at 3, 4-7, that the gravity-price differentials published in posting bulletins and used by pipelines for shipping California crudes should not be used to determine value differences between fields and that the separation of transportation costs and quality differentials contemplated in the MMS' proposed valuation methodology would be very cumbersome to apply. Id. at 4, 12-15.

The Van Vactor Report also observes that the MMS' index-driven valuation methodolgy is unfit for the crude oil market generally because oil is shipped in many directions, and its price is subject to so many factors: supply and demand, quality,

[16] API November 1997 Comments at 5-6.

[17] API May 1997 Comments at 13-14.

[18] "Pricing Royalty Crude Oil," by Samuel VanVactor, President, Economic Insight, Inc, attached as Appendix "**E**" ("Van Vactor Report").

location of the sale, transportation alternatives, logistical considerations, and the configuration of refineries prepared to process the feedstock. Id. at 3-4, 7-12 .

Overall, the Van Vactor Report shows that the MMS' proposed methodology is not simpler but far more complicated and less accurate than the comparable sales methodology proposed by Industry. Id. 4, 16-17.

As to the Rocky Mountain Region, while the Proposal makes some changes in its hybrid scheme, the proposed scheme is still flawed. First, any weighted volume average benchmark should be normalized for gravity. Second, the volume threshold for the second benchmark is too high; typically, for a field or area, the producer is selling only to its affiliate. Finally, the constraints on tendering are unduly limiting.

3. Tendering

While the Proposal would allow unduly limited tendering for the Rocky Mountain Region, no tendering would be allowed elsewhere. Industry strongly urges the MMS to reconsider this limitation. Several companies have thoroughly explored the use of tendering and information presented to the MMS plainly shows that the MMS' reservations about the methodology are wrong. For example, we understand that in May 1998 Conoco, an API member, submitted to the MMS detailed accounts of its tendering program showing beyond any doubt that the values used for royalty purposes were based on substantial volumes, far in excess of any reasonable sampling percentage that might be required. At the very least, the MMS should confirm that sales resulting from a lessee's tendering program, even if not usable as comparable sales for the valuation of other production, still qualify as arm's length sales under §206.102 for valuation of the production covered by the tendering sales themselves.

4. Index pricing point

The preamble to the final regulation or §206.103 itself should be clarified to reconcile the Preamble statement ("The index pricing point would be the one nearest the lease."), Prop. at 73836, with the presumably clearer statement ("There may be cases where the nearest market center may not be the appropriate one for you to use because the quality of production better matches that typically traded at another more distant market center. In such cases, you could use this more distant market center to value your production.”). Prop. at 73831.

5. Reasonable royalty value

The MMS should amend §206.103(d) to delete the phrase “or no longer represents reasonable royalty value.” Preserving this language invites unbounded second-guessing and on its face is incongruous with the establishment of an index or other acceptable measure for valuation purposes.

D. Transportation Allowances

Throughout this rulemaking transportation has been a core issue. While the MMS recognizes that allowances are appropriate for transportation, if not other post-production activity, the MMS has rejected the Industry suggestion that a special workshop be convened to sort out the many issues in this complex area. Nonetheless, the MMS seeks comments on several key transportation elements: rate of return, cost of capital, 10% of investment minimum, etc. Prop. At 73834.

1. FERC Tariffs

The MMS would reject out of hand Industry’s suggestion that a “value of service” approach using a measure like FERC tariffs be employed in lieu of the superficially appealing, but patently unfair actual cost approach. Prop. At 73834-35. In prior comments, Industry has addressed the myriad legal flaws of the MMS approach, pointing out that rejection of FERC tariffs is based on an erroneous reading of certain FERC decisions on oil pipeline jurisdiction, violates the nondiscrimination provisions of OCS Lands Act §§ 5(e) and (f), violates the interagency cooperation provisions of OCS Lands Act § 5(a), undercuts the OCS development policies of the Deep Water Royalty Relief Act and the OCS lands Act §8(a), and penalizes producers who also own pipelines.[19] In addition, MMS rejection of FERC tariffs for the Federal lands Proposal is inconsistent with its pending Indian proposal where the MMS proposes to use FERC tariffs to establish location differentials. 65 FR 403, 409 (January 5, 2000).

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[19] See, e.g., API April 1998 Comments at 7-9 and April 1999 Joint Association Comments at 5-7.

2. Rate of Return and Cost of Capital

The MMS has expressly requested comments regarding the determination of an appropriate rate of return to be reflected in the transportation allowance under non-arm's-length arrangements for movement of oil produced from Federal lands to a point of sale off the lease. Prop. At 73834. Based on a study prepared for the industry associations joining in these comments,[20] Industry recommends that the MMS adopt a representative composite industry cost of capital equal to two times the Standard & Poor's BBB industrial bond rate.

This recommendation is based on the Swanson Report's review of current data concerning capital structure and cost of capital for companies engaged in upstream oil production activities, as well as the practices of other regulatory agencies involved in setting cost-based rates for public utilities. As discussed in more detail in the Swanson Report, current data suggest that a capital structure of 30% debt and 70% equity would be a conservative measure of a median ratio for the producing industry, particularly given that equity ratios for integrated oil companies are generally higher than 70%. Swanson Report at 1,6.

As estimated by independent analysts, using either a capital asset pricing method (CAPM) or discounted cash flow (DCF) method, the industry composite range for the cost of equity capital of oil and gas companies for 1998 and 1999 ranges from 7.1% to 17.3%. Using 13% for equity capital and the 1999 S&P BBB yield of 7.4%, combined with a 30/70 debt/equity ratio, produces an effective weighted average cost of capital (WACC) of 16.2% or 2.2 times the BBB rate. This assumes a 35% federal income tax rate. Swanson Report at 1,3-4.

Oil pipelines, which are financed by parent companies using both debt and equity, incur an income tax expense on the portion of the return associated with the equity investment. This expense should be included in the cost of capital when determining the transportation allowance computed by the MMS. The data and reasoning on which this conclusion is based are presented more fully in Section II of the Swanson Energy Report. Swanson Report at 1,4-5.

Given these results, we conclude that a cost of capital of 2 times the BBB bond rate is a reasonable reflection of the actual capital costs incurred by domestic oil

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[20] "Report on Recommended Rate of Return Methodology for Calculation of Transportation Allowances in Non-Arm's length Transportation Arrangements," prepared for API et al. by Elizabeth Crowe and Carl Swanson, Swanson Energy Group, attached as Appendix "D" ("Swanson Report").

transporters, particularly the offshore oil pipelines to which the transportation allowance would largely pertain.

3. Depreciation

Commendably, the MMS now proposes that the depreciation schedule start anew upon a change in pipeline ownership. Prop. at 73834; §206.111(g)(2) at 73847.

4. Minimum Cost

Commendably, the MMS now proposes that, even after a pipeline is fully depreciated, the lessee may continue to include in the calculation of transportation allowances a minimum cost in the nature of a management fee. While ten percent multiplied by the rate of return falls well short of an adequate management fee, this is an improvement over existing §206.111(g)(3) which provides no such minimum cost. Prop at 73834; §206.111(g)(3) at 73847.

E. Quality and Location Adjustments

1. Elimination of Form 4415

Commendably, after two rejections by OMB, the MMS has abandoned its ill-conceived Form MMS-4415 which would have required voluminous data that would have been difficult and in some cases impossible to collect. Prop. at 73825. More fundamental, the data collected would have been largely irrelevant to necessary value determinations.

2. Adjustments for Location/Quality

To the extent comparable sales are employed for valuation of non-arm's length transactions, adjustments for quality off a downstream index such as spot prices would be unnecessary altogether.[21] Nonetheless, the Proposal raises several questions that need clarification before quality differentials can be applied to spot prices:

First, the MMS should affirm that the elimination of NYMEX prices as an index or starting point is acceptable. However, NYMEX prices are still necessary to calculate premiums and discounts for fixed and flat index prices such as Platt's assessments. In the industry, the time spread relationship between the prompt month, second month and third month NYMEX contracts is referred to as the "roll" or "calendar month average." The roll should be added to or subtracted from the prompt month settle price (depending on whether NYMEX prices are rising or falling) to determine calendar month prices.

Second, the MMS should clarify whether it intends to use calendar month prices, trade month prices or both. Will the same methodology be applied to each of the three Regions or will it be different?

Third, the MMS should clarify which publications and which grades or market centers would be approved. Does the requirement to use the market center nearest the lease with crude oil most similar in quality to lessee's oil apply to all three Regions? If the lessee believes that applying the index price nearest the lease is an unreasonable value, how would the quality differential between the nearest index price and the lease crude oil be determined? This applies anytime a lessee's oil does not become part of a stream that has a published price. Examples include the High Island system, Gulf Coast pipelines that terminate at barge terminals, and Rocky Mountain production and California production. In each case, gravity and sulfur adjustments may be necessary.

Fourth, for situations where the lessee must request approvals of location/quality adjustments, the MMS should specify in any final rule the factors it would consider in reviewing adjustment requests and whether its decision is appealable.

E. Binding Determinations

Prior Industry comments have documented the need for increased certainty in value determinations, something that lies at the heart of a lessee's royalty obligations and all the more important under the Proposal because of its novelty and complexity. Certain provisions in the Proposal rules would make it impossible for lessees to pay their royalties accurately and on time unless they first are able to obtain a value

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[21] See discussion of differentials in connection with spot price indices generally at 26-27 supra.

determination from the MMS. Even under the existing rules, Industry's concerns about reliable and timely valuation determinations are not speculative.[22]

Prompted by allegations of past underpayments, and agreeing with the MMS' avowed objectives of certainty and reduction of disputes, Industry offered several recommendations for a process by which lessees could obtain up front the information it needs to make accurate, timely and undisputed royalty payments: that the MMS be required to issue binding determinations of value upon the request of the lessee; that such determinations be issued within a prescribed time limit with default to the lessee's methodology; and that such determinations be appealable. [23]

While the Proposal on binding determinations has some positive aspects, the Proposal would reject most of industry 's recommendations, Prop. at 73833, and offer lessees in many cases only the illusion of a meaningful process for valuation determinations. Unaccountably, the Proposal would also eliminate some positive aspects of the existing regulations.

1. Mandatory Determinations

For example, under proposed §206.101, if there is ownership or common ownership of between 10 and 50 percent between two parties, the parties would not know whether they are affiliates unless and until MMS makes a determination regarding whether there is control under the circumstances. This determination is critical because radically different valuation methodologies would apply depending on whether the parties are affiliates. At its recent workshops, the MMS confirmed that a lessee would have to use the value determination process to obtain a decision from MMS regarding control in a 10-50% ownership situation.

[22] For example, in the case of Bonneville Fuels Corp., MMS 98-001-O&G, the chief of the Valuation and Standards Division on July 19, 1994, provided a valuation determination to counsel for Bonneville stating: This letter and the enclosed Valuation Summary . . . provide our final determination for valuing BFC's [Bonneville's] gas." The acting MMS director affirmed the valuation determination in a decision issued September 25, 1996 in docket number MMS-94-0484-O&G. However, on November 13, 1997, Bonneville received a royalty order retroactively demanding royalties considerably in excess of the amounts required by the MMS valuation determination. The Bonneville case is now on administrative appeal, but MMS' early filings show that the MMS has no intention of adhering to the valuation determination it previously issued. In other cases API is aware of, lessees have obtained determinations only to find that they are neither binding nor appealable and that MMS pledges to issue a non-binding determination have not been satisfied.

Yet, the Proposal does not compel the MMS to make these determinations, much less make them timely. The Proposal makes it clear that that there would be no regulatory requirement that MMS issue a value determination in response to a lessee's request. Instead, the Proposal states that the MMS "will reply," §206.107(b) but that that "reply" may simply inform the lessee that no determination will be issued. §206.107(b)(3). Indeed, the Proposal adds further that the MMS typically would not provide a value determination when the request is based on a hypothetical situation, when the request is inherently factual or with respect to matters that are the subject of pending litigation or administrative appeals. §206.107 at 73845. What categories are left for MMS determination? A "reply" that says that MMS will not tell you how its regulations should be interpreted and applied does a lessee little good.

Beyond the categorical exclusions in the Proposal itself, MMS statements at the January 19, 2000 workshop in Houston indicate that the MMS considers certain other decisions under the rules to be outside the value determination process altogether. For example, the MMS explained that MMS determinations on a lessee's request to exceed the percentage of value limitations on transportation allowances are not value determinations under the regulations. The final rule should clarify what decisions do and what decisions do not come within the value determination procedure. Moreover, for such non-value determination decisions, as we have for other key decisions, we urge the MMS to add a provision expressly requiring the MMS to issue a decision, requiring it to issue a decision expeditiously, and requiring it to make its decisions appealable. Otherwise, lessees will not be able to pay their royalties correctly and on time.

[23] Joint Association April 1999 Comments at 12-14.

2. Expeditious Determinations

Whereas existing regulations require the MMS to issue value determinations "expeditiously," 30 CFR §206.102(g*),* the Proposal states that "MMS will reply to requests expeditiously,"(emphasis supplied), Pr. at §206.107(b). Under the Proposal, as pointed out above, a "reply" may or may not lead to a determnation. An expeditious reply that says that MMS will not tell you how its regulations should be interpreted and applied does a lessee little good.

3. Binding and Prospective Nature of Determinations

In those seemingly rare instances where the Assistant Secretary issues a determination, proposed §206.107(c)(1) would make it binding on the lessee and the MMS, but only until the Assistant Secretary modifies or rescinds it. The Proposal's statement that "as a general matter, value determinations may be changed only prospectively," Prop. at 73833, is inadequate. While retroactive determinations of value may be appropriate for the circumstances identified under §206.107(f) (actual or constructive fraud) – situations for which Industry has never sought relief – the MMS should confirm that modifications or rescissions under §206.107(e) are necessarily prospective only.

Moreover, with respect to staff determinations that, according to the Proposal, would be binding on the MMS, the MMS should make it clear that these determinations are also binding, at least retroactively, on the Department as a whole. In this regard, we appreciate the assurance given by the Associate Director at the January 19, 2000 Houston workshop that staff determinations would not be subject to retroactive rescission or modification by the Assistant Secretary unless facts were misrepresented or later changed, even if the Assistant Secretary disagrees with the legal interpretations on which the staff determination was based. We urge the MMS to amend the Proposal to make staff determinations binding on the entire Department; at the very least, the MMS should include the same assurance in the preamble to a final rule.

4. Default Valuation Methodologies

Under existing regulations, the lessee may now use the value determination method it proposes until MMS issues a value determination. See 30 CFR §206.102(g).

With no default provision regarding control, lessees would not know which valuation rules to apply unless and until MMS makes the required determination.

Yet, the Proposal would eliminate the existing provision that expressly allows lessees to continue to pay royalties based on their own proposal until MMS issues a decision on the lessee's request for a determination. See 30 CFR §206.102(g). While the MMS stated at its recent workshops that lessees would not be subject to penalties for willfully and knowingly violating the regulations for ignoring staff determinations, the deletion of this provision creates ambiguity with significant consequences. The MMS should eliminate this ambiguity and clarify that a lessee can pay its royalties in accordance with its proposed methodology until the Assistant Secretary issues an appealable decision. The MMS should also clarify that a lessee's decision not to follow a non-binding MMS staff determination would not be construed as a "knowing and willful" violation of agency regulations which could later be the basis for a spurious False Claims Act claim by the government or a private relator. Alternatively, Industry urges the MMS to make staff determinations appealable.

Without the clarifications suggested above, a lessee that receives a "non-binding" staff determination with which the lessee disagrees would be faced with a Hobson's choice. Even though the determination would not be "binding" on the lessee, it would inform the lessee of how MMS is interpreting its regulations. If the lessee disregards the determination after being told of MMS' interpretation, it possibly could be subject to penalties for willful and knowing noncompliance with the agency's regulations.

If the lessee follows the non-binding guidance, even though it disagrees, in order to avoid the possibility of penalties, it is unlikely that an appealable order would ever be issued to the lessee, leaving the lessee with no opportunity to challenge the agency's interpretation. If the lessee does want to challenge the agency's interpretation, it would be forced to ignore the non-binding determination so that an appealable order will eventually be issued, but with the risk that penalties would be imposed. To require lessees to subject themselves to the possible imposition of penalties in order to challenge determinations with which they disagree, even if lawful, is hardly sound policy.

5. Alternative Valuation Methodologies

The Proposal would also jettison without meaningful explanation, the existing provision expressly stating that "MMS may use any of the valuation criteria authorized by this subpart" in determining value in response to a lessee's proposal. See 30 CFR §206.102(g). We urge the MMS to preserve this provision. This gives the MMS the necessary flexibility to determine value using alternate methodologies without requiring it to do so.

In sum, the MMS needs to come to grips with the valuation determination situation. While the Proposal tenders several reasons why binding determinations are impracticable or inappropriate as the basis for its sharply limited provisions, the simple fact is that lessees cannot fairly be expected to satisfy royalty obligations when the author of the complex valuation regulations refuses to offer reliable interpretations.

F. Second-Guessing

In its Proposal the MMS alludes to the present language of §206.102(b)(1)(iii) and asserts that "It is longstanding MMS policy to rely on arm's-length prices as the best measure of value, and we have no intention of changing this." Prop. at 73829.

Nonetheless, the MMS proposes to amend §206.102(c)(ii) in two respects. As to proposed §206.102(c)(ii)(B) alone, Industry questions whether the addition of the term "unreasonably" without any bounds leaves open the possibility of second-guessing. On the other hand, proposed §206.102(c)(ii)(A) should be sufficient if the MMS staff and auditors honor it: " MMS will not use this provision to simply substitute its judgment of the market value of the oil for the proceeds received by the seller under an arm's-length sales contract."

In this regard, we urge the MMS to include in the preamble to a final rule the MMS' guidance on the specific questions that surfaced at the January 2000 workshops.

Question No. 1
Where lessee receives an offer to sell at index minus or posting plus, selects the former, then concludes later that the former would have been the better business decision, will MMS second-guess the indexing decision? MMS Answer: No.

Question No. 2
Where lessee A takes his production share at the lease, but the operator/lessee B sells his share downstream at a higher price, will lessee A's transaction be second-guessed? MMS Answer: No.

Question No.3
Where lessee A is selling production at arm's length at the lease at a price lower than its neighbor lessee B who is engaging in downstream marketing activities, will the MMS assess royalties on lessee A pegged to the selling price received by lessee B? MMS Answer: No.

Other questions might include the following:

Question No. 4
Where the non-operating working interest sells to the operator, will this be treated as an arm's length sale irrespective of how the operator disposes of the production? Answer: No?

III. Procedural and Timing Matters

A. Irregularities of Payments During Rulemaking

At the May 18, 1999 hearing of the Senate Energy and Natural Resources Committee and the May 19, 1999 hearing of the House Subcommittee on Government Management, Information and Technology, members of Congress heard uncontested testimony that False Claims Act proceeds amounting to $700,000 had been shared with two government officials linked to Department of Energy and Department of the Interior oil valuation policy initiatives leading up to the present rulemaking.[24] Members of Congress underscored the gravity of these revelations[25] and the Department of the Interior itself acknowledged that "ethical questions" had been raised.[26] These facts prompted members of Congress to initiate an investigation of this highly irregular situation.

Although the Department of the Interior contends these highly unusual payments have no bearing on the oil valuation rulemaking, there has yet to be a full airing of the situation. Although Industry is not privy to the results of the ongoing investigation, the

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[24] Hearings on S.924, "Federal Royalty Certainty Act," before the Subcommittee on Energy Research, Development, Production and Regulation, May18, 1999 at 39-41 (statement of Poe Leggette).

[25] "The latest allegation that Federal employees have been paid for their role in changing regulations surrounding oil valuation calls into question the very integrity of this rulemaking process. And until these investigations are concluded, the process is obviously tainted by the allegations of payoffs and of perception that certain special interests -- trial lawyers and affiliated organizations -- have undue roles and undue influence in the process." Id. At 7 (Statement of Senator Murkowski).

two federal officials who received the amounts in question were plainly involved in royalty matters during the period 1994-1997, a formative stage in the Department's deliberations when key assumptions were adopted and the overall course of the rulemaking was set.

While the MMS Proposal differs in some important respects from the MMS' original January 1997 proposal, the essential character of the MMS rulemaking approach and its underlying rationale has gone virtually unchanged. Thus, it is necessary and appropriate to discern the nature of the two federal officials' involvement in the oil valuation rulemaking before the MMS finalizes its current proposal in order to conclusively determine whether and to what extent their involvement tainted the rulemaking. See Hercules, Inc. v. EPA, 598 F.2d 91, 123 (D.C. Cir.1978) (requiring an agency to provide explanations of its decision making and final actions whenever there has been a strong showing of improper behavior that may have influenced the agency actions).

To accomplish this important investigation, the Department could itself conduct a public hearing, pursuant to its broad investigatory powers under the Federal Oil and Gas Royalty Management Act, 30 USC § 1717(a) to examine the propriety of the payments made and determine what influence, if any, the uncontested payments had on the conduct of the rulemaking.

In the alternative, as Senator Nickles has already suggested, the Department should postpone completion of the rulemaking until the ongoing Congressionally-sponsored investigation of the payments to Federal officials has been completed.[27] Failure to stay the rulemaking until such investigations are complete jeopardizes the validity of the MMS' actions. See HBO, Inc. v. FCC, FCC, 567 F.2d 9, 54-555 (D.C. Cir.) (failure to disclose and address relevant information renders an agency's action arbitrary and improper), cert. denied, 98 S.Ct. 111, 434 U.S. 829 (1977); Natural Resources Defense Council, Inc. v. Hodel, 618 F. Supp. 848 (E.D.Cal.1985)(requiring reasoned agency response to comments raised during rulemaking); Idaho Farm Bureau Federation v. Babbitt, 58 F.3d 1392 (9th Cir.1995)(accuracy and validity of details

[26] " I think clearly there are ethical questions that are raised about that situation." Id. at 23. (Statement of Thomas R. Kitsos, Deputy Director, Minerals Management Service).

associated with rulemaking are particularly crucial and must be appropriately addressed before any rule is finalized).

In sum, Industry urges the Department to postpone completion of the oil valuation rulemaking until the circumstances surrounding the payments to Federal officials have been aired and their implications on the rulemaking fully assessed.

B. Economic Impact

In its discussion of procedural matters, the MMS asserts that the Proposal would have a net economic impact of $63.5 million. Prop. at 73838. Although the MMS describes its methodology for arriving at this estimate in its December 1999 "Threshold Analysis" document, Industry questions the MMS' calculation of administrative cost to industry and the expected increase in royalty revenues.

While estimates of the royalty revenue impact are difficult to quantify, given the complexity and novelty of the Proposal, the MMS' indexing approach and its underlying duty to market free of charge theory plainly lead to large -- and unlawful -- increases in royalty obligations. One relevant comparison, however, is the MMS' evaluation of its similar and likewise pending Indian oil valuation proposal that leads the MMS to anticipate an increase of 10 percent in Indian royalties. If a comparable estimate were made for the Federal proposal, even adjusted to reflect the somewhat different standard for Indian royalties, the net impact would seem to be far higher than the $100 million used for many Federal procedural requirements (e.g., "economically significant action" under E.O. 12866, "major rule" under Small Business Regulatory Enforcement Act ("SBRFA"). Whatever the actual increase in revenues amounts to, any increase attributable to using a value greater than the value of production at the lease is unlawful.

Economic impact aside, the MMS acknowledges that the Office of Management and Budget ("OMB") has determined that the Proposal "raises novel legal or policy issues'' which itself is sufficient to trigger Executive Order 12866. Prop. at 73838. Industry certainly concurs with OMB. Similarly, the administrative record for this rulemaking is shot through with compelling comments and testimony that make it clear that the MMS' novel approach to valuation of crude oil interferes significantly with the

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[27] "I think the administration would be well advised to set aside this proposed rule, or postpone it, until that investigation is completed."(Statement of Senator Nickles). Id. at 24.

market, especially companies that are active in the midstream marketing arena and may have to abandon innovative strategies and investment, impacts that themselves trigger SBREFA.

Accordingly, Industry believes Executive Order 12866 and SBRFA apply. In addition, under separate cover comments on the Paperwork Reduction Act will be submitted to OMB.

C. Consideration of Comments and Effective Date of Final Regulations

As recently as the MMS' January 20, 2000 workshop, the Associate Director made it clear that the MMS planned to publish final oil valuation regulations on March 15, 2000 when the existing Congressional moratorium expires. While we understand the interest in bringing this protracted rulemaking to an end, we urge the MMS to take the time it needs to fully assess the public comments it receives, especially the substantial new information Industry has provided. Only then can it avert the conclusion-oriented character of its most recent pronouncements.

Irrespective of the promulgation date of any new oil valuation regulations, Industry further urges the MMS to establish an effective date that reflects the widespread systems changes that might be necessary because of the new rule. For example, once a final rule is promulgated, each affected company would have to perform several tasks which could not have been performed earlier: evaluate rule and train employees; determine what valuation methodology applies to each of its properties; develop recommendations for location/quality differentials and obtain MMS approval thereof; attempt to obtain cost information from affiliated or common carrier pipelines and calculate transportation rates; build or modify systems to reflect any differences between lease-based and index-based methodologies. While the rulemaking has been protracted, fundamental questions have been at issue which have made it imperative for some companies to delay implementation of system changes that might not be necessary under a final rule.

IV. Royalty-in-Kind: the Better Solution

From the outset of this rulemaking, Industry has observed that <u>any</u> valuation methodology is problematic, at least for non-arm's length transactions, because it requires that value be imputed through reference to some measure of value, whether it be the benchmarks of the existing regulations or the indices of the MMS' various proposals to amend the existing regulations. Royalty-in-kind (RIK) could avert this problem altogether since it short circuits the value calculation process and puts a royalty share in the hands of the government for disposal as it sees fit. Commendably, the MMS with the support of many states and all of Industry is exploring this alternative through the conduct of pilot programs.

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Before the United States
Department of the Interior
Minerals Management Service

Comments
of the
American Petroleum Institute,
Independent Petroleum Association of America,
Domestic Petroleum Council,
US Oil & Gas Association,
Independent Petroleum Association of Mountain States,
Western States Petroleum Association
and
California Independent Producers Association

Establishing Oil Value for Royalty Due on Federal Leases
64 FR 73820 (December 30, 1999)
30 CFR Part 206

Volume II – Appendices

January 30, 2000

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Appendix A

Declaration of Joseph K. Kalt, Ford Foundation Professor of International Political Economy, John F. Kennedy School of Government, Harvard University, and Kenneth Grant, Senior Consultant, Lexecon.

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

Further Supplementary Proposed Rule for
Establishing Oil Value for Royalty Due on Federal Leases

Declaration of

JOSEPH P. KALT
and
KENNETH W. GRANT

Harvard University and Lexecon Inc.
January 31, 2000

I. INTRODUCTION AND BACKGROUND

Joseph P. Kalt is a Senior Economist and Kenneth W. Grant is a Senior Consultant with Lexecon Inc. (Lexecon), a private consulting firm with offices in Cambridge, Massachusetts, and Chicago, Illinois. Our business address is One Mifflin Place, Cambridge, MA 02138. In addition to his affiliation with Lexecon, Professor Kalt is the Ford Foundation Professor of International Political Economy at Harvard University's John F. Kennedy School of Government, where he has responsibility for teaching graduate courses in the economics of public policy and antitrust and regulation. Copies of our curricula vitae are attached as Exhibit A to this declaration.

We are submitting this declaration in response to the Further Supplementary Proposed Rule regarding *Establishing Oil Value for Royalty Due on Federal Leases* ("Proposed Rule") issued by the Minerals Management

Service ("MMS") of the Department of the Interior ("DOI") on December 30, 1999, and published at 64 Fed. Reg. 73820. This declaration is being made at the request of the American Petroleum Institute. We have previously submitted comments in this matter,[1] and we have been retained by a number of integrated and non-integrated oil companies in connection with past and pending litigation involving crude oil pricing and royalty payments. Professor Kalt has also provided written and oral testimony before the United States Congress concerning the collection of royalties from Federal and Outer Continental Shelf oil leases.[2]

II. SUMMARY OF FINDINGS

In this most recent rulemaking, the MMS asserts that there are generally not competitive markets for crude oil at the lease. This assertion underlies the latest proposal to amend the current regulations concerning the valuation of crude oil produced from Federal leases that is not otherwise

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[1] Comments of Joseph P. Kalt to the MMS' *Notice of Proposed Rulemaking for Establishing Oil Value for Royalty Due on Federal Leases, and on Sale of Federal Royalty Oil*, May 27, 1997. Supplemental Comments of Joseph P. Kalt and Kenneth W. Grant to the MMS' *Notice of Proposed Rulemaking for Establishing Oil Value for Royalty Due on Federal Leases, and on Sale of Federal Royalty Oil*, August 4, 1997.

[2] Testimony of Joseph P. Kalt, Before the United States House of Representatives, Subcommittee on Energy and Mineral Resources, Legislative Hearings on HB 1334, May 21, 1998. Testimony of Joseph P. Kalt, Before the Senate Committee on Energy and Natural Resources, Subcommittee on Energy Research, Development, Production, and Regulation, Legislative Hearings on Oil Royalty Valuations, June 11, 1998.

disposed of in outright transactions.[3] That is, the MMS proffers its claim regarding the absence of competition in the field as key justification for rejecting the use of outright, comparable transactions, i.e., field-level purchases and sales between unaffiliated parties, for the purposes of valuing Federal crude oil. With MMS' asserting that actual prices struck in arm's-length commerce are apparently "tainted" by a purported lack of competition, the MMS then claims that it is justified in turning to a methodology of Federal royalty valuation that is based on downstream spot market indices.

We have reviewed the MMS' notice of proposed rulemaking in light of sound economic analysis, industry practices concerning the purchase and sale of crude oil at both the lease and downstream market centers, and relevant data. In particular, we have conducted an intensive examination of the domestic market that exists for crude oil at the lease. As part of this research, we have analyzed voluminous data and evidence concerning the market for crude oil at the lease, such as the number of buyers and sellers; the nature of and economic functions served by the various market participants and the types of transactions they utilize; and the posting of crude oil prices. These data come from public sources as well as course-of-business records from over two dozen companies—including independent

[3] Outright purchases and sales are defined here as "cash on the barrel" transactions between unaffiliated parties. They exclude transactions, such as buy-sells or exchanges, in which crude oil at other locations is commonly included as consideration. MMS has traditionally accepted buy-sells and exchanges between unaffiliated parties as being arm's-length, and, thus, eligible to be used for the purpose of valuing crude oil produced from Federal leases. In contrast, the proposed rule appears to limit the definition of "arm's-length" to "outright."

producers, integrated and non-integrated refiners, and independent marketing companies—and cover much of the 1980s and 1990s. It includes over four million outright, third-party purchase and sale transactions for crude oil at the lease as recorded in the course of business. These outright lease-level transactions demonstrate ongoing, non-idiosyncratic, arm's-length commerce, commonly accounting for as much as 10 to 25% of a given field's production. These data encompass leases located in every domestic crude oil producing region in the United States, including the Gulf of Mexico, the mid-continent states, California, and the Rocky Mountain Region.[4]

Being at odds with directly relevant evidence and founded on principles that are inconsistent in process and substance with sound public policy, the MMS' spot market-based methodology for valuing crude oil produced from Federal leases is not economically valid as an approach to arriving at market value at the lease of the public's oil. Indeed, the methodology has the effect of enabling the MMS in its role as mineral owner to reach into downstream, post-production components of the chain of value-adding activities that take crude oil from its raw material state to ultimate use in refined form by consumers. While it is perhaps understandable that the MMS would, like any seller of a resource, seek to increase its take, this reaching downstream is wholly inconsistent with the economics of fair market valuation of a mineral lessor's resource.

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4 Defined by the MMS as the states of Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming. 64 Fed. Reg. at 73827.

The MMS' assertion of a lack of a competitive market for crude oil in the field relies on unsubstantiated claims, contradictory arguments, and the misinterpretation of significant facts relating to the domestic crude oil market's structure and conduct. As the evidence presented below shows, there exists a highly competitive market at the lease. This lease-level commerce involves numerous major and minor, integrated and non-integrated producers on the supply side, and numerous large and small, integrated and non-integrated refiners, plus a very large number of independent marketers and brokers on the buying side. It includes significant and recurring volumes of crude oil at the lease moving in outright (i.e., cash-on-the-barrel) transactions between unrelated buyers and sellers with access to the information and competition that allows each to protect their interests. MMS' conclusions to the contrary reflect faulty reasoning, misinterpretation of data, and use of sources at odds with principles of sound public policymaking by a public agent.

III. ANALYSIS

In support of its efforts to rewrite Federal regulations governing the valuation of crude oil produced from Federal leases, the MMS contends that a general lack of competitive and transparent markets at the lease makes the use of comparable, outright transactions inferior to the use of downstream, spot-based index prices in establishing the fair market value of such crude oil for the purposes of paying Federal royalties. In particular, the MMS asserts that there is generally not a large number of sellers of crude oil at the lease and, where such sellers exist, they often control a large share of the production sold from a given lease or field. In addition, the MMS states that it believes that at a given lease or field there exists a limited number of buyers and sellers. Finally, MMS argues that the proprietary nature of lease-level transactions prevents lessees from knowing the prices at which other lease holders sell their crude oil.

Market Competitiveness at the Lease

These arguments not only defy basic economic reasoning, they stand in contrast to readily available information. For example, offering the assertion of a limited number of sellers as evidence of the lack of competition at the lease is internally inconsistent with what the MMS and its consultants have proclaimed in litigation closely related to this matter—namely that transactions at the lease do not fully and accurately reflect fair market value. To wit, observed prices are too low. A lack of competition among *sellers*, however, implies, if anything, prices that are *higher* than fair market value. Thus if, as the MMS alleges, a limited number of sellers at the lease were the cause of the purported stifling of competition, the economic consequences of such seller concentration and market power would be to *raise* the prices at the lease *above* their competitive level. In fact, in other minerals leasing contexts, the Federal Government has recognized that supply-side market power inappropriately elevates resource prices.[5]

The assertion that a single seller (or operator) may control a majority of the production at a given lease or field is similarly economically inconsistent with MMS' conclusions that lease-level transaction prices are inordinately low. Moreover, concentration of production at a particular lease or field is not evidence of market power, and MMS' insinuations to the contrary reveal a disturbing misunderstanding of the concept of "relevant market"— a definition that is central to competition analysis. As set out in the U.S. Department of Justice and Federal Trade Commission's *Horizontal Merger Guidelines*, one cannot draw conclusions regarding prospects for market power without assessing the boundaries of the relevant market—i.e., the universe of those who compete.[6] Neither the evidence nor the MMS' consultants support a contention that an individual lease or an individual field is a relevant market. Rather, a given oil field is typically made up of many leases whose producers are in competition with each other; and producers in individual oil fields are similarly drawn into competition with producers from other oil fields as buyers exercise their abilities to shop from field to field to meet their needs. A lease or a field is not a relevant market under such conditions. Inferences about a lack of competition based (by the

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5 U.S. Commission on Fair Market Value Policy for Federal Coal Leasing, *Report of the Commission*, February 1984, at, e.g., 101.

6 U.S. Department of Justice and Federal Trade Commission, *Horizontal Merger Guidelines*, 1992.

MMS) on allegations of concentration of production at the lease level violate basic and well-tested principles of economics.

Publicly available data clearly indicate that there exist thousands of sellers of crude oil who participate in lease-level transactions, and the vast majority of these are not integrated into the refining segment of the industry. Figure 1 shows, for example, nearly seventy-five producers operating in the Gulf of Mexico in the 1990s. Additionally, Figure 2 offers a sample of two hundred of the more than one thousand operators producing crude oil in the states of Texas, New Mexico, Oklahoma, and Louisiana. Figure 3 shows a sample of more than three hundred operators located in the Rocky Mountain Region.

The overwhelming majority of the companies listed in the Figures above own no refineries and do not participate in downstream transactions, i.e., they specialize in the production and sale of crude oil at the lease. In light of such evidence, it is not plausible that there exists an anti-competitive paucity of sellers who operate in lease-level commerce. The proper interpretation of the data is that such companies, particularly those specializing in the production of crude oil, have the proper incentive to seek the most favorable terms, including prices for crude oil in the field that are as high as possible.

In similar fashion, the MMS' assertions regarding a purported lack of competition among buyers at the lease is unsupported by the economic principles of competition analysis and the facts of the marketplace. The

MMS appears to argue that competition is lacking at the lease level of commerce because there is only a "limited number of buyers"[7] (as if competition requires *unlimited* numbers of buyers?). This, again, reflects a discouraging lack of understanding of (or, perhaps, failure to use) the economics of competition.

Basic economic principles demonstrate that in order to properly assess the competitive conditions of a market, one must consider not only the number of participants currently existing within that market, but also the role played by new entrants who can be attracted into a market when prices diverge from competitive levels. The presence of numerous buyers in a market acts to ensure the competitiveness of that market (on the buying side). Even where the number of buyers actually making purchases in a market at any point in time is small (or, "limited"), the prospective attraction of new buyers provides competitive discipline. Entry is the antidote to market power under such conditions.

The evidence is clear that lease-level commerce in crude oil is not plagued by a lack of competition among buyers. There is generally a large number of buyers at individual oil fields and, in any event, it is clear that entry into buying at the lease is not subject to barriers to entry that would allow the exercise of monopsonistic or oligopsonistic market power. Thus, lease-level commerce is subject to competition among a large number of

[7] 64 Fed. Reg. at 73820.

actual and potential, i.e., entering, buyers. Indeed, the MMS recognizes that the last decade or so has witnessed "entry and expansion of resellers, traders, and brokers"; and that this "may be seen as increasing the level of competition."[8] With numerous buyers who can come and go from the particular locations where crude oil is sold at the lease, the resulting discipline of entry means that there is, indeed, "a general rule"[9] of the type missed by the MMS: The absence of competition-impeding barriers to entry by buyers at the lease means, by the basic principles of antitrust economics,[10] that "as a general rule a competitive market exists."[11]

The foregoing conclusions are readily apparent in the data. Figure 4, for example, shows a sample of three hundred first purchasers, i.e., those companies having taken title to crude oil at the lease, operating in the states of Louisiana, New Mexico, Oklahoma, and Texas in the 1990s. Figure 5 lists a sample of over fifty companies actively buying crude oil at the lease in the Rocky Mountain Region in the 1990s. Figure 5 also shows similar data—with similar implications—for the State of California and the Gulf of Mexico. Not only are many buyers active in each producing region, but it is also the case that the lack of anticompetitive barriers to entry means that a reseller or marketer, for example, operating in one region can add to or alter its operations so as to operate in other regions. Thus, a number of the buyers in

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8 64 Fed. Reg. at 73820.

9 64 Fed. Reg. at 73820.

10 See, e.g., U.S. Department of Justice and Federal Trade Commission, *op. cit.*

Figures 4 and 5 operating in one region show up as operating in another region. The result is that the buying of crude oil cannot plausibly or responsibly be asserted to be subject to a lack of competition that would justify the MMS' rejection of information on prices drawn from the transactions that occur at the lease level of commerce.

In fact, this conclusion holds even if relevant markets were defined, as the MMS seems to suggest, as individual fields. To illustrate, Figure 6 shows the companies purchasing crude oil at the lease during the 1990s in the Cowden producing area of West Texas. The data, as compiled by the State of Texas, stands in direct contradiction to the MMS' assertion of the lack of buyers at the lease. In the 1990s, there were over fifty purchasers of crude oil in the Cowden field alone, ranging from vertically integrated large and small refiners to companies specializing in the downstream and marketing functions. It is not plausible that a lack of competition amongst these numerous buyers, in general, and the various resellers, in particular, taints the performance of the market in which Cowden supplies are sought by buyers. An asserted lack of competitive discipline is further contradicted by the observation that there is no general barrier to entry that would prevent any number of competitors of the type shown in Figures 4 and 5 from entering the competition to purchase crude oil in the Cowden area were prices somehow to be depressed by those buyers shown in Figure 6. MMS'

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[11] 64 Fed. Reg. at 73820.

assertions that competition for purchasing crude oil at the lease is restricted to so few buyers as to make lease-level commerce less than competitive are economically baseless.

Prices at the Lease

Taken together, Figures 1 through 6 show the diversity of participants engaging in the lease-level marketplace for crude oil—a market which includes such disparate entities as independent producers, trucking and transportation companies, marketers, brokers, independent refiners, and vertically integrated companies all competing for the purchase and sale of crude oil in the field. Notwithstanding the clear implausibility of exercising market power in this setting and the rise of specialists such as resellers and marketers (as acknowledged by MMS), MMS seems to suggest that competition is lacking because "lessees usually will not know the prices at which other lease interest holders sell their oil," and buyers are not "perfectly informed about the prices of different sellers."[12] This again, however, speaks to misunderstanding of the economics of competition.

Effective competition does not require that all market participants be perfectly or even similarly informed, particularly in a marketplace populated by specialist brokers, resellers, marketers and other traders. The action of these specialists—who make it their business to chase customers, seek out information, and locate favorable transactions—serves to lubricate the

[12] 64 Fed. Reg. at 73820.

market with information. Each individual market participant then does not need to invest in trying to be perfectly informed. Rather, the individual seller—say, an independent producer—can turn to the services of a specialist agent to carry out transactions. The competition among such specialists (as well as the other buyers in the market) is the protection that individual market participants need. Such protection is the very economic function of specialist marketing and trading agents.

The MMS states that "generally there is no price transparency at the lease or field level."[13] This is incorrect. Even if individual transaction prices negotiated between lease buyer and lease seller generally are not publicly available, posted prices for crude oil at the lease are publicly available and widely distributed and accessed. That is, posted prices are transparent. Moreover, as we discuss below, posted prices are widely used as the basis for arm's-length transactions at the well. The MMS is implicitly rejecting the use of posted prices because, for example, MMS apparently believes that posted prices are not meaningfully employed in actual transactions and/or they are tainted by the asserted (albeit, without credible support) lack of competition in lease-level commerce. Such presumptions do not need to go untested against evidence.

As noted in Section II above, we have collected data on more than four million outright third-party transactions at the lease as recorded in course-of-

[13] 64 Fed. Reg. at 73820.

business records of over three hundred companies that engage in such commerce. These companies range from very large vertically integrated major oil companies to independent producers and independent refiners to independent marketers. The data cover the 1980s and 1990s, with the bulk concentrated in the 1990s. With these data, we can examine the pricing of crude oil in outright lease-level transactions, and we can investigate whether transparent posted prices are set at fair market value based on comparisons to prices in comparable arm's-length commerce.

The competition for crude oil at the lease gives rise to a range of prices in outright arm's-length transactions. To illustrate, Figure 7 shows the prices struck in more than 3,800 outright transactions for the Amos Draw field in Wyoming over 1988-98. As parties negotiate their individual transactions, they produce a span of prices at any point in time as shown in Figure 7. The position of this span, or range, moves higher or lower over time as overall market supply and demand forces put upward or downward pressure on prices (e.g., the price-raising effects of the Gulf War are clearly evident in the second half of 1990 in Figure 7).

The general pattern produced under the competitive conditions governing Amos Draw, Wyoming, is repeated again and again across the oil fields of the United States. Figure 8 shows similar data on more than 12,000 outright third-party lease-level transactions for the Cowden producing area, located in the West Texas portion of the Permian Basin producing region. In fact, while the number of sample points varies from field to field, a similar pattern is exhibited in every major crude producing region in the lower forty-eight states (see Figure 9), including the Gulf of Mexico (Figure 10). The "general rule" which the MMS asserts does not exist is that there is steady, ongoing arm's-length commerce under which crude oil is bought and sold outright at the lease. This commerce takes place under conditions in which numerous sellers have access to numerous buyers, and buyers are not blocked from entering the market to compete for access to crude oil. These are precisely the conditions that render the use of arm's-length comparable transactions valid as measures of fair market value.

The prices struck in a particular oil field at any point in time commonly span a range in excess of a dollar per barrel or more, even after such transactions have been adjusted for directly measurable factors, such as gravity, sulfur, and the timing (within the month) of the price determination.[14] To illustrate, Figures 11 and 12 show the prices struck in outright, arm's-length, lease-level transactions in the Amos Draw and Cowden fields, respectively, after adjusting all transactions to common bases for gravity, sulfur, and payment timing. Even after accounting for such factors, prices in outright transactions struck within a given month commonly span a range of up to $3-$4 in the case of Amos Draw and $2-$3 in the case of Cowden.

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[14] That is, accounting for whether crude oil is paid for on a particular day when prices might be high or low within a month, or on an equal daily quantity (i.e., monthly average price) basis.

The repeated finding that prices struck in outright arm's-length transactions at the lease create a range of prices at any point in time is a product of the competitive reality that operates in U.S. oil fields. Prices for crude oil bought and sold in outright transactions at the lease lie within a range because the competitive conditions of the marketplace force a tailoring of such transactions to fit the particular desires and capabilities of the parties to individual transactions. As these desires and capabilities vary from transaction to transaction within the context of particular supply and demand factors for particular crude oils at particular leases, price variation is created within comparable transactions. Even similar quality crude oils in the same field are commonly observed to transact at different prices at given points in time. Such factors as whether a crude is trucked or gathered by pipeline, the strategic objectives of the bargaining parties, the reputations of the transacting parties, volumes aggregated by the seller, particular physical attributes of the oil beyond gravity and sulfur, and the paperwork burdens involved with dealing with particular sellers all play a role in determining the price associated with a particular seller's crude at a particular lease at a particular point in time.

The fact that competition at the lease generates a range of prices in comparable arm's-length transactions means that the fair market value of crude oil at any point in time at any particular lease is properly conceived of as a range, rather than a single value. In each transaction, the buyer and the seller are properly taken to be concerned with their own interest, with buyers preferring lower prices and sellers preferring higher prices. Moreover, each transaction is struck within the context of multiple sellers in the market competing to attract buyers, and multiple buyers competing to find attractive arrangements with sellers. It is precisely under such conditions that the marketplace forces of supply and demand are able to work, pushing prices in individual transactions to fair market value for those transactions. The result is that a price struck anywhere within the range revealed by the transactions struck by comparably situated buyers and sellers is properly concluded to reflect fair market value for that transaction.

In fact, this economic principle is well-established in public policy. The Internal Revenue Service, for example, in setting out the principle that the fair market value of a transaction (e.g., a transfer between two affiliates of the same parent company) is to be assessed by reference to arm's-length comparable transactions notes that measurement of arm's-length comparables "may produce a number of results from which a range of reliable results may be derived. A taxpayer will not be subject to adjustment if its results fall within such range (arms' length [sic] range)."[15] The MMS itself has recognized this same principle for decades.

Posted Prices

As noted, MMS is concerned that an individual royalty payor may not know the particularities of other parties' arm's-length transactions. Yet,

[15] 26 C.F.R. 1 § 1.482.1 (4-1-99 edition) at 485.

posted prices for particular crude oils at particular locations are readily discernible. It would be improper to reject (as MMS has) the use of posted prices as measures of fair market value if posted prices lie within the range that defines fair market value at each lease.

How do posted prices compare to the broader sample of prices struck in outright transactions at the lease? As a general rule, based on repeated results for oil field after oil field in the U.S., posted prices lie within the range of prices struck in arm's-length comparable transactions. To illustrate, Figures 13 and 14 map both high and low posted prices for the Amos Draw and Cowden fields, respectively, against the outright field-level transactions in those fields. The results are regularly observed in well-functioning crude oil markets. Specifically, posted prices (and transactions at posted price) commonly lie within the range of prices that defines market value, as observed in outright purchases and sales of crude oil in the field.[16] Moreover, this conclusion is not confined to onshore producing areas. The same pattern is revealed offshore. To illustrate, Figure 15 shows the case of Eugene Island 330 in the Gulf of Mexico. Here, as elsewhere, the range of posted prices

[16] Assertions have been made by various parties that side agreements associated with lease-level transactions serve to prevent such transactions from reflecting fair market value. Notwithstanding the vigorousness of such claims, they are clearly rejected by the evidence. The assertions can be tested scientifically by eliminating transactions between any and all companies that have been asserted to be tainted by side agreements and assessing whether the remaining transactions produce any different results or conclusions. Applying this test to the case of, say, Figures 13 and 14, we find that the assertions at issue are unfounded. The basic pattern of the range of prices and the relation of this range to posted prices are unaffected.

clearly lies within the band of outright transactions prices occurring at the lease (i.e., at the platform).

The repeated finding that posted prices lie within the range of arm's-length transaction prices that defines fair market value is not surprising given that substantial numbers of outright transactions occur at posted prices. This can be seen by inspecting Figures 13 through 15, where it is frequently the case that outright third-party purchases and sales at the lease are struck at prices that lie right on the lines indicating posted prices. Overall, for those observations within our data that provide the underlying pricing basis, approximately one-third of such transactions are at a posted price. For the Cowden and Amos Draw fields, approximately three-quarters of all such transactions shown in Figures 13 and 14 are at a posted price. In the offshore case of Eugene Island shown in Figure 15, virtually all of the arm's-length transactions are at a posted price.

These results belie often asserted (e.g., by MMS' consultants) contentions to the effect that posted prices are merely arbitrary placeholders used in intracompany transfers and intercompany buy-sell (volumetric exchange) transactions and do not reflect fair market value.[17] The fact that large numbers of outright arm's-length sales of crude oil are done at posted prices in field after field and month after month means, economically, that posted prices are subject to the same disciplining forces of competition as

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[17] See, e.g., 64 Fed. Reg. at 73821.

operate to set prices negotiated at other than posted price levels and that form the overall range of market value. Failure to grasp this result of basic economic reasoning is a profound flaw in the MMS' analysis.

That posted prices are utilized so extensively in such transactions by market participants is a reflection of the fact that the posting of prices economizes on negotiation prices. Not every seller and buyer are interested in negotiating afresh the prices in their transactions. With competition among the multiplicity of buyers making such negotiation available if posted prices are seen by either buyer or seller to be out of step with fair market value, posted prices are disciplined and can be rationally relied upon by buyers and sellers to simplify their negotiations. The result is that, when transactions are struck at posted prices and posted prices lie within the range of observed outright transactions, the proper conclusion to draw is that such transactions are taking place at market value. Indeed, from the perspective of an "outsider" to others' transactions, posted prices lying within the range of prices struck in ongoing, outright, arm's-length commerce at the lease offer direct and transparent evidence of fair market value. The same evidence on the relationship between posted prices and comparable arm's-length transaction prices at the lease means that posted prices cannot properly be summarily rejected, as the MMS is attempting to do, as measures of the fair market value of crude oil in the field.

IV. IMPLICATIONS FOR MMS' PROPOSED RULE

In setting forth its new proposed procedures for valuing crude oil for Federal royalty purposes, the MMS is markedly inconsistent. On the one hand, crude oil sold outright at the lease would be permitted to be valued at its sales price. On the other hand, the MMS concludes that lease-level sales prices are affected by a purported lack of competition. In so far as the underlying purpose of Federal leasing policy is to garner fair market value upon relinquishment of the public's oil resources, this is an internal contradiction.

Going further, the MMS recognizes that even vertically integrated producers do not transact all of their crude oil at the lease via internal transfers to downstream company affiliates. Rather, it is common for such producers to sell crude oil outright at the lease to third-parties, and a number of vertically integrated companies have adopted explicit procedures to validate intracompany transfer prices by going to the market and effectively auctioning off ongoing volumes of their production to third parties and utilizing the price results to establish their internal transfer prices (and royalty payments). Such procedures are directly reflective of the basic economic principles applicable to valuing internal firm transfers at market value. Yet the MMS rules would only permit internal transfer prices to be validated for royalty purposes by a company's arm's-length transactions if the company sells at least the majority of its equity production outright to third parties or purchases a quantity equal to 50% of its production; but even this comparable sales provision is limited to the Rocky Mountain Region.[18]

More generally, the MMS rejects the use of prices struck in arm's-length comparable outright sales at the lease, in part, because "the majority of Federal lease oil is not sold at arms' length [sic] at or near the lease"[19] and it believes the overall volume of outright commerce is too small to yield reliable reflections of market value.[20] The question of what constitutes enough outright sales (purchases) for such transactions to be reliable as indicators of market value, however, is not a matter of numeric volume or share. As noted by the MMS' Payor Handbook, outright transactions at a particular level of commerce (e.g., at the wellhead) are reliable in whatever volume to the extent they reveal the workings of the forces of supply and demand in determining prices.[21] Clearly, the MMS has failed to perform the kind of analysis implied by economics associated with such trade. The proper criterion is the determination that there is ongoing commerce under competitive conditions by which crude oil is transacted at arm's length at the lease. Such commerce allows the forces of supply and demand to operate and reveal fair market values through the prices struck by the parties engaging in such commerce.

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18 Even here MMS repeats the self-contradiction of utilizing outright transaction prices at the lease for royalty purposes while maintaining the lease-level prices are tainted by a lack of competition.

19 64 Fed. Reg. at 73821.

20 64 Fed. Reg. at 73824.

As Figures 1 through 6 and 7 through 15 make obvious, there is no question that there is ongoing commerce under competitive conditions by which crude oil is transacted at arm's length at the lease in U.S. oil fields. The millions of transactions in our data set represent millions of instances in which sellers and buyers of crude oil have gone to the market, tested its waters, and found the resulting prices to be acceptable. The MMS itself has relied on data from the Interagency Task Force ("IAT"), in which the MMS took part, indicating that outright transactions at the lease in California, for example, amount to roughly 20% of total production.[22] In California, 20% of production amounts to approximately 200 thousand barrels per day, or over 70 million barrels per year. Our course-of-business data on outright lease-level transactions, representing a fraction of the entire marketplace, indicate that 15 to 25% of any given individual field's production is moving in outright lease-level commerce, with some fields going much higher. The MMS' conclusion that there is too little lease-level commerce to be assured that the forces of supply and demand are playing their roles in determining fair market value is wholly unfounded.

At the core of MMS' new rules is the rejection of pricing in lease-level commerce in favor of a methodology that relies on netting back to the lease from index prices quoted at downstream trade centers. Such index pricing

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[21] Oil and Gas Payor Handbook, Vol. III, at 3-9.

[22] Interagency Task Force, Final Report on the Valuation of California Crude Oil Produced from Federal Leases, May 16, 1996, Appendix 1, at 7.

would generally be applicable to all but that crude oil that is sold outright at the lease. Such an approach to valuation is inconsistent with both proper economic policies for royalty valuation and sound public policy. When data such as that presented in Figures 7 through 15 exist, the proper and preferred methodology for determining the market value of crude oil at the lease is through the use of outright comparable transactions.

This principle is recognized widely in our public policies.[23] In valuations of intracompany transfers for tax purposes, for example, the Internal Revenue Service rules explicitly reflect the standard of arm's-length comparables. In particular, the IRS code states that "a controlled transaction meets the arm's length standard if the results of the transaction are consistent with the results that would have been realized if uncontrolled taxpayers had engaged in the same transaction under the same circumstances (arm's length result). However, because identical transactions can rarely be located, whether a transaction produces an arm's length result generally will be determined by reference to the results of comparable transactions under comparable circumstances."[24]

According to the MMS, the lack of competition at the lease "makes the attempt to find comparable sales transactions inferior to the use of index prices."[25] Not only is this endorsement of index prices contradicted by the

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[23] E.g., the use of comparable home sales in assessing property values of individual houses.

[24] 26 C.F.R. 1 § 1.482.1 (4-1-99 edition), at 477.

[25] 64 Fed. Reg. at 73824.

evidence regarding market competitiveness, but it also reflects an unsound process by which a public agency has retained and placed primary reliance on consultants (and their evidence) who are participants in contentious and well-known antitrust and valuation-related litigation—particularly in California crude oil markets.[26] The MMS, in fact, adopts the position of plaintiffs in such litigation that "posted prices no longer reflected market value."[27] Yet MMS must be aware that in both instances in which the matters have been taken to juries (after presentation of extensive evidence and testimony), California plaintiffs' claims have been explicitly rejected. Indeed, the use of a downstream ANS index price for valuing crude oil at California leases has been explicitly rejected in the face of data presented on outright arm's-length transactions at those leases. From a public policy perspective, such procedures and methods of analysis by a public agency are contrary to the public's overriding interest in maintaining public confidence in a fair and impartial administrative system.

In order to implement its index pricing methodology, the MMS would rely upon spot prices quoted by news services for various trade centers and other locations. Downstream spot prices, however, fail the test of comparability along several important dimensions. These include, but are not limited to, physical quality, transactional quality, timing, location, and

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26 The People of the State of California, et al., v. Chevron Corporation, et al., No. C 587 912. Referred to as the "Long Beach" litigation.

27 64 Fed. Reg. at 73821.

level of commerce. For example, spot price indices for a given crude stream, such as West Texas Intermediate (WTI), are priced according to a well-defined gravity and sulfur content. Crude oil transactions at the lease, however, cover varying quality attributes beyond just gravity and sulfur, including such contaminants and undesirable characteristics as carbon, metals, nitrogen, and heavy product yields. Moreover, the term "WTI crude oil" implies substantially different transactional attributes when used at downstream levels of commerce, such as the trade center spot transactions advocated by the MMS, as compared to field-level transactions. Cushing, Oklahoma (where WTI spot prices are quoted), for example, stands as one of the principal trade centers in the mid-continent region, with available storage capacity exceeding twenty million barrels. In contrast, the average Federal lease produces sixty-five barrels per day.[28] From the perspective of market value, the implied need to deal in small volumes when purchasing crude oil is a decrement, and aggregation by marketers and integrated companies at trade centers adds value to crude oil transactions.

It is also the case that spot prices represent the value of crude oil delivered in the future, typically thirty days forward. Consequently, the price formulation rests upon the *expectations* of the value of the crude oil at a downstream market center thirty days into the future. This timing introduces yet additional variation between market center indices and posted

[28] 1998 MMS Mineral Revenue Collections: Report on Receipts from Federal and Indian Leases, at 30 and 117.

prices. Indeed, the MMS' methodology lacks any mechanism for determining the value of crude in the field at the time of the crude's production and sale in the field.

Clearly, crude oil sitting in storage in Cushing, to take one example, is not located in the same field or producing area as crude oil at the lease. Localized supply and demand factors, however, can and do impart significant differences between two crude oils at different locations being transacted at the same time. The same holds when comparing prices at different levels of commerce—i.e., when comparing upstream wellhead versus downstream trade center transactions. This is clearly demonstrated by the data of Figure 16, which graphs prices struck in outright transactions for crude oil in the Cushing field, located near Cushing, Oklahoma, relative to Platt's reported spot price for WTI crude delivered to the Cushing trade center. The latter is represented by the "zero line" in the figure, and prices at the producing field are shown as the "dots" (i.e., deviations from the spot price). As the data reveal, Platt's reported prices at the market center typically exceed the prices struck in arm's-length transactions in the field by on the order of \$1-\$2 per barrel. Neither a lack of transactions and competition nor the adjustment for transportation costs can explain this result, and the MMS' new rules lack any mechanism for accounting for the obvious non-comparability and inaccuracy involved in using downstream trade center prices to measure upstream crude values at the lease.

The reasonable conclusion to be drawn from data such as in Figure 16 (whose pattern is repeated for oil field after oil field) is *not* that prices struck in outright field-level transactions fail to reflect current market values for crude oil in the field. The reasonable conclusion is that field-level transactions are subject to different supply and demand forces that impart significant differences to their respective values as compared to trade centers. In particular, crude oil transactions in market centers and other downstream locations reflect the value added by the provision of wholesale or "middleman" services, such as aggregation; storage; the bearing of risk and loss during post-production handling, transportation and marketing; transaction negotiation; and the like. It is not surprising that, with such value added to crude oil flows by the time they reach trade centers, crude oil of any given quality generally sells for higher prices at trade centers than at the lease (after adjusting for transportation costs).

The lesson from the evidence presented is that comparing crude oil transactions which occur under different terms and conditions at different levels of commerce with different qualities and different quantities is the archetypal "apples to oranges" comparison that produces inaccurate measures of market value in the field. The supply and demand forces that establish the market value of apples are not the same as the supply and demand forces that establish the value of oranges. As Figure 16 makes clear, basing royalties on trade center value would enable the MMS to claim value added downstream of the wellhead by post-production activities. The data on arm's-length transactions demonstrate that the marketplace draws the production/post-production boundary at the well and compensates oil production at that point.

The MMS argues that such evidence merely "clouds the real issue" as the "lessor is entitled to its royalty share of the total value derived from the production regardless of how the lessee chooses to dispose it."[29] This argument fails basic economic principles and stands in contrast to sound public policy. The existence of competitive outright transactions in the field distinguishes the value attributable to the *production* of crude oil and *post-production*, downstream services. The lessor of a raw material facing competitive conditions, as those described above, is able to extract no more than market value for what the lessor has brought to the production chain in which that raw material is used. This means that fair market royalties do not levy claim to value added beyond the point of production of the raw material—i.e., the wellhead in the case of crude oil. As discussed above, the use of arm's-length transactions between unrelated parties to draw the boundaries between the value stages of a vertically integrated firm's operations is grounded in the economics of market value. It also underlies the IRS' approach to allocating income among constituent stages of an integrated supply chain (see above).

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[29] 64 Fed. Reg. at 73823.

To levy claim beyond that which the royalty owner can reasonably expect to receive in well-functioning markets is to improperly impact decisions firms face regarding the appropriate functions in which the firm is to engage. Laying claim to downstream value-added for crude oil disposed of through buy/sells, exchanges, or affiliate transfers raises the cost to vertically integrated firms of doing business in the downstream segments of the industry. Because vertical integration can be an efficient mode of organization, taxing that mode will have adverse effects on oil production and, ultimately, the public's interest in resource development.

IV. CONCLUSION

The MMS' trade-center-based methodology, as well its underlying reasoning, are at odds with directly relevant evidence. Consequently, it is invalid as an approach to arriving at fair market value for crude oil disposed of in non-outright transactions. The data from over four million outright transactions between unaffiliated buyers and sellers reveal the existence of a competitive market for the purchase and sale of crude oil at the lease. The economics of such transactions create the proper presumption that the observed prices offer the best indication of market value for crude oil in the field. In sum, the MMS has no sound economic basis for rejecting the use of such prices in the determination of the value of crude oil produced from Federal leases.

Under 28 U.S.C. 1746, I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Dr. Joseph Kalt

Under 28 U.S.C. 1746, I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Kenneth Grant

Figure 1

LEASE OPERATORS IN THE GULF OF MEXICO
1990s

AGIP PETROLEUM CO INC
ALLIED NATURAL GAS CORP
AMERADA HESS CORP
AMOCO PRODUCTION CO
ANADARKO PETROLEUM CORP
APACHE CORP
AVIARA ENERGY CORP
BASIN EXPLORATION INC
BOIS D'ARC OFFSHORE LTD
BP EXPLORATION & OIL INC
BRITISH-BORNEO EXPLORATION INC
BURLINGTON RESOURCES OFFSHORE INC
CENTURY OFFSHORE MANAGEMENT
CHALLENGER MINERALS INC
CHEVRON USA INC
CHIEFTAIN INTERNATIONAL US INC
CNG PRODUCING CO
COASTAL OIL & GAS CORP
COCKRELL OIL CORP
COMSTOCK OFFSHORE LLC
CONOCO INC
CXY ENERGY OFFSHORE INC
ELF EXPLORATION INC
ENERGY PARTNERS LTD
ENERGY RESOURCE TECHNOLOGY INC
ENSERCH EXPLORATION INC
EQUITABLE RESOURCES ENERGY CO
EXXON CO USA
FLEXTREND DEVELOPMENT CO LLC
FORCENERGY INC
FOREST OIL CORP
FREEPORT MCMORAN SULPHUR LLC
HALL-HOUSTON OIL CO
HOWELL PETROLEUM CORP
J M HUBER CORP
KERR-MCGEE CORP
KING RANCH ENERGY INC
LEGACY RESOURCES CO LP
LOUIS DREYFUS NATURAL GAS CORP
LOUISIANA LAND AND EXPLORATION
MARATHON OIL CO
MARINER ENERGY INC
MOBIL OIL EXPLORATION & PRODUCTION
MURPHY EXPLORATION & PRODUCTION
NCX CO INC
NEWFIELD EXPLORATION CO
OCEAN ENERGY INC
ORYX ENERGY CO
OXY USA INC
PANACO INC
PENNZOIL EXPLORATION AND PRODUCTION CO
PETROBRAS AMERICA INC
PHILLIPS PETROLEUM CO
PIONEER NATURAL RESOURCES USA INC
POGO PRODUCING CO
SAMEDAN OIL CORP
SANTA FE ENERGY RESOURCES INC
SEAGULL ENERGY E&P INC
SENECA RESOURCES CORP
SHELL OFFSHORE INC
SONAT EXPLORATION INC
STONE ENERGY CORP
TANA OIL AND GAS CORP
TAYLOR ENERGY CO
TEXACO EXPLORATION AND PRODUCTION INC
TORCH OPERATING CO
TOTAL MINATOME CORP
TRANSWORLD EXPLORATION & PRODUCTION INC
TRI-UNION DEVELOPMENT CORP
UNION OIL COMPANY OF CALIFORNIA
UNION PACIFIC RESOURCES CO
VASTAR RESOURCES INC
W & T OFFSHORE INC
WALTER OIL & GAS CORP
ZYDECO EXPLORATION INC

Source: HPDI Database

Figure 2

SAMPLE OF LEASE OPERATORS IN THE MIDCONTINENT REGION
1990s

20TH CENTURY PIPE & EQUIP CC
3-C OIL CO
3R B OIL VENTURES
4-J OIL CO
4-P CORP
4-SIGHT OPERATING CC
A & B OIL CC
A B LIBKE
A H GARCIA
A J PROUGH
A L TRISSELL
ABC NRG
ABERCROMBIE - DOMINION
ABRAXAS PRODUCTION CORF
ACACIA NATURAL GAS
ADA LODGE
ADELA OIL
ADKINS R L CORF
ADOBE OPERATING CC
AINSWORTH BROTHERS
AIRLION ENERGY
AK OPERATING CC
ALAN L LAMB
ALLEGRO OPERATING INC
ALLEN BROTHERS
ALLIANCE RESOURCES (USA) INC
ALLIED NATURAL GAS CORF
ALMA ORINGDERFF OIL PROPERTIES
ALN RESOURCES CORF
ALPHA EXPLORATION
ALPINE OIL CC
ALTO MINERALS INC
ALTURA ENERGY LTD
ALVIN WILSON
AMAX OIL & GAS INC
AMBRIT ENERGY CORF
AMERAC ENERGY CORF
AMERADA HESS CORF
AMERICAN CENTERWEST OK GAS CC
AMERICAN OIL CC
AMERICAN PETROFINA INC
AMERICAN STAR ENERGY & MINERALS
AMERICAN TRADING & PRODUCTIOI
AMERICO OIL CC
AMERIND OIL CC
AMOCO PRODUCTION CC
ANADARKO PETROLEUM CC
ANANDA ENERGY INC
ANDERMAN SMITH OPERATING CC
ANEGADA RESOURCES
ANGEL EXPLORATION
ANJE CORP
AN-SON CORP
ANTHONY E F HOWARD
ANTLERS EXPLORATION CORF
APACHE CORP
ARANSAS OIL COMPANY INC
ARAXAS EXPLORATION INC
ARBOL RESOURCES INC
ARBUCKLE ENTERPRISES INC
ARCADIA EXPLORATION & PROD CC
ARCH PETROLEUM CC
ARCO OIL & GAS CC
ARDMORE DRILLING CC
ARGEE OIL CC
ARKANSAS LOUISIANA GAS CC
ARLIE J NIXON
ARMSTRONG ENERGY CORF
ARROW OPERATING CO INC
ARROWHEAD OIL CORF
ASZTAL CORF
ATASCA RESOURCES INC
ATHENA ENERGY INC
ATKINSON J V ASSOCIATES
AUTRY C STEPHENS
AUTX PETROLEUM INC
AVIARA ENERGY CORF
AXIS ENERGY CORF
AZTEC OIL & GAS CC
B & B PRODUCTION CC
B & D OIL CC
B & G OIL CC
B AND B RESOURCES INC
B F PHILLIPS JR
B J OPERATING
B M OIL CC
B T A OIL PRODUCERS
B&O DRILLING & EXPLORATION INC
BC ANDREWS
BF AKERS
BADGER OIL CC
BAKER EBERLE
BALD EAGLE PRODUCTION CO INC
BALDWIN & BALDWIN
BALLARD EXPLORATION CO INC
BARBY ENERGY CORF
BARNHART CO
BARON EXPLORATION CC
BASA RESOURCES INC
BASINGER A E
BASS ENTERPRISE PRODUCTION CC
BAXTER & ASSOCIATES INC
BAY ROCK OPERATING CC
BAYOU COUBA OIL CC
BAYOU STATE OIL CORF
BAYS EXPLORATION INC
BC RESOURCES
BEACH EXPLORATION INC
BEARD AND CARTER
BEARD OIL CC
BEC CORP
BECK PUMP & SUPPLY INC
BEDFORD OIL & GAS INC
BEE-JAY ENERGY
BELCO ENERGY CORF
BELLE OIL INC
BENN OIL & GAS
BENNY P PRENTICE
BERENERGY CORF
BERING OPERATING CO INC
BETA TEX
BETTIS OPERATING CC
BETWELL OIL & GAS CC
BEZ RESOURCES LLC
BIG RUN PRODUCTION CC
BILL H PEARL PRODUCTION INC
BILL HUGHES DRILLING INC
BILL J GRAHAM ESTATE
BILL MATHIS
BILL PARKS
BILL WADLEY & SON DRILLING CC
BILLIE J NASH
BIRD CREEK RESOURCES

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TRANSOK INC
TRAVELERS OIL CC
TREY RESOURCES INC
TRI PRODUCTION INC
TRI STAR OPERATING INC
TRIAD ENERGY CORF
TRI-C RESOURCES INC
TRICKLE DOWN OIL INC
TRIDENT NGL
TRIO OPERATING CO INC
TRIPLE N WELL SERVICE
TRIPLEDEE DRILLING CC
TRIPOWER RESOURCES INC
TROJAN OIL CC
TROUT EQUIPMENT CC
TRUEBLOOD RESOURCES
TSF OPERATING
TURNER RESOURCES INC
TURRENTINE OIL & GAS INC
TXO OPERATING CC
TXP INC
US EXPLORATION
ULTRA OIL & GAS INC
UMC PETROLEUM CORF
UNICON PRODUCING CC
UNION OIL CO OF CALIFORNIA
UNIT PETROLEUM CC
UNITED OIL & MINERALS INC
UNIVERSAL RESOURCES CORF
UPLAND RESOURCES INC
UNION PACIFIC RESOURCES CORF
USELTON PRODUCTION CC
VALENCE OPERATING CC
VANDERMEER ENERGY CORF
VASTAR RESOURCES INC
VAUGHAN PRODUCTION CO INC
VENUS EXPLORATION INC
VERADO ENERGY INC
VERNIE MOENNING
VERNON E FAULCONER INC
V-F PETROLEUM
VICTOR W PRYOR JR
VICTORY PETROLEUM
VINSON OPERATING CC
VINTAGE PETROLEUM INC
VIRTEX PETROLEUM CO INC
VISTA RESOURCES INC
VOSKAMP EXPLORATION INC
VULTEX CORF
W & S OILFIELD SERVICE & EQUIP INC
W & W OIL CO
W A MONCRIEF
W B D OIL & GAS INC
W C ALLEN
W C MILLER
W C PAYNE
W G HARRIS OIL & GAS
W H WHITT
W L BRUCE
W O OPERATING CC
W P H OPERATING CC
W P LERBLANCE JR
W RIDLEY WHEELER ESTATE
W T FAIL INC
W T WAGGONER ESTATE
W V HARDIN ESTATE
W. L. LINDEMAN OPERATING CO INC
WACKER OIL CO
WADE ORSBURN INC
WAGNER & BROWN
WALLSENERGY INC
WALSH AND WATTS INC
WALSH PETROLEUM INC
WALTER DUNCAN
WARD PETROLEUM CORF
WARREN AMERICAN OIL CC
WARREN PETROLEUM CC
WARRIOR INC
WASHITA PRODUCTION
WATERS ENGINEERING AND OPERATINC
WATSON PACKER EMPLOYEE FUND
WEBB OIL CO
WEIMER AND FITZHUGH
WEINKAUF PETROLEUM INC
WESLEY SENKEL INC
WEST STAR EXPLORATION & PRODUCTIOI
WESTERN FARMERS ELECTRIC COOF
WESTERN GAS CORF
WESTERN OIL & GAS DEV CORF
WESTERN PRIDE RESOURCES INC
WESTERN RESERVE OIL CO INC
WESTLAND OIL DEVELOPMENT CORF
WESTPORT CORF
WHEELER ENERGY CC
WHITCO OIL
WHITE OPERATING CC
WHITING PETROLEUM CORF
WICHITA RIVER OIL CORF
WILDCAT CEMENT CC
WILL-DRILL PRODUCTION CO INC
WILLIAM C GOGGANS
WILLIAM CALVIN ALLEN II
WILLIAM D MCBEE ESTATE
WILLIAM H ATKINSON
WILLIAM J FRISBY
WILMOTH INTERESTS INC
WILSHIRE OIL CO OF TEXAS
WILSON OIL CC
WILSON-OWEN PRODUCTION CC
WIMCO
WINCHESTER PRODUCTION CC
WINTERSHALL EXPLORATION
WISCHKAEMPER, KENNETH
WISER OIL CC
WM G HELIS ESTATE
WOLF PRODUCTION INC
WOOD MCSHANE & THAMS
WOODS PETROLEUM CORF
WOOLSEY PETRO CORF
WRIGHT, ROBERT W INC
WRT ENERGY CORF
WTG EXPLORATION
X E T INC
XERIC OIL & GAS
YARBROUGH OIL CC
YATES ENERGY CORF
YINGLING OIL INC
YUCCA ENERGY INC
ZACHRY OIL & GAS
ZADECK ENERGY GROUF
ZAJAC OIL CC
ZIA ENERGY INC
ZILKHA ENERGY CC
ZINKE AND PHILPY INC

Note: Midcontinent region includes the states of LA, NM, OK and TX.
Source: Transactions Database

Figure 3

SAMPLE OF LEASE OPERATORS IN THE ROCKY MOUNTAIN REGION 1990s

88 OIL CO	COASTAL STATES TRADING	GENERAL ATLANTIC ENERGY	OMIMEX PETROLEUM INC	P&M PETROLEUM MNGT	SWIFT ENERGY CO
ADVANTAGE RESOURCES INC	COCKBURN OIL CO	GENERAL OIL CO	OMNI OPERATING CO	PBM OIL CO	T F HODGE
AEXCO PETROLEUM INC	COLORADO ENERGY MINERALS INC	GERMANY OIL CO	LLOSU CORP	PEASE OIL AND GAS CO	T P OPERATING INC
ALFRED WARD & SONS	CONDOR PETROLEUM INC	GLOVER JAMES M	LOUISIANA LAND & EXPLORATION	PENDRAGON ENERGY PARTNERS INC	TANDEM OIL CO
ALLISON DRILLING CO INC	CONLEY P SMITH LTD	GREAT NORTHERN GAS CO	LUBAR OIL CO	PENNZOIL EXPLORATION	TBI EXPLORATION INC
AMERADA HESS CORP	CONOCO INC	GREAT PLAINS OPERATING LLC	LUFF-EXPLORATION	PETCO PETROLEUM CORP	TERMO CO
AMERICAN EAGLE OIL CO	CONSTRUCTION SERVICE INC	GREAT WESTERN DRILLING CO	M & K OIL CO INC	PETERSON ENERGY MANAGEMENT INC	TERRA ENERGY CORP
AMERICAN SHIELD/DE CLAR OIL	CONTINENTAL INDUSTRIES LLC	GRYNBERG PETROLEUM	M & L OIL CO	PETRA ENERGY	TEXACO INC
AMOCO PRODUCTION CO	CORAL PRODUCTION CORP	H & R WELL SERVICE INC	M 3 INDUSTRIES	PETROLEUM INC	TEXAS VANGUARD OIL CO
AMWEST PETROLEUM INC	CORONADO OIL CO	HABCO INC	M JOHN KENNEDY	PINTAIL PETROLEUM LTD	THOROFARE RESOURCES INC
ANR PRODUCTION CO	COTTON PETROLEUM CORP	HALEY/HUGHES OPERATIONS	MAGPIE OPERATING INC	PIONEER OIL & GAS	TIMBERLINE ENERGY INC
ANSCHUTZ EXPLORATION CORP	COWRY ENTERPRISES	HARKEN SOUTHWEST CORP	MALLON OIL CO	PLACE OIL COMPANY INC	TIMKA RESOURCES LTD
ANTELOPE ENERGY CO	CRAWLEY PETROLEUM CORP	HARRELL PRODUCTION	MANEWAL-BRADLEY OIL CO	PLAINS PETROLEUM OPERATING CO	TINDALL OP CO
ARLIAN INC	CROFT PETROLEUM CO	HEADINGTON OIL CO	MARATHON OIL CO	PLENERGY DEVELOPMENT LTD	TOM BROWN INC
ARMSTRONG OPERATING INC	CRYSTAL OIL CO	HEARTLAND OIL & GAS CO	MARK BLAKE	PONCHO PRODUCTION CO	TONKA OIL & GAS PRODUCTION INC
ATASCA RESOURCES INC	CUSTOM ENERGY CONSTRUCTION	HEDGES OIL COMPANY	MARK T BROWN	POZO RESOURCES INC	TOWNSEND CO INC
B & H ENTERPRISES	DAVEY CORP	HOMESTAKE ROYALTY CORP	MARLIN OIL CO LLC	PRENALTA CORP	TRI STAR ENERGY CORP
B I C PETROLEUM INC	D J LOW INC	HOSS ROBERT L	MARSHALL PRODUCTION & ENERGY	PRESIDIO EXPLORATION INC	TRUE OIL CO
B J OIL CO	D L COOK	HOWELL PETROLEUM CORP	MATRIX ENERGY LLC	PRIMA OIL & GAS	ULTRA PETROLEUM
BALCRON OIL CO	DAUBE CO	HS RESOURCES INC	MAXIM DRILLING & EXPLORATION INC	PRIVATE OIL INDUSTRIES INC	UMC PETROLEUM CORP
BALLARD & ASSOCIATES	DEANNE & GRACE GIBBS	HUNT OIL CO	MCCLURE ENTERPRISES	PRP CORP	UNI OIL
BARRETT RESOURCES CORP	DENVER EAST MACHINERY CO	INDEPENDENT PRODUCTION CO	MCMURRY OIL CO	QUESTAR ENERGY TRADING CO	UNION PACIFIC RESOUCES CO
BASELINE DRILLING CO	DEVLAN EXPLORATION	INTERLINE RESOURCE CORP	M'CORMICK-VAQUERO LLC	QUINEX ENERGY CORP	UNION TEXAS PETROLEUM
BASIN EXPLORATION INC	DEVON ENERGY CORP	INTOIL INC	MCRAE & HENRY LTD	R R BANEY OPERATING	UNITED PETROLEUM CORP
BEAR PAW ENERGY INC	DIAMOND B INDUSTRIES	IVERSIFIED OPERATING CORP	MEDALLION EXPLORATION	RANCH OIL CO	US ENERGY
BELCO PETROLEUM	DNR OIL & GAS INC	J W NYLUND INC	MELS WATER SERVICE INC	RAWHIDE WESTERN INC	VASTAR RESOURCES INC
BELL RESOURCES	DOHENY, PATRICK A	JACK C BRADLEY	MERIT ENERGY CO	RENEGADE OIL & GAS	VECTOR MINERALS CORP
BELLEVIEW CAPITAL CORP	DONALD SLAWSON	JACK L CRUMLEY	MERRION OIL & GAS CORP	RENOR EXPLORATION LTD	VINTAGE PETROLEUM INC
BENSON MONTIN & GREER DRILLING	DONOVAN RESOURCES LLC	JACK PRATHER	METRO MINERALS CORP	RICHARDSON OPERATING CO	VIS-OP OIL
BERCO RESOURCES	DOUBLE EAGLE PETROLEUM	JAMES EDWARD BATES	MIDWEST ENTERPRISES INC	RIM OPERATING INC	WAKYN W FERRISSPECIAL OPERATING
BERENERGY CORP	DWIGHT & TED ELLIOT	JENEX PETROLEUM CORP	MISSOURI RIVER ROYALTY CO	RM EBERSPECHER COMPANY INC	WALSH PRODUCTION INC
BIG WEST OIL	E C YEGEN	JETTISON INC	MOBIL OIL CORP	ROONEY OPERATING	WEAVER OIL INC
BLUEBONNET ENERGY CORP	EAGLE MINERALS INC	JIM'S WATER SERVICE	MONAHAN REX	SAMEDAN OIL CORP	WELLSTAR CORP
BOLLING OIL PROPERTIES	EARL SCHWARTZ CO	JOHN C COUPERTHWAITE	MONTANA POWER TRADING	SAMSON RESOURCES	WEM JOINT VENTURE INC
BP PRODUCTION COMPANY LLC	EDWIN L COX	JOHN MCGUIRE OIL	MOUNTAIN FUEL	SAN JUAN MINERALS EXPLORATION	WESGRA CORP
BREITBURN ENERGY CORP	ELKHORN OPERATING CO	JONAH GAS GATHERING	NATIONAL ENERGY GROUP INC	SAN MARCO PETROLEUM INC	WEST GAS II INC
BRIGHT & CO	EMERALD OPERATING CO	JOSEPH B GOULD	NATIONAL PRIDE EXPLORATION	SCHMID PROPERTIES INC	WESTERN GAS RESOURCES INC
BROOKS EXPLORATION INC	ENERGY OPERATING CO	K C RESOURCES INC	NATURAL GAS PROCESSING CO	SCHREIDER & CO INC	WESTERN OPERATING CO
BROSCHAT ENG MGMT SERVICES	ENERGY SEARCH CO	KAISER-FRANCIS OIL CO	NAUMANN OIL & GAS	SGGS PARTNERSHIP	WESTPORT OIL AND GAS CO
BROWN OPERATING	ENRIGHT GAS & OIL CO INC	KCS RESOURCES	NEO-PET INC	SHELDON MURPHY	WEXPRO CO
BURCH, BOB	ENRON OIL & GAS CO	KENDALL J COX	NEW TECH OIL CO	SHELL WESTERN E & P	WHITE RIVER CORP
BURLINGTON RESOURCES	ESSEX ENERGY INC	KENNEDY OIL	NICK LOUNDAGIN	SILVERADO OIL & GAS	WHITING PETROLEUM CORP
BURR OIL & GAS INC	EVERTSON OPERATING INC	KIESLING OIL CO	NORTH FINN LLC	SINCLAIR OIL CORP	WILLIAM C KIRKWOOD
CABOT CORP	EXXON CO USA	KISSACK WATER & OIL SERVICE	NORTH STAR GAS CO INC	SKULL CREEK OPERATING CO	WILLISTON INDUSTRIAL
CALUMET PETROLEUM LIMITED	FAMILY TREE CORP	KISSLER GAS	NORTHERN OIL PRODUCTION INC	SMITH ENERGY CORP	WISCO INC
CAMWEST LLP	FANCHER OIL CO	KN GAS GATHERING INC	NORTHWEST EXPLORATION CO	SNOWDEN OIL CO	WOLD OIL PROPERTIES INC
CAPITOL OIL & GAS	FARNSWORTH & KAISER OIL CO	KRB ENTERPRISES	NOVA ENERGY INC	SOVEREIGN ENERGY LLC	WOODS PETROLEUM CORP
ENSIGN OPERATING CO	FIRST MINERAL PRODUCTION CO	L & J OPERATING	O'BRIEN ENERGY RESOURCES CORP	ST CROIX OPERATING	WYOMING OIL & MINERALS INC
CASCADE OIL & GAS INC	FLYING J EXPL & PROD CO	L & R DRILLING CO INC	OCEAN ENERGY INC	STELBAR OIL CORP	X OIL INC
CELSIUS ENERGY	FOREST OIL CORP	LABARGE MINERALS INC	OIL & GAS ACQUISITION GROUP INC	STERLING ENERGY CORP	YATES PETROLEUM CO
CENTRAL OPERATING INC	FOSSIL RIVER LTD	LATEX-GOC ACQUISITION	OILFIELD SALVAGE AND SERVICE	SUMMIT RESOURCES LIMITED	ZIMCO
CENTRAL WYO RESOURCES LTD	FOUR TEN EXPLORATION	LINMAR OIL CO	STEVEN H HARRIS	SUNSHINE VALLEY PETRO CORP	
CITATION OIL & GAS CORP	FRITZLER RESOURCES	LISSLOO, JW	STEVEN R MANDERS	SURE OIL CO	
COASTAL OIL & GAS	FT PECK TRIBES	OLYMPIC E & P	STEWART PETROLEUM CORP	SURVIVOR OIL & GAS	

Note: Rocky Mountain region includes the states of CO, MT, ND, SD, UT and WY.
Source: Transactions Database

Figure 4

SAMPLE OF FIRST PURCHASERS IN THE MIDCONTINENT REGION
1990s

1803 CORP	COBRA OIL AND GAS CO	GIANT INDUSTRIES INC	LEWIS PETRO PROPERTIES	PLACID REFINING CO	SWIFT ENERGY CO
ABRAXAS PRODUCTION	CODA ENERGY INC	GLENN SOUTHERLAND	LEXAS OIL LLC	PLAINS MARKETING & TRANS	TANA OIL AND GAS CO
ADA CRUDE OIL CO	CODY ENERGY INC	GLOBAL NATURAL RESOURCES	LION OIL CO	POGO PRODUCING CO	TAURUS EXPLORATION USA INC
ADOBE MARKETING CORP	COLLINS AND WARE INC	GOLDSBERRY OPERATING	LONGHORN PRODUCTION	PRAIRIE PRODUCING CO	T-C OIL CO
AGE REFINING INC	COMANCHE ENERGY	GOLDSTON OIL CORP	LOUIS DREYFUS NATURAL GAS	PRIDE PIPELINE CO	TEPPCO CRUDE OIL LLC
ALTURA ENERGY LTD	COMPASS RESOURCES	GOODRICH PETROLEUM	LOUISIANA LAND & EXPLORATION	PRIME OPERATING CO	TEXACO INC
AMERADA HESS CORP	CONCHO RESOURCES INC	GREAT WESTERN DRILLING	LOYCE PHILLIPS	QUAIL CREEK OIL & GAS	TEXAKOTA
AMERICAN EXPLORATION	CONOCO INC	GRECO OPERATING INC	MANTI OPERATING CO	QUESTA OIL & GAS CO	TEXLAND PETROLEUM
AMERICAN TRANSPORTATION	CONTINENTAL RESOURCES	GRIFFIN RESOURCES	MARATHON OIL CO	QUESTAR ENERGY COMP	TEXPATA PIPELINE CO
AMOCO PRODUCTION CO	CONTINENTAL TRENDS	GULFMARK ENERGY CO	MARINER ENERGY INC	QUINOCO PETROLEUM	THE HOME-STAKE ROYALTY
ANADARKO PETROLEUM	COOK EXPLORATION CO	H AND L OPERATING CO	MARQUEE CORP	QUINTIN LITTLE CO	THREE M OIL COMPANY
ANCOA	COSTILLA PETROLEUM CORP	HADSON PETROLEUM CO	MATADOR PETROLEUM CO	R K G ENGINEERING INC	TIDE WEST OIL COMPANY
AN-SON CORP	COURSON OIL AND GAS	HALLWOOD PETROLEUM INC	MAXUS ENERGY CORP	R LACY INC	TITAN RESOURCES LLP
APACHE CORP	CRESCENDO RESOURCES	HARLETON OIL & GAS	MCBEE CO	R BYRON ROACH	TORCH OPERATING CO
ARBOL RESOURCES INC	CROSS TIMBERS OIL	HAWKINS OIL & GAS INC	MCCURDY - TRAMMELL	RAGARS OIL AND GAS	TOTAL PETROLEUM INC
ARCADIA EXPLORATION	CURTIS HANKAMER	HEADINGTON PRODUCTION	MCFARLAND & SCOBEY	RAY WESTALL	TRACER ENERGY INC
ARCO OIL & GAS CO	D & J OIL CO	HERD PRODUCING CO INC	MCGOWAN WORKING PARTNERS	READ & STEVENS INC	TRI-C RESOURCES INC
AUTRY C STEPHENS	DAKOTA RESOURCES INC	HILCORP ENERGY	MEREDITH MARKETING	RED EAGLE OIL CO	US EXPLORATION
B T A OIL PRODUCERS	DAVID H ARRINGTON OIL & GAS	HINTON PRODUCTION CO	MERIT OIL CO	RESERVE MANAGEMENT	ULTRAMAR DIAMOND SHAMROCK
BADGER OIL CO	DAVID THALMANN VACUUM	HOLDEN ENERGY CORP	MESA PETROLEUM CO	RESOURCE ACQUISITIONS	UMC PETROLEUM CORP
BARBARA FASKEN	DEM OPERATIONS INC	HONDO OIL & GAS CO	MEWBOURNE OIL CO	RHODES OIL CO	UNION OIL CO OF CALIFORNIA
BARON EXPLORATION CO	DEVON ENERGY CORP	HOPEWELL OPERATING	MIDGARD ENERGY CO	RHONDA OPERATING CO	UNION PACIFIC RESOURCES
BASIS PETROLEUM INC	DINERO OPERATING CO	HOWELL CRUDE OIL CO	MID-PLAINS PETROLEUM	RIATA ENERGY INC	UNIT PETROLEUM CO
BASS ENTERPRISES PRODUCTION	DORADO OIL CO	HPC OPERATING INC	MITCHELL ENERGY CORP	RICELAND PETROLEUM	UNITED OIL & MINERALS
BAY ROCK OPERATING	DUBACH GAS CO	HRUBETZ OIL CO	MOBIL OIL CORP	ROBERT A MOSBACHER	UNIVERSAL RESOURCES
BAYOU STATE OIL CORP	DUER WAGNER AND CO	HS RESOURCES INC	MURPHY OIL USA INC	ROBINSON OPERATING	UPLAND RESOURCES INC
BAYS EXPLORATION INC	DUKE ENERGY TRANSPORT & TRADING	HSRTW INC	MUSTANG DRILLING INC	ROSBOTTOM PRODUCTION	VALENCE OPERATING CO
BEACH EXPLORATION INC	DYNEGY CRUDE GATHERING INC	HUGGS INC	MW PETROLEUM CORP	ROSELAND OIL & GAS	VASTAR RESOURCES INC
BELCO ENERGY CORP	EAGLE OIL & GAS CO	HUNT OIL CO	NATIONAL COOP REFINERS ASSOCIATION	ROYAL PRODUCTION CO	VENOCO LLC
BIG - TEX CRUDE OIL	EARLSBORO OIL & GAS	HYPERION ENERGY LP	NATIONAL ENERGY GROUP	RUST OIL CORP	VENUS OIL COMPANY
BILL J GRAHAM OIL & GAS	EASTEX CRUDE CO	ICE BROTHERS	NATURAL PETROLEUM CO	RUTHERFORD OIL CORP	VERADO ENERGY INC
BIRD CREEK RESOURCES	EDISTO RESOURCES CO	INEXCO OIL CO	NAVAJO REFINING CO	S AND J OPERATING CO	VERNON E FAULCONER
BK EXPLORATION CORP	EEX CORPORATION	INTERSTATE PETROLEUM	NEARBURG PRODUCING	SAGE ENERGY CO	VINSON EXPLORATION
BLEDSOE PETROLEUM CO	EIGHTY-EIGHT OIL CO	J CLEO THOMPSON	NEUMIN PRODUCTION CO	SAMEDAN OIL CORP	VINTAGE PETROLEUM INC
BML INC	ELAND ENERGY INC	J MCSHANE INC	NGC OIL TRADING & TRANSPORTATION	SAMSON RESOURCES CO	VISTA RESOURCES INC
BOGERT OIL CO	ENERVEST OPERATING	JANEX OIL CO INC	NORCO CRUDE GATHERING	SANCHEZ-O'BRIEN OIL	W A MONCRIEF
BRAMMER ENGINEERING	ENERWEST TRADING CO	J-C PETROLEUM INC	NORTHRIDGE ENERGY MARKETING	SANGUINE LIMITED	W C MILLER
BRECK OPERATING CORP	ENGROUP RESOURCES	JN PETROLEUM	NUEVO ENERGY CO	SANTA FE ENERGY RESOURCES	WARD PETROLEUM CORP
BRIGHT AND CO	ENRON OIL & GAS CO	JOHN H HENDRIX CORP	OCEAN ENERGY INC	SCURLOCK PERMIAN	WESTLAND OIL DEVELOPMENT
BRISTOL RESOURCES CO	EXXON CO USA	JOHN L COX	OGDEN RESOURCES CORP	SEABOARD OIL AND GAS	WESTLANDS RESOURCES
BURK ROYALTY CO	EP OPERATING LTD	JOHN W MCGOWAN	ONEOK RESOURCES INC	SEAGULL ENERGY E & P	WHITING PETROLEUM CO
BURLINGTON RESOURCES	FALCO S&D INC	JONES - OBRIEN INC	ORYX ENERGY CO	SENTINEL RESOURCES	WICKFORD ENERGY MAR
C W RESOURCES INC	FAMCOR OIL INC	JVA OPERATING CO INC	OSBORNE OIL	SG INTERESTS I LTD	WILLIAMS PRODUCTION CO
CABOT OIL & GAS CORP	FAULCONER ENERGY	K P EXPLORATION INC	OUTBACK PETROLEUM INC	SHELL OIL CO	WILSON RESOURCES
CALLON OFFSHORE PRODUCTION	FINA OIL AND CHEMICAL CO	KABCO OIL AND GAS CO	OXLEY PETROLEUM CO	SHERIDAN ENERGY INC	WINCHESTER PRODUCTION
CARMEN FIELD LTD	FLASH OIL & GAS	KAISER - FRANCIS OIL	OXY USA INC	SKLAR & PHILLIPS OIL	WINTERSHALL EXPLORATION
CASILLAS PETROLEUM	FLOYD OPERATING CO	KCS MEDALLION RESOURCES	PALMER PETROLEUM INC	SONAT EXPLORATION CO	WISER OIL COMPANY
CATES OIL AND GAS	FOREST OIL CORP	KELLY OIL CO	PANENERGY TRANSPORTATION	SHAMROCK ENERGY CORP	WOOD MCSHANE & THAMS
CENTRAL CRUDE CORP	FORTUNE DRILLING	KERR MCGEE CORP	PARALLEL PETROLEUM	SOUTHERN CRUDE CORP	YATES PETROLEUM CORP
CHAPARRAL ENERGY INC	FOXX TRANSPORTS LLC	KEY PRODUCTION CO	PARKER & PARSLEY	SOUTHWEST ROYALTIES	ZADECK ENERGY GROUP
CHARLES WALBERT	FREDONIA RESOURCES	KILLAM OIL CO	PARTEN OPERATING INC	SOUTHWESTERN ENERGY	ZIA ENERGY INC
CHESAPEAKE OPERATING CO	FREEPORT-MCMORAN OIL	KILROY CO	PECOS PETROLEUM CO	SPARTA ENERGY LLC	ZINN PETROLEUM CO
CHEVRON USA INC	FRENCH PRODUCTION INC	KOCH OIL CO	PENNZOIL	ST MARY LAND & EXPLORATION	
CIMARRON OPERATING	FRIO PRODUCTION CO	L E JONES PRODUCTION	PETRO-HUNT CORP	STEPHENS & JOHNSON	
CITGO PETROLEUM CORPORATION	FUL-HILL OIL & GAS	LAMAY CORP	PETROLEUM INC	STEVENS AND TULL INC	
CLAYTON WILLIAMS ENERGY	GARY WILLIAMS ENERGY	LANCE RUFFEL OIL & GAS	PETROLEUM MANAGEMENT	STONE PETROLEUM CORP	
CLEAR FORK INC	GATEWAY GATHERING	LANTERN PETROLEUM CO	PEYTON MCKNIGHT	STRATA PRODUCTION	
CLIFFWOOD OIL & GAS	GEMINI EXPLORATION	LASAR GATHERING CORP	PHILLIPS PETROLEUM	SUE-ANN PRODUCTION	
COASTAL PLAINS ENERGY	GENESIS CRUDE OIL LP	LEGACY RESOURCES CO	PHOENIX OPERATING CO	SULPHUR RIVER EXPLORATION	
COASTAL STATES TRADING	GEODYNE RESOURCES	LENOIR M JOSEY INC	PIONEER NATURAL RESOURCES	SUN REFINING AND MARKETING CO	

Note: Midcontinent region includes the states of LA, NM, OK and TX.
Source: Transactions Database

Figure 5

SAMPLE OF FIRST PURCHASERS IN SELECTED PRODUCING AREAS 1990s

CALIFORNI/

AMERADA HESS CORF
ARCO OIL & GAS CC
ARMSTRONG FARMS INC
BENZIN SUPPLY CC
BRAVO ENERGY
CECIL ENGINEERING INC
CELERON GATHERING
CHEVRON USA INC
COOPER & BRAIN INC
EOTT ENERGY OPERATING LLF
EQUIVA TRADING CC
EXXON CO USA
GOLDEN WEST REFINING
HALLADOR INC
HONDO OIL & GAS CC
HUNTER DOS TRES CORF
HUNTER, KENNETH H
HUNTWAY REFINING CC
KERN OIL & REFINING CC
KOCH OIL CO
LUNDAY-THAGARD
MOBIL OIL CORF
MOCK RESOURCES
OCCIDENTAL ENERGY MARKETING INC
ORYX ENERGY CC
PARAMOUNT PETROLEUM CC
PAULEY PETROLEUM INC
PETRO RESOURCES INC
PLAINS ALL AMERICAN PIPELINE LI
POLFAM EXPLORATION CC
PYRAMID OIL CC
RIO VISTA ENERGY
SANTA FE ENERGY RESOURCES
SHELL OIL CC
SOLVENT INC
STREAM ENERGY
SUN REFINING & MARKETING
SUNLAND REFINING
TEXACO INC
TIDELANDS OIL PRODUCTION CC
TOSCO REFINING CC
U.S. OIL & REFINING
UNOCAL CORP
VINTAGE PETROLEUM
W F MOORE & SON INC
WICKLAND OIL CC

GULF OF MEXICC

AGIP PETROLEUM CC
AMOCO PRODUCTION CC
ANADARKO PETROLEUM
BROOKLYN UNION EXPLORATION
CENTURY OFFSHORE MGMT
CHEVRON USA INC
COASTAL OIL & GAS CORF
COKINOS ENERGY CORF
CONOCO INC
CORPUS CHRISTI OIL
DALEN RESOURCES OIL
DYNEGY CRUDE GATHERING & MARKETING
ENERGY DEVELOPMENT
EOTT ENERGY OPERATING LF
EQUIVA TRADING CC
EXXON CO USA
FALCO S&D INC
FREEPORT MCMORAN
GENESIS CRUDE OIL LF
GULFMARK ENERGY
HALL-HOUSTON OIL CC
HARDY OIL & GAS USA
HOUSTON EXPLORATION
KOCH OIL CO
MARATHON OIL CC
MAXUS ENERGY CORF
MOBIL OIL CORF
MURPHY OIL USA INC
NEWFIELD EXPLORATION
OCCIDENTAL ENERGY MARKETING INC
ODECO OIL & GAS CC
ORYX ENERGY CC
PG&E RESOURCES CC
PHILLIPS 66 CC
PLACID OIL CC
PLAINS MARKETING CC
POGO PRODUCING CC
SAMEDAN OIL CORF
SANTA FE ENERGY CC
SCURLOCK PERMIAN CC
SHELL OIL CC
TEXACO TRADING & TRANSPORTATION
TEXON CORP
TRANSCO LIQUIDS CC
UNION EXPLORATION
UNOCAL CORP
VASTAR RESOURCES
VISION RESOURCES
WALTER OIL & GAS CC
WILLIAMS ENERGY MARKETING & TRADING

ROCKY MOUNTAIN REGIO

AMERADA HESS CORF
AMOCO PRODUCTION CC
BARRETT RESOURCES CC
BERCO RESOURCES INC
BIG WEST OIL CC
BORDER FUEL SUPPLY
BURLINGTON RESOURCES
CENEX
CHUSKA ENERGY CC
CITATION CRUDE MARKETING INC
COASTAL OIL & GAS CC
CONLEY P SMITH LTD
CONOCO INC
CONTINENTAL RESOURCES
CROFT PETROLEUM CC
EIGHTY-EIGHT OIL CC
EL PASO CORP
ENERGY INC
EOTT ENERGY OPERATING LF
EQUITABLE RESOURCES
EQUIVA TRADING CC
EXXON CO USA
FLYING J INC
FRONTIER OIL & GAS CC
GENERAL ATLANTIC ENTERPRISES
GIANT REFINERY
GULFMARK ENERGY
HARKEN SOUTHWEST CC
JN PETROLEUM MKTG INC
KAISER - FRANCIS OIL
KELLY-MACLASKEY OILFIELD SERVICES INC
KOCH OIL COMPANY
LANTERN PETROLEUM
LINMAR OIL CC
LUBAR OIL CC
MARATHON OIL CC
MARQUEST RESOURCES CORF
MCRAE & HENRY LTD
MONTANA REFINING CC
MURPHY OIL USA INC
NAVAJO REFINING CC
NORTHRIDGE
OCCIDENTAL ENERGY MARKETING INC
PANTERRA PETROLEUM
PENNZOIL PRODUCING
PETRO SOURCE
PHILLIPS 66 CC
PLAINS ALL AMERICAN LLF
PRIMA OIL AND GAS CC
QUINEX ENERGY CORF
RED CEDAR PIPELINE
SAMEDAN OIL CORF
SCURLOCK PERMIAN CC
SINCLAIR OIL CORF
SONAT EXPLORATION CC
SUNOCO INC REFINING & MARKETING
SUNSHINE VALLEY PETROLEUM
TBI EXPLORATION INC
TEPPCO CRUDE OIL LLF
TEXACO TRADING & TRANSPORTATION
TOM BROWN INC
TOWNSEND COMPANY
WESTPORT OIL AND GAS
WEXPRO CO
WILLIAMS ENERGY MARKETING & TRADING

Note: Rocky Mountain region includes the states of LA, NM, OK and TX.
Source: Transactions Database, Trade Press, Company 10Ks, MMS, IPAA Member Survey

Figure 6

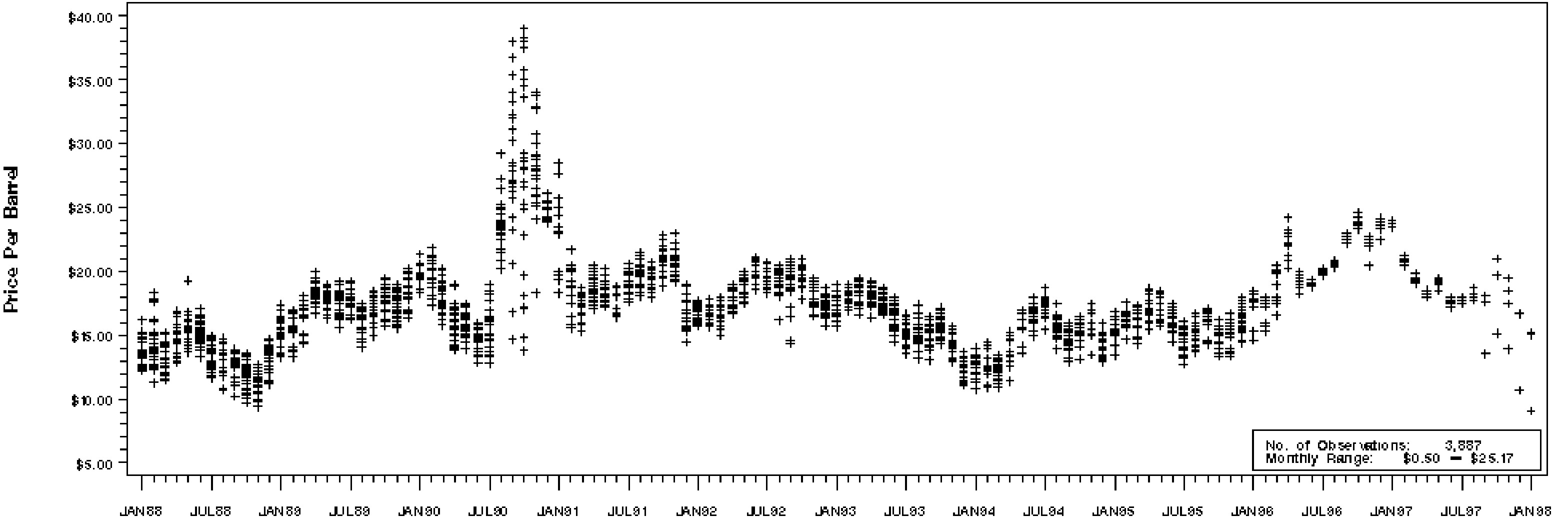
FIRST PURCHASERS IN COWDEN (TX) PRODUCING AREA 1990s

ADA CRUDE OIL CC
AMOCO PRODUCTION CC
ATLANTIC RICHFIELD CC
BASIS PETROLEUM INC
BHT MARKETING INC
BML INC
CITGO PETROLEUM CORF
COASTAL STATES TRADING INC
CONOCO INC
CRUDE TRUCKING INC
ENPRO INC
EOTT ENERGY OPERATING LLF
ESSEX REFINING CC
EXXON CO USA
FINA OIL AND CHEMICAL CC
GREAT WESTERN MARKETING INC
GULFMARK ENERGY INC
HOWELL CRUDE OIL CC
IPM CORP
JN PETROLEUM MARKETING INC
KGF SALES CO
KOCH INDUSTRIES INC
L & L INC
LANTERN PETROLEUM CORF
MARATHON OIL CC
MOBIL OIL CORF
MURPHY OIL USA INC
NATIONAL COOPERATIVE REFINERY ASSOCIATIOI
NAVAJO REFINING CC
NGC OIL TRADING AND TRANSPORTATION IN(
NORTHRIDGE ENERGY MARKETING CORI
ORYX CRUDE TRADING & TRANSPORTATION IN(
PEN ROY OIL OF ODESSA INC
PENNZOIL GAS MARKETING CC
PERMIAN OPERATING LLF
PETRO SOURCE PARTNERS LTD
PHIBRO ENERGY INC
PHILLIPS PETROLEUM CO W\ PHILLIPS 6(
PLAINS MARKETING & TRANSPORTATION IN(
PRIDE COMPANIES LF
SCURLOCK PERMIAN CORF
SENEX PIPELINE CC
SHELL OIL CC
SUN COMPANY INC
SUNNYBROOK TRANSMISSION INC
TEXACO TRADING AND TRANSPORTATION IN(
TOTAL PETROLEUM INC
WICKFORD ENERGY MARKETING

Source: Texas State Comptroller, as compiled by HPDI

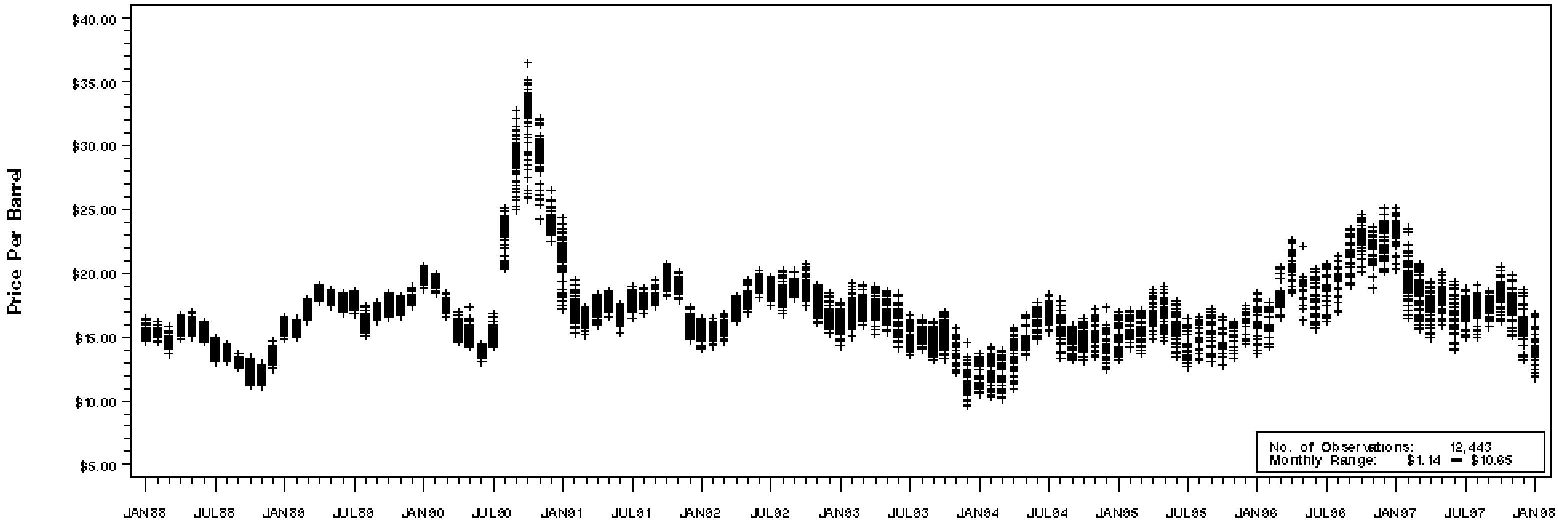
Figure 7

OUTRIGHT TRANSACTIONS AT THE LEASE
AMOS DRAW (WY) PRODUCING AREA



Source: Transactions Database

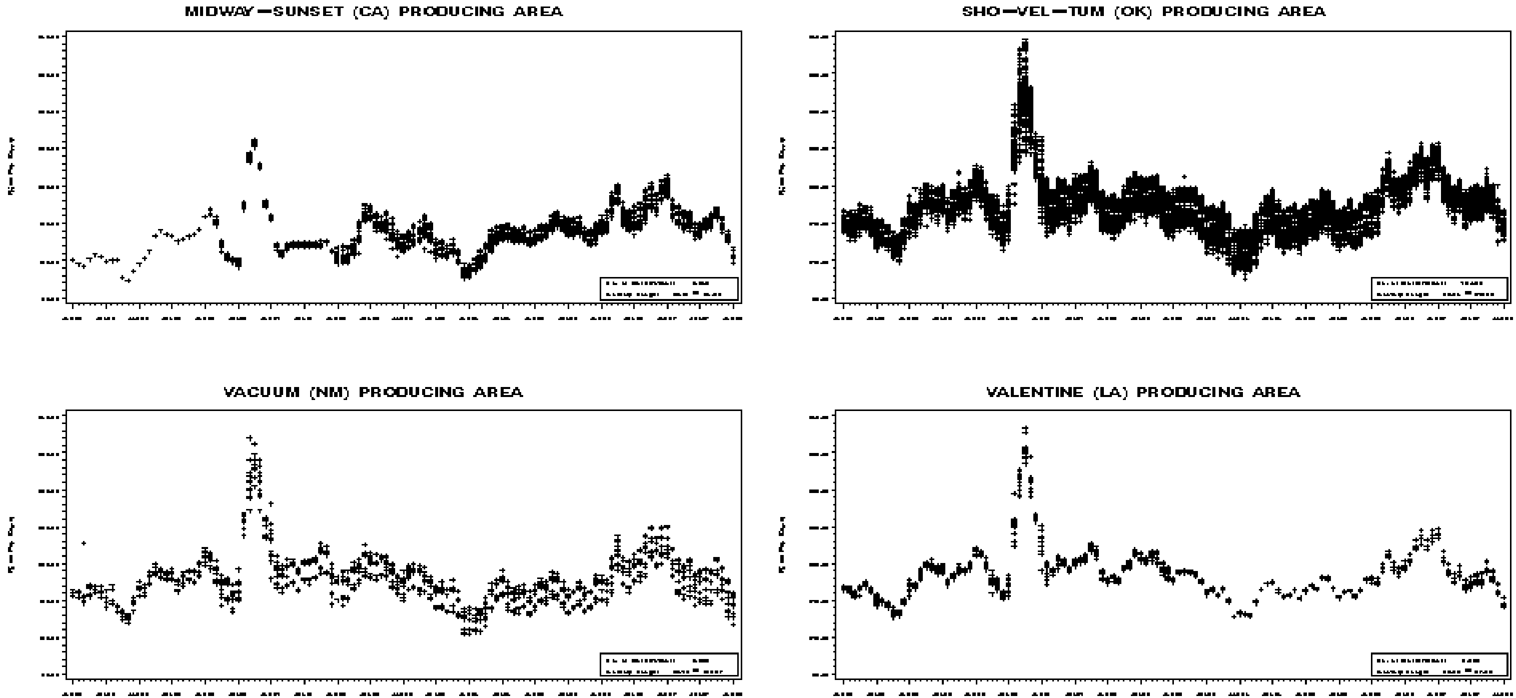
Figure 8
OUTRIGHT TRANSACTIONS AT THE LEASE
COWDEN (TX) PRODUCING AREA



Source: Transactions Database

Figure 9

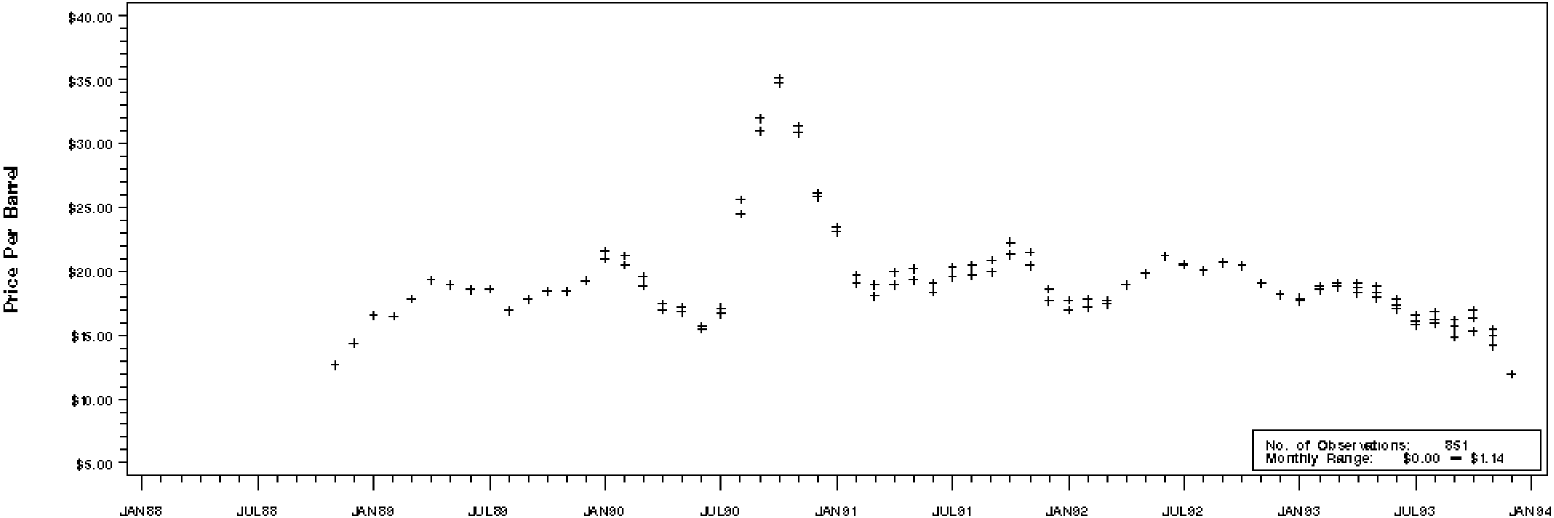
OUTRIGHT TRANSACTIONS AT THE LEASE
VARIOUS PRODUCING AREAS



Source: Transactions Database

Figure 10

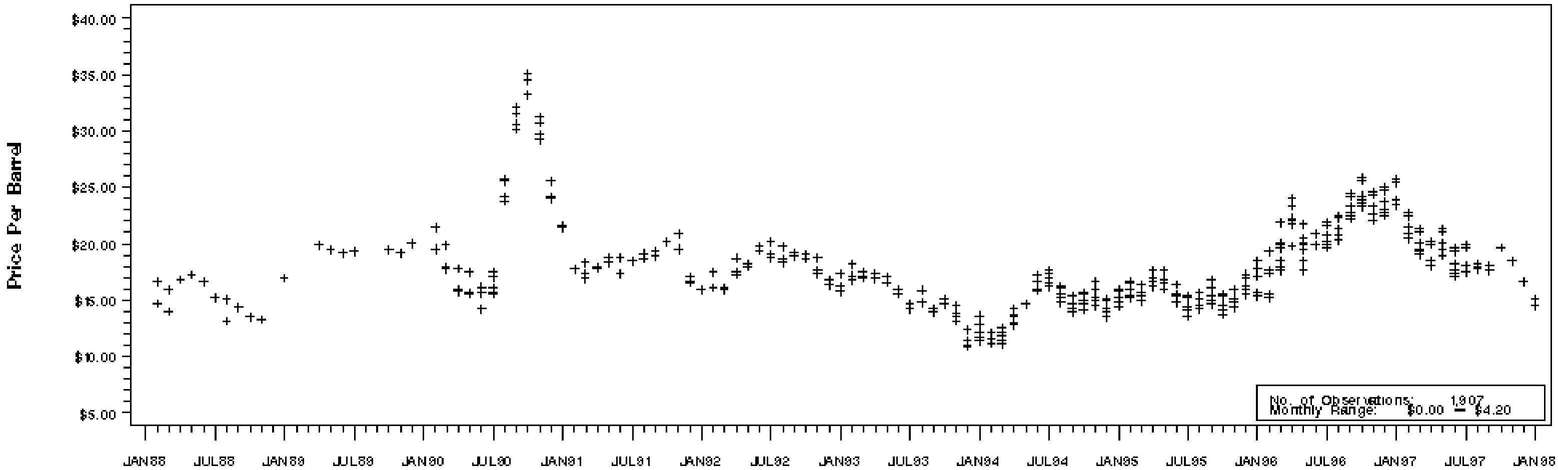
OUTRIGHT TRANSACTIONS AT THE LEASE
EUGENE ISLAND 330 PRODUCING AREA



Source: Transactions Database

Figure 11

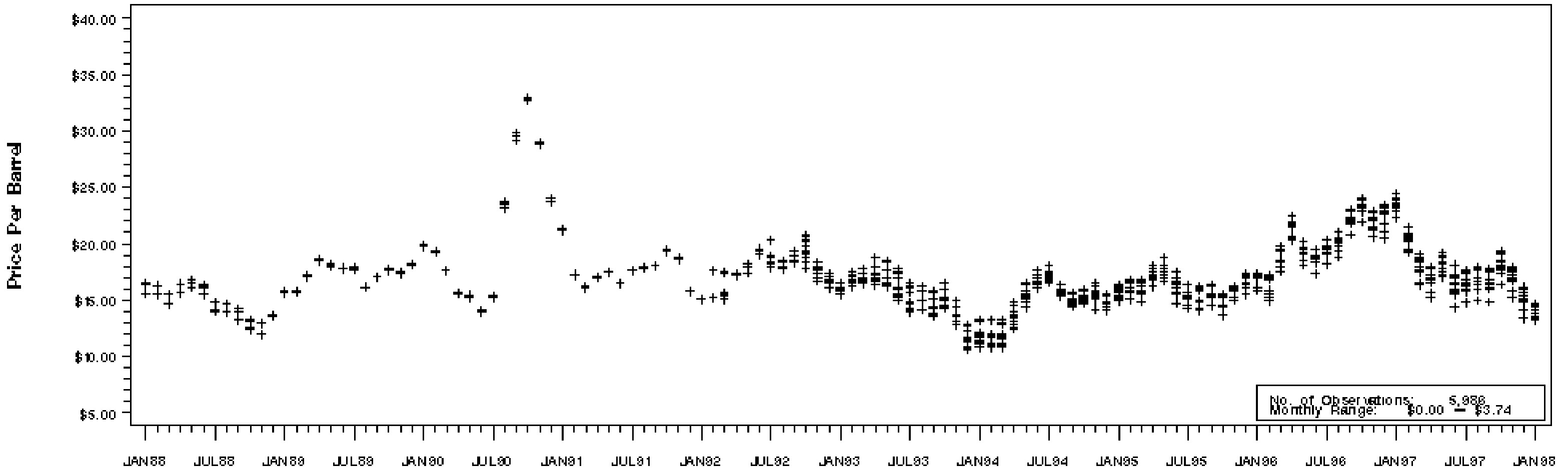
OUTRIGHT TRANSACTIONS AT THE LEASE
ADJUSTED FOR SULFUR, GRAVITY, PAYMENT TIMING
AMOS DRAW (WY) PRODUCING AREA



Source: Transactions Database

Figure 12

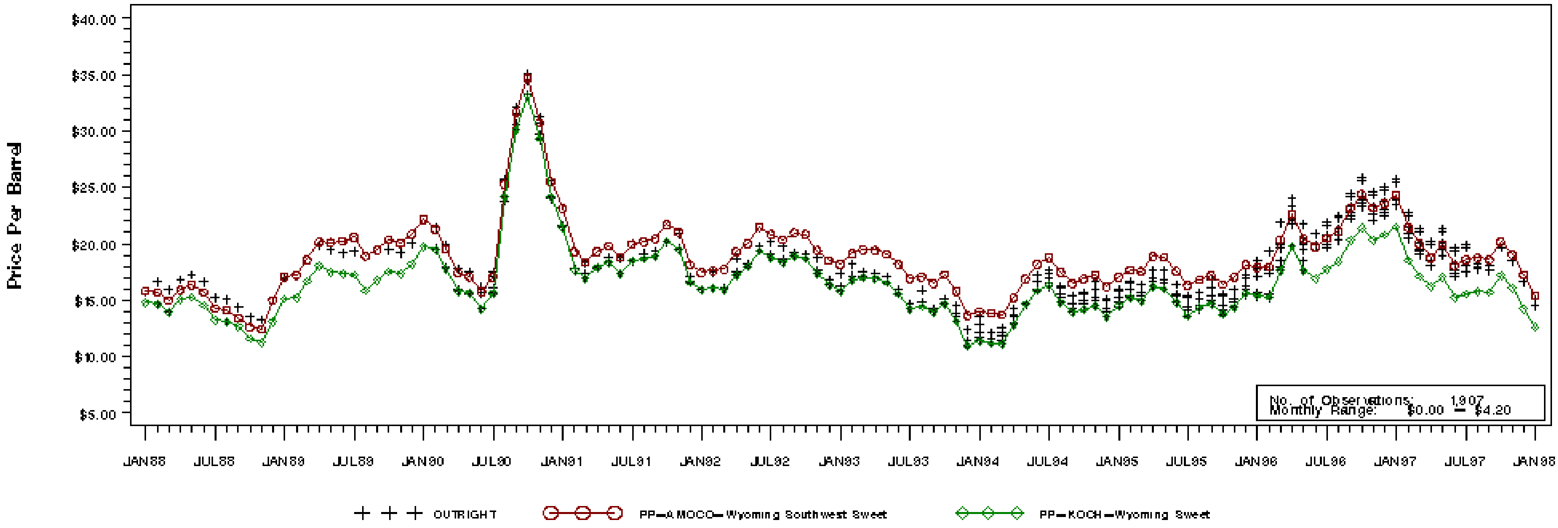
OUTRIGHT TRANSACTIONS AT THE LEASE
ADJUSTED FOR SULFUR, GRAVITY, PAYMENT TIMING
COWDEN (TX) PRODUCING AREA



Source: Transactions Database

Figure 13

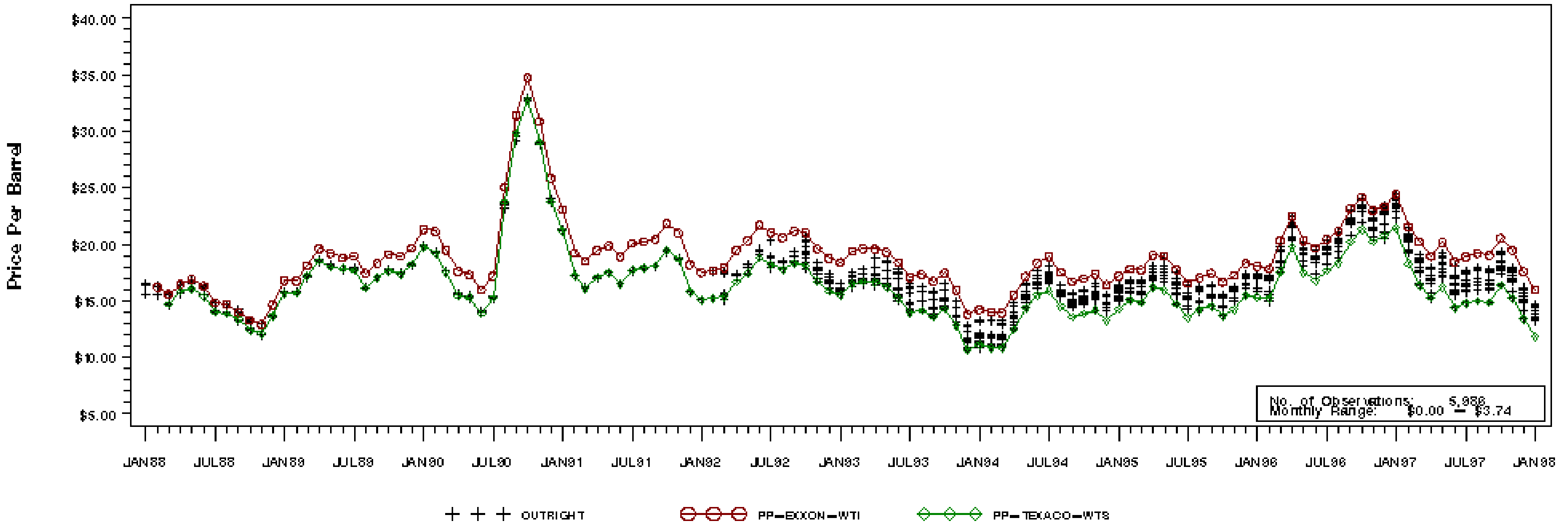
OUTRIGHT TRANSACTIONS AT THE LEASE AND POSTED PRICES ADJUSTED FOR SULFUR, GRAVITY, PAYMENT TIMING AMOS DRAW (WY) PRODUCING AREA



Source: Transactions Database

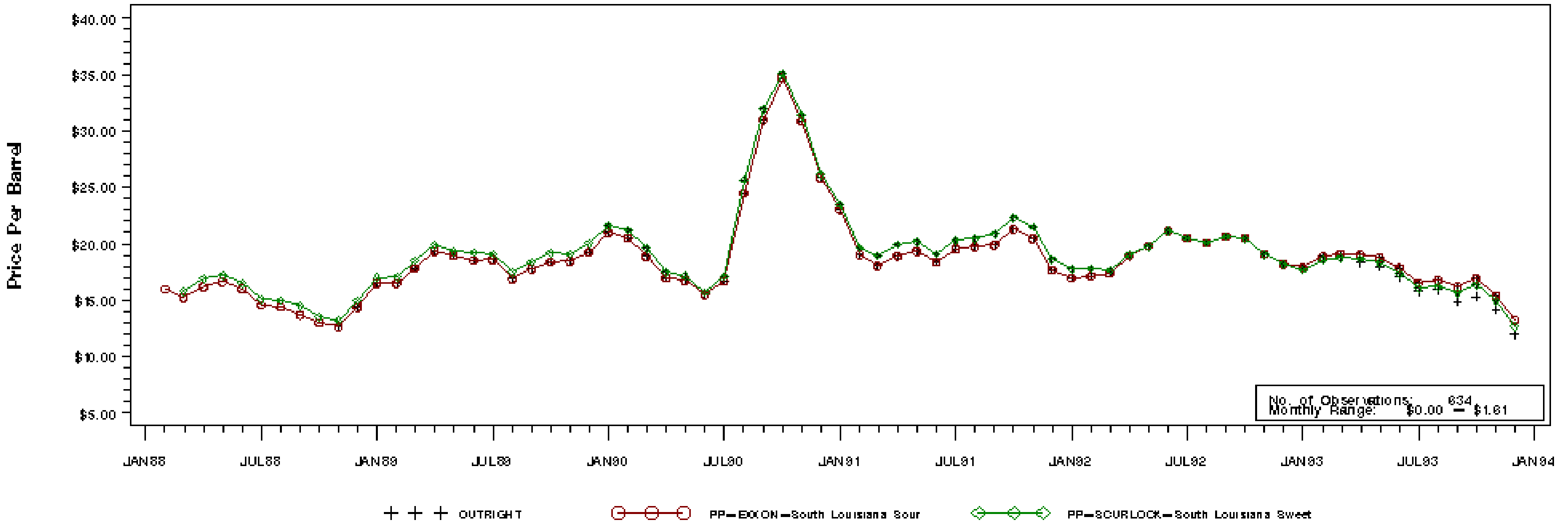
Figure 14

OUTRIGHT TRANSACTIONS AT THE LEASE AND POSTED PRICES
ADJUSTED FOR SULFUR, GRAVITY, PAYMENT TIMING
COWDEN (TX) PRODUCING AREA



Source: Transactions Database

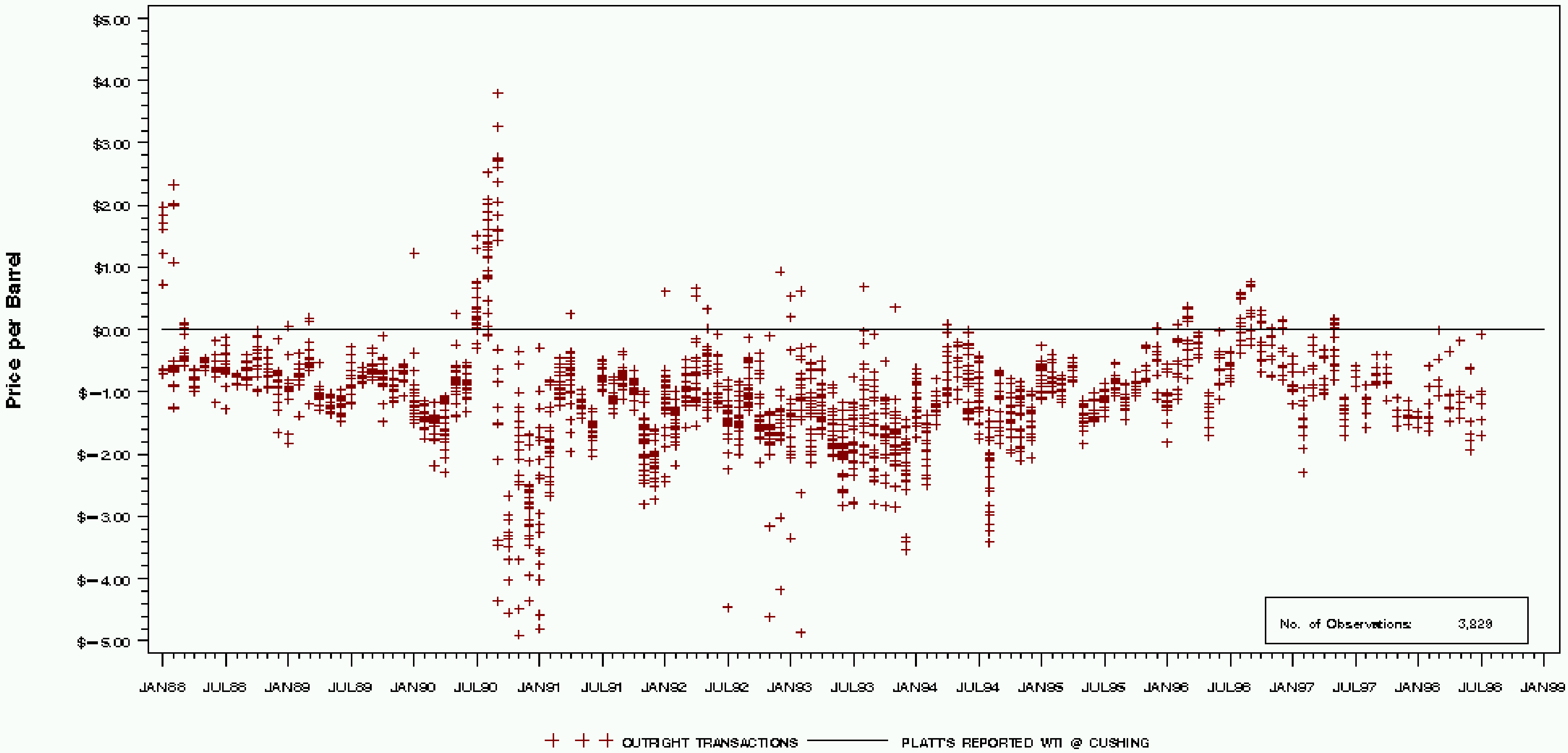
Figure 15
OUTRIGHT TRANSACTIONS AT THE LEASE AND POSTED PRICES ADJUSTED FOR SULFUR, GRAVITY, PAYMENT TIMING EUGENE ISLAND 330 PRODUCING AREA



Source: Transactions Database

Figure 16

OUTRIGHT TRANSACTIONS AT THE LEASE IN CUSHING FIELD (OK)
DIFFERENCE FROM WTI SPOT PRICE



Source: Transactions Database, DRI Series COISP@TXW