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U.S. DEPARTMENT OF ENERGY
ENTITLEMENTS PROGRAM HANDBOOK

MASTER

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A GENERAL OVERVIEW OF THE ENTITLEMENTS PROGRAM
FOR PUBLIC DISSEMINATION

**ECONOMIC REGULATORY ADMINISTRATION
U.S. Department of Energy
Washington, D.C.**



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FEA ENTITLEMENTS HANDBOOK

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CHAPTER 1. INTRODUCTION TO THE HANDBOOK

1.1 OBJECTIVES

This Handbook has been written to serve the following purposes:

1. Inform and advise participants in the program, particularly the smaller, independent refiners, of how the program operates and what is required of participants. Clear and straightforward language is used to explain regulatory requirements with illustrative examples of how the program operates.
2. Inform businessmen, bankers, lawyers, and journalists of how the program operates and its impact on the petroleum industry and consumers.
3. Provide an unofficial reference document which will assist the Domestic Crude Oil Entitlements staff members to answer inquiries from program participants and others associated with the petroleum industry.
4. Compile one comprehensive document which covers, explains and illustrates the essential operation of the entitlements program.

1.2 REQUIREMENT

The need for an Entitlements Handbook to supplement FEA regulations results from the complexity of, and past frequency of changes to, the regulations governing the operation of the entitlements program. Also, the regulations necessarily have a legal tone and semantic precision to document the requirements in the event of litigation. This does not result in ready

comprehension of the regulations nor does it explain the how or the why of requirements. The Entitlements Handbook is intended to fill this gap by providing examples of how requirements apply to varied circumstances and sample calculations that illustrate how the program operates. Discussion and analysis of the requirements illustrate the quantitative relationships which explain why the requirements were established.

1.3 APPROACH

In order to achieve the objectives and meet the requirements for a diverse audience, a building block approach is used. Simple hypothetical examples are used to illustrate basic concepts and principles. Once the reader is familiar with basic concepts involved, he or she can better comprehend the more complex, real-life examples which follow. Some material will be of interest only to new refiners or non-refiners. In view of this fact, the material is arranged so as to permit reading in any sequence or order, depending on the level of knowledge or interest of the reader. Generally, an inductive process is used to explain the program elements, their relationship with each other and the overall effect of the interaction.

1.4 CURRENCY AND REVISIONS

This Handbook is current and consistent with FEA regulations as of June 1, 1977. As program changes occur, the Handbook may be updated by periodic revision or supplements.

1.5 USE OF THE HANDBOOK

This FEA Entitlements Handbook is published for information purposes only and is not directive or authoritative. At any one time, the Handbook may, or may not, reflect current regulatory requirements. The information contained in the Handbook in no way is to be construed as an official

interpretation of the Regulations, or as altering or modifying the authority and requirements of the FEA regulations, i.e., Title 10 of the Code of Federal Regulations.

For the legal requirements of the Regulations, reference should be made to the Regulations themselves, and FEA's published interpretations, rulings and decisions related thereto.

1.6 EXCEPTIONS AND APPEALS RELIEF

When compliance with the FEA regulations in a particular case for an individual firm or firms results in a serious hardship or gross inequity, the firm or firms have recourse to administrative procedures to seek relief. The FEA has established administrative procedures and sanctions in Title 10, Code of Federal Regulations, Part 205. These administrative procedures and sanctions recognize that regulations cannot be written to cover all segments of the petroleum industry in all possible situations and circumstances. There are several procedures which apply to specific types of relief required. Should a participant in the entitlements program believe that compliance with the regulations, 10 CFR, Part 211, causes a serious hardship or gross inequity due to particular circumstances or conditions, that participant should refer to 10 CFR, Part 205, to determine the specific relief and procedure appropriate to his situation.

1.7 USER COMMENTS

This FEA Entitlements Handbook was prepared to serve a large audience with varied levels of knowledge and experience relative to the operation of the entitlements program. At the outset, comments were solicited from selected individuals in the petroleum industry on the proposed coverage and approach. Comments received generally concurred with the

proposed coverage, but varied widely on the approach from oversimplified to overcomplicated. Particular concern was reflected over the use of formulas to explain entitlement calculations and quantitative relationships. A concerted effort was made to verbally explain calculations and quantitative relationships in addition to the mathematical formulas.

The Handbook was intended to be a useful source of information which would help people to better understand the entitlements program. In the interest of this intent, user comments are solicited on how and where improvements can be made. Also, it is anticipated that the readership will discover oversights, discrepancies and errors which require correction. User comments on improvements and corrections may be reflected in future revisions or supplements. Comments should be addressed to:

Domestic Crude Oil Entitlements Program
20th Street Postal Station
P.O. Box 19326
Washington, D.C. 20036

CHAPTER 2. BRIEF HISTORY AND BACKGROUND

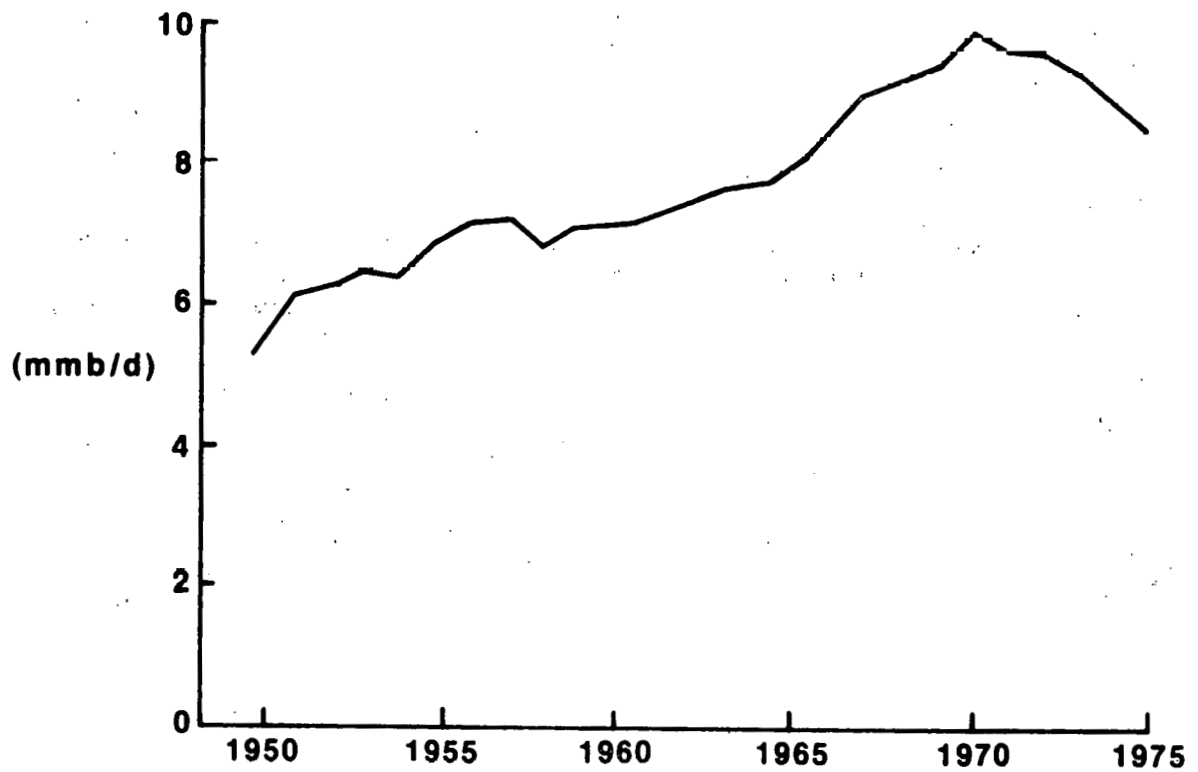
2.1 U.S. PETROLEUM RESOURCES

Until the 1960's, the United States was essentially independent of foreign oil supplies. This nation produced and consumed more oil than any other country; its domestic supply was plentiful and proven reserves were growing. Because of the availability of less expensive imported oil, new exploration and development diminished and domestic production began to decline after 1970. (See Graph 2.1-1)

Declining supply, combined with a continued four percent (4%) annual growth rate in consumption, resulted in a dramatic rise in our reliance on imported oil. (See Graph 2.1-2) Import dependency has grown from eighteen percent (18%) in 1960 to about forty-two percent (42%) in 1976. Direct imports from OPEC now constitute about three-fourths of all imports, with Nigeria, Canada, Venezuela, Saudi Arabia and Indonesia supplying most of our imported oil.

As a consequence of the Arab oil embargo and OPEC price increases, both domestic crude oil and imported crude oil prices rose dramatically during the latter part of 1973 and the first quarter of 1974. Although price changes have been more gradual since then, they continued to increase. The higher prices affected all petroleum products, including motor gasolines, home heating oil, and residual fuel oil. The average retail price of gasoline has increased by about fifty percent (50%) since the onset of the embargo.

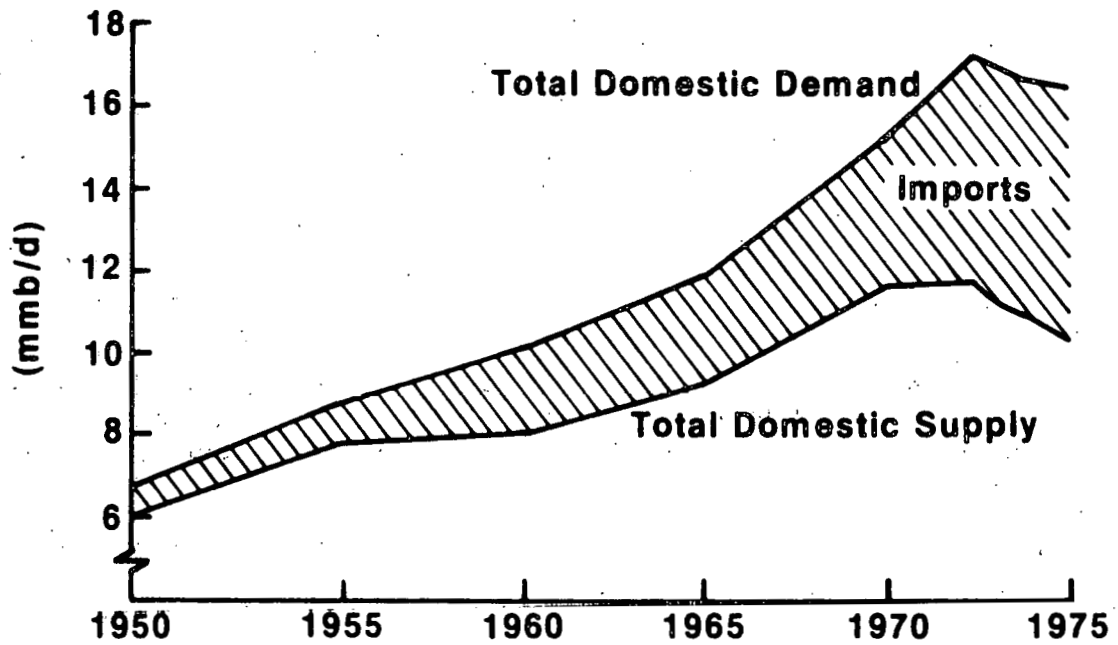
U.S. Crude Oil Production



Source: U.S. Bureau of Mines.

Graph 2.1-1

Domestic Petroleum Supply and Demand



Source: Federal Energy Administration.

Graph 2.1-2

The higher oil prices experienced since the 1973 embargo have also had an important effect on petroleum consumption. Domestic oil demand fell by four percent (4%) in 1974 and an additional 2.2 percent in 1975 — a reversal from the trend in recent years. Had pre-embargo trends continued, demand would have been about three million barrels per day higher than it was in 1975. Although much of the decrease in demand was due to lower economic activity, significant reductions were a result of consumer response to higher prices. In 1976, however, there was an upward trend in demand of approximately seven percent (7%) over 1975.

The outlook for domestic oil supply is clouded with uncertainty. The extent and availability of domestic resources, Federal Outer Continental Shelf leasing policy, form and duration of oil price controls, success of tertiary recovery techniques, and participation of State and local governments will determine future production possibilities.

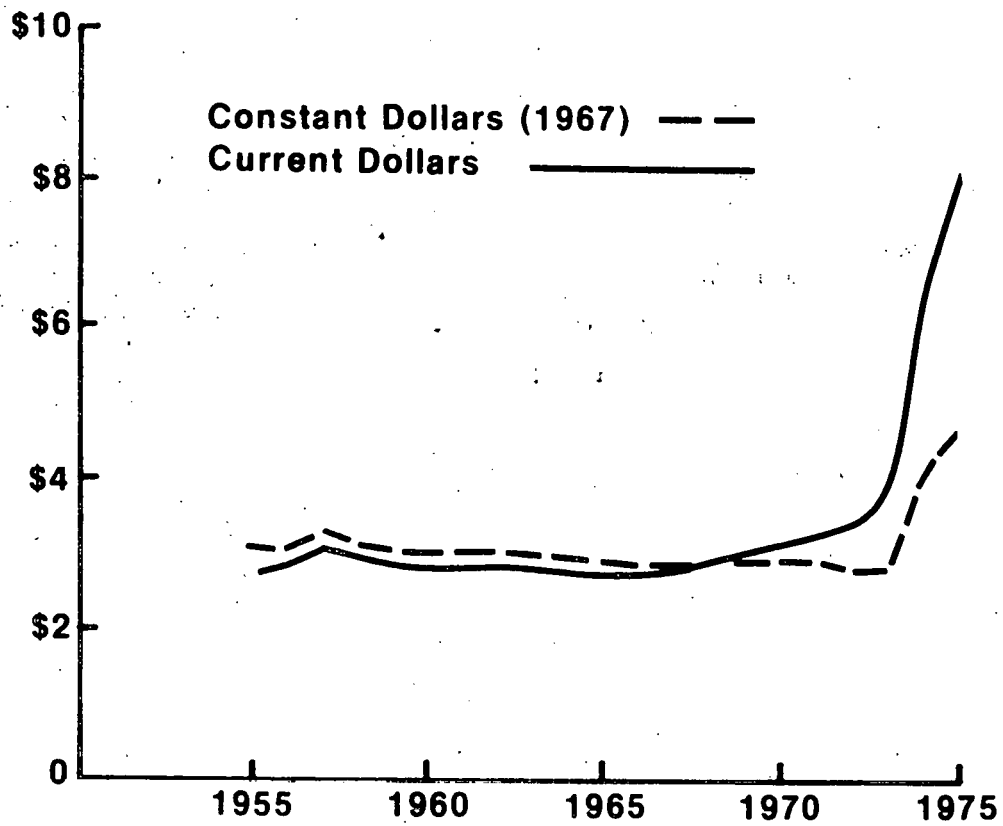
In recent years, significant changes have occurred in domestic crude oil production, reserves, imports, prices and consumption. This section discusses the oil supply situation, the events leading up to it, and the short-term supply and demand outlook. The relevant historical perspective behind these observations can be divided into two parts; the dividing point is the Arab oil embargo of 1973.

Pre-Embargo Period

Three major factors shaped domestic oil supply from the Fifties to the early Seventies:

1. Crude oil prices remained relatively stable (actually declining when adjusted for inflation). (See Graph 2.1-3)
2. Conservation practices in major producing states held crude oil production well below full capacity until about 1970.

Average Wellhead Price of U.S. Crude \$/bbl



Sources: U.S. Bureau of Mines, U.S. Bureau of Labor Statistics,
American Petroleum Institute, and Federal Energy Administration.

Graph 2.1—3

3. A large amount of inexpensive foreign crude oil overshadowed the world petroleum market; its import into the United States, however, was limited severely by mandatory oil import quotas.

These factors created a pre-embargo domestic oil supply situation with a number of important features:

1. Oil drilling declined steadily after 1959 for two major reasons: decreased profitability of domestic production in mature producing areas (because of rising costs and stable oil prices in the face of inexpensive foreign oil); and the lack of access to Federal lands in frontier areas (OCS and Alaska).

2. In response to decreased drilling, domestic oil reserves declined steadily after 1966 (except for North Alaskan reserves added in 1970).

3. Until 1970, domestic production increased. After the 1970 peak, domestic production began to follow reserves downward.

4. Meanwhile, domestic oil consumption increased steadily in the face of this production trend, reaching a pre-embargo peak in 1973 of over 17 million barrels per day (MMB/D).

5. In turn, the widening gap between domestic oil consumption and domestic production was filled with increasing quantities of inexpensive oil imports.

6. These growing U.S. imports soon caused Western Hemisphere sources to reach their production capacities. Afterwards, the importance of the Western Hemisphere began to decline as an increasing percentage of imports came from the Eastern Hemisphere.

7. Finally, the makeup of the imports shifted from crude to products, as a by-product of import quota exemptions in PAD I, environmental requirements for low sulfur fuel oil, and various incentives imbedded in price controls.

Post-Embargo Period

The changes in the oil supply situation caused by the 1973 Arab oil embargo were dramatic. They have caused a rethinking, at a high national priority, of the entire domestic energy situation.

After 1973, the three major pre-embargo factors were no longer present; they had, however, been replaced by others:

1. Imports became expensive — up to \$12 a barrel, excluding any import fees.
2. In response, domestic crude oil prices increased sharply, on average from around \$3 to over \$8 nominally and to nearly \$5 in constant dollars.

These two factors have been the major determinants of the oil supply situation, 1974 through 1976 with the following significant features:

1. Although price controls remained in effect for "old" oil, "new" oil sold at the wellhead at a free market price. This has changed under the Energy Policy and Conservation Act (EPCA).
2. For the first time in recent history, domestic demand declined, from a high in 1973 of about 17.3 MMB/D, to a 1975 figure of approximately 16.2 MMB/D, but then began increasing in 1976.
3. Drilling activities for oil increased dramatically in 1974 and again in 1975. As an indication, the active rotary rig count in 1975 reached 1,877, the highest count since 1962.
4. Federal leasing on the Outer Continental Shelf was programmed, but faced an uncertain future.
5. Higher prices stimulated consideration of tertiary processes to increase crude oil recovery.
6. Domestic crude oil production began to slow its decline in 1975.

The Present Situation

The present oil supply situation is best characterized by the following:

1. The United States now imports more than forty-nine percent (49%) of the oil it consumes, i.e., crude oil plus petroleum product imports.
2. Price controls on domestic production have been in effect since 1973.

3. Proved reserves have been steadily declining since 1970 (when nearly 10 billion barrels were added in North Alaska).
4. Domestic production levels have been decreasing since 1970, but may decline more slowly in the future.
5. Federal leasing of Outer Continental Shelf lands poses an uncertain potential for increased supplies.
6. Drilling effort for oil has been increasing since 1972, after declining for 15 years.
7. Domestic oil consumption declined from 1973 levels in 1974 and 1975, but began increasing again in 1976.

2.2 THE EMERGENCY PETROLEUM ALLOCATION ACT OF 1973

As dramatic changes took place in the supply and demand situation for oil, the Federal Government took a series of administrative and legislative actions to mitigate the impact of these changes on the U.S. consumer. At the same time, efforts were initiated to formulate a National Energy Policy to cope with the changes and assure sufficient supplies of oil in the future at a reasonable cost. The immediate problem was posed by the Arab oil embargo and the subsequent effective OPEC cartel pricing of crude oil. The long-range problem was how to assure a future, secure U.S. energy supply in the face of high demand for, and declining reserves of crude oil.

The immediate problem was met with enactment of the Emergency Petroleum Allocation Act of 1973 (EPAA) on November 27, 1973. The purpose of the Act was to grant temporary authority to the President to deal with shortages of crude oil, residual fuel oil, and refined petroleum products and resultant dislocations in the national distribution system. The authority granted was to be exercised in the interest of minimizing the adverse impacts of such shortages or dislocations on the American people and the domestic economy. Under the authority of the EPAA, regulations were promulgated which provided for the mandatory allocation of, and ceiling prices for, crude oil, residual fuel oil and petroleum products.

The responsibility for implementing the provisions of the EPAA was assigned to the Federal Energy Office (FEO) in December 1973. The Administrator of the FEO was delegated all the authority vested in the President by the EPAA. (NOTE: The FEO became the Federal Energy Administration (FEA) in June 1974 under the authority of the Federal Energy Administration Act (FEAA) of 1974, enacted in May 1974.)

Early in 1974, the Federal Energy Office (FEO), under the authority of EPAA, took several steps to assure that crude oil shortages resulting from the Arab oil embargo did not have a disproportionate impact on small and independent refiners. FEO froze crude oil supplier/purchaser relationships that existed as of December 1, 1973. A Crude Oil Buy/Sell Program was established so that crude oil supplies would be distributed equally among refiners based on a national average supply-to-capacity ratio. The program initially called for shifting crude oil from refiners with supply-to-capacity ratios higher than the national average to refiners with lower than average

supply-to-capacity ratios. Later, the program was changed to provide for sales from major integrated oil companies to small refiners and to refiners with no significant ownership of production. Small refiners were defined as those with not more than 175,000 barrels per day of capacity, and independent refining companies were defined as those receiving more than seventy percent (70%) of their refinery input in 1972 from unaffiliated crude oil producing companies. The Buy/Sell Program provided for the distribution of any shortfall in total crude oil supplies so that small and independent refiners were not disproportionately affected by import reductions.

Neither the Buy/Sell Program nor the freeze of supplier/purchaser relationships was designed to assure refiners equal access to competitively-priced crude oil. A disparity of costs to refiners, estimated by FEA to be as much as \$6 to \$7 per barrel in August 1974 for all categories of crude oil, became a factor in the marketing of refined petroleum products after the Arab oil embargo ended. With crude oil no longer in short supply, the marketplace for refined products became more sensitive to price considerations, and the viability of refining operations with higher than average raw material costs was threatened. The entitlements program was thus initiated to bring crude oil costs for all classes of refiners into alignment through a system of monetary transfers.

2.3 THE ENERGY POLICY AND CONSERVATION ACT

A national energy policy was developed in 1974 based on energy self-sufficiency for the U.S. by 1985, i.e., Project Independence. Self-sufficiency was to be achieved by increased energy supplies, i.e., oil, coal, nuclear and solar, energy conservation and dampening of energy demand by permitting price increases. This policy evolved through a series of studies and was modified by late 1975. Complete self-sufficiency by 1985 proved to be an

unrealistic goal and the national policy recognized that reliance on some imported oil would be necessary through the year 2000. The modified policy placed more emphasis on energy conservation and reduced demand for petroleum products and natural gas by greater use of coal.

The modified National Energy Policy was reflected in the Energy Policy and Conservation Act (EPCA) enacted in December 1975.

There were two specific provisions in the EPCA which required significant changes in the entitlements program:

1. The EPCA set the national weighted average price for all domestic crude oil, both old and new, at \$7.66 per barrel, to be effective in February 1976. FEA implemented this price by adopting a two-tier price system for domestic crude oil. "Lower tier" applied to old oil which was similar to the existing rules with an average price of approximately \$5.34 per barrel. "Upper tier" applied to new oil and resulted in a rollback in price to approximately \$11.28 per barrel. The price rollback resulted in an increased differential between new, upper tier oil and imported oil in refiners' acquisition cost of approximately \$1.60 in February 1976. This cost differential required the FEA to revise the entitlements program to equitably distribute among all domestic refiners the cost advantage of upper tier crude oil over imported crude oil in addition to the equitable distribution of lower tier crude oil. (For a more detailed discussion, see Section 3.1.)

2. The EPCA provided an entitlement purchase exemption for the first 50,000 barrels per day for refiners with a capacity not exceeding 100,000 barrels a day. The exemption was implemented by Special Rule Number 6 and was first applied to crude runs in October 1975. Small refiners with crude runs less than 50,000 barrels per day had no entitlement purchase obligations. Small refiner-buyers with crude runs greater than 50,000 barrels per day were partially exempted from entitlement purchase obligations. This provision proved to be inequitable and Special Rule Number 6 was revoked, effective in April 1976. (For a more detailed discussion see Section 3.1.)

2.4 SUMMARY

While other legislation and Federal Governmental actions have addressed various aspects of the energy problem, the EPAA and the EPCA have specifically given shape and substance to the entitlements program. The FEA's authority to implement the entitlements program is based on Section 4(a) of the Emergency Petroleum Allocation Act of 1973 (EPAA) which requires the FEA to regulate the mandatory allocation and pricing of domestic crude oil. The program was designed specifically to address the Congressional mandate contained in Section 4(b)(1)(F) of the EPAA which requires "equitable distribution of crude oil, residual fuel oil, and refined petroleum products at equitable prices among all regions and areas of the United States and sectors of the petroleum industry, including independent refiners, small refiners, non-branded independent marketers, branded independent marketers, and among all users."

The existing system of domestic crude oil price controls which implement the EPCA pricing provisions are scheduled to remain in effect until May 1979. It appears likely that the entitlements program will be necessary to provide some measure of crude oil cost equalization as long as there are price controls that result in different costs of crude oil to refiners.

CHAPTER 3.

3.1 PROGRAM OVERVIEW

This overview summarizes the history and significant features of the entitlements program. The program is detailed by a complex set of regulations which are intended to mitigate the competitive distortions in the petroleum industry which result from regulation of petroleum prices. The program has been dynamic, both in terms of changes and of impacts on the petroleum industry. There will undoubtedly be more changes between now and May 1979 when crude oil price controls are scheduled to expire.

The Federal Energy Administration's Crude Oil Entitlements Program was first proposed in August of 1974¹ and went into effect in November of 1974. The objective of the program was to achieve the equitable distribution of low-priced old crude oil among all sectors of the petroleum industry and assure that domestically refined petroleum products were sold at equitable prices in all regions of the United States. At the time the program began, there was a wide disparity between the refiners acquisition cost of controlled old oil, averaging \$5.36 per barrel, and the acquisition cost of imported crude oil, averaging \$11.90 per barrel. Small and independent refiners on the average were incurring significantly higher crude cost than the major integrated oil companies due to the small refiner's limited access to lower-cost old oil. The program was intended to provide all domestic refiners the cost benefits associated with access to supplies of old oil by, in effect, allocating to each refiner his proportionate share of the total domestic supply of old oil based on his crude runs to stills each month.

¹Federal Register, Vol. 39, p. 31650, August 30, 1974.

The entitlements program was implemented to achieve a specific measure of cost equalization for all crude oil acquired. Precise cost equalization was not the objective. The program intent was to equalize cost on the basis of the proportionate share of old oil and thereby eliminate any significant competitive distortions attributable to degree of access to lower-priced old oil. Individual refiner's acquisition costs for crude oil may still vary due to numerous other considerations, e.g., quality differentials, access to Federal Royalty Oil, transportation costs, and production participation.

One feature of the program specifically considers refinery size (capacity) and relative economies of scale. The Small Refiner Bias (SRB) was designed to issue additional entitlements to small refiners (with crude runs less than 175,000 barrels per day), inversely proportional to their daily average crude runs per day. The bias was based on the past benefits received by small refiners under the Mandatory Oil Import Program, prior to the implementation of the license fee system, begun in April 1973. The additional entitlements issued to small refiners result in lower crude cost to offset relatively higher processing costs than those incurred by large refiners. This cost offset is intended to allow small refiners to be competitively viable with major integrated and large independent oil companies in the marketplace.

In order to achieve the desired measure of cost equalization, the program required an exchange of funds between domestic refiners through the purchase or sale of entitlements. One entitlement permitted the owner of the entitlement to include one barrel of old oil in his adjusted crude oil receipts for that month. (Entitlements are conceptual; they are not certificates or documents and do not result in physical transfers of crude oil.) Generally, a refiner who purchased low-cost, price-controlled crude oil must buy entitlements from a refiner who purchased high-cost, price-uncontrolled crude oil.

Based on monthly data submitted by all refiners and eligible firms participating in the program, FEA calculated which firms were required to buy entitlements and which were required to sell entitlements and the number to be bought or sold by each firm. The number of entitlements issued to participants was based on the monthly average supply of old oil, which FEA also calculated from the data submitted.

The monthly average supply of old oil, i.e., total old oil receipts reported, is divided by the total crude runs to stills reported for that month to determine the National Old Oil Supply Ratio (NOOSR). Each refiner's proportionate share of old oil was the same as the NOOSR relative to his own crude runs to stills. For example, if the NOOSR = .4000, then each refiner's proportionate share of old oil would equal forty percent (40%) of his crude runs, i.e., crude runs x .4000. If a refiner had actually purchased more than his proportionate share of old oil, he would have to buy entitlements, i.e., he had a purchase requirement. If a refiner had purchased less, or no, old oil, he would have to sell entitlements; i.e., he had a sale requirement. The price of one entitlement was defined as the weighted average cost of uncontrolled oil less the average cost of old oil in dollars per barrel.

In the first four months of phasing in the program FEA set the entitlement price slightly lower than calculated estimates. This deliberate shortfall in entitlement price was designed to avoid placing a heavy cash flow burden on small refiner buyers of entitlements at the outset of the program.

FEA issued entitlements by publishing a notice in the Federal Register on approximately the 10th day of the second month following the reporting month. For example, if volumes of crude oil were purchased and crude runs made in the month of June, the reporting month, they would be reported to FEA by the 28th of July and the entitlement notice would be published on the 10th of August. Entitlement sales and purchases, or transactions, were to be completed by the end of August. For each refiner, the notice listed the number of entitlements issued, old oil receipts in barrels, and entitlements issued minus old oil receipts, which was the number of entitlements to be purchased or sold. If the differential was negative, i.e., old oil receipts exceeded the number of entitlements issued, then a purchase requirement would result. If the differential was positive, i.e., number of entitlements issued exceeds old oil receipts, a sale requirement would result.

The revenue from the sale of entitlements or the cost of the purchase of entitlements was applied, or "booked", against crude purchase costs in the month in which entitlement transactions were completed. Thus, entitlement sales reduced crude costs and, under the applicable price regulations, resulted in lower allowable product prices. Entitlement purchases increased crude costs and, under the applicable price regulations, increased allowable product prices. The net effect was to generally equalize product prices nationally.

In early 1974, prior to the implementation of the entitlements program, the Federal Energy Office (FEO)² had instituted measures to assure crude oil supplies for small and independent refiners during the Arab oil embargo. Crude oil supplier/purchaser relationships were frozen as of December 1, 1973, and a crude oil buy/sell program was established to equitably distribute crude oil supplies among all refiners. These measures primarily assured access to a

²The Federal Energy Office (FEO) became the Federal Energy Administration (FEA) on June 27, 1974

supply of crude oil. There was some cost benefit associated with this allocation to the extent that volumes purchased were deemed to contain the same percentage of old oil as the seller's average percentage of old oil in inventory. Under the current buy/sell program, designated major integrated oil companies sell FEA allocated crude oil to designated small and independent refiners upon request. That program did not, and does not now, provide any specified measure of cost equalization.

As could be expected, a program involving large transfers of funds (initially on the order of 100 million dollars monthly) was the subject of challenges based on constitutionality and legality. Economic and regional political issues developed and the program evolved through a series of changes. Numerous exceptions and appeals were filed, seeking exemptions from buying entitlements or the awarding of additional entitlements to sell.

Initially, small refiner buyers were exempted under Special Rule No. 3. Imports of distillate and residual fuel oil were initially included to provide partial entitlement benefits to importers. Beginning in February 1975 product imports were excluded when supplemental import fees were imposed. After removal of the supplemental import fees, beginning February 1976 residual fuel oil imported in Bureau of Mines (BOM) East Coast Refining District was partially included in the program again. At the same time, domestically refined residual fuel oil sold in, or sold into, the BOM East Coast Refining District resulted in reduced entitlement benefits to offset the partial benefits awarded to importers. (See Section 3.5 for a brief discussion of these items.)

The program was initially based on the premise of a two-tier pricing system, i.e., price-controlled, domestic old oil and uncontrolled domestic and imported oil. It was assumed that the price of domestic uncontrolled oil would rise to the level of foreign imported oil. This did not occur, however, and domestic uncontrolled oil maintained a price differential of approximately one dollar per barrel below that of imported oil up to the time of enactment of the Energy Policy and Conservation Act of 1975 (EPCA).

The EPCA was enacted in December of 1975 and placed price controls on all domestic crude oil starting in February 1976. The weighted average price for lower tier (old) and upper tier (new) crude oil was set by that Act at \$7.66 per barrel. The EPCA permitted this price to be increased ten percent (10%) per year (seven percent was allowed for inflation and three percent was allowed as an incentive to increase domestic production). In order to meet the average price ceiling, the price of lower tier oil was maintained at the same level, while the well-head price of upper tier oil was rolled back to approximately \$11.28 per barrel. This ultimately resulted in a refiner's acquisition cost differential between imported oil and upper tier oil of approximately \$1.60 per barrel.

In order to equitably distribute the cost advantages of both lower and upper tier crude oil over imported crude oil, the entitlement program regulations were revised to accommodate, in fact, a three-tier pricing system; lower tier, upper tier, and imported crude oil. A "deemed old oil" definition was established which includes all old oil receipts plus a fraction of upper tier oil receipts. This fraction is the Deemed Old Oil Ratio (DOOR) and initially was about one divided by six, i.e., 0.17. This implies that six barrels of upper tier oil results in the same cost advantage as one barrel of old oil, relative to the weighted average cost of uncontrolled crude oil. The DOOR is calculated by the FEA each month by dividing the cost differential between uncontrolled oil and upper tier (new) oil, less \$0.21 (in dollars per barrel) by the entitlement price for that month. The \$0.21 per barrel deduction from the cost differential was designed to favor domestic over imported crude oil.

The National Old Oil Supply Ratio (NOOSR) was redesignated as the National Domestic Crude Oil Supply Ratio (DOSR). A refiner's proportionate share of Deemed Old Oil (DOO) was equal to his crude runs multiplied by the DOSR. The proportionate share, i.e., entitlements issued, minus (algebraically) the DOO receipts equals the number of entitlements to be purchased (-) or sold (+). The revised program methodology distributed the benefits of lowest cost old oil and intermediate cost upper tier oil among all domestic refiners. In effect, crude oil cost equalization was achieved on the basis of national average cost data.

The EPCA also provided an entitlement purchase exemption for the first 50,000 barrels per day for refiners with a capacity not exceeding 100,000 barrels a day. The exemption was implemented by Special Rule No. 6 and was first applied to crude runs in October 1975. Small refiners with crude runs less than 50,000 barrels per day had no entitlement purchase obligations. Small refiner-buyers with crude runs greater than 50,000 barrels per day were partially exempted from entitlement purchase obligations. The Special Rule was applied only to that number of entitlements which bears the same proportion to the total number of entitlements required to be purchased that 50,000 barrels per day bears to the average daily crude runs of the individual refiner. Entitlement purchase exemption relief for small refiners was previously provided by exception relief and, to a limited degree, by the Small Refiner Bias which applied incrementally to both buyers and sellers of entitlements. The granting of exceptions to refiner-buyers was reviewed on a case-by-case demonstrated need for relief.

Special Rule No. 6 significantly increased the exemption relief, whereby approximately 45 refiners received exemptions with a value of the order of 29 million dollars each month. The FEA analyzed the impact of Special Rule No. 6 for October, November, and December, 1975, and determined that it was inequitable, created unfair competitive advantages, and was inconsistent with the objectives of the EPAA. In March 1976, FEA proposed a modification to the EPCA entitlement purchase exemption to limit the exemption to the extent of a crude cost reduction of no more than one cent per gallon based on the volume of crude oil run in a particular month. A public hearing was held and written comments were received in the proposed modification. After reviewing the statements and written comments, FEA revoked Special Rule No. 6 and made an upward adjustment in the Small Refiner's Bias for crude runs less than 100,000 barrels per day. The revocation of Special Rule No. 6 and the amendment adjusting the Small Refiner's Bias became effective in April 1976 upon expiration of the fifteen-day review period when neither House of Congress disapproved.

Further complications developed in the program because late and erroneous reporting resulted in a distorted NOOSR in the first ten months of the program, November 1974 to August 1975. FEA recalculated the NOOSR and entitlement purchase/sale requirements for all refiners and eligible firms participating in the ten-month period. FEA aggregated each refiner's and eligible firm's recalculated net purchase/sale requirement relative to those previously published in the entitlement notices for the ten months. A correction for the total net purchase/sale requirement for each refiner or eligible firm was prorated over an eight-month period, July 1976 through February 1977. The monthly prorated portion of net purchase/sale requirements in dollars was converted to a specific number of entitlements each month to be bought (-) or sold (+) as published in the entitlement notice under the column heading, "10 Month Clean-Up".

In July 1976, the FEA amended the entitlement regulations to include naphtha imported into Puerto Rico for use as a petrochemical feedstock as an eligible product. The volume of imported naphtha to be included in a refiner's runs to stills for entitlement calculations was reduced by a factor computed to provide a per barrel dollar entitlement value, for each barrel of naphtha imported, approximately equal to the cost differential between naphtha imported into Puerto Rico and the imputed cost of domestic naphtha. Firms, other than refiners, owning petrochemical plants in Puerto Rico are also eligible to receive imported naphtha entitlements on the same basis. The amendment was effective for volumes of naphtha imported in May 1976, which were reported with June 1976 volumes. The inclusion of naphtha feedstocks under the entitlements program was considered necessary to alleviate the unique competitive disadvantages for Puerto Rico-based companies, due in large measure to domestic price controls, and to recognize the pre-existing United States policy encouraging the construction of petrochemical facilities in Puerto Rico.

In July 1976, the FEA froze the prices on domestic crude oil for a one-month period in order to correct for higher prices, based on estimates, than permissible under the EPCA. The freeze was continued into December 1976 and in January 1977, the price of upper tier crude oil was rolled back \$ 0.20 per barrel. In March 1977, the price of upper tier crude oil was rolled back further by \$0.45 per barrel. This price was projected to remain in effect through July 1977 in order to maintain the price levels permitted by the EPCA.

In November 1976, the prices for stripper well crude oil and Naval Petroleum Reserve (NPR) crude oil in the first sale were exempt from controls by Congress. For purposes of the entitlement program, stripper well and NPR crude oils are treated the same as imported crude oil. For purposes of entitlement calculations, i.e., DOOR and entitlement price, the cost of imported oil is replaced with the weighted average cost of stripper well oil, NPR oil and imported oil, i.e., price-uncontrolled crude oil. That means that the entitlement price equals the differential between the weighted average cost of uncontrolled crude oil and old oil less \$0.21 per barrel.

In February 1976, the EPCA rolled back domestic crude oil prices which further disadvantaged importers. The combined effect resulted in a relative cost disadvantage of approximately \$3.00 per barrel for imported products compared with domestic products refined from the lower cost domestic crude oil.

In January 1977, the FEA held public hearings and received written comments on Alternative Entitlement Program Adjustments for Imported Residual Fuel Oil. This action was part of a review of the effect of the March 1976 amendments to the entitlements program. Also, those amendments provided for so-called reverse entitlements for domestic residual fuel oil sold in, or into, the BOM East Coast Petroleum Refining District. The proposed

rulemaking considered alternatives which would eliminate the reverse entitlements and integrate a revised import fee structure into a comprehensive approach to the products entitlement aspect of the overall program. The proposed rulemaking is still under study, and amendments to the product entitlement regulations (and possibly the Mandatory Oil Import Program) have not been issued.

In February 1977, the FEA issued Special Rule No. 8. This Special Rule provided for the issuance of entitlements for imports of No. 1 and No. 2 heating oil into Petroleum Administration for Defense (PAD) Districts I through IV in the months of February and March 1977. (Imports from the U.S. Virgin Islands were excluded.) The entitlement value for No. 1 and No. 2 heating oil was fixed at two dollars and ten cents (\$2.10) per barrel. The Special Rule was intended to assure adequate supplies of heating oil in anticipation of heavy demand due to the cold weather. Supply shortages did not develop and the Special Rule expired at the end of March 1977.

In April 1977, the FEA published an amendment to the regulations, to be effective in June 1977, which eliminated Small Refiner Bias entitlements for volumes of crude oil run at another refinery under a processing agreement. Small Refiner Bias entitlements were retained for crude runs attributable to a processing agreement with non-refiners.

Also in April 1977, the FEA published amendments to the entitlement regulations which were incident to the initial acquisitions of imported crude oil for the Strategic Petroleum Reserve (SPR). The amendments provide for the issue of entitlements to firms selling imported crude oil to the Federal Government for storage in the SPR. Volumes of imported crude oil delivered to the SPR are considered as if they were runs to stills for entitlement purposes; i.e., the imported crude oil volume delivered multiplied by the Domestic Oil Supply Ratio equals the number of entitlements issued. This procedure reduces the Federal Government's acquisition cost by the same amount as for any domestic refiner.

Under these procedures, the Federal Government pays the contract price, less \$3.00 per barrel, upon acceptance of crude oil delivered to the SPR. Sellers then report volumes sold to the SPR for inclusion in the entitlements program. Such sales will be reflected in the entitlement notice published in the month following delivery to, and acceptance for, the SPR. Revenues from entitlement sales (or from a reduced purchase requirement) are applied against the \$3.00 per barrel balance due. Any shortfall between the per barrel entitlement value and the \$3.00 balance will be paid by the Federal Government by the end of the month in which the entitlement notice is published. For cost accounting purposes, entitlement revenue as a result of sales to the SPR is separated from other entitlement transactions and is applied only to those volumes of imported crude oil sold to the SPR in order to realize a portion of the \$3.00 balance due.

Solicitations for the acquisition of the first ten million barrels of crude oil for the SPR are limited to imported crude oil. This acquisition is scheduled to take place between July and December 1977. At the time of this writing, the FEA is contemplating further amendments to the regulations which will provide for the purchase of domestic crude oil for the SPR in subsequent procurements.

3.2 PARTICIPATION IN THE PROGRAM

All domestic refiners and importers of eligible products are required to participate in the entitlements program. Refiners and importers are required to submit monthly reports which provide the data necessary for operation of the program (See Chapter 4). There are approximately 155 refiners and 25 importers of eligible products, who are not also refiners, participating in the program. Domestic refineries include all refineries in any of the fifty states

plus Puerto Rico, Virgin Islands, and Guam. New refiners are encouraged to contact the Domestic Crude Oil Entitlements Program Office to discuss and review participation in the program and the reporting requirements. The Domestic Crude Oil Entitlements Program Office telephone number is (202)254-6296, or address written inquiries to:

Domestic Crude Oil Entitlements Program
20th Street Postal Station
P.O. Box 19326
Washington, D.C. 20036

Each refiner must report his refining capacity to the Bureau of Mines on an annual basis. For FEA regulatory purposes, refinery capacity is defined as the sum of the refining capacity (existing and operating), new refining capacity (under construction) and future refining capacity (planned). Any capacity which ceases to be operated must be deducted from total capacity. Any new capacity, including a new refinery or expanded capacity, must be certified by the FEA. Such certification is a requirement for participation in several FEA programs, including the entitlements program, although the procedure for capacity certification is not necessarily identical for each of the different programs.

Participation in the entitlements program requires that new or expanded refining capacity be certified by the FEA Refinery Operations Office. There are two ways in which the capacity can be determined and certified. There is an option of submitting a consecutive thirty-day record of runs or conducting a 72-hour demonstration test run observed by an FEA representative.

The purpose of the test run is to demonstrate in the presence of an FEA representative the capability of a petroleum refinery to process virgin crude oil in barrels per day. It is emphasized that the FEA representative's purpose is to observe and record the data from the demonstration test run and make recommendations to the FEA Committee on Refinery Operations, which will determine the capacity.

The Committee on Refinery Operations determines the capacity in BPCD based on the inspector's report and other relevant information furnished by the refiner. The Refinery Operations Office, Director, will notify the refiner of the certified capacity within one week after the results of the Committee on Refinery Operations are finalized.

If you have any questions as to the test run procedures, special circumstances or arrangements, contact the Refinery Operations Office at (202)254-8620. Written inquiries or requests for certification should be addressed to:

Federal Energy Administration
Refinery Operations Office, Room 6128-G
2000 M Street, N.W.
Washington, D.C.

3.3 DEFINITIONS AND SYMBOLS

The following definitions are liberal translations of the regulatory language to assist the reader to understand what key words mean as used in the entitlements program. These definitions do not include all possible qualifications which may apply if a legal interpretation is required. If official definitions are required, the reader should refer to the appropriate section of 10 CFR Part 211. Only key words or terms are defined here. Other definitions are provided in the course of explanations or illustrations at the point where new or unfamiliar terms and words are introduced. The definitions and explanations of terms presented below are current as of June 1, 1977.

CRUDE OIL RECEIPTS

The volume of crude oil booked into a refinery's inventory according to accepted accounting procedures consistently and historically applied by the refinery. A refiner's crude oil receipts include:

1. Volumes booked for own account.
2. Volumes booked for the account of a firm other than a refiner.
3. Volumes delivered to another refinery according to a processing agreement.

A refiner's crude oil receipts exclude:

1. Volumes processed for the account of another refinery.
2. Volumes booked into inventory, but later sold or disposed of without processing.

ADJUSTED CRUDE OIL RECEIPTS

Crude oil receipts of a refiner in a particular month, the composition of which has been adjusted to reflect any invoice which is received in that month for domestic crude oil (including crude oil sold under 10 CFR 211.65) delivered to that refiner in any previous month (excluding, however, months prior to November 1974), and which has the effect of increasing or decreasing the volume of old or upper tier crude oil reported by that refiner under 10 CFR 211.66(h) for such previous month, in cases where such previously reported volume was based on either a prior invoice or a good faith estimate (based on that refiner's past experience as to the old and upper tier crude oil content of domestic crude oil of the same origin) as to the old and upper tier crude oil content of that crude oil delivery.

CRUDE OIL RUNS TO STILLS

The total number of barrels of crude oil input to distillation units of a refinery. For the purposes of entitlement program calculations, crude oil runs to stills are qualified as to what may be included and what must be excluded. Crude runs to stills include:

1. Volumes processed by another refiner according to a processing agreement.
2. Volumes processed for a non-refiner.
3. Plant condensate and synthetic crude oil made from tar sands which are imported from Canada and input to distillation units, provided applicable import license fees have been paid.

Crude oil runs to stills exclude:

1. Volumes processed for the account of another refinery according to a processing agreement. (Also excluded from the Small Refiner Bias calculations.)
2. Volumes processed into refined products and residual fuel oil which are exported or constitute export sales, see Part 212.53. This exclusion does not apply to refined lubricating oils or Bunker C, Navy Special Fuel Oils, and No. 4 diesel which are sold for use as a marine fuel on a voyage departing from a United States port. (Also, export sales volumes are excluded from the Small Refiner Bias calculation.)

**BUREAU OF MINES
EAST COAST REFINING
DISTRICT**

The District of Columbia and the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida, and the following counties of the State of New York: Cayuga, Thompson, Chemung and all counties east and north thereof. Also the following counties in the State of Pennsylvania: Bradford, Sullivan, Columbia, Montour, Northumberland, Dauphin, York, and all counties east thereof.

**BASE PRODUCTION
CONTROL LEVEL**

1. Prior to February 1, 1976: the total number of barrels of domestic crude oil produced and sold from a particular property in the same month of 1972. If domestic crude oil was not produced and sold from that property in every month of 1972, the total number of barrels of domestic crude oil produced and sold from that property in 1972, divided by 12.
2. Effective February 1, 1976: the total number of barrels of old crude oil produced and sold from the property during calendar year 1975, divided by 365, and multiplied by the number of days in the particular month during 1975. A producer may elect to use the total number of barrels of crude oil produced and sold from the property during calendar year 1972, divided by 366 and multiplied by the number of days in the particular month during 1972.

**CUMULATIVE
DEFICIENCY**

A measure of the cumulative deficit of production below the base production control level after the first month in which new oil was produced and sold from a specific property.

NEW CRUDE OIL

1. Prior to February 1976: Total bbls crude produced and sold in a month from a specific property, less: (a) The Base Production Control Level (BPCL); (b) The Current Cumulative Deficiency (CCD).

2. February 1976 To Date: Total bbls crude produced and sold, less: (a) Property's BPCL; (b) CCD Since February 1976.

NOTE: Must be certified as new oil within two months of production and sale.

OLD CRUDE OIL

1. Prior to February 1976: Total bbls crude produced and sold from a property in a specific month, less: (a) New Oil; (b) Released Crude Oil.

2. February 1976 To Date: Total bbls produced and sold, less: (a) New Oil.

**DEEMED OLD
OIL (DOO)**

The sum of Old Oil Receipts (OOR) and a fraction of the Upper Tier Crude Oil Receipts (new oil). The fraction is called the Deemed Old Oil Ratio (DOOR).

**DEEMED OLD OIL
RATIO (DOOR)**

A fraction obtained by dividing the differential between the weighted average cost of uncontrolled oil and upper tier oil less \$0.21 by the entitlement price.

ENTITLEMENT

The right of the refiner owning the entitlement to include one barrel of deemed old oil in his adjusted crude oil receipts in a particular month.

ENTITLEMENT PRICE

The price of an entitlement, fixed by FEA, is the exact differential, as reported for the month, between the weighted average cost per barrel to refiners of "old" oil and of uncontrolled crude oil, less 21 cents, such cost to be equivalent to the delivered cost to the refinery.

ENTITLEMENT POSITION

The monthly entitlement position of a refiner indicates whether he bought or sold entitlements in that month.

LANDED COST

The cost of imported crude oil equal to actual cost of crude at point of origin plus transportation cost to the United States.

NAVAL PETROLEUM RESERVE (NPR) CRUDE OIL

That oil which is extracted from the Naval Petroleum Reserve, Elk Hills, California, by domestic producers who have successfully bid for production leases from the U.S. Government, i.e., Department of the Navy.

PLANT CONDENSATE

A natural gas plant product, mostly pentanes and heavier hydrocarbons, recovered and separated as a liquid at gas inlet separators or scrubbers in processing plants for field facilities and which is not suitable for blending with natural gasoline or refinery gasoline.

REFINER ACQUISITION COST

The cost to the refiner, including transportation and fees, of crude petroleum. The composite cost is the average of domestic and imported crude costs and represents the amount of crude cost which refiners may pass on to their customers.

REFINED PETROLEUM PRODUCT

For the purposes of the entitlements program, gasoline, kerosene, middle distillate (including Number 2 fuel oil), LPG, aviation fuels, diesel fuel or residual fuel oil. (See Def.)

REPORTING PERIOD

For the purposes of the entitlements program, means a calendar month.

RESIDUAL FUEL OIL

The fuel oil commonly known as (a) No. 4, No. 5, and No. 6 fuel oils; (b) Bunker C; (c) Navy Special Fuel Oil; (d) crude oil when burned directly as a fuel; and all other fuel oils which have a fifty percent boiling point over 700 degrees F in the ASTM D-86 standard distillation test.

STRIPPER WELL OIL

For the purposes of the entitlements program, crude oil certified as having come from a stripper well property.

**STRIPPER WELL
PROPERTY**

A property whose average daily production of crude oil per well (excluding condensate recovered in nonassociated production) did not exceed 10 barrels per day during any preceeding consecutive 12-month period beginning after December 31, 1972.

**UPPER TIER CRUDE
OIL**

Effective February 1, 1976, upper tier crude oil included new crude oil and crude oil produced from a stripper well lease. Effective September 1, 1976, upper tier crude oil includes new crude oil only.

COMMON TERMS AND WORDS

A listing of common terms and words, used in the entitlements program, with symbols which represent them, follows.

<u>SYMBOL</u>	<u>WORD OR TERM</u>
NOOSR	National Old Oil Supply Ratio (used from November 1974 to January 1976 and then redefined as the DOSR)
DOSR	Domestic Oil Supply Ratio
OOB	Old Oil Receipts
DOOR	Deemed Old Oil Ratio
UTR	Upper Tier crude oil Receipts
DOO	Deemed Old Oil (equals OOR + (DOOR x UTR))
SRB	Small Refiner Bias
EAR	Exceptions and Appeals Relief
NI	Naphtha Imported

CR	Crude Runs to stills
DRD	Domestic Residual Deduction - for residual fuel oil sold in, or into, the East Coast market
IR	Imported Residual Fuel Oil - qualifying as eligible product
EP	Entitlement Price
N	Naphtha fraction - also referred to as the Naphtha imports into Puerto Rico product ratio
NA	Naphtha Entitlements
EV	Entitlement Value - distinct from EP and expressed in \$/bbl
HO	Heating Oil Entitlements (February - March 1977)
E	Number of Entitlements
ER	Entitlement Revenue
WAC	Weighted Average Cost
MM	Millions
M	Thousands
I	Entitlements Issued
VB	Value Benefit - from SRB in \$/bbl

3.4 INITIAL BASIC CONCEPT

Conceptually, the entitlement program is based on crude runs to stills and provides each domestic refiner his proportionate share of old oil relative to his crude runs. The proportionate share was equated to the National Old Oil Supply Ratio (NOOSR). The NOOSR was determined by dividing the Old Oil Receipts (OOR) for all refiners by the total Crude Runs (CR) of all refiners. At the beginning of the program, the NOOSR was about equal to 0.4000. This meant that each domestic refiner's proportionate share of old oil was forty percent (40%) of his crude runs. The entitlements program was designed to equitably distribute old oil, in effect, so that the Weighted Average Cost (WAC) of each refiner's total crude receipts would be the same as if he had a

volume of old oil equal to forty percent (40%) of his crude runs included in his crude receipts. This effect was achieved by the sale of entitlements by refiners who physically had less than the proportionate share of old oil in their crude oil receipts and by the purchase of those entitlements by refiners who physically had more than the proportionate share of old oil in their crude oil receipts. The net effect was to generally equalize the WAC of crude oil for all refiners.

Exceptions, exemptions and the Small Refiner Bias (SRB) all diminished the degree of cost equalization between domestic refiners, but were necessary to achieve product price equalization and maintain relative competitive viability in the marketplaces. Entitlements which are issued on a basis other than crude runs cause complexities which will be explained in detail in Section 3.5. To illustrate the basic concept, a hypothetical example is provided using the approximate real-world data as of the start of the program in November 1974. For the moment, assume that there are no special rules, no exceptions, no exemptions, no Small Refiner Bias, no quality differentials, no product import entitlements and no Naphtha or heating oil entitlements. Also, assume that crude oil sells only at two prices, i.e., one for controlled, old oil and one for uncontrolled oil.

HYPOTHETICAL EXAMPLE UNDER CRUDE PRICE CONTROL:

1. Refiner X runs only uncontrolled crude oil at \$12.00/bbl.
2. Refiner Y runs only price controlled, old oil at \$6.00/bbl.
3. The national average volume of old oil purchased equals forty percent (40%) of crude runs for a one-month period.

PROBLEM: How to equalize Refiner X's \$12.00 cost/bbl with Refiner Y's \$6.00 cost/bbl.

1. Assume that the ratio of the volume of old oil purchased, i.e., old oil receipts (OOR), to crude runs (CR) will, over time, be a fair indication of old oil availability on a national basis. Designate the ratio as the National Old Oil Supply Ratio (NOOSR):

$$\text{NOOSR} = \frac{\text{OOR}}{\text{CR}}$$

2. Each individual refiner's proportionate share of old oil would equal crude runs times the NOOSR:

$$\begin{aligned} \text{Proportionate Share} &= \text{NOOSR} \times \text{CR} \\ &= \text{Entitlements Issued} \end{aligned}$$

3. Subtract the volume of old oil purchased, i.e., old oil receipts (OOR), from the proportionate share value (number of entitlements issued) to arrive at a shortfall or excess of old oil relative to the proportionate share:

$$\text{Shortfall/Excess} = (\text{NOOSR} \times \text{CR}) - \text{OOR}$$

NOTE: If a refiner runs more than the proportionate share of old oil, he will have an excess of old oil, a negative number, and becomes a purchaser of entitlements. If a refiner runs less than his proportionate share of old oil, he will have a shortfall, a positive number, and becomes a seller of entitlements.

4. Designate the cost differential between the uncontrolled oil and old oil as the Entitlement Price (EP):

$$\begin{aligned} \text{EP} &= \$12.00/\text{bbl} - \$6.00/\text{bbl} \\ &= \$6.00 \end{aligned}$$

5. Award one entitlement for each shortfall bbl. Those refiners with shortfalls must then sell entitlements to those refiners who had excesses in old oil.

6. For purposes of simplification, assume that two refiners, X and Y, run a total of 100 bbls in a one-month period. If the NOOSR = .4000, then there are forty (40) bbls of old oil and sixty (60) bbls of uncontrolled oil purchased in the time period:

$$\text{NOOSR} = \text{CR} = \frac{40}{100} = .4000$$

7. Let Refiner X run sixty (60) bbls of uncontrolled oil at \$12.00/bbl acquisition cost. His shortfall in old oil equals the NOOSR x CR less OOR, (which are 0):

$$\begin{aligned} \text{Shortfall} &= (.4000 \times 60) - 0 \\ &= 24 \end{aligned}$$

8. For each bbl of shortfall, Refiner X is awarded one entitlement to sell, for a total of twenty-four (24) entitlements, i.e., the shortfall equals the number of entitlements (E) to be sold.

9. Refiner X sells the twenty-four entitlements of \$6.00 each to Refiner Y for Entitlement Revenue (ER) equal to \$144.00.

10. Refiner X's entitlement revenue divided by his crude run equals the per bbl entitlement value (EV):

$$\begin{aligned} \text{EV} &= \frac{\text{ER}}{\text{CR}} \\ \text{EV} &= \frac{\$144.00}{60 \text{ bbl}} \\ &= \$2.40/\text{bbl} \end{aligned}$$

11. Refiner X's Equalized Cost (EC), i.e., post entitlement cost, equals his acquisition cost of uncontrolled oil (CU) minus the entitlement value (EV):

$$\begin{aligned} \text{EC} &= \text{CU} - \text{EV} \\ \text{EC} &= \$12.00 - \$2.40 \\ &= \$9.60/\text{bbl} \end{aligned}$$

12. Let Refiner Y run forty (40) bbls of old oil at \$6.00/bbl acquisition cost. His excess in old oil equals the NOOSR x CR less OORs:

$$\begin{aligned} \text{Excess} &= (.4000 \times 40) - 40 \\ &= -24 \end{aligned}$$

13. The negative value indicates an obligation to buy. Refiner Y must buy one entitlement for each bbl of excess old oil, twenty-four entitlements in this case.

14. When Refiner Y buys twenty-four entitlements at \$6.00 each, he has a negative Entitlement Revenue (ER) of -\$144.00:

$$\begin{aligned} \text{ER} &= \text{E} \times \text{EP} \\ \text{ER} &= -24 \times \$6.00 \\ &= -\$144.00 \end{aligned}$$

15. Refiner Y's Entitlement Revenue divided by his crude runs equals the per bbl Entitlement Value (EV):

$$\begin{aligned} \text{EV} &= \frac{\text{ER}}{\text{CR}} \\ \text{EV} &= \frac{-\$144.00}{40 \text{ bbls}} \\ &= -\$3.60 \end{aligned}$$

16. Refiner Y's Equalized Cost (EC), i.e., post entitlement cost, equals his acquisition Cost of Old oil (CO) minus the entitlement value (EV):

$$\begin{aligned} \text{EC} &= \text{CO} - \text{EV} \\ \text{EC} &= \$6.00 - (-\$3.60) \\ &= \$6.00 + \$3.60 \\ &= \$9.60/\text{bbl} \end{aligned}$$

SOLUTION: Refiner X's and Y's cost/bbl is equalized at \$9.60/bbl.

DISCUSSION

The effect of the entitlement sale and purchase, i.e., transaction, is as if X and Y both ran old oil at forty percent (40%) of their crude runs with the same Weighted Average Cost (WAC) of \$9.60/bbl.

1. Refiner X's WAC, in effect, would be:

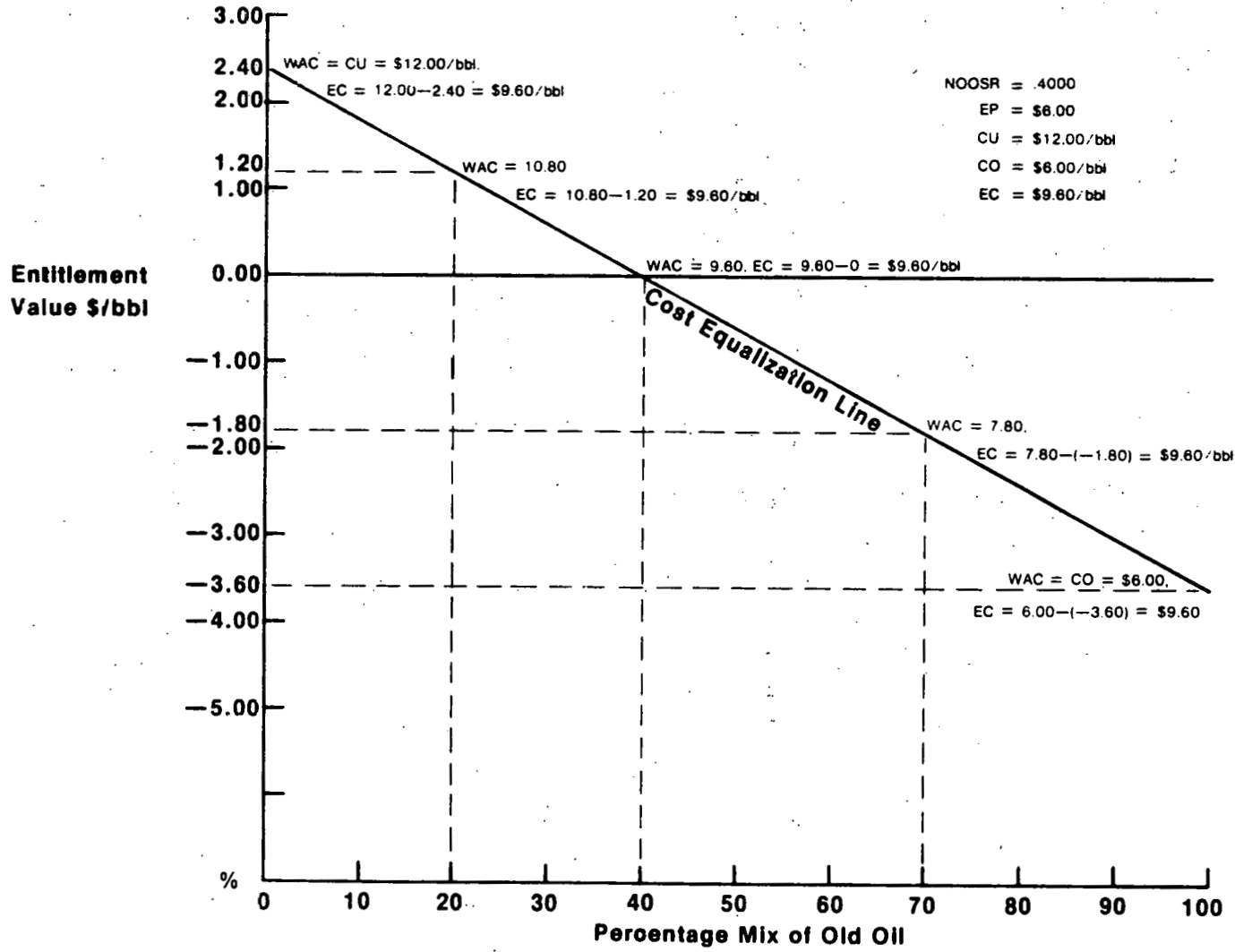
$$\begin{aligned} \text{WAC} &= 24 \text{ bbls (old oil)} \times \$6.00 \\ &\quad \text{Plus } 36 \text{ bbls (uncontrolled oil)} \times \$12.00 \\ &\quad \text{Divided by } 60 \text{ bbls/run} \\ &= \frac{(24 \times \$6.00) + (36 \times \$12.00)}{60} \\ &= \$9.60/\text{bbl} \end{aligned}$$

2. Refiner Y's WAC, in effect, would be:

$$\begin{aligned} \text{WAC} &= 16 \text{ bbls (old oil)} \times \$6.00 \\ &\quad \text{Plus } 24 \text{ bbls (uncontrolled oil)} \times \$12.00 \\ &\quad \text{Divided by } 40 \text{ bbls/run} \\ &= \frac{(16 \times \$6.00) + (24 \times \$12.00)}{40} \\ &= \$9.60/\text{bbl} \end{aligned}$$

For illustrative purposes, X and Y were the extremes. In reality, most refiners would run a mix of old and uncontrolled oil. The same calculations apply and the net effect is to generally equalize crude costs among all domestic refiners as if they all ran their proportionate share of old oil, i.e., NOOER x CR. This is illustrated in Graph, 3.4 1, which plots the entitlement value against the percentage of mix of old oil contained in a refiner's crude oil receipts. From the graph, it can be seen that, as the percentage mix of old oil increases from 0 to 40, the entitlement value/bbl decreases from \$2.40 to \$0.00. Refiners with a 0 to 39.99 percentage mix become refiner-sellers of entitlements. At a forty percent (40%) mix, a refiner is running his proportionate share of old oil, i.e., NOOSR x CR, and the entitlement value equals \$0.00, so he neither sells nor buys entitlements. As the percentage mix increases from 40.01 to 100, the entitlement value decreases to -\$3.60 (or increases negatively). Refiners with a 40.01 to 100 percentage mix become refiner-buyers of entitlements. The sale or purchase of entitlements will, in effect, place all domestic refiners on the cost equalization line.

Entitlement Value vs. % Old Oil



Graph 3.4-1

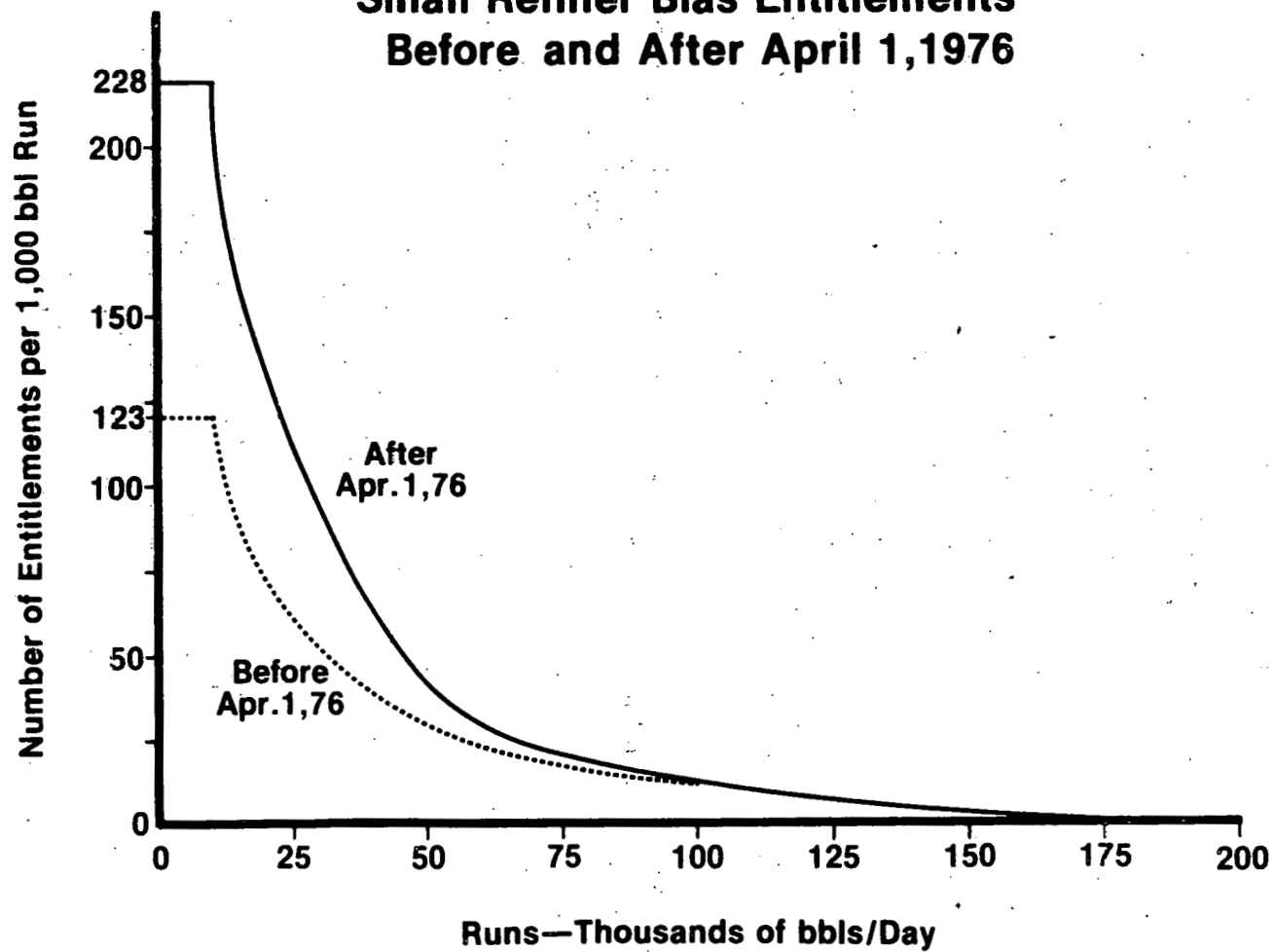
3.5 ADJUSTMENTS

The initial concept illustrated an oversimplified application of the entitlements program with exact cost equalization achieved. In the real world the practical application of the program required several considerations which resulted in adjustments to the concept necessary to achieve the multiple objectives of the EPAA. Some adjustments detract from conceptual cost equalization, but were designed to serve specific needs.

3.51 SMALL REFINER BIAS

The intent of the SRB was to overequalize small refiners to compensate for economies of scale which accrued to the larger refiners. Initially, the bias was designed to provide approximately the same level of benefits which previously accrued to small refiners from the Mandatory Oil Import Program. The SRB was designed to issue to small refiners a greater number of entitlements for sale than would have been issued based on proportionate share. A small refiner is defined as one with average daily runs less than 175,000 bbls per day. Additional entitlements are issued as runs per day decrease to 10,000 bbls per day (see graph 3.5-1). From 0-10,000 bbls per day, additional entitlements are issued at the rate of 228.8 per 1,000 bbls run. The additional entitlements are calculated by range of runs per day; i.e., 0-10,000 bbls/day, 10,000-30,000 bbls/day, 30,000-50,000 bbls/day, 50,000-100,000 bbls/day, and 100,000-175,000 bbls/day. The SRB applies to both buyers and sellers of entitlements. For a refiner-seller, the SRB will increase the number of entitlements issued for sale and for a refiner-buyer, the SRB will decrease the entitlement purchase requirement. Depending on a small refiner-buyer's mix of old oil in his actual crude receipts, the SRB may reverse his position from a buyer to a seller of entitlements.

Small Refiner Bias Entitlements Before and After April 1, 1976



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Graph 3.5—1

The initial SRB resulted in the issue of an average of 2,987,450 additional entitlements per month to small refiners from November 1974 through March 1976. SRB additional entitlements amounted to nineteen percent (19%) of the total purchase/sale requirement. In April 1976, the SRB was increased. From April 1976 to January 1977, the SRB has averaged 6,355,270 entitlements per month. This amounts to twenty-eight percent (28%) of the total purchase/sale requirement. The new SRB was scaled to significantly increase the benefits to small refiners in the 0-30,000 bbls/day range with smaller increases in the 30,000-100,000 bbls/day range and no change in the 100,000-175,000 bbls/day range (see graph 3.5-2 for comparison of benefits).

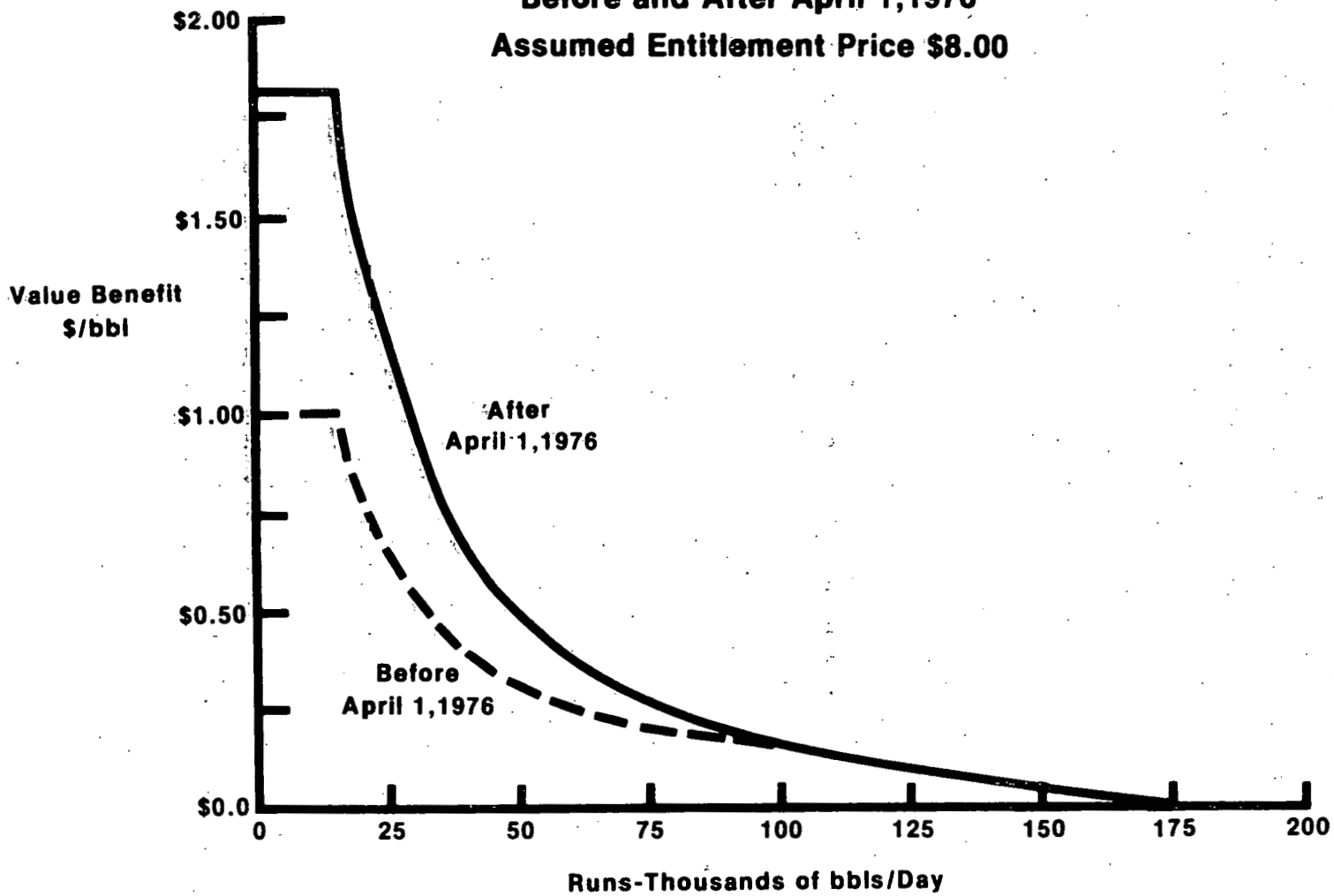
SRB entitlement calculations are based on runs per day in thousands of barrels which are then multiplied by the number of days in the month in which the runs were made to arrive at the additional entitlements to be issued, see Table 3.5-1.

TABLE 3.5-1
SMALL REFINER BIAS
ENTITLEMENT CALCULATIONS

<u>RANGE</u> <u>000 bbls/day</u>	<u>ENTITLEMENT CALCULATION FORMULA</u>		
0-10	E	=	DAYS x RUNS x 228.8
10-30	E	=	DAYS x (((RUNS - 10) x 41.75)) + 2,288)
30-50	E	=	DAYS x (((RUNS - 30) x (-52.2)) + 3,123)
50-100	E	=	DAYS x (((RUNS - 50) x (-16.42)) + 2,079)
100-175	E	=	DAYS x (((RUNS - 100) x (-16.7733)) + 1,258)

NOTE: E = Number of Entitlements provided by the SRB
 DAYS = Number of DAYS in the month in which the runs were made
 RUNS = Average runs per day in thousands of barrels

**Small Refiner Bias Value Benefit (\$/bbl)
Before and After April 1, 1976
Assumed Entitlement Price \$8.00**



Graph 3.5-2

Sample Calculations:

1. In January 1977, a refiner has daily average runs of 8,000 bbls per day. This puts him in the 0-10 range and formula $E = \text{DAYS} \times \text{RUNS} \times 228.8$ is used to calculate the number of entitlements, as follows: (assume an entitlement price of \$8.00)

$$\begin{aligned} \text{DAYS} &= 31 \\ \text{RUNS} &= 8,000 \text{ divided by } 1,000 = 8 \\ \text{E} &= 31 \times 8 \times 228.8 = 56,742 \text{ total entitlements or} \\ &228.8 \text{ entitlements per } 1,000 \text{ bbls run} \\ \text{SRB Value} &= 56,742 \times \$8.00 \text{ divided by } 240,000 = \$1.83 \end{aligned}$$

2. In February 1977, a refiner has daily average runs of 20,000 bbls/day. This puts him in the 10-30 range and the formula $E = \text{DAYS} \times (((\text{RUNS} - 10) \times 41.75) + 2,288)$ is used to calculate the number of entitlements, as follows:

$$\begin{aligned} \text{DAYS} &= 28 \\ \text{RUNS} &= 20,000 \text{ divided by } 1,000 = 20 \\ \text{E} &= 28 \times (((20-10) \times 41.75) + 2,288) \\ &= 28 \times ((10 \times 41.75) + 2,288) \\ &= 28 \times (417.5 + 2,288) \\ &= 28 \times 2,705.5 \\ &= 75,754 \text{ total entitlements or } 135.28 \text{ entitlements} \\ &\text{per } 1,000 \text{ bbls run} \end{aligned}$$

3. In April 1977, a refiner has daily average runs of 40,000 bbls/day. This puts him in the 30-50 range and the formula $E = \text{DAYS} \times (((\text{RUNS} - 30) \times (-52.2)) + 3,123)$ is used to calculate the number of entitlements, as follows:

$$\begin{aligned} \text{DAYS} &= 30 \\ \text{RUNS} &= 40,000 \text{ divided by } 1,000 = 40 \end{aligned}$$

$$\begin{aligned}
E &= 30 \times ((40-30) \times (-52.2) + 3,123) \\
&= 30 \times ((10 \times -52.2) + 3,123) \\
&= 30 \times (-522 + 3,123) \\
&= 30 \times 2,601 \\
&= 78,030 \text{ total entitlements or } 65.03 \text{ entitlements} \\
&\quad \text{per 1,000 bbls run}
\end{aligned}$$

4. In May 1977, a refiner has daily average runs of 80,000 bbls/day. This puts him in the 50-100 range and the formula $E = \text{DAYS} \times (((\text{RUNS} - 50) \times (-16.42)) + 2,079)$ is used to calculate the number of entitlements, as follows:

$$\begin{aligned}
\text{DAYS} &= 31 \\
\text{RUNS} &= 80,000 \text{ divided by } 1,000 = 80 \\
E &= 31 \times (((80 - 50) \times (-16.42)) + 2,079) \\
&= 31 \times ((30 \times -16.42) + 2,079) \\
&= 31 \times (-492.6 + 2,079) \\
&= 31 \times 1,586.4 \\
&= 49,178.4 \text{ total entitlements or } 19.83 \text{ entitlements} \\
&\quad \text{per 1,000 bbls run}
\end{aligned}$$

5. In May 1977, a refiner has daily average runs of 150,000 bbls/day. This puts him in the 100-175 range and the formula $E = \text{DAYS} \times (((\text{RUNS} - 1000) \times (-16.7733)) + 1,258)$ is used to calculate the number of entitlements, as follows:

$$\begin{aligned}
\text{DAYS} &= 31 \\
\text{RUNS} &= 150,000 \text{ divided by } 1,000 = 150 \\
E &= 31 \times (((150 - 100) \times (-16.7733)) + 1,258) \\
&= 31 \times ((50 \times -16.7733) + 1,258) \\
&= 31 \times (-838.665 + 1,258) \\
&= 31 \times 419.335 \\
&= 12,999.385 \text{ total entitlements or } 0.0867 \\
&\quad \text{entitlements per 1,000 bbls run}
\end{aligned}$$

As the examples show, the number of entitlements per 1,000 bbls run decreases as the daily average in thousands of bbls increases, until, at 175,000 bbls/day, the number of entitlements equals 0. This is reflected in Graph 3.5-1 where, at 175,000 bbls/day, the number of entitlements per barrel run equals 0. The dollar value benefit (VB) per barrel of the SRB may be calculated from the formulas in Table 3.5-2. Also, the dollar value benefit is plotted against runs per day in thousands in Graph 3.5-2.

TABLE 3.5-2
SMALL REFINER BIAS
VALUE BENEFIT (VB) \$/BBL CALCULATIONS

<u>RANGE</u> <u>000 bbls/day</u>	<u>VALUE BENEFIT (VB) CALCULATION FORMULAS</u>		
0-10	VB	=	$0.2288 \times EP$
10-30	VB	=	$\frac{(1.8705 + 0.04175) \times EP}{RUNS}$
30-50	VB	=	$\frac{(4.689 - 0.0522) \times EP}{RUNS}$
50-100	VB	=	$\frac{(2.9 - 0.0162) \times EP}{RUNS}$
100-175	VB	=	$\frac{(2.93533 - 0.0168) \times EP}{RUNS}$

NOTE: EP = Entitlement price for the month in which runs were made
 RUNS = Daily average runs per day divided by 1,000.

Value Benefit Sample Calculations:

1. For refiners running 0-10,000 barrels per day, the VB in \$/bbl is the same and may be calculated as follows, using the formula $VB = 0.2288 \times EP$:

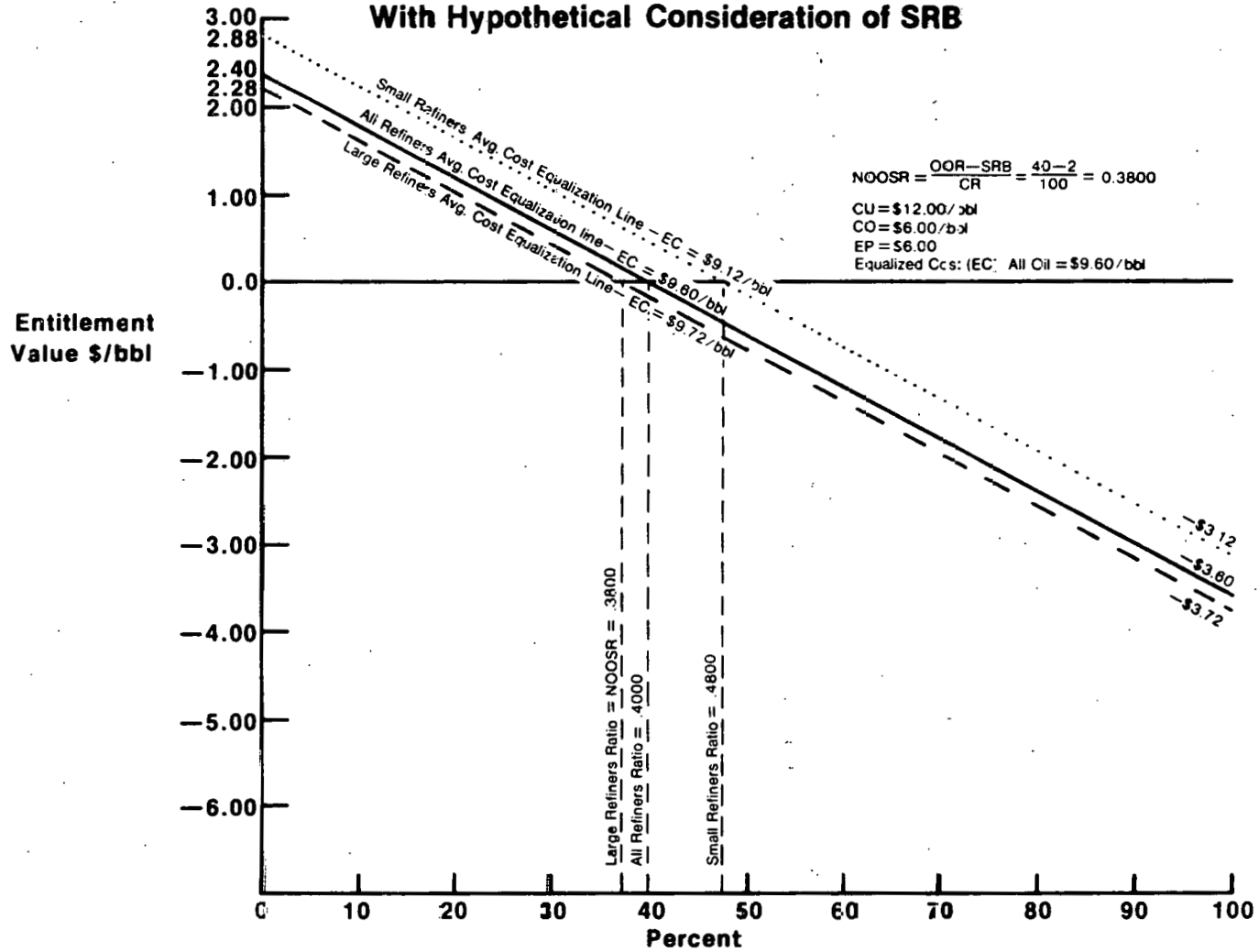
$$\begin{aligned}
 EP &= \$8.00 \text{ (Assumed Price)} \\
 VB &= 0.2288 \times \$8.00 \\
 &= \$1.83/\text{bbl}
 \end{aligned}$$

In order to provide additional entitlements to small refiners, the basic concept was adjusted by subtracting the total number of additional entitlements issued for the SRB from the total number of Old Oil Receipts (OOR). With consideration of the SRB, the NOOSR was calculated as follows:

$$\text{NOOSR} = \frac{\text{OOR} - \text{SRB}}{\text{CR}}$$

This consideration reduced the NOOSR and, in effect, reduces the proportionate share of old oil to be included in each refiner's receipts. The effect is graphically depicted in graph 3.5-3, where the same data is used as for the initial basic concept, but with the SRB entitlements subtracted from the OOR. The SRB entitlement total is assumed to be two percent (2%) of total crude runs for illustrative purposes only. As shown by the Graph 3.5-3, the effect of the SRB is to shift the COST EQUALIZATION LINE to the left with the NOOSR reduced to 0.3800. This results in less entitlements for sale by refiner-sellers with a lower entitlement value and more entitlements to be purchased by refiner-buyers with a decreased (more negative) entitlement value. The sum of the reduction in entitlements for sale and the increased entitlements to be purchased equals the additional entitlements provided by the SRB. All refiners, including small refiners, proportionately share the burden of the additional SRB entitlements. As can be seen from the Graph

Entitlement Value vs. % Old Oil With Hypothetical Consideration of SRB



Graph 3.5-3

3.5-3, the SRB entitlement burden decreases the entitlement value by \$0.12/bbl. Small refiners, however, are issued the additional SRB entitlements, which has the effect of permitting them to include a larger proportionate share, i.e., 0.4800, of old oil in their crude receipts. This results in an average dollar value benefit of \$0.60/bbl for all small refiners relative to all large refiners. The WAC for all refiners, small and large, remains at \$9.60/bbl.

While the relative value benefit for all small refiners may average \$0.60/bbl, the distribution of benefits among small refiners can vary from \$1.83, running 0-10,000 bbl/day, to \$0.00, running at 175,000 bbls/day, with an assumed entitlement price of \$8.00. This is illustrated in Table 3.5-3, where the average entitlements per day are calculated for each range of runs in thousands of barrels per day. Also shown is the percentage of total entitlements distributed within each range and the average value benefit (\$/bbl) for each range. Table 3.5-3 is based on actual data, April 1976 to January 1977, where the SRB entitlements average 207,264 per day, which amounts to 1.4% of total crude runs per day. This results in a lower overall average benefit of \$0.54/bbl rather than the \$0.60/bbl benefit in the hypothetical example used for Graph 3.5-3, where SRB entitlements amounted to two percent (2%) of total crude runs.

The overall effect of the SRB, plus the effect of Exceptions and Appeals Relief (EAR) is shown in Graph 3.5-4 for the period of February 1976 to January 1977. Based on national average cost data, the post-entitlement average cost for small refiners has been about \$0.50 to \$0.60 lower per barrel than the average cost for large refiners.

TABLE 3.5-3

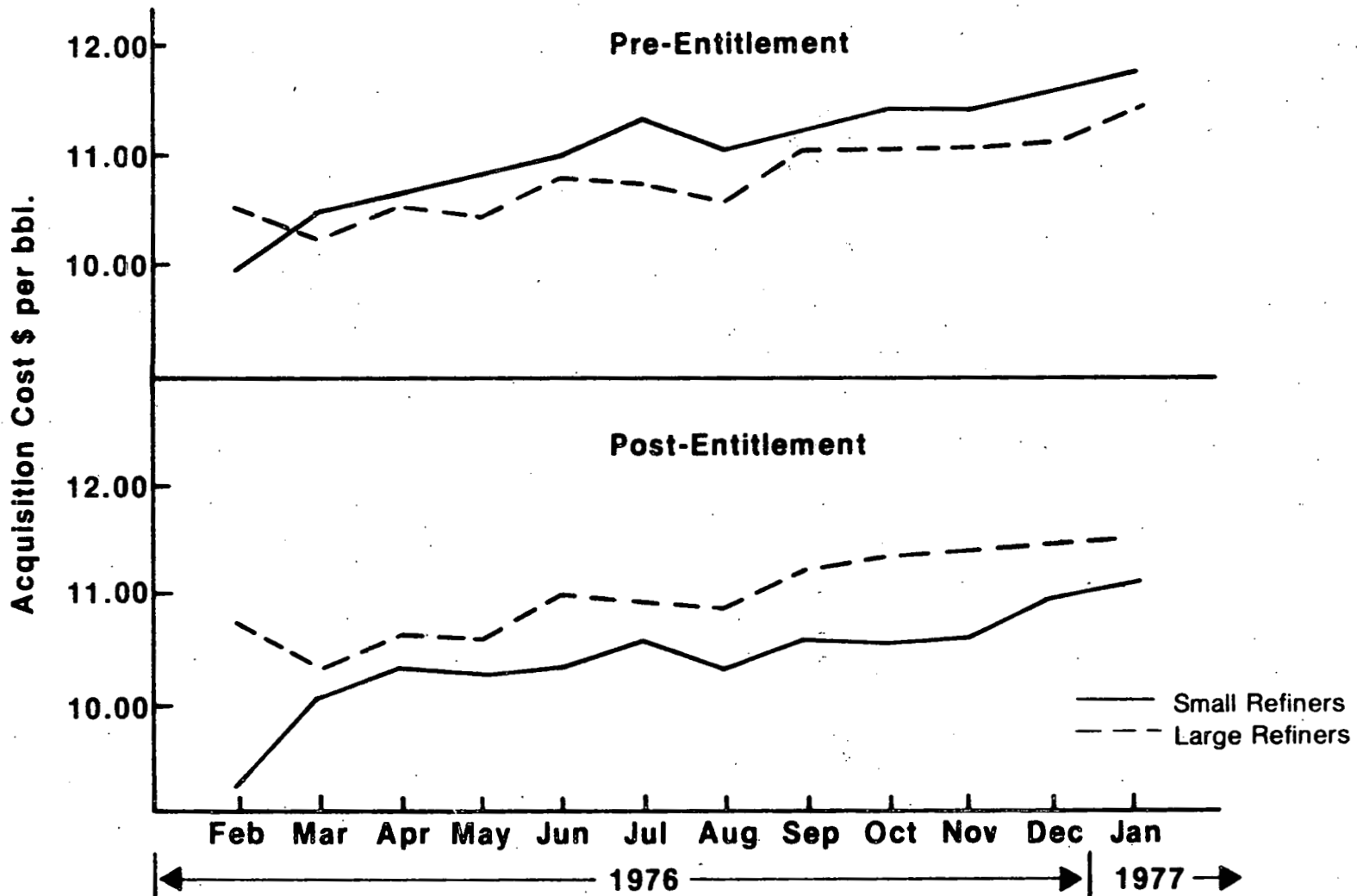
SMALL REFINER BIAS ENTITLEMENT DISTRIBUTION

(Assumed Entitlement Price = \$8.00 and All Refiners at 90% of Capacity)

<u>Range</u> <u>000 bbl/Day</u>	<u>Avg Runs/</u> <u>Day/</u> <u>Refiner</u>	<u>Avg Entlmts/</u> <u>Day/</u> <u>Refinery</u>	<u>Nr of</u> ¹ <u>Refineries</u>	<u>Total</u> <u>Range</u> <u>Entlmts/Day</u>	<u>Percent</u> <u>of Total</u> <u>Entlmts</u>	<u>Percent</u> ² <u>Total Runs</u>	<u>Avg.</u> <u>Value Benefit</u> <u>\$/bbl</u>
0-10	3,383	774	59	45,666	22	1	1.83
10-30	16,678	2,567	38	97,546	47	4	1.23
30-50	36,221	2,798	11	30,778	15	3	0.62
50-100	57,225	1,960	13	25,480	12	5	0.27
100-175	123,389	866	9	7,794	4	8	0.06
Over 175	530,940	-0-	22	-0-	-0-	80	0.00
		TOTALS:	152	207,264 ³	100	101 ⁴	0.54 ⁵

¹ As of January 26, 1977.² Total Runs at 90% of FEA Certified Capacity = 14,668,444 bbl/day.³ Equates to 6,321,552 entitlements/month based on 30.5 days/month.⁴ Exceeds 100% due to rounding.⁵ Avg. value benefit for all small refiners with total runs of 3,086,229 bbl/day.

Pre-Entitlement and Post-Entitlement Effect of Small Refiner Bias and Exceptions and Appeals Relief



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Graph 3.5-4

3.52 EXEMPTIONS

In general, exemptions are associated with the exclusion (exemption) of all or part of the old oil volumes from the crude receipts of a small refiner-buyer of entitlements. The result reduces or eliminates the entitlement purchase requirement and has the effect of reducing the WAC of crude for that refiner and improves his competitive position. Currently, the only exemptions in effect are those resulting from the granting of relief by Exceptions and Appeals. Of historical significance, however, is the exemption which was provided by Special Rule No. 3.

At the outset of the entitlements program, Special Rule No. 3 reduced the entitlement purchase requirement for small refiner-buyers for the months of November and December 1974, and January and February 1975. The purpose of Special Rule No. 3 was to phase small refiner-buyers into the entitlements program without forcing a heavy burden on the small refiner's cash flow. Refiners with less than 30,000 bbl/day crude runs were totally exempted from entitlement purchase requirements for November and December 1974. In January 1975, they were required to purchase one-third of the requirement, and in February, two-thirds. Thereafter, refiner-buyers running less than 30,000 bbls/day were required to purchase the full entitlement requirement unless relief was sought and granted by Exceptions and Appeals. Small refiners who ran more than 30,000 bbl/day, i.e., 30,000 to 175,000 bbl/day, were exempted from the purchase of a proportion of entitlements equal to the normal purchases requirement multiplied by the ratio of 30,000 divided by his crude runs for the months of November and December 1974. The two-thirds and one-third exemptions in January and February 1975, respectively, also applied proportionally to these larger small refiners.

In January 1975, the purchase requirement was one-third of the proportion, as calculated for November and December, and in February, two-thirds of the proportion. Thereafter, the full entitlement purchase requirement was in effect unless relief was sought and granted by Exceptions and Appeals.

The shortfall in entitlement purchase requirements was subtracted from the number of entitlements which would have otherwise been available for sale. Unlike the SRB, the purchase exemption burden of Special Rule No. 3 was applied proportionately to refiner-sellers of entitlements in order to phase-in the small refiner-buyers. The exemptions amounted to 4,187,996 entitlements in November 1974, 3,459,272 entitlements in December 1974, 3,538,069 entitlements in January 1975, and 1,086,599 entitlements in February 1975.

Another historical note associated with the phase-in of the entitlement program concerns the initial determination of the Entitlement Price. At the beginning of the program, the FEA intentionally set the Entitlement Price at a value lower than expected from the calculation. The Entitlement Price shortfall was \$1.54, \$1.73, \$0.58 and \$0.40, respectively, for the months of November and December 1974 and January and February 1975. In March 1975, and thereafter, the Entitlement Price was calculated on the basis of the reported cost data and was the exact differential between WAC of uncontrolled oil and WAC of old oil until February 1976.

3.53 PRODUCT ENTITLEMENTS

The initial program included entitlements for eligible product imports. Eligible products were defined as residual fuel oil and No. 2 heating oil. This consideration resulted from the dependency of the Northeast Coast marketers on imports of eligible products and the cost disparity that would result between these firms and other suppliers upon implementation of the entitlements program, i.e., prices for residual fuel oil and No. 2 heating oil would be higher in the northeast regions than in the rest of the country. Based on the EPAA mandate to protect the viability of all segments of the petroleum industry, product entitlements were issued for the first three months of the program, November and December 1974, and January 1975.

In order to incorporate eligible product imports into the entitlements program, the FEA determined that domestic marketers could compete if importers were allowed to include thirty percent (30%) of the imported volumes as crude runs to stills for entitlement calculations purposes. This resulted in the importer receiving a number of entitlements which equaled thirty percent (30%) of the imported volume multiplied by the NOOSR. If I equals the volume of eligible products imported, then:

$$E = .3 \times I \times \text{NOOSR}$$

In the case of a refiner who also imported eligible products, entitlements were based on crude runs, including SRB entitlements, if applicable, plus additional entitlements for product imports, then:

$$E = \frac{CR \times \text{NOOSR} - \text{OOR} +}{(.3 \times I \times \text{NOOSR})}$$

With consideration of the SRB, Exceptions and Appeals Relief (EAR) and eligible product imports (I), the NOOSR was calculated as follows:

$$\text{NOOSR} = \frac{\text{OOR} - \text{SRB} - \text{EAR}}{\text{CR} + .3I}$$

The effect of including product imports was to reduce the NOOSR. As with the SRB and EAR, the reduced NOOSR results in less entitlements for sale by refiner-sellers and more entitlements to be purchased by refiner-buyers with the cost equalization line shifted more to the left. The reduced sale requirement and increased purchase requirement, however, are not redistributed between refiners, but are issued to the importers against the thirty percent (30%) of the product volume now included as crude runs. The consideration of imported product entitlements results in an increased WAC of all crude oil. The increased WAC of crude oil increased product prices in the rest of the country, while product entitlements reduced the price of imported products in the northeast so that product price competition was generally maintained.

In February 1975, supplemental import fees were imposed on all crude oil and petroleum products imported into the United States. At that time, product entitlements were eliminated and price competition was effected by setting the supplemental import fees for products at a level relative to the supplemental import fees for crude oil, which approximately provided the same dollar benefit to importers as that received from product entitlements. The initial supplemental import fee for crude oil was \$1.00 per barrel and \$0.00 per barrel for products.

In March 1976, amendments to the entitlement program regulations were adopted to correct the price disparity in residual fuel oil. The amendments applied to crude runs and products imported in February. Product entitlements were again issued for eligible products imported by eligible firms. Eligible product was redefined to mean residual fuel oil (only) imported into the east coast market, exclusive of residual fuel oil imported from the Virgin Islands. The east coast market was defined as the Bureau of Mines East Coast Refining District, which includes all or parts of each east coast state (see Section 3.3 for exact definition). Product importers were issued entitlements on the same basis as on the initial program, i.e., thirty percent (30%) of the Imported Residual (IR) fuel oil volume considered as crude runs to stills, $E = \text{DOSR} \times .3 \times \text{IR}$. In order to offset an increase in the WAC of all crude oil due to product entitlements, the new regulation included a "reverse entitlement" provision. Domestic refiners who sold residual fuel oil in, or into, the east coast market would lose one-half of the entitlement value (EV) for every barrel of residual fuel oil sold. This was done by reducing crude runs (exempting the first 5,000 bbl/day) by fifty percent (50%) of the volume attributable to production of residual fuel for sale or resale in, or into, the east coast market. The loss of entitlements by domestic refiners was expected to approximate the entitlements issued for product imported. This would increase the cost of domestic residual fuel oil sold in, or into, the east coast market and reduce the cost of residual fuel oil imported into the same market so that approximately the same price level would prevail for either supply source. The number of "reverse entitlements" did not equal the product entitlements. In fact, product entitlements have averaged about one and one-

half times the entitlements lost by the Domestic Residual Deduction. This distortion, in addition to other adverse market impacts, resulted in the FEA proposed rulemaking, Alternative Entitlement Program Adjustments for Imported Residual Fuel Oil, issued in December 1976. Public hearings were conducted and written comments received on the proposal. At the time of this writing, the proposal is still under study.

The introduction of the domestic residual deduction and reinstatement of product entitlements changes the DOSR formula to:

$$\text{DOSR} = \frac{\text{OOR} - \text{SRB} - \text{EAR}}{\text{CR} - .5\text{DRD} + .3\text{IR}}$$

Where DRD = Domestic Residual Deduction and subtracting the .5 Domestic Residual Deduction from the crude runs offsets the addition of the .3 import product volume so that the WAC of all crude oil would not be increased as much as in the initial program.

3.54 NAPHTHA ENTITLEMENTS

In July 1976, the FEA published an amendment to the regulations which permitted the inclusion of naphtha feedstock, imported into Puerto Rico for petrochemical use, in the entitlements program. The change applied to naphtha imported in May of 1976, with the first naphtha entitlements issued in June 1976 for both the months of May and June.

This change was a result of FEA study and analysis of the competitive position of Puerto Rico's petrochemical industry and that industry's problems due to its dependence on imported naphtha feedstocks. The FEA concluded that the competitive viability of the Puerto Rican petrochemical industry was adversely affected by the increases in world crude prices, while domestic crude prices were kept relatively lower by price controls. The FEA also considered it appropriate to remedy the situation through its regulatory programs and thus affirm the Federal Government's long-standing interest in developing the economy of Puerto Rico.

After public hearings in April 1976, and publication of the proposed rulemaking in May 1976 with solicitation of comments, the final amendments were adopted and published in July 1976. These amendments provided that:

1. Naphtha imported into Puerto Rico and processed at a petrochemical plant as petrochemical feedstock is eligible for entitlements. Naphtha imported solely for gasoline blending is not eligible for entitlements. Naphtha imported from the Virgin Islands also is not eligible for entitlements.
2. A refiner in Puerto Rico who also owns or operates a petrochemical plant in Puerto Rico may include the volume of imported naphtha in his volume of crude oil runs to stills reduced by:

a. The volume of export sales of products derived from the imported naphtha.

b. The application of a fraction which equals the WAC of all naphtha imported into Puerto Rico for use as petrochemical feedstock in the reporting month minus the imputed average cost of domestic naphtha in the reporting month divided by the entitlement value per barrel of crude oil run to stills by that refiner in the reporting month. The entitlement value, for purposes of calculating the naphtha fraction, is computed without consideration of the SRB or the .5 DRD. The imputed average cost of domestic naphtha is 120 percent of the WAC of all crude oil receipts for all domestic refiners for the reporting month.

3. A firm, other than a refiner, that owns a petrochemical plant in Puerto Rico is eligible to receive naphtha entitlements. Entitlements are issued on the same basis as for refiners, except that there is no consideration of SRB entitlements in calculating the number of entitlements.

Sample naphtha entitlement calculation using December 1976 data:

$$\begin{aligned} \text{Entitlement value} &= \text{EV} = \text{DOSR} \times \text{EP} = .26335 \times \$7.97 \\ &= \$2.10/\text{bbl} \end{aligned}$$

$$\text{WAC of all naphtha imported into Puerto Rico} = \$14.86/\text{bbl}$$

$$\text{Imputed cost of domestic naphtha} = \$11.24 \times 1.2 = \$13.49/\text{bbl}$$

$$\begin{aligned} \text{The Naphtha Fraction} &= \text{N} = \frac{\$14.86 - \$13.49}{2.10} \\ &= 0.65238 \end{aligned}$$

$$\begin{aligned}
\text{Volume of naphtha eligible for crude runs (CR)} &= \text{N} \times \text{volume of NI} \\
&= 0.65 \times 500,000 \\
&= 326,190 \text{ bbls}
\end{aligned}$$

If an additional 326,190 bbls were included in crude runs, the additional entitlements would equal:

$$\begin{aligned}
\text{Added Naphtha} \\
\text{Entitlements - NA} &= \text{CR} \times \text{DOSR} \\
&= 326,190 \times .26335 \\
&= 85,902.3
\end{aligned}$$

$$\begin{aligned}
\text{Added ER} &= \text{NA} \times \text{EP} \\
&= 85,902.3 \times \$7.97 \\
&= \$684,641
\end{aligned}$$

$$\begin{aligned}
\text{Naphtha EV} &= \frac{\text{Added ER}}{\text{Vol. NI}} \\
&= \frac{\$684,641}{500,000 \text{ bbl}} \\
&= \$1.37/\text{bbl}
\end{aligned}$$

NOTE: The naphtha entitlement value per barrel, \$1.37, is equal to the cost differential between naphtha imported and the imputed cost of domestic naphtha, i.e., \$14.86 - \$13.49 = \$1.37.

Naphtha entitlements can alternatively be calculated using the Entitlement Price (EP) and eliminating consideration of added crude runs with the same results. Using the same data from the previous sample calculation, Naphtha entitlements (NA) can be calculated:

$$\text{NA} = \frac{\text{WAC Imp.P.R.} - \text{Imputed Cost Domestic}}{\text{EP}} \times \text{NI}$$

$$= \frac{\$14.86 - \$13.49}{\$7.97} \times 500,000 \text{ bbls}$$

$$= 85,947 \text{ entitlements}$$

$$\text{ER} = \text{NA} \times \text{EP}$$

$$= 85,947 \times \$7.97$$

$$= \$685,000$$

$$\text{Naphtha EV} = \frac{\text{ER}}{\text{Vol.NI}}$$

$$= \frac{\$685,000}{500,000 \text{ bbl}}$$

$$= \$1.37/\text{bbl}$$

3.6 THE DOMESTIC OIL SUPPLY RATIO (DOSR)

All the terms in the DOSR calculation have been explained in prior paragraphs, except Deemed Old Oil (DOO) and the Deemed Old Oil Ratio (DOOR). The Deemed Old Oil concept serves as a mechanism to distribute equitably the lower cost benefits of upper tier crude oil relative to uncontrolled crude oil costs, i.e., stripper well, NPR, and imported crude. After the enactment of the EPCA with price controls on domestic crude, upper tier crude costs initially averaged \$1.47/bbl less than imported crude costs in February 1976. (By January 1977, this differential had increased and the average cost of upper tier crude oil was \$2.21/bbl less than the WAC of uncontrolled crude oil.) In order to distribute the lower cost benefit of upper tier crude oil while retaining one kind of entitlement, the cost benefit was equated to that of an equivalent volume of old oil. When upper tier crude had a cost advantage over uncontrolled crude of \$2.21/bbl and old oil had a cost advantage of \$8.51/bbl in January 1977, then 3.8 barrels of upper tier crude oil equated to the same cost advantage as one barrel of old oil, i.e., \$8.51 divided by \$2.21 = 3.8 or, conversely, a fraction equal to \$2.21 divided by \$8.51 (0.26), of each barrel of upper tier crude oil was equivalent in cost advantage as if it were old oil. The fraction multiplied by the total upper tier crude receipts results in a volume of crude oil that is equivalent to old crude oil in terms of cost advantage.

In essence, the DOOR is the fraction obtained by dividing the cost differentials, i.e., \$2.21 divided by \$8.51 equals 0.26. By definition, however, \$0.21 is subtracted from each differential to favor domestic over imported crude. The DOOR is defined as the WAC of Uncontrolled (UNC) crude oil minus the cost of upper tier crude oil, less \$0.21, divided by the Entitlement Price (EP). EP is defined as the WAC of UNC crude oil minus the cost of Old Oil (OO), less \$0.21. Thus, the formula for the DOOR is:

$$\begin{aligned} \text{DOOR} &= \frac{(\text{WAC UNC} - \text{COST UT}) - \$0.21}{\text{EP}} \\ &= \frac{(\text{WAC UNC} - \text{COST UT}) - \$0.21}{(\text{WAC UNC} - \text{COST OO}) - \$0.21} \end{aligned}$$

From January 1977 Cost Data:

$$\begin{aligned} \text{WAC UNC} &= \$14.09/\text{bbl} \\ \text{COST UT} &= \$11.88/\text{bbl} \\ \text{COST OO} &= \$5.58/\text{bbl} \end{aligned}$$

Substituting the Values in the Formula:

$$\begin{aligned} \text{DOOR} &= \frac{\$14.09 - \$11.88 - \$0.21}{\$8.30} \\ &= \frac{2.00}{8.30} \\ &= 0.2410 \end{aligned}$$

The DOOR of 0.2410 reflects that approximately one-fourth of a barrel of old crude oil equates to one barrel of upper tier crude oil in terms of cost advantage.

Deemed Old Oil (DOO) is defined as the sum of the Old Oil Receipts (OOR) and the equivalent volume of old oil obtained by multiplying the DOOR by the Upper Tier oil Receipts (UTR). Thus, the DOO formula is:

$$\text{DOO} = \text{OOR} + (\text{DOOR} \times \text{UTR})$$

Upon this final consideration, the current DOSR can be expressed by:

$$\text{DOSR} = \frac{\text{DOO} - \text{SRB} - \text{EAR} - \text{NA}}{\text{CR} - (.5 \times \text{DRD}) + (.3 \times \text{IR})}$$

For illustrative purposes, we will use a slightly expanded formula, substituting $\text{OOR} + (\text{DOOR} \times \text{UTR})$ for the DOO term:

$$\text{DOSR} = \frac{\text{OOR} + (\text{DOOR} \times \text{UTR}) - \text{SRB} - \text{EAR} - \text{NA}}{\text{CR} - (.5 \times \text{DRD}) + (.3 \times \text{IR})}$$

Sample DOSR calculation:

1. January 1977 Entitlement Data:

OOR	=	114,564,627
DOOR	=	.24074
UTR	=	90,305,158
SRB	=	7,484,194.51
EAR	=	2,443,153
NA	=	384,560
CR	=	467,807,512
DRD	=	15,068,345
IR	=	42,957,228

2. Substitute values in the DOSR formula:

$$\begin{aligned} \text{DOSR} &= \frac{114,564,627 + (.24074 \times 90,305,158) - 7,484,194.51 - 2,443,153 - 384,560}{467,807,512 - (.5 \times 15,068,345) + (.3 \times 42,957,228)} \\ &= \frac{114,564,627 + 21,740,063.74 - 7,484,194.51 - 2,433,153 - 384,560}{467,807,512 - 7,534,172.5 + 12,887,168.4} \\ &= \frac{125,992,783.2}{473,160,507.9} \\ &= .26628 \end{aligned}$$

NOTE: The actual DOSR used for January 1977 calculations was
.266279593

3.7 COST EQUALIZATION

Cost equalization lines can be plotted for small refiners, all refiners and large refiners with real-world data as for the hypothetical example, Graph 3.5-3. Under the revised entitlements program, the entitlement value must be plotted against the percentage mix of Deemed Old Oil (DOO) receipts rather than Old Oil Receipts (OOR).

In order to plot the cost equalization lines for each of the three categories, the respective cost data is required for both pre- and post-entitlement costs for the reporting month. This cost data, and other pertinent entitlement data, are compiled each month by the FEA and are made available by telephone to the public upon request. The entitlement data compilations for February through December 1976 and January through April 1977 are included in Appendix A. Each monthly data compilation consists of five Tables. The pre-entitlement, i.e., acquisition, and post-entitlement, i.e., equalized, costs are provided in Table V.

NOTE: These costs apply to purchased volumes of crude oil in the reporting month in which entitlements effect equalized costs. Entitlement revenue is received in the second month following the reporting month and is actually "booked" against the cost of purchased volumes in the month in which the revenue is received. (See Section 3.11.)

Table V pre-entitlement and post-entitlement costs are tabulated for Large Integrated Refiners, Large Independent Refiners, Small Refiners, Small and Independent Refiners and All Refiners. In order to plot the cost equalization line for all large refiners, the WAC for both Large Integrated and Large Independent Refiners must be calculated. This can be done from the volume and cost data provided in Tables I and II of the Entitlement Data Compilation.

The pre-entitlement WAC of uncontrolled oil, i.e., stripper, NPR, and imported, can be calculated for all large refiners and small refiners. The entitlements calculations can then be applied to old, new, and uncontrolled oil to arrive at the approximate post-entitlement costs for all large and small refiners. (See Table 3.7-1.)

The post-entitlement, Equalized Cost (EC), equals the WAC minus the Entitlement Value, i.e., $EC = WAC - EV$, for all large refiners. For small refiners, the SRB must also be subtracted from the WAC cost so that $EC = WAC - EV - SRB$. The EV can be approximated for each category of crude oil by using the following formulas:

Uncontrolled oil	EV	=	DOSR x EP
Old oil	EV	=	(DOSR-1) x EP
New oil	EV	=	(DOSR-DOOR) x EP

Using April 1977 data; DOSR = .284909, DOOR = .329173, and EP = \$8.69, the EV's are calculated:

Uncontrolled oil	EV	=	.284909 x \$8.69
		=	\$2.48/bbl
Old oil	EV	=	(.284909-1) x \$8.69
		=	\$6.21/bbl
New oil	EV	=	(.284909-.329173) x \$8.69
		=	-\$0.38/bbl

TABLE 3.7-1

PRE- AND POST-ENTITLEMENT CRUDE OIL COSTS
APRIL 1977 DATA

I. PRE-ENTITLEMENT WAC FOR ALL LARGE REFINERS (000 bbl & \$/bbl)

<u>Crude Oil</u>	<u>LARGE NON-IND.</u>		<u>LARGE IND.</u>		<u>ALL LARGE</u>	
	<u>Volume</u>	<u>Cost</u>	<u>Volume</u>	<u>Cost</u>	<u>Volume</u>	<u>Cost</u>
Old (OOR)	85,751	5.59	6,004	5.66	91,755	5.59
New (UTR)	<u>60,909</u>	<u>11.32</u>	<u>5,483</u>	<u>11.39</u>	<u>66,392</u>	<u>11.33</u>
TOTAL CONT.	<u>146,660</u>	<u>7.97</u>	<u>11,487</u>	<u>8.40</u>	<u>158,147</u>	<u>8.00</u>
STRIPPER	19,366	13.57	2,369	14.02	21,735	13.71
NPR	1,669	12.52	0	0.00	1,669	12.52
IMPORTED	<u>152,678</u>	<u>14.53</u>	<u>34,858</u>	<u>14.52</u>	<u>187,536</u>	<u>14.53</u>
TOTAL UNC.	<u>173,713</u>	<u>14.41</u>	<u>37,227</u>	<u>14.50</u>	<u>210,940</u>	<u>14.43</u>
Total Receipts	320,373	11.47	48,714	13.05	369,087	11.68

TABLE 3.7-1 (cont'd)

II. PRE- AND POST-ENTITLEMENT COSTS FOR ALL LARGE REFINERS (000 bbl & \$/bbl)

<u>Crude Oil</u>	<u>PRE-ENTITLEMENT</u>		<u>POST-ENTITLEMENT</u>	
	<u>Volume</u>	<u>Cost</u>	<u>EV</u>	<u>Cost</u>
Old (OOR)	91,755	5.59	+6.21	= 11.80
New (UTR)	<u>66,392</u>	<u>11.33</u>	<u>+0.38</u>	= <u>11.71</u>
TOTAL CONT.	<u>158,147</u>	<u>8.00</u>		<u>11.76</u>
STRIPPER	21,735	13.71		
NPR	1,669	12.52		
IMPORTED	<u>187,536</u>	<u>14.53</u>		
TOTAL UNC.	<u>210,940</u>	<u>14.43</u>	<u>-2.48</u>	= <u>11.95</u>
Total Receipts	369,087	11.68	Approximate cost	= 11.87
			FEA Actual Cost	= <u>11.97</u>
			Difference -- approximate vs. actual	= -0.10

TABLE 3.7-1 (cont'd)

III. PRE- AND POST-ENTITLEMENT COSTS FOR SMALL REFINERS (000 bbl & \$/bbl) (APRIL 1977 DATA)

<u>Crude Oil</u>	<u>PRE-ENTITLEMENT</u>		<u>POST-ENTITLEMENT</u>		
	<u>Volume</u>	<u>Cost</u>	<u>EV</u>	<u>SRB & EAR</u>	<u>Cost</u>
Old (OOR)	20,471	5.47	+6.21	-0.70	= 10.98
New	<u>22,226</u>	<u>11.65</u>	<u>+0.38</u>	<u>-0.70</u>	= <u>11.33</u>
TOTAL CONT.	<u>42,697</u>	<u>8.69</u>			= <u>11.16</u>
STRIPPER	9,585	14.05			
NFR	1,352	12.56			
IMPORTED	<u>44,421</u>	<u>14.86</u>			
TOTAL UNC.	<u>55,358</u>	<u>14.66</u>	<u>-2.48</u>	<u>-0.70</u>	= <u>11.48</u>
Total Receipts	98,055	12.06			
				Approximate cost	= 11.34
				FEA Actual cost	= <u>11.27</u>
				Difference -- Approximate	+0.07
				vs. actual	=

TABLE 3.7-1 (cont'd)

IV. PRE- AND POST-ENTITLEMENT COSTS FOR ALL REFINERS (000 bbl & \$/bbl)(APRIL 1977 DATA)

<u>Crude Oil</u>	<u>PRE-ENTITLEMENT</u>		<u>EV</u>	<u>POST-ENTITLEMENT</u>	
	<u>Volume</u>	<u>Cost</u>		<u>Cost Diff.</u>	<u>Cost</u>
Old (OOR)	112,226	5.57	+6.21	-0.15	= 11.63
New (UTR)	<u>88,618</u>	<u>11.41</u>	<u>+0.38</u>	<u>-0.15</u>	= <u>11.64</u>
TOTAL CONT.	<u>200,844</u>	<u>8.15</u>			= <u>11.63</u>
STRIPPER	31,320	13.81			
NPR	3,021	12.54			
IMPORTED	<u>231,957</u>	<u>14.59</u>			
TOTAL UNC.	<u>266,298</u>	<u>14.48</u>	<u>-2.48</u>	<u>-0.15</u>	= <u>11.85</u>
Total Receipts	467,142	11.76			
				Approximate cost	= 11.76
				FEA Actual cost	= 11.82
				Difference --	
				Approximate	= -0.06
				vs. actual	

The SRB and the effect of Exceptions and Appeals Relief (EAR), which is generally concentrated among small refiners, are reflected in the difference in post-entitlement costs between all large refiners and small refiners, i.e., from April 1977 data, \$11.97/bbl minus \$11.27/bbl equals \$0.70/bbl.

The All Refiner, Large and Small, post-entitlement cost can be approximated by applying the entitlement calculations, i.e., EV, to the pre-entitlement cost and subtracting the difference between the post-entitlement costs for all Large Refiners and All Refiners, i.e., from April 1977 data, \$11.97 per bbl minus \$11.82/bbl equals \$0.15/bbl.

The post-entitlement costs calculated from the EV's and SRB tabulated in Table 3.7-1 are only approximations. The post-entitlement costs for all large and small refiners, as reflected in Table V of the FEA Entitlement Data Compilation, are shown with the calculated costs and associated differentials in Table 3.7-1. The differentials are due to a variety of reasons.

1. The approximations assume receipt of April's entitlement revenue in April rather than in June when entitlement revenue is actually received and applied to the cost of receipts in June. The FEA Data Compilations post-entitlement cost for April reflect February's entitlement revenue applied to April's cost of receipts.
2. The approximations are based on the assumption that crude oil receipts in April equal crude oil runs to stills in April. This is also a basic assumption of the entitlements program that over an extended period of time crude oil receipts will equal crude runs.
3. The approximations do not take into account any corrections which may be made by the FEA in any one month.

4. The approximations do not take into account the actual distribution of the Domestic Residual Deduction (DRD) between large and small refiners or between different categories of crude oil.
5. The approximations do not take into account the actual distribution of the SRB, which is particularly uneven, as reflected in Table 3.5-3, and the EAR between the different categories of crude oil.
6. The approximations do not take into account the actual distribution of controlled oil, with the \$0.21/bbl cost advantage, relative to uncontrolled oil, between large and small refiners. In April 1977, however, the distribution of controlled crude oil was proportionately about the same for all large and small refiners, i.e., 43 percent and 44 percent of total receipts, respectively. This is reflected in Table 3.7-1, All Refiner Post-Entitlement Costs, where the differential between controlled oil and uncontrolled oil costs amounts to \$0.22/bbl. This may not necessarily be the case in all months.
7. The approximations involve considerable rounding, e.g., the DOSR and DOOR are rounded to six decimal places where in the FEA calculations these ratios are carried to nine decimal places.

Cost Equalization Lines (CEL) can be drawn for all Large, Small, and All Refiners for April 1977 using the post-entitlement costs from Table 3.7-1. (See Graph 3.7-1.) The Entitlement Values (EV) used in the graph are the total values, including the SRB and cost differential, between all large and small refiners. For example, the EV for uncontrolled oil for all Large Refiners equals \$2.48/bbl; for Small Refiners, $\$2.48 + \$0.70 = \$3.18/\text{bbl}$; and for All Refiners, $\$2.48/\text{bbl} + \$0.15 = \$2.63/\text{bbl}$. The two points fixing the CEL can be established by using the appropriate total EV at 0 percent Deemed Old Oil (DOO) and 100 percent Old Oil (OO) for Large, Small, and All Refiners.

From the CEL, each classification of refiner can approximate the EV for any percentage mix of DOO. Post-entitlement Equalized Cost (EC) can then be calculated by subtracting the EV from the pre-entitlement WAC, i.e., $EC = WAC - EV$. If the EV value is negative, then:

$$EC = WAC - (-EV) \text{ or } EC = WAC + EV.$$

The EV and EC values can also be calculated using the approximation formulas as follows, using April 1977 data:

1. Large Refiners:

a. at 20% DOO:

$$\begin{aligned} \text{Entitlements (E)} &= CR \times \text{DOSR} - \text{DOO} \\ &= CR \times \text{DOSR} - (.2 \times CR) \end{aligned}$$

(Assuming the total receipts equal CR)

$$E = CR \times (\text{DOSR} - .2)$$

$$\begin{aligned} \text{AND: } EV &= \frac{E \times EP}{CR} \\ &= \frac{CR \times (\text{DOSR} - .2) \times EP}{CR} \\ &= (\text{DOSR} - .2) \times EP \\ &= (.284909 - .2) \times \$8.69 \\ &= \$0.74/\text{bb1} \end{aligned}$$

WHERE: Pre-Entitlement WAC of total receipts
= .2 x WAC DOO for Large Refiners plus
.8 x WAC of uncontrolled (UNC) for Large Refiners;
WAC TOTAL REC. = .2 x WAC DOO + .8 x WAC UNC

$$= .2 \times \$5.59 + .8 \times \$14.43$$
$$= \$12.66/\text{bbl}$$

THEN: EC = WAC TOTAL REC. - EV
= \$12.66 - \$0.74
= \$11.92 (which approximates the
EC of \$11.97)

b. At 28.49% DOO, the EV = \$0.00 and the WAC of total receipts equals the EC without any entitlement purchase or sale requirement:

$$\text{WAC TOTAL REC.} = .284909 \times \$5.59 + .7151 \times \$14.43$$
$$= \$11.91/\text{bbl} \text{ (which approximates the EC of } \$11.97/\text{bbl)}$$

c. At 70% DOO:

$$\text{EV} = (\text{DOSR} - .7) \times \text{EP}$$
$$= (.284909 - .7) \times \$8.69$$
$$= -\$3.63/\text{bbl}$$

$$\text{AND: WAC TOTAL REC.} = .7 \times \$5.59 + .3 \times \$14.43$$
$$= \$8.24/\text{bbl}$$

$$\begin{aligned}
\text{THEN: EC} &= \text{WAC TOTAL REC.} - \text{EV} \\
&= \$8.24 - (-\$3.63) \\
&= \$11.87/\text{bbl (approximates } \$11.97)
\end{aligned}$$

- d. If the 70% DOO was a mix of OOR and UTR, the DOOR would be multiplied by the UTR to determine what part of the UTR was counted as DOO:

$$\begin{aligned}
\text{Total mix} &= \text{OOR} + \text{UTR} + \text{UNC} = 100\% \\
\text{DOO mix} &= \text{OOR} + (\text{DOOR} \times \text{UTR}) = 70\% \\
\text{Let OOR} &= 65\% \\
\text{Then UTR} &= \frac{70\% - 65\%}{\text{DOOR}} \\
&= \frac{.05}{.329173} \\
&= 15\%
\end{aligned}$$

And total composition of the mix would be:

$$\begin{aligned}
\text{OOR} &= 65\% \\
\text{UTR} &= 15\% \\
\text{UNC} &= 20\% \\
\text{TOTAL} &= 100\%
\end{aligned}$$

$$\begin{aligned}
\text{THEN: WAC TOTAL REC.} &= .65 \times \$5.59 + .15 \times \$11.33 + .20 \times \$14.43 \\
&= \$8.22/\text{bbl}
\end{aligned}$$

$$\begin{aligned}
 \text{AND: EC} &= \text{WAC TOTAL REC.} - \text{EV} \\
 &= \$8.22 - (-\$3.63) \text{ (From c. above)} \\
 &= \$11.85/\text{bbl} \text{ (which approximates the} \\
 &\quad \text{EC of \$11.87 in example c.)}
 \end{aligned}$$

2. Small Refiners: From Table 3.7-1, the total EV for Small Refiners equals $\$2.48 + \$0.70 = \$3.18/\text{bbl}$ at 0 percent DOO. The larger EV for Small Refiners, versus the $\$2.48/\text{bbl}$ for Large Refiners, results in a Small Refiner Proportionate Share Ratio (SRPSR) of .365938. The SRPSR equals the EV divided by the EP:

$$\begin{aligned}
 \text{SRPSR} &= \frac{\$3.18}{\$8.69} \\
 &= .365938
 \end{aligned}$$

The Small Refiner EV and EC can be calculated for various percentage mixes of DOO by the same method used for Large Refiners but using the SRPSR of .365938. For example:

a. at 20% DOO:

$$\begin{aligned}
 \text{EV} &= (\text{SRPSR} \times .2) \times \text{EP} \\
 &= (.365938 \times .2) \times \$8.69 \\
 &= \$1.44/\text{bbl}
 \end{aligned}$$

$$\begin{aligned}
 \text{WAC TOTAL REC.} &= .2 \times \$5.47 + .8 \times \$14.66 \\
 &= \$12.82/\text{bb1} \\
 \text{EC} &= \$12.82 - \$1.44 \\
 &= \$11.38/\text{bb1} \text{ (Approximates } \$11.27/\text{bb1)}
 \end{aligned}$$

b. At 70% DOO:

$$\begin{aligned}
 \text{EV} &= (\text{SRPSR} - .7) \times \text{EP} \\
 &= (.365938 - .7) \times \$8.69 \\
 &= -\$2.90/\text{bb1}
 \end{aligned}$$

$$\begin{aligned}
 \text{WAC TOTAL REC.} &= .7 \times \$5.47 + .3 \times \$14.66 \\
 &= \$8.23/\text{bb1} \\
 \text{EC} &= \$8.23 - (-\$2.90) \\
 &= \$11.13/\text{bb1} \text{ (Approximates } \$11.27/\text{bb1)}
 \end{aligned}$$

3. All Refiners: From Table 3.7-1, the total EV for All Refiners equals $\$2.48 + \$0.15 = \$2.63$ at 0 percent DOO. Similar to the Small Refiners, All Refiners also have a larger EV relative to Large Refiners which results in an All Refiner Proportionate Share Ratio (ARPSR) of .302647, which is equal to the EV divided by the EP, i.e., $\$2.63$ divided by $\$8.69 = .302647$. The All Refiner EV and EC can be calculated for various percentage mixes of DOO using the ARPSR. For example:

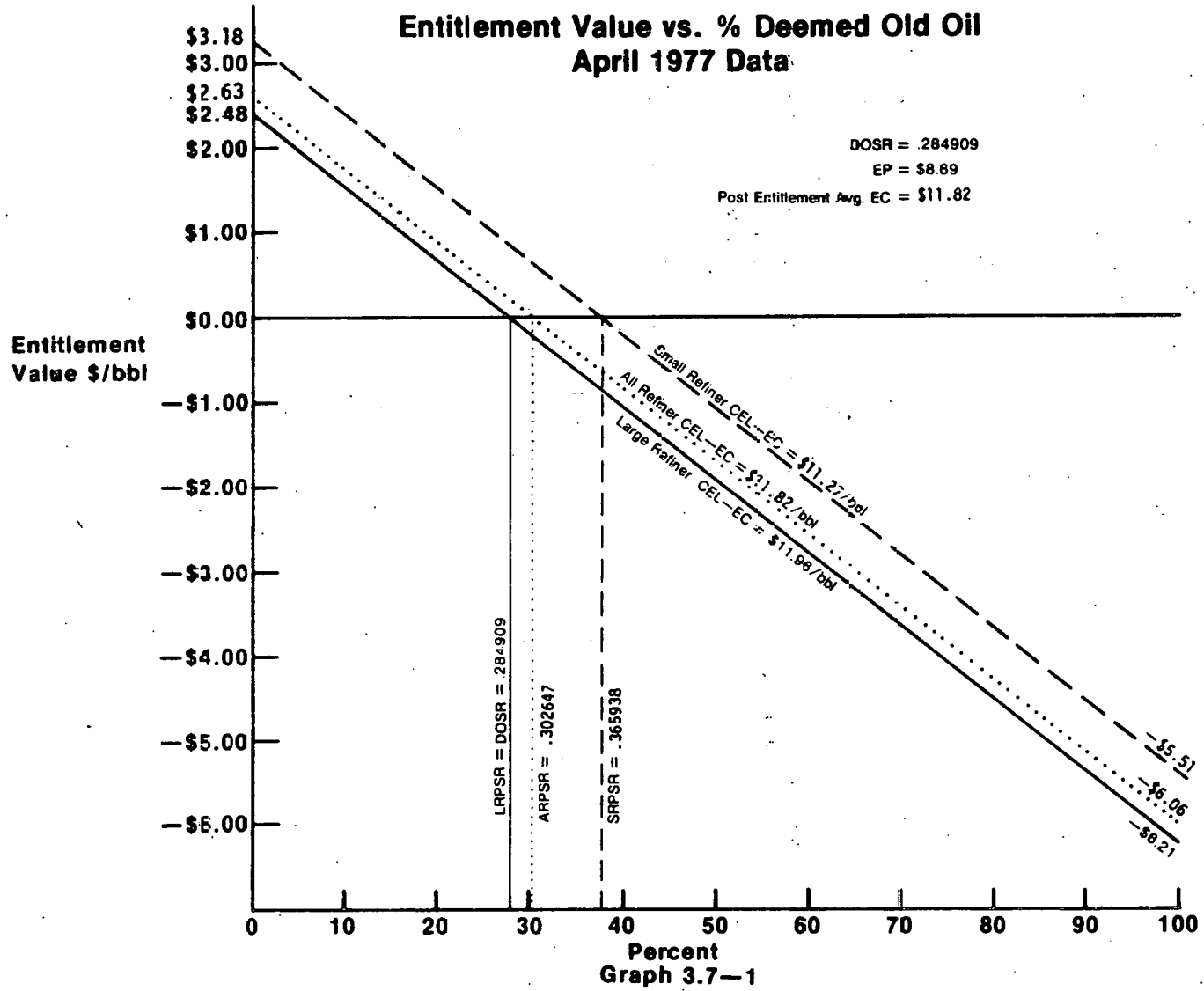
at 50% DOO:

$$\begin{aligned}
 \text{EV} &= (\text{ARPSR} - .5) \times \text{EP} \\
 &= (.302647 - .5) \times \$8.69 \\
 &= -\$1.71/\text{bb1}
 \end{aligned}$$

$$\begin{aligned}
 \text{WAC TOT. REC.} &= .5 \times \$5.57 + .5 \times \$14.48 \\
 &= \$10.02/\text{bbl} \\
 \text{EC} &= \$10.02 - (-\$1.71) \\
 &= \$11.72/\text{bbl (approximates } \$11.82/\text{bbl)}
 \end{aligned}$$

Graph 3.7-1 shows that all refiners, on the average, were equalized at a post-entitlement crude cost of \$11.82/bbl. In the entitlements program, however, no individual refiner fits the "all refiner average." Refiners are either large or small due to the differentiation of the SRB and EAR. Based on averages, the cost equalization line for large refiners is reasonably representative for any larger refiner. Small refiners, however, have large variations in the value benefit from the SRB ranging from a fraction of one cent to \$1.99/bbl in April 1977. Therefore, the small refiner cost equalization line is not likely to be representative of any small refiner. The cost equalizations lines are used to illustrate the total effect of the entitlements program and permit the individual refiner to comparatively evaluate his own position relative to the overall program.

The cost equalization lines do not show the effect of product entitlements for naphtha imported into Puerto Rico and residual fuel oil imported into the east coast market. The effect of product entitlements is reflected in the All Refiners Pre- and Post-Entitlement crude cost in Table V of the FEA Data Compilation. In April 1977, the pre-entitlement cost equaled \$11.76/bbl compared to a post-entitlement cost of \$11.82/bbl for a \$0.06/bbl differential increase in cost on the average. This cost increase is due to the issuing of net product entitlements.



3.8 ENTITLEMENT CALCULATIONS

The FEA Office of Data Services, Domestic Crude Oil Entitlements System, Computation Summary by Month Report is provided to each refiner or importer participating in the program. The Report documents the monthly entitlement calculation of the individual participant. The first part of this report provides the National Ratios, i.e., national Domestic Crude Oil Supply Ratio (DOSR) and the Deemed Old Oil Ratio (DOOR), and also the national totals for the overall program. The second part of the report calculates the individual participant's entitlements to be sold or purchased. The calculations are made by computer using the data submitted by participants in the Refiner's Monthly Report, FEA-P102-M-1, Importer's Monthly Report, FEA-P126-M-0, Naphtha Imports Into Puerto Rico, FEA-P129-M-0, and Heating Oil Importer's Monthly Report, FEA-P132-M-0. All calculations are on a per-month basis, i.e., crude runs per month in barrels, crude oil receipts in barrels, and eligible product imports in barrels. The Small Refiner Bias is scaled according to crude runs in barrels per day, but then the calculated per day entitlement is multiplied by the number of days in the reporting month to arrive at a monthly figure.

Column A of the Computation Summary enters corrected crude runs to stills reflected as CORR. RUNS (BBL/MO). This is the same as the CR symbol used in the formulas. The figure entered includes CR at the reporting refiner's refinery, all CR for his account at another refinery and all CR for non-refiners at his refinery. CR processed into residual fuel oil or petroleum products, excluding refined lubricating oils, which are exported are not included. CR for another refiner at the reporting refiner's refinery are also not included. The entered figure may be corrected by FEA to effect corrections from prior months' amended reports and may be different from the figure entered on the FEA-P102-M-1, line 40199. (See Chapter 4 for more detail on corrections).

The Domestic Residual Fuel Oil Deduction (.5DRD) is reflected on the report as a -.5 RESID DEDUCTION. The figure entered is one-half (.5) the volume of residual fuel oil sold in or into the East Coast BOM Refining District (less the first 5,000 bbls per day). The figure is derived from line 50199 of the FEA-P102-M-1. This figure may be corrected by FEA to reflect prior months' amended reports.

The .5DRD is subtracted from CR to arrive at adjusted runs qualifying for entitlements, reflected as RUNS" on the report. Adjusted crude runs are multiplied by the DOSR to arrive at the number of entitlements based on adjusted CR, which is reflected as ENTIT(S*RUNS") on the report (NOTE: the * symbol as used in the report means times (x) and S equates to the DOSR).

Column B of the Computation Summary Report calculates product entitlements for imported residual fuel oil into the east coast market and for imported naphtha into Puerto Rico from the data in the FEA-P126-M-0 and FEA-P129-M-0 reports. (NOTE: In February and March 1977, Column B included entries for calculation of heating oil entitlements which appeared as IMP HEAT FUEL (BBLs/MO) and D*IMP FUEL. As heating oil entitlements were issued only for the two months, the associated calculations are omitted.)

The number of barrels of residual fuel oil imported is reflected as IMP RESID (BBLs/MO) and the number of barrels of Naphtha imported is reflected as IMP NAPHT (BBLs/MO).

1. The entitlements issued for residual fuel imports is calculated by multiplying the number of barrels by the DOSR and then multiplying the result by 0.3. This is reflected as S*.3*IMP RESID on the report.

2. The entitlements issued for naphtha imports are calculated by multiplying the number of barrels by a fraction, which is the WAC of naphtha imported into Puerto Rico for that month minus the imputed cost of domestic naphtha divided by the entitlement price (EP). This fraction is reflected as N on the report and $N*IMP$ NAPHT equals the number of entitlements.

3. The TOTAL PRODUCT ENTITLEMENTS equals the sum of residual fuel oil entitlements and naphtha entitlements. (NOTE: There are only three firms issued naphtha entitlements in Puerto Rico; for the majority of participants who import residual fuel oil, the TOTAL PRODUCT ENTITLEMENTS equals the $S*.3*IMP$ RESID.)

Column C of the Computation Summary Report calculates the Small Refiner Bias (SRB) entitlements for those refiners whose crude runs average less than 175,000 barrels per day. The SRB is scaled on a curve and increases as the runs per day decrease to 10,000 barrels per day. (NOTE: The SRB calculations are based on runs per day in thousands. To arrive at the total SRB entitlements issued, the number of entitlements must be multiplied by the number of days in that month. See paragraph 3.51 for details on calculating the SRB.) The SRB entitlement is reflected on the report as ENTIT (EX).

The Computation Summary Report calculates the number of entitlements to be sold or purchased under the heading, SUMMARY.

1. The first line entry is the old oil corrected receipts. This number is based on the volume of old oil reported in the FEA-P102-M-1, Part 5, line 20399. FEA enters corrections to this volume on line 20409 based on amended reports for prior months. The corrected volume is entered on line 20499 and is the number used in the summary calculations as OLD OIL CORRECTED RECEIPTS.

2. The second line entry is for upper tier oil receipts. The upper tier volume is reported in the FEA-P102-M-1, Part 6, line 30399. As for old oil, the FEA makes any corrections and enters them on line 30409. The corrected volume is entered on line 30499. This volume is multiplied by the DOOR in the computation summary, UPPER TIER CORR REC*DOOR, to arrive at the equivalent old oil volume, cost-wise, represented in the upper tier receipts. (NOTE: For a detailed explanation of the DOOR, see paragraph 3.6.)

3. The third line entry in the summary is the sum of the corrected old oil receipts and the equivalent old oil volume (corrected upper tier receipts x DOOR) which equals the CORRECTED DEEMED OLD OIL volume.

4. The fourth line entry is the adjusted crude oil runs multiplied by the DOSR from Column A, i.e., ENTIT(S*RUNS").

5. The fifth line entry is the number of product entitlements from Column B, i.e., TOTAL PRODUCT ENTITLS.

6. The sixth line entry is the number of entitlements provided by the Small Refiner Bias (SRB) from Column C, i.e., ENTIT (EX).

7. The seventh line is the sum of the column entries, A+B+C; i.e., INTGR ADJ. TOT. ENT(A+B+C), which represents the total number of entitlements provided from runs to stills, product imports and the SRB, i.e., Integrated Adjusted Total Entitlements.

8. The eighth line entry is the CORRECTED DEEMED OLD OIL VOLUME, as previously calculated in the third line entry.

9. The ninth line entry is the difference between the Integrated Adjusted Total Entitlements (A+B+C) and the CORRECTED DEEMED OLD OIL VOLUME. This difference is the initial purchase or sale requirement, i.e., INITIAL PREQ(-) or SREQ(+). If the difference is negative (-), an entitlement purchase is required. If the difference is positive (+), an entitlement sale is required.

10. The tenth line entry is the prorated number of entitlements for an individual refiner to buy or sell to correct for adjusted volumes of old oil reported during the period November 1974 through August 1975. This entry appears as TEN-MONTH CLEAN-UP with a positive or negative number of entitlements. Here also, a negative number indicates a purchase requirement and a positive number a sale requirement. The 10-month clean up ended with the February 1977 entitlement notice.

11. The eleventh line entry is the number of entitlements provided by Exceptions and Appeals relief. Normally, this is a positive number, but may be negative in order to effect prior corrections.

12. The twelfth line entry is the algebraic sum of line entries 9, 10, and 11, i.e., the initial entitlement purchase or sale requirement plus or minus (+) the TEN-MONTH CLEAN-UP and plus or minus (+) EXCEPTIONS & APPEALS relief. This results in the final purchase or sale requirement, i.e., FINAL PREQ(-) or SREQ(+). If a refiner has a negative requirement, he becomes a purchaser of entitlements and if a positive requirement, he becomes a seller of entitlements. Purchase and Sale requirements are listed by firm in the Entitlement Notice, published each month in the Federal Register.

3.81 EXAMPLES OF ENTITLEMENT CALCULATIONS

Example: Computation Summaries are presented to illustrate the calculations for representative refiner and importer situations. Real-world entitlement data is used for the month indicated. Simulated refiner/importer reported data has been realistically substituted for the actual data.

<u>EXAMPLE</u>	<u>SITUATION</u>
1.	Large refiner-buyer who imports residual fuel oil into the east coast market and who also sells processed residual fuel into the east coast market.
2.	Small refiner-seller, less than 10,000 bbl/day, with no imports or sales of residual fuel oil into the east coast market.
3.	Small refiner-seller, more than 100,000 bbl/day, with no deemed old oil, who imports naphtha into Puerto Rico.
4.	Small refiner-buyer, 10,000 - 30,000 bbl/day, whose buy position is reversed to a sell position by Exceptions and Appeals Relief. No imports or sales of residual fuel oil into the east coast market.
5.	Importer-seller, only imports residual fuel into the east coast market.
6.	Small refiner-seller, 10,000 - 20,000 bbl/day, whose sell position is reversed to a buy position due to the TEN-MONTH CLEAN-UP.

7. Small refiner-buyer, less than 10,000 bbl/day, who has Exceptions and Appeals Relief.
8. Small refiner-seller, more than 10,000 bbl/day, who imports residual fuel oil into the east coast market and also sells processed residual fuel oil into the east coast market.

OFFICE OF DATA SERVICES

DOMESTIC CRUDE OIL ENTITLEMENTS SYSTEM

PAGE: 6

EXAMPLE 1

EXAMPLE 1

REPORT: REFINERY NAME

COMPUTATION SUMMARY FOR MONTH OF NOVEMBER 1976

DATE OF REPORT: 01/17/77

SOURCE: P-102-M-1/P-126-M-1/P-129-M-0

NATIONAL DOMESTIC CRUDE OIL
SUPPLY RATIO (S) = 0,273070225924

DEEMED OLD OIL RATIO
(DOOR) = 0,177464001845

NAPHTHA IMPORTS INTO PUERTO RICO
PRODUCT RATIO (N) = 0,189098286409

NATIONAL TOTALS

OLD OIL ADJ. REC, = 116918293 BBLs/MO
NET OLD OIL CORR, = -720544 BBLs/MO
UPPER TIER REC, = 92232929 BBLs/MO
NET UPPER TIER CORR, = 563028 BBLs/MO
CRUDE RUNS = 450384043 BBLs/MO
NET CRUDE RUNS CORR, = -70351 BBLs/MO
EAST COAST RESID PROD, = 16508245 BBLs/MO
NET E.C. RESID CORR, = 4532961 BBLs/MO
EAST COAST RESID IMP, = 35024593 BBLs/MO
NET E.C. RES IMP CORR, = 37855 BBLs/MO
PUERTO RICO NAPHT IMP, = 3451677 BBLs/MO
NET P.R. NAP IMP CORR, = 0 BBLs/MO

SM REF BIAS ENT, = 6571274,95 BBLs/MO

EXCEPTION & APPEALS = 1876992 BBLs/MO

NAPHTHA IMPORTS ENT, = 652706 BBLs/MO

TOTAL DOMESTIC E.C. RESID FOR
S BENEFIT DEDUCTION = 8298981,5 BBLs/MO

TOTAL PRODUCT ENT, = 3525061 BBLs/MO

CRUDE RUNS/ENTIT COL (A)
CORR. RUNS(BBLS/MO) = 2050000
-S RESID DEDUCTION = 10895

RUNS" = 20489105
ENTIT(S * RUNS") = 5594959.9

PRODUCT ENTIT COL (B)
IMP RESID(BBLS/MO) = 325700
IMP NAPHT(BBLS/MO) = 0
S * IMP RESID = 26681.67
N * IMP NAPHT = 0,0

TOTAL PRODUCT ENTITLS = 26681.67

SMALL REF BIAS ENTIT COL (C)
RUNS(MB/D) = 0,0
EX = 0 NO ENTITLEMENTS
ENTIT (EX) = 0,0

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Example 1:
Large refiner-buyer who imports residual fuel oil into the East-Coast market and who also sells processed residual fuel into the East-Coast market.

SUMMARY
OLD OIL CORRECTED RECEIPTS = 6282474
UPPER TIER CORR REC * DOOR = 1109118

CORRECTED DEEMED OLD OIL = 7391592
COL. A (S * RUNS") = 5594959.9
COL. B (PRODUCT ENT, S) = 26681.67
COL. C (SMALL REF, BIAS) = 0,0

INTGR ADJ. TOT. ENT(A+B+C) = 5621640
CORRECTED DEEMED OLD OIL = 7391592

INITIAL PREQ(-) OR SREQ(+) = -1769952
TEN MONTH CLEAN-UP = - 2167
EXCEPTIONS & APPEALS ENT, = 0

FINAL PREQ(-) OR SREQ(+) = -1772119

OFFICE OF DATA SERVICES

EXAMPLE 2

DOMESTIC CRUDE OIL ENTITLEMENTS SYSTEM

EXAMPLE 2

PAGE 3

REPORT: REFINERY NAME

COMPUTATION SUMMARY FOR MONTH OF DECEMBER 1976

DATE OF REPORT: 02/22/77

SOURCE: P-102-M-1/P-126-M-0/P-129-M-0

NATIONAL DOMESTIC CRUDE OIL
SUPPLY PATIO (S) = 4,263349523509

DEEMED OLD OIL RATIO
(DOLR) = 0.163285476500

NAPHTHA IMPORTS INTO PUERTO RICO
PRODUCT RATIO (N) = 0.172573894332

NATIONAL TOTALS

OLD OIL ADJ. REC. = 119313258 BBL/MO
NET OLD OIL CORR. = -73240 BBL/MO
UPPER TIER REC. = 95035669 BBL/MO
NET UPPER TIER CORR. = 77294 BBL/MO
CRUDE RUNS = 475095878 BBL/MO
NET CRUDE RUNS CORR. = -742794 BBL/MO
EAST COAST RESID PROD. = 17083026 BBL/MO
NET E.C. RESID CORR. = 197759 BBL/MO
EAST COAST RESID IMP. = 44945555 BBL/MO
NET E.C. RES IMP CORR. = 42489 BBL/MO
PUERTO RICO NAPHT IMP. = 2352636 BBL/MO
NET P.R. NAP IMP CORR. = 0 BBL/MO

SM REF BIAS ENT. = 7367860.82 BBL/MO
EXCEPTION & APPEALS = 2119645 BBL/MO
NAPHTHA IMPORTS ENT. = 406038 BBL/MO
TOTAL DOMESTIC E.C. RESID FUR
.5 BENEFIT DEDUCTION = 6453026.5 BBL/MO
TOTAL PRODUCT ENT. = 3960311 BBL/MO

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CRUDE RUNS/ENTIT	COL
	(A)
CORR. RUNS(BBL/MO)=	218831
.5 RESID DEDUCTION=-	0.0

RUNS" =	218831
ENTIT(S * RUNS") =	57629.1

PRODUCT ENTIT	COL
	(B)
IMP RESID(BBL/MO)=	0
IMP NAPHT(BBL/MO)=	0

S * .3 * IMP RESID=	0.0
N * IMP NAPHT=+	0.0

TOTAL PRODUCT ENTITLS=	0.0

SMALL REF BIAS ENTIT	COL
	(C)
RUNS(MB/D) =	7.05906

EX=DAYS*(RUNS)*228.8	
ENTIT (EX) =	50068.53

Example 2:

Small refiner-seller, less than 10,000 bbl/day, with no imports or sales of residual fuel oil into the East-Coast market.

SUMMARY

OLD OIL CORRECTED RECEIPTS= 716
UPPER TIER CORR REC * DOLR=+ 146.46

CORRECTED DEEMED OLD OIL = 862
COL. A (S * RUNS") = 57629.1
COL. B (PRODUCT ENT.S) = 0.0
COL. C (SMALL REF. BIAS) = 50068.53

INTGR ADJ. TOT. ENT(A+B+C)= 107698
CORRECTED DEEMED OLD OIL = 862

INITIAL PREQ(-) OR SREQ(+)= 106836

TEN MONTH CLEAN-UP = 0
EXCEPTIONS & APPEALS ENT. = 0

FINAL PREQ(-) OR SREQ(+) = 106836

EXAMPLE 3

OFFICE OF DATA SERVICES
DOMESTIC CRUDE OIL ENTITLEMENTS SYSTEM

EXAMPLE 3

PAGE:

REPORT: REFINERY NAME

COMPUTATION SUMMARY FOR MONTH OF DECEMBER 1976

DATE OF REPORT: 02/22/77

SOURCE: P-102-M-1/P-126-M-0/P-129-M-0

NATIONAL DOMESTIC CRUDE OIL
SUPPLY RATIO (S) = 0.263349523509

DEEMED OLD OIL RATIO
(CORR) = 0.183245473509

NAPHTHA IMPORTS INTO PUERTO RICO
PRODUCT RATIO (N) = 0.172573694332

NATIONAL TOTALS
OLD OIL ADJ. REC. = 119313258 BBLs/MO
NET OLD OIL CORR. = -73240 BBLs/MO
UPPER TIER REC. = 95035869 BBLs/MO
NET UPPER TIER CORR. = 77294 BBLs/MO
CRUDE RUNS = 475095878 BBLs/MO
NET CRUDE RUNS CORR. = -742794 BBLs/MO
EAST COAST RESID PROD. = 17083026 BBLs/MO
NET E.C. RESID CORR. = 197759 BBLs/MO
EAST COAST RESID IMP. = 44945555 BBLs/MO
NET E.C. RES IMP CORR. = 42489 BBLs/MO
PUERTO RICO NAPHT IMP. = 2352536 BBLs/MO
NET P.R. NAP IMP CORR. = 0 BBLs/MO

SM REF BIAS ENT. = 7367860.82 BBLs/MO
EXCEPTION & APPEALS = 2119645 BBLs/MO
NAPHTHA IMPORTS ENT. = 406038 BBLs/MO
TOTAL DOMESTIC E.C. RESID FOR
.5 BENEFIT DEDUCTION = 6453026.5 BBLs/MO
TOTAL PRODUCT ENT. = 3960311 BBLs/MO

CRUDE RUNS/ENTIT COL
(A)
CORR. RUNS(BBLs/MO) = 4213386
-.5 RESID DEDUCTION = 0.0

RUNS" = 4213386
ENTIT(S * RUNS") = 1109591.10

PRODUCT ENTIT COL
(B)
IMP RESID(BBLs/MO) = 0
IMP NAPHT(BBLs/MO) = 560399
S * .3 * IMP RESID = 0.0
N * IMP NAPHT = 96710.24

TOTAL PRODUCT ENTITLS = 96710.24

SMALL REF BIAS ENTIT COL
(C)
RUNS(MB/D) = 135.91568
EX=DAYS*(((RUNS)-100)*(-16.7733)+1258)
ENTIT (EX) = 20322.84

Example 3

Small refiner-seller, more than
100,000 bbl/day, with no deemed old
oil who imports naphtha into Puerto
Rico.

SUMMARY
OLD OIL CORRECTED RECEIPTS = 0
UPPER TIER CORR REC * CORR = 0.0

CORRECTED DEEMED OLD OIL = 0
COL. A (S * RUNS") = 1109591.10
COL. B (PRODUCT ENT.S) = 96710.29
COL. C (SMALL REF. BIAS) = 20322.84

INTGR ADJ. TOT. ENT(A+B+C) = 1226624
CORRECTED DEEMED OLD OIL = 0

INITIAL PREQ(-) OR SREQ(+) = 122624
TEN MONTH CLEAN-UP = 4228
EXCEPTIONS & APPEALS ENT. = 0

FINAL PREQ(-) OR SREQ(+) = 1222396

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DOMESTIC CRUDE OIL ENTITLEMENTS SYSTEM

EXAMPLE 4

PAGE:

REPORT: REFINERY NAME

COMPUTATION SUMMARY FOR MONTH OF DECEMBER 1976

DATE OF REPORT: 02/22/77

SOURCE: P-102-M-1/F-126-M-0/P-129-M-0

NATIONAL TOTALS

NATIONAL DOMESTIC CRUDE OIL
SUPPLY RATIO (S) = 0.263349523509

DEEMED OLD OIL RATIO
(DOOR) = 0.183245476500

NAPHTHA IMPORTS INTO PUERTO RICO
PRODUCT RATIO (N) = 0.172573894332

OLD OIL ADJ. REC. = 119313258 BBLs/MO
NET OLD OIL CORR. = -73240 BBLs/MO
UPPER TIER REC. = 95035869 BBLs/MO
NET UPPER TIER CORR. = 77294 BBLs/MO
CRUDE RUNS = 475095678 BBLs/MO
NET CRUDE RUNS CORR. = -742794 BBLs/MO
EAST COAST RESID PROD. = 17063026 BBLs/MO
NET E.C. RESID CORR. = 197759 BBLs/MO
EAST COAST RESID IMP. = 44945555 BBLs/MO
NET E.C. RES IMP CORR. = 42089 BBLs/MO
PUERTO RICO NAPHT IMP. = 2352836 BBLs/MO
NET P.R. NAP IMP CORR. = 0 BBLs/MO

SM REF BIAS ENT. = 7367860.82 BBLs/MO
EXCEPTION & APPEALS = 2119645 BBLs/MO
NAPHTHA IMPORTS ENT. = 406038 BBLs/MO
TOTAL DOMESTIC E.C. RESID FOR
.5 BENEFIT DEDUCTION = 6453326.5 BBLs/MO
TOTAL PRODUCT ENT. = 3960311 BBLs/MO

CRUDE RUNS/ENTIT CCL
(A)
E.C.P. BIAS(BBLs/MO) = 768131
-.5 RESID DEDUCTION = 0.0

RUNS" = 768131
ENTIT(S * RUNS") = 202286.91

PRODUCT ENTIT CCL
(B)
IMP RESID(BBLs/MO) = 0
IMP NAPHT(BBLs/MO) = 0
S * .3 * IMP RESID = 0.0
N * IMP NAPHT = 0.0

TOTAL PRODUCT ENTITLS = 0.0

SMALL REF BIAS ENTIT CCL
(C)
RUNS(MB/D) = 24.77841
EX=DAYS*(((RUNS)-10)*(41.75)+2288)
ENTIT (EX) = 90054.97

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Example 4

Small refiner-buyer, 10,000-30,000 bbl/day, whose buy position is reversed by Exceptions and Appeals Relief. No imports or sales of residual fuel oil into the East Coast market.

SUMMARY
OLD OIL CORRECTED RECEIPTS = 285303
UPPER TIER CORR REC * DOOR = 46057

CORRECTED DEEMED OLD OIL = 331360
COL. A (S * RUNS") = 202286.91
COL. B (PRODUCT ENT,S) = 0.0
COL. C (SMALL REF. BIAS) = 90054.97

INTGR ADJ. TOT. ENT(A+B+C) = 292342
CORRECTED DEEMED OLD OIL = 331360

INITIAL PREG(-) OR SREQ(+) = -39018

TEN MONTH CLEAN-UP = -2182
EXCEPTIONS & APPEALS ENT. = 73451

FINAL PREG(-) OR SREQ(+) = 32251

FEDERAL ENERGY ADMINISTRATION
OFFICE OF DATA SERVICES

EXAMPLE 5

EXAMPLE 5

DOMESTIC CRUDE OIL ENTITLEMENTS SYSTEM

PAGE:

REPORT: IMPORTER'S NAME

COMPUTATION SUMMARY FOR MONTH OF JANUARY 1977

DATE OF REPORT: 01/15/77

SOURCE: P-102-M-1/P-126-M-0/P-129-M-0

NATIONAL TOTALS

NATIONAL DOMESTIC CRUDE OIL
SUPPLY RATIO (S) = 0.268279543058

OLD OIL ADJ. REC. = 114804742 BBL/MO
NET OLD OIL CORR. = -245165 BBL/MO
UPPER TIER REC. = 90892027 BBL/MO
NET UPPER TIER CORR. = -576069 BBL/MO
CRUDE RUNS = 467040388 BBL/MO
NET CRUDE RUNS CORR. = -32876 BBL/MO
EAST COAST RESID PROD. = 19620566 BBL/MO
NET E.C. RESID CORR. = 0 BBL/MO
EAST COAST RESID IMP. = 43045845 BBL/MO
NET E.C. RES IMP CORR. = -28617 BBL/MO
PUERTO RICO NAPHT IMP. = 3081320 BBL/MO
NET P.R. NAP IMP CORR. = 0 BBL/MO

SM REF BIAS ENT. = 7484194.51 BBL/MO
EXCEPTION & APPEALS = 2443153 BBL/MO
NAPHTHA IMPORTS ENT. = 384560 BBL/MO
TOTAL DOMESTIC E.C. RESID FOR
S-BENEFIT DEDUCTION = 7534172.5 BBL/MO
TOTAL PRODUCT ENT. = 3316151 BBL/MO

DEEMED OLD OIL RATIO
(DDOR) = 0.248742761844

NAPHTHA IMPORTS INTO PUERTO RICO
PRODUCT RATIO (N) = 0.114985491656

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CRUDE RUNS/ENTIT

OIL
(A)

PRODUCT ENTIT

OIL
(B)

SMALL REF BIAS ENTIT

OIL
(C)

CORR. RUNS(BBL/MO) = 0
-S RESID DEDUCTION = 0.0
RUNS" = 0.0
ENTIT(S * RUNS") = 0.0

IMP RESID(BBL/MO) = 4134178
IMP NAPHT(BBL/MO) = 0
S * B * IMP RESID = 330254.18
N * IMP NAPHT = 0.0

RUNS(MB/D) = 0.0
EX = 0 NO ENTITLEMENTS
ENTIT (EX) = 0.0

TOTAL PRODUCT ENTITLS = 330254.18

SUMMARY

OLD OIL CORRECTED RECEIPTS = 0
UPPER TIER CORR REC * DDOR = 0.0
CORRECTED DEEMED OLD OIL = 0
COL. A (S * RUNS") = 0.0
COL. B (PRODUCT ENT.S) = 330254.18
COL. C (SMALL REF. BIAS) = 0.0
INTGP ADJ. TOT. ENT(A+B+C) = 330254
CORRECTED DEEMED OLD OIL = 0
INITIAL PREQ(-) OR SREQ(+) = 330254
TEN MONTH CLEAN-UP = -4393
EXCEPTIONS & APPEALS ENT. = 0
FINAL PREQ(-) OR SREQ(+) = 325861

Example 5:

Importer-seller, imports residual fuel oil into the East Coast market.

EXAMPLE 6

OFFICE OF DATA SERVICES
DOMESTIC CRUDE OIL ENTITLEMENTS SYSTEM

EXAMPLE 6

PAGE:

REPORT: REFINERY NAME

COMPUTATION SUMMARY FOR MONTH OF NOVEMBER 1976

DATE OF REPORT: 01/17/77

SOURCE: P-102-M-1/P-126-M-3/P-129-M-0

NATIONAL TOTALS

NATIONAL DOMESTIC CRUDE OIL
SUPPLY RATIO (S) = 0.273070525924

DEEMED OLD OIL RATIO
(DOOR) = 0.177464001845

NAPHTHA IMPORTS INTO PUERTO RICO
PRODUCT RATIO (N) = 0.189093280409

OLD OIL ADJ. REC. = 116918293 BBLs/MO
 NET OLD OIL CORR. = -720544 BBLs/MO
 UPPER TIER REC. = 92262929 BBLs/MO
 NET UPPER TIER CORR. = 563028 BBLs/MO
 CRUDE RUNS = 450384043 BBLs/MO
 NET CRUDE RUNS CORR. = -70351 BBLs/MO
 EAST COAST RESID PROD. = 16508246 BBLs/MO
 NET E.C. RESID CORR. = 4532961 BBLs/MO
 EAST COAST RESID IMP. = 35024593 BBLs/MO
 NET E.C. RES IMP CORR. = 37855 BBLs/MO
 PUERTO RICO NAPHT IMP. = 3451677 BBLs/MO
 NET P.R. NAP IMP CORR. = 0 BBLs/MO

SM REF BIAS ENT. = 6571274.95 BBLs/MO
 EXCEPTION & APPEALS = 1876992 BBLs/MO
 NAPHTHA IMPORTS ENT. = 652706 BBLs/MO
 TOTAL DOMESTIC E.C. RESID FOR
 .5 BENEFIT DEDUCTION = 8298981.5 BBLs/MO
 TOTAL PRODUCT ENT. = 3525061 BBLs/MO

CRUDE RUNS/ENTIT COL
 (A)
 CORR. RUNS(BBLs/MO) = 522545
 -.5 RESID DEDUCTION = 0.0

 RUNS" = 522545
 ENTIT(S * RUNS") = 142691.68

PRODUCT ENTIT COL
 (B)
 IMP RESID(BBLs/MO) = 0
 IMP NAPHT(BBLs/MO) = 0
 S * .3 * IMP RESID = 0.0
 N * IMP NAPHT = 0.0

 TOTAL PRODUCT ENTITLS = 0.0

SMALL REF BIAS ENTIT COL
 (C)
 RUNS(MB/D) = 17.41817
 EX= DAYS*((RUNS)-10)*(41.75)+2288
 ENTIT (EX) = 77931.25

Example 6:
 Small refiner-seller, 10,000-20,000
 bbl/day, whose sell position is due to
 the small refiner bias, but is reversed
 by the ten month clean-up.

SUMMARY
 OLD OIL CORRECTED RECEIPTS = 176206
 UPPER TIER CORR REC * DOOR = 35909.04

 CORRECTED DEEMED OLD OIL = 212115
 COL. A (S * RUNS") = 142691.68
 COL. B (PRODUCT ENT, S) = 0.0
 COL. C (SMALL REF. BIAS) = 77931.25

 INTGR ADJ. TOT. ENT(A+B+C) = 220623
 CORRECTED DEEMED OLD OIL = 212115

 INITIAL PREQ(-) OR SREQ(+) = 8508
 TEN MONTH CLEAN-UP = -15822
 EXCEPTIONS & APPEALS ENT. = 0

 FINAL PREQ(-) OR SREQ(+) = -7314

OFFICE OF DATA SERVICES

DOMESTIC CRUDE OIL ENTITLEMENTS SYSTEM

PAGE:

REPORT: REFINERY NAME

EXAMPLE 7

COMPUTATION SUMMARY FOR MONTH OF DECEMBER 1976

EXAMPLE 7

DATE OF REPORT: 02/22/77

SOURCE: P-102-M-1/P-126-M-0/P-129-M-0

NATIONAL DOMESTIC CRUDE OIL
SUPPLY RATIO (S) = 0.263349523509

DEEMED OLD OIL RATIO
(CORR) = 0.183205478500

NAPHTHA IMPORTS INTO PUERTO RICO
PRODUCT RATIO (N) = 0.172573894332

NATIONAL TOTALS

OLD OIL ADJ. REC. = 119313258 BBL/MO
NET OLD OIL CORR. = -73240 BBL/MO
UPPER TIER REC. = 95035869 BBL/MO
NET UPPER TIER CORR. = 77294 BBL/MO
CRUDE RUNS = 475095878 BBL/MO
NET CRUDE RUNS CORR. = -742794 BBL/MO
EAST COAST RESID PROD. = 17083026 BBL/MO
NET E.C. RESID CORR. = 197759 BBL/MO
EAST COAST RESID IMP. = 44945555 BBL/MO
NET E.C. RES IMP CORR. = 42489 BBL/MO
PUERTO RICO NAPHT IMP. = 2352836 BBL/MO
NET P.R. NAP IMP CORR. = 0 BBL/MO

SM REF BIAS ENT. = 7367860.82 BBL/MO
EXCEPTION & APPEALS = 2119645 BBL/MO
NAPHTHA IMPORTS ENT. = 406038 BBL/MO
TOTAL DOMESTIC E.C. RESID FOR
.5 BENEFIT DEDUCTION = 6453026.5 BBL/MO
TOTAL PRODUCT ENT. = 3960311 BBL/MO

CRUDE RUNS/ENTIT COL
(A)
CORR. RUNS(BBL/MO) = 161142
-.5 RESID DEDUCTION = 0.0

RUNS" = 151142
ENTIT(S + RUNS") = 42436.56

PRODUCT ENTIT COL
(B)
IMP RESID(BBL/MO) = 0
IMP NAPHT(BBL/MO) = 0
S * .3 * IMP RESID = 0.0
N * IMP NAPHT = 0.0

TOTAL PRODUCT ENTITL = 0.0

SMALL REF BIAS ENTIT COL
(C)
RUNS(MB/D) = 5.19813
EX=DAYS*(RUNS)*228.8
ENTIT (EX) = 36869.30

Example 7

Small refiner-buyer, less than
10,000 bbl/day, who has Exceptions
and Appeals Relief.

SUMMARY
OLD OIL CORRECTED RECEIPTS = 89203
UPPER TIER CORR REC * CORR = 11693.17

CORRECTED DEEMED OLD OIL = 100896
COL. A (S + RUNS") = 42436.66
COL. B (PRODUCT ENT.S) = 0.0
COL. C (SMALL REF. BIAS) = 36869.30

INTGR ADJ. TOT. ENT(A+B+C) = 79306
CORRECTED DEEMED OLD OIL = 100896

INITIAL PREP(-) OR SREQ(+) = -21590

TEN MONTH CLEAN-UP = -16
EXCEPTIONS & APPEALS ENT. = 10830

FINAL PREP(-) OR SREQ(+) = -10776

100

EXAMPLE 8

OFFICE OF DATA SERVICES

EXAMPLE 8

DOMESTIC CRUDE OIL ENTITLEMENTS SYSTEM

PAGE:

REPORT: REFINERY NAME

COMPUTATION SUMMARY FOR MONTH OF DECEMBER 1976

DATE OF REPORT: 02/22/77

SOURCE: P-102-M-1/P-126-M-0/P-129-M-0

NATIONAL TOTALS

NATIONAL DOMESTIC CRUDE OIL SUPPLY PATIO (S) = 0.263349523507

DEEMED OLD OIL RATIO (DOOR) = 0.183245478500

NAPHTHA IMPORTS INTO PUERTO RICO PRODUCT RATIO (R) = 0.172573894332

OLD OIL ADJ. REC. = 119313258 BBLs/MO
 NET OLD OIL CORR. = -73240 BBLs/MO
 UPPER TIER REC. = 95035859 BBLs/MO
 NET UPPER TIER CORR. = 77294 BBLs/MO
 CRUDE RUNS = 475095878 BBLs/MO
 NET CRUDE RUNS CORR. = -742794 BBLs/MO
 EAST COAST RESID PROD. = 17063026 BBLs/MO
 NET E.C. RESID CORR. = 197759 BBLs/MO
 EAST COAST RESID IMP. = 44945555 BBLs/MO
 NET E.C. RES IMP CORR. = 42469 BBLs/MO
 PUERTO RICO NAPHT IMP. = 2352836 BBLs/MO
 NET P.R. NAP IMP CORR. = 0 BBLs/MO

SM REF BIAS ENT. = 7367860.82 BBLs/MO
 EXCEPTION & APPEALS = 2119645 BBLs/MO
 NAPHTHA IMPORTS ENT. = 406038 BBLs/MO
 TOTAL DOMESTIC E.C. RESID FOR .5 BENEFIT DEDUCTION = 6453026.5 BBLs/MO
 TOTAL PRODUCT ENT. = 3960311 BBLs/MO

TOT

CRUDE RUNS/ENTIT COL (A)
 CORR. RUNS (BBLs/MO) = 382725
 .5 RESID DEDUCTION = 14474.50

 RUNS" = 368250.50
 ENTIT(S * RUNS) = 36978.58

PRODUCT ENTIT COL (B)
 IMP RESID (BBLs/MO) = 131989
 IMP NAPHT (BBLs/MO) = 0
 S * .5 * IMP RESID = 10427.77
 N * IMP NAPHT = 0.0

 TOTAL PRODUCT ENTITLS = 10427.77

SMALL REF BIAS ENTIT COL (C)
 RUNS (MB/D) = 12.34597
 EX=DAYS*(((RUNS)-10)*(41.75)+2288)
 ENTIT (EX) = 73964.27

EXAMPLE 8:
 Small refiner-seller, more than 10,000 bbl/day, who imports residual fuel oil into the East Coast market and also sells processed residual fuel oil into the East Coast market

SUMMARY
 OLD OIL CORRECTED RECEIPTS = 0
 UPPER TIER CORR REC * DOOR = 0.0

 CORRECTED DEEMED OLD OIL = 0
 COL. A (S * RUNS) = 36978.58
 COL. B (PRODUCT ENT.S) = 10427.77
 COL. C (SMALL REF. BIAS) = 73964.27

 INTGR ADJ. TOT. ENT(A+B+C) = 181371
 CORRECTED DEEMED OLD OIL = 0

 INITIAL PREQ(-) OR SREQ(+) = 181371

 TEN MONTH CLEAN-UP = -6593
 EXCEPTIONS & APPEALS ENT. = 984

 FINAL PREQ(-) OR SREQ(+) = 175762

3.82 ENTITLEMENT CALCULATIONS BY FORMULA

For some firms, it may be more expedient to use a formula for entitlement calculations. The formula presented generally uses the same symbols as the DOSR formula, but in the interest of clarity all symbols used are defined here. The general formula for all situations is:

$$E = (CR - .5DRD) \times DOSR + (.3 \times DOSR \times IR) + (N \times NI) + SRB - (OOR + (DOOR \times UTR)) + \underline{EAR}$$

WHERE:

E = Number of Entitlements

CR = Corrected Crude Runs to stills in bbls/mo

DRD = Domestic Residual Deduction for residual fuel oil sold in, or into, the east coast market in bbls/mo. This is the volume sold less 5,000 bbls/day x number of days in the reporting month.

DOSR = Domestic Oil Supply Ratio

IR = Imported Residual Fuel Oil sold into the east coast market

N = Naphtha imports into Puerto Rico product ratio, i.e., the WAC of all naphtha imported into Puerto Rico for that month less the imputed WAC of domestic naphtha divided by the entitlement price (EP):

$$N = \frac{(WAC \text{ Imported Naphtha} - WAC \text{ Domestic Crude} \times 1.2)}{EP}$$

NI	=	Volume of Naphtha Imported into Puerto Rico for that month
SRB	=	Small Refiner Bias
OOR	=	Corrected Old Oil Receipts, i.e., volume of old oil purchased for that month
DOOR	=	Deemed Old Oil Ratio, i.e., $\text{DOOR} = \frac{\text{WAC Unc. Crude} - \text{WAC UT Crude}}{\text{EP}} - \0.21
UTR	=	Corrected Upper Tier Receipts, i.e., volume of new oil purchased for that month
EAR	=	Exceptions and Appeals Relief; normally positive, but may be negative to effect corrections

Example:

A small refiner-seller of entitlements has crude runs of 30,000 bbls/day. He produces residual fuel oil and sells it into the east coast market. He also imports residual fuel oil into the east coast market. His crude oil receipts include old oil, upper tier oil and uncontrolled oil (imported). He has been granted exception relief. The example is for the month of January 1977, 31 days, using actual entitlement data and simulated refiner reported data.

A. Data for the month of January 1977:

DOSR	=	0.26628
DOOR	=	0.24074
CR	=	930,000 bbls/mo (30,000 bbls/day)
DRD	=	245,000 bbls/mo (400,000 bbls sold - 5,000 x 31)
IR	=	300,000 bbls/mo
N	=	.XXXXX
NI	=	0.00 bbls/mo
SRB	=	$31 \times ((30-10) \times (41.75) + 2288) = 96,813.00$
OOR	=	100,000 bbls/mo
UTR	=	100,000 bbls/mo
EAR	=	+3,000 Entitlements

B. Substitute values in the formula:

$$\begin{aligned} E &= (930,000 - .5 \times 245,000) \times 0.26628 + \\ &\quad (.3 \times 0.26628 \times 300,000) + (0) + 96,813 \\ &\quad - (100,000 + (0.24074 \times 100,000)) + 3,000 \\ &= 807,500 \times 0.26628 + 23965.2 + 96,813 \\ &\quad - 124,074 + 3,000 \\ &= 215,021.1 + 23,965.2 + 96,813 - 124,074 \\ &\quad + 3,000 \\ &= 214,725.3 \text{ Entitlements} \end{aligned}$$

C. The calculations can be easily accomplished with an electronic calculator by organizing the arithmetic in a manner similar to the computation summary, as follows:

CR	=	930,000
MINUS .5DRD = .5 x 245,000	=	<u>122,500</u>
EQUALS Adjusted CR	=	807,500
TIMES the DOSR	x	<u>.26628</u>
EQUALS the adjusted CR Entitlements	=	215,021.1
PLUS Product Entitlements (.3 x .26628 x 300,000)	=	<u>+23,965.2</u>
EQUALS adjusted CR = Product Entitlements	=	238,986.3
PLUS SRB	=	<u>+96,813.0</u>
EQUALS adjusted CR + Product Entitlements + SRB Entitlements	=	335,799.3
MINUS DOO: = (OOR + (DOOR x UTR)) = 100,000 = (.24704 x 100,000)	=	<u>-124,074.0</u>
EQUALS Initial Entitlement Requirement	=	+211,725.3
PLUS EAR	=	<u>+ 3,000.0</u>
EQUALS Final Entitlement Requirement	=	<u>214,725.3</u>

3.9 ENTITLEMENT TRANSACTIONS

The sale of one entitlement by a refiner or importer and the purchase of that entitlement by another refiner constitutes one entitlement transaction. The entitlement notice is published in the Federal Register each month and lists, by firm, the number of entitlements to be sold or purchased. The entitlement notice is scheduled to be issued on the 15th day of the second month after the reporting month, i.e., the entitlement notice for June is published in August. Entitlement transactions are to be completed by the end of the month, i.e., August. The notice specifies the entitlement price, states the DOSR, the DOOR, the Domestic Residual Deduction volume, and the imported residual volume eligible for entitlements. A sample entitlement notice, April 1977, is included in Appendix D.

Entitlement transactions are reported to the FEA in the Entitlement Transaction Report, FEA-P103-M-0, by the 10th of the month following the month in which the entitlement notice is published. (See Section 4.2) If a refiner or importer is unable to sell, or buy, the specified number of entitlements, a surplus or deficit will be reflected in the transaction reports. When there is a surplus or deficit in a participant's transaction report, the FEA may direct a purchase or sale of entitlements. The objective is to maintain a zero balance so that entitlements sold equal entitlements purchased each month. In the interest of this objective, the staff members in the entitlements program office will provide assistance by telephone to match-up sellers and purchasers of entitlements toward the end of the transaction period, i.e., shortly before the end of the month. Should you require assistance, the entitlements staff office telephone number is (202)254-6296.

3.10 ENTITLEMENT COST ACCOUNTING

Entitlement revenue, positive or negative, must be applied to crude costs when the revenue is derived from crude runs. Similarly, entitlement revenue from eligible product imports must be applied to product prices. Product entitlement revenue is usually positive, except where a correction may require an importer to purchase entitlements. Separate accounting of entitlement revenue must be maintained for crude oil, product imports, crude oil processed into residual fuel oil and sold into the east coast market, and imported products resold to an importer of eligible products.

Generally, the price regulations require that entitlement revenue be applied to increase/decrease crude costs or decrease product costs in computing the maximum allowable prices at which products may be sold. For some products, price controls are on a standby status while others remain under control, e.g., gasoline, aviation jet fuel, aviation gasoline, butane and propane. Refiners' entitlement revenue from crude runs is applied to crude costs which are then allocated to covered products in proportion to the volume of crude used for each covered product. Uncovered products may carry a proportional cost decrease or increase as a result of entitlement revenue, but may be sold at the market price. The products under standby controls, however, were selected for decontrol in view of ample supplies so that market forces would force the pass-through of any positive entitlement revenue. In the case of distillate heating oils, a maximum price level is periodically computed by the FEA. If this price level is exceeded, price controls will be reimposed.

Entitlement revenue cost accounting is broken out for refiner-buyers and refiner-sellers.

1. A refiner-buyer of entitlements must add the cost of the entitlements purchased to his cost of crude oil for the month in which the entitlements purchase is reported, i.e., the monthly transaction report, FEA-P103-M-0. The total cost of all entitlements purchased is entered as a positive number for Item (10), Part II, of the Refiner's Monthly Cost Allocation Report, FEA-P110-M-1. The increased cost will be allocated proportionally to products according to the price regulations, 10 CFR Part 212.83. In addition to this basic rule, there are three specific situations addressed in the regulations:
 - a. If a refiner-buyer of entitlements also imports eligible products, the entitlements issued for sale as a result of product imports must be separately accounted for and cannot in the pricing calculations be netted against the entitlement purchase requirement as a result of crude oil runs. The entitlement notice, however, does net an entitlement purchase requirement against a sale requirement resulting from eligible product imports. A refiner-buyer in this situation must add the product entitlements to the purchase requirement reflected in the entitlement notice or entered in line 12 of the Computation Summary. The entitlement purchase requirements plus the product entitlements multiplied by the entitlement price (EP) equals the entitlement purchase cost to be added to crude cost for that month. (NOTE: In the event that price controls were reimposed on eligible products, the revenue from product entitlements would be applied against product cost.) For example, refer to Section 3.7, Example 1.

SUMMARY

Line 5, Col. B (PRODUCT ENT.S)	=	(-) 26,681.67
Plus Line 12, FINAL PREQ (-)	=	<u>- 1,772,119.00</u>
Equals Entitlement Purchase Requirement for Cost Accounting	=	- 1,798,800.67
Requirement for Cost Accounting multiplied by the Entitlement Price, i.e., \$7.80 for November 1976	=	1,798,800.67 x \$7.80
	=	\$14,030,645.23 to be added to crude cost in January/February 1977

- b. If a refiner-buyer of entitlements also produced residual fuel oil and sells it in, or into, the east coast market, the cost of additional entitlements purchased as a result of the .5 Domestic Residual Deductions must be accounted for separately. This additional cost is considered a cost of crude oil, but it is not to be proportionally allocated to the price of all products. That is, the additional cost will not be added to crude oil costs for purposes of reporting allocated cost, FEA-P110-M-1. If residual fuel oil price controls were reinstated, this additional cost would be applied only to residual fuel oil sold in, or into, the east coast market. Using Example 1, Section 3.7, Col. (A), the subtraction of the .5 RESID DEDUCTION of 10,895 barrels requires the refiner to purchase additional entitlements which equals 10,895 multiplied by the DOSR, .27307 for November 1977, amounting to an additional purchase requirement of 2,975 entitlements. The cost of the, in effect, additional entitlement purchase requirements equals $E \times EP$; $2,975 \times \$7.80 = \$23,205$, which would be applied only to increase prices for residual fuel oil sold in, or into, the east coast market.

- c. If a refiner-buyer enters into a processing agreement with another firm which results in the reduction of the refiner's entitlement purchase requirement, the monetary value may accrue to either the refiner or the other firm.
2. A refiner-seller of entitlements must subtract the revenue from sales of entitlements from his cost of crude oil in the month in which the entitlement sales are reported. The total revenue from entitlement sales is entered as a negative number for Item (10), Part II, of the Refiner's Monthly Cost Allocations Report, FEA-P110-M-1. The reduction in cost will be allocated proportionally to products according to the price regulations, 10 CFR, Part 212.83. In addition to this basic rule, there are three specific situations addressed in the regulations:
- a. If a refiner-seller of entitlements also imports eligible products, the entitlement revenue from product imports will be separately accounted for. Revenue from product entitlements cannot be applied to reduce crude costs. For crude cost accounting purposes, product entitlement revenue must be subtracted from total entitlement revenue. Refer to Section 3.7, Example 8.

SUMMARY

Line Entry 5, Col. B (PRODUCT ENT.S)	=	9,432.31
must be subtracted from		
Line Entry 12, FINAL SREQ (+)	=	154,544.00
Minus		- <u>9,432.31</u>
Equals	=	145,111.69
Times (x) EP (Dec. 76)		<u>x \$7.97</u>
Equals Entitlement Revenue to be subtracted from Crude Cost	=	\$1,156,540.17

- b. If a refiner-seller of entitlements also produces residual fuel oil and sells it in, or into, the east coast market, the loss of entitlement revenue due to the .5 Domestic Residual Deduction must be accounted for separately. The loss of revenue is considered a cost of crude oil, but is not to be proportionally allocated to all product prices. That is, the revenue loss will not be reflected as an increased crude cost for purposes of reporting allocated cost, FEA-P110-M-1. If residual fuel oil price controls were reinstated, this revenue loss would be applied as a cost increase only for residual fuel oil sold in, or into, the east coast market. Using Example 8, Section 3.7, Col. (A), the subtraction of the .5 RESID DEDUCTION results in a loss of 3,092.9 entitlements ($.26334 \times 11,744.5 = 3,092.9$). The loss of entitlement revenue equals 3,092.9 times the EP (\$7.97) or \$24,650.40, which would be applied only to increase prices for residual fuel oil sold in, or into, the east coast market.
- c. If a refiner-seller enters into a processing agreement with another firm which results in the increase of the refiner's entitlement sale requirement, the monetary value may accrue to either the refiner or the other firm. The refiner may reduce the processing fee for the other firm in return for the monetary entitlement value, or the other firm may retain the monetary entitlement value and subtract it from their crude oil cost.

3.11 SUMMARY ANALYSIS OF COST EQUALIZATION

In this chapter an attempt has been made to explain and illustrate how the entitlement program operates to achieve crude oil cost equalization among all domestic refiners. The degree of cost equalization is not intended to be precise, but the program is designed to cost equalize to the extent that all refiners, in effect, may include the proportional share of lower-cost, Deemed Old Oil in their crude oil receipts based on crude runs to stills. A deliberate measure of disequalization is included in the program by the Small Refiner Bias, the Bias being intended to maintain the competitive viability of small, independent refiners.

Cost equalization is effected on the national average using average cost and volume data for each month. Individual refiners, particularly small refiners, may vary widely from the average cost equalization line. There are a multitude of variables which enter into the acquisition cost of crude oil which are, by intent, not considered in the entitlements program. The regulations governing the program are necessarily complex as the petroleum industry is complex. Much of the complexity results from the requirement to write enforceable regulations which will cover all situations and be sustained in a court of law. This requirement tends to obscure the quantitative aspects of the program which are important to business operations.

Conceptually, the entitlement regulations base the issuance of entitlements on crude runs to stills. In a quantitative perspective, however, entitlements come from three sources; crude runs, eligible product imports, and the Small Refiner Bias. As we have seen in the Summary Computation, this perspective facilitates the calculation of individual entitlement purchase or sale requirements. Entitlement purchase requirements increase crude oil costs and sale requirements reduce crude costs and eligible imported product costs.

How much costs will be increased or decreased depends on the DOSR, DOOR, crude oil mix, and the entitlement price. The values of the ratios and the entitlement price further depend on data submitted by the second month following crude purchases and runs and published in the Entitlement Notice in the second month following. Entitlement revenue, positive or negative, is not booked until the end of the second month following the reporting month. Due to the timing involved and the unknown values of the key elements in the entitlements system, a degree of uncertainty is introduced at the time crude oil purchases are made. A brief review of the entitlement system timing, the quantitative relationship between key elements and available trend data is provided as general information.

The time lag between crude runs and receipt or payout of entitlement revenue, to be booked against crude costs, is inherent in the data reporting system. Crude oil runs and purchases in the reporting month, for example June, are reported to the FEA by the 5th of August. This time lag is necessary to permit participants to assemble data and complete the report forms, FEA-P102-M-1, FEA-P126-M-O, and FEA P129-M-O. The FEA must then log receipt of each report, make corrections, input the data to the computer and publish the Entitlement Notice by the 15th of August. Individual participants can then make their entitlement transactions through the end of August. Entitlement revenue, or pay-out, is booked as of the date of the transaction and is applied to crude oil costs incurred in the same month as the transaction. Entitlement revenue received or paid-out in any one month may not necessarily equate to cost equalization for any prior month. Total entitlement revenue over a period of time will cost equalize over that period of time plus three months. If the entitlement program were to end with the month of August, data would be reported in October and entitlement transactions would take place in October. Then if individual participants applied total entitlement revenue, or pay-out, to total crude costs over the life of the program, they would arrive at their equalized net crude cost or net eligible product cost. (See Table 3.11-1.)

Entitlements Timing Table

June	July	August	September
Reporting Month	1st Month Following Reporting Month	2nd Month Following Reporting Month	3rd Month Following Reporting Month
Crude Purchased Runs to Stills Resid Imported Naphtha Imported	Assemble Data Prepare Reports Submit Reports	Reports Received Data Processed Entitlement Notice Buy/Sell Entitlements	Assemble Data Prepare Transaction Report Submit Transaction Report

114

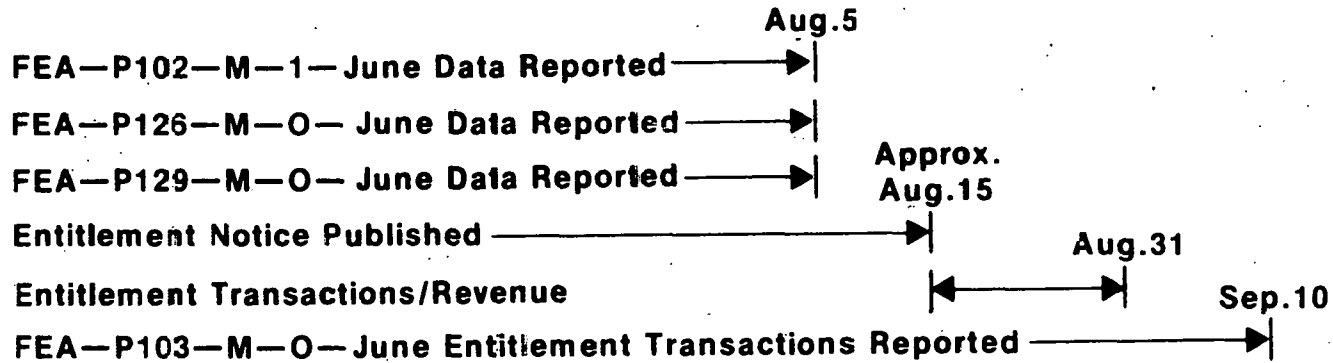
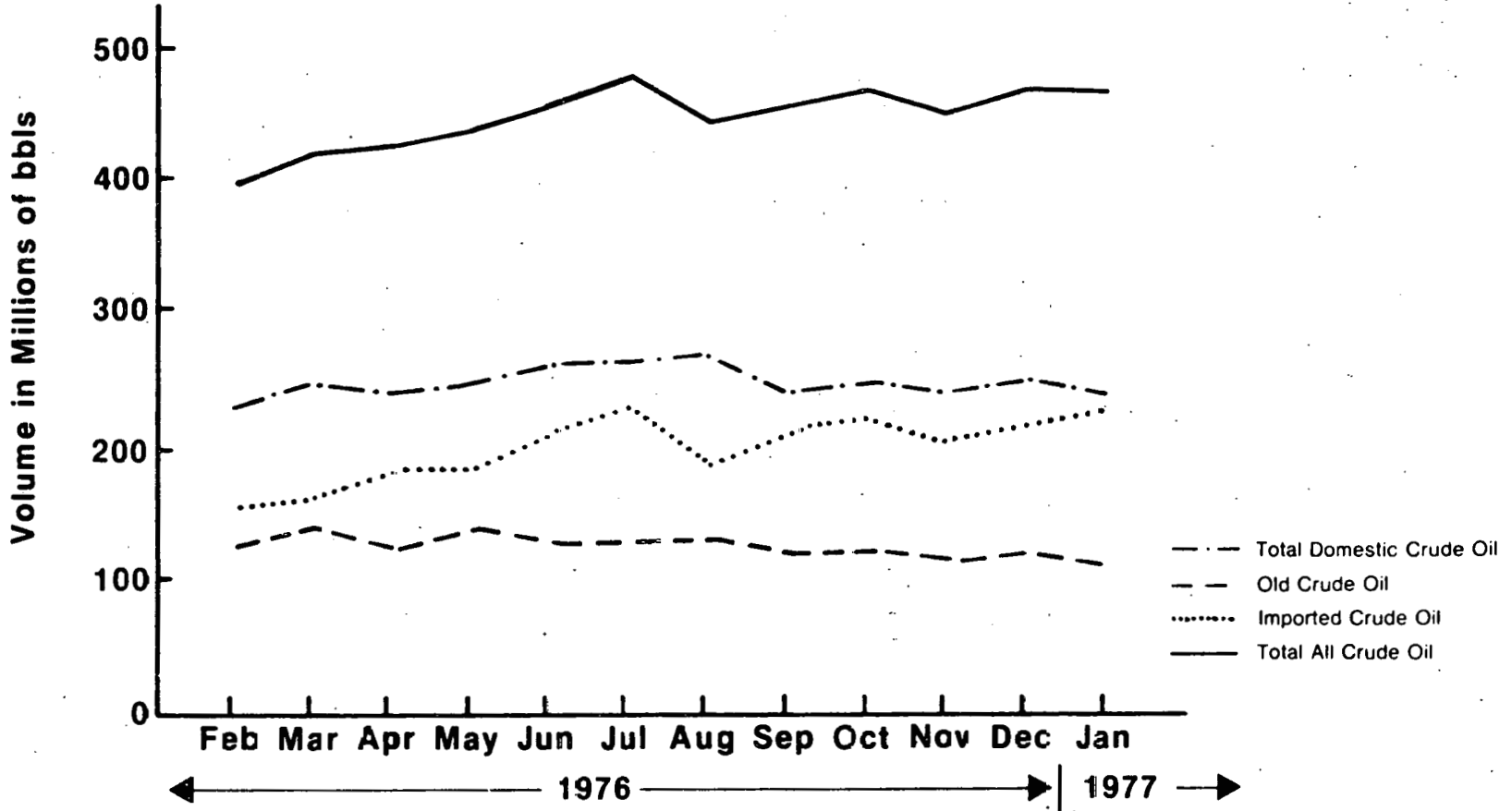


Table 3.11—1

The independent terms of the DOSR vary from month-to-month and interact to increase or decrease the DOSR to varied degrees. The FEA Entitlement Data Compilations also provide a source of trend data. Table I provides volume data on crude oil receipts by category by month, see Graph 3.11-1. The Graph reflects a modest upward trend in the demand for crude oil. The declining trend in old oil volumes reflects the declining production, while total domestic crude receipts also is slightly declining. The decline in domestic production plus the increased demand has resulted in increased receipts of imported crude oil.

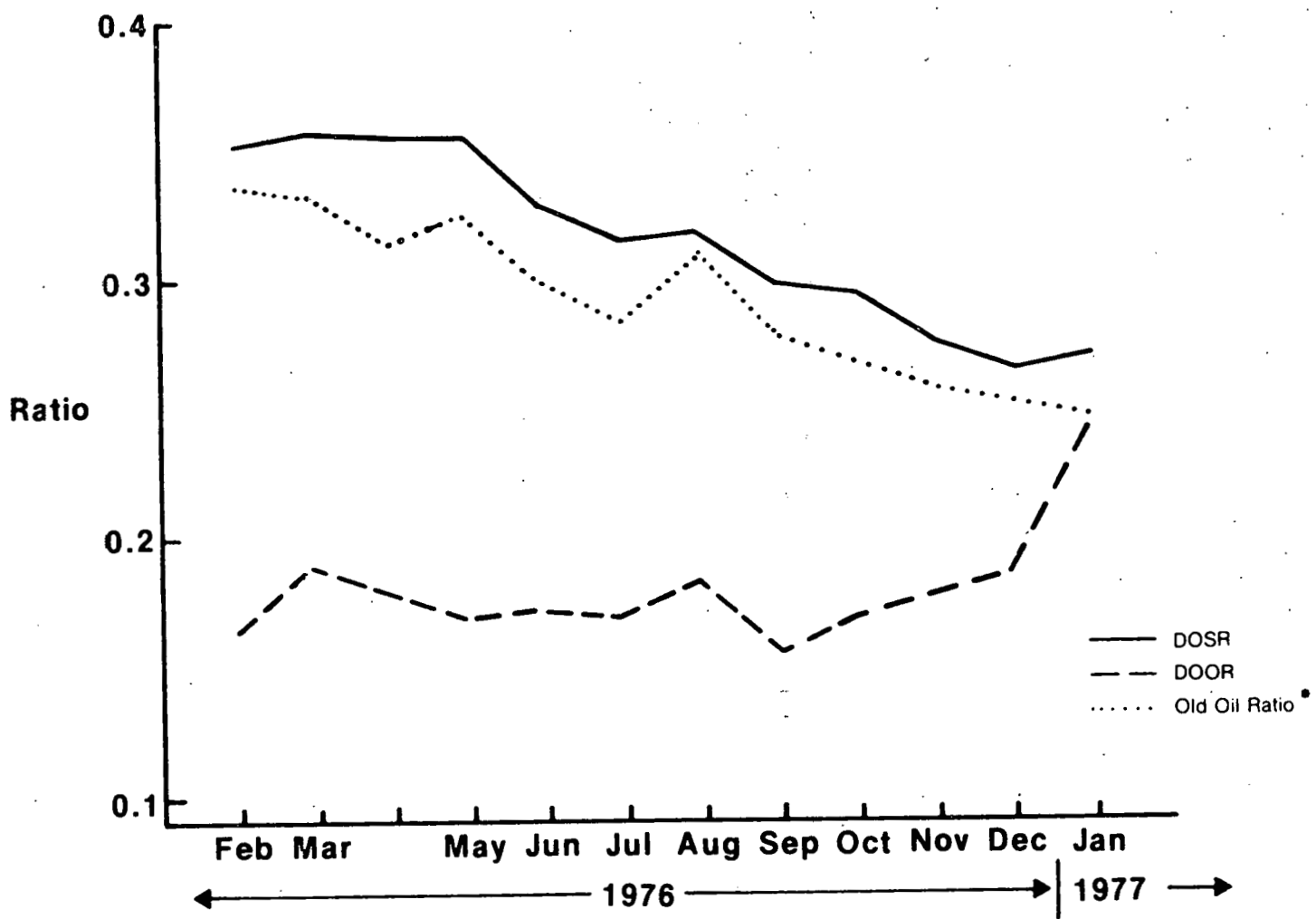
From Table IV data the ratios, DOSR and DOOR, are plotted in Graph 3.11-2. The declining DOSR trend reflects the declining domestic production while the upward trend in the DOOR reflects the increased cost of uncontrolled crude and decreased cost of upper tier crude oil. The old oil ratio, i.e., OOR divided by total crude receipts, is also plotted to show how it tracks the DOSR.

Crude Oil Receipts



Graph 3.11-1

Ratio Trends



* Old Oil Receipts Divided by Total Receipts

Graph 3.11-2

3.12 AVERAGING CRUDE OIL RECEIPTS

The entitlement regulations included a procedure for averaging crude oil receipts in the event a refinery's capacity is reduced by fifty percent (50%) or more in one or more months, 10 CFR, Part 211.67 (h). The reduction in capacity may be due to scheduled or unscheduled maintenance and repairs. To qualify for this procedure, a refiner's crude oil receipts for the month must be significantly disproportionate to the crude oil runs to stills for that month. A refiner must file an application for averaging of crude oil receipts according to the regulations, 10 CFR Part 205.90. The application must be submitted within thirty (30) days of the end of the month in which capacity was reduced. Upon receipt of the application, the FEA may adjust the crude oil receipts for that month so that portions of such receipts are included in the crude oil receipts in one or more subsequent months. The FEA will specify the volumes of crude oil for each month, or months, and so advise the refiner applicant. The application should be filed with, or mailed to:

Domestic Crude Oil Entitlements Program
20th Street Postal Station
P.O. Box 19326
Washington, D.C. 20036

CHAPTER 4. THE ENTITLEMENTS PROGRAM REPORTING SYSTEM

4.1 INTRODUCTION

The entitlements program reporting system provides the data required to operate the program. The data is submitted by the individual participants and documents crude oil volumes purchased, costs, product volumes imported, crude runs to stills and entitlement transactions.

The FEA logs the receipt of all reports, makes corrections on individual reports, as necessary, and inputs the data to the computer. The computer calculates the DOSR, DOOR, Entitlement Price and the entitlement purchase/sale requirement of each individual participant. The primary computer output is the attachment to the Entitlement Notice, sample provided in Appendix D.

The reporting, processing and aggregation of data resulting in publication of the Entitlement Notice and the completion of entitlement transactions takes place over a 100-day period, see Table 3.10-1. The reporting system requires the submission of approximately 200 reports each month. The data collection and report preparation effort by the individual participants is a recognized expense burden of varying magnitude. The FEA also incurs the expense burden of processing the data, documenting entitlement transactions, and administering the overall program.

There are four monthly reports required to operate the entitlements program:

1. Refiners' Monthly Report, FEA-P102-M-1.
2. Importers' Monthly Report, FEA-P126-M-0.
3. Naphtha Imports Into Puerto Rico, FEA-P129-M-0.
4. Entitlements Transaction Report, FEA-P103-M-0.

Applicable blank report forms are mailed to each participant every month, with a letter of transmittal. The letter will advise of any changes in reporting requirements or procedures. If new or revised reporting forms are being initiated, new or revised instructions will be included with the forms. It is emphatically recommended that the forwarding letter be read with particular attention paid to the underlined portions. The time and effort to systematically check for changes in reporting requirements or procedures is a worthwhile investment relative to submission of an erroneous report. Reporting errors can be costly, both in terms of incorrect entitlement revenue and in the time and effort required to correct the error. Instructions for completing the report forms also are contained in the FEA Federal Energy Guidelines and the Commerce Clearing House Energy Management. While these sources are reliable reference information, they are not sufficiently current on the instructions for completing the report forms to be used as a source document. Again, it is re-emphasized that the only reliably current instructions for completing the report forms are those instructions mailed by the FEA with the blank forms. In the event there is an urgent or emergency change to the reporting requirements or procedures, the FEA will notify participants by telegraphic message.

In the upper right hand corner of each report form there is an indication of the Government Accounting Office (GAO) approval of the form and an expiration date. The expiration date on the form may have been extended. Extensions of expiration dates and a listing of current forms with their current expiration dates are periodically published in the Federal Register.

Part 1. of each of the reports consists of the reporting firm's identification information. If there is any change in the identification data, the appropriate box in Part 1. should be checked. Part 2. of the reports consists of the date when the report was completed and the period (calendar month) in which the reported data was generated, i.e., reporting period or reporting month. Part 3. or 4. of each report requires certification as to the correctness and completeness of the reported data according to the FEA regulations. The certifications must be signed by the Chief Executive Officer of the parent firm. Another executive officer of the firm may be designated and authorized to sign and certify for the Chief Executive Officer, provided that the Chief Executive Officer signs a letter of authorization designating the officer by name. Such letters of delegation of authority to sign and certify should be addressed to:

Domestic Crude Oil Entitlements Program
20th Street Postal Station
P.O. Box 19326
Washington, D.C. 20036

(NOTE: A sample format of a delegation of authority to sign and certify letter is provided in Appendix E.)

4.2 REFINERS' MONTHLY REPORT, FEA-P102-M-1

Report Form FEA-P102-M-1 is used to document crude oil receipts, costs and runs to stills. For refiners who sell residual fuel oil in, or into, the east coast market, the volume of residual fuel so sold is also documented. Crude oil receipts are broken-out for volumes and weighted average costs by the category of crude oil, i.e., old oil (lower tier), new oil (upper tier), stripper well oil, other domestic oil (NPR) and imported oil. Crude oil receipts are additionally broken-out into volumes processed for a refiner's own account at his own refineries, for non-refiners at his own refineries and for his own account at other refineries for old crude oil and upper tier crude oil. Residual fuel oil is broken-out into total volume sold in, or into, the east coast market and the average volume sold per day during the reporting period.

The aggregate data from all refiners' FEA-P102-M-1 reports is used to calculate the DOSR, DOOR and the Entitlement Price. Once these values are output from the computer, any necessary corrections are made on individual reports, both refiners and importers, the individual report data is then input to the computer to calculate the number of entitlements to be purchased or sold by each refiner and importer.

All domestic refiners are required to submit the FEA-P102-M-1. Reports are due in to the FEA on or before the 5th day of the second month following the reporting month, e.g., crude purchases and runs plus any residual fuel oil sold in, or into, the east coast market in June must be reported by the 5th of August.

There is a general rule to be followed when completing the FEA-P102-M-1 report. All line numbers ending with the digit "9" should have a volume (bbls), a cost (\$/bbl) or a zero (0) entered for that line. For example, lines 20119, 20129, 20139, etc., must have a volume entered. If there were no volumes appropriate for entry, a zero (0) must be entered in the last block (space) to the right, i.e., 20399.1.1.1.1.101.

Subject to corrections, the volume data included in the FEA-P102-M-1 may be reconciled with the data published in the Entitlement Notice, as follows:

1. Line 20399, Part 5, Adjusted Monthly Receipts = OOR
 Plus line 30399, Part 6, Adjusted Monthly Receipts multiplied by the DOOR = +DOOR x UTR
 Equals Deemed Old Oil Adjusted Receipts, Column 2, Entitlement Notice = DOO

2. Line 40199, Part 7, Total Runs to Stills = CR
 Minus line 50199, Part 8, Domestic Residual Deduction multiplied by .5 = -.5DRD
 Equals Adjusted Crude Runs = Adj CR
 Multiplied by the DOSR = x DOSR
 Equals Initial Issued = II
 Plus Small Refiner Bias = + SRB
 Plus Exceptions and Appeals Relief = + EAR
 Plus Product Entitlements = + PE
 Equals Total Issued, Column 3, in the Entitlement Notice = TI
 Minus Deemed Old Oil Adjusted Receipts = - DOO
 Equals Entitlement Purchase (-) or Sale (+) Required, Columns 7 and 8 in the Entitlement Notice = + E

4.3 IMPORTERS' MONTHLY REPORT, FEA-P126-M-0

Report Form FEA-P126-M-0 is used to document the imports of residual fuel oil into the east coast market. Based on the volumes of residual fuel reported, importers are issued product entitlements. Volumes are reported by individual shipment with the port of entry and port of origin listed. All eligible firms importing residual fuel oil into the east coast market are required to submit this report. Even if no residual fuel oil is imported in any one month, a negative report is required. Reports are due at the FEA on or prior to the 5th day of the second month following the month of importation, e.g., imports in the month of May must be reported by the 5th of July. The date of importation is the date of entry into the United States Customs Territory, as appears on U.S. Customs Form 7501, or the date of withdrawal from bonded storage, as appears on the U.S. Customs Form 7505. Imports of residual fuel from the Virgin Islands are not eligible for product entitlements and are considered as domestic residual fuel oil subject to the .5 Domestic Residual Reduction.

4.4 NAPHTHA IMPORTS INTO PUERTO RICO, FEA-P129-M-0

Report Form FEA-P129-M-0 is used to document imports of foreign naphtha into Puerto Rico for use as a petrochemical feedstock. (Naphtha used for gasoline blending is excluded.) Imported volumes are reported by individual shipments with the port of origin, total dollar cost and WAC/bbl listed. Export sales of naphtha derived products are subtracted from the volume of naphtha imports to arrive at a total imported naphtha volume which is the basis of issuing product entitlements. All firms importing naphtha into Puerto Rico for use as petrochemical feedstock are required to submit this report. Negative reports are required. Reports are due at the FEA on or prior to the 5th day of the second month following the month of importation, e.g., imports in the month of May must be reported by the 5th of July. The importation date is the date of entry into United States Customs Territory, as appears on the U.S. Customs Form 7501, or date of withdrawal from bonded storage, as appears on the U.S. Customs Form 7505.

4.5 ENTITLEMENT TRANSACTION REPORT, FEA-P103-M-0

Report form FEA-P103-M-0 is used to document and account for all entitlement transactions. The FEA-P103-M-0 is the basis of entitlement accounting and is the source document for the permanent record of entitlement transactions. If a refiner or importer is unable to sell, or buy, the specified number of entitlements, a surplus or deficit will be reflected in the transaction reports. When there is a surplus or deficit in a participant's transaction report, the FEA may direct a purchase or sale of entitlements. The objective is to maintain a zero balance so that entitlements sold equal entitlements purchased. In the interest of this objective, the staff members in the entitlements program office will provide assistance by telephone to match up sellers and purchasers of entitlements toward the end of the transaction period, i.e., shortly before the end of the month. Should you require assistance, the entitlements staff office telephone number is (202)254-6296.

Part 3. of the report is a summary of each individual participant's entitlement position. In this part, the instructions define the reporting month as the month in which the report is submitted. "Month-3" is the month three months prior to the reporting month, i.e., the month in which crude runs were made or product imported. "Month-4" is the month four months prior to the reporting month. A surplus or deficit is reflected for Month-3 and Month-4. A surplus is positive (+) indicating a refiner-seller did not sell his specified number of entitlements for that month and a sale requirement still exists. A deficit is negative (-) and indicates a refiner-buyer did not purchase his specified number of entitlements for that month and a purchase requirement still exists. The reported surplus should equal the reported deficit to zero balance the entitlements account for all reports submitted.

Part 5. of the report is a summary of sales of entitlements to each individual buyer. If a participant had no sales requirement, this part need not be completed.

Part 6. of the report is a summary of purchases of entitlements from each individual seller. If a participant had no purchase requirement, this part need not be completed.

All participants in the entitlements program are required to submit the FEA-P103-M-0. Reports are due at the FEA on or before the 10th day of each month. Importers are not required to submit reports for months in which no entitlements were issued.

4.6 REPORTING ERRORS AND CORRECTIONS

Inaccurate data may be reported for a variety of reasons:

1. Clerical errors
2. Mathematical errors

Such errors should be corrected by submission of an amended report in the month in which the error is revealed or detected. It is essential that each participant in the entitlements program submit the required reports on time. Depending on the volumes involved, the absence of data from any one participant will alter the DOSR, DOOR and Entitlement Price values to some degree. While the FEA cannot assume any responsibility for late or erroneous reports, telephoned reports and corrections will be accepted under unusual or mitigating circumstances.

Amended reports should be completely filled-out with the correct data for the reporting month in which the error or correction applies. Do not submit amended reports with only the identification data and corrected entries for the part where the error applies, i.e., submit the entire report with the correct entries replacing the erroneous entries. Amended reports should be clearly identified, e.g., "AMENDED REPORT" typed on the top and bottom of each page and also in Part 2. In Part 2.a, the Date of Report for an amended report is the date of completion of the amended report. As a suggestion, number amended reports sequentially in the event there is more than ^{one} amended report for the same reporting period. Based on corrections contained in amended reports relative to crude oil volumes, crude oil runs, or imported residual fuel oil volumes, the FEA in its discretion may adjust entitlement issuances. After receipt of an amended report in one or more months following, the FEA may adjust entitlement purchase or sale requirements of the participant by issuing more or less entitlements for sale in a following month (or months) than the number otherwise issuable if no correction were necessary.

When making corrections, the FEA must consider the difference in entitlement price between the month in which the correction applies (the reporting month) and the month in which the correction is made. Where the entitlement price is fixed in any one month, corrections to result in the appropriate amount of entitlement revenue can only be made by adjustment of the corrected volume differential. For example:

1. Refiner X is a seller of entitlements. He normally has runs to stills of 1,000,000 bbl per month. His crude oil receipts are normally a mix of 10 percent old oil and 90 percent uncontrolled oil. In December 1976, Refiner X had the usual 100,000 bbl of old oil included in his crude oil receipts. This was reported on the FEA-P102-M-1 by February 5, 1977. On February 6, 1977, Refiner X discovers an error which indicates that his Old Oil Receipts in December were actually only 75,000 bbl instead of 100,000 bbls. Realizing that overstatement of Old Oil Receipts in December will reduce entitlement revenue in February, Refiner X promptly submits an amended report, FEA-P102-M-1, for December 1976. The amended report, however, does not reach the FEA Entitlement Program Office until February 12, 1977. All the December data with corrections has been input to the computer and the Entitlement Notice is scheduled to be published by approximately February 15th. It is too late to make the correction for Refiner X in December's Entitlement Notice. The Entitlement Notice is published and Refiner X notes that there is no correction for his overstated Old Oil Receipts. From the Entitlement Notice he also notes that the Entitlement Price for December 1976 was \$7.97. He quickly calculates that he will lose \$199,250 in Entitlement Revenue; i.e., $\$7.97 \times 25,000 \text{ bbl} = \$199,250$. Refiner X picks up the phone and calls the Entitlement Program Office. A staff member advises Refiner X that his amended report was received too late to make the correction in December's Entitlement Notice, but the correction will be reflected in the January 1977 Entitlement Notice which will be published in March.

Refiner X anxiously awaits the January Entitlement Notice and when it is published in March, he notes that the Entitlement Price for January is \$8.30. When he sees the entitlements sale requirement by his name, he notes that he received only 24,006 extra entitlements, which amounts to additional revenue of \$199,250. This is the correct amount due Refiner X to correct the error in December.

The FEA adjusted the corrected volume differential, i.e., 25,000 bbl, according to the increased January Entitlement Price so that Refiner X would receive the exact additional revenue due him, i.e., 24,006 bbl x \$8.30 = \$199,250. If the Entitlement Price had decreased from December to January, then the corrected volume differential would have been adjusted upward so that the additional revenue would still equal \$199,250. For example, if the Entitlement Price decreased from \$7.97 to \$7.50, the Corrected Volume Differential (CVD) of 25,000 bbl would have been increased to 26,567 bbls, i.e., \$7.50 x 26,567 = \$199,250.

Specifically, the corrections are made as follows:

- a. Entitlement Price (EP) increased from \$7.97 to \$8.30, then the Adjusted Corrected Volume Differential (ACVD) is calculated:

$$\begin{aligned} \text{ACVD} &= \frac{\$7.97}{\$8.30} \times 25,000 \text{ bbl} \\ &= 24,006 \text{ bbls} \end{aligned}$$

In this example, the Corrected Volume Differential (CVD) was a decrease in old oil receipts. Therefore, the FEA will enter the ACVD as a negative value, -24,006 bbl, on line 20409, Part 5, of the FEA-P102-M-1 for January 1977, "NET CORRECTION FROM PRIOR MONTH AMENDED REPORTS." The ACVD will be subtracted from line 20399, "ADJUSTED MONTHLY RECEIPTS," 100,000 bbl in our example. The result is entered on line 20499, i.e., 100,000 bbl - 24,006 bbls = 74,944 bbls. Refiner X's individual entitlement calculations for January will be made on the basis of 74,944 bbls of Old Oil Receipts. The reduced volume will result in 24,006 extra entitlements for the additional entitlement revenue of \$199,250, i.e., \$8.30 x 24,006 bbls = \$199,250.

If the CVD had been an increase in old oil receipts, the ACVD would be entered as a positive value and added to the "ADJUSTED MONTHLY RECEIPTS." Refiner X's individual entitlement calculations would be made on the basis of 124,006 bbls of old oil receipts, i.e., 100,000 + 24,006 = 124,006 bbls. This would result in reduced entitlements of 24,006 which reduces entitlement revenue by \$199,250.

b. Entitlement Price decreased from \$7.97 to \$7.50, then the ACVD is calculated:

$$\begin{aligned}
 \text{ACVD} &= \frac{\$7.97}{\$7.50} \times 25,000 \text{ bbl} \\
 &= 26,567 \text{ bbl}
 \end{aligned}$$

This correction would be made on the FEA-P102-M-1 in the same manner as for the increased entitlement price.

The same correction procedure is applied when there are errors in reported crude runs to stills. For example:

2. Refiner Y reported crude runs to stills of 7,000,000 bbls in December 1976 and later discovered a mathematical error which revealed that crude runs actually were 7,010,000 bbls. Refiner Y submits an amended report and the FEA makes the correction, which is reflected in the January 1977 Entitlement Notice published in March 1977. The Corrected Volume Differential (CVD) equals an increase of 10,000 bbls, i.e., 7,010,000 bbls - 7,000,000 bbls = 10,000 bbls.

Applying the same correction procedures as for old oil receipts, the Adjusted Corrected Volume Differential (ACVD) for crude runs is calculated:

- a. Entitlement Price increases from \$7.97 to \$8.30:

$$\begin{aligned} \text{ACVD} &= \frac{\$7.97}{\$8.30} \times 10,000 \text{ bbl} \\ &= 9,602 \text{ bbl} \end{aligned}$$

In this example, the Corrected Volume Differential (CVD) was an increase in crude runs to stills. The ACVD of 9,602 bbls would be entered as a positive value on line 40219, Part 7, FEA-P102-M-1, January 1977 Reporting Period, "NET CORRECTION FROM PRIOR MONTH AMENDED REPORTS." Line 40219 is added to line 40199, "TOTAL RUNS TO STILLs," and entered on line 40299, "CORRECTED MONTHLY RUNS TO STILLs FOR CALCULATIONS." Refiner Y's entitlement calculations will be made based on an additional 9,602 bbls of crude runs. This will result in additional Entitlement Revenue (ER), calculated as follows using the January DOSR of .26628:

$$\begin{aligned} \text{ER} &= 9,602 \text{ bbl} \times .26628 \times \$8.30 \\ &= \$21,222 \end{aligned}$$

b. A decrease in Entitlement Price would result in an increased ACVD. If the Entitlement Price decreased from \$7.97 to \$7.50, then the ACVD is calculated:

$$\begin{aligned} \text{ACVD} &= \frac{\$7.97}{\$7.50} \times 10,000 \text{ bbls} \\ &= 10,627 \text{ bbls} \end{aligned}$$

This correction would be made on the FEA-P102-M-1 in the same manner as for the increased Entitlement Price. If the error involved a reduction in crude runs to stills, then the ACVD would be subtracted from line 40190, "TOTAL RUNS TO STILLs," on the FEA-P102-M-1.

NOTE: The above example illustrates a crude run correction for a large refiner only. For a small refiner, the ACVD may also be adjusted according to the Small Refiner Bias, if the correction is sufficiently large to change the Bias level.

A similar correction procedure is used with volumes of Upper Tier Crude Oil Receipts. In the case of Upper Tier Receipts (UTR), however, the effect of the different DOOR in the month of error and month of correction is considered in addition to the effect of the different Entitlement Price. As pointed out in Section 3.11, small changes in costs can result in relatively large changes in the DOOR. This relationship can also result in relatively large variations in the DOOR from month to month so that its effect must be entered into the volume correction calculations. For example:

3. Refiner Z reported Upper Tier Receipts of 100,000 bbls in December 1976 and later discovered a clerical error which revealed the correct volume was 125,000 bbls, he would have a Corrected Volume Differential of 25,000 bbls of Upper Tier Receipts. Refiner Z submits an amended report and the FEA makes the correction in the January 1977 Entitlement Notice, published in March. The Adjusted Corrected Volume Differential (ACVD) is calculated:

- a. From December to January, the Entitlement Price increases from \$7.97 to \$8.30 and the DOOR from .18324 to .24704:

$$\begin{aligned} \text{ACVD} &= \frac{\$7.97 \times .18324}{\$8.30 \times .24704} \times 25,000 \text{ bbls} \\ &= 18,272 \text{ bbls} \end{aligned}$$

The ACVD of 18,272 bbls of UTR would be entered on line 30409, Part 6, FEA-P102-M-1. If the CVD were an increase in UTR, the ACVD would be positive and added to line 30399; if the CVD were a decrease in UTR, the ACVD would be negative and subtracted from line 30399. The algebraic sum of lines 30399 and 30409 is entered in line 30499. The individual refiner's entitlement calculation would then be made using the volume of Upper Tier Receipts entered on line 30499. In this case, the Corrected Volume Differential was an increase in Upper Tier Receipts, which will have the effect of increasing the volume of Deemed Old Oil and result in reduced Entitlement Revenue (ER), calculated as follows:

$$\begin{aligned} \text{ER} &= -18,272 \text{ bbls} \times .24704 \times \$8.30 \\ &= -\$36,510 \end{aligned}$$

b. A decrease in Entitlement Price is usually accompanied by a decrease in the DOOR, however, this relationship is not necessarily true in all situations. For illustrative purposes only, an example of a decreased Entitlement Price and decreased DOOR is used. The decreased values will result in an increased Adjusted Corrected Volume Differential (ACVD) of UTR. If the Entitlement Price decreased from \$7.97 to \$7.50 and the DOOR decreased from .24704 to .13200, the ACVD is calculated:

$$\begin{aligned} \text{ACVD} &= \frac{\$7.97 \times .24074}{\$7.50 \times .13200} \times 25,000 \text{ bbls} \\ &= 48,452 \text{ bbls} \end{aligned}$$

The ACVD of 48,452 bbls would be entered on the FEA-P102-M-1 in the same manner as for the increased Entitlement Price and DOOR.

Errors in reported volumes of residual fuel oil imported into the East Coast are corrected in the same manner as that for crude runs to stills. For example:

4. Importer A reported residual fuel oil imports of 100,000 bbls in December 1976. He later discovers an error which increases the actual volume of Imported Residual (IR) to 110,000 bbls in December. Importer A submits an amended report, FEA-P126-M-0, and the FEA makes the correction, which is reflected in the January 1977 Entitlement Notice published in March. The Corrected Volume Differential (CVD) equals an increase of 10,000 bbls, i.e., 110,000 bbls - 100,000 bbls = 10,000 bbls. Applying the same correction procedures as for crude runs to stills, the Adjusted Corrected Volume Differential (ACVD) for imported residual fuel oil is calculated:

$$\begin{aligned} \text{ACVD} &= \frac{\$7.97}{\$8.30} \times 10,000 \text{ bbls} \\ &= 9,602 \text{ bbls} \end{aligned}$$

The ACVD of 9,602 would be entered on line 10259, Part 3, January 1977 Reporting Period, FEA-P126-M-0, "NET CORRECTION FROM PRIOR MONTH AMENDED REPORTS." Line 10259 is added to line 10199, "TOTAL," and entered on line

10199, "TOTAL," and entered on line 10299, "CORRECTED MONTHLY IMPORTS FOR CALCULATIONS." (If the ACVD had a negative value, i.e., a decrease in residual imports, it would be entered on line 10259, and subtracted from line 10199.) Importer A's entitlement calculations will be made based on an additional 9,602 bbls of imported residual fuel oil. This will result in additional Entitlement Revenue (ER), calculated as follows:

$$\begin{aligned} \text{ER} &= 9,602 \text{ bbls} \times .3 \times .26628 \times \$8.30 \\ &= \$6,366 \end{aligned}$$

Corrections can be checked by participants by comparing their own entitlement calculations and results with the purchase/sale requirement published in the Entitlement Notice. If correction action is effected, the entitlement purchase/sale requirement will be more or less than expected for that month. The difference between the expected and published purchase/sale requirement should equal the number of entitlements required for correction of a prior month error. If there are cumulative errors, or more than one error for the same month, it may be necessary to audit the correction by comparing the volumes reported on the FEA-P102-M-1 and the volumes entered in the FEA Monthly Computation Summary. Detail audit procedures are provided in Appendix B.

4.7 SUMMARY

The Entitlements Program Data Reporting System requires timely submission of accurate data in the interest of program administration and equitable treatment of all participants. The examples of how corrections are made also illustrate the time sensitivity of data requirements and the potential cost impact of reporting errors. The well-recognized administrative burden of

the reporting system requirements is only compounded when corrections are necessary. Again, it is strongly recommended that all participants establish a systematic procedure to assemble accurate data, properly complete report forms (noting any changes from month to month), review reports for errors and submit certified reports on time. The staff members in the Entitlements Program Office are available and willing to assist any participant with reporting problems. Staff members may be reached by telephone at (202)254-6296.

APPENDIX A.

FEA Entitlement Data Compilation-

February-December 1976 and January-May 1977

TABLE I

VOLUMES OF CRUDE OIL RECEIVED IN REFINERY INVENTORY, JAN. 1977 THROUGH DEC. 1977

VOLUMES (BBLs)

	JAN. 1977	FEB. 1977	MAR. 1977	APR. 1977	MAY 1977	JUNE 1977	JULY 1977	AUG. 1977
LARGE NON-INDEPENDENT REFINERS								
Old (Lower Tier)	89,701,289	84,497,722	90,522,314	85,751,089	89,556,803			
New (Upper Tier)	61,368,023	57,791,696	65,322,874	60,908,735	63,515,246			
Stripper	20,088,327	18,439,184	20,589,241	19,365,651	19,813,376			
NPR	996,229	1,110,300	1,827,249	1,669,334	1,580,586			
Imported	142,195,144	137,268,273	159,574,953	152,678,490	163,973,620			
Total Receipts	314,349,012	299,107,175	337,836,631	320,373,299	338,439,631			
LARGE INDEPENDENT REFINERS								
Old (Lower Tier)	6,098,230	5,419,940	5,908,480	6,003,500	5,953,668			
New (Upper Tier)	4,415,751	4,047,085	4,991,708	5,483,423	4,830,567			
Stripper	1,874,185	2,123,393	2,619,746	2,369,080	2,363,978			
NPR	0	0	0	0	0			
Imported	39,773,759	34,196,810	31,674,244	34,857,601	25,764,960			
Total Receipts	52,161,925	45,787,228	45,194,178	48,713,604	38,913,173			
SMALL REFINERS								
Old (Lower Tier)	21,944,252	20,348,201	21,585,494	20,471,275	20,340,379			
New (Upper Tier)	22,852,798	22,016,013	23,442,169	22,225,563	22,916,819			
Stripper	9,177,924	8,871,072	10,113,140	9,585,443	10,156,346			
NPR	1,684,414	1,394,902	1,410,156	1,352,126	1,436,974			
Imported	44,441,618	46,476,491	49,469,740	44,420,935	51,192,139			
Total Receipts	100,101,006	99,106,679	106,020,699	98,055,342	106,042,657			
TOTAL - ALL REFINERS								
Old (Lower Tier)	117,743,771	110,265,863	118,016,288	112,225,864	115,850,850			
New (Upper Tier)	88,636,572	83,854,794	93,756,751	88,617,721	91,262,632			
Stripper	31,140,436	29,433,649	33,322,127	31,320,174	32,333,700			
NPR	2,680,643	2,505,202	3,237,405	3,021,460	3,017,560			
Total Domestic	240,201,422	226,059,508	248,332,571	235,185,219	242,464,742			
Imported	226,410,521	217,941,574	240,718,937	231,957,026	240,930,719			
Total Uncontrolled	260,231,600	249,880,425	277,278,469	266,298,660	276,281,979			
Total Receipts	466,611,943	444,001,082	489,051,508	467,142,245	483,395,461			

Revised:
Source: FEA P-102-M-1
Refiners Monthly Report
Crude Oil Operations
Regulatory Programs

Revised: _____
 Source: FEA Form P-102-M-1
 Refiners Monthly Report

TABLE II

COSTS OF CRUDE OIL RECEIVED IN REFINERY INVENTORY, JAN. '77 THROUGH DEC. '77

AVERAGE COSTS (\$/BBL)

<u>LARGE NON-INDEPENDENT REFINERS</u>	<u>JAN. 1977</u>	<u>FEB. 1977</u>	<u>MAR. 1977</u>	<u>APR. 1977</u>	<u>MAY 1977</u>	<u>JUNE 1977</u>	<u>JULY 1977</u>	<u>AUG. 1977</u>
Old (Lower Tier)	\$ 5.59	\$ 5.60	\$ 5.55	\$ 5.59	\$ 5.59			
New (Upper Tier)	11.81	11.67	11.31	11.32	11.31			
Stripper	13.63	13.57	13.70	13.67	13.60			
NPR	10.88	11.65	13.52	12.52	12.51			
Imported	14.20	14.39	14.50	14.53	14.57			
Total Receipts	11.23	11.32	11.43	11.47	11.52			
<u>LARGE INDEPENDENT REFINERS</u>								
Old (Lower Tier)	\$ 5.57	\$ 5.57	\$ 5.60	\$ 5.66	\$ 5.63			
New (Upper Tier)	12.00	11.79	11.58	11.39	11.45			
Stripper	13.93	13.98	13.69	14.02	14.02			
NPR	0	0	0	0	0			
Imported	13.91	14.18	14.77	14.52	14.86			
Total Receipts	12.77	12.96	13.16	13.05	12.97			
<u>SMALL REFINERS</u>								
Old (Lower Tier)	\$ 5.53	\$ 5.45	\$ 5.52	\$ 5.47	\$ 5.49			
New (Upper Tier)	12.05	12.06	11.65	11.65	11.59			
Stripper	14.05	14.08	14.03	14.05	14.00			
NPR	10.98	11.73	12.78	12.56	12.52			
Imported	14.28	14.68	14.72	14.86	14.99			
Total Receipts	11.78	12.11	12.08	12.06	12.31			
<u>TOTAL - ALL REFINERS</u>								
Old (Lower Tier)	\$ 5.58	\$ 5.57	\$ 5.54	\$ 5.57	\$ 5.57			
New (Upper Tier)	11.88	11.79	11.41	11.41	11.39			
Stripper	13.77	13.75	13.80	13.81	13.75			
NPR	10.95	11.69	13.20	12.54	12.52			
Total Domestic	9.02	9.01	8.97	8.96	8.94			
Imported	14.17	14.42	14.58	14.59	14.69			
Total Uncontrolled	14.09	14.31	14.47	14.48	14.56			
Total Receipts	11.52	11.66	11.73	11.76	11.81			
Entitlement Price:	\$ 8.30	\$ 8.53	\$ 8.71	\$ 8.69	\$ 8.77			

TABLE-III

COMPARISON OF ENTITLEMENTS DATA

	<u>JANUARY 1977</u>	<u>FEBRUARY 1977</u>	<u>MARCH 1977</u>	<u>APRIL 1977</u>	<u>MAY 1977</u>	<u>JUNE 1977</u>
Domestic Oil Supply Ratio (DOSR)	.266280	.267507	.273452	.284910	.280251	
Deemed Old Oil Ratio (DOOR)	.240742	.271480	.3265701	.329173	.337398	
Price of Entitlement	\$8.30	\$8.53	\$8.71	\$8.69	\$8.77	
Value of Entitlement (DOSR x Ent. Price)	\$2.21	\$2.28	\$2.38	\$2.48	\$2.46	
Upper Tier Entitlement	\$2.00	\$2.32	\$2.84	\$2.86	\$2.96	
Lower Tier Oil Receipts in MB	114.5	109.8	111.3	111.5	114.8	
Upper Tier Oil Receipts in MB	90.3	85.3	95.1	89.5	92.7	
Crude Runs in MB	467.6	440.2	465.4	453.7	475.6	
Total East Coast Domestic Resid Subject to Deduction, in MB	15.0	13.3	12.5	12.0	8.9	
Imported Resid (East Coast) in MB	42.9	45.3	38.6	24.6	26.5	
Imported No. 1 Heating Oil in MB	0	.36	.15	0	0	
Imported No. 2 Heating Oil in MB	0	12.4	12.5	0	0	
Total Purchase/Sale Requirements	22,533,209	23,511,428	23,496,788	24,286,797	23,920,624	
Value of Purchase/Sale Requirements	\$187,025,634.70	\$200,552,480.84	\$204,657,023.48	\$211,052,265.93	\$209,783,872.48	
Number of Barrels, Deemed Old Oil	136,304,895	132,547,461	142,453,667	140,911,785	146,129,487	
Small Refiner Bias Entitlements	7,484,194.5	6,967,439.79	7,450,821.91	7,839,036.91	8,522,711.80	
Exceptions and Appeals Relief	2,443,153	2,515,618	2,840,236	3,020,611	2,687,590	
Correction Relief (FEA)	0	0	0	0	0	
Naphtha Entitlements	384,560	302,376	365,397	397,973	661,677	

Revised:
Source: Monthly Entitlements Notice
Data, Crude Oil Operations,
Regulatory Programs

Revised:
 Source: FEA Entitlements Program Data
 Crude Oil Operations,
 Regulatory Program

TABLE IV
 ENTITLEMENT PROGRAM DATA BASE SUMMARY
 USED IN FORMULA: $DOSR = OOR + DOOR(UTR) - SRB - EAR - COR - NAPHTHA - HO$
 $CR - .5DRD + .3IR$

	<u>DOSR DOMESTIC OIL SUPPLY RATIO</u>	<u>OOR OLD OIL RECEIPTS</u>	<u>DOOR DEEMED OLD OIL RATIO</u>	<u>UTR UPPER TIER RECEIPTS</u>	<u>SRB SMALL REFINER BIAS</u>	<u>EAR EXCEPTIONS & APPEALS RELIEF</u>	<u>COR FEA COR- RECTIONS</u>	<u>NA IMPORTED NAPHTHA ENTITLEMENTS</u>	<u>HO IMPORTED HEATING OIL</u>
JAN 1977	.266279593	114,564,627	.240742261	93,305,158	7,484,194.51	2,443,153	0	384,560	0
FEB 1977	.267507201	109,388,651	.271480479	83,305,618	6,967,439.79	2,515,618	0	302,376	3,146,894
MAR 1977	.273451722	111,394,867	.326570139	95,06,062	7,450,821.91	2,840,236	0	365,397	3,054,474
APR 1977	.284909542	111,466,197	.329172613	89,453,335	7,839,036.91	3,020,611	0	397,973	0
MAY 1977	.280251377	114,831,893	.337398338	92,761,553	8,522,711.80	2,687,590	0	661,667	0
JUN 1977									
JUL 1977									
AUG 1977									
SEP 1977									
OCT 1977									
NOV 1977									
DEC 1977									

	<u>CR CRUDE RUNS</u>	<u>DRD DOM. RESID SUBJ. TO DEDUCTION</u>	<u>IR IMPORTED RESIDUAL</u>
JAN 1977	467,807,512	15,068,345	42,957,228
FEB 1977	440,211,997	13,329,916	45,334,336
MAR 1977	465,494,778	12,574,090	38,661,213
APR 1977	453,713,493	12,033,793	24,582,441
MAY 1977	475,622,189	8,997,774	26,459,034
JUN 1977			
JUL 1977			
AUG 1977			
SEP 1977			
OCT 1977			
NOV 1977			
DEC 1977			

Revised February 24, 1977
 Source: FEA P-102-M-1
 Refiners Monthly Report

TABLE I
VOLUMES OF CRUDE OIL RECEIVED IN REFINERY INVENTORY

VOLUMES (BBLs)

	<u>FEB. 1976</u>	<u>MAR. 1976</u>	<u>APRIL. 1976</u>	<u>MAY 1976</u>	<u>JUNE 1976</u>	<u>JULY 1976</u>	<u>AUG. 1976</u>
<u>LARGE NON-INDEPENDENT REFINERS</u>							
New	63,183,842	69,221,462	64,558,523	63,406,560	63,862,264	67,282,369	67,674,573
Stripper	5,577,989	7,339,682	7,430,157	7,751,823	7,890,250	8,799,146	8,730,136
Total Upper Tier	68,761,831	76,561,144	71,988,680	71,158,383	71,752,514	76,087,517	77,410,709
Old Oil	96,792,668	110,664,197	104,286,166	111,226,277	106,238,654	107,139,718	100,443,785
Total Domestic	165,554,499	187,225,341	176,274,846	182,384,660	177,991,168	183,227,235	183,854,494
Imported	111,241,199	109,856,187	120,549,672	118,070,606	135,662,731	145,069,203	122,349,222
Total Receipts	276,895,698	297,081,528	296,824,518	300,455,266	313,653,899	328,296,438	306,203,716
<u>LARGE INDEPENDENT REFINERS</u>							
New	6,643,184	5,987,579	6,705,360	7,590,426	7,054,796	5,385,293	6,713,203
Stripper	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	491,824	487,371
Total Upper Tier	6,643,184	5,987,579	6,705,360	7,590,426	7,054,796	5,877,117	7,210,274
Old Oil	8,060,293	6,058,260	6,635,683	6,146,035	6,694,686	5,233,008	8,988,226
Total Domestic	14,703,477	12,045,839	13,391,043	13,736,461	13,749,482	11,110,125	16,208,500
Imported	29,986,673	26,341,477	29,664,427	33,309,648	37,748,795	37,697,612	38,223,511
Total Receipts	44,690,150	38,387,316	43,055,470	47,046,109	51,498,277	48,210,737	39,433,589
<u>SMALL REFINERS</u>							
New	27,631,084	25,036,427	25,648,767	25,319,777	23,599,638	25,114,685	24,445,105
Stripper	1,241,062	2,488,939	2,634,470	3,417,438	3,404,049	3,297,692	4,242,820
Total Upper Tier	28,872,146	27,525,366	28,283,237	28,737,215	27,003,687	28,412,377	28,687,925
Old Oil	28,298,433	26,015,322	25,511,083	25,194,503	24,394,655	24,624,507	24,675,295
Total Domestic	57,170,579	53,540,688	53,794,320	53,931,718	51,398,342	53,036,884	53,363,220
Imported	19,163,243	31,624,338	33,119,746	36,157,472	36,043,103	47,424,695	42,068,800
Total Receipts	76,333,822	85,165,026	86,914,066	90,089,190	90,441,445	100,461,579	95,432,020
<u>TOTAL - ALL REFINERS</u>							
New	97,458,110	100,245,468	96,912,650	96,316,763	94,516,596	97,788,347	98,832,821
Stripper	6,919,051	9,828,521	10,064,627	11,169,261	11,294,299	12,588,664	14,375,127
Total Upper Tier	104,377,161	110,074,089	106,977,277	107,486,024	105,810,997	110,377,011	113,209,008
Old Oil	133,151,394	142,737,779	136,482,932	142,566,815	137,327,995	137,000,233	137,417,526
Total Domestic	237,528,555	252,811,868	243,460,209	250,052,839	243,138,992	247,377,244	250,626,334
Imported	160,391,115	167,822,002	183,333,845	187,537,726	212,454,629	229,591,510	190,543,122
Total Receipts	397,919,670	420,633,870	426,794,054	437,590,565	455,593,621	476,968,754	441,169,456

Revised: February 24, 1977

TABLE I

VOLUMES OF CRUDE OIL RECEIVED IN REFINERY INVENTORY

	VOLUMES (BBLs)			
	SEPT. 1976	OCT. 1976	NOV 1976	DEC. 1976
<u>LARGE NON-INDEPENDENT REFINERS</u>				
Old	97,191,834	97,575,580	92,202,974	94,427,757
New	61,401,222	59,887,428	61,619,448	63,388,513
Stripper	17,553,940	19,921,625	19,116,957	20,657,735
NPR	809,804	846,266	875,650	1,029,912
Imported	135,940,510	137,626,435	136,268,921	137,150,798
Total Receipts	312,898,020	315,857,334	310,083,950	316,654,720
<u>LARGE INDEPENDENT REFINERS</u>				
Old	6,430,863	5,807,057	5,506,711	5,662,413
New	4,173,548	4,095,896	4,749,849	5,461,863
Stripper	2,197,101	2,407,550	2,340,017	2,392,402
NPR	- 0 -	- 0 -	- 0 -	- 0 -
Imported	35,521,416	38,902,082	32,663,458	34,943,621
Total Receipts	48,322,928	51,212,585	45,260,035	48,460,299
<u>SMALL REFINERS</u>				
Old	23,642,597	23,641,751	23,113,931	23,105,920
New	21,065,489	21,228,266	22,013,866	22,974,233
Stripper	8,405,732	8,771,026	9,016,118	9,837,333
NPR	582,947	862,553	1,286,039	1,625,133
Imported	39,750,038	43,892,052	40,718,552	46,952,549
Total Receipts	93,446,803	98,395,648	96,148,506	104,495,168
<u>TOTAL-ALL REFINERS</u>				
Old	127,265,344	127,024,388	120,823,516	123,195,090
New	86,640,919	85,211,590	88,383,163	91,824,514
Stripper	28,156,773	31,109,201	30,473,092	32,887,470
NPR	1,392,751	1,708,819	2,161,689	2,655,045
Imported	211,211,964	220,420,569	209,650,931	219,046,968
Total Receipts	454,667,751	465,465,567	451,492,491	469,610,187

Revised: February 24, 1977
 Source: FEA P-102-M-1
 Refiners Monthly Report

TABLE II

COSTS OF CRUDE OIL RECEIVED IN REFINERY INVENTORY

AVERAGE COSTS (\$/BBL)

<u>LARGE NON-INDEPENDENT REFINERS</u>	<u>FEB. 1976</u>	<u>MAR. 1976</u>	<u>APRIL 1976</u>	<u>MAY 1976</u>	<u>JUNE 1976</u>	<u>JULY 1976</u>	<u>AUGUST 1976</u>
New	\$12.03	\$11.79	\$11.96	\$12.00	\$12.09	\$11.93	\$12.09
Stripper	11.32	11.06	11.65	11.44	11.69	11.67	11.68
Total Upper Tier	11.97	11.72	11.93	11.94	12.04	11.90	12.04
Old Oil	5.45	5.39	5.52	5.49	5.53	5.51	5.50
Total Domestic	8.16	7.98	8.13	8.01	8.16	8.16	8.25
Imported	13.50	13.55	13.50	13.46	13.57	13.52	13.67
Total Receipts	10.31	10.04	10.31	10.15	10.50	10.53	10.42
<u>LARGE INDEPENDENT REFINERS</u>							
New	\$11.70	11.65	\$11.86	\$ 11.87	\$11.99	\$12.02	\$12.11
Stripper	- 0 -	- 0 -	- 0 -	- 0 -	- 0 -	12.12	11.63
Total Upper Tier	11.70	11.65	11.85	11.87	11.99	12.03	12.06
Old Oil	5.36	5.44	5.48	5.55	5.56	5.64	5.54
Total Domestic	8.22	8.52	8.68	9.04	8.86	9.02	9.05
Imported	13.51	13.40	13.76	13.45	13.67	13.21	13.97
Total Receipts	11.77	11.87	12.18	12.16	12.39	12.25	12.31
<u>SMALL REFINERS</u>							
New	\$12.24	\$12.01	\$12.02	\$ 12.10	\$12.14	\$12.31	\$12.20
Stripper	11.31	11.95	11.92	12.21	12.00	11.81	11.65
Total Upper Tier	12.20	12.01	12.00	12.12	12.12	12.25	12.12
Old Oil	5.41	5.39	5.36	5.35	5.37	5.44	5.47
Total Domestic	8.84	8.79	8.85	8.95	8.92	9.09	9.03
Imported	13.44	13.37	13.52	13.68	13.75	13.75	13.76
Total Receipts	9.99	10.49	10.63	10.85	11.00	11.29	11.11
<u>TOTAL - ALL REFINERS</u>							
New	\$12.07	\$11.34	\$11.97	\$ 12.02	\$12.09	\$12.03	\$12.11
Stripper	11.32	11.28	11.70	11.67	11.78	11.72	11.68
Total Upper Tier	12.02	11.79	11.94	11.98	12.06	12.00	12.06
Old Oil	5.44	5.39	5.48	5.47	5.50	5.50	5.50
Total Domestic	8.33	8.18	8.32	8.27	8.36	8.40	8.46
Imported	13.49	13.49	13.55	13.50	13.62	13.51	13.73
Total Receipts	10.41	10.30	10.57	10.51	10.81	10.86	10.74
Entitlement Price:	7.85	7.89	7.85	7.82	7.91	7.80	8.02

TABLE II
COSTS OF CRUDE OIL RECEIVED IN REFINERY INVENTORY
AVERAGE COSTS (\$/BBL)

<u>LARGE NON-INDEPENDENT REFINERS</u>	<u>SEPT. 1976</u>	<u>OCT. 1976</u>	<u>NOV. 1976</u>	<u>DEC. 1976</u>
Old	\$ 5.56	\$ 5.55	\$ 5.52	\$ 5.55
New	12.13	12.01	11.92	11.97
Stripper	13.41	13.61	13.61	13.69
NPR	11.16	11.15	11.38	11.13
Imported	13.57	13.57	13.60	13.72
Total Receipts	10.78	10.79	10.86	10.93
<u>LARGE INDEPENDENT REFINERS</u>				
Old	\$ 5.53	\$ 5.67	\$ 5.62	\$ 5.55
New	12.04	12.07	12.26	11.95
Stripper	14.02	13.76	13.77	14.01
NPR	-	-	-	-
Imported	13.37	13.49	13.50	13.65
Total Receipts	12.24	12.54	12.44	12.53
<u>SMALL REFINERS</u>				
Old	\$ 5.44	\$ 5.48	\$ 5.45	\$ 5.44
New	12.10	12.19	12.19	12.25
Stripper	13.73	13.97	14.01	14.09
NPR	11.63	11.43	11.64	11.45
Imported	13.69	13.73	13.80	13.78
Total Receipts	11.24	11.41	11.41	11.59
<u>TOTAL - ALL REFINERS</u>				
Old	\$ 5.53	\$ 5.54	\$ 5.51	\$ 5.53
New	12.12	12.07	12.01	12.04
Stripper	13.55	13.76	13.77	13.83
NPR	11.36	11.29	11.53	11.33
Imported	13.56	13.58	13.62	13.72
Total Uncontrolled	-	-	13.62	13.71
Total Receipts	11.03	11.12	11.13	11.24
Entitlement Price:	7.80	7.84	7.90	7.97

Revised: 2/24/77
 Source: Monthly Entitlements
 Notice

TABLE III
COMPARISON OF ENTITLEMENTS DATA

	<u>FEB 1976</u>	<u>MAR 1976</u>	<u>APR 1976</u>	<u>MAY 1976</u>	<u>JUNE 1976</u>	<u>JULY 1976</u>
<i>P. 101</i> Value of Entitlement	\$ 7.85	\$ 7.89	\$ 7.85	\$ 7.82	\$ 7.91	\$ 7.80
Old Oil Receipts \bar{M} B	133.8	139.6	133.7	141.6	135.6	134.4
Upper Tier Oil Receipts \bar{M} B	104.6	111.5	110.5	108.2	106.7	119.8
Crude Runs \bar{M} B	399.4	424.8	408.0	427.3	440.2	455.2
Domestic Residual Deduction \bar{M} B	12.9	13.8	12.0	11.4	10.1	9.5
Imported Residual (East Coast) \bar{M} B	37.7	32.4	29.6	24.2	28.7	34.4
Domestic Oil Supply Ratio	.352065	.357897	.356219	.355291	.328463	.314001
Total Purchase/Sale Requirements	14,548,702	20,252,999	21,096,354	22,316,453	22,023,390	23,111,311
Value of Purchase/Sale Requirements	\$114,207,311	\$159,796,162	\$165,606,379	\$178,424,662	\$174,205,014.90	\$180,268,225.80
Number of Refiner/Sellers	59	72	87	88	85	90
Number of Refiner/Buyers	18	17	32	31	35	47
Number of Refiner/Importer Sellers	5	5	4	3	4	1
Number of Refiner/Importer Buyers	8	5	5	7	6	6
Number of Importer Sellers	22	19	22	19	18	27
Number of Importer Buyers	0	0	0	1	1	34
Number of Fully Exempt Small Refiners	50	40	11	10	12	11
Number of Partially Exempt Small Refiners	6	3	7	11	9	10
Number of Exempt Bbls Deemed Oil Oil	5,013,532	4,238,087	0	0	0	0
Small Refiner Bias Entitlements	3,109,750	3,368,778	5,582,096	5,770,391	5,640,142.11	5,884,294.85
Exceptions and Appeals Relief	0	0	1,315,609	1,047,373	2,487,374.00	2,490,425.00
Correction Relief (FEA)	185,977	70,054	23,266	74,625	0	0

TABLE III

COMPARISON OF ENTITLEMENTS DATA

	<u>AUG. 1976</u>	<u>SEPT. 1976</u>	<u>OCT. 1976</u>	<u>NOV. 1976</u>	<u>DEC. 1976</u>
Value of Entitlement	\$ 8.02	\$ 7.80	\$ 7.84	\$ 7.90	\$ 7.97
Old Oil Receipts \bar{M} B	136.0	126.0	124.9	116.1	119.2
Upper Tier Oil Receipts \bar{M} B	114.3	89.7	85.9	92.8	95.1
Crude Runs \bar{M} B	462.4	437.2	443.1	450.3	474.3
Domestic Residual Deduction \bar{M} B	11.8	8.9	13.0	16.6	12.8
Imported Residual (East Coast) \bar{M} B	29.9	36.6	29.1	35.1	44.9
Domestic Oil Supply Ratio	.318713	.296021	.292905	.273071	.263350
Total Purchase/Sale Requirements	24,617,573	22,713,741	22,424,862	21,809,856	23,775,007
Value of Purchase/Sale Requirements	\$197,432,935.46	\$177,167,179.80	\$175,810,918.08	\$172,297,862.40	\$189,486,805.79
Number of Refiner/Sellers	97	97	95	98	101
Number of Refiner/Buyers	41	38	39	41	39
Number of Refiner/Importer Sellers	4	3	3	2	3
Number of Refiner/Importer Buyers	7	6	7	7	9
Number of Importer Sellers	25	24	23	24	25
Number of Importer Buyers	0	0	0	0	0
Number of Fully Exempt Small Refiners	9	10	7	0	0
Number of Partially Exempt Small Refiners	14	10	26	0	0
Number of Bbls Deemed Old Oil	0	0	0	0	0
Small Refiner Bias Entitlements	6,225,577.04	6,339,519.99	6,686,936.81	6,571,274.95	7,367,860.82
Exceptions and Appeals Relief	2,260,562.00	2,322,588.00	1,593,503.00	1,876,992.00	2,119,645
Correction Relief (FEA)	0	0	0	0	0
Naphtha Entitlements	0	0	577,678	652,706	406,038

Revised: FEB 14 1977
 Source: FEA
 Entitlements
 Program Data

TABLE IV

ENTITLEMENT PROGRAM DATA BASE SUMMARY
 USED IN FORMULA DOSR = OOO+DOOR(UTR)-SRB-EAR-EDOO-COR-NAPHTHA
CR - .5DRD + .3IR

	DOSR DOMESTIC OIL SUPPLY RATIO	OOO OLD OIL RECEIPTS	DOOR DEEMED OLD OIL RATIO	UTR UPPER TIER RECEIPTS	SRB SMALL REFINER BIAS	EAR EXCEPTIONS & APPEALS RELIEF	EDOO EXEMPT DEEMED OLD OIL	COR FEA COR- RECTICNS
FEB '76	.352065474	133,750,985	.161306972	104,564,023	3,109,750.25	0	5,013,532.38	185,977
MAR '76	.357897013	139,648,705	.189020168	111,452,842	3,368,777.34	0	4,238,086.71	70,054
APR '76	.356219347	133,709,163	.177171480	110,492,597	5,582,095.75	1,315,609	0	23,266
MAY '76	.356291209	141,603,775	.167413345	108,222,269	5,770,391.42	1,047,373	0	74,625
JUN '76	.328463377	135,697,295	.170925926	106,608,824	5,640,142.11	2,487,374	0	0
JUL '76	.314000874	134,366,135	.167379784	111,844,182	5,884,294.85	2,490,425	0	0
AUG '76	.318713267	136,047,943	.181975480	114,352,272	6,225,577.04	2,260,562	0	0
SEP '76	.296021155	126,038,544	.155759140	85,720,597	6,339,519.99	2,322,588	0	0
OCT '76	.292905041	124,968,474	.167604082	85,584,156	6,686,936.81	1,593,503	0	0
NOV '76	.273070626	116,197,749	.177464008	92,845,957	6,571,274.95	1,876,992	0	0
DEC '76	.263349524	119,240,018	.183245478	95,113,163	7,367,860.82	2,119,645	0	0

	CR CRUDE RUNS	DRD DOMESTIC RESIDUAL DEDUCTION	IR IMPORTED RESIDUAL	NA IMPORTED NAPHTHA
FEB '76	399,388,810	12,948,419	37,653,651	0
MAR '76	424,751,053	13,756,372	32,441,096	0
APR '76	408,009,183	12,028,051	29,624,736	0
MAY '76	427,355,464	11,386,706	24,275,416	0
JUN '76	440,295,074	10,139,129	28,784,032	0
JUL '76	455,268,230	9,455,383	34,413,363	0
AUG '76	462,471,035	11,830,067	29,916,495	0
SEP '76	437,188,362	8,862,944	36,551,944	0
OCT '76	443,104,555	12,960,362	29,191,825	577,678
NOV '76	450,313,692	16,597,963	35,062,448	652,706
DEC '76	474,353,084	12,906,053	44,988,044	406,038

Revised: FEB 24 1977
 Source: Entitlements Program

TABLE VI

PRE- AND POST-ENTITLEMENT CRUDE COSTS BY CLASS OF REFINERS

(in \$ per Bbl.)

1975	LARGE INTEGRATED REFINERS		LARGE INDEPENDENT REFINERS		SMALL REFINERS		SMALL & INDEPENDENT REFINERS		ALL REFINERS	
	PRE-	POST-	PRE-	POST-	PRE-	POST-	PRE-	POST-	PRE-	POST-
JANUARY	9.65	9.76	10.29	10.00	9.20	9.06	9.56	9.38	9.63	9.65
FEBRUARY	9.96	10.18	10.59	10.12	9.54	9.23	9.93	9.56	9.95	9.99
MARCH	9.72	9.85	10.63	10.20	9.54	9.52	9.94	9.77	9.79	9.83
APRIL	9.70	9.86	10.81	9.81	9.50	9.42	9.92	9.55	9.77	9.77
MAY	9.74	9.93	10.67	9.76	9.57	9.34	9.92	9.47	9.80	9.80
JUNE	10.04	10.21	11.53	10.74	9.92	9.79	10.48	10.12	10.17	10.19
JULY	10.37	10.59	11.23	10.61	10.33	10.03	10.68	10.25	10.47	10.48
AUGUST	10.59	10.91	11.52	10.22	10.27	9.83	10.73	9.97	10.63	10.63
SEPTEMBER	10.43	10.71	11.52	10.23	10.42	9.97	10.80	10.06	10.53	10.53
OCTOBER	10.70	11.02	11.76	10.43	10.53	10.12	10.97	10.23	10.78	10.78
NOVEMBER	10.03	11.37	11.94	10.13	10.69	10.34	11.09	10.27	11.05	11.05
DECEMBER	10.60	10.92	11.76	10.53	10.51	9.89	10.95	10.11	10.69	10.69
<u>1976</u>										
JANUARY	10.70	11.03	11.91	10.69	10.69	10.12	11.08	10.30	10.81	10.81
FEBRUARY	10.31	10.63	11.77	11.19	9.99	9.23	10.65	9.96	10.41	10.42
MARCH	10.04	10.32	11.87	10.85	10.49	10.05	10.92	10.30	10.30	10.31
APRIL	10.31	10.57	12.18	11.38	10.63	10.33	11.14	10.68	10.57	10.60
MAY	10.15	10.59	12.16	10.88	10.85	10.25	11.30	10.47	10.51	10.55
JUNE	10.50	10.89	12.39	11.49	11.00	10.34	11.50	10.76	10.81	10.85
JULY	10.53	10.95	12.25	10.90	11.29	10.66	11.60	10.74	10.86	10.89
AUGUST	10.42	10.87	12.31	11.05	11.11	10.28	11.46	10.50	10.74	10.76
SEPTEMBER	10.89	11.21	12.24	11.04	11.24	10.61	11.58	10.76	11.03	11.07
OCTOBER	10.79	11.27	12.54	11.48	11.41	10.59	11.80	10.90	11.12	11.15
NOVEMBER	10.86	11.25	12.44	11.68	11.41	10.67	11.74	10.99	11.13	11.17
DECEMBER	10.93	11.33	12.53	11.61	11.59	10.92	11.89	11.14	11.24	11.27

APPENDIX B.

REPORT CORRECTION AUDIT PROCEDURES

An individual refiner or importer may audit the Adjusted Corrected Volume Differential (ACVD) entered on the report forms by the FEA in the following manner:

1. For Old Oil Receipts corrections compare the line 20399 entry, Part 5, FEA-P102-M-1 for the month of correction with the line 1 entry in the Summary Section of the Computation Summary for the month of correction. The line 1 entry in the Summary, "OLD OIL CORRECTED RECEIPTS" is the same as the volume entered by FEA on line 20499, Part 5, FEA-P102-M-1, "CORRECTED MONTHLY RECEIPTS FOR CALCULATIONS." Any difference (+) between the line 1 entry in the Summary and line 20399, Part 5, FEA-P102-M-1, will equal the Adjusted Corrected Volume Differential (ACVD) for Old Oil Receipts entered on line 30409, Part 5, FEA-P102-M-1 by the FEA. The ACVD reflects the difference between the Entitlement Price in the month of correction (EP_{mc}) and the month of error (EP_{me}). The unadjusted Corrected Volume Differential (CVD) may be calculated as follows:

$$CVD = \frac{ACVD \times EP_{mc}}{(EP_{me})}$$

The CVD is the difference between line 20399 in the original report and line 20399 in the amended report, FEA-P102-M-1.

NOTE: If there is more than one amended report submitted before the FEA makes corrections, the CVD in the month of correction will equal the algebraic sum of the CVDs in each amended report.

2. Upper Tier Oil Receipts (UTR) corrections can be audited using the same procedures for Old Oil Receipts. The difference between line 30399, Part 6, FEA-P102-M-1, "ADJUSTED MONTHLY RECEIPTS" for the month of corrections and line 2 of the Summary "UPPER TIER CORR REC*DOOR," divided by the DOOR for the month of correction equals the Adjusted Corrected Volume Differential (ACVD) for Upper Tier Receipts. The ACVD is the volume entered by FEA on line 30409, Part 6, FEA-P102-M-1, "NET CORRECTION FROM PRIOR MONTH AMENDED REPORTS." The Corrected Volume Differential (CVD) for UTR can then be calculated:

$$CVD = \frac{ACVD \times DOOR_{mc} \times EP_{mc}}{DOOR_{me} \times EP_{me}}$$

The CVD is the difference between line 30399, "ADJUSTED MONTHLY RECEIPTS," in the original report and line 30399 in the amended report, FEA-P102-M-1.

3. Corrections for crude runs to stills may be audited in a similar manner. The difference between line 40199, Part 7, FEA-P102-M-1, "TOTAL RUNS TO STILLs," for the month of correction and line 1, Column A of the Computation Summary, "CORR RUNS (BBLs/MO)", for the month of correction equals the Adjusted Corrected Volume Differential (ACVD). The ACVD is the volume entered by FEA on line 40219, Part 7, FEA-P102-M-1, "NET CORRECTION FROM PRIOR MONTH AMENDED REPORTS." The Corrected Volume Differential (CVD) can then be calculated:

$$\text{CVD} = \frac{\text{ACVD} \times \text{EP}_{mc}}{\text{EP}_{me}}$$

The CVD is the difference between line 40199, "TOTAL RUNS TO STILLLS," in the original report and line 40199 in the amended report, FEA-P102-M-1.

4. Corrections for volumes of Imported Residual (IR) fuel oil may be audited similarly to corrections for crude runs to stills. The difference between line 10199, Part 3, FEA-P126-M-0, "TOTAL" for the month of correction and line 1, Column B, Computation Summary, "IMP RESID (BBLs/MO)," for the month of correction equals the Adjusted Corrected Volume Differential (ACVD). The ACVD is the volume entered by the FEA on line 10259, Part 3, FEA-P126-M-0, "NET CORRECTIONS FROM PRIOR MONTH AMENDED REPORTS." The Corrected Volume Differential (CVD) can then be calculated:

$$\text{CVD} = \frac{\text{ACVD} \times \text{EP}_{mc}}{\text{EP}_{me}}$$

The CVD is the difference between line 10199, "TOTAL," in the original report and line 10199 in the amended report, FEA-P126-M-0.

APPENDIX C

REFERENCE MATERIAL AND INFORMATION SOURCES

All source data and reference material used in the preparation of the Entitlements Handbook were published by the Federal Government and are available from the U.S. Government Printing Office, National Technical Information Service or the Federal Energy Administration. The reference materials used were:

1. Chapter II, Title 10 Code of Federal Regulations - ENERGY.
2. Volumes 2 and 3, Federal Energy Guidelines of Federal Energy Administration.
3. The FEDERAL REGISTER.
4. FEA Monthly Energy Review
5. FEA 1976 National Energy Outlook.
6. FEA Guidelines for New Refiners.

Title 10 Code of Federal Regulations (10 CFR) is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

NOTE: 10 CFR is seldom current as published due to the frequency of amendments. It is possible to update 10 CFR with the amendments as published in the FEDERAL REGISTER. (A current 10 CFR is reflected in the Federal Energy Guidelines).

Federal Energy Guidelines volumes are designed to provide the Federal Energy Administration with information necessary to administer the federal government's control program on petroleum allocations, prices, imports, and information. The Guidelines volumes are geared strictly to FEA responsibilities, texts of all the laws, regulations, executive orders, proclamations, rulings, and guidelines directly affecting FEA are reproduced in these volumes. All material contained in the FEA volumes is under the direct control of FEA and that agency decides what will and what will not be included therein. In FEA terminology, the two volumes are called the "Manual," which is distributed to FEA offices, other federal agencies, state and local government entities involved in energy affairs, and to some private groups associated with the government's energy policy activities.

There is available a commercial version of Federal Energy Guidelines in a three-volume Energy Management Reporter. The first volume contains explanatory material and information not of interest to the FEA. Volumes 2 and 3 of the Energy Management Reporter are basically the same as the FEA Manual. The Energy Management Reporter is commercially available on a subscription basis, with weekly updating, from the Commerce Clearing House, Inc., 4025 West Peterson Avenue, Chicago, Illinois 60646.

The FEDERAL REGISTER is published daily by the Office of the Federal Register, National Archives and Records Service, General Services Administration. Distribution is made only by the Superintendent by Documents, U.S. Government Printing Office.

The FEDERAL REGISTER provides a uniform system for making available to the public regulations and legal notices issued by Federal agencies. These include Presidential proclamations and Executive orders and Federal agency documents having general applicability and legal effect, documents required to be published by Act of Congress and other Federal agency documents of public interest. Documents are on file for public inspection in the Office of the Federal Register the day before they are published, unless earlier filing is requested by the issuing agency. FEA proposed rulemakings and final rules are published in the Federal Register with background information and discussion relative to why the rulemaking is needed and why the final rule was adopted. This information is not included in the regulations, but is often helpful to clarify and understand the published regulation.

The Federal Register will be furnished by mail to subscribers, free of postage, for \$5.00 per month or \$50 per year, payable in advance. The charge for individual copies is 75 cents for each issue, or 75 cents for each group of pages as actually bound. Remit check or money order, made payable to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

The FEA Monthly Energy Review is prepared by the Office of Energy Information and Analysis. Historical data on energy production, supply, and pricing for major energy sources is documented numerically and in graphic presentation. Feature articles are included on subjects of interest considered timely. This periodical is available on a subscription basis from the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161.

The FEA 1976 National Energy Outlook contains analyses of energy trends in supply and demand. Forecasts are presented against alternative scenarios for future production and consumption of energy by source, e.g.; oil,

gas, coal and nuclear. There are also analyses and discussions of the financial aspects of energy production and fuel cost trends. The FEA 1976 National Energy Outlook is available for sale from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Cite Stock No. 041-018-00097-6/Catalog N. FE1.2:EN2/7.

NOTE: A 1977 edition of National Energy Outlook is scheduled for publication in the summer of 1977.

FEA Guidelines for New Refiners is in memorandum form and provides a brief description of certain aspects of FEA's crude oil programs that are of direct concern to new refiners. The memorandum, dated September 17, 1976, is available upon request from the FEA Office of Refinery Operations, Crude Oil Operations, 2000 M street, N.W. Washington, D.C. 20461, phone (202) 254-8620.

Other FEA Sources of information are:

1. The Office of Communications and Public Affairs (C&PA) coordinates the communication of Agency programs and activities through the media and the general public by means of public statements, speeches, news releases, publications, public reports, audio-visuals, public correspondence, and the public distribution of materials. It also conducts or coordinates special education programs in support of Agency goals. the C&PA address is:

Office of Communications and Public Affairs
Department of Energy
Old Post Office Building
12th & Penn. Ave., N.W.
Washington, D.C. 20461

2. **The Office of Energy Information and Analysis (EI&A)** is responsible for performing short-range and long-range supply and demand forecasting and related economic analysis; developing publications related to national energy policy and scenarios, including the **National Energy Outlook** based on the Project Independence Evaluation System (PIES). The Office also provides ADP support to all FEA program activities, which includes data collection and processing, system design and operation, and the data clearinghouse functions of the **National Energy Information Center (NEIC)**. The address of the NEIC is:

**National Energy Information Center
Department of Energy
Washington, D.C. 20461**

APPENDIX D

Sample Entitlement Notice - April 1977

REPORTING FIRM SHORT NAME	DEEMED OLD OIL ADJUSTED RECEIPTS	***** TOTAL ISSUED	ENTITLEMENT EXCEPTIONS AND APPEALS	PRODUCT ENTITLEMENTS	POSITION 10 MONTH CLEAN-UP	REQUIRED TO BUY	REQUIRED TO SELL
A-JOHNSON	0	135,871	0	0	0	0	135,871
ALLIED	82,289	152,185	0	0	0	0	69,896
AMER-PETROFINA	1,823,893	1,447,249	0	0	0	376,644	0
AMERADA-MESS	2,278,104	4,202,803	0	86,997	0	0	1,924,699
AMOCO	11,999,054	7,382,537	0	0	0	4,616,517	0
APCO	374,050	474,870	0	0	0	0	100,820
ARCO	6,396,257	6,172,038	0	0	0	224,219	0
ARIZONA	62,580	53,828	16,272	0	0	8,752	0
ASAMERA	157,778	212,305	0	0	0	0	54,527
ASHLAND	1,647,213	3,100,657	0	0	0	0	1,453,444
ASIATIC	0	1,401	0	1,401	0	0	1,401
BASIN	55,546	128,105	0	0	0	0	72,559
BAYOU	42,037	152,338	0	0	0	0	110,301
BEACON	234,117	208,757	35,410	0	0	25,360	0
BELCHER	0	11,357	0	11,357	0	0	11,357
BI-PETRO	8,836	154,113	0	0	0	0	145,277
C&H	0	150,053	0	0	0	0	150,053
CALUMET	153,877	153,050	0	0	0	827	0
CANAL	72,897	70,518	0	0	0	2,379	0
CARIBOU	91,201	102,909	0	0	0	0	11,708
CASTLE	0	15,705	0	15,705	0	0	15,705
CENTRAL	0	6,774	0	6,774	0	0	6,774
CHAMPLIN	2,179,516	1,369,286	0	0	0	810,230	0
CHARTER	596,525	616,038	108,929	0	0	0	19,513
CHEVRON	6,315,469	10,207,429	0	13,773	0	0	1,891,960
CIRILLO	0	23,571	0	23,571	0	0	23,571
CITGO	3,775,782	2,455,472	0	0	0	1,320,310	0
CLAIBORNE	56,039	52,660	0	0	0	3,379	0
CLARK	299,421	984,784	0	0	0	0	685,363
COASTAL	274,558	1,674,336	0	0	0	0	1,399,778
CONDOCO	3,674,198	3,202,711	0	160,147	0	471,397	0
CORCO	0	1,235,885	235,670	144,970	0	0	1,235,885
CRA-FARMLAND	398,685	665,579	0	0	0	0	266,894
CROSS	45,770	154,033	0	0	0	0	108,263

NOTICES

REPORTING FIRM SHORT NAME	DEEMED OLD OIL ADJUSTED RECEIPTS	***** TOTAL ISSUED	***** ENTITLEMENT POSITION EXCEPTIONS AND APPEALS	***** PRODUCT ENTITLEMENTS	***** 10 MONTH CLEAN-UP	***** REQUIRED TO BUY	***** REQUIRED TO SELL
CROWN	462,236	884,066	0	0	0	0	481,830
CRYSTAL-OIL	190,725	198,906	0	0	0	0	8,181
CRYSTAL-REF	563	53,437	0	0	0	0	52,874
DELTA	351,801	335,262	-26,463*	0	0	16,539	0
DEMENNO	3,434	92,400	0	0	0	0	88,966
DIAMOND	591,035	491,710	0	0	0	99,325	0
DILLMAN	0	165	0	0	0	0	165
DORCHESTER	11,369	14,947	0	0	0	0	3,579
DOW	50,164	189,419	0	0	0	0	129,255
E-SEABOARD	0	84,551	0	84,551	0	0	84,551
ECO	5,455	28,738	0	0	0	0	23,283
EDDY	42,984	151,428	0	0	0	0	108,444
EDGINGTON-OIL	0	-9,871	-9,871	0	0	9,871	0
ELM	0	20,506	0	20,506	0	0	20,506
ENERGY-COOP	30,660	1,037,079	0	0	0	0	1,006,419
EVANGELINE	59,411	112,507	0	0	0	0	53,096
EXXON	11,138,027	9,344,360	0	365,721	0	1,793,667	0
EZ-SERVE	93,146	161,207	0	0	0	0	68,061
FAMARISS	266,580	360,530	0	0	0	0	93,950
FARMERS-UN	227,677	216,424	0	0	0	11,253	0
FLETCHER	13,386	174,433	0	0	0	0	161,047
FLINT	10,424	10,625	0	0	0	0	201
GARY	56,359	92,371	0	0	0	0	36,012
GETTY	1,678,283	1,341,797	0	0	0	336,486	0
GIANT	27,479	153,194	0	0	0	0	125,715
GIBSON	719	146,580	0	0	0	0	145,861
GLACIER-PARK	104,703	62,170	0	0	0	42,533	0
GLADIEUX	96,179	158,991	0	0	0	0	62,812
GLENROCK	1,727	152,766	0	0	0	0	151,039
GOLDEN-EAGLE	-1,178**	163,951	0	0	0	0	165,129
GOLDKING	85,199	165,533	0	0	0	0	80,334
GOOD-HOPE	75,091	356,817	0	0	0	0	281,726
GUAN	0	303,127	0	0	0	0	303,127
GULF	10,468,562	7,168,425	0	32,991	0	3,300,137	0

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REPORTING FIRM SHORT NAME	DEEMED OLD OIL ADJUSTED RECEIPTS	***** TOTAL ISSUED	***** EXCEPTIONS AND APPEALS	ENTITLEMENT POSITION PRODUCT ENTITLEMENTS	10 MONTH CLEAN-UP	REQUIRED TO BUY	***** REQUIRED TO SELL
GULF-STS	97,687	151,374	0	0	0	0	53,687
HIRI	0	521,987	0	0	0	0	521,987
HOWARD	0	37,773	0	37,773	0	0	37,773
HOWELL	410,956	271,350	0	0	0	139,606	0
HUDSON-OIL	36,850	241,531	0	0	0	0	204,681
HUNT	277,605	328,731	0	0	0	0	50,926
HUSKY	653,418	653,418	272,317	0	0	0	0
INDEPENDENT-REF	162,877	175,032	0	0	0	0	12,155
INDIANA-FARM	67,175	240,469	0	0	0	0	173,294
INGER-OIL	1,682	150,158	0	0	0	0	148,476
IRVING	0	43,744	0	43,744	0	0	43,744
J&K	252,277	252,277	103,820	0	0	0	0
KENCO	23,070	145,523	0	0	0	0	122,453
KENTUCKY	2,872	4,406	0	0	0	0	1,534
KERN	411,526	660,163	454,906	0	0	0	248,637
KERR-MCGEE	1,379,669	1,419,997	0	0	0	0	40,323
KOCH	313,446	810,418	0	0	0	0	496,972
LASLORIA	446,110	386,025	0	0	0	62,085	0
LAKESIDE	19,632	40,857	0	0	0	0	21,225
LAKETON	103,450	132,719	0	0	0	0	29,269
LITTLE-AMER	1,277,098	1,170,419	591,600	0	0	106,679	0
LOUISIANA-LAND	350,961	385,181	0	0	0	0	34,220
MACMILLAN	36,527	172,238	0	0	0	0	135,711
MARATHON	4,103,887	4,445,946	0	0	0	0	342,059
MARION	230,733	254,927	0	0	0	0	24,194
MID-AMER	68,567	153,965	0	0	0	0	85,398
MID-TEX	13,854	145,971	0	0	0	0	132,117
MIDLAND	0	-10,144	-10,144	0	0	10,144	0
MOBIL	8,059,565	6,874,098	0	32,094	0	1,185,467	0
MOHAWK	427,018	413,148	95,596	0	0	13,870	0
MONOCO	0	11,364	0	11,364	0	0	11,364
MONSANTO	394,451	355,018	0	0	0	39,433	0
MORRISON	14,161	150,016	0	0	0	0	135,855
MOUNTAINEER	8,815	8,676	0	0	0	139	0

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REPORTING FIRM SHORT NAME	DEEMED OLD OIL ADJUSTED RECEIPTS	***** TOTAL ISSUED	***** ENTITLEMENT POSITION EXCEPTIONS AND APPEALS	***** PRODUCT ENTITLEMENTS	***** 10 MONTH CLEAN-UP	***** REQUIRED TO BUY	***** REQUIRED TO SELL
MURPHY	933,055	838,239	0	0	0	94,816	0
N-AMER-PETRO	109,508	169,680	0	0	0	0	60,172
NATL-COOP	380,927	534,565	0	0	0	0	153,638
NAVAJO	359,208	359,208	133,291	0	0	0	0
NEW-EDGINGTON	557,584	538,049	273,429	0	0	19,535	0
NEW-ENGL-PETRO	0	355,036	0	365,036	0	0	365,036
NEWHALL	169,749	148,081	-6,030	0	0	21,668	0
NORTHEAST-PETRO	0	38,434	0	38,434	0	0	38,434
NORTHLAND	33,508	152,619	0	0	0	0	119,111
OXC	233,916	267,291	0	0	0	0	33,275
OXNARD	15,403	120,633	0	0	0	0	105,230
PASCO	0	-64,591	-64,591	0	0	64,591	0
PENNZOIL	558,934	474,608	0	0	0	84,326	0
PESTER	107,765	209,940	0	0	0	0	102,155
PHILLIPS	2,642,412	2,660,370	0	0	0	0	17,958
PHILLIPS-PR	0	168,170	0	168,170	0	0	168,170
PIONEER	18,547	151,452	0	0	0	0	132,905
PITTSBURGH	0	59,460	0	59,460	0	0	59,460
PLACID	249,245	380,105	0	0	0	0	130,850
PLATEAU	160,278	134,240	0	0	0	26,038	0
POWERINE	21,713	357,115	0	0	0	0	335,402
PRIDE	160,561	334,864	0	0	0	0	174,303
PRINCETON	0	144,574	0	0	0	0	144,574
QUAKER-ST	57,183	248,640	0	0	0	0	191,457
RICHARDS	268	142,949	0	0	0	0	142,681
ROAD-OIL	0	43,522	0	0	0	0	43,522
ROCK-ISLAND	328,369	350,769	-1,193	0	0	0	22,400
SABER-TEX	22,814	165,911	0	0	0	0	143,097
SABRE-CAL	205,379	201,207	75,675	0	0	4,172	0
SAGE-CREEK	3,355	4,445	0	0	0	0	1,090
SAN-JOQUIN	171,842	172,405	0	0	0	0	563
SEMINOLE	15,135	142,961	0	0	0	0	127,826
SHELL	12,000,282	5,241,813	0	3,607	0	3,755,459	0
SIGMON	4,341	153,165	0	0	0	0	148,824

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REPORTING FIRM SHORT NAME	DEEMED OLD OIL ADJUSTED RECEIPTS	***** TOTAL ISSUED	***** E N T I T L E M E N T EXCEPTIONS AND APPEALS	***** P O S I T I O N PRODUCT ENTITLEMENTS	***** 10 MONTH CLEAN-UP	***** REQUIRED TO BUY	***** REQUIRED TO SELL
HURPHY	933,055	838,239	0	0	0	94,816	0
N-AMER-PETRO	109,508	169,680	0	0	0	0	60,172
NATL-COOP	380,927	534,565	0	0	0	0	153,638
NAVAJO	359,208	359,208	133,291	0	0	0	0
NEW-EDGINGTON	557,584	538,049	273,429	0	0	19,535	0
NEW-ENGL-PETRO	0	365,036	0	365,036	0	0	365,036
NEWMALL	169,749	148,081	-6,030	0	0	21,668	0
NORTHEAST-PETRO	0	38,434	0	36,434	0	0	38,434
NORTHLAND	33,508	152,619	0	0	0	0	119,111
OKC	233,916	267,291	0	0	0	0	33,375
OXNARD	15,403	120,633	0	0	0	0	105,230
PASCO	0	-64,591	-64,591	0	0	64,591	0
PENNZCIL	558,934	474,608	0	0	0	84,326	0
PESTER	107,765	209,940	0	0	0	0	102,155
PHILLIPS	2,642,412	2,660,370	0	0	0	0	17,958
PHILLIPS-PR	0	168,170	0	168,170	0	0	168,170
PIONEER	18,547	151,452	0	0	0	0	132,905
PITTSTON	0	59,460	0	59,460	0	0	59,460
PLACED	249,245	380,105	0	0	0	0	130,860
PLATEAU	160,278	134,240	0	0	0	26,038	0
POHERINE	21,713	357,115	0	0	0	0	335,402
PRICE	160,561	334,864	0	0	0	0	174,303
PRINCETON	0	144,574	0	0	0	0	144,574
QUAKER-ST	57,183	248,640	0	0	0	0	191,457
RICHARDS	268	142,949	0	0	0	0	142,681
ROAD-OIL	0	43,522	0	0	0	0	43,522
ROCK-ISLAND	328,369	350,769	-1,193	0	0	0	22,400
SABER-TEX	22,814	165,911	0	0	0	0	143,097
SABRE-CAL	205,379	201,207	75,675	0	0	4,172	0
SAGE-CREEK	3,355	4,445	0	0	0	0	1,090
SAN-JOQUIN	171,842	172,405	0	0	0	0	563
SEMINOLE	15,135	142,961	0	0	0	0	127,826
SHELL	12,000,282	8,241,813	0	3,607	0	3,758,469	0
SIGMOR	4,341	153,155	0	0	0	0	148,826

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NOTICES

REPORTING FIRM SHORT NAME	DEEMED OLD OIL ADJUSTED RECEIPTS	***** TOTAL ISSUED	ENTITLEMENT POSITION EXCEPTIONS AND APPEALS	PRODUCT ENTITLEMENTS	10 MONTH CLEAN-UP	REQUIRED -TO BUY	***** REQUIRED TO SELL
SO-HAMPTON	60,029	195,508	0	0	0	0	135,479
SOHIO	1,912,220	3,618,416	0	0	0	0	1,706,196
SOMERSET	35,987	63,429	0	0	0	0	27,442
SOUND	77,125	153,937	0	0	0	0	76,812
SOUTHLAND	385,671	283,171	73,161	0	0	102,500	0
SOUTHWESTERN	8,325	77,793	-4,153	0	0	0	69,468
SPRAGUE	0	41,157	0	41,157	0	0	41,157
STEUART	0	62,876	0	62,876	0	0	62,876
SUNLAND	2,874	153,126	0	0	0	0	150,252
SUNOCO	5,354,913	4,321,996	0	63,280	0	972,915	0
TENNECO	636,379	335,937	0	0	0	300,442	0
TESORO	1,058,009	611,264	0	0	0	446,745	0
TEXACO	10,337,608	9,233,650	0	228,796	0	1,103,958	0
TEXAS-AMERICAN	25,202	95,067	0	0	0	0	69,865
TEXAS-ASPH	11,339	167,003	0	0	0	0	155,664***
TEXAS-CITY	547,307	643,752	0	0	0	0	96,445
THAGARD	656,527	656,527	391,160	0	0	0	0
THRIFTWAY	30,663	31,344	0	0	0	0	681
THUNDERBIRD	76,392	98,676	0	0	0	0	22,284
TOLEDO-EDISON	0	7,245	7,245****	0	0	0	7,245
TONKAWA	27,121	39,469	0	0	0	0	12,348
TOSCO	2,031,737	1,648,859	228,603	0	0	382,878	0
TOTAL-PETROLEUM	232,271	346,622	0	0	0	0	114,351
TRANS-OCEAN	0	135,210	0	0	0	0	135,210
UCC-CARIBE	0	84,833	0	84,833	0	0	84,833
UNION-OIL	5,824,370	3,967,874	0	8,547	0	1,875,496	0
UNION-PETRO	0	258,994	0	258,994	0	0	258,994
UNTD-IND	15,200	51,227	0	0	0	0	36,027
UNTD-REF	232,664	439,902	0	0	0	0	207,233
US-OIL	19,284	266,343	0	0	0	0	187,059
USA-PETROCHEM	90,077	193,302	0	0	0	0	103,223
VICKERS	298,053	572,638	0	0	0	0	274,585
VULCAN	44,859	340,882	0	0	0	0	296,023
WALLER	0	7,204	0	7,204	0	0	7,204

NOTICES

REPORTING FIRM SHORT NAME	DEEMED OLD OIL ADJUSTED RECEIPTS	***** TOTAL ISSUED	ENTITLEMENT POSITION EXCEPTIONS AND APPEALS	PRODUCT ENTITLEMENTS	10 MONTH CLEAN-UP	REQUIRED TO BUY	***** REQUIRED TO SELL
WARRICR	37,947	42,492	15,347	0	0	0	4,545
WEST-COAST	41,690	56,130	0	0	0	0	14,440
WESTERN	102,359	132,769	0	0	0	0	30,410
WINSTON	147,127	203,962	0	0	0	0	56,835
WIREBACK	0	720	0	0	0	0	720
WITCO	81,730	204,483	0	0	0	0	122,753
WYATT	0	15,274	0	15,274	0	0	15,274
YETTER	0	879	0	0	0	0	879
YOUNG	111,379	111,379	30,425	0	0	0	0
TOTAL	140,911,785	140,911,785	3,020,611	2,499,107	0	24,286,797	24,286,797

* Reflects adjustments for 1975 exceptions relief as provisionally modified by FEA pending agency review consistent with court order. For discussion, see December entitlement notice, 42 F.R. 12133 (March 2, 1977)

** Reflects an invoice adjustment to a prior month.

*** This does not include the purchase obligation stayed by court order in Texas Asphalt & Refinery Co. v. FEA Civ. Action No. 4-75-268 (N.D. Tex., filed October 31, 1975).

**** Reflects late submission of No. 2 heating oil entitlements report.

[FR Doc.77-17757 Filed 6-17-77;2:58 pm]

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NOTICES

APPENDIX E

**Sample Format - Delegation of Authority
to Sign and Certify Letter**

DELEGATION OF AUTHORITY TO SIGN AND CERTIFY

(Typed date of signing)

(Name of Parent Firm)

(Name)

(Title)

I, _____ hereby certify that I am the _____

of the above-named parent firm, and that as such, I am authorized to sign documents and to certify, on behalf of said parent firm, the accuracy and completeness of all the information in such documents. Pursuant to the power vested in me, I hereby delegate all or, to the extent indicated below, a portion of that authority to the person(s) listed below, who is/are executive officer(s) of the above-named parent firm or entity of the firm. This delegation is effective until it is reversed in writing, and the _____ is so notified.

(Name of addressee office)

(Date)

(Signature)

AUTHORIZED INDIVIDUALS

Name and Title

Extent of Authorization