

**Trans-Alaska Pipeline System Dismantling,
Removal and Restoration (DR&R):
Background Report and Recommendations**

Prepared for the Prince William Sound Regional Citizens' Advisory Council

by

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Executive Summary

Research for this report began with two principal purposes: (1) to provide the Prince William Sound Regional Citizens' Advisory Council (PWSRCAC) Board of Directors with background information regarding the provisions for dismantling and removal of Trans-Alaska Pipeline System (TAPS) facilities and restoration of the land utilized by pipeline facilities (DR&R); and (2) to identify problems relating to the TAPS DR&R transaction that might prevent the accomplishment of the purpose for which DR&R funds have been collected.

Subsequent to initiation of this project, the Regulatory Commission of Alaska (RCA) invited comments on “whether we should adopt regulations which address the regulatory treatment and the effect of DR&R beyond the accounting and financial reporting aspects of those obligations” and “whether and how regulations should extend to the appropriate tax treatment of DR&R for purposes of ratemaking and intrastate regulation.”¹ In response, the PWSRCAC requested that this report be expanded to identify TAPS-specific DR&R issues for RCA.

Due to its enormity, TAPS can never be far from the center of policy discussions about pipeline DR&R. During 27 years of operation, the TAPS owners have collected more than \$1.5 billion in tariffs for the eventual dismantling of TAPS.² The estimated cost of DR&R on TAPS is easily 100 times greater than that of the estimated dismantling costs for two other pipelines for which the RCA has considered DR&R issues – the Cook Inlet and Kenai crude

¹ The RCA requested public comments by June 28, 2004. Regulatory Commission of Alaska, *In the Matter of the Consideration of Changes to the Regulatory and Accounting Treatment for Dismantlement, Removal, and Restoration under AS 42.06* (Docket No. R-04-1[1]), March 26, 2004, pp. 1, 3.

² From: "Derivation of DR&R Allowance," in *Prepared Direct Testimony of Thomas O. Horst on behalf of the State of Alaska*, Alaska Public Utilities Commission, Docket No. P-86-2, August 1, 1986, after p. 12, "Exh. #Alaska __ [TOH-2]". See "TAPS Settlement Methodology (TSM) Scenario – 1985 Assumptions," Exhibit 1, Col. (H), below.

oil pipelines.³ Because TAPS passes through numerous and diverse regions generally recognized to be of great environmental value, and since DR&R for TAPS includes the Valdez Marine Terminal and associated facilities, the public interest requires assurance that these extraordinary sums of money will in fact be available for their intended environmental purposes. In view of the dollars at issue and the attendant environmental and public policy impacts, it is difficult to imagine establishing policies governing pipeline DR&R without giving serious consideration to the implications of that policy for TAPS.

Although the subject is complicated, the plan for this report is simple:

Section I provides a brief introduction to the history and regulatory context of DR&R.

Section II considers the DR&R requirement on TAPS. This section summarizes the amounts collected, discusses the fact that there is no identifiable fund for TAPS DR&R collections and the difficulties of tracing TAPS DR&R funds through published reports.

Section III considers the economic model on which the tariff settlement DR&R collection schedule was based – a flawed model with multi-billion-dollar consequences. Analysis of the settlement model is presented in the exhibits attached to this report. DR&R collections were levied at a rate that was supposed to generate the amount necessary to accomplish DR&R when

³ DR&R collections on TAPS are based on an estimated cost of \$872.1 million in 1977 dollars (State of Alaska and U.S. Department of Justice, *Explanatory Statement of the State of Alaska and the United States Department of Justice in Support of Settlement Offer*, June 28, 1985 [Federal Energy Regulatory Commission Docket No. OR 78-1], pp. 30-31). That estimate falls between estimates by the industry and the U.S. Corps of Engineers (see discussion in text, below). Converted to 2004 dollars (using GDP deflator; see Exhibit 3, col. [D], below), that amount equals \$2,209 million ($\$872.1 * 1.0724 / 0.4233 = \$2,209.4$). See Exhibit 3, Cols. (E) and (G), below. By comparison, the average cost for dismantling the Kenai Pipeline (DR&R costs estimated at \$3.4 million in 1992 \$; Alaska Public Utilities Commission, *Kenai Pipe Line Co.*, P-91-2[23] / P-85-1[31] at p. 11 [note 16]) and Cook Inlet Pipeline (DR&R estimated at \$17.9 million in 1982 \$; Alaska Public Utilities Commission, *Cook Inlet Pipe Line Co.*, P-80-5[16] / P-82-1[12] at 23) is approximately \$17.5 million in 2004 dollars.

adjusted for earnings, inflation and taxes, and no more. However, as indicated in Exhibit 7, past tariff collections of more than \$1.5 billion for future DR&R activities apparently exceeded the required amounts required by significant sums.⁴ In other words, DR&R was over-collected through the TAPS tariff. (The environmental and broader public policy consequences of excessive tariffs are discussed in subsequent sections.)

Section IV summarizes problems relating to implementation of the DR&R provision that include transfers of TAPS ownership, the uncertain trigger for DR&R expenditures and jurisdictional issues.

Section V discusses public policy implications of the DR&R transaction for crude oil pipelines. In effect, the TAPS experience serves as a case study for the general proposition that the arrangements for collecting funds for DR&R through pipeline tariffs and the subsequent disposition of those funds have significant impacts in four areas of public policy: (A) environmental consequences; (B) financial consequences for pipeline owners, (C) revenue consequences for state, federal and local government and (D) potential impacts on future petroleum development.

Section VI concludes that the petroleum pipeline DR&R transaction functions as a long-term, interest-free loan to pipeline owners that frequently carries additional, unrecognized tax benefits, as well as special benefits to pipeline owners who are shipping their own oil.

⁴ TAPS DR&R collections were based on a sinking fund designed to extinguish itself on completion of DR&R in 2015 (see Exhibits 1 and 2, below). The updates and corrections to the 1985 model shown in the subsequent exhibits indicate that if DR&R is conducted between 2029 and 2034 the DR&R collections will result in an imputed tax-paid surplus of more than \$50 billion in 2004 dollars (see Exhibit 7).

In this analysis, TAPS serves as a case study that demonstrates the need for implementation of the following broad policy recommendations regarding the DR&R transaction:

1. Petroleum pipeline owners should be required to establish external trust accounts for the receipt of all past and future petroleum pipeline DR&R collections necessary to accomplish their intended purpose.

2. Regulations should be developed to ensure that DR&R funds collected in the future are sufficient and will be employed in a timely manner for their intended purpose.

3. Because uncertainties inherent in long-range forecasting make it difficult, if not impossible, to forecast the amounts necessary for DR&R in the distant future, all petroleum pipeline DR&R collection schedules should be reviewed and updated periodically to ensure that collection levels are appropriate to their particular task.

4. Regulations governing DR&R should be crafted with careful attention to the distinction between independent (stand-alone) and producer-owner pipelines in order to identify the differential results and reduce unanticipated benefits to the latter that may reward them for delay of DR&R outlays, to the detriment of both environmental and broader public policy interests.

5. In light of the complexity of the issues, the diversity of agencies involved and the broad and important environmental and public policy interests in the DR&R transaction, maximum transparency and the involvement of responsible government agencies and public interest organizations are essential to constructive resolution of DR&R issues.

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Appendices

A. Calculating TAPS Owner Return on Investments

Exhibit A-1. TAPS Owners Parent Company Nominal and Real Return on Equity, 1978 – 2003

Exhibit A-2. TAPS Owners Parent Company Real Return on Equity, 1978 – 2003 (Weighted Annual Average)

Trans-Alaska Pipeline System Dismantling, Removal and Restoration (DR&R): Background Report and Recommendations

I. Oil Pipeline DR&R: Background and Regulatory Context

The abbreviation DR&R refers to activities pursuant to the dismantling¹ and removal of a facility and the restoration of the real estate utilized by that facility.² Oil pipelines typically incur a legal obligation to remove facilities through right-of-way agreements with government land management agencies or private parties.³ Because TAPS passes through numerous and diverse regions generally recognized to be of great environmental value, the public interest requires assurance that these extraordinary sums of money will in fact be available for their intended environmental purposes.

Although provisions for oversight of DR&R are not spelled out in law, the RCA must approve abandonment of pipelines under its jurisdiction.⁴ Funds to fulfill DR&R requirements are typically collected through pipeline tariffs (shipping charges). The Federal Energy Regulatory Commission (FERC) regulates oil pipeline tariffs in interstate commerce, while the RCA has jurisdiction over the

¹ The terms “dismantling” and “dismantlement” are synonymous. A “Google” search indicates that the former term is typically associated with automobile wrecking yards, while the latter is more likely to refer to nuclear equipment and facilities. We use the former in this report because it is used more commonly in colloquial speech.

² According to one industry expert, these costs include “the cost of dismantling and removing equipment and facilities (net of salvage values), reconditioning or restoring the site and/or adjacent terrain, and preserving or restoring wildlife and plant life in the area” (Charlotte J. Wright, “Accounting for Future Dismantlement and Environmental Reclamation Costs in the Oil and Gas Industry: A Survey of Current Problems and Practices,” *Journal of Petroleum Accounting and Financial Management*, Vol. 13, No. 3, 1994, p. 21).

³ See, for example, the stipulations to state and federal right-of-way agreements for the Trans-Alaska Pipeline quoted in the following section.

⁴ AS 42.06.290.

pipeline tariffs for oil produced and transported to destinations within Alaska. While there have been extensive discussions of DR&R issues in accounting and regulatory circles during the last 25 years,⁵ recognition of expenses for DR&R through pipeline tariffs is still a relatively new phenomenon.⁶ Because DR&R funds (unlike depreciation) are collected well in advance of their expenditure, some jurisdictions have required that DR&R funds be placed in an independent trust account.⁷

To remedy inconsistencies in reporting practices for the retirement of long-lived assets – the general class of transactions to which DR&R belongs – the Financial Accounting Standards Board (FASB) adopted new requirements in 2001 that became effective Jan. 1, 2003.⁸ In April 2003 FERC established uniform accounting and financial reporting for costs related to the decommissioning obligations of tangible, long-lived assets under its jurisdiction in April 2003.⁹ FERC did not establish uniform practices for the collection and management of DR&R funds. In March 2004 the RCA initiated a proceeding to consider the need for regulations governing the treatment of dismantlement, removal, and restoration (DR&R) for oil and gas pipelines under its jurisdiction.¹⁰

⁵ For background see Wright, *op. cit.*

⁶ *Kenai Pipe Line Co.*, P-91-2[23] / P-85-1[31], pp. 23-24.

⁷ See, for example: Alaska Public Utilities Commission, *Cook Inlet Pipe Line Co.*, P-80-5(16) / P-82-1(12) at 25 (1985) and *Kenai Pipe Line Co.*, P-91-2(23) / P-85-1(31) at 25 (1993). This requirement is also common in the nuclear industry.

⁸ See: Financial Accounting Standards Board, *Accounting for Asset Retirement Obligations [Issued 6/01]: Summary of Statement No. 143*, June 2001 [<http://www.fasb.org/st/summary/stsum143.shtml>].

⁹ Federal Energy Regulatory Commission, *Accounting, Financial Reporting, and Rate Filing Requirements for Asset Retirement Obligations* (Final Rule), Docket No. RM02-7-000, Order No. 631, April 9, 2003.

¹⁰ Regulatory Commission of Alaska, *In the Matter of the Consideration of Changes to the Regulatory and Accounting Treatment for Dismantlement, Removal, and Restoration under AS 42.06* (Docket No. R-04-1[1]), March 26, 2004, pp. 1, 3.

II. DR&R on TAPS

A. What Are the DR&R Requirements for TAPS?

The TAPS DR&R obligation originates in the pipeline right-of-way grant and lease agreements with the state and federal governments. Essentially identical DR&R stipulations in the state and federal agreements specify that:

Upon completion of the use of all, or a very substantial part, of the Right-of-Way or other portion of the Pipeline System, Permittees [Lessees in state lease] shall promptly remove all improvements and equipment, except as otherwise approved in writing by the Authorized Officer [State Pipeline Coordinator for state lands], and shall restore the land to a condition that is satisfactory to the Authorized Officer [State Pipeline Coordinator] or at the option of Permittees pay the cost of such removal and restoration. The satisfaction of the Authorized Officer [State Pipeline Coordinator] shall be stated in writing. Where approved in writing by the Authorized Officer [State Pipeline Coordinator], buried pipe may be left in place, provided all oil and residue are removed from the pipe and the ends are suitably capped.¹¹

Section II-4 of the 1985 TAPS tariff settlement agreement establishes the basis for funding this requirement through the pipeline tariff with this brief statement:

The DR&R Allowance to be included in the Total Revenue Requirement for each year to provide for the eventual dismantling, removal and restoration of TAPS is given in Exhibit E.¹²

¹¹ *Agreement and Grant of Right-of-Way for Trans-Alaska Pipeline between the United States of America and Amerada Hess Corporation, ARCO Pipe Line Company, Exxon Pipeline Company, Mobil Alaska Pipeline Company, Phillips Petroleum Company, Sohio Pipe Line Company [succeeded by BP], and Union Alaska Pipeline Company*, Jan. 23, 1974 (renewed Jan. 8, 2003), Exhibit D, Sec. 1.10.1 (p. D-8); *Right-of-Way Lease for the Trans-Alaska Pipeline between the State of Alaska and Amerada Hess, (et al.)*, May 3, 1974 (renewed Nov. 26, 2002)., Exhibit A, Sec. 1.10.1. (The federal grant further require the TAPS operators to "abate. . . completely, or as completely as possible using their best efforts, any . . . condition . . . arising out of construction, operation, maintenance or termination of all or any part of the Pipeline System . . . that causes or threatens to cause . . . serious and irreparable harm to the environment" [p. 17]; the state lease contains similar language [pp. 16-17].)

¹² *Settlement Agreement between The State of Alaska and ARCO Pipe Line Co., BP Pipelines Inc., Exxon Pipeline Co., Mobil Alaska Pipeline Co., Union Alaska Pipeline Co. with Respect to the Trans Alaska Pipeline System*, June 28, 1985 (Federal Energy Regulatory Commission Docket OR 78-1), p. 14.

Exhibit E of the TAPS tariff settlement consists of a single column of numbers listing the amount the TAPS owners may collect annually for DR&R during the life of the settlement. The exhibit numbers start with \$110.377 million in 1984 and diminish annually, ending with \$0.796 million in 2011 (the final year of the settlement). The model from which these numbers were derived is presented in our Exhibit 1 and explained in more detail in Exhibit 2, below. The model shows how the settling parties calculated annual tariff collections for DR&R totaling \$1.5657 billion for DR&R between 1977 and 2011.¹³ The settlement Explanatory Statement submitted to the FERC with the settlement by the State of Alaska and the U.S. Department of Justice provides this description of the derivation of the annual DR&R amounts:

. . . As with the depreciation schedule described below, the DR&R schedule was accelerated in order to further Protestant's [State's] objective of ensuring a declining tariff profile. The annual amounts were calculated so that when they are accumulated at a rate equal to the after-tax yield on Moody's Aa bonds, the balance will be sufficient to meet the expected costs of dismantling, removal and restoration of TAPS, stipulated for purposes of the TSM [TAPS Settlement Methodology for tariff calculation] at \$872 million in 1977 dollars.¹⁴

The estimated DR&R cost of \$872.1 million in 1977 dollars falls between the estimates of the Corps of Engineers (\$601 million) and the TAPS owners (\$1,012 million).¹⁵ The DR&R collections for the estimated future DR&R outlays were calculated so that the total collections, adjusted for inflation, earnings and taxes,

¹³ "Derivation of DR&R Allowance," in *Prepared Direct Testimony of Thomas O. Horst on behalf of the State of Alaska*, Alaska Public Utilities Commission, Docket No. P-86-2, August 1, 1986, after p. 12, "Exh. #Alaska __ [TOH-2]". See "TAPS Settlement Methodology (TSM) Scenario – 1985 Assumptions," Exhibit 1, Col. (H), below.

¹⁴ State of Alaska and U.S. Department of Justice, *Explanatory Statement of the State of Alaska and the United States Department of Justice in Support of Settlement Offer*, June 28, 1985 (Federal Energy Regulatory Commission Docket No. OR 78-1), pp. 30-31.

¹⁵ It is generally accepted that over the past two decades the cost of dismantling operations has declined in real dollars due to the development of more efficient technologies.

would equal zero if the inflation-adjusted estimated DR&R costs were paid between 2010 and 2015.¹⁶

B. How much money have the TAPS owners actually collected for TAPS DR&R?

Under the DR&R schedule in TSM Exhibit E, between 1977 and 2003 the TAPS owners collected approximately \$1.55 billion, or 99 percent of the settlement total for DR&R.¹⁷ Conservatively reckoned, if DR&R collections generated returns equal to the average return on equity of the TAPS owners, at year-end 2003 TAPS DR&R collections would have grown to a tax-paid sum of approximately \$2.7 billion in 2004 dollars.¹⁸ By comparison, if converted to the same 2004 dollars, the stipulated settlement dismantling costs of \$872.1 million for DR&R equals approximately \$2.2 billion in 2004 dollars. The extent of DR&R over-collection becomes apparent when viewed over the entire life of the transaction; this issue will be discussed in section III and supported by quantitative analysis in the appendices.¹⁹

¹⁶ See Exhibits 1 and 2, below. Problems inherent in the settlement formula are discussed in Section III and the supporting appendices.

¹⁷ This estimate represents the total collected through 2003, less the intrastate portion of the 1997-2003 collections, reflecting the TAPS owners agreement to waive all intrastate DR&R collections after 1996 (per Regulatory Commission of Alaska Order P-97-7(125) / P-97-4(166) / P-03-4(17) , *Order Granting Expedited Consideration, Denying Hearing, Acknowledging Waiver of 1997-2003 Intrastate DR&R TAPS Collections, Requiring Filings, Conditioning Future DR&R Collections and Establishing Burden of Proof for DR&R Questions*, June 30, 2003, p. 16). (Intrastate DR&R collections estimated at 5% of annual totals.)

¹⁸ See: "Estimated Actual Value to TAPS Owners of DR&R Collections thru 2034 Using Revised TAPS Settlement Methodology with Updates to 1985 Assumptions (Results of Calculating Effective Federal Income Taxes plus Federal Tax Deduction for DR&R Shown in Col. [O])," Exhibit 7, Col. (O), below.

¹⁹ DR&R collections and their earnings were excluded from the RCA's TAPS tariff calculations that led to findings in 2002 that the TAPS Owners had collected \$9.9 billion more than necessary for TAPS tariffs between 1977 and 1996, and that tariffs between 1997 and 2000 exceeded just and reasonable rates by 57 percent (Regulatory Commission of Alaska Order P-97-4[151] / P-97-7[110] , *Order Rejecting 1997, 1998, 1999 and 2000 Filed TAPS Rates; Setting Just and Reasonable Rates; Requiring Refunds and Filings; and Outlining Phase II Issues*, Nov. 26, 2002, pp. 130, 157-158).

C. Have the TAPS owners established a DR&R fund for the money collected through the TAPS tariff?

There is no TAPS DR&R fund. The TAPS settlement is silent on the management of DR&R collections and there is no other requirement that DR&R collections be maintained in a segregated fund. Instead, government officials rely on the assumption that the legal obligations of the right-of-way lease would be sufficient to compel the owners to perform DR&R when required, while the guaranty requirements of the right-of-way and lease would assure availability of sufficient funds from corporate coffers.²⁰ Consequently, the TAPS owners have been allowed to co-mingle their DR&R collections with other funds.

In view of the fact that the Alaska Public Utilities Commission (predecessor to the RCA) twice required that much smaller DR&R amounts be placed in an external trust fund this situation is particularly surprising.²¹

D. Do published reports account clearly for the TAPS DR&R transaction? (Were appropriate amounts collected and are those funds available for their intended purpose?)

1. FERC Form 6. The FERC issued its 2003 order updating the reporting requirements for asset retirement obligations “to improve the usefulness and transparency of financial information provided to the Commission and other users of the FERC Forms by establishing uniform accounting and requirements for legal obligations associated with the retirement of tangible long-lived assets.” In the FERC’s view, the new requirements were necessary because “these types of

²⁰ Jerry Brossia, Authorized Officer, Joint Pipeline Office, U.S. Bureau of Land Management (telephonic communication, April 5, 2004). See also: *Agreement and Grant of Right-of-Way for Trans-Alaska Pipeline between the United States of America and Amerada Hess Corporation, ARCO Pipeline Company, Exxon Pipeline Company, Mobil Alaska Pipeline Company, Phillips Petroleum Company, Sohio Pipe Line Company [succeeded by BP], and Union Alaska Pipeline Company*, Secs. 15 and 22 and *Right-of-Way Lease for the Trans-Alaska Pipeline between the State of Alaska and Amerada Hess*, Secs. 11 and 14.

²¹ *Cook Inlet Pipe Line Co.*, P-80-5(16) / P-82-1(12) at 25 and *Kenai Pipe Line Co.*, P-91-2(23) / P-85-1(31) at 25, *op. cit.*

transactions and events are not clearly or consistently reported.”²² This problem was clearly evident in the recording of the DR&R transaction by the TAPS owners on FERC’s Form 6 (annual report). In response to a discovery request in 2001, the individual TAPS owners disclosed that they accounted for the DR&R transaction on Form 6 in different ways.²³ Some TAPS owners clearly identified their DR&R expense but others did not; some included their DR&R expense with depreciation, despite the fact that depreciation is an altogether different type of transaction that deals with repayment for past outlays, rather than providing for future outlays; in any event, the amounts entered for DR&R by the individual TAPS owners, as recorded at the various report locations identified by each, bore no apparent relationship to actual tariff collections.²⁴

FERC’s new reporting requirements may solve some of the problems identified in the preceding paragraph by providing greater transparency regarding the DR&R transaction from an accountancy perspective, but the changes do not appear to be designed to close the deep gap between ratemaking and accounting. In other contexts, the RCA has determined that Form 6 data are not suitable for ratemaking purposes.²⁵ This conclusion appears to be equally applicable to FERC’s DR&R reporting requirements.

²² *Accounting, Financial Reporting, and Rate Filing Requirements for Asset Retirement Obligations* (Final Rule), op. cit., p. 6.

²³ The TAPS owners provided this information in RCA Docket P-97-4 on Nov. 11, 2000 in response to an Oct. 20, 2000 discovery request by the commission’s Public Advocacy Section to identify the asset and liability accounts on Form 6 affected by the DR&R transaction. On the liability side, each TAPS owner reported accrued liability in the same place on the Form 6 balance sheet (Account 63, “Other noncurrent liabilities,” line 60).

²⁴ For example, in 1996, when the TAPS Carriers were allowed to collect \$13.802 million from shippers for DR&R under Exhibit E of the 1985 settlement agreement, their expense and accrued liability accounts (which, in some cases, did not match precisely) each reflected more than \$44.5 million for TAPS DR&R transactions.

²⁵ “We did not . . . find that FERC Form 6 is sufficient to demonstrate that costs are prudently incurred when challenged or investigated. FERC Form 6 is a cost reporting document that is not designed to be a ratemaking tool. The FERC explicitly found that its ‘cost of service filing requirements are not designed to provide information in sufficient detail for a pipeline to shoulder its burden of proof regarding cost-based rates if they are challenged’.” *Regulatory Commission of Alaska, Order Rejecting the TAPS Carriers’ 2001-2003 TSM Intrastate Filings, Rejecting the TAPS Carriers’ Post-2000 Revenue Requirement and Rate Filings, Establishing Permanent Post-2000 Intrastate TAPS Rates, Requiring Refunds, Ordering Release of Escrowed Funds, Letters*

2. Company Annual Financial Reports. Identifying and tracking the disposition of DR&R funds after their collection in the annual financial reports of the TAPS owners does not appear to be possible for the following reasons: (a) Large, transnational corporations such as the owners of TAPS typically aggregate their liabilities for future obligations on various projects without identifying the amounts for specific facilities. (b) Even if specific amounts for the TAPS DR&R transaction were reported under FAS 143, it appears that the DR&R numbers would represent a fraction of the company's estimated total DR&R liability applicable to that year. As discussed in the preceding section, that accounting entry might be altogether different from the actual tariff collection from shippers authorized by the TAPS tariff. (c) If the relevant data were ascertainable in the annual reports of each TAPS owner, to develop a comprehensive picture of the DR&R transaction for public policy purposes it would be necessary to locate the relevant numbers in the reports of each TAPS owner and combine them.

If company annual reports don't contain answers to questions about TAPS DR&R transactions, those reports do turn out to be a good place to find more questions. Ironically, some of those questions concern the effects of the change in accounting conventions required by FAS 143. As a result of the new reporting requirements for asset retirement obligations, in 2003 ConocoPhillips recorded a one-time increase in net income of \$145 million, including \$123 million "reflecting accretion expense on environmental liabilities assumed in the merger and discounted obligations associated with the retirement and removal of long-lived assets" due to FAS 143, plus associated deferred income taxes of \$21 million.²⁶ ExxonMobil reported that its after-tax gains from fulfilling the required accounting change in 2003 totaled \$550 million, which included \$442 million of "income tax

of Credit, and Bonds; Approving Filings and Affirming Electronic Rulings, Docket No. P-04-3(34), June 11, 2004, pp. 30-31.

²⁶ *ConocoPhillips 2003 Annual Report*, pp. 38, 72.

effects.”²⁷ While neither company specifically mentioned TAPS, ConocoPhillips noted that “[o]ur largest individual obligations are related to fixed-base offshore production platforms around the world and to production facilities and pipelines in Alaska.”²⁸ The extent to which DR&R on TAPS, in which the two companies hold a combined 48.5 percent interest, contributed to these tax gains and improvement in bottom-line position is not clear.²⁹

E. Tax Treatment of DR&R Collections

In the model under which TAPS DR&R payments were calculated, shipper tariff payments for DR&R were treated as income to the pipeline owners and calculated at the nominal rates then in effect. To reflect the combined effect of the nominal state and federal income tax rates then in effect, annual shipper tariff payments for DR&R were increased by 51.076 percent for most of the settlement period.³⁰ In other words, more than half the DR&R charges to shippers were collected to cover assumed income taxes. The tax calculation and collection scheme was faulty in three respects:

(a) In 1986 – the year after the tariff settlement went into effect – the federal income tax rate was reduced by approximately 25 percent; there was no provision to alter DR&R payments in the settlement.

(b) Large corporations seldom pay the nominal tax rate. For example, a study of corporate income tax payments reported that between 1996 and 1998 a dozen large petroleum and pipeline companies, including three TAPS owners, paid an average federal income tax rate of 12.3 percent – approximately one-third of the effective rate. Application of the actual tax rate to tariff calculations

²⁷ ExxonMobil Corporation, *Notice of 2004 Annual Meeting and Proxy Statement, Including Financial Statements*, p. A10.

²⁸ *ConocoPhillips 2003 Annual Report*, p. 72.

²⁹ As of June 24, 2004, BP, which holds a 46.8% interest in TAPS, had not released its annual report under U.S. accounting standards.

³⁰ 1979 – 2011 tax calculations based on an assumed payment of 9.4% for state income tax, followed by federal income tax, paid on the remainder at the nominal rate of 46% ($0.094 + [1 - 0.094 * 0.46] = .51076$); see Exhibit 1.

would have reduced tariff collections for the DR&R element of the settlement by more than 70 percent. But actual rates are not known until the year is over, while tariffs are set before the year begins. In any event, the tariff collections for DR&R on TAPS were locked in by the settlement.³¹

(c) Tax calculations for TAPS DR&R became moot in 1988, when the TAPS owners secured an agreement with the Internal Revenue Service enabling the pipeline owners to take a deduction on their TAPS DR&R payments.³² The State of Alaska has not disclosed whether or not its income taxes on DR&R collections were affected.³³ In the next section we will demonstrate that the use of nominal rather than effective tax rates has been and continues to be of enormous benefit to the TAPS owners.

The public interest in just and reasonable tariffs warrants vigorous investigation of the indications that TAPS tariffs were inflated for income tax payments that were never made. For much the same reason, the indications in the preceding section that the transition to FAS 143 may be resulting in additional “off-book” gains to the TAPS owners also deserve careful attention. In this regard, it should be noted that the RCA has previously decided that consideration of issues concerning the possible over-collection of TAPS DR&R can be deferred until the (presumably distant) future date when DR&R has been completed, at which time it can be determined whether refunds are necessary.³⁴ If justice

³¹ *Settlement Agreement between The State of Alaska and ARCO Pipe Line Co., BP Pipelines Inc., Exxon Pipeline Co., Mobil Alaska Pipeline Co., Union Alaska Pipeline Co. with Respect to the Trans Alaska Pipeline System*, June 28, 1985 (Federal Energy Regulatory Commission Docket OR 78-1), p. 14.

³² See: Exxon Corporation, *Petition*, (in U.S. Tax Court, *Exxon Corp. v. Commissioner* [Docket No. 18432-90]), Aug. 16, 1990, p. 146 (attachment to *State of Alaska's Brief on DR&R Legal Issues*, in Regulatory Commission of Alaska, Docket No. P-97-7, Jan. 10, 2000).

³³ See letter from Michael J. Barnhill (Assistant Attorney General, State of Alaska) to Honorable Jim Whitaker (Chairman, House Special Committee on Oil and Gas), “Re: TAPS DR&R” (Our File: 223-00-0086), May 23, 2000.

³⁴ Regulatory Commission of Alaska, Order P-97-7(125) / P-97-4(166) / P-03-4(17) , *Order Granting Expedited Consideration, Denying Hearing, Acknowledging Waiver of 1997-2003 Intrastate DR&R TAPS Collections, Requiring Filings, Conditioning Future DR&R Collections and Establishing Burden of Proof for DR&R Questions*, Order P-97-7(125) / P-97-4(166) / P-03-4(17), June 30, 2003, p. 16.

delayed is justice denied, the decision to delay consideration of TAPS DR&R issues for several decades must be questioned, as it does not protect rate-payers or promote the public interest in just and reasonable tariffs.

Our next task is to examine the effects of assumptions made in the calculation of TAPS DR&R collections. Before leaving tax matters, however, it should be pointed out that a requirement that DR&R funds be placed in an external trust account would remove the need to tax DR&R collections, thereby eliminating the potential for many of the tax problems identified here.

III. The TAPS DR&R Transaction: Financial Analysis

We are now ready to assess the long-term financial results of the TAPS DR&R transaction. To do so, we return to the model the settling parties created to determine the DR&R payment schedule. It will be recalled that the model was designed to zero itself out on completion of DR&R since the settling parties agreed that the TAPS owners were not entitled to a profit on DR&R. Unlike the settlement methodology as a whole (which was designed to enable the tariff to fluctuate with changing throughput and economic conditions), the DR&R numbers were stated in hard dollars. But it was virtually impossible to estimate the correct amounts to pre-collect for DR&R. Even if the year of pipeline shutdown could have been known with certainty, other estimating factors necessary to calculating the correct pre-collection of DR&R through the tariff were uncertain or unknown at that time.³⁵ Specifically, the annual amounts listed in Exhibit E of the Settlement Agreement were based on assumptions regarding (1) the return the Owners would realize from the pre-collected funds

³⁵ This problem was clearly identified in 1986 by Alaska Public Utilities Commission Staff Expert Witness R.L. Bertschi, who testified that if any of the assumptions used to calculate the settlement DR&R amounts differed from reality, “nothing can be done . . . and the DR&R collections will not be based on the amounts actually needed.” This fundamental flaw, he continued, had already created excess DR&R collections that he estimated would lead, over the life of the line, to a “hidden profit” – excess to the recognized profit elements of the settlement methodology – of \$7.3 billion in 1986 dollars or \$11.0 billion in 2004 dollars (Rudolph L. Bertschi, “Prefiled Testimony of Rudolph L. Bertschi,” Dec. 17, 1986 [Alaska Public Utilities Commission, Docket No. P-86-2], p. 64 and Exh. RLB-15).

during the years between collection and expenditure and (2) the rate of inflation during those years. And, as noted in the preceding section, since the DR&R collections constituted income until the funds were expended, the pre-collected funds would be taxable; the DR&R collections were therefore "grossed up" by (3) the estimated income tax. Finally, (4) nobody knew in 1985 (or today) when TAPS would be dismantled. Under normal utility rate-making principles, elements that are difficult to forecast are typically recalculated periodically; not so with TAPS DR&R. In the exhibits to this report we quantify the economic consequences of the almost inevitable errors in these four settlement methodology estimates.

We begin with the TSM model in Exhibit 1. As noted previously, the box in the lower right-hand corner of the model indicates that the inflation-adjusted expenditures for DR&R between 2010 and 2015 resulted in the virtual depletion of funds on completion of the task. The years since the TAPS settlement bargains were struck have proven that these estimates were quite beneficial to the TAPS Owners. For example, inflation and the nominal federal income tax rate turned out to be considerably lower in the intervening years than anticipated in 1985. As a result, the TAPS owners received significant benefit from their DR&R bargain with the state of Alaska.

To assess the effects of these developments, in Exhibit 3 we replace the settlement assumptions regarding taxation and income and earnings with inputs that reflect experience. As discussed earlier, in Columns (B) and (D) we reduce federal income tax levels to the maximum rates that resulted from the 1986 federal tax reform act and replace the settlement forecast inflation rate of 6 percent with actual inflation through 2003, using the gross product deflator (GDP) from the 2005 federal budget. For the future, we replace the 6 percent estimate used in the settlement with the Alaska Department of Revenue's current forecast of 2.6 percent. But the most significant disparity between the factors used to set the TAPS DR&R collection rate in 1985 and subsequent reality is the earnings rate used to calculate the growth of DR&R funds. The settling parties valued the

collected funds as if those funds would earn the average, nominal pre-tax rate earned by Moody's grade Aa corporate bonds; for future years, they agreed on a 12% figure — approximately the average of the Moody's rate between 1978 and 1984. It is by no means clear that a bond rate is a relevant or appropriate measure of the value of money to the TAPS owners. After all, the TAPS owners are not in the lending business, nor are tariffs collected for that purpose. Moreover, a corporation would borrow at that bond rate in order to invest in operations in anticipation of higher earnings. Between 1978 and 2003, the weighted average real return to equity for the seven TAPS owners was 10.45 percent. This after-tax return was significantly higher than the nominal, pre-tax bond rate figure used by the settling parties to estimate and assess annual DR&R collections.³⁶

From the figures in the right-hand column of Exhibit 3, it appears that the TAPS DR&R transaction has already produced significant windfall gains for the TAPS owners. On this basis, the model shows that imputed DR&R funds had grown to \$9.4 billion – perhaps three times more than needed to do the job – by year-end 2003. Projected to 2015, the model shows a surplus of more than \$30 billion after completion of DR&R in 2015. In other words, the model that was portrayed to FERC as revenue neutral has, in effect, bestowed on the TAPS owners a long-term, interest-free loan of more than \$1.5 billion resulting in stunning benefit. (These gains are not evident from the company books, where even the original sums the shippers paid are not clearly identifiable.)

But the model has two major shortcomings that require correction in Exhibit 4. The first problem is that the model assumes that TAPS operates on an independent, stand-alone basis – that is, that the producers pay an independent company to ship their oil on TAPS. While there are precedents in economic and regulatory theory for adopting this mode of analysis, it does not comport with

³⁶ See Appendix A of this report for annual return on equity calculations for the parent companies of the TAPS Owners and an explanation of the conversions between (a) nominal and real returns and (b) pre- and post-tax returns.

reality for two principal reasons: First, it is generally accepted that TAPS has no competition and there is no alternative means for the TAPS owners to get their oil off the North Slope. In this situation, the standard procedure of asking what a stand-alone shipper would charge for the same service does not produce meaningful results. The second reason to challenge the stand-alone model is that the TAPS owners produce most of the crude oil shipped on TAPS. For this reason, much of the tariff revenue is actually a transfer payment from the producing arm of a company to the pipeline arm of the same company, rather than actual revenue. Whatever their intent may have been, the settling parties erred in assuming that all DR&R payments in Column (I) actually represent new income to the TAPS Owners. To remedy these problems, Exhibit 4 makes the following modifications to Column (H) of the DR&R worksheet:

- the revenue the TAPS Owners realize from non-owner shippers – estimated in Column (H Adj. 1) at 2.5% of DR&R collections³⁷ – reflects only the DR&R payments from non-owner shippers as income; and
- the revenue gains to the owners resulting from reduced royalty and severance payments to the State of Alaska is estimated in Column (H Adj. 2) as 23% of the Owners' share of TAPS production.

These adjustments to Column (H), which will be carried through in subsequent worksheets, reflect the actual cash benefit to the TAPS Owners of DR&R collections under TSM. Although these modifications reduce the gains to the TAPS owners indicated in the previous scenario, Exhibit 4 still ends with an over-collection of funds for DR&R that provides the TAPS owners with an

³⁷ This figure approximates the percentage of North Slope production by non-owners of TAPS in 1991 and 1997 (see: Richard A. Fineberg, *The Big Squeeze: TAPS and the Departure of Major Oil Companies Who Found Oil on Alaska's North Slope* [Oilwatch Alaska, 1997], Table 1.3).

imputed excess of more than \$5.0 billion dollars – at shipper and state expense.³⁸

Because the state and federal right-of-way agreements have been renewed through 2034, Exhibit 5 extends the model and defers DR&R until 2029-2034. As indicated in the lower right-hand corner of Exhibit 5, if the terms of TSM were carried out unmodified to the end of the right-of-way renewal period, the DR&R payments by the TAPS shippers would bestow upon the TAPS owners an imputed after-tax gain of more than \$45.4 billion dollars after completion of DR&R. By comparison, dismantling costs would be approximately \$2.2 billion in 2004 dollars.³⁹

While we have demonstrated the perils of locking in terms that ought to be updated to reflect changing economic conditions, our task is not yet complete. The next task is to deal with income taxes. In Column (B) of Exhibit 6 we reduce the federal income tax rate to 24.0% – the effective rate that Exxon (now ExxonMobil) paid in 1997 and 1998, according to the Institute on Taxation and Economic Policy.⁴⁰ The result boosts the imputed gain to the TAPS owners from the DR&R transaction to \$48 billion in 2004 dollars.

In Exhibit 7, we reduce federal income taxes on DR&R collections to zero, reflecting the tax agreement that the TAPS owners secured from the Internal Revenue Service in 1988; the result is that the long-term, interest-free loan is

³⁸ The TAPS owners no longer intend to dismantle TAPS between 2010 and 2015, as the settlement model assumed; this scenario is included simply to demonstrate the economic consequences of adopting the stand-alone model and forecast assumptions used to determine DR&R payments under the 1985 settlement agreement.

³⁹ DR&R costs in 2004 dollars can be calculated using the inflation index in Column (E), where the costs of DR&R is \$872.1 million in 1977 dollars. $\$872.1 \text{ million} \times (1.0724/0.4233) = \$2,200.1 \text{ million}$ in current (2004) dollars.

⁴⁰ Robert S. McIntyre and T.D. Coo Nguyen, *Corporate Income Taxes in the 1990s* (Institute on Taxation and Economic Policy, October 2000), "Effective Federal Corporate Income Tax Rates on 250 Major Corporations by Industry, 1996-1998" (Petroleum and Pipelines). Of the 12 petroleum and pipeline companies reported in this study of corporate income tax payments between 1996 and 1998, Exxon had the highest average tax rate. (Since the price collapse of 1998 resulted in unusually low effective tax rates in that year, we exclude 1998 and use Exxon's reported effective rate for 1996 and 1997.)

now tax-free as well. The imputed value of the DR&R transaction to the TAPS owners through 2034 is \$51.9 billion in 2004 dollars.

Long-term projections involve risk. What would happen to the TAPS owner gains if, in the years between 2004 and 2034, corporate earnings dropped while inflation soared? To investigate that possibility, in Exhibit 8 we reduce pre-tax corporate earnings to a level 5 percent below the 1977-2003 average for the parent companies of the TAPS owners while raising inflation to 10 percent and holding it at that level for three decades. Although these projections are well outside the limits of recent U.S. economic history, they still leave the TAPS owners with a surplus of more than \$3.0 billion after dismantling in 2034. In effect, the benefits to the TAPS owners from DR&R are virtually risk-free.

IV. DR&R Implementation Issues

The information in this section provides background for further research that is needed on implementation issues.

A. Transfers of TAPS Ownership

Since 1997 seven transactions have resulted in changes in TAPS ownership.⁴¹ Both the state and federal governments must approve transfers of TAPS ownership under the terms of the TAPS right-of-way and lease agreements.⁴² The TAPS DR&R obligation pertains to an 800-mile corridor

⁴¹ TAPS ownership changes, with approximate percentages, since 1997 include the following: 1997: ARCO bought 1.0% of Mobil (1997), increasing its share from 21.3 to 22.3%; 1997: ARCO's share decreased by less than 1.0% and Phillips increased by a fraction of 1.0%; 2000: ExxonMobil sold Mobil's remaining 3.08% share to Williams Alaska Pipeline Co., LLC; 2000: Phillips (later ConocoPhillips) acquired ARCO Alaska's 22.3% share of the pipeline, increasing its share to 23.7% (2000); 2001: ConocoPhillips purchased 3.08% from BP (reducing BP's ownership share to 46.8%); 2003: ConocoPhillips Purchased Amerada-Hess' 1.5% share; 2004: Flint Hills purchased Williams' 3.08% of TAPS from Williams Alaska Pipeline Co., LLC (Compiled from Alyeska Pipeline Service Co. documents and various press reports.)

⁴² *Agreement and Grant of Right-of-Way for Trans-Alaska Pipeline between the United States of America and Amerada Hess Corporation (et al.)*, *op. cit.*, Secs. 15 and 22; and *Right-of-Way Lease for the Trans-Alaska Pipeline between the State of Alaska and Amerada Hess (et al.)*, *op. cit.*, Secs. 11 and 14.

across Alaska ending at the Valdez Marine Terminal for which more than \$1.5 billion dollars have been collected through pipeline tariffs. Therefore, one might expect that land managers responsible for TAPS maintain clear public records showing the DR&R obligation of each owner, as well as the effects of transfers on that obligation. However, transfer approval documents provided by state and federal officials in response to inquiries for this report did not identify those effects.⁴³

Pursuant to transfer approval authority, federal officials conduct an assessment of the capabilities of an acquiring party to fulfill statutory and contractual obligations on the TAPS right-of-way relating to operational, spill response and dismantling activities. Research Associates was advised informally that the state of Alaska lacks statutory and contractual authority to conduct a similar financial review.⁴⁴ In any event, the federal financial review information does not appear to fix or even confirm legal responsibility for DR&R. For example, in the case of Mobil's sale of 3.08% of TAPS to Williams in 2000, the responsibility for DR&R remained with the seller.⁴⁵ However, the federal financial analysis assumes that Williams is responsible for abandonment costs.⁴⁶

⁴³ Documents provided in response to requests for information regarding the effects of TAPS ownership transfers on DR&R responsibilities included materials from Jerry Brossia (Authorized Officer, Joint Pipeline Office, U.S. Bureau of Land Management), April 7, 2004 and Anthony Braden (Acting State Pipeline Coordinator, Alaska Department of Natural Resources), April 10, 2004.

⁴⁴ The 73 pages of federal government documents contained financial reviews to assure that the purchaser has the technical capabilities to perform its obligations – including the financial capacity to respond to a spill and fulfill its DR&R obligations. See, for example, Fred R. King, "Economic Evaluation – Phillips Petroleum Company," July 24, 2000 (attached to "Amended Decision Upon the Request of Atlantic Richfield and Phillips Petroleum" [Trans Alaska Pipeline Right of Way AA5722 and F12517, July 24, 2000]). The 12 pages of documents provided by the state of Alaska contained no similar review.

⁴⁵ Informal communications; see also: In the Matter of the Trans-Alaska Pipeline System Oil & Gas Property Tax [AS 43.56], 2000 Assessment Year (Transcript of Proceedings before the State Assessment Review Board, Anchorage, Alaska), May 16-18, 2001, pp. 272, 645.

⁴⁶ Fred R. King, "Economic Evaluation – Williams Alaska Pipeline Company, L.L.C. (WAPCO) and The Williams Companies, Inc.," Bureau of Land Management, Alaska State Office, Office of Pipeline Monitoring," June 22, 2000, p. 2 (attached to "Decision Upon the Request of Mobil Alaska Pipeline Company and Williams Alaska Pipeline Company" [Trans Alaska Pipeline Right of Way AA5722 and F12517], June 22, 2000).

B. What Triggers DR&R Expenditure?

Although the Alyeska Pipeline Service Company's strategic reconfiguration effort includes plans for the dismantling and permanent removal of major facilities on the right-of-way and at the Valdez Marine Terminal, at this time we are not aware of corresponding plans to activate expenditure of money collected through the tariff for DR&R. In the absence of such a mechanism, costs associated with dismantling and removal of long-lived assets and restoration of those sites – for example, pump stations and tanks at the Valdez Marine Terminal tank farm – appear to be included in current-year tariffs. To the extent that such costs are included in post-1996 tariffs, this would appear to be a double-count that violates ratemaking principles and the agreement by the TAPS owners to end collection of funds for DR&R through the intrastate tariff in 1996.⁴⁷

In a recent order on TAPS tariffs, the RCA rejected TAPS intrastate tariff filings for 2001 through 2003 in part because

. . . some of the expenditures included by the TAPS Carriers as costs in the TAPS Carriers' intrastate rate calculation were for projects that involved the dismantlement of pipeline assets [footnote omitted]. To the extent that this is true, those costs should not be included in the post-2000 rates.

. . . . The TAPS Carriers have waived any right to seek additional DR&R funds in intrastate rates for 2001, 2002, and 2003 [footnote omitted]. The TAPS Carriers must draw from the DR&R funds already collected to pay for such projects and not seek additional funds in this docket.⁴⁸

⁴⁷ Regulatory Commission of Alaska, *Order Granting Expedited Consideration, Denying Hearing, Acknowledging Waiver of 1997-2003 Intrastate DR&R TAPS Collections, Requiring Filings, Conditioning Future DR&R Collections and Establishing Burden of Proof for DR&R Questions*, June 30, 2003, *op. cit.*

⁴⁸ Regulatory Commission of Alaska, *Order Rejecting the TAPS Carriers' 2001-2003 TSM Intrastate Filings, Rejecting the TAPS Carriers' Post-2000 Revenue Requirement and Rate Filings, Establishing Permanent Post-2000 Intrastate TAPS Rates, Requiring Refunds, Ordering Release of Escrowed Funds, Letters of Credit, and Bonds; Approving Filings and Affirming Electronic Rulings*, in Docket No. P-03-4 (Order No. 34), June 11, 2004, pp. 45-56.

A related trigger question is this: If future uses for the right-of-way that do not require dismantling, removal and restoration emerge as the preferred public policy option, do the TAPS DR&R terms ensure that funds collected for DR&R will be available for the alternative purpose?

C. Jurisdiction Issues

To ensure expenditure of previously collected DR&R funds for the Valdez Marine Terminal and the TAPS right-of-way, the following jurisdictional questions relevant to the implementation of DR&R warrant further research:

1. Does the state have less authority to review transfers of TAPS ownership than the federal government? This question takes on added importance in view of the fact that the state is seeking conveyance of federal lands within the TAPS corridor.⁴⁹
2. Does the RCA have statutory authority to regulate the management of DR&R funds for DR&R (a) collected through tariffs on oil shipped in interstate commerce or (b) required for DR&R on portions of the right-of-way under federal or private jurisdiction?⁵⁰
3. Have the TAPS owners made arrangements for DR&R with holders of land crossed by TAPS other than the state and federal governments?
4. Do the state and/or federal governments have authority to require DR&R on private lands crossed by TAPS? If so, have such arrangements been made?

⁴⁹ Letter from Thomas E. Irwin (Commissioner, Alaska Dept. of Natural Resources) to Henri Bisson (State Director, Bureau of Land Management), Sept. 26, 2003.

⁵⁰ Although RCA regulates oil in intrastate commerce, as noted above, the agency also has statutory authority to approve pipeline abandonment – an authority that FERC does not have under federal law. In this regard, it should be noted that the oil under RCA's jurisdiction travels through all 800 miles of the pipeline, crossing a much larger percentage of land under state jurisdiction than the volume of intrastate oil shipments.

V. Public Policy Implications of the DR&R Transaction for Crude Oil Pipelines

Although focused primarily on TAPS, the preceding sections lay out the background that underlies the regulatory, economic and implementation issues associated with petroleum pipeline DR&R issues. In this section we summarize the public policy implications of the arrangements for collecting funds for DR&R through pipeline tariffs and the subsequent disposition of those funds in four areas of public policy: (A) environmental consequences; (B) financial consequences for pipeline owners, (C) revenue consequences for state, federal and local government and (D) potential impacts on future petroleum development.

A. Environmental Consequences

The purpose of DR&R is to ameliorate long-term environmental impacts, insofar as reasonably possible, by restoring real estate affected by development to its pre-development condition. To the extent that arrangements for the collection of DR&R funds and the subsequent management of those funds do not assure that the funds will be available when needed, the DR&R transaction is liable to fail its intended purpose.

Issues relating to the environment are among the many problems discussed in preceding sections that could be ameliorated, if not fully resolved, by the establishment of an external trust fund for TAPS DR&R.⁵¹ For example, the existence of an external DR&R trust fund would enable state and federal officials to assure that responsibility for DR&R obligations is not compromised by the transfer of pipeline ownership.

Regarding long-term environmental consequences, the absence of effectively segregated DR&R funds may function to erode environmental

⁵¹ It should be noted that the purpose of establishing an external trust fund would be to reduce owner incentives to retain money collected for DR&R and clarify questions regarding DR&R obligations – not to limit DR&R expenditures. See recommendation 3 in Section VII, below.

protection measures, or even the DR&R requirements themselves. In this regard, two long-term scenarios are particularly troubling:

(1) In the absence of effectively segregated DR&R funds, near the end of the life of a crude oil pipeline, the owners of that pipeline may seek delay of DR&R cash outlays in order to retain use of the pre-collected DR&R funds for other purposes. In this situation, the pipeline owner may be tempted to reduce tariffs to induce continued production by shippers.⁵² The resulting cost-cutting pressure may have adverse effects on operating expenditures for environmental protection efforts (including oil spill response) at the same time that reduced maintenance and/or capital outlays increase the likelihood of a spill.⁵³

(2) If DR&R funds are not effectively segregated, a pipeline owner's understandable desire to delay outlays in order to retain the use of those funds for other purposes poses particularly acute problems on a shipper-owner pipeline.⁵⁴ In this situation, near the end of the pipeline's life pipeline owners would be in a position to seek relaxation of DR&R requirements from government authorities in exchange for a commitment to make investments that would extend the life of the fields supplying the pipeline.

B. Financial Consequences for Pipeline Owners

DR&R funds are typically collected from shippers long before their expenditure. For this reason, DR&R collections function as a long-term, interest-free loan from the shippers. The need to assure adequate funding for DR&R combined with the uncertainties inherent in forecasting of key economic factors creates the likelihood of over-collection, rather than under-collection, of funds for DR&R.

⁵² Because essential pipeline operating costs are relatively constant, late-life field production is particularly vulnerable to the increased per-barrel shipping costs associated with reduced pipeline throughput.

⁵³ Cost-cutting pressures on TAPS are well-documented. See, for example, Sam Bishop, "Alyeska urged to trim costs: Pipeline owners call for more 'efficiency' on maintenance," *Fairbanks Daily News-Miner*, June 12, 2002, p. A-1.

⁵⁴ On a shipper-owner pipeline the principal pipeline owners also own or effectively control substantial portions of the oil shipped through the pipeline.

Tax treatment of DR&R collections and the effective tax rate on earnings can significantly affect the outcome of the DR&R transaction. The establishment of an external trust fund for pipeline DR&R would greatly reduce the income tax complications discussed in Section II.E, above, by removing the possibility of pipeline owner profit from the collection of DR&R funds.

C. Revenue Consequences for Government

Transportation charges are subtracted from the market price of oil to determine the basis for royalty and severance tax payments. For this reason, excessive tariff collections for DR&R would increase producer income by reducing state revenues on petroleum production. It follows that pipelines owned primarily by the producers of the oil shipped on that pipeline receive greater benefits from increases in pipeline tariffs than pipeline owners who do not. Therefore, when there is an overlap between shippers and owners on a pipeline, the public interest requires special attention to assure that the tariffs on shipper-owner pipelines are just and reasonable.

D. Potential Impacts on Future Petroleum Development

Like any other cost, high pipeline tariffs inhibit development. When the producers of oil shipped on a pipeline are the primary owners of that pipeline, excessive pipeline tariffs will inhibit competition from non-affiliated producers. In the absence of effectively segregated funds and clear guidelines for determining the responsibility for pipeline DR&R, newcomers may be reluctant to enter the market – either as a producer or as a pipeline owner – for fear of incurring an undue portion of the responsibility for DR&R.

VI. Recommendations

In this report we have made the case that DR&R transaction functions as a long-term, interest-free loan to pipeline owners that frequently carries additional, unrecognized tax benefits, as well as special benefits to pipeline owners who are shipping their own oil. In this regard we have noted that some

jurisdictions – including the RCA's predecessors – have required the establishment of an independent trust accounts for oil pipeline DR&R collections.

Each of the general concerns about pipeline DR&R outlined in the preceding sections has particular relevance for TAPS. In addition to the fact that TAPS is largely owned by companies who ship their own oil through the pipeline, the TAPS DR&R provision involves costs that are more than 100 times greater than those of other instate petroleum. For this reason, if the arrangements for DR&R collections allow over-collection through the tariff – as suggested in the analysis in Section III – the results are particularly egregious in the case of TAPS. At the same time that the large sums at issue magnify the potential financial benefits to the TAPS owners of deferring DR&R expenditures, the importance that those funds be readily available for their intended purpose is a similarly important environmental issue.

To ensure that the long overdue improvements in the reporting of the DR&R transaction recently promulgated by the Financial Accounting Standards Board and at FERC will contribute to constructive resolution of petroleum pipeline DR&R issues in Alaska, implementation of the following measures is recommended:

1. Petroleum pipeline owners should be required to establish external trust accounts for the receipt of all past and future petroleum pipeline DR&R collections necessary to accomplish their intended purpose.

2. Regulations should be developed to ensure that DR&R funds collected in the future are sufficient and will be employed in a timely manner for their intended purpose.

3. Because uncertainties inherent in long-range forecasting make it difficult, if not impossible, to forecast the amounts necessary for DR&R in the distant future, all petroleum pipeline DR&R collection schedules should be reviewed and updated periodically to ensure that collection levels are appropriate to their particular task.

4. Regulations governing DR&R should be crafted with careful attention to the distinction between independent (stand-alone) and producer-owner pipelines in order to identify the differential results and reduce unanticipated benefits to the latter that may reward the delay of DR&R outlays, to the detriment of both environmental and broader public policy interests.

5. In light of the complexity of the issues, the diversity of agencies involved and the broad and important environmental and public policy interests in the DR&R transaction, maximum transparency and the involvement of responsible government agencies and public interest organizations are essential to constructive resolution of DR&R issues.

EXHIBITS

**Imputed Value of TAPS Dismantling, Removal and Restoration Funds
Collected under TSM**

Exhibit 1

(Sheet 1 of 1)

TAPS Settlement Methodology (TSM) Scenario — 1985 Assumptions

Col. (A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)
Calendar Year	Nominal Fed. Tax Rate (%)	Nominal State Tax Rate (%)	Inflation Factor (Decimal)	GNP Deflator (Index)	Stipulated Expenditure Fraction (%)	Estimated Expenditure (MM\$)	DR&R Allowance (MM\$)	Moody's Aa Corp. Bond Yield (%)	Imputed Interest (MM\$)	State Taxable Income (MM\$)	State Tax (MM\$)	Federal Taxable Income (MM\$)	Federal Tax (MM\$)	After-Tax Balance (MM\$)
1977	48.0%	9.4%		140.1		872.1	23.536			23.536	2.212	21.323	10.235	11.088
1978	48.0%	9.4%					95.968	8.90%	0.987	0.987	0.093	96.862	46.494	61.456
1979	46.0%	9.4%					113.143	9.94%	6.109	6.109	0.574	118.677	54.591	125.542
1980	46.0%	9.4%					127.183	12.50%	15.693	15.693	1.475	141.400	65.044	201.898
1981	46.0%	9.4%					120.225	14.75%	29.780	29.780	2.799	147.206	67.715	281.389
1982	46.0%	9.4%					121.149	14.41%	40.548	161.697	15.200	146.497	67.389	360.498
1983	46.0%	9.4%					115.745	12.42%	44.774	160.519	15.089	145.430	66.898	439.030
1984	46.0%	9.4%		232.4			110.377	13.50%	59.269	169.646	15.947	153.700	70.702	522.028
1985	46.0%	9.4%	1.05	244.0			104.048	12.00%	62.643	166.691	15.669	151.022	69.470	603.580
1986	46.0%	9.4%	1.06	258.7			97.766	12.00%	72.430	170.196	15.998	154.197	70.931	686.846
1987	46.0%	9.4%	1.06	274.2			95.023	12.00%	82.422	177.445	16.680	160.765	73.952	773.659
1988	46.0%	9.4%	1.06	290.6			85.402	12.00%	92.839	178.241	16.755	161.486	74.284	860.862
1989	46.0%	9.4%	1.06	308.1			73.214	12.00%	103.303	176.517	16.593	159.925	73.565	947.221
1990	46.0%	9.4%	1.06	326.6			60.717	12.00%	113.667	174.383	16.392	157.991	72.676	1,032.537
1991	46.0%	9.4%	1.06	346.1			50.254	12.00%	123.904	174.159	16.371	157.788	72.582	1,117.742
1992	46.0%	9.4%	1.06	366.9			40.334	12.00%	134.129	174.463	16.400	158.064	72.709	1,203.096
1993	46.0%	9.4%	1.06	388.9			31.188	12.00%	144.372	175.559	16.503	159.057	73.166	1,288.987
1994	46.0%	9.4%	1.06	412.3			24.386	12.00%	154.678	179.065	16.832	162.233	74.627	1,376.593
1995	46.0%	9.4%	1.06	437.0			19.288	12.00%	165.191	184.479	17.341	167.138	76.883	1,466.847
1996	46.0%	9.4%	1.06	463.2			13.802	12.00%	176.022	189.824	17.843	171.981	79.111	1,559.717
1997	46.0%	9.4%	1.06	491.0			8.405	12.00%	187.166	195.571	18.384	177.188	81.506	1,655.398
1998	46.0%	9.4%	1.06	520.5			3.893	12.00%	198.648	202.541	19.039	183.502	84.411	1,754.489
1999	46.0%	9.4%	1.06	551.7			3.628	12.00%	210.539	214.166	20.132	194.035	89.256	1,859.268
2000	46.0%	9.4%	1.06	584.8			3.650	12.00%	223.112	226.762	21.316	205.446	94.505	1,970.209
2001	46.0%	9.4%	1.06	619.9			3.451	12.00%	236.425	239.876	22.548	217.327	99.971	2,087.565
2002	46.0%	9.4%	1.06	657.1			3.229	12.00%	250.508	253.737	23.851	229.886	105.748	2,211.704
2003	46.0%	9.4%	1.06	696.5			2.853	12.00%	265.404	268.258	25.216	243.042	111.799	2,342.946
2004	46.0%	9.4%	1.06	738.3			2.610	12.00%	281.154	283.764	26.674	257.090	118.261	2,481.775
2005	46.0%	9.4%	1.06	782.6			2.411	12.00%	297.813	300.224	28.221	272.003	125.121	2,628.656
2006	46.0%	9.4%	1.06	829.6			2.234	12.00%	315.439	317.673	29.861	287.812	132.393	2,784.075
2007	46.0%	9.4%	1.06	879.3			1.924	12.00%	334.089	336.013	31.585	304.428	140.037	2,948.466
2008	46.0%	9.4%	1.06	932.1			1.659	12.00%	353.816	355.475	33.415	322.060	148.148	3,122.378
2009	46.0%	9.4%	1.06	988.0			1.283	12.00%	374.685	375.968	35.341	340.627	156.689	3,306.317
2010	46.0%	9.4%	1.06	1047.3	2.5%	162.982	0.951	12.00%	396.758	397.709	37.385	197.342	90.777	3,412.882
2011	46.0%	9.4%	1.06	1110.1	5.0%	345.522	0.796	12.00%	409.546	410.342	38.572	26.248	12.074	3,427.055
2012	46.0%	9.4%	1.06	1176.7	50.0%	3,662.536		12.00%	411.247	411.247	0.000	(3,251.290)	(1,495.593)	1,671.359
2013	46.0%	9.4%	1.06	1247.4	30.0%	2,329.373		12.00%	200.563	200.563	0.000	(2,128.810)	(979.253)	521.802
2014	46.0%	9.4%	1.06	1322.2	10.0%	823.045		12.00%	62.616	62.616	0.000	(760.429)	(349.797)	111.170
2015	46.0%	9.4%	1.06	1401.5	2.5%	218.107		12.00%	13.340	13.340	0.000	(204.767)	(94.193)	0.596
Estimated Surplus (2004 MM \$) == >														0.314

Annual DR&R collections prescribed by Exhibit E of the 1985 TAPS Settlement Agreement appear in bold face in Column (H); imputed annual balances in Column (O).

From: "Derivation of DR&R Allowance," in Prepared Direct Testimony of Thomas O. Horst on behalf of the State of Alaska, Alaska Public Utilities Commission, Docket No. P-86-2, August 1, 1986, after p. 12 (Exh. #Alaska ____ [TOH-2]).

Exhibit 2. Explanation of the Entries in Exhibit 1 *
(TAPS Settlement Methodology For Determining DR&R Collections)

Column Explanation

- (A) Calendar Years (stipulated life of TAPS; not an estimate of the pipeline's economic life)
- (B) Nominal federal income tax rates (the nominal rate was reduced by the Tax Reform Act of 1986 and in any event is not a true statement of taxes paid)
- (C) Nominal State income tax rates
- (D) 6% inflation assumed for purposes of settlement
- (E) Inflation index, calculated as a function of column (D)
- (F) Percentage figures indicate the portion of DR&R work assumed, for settlement purposes, to be performed between 2010 and 2015.
- (G) = $\$872.1 \times (\text{current year Col. [F]}) \times (\text{current year Col. [E]}) / (1977 \text{ Col. [E]})$
- (H) Annual DR&R payments by shippers stipulated for settlement (front-loaded or accelerated by formulae and inputs that do not appear in Exhibit 1)
- (I) 1978-84 Moody's Aa bond yields from Moody's (1985 –2015 forecast estimate of 12% approximates 1978-84 average)
- (J) = (Prior year Column [H]) x (current year Column [I])
- (K) = (Current year Column [H]) + (current year Column [J])
- (L) = (Current year Column [K]) x (current year Column [C])
- (M) = (Current year Column [H]) + (current year Column [J]) - (current year Column [L])
- (N) = (Current year Column [M]) x (current year Column [B])
- (O) = (Current year Col. [H]) + (current year Col. [J]) - (current year Col. [L]) - (current year Col. [N]) + (prior year Col. [O]) - (current year Col. [G])
(Estimated Surplus = (2015 balance) x 2004 Column [E] / 2015 Column [E])

* See Appendix A for discussion of rate of return calculations and the interaction with inflation.

From: Letter from Rudolph L. Bertschi to Richard Fineberg, June 1, 1988.

**Imputed Value of TAPS Dismantling, Removal and Restoration Funds
Collected under TSM**

Exhibit 3
(Sheet 1 of 1)

**Estimated Value to TAPS Owners of DR&R Collections through 2015 Using TAPS Settlement Methodology with Updates to 1985 Assumptions for Tax Rates, Inflation and Earnings
(Results of Changes to Col. [B], [D] and [I]) Shown in Column [O]**

Col. (A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)
Calendar Year	Nominal Fed. Tax Rate (%)	Nominal State Tax Rate (%)	Inflation (GDP or forecast)	Compound Inflation Factor	Stipulated Expenditure Fraction (%)	Estimated Expenditure (MM\$)	DR&R Allowance (MM\$)	Est. Parent Co. Pre-Tax Return on Equity (%)	Imputed Interest (MM\$)	State Taxable Income (MM\$)	State Tax (MM\$)	Federal Taxable Income (MM\$)	Federal Tax (MM\$)	After-Tax Balance (MM\$)
				0.3938										
1977	48.0%	9.4%	7.5%	0.4233		872.1	23.536			23.536	2.212	21.323	10.235	11.088
1978	48.0%	9.4%	6.7%	0.4518			95.968	27.54%	3.054	3.054	0.287	98.735	47.393	62.430
1979	46.0%	9.4%	8.1%	0.4882			113.143	52.76%	32.935	32.935	3.096	142.982	65.772	139.640
1980	46.0%	9.4%	8.8%	0.5310			127.183	47.23%	65.952	65.952	6.199	186.935	85.990	240.585
1981	46.0%	9.4%	9.8%	0.5830			120.225	33.33%	80.185	80.185	7.537	192.873	88.721	344.736
1982	46.0%	9.4%	6.8%	0.6229			121.149	23.85%	82.203	203.351	19.115	184.236	84.749	444.224
1983	46.0%	9.4%	4.4%	0.6504			115.745	24.25%	107.734	223.480	21.007	202.472	93.137	553.559
1984	46.0%	9.4%	4.2%	0.6774			110.377	28.81%	159.473	269.850	25.366	244.484	112.463	685.581
1985	46.0%	9.4%	2.8%	0.6963			104.048	26.04%	178.520	282.568	26.561	256.007	117.763	823.824
1986	46.0%	9.4%	2.3%	0.7125			97.766	21.49%	177.056	274.822	25.833	248.988	114.535	958.278
1987	40.0%	9.4%	2.6%	0.7311			95.023	25.09%	240.442	335.465	31.534	303.931	121.573	1,140.637
1988	34.0%	9.4%	3.1%	0.7541			85.402	25.14%	286.799	372.200	34.987	337.213	114.653	1,363.198
1989	34.0%	9.4%	3.9%	0.7834			73.214	29.52%	402.436	475.650	44.711	430.939	146.519	1,647.618
1990	34.0%	9.4%	3.7%	0.8125			60.717	27.39%	451.332	512.049	48.133	463.916	157.731	1,953.802
1991	34.0%	9.4%	3.8%	0.8430			50.254	13.13%	256.552	306.806	28.840	277.966	94.509	2,137.260
1992	35.0%	9.4%	2.5%	0.8642			40.334	7.75%	165.616	205.951	19.359	186.591	65.307	2,258.544
1993	35.0%	9.4%	2.3%	0.8838			31.188	13.20%	298.079	329.267	30.951	298.316	104.411	2,452.450
1994	35.0%	9.4%	2.3%	0.9042			24.386	23.15%	567.786	592.172	55.664	536.508	187.778	2,801.180
1995	35.0%	9.4%	1.9%	0.9218			19.288	22.24%	622.936	642.223	60.369	581.854	203.649	3,179.385
1996	35.0%	9.4%	1.9%	0.9395			13.802	32.10%	1,020.598	1,034.400	97.234	937.166	328.008	3,788.543
1997	35.0%	9.4%	1.7%	0.9559			8.405	31.72%	1,201.871	1,210.276	113.766	1,096.510	383.779	4,501.275
1998	35.0%	9.4%	1.2%	0.9675			3.893	13.52%	608.370	612.263	57.553	554.711	194.149	4,861.837
1999	35.0%	9.4%	1.3%	0.9802			3.628	22.32%	1,085.383	1,089.010	102.367	986.643	345.325	5,503.155
2000	35.0%	9.4%	2.0%	1.0000			3.650	36.03%	1,982.632	1,986.282	186.711	1,799.572	629.850	6,672.876
2001	35.0%	9.4%	2.3%	1.0234			3.451	18.36%	1,225.010	1,228.461	115.475	1,112.985	389.545	7,396.317
2002	35.0%	9.4%	1.8%	1.0415			3.229	14.04%	1,038.338	1,041.567	97.907	943.660	330.281	8,009.696
2003	35.0%	9.4%	1.6%	1.0585			2.853	30.44%	2,438.384	2,441.237	229.476	2,211.761	774.116	9,447.340
2004	35.0%	9.4%	1.3%	1.0724			2.610	19.97%	1,886.733	1,889.343	177.598	1,711.745	599.111	10,559.974
2005	35.0%	9.4%	2.6%	1.1003			2.411	22.16%	2,339.686	2,342.097	220.157	2,121.940	742.679	11,939.235
2006	35.0%	9.4%	2.6%	1.1289			2.234	22.16%	2,645.278	2,647.512	248.866	2,398.646	839.526	13,498.355
2007	35.0%	9.4%	2.6%	1.1582			1.924	22.16%	2,990.719	2,992.643	281.308	2,711.335	948.967	15,260.722
2008	35.0%	9.4%	2.6%	1.1884			1.659	22.16%	3,381.192	3,382.851	317.988	3,064.863	1,072.702	17,252.883
2009	35.0%	9.4%	2.6%	1.2193			1.283	22.16%	3,822.579	3,823.862	359.443	3,464.419	1,212.547	19,504.756
2010	35.0%	9.4%	2.6%	1.2510	2.5%	64.432	0.951	22.16%	4,321.508	4,322.459	406.311	3,915.197	1,348.101	22,008.371
2011	35.0%	9.4%	2.6%	1.2835	5.0%	132.214	0.796	22.16%	4,876.213	4,877.009	458.439	4,417.774	1,500.225	24,794.503
2012	35.0%	9.4%	2.6%	1.3168	50.0%	1,356.512		22.16%	5,493.513	5,493.513	0.000	4,137.001	1,447.950	27,483.553
2013	35.0%	9.4%	2.6%	1.3511	30.0%	835.069		22.16%	6,089.304	6,089.304	0.000	5,254.235	1,838.982	30,898.806
2014	35.0%	9.4%	2.6%	1.3862	10.0%	285.594		22.16%	6,845.993	6,845.993	0.000	6,560.400	2,296.140	35,163.066
2015	35.0%	9.4%	2.6%	1.4223	2.5%	73.255		22.16%	7,790.790	7,790.790	0.000	7,717.535	2,701.137	40,179.464
													Estimated Surplus (2004 MM \$) == >	30,295.852

Under the TSM formula, DR&R collections (Col. [I]) plus earnings exceeded \$9.4 billion, tax-paid, by year-end 2003.

If DR&R took place between 2010 and 2015, collections plus earnings (Col. [O]) would exceed amount necessary for DR&R (Col. [G]) by \$30.3 billion in 2004 \$.

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Sources: 1985 TAPS Settlement Methodology DR&R schedule (see Exhibit 1), updated as follows:
 Col. (B): Federal corporate income tax rates reduced subsequent to 1985 settlement; worksheet assumes owners pay all income taxes at nominal (maximum) rates.
 Col. (D): 1977-2004 inflation = GDP Deflator (OMB estimates); 2005 - 2015 = Alaska Dept. of Revenue Spring 2004 revenue forecast inflation rate.
 Col. (I): 1978 - 97 = S&P Compustat Return on parent company equity adjusted to pre-tax level; '98 - 2003 = weighted average of TAPS Owners' ROE (from company reports), adjusted to pretax level; 2004 - 2015 = average of 1978-2003 ROE + inflation, adjusted to pretax level (see Appendix A)

Imputed Value of TAPS Dismantling, Removal and Restoration Funds Collected under TSM

Exhibit 4
(Sheet 1 of 1)

Estimated Value to TAPS Owners of DR&R Collections through 2015 Using Revised TAPS Settlement Methodology with Updates to 1985 Assumptions
(Results of Changes to Col. [H] Shown in Col. [O])

Col. (A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(H Adj. 1)	(H Adj. 2)	(I)	(J)	(K)	(L)	(M)	(N)	(O)
Calendar Year	Nominal Fed. Tax Rate (%)	Nominal State Tax Rate (%)	Inflation (GDP or forecast)	Compound Inflation Factor	Stipulated Expenditure Fraction (%)	Estimated Expenditure (MMS)	DR&R Allowance (MMS)	Owner Gain From:		Est. Parent Co. Pre-Tax Return on Equity (%)	Imputed Interest (MMS)	State Taxable Income (MMS)	State Tax (MMS)	Federal Taxable Income (MMS)	Federal Tax (MMS)	After-Tax Balance (MMS)
								Non-Owner DR&R (Est. \$MM)	Reduced Roy + Sev. (Est. \$MM)							
1977	48.0%	9.4%	7.5%	0.3938		872.1	23.536	0.588	5.278			5.866	0.551	5.315	2.551	2.764
1978	48.0%	9.4%	6.7%	0.4518			95.968	2.399	21.521	27.54%	0.761	0.761	0.072	24.610	11.813	15.561
1979	46.0%	9.4%	8.1%	0.4882			113.143	2.829	25.372	52.76%	8.209	8.209	0.772	35.638	16.394	34.805
1980	46.0%	9.4%	8.8%	0.5310			127.183	3.180	28.521	47.23%	16.438	16.438	1.545	46.594	21.433	59.966
1981	46.0%	9.4%	9.8%	0.5830			120.225	3.006	26.960	33.33%	19.986	19.986	1.879	48.074	22.114	85.926
1982	46.0%	9.4%	6.8%	0.6229			121.149	3.029	27.168	23.85%	20.489	50.685	4.764	45.921	21.124	110.723
1983	46.0%	9.4%	4.4%	0.6504			115.745	2.894	25.956	24.25%	26.853	55.702	5.236	50.466	23.214	137.975
1984	46.0%	9.4%	4.2%	0.6774			110.377	2.759	24.752	28.81%	39.749	67.260	6.322	60.938	28.031	170.881
1985	46.0%	9.4%	2.8%	0.6963			104.048	2.601	23.333	26.04%	44.496	70.430	6.620	63.810	29.352	205.338
1986	46.0%	9.4%	2.3%	0.7125			97.766	2.444	21.924	21.49%	44.131	68.499	6.439	62.060	28.548	238.851
1987	40.0%	9.4%	2.6%	0.7311			95.023	2.376	21.309	25.09%	59.930	83.615	7.860	75.755	30.302	284.304
1988	34.0%	9.4%	3.1%	0.7541			85.402	2.135	19.151	25.14%	71.485	92.771	8.720	84.050	28.577	339.777
1989	34.0%	9.4%	3.9%	0.7834			73.214	1.830	16.418	29.52%	100.307	118.556	11.144	107.412	36.520	410.669
1990	34.0%	9.4%	3.7%	0.8125			60.717	1.518	13.616	27.39%	112.494	127.628	11.997	115.631	39.315	486.985
1991	34.0%	9.4%	3.8%	0.8430			50.254	1.256	11.270	13.13%	63.945	76.471	7.188	69.283	23.556	532.712
1992	35.0%	9.4%	2.5%	0.8642			40.334	1.008	9.045	7.75%	41.280	51.333	4.825	46.508	16.278	562.942
1993	35.0%	9.4%	2.3%	0.8838			31.188	0.780	6.994	13.20%	74.296	82.070	7.715	74.355	26.024	611.273
1994	35.0%	9.4%	2.3%	0.9042			24.386	0.610	5.469	23.15%	141.521	147.599	13.874	133.725	46.804	698.194
1995	35.0%	9.4%	1.9%	0.9218			19.288	0.482	4.325	22.24%	155.267	160.074	15.047	145.027	50.760	792.462
1996	35.0%	9.4%	1.9%	0.9395			13.802	0.345	3.095	32.10%	254.384	257.824	24.235	233.589	81.756	944.294
1997	35.0%	9.4%	1.7%	0.9559			8.405	0.210	1.885	31.72%	299.566	301.661	28.356	273.305	95.657	1,121.943
1998	35.0%	9.4%	1.2%	0.9675			3.893	0.097	0.873	13.52%	151.636	152.607	14.345	138.262	48.392	1,211.813
1999	35.0%	9.4%	1.3%	0.9802			3.628	0.091	0.813	22.32%	270.532	271.436	25.515	245.921	86.072	1,371.661
2000	35.0%	9.4%	2.0%	1.0000			3.650	0.091	0.818	36.03%	494.171	495.081	46.538	448.543	156.990	1,663.214
2001	35.0%	9.4%	2.3%	1.0234			3.451	0.086	0.774	18.36%	305.334	306.194	28.782	277.412	97.094	1,843.532
2002	35.0%	9.4%	1.8%	1.0415			3.229	0.081	0.724	14.04%	258.806	259.611	24.403	235.207	82.323	1,996.417
2003	35.0%	9.4%	1.6%	1.0585			2.853	0.071	0.640	30.44%	607.767	608.478	57.197	551.281	192.948	2,354.750
2004	35.0%	9.4%	1.3%	1.0724			2.610	0.065	0.585	19.97%	470.268	470.919	44.266	426.652	149.328	2,632.074
2005	35.0%	9.4%	2.6%	1.1003			2.411	0.060	0.541	22.16%	583.167	583.768	54.874	528.894	185.113	2,975.854
2006	35.0%	9.4%	2.6%	1.1289			2.234	0.056	0.501	22.16%	659.335	659.892	62.030	597.862	209.252	3,364.465
2007	35.0%	9.4%	2.6%	1.1582			1.924	0.048	0.432	22.16%	745.437	745.916	70.116	675.800	236.530	3,803.735
2008	35.0%	9.4%	2.6%	1.1884			1.659	0.041	0.372	22.16%	842.762	843.176	79.259	763.917	267.371	4,300.281
2009	35.0%	9.4%	2.6%	1.2193			1.283	0.032	0.288	22.16%	952.778	953.098	89.591	863.506	302.227	4,861.560
2010	35.0%	9.4%	2.6%	1.2510	2.5%	64.432	0.951	0.024	0.213	22.16%	1,077.136	1,077.373	101.273	976.100	341.635	5,496.025
2011	35.0%	9.4%	2.6%	1.2835	5.0%	132.214	0.796	0.020	0.179	22.16%	1,217.709	1,217.907	114.483	1,103.424	386.198	6,148.819
2012	35.0%	9.4%	2.6%	1.3168	50.0%	1,356.512		0.000	0.000	22.16%	1,362.343	1,362.343	128.060	1,234.283	431.999	6,818.889
2013	35.0%	9.4%	2.6%	1.3511	30.0%	835.069				22.16%	1,510.805	1,510.805	142.016	1,368.789	479.076	6,352.090
2014	35.0%	9.4%	2.6%	1.3862	10.0%	285.594				22.16%	1,407.380	1,407.380	132.294	1,275.086	446.280	6,345.827
2015	35.0%	9.4%	2.6%	1.4223	2.5%	73.255				22.16%	1,405.993	1,405.993	132.163	1,273.829	445.840	6,888.223
Estimated Surplus (2004 MM \$) == >																5,193.812

Notes: Updated 1985 TAPS Settlement Methodology DR&R schedule (see Exhibit 3) modified to estimate fiscal effects of producer-owner overlap on TAPS.

Col. (G): Assumption that DR&R will be completed in 2015 is no longer operative; data left in place for comparison to previous schedules

Col. (H Adj. 1): 2.5% of Col. H, reflecting the fact that, historically, approximately 97.5% of DR&R collections were internal transfers between the producing and pipeline arms of the same income tax payer.

Col. (H Adj. 2): 23% of Col. H, reflecting the gain to the producer-owner from reduced severance and royalty payments due to DR&R payments.

Col. (I): 1978 - 97 = S&P Compustat Return on parent company equity adjusted to pre-tax level; '98 - 2003 = weighted average of TAPS Owners' ROE (from company reports) adjusted to pretax level; 2004 - 2015 = average 1978-2003 (ROE + inflation), adjusted to pretax level (see Exh. 3 and Appendix A)

Imputed Value of TAPS Dismantling, Removal and Restoration Funds Collected under TSM

Exhibit 5

Estimated Value to TAPS Owners of DR&R Collections through 2034 Using Revised TAPS Settlement Methodology with Updates to 1985 Assumptions

(Sheet 1 of 2)

Col. (A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(H Adj. 1)	(H Adj. 2)	(I)	(J)	(K)	(L)	(M)	(N)	(O)
Calendar Year	Nominal Fed. Tax Rate (%)	Nominal State Tax Rate (%)	Inflation (GDP or forecast)	Compound Inflation Factor	Stipulated Expenditure Fraction (%)	Estimated Expenditure (MMS)	DR&R Allowance (MMS)	Owner Gain From:		Est. Parent Co. Pre-Tax Return on Equity (%)	Imputed Interest (MMS)	State Taxable Income (MMS)	State Tax (MMS)	Federal Taxable Income (MMS)	Federal Tax (MMS)	After-Tax Balance (MMS)
								Non-Owner DR&R (Est. \$MM)	Reduced Roy + Sev. (Est. \$MM)							
				0.3938												
1977	48.0%	9.4%	7.5%	0.4233		872.1	23.536	0.588	5.278			5.866	0.551	5.315	2.551	2.764
1978	48.0%	9.4%	6.7%	0.4518			95.968	2.399	21.521	27.54%	0.761	0.761	0.072	24.610	11.813	15.561
1979	46.0%	9.4%	8.1%	0.4882			113.143	2.829	25.372	52.76%	8.209	8.209	0.772	35.638	16.394	34.805
1980	46.0%	9.4%	8.8%	0.5310			127.183	3.180	28.521	47.23%	16.438	16.438	1.545	46.594	21.433	59.966
1981	46.0%	9.4%	9.8%	0.5830			120.225	3.006	26.960	33.33%	19.986	19.986	1.879	48.074	22.114	85.926
1982	46.0%	9.4%	6.8%	0.6229			121.149	3.029	27.168	23.85%	20.489	50.685	4.764	45.921	21.124	110.723
1983	46.0%	9.4%	4.4%	0.6504			115.745	2.894	25.956	24.25%	26.853	55.702	5.236	50.466	23.214	137.975
1984	46.0%	9.4%	4.2%	0.6774			110.377	2.759	24.752	28.81%	39.749	67.260	6.322	60.938	28.031	170.881
1985	46.0%	9.4%	2.8%	0.6963			104.048	2.601	23.333	26.04%	44.496	70.430	6.620	63.810	29.352	205.338
1986	46.0%	9.4%	2.3%	0.7125			97.766	2.444	21.924	21.49%	44.131	68.499	6.439	62.060	28.548	238.851
1987	40.0%	9.4%	2.6%	0.7311			95.023	2.376	21.309	25.09%	59.930	83.615	7.860	75.755	30.302	284.304
1988	34.0%	9.4%	3.1%	0.7541			85.402	2.135	19.151	25.14%	71.485	92.771	8.720	84.050	28.577	339.777
1989	34.0%	9.4%	3.9%	0.7834			73.214	1.830	16.418	29.52%	100.307	118.556	11.144	107.412	36.520	410.669
1990	34.0%	9.4%	3.7%	0.8125			60.717	1.518	13.616	27.39%	112.494	127.628	11.997	115.631	39.315	486.985
1991	34.0%	9.4%	3.8%	0.8430			50.254	1.256	11.270	13.13%	63.945	76.471	7.188	69.283	23.556	532.712
1992	35.0%	9.4%	2.5%	0.8642			40.334	1.008	9.045	7.75%	41.280	51.333	4.825	46.508	16.278	562.942
1993	35.0%	9.4%	2.3%	0.8838			31.188	0.780	6.994	13.20%	74.296	82.070	7.715	74.355	26.024	611.273
1994	35.0%	9.4%	2.3%	0.9042			24.386	0.610	5.469	23.15%	141.521	147.599	13.874	133.725	46.804	698.194
1995	35.0%	9.4%	1.9%	0.9218			19.288	0.482	4.325	22.24%	155.267	160.074	15.047	145.027	50.760	792.462
1996	35.0%	9.4%	1.9%	0.9395			13.802	0.345	3.095	32.10%	254.384	257.824	24.235	233.589	81.756	944.294
1997	35.0%	9.4%	1.7%	0.9559			8.405	0.210	1.885	31.72%	299.566	301.661	28.356	273.305	95.657	1,121.943
1998	35.0%	9.4%	1.2%	0.9675			3.893	0.097	0.873	13.52%	151.636	152.607	14.345	138.262	48.392	1,211.813
1999	35.0%	9.4%	1.3%	0.9802			3.628	0.091	0.813	22.32%	270.532	271.436	25.515	245.921	86.072	1,371.661
2000	35.0%	9.4%	2.0%	1.0000			3.650	0.091	0.818	36.03%	494.171	495.081	46.538	448.543	156.990	1,663.214
2001	35.0%	9.4%	2.3%	1.0234			3.451	0.086	0.774	18.36%	305.334	306.194	28.782	277.412	97.094	1,843.532
2002	35.0%	9.4%	1.8%	1.0415			3.229	0.081	0.724	14.04%	258.806	259.611	24.403	235.207	82.323	1,996.417
2003	35.0%	9.4%	1.6%	1.0585			2.853	0.071	0.640	30.44%	607.767	608.478	57.197	551.281	192.948	2,354.750
2004	35.0%	9.4%	1.3%	1.0724			2.610	0.065	0.585	19.97%	470.268	470.919	44.266	426.652	149.328	2,632.074
2005	35.0%	9.4%	2.6%	1.1003			2.411	0.060	0.541	22.16%	583.167	583.768	54.874	528.894	185.113	2,975.854
2006	35.0%	9.4%	2.6%	1.1289			2.234	0.056	0.501	22.16%	659.335	659.892	62.030	597.862	209.252	3,364.465
2007	35.0%	9.4%	2.6%	1.1582			1.924	0.048	0.432	22.16%	745.437	745.916	70.116	675.800	236.530	3,803.735
2008	35.0%	9.4%	2.6%	1.1884			1.659	0.041	0.372	22.16%	842.762	843.176	79.259	763.917	267.371	4,300.281
2009	35.0%	9.4%	2.6%	1.2193			1.283	0.032	0.288	22.16%	952.778	953.098	89.591	863.506	302.227	4,861.560
2010	35.0%	9.4%	2.6%	1.2510	0.0%	0.000	0.951	0.024	0.213	22.16%	1,077.136	1,077.373	101.273	976.100	341.635	5,496.025
2011	35.0%	9.4%	2.6%	1.2835	0.0%	0.000	0.796	0.020	0.179	22.16%	1,217.709	1,217.907	114.483	1,103.424	386.198	6,213.251
2012	35.0%	9.4%	2.6%	1.3168	0.0%	0.000		0.000	0.000	22.16%	1,376.619	1,376.619	129.402	1,247.216	436.526	7,023.942
2013	35.0%	9.4%	2.6%	1.3511	0.0%	0.000				22.16%	1,556.237	1,556.237	146.286	1,409.950	493.483	7,940.409
2014	35.0%	9.4%	2.6%	1.3862	0.0%	0.000				22.16%	1,759.291	1,759.291	165.373	1,593.918	557.871	8,976.456
2015	35.0%	9.4%	2.6%	1.4223	0.0%	0.000				22.16%	1,988.839	1,988.839	186.951	1,801.888	630.661	10,147.683

(Sheet 1 of 2)

Imputed Value of TAPS Dismantling, Removal and Restoration Funds Collected under TSM

Exhibit 5

Estimated Value to TAPS Owners of DR&R Collections through 2034 Using Revised TAPS Settlement Methodology with Updates to 1985 Assumptions

(Sheet 2 of 2)

Col. (A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(H Adj. 1)	(H Adj. 2)	(I)	(J)	(K)	(L)	(M)	(N)	(O)
Calendar Year	Nominal Fed. Tax Rate (%)	Nominal State Tax Rate (%)	Inflation (CPI-U or forecast)	Compound Inflation Factor	Stipulated Expenditure Fraction (%)	Estimated Expenditure (MMS)	DR&R Allowance (MMS)	Owner Gain From: Non-Owner DR&R (Est. \$MM)	Reduced Roy + Sev. (Est. \$MM)	Est. Parent Co. Pre-Tax Return on Equity (%)	Imputed Interest (MMS)	State Taxable Income (MMS)	State Tax (MMS)	Federal Taxable Income (MMS)	Federal Tax (MMS)	After-Tax Balance (MMS)
2016	35.0%	9.4%	2.6%	1.4592						22.16%	2,248.338	2,248.338	211.344	2,036.994	712.948	11,471.730
2017	35.0%	9.4%	2.6%	1.4972						22.16%	2,541.696	2,541.696	238.919	2,302.777	805.972	12,968.534
2018	35.0%	9.4%	2.6%	1.5361						22.16%	2,873.331	2,873.331	270.093	2,603.238	911.133	14,660.639
2019	35.0%	9.4%	2.6%	1.5760						22.16%	3,248.237	3,248.237	305.334	2,942.902	1,030.016	16,573.526
2020	35.0%	9.4%	2.6%	1.6170						22.16%	3,672.059	3,672.059	345.174	3,326.886	1,164.410	18,736.001
2021	35.0%	9.4%	2.6%	1.6591						22.16%	4,151.181	4,151.181	390.211	3,760.970	1,316.339	21,180.632
2022	35.0%	9.4%	2.6%	1.7022						22.16%	4,692.818	4,692.818	441.125	4,251.693	1,488.092	23,944.232
2023	35.0%	9.4%	2.6%	1.7465						22.16%	5,305.126	5,305.126	498.682	4,806.444	1,682.255	27,068.421
2024	35.0%	9.4%	2.6%	1.7919						22.16%	5,997.326	5,997.326	563.749	5,433.578	1,901.752	30,600.246
2025	35.0%	9.4%	2.6%	1.8384						22.16%	6,779.844	6,779.844	637.305	6,142.538	2,149.888	34,592.896
2026	35.0%	9.4%	2.6%	1.8862						22.16%	7,664.462	7,664.462	720.459	6,944.003	2,430.401	39,106.498
2027	35.0%	9.4%	2.6%	1.9353						22.16%	8,664.504	8,664.504	814.463	7,850.040	2,747.514	44,209.024
2028	35.0%	9.4%	2.6%	1.9856						22.16%	9,795.028	9,795.028	920.733	8,874.295	3,106.003	49,977.316
2029	35.0%	9.4%	2.6%	2.0372	2.5%	104,930				22.16%	11,073.061	11,073.061	1,040.868	10,032.193	3,511.268	56,393.312
2030	35.0%	9.4%	2.6%	2.0902	5.0%	215,316				22.16%	12,494.600	12,494.600	1,174.492	11,320.108	3,962.038	63,536.066
2031	35.0%	9.4%	2.6%	2.1445	50.0%	2,209,142				22.16%	14,077.161	14,077.161	1,323.253	12,753.908	4,463.868	69,616.964
2032	35.0%	9.4%	2.6%	2.2003	30.0%	1,359,948				22.16%	15,424.456	15,424.456	1,449.899	13,974.557	4,891.095	77,340.478
2033	35.0%	9.4%	2.6%	2.2575	10.0%	465,102				22.16%	17,135.691	17,135.691	1,610.755	15,524.936	5,433.728	86,966.585
2034	35.0%	9.4%	2.6%	2.3162	2.5%	119,299				22.16%	19,268.468	19,268.468	1,811.236	17,457.232	6,110.031	98,194.487
Estimated Surplus (2004 MM \$) == >															45,463.857	

Notes: Updated 1985 TAPS Settlement Methodology DR&R schedule (see Exhibit 3) modified to estimate fiscal effects of producer-owner overlap on TAPS (see Exhibit 4).

Col. (G): Assumes DR&R will be completed between 2029 and 2034

Col. (H Adj. 1): 2.5% of Col. H, reflecting the fact that, historically, approximately 97.5% of DR&R collections were internal transfers between the producing and pipeline arms of the same income tax payer.

Col. (H Adj. 2): 23% of Col. H, reflecting the gain to the producer-owner from reduced severance and royalty payments due to DR&R payments.

Col. (I): 1978 - 97 = S&P Compustat Return on parent company equity adjusted to pre-tax level; '98 - 2003 = weighted average of TAPS Owners' ROE (from company reports)

adjusted to nominal pretax level; 2004 - 2034 = average 1978-2003 (ROE + inflation), adjusted to nominal pretax level (see Exh. 3 and Appendix A)

(Sheet 2 of 2)

Imputed Value of TAPS Dismantling, Removal and Restoration Funds Collected under TSM

Exhibit 6

Estimated Actual Value to TAPS Owners of DR&R Collections thru 2034 Using Revised TAPS Settlement Methodology with Updates to 1985 Assumptions

(Sheet 1 of 2)

(Results of Calculating Effective Federal Income Tax Shown in Col. (O))

Col. (A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(H Adj. 1)	(H Adj. 2)	(I)	(J)	(K)	(L)	(M)	(N)	(O)
Calendar Year	Effective Fed. Tax Rate (est.) (%)	Nominal State Tax Rate (%)	Inflation (GDP or forecast)	Compound Inflation Factor	Stipulated Expenditure Fraction (%)	Estimated Expenditure (MM\$)	DR&R Allowance (MM\$)	Owner Gain From:		Est. Parent Co. Pre-Tax Return on Equity (%)	Imputed Interest (MM\$)	State Taxable Income (MM\$)	State Tax (MM\$)	Federal Taxable Income (MM\$)	Federal Tax (MM\$)	After-Tax Balance (MM\$)
								Non-Owner DR&R (Est. \$MM)	Reduced Roy + Sev. (Est. \$MM)							
1977	48.0%	9.4%	7.5%	0.4233		872.1	23.536	0.588	5.278			5.866	0.551	5.315	2.551	2.764
1978	48.0%	9.4%	6.7%	0.4518			95.968	2.399	21.521	27.54%	0.761	0.761	0.072	24.610	11.813	15.561
1979	46.0%	9.4%	8.1%	0.4882			113.143	2.829	25.372	52.76%	8.209	8.209	0.772	35.638	16.394	34.805
1980	46.0%	9.4%	8.8%	0.5310			127.183	3.180	28.521	47.23%	16.438	16.438	1.545	46.594	21.433	59.966
1981	46.0%	9.4%	9.8%	0.5830			120.225	3.006	26.960	33.33%	19.986	19.986	1.879	48.074	22.114	85.926
1982	46.0%	9.4%	6.8%	0.6229			121.149	3.029	27.168	23.85%	20.489	50.685	4.764	45.921	21.124	110.723
1983	46.0%	9.4%	4.4%	0.6504			115.745	2.894	25.956	24.25%	26.853	55.702	5.236	50.466	23.214	137.975
1984	46.0%	9.4%	4.2%	0.6774			110.377	2.759	24.752	28.81%	39.749	67.260	6.322	60.938	28.031	170.881
1985	31.5%	9.4%	2.8%	0.6963			104.048	2.601	23.333	20.54%	35.099	61.033	5.737	55.296	17.442	208.735
1986	31.5%	9.4%	2.3%	0.7125			97.766	2.444	21.924	16.95%	35.387	59.755	5.617	54.138	17.077	245.797
1987	27.4%	9.4%	2.6%	0.7311			95.023	2.376	21.309	20.74%	50.989	74.674	7.019	67.655	18.557	294.895
1988	23.3%	9.4%	3.1%	0.7541			85.402	2.135	19.151	21.64%	63.815	85.102	8.000	77.102	17.976	354.021
1989	23.3%	9.4%	3.9%	0.7834			73.214	1.830	16.418	25.41%	89.949	108.198	10.171	98.027	22.854	429.194
1990	23.3%	9.4%	3.7%	0.8125			60.717	1.518	13.616	23.58%	101.186	116.320	10.934	105.386	24.570	510.010
1991	23.3%	9.4%	3.8%	0.8430			50.254	1.256	11.270	11.30%	57.637	70.163	6.595	63.568	14.820	558.757
1992	24.0%	9.4%	2.5%	0.8642			40.334	1.008	9.045	6.63%	37.031	47.085	4.426	42.659	10.238	591.178
1993	24.0%	9.4%	2.3%	0.8838			31.188	0.780	6.994	11.29%	66.730	74.504	7.003	67.500	16.200	642.478
1994	24.0%	9.4%	2.3%	0.9042			24.386	0.610	5.469	19.80%	127.216	133.294	12.530	120.765	28.984	734.259
1995	24.0%	9.4%	1.9%	0.9218			19.288	0.482	4.325	19.02%	139.653	144.461	13.579	130.881	31.412	833.729
1996	24.0%	9.4%	1.9%	0.9395			13.802	0.345	3.095	27.45%	228.895	232.335	21.840	210.496	50.519	993.706
1997	24.0%	9.4%	1.7%	0.9559			8.405	0.210	1.885	27.13%	269.614	271.709	25.541	246.169	59.080	1,180.794
1998	24.0%	9.4%	1.2%	0.9675			3.893	0.097	0.873	11.56%	136.492	137.462	12.921	124.541	29.890	1,275.445
1999	24.0%	9.4%	1.3%	0.9802			3.628	0.091	0.813	19.09%	243.525	244.429	22.976	221.453	53.149	1,443.749
2000	24.0%	9.4%	2.0%	1.0000			3.650	0.091	0.818	30.81%	444.859	445.768	41.902	403.866	96.928	1,750.687
2001	24.0%	9.4%	2.3%	1.0234			3.451	0.086	0.774	15.70%	274.875	275.735	25.919	249.816	59.956	1,940.547
2002	24.0%	9.4%	1.8%	1.0415			3.229	0.081	0.724	12.01%	232.995	233.800	21.977	211.823	50.838	2,101.533
2003	24.0%	9.4%	1.6%	1.0585			2.853	0.071	0.640	26.04%	547.170	547.881	51.501	496.380	119.131	2,478.781
2004	24.0%	9.4%	1.3%	1.0724			2.610	0.065	0.585	17.08%	423.388	424.039	39.860	384.179	92.203	2,770.758
2005	24.0%	9.4%	2.6%	1.1003			2.411	0.060	0.541	18.95%	525.041	525.642	49.410	476.231	114.296	3,132.694
2006	24.0%	9.4%	2.6%	1.1289			2.234	0.056	0.501	18.95%	593.625	594.182	55.853	538.329	129.199	3,541.824
2007	24.0%	9.4%	2.6%	1.1582			1.924	0.048	0.432	18.95%	671.153	671.633	63.133	608.499	146.040	4,004.283
2008	24.0%	9.4%	2.6%	1.1884			1.659	0.041	0.372	18.95%	758.786	759.199	71.365	687.835	165.080	4,527.037
2009	24.0%	9.4%	2.6%	1.2193			1.283	0.032	0.288	18.95%	857.845	858.164	80.667	777.497	186.599	5,117.935
2010	24.0%	9.4%	2.6%	1.2510	0.0%	0.000	0.951	0.024	0.213	18.95%	969.816	970.053	91.185	878.868	210.928	5,785.874
2011	24.0%	9.4%	2.6%	1.2835	0.0%	0.000	0.796	0.020	0.179	18.95%	1,096.386	1,096.585	103.079	993.506	238.441	6,540.939
2012	24.0%	9.4%	2.6%	1.3168	0.0%	0.000		0.000	0.000	18.95%	1,239.466	1,239.466	116.510	1,122.956	269.509	7,394.385
2013	24.0%	9.4%	2.6%	1.3511	0.0%	0.000				18.95%	1,401.189	1,401.189	131.712	1,269.477	304.674	8,359.188
2014	24.0%	9.4%	2.6%	1.3862	0.0%	0.000				18.95%	1,584.013	1,584.013	148.897	1,435.115	344.428	9,449.876
2015	24.0%	9.4%	2.6%	1.4223	0.0%	0.000				18.95%	1,790.691	1,790.691	168.325	1,622.366	389.368	10,682.874

(Sheet 1 of 2)

Imputed Value of TAPS Dismantling, Removal and Restoration Funds Collected under TSM

Exhibit 6

Estimated Actual Value to TAPS Owners of DR&R Collections thru 2034 Using Revised TAPS Settlement Methodology with Updates to 1985 Assumptions

(Sheet 2 of 2)

(Results of Calculating Effective Federal Income Tax Shown in Col. [O])

Col. (A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(H Adj. 1)	(H Adj. 2)	(I)	(J)	(K)	(L)	(M)	(N)	(O)
Calendar Year	Effective Fed. Tax Rate (est.) (%)	Nominal State Tax Rate (%)	Inflation (GDP or forecast)	Compound Inflation Factor	Stipulated Expenditure Fraction (%)	Estimated Expenditure (MMS)	DR&R Allowance (MMS)	Owner Gain From: Non-Owner DR&R (Est. \$MM)	Reduced Roy + Sev. (Est. \$MM)	Est. Parent Co. Pre-Tax Return on Equity (%)	Imputed Interest (MMS)	State Taxable Income (MMS)	State Tax (MMS)	Federal Taxable Income (MMS)	Federal Tax (MMS)	After-Tax Balance (MMS)
2016	24.0%	9.4%	2.6%	1.4592						18.95%	2,024.336	2,024.336	190.288	1,834.049	440.172	12,076.751
2017	24.0%	9.4%	2.6%	1.4972						18.95%	2,288.467	2,288.467	215.116	2,073.351	497.604	13,652.497
2018	24.0%	9.4%	2.6%	1.5361						18.95%	2,587.061	2,587.061	243.184	2,343.877	562.530	15,433.844
2019	24.0%	9.4%	2.6%	1.5760						18.95%	2,924.614	2,924.614	274.914	2,649.701	635.928	17,447.616
2020	24.0%	9.4%	2.6%	1.6170						18.95%	3,306.211	3,306.211	310.784	2,995.428	718.903	19,724.141
2021	24.0%	9.4%	2.6%	1.6591						18.95%	3,737.598	3,737.598	351.334	3,386.264	812.703	22,297.702
2022	24.0%	9.4%	2.6%	1.7022						18.95%	4,225.272	4,225.272	397.176	3,828.096	918.743	25,207.055
2023	24.0%	9.4%	2.6%	1.7465						18.95%	4,776.575	4,776.575	448.998	4,327.577	1,038.619	28,496.014
2024	24.0%	9.4%	2.6%	1.7919						18.95%	5,399.812	5,399.812	507.582	4,892.230	1,174.135	32,214.109
2025	24.0%	9.4%	2.6%	1.8384						18.95%	6,104.367	6,104.367	573.811	5,530.557	1,327.334	36,417.332
2026	24.0%	9.4%	2.6%	1.8862						18.95%	6,900.851	6,900.851	648.680	6,252.171	1,500.521	41,168.981
2027	24.0%	9.4%	2.6%	1.9353						18.95%	7,801.258	7,801.258	733.318	7,067.940	1,696.306	46,540.616
2028	24.0%	9.4%	2.6%	1.9856						18.95%	8,819.148	8,819.148	829.000	7,990.148	1,917.636	52,613.129
2029	24.0%	9.4%	2.6%	2.0372	2.5%	104.930				18.95%	9,969.851	9,969.851	937.166	9,032.685	2,167.844	59,373.039
2030	24.0%	9.4%	2.6%	2.0902	5.0%	215.316				18.95%	11,250.810	11,250.810	1,057.576	10,193.234	2,446.376	66,904.581
2031	24.0%	9.4%	2.6%	2.1445	50.0%	2,209.142				18.95%	12,677.989	12,677.989	1,191.731	11,486.258	2,756.702	73,424.996
2032	24.0%	9.4%	2.6%	2.2003	30.0%	1,359.948				18.95%	13,913.566	13,913.566	1,307.875	12,605.691	3,025.366	81,645.373
2033	24.0%	9.4%	2.6%	2.2575	10.0%	465.102				18.95%	15,471.275	15,471.275	1,454.300	14,016.975	3,364.074	91,833.172
2034	24.0%	9.4%	2.6%	2.3162	2.5%	119.299				18.95%	17,401.798	17,401.798	1,635.769	15,766.029	3,783.847	103,696.055

Estimated Surplus (2004 MM \$) == > 48,011.073

Notes: Updated 1985 TAPS Settlement Methodology DR&R schedule (see Exhibit 3) modified to estimate fiscal effects of producer-owner overlap on TAPS (see Exhibit 4) and estimated actual federal tax rates.

Col. (B): Federal tax payments estimated at Exxon's 1996 actual tax rate (per Institute on Taxation and Economic Policy, Corporate Income Taxes in the 1990s, October 2000); see discussion in text.

Col. (G): Assumes DR&R will be completed between 2029 and 2034

Col. (H Adj. 1): 2.5% of Col. H, reflecting the fact that, historically, approximately 97.5% of DR&R collections were internal transfers between the producing and pipeline arms of the same income tax payer.

Col. (H Adj. 2): 23% of Col. H, reflecting the gain to the producer-owner from reduced severance and royalty payments due to DR&R payments.

Col. (I): 1978 - 97 = S&P Compustat Return on parent company equity adjusted to pre-tax level; '98 - 2003 = weighted average of TAPS Owners' ROE (from company reports)

adjusted to estimated pretax level; 2004 - 2034 = average 1978-2003 (ROE + inflation), adjusted to pretax level (see Exh. 3 and Appendix A)

(Sheet 2 of 2)

Imputed Value of TAPS Dismantling, Removal and Restoration Funds Collected under TSM

Exhibit 7

(Sheet 1 of 2)

**Estimated Actual Value to TAPS Owners of DR&R Collections thru 2034 Using Revised TAPS Settlement Methodology with Updates to 1985 Assumptions
(Results of Calculating Effective Federal Income Taxes plus Federal Tax Deduction for DR&R Shown in Col. [O])**

Col. (A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(H Adj. 1)	(H Adj. 2)	(I)	(J)	(K)	(L)	(M)	(N)	(O)
Calendar Year	Effective Fed. Tax Rate (est.) (%)	Nominal State Tax Rate (%)	Inflation (GDP or forecast)	Compound Inflation Factor	Stipulated Expenditure Fraction (%)	Estimated Expenditure (MM\$)	DR&R Allowance (MM\$)	Owner Gain From: Non-Owner DR&R (Est. \$MM) Reduced Roy + Sev. (Est. \$MM)		Est. Parent Co. Pre-Tax Return on Equity (%)	Imputed Interest (MM\$)	State Taxable Income (MM\$)	State Tax (MM\$)	Federal Taxable Income (MM\$)	Federal Tax (MM\$)	After-Tax Balance (MM\$)
1977	48.0%	9.4%	7.5%	0.4233		872.1	23.536	0.588	5.278			5.866	0.551	4.726	2.269	3.046
1978	48.0%	9.4%	6.7%	0.4518			95.968	2.399	21.521	27.54%	0.839	0.839	0.079	22.281	10.695	17.031
1979	46.0%	9.4%	8.1%	0.4882			113.143	2.829	25.372	52.76%	8.985	8.985	0.845	33.513	15.416	37.957
1980	46.0%	9.4%	8.8%	0.5310			127.183	3.180	28.521	47.23%	17.927	17.927	1.685	44.762	20.591	65.308
1981	46.0%	9.4%	9.8%	0.5830			120.225	3.006	26.960	33.33%	21.767	21.767	2.046	46.681	21.473	93.521
1982	46.0%	9.4%	6.8%	0.6229			121.149	3.029	27.168	23.85%	22.300	52.497	4.935	44.533	20.485	120.598
1983	46.0%	9.4%	4.4%	0.6504			115.745	2.894	25.956	24.25%	29.248	58.097	5.461	49.742	22.882	150.353
1984	46.0%	9.4%	4.2%	0.6774			110.377	2.759	24.752	28.81%	43.315	70.826	6.658	61.409	28.248	186.273
1985	31.5%	9.4%	2.8%	0.6963			104.048	2.601	23.333	20.54%	38.261	64.195	6.034	55.559	17.525	226.908
1986	31.5%	9.4%	2.3%	0.7125			97.766	2.444	21.924	16.95%	38.468	62.836	5.907	54.486	17.186	266.652
1987	27.4%	9.4%	2.6%	0.7311			95.023	2.376	21.309	20.74%	55.316	79.000	7.426	69.199	18.980	319.246
1988	23.3%	9.4%	3.1%	0.7541			85.402	2.135	19.151	21.64%	69.085	90.371	8.495	79.741	18.591	382.531
1989	23.3%	9.4%	3.9%	0.7834			73.214	1.830	16.418	25.41%	97.193	115.442	10.852	102.760	23.958	463.163
1990	23.3%	9.4%	3.7%	0.8125			60.717	1.518	13.616	23.58%	109.195	124.329	11.687	111.124	25.908	549.898
1991	23.3%	9.4%	3.8%	0.8430			50.254	1.256	11.270	11.30%	62.145	74.671	7.019	66.395	15.480	602.070
1992	24.0%	9.4%	2.5%	0.8642			40.334	1.008	9.045	6.63%	39.902	49.955	4.696	44.251	10.620	636.709
1993	24.0%	9.4%	2.3%	0.8838			31.188	0.780	6.994	11.29%	71.869	79.643	7.486	71.377	17.130	691.735
1994	24.0%	9.4%	2.3%	0.9042			24.386	0.610	5.469	19.80%	136.969	143.048	13.446	128.992	30.958	790.378
1995	24.0%	9.4%	1.9%	0.9218			19.288	0.482	4.325	19.02%	150.327	155.134	14.583	140.070	33.617	897.313
1996	24.0%	9.4%	1.9%	0.9395			13.802	0.345	3.095	27.45%	246.352	249.792	23.480	225.966	54.232	1,069.393
1997	24.0%	9.4%	1.7%	0.9559			8.405	0.210	1.885	27.13%	290.150	292.245	27.471	264.564	63.495	1,270.671
1998	24.0%	9.4%	1.2%	0.9675			3.893	0.097	0.873	11.56%	146.881	147.851	13.898	133.856	32.125	1,372.499
1999	24.0%	9.4%	1.3%	0.9802			3.628	0.091	0.813	19.09%	262.056	262.960	24.718	238.151	57.156	1,553.585
2000	24.0%	9.4%	2.0%	1.0000			3.650	0.091	0.818	30.81%	478.702	479.612	45.083	434.437	104.265	1,883.848
2001	24.0%	9.4%	2.3%	1.0234			3.451	0.086	0.774	15.70%	295.782	296.642	27.884	268.672	64.481	2,088.125
2002	24.0%	9.4%	1.8%	1.0415			3.229	0.081	0.724	12.01%	250.715	251.519	23.643	227.796	54.671	2,261.331
2003	24.0%	9.4%	1.6%	1.0585			2.853	0.071	0.640	26.04%	588.776	589.487	55.412	534.004	128.161	2,667.245
2004	24.0%	9.4%	1.3%	1.0724			2.610	0.065	0.585	17.08%	455.579	456.229	42.886	413.279	99.187	2,981.402
2005	24.0%	9.4%	2.6%	1.1003			2.411	0.060	0.541	18.95%	564.957	565.557	53.162	512.335	122.960	3,370.837
2006	24.0%	9.4%	2.6%	1.1289			2.234	0.056	0.501	18.95%	638.752	639.309	60.095	579.158	138.998	3,811.052
2007	24.0%	9.4%	2.6%	1.1582			1.924	0.048	0.432	18.95%	722.170	722.650	67.929	654.672	157.121	4,308.652
2008	24.0%	9.4%	2.6%	1.1884			1.659	0.041	0.372	18.95%	816.462	816.875	76.786	740.048	177.611	4,871.129
2009	24.0%	9.4%	2.6%	1.2193			1.283	0.032	0.288	18.95%	923.048	923.368	86.797	836.539	200.769	5,506.931
2010	24.0%	9.4%	2.6%	1.2510	0.0%	0.000	0.951	0.024	0.213	18.95%	1,043.528	1,043.765	98.114	945.627	226.951	6,225.632
2011	24.0%	9.4%	2.6%	1.2835	0.0%	0.000	0.796	0.020	0.179	18.95%	1,179.717	1,179.916	110.912	1,068.984	256.556	7,038.079
2012	24.0%	9.4%	2.6%	1.3168	0.0%	0.000		0.000	0.000	18.95%	1,333.671	1,333.671	125.365	1,208.306	289.993	7,956.391
2013	24.0%	9.4%	2.6%	1.3511	0.0%	0.000				18.95%	1,507.685	1,507.685	141.722	1,365.963	327.831	8,994.523
2014	24.0%	9.4%	2.6%	1.3862	0.0%	0.000				18.95%	1,704.404	1,704.404	160.214	1,544.190	370.606	10,168.108
2015	24.0%	9.4%	2.6%	1.4223	0.0%	0.000				18.95%	1,926.791	1,926.791	181.118	1,745.673	418.961	11,494.819

(Sheet 1 of 2)

Imputed Value of TAPS Dismantling, Removal and Restoration Funds Collected under TSM

Exhibit 7

(Sheet 2 of 2)

**Estimated Actual Value to TAPS Owners of DR&R Collections thru 2034 Using Revised TAPS Settlement Methodology with Updates to 1985 Assumptions
(Results of Calculating Effective Federal Income Taxes plus Federal Tax Deduction for DR&R Shown in Col. [O])**

Col. (A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(H Adj. 1)	(H Adj. 2)	(I)	(J)	(K)	(L)	(M)	(N)	(O)
Calendar Year	Effective Fed. Tax Rate (est.) (%)	Nominal State Tax Rate (%)	Inflation (GDP or forecast)	Compound Inflation Factor	Stipulated Expenditure Fraction (%)	Estimated Expenditure (MM\$)	DR&R Allowance (MM\$)	Owner Gain From: Non-Owner DR&R (Est. \$MM)	Reduced Roy + Sev. (Est. \$MM)	Est. Parent Co. Pre-Tax Return on Equity (%)	Imputed Interest (MM\$)	State Taxable Income (MM\$)	State Tax (MM\$)	Federal Taxable Income (MM\$)	Federal Tax (MM\$)	After-Tax Balance (MM\$)
2016	24.0%	9.4%	2.6%	1.4592						18.95%	2,178.195	2,178.195	204.750	1,973.444	473.627	12,994.637
2017	24.0%	9.4%	2.6%	1.4972						18.95%	2,462.400	2,462.400	231.466	2,230.935	535.424	14,690.147
2018	24.0%	9.4%	2.6%	1.5361						18.95%	2,783.689	2,783.689	261.667	2,522.022	605.285	16,606.884
2019	24.0%	9.4%	2.6%	1.5760						18.95%	3,146.898	3,146.898	295.808	2,851.090	684.262	18,773.712
2020	24.0%	9.4%	2.6%	1.6170						18.95%	3,557.498	3,557.498	334.405	3,223.093	773.542	21,223.263
2021	24.0%	9.4%	2.6%	1.6591						18.95%	4,021.672	4,021.672	378.037	3,643.635	874.472	23,992.426
2022	24.0%	9.4%	2.6%	1.7022						18.95%	4,546.411	4,546.411	427.363	4,119.048	988.572	27,122.903
2023	24.0%	9.4%	2.6%	1.7465						18.95%	5,139.616	5,139.616	483.124	4,656.492	1,117.558	30,661.837
2024	24.0%	9.4%	2.6%	1.7919						18.95%	5,810.222	5,810.222	546.161	5,264.061	1,263.375	34,662.523
2025	24.0%	9.4%	2.6%	1.8384						18.95%	6,568.326	6,568.326	617.423	5,950.903	1,428.217	39,185.210
2026	24.0%	9.4%	2.6%	1.8862						18.95%	7,425.346	7,425.346	697.983	6,727.364	1,614.567	44,298.006
2027	24.0%	9.4%	2.6%	1.9353						18.95%	8,394.188	8,394.188	789.054	7,605.135	1,825.232	50,077.908
2028	24.0%	9.4%	2.6%	1.9856						18.95%	9,489.443	9,489.443	892.008	8,597.435	2,063.384	56,611.959
2029	24.0%	9.4%	2.6%	2.0372	2.5%	104.930				18.95%	10,727.603	10,727.603	1,008.395	9,719.209	2,332.610	63,893.628
2030	24.0%	9.4%	2.6%	2.0902	5.0%	215.316				18.95%	12,107.433	12,107.433	1,138.099	10,969.334	2,632.640	72,015.006
2031	24.0%	9.4%	2.6%	2.1445	50.0%	2,209.142				18.95%	13,646.382	13,646.382	1,282.760	12,363.622	2,967.269	79,202.217
2032	24.0%	9.4%	2.6%	2.2003	30.0%	1,359.948				18.95%	15,008.312	15,008.312	1,410.781	13,597.531	3,263.407	88,176.393
2033	24.0%	9.4%	2.6%	2.2575	10.0%	465.102				18.95%	16,708.861	16,708.861	1,570.633	15,138.228	3,633.175	99,216.344
2034	24.0%	9.4%	2.6%	2.3162	2.5%	119.299				18.95%	18,800.861	18,800.861	1,767.281	17,033.580	4,088.059	112,042.567
Estimated Surplus (2004 MM \$) == >															51,875.492	

Notes: Updated 1985 TAPS Settlement Methodology DR&R schedule (see Exhibit 3) modified to estimate fiscal effects of producer-owner overlap (see Exhibit 4) and estimated actual federal tax rates plus known deductions.

Col. (B): Federal tax payments estimated at Exxon's 1996 actual tax rate (per Institute on Taxation and Economic Policy, *Corporate Income Taxes in the 1990s*, October 2000); see discussion in text.

Col. (G): Assumes DR&R will be completed between 2029 and 2034

Col. (H Adj. 1): 2.5% of Col. H, reflecting the fact that, historically, approximately 97.5% of DR&R collections were internal transfers between the producing and pipeline arms of the same income tax payer.

Col. (H Adj. 2): 23% of Col. H, reflecting the gain to the producer-owner from reduced severance and royalty payments due to DR&R payments.

Col. (I): 1978 - 97 = S&P Compustat Return on parent company equity adjusted to pre-tax level; '98 - 2003 = weighted average of TAPS Owners' ROE (from company reports) adjusted to pretax level; 2004 - 2034 = average 1978-2003 (ROE + inflation), adjusted to pretax level (see Exh. 3 and Appendix A)

Col. (M): Reduced to reflect tax deduction for DR&R costs (U.S. Tax Court, *Petition*, Exxon v. Commissioner (Docket 18432-90), Aug. 16, 1990, p. 146.

(Sheet 2 of 2)

Imputed Value of TAPS Dismantling, Removal and Restoration Funds Collected under TSM

Exhibit 8
(Sheet 1 of 1)

**Estimated Actual Value to TAPS Owners of DR&R Collections thru 2034 Using Revised TAPS Settlement Methodology with Updates to 1985 Assumptions
(Effects of High Inflation and Reduced Corporate Earnings Shown in Col. [O])**

Col. (A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(H Adj. 1)	(H Adj. 2)	(I)	(J)	(K)	(L)	(M)	(N)	(O)
Calendar Year	Effective Fed. Tax Rate (est.) (%)	Nominal State Tax Rate (%)	Inflation (GDP or forecast)	Compound Inflation Factor	Stipulated Expenditure Fraction (%)	Estimated Expenditure (MM\$)	DR&R Allowance (MM\$)	Owner Gain From:		Est. Parent Co. Pre-Tax Return on Equity (%)	Imputed Interest (MM\$)	State Taxable Income (MM\$)	State Tax (MM\$)	Federal Taxable Income (MM\$)	Federal Tax (MM\$)	After-Tax Balance (MM\$)
								Non-Owner DR&R (Est. \$MM)	Reduced Roy + Sev. (Est. \$MM)							
1977	48.0%	9.4%	7.5%	0.3938		872.1	23.536	0.588	5.278			5.866	0.551	4.726	2.269	3.046
1978	48.0%	9.4%	6.7%	0.4518			95.968	2.399	21.521	27.54%	0.839	0.839	0.079	22.281	10.695	17.031
1979	46.0%	9.4%	8.1%	0.4882			113.143	2.829	25.372	52.76%	8.985	8.985	0.845	33.513	15.416	37.957
1980	46.0%	9.4%	8.8%	0.5310			127.183	3.180	28.521	47.23%	17.927	17.927	1.685	44.762	20.591	65.308
1981 - 2001 Hidden == > == See Exhibit 7, Sheet 1 == >																
2002	24.0%	9.4%	1.8%	1.0415			3.229	0.081	0.724	12.01%	250.715	251.519	23.643	227.796	54.671	2,261.331
2003	24.0%	9.4%	1.6%	1.0585			2.853	0.071	0.640	26.04%	588.776	589.487	55.412	534.004	128.161	2,667.245
2004	24.0%	9.4%	2.5%	1.0724			2.610	0.065	0.585	16.30%	434.871	435.522	40.939	394.517	94.684	2,967.143
2005	24.0%	9.4%	5.0%	1.1260			2.411	0.060	0.541	17.43%	517.318	517.919	48.684	469.175	112.602	3,323.776
2006	24.0%	9.4%	7.5%	1.2105			2.234	0.056	0.501	17.43%	579.497	580.054	54.525	525.473	126.113	3,723.191
2007	24.0%	9.4%	10.0%	1.3315			1.924	0.048	0.432	17.43%	649.134	649.614	61.064	588.502	141.241	4,170.501
2008	24.0%	9.4%	10.0%	1.4647			1.659	0.041	0.372	17.43%	727.122	727.536	68.388	659.106	158.185	4,671.463
2009	24.0%	9.4%	10.0%	1.6111			1.283	0.032	0.288	17.43%	814.465	814.784	76.590	738.163	177.159	5,232.499
2010	24.0%	9.4%	10.0%	1.7723	0.0%	0.000	0.951	0.024	0.213	17.43%	912.281	912.518	85.777	826.717	198.412	5,860.828
2011	24.0%	9.4%	10.0%	1.9495	0.0%	0.000	0.796	0.020	0.179	17.43%	1,021.829	1,022.028	96.071	925.937	222.225	6,564.560
2012	24.0%	9.4%	10.0%	2.1444	0.0%	0.000		0.000	0.000	17.43%	1,144.524	1,144.524	107.585	1,036.939	248.865	7,352.634
2013	24.0%	9.4%	10.0%	2.3589	0.0%	0.000		0.000	0.000	17.43%	1,281.924	1,281.924	120.501	1,161.423	278.742	8,235.315
2014	24.0%	9.4%	10.0%	2.5948	0.0%	0.000		0.000	0.000	17.43%	1,435.818	1,435.818	134.967	1,300.852	312.204	9,223.962
2015	24.0%	9.4%	10.0%	2.8542	0.0%	0.000		0.000	0.000	17.43%	1,608.188	1,608.188	151.170	1,457.018	349.684	10,331.296
2016	24.0%	9.4%	10.0%	3.1397						17.43%	1,801.251	1,801.251	169.318	1,631.933	391.664	11,571.565
2017	24.0%	9.4%	10.0%	3.4536						17.43%	2,017.490	2,017.490	189.644	1,827.846	438.683	12,960.728
2018	24.0%	9.4%	10.0%	3.7990						17.43%	2,259.689	2,259.689	212.411	2,047.278	491.347	14,516.660
2019	24.0%	9.4%	10.0%	4.1789						17.43%	2,530.964	2,530.964	237.911	2,293.054	550.333	16,259.381
2020	24.0%	9.4%	10.0%	4.5968						17.43%	2,834.806	2,834.806	266.472	2,568.334	616.400	18,211.315
2021	24.0%	9.4%	10.0%	5.0564						17.43%	3,175.123	3,175.123	298.462	2,876.662	690.399	20,397.578
2022	24.0%	9.4%	10.0%	5.5621						17.43%	3,556.296	3,556.296	334.292	3,222.004	773.281	22,846.301
2023	24.0%	9.4%	10.0%	6.1183						17.43%	3,983.228	3,983.228	374.423	3,608.805	866.113	25,588.993
2024	24.0%	9.4%	10.0%	6.7301						17.43%	4,461.414	4,461.414	419.373	4,042.041	970.090	28,660.944
2025	24.0%	9.4%	10.0%	7.4031						17.43%	4,997.005	4,997.005	469.718	4,527.287	1,086.549	32,101.682
2026	24.0%	9.4%	10.0%	8.1434						17.43%	5,596.894	5,596.894	526.108	5,070.786	1,216.989	35,955.479
2027	24.0%	9.4%	10.0%	8.9578						17.43%	6,268.800	6,268.800	589.267	5,679.533	1,363.088	40,271.924
2028	24.0%	9.4%	10.0%	9.8536						17.43%	7,021.367	7,021.367	660.009	6,361.359	1,526.726	45,106.556
2029	24.0%	9.4%	10.0%	10.8389	2.5%	558.270				17.43%	7,864.280	7,864.280	739.242	7,125.038	1,710.009	49,963.315
2030	24.0%	9.4%	10.0%	11.9228	5.0%	1,228.194				17.43%	8,711.051	8,711.051	818.839	7,892.212	1,894.131	54,733.202
2031	24.0%	9.4%	10.0%	13.1151	50.0%	13,510.136				17.43%	9,542.676	9,542.676	897.012	8,645.664	2,074.959	47,793.771
2032	24.0%	9.4%	10.0%	14.4266	30.0%	8,916.690				17.43%	8,332.793	8,332.793	783.283	7,549.511	1,811.883	44,614.710
2033	24.0%	9.4%	10.0%	15.8693	10.0%	3,269.453				17.43%	7,778.527	7,778.527	731.182	7,047.346	1,691.363	46,701.240
2034	24.0%	9.4%	10.0%	17.4562	2.5%	899.100				17.43%	8,142.312	8,142.312	765.377	7,376.934	1,770.464	51,408.610
Estimated Surplus (2004 MM \$) == >																3,158.224

Notes: Updated 1985 TAPS Settlement Methodology DR&R schedule (see Exhibit 3), modified to estimate fiscal effects of producer-owner overlap (see Exhibit 4) as follows:

Col. (D): 1977-2003 inflation = GDP Deflator (OMB estimates); 2004 - 2007 assumed increasing to 10.0% in 2007 and held at 10.0% thru 2034.

Col. (G): Assumes DR&R will be completed between 2029 and 2034

Col. (H Adj. 1): 2.5% of Col. H, reflecting the fact that, historically, approximately 97.5% of DR&R collections were internal transfers between the producing and pipeline arms of the same income tax payer.

Col. (H Adj. 2): 23% of Col. H, reflecting the gain to the producer-owner from reduced severance and royalty payments due to DR&R payments.

Col. (I): 1978 - 97 = S&P Compustat Return on parent company equity adjusted to pre-tax level; '98 - 2003 = weighted average of TAPS Owners' ROE (from company reports)

adjusted to pretax level; 2004 = average 1978-2003 (ROE + inflation), adjusted to pretax level - 2.5%.0%; 2005-2034 = average 1978-2003 (ROE + inflation), adjusted to pretax level - 5.0%.

APPENDICES

Appendix A

Calculating TAPS Owner Return on Investments

To determine the imputed value of tariff DR&R collections to the owners of TAPS, it is necessary to estimate the rate at which those funds grow between the time the TAPS Owners collect those funds through the front-loaded TAPS tariff and the time those funds will be used to carry out dismantling operations. This appendix examines (1) the bases for the earnings rates adopted for this analysis and (2) how assumptions about earnings fit into the TAPS DR&R worksheet.

At the start of this inquiry, it may be useful to recall where the question of the appropriate earnings rate fits into the broader picture of DR&R. Other factors affecting the value of DR&R collections — income tax, inflation rates and the date of decommissioning, for example — were also uncertain. Because DR&R collections would be held over an extended period of time, the effect of these uncertainties was that the pipeline owners were liable to collect too much or too little money to do the job. One solution to this problem would have been to deposit the amounts necessary for DR&R in an interest-bearing account that would increase with inflation. Indeed, if TAPS DR&R collections had been placed in escrow and pegged to inflation, there would be little reason to revisit this issue.

(1) Corporate Earnings Assumptions Used in This Analysis

Because the DR&R funds collected under TSM accrue to the TAPS Owners, this analysis uses earnings of the parent companies of the TAPS owners, weighting each company's annual returns to reflect its ownership percentage in TAPS. Before this analysis can be undertaken, it is necessary to select the appropriate measure of income -- return on assets, return on capital, or some other measure? Because DR&R collections function to augment parent company capital, this analysis uses return on equity, rather than return on assets or other measures of profitability. Return on equity is a standard method of profitability that is defined as annual net income divided by shareholders' interest, where that interest is the difference between assets and liabilities.¹

¹ John A. Tracy, *How to Read a Financial Report: Wringing vital signs out of the numbers* (New York: John Wiley and Sons, 1993 [Fourth ed.]), p. 151.

Measures of profitability are subject to significant "tweaking" by corporate accountants. Moreover, data from company annual reports are difficult to use because each corporation employs different accounting techniques and special annual adjustments require treatment that may render any year's results suspect.² Taking corporate data from a single source, rather than from each company's annual report, reduces the problem of reporting inconsistencies, either due to treatment of special items in a given year, or due to different reporting methods. For historical analysis, this report therefore uses corporate return to equity as reported by S&P-Compustat. Because the major mergers in the oil patch starting in 1998 significantly altered the financial make up of the major TAPS Owners, to assure consistency from 1998 forward it was necessary to look to each company's annual reports. For these years, the method used to minimize variability in individual company reporting of merger activities was to divide net income on an annualized basis by shareholders' interest at year-end. The results of this exercise for the parent company of each TAPS Owner are found in the left-hand portion of appendix Exhibit A-1, which appears at the back of this discussion.

The right-hand panel of appendix Exhibit A-1 adjusts the historical rates of return for inflation to produce an annual real ROE. This adjustment is necessary to provide a basis for estimating future rates of return under varying inflation assumptions. (The inflation index used here is the gross domestic product deflator, taken from the 2005 United States Budget document.)

In appendix Exhibit A-2 (also at the back of this discussion), the left panel shows ownership shares of TAPS. In the right-hand panel of Exhibit A-2, the real ROE from appendix Exhibit A-1 is multiplied by each company's ownership share of TAPS. The far right-hand column sums the individual company weighted average rates of return to produce the overall annual real, weighted returns on equity for the TAPS Owners. The figures in this column are used to calculate the pre-tax value of the accumulated DR&R funds in Column (I) of report Exhibits 3 through 8.

(2) How Assumptions about Corporate Earnings Fit into the TAPS DR&R Worksheet

The S&P Compustat and annual report figures represent return on equity after taxes are paid. But the TAPS DR&R methodology requires a pre-tax figure for column (I) because estimated state and federal income taxes on DR&R income, calculated annually at columns (L) and (N), must be subtracted from the collections and earnings to arrive at the after-tax balance. To reflect pre-tax earnings at column (I), it is therefore

² Tracy notes that the bottom line on financial statements may be as much as 10% high or low, pp. 118, 124.

necessary to “gross up” the corporate earnings figures to cover the applicable state and federal corporate income tax payments. The formula for this adjustment is:

$$\frac{(\text{After-tax return on parent company equity})}{1 - [\text{State Inc. Tax Rate}] - ([1 - \text{State Inc. Tax Rate}] * [\text{Fed. Inc. Tax Rate}]})$$

or (referring to the exhibits)

$$\frac{(\text{After-tax return on parent company equity})}{1 - (\text{Col. [C]} - (1 - \text{Col. [C]}) * (\text{Col. [B]})}$$

Before grossing up return to equity for use in the worksheet at column (I), it is necessary consider inflation. For past years, inflation does not pose a problem for the model; the worksheet tracks inflation to calculate the amount that will be necessary, under that inflation scenario, to carry out TAPS decommissioning. From 1977 through 2003 nominal return to equity — which includes the actual inflation in column (B) — is used, in keeping with the methodology used in the original worksheet.

To estimate future earnings, past nominal returns may not be the best indicator because those figures include actual inflation rates that differ from forecast inflation. Observe in appendix Exhibit A-1, for example, that in 1979 and 1980, when nominal returns were high, inflation took a significant bite out of those gains. Since then, inflation has come down to relatively low levels and the Alaska Department of Revenue forecast now uses an inflation rate of 2.6% through 2034. Under this relatively low inflation scenario, the use of nominal (unadjusted) historical returns would increase apparent corporate returns by the difference between past and future inflation. To estimate future returns by using average past nominal returns implicitly assumes that the past high returns associated with high inflation will be duplicated with low inflation. While this outcome is possible — relatively high nominal returns on equity were combined with low inflation in 1996 and 1997, for example — it is by no means certain. To avoid this mismatch in estimating future earnings, it is necessary to isolate earnings from inflation. (Changes in the tax rate do not pose a problem in this regard because return to equity — nominal or real — is an after-tax figure.)

The data reported in appendix Exhibits A-1 and A-2 allow conversion from nominal rate of return for the TAPS owners to a real rate simply by subtracting annual inflation. As indicated in the lower-right corner of appendix Exhibit A-2, the 26-year average real return to equity realized by the TAPS owners is 10.45%. After removing inflation to get a real historical figure for corporate earnings, the next step is to add forecast

inflation, converting the estimates of future earnings back into nominal terms for worksheet application. The result combines the best estimate of future corporate earnings (based on historical data) with a current estimate of future inflation, rather than an historical average. As discussed in the report text, report Exhibit 8 replaces the standard case assumptions with extreme inflation and significantly reduced earnings assumptions. Even under these extremely conservative assumptions, past DR&R collections are sufficient to produce a surplus after completion of DR&R.

Exhibit A-1
(Sheet 1 of 1)

TAPS Owners Parent Company Nominal and Real Return on Equity, 1978 - 2003

<u>Year</u>	<u>Nominal Return on Carrier Equity</u>							<u>Inflation</u>	<u>Real Return on Parent Equity (Nominal ROE Less Inflation)</u>						
	<u>ARCO</u>	<u>BP</u>	<u>Exxon</u>	<u>Amerada</u>	<u>Philips</u>	<u>Unocal</u>	<u>M / W</u>		<u>GDP Defl.</u>	<u>ARCO</u>	<u>BP</u>	<u>Exxon</u>	<u>Amerada</u>	<u>Philips</u>	<u>Unocal</u>
1978	0.1460	0.1183	0.1366	0.1023	0.1954	0.1440	0.1263	0.067	0.0790	0.0513	0.0696	0.0353	0.1284	0.0770	0.0593
1979	0.1905	0.3245	0.1905	0.2669	0.2093	0.1693	0.1909	0.081	0.1095	0.2435	0.1095	0.1859	0.1283	0.0883	0.1099
1980	0.2220	0.2422	0.2223	0.2292	0.2166	0.1861	0.2152	0.088	0.1340	0.1542	0.1343	0.1412	0.1286	0.0981	0.1272
1981	0.1929	0.1387	0.1953	0.0853	0.1604	0.1924	0.1660	0.098	0.0949	0.0407	0.0973	(0.0127)	0.0624	0.0944	0.0680
1982	0.1698	0.0828	0.1472	0.0656	0.1119	0.1694	0.0936	0.068	0.1018	0.0148	0.0792	(0.0024)	0.0439	0.1014	0.0256
1983	0.1422	0.0898	0.1691	0.0813	0.1173	0.1208	0.1077	0.044	0.0982	0.0458	0.1251	0.0373	0.0733	0.0768	0.0637
1984	0.1135	0.1403	0.1916	0.0662	0.1223	0.1230	0.0931	0.042	0.0715	0.0983	0.1496	0.0242	0.0803	0.0810	0.0511
1985	0.0605	0.1446	0.1674	(0.1152)	0.3096	0.1994	0.0738	0.028	0.0325	0.1166	0.1394	(0.1432)	0.2816	0.1714	0.0458
1986	0.1169	0.0814	0.1674	(0.1070)	0.1174	0.1047	0.0923	0.023	0.0939	0.0584	0.1444	(0.1300)	0.0944	0.0817	0.0693
1987	0.2082	0.1127	0.1439	0.1065	0.0192	0.1025	0.0750	0.026	0.1822	0.0867	0.1179	0.0805	(0.0068)	0.0765	0.0490
1988	0.2534	0.1033	0.1656	0.0561	0.3076	0.0111	0.1295	0.031	0.2224	0.0723	0.1346	0.0251	0.2766	(0.0199)	0.0985
1989	0.2976	0.1647	0.0984	0.1860	0.1027	0.1557	0.1112	0.039	0.2586	0.1257	0.0594	0.1470	0.0637	0.1167	0.0722
1990	0.2361	0.1413	0.1516	0.1554	0.1990	0.1573	0.1130	0.037	0.1991	0.1043	0.1146	0.1184	0.1620	0.1203	0.0760
1991	0.1038	0.0369	0.1603	0.0269	0.0355	0.0296	0.1095	0.038	0.0658	(0.0011)	0.1223	(0.0111)	(0.0025)	(0.0084)	0.0715
1992	0.1775	(0.0538)	0.1424	0.0022	0.1001	0.0626	0.0791	0.025	0.1525	(0.0788)	0.1174	(0.0228)	0.0751	0.0376	0.0541
1993	0.0439	0.0631	0.1518	(0.0983)	0.0911	0.1096	0.1209	0.023	0.0209	0.0401	0.1288	(0.1213)	0.0681	0.0866	0.0979
1994	0.1464	0.1399	0.1363	0.0238	0.1639	0.0440	0.1026	0.023	0.1234	0.1169	0.1133	0.0008	0.1409	0.0210	0.0796
1995	0.2036	0.0962	0.1600	(0.1483)	0.1471	0.0887	0.1324	0.019	0.1846	0.0772	0.1410	(0.1673)	0.1281	0.0697	0.1134
1996	0.2132	0.1841	0.1725	0.1951	0.3065	0.2004	0.1554	0.019	0.1942	0.1651	0.1535	0.1761	0.2875	0.1814	0.1364
1997	0.2176	0.1729	0.1938	0.0023	0.1992	0.2891	0.1681	0.017	0.2006	0.1559	0.1768	(0.0147)	0.1822	0.2721	0.1511
1998	0.0596	0.0757	0.1300	(0.1737)	0.0562	0.0590	0.0928	0.012	0.0476	0.0637	0.1180	(0.1857)	0.0442	0.0470	0.0808
1999	0.1637	0.1215	0.1246	0.1442	0.1339	0.0627	0.1246	0.013	0.1507	0.1085	0.1116	0.1312	0.1209	0.0497	0.1116
2000	--	0.1554	0.2504	0.2635	0.3056	0.2795	0.1060	0.020	--	0.1354	0.2304	0.2435	0.2856	0.2595	0.0860
2001	--	0.0668	0.2093	0.1863	0.1158	0.1969	(0.0790)	0.023	--	0.0438	0.1863	0.1633	0.0928	0.1739	(0.1020)
2002	--	0.1253	0.1536	(0.0513)	(0.0100)	0.1004	(0.1495)	0.018	--	0.1073	0.1356	(0.0693)	(0.0280)	0.0824	(0.1675)
2003	--	0.1867	0.2393	--	0.1378	0.1604	0.0549	0.016	--	0.1707	0.2233	--	0.1218	0.1444	0.0389

Notes:

1977-1997 Nominal ROE: Return to parent company equity after taxes; from S&P COMPUSTAT

1998-2003 Nominal ROE: ROE = (Annual Net Income) / (Shareholders' Equity) where Shareholders' Equity = (Assets - Liabilities); from company annual reports, except BP 2003 (estimated from company data)

GDP Deflator: Budget of the United States Government, Fiscal Year 2005, Historical Tables, Table 10.1 (GDP [Chained Price Index]), pp. 184-185

Exhibit A-2
(Sheet 1 of 1)

TAPS Owners Parent Company Real Return on Equity, 1978-2003 (Weighted Annual Average)

Year **Approximate TAPS Ownership Shares**

	ARCO	BP	Exxon	Amerada	Phillips	Unocal	M / W	
1978	21.32%	49.93%	20.30%	1.50%	1.39%	1.39%	4.18%	100.0%
1979	21.32%	49.93%	20.30%	1.50%	1.39%	1.39%	4.18%	100.0%
1980	21.32%	49.93%	20.30%	1.50%	1.39%	1.39%	4.18%	100.0%
1981	21.32%	49.93%	20.30%	1.50%	1.39%	1.39%	4.18%	100.0%
1982	21.32%	49.93%	20.30%	1.50%	1.39%	1.39%	4.18%	100.0%
1983	21.32%	49.93%	20.30%	1.50%	1.39%	1.39%	4.18%	100.0%
1984	21.32%	49.93%	20.30%	1.50%	1.39%	1.39%	4.18%	100.0%
1985	21.32%	49.93%	20.30%	1.50%	1.39%	1.39%	4.18%	100.0%
1986	21.32%	49.93%	20.30%	1.50%	1.39%	1.39%	4.18%	100.0%
1987	21.32%	49.93%	20.30%	1.50%	1.39%	1.39%	4.18%	100.0%
1988	21.32%	49.93%	20.30%	1.50%	1.39%	1.39%	4.18%	100.0%
1989	21.32%	49.93%	20.30%	1.50%	1.39%	1.39%	4.18%	100.0%
1990	21.32%	49.93%	20.30%	1.50%	1.39%	1.39%	4.18%	100.0%
1991	21.32%	49.93%	20.30%	1.50%	1.39%	1.39%	4.18%	100.0%
1992	21.32%	49.93%	20.30%	1.50%	1.39%	1.39%	4.18%	100.0%
1993	21.32%	49.93%	20.30%	1.50%	1.39%	1.39%	4.18%	100.0%
1994	21.32%	49.93%	20.30%	1.50%	1.39%	1.39%	4.18%	100.0%
1995	21.32%	49.93%	20.30%	1.50%	1.39%	1.39%	4.18%	100.0%
1996	21.32%	49.93%	20.30%	1.50%	1.39%	1.39%	4.18%	100.0%
1997	22.27%	49.93%	20.30%	1.50%	1.39%	1.39%	3.23%	100.0%
1998	22.27%	49.93%	20.30%	1.50%	1.42%	1.36%	3.23%	100.0%
1999	22.27%	49.93%	20.30%	1.50%	1.42%	1.36%	3.23%	100.0%
2000	-	49.93%	20.30%	1.50%	23.69%	1.36%	3.23%	100.0%
2001	-	46.84%	20.30%	1.50%	26.77%	1.36%	3.23%	100.0%
2002	-	46.84%	20.30%	1.50%	26.77%	1.36%	3.23%	100.0%
2003	-	46.84%	20.30%	-	28.27%	1.36%	3.23%	100.0%

Weighted Real Return on Parent Equity (Real ROE * TAPS Ownership Share)

ARCO	BP	Exxon	Amerada	Phillips	Unocal	M / W	Weighted Avg.
0.01684	0.02561	0.01413	0.00053	0.00178	0.00107	0.00248	6.24%
0.02334	0.12157	0.02223	0.00279	0.00178	0.00122	0.00459	17.75%
0.02857	0.07699	0.02727	0.00212	0.00178	0.00136	0.00531	14.34%
0.02023	0.02032	0.01976	(0.00019)	0.00087	0.00131	0.00284	6.51%
0.02170	0.00739	0.01608	(0.00004)	0.00061	0.00141	0.00107	4.82%
0.02094	0.02287	0.02540	0.00056	0.00102	0.00106	0.00266	7.45%
0.01524	0.04908	0.03037	0.00036	0.00111	0.00112	0.00213	9.94%
0.00693	0.05822	0.02830	(0.00215)	0.00390	0.00238	0.00191	9.95%
0.02002	0.02916	0.02932	(0.00195)	0.00131	0.00113	0.00289	8.19%
0.03884	0.04329	0.02394	0.00121	(0.00009)	0.00106	0.00205	11.03%
0.04741	0.03610	0.02733	0.00038	0.00384	(0.00028)	0.00411	11.89%
0.05513	0.06276	0.01206	0.00221	0.00088	0.00162	0.00302	13.77%
0.04245	0.05207	0.02327	0.00178	0.00225	0.00167	0.00317	12.67%
0.01403	(0.00055)	0.02483	(0.00017)	(0.00003)	(0.00012)	0.00299	4.10%
0.03251	(0.03934)	0.02384	(0.00034)	0.00104	0.00052	0.00226	2.05%
0.00446	0.02002	0.02615	(0.00182)	0.00094	0.00120	0.00409	5.50%
0.02631	0.05837	0.02300	0.00001	0.00195	0.00029	0.00332	11.33%
0.03936	0.03854	0.02863	(0.00251)	0.00178	0.00097	0.00474	11.15%
0.04140	0.08243	0.03117	0.00264	0.00399	0.00252	0.00570	16.98%
0.04467	0.07784	0.03590	(0.00022)	0.00253	0.00377	0.00488	16.94%
0.01061	0.03180	0.02396	(0.00278)	0.00063	0.00064	0.00261	6.75%
0.03356	0.05415	0.02267	0.00197	0.00171	0.00067	0.00361	11.83%
--	0.06758	0.04679	0.00365	0.06765	0.00352	0.00278	19.20%
--	0.02052	0.03782	0.00245	0.02485	0.00236	(0.00330)	8.47%
--	0.05028	0.02754	(0.00104)	(0.00749)	0.00112	(0.00541)	6.50%
--	0.07998	0.04533	-	0.03443	0.00196	0.00126	16.30%

1978-2003 Weighted Average Real ROE: 10.45%

Notes (Ownership)

- 1978-1996: Composite ownership (pipeline & terminal) from TSM, Exhibit B (1983)
(BP = sum of BP + Sohio interests prior to 1987, when BP acquired Sohio interest)
- 1997: Mobil sold 1% of pipeline (excluding terminal interest) to ARCO
- 1998: Adjust PAPCo, Unocal composite interests (see: Alyeska *FACTS*, Jan. 1999, p. 7)
- 2000: Mobil sold remaining interest to Williams; Phillips bought ARCO TAPS interest
- 2001: ConocoPhillips acquired 3.0845% from BP
- 2003: ConocoPhillips acquired 1.5% from Amerada-Hess
- 2004: Williams sold Alaska interests to Koch Industries

Notes (Return on Equity)

Weighted average real return on equity = the sum of
(each company's real ROE [from right-hand panel of Sheet 1]) *
(that company's ownership percentage [from left side of this figure])
Transfers during a calendar year are assumed effective January 1 of that year.

Richard A. Fineberg is an Alaska-based consultant who prepares reports on economic and environmental issues associated with petroleum development for non-profit organizations, government agencies, independent developers and private investors. His reports on Alaska cover topics such as: the profitability and long-term production prospects of Alaska's North Slope oil fields; state and federal petroleum revenue; economic, operational and safety issues on the Trans-Alaska Pipeline System (TAPS); and the causes and effects of the 1989 *Exxon Valdez* oil spill. He has also reported on oil and gas development in Azerbaijan, Kazakhstan and the Russian Far East and prepared a chapter on Alaska's petroleum litigation for the book, *Caspian Oil Windfalls: Who Will Benefit?* (published in 2003 by the Open Society Institute with a foreward by Joseph E. Stiglitz).

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