

**PRUDHOE**

**BAY**

**CORROSION**

**CRISIS,**

**8/18/06**

**(FILE 3)**

## **Department of Environmental Conservation**

### **Committee Handouts**

Joint Senate and House Resources Committee Hearing  
August 18, 2006

1. Six Elements of a Good Regulatory Program
2. Alaska's Oil Production, Transportation and Storage Network diagram
3. Regulated Flow Lines and Crude Oil Transmission Pipelines at North Slope  
Production Facilities diagram
4. Charter Agreement documents (*binders provided to Committee in advance*)
5. Charter Agreement excerpt
6. Arctic Pipeline Technology Team MOA



## **Alaska Department of Environmental Conservation**

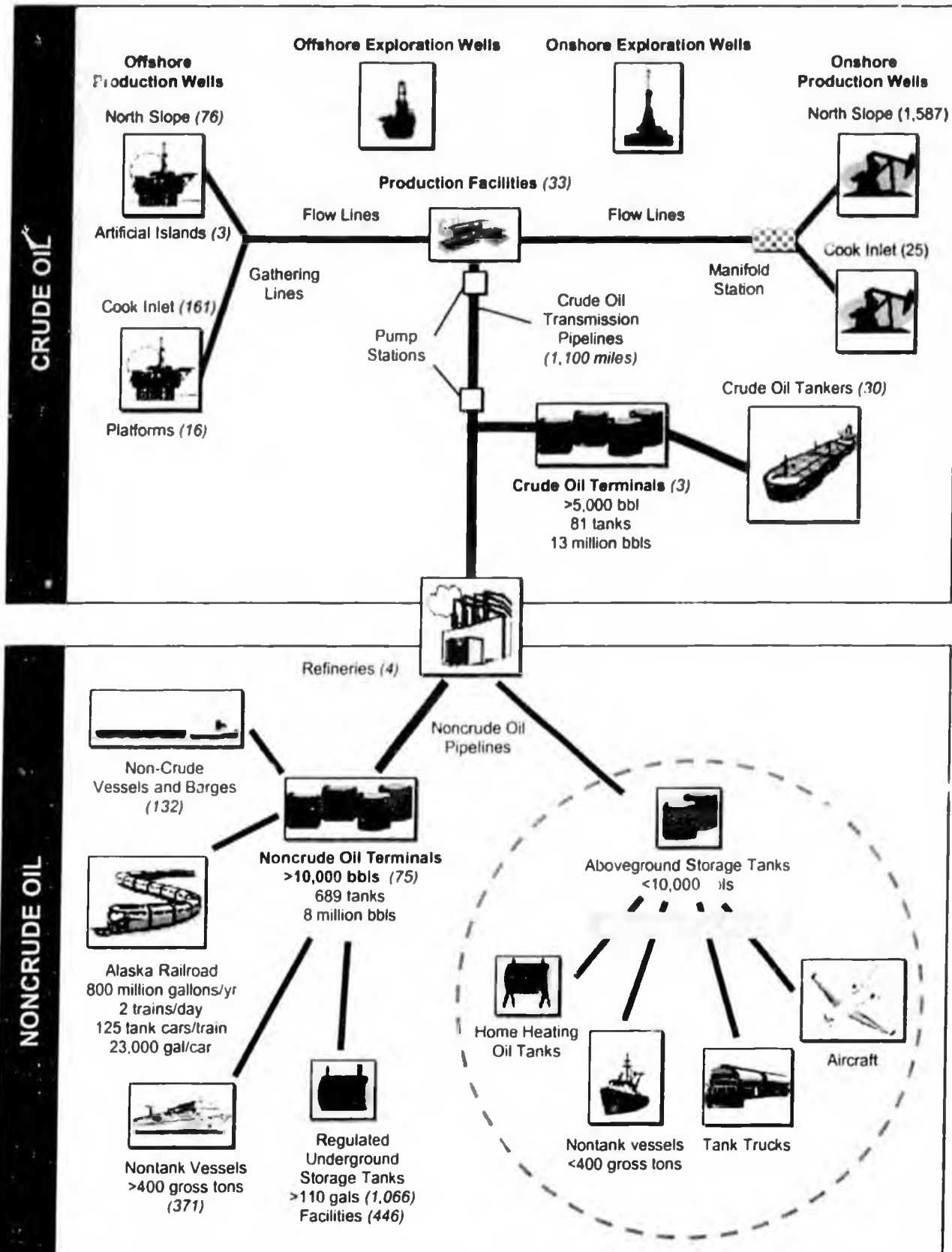


### **SIX ELEMENTS OF A GOOD REGULATORY PROGRAM:**

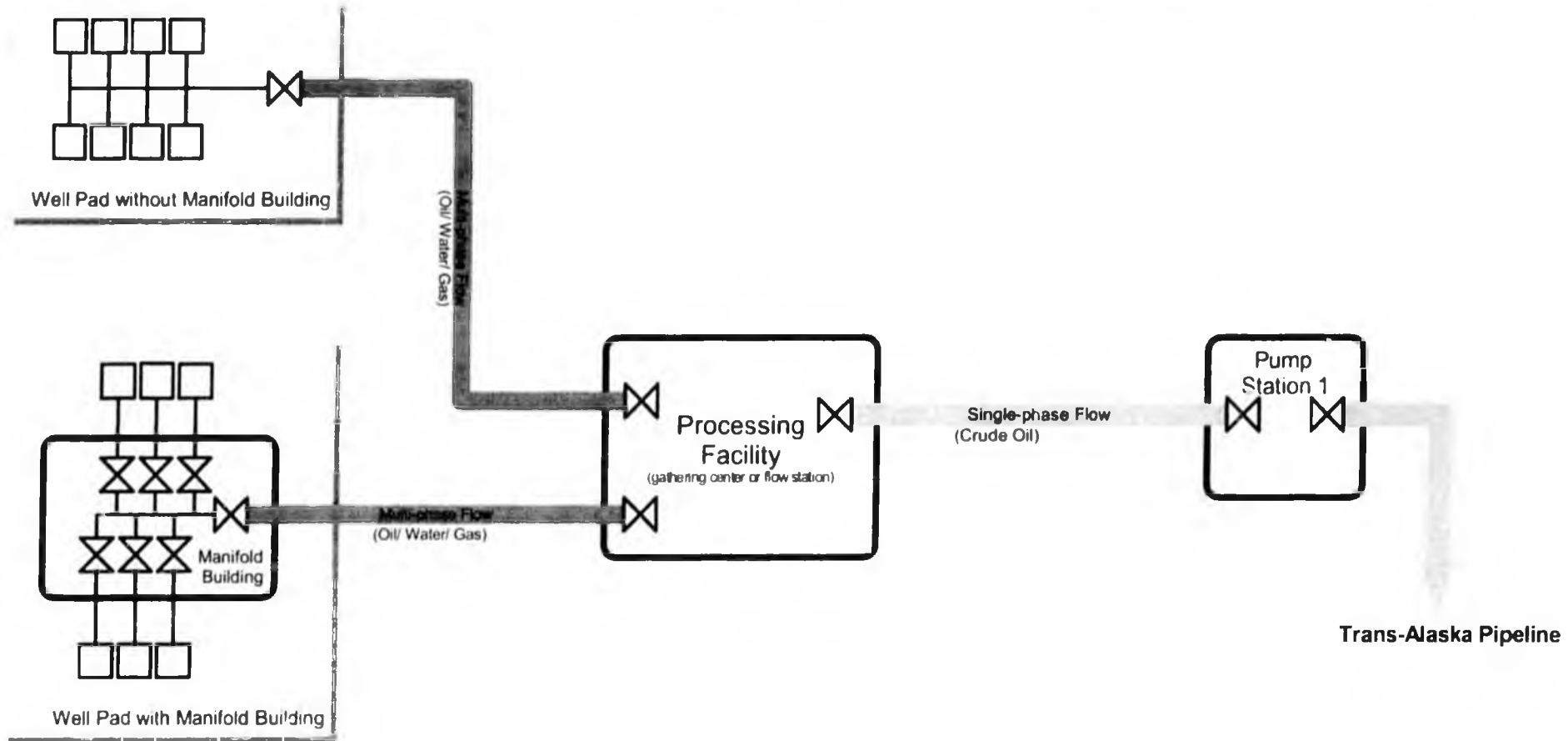
- 1. Unambiguous statutory authority**
- 2. Documented basis for concern**
- 3. Protective standards**
- 4. Rational regulatory scheme**
- 5. Documented compliance**
- 6. Enforcement**

# Alaska's Oil Production, Transportation and Storage Network

The facilities designated as "non-regulated" are not required to have a state-approved oil discharge prevention and contingency plan. ( ) Number of facilities.



# Regulated Flow Lines and Crude Oil Transmission Pipelines at North Slope Production Facilities



-  Valve, Choke, Flange, or Interconnection
-  Wellhead

**ADEC Regulated Gathering & Flow line (18 AAC 75.047) – corrosion monitoring**

**ADEC Reg. lated Crude Oil Transmission Pipeline (18 AAC 75.055) – leak detection**

**Charter for Development of Alaska's North Slope  
December 2, 1999**

**Anti-trust Agreement Environmental Protection Provisions**

**Commitment to Corrosion Monitoring.** BP and ARCO will, in consultation with ADEC, develop a performance management program for the regular review of BP's and ARCO's corrosion monitoring and related practices for non-common carrier North Slope pipelines operated by BP or ARCO. This program will include meet and confer working sessions between BP, ARCO and ADEC, scheduled on average twice per year, reports by BP and ARCO of their current and projected monitoring, maintenance and inspection practices to assess and to remedy potential or actual corrosion and other structural concerns related to these lines, and ongoing consultation with ADEC regarding environmental control technologies and management practices.

**Additional Environmental Commitments:**

- Cleanup of Abandoned Sites
- Cleanup of Abandoned Empty Barrels
- Cleanup of Existing BP and ARCO Sites
- Closure of Inactive Reserve Pits
- Commitment to North Slope Spill Response
- Renewed Commitment to OPA 90
- Replacement Vessels
- Marine Operations

# **ARCTIC PIPELINE TECHNOLOGY TEAM**

## **MEMORANDUM OF AGREEMENT**

### **BETWEEN**

**THE ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION**

### **AND**

**THE ALASKA DEPARTMENT OF NATURAL RESOURCES**

### **AND**

**THE ALASKA OIL AND GAS CONSERVATION COMMISSION**

Governor Frank H. Murkowski has called for the creation of an Arctic Pipeline Technology Team consisting of state, federal and industry experts to ensure the integrity of Alaska's oil pipeline infrastructure, continued crude oil production and protection of the environment.

The Governor has called for monitoring and maintaining pipelines to the highest standards.

The Alaska Department of Environmental Conservation (DEC), Alaska Department of Natural Resources (DNR), and Alaska Oil and Gas Conservation Commission (AOGCC) (referred to hereafter as the "Parties") share a common interest in ensuring the integrity of oil and gas pipelines in Alaska and protection of the environment.

Exploration and production of oil and gas in Alaska depends on pipeline systems to safely transport oil and gas from the wellhead to processing facilities, refineries, storage, distribution and delivery to the consumer.

It is in the interest of the parties to coordinate efforts to maximize efficiency and share knowledge and expertise related to arctic pipeline integrity.

It is in the interest of the public and the environment to exchange technical knowledge and collaborate on pipeline integrity issues.

It is in the interest of the parties to ensure the integrity of Alaska's oil transportation infrastructure by employing the best available expertise within their respective organizations regarding technologies and practices in the design, operation and maintenance of Alaska's pipelines.

Now, therefore, the Parties agree, to the extent permitted by law, and consistent with their respective policies, available resources, statutory and regulatory authority, to establish the Alaska Pipeline Technical Team (APTT) to share technical expertise and knowledge for pipelines in Alaska.

#### **PARTIES TO THE AGREEMENT**

The parties to this agreement are the Alaska Department of Environmental Conservation, Alaska Department of Natural Resources, and Alaska Oil and Gas Conservation Commission.

#### **PURPOSE OF THE AGREEMENT**

The purpose of this Memorandum of Agreement (MOA) is to create an Arctic Pipeline Technology Team in order to share and exchange technical knowledge, expertise and information related to corrosion prevention, monitoring, inspection and mitigation and other issues related to pipeline integrity in arctic climates. The Arctic Pipeline Technology Team shall share technical resources, troubleshoot design, construction, operation and maintenance problems, validate engineering approaches, examine technologies and ensure the best available resources within the respective agencies can be made available to any of the parties for evaluating pipeline integrity issues associated with Alaska's pipelines.

#### **AGREEMENT**

The signatory agencies, referred to as the "Parties", agree to:

Work together to communicate, coordinate and collaborate and provide a leadership role for arctic pipeline integrity.

Work together to cooperatively address pipeline integrity issues.

Make available the best expertise and resources within their respective agencies to any of the Parties to evaluate arctic or subarctic pipeline integrity issues.

Share technical resources and information related to pipeline integrity in Arctic and sub-Arctic climates.

Target work carried out under this agreement to corrosion management, monitoring, inspection and mitigation including strain based risk assessment for Alaska's North Slope pipelines upstream of Pump Station 1 of the Trans Alaska Pipeline System.

Extend collaboration, communication and coordination for other pipeline integrity issues in Alaska at the request of industry or any of the Parties.

Troubleshoot design, construction, operation and maintenance problems, validate engineering approaches, examine regulatory regimes and recommend changes to reflect latest technologies.

Maintain relationships and communication to promote efficiencies in resolving pipeline integrity issues.

Collaborate and share data and information that will assist in evaluating pipeline integrity issues.

Review corrosion inspection techniques and their timely implementation, including visual, ultrasonic, radiographic, guided wave, smart pig and other technologies.

Review internal and external corrosion programs including cased pipe inspection techniques.

Review strain induced problems associated with corrosion, wind induced vibration or other causes.

Evaluate corrosion mechanisms, corrosion monitoring, corrosion inspection, and corrosion mitigation technologies.

Exchange copies of correspondence and reports pertaining to pipeline integrity issues as appropriate.

Exchange the results of studies, monitoring and research related to pipeline integrity.

Anticipate pipeline integrity problems to prevent spills.

Evaluate monitoring and inspection methods and technologies.

Advise each other of any technical developments relevant to arctic or subarctic pipeline integrity.

Evaluate pipeline failure trends and causes.

Coordinate inspections and reviews as appropriate.

Review data and pipeline integrity programs.

Critique reports and investigative findings as appropriate.

Meet and confer with other experts from academia, outside consultants, industry or other state or federal agencies to acquire knowledge or expertise on specific pipeline integrity issues.

## **ORGANIZATION**

There shall be an Executive Steering Committee (ESC) and a Working Group (WG).

ESC members are the signatories to this Memorandum of Agreement. They shall function as a policy-level group to provide overall direction for collaboration, coordination and work undertaken within the scope of this agreement. The members of the ESC shall meet and confer as they may determine to execute these responsibilities.

The ESC shall identify and prioritize specific pipelines and/or pipeline integrity issues for which collaboration, coordination or information sharing under this agreement is beneficial.

ESC members shall appoint a primary WG member to act as the single point of contact for purposes of this Agreement.

The WG shall be the operational arm of the ESC.

The work carried out and the recommendations made by the WG shall be consensus based.

The WG shall establish and identify the participants, process and procedures appropriate to evaluating specific pipeline integrity problems brought before it.

The participants, process and procedures for evaluating specific pipeline integrity problems shall be established by the WG.

The WG shall follow-up on pipeline integrity issues as may be requested by the ESC.

WG members must be able to represent the technical viewpoints and coordinate participation or access to the best available expertise of their respective agency.

WG members may identify specific pipeline integrity problems for discussion and evaluation.

Pipeline integrity issues from industry or other non-signatory agencies may be brought to the WG group for review, consideration and evaluation.

Work carried out by the WG shall be outlined in an annual calendar year work plan for ESC review and approval.

The WG may form standing or ad hoc teams, as needed, to study and make recommendations on specific issues of concern. The WG shall designate the

lead agency and the Parties may appoint members or other subject matter experts to participate.

The WG may, at its discretion, invite other industry or government representatives or other experts as "advisors" to provide expertise for specific issues.

#### **UNDERSTANDING**

This MOA represents a voluntary understanding between the Parties.

It is the express purpose of this MOA to share expertise and knowledge in a non-legally binding technical forum separate and apart from any action that may be taken by an individual agency acting under its own authority or jurisdiction.

This MOA in no way supplants or changes the individual authority or jurisdiction of individual agencies.

The terms of this MOA may be changed at any time through mutual consent of the Parties.

A Party may withdraw from this MOA by providing 30 days prior written notice to the other Parties.

No rights, duties, obligations, or liabilities enforceable by law are created by this MOA.

No action based upon this MOA may be brought against the United States or the State of Alaska by any person.

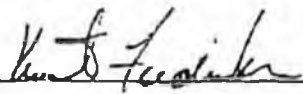
This MOA does not alter, modify, abridge, or in any way affect any rights, duties, obligations or liabilities of any person under the laws of the United States or the State of Alaska.

Nothing in this MOA shall alter, impede, or interfere with the authorities and procedures of the agencies involved in implementing their respective enforcement responsibilities.

This MOA shall become effective upon the date of signing by the last Party hereto.

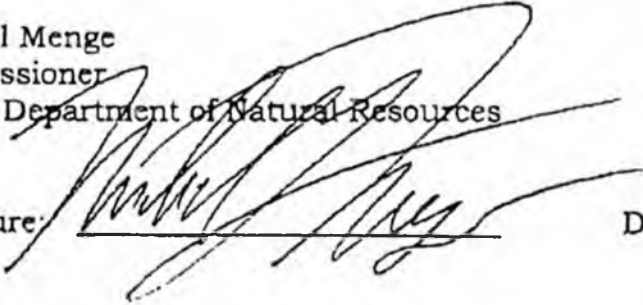
**SIGNATURE PAGE**

Kurt Fredriksson  
Commissioner  
Alaska Department of Environmental Conservation

Signature: 

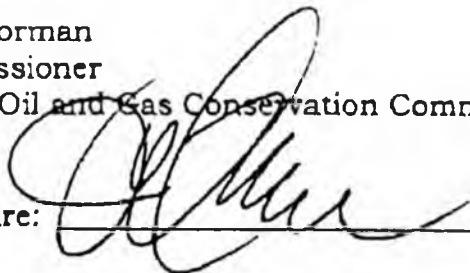
Date: 4-28-06

Michael Menge  
Commissioner  
Alaska Department of Natural Resources

Signature: 

Date: 5/1/06

John Norman  
Commissioner  
Alaska Oil and Gas Conservation Commission

Signature: 

Date: 5-3-06

# Documents Related to The Charter for Development of the Alaska North Slope

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ConocoPhillips Annual Reports (2000-2005)	Volume 1 of 1
Coffman Technical Analysis Reports (2000-2004)	Volume 1 of 1

## CHARTER FOR DEVELOPMENT of the Alaskan North Slope

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This Charter for Development of the Alaskan North Slope is entered between the State of Alaska, BP and ARCO on December 2, 1999.

BP and ARCO historically have been major participants in the development of oil resources on the North Slope of Alaska. ARCO discovered the giant Prudhoe Bay oil field in 1968. BP participated in the discovery of Kuparuk the following year. Both were leaders in building the Trans Alaska Pipeline System. Today, they are two of the largest interest owners and operators on the North Slope.

The environment for finding, developing and producing oil and gas is challenging and complex, in Alaska and the world. The giant Prudhoe Bay and Kuparuk fields are in decline. World energy markets continue to experience price volatility, competition for capital and opportunities, and financial and technical challenges to discover, develop and produce new fields. These challenges have led to large-scale industry consolidation in recent years.

Earlier this year, BP and ARCO proposed to merge. The merger and its potential impact on Alaska have been analyzed and discussed by the Governor, his Cabinet-level review team, the Legislature and the public in private, in hearings and in the media since the announcement.

There is potential both for benefit and risk to Alaska in the merger as initially proposed. In BP and ARCO's view, Alaska would benefit from the combination's financial strength and expertise, and the increased efficiencies and synergies of the combination would help make Alaska more attractive in a global oil marketplace. But Alaska would, in the State's view, lose a measure of competition, diversity and balance in the exploration, development and production of North Slope resources, and Alaska would lose the varied contributions of a leading corporate citizen.

The State of Alaska is committed to maintaining and enhancing competition, diversity and balance in the exploration, development and production of North Slope resources, sustaining and growing both oil and gas production, and ensuring that the State's natural resources are developed in an environmentally and socially sensitive and responsible manner. The State has determined therefore that its support for the merger must be conditioned upon BP and ARCO making substantial marketplace and community commitments to Alaska.

Therefore, in order to provide for greater competition, diversity, corporate responsibility, renewal and growth in the exploration, development and production of Alaskan North Slope oil and gas, the State, BP and ARCO agree to this Charter and its terms as set forth below.

### **I. BP and ARCO's Commitments Regarding Competition, Diversity and Growth.**

**A. Sale of Current Production.** After the merger is completed, BP and ARCO will sell the following properties in the following manner:

**1. Sale of Production.** BP and ARCO will sell interests in North Slope properties producing in aggregate share not less than 175,000 barrels of gross working interest production per day to one or more purchasers. For purposes of this paragraph 1.A., quantity will be measured by 1999 average daily production, except the Colville River Unit will be deemed to produce a total of 80,000 barrels of production per day.

**2. Sale of Interests including Kuparuk.** As part of the sale required by subparagraph 1, BP and ARCO will enter into a contract of sale with a single qualified company ("Buyer A") for at least 125,000 barrels of gross working interest production per day, including at least 50.01% of the Kuparuk River Unit total interest, and will take all reasonable available steps to enable that company to become the operator of that unit. In no event will BP or ARCO continue as operator of that unit after sale of the working interest production. For purposes of this subparagraph 2, "qualified company" means a company which is currently a joint interest owner in the Kuparuk River Unit, or a company primarily in the energy business with assets of not less than \$8 billion.

**3. Sale of Interest in Alpine.** As part of the sale required by subparagraph 1, BP and ARCO will

enter into a contract of sale with a single qualified company ("Buyer B") for at least 40% of the total Colville River Unit interest and will take all reasonable available steps to enable that company to become the operator of that unit. In no event will BP or ARCO continue as operator of that unit after sale of the interest. For purposes of this subparagraph 3, "qualified company" means a company which is currently a joint interest owner in the Colville River Unit, or a company primarily in the energy business with assets of not less than \$3 billion.

**4. Sale of Share of Pipelines.** BP and ARCO will enter into a contract of sale with Buyer A and Buyer B for a commensurate interest in TAPS and intermediate pipelines as provided in paragraph H.

**B. Sale of NPRA Lease Interests.** BP and ARCO will sell not less than 220,000 net acres of their aggregate NPFA holdings to one or more purchasers. BP and ARCO will enter a contract of sale with either Buyer A or Buyer B for not less than 100,000 net NPRA acres, including at least 50.01% of BP and ARCO's combined interests in one of the sections of the NPRA designated on Exhibit A to this Charter, and will take all reasonable available steps to enable that company to become the exploration operator in that section.

**C. Sale or Relinquishment of State Leases.** BP and ARCO will sell or relinquish at least 400,000 net acres of undeveloped state leases, including sufficient interests in onshore/non-unitized state leases to reduce their aggregate holdings in such leases to not more than 500,000 net acres. BP and ARCO will manage the sale of this acreage to result in two exploration operatorships other than BP or ARCO in material and significant geologic play fairways on the North Slope (lease groupings which the parties agree meet this requirement are listed in Exhibit B to this Charter). As part of this sale or relinquishment of State acreage, BP and ARCO will enter contracts of sale with Buyer A and Buyer B in the combined amount of not less than 250,000 net acres of undeveloped state leases, including a minimum of 75,000 net acres for each buyer. BP and ARCO agree to meet and confer with representatives of the Alaska Department of Natural Resources, beginning within 10 days after the merger is completed and continuing for the period reasonably necessary to review the number, status, prospectivity and possible transfer options for all such holdings, as well as intended marketing or relinquishment plans.

**D. Terms of Sales.** Contracts for the full aggregate amount of the interests sold under paragraphs I.A. and I.B. will be signed within 6 months after the merger is completed and those transactions will be closed not later than 12 months after the merger is completed. Transfers under paragraph I.C. will be made within the period prescribed by law. All transfers of whole or partial interests in the properties and pipelines referenced in paragraphs I.A.-I.C. will be absolute, in good faith and with no minimum price. BP and ARCO agree that they will not reacquire interests transferred under paragraphs I.A.-I.C. by any means without advance approval of the State. Except as specifically provided in paragraphs I.A.-I.C. and otherwise in this Charter, the sales contemplated in paragraphs I.A.-I.C. may be to various parties and include interests from various units and leases as determined by BP and ARCO. BP and ARCO may retain an interest in the units and leases it sells under paragraphs I.A.-I.C., subject to the requirement that any interest retained in exploration leases be subject to non-consent provisions permitting investment by other interest owners without BP or ARCO's consent. Any transfer under paragraphs I.A.-I.C. will be subject to all necessary state and federal regulatory approvals and other requirements. BP and ARCO will use their best efforts to secure such approvals.

**E. Data Availability.** After the merger is completed, BP and ARCO will make their proprietary North Slope seismic and well data publicly available for purchase by any person where they have the legal right to do so. Where they do not currently have the legal right to do so, they will diligently and in good faith seek permission from the other joint interest owners to make the data available. Unless otherwise approved by the State, BP and ARCO will make the data available by contracting with a third party company, acting as marketing agent for BP and ARCO, that will market the data at prices it independently determines; except that, with respect to data generated before 1975, BP and ARCO will make the data publicly available without charge in such reasonable manner as it may determine. BP and ARCO will ensure that the data is publicly available as soon as is reasonably practicable but in all events not longer than 3 months after the merger is completed. BP and ARCO will provide the State with (1) a list of which of their North Slope seismic and well data can be made available on their own and which requires the consent of parties other than BP or ARCO, and (2) a list or lists showing all of BP and ARCO's North Slope seismic and well data from 1958 on indicating the acquisition area, the size of the acquisition area, the ownership status (sole, joint, group shoot, trade, purchase or license), when

the data was acquired, the survey type, and the operator and the contractor. For data acquired after 1984, these lists will be provided as soon as is reasonably practicable but in all events before December 31, 1999. For data acquired before 1985, these lists will be provided as soon as is reasonably practicable but in all events within 3 months after the merger is completed. This paragraph applies to data generated prior to and through the date this Charter is first signed by the parties.

#### **F. Facilities Access.**

1. In the State's view, the Commissioner of Natural Resources possesses the statutory, regulatory and contractual authority to require working interest owners to provide others access to production and other facilities, on terms that are non-discriminatory, just and reasonable. The Commissioner may require access whenever necessary to maximize the economic and physical recovery of the State's oil or gas resources, maximize competition among parties seeking to explore and develop the resources, minimize the adverse effects of exploration, development, production and transportation activity, or otherwise to protect the best interests of the State. Binding arbitration between BP or ARCO and others under subparagraph 2 does not affect the Commissioner's authority to resolve questions of facility access.

2. BP and ARCO currently take no position on the State's view. BP and ARCO nevertheless commit that, after the merger is completed, neither BP nor ARCO will unreasonably withhold their voting support as facilities owners for allowing nearby satellites to have access to existing unit facilities on reasonable commercial terms. BP and ARCO agree that if a nearby satellite owner reasonably and diligently negotiates to unsuccessful impasse with facilities owners that include BP or ARCO, and after 90 day advance notice to BP and ARCO, BP and ARCO agree to subject themselves to binding arbitration governed by the rules of the American Arbitration Association on the question of reasonable commercial terms for that access.

**G. Purchases From Qualified Producers.** After the merger is completed, BP and ARCO agree to offer to purchase any qualified producer's ANS leasehold production on the terms reflected in the form purchase contract which is Exhibit C to this Charter. BP and ARCO may limit the total purchased under all such contracts to 30,000 barrels per day. For purposes of this paragraph I.G., "qualified producer" means a person or entity with assets of less than \$1 billion (all parents, subsidiaries, affiliates and controlling parties inclusive) which produces not more than 10,000 barrels of gross working interest ANS liquid hydrocarbons per day at the time of proposed contract entry. In the event that any purchase contract under this paragraph I.G. is in effect and no RIK sales are made in a month, the State agrees to calculate the average value it received for RIV in that month for use as an alternative reference marker, and to update that average monthly to reflect retroactive revisions. The parties agree that the price at which the crude oil is purchased, and the pricing formula components of Exhibit C, will not be precedent in any royalty or severance tax proceeding or matter between them.

#### **H. Divestiture of TAPS and Feeder Lines.**

1. In order to satisfy the State's concern that the purchasers of the production interests sold under paragraph I.A. of this Charter (the "Transferee(s)") be similarly situated to BP and ARCO by ownership in TAPS, within the time frame established for paragraph I.A. transfers, BP or ARCO will enter into a contract with each Transferee to sell a share of BP or ARCO's interest in TAPS sufficient to carry the production sold to that Transferee. For purposes of this paragraph I.H., production quantity will be measured in the same manner as under paragraph I.A. and TAPS capacity will be measured in accordance with the Amended and Restated Capacity Settlement Agreement in the fixed amount of 1380 mbd.

2. After all contracts contemplated in subparagraph 1 have been entered, and during the remaining term of this Charter, BP or ARCO will offer to sell additional interests in TAPS to any person requesting to purchase a share in TAPS, up to a total aggregate amount under this paragraph I.H. of 22.295% of total TAPS ownership. The additional transfers contemplated by this subparagraph 2 will be in minimum increments of 2% of total TAPS ownership, valued at not more than the ad valorem tax value as of the time of the offer, less 5%. The parties agree that the price at which the TAPS interest is sold will not be precedent in any property tax proceeding regarding the value of TAPS.

3. Within the time frame established for paragraph I.A. transfers, BP and ARCO will enter into a contract with each Transferee to sell to that Transferee a separate share of BP and ARCO's

aggregate interest in the Oliktok pipeline and in each of the intermediate crude oil common carrier pipelines serving the specific units in which the production interests to be transferred to that Transferee are located (the "relevant intermediate pipelines"). The ownership interest in each relevant intermediate pipeline to be sold to each Transferee will be equal to the percentage which the production sold under paragraph I.A. to that Transferee flowing through that pipeline bears to the overall throughput of that pipeline. The relevant production and throughput levels will be measured in the same manner as under paragraph I.A. The percentage of the Oliktok pipeline to be sold will be equal to the percentage share of the KRU sold pursuant to subparagraph I.A.2.

4. Any transfer under this paragraph I.H. will be subject to all necessary state and federal regulatory approvals and any preference rights and required approvals of the other TAPS and relevant intermediate pipeline owners. BP and ARCO will use their best efforts to secure such approvals. BP and ARCO will vote their entire interest in TAPS and the relevant intermediate pipelines in support of any such transfer. In the event any other TAPS or relevant intermediate pipeline owner exercises its preference rights with respect to the sale of a pipeline interest pursuant to subparagraphs 1, 2 or 3 hereof, the sale to that other owner will be considered a sale satisfying the obligations of that subparagraph. BP and ARCO agree that they will not reacquire interests transferred under this paragraph I.H. by any means without advance approval of the State.

**I. Offer to Sell Excess Jones Act Ships.** If BP's and ARCO's combined long-term ANS Jones Act fleet requirements are such that one or more ships becomes surplus of those requirements, BP or ARCO (as the case may be), will offer to sell the surplus ship or ships to other ANS producers on reasonable commercial terms. If BP or ARCO does not own the ship or ships, it will not object to arrangements by another ANS producer to acquire the ship or ships from the owner. Further, in the event that the purchaser of the ship or ships seeks ship operation services from the Alaska Tanker Company, Inc., BP will not object. Nothing in this paragraph requires BP or ARCO to assume any liability of another ANS producer concerning any of these transactions.

#### **J. Natural Gas.**

1. During the period after the merger is completed through December 31, 2003, BP and Arco shall negotiate in good faith to make available to third parties at a commercially reasonable fair market price or transportation charge that is mutually agreeable to BP and Arco, the third party and the State, Alaska North Slope natural gas in sufficient quantities to support a qualified treatment and transmission project to domestic and/or international markets. A qualified treatment and transmission project must have the demonstrated ability to:

- a. obtain project construction financing;
- b. provide reasonable financial security with respect to a long term 100% take or pay arrangement if the project requires a long term gas sales commitment from the producer(s) (including, if commercially reasonable, an assignment or other back-to-back pass-through of the purchaser's take-or-pay commitment from a creditworthy ultimate purchaser); and
- c. obtain necessary approvals from other field interest owners.

2. BP and ARCO shall make reasonable efforts to assist in obtaining the approvals specified in subparagraph 1.c.

3. The delivery point for gas committed to the project will be the residue gas discharge point of the Low Temperature Separators at the Prudhoe Bay Central Gas Facility, or such other point as agreed by the parties.

4. During this period, BP and ARCO will give fair consideration to all reasonable approaches, projects and plans proposed by the State, joint interest owners and others, including LNG projects developed or proposed by the newly established port authority, the gas sponsor group, Yukon Pacific Corporation and any others, pipelines to the lower 48 including those currently proposed, gas-to-liquids projects, and any other reasonable approach, project or plan for the commercialization of North Slope gas. In giving fair consideration to these various approaches, projects and plans, BP and ARCO will consider, among other things, (a) achieving the highest total project wellhead value for the State and for the sellers over the life of the project(s) and (b) other potential benefits to Alaska such as bringing gas infrastructure for the delivery of North Slope gas to communities in Alaska. BP and ARCO will meet and confer with project sponsors on

reasonable request. Not less than every six months during this period, BP and ARCO will provide the Commissioner of Natural Resources with a report that identifies the name of the contact person for each project sponsor which contacted BP and ARCO during the prior 6 month period and the general nature and current status of the sponsor's project, subject to confidentiality requirements of the sponsor.

5. The obligation to negotiate with third parties does not preclude BP and ARCO from proceeding with their own project or projects to commercialize Alaska North Slope gas.

6. The obligations imposed by this section terminate before December 31, 2003 if BP and ARCO enter into a contract or contracts before that date committing Alaska North Slope gas to a qualified treatment and transmission project or projects for volumes that in the aggregate would constitute BP and ARCO's share of a Major Gas Sale under Article 26, Section 26.002 of the Prudhoe Bay Unit Operating Agreement or if the Board of Directors of BP and ARCO sanction the construction of such a project or projects before that date.

7. The parties agree that the terms of paragraph I.J. of this Charter shall be enforceable exclusively by arbitration between the State and BP and ARCO under the rules of the American Arbitration Association.

## **II. BP and ARCO's Environmental and Community Commitments.**

**A. North Slope Environmental Commitments.** After the merger is completed, BP and ARCO will take the following steps to improve and protect the environment on the North Slope.

**1. Cleanup of Abandoned Sites.** BP and ARCO will take a leadership role in the assessment and environmental clean up of the North Slope "orphan sites" identified in Exhibit D1 (as currently written and as modified in accordance with the terms of this paragraph II.A.1.), and will spend \$10,000,000 (or such greater amount as may be created by ADEC funding requests under paragraph II. 7.) in performance of this commitment. In carrying out this role, BP and ARCO will consult with the Alaska Department of Environmental Conservation (ADEC) concerning site goals, standards and methods and will substantially complete the assessment and cleanup to the standards approved by ADEC under applicable law within six years after the merger is completed. In addition, BP and ARCO will work cooperatively with ADEC to develop a joint database of North Slope contaminated and solid waste "orphan sites" which includes the nature and location of the sites, the responsible parties and the relative priority for cleanup of each site based upon preliminary evaluation of the risk of harm to human health and the environment posed by the site. BP and ARCO will meet and confer with ADEC from time to time thereafter to arrange for priority re-ordering and substitutions and additions to Exhibit D1 as requested by ADEC, subject to the availability of funding in the spending amount identified above and to the further requirements that there is no known viable responsible party for any substitute or additional site and the site has been wholly vacated. The parties recognize that the available funding in the amount identified above may not be sufficient to assess and cleanup in full all sites identified in Exhibit D1 now or as it may be amended, and nothing in this subparagraph II.A.1. shall preclude the State from pursuing other parties for reimbursement or from seeking other funding sources for additional assessment or cleanup on any orphan site.

**2. Cleanup of Abandoned Empty Barrels.** BP and ARCO will require contractors conducting seismic or exploration work for them to collect and deliver abandoned empty barrels to BP or ARCO operations for handling, to inventory and map locations of empty barrels and barrels containing product, and to report any visible signs of ground contamination associated with the barrels. BP and ARCO will periodically report to ADEC regarding this effort and provide ADEC with the inventory lists, maps and reports which are developed.

**3. Cleanup of Existing BP and ARCO Sites.** BP and ARCO will assess and clean to the standards approved by ADEC under applicable law the contaminated sites listed on Exhibit D2. BP and ARCO will work cooperatively with ADEC and the land manager to develop cleanup plans and schedules to complete required assessment and cleanup activities at these sites. Assessment and cleanup activities at sites which are currently accessible will be substantially completed by year-end 2005 for the sites listed as "high" priority sites in Exhibit D2 and by year-

end 2007 for the remainder. Sites which due to operational restrictions cannot be fully cleaned until facility or equipment abandonment will be identified by BP, ARCO and ADEC for completion according to a mutually agreed schedule. Nothing in this paragraph is intended to eliminate or supercede any other obligations BP or ARCO may have to assess, cleanup or restore these or any other sites.

**4. Closure of Inactive Reserve Pits.** BP and ARCO will comply with the requirements of 18 AAC 60.440 with respect to their inactive reserve pit sites and will close the inactive reserve pits subject to the Order dated May 3, 1993 in Natural Resources Defense Council Inc. v. ARCO Alaska, Inc., No. A88-287 CIV (D. Alaska) as amended within the designated time period established by the court in that matter, and will close other ARCO and BP inactive reserve pits listed on Exhibit D3A by the end of 2007 (except that in the event of currently unprojected operational delay affecting any BP site, that site may be completed on a separate mutually agreed schedule). BP and ARCO will close the ARCO and BP inactive reserve pits listed on Exhibit D3B according to a mutually agreed schedule that ends a reasonable period after work on the D3A sites has been completed.

**5. Commitment to North Slope Spill Response.** BP and ARCO will support, at their proportionate share, an independent professional North Slope spill response organization, such as Alaska Clean Seas or a substantially equivalent organization, and will encourage the fullest possible participation in this organization by all North Slope producers. BP and ARCO will support and vote in favor of funding to the North Slope oil spill response organization for an Arctic spill response research and development program (jointly agreed to by the spill response organization, BP, ARCO and ADEC) at an average annual level of not less than \$200,000 during the 10 year period following completion of the merger.

**6. Commitment to Corrosion Monitoring.** BP and ARCO will, in consultation with ADEC, develop a performance management program for the regular review of BP's and ARCO's corrosion monitoring and related practices for non-common carrier North Slope pipelines operated by BP or ARCO. This program will include meet and confer working sessions between BP, ARCO and ADEC, scheduled on average twice per year, reports by BP and ARCO of their current and projected monitoring, maintenance and inspection practices to assess and to remedy potential or actual corrosion and other structural concerns related to these lines, and ongoing consultation with ADEC regarding environmental control technologies and management practices.

**7. Additional Expenditure Commitment** BP and ARCO will pay or spend up to an aggregate total of \$500,000 each year during the 10 year period following completion of the merger for any combination of the following as requested annually in writing by the ADEC Commissioner: additional orphan site assessment or cleanup in excess of cap established in subparagraph 1; additional Arctic spill response research and development in excess of amount established in subparagraph 5; and/or an expert or experts chosen by ADEC to provide expert advice to ADEC regarding pipeline corrosion and/or other pipeline structural issues.

**8. Payment of Unspent Funds.** In the event that BP and ARCO fail to spend (or support and vote in favor of spending in the case of arctic spill response research and development) in the full amounts provided for under paragraphs II.A.1. (\$10,000,000), II.A.5. (\$2,000,000) or II.A.7. (\$5,000,000) when and as required in those paragraphs, then BP and ARCO will pay any unspent or unsupported balance as directed by the ADEC Commissioner.

## **B. Marine Environmental Commitments.**

**1. Renewed Commitment to OPA 90.** BP and ARCO renew their commitment that neither of them will seek to be relieved of the vessel retirement or replacement requirements of the federal Oil Pollution Act of 1990 ("OPA 90"), nor will either of them lobby for a reduction in its current requirements, nor will they take any other action to extend the retirement dates of the non-double-hulled tankers in their combined fleet beyond the currently scheduled retirement dates. In the event that any trade association or other group of which BP or ARCO is a member takes a different or contrary position, BP and ARCO will, upon notification and request by ADEC, issue a statement clarifying that BP and ARCO do not join in that different or contrary position, and reaffirming the position stated in the first sentence of this paragraph.

**2. Replacement Vessels.** In furtherance of their continuing commitment to meet or exceed the

OPA 90 standards and timetable, BP and ARCO will complete the purchase and delivery of the three ARCO Millennium class tankers on current order to replace single hulled tankers now used in the combined ANS fleet, and will order and purchase additional tankers to meet their combined ANS fleet requirements on average one year earlier than required by OPA 90, with the expected result that the combined ANS fleet (including both owned and chartered vessels) will be entirely double-hulled by mid-year 2007. These additional purchased tankers will each have safety related attributes substantially equivalent to or better than Millennium or Cape class tankers, including new build double-hulls (wholly new construction), main power plant redundancy, twin propellers, twin rudders, twin independent sets of steering gear, and proven electronics (including navigation, course tracking, collision alarms, engine room monitoring, cargo and ballast monitoring, and fire and safety systems). In addition, BP and ARCO will continue to support a ship escort response vessel system for Prince William Sound at current or better levels of effectiveness.

**3. Marine Operations.** After the merger is completed, BP and ARCO will continue to encourage and support the company operating ANS tankers for them in using a performance management program for the regular review of its practices related to its management and operations including a safe environment, training and qualifications, and vessel operation, maintenance and management procedures. The parties expect this program to include meet and confer working sessions between the operating company and ADEC, scheduled on average once per year, reports at those working sessions by the operating company of their current and anticipated management and operations practices, ongoing consultation between the operating company and ADEC regarding ANS trade tanker management and operations practices, and the involvement of BP and ARCO in those sessions and consultations on a monitoring basis. In addition, BP and ARCO will encourage the operating company to allow the opportunity for ADEC to observe, and to be provided a copy of the written results of, management and vessel audits performed as part of a certification or re-certification process for the International Maritime Organization's International Safety Management Code or for the International Standards Organization.

#### **C. Continued Commitment to Alaska Hire.**

**1. Alaska Hire Program.** BP and ARCO agree that, after the merger is completed, they will continue with and extend their commitment to the people of Alaska to utilize a voluntary program to employ residents of Alaska and to use Alaska businesses. It is expected by the parties that this program will include the attributes that:

- a. BP and ARCO will comply with all valid federal, State and local hiring laws in hiring Alaska residents and contractors and will not discriminate against Alaska residents or contractors, and within the constraints of law will employ Alaska residents and contractors to the extent they are available and qualified;
- b. When recruiting for new hires, BP and ARCO will advertise for available positions locally and use Alaska job service organizations to notify the Alaskan public;
- c. BP and ARCO will use best efforts to contract with Alaska firms and fabricate modules in Alaska whenever feasible (in determining feasibility, BP and ARCO will consider commercial, health, safety, and environmental conditions and requirements to ensure maintenance of BP and ARCO's operational standards);
- and
- d. BP and ARCO will, to the extent permitted by law, encourage its contractors to employ, and train when necessary, residents of Alaska.

**2. Reporting.** BP and ARCO agree to submit to the Director, Division of Oil and Gas, for transmission to the Department of Labor, an annual report that details the specific measures that they and their contractors and subcontractors have taken or are planning to take to recruit qualified Alaska residents for available jobs, describes on-the-job training opportunities, and describes their efforts to use Alaska businesses for work in connection with their leases and associated activities. BP and ARCO will also furnish the Department of Labor a quarterly report regarding their employment of Alaska residents. The report will include statistical data concerning the number of resident personnel hired within the previous year.

**3. Construction.** The program and reporting described in this paragraph are intended to be fully consistent with the 1996 amendments to paragraphs 41 (1980 leases) and 31 (1983 lease) of the Northstar Unit leases between the State and BP.

**4. Alaska Native Recruitment, Training and Hire.** BP and ARCO further acknowledge their continuing support for the recruiting, training and hiring of Alaska Natives and the parties'

common understanding of the desirability of providing Alaska's first citizens opportunities to participate in the economic benefits of oil and gas development, most of which takes place in rural Alaska.

**D. Community Charitable Commitment.** Within three months after the merger is completed, BP and ARCO will establish a charitable entity dedicated to funding organizations and causes within Alaska. The entity will provide 30% of its giving to the University of Alaska Foundation and the remainder to general community needs. Funding decisions by the entity will be made by BP and ARCO, with the advice of a board of community advisors. BP and ARCO will provide ongoing funding to this entity in an amount that is equal to .2% of BP's and ARCO's combined aggregate net Alaska liquids production after royalty times the price for WTI. Specific entity funding levels will be calculated annually, on the same date each year, referencing the liquids production and the average NYMEX WTI prompt month settlement price for the 12 months immediately preceding the calculation.

**E. Annual Report.** Once every year beginning in March 2001, and continuing thereafter for the term of this Charter, BP and ARCO will provide the State and the public with a written report describing BP and ARCO's performance of the commitments in this Section II during the prior calendar year. Public distribution will be accomplished by posting the report on a company internet site and such other reasonable means of public distribution as BP and ARCO may choose. The report provided for under subparagraph II.C.2. will satisfy this paragraph II.E. as well with respect to its subject matter so long as that report is also publicly distributed, and timing differences will be disregarded so long as the II.C.2 report is provided and distributed according to the schedule applying to subparagraph II.C.2.

### III. Alaska's Commitments.

The State of Alaska finds that this Charter adequately addresses the concerns raised by the State during its merger review, that this Charter will provide for greater competition, diversity, corporate responsibility, renewal and growth in the exploration, development and production of Alaskan North Slope oil and gas and is by virtue of these significant benefits in the best interest of Alaska and its people. The State accordingly agrees that, in exchange for BP's and ARCO's fulfillment of their obligations under this Charter, it will not seek to enjoin the merger or seek additional orders or judgments under AS 45.50.580 related to a claim that the merger is unlawful under AS 45.50.568.

### IV. BP Amoco, p.l.c.'s Commitments.

BP Amoco, p.l.c. acknowledges that, after the merger is completed, it will be the ultimate parent company of the BP and ARCO corporate entities owning the Alaska assets which are the subject of this Charter and which accordingly are the primary parties with the State of Alaska herein. In order to provide further assurance to the State that the commitments made in this Charter by these primary parties are fulfilled in all respects, BP Amoco, p.l.c. guarantees that (1) these BP and ARCO corporate entities, or such other BP/ARCO Group companies to which the obligations under this Charter are assigned or otherwise transferred, will remain fully capable during the term of this Charter to fulfill all commitments made by them herein and (2) if for any reason a commitment made by them in this Charter goes unfulfilled past the time performance is due, BP Amoco, p.l.c. will cause that performance to be otherwise fulfilled.

### V. General Provisions.

**A. Definitions.** As used in this Charter: "State" and "State of Alaska" means the State of Alaska, through its Governor, Attorney General and Commissioners of Natural Resources and Revenue; "BP" means BP Exploration (Alaska) Inc.; "ARCO" means ARCO Alaska, Inc.; "merger" means the proposed merger between BP and ARCO's parent companies; the merger is "completed" on the earliest of the date of closing, the effective date of the merger, or the first day after ARCO parent stock is exchanged for BP parent stock; "sell" and "transfer" mean divest; "gross working interest production" means BP and ARCO's share of actual liquid hydrocarbon production, including any State royalty share; "well data" includes, in digital and analog format, any mud log, lithology log, wireline well logs, conventional core and sidewall core descriptions, repeat formation

tester, log curve, directional survey, velocity survey, vertical seismic profile, geologic markers, test result, test summary, porosity and permeability data, biostratigraphic data, palynology and paleontology data, geochemical data, vitrinite reflectance data, petrographic data, and completion reports, regarding onshore or offshore exploration acreage west of the Canning River onshore and west of and including the Kuvlum prospect offshore; "seismic data" includes all seismic and ancillary data required to interpret or reprocess a seismic survey including digital files in standard exchange formats containing survey and location data, original field records, final stack and migrated processed data, final stacking and migration velocities, and a report describing the acquisition and processing of the data, regarding onshore or offshore acreage west of the Canning River onshore and west of and including the Kuvlum prospect offshore; "fair market" as used in paragraph I.J.1. will be determined with reference to the well-head netbacks pertinent to the available market(s) reasonably accessed by North Slope gas.

**B. Enforcement.** This Charter is governed by Alaska law. The parties agree that, except as provided in paragraphs I.J.7. and V.C., it may be enforced as a contract by (a) the Attorney General (for Alaska) and (b) its authorized representatives (for BP and ARCO) in any state or federal court in Alaska, the commitments made in this Charter may be specifically enforced, a trustee may be appointed by the court in such an action to effectuate any property transfers not accomplished as committed, and the court may also order any other appropriate remedy consistent with law. If BP, ARCO and the Federal Trade Commission enter into a consent decree or other agreement related to the merger, the terms of that decree or agreement that relate directly to or affect Alaskan assets or activities within or touching Alaskan waters may be incorporated by the State into this Charter by reference, and are enforceable by the State as though fully set forth herein. BP and ARCO acknowledge that they are subject to the personal jurisdiction of any state or federal court within the State of Alaska for the purposes of enforcing the terms of this Charter. BP Amoco, p.l.c. consents to the jurisdiction of any state or federal court within the State of Alaska for the purposes of enforcing its commitments under section IV of this Charter. No action alleging a failure of performance under this Charter may be commenced more than four years after the alleged failure, and no action alleging a failure of performance under this Charter may be commenced in any event after January 15, 2009, except that an action as provided in the final sentence of paragraph V.C. may be commenced through January 15, 2011.

**C. Enforcement of Section II. Commitments.** In the event that BP and ARCO fail to perform their commitments under subparagraph II.A.8. or paragraph II.E., the State may bring an action to enforce those provisions. The other provisions of Section II of this Charter are corporate citizenship commitments to the Alaskan community at large. The parties do not intend for these other commitments of Section II to be enforced by lawsuits, and no right of action is created with respect to them.

**D. Construction.** This Charter may be amended only in writing by the principals to this agreement or their successors. This Charter will be binding on the parties and their respective successors and assigns, and is not intended to confer any rights or remedies upon any other persons (as used herein, "assigns" includes a transferee of substantially all of the assets of BP or ARCO but does not otherwise include a transferee of property, under this Charter or otherwise). Except as otherwise provided in this Charter, nothing herein shall be construed to impose a duty or obligation on BP or ARCO to make any additional agreements with or concessions to any other governmental or regulatory body. Where an act required of BP or ARCO under this Charter is subject to regulatory approval or action, the time limits stated in this Charter will be deemed extended as may be necessary to accommodate the time involved in securing those regulatory approvals if BP and ARCO have acted with reasonable diligence in obtaining those approvals.

**E. Reporting, Notice and Access to Records.**

1. BP and ARCO will submit an initial compliance report at the time they execute this Charter and will submit additional compliance reports beginning thirty (30) days from the date when this Charter is entered, and every thirty (30) days thereafter until the divestitures required under Section I have been completed or a trustee is appointed. Such reports will be in writing and each such report shall include, for each person who during the preceding thirty (30) days made an offer, expressed an interest or desire to acquire, entered into negotiations to acquire, or made an inquiry about acquiring any ownership interest in all or any portion of the divestiture assets, the name, address, and telephone number of that person and a detailed description of each contact with that person during that period. BP and ARCO will maintain full records of all efforts made to divest the assets under Section I.

2. BP and ARCO will notify the State of any proposed divestiture within two (2) business days following execution of a letter of intent or agreement for sale of the assets under Section I. The notice shall set forth the details of the proposed transaction and list the name, address, and telephone number of each person not previously identified who offered or expressed an interest in or desire to acquire any ownership interest in the divestiture assets. Within ten (10) days after receipt of the notice, the State may request additional information concerning the proposed divestiture, the proposed Purchaser, and any other potential Purchaser. BP Amoco and ARCO will furnish the additional information within ten (10) days of the receipt of the request. Within twenty (20) days after receipt of the notice or within ten (10) days after receipt of the additional information, whichever is later, the State will notify BP and ARCO in writing if it objects to the proposed divestiture. If the State fails to object within the period specified, or if the State provides notice that it does not object, then the divestiture may be consummated. If the State objects, the proposed divestiture may not be accomplished unless ordered by a court of competent jurisdiction.

3. For the purpose of determining or securing compliance with this Charter, and subject to any legally recognized privilege and reasonable notice, the State will be permitted access during office hours to inspect and copy all books, ledgers, accounts, correspondence, memoranda, and other records and documents in the possession or under the control of BP or ARCO relevant to BP or ARCO's compliance with this Charter. Subject to the reasonable convenience of BP and ARCO, and without restraint or interference from them, the State may interview their directors, officers, employees, and agents regarding any such matters. No information or documents obtained by the State under this paragraph shall be divulged by any representative of the State to any person other than a duly authorized representative of the Attorney General, except in the course of legal proceedings to which the State is a party, or for the purpose of securing compliance with this Charter, or as otherwise required by law.

**F. Effectiveness.** This Charter shall be effective as of the date it is entered as written above. This Charter shall remain fully effective thereafter, except in the event that the merger agreement between BP and ARCO's parent companies is terminated, then any party may terminate this Charter by written notice to all other parties, in which event this Charter shall become null and void and of no effect, as if it were never entered.

**G. Attorneys Fees.** Within 30 days of the effective date of this Charter, BP and ARCO will pay the State \$1,512,198 as reimbursement for its attorney's fees and costs reasonably incurred in connection with the merger through the date of this Charter. In addition, BP and ARCO will make supplemental payments to reimburse the State for reasonable attorney's fees and costs incurred by the State related to Charter implementation and compliance between the date of this Charter and 12 months after the merger is completed. These supplemental payments will be made within 30 days after the State submits a reasonably supported written request to BP and ARCO for reimbursement.

**H. Warranty of Authority.** Each of the persons signing below on behalf of a corporate party represents and warrants that he has the authority to execute this Charter on behalf of the party for which he signs. Each of the persons signing below on behalf of the State represents and warrants that he holds the office shown and is authorized to exercise the powers of that office on behalf of the party for which he signs. In addition, BP and ARCO specifically warrant and represent that they are fully authorized and able to make, and to ensure the performance of, the commitments made herein and that, with respect to any Alaska assets currently owned by affiliates, they have taken or will take such steps as are necessary to ensure that the commitments they make herein are accomplished.

**I. Other Obligations Not Reduced.** Nothing in this Charter is intended to reduce, eliminate or supersede any other obligations BP or ARCO may have under any State or federal law or regulation.

**Signatures:**

**STATE OF ALASKA**

by \_\_\_\_\_  
 Tony Knowles, Governor

by \_\_\_\_\_  
Bruce Botelho, Attorney General

by \_\_\_\_\_  
John Shively, Commissioner of Natural Resources

by \_\_\_\_\_  
Wilson Condon, Commissioner of Revenue

**BP EXPLORATION (ALASKA) INC.**

by \_\_\_\_\_  
Richard Campbell, President

**ARCO ALASKA, INC.**

by \_\_\_\_\_  
Kevin Meyers, President

**BP AMOCO, p.l.c.**

by \_\_\_\_\_  
John Browne, CEO

by \_\_\_\_\_  
Rodney Chase, Deputy CEO

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[Exhibits click here](#)

[Charter Addendum \(03/15/00\) click here](#)

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## SECTION FIVE SCOPE OF WORK

### 5.01 Scope of Work

The Department of Environmental Conservation, Division of Spill Prevention and Response is soliciting proposals for technical consultation services to provide ADEC with expert corrosion advise in regards to pipeline corrosion and/or other pipeline structural issues as part of the Charter for Development of the Alaskan North Slope, item II.A.6, "Commitment to Corrosion Monitoring." The professional consultant would perform the following tasks:

- a) Complete a review of BP's and Phillip's, annually submitted, corrosion monitoring performance management reports, which are to be submitted to ADEC on or before March 31 of each year. Determine if the reports satisfy the requirements of item II.A.6, "Commitment to Corrosion Monitoring," of the Charter for Development of the Alaskan North Slope and its associated work plan deliverables (see Attachment).
- b) Provide recommendations regarding the content and extent of topics covered within the annual reports. Determine if the topics included provide a complete and adequate view of the corrosion monitoring and corrective action activities necessary for maintaining pipeline integrity. Provide recommendations on the report format/content as required. This effort is intended as a continuous improvement process of ADEC's oversight of corrosion monitoring and performance management activities conducted by BP and Phillips for their North Slope, non-common carrier pipelines.
- c) Perform a comprehensive technical analysis of the specific information presented in the reports and determine if there are any specific corrosion or pipeline structural issues, which warrant further review or corrective action. Highlight any specific areas of concern and conduct further research as required to determine if corrosion monitoring, repair or corrosion management related issues meet acceptable industry practices, code and regulatory requirements. Also determine if corrosion performance trends are at expected levels. If any parameters significantly exceed expected levels (excessive corrosion rates or frequent corrosion or structural related failures/spills), provide any findings and/or recommendations for corrective actions in this area. Rank any issues of concern as: 1) a significant pipeline integrity or environmental issue requiring immediate corrective action; 2) a pipeline integrity or environmental issue warranting corrective action within a longer time period (six months); and 3) a pipeline integrity or environmental issue warranting further study to determine if any problem exists.
- d) Analyze corrosion technologies and techniques being utilized for corrosion surveys and performance assessments of the North Slope, non-common carrier pipelines. Determine if the methods and equipment employed provide for an adequate corrosion monitoring program. If not, list specific areas that should be considered for improvement.
- e) Participate in the semi-annual "meet and confer" sessions with BP and Phillips as ADEC's technical consultant. Provide feedback regarding review findings from the previously submitted annual reports as well as any new information presented at these meetings.
- f) Recommend an "annual bullet item(s)" that can be used as an indicator of the overall corrosion performance from the data provided. It should be a simply understood criteria which will allow for effective communication to the public of the yearly status of the "Commitment to Corrosion Monitoring" Charter item.

### 5.02 Deliverables

The contractor will be required to provide the following deliverables:

1. Prepare a detailed proposed schedule of project milestones for completing all tasks (a-f) described within the Scope of Work within the first week of the contract period.
2. By the tenth day after the close of the first full month and each succeeding month thereafter, the contractor shall submit a progress report to the contract manager. This report will discuss the status of each task, problems encountered, any delays, and any other items that could affect the successful completion of the contract. The contractor will maintain a project timeline throughout the course of the contract and will supply an updated version to the contract manager prior to biweekly meetings. Depending on the location of the contractor, biweekly meetings will be held in person or by teleconference.
3. Following the comprehensive technical review of BP's and Phillips' annual reports, the contractor will present to the Contract Manager a separate draft report for each owner's report (BP and Phillips) documenting his/her complete analysis and recommendations of all elements described in tasks (a-d). The Department will review the contractor's reports and will present written comments to the contractor. The contractor will incorporate the comments into the reports by either making changes where appropriate or defending his/her course of action. The contractor will finalize the reports, including the comments and response as an appendix, and will submit them to the Contract Manager in typed and electronic versions.
4. The contractor will participate, help coordinate and provide feedback as appropriate during each of the semi-annual "meet and confer" sessions with BP and Phillips per scope task "e". A written report of the meeting minutes, including a technical review and comments on the information presented, as well as any follow-up action items or recommended actions will be provided by the contractor to the Contract Manager. The contractor will also be responsible for additional correspondence with the individual owners (as per direction from the Contract Manager) on any issues warranting further follow-up action.
5. The contractor will provide a recommendation to the Contract Manager, following review of the data available described in the owner's reports, of an "annual bullet item(s)" as described under task (f) in the scope .

## 5.03 Work Schedule

The contract term and work schedule set out herein represent the State's best estimate of the schedule that will be followed. If a component of this schedule, such as the opening date, is delayed, the rest of the schedule will likely be shifted by the same number of days.

The length of the contract will be from the date of award, approximately *July 23, 2001*, for approximately 342 calendar days until completion, approximately *June 30, 2002*.

The approximate contract schedule is as follows:

- Issue *RFP June 11, 2001*.
- Pre-Proposal Conference *June 25, 2001*.
- Closing date *July 2, 2001 COB*.
- Open *RFP July 3, 2001*.
- Proposal Evaluation Committee complete evaluation by *July 10, 2001*.
- State issues Notice of Intent to Award Contract *July 11, 2001*.
- Protest period begins *July 12, 2001*
- State awards contract *July 23, 2001*.
- Contract begins *July 26, 2001*.
- Contractor provides detailed schedule of project milestones (Deliverable 1) to Contract manager by *August 2, 2001*.
- Contractor submits first draft report (Deliverable 3) to Contract Manager by *September 11, 2001*.
- State reviews first draft (Deliverable 3) from *September 11, 2001* to *September 18, 2001*.
- Contractor revises first draft (Deliverable 3) by *September 25, 2001*.
- Contractor coordinates and participates in *October 2001* "meet and confer" session with BP and Phillips.
- Contractor provides a written report on meeting minutes and follow-up recommendations to ADEC by *November 15, 2001*

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- Any follow-up activity required from reports, meetings and outstanding deliverables are completed and submitted by the contractor to the Contract Manager by *June 30, 2002*

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## METHODOLOGY AND MANAGEMENT PLAN

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### Methodology

The scope of the proposed work is to review and report on the corrosion monitoring and control technologies, and on the practices related to these technologies, that are being used at North Slope facilities. The main source of information will be reports prepared by BPXA and PAI.

Our proposed scope also is to research and report on those technologies available or in use globally, to determine those technologies applicable in Alaskan climates, recognizing the range of operating and climatic conditions throughout the state.

To accomplish this scope of work, we propose the following four tasks:

- Task 1 – 2001 Annual Report Review
- Task 2 – Meet & Confer Sessions
- Task 3 – Best Available Technology Report
- Task 4 – FY2002 Summary & Plan Forward

#### *Task 1 – 2001 Annual Report Review*

A comprehensive technical analysis of the March 2001 reports provided by PAI and BPXA will be made. The primary source of data for these analyses will be the reports provided by BPXA and PAI. Coffman realizes that these reports are the distillation of thousands of measurements and observations. Coffman recognizes the limited timeframe outlined in the project scope will not allow a rigorous review of all the details inherent in each aspect of the various corrosion programs.

The ability to perform this analysis to identify issues, compare methodologies to industry practice, and recommend changes (if any) is not feasible given the short duration defined by RFP. For example, some information presented in the summary reports will likely need clarification and/or amplification by BPXA and PAI before any remedial action can be defined. This will likely require interface with the respective corrosion group, which can be a time consuming process depending on personnel availability.

Therefore the focus of the initial analysis should be to determine if there are specific corrosion or structural issues that present immediate risks which need to be addressed near term. The information discovered in Task 3 will be used to continue development of a risk weighted approach to corrosion management and to identify issues that warrant further study.

#### *Task 2 – Meet & Confer Sessions*

The October 2001 and April 2002 sessions will bring all of the participants together for update and review of the current program. Coffman will help with meeting coordination, dissemination of information gathered from other tasks, participation during the meeting and post meeting, and finally a written report discussing the information presented with recommended actions. It is also

anticipated there will be some interaction with BPXA and PAI following these meetings to address any action items.

### ***Task 3 – Best Available Technology Report***

The North Slope environment has necessitated innovations in a number of corrosion control areas. However, there have been rapid improvements in remote monitoring, online/remote monitoring, detection, and inhibition technologies. Broadly, Task 3 will compare new or different technology and practices that are being used by industry peers. Any new technology or practice and its applicability to North Slope operations will be evaluated. The comparisons between technologies and practices will be critically evaluated and conclusions drawn regarding the present state-of-the-art in Alaska versus that practiced by other organizations around the world. Where information is apparently lacking, recommendations will be provided that may allow more complete evaluations to be made in the future. This task would be completed between the October 2001 and April 2002 Meet & Confer Sessions.

### **Literature Search**

The technical literature will be searched using relevant computer-based databases and other resources. The primary databases to be queried and the time period to be covered are the following:

- Cor-Ab (1980-present, NACE International)
- Engineering Index (1970-present)
- Corrosion Abstracts (1967-present, Chemical Abstracts )
- National Technical Information Service (1964-present)
- Science Abstracts (1969-present).

While some overlap is to be expected, these databases will provide the worldwide coverage of the corrosion literature desired. The search will use key words relevant to corrosion monitoring and control. Relevant articles will be obtained and reviewed. As a standard of comparison, recommended practices on corrosion control will be obtained from NACE International and API, as well as German (DIN), Det Norske Veritas (DNV), and British (British Standards Institute Code of Practice) standards.

### **Industry Survey**

To provide a broader perspective, selected industry members in other countries, as well as the US, will be polled with regard to the search topics. While not all of the conditions and practices under which these companies operate are similar to the North Slope, they may provide some important contrasts in practices, procedures and technologies that transcend the physical location. A list of the companies to be contacted will be provided with the detailed schedule.

Prior to the start of interviews, a line of questioning will be drafted. Specific information and examples will be sought. The interviews will be conducted over the phone, or face-to-face if the opportunity presents itself. The information gathered will be summarized after each interview and compared to the current experience and conditions in Alaska.

The final task report will follow a format incorporating information from the literature review, and industry survey. The relevant literature will be presented, discussed, and referenced. The results of the industrial interviews will be presented in summary tabular form, with comparisons made, with extended information and data placed in appendices. Unless requested by the interviewee, the company will be identified.

#### ***Task 4 - FY2002 Summary & Plan Forward***

A complete review of recommendations and conclusions as well as their present status from previous reports/meetings will be prepared. Additionally, we will work with DEC to develop a plan for areas requiring additional study/review and corrosion monitoring milestones for the coming fiscal year.

### **Management Plan**

#### ***Reporting***

Three types of reports are planned: biweekly status reports, written monthly progress reports, and draft and final task reports. ~~In addition we have the ability to show progress via the internet using Microsoft Project Central Server, which could allow DEC the ability to track the progress and costs as they are updated.~~

The biweekly status reports will consist of a short update of progress via telephone or email. For the monthly progress reports, the information from all of the active tasks will be provided in more detail and communicated to the Project Manager. Cost status, project problems and their resolution will be included in the monthly progress reports.

The draft and final reports will be written under each task based upon the Task description previously described. We also will provide three (3) bound copies of the final task reports, one electronic copy in Microsoft Word 2000 (or previous version) and Adobe Acrobat Portable Document Format (PDF).

#### ***Project Schedule***

A tentative project schedule is provided as Appendix A. The scope of work can be accomplished during the remainder of the fiscal year. It is important to note the Start/Finish dates represent calendar time versus actual effort. Additionally, the dates for the Meet & Confer sessions were selected to be mid-month and if they slip, the report submittal for each session will slip an equal amount. A refined schedule will be provided per the RFP if we are the selected contractor. An additional component of scheduling, we have the ability to post the schedule on the internet for client access and updates.

#### ***Project Team Organization***

Coffman has assembled an outstanding team of corrosion engineers with the necessary experience to successfully carry out the proposed scope of work. They collectively have over 50 years of experience in internal/external corrosion control. Moreover, they have a working

October, 2000

## **Work Plan**

### **Commitment to Corrosion Monitoring**

Phillips Alaska, Inc.  
BP Exploration (Alaska) Inc.

"BP and Phillips will, in consultation with ADEC, develop a performance management program for the regular review of BP's and Phillips' corrosion monitoring and related practices for non-common carrier North Slope pipelines operated by BP or Phillips. This program will include meet and confer working sessions between BP, Phillips and ADEC, scheduled on average twice per year, reports by BP and Phillips of their current and projected monitoring, maintenance and inspection practices to assess and to remedy potential or actual corrosion and other structural concerns related to these lines, and ongoing consultation with ADEC regarding environmental control technologies and management practices."

#### **Work Plan Purpose:**

The purpose of this work plan is to clearly define the purpose, scope, content, reporting requirements, roles and responsibilities, and milestones/timing for the development and implementation of the Corrosion Monitoring Performance Management Program required by Paragraph II.A.6 of the North Slope Charter Agreement.

#### **Corrosion Monitoring Performance Management Program**

**Purpose:** To provide for 'the regular review of BP and PAI's corrosion monitoring and related practices for non-common carrier North Slope pipelines' operated by BP or PAI.

'Corrosion Monitoring' specifically refers to the activity of monitoring pipeline corrosion rates via corrosion probes, corrosion coupons, internal pipeline inspections, and external pipeline inspections.

'Related practices' refers to the assessment of corrosion monitoring data and the associated response to the assessment, specifically chemicals, inspection, and repairs.

**Scope:** Non-common carrier North Slope pipelines operated by BP or Phillips Alaska, Inc.

"Non-common carrier pipelines" refer to Non-DOT-regulated pipelines. Included in this designation are cross-country and on-pad pipelines in crude, gas, and other hydrocarbon services, as well as, produced water and seawater service pipelines. In module and inter-module on pad piping are not considered part of the scope of this review program.

**Content:** This Corrosion Monitoring Performance Management Program consists of the following:

1. BP and PAI will "meet and confer" with ADEC twice per year, on average. These sessions will be "working sessions" where BP and PAI will inform ADEC of the following:
  - A. Summary description of the inspection and maintenance practices used to assess and to remedy potential or actual corrosion, or other significant structural concerns relating to these lines, which have arisen from actual operating experience. This description will address overall areas of focus, the rationale for this focus, and the nature of monitoring and related practices used during the time since the last meeting. This description may be brief if strategies/focus areas have not changed since the last meeting.
  - B. Summary overview of ongoing coupon and probe monitoring results.
  - C. Summary overview of chemical optimization activities.
  - D. Summary overview of ongoing internal inspection activities.
  - E. Summary overview of ongoing external inspection activities.
  - F. Summary overview of ongoing structural concerns
  - G. Summary of conclusions drawn and responses taken to remedy potential or actual corrosion concerns relating to these lines.
  - H. Review/discussion of corrosion or structural related spills and incidents
  - I. Review the actions developed by the operator to address any corrosion performance trends that significantly exceed expected parameters.
  - J. Summary of program improvements and enhancements, if applicable.
  - K. Review of annual monitoring report (see below) at the next scheduled semi-annual meeting.

The agenda for these meetings will also include an opportunity for open discussion and an opportunity for ADEC to ask questions, provide feedback, etc.

These meetings will be targeted for April and October of each year, although this timing can be adjusted upon the mutual agreement of BP, PAI, and ADEC. The location of the meetings will alternate between the parties.

2. BP and PAI will submit annual reports to ADEC, which will provide the status of current and projected monitoring activities. These reports will be issued on or before March 31<sup>st</sup> of each year, and reflect the prior calendar year. The following information will be provided:
  - A. Annual bullet item reporting the progress of the Charter Agreement corrosion related commitment.
  - B. A general overview of the previous year's monitoring activities.
  - C. Metrics that depict coupon and probe corrosion rates.
  - D. Metrics that characterize chemical optimization activities.
  - E. Metrics that depict the number and type of internal/external inspections done, and, as applicable, the corrosion increases/rates and corresponding inspection intervals.
  - F. Metrics that characterize the quantity and type of repairs made in response to the internal/external inspections done per the above paragraph.
  - G. Metrics that depict the numbers and types of corrosion and structural related spills and incidents.
  - H. A forecast of the next year's monitoring activities in terms of focus areas and inspection goals. These forecasts cannot be viewed as binding, as corrosion strategies are dynamic and priorities will change over the course of the year. However, changes in focus will be communicated to ADEC during the semi-annual meetings described above.

Note: These reports will be presented in, and be part of, a comprehensive North Slope Charter Agreement status report.

3. In addition to the semi-annual "meet and confer" working sessions referenced above, BP and PAI will remain accessible to provide "ongoing consultation" to ADEC regarding environmental control technologies and management practices

'Environmental Control Technologies' refer to those technologies specifically related to corrosion monitoring and mitigation of the subject pipelines.

'Management practices' refer to corrosion monitoring and related practices as defined above.

4. During the semi-annual 'Meet and Confer' working meetings with BP and/or PAI, ADEC may use the services of a corrosion expert(s) (contracted from funds under Charter Commitment paragraph II.A.7) to assist in the review of performance trends and corrosion program features.
  
5. BP has assigned CIC Manager, R. Woollam/564-4437, and Phillips has assigned Kugaruk Engineering and Corrosion Supervisor M. Cherry and J. Huber/659-7384, to be the contacts responsible for ensuring these commitments are met, including ADEC notification of scheduled times for the semiannual presentations. The ADEC contact for this effort is (Pipeline Integrity Section Manager/S. Colberg/269-3078) who will notify interested personnel of the presentation times, maintain the reports for distribution to the public when requested and coordinate other issues relating to this commitment.

### **Annual Timetable**

March 31<sup>st</sup> Annual Report

April 30<sup>th</sup> 1H Semi-Annual Review (Meet and Confer)

October 31<sup>st</sup> 2H Semi-Annual Review (Meet and Confer)

## Guide for Performance Metric Reporting

### General

- Different metrics show and reveal different aspects of the business and as a consequence there are rarely any 'right' or 'wrong' measures only 'right' or 'wrong' application and usage
- Summary statistics described below may be provided as a data appendix to the annual reports with the more pertinent tables and graphics being contained in the text as appropriate. The intent is not to clutter and interrupt the flow of the text with extraneous data
- Format of data, the order in which it is presented, etc. of each company's annual report may differ from the order presented below, depending on key messages and data context. For example, one company may choose to imbed Leak/Save data into an inspection graph as opposed to presenting the Leak/Save data in standalone tabular format.
- This is an initial document for implementation in the 2001 annual report to ADEC, it should be noted, that the guidelines provided below can and will be adjusted to improve the efficacy of the annual report and reporting mechanism

### Timescale

- Data to be presented on an aggregate annualized basis
- Base year 1995 providing 5 year history before the start of the Charter Agreement and each year's annual report will add to time series starting in 1995

### Equipment Classification

- **Well Line** Pipe work from the well head to the Well Pad Manifold Building, generally, the flow from a single well prior to commingling before transportation to the separation plant
- **Flow Line** Pipe work from the Well Pad Manifold Building to the Separation plant, generally, cross country and off pad pipe work which carries commingled flow to/from a well pad. Also, straight run flow from the wellhead to separation plant, without commingling, is classified at Flow Line pipe work
- **Exceptions** Pipe work not conforming to these basic definitions will be reported by exception

### Service Definitions

- **Three Phase Production (3ø or OWG)** basic reservoir fluids (O/W/G – oil, water and gas) produced from down hole through to the main separation plants that typically see only see changes in temperature and pressure from reservoir conditions and are therefore essentially un-separated

- **Seawater (SW)** Water sourced typically from the Beaufort Sea that has undergone primary treatment at the Seawater Treatment Plant. Note, that the seawater treatment plants differ across the slope in the primary treatment methods, most importantly oxygen removal, with both production gas and vacuum stripping being employed
- **Produced Water (PW)** The water produced with the primary reservoir 3 phase production after passing through the separation and treatment
- **Commingled Water (CW) or Mixed Water (MW)** Water which has been commingled and is therefore multi-sourced, this is typically a mix of SW and PW although other combinations exist in the operations on the North Slope
- **Gas (G)** Generic term for a number of different gas systems which transport essentially dry gas between facilities including fuel gas, lift gas and miscible injectant
- **Processed Oil (PO)** The oil/hydrocarbon produced with the primary reservoir 3 phase production after separation and treatment, this is primarily black oil but could include black oil plus NGL's

#### Basic Summary Statistics

- **Distribution** The data is fundamentally of log-normal distribution, with a lower limit of zero or no-change and potentially unlimited upper extent
- **Count** A count of the number of activities completed i.e. coupons pulled in a given year
- **Average** The average or mean for the criteria being summarized i.e. average corrosion rate
- **Target Value** The target value against which non-conformance, see below, is reported
- **Number Non-conformant** The number of items not conforming to the control criteria i.e. the number of coupons exceeding the control value
- **Percentage Nonconformance** The percentage not conforming to the control value as a percentage of the total

#### Weight Loss Coupon Data

Table below summarizes the reporting of weight loss coupon data for the major fields on the North Slope

	Well Lines	CCL/FL
<b>3 <math>\phi</math> Production</b>	All	All
<b>Seawater</b>	GPB	All
<b>Prod. Water</b>	GPB	GPB
<b>Commingled Water</b>	All	All

The data sets to be provided for both general corrosion rates and pitting rates are,

- Count of coupons
- Average corrosion rate
- Number non-conformant

- % Conformant i.e. 1 minus the % non-conformant
- A corrective action list for non-conformant flow lines (FL/LDF/CCL/CLs) will also be provided.

### Internal Inspection Data

Table below summarizes the reporting of internal corrosion inspection data for the major fields on the North Slope

	Well Lines	CCL/FL
3 ø Production	All	All
Commingled Water	All	All

Note that no distinction will be made between water services across the North Slope since in many cases the service is variable making meaningful analysis and aggregation difficult.

The data sets to be provided for internal inspection are,

- Count of inspections
- Number of increases on repeat inspection locations
- Percentage of increases on repeat inspections

A corrective action list for flow lines (FL/LDF/CCL/CLs) with inspection increases will also be provided.

### Corrosion Inhibition

The corrosion inhibition program is to be reported as the target and actual total annual gallons and gallons per day, and as concentration, ppm, based on a field wide average.

### External Corrosion Inspection

External corrosion inspection program is to be reported as an aggregate of all piping systems without distinction or differentiation of service and equipment type with a summary of the overall program status.

The data sets to be provided for external inspection are,

- Count of inspected location
- Number of corroded locations
- Percentage of inspection locations corroded

### Repair and Leak Statistics

The repair and leak/spill statistics to be reported for each year plus the historical trend back to 1995 consistent with other performance metrics. The basic definitions,

- **Leak/Spill** An agency reportable leak/spill for the pipelines covered under the Charter Agreement which was caused by corrosion and/or erosion

- **Save** A location which required repair action as a result of corrosion and/or erosion damage but which was found through inspection prior to causing a leak/spill

The data sets to be provided for Repair/Leak statistics,

- Count of Leaks/Saves by flow line and well lines
- Summary of leak/spill causes

### **Below Grade Piping**

The data sets to be provided for Below Grade Piping (BGP) program,

- Number of segments/crossings inspected broken out by inspection method
- Number with anomalies and severity of anomaly

Results of casing digs, visual casing inspections and casing clean-out to be reported as appropriate.

### **Other Programs**

Reporting of ER probe, smart pigging, maintenance pigging, structural issues, and details of individual spill incidents to be reported as dictated by the current year's program activity.

## References to "Processed Oil" in BPXA Annual Reports

The BPXA Commitment to Corrosion Monitoring reports submitted for calendar years 2000 – 2005 have been carefully reviewed to find references to crude oil transit lines. The nomenclature for these pipelines varies throughout the reports, but primarily the lines are referred to as "processed oil" pipe lines; there are also references to "export oil", "sales oil", or "OT" – oil transit lines.

In 930 pages of the reports, crude oil transit lines are referenced 70 times; less than 1% of the reports have any reference to these lines. The BPXA reports include historical summaries, so most of the references are repeated in each report. For example, "Reference to non-common carrier pipelines on the North Slope" is the same in the 2001-2005 reports, and is different in the 2001 report only that the description does not include the North Slope, but instead states "...pipelines operated by BPXA."

The location of the following information in the reports changes over the years but is repeated in every report, with exceptions indicated below.

- Coupon Pull Frequency
- Non-common carrier pipelines description from 2000 work plan
- Glossary of Terms – the 2000 version does not include as much as following years
- Facility Schematic – not in 2000 report
- Corrosion monitoring location/corrosion coupon locations – not in 2000 report
- Summary of average corrosion rates for processed oil flow lines – not in 2000 report
- CUI inspections by services type – not in 2000 report
- Cased pipe survey results – not in 2000 report
- Repair activities/historical repairs by service – not in 2000 report
- Equipment classification for flow line – not in 2000 report
- Definition of processed oil service type – not in 2000 report
- Flow and well line general corrosion rate data – not in 2000 report
- Flow and well line pitting rate data – not in 2000 or 2001 reports
- Corrosion management system implementation – not in 2000 or 2001 reports
- Cased piping excavation history – not in 2000 or 2001 reports
- Repairs by service – not in 2000 or 2001 reports

**BPXA 2000 calendar year report**

53 pages – 8 references below – 4 references to "processed oil", "sales oil", "OT" or "export oil"

<b>Reference Number</b>	<b>Location in Report</b>	<b>Name of Table, Figure, Section (if applicable) Description</b>
1	Executive Summary 1 <sup>st</sup> paragraph	Reference to "non-common carrier pipelines operated by BPXA".
2	Page 9 Table 2	<i>Summary of Cross Country Pipelines.</i> Data regarding Export Oil Service pipelines
3	Page 10 Table 3	<i>Smart Pig Inspections.</i> In 1998, an OT (OT-21?) was inspected.
4	Page 21 Table 9	<i>Electromagnetic Inspections.</i> One cased oil export line was inspected, no anomalies found.
5	Page 25 Last paragraph	Brief discussion of in-line inspection – smart (intelligent) pigging
6	Page 30 Table 14	<i>Planned Coupon Pull Schedule for Greater Prudhoe Bay.</i> Sales oil line coupons are pulled every 3 months.
7	Page 47 Glossary of Terms	Processed oil, sales oil, export oil, oil transit lines not included
8	Page 49 Top of page	"Non-common carrier pipelines" description from 2000 Work Plan. These are non-DOT regulated pipelines.

**BPXA 2001 calendar year report**

149 pages – 14 references below – 10 references to “processed oil”, “sales oil”, or “export oil”

<b>Reference Number</b>	<b>Location in Report</b>	<b>Name of Table, Figure, Section (if applicable) Description</b>
1	Page i 3 <sup>rd</sup> line	Reference to “non-common carrier pipelines on the North Slope”
2	Page 45 Top of page	Description of processed oil.
3	Page 45 Table C.7	<i>Summary by Equipment and Service for Corrosion Coupon Data.</i> Shows number of weight loss coupon locations in processed oil lines, 1995-2001.
4	Page 46 2nd paragraph	Summary of average corrosion rates for Flow Line Processed Oil.
5	Page 63 Table E.3	<i>CUI Inspections by Service Type.</i> Shows that 277 external inspections for corrosion under insulation (CUI) were conducted at processed oil flow lines, 1995-2001; 3% found corrosion.
6	Page 64 Table E.5	<i>2001 Cased Pipe Survey Results.</i> 7 processed oil cased lines were inspected with 1 showing minor damage.
7	Page 81 Table F.1	<i>Repair Activities.</i> 3 repairs were made for internal corrosion at processed oil flow lines in 2001.
8	Page 91 Table H.1	<i>Coupon Pull Frequency.</i> Processed oil flow line coupons are pulled every 3 months.
9	Pages 117-118 Glossary of Terms	See CCL, CL, Cross Country Lines, FL, LDF, OIL, PO
10	Page 122 Top of page	“Non-common carrier pipelines” description from 2000 Work Plan. These are non-DOT regulated pipelines.
11	Page 125 3rd bullet from bottom	Equipment classification for flow line. These lines run from the well pad manifold building or the well pad to the separation plant.
12	Page 126 5th bullet	Definition of Processed Oil (PO) service type.
13	Page 137	<i>Facility Schematic.</i> Does not show crude oil transit lines.
14	Page 147 Table 5.1	<i>Aggregate GPB Flow and Well Line General Rate Data Summary.</i> Third category of equipment is Flow Lines, Processed Oil; summarizes general corrosion rate data

**BPXA 2002 calendar year report**

197 pages – 19 references below – 14 references to "processed oil", "sales oil", or "export oil"

Reference Number	Location in Report	Name of Table, Figure, Section (if applicable) Description
1	Page i 3 <sup>rd</sup> line	Reference to "non-common carrier pipelines on the North Slope"
2	Page 14 Table B.8(a)	<i>Corrosion Monitoring Locations by Equipment and Service.</i> Shows number of weight loss coupon locations in processed oil lines, 1995-2002.
3	Page 41 Table B.13	<i>Corrosion Management System Implementation by Equip Type and Service.</i> Export oil in corrosion management system.
4	Page 64 2nd paragraph	Summary of average corrosion rates for Flow Line Processed Oil.
5	Page 89 Last paragraph	Processed oil lines have a lower rate of CUI occurrence.
6	Page 90 Table E.3	<i>CUI Inspections by Service Type.</i> Shows that 312 external inspections for corrosion under insulation (CUI) were conducted at processed oil flow lines, 1995-2002; 3% found corrosion.
7	Page 92 Table E.5	<i>2002 Cased Pipe Survey Results.</i> 7 processed oil cased lines were inspected with 3 showing minor damage and 1 showing significant damage.
8	Pages 106-108 Section E.5	<i>Smart Pigging.</i> No reference to processed oil lines but a good discussion to read.
9	Page 111 Table E.19	<i>Cased Piping Excavation History.</i> In 1996, a caribou crossing between FS1 and FS2 was excavated to conduct external inspections; a 14% wall loss was found on a 30" sales oil line.
10	Page 118 Figure F.2	<i>Repairs by Service.</i> Shows repairs to processed oil lines in 2001.
11	Page 121 Table F.5	<i>Historical Repairs by Service.</i> 3 repairs were made for internal corrosion at processed oil flow lines in 2001. No repairs in other years 2000-2002.
12	Page 133 Table H.1	<i>Coupon Pull Frequency.</i> Processed oil flow line coupons are pulled every 3 months.
13	Pages 167-168 Glossary of Terms	See CCL, CL, Cross Country Lines, FL, LDF, OIL, PO
14	Page 172 Top of page	"Non-common carrier pipelines" description from 2000 Work Plan. These are non-DOT regulated pipelines.
15	Page 175 3rd bullet from bottom	Equipment classification for flow line. These lines run from the well pad manifold building or the well pad to the separation plant.
16	Page 176 5th bullet	Definition of Processed Oil (PO) service type.
17	Page 187	<i>Facility Schematic</i> Does not show crude oil transit lines.
18	Page 193 Table 5.1	<i>Flow and Well Line General Corrosion Rate Data Summary.</i> Third category of equipment is Flow Lines, Processed Oil; summarizes general corrosion rate data
19	Page 195 Table 5.2	<i>Flow and Well Line Pitting Rate Data Summary.</i> Third category of equipment is Flow Lines, Processed Oil; summarizes pitting rate data

**BPXA 2003 calendar year report**

193 pages – 18 references below – 13 references to "processed oil", "sales oil", or "export oil"

<b>Reference Number</b>	<b>Location in Report</b>	<b>Name of Table, Figure, Section (If applicable) Description</b>
1	Page i 3 <sup>rd</sup> line	Reference to "non-common carrier pipelines on the North Slope"
2	Page 15 Table B.6	<i>Corrosion Monitoring Locations by Equipment and Service.</i> Shows number of weight loss coupon locations in processed oil lines, 1995-2003.
3	Page 41 Table B.15	<i>Corrosion Management System Implementation by Equip Type and Service.</i> Export oil in corrosion management system.
4	Page 62 3 <sup>rd</sup> paragraph	Summary of average corrosion rates for Flow Line Processed Oil.
5	Page 82 Table 1	<i>CUI Inspections by Service Type, 1995-2003.</i> Shows that 2615 external inspections for corrosion under insulation (CUI) were conducted at processed oil flow lines, 1995-2003; 5% found corrosion.
6	Page 86 Table E.4	<i>Cased Pipe Survey Results.</i> 27 processed oil cased lines were inspected with 7 showing minor damage and 4 showing moderate damage.
7	Pages 98-101 Section E.5	<i>In-Line Inspection.</i> No reference to processed oil lines but a good discussion to read.
8	Page 103 Table E.8	<i>Cased Piping Excavation History.</i> In 1996, a caribou crossing between FS1 and FS2 was excavated to conduct external inspections; a 14% wall loss was found on a 30" sales oil line.
9	Page 110 Figure F.1	<i>Repairs by Service.</i> Shows repairs to processed oil lines in 2001.
10	Page 113 Table F.2	<i>Historical Repairs by Service.</i> 3 repairs were made for internal corrosion at processed oil flow lines in 2001. No repairs in other years 2000-2003.
11	Page 125 Table H.1	<i>Coupon Pull Frequency.</i> Processed oil flow line coupons are pulled every 3 months.
12	Pages 161-162 Glossary of Terms	See CCL, CL, Cross Country Lines, FL, LDF, OIL, PO
13	Page 166 Top of page	"Non-common carrier pipelines" description from 2000 Work Plan. These are non-DOT regulated pipelines.
14	Page 169 2 <sup>nd</sup> bullet from bottom	Equipment classification for flow line. These lines run from the well pad manifold building or the well pad to the separation plant.
15	Page 170 6 <sup>th</sup> bullet	Definition of Processed Oil (PO) service type.
16	Page 183	<i>Facility Schematic</i> Does not show crude oil transit lines.
17	Page 189 Table 5.1	<i>Flow and Well Line General Corrosion Rate Data Summary.</i> Third category of equipment is Flow Lines, Processed Oil; summarizes general corrosion rate data
18	Page 191 Table 5.2	<i>Flow and Well Line Pitting Rate Data Summary.</i> Third category of equipment is Flow Lines, Processed Oil; summarizes pitting rate data

**BPXA 2004 calendar year report**

168 pages – 18 references below – 13 references to "processed oil", "sales oil", or "export oil"

Reference Number	Location in Report	Name of Table, Figure, Section (if applicable) Description
1	Page i 3 <sup>rd</sup> line	Reference to "non-common carrier pipelines on the North Slope"
2	Page 15 Table C.1	<i>Corrosion Monitoring Locations by Equipment and Service.</i> Shows number of weight loss coupon locations in processed oil lines, 1995-2004.
3	Page 32 2nd paragraph	Summary of average corrosion rates for Flow Line Processed Oil.
4	Page 33 Table c.6	<i>Flow and Well Line General Corrosion Rate Data Summary.</i> Third category of equipment is Flow Lines, Processed Oil; summarizes general corrosion rate data
5	Page 35 Table C.7	<i>Flow and Well Line Pitting Rate Data Summary.</i> Third category of equipment is Flow Lines, Processed Oil; summarizes pitting rate data
6	Page 48 Table E.1	<i>CUI Inspections by Service Type, 1995-2004.</i> Shows that 5481 external inspections for corrosion under insulation (CUI) were conducted at processed oil flow lines, 1995-2004; 4% found corrosion.
7	Pages 50-51 Table E.3	<i>Cased Pipe Survey Results.</i> 5 processed oil cased lines were inspected with 2 showing minor damage, 1 showing moderate damage, 1 showing significant damage.
8	Page 55 Section E.4	<i>In-Line Inspection.</i> Brief discussion, does not mention processed oil lines.
9	Page 61 Table E.8	<i>Cased Piping Excavation History.</i> In 1996, a caribou crossing between FS1 and FS2 was excavated to conduct external inspections; a 14% wall loss was found on a 30" sales oil line.
10	Page 68 Figure F.1	<i>Repairs by Service.</i> Shows repairs to processed oil lines in 2001.
11	Page 71 Table F.2	<i>Historical Repairs by Service.</i> 3 repairs were made for internal corrosion at processed oil flow lines in 2001. No repairs in other years 2000-2004.
12	Page 81 Table H.1	<i>Coupon Pull Frequency.</i> Processed oil flow line coupons are pulled every 3 months.
13	Pages 117-118 Glossary of Terms	See CCL, CL, Cross Country Lines, FL, LDF, OIL, PO
14	Page 122 Top of page	"Non-common carrier pipelines" description from 2000 Work Plan. These are non-DOT regulated pipelines.
15	Page 125 2nd bullet from bottom	Equipment classification for flow line. These lines run from the well pad manifold building or the well pad to the separation plant.
16	Page 126 6th bullet	Definition of Processed Oil (PO) service type.
17	Page 162 Table 15	<i>Corrosion Management System Implementation by Equip Type and Service.</i> Export oil in corrosion management system.
18	Page 163 Figure 7	<i>Facility Schematic</i> Does not show crude oil transit lines.

**BPXA 2005 calendar year report**

170 pages – 20 references below – 16 references to "processed oil", "sales oil", or "export oil"

Reference Number	Location in Report	Name of Table, Figure, Section (if applicable) Description
1	Page i 3 <sup>rd</sup> line	Reference to "non-common carrier pipelines on the North Slope".
2	Page 7 Section B.2, item 4	<i>Corrosion Monitoring.</i> Processed oil flow line WLC (weight loss coupon) data showed 100% were <2 mpy with an average corrosion rate of 0.2 mpy.
3	Page 15 Table C.1	<i>Corrosion Monitoring Locations by Equipment and Service.</i> Shows number of weight loss coupons and ER probe locations in processed oil lines.
4	Page 30 Figure C.16	<i>Flow Line Corrosion Coupon Summary by Equipment and Service.</i> Shows the average corrosion rate for processed oil lines.
5	Page 33 3 <sup>rd</sup> paragraph	Summary of average corrosion rates for Flow Line Processed Oil.
6	Page 35 Table C.6	<i>Flow and Well Line General Corrosion Rate Data Summary.</i> Third category of equipment is Flow Lines, Processed Oil; summarizes general corrosion rate data
7	Page 37 Table C.7	<i>Flow and Well Line Pitting Rate Data Summary.</i> Third category of equipment is Flow Lines, Processed Oil; summarizes pitting rate data
8	Page 49 Table E.1	<i>CUI Inspections by Service Type, 1995-2005.</i> Shows that 6084 external inspections for CUI (corrosion under insulation) were conducted at processed oil flow lines in the years 1995-2005; 4% found corrosion.
9	Page 51 Table E.3	<i>Cased Pipe Survey Results.</i> G-wave inspection at processed oil line found 1 minor anomaly; <b>smart pig in 2006 to be conducted (at OT-21?)</b>
10	Page 63 Table E.8	<i>Cased Piping Excavation History.</i> In 1996, a caribou crossing between FS1 and FS2 was excavated to conduct external inspections; a 14% wall loss was found on a 30" sales oil line.
11	Page 69 Table F.1	<i>Repair Activity.</i> No repairs at processed oil lines in 2005.
12	Page 70 Figure F.1	<i>Repairs by Service.</i> Shows repairs to processed oil lines in 2001 only.
13	Page 73 Table F.2	<i>Historical Repairs by Service.</i> 3 repairs were made for internal corrosion at processed oil flow lines in 2001. No repairs in other years 2000-2005.
14	Page 83 Table H.1	<i>Coupon Pull Frequency.</i> Processed oil flow line coupons are pulled every 3 months.
15	Pages 119-120 Glossary of Terms	See CCL, CL, Cross Country Lines, FL, LDF, OIL, PO
16	Page 124 Top of page	"Non-common carrier pipelines" description from 2000 Work Plan. These are non-DOT regulated pipelines.
17	Page 127 2 <sup>nd</sup> bullet from bottom	Equipment classification for flow line. These lines run from the well pad manifold building or the well pad to the separation plant.
18	Page 128 6 <sup>th</sup> bullet	Definition of Processed Oil (PO) service type.
19	Page 164 Table 15	<i>Corrosion Management System Implementation by Equip Type and Service.</i> Export oil in corrosion management system.
20	Page 165 Figure 7	<i>Facility Schematic.</i> Does not show crude oil transit lines.

### References to "Oil Sales" in CPA Annual Reports

The CPA Commitment to Corrosion Monitoring reports submitted for calendar years 2000 – 2005 have been carefully reviewed to find references to crude oil transit lines (called "oil sales" in these reports). The only place these lines are included is in the discussion regarding the below-grade piping program starting with the 2001 report and in each subsequent report. These lines are part of the "oil" service cased pipes which are defined as natural gas liquids, oil sales, three-phase production, two phase production (wet oil), Produced Water, and Mixed Water.