



# STATE PIPELINE COORDINATOR'S OFFICE

*Lease Compliance  
Monitoring Report  
2006*

ALASKA DEPARTMENT OF  
NATURAL RESOURCES



# Table of Contents

## INTRODUCTION

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I.	<a href="#">Joint Pipeline Office</a>	1
II.	<a href="#">State Pipeline Coordinator's Office</a>	2
III.	<a href="#">Pipelines Subject to Compliance Monitoring</a>	10
IV.	<a href="#">This Year's Compliance Oversight Activities</a>	10
V.	<a href="#">Missions &amp; Measures</a>	16

## SOUTHCENTRAL PIPELINES

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1.	<a href="#">Kenai Kachemak Pipeline</a>	23
2.	<a href="#">Nikiski Alaska Pipeline</a>	37

## NORTH SLOPE PIPELINES

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3.	<a href="#">Alpine Pipelines</a>	51
4.	<a href="#">Kuparuk &amp; Oliktok Pipelines</a>	63
5.	<a href="#">Badami Pipelines</a>	77
6.	<a href="#">Endicott Pipeline</a>	93
7.	<a href="#">Northstar Pipelines</a>	105
8.	<a href="#">Milne Point Pipelines</a>	115
9.	<a href="#">Nuiqsut Natural Gas Pipeline</a>	127

## APPENDICES

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A)	<a href="#">Table of Acronyms</a>	135
B)	<a href="#">Sources of More Information on the Web</a>	137



## **Executive Summary**

The 2006 State Pipeline Coordinator's Office Lease Compliance Monitoring Report describes the status of pipeline right-of-way leases issued by the State under Alaska Statute 38.35, the Alaska Right-of-Way Leasing Act, and one grant of right-of-way for a utility pipeline issued under Alaska Statute 38.05, the Alaska Lands Act. It is produced by the State Pipeline Coordinator's Office (SPCO), an agency within the Alaska Department of Natural Resources (ADNR) and the Joint Pipeline Office (JPO).

The State fiscal year (FY) begins on July 1 and ends on June 30. FY06 began July 1, 2005 and ended June 30, 2006. This FY06 report includes information about the prior year's construction, operations, and maintenance activities for common carrier pipelines in Southcentral and on the North Slope. Summaries of ADNR's lease administration and compliance oversight activities related to those pipelines and rights-of-way are also included.

This report is intended for use by the public, government agencies, pipeline right-of-way lessees, and others interested in these pipelines.

Note that information about the Trans-Alaska Pipeline System (TAPS) is not contained in this report, but is the focus of the Joint Pipeline Office annual report available at <http://www.jpo.doi.gov>.

## **Acronyms and Abbreviations**

All of the acronyms and abbreviations used in this report are defined in Appendix A.

## **Contact Information**

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*Unless otherwise indicated, all photographs in this report were taken by the SPCO Lease Compliance Oversight Team. All maps are adapted from maps available publicly through ADNR's Alaska Mapper.*

## **Cover Photo**

This aerial photo of an un-named stream crossing was taken during the course of a compliance oversight field surveillance of the Badami Pipelines in September 2005. The BP-operated Badami Sales Oil Pipeline connects the North Slope's easternmost development, Badami, to the Endicott Pipeline.



## I. Joint Pipeline Office (JPO)

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### JPO Mission Statement

*The Joint Pipeline Office, a consortium of State and federal agencies, regulates the Trans-Alaska Pipeline System and other Alaskan oil and gas pipelines in the best interests of the people of the nation and the State of Alaska. Safety, environmental protection, pipeline integrity, and regulatory compliance will be achieved through partnering with industry.*



The Joint Pipeline Office is a consortium of State and federal agencies sharing similar regulatory or management responsibilities related to oil and gas industry pipelines in Alaska, most notably the Trans-Alaska Pipeline System. The JPO was established in 1990 to work cooperatively on large scale natural gas pipeline right-of-way (ROW) leasing and TAPS oversight.



*The Alpine Pipelines (oil, diesel, and utility) connect the Alpine Development on the Western North Slope to infrastructure in the Kuparuk River Unit.*

Representatives from six of the 12 agencies are co-located to coordinate pipeline compliance oversight and issue right-of-way leases and other permits needed for oil and gas industry projects. Agencies have developed cooperative agreements to share staff,

knowledge, equipment, and office space. This unique working environment eliminates duplication, is more customer-oriented, and simplifies government processes.

The US Bureau of Land Management and Alaska Department of Natural Resources are designated leads and jointly manage the JPO. Agencies retain their individual authorities while working together on common projects and issues. Agency personnel can participate in self-directed work teams and may perform oversight functions in addition to their jurisdictional responsibilities. All agencies coordinate activities, such as permitting projects, as needed. The following agencies currently participate in the JPO:

<b><u>JPO-Participating State Agencies</u></b>	<b><u>JPO-Participating Federal Agencies</u></b>
<a href="#"><u>Dept. of Natural Resources</u></a>	<a href="#"><u>Bureau of Land Management</u></a>
<a href="#"><u>Dept. of Environmental Conservation</u></a>	<a href="#"><u>US Army Corps of Engineers*</u></a>
<a href="#"><u>Dept. of Public Safety,</u></a> <a href="#"><u>Division of Fire Protection</u></a>	<a href="#"><u>US Department of Transportation</u></a> <a href="#"><u>Office of Pipeline Safety*</u></a>
<a href="#"><u>Dept. of Labor &amp; Workforce Development</u></a>	<a href="#"><u>Environmental Protection Agency</u></a>
<a href="#"><u>Dept. of Fish &amp; Game*</u></a>	<a href="#"><u>US Coast Guard*</u></a>
<a href="#"><u>Dept. of Transportation &amp; Public Facilities*</u></a>	<a href="#"><u>Minerals Management Service*</u></a>

\*No full-time representatives co-located at the JPO

The Federal and State agencies within the JPO, except for ADNR/SPCO, currently direct their efforts on one active pipeline, TAPS. ADNR staff within the SPCO have the additional responsibility of lease administration and compliance monitoring for sixteen other active pipelines as well as pipelines in the pre-application and application stages of development.

## **II. State Pipeline Coordinator's Office (SPCO)**

Known for working with applicants early and using streamlined permitting processes, the SPCO, an office within ADNR and the lead State agency in the JPO, is responsible for administration and oversight of State pipeline ROW leases issued under Alaska Statute 38.35, the *Alaska Right-of-Way Leasing Act*. Under AS 38.35, companies proposing to operate pipelines in whole or in part on State land must apply for and be granted a ROW lease prior to construction. Key concepts in the Act include:

- The Act applies to common carrier and contract pipelines, but field gathering lines are exempted
- Lessees pay fair market value to lease State lands in the pipeline ROW
- Safeguards are included to protect the environment, public safety, and health

- Lessees reimburse the State for costs in processing and administering leases
- The State retains a continuing right of access and inspection to ensure compliance with the lease and applicable laws

**Field Gathering Lines Exempt:** Per AS 38.35.020(b), "The commissioner may by regulation exempt the construction or operation of field gathering lines or any reasonable classification of them from the requirement of a right-of-way lease under this chapter." Many oil and gas pipelines in Alaska are classified as field gathering lines, exempting them from AS 38.35 and SPCO oversight. 11AAC 80.055 defines field gathering lines as: "pipe and associated facilities, including separators, test equipment, pumps, treaters and tanks, used in the transfer of gas or oil from a well or other facility used in the production of gas or oil to a point where there is either a custody transfer of the gas or oil or where the gas or oil enters a common carrier pipeline, whichever first occurs." Per 11AAC 80.055, the Prudhoe Bay "Transit Lines" are classified as field gathering lines and were not authorized under 38.35. Field gathering lines are regulated in Alaska by ADEC and permitted through ADNR's Division of Oil and Gas.



*The Badami Sales Oil Pipeline transports processed crude oil from the Badami Development on the east to the Endicott Pipeline. The Badami Utility Pipeline, resting on the same supports, has been used to transport fuel gas from Endicott to Badami.*

The SPCO currently administers 16 existing leases, one grant, and several proposed pipeline ROW leases within Alaska. Lease administration and compliance oversight of TAPS is accomplished cooperatively by the State and federal governments through the JPO. The remaining 16 active pipelines are administered only through the SPCO and are the subject of this report. Each State ROW lease is assigned a unique number according to the former Alaska Division of Lands (ADL) numbering system. The ADNR Land Administration System, accessible from the web at [www.dnr.state.ak.us/las](http://www.dnr.state.ak.us/las), is a resource where agencies, industry, and the public can obtain detailed information about ADNR case files including legal descriptions, status plats, and maps of State land in the ROW.

SPCO-administered pipeline ROW leases are listed in the table below.

<b><u>Effective Right-of-Way Leases</u></b>	<b><u>ADL No.</u></b>	<b><u>Status</u></b>
Alpine Oil Pipeline	415701	Operating
Alpine Diesel Pipeline	415932	Operating
Alpine Utility Pipeline (Grant)	415857	Operating
Badami Sales Oil Pipeline	415472	Operating
Badami Utility Pipeline	415965	Operating
Endicott Pipeline	410562	Operating
Kenai Kachemak Pipeline	228162	Operating
Kuparuk Pipeline	402294	Operating
Kuparuk Pipeline Extension	409027	Operating
Milne Point Pipeline	410221	Operating
Milne Point Products Pipeline	416172	Warm shutdown
Nikiski Alaska Pipeline	69354	Operating
Northstar Oil Pipeline	415700	Operating
Northstar Gas Pipeline	415975	Operating
Nuiqsut Natural Gas Pipeline	416202	Constructed; not operating
Oliktok Pipeline	411731	Operating
Trans-Alaska Pipeline System	63574	Operating
<b><u>Right-of-Way Applications</u></b>	<b><u>ADL No.</u></b>	<b><u>Status</u></b>
Alaska Natural Gas Transportation System	403427	Application
Dayville Road Pipeline A	229284	Application
Dayville Road Pipeline B	229285	Application
Dayville Road Pipeline C	229286	Application
Eastern North Slope Oil Pipeline	417577	Application
Eastern North Slope Gas Pipeline	417578	Application
Glennallen-Palmer Spur Line	229297	Conditional lease; no pipeline constructed
Liberty Oil Pipeline	416002	Inactive application
Liberty Utility Pipeline	416003	Inactive application
Phillips Tyonek Deep Pipeline	227422	Inactive application
Point Thomson Gas Cycling Pipeline	416904	Application
Trans-Alaska Gas System	413342	Conditional lease; no pipeline constructed



*State pipeline right-of-way lands serve as valuable habitat for wildlife. These photos depict a migratory bird feather (left) and a small bird nest (right) found by an SPCO surveillant within the Badami pipelines ROW during June 2006 surveillance.*

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The intent of the ROW Leasing Act is “...the development, use and control of a pipeline transportation system be directed to make the maximum contribution to the development of the human resources of this State, the increase in the standard of living for all of its residents, the advancement of existing and potential sectors of its economy, the strengthening of free competition in its private enterprise system, and the careful protection of its incomparable natural environment.”

To fulfill this intent, the SPCO is charged with administering pipeline ROW leases. These duties include processing ROW applications, drafting leases for the ADNR Commissioner's approval, implementing the public review process, issuing project-specific authorizations, and monitoring compliance with lease conditions. These functions are the responsibility of the SPCO ROW Section. Administratively, two teams comprise the ROW Section, the Lease Administration Team, and the Lease Compliance Oversight Team. A description of the two teams follows.

### **Lease Administration**

The SPCO lease administration team is currently staffed by five State ADNR employees. The team processes ROW lease applications and amendments, implements public processes, issues project-specific authorizations, administers rental and other payments, and performs other functions as necessary.

### **Compliance Oversight**

The SPCO compliance oversight team is currently staffed by two State ADNR employees who share responsibilities for compliance oversight monitoring of the 15 active non-TAPS State pipeline ROW leases issued under AS 38.35 and one utility pipeline grant issued under AS 38.05. The team's primary function is to document compliance with lease conditions and monitor select issues as determined by the ROW

Section Chief and State Pipeline Coordinator. The compliance oversight program operates on a cyclical basis and consists of three main elements, further described in the following sections:

- 1) *Compliance Monitoring*: consists of field inspections called surveillances and records reviews conducted on a cyclical basis.
- 2) *Annual Lessees' Reports*: required by each ROW lease, the lessees submit reports annually which are reviewed by the compliance oversight team.
- 3) *Annual SPCO Lease Compliance Monitoring Report*: produced by the compliance oversight team, the annual report provides an opportunity for the team to review both SPCO and lessee activities for the year and can be used to focus attention on specific topics as necessary.

### **1) Compliance Monitoring**

The purpose of SPCO compliance monitoring is to evaluate lessee compliance with active lease requirements at a frequency prescribed by the State Pipeline Coordinator. Generally, rights-of-way for constructed pipelines are inspected on a bi-annual basis. In the first year, the compliance oversight team looks at general lease compliance. In the second year, the team does more in-depth surveillance on a specific topic, such as corrosion. The work plan is scheduled so that approximately half of the leases get a general overview each year, while the other half get a more focused subject-specific surveillance. Each AS 38.35 pipeline receives some compliance monitoring each year.

To develop the work plan, the team evaluated each lease requirement and determined its functional status relative to annual surveillance efforts. For example, many lease provisions are definitions or clarifications of legal/administrative points that require no surveillance. Other provisions apply only to a certain activity phase such as construction or termination. Finally, some are invoked only after action initiated by the lessee or State Pipeline Coordinator. Those provisions are described as “conditional”.

In 2003 and 2004, the SPCO conducted an internal review of the compliance monitoring program. The compliance oversight team conducted a complete surveillance regarding each checklist for each pipeline ROW, documenting compliance with every lease provision, including those that were administrative or legal in nature and those denoted as conditional, regardless of the activation status. This allowed the SPCO and lessees to fully review each lease condition and fostered a thorough discussion of the compliance oversight program. Now, the SPCO only examines those lease provisions where the need for surveillance is continuous, or conditional (if activated).

A matrix of all the requirements for each lease and the respective SPCO surveillance determination and frequency was developed. Matrices for each of the SPCO jurisdictional pipelines are documented in the case files. Each matrix summarizes three decision criteria:

1. *What activity phase (construction, operation, maintenance, termination or any combination of the four) does each requirement apply to;*
2. *Is surveillance required (if not, why) and;*

### 3. If surveillance is required, what is the necessary frequency?

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*Though many pipelines criss-cross Alaska's North Slope, most are not common carrier pipelines and do not lease a State ROW under AS 38.35. Instead, they are permitted through ADNR's Division of Oil and Gas under AS 38.05. Here the Endicott Pipeline and other pipelines are depicted crossing the Sagavanirktok River on a bridge near Deadhorse. The Endicott Pipeline is the one farthest back with the small white sign.*

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For the sixteen jurisdictional pipelines addressed in this SPCO report, the lease compliance oversight team is working with lessees, through their quality assurance programs, to ensure lease requirements are met. Lessees are responsible for conducting pipeline operations in accordance with applicable laws and the terms and stipulations of each ROW lease. Lessees document compliance through quality assurance (QA) and surveillance & monitoring programs, which are approved by the State Pipeline Coordinator. Though individual lease requirements vary, all SPCO-administered ROW leases require the lessee to develop a QA program or plan that provides evidence of compliance with lease stipulations and applicable laws. For example, the Alpine Oil Pipeline lease defines a QA Program as "all those documented, planned, and systematic actions necessary to provide evidence that the Lessee is satisfying lease commitments and requirements for integrity of the Pipeline System, health, safety, and the environment."

An important element of maintaining compliance with lease conditions and stipulations is routine inspection of the pipeline and ROW. Lessee surveillance & monitoring programs are developed to ensure measures are in place to prevent, detect, and abate conditions which could threaten pipeline integrity, the environment, or public health and safety. Revisions to QA and surveillance & monitoring programs are reviewed by SPCO staff and must be approved by the State Pipeline Coordinator prior to implementation.

In addition to oversight of lessees' QA and surveillance & monitoring activities, the compliance oversight team conducts field surveillance of pipelines and rights-of-way,

meets with lessees to learn more about their programs, and reviews records provided by lessees. The products of a compliance oversight field visit or records review are 1) Surveillance reports and 2) Surveillance field notes.

1) Surveillance Reports – After completion of a field visit, known as a surveillance, the surveillant writes up a "checklist" with a unique number which lists the lease or grant section, covenant, or stipulation that was reviewed. To complete the checklist, the surveillant provides observations to support a determination of *satisfactory* or *unsatisfactory* for the lessee's performance under that lease provision. Unsatisfactory conditions can be *minor* or *significant*. There is also an option for a surveillant to describe an unsatisfactory condition as *corrected on the spot*. Often supporting documents are attached to surveillance reports. Usually when a surveillant makes an unsatisfactory determination, the lessee is given a deadline to correct the condition or to complete required follow-up. Once signed by the surveillant and supervisor, the surveillance checklist becomes a surveillance report with a unique number. Copies are sent to the lessee's Registered Agent, entered in the JPO Document Tracking System, and the original is filed in the lease case file.

2) Surveillance Field Notes - One set of surveillance field notes for each trip may be written by the surveillant(s) and attached to a surveillance report. Each set of field notes is also filed with that lease's Quality Program. Field notes are usually detailed and contain digital photographs of field conditions to support information contained in surveillance reports. For any given field visit, there will be one set of field notes but may be one to dozens of surveillance reports which correspond to the field notes. Field notes can also apply to more than one pipeline inspected on a single field trip, while surveillance reports apply to only one ROW case file.

Because each ROW lease contains different sections and stipulations, surveillance checklists are not always directly comparable across leases. The number of surveillance reports produced is not always indicative of the scope of compliance monitoring for that pipeline. Sometimes field surveillance is focused on a specific topic, generating only a handful of detailed reports. Other surveillance trips are more general in nature and may generate dozens of surveillance reports with less detail. The SPCO annual report and surveillance field notes provide qualitative compliance monitoring information to complement quantitative data from surveillance reports. For details about this year's compliance oversight program, see Section IV of this introduction.

## **2) Annual Lessees' Reports**

Annual comprehensive reports submitted by pipeline ROW lessees are a critical element of the compliance oversight program. The annual report is supposed to document the lessee's compliance with lease requirements. The reports are intended to provide detailed information about the lessee's pipeline activities for the previous year. In some annual reports, lessees have produced their own detailed ROW Agreement compliance matrix to show how they are achieving compliance. Information provided in the annual report can help the compliance oversight team identify future surveillance priorities.

Each ROW lease has a provision requiring a comprehensive report on pipeline activities. In addition to lease-specific requirements for annual reporting, the State Pipeline Coordinator has required that each lessee provide an annual comprehensive report on pipeline activities that includes, at a minimum:

1. *The results of the lessee's surveillance & monitoring program during the preceding year, including annual and cumulative changes in facilities and operations, the effects of the changes, and proposed actions to be taken as a result of the noted changes:*

- *Provide a summary of the scope of all surveillances, audits, self-assessments or other internal evaluations performed by the lessee.*
- *Summarize findings, action items and other observations identified as a result of all surveillances, audits, self-assessments or other internal evaluations performed by the lessee.*
- *Describe corrective and preventative actions planned or implemented as a result of surveillances, audits, self-assessments or other internal evaluations performed by the lessee.*
- *To the extent known, list by quarter, those surveillances, audits, self-assessments or other internal evaluations planned for next year.*

2. *The state of, changes to, and results from the last year of the lessee's risk management program, Quality Assurance Program, and internal and external safety programs.*

3. *Lessee's performance under the right-of-way lease, including stipulations.*

4. *Information on construction, operations, maintenance, and termination activities necessary to provide a complete and accurate representation of the lessee's activities and the state of the pipeline system.*

5. *A summary of all events, incidents and issues which had the potential to or actually did adversely impact pipeline system integrity, the environment, or worker or public safety and a summary of the lessee's response.*

6. *A summary of all oil and hazardous substance discharges including date, substance, quantity, location, cause, and cleanup actions undertaken. Minor discharges below agreed upon thresholds may be grouped into monthly total amounts, provided the number of separate incidents is reported.*

7. *Any additional information requested by the State Pipeline Coordinator.*

Lessees are required to submit their annual report for the previous year by January 31<sup>st</sup>. The compliance oversight team reviews each lessee's report in detail and provides feedback. If a lessee's report does not meet the minimum requirements, the team will require additional information from the lessee as necessary. For information about the 2005 lessee reports, see Section IV, This Year's Compliance Oversight Activities.

### **3) Annual SPCO Lease Compliance Monitoring Report**

The purpose of the Annual SPCO Lease Compliance Monitoring Report, produced by the compliance oversight team, is to summarize annual lessee and SPCO activities

related to each pipeline ROW lease for the preceding Fiscal Year (July 1 through June 30). The reports generally provide some background information, a summary and analysis of the lessee's annual report, a summary of the current year's oversight program, and a look forward to upcoming issues related to each ROW lease. For information about this year's report, see Section IV, This Year's Compliance Oversight Activities.

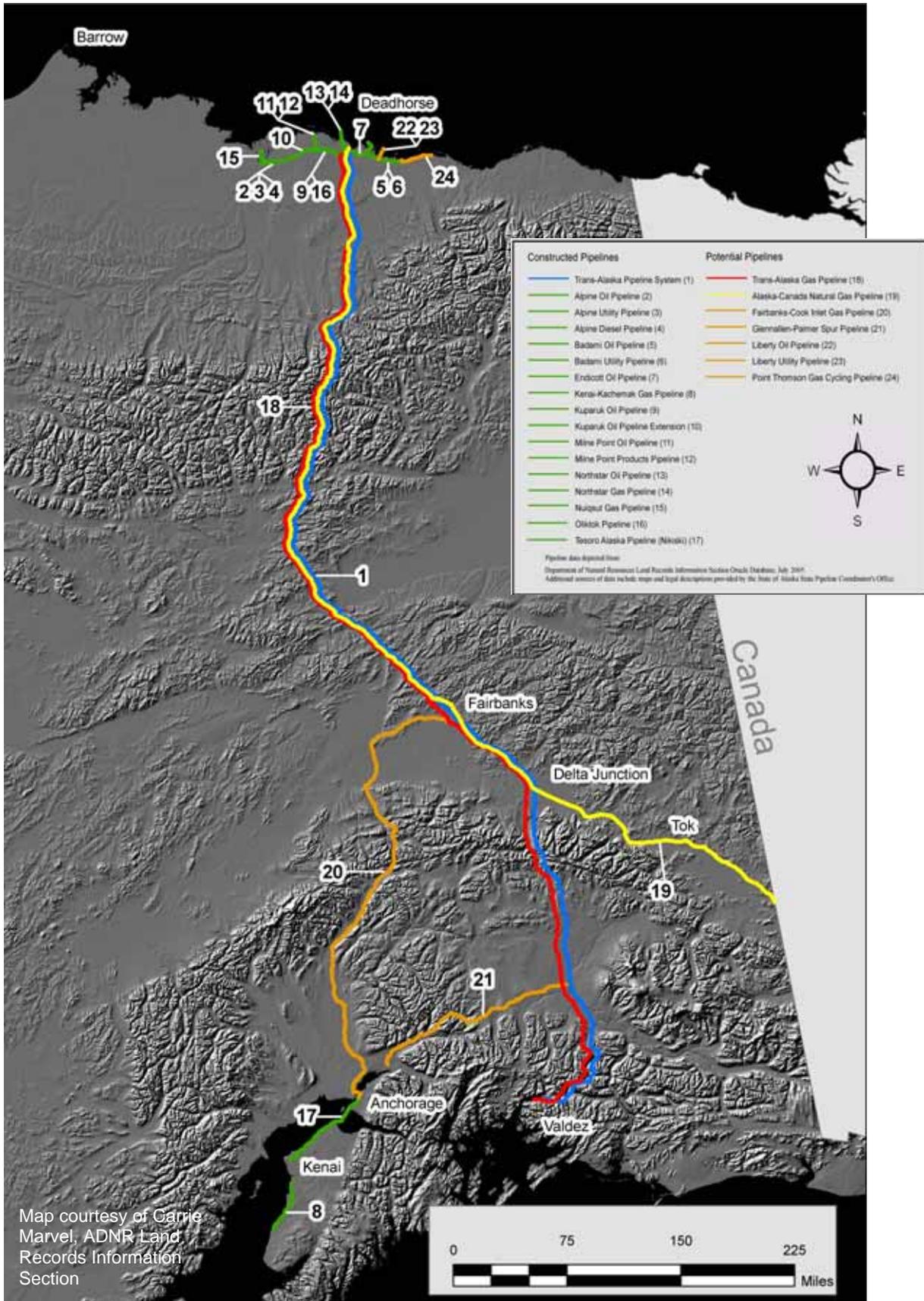
### **III. Pipelines Subject to Compliance Monitoring**

Currently, there are fifteen non-TAPS AS 38.35 pipeline ROW leases and one AS 38.05 ROW grant subject to compliance monitoring through the SPCO. (This number does not include the Trans-Alaska Pipeline System, which is monitored through the JPO and reported on in the JPO Annual Report.) Fourteen of these pipelines are operational, the Milne Point Products Pipeline is in warm shutdown status, and the Nuiqsut Natural Gas Pipeline is constructed but not yet operational.

The following table summarizes information about the sixteen jurisdictional pipelines that are the subject of this report.

<b><u>Location</u></b>	<b><u>ADL</u></b>	<b><u>Name (product)</u></b>	<b><u>Length in Miles*</u></b>	<b><u>ROW Lessee</u></b>
North Slope	415701	Alpine Oil	34	ConocoPhillips Company
North Slope	415932	Alpine Diesel	34	ConocoPhillips Company
North Slope	415857	Alpine Utility (Grant)	34	ConocoPhillips Company
North Slope	415472	Badami Sales Oil	25	BP Transportation (Alaska)
North Slope	415965	Badami Utility	31	BP Transportation (Alaska)
North Slope	410562	Endicott (Oil)	26	Endicott Pipeline Company
Southcentral	228162	Kenai Kachemak (Gas)	50	Kenai Kachemak LLC
North Slope	402294	Kuparuk (Oil)	28	Kuparuk Transportation Company
North Slope	409027	Kuparuk Extension (Oil)	9	Kuparuk Transportation Company
North Slope	410221	Milne Point (Oil)	10	Milne Point Pipeline LLC
North Slope	416172	Milne Point Products	10	Milne Point Pipeline LLC
Southcentral	69354	Nikiski Alaska (Refined oil products)	70	Tesoro Alaska Pipeline Company
North Slope	415700	Northstar Oil	17	BP Transportation (Alaska)
North Slope	415975	Northstar Gas	16	BP Transportation (Alaska)
North Slope	416202	Nuiqsut Natural Gas	14	North Slope Borough
North Slope	411731	Oliktok (Natural Gas Liquids)	28	Oliktok Pipeline Company

*\*The length values given in this table are the approximate length of the pipeline system. The length of pipeline on State-leased ROW lands may be shorter. For detailed information about State lands in a ROW, go to the chapter for that pipeline.*



## IV. This Year's Compliance Oversight Activities

### 1) Compliance Monitoring

Between January 1, 2005 and June 30, 2006, the SPCO conducted field surveillance for 13 pipeline ROW leases and one utility pipeline grant to get an overview of those pipeline systems and monitor lease compliance in general. Additionally, some surveillance was conducted on special topics such as corrosion, construction practices, a facility re-start, and in-line inspection (ILI) operations. The following table summarizes surveillance field trips for FY06 and the latter half of FY05.

<u>When</u>	<u>ADLs</u>	<u>Pipelines</u>	<u>Surveillance Topics</u>	<u>Surveillant(s)</u>
June 2005	415701 415932 415857	Alpine Oil Pipeline Alpine Diesel Pipeline Alpine Utility Pipeline	General overview; surveillance of State for reduction in ROW width (release of interests)	Novinska Swanson
June 2005	69354	Nikiski Alaska Pipeline (Tesoro)	Turnagain Arm pipe replacement	Perez
June 2005	228162	Kenai Kachemak Gas Pipeline	Anomaly dig	Novinska Swanson
July 2005	228162	Kenai Kachemak Gas Pipeline	Corrosion; revegetation of Happy Valley Extension	Novinska Swanson
August 2005	69354	Nikiski Alaska Pipeline (Tesoro)	General overview	Novinska
September 2005	415472 415965 410562	Badami Sales Oil Pipeline Badami Utility Pipeline Endicott Pipeline	General overview; re-start of Badami pipelines and facilities	Novinska
November 2005	402294 409027 411731	Kuparuk (Oil) Pipeline Kuparuk Extension Pipeline Oliktok Pipeline	General overview; corrosion	Novinska
March 2006	410221 416172	Milne Point (Oil) Pipeline Milne Point Products Pipeline	General overview; follow-up on valve closure incident	Constantine
April 2006	228162	Kenai Kachemak Gas Pipeline	ROW brush clearing activities: Kasilof Extension	Novinska Constantine
May 2006	228162	Kenai Kachemak Gas Pipeline	HDD pilot boring: Kasilof Extension	Novinska
June 2006	415472 415965	Badami Sales Oil Pipeline Badami Utility Pipeline	Observation of monitoring activities at the Sag River weir	Constantine
June 2006	415472 410562 410221 415975	Badami Sales Oil Pipeline Endicott Pipeline Milne Point Oil Pipeline Northstar Oil Pipeline	Surveillance & monitoring program for early detection and abatement of corrosion	Novinska
June 2006	228162	Kenai Kachemak Gas Pipeline	Welding; HDD pipe pull	Novinska
June 2006	69354	Nikiski Alaska Pipeline (Tesoro)	General overview; stream crossings	Novinska Constantine

One key focus of surveillance efforts in FY06, as prescribed by the State Pipeline Coordinator, was corrosion. The compliance oversight team reviewed numerous documents related to corrosion. These included documents submitted by the lessees to the SPCO and other agencies, especially ADEC and USDOT. The compliance oversight team met with lessee representatives to discuss corrosion programs.

ConocoPhillips gave a comprehensive presentation about their corrosion program to the team lead during a November 2005 surveillance of the Kuparuk and Oliktok Pipelines and the Kuparuk Pipeline Extension. BPXA, which is the primary contractor for operation of the Badami, Northstar, Endicott, and Milne Point pipelines, gave the compliance oversight team a similar presentation about their corrosion program in February 2006. The team lead also attended the annual North Slope Charter Agreement meeting in spring 2006 where corrosion was highlighted due to the March 2006 GC-2 crude spill. Corrosion reports submitted to ADEC by ConocoPhillips and BPXA, as required by the Charter, were also reviewed by the team lead. While those reports do not apply directly to common carrier pipelines, they contain information about related corrosion programs.



*In-line inspection tools known as smart pigs are used to detect pipeline defects such as metal loss due to corrosion. The compliance oversight team lead observed smart pigging operations using this smart pig in the Alpine Oil Pipeline in June 2005.*

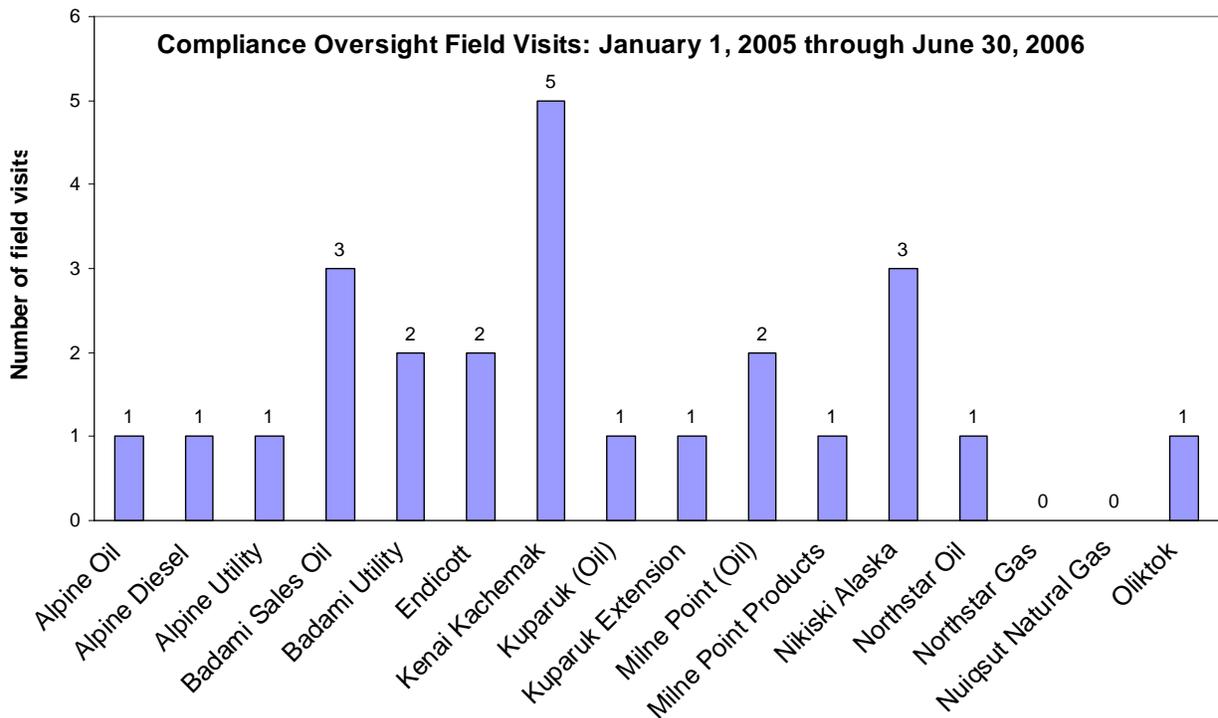
In addition to field surveillance, records reviews, and informational meetings about corrosion, the SPCO requested and received in-line inspection data from the most recent smart pig run through many of the SPCO jurisdictional pipelines. The reports submitted included vendor-supplied ILI data for the Alpine Oil, Alpine Utility, Nikiski Alaska, Kenai Kachemak, Milne Point Oil, Endicott, and Badami Sales Oil pipelines. The compliance oversight team lead, in conjunction with a State engineer from the JPO

Technical and Design Review Section, reviewed the ILI reports and several of the reported metal-loss anomalies. The team lead met with some lessee representatives to discuss corrosion detection and repair practices. As well as ILI practices, the team lead reviewed maintenance (cleaning) pig practices for most SPCO-jurisdictional pipelines. Not all of the pipelines are piggable, and the frequency of maintenance pig use varies.

The compliance oversight team anticipates corrosion will continue to be a key surveillance topic through FY07 as corrosion-related spills and leaks are a significant threat to State-leased pipeline ROW lands and the surrounding environment. The SPCO coordinates with the USDOT to confirm that lessees are meeting requirements for pipeline integrity management. For more information on ILI for each individual pipeline, visit the section of that chapter for Compliance Oversight.

Additional surveillance topics in FY06 included construction activities occurring along the Kenai Kachemak Pipeline on the Kenai Peninsula. Having recently finished the Happy Valley Extension to this pipeline, the lessee was granted a ROW amendment to begin construction on the 4.2-mile Kasilof Extension. Field surveillance of the KKPL has focused on evaluating revegetation and restoration efforts from the Happy Valley Extension and observing construction practices ongoing in summer 2006 to ensure that lease provisions are complied with throughout all phases of pipeline construction, operations, and maintenance.

Other important surveillance topics in FY06 included leak detection, surveillance & monitoring, quality assurance, ROW storage, vehicle traffic, public access, stream crossings, wildlife passage (for above-ground pipelines), maintenance, revegetation of disturbed areas, off-road vehicle traffic, and worker safety.



## 2) Annual Lessee's Reports

In early 2006, the SPCO received annual reports from all sixteen lessees/grantees required to submit them. These ranged in length from 4 pages for the Nikiski Alaska Pipeline to binders several inches thick from other lessees. All lessees received a response and report review from the lease compliance oversight team. Some lessees' reports did not meet minimum requirements and those lessees were asked to submit compliant reports by a deadline in summer 2006. Other reports were accepted but lessees were asked to provide more detail in subsequent years. The following summarizes SPCO review of the sixteen annual reports:

<u>ADL</u>	<u>Pipeline Name</u>	<u>Arrived</u>	<u>Status</u>	<u>Follow-up</u>	<u>Follow-up Date</u>
415701	Alpine Oil	On Time	Accepted	Not Required	n/a
415932	Alpine Diesel	On Time	Accepted	Not Required	n/a
415857	Alpine Utility	On Time	Accepted	Not Required	n/a
415472	Badami Sales Oil	On Time	Accepted	Required	Rec'd June 16, 2006
415965	Badami Utility	On Time	Accepted	Required	Rec'd June 16, 2006
410562	Endicott	On Time	Accepted	Required	Rec'd June 16, 2006
228162	Kenai Kachemak	On Time	Accepted	Not Required	n/a
402294	Kuparuk	On Time	Accepted	Not Required	n/a
409027	Kuparuk Extension	On Time	Accepted	Not Required	n/a
410221	Milne Point	On Time	Accepted	Required	Rec'd June 16, 2006
416172	Milne Point Products	On Time	Accepted	Required	Rec'd June 16, 2006
69354	Nikiski Alaska	Late	In review	Required	Rec'd July 17, 2006, late
415700	Northstar Oil	On Time	Accepted	Required	Rec'd June 16, 2006
415975	Northstar Gas	On Time	Accepted	Required	Rec'd June 16, 2006
416202	Nuiqsut Natural Gas	Late*	Not Accepted	Requested	Past due June 30, 2006
411731	Oliktok	On Time	Accepted	Not Required	n/a

*\*The 2004 Nuiqsut report was over a year late and arrived shortly before the 2005 report, also late.*



*The Endicott Pipeline connects BP's Endicott Development to TAPS. Endicott is developed on man-made islands in the Beaufort Sea connected by a causeway with breaching structures.*

### 3) 2006 Annual SPCO Compliance Oversight Report

The SPCO report for FY06 differs from prior years. This year's report is designed to be streamlined and contain information more useful to lessees, JPO employees, other agencies, and the public. This report is divided into three main sections: introduction, Southcentral pipelines, and North Slope pipelines. Some pipeline leases are grouped and reported on together for convenience and to avoid repetition (for example, the two Alpine pipeline leases and one Alpine pipeline grant are grouped together into Chapter 3). The report contains the following chapters:

- |   |  |
|---|--|
| 1) <i>Kenai Kachemak Pipeline</i>       | 6) <i>Endicott Pipeline</i>            |
| 2) <i>Nikiski Alaska Pipeline</i>       | 7) <i>Northstar Pipelines</i>          |
| 3) <i>Alpine Pipelines</i>              | 8) <i>Milne Point Pipelines</i>        |
| 4) <i>Kuparuk and Oliktok Pipelines</i> | 9) <i>Nuiqsut Natural Gas Pipeline</i> |
| 5) <i>Badami Pipelines</i>              |  |



*The Milne Point Oil (rear) and Products (front) pipelines connect the Milne Point Development, east of Prudhoe Bay, to the Kuparuk and Oliktok Pipeline Systems, respectively, approximately 10 miles to the south.*

Each chapter contains the following headings:

- *Lease and Right-of-Way Overview*: contains information about the State ROW lease agreement, State lands in the Leasehold, environmental issues in the ROW, and the pipeline system. (Note that not all of the pipeline system

- may be on State lands covered by the ROW lease. Often pipelines cross land owned by others including the Federal government, local governments, Native corporations, or private landowners.)
- *Lessee's Annual Report*: summarizes SPCO review of the lessee's annual report and information provided by the lessee. An overview of the lessee's reported surveillance & monitoring conditions is also provided. Additional information can be accessed through the lessee's annual report located in each ROW case file. The *Lessee's Surveillance & Monitoring* heading within this section describes the results of the lessee's surveillance & monitoring program for the year, including any anomalous conditions discovered during inspection.
  - *SPCO Activity*: summarizes SPCO activities for the Fiscal year, including lease administration, compliance oversight, and surveillance summaries, as applicable. Some activities are included for the latter half of FY05 for information. This section also includes information about the latest appraisal of State lands in the ROW and when the next appraisal is due.
  - *Upcoming Issues*: looks forward to the following year for lessee and SPCO planned activities.
  - *Contact Information*: provides contact information for the registered agent and other designated representatives of each ROW lessee as required by the ROW lease agreements.

The SPCO annual report is staggered six months apart from the lessee's annual report. This gives the compliance oversight team time to analyze information in the lessee's report for the prior year for inclusion in the SPCO report and provides the lessee with feedback half way through the calendar year. The report period covered for this annual report is FY06 which began July 1, 2005 and ended June 30, 2006. Some information, especially related to lessee and SPCO activities, is included for the latter half of FY05. This is because the lessee's reports submitted in 2006 cover calendar year 2005 and some SPCO activities in the latter half of FY05 did not fall within the scope of the most recent SPCO annual report.

## **V. Missions and Measures**

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Missions & Measures is the tool the Governor's Office uses to set goals, measure progress, and be accountable to Alaskans for achieving desired results. The Office of Management and Budgeting (OMB) within the Governor's Office implemented Missions and Measures within its vision to "ensure the State's resources are invested in a way that produces results which advance the governor's priorities." For information about the

Missions and Measures program, go to the OMB website at [www.gov.state.ak.us/omb/results/](http://www.gov.state.ak.us/omb/results/).

Missions and Measures for the SPCO describe why the agency exists, its major responsibilities, results to be produced, how the agency will get those results, and how both the agency and Alaskans will know that success is being achieved.



### **SPCO Mission**

*To encourage and facilitate the development and sound operation of pipelines on State land.*

### **Desired Result:**

*Assure pipelines administered by the State Pipeline Coordinator's Office are designed, constructed, operated, and maintained in a safe and environmentally-sound manner consistent with lease requirements and applicable laws.*

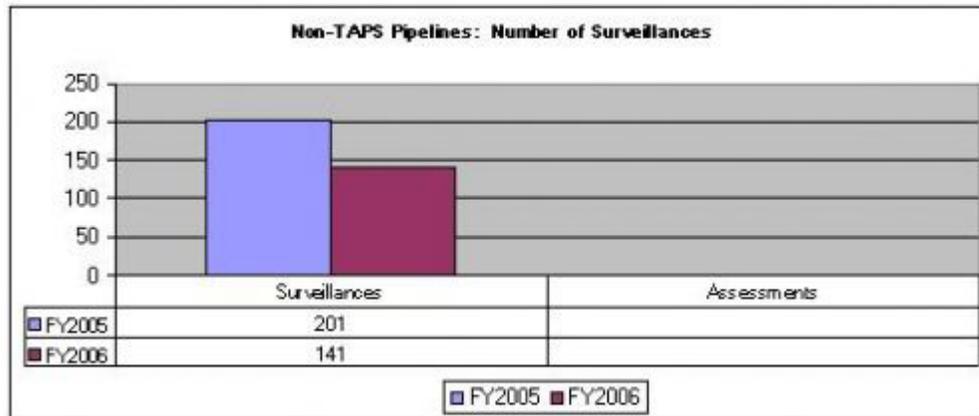
SPCO Missions & Measures information and the measuring tape graphic were accessed on the State OMB website on June 12, 2006.

### **SPCO Core Services:**

- *Process applications under the Alaska Lands Act and Right-of-Way Leasing Act and negotiate and deliver pipeline and other right-of-way leases in a manner that serves the State's interests.*
- *Administer leases under SPCO jurisdiction including revenue, permitting, authorizations, and oversight of the construction, operations, maintenance, and termination of pipelines on State leased land.*
- *Coordinate SPCO Trans-Alaska Pipeline System Lease oversight with the U.S. Bureau of Land Management to ensure that TAPS remains available for delivery of North Slope crude oil to market.*
- *Keep the public informed of SPCO activities.*

To assess how the SPCO is performing under its mission and desired results, targets and measures are developed. For the SPCO-administered pipelines other than TAPS, the target is to "perform, document, and approve operational and project

activities to ensure compliance with lease requirements and applicable laws through surveillances, technical reviews/reports, and assessments." The number of surveillances conducted is used to measure the SPCO's performance under this target. This target and measure is new for FY06, though data is provided for FY05 for comparison.



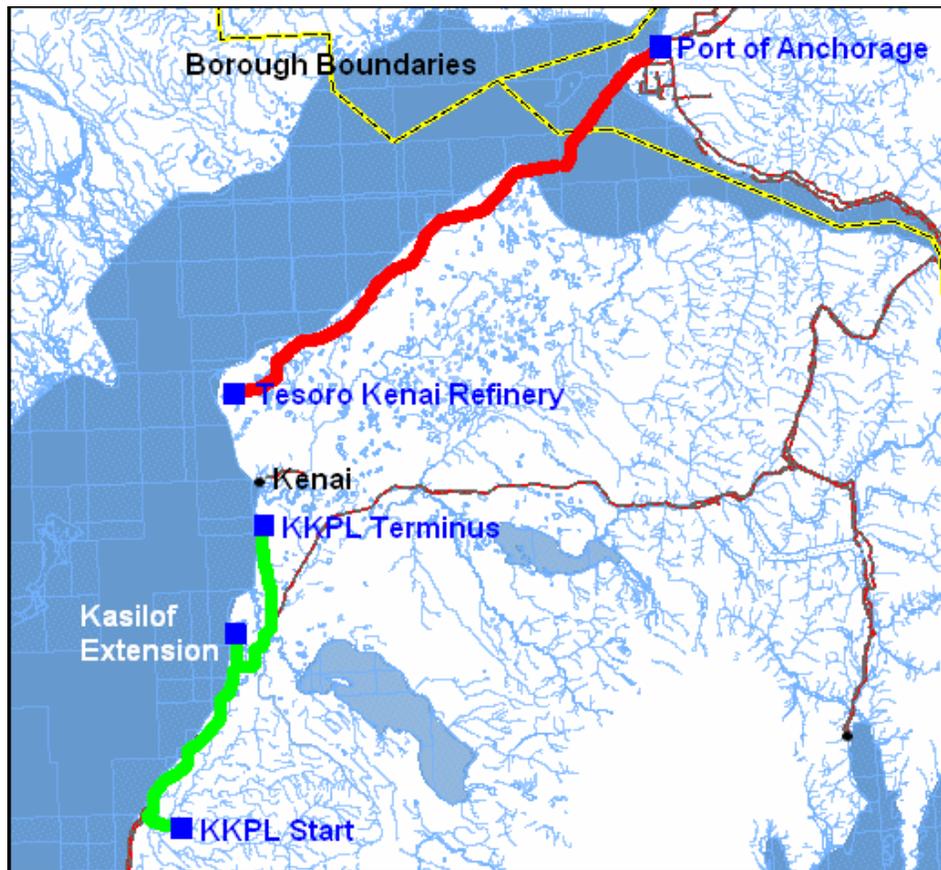
*Caption from the OMB website: "Data indicates a decline in the total number of surveillances conducted, (down from 201 surveillances conducted during FY05 to 141 surveillances during FY06). This was due to SPCO staffing changes during FY06 to recruit and train two new Natural Resource Specialists to replace former staff that left for other jobs. Additionally, surveillance procedures were modified to refine and improve how data is collected and reported by SPCO field staff. No assessments were completed during FY05 or FY06 because sufficient SPCO surveillance and other data are not yet available for adequate trend analysis and evaluation."*



# Southcentral Pipelines

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1. [Kenai Kachemak Pipeline](#) 21
  2. [Nikiski Alaska Pipeline](#) 35
- 



**Southcentral Pipelines:**

- Kenai Kachemak Pipeline
  - Nikiski Alaska Pipeline
-



## SOUTHCENTRAL PIPELINES

### 1 Kenai Kachemak Pipeline

ADL # [228162](#)

- [1.1 Lease and Right-of-Way Overview](#)
  - 1.1.1 Kenai Kachemak Corridor
  - 1.1.2 Kenai Kachemak Gas Pipeline
  - 1.1.3 Happy Valley Extension
  - 1.1.4 Kasilof Extension
- [1.2 Lessee's Annual Report](#)
  - 1.2.1 SPCO Review
  - 1.2.2 Lessee's Activities
  - 1.2.3 Lessee's Surveillance & Monitoring
- [1.3 SPCO Activity](#)
  - 1.3.1 Lease Administration
  - 1.3.2 Compliance Oversight
  - 1.3.3 Summary of Lease Compliance Observations: June 2005
  - 1.3.4 Summary of Lease Compliance Observations: July 2005
  - 1.3.5 Summary of Lease Compliance Observations: April 2006
  - 1.3.6 Summary of Lease Compliance Observations: May 2006
  - 1.3.7 Summary of Lease Compliance Observations: June 2006
  - 1.3.8 Appraisals
- [1.4 Upcoming Issues](#)
  - 1.4.1 Lessee's Activities
  - 1.4.2 SPCO Compliance Oversight
- [1.5 Contact Information](#)



The Kenai Kachemak Pipeline transports natural gas on the Kenai Peninsula.

## 1.1 Lease and Right-of-Way Overview

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### 1.1.1 Kenai Kachemak Corridor

The Kenai Kachemak Pipeline transports natural gas from production areas in the south to distribution networks in the north on Alaska's Kenai Peninsula. It first transported natural gas on September 5, 2003. The first phase of the KKPL, completed in 2003, is approximately 31 miles. The total length of the KKPL, including the recent Happy Valley Extension and Kasilof Extension (construction in progress), is approximately 50 miles. 42 miles are on State land. The entire pipeline, except for horizontal directional drilling (HDD) locations, is buried underground in a backfilled trench. More pipeline-specific information is provided later in this section.

The 30-year ROW lease agreement, if not renewed, will expire November 25, 2032. Landowners in the ROW include the State of Alaska, Kenai Peninsula Borough, Native corporations, and other private landowners. The total construction ROW of State lands leased to KKPL is 294.6 acres (this construction ROW acreage will later be reduced to a smaller operations ROW of 102.3 acres). State lands include highway ROWs through the DOTPF, section line easements, and navigable waterways. DOTPF roads include the Sterling Highway, Kalifornsky Beach Road, and Cohoe Loop Road.

KKPL LLC is the ROW leaseholder. KKPL is a limited liability company owned by Marathon Oil Company and GUT LLC, a wholly owned subsidiary of Unocal. Norstar, a subsidiary of Enstar, is the primary contractor to KKPL LLC for the operations and maintenance of the pipeline. Marathon is the primary contractor for construction activities for the Kasilof Extension. The KKPL Quality Program, which documents how the lessee achieves compliance with the State ROW lease agreement, was approved by the State Pipeline Coordinator on November 25, 2002. The lessee is responsible for overall implementation of the program.

Currently, the pipeline ROW is in construction width (60 feet in most places) to allow the lessee to use State lands necessary for pipeline construction. The ROW is wider at river crossings and horizontal directional drilling sites. Eventually these State lands used as construction ROW will be released from the lease and the operations ROW will be 20 feet wide on State land.

*Populated Areas:* Some segments of the KKPL pass through neighborhoods on the Kenai Peninsula. Some populated areas are considered High Consequence Areas for the purpose of USDOT regulations. (There are seven HCAs in total, some of which are designated as such for environmental reasons.)

*River Crossings:* The KKPL was bored underneath river crossings using HDD and crosses the Kasilof and Ninilchik Rivers, Crooked Creek, Coal Creek, and multiple unnamed creeks, streams, and gullies.

*Extensions:* The KKPL is being built in phases. Phase 1 was completed in 2003, Phase 2 was completed in 2004, and Phase 3 is currently in progress. These three phases of construction are further discussed below.

*Lease:* An electronic copy of the KKPL lease agreement is available for public viewing at the SPCO website: <http://www.jpo.doi.gov/SPCO/SPCO.htm>.



*In summer 2006, construction is in progress on the 4.2-mile Kasilof Extension to the KKPL. This picture shows a segment of pipeline being placed in the newly-dug trench.*

### **1.1.2 Kenai Kachemak Gas Pipeline (ADL 228162)**

The 12-inch Kenai Kachemak Pipeline begins at the Happy Valley production pad. It was originally constructed as an approximately 31-mile segment beginning at the Susan Dionne Production Pad and ending at the Marathon Oil Company 500 Master Meter Building. It was constructed with steel pipe a minimum of 0.330 inches thick. At river crossings, the pipe thickness increases to 0.500 inches. The pipeline is coated with an external layer of fusion-bonded epoxy to prevent soil-to-pipe contact. The maximum operating pressure of the line is 1,480 psig.

The pipeline transports natural gas (99.50% methane) produced at fields in Cook Inlet to a tie-in point where the gas is transferred for further transport. Currently, some natural gas is being distributed from the KKPL for local use.

The entire pipeline is piggable, and the operator has used smart pigs, or in-line inspection tools to check pipeline conditions. KKPL first ran a baseline ILI tool through the pipeline in 2005 and discovered one anomaly which was further investigated. The

operator does not use cleaning or maintenance pigs except to prepare the pipeline for ILI tools. Since the line is buried, a cathodic protection system is installed and maintained per USDOT regulations.

KKPL is a member of the "Locate Center," a free service that allows the public to locate buried pipelines before excavation. For more information about locates, see 1.2.3, Lessee's Surveillance & Monitoring.

### **1.1.3 Happy Valley Extension (Amendment to ADL 228162)**

The total length of the Happy Valley Extension, built in 2004, is approximately 15 miles. Approximately 6.3 miles are on State land, subject to the AS 38.35 Right-of-Way Leasing Act. The remaining miles of non-State land are not part of the ROW amendment authorized by the DNR Commissioner on June 16, 2004. The extension began at the previous terminus of the KKPL near the Susan Dionne Pad, which is near Milepost 128 of the Sterling Highway and approximately 5 miles north of Ninilchik. The pipeline then follows the Sterling Highway on its east side and crosses five small and/or intermittent streams via HDD. An HDD crossing of the Ninilchik River started in the Sterling Highway ROW, north of the river, and terminated within a section line easement on the south side of the river. The extension provides for delivery of natural gas from the Happy Valley drill site to the existing Southcentral Alaska natural gas infrastructure.

The temporary construction ROW included in the Happy Valley amendment contains approximately 48 acres of State lands on 30 feet either side of the ROW centerline. Once the release of interests is completed for the construction ROW, the operations ROW will contain approximately 16 acres in a 20-foot corridor.

### **1.1.4 Kasilof Extension (Amendment to ADL 228162)**

KKPL LLC is in the process of connecting a new Kasilof Extension to the existing pipeline. The extension is being constructed from 6-inch diameter coated steel pipe with a maximum pressure of 1,480 psig to transport natural gas into the KKPL. The extension begins at the Kasilof South Pad and ends at pipeline milepost 18.125 of the existing KKPL, at the intersection of Cohoe Loop Road and milepost 114.3 of the Sterling Highway. The ROW crosses one stream, at least one gully, and Bottleneck Lake via HDD. All 4.2 miles of the Kasilof Extension are on State land.

On April 24, 2006, the DNR Commissioner amended the KKPL lease to include Phase 3 of construction: the Kasilof Extension. The construction ROW for the Kasilof Extension extends 30 feet on either side of the ROW centerline and contains approximately 35.6 acres of State lands. Most of the State land is within the Cohoe Loop Road ROW, though 285 feet is located in the Sterling Highway ROW at the tie-in point. The permanent (operations) ROW will be reduced to 20 feet in width and will contain approximately 10.3 acres of State land. Construction is ongoing during the summer 2006, and all construction is occurring within the existing DOTPF ROW for Cohoe Loop Road. SPCO representatives have been present to observe some aspects of construction.

Two bald eagle nests, unknown to KKPL LLC at the time of their ROW amendment application, were identified in spring 2006 along Cohoe Loop Road within the Kasilof Extension route. KKPL LLC is working with the U.S. Fish & Wildlife Service (USF&WS) in order to mitigate potential impacts to the nesting sites by voluntarily using HDD under affected trees. KKPL LLC and USF&WS have agreed to the minimum buffer for the HDD to be 330 feet from the identified nest trees. This buffer could be increased to 660 feet at the discretion of USF&WS if the nests become active.

In a letter to the SPCO dated April 13, 2006, KKPL LLC requested to modify their application to add two additional HDD construction areas for mitigating potential Bald eagle nesting sites and a third HDD construction area for installing pipeline in a steep-cut crossing area that has an intermittent stream. At each HDD construction area, there are two temporary work areas (100 feet by 300 feet) on the boring (entry) and the receiver (exit) pits to accommodate HDD equipment. Each HDD construction area requires approximately 1.38 acres. For the three HDD construction areas, KKPL LLC requested an increase of 4.1 acres, more or less, of construction ROW acreage.

The additional 4.1 acres of State land during construction is slightly more than 10 percent of the amount in KKPL's original amendment application (approximately 31.5 acres). The additional construction acreage is entirely within the Cohoe Loop Road ROW and will be used to mitigate potential impacts to Bald eagle nesting sites and to minimize erosion from the steep-cut crossing area that has an intermittent stream. The additional acreage is temporary and does not increase acreage required for the operations ROW.

## **1.2 Lessee's Annual Report**

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The SPCO received a *2005 KKPL Annual Report* document from Norstar Pipeline Company, operator of the KKPL, on time on January 31, 2006. Annual reporting is a requirement of the KKPL ROW lease, and the seven requirements for annual reporting are listed in the Introduction Section. The KKPL report includes about twelve pages of qualitative information and about eight pages of quantitative data including pipeline pressure, flow, and temperature readings, hydrogen sulfide sampling data, coupon data, and cathodic protection readings.

### **1.2.1 SPCO Review**

After thoroughly reviewing the lessee's 2005 report, the SPCO accepted it. However, some minor improvements are possible and the State Pipeline Coordinator has required the lessee to include additional information and clarification in their annual report for 2006. There was a lack of basic information such as the quantity of gas transported for the year, a summary of any known oil or hazardous substances discharges, and information associated with the Kasilof Extension construction plans. In a letter dated

March 28, 2006, the State Pipeline Coordinator reminded the lessee of the seven requirements for annual reporting (listed in the Introduction Section of this report).

### **1.2.2 Lessee's Activities**

The lessee's annual report contains very little information about pipeline activities for the year, however, intensive lease administration and compliance oversight activities in FY06 provided the SPCO with sufficient information on KKPL activities. Below is some information presented in the lessee's 2005 report:

*Production:* During 2005, the Paxton Pad came on-line, increasing the number of production pads feeding natural gas into the KKPL to a total of five.

*Operations:* The pipeline's operator, Norstar, performed line locates, leak surveys, pipeline patrols, and routine maintenance.

*Maintenance:* Norstar cycled and lubricated pressure relief valves on July 23, 2005 as required by USDOT regulations.

*Restoration of Disturbed Areas:* Areas of the KPPL Phase 1 construction that were seeded in 2004 had acceptable revegetation in 2005. Phase 2, the Happy Valley Extension, was reseeded. For more info, see 1.3.2, Compliance Oversight.



*This photo depicts typical KKPL ROW. Yellow line markers locate the buried pipeline.*

### **1.2.3 Lessee's Surveillance & Monitoring**

The KKPL Surveillance & Monitoring Program requires the pipeline operator to monitor conditions that could impact pipeline integrity, public health and safety, and the environment. The KKPL Surveillance & Monitoring Program was approved by the State

Pipeline Coordinator on August 27, 2003. The lessee is required to comply with the program during pipeline operations and maintenance.

*Line Locates:* Because the KKPL passes through populated areas, the lessee participates in the *OneCall* damage prevention program. Norstar's affiliate Enstar receives locate requests from a centralized Locate Call Center. During 2005, Norstar reports receiving 444 locate requests which resulted in 148 onsite locates and 25 high pressure standbys. These peaked over the summer construction season with the highest numbers in July through October.

*In-Line Inspection:* In March 2005, Norstar ran a magnetic flux leakage and geometry inspection tool through the KKPL. Prior to the smart pig run, two foam pigs and one "six-disc polyurethane b-directional pig" cleaned the pipeline. Approximately 1,300 gallons of distillate were removed from the KKPL during cleaning. The final report from the pig vendor indicated no geometry or deformation issues, but did predict one metal loss anomaly. A portion of the pipeline was excavated at the location. The SPCO surveillance team visited the dig site. For more info, see 1.3.2, Compliance Oversight.

*Internal Corrosion Monitoring:* Norstar reports regularly sampling gas for quality and taking dew points at the pads and terminus to monitor water content in the pipeline.

*Cathodic Protection:* The lessee inspects rectifiers a minimum of six times per year at regular intervals. Pipe to soil and coupon current readings are taken periodically at three locations along the KKPL. A fourth coupon station was added in summer 2005. The only anomaly found in these inspections was a short at one of the AC zinc grounding cells. It was repaired.

*Aerial Surveillance:* Norstar employees conducted 29 aerial surveillance flights of the constructed KKPL in 2005. During these flights, personnel check pipeline and ROW conditions and look for encroachments or construction activities in the ROW. Norstar conducts regular aerial surveys a minimum of once per month in the winter. These increase in frequency during summer months. Additionally, the ROW is monitored during routine operations and maintenance.



*The KKPL valves are enclosed in fencing, locked, and marked with warning signs to inform the public and protect equipment.*

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## 1.3 SPCO Activity

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### 1.3.1 Lease Administration

In Fiscal Year 2006, a significant accomplishment of the lease administration team was the review and approval of an amendment to the KKPL lease to include the Kasilof Extension. The amendment process included a public review and comment period. The lease administration team wrote the Commissioner's Analysis and prepared documents for signature. On April 24, 2006, ADNR Commissioner Michael L. Menge signed the amendment, officially incorporating the Kasilof Extension into the KKPL ROW. The amendment added approximately 35.6 acres of State land to the KKPL lease.

*Construction:* The SPCO reviewed a draft *Construction Execution Plan for the Kasilof Extension*, provided feedback, and approved the final plan on May 5, 2006. The SPCO is currently receiving weekly construction progress updates and continues conducting frequent surveillance of construction practices.

*Design Basis:* The JPO Technical and Design Review Section also participated in the amendment process through an engineering review of the proposed Design Basis and Criteria for the new pipeline segment. The lessee is required to maintain the KKPL to standards in the Design Basis. The SPCO conducted a technical review of the pipeline design for structural adequacy, pipeline integrity, safety, potential impacts on the environment, and potential effects on fish and wildlife, their habitat, and subsistence uses. The Design Basis was approved on April 12, 2006. The State Pipeline Coordinator must approve any changes to the Design Basis before implementation.

### 1.3.2 Compliance Oversight

Between January 1<sup>st</sup>, 2005, and June 30, 2006, the compliance oversight team conducted five field surveillances of the KKPL ROW to generally assess lease compliance, observe activities related to the Happy Valley Extension revegetation and Kasilof Extension construction, and observe a potential metal loss anomaly dig.

*Anomaly Dig:* On June 15, 2005, the team observed a pipeline excavation taking place east of the Sterling Highway and south of Fleetwood Avenue. A magnetic flux leakage in-line inspection had identified an anomaly described as external wall loss of approximately 19%, with a potential instrument error of + or – 10%. Due to the error in ILI measurements and the potential to recover contractor warranty costs, KKPL decided to excavate and examine the anomaly location. When the surveillance team arrived on site, a contractor had largely completed the excavation process. The team reported that an excavator dug a 45-foot by 6-foot trench and workers used hand shovels to complete final exposure of the pipe. The surveillance team observed contractors searching for the anomaly location on a five-foot section of pipe. No anomaly was found. Upon completion of the inspection, the pipe was re-coated and re-buried. To follow up, the pipeline operator sent the SPCO a "KKPL Anomaly Inspection Report" on July 22, 2005. The surveillance team completed reports ANC-05-S-049 through 052, all of which noted satisfactory conditions.



*In July, 2005, the compliance oversight team observed a pipeline integrity dig at a potential external wall loss location identified in an in-line inspection run. No anomaly was found.*

*Happy Valley Extension Revegetation:* On July 26, 2005, the compliance oversight team conducted field surveillance of the KPPL ROW to observe revegetation activities along the newly constructed Happy Valley Extension ROW. Additionally the team looked at erosion, sediment control, and stream, river and floodplain crossings. Overall, the team did not find any major deficiencies in the restoration or revegetation. The surveillance completed reports ANC-05-S-57 through ANC-06-S-59, all of which reported satisfactory conditions.

*Cathodic Protection:* On August 1, 2005, the compliance oversight team lead visited a representative from the lessee in Anchorage to review part of the corrosion program. They discussed the pipeline's cathodic protection system, which prevents external corrosion. They also discussed coupons, pigging, and maps. Notes from this office visit are included as part of the surveillance field notes from the July 26<sup>th</sup> trip attached to surveillance report #ANC-05-S-057.

*Kasilof Extension Brush Clearing:* On April 17, 2006, the compliance oversight team conducted surveillance of ROW brush clearing and grubbing activities in preparation for construction of the Kasilof Extension. They also drove along the existing KKPL ROW to get a general overview of the pipeline system. The team observed that ROW clearing activities appeared to comply with the conditions of the DOTPF permit for clearing within the Cohoe Loop Road ROW. The team observed traffic control, surveying, staking, clearing, and grubbing. They also stopped at the sites of four planned HDD locations to

take baseline photos before disturbance by the HDD process. The surveillance field notes (attached to report ANC-06-023) describe the work being conducted in a safe and workmanlike manner. No unsatisfactory conditions were noted.

*Bottleneck Lake HDD:* On May 21, 2006, the compliance oversight team lead conducted surveillance of HDD practices at Bottleneck Lake. He also visited areas of the ROW previously cleared and grubbed. The surveillant completed reports ANC-06-S-075 through ANC-06-S-077. Reports 075 and 076 documented satisfactory conditions, while report 077 was an unsatisfactory condition under lease Section 9(b).

The unsatisfactory condition occurred when environmentally-benign HDD drilling fluid was inadvertently discharged into fish-bearing Bottleneck Lake through a hole in the HDD bore known as a "frac-out." The SPCO-approved *Construction Execution Plan for the Kasilof Extension* stated that the HDD contractor would have a spill prevention plan in place "that specifically covers the inadvertent release of drilling fluids." When the surveillant asked to see a copy of this plan, no plan could be located by the lessee's representatives. The HDD operation was voluntarily halted while the HDD contractor, Alaska Road Boring, prepared a written plan, which was submitted to the SPCO via email promptly two days later. HDD work then continued. A Marathon representative told the surveillant that appropriate agencies had been notified of the drilling fluid discharge. This HDD drilling fluid, *TRU-BORE®*, is an environmentally-benign mixture of clay and water that was not expected to adversely affect fish or wildlife.

*HDD Pipe Pull:* On June 2, 2006, the compliance oversight team lead observed HDD pipe pull at Bottleneck Lake (part of the Kasilof Extension). He reviewed general construction, equipment, specialty items, materials, and work in progress. When the surveillant arrived, the pipe to be pulled had already been welded into one continuous 1,340-foot string and placed on newly-made rollers. The surveillant looked at several weld locations, including one in progress and some that had already been coated. The surveillant also observed personnel "jeeping" the coating to look for defects known as "holidays." The surveillant reported everything related to welding and pipe pull that he observed was "conducted in a safe and workmanlike manner." Incidentally, a vandalism incident had occurred the night before when a fire extinguisher was discharged onto the surface of Bottleneck Lake and a portable toilet was tipped over the roadside pullout guardrail and left partway down the embankment. A police car arrived on site while the surveillant was there. The surveillant signed reports ANC-06-S-078 through ANC-06-S-082, all of which were satisfactory.

### **1.3.3 Summary of Lease Compliance Observations: June 2005**

<u>Lease</u>	<u>Stipulation</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
KKPL	1.5.1	Maintenance to Design Criteria	Satisfactory	ANC-05-S-049
KKPL	1.6.1	Surveillance & monitoring	Satisfactory	ANC-05-S-050
KKPL	1.13.1	Annual comprehensive report	Satisfactory	ANC-05-S-051
KKPL	2.2.1.1	Minimize surface disturbance	Satisfactory	ANC-05-S-052



These three photos were taken on SPCO surveillance during 2004 construction of the Happy Valley Extension. From left to right: pipe laid in trench; pipe welded together for placement in trench; pipe ready for placement in trench.

**1.3.4 Summary of Lease Compliance Observations: July 2005**

<u>Lease</u>	<u>Stipulation</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
KKPL	1.3.1	Construction plan	Satisfactory	ANC-05-S-059
KKPL	1.6.1	Surveillance & monitoring	Satisfactory	ANC-05-S-057
KKPL	2.7.1	Stabilize disturbed areas	Satisfactory	ANC-05-S-058

**1.3.5 Summary of Lease Compliance Observations: April 2006**

<u>Lease</u>	<u>Section</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
KKPL	8(d)	State access to property & records	Satisfactory	ANC-06-S-023

<u>Lease</u>	<u>Stipulation</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
KKPL	2.7.3	Restoration of State lands	Satisfactory*	ANC-06-S-046

\*Conditions were satisfactory, but follow-up was required on an area of backfill subsidence. The SPCO was notified via email that the backfill subsidence problem has been corrected.

**1.3.6 Summary of Lease Compliance Observations: May 2006**

<u>Lease</u>	<u>Section</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
KKPL	9(b)	Requirements imposed upon lessee's contractors ensured by lessee	Unsatisfactory	ANC-06-S-077
KKPL	14(a) 14(b)	Approved Quality Program Approved Construction Plan	Satisfactory	ANC-06-S-076

<u>Lease</u>	<u>Stipulation</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
KKPL	2.2.1.1 2.2.1.1.2	Minimal surface disturbance Blading (grubbing) as approved	Satisfactory	ANC-06-S-075

**1.3.7 Summary of Lease Compliance Observations: June 2006**

<u>Lease</u>	<u>Section</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
KKPL	14(b)	Approved construction plan	Satisfactory	ANC-06-S-078
KKPL	40	Compliance with laws and regulations	Satisfactory	ANC-06-S-079
<u>Lease</u>	<u>Stipulation</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
KKPL	1.3.1	Approved construction plan	Satisfactory	ANC-06-S-080
KKPL	1.11.1	Regulation of access	Satisfactory	ANC-06-S-081
	1.11.2	Unrestricted public access		
KKPL	3.1.1.1	Construction: sound engineering	Satisfactory	ANC-06-S-082
	3.1.1.2	Design Criteria, and approved supporting documents		

**1.3.8 Appraisals**

According to AS 38.35, pipeline ROW lessees must pay fair market value to lease State lands in the ROW. Per the KKPL lease, a new appraisal is due every five years. The most recent appraisal of the KKPL ROW, performed by MacSwain Associates, was approved by ADNR on July 28, 2004. These appraisal values cover the original KKPL, Happy Valley Extension, and the new Kasilof Extension. The State acreage and annual rental fees for the KKPL ROW follow:

<u>Kenai-Kachemak Pipeline</u>	<u>ADL #</u>	<u>State Acres</u>	<u>Estimated Market Rent</u>
Gas Pipeline Construction ROW	228162	294.6	\$47,350

**1.4 Upcoming Issues**

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**1.4.1 Lessee's Activities**

KKPL, Norstar, and their contractors plan to finish the Kasilof Extension in 2006 and begin transporting gas from the Kasilof South pad through the KKPL.

**1.4.2 SPCO Compliance Oversight**

The lease compliance oversight team plans to conduct field surveillance of the Kasilof Extension in July 2006. Additional field surveillance may be conducted in FY07. The lessee's 2006 annual report, due January 31, 2007, will also be reviewed.

## **1.5 Contact Information**

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The KKPL ROW lease requires the lessee to designate in writing a registered agent and field representative.

*Registered Agent*                      Mr. A. Ben Schoffman  
President  
Kenai Kachemak Pipeline, LLC  
P.O. Box 196168  
Anchorage, AK 99519-6168

*Field Representative*                Mark Slaughter  
Operations Analyst  
NORSTAR  
P.O. Box 190288  
Anchorage, AK 99518-0288

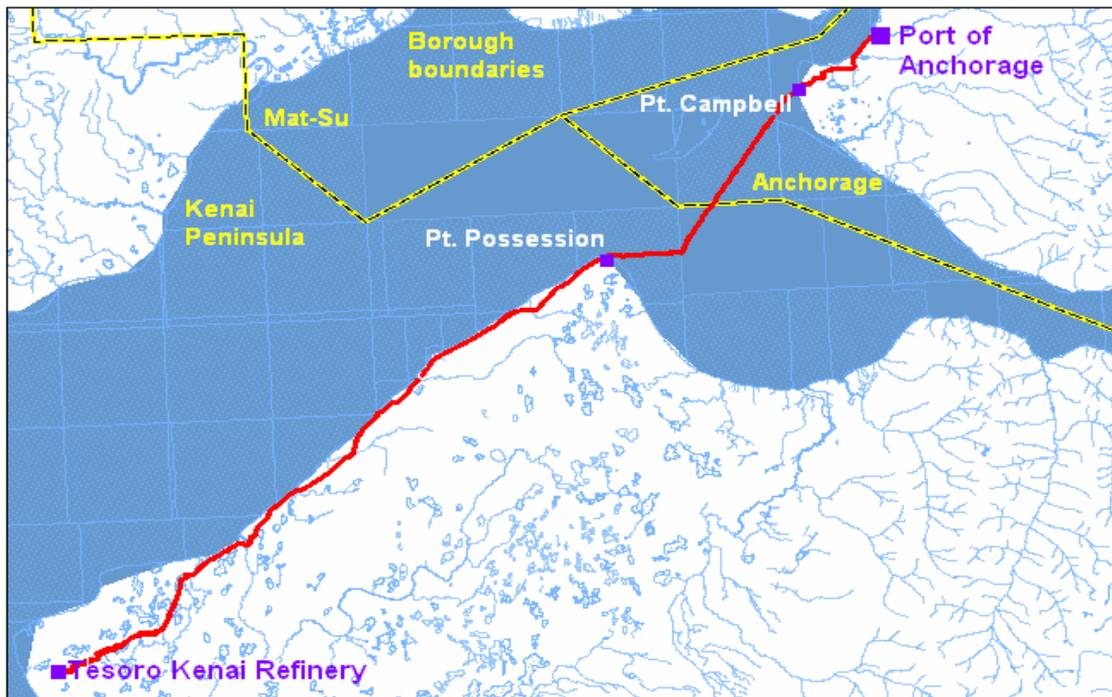


## SOUTHCENTRAL PIPELINES

### 2 Nikiski Alaska Pipeline (Tesoro)

ADL # [69354](#)

- [2.1 Lease and Right-of-Way Overview](#)
  - 2.1.1 *Nikiski Alaska Corridor*
  - 2.1.2 *Petroleum Products Pipeline*
- [2.2 Lessee's Annual Report](#)
  - 2.2.1 *SPCO Review*
  - 2.2.2 *Lessee's Activities*
  - 2.2.3 *Lessee's Surveillance & Monitoring*
  - 2.2.4 *Recent Realignments and Replacements*
- [2.3 SPCO Activity](#)
  - 2.3.1 *Lease Administration*
  - 2.3.2 *Compliance Oversight*
  - 2.3.3 *Summary of Lease Compliance Observations: August 2005*
  - 2.3.4 *Summary of Lease Compliance Observations: June 2006*
  - 2.3.5 *Appraisals*
- [2.4 Upcoming Issues](#)
  - 2.4.1 *Lessee's Activities*
  - 2.4.2 *SPCO Compliance Oversight*
- [2.5 Contact Information](#)



The Nikiski Alaska Pipeline was built in 1976 to transport refined liquid petroleum products from the Tesoro Kenai Refinery in Nikiski to the Port of Anchorage.

## 2.1 Lease and Right-of-Way Overview

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### 2.1.1 Nikiski Alaska Corridor

The Nikiski Alaska Pipeline was built in 1976 to transport refined liquid petroleum products from the Tesoro Kenai Refinery in Nikiski to the Port of Anchorage. The entire pipeline is buried, including the Turnagain Arm crossing. The total length is about 68.9 miles with about 52.8 miles on State land. More pipeline-specific information is provided later in this section.

The ROW Lease Agreement for the Nikiski Pipeline between the State of Alaska and Nikiski Alaska Pipeline Company was issued on January 30, 1976. On September 21, 1984, the lease was amended to alter the lessee name to Tesoro Alaska Pipeline Company (Tesoro). The lease will expire January 29, 2031. The operations ROW extends five feet on either side of the pipeline centerline for a total width of ten feet. Landowners in the ROW include the State of Alaska, Kenai Peninsula Borough, Municipality of Anchorage, the Federal Government, Cook Inlet Regional Corporation, and other private landowners. Tesoro is the ROW lessee for the Nikiski Alaska Pipeline and is also the pipeline operator.

*Environmental concerns:* Much of the pipeline route is within or adjacent to the Captain Cook State Recreation Area and the Kenai National Wildlife Refuge, including the Moose Range. Because spills here would threaten wetlands and wildlife habitat and are predicted to quickly escape into Cook Inlet, this area is designated as environmentally sensitive. Except for one small section of pipeline located west of Captain Cook State Park, the entire pipeline is located in a High Consequence Area as defined by USDOT regulations.

*Populated Areas:* Some segments of the Nikiski Pipeline traverse densely populated areas. The immediate vicinity of the Tesoro Nikiski Refinery is populated though the corridor between the refinery and Anchorage has very low population density. There are scattered houses. The segment of the pipeline in Anchorage, however, is heavily populated. Through the Northern Lights Boulevard corridor, especially, Tesoro estimates that as many as several hundred to several thousand people could be within one-half mile of the pipeline corridor at any given time. The Anchorage Fire Department will be the Incident Commander during the emergency phase of any spill or fire, and Tesoro meets with them annually to develop response strategies. Many of the populated areas of the Nikiski Alaska Pipeline are not on State land, so they are not part of the ROW lease.

*Turnagain Arm Elementary:* The Nikiski Pipeline also passes in front of Turnagain Arm Elementary School on Northern Lights Boulevard. Approximately 100 feet of driveway, parking lot, and grassy area separates the pipeline right-of-way from the school. This area is given the highest possible priority for emergency response in Tesoro's Oil Spill Prevention and Contingency Plan submitted to ADEC. It is also outside of the State ROW lease.

*River Crossings:* The Nikiski Pipeline crosses several rivers, streams, wetland areas, and travels adjacent to several small lakes. Many are fish-bearing. The pipeline crosses

these anadromous waters: Swanson River, Bishop Creek, Daniels Creek, Seven Egg Creek, Miller Creek, Otter Creek, Fish Creek, Chester Creek, and Ship Creek. All but Fish, Chester, and Ship Creek are within the ADL 69354 ROW.

*Recent Spills:* A spill occurred in July 2001 in Captain Cook State Recreation Area when an unknown amount of Jet Fuel A leaked due to external corrosion. An additional spill occurred two months later at the Anchorage airport due to third party damage. Between one and two hundred gallons of gasoline were spilled.

*Lease:* An electronic copy of the Nikiski lease agreement is available for public viewing at the SPCO website: <http://www.jpo.doi.gov/SPCO/SPCO.htm>.

### **2.1.2 Nikiski Alaska Pipeline (ADL 69354)**

The 10.75-inch Nikiski Alaska Pipeline begins at the Kenai pump station at the Tesoro Kenai Refinery. The State-leased ROW begins approximately 4 miles outside of the refinery. The pipeline parallels the Phillips gas line northeasterly approximately 30 miles to Moose Point, then follows the Cook Inlet shoreline another 15 miles to Point Possession. Here the pipeline travels under Turnagain Arm, cased in concrete, and transitions to shore at Point Campbell in Anchorage. It then parallels the bluff to the north along the Tony Knowles Coastal Trail before crossing under the North-South runway of the Ted Stevens Anchorage International Airport. It enters the Northern Lights Boulevard ROW near the intersection with Hood Lake Road. This is the location where the State ROW ends. The SPCO-administered Nikiski Alaska Pipeline ROW lease encompasses approximately 52.8 miles and contains approximately 64 acres.

The pipeline then follows the south side of Northern Lights until Turnagain Street, where it crosses to the north side. The pipeline travels past additional housing for about a block before it reaches the Alaska Railroad. The pipeline stays on the west side of the railroad ROW, crossing over Fish Creek and outlet conduits at Chester and Ship Creeks. After Ship Creek, the Tesoro Pipeline extends north and east before meeting Ocean Dock Road and continuing until the Tesoro Anchorage Terminal.

The pipeline transports four main products: unleaded gasoline, Jet-B turbine fuel, diesel fuel A, and diesel fuel No. 2. Products are transported in "batches" which are not mechanically separated. The Anchorage Pipeline Receiving Station houses a 1,000 barrel transmix tank to store mixtures that result from the interface of more than one product. Most products are delivered directly to customer storage facilities.

The pipeline was built in 1976, and several sections have been replaced or rerouted since original construction. During construction, pipe girth welds were x-rayed and visually inspected. Wall thicknesses vary along the pipeline.

The pipeline design is based on a maximum allowable operating pressure of 1,440 psig. It is designed to provide a maximum flow rate of 48,000 barrels per day. Ordinarily, the pipeline transports between 40,000 and 45,000 barrels per day with five operating days in a typical week. Normal operating pressure is 1,100-1,200 psig leaving the refinery. It drops to 500-600 psig at Point Possession and ends up at around 100 psig at the Port of Anchorage.



*The Nikiski Pipeline crosses many anadromous streams. Miller Creek, frequently crossed by four-wheeler traffic, is on the portion of the ROW inaccessible by road on the Kenai Peninsula.*

The pipeline is cathodically protected through an impressed current system, and it is coated with a factory-applied extrusion of high-density polyethylene. Cathodic test stations are placed along the pipeline length and checked regularly as part of the lessee's Surveillance & Monitoring Program. Tesoro also uses corrosion coupon testing twice per year through a third party contractor. In Tesoro's Integrity Assessment Report, revised July 29<sup>th</sup>, 2004, external corrosion is characterized as the most significant risk to the pipeline. The report describes disbanded weld joint coatings and sporadic cathodic protection problems.

The entire pipeline is piggable, and Tesoro uses smart pigs to check pipeline conditions. Tesoro first ran an ILI tool through the pipeline in 2001 and ran another tool in 2004. In 2001, magnetic flux leakage and geometry tools were used. In 2004, a geometry tool and an ultrasonic tool were used. Tesoro does not use cleaning or maintenance pigs except ahead of ILI tools. Valves enclosed in chain-link fences are placed approximately every 15 miles along the pipeline as well as either side of Turnagain Arm and the Swanson River. There are nine valve stations in total, not all of which are within the State ROW.

The Tesoro Alaska Pipeline Company is a member of the "Locate Center," a free service that allows the public to locate buried pipelines before excavation. Tesoro places advertisements in local newspapers warning the public to call before digging and sends out regular educational mailings.

*Leak Detection:* Tesoro monitors for leaks along the pipeline through an automated system which compares input and output volumes. Pumps can be manually shut down in two minutes if a potential leak is detected. The Tesoro Pipeline typically operates only five days per week. On weekends, the line is pressurized to normal operating pressure and valves at the terminus and Kenai pump station remain closed to maintain pressure. A drop in pressure normally occurs from cooling. An unusual drop could be a sign of a leak and further testing would occur. This weekly shutdown procedure functions as an additional leak detection test.

*Spill Prevention & Response:* Tesoro has contracted their spill prevention and response program to the non-profit co-op Cook Inlet Spill Prevention and Response. Tesoro's Oil Discharge Prevention and Contingency Plan number 016-CP-2019 covering the pipeline system is approved by ADEC through December 5, 2007.

## **2.2 Lessee's Annual Report**

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The SPCO received a four-page *2005 Annual Comprehensive Report on Pipeline Activities and State of the Pipeline System* document from Tesoro Alaska Pipeline Company, lessee for the Nikiski Alaska Pipeline ROW, on March 7, 2006. The report was more than one month late. The State Pipeline Coordinator has required that Tesoro submit an annual comprehensive report by January 31<sup>st</sup> for the preceding year. The seven requirements for annual reporting are listed in the Introduction Section.

### **2.2.1 SPCO Review**

On March 29, 2006, the State Pipeline Coordinator sent Tesoro a letter stating that the items Tesoro selected to present in their annual report

"cover a portion of the required information, but not all. Many of the items have not been provided or have not been provided in enough detail to allow a clear understanding of the accomplishments you have made for the year. Equivalent reports provided by other lessees consisted of several hundred pages for pipelines less than half the length of yours and with less complicated land ownership and operational parameters. Report volume is not the measure of an adequate report; however a more thorough and complete discussion of the required items is expected."

The State Pipeline Coordinator required the lessee to address the minimum requirements for annual reporting before the report would be accepted. He requested that the lessee provide a more detailed report no later than July 1, 2006. Tesoro's response was received on July 17, late in relation to the July 1 deadline. The follow-up information provided is currently under review.

### 2.2.2 Lessee's Activities

Though the 2005 Tesoro report contains little information about pipeline activities for the year, some information is presented. The report discusses routine, scheduled tasks, but often does not state whether tasks were actually completed in 2005, or how many times. For example, Tesoro reported that they will not operate the pipeline above the maximum design pressure of 1,440 psig, but provided no information about whether that pressure was exceeded in 2005. Below are some activities the lessee reports for 2005:

*Pipeline Operations:* During 2005, the combined throughput of all products transported was approximately 11.5 million barrels (11,512,176 barrels).

*Cathodic Protection:* The Nikiski Alaska Pipeline is protected by an impressed current cathodic protection system. Tesoro uses a third party contractor for inspection. In 2005, Tesoro upgraded some portions of the system, including a new rectifier and ground bed at Point Campbell, additional coupon test stations, and pulse generators for the impressed current systems at Captain Cook Park and Point Possession.



*This photo is of a remotely-operated valve on the Nikiski Alaska Pipeline near Point Possession. Solar panels and propane provide energy for the valve and cathodic protection system.*

*Integrity Management:* An in-line inspection was performed in January 2004. Tesoro reports that all anomalies were repaired that year, except for four anomalies on the sub-sea portion of the line that were repaired in June 2005.

*Security:* Tesoro reported that it has a Security Plan in place to deal with security issues that may arise, but did not state whether any such issues arose in 2005.

*Public Awareness:* In 2005, Tesoro reports that "no damage was done to the pipeline due to conflicts with individuals performing construction or excavation work in the vicinity of the pipeline." In 2006, Tesoro plans to mail brochures to emergency officials and all residences within 660 feet of the pipeline that will explain how to identify and react to a pipeline emergency.

*Pipeline Routing:* In March 2005, Tesoro acquired a new 2,834-foot segment of pipeline from Anchorage Fueling and Service Company on airport property. They also rerouted approximately 4000 feet of pipeline near Northern Lights Blvd. in Anchorage.

*Discharges:* Tesoro reports that there were no discharges from the Tesoro Alaska Pipeline or its facilities onto the State ROW lease ADL 69354 in 2005.

### **2.2.3 Lessee's Surveillance & Monitoring**

*Cathodic Protection Survey:* The 2005 survey was completed in August and September 2005. "The survey consisted of field testing, minor test station repairs and visual examinations...test results indicate that the existing rectifier systems are providing adequate protection to the facilities."

*Overpressure Safety Devices:* No deficiencies noted during inspection and testing.

*Underwater Survey:* The sub-sea pipe crossing Turnagain Arm is inspected every five years. Tesoro last hired a third-party contractor to perform this inspection in 2002, when no unacceptable free-spans of pipe were noted. A survey was completed in 2006, and the results will be reported in the lessee's 2006 annual report.

*ROW Inspections:* Tesoro performed ROW inspections in accordance with USDOT guidelines. Some minor deficiencies were noted, including a cracked valve at MLV 4, which was later repaired.

### **2.2.4 Recent Realignment and Replacements**

In early summer 2005, a 1600-foot section of pipeline was replaced at Point Possession. In-line inspection identified that the segment needed significant repair. A surveillant from the JPO Fairbanks Office observed part of the work taking place. The State ROW was modified for the realignment. The new pipe is coated and cased in meshed cement for ballast and protection. The lessee completed testing the replacement on June 18<sup>th</sup> and re-commissioned the line on June 20<sup>th</sup>, 2005.

Other recent realignments and replacements include the following:

- The lessee rerouted a portion of the pipeline along Northern Lights Boulevard. North of Turnagain Bog. A 4265-foot section of pipe was cleaned, capped off, and left in place.

- An additional realignment took place in April 2004 at Ship Creek near the Port of Anchorage. The bridge on which the original pipeline was mounted was removed. About 200 feet of pipe was purged, charged with a nitrogen blanket, and abandoned in place.
- In April 2004, the SPCO approved a project to replace a two- to five-foot section of pipe on the east side of Postmark Road near the Anchorage Airport. The section had a sleeve welded on it in 1985.



*This sign, a piece of which has fallen off, marks the pipeline's transition to sub-sea at Point Possession on the Kenai Peninsula. The propane tanks to the right are part of the impressed current cathodic protection system for the sub-sea line. The site was accessed by four-wheeler during June 2006 SPCO surveillance.*

## **2.3 SPCO Activity**

### **2.3.1 Lease Administration**

The Lease Administration team does not have anything significant to report for the Nikiski Alaska Pipeline in FY06.

### 2.3.2 Compliance Oversight

In June 2005, a JPO surveillant from the Fairbanks office observed pipe replacement work for a segment of the sub-sea pipeline and took pictures of work in progress.

On August 30<sup>th</sup> and 31<sup>st</sup>, 2005, the compliance oversight team lead conducted field surveillance of the Tesoro ROW. The purpose of the surveillance was to get a general overview of the ROW and pipeline system. The surveillant also discussed recent pigging efforts and anomaly identification and repair. The surveillant flew the ROW from the refinery to Point Possession. He flew about 200 feet above ground level and took digital images of the ROW. He reported that the ROW appeared to be in fair condition, though somewhat damaged by all-terrain vehicle traffic. The SPCO surveillant reported that damage was most pronounced in wetlands and stream crossings.

Additional surveillance occurred on June 19 and 20, 2006. The lease compliance oversight team flew to Kenai and spent a day at the Tesoro refinery offices reviewing records, maps, and discussing the lease compliance oversight program. They visited road-accessible portions of the ROW, including several valves and stream crossings. On the 20<sup>th</sup>, they accessed the pipeline ROW using off-road vehicles. They traveled almost the entire length of the ROW that is inaccessible by road to see every valve and stream crossing on the Kenai Peninsula side of the pipeline. Again the team noted that the ROW lands were somewhat damaged by off-road vehicle traffic, something that Tesoro has little control over. Surveillance reports are not yet completed for this trip but will be finalized in FY07.

### 2.3.3 Summary of Lease Compliance Observations: August 2005

<u>Lease Section</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
6	State access to property & records; maintenance of pipeline in good repair	Satisfactory	ANC-05-S-182
15(a)	Construction and design plans for review and approval	Satisfactory	ANC-05-S-183
<u>Stipulation</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
1.3.1	Lessee to furnish SPCO requested data	Satisfactory	ANC-05-S-184
1.15.1 & .3	Surveillance & maintenance (monitoring), retention of records	Satisfactory	ANC-05-S-185
2.1.4.2	Waste management	Unsatisfactory	ANC-05-S-186
3.2.1.1	49 CFR standards	Satisfactory	ANC-05-S-187
3.5.1	Design for meteorological, hydrologic, and hydraulic conditions	Satisfactory	ANC-05-S-188
3.7.1	Corrosion program, 49 CFR, pipe coating	Satisfactory	ANC-05-S-189

### 2.3.4 Summary of Lease Compliance Observations: June 2006

<u>Lease Section</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
6	State access to property and records	<i>Pending</i>	ANC-06-S-116

<u>Stipulation</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
1.11	Protection of improvements	<i>Pending</i>	ANC-06-S-117
1.12	Public access to access roads	<i>Pending</i>	ANC-06-S-118
2.3.2.4	Removal of clearing debris	<i>Pending</i>	ANC-06-S-119
3.6.1	Minimize environmental changes	<i>Pending</i>	ANC-06-S-120

### 2.3.5 Appraisals

According to AS 38.35, ROW lessees must pay fair market value to lease State land for pipeline activities. The original appraisal period for the Nikiski Alaska ROW was established for 25 years beginning in fall 1978. Subsequently, a new appraisal is due every ten years per the lease agreement. The most recent appraisal of the Tesoro ROW, performed by MacSwain Associates, was approved by ADNR on July 28, 2004.

This appraisal covers the ROW described by the legal description in ADL 69354, which encompasses 64.021 acres and 52.8 miles of pipeline (the total pipeline length is longer). This ROW does not include portions of pipeline within 4.5 miles of the refinery or beyond the airport in Anchorage because these areas have not been identified as containing any State-owned land. The acreage allocations and annual rental fees for ADL 69354 follow:

<u>ADL</u>	<u>State Acres</u>	<u>Estimated Market Rent</u>
69354	64.021	\$15,207

## 2.4 Upcoming Issues

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### 2.4.1 Lessee's Activities

As of July 1, 2006, Tesoro is in the process of installing a new rectifier and ground bed near Mainline Valve 9 in Anchorage. In fall 2006, Tesoro will mail educational brochures to all residences within 660 feet of the pipeline. These mailings occur every two years. Emergency officials and excavators receive mailings annually.

*Inspections:* In 2007, the next side-scan survey of the Turnagain Arm sub-sea pipe is scheduled. Tesoro has scheduled their next ILI tool run for 2009 but has indicated they may use an ILI tool as early as 2007 due to scheduling concerns.



*The Nikiski Pipeline terminates at the Port of Anchorage at Tesoro's facilities.*

#### **2.4.2 SPCO Compliance Oversight**

In FY07, the lease compliance oversight team plans to finalize reports from the June 2006 surveillance and complete any necessary follow-up. Follow-up to the lessee's 2005 annual report is currently under review. The lessee's 2006 annual report, due January 31, 2007, will also be reviewed. Additional field surveillance may be conducted in FY07.

## **2.5 Contact Information**

The Nikiski Alaska Pipeline ROW lease requires the Tesoro Alaska Pipeline Company to designate in writing a registered agent and field representative. The lease and AS 38.35 require the registered agent to be a resident of Alaska. It does not appear that the lessee's registered agent meets this requirement. The SPCO, in a letter dated July 7, 2006, has asked the lessee to provide updated contact information by August 15, 2006.

#### ***Registered Agent***

Jay R. Fraley, Manager, Right of Way & Land  
 Tesoro Alaska Pipeline Company  
 1225 17<sup>th</sup> Street, Suite 1800  
 Denver, CO 80202

*Field Representative*

Shawn Brown, Manager, Alaska Pipelines & Terminals  
Tesoro Alaska Pipeline Company  
P.O. Box 3369  
Kenai, AK 99611

# North Slope Pipelines

3. <a href="#">Alpine Pipelines</a>	49
4. <a href="#">Kuparuk &amp; Oliktok Pipelines</a>	61
5. <a href="#">Badami Pipelines</a>	75
6. <a href="#">Endicott Pipeline</a>	89
7. <a href="#">Northstar Pipelines</a>	99
8. <a href="#">Milne Point Pipelines</a>	109
9. <a href="#">Nuiqsut Natural Gas Pipeline</a>	121



## **North Slope Pipelines:**

- |                             |                                 |
|-----------------------------|---------------------------------|
| ■ Alpine Oil Pipeline       | ■ Kuparuk Pipeline Extension    |
| ■ Alpine Diesel Pipeline    | ■ Milne Point Oil Pipeline      |
| ■ Alpine Utility Pipeline   | ■ Milne Point Products Pipeline |
| ■ Badami Sales Oil Pipeline | ■ Northstar Oil Pipeline        |
| ■ Badami Utility Pipeline   | ■ Northstar Gas Pipeline        |
| ■ Endicott Pipeline         | ■ Oliktok Pipeline              |
| ■ Kuparuk Oil Pipeline      | ■ Trans-Alaska Pipeline System  |

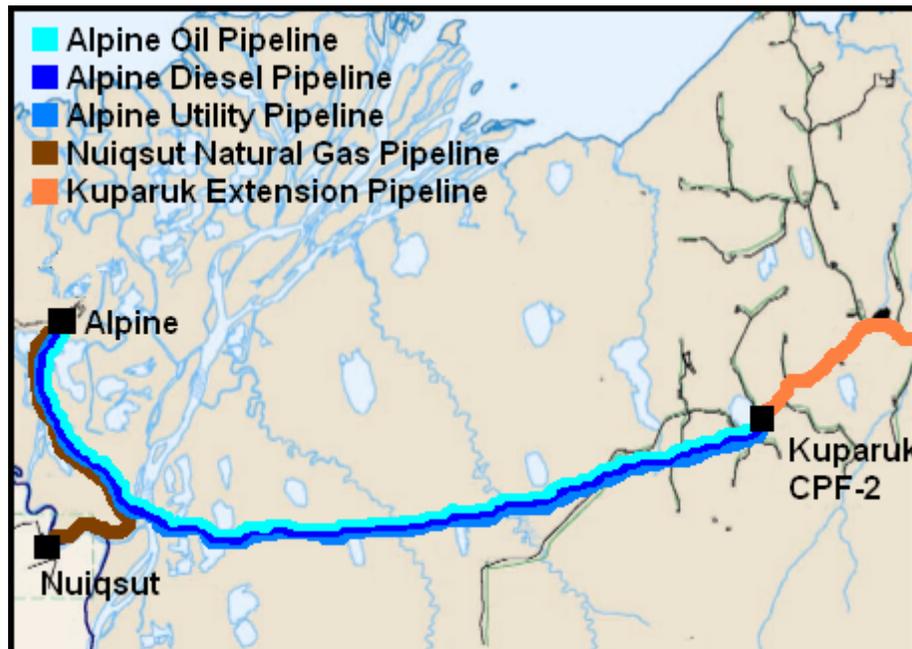


## NORTH SLOPE PIPELINES

### 3 Alpine Pipelines: Oil, Diesel, and Utility

ADL # [415701](#), [415932](#), and [415857](#)

- [3.1 Lease and Right-of-Way Overview](#)
  - 3.1.1 *Alpine Corridor*
  - 3.1.2 *Alpine Oil Pipeline (ADL 415701)*
  - 3.1.3 *Alpine Diesel Pipeline (ADL 415932)*
  - 3.1.4 *Alpine Utility Pipeline (ADL 415857)*
- [3.2 Lessee's Annual Report](#)
  - 3.2.1 *SPCO Review*
  - 3.2.2 *Lessee's Activities*
  - 3.2.3 *Lessee's Surveillance & Monitoring*
- [3.3 SPCO Activity](#)
  - 3.3.1 *Lease Administration*
  - 3.3.2 *Compliance Oversight*
  - 3.3.3 *Summary of Lease Compliance Observations: June 2005*
  - 3.3.4 *Release of Construction Right-of-Way*
  - 3.3.5 *Appraisals*
- [3.4 Upcoming Issues](#)
  - 3.4.1 *Lessee's Activities*
  - 3.4.2 *SPCO Compliance Oversight*
- [3.5 Contact Information](#)



The Alpine Pipelines cross the Colville Delta, connecting the Alpine Development on the western North Slope to infrastructure in the Kuparuk River Unit.

## 3.1 Lease and Right-of-Way Overview

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### 3.1.1 Alpine Corridor

On the west side of North Slope oil development, in the Colville River Unit, the Alpine pipelines connect the Alpine Development to the Kuparuk Pipeline Extension at Kuparuk Central Processing Facility 2 (CPF-2). Three aboveground pipelines share the same set of horizontal and vertical supports except at the Colville River crossing, where they are buried beneath the riverbed using horizontal directional drilling. Additionally, the VSMs support a fiber optic connection for Alpine, and the Nuiqsut Natural Gas Pipeline shares the VSMs from the Alpine development to the west end of HDD at the Colville River. More pipeline-specific information is provided later in this section.

Though the Alpine pipelines share VSMs, each has a separate ROW lease agreement with the State. The Alpine Oil and Diesel Pipeline lease agreements between ConocoPhillips Company and ADNOR were issued December 15, 1998 and expire December 14, 2018. Unlike other common carrier pipelines issued ROW leases under AS 38.35, the Alpine Utility Pipeline was granted a utility ROW under AS 38.05, the Alaska Land Act. The grant from the State of Alaska to ConocoPhillips Company will expire January 5, 2019.

ConocoPhillips Company is the ROW lessee, though other affiliated companies maintain and manage the pipelines. ConocoPhillips Alaska Inc. (CPAI) is the primary contractor for operation and maintenance of the Alpine pipelines. ConocoPhillips Alaska Pipelines (CPAP) is the right-of-way manager. Alpine Transportation Company, a partnership of Alpine Pipeline Company, Anadarko Alaska Pipeline Systems, Arctic Slope Regional Corporation, and Kuukpik Transportation Company, is the owner of the Alpine Oil Pipeline. CPAI owns the Alpine Diesel and Utility Pipelines.



*Aerial view of the Alpine Development on the Colville River delta.*

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The Alpine pipelines are 34.2 miles long, and traverse land owned by Kuukpik Corporation and the State of Alaska. The Kuukpik land is from VSM 243 to VSM 326 and VSM 335 to 1212 (except the Colville River, where the State owns land between the two ordinary high water marks). The State land includes 148.66 acres in the oil ROW, 148.51 acres in the diesel ROW, and 148.65 acres of land in the utility ROW.

*Environmental concerns:* The Alpine pipelines are constructed on horizontal and vertical supports a minimum of five feet above the tundra to prevent permafrost degradation and permit wildlife passage. The Alpine pipeline system is “roadless,” only accessible by ice road in the winter. While this reduces the overall impact to tundra, it presents difficulties for pipeline surveillance, monitoring, and maintenance. An additional sensitivity for the Alpine pipelines is wind-induced vibration, which can weaken pipelines and supports. This is mitigated through vibration dampeners. Reflective tape is installed on VSMS to help warn of their location to prevent accidental collisions (e.g. subsistence snowmachine traffic from nearby Nuiqsut).

*River Crossings:* A significant environmental concern in the Alpine ROW is the Colville River crossing. To prevent damage to the river, the Alpine pipelines are installed inside steel casing that was bored underneath the riverbed, 85 feet below grade, using HDD. The Colville River crossing is monitored for geothermal stability in addition to erosion and other concerns along all river crossings annually. Above-grade crossings include the Kachemach and Miluveach Rivers and Kalubik Creek.

*Lease:* Electronic copies of the Alpine lease agreements and approved amendments are available at the SPCO website: <http://www.jpo.doi.gov/SPCO/SPCO.htm>.

### **3.1.2 Alpine Oil Pipeline (ADL 415701)**

The 14-inch Alpine Oil Pipeline has been transporting crude oil from the Alpine Development to the Kuparuk Extension Oil Pipeline since November 15, 2000. The pipeline was constructed for a maximum operating pressure of 2,064 psig with a wall thickness of 0.312 inches (0.438 inches at the Colville River crossing). It is designed to carry 100,000-140,000 barrels of oil per day at temperatures up to 180° F. The entire oil pipeline is piggable, and CPAI employs smart pigs to detect corrosion and pipeline integrity problems. The Alpine Oil Pipeline was last pigged with both a geometry and magnetic flux leakage in-line inspection tool in 2005. The operator cleans the pipeline monthly with a utility pig. About 20 gallons per day of drag reducing agent is added to the oil in the pipeline to reduce turbulence. No corrosion inhibiting chemicals are used.

### **3.1.3 Alpine Diesel Pipeline (ADL 415932)**

The Alpine Diesel Pipeline is 2.375 inches in diameter with a 0.156 inch wall thickness. Its maximum operating pressure is 1,366 psig, and it's designed to transport 15 gallons per minute, up to 100° F. On July 2, 2003, the SPCO approved transportation of all products, as defined in AS 38.35.230(8), through the Alpine Diesel Pipeline. In 2005, the Diesel Pipeline transported arctic heating fuel and LVT 200 Base oil. The Alpine Diesel Pipeline runs from Kuparuk CPF-2 to the Alpine Development. It

is not insulated or coated except at the Colville River crossing, where it is fusion-bonded epoxy coated. Because it is a low-pressure hazardous liquids line, it is only regulated by the USDOT at the Colville River crossing. The diesel pipeline is too small in diameter to allow passage of a smart pig, but utility pigs are used quarterly for cleaning.



*Aerial photo of a vertical loop; a design feature limiting the total possible volume of an oil spill.*

### **3.1.4 Alpine Utility Pipeline (ADL 415857)**

The 12.75-inch Alpine Utility Pipeline originally transported natural gas to the Alpine Development in 2000, but was transitioned to transport treated seawater in 2001. The maximum operating pressure is 2,160 psig, and the wall thickness is 0.330 inches. The seawater line is wrapped in 3-inch thick insulation and steel jacketing. It is designed to transport 70,000 barrels per day at temperatures up to 150° F. To prevent corrosion due to biological activity, the biocide gluteraldehyde is added to the flow.

The entire utility pipeline is piggable, and CPAI employs smart pigs to detect corrosion and pipeline integrity problems. The Alpine Utility Pipeline was last pigged with a magnetic flux leakage ILI tool in 2005. A utility pig is run through the pipeline approximately every three weeks for cleaning.

## **3.2 Lessee's Annual Report**

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### **3.2.1 SPCO Review**

CPAI, operator of the Alpine pipelines, submitted one *2005 Annual Comprehensive Report on Pipeline Activities* to the SPCO for each Alpine lease and grant on time in

January 2006. CPAI's three reports provide detailed information on pipeline activities, and document lease compliance as required. On March 28, 2006, the SPCO issued a letter to CPAI commending the 2005 reports as outstanding, and confirming that they met all seven requirements for annual reporting. The seven requirements are listed in the Introduction Section.

### **3.2.2 Lessee's Activities**

*Oil Line Operations:* In calendar year 2005, the Alpine Oil Pipeline was available for operation 99.7% of the time. Two slowdowns were planned to correspond to TAPS shutdowns and three unplanned shutdowns occurred because of accidental valve closures. All three accidental closures were investigated and corrective/preventive actions were reported for each. CPAI also reports that none caused pipeline overpressure or otherwise impacted pipeline integrity. In 2005, the oil pipeline transported 43,819,365 barrels of sales quality crude to the Kuparuk pipeline system.

*Utility Line Operations:* The Alpine Utility Pipeline was available for service 99.6% of 2005. CPAI reports that pigging and "unscheduled minor pump maintenance" are the primary activities which affected pipeline operations. In 2005, the Utility Pipeline transported 45,905,621 barrels of treated seawater to the Alpine Development.

*Diesel Line Operations:* The Alpine Diesel Pipeline, which began service on May 20, 1999, was 100% available for service in 2005. The only operational change in 2005 is the addition of pipeline pressurization tests for product transfers over 24 hours, or prior to transfers if the line was in static state below 300 psi. This satisfies requirements identified during an evaluation of the Alpine Diesel Pipeline leak detection system. In 2005, the Diesel Pipeline transported 4,115,157 gallons of arctic heating fuel and 1,420 gallons of "LVT 200 Base Oil" to the Alpine Development.

*Oil Leak:* on December 18, 2005, the CPAI inspection crew noticed a small amount of crude oil on the underside of an Alpine Oil Pipeline weld pack between VSM 1834 and 1835. CPAI reported the spill (which never reached the ground), estimated at about a tablespoon, to Alaska State Troopers and the ADEC (spill #05399935201). On January 5, 2006, CPAI repaired the weld with a sleeve and confirmed its fitness through hydrostatic testing. CPAI's Corrosion Department conducted a root cause analysis. "Weld failure" is listed as the cause of the discharge on the final ADEC situation report.

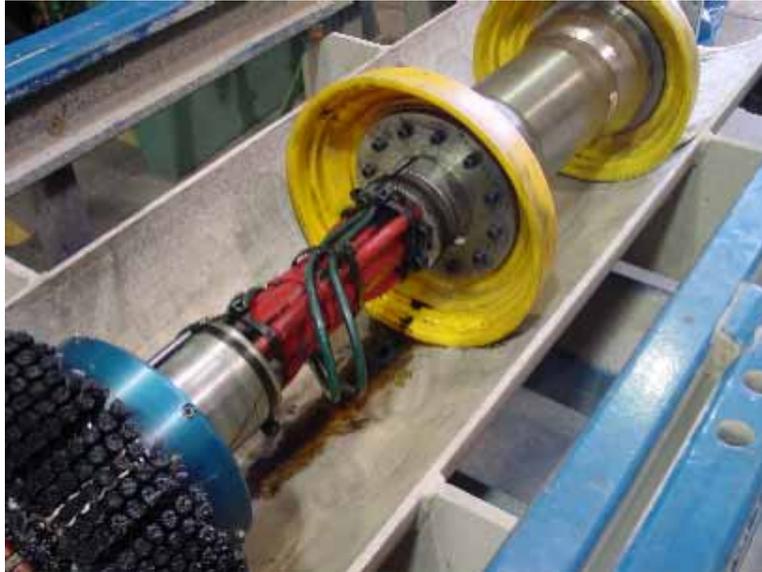
*Other Incidents:* CPAI reports that no other incidents or events occurred along the Oil, Utility, or Diesel pipelines in 2005. No OSHA Reportable safety incidents of lost time or medical treatment occurred for Alpine pipeline personnel.

*Training/Preparedness:* CPAI reports that their spill response team conducted two drills in 2005 at the Colville River crossing HDD site and delivered over 50 training classes for the incident management team.

### **3.2.3 Lessee's Surveillance & Monitoring**

*Overview:* Each Alpine lease/grant Stipulation 1.6 requires the lessee to follow an SPCO-approved surveillance & monitoring program. This program describes how the

lessee ensures they are complying with lease provisions. The Alpine Surveillance Program consists of routine aerial and ground-based surveillance. The Monitoring Program consists of routine and corrective maintenance and inspection tasks, as well as a variety of pipeline, river crossing, and wildlife monitoring. For more detailed information on what is monitored along the Alpine Pipelines, and the frequency for monitoring, see the current *Surveillance & Monitoring Program* for each pipeline.



*This smart pig was used in June 2005 to detect pipeline conditions in the Alpine Oil Pipeline. The lease compliance oversight team witnessed retrieval of the pig at Kuparuk.*

**2005 Surveillance & Monitoring Program Revision:** On April 12, 2005, CPAI submitted a proposed revision to the surveillance & monitoring plans for the Alpine pipelines. In June, SPCO and CPAI representatives reviewed the proposed plan, and CPAI submitted a new revision proposal on July 1, 2005, taking the review into account. The new program, approved by the State Pipeline Coordinator on July 29, 2005, reflects organizational changes at CPAI, clarifications on what is a reportable condition, and regulatory and reference updates. The new plan also clarifies weekly and annual flooding and erosion detection methods and frequencies. CPAI has added *conditional* as a new classification for surveillance frequency, so certain events can trigger surveillance. Some reportable conditions were removed from the Alpine Diesel Program when it was determined they did not apply to the line.

**Aerial Surveillance:** The Alpine Oil Discharge Prevention and Contingency Plan, 2.5 Discharge Detection [18 AAC 75.425(e)2(E)] requires weekly aerial surveillance (weather permitting). Reportable conditions include leaks & spills, snow accumulation, pipe movement off VSMs, unauthorized ROW activities, fires and fire hazards, and significant bank erosion and flooding. In 2005, there were 155 surveillance flights, well above the minimum required. No reportable conditions were uncovered.

**Breakup Monitoring (River Crossings):** CPAI monitors scour and erosion at pipeline crossing sites qualitatively. In 2005, no significant scour or erosion was discovered.

However, at the East Bank of the Colville River HDD site, natural erosion has continued. Despite exposed insulation and a broken thermistor casing, CPAI says the safe operation of the pipeline has not been affected.

*Colville River HDD Crossing:* CPAI is working to monitor stability at the Colville River HDD site. The geotechnical and geothermal analysis uses temperature data from thermistors to ensure the soil remains stable. The 2005 analysis confirms soil stability. Additional monitoring occurred at the site of the HDD gravel pad rehabilitation. In March 2005, CPAI issued *Part III: Biotechnical Stabilization of HDD Gravel Pads from the 2004 Land Rehabilitation Program*, concluding their HDD pad rehabilitation. They plan to perform maintenance if the pad is disturbed. CPAI continues to monitor an ice wedge-related erosion feature on the East Bank of the Colville River, and does not believe the erosion to be a threat to the pipelines at this time, but they are watching it closely. During 2005, CPAI repaired fiberglass casing damage on one thermistor.

*Mammal Surveys:* CPAI conducts annual caribou research as mandated in the Kuparuk River Use Agreement. The annual reports for each Alpine lease/grant contain the executive summary for 2004's mammal surveys in the Greater Kuparuk Area. The 2005 report was still under review at the time the lessee submitted their annual report. The lessee has not noted any problems with wildlife passage across the ROW, or other impacts on mammals. Lease stipulations address protection of fish and wildlife.

*Spectacled Eiders:* In 2004, CPAI contracted with ABR, Inc. to survey Spectacled Eider abundance and distribution, including nests, along the Alpine corridor. Spectacled Eiders are listed as threatened under the Endangered Species Act. No Spectacled Eiders were sighted along the pipeline, though some were spotted in the vicinity of the pipelines, near CPF-2. The closest bird was a male approximately 550 meters south of the pipelines. CPAI is currently working to map Spectacled Eider density.

*HSM/VSM Repairs:* CPAI repaired two subsided VSMs, 1938 and 1939, and initiated repairs on a third, 2854. They identified a possible recurring subsidence problem with VSM 2111, which had been re-leveled in 2004, and plan to monitor it further. The following VSMs had sloping crossbeams and CPAI repaired, replaced or realigned intermediate supports: 2335A, 2508, 2699, 2782, 2847, and 2905. CPAI also installed or replaced reflective tape on about a dozen VSMs. Some damage to VSM U-Bolts was noted on 1538, 1577, and 2905, and repairs are scheduled for 2006. CPAI tightened loose bolts on HSM 936 and scheduled tightening of loose bolts on HSM 144 for 2006.

*Deviation from Design:* At VSMs 1456, 1511, 1557, and 1760, the Diesel Pipeline is touching the Utility Pipeline. The locations will be evaluated in 2006.

*Survey Monuments:* CPAI noted several problems with survey monuments, including missing labels. All are scheduled for follow up.

*Coupons:* All coupons pulled for repair on the diesel line were ranked "A" (minimal corrosion). One "C"-ranked coupon was found on a diesel pipeline vertical loop elbow.

*USDOT Compliance:* Between February 28 and March 7, 2005, a USDOT representative performed standard inspections of the North Slope pipelines, including USDOT-regulated portions of the Alpine pipelines.

### 3.3 SPCO Activity

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#### 3.3.1 Lease Administration

The lease administration team began formally processing CPAI's request for a release of interest to reduce the ROW size in fall 2005. The release reduced the amount of acreage in the CPAI leases and grant by reducing the width of the pipeline ROWs essentially from a 250 foot wide construction corridor to a 50 foot wide operations corridor. The Release of Interest was signed by the ADNR Commissioner on February 9, 2006 and subsequently recorded. For more information, see 3.3.4.



*Aerial photo of the transition between below-ground pipe (in steel casing) and above-ground pipe at the East Bank of the Colville River HDD site.*

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#### 3.3.2 Compliance Oversight

The SPCO compliance oversight team conducted surveillance of the Alpine ROWs in June 2005. The primary scope of this surveillance was to evaluate lease stipulations 1.6 (Surveillance & Monitoring) and 3.2 (Pipeline Corrosion). The team also looked at the ROWs in preparation for the requested reduction in ROW width.

To assess the lessee's corrosion monitoring, SPCO personnel requested to watch a smart pig launch or retrieval, also known as an ILI tool run. Due to logistical constraints, only a retrieval was observed. Both the Utility and Oil pipelines were pigged by BJ Pipeline Inspection Services in June 2005. The operator used an ILI package of both a geometry tool and a magnetic flux leakage detection tool. The geometry tool looks for dents and buckles, and the magnetic flux leakage tool observes metal loss. The surveillant described the pigging as a "fairly well executed operation." He also reviewed

the executive summaries of reports sent by the pig vendor when they were completed. Another form of corrosion monitoring is the use of coupons, small pieces of metal representative of the pipe placed in the flow of liquids that are removed and inspected regularly to assess internal corrosion conditions. CPAI uses corrosion coupons in the Alpine Diesel Pipeline. While on site at Alpine, SPCO staff visited the lab where CPAI examines coupons from the Alpine pipelines.

External corrosion is assessed by visual inspection, tangential radiography, ultrasonic testing, and other types of inspection. The compliance oversight team reviewed Alpine's external corrosion monitoring program. In HDD areas under the Colville River, a cathodic protection system is installed. This provides an electric current to prevent differential soil-to-pipe potential, preventing external corrosion.

SPCO staff also reviewed Alpine's leak detection system, which employs several methods including weekly visual inspections from the air, metered volume balancing (ensuring that what goes in the pipeline comes out the other end), and Pressure Point Analysis by Ed Farmer Associates, a software system individually calibrated for each pipeline to check for abnormal pressure flow patterns. During the aerial visual inspections, a forward looking infrared radar (FLIR) camera is mounted underneath the aircraft to detect small temperature differences, showing potential leaks or areas of insulation saturated with water (which can lead to external corrosion). The compliance oversight team viewed a video clip of FLIR surveillance of the HDD site and discussed FLIR instrumentation with the primary equipment operator.

The lease compliance oversight team also reviewed numerous documents provided by the lessee, especially those related to corrosion detection and control. These are listed in the Surveillance Field Notes attached to surveillance report #ANC-05-S-108.



*VSMs for the Alpine pipelines are marked with reflector tape for public safety.*

**3.3.3 Summary of lease compliance observations: June 2005**

<b>Section</b>	<b><u>Oil</u></b>	<b><u>Diesel</u></b>	<b><u>Utility</u></b>	<b><u>Observation</u></b>
	1(d)			Satisfactory
	6(a)	6(a)	6(a)	Satisfactory
	8(d)	8(a)(2)	8(a)	Satisfactory
	14(a)	14(a)	14(a)	Satisfactory
	16(a)	16(a)	16(a)	Satisfactory
	20	20	20	Satisfactory
<b>Stipulation</b>	1.2.1	1.2.1	1.2.1	Satisfactory
	1.4.1	1.4.1	1.4.1	Satisfactory
	1.5.1	1.5.1	1.5.1	Satisfactory
	1.6.1(3)(4)	1.6.1(3)(4)	1.6.1(3)(4)	Satisfactory
	1.7.2	1.7.2	1.7.2	Satisfactory
	1.8.1	1.8.1	1.8.1	Satisfactory
	1.12.1	1.12.1	1.12.1	Satisfactory
	1.13.1	1.13.1	1.13.1	Unsatisfactory (minor)
	1.14.1(1)-(4)	1.14.1(1)-(4)	1.14.1(1)-(4)	Satisfactory
	2.8.1	2.8.1	2.8.1	Satisfactory
	2.10.2			Satisfactory
	2.14.1			Satisfactory
	3.1.1.1			Satisfactory
	3.2.1	3.2.1	3.2.1	Satisfactory

**3.3.4 Release of Construction Right-of-Way**

Under Section 29 of the Alpine leases/grant, before issuing a release of interests reducing the pipeline ROW from construction to operations width, the SPCO made a recommendation to the ADNR Commissioner outlining whether the State lands were in adequate condition, and the lessee had complied lease/grant terms. The lease administration team, in conjunction with the compliance oversight team, reviewed the associated case files to ensure that no spills or environmental damage occurred on State lands to be released. The compliance oversight team conducted field surveillance to confirm land use and conditions. The SPCO recommended the ADNR commissioner grant the reduction in widths. The release of interest memo, available in the Alpine case file, documents the results of SPCO surveillances that determined the Alpine lessee to be in compliance with lease/grant stipulations, regulations, and statutes. The Release of Interest document was entered February 9, 2006, signed by Karen Kennedy (registered agent for ConocoPhillips Company), and finalized upon signature of the ADNR Commissioner on the same day.

*Surveys:* On 12/16/2004, the SPCO approved a Record of Survey identifying the operations and maintenance ROWs, completing the first phase of the release process. There are three separate Alpine ROW corridors. Each ROW is centered on each

pipeline, and so they are slightly staggered. The Record of Survey (EPF 20020040) was approved by ADNR on December 16, 2004 and reflects the Alpine operations corridors.

*Seawater Spill Site:* The compliance oversight team investigated the site of a 1,492-gallon seawater spill that occurred during pre-service hydrostatic testing of the oil line June 22, 2000 near VSM 1343. The failed portion of the pipeline was repaired before service. A 12/31/2001 letter from the SPCO approved discontinuing monitoring of the spill site after a 2<sup>nd</sup> environmental assessment was submitted. The area of the seawater spill appears to have recovered at a satisfactory rate and the 2005 surveillance team did not note any abnormal conditions.

*Storage of Lessee's Equipment in ROW:* According to the leases and grant, storage of unused equipment is not allowed within the ROW unless approved by the State Pipeline Coordinator. CPAP (lessee) requested that CPAI (operator) be allowed to store equipment in the Alpine ROW in April 2004, but later rescinded the request after determining that storage wouldn't occur within the ROW. However, in June 2005, the compliance oversight team observed equipment storage within the ROW. It was neatly ordered, well-organized, inventoried, and documented annually as a preventive maintenance work order. It did not, however, have the proper SPCO approval since the original request had been withdrawn. Discussions, correspondence, and a meeting between the operator, ADNR's Division of Oil & Gas, and the SPCO ensued. In January 2006, the SPCO issued the proper authorization for storage, after receipt of a Division of Oil & Gas authorization for storage.

To conclude the compliance oversight process for the release of interest, the compliance oversight team reviewed the entire length of the ROWs by helicopter, and landed at specially identified areas of interest. They reported that the ROWs appeared "to be free of extraneous debris and in good condition where State lands are concerned" and recommended that the release be finalized.

### **3.3.5 Appraisals**

The most recent appraisal of State land in the Alpine ROWs, performed by MacSwain Associates, was submitted on October 31, 2003 by CPAI. AS 38.35 requires the lessee to pay fair market value to lease State lands in the ROW. The statute also requires periodic re-appraisal of the State ROW lands. Per the Alpine leases and grant, a re-appraisal is due every five years.

<b><u>Alpine Pipeline</u></b>	<b><u>ADL #</u></b>	<b><u>State Acres</u></b>	<b><u>Estimated Market Rent</u></b>
Oil Operations ROW	415701	148.66	\$22,299
Diesel Operations ROW	415932	148.51	\$22,276
Utility Operations ROW	415857	148.65	\$22,298

## 3.4 Upcoming Issues

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### 3.4.1 Lessee's Activities

CPAI plans to upgrade the power system at the Colville River HDD site in 2006 to improve reliability for the cathodic protection system. The Alpine Diesel Pipeline is scheduled for a hydrostatic test in 2008 to evaluate potential pipeline corrosion.

### 3.4.2 SPCO Compliance Oversight

The compliance oversight team will conduct field surveillance of the Alpine pipelines and ROWs in July 2006 and will complete any necessary follow-up. The lessee's 2006 annual report, due January 31, 2007, will also be reviewed. Additional field surveillance may be conducted in FY07.

## 3.5 Contact Information

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The Alpine leases/grant Section 30 require the lessee to designate in writing registered agents, field representatives, and authorized representatives. These contacts are the same for the two Alpine leases and Alpine Utility Pipeline grant.

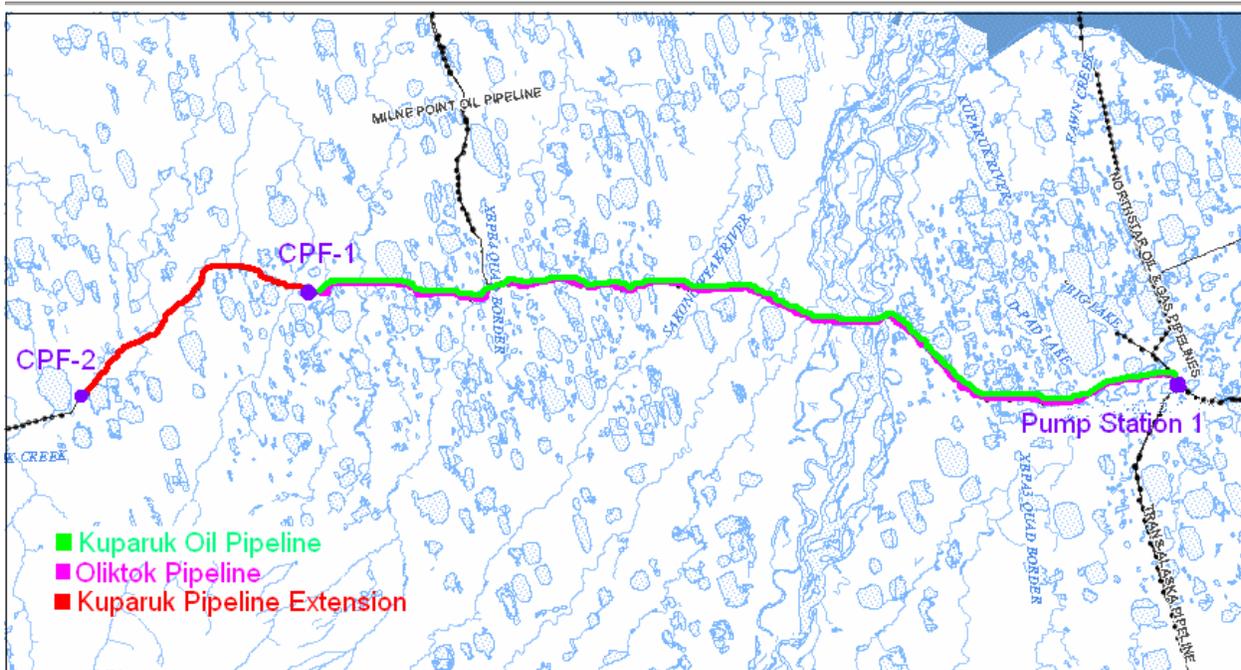
<i>Registered Agent</i>	Karen L. Kennedy
<i>Authorized Representative</i>	Operations and Engineering Manager Alpine Transportation Company ConocoPhillips Alaska, Inc. P.O. Box 100360 ATO 908 Anchorage, AK 99510-0360
<i>Primary Field Representative</i>	Chuck Knecht NSOD Pipeline Operations Supervisor ConocoPhillips Alaska, Inc. P.O. Box 196105, NSK 22 ConocoPhillips Alaska, Inc. Anchorage AK 99519-6105
<i>Alternate Field Representatives</i>	John Friemering or Dan Schmidt Alpine Pipeline Coordinators ConocoPhillips Alaska, Inc P.O. Box 196860, ALP 15 Anchorage, AK 99519-6860

## NORTH SLOPE PIPELINES

### 4 Kuparuk and Oliktok Pipelines

ADL # [402294](#), [409027](#), and [411731](#)

- [4.1 Lease and Right-of-Way Overview](#)
  - 4.1.1 Kuparuk-Oliktok Corridor
  - 4.1.2 Kuparuk Oil Pipeline (ADL 402294)
  - 4.1.3 Kuparuk Pipeline Extension (ADL 409027)
  - 4.1.4 Oliktok Pipeline (ADL 411731)
- [4.2 Lessee's Annual Report](#)
  - 4.2.1 SPCO Review
  - 4.2.2 Lessee's Activities
  - 4.2.3 Lessee's Surveillance & Monitoring
- [4.3 SPCO Activity](#)
  - 4.3.1 Lease Administration
  - 4.3.2 Compliance Oversight
  - 4.3.3 Summary of Lease Compliance Observations: November 2005
  - 4.3.4 Appraisals
- [4.4 Upcoming Issues](#)
  - 4.4.1 Lessee's Activities
  - 4.4.2 SPCO Compliance Oversight
- [4.5 Contact Information](#)



The Kuparuk Oil Pipeline & Extension transport processed crude east to TAPS. The Oliktok Pipeline transports natural gas liquids west from Prudhoe Bay to Kuparuk.

## 4.1 Lease and Right-of-Way Overview

### 4.1.1 Kuparuk-Oliktok Corridor

In the heart of North Slope oil development, the Kuparuk Pipeline (KPL) and its extension transport oil from Kuparuk and neighboring fields eastward to the Trans-Alaska Pipeline System Pump Station 1. The Oliktok Pipeline (OPL) transports natural gas liquids in the opposite direction, from Prudhoe Bay to Kuparuk. More pipeline-specific information is provided later in this section.

The Kuparuk and Oliktok rights-of-way overlap, but each has a separate lease agreement with the State of Alaska. The Kuparuk Oil Pipeline ROW lease agreement was issued August 26, 1980 between ADNR and Kuparuk Pipeline Company (KPC). The Kuparuk Pipeline Extension ROW lease agreement, also with KPC, was issued April 18, 1983. In 2000, the KPL and KPL Extension leases were reassigned to Kuparuk Transportation Company (KTC). The Oliktok Pipeline ROW lease between the State of Alaska and Oliktok Pipeline Company (OPC) was issued June 1, 1986. As renewed in 2002, all three leases will expire May 2, 2034.

Both KPC and OPC are wholly owned subsidiaries of ConocoPhillips Company. KTC is owned by KPC, BPTA, and Union Kuparuk Pipeline Company. The Kuparuk Pipeline and Extension are owned by KTC. KPC is the managing partner of KTC. ConocoPhillips Company owns the Oliktok Pipeline. CPAI operates and maintains all three Kuparuk and Oliktok pipelines. CPAI is the ROW manager. KTC developed the *Kuparuk Pipeline Quality Program, Revision 1*, to ensure compliance with the State's ROW lease. This program was approved by the State Pipeline Coordinator on December 18, 2002. CPAI submitted the same quality program for KPL, OPL, and the KPL Extension.



*Here the Kuparuk and Oliktok Pipelines are depicted crossing tundra. The Kuparuk and Oliktok ROWs parallel Spine Road (out of frame) through this area.*

The KPL and OPL are both 28 miles long, and traverse land entirely owned by the State of Alaska. The KPL Extension begins an additional nine miles westward of the start of KPL and terminus of OPL, connecting Kuparuk CPF-2 into CPF-1. The State land includes 485.58 acres in the KPL ROW, 485.58 acres in the OPL ROW, and 159.09 acres in the KPL Extension ROW.

*Environmental concerns:* The Kuparuk and Oliktok pipelines are constructed on shared horizontal and vertical support members a minimum of five feet above the tundra to prevent permafrost degradation and permit wildlife passage. The KPL extension is also supported above-ground on VSMs. The pipeline corridors pass through wetland, pond, and riverine habitats supporting a variety of plants, fish, and wildlife.

*River Crossings:* The KPL and OPL cross the Kuparuk River Floodplain, and the East and West Tributaries of the Kuparuk River. At all river crossings, the pipelines are supported on VSMs, not trenched or drilled. The pipeline access road crosses over the Kuparuk River on the Bailey Bridge (Smith Creek) and Hamilton Bridge (Pebble Creek). The KPL and OPL cross Central Milne Creek, East Creek, Sakonowyak River, and the East and West Channels of the Putuligayak River. The KPL Extension crosses Ugnuravik River and a minor unnamed drainage.

*Buried Pipe:* There are sixteen road crossings along the OPL/KPL ROW and an additional eleven along the KPL Extension ROW. At road crossings, the pipelines are located in steel culverts covered by gravel. These areas are inspected annually to ensure that no soil or gravel is contacting the pipe.

*Other Pipelines:* Because the Kuparuk and Oliktok pipelines run across a long corridor of North Slope development, there are numerous locations where other pipelines are in the State ROW. Major projects within the ROW must be approved by the SPCO and cannot interfere with the safe operation of the common carrier pipelines.

*Lease:* Electronic copies of Kuparuk lease agreements and approved amendments are available at the SPCO website: <http://www.jpo.doi.gov/SPCO/SPCO.htm>.

#### **4.1.2 Kuparuk Oil Pipeline (ADL 402294)**

The 24-inch diameter Kuparuk Pipeline transports processed crude oil from the KPL Extension, Kuparuk oil fields, and BP-operated Milne Point Pipeline (MPPL) eastward to Pump Station 1. The KPL begins at Kuparuk CPF-1 and terminates 28 miles east at a pig receiver just inside the fence at PS-1, where the pipe diameter reduces to 16 inches. The 14-inch diameter MPPL ties into the KPL approximately six miles downstream of CPF-1.

The KPL was built with uncoated steel pipe of various thicknesses. The pipeline operates below a maximum operating pressure of 1,415 psig at 150° F. The KPL is insulated and wrapped in a galvanized steel jacket.

The 24-inch portions of the KPL are piggable, and CPAI cleans the piggable portion of the pipeline monthly with a maintenance pig. (In 2005, only 6 of 12 planned cleaning pigs were run). CPAI also uses instrumented (smart) pigs to detect potential corrosion on a three-year cycle. The last smart pig run was on June 23, 2003. The next smart pig

will be run through the KPL in late summer 2006. Portions of the KPL that are not piggable are inspected periodically with tangential radiography. Ultrasonic and other inspection techniques are also used. Additionally, CPAI employs corrosion coupons to assess potentially corrosive conditions in the pipeline. CPAI does not use corrosion inhibiting chemicals in the KPL.

The entire KPL is USDOT-regulated.



*Many species of migratory waterfowl inhabit State lands in the Kuparuk-Oliktok corridor. This pair of swans was spotted in the Kuparuk Extension ROW during July 2006 surveillance.*

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#### **4.1.3 Kuparuk Pipeline Extension (ADL 409027)**

The KPL Extension begins in the Kuparuk River Unit at CPF-2. Here the Alpine Oil Pipeline ties into the KPL Extension for transport to PS-1. The KPL Extension also transports processed crude from CPF-2. Pipeline-related facilities at CPF-2 include a breakout tank and drag-reducing agent injection point.

The KPL Extension is made from a combination of 12- and 18-inch diameter pipeline designed to operate below 1,415 psig at 150° F. The KPL Extension begins at CPF-2 as a 12-inch pipeline. At approximately four miles, Spine Road intersects the 2Z-Pad access road. Here the KPL Extension changes to 18-inch pipe. It continues an additional five miles to Kuparuk CPF-1.

The KPL Extension is not piggable, so CPAI cannot use smart pigs as part of their integrity management program. CPAI uses tangential radiography to detect external corrosion at weld packs or damaged jacketing. Ultrasonic and other inspection techniques are also used. Additionally, CPAI uses corrosion coupons to assess potentially corrosive conditions in the pipeline, though no corrosion inhibitor is used.

The entire KPL Extension is USDOT-regulated.

#### **4.1.4 Oliktok Pipeline (ADL 411731)**

The OPL currently transports natural gas liquids from Prudhoe Bay Skid 50 to Kuparuk CPF-1. It was commissioned in 1981 to transport sales oil to PS-1 and was originally referred to as the Kuparuk Pipeline. In 1984, the new KPL was built and the

16-inch diameter pipeline was converted to natural gas transport and renamed the Oliktok Pipeline. In 1988 it was decommissioned. In 1995, the OPL was re-commissioned to transport NGL from the Central Gas Facility in Prudhoe Bay to Kuparuk. In 2001, the Milne Point Products Pipeline (currently in warm shutdown status) tied into the OPL at approximately 6 miles upstream from CPF-1.

The OPL was made from 16-inch diameter pipe, insulated and wrapped in galvanized steel jacketing. The OPL is designed for a maximum operating pressure of 1,415 psig at 150° F. The entire pipeline, 28 miles, is above-ground except for road crossings. The OPL begins adjacent to Skid 50 at Prudhoe Bay at an 8-inch manual valve. At Module 501, adjacent to PS-1, the pipe diameter increases to 16 inches and the OPL continues on the same horizontal and vertical supports as the KPL to Kuparuk CPF-1. At CPF-1, the OPL branches into two sections. The first goes to CPF-1 Module 100, where the system includes a pig launcher/receiver. The second segment decreases to 10-inch diameter and proceeds to Module CR02. In Module CR02, the OPL diameter reduces to 8 inches before terminating at an emergency shutdown remotely operated valve.

The OPL is not piggable, however, the system includes a pig launcher/receiver at both Module 501 and Module 100 at CPF-1. CPAI uses tangential radiography to detect external corrosion at weld packs or damaged jacketing. Ultrasonic and other inspection techniques are also used. Additionally, CPAI uses corrosion coupons to assess potentially corrosive conditions in the pipeline.

The entire OPL is USDOT-regulated.

## **4.2 Lessee's Annual Report**

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### **4.2.1 SPCO Review**

CPAI, operator of the Kuparuk and Oliktok pipelines, submitted one *2005 Annual Comprehensive Report on Pipeline Activities* to the SPCO for each Kuparuk and Oliktok pipeline on time in January 2006. CPAI's three reports provide detailed information on pipeline activities, and document lease compliance as required. The reports are pipeline- and ROW-specific and very detailed. On March 28, 2006, the SPCO issued a letter to CPAI commending the 2005 reports as outstanding, and confirming that they met all seven requirements for annual reporting. The seven requirements are listed in the Introduction Section.

### **4.2.2 Lessee's Activities**

*KPL Operations:* In calendar year 2005, the KPL was 100% available. It transported more than 125 million (125,751,224) barrels of processed crude from Alpine, the Greater Kuparuk Area, and Milne Point on to TAPS.



*The KPL and OPL cross over Smith Creek, a Kuparuk River tributary, on the Bailey Bridge. CPAI also maintains the Hamilton Bridge as part of the KPL/OPL access road.*

*KPL Extension Operations:* The KPL Extension was also 100% available for service in 2005. It transported 77.1 million (77,145,943) barrels of processed crude from Alpine and CPF-2 into the KPL.

*OPL Operations:* The OPL was available for service 100% of the time in 2005. CPAI reports that 6.2 million (6,210,799) barrels of natural gas liquids were transported in 2005 through the Oliktok Pipeline.

*Spill Prevention & Response:* In 2005, CPAI performed spill drills with the Kuparuk Incident Management Team and the Alpine and Kuparuk Spill Response Teams. CPAI also participated in developing and delivering training with Alaska Clean Seas.

*Oil Spill:* on March 13, 2005, CPAI reported to ADEC a crude oil spill of four gallons from a failed sump pump seal at the KPL pig launcher module at CPF-1.

*Triplex Pump Trailer Incident:* On November 6, 2005, a pickup truck with a triplex pump trailer went off the road and turned over on the south side of Spine Road 2.8 miles west of "Y" near CPF-2. CPAI estimates the overturned triplex came within 20-24 feet of the KPL Extension. Approximately one-half gallon of diesel was spilled on the gravel shoulder, reported to ADEC, and cleaned up.

*Valve Closure Incident:* The following is copied verbatim from CPAI's annual report:

"UNAUTHORIZED ISOLATION VALVE LOCKOUT

On 08 October 2005, ConocoPhillips Alaska, Inc. (CPAI) personnel discovered that a 16-inch Oliktok Pipeline (OPL) isolation valve located at the Milne Point

Pipeline (MPPL) tie-in had been locked closed by a Milne Point operations device. This situation presented a potentially serious safety issue and a property trespass situation."

For more information, see Section 8.3.2 of this report for the Milne Point Pipelines, JPO surveillance report #ANC-06-S-033, and the March 2006 surveillance field notes attached to report #ANC-06-S-036.

*Safety Incidents:* No OSHA Reportable incidents of lost time or medical treatment occurred for personnel working on the Kuparuk or Oliktok pipelines in 2005.

*Emergency Generator Issues:* On the west side of the Kuparuk River crossing, the KPL emergency generator provides backup power for isolation valve ROV-9383. Two problems occurred with this generator during 2005. The first issue was a water pump leak in July which required changing the generator from automatic to manual start. Shore power and a portable generator were used until the water pump was replaced less than a week later with no change in spill response readiness. The second problem occurred on September 29, when the generator was non-functional after a line voltage-sensing control module failed. The generator would still start, but would not auto-start. The change in spill response readiness was communicated to ADEC and auto-start capability was restored on October 9. CPAI reports that the ability to close the valve remotely was not compromised.

*USDOT Compliance:* From February 28 through March 7, 2005, a representative from USDOT performed standard inspections of the Kuparuk and Oliktok pipelines. No significant deficiencies were identified.

#### **4.2.3 Lessee's Surveillance & Monitoring**

*Overview:* The Kuparuk and Oliktok leases require the lessee to follow an SPCO-approved surveillance & monitoring program. This program describes how the lessee ensures they are complying with lease provisions. The Kuparuk and Oliktok Surveillance Programs consist of routine aerial and ground-based surveillance. The Monitoring Programs consist of routine and corrective maintenance and inspection tasks, as well as a variety of pipeline, river crossing, and wildlife monitoring. For more detailed information on what is monitored along the Kuparuk and Oliktok Pipelines, and the frequency for monitoring, see the current *Surveillance & Monitoring Program*.

*Aerial Surveillance:* CPAI uses forward-looking infrared technology in aerial surveillance as part of their leak detection program. Aerial surveillance also helps the lessee monitor other pipeline and ROW conditions. In 2005, CPAI conducted 149 surveillance flights between the Ugnu-Kuparuk Airport and CPF-2 and 120 flights between the airport and PS-1. The Kuparuk Oil Discharge and Contingency Plan, 2.5 Discharge Detection [18 AAC 75.452(E)(2)(E)], requires weekly aerial surveillance, subject to weather and safety conditions.

*VSM Inspections:* CPAI annually monitors VSMs for frost jacking and subsidence as part of their surveillance & monitoring. In addition to VSMs supporting the pipelines, CPAI also monitors 134 abandoned VSMs within the ROW. In 2005, 42 VSM issues were identified. All have been scheduled for re-leveling in 2006.

*Work Pad Bridge Maintenance:* CPAI contracted with PND Incorporated to inspect Kuparuk River bridges in 2004. The KPL and OPL pass over Tributaries I and II on the Bailey and Hamilton Bridges. CPAI has taken some remedial action on these bridges and is addressing erosion issues.

*Kuparuk River Monitoring:* In accordance with the *Erosion and Sediment Control Plan* submitted to the SPCO on May 30, 2000, CPAI monitors the Kuparuk River floodplain. Zone 1A is monitored annually, and Zones 1B and 2 are monitored every three years. In 2005, CPAI monitored only Zone 1A and noted minimal changes from the 2000 baseline. The other zones will be monitored next in 2006.

*Mammal Surveys:* CPAI conducts annual caribou research in the Greater Kuparuk Area as mandated in the Kuparuk River Use Agreement. The CPAI annual report for the KPL Extension contains the executive summary for 2004's mammal surveys. The 2005 report was still under review at the time the lessee submitted their annual report. The lessee has not noted any problems with wildlife passage across the pipeline ROW, or other impacts on mammals. Lease stipulations address protection of fish and wildlife.

*Avian Studies:* CPAI has a long-term program to survey Spectacled Eider, Brant, and Tundra Swan abundance, nesting, and distribution within the Kuparuk Oilfield and Kuparuk and Oliktok Pipeline corridors. In 2005, they surveyed Spectacled Eider, Tundra Swan, and Brant.

*Insulation Jacketing:* Routine surveillance noted an area of damaged insulation on the KPL. Repairs have been scheduled. CPAI also inspected a routine number of weld packs for external corrosion.

*Survey Monuments:* CPAI reports that monument A5 was found out of position and restored to the location of record. CPAI replaced a missing cap on D11.

## **4.3 SPCO Activity**

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### **4.3.1 Lease Administration**

In FY06, the Lease Administration Team finished processing a ROW lease amendment for the KPL to include a new pig launcher shelter. To conclude the process, CPAP, on behalf of KTC, submitted a record of survey for review depicting the new ROW location at the pig launcher shelter. Other projects included the following:

- In September 2005, the SPCO received a request from CPAP for CPAI to construct/expand a 60-foot turnaround within the KPL/OPL ROW. The turnaround improvement supports access to the pipeline ROW just west of the Kuparuk River. CPAI later decided not to expand the turnaround beyond bringing the existing pad up to original design depth.
- On September 3, 2005, the lease administration team performed an expedited review of placement of a new 12-inch valve on the KPL Extension to facilitate a possible future third-party connection.

- In early summer 2006, the lease administration team reviewed CPAI plans for a VSM replacement.

The lease administration team also reviewed numerous letters of non-objection from CPAP for CPAI to perform activities such as ice road construction, culvert maintenance, seismic operations, gravel removal, guardrail and lighting installation, and construction and maintenance within the KPL/OPL ROW.



*During field surveillance of the KPL and OPL in November 2005, an SPCO surveillant observed inspection work being performed on the KPL. The technician drew a white line around the potentially corroded area to be inspected. The location had previously been stripped of insulation and prepped for inspection.*

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#### **4.3.2 Compliance Oversight**

The SPCO compliance oversight team lead conducted surveillance of the Kuparuk and Oliktok pipelines and ROW November 9 through 11, 2005. The primary scope of this surveillance was to evaluate the lessee's corrosion program and to verify that the pipelines are being inspected, operated, and maintained to accepted standards and in compliance with applicable laws, regulations, and the ROW leases. Material storage within the ROW was not reviewed.

The SPCO surveillant flew to Kuparuk on November 9 and met with a variety of CPAI engineers and specialists to review both internal and external corrosion information including prevention, detection and repair practices. The following are some highlights about CPAI's corrosion program for KPL, OPL, and the KPL Extension as explained to the SPCO surveillant.

*Tangential Radiography:* External corrosion has been identified as a significant problem at weld packs, where water can seep into the insulation and contact the pipeline. CPAI uses tangential radiography to assess corrosion at weld packs, a technique which produces a photographic film that, when properly developed, can indicate the presence of water in the insulation. Tangential radiography can also reveal corrosion and corrosion by-products at weld packs.



*Corrosion coupons are prepared and directly gauged with a needlepoint micrometer at CPAI's laboratory. An SPCO surveillant toured the laboratory in November 2005.*

*Work Orders:* On November 11, the SPCO surveillant reviewed two work order files to assess the lessee's record keeping practices. The first was a 2004 KPL corrosion repair associated with VSM 785, east of the Milne Point tie-in. The other work order was from a 2001 incident when a crane tipped over and damaged both the KPL and OPL.

*Laboratory Tour:* The SPCO surveillant visited the lab where CPAI examines coupons from the KPL, OPL, and KPL Extension. Coupons are located at the inlet and outlet of the OPL and KPL at the 6 o'clock position. Two additional coupon locations are in the KPL Extension. Coupons are removed from the pipe at least twice per year (per USDOT regulations) and examined to gauge pitting, metal loss, and calculate a corrosion rate. CPAI grades coupons qualitatively, using a ranking system of "A" through "F." The SPCO surveillant was told that baseline corrosion rates in the KPL were generally less than 1/10<sup>th</sup> of 1 mil per year with about 1 mil per year pitting.

*Inspection:* On November 10, the SPCO surveillant witnessed a visual and ultrasonic inspection of a potential corrosion location on the KPL adjacent to CPF-1. The location was identified during the last smart pig run. The surveillant arrived after the pipeline jacket and insulation had been removed. He commented that "discovery and measurement of the three corrosion networks at this location was carried out in a planned and well executed workmanlike fashion, was well documented, and it appeared all the procedures outlined by the detailed guideline were followed."

*Future Tie-In:* The surveillant visited the location of a proposed 12-inch KPL Extension valve that was installed to facilitate a possible future third-party connection near the Oliktok/Spine Road intersection. At the time of the surveillance, the valve had not yet been installed, but hot tapping, blinding, and other preparations had been completed. The scaffolding remained in place, and the surveillant was told the work would be completed later in the winter.

The SPCO surveillant also engaged in discussions with CPAI personnel about mapping, drawings, corrosion databases, risk management, USDOT annual reporting requirements, avian studies, and a software data management system and viewed a FLIR recording. Before, during, and after the November 2005 surveillance, the lease compliance oversight team lead reviewed numerous documents provided by the lessee,

especially those related to the corrosion control program. These are listed in the Surveillance Field Notes attached to surveillance report #ANC-05-S-251.

#### **4.3.3 Summary of lease compliance observations: November 2005**

<b><u>Lease</u></b>	<b><u>Section</u></b>	<b><u>Description</u></b>	<b><u>Observation</u></b>	<b><u>Report #</u></b>
KPL	4c, 4h(1), 4j	State access to records; maintenance of pipeline in good repair, registered agent	Satisfactory	ANC-05-S-247
KPL	7a	State physical access to leasehold	Satisfactory	ANC-05-S-248
<b><u>Lease</u></b>	<b><u>Stipulation</u></b>	<b><u>Description</u></b>	<b><u>Observation</u></b>	<b><u>Report #</u></b>
KPL	1.3.2, 1.3.6	Authorized & field representatives, access	Satisfactory	ANC-05-S-249
KPL	1.6.1(2) & (12)	Design Criteria – corrosion control, surveillance & monitoring	Satisfactory	ANC-05-S-250
KPL	1.8.2	Comprehensive quality assurance/control	Satisfactory	ANC-05-S-251
	1.9.1	Equipment maintenance	Satisfactory	ANC-05-S-252
KPL	1.10.1(4)	Surveillance & monitoring: pipeline integrity	Satisfactory	ANC-05-S-253
KPL	1.11.1	Protection of health and safety	Satisfactory	ANC-05-S-254
KPL	3.4.1	Corrosion program	Satisfactory	ANC-05-S-255
<b><u>Lease</u></b>	<b><u>Section</u></b>	<b><u>Description</u></b>	<b><u>Observation</u></b>	<b><u>Report #</u></b>
KPL X	4a, 4d, 4h(1), 4j	Common carrier, State access, good repair, registered agent	Satisfactory	ANC-05-S-238
KPL X	7(a)	State access to Leasehold	Satisfactory	ANC-05-S-239
<b><u>Lease</u></b>	<b><u>Stipulation</u></b>	<b><u>Description</u></b>	<b><u>Observation</u></b>	<b><u>Report #</u></b>
KPL X	1.3.2 & 1.3.6	Authorized representative, access	Satisfactory	ANC-05-S-240
KPL X	1.6.1(2) & (12)	Design Criteria: corrosion, surveillance & monitoring	Satisfactory	ANC-05-S-241
KPL X	1.8.2	Quality Assurance/Quality Control	Satisfactory	ANC-05-S-242
KPL X	1.9.1	Maintain equipment	Satisfactory	ANC-05-S-243
KPL X	1.10.1(4)	Surveillance & monitoring: pipeline integrity	Satisfactory	ANC-05-S-244
KPL X	3.4.1	Corrosion program	Satisfactory	ANC-05-S-245
<b><u>Lease</u></b>	<b><u>Section</u></b>	<b><u>Description</u></b>	<b><u>Observation</u></b>	<b><u>Report #</u></b>
OPL	4d, 4h(1), 4j	State access to property and records; good repair; registered agent	Satisfactory	ANC-05-S-256
OPL	7a	State physical access to Leasehold	Satisfactory	ANC-05-S-257
<b><u>Lease</u></b>	<b><u>Stipulation</u></b>	<b><u>Description</u></b>	<b><u>Observation</u></b>	<b><u>Report #</u></b>
OPL	1.3.2, 1.3.6	Registered agent, State access rights	Satisfactory	ANC-05-S-258
OPL	1.6.1(2) & (12)	Design Criteria: corrosion, surveillance & monitoring	Satisfactory	ANC-05-S-259
OPL	1.8.2	Quality Assurance/Quality Control	Satisfactory	ANC-05-S-260
OPL	1.10.1(4)	Surveillance & monitoring: pipeline integrity	Satisfactory	ANC-05-S-261
OPL	3.4.1	Corrosion program	Satisfactory	ANC-05-S-262

#### 4.3.4 Appraisals

The most recent appraisal of State lands in the Kuparuk and Oliktok ROWs was approved by ADNR on October 1, 2002. According to AS 38.35, the lessee must pay fair market value to lease State lands in the ROW. Per the Kuparuk and Oliktok leases, a re-appraisal is due every five years. The next appraisal should be submitted in 2007. The State acreage and annual rental fees follow:

<b><u>Pipeline ROW</u></b>	<b><u>ADL #</u></b>	<b><u>State Acres</u></b>	<b><u>Estimated Market Rent</u></b>
Kuparuk Operations ROW	402294	485.58	\$84,516
Extension Operations ROW	409027	159.09	\$31,818
Oliktok Operations ROW	411731	485.58	\$84,516

## 4.4 Upcoming Issues

### 4.4.1 Lessee's Activities

CPAI is finishing work on valve actuator upgrades for the KPL system. They also plan to finish work on a communication link upgrade which will improve reliability for the KPL and OPL leak detection systems. CPAI also plans to facilitate a possible third party connection by finishing installation of a new 12-inch blinded valve to the KPL Extension in 2006.

*Evaluation Plans:* CPAI plans to perform a Health, Safety, and Environment Self-Audit for the Kuparuk River Unit in 2006.

*Pigging:* CPAI plans to run a smart pig through the 24" KPL in late summer 2006. The SPCO lease compliance oversight team plans to attend the pig launch and/or retrieval and conduct surveillance of the ROW.

### 4.4.2 SPCO Compliance Oversight

In July 2006, the lease compliance oversight team will conduct field surveillance of the Kuparuk and Oliktok pipelines and ROWs. Additional surveillance of the Kuparuk Pipeline will occur in August 2006 during smart pigging operations. The team will complete any necessary follow-up to these surveillances. The lessee's 2006 annual report, due January 31, 2007, will also be reviewed. Additional field surveillance may be conducted in FY07.

## 4.5 Contact Information

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In the Kuparuk and Oliktok ROW lease agreements, Section 4(j) requires the lessee to designate in writing a registered agent. Lease Stipulation 1.3.2 requires a field representative and an authorized representative available to communicate with the SPCO. These contacts are the same for the OPL, KPL, and KPL Extension leases (ADLs 402294, 409027 and 411731).

<i>Registered Agent</i>	Karen L. Kennedy
<i>Authorized Representative</i>	Operations and Engineering Manager Kuparuk Transportation Company Oliktok Pipeline Company P.O. Box 100360 ATO 908 Anchorage, AK 99510-0360
<i>Primary Field Representative</i>	Chuck Knecht NSOD Pipeline Operations Supervisor ConocoPhillips Alaska, Inc. P.O. Box 196105, NSK 22 ConocoPhillips Alaska, Inc. Anchorage AK 99519-6105
<i>Alternate Field Representatives</i>	Arlen Cutsforth or Randy Scott NSK Pipeline Coordinators ConocoPhillips Alaska, Inc P.O. Box 196105, NSK 22 Anchorage, AK 99519-6105

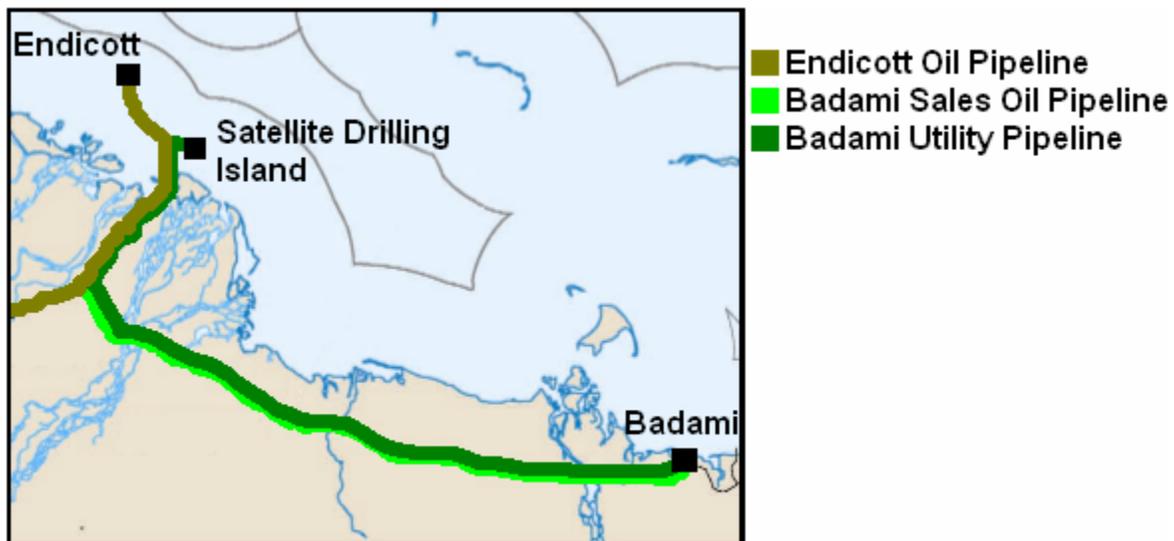


## NORTH SLOPE PIPELINES

### 5 Badami Pipelines: Sales Oil and Utility

ADL # [415472](#) and [415965](#)

- [5.1 Lease and Right-of-Way Overview](#)
  - 5.1.1 Badami Corridor
  - 5.1.2 Badami Sales Oil Pipeline
  - 5.1.3 Badami Utility Pipeline
- [5.2 Lessee's Annual Report](#)
  - 5.2.1 SPCO Review
  - 5.2.2 Lessee's Activities
  - 5.2.3 Lessee's Surveillance & Monitoring
- [5.3 SPCO Activity](#)
  - 5.3.1 Lease Administration
  - 5.3.2 Compliance Oversight
  - 5.3.3 Summary of Lease Compliance Observations: September 2005
  - 5.3.4 Summary of Lease Compliance Observations: April 2006
  - 5.3.5 Summary of Lease Compliance Observations: June 2006
  - 5.3.6 Appraisals
- [5.4 Upcoming Issues](#)
  - 5.4.1 Lessee's Activities
  - 5.4.2 SPCO Compliance Oversight
- [5.5 Contact Information](#)



The Badami pipelines connect the North Slope's easternmost development to Endicott.

## 5.1 Lease and Right-of-Way Overview

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### 5.1.1 Badami Corridor

The Badami Sales Oil Pipeline was built in 1998 to transport oil from BP's Badami Development to the Endicott Pipeline for further transport to TAPS. The 12-inch diameter pipeline runs entirely aboveground except for river crossings for about 25 miles on the east side of Prudhoe Bay. The Badami Utility Pipeline was originally designed to transport miscible injectant 31 miles from Endicott to Badami. Recently it transported fuel gas. More pipeline-specific information is provided later in this section.

The Badami pipelines are supported on the same horizontal and vertical supports between the Badami Development and Endicott Pipeline tie-in location. The utility pipeline begins an additional six miles upstream at Endicott and is supported on the Endicott Pipeline VSMs until the tie-in location.

The Badami Sales Oil Pipeline and Utility Pipeline right-of-way lease agreements, effective December 15, 1997, expire December 14, 2022. BP Transportation Alaska (BPTA) is the ROW lessee for both pipelines and the party ultimately responsible for compliance with the State ROW lease agreement. BP Exploration Alaska (BPXA) is the primary contractor to BPTA for operation and maintenance of the pipelines. BPTA developed the Badami Quality Program to ensure lease compliance. The Program is implemented through the BPXA Quality Plan. Both the Program and Plan were approved by the State Pipeline Coordinator in fall 2004.

Both pipelines traverse land entirely owned by the State of Alaska. The oil and utility pipelines both cross portions of the Badami Oil & Gas Unit. Additionally, the utility line crosses portions of the Duck Island Unit. The State land includes 1,240 acres in the oil pipeline construction ROW and 352.10 acres in the utility pipeline construction ROW.

Badami was BP's first North Slope field developed remotely from Prudhoe Bay infrastructure. It first came online in August 1998 and production peaked at 18,000 barrels per day. Oil recovery dropped quickly, however, due to poor connectivity between reservoirs. In 1999, Badami Utility Pipeline transport was suspended and physically disconnected from the Endicott Inter-Island Gas Lift Pipeline due to a cracked weld. In 2003, Badami oil production and operations (including the Sales Oil Pipeline) were suspended for economic reasons. They were put in a "warm shutdown" status, meaning they were manned, maintained, and heated for future use. In September 2005, production was restarted. The Utility Pipeline provided fuel gas from Endicott and the Badami Sales Oil Pipeline was backfilled with oil from Endicott before restarting. An SPCO surveillant was on site to evaluate procedures prior to restart. For more information about the restart and SPCO involvement, see 5.3.2, Compliance Oversight.

*Environmental concerns:* The Badami pipelines were constructed on VSMs a minimum of five feet above the tundra to prevent permafrost degradation and allow wildlife passage. To minimize their footprint, the Badami pipelines were built "roadless." They are accessible by winter ice road. Wind-induced vibration is a significant problem for the Badami Utility Pipeline. Vibration dampeners attached to the pipeline help mitigate vibration effects.

*River Crossings:* The Badami Pipelines cross the East Channel of the Sagavanirktok (Sag) River, Kadleroshilik (Kad) River, Shaviovik (Shav) River, and the No Name River. They were installed under the Sag, Kad, and Shav Rivers using traditional trenching methods and cross all other drainages above-ground.

*Sag River Weir:* Due to erosion related to pipeline construction, a weir was built to prevent further drainage of an oxbow lake on the west bank of the Sag River crossing. The lake is home to a population of the tundra plant *Arctophila fulva*, which is an important food source for waterfowl. The USACE and the ADNOR OHMP have required BPTA to take measures to prevent further drainage of the lake, control erosion, and eventually restore the site. Currently a metal weir is in place, designed to maintain water levels sufficient to support the *Arctophila* population. Additional rehabilitation measures are being planned. For more information, see 5.3.2, Compliance Oversight.

*Lease:* Electronic copies of the Badami lease agreements and approved amendments are available for public viewing at the SPCO website: <http://www.jpo.doi.gov/SPCO/SPCO.htm>.



*The Badami pipelines cross were built "roadless" to prevent damage to tundra.*

### **5.1.2 Badami Sales Oil Pipeline (ADL 415472)**

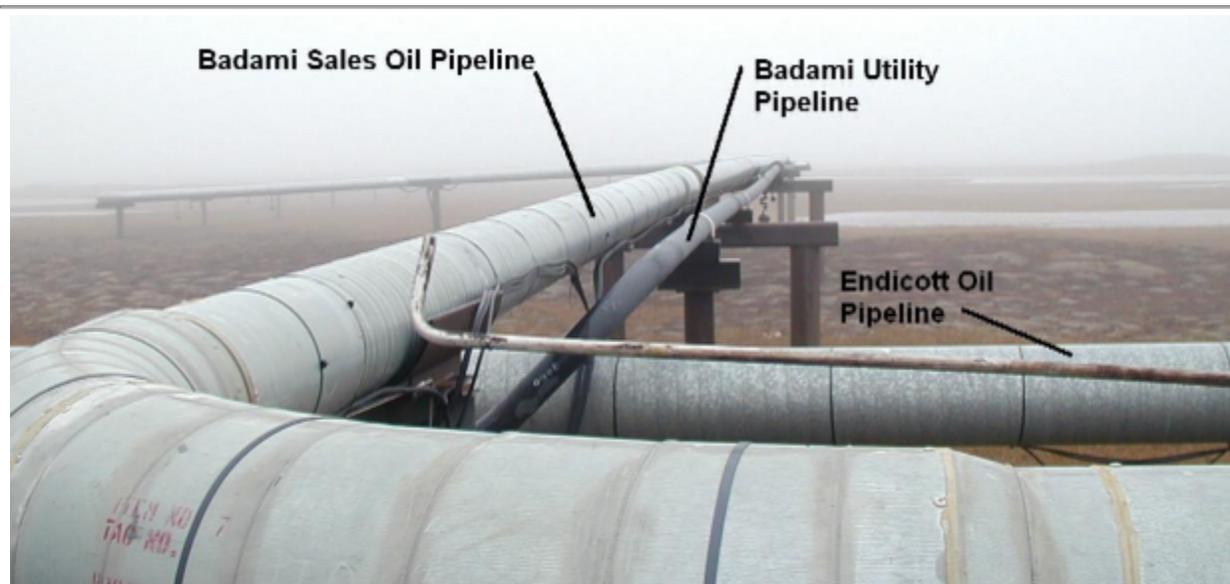
The Badami Sales Oil Pipeline begins at the Badami Central Production Facility where the pig launcher, metering, and leak detection equipment are located. It terminates approximately 25 miles west at the Endicott Pipeline tie-in location where the pig receiver is located. The entire above-ground pipeline is supported on VSMs spaced approximately 55 feet apart.

The 12-inch diameter pipeline was constructed in 1998 for a maximum allowable pressure of 1,415 psig at 150° F. It is thermally insulated with polyurethane insulation covered in metal jacketing. The nominal wall thickness crossing tundra is 0.281 or 0.375 inches. Wall thickness increases to 0.500 inches at river crossings.

The entire oil pipeline is piggable, and BPXA employs smart pigs to check pipeline conditions and corrosion-related integrity problems. The oil pipeline was last pigged with both a magnetic flux leakage and a geometry tool in 2003. Prior to restarting the line in 2005, BPXA determined that none of the corrosion features identified in the smart pig run threatened safe pipeline operation.

Because the pipeline is primarily aboveground, it is not cathodically protected from external corrosion except at river crossings. Pipe at the three buried segments (river crossings) is coated with fusion-bonded epoxy and protected with sacrificial ribbon anodes. BPXA does not use corrosion inhibiting chemicals in this sales oil pipeline because sales quality crude contains low sulfur, sediment, and water.

The Badami Sales Oil Pipeline is subject to additional regulation by the USDOT.



*This enhanced digital image shows the Badami Pipelines near the Endicott tie-in location where the Badami Oil Pipeline terminates and the Utility Pipeline joins the Oil Pipeline route.*

### **5.1.3 Badami Utility Pipeline (ADL 415965)**

The Badami Utility Pipeline begins at the Endicott Gas header and runs approximately 31 miles to the Badami Development. For the first six miles, the utility pipeline is supported on the same vertical and horizontal supports as the Endicott Pipeline. At the Badami Sales Oil Pipeline tie-in location, the utility pipeline diverges from the Endicott Pipeline support system and continues on the same supports as the Badami Sales Oil Pipeline to the Badami Development.

The Badami Utility Pipeline was built in 1998 from 6-inch diameter steel pipe. Following a study of second order wind-induced vibrations, pipeline vibration dampeners were installed on the utility pipeline at the  $\frac{1}{4}$  or  $\frac{3}{4}$  span locations in addition to the original mid-span locations. Weights are two distinct sizes with the smaller ones located at the  $\frac{1}{4}$  or  $\frac{3}{4}$  position.

The utility pipeline's service was suspended in November 1999 due to a cracked weld. In 2005, the gas utility pipeline was repaired, reconnected, and supplied fuel gas for the restart of Badami oil wells and related facilities.

Because the pipeline is primarily aboveground, it is not cathodically protected from external corrosion except at river crossings.

The Badami Utility Pipeline is subject to additional regulation by the USDOT.

## **5.2 Lessee's Annual Report**

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### **5.2.1 SPCO Review**

BPTA, lessee for the Badami pipelines, submitted a *2005 ADNRC Surveillance & Monitoring Report* to the State Pipeline Coordinator's Office on time in January 2006. A single report was provided for all BPTA leases (Badami, Endicott, Northstar, and Milne Point). BPTA's reports provide general information on pipeline activities, and contain most of the minimum information required. To meet minimum requirements for annual reporting in the leases, the SPCO issued a letter to BPTA requesting additional information with a response due date of June 16, 2006. The seven requirements for annual reporting to the SPCO are listed in the Introduction Section. BPTA responded on time with the requested information, thereby fulfilling the annual reporting requirements.

### **5.2.2 Lessee's Activities**

*Oil Pipeline Operations:* In 2005, the Badami Pipeline transported 152,711 gross barrels and 152,407 net barrels (less water and sediment) of oil to the Endicott Pipeline. The line was re-started from warm shutdown in September 2005.

*Utility Line Operations:* In 2005, the Badami Utility Pipeline transported 8,612 MSCF of fuel gas from Endicott to support the Badami re-start.

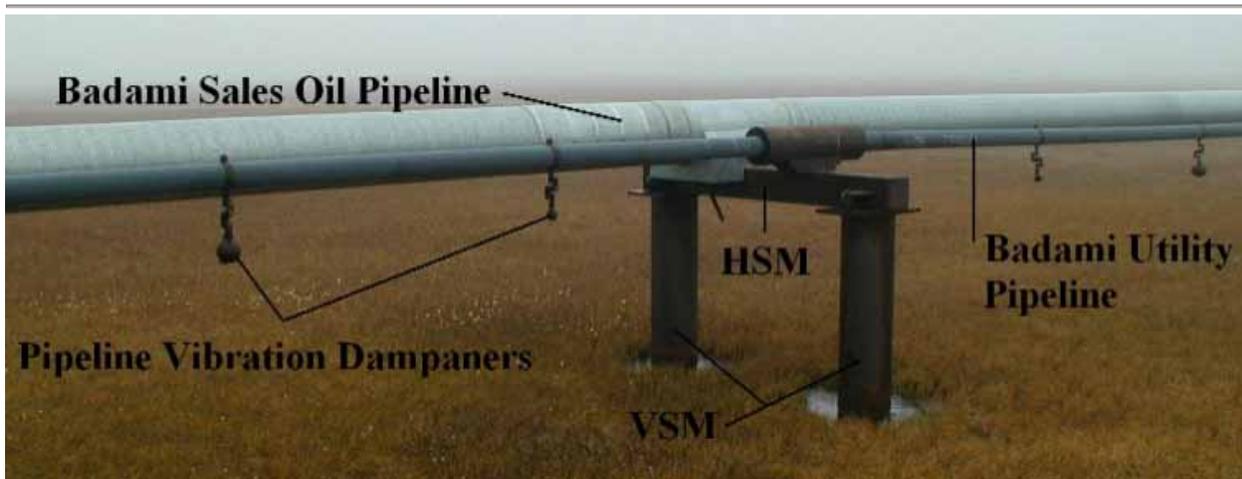
*Utility Line Repairs:* Prior the re-start, the utility line was repaired. In April 2005, 280 girth welds were inspected. Nine rubber connections for vibration dampeners were repaired between the Endicott tie-in and Sag River. Other vibration dampeners were adjusted.

*Incidents:* BPTA reports that no incidents, events, or fires occurred along the Badami pipelines in 2005. No OSHA Reportable safety incidents of lost time or medical

treatment occurred for personnel working on any BPTA common carrier pipelines in 2005.

*Other Incidents:* Although it wasn't reported in the annual comprehensive report to the SPCO, there were five inadvertent valve closures on the Badami Oil Pipeline. These were reported as abnormal operating conditions between the September start-up and June 30, 2006. On November 6, 2005, an increase in pipeline pressure required BPXA to shut-in Badami production wells. A Sales Oil Pipeline valve had closed due to loss of power at Remote Terminal Unit (RTU)-2. This was discovered during a helicopter flight to visually check the pipeline and three RTUs. The maximum operating pressure of the pipeline was not exceeded. Another incident occurred on November 7, 2005 (RTU-2). In 2006, events occurred on January 20 (RTU-1), February 16 (RTU-1) and April 13 (RTU-3). In BPTA's follow-up letter to their annual report dated June 16, 2006, BPTA reported that new batteries were installed and a thermal electric generator unit was replaced.

*Internal Safety Program:* Employees at Badami facilities participate in BP's internal safety programs. Employees formally monitor each other under the Observing Risks, Changes, and Attitudes (ORCA) program, and managers conduct Advanced Safety Audits (ASAs). In 2005, Badami employees generated zero ORCA observations and there were 150 ASA participants.



*This diagram shows the configuration of the Badami pipelines with vibration dampeners.*

### 5.2.3 Lessee's Surveillance & Monitoring

Both Badami pipeline ROW leases contain Stipulation 1.10.1 that requires the lessee to comply with an SPCO-approved Surveillance & Monitoring Program. This program describes how the lessee ensures compliance with lease conditions and stipulations. The Surveillance & Monitoring Program for the Badami pipelines was approved by the SPCO on September 9, 2004. BPTA defines "surveillance" as "making observations that are primarily qualitative by flying, driving, or walking along the pipeline and related facilities." The program is designed to detect, prevent, and abate situations

which may endanger public health & safety, environment or pipeline integrity, and public or private property damage.

The Badami Surveillance Program consists of routine surveillance designed to meet USDOT and SPCO requirements. This includes biweekly aerial surveys of ROW conditions and an annual ground survey of the entire ROW. BPXA conducted 39 aerial inspections of the Badami ROW in 2005. BPXA also must inspect mainline valves twice each year for the oil pipeline and once annually for the utility pipeline. No problems were identified with valves during routine inspections in 2005, however, there were some inadvertent valve closure incidents as previously discussed.

The Monitoring Program consists of routine and corrective maintenance and inspection tasks, as well as a variety of pipeline, river crossing, and wildlife monitoring. For more detailed information on what is monitored along the pipelines, and the frequency, see the current *Surveillance & Monitoring Program* in State files. This year's surveillance & monitoring results follow.

*Annual Survey:* BPXA conducts an annual ground survey, also called a Walking Speed Survey, to fulfill USDOT and State lease requirements. The annual ground survey was conducted between April 6 and 10, 2005 and noted that three VSMs shared by the Badami pipelines will need a transit survey to determine "elevation and levelness." For the Utility Pipeline, one cracked weld was noted between PS-825 and 826. Eleven Utility Pipeline vibration dampeners were found out of position, and 37 below pipe vibration dampeners were found broken/missing. For the Sales Oil Pipeline, four dents were found in jacketing, 20 weld packs in saddles had broken banding straps, three pipe dents were verified from the in-line inspection run, and one weld pack was reported missing silicone.

BPTA included copies of the ground survey in their annual report to the SPCO, but did not state when the issues noted are scheduled for repairs. In Appendices C and D, memos *recommend* that the Maintenance Planner schedule inspections and repairs for spring or summer 2006. BPTA's report, however, does not state whether such scheduling actually took place, and provided no information on deadlines for completion. In their follow-up reporting, BPTA states that necessary repairs are scheduled and/or completed.

*Cathodic Protection Survey:* In September 2005, the lessee completed a cathodic protection survey at the river crossings and reported that federal requirements in 49 CFR 192 and 195 were being met. However, BPTA reports that permanent reference electrodes have failed. Instead, portable electrodes were used at above ground/below ground transitions associated with river crossings. In follow-up reporting, BPTA stated that portable electrodes provide sufficient data to meet USDOT requirements.

*Sag River:* Annual monitoring of the Sag River weir revealed soil had been lost on the north side of the weir and south side of the riprap. Surface water was also found flowing around the weir's north side during a June 2005 inspection. No problems were noted with risers, channel change or obstruction, depressions, or ponding. According to the USACE Permit 2-940700 and Fish Habitat Permit FG95-III-0142, BPTA must continue monitoring the weir three times each summer until the site is adequately stabilized. Summer inspections in 2005 occurred on June 24<sup>th</sup>, July 1<sup>st</sup>, and August 5<sup>th</sup>.

*Smart Pigging:* The Badami Sales Oil Pipeline was pigged with a magnetic flux leakage in-line inspection tool in 2003. BPXA conducted field verification of the data prior to re-start of the pipeline in 2005.

*ROW Surveillance Conditions:* The only non-compliant ROW conditions reported during 2005 are those noted on the annual ground surveys. BPTA reports that BPXA did not find any problems associated with any of their other surveillance categories: oil spills/leaks, erosion, wildlife blockage, public access, sloping crossbeams, titled saddles, saddles suspended above crossbeams, failed anchors, gaps between pipe and saddle, pipeline vibrations, humps or swales, ground cracking, cased pipe, building damage, building foundation movement, building fuel/gas leaks, fish, brown bears, polar bears, and threatened or endangered species.



*A Badami Pipeline above-grade river crossing.*

## **5.3 SPCO Activity**

### **5.3.1 Lease Administration**

The lease administration team reviewed a June 10, 2005 letter from BPTA stating their intention to restart the Badami pipelines. In FY06, the SPCO requested and received additional information on Badami restart plans. For more information, see 5.3.2, Compliance Oversight.

### **5.3.2 Compliance Oversight**

On February 16<sup>th</sup>, BPXA's Corrosion, Inspection, and Chemicals Group gave a presentation to the lease compliance oversight team with a general overview of their corrosion program. More specific corrosion information related to each pipeline is obtained by the team through field surveillances.

From September 12 through 14, 2005, the compliance oversight team lead conducted field surveillance of the Badami and Endicott pipelines and ROW. The primary scope of the surveillance was to observe the Badami re-start and get a general overview of the pipeline systems and facilities. Surveillance reports ANC-05-068, 86, 106, and 200-202 are associated with this surveillance. Four were minor unsatisfactory reports and two were satisfactory. The surveillance field notes are attached to report #ANC-05-106.



*The Badami Sales Oil Pipeline pig launcher is housed in a plywood structure.*

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The surveillant rode from Deadhorse to the Endicott Development on September 12, 2005. In the Endicott ROW north of the tie-in, he inspected the Badami Utility Pipeline. On September 13, the surveillant flew along the Badami ROW in a helicopter to the Badami production facilities. He spent time at the Badami facilities observing operations prior to restart and checking records and documentation available onsite. On September 14, he participated in a close-out meeting and drove from the Endicott facilities back to Deadhorse. Prior to, during, and after the September 2005 surveillance, the compliance oversight team lead reviewed numerous documents related to the Badami pipelines and re-start. A list of these documents is included on Page 3 of the Surveillance Field Notes attached to report #ANC-05-106.

The SPCO was highly interested in the Badami operations in 2005 because BPTA planned on transitioning from a non-operational, warm stand-by status to a fully operational mode. The interaction between BPTA and the SPCO is briefly summarized in the following paragraphs. On July 3, 2003, the lessee notified the SPCO that it intended to temporarily suspend service by both Badami pipelines. A follow-up letter from the SPCO on July 18 outlined five requirements, including a start-up plan for SPCO review no later than 30 days prior to resuming shipment of oil, gas, or products.

On June 14, 2005, the SPCO received a letter and the Badami Unit's Sixth Plan of Development for review. The letter said that BPXA had treated the Sales Oil line with corrosion inhibitor and displaced the oil with gas. It also stated that the utility line had

been repaired during the winter of 2005. The 6" Utility line re-start procedure BPL-05 and the oil line re-start procedure BPL-25 were attached to the start-up plan.

While on site at Badami facilities, the SPCO surveillant asked to see a copy of the signed procedures that were used in implementing part of the re-start, namely BPL-05 and BPL-25 as indicated in the June 14<sup>th</sup> letter. The surveillant was allowed to view two BPXA procedures: BPL-29 and BPL-25. The BPXA employee escorting the surveillant was reluctant to provide copies of the procedures on site because he said they needed to be requested through BPTA, the lessee, and the records were not available elsewhere. The surveillant gave the lessee a minor unsatisfactory report (ANC-05-S-086 and ANC-05-S-021) for the delay in copying records.

When the surveillant eventually received and reviewed the procedures BPL-29 and BPL-25, which were provided via email after the surveillance, he noticed that they differed from the procedures approved by the SPCO for the pipeline re-start. In fact, for the utility line, an entirely different procedure was used (BPL-29 instead of BPL-05). The lessee was given an unsatisfactory report for using a modified and/or different procedure than the one originally provided to the SPCO for restart (reports ANC-05-S-106 and ANC-05-S-202).

Follow up on the unsatisfactory conditions consisted of phone calls, emails and letters. The SPCO required the lessee to submit the procedures actually used for retroactive review and to demonstrate that the procedures used were modified in accordance with the BPTA Quality Program and BPXA's Technical Management of Change procedures. The lessee provided documents showing that the procedures had been modified based on field conditions at the time of re-start and that proper management of change procedures were used to ensure that safety and pipeline integrity were maintained.

A close-out meeting with BPTA, BPXA, and the SPCO occurred on March 22, 2006. On March 31, BPTA formally submitted a final packet of information including the corrected procedures to satisfy the State Pipeline Coordinator's request. On April 13, 2006, the State Pipeline Coordinator accepted the information and issued a letter containing surveillance reports #ANC-06-S-021 (oil) and ANC-06-S-022 (utility) to close out the unsatisfactory determinations.

An additional surveillance of the Badami ROW occurred June 1<sup>st</sup>, 2006, when a compliance team member observed annual monitoring and restoration activities at the Badami weir. The weir was constructed to mitigate erosion which was removing pipeline backfill and threatening to drain an important oxbow lake and *Arctophila fulva* wetland habitat. The surveillant flew to Deadhorse on May 31 and visited the Badami/Endicott tie-in location and the Badami Oil pig receiver. On June 1, the surveillant flew in a helicopter to the weir site with two Era pilots, three BP representatives, a hydrologist, and a restoration contractor. The surveillant took aerial photos of the site including the oxbow lake system which extends south of the weir site. There was evidence that water was flowing into the oxbow lake from the Sag River upstream of the weir site. These high flow events had resulted in some erosion on the sides of the weir.



*Left: Aerial view of the oxbow lake that the Badami weir protects. This lake is connected to a wetland system which extends for at least one mile to the south. Right: the Badami pipelines transition underground approximately 30 feet west of the weir.*

On the ground at the river crossing, the surveillant noted that the weir appeared to be preventing further drainage of the wetlands, but that water was flowing around both sides of the weir and additional erosion had occurred on both sides. There appeared to be no imminent threat to the pipeline backfill, though some remedial action is going to be required to stabilize the site. A new channel had eroded on the south side of the weir, and all of the overburden vegetated as part of a previous fix attempt had been eroded away. The hydrologist, Michael Lilly of the University of Alaska Fairbanks, suggested several ideas to improve the effectiveness of the weir. One proposal included extending the weir to the north and possibly changing the angle of the weir to make it more perpendicular to the direction of flow. Another idea was to encourage the ice to melt soonest near the center of the weir, which would allow high water volumes generated during break-up to flow over the top of the weir instead of around the sides (there was evidence from photos this spring that the water was flowing around the sides of the weir due to preferential melting there).

Other agencies have an interest in protecting the *Arctophila* wetlands north of the weir. The USACE is enforcing permit number 2-1994-0700 which has been modified to require monitoring and restoration of the area. The OHMP has modified Fish Habitat Permit FG-95-III-0142 to address current conditions at the site. The US Fish and Wildlife Service is concerned about the *Arctophila* wetlands in this area because they can provide habitat for the Spectacled Eider, a threatened sea duck. The SPCO surveillant coordinated with these three agencies to maximize the effectiveness of the monitoring trip to the weir.

Surveillance reports ANC-06-S-083, 084, 086-088, and 090 document the site visit. They were mailed to the lessee on July 27, 2006. The SPCO will follow-up to these reports in FY07. Reports 085 and 089 are currently pending review and may be finalized in FY07. The Badami leases stipulations 2.3 and 2.4 require that erosion be minimized at river and floodplain crossings, and also require that erosion control

measures be maintained to limit sediment production and the formation of new channels. Although the site clearly needs additional work to ensure that the pipeline is protected and the wetlands do not drain, the surveillant observed that the lessee's contractors were making a good faith effort to address conditions at the site. The SPCO representative told BP personnel that the SPCO's main concerns were:

- *Protect the pipeline backfill and pipeline integrity*
- *Prevent further drainage of the wetlands*
- *Re-vegetate and restore disturbed areas*



*Left: the Badami weir was built to prevent further drainage of a wetland system impacted by construction of the Badami pipelines. Right: As a result of high flows during break-up in 2006, this new channel has been eroded on the south side rip rap downstream of the weir.*

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Additionally, the compliance oversight team lead reviewed ILI data for the Badami Sales Oil Pipeline as part of a corrosion-focused records review. The SPCO requested and received ILI data from BPTA. The ILI reports requested were those directly from the vendor (raw data prior to analysis by BPXA personnel). These reports showed some metal loss anomalies on the pipeline. The compliance oversight team lead reviewed the reports with a State engineer from the JPO Technical and Design Review section and met with representatives of BPTA and BPXA to discuss some of the metal loss anomalies. 2003 pigging of the oil line identified mostly internal corrosion-related anomalies. The results of this ILI program review were reported as satisfactory in surveillance reports ANC-06-S-108 and 109.

**5.3.3 Summary of Lease Compliance Observations: September 2005**

<u>Lease</u>	<u>Section</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
Oil	6(a)	State access to Leasehold	Satisfactory	ANC-05-S-068
Oil	8(d)	State access to property & records	Unsatisfactory	ANC-05-S-086

<u>Lease</u>	<u>Stipulation</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
Oil	1.4.1	Compliance with approved Quality Program	Unsatisfactory	ANC-05-S-106

<u>Lease</u>	<u>Section</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
Utility	6(a)	State access to Leasehold	Satisfactory	ANC-05-S-200
Utility	8(d)	State access to property & records	Unsatisfactory	ANC-05-S-201

<u>Lease</u>	<u>Stipulation</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
Utility	1.4.1	Compliance with approved Quality Program	Unsatisfactory	ANC-05-S-202

**5.3.4 Summary of Lease Compliance Observations: April 2006**

<u>Lease</u>	<u>Stipulation</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
Oil	1.4.1	Compliance with approved Quality Program	Satisfactory	ANC-06-S-021*

<u>Lease</u>	<u>Stipulation</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
Utility	1.4.1	Compliance with approved Quality Program	Satisfactory	ANC-06-S-022*

\*These surveillance reports close out the unsatisfactory reports from September 2005.

**5.3.5 Summary of Lease Compliance Observations: June 2006**

<u>Lease</u>	<u>Stipulation</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
Oil	1.6.1	Surveillance & monitoring; corrosion	Satisfactory	ANC-06-S-108
Oil	2.3	Erosion and sedimentation control	Unsatisfactory	ANC-06-S-083
Oil	2.4.3	Abandoned water diversion structures	Unsatisfactory	ANC-06-S-084
Oil	2.7.1	Disturbance of natural waters	<i>Pending</i>	ANC-06-S-085
Oil	2.10.2	Revegetation of disturbed lands	Satisfactory	ANC-06-S-086
Oil	3.2.1	Early detection of corrosion	Satisfactory	ANC-06-S-109

<u>Lease</u>	<u>Stipulation</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
Utility	2.3	Erosion and sedimentation control	Unsatisfactory	ANC-06-S-087
Utility	2.4.3	Abandoned water diversion structures	Unsatisfactory	ANC-06-S-088
Utility	2.7.1	Disturbance of natural waters	<i>Pending</i>	ANC-06-S-089
Utility	2.10.2	Revegetation of disturbed lands	Satisfactory	ANC-06-S-090

### 5.3.6 Appraisals

According to AS 38.35, lessees must pay fair market value to lease State lands in the pipeline ROW. The Badami leases require a re-appraisal every five years. The most recent appraisal of the Badami ROW, performed by MacSwain Associates, was reviewed and approved by ADNR in October 2002. The State acreage and annual rental fees from the most recent appraisal follows:

<b><u>Badami Pipeline</u></b>	<b><u>ADL #</u></b>	<b><u>State Acres</u></b>	<b><u>Estimated Market Rent</u></b>
Oil Construction ROW	415472	1,240	\$186,000
Utility Construction ROW	415965	352.10	\$69,680

## 5.4 Upcoming Issues

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### 5.4.1 Lessee's Activities

In 2006, BPXA plans to continue aerial inspections of the Badami ROW approximately every two weeks. They have scheduled the annual Ground Survey for the 2<sup>nd</sup> Quarter and smart pig verification as well as a cathodic protection survey for the 3<sup>rd</sup> Quarter. They will continue all required surveillance & monitoring activities.

### 5.4.2 SPCO Compliance Oversight

In July 2006, the lease compliance oversight team will conduct field surveillance of the Badami pipelines and ROWs to assess whether State lands are in adequate condition for a release of interests to reduce the ROW from construction to operations width. The team will also complete follow-up to the June 2006 surveillance of the Badami Sag River weir site. The lessee's 2006 annual report, due January 31, 2007, will also be reviewed. Additional field surveillance may be conducted in FY07.

## 5.5 Contact Information

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The Badami Pipeline leases require the lessee to designate in writing a registered agent and authorized and field representatives. In their *2005 ADNR Surveillance & Monitoring Report*, BPTA updated their authorized and field representatives.

#### *Registered Agent*

William H. Clifton  
 Joint Venture Coordinator  
 BP Transportation (Alaska) Inc.  
 900 East Benson Blvd.  
 Anchorage, AK 99508

*Authorized Representatives*

President, BPTA – Al N. Bolea  
Vice President, BPTA – Michael Rocereta  
Joint Venture Coordinator – William H. Clifton  
Manager Technical & Regulatory – Greg R. Swank

*Field Representatives*

Richard L. Powell and Thomas J. Barnes

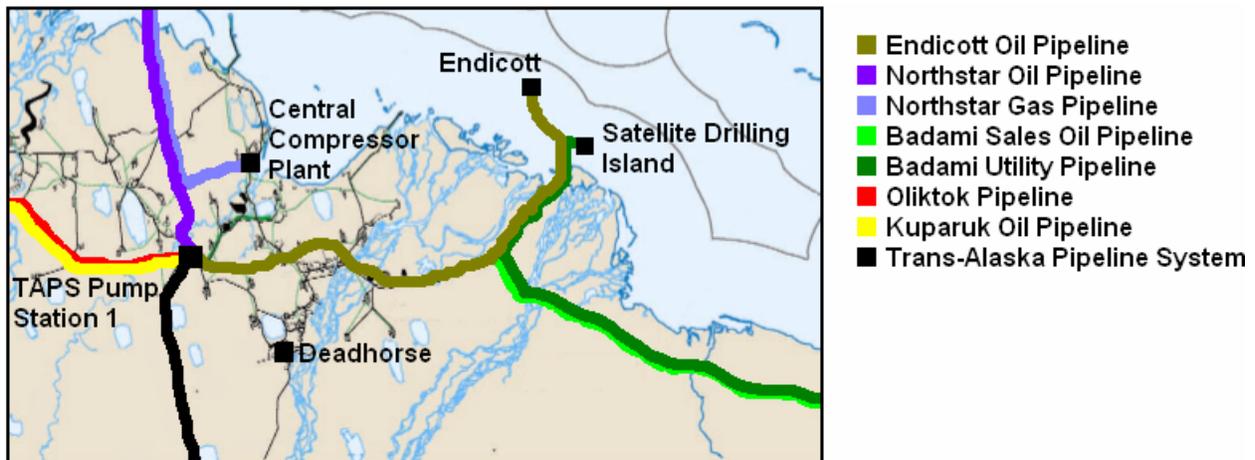


## NORTH SLOPE PIPELINES

### 6 Endicott Pipeline

ADL # [410562](#)

- [6.1 Lease and Right-of-Way Overview](#)
  - 6.1.1 Endicott Corridor
  - 6.1.2 Endicott Pipeline
- [6.2 Lessee's Annual Report](#)
  - 6.2.1 SPCO Review
  - 6.2.2 Lessee's Activities
  - 6.2.3 Lessee's Surveillance & Monitoring
- [6.3 SPCO Activity](#)
  - 6.3.1 Lease Administration
  - 6.3.2 Compliance Oversight
  - 6.3.3 Summary of Lease Compliance Observations: September 2005
  - 6.3.4 Summary of Lease Compliance Observations: June 2006
  - 6.3.5 Appraisals
- [6.4 Upcoming Issues](#)
  - 6.4.1 Lessee's Activities
  - 6.4.2 SPCO Compliance Oversight
- [6.5 Contact Information](#)



The Endicott Pipeline transports processed crude oil from the offshore manmade Endicott Island in State waters approximately 26 miles to TAPS Pump Station 1. In 2005, the pipeline transported almost 7.5 million barrels of crude from Badami and Endicott to TAPS.

## 6.1 Lease and Right-of-Way Overview

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### 6.1.1 Endicott Corridor

The Endicott Pipeline was built in 1987 to transport oil from man-made Endicott Island to TAPS Pump Station 1. The 16-inch diameter pipeline runs entirely aboveground for about 26 miles on the east side of Prudhoe Bay in the Sagavanirktok River Delta. At the approximate midpoint (13 miles) of the Endicott Pipeline, the 12-inch Badami Sales Oil Pipeline ties in. More pipeline-specific information is provided later in this section.

The Endicott Pipeline ROW lease agreement with the State of Alaska, effective August 5, 1986, was renewed November 26, 2002, and expires May 2, 2034. Endicott Pipeline Company is the ROW lessee and the party ultimately responsible for compliance with the State ROW lease agreement. BPTA, managing partner for Endicott Pipeline Company, is the ROW manager. BPXA operates and maintains the pipelines. BPTA developed the Endicott Quality Program to ensure lease compliance. The Program is implemented through the BPXA Quality Plan. Both the Program and Plan were approved by the State Pipeline Coordinator in fall 2004.

The pipeline traverses land owned by the State of Alaska, crossing portions of two Oil and Gas Units: Duck Island and Prudhoe Bay. The ROW extends 75 feet on each side of the pipeline centerline except on the causeway where the ROW extends 250 feet on each side of the pipeline centerline. The State land includes 1,072.64 acres in the operations ROW. The pipeline is entirely accessible by gravel road.



*The Endicott Pipeline passes through important tundra and wetland habitats. Here a pair of swans and their three young are using wetlands next to the pipeline. The smaller pipeline in front is the Badami Utility Pipeline, which is on the same supports as the Endicott Pipeline from Endicott to the Badami/Endicott tie-in.*

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*Snow Geese:* Prior to construction of the Endicott Development, the Sag River Delta was home to Alaska's only population of nesting Lesser Snow Geese. Due to concerns that oil & gas development could harm this population, a monitoring program was established in 1980.

*River Crossings:* The Endicott Pipeline crosses the West Channel of the Sag River over a bridge shared with other (non-common carrier) pipelines.

*Other Crossings:* The pipeline is supported at least five feet above the tundra except at caribou and road crossings where it is located in buried steel culverts covered by gravel.

*Lease:* Electronic copies of the Endicott lease and approved amendments are available at the SPCO website: <http://www.jpo.doi.gov/SPCO/SPCO.htm>.



*Aerial view of the Endicott Pipeline along the causeway bridge.*

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### **6.1.2 Endicott Pipeline (ADL 410562)**

The Endicott Pipeline begins at Endicott Module 303, which houses a pig launcher, mainline pumps, metering, and leak detection equipment. Endicott production facilities are on man-made islands in the Beaufort Sea. To reach shore, the pipeline travels aboveground on a causeway with breaching structures. The Badami Sales Oil Pipeline ties in at about mile 13. The Endicott Pipeline terminates at TAPS Pump Station 1 where the system includes a pig receiver and metering facilities. Total length is about 26 miles. The Endicott Pipeline was constructed on horizontal and vertical support

members a minimum of five feet above the tundra to prevent permafrost degradation and allow wildlife passage.

The 16-inch pipeline was designed for a maximum allowable operating pressure of 1,440 psig at 130° F. The maximum operating pressure is 1,200 psig at 180° F. The nominal wall thickness is 0.312 inches. It is designed to carry 65,000 barrels of oil per day. BPXA reports that they do not use corrosion inhibiting chemicals in the Endicott Pipeline because sales-quality crude is low in sulfur, sediment, and water.

The entire oil pipeline is piggable, and BPXA employs smart pigs to check pipeline conditions and corrosion-related integrity problems. The oil pipeline was last pigged with a magnetic flux leakage tool in fall 2005. Through summer 2006, BPXA will conduct field verification of smart pig data, and will schedule repairs as appropriate.



*This photo shows the location where the Badami Oil Pipeline (above) ties into the Endicott Pipeline. The Badami pig receiver is visible just left of the Endicott Pipeline (right).*

## **6.2 Lessee's Annual Report**

### **6.2.1 SPCO Review**

BPTA, on behalf of Endicott Pipeline Company submitted a *2005 ADNR Surveillance & Monitoring Report* to the State Pipeline Coordinator's Office on time in January 2006. A single report was provided for all BPTA leases (Badami, Endicott, Northstar, and

Milne Point). BPTA's reports provide general information on pipeline activities, and contain most of the minimum information required. To meet minimum requirements for annual reporting in the leases, the SPCO issued a letter to BPTA requesting additional information with a response due date of June 16, 2006. The seven requirements for annual reporting to the SPCO are listed in the Introduction Section. BPTA responded on time with the requested information, thereby fulfilling the annual reporting requirements.

### **6.2.2 Lessee's Activities**

*Oil Pipeline Operations:* In 2005, the Endicott Pipeline transported almost 7.5 million barrels of oil to Pump Station 1. Specifically, 7,460,013 gross barrels and 7,458,355 net barrels (less water and sediment) were transported in 2005.

*Incidents:* BPTA reports that no incidents, events, or fires occurred along the Endicott Pipeline in 2005. No OSHA Reportable safety incidents of lost time or medical treatment occurred for personnel working on any BPTA common carrier pipeline in 2005.

*VSM 3674 Risk Assessment:* The lessee continued assessment of VSM 3674 in 2005 as planned. The location has been repeatedly re-leveled, and was noted as a concern during SPCO surveillance in spring 2003. In the last two weeks of August, BPXA performed work to determine that 5.34 feet of VSM embedment remains in frozen ground. Their calculations indicate there is no danger of lateral movement for approximately six years.



*Here the Endicott Pipeline crosses the West Channel of the Sagavanirktok (Sag) River on a bridge. The Endicott Pipeline is the one farthest back marked with a small white sign.*

*Internal Safety Program:* Employees at Endicott facilities participate in BP's internal safety programs. Employees formally monitor each other under the Observing Risks, Changes, and Attitudes (ORCA) program, and managers conduct Advanced Safety Audits (ASAs). In 2005, Endicott employees generated 837 ORCA observations and there were 1084 ASA participants.

*Repairs:* As a result of a prior VSM transit survey, six VSMs were lowered between six and eleven inches. After cutting and lowering, a non-destructive examination was performed.



*The Endicott Main Production Island is a man-made drilling island in 14-foot deep water connected to shore by a causeway with breaching structures. Endicott was the world's first arctic offshore production facility and the first model of the oil industry's "reduced footprint." Endicott's footprint was 70% smaller than the traditional pad at the time. Current daily production from Endicott is approximately 25,000 barrels per day, compared to the peak production of 115,000 bpd in late 1987. (Source: BP Alaska website, accessed October 2005.)*

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### **6.2.3 Lessee's Surveillance & Monitoring**

The Endicott pipeline ROW lease Stipulation 1.10.1 requires the lessee to comply with an SPCO-approved Surveillance & Monitoring Program. This program describes how the lessee ensures compliance with lease conditions and stipulations. The Surveillance & Monitoring Program for the Endicott pipeline was approved on September 9, 2004. BPTA defines "surveillance" as "making observations that are primarily qualitative by flying, driving, or walking along the pipeline and related facilities." The Surveillance & Monitoring Program's purpose is to detect, prevent, and abate situations which may endanger public health & safety, environment, or pipeline integrity, and public or private property damage.

The Endicott Surveillance Program consists of routine surveillance designed to meet USDOT requirements including biweekly drive-by surveys of the ROW conditions and an annual ground survey. The Monitoring Program consists of routine and corrective maintenance and inspection tasks, as well as a variety of pipeline, river crossing, and wildlife monitoring. For more detailed information on what is monitored along the Endicott Pipeline, and the frequency for monitoring, see the current *Surveillance & Monitoring Program* in State files.

In calendar year 2005, BPXA conducted 54 drive-by inspections of the Endicott Pipeline. The only anomaly found was on June 11, 2005, when the pipeline was observed partially submerged due to spring break-up.

*Annual Survey:* BPXA conducts an annual ground survey, also called a Walking Speed Survey, to fulfill USDOT and State lease requirements. The annual ground survey was conducted between October 30 and November 3, 2005 and noted that eleven VSMs will require a transit survey to determine "elevation and levelness." Other observations included two spiral wrap insulation jacket issues, gravel in casing at road crossing #8, and partially submerged jacketing at road crossing #9. In their follow-up reporting, BPTA states that items identified during the annual ground survey are scheduled for evaluation and/or repair as needed.

*Smart Pigging:* The Endicott Pipeline was pigged with an in-line inspection tool in the 4<sup>th</sup> quarter 2005. A number of metal loss features were reported, but BPTA states, "...no features were reported that would compromise safe pipeline operation." BPXA will conduct field verification of the ILI data in 2006.

*ROW Surveillance Conditions:* The only ROW conditions reported during 2005 are those noted on the annual ground surveys. BPTA reports that BPXA did not find any problems associated with any of the following surveillance categories: oil spills/leaks, erosion, wildlife blockage, public access, VSMs, sloping crossbeams, titled saddles, saddles suspended above crossbeams, failed anchors, gaps between pipe and saddle, pipeline vibrations, humps or swales, ground cracking, cased pipe, building damage, building foundation movement, building fuel/gas leaks, fish, brown bears, polar bears, and threatened or endangered species.

## **6.3 SPCO Activity**

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### **6.3.1 Lease Administration**

The Lease Administration team reviewed a proposal from BPXA with non-objection from BPTA to store two drilling rig camps on the equipment pad north of Endicott Road between the road to Drill Site 9 and the Duck Island Mine Site. The location is within the Endicott Pipeline ROW, but BPTA determined that the storage would not interfere with Endicott's surveillance & monitoring requirements. The storage was expected to last approximately two months in spring 2006 and was approved until May 7, 2006.

The lease administration team also reviewed plans by BPXA with non-objection from BPTA to install a fiber optic connection between Flow Station 1 and Flow Station 2. The cable was strapped to an existing pipeline (not the Endicott Oil Pipeline) within the Endicott Pipeline ROW. Some trenching was required to install the cable at caribou crossings.



*View of typical Endicott Pipeline ROW. In the foreground, there is a saddle location (where the pipeline is held by the horizontal and vertical supports).*

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### **6.3.2 Compliance Oversight**

From September 12 through 14, 2005, the compliance oversight team lead conducted field surveillance of the Endicott Pipeline ROW and completed surveillance reports ANC-05-S-203 through 206. The primary scope of the surveillance was a general overview of the pipeline systems and facilities. The field visit also included surveillance of the Badami pipelines and ROW. No unsatisfactory conditions related to the Endicott lease were noted.

The surveillant traveled the pipeline ROW from Deadhorse to the Endicott facilities on September 12 and was given a tour of the facilities at Endicott. He returned to Deadhorse along the Endicott ROW on September 14. While observing the Endicott ROW and facilities, the surveillant viewed the pig launcher, Badami tie-in location, Sag River crossing, and causeway. The surveillant reported that the facilities were clean and orderly, as was the pad storage area. He was required to watch a safety orientation video and review the *Endicott Orientation Handbook*. Extra precaution was taken in safety as a polar bear had been seen in the area for the preceding two days. The surveillant did not observe the polar bear.

On February 16<sup>th</sup>, 2006, BPXA's Corrosion, Inspection, and Chemicals Group gave a presentation to the lease compliance oversight team with a general overview of their corrosion program. More specific corrosion information related to each pipeline is obtained by the team through field surveillances.

The compliance oversight team lead reviewed ILI data for the Endicott Pipeline in FY06 as part of a corrosion-focused records review. The SPCO requested and received ILI data from BPTA. The ILI reports requested were those directly from the vendor (raw data prior to analysis by BPXA personnel). These reports showed some metal loss anomalies on the pipeline. The compliance oversight team lead reviewed the reports

with a State engineer from the JPO Technical and Design Review section and met with representatives of BPTA and BPXA to discuss some of the metal loss anomalies. Pigging in 2005 indicated mostly external corrosion-related anomalies. The results of this ILI program review were reported as satisfactory in surveillance report ANC-06-S-110 and 111.

**6.3.3 Summary of Lease Compliance Observations: September 2005**

<u>Lease</u>	<u>Section</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
Endicott	4d	State access to property & records	Satisfactory	ANC-05-S-203
Endicott	7a	State right of physical entry to Leasehold	Satisfactory	ANC-05-S-204

<u>Lease</u>	<u>Stipulation</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
Endicott	1.3.6	Access rights to State employees	Satisfactory	ANC-05-S-205
Endicott	1.11.1	Protection of health and safety	Satisfactory	ANC-05-S-206

**6.3.4 Summary of Lease Compliance Observations: June 2006**

<u>Lease</u>	<u>Stipulation</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
Endicott	1.10.1	Surveillance & monitoring: pipeline integrity	Satisfactory	ANC-06-S-110
Endicott	3.4.1	Corrosion control plan	Satisfactory	ANC-06-S-111



*The Endicott Pipeline pig launcher is located at Module 303.*

### 6.3.5 Appraisals

According to AS 38.35 and the Endicott Pipeline ROW lease agreement, the lessee must pay fair market value to lease State lands in the pipeline ROW, and a new appraisal is due every five years. The most recent appraisal of the Endicott Pipeline ROW, performed by MacSwain Associates, was reviewed and approved by ADNR in fall 2002. It became effective as of the payment due August 5, 2003. The State acreage and annual rental fees from the most recent appraisal follows:

<u>Endicott Pipeline</u>	<u>ADL #</u>	<u>State Acres</u>	<u>Estimated Market Rent</u>
Endicott Operations ROW	410562	1072.64	\$214,528

## 6.4 Upcoming Issues

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### 6.4.1 Lessee's Activities

BPXA plans to continue surveillance & monitoring. They have scheduled ILI data verification, the annual ground survey, and a vault survey of Tee and Ice Road vaults for the 3<sup>rd</sup> quarter 2006.

### 6.4.2 SPCO Compliance Oversight

In FY07, the lease compliance oversight team tentatively plans to conduct field surveillance of the Endicott Pipeline and ROW. The lessee's 2006 annual report, due January 31, 2007, will also be reviewed.

## 6.5 Contact Information

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The Endicott Pipeline lease requires the lessee to designate in writing a registered agent, authorized representatives, and field representatives. In their *2005 ADNR Surveillance & Monitoring Report*, BPTA updated their authorized and field representatives.

#### *Registered Agent*

William H. Clifton  
 Joint Venture Coordinator  
 Endicott Pipeline Company  
 c/o BP Transportation (Alaska) Inc.  
 P.O. Box 190848  
 Anchorage, AK 99519-0848

*Authorized Representatives*

President, BPTA – Al N. Bolea  
Vice President, BPTA – Michael Rocereta  
Joint Venture Coordinator – William H. Clifton  
Manager Technical & Regulatory – Greg R. Swank

*Field Representatives*

Richard L. Powell and Thomas J. Barnes

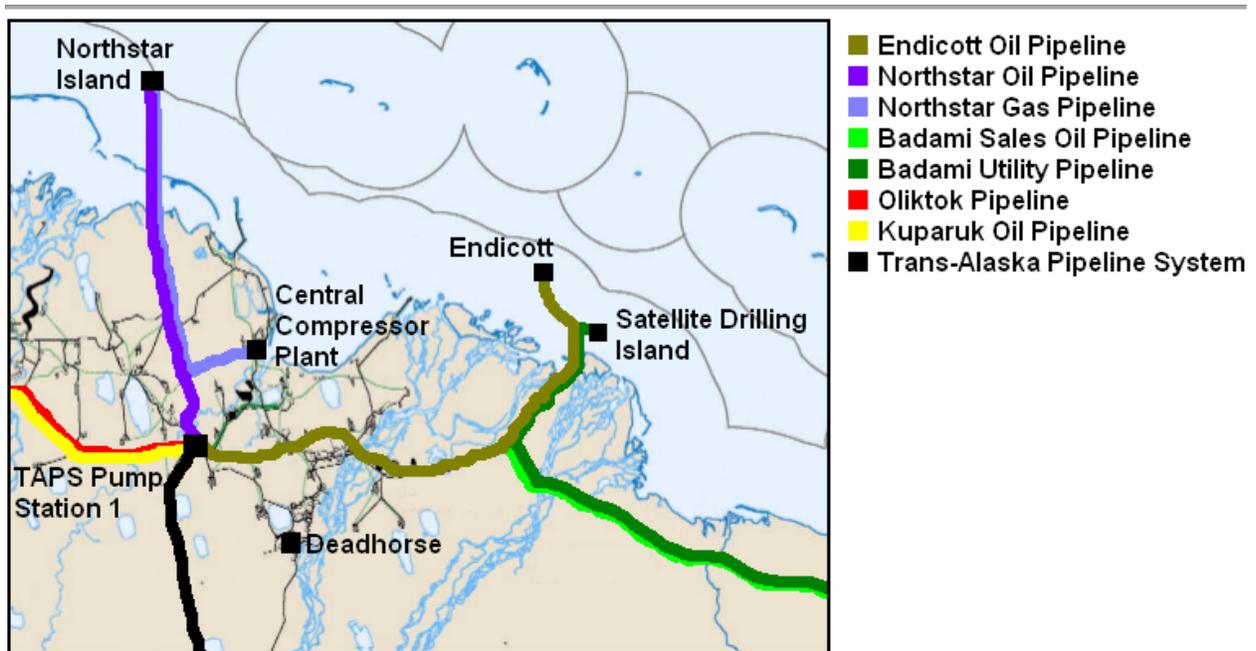


## NORTH SLOPE PIPELINES

### 7 Northstar Pipelines: Oil and Gas

ADL # [415700](#) and [415975](#)

- [7.1 Lease and Right-of-Way Overview](#)
  - 7.1.1 Northstar Corridor
  - 7.1.2 Northstar Oil Pipeline
  - 7.1.3 Northstar Gas Pipeline
- [7.2 Lessee's Annual Report](#)
  - 7.2.1 SPCO Review
  - 7.2.2 Lessee's Activities
  - 7.2.3 Lessee's Surveillance & Monitoring
- [7.3 SPCO Activity](#)
  - 7.3.1 Lease Administration
  - 7.3.2 Compliance Oversight
  - 7.3.3 Summary of Lease Compliance Observations: June 2006
  - 7.3.4 Appraisals
- [7.4 Upcoming Issues](#)
  - 7.4.1 Lessee's Activities
  - 7.4.2 SPCO Compliance Oversight
- [7.5 Contact Information](#)



Seal Island, also known as Northstar Island, was constructed in the winter of 2000-2001. BP has engaged in two pipeline ROW lease agreements with the State for Northstar: an export oil pipeline and a gas pipeline that goes to the island.

## 7.1 Lease and Right-of-Way Overview

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### 7.1.1 Northstar Corridor

The 17-mile Northstar Oil Pipeline was built in 2000-2001 to transport oil from man-made Seal Island south to TAPS Pump Station 1. The 16-mile Northstar Gas Pipeline transports natural gas from Prudhoe Bay's Central Compressor Plant north to Seal Island. Both 10-inch diameter pipelines are supported above-ground crossing tundra and are buried at least six feet below the sea floor between the Beaufort Sea shore crossing and Seal Island. The shore crossing is located at Gwydyr Bay near Point Storkersen. More pipeline-specific information is provided later in this section.

Though the Northstar pipelines share horizontal and vertical supports for much of their alignment, each has a separate ROW lease agreement with the State. Both Northstar ROW lease agreements, effective October 9, 1999, will expire September 30, 2019. Both leases were amended November 12, 2002, to reflect an updated State law allowing a 30 year renewal period. BPTA is the ROW lessee and the party ultimately responsible for compliance. BPTA has contracted with BPXA to operate and maintain the pipelines. BPTA developed the Northstar Quality Program to ensure lease compliance. The Program is implemented through the BPXA Quality Plan. Both the Program and Plan were approved by the State Pipeline Coordinator in December 2004.

Both pipelines traverse land entirely owned by the State of Alaska, crossing portions of two Oil and Gas units: Northstar and Prudhoe Bay. The Northstar pipelines rights-of-way are both still in construction width (they have not yet been released to operational width). The State land includes 2,100 acres in the oil pipeline ROW and 150.92 acres in the gas pipeline ROW. The pipeline ROWs are mostly roadless as they cross tundra. Seasonal ice roads can permit winter access to the ROW.



*Aerial view of typical Northstar tundra crossing right-of-way.*

*Tundra Crossing:* The Northstar pipelines were constructed on horizontal and vertical support members a minimum of five feet above the tundra to prevent permafrost degradation and allow wildlife passage. The two pipelines are supported on the same VSMS for approximately six miles from the shore transition to a point where the gas pipeline ROW diverges east and the oil pipeline continues to Pump Station 1.

*Environmental Concerns:* Due to concerns about the impact of a spill on subsistence resources in the Beaufort Sea, the Northstar oil pipeline is equipped with a sophisticated leak detection system capable of sensing hydrocarbons that could be emitted from a sub-sea leak. The sub-sea pipelines are constructed with coated, thicker steel and buried at least six feet deep in a trench. Wind-induced vibration is a significant problem for the above-ground Northstar pipelines. Vibration dampeners attached to the pipelines mitigate some vibration effects.

*Ice Gouging:* During spring break-up, large masses of ice can gouge the shallow seafloor bottom in the Beaufort Sea. Ice gouges are monitored annually to ensure that the six foot minimum backfill is maintained over the pipelines. For more information on ice gouge monitoring, see 7.2.3, Lessee's Surveillance & Monitoring.

*Strudel Scour:* An additional concern for the sub-sea Northstar pipelines is a unique phenomenon known as strudel scour. This localized, seasonal phenomenon occurs during spring breakup when overflow from rivers such as the Kuparuk River runs over the top of frozen shore-fast sea ice. When the overflow reaches a break or hole in the ice, water pours down into the hole at high velocity. The flow can scour the shallow sea bottom and create gouges that can reach thousands of feet in length. Scours can be circular or linear. Eventually, wave and sediment action fill the holes caused by strudel scour. The Northstar pipelines are designed to withstand a direct hit by strudel scour, which could remove trench backfill and create a free span of pipe. Operators of the Northstar pipelines conduct an annual strudel scour survey to determine the depth and extent of each year's strudel scours. For more information on strudel scour monitoring, see 7.2.3, Lessee's Surveillance & Monitoring.

*River Crossing:* The Northstar Oil Pipeline crosses the Putuligayuk River just before Pump Station 1.

*Other Crossings:* The pipelines are supported at least five feet above the tundra except at caribou and road crossings where they are located in buried steel culverts covered by gravel.

*Lease:* Electronic copies of the Northstar lease agreements and approved amendments are available for public viewing online at the SPCO website: <http://www.jpo.doi.gov/SPCO/SPCO.htm>.

### **7.1.2 Northstar Oil Pipeline (ADL 415700)**

The Northstar Oil Pipeline begins at the Northstar Production Facility located approximately six miles offshore on man-made Seal Island in State waters in the Beaufort Sea. A pig launcher, mainline pumps, metering, and leak detection equipment are at the production facility. The pipeline then transitions to a sub-sea trench. It continues approximately six miles buried under the sea until the shore transition at Point

Storkersen where the system includes a Remote Terminal Unit (RTU) valve. The pipeline then crosses approximately 11 miles of tundra. At the TAPS tie-in facilities at Pump Station 1, there is a pig receiver, heater, and flow meter to monitor the line for leak detection. The pipeline travels a total of 17 miles from north to south.

The oil pipeline was constructed for a maximum operating pressure of 1,480 psig at 100° F. The nominal wall thickness is 0.307 inches crossing tundra and increases to 0.594 inches sub-sea. It is designed to carry 85,000 barrels of oil per day. BPXA does not use corrosion inhibiting chemicals in the Northstar Oil Pipeline because sales quality crude oil contains little sulfur, sediment, and water.

The entire oil pipeline is piggable, and BPXA employs smart pigs to check pipeline conditions and corrosion-related integrity problems. The oil pipeline was last pigged with both a geometry and a metal loss tool as part of the baseline survey in 2003. In summer 2006, BPXA plans to use both a metal loss and geometry in-line inspection tool in the Northstar Oil Pipeline.

### **7.1.3 Northstar Gas Pipeline (ADL 415975)**

The Northstar Gas Pipeline originates at Prudhoe Bay's Central Compressor Plant and travels approximately four miles west to a point where it meets the Northstar Oil Pipeline. For approximately six miles to the north, the gas pipeline is supported on the same VSMs as the oil pipeline, though they flow in opposite directions. For an additional six miles sub-sea, the gas pipeline is bundled with the oil pipeline as it travels north to Seal Island. The total pipeline length is approximately 16 miles.

The gas pipeline was constructed for a maximum operating pressure of 1,480 psig. The nominal wall thickness is 0.307 inches crossing tundra and increases to 0.594 inches sub-sea.

The entire gas pipeline is piggable, and BPXA employs smart pigs to check pipeline conditions and corrosion-related integrity problems. The gas pipeline was first pigged for baseline data in 2003.

## **7.2 Lessee's Annual Report**

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### **7.2.1 SPCO Review**

BPTA, lessee for the Northstar pipelines, submitted a *2005 ADNR Surveillance & Monitoring Report* to the State Pipeline Coordinator's Office on time in January 2006. A single report was provided for all BPTA leases (Badami, Endicott, Northstar, and Milne Point). BPTA's reports provide general information on pipeline activities, and contain most of the minimum information required. To meet minimum requirements for annual reporting in the leases, the SPCO issued a letter to BPTA requesting additional information with a response due date of June 16, 2006. The seven requirements for

annual reporting to the SPCO are listed in the Introduction Section. BPTA responded on time with the requested information, thereby fulfilling the annual reporting requirements.



*Left: Aerial view of the Northstar shore crossing landfall at Point Storkersen, the point where the pipelines transition between buried sub-sea and supported above-ground. The visible module houses an RTU valve. Right: close-up of eroding bluff at the shore crossing. Some bluff erosion is natural at this location. The lessee conducts an annual bluff stability survey.*

### **7.2.2 Lessee's Activities**

*Oil Pipeline Operations:* In 2005, the Northstar Oil Pipeline transported more than 22 million barrels of sales quality crude oil to Pump Station 1. Specifically, 22,426,795 gross barrels and 22,421,810 net barrels (less water and sediment) were transported in 2005.

*Gas Pipeline Operations:* In 2005, 30,811,706 MSCF of natural gas were transported through the Northstar Gas Pipeline.

*Incidents:* BPTA reports that no incidents, events, or fires occurred along the Northstar pipelines in 2005. No OSHA Reportable safety incidents of lost time or medical treatment occurred for personnel working on any BPTA common carrier pipelines in 2005.

*Internal Safety Program:* Northstar personnel participate in BP's internal safety programs. Employees formally monitor each other under the Safety Training Observation Program (STOP), and managers conduct Advanced Safety Audits. In 2005, Northstar employees generated 2,234 STOP observations and there were 1,043 Advanced Safety Audit participants.

*Heater:* Active corrosion was identified in Northstar's heater shell in 2005. Automated ultrasonic testing was used in May 2005 and is being continued monthly until a new heater arrives. They have also increased secondary containment to 120%.

In July 2006, BPXA expects delivery of a replacement heater. The heater is used to warm up Northstar oil prior to entering TAPS.

*Guided Wave:* The lessee is attempting to supplement their integrity management program with a new technology called guided wave that can detect some defects such as corrosion wall loss and cracks. They anticipate the technology could be useful in areas that are difficult to access, such as Northstar's shore crossing. Implementation of guided wave examination in 2005 was postponed because of a change in service providers. The lessee reports that they will try again in 2006 to re-establish the potential long-range monitoring technique.

*USDOT Compliance:* A 2005 Annual Risk Hazard Review associated with the USDOT Integrity Management Program was conducted in November 2005.



*Aerial views of the Northstar Pipelines. These bends are a design feature to accommodate heat-related expansion and contraction of the pipelines.*

### **7.2.3 Lessee's Surveillance & Monitoring**

The Northstar pipeline ROW leases require the lessee to comply with an SPCO-approved Surveillance & Monitoring Program. This program describes how the lessee ensures they are complying with lease provisions and protecting the pipeline and ROW.

BPTA defines "surveillance" as "making observations that are primarily qualitative by flying, driving, or walking along the pipeline and related facilities." The Surveillance & Monitoring Program's purpose is to detect, prevent, and abate situations which may endanger public health & safety, the environment, or pipeline integrity, and public or private property damage. The Northstar Surveillance Program consists of routine surveillance designed to meet USDOT requirements including biweekly aerial surveys of ROW conditions and annual ground surveys.

BPXA also must inspect mainline valves twice each year. The Monitoring Program consists of routine and corrective maintenance and inspection tasks, as well as a variety

of pipeline, river crossing, and wildlife monitoring. For more detailed information on what is monitored along the Northstar pipelines, and the frequency for monitoring, see the current *Surveillance & Monitoring Program* in State files.

*Annual Survey:* BPXA conducts an annual ground survey, also called a Walking Speed Survey, to fulfill USDOT and State lease requirements. 2005's ground survey, conducted between February 10 and February 12, noted no deficiencies of any kind. A missing gas pipeline saddle bolt from the 2004 survey was incorrectly reported to be located on support #230. The 2005 survey verified a bolt was actually missing from support #231. No bolt hole was drilled during construction and so a new bolt could not be installed. The issue was communicated to the Northstar Engineer.

*Aerial Surveys:* In 2005, Shared Services Aviation conducted 67 aerial surveys of the Northstar ROW and reported no anomalies.

*Cathodic Protection:* In September 2005, BPXA did the annual cathodic protection survey and reports that the requirements of 49 CFR 192 and 195 were met. The survey covers sub-sea portions of the pipeline. Portable reference electrodes were used for the survey because the permanent monitoring devices installed during construction do not provide reliable data.

*Coastal Stability:* Coastal Frontiers conducted the annual Post-Construction Coastal Stability Analysis in the summer of 2005 and calculated an average bluff retreat of 0.6 feet for surveyed coastal profiles. BPTA says that no remediation measures were required.

*Shore Crossing Revegetation:* LGL Alaska Research Associates inspected revegetation efforts at the trench backfill and gravel remnant area of the Northstar shore crossing in summer 2005. LGL reported that that vegetation is stabilizing the sand backfill and that erosion control matting placed in 2004 appears to have prevented further erosion on the seaward edge of the backfill trench.

*Ice Gouging:* Annual monitoring of the sub-sea pipelines is conducted in two phases: a helicopter-based reconnaissance of strudel drainage features during break-up and a vessel-based survey in late summer. Coastal Frontiers conducted 2005's field work and found that the six-foot backfill minimum was maintained over the entire length of sub-sea pipeline. Both the frequency and severity of ice gouging were high by historical standards. A total of 44 ice gouges with depths greater than or equal to the 0.3 foot resolution of the bathymetric sonar systems were detected.

*Strudel Scour:* The strudel scour survey coincides with the ice gouge survey. The 2005 Kuparuk River over-flood was smaller than any other year since pipeline construction and only 20 circular strudel drainage features were detected in a 10,000 foot wide corridor centered on the pipeline centerline. This is well below the prior minimum value of 49 drains detected in 2000. The sonar survey revealed seven new depressions and one relic depression. Both the frequency and severity of strudel scour were significantly lower than prior surveys following pipeline construction. Though four of seven new strudel scour features were located in close proximity to the pipelines, and two impinged on backfill directly over the pipelines, the minimum backfill thickness was maintained.

*Thermistors:* Thermistors were installed at the shore crossing and measurements were taken in June 2005 to detect potential slumping of tundra edges perpendicular to shore. Readings indicated thaw bulb growth beyond the excavated trench. The site will be further monitored to see if mitigation is required.



*At road crossings, the Northstar pipelines are located in steel culverts covered with gravel. This picture was taken from a helicopter during an SPCO compliance oversight visit in 2004.*

## **7.3 SPCO Activity**

### **7.3.1 Lease Administration**

The Lease Administration team does not have anything significant to report for the Northstar pipelines in FY06.

### **7.3.2 Compliance Oversight**

No SPCO surveillance of the Northstar pipelines was conducted between January 1, 2005 and June 30, 2006. The compliance oversight team did, however, review the lessee's annual report and discussed the lessee's corrosion program. On February 16<sup>th</sup>, 2006, BPXA's Corrosion, Inspection, and Chemicals Group gave a presentation to the lease compliance oversight team with a general overview of their corrosion program. Additionally, the compliance oversight team lead reviewed ILI data for the Northstar Oil Pipeline as part of a corrosion-focused records review. The SPCO requested and received ILI data from BPTA. The ILI reports requested were those directly from the vendor (raw data prior to analysis by BPXA personnel). These reports showed some metal loss anomalies on the pipeline. The compliance oversight team lead reviewed the reports with a State engineer from the JPO Technical and Design Review section and met with representatives of BPTA and BPXA to discuss some of the metal loss anomalies. As a relatively new pipeline, all ten of the top ten defects identified in 2003

pigging were essentially near the detection limits of the instrument used, that is, with peak depths of 13% or less. The results of this ILI program review were reported as satisfactory in surveillance report ANC-06-S-114 and 115.

### **7.3.3 Summary of Lease Compliance Observations: June 2006**

<u>Lease</u>	<u>Stipulation</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
Oil	1.6.1	Surveillance & monitoring: corrosion	Satisfactory	ANC-06-S-114
Oil	3.2.1	Early detection of corrosion	Satisfactory	ANC-06-S-115

### **7.3.4 Appraisals**

According to AS 38.35, the lessee must pay fair market value to lease State lands in the pipeline ROW. The Northstar leases specify that a re-appraisal is due every five years. The most recent appraisal of the Northstar Oil Pipeline ROW, performed by MacSwain Associates, was reviewed and approved by ADNR in 1999. A new appraisal was due October 1, 2004, but the lessee asked for an extension. The due date was extended to March 2005. Currently, the new appraisal is still pending approval by DNR, so the 1999 rental value is being used. State acreage and annual rental fees from the 1999 appraisal follow:

<u>Northstar Pipeline</u>	<u>ADL #</u>	<u>State Acres</u>	<u>Estimated Market Rent</u>
Oil Construction ROW	415700	2100	\$126,500
Gas Construction ROW	415975	150.92	\$17,500

## **7.4 Upcoming Issues**

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### **7.4.1 Lessee's Activities**

The lessee plans to continue aerial inspections of the Northstar pipelines approximately every two weeks. In summer 2006, BPXA plans to conduct a metal loss in-line inspection of the Northstar Pipelines using a smart pig. They have also tentatively scheduled a mapping survey to coincide with the ILI. The Ground Survey and Cathodic Protection Survey were scheduled for 2<sup>nd</sup> quarter 2006. In the 3<sup>rd</sup> quarter 2006, BPTA plans to conduct the strudel scour and ice gouge survey, guided wave inspection of the shore crossing risers, and replacement of the Northstar Heater.

### **7.4.2 SPCO Compliance Oversight**

In July 2006, the lease compliance oversight team will conduct field surveillance of the Northstar pipelines and ROWs to assess whether State lands are in adequate condition for a release of interests to reduce the ROW from construction to operations

width. A team member will conduct field surveillance of the Northstar shore crossing re-vegetation efforts in August 2006. The lessee's 2006 annual report, due January 31, 2007, will also be reviewed. Additional field surveillance may be conducted in FY07.



*The Northstar Gas Pipeline meets the Northstar Oil Pipeline south of a road crossing. The gas pipeline enters from the east and the Central Compressor Plant. The oil pipeline continues south to Pump Station 1 (the gas and oil pipelines flow in opposite directions).*

## **7.5 Contact Information**

The Northstar Pipeline leases require the lessee to designate in writing field representatives, authorized agents, and registered agents. In their *2005 ADNR Surveillance & Monitoring Report*, BPTA updated their authorized and field representatives.

*Registered Agent*

William H. Clifton  
 Joint Venture Coordinator  
 BP Transportation (Alaska) Inc.  
 900 East Benson Blvd.  
 Anchorage, AK 99508

*Authorized Representatives*

President, BPTA – Al N. Bolea  
 Vice President, BPTA – Michael Rocereta  
 Joint Venture Coordinator – William H. Clifton  
 Manager Technical & Regulatory – Greg R. Swank

*Field Representatives*

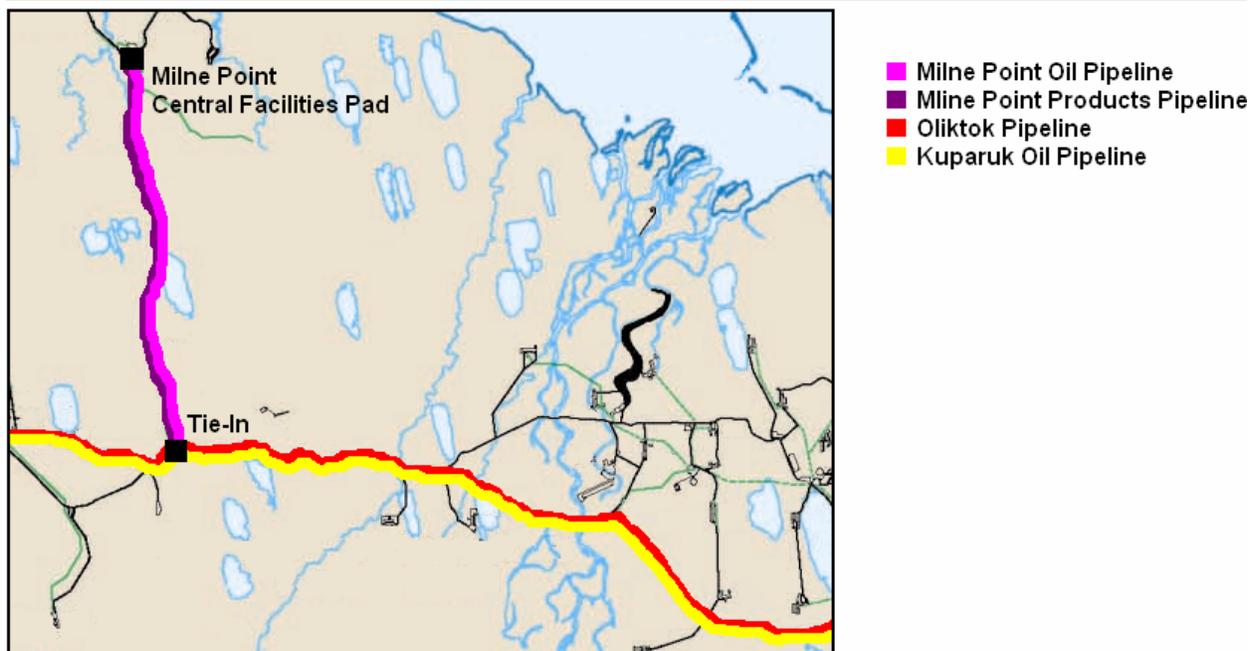
Wayne E. Kuykendall and Gary D. Herring

## NORTH SLOPE PIPELINES

### 8 Milne Point Pipelines – Oil and Products

ADL # [410221](#) and [416172](#)

- [8.1 Lease and Right-of-Way Overview](#)
  - 8.1.1 Milne Point Corridor
  - 8.1.2 Milne Point Sales Oil Pipeline
  - 8.1.3 Milne Point Products Pipeline
- [8.2 Lessee's Annual Report](#)
  - 8.2.1 SPCO Review
  - 8.2.2 Lessee's Activities
  - 8.2.3 Lessee's Surveillance & Monitoring
- [8.3 SPCO Activity](#)
  - 8.3.1 Lease Administration
  - 8.3.2 Compliance Oversight
  - 8.3.3 Summary of Lease Compliance Observations: March 2006
  - 8.3.4 Summary of Lease Compliance Observations: June 2006
  - 8.3.5 Appraisals
- [8.4 Upcoming Issues](#)
  - 8.4.1 Lessee's Activities
  - 8.4.2 SPCO Compliance Oversight
- [8.5 Contact Information](#)



The Milne Point Pipelines connect the Milne Point Development to the Kuparuk and Oliktok pipeline systems.

## 8.1 Lease and Right-of-Way Overview

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### 8.1.1 Milne Point Corridor

The Milne Point Oil Pipeline was built in 1984-1985 to transport oil from the Milne Point Development to the Kuparuk Pipeline System. Later, in 2000, the Milne Point Products Pipeline was built to transport natural gas liquids from the Oliktok Pipeline System to Milne Point for use in enhanced oil recovery. The Products Pipeline is also referred to as the Kuparuk Enhanced Oil Recovery (KEOR) pipeline. The two pipelines share the same set of horizontal and vertical support members and run entirely aboveground except for caribou and road crossings. More pipeline-specific information is provided later in this section.

Though the Milne Point pipelines share horizontal and vertical supports, each has a separate ROW lease agreement with the State. The oil pipeline lease, issued in January 1985, was renewed in 2002 and expires in May 2034. The products pipeline lease was issued in December 2000 and expires in December 2030.

Both pipelines are approximately ten miles long and traverse land entirely owned by the State of Alaska, crossing portions of three Oil and Gas units: Milne Point, Kuparuk River, and Prudhoe Bay. The State land includes 186.92 acres in the oil pipeline ROW and 194.2 acres in the products pipeline ROW. The pipelines are entirely accessible by gravel road, and are mainly on the west side of Milne Point Road.

Milne Point Pipeline LLC is the ROW lessee for the Milne Point pipelines and is the party ultimately responsible for compliance with the lease agreements. BPTA is the ROW manager. BPXA operates and maintains the pipelines. BPTA developed the Milne Point Quality Program to ensure lease compliance. The Program is implemented through the BPXA Quality Plan. Both the Program and Plan were approved by the State Pipeline Coordinator in fall 2004.

*Environmental concerns:* The Milne Point pipelines are constructed on VSMS a minimum of five feet above the tundra to prevent permafrost degradation and allow wildlife passage. Wind-induced vibration is a significant problem for the Milne Point Pipelines. Vibration dampeners attached to the pipelines mitigate some vibration effects. The oil pipeline's vibration dampeners hang below the pipe at mid-span between VSMS. The products pipeline's vibration dampeners are above the pipe at mid-span.

*River Crossings:* There are no major river crossings along either Milne Point ROW, but wetlands and ponds are present.

*Other Crossings:* The pipelines are supported at least five feet above the tundra except at caribou and road crossings where they are located in buried steel culverts covered by gravel. There is a road crossing just outside of Milne Point Central Facilities Pad and another at the intersection of Milne Point Road and the road to "S" Pad. The "S" Pad intersection was built over the top of the pipelines. Both pipelines also cross underneath Spine Road just before they tie into the Kuparuk and Oliktok Pipeline Systems, south of the Spine Road and Milne Point Road intersection.

*Lease:* Electronic copies of the Milne Point lease agreements and approved amendments are available for public viewing at the SPCO website: <http://www.jpo.doi.gov/SPCO/SPCO.htm>.

### **8.1.2 Milne Point Oil Pipeline (ADL 410221)**

The 14-inch Milne Point Oil Pipeline begins at Milne Central Facilities Pad Module 58, which houses a pig launcher, mainline pumps, metering, and leak detection equipment. It terminates at Module 68, where it ties into the Kuparuk Oil Pipeline. Module 68 houses the pig receiver, metering, and leak detection equipment. The pipeline was constructed for a maximum allowable operating pressure of 1,350 psig with a wall thickness of 0.312 inches. It is designed to carry 65,000 barrels of oil per day at a temperature up to 200° F. BPXA says they do not use corrosion inhibiting chemicals in this sales oil pipeline because sales quality oil contains little sulfur, water, and sediment.

The entire oil pipeline is piggable, and BPXA employs smart pigs to check pipeline conditions and corrosion-related integrity problems. The oil pipeline was last pigged with a magnetic flux leakage tool in fall 2005. In spring and summer 2006, BPXA is conducting field verification of their in-line inspection data, and will schedule repairs as appropriate. For more information about ILI, see 8.3.2, Compliance Oversight.



*Winter view of the Milne Point Pipelines looking South from the "S" Pad intersection.*

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### **8.1.3 Milne Point Products Pipeline (ADL 416172)**

On the same horizontal and vertical supports rests the Milne Point Products Pipeline. It was built for transporting natural gas liquids from the Oliktok Pipeline to Milne Point to be used for enhanced oil recovery techniques. When this proved uneconomical, BPXA placed the Products Pipeline in warm shutdown status in 2002. They currently plan to de-inventory the pipe of NGLs and fill it with a nitrogen blanket.

The Milne Point Products Pipeline is 8 inches in diameter with a 0.277 inch wall thickness. Its present maximum allowable operating pressure is 720 psig at less than 100° F. The NGL pipeline begins at the Oliktok Pipeline. There is a removable pig launcher, pump, metering, and leak detection equipment at Module 68 north of Spine Road. The entire NGL pipeline is piggable, and a removable pig receiver can be staged where the line terminates at Milne Central Facilities Pad. Appendix B of the lessee's 2005 annual report states that metal loss smart pigs are no longer applicable to the Products Pipeline's monitoring program because of its warm shutdown status.



*View of the Milne Point Pipelines looking east from Milne Point Road. The pipelines transition to a buried road crossing. In the background is Milne Central Facilities Pad.*

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## **8.2 Lessee's Annual Report**

### **8.2.1 SPCO Review**

BPTA, on behalf of Milne Point Pipeline Company, submitted a *2005 ADNR Surveillance & Monitoring Report* to the State Pipeline Coordinator's Office on time in January 2006. A single report was provided for all BPTA leases (Badami, Endicott, Northstar, and Milne Point). BPTA's reports provide general information on pipeline activities, and contain most of the minimum information required. To meet minimum

requirements for annual reporting in the leases, the SPCO issued a letter to BPTA requesting additional information with a response due date of June 16, 2006. The seven requirements for annual reporting to the SPCO are listed in the Introduction Section. BPTA responded on time with the requested information, thereby fulfilling the annual reporting requirements.

### **8.2.2 Lessee's Activities**

Below are some highlights from the 2005 report:

*Oil Pipeline Operations:* More than sixteen million barrels of oil were transported through the Milne Point Pipeline in 2005. Specifically, 16,059,164 gross barrels and 16,010,287 net barrels (less water and sediment) were transported to the Kuparuk Pipeline.

*Products Pipeline Operations:* No natural gas liquids were transported through the Milne Point Products Pipeline in 2005.

*Incidents:* BPTA reports that no incidents or events occurred along the Oil or Products pipeline in 2005. No OSHA Reportable safety incidents of lost time or medical treatment occurred for personnel working on any Milne Point common carrier pipelines.

In September, 2005, however, there was a significant incident related to NGL pipeline activities that had the potential to negatively impact the Oliktok Pipeline System. A Milne Point operator closed an Oliktok Pipeline valve without the knowledge or consent of Oliktok operators. The SPCO was notified of this event not by BPTA, but through the *2005 Annual Comprehensive Report on Pipeline Activities* provided by ConocoPhillips for the Oliktok Pipeline. More information is available on this incident later in this section under 5.3.2, Compliance Oversight.



*Vibration dampeners attached to the Milne Point pipelines help mitigate wind-induced vibration.*

*Communications:* BPTA reports that a new radio link was added in November 2005 between Kuparuk CPF 1 and Milne Point to increase reliability for the sales oil leak detection system. The upgrade affects the connection between the Milne Point Oil Pipeline and the Kuparuk Oil Pipeline.

*Internal Safety Program:* Milne Point employees participate in BP's internal safety programs. Employees formally monitor each other under the Behavior Enhanced Safety Techniques (BEST) program, and managers conduct Advanced Safety Audits. According to the BPTA annual report, in 2005, Milne Point employees generated 974 BEST observations and there were 4,483 Advanced Safety Audits.

### **8.2.3 Lessee's Surveillance & Monitoring**

Oil Lease Stipulation 1.10.1 requires the lessee to comply with an SPCO-approved "surveillance and maintenance" program (hereafter referred to as surveillance & monitoring). This program describes how the lessee ensures they are complying with lease provisions. The Products Lease Stipulation 1.6.1 requires the lessee to implement their approved program. BPTA defines "surveillance" as "making observations that are primarily qualitative by flying, driving, or walking along the pipeline and related facilities." The program's purpose is to detect, prevent, and abate situations which may endanger public health & safety, environment or pipeline integrity, and public or private property damage.

The Milne Point Surveillance Program consists of routine surveillance designed to meet USDOT requirements including biweekly drive-by surveys of the ROW conditions and an annual ground survey. BPXA conducted 33 drive-by inspections of the Milne Point ROW in calendar year 2005 and performed the annual ground survey in December 2005. BPXA also must inspect mainline valves twice each year.

The Monitoring Program consists of routine and corrective maintenance and inspection tasks, as well as a variety of pipeline, river crossing, and wildlife monitoring. For more detailed information on what is monitored along the Milne Point Pipelines, and the frequency for monitoring, see the current *Surveillance & Monitoring Program* in State files.

*Annual Survey:* BPXA conducts an annual ground survey, also called a Walking Speed Survey, to fulfill USDOT and State lease requirements. Acuren (formerly Canspec) does the Walking Speed Survey for both Milne Point pipelines. In December 2005, the ground survey recorded 58 Oil Pipeline issues. Five were minor perforations to the insulation jacket. Fifty vibration dampener grommet repair issues were noted, and two broken dampeners were found. One pipeline jacketing drain alignment issue was noted at a weld pack. Five issues were noted with the Products Pipeline. One was a missing saddle band, and four others were insulation jacket perforations.

*Aerial Surveillance:* BPTA reported that no aerial surveillance was conducted of the Milne Point pipelines in 2005.

*ROW Surveillance Conditions:* The only ROW conditions reported during 2005 are those noted on the annual ground surveys. BPTA reports that BPXA did not find any problems associated with any of the following Surveillance & Monitoring Program

categories: oil spills/leaks, erosion, wildlife blockage, public access, VSMs, sloping crossbeams, titled saddles, saddles suspended above crossbeams, failed anchors, gaps between pipe and saddle, pipeline vibrations, humps or swales, ground cracking, cased pipe, building damage, building foundation movement, building fuel/gas leaks, fish, brown bears, polar bears, and threatened or endangered species.

*USDOT Compliance:* In March 2006, a USDOT representative performed standard inspections of the Milne Point pipelines. No deficiencies were found.



*Surveillance report #ANC-06-S-038 noted some minor unsatisfactory safety conditions. These mainly included tools and parts in walkways and work areas. This large metal object, a tripping hazard, was at the top of the stairs of the Kuparuk/Oliktok tie-in location platform. The lessee sent a letter on May 26 stating that they had corrected the problem.*

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## **8.3 SPCO Activity**

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### **8.3.1 Lease Administration**

The Lease Administration team does not have anything significant to report for the Milne Point pipelines in FY06.

### **8.3.2 Compliance Oversight**

On February 16<sup>th</sup>, BPXA's Corrosion, Inspection, and Chemicals Group gave a presentation to the lease compliance oversight team with a general overview of their corrosion program. More specific corrosion information related to each pipeline is obtained by the team through field surveillances.

SPCO conducted a compliance oversight surveillance of the Milne Point pipelines and ROWs in March 2006. The primary scope of the surveillance was to evaluate oil lease stipulations 1.6 (surveillance & monitoring) and 3.2 (Pipeline Corrosion); and

products lease stipulation 1.6 (surveillance & monitoring). Additionally, the valve closure incident related to the Products Pipeline activities was investigated.

On March 8, a compliance oversight team member visited the BPXA office in Anchorage to review integrity management documents. Documents reviewed are listed in the surveillance field notes attached to surveillance report ANC-06-S-036. Some are also attached. Most of BPXA's corrosion program is designed to meet the requirements of USDOT regulations.

For the field part of the surveillance, the team member flew to Milne Point via Kuparuk on March 10. The surveillant was greeted at Milne Point by Jerry Gronos, facility lead tech, and began the surveillance by looking at the facility control room. The surveillant visited the start of the oil pipeline in Module 58 where she observed the mainline pumps, pig launcher, metering, and leak detection system. She also observed the location of the removable NGL pig receiver in Module 48. Though the pipeline system appeared to be in good repair, surveillance report #ANC-06-S-038 noted some minor unsatisfactory safety conditions such as unused tools and parts on the floor in work and walk areas which could present a tripping hazard.

Next the surveillant asked to view a copy of the latest ROW drive-by inspection for each pipeline. Milne Point personnel said that the same form is used for inspecting both ROWs, but the form only says Milne Point (Oil) Pipeline, leaving the reader to wonder if any inspection was done on the other pipeline. Surveillance report #ANC-06-S-026 lists a minor unsatisfactory condition under Products Pipeline lease stipulation 1.6 because the drive-by survey form did not reflect the fact that observations were being made on the Products Pipeline as well. The lessee followed up to document that observations are being made on both pipelines and updated their form to reflect that.

SPCO surveillance included stopping at more than a dozen locations to inspect pipeline and ROW features. No unsatisfactory conditions were observed along the ROW west of Milne Point Road. Snow obscured all of the tundra, limiting the scope of ROW observations. The pipeline was well above the snow except at road and caribou crossings.

At the location where the Products Pipeline begins, a valve owned by ConocoPhillips controls the flow of natural gas liquids from the Oliktok Pipeline into the Milne Point Products Pipeline. In September 2005, a Milne Point operator broke a carseal on this valve and locked it out without permission from the Oliktok Pipeline operators while removing a section of pipe known as a metering run from Module 58. The incident was not discovered until one month later. ConocoPhillips, in their *2005 Annual Comprehensive Report on Pipeline Activities* for the Oliktok Pipeline, referred to the incident as a "potentially serious safety issue and a property trespass situation."

Milne Point personnel responded that they took the incident very seriously. Their investigation produced BPTA incident report #2005-IR-1575580 with a list of four action items signed off as completed. One action item said that Milne Point personnel had ordered a permanent metal sign to be placed on the valve and that a temporary wooden sign was already in place. Other action items dealt with educating Milne Point personnel about the valve ownership.

The lease compliance oversight team member visited the valve to verify that these action items were completed as stated. SPCO surveillance report #ANC-06-S-033 states that the action item requiring a sign marking valve ownership was not completed as stated. The surveillant observed no temporary wooden sign, and the taped sign in place was not clearly visible from the platform housing the valve. This is a significant unsatisfactory condition under Lease Section 15(c) which requires the lessee to provide reasonable protection to existing public and private improvements which may be adversely affected by pipeline activities. The lessee was given until May 26 to document that the action items were completed. Surveillance Field Notes attached to surveillance report #ANC-06-S-036 in the SPCO files provide further details.



*The SPCO surveillant observed that the sign marking the Oliktok tie-in valve did not match the sign described in BPTA's incident report. Details are in surveillance report #ANC-06-S-033.*

On May 26, the SPCO received a letter from Milne Point Pipeline Company addressing the unsatisfactory conditions from the March 2006 surveillance. On June 12, 2006, the SPCO issued surveillance reports ANC-06-S-072 through ANC-06-S-074 documenting that the lessee resolved the three unsatisfactory conditions noted in the March surveillance. Copies of the surveillance reports and notes are available in the JPO Document Tracking System. Further follow-up to this surveillance is anticipated in FY07. The lease compliance oversight team will visit the location of the tie-in during field surveillance in FY07 to confirm that the lessee has completed required follow-up.

Additionally, the compliance oversight team lead reviewed ILI data for the Milne Point Oil Pipeline as part of a corrosion-focused records review. The SPCO requested and received ILI data from BPTA. The ILI reports requested were those directly from the vendor (raw data prior to analysis by BPXA personnel). These reports showed some metal loss anomalies on the pipeline. The compliance oversight team lead reviewed the reports with a State engineer from the JPO Technical and Design Review section and met with representatives of BPTA and BPXA to discuss some of the metal loss anomalies. All of the top ten defects identified in 2005 pigging were external. An

unanticipated large number of internal corrosion features were identified in the recent pigging. The SPCO surveillant reported the following: "Four years prior, the pipeline was said to have had only one internal anomaly identified. Now there are well over a thousand identified and of these, 144 were identified as being in the 40% to 50% and 50% to 60% depth range. We were told that the oil producing formation is similar to the one that has contributed to problems with the GC-2 pipeline." The results of the Milne Point Oil Pipeline ILI program review were reported as satisfactory in surveillance report ANC-06-S-112 and 113. The SPCO will follow-up on internal corrosion issues in FY07.

### **8.3.3 Summary of Lease Compliance Observations: March 2006**

<u>Lease</u>	<u>Section</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
Oil	4(c), 4(d), 4(h)	State access to property & records; maintenance of pipeline in good repair	Satisfactory	ANC-06-S-045

<u>Lease</u>	<u>Stipulation</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
Oil	1.3.2	Authorized & field representatives	Satisfactory	ANC-06-S-034
Oil	1.6.2	Compliance with approved Design Criteria	Satisfactory	ANC-06-S-035
Oil	1.8.1 & .2	Comprehensive quality assurance/control	Satisfactory	ANC-06-S-036
Oil	1.10.1	Surveillance & monitoring; 49 CFR records	Satisfactory	ANC-06-S-037
Oil	1.11.1	Protection of health and safety	Unsatisfactory	ANC-06-S-038
Oil	1.12.1	Reasonable protection of existing improvements	Satisfactory	ANC-06-S-039
Oil	2.2.4.1	Avoid or minimize ice fog	Satisfactory	ANC-06-S-040
Oil	2.4.6.1	Free passage of big game animals	Satisfactory	ANC-06-S-041
Oil	2.7.1	Related to on- and off- right of way traffic	Satisfactory	ANC-06-S-042
Oil	3.1.1.1	General standards	Satisfactory	ANC-06-S-043
Oil	3.4.1	Corrosion program, 49 CFR	Satisfactory	ANC-06-S-044

<u>Lease</u>	<u>Section</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
NGL	6(a)	State access to Leasehold	Satisfactory	ANC-06-S-031
NGL	8(d), 8(h)	State access to property & records; good repair	Satisfactory	ANC-06-S-032
NGL	15(c)	Reasonable protection of existing improvements	Unsatisfactory	ANC-06-S-033

<u>Lease</u>	<u>Stipulation</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
NGL	1.4.1	Compliance with approved Quality Program	Satisfactory	ANC-06-S-024
NGL	1.5.1	Compliance with approved Design Criteria	Satisfactory	ANC-06-S-025
NGL	1.6.1	Surveillance & monitoring	Unsatisfactory	ANC-06-S-026
NGL	1.12.1 & .2	ROW storage	Satisfactory	ANC-06-S-027
NGL	2.4.1	Free passage of big game animals	Satisfactory	ANC-06-S-028
NGL	2.6.1	Related to on- and off- right of way traffic	Satisfactory	ANC-06-S-029
NGL	3.1.1.1	General standards	Satisfactory	ANC-06-S-030

### 8.3.4 Summary of Lease Compliance Observations: June 2006

<u>Lease</u>	<u>Stipulation</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
Oil	1.11.1	Protection of health and safety	Satisfactory*	ANC-06-S-072
Oil	1.10.1	Surveillance & monitoring: pipeline integrity	Satisfactory	ANC-06-S-112
Oil	3.4.1	Corrosion control plan	Satisfactory	ANC-06-S-113
<u>Lease</u>	<u>Section</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
NGL	15(c)	Reasonable protection of existing improvements	Satisfactory*	ANC-06-S-073
<u>Lease</u>	<u>Stipulation</u>	<u>Description</u>	<u>Observation</u>	<u>Report #</u>
NGL	1.6.1	Surveillance & monitoring	Satisfactory*	ANC-06-S-074

\*These reports close out the unsatisfactory determinations in reports ANC-06-S-026, 33, and 38.

### 8.3.5 Appraisals

According to AS 38.35, the lessee must pay fair market value to lease State lands in the pipeline ROW. The Milne Point leases require a re-appraisal every five years. The most recent appraisal of the Milne Point Oil ROW, performed by MacSwain Associates, was approved by ADNR in fall 2002. The most recent Products ROW appraisal was approved in 2001. The next Oil ROW appraisal should be submitted in 2007. The next Products ROW appraisal is due in 2006. The Products Pipeline ROW is still in construction width. Current State acreage and annual rental fees follow:

<u>Milne Point Pipeline</u>	<u>ADL #</u>	<u>State Acres</u>	<u>Estimated Market Rent</u>
Oil Operations ROW	410221	186.92	\$37,384
Products Construction ROW	416172	258.6	\$32,500

## 8.4 Upcoming Issues

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### 8.4.1 Lessee's Activities

BPXA plans to continue surveillance & monitoring. They have scheduled smart pig verification for the 3<sup>rd</sup> quarter 2006 and the annual ground survey for the 4<sup>th</sup> quarter.

### 8.4.2 SPCO Compliance Oversight

In July 2006, the lease compliance oversight team plans to conduct field surveillance to follow-up on March 2006 unsatisfactory conditions at the Kuparuk/Oliktok tie-in point. Additional follow-up to ILI surveillance may also occur. The lessee's 2006 annual report, due January 31, 2007, will be reviewed. Additional field surveillance may be conducted in FY07.

## 8.5 Contact Information

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The Milne Point leases require the lessee to designate in writing field representatives, authorized agents, and registered agents. In their *2005 ADNR Surveillance & Monitoring Report*, BPTA updated their authorized and field representatives.

*Registered Agent*

William H. Clifton  
Joint Venture Coordinator  
Milne Point Pipeline Company  
c/o BP Transportation (Alaska) Inc.  
900 East Benson Blvd.  
Anchorage, AK 99508

*Authorized Representatives*

President, BPTA – Al N. Bolea  
Vice President, BPTA – Michael Rocereta  
Joint Venture Coordinator – William H. Clifton  
Manager Technical & Regulatory – Greg R. Swank

*Field Representatives*

Dale O. Kruger and Jeff R. Michels



*This is a Milne Point Oil Pipeline saddle location near Milne Central Facilities Pad. During March 2006 surveillance, a compliance oversight team member noticed this gap at the joint between two sections of casing. Information about the problem was forwarded to Milne Point personnel.*

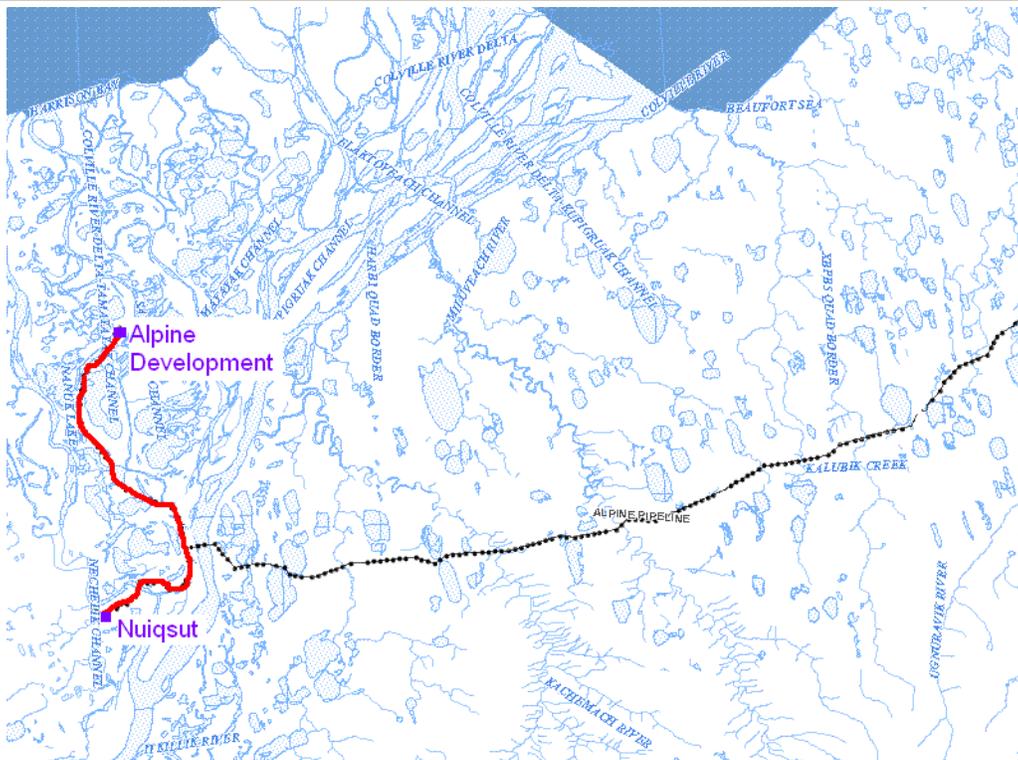
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## NORTH SLOPE PIPELINES

### 9 Nuiqsut Natural Gas Pipeline

ADL # [416202](#)

- [9.1 Lease and Right-of-Way Overview](#)
  - 9.1.1 Nuiqsut Corridor
  - 9.1.2 Nuiqsut Natural Gas Pipeline (ADL 416202)
- [9.2 Lessee's Annual Report](#)
  - 9.2.1 SPCO Review
  - 9.2.2 Lessee's Activities
  - 9.2.3 Lessee's Surveillance & Monitoring
- [9.3 SPCO Activity](#)
  - 9.3.1 Lease Administration
  - 9.3.2 Compliance Oversight
  - 9.3.3 Appraisals
- [9.4 Upcoming Issues](#)
  - 9.4.1 Lessee's Activities
  - 9.4.2 SPCO Activity
- [9.5 Contact Information](#)



Once commissioned, the Nuiqsut Natural Gas Pipeline will transport natural gas from the Alpine Development to the village of Nuiqsut on the North Slope of Alaska.

## 9.1 Lease and Right-of-Way Overview

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### 9.1.1 Nuiqsut Corridor

The 14.4-mile Nuiqsut Natural Gas Pipeline, not yet in service, was built to transport natural gas from the Alpine Development to the arctic village of Nuiqsut. Nuiqsut is a second-class city with approximately 450 residents in the North Slope Borough located on the west bank of the Nechelik channel of the Colville River. The NNGP is supported aboveground on the same horizontal and vertical support members as the Alpine pipelines from the Alpine Development to the west bank of the Colville River. Here the NNGP transitions underground and continues, buried, to the village. More pipeline-specific information is provided later in this section.

The State ROW Lease Agreement for the NNGP was issued on March 15, 1999, and, if not renewed, expires on March 14, 2019. The operations ROW extends 25 feet on either side of the NNGP. Landowners in the NNGP ROW include Kuukpik Corporation, the State of Alaska, and scattered Native allotments. Kuukpik is the Native corporation for the village of Nuiqsut. The NNGP ROW crosses three segments of State land totaling approximately 2.4 miles (12,780 feet). The first two segments of State land are located where the NNGP shares VSMs with the Alpine pipelines, and the third segment is the land underneath the Nechelik Channel of the Colville River. In total, the State lands comprise 16.45 acres.

The North Slope Borough is the ROW lessee for the NNGP. The NSB developed the NNGP Quality Assurance Program to document compliance with the State ROW lease agreement. The NSB Mayor, currently Edward Itta, is responsible for overall implementation of the program. Some duties under the program are delegated to relevant NSB Departments which are then responsible for their implementation.

*Environmental concerns:* For below-ground portions of the pipeline, external corrosion, which can lead to leaks, is a significant concern. The NNGP is made from continuous electric resistance coated pipe to prevent external corrosion. An additional problem with buried pipelines in permafrost areas is thermal pollution (melting of frozen soil). The NNGP is designed to maintain existing thermal profiles along the route. Other environmental concerns include wildlife. To prevent alteration of caribou movements, the above-ground pipeline is elevated at least five feet above the tundra. Caribou can cross freely over the buried NNGP.

To reduce impacts to tundra, the Alpine Pipelines were built "roadless." The areas where NNGP shares VSMs with Alpine, therefore, are roadless. Since the buried portions of NNGP are roadless also, none of the ROW length is accessible by road. Winter ice roads can provide temporary access to the ROW for pipeline activities including surveillance & monitoring. The lessee did not build any ice roads in 2005.

*River Crossings:* The Nuiqsut Natural Gas Pipeline was trenched and backfilled under the Nechelik Channel of the Colville River, a fish-bearing waterway. Wetlands and ponds are present along both the above- and below-ground NNGP ROW.

*Lease:* An electronic copy of the Nuiqsut lease agreement is available for public viewing at the SPCO website: <http://www.jpo.doi.gov/SPCO/SPCO.htm>.

### 9.1.2 Natural Gas Pipeline (ADL 416202)

The NNGP begins at the Alpine Development and travels on the same VSMs as the Alpine Pipelines until the Colville River. Here the Alpine Pipelines transition underground where they are bored under the river using horizontal directional drilling. At the Alpine HDD site, the NNGP is buried and diverges towards Nuiqsut. The pipeline remains buried for the rest of its length. It crosses the Nechelik Channel of the Colville River before terminating in Nuiqsut. The NNGP's total length is approximately 14.4 miles: 8.8 miles aboveground and 5.6 miles buried. Only 2.4 miles are on State land.

The above-ground portion of the pipeline was built during the 1998-1999 winter construction season, and the buried portion was installed during the 2000-2001 winter construction season. The NNGP was built with 3.5" continuous electric resistance welded coiled pipe with a wall thickness of 0.203 inches. The pipeline design is based on a maximum allowable operating pressure of 1,440 psig. It is designed to provide a maximum flow rate of 3.5 million cubic feet per day of natural gas.

The NNGP ROW Lease Stipulation 3.2.1 requires the lessee to provide for early detection of corrosion in accordance with 49 CFR 192. The diameter of the NNGP is too small to allow passage of a smart pig for corrosion detection. Buried pipelines are subject to external corrosion, so the NNGP is covered in protective coating and a continuous magnesium strip cathodic protection system is installed.



*This photo was taken from the west bank of the main channel of the Colville River. Here the NNGP (yellow) diverges from the Alpine Pipelines and transitions underground towards Nuiqsut.*

## 9.2 Lessee's Annual Report

The North Slope Borough, lessee for the NNGP ROW, hand-delivered their *2005 Annual Comprehensive Report on Pipeline Activities* to the SPCO late on April 6, 2006. A week earlier, the SPCO received the lessee's *2004 Annual Comprehensive Report on Pipeline Activities*, well over a year late. Annual reporting is a requirement of the NNGP

ROW lease, and reports are due by January 31<sup>st</sup> for the preceding year. The seven requirements for annual reporting are listed in the Introduction Section.

### **9.2.1 SPCO Review**

On April 13<sup>th</sup>, the SPCO replied with a review of the 2005 NNGP report. While the SPCO review confirms that the report contains most of the minimum information required, there is a need for the lessee to submit functional Quality Assurance and Surveillance & Monitoring Programs. Additional information and clarification was requested on several points. The Surveillance & Monitoring Program was due by June 30, 2006. As of August 10, this still had not been received. The review also noted that the Quality Program provided in the report differed from that approved by the State Pipeline Coordinator in March 1999. The SPCO requested the lessee submit the new program for feedback and approval.

On April 5, 2006, the SPCO responded with a review of the lessee's 2004 report. Comments on the 2004 report mirrored those for the 2005 report.

In their annual report, the lessee requested an extension of time from their proposed start-up date (which lapsed in September 2005). They were required to submit their formal request for an extension by May 15, 2006. As of August 10, this still had not been received. The SPCO will follow-up in FY07.

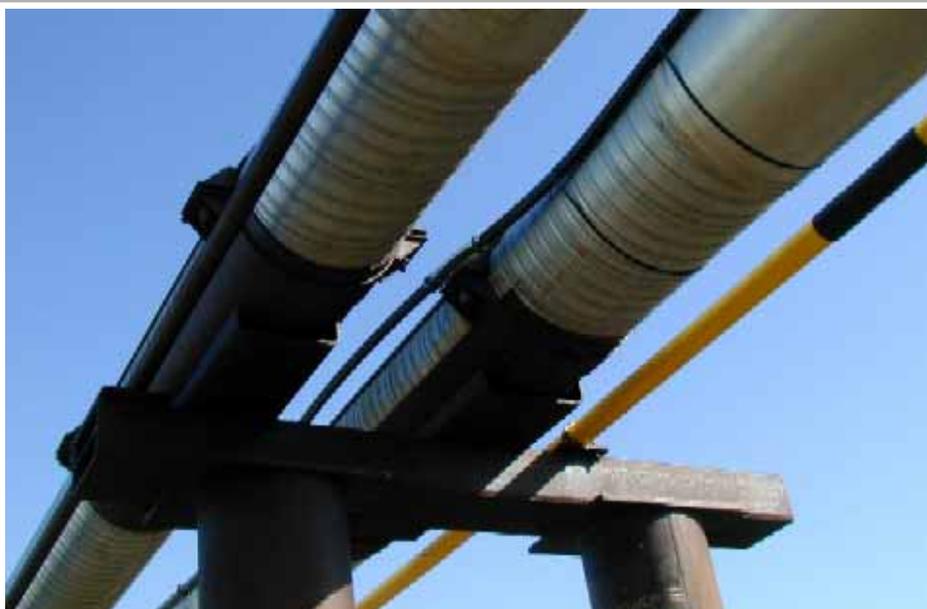
### **9.2.2 Lessee's Activities**

Below are some highlights from the 2004 and 2005 reports:

*Lease Compliance:* The NSB certified compliance with the ADL 416202 ROW lease in their 2005 annual report. They provided a checklist with each lease stipulation describing applicable activities and performance for the year. The only lease stipulation that the NSB reports being out of compliance with is the deadline for submittal of their annual report (late two years in a row).

*Construction Schedule:* As of the end of 2005, NNGP construction is nearing completion. The mainline pipe has been installed, but some work remains on the gas conditioning and receiving modules. The gas conditioning and tie-in work at Alpine has been completed, as has the Nuiqsut gas receiving module, though some final installation and check-out of electrical components still needs to be done. The Nuiqsut distribution pipeline system has been installed and tested to 49 CFR Part 192 specifications. The lessee estimates they will complete construction and commission the entire system in September 2006.

*Maintenance:* Between March 8<sup>th</sup> and 15<sup>th</sup>, 2005, ConocoPhillips performed maintenance work on the above-ground portion of the Nuiqsut Pipeline at a "Tee" spool branch piece at the Colville River HDD site. This work was necessary to prevent accumulation of natural gas liquids in the Tee. The segment was pressure-tested when the work was completed.



*This photo depicts the Alpine and Nuiqsut Pipelines sharing vertical and horizontal supports. From left to right: Alpine Diesel, Utility, Sales Oil, and NNGP (yellow). A fiber optic cable associated with the Alpine Development is in the center.*

*Incidents:* The NSB reports that no incidents, spills, or fires occurred in 2004 or 2005 along the NNGP ROW.

*Nechelik Channel Crossing:* The NSB has installed erosion control measures including revegetation to limit erosion at the Nechelik Channel crossing. The NSB plans to include erosion monitoring as part of its maintenance activities and future Surveillance & Monitoring Program.

*Restoration of Disturbed Areas:* Revegetation continues at disturbed areas. These include the buried segment of the NNGP and the above- to below-ground transition area. The NSB conducted stabilization efforts in fall 2001 and fall 2002. Additional work continued in spring 2005 at the transition site.

### **9.2.3 Lessee's Surveillance & Monitoring**

The NSB reports that because "the overall project is being constructed in multiple phases, which are not completed, no monitoring, operations, or termination activities have been conducted at this time." The SPCO believes that surveillance & monitoring is relevant since the pipeline is largely constructed and has required the NSB to provide a presently applicable surveillance & monitoring program for approval by June 30, 2006. As of August 10, this still had not been received. The SPCO will follow-up in FY07.



*This photo was submitted by the North Slope Borough in their annual NNGP report. The location is a Z-loop where the NNGP is on the outside of the bend. In the photo the NNGP (yellow) is contacting the Alpine Oil Pipeline.*

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Despite the lack of a comprehensive surveillance & monitoring program, some informal monitoring has occurred along the NNGP ROW. ConocoPhillips continues routine surveillance & monitoring of the Alpine Pipelines, so the NNGP is indirectly monitored through that program. The NSB and ConocoPhillips are currently in negotiations to contract routine inspection and repair services to ConocoPhillips for the above-ground portion of the pipeline, which shares VSMs with the Alpine Pipelines.

Other monitoring has occurred through the lessee, though the schedule is not clear. For example, on November 11<sup>th</sup>, 2005, a LCMF LLC inspector noticed a location where the NNGP was contacting another pipeline. A retrofit plan was proposed to repair the problem. This is further discussed under 9.3.1, Lease Administration.

## **9.3 SPCO Activity**

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### **9.3.1 Lease Administration**

On November 11<sup>th</sup>, 2005, a LCMF LLC inspector noticed that an aboveground portion of the Nuiqsut Pipeline was contacting the adjacent 14" Alpine Oil Pipeline at several z-loops where the Nuiqsut Pipeline is out on the outside of the bend. Differential expansion of the pipelines was thought to be causing the contact. LCMF LLC submitted plans on March 14, 2006 along with a letter of non-objection from ConocoPhillips (ROW lessee for the Alpine Pipeline leases) dated March 9, 2006, to retrofit intermediate support members to correct the problem.

The JPO Technical and Design Review team reviewed the proposed retrofit, and on March 31, 2006, the State Pipeline Coordinator issued a letter to the North Slope Borough approving the work as long as certain conditions were met. Within 30 days

after the retrofit is completed, LCMF LLC is to send the SPCO drawings depicting the new support member configurations. If the retrofit will require a design basis change, the lessee must apply for one when the work is completed. On May 26, 2006, the State Pipeline Coordinator received a Maintenance Activities Report from the lessee demonstrating that the conditions of approval were met.

**9.3.2 Compliance Oversight**

The SPCO did not conduct field surveillance of the NNGP or ROW from January 1, 2005 through June 30, 2006.



*This is an aerial view of the west bank of the Colville River HDD. The NNGP transitioned underground left of the photo frame. Two red lines (digitally added) show the trench where the NNGP is buried. The NNGP continues buried the rest of the way to Nuiqsut.*

**9.3.3 Appraisals**

According to the lease agreement, the lessee must pay fair market value to lease State lands in the ROW, and a new appraisal is due every five years. The most recent appraisal of the NNGP ROW, performed by MacSwain Associates, was approved by ADNDR in fall 2003. The appraisal period covered is March 15, 2004 through March 14, 2009. The State acreage and annual rental fees follow:

<b><u>Nuiqsut Natural Gas Pipeline</u></b>	<b><u>ADL #</u></b>	<b><u>State Acres</u></b>	<b><u>Estimated Market Rent</u></b>
Operations ROW	416202	16.45	\$2,468

**9.4 Upcoming Issues**

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**9.4.1 Lessee's Activities**

The lessee anticipates commissioning the entire pipeline system in September 2006. Once the NNGP is brought on line, gas will flow from the Alpine Development to the village of Nuiqsut, where a distribution system is already in place.

Over the next year, the NSB needs to develop and submit their surveillance & monitoring program and update their quality program to meet minimum standards in the State ROW lease. The NSB also plans to continue revegetation and restoration of areas disturbed during pipeline construction. Work will continue at the above- to below-ground transition site and other disturbed areas.

**9.4.2 SPCO Compliance Oversight**

The SPCO will conduct field surveillance of the NNGP and ROW during FY07. The compliance oversight team tentatively plans to complete a full checklist---evaluating compliance with the entire lease agreement---in FY07. This will include a site visit and records review. The lessee's 2006 annual report, due January 31, 2007, will be reviewed. The SPCO will also follow-up on past due items including the development of a surveillance & monitoring program for the NNGP and ROW.

**9.5 Contact Information**

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The NNGP ROW lease requires the North Slope Borough to designate in writing a registered agent and field representative.

*Registered Agent*

North Slope Borough Mayor  
 The Honorable Edward Sagaan Itta  
 Box 69  
 Barrow, AK 99723

*Field Representative*

David Hodges  
 North Slope Borough Capital Improvement Department  
 3000 C Street, Suite N201  
 Anchorage, AK 99503

## Appendix A – Table of Acronyms

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AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish & Game
ADNR	Alaska Department of Natural Resources
AS	Alaska Statute
ASA	Advanced Safety Audit (a BP safety program)
BEST	Behavior Enhanced Safety Techniques (a BP safety program)
BLM	US Bureau of Land Management
bpd	Barrels per day
BPTA	BP Transportation (Alaska) Inc.
BPXA	BP Exploration (Alaska) Inc.
CFR	Code of Federal Regulations
CPAI	ConocoPhillips Alaska Inc.
CPAP	ConocoPhillips Alaska Pipelines
CPF	Central Processing Facility
DOTPF	Alaska Department of Transportation & Public Facilities
FLIR	Forward-looking Infrared
FY	Fiscal Year
HDD	Horizontal Directional Drilling
HSM	Horizontal Support Member
ILI	In-line Inspection (also known as "smart pigging")
JPO	Joint Pipeline Office
KEOR	Kuparuk Enhanced Oil Recovery (Milne Point Products Pipeline)
KKPL	Kenai Kachemak Pipeline
KKPL LLC	Kenai Kachemak Pipeline Limited Liability Company
KPC	Kuparuk Pipeline Company
KPL	Kuparuk Pipeline
KPL X	Kuparuk Pipeline Extension
KTC	Kuparuk Transportation Company
LCMF	LCMF LLC (an Ukpeagvik Corporation Company)
LGL	LGL Alaska Research Associates
MPPL	Milne Point Pipeline
MSCF	Million Standard Cubic Foot (natural gas unit of measurement)

NGL	Natural Gas Liquids
NNGP	Nuiqsut Natural Gas Pipeline
NSB	North Slope Borough
OMB	Office of Management and Budget
OHMP	Office of Habitat Management and Permitting
OPL	Oliktok Pipeline
ORCA	Observing Risks, Changes, and Attitudes (a BP safety program)
OSHA	Occupational Safety and Health Administration
PS-1	Trans-Alaska Pipeline System Pump Station 1
psig	Pounds per square inch gauged
QA	Quality Assurance
ROW	Right-of-Way
RTU	Remote Terminal Unit
SPCO	State Pipeline Coordinator's Office
STOP	Safety Training Observation Program (a BP safety program)
TAPS	Trans-Alaska Pipeline System
Tesoro	Tesoro Alaska Pipeline Company
USACE	US Army Corps of Engineers
USDOT	US Department of Transportation
USF&WS	US Fish & Wildlife Service
VSM	Vertical Support Member

## **Appendix B – Sources of More Information on the Web**

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### **State Agencies**

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State Pipeline Coordinator's Office <a href="http://www.jpo.doi.gov/SPCO/SPCO.htm">http://www.jpo.doi.gov/SPCO/SPCO.htm</a>	Joint Pipeline Office <a href="http://www.jpo.doi.gov">http://www.jpo.doi.gov</a>
Alaska Dept. of Environmental Conservation <a href="http://www.dec.state.ak.us">http://www.dec.state.ak.us</a>	Alaska Dept. of Natural Resources <a href="http://www.dnr.state.ak.us/">http://www.dnr.state.ak.us/</a>
Ak. Oil & Gas Conservation Commission <a href="http://www.aogcc.alaska.gov">http://www.aogcc.alaska.gov</a>	Regulatory Commission of Alaska <a href="http://www.state.ak.us/rca">http://www.state.ak.us/rca</a>
Ak. Dept. of Transportation & Public Facilities <a href="http://www.dot.state.ak.us">http://www.dot.state.ak.us</a>	Ak. Dept. of Fish & Game <a href="http://www.adfg.state.ak.us/">http://www.adfg.state.ak.us/</a>

### **Federal Agencies**

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Joint Pipeline Office <a href="http://www.jpo.doi.gov/">http://www.jpo.doi.gov/</a>	Bureau of Land Management <a href="http://www.blm.gov">http://www.blm.gov</a>
Occupational Safety & Health Administration <a href="http://www.osha.gov">http://www.osha.gov</a>	US Fish & Wildlife Service <a href="http://www.fws.gov">http://www.fws.gov</a>
US Dept. of Transportation <a href="http://www.dot.gov">http://www.dot.gov</a>	USDOT Office of Pipeline Safety <a href="http://ops.dot.gov">http://ops.dot.gov</a>
US Environmental Protection Agency <a href="http://www.epa.gov">http://www.epa.gov</a>	US Army Corps of Engineers <a href="http://www.usace.army.mil">http://www.usace.army.mil</a>

### **Pipeline Operators and ROW Lessees\***

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BP <a href="http://www.bp.com">http://www.bp.com</a>	BP Alaska <a href="http://alaska.bp.com">http://alaska.bp.com</a>
ConocoPhillips Company <a href="http://www.conocophillips.com">http://www.conocophillips.com</a>	ConocoPhillips Alaska Inc. <a href="http://www.conocophillipsalaska.com">http://www.conocophillipsalaska.com</a>
Tesoro Corporation <a href="http://www.tsocorp.com">http://www.tsocorp.com</a>	Marathon Oil Corporation <a href="http://www.marathon.com">http://www.marathon.com</a>
North Slope Borough <a href="http://co.north-slope.ak.us">http://co.north-slope.ak.us</a>	

*\*Note: not all pipeline operators and ROW lessees mentioned in this report are listed above because either they do not have, or we could not locate, websites.*