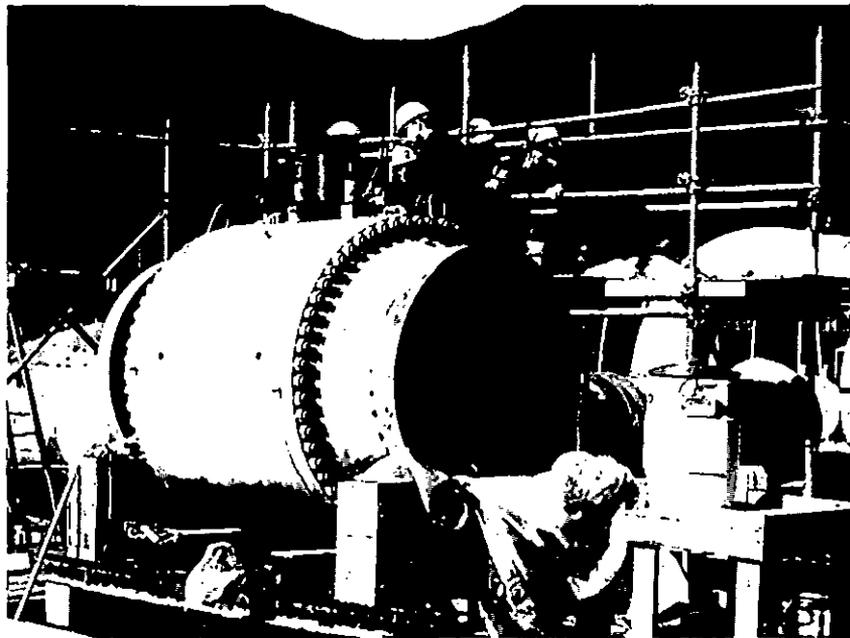




United States Bureau of Land Management



Comprehensive Monitoring Program Report TAPS Quality Program



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Our Message to Stakeholders

TAPS and BLM

The Trans-Alaska Pipeline System (TAPS) transports nearly 19 percent of the nation's domestically produced crude oil through the unique and fragile environment of Alaska. TAPS is critical to the nation's economy and security. Revenues and investment income from crude oil transported by TAPS account for 80 percent of the State of Alaska's general fund. Since start up in 1977, TAPS has safely transported more than 13 billion barrels of crude oil from Prudhoe Bay to Valdez.

BLM'S Comprehensive Monitoring Program

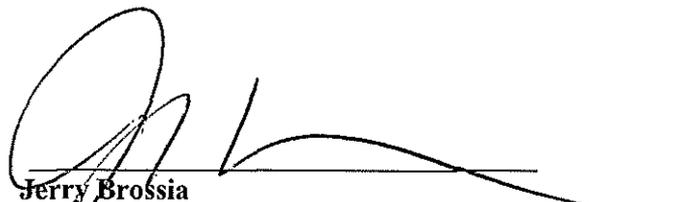
BLM's vision is: *To work proactively with the oil and gas industry in Alaska to achieve safe operation, environmental protection, and continued transportation of oil and gas in compliance with legal requirements.* The Comprehensive Monitoring Program (CMP) is intended to influence continuous improvement in Alyeska Pipeline Service Company's management of TAPS construction, operations and maintenance activities. The CMP process is focused on problem prevention rather than reaction, emergency response, and damage control.

CMP reports periodically communicate to BLM stakeholders summaries of past monitoring efforts. The reports revisit critical TAPS audit deficiencies; incorporate concerns raised by TAPS employees and outside interest groups; address high risk activities; verify compliance with laws, regulations, permit conditions, and Grant/Lease stipulations; verify compliance with important internal Alyeska controls such as the quality, safety and environmental programs; and evaluate causal factors and trends related to recent TAPS incidents. Reports have previously covered one of twelve CMP functional topics:

- Alaska Native Employment & Training
- Environment
- Project Performance
- Configuration Management
- Maintenance
- Employee Concerns Program
- Safety
- Risk Management
- Project Design
- Operations
- Quality

About This Report

The BLM is pleased to present *TAPS Quality Program for 2007* to our stakeholders. While the operation of TAPS will never be risk-free, BLM oversight helps minimize environmental risks, maximize compliance with worker safety and pipeline integrity standards, and improve maintenance performance.



Jerry Brossia
Authorized Officer

Executive Summary

The Bureau of Land Management (BLM) conducted field surveillances and assessments from 2004 to 2006, to evaluate selected aspects of Alyeska Pipeline Service Company's (APSC) Quality Program for the Trans-Alaska Pipeline System (TAPS). This report explains the issues which were addressed, describes their current status, and identifies instances of noncompliance with the Federal Agreement and Grant of Right-of-Way. These report conclusions will not surprise Alyeska. To their credit, Alyeska's own audits and surveillances have identified these concerns and corrective action is underway. In 2007, BLM will continue to oversee Alyeska's TAPS Quality Program, including compliance with the stipulations of the Grant and Lease, to determine Alyeska's effectiveness in resolving these issues.

Principal Conclusions about Pipeline Quality Program

- BLM evaluated several aspects of the quality program and found several failures. Some of these failures were considered to be in noncompliance with the Grant and Lease. The noncompliances relate to change management and failure to follow Alyeska procedures. Alyeska has been informed that all noncompliances must be corrected, and they are working to bring them into compliance. BLM will evaluate progress and verify all completed corrections.
- Change management of TAPS critical systems and components is ineffective. In order for Alyeska to demonstrate the ability to manage change, they must improve the implementation of QA-36, Edition 2, document tracking, and their commitment to the quality program. Change is inherent in the operation of TAPS due to technology advances, equipment deterioration, and modifications to improve cost efficiency. Pipeline system changes often have ramifications beyond the physical replacement of equipment that Alyeska's change management processes have not anticipated.
- Alyeska's management of the quality program needs greater attention to detail, better trending and more rigorous procedural compliance. BLM will verify implementation of proposed corrective actions.

Additional Observations and Conclusions

- Alyeska did not consistently follow their quality control procedures for the selection of Qualified Vendors. Corrective action plans have been implemented to fix this problem, including a plan to increase surveillance of tracking to prevent these problems from recurring.

- Employees have received considerable training as address in assessment VMT-06-A-001. However, Alyeska should complete its qualification and development program initiative and comply with its requirements for self-audit and team qualification plans. Further, Alyeska should revisit training and research information needs to cope with changes in system configuration.
- Alyeska is replacing their current backbone communication system with a new Digital microwave and new valve control units, with the intent to: 1) minimize incidents of communication lapses to remote gate valves; 2) decrease unplanned shutdowns; and 3) enhance pipeline system safety. BLM will verify the reliability and safety of the system, once it becomes operational.
- Alyeska processed and closed substantiated employee concerns related to quality in 2005 - 2006.
- Alyeska must improve the implementation of QA-36, Edition 2, document tracking, and their commitment to the quality program. The constant changing allows for confusion and inconsistency in the program, therefore Alyeska should refrain from major changes to the plan and do smaller continues improve updates to the program.

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Commonly Used Acronyms

* Indicates an Acronym used in this CMP Report

AAI	Audit Action Item
AIMS	Alyeska Integrity Management System
ACT	Audit Compliance Tracking and Closure
ADEC	Alaska Department of Environmental Conservation
ADNR	Alaska Department of Natural Resources
AO	Authorized Officer
*APSC	<i>Alyeska Pipeline Service Company</i>
BCS	Backbone Communication System
*BLM	<i>Bureau of Land Management</i>
BVCS	Block Valve Communication System
CDM	Corrosion Data Management
CFA	Causal Factor Analysis
CFR	Code of Federal Regulations
*CI	<i>Concerned Individual</i>
*CMP	<i>Comprehensive Monitoring Program</i>
*CP	<i>Cathodic Protection</i>
CRO	Control Room Operator
*CWP	<i>Construction Work Package</i>
*DO-14	<i>Trans-Alaska Controller Operating Manual</i>
DOI	Department of Interior
DOP	Department Operating Procedure
DOT	Department of Transportation
DSMA	Digital Strong Motion Accelerometer
*ECP	<i>Employee Concerns Program</i>
EDM	Engineering Data Management
EMS	Earthquake Monitoring System
FGL	Fuel Gas Line
FOC	Fiber Optic Cable
*IRCL	<i>Inspection Report Checklist</i>
LEFM	Leading Edge Flow Meter
LVB	Line Volume Balance
MAOP	Maximum Allowable Operating Pressure
MLU	Main Line Unit
MLR	Main Line Refrigeration
MOC	Management of Change
MP-166	System Integrity Monitoring Program Procedures Manual
MP	Milepost
NCR	Non-Conformance Report
*NTP	<i>Notice to Proceed</i>
*OM-1	<i>Procedural Manual for Operations, Maintenance and Emergencies</i>

OCC	Operations Control Center
OSCP	Oil Spill Contingency Plan
PIC	Pressure Indicating Controller
PIP	Principal Implementing Procedure
PLMP	Pipeline Milepost
PM	Preventive Maintenance
<i>*PS</i>	<i>Pump Station</i>
<i>*QA</i>	<i>Quality Assurance</i>
<i>*QA-36</i>	<i>Alyeska Quality Program Manual</i>
QDP	Qualification and Development Program
QI	Qualification Instrument
QTC	Quality Technology Company
<i>*QVL</i>	<i>Qualified Vendor List</i>
RGV	Remote Gate Valve
ROW	Right of Way
<i>*SA-38</i>	<i>Corporate Safety Manual</i>
SCADA	Supervisory Control and Data Acquisition
<i>*SMP</i>	<i>Safety/Standard Maintenance Procedure</i>
SPCO	State Pipeline Coordinator
<i>*SR</i>	<i>Strategic Reconfiguration</i>
<i>*TAPS</i>	<i>Trans-Alaska Pipeline System</i>
TAS	Training Administration System
TVB	Transient Volume Balance
UCP	Unit Control Panel
<i>*VMT</i>	<i>Valdez Marine Terminal</i>
WO	Work Order

Chapter 1

Introduction

This Comprehensive Monitoring Program (CMP) report presents the Bureau of Land Management's (BLM) oversight results of Alyeska Quality Control (QC) Program. This report does not comprehensively include all areas of QC on the Trans-Alaska Pipeline System (TAPS).

Alyeska's management of the movement of oil needs great attention to detail, thorough trending and evaluation of incidents, and rigorous procedural compliance.

Moving oil requires a complex system of hardware, people and processes. TAPS has 800 miles of 48-inch diameter pipe, with 5 active pump stations, a tanker loading terminal and an electronic communication system. Approximately half of the pipe is below ground, with cathodic protection (CP) and below ground stability provisions.

The above ground stability systems include vertical support members, anchors, bridges, and seismic and geotechnical provisions. Each pump station has a number of integrated pieces of equipment, such as pumps, valves, meters and relief tanks, as well as associated electrical, instrumentation and telecommunication.

Each pump station has protective devices that prevent exceeding specified operating limits to ensure safe oil movement from Prudhoe Bay to Valdez. The pipeline has 151 mainline valves and about 1,000 motorized pump station and marine terminal valves to control oil flow. The Valdez Marine Terminal contains the Operations Control Center, where TAPS is controlled through an elaborate telecommunication system. The Valdez Marine Terminal also contains storage tanks, tanker loading systems, ballast water treatment, tanker vapor recovery systems, and a large power generation facility.

The entire TAPS system of pumps and valves is remotely controlled from the Operations Control Center in Valdez. Pipeline controllers at the Operations Control Center watch and control all pipeline system activities to ensure crude oil flow moves within pressure, temperature, liquid level, and seismic design parameters. Pump station personnel operate and control the pumps and valves in their segment when instructed by the Operations Control Center.

Controllers follow certain procedures to operate the pipeline system under normal, abnormal and emergency conditions. Pipeline controllers use Alyeska's Trans-Alaska Pipeline Controller Manual (DO-14) as the primary guide for operating the pipeline. The Procedural Manual for Operations, Maintenance and Emergencies (OM-1) ensures compliance with Federal Department of Transportation regulations.

The Federal Grant of Right-of-Way requires Alyeska's conformance with Section 9.C.(3) of the Grant and Section 16.C.(iii) of the Lease. These sections state Alyeska should:

“Provide for practicable and appropriate component and systems quality through quality management and planning and inspection and test procedures.”

TAPS Mechanisms that protect the environment, pipeline safety and integrity are: leak detection, pressure alarms, seismic monitoring, valve status indicators, and automated shutdown mechanisms. These safety mechanisms protect against adverse operating conditions that could potentially threaten the environment, pipeline safety and integrity. For instance, electronic systems automatically shut TAPS down when an unplanned valve closure occurs and oil spill equipment is stored and ready for immediate deployment for emergency responses.

Alyeska's Quality program went through a continuous improvement change in 2006. Alyeska submitted QA-36, Edition 2 for approval in June 2006. QA-36, Edition 2 was approved on July 19, 2006 with the understanding that Pipeline Strategic Reconfiguration (SR) will not use the newer version as the Quality Control Program for SR was approved based on QA-36, Revision 10. This revision described the relationship between the QA program and the Alyeska Management System. It also provided a visible link between Alyeska Programs/Business Processes and the Grant and Leases, and a description of how Alyeska will use QA assessments to demonstrate the commitments of Section 9 of the Federal Grant.

Chapter 2

Purpose, Scope and Methodology

Purpose

All CMP reports evaluate compliance with relevant regulations, the Federal Agreement Grant. The 30-year Federal Grant for TAPS was renewed in January of 2004; therefore systematic compliance monitoring is a central purpose of the CMP. The intent of this report is to:

- Report to the public and higher authorities about Alyeska's management of moving oil from Prudhoe Bay to the Valdez Marine Terminal, and BLM's oversight of Alyeska's QC Program.
- Describe the status of system integrity concerns such as Strategic reconfiguration, and the Valdez marine terminal Ballast water treatment plant changes.
- Explain concerns regarding Alyeska's difficulty in controlling and managing system modifications.
- Discuss system modifications relating to fiber optics, valve communication, and oversight of these initiatives.
- Identify Federal Grant compliance issues identified through BLM's monitoring of Alyeska Quality Control Program.

Scope

The report scope includes BLM oversight of Alyeska's QC Program from January 2005 through September 2006. The report focuses on activities integral to the safe operation of the Trans-Alaska Pipeline System, with the scope limited to pipeline system operations of moving oil from Prudhoe Bay to the Valdez Marine Terminal (VMT). It also contains information from Alyeska's internal audits, which provide insight into the adequacy of Alyeska's approach to a QC Program.

Since TAPS operation has a broad spectrum, this report does not evaluate all aspects of pipeline QC Program. BLM selected areas for monitoring that were problem oriented, placing a heavy oversight emphasis on Alyeska Strategic Reconfiguration efforts. This CMP report was chosen as the vehicle to report on the monitoring of pipeline Quality issues related to Alyeska Strategic Reconfiguration.

Methodology

Conclusions reported here result from evaluation of BLM's Assessments, field surveillances and engineering reports on APSC quality control implementation and correction of deficiencies. The report also evaluated some relevant Alyeska audit reports.

How This Report is Organized

This report is structured differently from previous CMP reports. More background material has been added to aid readers in the understanding of pipeline operation issues. For example, Chapter 4 includes the following subjects under the major heading of *Monitoring TAPS Quality Program*:

- Pipeline control and telecommunications systems, SIPPS Automation Software Development;
- Effectively complying with applicable quality requirements pertaining to the control of FQR/SI design change related activities;
- Quality requirements pertaining to the Strategic Reconfiguration (SR) Sparing Program;
- Quality requirements pertaining to SR Documentation using Operations Documents and Change Management;
- The Change Management Process;
- Quality requirements pertaining to the control of Purchased Items and Services/Qualified Vendor List (QVL) related activities; and
- Quality requirements pertaining to the SR training.

The first four subject items listed above draw heavily from categories found in the TAPS design basis so a consistent terminology and functional breakdown can be developed. The fifth bulleted subject item introduces Change Management, which has historically shown systemic deficiency. The fifth item on QVL also has historically shown systemic def deficiency.

Other areas of interest in Chapter 4 include the *Alyeska Audits* section. This section discusses the following audits that Alyeska has performed:

- Inspection Audit;
- Contractor Safety Program Audit;
- Engineering Process Audit;
- Regulatory Compliance Audit;

- Management Action and Commitments Process Audit;
- Oil Spill Contingency Audits;
- SR Environmental & Fire Marshal Audit; and
- ECP Concern Audit.

Monitoring Alyeska's QC Program

This is BLM's first CMP report about oversight of TAPS Quality program. In response to identified deficiencies in the 1993 audits of TAPS, BLM expanded oversight to include transportation of oil inside the pipeline system. BLM's the first evaluation of Alyeska's QC Program in late 2005, began initial field studies in 2006, and continued monitoring Alyeska's QC Program.

The Federal Agreement and Grant and Right-of-Way Section 9 administered by the Bureau of Land Management is the primary federal control for the QC program

Chapter 3

Federal Grant Compliance

Approach to Compliance

BLM proactively pursues issues under the Grant and Lease with Alyeska to maintain compliance and also uses the strategic approach of Compliance Partnership. This involves frequent communication, field inspections, Engineering reviews, and drills to resolve problems. These objectives ensure:

- Continued safe movement of oil through TAPS;
- Compliance with the Federal Grant;
- Adequate spill and response capability; and
- Reduction of TAPS risk by requiring knowledge of hardware condition, effective management controls, protection of the environment and worker safety.

The intent of this report is to discuss aspects of the stipulations that relate to Alyeska Quality program. Future reports will evaluate other aspects.

The Federal Agreement and Grant of Right of Way was originally divided into three categories: General, Environmental and Technical. BLM evaluated Section 9 of the Grant and Stipulations 1.7 - Notice to Proceed . The stipulations are discussed in the order in which they appear in the Grant.

Section 9 - Federal Agreement and Grant of Right of Way

- Permittees shall submit construction (including design) plans, a quality assurance program, and other related documents as deemed necessary by the Authorized Officer, for review and approval prior to his issuing Notices to Proceed.
- The quality assurance program shall be comprehensive and designed to assure that the environmental and technical Stipulations in this Agreement will be fully complied with throughout all phases of construction, operation, maintenance and termination of the Pipeline System.
- The following criteria shall be included in the Quality Assurance Program, although Permittees are not limited to these criteria:
 - Provide adequate and appropriate means and procedures for the detection and prompt abatement of any actual or potential condition that is susceptible to abatement by Permittees which arises out of, or could affect adversely, the construction, operation, maintenance or termination of all or any part of the

Pipeline System and which at any time may cause or threaten to cause: (a) a hazard to the safety of workers or to public health or safety (including but not limited to personal injury or loss of life with respect to any person or persons) or (b) serious and irreparable harm or damage to the environment (including but not limited to areas of vegetation or timber, fish or other wildlife populations, or their habitats, or any other natural resource).

- Provide adequate and appropriate means and procedures for the repair and replacement of improved or tangible property and the rehabilitation of natural resources (including but not limited to revegetation, restocking fish or other wildlife populations and reestablishing their habitats) that shall be seriously damaged or destroyed if the immediate cause of the damage or destruction arises in connection with, or results from, the construction, operation, maintenance, or termination of all or any part of the Pipeline System.
 - Provide for component and systems quality through adequate quality control management and planning, and inspection and test procedures.
 - Assure that the selection of Permittees' contractors, subcontractors and contract purchases of materials and services are based upon the above quality control procedures.
 - Determine quality performance by conducting surveys and field inspections of all of the facilities of Permittees' contractors and subcontractors.
 - Maintain quality determination records on all of the above procedures to insure satisfactory data identification and retrieval.
- Most of the findings BLM identified through surveillances and assessments conducted were related to this section. Alyeska had submitted construction (including design) plans, a quality assurance program, and other related documents as required. The issues preventing a finding of compliance stem from the failure to follow procedural requirements and poor management of change rather than direct threats to system integrity or safety. Start up problems were also presenting a pattern of procedure and planning deficiencies that could have risen to noncompliance if recent start ups had not made significant improvements prior to the start up of Pump station 9.

General Stipulations of Federal Agreement and Grant of Right of way

- **1.7 Notice to Proceed**

Notice to Proceed is the official document issued by the Authorized Officer giving Alyeska the permission to construct TAPS projects. Construction may not be initiated without the prior written permission of the Authorized Officer. A *Notice to Proceed* is required for some, but not all projects, according to Stipulation 1.7 of the Federal

Agreement and Grant of Right-of-Way. The Authorized Officer issues a notice to proceed when the design, construction and operation proposals conform to the provisions of the stipulations of the Grant and Lease. BLM determined that projects requiring a *Notice to Proceed* followed the Grant and Lease stipulations during construction. Overall, the compliance issues with this stipulation are the most significant issues raised in this CMP report.

The issues preventing a finding of compliance stem from inattention to procedural requirements and poor management of change rather than direct threats to system integrity or safety. The unsatisfactory conditions discussed in Chapter Two regarding poor documenting have been corrected. The change management issues previously discussed is inconsistent with operating the system in a safe and workmanlike manner. Alyeska has implemented and Corrective action plan to continue to make improvements to change management program. Start up problems were also presenting a pattern of procedure and planning deficiencies that could have risen to noncompliance if recent start ups had not improved.

This stipulation also requires immediate notification of the Authorized Officer of any condition, malfunction, problem or occurrence which threatens pipeline integrity. Alyeska and BLM have agreed upon a reporting protocol which Alyeska has followed.

Chapter 4 Analysis

Manage Controls and Assurances

Alyeska must demonstrate effective management controls for identifying risk and implementing activities that mitigate impacts to health and safety, the environment, and integrity of the pipeline system. Controls are based on risk, and implementation is evaluated to ensure adequacy and effectiveness.

Asset Maintenance

Alyeska must demonstrate the ability to anticipate, detect and abate adverse conditions in order to maintain the integrity of the pipeline system.

Design Control and Information Management

Alyeska must:

- Demonstrate design control by providing documentation demonstrating that design requirements comply with code, regulations, and meet or exceed industry standards;
- Demonstrate compliance to the TAPS Design Basis and ensure that deviations are appropriately evaluated and approved;
- Demonstrate the quality of procured materials and contract services by providing documentation of conformation to the design requirements;
- Demonstrate an effective Change Management Program (CMP) that ensures changes to the pipeline and terminal, equipment, or related facilities are implemented in a manner that protects health and safety, the environment and the integrity of the system as well as providing for operational and regulatory compliance; and
- Demonstrate that instructions, procedures and drawings are updated, maintained, made available and communicated to the affected organizations.

Vendor Selection

Alyeska must demonstrate that suppliers of materials and services are evaluated and selected based on pre-determined criteria that preserves health and safety, the environment, system integrity and provides for operational and regulatory compliance.

Monitoring TAPS Quality Program

- **SIPPS Automation Software Development**

Alyeska has developed an extensive test bed and test procedures to prepare the SIPPS system for field testing. A database is in place to track, assign responsibility and close issues found in the testing. A retest process is in place to confirm that any errors found have been fixed. On this basis, it appears that Alyeska is in conformance with Section 9.C.(3) of the Grant. These sections state that Alyeska should: “Provide for practicable and appropriate component and systems quality through quality management and planning and inspection and test procedures.”

- **Field Query Request, Site Instruction and Design Change Processes**

Sufficient office and field evidence was observed to indicate APSC is not effectively tracking or monitoring Strategic Reconfiguration (SR) design changes and revisions to the associated drawings in accordance with the processes transmitted in support of their Notice to Proceed (NTP) applications. Furthermore, APSC (Alyeska Pipeline Service Company) is not consistently ensuring design changes are being reviewed and stamped by the original (or another registered engineer in the State of Alaska) per Title 8 Alaska Statutes, Chapter 48, *Architects, Engineers, and Land Surveyors*.

The Notice to Proceed (NTP) process was invoked for the Strategic Reconfiguration (SR) Project which requires that a final design be submitted for review prior to construction. Alyeska elected to submit Construction Work Package's (CWP).

Both Site Instructions (SI) and Field Query Requests (FQR) are CWP specific documents. An FQR is Alyeska's means of documenting design changes and clarifications between the Implementing Organization, the Station Superintendent, and the Project Engineering Representative after the CWP has been issued for construction. Site Instructions are very similar to FQR's and are used primarily when the need for documenting changes or clarifications originates in Engineering rather than the field. At times, Engineering may use an SI to respond to an FQR. At other times an SI may be issued without an FQR having been generated.

In previous internal assessments of their FQR/SI process, they indicated that having current redline updates is a low priority. This is unacceptable. APSC should perform an audit of their FQR/SI process to ensure construction is being performed to the most current engineering design drawings and that adequate review and approval by a responsible engineer occurs. Furthermore, APSC should elevate their monitoring and validation efforts to ensure that design drawings, when issued and revised by the FQR/SI process, are being stamped by a registered engineer within the appropriate discipline per the Statute.

- **Strategic Reconfiguration (SR) Sparing Program**

It was discovered that there were several groups that have involvement with, and responsibility for, the SR Sparing Program. While the individual groups understand their roles no one appears to have responsibility for the entire program. The following are deficiencies noted in the Sparing Program:

- No owner of the entire program;
- No Procurement and Logistics Plan as specified in SR Program Execution Plan;
- The decision process for initially determining which spares to purchase are not documented (SNC Lavalin purchased items);
- No detailed written SR program giving guidance on procurement and staging of spares identified by the Reliability Centered Maintenance (RCM) process;
- No documentation on the effect of transit times on centrally stored spares;
- No schedule of when existing spares purchased will be staged; and
- No schedule of when additional spares identified by RCM group will be purchased or staged.

The SR Sparing Program was found to be minimally compliant with the Grant and Lease Quality Assurance Requirements, SR Quality Management Program, and other pertinent APSC programs and procedures. Significant programmatic weaknesses exist which should be corrected. Alyeska has been able to rely on existing programs and procedures to make up for the lack of direction provided by the SR documentation. This has allowed them to use such tools as RCM, which has an established track record with clear programmatic guidelines to identify spares. Without these established programs the Sparing Program would have been found non-compliant with the quality assurance requirements.

- **SR Documentation using Operations Documents and Change Management**

The operations documentation process was reviewed from beginning to final approvals. The process appears to be well defined and thorough and conforms to Alyeska's programs and procedures governing document control and management of change. The documents which are to be cancelled, modified, or unchanged are determined by the responsible individual. There are, however, several levels of reviews as noted above that allow for exceptions to be noted and documents to be re-ranked in order of importance. The individuals involved know their roles and responsibilities and have sufficient time and resources to fulfill their assignments. The detailed process outlined by the responsible individual is not being documented or being captured in Alyeska's programs

and procedures. This needs to be corrected. The procedures are initially prioritized by Kathy Campbell as being needed for commissioning, start-up, post start-up, or non critical. All of the documents are reviewed multiple times by administrative, technical, and managerial staff as well as having a walk down of the operational procedures in the field with the appropriate personnel. This multi-tiered approach yields a consistent and high quality product. Any disagreement or changes that would affect the documents' categorization or content have ample opportunity to be modified or corrected. A random sampling of 7 operations documents were reviewed as part of this assessment. All were found to have been appropriately created or modified. However, since none of the documents reviewed were in final form it will be necessary to perform a follow-up assessment prior to the start up of the first pump station (PS9) under SR to assure that the process was completed according to the program and signed by all document owners. The program as it is currently being implemented satisfies all of these requirements.

- **Change Management**

Alyeska has implemented a functioning Change Management Process. Change Management, also referred to as Configuration Management, is an approach that provides for control of a system through disciplined management of all information pertaining to its configuration and operational requirements. Examples of this information are drawings, manuals, vendor documents, procedures, problem identification reports, survey data, and data sheets.

The majority of configuration management deficiencies are attributable to the change of the QA program in 2006 and to a lack of knowledge of the change management policy. The absence of adherence to corporate management of the change system for large projects unnecessarily increased the risk to safety or environmental projects.

Up-to-date modification records are a requirement of Stipulation 1.18.3, Surveillance and Maintenance. Implementation of a controlled and effective system for documentation revisions is one of the cornerstones of configuration management. Alyeska needs to continue an effective document revision process.

BLM determined through assessment and surveillance that Alyeska currently needs the ability to identify all the documentation affected by a change to an item or system. Alyeska has committed to develop a systems-based physical item hierarchy with the capability to identify the data and documentation associated with a system or subsystem.

Alyeska has implemented corporate-wide performance standards in the revised Alyeska Integrity Management System program which should facilitate their ability to provide adequate resources for projects, project closeout, functional check-out, and turnover.

- **Control of Purchased Items and Services/Qualified Vendor List (QVL)**

Alyeska Pipeline Service Company publishes a list of its approved vendors periodically to identify those vendors of purchased orders and contractors that have been evaluated

and determined they can provide the materials or services of awarded contracts. Based on the published list (May 16, 2006) several contractors' evaluation packages were reviewed.

These contractors' files were reviewed for the following requirements:

- Objective criteria was established and documented for evaluating the contractor to ensure they possess the capability to provide the contracted services or materials;
- Objective evidence was documented that demonstrated an evaluation of the contractor was conducted to determine their capabilities to perform the contracted services or materials; and
- Compare contract award dates to the dates the contractors were evaluated.

Analysis of a sample of contractors listed on the QVL, shows six of the ten (66% of those contractors reviewed), did not have documented objective evidence to support them being listed on the QVL. Three of the ten (30% of the contractors reviewed), had documentation to support an evaluation was conducted, with two identified being conducted after contract award. One contractor had partial objective evidence of an evaluation to support part of the scope of work it was contracted to perform, but not all the work identified on the QVL.

BLM requested a corrective action plan from APSC to address a comprehensive audit of its QVL process and the actions to be taken to eliminate any gaps with the process of identifying, evaluating and qualifying contractors/vendors (at all tier levels) that provide materials or services on TAPS.

- **Strategic Reconfiguration Training**

From the random sampling of technicians and class requirements it appears APSC has done extensive training for the technicians for Strategic Reconfiguration (SR). By reviewing the course evaluations and background of the instructors they are viewed as knowledgeable and qualified for the classes they led. The review of the course evaluations also revealed that where possible, suggestions from a class were incorporated into the instruction of the next class on the same topic.

Alyeska Audits

- **Inspection Audit**

Alyeska conducted an audit on inspection in October and the first week of November 2006 at Pump Station 9. It was found that SR Project field inspections were not meeting the inspection requirements as specified in the Quality Management Plan and other governing documents. The audit team recognized that inspection and other assurance activities, including continuous improvement efforts, were in process during fieldwork.

This finding represents conditions observed at that time. The specific findings listed below helped to direct those accountable for the inspection process so they were able to provide the expected level of assurance prior to the Pump Station 9 start-up:

- A heavy reliance was placed on "Field Inspections" rather than "Receiving Inspections" to detect non-conforming items, which was previously considered a low risk practice by the Construction Management Team. Based on the above findings, this practice may generate higher risk.
 - Inspection had not written any non-conformances to date. No formal or documented assessments had been performed of inspection through fieldwork by the SR Project or Kakivik (the inspection contractor) to identify and correct project inspection problems.
 - The IRCL forms were unprotected "Microsoft Word" documents that could be easily edited or altered and, therefore, possibly change the inspection attributes approved by the engineer.
 - The generic IRCL's in the CWP were approved by the SNC Engineer. In the approval box the engineer's name was typed, and in the signature box there is a reference to "Signature on File". Requests made of SR Document Control could not produce the specific hard copy signed IRCL's.
 - The conditions identified through the first week of November 2006 with the inspection function did not provide the necessary documented assurance that compliance to the specified requirements for special processes, codes, standards and issued for construction packages for the installed facilities was being met. A subsequent audit in mid December to evaluate whether improvements had been made during the interim period revealed that inspection records, the ability to trace from the equipment back to supporting inspection records, and the reliability of capturing open inspection actions on incomplete work lists, had all improved.
- **Modification Package Close out Report for 2006**

In accordance with Memorandum of Agreement (MOA) for establishment of 180 standards for updating of drawings and documents to manage change to the Trans Alaskan Pipeline (TAPS) critical System Alyeska submitted the 2006 report on April 17, 2007 (GL 11634).

Alyeska reported that individual items (drawings, documents and equipment) were trending well, but closeout performance needed improvement. In 2006 all eight projects that opened and closed in 2006 meet the 180 day requirement. Of the total of 26 projects closed in 2006, 14 closed in 180 days. Several of the projects closed in 2006 were long term legacy project. Closing of long term Legacy projects will continue to depress the performance standards until the back log is eliminated.

Alyeska will continue to focus on closing out new projects on time and closing the back log projects.

- **Contractor Safety Program Audit**

Alyeska conducted an audit of the Contractor Safety Program in February of 2004. The conclusion was that the overall performance was satisfactory and resulted in the identification of the following four findings:

- Alyeska had not effectively implemented SA-38 (Alyeska Corporate Safety Manual), Requirement 3.5;
- SA-38, Requirement 3.5 doesn't meet the intended purpose of providing contractors with complete accurate policies and procedures;
- Insufficient oversight of contractors' implementation of SA-38, Requirement 3.5 were found; and finally
- The audit revealed that contractors were not following the Incident Investigation Analysis and Reporting Program as directed by SA-38.

Alyeska conducted an audit on the Strategic Reconfiguration (SR) Safety Management Plan in January of 2005. The audit concluded that the initial design and execution of the SR Safety/Standard Maintenance Procedure (SMP) and other related documents were not effective. Contributing causes included inadequate document control procedures, missing or unclear components, and a lack of active contractor monitoring. Mitigating these conditions was the existence of the Alyeska SA-38 manual which provided procedures to generate safety documents. Subsequently, significant changes were made to the structure and content of SR related documents.

- **Engineering Process Audit**

Alyeska conducted an audit of the Engineering Process of non Strategic Reconfiguration related activities in September 2004. The audit resulted in an overall performance rating of satisfactory. There was one finding related to documented performance of vendor evaluations which could potentially effect the confidence of non SR engineering controls. There was no documented objective evidence to support an evaluation being conducted.

- **Regulatory Compliance Audit**

Alyeska conducted an audit of the Regulatory Compliance program in November 2004. It concluded in an overall performance rating of satisfactory, primarily because of the personnel and their institutional knowledge.

- **Management Action and Commitments Process Audit**

Alyeska conducted an audit of the Management Action and Commitments Process in August 2004. The conclusion was the overall performance was satisfactory.

Alyeska conducted an audit of the Management Action and Commitments Process in May 2005 with the conclusion resulting in an overall performance rating of satisfactory. There was one high risk finding related to SR performance in which they were not using the MAC process to document and track related commitments.

- **Oil Spill Contingency Audits**

Alyeska conducted three audits on their Oil Spill Contingency plans in February 2004, January 2005, and November 2005. The conclusion was the overall performance was satisfactory. While control weaknesses were identified, none of them significantly impacted the company's ability to meet its commitments of the C-Plan.

- **SR Environmental & Fire Marshal Audit**

Alyeska conducted an audit of the SR Environmental & Fire Marshal in May 2005 with findings that showed that the overall performance was satisfactory. It did, however, find that the controls were more dependent on key personnel rather than the established process. Also, conditions of approvals from governing agencies were not formally tracked with widespread visibility.

- **SR Safety and Quality Audit**

Alyeska conducted an audit on SR Safety and Quality in February 2006. The resulting findings were not satisfactory due to the failure to implement the QMP's quality requirements. The audit found deficiencies in document control, project performance monitoring, training of contractors, vendor evaluation, design control and inspection.

The following significant deficiencies were found:

- Corrective actions for document control did not ensure that the SR Project personnel were working to the latest approved documents;
- The quality requirements lacked performance monitoring and oversight to assure compliance; and
- Incomplete training documentation for construction contractors to assure personnel had taken the required training.

- **ECP Concern Audit**

In July 2004, a Concerned Individual (CI) brought thirty four (34) specific issues to the Alyeska Executive Team. An agreement was reached between the Concerned Individual,

BLM, and Alyeska to do an independent investigation into the allegations, with a final report to be given to BLM. The investigation was conducted by Billie Garde. The investigation was conducted in October of 2005, with a presentation of the findings given to BLM on February 11, 2005. Alyeska submitted a corrective action plan for the findings from this audit.

Chapter 5

Closing Summary

The effectiveness of the QA program to demonstrate Alyeska's ability to "identify and document" was not in complete compliance with Section 9 of the Grant. Alyeska's noncompliance with some aspects of the Grant does not constitute an immediate threat to pipeline integrity, public safety, or the environment. BLM's future work plans will include the necessary monitoring to ensure these deficiencies are corrected.

BLM believes that Alyeska needs to pay greater attention to detail, do more thorough trending and evaluation of incidents, and comply more rigorously with their own procedures. Alyeska's own quality assurance audits and reviews have recognized this and corrective action is underway.

Change management of TAPS critical systems and components is ineffective. In order for Alyeska to demonstrate the ability to manage change, they must improve the implementation of QA-36, Edition 2, document tracking, and their commitment to the quality program.

In the upcoming year, BLM will assess Alyeska and contractors' application of quality program controls and Alyeska Integrity Management System principles to ensure effective management of changes to critical TAPS systems and components.