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**BEFORE THE SUBCOMMITTEE ON WATER, POWER, AND
OFFSHORE ENERGY RESOURCES
OF THE
HOUSE COMMITTEE ON INTERIOR AND INSULAR AFFAIRS**

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Good morning, Mr. Chairman. I am pleased to be here today to participate in the Subcommittee's hearing on the Alyeska pipeline. The Research and Special Programs Administration (RSPA), acting through the Office of Pipeline Safety (OPS), has been delegated the responsibility for the administration of the Department of Transportation's (the Department) pipeline safety program. In this testimony, I would like to provide a general description of our pipeline safety program, a summary of government responsibilities, the history of the Alyeska pipeline, detection and extent of corrosion and corrective actions, OPS inspection oversight, and current OPS initiatives.

The discussion provided in this testimony is offered in light of the trip I took last week with RSPA Administrator Travis Dungan to view the Alyeska pipeline. During the trip, we were able to witness firsthand the actions being taken by Alyeska to address the corrosion on the pipeline that has recently been discovered. Based on those actions, and the increased oversight of Alyeska's operations by OPS, the Bureau of Land Management and the state, I

am confident that the pipeline can be properly remediated for its continued safe operation.

RSPA's Pipeline Safety Program

Two substantially identical statutes provide the framework for the Department's pipeline safety program; the Natural Gas Pipeline Safety Act of 1968 provides for federal safety regulation of facilities used in the transportation of natural gas and other gases by pipeline, and the Hazardous Liquid Pipeline Safety Act of 1979 authorizes the Department to regulate the safe transportation of hazardous liquids by pipelines.

Both Acts provide a regulatory framework for assuring pipeline safety based on the following: (1) exclusive federal authority to regulate interstate pipelines; and (2) federal responsibility for regulation of intrastate pipelines with provisions for state assumption of all or part of the intrastate responsibility. The cornerstone of the federal pipeline safety program is this partnership established with the states. Both Acts provide for a grants-in-aid program, the purpose of which is to encourage the states to adopt and enforce the federal regulations for intrastate pipelines. States may also contract with the Department to inspect interstate pipelines, although the Department remains responsible for the enforcement of the regulations.

The RSPA's safety jurisdiction over pipelines covers more than 2,000 operators and 1.6 million miles of natural gas pipelines, and more than 200 operators and approximately 155,000 miles of hazardous liquid pipelines which transport petroleum, petroleum products, and anhydrous ammonia. The existing federal resources alone could not adequately ensure the safe operation of all the existing pipeline facilities without state involvement.

Under its delegation of authority, the OPS is responsible for developing, issuing, and enforcing regulations for the safe pipeline transportation of natural gas, including associated liquefied natural gas facilities, and hazardous liquids, primarily crude oil and petroleum products, by pipeline. The regulations are designed to assure safety in design, construction, testing, operation, maintenance, and emergency response capability of pipeline facilities. In support of these regulatory responsibilities, and in addition to managing the Federal/State pipeline safety partnerships, the OPS collects, compiles, and analyzes pipeline safety data and conducts training programs for government and industry personnel in the application of pipeline safety regulations. The OPS also conducts a pipeline safety research program that supports regulatory and enforcement activity and provides the necessary basis for planning, evaluating, and implementing the natural gas and hazardous liquid pipeline safety programs.

With respect to the OPS inspection and enforcement program, the nation is divided into five regions. Each region monitors the performance of the state agencies participating in the Federal/State pipeline safety program, and performs inspections of interstate gas and hazardous liquid pipeline systems as well as the intrastate facilities under direct federal jurisdiction. All pipeline facilities in Alaska are part of the Western Region's responsibilities, because Alaska has not participated in the Federal/State program since 1977 (and participation before that was limited to natural gas intrastate pipelines). Therefore, the federal government ~~is responsible for~~ inspection and enforcement of regulations for all natural gas and hazardous liquid pipeline facilities in the state.

Summary of Government Responsibilities

Currently, the OPS regulatory responsibility for the safety of the Alyeska pipeline includes oversight of its design, construction, testing, operation, maintenance, and emergency response capability. In addition, we have the authority to address any safety concerns about the Valdez terminal tanks through our authority to issue a hazardous facility order if the tanks pose a threat to life and property. To date, we have no data that would indicate the existence of a problem with the tanks that would require the OPS to take such immediate action. However, we will be stepping up our inspection activities with respect to the Valdez terminal tanks.

The Bureau of Land Management has a right-of-way agreement with Alyeska with respect to the pipeline on federal lands (approximately 75 percent of its total length). The right-of-way agreement imposes environmental standards and requirements (including spill contingency plans) on Alyeska and also incorporates certain technical requirements, such as requiring that the Department's regulations be followed. The State of Alaska has a similar right-of-way agreement with Alyeska with respect to state lands (approximately 25 percent of the total length of the pipeline, and the Department's regulations apply to this portion as well). Taken together, this Federal/State authority provides a comprehensive scheme for assuring the safe operation of all facets of the Alyeska system.

Alyeska History Before Operation

In early 1974, Alyeska and the Department of the Interior (DOI) executed an Agreement and Grant of Right-of-Way which, among other things, stipulated that Alyeska would design, construct, and operate the pipeline in accordance with the Department's pipeline safety standards. The DOI assumed the primary federal responsibility for the project, and provided a large inspection force to monitor the construction of the pipeline. Given these DOI initiatives, the Department determined that it would be a duplication of federal resources if it were to establish a special

field inspection force for construction of the Trans-Alaska Pipeline System (TAPS). This decision was based on the fact that the DOI was devoting adequate resources to ensure that the pipeline was constructed in accordance with the Department's hazardous liquid pipeline safety standards, as well as in accordance with the stipulations in the DOI-Alyeska agreement. The Department's OPS provided technical liaison and inspection, as needed, during the design and construction phases.

The OPS evaluated the structural design criteria for the pipeline. The design of this pipeline was unique compared to other cross-country pipelines in that stresses due to temperature and seismic activity had to be accommodated along with the usual stresses, such as dead loads and internal pressure, which act on a pipeline. In addition, nearly half of the pipeline was elevated in areas of ice rich permafrost.

The OPS contracted with the National Institute of Standards and Technology (NIST) (formerly the National Bureau of Standards) to review the integrity of the unique above ground support system (nearly half of the 800 miles of the TAPS line is not buried). The pipeline was elevated in areas where thawing of the permafrost would occur if the hot oil pipeline were buried. Thawing would result in loss of support and sagging of the pipeline which could lead to buckling and failure. The NIST determined that the design of the elevated support system was state-of-the-art and should

provide adequate continuing support for the elevated portion of TAPS. Also, the NIST recommended that a surveillance and monitoring program for the elevated support system was essential and indicated the program developed by Alyeska met this need. The success of the above ground support system over the 13 years of its operation demonstrates the soundness of the NIST judgment.

Operation of the Alyeska Pipeline

Since the Alyeska pipeline became fully operational in August of 1977, it has transported approximately 7.5 billion barrels of North Slope crude oil to Valdez representing 20 to 25 percent of this Nation's domestic crude oil supply. During this time, there have been 10 incidents on the line reported to the OPS, totalling approximately 18,200 barrels leaked. These accidents resulted in one death, five injuries, and approximately \$40,640,000 property damage. The most recent incident was last week in which an excess of 24 barrels of oil were spilled within Pump Station No. 3 when a suction pump sump valve fitting failed. All of the oil was contained within the station.

The most serious failure occurred on July 8, 1977, at Pump Station No. 8. The accident was investigated by the OPS and the National Transportation Safety Board. The cause of the accident was the inadvertent introduction of oil into the pump room during maintenance procedures. The oil caused an explosion which killed

one worker, injured five others, and destroyed the pump room causing \$40,096,000 property damage.

A chart listing the accidents, cause, barrels lost, deaths, injuries, and property damage reported to the OPS is attached.

Detection and Extent of Corrosion and Corrective Actions

Prior to construction of the pipeline, Alyeska was required to develop a corrosion control plan. This plan, as amended and approved by the OPS, included a requirement that Alyeska conduct internal instrumented ("pig") surveys to monitor the pipeline for development of corrosion. As required by the OPS, Alyeska began running pig surveys in 1978 and continued through 1987 using different types of pigs. Because of the diameter of the pipeline (48 inches), the Arctic terrain, and the inadequate state-of-the-art of pig devices, Alyeska was unsuccessful, until 1988, in obtaining a pig capable of detecting corrosion on the line. With improvements in technology, the first pig run (with the International Pipeline Engineering, Ltd. (IPEL) magnetic flux leakage pig) to detect corrosion on the Alyeska line was completed in 1988.

In 1989, the Nippon Kokan (NKK) pig, an ultrasonic pig capable of detecting as little as a 10 percent loss in wall thickness, was run. The ultrasonic pig is state-of-the-art and measures wall

thickness with a high frequency sound. It reports changes in wall thickness, called anomalies, which may be caused by mill or manufacturing imperfections, scratches or grinding marks caused by transportation and construction procedures, as well as internal and external corrosion. Because the anomalies found by Alyeska have all been in underground pipe, uncovering the pipe at the location of the anomaly is necessary to determine the exact type of anomaly. Data from the pig runs led Alyeska to schedule 827 anomalies (possible sites of corrosion) for field investigation over a 2-year period. Of the 336 sites investigated thus far, 33 have required repair, the majority of which (75 percent) are in the Atigun Flood Plain area.

Alyeska has prioritized the Atigun Flood Plain area anomalies and is uncovering the line in this area to make temporary repairs on the most corroded areas prior to the scheduled replacement of 9 miles of pipe in this section in 1991. Alyeska has already completed repair of all Priority I anomalies. (Alyeska prioritizes anomalies based primarily on degree of corrosion and the operating pressure at the point of corrosion.) These repairs are made by adding sleeves, which are in fact sections of original pipe welded or otherwise affixed to a corroded area of the pipe, thereby increasing the wall thickness in that area. Further, as requested by the OPS, Alyeska has lowered the operating pressure approximately 10 percent in the Atigun Flood Plain area to provide a safety margin pending replacement of the pipe.

A second NKK ultrasonic pig run is scheduled in May and June of this year. The OPS will review the results from this pig run and will monitor any actions Alyeska takes based on this additional information.

Inspection Oversight

Prior to 1989, Alyeska was inspected on our then routine interval of 2.5 to 3 years for each of its five inspection units. Two of Alyeska's units ~~were~~ inspected in both 1987 and 1988. However, in 1989, at the direction of Administrator Dungan, the OPS initiated comprehensive inspections of the Alyeska pipeline on an annual basis. The OPS has reviewed potential problem areas both onsite and in Alyeska's operations and maintenance records in the Alyeska office. A total of 42 staff days of inspection were performed in 1989. The OPS inspections covered the entire 800-mile length of the pipeline. However, the majority of the inspection effort was focused on Alyeska's corrosion control program, including the repair sleeves and the hydraulic effects, to assure that the pipeline was operating at a safe pressure.

To assist us in focusing our increased inspection effort, the OPS receives an updated schedule of Alyeska's field operations three times a week. The OPS is continuously notified of corrosion locations as they are identified because of the new Safety Related

Condition Report rule. Under that rule, operators are required to report "any condition that constitutes a hazard to life or property, and any safety related condition that causes or has caused a significant change or restriction in the operation of pipeline facilities." After OPS review of Alyeska's submission of this information in early 1989, the Administrator sent two inspectors to Alaska to evaluate the potential corrosion problems identified by Alyeska. Since that time, we have increased our monitoring of Alyeska's corrosion control actions.

Initiatives

OPS has a number of initiatives underway to address the special challenges involving the safe operation and maintenance of the pipeline facilities in Alaska.

Effective March 1, 1990, the OPS has assigned a senior pipeline engineer to be the Department's Senior Technical Advisor on Alaskan pipeline matters. This person is responsible on a full time basis for the inspection and enforcement of the pipeline safety regulations for pipeline facilities in Alaska. In addition, we can supplement this expertise by drawing on other OPS personnel whose particular background can provide needed skills to address specific problems. At the present time, we have 12 separate inspection trips planned for Alyeska oversight this year. This number will

rise as we receive more information from Alyeska on its schedule of pipeline repairs and tank maintenance.

In the Fiscal Year 1991 budget request to Congress, we have asked for two additional inspector positions for the Western Region Office to assure annual inspections of the 18 operators with 34 inspection units in Alaska, which include 14 hazardous liquid inspection units, the LNG export facility and offshore pipelines, and to assure compliance with federal safety requirements in environmentally sensitive areas of Alaska.

In addition, the OPS is committed to working in concert with the Bureau of Land Management, and the State of Alaska to develop a joint office in Anchorage, thereby increasing our resources, skills, and responsiveness. This effort holds real promise, not just for dealing with TAPS, but for all pipeline-related matters in the state.

Finally, we have had discussions, both in Washington with a representative of the Governor's Office and in Alaska with several interested state legislators, concerning bringing the state into the Federal/State partnership I discussed previously. I am hopeful that the state will join the program thereby assuring that those with the greatest direct stake in safe pipeline operations in Alaska will have the primary voice in achieving that goal.

Conclusion

At this time, we are satisfied that Alyeska is taking appropriate steps to assure the continuing integrity of the pipeline. They discovered the corrosion at issue in this hearing, and did so in accordance with a cathodic protection and monitoring program approved by the Department. Also, they are moving quickly to remedy the corrosion. The actions being taken by Alyeska are being carried out under the scrutiny of both federal and state investigators--both in the near term, building on inspections currently underway, and in the long term, as we increase our oversight of Alyeska's ongoing operations.

This concludes my prepared statement. I would be pleased to answer the Subcommittee's questions.