OVERVIEW OF PIPELINE REGULATORY REQUIREMENTS COOK INLET, ALASKA

Prepared for

COOK INLET REGIONAL CITIZENS' ADVISORY COUNCIL

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Executive Summary

This report provides an overview of the regulatory authority governing onshore and offshore crude oil pipelines in Cook Inlet. The purpose of the report is to (1) prepare a summary of the agencies and regulatory requirements associated with pipelines; (2) provide a list of companies that have submitted spill response plans, including expiration dates; and (3) offer recommendations, if any, to make pipeline regulations more efficient while reducing regulatory burden and the risk of oil spills. The report also provides a brief overview of contingency plans which have been submitted to state and federal agencies; a summary of the existing pipelines' characteristics; a list of technical documents utilized in construction, operation and maintenance of pipelines; and select oil spill statistics from 1995 to 1999.

The first pipeline was put in place in Cook Inlet almost 40 years ago. In the intervening years, the miles of pipeline and the level of oversight has grown at almost proportional levels. With over 156 miles of pipelines carrying crude oil, there are at least five agencies that are involved in some level of regulation. The level of agency involvement and regulatory authority is similar to a bowl of spaghetti; there is overlap and intertwining which at times is difficult to unravel. One point is clear, there is no single agency coordinating design, construction, maintenance, operation or spill response plans for pipelines in Cook Inlet.

Cook Inlet proper includes both federal and state waters while the surrounding uplands are a blend of federal, state, borough, city, and private lands. Currently, the offshore pipelines and facilities in place are located in state waters while onshore pipelines traverse multiple land ownership.

State regulatory jurisdiction with pipelines rests primarily with the Department of Environmental Conservation and Department of Natural Resources. The Department of Environmental Conservation requires all oil producers and transporters to submit oil discharge prevention and contingency plans. State regulations distinguish between two types of pipelines: 1) crude oil transmission lines and 2) facility pipelines. The state has

adopted prevention credits that allow a reduction in a pipeline operator's response planning standard if certain prevention measures are implemented.

The U. S. Department of Transportation, Research and Special Programs Administration, Office of Pipeline Safety, requires companies operating ***onshore*** pipelines to submit oil spill response plans. Offshore gathering lines and pipelines are subject to the agency's design, construction, maintenance, and operation requirements but oil spill response plans are not required for these lines.

The U. S. Coast Guard requires oil spill response plans for that portion of a marine transportation related facility (dock) extending from a vessel to the first valve inside a secondary containment area.

Minerals Management Service is responsible for ensuring offshore exploration and production facilities have appropriate oil spill response plans and capabilities.

The Environmental Protection Agency currently claims no jurisdiction over Cook Inlet pipelines but requires response plans for some facilities.

These pipelines are approaching the end of their expected life span and need closer monitoring and testing. There is a need to update the 1993 Cook Inlet Oil Pipeline Risk Assessment, by Belmar, and address the recent increase in the number of oil spills from pipelines in Cook Inlet. Cook Inlet Regional Citizens Advisory Council may wish to recommend a number of other actions be taken to clarify jurisdictional responsibilities and improve government and industry efficiencies.

Introduction

Cook Inlet Regional Citizens Advisory Council (Cook Inlet RCAC) requested this overview of the regulatory authorities governing pipelines in Cook Inlet to gather a better understanding of the current status of pipeline oversight in Cook Inlet. It consists of a description of agencies involved in regulating pipelines, a brief overview of applicable regulations, a list of pipeline contingency plans, a selected bibliography, pipeline oil spill information, and recommendations for Cook Inlet RCAC consideration.

Data provided by the Alaska Department of Environmental Conservation shows that over the past five years there have been an increase in the number of pipeline related spills in Cook Inlet. In 1995 there were six pipeline-related spills including one crude oil spill. This changed in 1998 when the number of spills doubled to twelve with two crude oil spills. Through September 1999 there were twelve spills with seventy five percent of these coming from pipelines. It is worth noting that Cook Inlet differs from the rest of the nation, where during the same time period the number of pipeline spill incidents has declined.

Agency Authorities in Regulating Pipelines

Up to eight state and federal agencies have regulatory authority over pipelines in Cook Inlet.

Federal Agencies

Four federal agencies have regulatory authorities over pipelines in Cook Inlet. These agencies are:

- U. S. Department of Transportation, Research and Special Programs Administration, Office of Pipeline Safety (RSPA/OPS),
- The United States Department of Transportation, United States Coast Guard (USCG),
- The U.S. Environmental Protection Agency (EPA), and

- The United States Department of Interior, Minerals Management Service (MMS).

Federal law requires pipeline operators to submit contingency plans, which are called oil spill response plans or spill prevention control and countermeasures plans.

Office of Pipeline Safety

The Office of Pipeline Safety administers a comprehensive pipeline safety program that includes:

- Safety in design, construction, inspection, testing, and operation and maintenance of pipelines;
- Establishing parameters for administering the pipeline safety program; and
- Delineating requirements for ***onshore*** oil pipeline response plans.

Applicable regulations are published in 49 CFR Parts 190 – 199.[1] The regulations set a level of safety to be attained while allowing operators discretion how to achieve the level. The Hazardous Liquid Pipeline Safety Act of 1979, as amended, authorizes RSPA/OPS to regulate transportation of hazardous liquids (crude oil, petroleum products, anhydrous ammonia, and carbon dioxide). The Consolidated Omnibus Budget Reconciliation Act of 1985 authorizes RSPA/OPS to assess and collect annual fees from the pipeline industry on a per-mile basis to fund the cost of the pipeline safety program.

The 1992 Pipeline Safety Act required RSPA/OPS to survey and assess the effectiveness of emergency flow restricting devices including other procedures, systems and equipment used to detect and locate pipeline spills or ruptures. After an advanced notice of proposed rulemaking, a study of emergency flow restricting devices and leak detection technology, and a public workshop on the issue; RSPA/OPS postponed adopting a final rule. The rulemaking process is postponed until completion of a

1 49 CFR Part 195.1(b)(4) states the regulations do not apply to transportation of petroleum in onshore gathering lines in rural area. Gathering lines are defined as a pipeline 8 5/8-inch or less nominal outside diameter that transports petroleum from a production facility. 49 CFR 195.1 (c) requires low stress pipelines in offshore areas to

definition of "areas unusually sensitive to environmental damage". Until this effort is complete, RSPA/OPS has adopted guidelines[2] requiring newly installed or upgraded leak detection systems to comply with America Petroleum Institute's (API) Standard No. 1130, Section 4.2.

Federal law allows for states to assume intrastate regulatory, inspection and enforcement responsibilities under an annual certification. To qualify, a state must adopt the minimum federal regulations and may adopt additional and more stringent regulations as long as they are not incompatible with federal regulations. A state not qualifying for certification may enter into an agreement with RSPA/OPS to undertake certain aspects of the pipeline safety program. While the state may inspect operators to ascertain compliance with federal regulations, enforcement is undertaken by RSPA/OPS. RSPA/OPS may reimburse a state agency up to 50 percent of the actual cost for carrying out its program, including the cost of personnel and equipment. There is currently no such program or agreement between RSPA/OPS and the State of Alaska.

In Alaska, RSPA/OPS has an office in Anchorage with three inspectors who perform standard follow-up, drug, and construction inspections. Seven companies in Cook Inlet have submitted oil spill response plans[3] and are subject to inspection by RSPA/OPS. These companies are: Tesoro Alaska, Kenai Pipeline, Unocal, Phillips, Cross Timbers, Forcenergy, and Cook Inlet Pipeline Company. CFR Part 194, Appendix A, identifies the recommended contents for an oil spill response plan including: information summary, notification procedures, spill detection and on-scene spill mitigation procedures, response activities, list of contacts, drill procedures, and response plan review and update procedures. Once approved, these plans are valid for five years.

comply that existed on July 12, 1994 to comply with the regulations by July 12, 1996. A low-stress pipeline is a line operated in its entirety at a stress level of 20% or less of the specified minimum yield strength of the line.
2 49 CFR Part 195, July 6, 1998 (63 FR 36373).
3 49 CFR Part 194 requires only operators of onshore pipeline that could cause substantial or significant and substantial harm to the environment to submit plans.

United States Coast Guard

The United States Coast Guard has limited responsibility for Cook Inlet facilities and pipelines. USCG regulations[4] define a marine transportation related facility to include an onshore facility or segment of a pipeline regulated by two or more federal agencies. The USCG's jurisdiction extends from the piping connected to the vessel to the first valve inside the secondary containment area around the facility.

Facilities transferring oil to vessels must submit a facility oil spill response plan to the USCG. Specific elements of the plan, which relate to pipelines, include actions which will be taken by facility personnel in the event of a discharge resulting from a pipe rupture or leak. The plan must contain a description of the facility including locations and capacities of all piping and identification of the valve separating the USCG's jurisdiction from that of other agencies.

United States Environmental Protection Agency

A representative of the U.S. Environmental Protection Agency indicated that EPA has no jurisdiction over crude oil pipelines in Cook Inlet.[5] However, the EPA does require facilities to submit contingency plans, referred to as a spill prevention control and countermeasures plan.[6] The plan is required to include a discussion of how operators are able to conform with guidelines addressing facility drainage; bulk storage tanks; facility transfer operations; onshore oil production facilities; tank car and tank truck loading; battery installations and offshore oil drilling, production or workover facilities. For pipelines the regulations state the following requirements:

- buried pipes must have protective wrapping and coating and be cathodically protected, if soils conditions warrant;
- if not in service the line must be capped or blank-flanged at the transfer point;
- pipe supports must be designed to minimize corrosion, abrasion, and allow for expansion or contraction;

4 33 CFR Part 154.1020
5 Personal communication, Carl Lautenberger, EPA, January 10, 2000.
6 40 CFR Part 112.

- periodic pressure testing must occur in areas where there could be a spill;
- above ground valves and lines must be inspected regularly;
- submarine pipelines must be protected against environmental stresses and other activities, including fishing;
- submarine pipelines must be inspected on a periodic basis for failure; and
- Inspection documents must be maintained at the facility.

Minerals Management Service

The Minerals Management Service is responsible for ensuring that offshore oil and gas exploration and production facilities have appropriate oil spill response plans.[7] MMS regulations require owners or operators of facilities located in state waters to submit a spill response plan to MMS for approval.[8] Operators can modify an existing plan, follow the MMS response plan format, or develop and submit a plan under state format requirements. For offshore structures MMS also has specific design, installation, testing, repair inspection and abandonment requirements for pipelines.[9]

Memorandum of Understanding Establishing Federal Jurisdiction

A Memorandum of Understanding (MOU) establishing federal jurisdictional responsibilities for offshore pipelines was signed between RSPA/OPS, USCG, EPA, and MMS in February 1994. The MOU establishes federal jurisdictional boundaries and delineates areas of agency responsibility. As part of this MOU, the coastline marks the boundary for determining which agency is responsible for a facility. Facilities in Upper Cook Inlet located north of Kalgin Island are subject to EPA oversight and facilities south of Kalgin Island fall under MMS oversight.

In July 1994 EPA and MMS entered into a separate agreement that gave MMS responsibility for OPA 90 implementation for offshore oil facilities located in Cook Inlet.

7 30 CFR Part 254; Oil Pollution Act of 1990.
8 30 CFR Part 254.50.
9 30 CFR Part 250.102 applies only to facilities located in the outer continental shelf and not within state submerged lands.

Under this agreement MMS has responsibility for spill prevention and control, response planning and equipment inspections for new exploration and development activities.[10] USCG and RSPA/OPS handle transportation[11] related offshore facilities, including pipelines.

A subsequent MOU, signed in December 1996, further delineates MMS and RSPA/OPS responsibilities. This agreement establishes MMS 's responsibility for all Outer Continental Shelf pipelines upstream of the particular point. This point is located where operating responsibility transfers from a producing operator to a transporting operator. The points are fixed and placarded on the pipeline. RSPA/OPS responsibility is downstream of this point. The MOU also delineates areas of joint responsibilities such as rulemakings, inspections, investigations and research and development projects.

Another MOU, entered into in the 1970's between the USCG and EPA, established that the USCG has jurisdiction at waterfront facilities, including the pipeline between the dock and the first valve inside the secondary containment area around the facility.

State Agencies

In Alaska, three agencies have some jurisdiction over pipelines. These agencies are:

- The Department of Environmental Conservation (ADEC),
- The Department of Natural Resources (ADNR), and
- The Department of Administration, Alaska Oil and Gas Conservation Commission (AOGCC).

State law requires pipeline operators to submit contingency plans, which are also called oil discharge prevention and contingency plans.

10 Correspondence from Jeff Walker, Regional Supervisor, Field Operations, Mineral Management Service to Ms. Rory Dabney, Cook Inlet Regional Citizens Advisory Council. March 20, 2000. Memorandum of Understanding Between the Regional Director of the Minerals Management Service Alaska OCS Region and the Assistant Regional Administrator of the U. S. Environmental Protection Agency, Region X, Alaska Operations Office.
11 Transportation related facilities would include, but is not limited to, pipelines, facility transfer operations, and vessels.

Department of Environmental Conservation

The State of Alaska, Department of Environmental Conservation has authorities over oil pollution control. ADEC has approval authority over all oil discharge prevention and contingency plans. These plans must include response actions, prevention, and supplemental information about the pipeline or facility in the plans. ADEC's regulations distinguish between two types of pipelines:

- Crude oil transmission pipelines and
- Facility pipelines.

It is not clear how ADEC has chosen to designate pipelines between these two categories in Cook Inlet. Alaska law defines a "pipeline" as facilities, including piping, compressors, pump stations and storage tanks, used to transport **crude** oil and associated hydrocarbons between production facilities or from one or more production facilities to marine vessels.[12] The law also defines "production facilities" to include drilling rigs, drill site, flow station, gathering center, pump station, storage tank, well and related appurtenances or other facilities used to produce, gather, clean, dehydrate, condition or store crude oil and associated hydrocarbons to the inlet of a pipeline system for delivery to a marine facility, refinery or other production facility.[13]

On the other hand, ADEC regulations defines "transmission pipeline" as a pipeline through which **crude** oil moves in transportation, including line pipe, valves and other appurtenances connected to the line pipe, pumping units, and fabricated assemblies associated with pumping units but does not include gathering lines, flow lines or facility piping.[14] Regulations also define "facility" or "facility or operation" as any offshore or onshore structure, improvement, vessel, vehicle, land, enterprise, endeavor, or act; "facility" or "facility or operation" includes an oil terminal facility, tank vessel, oil barge, **pipeline**, and an exploration or production facility.[15]

12 AS 46.04.900(15)
13 AS 46.04.900(16)
1418 AAC 75.990(68)
1518 AAC 75.990(20)

There are distinct differences in ADEC's regulatory requirements between facility pipelines and crude oil transmission pipelines. Only two pipelines in Cook Inlet are regulated as crude oil transmission pipelines. They are Cook Inlet Pipeline Company's and Forcenegy's pipelines. All other pipelines in Cook Inlet, including Kenai Pipeline, Tesoro's pipelines to Anchorage and Swanson River and all the undersea pipelines from the oil production platforms to shore, are regulated as facility pipelines. Even though these facility pipelines carry a mixture of crude oil and produced water, a fluid much more corrosive than pure crude oil, they are subject to less strenuous regulations that the crude oil transmission pipelines.

ADEC's regulations for crude oil transmission pipelines focus on prevention through leak detection systems and corrosion control programs. This contrasts with RSPA/OPS's requirements that are focused on design, construction, operation and maintenance. ADEC requires companies to follow recommended practices and operating guidelines as established by the API, American National Standards Institute (ANSI), National Association of Corrosion Engineers (NACE) and others.[16] ADEC's regulations also require crude oil transmission pipelines to be equipped with leak detection systems, provide flow verification through an accounting method at least every 24 hours, and to conduct weekly aerial inspections for remote lines. A pipeline company must also be able to stop flow of oil within an hour of detection of a discharge.[17] Facility pipelines do not have to meet these requirements.

Operators submitting oil discharge prevention and contingency plans for crude oil transmission pipelines must include diagrams or aerial photographs of the pipeline corridor including topography, terrain, and natural features. The locations of those portions of pipe above and below ground, pump stations, and valves must also be indicated.

The response planning standard for both crude oil transmission pipelines and facility pipelines is to contain, control and clean up a spill within 72 hours of entering open

[16] 18 AAC 75.090

water or within the shortest time possible to minimize damage to the environment. The planning standard for a crude oil transmission pipeline is calculated from the volume of the pipeline.[18] The response planning standard for a facility pipeline is calculated from the oil storage capability of the facility.[19]

The response planning standard for a crude oil transmission pipeline can be lowered through prevention credits for any of the following: an alcohol and drug testing program for key personnel; an operations training program; on-line leak detection system; corrosion control, or cathodic protection or burial profile for underwater lines.[20] The response planning standards for facility pipelines can be reduced through prevention credits for any of the following: an alcohol and drug testing program for key personnel; an operations training program; on-line leak detection systems or emergency pipeline shut down valves with remote, local, and fail-safe operations, capable of closing against full differential pipeline pressure and used exclusively for emergency shutdown.[21]

Operators of crude oil transmission pipelines must utilize best available technology (BAT) for corrosion control and surveys, maintenance practices for buried steel piping, leak detection, monitoring, and operating requirements.[22] Operators of facility pipelines must utilize BAT for corrosion control and surveys, maintenance practices for buried steel piping, but are not required to have BAT for leak detection, monitoring, and operating requirements.[23]

ADEC requires all pipelines leaving production facilities to have closure valves located at a protected location that will isolate the pipeline from the remainder of the facility if a discharge or other emergency should occur. These valves must have manual and remote controls as part of the emergency shutdown system.[24]

[17] 18 AAC 75.055
[18] 18 AAC 75.436
[19] 18 AAC 75.432 and 18 AAC 75.434.
[20] 18 AAC 75.436(c)
[21] 18 AAC 75.432(d) and 18 AAC 75.434(c)
[22] 18 AAC 75.425(e)(4)(A)(ii) and 18 AAC 75.425(e)(4)(A)(iv)
[23] 18 AAC 75.425(e)(4)(A)(ii)
[24] 18 AAC 75.045(c)

For all pipelines, ADEC distinguishes between new pipelines and existing lines for corrosion control programs.[25] New lines must have protective wrapping and cathodic protection and, for lines larger than a one inch nominal pipe size, must be welded. Existing lines must have a corrosion survey on a schedule approved by ADEC and if a buried line gets exposed, it must then be carefully examined for deterioration. If an existing line is damaged and must be replaced, the pipe must then meet the requirements of a "new" line. Buried or insulated lines that are located outside of secondary containment areas and used to transfer oil to or from docks or vessels must be leak tested annually and stenciled or tagged with the date of the test and allowable operating pressure. Above-ground pipes must be visually checked monthly and protected from potential vehicular damage.

Companies operating facility pipelines in Cook Inlet with approved oil discharge prevention and contingency plans include: Cross Timbers, Forcenergy, Unocal, Marathon, Kenai Pipeline, Cook Inlet Pipeline, and Tesoro Alaska. The only companies with oil discharge prevention and contingency plans approved for crude oil transmission pipelines are Forcenergy and Cook Inlet Pipeline.

Department of Natural Resources

The State of Alaska, Department of Natural Resources (ADNR) has several functions under Alaska law with respect to regulating pipelines. Lease sale mitigation measures and conditions on plans of operations and right-of-way permits regulate the design, construction and operation of all pipelines. The following is a summary of ADNR's statutory authority:

- The authority to grant right-of-way permits over State land or water by noncompetitive lease for pipeline purposes[26];
- The authority to lease acreage for oil and gas exploration, development, production, and transportation[27];

[25] 18 AAC 78.080
[26] AS 38.05.020
[27] AS 38.05.180

- The authority for the Division of Mining, Land Water Management (DMLWM) to issue right-of-way permits or easements on sate land for field gathering lines and distribution lines[28].

The ADNR's, Division of Oil and Gas (DOG) and DMLWM review, coordinate, place conditions on, and approve plans of operations and permits which might be required to operate a pipeline. DOG requests pipeline operators to submit information on the pipeline operating conditions, inspection history, and maintenance history. Pipeline operating conditions include: normal and maximum operating pressure, flow rates, type and composition of product. Inspection histories include: dates, results and extent of internal and external monitoring, cathodic protection survey, location and rate of internal and external corrosion. Maintenance histories include: date, location and description of repairs, leaks, and additional corrective and preventive maintenance accomplished.

Additionally, the Director of DOG may impose conditions or limitations to ensure a lease sale is in the state's best interest and to mitigate potential adverse social and environmental effects. The 1999 Cook Inlet Areawide Oil and Gas Lease sale best-interest-finding imposed the following three mitigation measures on pipelines:

1. Whenever possible, onshore pipelines must utilize existing transportation corridors and be buried where soil and geophysical conditions permit. If the lines must be placed above ground, they must be sited, designed and constructed to allow free movement of wildlife, such as moose and caribou.

2. Offshore pipelines must be located and constructed to prevent obstructions to marine navigation and fishing operations.

3. Pipelines must be located upslope of roadways and construction pads and be designed to facilitate the containment and cleanup of spills. Pipelines, flowlines and gathering lines must be designed and constructed to assure

[28] AS 38.05.850

integrity against climatic conditions, tides, currents, and other geophysical hazards.

Alaska Oil and Gas Conservation Commission

The State of Alaska, Department of Administration, Alaska Oil and Gas Conservation Commission (AOGCC) acts to prohibit the physical waste of crude oil, ensure a greater resource recovery, and protect the rights of persons owning oil and gas interests in State lands. AOGCC administers the underground injection control program and oversees metering operations to determine the quality and quantity of product produced. AOGCC reviews drilling plans of operation to ensure: proper well design, well control equipment, well logging programs, production practices, and plugging and abandonment procedures. They verify that operations are conducted in accordance with state statutes, regulations and approved procedures. With the abandonment of an offshore platform, the AOGCC may become involved in overseeing the abandonment of the pipelines associated with the platform.

State/Federal Joint Pipeline Office

The State/Federal Joint Pipeline Office (JPO) is a consortium of state and federal agencies that regulates the Trans-Alaska Pipeline System and other common carrier oil and gas pipelines in Alaska. While the overall goal is to regulate work cooperatively with all pipelines in Alaska, the JPO does not oversee pipeline operations in Cook Inlet.

Oil Pollution Act of 1990

Based on the requirements contained in OPA ’90, a number of federal agencies worked cooperatively to develop an Integrated Contingency Plan (ICP). Published in the Federal Register in June 1996, it simplifies emergency planning requirements. RSPA/OPS; in cooperation with the EPA, USCG, Occupational Safety and Health Administration, and MMS; developed the guidance to help facilities prepare response plans. The overall objective is to minimize duplication in the preparation and use of emergency response plans at the same facility and improve economic efficiencies for the regulated and regulators. A plan prepared under the ICP would include general facility information, oil spill response procedures, and prevention practices. The ICP

also includes matrix cross-referencing applicable regulations of each of the participating agencies. To the best of our knowledge, no ICPs have been developed by any of the pipeline operators in Cook Inlet.

Regulations that Apply to Pipelines

Table 1. provides a summary of the pertinent portions of state and federal law that apply to Cook Inlet pipelines. ADEC regulates 145 miles of pipelines carrying crude oil in Cook Inlet. RSPA/OPS regulates 133.9 mile of pipeline carrying crude oil in Cook Inlet.

Table 1. Comparison of state and federal regulations.

Category of Regulation	ADEC[29]	RSPA/OPS[30]	Difference between existing lines & new lines
Plans to mitigate natural hazards	18 AAC 75.425 (included with contingency plan)	195.110 (addresses earthquake, vibrations to be addressed in design)	
Operator Training	18 AAC 75.007 18 AAC 75.436 (prevention credits available)	195.403	
Operator Certification	NA	Yes, Effective date of new Qualifications of Pipeline Personnel is October 28, 1999	
Alcohol/drug testing	NA	199.1 & 199.200	
Alcohol/drug testing standards and enforcement	18 AAC 75.436 (prevention credits available)	199.3 199.215 Part 190 Subpart B	
Operational standards	NA	195 Subpart F	
Leak detection system standards	18 AAC 75.055 18 AAC 75.436 (prevention credits available)	API standards; NPRM anticipated[31]	
Valves	NA	195.228 195.260 195.240	
Spill history reporting	18 AAC 75.007 18 AAC 75.425	195 Subpart B	

29 Unless otherwise notes references are to Alaska Statutes Title 46 and Alaska Administrative Code Title 18.
30 Unless otherwise noted all references are to Hazardous Liquid Pipeline Safety Act of 1979 and 49 CFR Ch.1 (10-1-96 Edition)
31 RSPA/OPS expects to issue a Notice of Proposed Rule Making (NPRM) after Unusually Sensitive Areas (USAs) are defined in a separate rulemaking. In the interim, API leak detection practices was adopted in 49 CFR Part 195 in July 1998.

Table 1. continued.

Jurisdictional Overview	AK Department of Environmental Conservation	U. S. Department of Transportation, Office of Pipeline Safety	Difference between existing lines & new lines
Inspection Requirements	AS 46.04.060 18 AAC 75.007 18 AAC 75.080	195.412[32]	
Use of internal inspection devices	NA	195.120; Final rule anticipated[33]	
Periodic integrity/ pressure testing requirements	18 AAC 75.080(c)	195 Subpart E[34]	RSPA/OPS has different standards for existing lines and new lines
Shutdown procedures	NA	195.402(c)(7) 195.402(e)(4)	
Security standards or protection from third party damage	AS 42.300.400[35]	195.440 195.442 195.410[36]	
Site risk analyses and mitigation measures	18 AAC 75.425	NPRM pending[37]	
Corrosion detection and control standards	18 AAC 436 (prevention credits available)	195.414 through 195.418[38]	SOA/ADEC does have different criteria
Standards/ requirements to prevent human error and lessons learned programs	18 AAC 75.080	195.440 195.442	
Efforts to coordinate state and federal programs	ADEC requests input and comment on c-plans from ADFG and ADNR AS 46.04.030 (j) 18 AAC 75.455	State coordination addressed in Part 198 but there is no agreement with Alaska	

32 OPS are considering the need to establish increased inspection requirements in high-density population areas, USAs, and commercially navigable waters.
33 RSPA preparing final rule amending existing regulations to require new and replacement lines be designed and constructed to accommodate “smart pigs.”
34 Older pipelines in terminals and tank farms must be pressure tested before December 2003. A petition has been submitted requesting waiver of this requirement for lines designed not to operate above 20% specified minimum yield strength.
35 Also regulated by federal Occupational Safety and Health Standards in 29 CFR.
36 Companies in Cook Inlet that subscribe to free locate include Marathon, Phillips, Tesoro and Unocal.
37 RSPA published a Notice of Intent describing the pilot program in July 1999. NPRM should be published in early 2000.
38 OPS anticipates issuing proposed rulemaking in early 2000 to incorporate the latest safety practices for corrosion protection of steel pipe into regulations.

Table 1. continued.

Jurisdictional Overview	AK Department of Environmental Conservation	U. S. Department of Transportation, Office of Pipeline Safety	Difference between existing lines & new lines
R&D focus on pipeline spill prevention	18 AAC 75.447, new technology	NA	
Records preparation and retention	18 AAC 75.425	195.54	
Contingency plan	AS 46.04.030(b) 18 AAC 75.005 18 AAC 75.425	Part 194 & Appendix A[39]	
Abandoned Lines	18 AAC 75.080(e) 20 AAC 25.172[40]	NPRM[41]	
Pipeline operating requirements	18 AAC 75.425	195.402	
Integrity requirements for breakout/storage tanks	18 AAC 75.055 18 AAC 75.065	195.264 195.432	

39 RSPA expects to issue final rule in early 2000; contingency plans are required to be submitted for onshore pipelines only.
40 Upon abandonment of an offshore production facility, unless agreed to by the surface owner, the operator is required to remove all materials, supplies structures, and installations from the location.
41 OPS are considering requiring operators to report on abandoned underwater pipelines. NPRM was published in August 1999.

Pipeline Contingency Plans for Cook Inlet

Pipeline contingency plans have been submitted to various federal agencies and ADEC. RSPA/OPS provided a list of companies that submitted plans, as did ADEC and the USCG. MMS provided a list of facilities requiring approved oil spill contingency plans in June 1999. Table 2 contains a summary of the pipeline contingency plans for Cook Inlet.

Table 2. Pipeline contingency plans in Cook Inlet.

Operator	ADEC	RSPA/OPS	MMS	USCG	Comments
Cook Inlet Pipeline	April 9, 2001	January 24, 2000		March 4, 2004	Plan resubmitted to RSPA for renewal.
Cross Timber	March 30, 2001	February 12, 1998	On file	Under review	Plan submitted to RSPA Dec. 1999.
Forcenergy	August 10, 2002		On file	April 30, 2000	
Kenai Pipeline	March 1, 2001	January 18, 2000		July 17, 2001	Plan resubmitted to RSPA for renewal.
Phillips Petroleum	October 7, 2001	July 16, 2003	On file	On file - Kenai	
Tesoro Alaska	June 11, 2001	January 19, 2000		On file- Kenai	Plan resubmitted to RSPA for renewal.
Unocal	March 1, 2001	June 24, 2001	On file	On file - Kenai	

Inventory of Cook Inlet Oil Pipelines

The first facilities were installed in Cook Inlet in 1960 in the Swanson River fields and are continuing today. Of the five onshore and fourteen offshore lines the total length of pipelines is approximately 156 miles.[42] ADNR records reveal about 84 miles of pipeline transport crude oil from offshore platforms to shore.[43] The offshore crude oil pipelines in Cook Inlet are weighted lines to withstand movement caused by the exceptionally strong tidal currents. Table 3 provides a summary of existing pipelines, including their line diameter, length, and year installed.

Table 3. Operator and information about Cook Inlet oil pipelines.

Current Operator	ADEC Class	Location	Installed	Length	Line Diameter
a. Cross Timbers	Facility Pipeline	A to shore	1965	7.0 miles	8.625"
b. Cross Timbers	Facility Pipeline	C to A	1967	2.2 miles	8.625"
c. Unocal	Facility Pipeline	Baker to A	1965	2.5 miles	8.625"
d. Unocal	Facility Pipeline	Dillon to shore	1966	5.6 miles	8.625"
e. Unocal	Facility Pipeline	Grayling to shore	1967	6.0 miles	10.75"
f. Unocal	Facility Pipeline	King Salmon to shore	1967	7.0 miles	8.625"
g. Unocal	Facility Pipeline	Dolly Varden to shore	1967	5.7 miles	8.625"
h. Unocal	Facility Pipeline	Steelhead to shore	1986	6.5 miles	8.625"
i. Unocal	Facility Pipeline	Monopod to shore	1966	9.0 miles	8.625”
j. Unocal	Facility Pipeline	Spurr to shore	1968	8.4 miles	6.625"
k. Marathon[44]	Facility Pipeline	Spark to shore	1968	7.2 miles	6.625"
l. Unocal	Facility Pipeline	Anna to Bruce	1966	1.6 miles	8.625"
m. Unocal	Facility Pipeline	Bruce to shore	1974	1.6 miles	6.625"
n. Unocal	Facility Pipeline	Granite Point to shore	1966	6.0 miles	8.625"
o. Kenai Pipeline	Facility Pipeline	Shell onshore to Nikiski Terminal	1965	3.9 miles	12.0"
p. Cook Inlet Pipeline	Crude Oil Pipeline	Granite Point to Drift River	1966	42.0 miles	20.0" & 12.0"
q. Cook Inlet Pipeline	Facility Pipeline	Drift River loading lines	1966	3.6 miles	30.0" & 42.0"
r. Forcenergy	Crude Oil Pipeline	West McArthur to Trading Bay	1993	1.3 miles	8.625”
s. Kenai Pipeline	Facility Pipeline	Swanson River to Nikiski	1960	19.2 miles	8.625"
t. Tesoro	Facility Pipeline	Nikiski Term. to Tesoro Refinery	1983	<1 mile	24.0"
u. Tesoro	Facility Pipeline	Tesoro Ref. To Anchorage	1974		10.0"

42 Oil Pipeline Risk Assessment, Belmar Management Services, November 1993, p.6.
43 Cook Inlet Areawide 1999 Oil and Gas Lease Sale: Final Finding of the Director. Alaska Department of Natural Resources, Division of Oil and Gas; January 1999, page 5-10.
44 The Spark oil pipeline is shut in. Marathon only operates gas lines.

Figure 1. contains a map showing the location of these pipelines.

Leak Detection Systems Used in Cook Inlet

Information provided by ADEC and some of the pipeline operators indicates there are not a lot of different options employed for determining leak detection. There are two methods of leak detection: real-time and periodic. Real-time methods sense a pipeline leak as it occurs and warns the operator to shut down the pipeline. Periodic methods are tests done by the operator to see if the pipeline might be damaged or leaking.

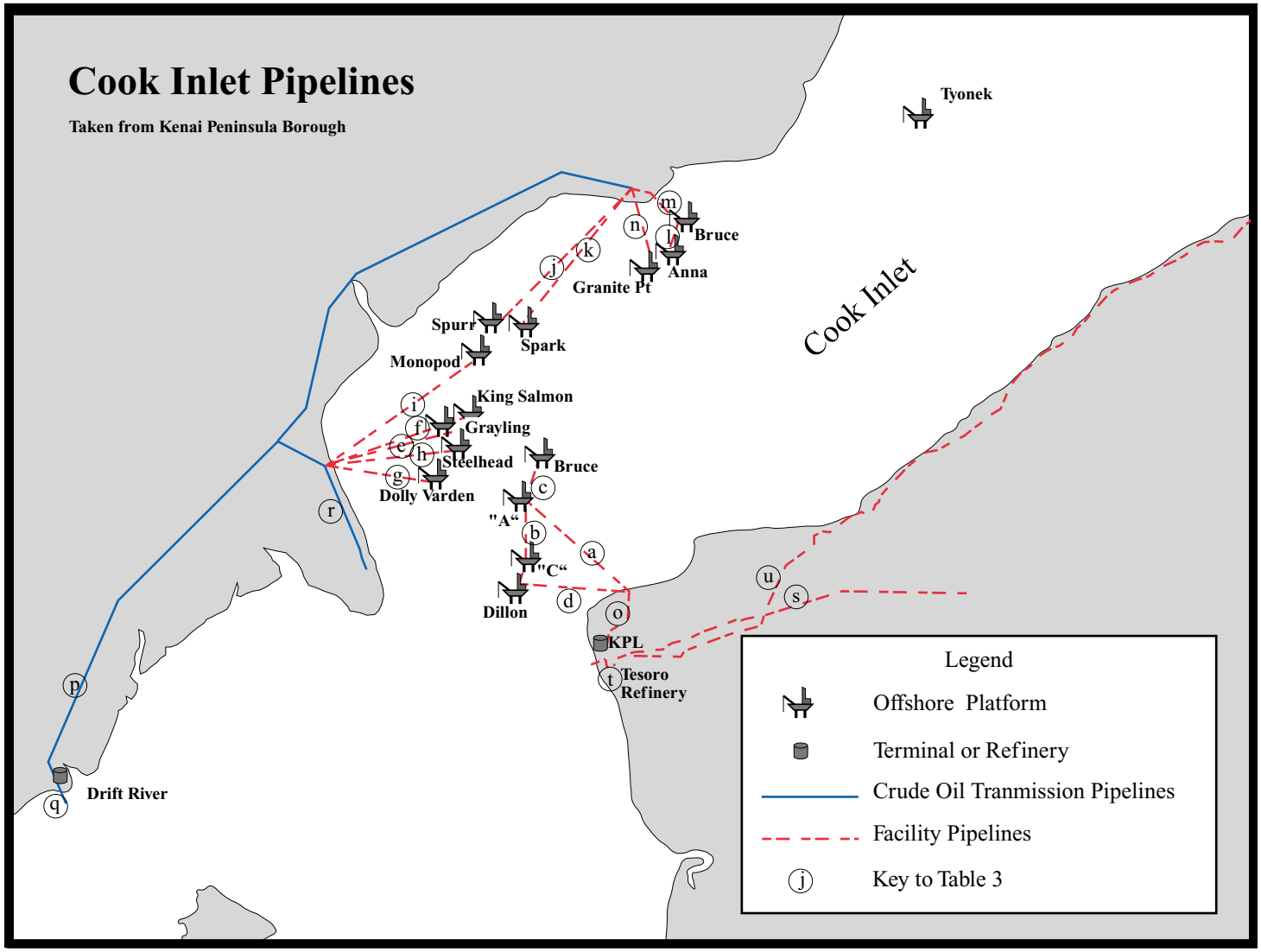
The primary real-time method utilized in Cook Inlet is to determine if there has been a drop in the operating pressure of the pipeline. Pipeline pressure is monitored by pressure gauges that signal pressure drops. Small leaks can be difficult to detect through this method because of the natural pressure fluctuations.

Another real-time method is a Supervisory Control and Data Acquisition (SCADA) system. This computer based system monitors pipeline pressure and throughput and causes an alarm if the data indicate there might be a leak. SCADA systems have been scrutinized over the past year due to computer malfunctions. Recently, pipeline operators were advised, by ADEC, to review the capacity of SCADA systems to ensure the system had the resources to accommodate normal and abnormal operations on the pipeline system.

The periodic methods used to detect leaks in Cook Inlet are static pressure tests and inspections, usually done on an annual basis. Static pressure tests involve taking the pipeline out of service, shutting valves and applying pressure to the line. Then the pressure is monitored over time to see if it decreases. A pressure decrease could indicate a leak in the pipeline or one of the valves. Pipeline companies also do annual field inspections and undertake cathodic protection surveys. A couple of companies employ "smart" pigs for detecting and recording abnormalities in a pipe wall. Companies use "smart" pigs to detect thin spots in the pipe wall. This serves as an early warning so that repairs can begin before leaks occur.

A proposed federal rulemaking addressing pipeline integrity management in high consequence areas has prompted API to identify current state of the practice technology for in-line inspection tools and pressure testing. API has established a work group of technical experts to coordinate the development of an American National Standards Institute (ANSI) pipeline integrity program standard in high consequence areas. The standard will: 1) establish basic elements for a company's pipe integrity program; 2) establish integrity requirements that are pipeline segment or system-wide specific; 3) establish a standard for historical information for leak history, close interval surveys, one-call systems, previous pressure testing and in line inspections; 4) establish standards for pipe integrity assurance activities; 5) establish standards for engineering assessments and 6) define a documentation and auditing process.

Figure 1. Map showing location of oil pipelines in central Cook Inlet.



Selected Pipeline Bibliography

The following are technical documents utilized in the construction, operation, and maintenance of pipelines. The State of Alaska encourages owners/operators to follow the recommended practices and operating guidelines.[45] Federal agencies often adopt or refer to some of these standards.

1. Offshore Platform Structural Fitness for Purpose, Hopper and Associates Engineers, January 20, 1993.
2. Standard Recommended Practice Control of External Corrosion on Underground or Submerged Metallic Piping Systems; NACE Standard RP 0169-83; January 1983.[46]
3. American Petroleum Institute (API) Chapter 6.6, Manual of Petroleum Measurement Standards, Metering Assemblies, Pipeline Metering Systems, First Edition, 1981, Reaffirmed August 1987 (ANSI/API MPMS 5.6-1981).
4. API Publication 2200-94, Repairing Crude Oil, Liquefied Natural Gas and Product Pipelines (1994).
5. API Recommended Practice 1102, Recommended Practice for Liquid Petroleum Pipelines Crossing Railroads and Highways, April 1992 and reaffirmed in 1999.
6. API Recommended Practice 1110, Recommended Practice for the Pressure Testing of Liquid Petroleum Pipelines, March 1993.
7. API Specification 5L, Specification for Line Pipe, Thirty-eight Edition, May 1, 1990.
8. API Specification 6D, Specification for Pipeline Valves (Gate, Plug, Ball and Check Valves), 1994, supplemental published in December 1997.
9. API Standard 1104, Welding of Pipelines and Related Facilities, September 1999.

45 18 AAC 75.090 includes a list of recommended practices. This list is the most current edition of these standards and may differ from what is found in regulation.
46 NACE Subcommittee T 10 A reviews and periodically revises standards within this document. Additional information forthcoming on last revision date.

10. ANSI B31.1, Pressure Piping Code, Power Piping, and Addenda B31.1a (1989).
11. ANSI B31.4, “Liquid Transportation Systems for Hydrocarbons, Liquid Petroleum Gas, Anhydrous Ammonia and Alcohol” (ASME) (1998).
12. ANSI B.36.10M, Welded and Seamless Wrought Steel Pipe (1985).
13. ASTM Specification A333/A333M, “Standard Specification for Seamless and Welded Steel Pipe for Low-Temperature Service” (1988) Revised A-88.
14. ASTM Specification A381, “Standard Specification for Metal-Arc-Welded Steel Pipe for Use in High Pressure Transmission Systems” (1989).
15. National Association of Corrosion Engineers (NACE), NACE RP0175-75, Control of Internal Corrosion in Steel Pipelines and Piping Systems (1975).
16. NACE RP 0275-75, Application of Organic Coatings to the External Surface of Steel Pipe for Underground Service
17. NACE RP 0276-76, Extruded Asphalt Mastic Type Protective Coatings for Underground Pipelines (1976).
18. NACE RP 0286-86, The Electrical Isolation of Cathodically Protected Pipelines (1986).
19. NACE RP 06-75, Control of External Corrosion on Offshore Steel Pipelines (1988).
20. Steel Structural Painting Council (SSPC), SSPC Chapter 16.1-82, Coatings for Pipelines and Other Underground Structures (Good Painting Practice), Volume 1, Second Edition, 1982.

The following documents are specific to Cook Inlet.

21. Cook Inlet Oil Operations Inventory; prepared by Northern Test Labs for Cook Inlet Regional Citizens Advisory Council, June 1992.

    This report consists of five main sections – Exploration Operations, Production Facilities, Crude Transport and Storage Facilities, Processing/Refining Facilities, and Non-crude Storage and Transport Facilities.

22. Cook Inlet Platform Information; prepared by Belmar Engineering for Cook Inlet Regional Citizens Advisory Council, First Edition, 1993.

    The report provides summary technical and operating information for each platform in Cook Inlet.

23. Oil Pipeline Risk Assessment, Cook Inlet, Alaska; prepared by Belmar Management Services for the Alaska Department of Environmental Conservation, November 1993.

    This report provides an overview of the operation and maintenance of the oil pipelines in Cook Inlet. Based on the review of the available operating, inspection and maintenance information on the pipelines, the contractor concluded all pipelines “fit for purpose” and the risk for a significant oil spill was low. While most of the lines are over 25 years old, the report states they can be expected to last another 20 years, if there are no changes in fluid characteristics or throughput volume. Areas of concern that were identified included on-bottom stability of offshore pipelines and the high number of pipeline riser failures from external corrosion.

24. Platform Evaluation, Cook Inlet, Alaska; prepared by Belmar Engineering for Cook Inlet Regional Citizens Advisory Council; December 1993.

    The purpose of the review was to evaluate the structural integrity of five platforms in Cook Inlet to determine if the platforms provided a sufficiently high level of safety for operating personnel and a sufficiently low probability for environmental damage. The study found all of the selected platform structures "fit for purpose".

25. Platform Facility Evaluation, Cook Inlet, Alaska; prepared by Belmar Engineering for Cook Inlet Regional Citizens Advisory Council, March 1995.

    The purpose of the study was to verify that Cook Inlet platform facilities are safe and have a low risk for fires, explosions, and other incidents that might cause an oil spill. The report concluded that Cook Inlet operators are vigilant in maintaining and upgrading platform process facilities. No

significant deviations from industry safety standards were identified. It was recommended that operators pay specific attention to piping and vessel corrosion.

26. Cook Inlet Subarea Contingency Plan for Oil and Hazardous Substance Spills and Releases; Alaska Department of Environmental Conservation, United States Coast Guard, and United States Environmental Protection Agency; July 1997.

    This plan represents a coordinated and cooperative effort by government agencies to comply with the requirements of the Oil Pollution Act of 1990. The subarea plan concentrates on issues and provisions specific to Cook Inlet, including emergency response phone numbers, available response equipment and other resources, specific response guidelines, and information on protection of sensitive areas.

27. Technical Review of Leak Detection Technologies, Volume I, Crude Oil Transmission Pipelines; Alaska Department of Environmental Conservation; October 26, 1999.

    The purpose of the review is to identify the various types of leak detection systems, define a set of criteria to evaluate the performance of the systems than can be adapted to a wide range of operating pipeline systems, and provide a general evaluation of each leak detection technology to accommodate selection of the appropriate system and evaluate in accordance with state regulations.

Oil Spill Statistics 1995 – 1999

Tables 4 through 7 provide information relative to spills that have occurred in Cook Inlet over the past five years.[47] In addition to identifying all spills that have occurred, information is provided delineating the number and gallons of all crude oil spills, refined product spills and crude pipeline spills that have occurred in Cook Inlet during 1998 and 1999.

Table 4. Summary of numbers of all oil spills in Cook Inlet, 1995 through 1999.

Quarter	1995	1996	1997	1998	1999	Average
Jan – Mar	[48]	127	111	126	89	113
Apr – June		182	197	222	133	184
July – Sept	274	200	152	203	180	202
Oct – Dec	157	92	117	18	115	120
Total	431	601	577	669	517	559

Table 5. Summary of all crude oil spills in Cook Inlet, 1998 and 1999.

Crude Oil Spills (number)

Quarter	1998	1999	Total
Jan – Mar	**6**	**6**	**12**
Apr – June	**5**	**8**	**13**
July – Sept	**2**	**6**	**8**
Oct – Dec	**4**		**4**
Total	**17**	**20**	**37**

Crude Oil Spills (gallons)

Quarter	1998	1999	Total
Jan – Mar	**435**	**3,453**	**3,888**
Apr – June	**895**	**141**	**1,036**
July – Sept	**31**	**159**	**190**
Oct – Dec	**146**		**146**
Total	**1,507**	**3,753**	**5,260**

Table 6. Summary of all refined product oil spills in Cook Inlet, 1998 and 1999.

Refined Product Spills (number)

Quarter	1998	1999	Total
Jan – Mar	**75**	**74**	**149**
Apr – June	**144**	**117**	**261**
July – Sept	**131**	**152**	**283**
Oct – Dec	**93**		**93**
Total	**443**	**343**	**766**

Refined Product Spills (gallons)

Quarter	1998	1999	Total
Jan – Mar	**904**	**3,707**	**4,611**
Apr – June	**4,992**	**7,683**	**12,675**
July – Sept	**12,091**	**8,191**	**20,282**
Oct – Dec	**2,493**		**2,493**
Total	**20,480**	**19,581**	**40,061**

47 Information compiled from Alaska Department of Environmental Conservation, Summary of Oil and Hazardous Substance Releases, Quarterly Reports, 1995 – 1999.
48 Information is not available from ADEC

Table 7. Summary of all spills from crude oil pipelines in Cook Inlet, 1998 and 1999.

Crude Oil Pipeline Spills (number)

Quarter	1998	1999	Total
Jan – Mar	**0**	**2**	**2**
Apr – June	**1**	**5**	**6**
July – Sept	**0**	**2**	**2**
Oct – Dec	**1**		**1**
Total	**2**	**9**	**11**

Crude Oil Pipeline Spills (gallons)

Quarter	1998	1999	Total
Jan – Mar	**0**	**12**	**12**
Apr – June	**840**	**69**	**909**
July – Sept	**0**	**112**	**112**
Oct – Dec	**45**		**45**
Total	**885**	**193**	**1,076**

Information from ADNR states pipeline failures in Cook Inlet have been caused by (1) current induced vibration; (2) external corrosion at risers where the pipeline enters the platform; (3) pipeline rubbing; (4) ice scour; and (5) minor flange leaks.[49]

49 Cook Inlet Areawide 1999 Oil and Gas Lease Sale: Final Finding of the Director, p. 5-14.

Recommendations

Pursuant to Section 5002 of the Oil Pollution Act of 1990, Cook Inlet RCAC and its technical committee are to monitor, review and assess: measures designed to prevent oil spills, planning and preparedness for oil spill response, and aspects of terminal facilities which affect or may affect the environment. After a review of the different agency pipeline regulatory requirements, recommendations were formed with the following goals:

- Making pipeline regulations more efficient and understandable,
- Improving incentives for industry while reducing their regulatory burden and
- Reducing the risk of pipeline spills in Cook Inlet.

One thing is clear, these pipelines are approaching the end of their expected life span and need closer monitoring and testing. There is a need to update the 1993 Cook Inlet Oil Pipeline Risk Assessment, by Belmar, and address the recent increase in the number of oil spills from pipelines in Cook Inlet.

These recommendations were created in consultation with the Cook Inlet RCAC's Prevention Response and Operations Committee.

1. Convene a technical workgroup consisting of Cook Inlet RCAC, regulators and operators. This working group should be asked to accomplish the following tasks:
    - further investigate how agencies and operators address potential problems with pipelines in Cook Inlet (leak tests, corrosion measurements, bottom stability, condition of risers, ice scouring),
    - prioritize areas of regulatory overlap including areas where there is no apparent lead agency, and
    - review and update the 1993 Oil Pipeline Risk Assessment by Belmar.
2. Initiate discussions between agencies to develop cooperative agreements, examine methods to streamline regulatory functions and identify additional prevention measures to incorporate into State regulations.

3. Work with operators and agencies, explore possible technology improvements associated with leak detection and emergency flow restriction devices for pipelines.

4. Host a forum; including agencies, pipeline operators and public representatives; to discuss the current status of pipeline systems in Cook Inlet. This public forum can be used to review the technical workgroup's findings and disseminate industry and agency information concerning pipelines status and condition in Cook Inlet.

5. Develop a database on cause and location of spills to help prioritize measures.

6. Request Cook Inlet pipeline operators to gather information or conduct surveys to determine present location of sub-sea pipelines to ascertain any movement, bridging or bottom scouring which may have occurred since the pipelines were installed.