



## Oil Reform Alliance

June 30, 1993

Congressman John Dingell  
Chairman  
Committee on Energy & Commerce  
U.S. House of Representatives  
Washington, D.C. 20515

Congressman George Miller  
Chairman  
Committee on Natural Resources  
U.S. House of Representatives  
Washington, D.C. 20515

### Congressmen:

We are heartened by the recent interest both of your committees have shown on Trans-Alaska Pipeline System (TAPS) oversight. The demands made of the primary federal regulatory agency (Dept. of Interior/Bureau of Land Management) to meet the stipulations of the 1973 right-of-way agreement - specifically federal oversight on state-owned lands and a quality assurance program - are long overdue.

For your consideration at the upcoming joint oversight hearing, we have written a brief synopsis of how lack of comprehensive federal oversight at the Alyeska marine terminal in Port Valdez has led, we believe, to unnecessary and unacceptable contamination of the air and water from hydrocarbon discharges at the terminal. Provisions in the right-of-way agreement to review and upgrade, if necessary, the ballast water treatment plant at least once every five years to ensure that the facility is continually operated with state-of-the-art equipment have been ignored.

We hope that any action resulting from the oversight hearing will include a comprehensive review of the marine terminal with qualified independent experts and a promise to follow through with their recommendations.

If we can be of any assistance, please contact us.

Sincerely,

Riki Ott, President  
(907) 424-5915

cc: Interior Sec. Babbitt  
DOI/BLM Jim Baca

June 30, 1993

**WHO PAYS THE COSTS OF CUTTING COSTS?  
FROM INCOMPLETE CONSTRUCTION TO CONTAMINATED BIOTA  
AT THE ALYESKA MARINE TERMINAL IN PORT VALDEZ, ALASKA**

by Rikl Ott, Ph.D.  
P.O. Box 1430, Cordova, Alaska 99574

on behalf of the Oil Reform Alliance

**OVERVIEW**

In 1973 Congress passed the controversial Trans-Alaska Pipeline Authorization Act and with it, a right-of-way agreement authorizing the Department of Interior's agent, the Bureau of Land Management (BLM), to oversee all trans-Alaska pipeline system (TAPS) operations including those at the tanker terminal in Port Valdez, Alaska. The right-of-way includes provisions for a quality assurance program to detect and abate conditions that threaten public or worker health or safety, or harm the environment.

The original design for the marine terminal, approved by federal regulators, included plans to increase the physical size of the terminal and the two pollution control systems, (the vapor recovery and ballast water systems), as pipeline throughput increased. However, the original design plans were never realized, because additional construction was never initiated after startup in 1977 despite over a threefold increase in pipeline throughput. Instead, Alyeska has opted for operational changes to load crude as fast as possible, regardless of environmental consequences.

The shortage of crude oil storage tanks and pollution control equipment has resulted in large quantities of hydrocarbons entering the air and water of Port Valdez during standard plant operations. Alyeska terminal operations emit 48% of the nationwide volatile organic carbons (VOCs) from marine loading facilities (43,000 tons/year); it is the third largest point source of benzene (carcinogen) in the country (450 tons/year). Polynuclear aromatic hydrocarbons (PAH) from the marine terminal are also accumulating in the sediments of Port Valdez and recent studies have demonstrated bioaccumulation of these carcinogenic compounds in flatfish from Port Valdez.

Alyeska marine terminal operations currently threaten public and worker health and the environment. BLM has neglected its oversight duties on State-owned lands. In 1991 the GAO concluded that TAPS oversight in general was suffering from lack of a systematic, disciplined and coordinated approach and recommended that Congress consider legislation formalizing and giving structure to the existing arrangement among the five regulatory agencies that now oversee TAPS operations by assigning regulatory responsibility and enforcement authority for TAPS, including the marine terminal and other portions on State-owned lands, to a lead entity with full reimbursement from Alyeska. This has not been initiated.

### INCOMPLETE CONSTRUCTION

**Background:** The Alyeska terminal, as approved by regulators, was originally designed to operate as follows (Figure 1). Oil coming down the pipeline under pressure was to be sent to crude oil storage tanks where the oil would off-gas and dewater. Crude oil vapors collected in the crude oil storage tanks would be drawn by a centralized compressor system to incinerators where hydrocarbons would be destroyed by burning at high temperatures (1400 F) in a process called the vapor recovery system. Before oil could be loaded onto tankers, tankers would offload 'dirty' ballast water (containing hydrocarbons) by pumping it ashore into ballast water holding tanks. During ballast water treatment, the primary toxic fractions would be removed and handled by several methods including incineration. Treated water would be discharged as effluent into Port Valdez.

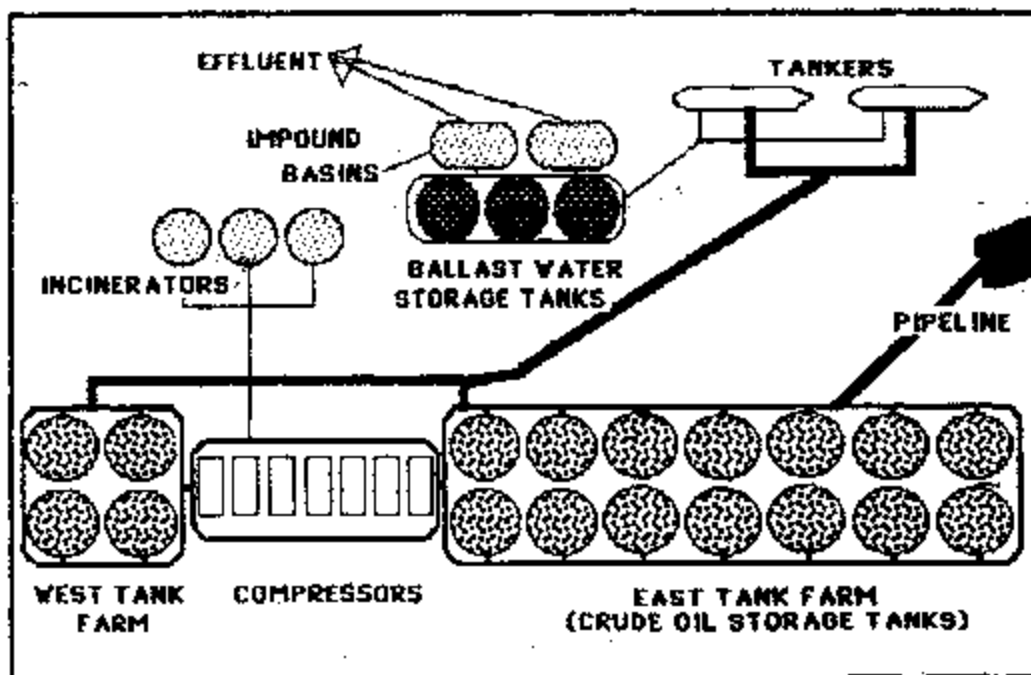


FIGURE 1. ALYESKA BALLAST WATER TREATMENT FACILITY

The original Alyeska design drawing, approved by regulators, included plans to increase the physical size of the terminal and the two pollution control systems, (the vapor recovery and ballast water systems), as pipeline throughput increased.

	Oil Flow (million bbl/day)	Storage Tanks		Incinerators	
		Crude Oil	Ballast Water	Vapor	Sludge
Phase I	Approx. 0.6	14	5	3	1
Phase II	1.2-1.5	22	3	3	1
Phase III	Over 2.2	32	5	4	1
1977-1993		18	3	3	0

*Note: The number of dissolved aemtion floatation-DAF-cells, used in ballast water treatment, was supposed to increase from 6 to 12 during peak throughput: there are only the original 6.*

*Status:* Today, the Alyeska terminal is the same size as when it was built in 1977 despite over a threefold increase in pipeline throughput. Because the Alyeska facility was not built as designed, it cannot operate as designed (Lysy] 1985). The shortage of crude oil storage tanks and pollution control equipment has resulted in large quantities of hydrocarbons entering the air and water of Port Valdez during standard plant operations.

### AIR QUALITY PROBLEMS

*Background:* Between 1980 and 1987, inclusive, the vapor recovery system was operating properly only six percent of the time due to major corrosion problems and poor maintenance. (To cut expenses, miles of pipeline for the vapor recovery system were built with mild steel, instead of the originally-approved stainless. The mild steel and the compressors were all badly corroding and the incinerators could not maintain the proper temperatures.) Major repairs, forced by regulatory and public pressure, were undertaken in the late 1980's and early 1990's. However, since about 1987, large volumes of natural gas liquids (NGLs) have routinely been injected into the TAPS pipeline to increase crude value and throughput (by reducing friction). The size of the vapor recovery system was not increased, despite evidence from Alyeska contractors (John Zinc Company) that three incinerators operating full-time, with one in reserve, were needed to handle increased throughput *without* the increase in vapors from NGLs.

*Status:* To load oil as fast as possible, compensate for an insufficient number of crude oil storage tanks, and avoid having to increase the size of the vapor recovery system, crude oil is loaded directly tankers where it off-gases. Vapors are vented directly to the atmosphere. Today, Alyeska terminal operations emit 48% of the nationwide volatile organic carbons

(VOCs) from marine loading facilities (43,000 tons/year): It is the third largest point source of benzene (carcinogen) in the country (450 tons/year).

### WATER QUALITY PROBLEMS

**Background:** To load crude as fast as possible and compensate for an insufficient number of crude oil storage tanks, tankers offload ballast water as fast as possible. The BWT plant is overloaded and forced to operate at a suboptimal rate for removing hydrocarbons. EPA determined that 10,000 gallons per minute (gpm) was the upper limit for optimal removal of hydrocarbons at the BWT plant. During the 1989 NPDES permit renewal process, Alyeska requested 30,000 gpm; EPA compromised at 20,000 gpm (EPA 1989).

In 1991, regulators found that Alyeska had not been utilizing the time-consuming Load-on-Top (LOT) contrary to industry's original commitments <sup>(1)</sup> (Lawn 1991, EPA 1992). The BWT plant had not been designed, nor was it being operated, to remove a large volume of oily sludges and free oils because these compounds were not supposed to be coming ashore. For the same reason, no one was monitoring the plant's effluent for PAHs (other than on a quarterly basis).

Alyeska was, however, required to monitor environmental impacts from terminal operations. The chemistry data show a marked accumulation of PAH in the sediments of Port Valdez with a concentration gradient increasing towards the terminal <sup>(2)</sup> (Feder & Shaw 1987 & 1991, Howe 1988). Alyeska's biological data, which focused on benthic community structure, found no definitive impacts, but was criticized for using inappropriate bioindicators (organisms unlikely to develop cancer). Meanwhile as early as 1986, NOAA found flatfish in Port Valdez with elevated levels of PAH in the bile (NOAA 1986).

**Status:** In 1991 Alyeska reported that PAH associated with particulates were the dominant form of hydrocarbon discharged (560:1 particulate to dissolved) by the BWT plant (Alyeska 1991). In 1993 under regulatory and public pressure, Alyeska conducted its first flatfish study in Port Valdez. Despite finding elevated levels of PAH in all the flatfish collected in Port Valdez, Alyeska concluded "the contamination observed cannot be directly related to the present discharge." However, NOAA challenged Alyeska's interpretation of the data, concluding instead that the contamination in

---

(1) Load-on-Top separates oily sludges and free oil from the ballast water while still onboard the tanker. The sludges and free oil are retained on board and incorporated into the next load of crude, while only the "clarified" ballast water, containing primarily dissolved hydrocarbons, is shipped ashore for further treatment.

(2) PAH are largely insoluble relative to other aromatic hydrocarbons and tend to associate with particulates and suspended sediments which settle over time.

certain fish taken near the terminal can only be related to terminal discharge of PAH (Manen 1993, Krahn 1993, references attached).

### INADEQUATE OVERSIGHT

**Background:** According to the right-of-way agreement under the Trans-Alaska Pipeline Authorization Act of 1973, the Department of Interior's Bureau of Land Management (BLM) is authorized to monitor the entire trans-Alaska pipeline system, *including those portions on State-owned land* (United States of America p. 6). Further, the right-of-way provides for the oil companies (permittees) to reimburse the Department of Interior for its administrative costs, including independent consultants, contractors and other agencies (United States of America p. 6-7). Further, the right-of-way has provisions for a quality assurance program to detect and abate any condition that 'may cause or threaten to cause' a hazard to public or worker health or safety, or harm to the environment (United States of America p. 5-6).

Despite the clear intent of Congress through TAPAA and the right-of-way agreement to provide comprehensive federal oversight with a funding source independent of the federal budget, BLM neglected its oversight duties on those portions of TAPS which are on State-owned lands, including the marine terminal (personal communication, Micheal Penfold, BLM, Washington D.C.).

Oversight of the Alyeska marine terminal has instead fallen to EPA and the State. However, in 1987 the GAO found that EPA was unable to effectively monitor Alyeska and enforce compliance with the NPDES permit for a variety of reasons (budget cuts, lack of data on BWT facilities, higher priority problems, etc.). State efforts to monitor operations at the Alyeska marine terminal and enforce compliance have also been ineffective. Since startup in 1977, the State had reduced its Valdez staff from three full time to one part-time position prior to the Exxon Valdez oil spill.

**Status:** The State has proved incapable of effectively regulating the industry which provides over 85% of its operating revenues (Alaska Oil Spill Commission 1990). State actions continue to favor status quo of terminal operations - or further reduce regulatory requirements - at the expense of public safety and the environment. For example, the State has proposed revisions to its water quality standards which, if approved, could allow Alyeska to discharge unlimited quantities of PAH into Port Valdez (Button et. al. 1992).

In 1991 the GAO concluded that TAPS oversight in general was suffering from lack of a systematic, disciplined and coordinated approach. GAO recommended that Congress consider legislation formalizing and giving structure to the existing arrangement among the five regulatory agencies that now oversee TAPS operations by assigning regulatory responsibility and

enforcement authority for TAPS, including those portions on State-owned lands, to a lead entity with full reimbursement from Alyeska (GAO 1991). Although GAO found provisions for oversight by and reimbursement of BLM under TAPAA and the right-of-way agreement, GAO also found the system was not working adequately. Further legislation would enable the primary regulator, BLM, to utilize expertise found in other agencies on a more structured basis. This restructuring of TAPS oversight has not been initiated.

## SUMMARY & RECOMMENDATIONS

Unauthorized changes in marine terminal design during construction and operation have resulted in an insufficient number of crude oil storage tanks and other pollution control equipment for pipeline throughput. To compensate for a shortage of crude oil storage tanks, oil is loaded directly onto tankers which (1) sidesteps the vapor recovery system, and (2) causes incomplete removal of hydrocarbons during ballast water treatment. Conservative calculations for the risk of cancer from vapor emissions at the Alyeska terminal are 20-110 in a million (Cohen et al. 1992). Other studies have found accumulation of hydrocarbons from the terminal in the sediment and blots of Port Valdez. According to the GAO, the federal government has not provided comprehensive coordinated regulatory oversight and enforcement authority of the entire TAPS, including the marine terminal and other sections located on State-owned lands, as was mandated by the TAPAA and the right-of-way agreement.

Recommendations to correct conditions at the Alyeska marine terminal are to:

- 1) Establish a lead federal entity, with BLM as the primary agency, to oversee TAPS operations, including those on state-owned lands, with full reimbursement from the industry (permittees) as recommended by the GAO and required by TAPAA,
- 2) Ensure that the lead federal entity will contract with non-industry experts in TAPS operations to independently verify industry compliance and to sever the reliance of regulatory agencies on industry data and information, a shortfall reported by the GAO, and
- 3) Conduct the TAPS audit with the Presidential Task Force as mandated by the Oil Pollution Act of 1990 and follow-up with its recommendations which should include marine terminal modifications to reduce input of hydrocarbons into the Port Valdez environment.

**REFERENCES**

- Alaska Oil Spill Commission. 1990. Spill: The Wreck of the Exxon Valdez. Implications for Safe Transportation of Oil. Final Report. State of Alaska. 224 p.
- Alyeska Pipeline Services Company. 1991. Letter from Gene Dickason, Environmental Manager, to Simon Mawson, Alaska State Pipeline Coordinator, regarding NPDES permit AK-002324-8. Letter No. 91-4184. File No. 7.03.04. 12 p.
- Button, D., J. Karinen, I. Lysyj & R. Ott. 1992. Final Technical Advisory Group (TAG) Recommendations on Water Quality Standards (WQS) Revisions. Letter to Doug Redburn, Chief Water Quality Management Section, Alaska Dept. Environmental Conservation. Nov. 11, 1992. 9 p.
- Cohen, Yoram, Gerald Anderson, Lyle Chinkin, Gary Pascoe, Charles Schmidt & Arthur Winer. 1992. Review of the Valdez Air Health Study. Report Prepared by the Valdez Air Study Review Committee. Prepared for the Regional Citizens' Advisory Council. Aug. 25, 1992. 62 p.
- Columbia Aquatic Sciences. 1993. Analysis of Flatfish Bile for Metabolites of Aromatic Compounds. Prepared for Alyeska Pipeline Service Company April 1993. Project M05-01-03. 26 p. plus appendices.
- Environmental Protection Agency. 1989. Response to comments received on Alyeska pipeline service company permit (NPDES individual permit No. AK-002324-8). 64 p.
- Environmental Protection Agency. 1992. Oil Tanker Waste Disposal Practices: A Review. Water Division, Water Permits & Compliance Branch. EPA 9109-91-046. 44 p.
- Feder, H.M. & D.G. Shaw. 1987. Environmental studies in Port Valdez, Alaska. 1987. Prepared by Institute of Marine Science, Univ. AK, Fairbanks, AK, for Alyeska Pipeline Service Company. Final Report.
- Feder, H.M. & D.Q. Shaw. 1991. Final Report Environmental Studies in Port Valdez, Alaska: 1991. Prepared by Institute of Marine Science, Univ. AK, Fairbanks, AK, for Alyeska Pipeline Service Company. Final Report.
- General Accounting Office. 1987. Water Pollution, EPA Controls over Ballast Water at Trans-Alaska Pipeline Marine Terminal. Report to the Chairman, Subcommittee on Oversight and Investigations, Committee on Energy and Commerce, U.S. House of Representatives. GAO/RCED-87-118, June 1987.

- General Accounting Office. 1991. Trans-Alaska Pipeline. Regulators have not ensured that government requirements are being met. Report to the Chairman, Subcommittee on Water, Power & Offshore Energy Resources, Committee on Interior and Insular Affairs, U.S. House of Representatives. GAO/RCED-91-89. 110 p.
- Howe, Julie. 1988. ADEC memorandum from Julie Howe to Bill Lamoreaux through Bob Flint on Alyeska's Institute of Marine Science report. 10/31/88. 3 p. plus 2 p. attachment.
- Krahn, Margret. 1993. Review by Peggy Krahn (NOAA/NMFS) of Analysis of Flatfish Bile for Metabolites of Aromatic Compounds. Prepared for Alyeska Pipeline Service Company by Columbia Aquatic Services. Letter to Anne Dailey, EPA Region 10, Seattle, WA. June 17, 1993. 5p.
- Lawn, Daniel. 1991. Analysis of TAPS Trade Tank Vessel Ballast Discharge Records and Practices at the Valdez Marine Terminal. Alaska Dept. Environmental Conservation. 45 p. plus appendices.
- Lysyj, Ihor. 1985. Performance evaluation of the ballast water treatment plant in Valdez, Alaska. EMSI, Newbury Park, CA.
- Manen, Carol-Ann. 1993. Letter to Anne Dailey, EPA Region 10, Seattle, WA. June 9, 1993. 2 p.
- NOAA. 1986. Unpublished letter CAM-517 regarding 1986 National Benthic Surveillance Project of the NOAA National Status and Trends Program.
- Penfold, Micheal. Dept. of Interior, Office of Bureau of Land Management, Washington D.C.
- United States of America. 1973. Agreement and Grant of Right-of-Way for Trans-Alaska Pipeline between the United States of America and Amerada Hess Corporation, ARCO Pipe Line Company, Exxon Pipeline Company, Mobil Alaska Pipeline Company, Phillips Petroleum Company, Sohio Pipe Line Company, and Union Alaska Pipeline Company. 71 pg. plus appendices.