



# National Transportation Safety Board

Washington, D.C. 20594

## Safety Recommendation

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Date: September 18, 1990

In reply refer to: M-90-53 through -58

James B. Hermiller  
President  
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About 0009, on March 24, 1989, the U.S. tankship EXXON VALDEZ, loaded with about 1,263,000 barrels of crude oil, grounded on Bligh Reef in Prince William Sound, near Valdez, Alaska. At the time of the grounding, the vessel was under the navigational control of the third mate. There were no injuries, but about 258,000 barrels of cargo were spilled when eight cargo tanks ruptured, resulting in catastrophic damage to the environment. Damage to the vessel was estimated at \$25 million, the cost of the lost cargo was estimated at \$3.4 million, and the cost of the cleanup of the spilled oil during 1989 was about \$1.85 billion.<sup>1</sup>

On the night of the spill, poor weather conditions, darkness, and the gathering of extra cleanup equipment, including lightering equipment, prolonged the loading of the Alyeska contingency barge. Had another contingency barge been preloaded with lightering equipment, locating, collecting, and gathering the equipment would not have been necessary and the cleanup supervisors could have used the additional time to plan other cleanup activities. These actions increased the time needed to load and prepare the barge for towing from the 2.5 hours provided in the plan to 10 hours. It took another 5 hours to tow the barge to the EXXON VALDEZ, which was about 28 miles from the Terminal. The Alyeska contingency plan's 200,000-barrel oil spill scenario, which was predicated on daylight and summer weather conditions, allowed a total of 5 hours for preparation and towing of the barge to a spill site about 30 miles from the Terminal. This timetable can only be met if the barge is already loaded. If the contingency barge had been preloaded with its cleanup equipment and had left the dock as soon as the tug PATHFINDER received orders to proceed to the EXXON VALDEZ, the barge could have been at Bligh Reef within the 5 hours prescribed in the Alyeska contingency plan. The Safety Board believes that the almost 10 additional hours needed to load, prepare, and tow the barge to

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<sup>1</sup>For more detailed information, read Marine Accident Report--"Grounding of the U.S. Tankship EXXON VALDEZ on Bligh Reef, Prince William Sound Near Valdez, Alaska, March 24, 1989" (NTSB/MAR-90/04).

the site constituted an unwarranted delay that could have been avoided if the barge had been loaded. The 10-hour loss had no material impact on the cleanup because of the size of the spill. However, had the spill been more manageable, the opportunity for quick response would have been lost. Even though the 10-hour delay did not make a difference in this spill, the delay might have been significant under other conditions.

Because every spill is different in size and location, a variety of cleanup equipment is required. Equipment stored on one barge may be adequate for a small spill, while larger spills may require additional equipment that must be loaded on two or more barges. An accident may also necessitate the use of lightering equipment, as was the case in this spill. To save time in gathering and loading response equipment and to allow cleanup supervisors to use their time for other activities, such equipment should be preloaded on barges and ready for deployment. Thus, Alyeska should be prepared beforehand with barges loaded with different levels of cleanup equipment so that the response to an accident is not delayed by the need to load or unload equipment.

The Alaska Regional Oil and Hazardous Substances Pollution Contingency Plan (RCP) addresses the use of oil dispersants in the State. It provides a decision matrix and a description of the biological effects of dispersants in the water but no guidance or information about the conditions under which the application of dispersants is effective. Wind and sea conditions and the length of time that the oil has been on the water when dispersants are applied alter their effectiveness. Such information about dispersant application should be included in the Alaska RCP and other contingency plans so that proper dispersant procedures are readily available. An On-Scene Coordinator (OSC) would then know when to use dispersants and would not waste time using them when they would not be effective. On the afternoon of the spill, a test was conducted using dispersants when the sea was calm. However, calm sea conditions are not conducive to the effective use of dispersants, which must mix with the oil in order to cause it to break into droplets and disperse into the water column. If the OSC had had guidelines in the RCP that described the wind and sea conditions necessary for effective use of dispersants, a test application would have been unnecessary.

According to the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), dispersants and burning agents may be used only "to prevent or substantially reduce a hazard to human life." In the Alaska RCP and Alyeska contingency plans, dispersants and burning of oil can also be used to minimize the effects of spilled oil on wildlife. This apparent conflict between the NCP, the Alaska RCP, and the Alyeska plans should be resolved. The NCP should also provide additional guidance to assist Regional Response Teams (RRTs) in developing dispersant use guidelines in their RCPs. Neither the Alyeska contingency plans, nor the Alaska RCP, nor the NCP have any guidelines or information about when dispersant use or in-situ burning are appropriate, under what conditions they are effective, or what equipment is needed for safe employment. The NCP should also include dispersant use and in-situ burning information guidelines in its plan for use by RRTs in developing RCP guidelines for use by OSCs.

In Addition, the Alyeska contingency plans failed to include a procedure for the transfer of cleanup responsibility from Alyeska to the shipping company that was responsible for the oil spill because it came from one of that company's vessels. A procedure for transferring cleanup responsibility should be developed by Alyeska and the individual shipping companies loading oil at the Valdez Terminal so that there will be continuity in the cleanup work and so that the transfer can be fully monitored by the Coast Guard and the State of Alaska. Because of the remote location of Valdez and the time it takes for a shipping company's oil spill response personnel to arrive on the scene, Alyeska should continue to be the initial responder to oil spills from vessels carrying oil from the Valdez Terminal in Prince William Sound. The vessel's parent company should have an organization or plan to respond effectively so that it can relieve Alyeska of long-term cleanup responsibility within a reasonably short period of time. After being relieved, Alyeska should remain on the scene to support the responsible company by providing continuity to the cleanup activity, local knowledge, and advice.

ARCO Marine had conducted a simulated oil spill drill in 1988, during which ARCO relieved Alyeska. The Coast Guard, the Alaska Department of Environmental Conservation (ADEC), and local government officials participated in the drill. ARCO was the only company that had a State-approved plan that included procedures for relieving Alyeska of cleanup responsibilities. As a result of this drill, the OSC apparently assumed that Alyeska and Exxon would follow similar procedures. Alyeska and Exxon did not have any State-approved procedures for relieving Alyeska of cleanup responsibilities, probably because Alaska had not required any such procedures. Exxon had submitted proposed oil spill cleanup plans on two previous occasions, but the State had returned the plans to Exxon because, according to the State, they were not required. Alyeska stated that it had an understanding with Exxon that Exxon would assume cleanup responsibilities for a major spill, but the understanding was not written into Alyeska procedures. Exxon announced soon after it was advised of the spill that it would assume cleanup responsibility, supporting the contention that such an arrangement had existed with Alyeska. After Exxon received notice of the spill, the president of Exxon Shipping Company activated the Exxon-wide spill response teams, and he and his staff proceeded to Valdez to take over the cleanup responsibilities from Alyeska. They arrived on the afternoon of the accident day, but they did not relieve Alyeska immediately, although Exxon was taking action to assume responsibility for the cleanup. Companies shipping oil from the Alyeska Terminal at Valdez should amend their individual plans to include procedures for assuming cleanup responsibility for major oil spills from Alyeska and have the individual plans approved by the State. It is possible that some companies may not be fully capable of assuming responsibility quickly. Each company's response capability and procedures should be listed in the Alyeska contingency plan. Following State approval of a company's plan, it should be included in the Alyeska contingency plan for Prince William Sound.

The company contracted by Alyeska needed more than 3 hours to prepare a helicopter with a 300-gallon spray bucket to conduct a dispersant test application, which was done about 18 hours after the spill was reported.

Air-deliverable dispersant system (ADDS) packs for fixed-wing aircraft were not available in Valdez and had to be ordered from storage sites in Alaska and the continental United States. The Alyeska plan states that aircraft capable of applying dispersants are to be available in 9 to 17 hours. However, the aircraft and ADDS packs were not available for use during the first 24 hours after the spill occurred. If dispersants are to be used on an oil spill, especially in such a remote area as Valdez, the delivery system must be readily available and stored on or near the Terminal. The Safety Board believes that if dispersants continue to be regarded as an oil spill response option, ADDS packs and other dispersant application equipment should be stored in Valdez and ready for immediate use and that appropriate aircraft or vessels should be available on short notice.

During the first 24 hours after the spill, Exxon applied to the RRT to conduct in-situ burning of the spilled oil. The RRT recommended approval if the OSC was satisfied that the burning could be done without degrading other cleanup efforts. In addition, the State had to issue a burn permit. "Approval to open burn" was issued by the ADEC on the same day, March 24, but the permit was not sent to Exxon until the next day. Even though the permit was not received until the next day, neither Alyeska nor Exxon was prepared to burn oil on the first day of the spill because neither one had a fire- or burn-proof boom on hand. The boom had to be shipped in from the North Slope and Seattle. Had the boom been immediately available and a burn permit issued earlier, this method of cleanup could have been used on heavy concentrations of oil before the wind and currents spread the oil so far that effective containment was not possible.

Therefore, the National Transportation Safety Board recommends that the Alyeska Pipeline Service Company:

Provide at its Valdez terminal two or more oil spill contingency barges that are loaded with pollution-response cleanup equipment, lightering equipment, and fire- or burn-proof booms that are maintained and ready for immediate deployment, thus facilitating an effective response to different spill conditions. (Class II, Priority Action) (M-90-53)

Identify the range of wind and sea conditions for which dispersants can be used effectively and incorporate that information into company contingency plans. (Class II, Priority Action) (M-90-54)

In conjunction with each of the companies that load oil at its terminal in Valdez, develop a plan or procedures for relieving Alyeska Pipeline Service Company of primary cleanup responsibility in the event of a major oil spill or potential major oil spill of more than 100,000 gallons and include the procedures in its contingency plan after they have been approved by the State of Alaska. (Class II, Priority Action) (M-90-55)

In its company contingency plans, list also the companies that do not have a plan for relieving Alyeska Pipeline Service Company of cleanup responsibility. (Class II, Priority Action) (M-90-56)

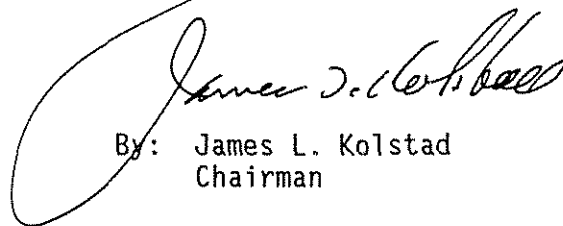
Store air-deployable dispersant system packs and other dispersant application equipment at its Valdez Terminal, as agreed upon with the State of Alaska, for use with fixed-wing aircraft, or helicopters, or vessels. (Class II, Priority Action) (M-90-57)

Store fire- or burn-proof booms at its Valdez Terminal, as agreed upon with the State of Alaska, and include procedures for their use in the company's oil spill contingency plan. (Class II, Priority Action) (M-90-58)

Also, the Safety Board issued Safety Recommendations M-90-26 through -31 to the Exxon Shipping Company and all companies operating in Prince William Sound; M-90-32 through -43 to the U.S. Coast Guard; M-90-44 through -47 to the Environmental Protection Agency; M-90-50 through 52 to the State of Alaska; M-90-48 and 49 to the Alaska Regional Response Team; and M-89-59 to the U.S. Geological Survey. The Safety Board also reiterated Safety Recommendation M-88-1 to the U.S. Coast Guard and Safety Recommendations I-89-1 through -12 to the Department of Transportation.

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility "to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations" (Public Law 93-633). The Safety Board is vitally interested in any action taken as a result of its safety recommendations. Therefore, it would appreciate a response from you regarding action taken or contemplated with respect to the recommendations in this letter. Please refer to Safety Recommendations M-90-53 through -58 in your reply.

KOLSTAD, Chairman, COUGHLIN, Vice Chairman, and LAUBER and BURNETT, Members, concurred in these recommendations.



By: James L. Kolstad  
Chairman