COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

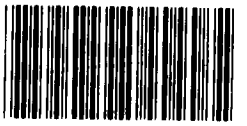
8847
108955

B-146333

JANUARY 12, 1979

See from 115 for title

The Honorable Birch Bayh
Chairman, Subcommittee on Transportation
and Related Agencies
Committee on Appropriations
United States Senate


108355

Dear Mr. Chairman:

An April 6, 1977, letter from you and Senators Robert C. Byrd, Eagleton, Johnston, Magnuson, Mathias, Stennis, and Weicker requested that we (1) report on the Coast Guard's response to oilspills and then (2) determine the Coast Guard's ability to meet future oilspill emergencies. Our report, entitled "Coast Guard Response To Oilspills--Trying To Do Too Much With Too Little" (CED-78-111, May 16, 1978), responded to the first part of your request.

This report is in response to the second part of your request. On October 3, 1977, the Coast Guard formally requested the Department of Transportation's Transportation System Center to (1) determine the optimum number of strategically located equipment-staging sites needed to effectively respond to oilspills and (2) project future Coast Guard pollution-response needs by analyzing historical spill data, projected offshore development plans, changes in tanker traffic, and the current state of the art in pollution-response systems. Because of the similarity between your request and the Center's study, we agreed with your office to limit our efforts to an evaluation of the Center's study.

The Center concluded that the Coast Guard will need significantly more resources (facilities, equipment, and people) to effectively respond to future oilspills. These resources are needed to meet the President's goal of responding to any major spill within 6 hours. The Center recommended that the Coast Guard establish 22 equipment storage sites in 16 coastal cities or bases and estimated that the additional investment would include

--$100 million to $120 million for oil containment and cleanup equipment,

CED-79-32
(34452)

003226

report

--1,000 trained operating personnel, and

--unquantified items for site development and support (e.g., communication systems and maintenance).

Our analysis of the study indicated that (1) the bases for these estimates are questionable and (2) the projected need for resources may be overestimated because

--the study data is not sufficiently reliable to accurately forecast oilspill locations or quantities and

--the study uses questionable assumptions whose impact could seriously alter the estimated figures provided.

In our opinion, a range of resource estimates would be more useful and realistic than the study's dollar estimate. Also, continued research on the economic and social cost of spills is needed to provide a better basis for allocating oilspill resources.

BASES OF CENTER'S ESTIMATE

The Center's study recommended establishing equipment storage sites and provided estimates of additional resources that would be required from 1980 to 1990. The estimates are based on past experiences, using statistical techniques, and are designed to meet the President's response goal. The response goal is defined from the initial request for equipment until it arrives at the designated debarkation point.

The Center assumed that

--the amount of imported oil will increase 50 percent between 1977 and 1985, meaning a 50-percent increase in spill potential;

--imported oil routed through deepwater ports on very large crude oil carriers, instead of through conventional ports on smaller ships, is expected to reduce the oilspill probability by 90 percent; and

--80 percent of the Alaskan crude oil will be shipped to the west coast ports and two-thirds of this oil will enter the Los Angeles area through deepwater ports.

The Center concluded that the future oilspill scenario will be similar to that of the 1974-77 period.

GAO'S ANALYSIS OF THE STUDY

The study was based on only 4 years of oilspill data--1974 through 1977--because complete and reliable data prior to 1974 was not available. In our opinion this data is inadequate to confidently project a single estimate of the Coast Guard's future oilspill needs. Also, we believe the Center's estimates are uncertain because some of the underlying assumptions are questionable. We believe that the Center may have overestimated the Coast Guard's resource needs for the following reasons.

1. The Center, in making its resource estimates, assumed that the Coast Guard would clean up 80 percent of all recoverable oil spilled. Spilled oil may not be recoverable because of the location of the spill or weather conditions. However, if the Center assumed that the Coast Guard would clean up only 50 percent of the recoverable oil, then less than 20 percent of its resource estimate would be needed. We question if expending the resources for the higher oil recovery estimate would be cost effective.

2. The Center's future resource forecast did not recognize the potential of improved cleanup technology and possible actions to prevent oilspills. For example, a private industry study estimated that future spill rates may be reduced by 25 to 50 percent because of continuing improvements in (1) vessel technology, operating procedures, and safety measures and (2) environmental protection regulations. When the President announced a 6-hour response goal he also added the need to improve ship construction and crew training standards and the tanker boarding and inspection program. This implies a commitment to better spill prevention which could reduce oilspills and, therefore, the need for cleanup resources.

3. The Center assumed that all future resources for containment and cleanup will come from the Coast Guard and that the private sector will not expand and provide such resources. However, in the past the Coast Guard has relied on contractors to contain and clean up oilspills. The Center assumed as projected oilspills increase, private contractors would not expand their cleanup capability.

4. Weather is another variable which may reduce the resource estimate because peak demand for equipment has

historically occurred during winter months when equipment has the highest likelihood of being ineffective. Fifty-five percent of the spills, which account for 65 percent of the volume, occurred during the winter season (October to March), when weather conditions cause existing open water containment booms and skimmers to lose most of their effectiveness. Any estimate of equipment needs during this time period must recognize the limitations during such adverse weather conditions. The Center has not explicitly reduced its resource estimate to reflect this situation.

5. The Center may have overestimated the Coast Guard's staffing needs by assuming that personnel required to operate the additional equipment would be added to the present staffing. Because most spills occur infrequently, we believe that the additional staff may not be fully needed just to respond to oilspills.

COAST GUARD'S USE OF THE STUDY

The Coast Guard advised us that the Center's study is one of several to be combined into one report, presenting the executive branch position on future oil pollution program policy and requirements. The other studies relate to developing a national equipment inventory, a vessel surveillance and control system, ship construction and crew qualification standards, and the equipment and techniques necessary to contend with adverse weather and rough seas. The Coast Guard's combined report will present a single resource request for pollution resources.

CONCLUSIONS AND RECOMMENDATIONS

Because of limited data and uncertainty of future spills, the Coast Guard should provide the Congress with a range of resource estimates showing changes in resources needed according to changes in assumptions, such as

--varying the 6-hour response time,

--assuming different levels of future oil movements,

--acknowledging some degree of spill prevention success, and

--varying the amount of oil the Coast Guard would recover.

For example, oil imports were assumed to increase by 50 percent by 1985--but what if it is 35 percent or 75 percent? Similarly the Center assumed that 400 million tons of crude oil would be shipped into the United States via very large crude carriers through deepwater ports at one-tenth the historical spill probability. What is the impact on resource needs if the volume of oil handled by deepwater ports doubles? Or what if no deepwater ports are in operation by 1985?

Better spill data and more information are needed on the social and economic costs of the pollution caused by oilspills. A need exists to establish oilspill criteria and policies which recognize the relative costs and benefits from oilspill cleanup decisions. For example, the study is based on the 6-hour response goal, which is based primarily on judgment rather than scientific facts showing the environmental impact of responding in less than (or more than) 6 hours. Changing the 6-hour goal to a 3- or 12-hour response, for instance, would have a significant impact on the number of sites and amount of resources needed. However, the time period selected should be based on social and economic costs of the spill.

We recommend that the Subcommittee request the Commandant of the Coast Guard to:

--Provide a range of potential costs along with the changes in assumptions. This range of alternatives will assist the Subcommittee in its deliberations over various funding levels. The Coast Guard also should identify in its alternatives significant uncertainties that could affect program results.

--Develop data on the social and economic impact of oilspills to be used in establishing response criteria and policies.

The information in this report was discussed with agency officials. Copies of this report are being sent today to Senators Robert C. Byrd, Eagleton, Johnston, Magnuson, Mathias, Stennis, and Weicker and other interested parties.

Sincerely yours,

Comptroller General
of the United States