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TESTIMONY OF THE

NATURAL RESOURCES DEFENSE COUNCIL, INC.

ON DEFICIENCIES IN THE

NATURAL RESOURCES DAMAGE ASSESSMENT

FOR THE

EXXON VALDEZ OIL SPILL

BEFORE THE

SUBCOMMITTEE ON WATER, POWER AND OFFSHORE ENERGY RESOURCES

OF THE

HOUSE COMMITTEE ON INTERIOR AND INSULAR AFFAIRS

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Introduction

Mr. Chairman and Members of the Subcommittee:

My name is Robert W. Adler. I am a Senior Attorney with the Natural Resources Defense Council (NRDC). Before coming to NRDC I was the Executive Director of Trustees for Alaska in Anchorage. NRDC appreciates this opportunity to testify today on the natural resources damage assessment for the Exxon Valdez oil spill.

NRDC has been active in issues involving oil and gas development in Alaska long before the Exxon Valdez tragedy. We have worked to protect sensitive offshore environments, such as Bristol Bay, from new proposed oil leases. In Oil in the Arctic[1] we (along with Trustees for Alaska and NWF) exposed the oil industry's abysmal environmental compliance record on the North Slope of Alaska. And we have urged this Subcommittee and others to prevent the expansion of the oil industry's environmental destruction into the Arctic National Wildlife Refuge.

While chronic environmental damage occurs every day during oil activities in Alaska, our worst fears about the impacts of this development were realized with the Exxon Valdez oil spill. The spill has important implications for a wide range of public decisions, such as national energy policy, future oil and gas development proposals in Alaska and elsewhere, and the regulation of oil transportation. **But all of these decisions must be informed by a complete understanding of the short-term and long-term environmental impacts of the Exxon Valdez spill.**

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[1] Speer and Libensen, Oil in the Arctic (1988).

A comprehensive damage assessment is important for three reasons. First, the damage assessment will be the foundation of the federal and state governments' economic damage claims against Exxon and others responsible for the spill and the inadequate spill cleanup.[2] Second, a full understanding of the damages caused by the spill is essential to inform a long-term program to restore fully the ecosystems damaged by the spill. Finally, it is critical for future decisionmaking to have a complete scientific understanding of the overall effects of a spill of this magnitude, especially in such a rich ecosystem.

This last concern is of more than theoretical, as given the current state of affairs, **similar spills are likely to occur in the future.** Last month NRDC published a report concluding that ports all over the country (including San Francisco, New York and Los Angeles, which were used as case studies) are vulnerable to major oil spills, and that such spills will continue to have devastating environmental effects, given our poor cleanup and response capabilities.[3] In Prince William Sound alone, the Alaska Oil Spill Commission predicted that additional oil spills are likely to occur as oil continues to flow through the Trans Alaska Pipeline.[4] And according to the testimony of one Valdez

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[2] For stylistic purposes hereafter we will refer to all of these responsible parties as "Exxon."

[3] No Safe Harbor, Tanker Safety in America's Ports (NRDC 1990).

[4] Spill, The Wreck of the Exxon Valdez (Alaska Oil Spill Commission, February 1990), at II-43 - II-54. This analysis, performed for the Commission by Engineering Computer Optecnomics

(continued...)

tour boat operator (Stan Stephens) at the recent oil spill restoration symposium in Anchorage, spills are likely to occur given the persistent attitude of the pipeline operators that keeping the oil flowing is more important than safety. Mr. Stephens personally witnessed an oil tanker that continued to be loaded at Valdez in 80 knot winds!

This testimony will summarize some of our major concerns[5] about the damage assessment process, and the responses or reactions to these comments by the Trustees (to the extent that decisions have been made public). In addition, we will suggest some steps that Congress could take to correct these problems.

It Appears that the Damage Assessment Process Will Be Reduced This Year

We have had serious concerns from the outset about the adequacy of the damage assessment process. We conveyed these concerns to the Trustees in detailed written comments on submitted on October 27, 1989,[6] and in oral testimony on December

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[4](...continued)
of Annapolis, Maryland, concluded that, based on current traffic rates, a spill of up to one million gallons is likely to recur once every 2.2 years; up to 9 million gallons once every 24 years; and up to 21 million gallons once every 66 years. Id. at II-52.

[5] Other concerns are addressed in NWF's testimony.

[6] Comments of the Natural Resources Defense Council, Inc. on the State/Federal Natural Resource Damage Assessment Plan for the Exxon Valdez Oil Spill (Public Review Draft, August 1989) (hereafter "NRDC Comments"). Our general comments were complemented by a series of detailed technical reviews by Drs. Anne McElroy, Patricia A. Lane, Howard L. Sanders, Michael Kavanaugh, Howard Liljestrand, D.K. Button, Steven Wright, Kim Hayes and Timothy Vogel.

20, 1989. Unfortunately, not only do our concerns remain -- in recent months they have been confirmed or exacerbated. According to testimony submitted to this Subcommittee by ADFG Commissioner Collinsworth, **the Trustee Council recommended severe cutbacks in the damage assessment program this year.** According to this testimony, 23 of the studies began last year will be discontinued, and an additional 21 studies will be cut back.[7]

Apparently, decisions on which studies to continue are based at least in part on financial considerations, and without consideration of which studies are needed to plan the restoration program. This Committee should inquire whether information critical to future restoration efforts will be lost this year, and what efforts are being made to coordinate damage assessment and restoration efforts properly.

Moreover, it appears that **the Administration will not request supplemental appropriations to pay for this year's studies.** If so, the Trustees will have to pay for these studies by "reprogramming" funds from normal agency budgets. This will have the dual effect of paring down the Exxon Valdez assessment even further, and impairing the functions of resource agencies whose budgets are already stretched thin.

The Damage Assessment Process Has Been, for All Practical Purposes, Closed to the Public

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[7] USFWS Regional Director Stieglitz later testified to the House Interior Appropriations Subcommittee that these decisions had been modified, but provided no details. Information is inadequate to identify all of the studies proposed to be deleted, and which new studies are proposed. NWF's testimony will address some of the specific studies that we understand will be deleted.

Important public natural resources were damaged by the spill. Yet for practical purposes the damage assessment program has been planned and implemented almost entirely in secret. While an opportunity was provided to comment orally and in writing on the draft plan released in late August, 1989, for various reasons these comments provided little real opportunity for serious input into the process:

1. The draft plan was entirely cursory, making it impossible to provide serious technical comments on the proposal.[8] Far more detailed study plans were circulated internally, but despite specific requests for review, were withheld from the public.

2. Because the public was asked to comment in September on studies conducted during the first field season of research, and because the draft plan only addressed this first season, the public comment opportunity was entirely after-the-fact.

3. Any comment on a second one-year plan means the same mistakes will be repeated, i.e., we may be allowed to comment on next year's studies after-the-fact as well. Our experts uniformly agreed that a single,

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[8] All the technical reviewers that NRDC consulted stated that there was not enough detail provided in the draft plan to permit adequate peer review. Dr. McElroy says that: "The level of detail in the study plan, methods and analyses given and budgets presented would be completely unacceptable in any kind of peer-reviewed grant or contract application." Dr. Lane states: "Although it is clear that many of the main environmental components have been identified for study, it is not so clear that the studies are designed well enough to provide the needed information to quantify damages rigorously. In particular, there is very little information given on sampling design and methods of data analysis and interpretation during the post-collection phase." Dr. Liljestrand noted that the level of detail provided in the Draft Plan would not suffice to pass scrutiny had this plan been submitted by a private party for government agency approval. Dr. Kavanaugh and our other experts reached the same conclusion with respect to other scientific and economic studies.

comprehensive, long-range damage assessment plan is needed, rather than a series of year-to-year plans.[9]

4. No opportunity was given (as we had requested) for our experts to talk face-to-face with the scientists who are actually designing the damage assessment program or conducting the field research. This type of exchange, along with peer-review of more detailed study plans, is standard procedure to improve scientific programs.

5. The results of last year's studies have not been released, making it difficult to evaluate the Trustees' decision to discontinue certain studies. This is consistent with a pattern of secrecy that has precluded wide scientific review of the study results to date.

We hoped to have these problems corrected through an amended process, and made a number of specific suggestions to improve the public process. For example, we proposed that:

1. Our comments be circulated to all Trustee experts and key decisionmakers.

2. Our experts have a chance to make their views known directly to key government experts, and to ask questions and to receive feedback.

3. We get copies of more detailed study plans, the results of last year's studies, and an opportunity to comment on them. These documents will most directly affect the future conduct of the damage assessment.

4. The public be allowed to comment on Trustees' decision on whether to extend studies beyond February 1990.

5. A formal public process be developed to design a detailed restoration plan.

Most of these requests have been effectively denied, in most cases with no response whatsoever. Detailed study plans were circulated for internal comment, but apparently no decision was

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[9] We understand from discussions with agency personnel that all five earlier drafts of the damage assessment plan were comprehensive, multi-year plans. But for political and apparently budgetary reasons, all portions of the plan except for the first-year proposal were deleted.

made to share these with the public or to seek public comment. Moreover, we still have received no formal responses to procedural or other inquiries in our comments. While we have been told that a final plan may be prepared, there has been no formal indication of when and how a final assessment plan will be written and released. Similarly, there has been no indication of the procedures by which Trustees will decide whether to extend the assessment studies beyond February 1990, or even when this decision will be finalized or announced.

This lack of open process is particularly frustrating given Commissioner Collinsworth's testimony that some studies are slated for the chopping block. Obviously, tentative (or by now, final) decisions have been made on which studies will be deleted or cut. There is no legitimate reason to withhold this information from the public.

Because it is much earlier in the restoration process, we may be able to avoid some of the same mistakes, and involve the public before major decisions are made. The Trustees held an extremely useful scoping conference in Alaska last month to explore a wide range of restoration options. This step -- the first in over a year since the spill to be held in the spirit of open public cooperation -- was encouraging. The restoration symposium produced a broad range of potential restoration options, including:

1. Direct mitigation techniques to assist in the recovery of individual species.

2. Revegetation to control erosion and provide habitat.

3. Methods to enhance fishery recovery (including but not limited to hatcheries or improved hatching methods).

4. Investment in better prevention and response capabilities in Prince William Sound.

5. Creation of a special trust fund to be used for research, fish and wildlife protection, and environmental education.

6. Acquisition of replacement habitat, or other habitat to protect resources affected by the spill, such as acquisition of timber rights.

7. Removal of introduced species that cause additional stress on species affected by the spill.

8. Protection of rookeries and other sensitive habitats.

9. Improved regulatory and enforcement efforts.

10. Control of high seas intercept fisheries.

11. Energy conservation initiatives in Alaska.

This promising beginning should be succeeded by the following additional steps:

1. Issuance of a public report outlining a broad scope of possible restoration options, and an opportunity for written scoping comments on the substance and procedure for development and implementation of short-term and long-term restoration efforts.[10]

2. The scoping process should culminate in a formal document, for public distribution, outlining the restoration process and all opportunities for public input, e.g., when a draft restoration plan will be ready, when and how the public can comment, etc.[11]

3. A draft restoration plan should be circulated for public comment before key decisions and resource commitments are made, so the public will have meaningful input into restoration decisions.

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[10] We understand that such a report will be issued by July.

[11] We understand that such a draft plan will be released early next year.

These concerns go to more than just our own desire to influence the process. The credibility of the whole damage assessment and restoration process is at stake if it continues to be done behind closed doors.

The Recent Proposed Plea Bargain Between Exxon and the Federal Government Underscores Concerns About the Closed Door Process

The pattern of secrecy in the damage assessment process was taken a giant step further in the recent proposed plea bargain between the federal government and Exxon. Had the plea agreement been executed and approved by the Court, the public would have been even more in the dark regarding the fate of future damage assessment and, more important, restoration activities. In essence, the federal government attempted to resolve in secret[12] matters that should be addressed in a public forum, by hiding behind the cloak of the criminal proceeding. This conduct cannot be tolerated. Where public resources are at stake, the public has a right to be involved in the process.

We continue to oppose any plea bargain that sells out the rights of the American public. The deal that was proposed several weeks ago was a bad one. For example:[13]

- The amount of the criminal fine was allegedly small, and was not clear that Exxon would have entered a guilty plea to felony charges.

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[12] Even the State of Alaska was excluded from the most critical parts of these negotiations, and was presented with a fait accompli at the eleventh hour.

[13] The above is just a small sample of problems with the proposed plea bargain.

- Exxon would have been allowed to credit most of its criminal liability against its civil liability, meaning that little deterrent value -- the basic purpose of criminal liability -- would have been realized.

- While the federal government would have reserved the right to sue Exxon after four years, in the interim the proposed $550 million restoration fund was woefully deficient. Adequate restoration funds will be essential during this critical period.

- Exxon would have enjoyed tremendous leverage over the process by which even those funds would be spent, through its ability to challenge most of the expenditures, and the requirement for funds to remain in escrow until any challenge was resolved. In effect, this would give to Exxon broad access to the damage assessment and restoration process that the public so far has been denied.

The Justice Department accused the State of Alaska and environmental groups of unfairly killing this deal, and of "not understanding" the merits of the proposal. Perhaps Justice and other agencies should learn an important lesson from the aborted plea bargain.[14] If agencies expect the public to reach rational, informed decisions about the cleanup, damage assessment and restoration processes, they must feed this process with open communications and adequate public information.

The Draft Damage Assessment Plan Was Short-Sighted and Narrowly Defined

NRDC's comments, and the unanimous comments of our expert reviewers, identified a number of serious problems with the proposed damage assessment plan. An underestimation of injury will lead to an underestimation of restoration or replacement

[14] By "aborted" we do not imply that the possibility of a plea bargain has been foreclosed. It is likely that secret negotiations continue between Exxon and Justice.

costs, an inadequate recovery from Exxon, and an inadequate restoration of the environment.[15] And at least in part, these problems apparently have resulted from the fact that the damage assessment process is being driven almost entirely by litigation concerns, rather than by sound science.

To begin, the proposed plan covered only one year of studies, and apparently, the Trustees will continue to make piecemeal, year-by-year decisions on which studies to continue. All of our experts indicated that a comprehensive, coordinated multi-year plan is essential to a sound damage assessment. Equally important, the plan focuses on a series of studies designed to study the effects of the spill on individual species, with virtually no effort to weigh the broader, ecological effects of the spill. For example, the plan does not address predator-prey relationships, the long-term effects of persistent oil in marshes and sediments, effects of reduced reproductive success of populations, and effects on bottom levels of the food chain.

The One-Year Draft Plan Was Short-Sighted

The one-year study plan released last year hardly constituted the comprehensive, long-term natural resources damage

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[15] The Trustees are under an obligation to recover costs for the restoration of damaged natural resources. Section 311(f)(5) of the Clean Water Act provides that designated federal and state officials "shall act on behalf of the public as trustee of the natural resources to recover for the costs of replacing or restoring such resources." 33 U.S.C. §1321(f)(5) (emphasis added). Section 107(f)(1) of CERCLA states that sums recovered be used to restore, replace or acquire the equivalent of the damaged resources. 42 U.S.C. §9607(f)(1). To recover such costs and restore the environment, the Trustees first must assess the full extent of injury.

assessment envisioned in CERCLA and the Clean Water Act,[16] or warranted by the circumstances. In the draft plan the Trustees did commit to deciding by February, 1990 which studies would be continued for one or more years. But while this decision has not been made public, apparently the Trustees recommended privately that a large number of these studies should be eliminated.[17]

More important, this year-to-year decisionmaking ignores the need to evaluate the long-term effects of the oil spill based on a comprehensive, long-term study program. Virtually every expert who commented on the plan noted the facial scientific inadequacy of a one-year or a year-to-year plan. In order to achieve a complete understanding of the long-term effects of the oil spill, it is important not only to conduct multi-year studies, but to

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[16] Section 107(f)(2)(A) of CERCLA states that natural resource trustees "shall assess damages for injury to, destruction of, or loss of natural resources" for recovering restoration costs. 42 U.S.C. §9607(f)(2)(A). This provision is expressly applicable to oil spill liability under the Clean Water Act. Id. CERCLA provides that long-term injuries are to be studied, mandating that natural resource damage assessment regulations include provisions to "determine the type and extent of short- and long-term injury." 42 U.S.C. §9651(c)(2). The legislative history of CERCLA demonstrates that Congress intended long-term injury to be addressed. The Senate Committee on Environment and Public Works received testimony that injuries of long duration result from spills of oil and other materials. See S. Rep. No. 848, 96th Cong., 2d Sess. at 84 (1980) (acknowledges that damage assessment includes "evaluation of long-term or delayed impacts on biological systems." Id. at 87). The report reiterates that provisions governing large or "unusually damaging" spills are to contain "protocols for field assessment of the type and extent of short- and long-term damage." Id. at 86 (emphasis added).

[17] As described above, according to recent press accounts at least 24 studies will be discontinued after only one year of study. NWF's testimony will address the specific studies proposed to be cut in more detail.

plan and design comprehensive studies from the outset. This will facilitate adequate study design, planning for logistics and funding, and other essentials of a long-term program.

Some of the reasons why long-range studies are needed are obvious. For example: recapture of tagged salmon should continue for many years in order to document long-term effects to anadromous fish species; reproductive effects cannot be measured until at least one reproductive cycle has passed; and population impacts will be felt for years to come because of the effects of bioaccumulation in individuals and biomagnification of toxics through the food chain.

But other long-term effects may be more subtle. For example, Drs. Button and Vogel advised that long-term changes in water chemistry will persist for decades if not up to a century. We need to study the degradation and oxidation products of petroleum byproducts, and other induced changes in water chemistry -- not just the initial breakdown products. Dr. McElroy identified a similar point about the fate of persistent hydrocarbons in sediment and pore waters:

> Analysis of hydrocarbons in the sediment and pore waters should be documented for years. Twenty years after the oil spill near West Falmouth in Buzzards Bay, MA, oil was found in marsh sediments.[18]

Long-term population effects can occur through reduced reproductive success and survival rates, not just through direct

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[18] Comments of Dr. McElroy (appended to NRDC comments), at 4.

mortality. If not calculated correctly, ultimate mortality can be underestimated by orders of magnitude. Dr. Pat Lane wrote:

> Long-term damage is undoubtedly the most important in terms of both total amount of damage and in terms of ecosystem viability.... This particular oil spill will probably be visible for decades. There is no humanly possible way to assess total or long-term damage based on data collected within a one-year period following the spill.[19]

The Damage Assessment Plan Was Narrowly Defined, and Needs More of an Ecosystems Focus

Related to the need for a long-term plan is the need for more of an ecosystems focus of the damage assessment. For the most part, the current proposed damage assessment focuses on effects on individual species. While these studies may be important for assessing some of the short-term and more obvious effects of the spill, they ignore almost entirely the broader ecological effects of the spill. As Dr. Pat Lane observed:

> There is no evidence that an ecosystem approach will be taken to examine and quantify foodweb effects related to the oil spill .... Thus, if the guilty party were made to pay only for the number of birds or mammals directly killed by the oil spill, for example based on a carcass count, the amount of true damage could be underestimated by orders of magnitude (emphasis supplied).

But to bring this point home in more than a rhetorical way, our experts identified specific examples of what this means:

1. The plan includes no real effort to study the long-term cumulative effects of the spill through the use of ecological models.

2. Dr. McElroy recommends a study of how oil exposure will affect primary productivity, which in turn may affect species composition and/or food resources.

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[19] Comments of Dr. Pat Lane (appended to NRDC comments), at 5.

3. Dr. Howard Sanders identified the need to study persistence of hydrocarbons in sediments, and the resulting alterations in benthic (bottom-dwelling) communities.

4. Dr. McElroy cited the need for studies of hydrocarbons in sediment and pore waters, oil buried in beach sediments that will be released in future storm events, and oil in benthic and coastal marsh habitats (all factors studied and found in other spills).

5. Dr. Vogel pointed to the need to study microbial populations, noting that an "ecology cannot be examined without studying the bottom of the food chain."

6. Similarly, Dr. McElroy noted that micro and macro plant and algal communities appear to be omitted from study plan. These provide important habitat and are critical elements of the food chain.

7. The plan does not address secondary impacts such as altered predator-prey relationships, or effects on reproductive success and future generations.

If these problems are not corrected, we will be relegated to knowing how many immediate casualties occurred during the first year of the oil spill, and any obvious chronic impacts on those individual species for which studies are continued for more than one year. We will not have a comprehensive, long-range understanding of the ecological effects of a spill of this magnitude on these rich and sensitive environments. Moreover, we will not have the comprehensive understanding of spill impacts needed to ensure that Exxon pays full compensation for the damage they caused, and to oversee the long-term restoration program required by CERCLA and the Clean Water Act.

Steps Congress Could Take to Improve the Damage Assessment Process

While much damage has been done due to flaws in the damage assessment process to date, many of these problems can be

corrected. We recommend that Congress take at least the following steps to ensure a better process in the future:

(1) Provide Adequate Funds for the Damage Assessment

Many of the problems described above are being driven by the cost of the damage assessment process. And apparently, the Office of Management and Budget is reluctant to seek the necessary supplemental appropriations to ensure that sufficient funds are available to complete a comprehensive study program.

Congress should step in and correct this problem by passing authorizations and supplemental appropriations sufficient to cover the damage assessment program. Appropriations for this year should be for at least $35 million this year, just to repeat last year's level of effort. To conduct the more comprehensive program recommended by our experts, additional funds may be needed. And to provide adequate long-term program stability, authorizations should be addressed on a multi-year basis.

The funding legislation could also serve to correct other problems with the damage assessment program. For example, the legislation should clarify that the damage assessment plan must be as long and as comprehensive as necessary to determine the long-range effects of the spill at both the individual population and ecosystems levels. Legislation also could specify that all data and analysis must be made public as soon as available.

(2) Demand an Open Public Process

Congress should join the environmental community in demanding that the Trustees open up the decisionmaking process

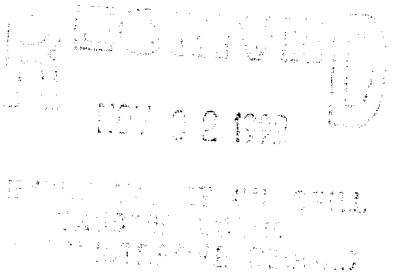
regarding the damage assessment and restoration process as much as possible without compromising litigation. This should include the release of a revised, comprehensive damage assessment plan as soon as possible, and additional opportunity for public comment on this plan. It should also include a detailed plan for a more open, public process to design a plan that restores Prince William Sound and other affected waters as fully as possible, and where full restoration is not possible, implements other measures (such as acquisition of replacement habitats) to compensate the environment and the American public for this tragedy.

While we believe that a fully open process is mandated under current law, if necessary, supplemental requirements should be passed clarifying that these public matters should be conducted and decided in public.

Conclusion

Again, NRDC appreciates this opportunity to bring these concerns to your attention. If major improvements are not made quickly in the damage assessment process, we fear that we will lose critical information on the full effects of the Exxon Valdez oil spill. While there is still time to improve the restoration process before major damage is done, these improvements should also be made as soon as possible, to restore public confidence in the integrity of this effort.

I would be happy to answer any questions.



TESTIMONY BEFORE THE HOUSE SUBCOMMITTEE ON

WATER, POWER AND OFFSHORE ENERGY RESOURCES

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS

WALTER B. PARKER, CHAIRMAN

ALASKA OIL SPILL COMMISSION

MARCH 22, 1990

As Chairman of the Alaska Oil Spill Commission I appreciate the opportunity to address the subcommittee on the improvements that have been made in the transportation of crude oil from Valdez in the past year and on our recommendations for the further improvements that will be required. In addition to this testimony I have submitted our final report with its four volumes of appendices for inclusion in the official hearing record.

I will first address the improvements that have been made in the system. In response to Governor Cowper's emergency orders and also in their initiative Alyeska Pipeline Service Company (Alyeska) has imposed the same general order of restrictions on shipping to and from Valdez that were in place when the terminal opened in July, 1977.

These restrictions are that tankers must stay in the tanker lanes, that they must slow down to safely transit ice in the lanes rather than proceeding around the ice at sea speed, that tug escorts and emergency response vessels will accompany the tankers until they are clear of Hinchinbrook Entrance and are in the open sea, and that tankers will restrict their speed to 10 knots while in Prince William Sound. In addition to the above, in 1977 there were in place requirements that sailings would be prohibited when winds were in excess of 40 knots. This requirement for port closure during storm conditions that threaten the safety of shipping is not yet firm judging from recent actions in which

tankers were sailing in conditions that were not safe for escort vessels. Evidently the Coast Guard does not have the authority to close the port. This creates a situation that in the conditions when the escort vessel may be most needed due to power failure or other breakdowns, they will not be available or their performance will be severely impaired. My letter to the Commandant of the Coast Guard, Admiral Yost, on this matter is attached to this testimony. No reply has been received.

Thus for Prince William Sound, with the exception of the lack of authority for port closure, the system is as safe as it was in 1977 when the terminal opened with one exception; the ships serving Valdez are in most cases the same ones that were serving it then 12 years ago.

These aging ships must proceed in almost all weathers to answer the inexorable demands of their owners shipping schedules. The constraints on those schedules are imposed by the lack of sufficient storage capacity at each end of the system to provide for more than a few days interruption of service at Valdez or by the pipeline.

The Commission concentrated on those factors that would prevent tanker accidents in its recommendations. These were concentrated in three groups by our principle technical contractor, Engineering Computer Optecnomics (ECO) of Annapolis, MD. The first

group were those that could be done now:

Mandatory drug and alcohol testing

Emergency and high risk navigation area training

Port closure system

Two certified pilots watchstanding requirement

Improved loading and unloading procedures

Spill response equipment coordinator.

Only two of the above are firmly in place in Prince William Sound; drug and alcohol testing and local spill prevention involvement. Only drug and alcohol testing are in place in Cook Inlet. Crew training in emergency and high risk procedures through simulators, a firm port closure system, the requirement for either a state pilot and a federal pilot or two federal pilots to be on the bridge at all times in coastal waters is still not firm, loading procedures are still status quo and spill response equipment coordination planning is just getting underway.

Our second group of technical improvements focused on using current well proven technology to insure that tankers are where they are supposed to be at all times. They are:

A greatly improved vessel monitoring system

Traffic separation lanes with one way traffic where necessary

Designated anchorage areas

Emergency response/pollution control vessels

and tug escorts

Improved loading/unloading design

Three of these five recommendations have now been addressed in Prince William Sound, none in Cook Inlet. The reactivation of firm adherence to the traffic lanes which is enforced by Alyeska by agreement with its owner companies is the greatest single safety measure to ensure another Exxon Valdez does not happen.

The Coast Guard has taken measures to back up this industry initiative by imposing stricter one way controls through Valdez Narrows and strict adherence to traffic lanes after two masters took their ships in the vicinity of Bligh Reef avoiding ice last August. Despite the new regulations, there are undoubtly masters and owners who still feel that their rights are being infringed upon and that the Exxon Valdez wreck was an aberration that will never happen again. Our report and findings state clearly that it was not an aberration but almost a certainty under the system operative in Valdez on March 23, 1989. The risk is far less with the improvements in place noted above, but much remains to be done.

The most important immediate priority for future system improvements is a vessel monitoring system that truly represents what is readily possible now. There is no reason why there should not be an electronic map display on both the bridge and in the vessel traffic center that shows the position of the ship in

relationship to the traffic lanes, other ships in the system, and all known hazards. This system is a backup to the present radar systems on the ships and in the vessel traffic centers. It can rely upon either Loran C retransmit or Global Position Satellite for navigational input. Vessel owners in Houston are now tracking the positions of their vessels in Prince William Sound using such systems. Some hazardous material contractors monitor their systems nationwide. The BLM in Boise currently uses such technology to monitor the real time position of over 2500 aircraft in the United States and Alaska. The systems are inexpensive and can be quickly installed.

At the end of last summer I thought we had considerable momentum built up in the industry to install such electronic tracking systems. Unfortunately, the industry enthusiasm was limited to a few operators and thus far no similar enthusiasm has been shown by the Coast Guard for moving rapidly on developing the standards and regulations that will constitute what could be a great leap forward in marine safety.

The State of Alaska asked the Coast Guard to require Loran C retransmit 12 years ago when the terminal opened. They were no more responsive then than they are now. Had even the system available then, primitive compared to the electronic displays now available, been installed the constant departures from the tanker lanes into dangerous waters that were common in the 1980's would

have been constantly observed; a job not done by the Coast Guard radar because of its limitations. Such a system can also be cheaply remoted to state and industry offices so that everyone involved knows what the great tankers are up to at all times. The system, once in place on the ships can be inexpensively replicated at all terminals used by those tankers, Because of their greater traffic the system has even greater relevance in Puget Sound, San Francisco, Los Angeles and the East Coast ports that are at hazard from the constantly increasing import of foreign crude oil.

Our recommendations on loading/unloading designs and procedures recognize that these are a constant source of spill of all sizes. In addition to the equipment improvements we are recommending to the State of Alaska that it institute licensing requirements for those involved in the landside operation of moving oil that occupy the most critical management and operating positions. This licensing requirement would be applicable for pipeline operations as well as terminals.

In Group III we made our recommendations for the ships themselves. These are:

Double hulls

Centralized bunker tanks

Automated cargo central system

Auxiliary thrusters

Precise navigation display system (part of the

vessel monitoring system also)

Improved lifeboats.

We were happy to note the strong efforts in the U.S. House on double hulls. In Alaska, we have been led down the seaways of federal and international regulation twice on this issue, as has the Congress, and have gained precious little in truly advancing the cause of marine environmental safety on either trip. The promises made to us in 1973 and 1977 both tailed off into nothingness as the years went by. I think the language in HB1465 should finally get someone's attention. Hopefully, it can be strengthened in the Conference Committee to ensure that the oldest most decrepit ships are replaced immediately.

The Alaska Oil Spill Commission heard all the old economic and safety arguments on double hulls and did not accept their validity. Our contractors at ECO came up with an intermediate version of double hulls that distributes the present requirements for segregated ballast over the entire hulls. We are satisfied that this provides a reasonable answer to the arguments that double hulls will severely limit the cargo carrying capacity of the tankers or require an increase in number of ships. We found that the arguments on instability due to flooding within the hulls or on explosive gases within the hulls to be without merit.

I have made the point to the shipping industry and the oil companies that the most positive way they can indicate their good

faith and desire for an improvement in marine safety and in protection of the environment from oil spills is to begin laying down new construction now that represents the top of the state of the art as we have defined in our report rather than the cheapest possible hull construction.

I would like to emphasize the need for auxiliary power units also. While tug escort in coastal waters is a reasonable redundancy for power plant failure, however, their have been instances where their effectiveness is generally limited. We highly recommend the auxiliary thrusters as an additional means of system redundancy for those critical areas where coasts are near but tug escort is still not available or not effective. We accept industry arguments that the single screw and twin diesel systems are the most effective means of propulsion but strongly feel that additional redundancy in the power systems is necessary, especially for those many ships in the fleet still operating on single boilers.

We addressed the problem of ships crews and the undermanning of many of them in our perception. We had excellent input from many shippers, the maritime unions and our contractors at Mitigation Assistance Corporation and ECO on the problems of fatigue and the ability of small crews to respond to emergency situations. We also addressed the situation where the Coast guard is allowing crew reductions based on very limited operational

experience with automated systems. Our research indicates that while automated systems have much to offer, there is a break in period when proper crew training and the acquisition of operating experience with those systems may demand larger crews rather than smaller. In any case we found that the case for crew reduction at this time was weak and not properly justified in the Coast Guard records that we reviewed. Our research substantiated the claim of veteran mariners that "nowhere is there more fatigue than on the tankers that ply the waters between Valdez and Puget Sound."

We also found that maintenance of automated systems, communications equipment and navigation systems is an area not treated with the respect safety demands and was often deferred until the next port was reached. This is due to the removal or radio officers from the ship and the failure to train another member of the crew in electronic maintenance. Continuation of this practice would seem to mitigate against a high level of marine safety.

We strongly believe that this dialogue between crew size and automated systems is one of the most important in the marine safety area and is still not receiving the consideration that its potential risk to marine safety demands.

In summary, on the prevention of oil spills the Alaska Oil Spill Commission recommends strongly:

Immediate upgrading of vessel traffic systems to vessel monitoring systems.

Immediate construction of new double hulled ships beginning with the worst in the fleet and replacing rapidly over the next decade the entire fleet serving U.S. ports.

An in depth investigation of crew levels and proper crew training, including a much greater use of simulation on the bridge and in the engine room.

A much greater presence of the U.S. Coast Guard in ship inspections and crew competency oversight.

That those states with a strong desire to protect their coastal environments have the right to participate in vessel inspections and monitoring of crew quality without fear of federal preemption lawsuits (legislation has been introduced by Governor Cowper of Alaska, in the Alaska Legislature to provide the state with this authority)

Formation of interstate compacts whose major goal is a strong state role in prevention of maritime accidents through coordination of their roles in vessel and crew inspection, vessel monitoring systems and strong regulation of the oil transportation system.

In addition to making recommendations on how to prevent future wrecks of oil tankers, the Commission was asked to examine the response to the oil spill from the wreck of the Exxon Valdez and the ensuing cleanup and to make recommendations for an improved system. We found that the cleanup effort occupied the attention of the nation to the point where it tended to obscure many other factors of the response to the spill. In our examination we broke oil spill response into five categories:

Ship salvage and securing the oil remaining on board after a spill

Immediate containment of the spill and recovery of oil in the water

Protection of environmentally sensitive areas and ensuing cleanup of an escaped spill

Beach cleanup after a failed spill response

Health, economic and social support services for communities and persons affected by the spill.

We found no organization; federal, state or private was staffed for or had the experience to handle all five phases and that only first rate pre spill planning through a strong interagency coordinating mechanism could provide a truly satisfactory response to major catastrophic spills. We also found that no significant spill response should ever again be under the control of a private organization but that it must be under government control. We do not intend that this finding in any way

lessens the responsibility of the oil industry to maintain spill response capabilities adequate to the risk it imposes. In any case, we found that the existing Incident Command System presently used by federal and state governments to coordinate response to disasters such as wildfire and flood was also the best response mechanism for coordinating oil spill response and ensuring that all five levels of response were adequately handled.

We considered the level of response that should be required and determined that the system must have the capability of responding to a "worst case" spill within 72 hours. Industry has already attacked this position as unreasonable and not possible with existing technology. We say that industry has no right to impose the risk without developing the technology necessary for response to a "worst case" spill. We also found that the federal government was sadly deficient in its responsibilities to ensure that an adequate level of research, development and testing was maintained in oil spill response. We found that the response capability for Prince William Sound should demonstrate the feasibility of and plan for recovery of 1.8 million barrels in 72 hours and 500,000 barrels for Cook Inlet in the same period.

Industry says at this time it cannot recover more that 250,000 barrels in 72 hours, which is the level that the present draft Alyeska contingency plan is aimed at. In my last testimony to the Alaska State Legislature I showed what was necessary to maintain a worst case response capability of 1.8 million barrels and

calculated that it would cost four tenths of one percent of annual gross value of the throughput at Valdez to maintain that capability. This does not seem too high a price to ask the industry to pay to provide the necessary level for Alaska's coastlines, A copy of that testimony is attached to this submission.

Our examination of the effect of the operation of the National Contingency Plan on the Exxon Valdez spill was that it was totally and completely inadequate. The reasons for that inadequacy are that the resources it brings to the spill are too late because the equipment is too far away in almost all cases and even when the spill is close to the depots, the response is inadequate. We also found that the level of scientific and technical expertise provided was inadequate and did not represent even a semblance of what the present state of the art should provide. A major federal program of research, development and testing is vital and should be undertaken immediately. But its primary failure is it does not fully address the role of the effected state(s) and local communities in providing response services. A serious oversight which contributed greatly to the confusion regarding management and structure in the Exxon Valdez incident.

In looking at the levels of activity necessary for a successful response we found that the first - salvage and securing of remaining cargo - is usually handled as well as possible by the

Coast Guard working with private salvage groups. The problem is that the Coast Guard is also responsible for stage two working with the spiller and that their attention to stage one distracts them from making a maximum immediate effort on stage two - immediate containment and recovery of the spill. These two are the most critical phases and are the area where resources should be maximized in the immediate post spill period. Therefore, it is our belief that the Coast Guard and industry should concentrate on stage one, and industry should continue to have the main responsibility under stage two under either federal or state command.

In stage two - containment and recovery - either the Coast Guard should be funded to maintain both stage one and stage two missions or the responsibility for stage two should be given to another federal agency. The Corps of Engineers and the Navy both demonstrated more ability to contain and recover spilled oil in the water than the Coast Guard. The Commission suggests that the Corps should be considered for the major role in this phase because its dredging equipment was proven to be the highest capacity recovery equipment and its overall capability in project management is much higher than that found in the Coast Guard. A large oil spill is fundamentally an exercise in managing different disciplines and in logistics, similar to the same skills required in a major project. Also, the Corps has substantially more research and development capability than does the Coast Guard. In many areas the Corps has

a substantial local presence and knowledge of bathymetry, local currents, basin models and appropriate equipment.

The state and the federal resources management agencies have primary roles in stage three in identifying environmentally sensitive areas and making plans for protecting them. Oil recovery in the water is essentially a continuation of stage two. At this point all participants, federal, state and private should be engaged.

Stage four - beach cleanup - was regarded by the Commission as mopping up after a lost battle. Here again, in Alaska, the system failed in that the techniques utilized were developed ad hoc and were not the result of any careful preplanning. While the costs of spill prevention and of initial containment and recovery may seem high; Exxon Valdez proved that they are infinitesimal compared to those of adequate beach cleanup.

The National Contingency Plan made no preparations for stage five. After careful examination of all existing federal and state systems, it seemed to us that the emergency response systems in place by state agencies and the Federal Emergency Management Administration should also be used to aid communities affected by major oil spills in the same manner they are brought into play for natural disasters. Neither the Coast Guard, state environmental agencies or industry have trained staff or experience to do an

adequate job in disaster relief. We found no reason why oil spill response overall should not be integrated into the emergency response programs with the caveat that both state and federal governments would recover their costs from the spiller whenever possible.

Another problem with the National Contingency Plan is that the rights and duties of the states are not clear defined. In order to achieve response to a worst case spill in 72 hours, there must be a strong initial capability to achieve immediate containment and recovery. This capability must be based upon locally controlled response districts that bring together industry, federal, state and local capabilities. We researched European systems and the best of them follow this pattern beginning with the local fire department and building upwards to the national plan. This development has been inhibited in the United States because the privatization of spill response has minimized the role of the local and state governments and dispersal of the federal response structure between EPA, the Coast Guard and NOAA has led to a minimal response by all three.

There is a strong role for interstate compacts in response as well as prevention. Through a compact a state's role in the Regional Response Team could be coordinated and emphasized. This would ensure contingency planning to meet the needs of one state would have maximum benefit on a regional basis.

The best response that can envisaged at this time would be one that would vault over the present technologies in use for response - booms, skimmers, dispersants - technologies that are by their nature extremely limited as to both their capability and the conditions they can operate in. What is required is a major effort into investigating new technologies that have the potential to change the physics of the spill response equation.

We found efforts already underway by the U.S. Navy and Environment Canada into potential use of coagulants, herders, encapsulators and elasticizing agents. All of these offer the possibility of greatly increasing our initial containment and recovery capability.

In a best case situation, it would be feasible and economically efficient to concentrate the containment capability on the tanker by carrying sufficient chemical agents of the proper type to in effect coagulate the oil in place in damaged tanks and to rapidly immobilize any oil in the water by rapid treatment with the necessary gelling agents. In examining response capability in the remote areas of the Arctic, it seems to us that a capability like this is one of the few feasible solutions other than burning.

In summation, our recommendations on improved response capability are:

The government, federal or state, in total

charge of a spill

Use of the Incident Command System to coordinate a locally based five level response capability

Mandate a worst case recovery capability within 72 hours

Mandate the states as full partners in the National Contingency Plan making use of interstate compacts where needed

An immediate research and development effort to greatly improve response technologies.

There is still a strong desire by many elements of the shipping indusrty, the oil industry and some agencies of the federal administration to minimize the state role in oil spill response as an unnecessary encumbrance. They have made it plain they are most comfortable with a direct relationship with the federal regulator. Our recommendations at almost every level are against this and emphasize the absolute need for a major state and local role in the entire system. Our recommendations for a strong state and local position are based on the hard lessons learned from our review of the history of events leading to the wreck of the Exxon Valdez.

After three years of intensive planning and despite continual opposition from industry and the Coast Guard, the terminal at Valdez began operations in 1977 with the safest system we could

devise at that time in place. The State of Alaska had sponsered a through simulation of port operations that clearly defined the hazards. We had a system in place in state statutes that promoted through incentives the replacement of older ships with double bottomed or double hulled tankers equipped with the latest technology. The better the ship, the less the owner paid into the state's Coastal Contingency Fund. This fund supported state inspections and state participation in spill response.

Almost immediately upon the opening of the terminal the Alyeska owners sued to have the state removed because it was preempting federal perogatives. Industry won in 1979 and the state system was dismantled.

What does our history of the next decade leading to Exxon Valdez show? Did the Coast Guard and the indusrty show that they recognized that removal of the state presence placed greater obligations on them for tanker safety. They most certainly did not. Rather over the next ten years every safeguard that was in place for both prevention and response was systematically removed or disregarded. Tanker lanes were treated as an unnecessary joke. Who needed them in the wide expanses of Prince William Sound. Ice procedures were ignored and vessels charged into shallow waters at sea speed in order to not loose time proceeding through ice. Pilot requirements were diminished. Tug escorts were dropped. The vessel traffic system was cut back to the point of almost total

ineffectiveness. Radar coverage was reduced. Where before between 1977 and 1979 both state and federal inspectors met tankers - by 1989 an inspector was a rare occurance.

On the response side, Alyeska dismantled the full time response group and made no effort whatsoever to upgrade response equipment. Conntingency plans became simple telephone books with no real capability behind them. State inspections were stonewalled and litigation took the place of cooperation.

The above sad story, told in detail in our report, is the reason why we emphasize that if the system is to work better in the future, those most at risk must have a strong continuing role in the oversight process.

We have recommended to Alaska that a high level oversight council be set up and this legislation has been introduced. Its role is to work with local oversight committees, both state and federally sponsored, to ensure that their views and recommendations are heard at the highest levels. The council will have as a major task coordination with other states. It will be responsible for ensuring that true federal-state cooperation exists for both prevention and response.

There is a catastrophic oil spill somewhere on an average of once a year. Some years there are several, some years there are

none, but once a year is the average risk to some coastline, some marine ecosystem, somewhere in the world. This average can be dramatically reduced to an average of once every five years through using existing technology annd strong regulatory systems. The amount of oil recovered from a spill can be dramatically increased if we put our minds and pocketbooks to the task of upgrading the present obsolete and inefficient technology.

Present legislation in the Congress and in several of the states will take us a long way on the searoad to improvement. Hopefully, we will not loose the way again this time and the system will continue to improve in the next decade to a point where major oil spills are a bitter memory and not a clear and present danger.

STATE OF ALASKA

STEVE COWPER, GOVERNOR

DEPARTMENT OF ADMINISTRATION

ALASKA OIL SPILL COMMISSION

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February 23, 1990

Admiral Paul Yost
Commandant USCG
2100 2nd S.W.
Washington, D.C. 20593

Dear Admiral Yost:

The attached memo was provided to me by Commissioner Dennis Kelso of the Alaska Department of Environmental Conservation. It is most disturbing both as to its comments on the present situation and the implications for the future.

If we accept that the continual sailings out of Valdez during periods of adverse weather, when escort tugs cannot operate, as normal operating procedures, I can only assume that the level of risk in Prince William Sound has not diminished at all since March 23, 1989. We have tankers operating without escort in the most adverse conditions when escorts are most needed in case of power failure. As you remember from your service in Alaska during the period when Valdez was opened, the State of Alaska sponsored simulation of Valdez operations found that the risk level was not acceptable in winds above 40 knots.

Based on that record and our history of events from 1977 to 1989 on tanker operations from Valdez, we have made two recommendations pertinent to the operation described in the attached memo:

> Recommendation 25: The state should create harbor administration offices for Prince William Sound and Cook Inlet to help regulate traffic and navigation and to implement terminal and vessel inspections.
>
> One of the functions of the harbor administration would be to implement port closure rules, a function which seems to be in dispute according to the attached memo.
>
> Recommendation 9: Tank farm capacity at Valdez should be increased to meet the original design requirements for maximum throughput.

Shortage of storage capacity would appear to be the main driving force behind operations in weather conditions that are clearly not conducive to marine safety.

The long range implications of the events of February 13 are that the return to the type of thinking that led to the Exxon Valdez disaster has already begun and will quickly accelerate until we are in worse shape than on March 23, 1989. Ignoring this event will simply lead the operators to believe that it is acceptable practice.

Sincerely,

Walter B. Parker

Walter B. Parker
Chairman

FROM: Prince William Sound D.O.

TO: Bill Lamoureaux
Bob Flint

DATE: 02-13-90
TIME: 16:17

CC Pat Cyr
Dennis Kelso JUNEAU/ADEC
Larry Dietrick JUNEAU/ADEC
Lynn Kent SERO/ADEC
Mike Mansker SERO/ADEC

SUBJECT: BAD Wx IN PWS HINDERS TANKER TRAFFIC
PRIORITY: R
ATTACHMENTS:

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ere's a report on an incident that has just occurred in PWSDO relating to anker Vessel traffic in Prince William Sound during bad weather conditions. he following is an outline of events that have occurred to this point:

245 Lt. Rice, Coast Guard in Valdez contacted the PWSDO to report that the /V Overseas Juneau is outbound and is being escorted by only one ERV and no ug at a location approx 8 mi. south of Bligh Reef. The escort tug took a ave over the bow & damaged the window of the bridge. The coast uard gave the tug permission to return to Port Valdez. Weather conditions onsisted of 50 knot winds, 12-15 ft seas, & heavy snows.

oast Guard also reported that the pilots want the Pilot Station moved rom Bligh Is. back to Busby Is. due to the Wx conditions.

T/V Exxon Banicia is being loaded at the Alyeska Marine Terminal and is eduled to depart at 1530.

345 Telecon between Dan Lawn & Ed Thompson, Coast Guard. Discussed options:

ompson suggested: Allow the Exxon Banicia to depart as scheduled with two RV's from the Vdz Narrows to Hinchinbrook Entrance.

wn suggested: Do not allow the tanker to leave until Wx conditions prove to the point where the oil response equipment can be effective as is tline in the state's emergency order.

ompson response: Coast Guard is not in the position to enforce the state's ergency order and will await to here back from ADEC concerning decision.

00 Telecon between Dan Lawn & Bill Lamoreaux. Discussed situation and tions. Conclusion: Should not allow the T/V to leave until weather nditions improve based on the conditions established in the emergency der.

10 Telecon between Dan Lawn & Mike Williams, Alyeska. Discussed tuation. Williams needed to discuss this with others at Alyeska.

25 Telecon between Dan Lawn & Lt. Rice. T/V Northern Lion inbound at this me located approx. 50 mi due south from Cordova airport. Wx conditions ere: 50 knot winds out of SW; 1/4 mi visibility; heavy snow. Coast Guard is to make the decision to stop the T/V from coming into the port due to e Wx conditions.

45 Telecon between Dan Lawn & Mike Williams. Williams was in agreement

that it would be prudent to hold the tanker in port until Wx conditions improved. Was unsure of his authority to do that and needed to do some checking to find the mechanism to take that stand.

1) Telecon between Dan Lawn & Mike Williams. Alyeska is cancelling the ERV's for safety reasons until the Wx improves. Williams also feels that Alyeska would not be able to provide c-plan coverage for the tanker, he will advise they of that and tell them to wait at the terminal untill Wx improves. Wx conditions will be monitored throughout the evening.

1503 Telecon between Dan Lawn & Ed Thompson. Update on status. Also, Coast Guard has decided to allow the T/V to continue inbound because the Wx conditions are much better in the port. As an aside note, the Coast Guard was not going to stop the T/V Ex Banicia from leaving.

1530 Telecon between Dan Lawn & Tim Plummer, Alyeska SERV's. The SERV Biehl Trader which escorted the T/V Overseas Juneau to Hinchinbrook will return to Naked Is and monitor Wx conditions throughout the evening to provide updates.

1600 Cmdr. Thompson advised we has moved the pilot station to Busby Is. for the incomming T/V.

Will keep you informed of any further events as they happen.

THIS POINTS OUT THE PROBLEMS WITH THE PRESENT PLAN OF OPERATION AT THE TERMINAL WITH REGUARD TO TANKER MOVEMENTS.

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TESTIMONY BEFORE THE ALASKA HOUSE
RESOURCES COMMITTEE

HB 565, HB 566 & HB 567

WALTER B. PARKER, CHAIRMAN
ALASKA OIL SPILL COMMISSION

8 MARCH 1990

HB 565

The Commission did not address penalty amounts. The general thrust of the legislation is not directly addressed in any of our recommendations since our emphasis was on system improvement and not on penalties incurred for system violation.

Section 5 (F)

The elimination of all presently utilized means, other than mechanical recovery, could have an inhibiting effect on using best available technology in contingency plans. In particular, we would like to see the use of gelling agents promoted.

Section 6 (B)

Same comment as above.

HB 566

In general, HB 566 reflects several of the major thrusts of recommendations by the Alaska Oil Spill Commission. Mainly, it brings oil spill response into the state's emergency response network and mandates strong cooperation between those state agencies concerned with emergency response to hazardous substances, including crude oil and refined petroleum products. Most important, it concentrates on establishing immediate response at the local level, something addressed by several of the commission's recommendations, most strongly Recommendations 27 and 49.

Section 1, 2 and 4

Recommendations 52 and 53 address the need for an immediately available oil or hazardous substance response fund. Broadening the use of the 470 fund and providing the governor with the flexibility to use those funds in addressing oil spills and other emergencies is directly consistence with the commission's intent in these recommendations.

Section 3

The problem the commission wrestled with in the relationships between the Department of Environmental Conservation and Division of Emergency Services was ultimately the determination of who would be in charge of a catastrophic spill response and at what level the response authority of DES would be implemented. Our recommendation on the use of the Incident Command System (Recommendation 48) is our major response to this problem. The key element is having an on-scene commander in each emergency response district that has the authority to bring the Incident Command System into operation.

The bill recognized DES expertise in communications, logistics, equipment procurement, manpower and community liaison. This is supported by our Recommendations 50 and 51. DEC expertise in providing measurement and evaluations of environmental conditions is in the bill, but their role in directing initial response and later cleanup is not absolutely clear. The commission believed that use of the ICS would clarify the difference between oversight roles and management in response, beyond the responsibilities outlined in the district contingency plan. In the best of worlds, each district will have a contingency plan that is absolutely clear on what role each party will play. We found that the Incident Command System does the best job of this.

Each district may have different structures that reflect the differences in state agency structure, federal agency structure, local government capabilities and private capabilities. We felt that maximizing the use of existing governmental and private capabilities through the ICS would be the most cost-effective and efficient way to achieve an oil spill response system that can meet the target of responding to a worst-case situation within 72 hours.

The commission did not address the formation of the State Emergency Response Commission. The SERV does carry out the intentions of Recommendations 27 and 49 on local involvement and Recommendations 45 and 50 on allocation of state response authority. Most importantly, it provides the structure for developing effective regional response plans. These plans are the most critical element of the entire response structure because it is in the region that the ability to respond quickly and effectively must be lodged.

HB 567

Section 1

Our Recommendation 55 should be considered. We feel that contingency plans should be based on the ability to respond to a "worst-case spill" within 72 hours. The language in the bill of a "realistic maximum" oil discharge and to remove that discharge

"within the shortest possible time" does not provide a firm mandate for private contingency plans. It does not do enough to mitigate the risk oil shipment imposes on residents of adjacent coasts. It is not in line without overall policy Recommendations 1, 2 and 3.

A "worst case" would be 1.8 million barrels for Prince William Sound and 500,00 barrels for Cook Inlet. The oil industry claims this cannot be recovered. It can, however, be done by a regional response plan which brings in the capabilities of all concerned--industry, state, and federal.

The following have been offered by industry:

Alyeska Contingency Plan submitted the recovery of 10K barrels per hour name plate capacity. Allowing for 35% best case recovery in 72 hours	252,000
ARCO, per recent testimony, with a 24-hour lag to allow for mobilization from West Coast	250,000
Other 5 Alyeska owners	(unknown)
Barrels	502,000

The above figures are for containment and best case recovery situations, ie. less than six foot sea state and no more than 1 knot currents.

ARCO's proposed 70,000 ton skimmer could be built to recover 25,000 barrels per hour based on it having half the capacity to pump oil out of the water that is common at the Valdez terminal for pumping oil into tankers. This would have a capacity of 600,000 barrels per day and allowing for a 35% best case recovery rate, it would recover 630,000 barrels in 72 hours. Our total best 72-hour case recovery is now 1,132,000. Thus the remaining question is how to make up the 670,000 barrel difference. Allowing for 20% evaporation of the light ends during this period, or 360,000 barrels, we can see that we are approaching our goal and have 310,000 barrels remaining for which capability must be demonstrated. Here is where the API/PIRO response may come in, also federal response from the Navy, the Corp of Engineers, the Coast Guard, and if necessary further Alyeska response. In any case, by a combination of new technology already being proposed by ARCO and by accumulation of other sources into a regional response plan, we have come close to a creditable "worst case response" capability.

The next question is why must this response be mounted in 72 hours. If you examine the oil spill simulations in our report, you

will note that it is after 72 hours that the greatest impact on the beaches occurs. Once the oil is on the beach, the Commission considers the battle lost. Therefore, our strong recommendations are on the immediacy of the response efforts.

As our report shows, Exxon Valdez is only 34th on the list of 65 great oil spills. Thus, the possibility of spills where the entire tanker load is lost, 1,800,000 barrels for Prince William Sound or 500,000 barrels for Cook Inlet, is still a very real worst case situation.

There are presently 94 tankers licensed for operation into Alaskan ports. Only 10 are covered by Alyeska's present plan for a "worst case" loss; 43 are covered by combining the Alyeska and ARCO plans, adding the large skimmer as described covers 70 tankers leaving only 24 uncovered.

What are the costs of achieving this level of protection, remembering we are only achieving worst case protection by mechanical containment and recovery in good weather conditions? The costs included here are estimated by me based on our contractors estimates for similar equipment.

One Time Costs

Alyeska Costs (already committed but no cost breakdown yet provided, so this is my estimate based on our contractor's estimates)	$60,000,000
ARCO Costs (less 4 ERV and 4 other vessels in Alyeska Costs, note that this system serves entire West Coast	$ 32,000,000
70,000 Ton Skimmer Costs ($93 million for new ship by Commission estimate plus $20 million for skimmer conversion by ARCO estimates	$ 113,000,000
1.132.000 barrels in 72 hours recovery	$ 205,000,000
Full Worst Case, another 310,000 barrels	80,000,000
Full Worst Case Recovery System in good weather	$ 285,000,000

Annual Costs

Alyeska	$10,000,000
ARCO	5,000,000

70,000 Ton Skimmer	10,000,000
Additional Recovery	5,000,000
TOTAL	$30,000,000

Operating costs as above should cover 72 hour initial period but do not cover beach cleanup costs.

Assuming a 10-year depreciation on one time costs, the annual costs for "worst case" mechanical recovery in Prince William Sound are $58,500,000 or the industry profits on 5 days throughput at the Valdez terminal.

*$6 X 9,750,000 barrels

*From Deakins Report

Now the question is, what is the cost of "worst case recovery" in bad weather. The present options are burning or dispersants. Future options may include gelling agents as described in our report. The costs of bad weather treatment are:

Burning, the loss of the ship and cargo	
250,000 T Tanker, new	$192,000,000
cargo 1.8 million barrels @ $20	36,000,000
Total	$218,000,000
70,000 T Tanker, new	$ 93,000,000
cargo, 500,000 barrels @ $20	10,000,000
Total	$103,000,000
The costs of the flights and igniting agents plus recovery of crew	$ 250,000
Dispersants: Following the British method of aerial application and the most favorable 1 to 20 crude to dispersant ratio, we require for the worst case 1,800,000 barrels, some 90,000 barrels of dispersant or 3,780,000 gallons @ $3/gal	$ 11,340,000
Costs of 700 C130 flights of 5 hour duration or 3,500 flight hours @ $3500 per hour*	$ 12,250,000
Worst Case by dispersant	$ 23,590,000

Gelling agents: This method is untried, untested, and wholly hypothetical. The ratio of 40 to 1, agent to oil, is the best known and the costs are in the ballpark of what is being paid by the US Navy for gelling agents.

Gelling agents 45,000 barrels, 6,250 tons or 1,890,000 gal @ $12/gal	$ 22,680,000
Costs of 350 C130 flights of 5 hours duration @ $3500 per hour*	6,125,000
Total	$ 28,805,000

* Assumes dispersants or gelling agents are located at Anchorage or Kenai.

Thus, it is true that the costs of a worst case response are large, whatever method is used. The alternative of avoiding it is equally costly in the long run. The size of the worst case scenario for each region will be governed by how much risks the industry places on the region. Exxon Valdez has shown us that the area at risk can be very large if response is not immediate enough to keep the oil from migrating to near and distance beaches.

The requirement that contingency plans be properly implemented is a longstanding loophole that needs to be closed. If private plans are not implemented the government will have to take up the slack or we will have regional response plans whose effectiveness is as suspect as those that failed last March 24.

Section 2

The commission did not address in its report any amounts for financial responsibility. We did make the point in Recommendation 21 that the state should require the shipping industry to insure the state and its citizens against risk and this section carries out that idea in part.

Section 4

Providing DEC with the authority to inspect tankers, terminals, exploration and production facilities is, in many ways, the most important regulatory prevention measure that must be undertaken if the system is to truly improve. We address this in Recommendation 14, with other aspects addressed in Recommendations 11 and 13.

Our report details the sorry history of how the Coast Guard backed off after 1979 when the Alyeska owners' law suit and later legislative action eliminated the state presence on tankers. The Coast Guard budget on marine safety, wherein ship inspections lie, was cut 28% between 1982 and 1989. Allowing for inflation this was a real cut of 40%. The fleet, meanwhile, aged another 7 years, with only two new additions Exxon Valdez and Exxon Long Beach, being added in this period. Thus, inspections dropped as the ships got older. The Coast Guard testified at length about its concerns with increasing hull fatigue before House Resources on January 24. Despite this concern of the Coast Guard, I view the chances of

major budget increases in marine safety as small unless the initiatives come Congress.

RECOMMENDATIONS NOT CONTAINED IN HB 565, HB 566 OR HB 567

Recommendation 9: **Tank farm capacity** at Valdez.

Recommendation 12: A **citizens advisory council** to oversee the safe transportation of oil, gas and other hazardous substances.

Recommendation 16: **State licensing** of private personnel involved in oil transportation.

Recommendation 25: **Harbor Administration**

Recommendation 47: A system for **emergency economic maintenance.**

Recommendation 57: In-state **research institute.**

STATEMENT OF

ERIK D. OLSON,

NATIONAL WILDLIFE FEDERATION

HEARINGS ON ISSUES RELATED TO

THE EXXON VALDEZ

OIL SPILL

BEFORE THE

WATER, POWER, AND OFFSHORE ENERGY RESOURCES SUBCOMMITTEE

OF THE

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,

UNITED STATES HOUSE OF REPRESENTATIVES

APRIL 24, 1990

Introduction

Mr. Chairman and Members of the Subcommittee, I am Erik D. Olson, Counsel for the Environmental Quality Division of the National Wildlife Federation ("NWF" or "the Federation"). The Federation is the nation's largest citizen conservation organization, with over 5.8 million members and supporters, and with 51 affiliated organizations in U.S. States and Territories. We appreciate this opportunity to testify on the tragic aftermath of the Exxon Valdez oil spill, and in particular to discuss the state and federal governments' efforts to assess the damages to natural resources from the spill.

NWF commends Chairman Miller for his leadership in working to prevent another ecological disaster like the Exxon Valdez spill through the adoption of strong oil spill prevention and compensation legislation. The efforts of Chairman Miller and certain other members of this Committee to overhaul oil spill law and to protect sensitive ecosystems from oil development are excellent demonstrations of the kind of national leadership we need to assure strong environmental protection.

The Exxon Valdez oil spill is probably the greatest single ecological catastrophe in United States history. But the government Trustees have abdicated their duty to fully assess the environmental devastation wreaked by this spill. Three of the most important problems with the governments' damage assessment

have been: (1) the Trustees' refusal to initiate many important studies, and their recent secret decision to terminate approximately 24 of the most important studies now that the spill has receded somewhat from public attention; (2) the Trustees' failure to develop plans for, and to assess the costs of, restoring, replacing, and acquiring natural resources equivalent to those injured or destroyed; and (3) the fact that lawyers, rather than scientists, have driven the assessment process, interfering with scientists' efforts to fully analyze the spill's impacts, and to assure the all-important open scientific process needed to fully assess the impacts of the spill.

Impacts of the Spill

It is likely that millions of animals and fish have been killed or severely injured by the spill. In terms of dead animals and birds and widespread ecological disruption, the Exxon Valdez probably was the worst oil spill ever in the world. Scientists have recovered the carcasses of about 150 Bald Eagles, 1,000 sea otters, 35,000 waterfowl and other birds, and the dead bodies of many other forms of life ranging from deer to whales that likely were killed by the spill.

But these carcasses represent only the most obvious impacts of the spill; they are only the tip of the iceberg. For example,

studies have found that when scores of tagged bird carcasses are dumped into the areas being monitored or cleaned up, workers are only able to find about a tiny percentage of the actual number of dead birds. Thus, it is likely that many hundreds of thousands of birds have died from acute poisoning or by loss of their ability to retain heat due to oil-soaked feathers, but that their bodies never will be found. Sea otter pups also are highly sensitive to spilled oil, because of their tendency to be fearless and playful in the oil-stained seas, and their ready susceptibility to death by hypothermia once their fur is soaked in oil. But dying sea otters often drag themselves into secluded shore brush or other hard-to-find areas to die, or their lifeless bodies sink to the sea floor, and their carcasses are never recovered.

While dead birds and otters have received much public attention, many of the impacts of the Exxon Valdez oil spill cannot be captured by TV cameras or on magazine covers. These more subtle and insidious impacts are more difficult and expensive to measure than the collection of otter and bird carcasses. The entire food web of the affected areas of Prince William Sound, the Kenai Peninsula, Kodiak Island, and many bays and estuaries along the Alaska Peninsula have been seriously disrupted. Preliminary studies indicate that many birds cannot

reproduce or have severely limited reproduction in the wake of the spill. The eggs of bald eagles, for example, die when they are exposed to just a few drops of oil brought to the nest on the feathers of unwitting adults. In addition to reproductive problems, the spill has killed many of the organisms that make poor photographic subjects, but that form the foundation of the area's entire food web. These include the tiny phytoplankton, zooplankton, and algae that fill the waters and are eaten by small fish and animals, which in turn are eaten by larger animals, on up the food chain to fish, bears, eagles, and humans.

The spill's impacts on these food web interactions and on the tiny or seemingly obscure but critically-important species that generally escape media attention are crucial, and must be studied over the long-term. Many of these impacts will result from chronic, long-term oil exposure and will take years to manifest themselves.

The Damage Assessment to Date.

Unfortunately, the state and federal "Trustee Council"[1] has been rife with bickering. Primarily due to the opposition of the

1. The Trustee Council is made up of the representatives of the Department of Agriculture (because of the National Forest lands affected), the Department of the Interior (because of National Parks, Wildlife Refuges, and other certain resources affected), the Commerce Department (because of marine resources under the stewardship of the National Oceanic and Atmospheric Administration), and the State of Alaska.

federal Trustees and the Justice Department to conducting research on many of the spill's impacts, the job of fully assessing injuries from this environmental catastrophe simply is not being done. There is no "lead" Trustee and the state has been cut out of many important Trustee discussions. The scientific cooperative agreement between the state and the federal agencies has been terminated, with no clear decision on whether it will be revived. The federal government repeatedly has insisted that certain studies should not be completed because they will be too expensive. Other studies will not go forward because some lawyers believe that it will be hard to recover large amounts of money for damages to certain resources, such as a disrupted food chain. But all of those studies are crucial to obtaining a complete picture of the overall spill impacts; they also could form the basis of large damage recoveries difficult to predict before the studies are completed.

When the damage assessment initially was announced to the public in August, 1989, the Trustees already had decided not to conduct many of the needed studies. In addition, the State/Federal Trustees' Damage Assessment Plan announced that although it was expected that many of the impacts of the spill would continue for many years and in some cases would not even be manifested for years, all studies would terminate by February,

1990. Extensions were to be permitted only if the Trustees decided that, in their wisdom and judgment, without any form of public disclosure or review, the studies should be continued after that date. Those decisions to terminate the studies now apparently have been made. We have learned that approximately 24 of the original studies have been recommended for termination, and that seven more studies are still on the chopping block. The public and Congress have not been notified of these facts. However, we understand that critically-important studies such as certain studies on mink, river otters, birds including peregrine falcons, marbled murrelets, storm petrels, pigeon guillemots, kittiwakes, glaucous-winged gulls, and sea ducks, fish such as sportfish, oysters, larval fish, rockfish, scallops, sea urchins, and Dolly Varden Char, deer, certain marine mammals such as humpback whales, and on black bears, likely will be terminated or so severely cut back that they may not provide meaningful results. Without these and other critically-important studies, the public will never know the extent of the damage wreaked by the spill, and Exxon and the Alyeska consortium could escape paying the full costs of the ecological damages they have caused.

The second important problem with the assessment stems from the Trustees' failure to focus on assessing the costs and feasibility of restoring, replacing, or acquiring the equivalent

of natural resources destroyed or injured by the spill (collectively referred to as "restoration"). In State of Ohio v. U.S. Department of the Interior, 880 F.2d 432, the U.S. Court of Appeals for the D.C. Circuit made it clear that polluters must pay for environmental restoration plus the lost value of the resources after an oil spill. In this case, to which the National Wildlife Federation was a party, the court struck down the Interior Department's damage assessment rules, and held that Interior must revise its rules to, among other things, comport with the law's requirement that the environment be restored by the polluter after oil and toxic substance spills and releases.

However, the Trustees are only now beginning to develop their initial plans to look at restoration. To our knowledge, no actual restoration projects or studies of restoration costs have been initiated, a year after the spill. A conference held in Anchorage late in March was the first preliminary effort to look seriously at options for restoration. The Trustees simply have not given this central issue sufficiently serious attention.

A third major problem that has arisen during the assessment derives from the role of lawyers in deciding how the assessment should be conducted. The assessment has had its parameters decided by lawyers and policy makers who often have little appreciation for many of the more subtle and difficult to

measure, but ecologically extremely important, impacts of the spill. This problem has been severely exacerbated by the Interior Department's view--well stated in their damage assessment rules and informal policy positions--that damages must be proved with extremely cumbersome and detailed studies, and that many studies cannot be justified because they are too expensive. The scientists conducting the studies often have been ignored or overruled. The Interior Department and Justice Department have sought to terminate any study that they feel may not result in large dollar economic recoveries, even if the actual environmental impacts on the resources to be studied may be significant.

This is short-sighted and will result in a poor understanding of the overall impacts of the spill. Only an open scientific process in which data are shared by all scientists will assure that the damage wrought by the spill is adequately studied.

A final generic problem with the assessment has been the surprising tendency of the governments to keep the studies and virtually the entire assessment process secret from the public. The only document related to the assessment ever released to the public--the August, 1989 State/Federal Damage Assessment Plan--simply described studies the Trustees already had designed and

started. That Plan was simply an historic document, discussing decisions already made and studies already undertaken. Similarly, the recent decisions to terminate many of the critical studies were made behind closed doors, with no opportunity for the public or outside scientists to review the data or to comment. There has been virtually no meaningful opportunity for public input into the assessment process. This problem was perhaps best exemplified by the Justice Department's recent attempt to secretly reach a plea bargain agreement--without so much as consulting the state until the eleventh hour, and without ever informing the public of the existence or substance of the agreement. We are very disappointed that the Justice Department has refused to clear the air and to explain to the American public its proposed plea bargain, and its plans for assuring that the ecological devastation from the spill is addressed.

Recommendations

We have four recommendations as a result of our experience with the damage assessment for the Exxon Valdez spill:

1. Congress should address the need for immediate damage assessment funding for the Exxon Valdez, and for other oil spills. Exxon has refused to pay for most of the needed

damage assessment studies, and the agencies have not asked for adequate funding. Congress should immediately mandate, and appropriate sufficient funds to pay for the next two years of damage studies for the Exxon Valdez spill. This will guarantee that critical data are not lost and that the spillers are held responsible for the full extent of damages. These assessment costs ultimately are recoverable from the spillers. In the future, Congress must establish a mechanism for Trustees to tap into a Fund without having to wait for appropriations, so that they can collect the necessary data immediately after a spill.

2. Congress should send a clear signal to the Trustees in the Exxon Valdez case that full damages, including restoration of all parts of the environment devastated by the spill, must be recovered.

3. In adopting comprehensive oil spill legislation, careful attention must be paid to the problems that have arisen in the Valdez assessment process. The new law should: (a) provide an opportunity for citizens to force Trustees to perform their duties when they are not doing so; (b) require the damage assessment rules to be overhauled so they will

help rather than hinder Trustees' recovery of damages; (c) mandate more meaningful public participation in the assessment process; and (d) provide that studies of the overall impacts of the spill on the ecosystem, and on important components of the food web, must be conducted irrespective of whether Trustees can be sure that large economic damages will be recovered as a result of those studies.

4. Congress should insist that the Trustees provide the public a meaningful role in the Exxon Valdez damage assessment process as well, and should hold the government publicly accountable for its assessment and any settlement of its litigation in this case.

Conclusion

With the actions proposed above, the damage assessment of the Exxon Valdez spill would be significantly improved. If we learn the lessons from this spill, perhaps in the future damage assessments for other spills will be better planned and executed.

TESTIMONY OF GREGG ERICKSON
BEFORE THE
HOUSE SUBCOMMITTEE ON WATER,
POWER AND OFFSHORE ENERGY RESOURCES
April 24, 1990

Mr. Chairman and members of the Committee:

My name is Gregg Erickson; I direct oil spill impact assessment and restoration activities of the Alaska Department of Fish and Game. I appear in place of Fish and Game Commissioner Don Collinsworth, the trustee appointed by the state on behalf of all the natural resources injured by the Exxon Valdez oil spill. Mr. Collinsworth regrets that he is unable to attend today due to a long-scheduled meeting in Anchorage of the North Pacific Fishery Management Council, a group that the Commissioner currently chairs.

Mr. Collinsworth attended your hearing on March 22. Although the Committee's scheduling did not permit him to testify at that time, he submitted a written statement, a copy of which he respectfully requests be included in the record of this hearing.

I wish to reiterate and supplement three points contained in the Commissioner's statement.

Sublethal Injuries from the Spill are the Most Insidious

Last month, Commissioner Collinsworth provided preliminary data from studies on peregrine falcons, salmon, herring, and rockfish to illustrate the less obvious but potentially great damage to biological resources from the sublethal effects of the oil spill. (An addendum updating the Commissioner's preliminary data is attached to this testimony.) These examples attracted considerable attention. Soon afterwards Exxon initiated a series of advertisements saying that there are "no long-term effects from the spill."

Exxon contends that because wildlife can be seen in Prince William Sound, that because we have stopped finding many oiled animal carcasses, and that because there are salmon in the salmon streams, we can conclude that the oil still in the environment "is not likely to be a threat to wildlife."

The Alaska Department of Fish and Game considers this advertising unsupported by scientific evidence available to us. Certainly pictures of dead animals riveted public attention on the spill, but the most serious damage to the ecosystem may be impossible to photograph or even see directly. How do we picture a peregrine falcon chick that didn't get born because the spill forced an adult breeding pair to leave their usual nesting habitat? This kind of damage doesn't produce a direct "body count;" painstaking scientific research carried on over several seasons is necessary to document the injuries resulting from such sublethal disturbances to the natural resources system.

Determining the influence of polluted rearing environments on the long-term health of salmon or herring stocks presents a similar problem. It is conceivable that the natural resilience of these species and their ecosystems may eventually absorb the insult of the oil. We certainly hope so, but thus far the Natural Resources Damage Assessment (NRDA) studies provide no scientific basis for Exxon's conclusion that salmon egg survival and hatching rates "preclud[e] concerns over oil effects on this sensitive life-stage." We question whether Exxon's own studies provide any basis for that conclusion.

The Public is Frustrated With the Secrecy

The limited and preliminary examples Commissioner Collinsworth used to illustrate sublethal injury were taken from ongoing studies and reflected no conclusions. Nevertheless, this information attracted such attention in Alaska and elsewhere that it overshadowed the rest of the testimony. The public in Alaska desperately wants to know the straight story about what everybody's scientists are learning about the spill. The state wants all of the primary data made available to the public, and made a formal proposal to that effect in October 1989. The private plaintiffs want the information made public. So does the federal government. The question is Exxon.

The state and federal trustees formally reiterated their proposal for a joint public data repository to Exxon on April 5, in a letter, a copy of which I am submitting for the record. Anything the Committee could do to encourage Exxon officials to follow through on their earlier public statements on this matter would respond to the concerns of many people in Alaska and elsewhere.

There is a Fundamental Flaw in the Assessment Process

Commissioner Collinsworth noted that the NRDA process contains no mechanism for providing the funds to carry out the damage assessment work. Today we are even more concerned. While Alaska's legislature has fully supported the state's share of the work, the federal administration has not proposed any supplemental or regular budget appropriations for assessment of Exxon Valdez oil spill damages.

Federal resource agencies have made a good faith effort to deal with this problem by taking money originally programmed for other resource functions and diverting it to their NRDA tasks. Unfortunately, there is a limit to how far this funding strategy can be pushed. We are concerned on two counts. First, we believe that federal resource management programs of importance to Alaska may be sharply curtailed to make funds available for NRDA studies in the agency budgets. Second, indications are that inadequate federal funding for the program of studies approved by the trustees may soon jeopardize the federal coastal habitat and marine sampling programs (on which many related state projects depend). We have only a very few days left to get these critical projects in the field.

I am ready to address any questions the Committee may have.

ADDENDUM TO THE TESTIMONY OF GREGG ERICKSON

Salmon

Between December 7, 1989 and Feb. 19, 1990, five documented salmon streams (Anadromous Stream Catalog numbers 226-40-16590, 30-16840, 20-16280, 40-16780, and 10-16920, all in the Prince William Sound area) and one undocumented stream (at Shelter Bay, Prince William Sound) were sampled for eggs and fry. As reported by Commissioner Collinsworth on March 22, no eggs or fry were found at some of these streams (Shelter Bay, 40-16780, and 10-16920). In revisiting one of those streams (40-16780) a more extensive dig on March 19, 1990 found some fry.

Herring

Herring are a major resource in the Prince William Sound area from both a commercial and ecological perspective. Preliminary results from egg and larval studies indicate adverse effects associated with oiling of spawning sites. Data provided to the Committee by Commissioner Collinsworth on March 22 were based on preliminary analysis of 40 larvae. Since then, results from an additional 40 larvae have become available. The table below presents the combined preliminary results from all 80 larvae sampled.

Percent Abnormal Larvae

	Embryonic Abnormalities	Cytologic Abnormalities	Cytogenetic Abnormalities
Fairmount (unoiled)	4%	8%	46%
Rocky Bay (oiled)	61%	41%	78%
Bass Harbour (oiled)	64%	52%	84%

Embryonic abnormalities are those associated with the whole larva. Cytologic abnormalities are those at the cellular level. Cytogenetic abnormalities are those associated with genetic materials or processes within cells.

Deep-dwelling Marine Fish

Preliminary study results suggest that oil spilled from the Exxon Valdez killed rockfish in Prince William Sound. Dead rockfish brought into collection centers were sampled, and oil was identified as the probable cause of death. Bile samples taken from other rockfish collected in the Sound showed hydrocarbon metabolite accumulation, confirming that oil contamination extended to deepwater communities.

Recent findings by the National Marine Fisheries Service suggest that deepwater contamination and continuing exposure to oil may be of continuing ecological and commercial concern.

TESTIMONY OF DON W. COLLINSWORTH
BEFORE THE
HOUSE SUBCOMMITTEE ON WATER, POWER,
AND OFFSHORE ENERGY RESOURCES
March 22, 1990

Mr. Chairman and Members of the Committee:

My name is Don Collinsworth. I am the Commissioner for the Alaska Department of Fish and Game, but I appear today as the trustee appointed by the state on behalf of the natural resources injured by the Exxon Valdez oil spill.

My testimony responds to questions posed by the chairman dealing with the extent of the natural resources damages, the adequacy of the assessment process, and options for restoration.

Before addressing these questions, I will briefly describe the major elements in the Natural Resource Damage Assessment (NRDA) process. In this instance natural resources are defined to be land, air, water, fish, wildlife and the other biota. Picture if you will the following step-wise series of activities.

1. The state and federal trustees identify which specific resources may have been or are likely to be damaged by the oil spill.

2. The trustees prepare an injury assessment plan and implement the projects necessary to scientifically quantify the injury to the resources. In the case of biological resources this includes both the direct lethal effects from the exposure to oil and sublethal injury.

3. After the scientists have determined the injury, the damages are quantified in dollar terms. A recovery claim is then presented to the potentially responsible parties.

4. A restoration plan is developed and restoration projects are undertaken.

While these major elements are basically sequential, some aspects of the last two have been started before completion of activities in the previous step.

"What is the extent of the natural resources damages?"

The natural resources damage assessment is far from complete, and conclusions concerning the extent or likely duration of the injury are at this point premature. Our early findings provide little ground for optimism:

The spill caused direct lethal and sublethal injuries to a great many species. The direct lethal effects are probably the most dramatic: who has not seen pictures or videos of dead and dying sea otters and birds in the aftermath of the spill? According to

the U.S. Fish and Wildlife Service, carcasses of 980 sea otters, 138 eagles, and 33,126 seabirds had been collected by early September 1989. Well over 100,000 higher trophic-level animals probably died.

The sublethal injuries, however, are more insidious, of longer duration, and, in the final analysis, may cause the greatest damage. This kind of injury can manifest itself in a reduction in the species' ability to reproduce, either from loss of critical habitat, loss of food and prey, or reduced reproductive fitness.

Literature research, laboratory work and field studies are being undertaken to determine if the spill could initiate irreversible disturbances to the ecosystem. Long-term monitoring is needed to pin down these effects.

We cannot discuss in detail the results of individual NRDA studies, however, the more we learn in the way of preliminary results, the greater seems the risk. Here are some examples:

* Based on a recent analysis of some samples of herring larvae hatched from eggs collected near oiled shorelines in Prince William Sound, we found 90 percent with abnormalities in comparison to only 6 percent with abnormalities from unoiled areas.

* We had hoped that deep-dwelling creatures like rockfish would have avoided the oil, but now that looks problematic as well; evidence is accumulating that these and other deep-dwelling creatures were stressed, and in some instances killed by the oil.

* In the intertidal portion of salmon streams where we would normally find tens of thousands of eggs or juvenile forms, our biologists have been unable to find even a single egg, alevin or fry.

* Peregrine falcons in the spill area appear to occupy fewer nests than expected and to have lower-than-normal productivity. (The worldwide population of this peregrine subspecies is roughly 2,500 individuals, so loss of even a few birds may be significant.)

I do want to stress again that these are preliminary results of studies in progress, but these are indicative of the findings that distress us so much.

Unfortunately, very little of the actual scientific data from assessment studies is available to the public. Last October, the state proposed that all primary science data related to the spill be made immediately public. To that end we asked Exxon, which has undertaken its own substantial program of scientific studies, to join with us and the federal government in establishing a public repository for all scientific information, whether generated by the company or the governments. Apart from an initial query asking for legal details, which we answered, Exxon has not responded substantively to our suggestion. Making this information public

on a unilateral basis could damage the trustees' legal case and jeopardize a full recovery of natural resources damages, so we have maintained the confidential status of the assessment studies. I wish it were otherwise.

Lest there be any mistake about it, let me reiterate: Governor Cowper and the State of Alaska are ready to put all data from our science studies related to the Exxon Valdez oil spill on the public record when Exxon agrees to do the same.

"Is the Natural Resources Damage Assessment process adequate?"

Our goal is to achieve a full and fair recovery of spill damages. Fundamental to achieving this goal is a comprehensive, technically sound injury assessment program consistent with our trustee obligations and the expectations of the public. Our experience with the process thus far gives reason for optimism, as well as some grounds for concern.

When the trustee agencies began the damage assessment 12 months ago we faced a host of technical, logistical and organizational obstacles. No one had ever dealt with this big a spill, in such environmentally sensitive conditions, in such a remote area. Deciding how to allocate our limited scientific research assets while not missing anything important was a major challenge.

With at least nine state and federal bureaucracies asserting responsibility for various impacted resources, bureaucratic bickering could have easily derailed the entire process.[1] Major credit for avoiding organizational chaos goes to the field personnel of all the agencies. My experience is that they simply set aside the usual institutional interests and tackled the task at hand. The agencies completed the first year's field program for under the $35 million budgeted, and in many cases managed to exceed the ambitious research objectives established in the spring of 1989.

Another bright spot is the beginning we have made on restoration planning, which is also part of the NRDA process. After a somewhat slow start we are making good progress in cooperation with our colleagues at EPA and the federal resource agencies. Many difficult decisions are ahead, but based on our recent experience I am optimistic that we will be ready with cost-effective and environmentally sound approaches to restoration when funds become available for that purpose.

Despite this good news, there are reasons for concern about the future. The relationship between the state and federal governments remains clouded by the longstanding conflicts over ownership of the resources and by lack of agreements for sharing scientific data and

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[1]Federal agencies include the Coast Guard, Environmental Protection Agency, Fish and Wildlife Service, Forest Service, National Oceanographic and Atmospheric Administration, and the National Park Service; state agencies are the Departments of Environmental Conservation, Fish and Game, and Natural Resources.

economic studies.

We hope that agreement can be reached soon. The NRDA process should be a joint state-federal effort. The courts may well hold that each government is an indispensable party to any recovery of natural resource damages by the other. Moreover, it is hard to imagine that the public would accept the duplication and waste attending independent efforts to assess the damage caused by the spill. Proceeding independently with restoration is even more problematic.

Despite the cooperation we have experienced with our federal colleagues in the field and the compelling policy reasons for cooperation at higher levels, there are forces at work tending to drive the two governments apart. Recent publicity has focused on disagreements among our respective lawyers. I am not in a position to comment on these difficulties, about which in any event I know very little. I sense, however, that these legal skirmishes may reflect a fundamental flaw in the NRDA process.

The NRDA process does not provide an adequate mechanism for funding the required assessment work. The process cannot work if the state and federal governments are unable to fund it. The lack of funding can affect the NRDA process in at least two ways.

First, in this instance, it may endanger the process by eliminating or paring back the assessment studies recommended by the trustee council. (The council, composed of myself and the senior federal resource agency officials in Alaska, is responsible for implementing the NRDA effort.) The process under which the council's recommendations were developed involved thousands of person-hours and an estimated $1 million of state and federal resources. Project proposals were screened by state and federal agency staff, state and federal attorneys, and consulting experts retained by the state and federal governments. The participants gave careful attention to cost-effectiveness: while 5 new projects were proposed and budgets for 17 were increased over last year's funding level, 23 of 71 existing projects were not recommended for continuation, and the budgets requested for 21 others were reduced. The studies recommended were judged essential to credibly assess the natural resource consequences of this man-made disaster, and budgetary constraints must not be allowed to override the public interest in this process.

Second, the lack of sufficient dedicated funds may force the responsible agencies to seek alternatives. In the context of litigation, for example, there may be pressure to prematurely settle a claim to finance the assessment and restoration process. Public agencies should not be put in this awkward position.

For its part, the State of Alaska has drawn on its treasury to advance funds needed for the NRDA. While this effort has strained our agencies, they do not have to bear the financial burden out of budgets dedicated to other purposes.

In summary, our answer to the Chairman's question is that we believe the Natural Resource Damage Assessment process is working.

We have observed broad cooperation among state and federal agencies in the field, and useful results are being obtained. However, the NRDA process fails to provide an adequate means of funding the required assessment work. This may be appropriate for Congress to address, both with respect to the Exxon Valdez case and future incidents.

"What plans or options are there for restoration?"

The state is of the view that the natural resources damages recovered in the Exxon Valdez case should be deposited in a single jointly-managed trust fund, regardless of which government receives the recovery. We believe the federal government generally concurs with this notion. This would allow us to set aside the issues of resource ownership. After reimbursing each government's assessment costs, the balance of the fund would be used to restore, replace, or acquire equivalent resources for those damaged or destroyed.

Toward that end, the state is participating in a restoration planning project, which involves both public and technical consultations. Among the wide variety of options being considered are habitat rehabilitation, species reintroduction, stocking programs, changes in biological management policies, mitigation of pre-existing or prospective environmental degradation, and acquisition of land, easements or resource rights for the purpose of supplying human or ecological needs previously met by the damaged resources. The restoration planning project is now underway, and it will increase in priority as the damage assessment phase moves toward completion.

I appreciate the invitation to appear today, and would be pleased to respond to questions.

U.S. Department of Transportation
United States Coast Guard

Federal On Scene Coordinator
U. S. Coast Guard

MAILING ADDRESS:
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1512.2

3010
16 March 1990

From: Federal On Scene Coordinator
To: Distribution

Subj: SOLICITATION OF COMMENTS ON 1990 EXXON GENERAL PLAN

1. Enclosed is the 1990 Exxon General Plan.

2. Please review it and submit your comments in writing to this office no later than 22 March. I intend to respond to Exxon's General Plan during the week of 25 March. If you choose to facsimile your response, our number is: (907) 272-4028

FOSC
ATTN: OPS
601 W. Fifth Ave
Suite 500
Anchorage, Alaska
99501

3. A more detailed Exxon work program will be available in late April after the shoreline assessments are conducted.

D. E. CIANCAGLINI
Rear Admiral, U.S. Coast Guard
Federal On Scene Coordinator

Encl: (1) 1990 Exxon General Plan

CODE SHEET FOR CODES FOR PUBLIC COMMENTS ON THE 1990 DAMAGE ASSESSMENT
EXXON VALDEZ OIL SPILL

Box No. 1. COMMENT NUMBER

Box No. 3. ISSUE - This code refers to the subject, issue, or reason for the respondent's statement.

0100 **DOCUMENT, GENERAL**

- 0101 Studies not intergrated/studies overlap
- 0102 Insufficient details to allow evaluation
- 0103 Statistical methodology lacking
- 0104 Preservation of data procedures missing
- 0105 Natural recovery not considered
- 0106 Resource recoverability analysiss missing
- 0107 Cost of assessment unreasonable or cost effective
- 0108 Existing scientific literature not discussed
- 0109
- 0110 Fails to correct deficiencies in 1989 Plan
- 0111 Scope of plan too narrow
- 0112 Inadequate sampling - design/number
- 0113 Need to assess impact of studies on resources (i.e. animals)
- 0114
- 0115 Need for more ecosystem-wide studies

0140 **ECONOMIC STUDIES**

- 0141 Economic methodology missing/lacking
- 0142 Discount rates not selected
- 0143 Damages undervalued because of narrow scope
- 0144 State economic studies missing
- 0145 Counting double losses
- 0146 Private/non-Natural Resources losses assessed
- 0147 Inadequate economic study

0150 **RESTORATION PLAN**

- 0151 Restoration inadequately addressed
- 0152 Restoration plan methodology inadequate
- 0153 Restoration costs inadequately assessed
- 0154 Restoration not coordinated/linked with assessment studies
- 0155 Restoration not focused on injuried natural resources
- 0156 Improper calculation of damages for restoration
- 0157 Restoration should focus on natural recovery

0200 PROCESS, GENERAL

0201 Time allowed for studies too short. Extend the time.
0202 Four-phase procedure in regs not followed
0203 Inadequate preassessment screen
0204 Improper combination of injury determination and quantification
0205 Studies not focused on damage assessment
0206 Potential responsible parties (PRP's) denied involvement in prep
0207
0208
0209 Plan does not comply with legal requirements of NRDA regs
0210 1989 data unavailable to PRP's and public
0211 Plan submitted for comments after studies started
0212 Studies cut w/out public comment
0213 No explaination for cutting studies
0214 Problem with Baseline data (not used, old/dated, etc

500 CURRENT STUDIES

0501 Study design poor/incomplete
0502 Study should be reconsidered
0503 Study site selection process flawed or not identified
0504 Variability not considered
0505 Study to narrow - need to expand
0506
0507 Study is inadequate, objectives can't be met
0508 Bioliography dated or not complete
0509 Methodology questionable (unproven techique, etc)

1000 Studies - Statements about studies in general

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1110 No 1 Comprehensive Assessment of Injury to Coastal Habitats. ADF&G, USFS

1200 Air/Water Injury

1210 No 1 Geographic Extent and Temporal Persistence of Floating Oil. NOAA, ADEC

1220 No 2 Petroleum Hydrocarbon-Induced Injury to Subtidal Marine Sediment Resources. NOAA, ADEC

1230 No 3 Geographic and Temporal Distribution of Dissolved and Particulate Petroleum Hydrocarbines in the Water Column. ADEC, NOAA

1240 No 4 Injury to Deep Water (>20 meters) Benthic Infaunal Resources from Petroleum Hydrocarbons. NOAA, ADEC

1250 No 5 Injury to the Air Resource from the Release of Oil-generated Volatile Organic Compounds. ADEC

1260 No 6 Oil Toxicity

1270 New Study Needed

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1320 No 2 Injury to Salmon Eggs and Pre-emergent Fry in Prince William Sound. ADF&G

1330 No 3 Salmon Coded-Wire Tag Studies in Prince William Sound. ADF&G

1340 No 4 Early Marine Salmon Injury Assessment in Prince William Sound. ADF&G, NOAA

1350 No 5 Injury to Dolly Varden Char and Cutthroat Trout in Prince William Sound. ADF&G

1360 No 6 Prince William Sound and Gulf of Alaska Sport Fishery Harvest and Effort. ADF&G

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1380 No 8 Injury to Pink and Chum Salmon Egg and Preemergent Fry in Areas Outside Prince William Sound. ADF&G

1390 No 9 Early Marine Salmon Injury Assessment for the Kenai Peninsula and Kodiak/Shelikof Strait. ADF&G

1400 No 10 Injury to Dolly Varden Char and Sockeye Salmon in the Lower Kenai Peninsula. ADF&G

1410 No 11 Injury to Prince William Sound Herring. ADF&G

1420 No 12 Injury Assessment to Kodiak and Alaska Peninsula Herring. ADF&G

1430 No 13 Injury to Prince William Sound Clams. ADF&G

1440 No 14 Injury to Prince William Sound Crabs. ADF&G, NOAA

1450 No 15 Injury to Prince William Sound Spot Shrimp. ADF&G

1460 No 16 Prince William Sound Oysters. ADF&G, NOAA

1470 No 17 Injury to Prince William Sound Rockfish. ADF&G

1480 No 18 Prince William Sound Trawl Assessment. ADF&G, NOAA

1490 No 19 Injury to Larval Fish in Prince William Sound. ADF&G

1500 No 20 Undersea Observations. ADF&G

1510 No 21 Injury to Clams Outside Prince William Sound. ADF&G

1520 No 22 Injury to Crabs Outside Prince William Sound. ADF&G, NOAA

1530 No 23 Injury to Rockfish, Halibut, and Lingcod Along the Lower Kenai Peninsula. ADF&G

1540 No 24 Shellfish and Groundfish Trawl Assessment Outside Prince William Sound. ADF&G, NOAA
1550 No 25 Injury to Scallop Resources in Kodiak Waters. ADF&G
1560 No 26 Injury to Impacts on Sea Urchins off Kodiak Island. ADF&G
1570 No 27 Sockeye Salmon Overescapement
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1590 No 29
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1660 No 6 Assess the Magnitude, Extent, and Duration of Impacts on Sea Otter Populations in Alaska. 9 - USFWS
1670 No 7 Assess the Fate of Sea Otters Oiled and Rehabilitated. USFWS
1680 New Studies Needed

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1930 No 13 Impact Assessment on Passerines and Other Nongame Birds in PWS. USFWS
1940 No 14 Effects on Migratory Birds on Exposure to North slope Crude Oil. USFWS
1950 New Studies Needed

2000 Technical Services

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2020 No 2 Histopathology: Examination of Abnormalities in Tissues from Birds, Mammals, Finfish, and Shellfish Exposed to Spilled Oil. USFWS, ADF&G
2030 No 3 Mapping of Damage Assessment Data and Information. ADNR, USFWS
2040 New Studies Needed

2100 Restoration Plans

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2120 No 2 Assessment of Beach Segment Survey Data
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2140 No 4 Re-establishment of Fucus in Rocky Intertidal Ecosystems
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2200 Damage Determination: Economic Value of Resource Use

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2220 No 2 Fishing Industry Costs
2230 No 3 Bioeconomic Models for Damage Assessment
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2260 No 6 Losses to Subsistence Households
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2280 No 8 Economic Damage Assessment of Research Programs Affected by the Oil Spill
2290 No 9 Survey of Archeological Sites Impacted by the Oil Spill
2295 New Economic Studies Needed

2300 Archeology Studies
2310 No 1 Assessment of Damage to Historic Properties & Archaeological Resource

CODE SHEET FOR CODES FOR PUBLIC COMMENTS ON THE 1990 DAMAGE ASSESSMENT
EXXON VALDEZ OIL SPILL

Box No. 1. COMMENT NUMBER

0100 **DOCUMENT, GENERAL**

- 0101 Assessment inadequate
- 0102 Insufficient details to allow evaluation
- 0103 Fails to correct deficiencies in previous plans
- 0104 Trustees doing a good job
- 0105 Budget should not be reason for deleting or curtailing studies.
- 0106 Public participation process a sham.

0200 **PROCESS, SPECIFIC**

- 0201 Without data from studies cannot make informed decisions.
- 0202 More information on Chief Scientist
- 0203 Peer review not explained
- 0204 Studies focused on improper injury determination
- 0205 Studies not focused on damage assessment
- 0206 Potential responsible parties (PRP's) denied involvement in prep
- 0207 Data withheld because of potential litigation is not good reason
- 0208 Previous years comments not considered in current plan
- 0209 Plan does not comply with legal requirements of NRDA regs
- 0210 Previous years study data unavailable to PRP's and public
- 0211 Plan submitted for comments after studies started &/or without data from previous studies.
- 0212 No explaination why particular studies are continued, deleted, etc
- 0213 Studies continued or added without consideration of study's validity
- 0214 Studies only now examining data from previous field seasons
- 0215 Natural recovery not considered
- 0216 Unable to comment on deletion or addition of studies without more information.
- 0217 Lacks a holistic approach to studies.
- 0218 Overall conditions of spill area not considered.
- 0219 Studies fail to account for natural variability
- 0220 No valid pre-spill data available
- 0221 Continued exposure to oil & related chemicals not established.

0250 Funds should not be spent on unrelated spill activity

0251 Defer plan until public can review data from previous studies.

0252 Trustees lack the authority

0253 Studies not cost effective

0260 Oil Spill Public Information Centers

0300 **ECONOMIC STUDIES**

0301 Economic methodology missing/lacking or unproven

0302 Discount rates not selected

0303 Damages undervalued because of narrow scope

0304 State economic studies missing

0305 Counting double losses

0306 Private/non-Natural Resources losses assessed

0307 Inadequate, vague economic studies

0308 Concern whether loss are public resources.

0350 **RESTORATION PLAN**

0351 Restoration inadequately addressed

0352 Restoration plan methodology inadequate

0353 Restoration costs inadequately assessed

0354 Restoration not coordinated/linked with assessment studies

0355 Restoration not focused on injuried natural resources

0356 Improper calculation of damages for restoration

0357 Restoration should focus on natural recovery

0358 Restoration data not available to public.

0359 Question waiting until damage claims are resolved.

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2400 Subtidal
2410 No 1 Hydrocarbon Exposure, Microbial & Meiofaunal Community Effects.
2420 No 2 Injury to Benthic Communities
2430 No 3 Bio-availability & Transport of Hydrocarbons
2440 No 4 Sediment Toxicity Bioassays
2450 No 5 Injury to Shrimp
2460 No 6 Injury to Rockfish
2470 No 7 Injury to Demersal Fish

LIST OF COMMENT NUMBERS AND CODES

Exxon Shipping Company - 001

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American Petroleum Institute - 002

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Natural Resource Defense Council - 003

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Alyeska - 004

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National Wildlife Federation - 005

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TELECOPY DOCUMENT COVER PAGE

TO: Dave Gibbons

OFFICE: oil spill Coordinator

TELECOPIER NUMBER: 586-~~8784~~ 8781

FROM: George Davenport

MESSAGE: Enclosed is letter requesting public comments per our conversation today.

DOCUMENT TITLE: Re: 1990 NRDA Plan comments

FILE NAME:

FILE NUMBER: 1588-5703

NUMBER OF PAGES BEING SENT 1 + COVER

OPERATOR'S NAME: George Davenport

DATE: 1-31-91 TIME: 9:30 am

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PLEASE REPLY TO ANCHORAGE OFFICE

January 22, 1991

Mr. Dave Gibbons
Oil Spill Coordinator
Alaska Region
U.S.D.A.-Forest Service
P.O. Box 21628
Juneau, AK 99802-1628

Re: 1990 NRDA Plan
Our File No.: 1588-5703

Dear Mr. Gibbons:

This letter is to request access to the public comments submitted to the Trustee Council in response to the 1990 State/Federal Natural Resource Damage Assessment and Restoration Plan for the EXXON VALDEZ oil spill. This request is made pursuant to 5 U.S.C. § 552, the Freedom of Information Act. This request covers all comments received on the 1990 Plan. I would like to obtain copies of the entire group of comments and can have someone from our Juneau office available to pick up copies of the documents from your Juneau office. Of course, we will reimburse your office for the cost of copying. As soon as you have determined whether you can make the requested documents available, please call and I will arrange to pick up the documents.

Very truly yours,

George B. Davenport
George B. Davenport

GBD/dla
cc: Bruce Weyhrauch
1386D

Working for the Nature of Tomorrow®

NATIONAL WILDLIFE FEDERATION

1400 Sixteenth Street, N.W., Washington, D.C. 20036-2266 (202) 797-6800

December 3, 1990

Trustee Council
U.S. Forest Service
Public Affairs
709 W. 9th Street
Federal Building
Juneau, AK 99802

Dear Sirs:

The attached comments are submitted as a replacement to the comments NWF timely filed on 11/30/90. The attached comments are an edited version of the 11/30/90 comments; several stylistic changes have been made. We request that they replace NWF's timely filed comments.

Thank you for considering this request.

Sincerely,

Douglas W. Wolf
Counsel, Alaska Issues

005

Comments of the National Wildlife Federation on The 1990 State/Federal Natural Resource Damage Assessment and Restoration Plan for the Exxon Valdez Oil Spill

Pursuant to:

55 Federal Register 46732 (November 6, 1990)

November 30, 1990

Prepared by:

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I. SUMMARY

The Natural Resource Trustee Council (Trustee Council)[1] has made the incorrect assumption that releasing The 1990 State/Federal Natural Resource Damage Assessment and Restoration Plan (1990 Plan) for comment -- after the studies it describes have been completed -- is somehow equivalent to granting the public meaningful involvement in the process. The public had no chance to review and comment on these critical studies prior to the irretrievable commitment of government resources and opportunities for research were irretrievably lost. At this point in the process the resources have already been committed and the opportunities have already been lost.

What is worse, the 1990 Plan could have been released months earlier, but for unconscionable delays caused by internal Trustee squabbling. The Trustees effectively delayed the time when the public would learn of the massive cuts in necessary studies ordered by the Trustees early this year. In fact, over one-third of the studies were eliminated and many others were curtailed due to severe budget cuts.

The Trustees' responses contain less than a paragraph of explanation for the massive cutbacks, and no rationale for their

[1]The Trustee Council is composed of The Department of the Interior, The Department of Commerce, represented by The National Oceanic & Atmospheric Administration, The Department of Agriculture, and The State of Alaska, represented by The Alaska Department of Fish & Game. The Environmental Protection Agency is coordinating restoration planning for the Federal Trustees.

refusal to initiate many important but missing studies urged by many of the comments submitted to the council.

Unfortunately, public participation constitutes our sole opportunity to understand the complicated impacts of the Exxon Valdez oil spill, America's largest oil spill. If the Trustees conduct the wrong studies or do not properly conduct their studies, many of these impacts could be overlooked. The result could be a failure to fully restore Prince William Sound, formerly one of America's national treasures, a pristine natural place of unsurpassed beauty which contains an unusually large population of endangered and threatened species.

The National Wildlife Federation ("NWF" or the "Federation") challenges the Trustees:

-- to reinstate the deleted studies -- they are necessary to performing a complete evaluation;
-- to include important additional studies which will form the basis for a comprehensive restoration plan;
-- to make available to the public, for review, the compiled results of $60 million worth of studies;
-- to prohibit restoration activities which will diminish the value of the critical damage assessment process; and
-- to release the study plan for 1991 by January, 1991, so that meaningful public review comment can occur.

II. INTRODUCTION

The National Wildlife Federation is pleased to comment on The 1990 State/Federal Natural Resource Damage Assessment and Restoration Plan.[2] NWF is the nation's largest citizen conservation organization, with over 5.8 million members and supporters, and with 51 affiliated organizations in U.S. States and Territories.

NWF, on behalf of its members and supporters in Alaska and the United States and in association with its affiliate organization, the Wildlife Federation of Alaska (WFA), has taken a lead advocacy role regarding the cleanup and restoration of Prince William Sound and all the areas damaged by the Exxon Valdez oil spill. For example, in November 1989, in conjunction with the Natural Resources Defense Council (NRDC), WFA, and The Windstar Foundation, NWF sponsored four days of citizens' hearings on the Exxon spill in five locations in Alaska. These hearings, dedicated to revealing to the American public the full story of the tragic spill and mismanaged cleanup, led to the publication and national distribution of The Day the Water Died (Attachment "A"), a report which captures the emotions and testimony of 120 affected Alaskans.

NWF is committed to a substantial educational program regarding this catastrophic spill and provided leadership in the successful fight to strengthen oil spill legislation in order to

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[2]NWF endorses NRDC's comments on the 1990 Plan except where they are inconsistent with the following.

reduce the potential for future catastrophic spills. Our commitment to promoting a sustainable future for the State of Alaska is reflected by the NWF Alaska Natural Resource Center and our knowledgeable and dedicated staff.

NWF, together with NRDC and WFA, has filed suit against Exxon, Exxon Shipping, and Alyeska Pipeline (and its owner companies) in state court in Anchorage to ensure that the damage to Prince William Sound and all the areas affected by the Exxon Valdez oil spill will be fully restored, that resources equivalent to those destroyed are acquired, and that the lost value of those resources is recovered.

It is in the context of this broad response to the oil spill that NWF comments on The 1990 State/Federal Natural Resource Damage Assessment and Restoration Plan. NWF is very concerned about the unnecessary and counterproductive secrecy which dominates the entire damage assessment and restoration planning process. Through our lawsuit and through the citizen hearings we convene, NWF is combatting the crippling secrecy which has deprived the public, including policymakers and the scientific community, of information they have a right and need to know.

The Trustee Council and the U.S. Environmental Protection Agency (EPA) have excluded the public from the inception of the damage assessment process. Public input has been allowed only after the studies are already completed; the information the Trustees have provided to the public has been extremely limited, making comprehension and effective comment impossible; despite

their importance to the public, the results of the studies are secret; this process allows the Trustees to hide massive cutbacks which limit the assessment process and endanger potential recovery of damages from the responsible parties.

NWF is also concerned that EPA and the Trustee Council will begin shifting scarce resources into restoration projects, before accomplishing what constitutes an already incomplete analysis of the impacts of the spill.

III. GENERAL OBSERVATIONS REGARDING THE 1990 PLAN

Public Input Only Allowed After-The-Fact

After the oil spill, the Trustees began a program of damage assessment studies without soliciting any comment from the public. The Trustees did not release the details of their 1989 damage assessment plan, The State/Federal Natural Resource Damage Assessment Plan for the Exxon Valdez Oil Spill until August 1989 -- after all the studies described in the plan were already complete.[3] This means that the public comments received in October 1989 were limited to after-the-fact discussions only relevant to the extent that the studies might be continuing in 1990 in form and content similar to studies underway in 1989.

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[3]NWF commented extensively on the 1989 Plan. M. Straube and E. Olson, et al., An Analysis of the State/Federal Natural Resource Damage Assessment Plan for the Exxon Valdez Oil Spill (October 30, 1989) (Attachment "B") (1989 Comments). NWF was joined in these comments by WFA, Trustees for Alaska, Alaska Center for the Environment and Sierra Club Legal Defense Fund.

Furthermore, it was unclear at the time whether public comment would be relevant at all, since the 1989 Plan stated that all studies would be (prematurely) discontinued in February 1990.

In fact, twenty six of sixty three studies were discontinued. Of these twenty six, four were merged with other studies; and four new studies were initiated.

Now, the 1990 Plan is available for comment and the game created by the Trustees will be played again. Once again, the Trustees have released the study plans after the studies have already been conducted and they are making few guarantees that any of these studies will be continued in 1991. This process is inappropriate and illegal.[4]

Even more distressing is the fact that the Trustees had ample opportunity to incorporate public review into development of the 1990 Plan. With some justification they state that in

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[4]See 1989 Comments at 53-55. The Trustees' statement in the 1990 Plan that their actions have been consistent with 43 C.F.R. Section 11.22, 1990 Plan Volume II: Appendix D at 15 (Response to Comments), is simply incorrect. When the Trustees undertook the assessment of natural resource damages caused by the Exxon Valdez spill, they launched a "major federal action[] significantly affecting the quality of the human environment," and were required by The National Environmental Policy Act (NEPA) to file an Environmental Impact Statement (EIS) before their irreversible actions were taken. 42 U.S.C. Section 4332(2)(c); Thomas v. Peterson, 753 F.2d 754, 760 (9th Cir. 1985)(purpose of NEPA cannot be fully served if consideration of cumulative effects of successive, interdependent steps is delayed until the first step has already been taken). This they failed to do.

Assuming arguendo that the Trustee Council must only take steps that are "functionally equivalent" to filing an EIS, its procedural standards must ensure "full opportunity for thorough consideration of the environmental issues, and ... ample judicial review." EDF v. EPA, 489 F.2d 1247, 1256 (D.C. Cir. 1973). Of course, not even the lower "functional equivalent" standard is met by the Trustees' after-the-fact notice of their actions.

1989 "[t]he urgent need to begin an assessment of potential damages required the planning and implementation of studies in a short time frame." 1990 Plan, Volume II: Appendix D at 6 (Response to Comments). To the extent that this statement may have been partially true with respect to the 1989 studies (although, the Trustees could have done much more than they did to incorporate public review into the 1989 process) this argument totally fails when applied to the 1990 Plan.

The Trustees had much more time to make the 1990 study plan available for public review. Instead, the 1990 Plan was released in August, just as late in the year as was the 1989 Plan. Much of the delay was caused by internal battles over the nature of the response to comments and whether or not the 1990 Plan would offer any real explanations regarding the massive study cutbacks. After all their delay, it is ironic that the Trustees made the wrong decision by including essentially no explanation for the extensive study cutbacks detailed in the 1990 Plan. There is no reason to believe that the process will improve in 1991.

Detail is Sketchy At Best

In 1989 the public right-to-know about the Trustees' studies (by then, already completed for the 1989 field season), was "honored" with a remarkably vague damage assessment plan. Both NWF and NRDC as well as other environmental organizations that submitted comments, consulted staff and outside scientific

experts. The universal reaction is: the plan is so vague as to be scientifically unintelligible.

Commenters were forced to guess regarding the study assumptions and methods as well as duration and personnel. Anything resembling genuine peer review was impossible because scientists could only discern the broad outlines of the study plans. As a result, the public's right to know what state and federal governments are doing to assess the damage caused by America's worst oil spill -- the critical first step in the process of restoring the damage -- largely is thwarted.

Although the 1990 Plan is an improvement, it is still too vague to provide scientists with sufficient background to understand much of what was accomplished during the 1990 field season -- let alone guess what may unfold in 1991. The 1990 Plan contains a lengthy, although not very forthcoming, response to comments on the 1989 study plan. Unfortunately, this response to comments is most relevant to studies completed over a year ago.

Results Are Secret

Over the last two field seasons the Trustees have spent over $60 million on the damage assessment process. This process has been unfolding during the same time that Congress debated and enacted a complex oil spill liability law prompted, in large part, by the Exxon Valdez spill. Concurrently, Congress has attempted to exercise meaningful oversight authority over the various federal agencies involved in the cleanup and the damage

assessment process and over agencies with responsibility for oil spill prevention and cleanup. Meanwhile, the nation's scientific community has been attempting to understand the implications of this spill for future cleanup and restoration problems, as well as a way to enhance its knowledge of the behavior of oil in arctic waters and ecosystems; and as the State of Alaska and the nation are grappling with oil and gas exploration issues.

Yet, for all this time, the results of this $60 million expenditure of taxpayers' money have been kept entirely secret -- despite the fact that this information would have been directly relevant to all of these important concerns. This is an unconscionable breach of the public trust.

The Trustees first argued that litigation priorities prevented the Council from making this information available. Now they take the position that they will deposit their data in a public repository as long as Exxon and Alyeska will do likewise. The Trustees assert that they are negotiating with the responsible parties to do just that. However, these negotiations have extended for months with no visible results. Frustrated with this delay, the State of Alaska appears to have already abandoned the negotiations with Exxon and Alyeska.

The Trustees should immediately make this critical taxpayer-financed information available to the public.

When The Public Really Needs To Know: The Cutbacks

Early in 1990, the Trustee Council held a series of meetings in which they decided which studies should be conducted during the 1990 field season. Did they hold public hearings to prepare for these critical decisions? Did they invite public comment? Did they sponsor a conference? The answer to each question is no: the meetings and the decisions made at these meetings were secret.

NWF learned from sources that over one-third of the studies were completely cut off and the budgets for many of the studies were severely slashed. These sources reported a short-sighted process in which federal budget priorities are allowed to trump the nation's long-term interest in understanding the Exxon oil spill and achieving full restoration of Prince William Sound, an important national treasure. Moreover, since all damage assessment study costs should be recoverable from the responsible parties, skimping on the damage assessment process is doubly short-sighted. Skimping increases the probability that study costs won't be recovered because a court could find proof of damages legally insufficient.

This is exactly the type of decisionmaking that would benefit from public input and that the public has a right to know about.[5]

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[5]Fortunately, NWF was able to alert the public to this process through its testimony before Congressman George Miller's Water, Power, and Offshore Energy Resources Subcommittee. E. Olson, Statement of Erik D. Olson Before the Water, Power, and Offshore Energy Resources Subcommittee of the House Committee on

Rush to Restoration?

NWF has learned that in response to pressure to "start doing something up there," EPA is leading the charge to implement restoration strategies. This is laudable if the funds for these projects do not diminish the already limited budget for damage assessment and such efforts are limited to funding urgently needed acquisition projects and initiating pilot restoration projects which have a solid basis in completed and analyzed restoration studies.

Unfortunately, there is a real risk that money spent on restoration will subtract from monies available for damage assessment and that restoration projects will begin before the restoration studies yield concrete information.

Furthermore, although the 1990 Plan shows more evidence of concern for restoration planning, the types of projects considered are very limited. More emphasis needs to be given to acquisition of equivalent assets such as buying back timber rights around Prince William Sound and buying back the Bristol Bay oil leases.[6]

IV. COMMENTS REGARDING SPECIFIC STUDIES

Interior and Insular Affairs (April 24, 1990) (Attachment "C"; this attachment includes other testimony from the same set of hearings).

[6]The only study which might include such analysis is Restoration Feasibility Study No. 5 and its description is so vague that it could include review of a very large or very small group of potential equivalent assets.

While NWF commented extensively on the 1989 Plan (see Attachment "B"), its comments on the specific studies in the 1990 Plan are more selective. Except where the comments below indicate otherwise, NWF endorses NRDC's Comments on the 1990 Plan and stands by its 1989 Comments.

Studies Deleted by the Trustees in 1990

1. List of Studies Cut

(A) STUDIES CUT OUT BEFORE 1990 FIELD SEASON

Geographic Extent and Temporal Persistence of **Floating Oil** from the Exxon Valdez

Injury to the Air Resource from the Release of Oil - Generated **VOCs**

PWS and Gulf of AK **Sport Fishery** Harvest and Effort

Early **Marine Salmon Injury** Assessment for the Kenai Peninsula and Kodiak/Shelikof Strait

Injury to **Dolly Varden Char and Sockeye Salmon** in the Lower Kenai Peninsula

Injury Assessment to **Kodiak and AK Peninsula Herring**

Injury to **PWS Crabs**

PWS Oysters

Undersea Observations

Injury to **Scallop** Resources in Kodiak Waters

Injury to Impacts on **Sea Urchins** off Kodiak Island

Cetacean Necropsies to Determine Injury from the EVOS

Effects of Oil on **Carnivores and Small Mammals Outside PWS**

Assessment of the Abundance of **Marbled Murrelets** at Sites Along the Kenai Peninsula and PWS

Assessment of the Effects of Petroleum Hydrocarbons on Reproductive Success of the **Fork-Tailed Storm Petrel**

Assessment of Injuries to Waterbirds from the EVOS on the Reproductive Success of **Black-legged Kittiwakes** in PWS

Assessment of Injury to Waterbirds Based on the Population and Breeding Success of **Pigeon Guillemots** in PWS

Assessment of Injury to **Glaucous-Winged Gulls** Using PWS

Assessment of Injury to **Shorebirds Staging and Nesting** in Rocky Intertidal Habitats of PWS and the Kenai Peninsula

Effects on **Migratory Birds** of Exposure to North Slope Crude Oil

(B) STUDIES COMBINED WITH OTHER STUDIES

Injury to Deep Water (>20 meters) **Benthic Infaunal Resources** from Petroleum Hydrocarbons

Injury to **Clams Outside PWS**

Injury to **Rockfish, Halibut, and Lingcod** Along the Lower Kenai Peninsula

2. Failure to Explain

Little or no explanation is presented to support decisions to cease studies begun in 1989. The result of the lack of access to 1989 or 1990 data severely limits the ability of the public's to comment on any decisions to modify or delete these studies. This lack of explanation also undercuts the ability of reviewers to determine whether the Trustees engaged in reasoned decisionmaking.

For example, a disproportionate number of bird studies have been dropped or funding has been cut with little or no explanation. The stated reason for suspending these studies is that "it was concluded that all data pertinent to assessing damages likely to be gathered had indeed been gathered. Some

studies ... were either integrated into the remaining studies or are being conducted independent of the NRDA process." Vol. I at 272. This is no better than no explanation at all.

In addition, the statement concerning cost effectiveness in the introduction to the bird studies in 1990 Plan (Vol. I at 272) is outrageous. First, it is unclear as to what is meant by "cost effective." The statement suggests a value judgment was made that the cost of determining impacts to some species will or may exceed the value of the loss or damage to those resources. If so, for which species has such a conclusion been reached and how is unclear.

It must be emphasized that impacts to certain species cannot be ignored simply because they are more expensive to study than are other species. For example, it often is critical to determine the impacts of a spill on one species to understand the full impacts of the spill on many other parts of the ecosystem.

Second, it is unclear whether the results of remaining studies on certain species can be extrapolated to species that have not been studied. The Trustees do not state what support exists for the assumption that the data can be extrapolated. It is also unclear which data is extrapolatable and to which species.

3. Specific Cutbacks

Air/Water-1 The decision to suspend this study may be correct assuming that the object of the study concerned the volatile fraction of oil and assuming that most of this fraction of the oil is now gone. However, many other fractions of the oil continue to exist in the water column.

Air/Water-4 Deletion of this study is correct if combined with Air/Water-2. The decrease in the overall budget may be properly attributable to increased efficiency. If the test administrators collected all Air/Water-2 and Air/Water-4 samples on the same sampling trips with same personnel, and the only additional costs (over and above those for original Air/Water-2) are for the Air/Water-4 sample analysis, then the budget cut is appropriate. However, these are exceedingly generous assumptions because there is no line item in the budget for sample analysis.

Most likely, this represents a real, and apparently excessive, cut in the combined budgets of Air/Water-2 and Air/Water-4.

Technical Services-2 See 1989 Comments at 43-44. The budget for this study has been drastically cut even from the inadequate 1989 budget levels. To make matters worse, there is no explanation for the budget cut. We are extremely concerned that these budget cuts could make adequate analysis of environmental samples impossible.

Fish/Shellfish-9 This study was cut from 1990 because it was not initiated in 1989. Vol. I at 53. No explanation is

supplied as to why was this study was not initiated. Moreover, no rationale is given as to why it is assumed that the results of Fish/Shellfish-4 will be extrapolatable to Fish/Shellfish-9. If the Fish/Shellfish-4 study results are not able to be extrapolated to the Fish/Shellfish-9 study, no explanation is proffered on how to assess damages outside of Prince William Sound.

Marine Mammal-4 NWF finds no explanation for the funding cut, although it may be justifiable because of the 17 sea lions sacrificed for study this summer, and if lab analyses have already been done. Again, these are probably excessively generous assumptions.

Bird-6 Because this study concerns migratory species, it should not be suspended after only two years of study. Furthermore, it is not clear if objective "A" in the last plan could be accomplished in one year or if the Trustees concluded, by fiat, that it was accomplished.[7] In addition, objective "D" was not, and simply could not have been, accomplished in one year.

Again, no explanation is given for deleting the study and for the failure to accomplish the objectives.

Bird-10 Because the non-breeding component of the gull population is elsewhere, accurate data will not be obtained with less than two years of field work. To yield an accurate picture

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[7]The same comment applies for objective "A" in B-7, the storm petrol study.

of the impact on the gull population, the study must therefore continue. See also NWF's 1989 Comments.

Bird-9 Not one of the objectives of the 1989 study could be accomplished in one year. Furthermore, no information is given about the data collected in 1989, whether this data is able to be extrapolated to other alcids, and if so, why.

Bird-12 This study needs to be continued for a period of years. First, objective "F" probably is not achievable within one year. Second, while objective "G" may not be attainable at all, if so, it certainly is not attainable within one year. It appears this study was simply abandoned.

Bird-14 While the precise objectives of this study were not clear, budgeting for it is inadequate. Now, this study, like the other deleted studies in this section, has been inexplicably eradicated.

Comments on 1990 Studies

1. Coastal Habitat Study No. 1

Although this study may reflect a thorough and sincere response to our earlier comments (the mussel/sediment study is a specific example), NWF remains concerned that the study design does not enable estimates of chronic or sublethal effects, especially in fish.

2. Restoration Feasibility Study No. 4

This study seems poorly defined. Identifying upland murrelet and harlequin duck habitats will tell us little, if

anything, about upland habitats used by other species. A better defined study would identify the most critical upland habitats[8] and then identify ways to protect them.

In addition, the phrase "full-scale restoration project concerning upland habitats" is ambiguous. Vol. I at 350. There is no way to evaluate this objective without defining scope of terms.

Also, the budget for this potentially important study appears disproportionately small.[9]

2. Terrestrial Mammal Study No. 2

This study is too narrowly focused. If black bear literature is reviewed, the information catalogued should encompass data on upland habitat usage. There also is an obvious need for field work to verify the literature review.

3. Terrestrial Mammal Study No. 3

The study will not identify avenues of oil contamination. It will not distinguish between oil contamination through ingestion of oil contaminated food versus oil contamination through dermal absorption or grooming. This distinction should be acknowledged. Specifically, the Plan should provide for coordinating and integrating data from river otter food habits

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[8]E.g., scarce habitat types or those habitat types used by the most species (or the species most vulnerable to disturbance or habitat disruption) or those habitats most threatened by human activities

[9]For example, it is less than half that allotted to Restoration Feasibility Study No. 5 (Land Status, Uses, and Management Plans).

with data from any studies on the species that otter prey on. The fact that this study will not detect simultaneous population reductions in both river otters and their prey, Vol. I at 257, is a significant shortcoming of the study design.

4. Terrestrial Mammal Study No. 4

This study should also consider collecting tissue samples from denning females and their cubs, as well as tissue samples from fetuses of necropsied adult females.

5. Terrestrial Mammal Study N. 6

One season (i.e., one young-rearing cycle, February through June) is not sufficient for a "long term study" of the effects of WPBC on reproduction in mink. Vol. I at 268-69.

6. Air/Water Study No. 6

This study lacks sufficient specificity concerning the objective of "constructing a summary budget or 'mass balance' summarizing the fate of the spilled oil." Vol. I at 44. More particularity is needed concerning the point(s) in time this calculation will be made and how the calculation(s) will be used in assessing damages.

7. Economics Study No. 5

This study does not define natural resource services with sufficient precision. The effect may result in underestimated damages. Recreational fishing is defined "globally" rather than by fish species. No distinction among the wide variety of camping activities in Prince William Sound is made (e.g., camping on boats in estuaries).

The study categorizes recreationists into "boxes" representing five different recreational activities, or "use patterns." These are unrealistically simplistic distinctions which are not useful. Recreational activity in the Prince William Sound is complex; visitors may engage in a variety of overlapping recreational activities from boating, fishing, kayaking, camping, hiking, etc. Yet this study assumes that boaters come to the Sound only to boat, fishermen come only to fish, and campers come only to camp. The effect of placing each recreationer into one category lowers the value of the experience of the recreationer in the wilderness of the Prince William Sound.[10] Again, this effect may result in underestimating damages.

General Comments

While the Trustees appear to have undertaken at least one relatively broad ecological impact study (the coastal habitat study), the Plan still lacks any meaningful description or details regarding how the ecosystem-wide impacts of the spill will be determined. There remains a crying need, as suggested in NWF's 1989 Comments, for a fully-integrated ecosystem study that looks at the entire "forest" and not just the "trees," species by species.

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[10]The foregoing problems also may apply to Economics Study No. 7

The statement on page 16, that "data from all of the component studies" would be entered in a database management system to maximize internal integration and availability, represents a good approach and, accordingly, is commended.

V. CONCLUSION

NWF appreciates the difficulties the Trustees face in studying the effects of the Exxon Valdez spill and in starting restoration projects for the spill. However, the Federation is deeply disturbed by the Trustees' failure to provide meaningful opportunities for public participation, their secret decisions to terminate or cut back key studies, and their refusal to initiate a fully-integrated ecosystem-wide study of the spill's impacts.[11]

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[11]To give the Trustees the full background needed to analyze these comments, NWF includes, as Attachment "D", R. Townsend & B. Heneman, The Exxon Valdez Oil Spill: A Management Analysis (1989) and Alaska Oil Spill Commission, Spill; The Wreck of the Exxon Valdez; Implications for Safe Marine Transportation (1990). NWF does not endorse all the conclusions contained in these documents but suggests that they contain valuable background information which will add to the Trustees' deliberations.

ATTACHMENT A

004 Walter Sam JHW 12/4

HELLER, EHRMAN, WHITE & McAULIFFE

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November 29, 1990

File: 10293-0007

RALPH H. PALUMBO, P. S.
PARTNER

VIA FEDERAL EXPRESS TO TRUSTEE COUNCIL MEMBERS

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Re: 1990 State/Federal Natural Resource Damage Assessment and Restoration Plan for the Exxon Valdez Oil Spill

Dear Trustee Council:

Enclosed are Alyeska Pipeline Service Company's comments on the 1990 State/Federal Natural Resource Damage Assessment and Restoration Plan for the Exxon Valdez Oil Spill.

Sincerely,

HELLER, EHRMAN, WHITE & McAULIFFE

Ralph H. Palumbo

Enclosure
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ALYESKA PIPELINE SERVICE COMPANY'S COMMENTS ON

THE 1990 STATE/FEDERAL NATURAL RESOURCE DAMAGE ASSESSMENT AND RESTORATION PLAN FOR THE EXXON VALDEZ OIL SPILL

Comments Submitted to Trustee Council
November 30, 1990

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I. INTRODUCTION

Alyeska Pipeline Service Company ("Alyeska") submits the following comments on the "1990 State/Federal Natural Resource Damage Assessment and Restoration Plan for the Exxon Valdez Oil Spill" (the "1990 Plan"). The 1990 Plan states that it supplements plans and studies described in the State/Federal Natural Resource Damage Assessment Plan for the Exxon Valdez Oil Spill (August 1989) (the "1989 Draft Plan").[1]

Alyeska did not cause the Exxon Valdez oil spill nor is it liable for damages to natural resources caused by the spill. Nonetheless, the State of Alaska and federal government trustees (the "Trustees") identified Alyeska as a "potentially responsible party" ("PRP"), and requested Alyeska's comments on the 1989 Draft Plan. Although the Trustees mislabeled Alyeska as a PRP, Alyeska submitted comments in response to the Trustees' request.

Alyeska supports performance of a valid assessment plan that will identify requirements for the cost-effective restoration of Prince William Sound. As stated in Alyeska's comments on the 1989 Draft Plan, the Trustees' initial assessment plan was legally and scientifically deficient.

Alyeska's overall comment on the 1990 Plan is that it fails to correct the deficiencies of the 1989 Draft Plan. It continues, without justification, to put forth a natural resource damage assessment plan that does not comply with applicable legal requirements, does not follow disciplined procedures and use methods designed to produce a valid assessment, does not provide the information necessary to prepare an appropriate plan for restoration of the resource services adversely impacted by the spill, and does not provide the PRPs or the public with sufficient information to evaluate the scientific validity or cost-effectiveness of the assessment.

The Trustees have not followed the requirements of the Clean Water Act or the NRDA regulations promulgated by the Department of the Interior, 43 CFR Part 11 (the "Regulations"). The Clean Water Act limits recoverable natural resource damages to the actual costs of restoring or replacing the injured resources. The Regulations lay out a logical, straightforward process for the Trustees to follow in performing the assessment of natural resource injuries, evaluation of restoration alternatives, and selection of the appropriate, cost-effective restoration alternative. They require the Trustees to specify and use the most accurate and credible damage assessment methodologies available

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[1] Unlike the 1989 Draft Plan, the 1990 Plan does not in any purport to be a draft plan.

that will yield reproducible and verifiable results using well-defined and accepted scientific and statistical criteria.

Like the 1989 Draft Plan, the 1990 Plan materially departs from the requirements of the Regulations, despite the Trustees' assurance that their assessment will "largely parallel" the assessment procedure and guidance outlined in the Regulations. Like the 1989 Draft Plan, the 1990 Plan's deviations from the Regulations are serious and will prevent the Trustees from achieving a credible and enforceable final assessment.

Equally serious is the Trustees' decision to conduct the assessment in secret. The Clean Water Act, the Regulations and the D.C. Circuit's decision in Ohio v. Dept. of Interior,[2] require that the Trustees permit the PRPs to participate in the assessment process, and that the assessment process be conducted openly in order to ensure procedural and substantive fairness. The Trustees have failed to involve the PRPs in the assessment process. Moreover, they have refused to provide either the PRPs or the public with a timely and meaningful opportunity to comment. Both the 1989 and 1990 Plans were largely completed prior to the time the Trustees made those Plans public and sought comments, thereby rendering the comment process a sham. Moreover, both the 1989 and 1990 Plans lack sufficient detail and documentation for the PRPs or the public to properly evaluate the Plans and give them the "independent review" referenced in the Trustees' request for public comments.

The Trustees' decision to proceed behind closed doors is exemplified by their refusal to disclose any of the assessment study data collected to date. The 1990 Plan proposes to continue or modify 47 of the studies begun in 1989, to discontinue 26 studies or merge those studies into other studies, and to initiate 4 new studies. The cost of the 1990 Plan studies is approximately $37 million. The PRPs and the public are asked to comment on the 1990 studies without being provided access to any data or information collected as part of the 1989 assessment studies. Such data and information are essential to evaluation of the 1990 Plan.

The Trustees' decision to conduct the assessment in secret, without providing a meaningful opportunity for comment or disclosing essential details, documentation and data regarding the assessment studies, seriously impairs the fairness, objectivity and validity of the assessment process.

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[2] 880 F.2d 432 (D.C. Cir. 1989).

II. SPECIFIC COMMENTS

A. THE TRUSTEES HAVE FAILED TO FOLLOW THE NRDA REGULATIONS

The Trustees stated that the assessment will "largely parallel" (1989 Draft Plan at 24) and is "consistent with the overall assessment procedure and guidance outlined in 43 CFR Part 11." 1990 Plan at II:8. In spite of these claims, the 1989 and 1990 Plans are not consistent with the Regulations for the reasons set forth in Alyeska's comments on the 1989 Draft Plan and these comments. The Trustees' failure to follow the Regulations will deprive them of the "rebuttable presumption," and will undermine the credibility and enforceability of the final assessment.

The Trustees failure to follow the Regulations does not merely deprive them of the rebuttable presumption. For the reasons stated in Alyeska's comments on the 1989 Draft Plan, compliance with the Regulations is mandated by statute. Even if the Trustees had discretion to vary from the Regulations (which they do not), the Trustees could not use alternative assessment procedures unless facts in the record affirmatively demonstrate that compliance with the Regulations would produce a clearly erroneous result and the alternative procedures used by the Trustees are scientifically and economically valid.[3]

The Regulations are more than mere regulatory hoops through which the Trustees must jump; they establish substantive standards against which the reasonableness, validity, fairness and enforceability of the assessment can be measured. Section 301(c)(2) of CERCLA requires the regulations to include "the **best available procedures** to determine such damages." 42 U.S.C. § 9651(c)(2) (emphasis added). The Trustees decision to depart from the best available assessment procedures established by the Regulations will cause the final assessment to be scientifically invalid and legally indefensible.

B. THE TRUSTEES HAVE WITHHELD ESSENTIAL INFORMATION AND DATA

The Regulations require that all data results and documentation from the 1989 and 1990 assessment studies be made available to the PRPs.

> The Assessment Plan **shall** contain procedures and schedules for sharing data, split samples, and results of analysis, when

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[3] The Trustees are not, of course, required to comply with those portions of the Regulations held invalid by the Ohio court.

> requested, with any identified potentially responsible party and other natural resource damage trustees.

43 CFR § 11.31(a)(4). The Department of the Interior recognized the importance of making information available, such as the 1989 and 1990 study data, during the assessment in order to ensure that the assessment plan remains cost-effective.

> The plan should be modified during the assessment as new information is obtained. What may have been cost-effective under the previous set of circumstances may not be cost-effective when new information is obtained.

50 Fed. Reg. 52,128.

The Trustees dismiss the importance of access to the 1989 results, stating, "[t]he Trustees believe that sufficient information has been provided to allow adequate public review of study objectives. Data is not required to conduct this review." 1990 Plan at II:12-13. The Trustees' position is untenable. How can a PRP or the public determine whether continuing a 1989 study in 1990, modifying the study, or initiating a new study is justified if the results of the 1989 study are unavailable? Presumably, the Trustees used the 1989 study data to determine what studies to do in 1990. How can they legitimately ask the PRPs and the public to comment on the 1990 Plan without giving them the same information the Trustees relied upon to prepare the 1990 Plan in the first place?

The Trustees also apparently are unwilling to subject their studies to timely public comment and peer review from the scientific community. Peer review is fundamental to credible science. It enables independent analysis and evaluation of studies. It ensures the flow of information among scientists. It serves as a watchdog against fabricated or unreliable data. By restricting access to the results of the assessment studies, the Trustees have stifled any possible peer review and data validation. Without this, the fairness and objectivity of the assessment is fundamentally compromised.[4]

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[4] The Trustees have indicated they may be willing to place certain state and federal assessment data in a public repository. To date they have not done so. Additionally, their commitment seems to be conditioned on Exxon Corporation and Exxon Shipping doing likewise. 1990 Draft Plan at I:3-4. The Regulations do not authorize the Trustees to withhold data from public access until PRPs have agreed to release the data they may have

(continued...)

C. THE TRUSTEES HAVE DENIED POTENTIALLY RESPONSIBLE PARTIES PARTICIPATION IN THE ASSESSMENT PROCESS

The Regulations require that the Trustees include the PRPs in the development and performance of the assessment. The Regulations state:

> The Notice [of Intent to Perform an Assessment] **shall** invite the participation of the potentially responsible party . . . in the development of the type and scope of the assessment and in the performance of the assessment.

43 CFR § 11.32(a)(2)(iii) (emphasis added). The Department of the Interior recognized in its proposed rule-making notice: "Early involvement of the potentially responsible party is intended to facilitate fair and speedy resolution of damage actions . . . . If the potentially responsible party is aware of the proposed assessment efforts, it may be encouraged to take actions necessary to do the assessment and restoration." 50 Fed. Reg. 52,128 (Dec. 20, 1985). The PRPs special role was underscored by the Ohio court, "PRPs merit more involvement in the preassessment process than does the general public because PRPs have a stake in the cost-effectiveness of the assessment methods chosen." 880 F.2d at 468.

The Trustees attempt to excuse their failure to give the PRPs an opportunity to participate in the development or performance of the assessment, stating, "The PRPs were given equal opportunity to comment with all interested parties in the damage assessment process. It is up to the Trustees to determine the extent of the involvement of the PRPs in the damage assessment process." 1990 Plan at II:14. But neither the Regulations nor the Ohio decision accord the Trustees discretion to deny completely the PRPs meaningful involvement in the assessment process. 43 CFR § 11.32(a)(2)(iii) ("shall invite participation"). See also 51 Fed. Reg. 20,703 (Aug. 1, 1986) (emphasizing the importance of PRP participation, as distinct from public involvement, in the development and performance of the assessment).

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[4](...continued)
collected.

Even if the Trustees do place some of the relevant data and documents into the repository, there are no assurances that they will do so in a timely manner or that they will include all samples, data, results and other documentation, as required by the Regulations.

The Trustees' failure to make the 1989 assessment study data and information available and to permit the PRPs to participate in the performance of the assessment plan denies PRPs the opportunity to verify study results by conducting replicate studies, conducting oversight of study activities, obtaining and analyzing splits of samples obtained as part of the studies, and otherwise validating the studies conducted by the Trustees. Many of the assessment studies involve conditions that will change between the time the studies were conducted and the time the final assessment is completed. For instance, oil degrades, populations recover, samples degrade and other conditions change. The PRPs' involvement is necessary to safeguard the integrity of the assessment process.

D. THE TRUSTEES HAVE DENIED THE POTENTIALLY RESPONSIBLE PARTIES AND THE PUBLIC MEANINGFUL OPPORTUNITY TO COMMENT

The 1990 Plan contains greater detail than the 1989 Draft Plan, but it still does not contain sufficient information to permit meaningful comment. The regulations expressly recognize the need to make available adequate information to comment on an assessment plan, requiring "sufficient detail to serve as a means of evaluating whether the approach used for assessing the damage is likely to be cost-effective and meets the definition of reasonable costs . . . ." 43 CFR § 11.31(a)(2). For example, the Economics Study No. 7, budgeted to cost in excess of $2 million, is described in a single page. The Study purports to use speculative, contingent valuation methods. It does not describe the survey plan proposed to be used, the survey design, how survey results will be analyzed, the type of research that will be conducted to determine accurate survey instruments, the type of preliminary testing that will be conducted, the basis for conducting a nationwide survey, the type of econometric analysis that will be used, or any other details that are necessary to evaluate the study.

In addition, the 1990 Plan was not issued for public review and comment until after most studies were begun or completed. The failure of the Trustees to give PRPs and the public an opportunity to comment violates the Regulations, which prescribe that:

> "The Assessment Plan shall be made available for review . . . for a period of 30 calendar days, with reasonable extensions granted as appropriate, **before the performance of any methodologies contained therein.**"

43 CFR § 11.32(c) (emphasis added).

The Regulations also require that the Trustees invite the PRPs to participate in the assessment process and give PRPs at least 30 calendar days to respond "before proceeding with the development of the Assessment Plan or any other assessment actions." 43 CFR § 11.32(a)(2)(iii). The Department of the Interior recognized the importance of public comment and PRP participation in the development of the NRDA Plan. In the preamble to the Regulations, the Department of the Interior wrote,

> Public involvement and participation by the [PRP] will aid the authorized official seeking natural resource damages in a number of ways. First, it will ensure that important resource concerns are not omitted from the assessment. Second, it will ensure that the methodologies are given an independent review and that the appropriate methodologies are chosen for the Assessment Plan. Third, it will help ensure that the costs of assessment are reasonable.

51 Fed. Reg. at 27,682 (Aug. 1, 1986).

The 1990 Plan was completed some time in mid-August 1990, but its availability was not announced until September 18, 1990. 55 Fed. Reg. 38,408 (Sept. 18, 1990). By the fall of 1990, most of the studies detailed in the 1990 Plan had either been initiated or completed, thereby depriving the PRPs, other federal and state agencies, and the public of a meaningful opportunity to submit comments and effect changes with respect to the 1990 Plan studies. Remarkably, the Trustees still suggest that, "In fact, the Trustees have provided greater opportunity for public review and comment than is outlined in the Regulations." 1990 Plan at II:19.

The Trustees cannot justify their failure to provide opportunity for comment prior to commencing the 1990 studies on the grounds that it was necessary to commence field work immediately. See 43 CFR § 11.22. The Trustees had ample time to publish and submit the 1990 Plan for comment prior to beginning field studies in the summer of 1990. In addition, many studies, such as economic and restoration studies, cannot be justified on this basis since those studies are not based on field studies of resources impacted by the spill.

The Regulations require a **meaningful** opportunity to comment. Commenting on studies which have already been completed is a meaningless exercise only providing the Trustees with the opportunity to manufacture *post hoc* rationalizations for studies that already have been conducted. For example, Bird Study B1 touched off considerable adverse public reaction because it required the

killing of several hundred birds. If the study had been made public before it was conducted, the Trustees most likely would have cancelled it.[5] Criticizing the killing of these seabirds is now a hollow exercise since those birds have already been sacrificed.

E. THE 1990 PLAN USES THE WRONG MEASURE OF DAMAGES

Both the 1989 and 1990 Plans purport to assess damages under the Clean Water Act and CERCLA. Section 101(14) of CERCLA expressly exempts "petroleum, including crude oil," from coverage under CERCLA. 42 U.S.C. § 9601(14). Thus, the natural resource damage provisions of CERCLA do not apply to the Exxon Valdez oil spill.

The assessment of natural resource damages under the Clean Water Act must focus on restoration costs. Section 311(f)(1) creates liability for the "actual costs incurred under subsection (c) of this section for the removal of such oil . . . ." 33 U.S.C. § 1321(f)(1). "Costs of removal," include:

> "Any costs or expenses incurred . . . in the **restoration or replacement of natural resources** damaged or destroyed as a result of a discharge of oil . . . ."

33 U.S.C. § 1321(f)(4).

The Clean Water Act further provides that any sums recovered for the cost of restoration or replacement "**shall** be used to restore, rehabilitate, or acquire the equivalent of such natural resources . . . ." 33 U.S.C. § 1321(f)(5) (emphasis added). The Clean Water Act does not impose liability for natural resources damages apart from costs of restoration or replacement, and recoverable damages are only those costs **actually incurred** in the restoration or replacement of the damaged natural resources. The Trustees cannot recover lost use and non-use values. Under the Clean Water Act, the use value of an injured resource is relevant only for the purposes of ensuring that the restoration alternative selected by the Trustees can be performed at a cost not grossly disproportionate to the use value of the resource and also to ensure that it is the cost-effective alternative.

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[5] After the study was conducted, the Department of Justice ("DOJ") denied that it either authorized the study or would have recommended or condoned the study. "Department denies backing bird study", Anch. Daily News A-1 (Oct. 23, 1990). This is another example of the 1990 Plan's insufficient detail. Even the Trustees' own attorneys apparently could not tell from reading the 1990 Plan that studies included the killing of seabirds.

The 1990 Plan includes many economic studies designed to assess damages that are not compensable under the Clean Water Act, such as studies to estimate non-use losses, use value effects,[6] commercial fishery losses and other private damages, research losses, damage to archeological resources, hypothetical effects on the value of public lands, recreation values, subsistence values, and "natural resource slander."

Another result of the 1990 Plan's multiple economic studies is that the studies overlap and will result in "double counting" in violation of the Regulations and applicable statutes.

F. THE 1990 PLAN IGNORES RESTORATION

The restoration planning process outlined in the 1990 Plan is not focused principally on restoration. Moreover, like the 1989 Draft Plan, the 1990 Plan contains no economic methodology determination, no resource recoverability analysis, and no restoration methodology plan as required by sections 11.35, 11.73 and 11.82 of the Regulations. For instance, the section of the 1990 Plan titled "Restoration Planning Project" is only a cursory treatment of the subject. Because the Trustees failed to make restoration the key component of the Draft Plans, the Plans will result in an assessment that is not cost-effective and does not yield a useable result.

The Trustees are required by section 11.82 of the Regulations and general principles of law "to ensure that the restoration or replacement alternative that forms the basis of the measure of damages is cost-effective" and to use a cost-benefit analysis to make that determination. See also 43 CFR § 11.81(f). The 1990 Plan does not incorporate cost-effectiveness as a criteria, nor does it make any effort to utilize a cost benefit analysis in identifying and selecting feasible restoration measures.

The 1990 Plan also ignores the fact that, in the case of the Exxon Valdez oil spill, natural recovery processes will be the most cost-effective and environmentally sound restoration approach. Many of the resources which are the subject of the 1990 studies either show no evidence of injury or are rapidly

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[6] Because lost use values can be used solely for the purposes of ensuring that the cost-effective restoration alternative is selected and is not grossly disproportionate to the use value of the resource, it is not reasonable to expend large sums of monies studying lost use values (especially in this case where natural recovery is likely to be the selected alternative for most resources).

recovering naturally and will continue to recover through natural processes. The 1990 Plan is premised on the assumption that all resources were injured and that additional research is needed without regard to natural recovery. Such research is not cost-effective, it is unnecessary to accomplishing the proper restoration goal, and it violates the Regulations.

G. THE 1990 PLAN FAILS TO PROPERLY DETERMINE NATURAL RESOURCE INJURY

The Regulations require an assessment process that clearly distinguishes between "injury" and "damage." See 51 Fed. Reg. 27,682 (Aug. 1, 1986). Failure to distinguish between "injury" and "damage" subverts the three-step assessment process set out in the Regulations: Injury Determination (40 CFR §§ 11.61-.64), Quantification (40 CFR §§ 11.70-.73), and Damage Determination (40 CFR §§ 11.80-.84). Each step follows the prior one in a phased approach. Injury determination requires demonstration of a "measurable adverse change" in the resource being studied, 43 CFR § 11.14(v), that the adverse change is shown to have resulted from the oil spill, and that the scientifically-accepted criteria, testing and sampling methods prescribed in the Regulations be used to determine whether an "injury" has occurred, 43 CFR §§ 11.62-11.64. Further, the Regulations require that prior to quantifying damages, the Trustees determine which natural resources have been injured. 43 CFR §§ 11.32(f), 11.61(e), 11.71(a).

The 1990 Plan describes 51 technical, economic, restoration and archeological studies, most of which are proceeding without first identifying that they are related to an "injury" that has been determined pursuant to the Regulations. It is clear that many studies are directed toward resources which were not injured as a result of the spill. Indeed, many studies seem to be designed to show that there is no injury to the resource being studied. Many other studies use nonspecific methods or injury determination, testing, and sampling methodologies which do not accord to the scientifically-accepted guidance set forth in §§ 11.62-11.64 of the Regulations.[7]

The 1990 Plan studies improperly combine the injury determination and injury quantification phases of the assessment process. The result is that the studies attempt to quantify

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[7] The Trustees "**shall** then proceed in accordance with the guidance provided in the injury definition section, § 11.62 of this part, to determine if the resource is injured"; and the Trustees "**shall** follow the guidance provided in the testing and sampling methods section, § 11.64 of this part, in selecting a methodology for determining injury."

resource levels for which no verifiable injury has been found to exist, thereby violating the Regulations' mandate that the assessment process be conducted at a "reasonable cost," 43 CFR § 11.13(c), and that quantification be done only for injuries determined in the damage determination phase. 43 CFR § 11.71(a). Similarly, the 1990 Plan proceeds with damage determination studies prior to the completion of the injury determination and quantification phases. This procedure also violates the Regulations. 43 CFR §§ 11.81-11.84.

It is impossible for Alyeska to determine every 1990 study that the Trustees should not have performed because the Trustees have denied Alyeska the 1989 assessment study data and other essential assessment plan information. As stated in Alyeska's comments on the 1989 Draft Plan, the Trustees should have performed a proper preassessment screen to identify those natural resources potentially affected by the oil spill. See 43 CFR §§ 11.23-11.25. Had the Trustees done so, many 1989 studies would not have been conducted. In 1990, the Trustees should have evaluated 1989 study data and authorized only those studies related to resources for which injury had been determined using methodologies required by the Regulations, and only those studies necessary to achieve cost-effective restoration (taking into account natural restoration, feasibility of restoration methods, and cost-effectiveness).

H. THE 1990 PLAN USES AN INCORRECT "BASELINE"

The Regulations require the assessment to determine the "baseline conditions and associated baseline services for the injured resources at the assessment area" that would have existed had the spill not occurred, and to compare that baseline with the post-spill level of services provided by the natural resources injured as a result of the spill. 43 CFR § 11.72(a). The 1990 Plan fails to use a proper baseline.

Many 1990 studies fail to distinguish between the effects of the Exxon Valdez oil spill and natural factors which may account for differences between oiled and non-oiled areas -- such as ecological succession, natural cyclical changes, and human activities. See, e.g., Sea Lions (MM4) and Harbor Seal (MM5) studies. The 1990 studies fail also to consider sources of oil other than the Exxon Valdez spill. Many 1990 studies misuse or ignore historical data regarding natural variation or compare resources at oiled and non-oiled sites without using criteria required by the Regulations for selecting "control" areas. See 43 CFR § 11.72.

Finally, the 1990 studies fail to assess reductions in baseline **services** provided by the natural resources, as opposed to changes in the resources themselves. Under the Regulations, restoration or replacement measures are limited to those actions

that restore or replace the resource **services** to no more than their baseline. 43 CFR §§ 11.81(c), 11.70(a).[8] To do so, the Trustees are directed to determine the baseline services provided by those resources. 43 CFR §§ 11.71(b)(3), 11.72(a). In spite of these directives, the Trustees have not focused any effort on determining reductions in baseline services. The Trustees' failure to use the proper baseline and account for service reductions will render the assessment results invalid.

I. THE 1990 PLAN FAILS TO SPECIFY RELIABLE STATISTICAL METHODS AND FAILS TO PRESERVE ESSENTIAL DATA AND DOCUMENTATION

The Regulations require that the assessment plan "identify and document the use of all scientific and economic methodologies that are expected to be performed . . . ." § 11.31(a)(1). The assessment plan must "include the sampling locations within geographical areas, sample and survey design, numbers and types of samples to be collected, analyses to be performed, preliminary determination of the recovery period, and other such information required to perform the selected methodologies; and it must "contain procedures and schedules for sharing data, split samples, and results of analysis, when requested, with any identified potentially responsible parties . . . ." §§ 11.31(a)(4) and 11.30(c)(2). As previously stated in these comments, neither the 1989 nor 1990 Plans provide the required level of detail.

Because the Draft Plans contain insufficient detail and because the Trustees have refused the PRPs access to all underlying assessment study information, it is critical that the Trustees preserve all assessment plan documentation. The Draft Plans should require preservation of all data and documents from each study, including original planning documents for all data collection and field sample surveys, data collection work plans, sample frame listings, procedures used to select sample and survey design, locations and subjects, original documents on which facts, figures, notes and comments are recorded, questionnaires, interviews, field notes and records, chain-of-custody of records, laboratory measurements and reports, technician's observations and conclusions, work papers, quality assurance/quality control records, computer programs and printouts, intermediate data sets, and all other documents which indicate sampling,

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[8] Services include "provision of habitat, food and other needs, biological resources, recreation, other products or services used by humans . . . flood control, ground water recharge, waste assimilation, and other such functions that may be provided by natural resources." 43 CFR § 11.71(e).

evaluations, analyses, calculations, editing, notes, measurements and observations.

J. THE 1990 PLAN FAILS TO SELECT A DISCOUNT RATE

The 1990 Plan fails to select a discount rate. Claiming that the NRDA regulations are optional, the Trustees cite the disagreement among economists to justify the failure to select a discount rate. 1990 Plan II:105. The Trustees should select the discount rate they intend to use, and they should fully describe and document their basis for selecting the discount rate.

III. CONCLUSION

For the reasons set forth above, the Trustees must change the assessment process they have used to date and establish an open, accessible, and scientifically and legally valid assessment of the damages to natural resources resulting from the Exxon Valdez oil spill. Applicable law and the Regulations mandate that the assessment be undertaken in the light of day. It is past time for the Trustees to make available the data, samples, and results from the 1989 and 1990 studies. Without access to this information, the PRPs cannot assess the scientific validity of the assessment, monitor the cost-effectiveness of the assessment, or participate in the assessment in any meaningful way.

Further, it is critical that the assessment process comply with the Clean Water Act and the Regulations. The assessment process used to date is fundamentally flawed -- legally, scientifically and economically.

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Comments
of the

Natural Resources Defence Council
on the

1990 State/Federal
Natural Resource Damage Assessment
and Restoration Plan
for the Exxon Valdez Oil Spill
(August 1990)

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November 30, 1990

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The Natural Resources Defense Council, Inc. (NRDC) submits the following comments on the 1990 State/Federal Natural Resource Damage Assessment and Restoration Plan for the Exxon Valdez Oil Spill (August 1990). The 1990 plan describes the second year of studies undertaken by the federal government and State of Alaska to determine the injury to natural resources resulting from the Exxon Valdez oil spill. A year ago NRDC submitted detailed comments regarding the public review draft of the State/Federal Natural Resource Damage Assessment Plan (August 1989) for the Exxon Valdez oil spill. Many of those earlier comments are still pertinent to the 1990 Plan and we incorporate those earlier comments by reference.

NRDC appreciates this opportunity to comment on the 1990 Plan. However, NRDC strongly objects to the timing of public review of this plan. While the plan is dated August 1990, it was not noticed for public comment until September 18 (55 Fed. Reg. 38403), at which point all of the studies described in the Plan were either underway or completed. Hence, any of the comments which are submitted on the Plan are virtually meaningless, since they can have no impact on the design or implementation of the studies described. This makes a mockery of the public comment process and is particularly shocking in light of the fact that a detailed plan was developed earlier this year which could have been circulated for public review and comment, but was not. The

Trustee's action in delaying public review of this document is an outrage and a betrayal of their public trust responsibility. NRDC and other commenters raised this same objection last year to the timing of the public comment period on the 1989 plan and specifically requested that this problem be rectified in the timing of public comment on the 1990 plan. Instead, this request was totally ignored.

On a related point, the 1990 Plan indicates that a number of studies that had been planned or carried out in the first year would not be continued into the 1990 field season. A number of studies, including studies of larval fish injury, crab injury, whale necropsy, were all dropped. Virtually no explanation is provided in the 1990 Plan justifying discontinuance of these studies. Moreover, no opportunity for public comment was provided prior to the Trustee's decision to drop these studies. As our comments of a year ago stated, the decision with respect to the termination of studies constitutes a significant modification of the assessment plan and consequently there should have been an opportunity for public comment prior to the decision.

A fuller explanation of why these studies were dropped is absolutely essential to a proper evaluation of the Trustee's decision with respect to these studies. If these studies were dropped because there was little or no evidence of impact

observed in the first year, we question the soundness of the decision. Lack of impact in the first year does not necessarily mean that there would be no effects in later years due to such factors as biaccumulation and biomagnification, or genetic or reproductive (as opposed to physiological) impacts.

Another major deficiency in the 1990 Plan is the failure to include any description of the results of the first year of studies. It is absolutely crucial in evaluating which studies should or should not continue and the manner in which the studies should be undertaken to have some familiarity with the results of the prior year of study. Yet the 1990 Plan is essentially devoid of any summary of the results of the first year of study.

We understand that the State and Federal governments have sought to reach an agreement with Exxon concerning the establishment of a public repository for the data generated from the scientific studies. What is the status of these negotiations? What prospect is there that data will be submitted in a usable form and timely manner? NRDC and NWF are proposing in the context of the Alaska state court litigation that all scientific data be made public in a timely fashion. This proposal would require Exxon, as well as the State and other parties to the litigation, to make their data publicly available. We would hope that the Trustees will lend their strong support to this proposal.

One of the key concerns expressed in our comments on the 1989 Draft Plan was that there was insufficient focus on the ecosystem impacts of the spill. There was too much focus on studying the impacts species-by-species without looking at the adverse effects of the spill on the interactions among different species and different elements of the ecosystem. Although the coastal habitat study does claim to be following an ecosystem approach, it is not clear to what extent this will be accomplished and to what extent community structure or function will be fully addressed in this study. Beyond this coastal habitat study, it is not clear how or whether a more ecosystem approach will be utilized.

Another concern is that there is no commitment beyond the 1990 field season to carry out studies to assess long-term damage. As our comments of last year made clear, we believe that there is an obligation on the part of the Trustees to conduct studies of long-term impacts. All scientists we have consulted believe several years of studies are needed in order to begin to fully understand the impacts of the oil spill on the marine ecosystem. As the plan itself makes clear, for many species including salmon and bald eagle the effects may not become evident for three to four or more years. The Trustees should make clear their commitment to long-term studies.

With respect to restoration planning, we need to see the results

of the 1990 feasibility studies in order to effectively participate in the restoration planning process. We also believe that the planning process may be too narrowly focused, based on the description contained in the 1990 Plan. We strongly urge that options such as buy-back of the Bristol Bay oil leases be carefully assessed as part of the restoration planning process and that a wide range of options for acquisition of equivalent resources or services be explored. See Restoration Following the Exxon Valdez Oil Spill/Proceedings of the Public Symposium (July 1990).

While we support the initiation of appropriate restoration projects, we do not want to see the damage assessment process robbed of funds in the meanwhile. For example, we would not want to see the Federal and State funds diverted from continuing important damage assessment studies to conduct restoration projects. Any restoration projects conducted before the damage assessment is complete should be funded separately. While the plan refers to pilot restoration projects, many of the experts that we have consulted say that only until several years of damage assessment studies have been completed can a decision be made about the full range of restoration measures that should be undertaken.

Finally, with respect to the economic studies, we object to the lack of any information on the State-conducted economic studies.

How can we evaluate the Federal effort without understanding what additional studies the State Trustee is carrying out? To the extent that the State is carrying out its own contingent valuation study, we fail to see the rationale for the Federal government carrying out a similar one. Without a good understanding of the full complement of economic studies, it is very difficult to submit intelligent comments on this part of the Plan.

We include as part of NRDC's comments the attached comments of Professor Anne McElroy of the University of Massachusetts-Boston. Dr. McElroy was one of the scientific experts who reviewed the 1989 Plan. Her comments on the 1990 Plan follow.

Comments on 1990 State/Federal Natural Resource Damage Assessment and Restoration Plan for the Exxon Valdez Oil Spill

Anne McElroy
Environmental Sciences Program
University of Massachusetts-Boston
November 27, 1990

Summary:

The 1990 NRDA plan describes work to be conducted during the second year of the damage assessment. In most studies, the description of the work plan has been substantially expanded from what appeared in the 1989 plan, however, many questions still remain unanswered and several deficiencies are still evident. Access to results from the damage assessment to non-participating parties is still a major issue, as is the absence of independent review of the plan. Integration of the various studies is not always present, either with respect to constancy of methods used, habitats and/or species sampled, or in the timely generation of data and summary reports. Although the Coastal Habitat Study claims to be following an ecosystem approach, the level of detail provided makes it impossible to determine how well this will be accomplished, and to what extent community structure or function will be addressed. Increased efforts at modeling historical data and that obtained as part of the NRDA to predict both effects and recovery has only been given limited attention. Finally, although statements in Volume II indicate that some portions of these studies are expected to be continued into subsequent years, no mention of any coordinated long-term studies is present in the damage assessment plan itself. These were all major concerns of the 1989 plan which I think are no less of an issue in the 1990 plan.

Volume I. Assessment and Restoration Plan:

Introduction:

Without access to the results from the first year NRDA, it is impossible to assess whether or not decisions made by the Trustees on which studies to continue and discontinue were appropriate. In the introduction, there is a section mentioning discussions between the Trustees and Exxon concerning setting up a common data repository. A meeting on 7/19/90 was mentioned in the introduction, but no other reference to this was made later in the report. On page 336 it is stated that a summary document on results of the first year's study was to be ready for public distribution in July 1990. What is the status of efforts of make this information and data available to the concerned public?

In the categories of Air/Water and Fish/Shellfish Resources Injury Assessment 5 new studies were added, 12 dropped completely and 4 combined in part into other ongoing studies in the 1990 plan. Other than a comment stating that extremely low concentration of hydrocarbons in water and air observed during the 1989 sampling indicated that further sampling of these compartments was no longer needed, no rational was given for why specific studies were excluded from the 1990 plan. Many of the species and life stages covered by the canceled studies are important resource species and/or sensitive components of the life cycle which could sustain damage in years subsequent to the spill. It would seem premature to abandon these studies so early in the damage assessment process.

Coastal Habitat Injury Assessment

This year's plan calls further work on identification of habitats appropriate for study, and an assessment of injury sustained by species within habitats impacted by the EVOS. It appears that significant additional work was needed in 1990 to locate adequate controls sites for the habitat study. The damage assessment section has been significantly expanded

from the 1989 plan, but the information given is still inadequate to determine how well injury will be assessed.

Much of this year's work will be the "analysis of samples obtained in 1989". During 1989 "specific methods" developed for each components of the study, but are listed by title only. Most of the titles are very procedural, for example "locating quadrants, sample identification and chain of custody, sample storage and identification, field schedule, experimental work . . . ". While all these items are important, they are somewhat generic, ie. needed for almost any type of study. This information would normally appear in the QA/QC plan, which was not submitted as part of either the 1989 or 1990 plan for anything other than the analytical chemistry and histology groups. There are only a few titles in this list that indicate what type of data they are generating. These include: "Determination of Plant Productivity, Vegetation Nutrient Content, In Vitro Digestibility, and Soil/Sediment Microbial Activity" in the supratidal zone; and "Invertebrate Growth and Survivorship" in the intertidal zone. Also mentioned are hydrocarbon analyses of soils and sediments, invertebrates and fish. Use of the INGRES database management system is discussed to facilitate internal integrates and availability of data and maintain data security.

In my opinion this is one of the most important studies of the whole plan, yet it has improved only marginally in detail from 1989. The description of the study plan indicates that analysis of the 1989 samples was sufficiently incomplete to be used to modify the 1990 sampling plan. Considering the funds expended, this is reprehensible. Hydrocarbon analyses of plant and algal material is still lacking. It is impossible to tell if productivity of subtidal plants and algae is being assessed. Although in the study description it is stated that an "integrated ecosystem approach" will be stressed, only lip service is given to assessment of the functioning of the ecosystem and potential for trophic transfer of contaminants. From the information presented it is impossible to tell if this will/is being accomplished. In order to be reviewed adequately, the "Specific Methods" developed would have to be available to qualified experts.

This section should be expanded to include measures of both primary and secondary productivity in matched oiled and unoiled habitats in the supratidal, intertidal and subtidal zones. Additionally, some measure of both aerobic and anaerobic carbon cycling such as respiration and sulfate reduction should be made to access potential effects of the EVOS on energy flow in these systems.

A "new" addition to the Habitat Injury Assessment will compare pre- and post-spill concentrations of hydrocarbons in sediments and mussels at intertidal sites in and outside of PWS. This study will make use of 10 intertidal sites where "base-line" levels of petroleum hydrocarbons had been measured in mussels, sediment, water and fish annually from 1977 to 1981. These 10 sites will be resampled, as well as 10 additional sites sampled after the spill but prior to arrival of the slick in PWS and along the Kenai Peninsula. Hydrocarbon concentrations and abundance and distribution of intertidal epifauna will be measured to test for statistically significant pre- post-spill differences. Although this study is somewhat limited in that it will only assess hydrocarbons available to one test organism and effects observable by photographs on the standing stock of intertidal epifauna, the approach is good. Since this work was clearly begun immediately after the spill, I'm surprised it was not even mentioned in the 1989 plan. In addition, the bibliography supplied is very dated (old) in most cases, and the references picked somewhat surprising as to their relevancy. The text indicates this study may be continued in an attempt to document recovery of areas where significant effects are observed. Clearly this and other studies where significant effects of the EVOS are observed should be continued at least until some estimate of the recovery period can be made. Information on both long term effects and recovery periods will be important in assessing the full extent of damage from the EVOS and other oil spills of this nature.

Air/Water Resources Injury Assessment

Only water column and sediment resources will continue to be assessed directly in year 2. Three studies remain: A/W #2 and A/W #4 will be combined into one integrated sediment contamination study; A/W #3 will continue to look at hydrocarbons in the water column; and a new study, A/W #6, will investigate the effects of long-term contamination, toxicity of weathered oil and integrate the results of several projects into a mass-balance budget for the fate of spilled oil in coastal Alaska.

A/W #2 Petroleum Hydrocarbon-Induced Injury to Subtidal Marine Sediment Resources

Sixteen sites were chosen for analysis in May, June/July and September 1990. Six of these will also be sampled by the Coastal Habitat Study. Surface sediments will also be collected at each site during the June/July sampling for determination of relative toxicity using the Microtox™ luminescent bacterial assay, microbial biodegradation potential and, I believe, benthic infaunal characterization. A screening method employing rapid sample preparation with HPLC fluorescence detection will be used to estimate hydrocarbon concentrations in selected sediment samples. Portions of these sediment extracts will be used in the Microtox™ assay. Sediment samples collected will also be analyzed for the ability of associated microbes to mineralize (completely degrade to carbon dioxide) added radiolabeled model hydrocarbons (hexadecane, phenanthrene, and benzo[a]pyrene). The number of microbes present in these samples capable of growing on Prudhoe Bay crude oil will also be assessed. In addition, benthic infauna retained on a 1.0 mm sieve will be enumerated to species to determine abundance, diversity, dominance, evenness, and species richness.

This study now includes some elements originally in A/W #4. The incredibly vague "microbial techniques" mentioned in the 1989 plan are now identified as enumeration of hydrocarbon oxidizing bacteria to assess the potential for in situ hydrocarbon degradation and use of the Microtox™ assay to assess toxicity of marine sediments. Although the description of samples to be taken, and the methodology to be employed are much more complete than that presented in the 1989 plan, the actual number of samples that will eventually be analyzed is not stated. Several other key points should be mentioned.

The Microtox™ assay, although very quick and relatively inexpensive to perform, is at best a very crude barometer of the relative toxicity of these sediments. Its use presupposes that changes in luminescence of a specific strain of bacteria is a good indicator of chronic toxicity of petroleum related contaminants to indigenous micro and macrofauna. The Microtox™ assay was developed as a tool to screen the toxicity of aqueous samples. In general toxicity as measured by this test correlates with acute toxicity measured with invertebrate and vertebrate test organisms. However comparisons between toxicity estimated with Microtox™ and more routine acute toxicity tests yield highly variable correlation coefficients depending on species compared (Liu and Dutka, 1984). Attempts to use the Microtox™ assay as a direct measure of sediment toxicity have indicated that toxicity results are highly dependant on the method used obtain an aqueous sample from the sediment under consideration and suggest that further method development is needed (Atkinson et al. 1985; Giesy et al. 1990). Even the study by Schiewe et al (1984) cited in the plan points out many of the limitations of this assay in addressing sediment toxicity. When compared experimentally, the Microtox™ assay was found to be less sensitive than either the Daphnia magma 48 hour lethality assay or the Hexagenia limbata 168 hour lethality assay in assessing the toxicity of a freshwater sediment contaminated with aromatic hydrocarbons and metals (Giesy et al. 1990). Bioaccumulation, toxicity and growth should be assessed in a number of representative benthic organisms, as is suggested in the proposed update of the Environmental Protection Agency ecological evaluation of dredged material (EPA, 1990).

The HPLC/fluorescence method chosen to estimate petroleum hydrocarbon concentrations

also has the advantage that large numbers of samples can be processed relatively quickly and inexpensively, but it is not very specific. Will it be used only as a screening tool to identify samples with elevated levels to be analyzed by more conventional methods with better accuracy? If not, erroneous conclusions on levels of hydrocarbon contamination could be made (Farrington et al. 1986).

Is there a reason why detailed sediment sampling is scheduled to take place three times while the biological samples will only be collected in June/July? Do the investigators really expect to see measurable differences in sediment concentrations over that short a time period that long after the spill? If so, the frequency of biological sampling should be increased as well.

Using a 1 mm sieve on the benthic infaunal sampling will miss many of the numerically dominant species, including most invertebrate larvae and some very important meiobenthic prey species for salmon fry such as harpacticoid copepods (Feller and Kaczynski, 1975). Many investigators of soft-bottom community structure require 0.5 mm mesh sizes or smaller. Since only 6 oiled and 6 non-oiled sites will be investigated for effects on the structure of subtidal benthic communities, it is extremely important that the control and oiled sites be well matched for sediment characteristics, depth, light and nutrient conditions if potential effects of the EVOS are to be adequately assessed. Potential effects on benthic community structure should be a key component of the NRDA.

A/W #3 Geographic and Temporal Distribution of Dissolved and Particulate Petroleum Hydrocarbons in the Water Column

This study will quantify petroleum hydrocarbons on particulate material settling out of the water column as collected by sediment traps and hydrocarbons accumulated in caged mussels suspended at different depths in the water column. In addition hydrocarbon content of caged and indigenous mussels will be measured.

Sediment traps will be deployed at only a very limited number of locations and can only assess the concentrations of petroleum hydrocarbons on particulate material settling out of the water column. The study will primarily rely on extensive sampling of hydrocarbons accumulated into caged mussels to serve as a biologically integrated measure of the available fraction of oil components in the water column. Although use a caged mussels is a well accepted approach, particularly in areas with more heavily oiled sediments, some analysis of the concentration and patterns of petroleum hydrocarbons in the dissolved and or whole fraction of the water column would seem to be warranted. Measurements of this type will be particular important to calculation of the flux of hydrocarbon material out of sediment reservoirs.

Several other points should be mentioned. The depth(s) of deployment of the sediments traps is(are) not given. Justification for why three sampling periods were chosen instead of one deployment possibly for a longer period should be given. For some compounds four weeks is too short a time period (Robinson and Ryan, 1988). Because body burdens of hydrocarbons in mussel tissue can change fairly rapidly (Farrington 1989), level in caged mussels will only be indicative of ambient water column concentrations if the concentration of these components in the water column is somewhat constant during the exposure period.

A/W #6 Fate and Toxicity of Spilled Oil from the EVOS

As presented, this study is the first to attempt to adequately describe a real experimental/sampling plan aimed at answering some important questions. It is a welcome addition to the first year's plan. There are four main objectives to this study: 1) to estimate the toxicity of contaminated sediments to selected biota; 2) to quantify the occurrence of oxidized products of the spilled oil; 3) to determine if these products are toxic; and 4)

construct a mass balance of the fate of all oil spilled. These are all important questions, and the project description clearly lays out the approach that will be used.

Despite the improved presentation many questions still remain unanswered. Twenty "heavily oiled" sites were chosen for this study. No other information is given. Are these sites representative? If so, of which of the oiled habitats? What range of grain size or organic carbon content was chosen?

The introduction to the study states that effects of petroleum hydrocarbons themselves are well enough documented in previous work to allow accurate predictions in the case of EVOS without additional study. Is this really the case? Although a substantial body of work does exist on the WSF and OWD of different petroleum products in laboratory conditions, do these studies adequately assess the long-term, sublethal effects of petroleum hydrocarbons on all key components of the ecosystem? Despite these questions, the authors, in my opinion, accurately identify that significant gaps exist in our knowledge of the toxicity of the oxidation products of these hydrocarbons, and have developed studies to develop a preliminary assessment of their effect.

Toxicity will be assessed in two species of common benthic organisms, larvae of the mussel Mytilus edulis, and a local species of ampeliscid amphipod. Toxicity of the elutriate from test sediments will be assayed on Mytilus larvae. Toxicity of whole sediments will be assessed with Ampelisca a genus known to inhabit the surface of fine grained sediments. Why is this study using Mytilus edulis instead of Mytilus trossulus, the species used in the bioaccumulation studies, and I presume indigenous to the area? Although the authors state that well-establish protocols exist for this assay, it is unclear from the references listed, what they are basing this information on. Varying results are obtained in sediment toxicity bioassays depending on whether whole sediment, diluted sediment, pore waters or elutriate are used (see Giesy et al. 1990). If toxicity of the sediment is really the primary issue here, why not use a test with benthic larvae which would be most likely exposed to these sediments. The Ampelisca sediment toxicity study is well documented. It is clearly a good choice, but toxicity to additional species should also be assessed.

As in the study discussed above, use of the Microtox™ test to assess sediment toxicity is of value only as a screening tool. Its use is even more of concern in this study where it will be used to assess whether or not the polar fraction is more or less toxic than the complete sediment. One primary aspect of the toxicity of hydrocarbon metabolites concerns their susceptibility to be metabolized to electrophillic epoxides, a reaction prokaryotic microorganisms such as those used in the Microtox™ assay cannot perform. Consequently the appropriateness of using the Microtox™ assay to assess the toxicity of metabolites is questionable. Furthermore, will methylene chloride extract sufficient quantities of polar metabolites to adequately address their contribution and toxicity in these sediments?

Finally, the mass balance approach is an excellent one. However, no details on how it will be attempted are given. The plan states that recognized experts will be consulted in its execution, but states that progress will be heavily influenced by timely reporting of data from other groups, and the suitability of these data for constructing the mass balance. The timely reporting of data from different members of the damage assessment team, and the compatibility of the different data sets were one of the major concerns with the original 1989 damage assessment plan.

Fish/Shellfish Injury Assessment

The introduction to this section lists which studies were not continued, those which were continued with modifications following review and three new studies. Studies planned for 1989 which were not actually initiated were not continued. Other than this, absolutely no information is provided describing the reasons the other studies were discontinued. Without

access to the data generated during 1989, it is impossible to determine whether or not these decisions were justified.

The level of detail and justification provided in the F/S studies is extremely variable. Frequently great detail is given on the methods employed without any discussion as to the significance of the measurements to be made. Seemingly a large number of salmon spawning areas have been retained for additional study, yet evaluation of the level of hydrocarbon contamination is limited to the visual presence of oil and the hydrocarbon content of bivalves at the mouth of these streams and rivers.

Methodology used in the various studies seems highly variable. For example, as stated in some parts of the NRDA, analysis of parent hydrocarbons in tissues of organisms capable of rapid hydrocarbon metabolism is of limited value. Most fish and many crustacean species at developmental stages from larvae through adults fall into this group. Several methods are available to assess metabolite body burdens and effects. In some studies these are mentioned, in others they are not. Is this just an oversight, or is the sample analysis truly inconsistent? It also appears that different methods are being used to assess a biochemical measure of hydrocarbon exposure (induction of cytochrome P450la1). In some cases analyses will be done on formalin fixed samples, in other on subcellular fractions of fresh tissue. Was this intentional? Will these methods give comparable results? No information is given.

Other than analysis of gut contents, almost none of these studies (the rockfish studies being a notable exception) address key predator/prey interactions, and many do not even access reproductive status of the adults.

Many of the studies have inappropriate reference lists. Some studies list almost no references, some have reasonable lists and some list large numbers of reports, many only tangentially related to the particular study. This seems an inappropriate response to comments made on the 1989 plan.

F/S # 24 is one of the better described and more inclusive studies. Fish from 14 locations in and outside of PWS will be analyzed for a whole suite of measures of hydrocarbon contamination and effects. However, the locations of these sites are not designated, nor are the numbers of different organisms or species to be sampled indicated. This study is internally well organized, but appears to duplicate work which should be included in other F/S studies.

F/S #28 is a modeling study aimed at predicting success of salmon runs using data collected in many F/S studies. Why is there no comparable modeling effort to access damage to other components of the system?

F/S #30 concerns salmon data base management. Their approach will be focused around local area networks (LANs) at 4 locations within Alaska. It will be user friendly and incorporate all data, both historical and that collected as part of the NRDA, and provide ready access through indexing. This is a good approach, but no timetable for accomplishing this task is given, so it is completely unclear when any part of it will be available. Why is an additional study needed for salmon data base management when TS #3 is supposed to be handling this task?

Technical Services

The technical services section appears to be little modified from the 1989 plan. However, it is very limited in scope, providing descriptions of the chemical and histopathological analysis of samples only. Similar sections are needed for the other measurements being made, as well as some mechanisms to insure coordination between methods and sampling

between different parts of the plan.

TS #3 concerns implementation and management of a geographic information system (GIS) to record and process NRDA data. Although the necessity and goals of this activity are clearly laid out, no information is given and how this is to be accomplished or what specific products will be available. Considering that in the Coastal Habitat study much of the 1990 activities will involve completion of processing of samples taken in 1989, data completion and management is clearly a problem.

Remaining Concerns Indicated by the Responses to Comments on the 1989 NRDA Presented in Volume II:

In response to criticisms that the lack of adequate detail in the 1989 plan made critical evaluation impossible, the Trustees stated the plan was only intended to provide "summary information" to show the scope of study and the interrelationships between studies". In my opinion the 1989 failed to meet even these limited objectives. In the 1990 plan, the added information does indeed provide a better description of most studies, but the interrelationships between studies is still not adequately addressed. Many specific comments on alternative methods of analysis to be included were met with blanket comments such as "this was not feasible" or "this is now included in the study," yet the basis for these decisions is never stated.

A comment on page 7 indicated that an extremely small number of samples (10 samples per study) were allowed to be submitted for the preliminary evaluation of the first years work in preparation of the 1990 work plan. The response corroborates this claim, but indicates that many hundreds of additional samples were submitted later. Did these additional submissions bear on the 1990 work plan? Considering the funds expended in the first year of the NRDA, it is shocking to think that so little of the data were available at the at the initiation of planning for the second year of study. This exchange highlights the need for better project coordination and timely data analysis and report generation and distribution.

Repeated comments citing the need for an on-going independent review process were met with blanket statements indicating review was being done. However, this process was never adequately described. If the Trustees had the plan adequately reviewed by outside experts, these experts should be named, and all their comments made public. There is no guarantee that these comments were adequately addressed in the new plan unless full disclosure is made.

Several comments indicated that naming the investigators involved in the damage assessment would aid in determining the adequacy of the plan. Responses indicate that names are not necessary for evaluation of the study. In most grant and contract evaluation processes the "track record" of the investigator is taken into account. Particularly here, where few details of the actual investigations are given, naming the scientists involved would provide information valuable to assessment of the adequacy of the study.

In conclusion, I strongly feel that in issuing these plans (1989 and 1990) in most cases after much of the work described had been completed, the Trustees have drastically reduced the opportunity for constructive review by any outside parties. If this continues there will be no possibility for meaningful outside review of the NRDA.

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G. William Frick
Vice President and
General Counsel

November 20, 1990

Trustee Council
P.O. Box 20792
Juneau, Alaska 99802

Re: 1990 State/Federal Natural Resource Damage Assessment and Restoration Plan for the Exxon Valdez Oil Spill, 55 Fed. Reg. 38408 (September 18, 1990).

Dear Council Members:

The American Petroleum Institute (API) welcomes the opportunity to comment on the 1990 NRDA Plan for the Exxon Valdez oil spill. In addition, API appreciates the extension of the comment period granted by the Department of the Interior on October 31, 1990, 55 Fed. Reg. 46732 (November 6, 1990). API is a national trade association whose corporate and individual members are engaged in all facets of the petroleum industry. Many API members conduct operations which might expose them to potential liability for damages under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Federal Water Pollution Control Act (FWPCA). As such, API's members have a direct interest in the propriety of studies undertaken by the trustees in this assessment.

The attached, specific comments reveal API's continuing concerns regarding many of the studies. Prominent among these concerns is often a lacking correlation between the studies as described and the determination of compensable natural resource damages. API recognizes that the task of the Trustees is formidable and shares in their ultimate goal of assuring the restoration of Prince William Sound.

Sincerely,

G. William Frick

COMMENTS OF THE AMERICAN PETROLEUM INSTITUTE

ON THE 1990 STATE/FEDERAL NATURAL RESOURCE DAMAGE ASSESSMENT AND RESTORATION PLAN FOR THE EXXON VALDEZ OIL SPILL

Trustee Council; August 1990
55 Fed. Reg. 38408 (September 18, 1990)

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COMMENTS OF THE AMERICAN PETROLEUM INSTITUTE ON THE 1990 STATE/FEDERAL NATURAL RESOURCE DAMAGE ASSESSMENT AND RESTORATION PLAN FOR THE EXXON VALDEZ OIL SPILL

Trustee Council; August 1990
55 Fed. Reg. 38408 (September 18, 1990)

The American Petroleum Institute (API) submits the following comments on the "1990 State/Federal Natural Resource Damage Assessment and Restoration Plan for the Exxon Valdez Oil Spill," prepared by the Trustee Council and dated August 1990. [1/] API in its comments filed on the 1989 assessment plan, pointed out that the plan failed to: (1) address in any detail the methods for the restoration of natural resources; (2) study the natural recovery of exposed resources; or (3) focus the studies on the resources affected by the spill and injuries resulting from the exposure to oil. In addition, API questioned the nature of the studies planned as concentrating on "basic" or general research on the ecosystem of Prince William Sound (PWS). To a large extent, these same criticisms apply to the 1990 assessment plan as well.

In the comments which follow, API reviews and comments upon the 1990 studies for evaluating potential injuries to natural resources and methods for quantifying any damage to the resources. In particular, API notes:

- The Trustees continue to follow a pattern of allowing public comment only after the performance of research studies and without the results of previous studies;

- The plan attempts to identify differences between oiled and non-oiled areas without proper consideration of whether any such differences result from an "injury" to natural resources attributable to oil exposure and whether restoration, other than natural recovery, is necessary or desirable;

- Many of the studies use extremely invasive techniques to study biological resources, including the killing of healthy animals from PWS, even though the information that will be obtained is of marginal utility in developing an adequate measure of injury to the natural resources;

[1/] Although dated August, 1990 and announced as available in the September 18, 1990 issue of the Federal Register, as a practical matter, the Plan was not available until September 26, 1990. API, therefore, supports the decision of the Trustees to extend the comment period on the plan from November 1 to November 30, 1990.

- The plan improperly includes studies of some resources that (1) are not "natural resources" as the term is defined in the relevant statutes or (2) are natural resources that were subject to private rather than compensable, public uses; and,

- Restoration research studies ignore the extent to which natural recovery has or will occur in the future.

The expenditures associated with the assessment of injury and the quantification of damage to the resources of Prince William Sound (PWS) are unprecedented. API maintains that any additional studies must be centered around the goals of identifying useful methods of restoration and their implementation. Many of the research studies discussed in the 1990 plan do not appear to be necessary and will not provide information useful for restoration of the resources under review. API urges the Trustees to adopt a more focused perspective regarding the study of these resources and forego investigations that specifically do not address resource damage resulting from the spill.

GENERAL COMMENTS

o The Trustees Must Allow Public Comment Before Studies Are Undertaken

First, API objects to the fact that its comments are directed toward studies which largely have already been performed. As it was with the 1989 assessment, the Trustee Council has not issued the study plans in a timely fashion. This must not occur with regard to the 1991 assessment plan, should one be needed. At a minimum, reasonably descriptive document(s) should be issued for public review and comment prior to the initiation of any additional work in the Spring of 1991. [2/]

Second, the Trustees must release the results of the 1989 studies to allow commenters access to the same materials that were used to develop the assessment plan for the next year. Although API offers many useful observations regarding the 1990 assessment plan, the analysis would be substantially enhanced if it were based upon the data and analyses already obtained. This is particularly significant for

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[2/] The Trustees must have an idea even now of what will be addressed in any 1991 studies and no doubt are discussing with contractors the scope of work and study designs. The study plans could be released to the public before assignments are begun in Spring 1991.

purposes of discussing whether individual studies should be continued, modified, or discontinued.

This is not to say that no progress has been made in the assessment plan. API notes that the original plan called for 63 studies and that the 1990 assessment anticipates continuing 47 studies and conducting 4 new studies. However, like the 1989 assessment plan, the principal question is whether these 51 studies have the appropriate focus. As the following comments discuss, many of these studies should not be pursued.

- **Trustees Are Not Following the Department of the Interior's Natural Resource Damage Assessment Regulations**

In the 1989 assessment plan, the Trustees indicated that they were undecided as to whether to follow the natural resource damage assessment regulations issued by the Department of the Interior. API, like many other commenters, urged the Trustees to employ these procedures and identified the areas in which departures had occurred and perhaps, could be rectified. Unfortunately, there is no evidence that such steps were undertaken, and, from the 1990 assessment plan, it is evident that the DOI procedures have largely been disregarded.

In enacting federal authority to assess, quantify, and obtain damages for injuries to natural resources the clear goal was to restore the ecosystem. This was made clear in U.S. Court of Appeals for the District of Columbia Circuit's decision in Ohio v. DOI, 880 F.2d 432 (D.C. Cir. 1989). Even damages that may be recovered for lost use of a resource are to be devoted to the restoration and replacement of injured natural resources.

In reviewing the numerous studies in the 1990 assessment plan, it is evident that many studies, particularly the biological studies, are designed to evaluate minute changes that could be attributed to a variety of causes unrelated to the spill. One possible reason for this level of detail could be the fact that, by almost all accounts, the resources in Prince William Sound appear to have either recovered or are well along in the recovery process. Unless the studies were geared to such minutiae, very few would find any evidence of impact or change.

Furthermore, the studies in the plan do not employ procedures, analyses, or data collection methods, which will determine whether these "changes" were attributable to an exposure to oil or were the result of natural forces or the stress of

human intervention. [3]/ Without this information, the studies tell the Trustees little about whether the resource was even "injured."

Many of the biological studies appear to have been selected and designed without regard to the principal purposes of the program, i.e., the determination of injury and restoration and rehabilitation of injured natural resources. For example, studies will be conducted to determine whether organisms that have undergone DNA or enzymatic changes. The need to conduct such expensive and invasive studies is not apparent. Moreover, the potentially most effective "restoration" method, natural recovery, is hardly addressed, i.e., to determine if recovery has occurred or is capable of occurring. The millions of dollars in research proposed, and now conducted, in the 1990 assessment plan may expand the body of general scientific literature, but it will tell the Trustees little about resources for which restoration or replacement may be feasible. Thus, it represents an excessive and unsound use of funds.

- **Several Studies Are Beyond the Statutory Authority of the Trustees**

API believes that the Trustees have erroneously undertaken studies of several "resources" that are beyond the scope of their authority. For example, one study calls for the evaluation of injury to archeological resources and another study would quantify damages for such injuries. However, archeological resources are man-made rather than "natural resources," as this term is defined under either CERCLA or the Clean Water Act. Therefore, there is no legally cognizable "injury" to these interests, nor can any costs be recovered for restoration, replacement, or lost use under these federal authorities.

Similarly, the assessment plan calls for studies to evaluate the damage to on-going scientific research studies. Any loss of "information" associated with scientific studies, even if the studies concerned "natural resources," does not represent an injury to natural resources that is compensable under either the relevant statutes or the DOI regulations.

Finally, certain economic studies indicate that they will evaluate commercial fishing and tour ships' losses. API is skeptical as to the degree to which these studies are needed to determine public rather than private use values. To the extent that these studies deal with potential damages to private businesses or individuals, they

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[3]/ There is often vagueness between the determination of "oiled" and "non-oiled" areas, baseline data is too often missing or poorly employed, and control studies are often insufficiently described to allow an effective evaluation.

are beyond the authority of the Trustees and any damages can only be recovered pursuant to other legal authorities available to private claimants.

- **Implementation of the Plan Could Result in the Double Recovery of Costs**

API is also very concerned that a lack of coordination among the federal Trustees and the State of Alaska will result in a double counting of assessment costs and resource damages. The prohibition against the "double recovery" of these costs is specifically addressed by statute, regulation, and has been recognized by the judiciary in the Ohio decision.

Although the State of Alaska may have authority under state laws and regulations to obtain particular types of damages, API believes that the costs of duplicative or parallel studies of identical natural resources cannot be obtained by both the federal and state Trustees. Nor can duplicative damages to the resources be recovered. Differences of opinion among the Trustees should be resolved prior to the initiation of unnecessary studies.

- **Economic studies should be revised**

In addition to the "public" versus "private" use issue, the plan to use contingent valuation techniques to measure non-use values is also problematic. The literature on contingent valuation shows that it may produce reasonable estimates for lost use values, but its extension to non-use values does not have sufficient support in the literature. In that application, many problems have been identified. It is not clear that all of these problem areas are amenable to resolution. Consequently, the results of these studies may not be reasonable, unless the Trustees exercise care in their design and implementation.

API is also concerned that the general populace is very poorly informed about actual conditions in PWS. It would be inappropriate to generate damage measures based on erroneous beliefs. It is important to assure that accurate information on conditions in PWS be conveyed to respondents before contingent valuation questions are asked.

- **Other Studies Should Be Reevaluated**

Although some studies were discontinued, the 1990 assessment plan studies would investigate 40 additional sites in Alaska, many of which were not even affected

by the spill. API does not believe that the assessment plan adequately explains the reasons for the expansion of the studies to include so many more sites.

In addition, there does not appear to be any real coordination among the numerous studies, especially those addressing biological impacts. For example, several studies call for taking sediment samples from what appears to be the same areas. It would seem that one series of sediment samples would suffice for all of the projects. Indeed, API is concerned that the uncoordinated collection of a multiplicity of sample types only increases the likelihood that there will be conflicting data generated and could require more sampling. Part of the Trustees' duties should be the coordination of all studies to avoid unnecessary and repetitive research.

Finally, as discussed above, API is concerned about the impacts on the resources of PWS that will result from the invasive methods used to study many of the organisms. The designed killing of over half of the number of birds that were saved in the rehabilitation efforts is of great concern, as are the killing of other species, the tagging of great numbers of fish as well as other species, the use of surgical procedures in the studies, the removal of feathers and eggs from birds and their nests, the close observation of sensitive bird species and the large number of biological samples to be taken. A review of the impact of such studies on individual species and their habitats and the necessity for such destructive techniques should be reviewed in a public forum prior to implementing such studies. The assessment plan ignores these issues and never confronts the question of whether a study could cause more harm than its expected benefit. Such questions must and should be asked before additional research is conducted on these organisms.

- **Restoration Costs Must Meet the Test of Reasonableness**

Although the Court in the Ohio case indicated that restoration or replacement of resources should be the ultimate goal of the damage assessment program, the panel also recognized that where the costs of restoration were unreasonable, i.e. "grossly disproportionate," to costs associated with the lost use of the resources, that such restoration should not be undertaken. API maintains that the Trustees should remain mindful of this guideline.

Thus far, though, the Trustees appear to have attempted to first identify restoration approaches that have been used at other sites and then pursue feasibility studies for other types of restoration methods that may be very costly or less proven. Although API has some technical concerns that the efforts to reestablish Fucus will not be feasible and the seeding of grasses will also prove problematic, once there is a demonstrated need for restoration, API would support the continued use of feasibility studies, on the condition that they are realistically selected from technologies or approaches that have been successfully used in the past.

Most of the restoration research, though, remains piecemeal and ignores the most significant force in achieving restoration of the resources: natural recovery. At least one study should be focused on the extent of natural recovery of significant resources. Once the pace of natural recovery can be determined, it can serve as a reference for evaluating all other possible methods of accelerating the recovery or replacement of resources.

SPECIFIC COMMENTS ON THE VARIOUS STUDY GROUPS

Coastal Habitat Study

This single study has two phases and the second phase of the study has two parts (A&B). The Phase I site selection process does not adequately explain the methods for identifying additional sites. It is not even clear how many of the sites sampled in 1989 are planned for study in 1990. The sites are also not adequately described.

These flaws and the inadequate description of the chemical and biological tests to be used for study, as a practical matter, make it impossible to ascertain whether the results of the study will be useful in extrapolating to possible impacts at other sites in Alaska that may have been exposed to oil. In essence, there is no way to determine whether the study objectives can be met.

Air/Water Resources Injury Studies

These studies, like so many others, are really "basic" scientific research rather than targeted studies to identify very specific injuries to the water resources. This is not consistent with the DOI damage assessment regulations and the studies are not cost-effective.

From a technical perspective, these studies attempt to tackle issues for which there are still no acceptable techniques to reliably determine the effects. For example, sediment toxicity assays and their application are just beginning to be developed by the scientific community. One of the studies indicates that the Microtox toxicity test will be used. This method, which employs bioluminescent bacteria, is not ordinarily accepted today as a sole indicator of toxicity and should only be used with other toxicity tests to accurately assess the toxicity of sediments and the anticipated environmental effects of oil exposures. Indeed, the relationship of the test to the environment under consideration is not clear, since the Microtox bacteria would not normally be expected to be part of the sediment infauna.

The Trustees also appear to assume that toxicity sources can be accurately determined. Toxicity source identification methods for sediments, however, are

currently unavailable, although API understands that EPA plans to try to develop guidelines in the future. Regardless of the methodological limitations, the study plans are flawed because they proceed from an assumption that the chemical analyses obtained from the sediment samples are related to a single event, i.e., the spill. By failing to consider and integrate effects that could have occurred over time from other distant sources, the results of the studies will be inconclusive and of little utility.

Other flaws in the studies include the nonrandomness of the site selection, potential methodological problems with chemical analyses of sediments, and, in the case of Study No. 6, the lack of control (baseline) measurements. These, as well as the problems discussed above, should be addressed before undertaking the air/water resources studies.

Fish/Shellfish Injury Studies

The study plan calls for 17 studies to be conducted at a total cost of $6.7 million. Although the 1990 studies contain more complete descriptions than the studies described in the 1989 plan, there are still some significant problems with the types of changes in the resources sought to be measured. The need for such an intensive study of fish and shellfish is not obvious. By all accounts, the 1990 commercial fishing catch for certain species, such as Pacific herring, were all-time records.

Like the other studies, many fish and shellfish studies are too general to be appropriate for a damage assessment. Moreover, the study designs do not often adequately differentiate between oil and non-oiled areas, thereby making it unclear whether the results can be directly linked to effects associated with the oil spill.

Several studies do not adequately deal with the annual variability that is observed when examining historical baseline data available regarding the fish populations. The proposed field sampling also does not consider the high degree of variability in oil distribution throughout the impacted areas.

However, it is the focus on sublethal and chronic effects that raises special concern. These studies, which are often very expensive, purport to identify subtle changes in species that may not even be attributed to the presence of oil. They are often the result of natural causes and could be induced or affected by the capture and handling of the fish. Indeed, the tremendous number of juvenile fish that will be tagged, over 1 million, in a variety of uncoordinated and perhaps repetitive studies, are bound to show the effects of this stress by physiological changes and increased mortality. As API discusses in subsequent sections of these comments, the invasive techniques used to study many of the PWS resources will create additional injury to the resources.

Studies Nos. 1-4 generally test for differences in effects between oiled and non-oiled habitats on fish survival, reproduction, migration, etc. One question raised by the studies is whether there is a presumption that the organisms were exposed to oil in areas where oil was merely visible on the surface of the water. The DOI regulations require the confirmation of exposure and it is not clear how the exposure pathways of the organisms to the oil will be verified. The definition of certain technical terms is often inadequate and issues such as the level of error anticipated in egg counts and the impact of sampling frequency on fish migration analysis are not addressed.

Studies 7b, 8b and 27 would appear designed to "penalize" potentially responsible parties for the increase in the pink salmon population to the levels that would normally exist were there no commercial fishing. The presumption embodied in these studies -- that the presence of more rather than less fish is "injury" -- appears to strain common-sense and take the assessment procedure beyond the scope of the intent of Congress. The studies cite no tangible evidence to believe that the presence of additional fish caused any injury to spawning habitats or resulted in other problems.

These studies also fail to address the fact that these ecosystems have historically been heavily managed by the State. If injuries were expected to occur due to the closure of commercial fishing, then there were measures, such as the use of weirs, that could have been instituted to minimize any ecological disruptions. Certainly, such measures would have been less invasive than many of the tests, tagging, and handling that will be undertaken in other fish studies planned by the Trustees.

API also believes there may be evidence that salmon population levels in recent years have been depressed and kept artificially low by intensive commercial fishing. The increase in the salmon population should not be assumed to constitute natural resource "injury;" positive effects are seldom "injury." In addition, any study should evaluate whether historic management practices were utilized and their impact on the resource.

The use of the Auke Bay laboratories in Study 8a should lead to better quality assurance. However, it is not clear how increased mortality, if demonstrated in the study, can be linked to oil exposure. Laboratory studies are not necessarily good indicators of field effects, since natural factors that would normally occur are often eliminated. If lost fry production is found and attributed to oiling, then some analysis of the potential impact that other natural variables, which were eliminated from the study, is needed to obtain an accurate injury determination. Indeed, it is not at all clear how fry exposure to oil will be determined and how a "cause-and-effect" relationship will be established.

Studies Nos. 11-15 are intended to provide information on herring spawning areas in PWS, effects on bivalves, and effects on shrimp. In estimating the proportions of dead herring eggs from oiled areas, it will be necessary to eliminate other natural variables that would give the same results. The estimates of biomass are often subject to sampling errors. The shrimp study is problematic insofar as it would appear to focus on changes in individual organisms rather than determining the effects on the population as a whole. For these types of organisms, unless there is a demonstrated effect on the population, no injury should have occurred.

Studies Nos. 17, 18 and 30 do not appear to be consistent with the exposure requirements needed to conduct natural resource studies. Ocean floor studies should only be initiated if there is data showing high concentrations of oil and an extended residence time. No such data is referenced, although the Trustees have not made the 1989 data available. API maintains that the mere presence of hydrocarbons does not presumptively indicate injury to growth, reproduction, etc. [4/] Evidence of a "cause-and-effect" relationship between the oil and observed injury must be demonstrated.

Marine Mammal Studies

API has several significant concerns regarding the studies of marine mammals. First, the studies of whales, seals, and sea lions are not based upon sufficient evidence of the presence of injury. Potential exposure to spilled oil is not justification, in itself, for a costly study. In addition, much of the data being collected is outside the impact area.

Second, the studies do not adequately address the impact of natural variability in these populations or the lack of adequate pre-spill baseline population data. Third, several of these studies, particularly those on otters and seals, employ new, unproven methods of detecting injury for these species. Specifically, studies call for the capture of individual animals, surgical procedures, and implantation of radio devices. These intrusive methods can cause substantial stress to the animals, as well as increase the likelihood of individual mortality. The justification for the use of radical procedures that could endanger animals is simply lacking. Again, the Trustees have decided to conduct "basic" research, rather than assessing actual injury related to the spill.

Terrestrial Mammal Studies

The studies of terrestrial mammals concentrate too much on basic scientific research rather than focusing on identifying any impacts on these animals due to an exposure to the oil spilled by the Exxon Valdez. Natural variability is not adequately addressed and exposure to oil by these species is not well-documented.

[4/] See 43 C.F.R. Section 11.34(a)(1).

For example, Study No. 1 appears to draw a conclusion in advance that the presence of rumen in the lungs of dead deer would demonstrate that the deer died of hydrocarbon exposure. Additional scientific support for this approach has to be advanced or the study should be revised. In addition, measurements of the number of dead deer in oiled versus non-oiled areas may be so small, especially when compared to total population, as to not make a statistical difference. Finally, API questions the accuracy of the assumption that increased human activity on the beach caused accelerated mortality, because the deer were prematurely pushed from their wintering habitat. This study never focuses on whether the spilled oil impacted the total population of the deer in affected areas -- taste tests and other histopathological studies are not needed to answer this question.

The second study is a literature study and should have already been done as a part of the general study of species in the area. The likelihood of exposure of these bears to oil is low and therefore, unless there is better evidence of exposure, this study appears unlikely to provide useful information.

The third study also does not proceed from sufficient evidence that there may have been exposure of river otters to spilled oil. In addition, the parameters of the study identified as "direct effects" and "population change" can only show biological impacts that cannot be quantified. Finally, the "food habits" and "habitat use" sections will not show anything related to negative impacts on the otter population. At best, they may show that the otters are adjusting to new habitats.

Study 4 of bears involves capturing live bears, implanting radio transmitters, and drawing blood from the bears. Although less invasive than the marine mammal studies, the stress caused to the bears does not appear have been adequately considered.

The last study is a laboratory test of mink, which is supposed to serve as a surrogate for the river otter. Although laboratory studies may have some utility for certain resources, API believes that they should not be undertaken unless there is adequate evidence of exposure to oil. Such information is lacking with regard to river otters.

Bird Injury Studies

The study plan addresses numerous studies on birds in Alaska, but appears to ignore a large body of valid and current scientific literature on the effect of oil on birds. This literature includes studies of acute and chronic effects on a variety of species including scavengers and colonial nesters. These studies have addressed exposures of many species to different types of oil.

The significant volume of the available literature on this subject should have allowed any field studies of birds to be very narrowly targeted. Instead, the Trustees appear to believe that new studies, of a "basic" research nature, are needed. API does not believe that the Trustees have met the letter and intent of the DOI damage assessment regulations by disregarding useful information from the literature.

As with other studies, API is concerned with the invasive nature of many of the procedures -- not the least of which is the killing of healthy birds to determine the potential destination of the birds that failed to wash-up on the PWS shoreline. Although the spill killed a number of birds, API does not believe that the Trustees should undertake studies that constitute invasive disruptions of the birds natural breeding grounds during the nesting season or require the handling of birds, to take blood samples, unless the studies are clearly necessary to the assessment of injury.

Study No. 1, the tracking of the birds killed by the researchers, is hardly a study that was necessary or even appropriate given the potential injury to the test birds and the expected economic damages to be recovered. There are other credible alternative methods of determining whether the number of dead birds actually counted at the time of the spill was accurate. It is also interesting that the study does not clearly state that live birds would be sacrificed as a part of the experiment. Had this proposed study undergone public comment, it is unlikely that it ever would have been undertaken.

Study No. 2 is an improvement over the prior study, although the comparison of the 1990 and 1971 aerial data may not, in itself, be an indication of injury. It is not clear from the study how the effects of the oil spill will be determined.

Study No. 3 appears to be very similar to Study No. 2 and it is not clear why the two were not combined. The prior comments on Study No. 2 are also applicable to Study No. 3.

Study No. 4 addresses bald eagles and involves the radio tagging and the taking of blood from 30 eagles. It is not apparent that the study has taken into account the potential impact of this invasive treatment of the eagles.

Study No. 5 tests a hypothesis that nest site occupancy and productivity are lower in the project area as a result of the spill than non-affected areas. It is not clear that the blood sampling from only 20 very young birds is an appropriate or useful effort. Moreover, the disturbance of the nesting areas that contain eggs and young falcons may result in more harm than useful information.

Study No. 11, the study of sea ducks, requires a better explanation of the correlation between the hydrocarbon intake and any increased mortality or incidence

of reproductive failure. Otherwise, there is no real measurable data on the impacts of the oil spill.

Finally, Study No. 13, although costing only $10,000, is not supported from a cost-effectiveness perspective since very few passerine birds were recovered at the spill site. It is also not clear how a determination of injury, specific to an oil exposure from the spill, will be made.

Assessment of Damage to Historic Properties and Archeological Resources

The Trustees propose to spend over $1 million to study archeological resources that may have been injured due to the oil spill. The major problems identified include interference with carbon dating of artifacts due to exposure to oil, access limitations, and vandalism, theft, etc. which allegedly increased due to the spill.

API maintains that archeological resources are not "natural resources" as that term is defined in the DOI regulations, CWA or CERCLA. Instead, such resources are addressed in other federal statutes such as the Archeological Resources Protection Act.

The studies to be conducted are poorly discussed and supported. Moreover, the studies apparently do not take into consideration the extensive data gathered during the beach cleanup. These studies should be reconsidered.

Technical Services Studies

The technical services studies appear to be a grab bag of studies including an analytical support service study, tissue abnormality study, and data base investigation. Most of these studies lack sufficient detail to be adequately evaluated. However, in light of API's concern over invasive tests conducted on many species, the utility of the histopathology study is questionable.

Economics Studies

As with the archeological resource study, several of the economic studies (including the economic study of archeological damage) address potential economic damages that are not recoverable under the DOI regulations, CWA or CERCLA. For example, the studies that would assess the impact of the spill on research studies underway in PWS do not deal with a "natural resource" as the term is defined in the relevant statutes. A research study is not a natural resource, even if it is a study of a natural resource.

In addition, other studies appear to focus on private rather than public uses of natural resources. For example, commercial fishing will be studied and

recreational uses, such as charter boats and tourism losses, will also be addressed even though these appear to be private, commercial interests.

API maintains that under the relevant federal statutes, damages may be recovered only for the restoration or replacement of natural resources, including appropriate lost public use values. While the determination of these damages may require some evaluation of, e.g., a commercial market, for purposes of reference, the NRDA process is not intended to allow the recovery of damages for such private uses or to serve as an investigatory tool for private interests.

Accordingly, API maintains it is incumbent upon the Trustees to review the various economic studies and ensure that their design and implementation falls within the statutory authority. Specifically, the studies need to explain why "private" or "commercial" interests are being evaluated and how their study will relate directly to making a determination of legally recoverable damages. All of the study descriptions are vague and would benefit from such a review and explanation. At a minimum, the Trustees should be able to explain clearly how the studies will differentiate between public and private uses.

Concurrent with this review, the Trustees should also address the problems resulting from the apparent lack of coordination of among the federal economic and biological studies and the studies being undertaken by the State of Alaska. Many of the studies being implemented by the federal Trustees are similar, if not the same, as studies being conducted by the State. This is neither a sound expenditure of time nor money, and API believes it is unfair to expect responsible parties to pay twice for the same types of studies. [5]/ Indeed, this type of "double recovery" would appear to contravene the intent of Congress.

API is also concerned by the decision of the Trustees to use contingent valuation techniques to determine the value of certain resource uses, including some which appear to be non-public uses. Contingent valuation may have application to estimate lost use values, but its reliability for non-use values, such as intrinsic values, is still very controversial. An appreciation of these problems is not evident in the study description. Nor is there adequate explanation of key issues such as the nature of the survey instrument, the program for testing its accuracy, the information that will be provided potential respondents or even the extrapolation from the results of the survey to a determination of damage.

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[5]/ Since the trustees have not allowed interested parties to comment on these studies prior to their initiation, it has been difficult for responsible parties to call duplicative studies to the attention of either the trustees or the State.

Restoration Studies

Although the determination of the need for restoration is dependent upon the determination of the extent of natural resource injury, API notes that very few restoration projects are scheduled for action. Instead, the principal reliance is upon workshops on restoration topics, public meetings and comment, and additional studies as to the feasibility of restoration. API maintains that the Trustees must keep in mind that actual restoration is the focus of the damage assessment process.

One method of restoration that is largely overlooked is the natural recovery of resources. Only one of the projects even mentions natural recovery. This is troubling in light of the fact that reports regarding PWS suggest that the resources are steadily recovering. Accordingly, API believes that the objective of natural recovery should be listed as one of the objectives of Project No. 2.

API generally supports the use of feasibility studies in advance of more expensive restoration action, once a need for restoration is determined and the subject of the study is a realistic technology or restoration method. For example, the potential success of transplanting Fucus (Feasibility Study No. 1) is questionable and the advantages of such direct intervention are not well discussed given the alternative of natural recovery. In addition, API believes that the high energy environment of PWS will result in a dispersal of the spores being planted at distances greater than the 1 meter cited. Also the dispersal tests in oiled areas that were treated with different cleanup methods appears to be very basic and general research that is not needed.

The reestablishment of bay grazers and predators, discussed in Feasibility Study No. 2, will not restore the ecosystem if primary producers on which the grazers feed are not present. In addition, the larvae of many rocky intertidal species are pelagic. It is therefore likely that within a very few years the community will recover naturally, without "planting" key species. API is not sure what is meant by the term "enhancement plots" that are mentioned in the study description. This should be clarified. Moreover, API questions whether predator exclusion studies are not really basic scientific research that is beyond the scope of the DOI regulations.

In Feasibility Study No. 4, API notes that there is no description of the kind of restoration that is being proposed for upland habitats. In particular, if such habitats have not been injured, there would appear to be no need for restoration.

Feasibility Study No. 5 indicates that the "acquisition of equivalent resources" is obtaining or protecting resources that are similar or related to the injured resources in ecological value, function or uses. But API does not see the connection between lands affected by the spill and timber land or land proposed for development.

This study also includes an assessment of alternative cultural sites. This is not appropriate because cultural sites are not "natural resources."

Much of this information-gathering study does not appear to be tied specifically to the areas affected by the oil spill. Instead, it appears to be general data-gathering. API is also surprised to learn that additional mapping studies are needed given the tremendous amount of information that has already been gathered. This does not appear to be either cost-effective or warranted.