Pacific States/British Columbia Oil Spill Task Force
Status Review of Alternative Response Technology Policies and Issues

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I. Project Background

Two workgroups sponsored by the States/British Columbia Oil Spill Task Force produced a joint report to the Task Force Members in 1995 on the issues surrounding the use of dispersants and in situ burning as spill response tools. The report discussed environmental trade-offs and related concerns, and described the status of dispersant-use and in-situ burn policies in place at that time in Task Force jurisdictions. The report included a number of recommendations to the Task Force member agencies, as summarized below.

IN SITU BURNING

The In Situ Burning Project Workgroup recommended in 1995 that in situ burning (ISB) be used when appropriate, maximizing protection of the environment and human health. Addressing environmental tradeoffs, the group noted that air quality impacts are fairly predictable and can be mitigated by ensuring that air pollution does not exceed safe levels in populated areas, monitoring in situ burns (monitoring guidelines were included in the recommendations), and extinguishing burns quickly if necessary.

The Workgroup recommended an emphasis on consistency among West Coast ISB policies, since consistency would enhance training and response across jurisdictional borders. They also recommended that decisions to use ISB be made by on-scene coordinators through Unified Command. Recognizing the need for quick decision-making, they suggested that the input of various state, local, and federal agencies to that decision come at the policy development stage rather than during actual response. The Workgroup noted that the use of pre-approved decision making procedures, a monitoring program, and establishment of acceptable ambient air quality criteria should expedite ISB decision-making.

The In Situ Burning Workgroup further recommended that the U. S. Center for Disease Control develop a one hour exposure standard for small particulates (PM-10). In addition, they recommended further research on the health effects of exposure to the volatile components (PAHs) in spilled oil. Research on the fate of other potentially toxic components of a ISB smoke plume was also recommended. Finally, they encouraged West Coast agencies to cooperate on an educational campaign targeted at the general public, public health officials, and elected officials regarding the environmental considerations and tradeoffs involved in decisions regarding the use of alternative response technologies.

DISPERSANTS

Because existing law would not allow pre-approval dispersant use zones to be utilized in every jurisdiction, the Dispersant Project Workgroup recommended that the risk criteria and dispersant use decision-making procedures already adopted in Alaska and Washington be adapted by British Columbia, Oregon, and California to the extent appropriate to facilitate expedited decision-making in those jurisdictions.

The Dispersant Project Workgroup further recommended that Washington's monitoring plan guidelines and refined risk analysis criteria, as well as the results of California's dispersant research program be shared with other Task Force jurisdictions as available. The Dispersant Workgroup also recommended that contingency plan holders and response organizations work to ensure the availability of dispersants and dispersant application systems.

II. 1997-1998 Alternative Technology Review

In the 1997 - 1998 Annual Workplan adopted by the Task Force Members, Task #2 under their Spill Preparedness and Response Objective calls for a review of the status of ISB and dispersant-use policies on the West Coast and identification of barriers - if any - to implementation of the 1995 Recommendations outlined above. The project description also calls for reconvening the 1995 project workgroups with additional members as necessary to develop recommendations on protocols for small-scale tests, for monitoring and data collection during spills of opportunity, and on the feasibility of granting preparedness credits to response organizations and planholders who invest in alternative response equipment.

In order to prepare this Interim Report, Task Force member agencies were surveyed regarding 1) the status of ISB and dispersant-use policies in their jurisdictions; and 2) barriers to implementation of the 1995 Recommendations. Their responses, along with Notes from the Executive Coordinator based on research into these issues, are presented below with the relevant 1995 Recommendations, which are grouped according to topic.

IN SITU BURNING

1995 Policy Recommendations:

- Use in situ burning when and where appropriate, and maximize environmental protection while protecting human health.
- In situ burning policies and operational guidelines should be consistent among Task Force jurisdictions wherever possible.
- A streamlined decision-making process should be established for each state and province. The decision to burn should be made by Unified Command consistent with standards, criteria, and procedures set forth in advance of the spill. Involvement by other interested parties should be during the policy development stage, not during a specific incident. Preapproval areas, also referred to as safe zones or quick approval areas, should be established to help expedite the decision-making process.
- In situ burns should be monitored whenever possible following standard monitoring protocol (model monitoring guidelines were provided).

1997 Survey Responses regarding existing policies, their status as either final or draft, ways in which these policies differ from US or Federal plans/ policies, and barriers to implementation:

Alaska:

The Alaska Regional Response Team (ARRT) formally adopted ISB decision-making guidelines in 1994; these are found in the Alaska Unified Plan in Appendix II, Annex F. The Guidelines state that "Burning will be considered as a possible response option only when mechanical containment and recovery response methods are incapable of controlling the spill." (Section 230)

The ISB approval process must be initiated by the responsible party by submitting an application, using a form provided in the Guidelines to Unified Command, which will then apply the ISB Review Checklist to make a decision.

The ARRT has set a conservative downwind distance of 6 miles as the primary value for "a safe distance" away from human populations to conduct burning operations. Alaska does not attempt real-time air monitoring in their ISB decision process given logistical difficulties, and instead relies on observations and their consistency with modeled plume behavior. A table based on trajectory modeling is used by Unified Command under the ARRT guidelines to make decisions to modify the 6 mile "safe distance" standard. Alaska officials are working with the National Institute of Standards and Technology (NIST) to adapt A Large Outdoor Fire plume Trajectory (ALOFT) models to complex terrain. ADEC has requested approval from EPA Region 10 for use of the ALOFT model to meet its regulatory requirement that ISB decisions be made in accordance with EPA recommended models. DEC will also be requesting EPA acceptance of the ALOFT model at the national level from the EPA Office of Air Quality Planning and Standards.

Appropriate changes referencing use of the ISB guidelines have been made in Alaska's air quality regulations. State law requires a permit for ISB. ADEC State On Scene Coordinators are authorized to approve ISB decisions and issue the necessary permits.

A review of ISB wildlife impacts found numerous information gaps, but state wildlife officials are willing to use ISB to prevent shoreline impacts.

Regarding any barriers to policy implementation, DEC listed the following:

- Working knowledge of ISB operations and decision-making is not adequate among current responders; more education is needed.
- Contingency plans do not, generally, include sufficient information regarding ISB tactics, equipment and operation.
- Some companies are suggesting that they will not maintain an ISB capability if they do not receive credits of some kind in their contingency plans.

ADEC also noted that ISB will not be an effective cleanup tool for a catastrophic spill unless multiple simultaneous burns can occur, which is an operational challenge DEC plans to address (comment made at the 11/96 meeting of state and federal agencies to discuss ISB implementation issues).

British Columbia:

The Provincial Marine Oil Spill Preparedness and Response Strategy (1991), Oil Dispersants and In-situ Burning - Strategic Policy, states the following:

BC Environment will ensure provincial input into any developments in dispersant use and in-situ burning of fresh oil spilled in British Columbia, the State of Washington or the State of Alaska marine waters.

In general, the Province will support the use of in-situ burning if its effectiveness can be proven at the time of use and its use proven not to be deleterious to provincial resources or human health. To assist in planning future ISB strategies, the Ministry will keep abreast of research into the effectiveness of these techniques and their toxicity to the environment and humans.

In general, representatives of the Province of British Columbia feel they are more receptive than the Canadian federal government to the application of alternative technologies for oil spills. The federal agencies, however, do all the research and development.

However, an ISB policy on actual use - i.e. Guideline of Decision Making and Operations - has not been done. The Ministry of Environment, Lands and Parks has put forward the In Situ Burning Policy and Operational Guidelines from the Northwest Area Contingency Plan of the State of Washington to BC oil industry and federal government for consideration. The intent was to adopt these guidelines for international consistency and as a template for British Columbia. According to the Ministry of Environment staff, Environment Canada is considering establishing their own guidelines as a template. There appears to be a desire by the Canadian federal government to ensure that the ISB policy, operational guidelines, and decision process are driven from Ottawa HQ in order to have an east-west national consistency, rather than a north-south regional solution.

Washington:

The Northwest Area Contingency Plan (NWACP) policy authorizes and in certain cases encourages the use of in situ burning (ISB) in the Pacific Northwest. The decision to burn rests with the Unified Command and focuses heavily on air quality criteria. Burning can occur if people will not be exposed to small particulates less than 10 microns in diameter (PM-10) at concentrations above 150 (g/m3 averaged over a 24 hour period. In addition, the policy establishes general guidance for PM-10 not to exceed 150 (g/m3 averaged over a one hour period.

If the PM-10 standards are met, in situ burning is preapproved in any area beyond 3 miles of a population center (which is defined as >100 people/square mile). In this event, once the unified command has confirmed with a state meteorologist that PM-10 and preapproval conditions apply (based on use of the ALOFT model and existing meteorological conditions or reports), they may authorize the burn. In areas where ISB is not preapproved, the appropriate local air authority district must be consulted before a decision to burn can occur.

The policy also directs the Unified Command to consider other safety, environmental, and feasibility factors when making an ISB decision. These factors are summarized in a checklist which must be completed and submitted to the Unified Command for review.

The Northwest Area Committee (NWAC) adopted their final ISB Policy in May 1995. This policy was developed by a work group representing agency, tribal, industry, and environmental group interests. The Washington Department of Ecology chairs an ongoing NWAC work group on ISB issues which is charged with keeping the policy current and recommending any necessary changes. The latest revision to the NWACP is scheduled to be published in July 1998. No changes to the ISB policy are anticipated, but the checklist will be revised.

Regarding any barriers to policy implementation, Ecology responded that since the NWAC ISB policy was adopted, it has been exercised on paper during a number of oil spill drills. In terms of the checklist and Unified Command approval process, there do not appear to be any serious barriers. On the other hand, the lack of local experience with actual on-water burns results in a number of significant field operation challenges, including:

- Limited amount of fire boom and ignition resources located in strategic positions for quick response;
- Lack of fire boom designs proven to withstand multiple on-water burns in open sea conditions;
- Insufficient level of local air monitoring equipment and personnel resources located in strategic positions for quick response;
- The need to check/calibrate accuracy of smoke plume models;
- Limited training/experience in ISB among local agency and response organization personnel (including air quality monitoring);
- A lack of detailed operations plan for conducting ISB in various locations/scenarios;
- Uncertainty regarding fate, effects, and ability to recover burnt oil residue; and
- Public concern (and political ramifications thereof) regarding air quality impacts of ISB.

Note: At a Region 10 (which includes Washington and Oregon) RRT Workshop held July 24, 1997, various alternative technology issues were identified, but not addressed. For in situ burn decisions, these included the question of whether Unified Command needs RRT consensus to burn, what information the RRT members will need in order to concur, the locations of fire boom stockpiles, and response times for ISB trained responders.

Oregon:

Oregon Administrative Rules are silent regarding use of in situ burning. However, DEQ signed the 1996 Northwest Area Contingency Plan (NWACP) which contains an in situ burn policy as outlined in the Washington section above. The Oregon Emergency Response System (OERS) Council has adopted the NWACP as the official oil and hazardous materials component of the state all-hazards Oregon Emergency Operations Plan (replacing the Oil & Hazardous Materials Spill Contingency Plan For the Oregon Coast, Columbia River & Willamette River to Willamette Falls, Volume II and the Oil and Hazardous Materials Emergency Response Plan).

DEQ is participating in the latest revision to the NWACP scheduled to be published in July 1998, and no changes to the ISB policy are anticipated. However, The 1998 NWACP will undergo a public review process before DEQ renews its formal adoption; this process might help identify barriers to implementation.

Regarding barriers to implementation, DEQ noted that they have not developed any procedures to implement the policy. Specifically, DEQ has no procedures in place for rapid decision making

by management, delegation of decision making authority to the state on scene coordinator, or mobilization of air monitoring resources.

California:

The Lempert-Keene-Seastrand Oil Spill Prevention and Response Act of 1990 clearly identifies the goal of best achievable protection for coastal resources utilizing the best available technology. The Act requires the Administrator of OSPR to develop a decision-making document for the use of in-situ burning in response to an oil spill incident. Pursuant to Section 8670(g), this document can only be finalized after a series of workshops soliciting input from interested parties. In furtherance of these requirements, OSPR established a statewide in situ burning workgroup which consists of representatives from the oil industry, local air quality control districts, cleanup cooperatives, environmental groups, state and federal trustee agencies, the Coast Guard, EPA, the State Air Board and OSPR. A draft ISB policy is in development which divides the California coast into multiple sections. Boundaries between quick approval areas and those where case-specific decisions are required are established in each section as a function of specific topography and meteorology characteristics.

The NIST ALOFT model was used to help identify these boundaries, and OSPR plans to run specific models for each section which are based on "most probable" and "worst case" scenarios in order to further refine the decision-making process. Standard ambient air quality monitoring will be used during ISB operations to provide feedback to Unified Command for continue/discontinue decisions.

This draft ISB policy will be presented at workshops and available for public comment in early 1998. A final ISB policy will be completed by mid-1998 and a public outreach program developed and implemented.

The state ISB policy will complement the federal ISB policy for 35 miles off shore and beyond, to be incorporated into the ACP, as it will address the area from the shoreline out to 35 miles.

No significant barriers to adoption of the ISB policy are anticipated due to the incorporation of all stakeholders in the process of ISB policy development.

1995 Education/Outreach Recommendations:

- Through public education and outreach, broaden the acceptance of in situ burning as a viable response tool in appropriate situations. Tribes, local air quality and elected officials, public interest groups, and public health officials all need information regarding the technology of in situ burning, the potential impacts, and the environmental trade-offs associated with all response methods. Task Force agencies should work together to develop educational materials which address this need.

1997 Survey Responses regarding public education or outreach projects on ISB use which each jurisdiction has undertaken:

Alaska:

ISB brochures and a video were completed and distributed in conjunction with adoption of the guidelines in 1994.

British Columbia:

None

Washington

The development of the NWAC ISB Policy occurred in a public forum, and several workshops were held. The Department of Ecology released a number of "Focus" sheets explaining ISB and the policy.

After Ecology proposed an open ocean test burn, a series of public workshops were held along the Washington coast. Public outreach materials were prepared, some of which included or were based on ADEC's material. Ecology subsequently assembled an advisory committee of approximately 20 stakeholder groups to assist in developing a test burn EIS. The advisory committee held six advertised public meetings before the test burn and EIS were canceled. (NOTE: The eventual decision to drop the test burn proposal was made primarily in response to opposition to the intentional discharge of oil into state waters rather than opposition to in situ burning.)

Oregon

There has been some work with other agencies - the Health Division and Oregon Department of Transportation - mostly informational presentations as part of a briefings about the NWACP. The NWACP was also presented to the OERS Council, the Interagency Hazard Communication Council/State Emergency Response Commission and the Local Emergency Planning Committee and those presentations included discussion about ISB. ISB policy will be highlighted in our public review of the 1998 NWACP.

California

An outreach program will be developed and implemented once the ISB policy is completed in 1998.

Additional Topic Notes:

Notes from a 9/17/97 "National ISB Coordination Meeting" indicate that the assembled group agreed that risk communication and public education are "just as critical as working on technical problems."

Since Task Force agencies are at different stages in the development of their ISB policies, a coordinated, simultaneous outreach campaign may not be feasible. If not, it is advisable that Task Force agencies to take advantage of the work done by other member agencies and adapt that work to the needs of their own jurisdiction, rather than "reinventing the wheel."

1995 Recommendations regarding Equipment Acquisition:

Encourage industry to purchase response equipment for conducting in situ burning.

1997 Responses and Notes

Alaska:

ADEC listed the following problems (see page 3), all of which relate to industry preparedness:

1. Working knowledge of ISB operations and decision-making is not adequate among the current response "core"; more education is needed.
2. Contingency plans do not, generally, include sufficient information regarding ISB tactics, equipment and operation.
3. Some companies are suggesting that they will not maintain an ISB capability if they do not receive credits of some kind in their contingency plans.

Washington:

Ecology listed the following problems (see page 5), which also relate to industry preparedness:

1. Limited amount of fire boom and ignition resources located in strategic positions for quick response; and
2. Limited training/experience in ISB among local agency and response organization personnel (including air quality monitoring).

British Columbia:

BC staff also responded in a phone conversation that the response cooperative serving BC has not invested in ISB equipment due to the lack of a clearly supportive set of operational guidelines from the Province or policy statement from federal response agencies.

California:

OSPR raised the response planning standards for facilities and tank vessels by 25%, effective 7/1/97 as allowed by statute. In so doing, OSPR indicated a willingness to allow response credits for alternative response equipment. Since this is new territory and no one is certain how what formula to use for granting such credits, OSPR intends to establish a task force to address the issue.

Please note that the level of training and preparedness of responders is a significant issue. ISB presents additional safety hazards for responders beyond those already inherent in the mechanical recovery process. Fire ignition and control require a greater degree of vessel and personnel coordination, and heat stress considerations must be included in the safety training of responders (Nir Barnea, NOAA, 1996).

1995 Recommendations regarding PM 10 standard:

- The Center for Disease Control should develop a one hour standard for exposure to PM-10 as soon as possible. Such a standard should then be reviewed by the Oil Spill Task Force and its members for possible incorporation into policies governing the use of in situ burning.

1997 Notes regarding PM 10 Standard:

The Science and Technology Committee of National Response Team (NRT) published a paper titled Guidance on Burning Spilled Oil In Situ in December of 1995. The Background statement of the paper noted that the Alaska RRT had requested an NRT position paper on limits for short-term human exposure to particulates measuring less than 10 microns (PM-10) during an in situ burn, i.e., the one hour standard recommended above.

The NRT's Science and Technology Committee passed that request on to the Center for Disease Control (CDC) and the Occupational Safety and Health Administration (OSHA), which responded that there was no scientific justification for recommending a short-term concentration level other than the 150 (g/m3 standard used for 24 hour exposure. Pending results of further research, the Science and Technology Committee, based on CDC and OSHA input, recommended a conservative upper limit of 150 (g/m3 averaged over one hour.

However, at the time that this guidance was published, EPA was under a court order to review and revise, if necessary, all PM-10 standards by 1/97. EPA did announce a decision last year to revise particulate standards to 2.5 microns, but no additional revisions to the ISB one-hour standard have been proposed at this writing. Notes from a 9/17/97 "National ISB Coordination Meeting" indicate that the group is seeking clarification regarding the impact of the 2.5 micron standards and how to measure them. Standards for calibrating monitoring instruments for smoke particulates at 2.5 microns will be needed.

1995 Recommendation regarding additional ISB research and information needs:

- The potential impacts from the evaporative components of spilled oil should be weighed against the potential impacts from exposure to particulates in burned oil when making a decision regarding use of in situ burning. If needed, additional research should be conducted in order to more clearly assess the potential impacts from unburned oil, and the fate of toxics in the smoke plume. Tables which compare information on evaporative components of unburned oil for common petroleum products with the air quality impacts of in situ burning should be compiled in a format which would be useful for response decision-makers.

1997 Notes regarding status of ISB research and information needs noted above:

Although no tables comparing the potential air quality impacts of ISB with VOCs from unburned oil have been produced, summarized below is information on these topics which has been written since 1995:

Fifty percent of the toxic lighter fraction of crude oil, volatile organic compounds (VOCs) can readily evaporate and spread air pollution downwind at ground level. The actual evaporation rate depends on the type of oil, time elapsed since it was spilled, air and water temperatures, and wind and wave conditions . (Nir Bernea, Health and Safety Aspects of In Situ Burning of Oil, 1996).

It is generally estimated that 83 to 89% of the smoke plume is composed of gases, specifically water in the form of steam, carbon dioxide, carbon monoxide, sulfur dioxide, hydrocarbons, and nitrogen oxides, with water and CO2 making up the largest fractions.

Average SO2 concentrations measured in experimental burns have been less than 2 ppm at 100-200 meters downwind of the burn; SO2 is expected to be well below the level of concern (0.14 ppm averaged over 24 hours is the National Ambient Air Quality Standard (NAAQS)[DoEQ1] several miles downwind. NO2 is also toxic and exposure to low concentrations may cause delayed pulmonary edema. Sampling results indicate that NO2 in the plume several miles downwind does not exceed the NAAQS of 0.05 ppm as an annual mean. The hydrocarbons, known as PAHs, are known or suspected carcinogens. Considering the low level of PAHs detected in smoke plumes so far, it is felt that they present only a small exposure hazard. The toxicity of CO is acute, because it will chemically displace oxygen from the blood. The average level of CO in the smoke plume during experimental burns was found to be 1 to 5 ppm 150 meters downwind. The NAAQS is 9 ppm averaged over 8 hours . (Nir Bernea, NOAA; Health and Safety Aspects of In Situ Burning of Oil, 1996).

Particulates, which comprise 9 to 15% of the plume, are considered by most health professionals to be the primary byproduct of concern, since the gases in the plume dissipate to safe levels past a mile or two downwind. Particulates less than 10 microns ((m) are of concern because they are small enough to be inhaled. Particulates smaller than 5 (m can be deposited in the deepest portions of the lungs. Sampling data indicates variable concentrations of PM-10 in ISB smoke plumes (Nir Bernea, NOAA; Health and Safety Aspects of In Situ Burning of Oil, 1996).

Exposure to PM-10 is generally the benchmark for establishing preapproval burn zones relative to populated areas or for burn/no burn decisions on a case-by-case basis. Among our jurisdictions, the guidelines vary for preapproval zones. However, the American Society of Testing and Materials (ASTM) approved ISB standards in 1997 which suggest avoiding ISB within 1 km (0.621 miles) of ecologically sensitive or heavily populated areas. The ASTM recommendation was based on a literature review, and is not consistent with US ambient air quality standards.

One potential environmental impact of ISB has only been recognized since the 1995 Task Force report, and that is the potential for ISB residues to sink. It had previously been thought that the ISB residues were easily recoverable, but it is now understood that, for a number of oils, the resulting residue is denser than sea water, usually after cooling, and may sink. The American Petroleum Institute (API) is currently funding a research project in cooperation with the Texas General Land Office entitled "In Situ Burn Residue Handling." The project goal is to develop protocols for the identification of oils likely to produce non-buoyant residues. It will also evaluate options to deal with sinking and will recommend operational protocols for response organizations. (Don Aurand letter, 12/10/97)

Responses to 1997 survey regarding perceptions of any need for more coordination among Task Force agencies on ISB R&D

Alaska:

The current informal workgroup approach is adequate.

British Columbia:

No, the work by Washington State will suffice. Alaska will need to assess any ISB policy/operational work done by BC/Canada.

Washington:

Yes, given our limited individual resources, it certainly makes sense to combine efforts when projects overlap. Since actual open water ISB R&D efforts are realistically limited to accidental spills, the NWACP work group particularly would like to see common test protocols developed along the west coast for such occasions. Task Force coordination also will ensure a more unified relationship with the Coast Guard and other members of the National In Situ Burning Coordination Group in terms of joint funding proposals or access to federal test tank facilities.

But it is also important to recognize that Task Force jurisdictions' R & D needs are not yet synchronized. For example, California may not benefit from R & D into very technical operational questions while they are still developing their policy. Similarly, each jurisdiction may have geographic specific R & D needs (e.g., Broken-ice spills for Alaska) where coordination is less critical.

Oregon:

Yes. A consistent West Coast approach to ISB R&D would eliminate duplication, add credibility to individual jurisdiction efforts, and have a synergistic, force multiplying impact.

California:

Yes; there should be more coordination between the Task Force jurisdictions, also with other state and federal agencies.

Additional Washington comments on 1997 ISB Survey:

Several other non-R & D issues where Task Force coordination may be beneficial include:

- Mutual aid for specialized ISB resources (particularly experienced operations and air monitoring personnel)
- The relationship of ISB resources to state/federal contingency plan equipment requirements (e.g., should oil recovery "benchmarks" allow for ISB as a substitute for skimming requirements; if so, how?) (see discussion of equipment availability on page 8).
- Addressing new federal PM 2.5 requirements (not an immediate issue, but it's looming ahead) (Note: see discussion on pages 8-9)

DISPERSANTS

1995 Recommendations regarding Dispersant Use Policies:

Task Force jurisdictions should implement an expedited decision-making process for dispersant use. Unified Command should use a procedure which determines that an environmentally acceptable dispersant is available, that equipment is available to apply it within an adequate window of opportunity, and that its use will enhance the overall response strategy. Recommended risk analysis criteria include a determination that an oil slick will impact sensitive resources if not dispersed, that water depth and mixing energy are adequate to allow for rapid dilution of dispersed oil, and that dispersed oil will not impact sensitive resources and nearshore areas. Methodologies developed by Alaska and Washington to make these determinations were recommended for adaptation by other Task Force jurisdictions. It was also recommended that the following information be included in the decision-making process if available:

- Monitoring plan design guidance
- An approved monitoring plan;
- Application field test results; and
- A model predicting concentration of dispersed oil in the water column.

A 1997 Survey responses regarding existing dispersant use policies, their status as either final or draft, ways in which these policies differ from US or Federal plans/ policies, and barriers to implementation:

Alaska:

Appendix F of the Alaska Federal/State Unified Plan, adopted in May of 1994, includes Oil Dispersant Guidelines for Alaska as approved by the ARRT in April 1986. Both the general guidelines for Alaska's marine waters and the specific guidelines for Cook Inlet and Prince William Sound are designed to expedite the decision-making process in order to allow the timely and effective use of dispersants.

According to the guidelines, decisions concerning dispersant use must be based on an evaluation of potential impacts from dispersed versus undispersed oil. This means that potential effects on water column organisms - such as migrating salmon, fish or crab eggs or larvae - must be weighed against potential effects at other sites where aggregated population of birds or mammals or particularly oil-sensitive coastal areas can be found.

Alaska's dispersant use criteria classify coastal waters into three zones defined by physical parameters such as bathymetry and currents, biological parameters such as sensitive habitats or fish and wildlife concentration areas, nearshore human use activities, and time required to respond.

In Zone 1 the use of dispersants is acceptable and should be evaluated after consideration of mechanical response methods. The FOSC is not required to acquire approval from EPA or the State prior to dispersant use in this zone, but must notify them of the decision as soon as practicable. Zone 1 is characterized by water conditions that will allow dispersed oil to dilute rapidly, and is far enough from sensitive resources that dispersant operations would not cause disturbances. There must also be a significant likelihood that spilled oil will impact sensitive resources without the dispersant application.

In Zone 2, the use of dispersants is conditional based on seasonal variations. The FOSC is required to consult with the RRT and obtain approval of the EPA and the State. Zone 2 areas must be characterized by water conditions that allow for rapid dispersal and must be far enough from sensitive resources that operations would not cause disturbances.

In Zone 3 the use of dispersants is allowed only on a case by case basis if it is determined that the disturbances of organisms and/or direct exposure to dispersants or dispersed oil would be less deleterious than the impact of spilled oil. The FOSC is required to consult with the RRT and obtain EPA and State approval prior to dispersant applications. Zone 3 is the area immediately in or around the resources requiring protection, including the resources themselves.

Only areas in Cook Inlet and Prince William Sound have been classified as Zone 1 or 2; all other marine waters of Alaska are considered to be in Zone 3.

This policy is final, and is the policy of both the State of Alaska and the Unified Area Plan.

The only barrier to policy implementation identified by DEC was the lack of education of both the public and spill responders on the procedures involved in decision-making and implementation.

British Columbia:

The Provincial Marine Oil Spill Preparedness and Response Strategy (1991), Oil Dispersants and In-situ Burning - Strategic Policy, states the following:

BC Environment will ensure provincial input into any developments in dispersant use and in-situ burning of fresh oil spill in British Columbia, the State of Washington or the State of Alaska marine waters.

In general, the Province will support the use of dispersants if its effectiveness can be proven at the time of use and its use shown not to be deleterious to provincial resources. To assist in planning future dispersant use strategies, the Ministry will keep abreast of research into the effectiveness of these products and their toxicity to the environment.

In general the Province of British Columbia officials feel they are more receptive than the Canadian federal government to the application of alternative technologies for oil spills - such as dispersant use and in-situ burning. The federal Ministry of Fisheries and Oceans will not approve of dispersant use in marine waters. The federal agencies, however, do all the research and development. On the other hand, a policy on actual use - i.e. Guidelines for Decision Making and Operations - has not been done by the Province or federal agencies.

BC replied to the survey that there is a need to visit the current "state" of dispersant use and where other jurisdictions are going. Greater attention needs to be placed on the effectiveness and impacts of dispersant use in European/British spills, as in the Braer spill, for example. However, there is a general lack of any "ground swell" of interest in this area; it is not a priority issue in British Columbia.

Washington:

Chapter 90.48 RCW also authorizes the Director of the Department of Ecology to prohibit or restrict use of any chemicals or other dispersant or treatment materials proposed for use whenever it appears that the use would be detrimental to the public interest. In practice this has meant that the person responsible for the spill or other parties involved in spill control and management must obtain approval from the Director of Ecology prior to using a chemical dispersing agent as means of treatment.

Since the decision as to whether or not to use dispersants is needed within a short time frame to be effective, a better decision tool was required. As a result, Ecology recommended a risk analysis process based on resource evaluation and rating. Technical experts ranked resource values in 15 coastal and marine regions and 132 subregions by season. The ranking system scored marine mammals, marine fish, shellfish, salmon, marine birds, intertidal and subtidal habitats, and possible recreational resources on a 1 - 5 basis with 5 being the highest score. Five priority habitats were considered for protection to be conferred through the use of dispersants remote from these habitats; these included bird and marine mammal habitats, eelgrass beds, kelp beds, and salt marshes.

Decisions are based on the fact that there are known tradeoffs associated with the use of dispersants and that when these are weighed against the resource values to be protected, there may be times when the value of the resource protection outweighs the added potential loss to another resource from the use of dispersants, or vice versa. For instance, fish scores were summed in each subregion and then compared seasonally to bird and marine mammal values for the same subregion as well as subregions which might be impacted by undispersed oil. Each dispersant use decision is governed by such a comparative natural resource evaluation. For example, during the spring season the natural resource values in subregion 201 were 14 for fish, 3 for birds, and 4 for marine mammals; in this scenario, dispersants would not be used in order to avoid fishery impacts.

As this ranking system is applied in Washington, three dispersant use decisions are possible in each subregion: Dispersant Use Recommended, Dispersant Use Conditional, and No Dispersant Use. These decisions are based on known biological consequences and may vary from season to season.

Thus use of dispersants in Washington is governed by the June 1993 Final Environmental Impact Statement which applied the methodology described above to divide the state marine waters into either no-use, case by case use or pre-approval zones for dispersant usage. In general Puget Sound is classed as a no-use zone while the Straits of Juan De Fuca and the Outer Coast are classed as either case by case use or pre-approved zones.

This a final policy document, and is adopted as part of the area plan. However, this dispersant use policy was further governed by the requirement that a monitoring plan be in place prior to dispersant application. This requirement has been the only significant barrier to policy implementation, since the scientific community has been unable to develop an acceptable plan to monitor the effects of dispersant application.

Note: At a Region 10 (which includes Washington and Oregon) RRT Workshop held July 24, 1997, various alternative technology issues were identified, but not addressed. For dispersant use decisions, these included additional information needs, availability of dispersant equipment, and identification of "qualified observers" for operational monitoring.

Oregon:

Oregon's policy is stated in Oregon Administrative Rule 340-47-020. While 020 (1) flatly states that "no chemicals shall be used to disperse, coagulate, or otherwise treat oil spills..." 020 (2) states that use of chemical dispersants may be "warranted by extreme fire danger or other unusually hazardous circumstances." The DEQ respondent noted that nothing in the policy prevents a member of Unified Command from requesting approval from the Department of Environmental Quality (DEQ). As a matter of fact, DEQ has frequently been asked to approve use of "detergent" products to clean pilings, boat hulls, or rip rap. Each application required the concurrence of the Spills Section and the Water Quality Division.

This policy is spelled out in the 1996 NWACP, paragraph 7.1.2. As such, it is final except when the ACP undergoes revisions, as is currently the case.

The DEQ respondent noted that decision-making procedures have not been established, but that DEQ will continue to review their policy, including expedited decision-making, as they learn more about dispersant technology.

California:

In 1994 the 11th USCG District and EPA Region IX developed a Quick Approval Zone (QAZ) for dispersant use which covers the waters off California from a line 15 nautical miles from land and extending westward to the end of the Exclusive Economic Zone (EEZ). Offshore islands include the 15 mile buffer zone, and a five mile exclusion zone is provided at both the Oregon and Mexico borders to allow for joint decision-making with those jurisdictions. The QAZ used a streamline dispersant use checklist process with a mechanism to secure RRT approval within one to two hours.

In 1995, OSPR finalized a draft Dispersant Use Decision Process (DUDP), pursuant to statutory requirements, which addressed the use of dispersants within the 15 mile zone excluded from the QAZ.

A Quick Approval Process (QAP) has now been developed for dispersant use decision-making which has been adopted for all marine waters off California, both the QAZ and the DUDP areas. The process is designed to clarify whether dispersed oil presents less risk in the water column than on the surface of the water. The QAP provides an accelerated review process, conducted by the Planning Section of the Unified Command, to provide sufficient information for both the UC and the RRT to make use/no use decisions. Information on biological resources at risk and dispersant effectiveness are included.

Dispersant use policy in the QAP generally restricts dispersants to a water depth of 60 ft. and a distance of 0.5 miles from shore and kelp beds. Dispersant use is further restricted for a radius of one mile from the mouth of rivers and streams that support anadromous species during peak movements of adults and smolts.

If a "yes" decision results from the process, overflights will be made to confirm that natural resources are not threatened. If practical, a protocol will be developed by the UC at the time of a spill for operational observations during application which can contribute to decisions to continue or discontinue applications.

This dispersant use policy is final and is consistent with the Area Plans in California. No barriers to implementation were identified by the OSPR respondent.

1995 Recommendation regarding monitoring plans:

When Washington's dispersant use monitoring plan guidelines are developed and risk analysis criteria are further refined, other Task Force jurisdictions should review these tools for possible adaptation.

1997 Notes regarding monitoring issues:

The rationale for this Recommendation was based on the fact that knowledge regarding dispersant use efficacy and toxicity in actual applications outside of a laboratory environment is limited. It was thought that the risk analysis approaches adopted by Alaska and Washington and recommended to other member jurisdictions would benefit from ongoing review and evaluation based on new data produced by monitoring of actual dispersant application fate and effects as generated by the monitoring strategies referenced above.

It is noted in the survey response from the Washington Department of Ecology that their dispersant use policy was governed by the requirement that a monitoring plan be in place prior to dispersant application. This requirement has been the only significant barrier to policy implementation, since the scientific community has been unable to develop an acceptable plan to monitor the effects of dispersant application.

California's Quick Approval Process policy and procedure document addresses the monitoring issue and is paraphrased as follows:

There has been considerable discussion as to the desirability of a monitoring program to determine the effectiveness of a dispersant application at sea. This discussion has been driven primarily by the regulatory community's desire to understand how well a dispersant application is working. To conduct such a monitoring program would require sophisticated sampling equipment capable of providing real time water column hydrocarbon data and the continuous availability of a ship and trained crew.

Predicating the use of dispersants on such a program could limit the UC's ability to conduct the spill response, since such a monitoring program could be restricted by weather conditions, sampling equipment failure, or delays pending arrival of monitoring vessels, crews, and equipment.

If the UC requests dispersant use and the RRT approves, there must be an understanding by both parties that the decision is based on analysis of acceptable risk; that the selected dispersant is effective on the spilled oil; that dispersants will not clean up all the spilled oil; and that mechanical or other methods will also be required.

General visual observations can provide sufficient information to determine if the dispersant is effective. If available, remote sensing equipment can also add information regarding efficacy.

A detailed monitoring program should be developed as part of the natural resource damage assessment, and should be designed prior to an incident, with specifics added to meet the unique needs of each individual spill.

A paper titled Dispersant Use: Real -Time Operational Monitoring and Long-term Data Gathering, prepared by Scientific and Environmental Associates for the Marine Preservation Association in March of 1997, articulates a distinction between operational monitoring and data gathering which should be useful in considering the monitoring question. The paper's authors - Robert Pond, Janet Kucklick, and Ann Hayward Walker - note that operational monitoring provides responders with real-time information on the efficacy of dispersant applications. This information can address whether the correct dispersant was applied in correct amounts, whether the dispersant is working effectively, and "any obvious ecological effects." There are limitations, however, such as time delays before visual changes in an oil slick occur and the fact that observations provide qualitative, not quantitative data. Pond et al also note that fluorometry offers relative concentration readings, not actual chemical concentrations, so "environmental effects cannot be extrapolated."

By contrast, data gathering during a spill of opportunity can provide quantitative information which benefits research and future response planning. This data is not real - time, however, since data analysis is a long process. Furthermore, due to the fact that data gathering must be implemented without advance notice, some of the fundamental elements of the scientific method - such as the use of controls and replicates - may be of limited value, thus limiting the value of the results. Note Pond et al: *"... spills of opportunity data are collected by available personnel using available equipment in an uncontrolled environment, characterized by an almost infinite set of variables."*

Pond et al make a strong argument for national leadership in monitoring program design rather than development of separate monitoring programs by each Area Committee. They suggest that, instead, Area Committees should identify local concerns to be addressed by national level policy makers. A nationally organized and executed data gathering process would optimize the value of the data. Table 1 from their report, Ten Steps for Developing and Improving the Dispersant Use Monitoring Process (Adapted from NRC, 1990) is provided as an attachment to this Report.

Operational monitoring has been formalized by the Gulf Strike Team, using protocols known as Special Response Operations Monitoring Program, or "SROMP." SROMP's goal is to provide information useful to decisions regarding beginning, continuing, or terminating either dispersant or ISB operations. The emphasis is on rapid assessment and simplicity in order to provide real-time information; environmental impact and damage assessment monitoring is considered a separate activity. SROMP is considered flexible and adaptive to spill variables.

The stated goals of SROMP monitoring for dispersant applications are:

1. To visually estimate qualitative effectiveness;
2. To use fluorometry in addition to visual observations in order to qualify that oil is dispersing into the water column. The guidelines specify that "delay in the availability of fluorometry will not be cause for delaying the use of dispersants"; and
3. To ascertain the concentration of oil over time at the 1 - meter depth, in order to determine if concentration is falling to non-toxic levels as indicated in field trials.

Fluorometric sampling is recommended as continuous at the 1 meter depth, and fluorometric samples are recommended en route to the dispersant area to establish background levels.

Although the SROMP protocols stress operational monitoring, fluorometric data could be considered in the category of data gathering established by Pond et al, to the extent that it can add to the database for future decision-making.

The SROMP protocols include training guidelines.

A national workgroup led by the US Coast Guard is currently adapting the SROMP protocols for the 8th District to a national set of guidelines which will be known as "Scientific Monitoring of Alternative Response Technologies" (SMART). These will cover standards for monitoring personnel and equipment requirements for both dispersant use and in situ burns of opportunity, and will be adaptable to local regions. The USCG intents to maintain Strike Force capability to implement these monitoring protocols, but also expects that the responsible party will eventually be given permission to monitor according to these guidelines, under Unified Command supervision. Like the SROMP protocols, the SMART protocols will focus primarily upon operational monitoring rather than collecting environmental impact data.

1995 Recommendation regarding dispersant research and information exchange:

The results of California's comprehensive dispersant testing and research program should be shared with other Task Force agencies, which should be invited to provide input into research project design:

1997 Survey responses regarding the need for more coordination among Task Force agencies on dispersant R&D activities:

Alaska: Informal workgroup is adequate.

British Columbia: Yes, the Task Force would be a useful forum to bring dispersant use to the spill response agenda, reflecting that dispersants are potentially more viable and safer than previously perceived.

Washington: There is an appropriate amount of coordination among Task Force member agencies concerning this issue.

Oregon: A consistent West Coast approach to dispersant R&D would eliminate duplication, add credibility to individual jurisdiction efforts, and have a synergistic, force multiplying impact.

California: Presently there is little coordination other than the listing of projects in the annual matrix update. It would be very helpful if we could have more information made available on the various research projects being conducted and face-to-face discussions so that ideas, information, and results can be more easily disseminated.

Additional Notes regarding Dispersant R&D Activity:

A "Cooperative Toxicity Testing Program," which will develop and implement improved toxicity testing methods for dispersants and dispersed oil, is being jointed conducted by the American

Petroleum Institute (API), OSPR, ADEC, the Texas General Land Office (TGLO), and the Florida Dept. of Environmental Protection. The efforts of the participating laboratories are coordinated through the Chemical Response to Oil Spills: Ecological Effects Research Forum (CROSERF). According to a 12/97 from Don Aurand of Ecosystem Management and Associates, these labs are completing a draft integrated research plan through CROSERF.

In 1996 API cooperated on at-sea dispersant field trials in the North Sea; the draft report on the results is under review and revision.

API is also coordinating a study of the fate and effects of oil and dispersed oil in the nearshore and inter-tidal zone utilizing the Coastal Oil Spill Simulation facility managed by TGLO in Corpus Christi, Texas.

API is also funding a dispersant risk communication program to reflect and respond to the concerns of federal, state, and regional regulators as well as environmental groups regarding dispersant issues.

An article in the 10/16/97 Oil Spill Intelligence Report notes that large-scale trials in the North Sea showed dispersants to be effective at breaking up oil slicks of well-weathered crude and bunker fuel. The Marine Pollution Control Unit of the UK was the primary funder for these tests, but Alaska also contributed.

1995 Recommendation re: dispersant equipment availability:

Contingency plan holders and response contractors should ensure that adequate delivery systems and approved dispersant products are available for spill response on the West Coast.

1997 Responses and Notes re: equipment availability:

NOTE: Lack of equipment was not identified in any survey responses as a barrier to policy implementation. Dispersant use drills and reviews of equipment inventories are generally being handled by Area Committees.

In Alaska, Alyeska has demobilized its dispersant cache in Sitka, since TAPS tankers are now routed more than 200 miles offshore after leaving Prince William Sound. Dispersant capability is in place for Cook Inlet and Prince William Sound.

The US Coast Guard is developing a proposed rule which would require vessel owners/operators and response organizations to provide a dispersant capability. The Coast Guard expects publication of this rule to trigger discussion of the issue of industry credits for investments in dispersant technology.

OSPR raised the response planning standards for facilities and tank vessels by 25%, effective 7/1/97 as allowed by statute. In so doing, OSPR indicated a willingness to allow response credits for alternative response equipment. Since this is new territory and no one is certain how what formula to use for granting such credits, OSPR intends to establish a task force to address the issue.

1997 Survey responses regarding public education or outreach projects regarding dispersant use:

Alaska: A dispersant R&D workshop is being planned for March, 1998.

British Columbia: None. But public education would be important to dispel the notion that dispersants are used just to "get oil out of sight and out of mind."

Washington: The only public outreach to date has been a series of public meetings held during the development of the dispersant EIS. Ecology has been in contact with Ann Haywood Walker (SEA) and API to develop a specialized two part workshop to address new information on dispersants. The intent is to re-examine the dispersant EIS, explain new products, and evaluate toxicity data with state fishery managers. This workshop is an attempt to allay fishery concerns about dispersant use and revisit the EIS in hopes of liberalizing the policy and standards presently prescribed therein. (The workshop proposal specifies that a risk assessment of the various response alternatives specific to Washington waters "of high concern" will be conducted.)

Oregon: None to date. Dispersant use policy will be highlighted in our public review of the 1998 NWACP.

California: None.

III. Summary and Recommendations for Next Steps

In Situ Burning Policy Status:

Among the States, the ISB policies are relatively consistent. Once California's policy is final, each jurisdiction will have quick approval policies in place which incorporate guidelines for safe distances from populated areas. Although those distances vary (6 miles in Alaska, 3 in Oregon and Washington, and section-specific in California), realistically they must reflect the unique characteristics of each area. Plume trajectory models have been utilized to establish the boundaries of preapproval or quick approval zones, and operational monitoring programs will be utilized to determine consistency with anticipated behavior of the plumes. Monitoring will include air quality monitoring in Washington, Oregon, and California. Aerial observation of plume trajectory will be the monitoring technique in Alaska.

However, there is a need for Oregon to establish decision-making procedures to implement the ISB policy of the NWACP. Likewise, while British Columbia generally supports use of ISB where it can be shown to be effective, the Province needs to develop decision-making and operational guidelines.

Although monitoring protocols are generally similar among Task Force jurisdictions, in that they are focused on operational feedback, differing techniques will be employed as a function of unique characteristics in each jurisdiction. Meanwhile, the development of national monitoring protocols (SMART) will assist in promoting consistency.

Thus, with the exception of the need for operational guidelines in BC and Oregon, policies and guidelines are in place on the West Coast which implement the following 1995 Task Force Recommendations:

To use ISB as a response tool where protection of the environment and human health can be maximized;

1. To establish streamlined decision-making processes;
2. To utilize standardized operational monitoring protocols during ISB operations; and
3. To be as consistent among jurisdictions as possible.

The need for a one-hour PM 10 exposure standard from the Center for Disease Control

The National Response Team's Science and Technology Committee adopted a one hour exposure standard for PM 10 set at 150 (g/m3, as noted in a paper published in December of 1995. The issue facing the spill response community now is whether that standard will be adjusted to a 2.5 micron standard for particulates, per EPA's move in that direction for all PM 10 standards. Task Force agencies are likely to continue with the 10 micron standard until advised otherwise by the NRT and CDC. It is noteworthy, however, that the ALOFT model submitted to EPA for approval by ADEC is calibrated on an exposure standard of 65 (g/m3 to particulates 2.5 microns in size.

Industry acquisition of ISB equipment

There are perceptions among the member agency respondents that ISB response equipment inventories in all jurisdictions are inadequate. This may be due in part to problems with development of reliable and affordable fire boom, which in turn causes the regulated industry and their response contractors to seek absolute policy certainty before investing in the fire boom. Now that most West Coast regions have preapproval or quick approval policies in place, industry is pushing for alternative response credits towards their compliance with response standards. This request will activate another round of policy discussion which could take several years to resolve.

There is also a widespread perception among the Task Force agencies that neither government nor private sector responders are sufficiently familiar with the decision-making and operational procedures required to conduct an ISB. Furthermore, there is a sense that ISB drills are insufficient in themselves, compared to experience with real burns, in providing an adequate level of expertise.

Broaden acceptance of in situ burning through a coordinated outreach/public education program:

Task Force member agencies have not coordinated their outreach campaigns as recommended, but this is primarily a function of varying policy adoption/implementation timelines. Alaska developed brochures and a video which were used in 1994 when their ISB policy was first adopted. Those tools were also used by Washington during its public outreach for the test-burn proposal in 1996-1997. In Washington and California, key stakeholders have been involved in policy discussions, and thus have been educated on ISB issues. Oregon will need to address public education/outreach issues during workshops on the NW Area

Contingency Plan (NWACP), and should consider "borrowing tools and techniques" from other Task Force agencies for this purpose. Likewise, BC may wish to build on the efforts of other Task Force agencies in the process of developing provincial guidelines for ISB use. OSPR plans to do additional outreach when its ISB policy is final this year, and should also consider "borrowing tools and techniques" from other Task Force agencies for this purpose.

Compare the toxicity of exposure to VOCs from unburned oil with the toxicity of exposure to an ISB smoke plume; research the fate of toxics in an ISB plume:

While no comparison of these exposures has been done which would aid unified command decision makers, VOCs in unburned oil have been acknowledged as a pollutant of concern. Likewise, the fate of toxics in the plume has been researched (see Nir Birnea papers referenced above).

Two additional issues of concern have arisen since the 1995 Task Force report: 1) the fate of sinking residues from ISB; and 2) a change from a PM 10 standard to a PM 2.5 standard. Research is being conducted on the fate of sinking ISB residue and the National Response Team would advise responders when EPA and CDC recommend revising the PM 10 standard. Task Force agencies should track developments in both cases.

Implement expedited decision-making processes for dispersant use:

Both Alaska and California have final dispersant use policies in place in their Area Plans. Both provide for quick decision-making protocols tailored to specific zones.

Washington has adopted a risk analysis decision-making process, but has not implemented it due to requirements to have a monitoring plan in place. A dispersant workshop is planned for this spring in Washington and this may assist in working through the monitoring issue. National monitoring protocols are also under development which may support dispersant use in Washington.

Both Oregon and British Columbia need to adopt quick decision protocols before dispersant use is likely in either jurisdiction, although it is not currently impossible in either case. Until this has been accomplished, the 1995 Task Force policy recommendations will not have been completely implemented in these jurisdictions.

Washington should share any further refinements of its risk analysis criteria and dispersant use monitoring plan with other Task Force agencies:

There have been no further refinements on the Washington monitoring plan to share. A workshop is planned for Washington decision-makers this spring which may address this issue among other dispersant use issues. The distinction between operational monitoring and more scientific data collection will need to be made, and it is possible that data collection protocols, like the SMART operational monitoring protocols, will be developed at a national level and ultimately adapted to Washington's waters.

California should share its dispersant toxicity and efficacy testing and dispersant effects research results with other Task Force agencies:

There was no consensus among the survey responders regarding the need for improved coordination of R&D efforts for either dispersants or ISB; some respondents felt the current level of coordination was adequate. Certainly, the results of OSPR's dispersant research program are readily available to the other Task Force agencies; information regarding this research as well as work done by DEC in Alaska has been disseminated through the annual Task Force update of R&D projects among its member jurisdictions. In addition, ADEC, OSPR, and the Washington Department of Fish and Wildlife participate in the Chemical Response to Oil Spills Ecological Effects Research Forum (CROSERF), and information from that group's efforts is also generally available to Oregon and BC. Nevertheless, three out of five member agencies do support the need for enhanced coordination on both dispersant and ISB research. On the topic of R&D, it should also be noted that Task Force agencies should continue to participate in the National ISB Coordination meetings sponsored by MMS and the US Coast Guard, and to seek partnerships with both US and Canadian federal agencies on alternative response technology projects.

Plan holders and response contractors should ensure that adequate delivery systems and approved dispersant products are available:

Although there has been some demobilization of dispersant capability in SE Alaska, lack of equipment was not identified in any survey responses as a barrier to policy implementation. Dispersant use drills and reviews of equipment inventories are generally being handled by Area Committees. Industry pressure for response credits for dispersant delivery equipment will be addressed nationally when the USCG publishes a Notice of Proposed Rulemaking requiring dispersant capability for vessel owners/operators and response contractors.

Other issues relevant to dispersant use:

Regarding public education, no specific campaigns have been organized or coordinated on a regional basis. The workshop planned in Washington this spring will include key stakeholders, but will not be an opportunity for outreach to the general public.

Alaska has identified a need for such a campaign, but no other jurisdictions have. Both BC and Oregon would probably need to do some sort of outreach connected with adoption of quick decision-making protocols.

Executive Coordinator's Recommendations regarding Next Steps:

Convene the Task Force agency staff who responded to the survey on a conference call in February

Paul Heimowitz and Dick Logan of the Washington Department of Ecology should co-chair this workgroup.

Topic of discussion should a long term workgroup strategy to address the following:

- The need for enhanced coordination on alternative technology R&D issues
- The need for BC and Oregon to develop operational guidelines for both ISB and dispersant use
- The need for detailed operational plans in other jurisdictions (issue raised by DEC)

- Coordination on the issue of operational monitoring and data gathering protocols during spills of opportunity
- Protocols for small scale test burns
- Industry credits for investments in alternative technologies
- Alternative technology equipment shortfalls and mutual aid to address these
- Responder training in use of alternative technologies
- Coordination on public education campaigns (Oregon, California, BC on ISB; BC, Oregon, and Washington on dispersants)

These topics could be addressed through topic-specific meetings or conference calls which include representatives from other agencies, consultants, or industry in an advisory capacity, as needed.

It is probable that these discussions will need to continue into the next fall, thus continuing this project into the next Task Force workyear.

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