Prince William Sound Regional Citizens' Advisory Council
1994 Recertification Application

(a) Membership Information

(1) Selection and appointment process

The membership of the Prince William Sound Regional Citizens' Advisory Council is stipulated in its bylaws. Members consist of communities impacted by the Exxon Valdez oil spill and groups representing specific people or interests with a stake in the region. Member organizations appoint individuals to represent them on the RCAC Board of Directors.

Directors serve at the pleasure of the organization they represent. The bylaws require each representative be a resident of the State of Alaska with the intent of remaining a permanent resident.

Directors serve staggered two-year terms. There is no limit to the number of consecutive terms a director may serve. When a director's term expires, the member organization submits in writing the name of the person it wishes to be seated on the board. Directors are formally seated by a vote of the directors at the annual meeting in March. When a director leaves mid-term, the member organization may appoint a new replacement to fill the unexpired term. The replacement must be formally approved by the Board of Directors.

If a member organization resigns from RCAC (as occurred in 1993 with the resignation of the National Wildlife Federation), applications from other organizations representing the same constituency are solicited through advertisements in all newspapers in the spill impacted region.

(2) Board of Directors

Jim LaBelle (Anchorage), Chugach Alaska Corp. *(replaced Michael E. Brown, Dec. '93)*
Charles Christiansen (Larson Bay), Kodiak Village Mayors Association
Wayne Coleman (Kodiak), Kodiak Island Borough
Tom Copeland (Everson, WA & Cordova), Prince William Sound Aquaculture Corp. *(Replaced John Herschleb, Dec. '93)*
Tex Edwards (Homer), City of Homer
Larry Evanoff (Chenega Bay), Community of Chenega Bay
Mike Gallagher (Anchorage), City of Valdez/Seat 2
Blake Johnson (Nikiski), Kenai Peninsula Borough *(replaced Floyd Heimbuch, Aug. '93)*
Margy Johnson (Cordova), City of Cordova *(replaced Scott Sterling, March '93)*
Dennis Lodge (Seward), City of Seward
Carl Marrs (Anchorage), Alaska Chamber of Commerce
Michelle Hahn O'Leary (Cordova), Cordova District Fishermen United

Darrel Olsen (Cordova), Community of Tatitlek
Kristin Stahl-Johnson (Kodiak), City of Kodiak
Stan Stephens (Valdez), Alaska Wilderness Recreation and Tourism Association
Carol Till (Whittier), City of Whittier
Bill Walker (Anchorage), City of Valdez/Seat 1
Ivan L. Widom (Seldovia), City of Seldovia
To be appointed, Oil Spill Region Environmental Coalition

Executive Committee: Stan Stephens, President; Michelle O'Leary, Vice President; Ivan Widom, Secretary; Bill Walker, Treasurer; Wayne Coleman, Member at-large

Ex-Officio Members (non-voting)
Jerry Brossia, Alaska Department of Natural Resources
Bob Flint /Steve Provant, Alaska Department of Environmental Conservation
CDR Bill Hutmacher, U.S. Coast Guard
Carl Lautenberger, U.S. Environmental Protection Agency
Doug Mutter, U.S. Department of the Interior
Pete Petram, Alaska Division of Emergency Services
Claudia Slater, Alaska Department of Fish and Game
Bruce Van Zee, U.S. Forest Service
John Whitney, National Oceanic and Atmospheric Administration

(3) Technical Committees

Four technical committees assist RCAC in its work. The committees are composed of citizens from the spill-affected region, RCAC board members and others with particular expertise in a given field. Under new policies and procedures adopted in December 1993, committee volunteers are appointed to staggered two-year terms and may apply for subsequent terms. RCAC advertises for new committee members up to four times a year, depending on mid-term vacancies that need to be filled.

The board considers the following criteria in making committee appointments: experience or background in a technical field; strong personal interest in and commitment to safe transportation of oil and terminal operations; and place of residency. Residents of the spill-impacted region are given preference, though others are not excluded. In March 1994, RCAC adopted a code of conduct for all RCAC volunteers. This document, which must be signed by the

volunteers and is kept on file, articulates the individual's responsibilities to RCAC, its processes and policies.

Committee members and residence (* denotes RCAC director) (as of 4/1/94)

Port Operations and Vessel Traffic Systems Committee

Bill Conley (Valdez)
Vince Kelly (Valdez)
Tom McAlister (Valdez)
Peter Kompkoff (Chenega Bay)
Tex Edwards* (Homer)
Dennis Lodge* (Seward)
Vincent B. Mitchell (Valdez)

Oil Spill Prevention and Response Committee

Wayne Coleman (Kodiak)*
Tom Copeland (Everson, WA)*
Dean Rand (Cordova)
Gordon Scott (Girdwood)
Clark Torell (Cordova)
Gail Evanoff (Chenega Bay)
Floyd Heimbuch (Anchorage)
Tim Robertson (Seldovia)
Carol Till (Whittier)*
Lou Weaver (Valdez)

Scientific Advisory Committee

Jocelyn Barker (Anchorage)
Ivan Frohne (Wasilla)
Dr. A.J. Paul (Seward)
Kristin Stahl-Johnson (Kodiak)*
Richard Tremaine (Anchorage)
Bill D'Atri (Anchorage)
David Hite (Anchorage)
David Salmon (Cordova)
James Steward (Portland, OR)

Terminal Operations and Environmental Monitoring Committee

Bob Benda (Valdez)
Julie Howe (Eagle River)
Jim Levine (Anchorage)
George Skladal (Anchorage)
Michael Frank (Anchorage)
Susie Kendrick (Soldotna)
Paul McCullom (Homer)
Stan Stephens (Valdez)*

Community Information and Education Committee (disbanded Sept. 1993)

Jocelyn Barker (Anchorage)
John Parker (Kodiak)
Rick Kurtz (Anchorage)
Darrel Olsen (Cordova)*

(b) Meetings publicized and accessible to communities

Quarterly board meetings of the RCAC are publicized through press releases and advertisements in local newspapers in the region. All meetings are open to the public, with the exception of executive sessions. Committee meetings and board teleconferences are not usually publicized but they are open to the public.

(c) Interest groups represented

Commercial fishing interests are represented on the RCAC by Cordova District Fishermen United. Aquaculture interests are represented by the Prince William Sound Aquaculture Corporation.

Alaska Natives are represented by Chugach Alaska Corporation. In addition, the predominantly-Native communities of Chenega Bay and Tatitlek each has a seat on RCAC and six villages on Kodiak Island are represented by the Kodiak Village Mayors' Association.

Tourism in the region is represented by the Alaska Chamber of Commerce, and recreation interests are represented by Alaska Wilderness Recreation and Tourism Association.

The Oil Spill Region Environmental Coalition has been selected to represent environmental interests, to replace the National Wildlife Federation, which resigned from RCAC in July 1993. The coalition consists of the Prince William Sound Conservation Alliance, Alaska Marine Conservation Council, Alaska Center for the Environment, Kodiak Conservation Network, Kodiak Audubon Society and Chugachmiut Environmental Protection Consortium. The latter is a coalition of the villages of Tatitlek, Chenega Bay, Port Graham and Nanwalek.

d) Activities

(1) RCAC has reviewed the operations and maintenance of terminal and tankers through the following activities:

• Disabled tanker towing study

RCAC spearheaded and co-sponsored a study of disabled tanker towing in Prince William Sound. The study is evaluating the capability of existing emergency towing equipment and practices to tow a disabled tanker. The study is also examining alternatives that would enhance escort and assist capabilities. A final report is expected by June 1994. The study was co-

sponsored by the Prince William Sound Tanker Association. The U.S. Coast Guard, Alaska Department of Environmental Conservation, and Alyeska Pipeline Service Co. participated as non-funding co-sponsors.

• Survey on safety of navigation

RCAC surveyed tanker deck officers about the suitability of current navigation aids and escort procedures in Prince William Sound. The survey prompted RCAC to recommend improvements in the nautical chart of the approach to Hinchinbrook Entrance and installation of additional weather reporting stations in the Sound. Comments received in the survey are also being incorporated into a scoping study of human factors in marine casualties. *(See (e) page 22)*

• Ballast water treatment

– RCAC participates in a working group with the Alaska Department of Environmental Conservation, EPA and Alyeska to discuss issues related to Alyeska's ballast water treatment plant (BWTP) at the Valdez Marine Terminal.

– RCAC developed a proposal for a comprehensive examination of chemicals discharged into the BWTP, and the effluent discharged from the treatment plant into Port Valdez. The proposed study could provide answers to long standing questions about toxicity in the effluent and the presence of polycyclic aromatic hydrocarbons in sediments and marine life in Port Valdez. The study may be conducted jointly by RCAC and Alyeska Pipeline Service Co.

– RCAC and ADEC entered into a contract in January, 1994, for joint monitoring of ballast water influent and effluent. RCAC has retained an independent laboratory to conduct the sample analyses for the project. Sampling was expected to begin in April. RCAC's objective in conducting this joint monitoring project is to determine the normal composition of ballast water off-loaded from tank vessels to the BWTP and to determine if it contains compounds, which if present in sufficient quantity, could be considered as either illegal disposal of that compound or disposal of a compound which the BWTP is incapable of treating.

– RCAC monitored Alyeska's exceedence of the state's total hydrocarbon standard at the edge of the ballast water treatment plant mixing zone and state regulatory action on the issue. RCAC urged the Alaska Department of Environmental Conservation to enforce the state water quality standard.

– RCAC reviewed and commented on Alyeska's proposal for effluent and sediment toxicity testing in 1993.

– RCAC monitored the request and subsequent approval for discharge into the ballast water treatment plant of waste water contaminated with raw vacuum gas oil. There was concern that the waste stream was not anticipated by Alyeska's Best Management Practices Plan to be

discharged into BWTP. In addition, contrary to OPA 90, approval for discharge of this waste was granted by EPA without prior consultation with RCAC. RCAC questioned the waste can be treated by the BWTP.

• Corrosion Inhibitors

Since January of this year, RCAC representatives have met with Alyeska and EPA several times to discuss the use of corrosion inhibitors at the Valdez Marine Terminal. RCAC is concerned these chemicals may be discharged from the ballast water treatment plant at concentrations that are toxic to marine organisms in Port Valdez. To date, no toxicity information has been collected on these chemicals, although one of the ingredients is known to be toxic to marine organisms. RCAC would like to see toxicity tests performed to determine the concentration at which the chemicals are toxic to marine organisms. EPA and Alyeska have not expressed an intent to do this. RCAC is now seeking a qualified marine toxicologist to advise whether and what kind of toxicity tests are warranted on this product.

• Vapor controls at terminal

Since January RCAC has maintained a dialogue with Alyeska on a vapor control technology that would recycle, rather than incinerate, recovered tanker loading vapors at the marine terminal. The chairman of RCAC's Terminal Operations and Environmental Monitoring Committee, an engineer by profession, traveled to Germany and Denmark with Alyeska representatives at the end of January to review developments in vapor control technology.

In an effort to resolve a scientific dispute, RCAC and Alyeska agreed to co-sponsor a "tracer" study to resolve disagreements about the degree to which vapor emissions from tanker loading contribute to air pollution in Valdez.

• Incident

RCAC monitored an incident in May 1993 that caused vibration in a pipeline valve, loose fittings, cracks and spilled oil at the terminal's East Metering Building.

• Air quality control permit

RCAC reviewed and commented on the state air quality control permit for the terminal, covering emissions from power boilers, waste gas incinerators, crude oil storage tanks, solid waste incinerator and the ballast water treatment plant. RCAC also reviewed and commented on a proposal by Alyeska to measure air emissions from the ballast water treatment plant to obtain samples for source testing.

• Elevated hydrocarbons

RCAC monitored efforts by Alyeska and regulatory agencies to determine the source of elevated hydrocarbon exposure detected in two flatfish collected near the terminal.

• Work groups

RCAC also reviews terminal and tanker operations through participation in numerous formal and informal work groups with industry and regulatory agencies. They include:

- Valdez Marine Operations Committee - Meets to discuss and resolve issues relating to marine operations in the port of Valdez. Participants include U.S. Coast Guard, Alaska Department of Environmental Conservation, Tidewater Marine, Crowley Maritime, RCAC, Alyeska, Shippers and Southwest Alaska Pilots Association. The committee meets quarterly in conjunction with the Prince William Sound Tanker Association.

- Prince William Sound Tanker Association - Meets to discuss and resolve issues related to the safe operations of TAPS tankers. The members are the TAPS tanker owners and operators. Regular attendance by: USCG, ADEC, Tidewater Marine, Crowley Maritime, RCAC, Alyeska and SWAPA.

- Terminal users' group - This group is sponsored by Alyeska. It meets quarterly, or as needed, and focuses more on the terminal than the previous two groups. In attendance at these meetings are ships' agents, gaugers, etc. RCAC usually attends. The meetings are a chance for the key players in the terminal operation to meet and talk.

- Fire Protection Task Force- The group was initiated by RCAC to review and assess fire protection at the terminal. Members include RCAC, U.S. Coast Guard, Prince William Sound Tanker Association, City of Valdez, Mayor's ad hoc Committee on oil and Gas.

- Ballast Water Treatment Plant Working Group: This group was initiated by the Alaska Department of Environmental Conservation (ADEC) to address issues related to ballast water treatment. Members are ADEC, RCAC, the U.S. Environmental Protection Agency, Alyeska Pipeline Service Company, U.S. Coast Guard, and the Technical Advisory Group to the ADEC.

(2) Review of oil spill prevention and response plans

• Alyeska Valdez Terminal Oil Spill Prevention and Response Plan, Third Edition

In December 1993, RCAC began reviewing this plan under the State of Alaska review process. RCAC made recommendations to the state about the review process, itself, and has submitted comments and recommendations on the content of the plan. Among RCAC's recommendations are that the plan clearly specify the Fire Response Team organization and responsibilities, that it address the potential for a an oil spill from a tanker

fire at berth or underway, and that pertinent sections of other cross-referenced documents be incorporated into the plan.

• Vessel response plans and marine transportation-related facilities (federal rulemaking)

RCAC reviewed and submitted comments on the interim final rules for vessel response plans and marine-transportation facilities. Among its recommendations, RCAC urged that:

- tanker owners and operators be required to ensure availability of Prince William Sound resources to remove a worst case discharge;

- a requirement be added to ensure adequate intermediate storage and transfer capability;

- a time period be specified in the rule for marine-transportation facilities for removing a 200,000 barrel spill (RCAC suggested four days).

• Prince William Sound Shoreline Cleanup Plan

In comments to Alyeska, RCAC recommended the plan:

- describe a response to specific spill sizes (less than 200,000 gallons; up to 8 million gallons; and worst case of more than 8 million gallons);

- be revised to stand alone, by incorporating referenced information from the Prince William Sound Tanker Spill Prevention and Response Plan;

- recognize a method for regulatory agencies' approval of cleanup methods.

• State/Federal Unified Plan

RCAC reviewed and commented on the unified plan. Among its recommendations to the U.S. Coast Guard, RCAC suggested that the plan provide for optimum participation by RCAC in the response structure; that the plan specify the composition of the Area Committee to include local representatives as envisioned under OPA 90; and that the plan clarify thresholds and response scenarios.

• Prince William Sound Area Contingency Plan

RCAC has had representatives at every meeting of the Area Committee and is working to clarify its relationship to the Area Committee. In April 1994, RCAC submitted detailed comments on the Prince William Sound Area Plan. In summary, RCAC recommended further development or amendment in four key areas:

– optimum participation by RCAC in the response structure and the Area Committee;

– a more comprehensive approach to include response to facility discharges, in addition to vessel spills;

– inclusion of a description of the economically and environmentally sensitive areas within the Prince William Sound sub-area; and

– more clearly defined response structure, strategies and response scenarios.

• SERVS' Oil Spill Response Handbook for Fishing Vessel Operators'

RCAC recommended that more information be provided about the initial response; and that the manual outline the safe use of skiffs as an adjunct tool for fishing vessels involved in oil spill response.

• Individual vessel response plans (state and federal)

In preparation for reviewing as many as 26 vessel response plans for Prince William Sound, RCAC developed a contingency plan review program, a set of guidelines for assessing whether oil spill prevention and response plans meet state and federal requirements. The program is being used to review and comment on the vessel response plans up for public review, beginning this month (April).

• Prince William Sound Tanker Spill Prevention and Response Plan

As it has in previous years, RCAC participated in working groups with industry and regulators to revise and update elements of the Prince William Sound Tanker Spill Prevention and Response Plan, which describes how Alyeska will respond in the first 72 hours after a tanker spills oil in Prince William Sound.

RCAC participated in the following working groups related to the Prince William Sound Plan:

– Prince William Sound Tanker Spill Prevention and Response Planning Steering Committee, organized by the State of Alaska to revise and update the Prince William Sound Plan.

– Mechanical Containment & Training Work Group, of the Prince William Sound Steering Committee, to assist the Prince William Sound planholders in revising and updating their contingency plans for Prince William Sound. In reviewing equipment requirements, RCAC analyzed dock facilities in four Prince William Sound communities to determine the viability of moving 3 million pounds of oil spill response equipment onto vessels in 72 hours.

– Plans Coordination Work Group, of the Prince William Sound Steering Committee, to oversee technical editing of all work group products being revised and updated in the Prince William Sound contingency plans.

– Coastal Resources and Sensitive Areas Work Groups, of the Prince William Sound Steering Committee, to identify and prioritize sensitive resources and areas that may be impacted by a spill.

RCAC is also working with Alyeska in an effort to address RCAC's serious concerns over the imminent withdrawal of Alyeska from its role as the author, or planholder, of the Prince William Sound Plan.

• Nearshore Response

RCAC facilitated meetings between Alyeska and the Alaska Fish Spotters Association (AFSA) . The goal of these meetings is to plan a role for fish spotters in nearshore response. Alyeska and the AFSA have agreed to propose to the Prince William Sound Steering Committee that such a role be incorporated into the Prince William Sound Nearshore Response Plan.

RCAC also continued to participate in the State of Alaska's Nearshore Demonstration Project Work Group, to develop a nearshore response barge and training project.

• Oil spill analysis

In related work, RCAC did an historical analysis of 63 oil spills between 1960 and 1993. The report analyzed the effects of weather, fire and explosion, structural failure, collisions and groundings on spill response. The report examined the ability of responders to meet the state's 72-hour requirements for oil recovery and equipment on site.

Two reports reviewed Alyeska's trajectory model for anticipating movement of oil on water in Prince William Sound and gave a timeline for movement of oil during the 1989 Exxon Valdez oil spill.

(3) Work done to monitor drills and cleanup of actual discharges

Drill Monitoring

In 1993, RCAC monitored 31 drills and training exercises conducted by Alyeska and shippers. These included two full scale operations, one for Tesoro in the spring and a three-part British Petroleum drill that began in August and concluded in October. In addition to monitoring, RCAC staff, directors and volunteers participated in major drills, as planners, monitors and participants.

In addition, five tanker assistance exercises, several skimmer booming operations and other oil spill response drills were observed. Skimming rates and storage capacities of Alyeska's response equipment were also analyzed and a computer generated database was developed of vessels in the SERVS response system.

This pace of drill monitoring continued in the first quarter of 1994. For example, RCAC monitored a surprise drill Jan. 19 in Prince William Sound called by the U.S. Coast Guard, and various equipment deployment exercises.

RCAC submits written comments, observations and critiques after each drill monitored, and frequently participates formally on evaluation teams.

Spill Monitoring

RCAC sent three observers to Shetland in January to monitor response to the *Braer* grounding. Based on observations in Shetland, RCAC testified to a Congressional committee about the need for additional measures to rescue disabled tankers and better assess potentially dangerous weather conditions. RCAC also monitored and reported on the Tesoro/Petro Star diesel spill in August.

RCAC monitored two incidents (11/8/93 and 3/11/94) of the ARCO Texas leaking around dry-dock plugs, and a spill of unknown origin reported by the Valdez Star (2/4/94).

(4) Review or coordinate scientific studies with recognized experts

• Materials Balance Proposal

For this project, RCAC retained consultants Ihor Lysyj and Daryl Hockley to assist in developing a proposal for a comprehensive chemical analysis at the ballast water treatment plant. Ihor Lysyj, (M.S. chemistry), independent consultant with extensive experience in the environmental effects of waste water discharges at the Valdez Marine Terminal, and hydrocarbon waste treatment in general. Daryl Hockley (M.S. environmental engineering) is a civil engineer with the firm of Steffen, Robertson & Kirsten, of Vancouver, British Columbia.

RCAC consulted with a panel of experts comprising the Technical Advisory Group to the Alaska Department of Environmental Conservation: Dr. Donald Button, Institute of Marine Science, University of Alaska, Fairbanks; Dr. John Karinen, NOAA Auke Bay Laboratory; Dr. Fredericka Ott, Cordova; Dr. Don Weston, University of California, Berkeley; Dr. William G. Nelson, School of Engineering, University of Alaska Anchorage.

RCAC also worked closely with representatives of Alyeska, the Alaska Department of Environmental Conservation and the Environmental Protection Agency.

• Tracer study/Hydrocarbon emissions and air quality

RCAC consulted with air quality experts on early planning for a tracer study of benzene emissions at the terminal. These consultants were initially retained in 1992: Yoram Cohen, Ph.D., associate professor at the University of California, Los Angeles; Arthur M. Winer, Ph.D., Horizon Research, Riverside, California; Gary Pascoe, Ph.D., Environmental Toxicology International Inc., Seattle, Washington; Charles E. Schmidt, Ph.D., Environmental Consultant, Red Bluff, California; Lyle R. Chinkin, Sonoma Technology Incorporated, Santa Rosa, California; Gerald E. Anderson, Systems Applications International, San Rafael, California.

RCAC and its consultants are working closely with Alyeska on this project.

• Disabled tanker towing study

RCAC retained two consultants to assist in reviewing elements of the engineering study, conducted by The Glosten Associates. William I. Milwee, Jr. (B.S. in Marine Engineering and an M.S. in Naval Architecture) spent 24 years in the U.S. Navy and has been a private consultant in marine operations for 15 years. George Randall (B.S. in Naval Architecture and an M. Sc. in Ocean Engineering), independent consultant past 18 years; previously spent 18 years with The Salvage Association.

• Human factors issues in shipping and spill prevention requirements analysis

Battelle Human Affairs Research Center, part of the Battelle Memorial Institute, has been retained to conduct a preliminary analysis of human factors issues in shipping and spill prevention. Battelle Memorial Institute is an international research and development organization, serving clients in 35 countries. Battelle's Pacific Northwest Division, established in 1965, conducts scientific and engineering research with an emphasis on technical innovation and practical applications of technology.

(5) Activities to review developments in spill prevention and clean-up technology

• RCAC sent representatives to the International Oil Spill conference in Tampa, a widely respected international conference which includes both recent technological innovations and scientific research. The conference also provided RCAC with the opportunity to observe response equipment demonstrations.

• RCAC representatives met with the manager of the Oil and Hazardous Material Simulated Environmental Test Tank (OHMSETT) and toured OHMSETT's test tank facility in New Jersey. OHMSETT is the largest equipment testing tank in the country.

• RCAC met with the Research and Development Section, Marine Spill Response Corporation (MSRC) and formed an unofficial liaison with MSRC's Research and Development Committee. MSRC has the largest independent research budget in the country and has been involved with some of the most cutting edge research going on, i.e. the Newfoundland Oil Burn Experiment.

• RCAC participated in the Alaska Regional Response Team's Response Technology Work Group (RTWG). The RTWG includes scientists from state and federal resource agencies along with industry and the public. The group is responsible for developing guidelines and policy recommendations for the Regional Response Team regarding such issues as burning and dispersant use.

• RCAC regularly monitored technical journals and publications.

• The following systems and developments were reviewed as part of RCAC's drill monitoring program:

– Development of the Nearshore Response Plan by Alyeska

– Use of Spectra 12, a new synthetic material in tow lines for tankers

– Booming and trans rec skimming at a berth at the terminal

– Working with floating, battery powered, spill trackers to enable Alyeska to follow an oil spill at night

– Demonstration of spill protection at mariculture sites by Alyeska

– NOFI System, a new system for collection and skimming recently acquired by Alyeska's Ship Escort/Response Vessel System

(6) (I) Review of port operations, organizations safety systems and incidents

• Weather stations - RCAC advocated installation of additional weather stations in Prince William Sound to improve safety by providing more accurate information about wind and sea conditions. Industry representatives and local regulators are actively supporting the effort.

• Fire drill - RCAC observed and reported on a fire drill on the T/V Kenai, conducted Sept. 9, 1993. The drill was suggested by the Fire Protection Task Force, of which RCAC is a member.

• Overseas Ohio collision with iceberg - RCAC monitored the incident and one of its technical committees forwarded ideas and suggestions to the U.S. Coast Guard Marine Safety Office, Valdez.

• RCAC recommended weekly updating of the U.S. Coast Guard's Port System Information Exchange, a database of ship casualties and Coast Guard inspections. The information exchange is currently updated quarterly.

• RCAC monitored reports of two new vessels calling at Valdez to ascertain casualty history and contingency plan approval. In both cases, the vessels had called at the terminal in the past, under different names.

• RCAC monitored the following incidents and situations:

6-4-93: Tonsina crack where bulbous bow meets hull; notified by Alyeska, followed up with MSO Valdez.

6-13-93: Received report that Atigun Pass was going through Narrows very slowly. Suspected loss of power. Investigation with MSO Valdez showed the vessel slowed to 2 knots in Narrows. Ship had slowed so ABC News could get more footage as ship transited Narrows.

1-13-94: Meet with Crowley, Alaska Department of Environmental Conservation, SERVS, US Coast Guard, SeaRiver Maritime, and BP to discuss wind restrictions in Prince William Sound.

2-13-94: ARCO Independence enters port when winds are in excess of 40 knots. Council members notified. POVTS Committee considers matter.

3-4-94: Storm warning at Hinchinbrook Entrance. No wind reports from vessels in 24 hours.

3-10-94: Crack discovered on the ARCO Texas at the terminal.

3-16-94: Tonsina (inbound) leaves traffic lanes to avoid ice. Loiters in Port Valdez, then docks at Valdez Container Terminal. Port closed due to ice, then closed due to high winds.

(6) (ii) Recommendations to promote safer transportation of oil

* RCAC urged federal agencies to install additional weather reporting stations in Prince William Sound, in order to provide more accurate information about wind and sea conditions.

* RCAC wrote to the U.S. Coast Guard urging better enforcement of work hour restrictions on foreign flag vessels, consistent with OPA 90.

* RCAC recommended the U.S. Coast Guard wait for the results of the Disabled Tanker Towing Study before finalizing escort requirements for Prince William Sound.

* RCAC recommended NOAA revise the navigation chart for the approach to Hinchinbrook Entrance.

* RCAC recommended all laden tankers be escorted by one tug and one escort response vessel (ERV). Alyeska had proposed to use two escort response vessels through the Valdez Narrows while an escort tug was out of service. RCAC worked with SERVS and MSO Valdez to resolve the issue. SERVS eventually agreed to use one ERV and one tug.

* RCAC recommended weekly updating of the U.S. Coast Guard's Port System Information Exchange, a database of ship casualties and Coast Guard inspections. The information exchange is currently updated quarterly.

* RCAC monitored decisions and changes that could compromise oil spill response capabilities. When a key response barge was taken out of service in December 1993, the back-up did not include another barge. RCAC urged that another barge be brought in to ensure continued

response capability. Alyeska did so and the State of Alaska subsequently agreed with RCAC that failure to have a substitute barge in place resulted in inadequate response capability. RCAC also recommended that in the future, the Alaska Department of Environmental Conservation make sure that back-up response equipment is adequate and in place before allowing equipment such as a barge to be taken out of service.

* RCAC protested legislation that would weaken state programs in oil spill prevention, response and oversight. RCAC also conducted grassroots lobbying efforts to inform the public about the legislation's threat to safe oil transportation.

* In comments on the federal rulemaking regarding "Structural and Operational Measures to Reduce Oil Spills From Existing Tanker Vessels Without Double Hulls," RCAC recommended a three-year phase-in of the proposed requirements; carriage of lightering equipment as described in the rule; and protectively located non-oil spaces, as proposed in the rulemaking.

* The full scale on-water trials portion of the Disabled Tanker Towing Study revealed areas in need of improvement. RCAC, industry and Coast Guard representatives engaged in a "lessons learned" session to develop recommendations in towing practices and procedures. Seven of the nine recommendations were adopted by the vessel owners and operators. In addition, RCAC recommended a crewman be added in the aft steering of the tankers while transiting Valdez Narrows.

(7) Implementation of environmental monitoring strategy

Long Term Environmental Monitoring Program

Strategy: Establish temporal and spatial hydrocarbon baseline by testing summer and winter (2 times/year) hydrocarbon levels in mussel (*Mytilus edulis*) tissue and sediment. Samples are collected at a combination of oiled (by EVOS) and unoiled sites. Analyses of the samples identify whether the source of any hydrocarbon presence is Alaska North Slope crude, natural seeps, refined or unrefined.

(8) Environmental projects undertaken

Long Term Environmental Monitoring Program

RCAC is in the second year of sampling in a long term environmental monitoring program to collect baseline data on the ecosystems and organisms of Prince William Sound and the Gulf of Alaska. The study provides baseline measurements of hydrocarbons present in shallow sub-tidal sediments and inter-tidal mussels. The study also identifies the source of any hydrocarbons present. Field surveys are conducted twice a year at sites in Prince William Sound and the Gulf of Alaska. Sampling is conducted at sites both oiled and not oiled by the Exxon Valdez spill. The data will provide a benchmark for assessing the impacts of oil transportation and any future oil

spills. To date, field samples have been taken three times, in March and July, 1993, and March 1994.

Ballast Water Treatment Plant Sampling and Monitoring

RCAC and ADEC entered into a contract in January, 1994, for joint monitoring of ballast water influent and effluent at the Valdez Marine Terminal. The objective is to determine the normal composition of ballast water off-loaded from tank vessels to the Ballast Water Treatment Plant (BWTP) and to determine if it contains compounds, which if present in sufficient quantity, could be considered as either illegal disposal of that compound or disposal of a compound which the BWTP is incapable of treating.

Bibliography of Bibliographies

A central listing was compiled of bibliographies that reference hydrocarbon interactions and/or pollution relative to environmental monitoring in high latitude, cold climate conditions.

Current Research Profile

Information was compiled describing research in progress in natural sciences and in the Exxon Valdez impact area.

Materials Balance Study

The RCAC developed a proposal for a comprehensive chemical analysis at the terminal's ballast water treatment plant. Past studies have shown an accumulation of hydrocarbons in Port Valdez sediments and recent evidence suggests that the ballast water treatment plant discharge has caused measurable adverse effects on marine life. The most comprehensive option for the study would address the fate of each unit-process entering the ballast water treatment plant, including emissions to the air and discharges to the Port of Valdez.

Tracer Study

Initial planning work has begun on a "tracer" study to determine how much of the benzene in Valdez comes from hydrocarbon vapors emitted during tanker loading. If the study proceeds, it will be conducted jointly by RCAC and Alyeska. A final decision is expected in May.

Corrosion Inhibitors

RCAC will retain a marine toxicologist to advise whether and what kind of toxicity tests may be warranted on corrosion inhibitors at the Valdez Marine Terminal. To date, no toxicity information has been collected on these chemicals, although one of the ingredients is known to be toxic to

marine organisms. RCAC would like to see toxicity tests performed to determine the concentration at which the chemicals are toxic to marine organism.

(9) Environmental conditions and locations monitored

Long term environmental monitoring program

Samples of blue mussels and subtidal sediments were taken in summer and winter conditions at sites in Prince William Sound and the Gulf of Alaska. The sampling sites in Prince William Sound were the Valdez Marine Terminal, Disk Island, Gold Creek, Knowles Head, Olsen Bay (discontinued), Sheep Bay, and Sleepy Bay. Sampling sites in the Gulf of Alaska were Aialik Bay, Harris Bay (relocated), Perevalnie Passage (relocated), Shuyak Harbor, and Windy Bay.

Tracer study

The study would track the path of vapors from the terminal to determine what share of the benzene in Valdez originates at the terminal.

Ballast Water Treatment Plant Sampling and Monitoring

Samples will be collected from the sampling ports on one of the Chiksan arms, the arms used to off-load ballast water and load crude oil onto the tankers. Samples will be collected at the beginning, middle and/or end of a vessel's deballasting phase. An ample amount of ballast will be allowed to flush out the sampling port and Chiksan arms prior to sampling.

Materials Balance Study: Parameters of the study have yet to be finalized.

(10) Environmental impacts assessed

Long term environmental monitoring program: Presence and types of hydrocarbons in mussel tissue and sediments.

Tracer study: Impact of terminal operations (tanker loading) on air quality in Valdez.

Ballast Water Treatment Plant Sampling and Monitoring & Materials Balance Study : These projects are closely related to the environmental impacts of effluent from the ballast water treatment plant on marine life.

(11) Scientific experts, universities and scientific institutions consulted

• Long term environmental monitoring program

RCAC retained the following scientific experts as peer reviewers: Jeffrey Bromaghin, Ph.D. Statistics (Regional Biometrician at Alaska Department of Fish and Game); Stanley Rice, Ph.D. Comparative Physiology (directs habitat investigations and EVOS damage assessment at

NOAA's Auke Bay Lab); Ronald Tjeerdema, Ph.D. Pharmacology & Toxicology , Asst. Professor of Toxicology, U.C. Santa Cruz.

• Hydrocarbon emissions at the Valdez Marine Terminal

RCAC consulted with the following experts:

Yoram Cohen, Ph.D., Chair (Multimedia Envirosoft, Los Angeles, CA, and Associate Professor, University of California, Los Angeles); Arthur M. Winer, Ph.D. (Horizon Research, Riverside, CA); Gary Pascoe, Ph.D. (Environmental Toxicology International Inc., Seattle WA); Charles E. Schmidt, Ph.D. (Environmental Consultant, Red Bluff, CA); Lyle R. Chinkin (Sonoma Technology Incorporated, Santa Rosa, CA); Gerald E. Anderson (Systems Applications International, San Rafael, CA).

• Human factors issues in shipping and spill prevention requirements analysis

Battelle Human Affairs Research Center, part of the Battelle Memorial Institute, has been retained to conduct a preliminary analysis of human factors issues in shipping and spill prevention. Battelle Memorial Institute is an international research and development organization, serving clients in 35 countries. Battelle's Pacific Northwest Division, established in 1965, conducts scientific and engineering research with an emphasis on technical innovation and practical applications of technology.

* Ballast water treatment issues

RCAC retained Ihor Lysyj (M.S., chemistry) and Daryl Hockley (M.S., environmental engineering). Mr. Lysyj is an independent consultant with extensive experience in the environmental effects of waste water discharges at the Valdez Marine Terminal, specifically, and hydrocarbon waste treatment in general. Mr. Hockley is a civil engineer with the firm of Steffen, Robertson & Kirsten, of Vancouver, British Columbia.

RCAC also consulted with the Technical Advisory Group to the Alaska Department of Environmental Conservation: Dr. Donald Button, Institute of Marine Science, University of Alaska, Fairbanks; Dr. John Karinen, NOAA Auke Bay Laboratory; Dr. Fredericka Ott, Cordova; Dr. Don Weston, University of California, Berkeley; Dr. William G. Nelson, School of Engineering, University of Alaska Anchorage.

• Socio-economic mitigation project

The following experts served as RCAC's quality control board for this project: Patrick Burden, M.S. Economic Geography; Christopher L. Dyer, Ph.D. Marine Anthropology; Peter

Froelich, M.S. Sociology; Rachel Mason, Ph.D. Anthropology; Bruce Smith, Ph.D. Clinical Psychology.

• Other consultants and contractors

RCAC contracted with the following scientific experts and institutions:

- Kinnetic Laboratories, Inc. to conduct the long term environmental monitoring program;

- The Environment and Natural Resources Institute, University of Alaska Anchorage, on the Bibliography of Bibliographies and Current Research Profile (See (8));

- The Institute for Social and Economic Research (ISER), University of Alaska Anchorage. on the socio-economic mitigation project.

- Members of RCAC's Scientific Advisory Committee are appointed in large part for their fields of expertise: Sharon Araji, Ph.D. Sociology; Ivan Frohne, M. A. Biostatistics; James Hemming, M. S. Zoology; A. J. Paul, Ph.D. Biological Oceanography; Chuck Smythe, Ph.D. Cultural Anthropology

• Response technology

– In December, 1993, RCAC representatives met with Larry Hannon of the Oil and Hazardous Material Simulated Environmental Test Tank (OHMSETT) facility in New Jersey. Oceanographer Joe Mullin also presented information regarding the facility and MMS activities. Both were very active in the Newfoundland Oil Burn Experiment and they provided the RCAC representatives with information on the Newfoundland burn.

– In December, 1993, RCAC representatives met with Dr. Rainer Englehardt, vice-president for Research and Development, Marine Spill Response Corporation (MSRC). The RCAC representatives were updated on the recent projects and work of the MSRC Research and Development Section.

– Regional Response Team, Response Technology Working Group members - Members of the working group include scientists from state and federal resource agencies along with industry and the public. Through this working group process, RCAC representatives were able to consult with these scientists on the use of response techniques such as burning and dispersant use.

(e) Abstracts of ongoing reports and studies related to minimizing impacts of operations of terminal facilities and crude oil tankers.

• Disabled tanker towing study

This project is intended to ultimately result in safer oil transportation by revealing the equipment and procedures that will best be able to assist disabled tankers.

Part 1 of the study was completed in October 1993. It evaluated existing tugs, emergency towing equipment and towing practices. It also included a discussion of alternative equipment. The evaluation was conducted by Capt. Jan ter Haar, a senior salvage master with the Dutch firm Smit Tak BV. The evaluation was based on inspections, conducted in November 1992, of escort vessels operated by Alyeska Pipeline Service Co. and 30 tankers.

Part 2 of the study, an evaluation of alternative equipment and deployments, is expected to provide additional information and verification needed to draw conclusions about disabled tanker towing. Part 2 will provide a relative ranking of tug and escort configurations, based on computer simulation of real world situations. The simulations will include at least 15,000 scenarios, with variables for ship size, tug type and escort configuration, weather condition, geographic location and tanker speed. Part 2 is expected to be completed in June 1994.

Full scale trials, using three tankers, were conducted in September and October 1993 to verify the computer model. The purpose of the trials was to verify that the interaction of ship and tugs indeed works as predicted by the computer model. Part 2 also includes pulling trials using many of the tugs in Port Valdez.

Lead consultant on the study is The Glosten Associates, Inc., a Seattle-based naval architecture and marine engineering firm with extensive experience in tug and barge design, computer simulations, testing and tug performance prediction. In addition to Smit Tak, the study team includes Maritime Research Institute Netherlands (MARIN), and Maritime Simulation Centre the Netherlands (MSCN).

The Disabled Tanker Towing Study is a joint effort of RCAC, the Prince William Sound Tanker Association, the U.S. Coast Guard, Alyeska Pipeline Service Co., and the Alaska Department of Environmental Conservation.

• Ballast Water Treatment Plant Monitoring

This project is intended to mitigate the environmental impacts of terminal operations specifically by monitoring ballast water treatment influent and effluent.

RCAC and ADEC entered into a contract in January, 1994, for joint monitoring of ballast water influent and effluent at the Valdez Marine Terminal. The objective of this joint monitoring project is to determine the normal composition of ballast water off-loaded from tank vessels to the Ballast Water Treatment Plant (BWTP) and to determine if it contains compounds, which if present in sufficient quantity, could be considered as either illegal disposal of that compound or disposal of a compound which the BWTP is incapable of treating.

• Materials Balance Study

This project is intended to mitigate the environmental impacts of the terminal by revealing new information about the nature and toxicity of substances discharged into Port Valdez as treated effluent. Steps could then be taken to mitigate the environmental impacts of the effluent.

RCAC has developed a proposal for a materials balance study at the Valdez Marine Terminal's ballast water treatment plant (BWTP). The proposal has been presented to the Ballast Water Treatment Plant Working Group, consisting of RCAC, the Alaska Department of Environmental Conservation, the U.S. Environmental Protection Agency and Alyeska Pipeline Service Co.

The purpose of the study is to provide answers to long standing questions about the causes of toxicity in the effluent and the presence of polyaromatic hydrocarbons in Port Valdez sediments and marine life.

Chemical monitoring at the BWTP and environmental monitoring programs in Port Valdez have been conducted since 1977. Central questions remain unresolved, however, about the ability of the BWTP to effectively treat the waste streams it receives, the fate of certain components entering the waste stream and the composition of the effluent discharged from the plant into Port Valdez. For example:

* Chemical analyses presently conducted on the waste water discharged from the BWTP are not detecting toxic substances at toxic concentrations. Yet the results of toxicity tests conducted on marine animals over the last four years indicate effluent from the BWTP has remained consistently toxic to marine test organisms.

* Chemical analyses of the effluent show that the heavier polycyclic aromatic hydrocarbons are usually below detection limits. Yet PAHs have been found at elevated levels in Port Valdez sediments near the BWTP diffuser pipe and flatfish caught near the terminal showed exposure to PAHs. The origin of these PAHs remains unknown.

* A materials balance calculation for the BWTP, performed by Woodward-Clyde Consultants (1992) on the basis of available data, accounted for less than 50 percent of the oil and grease entering the plant, and only 13 percent of total organic carbon.

To resolve these and other issues, the Technical Advisory Group, a panel of technical experts chartered by the State of Alaska, has repeatedly called for a materials balance investigation at the BWTP.

The chief objective of the study is to evaluate the effectiveness of the BWTP in reducing the discharge of toxic chemicals to the Port Valdez environment. In meeting this objective, the proposed study also is expected to:

* Resolve public uncertainty about the effectiveness of the BWTP.

* Demonstrate the capability of the BWTP to deal with contaminants of different types.

* Provide a rational basis for recommending plant modifications, if any, to mitigate the environmental risks posed by BWTP emissions to air and water.

* Provide a rational basis for selecting parameters to be monitored in the next NPDES (National Pollution Discharge and Elimination System) permit.

* Clarify the BWTP's relationship to observed effects in the receiving environment.

* Identify the components causing observed chronic and acute toxicity in the BWTP effluent, and characterize the sources of these components.

* Illuminate the issue of metabolism in the BWTP's biological treatment tanks, including the nature and magnitude of toxic derivatives in the BWTP process.

Status: RCAC and Alyeska are working to find a study design that would satisfy both, in hopes that it will be conducted and funded jointly. The U.S. Environmental Protection Agency and the Alaska Department of Environmental Conservation are being kept informed about this project.

• Human factors issues in shipping and spill prevention requirements analysis

This project is intended to make oil transportation safer by taking the first steps toward reducing the incidence of marine accidents caused by human factors.

RCAC is co-sponsoring, with Cook Inlet RCAC, a preliminary analysis of human factors issues in shipping and spill prevention. The study will identify the extent to which changes in human behavior, produced by working conditions or other factors, can play a role in maritime accidents. The study is to identify the specific human factors and will develop proposals for studies and projects to address the problems identified.

The intention is that this study will be used to develop a larger scale study into human behavioral maritime problems particular to Alaska. The data will be obtained through interviews and focus groups with a broad cross-section of the maritime community, including shipping companies, pilots, working seamen and regulators. The contractor for this project is Battelle Seattle Research Center, of Seattle, Washington, and Dr. Martha Grabowski and Capt. Mitchell Stoller. The project formally began in March 1994 and will be completed by June 10, 1994.

• Corrosion Inhibitors

This project is intended to mitigate the environmental impacts of terminal operations by determining whether a new process will be harmful to marine life.

In 1993, EPA granted Alyeska interim approval to use corrosion inhibitors at the Valdez Marine Terminal. RCAC is concerned about the use of corrosion inhibitors at the terminal. RCAC researched the topic for the better part of 1993 and will continue to work on this topic in 1994. A

marine toxicologist will be retained to determine if and what kind of toxicity tests should be done on this product to ensure it is not harmful to marine life.

• Tracer study (pending)

This project is intended to mitigate the effects of terminal operations by identifying the environmental impacts of vapor emissions on air quality in Valdez.

In September 1993, RCAC and Alyeska tentatively agreed to conduct a joint study to determine how much of the total benzene in Valdez comes from sources at the Valdez Marine Terminal. Some initial planning work has been done, but Alyeska's decision to install a vapor control system – which RCAC has been urging for several years – raises some doubts about whether the tracer study will go forward. A decision on whether to proceed is expected in May.

A primary purpose of the tracer study would be to resolve a "dueling scientists" conflict that has confused the public for more than two years. The purpose of the tracer study, like an earlier one by Alaska that RCAC concluded was flawed, is to track the path of crude oil vapors released during tanker loading. The tracer study would reveal how much of the vapors, which contain significant quantities of benzene, end up in Valdez and how much gets blown away from town. The cost of the new study would be borne equally by RCAC and Alyeska; tentative estimates range from $250,000 to $1 million.

The first tracer study was conducted as part of Alyeska's two-year Valdez Air Health Study. Based on it, Alyeska concluded that benzene emitted during tanker loading represents a small part of the benzene that Valdez residents are exposed to from all sources. Scientists hired by RCAC said the tracer study was flawed and disputed Alyeska's conclusions.

The question of how much of the total benzene exposure can be attributed to the terminal has been a source of disagreement and conflict between Alyeska and RCAC.

• Long term environmental monitoring program - *See (7), (8), (9) and (10)*

• Community impacts planning

This project is intended to minimize the impacts of a major oil spill by providing tools to help communities in the path of tanker traffic.

The purpose of this project is to develop strategies that communities affected by the 1989 spill can use to prevent or reduce the problems and impacts of a future spill. Specific issues and impacts to be addressed include timely communications, spill response efforts, subsistence and other resource uses, demands on community services and loss of support personnel. The project is in the planning stages. It is the successor to an earlier study of social and economic mitigation strategies. The direction of that study was shifted during 1993 when the council raised concerns about the usefulness of the finished product to the communities.