Prince William Sound Regional Citizens' Advisory Council
Board of Directors Meeting January 27-28, 2022

Zoom link for meeting audio and presentations https://pwsrcac.zoom.us/j/82846000606
Or participate via teleconference: 1-888-788-0099 Meeting ID: 828 4600 0606

Final Agenda

Thursday, January 27, 2022

8:30	A	Call to Order, Roll Call & Introduction of Zoom • Welcome – President Robert Archibald • Introductions/Director reports on activities since the last meeting
8:45	B	1-0 Approve Agenda
8:50	C	1-1 Approve Minutes of September 16-17, 2021, Regular Board Meeting 1-2 Approve Minutes of October 15 , 2021, Special Board Meeting
8:55	D	Public Comment Period, limit five minutes per person
9:05	E	Internal Opening Comments ***(Please limit to general information not contained in Agenda)*** • Technical Committee Updates (IEC, TOEM, SAC, POVTS, & OSPR) • PWSRCAC Board Sub Committee Updates (Legislative, Governance & Finance)
9:45		BREAK
9:55	F	External Opening Comments ***(Please limit to general information not contained in Agenda)*** • PWSRCAC Ex-Officio Members • Trans Alaska Pipeline System Shippers, Owner Companies, and Pilots
11:00		BREAK
11:10	G	Alyeska / SERVS Activity Report
12:00		BREAK
1:00	H	Consent Agenda 3-1 Resolution Designating PWSRCAC Check Signers 3-2 Delegation of Authority for New Accounting System
1:05	I	4-1 Report Acceptance: Impacts from the April 2020 VMT Spill – Austin Love with Liz Bowen of USGS
1:45	J	4-2 Comments on Proposed Changes to ADEC Prevention Requirements – Linda Swiss with Sierra Fletcher of Nuka Research and Planning Group
2:25		BREAK
2:35	K	4-3 Report Acceptance: EPA NESHAP-OLD Air Quality Rule – Austin Love with Sarah Backes of JBE
3:20	L	4-4 Report Acceptance: 2021 Drill Monitoring Annual Report – Roy Robertson
3:45	M	4-5 Report Acceptance: Forage Fish Survey – Danielle Verna with Scott Pegau of PWSSC
4:15		BREAK
4:25	N	Executive Session to Discuss: • Update Council's Request for Adjudicatory Hearing on ADEC's Decision on the Secondary Containment Liner Testing Requirements for the VMT • Annual review Executive Director job description and performance goals.
5:30		RECESS

Shaded Items Require Board Action

Friday, January 28, 2022

9:00	A	Call to Order & Roll Call
9:05	B	Report on Executive Session
9:10	C	Update on Operations – Captain Marc Bayer, Marine Operations Director, Marathon Petroleum
9:40	D	Update on SPAR Budget and Other Topics - ADEC Commissioner Jason Brune
10:30		*BREAK* *Continued on next page*

10:30		*BREAK* *Continued from previous page*
10:40	E	4-6 Update on the PWS Tanker C-Plan Renewal – Linda Swiss
11:20	F	4-7 Approval of LTEMP Research Contribution – Austin Love
11:40	G	4-8 LTEMP FY2022 Contract Approval – Austin Love
12:00		*BREAK*
1:00	H	4-10 Incident Report Update for 2021 – Nelli Vanderburg
1:20	I	4-9 Report Approval: PWSRCAC Annual Long Range Plan – Joe Lally
1:40	J	President's Report to the Board
1:50	K	Executive Director's Report to the Board
2:05	L	Financial Manager's Report to the Board
2:15	M	Consideration of Consent Agenda Items
2:30	N	Closing Comments
2:45		ADJOURN

Shaded Items Require Board Action

Additional items provided for information only:

- ~~PWSRCAC Name Roster *(Board Members only)*~~
- ~~PWSRCAC Expense Reimbursement Form~~
- 2-1 List of Commonly Used Acronyms
- 2-2 Budget Status Report
- 2-3 Director Attendance Record
- 2-4 Committee Member Attendance Record
- 2-5 List of Board Committee Members
- 2-6 PWSRCAC One-Page Strategic Plan
- 2-7 List of Board and Executive Committee Actions
- 2-8 PWSRCAC Organizational Chart
- 5-1 January 2022 Program/Project Status Report

PRINCE WILLIAM SOUND
REGIONAL CITIZENS' ADVISORY COUNCIL
MINUTES
REGULAR BOARD MEETING
September 16 and 17, 2021
(Virtual)

Members Present

Robert Archibald	City of Homer
Amanda Bauer	City of Valdez
Robert Beedle	City of Cordova
Mike Bender	City of Whittier
Nick Crump	Prince William Sound Aquaculture Corporation
Ben Cutrell	Chugach Alaska Corporation
Patrick Domitrovich	City of Seward
Wayne Donaldson	City of Kodiak
Patience Andersen Faulkner	Cordova District Fishermen United
Mako Haggerty	Kenai Peninsula Borough
Luke Hasenbank	Alaska State Chamber of Commerce
Elijah Jackson	Kodiak Village Mayors Association
Melvin Malchoff	Port Graham Corporation
Dorothy Moore	City of Valdez
Bob Shavelson	Oil Spill Region Environmental Coalition
Rebecca Skinner	Kodiak Island Borough
Angela Totemoff	Tatitlek Corporation & Tatitlek Village IRA Council
Michael Vigil	Chenega Corporation & Chenega IRA Council
Kirk Zinck	City of Seldovia

Members Absent
(None)

Ex-Officio Members Present

CDR Patrick Drayer	U.S. Coast Guard MSU Valdez
Allison Natcher	Alaska Dept. of Environmental Conservation
Lee McKinley	Alaska Dept. of Fish & Game
Paul Degner	Bureau of Land Management
Scott Pegau	Oil Spill Recovery Institute
Tony Strupulus	Alaska Dept. of Natural Resources

Committee Members Present

Steve Lewis	POVTS Committee
Jim Herbert	OSPR Committee
Davin Holen	SA Committee

John Kennish	SA Committee
Harold Blehm	TOEM Committee
Trent Dodson	IE Committee
Cathy Hart	IE Committee
Savannah Lewis	IE Committee

Staff Members Present

Donna Schantz	Executive Director
Walt Wrede	Director of Administration
Joe Lally	Director of Programs
Brooke Taylor	Director of Communications
Gregory Dixon	Financial Manager
Jennifer Fleming	Executive Assistant
Betsi Oliver	Outreach Coordinator
Linda Swiss	Project Manager
Austin Love	Project Manager
Amanda Johnson	Project Manager
Jeremy Robida	Project Manager
Danielle Verna	Project Manager
Nelli Vanderburg	Project Manager Assistant
Hans Odegard	Project Manager Assistant
Natalie Novik	Administrative Assistant

Others Present

Andres Morales	Alyeska Pipeline Service Company
Mike Day	Alyeska Pipeline Service Company
Capt. Matt Michalski	Southwest Alaska Pilots Association (SWAPA)
Angelina Fuschetto	Crowley Alaska Tankers
Chris Merten	Alaska Tanker Company
Dave Bosco	Alaska Tanker Company
Monty Morgan	Polar Tankers
Bob Hayes	ConocoPhillips/Polar Tankers
Eric Harrier	ConocoPhillips/Polar Tankers
Rob Kinnear	Hilcorp Alaska, LLC
Lori Nelson	Hilcorp Alaska, LLC
Mike Walker	MSRC
Marty Cramer	MSRC Consultant
Joe Levesque	Levesque Law Group, legal counsel
Commissioner Jason Brune	Alaska Dept. of Environmental Conservation
Kara Kusche	Alaska Dept. of Environmental Conservation
Mo Radotich	Alaska Dept. of Environmental Conservation
Graham Wood	Alaska Dept. of Environmental Conservation
Tiffany Larson	Alaska Dept. of Environmental Conservation

Becky Spiegel	Alaska Dept. of Environmental Conservation
Laura Achee	Alaska Dept. of Environmental Conservation
Zuzana Culakorg	Alaska Dept. of Environmental Conservation
Seth Robinson	Alaska Dept. of Environmental Conservation
Diane Munson	Alaska Dept. of Environmental Conservation
LCDR Hadley Owen	NOAA Coast Survey
Sierra Fletcher	Nuka Research and Planning Group, LLC
Elise DeCola	Nuka Research and Planning Group, LLC
Haley Griffin	Nuka Research and Planning Group, LLC
Merv Fingas, Ph. D.	Spill Science, LLC
Torri Huelskoetter	U.S. Environmental Protection Agency
Mary Goolie	U.S. Environmental Protection Agency
Mary Ann Bishop	Prince William Sound Science Center
Rob W. Campbell, Ph.D.	Prince William Sound Science Center
Peter Soles	Glosten
Kevin Raleigh	Glosten
Liz Mering	Cook Inletkeeper
Rosie Brennan	Council Intern
Steve (Vinnie) Catalano	Cook Inlet Regional Citizens Advisory Council
William Wilmoth	BDO Accountants
Gene Therriault	PWSRCAC legislative monitor, Alaska
Katya Koteff	Koteff Accounting Group

[Recorder's Note: Due to the COVID-19 pandemic, this meeting of the Prince William Sound Regional Citizens' Advisory Council was conducted in its entirety by videoconference, with participants primarily located in the EVOS region.]

Thursday, September 16, 2021

CALL TO ORDER, WELCOME, INTRODUCTIONS/DIRECTOR REPORTS

A regular meeting of the Board of Directors of the Prince William Sound Regional Citizens' Advisory Council was held September 16 and 17, 2021, via Zoom video conference. President Robert Archibald called the meeting to order at 8:30 a.m. on September 16 and welcomed everyone to the meeting.

A roll call was taken. The following 17 Directors were present at the time of the roll call, representing a quorum for the conduct of business: Archibald, Bauer, Beedle, Bender, Crump, Cutrell, Donaldson, Faulkner, Haggerty, Hasenbank, Jackson, Malchoff, Moore, Shavelson, Skinner, Vigil, and Zinck. (Patrick Domitrovich joined the meeting at 8:40 a.m. and Angela Totemoff at 9:11 a.m.)

Introductions and Directors' reports followed.

1-0 AGENDA
President Archibald presented the agenda (green-colored sheet) for approval.

Michael Vigil **moved to approve the agenda** (green-colored sheet). Amanda Bauer **seconded** and the **agenda was approved** as presented.

1-1 MINUTES
Amanda Bauer **moved to approve the minutes** of the Annual Meeting of the Board of Directors of May 6 and 7, 2021. Robert Beedle **seconded** and the **minutes were approved as presented**.

1-2 MINUTES
Amanda Bauer **moved to approve the minutes** of the Special Board Meeting of April 2, 2021. Robert Beedle **seconded** and the **minutes were approved as presented**.

PUBLIC COMMENTS
(None at this time.)

INTERNAL OPENING COMMENTS – PWSRCAC TECHNICAL COMMITTEE UPDATES

PORT OPERATIONS AND VESSEL TRAFFIC SYSTEMS COMMITTEE (POVTS)
Chair Steve Lewis introduced the committee members and updated the Board on the efforts of the Port Operations and Vessel Traffic Systems Committee (POVTS) since the last Board meeting, as follows:

- The committee continued to monitor the weather-based projects led by the OSPR Committee and on matters pertaining to the Port Valdez weather buoys.

- Project 8012: Line Throwing Device Trials. The committee recommended the final report titled "PWSRCAC Emergency Towline Deployment Practical Trials" be accepted by the Board as fulfilling the contract. A presentation of this project's results was on the agenda later at this meeting. Staff were working on a possible video with some of the footage from the trials that describes the project outcomes.

- Project 8013: AIS/Radar Whitepaper. The committee recommended the completed whitepaper be accepted, which was then done by the Executive Committee at its meeting on August 12, 2021. Lewis noted that the conclusions of this study were that AIS is a very valuable tool for navigation but it does not and cannot replace radar.

- An article on the POVTS Rescue Tug Best Available Technology (BAT) for Hinchinbrook Entrance project was published in the September-October issue of International Tug and Salvage.

- Currently, the committee has only four active members. Lewis asked everyone for help finding volunteers with maritime experience to join the committee.

OIL SPILL PREVENTION & RESPONSE COMMITTEE (OSPR)

Chair Jim Herbert thanked the committee volunteers and Council staff for all their efforts on behalf of the OSPR Committee.

He reported that since the last Board meeting in May the committee had done the following:

- The committee was kept informed about ADEC's regulatory reform efforts. He hoped the Board would hear more on this from Commissioner Brune when he addressed the Council later in the agenda.

- The committee had recommended Board acceptance of the completed History of the Prince William Sound Tanker C-Plan documents, including the 1995-2020 Compendium of Events, and the Tanker Plan History Timetable. These items were on this meeting's agenda for approval the following day. Additionally, the committee recommended that the History of the Valdez Marine Terminal (VMT) C-Plan project be deferred until FY2023 to allow enough time for available staff to make sure all necessary documents were included in the Document Management System.

- Port Valdez weather buoys had been reporting and logging data since they were positioned in early Fall 2019. Contractor Rob Campbell, Ph.D., presented his analysis and report of the first year of buoy data to the OSPR Committee and he would present it to the Board at this meeting. The Board would be asked to accept the report at that time. Herbert noted that SWAPA pilots are using the information the buoys are providing. This is an ongoing project that is looking at long-term weather trends.

- Due to precautions of the COVID-19 pandemic, Council staff had not been able to observe as many SERVS exercises as usual during 2021 but had observed some and accepted a few exercise reports.

- The committee was updated on area and regional planning efforts for the Alaska Regional Contingency Plan, and the Prince William Sound, Arctic and Western Alaska, and Inland Alaska Area Contingency Plans. Recently, formal comments were submitted on the Alaska Regional Contingency Plan and informal comments were

submitted on the Prince William Sound and Arctic and Western Alaska Area Contingency Plans.

- The committee has kept up to date on the c-plan reviews and amendments:

    - Prince William Sound Tanker C-Plan
      PWSRCAC submitted comments and Requests for Additional Information (RFAIs) on the Tanker C-Plan five-year renewal process. These comments cover the Prince William Sound Core Plan, SERVS Technical Manual, and the individual vessel response plans for the tanker companies. RFAIs will be issued by ADEC by October 21, 2021.

    - Valdez Marine Terminal (VMT) C-Plan
      PWSRCAC's issues from the 2019 informal review remain outstanding (secondary containment, number of personnel in a Response Planning Standard spill, and drainage 58). The TOEM Committee was working on the technical analysis for secondary containment.

TERMINAL OPERATIONS AND ENVIRONMENTAL MONITORING COMMITTEE (TOEM)

Chair Amanda Bauer updated the Board on the Terminal Operations and Environmental Monitoring Committee (TOEM) activities since the last Board meeting in May.

- Work on the project titled "Review of the EPA NESHAP-OLD Air Quality Rule" has begun. The goal of this project is to determine if the Council should support Alyeska's appeal of that EPA rule or not. The TOEM project team chose John Beath Environmental as the contractor for this project. The project has progressed well overall, with the exception of obtaining requested information from Alyeska. The results of this air quality regulation review project should be available at the January 2022 Board meeting.

- The committee identified Taku Engineering as the best suited contractor for the Crude Tank 7 and Ballast Water Tank 94 Maintenance Review project. The goal of this project is to ensure the risk of a spill from either of these tanks is mitigated by Alyeska through proper maintenance. The contract for the project was on the agenda for approval at this Board meeting and the work should begin shortly thereafter.

- The committee had been monitoring Alyeska's progress to implement recommendations that resulted from the April 12, 2020, Admin Sump oil spill at the Valdez Marine Terminal (VMT). As of May 18, 2021, Alyeska had implemented almost all identified recommendations. The committee plans to continue tracking the implementation of all the recommendations until they are completed.

- Members of the committee, as well as Board members and staff, have been reviewing the Council's current position regarding the secondary containment liner at the VMT. That position is described in detail in a pending informal review the Council has requested from ADEC. In essence, through the informal review, the Council has asked ADEC to do more to ensure the secondary containment liners at the VMT will protect surface and groundwater resources from harm in the event of an oil spill from a storage tank. The Council review is being done while PWSRCAC awaits a decision from ADEC Director Tiffany Larson with regard to the informal review. The results of the Council review could be used to update the organization's current position pertaining to the VMT's secondary containment liner.

SCIENTIFIC ADVISORY COMMITTEE (SAC)

Chair Davin Holen briefly explained the committee's purview and work and updated the Board on the committee's activities since the May Board meeting:

- Long-Term Environmental Monitoring Program (LTEMP): A draft of the April 12, 2020, Spill Report was provided to SAC in July for feedback. The authors have submitted the report for publication in the peer reviewed journal "Environmental Science & Technology." The revised executive summary will be reviewed again by SAC at an upcoming meeting and will be ready for final review at the January 2022 Board meeting. Staff collected 2021 environmental samples this summer and those will be analyzed for hydrocarbon contamination.

- Technological Disasters Guidebook Appendices Report: The guidebook and all appendices were accepted at the May Board meeting and uploaded to the Council's website. SAC has since inactivated the project but the outreach portion is ongoing. Holen reported that he presented at the International Oil Spill Conference and other conferences and he made sure it was known that this resource is available.

- Dispersants Use Position Project: The committee accepted the summary of dispersants report by Merv Fingas, Ph.D. This report would be presented to the Board for acceptance at this Board meeting. The Dispersant Use Position Update project team met in August to review three proposals submitted in response to the Request for Proposals (RFP). The project team recommended acceptance of the proposal from Nuka Research and Planning Group, LLC, with collaboration from Dr. Fingas as a technical expert. SAC accepted the project team's recommendation.

- Winter Marine Bird Survey Project: The committee recommends the Winter Marine Bird Survey Report be accepted by the Board at this meeting.

- Forage Fish Survey Project: Dr. Scott Pegau completed forage fish surveys in Prince William Sound over the summer and will provide the committee with a status update and a draft report this fall.

- Marine Invasive Species Project: Mia Siebenmorgen-Cresswell completed her internship for the Marine Invasive Species project in May. In an exit interview conducted by Betsi Oliver, Mia noted that she gained a lot of experience through the project. She collected data in the field and entered it into a spreadsheet, talked to managers, and presented her work publicly. She appreciated the balance between supportive supervision and the freedom to problem-solve on her own. Finally, Mia did not know of any other paid internships, which indicates the importance of the opportunity PWSRCAC offers to teens in the community to develop their professional skills. Two high school-aged students in Cordova and one student in Valdez began a year-long invasive species monitoring internship with the PWSRCAC in June. PWSRCAC Project Manager Danielle Verna has provided training to them so they can collect data and work independently. The contracts with the Smithsonian Environmental Research Center and Moss Landing Marine Laboratory for analysis of plankton samples have been finalized. Staff diligently collected 228 plankton samples in Port Valdez from April to September. Additionally, Danielle Verna and Austin Love have been working with the Kachemak Bay National Estuarine Research Reserve and the University of Alaska Anchorage to get SAC's invasive species monitoring data uploaded to a new portal for Alaska.

- Oxygenated Hydrocarbon Project: The oxygenated hydrocarbon project's scope of work and timeline were reviewed and provisionally accepted by Dr. David Podgorski from the University of New Orleans. SAC will ask for Board approval at this meeting to enter into a contract for this project. Sampling from the Ballast Water Treatment Facility at the VMT was pending coordination with Alyeska.

Holen went on to report that Leigh Lubin, formerly an administrative assistant with PWSRCAC, had joined the Alaska SeaGrant Program faculty as its new education specialist located in Valdez.

INFORMATION AND EDUCATION COMMITTEE (IEC)

Chair Trent Dodson reported that the Information and Education Committee (IEC) had had one regular meeting, one project team meeting, and its annual workshop since the committee's last report at the May Board meeting. At its last meeting, the committee re-elected him as Chair and Savannah Lewis as Vice Chair.

The committee's focus since May was as follows:

- Project 3500: Community Outreach
  Council Outreach Coordinator Betsi Oliver organized another marine educator's check-in in April. The Alaska SeaLife Center has offered to organize the next one. Betsi also helped organize the Prince William Sound Natural History Symposium in

May and presented on oil spill response to a virtual audience of 260 using the Council's new Regional Stakeholder Committee content.

- Project 3530: Youth Involvement
  Dodson reported that Summer 2021 was a successful recovery season for Youth Involvement. Most of the deferred projects were able to happen and final reports were rolling in. A presentation about youth engagement opportunities and teacher trainings that this project supported will be made at a future Board meeting as part of the annual outreach presentation.

- Project 3610: Website and Web Presence
  The Regional Stakeholder Committee resources content was launched and is available at www.pwsrcac.org/rsc. This budget item also provided technical support for creating the search and filter tool for the Alaska Oil Spill Lesson Bank.

- Project 3903: Internship
  Intern Rosie Brennan finished her work on the web tool for the Alaska Oil Spill Lesson Bank and held a focus group to test the new database search tool with teachers. The next phase of the lesson bank update project will be to start outreach and trainings for educators about the Council's updated resources. Rosie has agreed to continue on for a second internship to help with this work.

- Project 3620: Connecting With Our Communities
  The majority of the contractor deliverables has been completed. Due mostly to pandemic considerations, the media training deliverable was not conducted and staff are working to carry over contract funds into the FY2022 budget (through a budget modification) to conduct it in the spring of 2022.

- Project 6560: Peer Listener
  There were no responsive proposals to the RFP to review the Council's Peer Listener Training program. As a result, Betsi Oliver plans to proceed with collecting data in-house to identify contractors/partners to guide the implementation of updates to the content.

INITIAL OPENING COMMENTS – PWSRCAC BOARD SUBCOMMITTEE UPDATES

FINANCE COMMITTEE

Treasurer Wayne Donaldson reported that the Finance Committee had met twice since the May Board meeting and focused on the following:

At its July meeting the committee reviewed the June 30, 2021, interim financial statements (the last financial statements for FY2021). The committee met with Joy Merriner, representing the Council's outside accounting firm BDO, to review FY2021 audit planning

which focuses on a review of PWSRCAC's expenses. Although expenses for travel, lobbying, and non-contract revenue were minimal in FY2021, the committee decided to continue the agreed-upon procedures portion of the audit. This expanded look at travel, lobbying, and non-Alyeska fund expenditures is conducted to highlight expenditures in areas previously audited by Alyeska. BDO also provided training to committee members on issues from fiduciary responsibility to cyber security issues. Finally, the committee reviewed several FY2022 budget modifications.

At its September meeting, the committee received the draft audit report from BDO. BDO reported a clean audit with no corrected misstatements. There were no audit adjustments and no suspected fraud or abuse in the audited financial statements. The Finance Committee would recommend that the Board accept the FY2021 financial audit under Item 4-1 on this Board meeting's agenda. The agreed-upon procedures report for travel, lobbying, and non-Alyeska fund expenditures was not yet completed but was expected in October.

The committee also reviewed and recommended that the Board accept the FY2022 budget modifications at this Board meeting (Item 4-10).

LEGISLATIVE AFFAIRS COMMITTEE (LAC)

Vice Chair Rebecca Skinner reported that the Legislative Affairs Committee (LAC) met six times since the May Board meeting and focused on the following committee activities:

- The committee spent a significant amount of its meeting time over the summer scoring and evaluating proposals, interviewing candidates, and making a final recommendation to the Board for the new state legislative monitor services consultant (to replace Kate Troll).

- The committee ultimately recommended that the Board authorize the Executive Director to enter into a contract for state legislative monitoring services with Mr. Gene Therriault. That authorization request was on the consent agenda at this meeting as Item 3-3.

- In addition to the scheduled meetings, the committee received regular email updates from Kate Troll, Roy Jones (federal legislative monitor), Executive Director Donna Schantz, and Director of Administration Walt Wrede. Email correspondence was important because the committee was tracking fast-breaking events during three legislative special sessions.

- The Alaska Legislature worked for most of the summer and participated in three special sessions. The third special session just ended and the Governor has already called for a fourth special session which will mean that the Legislature will spend

most of the year in session. The committee's priorities during the special sessions were:

State Priorities

- Passage of House Bill 104: This bill contained the increase in the surcharge on refined fuels to help sustain the ADEC's Spill Prevention and Response Division (SPAR). During the third special session, House Bill 104 was incorporated into Senate Bill 3002.
- Senate Bill 3003: This bill focused on overriding the Governor's vetoes, including his veto of five positions at the SPAR Division that the Legislature had restored.
- The "Reverse Sweep": The Legislature's failure to approve the reverse sweep could have meant that the SPAR Division would have a hole in its budget of approximately $2.7 million. This issue was eventually resolved by the Governor and the courts after much discussion and negotiation.

Federal Priorities

- The committee had several interactions and correspondence with Alaska's congressional delegation regarding the funding for repair and replacement of the radar systems in Prince William Sound.
- The committee, along with Roy Jones and Council staff, have been working with Sen. Sullivan's staff on potential amendments to the Oil Spill Liability Trust Fund (OSLTF).

Skinner stated that the committee was looking forward to working with Gene Therriault as the Council's new state legislative monitor and thanked Kate Troll again for all her hard work and valuable contributions to the committee and the Council.

BOARD GOVERNANCE COMMITTEE (BGC)

Chair Robert Beedle reported that the Board Governance Committee had met only once since the May Board meeting because committee members were busy with summertime work and other activities which had made obtaining a quorum difficult. Fortunately, during this time there had been no pressing issues that needed the committee's immediate attention and the committee welcomed the break after a busy Council meeting schedule in the spring.

Committee Activities

- The committee continued to work on its annual review of the Council's Bylaws and had two sections remaining. The committee invited all Board members to review the Bylaws and send their comments and suggestions to the committee.

- The committee reviewed and approved an amendment to Section 2.2.2. "Class II Membership" of the Bylaws relating to non-voting Class II members. The proposed amendment would update and correct the Class II membership list and clarify the correct member name of the Division of Homeland Security and Emergency Management, Alaska Department of Military and Veterans Affairs. The proposed amendment would be presented to the Board for approval under Item 4-9 at this meeting and would require a 2/3rds vote to adopt.

Beedle announced that the next meeting of the BGC would take place later in September and the committee's first priority for the next few meetings would be to finish its review of the Bylaws.

Break: 9:37 a.m. – 9:57 a.m.

EXTERNAL OPENING COMMENTS – PWSRCAC *EX OFFICIO* MEMBERS

ALASKA DEPT. OF ENVIRONMENTAL CONSERVATION (ADEC)
Allison Natcher, ADEC's new Interagency Coordination Unit Manager with the Prevention and Technical Support Group, reported that the revisions to Article 1 regulations for Above Ground Oil Storage Tank Standards were pending final legal review. When that review is completed, ADEC will provide additional information.

ALASKA DEPT. OF FISH AND GAME (ADF&G)
Lee McKinley reported that he was able to get out during the summer and inspect permitted projects along the TAPS pipeline. He said he appreciated the opportunity to attend this meeting and would be available to answer questions.

U.S. FOREST SERVICE
(No report.)

U.S. FISH & WILDLIFE SERVICE (USF&W)
(No report.)

OIL SPILL RECOVERY INSTITUTE (OSRI)
Dr. Scott Pegau reported that the OSRI Board had met recently and there were a few projects to bring to the Council's attention. The first was a remote learning project to build a course similar to the Science of Oil Spills course that would be delivered via the OSRI website. He said there may be overlap with PWSRCAC in the type of materials that they want to present. The project was just getting underway and he hoped he would have more information on what it would look like soon.

He also reported on two new projects that OSRI would be working on. One involves environmental sensitivity index (ESI) map updates and how to get the maps updated on a

more regular basis. The two things at the top of the list are the shoreline classification and resources at risk, particularly for Cook Inlet and Sheilikof Strait because those are both old and incomplete in terms of their ESI maps. The other new project is a Cook Inlet trajectory tool. NOAA has developed a new circulation model for the area that OSRI feels needs some additional validation work using trajectory tools so it can be used for planning purposes. He hoped that these projects were of interest to PWSRCAC and could be added to the Council's next Long Range Plan.

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

Torri Huelskoetter introduced herself to the Council. She came into the job of Federal On-Scene Coordinator for District 10 in March 2021, and she is based in Anchorage.
She announced that the Alaska Regional Response Team meeting would be the week following this Board meeting and would be reviewing area planning.

U.S. DEPT. OF THE INTERIOR (DOI)

(No report.)

U.S. COAST GUARD (USCG)

CDR Patrick Drayer reported that the Area Committee meeting that had been scheduled for that week in Cordova was postponed until September 29, 2021, in Valdez because of the spike in COVID cases. It will be a hybrid meeting of virtual participants in Cordova and in-person in Valdez.

CDR Drayer reported that he had met with PWSRCAC staff over the last few months and had the opportunity to have PWSRCAC staff and Board member Amanda Bauer meet with some USCG Headquarters personnel in the Valdez office on the status and future of the Vessel Traffic System (VTS) equipment, radars, and other technological systems -- not just in Valdez but nationally -- with changes forthcoming. He pointed out that everything related to systems must go through the government procurement process so changes would not happen rapidly, but the Headquarters personnel who came to Valdez are now aware of the challenges to repairing systems, specifically in Prince William Sound with the remoteness of the sites, the severe weather conditions, and the challenges to get technicians and repair/maintenance people out to the remote sites.

He expressed his appreciation to PWSRCAC for all its support in trying to get some resolution to the non-functioning radar system in Prince William Sound. He announced that as a result of PWSRCAC's support there were now three operational radars in Prince William Sound, one at each of the existing sites. It was also hoped that a second radar system for Valdez Spit Site and Potato Point could be repaired and operational by next summer. He underscored that these repairs are temporary until a new replacement system is identified and selected by USCG Headquarters.

He underscored that getting the three radar sites operational and having the visual data had been a game-changer for MSU Valdez in dealing with the fishing openers in the Valdez Narrows and other operations. It also supports the USCG's argument that both systems are needed in Prince William Sound because the AIS data does not show everything.

In response to a question from Jim Herbert about the timeframe for getting the systems replaced, CDR Drayer stated that the minimum lead time would be three years. He explained that USCG is all about standardization of its systems nationwide so it is strongly opposed to procuring a replacement system solely for Prince William Sound that cannot be used in every VTS in the country. CDR Drayer went on to explain in more detail how the replacement parts were obtained and the repairs were made. Going forward CDR Drayer stated that if repairs are needed again to the existing radar system, he was optimistic that there would be a quicker response to getting parts and repairs done now that Headquarters was aware of how vital both systems are for Prince William Sound, but parts would not be made in advance of a problem.

CDR Drayer said his understanding for the future is that there will be an integrated interface of all the systems that feed information into the VTS, but it takes time for Headquarters to identify and test such a system.

Herbert asked about further information on the *Stena Suede* incident that happened in April and was reported and discussed at the Board's May meeting. CDR Drayer stated that there was no further follow up by USCG and it was a lesson learned incident for both the skipper of the *Stena Suede* as well as the Captain of the Port (COP) Valdez. He pointed out that the Captain of the Port (COTP) Valdez cannot issue an order to a vessel that is outside Hinchinbrook Entrance in the Gulf of Alaska. The lesson for the COTP in similar circumstances would be to get the ship's captain, the pilot, the company and/or the agent on the phone and discuss the dangers of anchoring outside Hinchinbrook Entrance.

Robert Beedle expressed his frustration at the slow pace with which USCG was addressing the radar repair/replacement issue and the potential disastrous consequences that could occur because of the non-functioning radar system. He also expressed frustration with the lack of follow-up on the *Stena Suede* incident. It could have had disastrous consequences for Prince William Sound and those who make their livelihood in the Sound.

Wayne Donaldson asked if there was any on-water presence by the USCG during the fishing season when there is high likelihood of interactions between tankers and the fishing fleet. CDR Drayer stated that USCG does coordinate with the inbound tankers during fishing openers. Occasionally, USCG has put personnel on a tanker, inbound and outbound, so if there is a problem with fishing vessels not getting out of the way, USCG can gather information on the offending fishing vessel and do follow up. In previous years, Valdez has been sent a deployed unit of additional personnel, but in the last couple of years those units have gone to Homer, Bristol Bay, and Sitka. He reminded the Council that

there is a security zone in effect in the Narrows 24/7, not only during fishing openers, and fishing vessels should not be in that zone. However, Drayer stated that it is not enforced when there are no tankers transiting; USCG does try to enforce it when there is a tanker in transit. CDR Drayer reported that there were no enforcement actions taken this summer to fishing vessels in the security zone, although some came close.

Rebecca Skinner pointed out to CDR Drayer that Prince William Sound is a busy waterway with loaded tankers, commercial fishing, recreational fishing and on-water tourism and she expressed surprise to learn from his earlier remarks that USCG Headquarters did not realize or have appreciation for the importance of the radar system to Alaska mariners. She asked what PWSRCAC could or should do to remedy that. If the radar system were to break down again what would be the timeline to get it fixed and how would it be handled. CDR Drayer explained that MSU-Valdez does not have a local budget to repair these systems. Maintenance issues are handled through a high-level section through USCG Headquarters. In Alaska there is only one maintenance contract that covers the VTS system equipment (radars, microwave relays, etc.) and the Rescue 21 radio system. On a daily basis as the contractors are getting their work assignments, the VTS system is competing with the Rescue 21 system, so if there is a radar that is inoperable at Reef Island, for example, and the USCG has a Rescue 21 VHF issue with a high site in Cook Inlet or Southeast Alaska, then the Rescue 21 high site radio gets higher priority. As to the radar repairs going forward, Drayer stated that the maintenance contract would be going out to bid shortly, and to mitigate the delay in getting the VTS equipment repaired, the contract will have two tracks: one for the VTS equipment; and one for the Rescue 21 radio equipment. This will prevent the two systems having to compete for maintenance attention and get systems repaired in a timely manner.

CDR Drayer stated that because of the efforts of PWSRCAC that elevated the importance of getting the radars up and running and the visual information from both the AIS and radar that the VTS now receives showing how much traffic is going through the congested portions of Prince William Sound had enlightened the higherups in USCG Headquarters of the importance of both the AIS and radar data to mariners who use the Sound.

Beedle suggested that there could be some coordination among the user groups in the Valdez Narrows to mitigate the waterway congestion during fishing openers. He pointed out that the hatchery has a good idea of the fish run timing, the times of the fish openers are generally 10-15 hours, ADF&G publishes those fish openers and makes announcements, and if Alyeska would make known its tanker transit times or have them going through the Valdez Narrows after 8 p.m. and before 8 a.m. during those openers, a lot of the congestion could be reduced. He also pointed out that the fish run is only a month long in the summer.

Jim Herbert asked about the status of the USCG investigation into the allision of the tug *Courageous* with the Polar *Endeavour* tanker and whether there was an increase in the

damage estimate that would have elevated the classification of the incident to a major marine casualty. CDR Drayer stated that the USCG's classification of an incident is made at the time the incident occurs. It is understood and accepted within that assessment that estimates do change when a ship goes to shipyard for repairs. A damage estimate was made at the time of the *Courageous/Endeavour* incident. The damages did go over $2 million at the shipyard but it does not change the USCG's classification to that of a major marine casualty. Herbert asked PWSRCAC staff to obtain a copy of the USCG incident report.

Steve Lewis thanked CDR Drayer for his efforts on the radar. He commented on the disconnect between those local mariners who use the system and know of its importance to the safe transit of tankers and other users and the technology gurus in USCG Headquarters who are totally disconnected from what actually goes on in Prince William Sound. He urged the Council and everyone to be more vocal about the needs of Alaska with their Alaska representatives, legislators, and with local USCG personnel.

CDR Drayer thanked the Council for its advocacy and pointed out that the only reason progress was made on the radar repairs recently was because of the advocacy of PWSRCAC.

Wayne Donaldson echoed Beedle's suggestion of having someone [within MSU Valdez] look at the timing of fish runs with a mind to minimizing the chance of interactions with inbound tanker schedules.

Amanda Bauer said that simply trying to control the tanker traffic would not make that much of a difference as there is so much more going on in the Valdez Narrows during the summer months.

Nick Crump said that most of the fishing fleet looks out for and tries to alert each other when there is a tanker coming through.

Archibald assured CDR Drayer that PWSRCAC would continue to be an advocate for safety and for the continued functioning of the safety systems in the Sound.

ALASKA DEPT. OF NATURAL RESOURCES (ADNR)

Tony Strupulus had no specific comments but was available to answer questions.

NATIONAL OCEAN AND ATMOSPHERIC ASSOCIATION (NOAA)

LCDR Hadley Owen from NOAA's Office of Coast Survey reported that the Coast Survey did some survey work over the summer in Prince William Sound on the Columbia Glacier face, College Fjord, in Cordova, Passage Canal, Cochran Bay, Surprise Inlet, and Harrison Fjord. It will take time for the charts to be updated but the data itself will be available before the

charts are updated at:
https://storymaps.arcgis.com/stories/224ea9d51804433c84ec5b86f5bb2852.

LCDR Owen also announced that Coast Survey had issued a notice about the Brennan Matching Fund for ocean and coastal regional mapping for FY2023 at:
https://iocm.noaa.gov/planning/contracts-grants-agreements.html.

Mike Bender asked about Buoy 46060 which went adrift in early August. He had informed NOAA via email to LCDR Owen. The buoy was found grounded near Main Bay. Bender noted that there is no other weather information in the middle of the Sound at the present time and therefore this buoy's information was vital. LCDR Owen reported that she had reached out to the National Data Buoy Center and had forwarded Bender's email and that she would follow up.
LCDR Owen can be reached at Alaska.navmanager@noaa.gov

BUREAU OF LAND MANAGEMENT (BLM)
Paul Degner updated the Board on the activities of the Bureau of Land Management (BLM) since the last Board meeting.

He reported that despite the plethora of safety protocols related to the pandemic BLM personnel had started some limited in-person field visits. Steve Weeks of the Valdez office had recently visited the VMT to see the Tank 94 ballast water treatment (BWT) inspections and repairs. Reid Olson from the Fairbanks office had also been present at the May equipment deployment and functional exercise, and Greg Bjorgo was present at the U/J-equipment deployment exercise in August. He also performed some containment site inspections between Valdez and Glennallen.

The office continued to be involved virtually in exercise planning and VMT coordination group meetings, area committee meetings, and the annual review of c-plans. Earlier that week BLM, along with other Joint Pipeline Office (JPO) agencies, had the opportunity to follow up with Alyeska on their mitigation efforts on the April 12, 2020 sump spill and prevention measures to prevent similar spills. The office continues to monitor the Alaska Native hire program compliance requirements of TAPS.

In response to a question from PWSRCAC's Project Manager Austin Love as to whether other JPO agencies had expressed concerns with Alyeska's repairs/mitigation measures resulting from the sump spill, Degner stated that most of the recommendations were targeted to the first quarter 2021, but there were a few remaining, so the JPO has asked Alyeska to report back in writing as to the exact status of the implementation of those remaining items.

Herbert asked if Degner had any specific information on the Native hire requirements as there seemed to be a lag with Edison Chouest Offshore's (ECO) and Hilcorp's compliance

when BLM last reported to the Council. Degner reported that there had been no significant changes since that report was provided at the Council's 2020 September Board meeting.

ALASKA DIV. OF HOMELAND SECURITY & EMERGENCY MANAGEMENT (ADHSEM)
(No report.)

EXTERNAL OPENING COMMENTS – TAPS SHIPPERS, OWNER COMPANIES, AND PILOTS

CROWLEY ALASKA TANKERS
Angelina Fuschetto reported that Crowley Alaska Tankers was staying busy. The *California* and the *Washington* continued to operate on the West Coast. The *Oregon* was operating in the Gulf of Mexico. The *Washington* had just completed a five-day maintenance and repair period in Port Angeles and the *California* would complete a similar period the following week.

Fuschetto announced that Crowley Alaska Tankers would lead the 2022 Prince William Sound Shippers exercise and it was tentatively scheduled for the week of May 16. Initial planning had started.

On wider company business related to environmental developments, Fuschetto reported that Crowley Alaska Tankers had designed an all-electric powered tug to be operational in San Diego in 2023. Crowley Alaska Tankers currently has a tug in San Francisco Bay – the *Apollo* – which is running on biofuel, and the company recently signed a long-term charter for building and operating an LNG-powered bunker barge on the East Coast by 2024. The company was also getting into offshore wind, and they recently partnered with Massachusetts Maritime for the first of its kind training and workforce development program that is dedicated to the New England area offshore wind industry.

Steve Lewis thanked Fuschetto for the information on how Crowley Alaska Tankers was decarbonizing its fleet and said the POVTS Committee would be interested in hearing from Crowley Alaska Tankers and any of the shippers on their plans in that regard.

CONOCOPHILLIIPS/POLAR TANKERS
Monty Morgan reported on the following Polar Tankers activities since the Board's May meeting:

- Transported 64 loads totaling 49 million barrels from the VMT without incident.

- The Polar *Enterprise* was scheduled to arrive in Singapore in six days for a three-month shipyard period for the installation of its ballast water treatment system (BWTS), followed by the Polar *Resolution* by the first of the year 2022, which will also have its BWTS installed. There would be a presentation to the Council the following day on the BWTS system that Polar has installed and why that system was chosen.

- The main challenge to Polar Tankers' normal operations was still the COVID protocols. The Singapore shipyard was still requiring a 14-day home quarantine before crews join the ship, a PCR test 48 hours prior to leaving, and an antigen test 24 hours prior to leaving. In addition, the United States was on a high-risk list so there were additional protocols once they arrive in Singapore. He pointed out that Polar Tankers had already received an extension from the USCG for installation of its BWTS and that deadline would not be extended further.

- ConocoPhillips/Polar Tankers was in the planning stages for new build tankers and capital had been put into the budget, but that was all the information he had at that time.

He announced that he was planning to retire in June 2022.

ALASKA TANKER COMPANY (ATC)

Chris Merten reported on the following Alaska Tanker Company activities since the Board's May meeting:

- Completed 35 voyages through Prince William Sound carrying approximately 37 million barrels of crude.

- The *Alaskan Navigator* was in shipyard in February and the *Alaskan Legend* followed in May. That shipyard was at a new facility to ATC in Korea, near Busan. The facility had a better handle on the COVID infections than the shipyard in Singapore and the shipyard work was completed in 45 days. Part of the work was normal maintenance, the Critical Area Inspection Program (CAIP) surveys, and the BWTS was installed.

- All three ATC TAPS vessels now have had their BWTS systems installed. The *Alaskan Explorer's* system is operational, the *Alaskan Navigator* is just finishing up the work that could not be finished in Singapore, and the *Alaska Legend* has moved ahead of the *Navigator* because of the work that was accomplished in Korea in a shorter time.

- Now that ATC's fleet is 15 years old the ships must go to intermediate shipyard twice in five years for maintenance.

- ATC's relationship with Hilcorp was going well. There had been good cooperation regarding voyage planning, scheduling maintenance, etc.

Merten stated that he had no information on new build plans at that time but the company was looking at many ways to improve emissions in the meantime. He also had no information on rumors of a takeover bid of ATC's parent company Overseas Shipholding Group (OSG).

HARVEST ALASKA MIDSTREAM

Rob Kinnear reported that Hilcorp had begun a corporate restructuring of its Harvest and Hilcorp entities and he was now a Hilcorp employee. The marine side of the business will be inside Hilcorp henceforward, but in practice it was a change in employer name only for him. He reported on the following activities:

- Harvest Alaska had moved approximately 45 million barrels of North Slope crude from the Valdez Marine Terminal in 2021 to date; approximately 40 million barrels on ATC ships and 5.3 million barrels on its foreign flagged spot charters, the *Summit Spirit* (on May 14) and the *Los Angeles Spirit* (on June 5).

- Hilcorp had applied some of the lessons learned from the previous experience with a foreign spot charter that was discussed at the Council's May meeting and had instituted enhanced prearrival calls with each of the captains of the *Summit Spirit* and the *Los Angeles Spirit.* Communications and voyage orders were also enhanced, making them more succinct to ensure that the inbound tanker protocols and communications procedures in the Port Operations Manual and VTS were captured by the incoming tanker.

- As a result of this Council's suggestion at its May meeting, Hilcorp had looked more urgently at involving foreign flagged vessels in tanker exercises and did a tow and tether drill on the *Los Angeles Spirit* when she made a port call in Valdez in the middle of June. The drill went well and was observed by PWSRCAC staff.

- As the West Coast demand for oil was coming back and the bulk of ATC's shipyards were behind them, there were no more foreign flagged spot charters in the planning cycle, at least through end of 2021.

Jim Herbert gave kudos to Harvest Alaska for doing the tow and tether exercise with the *Los Angeles Spirit* and he thanked Kinnear for facilitating it.

Robert Beedle asked if there was any follow-up investigation on the *Stena Suede* incident from April, what Hilcorp was doing to prevent a similar incident in the future, and whether PWSRCAC could get a copy of the report on the incident. Kinnear stated that Hilcorp had follow-up meetings with Northern Marine Management (the technical operator at Stena). The investigative report that was issued was marked confidential. He offered that Hilcorp may be able to provide PWSRCAC a summary, with Northern Marine Management's approval, in lieu of providing the report. Steve Lewis echoed Beedle's request for information from the report.

Kinnear stated that the direct communications with the inbound captains to convey the inbound port protocols had been very helpful.

MARATHON
(No report.)

SOUTHWEST ALASKA PILOTS ASSOCIATION (SWAPA)
Capt. Matt Michalski of the Southwest Alaska Pilots Association (SWAPA) reported as follows:

- SWAPA has 17 full members who are fully qualified pilots, two deputy pilots who hold 110,000 gross ton licenses. One pilot retired in 2020 and there is one pilot who is in transitional retirement and continues to work summer schedules until he takes full retirement in the future. There are three trainees working hands-on doing maneuvers and one observer in the training program who should be taking the core exam within the next couple of months. One trainee is close to finishing the program and should be able to take the local knowledge exam before the end of the year, and there is one ballot out to select a new trainee.

- There was no cruise ship traffic in either 2020 or 2021 to date and no yachts came in this year. They continue to see more jet fuel tankers in Alaska waters.

- Cruise ships are set to resume in 2022. The Viking *Orion* is scheduled to call in Valdez multiple times and the *New Amsterdam* is showing one port call in Valdez in 2022. There are currently 48 cruise ship port calls for Whittier, including three Princess and two Holland America vessels making nine voyages each. They will be cruising College Fjord on the inbound.

- TAPS movements in 2021 were 299 compared with 278 for the same period in 2020, and 319 movements in 2019 for the same period. Vessel movements overall in Region 2 were slightly down from 2020. Container ship traffic remained steady. There had been no port calls into Icy Bay since June 2020, which made it difficult for trainees to obtain their federal pilotage license for this area. He hoped cruise ships would resume calls in Icy Bay in 2022, which would help that situation.

Break: 11:18 a.m. – 11:28 a.m.

ALYESKA/SERVS ACTIVITY REPORT
Alyeska's Emergency Preparedness and Response Director Andres Morales presented the Alyeska/SERVS activity report for year-to-date.

VMT Operations:

- **Operations:** (*As of 6/30/2021)*

	YTD 2021
Tankers Loaded	112

- Tankers Escorted 114
- Barrels Loaded 86,190,852

	Since start up
Tankers Loaded	22,965
Tankers Escorted	14,318
Barrels Loaded	17,540,887,206

- **Safety:** *(As of 6/30/2021)*
  - Days away from work cases 1
  - TAPS Combined Recordable Rate % 0.48

- **Environment:** *(As of 6/30/2021)*
  - Spill Volume (Gallons) 2.51
  - Number of Spills 3

COVID-19 Response & Prevention:

- **Processes and procedures for personnel and facilities:**
  - Masks required for all unvaccinated employees in common areas.
  - Alyeska continues to monitor community transmission rates per CDC guidance to set workplace masking requirements.

- **Urban workforce back to 100% capacity:**
  - All offices are open.
  - Vaccinations continue to be provided to the TAPS workforce:
    - 55% of TAPS workforce are vaccinated.
    - Company goal of 65% of TAPS workforce.

Fishing Vessel Availability by Port (end of 2nd quarter 2021):

Port	Tier 1	Tier 2
Valdez	22	21
Cordova	27 (8 Rapid Resp.)	129
Whittier	6	23
Seward		25
Homer		37
Kodiak		46
Totals	**55***	**281**

*[*The Tier 1 column was incorrectly totaled in the Power Point presentation. This is the corrected total.]*

2021 Contingency Plan Activities:

VMT ODPCP

- Amendment 2021-3:
  - In work; anticipated submission to ADEC in September 2021.
  - Minor edits to various ICS checklist and Sec. 3.1.1.8, *Facility Drainage,* as well as updates to contact information.

- Amendment 2021-2:
  - Updated contacts to meet DOT/PHMSA Notice of Correction Letter.
  - Published: 4/14/21.

2021 VMT/PWS Training & Exercises:

- 2nd Quarter Activities:

  - Fishing Vessel Training (all ports)
  - Valdez Star Open Water Exercise
  - Current Buster 8 & Crucial Skimmer Task Force Training Exercise (5)
  - Nearshore Operational Readiness Exercise
  - Tethered Escort Tug Exercise (10 knots)
  - Unannounced Rapid Response Vessel Call-Out Drill (Cordova)
  - IMT Notification Test
  - OSRB Crucial Skimmer Task Force training exercises (4)
  - Tethered Escort Tug Exercise (6 knots)
  - VMT Tabletop & Equipment Deployment Exercise
  - Unannounced Quarterly QI/IC Notification Drill
  - Emergency Tow Assist/Tethered Escort Exercise
  - Tethered Escort Tug Exercise – 6 knots
  - Annual Maintenance at Lake Bay and Cannery Creek
  - Valdez Duck Flats Training Deployments (3)
  - Tug Open Water U & J Training Exercises (2)

- Upcoming Exercises:

  - Fall Fishing Vessel Training: Late September in Cordova.
  - 2021 Andeavor/Marathon PWS Exercise, 10/13-14.
  - VMT Equipment Deployment #2, by Fall 10/31/21 (tentative).

2021 Valdez Projects

- Ballast Header Inspection and Repair (Berth 5, A Header)
- Tank Program:
  - Tank 94: Tank cleaned and repairs underway.
  - Tank 7: Processing and cleaning underway.
  - Tank 10: External coating repairs complete.

    - Tank 94 Annular Plate Replacement: Work underway to cut annular plate.
- Berth 5 Gangway Replacement: Gangway installed.
- Berth 4 Gangway Replacement: Gangway was installed in 2020.

Morales added that Alyeska's recordable incident rate of 0.48% was concerning and they were looking into that. He also added that none of the recorded spill volume of 2.51 gals. was crude oil to water.

On COVID-19 prevention and response, Morales stated that Alyeska was again dialing back some visits to facilities because of the sharp increase in reported COVID-19 cases in Alaska. He personally was concerned about Alaska's rural communities and the hospital capacity in Anchorage and Fairbanks being at critical levels.

He reported that SERVS was able to do a lot more on-water training than was originally anticipated. In response to a question from Jim Herbert as to whether Alyeska was satisfied with the hybrid fishing vessel training, Morales stated that Alyeska was getting a range of feedback, but he felt it could be better.

In response to a question from Amanda Bauer about Alyeska's plan to comply with the federal vaccine mandate for companies with over 100 employees, Morales stated that Alyeska was still figuring out how it would apply and the timing, but not knowing the timing did not mean Alyeska would sit and wait. They were already talking about how the company could help to protect its people and employees and communities. He pointed out that Alyeska has a masking mandate and will require employees to test negative or be vaccinated. He added that Edison Chouest Offshore (ECO) has a strong testing process/procedure for its crews before boarding its ships and after, and they had been very successful controlling infections with that.

Amanda Bauer asked about Alyeska's new corporate reorganization and the elimination of approximately 40 positions. Morales stated that most of the jobs that went away were already vacant because of Alyeska's hiring freeze that had been in place for a while. Technology teams were moved into the Operations team. Existing employees were moved into other positions. Morales acknowledged that Alyeska had less administrative support in the office right now.

He spoke of the devastation of the recent Hurricane Ida that hit the Gulf of Mexico and the effect on ECO's operations which took a direct hit to its facilities in New Orleans. The entire region was hit very hard but there had been no deaths and no major injuries within the ECO organization. Morales said he had not seen an impact on ECO crewing/manning in Alaska but he had seen a slowdown in the engineering team working on planning vessel maintenance, but that was not of an immediate concern as it would not apply to schedules for a couple of years.

Executive Director Schantz raised PWSRCAC's concerns to Morales: loss of institutional knowledge at Alyeska because of retirements or employees leaving for other reasons, the low morale at the VMT and company-wide, personnel being overwhelmed, the corporate reorganization and the cutting of 40 positions. PWSRCAC is trying to figure out what it can do to ensure that operations and maintenance are being maintained and not affected by the staff reductions. Morales stated that "we are taking a lot [of work] off people's plates to ease the burden," and ECO had taken over engineering and could bring on resources to help.

Archibald added that he heard "through the grapevine" that engineering was not filling positions. He pointed out that every maintenance action and everything that happens at the VMT and the pipeline starts with engineering, and if engineering cannot come up with a plan, things just do not happen as they should. He said it was good to hear that Alyeska was using outside engineering sources when needed.

In response to a question from Robert Beedle for any update on the *Courageous* allision that occurred in January, Morales reported that the investigative conclusion was that the incident was a result of operator error and Alyeska was looking at whatever it could do to make operational controls safer.

Robert Archibald asked if Alyeska had a contingency plan if the pandemic got to the point that Alyeska did not have enough personnel to operate the pipeline. Morales stated that Alyeska could not allow it to get to that point. Alyeska was ramping up now to protect its employees and the community.

Lunch Recess: 12:14 p.m. - 1:00 p.m.

CONSENT AGENDA
3-2, 3-3
The consent agenda consisted of two items: 3-2 and 3-3. Briefing sheets were included in the meeting notebook for each item.

Amanda Bauer **moved to approve the consent agenda** as presented. Rebecca Skinner **seconded.**

The **consent agenda was approved** as follows:

- **3-2 CONTRACT APPROVAL: CRUDE OIL TANK 7 AND BWT TANK 94 MAINTENANCE REVIEW**
  Authorization of a contract with Taku Engineering LLC for work on Project 5081 Crude Oil Tank 7 and Ballast Water Tank 94 Maintenance Review in an amount not to exceed $75,088.

- **3-3 CONTRACT APPROVAL: STATE LEGISLATIVE MONITOR**
  Authorization for the Executive Director to enter into a contract for state legislative monitor services with Gene Therriault, dba GT Services, for a term of two years and compensation not to exceed $24,000 per year.

UPDATE ON C-PLAN SCOPING PROCESS AND OTHER SPAR TOPICS

ADEC Commissioner Jason Brune and SPAR Division Director Tiffany Larson updated the Council on ADEC's scoping process for c-plan statutes and regulations and other SPAR Division topics.

Larson gave an overview of the Article 4 scoping process and the regulation reform package that ADEC would likely propose that came out of that process:

- Approximately 350 comments were received from approximately 130 commenters in response to the scoping call. ADEC reviewed those comments and has proposed revisions to Article 4 where it deemed revisions appropriate as result of those comments.
- The tentative date for the notice of the public comment period will be November 1, 2021, on the ADEC website only. It will not be published in periodicals.
- There will be a 90-day public comment period which will end January 31, 2022. It will not be extended.
- ADEC's review timeline for requesting additional information will be reduced from 90 days to 60 days with an option to extend to 90 days for complex plans.
- The timeline from the start of the public comment period through adoption of new regulations could take up to a year. If ADEC has to re-notice the regulation package due to some unanticipated substantive change, it could take several months beyond that one-year timeline.
- Revisions to the proposed regulation changes were still in process at that time and the proposed changes could be modified anytime until the opening of the public comment period.

Larson reiterated that the main goal of opening Article 4 for review was to achieve efficiency without any compromise on environmental protection while also maintaining ADEC's statutory authority. Other goals included increasing the department's transparency and clarification throughout, reducing the administrative burden both on the department and industry, simplifying language, removing redundancies or duplication, consolidating requirements where possible if they were duplicative, improving application and review procedures and, lastly, modernization. ADEC personnel considered all the comments and have proposed changes to the regulations where appropriate.

Larson stated that there were no proposed statutory changes at this time, only changes to Article 4 regulations. She also confirmed that plan holders would not have to update their

existing c-plans as a result of a reorganizing and renumbering of Sections 425 and 445 under Article 4. She also stated that the proposed changes would be obvious from the annotations in the proposed regulations when the public notice is issued. If ADEC decides to make additional changes to the original proposal as a result of public comment, then those supplemental changes would have to be re-noticed to the public for a supplemental comment period.

PWSRCAC Project Manager Linda Swiss asked whether there would be an economic analysis done on the changes to Article 4. Commissioner Brune stated that an economic analysis would be done but not to the extent that it would have been when ADEC had an economist. (The economist position was one of those eliminated in the agency's recent budget cuts.)

Commenting on the proposal to reduce ADEC's review time from 90 to 60 days on requesting additional information with an option to extend that time to 90 days for complex plans, Executive Director Schantz expressed the hope that ADEC staff would be supported and they would be able to use the option of the extension to the full 90 days for complex plans.

Commissioner Brune and Director Larson then answered questions on other SPAR issues of concern to the Council:

Robert Archibald raised the Council's concern about ADEC's Valdez staffing issues and in particular the environmental program specialist position that may no longer be based in Valdez since it was being advertised statewide. This would reduce ADEC's presence on the ground in Valdez. Larson stated the position was not yet out for recruitment because it was being reclassified to a flexible position at a lower experience level. She anticipated that the reclassification would be complete by the end of the month. The qualifying criteria for the position would be weighted for those applying who live in Valdez. However, if there was a well-suited applicant in Anchorage and that person was the best qualified, it was possible they could be selected and that position would no longer be in Valdez. This approach would meet the needs of the state and give ADEC the flexibility to still have personnel in Valdez -or get them there. She pointed out that there were already three positions based in Valdez.

Archibald reiterated PWSRCAC's concerns about the loss of institutional knowledge in ADEC's office, the loss of trained people and people who are knowledgeable about tankers and response to oil spills. He urged Larson and the department in general to take that into consideration when decisions were made on staffing issues.

Commissioner Brune stated that they were looking at all positions agencywide and trying to get the best candidates in all positions, not only in a certain location.

Project Manager Roy Robertson pointed out that having a slightly better qualified person in Anchorage would not be the same as having someone in Valdez who can go on the exercises that often occur on short notice. Having someone on scene in Valdez who would be able to get to a spill response quickly could make a difference; being able to get on a tug or equipment and see it in operation and interface with the operators, particularly the plan holders that operate in and out of Prince William Sound, would not be possible with someone telecommuting or attending virtually. Robertson emphasized to the Commissioner the value of someone being on scene who can develop relationships with the operators and gain the experience that cannot be gleaned from an office in Anchorage.

Executive Director Schantz asked the Commissioner to outline his vision/plan to make the SPAR Division whole in funding. Brune stated that his priority was to increase oil throughput. He was also fully behind the proposed increase in the refined fuels surcharge from 0.95 cents to 1.5 cents, an increase that Governor Dunleavy also supported, and he hoped that staffing levels would be maintained. He acknowledged that this fiscal year would be a little short of funds because the reserve funds were swept away and he had recommended that the shortfall be funded from general funds. He relayed that when he took over as Commissioner, he was told he would have to cut 30 positions and that the department would be out of money in four years. Over the past two years he had cut 12 positions and hoped that would be all that would have to be cut. He emphasized that he had heard PWSRCAC's concerns with SPAR's budget and staffing, bringing a sustainable level to both for SPAR was his priority.

President Archibald thanked Commissioner Brune and Director Larson for addressing the Council, adding that ADEC has a big responsibility to the citizens of Alaska, and it covers a lot of area. He assured the Commissioner that the Council would do whatever it could to see that funding comes forth for SPAR.

For the Good of the Order

The order of Items 4-1 and 4-3 were swapped on the agenda to accommodate the schedule for the presenter of Item 4-1.

4-3 PRESENTATION ON ALASKA OIL SPILL LESSON BANK

Outreach Coordinator Betsi Oliver gave an overview of the Alaska Oil Spill Lesson Bank (formerly the Alaska Oil Spill Curriculum), a series of lesson plans and other educational resources designed to introduce a foundational understanding of the marine ecosystem, oil spill science, and citizen engagement principles to students K-12 in building a stewardship ethic. The resources received a major update and a new searchable database platform on the Council's website. Oliver reviewed the updates with the Board and explained the large multiyear project, including work by the IEC, volunteers Jane Eisemann and Kate Morse, intern Rosie Brennan, contractor Katie Gavenus, and multiple staff, particularly Amanda Johnson and Betsi Oliver.

A briefing sheet was included in the meeting notebook under Item 4-3 which outlined a summary of the recent work.

(This was an information-only item. No action was requested of the Board.)

Break: 2:32 p.m. - 2:38 p.m.

4-2 REPORT ACCEPTANCE: FIELD TRIALS OF MESSENGER LINE THROWING DEVICES

Director of Programs Joe Lally introduced a report on a project that evaluated the technologies available to pass or deploy towing lines to vessels in distress. The aim of the project was to determine what constitutes the best available technology (BAT) and then, using a similar approach, compare currently used line-handling technologies with alternatives identified by the consultant.

Peter Soles and Kevin Raleigh of the maritime research firm Glosten, the contractor consultant on the project, presented an overview of their findings and the resulting report which was included in the meeting notebook as part of Item 4-2.

The results of the trial and subsequent analysis showed that the highest scoring devices were the PLT-SOLAS and PLT-Multi manufactured by Restech Norway, followed closely by the Ikaros Line Thrower. The Samson Rope Technologies EVATS retrieving line system was tested and also performed very well in a deployment trial.

The Board was asked to accept the report as meeting the terms of the contract.

Michael Vigil **moved to accept** the report titled "PWSRCAC Emergency Towline Deployment Practical Trials: Practical Trial Summary Report" by Glosten, dated August 6, 2021, as meeting the terms and conditions of the contract and for distribution to the public. Ben Cutrell **seconded,** and the **motion passed** without objection.

4-1 FY2021 AUDIT ACCEPTANCE

Financial Manager Gregory Dixon introduced a request for Board acceptance of the FY2021 Financial Audit by the Council's accountants, BDO. Dixon reported that BDO had presented the results of the audit to the Finance Committee and the committee had recommended that the Board accept the June 30, 2021, audit financial statements and report (copies of which were included in the meeting notebook under Item 4-1).

William Wilmoth of BDO reviewed the results of the audit with the Board.

Wayne Donaldson **moved to accept** the June 30, 2021, audited financial statements and audit report as presented. Mako Haggerty **seconded** and the **motion passed** without objection.

Break: 3:30 p.m. – 3:40 p.m.

[Melvin Malchoff left the meeting at 3:40 p.m. 18 directors present.]

4-4 REPORT ACCEPTANCE: MARINE WINTER BIRD SURVEY

This agenda item sought Board acceptance of the final report titled "Marine Winter Bird Surveys in Prince William Sound" by Anne Schaefer and Dr. Mary Anne Bishop of the Prince William Sound Science Center. Environmental Monitoring Project Manager Danielle Verna introduced Dr. Mary Anne Bishop who presented an overview of the report to the Board. A briefing sheet and the report were included in the meeting notebook under Item 4-4.

Dorothy Moore **moved to accept** the report titled "Marine Winter Bird Surveys in Prince William Sound: by Prince William Sound Science Center," dated July 19, 2021, as meeting the terms and conditions of Council Contract 9110.21.01 and for distribution to the public. Mako Haggerty **seconded** and the **motion passed** without objection.

3-1 CONTRACT APPROVAL: DETERMINING CONCENTRATION AND COMPOSITION OF OXYGENATED HYDROCARBONS FROM THE VALDEZ MARINE TERMINAL

This agenda item was presented by PWSRCAC's Environmental Monitoring Project Manager Danielle Verna and sought Board approval of a new project contract to determine the concentration and composition of oxygenated hydrocarbons from the Valdez Marine Terminal (VMT). The project was planned as a sole source contract with the University of New Orleans, given their experience and expertise related to the field of oxygenated hydrocarbons. The project timeline was tentatively planned from October 1, 2021, to May 2023, pending support and coordination from Alyeska. The work will enable PWSRCAC to monitor "the environmental impacts of the operation of the terminal and facilities and crude oil tankers," as directed by OPA 90, by assessing the type and amount of oxygenated hydrocarbons that are discharged from Alyeska's Ballast Water Treatment Facility (BWTF).

A budget of $70,400 was approved at the Board's May 2021 meeting for FY2022. The contract, drafted by staff, was reviewed by the contractor and was pending Alyeska's coordination at this time. The proposed sampling from the BWTF had been presented to Alyeska. Staff was working to set up a meeting with Alyeska, PWSRCAC staff, and the contractor. The project analysis will determine the type and amount of oxygenated hydrocarbons entering Port Valdez from the BWTF.

Executive Director Schantz pointed out there were still steps that needed to be taken before the project could start and timing was now of the essence. It was hinging on Alyeska's cooperation which had not been forthcoming earlier. Now that Alyeska had a better understanding of the project after a meeting with PWSRCAC staff, there were indications Alyeska would support the project, but things would have to move quickly if the project was to start in October as initially planned.

Angela Totemoff **moved to authorize** a contract with the University of New Orleans for Project 9512, Determining Concentration and Composition of Oxygenated Hydrocarbons from the VMT, in an amount not to exceed $70,400. Wayne Donaldson **seconded** and the **motion passed** without objection.

Recess: The meeting recessed for the day at 4:27 p.m., to reconvene at 9:00 a.m. the following day.

Friday, September 17, 2021

CALL BACK TO ORDER

President Archibald called the meeting back to order at 9:00 a.m. on September 17, 2021. A roll call was taken and there were 16 Directors present at the time of the call back to order: Archibald, Bauer, Beedle, Crump, Cutrell, Faulkner, Haggerty, Hasenbank, Jackson, Malchoff, Moore, Shavelson, Skinner, Totemoff, Vigil, and Zinck. Wayne Donaldson joined the meeting shortly thereafter at 9:15 a.m., and Patrick Domitrovich at 9:33 a.m.

OVERVIEW OF CONOCOPHILLIPS & POLAR TANKERS ONBOARD BALLAST WATER TREATMENT SYSTEM

Bob Hayes, Manager of Marine Engineering, and Eric Harrier, Director of Engineering Compliance, for Polar Tankers gave an overview of the Ballast Water Treatment System that was being installed on Polar Tankers' vessels under the requirements of the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention) that was adopted by the International Maritime Organization (IMO) in February and entered into force globally in September 2017. Under the Convention, all ships in international traffic are required to conform to BWM standards (that will be phased in over a period of time) designed to prevent the spread of aquatic invasive species via ballast water systems. For most ships, this involved installing equipment to treat ballast water. ConocoPhillips/Polar Tankers chose the BALPURE® electrolytic disinfection ballast water treatment system for its ships. Harrier explained the system in detail to the Council. The cost to install was estimated at $6-7 million per ship.

Hayes stated that the IMO and the USCG were both involved in the design process of the system. Part of the contract requirements was that the systems had to meet all of the USCG requirements.

Hayes reported that the *Polar Adventure* was already retrofitted and the system had been very reliable. The *Polar Enterprise* would be fitted later this year and all the other Polar Tankers' ships will be retrofitted as they go to regular drydock. All will be completed by 2023.

Hayes pointed out that it is much easier to install the BWTS on a new build than retrofit an existing vessel.

Steve Lewis asked Polar to keep the Council in the loop of their plans for new ship builds in the next few years. Hayes committed to doing that.
(This was an information-only item. No action was requested of the Board.)

[Wayne Donaldson joined the meeting during this presentation at approximately 9:15 a.m., and Patrick Domitrovich at approximately 9:38 a.m. 18 Directors present.]

4-5 REPORT ACCEPTANCE: A SUMMARY OF DISPERSANTS RESEARCH

Outreach Coordinator Betsi Oliver introduced Merv Fingas, Ph.D., of Spill Science who presented his findings and report on recent advances identified in a wide variety of topics related to oil dispersion, dispersant effectiveness, toxicity, and biodegradation. Emphasis in the report was placed on aspects that relate to Alaska, and Prince William Sound specifically. The report did not cover all aspects of dispersant knowledge but rather focused on newly published developments.

Dr. Fingas' key findings included:

- Toxicity and effects – Most studies found that chemically-dispersed oil was more toxic to aquatic life than mechanically-dispersed oil.
- Dispersants increase polycyclic aromatic hydrocarbons (PAHs) and benzene, toluene, ethylbenzene, and xylene (BTEX) in the water column.
- Biodegradation and fate – Most studies found that dispersants slow the biodegradation of oil.
- Effectiveness – there is still a question of 'is a dispersant application effective if there is still massive shoreline oiling and massive bird and mammal oil contamination?'
- Marine Snow – results in large amounts of oil on the sea floor, accelerated by use of dispersants.
- Oil-Sediment Aggregates – also results in amounts of oil on the sea floor, accelerated by use of dispersants.

Mako Haggerty **moved to accept** the report titled "A Summary of Dispersants Research: 2017-2021" by Dr. Merv Fingas, dated May 2021, as meeting the terms and conditions of Contract 955.21.01 and for distribution to the public. Dorothy Moore **seconded** and the **motion passed** without objection.

Break: 10:28 a.m. - 10:38 a.m.

4-6 REPORT ACCEPTANCE: PORT VALDEZ WEATHER BUOY DATA ANALYSIS

Project Manager Roy Robertson introduced Rob Campbell, Ph.D., who presented his analysis and report on weather buoy data collected from 2019 to the end of 2020 from the weather buoys installed by PWSRCAC in Prince William Sound.

This report was the first of possibly five project reports that will analyze the weather data collected each year of the five years the weather buoys, installed by PWSRCAC, are intended to collect data to determine any weather trends throughout the year and seasonally. Both buoys are in Port Valdez: one in the vicinity of the VMT and the other near the Valdez Duck Flats.

The analysis included ocean current, wind direction and speed information, wave direction and heights, and other pertinent information that could be obtained from the weather data.

A briefing sheet and a copy of the Dr. Campbell's report were included in the meeting notebook under Item 4-6.

Robertson pointed out that the buoy real time data of currents and wind would be very important in a spill response in Port Valdez. As trends are identified over the next five years, they will also be valuable for contingency planning and will identify more data points for future circulation studies.

Amanda Bauer **moved to accept** the report titled "Port Valdez Weather Buoy Data Analysis" by Robert W. Campbell, Ph.D., dated August 2, 2021, as meeting the terms and conditions of Contract 6536.21.01, and for distribution to the public. Elijah Jackson **seconded** and the **motion passed** without objection.

4-7 REPORT ACCEPTANCE: HISTORY OF CONTINGENCY PLANNING

This agenda item sought Board acceptance of three documents on the history of the Prince William Sound Tanker Oil Discharge Prevention and Contingency Plan (PWS Tanker C-Plan) by Nuka Research and Planning Group, LLC:

- Prince William Sound Tanker Oil Discharge Prevention & Contingency Plan: Summary (1995-2020), DRAFT (August 10, 2021);
- Prince William Sound Tanker Oil Discharge Prevention & Contingency Plan: Compendium of Event Summaries (1995-2020), DRAFT (August 10, 2021); and
- Prince William Sound Tanker Plan History Timetable.

Project Manager Linda Swiss gave a brief background on the importance of this project in documenting the history of contingency planning. The Council's involvement in contingency planning review is important to its mission and mandate under OPA 90. The three subject reports provide a summary, a timeline of key plan changes and related efforts, a compendium of summaries of plan renewals and key amendments, and tables listing the findings and conditions of approval issued by ADEC.

Swiss introduced Sierra Fletcher of Nuka Research and Planning Group, LLC. and the other contractors who worked on the project (Sharry Miller, Breck Tostevin of Nielsen Koch PLLC, and Haley Griffin.)

Sierra Fletcher presented the team's approach in identifying key contingency planning issues for Prince William Sound tankers, as well as the organization of the information compiled for these reports.

At the conclusion of Fletcher's presentation, Amanda Bauer gave special recognition to Project Manager Linda Swiss for all her work on c-plans over many years.

[Patrick Domitrovich left the meeting at 11:13 am. – 17 Directors present.]

Amanda Bauer **moved to accept** the following documents written by Nuka Research and Planning Group:

- Prince William Sound Tanker Oil Discharge Prevention & Contingency Plan: Summary (1995-2020), DRAFT (August 10, 2021).
- Prince William Sound Tanker Oil Discharge Prevention & Contingency Plan: Compendium of Event Summaries (1995-2020), DRAFT (August 10, 2021); and
- Prince William Sound Tanker Plan History Timetable.

Angela Totemoff **seconded** and the **motion passed** without objection.

4-9 PROPOSED AMENDMENT TO PWSRCAC BYLAWS

Director of Administration Walt Wrede introduced a proposed amendment to Section 2.2.2 of the Council's Bylaws entitled "Class II Membership." A briefing sheet with the proposed amendment was included in the meeting notebook under Item 4-9. The Bylaws currently listed the Alaska Division of Homeland Security and Emergency Management (DHSEM) and the Alaska Department of Military and Veterans Affairs (DMVA) as two separate and distinct Class II members. The DHSEM currently resides within the larger DMVA. According to the Oil Pollution Act of 1990, these entities should be combined as one Class II member and have one non-voting representative for the combined entity on the Council. The proposed amendment would make the necessary correction.

Amanda Bauer **moved to adopt** an amendment to Section 2.2.2 of the Bylaws entitled "Class II Membership" by combining the Division of Homeland Security and Emergency Management and the Alaska Department of Military and Veterans Affairs into one Class II member and designating the new member name as the "Division of Homeland Security and Emergency Management, Alaska Department of Military and Veterans Affairs." Patience Andersen Faulkner **seconded.**

Noting that a 2/3rd majority vote would be required to pass the proposed amendment, a roll call vote was taken:

Robert Archibald	Yes
Amanda Bauer	Yes
Robert Beedle	Yes
Nick Crump	No response
Ben Cutrell	Yes
Patrick Domitrovich	No response
Wayne Donaldson	Yes
Patience Andersen Faulkner	Yes
Mako Haggerty	Yes
Luke Hasenbank	Yes
Elijah Jackson	Yes
Melvin Malchoff	No response
Dorothy Moore	Yes
Bob Shavelson	No response
Rebecca Skinner	Yes
Angela Totemoff	Yes
Michael Vigil	Yes
Kirk Zinck	Yes

The **motion passed** (14 Directors voting in the affirmative. Directors Crump, Domitrovich, Malchoff and Shavelson did not respond). **The amendment to Section 2.2.2 of the PWSRCAC Bylaws was duly adopted by a 2/3rd vote**.

PRESIDENT'S REPORT TO THE BOARD

President Archibald recognized that people generally were tired and stressed with the pressures of the pandemic but he emphasized that PWSRCAC needed to stay engaged, efficient and focused as the voice for the people of the State of Alaska when it came to maintaining the safe transportation of oil through Prince William Sound and the safety of Valdez Marine Terminal.

Noting the escalating number of COVID-19 infections and hospitalizations in Alaska to record highs, he urged everyone to take care of themselves and avoid risky behaviors that may require hospitalization because all the hospitals were overwhelmed.

Archibald spoke of the dedicated service to the organization of retiring staff members Gregory Dixon and Walt Wrede and that filling their positions would not be easy. He recognized Dixon's extraordinary job performance in taking care of the Council's financial affairs for over 20 years and Wrede's dedicated fulfilment of his duties as Director of Administration. He also commended Project Manager Linda Swiss for all her work over many years on c-plans reviews. He thanked Sierra Fletcher and the Nuka Research and

Planning team for their work on the history of c-plans and said he would like to see a poster produced of the c-plan history so the organization had a visual reference.

*Lunch Rec*ess: *11:52 a.m. - 1:00 p.m.*

For the Good of the Order

Archibald welcomed Gene Therriault as the Council's new state legislative monitor and thanked Kate Troll for her services in that role during the previous year.

4-8 PWSRCAC LONG RANGE PLANNING

[Recorder's Note: The attachments to the briefing sheet for this agenda item were incorrectly marked as attachments 4-9A and 4-9B instead of 4-8A and 4-8B]

Director of Programs Joe Lally thanked all who contributed to the Long Range Planning (LRP) process. He explained the purpose of the protected projects under the LRP and outlined those protected projects in this LRP cycle. A briefing sheet (4-8) and information on the protected projects (Attachment 4-8A *[corrected*]), and Long Range Planning Guidance Memo & Supporting Documents (Attachment 4-8B *[corrected]*) were included in the meeting notebook.

Lally gave a brief overview of each line item on the protected project list.

Patience Andersen Faulkner **moved to approve** the protected project list for the upcoming Long Range Planning process as presented in Attachment A to Item 4-8 briefing sheet. Michael Vigil **seconded** and the **motion passed** without objection.

4-10 APPROVAL OF FY2022 BUDGET MODIFICATIONS

This agenda item sought Board approval of FY2022 budget modifications as presented in the list attached to the 4-10 briefing sheet in the meeting notebook. Financial Manager Gregory
Dixon reviewed each budget modification item with the Board.

The budget modifications, if passed, would adjust the FY2022 budget by the following:

Income:	$3,759,044
Expenses:	$4,220,073
Contingency:	$292,867
Capital budget:	$20,000
Net Assets Used:	$793,896

Amanda Bauer **moved to approve** the FY2022 budget modifications as listed on the provided sheet under Item 4-10, with a total revised contingency in the amount of $292,867. Mako Haggerty **seconded** and the **motion passed** without objection.

Dixon reminded the Board that they may want to revisit the projects that were previously deferred to see what might be put back in the budget.

4-11 COUNCIL JANUARY 2022 EVENTS

Executive Director Schantz reported that the latest surge in COVID-19 cases and hospitalizations and the State of Alaska's reporting of a critical care alert level in area hospitals was very concerning to everyone. Staff was asking for guidance on how to proceed with the January 2022 events, including the January 26, 2022, Long Range Planning workshop and the January 27-28, 2022, Board meeting. A detailed briefing sheet was included in the meeting notebook (Item 4-11) which outlined the concerns and difficulties that the current surge presented for staff to hold in-person events in January based on the current situation. At its meeting on September 9, 2021, the Executive Committee had recommended, in response to the changing conditions and the alert level declared by the State of Alaska, that the Board hold the January 2022 events virtually. Schantz acknowledged that it seemed early to make a decision for January but the pandemic had been challenging to know what may be happening in the next four months. The briefing sheet laid out the progressive monetary penalties that PWSRCAC would incur for cancelling the contract with Embassy Suites and the additional cancellation costs that were to come if the decision to cancel the contract was postponed past October 27, 2021, or later. Schantz pointed out that the Council had already incurred just over $5,000 in penalties even if the contract were cancelled by October 27. If the contract were to be cancelled after October 28, the penalties would jump to almost $11,000. Schantz stated that she had some major reservations about bringing a large group of people together to meet in Anchorage in the current surge situation with the difficulties of being able to ensure social distancing and other COVID safety protocols for such a large group.

A general discussion followed on the pros and cons of making the decision at that time or delaying until closer to October 27, in the hopes that the situation may have improved in a month.

On a side note, Financial Manager Dixon stated he would try to negotiate a waiver of the first penalty ($5,060+) with Embassy Suites given the dire circumstances of the COVID numbers and the Council's long-term relationship with Embassy Suites for its Anchorage meetings.

Angela Totemoff **moved to authorize** a deviation from the Board-approved regular meeting schedule by holding the January 26-28, 2022, PWSRCAC events virtually. Elijah Jackson **seconded** and the **motion passed** without objection.

EXECUTIVE DIRECTOR'S REPORT TO THE BOARD

Executive Director Schantz thanked the Board for the vote on the January meeting, stating that the situation was a difficult one for staff.

A written Executive Director's Report was previously circulated to the Board via email in advance of the meeting. Schantz highlighted some of that report and updated other items.

She reported that COVID-19 had significantly impacted the organization in many ways. She reported that the organization had taken a conservative approach to creating a safe place for staff to work and to protecting volunteers. She pointed out that there was a detailed COVID mitigation plan for both offices and the plan had been updated several times due to changing conditions. There had been many other impacts besides working safely in the offices, such as the reduction in outreach opportunities and access to drills and exercises and the VMT, limited travel to conferences and training events, and the lack of in-person committee and Board meetings, meetings with regulators and Alyeska. Zoom meetings, while helpful and better than meetings solely by telephone, were not and are not the same as meeting in person. She remained optimistic that in-person meetings would happen later next year but it was hard to predict. She urged everyone to be patient, flexible, and to keep moving forward and to deal with the uncertainty of the situation with the best information that was available at any given time.

She also asked volunteers to be patient with staff as they go through the time-consuming hiring process for four positions currently underway, two of which were top level management leadership roles within the organization.

She asked all the volunteers to let her know what they felt was going well in the organization, what could be improved, and whether there were things that staff could be doing to help volunteers stay engaged and connected, or things that should be discontinued. This feedback would help staff better support all the Board and committee members in their respective roles.

Schantz highlighted the pending retirements of Financial Manager Gregory Dixon and Director of Administration Walt Wrede at the end of the year and that this meeting may be the last Board meeting for either of them (although both had committed to staying on to settle their replacements into their respective roles, if necessary). She thanked both for all their contributions to the organization and noted that they would be greatly missed.

On the administrative support positions currently being advertised, Schantz reported that Natalie Novik planned to continue her employment with the organization despite some incredibly difficult health challenges she was facing. She asked everyone to keep Natalie in their thoughts as she undergoes some intense cancer treatments.

Schantz recognized all the efforts of staff. Despite the challenges of the past year and a half, the quality of work, attention to detail, and staff's knowledge of the different areas they are responsible for was impressive and she was confident that the great team could be rebuilt with the new hires.

She pointed out that the PWSRCAC was facing other deeply concerning challenges to its mission:

- The diminishment of ADEC's SPAR Division and ADEC's current revenue crisis, which manifests in terms of ADEC's ability to maintain strong environmental protections.
- Staffing and budget cutbacks at other federal and state regulatory agencies, such as BLM and the Joint Pipeline Office.
- Cutbacks in budgets and personnel within Alyeska.

Schantz emphasized that these cutbacks threaten many of the protections put in place after the Exxon Valdez oil spill (EVOS) to protect Prince William Sound. She emphasized that PWSRCAC's role is to combat the kind of complacency that led to the EVOS and to remain vigilant in that role. She committed to doing everything possible, working with staff and all the volunteers, regulators, and industry to make sure that the safeguards put in place to prevent an accident were not diminished to the point they fail.

FINANCIAL MANAGER'S REPORT TO THE BOARD

Financial Manager Dixon reported that a lot of his time in the past few weeks had been spent on the financial audit and gathering and producing the documents requested by the auditor. He noted that the Letter of Representations that he and the Executive Director needed to sign remained to be completed as well as some bank confirmations that were forthcoming. Once those items were completed, BDO would formally issue the audit and that should happen in a matter of days. In addition, the agreed-upon procedures report was expected from BDO in a few days. That report will be used to prepare an annual report to Alyeska on contract compliance which Dixon and Executive Director Schantz will sign and forward to Alyeska.

Dixon reported that he would be focusing on the organization's IRS Form 990 going forward. Later in October, insurance renewals would be due and after that group health insurance. He also would be working on the FY2022 budget.

In preparation for the transition of his duties to his replacement, he had updated the job description for the Financial Manager and bookkeeper positions. The technology duties he took on over the years were being transitioned to Project Manager Assistant Hans Odegard. He reported that Arctic IT would no longer support the accounting system that PWSRCAC uses. He was currently looking for new accounting software and it would be useful to have a new program start at the beginning of 2022.

He noted that this meeting was probably his last Board meeting before his retirement after 20 years with the organization. He appreciated working with a great staff. He gave kudos to the Council for the amount of time that its volunteers were willing to put in and the

credibility that the organization had gained over the years by making its decisions based on science and well-reasoned conclusions and in the finding of common ground, rather than always in an adversarial atmosphere.

For the Good of the Order

Walt Wrede thanked everyone for their kind words. Like Dixon, he committed to a smooth transition to his replacement and said he would stay on if necessary to make that a reality.

CONSIDERATION OF CONSENT AGENDA ITEMS

(None.)

CLOSING COMMENTS

Directors were given the opportunity to make closing comments.

ADJOURNMENT

There being no further business to come before the Board, the **meeting was adjourned** at 2:45 p.m., on a **motion made** by Angela Totemoff [no audible second] and **passed by unanimous consent**.

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Secretary

Prince William Sound Regional Citizens' Advisory Council
Special Board of Directors Meeting Minutes
October 15, 2021

Members Present: Patience Andersen Faulkner (9:16am), Robert Archibald, Amanda Bauer, Mike Bender, Ben Cutrell, Wayne Donaldson, Mako Haggerty, Elijah Jackson, Melvin Malchoff, Dorthoy Moore, Rebecca Skinner, Michael Vigil, Kirk Zinck

Members Absent: Robert Beedle, Nick Crump, Patrick Domitrovich, Luke Hasenbank, Bob Shavelson, Angela Totemoff

Staff Present: Gregory Dixon, Jennifer Fleming, Joe Lally, Hans Odegard, Donna Schantz, Brooke Taylor,

Others Present: Allison Natcher (ADEC), Joe Levesque (Levesque Law Group), Gene Therriault

Call to Order and Roll Call: President Archibald called the meeting to order at 9:00am. A roll call was taken and the following 12 Directors were present, representing quorum for the conduct of business: Archibald, Bauer, Bender, Cutrell, Donaldson, Haggerty, Jackson, Malchoff, Moore, Skinner, Vigil and Zinck.

Archibald welcomed those present and thanked them for attending this meeting. He led the group in a moment of silence to remember staff member Natalie Novik, who recently passed away.

Approve Agenda: Bauer moved to approve the agenda as presented. Moore seconded. Archibald asked for amendments/objections; hearing none, the agenda was approved.

Public & Opening Comments: Archibald asked for opening comments from the public or members of the Board. There were none.

Contract Increase for State Legislative Monitor Contract: Schantz explained that staff is seeking Board approval to amend its recent action associated with the State Legislative Monitoring contract, which was approved at the September 2021 Board meeting, by increasing the contract for Gene Therriault by $1,700 per year. Schantz explained that the initial amount of Therriault's contract was based on the proposal received from Therriault in response to the Council's Request for Proposals (RFP), and subsequent conversations with him.

Since the September Board meeting, Therriault expressed concern with the indemnity clause in our contract boilerplate that holds PWSRCAC harmless against all claims, damages, losses, and expenses that may arise from the performance and work of the consultant, and he asked if this clause could be removed or amended from the contract. PWSRCAC legal counsel Joe Levesque advised staff that this clause is important and should remain in the contract to protect PWSRCAC. Based on this, Therriault decided he wanted to obtain

insurance to reduce his risk and requested to increase the amount of his contract by $1,700 per year to cover the additional cost of professional liability insurance.

Archibald asked if there were any questions regarding this item. Moore, a member of the Council's Legislative Affairs Committee, spoke in favor of the contract increase. There were no other questions.

Moore moved to amend the September 16, 2021 Board action by increasing the amount of the state legislative monitor contract by $1,700 per year, and authorizing the Executive Director to enter into a contract for state legislative monitor services with Gene Therriault, dba GT Services, for a term of two years and compensation not to exceed $25,700 per year. Skinner seconded. Archibald asked for discussion/objection; hearing none, the action was approved.

Correction to FY2022 Budget Modifications: Dixon explained that at its September 2021 meeting the Board approved several FY2022 budget modifications. Shortly after the Board meeting, the Financial Manager discovered an error in the information that was provided. Dixon reviewed the errors with the Board, including:

- The original budget expenses were stated as $4,176,335 but should be $4,182,255 since this is the amount approved by the Board in the original FY2022 budget.
- Consequently, the additional net assets available for FY2022 should be $230,684 rather than $236,605 as stated in the board briefing sheet.

Dixon explained that, as a result of these changes, the FY2022 contingency should be $286,946 rather than $292,867. He reiterated there were no other changes.

Bauer moved to amend the September 17, 2021 Board action by approving the FY2022 budget modifications as listed in the provided sheet, with the corrected revised contingency in the amount of $286,946. Donaldson seconded. Archibald asked for objection; hearing none the motion was approved.

Updated June 30, 2021 Audited Financial Statements: Dixon explained that at the September 2021 Board meeting, the Board accepted the June 30, 2021 audited financial statements and audit report as presented by the Council's auditors, BDO. Dixon explained that Council staff and our auditors were on an unusually short timeframe between the time BDO did its audit field work and the time the information needed to be presented to the Board. Since the time of the presentation at the September 2021 Board meeting, BDO made a number of changes to the footnotes of the approved financial statements. Dixon reviewed the changes to the statements and noted there were no changes to the numbers, just to some of the footnotes. He noted that this is the first time in his 20 years with the Council that there has been a significant change from what was presented and accepted by the Board, to the final document delivered by our auditors. Due to the significance of the changes, staff felt it important to bring the statements back to the Board for acceptance. Dixon reviewed the changes BDO has made to the financial statements explaining these changes are due to a new revenue recognition standard that was applicable this year.

Archibald asked if there were any questions. Donaldson and Dixon discussed the revenue recognition standard stating that the Council was previously instructed to consider its payment from Alyeska as deferred revenue when it is received before the start of the fiscal year. A new accounting standard states it should be called a contract liability rather than deferred revenue.

Bauer moved to amend the September 16, 2021 Board action by accepting the updated June 30, 2021 audited financial statements as presented. Donaldson seconded. Archibald asked for objection; hearing none, the audited financial statements were accepted.

Closing Comments: Archibald asked for closing comments. Donaldson asked staff if there was any available update on the current recruitment process. Schantz explained that two positions were recently filled. The first is the Bookkeeper/Officer Coordinator position which was filled by Ashlee Hamilton who is scheduled to begin on October 25, 2021. The second is the Administrative Assistant position which has been filled by Jaina Willihan who is scheduled to begin on October 27. Schantz gave a brief update on each new hire. She explained that management is still in the process of reviewing applicants for the Director of Administration and Financial Manager positions.

Adjourn: Moore moved to adjourn. The meeting adjourned at 9:26am.

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Secretary

PWSRCAC
Acronym List
Updated July 10, 2019

AAC	Alaska Administrative Code
ABS	American Bureau of Shipping
ACMP	Alaska Coastal Management Program
ACS	Alaska Clean Seas
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
AIMS	Alaska Incident Management System
AMOP	Arctic & Marine Oil Spill Program (Technical Seminar)
ANC	Anchorage
ANS	Alaska North Slope or Aquatic Nuisance Species
ANSTF	Aquatic Nuisance Species Task Force
ANWR	Arctic National Wildlife Reserve
AOOS	Alaska Ocean Observing System
APSC	Alyeska Pipeline Service Company
ARRT	Alaska Regional Response Team
AS	Alaska Statute
ATC	Alaska Tanker Company
ATOM	Alyeska Tactical Oil Spill Model
AVTEC	Alaska Institute of Technology (formerly Alaska Vocational Technical Center)
BAT	Best Available Technology
BBL	Barrel (42 Gallons = 1 bbl)
BGC	Board Governance Committee (PWSRCAC Committee)
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
BLM	Bureau of Land Management
BOO	Barge of Opportunity
BMPP	Best Management Practices Plan
BP	British Petroleum or bollard pull
BTT	Biological Treatment Tanks
BWT(F)	Ballast Water Treatment (Facility)
C-Plan	Contingency Plan
CAA	Clean Air Act

CAOS	Coastal Alaska Observing System
CDFU	Cordova District Fishermen United
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CIP	Community Impacts Planning
CIRCAC	Cook Inlet Regional Citizens Advisory Council
CISPRI	Cook Inlet Spill Prevention and Response, Incorporated
CMT	Crisis Management Team
COA	Condition of Approval
COSRS	Community Oil Spill Response System
COTP	Captain of the Port (USCG)
CWA	Clean Water Act
DAF	Dissolved Air Flotation
DEIS	Draft Environmental Impact Statement
DES	Division of Emergency Services
DMR	Discharge Monitoring Report
DNV	Det Norske Veritas – Norwegian Quality Assurance consultant
DOI	U.S. Department of the Interior
DOT	U.S. Department of Transportation
DPS	Dynamic Positioning System
DR&R	Dismantling, Removal and Restoration
DTTS	Disabled Tanker Towing Study
DWT	Deadweight ton
ECO	Edison Chouest Offshore
EIA	Environment Impact Assessment
EIS	Environmental Impact Statement
EOC	Emergency Operations Center
EPA	U.S. Environmental Protection Agency
EPPR	Emergency Prevention Preparedness and Response
ERB	Emergency Response Building
ERP	Emergency Response Plan
ERV	Emergency Response Vessel
ETT	Enhanced Tractor Tug
EVOS	Exxon Valdez Oil Spill

EVOSTC	Exxon Valdez Oil Spill Trustees Council
FBU	Fairbanks Business Unit, Alyeska
FLIR	Forward-looking infrared
FOIA	Freedom of Information Act
FOSC	Federal On-Scene Coordinator
FV	Fishing Vessel
FWPca	Federal Water Pollution Prevention and Control Act
GAO	U.S. Government Accountability Office
GIS	Geographic Information System
GOA	Gulf of Alaska
GPS	Global Positioning System
GRS	Geographical Response Strategies
HAPs	Hazardous Air Pollutants
HAZWOPER	Hazardous Waste Operation and Emergency Response
HERO	Hinchinbrook Entrance Response Options
IAP	Incident Action Plan
IAP2	International Association of Public Participation
ICCOPR	Interagency Coordinating Committee on Oil Pollution Research
IC	Incident Command
ICS	Incident Command System
IEC	Information & Education Committee (PWSRCAC Committee)
IMO	International Maritime Organization
IMT	Incident Management Team
IOSC	International Oil Spill Conference
IRIC	Initial Response Incident Commander
ISAC	Invasive Species Advisory Committee
IWWS	Industrial Waste Water System
JIC	Joint Information Center
JPO	Joint Pipeline Office
LEPC	Local Emergency Planning Committee
LAC	Legislative Affairs Committee (PWSRCAC Committee)
LIO	Legislative Information Office
LOSC	Local On-Scene Coordinator
LRP	Long Range Plan
LTEMP	Long Term Environmental Monitoring ~~Program~~ Project

MAC	Multi-stakeholder Agency Committee
MARPOL	International Convention for Prevention of Pollution from Ships
MEPC	Marine Environmental Protection Committee (IMO)
MIS	Marine Invasive Species
MMS	Minerals Management Service
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MSO	Marine Safety Office
MSDS	Material Safety Data Sheets
MSU	Marine Safety Unit
NDBC	National Data Buoy Center
NEPA	National Environmental Policy Act
NESHAP-OLD	National Emission Standard for Hazardous Air Pollutants – Organic Liquid Distribution
NIIMS	National Interagency Incident Management System
NIS	Non-Indigenous Species
NISA	National Invasive Species Act
NOAA	National Oceanographic & Atmospheric Administration
NOBOB	No Ballast on Board
NPDES	National Pollutant Discharge Elimination System
NPREP	National Preparedness & Response Exercise Program
NRDA	Natural Resource Damage Assessment
NSF	National Science Foundation
OCC	Operations Control Center
OHMSETT	Oil and Hazardous Materials Simulate Environmental Test Tank
OMS	Oil Movements and Storage
OPA 90	Oil Pollution Act of 1990
OSC	On-Scene Coordinator
OSLTF	Oil Spill Liability Trust Fund
OSRB	Oil Spill Response Barge
OSPR	Oil Spill Prevention and Response Committee (PWSRCAC Committee)
OSREC	Oil Spill Region Environmental Coalition
OSRI	Oil Spill Recovery Institute
OSRL	Oil Spill Response Limited
OSRO	Oil Spill Response Organization

OSRV	Oil Spill Response Vessel
PAH	Polycyclic Aromatic Hydrocarbon
POD	Physical Oceanography Data
POVTS	Port Operations and Vessel Traffic System (PWSRCAC Committee)
PPE	Personal Protective Equipment
PRAC	Primary Response Action Contractor
PRT	Prevention and Response Tug
PS	Pump Station
PV	Power Vapor
PWS	Prince William Sound
PWSAC	Prince William Sound Aquaculture Corporation
PWSC	Prince William Sound College
PWSEDD	Prince William Sound Economic Development District
PWSRAS	Prince William Sound Risk Assessment Study
PWSRCAC	Prince William Sound Regional Citizens' Advisory Council
PWSSC	Prince William Sound Science Center
PWSTA	Prince William Sound Tanker Association
RC	Response Center or Response Coordinator (SERVS)
RCAC	Regional Citizens' Advisory Council
RCM	Reliability Centered Maintenance
RFAI	Request for Additional Information
RFI	Request for Information
RFP	Request for Proposal
RFQ	Request for Qualifications
RMROL	Realistic Maximum Response Operating Limitations
RPG	Response Planning Group
RP	Responsible Party
RPOSC	Responsible Party's On-Scene Coordinator
RPS	Response Planning Standard
RRT	Regional Response Team
RSC	Regional Stakeholders Committee
SAC	Scientific Advisory Committee (PWSRCAC Committee)
SCAT	Shoreline Cleanup Assessment Team
SERC	State Emergency Response Commission (or) Smithsonian Environmental Research Center

SERVS	Ship Escort/Response Vessel System
SETAC	Society of Environmental Toxicology and Chemistry
SOS	Seldovia Oil Spill Response
SOSC	State On-Scene Coordinator
SPAR	Spill Prevention and Response (A division within ADEC)
SPO	State Pipeline Coordinator's Office
SRP	Scientific Response Plan
ST	Strike Team
SWAPA	Southwest Alaska Pilots Association
TAG	Technical Advisory Group
TAPS	Trans Alaska Pipeline System
TF	Task Force
TOEM	Terminal Operations & Environmental Monitoring (PWSRCAC Committee)
TOO	Tanker of Opportunity
TROG	Total Recoverable Oil and Grease
TVCS	Tanker Vapor Control System
UC	Unified Command
UP	Unified Plan
USCG	United States Coast Guard
USF&WS	United States Fish & Wildlife Service
VBU	Valdez Business Unit, Alyeska
VDZ	Valdez
VERP	Prince William Sound Vessel Escort & Response Plan
VEOC	Valdez Emergency Operations Center
VIDA	Vessel Incidental Discharge Act
VMT	Valdez Marine Terminal
VOCs	Volatile Organic Compounds
VOO	Vessel of Opportunity
VTC	Vessel Traffic Center
VTS	Vessel Traffic System
XCOM	PWSRCAC Executive Committee

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As of December 10, 2021

Prince William Sound Regional Citizens' Advisory Council
Budget Status Report -- FY 2022

	Budget			Actual and Commitments			Remaining	
	Original	Modifications	Revised	Actual	Commitments	Total	Amount	Percent
INCOME								
Alyeska Contract	$3,716,244.00		$3,716,244.00	$3,716,243.65		$3,716,243.65	$0.35	0.0%
Interest Income			$0.00	$234.88		$234.88	($234.88)	0.0%
Grants		$20,000.00	$20,000.00			$0.00	$20,000.00	100.0%
In-Kind Donations	$22,800.00		$22,800.00			$0.00	$22,800.00	100.0%
Book Royalties and Sales			$0.00	$28.62		$28.62	($28.62)	0.0%
Miscellaneous			$0.00	$2,356.84		$2,356.84	($2,356.84)	0.0%
Total Income	***$3,739,044.00***	***$20,000.00***	***$3,759,044.00***	***$3,718,863.99***	***$0.00***	***$3,718,863.99***	***$40,180.01***	***1.1%***
EXPENSES								
Programs and Projects								
3100--Public Information	$1,505.00		$1,505.00	$495.00	$0.00	$495.00	$1,010.00	67.1%
3200--Observer Newsletter	$6,000.00		$6,000.00	$1,879.61	$0.00	$1,879.61	$4,120.39	68.7%
3300--Annual Report	$7,400.00		$7,400.00	$1,230.00	$1,320.00	$2,550.00	$4,850.00	65.5%
3410--Fishing Vessel Outreach Pilot	$15,000.00		$15,000.00		$0.00	$0.00	$15,000.00	100.0%
3500--Community Outreach	$48,800.00	$0.00	$48,800.00	$7,522.42	$0.00	$7,522.42	$41,277.58	84.6%
3530--Youth Involvement	$45,750.00		$45,750.00	$9,935.00	$9,590.00	$19,525.00	$26,225.00	57.3%
3600--Public Communications Program	$1,699.00		$1,699.00		$0.00	$0.00	$1,699.00	100.0%
3610--Website Presence BAT	$7,080.00	$5,000.00	$12,080.00		$0.00	$0.00	$12,080.00	100.0%
3620--Connecting With Our Communities		$15,000.00	$15,000.00		$14,719.00	$14,719.00	$281.00	1.9%
3903--Youth Internship	$3,300.00		$3,300.00	$1,500.00	$1,000.00	$2,500.00	$800.00	24.2%
4000--Program and Project Support	$1,609,573.00		$1,609,573.00	$710,599.30	$0.00	$710,599.30	$898,973.70	55.9%
4010--Digital Collections Program	$7,850.00		$7,850.00	$1,875.00	$3,125.00	$5,000.00	$2,850.00	36.3%
4400--Federal Government Affairs	$51,600.00		$51,600.00		$21,600.00	$21,600.00	$30,000.00	58.1%
4410--State Government Affairs	$30,000.00		$30,000.00	$11,770.00	$16,000.00	$27,770.00	$2,230.00	7.4%
4500--DR&R Research		$20,000.00	$20,000.00		$1,500.00	$1,500.00	$18,500.00	92.5%
5000--Terminal Operations Program	$15,000.00		$15,000.00		$2,958.00	$2,958.00	$12,042.00	80.3%
5056--Tank 8 Internal Inspection Review	$11,000.00	$8,136.00	$19,136.00		$19,136.00	$19,136.00	$0.00	0.0%
5057--APSC Appeal of Air Quality Rule	$60,000.00	($14,950.00)	$45,050.00	$28,410.00	$10,790.00	$39,200.00	$5,850.00	13.0%
5081--Crude Oil Tank 7 + BWT Tank 94	$96,000.00	($20,912.00)	$75,088.00	$5,616.00	$69,472.00	$75,088.00	$0.00	0.0%
5640--ANS Crude Oil Properties	$5,000.00		$5,000.00		$0.00	$0.00	$5,000.00	100.0%
5640--ANS Crude Oil Propeties Donated Services	$22,800.00		$22,800.00		$0.00	$0.00	$22,800.00	100.0%
6000--Spill Response Program	$10,800.00		$10,800.00	$891.20	$7,871.00	$8,762.20	$2,037.80	18.9%
6510--State Contingency Plan Reviews	$85,000.00		$85,000.00	$23,158.75	$45,851.00	$69,009.75	$15,990.25	18.8%

As of December 10, 2021

Prince William Sound Regional Citizens' Advisory Council
Budget Status Report -- FY 2022

	Budget			Actual and Commitments			Remaining	
	Original	Modifications	Revised	Actual	Commitments	Total	Amount	Percent
6511--History of Contingency Planning	$50,000.00	($25,000.00)	$25,000.00	$5,000.00	$15,000.00	$20,000.00	$5,000.00	20.0%
6530--Weather Data/Sea Currents	$14,400.00		$14,400.00		$400.00	$400.00	$14,000.00	97.2%
6531--Port Valdez Weather Buoys	$42,500.00		$42,500.00	$14,216.77	$22,500.00	$36,716.77	$5,783.23	13.6%
6531--Port Valdez Weather Buoys City of Valdez Grant Funds	$8,700.00		$8,700.00	$3,529.15	$4,375.00	$7,904.15	$795.85	9.1%
6531--Port Valdez Weather Buoys Donation	$20,000.00		$20,000.00	$8,333.35	$0.00	$8,333.35	$11,666.65	58.3%
6534--Cape Hinchinbrook Weather	$500.00		$500.00		$0.00	$0.00	$500.00	100.0%
6536--Analysis of Weather Buoy Data	$15,000.00		$15,000.00		$0.00	$0.00	$15,000.00	100.0%
6540--Copper River Delta/Flats GRS History	$20,000.00		$20,000.00	$3,000.00	$17,000.00	$20,000.00	$0.00	0.0%
6560--Peer Listener Training	$35,000.00		$35,000.00		$0.00	$0.00	$35,000.00	100.0%
7000--Oil Spill Response Operations Program	$1,050.00		$1,050.00		$0.00	$0.00	$1,050.00	100.0%
7030--Contracted Fleet Readiness			$0.00		$0.00	$0.00	$0.00	0.0%
7050--Out of Region Equipment Survey		$30,000.00	$30,000.00		$0.00	$0.00	$30,000.00	100.0%
7520--Preparedness Monitoring	$33,500.00		$33,500.00	$671.40	$15,000.00	$15,671.40	$17,828.60	53.2%
8000--Maritime Operations Program	$12,000.00		$12,000.00	$5,000.00	$0.00	$5,000.00	$7,000.00	58.3%
8012--Line Throwing Device Trials		$39,500.00	$39,500.00	$29,500.00	$10,000.00	$39,500.00	$0.00	0.0%
8013--AIS/Radar Whitepaper		$12,500.00	$12,500.00	$7,500.00	$5,000.00	$12,500.00	$0.00	0.0%
8014--USCG Basic/Advanced Emergency Ship	$30,000.00		$30,000.00	$12,500.00	$17,500.00	$30,000.00	$0.00	0.0%
9000--Environmental Monitoring Program	$12,100.00	($11,300.00)	$800.00	$2,474.24	$0.00	$2,474.24	($1,674.24)	(209.3%)
9110--Spatial Variability of Marine Birds	$40,400.00	$9,250.00	$49,650.00	$9,250.00	$40,400.00	$49,650.00	$0.00	0.0%
9510--Long Term Environmental Monitoring Program	$154,980.00		$154,980.00	$37,906.65	$11,553.00	$49,459.65	$105,520.35	68.1%
9511--Herring/Forage Fish Survey	$46,300.00		$46,300.00		$3,800.00	$3,800.00	$42,500.00	91.8%
9512--Oxygenated Hydrocarbons	$70,400.00		$70,400.00		$0.00	$0.00	$70,400.00	100.0%
9513--Hydrocarbon Sensor	$4,700.00		$4,700.00		$0.00	$0.00	$4,700.00	100.0%
9520--Marine Invasive Species	$56,870.00		$56,870.00	$9,304.76	$45,370.00	$54,674.76	$2,195.24	3.9%
9550--Dispersants	$32,000.00	$18,000.00	$50,000.00	$1,050.00	$46,020.00	$47,070.00	$2,930.00	5.9%
Subtotals	**$2,841,557.00**	**$85,224.00**	**$2,926,781.00**	**$954,118.60**	**$478,850.00**	**$1,432,968.60**	**$1,493,812.40**	**51.0%**

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As of December 10, 2021

Prince William Sound Regional Citizens' Advisory Council
Budget Status Report -- FY 2022

	Budget			Actual and Commitments			Remaining	
	Original	Modifications	Revised	Actual	Commitments	Total	Amount	Percent
Board of Directors								
1350--Information Technology	$2,000.00		$2,000.00	$254.04	$0.00	$254.04	$1,745.96	87.3%
2100--Board Administration	$120,941.00	$15,000.00	$135,941.00	$55,840.41	$0.00	$55,840.41	$80,100.59	58.9%
2150--Board Meetings	$92,500.00	($30,500.00)	$62,000.00	$8,173.43	$0.00	$8,173.43	$53,826.57	86.8%
2200--Executive Committee			$0.00		$0.00	$0.00	$0.00	0.0%
2220--Governance Committee			$0.00		$0.00	$0.00	$0.00	0.0%
2222--Finance Committee			$0.00		$0.00	$0.00	$0.00	0.0%
2700--Legislative Affairs Committee			$0.00		$0.00	$0.00	$0.00	0.0%
Subtotals	**$215,441.00**	**($15,500.00)**	**$199,941.00**	**$64,267.88**	**$0.00**	**$64,267.88**	**$135,673.12**	**67.9%**
Committees and Committee Support								
2250--Committee Support	$176,407.00	($49,250.00)	$127,157.00	$59,199.84	$0.00	$59,199.84	$67,957.16	53.4%
2300--Oil Spill Prevention & Response	$1,600.00		$1,600.00		$0.00	$0.00	$1,600.00	100.0%
2400--Port Operations & Vessel Traffic System	$1,600.00		$1,600.00		$0.00	$0.00	$1,600.00	100.0%
2500--Scientific Advisory Committee	$1,600.00		$1,600.00		$0.00	$0.00	$1,600.00	100.0%
2600--Terminal Operations & Environmental Monitoring	$1,600.00		$1,600.00		$0.00	$0.00	$1,600.00	100.0%
2800--Information and Education Committee	$1,600.00		$1,600.00		$0.00	$0.00	$1,600.00	100.0%
Subtotals	**$184,407.00**	**($49,250.00)**	**$135,157.00**	**$59,199.84**	**$0.00**	**$59,199.84**	**$75,957.16**	**56.2%**

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As of December 10, 2021

Prince William Sound Regional Citizens' Advisory Council
Budget Status Report -- FY 2022

	Budget			Actual and Commitments			Remaining	
	Original	Modifications	Revised	Actual	Commitments	Total	Amount	Percent
General and Administrative								
1000--General and Administrative	$515,477.00	$25,000.00	$540,477.00	$223,400.09	$4,940.00	$228,340.09	$312,136.91	57.8%
1050--General and Administrative--Anchorage	$138,803.00		$138,803.00	$72,466.70	$41,657.00	$114,123.70	$24,679.30	17.8%
1100--General and Administrative--Valdez	$180,180.00		$180,180.00	$65,544.27	$41,086.00	$106,630.27	$73,549.73	40.8%
1300--Information Technology	$106,390.00	$10,000.00	$116,390.00	$62,013.48	$5,450.00	$67,463.48	$48,926.52	42.0%
Subtotals	**$940,850.00**	**$35,000.00**	**$975,850.00**	**$423,424.54**	**$93,133.00**	**$516,557.54**	**$459,292.46**	**47.1%**
Subtotals	**$4,182,255.00**	**$55,474.00**	**$4,237,729.00**	**$1,501,010.86**	**$571,983.00**	**$2,072,993.86**	**$2,164,735.14**	**51.1%**
Contingency (Current Year Budget)	**$100,000.00**	**$175,210.00**	**$275,210.00**			**$0.00**	**$275,210.00**	**100.0%**
Total Expenses	***$4,282,255.00***	***$230,684.00***	***$4,512,939.00***	***$1,501,010.86***	***$571,983.00***	***$2,072,993.86***	***$2,439,945.14***	***54.1%***
Increase (Decrease) in Net Assets	***($543,211.00)***	***($210,684.00)***	***($753,895.00)***	***$2,217,853.13***	***($571,983.00)***	***$1,645,870.13***		

PWSRCAC Director Attendance Record

January 2022

(Attendance recorded through October 15, 2021 Special Board Meeting)

Board Member *(date appointed)*	***Overall Attendance*** *# attended / # missed*	***Last 3 Mtgs.**** *# attended / # missed*	***Term Expires***
Andersen-Faulkner, Patience *(Dec. 1998)*	112/11	3/0	5/22
Ben Cutrell *(Jan. 2020)*	11/0	3/0	5/22
Archibald, Robert *(May 2015)*	35/1	2/1	5/23
Bauer, Amanda *(May 2012)*	50/1	3/0	5/23
Beedle, Robert *(May 2013)*	42/4	2/1	5/22
Bender, Mike *(Sept. 2015)*	32/3	2/1	5/22
Crump, Nick *(May. 2021)*	3/1	2/1	5/23
Domitrovich, Patrick *(May 2021)*	2/2	1/2	5/23
Donaldson, Wayne *(Jan. 2015)*	35/2	3/0	5/23
Haggarty, Mako *(May 2015)*	27/7	2/1	5/23
Hasenbank, Luke *(May 2016)*	26/6	1/2	5/22
Jackson, Elijah *(May 2021)*	4/0	3/0	5/23
Malchoff, Melvin *(Sept. 2016)*	17/11	2/1	5/22
Moore, Dorothy *(Jan. 2007)*	76/1	3/0	5/22
Shavelson, Bob *(Sept. 2014)*	44/5	2/1	5/22
Skinner, Rebecca *(May 2018)*	18/2	3/0	5/22
Totemoff, Angela *(May 2021)*	3/1	2/1	5/23
Vigil, Michael *(Sept. 2015)*	26/9	3/0	5/22
Kirk Zinck *(May 2019)*	15/1	2/1	5/23

* PWSRCAC policy states that member groups will be notified in writing if their appointed Board member misses three consecutive Board meetings.

Note: Overall attendance includes all voting meetings (quarterlies and special Board teleconferences), but does not include non-voting meetings (e.g. LRP, budget workshops or Board retreats).

PRINCE WILLIAM SOUND
REGIONAL CITIZENS' ADVISORY COUNCIL

PWSRCAC Committee Member Attendance Record

Port Operations and Vessel Traffic Systems (POVTS)			
Committee Member	**Overall**	**Last 3 mtgs**	**Term Expires**
Robert Archibald (Director)	21/0	3/0	5/22
Amanda Bauer (Director) (Vice Chair)	33/6	2/1	5/22
Steve Lewis (Chair)	17/0	3/0	5/23
Orson Smith (Director)	45/15	2/1	5/22
Gordon Terpening	11/1	3/0	5/22

Oil Spill Prevention and Response (OSPR)			
Committee Member	**Overall**	**Last 3 mtgs**	**Term Expires**
Robert Beedle (Director)	32/13	2/1	5/23
Mike Bender (Director)	23/11	0/3	5/22
Jerry Brookman	118/5	2/1	5/22
Dave Goldstein	69/21	1/2	5/22
Jim Herbert (Chair)	47/0	3/0	5/23
John LeClair (Vice Chair)	74/27	2/1	5/23
Gordon Scott	67/71	0/3	5/23
Skye Steritz	4/2	2/1	5/23

Terminal Operations & Environmental Monitoring (TOEM)			
Committee Member	**Overall**	**Last 3 mtgs**	**Term Expires**
Amanda Bauer (Director) (Chair)	51/8	3/0	5/22
Harold Blehm	47/9	3/0	5/23
Matt Cullin	16/6	3/0	5/22
Mikkel Foltmar	29/12	2/1	5/23
Steve Goudreau	26/14	1/2	5/23
Tom Kuckertz	33/8	3/0	5/23
George Skladal (Vice Chair)	129/11	3/0	5/22
Patrick Tomco	5/8	1/2	5/23

Ratios are # meetings present/ # of absences

Attendance Record is from 2003 to present.

Scientific Advisory Committee (SAC)			
Committee Member	**Overall**	**Last 3 mtgs**	**Term Expires**
Sarah Allan	72/7	2/1	5/22
Wei Cheng	41/5	3/0	5/23
Wayne Donaldson (Director)	59/5	3/0	5/23
Roger Green	139/18	3/0	5/23
Davin Holen (Chair)	51/4	3/0	5/22
John Kennish	130/12	3/0	5/23
Dorothy Moore (Director)	118/8	3/0	5/23
Debasmita Misra	55/48	1/2	5/22

Information & Education Committee (IEC)			
Committee Member	**Overall**	**Last 3 mtgs**	**Term Expires**
Patience Anderson Faulkner (Director)	66/15	2/1	5/23
Trent Dodson (Chair)	23/23	3/0	5/23
Jane Eisemann (Vice Chair)	71/10	3/0	5/23
Cathy Hart	63/20	3/0	5/23
Andrea Korbe	27/17	2/1	5/23
Ruth E. Knight	66/8	3/0	5/22
Savannah Lewis *since recommital date	33/0*	3/0	5/23
Kate Morse	47/26	1/2	5/22

Ratios are # meetings present/ # of absences

Current List of Board Committee Members

As of May 2021

Executive Committee

- Robert Archibald, President
- Amanda Bauer, Vice President
- Wayne Donaldson, Treasurer
- Bob Shavelson, Secretary
- Rebecca Skinner, Member-at-Large
- Ben Cutrell, Member-at-Large
- Robert Beedle, Member-at-Large

Board Governance Committee

- Dorothy Moore (Chair)
- Patience Andersen Faulkner
- Luke Hasenbank
- Mike Bender
- Robert Beedle

Finance Committee

- Wayne Donaldson (Treasurer)
- Robert Archibald
- Rebecca Skinner
- Mako Haggerty
- Angela Totemoff

Long Range Planning Committee

- Robert Archibald
- Amanda Bauer
- Patience Andersen Faulkner
- Elijah Jackson
- Davin Holen (SAC Chair)
- Amanda Bauer (TOEM Chair)
- Trent Dodson (IEC Chair)
- Jim Herbert (OSPR Chair)
- Steve Lewis (POVTS Chair)
- Cathy Hart (IEC)

Legislative Affairs Committee

- Dorothy Moore
- Robert Archibald
- Rebecca Skinner
- Mako Haggerty
- Robert Beedle
- Angela Totemoff
- Kirk Zinck

Prince William Sound Regional Citizens' Advisory Council
One-Page Strategic Plan

Mission Statement: Citizens promoting the environmentally safe operation of the Alyeska terminal and associated tankers

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Core Purpose: Citizen oversight to prevent oil spills, minimize environmental impacts and promote response readiness

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Core Values

- Represent the interests of our stakeholders by providing an effective voice for citizens
- The foundation of PWSRCAC is volunteerism
- Promote vigilance and combat complacency
- Organizational transparency and integrity through truth and objectivity
- Foster environmental stewardship

Overarching Goals and Objectives (see pages 14-16 for a more complete list of objectives)

- **Compliance with OPA90 and Alyeska contractual requirements.**
  - ❖ Annual re-certification and funding
  - ❖ Maintain regional balance
  - ❖ Link projects and programs to OPA90 and Alyeska contract

- **Continue to improve environmental safety of oil transportation in our region.**
  - ❖ Monitor and review development of, and compliance with, laws and regulations
  - ❖ Pursue risk-reduction measures and promote best available technologies and best practices
  - ❖ Monitor operations and promote a safe and clean marine terminal
  - ❖ Monitor and review the condition of the tanker fleet/maritime operations
  - ❖ Monitor and promote the safe operation of all Alyeska/SERVS-related on-water assets
  - ❖ Monitor and review environmental indicators
  - ❖ Promote and facilitate effective research for scientific, operational and technical excellence

- **Develop and maintain excellent external and internal communication.**
  - ❖ Advocate for government and industry measures to improve the environmental safety of oil transportation
  - ❖ Maintain and improve relationships with government, industry and communities
  - ❖ Be the model for citizen oversight and provide support for other citizens' advisory groups
  - ❖ Ensure availability of PWSRCAC information
  - ❖ Work to improve availability of information to PWSRCAC from industry sources

- **Achieve organizational excellence.**
  - ❖ Effective short and long term planning, with clear and measurable goals for projects
  - ❖ Fiscally responsible, efficient, and easily understood financial procedures and reporting
  - ❖ Committed to continuous improvement
  - ❖ Recognize people as the most important asset of the organization
  - ❖ Recruit and develop knowledgeable and committed Board members, volunteers and staff
  - ❖ Strong volunteer structure and support for volunteers

Back to Agenda

PWSRCAC Board and Executive Committee Actions

PRINCE WILLIAM SOUND REGIONAL CITIZENS' ADVISORY COUNCIL

Meeting	Date	Action Item	File Code (if any)	Responsible	Disposition
Board	10/15/2021	**Correction to FY2022 Budget Modifications:** The Board amended the September 17, 2021 Board action by approving the FY2022 budget modifications as listed in the provided sheet, with the corrected revised contingency in the amount of $286,946. Is this amendment in place?		Wrede	Done
Board	10/15/2021	**Contract Increase for State Legislative Monitor Contract:** The Board amended the September 16, 2021 Board action by increasing the amount of the state legislative monitor contract by $1,700 per year, and authorizing the Executive Director to enter into a contract for state legislative monitor services with Gene Therriault, dba GT Services, for a term of two years and compensation not to exceed $25,700 per year. Is this contract in place?		Wrede	Done
Board	10/15/2021	**Updated June 30, 2021 Audited Financial Statements:** The Board amended the September 16, 2021 Board action by accepting the updated June 30, 2021 audited financial statements as presented.		Dixon	Done
Board	9/16/2021	**Contract Approval:** Crude Oil Tank 7 and BWT Tank 94 Maintenance Review: The Board authorized a contract with Taku Engineering, LLC for work on Project 5081 Crude oil Tank 7 and Ballast Water Tank 94 Maintenance Review in an amount not to exceed $75,088. Is this contract in place?		Love	Done
Board	9/16/2021	**CONTRACT APPROVAL: STATE LEGISLATIVE MONITOR:** The Board authorized the Executive Director to enter into a contract for state legislative monitor services with Gene Therriault, dba GT Services, for a term of two years and compensation not to exceed $24,000 per year. Is this contract in place? (See 10/15/2021 Special Board Meeting for more information.)		Wrede	Done
Board	9/16/2021	**REPORT ACCEPTANCE: FIELD TRIALS OF MESSENGER LINE-THROWING DEVICES:** The Board accepted the report titled "PWSRCAC Emergency Towline Deployment Practical Trials: Practical Trial Summary Report" by Glosten, dated August 6, 2021, as meeting the terms and conditions of the contract and for distribution to the public. Is this report in place?	801.431.210806.GlosTowlineTrial.pdf	Sorum	Done
Board	9/16/2021	**FY2021 AUDIT ACCEPTANCE:** The Board accepted the June 30, 2021, audited financial statements and audit report as presented. Are these documents in place?		Dixon	Done

PWSRCAC Board and Executive Committee Actions

PRINCE WILLIAM SOUND REGIONAL CITIZENS' ADVISORY COUNCIL

Meeting	Date	Action Item	File Code (if any)	Responsible	Disposition
Board	9/16/2021	**REPORT ACCEPTANCE: MARINE WINTER BIRD SURVEY:** The Board accepted the report titled "Marine Winter Bird Surveys in Prince William Sound: by Prince William Sound Science Center," dated July 19, 2021, as meeting the terms and conditions of Council Contract 9110.21.01 and for distribution to the public. Is this report in place?	900.431.210810.WinterBirdSurvy.pdf	Verna	Done
Board	9/16/2021	**CONTRACT APPROVAL: DETERMINING CONCENTRATION AND COMPOSITION OF OXYGENATED HYDROCARBONS FROM THE VALDEZ MARINE TERMINAL:** The Board authorized a contract with the University of New Orleans for Project 9512, Determining Concentration and Composition of Oxygenated Hydrocarbons from the VMT, in an amount not to exceed $70,400. Is this contract in place?		Verna	Pending
Board	9/16/2021	**REPORT ACCEPTANCE: A SUMMARY OF DISPERSANTS RESEARCH:** The Board accepted the report titled "A Summary of Dispersants Research: 2017-2021" by Dr. Merv Fingas, dated May 2021, as meeting the terms and conditions of Contract 955.21.01 and for distribution to the public. Is this report in place?	955.431.210501.ResearchSum17-21.pdf	Oliver/Verna	Done
Board	9/16/2021	**REPORT ACCEPTANCE: PORT VALDEZ WEATHER BUOY DATA ANALYSIS:** The report accepted the report titled "Port Valdez Weather Buoy Data Analysis" by Robert W. Campbell, Ph.D., dated August 2, 2021, as meeting the terms and conditions of Contract 6536.21.01, and for distribution to the public. Is this report in place?	653.431.210802.PtVdzWxBuoyData	Sorum	Done
Board	9/16/2021	**REPORT ACCEPTANCE: HISTORY OF CONTINGENCY PLANNING:** The Board accepted the following documents written by Nuka Research and Planning Group: "Prince William Sound Tanker Oil Discharge Prevention & Contingency Plan: Summary (1995-2020)" (August 10, 2021); "Prince William Sound Tanker Oil Discharge Prevention & Contingency Plan: Compendium of Event Summaries (1995-2020)" (August 10, 2021); and "Prince William Sound Tanker Plan History Timetable." Are these documents in place?	651.431.210810.TankerPlanHistory	Swiss	Done
Board	9/16/2021	**PROPOSED AMENDMENT TO PWSRCAC BYLAWS:** The approved an amendment to Section 2.2.2 of the Bylaws entitled "Class II Membership" by combining the Division of Homeland Security and Emergency Management and the Alaska Department of Military and Veterans Affairs into one Class II member and designating the new member name as "Division of Homeland Security and Emergency Management, Alaska Department of Military and Veterans Affairs." Are these amendments in place?		Fleming	Done
Board	9/16/2021	**PWSRCAC LONG RANGE PLANNING:** The Board approved the protected project list for the upcoming Long Range Planning process as presented in Attachment A to Item 4-8 briefing sheet. Is this document in place?		Lally	Done

PWSRCAC Board and Executive Committee Actions

PRINCE WILLIAM SOUND REGIONAL CITIZENS' ADVISORY COUNCIL

Meeting	Date	Action Item	File Code (if any)	Responsible	Disposition
Board	9/16/2021	**APPROVAL OF FY2022 BUDGET MODIFICATIONS:** The Board approved the FY2022 budget modifications as listed on the provided sheet under Item 4-10, with a total revised contingency in the amount of $292,867. Are these modifications in place?		Dixon	Done
Board	9/16/2021	**COUNCIL JANUARY 2022 EVENTS:** The Board authorized a deviation from the Board-approved regular meeting schedule by holding the January 26-28, 2022, PWSRCAC events virtually.		Fleming	Done
XCOM	9/9/2021	**Council January 2022 Event:** The Executive Committee approved sending a recommendation to the Board that the January 2022 Board of Directors meeting be held virtually. Has the Board been made aware of this recommendation?		Fleming	Done
XCOM	9/9/2021	**Agenda for Upcoming PWSRCAC Board Meeting:** The Executive Committee approved the agenda for the virtual PWSRCAC Board meeting, September 16-17, 2021, with amendments outlined by staff.		Fleming	Done
XCOM	8/12/2021	**Acceptance of Alaska Ocean Observing System Grant:** The Executive Committee accepted the $20,000 grant from the Alaska Ocean Observing System for purchase and installation of Conductivity, Temperature, Depth (CTD) sensors for use in Port Valdez, contingent upon staff review for the final grant documentation. Is this grant in place?		**Sorum**	Done
XCOM	8/12/2021	**Contract Approval - Marine Bird Winter Survey Project:** The Executive Committee approved a sole source contract with the Prince William Sound Science Center to conduct Project 9110 - Prince William Sound Marine Winter Bird Survey at tan amount not to exceed $40,400. Is this contract in place?		Verna	Done
XCOM	8/12/2021	**Report Acceptance: Vessel Traffic Services, Use of Automatic Identification System and Radar:** The Executive Committee accepted the report titled "Vessel Traffic Services, Use of Automatic Identification System and Radar" by C-Core dated July 1, 2021 as meeting the terms and conditions of contract number 8013.21.01, with direction to staff to forward the report to the Alaska Delegation and others. Is this report in place?	801.431.210701.CCoreVTSais	Sorum	Done

PWSRCAC Board and Executive Committee Actions

PRINCE WILLIAM SOUND REGIONAL CITIZENS' ADVISORY COUNCIL

Meeting	Date	Action Item	File Code (if any)	Responsible	Disposition
XCOM	6/16/2021	**Approval of Contract with John Beath Environmental, LLC:** The Executive Committee approved a contract with John Beath Environmental, LLC, for for an amount not to exceed $39,200, to execute Council project #5057.21.01. Is this contract in place?		Love	Done
XCOM	6/16/2021	**Council December 2021 and January 2022 Events:** The Executive Committee decided to hold the December 2021 Volunter Workshop virtually, with no Volunteer Party and Science Night, and January 2022 events in-person with conditions to be decided upon later this year. Have the PWSRCAC staff and volunteers been made aware of these decisions?		Fleming	Done
Board	5/21/2021	**Approval of FY2022 Budget:** The Board adopted the FY2022 budget as presented during the budget workshop on May 19, 2021, and as described in the Proposed FY2022 Budget Book dated April 27, 2021, including the adjustments outlined during the workshop (total income is ($3,739,044, total expenses are $4,182,255, contingency is $100,000, and net assets used are $543,211). Is this budget in place?		Dixon	Done
Board	5/21/2021	**Approval of FY2022 C-Plan Contractor Poll & Contractor:** The Board authorized individual contracts with Attorney Breck Tostevin; Nuka Research & Planning Group, LLC.; Polaris Applied Sciences, Inc.; and Shannon & Wilson for professional services with the aggregate total not to exceed the amount approved for 651 Contingency Plan Review in the Final FY2022 budget, and delegated authority to the Executive Director to enter into individual contracts with these selected consultants. Are these contracts in place?		Swiss	Done
Board	5/21/2021	**Approval of Fy2022 LTEMP Contractors:** The Board Authorized individual contracts with Newfields Environmental Forensics Practice, Oregon State University, and the United States Geological Survey (USGS) with the aggregate total not to exceed the amount approved in the final FY2022 LTEMP budget (project $9510) for contract expenses, and delegated authority to the Executive Director to enter into individual contracts with the aforementioned consultants; and authorized that the contract work to commence prior to the start of FY2022 as approximately $30,000 of these funds will need to be expended in May and June 2021.		Love	Done
Board	5/21/2021	**Board Committee Appointments:**The Board appointed Patience Andersen Faulkner and Luke Hasenbank to the Board Governance Committee and Patience Andersen Faulkner to the Long Range Planning Committee. Are these appointments in place?		Fleming	Done
Board	5/21/2021	**Amicus Curiae** Brief In Support Of The Appeal of RCA Order P-19-017: The Board delegated authority to the Executive Committee to approve amendments to the amicus curiae brief that was approved by the Board at the January 2021 meeting to incorporate components of the Regulatory Commission of Alaska's Order 17. The amicus curiae brief is in support of the City of Valdez's Appeal of the Regulatory Commission of Alaska's ruling relating to the disclosure of Hilcorp/Harvest Alaska's financial information. Is the Executive Committee aware of this action?		Lally	Done

PWSRCAC Board and Executive Committee Actions

PRINCE WILLIAM SOUND REGIONAL CITIZENS' ADVISORY COUNCIL

Meeting	Date	Action Item	File Code (if any)	Responsible	Disposition
Board	5/6/2021	**Director Appointments:** The Board approved the confirmation of the two-year terms of the selected representatives for each of the member entities as follows: R. Archibald (Homer); W. Donaldson (Kodiak); K. Zinck (Seldovia); P. Domitrovich (Seward); A. Bauer (Valdez); M. Haggerty (Kenai Peninsula Borough); N. Crump (PWSAC); and, A. Totemoff (Tatitlek Corp & IRA Council). Are these appointments in place?		Fleming	Done
Board	5/6/2021	**Election of Officers and Executive Committee Members-At-Large:** The Board elected the following: Archibald as President; Bauer as Vice President; Donaldson as Treasurer; Shavelson as Secretary; and Skinner, Cutrell and Beedle as Members-at-Large. Are these appointments in place?		Fleming	Done
Board	5/6/2021	**Resolution Designating PWSRCAC Check Signers:** The Board adopted the resolutions provided by First National Bank Alaska to update the list of authorized individuals to sign checks and conduct financial transactions on PWSRCAC's accounts. Is the resolution in place?		Dixon	Done
Board	5/6/2021	**Approval of FY2021 Budget Modifications:** The Board approved the proposed budget modifications reducing expenses by $121,160. Are these modifications in place?		Dixon	Done
Board	5/6/2021	**Approval of Amendments to Policy 106 Pertaining to Executive Session:** The Board approved the proposed amendment to Board Policy 106 as recommended by the Board Governance Committee. Are these changes in place?		Fleming	Done
Board	5/6/2021	**Approval of Amendments to Policy 604 Pertaining to Employee Pay Dates:** The Board approved the proposed amendments to Board Policy 604 changing the semi-monthly pay dates from the 8th and the 22nd of each month to the 10th and the 24th, to take effect the first payroll of June 2021. Are these changes in place?		Fleming	Done
Board	5/6/2021	**Approval of Technical Committee Appointments:** The Board made the following two-year technical committee appointments W. Donaldson, J. Kennish, W. Chang, D. Moore, and R. Green to SAC; H. Blehm, M. Foltmar, S. Goudreau, T. Kuckertz and P. Tomco to TOEM; J. Herbert, J. LeClair, G. Scott and S. Steritz to OSPR; C. Chambers, and S. Lewis to POVTS, and, T. Dodson, J Eisemann, C Hart, A. Korbe, S. Lewis, and P. Faulkner to IEC. Are these appointments in place?		Vanderburg &	Done

PWSRCAC Board and Executive Committee Actions

PRINCE WILLIAM SOUND REGIONAL CITIZENS' ADVISORY COUNCIL

Meeting	Date	Action Item	File Code (if any)	Responsible	Disposition
Board	5/6/2021	**Contract Approval for Smithsonian Environmental Research Center:** The Board authorized a contract with Smithsonian Environmental Research Center (SERC) for work to be performed under the 920 Marine Invasive Species Project FY2021 budget, at an amount not to exceed $46,450. Is this contract in palce?		Love	Done
Board	5/6/2021	**Approval of Contract Compliance Verification Report:** The Board accepted the PWSRCAC/Alyeska Annual Contract Compliance Verification Report. Is the report in place?	100.109.210310.ContrComplRpt	Dixon	Done
Board	5/6/2021	**Review of Cathodic Protection Systems at the Valdez Marine Service:** The Board accepted the report titled "Review of Cathodic Protection Systems at the Valdez Marine Terminal" by Keith Boswell of National Pipeline Services as meeting the terms and conditions of Contract 5998.19.02, with direction to staff to forward the report to Alyeska and state and federal regulators accompanied by a cover letter summarizing the findings and recommendations with request for appropriate action. Are these steps in place?	500.431.210414.NPScpVMT 500.105.210614.AlyeskaCPS	Love	Done
Board	5/6/2021	**Crude Oil Storage Tank 8 Maintenance Review:** The Board accepted the report titled "Crude Oil Storage Tank 8 Maintenance Review" by William Mott of Taku Engineering, dated April 2021, as meeting the terms and conditions of Contract 5056.20.01, with direction to staff to forward the report to Alyeska and state and federal regulators accompanied by a cover letter summarizing findings and recommendations with requests for appropriate action. Are these steps in place?	500.431.210401.TakuTank8Maint 500.105.210614.AlyeskaTank8	Love	Done
Board	5/6/2021	**Rescue Tugboat Best Available Technology Assessment:** The Board accepted the report titled "Best Available Technology Assessment for the Hinchinbrook Entrance ETB" by Glosten as meeting the terms and conditions of Contract 8010.21.01 and allowing distribution of the report to the public. Are these steps in place?	801.431.210421.GlostenHEetvBAT	Sorum	Done
Board	5/6/2021	**Web-Based Regional Stakeholder Committee Project:** The Board accepted the Web-Based Regional Stakeholder Committee Resources project, led by contractor Nuka Planning and Research as having met all the contractual terms set forth in the contract.	https://www.pwsrcac.org/rsc/	Robida	Done
Board	5/6/2021	**Approval of IRS Form 990:** The Board authorized the Executive Director to sign form 990 on behalf of PWSRCAC and submit it to the IRS on or before May 15, 2021. Has the form been filed?		Dixon	Done

PWSRCAC Board and Executive Committee Actions

PRINCE WILLIAM SOUND REGIONAL CITIZENS' ADVISORY COUNCIL

Meeting	Date	Action Item	
Board	5/6/2021	**Coping with Technological Disasters Guidebook & Appendices:** The Board accepted the document titled "Coping with Technological Disasters: A User Friendly Guidebook" Version 4 and the 11 associated appendices, titled as Appendices A-K, as final and to be distributed publicly. Are these documents in place?	**File Code** (if any) 656.431.210501.CopeTechDstrsR4 **Responsible** Love **Disposition** Done
Board	5/6/2021	**LTEMP 2020 Sampling Results & Interpretations Report Approval:** The Board accepted the reports titled "Long Term Environmental Monitoring Program: 2020 Sampling Results & Interpretations," by Dr. James R. Payne and William Driskell, dated March 2021 as meeting the terms and conditions of contract 951.21.04, and for distribution to the public. Is this report in place?	**File Code** (if any) 951.431.210401.2020AnnualRpt **Responsible** Love/Verna **Disposition** Done
Board	5/6/2021	**Port Valdez Mussel Transcriptomics Monitoring Report Approval:** The Board accepted the report titled "Using Mussel Transcriptomics for Environmental Monitoring in Port Valdez, Alaska 2019 and 2020 Pilot Study Results" dated February 17, 2021, as meeting the terms and conditions of Contract 951.21.06 and for distribution to the public. Is this report in place?	**File Code** (if any) 951.431.210217.MusslTrnscriptRpt **Responsible** Love/Verna **Disposition** Done
Board	5/6/2021	**Scheduling of September 2021 Board Meeting:** The Board approved a deviation from the Board-approved regular meeting schedule by holding the September 16-17, 2021 PWSRCAC Board meeting virtually, shifting the rotation of the annual community meeting so that the September 2022 meeting is held in Seward, and delegated authority to the Executive Committee to make decisions regarding future in-person Council events. Are theses steps in place?	**File Code** (if any) **Responsible** Fleming **Disposition** Done
Board	5/6/2021	**Annual Board Committee Appointments:** The Board made the following appointments: Donaldson (Treasurer and chair) A. Totemoff, Skinner, Haggerty and Archibald to the Finance Committee; Bauer, E. Jackson, Archibald, the five chairs of the technical committees, and C. Hart to the Long Range Planning Committee; Moore, Beedle and Bender to the Board Governance Committee; and, Moore, Skinner, Zinck, Beedle, Haggerty, Archibald, and A. Totemoff to the Legislative Affaris Committee. Are these appointments in place?	**File Code** (if any) **Responsible** Fleming **Disposition** Done
XCOM	4/27/2021	**Revised Temporary COVID 19 Travel Restrictions:** The Executive Committee approved rescinding the Temporary Travel Restrictions on Board Travel Policies (the 700 series) approved by the Executive Committee on April 30, 2020, with the following exceptions and guidance: a) The suspension of in-person meetings remains in effect until lifted by the Board or the Executive Committee. b) Individual Board or committee member travel to conferences, business meetings, trainings, or other Council-related business will be approved by the Board or the Executive Committee on a case by case basis, with careful consideration given to the individual circumstances of each request and the most recent and relevant CDC, state, and local travel advisories and mandates. Are these amendments in place?	**File Code** (if any) **Responsible** Wrede **Disposition** Done

PWSRCAC Board and Executive Committee Actions

PRINCE WILLIAM SOUND REGIONAL CITIZENS' ADVISORY COUNCIL

Meeting	Date	Action Item	File Code (if any)	Responsible	Disposition
XCOM	4/27/2021	**Scheduling for September 2021 Board Meeting:** The Executive approved sending a recommendation to the Board to hold the September 2021 meeting virtually, and requested that the Board delegate authority to the Executive Committee to make the decision on future in-person Council events. Are these steps in place?		Fleming	Done
XCOM	4/27/2021	**Agenda for Upcoming PWSRCAC Board Meeting:** The Executive Committee approved the agenda for the PWSRCAC Board meeting teleconference scheduled for May 6-7, 2021, as amended. Has the agenda been distributed?		Fleming	Done
Board	4/2/2021	**Contract increase and budget Modification for Project 8010 Rescue Tugboat Best Available Technology Assessment:** The Executive Committee approved a contract increase and change order with Glosten for project 8010 Rescue Tugboat Best Available Technology Assessment in the amount of $2,745, bringing the total contract amount to $66,220, and authorized a budget modification from the contingency fund to project 8010 to cover this increase. Are these steps in place?		Sorum	Done
Board	4/2/2021	**Reinstatement of Environmental Monitoring Project Manager Position:** The Board approved reinstating the Environmental Monitoring Project Manager position into the operating budget and organizational chart and authorized the Executive Director to temporarily waive Policy 618 that addresses the Cost of Living differential paid to Valdez-based to include Cordova. Are these steps in place?		Lally	Done
Board	4/2/2021	**Executive Director Annual Evaluation:** The Board extended the Executive Director's contract for one year, and awarded her a $2,000 bonus to be paid from the FY2021 budget. Are these steps in place?		Dixon	Done
XCOM	3/1/2021	**Field Trials of Messenger Line Throwing Devices Contract Approval:** The Executive Committee approved a sole source contract with Glosten for Project 8012 - Field Trials of Messenger Line Throwing Devices for a total cost of $73,500. Is this contract in place?		Sorum	Done
Board	1/28/2021	**Approval of FY2021 Budget Modifications:** Approval of the FY2021 budget modifications as listed on the attachment to the briefing sheet under Item 3-1, with a total revised contingency in the amount of $295,429. Are these modification is place?		Dixon	Done

PWSRCAC Board and Executive Committee Actions

PRINCE WILLIAM SOUND REGIONAL CITIZENS' ADVISORY COUNCIL

Meeting	Date	Action Item	File Code (if any)	Responsible	Disposition
Board	1/28/2021	**Approval of Prince William Sound Forage Fish Survey Contract**: Authorization for the Executive Director to negotiate and execute a contract with the Prince William Sound Science Center to conduct the FY2021 Prince William Sound Forage Fish Surveys Project at an amount not to exceed $43,600. Is this contract in place?		Love	Done
Board	1/28/2021	**Approval of Proposed FY2022 Projects to Begin in FY2021**: Approval of the following list of projects to commence in FY2021 along with corresponding budget modifications, and delegation of authority to the Executive Committee to authorize contracts as indicated: a) Approve Project 8013 – AIS/Radar Whitepaper in the amount of $35,000 to commence in FY2021. Authorize a budget modification from the contingency fund in the amount of $35,000. b) Approve Project 5057 – APSC'S Appeal Of Epa Air Quality Rule (NESHAP-OLD) in the amount of $60,000 to commence in FY2021. Authorize a budget modification from the contingency fund in the amount of $60,000. Delegate authority to the Executive Committee to approve a contract for this work up to $60,000. c) Approve Project 8012 – Line Throwing Device Trials in the amount of $77,500 to commence in FY2021. Authorize a budget modification from the contingency fund in the amount of $77,500. Delegate authority to the Executive Committee to approve a contract for this work up to $77,500. d) Approve Project 6540 – Copper River Delta and Flats GRS History in the amount of $20,000 to commence in FY2021. Authorize a budget modification from the contingency fund in the amount of $20,000. e) Approve Project 6560 – Peer Listener Training Literature Review in the amount of $10,000 to commence in FY2021. This project will encompass the first part of Peer Listener Training project slated for FY2022, and that has a total budget modification from the contingency fund in the amount of $10,000. Are these modifications in place?		Dixon	Done
Board	1/28/2021	**Report Acceptance - Recovery of A Subsistence Way Of Life**: Acceptance of the report and report summary titled "Recovery of a Subsistence Way of Life: Assessments of Resource Harvests in Cordova, Chenega, Tatitlek, Port Graham, and Nanwalek, Alaska since the Exxon Valdez Oil Spill" by the Alaska Department of Fish and Game, Division of Subsistence, dated December 2020, as meeting the terms of Council Contract 966.21.01 and for distribution to the public. Is this report in place?	900.431.201201.adfgSSWOLfull and 900.431.201201.adfgSWOLsummary	Love	Done
Board	1/28/2021	**Report Acceptance - Prince William Sound Forage Fish Survey**: Acceptance of the report "2020 Prince William Sound Forage Fish Observations" by Dr. Scott Pegau of the Prince William Sound Science Center dated September 10, 2020, as meeting the terms and conditions of Contract 9511.20.01 and for distribution to the public. Is this report in place?	900.431.200910.PegauForageFish	Love	Done
Board	1/28/2021	**An Amicus Curiae Brief In Support Of The Appeal of RCA Order P-19-017(6):** Authorization for PWSRCAC legal counsel, Levesque Law Group, to file an Amicus Curiae Brief as discussed in executive session in support of the City of Valdez's Appeal of the Regulatory Commission of Alaska's ruling relating to the disclosure of Hilcorp/Harvest Alaska's financial information. Is his brief in place?		Lally	Done

PWSRCAC Board and Executive Committee Actions

PRINCE WILLIAM SOUND REGIONAL CITIZENS' ADVISORY COUNCIL

Meeting	Date	Action Item	File Code (if any)	Responsible	Disposition
Board	1/28/2021	**Report Acceptance - 2020 Drill Monitoring Annual Report**: Acceptance of the 2020 Annual Drill Monitoring Report for distribution. Is this report in place?	752.431.210101.DrillMon2020	Robertson	Done
Board	1/28/2021	**Approval of PWSRCAC'S FY2022-2026 Five-Year Long Range Plan:** Approval of the Five-Year Long Range Plan for Fiscal Years 2022-2026 as developed and finalized for consideration by the Board at the January 27, 2021 Long Range Plan work session. Is this report in place?	210.101.210128.FiveYearLRP	Lally	Done
Board	1/28/2021	**Scheduling of PWSRCAC May 2021 Events**: Deviation from the Board-approved regular meeting schedule by holding the May 6-7, 2021 PWSRCAC Board meeting and associated events remotely through video and teleconference because of COVID-19 and COVID-19 restrictions. Is this deviation in place?		Fleming	Done
XCOM	1/20/2021	**Planning and Process for Executive Director Evaluation:** The Executive Committee approved a recommendation to not amend the Executive Director performance goals, as outlined in the Executive Director's job description. Is this recommendation in place?		Schantz	Done
XCOM	1/20/2021	**Agenda for Upcoming PWSRCAC Board Meeting:** The Executive Committee approved the agenda for the PWSRCAC Board meeting, January 28-29, 2021 with changes and flexibility as discussed at this meeting. Is this agenda n place?		Fleming	Done
XCOM	12/11/2020	**Comments Regarding Exxon Valdez Oil Spill Trustee Council Resolutions:** The Executive Committee approved sending a comment letter to the Exxon Valdez Oil Spill Trustee Council regarding their draft resolutions for public comment as amended. Has the letter been sent?	400.105.201214.EVOSTCresolutions	Lally	Done

2-07

PWSRCAC Board and Executive Committee Actions

PRINCE WILLIAM SOUND REGIONAL CITIZENS' ADVISORY COUNCIL

Meeting	Date	Action Item	File Code (if any)	Responsible	Disposition
XCOM	12/11/2020	**Temporary Suspension of Board Policy 614 (Vacation Leave Accrual) and Temporary Modification of Board Policy 622 (Vacation Leave Cash-In Policy) for Calendar Year 2021:** The Executive Committee approved temporarily suspending Policy 614 from December 11, 2020 until December 31, 2021 enabling employees to carry more than 240 accrued vacation hours beyond the end of this year and into 2021. Employees are expected to reduce the number to 240 hours or less by December 31, 2021. On January 1, 2022, the temporary suspension will expire, Policy 614 is restored, and the limit on accrued leave returns to 240 hours at the end of each calendar year; and approved temporarily suspending and amending Policy 622 Limitation number two from December 11, 2020 until December 31, 2021 allowing employees to cash-in accrued leave two times in calendar year 2021 up to a maximum of 150 hours. On January 1, 2022, Limitation Two of Policy 622 goes back into effect and the maximum number of hours that can be cashed-in per fiscal year reverts back to 100. Are these actions in place?		Wrede	Done
XCOM	12/11/2020	**2020 Holiday Bonus for the Executive Director:** The Executive Committee authorized a one-time 2020 holiday bonus for Executive Director Donna Schantz in the amount of $400. Is this bonus in place?		Dixon	Done

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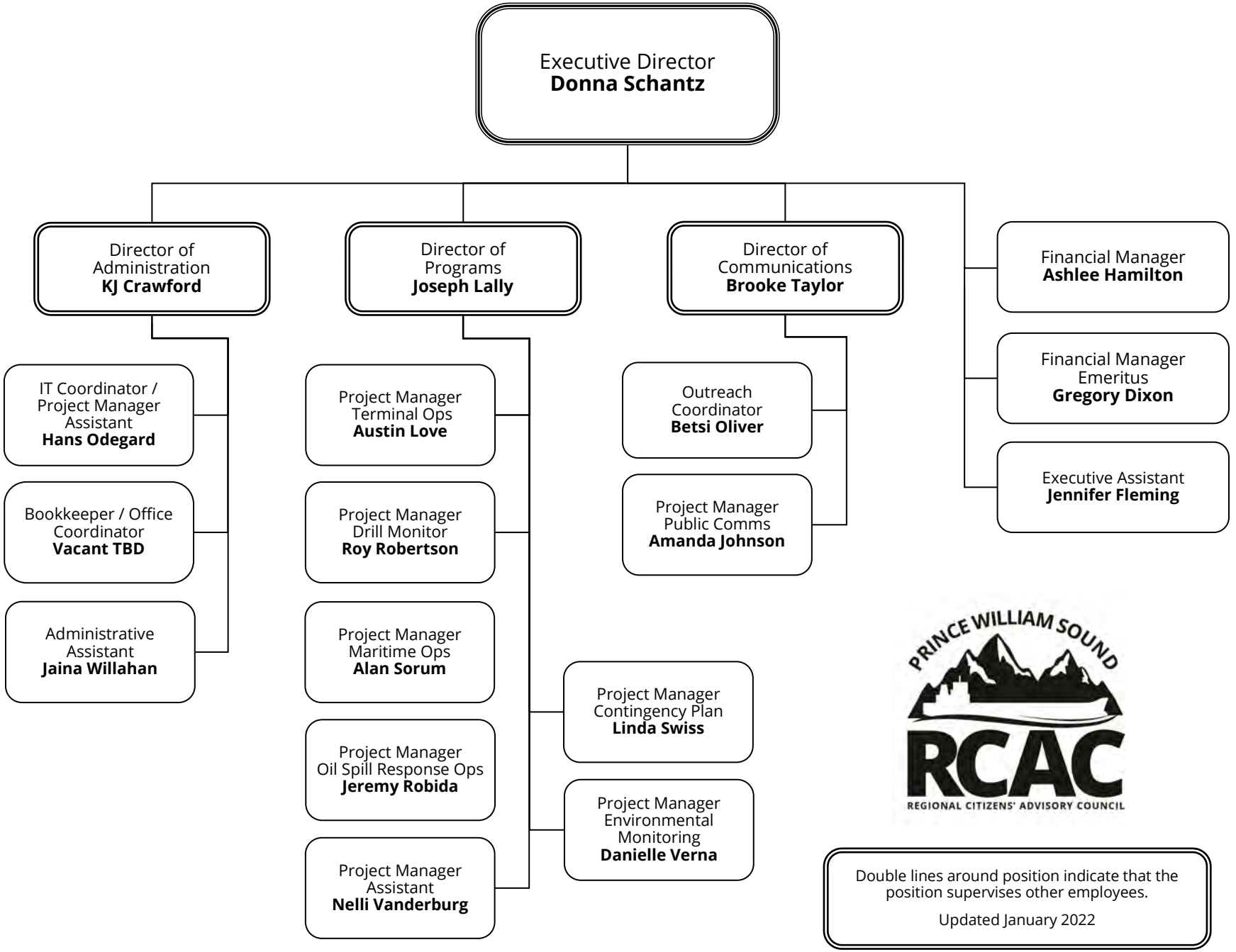

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Consent Item Briefing for PWSRCAC Board of Directors – January 2022

ACTION ITEM

Sponsor: Ashlee Hamilton, Financial Manager
Project number and name or topic: 100 - General Administration Financial Management

1. **Description of agenda item:** Staff is requesting that the Board of Directors adopt resolutions updating the persons authorized to sign checks and transact other business on the organization's account at First National Bank Alaska (FNBA). Staff is requesting that the Board of Directors pass bank-provided resolutions to update PWSRCAC's signature cards with FNBA. Those authorized to sign checks on behalf of PWSRCAC will include the Board Officers (president, vice president, secretary, and treasurer), the three Executive Committee at-large members, the Executive Director (Donna Schantz), the new Director of Administration (KJ Crawford), the Director of Programs (Joe Lally), and one other Board member who resides in the Anchorage area. The resolution will also provide for the Financial Manager to receive bank information, but not approve any transactions.

2. **Why is this item important to PWSRCAC:** Bank authorizations need to reflect current Board members and staff. To maintain adequate internal controls, we require that checks written on the main checking account have two signatures and if the amount of the check is $15,000 or more, one of those signers must be a Board member.

3. **Action Requested of the Board of Directors:** Adopt the resolutions provided by First National Bank Alaska to update the list of authorized individuals to sign checks and conduct financial transactions on PWSRCAC's account.

4. **Alternatives:** None proposed.

5. **Attachments:** None.

Consent Agenda Briefing for PWSRCAC Board of Directors – January 2022

ACTION ITEM

Sponsor: Ashlee Hamilton
Project number and name or topic: Budget Modification and Delegation of Authority for New Accounting System

1. **Description of agenda item:** Because support is ending for the current on-premises Microsoft Dynamics/Great Plains accounting system used by PWSRCAC, staff are looking into acquiring and implementing a new accounting system that will be ready to start using on July 1, 2022. The current trend in accounting systems is to move to more modern, cloud-based systems that provide a higher level of security and easier user access. Management is presently evaluating a couple of proposals but have not decided on a recommended contractor at this time. We are asking the Board to approve a budget modification for this project and to delegate authority to the Executive Committee (XCOM) to enter into a contract with an outside firm to assist with the design and implementation of the new system.

The estimated annual accounting system subscription cost and ongoing technical support cost is estimated to be $10,000 to $12,000. The estimated one-time cost of an outside consultant to help with design and implementation is $45,000 to $60,000.

It is important that a system and contractor be identified as soon as possible because the implementation and training will take several months, and the systems needs to be functional at the start of FY2023.

2. **Why is this item important to PWSRCAC:** The accounting system and financial reporting system that is presently utilized by PWSRCAC is being phased out, and will be no longer be supported by Microsoft and its Microsoft Partners in the future. An accounting system that is kept up-to-date and widely supported is essential for maintaining the financial records of PWSRCAC, processing bills and payrolls, facilitating the annual financial statement audit, and reporting financial results to the Board, Finance Committee, management, and staff.

3. **Previous actions taken by the Board on this item:** None, this is a new project.

4. **Summary of policy, issues, support, or opposition:**

5. **Committee Recommendation:** The Finance Committee has been kept appraised of this situation.

6. **Relationship to LRP and Budget:** The Council's accounting management software falls under 1300/Information Technology. Because costs associated with implementing a

new accounting system is not included in the FY2022 budget, a budget modification will be necessary.

7. **Action Requested of the Board of Directors:** Approve an FY2022 budget modification in the amount of $60,000 to hire an outside consultant to assist with the design, implementation, and training of a new accounting system; and delegate authority to the Executive Committee to enter into a contract with the selected contractor to develop and implement the Council's new accounting system, at an amount not to exceed $60,000

8. **Alternatives:** None recommended.

9. **Attachments:** None.

Briefing for PWSRCAC Board of Directors – January 2022

ACTION ITEM

Sponsor: Austin Love and the Scientific Advisory Committee

Project number and name or topic: 9510 – Long-Term Environmental Monitoring Program

1. **Description of agenda item:** This agenda item seeks Board acceptance of the report titled "Mussel Oiling and Genetic Response to the April 2020 Valdez Marine Terminal Spill: Executive Summary" by Lizabeth Bowen, William B. Driskell, James R. Payne, Austin Love, Eric Litman, and Brenda Ballachey. This brief report summarizes the work the Council conducted to monitor the environmental impacts of the April 12, 2020 oil spill from the Valdez Marine Terminal. Dr. Lizabeth Bowen, the lead author on the report, will provide a presentation of the key results of that monitoring and recommendations for further related work.

2. **Why is this item important to PWSRCAC:** The Long-Term Environmental Monitoring Program helps PWSRCAC fulfill one of its responsibilities detailed in the Oil Pollution Act of 1990 (OPA90). The Act instructs the PWSRCAC to "devise and manage a comprehensive program of monitoring the environmental impacts of the operations of terminal facilities and of crude oil tankers while operating in Prince William Sound." The work done under the Council's Long-Term Environmental Monitoring Program has been designed by the Scientific Advisory Committee to fulfill that responsibility mandated by OPA90t.

3. **Previous actions taken by the Board on this item:**

Meeting	Date	Action
Board	5/21/2020	Approval of FY2021 Contracts for Project 9510 LTEMP - The Board approved the following: Authorizing a contract negotiation with Payne Environmental Consultants Inc., for work to be performed under LTEMP, at an amount not to exceed $115,064. Authorizing a contract negotiation with Newfields Environmental Forensics Practice, for work to be performed under LTEMP, at an amount not to exceed $95,807. Authorizing a contract negotiation with the United States Geological Survey, for work to be performed under LTEMP, at an amount not to exceed $65,371. Authorizing a contract negotiation with Oregon State University, for work to be performed under LTEMP, at an amount not to exceed $22,030. Authorizing a contract to commence prior to the start of FY2021, as approximately $33,000 of these funds will need to be expended in May and June 2020.
Board	5/6/2021	The Board accepted the report titled "Long-Term Environmental Monitoring Program: 2020 Sampling Results and Interpretations," by Dr. James R. Payne and William B. Driskell, dated March 2021, as meeting the terms and conditions of contract number 951.21.04, and for distribution to the public. The Board accepted the report titled "Using Mussel Transcriptomics for Environmental Monitoring in Port Valdez, Alaska: 2019 and 2020 Pilot Study Results", dated

		February 17, 2021, as meeting the terms and conditions of contract number 951.21.06 and for distribution to the public.
Board	5/21/2021	Approval of FY2022 LTEMP Contracts for Project 9510: The Board Authorized individual contracts with Newfields Environmental Forensics Practice, Oregon State University, and the United States Geological Survey (USGS) with the aggregate total not to exceed the amount approved in the final FY2022 LTEMP budget ($147,720) for contract expenses, and delegated authority to the Executive Director to enter into individual contracts with the aforementioned consultants; and authorized that the contract work commence prior to the start of FY2022 as approximately $30,000 of these funds will need to be expended in May and June 2021.

4. **Summary of policy, issues, support or opposition:** This executive summary report is not the only report that has resulted from the Council's work to monitor the environmental impacts of the April 12, 2020 oil spill. A draft peer-reviewed journal length report has also been prepared by the same authors. Originally the plan was for only one Council-specific report to be generated in regards to monitoring the impacts of the April 2020 spill. However, as the report's authors analyzed and interpreted the information gained, they saw value in pursuing a submission to a peer-reviewed journal. During the July 13, 2021 Scientific Advisory Committee meeting, the decision was made to write two separate reports, a peer-reviewed journal-length report and the executive summary, tailored for the public audience. Since that July meeting, both reports were completed and submitted to the Council.

However, to date the draft peer-reviewed journal article was kept from any public availability as the authors submitted it to two journals for possible publication – Environmental Science & Technology and the journal Marine Pollution Bulletin. Unfortunately, neither journal accepted the report for publication. Environmental Science & Technology found that draft article did not "offer sufficient novelty" while Marine Pollution Bulletin found "the paper is a limited snapshot with more work needed to more completely understand the transcriptomic response to oil exposure." However, it is planned that the draft peer-reviewed report will instead become a Council report, made available to the public; that decision will first be considered by the Scientific Advisory Committee before ultimately being considered by the Board of Directors for acceptance, likely during a future Executive Committee meeting. Additionally, after performing additional transcriptomic research, the authors plan to address the concerns voiced by these two journals and submit another peer-reviewed article for hopeful publication.

Lastly, it must be highlighted that the authors of both reports, especially Lizabeth Bowen, William B. Driskell, James R. Payne, Eric Litman, and Brenda Ballachey, went far beyond what was asked of them in any Council contract or agreement to produce these two reports, donating considerable time and effort to this work.

5. **Committee Recommendation:** During their October 1, 2021 meeting, the Scientific Advisory Committee passed a motion to move the April 2020 Oil Spill Report Executive Summary to the Board" for their acceptance.

6. **Relationship to LRP and Budget:** The Council's 9510 Long-Term Environmental Monitoring Program (LTEMP) is in the approved FY2022 budget and annual work plan.

9510—Long-Term Environmental Monitoring (LTEMP)

As of December 10, 2021

FY-2022 Budget	
Original	$154,980.00
Modifications	
Revised Budget	$154,980.00
Actual and Commitments	
Actual Year-to-Date	$37,906.65
Commitments (Professional Services)	$11,553.00
Actual + Commitments	$49,459.65
Amount Remaining	$105,520.35

7. **Action Requested of the Board of Directors:** Accept the report titled "Mussel Oiling and Genetic Response to the April 2020 Valdez Marine Terminal Spill: Executive Summary" by Lizabeth Bowen, William B. Driskell, James R. Payne, Austin Love, Eric Litman, and Brenda Ballachey, dated August 20, 2021, as meeting the terms and conditions of contract number 951.21.05 and research contribution number 951.21.07, and for distribution to the public.

8. **Alternatives:** Do not accept the report or accept the report with recommended revisions.

9. **Attachments:** Draft report titled "Mussel Oiling and Genetic Response to the April 2020 Valdez Marine Terminal Spill: Executive Summary" by Lizabeth Bowen, William B. Driskell, James R. Payne, Austin Love, Eric Litman, and Brenda Ballachey.

Mussel Oiling and Genetic Response to the April 2020 Valdez Marine Terminal Spill: Executive Summary

Lizabeth Bowen[1], William B. Driskell[2], James R. Payne[3], Austin Love[4], Eric Litman[5], Brenda Ballachey[6]

[1]U.S. Geological Survey, Western Ecological Research Center, Davis, CA 95616, lbowen@ucdavis.edu, 530-752-5365

[2] Consultant, Seattle, WA

[3] Payne Environmental Consultants, Inc., Encinitas, CA

[4] Prince William Sound Regional Citizens' Advisory Council, Valdez, AK

[5] NewFields Environmental Forensics Practice LLC, Mansfield, MA

[6] U.S. Geological Survey (Emeritus), Alaska Science Center, Anchorage, AK

August 20, 2021

The full final report for this project has been prepared for publication in a peer-reviewed journal.

The opinions expressed in this council-commissioned report are not necessarily those of Prince William Sound Regional Citizens' Advisory Council.

Prince William Sound Regional Citizens' Advisory Council Contract numbers: 951.21.05 & 951.21.07

EXECUTIVE SUMMARY

On April 12, 2020, a minor oil spill occurred at the Valdez Marine Terminal (Figure 1) whereby an estimated 1,400 gallons (~34 barrels) of Alaska North Slope (ANS) crude oil overflowed from a sump well and subsequently reached the shoreline, creating slicks and necessitating a full-scale marine response in Port Valdez, Alaska (Figure 2). Recognizing a spill-of-opportunity, the Prince William Sound Regional Citizens' Advisory Council's (PWSRCAC) Scientific Advisory Committee initiated a special project to measure oiling and genetic response of exposed mussels. Mussel samples were taken in a time series over a 7-week period, starting at 19 days post-spill. Most samples were collected at the spill site just outside the terminal's small boat harbor. Other mussels were collected for the Council's annual Long-Term Environmental Monitoring Program (LTEMP) at nearby terminal sites (Saw Island and Jackson Point) out to about 50 days post-spill. At about 50 days post-spill, mussels were also collected from remote unoiled sites in Jack Bay and Galena Bay (Figure 1). Those 2020 LTEMP mussels plus prior LTEMP mussels collected in 2019 serve both as oil spill recovery endpoints and for comparisons to historic background data.

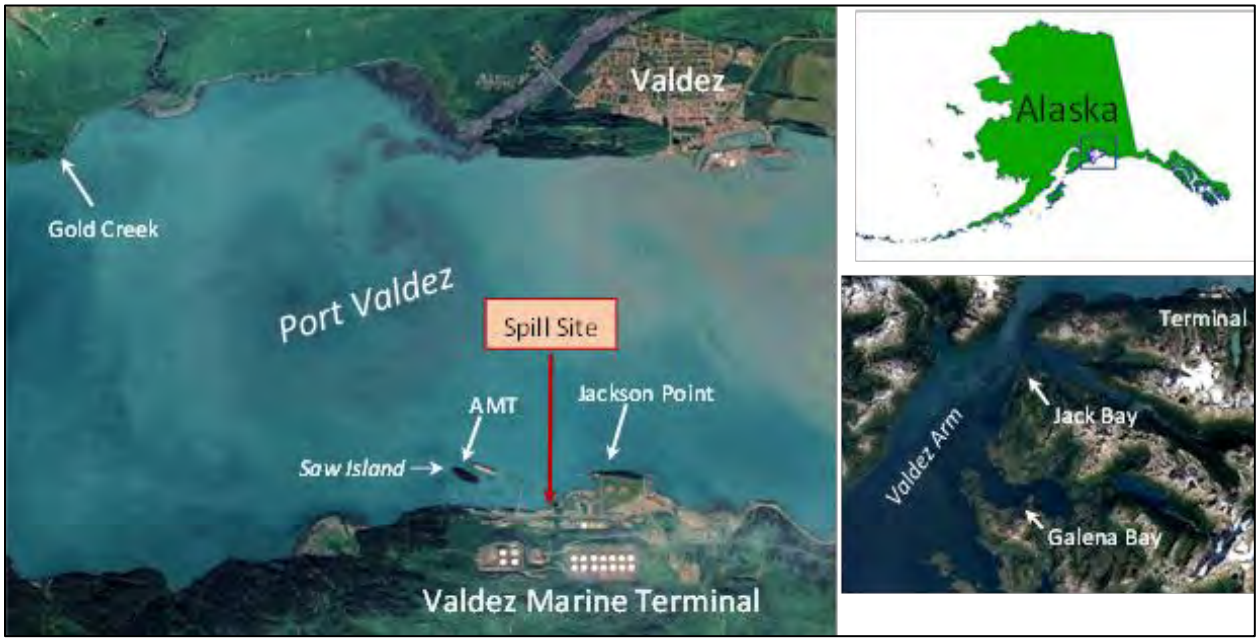

Figure 1. Overview of Port Valdez showing the April 12, 2020 intertidal spill location at the Valdez Marine Terminal. Mussels were sampled at the spill site, Jackson Point, Saw Island (AMT), and the control station at Gold Creek 6 km to the northwest. Regional background samples were also collected at Jack Bay and Galena Bay (lower right inset) on June 20, 2020.

Figure 2. Containment booms placed around the spill site and in adjacent waters. Saw Island in upper left background adjacent Berth 5 tanker. Image from Alyeska Pipeline Service Company.

Chemical analyses of mussels over time (Figure 3) showed the expected decrease of total hydrocarbons in tissue. Elapsed days in Figures 3 and 5 refers to days from this study's start, but it is important to note, sampling day 1 was 19 days post-spill. By the 40-day mid-point sampling, 2020 LTEMP mussels were approaching 2019 background levels but still held a trace of the spilt oil, while the spill site mussels were 1,000 times more contaminated. The extended deployment of containment booms at the spill site through October 2020 and increasingly weathered chemistry profiles suggest that continued low exposures from sheening continued through at least July, the time of the last mussel collections in this study. By late July when the last samples were collected, the spill site mussels were still 100 times above the 2019 background concentrations.

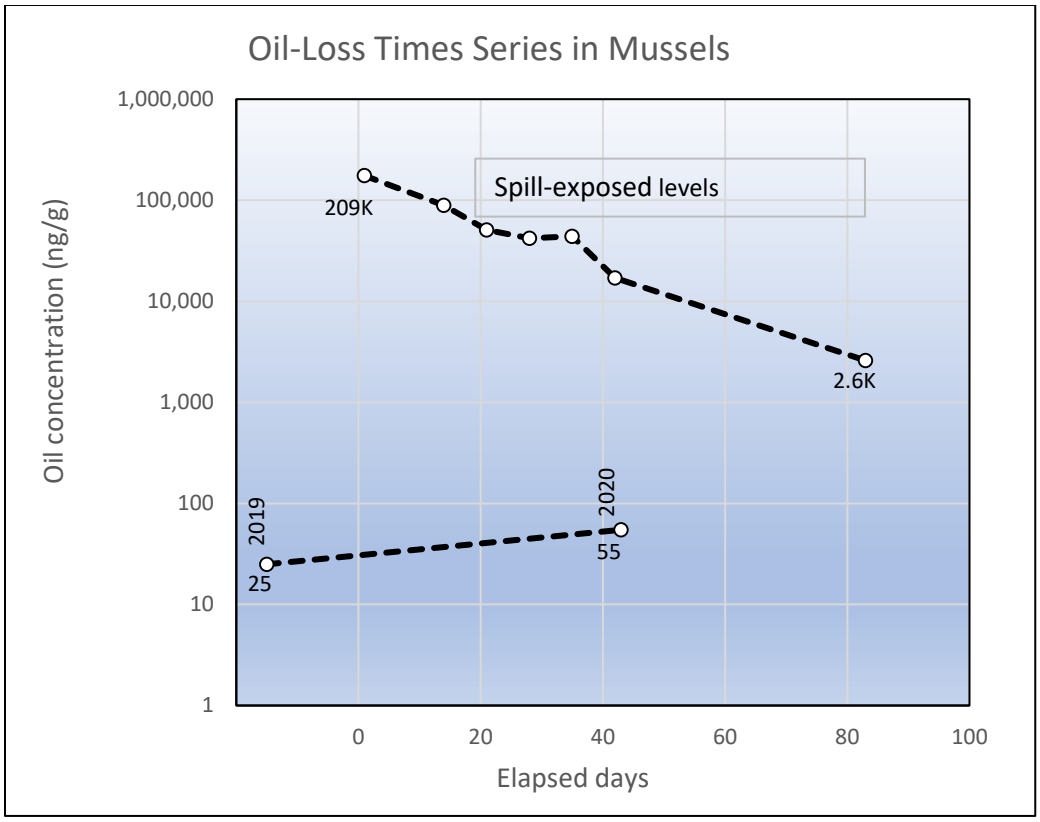

Figure 3. Mussel oiling or chemistry shows consistent 100-fold decrease during the sampling period at the spill site but did not reach background levels of 2019 or 2020 LTEMP samples.

When a mussel is exposed to a toxic foreign substance (oil), the animal must somehow deal with it. To survive, the mussel will modify various physiological processes to reduce stresses and mitigate or eliminate the toxin. Exposure to oil is physiologically stressful, with effects including hypoxia (low oxygen), inflammation and immunity issues, and balancing energy needs while detoxifying and eliminating the foreign compounds. Each physiological need requires regulating specific gene activity by boosting or dampening the conversion of a gene's DNA message into protein (transcription). In this project, we measured the transcription of 14 genes, including five directly linked with detoxification processes (Figure 4), and found alterations associated with oil exposure.

Relevant gene activity showed a general trend, with increased transcription lagging behind tissue hydrocarbon concentrations (Figure 5). Transcription levels peaked after the hydrocarbon levels were partially depleted. These results were consistent with other studies where gene transcription was initially inhibited following contaminant exposure. This suggests that the mussels were unable to initially maximize transcription for detoxifying the oil. In addition, by the study's end, with oil still evident in the tissues,

gene transcription had not yet completely returned to background levels seen in LTEMP mussels sampled in 2019.

Gene	Biological Process	Environmental Interaction
Metallothionein 20 (MT20)	Detoxification	Contaminants - metals
Caspase 8 (CASP8)	Programmed Cell Death, Necrosis, Inflammation	Pathogens, Contaminants
Heat shock protein 90 (HSP90)	Thermal Stress	Temperature, Pathogens, Contaminants
Cytochrome P450, family 3 (Cyp3)	Detoxification	Contaminants
Tumor protein 53 (P53)	Programmed Cell Death	Contaminants

Figure 4. Five genes linked to detoxification processes (related to oil exposure), the primary biological processes they are associated with, and what types of environmental interactions are known to affect their transcription.

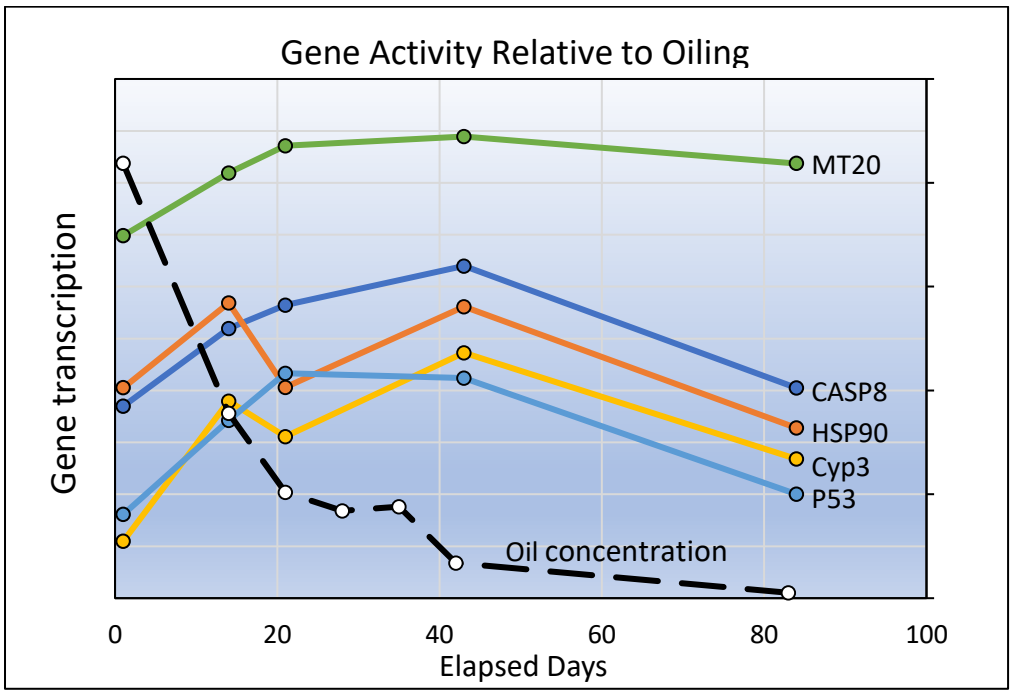

Figure 5. Transcription levels in 5 genes, directly linked to detoxification (solid-colored lines), in mussels from the spill site. Tissue chemistry (dashed line) diminished throughout the study. Note the lag in gene response, with transcription initially low, then peaking mid-study and subsequently dropping off, whereas oil in tissues consistently decreased.

This study has provided a unique opportunity to relate mussel hydrocarbon burdens with gene transcription profiles. In previous years, only the hydrocarbon levels would have been reported and, if elevated, assessed against theoretical toxic-effects levels. However, the addition of gene transcription allows detection of physiological effects in the mussels weeks after hydrocarbon levels have dropped. Our novel findings demonstrate the merits of combining chemistry and genetics to evaluate the extent and persistence of spill effects.

In consideration of the advances made and insights gained, we feel further analyses are warranted. In this project, gene transcription provided a significant advance in our understanding of spill effects. However, this approach needs further development. Specifically, our archived mussel samples can be re-analyzed to obtain the full suite of transcribed genes (transcriptome), quantifying approximately 10,000 genes in contrast to the panel of 14 genes used in this study. Our findings would help to design improved monitoring programs and to better assess spill impacts. We also note that these data are not just applicable to Alaska marine environments. Publishing these methods and interpretations has the potential to globally inform other researchers and regulators regarding contaminant impacts and study designs for discharge or spill assessment programs.

Recommendations for future monitoring and spill response

- The archived oiled and unoiled mussels should be analyzed for the full transcriptome (i.e., the complete suite of genes transcribed by the organism). Only 14 genes were considered in this study but there are many others that could be analyzed. Comparing exposed versus unexposed mussel response would identify the most appropriate genes for monitoring future oil spills.
- Chemical and genetic methods should be used in future assessments of acute and chronic oil pollution. Monitoring programs which include both body burdens of chemicals and gene transcription of mussels show tremendous benefit as an oil spill, damage assessment approach.
- Additional samples collected from the spill location in 2021 should be analyzed to determine if contamination and transcription levels have returned to normal background levels for Port Valdez.
- A pilot study of seasonal transcription assays would be useful to understand normal baseline expression for monitoring programs, prior to spill events.

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Briefing for PWSRCAC Board of Directors – January 2022

ACTION ITEM

Sponsor: Linda Swiss
Project number and name or topic: 6000 – Oil Spill Prevention and Response Planning Program - Regulatory Reform

1. **Description of agenda item:** Staff will provide an update on the Alaska Department of Environmental Conservation's (ADEC) "Notice of Proposed Changes to Oil Pollution Prevention Requirements of Alaska Department of Environmental Conservation" published on November 1, 2021, and available HERE. The notice solicited public comments for the changes to article 4 of 18 AAC 75 proposed by ADEC as a result of their public scoping process conducted 2019-2020. Article 4 covers oil discharge prevention and contingency plans and non-tank vessel plans. This update will also include outreach activities to engage PWSRCAC's member organizations and other interested stakeholders in our region. This agenda item is seeking approval by the Board of Directors of comments to ADEC on this regulatory review. DRAFT comments will be sent under separate cover.

The 90-day public comment period runs from November 1, 2021, until January 31, 2022. Comments can be submitted on ADEC's website HERE. All comments submitted for this public review can be viewed at this link.

Approval by the Board of Directors of comments to be submitted PWSRCAC supports the world-class oil spill prevention and response system in place in Prince William Sound and the rest of the State of Alaska. The current system is a direct result of post-Exxon Valdez oil spill laws and regulations designed to protect Alaskans and our environment, as well as commercial and sport fishing, aquaculture, recreation, tourism, subsistence, and cultural interests.

2. **Why is this item important to PWSRCAC:** Maintaining strong oil spill prevention and response standards is a key objective for PWSRCAC. Rollbacks in regulations have the potential to result in weakening and erosion of the existing prevention and response system. PWSRCAC's report about the history and legislative intent of Alaska's strong Response Planning Standards, titled "Alaska's Oil Spill Response Planning Standard - History and Legislative Intent" can be found HERE. Every individual interviewed for this report spoke about their involvement in creating and establishing Alaska's response planning standards with a profound sense of accomplishment. These individuals were adamant that if the system created after the 1989 spill were to be weakened or removed, Alaskans would face the risk of reliving an event that is still deeply impressed upon all who lived through it. In oil spills as in many things, we must learn from history and endeavor never to repeat the past.

3. **Previous actions taken by the Board on this item:**

Meeting	Date	Action
Board	10/29/2019	Approved Resolution 19-03, "Safeguarding Alaska's Oil Spill Prevention and Response Standards.
Board	10/29/19	Approved a budget modification adding $40,000 to 6000 Oil Spill Response program/professional services for regulatory review assistance.

4. **Summary of policy, issues, support, or opposition:** PWSRCAC does not support any legislative or regulatory changes that could erode oil spill prevention and response standards, increase the risk of a catastrophic spill, or demonstrate a return to complacency on the part of oil industry and regulators that Congress determined to be a primary cause of the Exxon Valdez oil spill. PWSRCAC also believes that if the system created after the 1989 spill is weakened, Alaskans will likely face an increased risk of reliving another major oil spill that could damage Alaska's commercial, sport, and subsistence fishing; sport and subsistence hunting; other businesses; fish, wildlife, and environment; and the culture and quality of life of the people. The Council strongly recommends that Alaskans interested in maintaining safety standards designed to protect the state's environment, people, and economy from catastrophic oil spills provide feedback to ADEC on this public review.

5. **Committee Recommendation:** Committees have been notified and kept updated on ADEC's public review of 18 AAC 75. All PWSRCAC committee volunteers are encouraged to provide input on future actions planned to ensure the protection of the oil spill prevention and response c-plan regulations and statutes that have been so successful in preventing another catastrophic oil spill for more than 30 years.

6. **Relationship to LRP and Budget:** This project falls under the 6000 Oil Spill Response Program budget, which is in the approved FY2022 budget and annual work plan.

6000--Spill Response Program

As of December 10, 2021

FY-2022 Budget	
Original	$10,800.00
Modifications	
Revised Budget	$10,800.00
Actual and Commitments	
Actual Year-to-Date	$891.20
Commitments (Professional Services)	$7,871.00
Actual + Commitments	$8,762.20
Amount Remaining	$2,037.80

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7. **Action Requested of the Board of Directors:** Approval of PWSRCAC's "Comments on Proposed Changes to Oil Prevention Requirements in the Regulations of the Alaska Department of Environmental Conservation" to be submitted to the Alaska Department of Environmental Conservation by the date due of January 31, 2022.

8. **Attachments:** Draft "Comments on Proposed Changes to Oil Prevention Requirements in the Regulations of the Alaska Department of Environmental Conservation".

Comments on Proposed Changes to Oil Prevention Requirements in the Regulations of the Alaska Department of Environmental Conservation, dated November 1, 2021

Submitted by the
Prince William Sound Regional Citizens' Advisory Council

January __, 2022

Introduction

The Prince William Sound Regional Citizens' Advisory Council (PWSRCAC or Council) provides these comments on regulatory revisions related to 18 AAC Chapter 75 that were released on November 1, 2021.

In its March 11, 2020 comments in response to the Alaska Department of Environmental Conservation's (ADEC) public scoping request, PWSRCAC expressed its views on the importance of the Oil Discharge Prevention and Contingency Plan regulations and the statutory requirements the regulations implement.

Many of the proposed changes provide useful clarifications or improve the organization of the regulations. However, a few key issues are noted requiring substantive improvements. In finalizing the new regulations, we request that ADEC:

- Increase the minimum number of annual exercises ADEC will conduct for crude oil plans;
- Keep the Best Available Technology conference and the option of studies as essential to achieving the statutory requirement that prevention and response equipment used in Alaska stay current with technological advances;
- Keep language ensuring that plan submittals and amendments will be shared with the Regional Citizens Advisory Councils; and
- Require that tankers calling at the Valdez Marine Terminal have an emergency towing arrangement that meets international and federal standards but can also be deployed from the bow in 15 minutes.

In addition to the above, we provide recommendations on items warranting relatively minor edits to align with ADEC regulation drafting guidelines and consistency across the sections.

Section Comments

18 AAC 75.400(a)(2). Applicability (vessels)

ADEC proposes to revise the section that describes who must apply for a vessel contingency plan. Currently, regulations describe the categories of owner, operator, demise charterer, or in any other case, the person with primary operational control. ADEC proposes, instead, to rely on "primary operational control" as the defining category for a vessel applicant. Primary operational control is a unique ADEC provision without counterpart in U.S. Coast Guard regulations. If ADEC wishes to rely on this classification alone instead of the traditional legal maritime categories that the U.S. Coast Guard utilizes, it is important that ADEC ensure that the vessel owner/operator agrees that the plan holder has primary operational control over the vessel as to the operational aspects in state waters and the prevention and response requirements of the contingency plan. For example, it is not enough that the plan holder has time-chartered a tanker.

ADEC addresses this issue in part with a proposed definition of "primary operational control" under 18 AAC 75.990 of the proposed regulations. This definition is helpful in specifying the things the contingency plan holder must have control over to have primary operational control over the vessel, including the parameters of the approved prevention and response plan. PWSRCAC suggests that agreement regarding the "person" (or company) with primary operational control for the purpose of Alaska regulations can be further clarified by adding this information to its application form required by 18 AAC 75.408.

To ensure the requirements of primary operational control are met, PWSRCAC requests that ADEC include a section in its application form where the vessel and contingency plan holder with primary operational control attests that they have a "binding agreement" establishing primary operational control over the vessel as defined in 18 AAC 75.990(XXX) for these purposes and the vessel agrees to comply with the prevention and response provisions of the approved plan.

18 AAC 75.408(b). Submittal of documents

The proposed change removes the text describing who can sign the application form and instead refers to 18 AAC 15.030.

Regulations at 18 AAC 75.408(b) and 18 AAC 15.030 are not identical. The 18 AAC 15.030 regulations referenced have not been updated since 1977, and do not include Limited Liability Company, or LLCs, which are newer creations of the law, nor joint ventures. Referencing 18 AAC 15.030 is fine for making the 18 AAC 75 regulations shorter, but 18 AAC 15.030 should then be updated to include the new legal entities and who must sign on their behalf.

18 AAC 75.408(c). Distribution of plan documents to the Regional Citizens Advisory Councils

ADEC proposes to take responsibility for posting application packages on its website and informing interested stakeholders of the availability of these documents and additional information provided by a plan applicant.

ADEC also proposes removing the requirement to ensure that plan copies and amendments are received by the Regional Citizens Advisory Councils (RCACs) and the Departments of Natural Resources and Fish and Game. Instead, ADEC proposes to notify “interested stakeholders” of these applications and documents.

The Departments of Natural Resources and Fish and Game are named reviewers by virtue of the contingency plan statute in AS 46.04.030(j).[1] Similarly, federal law, in 33 U.S.C § 2732, recognizes

[1] (j) Before the department approves or modifies a contingency plan under this section, the department shall provide a copy of the contingency plan to the Department of Fish and Game and to the Department of Natural Resources for their review.

the RCACs' responsibility to review oil spill contingency plans. This provision of the Oil Pollution Act of 1990, drafted by Alaska's Congressional Delegation, recognizes the PWSRCAC's special role in reviewing contingency plans for the Valdez Marine Terminal and Trans Alaska Pipeline System (TAPS) tankers.[2] The law includes findings concerning the importance of this role.[3] The Alaska Oil Spill Commission similarly recommended that the Councils be integrated into a state system of citizen oversight including government agency operations. ADEC has also recognized the role of the RCACs in reviewing contingency plans and has included its participation in special workgroups as part of ADEC's actions on the plans. Finally, in repealing the Alaska Citizens' Oversight Council on Oil and Other Hazardous Substances in 1994,[4] the Alaska Legislature recognized the continuing role of the RCACs in citizen participation and oversight.

In light of these legal authorities recognizing the Councils and their vital role in the review of oil discharge prevention and contingency plans, the PWSRCAC requests that 18 AAC 75.408 continue to specify that the Regional Citizens Advisory Councils must receive notification of plan submittals, renewals, and amendments subject to public review.

PWSRCAC requests that ADEC retain language in the regulations stipulating that the Regional Citizens Advisory Councils will receive relevant plan documents, or notification of their availability on the ADEC website, as described for plan submittals, renewals, and amendments. This mirrors the language in current regulations but maintains the proposed shift in the responsibility to distribute the documents from the plan holder to ADEC.

[2] 33 U.S.C. § 2732(d)(6) "review through the committee established under subsection (f), the adequacy of oil spill prevention and contingency plans for the terminal facilities and the adequacy of oil spill prevention and contingency plans for crude oil tankers, operating in Prince William Sound or in Cook Inlet;"

[3] The Congress finds that—(A) the March 24, 1989, grounding and rupture of the fully loaded oil tanker, the EXXON VALDEZ, spilled 11 million gallons of crude oil in Prince William Sound, an environmentally sensitive area; (B) many people believe that complacency on the part of the industry and government personnel responsible for monitoring the operation of the Valdez terminal and vessel traffic in Prince William Sound was one of the contributing factors to the EXXON VALDEZ oil spill; (C) one way to combat this complacency is to involve local citizens in the process of preparing, adopting, and revising oil spill contingency plans; (D) a mechanism should be established which fosters the long-term partnership of industry, government, and local communities in overseeing compliance with environmental concerns in the operation of crude oil terminals; (E) such a mechanism presently exists at the Sullom Voe terminal in the Shetland Islands and this terminal should serve as a model for others; (F) because of the effective partnership that has developed at Sullom Voe, Sullom Voe is considered the safest terminal in Europe; (G) the present system of regulation and oversight of crude oil terminals in the United States has degenerated into a process of continual mistrust and confrontation; (H) only when local citizens are involved in the process will the trust develop that is necessary to change the present system from confrontation to consensus; (I) a pilot program patterned after Sullom Voe should be established in Alaska to further refine the concepts and relationships involved; . . . 33 U.S.C. § 2732(a)(2).

[4] 43 ch 128 SLA 1994.

18 AAC 75.408(c). Notification of minor amendments

This section states that ADEC will notify interested stakeholders (see previous request about including RCACs in this definition) when a minor amendment has been approved. Section 18 AAC 75.415(a) defines types of amendments that will be considered major, with all others being either minor or routine. We have no suggested changes to the definition of major amendment, but we recognize from experience that there may be amendments that do not fit neatly into the definition of major or minor amendment. Notification of minor amendments should therefore be sent to the RCACs and other interested stakeholders prior to their acceptance by ADEC.

In order to fulfill its mission to provide a voice for citizens affected by decisions related to the Valdez Marine Terminal and associated tankers, PWSRCAC must be apprised of potential changes to the operations of the terminal or tankers *before* they occur, whether or not there is a formal comment period.

PWSRCAC requests that 18 AAC 75.408 be amended to state that RCACs and other interested stakeholders should be notified of the receipt of a minor amendment and its availability on the department's website.

18 AAC 75.414. Changes of plan ownership

According to 18 AAC 75.414, "A change in the owner, operator, or name of the owner or operator of a facility or operation with an approved oil discharge prevention and contingency plan or a non-tank vessel equivalent plan requires that the new owner or operator submit an application package as an amendment under 18 AAC 75.415." However, 18 AAC 75.415 considers "major" reviews requiring public review and "minor amendments" which do not in the context of changes made by the original plan holder. An effective spill response, including management of that response, however, is directly tied to the capabilities and capacities of the plan holder, capabilities and capacities which cannot be assumed to be the same when a plan transfers from one owner/operator to another. Consequently, such actual change of owners or operators, as opposed to simple name changes, should be treated as major amendments.

PWSRCAC requests that all amendment applications changing the owner or operator of a facility or operation with an approved ODPCP be treated as "major amendments" subject to public review under 18 AAC 75.455.

18 AAC 75.415. Procedures to apply for oil discharge prevention and contingency plans – status of ownership change

Language at 18 AAC 75.415(a) identifies the criteria ADEC will use to determine if a plan amendment is considered "major" warranting a public review. PWSRCAC agrees with these criteria, but requests that a "change in ownership" (as is mentioned at 18 AAC 75.414) should be included in this list. An effective spill response, including management of that response, is directly tied to the capabilities and capacities of the plan holder, capabilities and capacities which cannot be assumed to be the same when a plan transfers from one owner/operator to another.

Consequently, an actual change of owners, as opposed to simple name change, should be treated as a major amendment.

PWSRCAC requests that all amendment applications changing the owner or operator of a facility or operation be treated as "major amendments" subject to public review.

18 AAC 75.430(b). Prevention credits to reduce the Response Planning Standard (regarding removal of the phrase, "to the Department's satisfaction")

ADEC proposes to remove the phrase "to the Department's satisfaction" as to whether a plan holder demonstrates that a proposed prevention measure reduces the size of the potential spill or risk of a discharge. Throughout this set of regulations, ADEC has similarly proposed to repeal "to the Department's satisfaction" as to whether the plan demonstrates a particular requirement.

Removal of this phrase is misplaced for several reasons. First, under Alaska statute, it is ADEC who determines whether a plan meets the requirements of law. AS 46.04.030(h) states: "The department is the only state agency that has the power to approve, modify, or revoke a contingency plan for the purposes of this section." Obviously, ADEC's actions with respect to a plan are subject to review in adjudicatory hearings and in judicial appeals, but the role of ADEC to make these technical decisions is recognized by statute. Consequently, removal of the phrase "to the Department's satisfaction" does not change the fact that ADEC is the entity that determines whether a requirement of the contingency plan regulations is satisfied.

Second, PWSRCAC believes that removal of the phrase violates the Department of Law's Drafting Manual on Administrative Regulations. See page 53 of that document. AS 44.62.060(a) requires an agency to comply with the Department of Law Drafting Manual. The phrase is used in the Drafting Manual to recognize when an action – in this case granting a prevention credit – is within the discretion of the agency because the statute says "the department may" grant a prevention credit but is not required to do so unless it is convinced that it reduces the threat or magnitude of a discharge. See AS 46.04.030(m).[5]

The proposed removal of the phrase does not change the department's role deciding whether certain criteria are met. The department's determination is then given deference by a court if the determination implicates the department's technical expertise which is the case here.

PWSRCAC requests that the phrase, "to the Department's satisfaction" be retained in this and the other sections of 18 AAC 75 under review here.

[5] "When considering whether to approve or modify a contingency plan, the department may consider evidence that oil discharge prevention measures such as double hulls or double bottoms on vessels or barges, secondary containment systems, hydrostatic testing, enhanced vessel traffic systems, or enhanced crew or staffing levels have been implemented, and, in its discretion, may make exceptions to the requirements of (k) of this section to reflect the reduced risk of oil discharges from the facility, pipeline, vessel, or barge for which the plan is submitted or being modified."

18 AAC 75.432(a)(1). Response Planning Standard for oil terminal facilities

PWSRCAC suggests removing the comma after "72 hours" to be consistent with the Response Planning Standard (RPS) wording for 432(a)(1) (oil exploration and production facilities),436(a)(1) (crude oil pipelines), and 438(a)(1) (crude oil tank vessels and barges).

18 AAC 75.432(d)(5)(B). Oil terminal facility prevention measures

The Department of Law Drafting Manual does not recognize use of a parenthetical plural as used in the term "failsafe valve(s)."

ADEC should revise the proposed regulation to clarify its intent as to singular or plural valves.

18 AAC 75.447. Department examination of new technologies

ADEC has proposed the repeal of this section requiring the department evaluate technologies used to meet the Response Planning Standard (RPS) or a performance standard set out in ADEC's oil pollution prevention regulations.

This important provision is from the 1997 Best Available Technology (BAT) Regulation Workgroup and is intended to ensure that ADEC reviews – outside of the plan review process – break-out RPS and performance standard technologies that are exempted from individualized BAT reviews at the time of plan renewal. It is intended to ensure that the plans do not go technologically stale for those two of the three regulatory categories of technology. ADEC has not consistently held a technology conference and has not fully implemented the regulation because of funding challenges. Those challenges, however, do not justify removing ADEC's examination of new technologies as part of the BAT regulations.

How is ADEC going to meet the mandates of AS 46.04.030(e) in ensuring that spill response and prevention equipment remains Best Available Technology? How will ADEC determine when performance standards set in regulation need strengthening because new technology now allows a reliable higher standard of performance? There are other alternatives to a technology conference under .447(a)(1) – held at frequency of least once every five years – that could be pursued without wholesale repeal of the regulation. For example, ADEC could work with Washington State in conjunction with its Best Achievable Protection for spill response review and with other members of the Pacific States – British Columbia Oil Spill Task Force on these technology issues.

The mandate to engage in studies, inquiries, surveys, or analyses to consider new technologies would be lost by the repeal of the regulation. Shifting all of this analysis to the contingency plan renewal process will not be effective given the narrow set of equipment required to be reviewed there and the reliance solely on the plan holders to identify the range of alternatives to be assessed. ADEC initiated the BAT regulation review in 1997 because of the challenges of dealing with all technology issues as part of plan reviews. Renewed funding and ADEC regulatory focus on the role of 18 AAC 75.447 are the preferred regulatory responses towards improving BAT reviews – not backsliding on the examination of new technologies.

PWSRCAC opposes the repeal of 18 AAC 75.447.

18 AAC 75.448(c)(3). Oil discharge prevention and contingency plan (ODPCP); general content and approval criteria

18 AAC 75.448(c)(3) identifies, by type of entity, the appropriate person with the authority to commit the resources set out in the plan. The revised paragraph cross-references 18 AAC 15.010(b) which is not the correct section in 18 AAC 15. The reference should be 18 AAC 15.030 but that section needs to be updated to include LLCs and Joint Ventures. See comments on 18 AAC 75.408(b).

The reference and referenced section need to be revised.

18 AAC 75.449(a)(6)(M). Response scenario - wildlife

This proposed subparagraph adds language that wildlife procedures and methods should follow recommendations from the Alaska Regional Response Team's (ARRT) Wildlife Protection Guidelines for Oil Spill Response in Alaska. These procedures are required by the Alaska Regional Contingency Plan and are promulgated after public review under 40 C.F.R. § 300.210(c)(3).

To comply with AS 44.62.245, which governs incorporation of material by reference, the regulation needs to reference the date of the adopted Guidelines and, if future amendments are to be incorporated, state "as amended."

If future versions of the Wildlife Protection Guidelines, which have undergone public review as part of the ARRT process, are intended to be incorporated by reference, the cross-reference should read: "the Alaska Regional Response Team Wildlife Protection Guidelines for Oil Spill Response in Alaska, dated August 31, 2020, as amended, and promulgated pursuant to 40 C.F.R. § 300.210(c)(3) and the Alaska Regional Contingency Plan."

18 AAC 75.450(b)(1). Discharge prevention programs

For purposes of requiring a description and schedule in the prevention plan, proposed 18 AAC 75.450(b)(1) removes specific references to oil discharge prevention training programs required by 18 AAC 75.020(a); (ii) substance abuse and medical monitoring programs required by 18 AAC 75.007(e); and (iii) security and surveillance programs required by 18 AAC 75.007(f).

Proposed 18 AAC 75.450(a) still requires a description and schedule of regular oil discharge prevention, inspection, and maintenance programs in place at the facility or operation. We interpret that phrase to include discharge prevention training programs required by 18 AAC 75.020(a); substance abuse and medical monitoring programs required by 18 AAC 75.007(e); and security and surveillance programs required by 18 AAC 75.007(f).

PWSRCAC requests under AS 44.62.213(b) that ADEC confirm that the programs in former .425(e)(2)(A)(i)-(iii) are covered by the proposed language at 75.450(b)(1).

18 AAC 75.450(b)(2). Discharge history

Under 18 AAC 75.450(b)(2), the plan holder must list all known oil discharges greater than 55 gallons that have occurred at the facility within the state. This discharge volume is inconsistent with other ADEC oil release reporting requirements except those to impermeable secondary containment areas. PWSRCAC recommends that this section be revised to reduce the threshold for discharge history reporting from 55 gallons to a lower volume threshold. ADEC's current spill reporting requirements (found at https://dec.alaska.gov/spar/ppr/spill- information/reporting/) identify any release to water and any release to land of 10 gallons or more as significant and worthy of mandatory reporting.

PWSRCAC requests that the threshold for discharge history reporting in an ODPCP be brought into alignment with ADEC discharge reporting requirements.

18 AAC 75.451(b)(1-2). Information on oil storage containers in facility description and operational overview

This section adds specificity regarding the information that should be included for different types of oil storage containers. The additional clarification is helpful, but PWSRCAC suggests a few additional details should be required, at least for tanks of 10,000 gallons or larger. As is common practice in the Valdez Marine Terminal ODPCP, the regulation should add "year of last and next inspections as required" for 18 AAC 75.451(b)(1). Additionally, this section should include "location" for both the larger tanks at 18 AAC 75.451(b)(1), as is already included for the tanks of 1,000-10,000 gallons at 18 AAC 75.451(b)(2). This information should be readily available to the plan holder and a helpful way to share information on inspection cycles.

PWSRCAC requests that the proposed regulations be amended to require that a plan include both location and inspection dates (previous and next, for both internal and external inspections) for tanks with a capacity greater than 10,000 gallons.

18 AAC 75.451(b)(7-8). Information on oil terminal, exploration, and production facilities in facility description and operational overview

This section adds specificity regarding details required in the plan, including a requirement to provide information about all facility oil piping at an oil terminal. The additional clarification is helpful, but would be even more useful to both oil spill prevention and an actual response if it included a description of each piping segment name, piping material type, installation date, thickness, diameter, length, buried/aboveground length, insulated/uninsulated length, inspection classification and inspection standard used (e.g., Class 1, 2, or 3 based on API 570), applied inspection methods (e.g., UT, ILI, radiographic, guided-wave), date of last inspection, date for next inspection, highest measured corrosion rate and associated inspection date (based on most recent inspection), corrosion threshold for repair or replacement, number of corrosion coupons,

number of corrosion inhibitor injection locations, type(s) of cathodic protection and/or protective coatings, and presence of any secondary containment around the piping. This type of information should be readily available to an operator and easily added to the more complete facility description that would be required under the proposed regulations.

PWSRCAC requests that the proposed regulations be amended to require additional details about facility oil piping, including each piping segment name, piping material type, installation date, thickness, diameter, length, buried/aboveground length, insulated/uninsulated length, inspection classification and inspection standard used (e.g., Class 1, 2, or 3 based on API 570), applied inspection methods (e.g., UT, ILI, radiographic, guided-wave), date of last inspection, date for next inspection, highest measured corrosion rate and associated inspection date (based on most recent inspection), corrosion threshold for repair or replacement, number of corrosion coupons, number of corrosion inhibitor injection locations, type(s) of cathodic protection and/or protective coatings, and presence of any secondary containment around the piping.

18 AAC 75.451(e). Realistic maximum response operating limitations (RMROL)

In combining 18 AAC 75.425(e)(3)(D) and 18 AAC 75.445(f), ADEC is proposing in new 18 AAC 75.451(e)(2) to require the plan to include descriptions of "additional specific temporary prevention or response measures that will be taken to reduce the environmental consequences of a discharge, including nonmechanical response options, during those periods when environmental conditions exceed realistic maximum response operating limitations."

ADEC has included this requirement and removed the permissive statement from 18 AAC 75.445(f) that the "department may require the plan holder to take specific temporary prevention or response measures until environmental conditions improve to reduce the risk or magnitude of an oil discharge during periods when planned mechanical spill response options are rendered ineffective by environmental limitations."

PWSRCAC supports the plan requirement proposed in the new 18 AAC 75.451(e)(2) and notes that, after repeal of 18 AAC 75.445(f), ADEC still retains its approval authority under AS 46.04.030 and its condition of approval authority under AS 46.04.030(e) to ensure temporary prevention or response measures are utilized during times of RMROL.

18 AAC 75.445(c)(1). Requests for additional information

A semi-colon should be used instead of a comma after the new language.

18 AAC 75.455(f). Criteria for holding a public hearing, page 79

This section is revised to include criteria for holding a public hearing, including a request from "50 residents of the affected area" and "the governing body of an affected municipality." It is not clear how ADEC may determine the affected area of a contingency plan for this purpose: on the one hand, this may be a significant portion of the population of a village, and, on the other, people may be "affected" from many miles away if they rely on a particular area for commercial (e.g.,

fishing or tourism) or subsistence purposes. PWSRCAC also seeks to ensure that "municipality" is understood broadly, as appropriate to different forms of governance common in Alaska.

Please clarify that the term municipality includes a village, borough, city, or tribe.

18 AAC 75.485. Discharge exercises

In 2003, the Alaska Legislature changed the frequency of contingency plan renewals from every three years to every five years. At that time, Governor Frank Murkowski, who introduced the bill, stated in his bill introduction letter that, "A five-year renewal period will streamline the review for both the state and industry, while maintaining Alaska's strong oil spill prevention and response standards. Focusing on the actual testing of oil spill prevention and response readiness through in-the-field inspections, drills, and exercises is our most effective means of ensuring spill prevention and response readiness."

When making the change, the Alaska Legislature made a specific legislative finding: "The legislature finds that focusing on the actual testing of oil spill prevention and response preparedness through in-the-field inspections, drills, and exercises is our most effective means of ensuring spill prevention and response readiness and protection of the environment" (Section 1, ch. 12 SLA 2003). Since that time, regulations have given ADEC discretion to conduct up to two exercises per year, per ODPCP (or more if deficiencies are identified).

The current regulations allow ADEC to conduct no more than two exercises in a given year (announced or unannounced) per plan unless gross deficiencies are observed. This language does not mean that ADEC *will* hold two exercises per plan holder, per year, simply that that they *can*. By contrast, the proposed regulation changes would reduce the maximum number of exercises that ADEC may conduct, while also committing ADEC to conduct at least one exercise per plan in each five-year plan cycle as a minimum, with the option of one additional potential exercise per year.

PWSRCAC supports the notion of establishing a clear minimum number of exercises but finds the proposed number of "at least one exercise per plan in each five-year plan cycle" inadequate for large crude operators such as those in Prince William Sound. Instead, the minimum number of exercises, at least for crude oil plans, should require one significant Incident Management Team (IMT) table-top exercise and two field deployments each year. ADEC could be granted discretion to allow deployment exercises to count for more than one plan if the response activities and operating environment would be the same for each plan holder.

If this more appropriate minimum is not feasible for ADEC's level of resources and commitment to rigorous oversight, an alternative would be to at least mirror the minimum level of exercises required in federal regulations and include a worst-case discharge IMT exercise *with* full field deployments every three years. However, we think this would actually require more effort on industry than strategically working with ADEC to ensure that both state and federal requirements – and, as noted above, the Alaska Legislature's intent when changing plan renewals to the five-

year cycle – are met through a steady exercise effort with the minimum annual approach suggested above.

PWSRCAC strongly encourages ADEC to revise the proposed regulations at 18 AAC 75.485 to require a minimum of one IMT and two field deployment exercises each year for crude oil operators in Prince William Sound. The potential for additional exercises could then be reduced to two per plan cycle, allowing for unannounced notification or call-outs, or other unannounced exercises.

PWSRCAC requests that ADEC revise language at 18 AAC 75.485(d) to revert to the previous commitment that if a plan holder fails to demonstrate the ability to implement their plan, ADEC will require additional exercises or take other appropriate action. (The word "will" was changed to "may" in the proposed regulations.)

PWSRCAC requests that the regulations define the term "operations-based exercise" in the regulations (instead of just in the Oil Spill Response Exercise Manual or "Manual"). The phrase "operations-based exercise" should also be added to 18 AAC 75.485(a)(1)(B) to clarify that all exercises considered under this portion of the regulations should meet this broadly defined term.

Oil Spill Response Exercise Manual - A GUIDE FOR PLANNING, CONDUCTING, AND EVALUATING EXERCISES, DRAFT VERSION October 27, 2021

As discussed above, PWSRCAC disagrees with the proposed minimum number of exercises described in the proposed regulations and Table 2 of the draft Manual. It is clear that effort has been made to allow plan holders to modify their federal (National Preparedness for Response Exercise Program [PREP]) exercises so they can meet ADEC requirements as well, and this should only make it possible to do *more* exercises and achieve the two-per-year maximum in the *current* regulations. It is also fully appropriate that ADEC commit to taking action if a plan holder fails to adequately demonstrate the ability to implement their plan. Thus, our comments on .485, above, apply to the relevant sections of the draft Manual as well (both in the new draft Table 2).

Wherever this document mentions Local On-Scene Coordinators (e.g., page 17 under Full-Scale/Combined IMT and Field Exercises), it should also mention Tribal On-Scene Coordinators since this role, recently introduced in Alaska planning, warrants attention in exercises.

Please increase the minimum number of exercises as discussed above. Please also change "may" back to "will" when referring to ADEC's commitment to taking appropriate action if a plan holder does not adequately demonstrate the ability to implement their plan.

We appreciate that the reference to RCACs remains on page 20 where the Exercise Joint Planning Team is discussed.

Please also add mention on page 36 of the fact that RCACs may participate in the Evaluation Team (as noted, this group will typically "mirror that of the planning team").

Also, PWSRCAC suggests fixing a typo on page 28 (moving the word "plan" in the sentence, "ADEC strongly supports and encourages plan ODPCP holders to do this, as the benefits are many.")

18 AAC 75.990(xxx). "Primary operational control"

See above comments on 18 AAC 75.400(a)(2).

18 AAC 75.027(f). Emergency towing arrangements

The proposed regulations would remove the option of using the Prince William Sound tow package for tankers calling at the Valdez Marine Terminal. Instead, all tankers larger than 20,000 deadweight tons would be required to have an emergency towing arrangement that meets the requirements of U.S. Coast Guard regulations at 33 C.F.R. 155.235 which in turn requires towing arrangements to be in accordance with International Maritime Organization (IMO) standards found in IMO resolution MSC.35(63). State regulations would still require the emergency towing arrangement to be "fitted to allow towing vessels commonly available in the area of operation to take the vessel in tow rapidly." State regulations do not define "rapidly" (and never did), but the IMO guidelines require that the aft arrangement be able to be deployed in 15 minutes and the forward arrangement in 60 minutes or less.

At the same time, the proposed change in Best Available Technology regulations means that the tow lines would no longer be included in a BAT analysis submitted within operators' plans, since they would rely on a fixed performance standard. This provides an important opportunity to ensure that such a fixed standard achieves the statutory intent of being best available technology under 46.04.030(e). With technological improvements since the 1990s, it is readily feasible for tankers calling at the terminal to be outfitted with an emergency tow system that meets IMO requirements and to also meet the 15-minute standard from the forward position, as well as the aft position.

As described in the attached memo from Glosten Associates dated January 6, 2022, the 15-minute standard for the forward system can be achieved with available technology, including, if operators choose, with a portable package that could be used when tankers are engaged in the TAPS trade. As explained in the memo, the ability to take a tanker under tow quickly from the bow is important and likely necessary to a successful rescue of a drifting ship, particularly in an area such as Hinchinbrook Entrance in Prince William Sound.

PWSRCAC supports adoption of the requirements of 33 C.F.R. 155.235 that includes the IMO standards for emergency towing arrangements, with the additional requirement that tankers calling at the Valdez Marine Terminal should be able to deploy the arrangement from the forward position in 15 minutes.

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REVISED BRIEFING

Report Acceptance and Position on EPA NESHAP-OLD Air Quality Rule 4-3

Briefing for PWSRCAC Board of Directors – January 2022

ACTION ITEM

Sponsor:	Austin Love and the Terminal Operations and Environmental Monitoring Committee
Project number and name or topic:	#5057 – Review of the EPA 2020 National Emissions Standards for Hazardous Air Pollutants for Organic Liquids Distribution (NESHAP-OLD) Air Quality Rule

1. **Description of agenda item:** This agenda item requests Board acceptance of a report by John Beath Environmental titled "2020 Updates to 40 CFR 63, Subpart EEEE – National Emissions Standards for Hazardous Air Pollutants for Organic Liquids Distribution (Non-Gasoline): A Review of the Appeal by Alyeska Pipeline Service Company." This agenda item also requests the Board provide approval for Council staff to send a letter to the EPA supporting Alyeska's appeal of the 2020 NESHAP-OLD Air Quality Rule. A presentation summarizing the key results of the report will be provided by John Beath Environmental and Council staff will provide a briefing regarding the letter to the EPA.

2. **Why is this item important to PWSRCAC:** This agenda item is important because it pertains to the emissions of air pollutants from the Valdez Marine Terminal (VMT) known as hazardous air pollutants (HAPs). HAPs can be harmful to human health and include carcinogenic compounds such as benzene, among nearly 200 other compounds that are known to cause varying health-related harm. In its efforts to encourage the environmentally safe transportation of crude oil through Prince William Sound, the Council should work to limit the harm caused by HAPs emitted from the VMT. To effectively do that, there needs to be accurate reference documents available to the Council that describe this issue well and are based on well-researched facts. This project was intended to provide such reference documents. The overall purpose of the report by John Beath Environmental is to inform the Council as to whether they should support Alyeska in their appeal of the 2020 NESHAP-OLD Rule and to submit the Council's determination to the EPA or the United States Court of Appeals in their decision regarding Alyeska's appeal. Background information regarding the rule and Alyeska's appeal is included below in the "Summary of policy, issues, support, or opposition" section.

3. **Previous actions taken by the Board on this item:** The Council has been integrally involved in related NESHAP-OLD rule work in the past, but that work was mostly focused on the emissions of HAPs from the Ballast Water Treatment Facility, whereas the focus of this project is the emissions of HAPs from the crude oil storage tanks at the Valdez Marine Terminal. Therefore, only limited action has been taken by the Board on this tank-focused iteration of the Council's involvement regarding NESHAP-OLD.

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REVISED BRIEFING

Report Acceptance and Position on EPA NESHAP-OLD Air Quality Rule 4-3

Meeting	Date	Action
Board	1/28/2021	Approval of Proposed FY2022 Projects to Begin in FY2021: Approval of the following list of projects to commence in FY2021 along with corresponding budget modifications, and delegation of authority to the Executive Committee to authorize contracts as indicated: a) Approve Project 8013 – AIS/Radar Whitepaper in the amount of $35,000 to commence in FY2021. Authorize a budget modification from the contingency fund in the amount of $35,000. b) Approve Project 5057 – APSC'S Appeal of EPA Air Quality Rule (NESHAP-OLD) in the amount of $60,000 to commence in FY2021. Authorize a budget modification from the contingency fund in the amount of $60,000. Delegate authority to the Executive Committee to approve a contract for this work up to $60,000.

4. **Summary of policy, issues, support or opposition:** The EPA finalized its rulemaking that amended standards found in the 2004 NESHAP-OLD Rule on July 20, 2020. The proposed changes affect the current air toxics Organic Liquids Distribution (OLD) standards that are in place for regulating HAPs emitted by the storage and transfer of crude oil at the VMT.

On October 7, 2020, Alyeska filed an appeal with the United States Court of Appeals asking that certain parts of the updated NESHAP-OLD Rule not go into effect. Alyeska claimed that the updated NESHAP-OLD Rule reflects substantial changes to the regulations governing the emission of HAPs from the Valdez Marine Terminal that will not result in any significant improvement in local air quality. On January 28, 2021, the United States Court of Appeals ruled to hold Alyeska's appeal in abeyance, to allow the involved parties to resolve their appeal of the July 2020 NESHAP-OLD Rule directly with the EPA. At this time, Alyeska's appeal is subject to the EPA's "petition for reconsideration" process.

Alyeska questioned the overall air quality benefit of the updated NESHAP-OLD Rule for emissions from the VMT. Alyeska claimed that the current, existing control system already captures 99.94% of all tank vapors at the VMT, while the HAPs reduction goal for the updated NESHAP-OLD Rule is 95%. To comply with the rule as written, Alyeska claimed they would have to reengineer significant parts of the VMT to operate without conservation venting.

John Beath Environmental's report evaluated the merits of Alyeska's appeal of the 2020 NESHAP-OLD Rule by evaluating five key topics:

- Current amount of HAPs released from the VMT
- Amount of HAPs released from the VMT if the NESHAP-OLD Rule was applied
- Health risks of HAPs currently released from the VMT to Valdez citizens
- Engineering concerns associated with implementing the NESHAP-OLD Rule
- Current HAPs controls written in the VMT's air quality permit

REVISED BRIEFING

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The results from John Beath Environmental's independent evaluation of those five topics support the key argument in Alyeska's appeal: imposing the 2020 NESHAP-OLD Rule at the VMT would not result in overall, local, air quality benefits.

The Board may also be interested in knowing that on November 10, 2020, ADEC Commissioner Jason Brune sent a letter to the EPA in support of Alyeska's Petition for Rulemaking and Reconsideration.

5. **Committee Recommendation:** During their December 9, 2021 meeting, the Terminal Operations and Environmental Monitoring Committee took the following action:

- Recommend sending a letter to the EPA supporting Alyeska's appeal of the 2020 NESHAP-OLD Air Quality Rule

In early January, 2022, the TOEM Committee reviewed the final draft of the report from John Beath Environmental and recommends Board acceptance.

6. **Relationship to LRP and Budget:** Project 5057 is in the approved FY2022 budget and annual work plan.

5057--APSC Appeal of EPA Air Quality Rule	
As of December 10, 2021	
FY-2022 Budget	
Original	$60,000.00
Modifications	($14,950.00)
Revised Budget	$45,050.00
Actual and Commitments	
Actual Year-to-Date	$28,410.00
Commitments (Professional Services)	$10,790.00
Actual + Commitments	$39,200.00
Amount Remaining	$5,850.00

7. **Action Requested of the Board of Directors:**

- Accept the report "2020 Updates to 40 CFR 63, Subpart EEEE – National Emissions Standards for Hazardous Air Pollutants for Organic Liquids Distribution (Non-Gasoline): A Review of the Appeal by Alyeska Pipeline Service Company" by John Beath Environmental as meeting the terms and conditions of contract number 5057.21.01, and for distribution to the public.
- Have Council staff prepare and send a letter to the EPA supporting Alyeska's appeal of the 2020 NESHAP-OLD Air Quality Rule.

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Report Acceptance and Position on EPA NESHAP-OLD Air Quality Rule 4-3

8. **Alternatives:**

- Do not accept the report or accept the report with recommended revisions.
- Do not send the letter or send it with recommended revisions.

9. **Attachments:** Draft report by John Beath Environmental titled "2020 Updates to 40 CFR 63, Subpart EEEE – National Emissions Standards for Hazardous Air Pollutants for Organic Liquids Distribution (Non-Gasoline): A Review of the Appeal by Alyeska Pipeline Service Company."

2020 Updates to 40 CFR 63, Subpart EEEE - *National Emissions Standards for Hazardous Air Pollutants for Organic Liquids Distribution (Non-Gasoline)*

A Review of the Appeal by Alyeska Pipeline Service Company

Prepared by John Beath Environmental, LLC

Prepared for Prince William Sound Regional Citizens' Advisory Council, Contract # 5057.21.01

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January 13, 2022

Prince William Sound Regional Citizens' Advisory Council

2020 Updates to 40 CFR 63, Subpart EEEE - *National Emissions Standards for Hazardous Air Pollutants for Organic Liquids Distribution (Non-Gasoline):* A Review of the Motion to Stay by Alyeska Pipeline's Valdez Marine Terminal

January 2022

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List of Abbreviations

ACC	American Chemistry Council
AFPM	American Fuel & Petrochemical Manufacturers
Alyeska	Alyeska Pipeline Service Company
API	American Petroleum Institute
bbl	Barrel
bpd	Barrels per Day
CAA	Clean Air Act
CCAT	California Communities Against Toxics
CFR	Code of Federal Regulations
D.C.	District of Columba
EPA	Environmental Protection Agency
ESL	Effects Screening Level
EU	Emissions Unit
FR	Federal Register
FRT	Fixed Roof Tank
ft	Foot
g	Gram
HAP	Hazardous Air Pollutant
hr	Hour
IFR	Internal Floating Roof
JBE	John Beath Environmental
lb	Pound
m	Meter
m^3	Cubic Meter
MACT	Maximum Achievable Control Technology
MMbbl	Million Barrels
MMBTU	Million British Thermal Units
NAAQS	National Ambient Air Quality Standards
NAICS	North American Industrial Classification System
NEI	National Emissions Inventory
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NSPS	New Source Performance Standards
OLD	Organic Liquids Distribution
OLD MACT	40 CFR 98 Subpart EEEE - NESHAP: Organic Liquids Distribution (Non-Gasoline)
OHAP	Organic Hazardous Air Pollutant
PI	Piping Instrumentation
PIANO	Paraffins, Iso-paraffins, Aromatics, Naphthenes, and Olefins (laboratory characterization)
ppmv	Parts by Million by Volume
PRD	Pressure Relief Device
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
PWSRCAC	Prince William Sounds Regional Citizens' Advisory Council
SIP	State Implementation Plan
SSM	Startup, Shutdown, and Malfunction

List of Abbreviations Continued

TAPS	Trans Alaska Pipeline System
TBP	Tank Bottoms Processing
TCEQ	Texas Commission on Environmental Quality
TD	Toxicology Division
tpy	Tons per Year
µm	Micrometer
USD	United States Dollar
VMT	Valdez Marine Terminal
VOC	Volatile Organic Compound
VRU	Vapor Recovery Unit
wt%	Weight Percent
yr	Year

ABSTRACT

John Beath Environmental, LLC, an environmental consulting company with significant experience in compliance programs associated with controlling air emissions from petroleum storage tanks, conducted a technical review of representations made by Alyeska Pipeline Services Company (Alyeska) in its public correspondence with the United States Environmental Protection Agency (EPA) related to the 2020 finalized amendments to Title 40 to the Code of Federal Regulations (CFR), Part 63, Subpart EEEE - *National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline) (also referred to as the OLD MACT)*. Alyeska's position is that the updates to the OLD MACT would negatively impact operations at its Valdez Marine Terminal (VMT) - resulting in an inappropriate capital expenditure; and that existing operations without these changes pose an acceptable risk to the health of the potentially impacted population living in the vicinity of the terminal.

Overall, the review concluded that existing controls are sufficiently protective for potentially impacted residents nearby, and as such, the change to alternative tank controls potentially required by the changes to the EPA regulation would be less protective (resulting in more emission), and also would be unacceptable in the cost required to implement it.

The review was conducted by developing an independent air emissions inventory for the terminal to assess the emissions of volatile organic compounds (including that subset of the emissions that have been designated by EPA as hazardous air pollutants) from operations as they are today (without additional controls); and also the emissions that would be estimated if the controls required by the new regulatory provisions were to be implemented. That review concluded that the conversion of the existing configuration (fixed roof crude oil storage tanks routing to vapor collection during normal operations and safety pressure relief venting to atmosphere) to a configuration where the tanks were retrofitted with internal floating roof tanks and no vapor collection would actually increase emissions.

To further assess the impacts from current operations, the review also used emissions estimates for all the site activities quantified in the facilities emissions inventory and associated air permitting to conduct a health effects screening analysis by using dispersion modeling tools and leveraging related EPA health effects work related to storage tank emissions elsewhere. Results of that comparison to screening thresholds supported a judgement that emissions from the VMT's current configuration result in acceptable concentration levels in areas where nearby residents live.

Finally, to assess whether the current regulatory provisions applicable to site operations reflected the best practices specified across the oil and gas sector, a review was conducted of work practices related to tank operations that are under active discussion between Alyeska and EPA. These provisions are similar to those recently imposed by EPA for various other industry sectors (e.g., refineries and ethylene plants). That review concurred with EPA that it would be appropriate to add work practices that describe required vapor control during tank degassing and cleaning.

EXECUTIVE SUMMARY

At the request of the Prince William Sound Regional Citizens' Advisory Council (PWSRCAC), this report was developed by John Beath Environmental, LLC (JBE), with the objective to independently and fairly verify Alyeska Pipeline Service Company's (Alyeska) claims related to health and safety, technical feasibility, and economic feasibility presented in its public correspondence with the United States Environmental Protection Agency (EPA) related to the 2020 finalized amendments to Title 40 to the Code of Federal Regulations (CFR), Part 63, Subpart EEEE - *National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline)*.

40 CFR 63, Subpart EEEE, also referred to as the OLD MACT, establishes national emission limitations, operating limits, and work practice standards for organic hazardous air pollutants (OHAPs) emitted from non-gasoline organic liquids distribution operations at major sources of hazardous air pollutant (HAP) emissions.

EPA has required various forms of air emissions control for sources of higher vapor pressure volatile organic compounds (VOCs) from oil-related substances for decades. These controls have been in two basic forms: (1) vapor recovery; and (2) vapor suppression. Vapor suppression techniques for storage tanks have always included two forms of floating roof covers: one that is referred to as external because emissions that pass through it go directly to the atmosphere; and a second variant approach that adds a fixed roof cover to the tank above the internal floating roof.

For low vapor pressure organic liquids (such as diesel, fuel oil, and kerosene) industry practice has been to provide a fixed-roof tank where breathing losses are controlled using a pressure relief vent (called a conservation vent) that is designed to open if the tank pressure rises a small amount - to avoid potentially damaging a tank not designed to be a pressure vessel. If a higher vapor pressure material must be stored in that tank, a common solution to control the vapors has been to add a vapor collection system and then to treat or combust the collected vapors in a separate vapor handling system.

In order to store crude oil, Alyeska's Valdez Marine Terminal (VMT) has added a complex version of vapor control. The system collects vapors from tank overpressure directly and also collects vapors where tank pressure is falling; the system is supplemented with a source of "blanket" gas to offset vapors leaving the tank. This blanketing operation is necessary to avoid the possibility of damaging the tank (via a cave-in) due to vacuum forces during pressure loss. But because it is possible for the under-pressure and over-pressure vapor collection systems to react too slowly or ineffectively for short periods of time, the conservation vents are capable of releasing overpressure to the atmosphere as an additional safety layer of protection. Figure ES-1 depicts one of the 14 crude oil storage tanks at the VMT.

The need to control VOCs results from a combination of concerns for the environment and nearby potential receptors (those who could be impacted by the emission). Emissions of VOCs contribute to the formation of ozone that can produce general health effects. But more significant in the potential risk is exposure to specific HAPs that are part of the emitted VOC mixture that can produce toxic effects. In formulating the Subpart EEEE regulation, EPA chose to target a small subset of HAPs referred to as OHAPs that are known to be present in certain organic liquid petroleum products such as crude oil.

The March 12, 2020, finalized amendments included the following key changes:

- Clarification that the rule standards are applicable during periods of startup, shutdown, and malfunction;
- Requirement to electronically report performance test results;
- Addition of new operational requirements for flares used as control devices;
- Addition of new provisions for bypass authorizations;
- Removal of an exemption for pressure relief devices; and
- Adoption of a work practice standard for tank degassing.

Alyeska is challenging three parts of the rule that apply to operations at the VMT as summarized in Figure ES-2.

Figure ES-1. Crude Oil Storage Tank at the Valdez Marine Terminal

Figure ES-2. Summary of Challenges by Alyeska to EPA Pertaining to the 2020 Updates to the OLD MACT

	"Safety Device Exemption" Repeal	Bypass Provision	"Tank Degassing" Standards
Definition:	The "Safety Device Exemption" repeal refers to the addition of the language in bold to 40 CFR §63.2346(i): *Safety device. Opening of a safety device is allowed at any time that it is required to avoid unsafe operating conditions.* ***Beginning no later than July 7, 2023, this paragraph no longer applies.***	The "bypass provision" prohibits operators from filling storage tanks during periods when pollution controls are bypassed, such as during planned maintenance.	Tank "degassing" refers to the process of removing organic gases from a stationary tank or pipeline.
The Challenge:	Alyeska challenged this provision on safety, engineering, and economic feasibility as well as laid the claim the current configuration at VMT already achieves the level of HAP control the 2020 OLD MACT seeks to regulate.	Alyeska challenged this provision to the finalized rule because Alyeska was unable to provide comment on the adequacy of the bypass allowances included in sections 40 CFR §63.2378(e)(3) and (4) because these provisions were absent in the Proposed Rule but added in the finalized version.	In the 2020 finalized rule, EPA adopted a new work practice standard for degassing tanks but excluded tanks with capacities greater than 50,000 barrels. As the crude oil storage tanks at VMT are greater than 50,000 barrels, Alyeska challenged the work practice standard.
Proposed Resolution:	Alyeska has proposed work practice standards for open venting to atmosphere	Alyeska has proposed work practice standards to comply with the bypass provisions	Alyeska proposed amendments to 40 CFR §63.2346(a)(6) and Tables 2/2b to include VMT-size crude storage tanks within the new work practice standard.

The main objectives of this project are twofold. First, this report seeks to document and, where possible, validate each of Alyeska's claims related to health and safety, technical feasibility, and economic feasibility presented in its public correspondence with EPA related to the 2020 updates to the OLD MACT. Second, the report seeks to document how the implementation of the 2020 OLD MACT would influence the emittance of HAPs from the VMT. Each step within this process is outlined below with a summary of results and key findings.

Independent Evaluation of HAP Air Releases from the VMT

In order to confirm that overall impacts from site operations were acceptable, JBE elected to independently quantify HAP emissions based on the current VMT configuration. Calculated sources from the VMT include the following:

- Crude oil storage tanks routed to vapor recovery system
- Crude oil storage tank conservation vents, venting to atmosphere
- Power boilers
- Waste gas combustors
- Stationary reciprocating internal combustion engines
- Tank Bottoms Processing (TBP) system
- Marine loading
- Fugitives from equipment leaks

Table ES-1 provides an emissions comparison of the JBE calculated HAP estimate for the sources noted above and those sources as represented in VMT's 2016 Title V Air Permit Renewal Application. Table ES-2 provides a further breakdown of emissions from the crude oil storage tanks.

Table ES-1. HAP Emissions Summary for Permitted Sources at VMT

Emission Source	HAP Emissions, VMT 2016 Permit Application[1] (tpy)	HAP Emissions JBE Calculation (tpy)	Notes
Boilers/Waste Gas Combustors 1-6	5.9	3.1	During normal operations, the crude oil storage tanks route here
Generators/Engines 8A-15	0.0	0.0	Negligible
Loading	10.9	12.2	Uncontrolled maintenance allowance
Fugitives	0.4	0.1	
Tank Bottoms Processing System	0.5	0.3	
Tank Conservation Vents	n/a	0.1	
Total	**17.7**	**15.8**	

ES-2. VOC and HAP Emissions from Crude Oil, Fixed Roof Storage Tanks

Fixed Roof Crude Oil Storage Tanks, Pressure Rise Method Vent Calculation Method 2				
Parameter	JBE Calculation		Alyeska Claim in Motion to Stay	
	VOC Annual Emissions	HAP Annual Emissions	VOC Annual Emissions	HAP Annual Emissions
	(tpy)	(tpy)	(tpy)	(tpy)
Emissions from Tanks at Vapor Recovery	31.24	0.46	n/a	n/a
Emissions from Conservation Venting to Atmosphere	5.74	0.09	49.32	1.97
Emissions Total:	**36.98**	**0.55**	**49.32**	**1.97**

Key Takeaways on "As Configured" Emission of HAP

- Alyeska representations are appropriate and conservative in the representation of HAP emissions from the VMT.
- Based on JBE's emission calculations, HAPs emitted from the conservation vents are approximately 0.1 tons per year (tpy) and in a typical year likely less than what was represented by Alyeska in the Petition for Rulemaking, Reconsideration, and Stay.
- Alyeska and JBE's estimation of HAPs varies due to the difference in crude speciation and in the method used to calculate emissions from storage tanks.

[1] Title V Air Permit Renewal Application dated July 14, 2016, Permit Number AQ0082TVP02.

Health Risk Evaluation

To evaluate the health risks to residents of Valdez, Alaska, and surrounding communities posed by uncontrolled releases of HAPs from the conservation vents and the other residual sources of emissions at the VMT, the site-wide emission totals by HAP of concern (i.e., benzene, n-hexane) were used as a data input to EPA's SCREEN3. SCREEN3 is a simplified air emissions dispersion model developed to estimate the airborne concentrations of specified chemical constituents at user-specified distances downwind of the point of origin of emissions sources. Complex air dispersion models that provide more accurate estimates have been developed for this purpose, but these require a significant amount of site-specific data to be collected. Complex terrain that includes buildings, hills, etc., can make predicting the downwind dispersion pattern more complicated and lead to the need for a more complex model; but in this case, the downwind pathway is over water, so this capability is less important. The simpler (and conservative) models like EPA SCREEN3 utilize a simple dispersion pattern that spreads out uniformly with distance called a Gaussian plume model. This approach is more conservative (and therefore predicts higher concentrations) because it gives only very limited decreases in concentration for terrain deflection. SCREEN3 uses preset meteorological data and site emission rates to predict worst-case concentrations at specified points downwind.

A screening modeling approach that demonstrates acceptable impacts can be the end of analysis; but if the screening thresholds are exceeded using the screen model, it is common practice to follow-up with a more complex model to refine the results. As described below, the use of a complex model was not deemed necessary in this situation.

JBE elected to evaluate benzene concentrations because the limits for benzene are the most stringent of all the HAPs of interest at VMT. Two cases for benzene were run: (1) a sitewide benzene evaluation; and (2) tank conservation vents alone as a way to evaluate the conservation vent emission contribution as part of the total sitewide emissions. SCREEN3 output results as well as short and long-term Effects Screening Level (ESL) benchmark values are provided in Table ES-3.

The maximum 1-hour concentration of 6.8 microgram per cubic meter ($\mu g/m^3$) occurs at approximately 1,304 meters (m) from VMT's property line; with a dominant wind direction coming from the south, this places the maximum concentration over the water. At 5,000 m, which is the approximate shoreline of the city of Valdez, the benzene concentration is well below both the short-term and long-term ESL value of 4.5 $\mu g/m^3$ and 170 $\mu g/m^3$, respectively.[2]

[2] ESL values based on those established by The Texas Commission on Environmental Quality (TCEQ) Toxicology Division (TD).

ES-3. SCREEN3 Output Results for Benzene Emitted from VMT

Parameter	Sitewide Benzene	Benzene from Tank Conservation Vents Only	Units
Distance for maximum 1 hr Concentration	1304	709	m
Maximum 1 hr Concentration	6.8	0.03	µg/m^3
Concentration at 1000 m	6.5	0.03	µg/m^3
Concentration at 5000 m	1.8	0.02	µg/m^3
Concentration at 10000 m	1.2	0.01	µg/m^3
Benchmark Values:			
Short-Term ESL Health, Benzene		170	µg/m^3
Long-Term ESL Health, Benzene		4.5	µg/m^3

As a second health effects evaluation methodology, JBE sought to use modeling performed by others. Since no modeling by Alyeska was made available, non-site-specific EPA modeling efforts were considered to see if they could be adapted. EPA performed dispersion modeling for emissions from terminals potentially impacted by the OLD MACT, but VMT was not modeled because there were no values in the 2004 National Emissions Inventory (NEI) source data for it. As a suitable benchmark, the emission modeling performed for the refinery sector rule for crude oil storage tanks was consulted. In 2015, EPA released its complex hazard evaluation and established "allowable" emissions for specific HAPs emitted from crude oil storage tanks at refineries based on its average refinery case. This analysis was performed on storage tanks specifically and it coupled tank throughput with HAPs weight percent in crude oil to estimate emissions of HAPs.

JBE used its tank emissions data and these factors to form a comparison between actual estimated VMT crude oil tank emissions and the "allowable levels." Two sets of calculations were performed for benzene and hexane, one using the HAPs weight percentages from the assay JBE obtained for this review and another using the crude oil HAPs weight percentages EPA developed for its average crude oil. This second calculation was performed as a sensitivity case because it had higher weight percentages than the assay value.

Both the benzene and hexane analyses had estimated emissions well below the "allowable" level. These results, taken with the SCREEN3 dispersion modeling, support the position that a further reduction in HAPs emissions via additional control is not necessary for the VMT.

Alternative Design Assessment

Each critical claim related to safety, environmental, engineering, and economic considerations presented by Alyeska in reference to reconfiguring the existing crude oil tank farm to comply with the 2020 OLD MACT were evaluated. The claims related to control of the storage tank emissions are provided in Section 4 of the report.

The current configuration for controls used to limit emissions from the storage tanks at the terminal consists of a vapor collection system designed to collect vapors resulting from tank blanketing and operational pressure rise (e.g., as a result of vapor displacement or temperature rise) and route them to treatment or combustion equipment. This system also includes a set of conservation vents for each tank sized to prevent overpressure or vacuum inside the tank in the event of a failure by the vapor collection system to keep pressure in balance. For safety reasons, these safety vents relieve excess pressure (and associated vapors) to the atmosphere. Changes to the OLD MACT standards would require additional control of these conservation vent vapors or the replacement of the vapor collection system with another control method. Other allowed control methods would be the use of an external floating roof or the use of that floating roof inside a tank with a fixed cover (e.g., as the tanks are configured now).

Overall, each claim related to safety, environmental, and engineering were completely validated or partially validated by JBE's independent analysis.

Comparative Analysis Evaluating VMT HAP Emissions "As Configured" versus 2020 OLD MACT Implementation

HAP emissions from the crude oil, fixed roof storage tanks controlled by vapor recovery were calculated, inclusive of emissions from the tank conservation vents, venting to atmosphere. This calculation represents the VMT "as configured."

Next, HAP emissions from the crude oil storage tanks were calculated with the scenario that the tanks were converted from fixed roof to internal floating roof where no conservation venting occurs. This scenario represents VMT compliance with the 2020 OLD MACT standards.

Using vent calculation method, modeled as an uncontrolled storage tank, the VMT "as configured" emits 36% less HAPs than if the tank farm were retrofitted with internal floating roof tanks. Thus, the VMT "as configured" achieves greater HAP reduction than if it were reconfigured to comply with the March 12, 2020, finalized version of the 2020 OLD MACT.

Title V Air Permit Review

VMT's Title V Air Permit was reviewed to evaluate the level of regulatory obligation to manage releases of HAPs from the conservation vents, controls during planned maintenance, and work practices for emptying and degassing storage tanks. Based on a review of the current Title V and process knowledge, the VMT has strong work practice standards and operational restrictions in place to limit HAP emissions and ensure the environmental safety of plant personnel and the surrounding communities, such as Valdez, from the site.

To further enhance the control of HAPs from the VMT, the additional practices outlined below could be considered, noting the extent to which these practices are already in place (though not required by the Title V) is not known by JBE.

Consideration of additional practices:

- Root cause and corrective action analyses after release events to atmosphere

- Use of redundant prevention measures to minimize venting to atmosphere
- Election to vent to atmosphere only during a predetermined set of hours, on an annual basis
- Establish and permit elective work practice standards pertaining to the emptying and degassing of storage tanks
- Strongly consider routing to a control device or fuel gas system during degassing

The work practice standards proposed by Alyeska to EPA as an alternative compliance measure under the 2020 OLD MACT should incorporate the recommendations above in order to align VMT practices with industry best practices.

Considerations for Future Research

The Title V Air Permit calculation for the uncontrolled tanker loading maintenance allowance is of note. The calculation is provided in the 2016 Title V Air Permit Renewal Application and shows the PTE of 388 tpy VOC and 10.9 tpy HAPs. It is unclear the number of maintenance events per year and the duration of each event. Without this additional information, the short-term emission of HAPs resulting from these activities is unknown. As the emission of HAPs is elevated during this scenario, future research into the hourly emission rate of HAPs and the corresponding emissions-related impacts on the Valdez community during maintenance could be warranted.

Conclusions

Based on a comprehensive review of each principal claim presented in Alyeska's public correspondence with EPA related to the 2020 updates to the OLD MACT, the findings of JBE's analysis conclude that Alyeska presented information in a conservative and appropriate manner. Alyeska's actions to negotiate reasonable and practical work practice standards pertaining to conservation venting and tank degassing, based on their representations are, therefore, considered well-founded. JBE's review sought to determine if operations at the VMT "as configured" pose an acceptable health effects impact risk to the community of Valdez compared to compliance with the 2020 updated OLD MACT as written as of March 12, 2020. This conclusion was based on the application of two independent screening evaluation methods.

1.0 INTRODUCTION

On July 7, 2020, the United States Environmental Protection Agency (EPA) finalized modifications to its direct final rule that was originally issued on April 23, 2008, and subsequently withdrawn on July 17, 2008. (Title 40 to the Code of Federal Regulations (CFR), Part 63, Subpart EEEE - *National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline)*.[3] The finalized revisions affect the current air toxics Organic Liquids Distribution (OLD) standards that are in place for hazardous air pollutants (HAPs) emitted by the storage and transfer of crude oil at the Alyeska Pipeline Service Company's (Alyeska) Valdez Marine Terminal (VMT). Based on the rule's modification to the safety device exemption, bypass provision, and work practice standards associated with tank degassing, Alyeska has objected to the rulemaking, arguing provisions of the rule would adversely affect the operation and maintenance of their facility and would not significantly improve local air quality. Alyeska challenged EPA's rulemaking in a September 3, 2020, Petition for Rulemaking, Reconsideration, and Stay to the 2020 finalized amendments to 40 CFR 63, Subpart EEEE.[4] Subsequently, Alyeska filed a series of appeals with the United States Court of Appeals in effort to stay certain provisions of the 2020 updated rule.[5] As of the date of this review document, Alyeska is in negotiations with EPA regarding alternative compliance measures.

This report was developed by John Beath Environmental, LLC (JBE), with the objective to independently and fairly verify Alyeska's claims related to health and safety, technical feasibility, and economic feasibility presented in its correspondence with EPA, including the September 2020 Petition for Rulemaking, Reconsideration, and Stay to the 2020 finalized amendments to 40 CFR 63, Subpart EEEE. The full rulemaking history is addressed in Sections 1.1 and 1.2.2 to this report.

1.1 Regulatory Background

The Clean Air Act (CAA), which was signed by President Nixon in 1970, established comprehensive federal law that regulates air emissions from stationary and mobile sources operating in the United States. The CAA was the first law of its kind to authorize the EPA to prescribe what are now known as national ambient air quality standards (NAAQS) to protect public health and to regulate emissions of criteria pollutants and HAPs; to use a state implementation plan (SIP) mechanism to implement the NAAQS; and to establish federal emission standards for emissions from selected classes of sources that are major contributors to air pollution.

From 1970 to 1990 several critical amendments were made to Sections 111 and 112 of the CAA which dictate New Source Performance Standards (NSPS) and National Emissions Standards for Hazardous Air Pollutants (NESHAP), respectively.

[3] 85 FR 40740 (July 7, 2020), https://www.govinfo.gov/content/pkg/FR-2020-07-07/pdf/2020-05900.pdf.

[4] Petition to Stay file on September 3, 2020, Pursuant to section 553(e) of the Administrative Procedure Act and section 307(d)(7)(B) of the Clean Air Act. Docket ID: EPA-HQ-OAR-2018-0074.

[5] October 7, 2020, Appeal documents: USCA Case #20-1342, Document #1865385.

In 1990, Section 112 of the CAA was amended to regulate technology-based standards for certain major sources and area sources. Under its provisions, a “major source” is described as stationary source or group of stationary sources that emit or has the potential to emit (PTE) 10 tons per year (tpy) or more of a single HAP or 25 tpy or more of a combination of HAPs.

The 1990 CAA Amendments listed 187 chemicals designated as HAPS based on EPA’s assertion that they cause or may cause cancer or other serious health effects concerns. This list expanded this specified HAPS category from the seven designated pollutants identified in the 1970 CAA (asbestos, beryllium, mercury, radionuclides, inorganic arsenic, benzene, and vinyl chloride). As a clarification, storage tanks containing organic liquids (including crude oil storage tanks) emit a wide variety of chemicals into the air that are collectively referred to as volatile organic compounds (VOCs). Certain of the HAPs designated by the CAA Amendments are commonly part of the collective VOCs emitted for organic liquid storage tanks (e.g., benzene, hexane, toluene, mixed xylenes, etc.).

The need to control VOCs results from a combination of concerns for the environment and nearby potential receptors (those who could be impacted by the emission). Emissions of VOCs contribute to the formation of ozone that can produce general health effects. But more significant in the potential risk is exposure to specific HAPs that are part of the emitted VOC mixture that can produce toxic effects.

Further, an "area source" is described as any stationary source that is not a major source. For applicable sources, Section 112 of the CAA requires that EPA establish emission standards that require the maximum degree of reduction in emissions of HAPs; these emission standards are commonly referred to as *Maximum Achievable Control Technology* (MACT) standards. The MACT standards are published in Title 40 to the Code of Federal Regulations Parts 61 and 63 (40 CFR 61 and 63) which are officially titled National Emission Standards for Hazardous Air Pollutants (NESHAPs).

The 1990 Amendments to the CAA also established a federally mandated operating permit program for major sources of criteria pollutants, referred to today as Title V. A facility’s Title V permit sets forth the emission limits for sources and certain source-specific compliance requirements. In addition, it provides a comprehensive listing of applicable regulations and operating limits that a facility must meet to maintain compliance with the CAA. A facility must apply to renew its operating permit every five years and once that has been accomplished, the existing permit remains in effect until the regulatory agency issues a renewed permit. As such the facility is currently subject to its previously issued permit.

The OLD MACT establishes national emission limitations, operating limits, and work practice standards for organic hazardous air pollutants (OHAPs) emitted from non-gasoline organic liquids distribution operations at major sources of HAP emissions, such as the VMT.

In formulating the Subpart EEEE regulation, EPA chose to target a small subset of HAPs referred to as OHAPs that are known to be present in certain organic liquid petroleum products such as crude oil.

The current version of the Subpart EEEE requirements includes:

- Clarification that rule standards are applicable during startup, shutdown, and malfunction;
- Requirement to electronically report performance test results;

- Addition of new operational requirements for flares used as control devices;
- Addition of new provisions for bypass authorizations;
- Removal of an exemption for pressure relief devices; and
- Adoption of a work practice standard for tank degassing.

1.2 Valdez Marine Terminal Background

Situated on 1,000 acres along the southern shore of Port Valdez, Alaska, the VMT is a critical link in the operation of one of the world's largest pipeline systems, the Trans Alaska Pipeline System (TAPS). TAPS has carried over 1.8 million barrels of oil per day in its peak years historically, but it averaged only 480,200 barrels per day in 2020.[6] The pipeline plays an essential role in supporting the United States energy supply and the local and statewide economies of Alaska. Since 1977, tankers at the VMT have loaded Alaska North Slope crude cargo for delivery to the lower United States and rest of the world. An overview of terminal layout and key operations are provided in Section 1.2.1.

A history of VMT in relation to Alyeska's legal challenge to the 2020 updates to the OLD MACT is presented in Section 1.2.2.

1.2.1 Site Layout and Characteristics

The VMT is situated within the Prince William Sound south of Port Valdez. The small community of Valdez, Alaska, has approximately 4,200 residents.[7] As shown in Figure 1, the terminal borders the shore of Port Valdez fjord on one side and steep mountains on the other. Given the site topography, severe climate, and extreme seismic activity, the VMT's design is unique, and truly, there is no other terminal of its kind operating in the United States.

The VMT marks the southern terminus of the TAPS which transports crude oil over 800 miles via pipeline from the Alaska North Slope to the VMT. The VMT is critical to ensuring the energy needs of not only Alaska, but also some of the lower 48 states. Crude oil received via TAPS is temporarily stored in storage tanks at the VMT before being loaded in marine tankers and transported to Alaska refineries, refineries located in the rest of the United States, and international markets. The crude storage capability is essential to ensure that problems with marine transport availability do not result a costly shutdown of North Slope operations.

Major operations at the VMT include 14 storage tanks with a working inventory of 6.6 million barrels of crude oil, a vapor recovery system to recovery storage tank vapors, two loading berths both equipped with vapor recovery arms, incoming tankers, ballast water treatment, thermal oxidation, and power

[6] Historic Throughput as reported by Alyeska Pipeline: https://www.alyeska-pipe.com/historic-throughput/.

[7] Population of Port of Valdez: https://www.valdezalaska.org/discover/history/.

generation and its associated boilers. Figure 2 provides a site layout with key operations labeled.

The finalized version of EPA's Subpart EEEE requirements covers required controls for emissions from loading operations, leaks from piping arrangements, and storage tanks in crude oil service at the terminal. This reviewed focused mainly on tank emissions because only those newly revised provisions are an area of active dispute.

Figure 1. Valdez Marine Terminal, Valdez, Alaska

Photo Credit: Alyeska Pipeline Services Company

Figure 2. Valdez Marine Terminal Site Layout

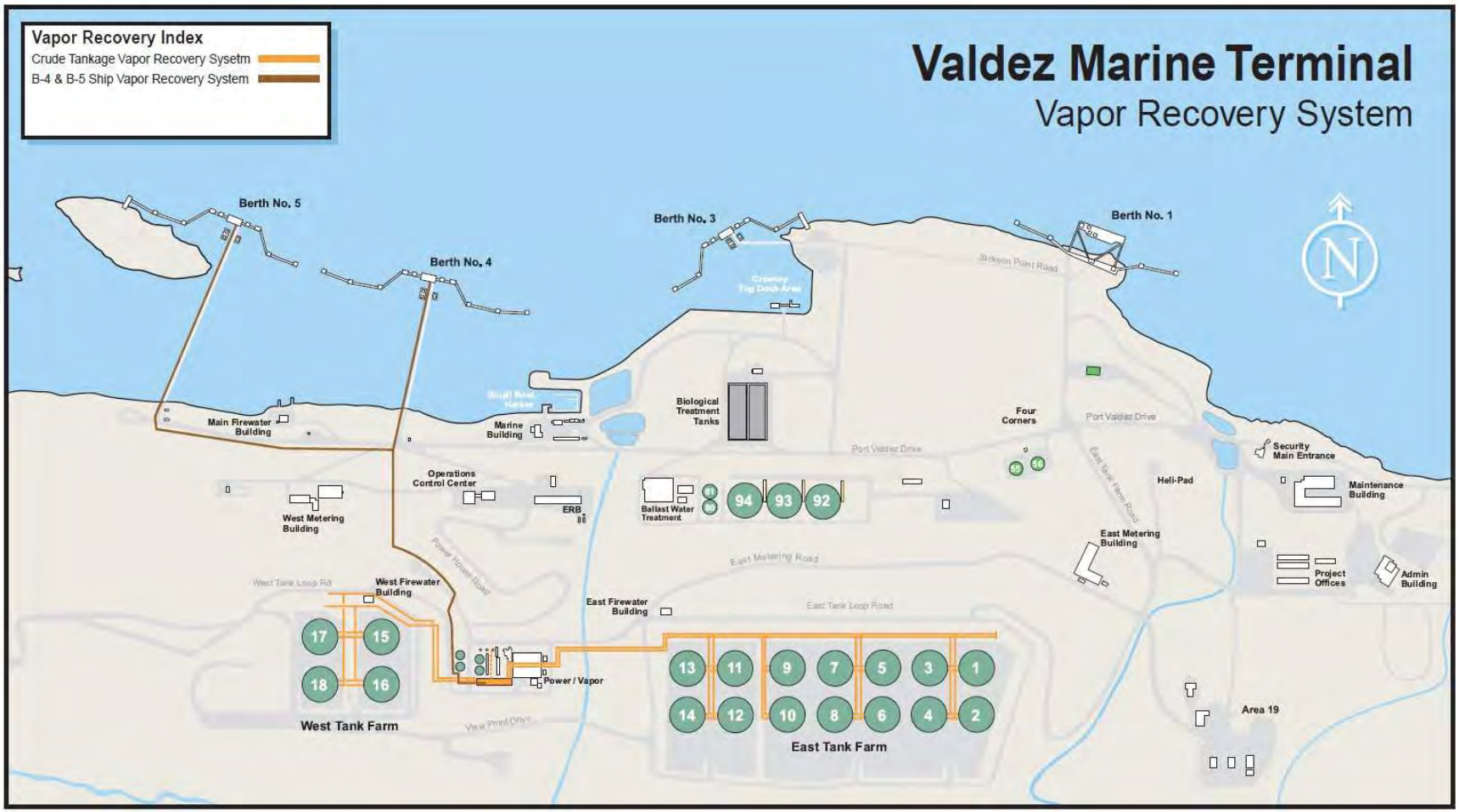


Photo credit: Alyeska Pipeline Service Company

1.2.2 Motion to Stay History

To date, Alyeska has taken two legal actions to challenge parts of EPA's 2020 updates to the OLD MACT. Alyeska's first appeal occurred on September 3, 2020, with Alyeska filing an administrative action with EPA called a "Petition for Rulemaking, Reconsideration, and Stay" asking EPA to stay portions of the updated rule.

Alyeska's second action was to file a challenge to the U.S. Circuit Court of Appeals for the District of Columba (D.C. Circuit), which is empowered by the CAA to decide challenges to federal air regulations. More specifically, Alyeska filed its Petition for Review in the D.C. Circuit on September 8, 2020. On September 9, 2020, Alyeska's petition was consolidated with the Petition of the American Fuel & Petrochemical Manufacturers (AFPM), American Petroleum Institute (API), and American Chemistry Council (ACC) and the Petition from California Communities Against Toxics (CCAT), Coalition for a Safe Environment, and Sierra Club. On October 7, 2020, Alyeska filed a motion with the D.C. Circuit to stay the rule while the case is being heard. Ultimately, the D.C. Circuit ruled to move to hold the case in abeyance until at least April 12, 2021, to allow for discussion and consideration of the petitions for administrative reconsideration filed with EPA by the Petitioners. This ruling exclusively stayed only the portions to the rule challenged by Alyeska. As of the date of this report, Alyeska and EPA are in active negotiations, under the EPA's reconsideration process.

Alyeska is challenging three parts of the rule that apply to operations at VMT as summarized below.

1. **"Safety Device Exemption" Repeal:** Alyeska has challenged the repeal of the "safety device exemption" that allows facilities to open vents, or other pressure relief devices, at any time that it is required to avoid unsafe operating conditions. Alyeska argues the conservation vents installed on its crude oil storage tanks need to have the option to open and vent to atmosphere when the tank pressure reaches the set point of the conservation vents; this function is critical to the physical safety of site personnel and ensures the structural integrity of the tank(s). In the September 3, 2020, Petition for Rulemaking, Reconsideration, and Stay, Alyeska requested that EPA establish a work practice standard allowing for use of the conservation vents during system upsets that require venting of the tanks to maintain safe pressures inside, in lieu of repealing the "safety device exemption." On December 15, 2020, EPA granted Alyeska's request for reconsideration, meaning EPA will consider alternative work practice standards for the VMT.

2. **"Bypass Provision":** The "bypass provision" that prohibits operators from filling storage tanks during periods when pollution controls are bypassed, such as during planned maintenance, were absent from the Proposed Rule. Alyeska challenged this provision to the finalized rule because Alyeska was unable to provide comment on the adequacy of the bypass allowances included in sections 40 CFR §63.2378(e)(3) and (4) because these provisions were absent in the Proposed Rule but added in the finalized version. Alyeska has proposed work practice standards to comply with the bypass provisions. [8]

[8] The final EPA rule kept the 240-hour bypass allowance but added a requirement that the tanks not be filled during the event. EPA stated that this was necessary because of the Sierra Club decision.

3. **"Tank Degassing Standards":** Tank "degassing" refers to the process of removing organic gases from a stationary tank or pipeline. The original 2004 OLD MACT did not include work practice standards for degassing as these practices occurred under Startup, Shutdown, and Malfunction (SSM) periods which were excluded. In the 2020 finalized rule, EPA adopted a new work practice standard for degassing tanks but excluded tanks with capacities greater than 50,000 barrels. As the crude oil storage tanks at VMT are greater than 50,000 barrels, Alyeska challenged the work practice standard requesting that the work practice standards be incorporated for tanks greater than 50,000 barrels [provisions codified in 40 CFR §63.2346(a)(6) in an attempt to extend the recommended work practices to larger storage tanks so as to provide a clear and practical set of requirements].

Figure 3 provides a summary of important dates related to Alyeska's rule challenge.

Figure 3. Alyeska's Legal Challenge to the 2020 OLD MACT - Timeline of Significant Events

1.3 Project Objectives and Scope

The main objectives of this project are to: (1) independently verify Alyeska's claims related to health and safety, technical feasibility, and economic feasibility presented in its public correspondence with EPA related to the 2020 updates to the OLD MACT; and (2) evaluate how the implementation of the 2020 OLD MACT would influence the emittance of HAPs from the VMT. The scope of work performed is summarized below with an indication as to what report sections cover these various issues.

- Independent Evaluation of HAP Air Releases from the VMT: HAP emissions from the vapor recovery system, storage tank conservation vents, and other sources not covered by the OLD MACT were quantified and compared to those values represented by Alyeska in the Petition for Rulemaking, Reconsideration, and Stay. JBE elected to perform this analysis in order to confirm that overall impacts from site operations were acceptable. The methodology used to estimate HAPs emitted from the VMT, calculation results, and value comparisons are provided in Section 2. Detailed calculations are presented in Appendices A through E.

- Comparative Analysis Evaluating VMT HAP Emissions "As Configured" versus 2020 OLD MACT Implementation: HAP emissions from the fourteen-crude oil, fixed roof storage tanks controlled by vapor recovery were calculated, inclusive of emissions from the tank conservation vents (modeled as an uncontrolled tank since the emissions from the vents are released to the atmosphere). Modeling controlled emissions merely means that the uncontrolled emissions are reduced by a control efficiency (a percentage such as 98% for a flare). Uncontrolled emissions are not reduced by a percentage since there is no treatment or combustion downstream of their release point. This calculation represents the VMT "as configured."

  Next, HAP emissions from the fourteen-crude oil storage tanks were calculated with the scenario that the tanks were converted from fixed roof to internal floating roof where no conservation venting occurs. This scenario represents VMT compliance with the 2020 OLD MACT standards. The results of this comparative analysis are presented in Section 4.2. Detailed calculations are presented in Appendices B and C.

- Health Risk Evaluation: The health risks to residents of Valdez, Alaska, posed by the uncontrolled releases of HAPs from the conservation vents and residual uncontrolled sources at the VMT, not addressed by the OLD MACT were evaluated. HAP releases from VMT were modeled using EPA's SCREEN3 Model. The health evaluation is presented in Section 3 with calculations presented in Appendix E and EPA SCREEN3 Model Outputs provided in Appendix F.

- Alternative Design Assessment: The safety, environmental, engineering, and economic considerations presented by Alyeska in reference to reconfiguring the existing crude oil tank farm to comply with the 2020 OLD MACT were evaluated. The detailed assessment is provided in Section 4.

- Title V Air Permit Review: VMT's Title V Air Permit was reviewed to evaluate the level of regulatory obligation to manage releases of HAPs from the conservation vents, controls during planned maintenance, and work practices for emptying and degassing storage tanks. The Title V review is presented in Section 5.

Table 1. VMT Equipment-Level Subjectivity to the OLD MACT

EU IDs, Title V	Emission Unit Description	Subject to OLD MACT?
1-3	Power Boilers (3)	Yes
4-6	Waste Gas Combustors (3)	Yes
29-42	Crude Tanks (14)	Yes
43-46	West Tank Farm Tanks (4)	Yes
UI-45	Crude Tank VRU Piping Fugitives	Yes
8A, 9A	Emergency Generators (2)	No
10-16	Firewater Pumps	No
17	Soil Vapor Extraction	No
18-28	Tank Bottom Processing Equipment	No
47-48	Berths 1, 3	No
49-50	Berths 4, 5	No
57	Recovered Treatment Crude Oil Tank	No
59-61	Ballast Water Treatment Tanks (3)	No
62-74	Wastewater Treatment System	No
75-80	Air Stripping System	No
UI-1,2,46	Boilers (3)	No
UI-3 - 14	Heaters (12)	No
UI-20 – 36, I-21	Diesel Tanks (18)	No
UI-37	Gasoline Tank	No
UI-38- 41	Used Oil Tanks (4)	No
UI-42 – 43	Propane Tanks (2)	No
UI-44	Ballast Water Treatment Sludge Tank	No

2.0 EVALUATION OF HAZARDOUS AIR POLLUTANTS FROM VALDEZ MARINE TERMINAL

The evaluation of HAP emissions from the VMT included the quantification of emissions related to Alyeska's rule challenges – emissions from the crude oil tank farm (routes to vapor recovery) and crude oil storage tank conservation venting to atmosphere. Additionally, emissions from key emitters of HAPs were calculated. This includes the following: the power boilers (EU IDs 1 – 3), waste gas combustors (EU IDs 4 – 6), stationary reciprocating internal combustion engines (EU IDs 8A – 15), the Tank Bottoms Processing (TBP) system, marine loading, and leaks from piping components referred to as "fugitives."

The term "fugitives" is short for fugitive emissions, the technical description given by EPA to leakage that happens continuously from various piping components such as valves, flanges, pumps, and compressors. Extensive study work by EPA developed estimates for the very slow leakage from seals used to control these leaks. Taken individually these emissions would be insignificant, but because of the number of components that are associated with major equipment like storage tanks, the sum of these emissions is an important part of the emissions inventory.

Other units and equipment with trace emissions of HAPs too small to be regulated by the facility air permit, as well as the wastewater treatment system (for which no configuration information was available) were not quantified. Additionally, emissions associated with tank cleaning (e.g., tank de-pressuring, liquid removal, and sludge removal) were not calculated.

Emissions were calculated in order to assess the following:

- Level of HAP control with VMT's current configuration
- Level of HAP control under alternative design scenario to meet the 2020 OLD MACT
- Site-wide emission rate of HAPs
- Benchmarking of VMT HAP emission rate compared to EPA health screening criteria for individual HAPs

2.1 Emissions from the Crude Oil Storage Tank Farm Including Conservation Venting

JBE used the latest equations EPA specifies for use in estimating emissions from the 14 crude oil storage tanks which route to a vapor collection system during normal operations and that have the potential to vent to atmosphere for safety purposes during unplanned events (e.g., power outages).

The proceeding sections outline the calculation methods used and provide an emissions summary. Detailed emission calculations and supporting data for VMT's current tank configuration are provided in Appendices A, B, and D.

Step 1 – Determine VOC Emissions from the Crude Oil, Fixed Roof Storage Tanks Including Venting

First emissions of VOC were calculated for the 14 fixed roof storage tanks that store crude oil. The methodology used is contained in a JBE custom workbook that follows EPA's most recent guidance for the equations and associated factors found in AP-42 Chapter 7: Organic Liquid Storage Tanks, dated June 2020.[9] This JBE tool has been subjected to benchmarking with other commercially available tools developed by other consultants. In addition, the majority of this JBE tool was reviewed by the Argonne National Laboratory prior to being adopted as part of its transportation fuels emissions modeling tool set.[10]

Note, the Title V Air Permit applications for the VMT appear to have relied on EPA's Tanks 4.09d software which is no longer supported or recommended for use by EPA.

EPA has stated:

> "*The TANKS model was developed using a software that is now outdated. Because of this, the model is not reliably functional on computers using certain operating systems such as Windows Vista or Windows 7. We are anticipating that additional problems will arise as PCs switch to the other operating systems. Therefore, we can no longer provide assistance to users of TANKs 4.09d. The model will remain on the website to be used at your discretion and at your own risk. We will continue to recommend the use of the equations/algorithms specified in AP-42 Chapter 7 for estimating VOC emissions from storage tanks. The equations specified in AP-42 Chapter 7 (https://www.epa.gov/ttn/chief/ap42/ch07/index.html) can be employed with many current spreadsheet/software programs.*"[11]

Based in part on differences in calculation methodology, the estimation of VOCs and HAPs from Alyeska's VMT air permit application and JBE's independent evaluation vary.

This situation is not unique to VMT. Permits with specific reference to TANKS 4.09d are still widespread across the U.S. Historically, Title V and other permits have referred to specific dates for guidance documents or other tools incorporated by reference. Where this is done, it introduces a problem when the guidance document is revised or the tool's use is abandoned by EPA as is the case here. If the emissions are estimated using an outdated method, they would potentially be less accurate. However, it may be unclear what would be the intention if on initial permit issue, the equipment was below a permit limit, but after an emission factor was revised in the updated guidance document, a permit exceedance could result.

Regardless of any permit limit ramifications, for the purposes of this review, the most accurate methods (usually the most recently developed ones) are clearly the best choice.

[9] AP-42 Chapter 7, June 2020 Final Revision: https://www.epa.gov/air-emissions-factors-and-quantification/final-revisions-ap-42-chapter-7-section-71-organic-liquid.

[10] https://greet.es.anl.gov/tool_rp_voc.

[11] EPA statement on use of Tanks 4.09d: https://www3.epa.gov/ttnchie1/software/tanks/.

The physical characteristics of the fixed roof storage tanks used in the tool were based on the following data sources:

1. September 3, 2020, Alyeska Petition for Rulemaking, Reconsideration, and Stay to the 2020 finalized amendments to 40 CFR 63, Subpart EEEE

2. July 14, 2016, Title V Air Permit Renewal Application to Permit Number AQ0082TVP02

3. 2020 Annual Point-Source Emissions Inventory[12]

The JBE tanks tool was also used to model open venting to the atmosphere by the conservation vents. The conservation vents were modeled as an uncontrolled storage tank. Venting times were based on the annual average vent time from 2005 to 2020 as provided in Table 1 - *Vapor Volume Capture Efficiency Compared to Uncontrolled Tank Venting* to Attachment 2 to the October 7, 2020, Motion to Stay filed in the D.C. Circuit. Using historic venting times, the average capture efficiency, and thus, the total average time the conservation vents were closed was 99.94%. This capture rate was used to estimate annual emissions from the vents – to represent a typical year.

Step 2 – Determine North Slope Crude Oil Characteristics

Once VOC emissions are determined, crude speciation is required in order to speciate HAPs. In order to use the equations specified by AP-42, the chemical compounds present in the mixture (in this case crude oil) must be comprehensively described. This is called "speciation" by the air pollution control community. The reason a comprehensive speciation is necessary is that molecules from each compound in crude oil compete for the vapor space above the liquid in a storage tank. This vapor space concentration profile is used directly in order to divide overall predicted emissions (volatile organic compounds) into the portion for each compound present in the vapor space. If the characterization used were to include HAPs alone, the contribution of lighter compounds (e.g., C3 to C5) would not be taken into account. The more of these lighter compounds, the less HAPs in the vapor space. Conversely, if these compounds are not portrayed accurately, the HAPs emissions would be overstated.

To speciate the contents of the 14 crude oil storage tanks at the VMT, a crude assay for Alaska North Slope crude was used. A copy of the assay used is provided in Appendix A to this report.[13] The crude oil speciation was taken from PIANO (paraffins, iso-paraffins, aromatics, naphthenes, olefins) test results. Where speciation was not reported by the PIANO test results (e.g., for lighter components), surrogate data based on datasets published by API (API 4723) were used. The vapor pressure of Alaska North Slope crude was estimated using a flash calculation tool designed by JBE that makes use of Antoine Coefficients to estimate compound physical properties at a specified temperature. A copy of the flash tool results is provided in Appendix D to this report for reference.

[12] Publicly available from Alaska Department of Environmental Conservation.

[13] Crude assay (i.e., PIANO data) was provided to JBE on 7-2-2021 by Eric Litman, M.S., Senior Environmental Scientist, NewFields Environmental.

Step 3 - Determine HAP Emissions from the Crude Oil, Fixed Roof Storage Tanks Including Venting

The JBE flash tool was used to estimate the percent of each constituent in the vapor phase based on partial pressure calculations, which are used to estimate the total HAP emitted from the storage tanks including venting. Based on a total VOC emission rate of 6.25 tpy and an estimated HAP concentration of crude oil vapor of 1.47%, JBE estimated a total HAP emission rate of 0.1 tpy from the conservation vents, well below the 1.97 tpy quoted by Alyeska in Table 1 to Attachment 2 to the October 7, 2020, Motion to Stay filed in the D.C. Circuit. The full flash tool calculation is provided in Appendix D.

Storage Tank Emissions Results, Current VMT Configuration

Emissions of VOCs and HAPs from the storage tanks (emitted at the vapor collection system, referred to as VCU) are shown in Table 2 and Table 3, Table 4, and Table 5 provide a comparison between the JBE and Alyeska calculated values representing VOCs and HAPs emitted from the conservation vents to atmosphere during a typical year.

The emissions estimated include contributions resulting from two consequences of how tanks are operated. First, storage tank emissions can result from the displacement of vapor in the tank by incoming liquid petroleum product (e.g., crude oil). This happens because the liquid level in the tank rises with the delivered oil and as a consequence, the vapor above the liquid as it rises is displaced. These displaced vapors are referred to as "working" losses, because they result from the tank "working" to process the throughput of oil. Whether the tank is still (no incoming or outgoing liquid), receiving product, or dispensing product, emissions also occur as a result of daytime heating (if any occurs). The associated vapor pressure rises as a function of the temperature in the tank and this impact to emissions is referred to as "standing" losses.

Based on JBE's independent emission calculations, the emissions of VOC and HAP represented in Alyeska's Motion to Stay are conservative and are therefore considered as an acceptable representation.

Table 2. VOC Emissions from Crude Oil Storage Tanks

Parameter	VOC Emissions	Unit
Uncontrolled Working Loss	18,705,473	lb/yr
Uncontrolled Standing Loss	2,135,977	lb/yr
Tank Cleaning Loss[14]	0	lb/yr
Total Loss = VOC Emissions Routed to VCU	**20,841,450**	**lb/yr**
VCU Control Efficiency	99.7	%
Actual VCU Emissions from Tanks	62,487	lb/yr
Actual VCU Emissions from Tanks (unit conversion)	**31**	**tpy**
** Tank cleaning not quantified*		

[14] Based on JBE review of VMT's current Title V, it is unclear if tank cleaning emissions are incorporated to the sitewide PTE.

Table 3. HAP Emissions from Crude Oil Storage Tanks at Vapor Collection Emission Point

Parameter	JBE Calculated HAP Emissions (tpy)	Alyeska Calculated HAP Emissions (tpy)
HAP Emissions from the Crude Oil Storage Tanks at Vapor Recovery	0.46	n/a

Table 4. VOC Emissions from Conservation Vents

Parameter	JBE Calculated VOC Emissions (tpy)	Alyeska Calculated VOC Emissions (tpy)
VOC Emissions from the Crude Oil Storage Tank Conservation Vents	6.25	49.32

Table 5. HAP Emissions from Conservation Vents

Parameter	JBE Calculated HAP Emissions (tpy)	Alyeska Calculated HAP Emissions (tpy)
HAP Emissions from the Crude Oil Storage Tank Conservation Vents	0.10	1.97

Detailed Emission calculations for the fixed roof storage tank (as VMT is currently configured) are provided in Appendix B.

2.2.1 Alternative Conservation Vent Calculation Method: Pressure Rise Method

On October 19, 2021, Alyeska presented JBE with a sample calculation to estimate VOC from the storage tank conservation vents using an alternative calculation method. This method estimates vapor rate emissions using a derivation of the ideal gas law and is based on the pressure rise inside a tank using actual pressure readings at the time the vents are open and closed, tank temperature readings, and vapor space volumes based on the liquid level inside the tank.

An example pressure rise method calculation for Tank 7 from an event on March 23, 2019, resulted in a total of 0.13 tons of VOC emitted during the duration of 1.68 hours the vent was open. This equates to an emission rate during venting of 0.077 tons per hour. Applying this emission rate to the total average annual time the vents released from 2005 to 2020 (value of 318 minutes or 5.3 hours for each of the 14 tanks) results in VOC emissions of 5.74 tpy (0.077 tons per hour X 5.3 hours venting X 14 tanks). Said another way, the 14 tanks combine to release during a total of 4,452 minutes (74.2 hours) as an average

for each year. This rate of VOC emissions is 8% less than the rate of 6.25 tpy calculated by modeling the vents as an uncontrolled storage tank. Table 6 provides numerical comparisons of both methods.

In JBE's opinion, the pressure rise method is the preferable calculation method because it relies on granular, actual datasets to accurately determine emissions for each individual venting event. As pressure, temperature, and the vapor space volume is unique to each venting episode, calculating events individually, and then summing for the total events in a year is preferable.

Table 6. VOC Emissions Comparison by Vent Calculation Method

Parameter	Duration of Open Venting to Atmosphere	VOC Emissions (tpy)
Single Emission Event, Tank 7, Using Pressure Rise Method	1.68 hours (101 minutes)	0.13
Annual Emissions, Single Tank, Using Pressure Rise Method	318 minutes	0.41
Annual Emissions, All 14 Crude Tanks Combined, Using Pressure Rise Method	318 minutes per tank, for a collective 4,452 minutes annually	5.74
Annual Emissions, All 14 Crude Tanks Combined, Using Uncontrolled Tank Method	318 minutes per tank, for a collective 4,452 minutes annually	6.25
Change in Emissions Due to Method Variation:		8%

2.2 Other Key Emitters of HAP Emissions

To better understand the site-wide Potential to Emit (PTE) HAPs at VMT, additional emitters of HAPs were evaluated. These include the following:

- Power boilers (EU IDs 1 – 3)
- Waste gas combustors (EU IDs 4 – 6)
- Stationary reciprocating internal combustion engines (EU IDs 8A – 15)
- Tank Bottoms Processing (TBP) system and associated units
- Marine loading
- Fugitives from equipment leaks

As defined by the EPA, "potential to emit" is "the maximum capacity of a stationary source to emit under its physical and operational design. Any physical or operational limitation on the source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation, or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation is enforceable by the (EPA) Administrator."[15]

Permitting authorities (e.g., EPA and state regulatory agencies) use the potential-to-emit concept as a way to establish permit limitations in many situations, seeking to set permit limits at protective levels that would cover reasonably expected operations without the need to re-establish the basis for permit limits

[15] April 1998 EPA Memo: Potential to Emit (PTE) Guidance for Specific Source Categories https://www.epa.gov/sites/default/files/2015-07/documents/lowmarch.pdf.

for routine changes in operations. If limits are set based on operational capabilities, it follows logically that emissions at the point of permit limitation would be worst-case emissions (those that are the most that would occur unless equipment was damaged, there was a significant weather event, or a fire or explosion). For this review, the use of permit limits associated with worst-case emissions was a very appropriate way to investigate the most impactful situations from the perspective of potential off-site health effects to nearby residents. Since lower screening thresholds are associated with chronic health effects (for long-term exposures), it is logical to use a worst-case emissions value as a conservative case to investigate impacts from long-term-exposure.

Units with limited emissions of HAPs, such as the wastewater treatment system were not quantified.

Overview of Approach

JBE used historic permit applications and the Title V Air Permit to recreate a HAP emissions workbook for the sources outlined above. Key aspects to this workbook are provided in Appendix E to this report. A summary of HAP emissions from the aforementioned sources is provided in Table 8, including a comparison between the total HAPs provided in the VMT 2016 Title V Air Permit Renewal Application and the independent results calculated by JBE.

One primary reason for the discrepancy between the calculations is due to the different crude oil speciation between the permit application and JBE's analysis. The permit application states that the crude oil HAP speciation was based on an average of five samples taken in December 2006, and the crude vapor HAPs content was estimated "…based on construction permit methodology used for PS 3-5, 7 & 9 breakout tank ORLs." JBE estimated HAP concentrations as previously described in Section 2.1. The HAP concentrations from both sources are provided below.

Table 7. Comparison of Crude Speciation

Pollutant	Crude Vapor HAP wt% Permit Application	Crude Vapor HAP wt% JBE Calculation	Comments
1,3-Butadiene	0.201	n/a	Not listed in PIANO data
n-Hexane	1.685	0.978	
Benzene	0.306	0.272	
Toluene	0.213	0.161	
2,2,4-Trimethylpentane	0.005	n/a	Not listed in PIANO data
Ethylbenzene	0.001	0.010	
Xylenes	0.063	0.047	
Cumene	0.001	0.001	
Naphthalene	0.337	0.000	Concentration zero in PIANO data
Total HAPs	2.810	1.470	
Total Non-HAP Compounds	97.190	98.530	

Table 8. HAP Emissions Summary for Key Contributors (Non-Tanks)

Emission Source	HAP Emissions, VMT 2016 Permit Application (tpy)	HAP Emissions JBE Calculation (tpy)	Comments
Boilers/Waste Gas Combustors 1-6	5.90	3.10	
Generators/Engines 8A-15	0.00	0.02	Negligible
Loading	10.90	12.20	Uncontrolled maintenance allowance
Fugitives	0.40	0.10	
Tank Bottoms Processing System	0.50	0.30	
Tank Conservation Vents	n/a	0.10	
Total	17.70	15.80	

Limitations

HAP emissions from ballast water treatment is not included. Based on VMT's 2016 Title V Air Permit Renewal Application, the potential to emit HAPs due to ballast water treatment is 3.1 tpy.[16] Additionally, emissions from any unpermitted sources are not included. Within this category and of note, emissions from tank cleaning are not included because data to characterize these operations was not available in the permit application or other publicly available sources. An example for calculation of tank degassing emissions for an external storage tank containing gasoline in Chapter 7 of AP-42 (Section 7.1.5, Example 6) show results that are approximately 0.5 tons of VOC if vapor controls are used and well above 4 tons if not. This should be a conservative point of reference since gasoline has a higher vapor pressure than crude oil. Therefore, tank cleaning does remain an issue of some potential significance, but Alyeska is negotiating work practices for degassing tanks with the EPA. Therefore, it is likely that controls imposed will adequately address this concern.

[16] 3.1 tpy includes 2.2 tpy for water treatment and an additional 0.9 tpy for thermal oxidization control.

3.0 HEALTH ASSESSMENT

The potential for health impacts from chemicals released from process equipment depends a number of factors, all of which must be understood to have a definitive answer on the risks of the releases. The key factors include the following:

- Amount of chemical released – pounds per hour, tons per year
- How and where the chemical is released – affects how the chemical is dispersed, deflected, or diluted before reaching a resident (e.g., a chemical released from a pipe at ambient temperature at ground level will be more concentrated at the property line than the same chemical released from a high stack at high temperatures)
- The prevailing weather conditions including inversions, wind direction, air pressure differential, and temperature
- Where the residents are located – whether they live on the VMT property line or across Port Valdez, or whether they live full-time nearby, or only have short visits like visiting a park
- Type of health risk posed by the chemical – carcinogenic, immediate skin damage, impacts occur in a short time or over a lifetime
- Whether the exposed individuals are healthy results or if they have increased sensitivity due to age, medical issues, etc.
- The duration of the exposure (e.g., for just a year or two, or for an entire lifetime)

A complete health risk analysis involves a tremendous amount of detailed site information and computer modeling which is beyond the scope of this evaluation. Therefore JBE looked at two ways to compare the risks from this site-specific situation to other study results without the need to perform a comprehensive analysis from the ground up. First, JBE compared the emissions results we obtained for the site to the risk analysis EPA performed as a required part of the Residual Risk and Technology Review for the OLD MACT as it relates to uncontrolled releases. Then, as a second comparison, JBE used the emission results to perform a screening analysis using an EPA tool. To perform these comparisons the following data was used:

- Composition and Emission rate of HAPs released from the VMT;
- Allowable health risk levels for those chemicals; and
- Qualitative review of release discharge points as it relates to dispersion and proximity to residents.

In order to perform a health screening, first each source at the VMT was evaluated to determine whether it should be considered. A summary of this review is provided in Table 9.

Table 9. VMT Potential Sources of HAP

EU IDs, Title V	Emission Unit Description	Uncontrolled?	Subject to OLD MACT?	If Uncontrolled and Not Subject to OLD MACT, Significant HAP Source?
1-3	Power Boilers (3)	No, type of control	Yes	N/A
4-6	Waste Gas Combustors (3)	No, type of control	Yes	N/A
8A, 9A	Emergency Generators (2)	Yes	No	No – trace HAP, operate 100 hr/yr
10-16	Firewater Pumps	Yes	No	No – trace HAP, operate 156 hr/yr
17	Soil Vapor Extraction	No	No	N/A
18-28	Tank Bottom Processing Equipment	No	No	N/A
29-42	Crude Tanks (14)	No	Yes	N/A
43-46	West Tank Farm Tanks (4)	No	Yes	No – out-of-service
47-48	Berths 1, 3	Yes	No	No – out-of-service
49-50	Berths 4, 5	No	No	N/A
57	Recovered Treatment Crude Oil Tank	Yes	No	Not investigated - insufficient data to estimate vapor pressure
59-61	Ballast Water Treatment Tanks (3)	Yes	No	No – removed or in standby
62-74	Wastewater Treatment System	Yes	No	Unknown, limited data available to access
75-80	Air Stripping System	No	No	N/A
UI-1,2,46	Boilers (3)	Yes	No	No – trace HAPs from <1 MMBTU/hr diesel boilers
UI-3 - 14	Heaters (12)	Yes	No	No – trace HAPs from <1 MMBTU/hr heaters
UI-20 – 36, I-21	Diesel Tanks (18)	Yes	No	No – trace HAPs from diesel storage
UI-37	Gasoline Tank	Yes	No	No – trace HAPs for 10k gallon storage tank
UI-38- 41	Used Oil Tanks (4)	Yes	No	No – trace HAPs from used oil storage
UI-42 – 43	Propane Tanks (2)	Yes	No	No – No HAPs in propane; no emissions
UI-44	Ballast Water Treatment Sludge Tank	Yes	No	No – only 1 -2 turnovers per year
UI-45	Crude Tank VRU Piping Fugitives	No	Yes	N/A

For key emitters of HAPs (in addition to the crude oil tank farm and conservation venting), JBE used historic permit applications and the Title V Air Permit to recreate a HAP emissions workbook. This workbook was used as the basis to determine site-wide HAP emission rates by pollutant which can be used as data input values into EPA's SCREEN3 model. SCREEN3 is an air dispersion model which provides maximum ground-level concentrations for point, area, flare, and volume sources, as well as concentrations due to inversion break-up and shoreline fumigation.[17]

EPA SCREEN3 utilize a simple air emissions dispersion pattern that spreads out uniformly with distance called a Gaussian plume model. In general, more sophisticated models predict the extent to which the spread of emissions may be reduced by atmospheric conditions (e.g., where the plume may rise and disperse vertically) or where it may be deflected more rapidly down to earth as a result of terrain interaction. Therefore, it is generally accepted that a screening approach using a Gaussian tool would yield the highest predicted concentrations and would therefore be an appropriate worst-case approach.

An analysis based on these screening dispersion results would seek to determine if the estimated concentrations exceeded levels above those established as health effects screening thresholds. The EPA SCREEN3 model produces results for a specific compound. The volatility and toxic effects of individual HAPs present within the crude oil can be used as indicators of exposure issues. Based on a review of the SCEEN3 model output by specific compound, an appropriate demonstration of acceptable risk can be made.

For this analysis, estimated emission rates of HAPs were provided as inputs to the SCREEN3 model and it was used to estimate ground-level concentrations for the specific HAP at different set distance points away from the emissions source. These output concentrations were then compared to effects screening levels (ESLs), as discussed below.

Effects Screening Levels (ESLs)

ESLs are chemical-specific air concentrations set at levels selected to limit the risk of health effects to an acceptable level. Short-term ESLs are based on data concerning acute human health effects, the potential for odors to be a nuisance, and effects on vegetation. Long-term ESLs are based on data concerning chronic human health and vegetation effects.

To assess health impacts, both short-term and long-term effects can be investigated. In most cases, long-term effects will involve a lower threshold and are more likely to pose a threat to a potentially exposed population. Screening levels are generally set conservatively to levels that are deemed to be protective of sensitive elements of the population, such as those with compromised respiratory systems, pre-existing cancer, etc. In setting these levels, lifetime exposure to the emissions source is assumed and it is further assumed that a potentially exposed individual lives in that location for their entire lifetime. Short-term exposure limits may also be important, but where separation over a body of water occurs, they are unlikely to be significant for residents.

[17] EPA SCREEN 3 - https://www.epa.gov/scram/air-quality-dispersion-modeling-screening-models#:~:text=%2D22%2D1989)-,SCREEN3,break%2Dup%20and%20shoreline%20fumigation.

Another possibility for concern where there is a body of water can be recreational use (swimming and boating) or commercial use (fishing). In setting short-term exposure thresholds, exposure times are much less since it is not expected that receptors would actually be on the water continuously throughout the day and all year long.

The Texas Commission on Environmental Quality (TCEQ) Toxicology Division (TD) has taken a leadership role with respect to chemical toxicity determination and has derived ESLs for thousands of chemicals and maintains that data in their Toxicity Factor Database which can be accessed through their website.[18] The following table provides the HAPs of concern at the terminal and their associated ESLs.

Table 10. HAPs Emitted from VMT with ESLs

Substance	Short-term ESL Health (ug/m3)	Long-term ESL Health (ug/m3)	HAP emissions (tpy)
benzene	170	4.5	2.9
ethylbenzene	26000	570	0.1
n-hexane	5600	200	10.5
o-xylene	2200	180	0.5
toluene	4500	1200	1.7

In order to translate emission rates into concentrations, the dispersion model estimates the concentrations that would result at various points downwind. The emissions used were estimated based on the PTE for each of the sources in the emissions inventory. Since many of the sources have routinely operated below their design capabilities, it is expected that actual annual average emissions would be quite a bit lower than these values. For example, the storage tank throughput for the most recent ten years in history has been less than half of tank throughput design capability. As such, the modeled emissions represent a high value, not an expected average.

JBE elected to evaluate benzene concentrations first because the limits for benzene are the most stringent of all the HAPs of interest. Two cases for benzene were run: (1) a sitewide benzene evaluation; and (2) tank conservation vents alone as a way to evaluate the conservation vent emission contribution as part of the total sitewide emissions. The results of the benzene models are provided in Table 11.

[18] https://www.tceq.texas.gov/toxicology/database/tox.

Table 11. EPA SCREEN 3 Model Outputs for Benzene Releases from VMT

Parameter	Sitewide Benzene	Benzene from Tank Conservation Vents Only	Units
Distance for max 1 hr concentration	1304	709	m
Maximum 1 hr concentration	6.8	0.03	µg/m^3
Concentration at 1000 m	6.5	0.03	µg/m^3
Concentration at 5000 m	1.8	0.02	µg/m^3
Concentration at 10000 m	1.2	0.01	µg/m^3
Effect Screening Level	4.5	170	µg/m^3

The model considers elevation and its effects on concentration at ground level. The vapors tend to be somewhat buoyant, and, as such, they will settle to the ground over some dispersed distance, resulting in a higher concentration at ground level at some point downwind, not at the base of the source. The screening model only accepts one height for the source, whereas a more complex model could handle various heights and multiple source locations. For these model analysis runs, the height of the tank conservation vents was selected to represent the average sitewide source height.

In the Table 11 results, the value of 1,304 m indicates the point at which the model estimated the maximum concentration of benzene would occur. The two separate values are a consequence of modeling the entire emissions inventory (sitewide benzene result) and just the contribution from the conservation vents (column to the right of the sitewide result – 709 m).

The sitewide concentrations are a worst-case annual result since they are based on PTE. They are conservative and expected to be well above an actual average annual concentration. The values for the conservation vents are based on the emission rate when they are venting, a very small number of hours per year. It is presumed that the predicted concentrations would occur only a few hours a year.

The city of Valdez is approximately 5,000 m from the marine terminal. The estimated benzene concentration at 5,000 m from the source was estimated to be 1.8 µg/m^3, well below both the short-term and long-term ESLs of 170 and 4.5 µg/m^3, respectively.

For the location of maximum concentration (located over water), a comparison to the short-term effects screening level based on the potential for recreational use is appropriate. The predicted value of 6.8 µg/m^3 is well below the screening value of 170 µg/m^3 for short-term exposures. The fact that the maximum concentration exceeds the long-term screening value is not an unacceptable result given the exposure scenario that applies to this location (since it is over water).

Because the ESL for benzene due to emissions from the terminal is approximately two orders of magnitude less than the ESLs for the other HAPs, once it was determined that the benzene concentrations at the city of Valdez were estimated to be well below the ESLs, it is deduced that the concentrations for the other HAPs of concern would be well below the ESL thresholds as well. Figure 4 provides a depiction of the site-wide release of benzene at multiple distance points from the terminal.

As a second health effects evaluation methodology, JBE sought to use modeling performed by others. Since no modeling by Alyeska was made available, non-site-specific EPA modeling efforts were considered to see if they could be adapted. EPA performed dispersion modeling for emissions from terminals

potentially impacted by the OLD MACT, but the VMT was not modeled because there were no values in the 2004 NEI source data for it.

As a suitable benchmark, the emission modeling performed for the refinery sector rule for crude oil storage tanks was consulted. In 2015, EPA released its complex hazard evaluation and established "allowable" emissions for specific HAPs emitted from crude oil storage tanks at refineries based on its average refinery case. The 2015 EPA analysis was performed on storage tanks specifically and it coupled tank throughput with HAPs weight percent in crude oil to estimate emissions of HAPs. JBE used its VMT tank emissions data and the factors from the EPA's "complex hazard evaluation" to form a comparison between actual estimated VMT crude oil tank emissions and the "allowable levels." Two sets of calculations were performed for benzene and hexane: one using the HAPs weight percentages from the crude oil assays JBE obtained for this review and another using the crude oil HAPs weight percentages EPA developed for its average crude oil. This second calculation was performed as a sensitivity case because it had higher weight percentages than the assay value. Both analyses had estimated emissions well below the "allowable" level. Table 12 and Table 13 provide results of this analysis. The storage tank throughput value is based on the permit application representations by the terminal. This value corresponds closely to their current 2021 throughput.[19] Given the difference between screening results and the threshold levels, throughputs closer to the historical capability (even if not allowable under their current permit) would not be expected to result in threshold exceedances.

The results from using the EPA's 2015 "complex hazard evaluation" for HAPs from refineries, taken with the EPA SCREEN3 modeling results, support the position that a further reduction in HAPs emissions via additional control is not necessary at the VMT.

[19]Alyeska Pipeline Service Company Historic Throughput published values, https://www.alyeska-pipe.com/historic-throughput/.

Figure 4. VMT Site-Wide Benzene Release at Multiple Distance Points from VMT from EPA's SCREEN3 Model

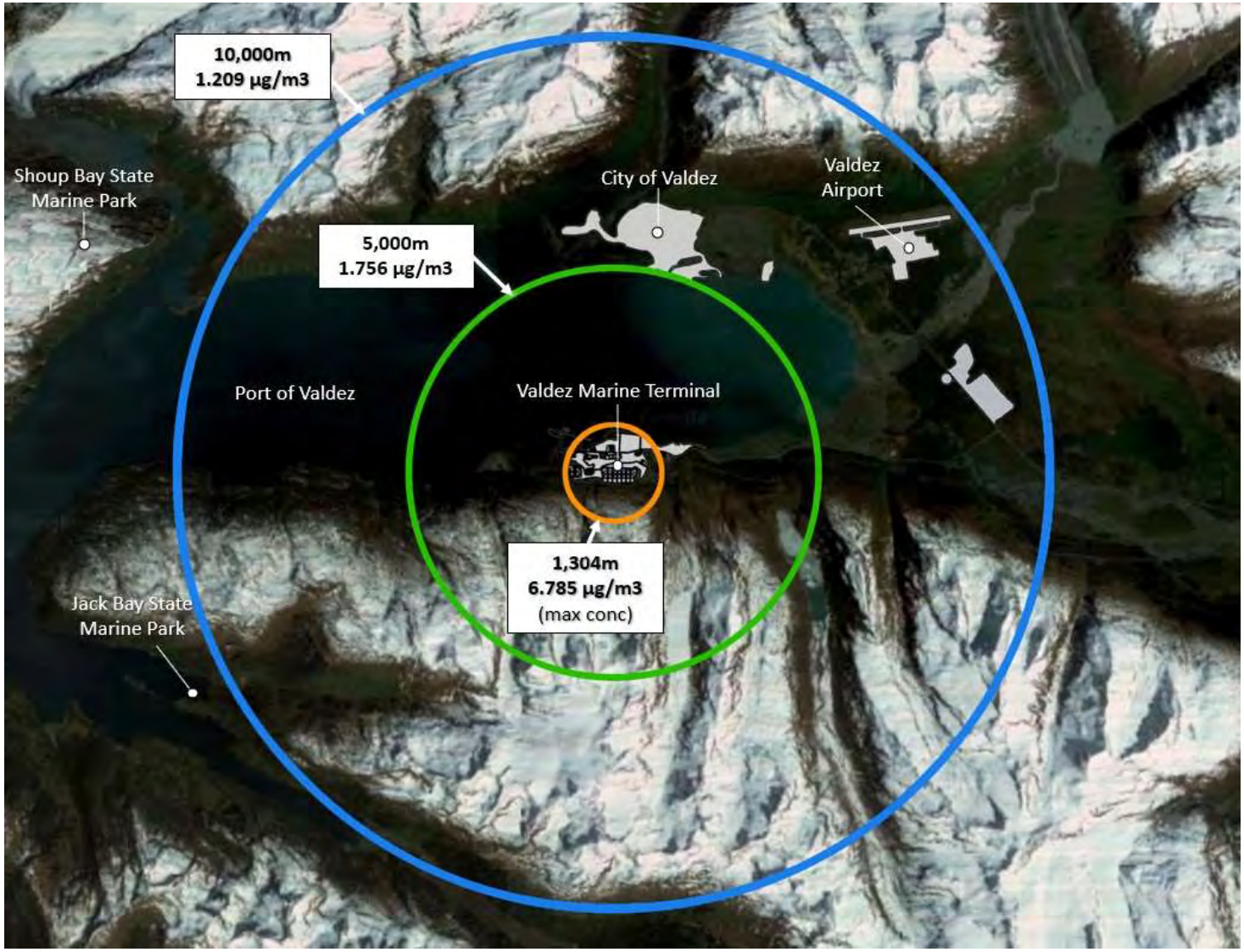


Table 12. VMT HAP Emission Benchmarking for Hexane and Benzene, Using Crude Oil Assays Obtained for this Review

Using Alaska North Slope Crude Assay (PIANO and API Surrogate Hybrid)					Benchmark Limits			
Single Tank Throughput (bbl/month)	Single Tank Throughput (MMbbl/yr)	All Tanks plus Venting VOC (tons/yr)	Fraction Hexane (%)	VMT Estimated Hexane (tons/yr)	Allowable Hexane (lb/MMBBL)	Throughput Crude Oil (MMbbl/yr)	Allowable Hexane (lb/yr)	Allowable Hexane (tons/yr)
980,830	11.8	37.5	0.98	0.4	83.7	164.8	13,795	6.9
Single Tank Throughput (bbl/month)	Single Tank Throughput (MMbbl/yr)	All Tanks plus Venting VOC (tons/yr)	Fraction Benzene (%)	VMT Estimated Benzene (tons/yr)	Allowable Benzene (lb/MMBBL)	Throughput Crude Oil (MMbbl/yr)	Allowable Benzene (lb/yr)	Allowable Benzene (tons/yr)
980,830	11.8	37.5	0.27	0.1	10.0	164.8	1,640	0.8

Table 13. VMT HAP Emission Benchmarking for Hexane and Benzene, Using EPA Crude Speciation

Using EPA Crude Assay (Very Conservative Speciation)					Benchmark Limits			
Single Tank Throughput (bbl/month)	Single Tank Throughput (MMbbl/yr)	All Tanks plus Venting VOC (tons/yr)	Fraction Hexane (%)	VMT Estimated Hexane (tons/yr)	Allowable Hexane (lb/MMBBL)	Throughput Crude Oil (MMbbl/yr)	Allowable Hexane (lb/yr)	Allowable Hexane (tons/yr)
980,830	11.8	37.5	6.2	2.3	83.7	164.8	13,795	6.9
Single Tank Throughput (bbl/month)	Single Tank Throughput (MMbbl/yr)	All Tanks plus Venting VOC (tons/yr)	Fraction Benzene (%)	VMT Estimated Benzene (tons/yr)	Allowable Benzene (lb/MMBBL)	Throughput Crude Oil (MMbbl/yr)	Allowable Benzene (lb/yr)	Allowable Benzene (tons/yr)
980,830	11.8	37.5	0.7	0.3	10.0	164.8	1,640	0.8

4.0 ALTERNATIVE DESIGN ASSESSMENT

Paragraph 40 CFR §63.2346(i) was updated in the 2020 finalized version of the OLD MACT to reflect the language provided below, where new language is provided in bold text.

> *Safety device. Opening of a safety device is allowed at any time that it is required to avoid unsafe operating conditions.* ***Beginning no later than July 7, 2023, this paragraph no longer applies.***

Historically, the conservation vents installed on the 14 crude oil, fixed roof storage tanks (EU IDs 29 through 42, as listed in the Title V) have operated under the safety device allowance. The conservation vents are designed to open and vent uncontrolled to atmosphere to prevent structural damage or catastrophic failure caused by under or over-pressurization of the tanks. The vents are designed to open when the internal pressure of any single crude oil storage tank is at or greater than 1.5-inch water column and to close when that tank's internal pressure is less or equal to 1.2-inch water column.[20] Emissions of VOCs and HAPs are released during open venting to the atmosphere.

In the Petition for Rulemaking, Reconsideration, and Stay, Alyeska claims that in order for the VMT to comply with the updated rule, given the removal of the "safety device exemption," the facility would have to choose one of two options:

1. Convert the 14 crude oil, fixed roof storage tanks to internal floating roof; or

2. Install a closed-vent system to capture vapors from the conservation vents during periods where open venting currently occurs.

Alyeska's claims related to health and safety, technical feasibility, and economic feasibility for the two alternative designs presented in the Petition for Rulemaking, Reconsideration, and Stay were evaluated and are discussed in this section. Additionally, other options not considered such as converting the 14 crude oil, fixed roof storage tanks to external floating roof tanks are discussed.

Claims pertaining to safety and technical feasibility, health impacts, and economic feasibility are discussed in Sections 4.1, 4.2, and 4.3, respectively.

Overview of Approach

Based on reviewing current literature, vendor specifications, historic permitting efforts, the current Title V Air Permit, and relevant files contained in the OLD MACT rulemaking docket, each claim was determined to be validated, partially validated, or unvalidated.

[20] Pressure set points based on Specific Requirement 19 to Title V Air Permit Number AQ0082TVP03.

4.1 Evaluation of Alternative Design Claims Pertaining to Safety and Technical Feasibility

This section outlines each critical claim made by Alyeska in the Petition for Rulemaking, Reconsideration, and Stay and supporting documents pertinent to safety and technical feasibility for the alternative design considerations evaluated for determining compliance options for the 2020 OLD MACT with the "safety device exemption" language repealed. As compliance with the 2020 OLD MACT would require the elimination of opening conservation vents to the atmosphere, the following alternative designs were evaluated herein:

- Conversion of Crude Oil Tanks from Fixed to Internal Floating Roof;
- Removing Conservation Vents from Fixed Roof Atmospheric Tanks; and
- Conversion of Crude Oil Tanks from Fixed to External Floating Roof.

Table 14 summarizes the claims related to safety and technical considerations for converting the 14 crude oil storage tanks from having fixed roofs to having internal floating roofs.

Table 15 outlines the safety and technical feasibility claims made related to why the fixed roof storage tanks must operate with emergency pressure relief venting.

Table 16 provides claims addressing the consideration to convert the storage tanks from fixed roof to external floating roof.

Note, the alternative design option to install a closed-vent system to capture vapors from the conservation vents during periods where open venting currently occurs was only evaluated based on economic feasibility which is addressed in Section 4.3. No significant safety or technical infeasibility was determined for this option by JBE, based on a review of the details presented in the Petition for Rulemaking, Reconsideration, and Stay and supporting documents.

Table 14. Alternative Design, Independent Validation: Conversion of Crude Oil Tanks from Fixed to Internal Floating Roof

Internal Floating Roof Design			
Risk Category	**Alyeska's Claim**	**Independent Verification Documentation**	**Data Source(s)**
Seismic Activity	(1) VMT sits in a highly active seismic zone with frequent earthquake activity. (2) The VMT resides in the Pacific Rim of Fire, which is one of the most active seismic zones on the planet. (3) Valdez is located in seismic zone 8.5.	**Claim Verified:** Alaska's largest earthquakes, exceeding magnitude 8 and even 9, occur primarily in the shallow part of the subduction zone, where the crust of the Pacific Plate sticks and slips past the overlying crust. The VMT lies in this zone East of the Bering Sea, lying within the Gulf of Alaska. The occurrence of high seismic activity has been verified by data obtained by the Alaska Earthquake Center.	(1) https://earthquake.alaska.edu/earthquakes/about (2) https://earthquake.alaska.edu/earthquakes/reports/monthly-report (3) https://seismic.alaska.gov/download/ashsc_meetings_minutes/mp160.pdf
Seismic Activity	(4) Fixed roof tank design with internal support structures is technically favored as compared to internal floating roof tanks due to seismic activity at the terminal location.	**Claim Verified:** A 2011 paper on actual earthquake events in Japan details the failure of internal floating roofs by (1) direct damage to roof causing sinking of the inner floating roof, (2) pontoon fractures, and (3) indirect damage by liquefaction of soil (up to 3 days after earthquake) (Footnote 1). Design methods for floating roof tanks with seismic consideration were identified. As much consideration is given to special design cases, this supports the extreme cost stated by Alyeska to convert the tanks to IFR (Footnote 2). Evidence of severe damage during earthquakes for single deck floating roof types. Damage included fire (Footnote 3). Continued on Next Page	(1) On Damage of Oil Storage Tanks due to the 2011 off the Pacific Coast of Tohoku Earthquake (Mw9.0), Japan. S. Zama, H. Nishi, K. Hatayama, M. Yamada, H. Yoshihara & Y. Ogawa. National Research Institute of Fire and Disaster, Japan https://www.iitk.ac.in/nicee/wcee/article/WCEE2012_0238.pdf (2) The Twelfth East Asia-Pacific Conference on Structural Engineering and Construction A Simplified Method for Seismic Analysis of Tanks with Floating Roof by using Finite Element Method: Case Study of Kharg (Southern Iran) Island Tanks Mahmood Hosseinia, Amirhosseini Soroorb, Ali Sardarc, Farshid Jafariehd (3) Design Recommendations for Storage Tanks and Their Supports with Emphasis on Seismic Design (2010 edition). https://www.aij.or.jp/jpn/databox/2011/storagetanks2010edition.pdf

Table 14 Continued. Alternative Design, Independent Validation: Conversion of Crude Oil Tanks from Fixed to Internal Floating Roof

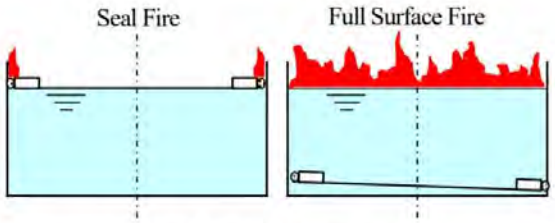
Internal Floating Roof Design			
Risk Category	**Alyeska's Claim**	**Independent Verification Documentation**	**Data Source(s)**
Seismic Activity	(4 Continued) Fixed roof tank design with internal support structures is technically favored as compared to internal floating roof tanks due to seismic activity at the terminal location.	**Liquid Sloshing by Roof Type** **Fixed:** When the sloshing wave reaches to roof plates in the fixed roof tank, the sidewall-to-roof joint is subjected to internal pressure. This pressure causes circumferential compression force in this joint and the bifurcation buckling with a high circumferential wave number may occur. The sidewall-top roof joint is usually designed to be weak from the viewpoint of the frangible roof joint. When an over pressurization occurs due to an ignition of flammable vapors existing inside tank, the sidewall-to-roof joint is expected to fail before failure occurs in the sidewall-to-bottom joint. This is a design concept of the frangible roof joint. **Internal Floating:** When the floating roof loses its buoyancy, it will sink into oil. "The floating roof tank **was** considered to be safer than the fixed roof tank, because only a seal fire might occur and a full surface fire as shown in Fig. 8 could not occur. **However, when the floating roof sinks, the full surface fire possibly occurs. The full surface fire will be extinguished when oil burns out in a large AST. It will take several days"** (Footnote 4).	(4) Earthquake Damages and Disaster Prevention of Aboveground Storage Tanks Shoichi Yoshidaa. EPI International Journal of Engineering pISSN 2615-5109 Volume 1, Number 2, August 2018, pp. 87-93 eISSN 2621-0541. DOI: 10.25042/epi-ije.082018.14  Figure 8. Fire in floating roof tanks

Table 14 Continued. Alternative Design, Independent Validation: Conversion of Crude Oil Tanks from Fixed to Internal Floating Roof

Internal Floating Roof Design			
Risk Category	**Alyeska's Claim**	**Independent Verification Documentation**	**Data Source(s)**
Personal Safety	Internal Floating Roofs (IFRs) require more maintenance in comparison to Fixed Roof Tanks (FRTs) due to IFRs requiring additional seals. "An internal roof structure must move up and down past the 61 roof support columns during tank filling and tanker loading. The floating roof must seal to the columns in a way that prevents vapor migration into the head space. The internal floating roof would require 61 seals, one for each column, as well as a roof-to-shell seal. Each of the 61-floating roof-column interfaces must have equal slip to ensure the roof rides evenly atop the liquid. Any deviation would result in loss of seal between the floating roof and the tank shell. A loss of this seal would result in vapor migration into the tank head space and could submerge the floating roof, requiring complete drain down and manned entry to remedy." "The internal floating roof solution is very challenging in design, installation, and maintenance. It has not been done to our knowledge in any tank with this number of columns. Workers would be required to enter the tanks more frequently to perform maintenance, which presents additional risk to worker safety."	**Partial Claim Verification:** The design basis for requiring 61 roof support columns was verified with U.S. EPA guidance documents (Footnote 1). Based on vendor data, a seal would be required for each column (Footnote 2). "A loss of this seal would result in vapor migration into the tank head space and could submerge the floating roof, requiring complete drain down and manned entry to remedy." Based on engineering process knowledge, this scenario is plausible. However, JBE could not independently verify that the loss of column seal would often lead to roof submergence. Thus, the anticipated increase in maintenance due to this scenario is minimal. Confirmed this is a minimal risk with board member of API (Aboveground Storage Tanks Group).	(1) Verification for number of roof support columns: Emission Factor Documentation for AP-42 Section 7.1 Organic Liquid Storage Tanks, Final Report. U. S. Environmental Protection Agency Office of Air Quality Planning and Standards Emission Factor and Inventory Group. https://www3.epa.gov/ttn/chief/old/ap42/ch07/s01/bgdocs/b07s01_1997.pdf (2) Peripheral and other seals are designed to remain in full contact with the mating tank components throughout the entire travel span of the IFR. Baker Tank Company / Altech. IFR General Design Specifications. https://www.bakeraltech.com/products/general-design-specifications.htm

Table 14 Continued. Alternative Design, Independent Validation: Conversion of Crude Oil Tanks from Fixed to Internal Floating Roof

Internal Floating Roof Design			
Risk Category	**Alyeska's Claim**	**Independent Verification Documentation**	**Data Source(s)**
Snow Load	Annual snow fall in Valdez typically exceeds 300 inches, including a maximum of 561 inches in winter 1989/1990.	**Claim Verified:** Valdez, sitting in a fjord in Prince William Sound, is considered the snowiest town in the United States, averaging 300 inches per year. Further, the winter of 1989-1990 is the snowiest winter ever recorded in Valdez with an accumulated total 656.07 inches of snowfall. A one-day record was set on January 16, 1990, with 45.7 inches of snowfall in just 24 hours. (Footnote 1).	(1) Snowfall confirmed using mapping tool at the National Weather Service. https://www.weather.gov/aprfc/Snow_Depth
Snow Load	"The tanks support some of the highest snow loads of any crude oil tanks in North America, up to 200 pounds per square feet. By comparison, the vast majority of Lower 48 tanks' design snow load is 50 pounds per square feet or less, and a significant majority is 20 pounds per square feet or less. The fixed roofs are supported by 61 internal columns and a framework of girders and rafters to accommodate the extreme snow loads in Valdez and prevent collapse of the roofs. The tank walls support only a very small portion of the roof snow loads. (IFRs are) Impractical due to number of legs in tank needed to support fixed roof."	**Claim Partially Verified:** Internal floating roof vendors with a load capacity of up to 1,000 lb/ft^2 were identified. However, vendor material review indicates this technology is limited to tanks of much smaller size than those at the VMT. Vendor Matrix Applied Technologies has a Matrix Full Contact IFR that can withstand snow loads up to 500 lb/ft^2, but this design is not available for tanks with a diameter over 100 ft. Whether or not any vendor has the ability to apply this type of design to a tank as large as the crude tanks at VMT is undetermined. Several vendors were contacted that were not able to meet this design criteria.	(1) Matrix Applied Technologies Vendor Spec Sheets for Full Contact Internal Floating Roof Tanks https://www.matrixappliedtech.com/services/internal-floating-roofs/

Table 14 Continued. Alternative Design, Independent Validation: Conversion of Crude Oil Tanks from Fixed to Internal Floating Roof

Internal Floating Roof Design			
Risk Category	**Alyeska's Claim**	**Independent Verification Documentation**	**Data Source(s)**
Use of Tank Vapors as Fuel Source	"Retrofit of the crude tanks with an internal floating roof ("IFR") design would eliminate most of the vapor supply to the VMT power plant because IFR tanks do not generate excess vapors. The need for onsite power generation was a principal reason that the VMT was designed with fixed roof tanks and a vapor collection system." "Currently, over 75% (heat input basis) of the boilers' fuel consists of vapors captured from the 14 tanks and vapors generated while loading crude onto marine tanker vessels. The balance of the fuel burned in the boilers comes from diesel." "Retrofit of the crude tanks with an internal floating roof ("IFR") design would eliminate most of the vapor supply to the VMT power plant because IFR tanks do not generate excess vapors."	**Claim Verified:** With IFR tanks less vapor is available for capture/re-use as a combustion source because the floating roof suppresses vapors (Footnote 1). JBE performed an independent calculation to estimate and compare the vapors from a fixed roof and internal floating roof system, with findings as follows: •Alyeska's VMT handles approximately 500,000 barrels per day of North Slope crude oil. This oil is stored in 14, 510,000-barrel fixed roof tanks equipped with vapor recovery. Vapors from the crude oil tanks may be used in the facility's power boilers as fuel gas for onsite power generation, which offsets the need for supplemental diesel to be purchased (vapors may also be routed to thermal oxidizer or used for tank blanketing based on JBE's understanding of the facility configuration). •Each fixed roof storage tank has an uncontrolled emission rate of approximately 802 tons per year VOC. At 99.7% vapor recovery rate, the uncontrolled emissions total 2.4 tons VOC per year per tank. Therefore, about 800 tons VOC per year per tank, or 11,194 total tons per year of VOC, are recovered and used to power the boilers. •An internal floating roof storage tank would emit approximately 4.2 tons per year per tank uncontrolled. The total vapors able to be recovered would be about 59 tons per year total. This is a 99.5% decrease in vapors available, which, for the purposes of supplying fuel to the boiler system, would have to be made up for through supplemental/purchased fuel (Footnote 2).	(1) AP 42 Tanks Section for Design Guidance: https://www3.epa.gov/ttn/chief/ap42/ch07/final/ch07s01.pdf (2) JBE developed tank emission workbook

Table 14 Continued. Alternative Design, Independent Validation: Conversion of Crude Oil Tanks from Fixed to Internal Floating Roof

Internal Floating Roof Design			
Risk Category	**Alyeska's Claim**	**Independent Verification Documentation**	**Data Source(s)**
Supplemental Fuel Required in Boilers in IFR System	"The nearby city of Valdez is very small with limited power capacity. So the designers of the VMT had to also include onsite power for the facility. **Liquid fuel (diesel) is expensive and environmentally unfavorable, so the designers decided that fixed roof tanks with a vapor collection system that routed the vapors to the onsite power generation facility as fuel was the best solution.** The power generation facility also provides the flue gas vital to avoiding explosive conditions in the tank." "Currently, over 75% (heat input basis) of the boilers' fuel consists of vapors captured from the 14 tanks and vapors generated while loading crude onto marine tanker vessels. **The balance of the fuel burned in the boilers comes from diesel**."	**Claim Verified:** For VOCs and HAPs, combusting vapors from the crude oil storage tanks compared to diesel is not significantly different in terms of air emissions from the boilers; however, the emissions of other criteria pollutants are more significantly impacted - most notably SO_2 which increases when using diesel. Emissions of NO_X and CO are also elevated when combusting diesel compared to tank vapors. Emission factors for diesel can be obtained from AP-42 and/or WEBFIRE. Emissions from the tank vapors are estimated using speciation data within the JBE tanks workbook(s).	(1) AP 42 Chapter 1.3 - https://www3.epa.gov/ttn/chief/ap42/ch01/final/c01s03.pdf (2) JBE developed tank emission workbook
Fire	"The onsite power plant also provides inert gas (stack gas) to the VMT tanks as required to ensure that tank pressure does not drop below a safe pressure level causing the conservation vents to draw oxygen into the tanks, which would create an explosive atmosphere in the tanks."	**Claim Verified:** Based on *The Engineer's Guide to Plant Layout and Piping Design for the Oil and Gas Industries*, "Inert gas systems are used to prevent the creation of flammable conditions inside equipment containing a flammable product, an example being the vapor space of storage tanks" (Footnote 1). Proper design configuration to minimize risk of explosive atmosphere was reviewed in both *The Engineer's Guide to Plant Layout and Piping Design for the Oil and Gas Industries* and *Plant Design and Operations*; the configuration at VMT is in line with best practices/industry standard in regard to utilizing an inert gas system to stabilize pressure within the crude oil tank farm (Footnote 1 and 2).	(1) Geoff Barker, Chapter 4 - Piping and equipment basis for selection, Editor(s): Geoff Barker, The Engineer's Guide to Plant Layout and Piping Design for the Oil and Gas Industries, Gulf Professional Publishing, 2018, Pages 105-141, ISBN 9780128146538 (2) Ian Sutton, Chapter 1 - Safety in Design, Editor(s): Ian Sutton, Plant Design and Operations (Second Edition), Gulf Professional Publishing, 2017, Pages 1-34, ISBN 9780128128831

Table 15. Alternative Design, Independent Validation: Removing Conservation Vents from Fixed Roof Atmospheric Tanks

Conservation Vent Design			
Risk Category	**Alyeska's Claim**	**Independent Verification Documentation**	**Data Source(s)**
Pressure Differential/Release	"Conservation vents are required for safe operation of fixed roof tanks."	**Claim Verified:** Based on tank design guidance documents and engineering process knowledge, fixed roof tanks are designed to either freely vent or equipped with a pressure/vacuum vent (such as the conservation vents on the VMT crude tanks which acts as a pressure relief device (PRD)). With a PRD installed, the tank operates at a slight internal pressure to prevent the release of vapors during changes in temperature, pressure, or liquid level. Emergency/safety vents such as the conservation vents provide increased vent flow capacity in the event of excessive pressure in the tank.	(1) AP 42 Chapter 7: Liquid Storage Tanks - https://www3.epa.gov/ttnchie1/ap42/ch07/final/ch07s01.pdf
Pressure Differential/Release	The valves allow vapors to release to the atmosphere if pressure within the tank increases to +1.5 inches of water column. This venting protects against failure of the tank frangible joint between the tank shell and roof. Conservation vents are a specific mandated aspect of the design criteria of API 650 tanks and are common to all atmospheric tanks.	**Claim Verified:** Based on API Standard 650 for atmospheric tanks, Section 5.8.5, conservation vents are a specific mandated aspect of the design criteria of API 650 tanks. Further, API Standard 650, Appendix F instructs on how to calculate the maximum operating pressure allowable in order to provide a safe margin between the maximum operating pressure and the failure pressure, for tanks with a roof-to-shell attachment (Footnote 1).	(1) API 650: Welded Tanks for Oil Storage, API Standard 650 11th Ed, June 2007, Addendum 3: August 2011, Errata October 2011, Effective Date: February 1, 2012

Table 15 Continued. Alternative Design, Independent Validation: Removing Conservation Vents from Fixed Roof Atmospheric Tanks

Conservation Vent Design			
Risk Category	**Alyeska's Claim**	**Independent Verification Documentation**	**Data Source(s)**
Pressure Differential/Release	"Because the VMT crude oil storage tanks are not pressure vessels, but instead are API 650 atmospheric tanks, their structural integrity is particularly sensitive to pressure changes within the vapor space of the tanks." "Due to the great surface area exposed within a fixed roof tank, even a small pressure differential above or below atmospheric level creates a large force on the tank surfaces. To protect the tanks from over- or under-pressurization, the VMT tank roofs were fitted with 10 to 11 conservation vents per tank that provide pressure safety relief."	**Claim Verified:** Based on API Standard 650 for atmospheric tanks, Section 5.8.5.1, "Tanks designed in accordance with this Standard and having a fixed roof shall be vented for... conditions resulting from operational requirements, including maximum filling and emptying rates, and atmospheric temperature changes and emergency conditions" (Footnote 1). Based on *Managing Storage Tank Pressure and Overfill Prevention*, to properly manage pressure within a tank system, there are layers of vapor control. Within the first layer for outbreathing, vapors are routed to vapor recovery, during normal operations. To avoid rupture of the tank, in an emergency case, the second layer consists of venting to atmosphere. The first layer for inbreathing may include tank blanketing or oxygen in-pulling from the outside of the tank; the second layer should include emergency venting to atmosphere to avoid tank implosion. Bottom line - emergency venting for the type of crude oil tanks operating at VMT require emergency venting to atmosphere to avoid tank rupture or implosion. Further, API 2000 requires an emergency vent on the top of the roof for the "fire case"(unless a frangible roof option is selected). In a worst-case scenario, without proper venting, the tank can lift off the ground (Footnote 2).	(1) API 650: Welded Tanks for Oil Storage, API Standard 650 Eleventh Edition, June 2007, Addendum 3, August 2011, Errata, October 2011 Effective Date: February 1, 2012 (2) Managing Storage Tank Pressure and Overfill Prevention, Michael Calaway and Magnus Johansson, 2018. https://www.emersonautomationexperts.com/2018/safety/managing-storage-tank-pressure-overfill-prevention/

Table 15 Continued. Alternative Design, Independent Validation: Removing Conservation Vents from Fixed Roof Atmospheric Tanks

Conservation Vent Design			
Risk Category	**Alyeska's Claim**	**Independent Verification Documentation**	**Data Source(s)**
Cause of Emergency Release	The underlying causes of pressure imbalances that trigger opening of a conservation vent include power outages, maintenance, and malfunctions of the vapor collection and distribution system. For example: electrical equipment associated with the vapor controls can experience a malfunction that shuts down the vapor control system; or equipment associated with the VMT onsite power generation can experience a malfunction that leads to a facility-wide power outage and the vapor control system loses power; or a vapor line valve to a tank may not function properly due to mechanical or electrical issues with the valve. Regardless of the cause, safe operation of the VMT tanks requires the ability to open the conservation vents when pressure levels are too high or low.	**Claim Verified:** Based on engineering process knowledge, the listed examples of emergency scenario(s) upon which the conservation vents may be opened is in line with the types of unplanned events at a marine terminal. The need to open the conservation vents during emergency situations is discussed elsewhere within this table. Design configuration review is based on information provided in VMT's Title V Air Permit. Emergency considerations were reviewed as discussed in the United Nation's *Safety Guidelines and Good Industry Practices For Oil Terminals* and in Emerson's *Managing Storage Tank Pressure and Overfill Prevention* (Footnotes 1, 2, and 3).	(1) Plant configuration review based on Title V Air Permit AQ0082TVP03 (2) United Nations, Safety Guidelines and Good Industry Practices For Oil Terminals, 2015 (3) Managing Storage Tank Pressure and Overfill Prevention, Michael Calaway and Magnus Johansson, 2018. https://www.emersonautomationexperts.com/2018/safety/managing-storage-tank-pressure-overfill-prevention/

Table 16. Alternative Design, Independent Validation: Conversion of Crude Oil Tanks from Fixed to External Floating Roof

External Floating Roof Design			
Risk Category	**Alyeska's Claim**	**Independent Verification Documentation**	**Data Source(s)**
Technical Feasibility/Tank Integrity	External floating roof tanks are used at many facilities. In this design, the roof rides on the tank liquid adjusting to changes in liquid level and removing all head space. A seal between the roof and the tank shell reduces vapor escape to the atmosphere. The topside of the external floating roof is open to the atmosphere. Such a tank is impractical in Valdez, Alaska, where average snowfall is over 300 inches per year.	**Claim Verified:** External floating roofs may lose buoyancy and sink due to cold weather-related issues noted as: (1) due to damage to its floatation pontoons; (2) snow causing the roof to sink; (3) frost leading to the failure of a flange joint on the storm water drain; (4) heavy rain/snow accumulation resulting in tilting (Footnote 1). Based on the details above and a case study noted in Footnote 2, a substantial load such as the heavy snow fall experienced by the VMT crude storage tanks would result in roof sink. Thus, external floating roofs are not a technically feasible option for crude storage at the VMT (Footnote 2).	(1) Moshashaei, Parisa & Alizadeh, Seyed Shamseddin & Khazini, Leila & Asghari-Jafarabadi, Mohammad. (2017). Investigate the Causes of Fires and Explosions at External Floating Roof Tanks: A Comprehensive Literature Review. Journal of Failure Analysis and Prevention. 17. 1-9. 10.1007/s11668-017-0333-0 (2) D. Ritsu, T. Masamitsu, An abnormal load was put on the roof, and it sank into the naphtha. Sinking of a floating roof due to inundating of pontoons and retained rainwater on the roof at a floating roof naphtha tank. Place Kurashiki, Okayama, Japan Location Refinery, (1987) - Electronic Source: http://www.shippai.org/fkd/en/cfen/CC1000167.html

The elements presented in Table 14 discuss why the proposed internal roof design would pose unacceptable risks from seismic activity, unacceptable personal safety considerations, would not be suitable from the perspective of handing snow loading, would complicate site fuel requirements and could add to site fire risks. Earthquake activity in the region is well documented as are the potential impacts earthquakes could have on the robust internals necessary to support an internal floating roof of the size required for the terminal's crude oil storage tanks. By adding complex equipment inside the tank, the clear potential for internal maintenance is introduced and the safety risk posed by tank internal maintenance operations is well-documented as well.

The fact that it could not be confirmed that a tank of this size could be designed with an internal floating roof in such a way that it could withstand the predicted potential snow loading is a significant problem with EPA's proposed control system in this setting. It could be argued that because of these issues, the technology is not "available," a long-standing EPA design criteria for when an enhanced control method could be prescribed. Finally, the improvements possible related to emissions as the terminal currently operates versus what would happen if the modifications were implemented are limited if any and emissions from some pollutants related to the operation of the boilers could actually be increased. A comparison between the current operations and the emissions from the floating roof tank is discussed in the next section.

Table 15 addresses the implications posed by the elimination of conservation vents because they do not (by themselves) meet the requirement that all emissions for the tank must be controlled. From a safety perspective, it is clear that the operation of a fixed-roof tank without safety relief would not comply with industry tank design guidelines. This means effectively that adoption of the requirements as the regulation is currently written would mean that a fixed roof tank could only be used if the conservation vent system itself had a vapor recovery process, and only if that could be done to meet all design guidelines including fire relief. A design that provides adequate fire relief may not be readily available at present for a tank of this size. If the alternative control method (a floating roof tank approach) introduces more safety concerns and increases emissions over the current configuration, the need for a special stipulation seems well-supported.

Table 16 reviews the vapor control implications related to the operation of an external floating roof tank, making the mostly obvious point that the operation of this control option in the terminal's setting in Valdez is clearly impractical from a snow loading perspective.

4.2 Evaluation of Alternative Design Claims Pertaining to Human Health Impacts

JBE used its tank emission tools to compare HAP emissions from the VMT's current storage tank configuration and the alternative design scenario where the 14 crude oil, fixed roof storage tanks are converted to internal floating roofs. The same methodologies described in Section 2.1 of this report were used to estimate emissions from tanks modeled as internal floating roof tanks. As described in Section 2.1, emissions of VOC were calculated using the methods outlined in AP-42 Chapter 7: Organic Liquid Storage Tanks, dated June 2020.[21] To speciate HAPs, a crude assay for Alaska North Slope crude was used; a copy of the assay is provided in Appendix A. Using this speciation data, HAP emissions were estimated using a flash tool developed by JBE. Supporting calculations and data from the flash tool are provided in Appendix D. An emissions comparison for VMT's current configuration and the alternative design scenario for internal floating roofs is provided in Table 17 and Table 18.

The emissions from the fixed roof tanks (current configuration) were modeled using two approaches. For the emissions from the vapor control system, the traditional storage tank emissions methods of AP-42 for a fixed roof tank. Separately, the data provided by Alyeska for the single conservation vent opening event was used to estimate emissions that would from this based on the event frequency this data suggested. These two sets of results were added to form a total fixed roof tank emission value.

The emissions from the potential internal floating roof tanks were assumed to be without vapor recovery because the regulation does not require this for this control method. Emissions from a floating roof tank result from two mechanisms: standing losses and working losses.

The standing losses come from emissions that leak through the seal between the storage tank internal wall. These emissions occur whether the tank liquid level is static or changing. The emissions travel through small gaps between the seal and the tank internal wall that invariably open up over time. Tank operators periodically inspect the tanks for these gaps and when they reach a certain dimension, the seal must be repaired to close those gaps. The driving force for these emissions is daily temperature rise.

The working losses result when the tank liquid level drops. As it does, the interior wall of the tank above the liquid level and the tank seal is coated with a thin layer of organic liquid that clings to it from its previous condition in contact with the liquid before this area was exposed to the tank internal vapor space. Tank vapors in this area will exceed the set point of the pressure/vacuum vents for the tank (typically it would have them) at some point and vapor emissions to the atmosphere would result. It should be noted that if the tank level stays the same or it drops as the tank is dispensing liquid for loading (downstream of the tank), there would be no working losses because no newly coated tank wall surface is exposed.

Based on JBE's calculation estimates, the VMT's current configuration which includes venting to atmosphere for safety purposes emits less HAPs than if the tanks were to be converted to internal floating roof and no longer vent to atmosphere.

[21] AP-42 Chapter 7, June 2020 Final Revision: https://www.epa.gov/air-emissions-factors-and-quantification/final-revisions-ap-42-chapter-7-section-71-organic-liquid.

Table 17. VOC Emissions Comparison for Alternative Design Scenario

Scenario 1: Vent Emissions Modeled as Uncontrolled Tank		
Parameter	VOC Emissions, VMT "As Configured"	VOC Emissions, Alternative Design Scenario - Convert Crude Oil Tanks from Fixed Roof to Internal Floating Roof
	(tpy)	(tpy)
VOC Emissions from Tanks Without Venting:	31.24	59.9
VOC Emissions from Conservation Venting to Atmosphere:	6.25	-
Total VOC Emissions:	**37.49**	**59.9**
Difference in Emissions:	**37%**	
Scenario 2: Vent Emissions Modeled Using Pressure Rise Method		
Parameter	VOC Emissions, VMT "As Configured"	VOC Emissions, Alternative Design Scenario - Convert Crude Oil Tanks from Fixed Roof to Internal Floating Roof
	(tpy)	(tpy)
VOC Emissions from Tanks Without Venting:	31.24	59.9
VOC Emissions from Conservation Venting to Atmosphere:	5.74	-
Total VOC Emissions:	**36.98**	**59.9**
Difference in Emissions:	**38%**	

Table 18. HAP Emissions Comparison for Alternative Design Scenario

Scenario 1: Vent Emissions Modeled as Uncontrolled Tank		
Parameter	HAP Emissions, VMT "As Configured"	HAP Emissions, Alternative Design Scenario - Convert Crude Oil Tanks from Fixed Roof to Internal Floating Roof
	(tpy)	(tpy)
HAP Emissions from Tanks Without Venting:	0.46	0.88
HAP Emissions from Conservation Venting to Atmosphere:	0.1	-
Total HAP Emissions:	**0.56**	**0.88**
Difference in Emissions:	**36%**	
Scenario 2: Vent Emissions Modeled Using Pressure Rise Method		
Parameter	HAP Emissions, VMT "As Configured"	HAP Emissions, Alternative Design Scenario - Convert Crude Oil Tanks from Fixed Roof to Internal Floating Roof
	(tpy)	(tpy)
HAP Emissions from Tanks Without Venting:	0.46	0.88
HAP Emissions from Conservation Venting to Atmosphere:	0.09	-
Total HAP Emissions:	**0.55**	**0.88**
Difference in Emissions:	**37%**	

4.3 Evaluation of Alternative Design Claims Pertaining to Economic Feasibility

A high-level review of the economic claims made by Alyeska in relation to costs associated with implementing alternative design considerations to meet the compliance standards presented in the 2020 OLD MACT are presented in this section. In the opinion of JBE, the costs presented by Alyeska for each alternative option are of an appropriate order of magnitude. Consequently, Alyeska's claim that the overall high cost for conversion to internal floating roof control is economically infeasible was judged to be justifiable but is limited based on JBE's inability to access the details of these calculations. Those calculations are presumed to be in engineering and cost studies that were referenced by Alyeska in their Petition to Stay. Those studies were requested for this review but not provided by Alyeska. The scope of this review did not include an effort to independently develop these calculations.

4.3.1 *Economic Feasibility to Convert Fixed Roof Tanks to Internal Floating Roof*

Summary of Costs Presented by Alyeska

Based on a referenced 2011 study, updated in 2016, Alyeska reported an estimated probable cost to convert its 14 fixed roof storage tanks to internal floating roofs of approximately $300 million (now escalated to 2021 USD).[22] A breakdown of the cost basis provided in the petitions is as follows:

- Engineering/Design: $40.3 million
- Materials: $42.8 million
- Construction/Implementation: $119 million
- Escalation: $92.4 million[23,24]

The estimated cost includes the following:

- Installing the internal floating roofs themselves
- Floating roof decks
- Pontoons and seals
- Wind girders
- Instrumentation
- Paint/coating
- Replacement of the fire foam system in each tank
- New vapor recovery and destruction system at the loading berths due to loss of the storage tanks as a source of vapor balancing during ship loading
- Additional diesel as a result from loss of the storage tanks as a source of fuel for the terminal power boilers

[22] Cost estimate is Class 5 (accuracy of +100%/-50% meaning costs could be $150 million to $600 million).

[23] Attachment 8, Declaration of Michael J. Malvick, Alyeska Engineering VI Lead to USCA Case #20-1342, Document #1865385, Filed 10-7-2020.

[24] All values provided in 2021 USD.

- Additional controls on the boilers as a result of burning liquid fuels

Limitations

At the time of this report, JBE did not have access to the underlying cost data including the original 2011 study or the updated 2016 study referenced in Attachment 8 to the October 7, 2020, Motion to Stay filed in the D.C. Circuit. As such, the assessment of determining whether $300 million (2021 USD) is a reasonable estimate is qualitatively based on historic project knowledge of JBE staff obtained by working on similar projects in the oil and gas sector, and this opinion is not supported by any detailed calculations performed by JBE under the scope of this review.

Economic Opinion

Without documentation to support the analysis performed by Alyeska or the analysis performed as part of the OLD economic review, the actual cost to construct what would be required to comply with the rule cannot be reliably determined. JBE's best impression is that the cost would be significantly higher than the U.S. average if for no other reason than the remote location and harsh environmental conditions to construct an industrial project. Thus, based on the collective historic project experience of the JBE team, the estimated cost of $300 million (2021 USD) for the conversion of 14 fixed roof storage tanks to internal floating roof tanks is reasonable given the following: extremely large tank size of 62 feet in height with 250 feet diameter each; seismic activity considerations; additional external force considerations due to annual snow load; seasonal construction timing; remote location; and enhanced timeline to avoid gap in compliance schedule per rule timeline.

As a comparative benchmark, Table 4 to the National Impacts of the 2020 Risk and Technology Review Final Rule for the Organic Liquids Distribution (Non-Gasoline) Source Category, and Economic Impact and Small Business Analysis for the Final Organic Liquids Distribution (Non-Gasoline) (OLD) Risk and Technology Review (RTR) NESHAP was reviewed. This table is shown below for reference. In a July 2019 EPA memorandum, it is stated that the cost of $2.47 million (2016 USD) represents the total average cost for a facility to potentially implement the 2020 OLD MACT updates.[25] Based on the remote location of the VMT, severe weather climate, seasonal construction season, large tank size, and shortened project timeline to meet compliance dates, the implementation of the March 12, 2020, OLD MACT updates as written would greatly exceed the EPA estimated cost of $2.47 million (2016 USD) (equals $2.82 million (2021 USD)).[26]

[25] EPA Docket No. EPA-HQ-OAR-2018-0074, July 11, 2019, Economic Impact and Small Business Analysis for the Proposed Organic Liquids Distribution (OLD) Risk and Technology Review (RTR) NESHAP. Larry Sorrels, Economist U.S. EPA/OAQPS/HEID/AEG (C439-02).

[26] 2016 USD adjusted to 2021 USD using an inflation rate of 14.3% based on the US inflation calculator. https://www.usinflationcalculator.com/.

Table 19. Excerpt from EPA's National Impacts of the 2020 Risk and Technology Review to OLD MACT

Table 4 - Summary of Costs of Final Amendments by Equipment Type, in Millions[27] [2016 USD]				
Equipment type	Capital cost	Total annualized cost (without annual recovery credits)	Annual recovery credits[28]	Total annualized cost (with annual recovery credits)
Storage tanks	2.28	0.29	0.17	0.12
Tank Degassing	0	0.42	N/A	0.42
Flares	0.19	0.36	N/A	0.36
Deletion of 240-hr exemption for control device maintenance during transfers (Transfer racks)	0	0.88	N/A	0.88
Total	*2.47*	*1.95*	*0.17*	*1.78*

4.3.2 Economic Feasibility to Install a Closed-Vent System on Existing Conservation Vents

Summary of Costs Presented by Alyeska

Currently, during normal operations, the crude oil storage tanks utilize a closed vent system to route to a vapor collection system; venting is only uncontrolled during emergency, unplanned events. Alyeska considered two design options for evaluating the possibility of installing a redundant capture system to collect vapors from the conservation vents during periods where open venting currently occurs.

Option 1 involves the installation of a redundant closed vent system on each tank that would be used when there was a problem with a valve that controls the flow of vapors from a tank to the main closed vent system. New equipment includes piping to each tank with tie ends to existing vapor collection system, motorized valves, and an external rack system (operated to withstand seismic events, snow loading, and thermal expansion/contraction). Option 1 uses existing compressors. Note, this option would not address problems that occur downstream from the tanks such as the compressors that move the vapors to the control devices or the control devices themselves. Further, during power outages, venting to atmosphere would still occur.

A breakdown of the cost basis for Option 1, provided in the petition, is as follows:

- Engineering/Design: $3.3 million

[27] Table 4 to National Impacts of the 2020 Risk and Technology Review to OLD MACT. https://www.federalregister.gov/documents/2020/07/07/2020-05900/national-emission-standards-for-hazardous-air-pollutants-organic-liquids-distribution-non-gasoline.

28 This estimate reflects the total annualized costs without product recovery as a credit.

- Materials: $7.4 million
- Construction/implementation: $35.3 million
- Contingencies/escalation: $13.9 million

Option 2 includes the installation of a redundant vapor recovery system while incorporating a new vent collection system (option one), but more involved with the addition of tank flange connections, two compressors, one incinerator, high- and low-pressure knockout drums (2 each), two pumps, vent gas coolers, major and utility piping, pipe rack supports, instrumentation, control valves, and a structure for the new compressors and pumps. Alyeska proposed a total cost of $125 million (2021 USD), broken down as follows:

- Engineering/Design: $6.8 million
- Materials: $34 million
- Construction/implementation: $54.4 million
- Contingencies/escalation: $28.5 million

Limitations

As previously stated, JBE did not have access to the underlying cost data including the original 2011 study or the updated 2016 study referenced in Attachment 8 to the October 7, 2020, Motion to Stay filed in the D.C. Circuit. As such, the assessment of determining whether the cost estimates for Option 1 and Option 2 are reasonable are qualitatively based on historic project knowledge of JBE staff obtained by working on similar projects in the oil and gas sector.

Economic Opinion for Option 1

Option 1 creates a new low-pressure header that would tie into the existing vapor collection system. This option would eliminate venting caused when a vapor valve to a specific tank malfunctioned but would not change venting to atmosphere caused by a power outage. As this option would only reduce a portion of the venting to atmosphere, evaluating the cost on a ton pollutant removed per dollar spent was estimated.

The total time the conservation vents currently route to atmosphere is inconsistent year on year due to the unplanned nature of the release events. As such, the total emission of HAPs from the vents also varies. Thus, the worst-case emissions from Table 1 - *Vapor Volume Capture Efficiency Compared to Uncontrolled Tank Venting* to Attachment 2 to the October 7, 2020, Motion to Stay filed in the D.C. Circuit were used for this estimate. Table 1 provides emissions from 2005 to 2020, with year 2014 having the highest emission rate at 9.44 tpy of HAPs released from the vents. The reasoning for venting to

atmosphere is not provided in the Motion to Stay or the supporting documents to the motion. As such, the portion of venting that typically occurs due to power outage versus valve malfunction is unknown. Conservatively, then, the total estimated cost of Option 1 is divided by the total HAP emission of 9.44 tpy. This equates to an expenditure of over $6 million per ton HAP removed in a worst-case year. Based on the estimated cost to implement the 2020 OLD MACT revisions shown in Table 19 to this report, established economic feasibility thresholds established by EPA through the Prevention of Significant Deterioration (PSD) program, and an informal sense of the cost breakpoint at which economic infeasibility is realized, Option 1 is not economically feasible for the level of HAP control gained.

Economic Opinion for Option 2

Option 2 essentially provides a full-time backup vapor collection system and would reduce all conservation venting except for periods caused by a complete power outage. This option includes the header system described in Option 1, but instead of utilizing the existing compressors and other components of the vapor system, Option 2 would add new compressors and an additional incinerator. As this option is technically feasible and has no apparent safety issues, the feasibility comes down to whether the costs are reasonable for the level of control gained.

As described previously, the total time the conservation vents currently route to atmosphere is inconsistent year on year due to the unplanned nature of the release events. Thus, as done for the Option 1 analysis, the worst-case emissions for venting as provided in Table 1 - *Vapor Volume Capture Efficiency Compared to Uncontrolled Tank Venting* to Attachment 2 to the October 7, 2020, Motion to Stay filed in the D.C. Circuit was used for this estimate. Conservatively, year 2014 was used as this year has the highest HAP emission rate from 2005 to 2020. The total estimated cost of Option 2 is divided by the total HAP emission rate of 9.44 tpy. This equates to an expenditure of over $13 million per ton HAP removed in a worst-case year. Based on the estimated cost to implement the 2020 OLD MACT revisions shown in Table 19 to this report, established economic feasibility thresholds established by EPA through the PSD program, and an informal sense of the cost breakpoint at which economic infeasibility is realized, Option 2 is not economically feasible for the level of HAP control gained.

5.0 TITLE V AIR PERMIT REVIEW

For this analysis, draft Title V Air Permit Number AQ0082TVP03 issued May 31, 2017, was reviewed. At the time of review, this was the most current version of the Title V available. The focus of the Title V review centers around the following:

- Level of regulatory obligation to manage releases of HAPs from the conservation vents;
- Controls during planned maintenance; and
- Work practices for emptying and degassing storage tanks.

Additionally, the control of HAPs through measures to reduce VOCs is addressed.

Regulatory Obligation to Manage Releases of HAPs from the Conservation Vents

Each of the 14 fixed roof storage tanks (EU IDs 29 through 42, as listed in the Title V) is equipped with a conservation vent (also referred to as a PRD). To prevent structural damage caused by under or over-pressurization of the tanks, the conservation vents are designed to open and vent to atmosphere.

When tank pressure reaches the set point of the conservation vents, venting begins; this occurs when the internal pressure of any single crude oil storage tank is at or greater than 1.5-inch water column. During venting, vapors are released to the atmosphere to ensure the pressure or vacuum does not reach the structural threshold of the tank. Venting ends when that tank's internal pressure is less or equal to 1.2-inch water column, which provides indication that that vent valves have all closed. The conservation vents are designed to close once pressure returns to the set range; no manual closure or other manual action is required.

The Title V requirements governing the operation of the conservation tanks are provided in Table 20. Following this table, a discussion on the adequacy of environmental oversight on the conservation vents is provided.

Table 20. Title V Permit Number AQ0082TVP03 Requirements for Conservation Vents

Permit Section	Requirement Number	EU ID(s)	Regulatory Citation(s)	Permit Language
Section 3 - State Requirements	19	29 - 42	18 AAC §50.040(j) and §50.326(j); 40 CFR §71.6(a)(1)	The Permittee shall not cause or allow EU IDs 29 through 42 to vent to atmosphere. For purposes of this permit, venting begins when the internal pressure of any crude oil storage tank is at or greater than 1.5-inch water column. Venting ends when that tank's or the last tank's (if multiple tanks are venting) internal pressure is less or equal to 1.2 inch water column, which indicates that vent valves have all closed.
Section 3 - State Requirements	19.2	29 - 42	18 AAC §50.040(j) and §50.326(j); 40 CFR §71.6(a)(1)	Operate and maintain at least one pressure-sensing device on each crude oil storage tank in a manner that provides accurate, reliable readings of the tank's internal pressure.
Section 3 - State Requirements	19.3	29 - 42	40 CFR §71.6(a)(1) and (3)	Continuously monitor the pressure of each crude oil storage tank. Perform and document annual verification of system condition and operability of all crude tank pressure recorder/controllers.
Section 3 - State Requirements	19.5	29 - 42	40 CFR §71.6(a)(3) and (c)(6)	Report in accordance with Condition 70 for any venting to the atmosphere from the crude oil storage tanks, EU IDs 29 through 42.
Section 4 - Federal Requirements	37.2	29 - 42	40 CFR §71.6(a)(1); 40 CFR 63.2346(i), Subpart EEEE	Opening of a safety device is allowed at any time that it is required to avoid unsafe operating conditions.

The legal authority for EPA to regulate PRDs that vent to atmosphere is addressed under Sections 112(d)(2) and (3) and 112(h) to the CAA. To evaluate EPA's current view on work practice standards for PRDs that vent to atmosphere, reviewing other MACT standards helps determine the industry standard for HAP minimization. Based on the final rule language for both the Refinery Sector Rule (40 CFR 63, Subpart CC) and the Ethylene MACT (40 CFR 63, Subpart YY), EPA's current view on work practice standards is evident. Work practice standards for operating PRDs that vent to atmosphere include the following:

- Continuous monitoring;[29]
- Notification system(s), with operator notification being key;[30]
- Root cause analysis completed after release event;[31]
- Corrective action analysis;[32]
- Redundant prevention measures;[33]
- Release reporting; and,
- Election to reduce atmospheric venting to a predetermined set of hours per year.

Based on JBE's current understanding of operations, the following work practice standards are currently in practice at the VMT:

- A definitive pressure range for when venting to the atmosphere occurs has been established. This is critical for (1) knowing exactly when venting starts and ends and (2) being able to accurately report potential deviations from an established work practice standard. Title V Specific Requirement 19 fully addresses this.
- Monitoring is continuous and recorded through Alyeska's Process Instrumentation (PI) historian system. Monitors identify the pressure release event and record the time and duration of each release. Title V Specific Requirements 19.2 and 19.3 specify this.[34]
- Release reporting is required by Title V Specific Requirement 19.5.

[29] see 40 CFR §63.1107(h)(3)(i) for example.

[30] Ibid.

[31] see 40 CFR §63.1107(h)(3)(iii) through (v) for example.

[32] see 40 CFR §63.1107(h)(6) and (7) for example.

[33] see 40 CFR §63.1107(h)(3)(ii) for example.

[34] Continuous monitoring verified by Alyeska personnel on 10-19-21 call with PWSRCAC and JBE.

While it is clear that the VMT incorporates continuous monitoring, notification systems, and release reporting into their work practices for the conservation vents, there are several unknowns based on JBE's review of public datasets reviewed as part of this project. Each of these unknowns, related to the conservation vents, is summarized below.

- Whether operators are immediately notified upon venting and the exact operator procedure for when venting starts is unknown.
- Unknown if root cause and corrective action analyses are incorporated into Alyeska's current practices (though not regulatorily required).
- Unknown if reductant prevention measures are in place to minimize venting to the maximum extent possible.

Moving to a stricter standard, Alyeska could elect to incorporate the following additional practices (if not already in place): conduct root cause and corrective action analyses after release events, evaluate the use of redundant prevention measures, and/or elect to vent to atmosphere only during a predetermined set of hours on an annual basis.

Controls During Planned Maintenance

Periods of planned routine maintenance of a control device used to control storage tanks, during which the control device does not meet the emission limits specified in Title V Specific Requirement 37.1, must not exceed 240 hours per year. The emission limits as provided in condition 37.1 are shown below for reference.

- Reduce emissions of total organic HAP (or, upon approval, TOC) by at least 95 weight-percent or, as an option, to an exhaust concentration less than or equal to 20 parts per million by volume (ppmv), on a dry basis corrected to 3% oxygen for combustion devices using supplemental combustion air, by venting emissions through a closed vent system to any combination of control devices meeting the applicable requirements of Condition 38; OR
- Comply with the requirements of Condition 38.4 for routing emissions to a fuel gas system or back to a process.

Other than limiting the number of hours planned routine maintenance operations can be uncontrolled, the Title V does not further address this topic. Table 21 provides the Title V regulatory requirements pertaining to controls during planned maintenance.

Table 21. Title V Permit Number AQ0082TVP03 Requirements for Controls During Planned Maintenance

Permit Section	Requirement Number	EU ID(s)	Regulatory Citation(s)	Permit Language
Section 4 - Federal Requirements	37.15	29 - 42	40 CFR §71.6(a)(1); and §63.2378(c), Subpart EEEE	Periods of planned routine maintenance of a control device used to control storage tanks, during which the control device does not meet the emission limits in Condition 37.1, must not exceed 240 hours per year.
Section 4 - Federal Requirements	37.16	29 - 42	40 CFR §71.6(a)(1); and §63.2378(d), Subpart EEEE	If you elect to route emissions from storage tanks to a fuel gas system or to a process, as allowed by Condition 38.2, to comply with the emission limits in Condition 37.1, the total aggregate amount of time during which the emissions bypass the fuel gas system or process during the calendar year without being routed to a control device, for all reasons (except SSM or product changeovers of flexible operation units and periods when a storage tank has been emptied and degassed), must not exceed 240 hours.
Section 4 - Federal Requirements	38.8(k)(ii)	29 - 42	40 CFR §63.998(d)(2)(i) & (ii);	Storage vessel and transfer rack records. An owner or operator shall keep readily accessible records of the information specified in Conditions 38.8.k(i) and 38.8.k(ii), as applicable. (ii) A record of the planned routine maintenance performed on the control system during which the control system does not meet the applicable specifications of Condition 38.3.a or 38.5.a, as applicable, due to the planned routine maintenance. Such a record shall include the information specified in Conditions 38.8.k(ii)(A) through 38.8.k(ii)(C). This information shall be submitted in the Periodic Reports as specified in Condition 38.9.b(iii). (A) The first time of day and date the requirements of Condition 38.3.a or 38.5.a, as applicable, were not met at the beginning of the planned routine maintenance, and (B) The first time of day and date the requirements of Condition 38.3.a or 38.5.a, as applicable, were met at the conclusion of the planned routine maintenance. (C) A description of the type of maintenance performed.

Work Practices for Emptying and Degassing Storage Tanks

Practices for emptying and degassing storage tanks are not explicitly addressed in the Title V. The only mention of "tank degassing" occurs in reference to the hours performed for periods when a storage tank has been emptied and degassed being exempt from the 240 hours per year storage tank emissions can route to a fuel gas system or process to comply with achieving the OHAP emission limitations specified in Title V Specific Requirement 37.1.

The most recent example of EPA regulating the practice of "tank degassing" occurs in the 2020 updates to the Ethylene MACT (40 CFR 63, Subpart YY). Language excerpted from 40 CFR §63.1103(e)(10) is provided for context below.

> *"During storage vessel shutdown operations…until the vapor space concentration in the storage vessel is less than 10 percent of the lower explosive limit (LEL), …the owner or operator must determine the LEL using process instrumentation or portable measurement devices and follow procedures for calibration and maintenance according to manufacturer's specifications.*
>
> - *Remove liquids from the storage vessel as much as practicable.*
> - *Comply with one of the following: Reduce emissions of total organic HAP by 98 weight-percent by venting emissions through a closed vent system to a flare……. through a closed vent system to any combination of non-flare control devices……or to a fuel gas system or process.*
> - *Maintain records…including, if appropriate, records of existing standard site procedures used to empty and degas (de-inventory) equipment for safety purposes."*

Reducing HAPs via the Reduction of VOCs

The term "organic" in volatile organic compounds (VOC) means the pollutant is based on tetravalent carbon. "Volatile" simply means the chemical evaporates to some extent at standard temperature and pressure (due to a high vapor pressure at room temperature). At a given temperature and pressure, a substance with high volatility is more likely to exist as a vapor, while a substance with low volatility is more likely to be a liquid or solid. VOCs are a concern because when they are released into the atmosphere, they react with nitrogen oxides (NO_X) to form ozone. Ozone is known to cause adverse human health effects, but also to reduced agricultural crop and commercial forest yields.[35]

Many HAPs are also classified as a VOC; however, since not all VOCs are hazardous, not all hazardous materials are VOCs. The current list of HAPs contains 187 compounds.[36] Table 22 shows a list of potential chemical compounds emitted from operations at the VMT and provides their designation as a VOC and/or HAP.

[35] Effects of Ground Level Ozone: https://www.iowadnr.gov/Environmental-Protection/Air-Quality/Air-Pollutants/Effects-Ozone.

[36] EPA List of HAPs: https://www.epa.gov/haps/initial-list-hazardous-air-pollutants-modifications.

Table 22. Overlap of VOCs and HAPs Present at VMT

Pollutant	CAS Number	HAP?	VOC?
1,3-Butadiene	106-99-0	Yes	Yes
n-Hexane	110-54-3	Yes	Yes
Benzene	71-43-2	Yes	Yes
Toluene	108-88-3	Yes	Yes
2,2,4-TMP	540-84-1	Yes	Yes
Ethylbenzene	100-41-4	Yes	Yes
o-Xylene	95-47-6	Yes	Yes
Cumene	98-82-8	Yes	Yes
Naphthalene	91-20-3	Yes	Yes
Formaldehyde	50-00-0	Yes	Yes
1,1,1-Trichloroethane	71-55-6	Yes	Yes
Acenaphthene	83-32-9	Yes	*
Acenaphthylene	208-96-8	Yes	*
Anthracene	120-12-7	Yes	*
Benz(a)anthracene	56-55-3	Yes	*
Benzo(b,k)fluorathene	207-08-9	Yes	*
Benzo(g,h,i)perylene	191-24-2	Yes	*
Chrysene	218-01-9	Yes	*
Dibenzo(a,h)anthracene	53-70-3	Yes	*
Fluoranthene	206-44-0	Yes	*
Fluorene	86-73-7	Yes	*
Indeno(1,2,3-cd)pyrene	193-39-5	Yes	Yes
Phenanthrene	85-01-8	Yes	*
Pyrene	129-00-0	Yes	Yes

** Semi-volatile organic compounds (SVOCs) are a subgroup of VOCs that tend to have a higher molecular weight and higher boiling point temperature.*

The current Title V governing operations at the VMT regulates the emission of HAPs by regulating VOCs. The regulation of VOCs in the current Title V are summarized below for reference.

- Working loss and breathing loss vapors from the crude oil storage tanks (EU IDs 29 – 42) are collected and combusted in either the power boilers or the waste gas incinerators (EU IDs 1 - 6).[37]

- VOC emissions from the TBP system are limited to 18.5 tons of VOC per consecutive 12-month period (EU IDs 18-28, Specific Requirement 20). This equates to a limit of HAPs of 0.52 tons over

[37] Specific Requirement 19.1 to Title V Air Permit No. AQ0082TVP03.

the consecutive 12-month period. This limit was introduced to avoid PSD for VOC. This limit is achieved by limiting the following:

  - Hours of operation for both the TBP and associated boilers limited to 4,368 hours per 12-month consecutive period;
  - Processing rate through the TBP system is limited to 130,000 bbl (not including water) per consecutive 12-month period;
  - Controlling VOCs by combusting hydrocarbon vapors emitted from the TBP system in the internal combustion engines with catalytic converters or by reducing vapors using a carbon adsorption bed system (EU ID 28);
  - Only routing emissions to the dryer when dryer temperatures are above 100°F; and
  - Maintaining the TBP system process under negative pressure, relative to atmospheric pressure when in operation.

- The VMT elects to treat VOCs from ballast water by routing the exhaust from the wastewater air strippers (EU IDs 75 – 78) to one of two regenerative thermal oxidizers (EU IDs 79 and 80).[38] Based on the construction year of VMT's thermal oxidizers, 2008, it is expected the VOC capture rate for the oxidizer is 95% or greater.[39] An equal rate of capture for HAPs would be expected.

- Emissions of VOC and HAP from the loading berths must be captured at a rate of at least 98 weight-percent (EU IDs 47 – 50). Other than under a maintenance allowance, no marine loading can occur without routing emissions through the VMT vapor collection system.[40]

Conclusion of Findings

Based on a review of the current Title V and process knowledge, emissions of HAPs from the VMT are overall low compared to operations from other industrial sectors in the United States. The VMT has strong work practice standards and operational restrictions in place to ensure the environmental safety of plant personnel and the surrounding communities, such as Valdez, to the site.

To further enforce the regulation of HAPs from the VMT, the additional practices outlined below could be considered, noting the extent to which these practices are already in place (though not required by the Title V) is not known by JBE.

- Conservation Vents on Crude Oil Storage Tanks: Consideration of additional practices:

  - Root cause and corrective action analyses after release events
  - Use of redundant prevention measures

[38] Specific Requirement 28 to Title V Air Permit No. AQ0082TVP03.

[39] Regenerative thermal oxidizer vendor literature on VOC capture rate: http://www.gcesystems.com/regenerative-thermal-oxidizers.html.

[40] Specific Requirement 36.5 to Title V Air Permit No. AQ0082TVP03.

  - Election to vent to atmosphere only during a predetermined set of hours, on an annual basis

- Emptying and Degassing Storage Tanks: Consideration of additional practices:

  - Establish and permit elective work practice standards pertaining to the emptying and degassing of storage tanks
  - Strongly consider routing to a control device (e.g., one that is brought to the site as a portable package unit) or fuel gas system during degassing

Last, the PTE calculation for the uncontrolled tanker loading maintenance allowance is of note. The calculation is provided in the 2016 Title V Air Permit Renewal Application and shows the PTE of 388 tpy VOC and 10.9 tpy HAPs. It is unclear the number of maintenance events per year and the duration of each event. Without this additional information, the short-term emission of HAPs is unknown. As the emission of HAP is elevated during this scenario, future research into the hourly emission rate of HAPs to the Valdez community during maintenance could be warranted.

6.0 CONCLUSIONS

In summary, the claims made by Alyeska related to health and safety, technical feasibility, and economic feasibility presented in its public correspondence with EPA related to the 2020 updates to the OLD MACT were independently validated within this report and the supporting appendices. Overall, it is the opinion of JBE that Alyeska, in their appeal of the 2020 OLD MACT rule, appropriately represented the environmental impacts incurred due to operations at VMT. Further, Alyeska has demonstrated that its current configuration already achieves the level of HAP reduction the 2020 OLD MACT updates seek. Conclusions are provided below, organized by main objective identified in Section 1.3 to this report.

- Independent Evaluation of HAP Air Releases from the VMT: HAP emissions from the vapor recovery system, storage tank conservation vents, and other sources not covered by the OLD MACT were quantified and compared to those values represented by Alyeska in the Petition for Rulemaking, Reconsideration, and Stay. The emissions developed by JBE were slightly less than those presented by Alyeska in the Motion to Stay and in the air permit applications submitted historically. Thus, Alyeska's overall representation of HAPs released from the VMT is complete, accurate, and conservative.

- Comparative Analysis Evaluating VMT HAP Emissions "As Configured" versus 2020 OLD MACT Implementation: HAP emissions from the 14 fixed roof storage tanks controlled by vapor recovery were calculated, inclusive of emissions from the tank conservation vents using JBE created tank emission tools. Next, HAP emissions from the 14 storage tanks were calculated for the scenario that the tanks were converted from fixed roofs to internal floating roofs, where no conservation venting occurs – to represent one scenario of VMT compliance with the 2020 OLD MACT. Upon comparison, JBE's calculations demonstrate that VMT's current configuration emits less HAPs than a configuration where the 14 fixed roof storage tanks are converted to internal floating roofs. Thus, the suggestion by Alyeska to request EPA to allow a work practice standard for the conservation venting to atmosphere is reasonable.

- Health Risk Evaluation: The health risks to residents of Valdez, Alaska, posed by the uncontrolled releases of HAPs from the conservation vents and residual uncontrolled sources at the VMT, not addressed by the OLD MACT were calculated in a JBE created workbook. HAP releases from VMT were modeled using EPA's SCREEN3 Model with a focus on benzene. As demonstrated in Section 3, the benzene concentration released by the VMT, in its current as-built configuration, is below appropriate short and long-term health limits. Overall, the health risk for HAP exposure to Valdez and surrounding communities is low and does not pose unacceptable long term adverse human health impacts based on the SCREEN3 model results.

- Alternative Design Assessment: The safety, environmental, engineering, and economic considerations presented by Alyeska in reference to reconfiguring the existing crude oil tank farm to comply with the 2020 OLD MACT with internal floating roof or external floating roof tanks were evaluated. Neither of these two alternatives include the requirement for vapor recovery to the floating roof itself because this is not required by the regulation. Vapor recovery for an external floating roof tank is not feasible.

This report concludes the alternative design assessments presented by Alyeska offer no added benefit in regard to safety, environmental, or engineering aspects as compared to the current configuration of the VMT.

- Title V Air Permit Review: The VMT's Title V Air Permit was reviewed to evaluate the level of regulatory obligation to manage releases of HAPs from the conservation vents, controls during planned maintenance, and work practices for emptying and degassing storage tanks. EPA's regulatory approach to control of emissions from storage tanks has undergone a large measure of review over the past 30 years, but no real changes to the approach have evolved from all of that study and review (including several EPA risk review analyses for various sectors that use storage tanks). The terminal's Title V permit implements the provisions form those storage tank regulations in much the same ways as for many other refineries, terminals, and chemical plants across the U.S. Therefore, the facility's existing operating provisions as listed in the Title V permit were deemed suitable to their current situation.

  Recent experimental use of optical inspection methods is evolving (and has been adopted in California for certain situations) and may gain regulatory acceptance in the future; most likely as screening methods to layer on to existing control requirements. As these develop, they would be potentially applicable to the current terminal configuration as well as a floating roof scenario, but they would likely not alter the basic design considerations for why either of these would be selected.

  The Title V review resulted in the following findings:

  - Consideration of the additional practices:

    - Root cause and corrective action analyses after release events to atmosphere
    - Use of redundant prevention measures to minimize venting to atmosphere
    - Election to vent to atmosphere only during a predetermined set of hours, on an annual basis
    - Establish and permit elective work practice standards pertaining to the emptying and degassing of storage tanks
    - Strongly consider routing to a control device or fuel gas system during degassing

Future Recommendations for Research

The emission calculation for the uncontrolled tanker loading maintenance allowance is of note. The calculation is provided in the 2016 Title V Air Permit Renewal Application and shows the PTE of 388 tpy VOC and 10.9 tpy HAPs. It is unclear the number of maintenance events per year and the duration of each event. Without this additional information, the short-term emission of HAPs is unknown. As the emission of HAP is elevated during this scenario, future research into the hourly emission rate of HAPs to the Valdez community during such maintenance could be warranted.

The potential contribution of the recovered oil storage tank associated with the ballast water system should be investigated. Insufficient data was available to estimate emissions independently (they are listed as 7 tpy in the terminal's 2020 emissions inventory).

The emission rate of HAPs from the ballast water treatment or other wastewater treatment was not independently verified by JBE due to a lack of data including system configuration, flowrates, and sampling data, and this should be investigated also to better inform the worst-case emissions calculations.

Additional Limitations

JBE's work for this project was to review the implications of the potential application of a federal regulation. This work should not be treated as a design, an agency deliverable, or any form of direct support to the Alyeska's environmental compliance program. The majority of the work steps were performed by engineers with considerable work experience in the oil and gas sector that are registered professional engineers in various other states. JBE was selected in a competitive process based on the very strong experience of our proposed team, since our team members have worked on various projects individually in a number of U.S. states. The ability to perform an independent review of work performed anywhere is important and it is often the case that the best resources to perform such a review benefit from a national perspective, and as such, may not be located in the state where facilities to be evaluated happen to be.

Back to Agenda

Briefing for PWSRCAC Board of Directors – January 2022

ACTION ITEM

Sponsor: Roy Robertson
Project number and name or topic: 7520 - 2021 Drill Monitoring Annual Report

1. **Description of agenda item:** Staff will provide a briefing on the 2021 Drill Monitoring Annual Report that summarizes the drills and exercises that were attended by PWSRCAC staff in 2021. Staff is requesting Board acceptance of this annual report.

2. **Why is this item important to PWSRCAC:** PWSRCAC monitors drills and exercises as much as possible. OPA 90 and the PWSRCAC/Alyeska Contract address the requirements for drill monitoring activities by PWSRCAC. These reports have great value in tracking the history of oil spill preparedness and response by Alyeska, SERVS, and the PWS Shippers. They are important in tracking lessons learned and identifying and avoiding the reoccurrence of the same issues and challenges in the Prince William Sound oil spill prevention and response system. These reports have proven to be valuable tools in improving the prevention and response system, assisting contingency plan workgroups, and in planning large unannounced drills.

3. **Previous actions taken by the Board on this item:** The Board accepts the annual drill monitoring reports while the OSPR Committee accepts the individual reports throughout the year.

4. **Summary of policy, issues, support or opposition:** Project 752 - Preparedness Monitoring is in the FY2022 budget and annual work plan. This is an ongoing program.

5. **Committee Recommendation:** The OSPR Committee reviewed this report at its December 8, 2021 meeting and recommended Board acceptance of the 2021 Annual Drill Monitoring Annual Report.

6. **Relationship to LRP and Budget:** Project 752 Preparedness Monitoring is in the approved FY2022 budget and annual work plan.

7520--Preparedness Monitoring
As of December 10, 2021

FY-2022 Budget	
Original	$33,500.00
Modifications	
Revised Budget	$33,500.00

Actual and Commitments	
Actual Year-to-Date	$671.40
Commitments (Professional Services)	$15,000.00
Actual + Commitments	$15,671.40
Amount Remaining	$17,828.60

7. **Action Requested of the Board of Directors:** Accept the 2021 Annual Drill Monitoring Report for distribution.

8. **Alternatives:** None recommended.

9. **Attachments:** Draft 2021 Annual Drill Monitoring Report.

Prince William Sound RCAC
Annual Drill Monitoring Report

2021

Prepared by: Roy Robertson
Prince William Sound Regional Citizens' Advisory Council

2021 Exercise Report Index

Date	Report Number	Description
2/12/21	752.431.210212.OSRB3rapidNNex.pdf	Rapid Response Fleet Unannounced Exercise
3/23/21	752.431.210323.CPshipperEx.pdf	Polar Tanker and ConocoPhillips PWS Shipper's Exercise
5/25/21	752.431.210525.VMTIMTFieldEx.pdf	Valdez Marine Terminal IMT and Deployment Exercise
6/6/21	752.431.210606.LASpiritTow.pdf	LA Spirit Towing Exercise
8/19/21	752.431.210819.D51deploy.pdf	VMT Drainage 51 Settlement Pond Deployment
10/9/21	752.431.211009.SGHdeploy.pdf	Solomon Gulch Hatchery Training

2021 Exercise Summary

Prince William Sound Regional Citizens' Advisory Council (PWSRCAC) staff observed and wrote six exercises and training reports in 2021. Due to the COVID-19 restrictions Alyeska exercises were reduced in number and scale and had Covid-19 restrictions. These restrictions included having no one on the vessels and barges except for the crew members.

Tanker Towing Exercises

PWSRCAC staff chartered a vessel to observe the LA Spirit tanker towing exercise. This exercise was significant because it involved a foreign flagged tanker operated by TeeKay Shipping. PWSRCAC has encouraged Alyeska and the PWS Shippers to conduct exercises with the foreign flagged charter vessels as part of their normal towing exercise schedule. This exercise went very well with no equipment or communication issues. The crew onboard the LA Spirit appeared to appreciate getting the opportunity to participate in this exercise.

Open-Water Response Exercises

The majority of the exercises conducted by Alyeska consisted of open water barge exercises where the barge crews passed the towlines to the fishing vessels or workboats without the crew having to physically interact with each other. PWSRCAC staff chartered a vessel to observe an unannounced open water exercise with the SERVS Rapid Response fishing vessels from Cordova near Johnstone Point. This deployment went well but it took longer to deploy the equipment from the barge than the one-hour goal.

The escort tugs also conducted self-supported U/J oil recovery exercises in the Port of Valdez. All of these exercises had the common goal of limiting the vessel crew interaction with other vessel crews. PWSRCAC did not observe these exercises.

Nearshore Response and Sensitive Area Protection Exercises

Nearshore and sensitive area protections exercises were greatly reduced in 2021 because of the number of vessel crew interactions required for these types of deployments. Elements of the nearshore and sensitive area protection were conducted during the Valdez Marine Terminal exercise and the annual fishing vessel program trainings. Alyeska also deployed several geographic response strategies around Port Valdez.

Valdez Marine Terminal Drills

The Valdez Marine Terminal (VMT) conducted a worst-case scenario exercise on May 25 and 26 consisting of equipment deployments on the first day and a tabletop exercise on the second day. Originally these activities were planned to be conducted on the same day but an uptick in Covid-19 cases during that time created a need to reduce the interactions of participants. The tabletop exercise was conducted both physically in the Valdez Emergency Operations Center (VEOC) and virtually using the Teams application. Both portions of this exercise went well.

The VMT also conducted a deployment of boom on the settlement ponds for Drainage 51 at the VMT on August 19.

Annual Prince William Sound Shipper's Exercise

Polar Tankers and ConocoPhillips held the annual Prince William Sound Shipper's exercise on March 23-25, 2021. However, COVID-19 caused this exercise to be conducted entirely virtually using the Teams platform with people participating worldwide. This was a challenging exercise because of time zones and the use of the virtual command post. There were numerous lessons learned from this exercise, but the bottom line was that, while it is not ideal, a full-scale spill response can be managed through a virtual platform. However, personnel and equipment are still required to physically be on scene to contain, recover, and protect sensitive areas during an oil spill.

The Andeavor and Marathon Prince William Sound Shipper's exercise that was postponed in 2020 was planned to be conducted in October of 2021. However, due to the surge of the Covid-19 cases in the fall of 2021 in Alaska the exercise was canceled. Andeavor and Marathon proposed to conduct a series of workshops and trainings for the response community in 2022 instead of doing an all-virtual exercise. There will be a workshop on Alaska Wildlife response and one for a Regional Stakeholders Committee. Training will be conducted for the Incident Command System and the IAP software used to manage the PWS Shipper's spill responses.

SERVS Annual Fishing Vessel Training

PWSRCAC staff usually attends several in- and out-of-region fishing vessel trainings. Normally, 400+ contracted fishing vessels participate in SERVS' program and trainings in Kodiak, Homer, Seward, Whittier, Cordova, and Valdez. This year was not normal. The annual fishing vessel training activities were adjusted for the year. SERVS did require the vessel crews to take an online 8-hour hazwoper refresher course and submit their completion certificates. SERVS also conducted modified trainings in each port with two on-water days rather than the usual equipment hands-on training and one on-water day. While this training was not the ideal setup, it was much improved from last year because the vessel crews were allowed to regain their familiarization with the response equipment and tactics.

Suggestions for Future Exercises

The list of exercises and other suggestions below is not meant to be an exhaustive list of all areas that need further focus and attention, but PWSRCAC would suggest it is a good place to begin. It should be noted that many of the concerns and exercise issues that PWSRCAC have noted through the years have remained consistent across time. Most of these suggestions have not changed as drills and exercises have been restricted due to the COVID-19 precautions.

Large and Small Vessel Decontamination

Alyeska and the PWS Shippers have changed contractors for vessel decontamination in 2021. The new contractor is TCC which is one of Alyeska's primary contractors for other spill response activities. The timely decontamination of vessels both large and small is critical during a large spill response. Vessels moving personnel, equipment and supplies between the various harbors and staging areas may become oiled and need to be cleaned before returning to non-oiled areas. Additionally, vessels working on the response in the spill area need to be cleaned to keep oil from contaminating other clean areas or their own crews. This function needs to be established early in the response and work around the clock. This is a new function for TCC and will likely require additional people and equipment to support this part of the response. This function needs to be exercised soon to ensure that TCC has the capabilities to fulfill this function along with all of their other responsibilities.

Dispersant/ISB related

Alyeska and the PWS Shippers have recently switched contractors for aerial dispersant applications if they are needed and approved. The new contractor is MSRC, based out of Washington State, and they replaced the Anchorage-based Lynden. There are still some questions about the ability of the MSRC planes and how this new system should be exercised.

Dispersant, SMART monitoring, and ISB-related exercises tend to be practiced as individual components, and this separation of components may not reflect how these tactics would be employed in a real event. For example, it's possible that both aircraft and tug-based spray dispersant spray system would be in play at the same time, and both these efforts would need SMART monitoring from a vessel on the water as well as spotter aircraft.

- The MSRC dispersant system should be exercised to verify the overall system including the spotter plane, aircraft and spray system, and dispersant monitoring capabilities.

- Council suggests that, during an exercise or training, more of the various components of dispersant application be run simultaneously and managed as they could occur in a real event, versus as separate components.

Tanker Towing / Tanker Arrest Exercises

SERVS's goal has been to conduct eight tanker arrest exercises per year, though the tanker contingency plan technically requires only one to be conducted each quarter of the year.

PWSRCAC has been requesting that some of the foreign flagged spot charter vessels that have increased in number the past year be used in the emergency towing exercises that SERVS conducts. This year the LA Spirit participated in a towing exercise and the exercise went very well. PWSRCAC encourages more of these spot charter vessel exercises when the opportunities exist. Emergency tether and towing exercises should be conducted to ensure equipment compatibility and communications ability.

Open-Water Response

The four open-water Oil Spill Response Barges (OSRB), despite minor differences, are now all essentially standardized. This consistency across platforms allows crews to transfer between barges easier, make training back-up personnel easier, and simplify working with the contracted FV fleet.

The OSRB deployments were the one part of the exercise program that was able to be exercised the most during 2021 because they allowed separation of the vessel crews. These exercises were conducted with the Tier 1 vessels because they are the ones that would be called out to work with the barges in an actual incident.

Specific open water-related suggestions:

- Covid-19 precautions have limited the interface and training between SERVS Response Coordinators on the OSRBs and on other vessels with the PWS response system. This reduced amount of face-to-face interaction has likely reduced equipment deployment efficiencies. One of the results of the reduced training time is increased deployment times. Once the barges arrive on scene at a spill it is critical

for their recovery systems to begin working as fast as safely possible because oil in open water only gets harder to recover through time.

- Work to verify that four barge crewmembers are truly enough to support 18 hours of operations prior to relief crews arriving. PWSRCAC has voiced concerns through the years that a crew of four is not sufficient.

- Continue to build back-up crew bench strength so that ECO crews can be assured back-up support in a real event. Alyeska has been training TCC responders to work on the barges and we think that should continue.

- As discussed above, more work in darkness and limited visibility.

- As discussed above, the PPE element and radio communications are still unresolved.

Operating in Darkness and Dense Fog

Operating in darkness and foggy situations has been included in this list for many years because much of the winter in Alaska is darkness, and long periods of fog or reduced visibility due to weather is not uncommon for the Prince William Sound area in either summer or winter.

Recognizing that darkness and limited visibility are a reality, PWSRCAC suggests that more training and exercise activity take place in darkness or periods of limited visibility, and include more fishing vessels and their respective crews so proficiency of working in the dark is improved. In addition, the ECO tug fleet has specific capabilities (FLIR cameras and Rutter Radar spill processing) that allow them to better see oil in limited visibility. More exercises using this improved technology should be conducted with the use of targets on the water for the tugs to practice tracking and positioning the barges correctly.

The PWS Tanker Plan calls for nearshore recovery operations to occur for twelve hours a day even during winter when there is only six hours of daylight. In the past there have been a few exercises to work on tactics for oil recovery in the nearshore environment. Operating in reduced or no visibility presents risks to vessels, crews and equipment that must be addressed to safely perform recovery operations during these times. Specific tactics for operating in these low or no visibility conditions are not included in the current response plan. Structured exercises should be conducted to determine what tactics can and should be used to safely recover oil during darkness or fog.

Fishing Vessels

The SERVS Fishing Vessel Program is the backbone of the oil spill response system in Prince William Sound. Alyeska made the proper decision to not conduct the annual fishing vessel trainings during 2020 because of the response to COVID-19. In 2021, Alyeska had to make some modification to their fishing vessel training but did an excellent job of getting vessel

crews trained. Hopefully, more hands-on training with the spill response equipment will be possible in 2022.

Safety

Safety is always the top priority during exercise and responses. Alyeska constantly emphasizes their safety culture during trainings and exercises and this has carried over on many of the fishing vessels that are part of the SERVS fishing vessel program. We have cited two exercises over the last few years that had safety concerns that should be addressed. One was the ability for the OSRB crews to wear a respirator and be able to communicate via radio to other vessels working with them. The other concern is ability to check vapor levels of the mini-barge tanks while offloading without having to lean over the open hatch. PWSRCAC has not been able to observe that these concerns have been addressed because of the lack of exercises and restrictions due to COVID-19.

Valdez Marine Terminal

In a broad sense, PWSRCAC would suggest that all tactics in the VMT technical manual be exercised in a 5-year plan cycle and that exercises take place over a variety of seasons and conditions.

Specific VMT-related suggestions include:

- Continue with the multi-day Duck Flats training and conduct a similar intensive training for the Solomon Gulch Hatchery. The current training for the deployment of the Duck Flats by Alyeska is excellent and should continue. Much attention has been given to the Duck Flats deployment over the past several years, and Council staff have observed the general proficiency level of responder increase. The connection of boom ends under tension in particular has been a responder safety concern, and SERVS has done a good job addressing this topic. Continue this work on the Duck Flats, but also conduct a similar training for the Solomon Gulch Hatchery.

- Drainage 58 and Scenario 5 improvements. Exercises to address additional recovery capacity options for Drainage 58 and scenario 5. Discharge rates in this scenario far overwhelm the two Crucial skimmers expected to perform recovery. Exercise to focus on complete containment booming at Drainage 58, as the boom needs to be better anchored on its ends to prevent the large gaps observed in the past.

- Over the last several years, PWSRCAC has pointed out the failure of the boom ends at the Drainage 58 containment site at the Fluor dock and jetty by the settlement pond outflow. Alyeska installed a stout tidal slider for connecting the boom to the Fluor dock. This is great improvement to the system. The other side of the containment strategy can still be improved by the addition intertidal boom and evaluating the best boom placement for that beach.

Sensitive Area Protection & Nearshore Response

There is a difference between nearshore response and sensitive area protection components in spill response. The missions of these two elements are not the same, though response equipment, vessels, asset management, and training are very similar and overlap. Nearshore response systems should be designed to intercept and recover oil, as that oil gets close to shore, by working the leading edge of the spill. The mission of the sensitive area protection function is to get out ahead of the spill, and boom sensitive areas prior to oil reaching or threatening those areas. The management and logistical support for both of these operations can be challenging and complex, but it's important to realize that they have different goals despite similar and/or shared resources and management.

Sensitive Area Protection

- The testing for the various GRS sites throughout Prince William Sound has been excellent and these exercises should continue.

- The new Valdez boat harbor is now operational and changes need to be made the Valdez Duck Flats protection scheme. Exercises will need to be conducted to test the new boom configurations.

Nearshore Response

Nearshore response exercises will always be high on the Council's priority list simply because of the sheer volume of fishing vessels associated with this response area. The crews of all of these vessels need to be proficient with the equipment, and equipment does continue to change over time. Some examples of changing equipment were internalized mini-barge pumps or the new 13-disc Crucial skimmers.

- The Tanker Contingency Plan notes that Nearshore will perform recovery operations for twelve hours a day, which means it's inevitable that many of those hours will require operating in reduced visibility during winter months, or foggy days in summer. As nearshore operations generally do not take place during these situations, we do not have very good benchmarks regarding what operations can safely be conducted, or how to adjust tactics accordingly. More exercises are needed to refine these limited visibility Nearshore parameters.

- SERVS has been working to ensure responder safety by taking air reads at open hatch covers while offloading mini-barges. The open hatches are necessary to some degree so that responders can watch liquid levels drop and adjust or turn off pumps accordingly. SERVS should consider mounting air monitoring sniffers on a longer pole, or using a hose or tube to get responders farther away from the hatches they are opening. PWSRCAC has concerns that vapor levels could be elevated by concentrating the oil in a

mini-barge as mentioned previously. It's good that SERVS is working to quantify vapors in this potentially hydrocarbon-rich atmosphere, and ultimately protect responder health, but the process still needs some refinement.

Unannounced Exercises

Unannounced drills provide the only real measure of a plan holder's ability to respond at a point in time and at a moment's notice. These drills have the ability to test areas of a response that cannot easily be tested otherwise, such as personnel readiness and resupply capabilities. There could even be unannounced aspects to a known event, such as verifying responders have proper PPE once they arrive on scene or discussing what an elevated and unsafe air read would mean for responders and given process, etc.

- No-notice exercises are valuable and should be continued periodically to help ensure readiness. SERVS uses these types of exercises to good effect to monitor their rapid response fleet.

Briefing for PWSRCAC Board of Directors – January 2022

ACTION ITEM

Sponsor: Danielle Verna and the Scientific Advisory Committee

Project number and name or topic: 9511 – Prince William Sound Forage Fish Surveys

1. **Description of agenda item:** This agenda item is seeking Board acceptance of a final report titled "2021 Prince William Sound Forage Fish Observations" by Dr. Scott Pegau of the Prince William Sound Science Center. Dr. Pegau conducted ariel surveys of forage fish throughout Prince William Sound in June 2021 to identify locations where forage fish congregate and may be impacted by a spill. The report describes the methods and results of the survey with comparison to prior survey years. This was the third of four expected years for this project; the Board has approved funding to conduct surveys for a final year in 2022. Dr. Pegau will provide a brief presentation about the report to the Board and will be available to answer questions, along with Council project manager Danielle Verna.

2. **Why is this item important to PWSRCAC:** This item is important to the PWSRCAC mission because it supports monitoring of forage fish and habitat in Prince William Sound that may be impacted by the operations of the terminal and tankers and may require additional protection in the event of an oil spill. Forage fish, including herring, sand lance, capelin, and euchalon, are a critical component of the marine food web. Prince William Sound provides valuable spawning grounds for these species. Forage fish are also important to subsistence, recreational, and commercial fisheries, both directly and indirectly. Results from the aerial surveys of juvenile forage fish contribute to an ongoing dataset of forage fish species and locations in Prince William Sound. Data from the survey will be archived in the Alaska Ocean Observing System portal and can help inform future monitoring or response to an oil spill. Data will also contribute to the Herring Research and Monitoring program's effort to predict recruitment potential (sponsored by the Exxon Valdez Oil Spill Trustee Council).

3. **Previous actions taken by the Board on this item:**

Meeting	Date	Action
XCOM	4/22/2019	Approved a sole source contract with the Prince William Sound Science Center in an amount not to exceed $42,500 to conduct the FY2019 aerial herring fish surveys along the Prince William Sound coastline.
Board	1/23/2020	Accepted the report titled "2019 Prince William Sound Forage Fish Observations" by Dr. Scott W. Pegau of the Prince William Sound Science Center dated November 4, 2019, as meeting the terms and conditions of contract number 9511.19.01, and for distribution to the public.
XCOM	4/30/2020	Approved a contract with the Prince William Sound Science Center, to conduct the Prince William Sound Forage Fish Surveys Project 9511, at an amount not to exceed $43,600.
Board	5/21/2020	Adopted the FY2021 budget as presented. This project was approved as a part of the FY2021 budget.

Board	1/28/2021	Accepted the report titled "2020 Prince William Sound Forage Fish Observations" by Dr. Scott Pegau of the Prince William Sound Science Center dated September 10, 2020, as meeting the terms and conditions of contract 9511.20.01 and for distribution to the public, and authorized a contract with the Prince William Sound Science Center for this project for FY2021.

4. **Summary of policy, issues, support, or opposition:** None.

5. **Committee Recommendation:**
The Scientific Advisory Committee recommends the Board of Directors accept this report.

6. **Relationship to LRP and Budget:** Project 9511 Herring/Forage Fish Survey is in the approved FY2022 budget and annual work plan.

9511--Herring/Forage Fish Survey

As of December 10, 2021

FY-2022 Budget	
Original	$46,300.00
Modifications	
Revised Budget	$46,300.00
Actual and Commitments	
Actual Year-to-Date	
Commitments (Professional Services)	$3,800.00
Actual + Commitments	$3,800.00
Amount Remaining	$42,500.00

7. **Action Requested of the Board of Directors:** Accept the report titled "2021 Prince William Sound Forage Fish Observations" by the Prince William Sound Science Center, dated September 21, 2021, as meeting the terms and conditions of Council contract 9511.21.01 for distribution to the public.

8. **Alternatives:** None recommended.

9. **Attachments:** Draft report titled 2021 Prince William Sound Forage Fish Observations by Dr. Scott Pegau from the Prince William Sound Science Center.

2021 Prince William Sound Forage Fish Observations

21 September 2021

W. Scott Pegau

Prince William Sound Science Center, Box 705, Cordova, AK

Contract 9511.21.01

Executive Summary

This project conducts aerial surveys of forage fish in Prince William Sound (PWS) to identify areas where forage fish congregate. It builds upon previous aerial forage fish surveys conducted in PWS. The aerial surveys allow for identifying forage fish schools that are in water too shallow for a survey vessel. This was the third year of an expected four-year project. The objective of the work is to provide aerial surveys of forage fish schools in PWS during June to map areas that they commonly use and therefore understand the potential impacts of a spill. The data from this project also provides an index of age-1 Pacific herring (*Clupea pallasii*) that is used by the *Exxon Valdez* Oil Spill Trustee Council (EVOSTC) sponsored Herring Research and Monitoring (HRM) program to predict recruitment to the spawning stock. The HRM program conducts aerial and acoustic surveys of the herring spawning stock within PWS and works to understand changes in the herring population. These aerial forage fish surveys complement the HRM effort by providing the only indication of recruitment potential.

Aerial surveys were conducted in June of 2021. Fish species, school size, and the number of schools were recorded along with time and position electronically and on paper. Observations of whale numbers, species, date, and time are also logged. The surveys followed the coastline throughout Prince William Sound and took 10 flight days to complete. Surveys are only flown when weather permits so the survey period extended throughout June.

Pacific herring was the dominant species observed, followed by Pacific sand lance (*Ammodytes hexapterus*). Based on historical surveys we expected to also observe capelin (*Mallotus villosus*) and eulachon (*Thaleichthys pacificus*). In recent years there have been very few observations of these latter two species and no eulachon or capelin were observed this year. The relative proportion of herring and sand lance varied along the coast. Sand lance were relatively rare for the second year in a row with only a few schools seen in normal areas such as Middle Ground Shoal and Naked Island (see map in Appendix for these locations), more were observed along Perry Island than in the past. Whale numbers were higher than the last two years but remain low.

Large numbers of juvenile herring were observed this year. They were concentrated in the northwest and eastern sections of the Sound. The number of schools observed was the greatest since 2017 and the weighted school index was similar in value to 2017. This may indicate that another large herring year class is in the system. The 2017 observations were of the 2016 year-class that was the largest seen in the Gulf of Alaska. We do not expect to see the fish observed in the aerial surveys this year to recruit to the spawning biomass until 2023. These large recruitment events are critical to the recovery of herring.

An unusual observation this year was of adult herring preparing to spawn in Simpson Bay in mid-June. This spawning event has been reported by a local oyster farmer many times in the past but this is the first year the fish were observed. The fish were sampled for age analysis by the Alaska Department of Fish and Game.

Introduction

Forage fish are small, schooling pelagic fish and are important to marine ecosystems. They may be commercially harvested or sustain a wide variety of large predatory fish which may, in turn, be commercially harvested (Pikitch et al., 2014). They also directly and indirectly support subsistence and recreational fisheries. Ecologically, they represent a vital trophic pathway between lower trophic level plankton and upper trophic level predators such as fish, seabirds, and marine mammals (Cury et al., 2000). Many of the forage fish can be found along the coasts in shallow water, which makes them susceptible to impacts from oil spills. Common forage fish in the Gulf of Alaska are Pacific herring (*Clupea pallasii*), capelin (*Mallotus villosus*), Pacific sand lance (*Ammodytes personatus*), juvenile walleye pollock (*Gadus chalcogrammus*), and eulachon (*Thaleichthys pacificus*).

Despite their importance to marine ecosystems, little is known about changes in forage fish distribution and abundance over time. They are difficult and expensive to monitor because they are patchy in their distribution, comprised of species with widely divergent life histories and habitats, and predisposed to experience large fluctuations in abundance. Much of what we know comes from surveys that target other species and were not designed for forage fish (Anderson and Piatt, 1999; Ormseth, 2014), or from studies of predator diets (Hatch and Sanger, 1992; Piatt and Anderson, 1996; Womble and Sigler, 2006; Yang et al., 2005). Fluctuations in the abundance of forage fish have been associated with highly variable recruitment of strong year classes over short periods (Hay et al., 2001) and climate-mediated regime shifts over longer periods (Anderson and Piatt, 1999).

The coastal waters of PWS and other fjords and embayments in the Gulf of Alaska provide important nursery areas and spawning grounds for some forage fish species (Arimitsu et al., 2008; Brown, 2002; Robards, 1999). In these coastal areas, the distribution and abundance of forage fish are related to environmental gradients in temperature and freshwater inputs, as well as interactions with other organisms (e.g., zooplankton prey, gelatinous zooplankton competitors, and marine predators) (Abookire and Piatt, 2005; Arimitsu et al., 2016; Speckman et al., 2005).

Past survey methods for estimating the abundance and distribution of forage fish in PWS have included hydroacoustic surveys coupled with trawl sampling (Ostrand et al., 1998; Thedinga et al., 2000) and aerial surveys for surface-schooling fish (Brown and Moreland, 2000; Norcross et al., 1999). Hydroacoustic assessment of fish biomass in the water column works particularly well in deep, open waters (Carscadden et al., 1994; Demer et al., 2011), but has several disadvantages when working in shallow coastal areas: 1) the transducer near-field and surface noise exclude detections shallower than 4-5 meters (m); 2) the cone-shaped beam pattern covers a very narrow swath at shallow depths; 3) trawl-capable support vessels are unable to operate safely in shallow rocky coastal areas; and 4) shallow fish schools may actively avoid vessels underway.

Aerial surveys are useful for counting near-surface fish schools (i.e., schools that may be visible from just below the surface to depths of 10-20 m depending on water clarity) in nearshore areas where it is normally difficult to conduct hydroacoustic surveys. The high speeds of the plane allow a large area to be surveyed quickly. They also allow us to determine the broad-scale distribution of schools visible from an airplane (Photo 1).

Like all remote sensing techniques, aerial surveys benefit greatly from on-the-ground validation of species composition and age class. Indeed, noting a disparity between separate hydroacoustic and aerial survey efforts for forage fish in PWS, Brown and Moreland (2000) recommended the use of both survey methods. While both survey techniques are not funded by the Prince William Sound Regional Citizens' Advisory Council (PWSRCAC), we were able to work with the forage fish project in the Gulf Watch Alaska (GWA) program that provides information from acoustic surveys. The GWA forage fish project collected fish from schools identified from the air to provide validation of the aerial observations. The GWA forage fish group came to Cordova in mid-June to provide dedicated validation work and contracted with a vessel for additional validation work. This approach allowed for the collection of more samples than in the past.

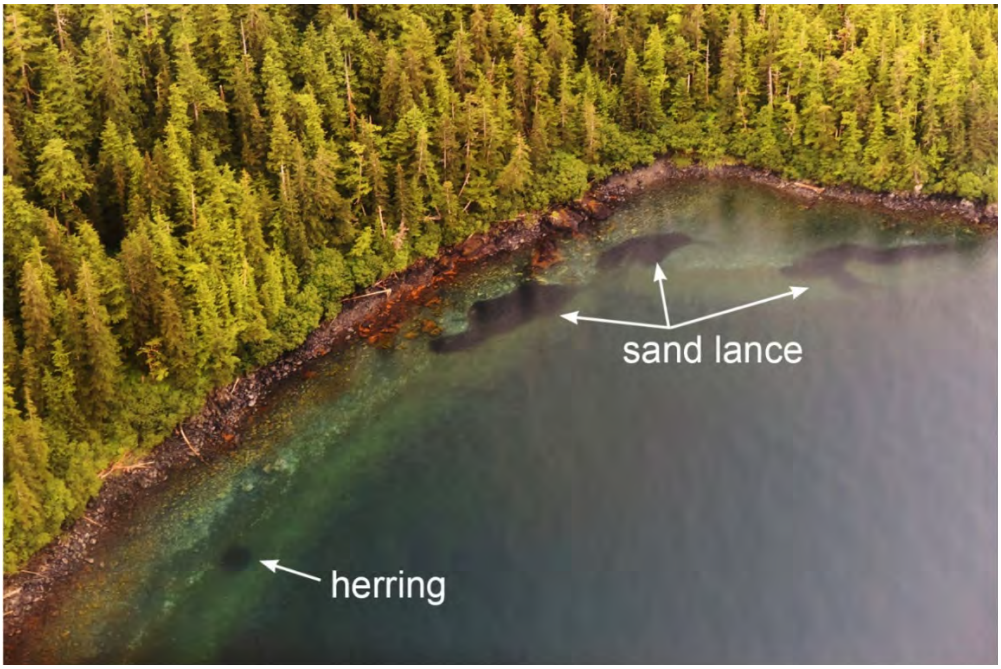


Photo 1. Aerial photograph of typical Pacific herring (n = 1) and Pacific sand lance schools (n = 3) along shorelines in Prince William Sound, Alaska. Herring schools are typically round or oval and sand lance schools are darker and irregularly shaped.

In this report, we describe the current distribution of coastal forage fish schools in PWS as observed during the June 2020 aerial surveys and provide some historic distributions for comparison. Aerial shoreline census surveys of forage fish schools in PWS occurred in the late 1990s (Brown et al., 1999; Brown and Moreland, 2000; Norcross et al., 2001; Suryan et al., 2002) and more recently (2010-2018) surveys were again conducted under auspices of the EVOSTC. Beginning in 2019, the surveys were conducted with funding from PWSRCAC.

Methods

Aerial shoreline census survey methods followed those established during the Sound Ecosystem Assessment (SEA) and Alaska Predator Ecosystem Experiment (APEX) (Brown and Moreland, 2000; Norcross et al., 1999). Aerial surveys are conducted from a Cessna 185 floatplane traveling at speeds of 200-240 kilometers per hour and a target altitude of 300 m. Surveys are

flown parallel to shore, but we occasionally circled back to verify observations when school densities are high. The entire coastline of PWS is flown. It normally takes approximately 12 days, flying four to five hours in a day, to complete a survey of the entire Sound. The section of the Sound flown on any particular day depends on the weather and aircraft schedule. The completed sections are mapped on the aircraft's GPS and on a paper map to ensure there are no gaps in coverage. The survey was flown in June to reduce identification errors caused when age-0 herring and sand lance become visible, typically in July.

There were two observers in the aircraft on each flight. The primary observer counts and identifies the schools while the secondary observer records the observations and looks for schools on the other side of the plane. The primary observer is the one on the shoreline side of the plane where most schools are observed. The primary observer has at least two years of aerial survey experience. Observations during flights are collected on the location, altitude, number, and size of schools of forage fish. A GPS is used to provide position information to an electronic recording platform and paper logs are kept as a backup record. A video camera is placed in a rear window to provide an additional record of the flight. Normally the video only covers a section of the flight because the video camera batteries do not last the entire flight time. Norcross et al. (1999) contains a detailed description of the survey design and analysis of errors associated with observations.

The schools are identified by species (Pacific herring, Pacific sand lance, capelin, and eulachon as well as unknown forage fish) and herring are classified by age (0, 1, or 2+). Age-1 herring are just over a year old in June and age-2+ herring are any herring older than one year old. Species identification was based on characteristics of the school including color, shape, location, and "flashing." Herring schools tend to be round (Photo 1) and the tendency of individuals within schools to roll creates a telltale flash of light. Younger (smaller) herring show a finer pattern of flashing compared to older fish. Adult herring (age-2+) tend to form larger schools in deeper water than age-1 herring. Sand lance schools tend to be darker in color, irregularly shaped, and in shallow areas with sand and gravel habitats (Photo 1, Norcross et al., 1999; Ostrand et al., 2005). Capelin tend to form large, crescent-shaped schools, whereas eulachon form very large shoals primarily associated with offshore waters and the Copper River Delta.

The size of schools are estimated using a sighting tube constructed of PVC pipe with a grid drawn on mylar on the far end (see Norcross et al. 1999 for details). The focal length (F) of the tube is 210 millimeters and a full tick mark on the grid is 1 centimeter. School size is reported as small (diameter < 0.5 ticks), medium (> 0.5 ticks and < 1.0 ticks), and large (> 1.0 tick marks). From an observation height of 300 m, this provides an equivalent surface area of < 75 m^2 for small schools, 75 – 300 m^2 for a medium school, and > 300 m^2 for a large school. We assume that the typical small school size is 0.25 ticks, medium school size is 0.75 ticks, and large school size is 1.25 ticks to develop the weighting criteria used in the development of the index. Since the area of the school is the square of the radius we get a medium school is nine times in area larger than a small school and a large school is 25 times larger. The index is then the sum of small schools, plus 9 times the sum of medium schools, plus 25 times the sum of large schools.

Whales are identified to species and the number observed is logged into the same software used for the forage fish observations. The species of whale is identified by a four-letter code. The code starts with the first two letters of the common name of the whale and ends with "wh." For instance, a humpback whale is logged as "huwh."

Validation of aerial observations is conducted by having the aircraft guide a vessel to a forage fish school. The aerial observers radio their species/age identification to the vessel. The vessel then attempts to sample the school using jigs, seine nets, cast nets, underwater cameras, and other gear that allows sampling from the school. The vessel records what the aerial observers indicated and what was determined from vessel sampling. At the end of the season, the validation observations are provided to the aerial survey project.

The species, number, and size information are mapped to show the locations of forage fish. The number of schools of age-1 herring is weighted by the school size to provide an index that can be used to provide an estimate of future recruitment.

Findings & Discussion

This year, 10 days were spent surveying. Most of the flights were conducted between June 9 and 18, but weather and other scheduling caused the last three flights to occur at the end of June. All of PWS is flown, including the outsides of Montague and Hinchinbrook islands as well as the islands in southwest PWS (Figure 1).

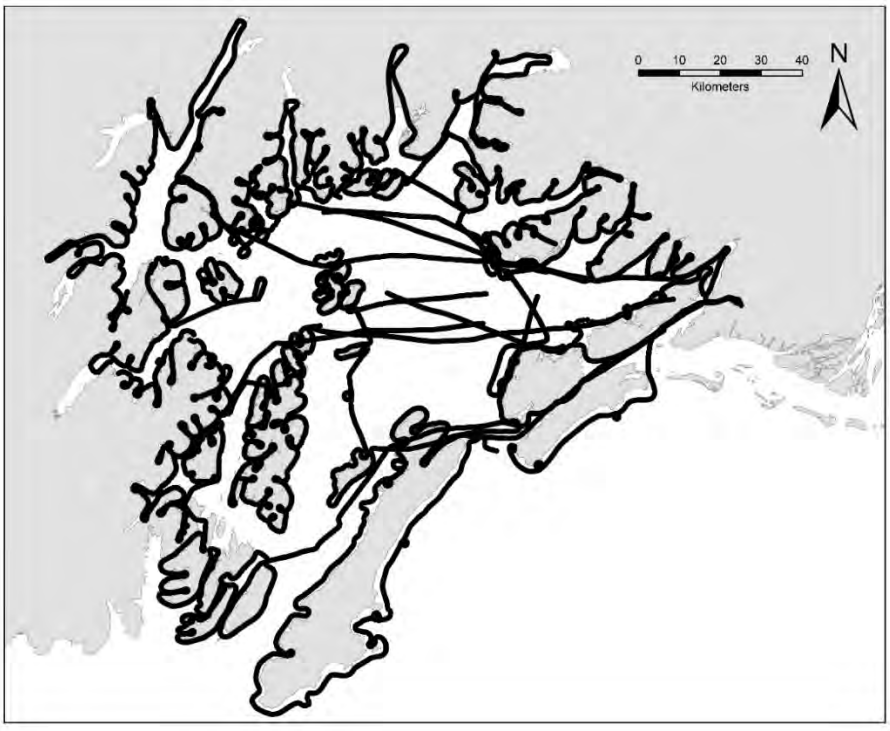


Figure 1. The 2019 survey flight tracks, which were essentially the same as the 2021 tracks. The apparent gaps in the survey flight tracks from 2019 are due to issues with the GPS recording device, but they were flown and recorded on the backup paper logs.

Forage fish school observations are mapped in Figure 2. Larger versions of the maps provided in Figure 2 and a map with the locations identified are provided as an appendix. Age-1 herring make up the majority of the observed forage fish schools. They are followed by age-2+ herring and sand lance. In 2021, there were relatively few sand lance and a very large number of age-1 herring. As often occurs, sand lance were concentrated on Middle Ground Shoal with some schools observed in other areas, particularly Perry Island this year.

This year we observed the most age-1 herring since 2017 (Figure 3). We counted 1028 small, 785 medium, and 112 large schools of age-1 herring. The distribution of age-1 herring was not uniform around PWS and was different in many respects to that seen in 2017 (Figure 4). There were large concentrations of schools in the eastern section and northwest near the top of Knight Island passage up to College Fjord. The medium and large schools were mostly found in areas with a large number of schools, such as northwester PWS. Very few fish were observed in northern PWS. The large number of schools observed is consistent with the herring recruitment peaking every four years. Large herring recruit classes around the Gulf of Alaska include the 2012 and 2016 year classes, although the 2012 year class was not large in PWS. This four-year cycle in recruitment was also seen in the 1970s and 1980s (Williams and Quinn, 2000).

Adult herring tend to migrate out of PWS by June and therefore we expect that we only see a small portion of the total adult population. There are always some age-2+ herring that remain in PWS. These may be fish that are not mature yet or ones that choose to feed within PWS instead of migrating into the Gulf of Alaska. An unusual observation this year was of a small population of spawning herring in Simpson Bay. They were misidentified from the air but were sampled by the validation vessel and identified as adult herring. ADF&G was able to collect fish from this population and the age structure was predominately age-3 and -4, which is very different than the main spawning population (mostly age-5). Spawning herring in Simpson Bay has been reported by a local oyster fisherman for many years but this is the first year we have been able to collect a sample. We don’t know if the spawning herring are ones that were not fully ripe during the early spawn event or represent a different population than observed earlier.

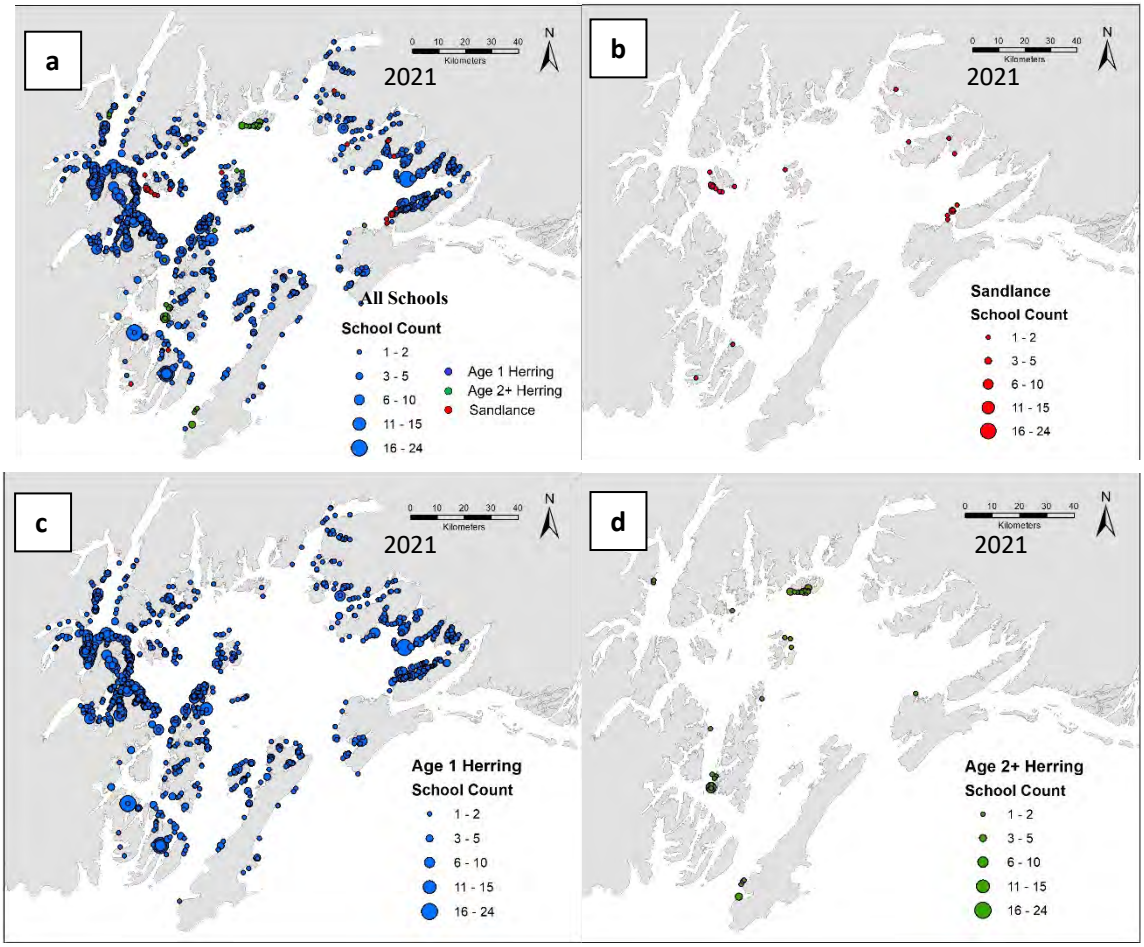


Figure 2. Observations of the number of schools for all forage fish (a), sand lance (b), age-1 herring (c), and age-2+ herring (d) in 2020. No capelin were seen this year.

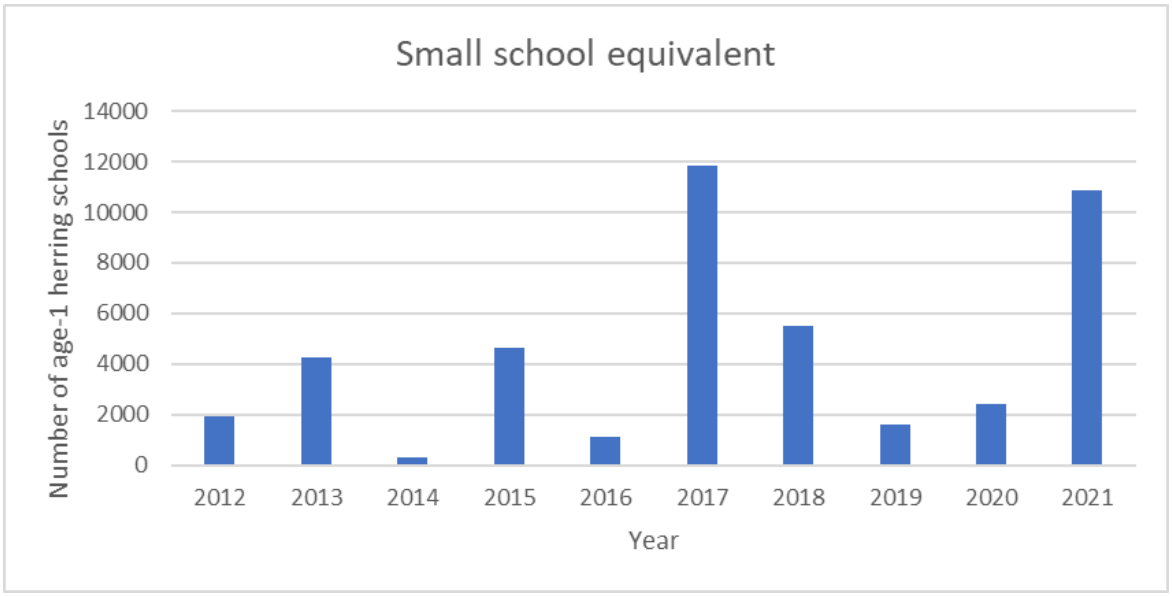


Figure 3. Number weighted by school size of age-1 herring schools by year.

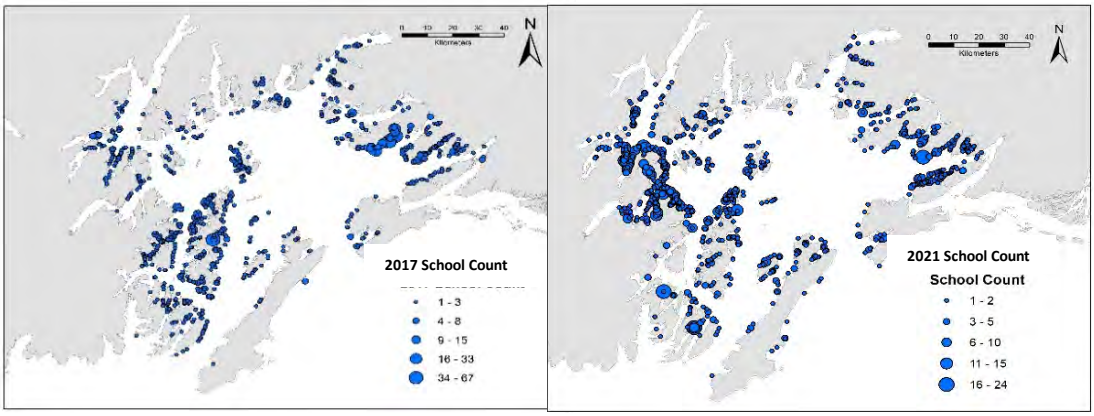


Figure 4. Distribution of age-1 herring schools in 2017 and 2021. These are the two years with the greatest number of age-1 herring schools observed.

Observations of whales also are collected during the surveys. A map of their 2021 distribution is provided in Figure 5. More humpback whales were observed than in the last two years. This is the third year in a row that fin whales were seen.

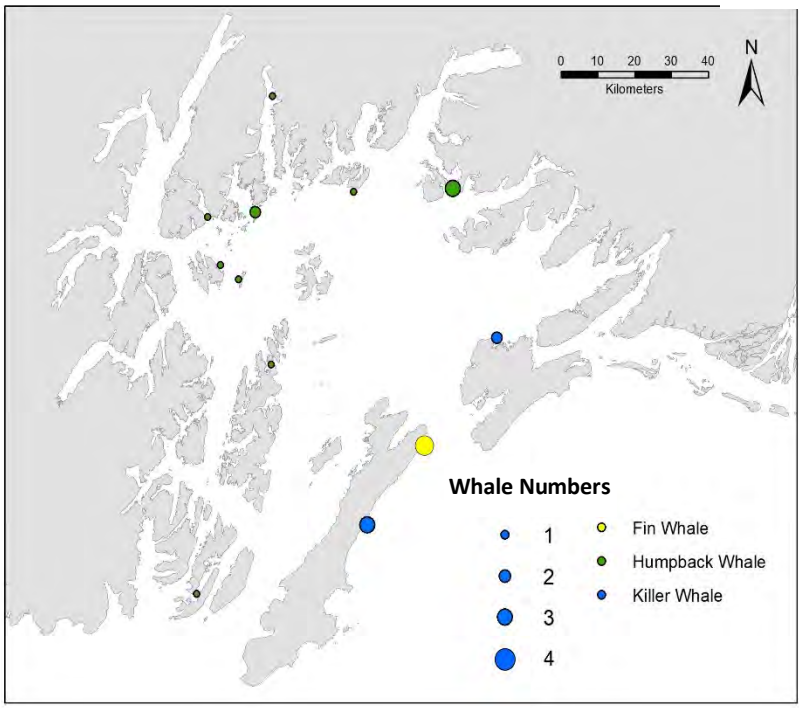


Figure 5. Type and number of individual whales observed during the forage fish surveys in 2021. The size of the circle depicts the number of individual whales observed, while the color of the circle indicates whale type.

The 2021 aerial survey data has been made available through the Alaska Ocean Observing System (AOOS) data portal at https://portal.aoos.org/gulf-of-alaska#metadata/2f2367fa-6f4c-44e6-9c7a-150dc156154c/project. Video was collected during many portions of the aerial survey and is available from Scott Pegau.

This year the Forage Fish group led by Dr. Mayumi Arimitsu of the United States Geological Service that we work with to provide validation of aerial observations were able to bring a small boat to Cordova to allow more opportunities for validation work in 2021. Over two days we were able to validate 23 aerial observations. Of those 23 observations, the aerial observers identified 21 as age-1 herring and 2 as sand lance. Neither sand lance observation was correct. Of the 23 schools identified as age-1 from the air, 19 were validated as age-1 herring, two were the adult herring preparing to spawn, one was a mix of age-1 and age-2, and one was age-2 herring. Additional validation was provided by Dr. Rob Campbell of Prince William Sound Science Center. He was able to sample two schools in Eaglek Bay. Those were identified by the aerial observers as age-1 herring and the vessel captured age-1 herring in both schools.

The historic 2014-2021 validation efforts found that identification errors often involved age-0 herring or age-0 sand lance, probably because these fish occur in overlapping regions and do not have as well-defined schooling characteristics. From the combination of all validation efforts, the July aerial survey identification error of herring is between 5-10% and the error in identifying sand lance is approximately 20%. Ignoring the errors associated with age-0 fish to simulate what we can expect to see in June, the error in identification of herring is about 5% and sand lance about 15%. The identification of the age of herring has a larger error than the identification of species. Ignoring the cases involving age-0 fish, herring identified as age-2+ by the aerial observers has been correct nine out of nine times, and 27 of 32 schools identified as age-1 were correct. Several schools of herring were confirmed to be herring, but it wasn't possible to estimate their age. We are currently working with the Forage Fish group to increase the number of schools sampled in June to provide better statistics on the observation errors when there are no age-0 fish expected.

Earlier school identification validation efforts were conducted in the late 1990s. Norcross et al. (1999) provided an analysis of 419 validation observations in PWS. In their work, only herring (N= 310) and sand lance (N=109) schools were validated. They found that herring identifications from the aircraft were correct 96.1% of the time and incorrect identifications from the air were generally associated with age-0 sand lance. In the validation dataset from the 1990s, sand lance were correctly identified 80.4% of the time and the errors involved sand lance incorrectly identified as age-0 herring. Our results are consistent with the larger set of samples collected by Norcross et al.

Conclusions and Recommendations

While the PWS herring populations remain low, they still represent the largest number of schools of forage fish observed. In 2021, the number of age-1 herring schools was large and may indicate that a second large year class in four years is in the system. The herring were concentrated in larger schools in the east near the spawning grounds and the northwest portion of PWS.

For the second year in a row, there were few observations of sand lance. Middle Ground Shoal and Perry Island were the areas with the greatest concentrations of sand lance. Capelin were not seen or captured by other surveys this year, although the summer forage fish survey was cut short by mechanical difficulties.

We have begun working with Dr. Arimitsu to analyze the validation and distribution data. The goal is to be able to identify the forage fish hot spots and hopefully understand the factors that influence changes in the distribution of the fish observed. If we can identify the conditions that lead to a particular distribution, we would have a better idea of where these forage fish might be if a spill were to occur.

Data from this project is also being used by the modeling project within the HRM program to predict recruitment to the spawning stock. By working with the HRM and GWA programs we can build a better understanding of the conditions that lead to the success and distribution of forage fish. That information is then used to predict changes in the herring populations and impacts to marine birds and mammals.

We have a proposal to the EVOSTC to support the surveys after next year as an input to the modeling effort. We recommend the PWSRCAC support the surveys for one additional year to ensure the continuation of the time series and build a time series that is better suited for determining the likely locations of forage fish and the potential connections to environmental variables. When the 2020 year class begins recruiting to the spawning stock in 2023, we will better understand the utility of these surveys in predicting incoming year-class strength. Before then, the maps of forage fish distributions that we will be able to generate will help identify sensitive nearshore areas in PWS.

Acknowledgments

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Appendix

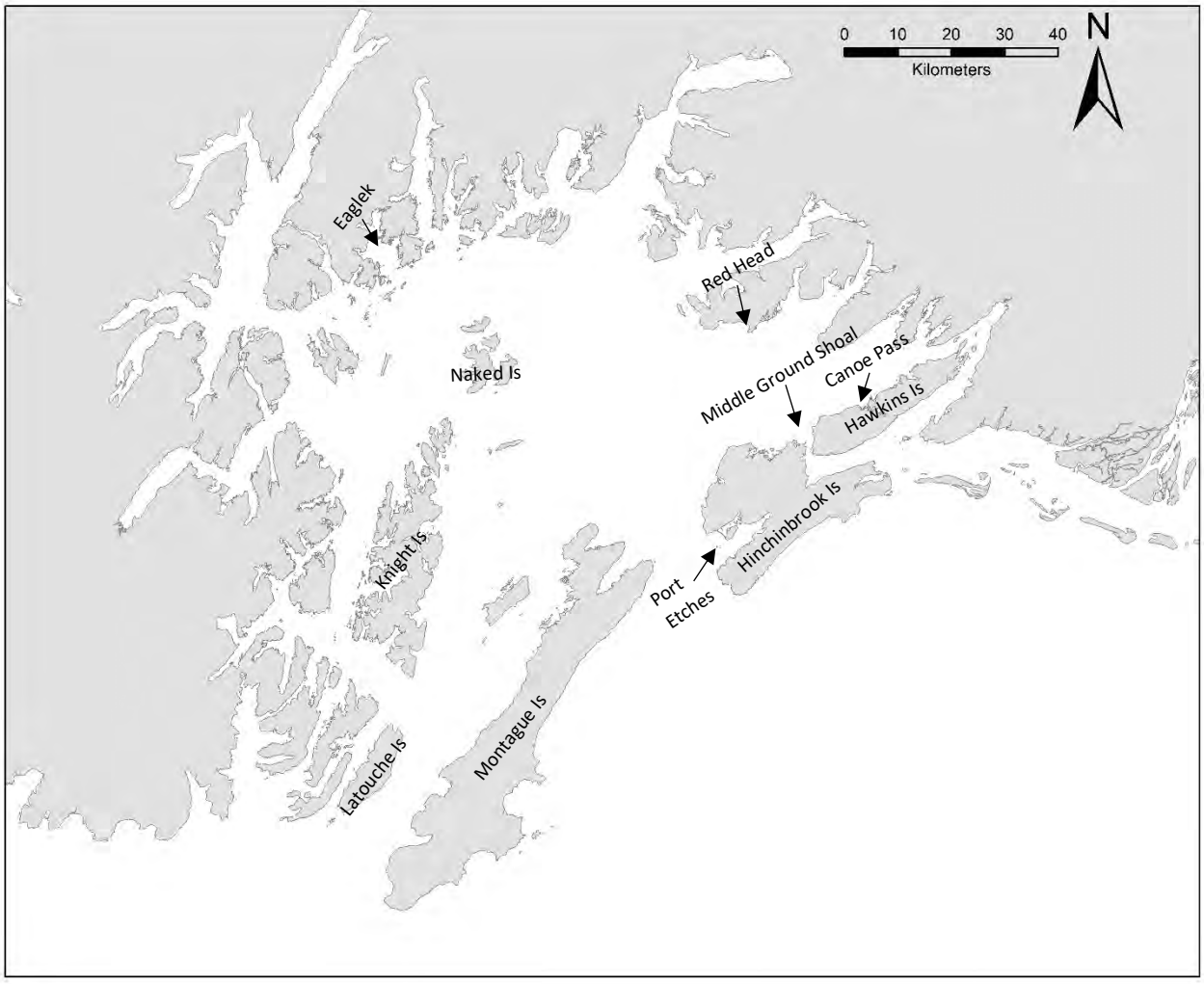

Figure 6. Map of locations in Prince William Sound.

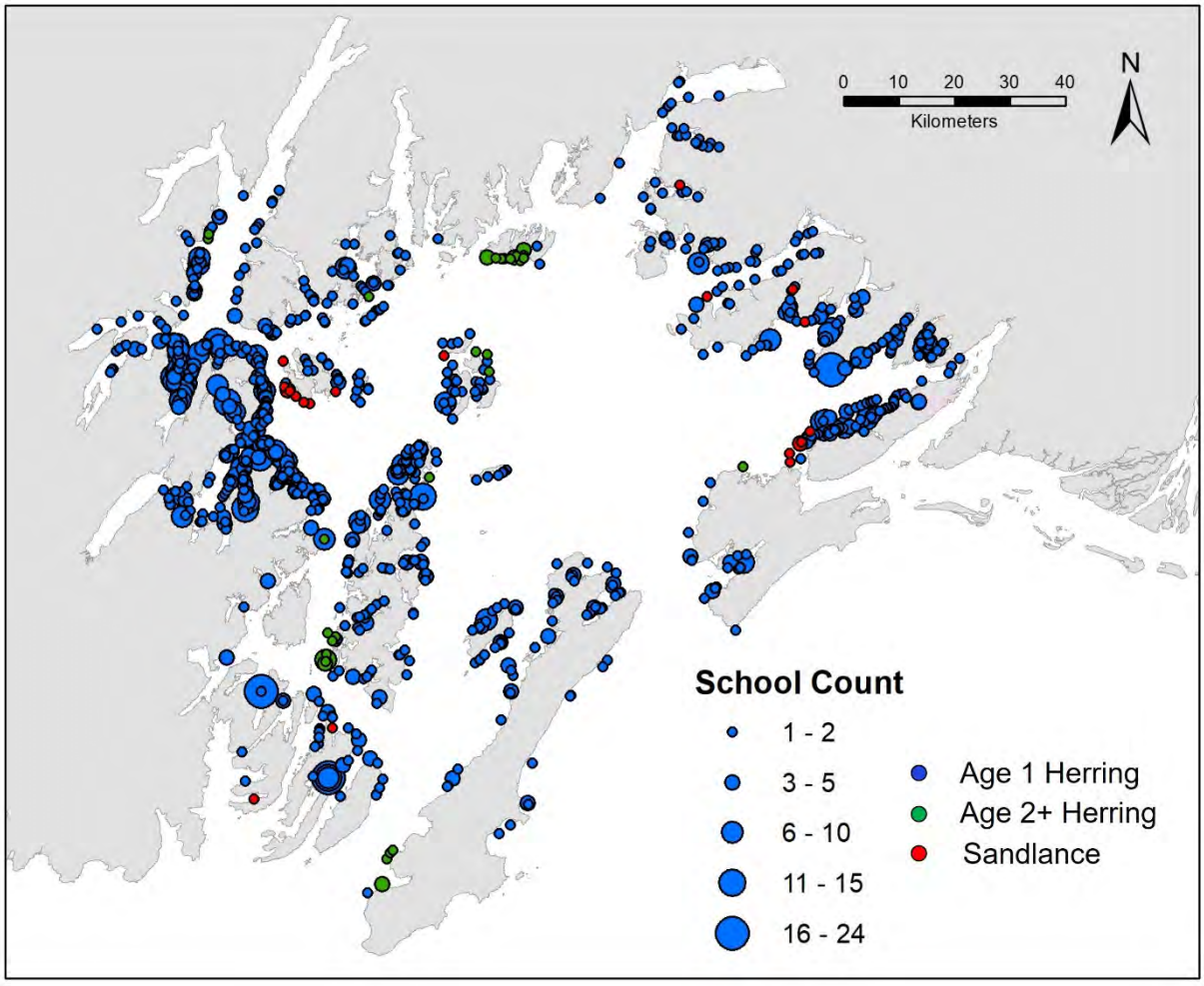

Figure 7. June 2021 forage fish distribution.

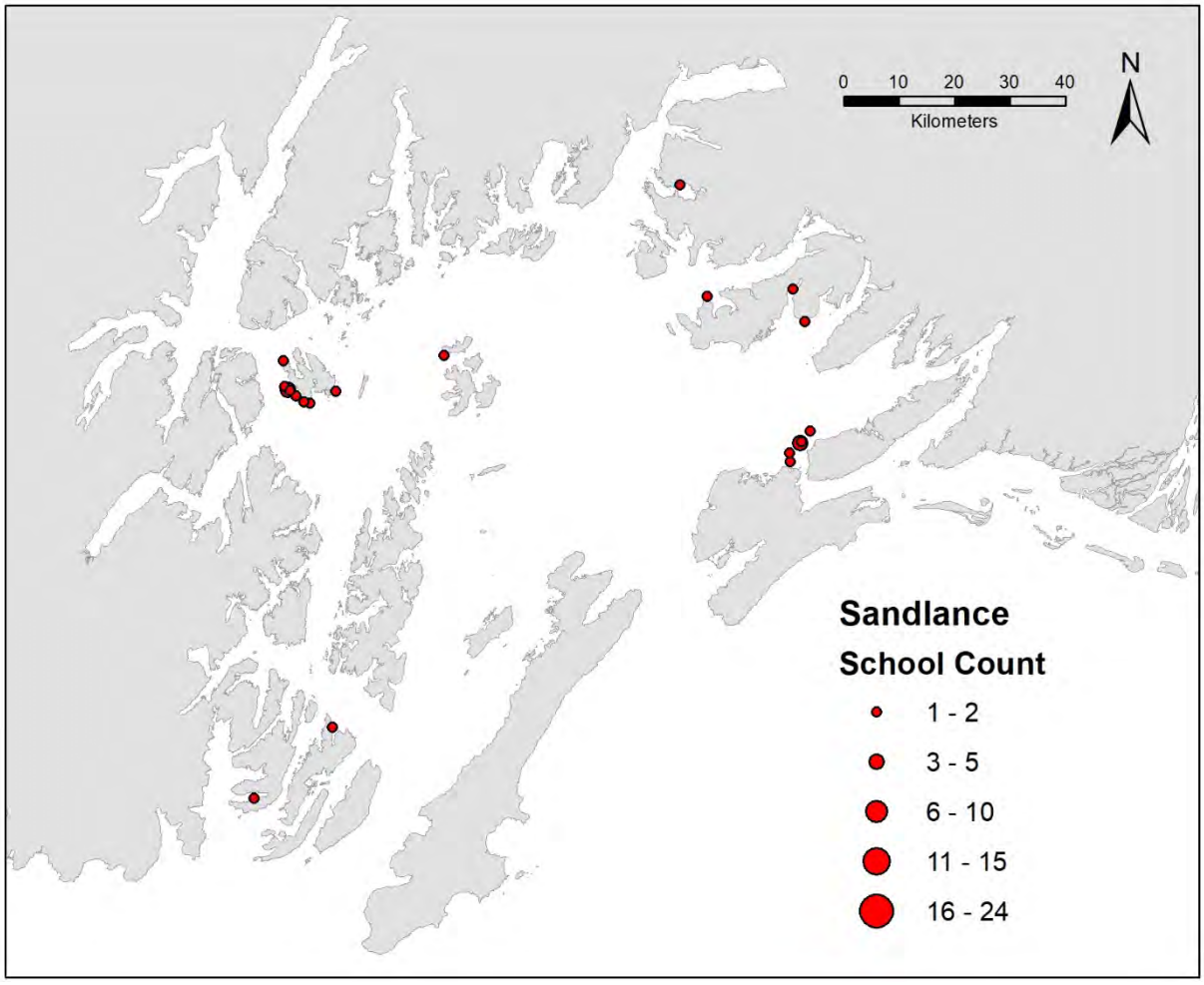

Figure 8. June 2021 sand lance distribution.

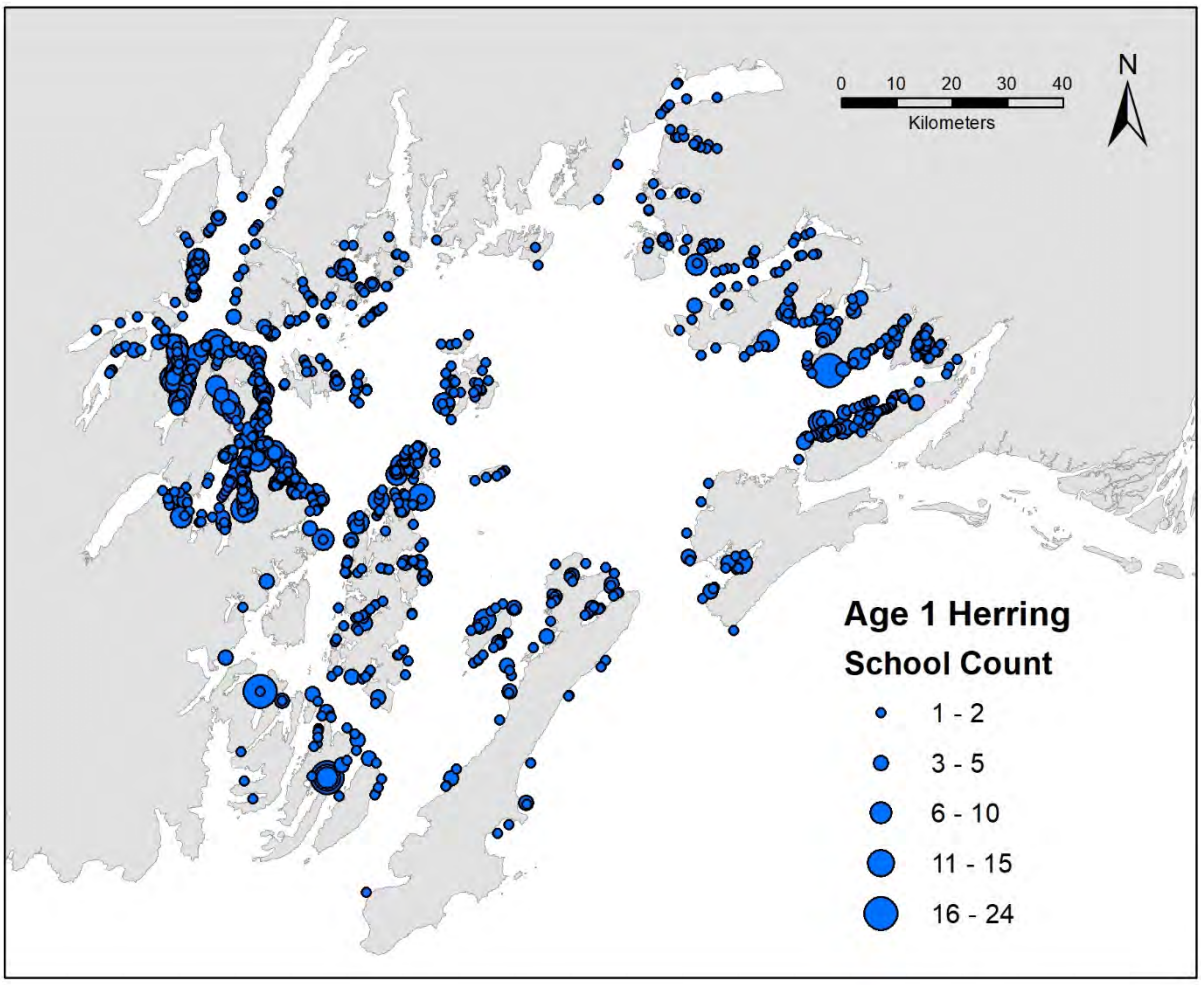

Figure 9. June 2021 age-1 herring distribution.

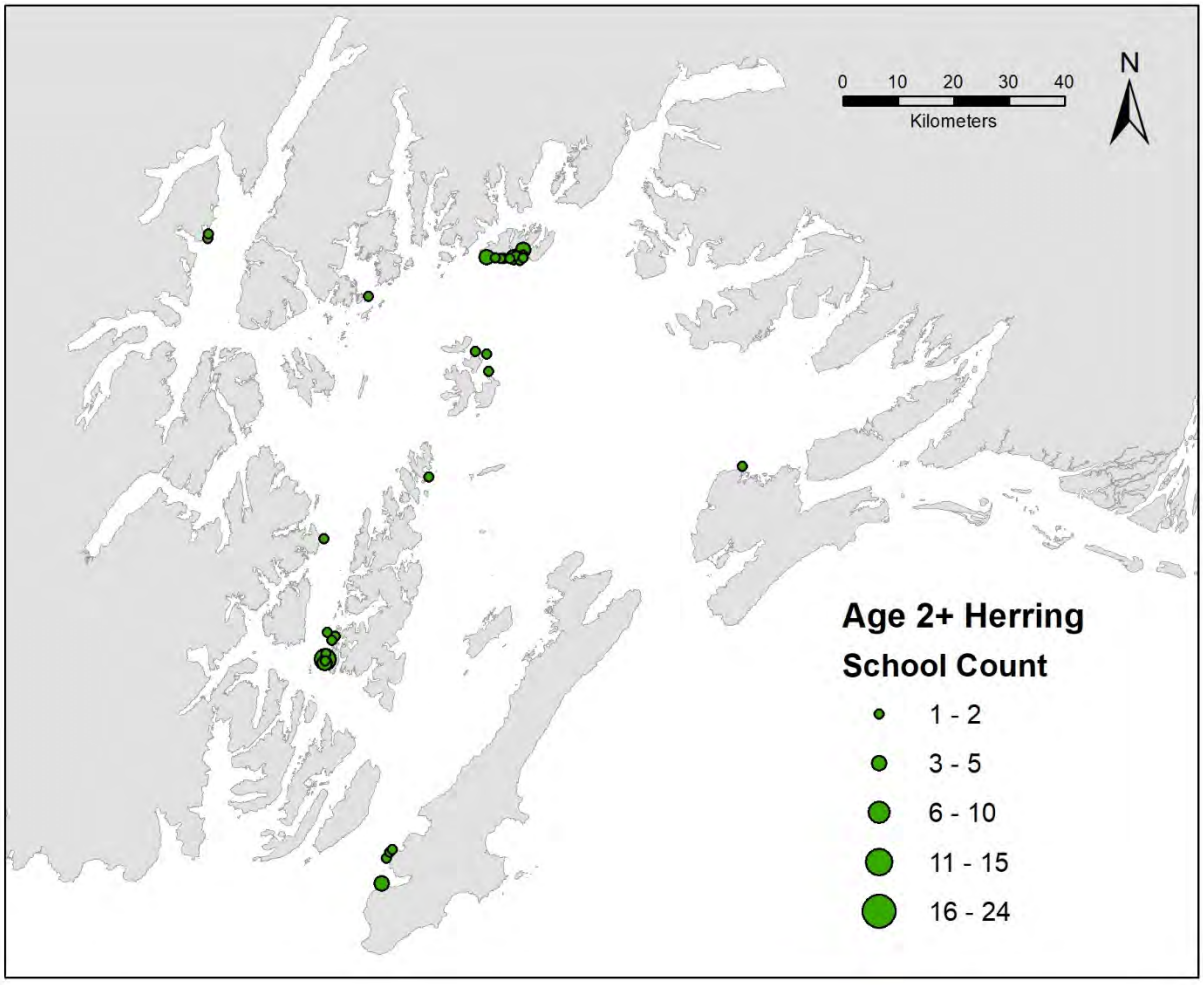

Figure 10. June 2021 age-2+ herring distribution.

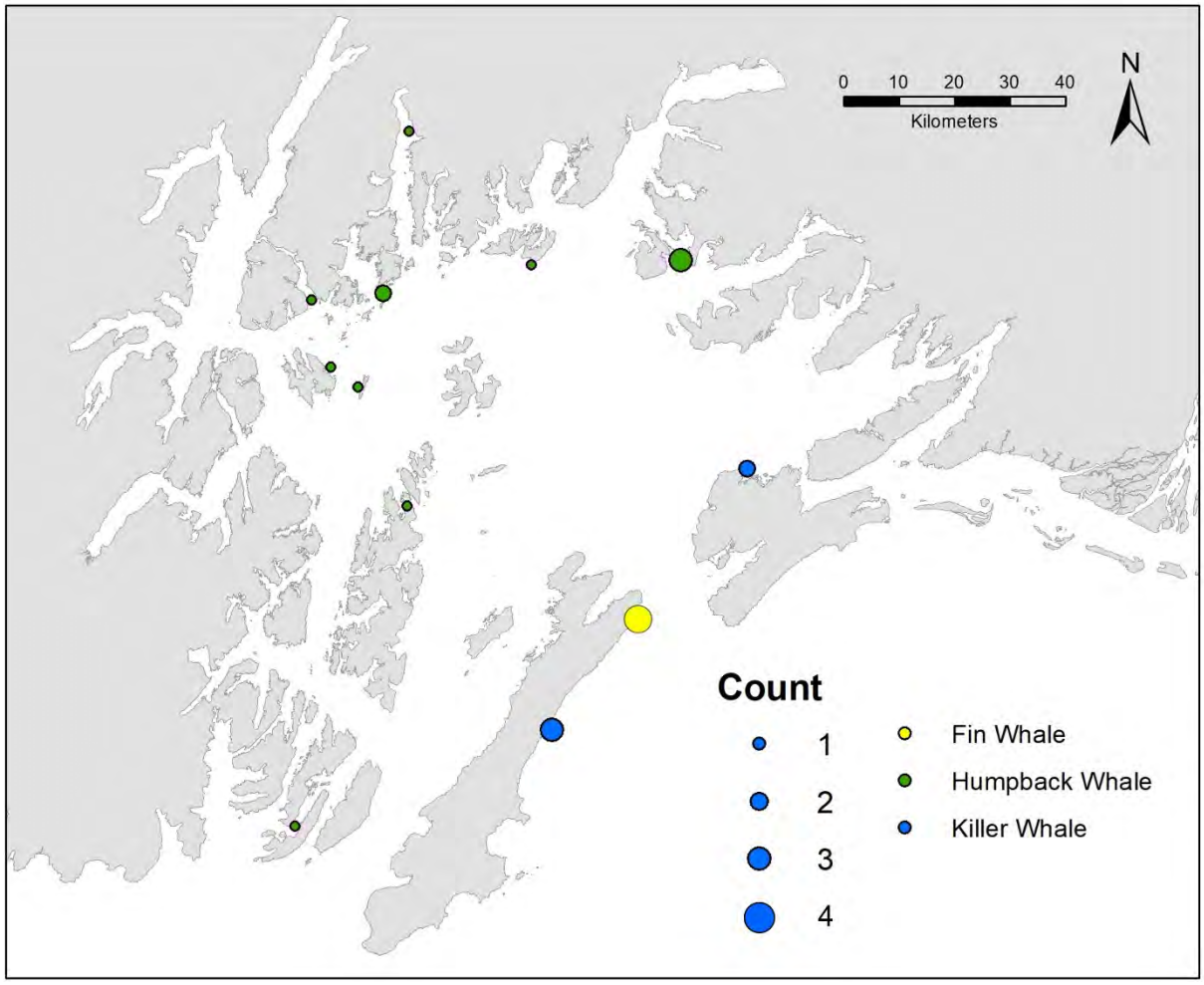

Figure 11. June 2021 number and type of whales observed. The size of the circle depicts the number of individual whales observed, while the color of the circle indicates whale type.

Briefing for PWSRCAC Board of Directors – January 2022

INFORMATION ITEM

Sponsor:	Linda Swiss
Project number and name or topic:	651 – Contingency Plan Review – Prince William Sound Tanker Oil Discharge Prevention and Contingency Plan

1. **Description of agenda item:** This informational item is intended to brief the Board on the status of the renewal of the Prince William Sound Tanker Oil Discharge Prevention and Contingency Plan (Tanker C-Plan). The Tanker C-Plan was approved on February 1, 2017, and expires on January 31, 2022.

On behalf of the shippers in Prince William Sound, the Response Planning Group (RPG) submitted an application to renew the Tanker C-Plan to the Alaska Department of Environmental Conservation (ADEC) for a sufficiency review in May 2021. The RPG is made up of representatives from Andeavor, Alaska Tanker Company, Crowley Alaska Tankers, Hilcorp North Slope, and Polar Tankers.

The Tanker C-Plan consists of three volumes – the Core Plan, SERVS Technical Manual, and the individual Vessel Response Plans. The Core Plan describes spill prevention and response activities and procedures for the PWS tank vessel operators and their response action contractor, Alyeska/SERVS. The SERVS Technical Manual, also referenced as SV-140, provides information on operational response details and response tactics used in an oil spill. The individual vessel response plans provide spill response-related information specific to each shipper. The Core Plan and SERVS Technical Manual are meant to be used in conjunction with the individual vessel response plans.

Following the plan submission, PWSRCAC submitted comments and suggested requests for additional information in July, ADEC issued requests for additional information (RFAI) in October, and the RPG responded to those requests in November. Our final comments and requests for additional information were submitted on December 2, 2021, and are available HERE.

Based on these comments, ADEC will determine whether the "application is complete" (a regulatory definition). If the application is deemed complete, ADEC will issue a decision on the plan renewal within 65 days after that determination whether to approve, approve with conditions, or disapprove the plan.

One proposed change to the plan includes TCC providing decontamination services in addition to TCC's current commitment to provide oil spill response, marine support, and health and safety support. Bell-Tech, the previous provider of vessel decontamination services, had specialized equipment and had deployed in this role in past exercises.

PWSRCAC's concerns include:

- Ensuring a clear process for incorporating current ANS crude oil properties information
- Consideration to restart the Oil Properties Workgroup
- Use of the term "vessel of opportunity"
- TCC's ability to provide decontamination services in addition to what TCC is already committed to provide
- Contractual commitments in the individual vessel response plans

2. **Why is this item important to PWSRCAC:** The Tanker C-Plan approval process includes important actions which could potentially impact every member organization. The Tanker C-Plan outlines oil spill prevention and response activities that planholders would be required to undertake to prevent a spill from occurring and to clean up oil in the event of a spill. Review of contingency plans is a major task for PWSRCAC as outlined in both the PWSRCAC/Alyeska contract and OPA 90.

3. **Previous actions taken by the Board on this item:** None.

4. **Committee Recommendation:** The Oil Spill Prevention and Response Committee has been briefed on the Tanker C-Plan renewal and has had a chance to provide input during this process.

5. **Relationship to LRP and Budget:** Project 651 Contingency Plan Review is in the approved FY2022 budget and annual work plan.

6510--Contingency Plan Review	
As of December 10, 2021	
FY-2022 Budget	
Original	$85,000.00
Modifications	
Revised Budget	$85,000.00
Actual and Commitments	
Actual Year-to-Date	$23,158.75
Commitments (Professional Services)	$45,851.00
Actual + Commitments	$69,009.75
Amount Remaining	$15,990.25

6. **Action Requested of the Board of Directors:** None, this is for information only.

7. **Attachments**: None

Briefing for PWSRCAC Board of Directors – January 2022

ACTION ITEM

Sponsor: Austin Love and the Scientific Advisory Committee

Project number and name or topic: 9510 – Long-Term Environmental Monitoring Program

1. **Description of agenda item:** This agenda item is seeking Board approval to provide the United States Geological Survey with a research contribution of $75,555 to genetically analyze blue mussel samples obtained to monitor the environmental impacts of the April 12, 2020 oil spill at the Valdez Marine Terminal.

2. **Why is this item important to PWSRCAC:** The Oil Pollution Act of 1990 instructs the PWSRCAC to "devise and manage a comprehensive program of monitoring the environmental impacts of the operations of terminal facilities and of crude oil tankers while operating in Prince William Sound." The work done under the Council's Long-Term Environmental Monitoring Program has been designed by the Scientific Advisory Committee to fulfill that responsibility mandated by the Act.

3. **Previous actions taken by the Board on this item:**

Meeting	Date	Action
Board	1/23/2020	The Board accepted of the "Port Valdez Mussel Transcriptomics" report by Lizabeth Bowen of the U.S. Geological Survey, dated November 20, 2019, as meeting the terms and conditions of contract number 951.20.06, and for distribution to the public.
Board	5/21/2020	Approval of FY2021 Contracts for Project 9510 LTEMP - The Board approved the following: Authorizing a contract negotiation with Payne Environmental Consultants Inc., for work to be performed under LTEMP, at an amount not to exceed $115,064. Authorizing a contract negotiation with Newfields Environmental Forensics Practice, for work to be performed under LTEMP, at an amount not to exceed $95,807. Authorizing a contract negotiation with the United States Geological Survey, for work to be performed under LTEMP, at an amount not to exceed $65,371. Authorizing a contract negotiation with Oregon State University, for work to be performed under LTEMP, at an amount not to exceed $22,030. Authorizing a contract work to commence prior to the start of FY2021, as approximately $33,000 of these funds will need to be expended in May and June 2020.
Board	5/6/2021	The Board accepted the report titled "Long-Term Environmental Monitoring Program: 2020 Sampling Results and Interpretations," by Dr. James R. Payne and William B. Driskell, dated March 2021, as meeting the terms and conditions of contract number 951.21.04, and for distribution to the public. The Board accepted the report titled "Using Mussel Transcriptomics for Environmental Monitoring in Port Valdez, Alaska: 2019 and 2020 Pilot Study Results", dated February 17, 2021, as meeting the terms and conditions of contract number 951.21.06 and for distribution to the public.
Board	5/21/2021	Approval of FY2022 LTEMP Contracts for Project 9510: The Board Authorized individual contracts with Newfields Environmental Forensics Practice, Oregon State University, and the United States Geological Survey (USGS) with the

aggregate total not to exceed the amount approved in the final FY2022 LTEMP budget ($147,720) for contract expenses, and delegated authority to the Executive Director to enter into individual contracts with the aforementioned consultants; and authorized that the contract work commence prior to the start of FY2022 as approximately $30,000 of these funds will need to be expended in May and June 2021.

4. **Summary of policy, issues, support or opposition:** Since 2019, the Council has been working with Dr. Liz Bowen from the United States Geological Survey to potentially incorporate a new genetic testing method into the Long-Term Environmental Monitoring Program (LTEMP) – that genetic method is technically called transcriptomics. Transcriptomics is a promising new tool to add to LTEMP and in 2019, 2020, and 2021 the Scientific Advisory Committee has advised that the Council conduct transcriptomics monitoring work to serve as a pilot study, the results of which would be used to determine if the Council should continue to use this technique in the long term. Originally, the pilot study was only planned for 2019 and 2020, but then the April 12, 2020 oil spill occurred, providing a unique opportunity to further test the utility of transcriptomics to monitor the environmental impacts of the Valdez Marine Terminal and tankers. The originally planned 2019 and 2020 transcriptomics work has been completed and culminated in a report to the Board titled "Using Mussel Transcriptomics for Environmental Monitoring in Port Valdez, Alaska: 2019 and 2020 Pilot Study Results," which was approved during the May 2021 meeting. While some transcriptomics work related to the April 12, 2020 spill has been completed and the results were informative, this agenda item seeks funding for additional spill-related work, which is designed to try and maximize the utility of transcriptomics for the Council's LTEMP. This funding would be used to try and identify a set of genes in blue mussels that specifically respond to exposures to Alaska North Slope crude oil – as opposed to genes known to respond to generic oil exposure.

Making a research contribution to the United States Geological Survey for this work has significant financial benefit for the Council. By making a research contribution compared to entering into a contract, the Council will avoid paying overhead costs of 51.25% (e.g., this work would cost $114,278, instead of $75,555). Since 2019, Council has made research contributions (totaling $75,131) to the United States Geological Survey to support related transcriptomics work and the results of all those contributions have been successful (i.e., the research and associated report was completed and delivered to the Council). The Finance Committee has expressed concern over research contributions and requested that guidelines regarding future research contributions be developed.

5. **Committee Recommendation:** During their April 29, 2021 meeting, the Scientific Advisory Committee recommended that the Council should implement and prioritize Recommendation # 5 listed in Dr. Bowen's report to the Council titled "Using Mussel Transcriptomics for Environmental Monitoring in Port Valdez, Alaska: 2019 and 2020 Pilot Study Results." That report was approved during the May 2021 Board meeting. Recommendation #5 proposed:

"conducting an experiment with samples from the April 12, 2020, oil spill at the Valdez Marine Terminal (already collected and in our freezer). We would perform a full transcriptome analysis (RNAseq) of mussels exposed to the spill. This would allow for identification of genes specific to the contaminants in a carefully monitored real-world spill event such as the spill from the Valdez Marine Terminal in April 2020. This will increase both the specificity and sensitivity of the gene panel for the needs of the PWSRCAC."

During their October 1, 2021 meeting, the Scientific Advisory Committee reviewed a proposal by Dr. Bowen detailing how recommendation #5 would be implemented, which the committee recommends the Board accept.

6. **Relationship to LRP and Budget:** The Council's 9510 Long-Term Environmental Monitoring Program (LTEMP) is in the approved FY2022 budget and annual work plan. Since the FY2022 LTEMP budget was passed, the scope of work for the transcription part of LTEMP has been expanded as recommended by the Scientific Advisory Committee and subsequently costs for this part of LTEMP became higher than originally budgeted. Therefore, in order to cover the costs of this expanded transcription work, a budget modification is being requested under agenda item 4-8 for LTEMP.

9510—Long-Term Environmental Monitoring (LTEMP)

As of December 10, 2021

FY-2022 Budget	
Original	$154,980.00
Modifications	
Revised Budget	$154,980.00
Actual and Commitments	
Actual Year-to-Date	$37,906.65
Commitments (Professional Services)	$11,553.00
Actual + Commitments	$49,459.65
Amount Remaining	$105,520.35

7. **Action Requested of the Board of Directors:** Provide the United States Geological Survey with a research contribution of $75,555 to genetically analyze blue mussel samples obtained to monitor the environmental impacts of the April 12, 2020 oil spill at the Valdez Marine Terminal.

8. **Alternatives:** The Board could choose to enter into a contract with the United States Geological Survey for this work, resulting in an additional 51.25% overheard charge, for a total contract amount of $114,278. This alternative action would require a budget

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modification from the contingency fund to project 651 in the amount of $38,723 to cover the increase.

9. **Attachments:** Research proposal from Dr. Liz Bowen from the United States Geological Survey and collaborators.

Proposal: Transcriptomic analysis of an oil spill response in mussels (*Mytilus trossulus*) in Valdez, Alaska

Lizabeth Bowen[1*], William B. Driskell[2], James R. Payne[3], Brenda Ballachey[4]

1 U.S. Geological Survey, Western Ecological Research Center, Davis, CA 95616

2 Consultant, Seattle, WA

3 Payne Environmental Consultants, Inc., Encinitas, CA

4 U.S. Geological Survey (Emeritus), Alaska Science Center, Anchorage, AK

Prior to a minor spill incident at the Valdez Terminal in April 2020, a pilot study had been conducted in 2019 that looked at transcription in mussels for PWSRCAC relevant sites in Port Valdez and PWS. The study used earlier protocols employed for prior National Park Service (NPS) surveys in south-central AK, which were designed to evaluate various NPS environmental concerns (climate change, acidification, immunity, and inflammation). This same gene panel was used in evaluating mussel response to the Terminal oil spill. Results show that five genes with detoxification functionality responded to the oiling (Figure 1). While only 14 genes were considered for the spill study, there are likely a multitude of others that were responding.

Proposed for this project, the full transcriptome (i.e., the complete suite of genes actively transcribed by the organism) will be analyzed for the archived oiled and unoiled mussels. Differences in their activities would suggest what physiological systems were turned on (or off) in response to oil exposure. It is assumed that, during the spill, the response of mussels with initial TPAH body burdens of >200K ppb would include essential body maintenance functions (homeostasis) as well as detoxification. The time series plot shows a lag in response (gene expression peaking during TPAH decline; Figure 1) that suggests non-observed, homeostatic transcription was likely prioritized before the observed detox genes' activity peaked. A full transcriptome analysis is expected to reveal multi-thousands of active genes.

Why do we care?

The annual LTEMP monitoring program has pursued a traditional chemistry-only approach that analyzes a limited hydrocarbon suite (PAH, SHC and biomarkers). This has been appropriate as most toxicity studies describe effects based only in terms of concentrations of specific oil components or as summed indices such as TPAH43, or more recently, from oil's dissolved or dispersant-enhanced fractions. However, considering the universe of hydrocarbons present in oil (McKenna et al., 2013) that are not accounted for in these classical toxicity studies, the

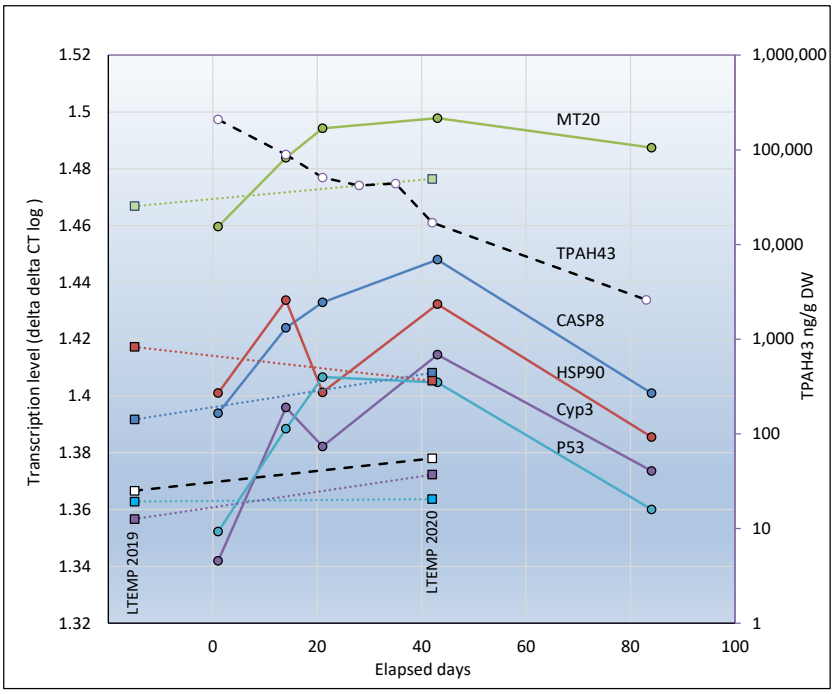

Figure 1. Transcription levels of genes directly linked to detoxification in adductor muscle tissues (solid lines) and TPAH43 tissue concentrations (oil; dashed lines). LTEMP 2019 and 2020 values are from two LTEMP sites depicting average background levels (square symbols connected by dotted lines for genes and a dashed line for TPAH43). From Bowen et al., in submission.

traditional chemistry approach based on summaries of amenable-to-traditional-analyses components as causal proxies, seems myopic. Nor it is yet known explicitly which components are detrimental to an organism. As such, attempting to link effects from just contaminant concentrations can be suggestive but certainly not definitive.

Setting aside the fuzziness in exposure-assessment issues, evaluating effects can be equally enigmatic. It is fundamentally obvious that an organism incurs cellular-level impact from oil exposure but pinning down the exact damage has been an evolving science. After decades of LD50-style testing, there has been great progress in looking at actual physiological impacts (Garmendia 2011, Sørhus, 2020). But in connecting physiological impacts with an organism's phenotypic or population-level impacts, there remains a knowledge gap.

Fortunately, advancements in molecular assessments now allow us to see exactly which homeostatic mechanisms are going awry during exposures. As proposed, linking exposure to functional transcription activity, i.e., the putative physiological function for a gene, can provide tremendous insights into how an organism responds to an environmental stressor. A prime example of this more intimate clarity is the work of Incardona, et al. (2009) demonstrating that heart defects in EVOS oil-exposed herring embryos (Carls et al. 1999) are due to an anomalous genetic expression affecting the sodium ion pump of nerve and muscle cells. Later extensions of this work during the BP Gulf spill (Incardona, et al., 2014 and others) confirmed that this cellular

defect in fish compromises their motility and thus, their robustness to find and capture food or escape predators.

These fish studies exemplify the long-sought goal of connecting the dots between exposure and individual effects, albeit not necessarily evaluating population impacts. This point is conceptually illustrated as a continuum of biological focus (Figure 2). There is no single approach that is comprehensive for all levels of concern or ecological relevance. Transcriptome studies, however, do cross biological levels, reporting subcellular activities representing an organ's response (here, gill and adductor muscle) that suggest an individual organism's status (degree of impact/recovery relative to non-exposed individuals).

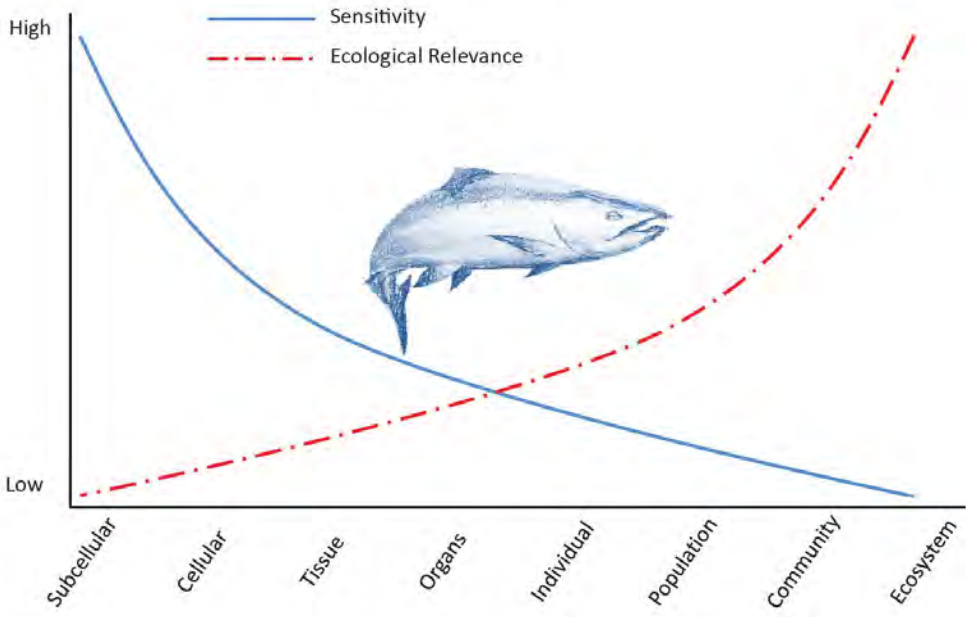

Figure 2. The sensitivity and ecological relevance of toxicological assessments vary depending on the level of biological organization at which tests are conducted. Evaluation of links across multiple levels of biological organization provide for a comprehensive effect-based assessment of perturbations within an ecosystem. From Connon et al. 2019.

For this proposal, knowing the functional suites of genes that get turned on (or off) in oiled mussels will serve several purposes.

- Understanding the full diversity of response. It is assumed that with a limited energy/resource budget, an organism must optimize expenditures dealing with the essential homeostatic needs e.g., respiration, thermal and pH regulation, flushing, feeding, etc., while turning on the AHR response to detoxify xenobiotics. The reported detox transcription lag (Figure 1) supports this paradigm.

- Timing of response. The functional responses appear to change over time as essential issues are resolved. This again implies a priority of responses in homeostasis; e.g., it seems likely that mitigating hypoxia precedes detox cleanup functions.

- Highlight a subset of relevant indicator genes. After documenting which functional sets are activated/deactivated, evaluate which ones would best serve to indicate exposure and stage of impact/recovery in future exposures? Either optimize the currently selected gene panel or create a new microarray monitoring tool?

- The spill data (Figure 1) suggest that transcription activity had not yet baselined by day 83 while TPAH burdens had dropped from 271K to ~3K ng/g (ppb). Are transcription activities still resolving after TPAH levels drop further towards background? Might tracking transcription become a more sensitive method for declaring full recovery or assessing chronic exposures?

- Can transcription profiles distinguish between types of exposures (petrogenic vs other anthropogenic vs natural environmental stressors)?

- Fully developing this approach would provide a monitoring/assessment tool applicable to oil spill researchers and responders throughout subarctic Alaska. Other molluscan species are likely to have similar functional-transcription systems. This project's final gene selection should apply to other molluscs or at least suggest the path to creating a similar tool.

Summary

The complete transcriptomic response to oil exposure would identify the most appropriate genes for monitoring future oil spills and perhaps differentiating between exposure to ANS crude oil and other anthropogenic sources. In addition, by identifying each gene's putative functional role, the proposed study will detail the shifts in activity from one physiological system to another during the recovery process and help elucidate molecular pathways involved during the detoxification process. Connecting the dots between oil exposure's cellular impact and phenotypic or population affects would still be incomplete, but this study would greatly deepen the understanding.

Budget Estimate proposed to PWSRCAC:

Personnel:	Shannon Waters	$8900
	(Lab Manager, will perform all tissue processing and extractions/liaison with UC Davis Genome Center-6 weeks)	
	Lizabeth Bowen	$16,000

	(Principal Investigator, will oversee all laboratory analyses, will work with UC Davis Genome Center Bioinformatics, responsible for all written documents resulting from this study-6 weeks)	
	Brenda Ballachey *(Co-Investigator, will work with Dr. Bowen on interpretation of results and document writing-1-2 week)*	$5000
	James Payne *(Co-Investigator, will work with Dr. Bowen on interpretation of transcriptome/chemistry link-1-2 week)*	$5000
	Bill Driskell *(Co-Investigator, will work with Dr. Bowen on interpretation of transcriptome/chemistry link- 2-3 week)*	$5000
Travel:	no planned travel	$0
Sample collection:	samples have already been collected	$0
Equipment:	no additional equipment required	$0
Supplies:	pre-transcriptome processing *(Pre-transcriptome processing costs only reflect the cost of supplies)* Transcriptome *(costs for transcriptome analysis include both supplies and analytical costs)*	$17,700 $17,955
Report writing/presentation:	included in *Personnel* costs	$0
Total:		**$75,555**

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REVISED BRIEFING LTEMP FY2022Contract Approval 4-8

Briefing for PWSRCAC Board of Directors – January 2022

ACTION ITEM

Sponsor: Austin Love and the Scientific Advisory Committee

Project number and name or topic: 9510 – Long-Term Environmental Monitoring Program

1. **Description of agenda item:** This agenda item requests Board approval of a contracts for work to interpret and report on the oil chemistry, laboratory results of the 2021 Long-Term Environmental Monitoring Program (LTEMP) samples. This year, that scope-of-work was put through the Council's competitive request-for-proposals (RFP) process, as a best practice to solicit competitive bids. 2015 and 2009 were the last years in which this scope-of-work was subject to the RFP process – so this RFP solicitation occurs about every five years. Since 2002, the Council has worked with Payne Environmental Consultants to perform this scope of work and they were selected through past LTEMP RFP rounds.

This agenda also requests Board approval of a budget modification to add more money for contract expenses under this project. This budget modification is needed to cover costs not accounted for when the FY2022 LTEMP budget was originally approved. As originally approved, the FY2022 LTEMP budget included a total $147,720 for contract expenses and a portion of that funding was planned to be used to fund this work. However, that funding was also planned to be used on LTEMP work related to genetic testing on mussel samples, also known as transcription. Since the FY2022 LTEMP budget was passed, the scope of work for the transcription part of LTEMP has been expanded as recommended by the Scientific Advisory Committee and subsequently costs for that part of LTEMP became higher than originally budgeted. Therefore, to cover the costs of the expanded transcription work and this work a budget modification will be needed, adding additional funding for LTEMP.

2. **Why is this item important to PWSRCAC:** The Oil Pollution Act of 1990 instructs the PWSRCAC to "devise and manage a comprehensive program of monitoring the environmental impacts of the operations of terminal facilities and of crude oil tankers while operating in Prince William Sound." The work done under the Council's Long-Term Environmental Monitoring Program has been designed by the Scientific Advisory Committee to fulfill the responsibility mandated by the Act.

3. **Previous actions taken by the Board on this item:** The Long-Term Environmental Monitoring Program has been conducted by PWSRCAC since 1993, and many actions have been taken by the Board on this item since that time. In the interest of providing currently pertinent information regarding actions items taken by the Board on this item, only the last five years of actions are presented below. However, all historic actions pertaining to this

agenda item are available for review upon request (please contact Austin Love for that information).

Meeting	Date	Action
Board	5/5/2016	The Board approved the following: 1. Contractor selection and contracting with Payne Environmental Consultants, Inc., for sampling, training, and analytical reporting work on mussels and sediments to be performed under the Long-Term Environmental Monitoring Project (LTEMP) for FY2017 at an amount not to exceed $52,390. 2. Contractor selection and contracting with NewFields-Environmental Forensics Practice for analytical laboratory work to be performed under LTEMP for FY2017 at an amount not to exceed $28,625. 3. Contractor selection and contracting with Oregon State University for analytical laboratory work on passive sampling devices to be performed under LTEMP for FY2017 at an amount not to exceed $27,750.
Board	5/4/2017	The Board approved: (1) Contractor selection and contract negotiation with Payne Environmental Consultants Inc. for sampling, training and analytical reporting work on mussels and sediments to be performed under the LTEMP for FY18 at an amount not to exceed $45,960. (2) Contractor selection and negotiation with NewFields Environmental Forensics Practice for analytical laboratory work and sample storage to be performed under LTEMP for FY18 at an amount not to exceed $51,592. (3) Contractor selection and contract negotiation with Oregon State University for analytical laboratory work on passive sampling devices to be performed under LTEMP for FY18 at an amount not to exceed $27,750 and (4) The 2017 LTEMP Report "Long-Term Environmental Monitoring Program Final Report: 2015 Sampling Results and Interpretations" as approved by SAC at its January 31, 2017 meeting.
XCOM	6/7/2017	The Executive Committee authorized a change order to contract number 951.17.03 with NewFields Companies, LLC by adding $2,619 to the contract. This would increase their contract from the current amount of $41,300 to $43,919.
Board	1/18/2018	The Board accepted the report titled "Long-Term Environmental Monitoring Program - Final Report: 2016 Sampling Results and Interpretations" (prepared by James R. Payne Ph.D. and William B. Driskell) as meeting the terms and conditions of the contract and for posting on the PWSRCAC website.
Board	5/3/2018	The Board approved: contract with Payne Environmental (PECI) for sampling and analytical reporting work on mussels and sediments to be performed under FY19 LTEMP not to exceed $139,086; contract with NewFields Companies, LLC for analytical laboratory work and sample storage under LTEMP FY19 not to exceed $61,402; contract with Oregon State University (OSU) for passive sample device purchase and analytical lab work on passive sampling devices under LTEMP for FY19 not to exceed $27,310; and authorized this contract work to commence prior to the start of FY19 to accommodate tidal considerations in an estimated amount of $20,000.
Board	5/3/2018	The Board accepted the report titled "September 2017 Berth 5 Oil Spill - Sampling Results and Interpretations" by James R. Payne, Ph.D., and William Driskell for distribution & posting on PWSRCAC's website.
Board	5/2/2019	The Board authorized contract negotiations with Payne Environmental Consultants for sampling and analytical report work on mussels and sediments to be performed under LTEMP for FY20, at an amount not to exceed $65,866; and authorized contract negotiations with Newfields Environmental Forensics Practice for analytical laboratory work and sample storage to be performed under LTEMP for FY20 at an amount not to exceed $28,506. Authorized contract negotiations with Oregon State University for passive sample device purchase and analytical laboratory work on passive sampling devices to be performed under LTEMP for FY20, at an amount not to exceed $20,590; and authorized contract work to

		commence prior to the start of FY20, as approximately $20,000 of these funds will need to be expended in May and June 2019 because of the supply prerequisites and sampling timing.
Board	9/19/2019	The Board accepted the report titled "Long Term Environmental Monitoring Program: 2018 Sampling Results and Interpretations" by Dr. James R. Payne and William B. Driskell, dated July 2019 as meeting the terms of the contract and for distribution to the public.
Board	5/7/2020	The Board accepted the report titled "Long-Term Environmental Program: 2019 Sampling Results and Interpretations," by Dr. James Payne and William B. Driskell, dated March 2020, as meeting the terms and conditions of contract number 951.20.04, and for distribution to the public.
Board	5/21/2020	Approved the following: Authorizing a contract negotiation with Payne Environmental Consultants Inc., for work to be performed under LTEMP, at an amount not to exceed $115,064. Authorizing a contract negotiation with Newfields Environmental Forensics Practice, for work to be performed under LTEMP, at an amount not to exceed $95,807. Authorizing a contract negotiation with the United States Geological Survey, for work to be performed under LTEMP, at an amount not to exceed $65,371. Authorizing a contract negotiation with Oregon State University, for work to be performed under LTEMP, at an amount not to exceed $22,030. Authorizing a contract work to commence prior to the start of FY2021, as approximately $33,000 of these funds will need to be expended in May and June 2020.
Board	5/6/2021	Accepted the report titled "Long-Term Environmental Monitoring Program: 2020 Sampling Results and Interpretations," by Dr. James R. Payne and William B. Driskell, dated March 2021, as meeting the terms and conditions of contract number 951.21.04, and for distribution to the public. The Board accepted the report titled "Using Mussel Transcriptomics for Environmental Monitoring in Port Valdez, Alaska: 2019 and 2020 Pilot Study Results", dated February 17, 2021, as meeting the terms and conditions of contract number 951.21.06 and for distribution to the public.
Board	5/21/2021	Authorized individual contracts with Newfields Environmental Forensics Practice, Oregon State University, and the United States Geological Survey (USGS) with the aggregate total not to exceed the amount approved in the final FY2022 LTEMP budget ($147,720) for contract expenses, and delegated authority to the Executive Director to enter into individual contracts with the aforementioned consultants; and authorized that the contract work commence prior to the start of FY2022 as approximately $30,000 of these funds will need to be expended in May and June 2021.

4. **Summary of policy, issues, support or opposition:** This agenda item is related to another agenda item at this meeting seeking approval of a research contribution of $75,555 to the United States Geological Survey, to genetically analyze blue mussel samples obtained to monitor the environmental impacts of the April 12, 2020 oil spill at the Valdez Marine Terminal. Information under that related agenda item may help answer some questions related to this agenda item. The FY2022 budget estimated that only $23,452 would be needed to cover LTEMP costs associated with mussel gene transcription work, but for reasons more thoroughly described under that other agenda item the costs expanded to $75,555.

5. **Committee Recommendation:** At their January 14, 2022 meeting the Scientific Advisory Committee passed the following action:

- Recommend the Board of Directors approve contract negotiation with Owl Ridge Natural Resource Consultants, Inc. to complete the scope of work in RFP #951.21.06, and with Payne Environmental Consultants, Inc., to support Owl Ridge's work, at a total cost not to exceed $77,000.00

6. **Relationship to LRP and Budget:** The Council's 9510 Long-Term Environmental Monitoring Program (LTEMP) is in the approved FY2022 budget and annual work plan.

9510—Long-Term Environmental Monitoring (LTEMP)

As of December 10, 2021

FY-2022 Budget	
Original	$154,980.00
Modifications	
Revised Budget	$154,980.00
Actual and Commitments	
Actual Year-to-Date	$37,906.65
Commitments (Professional Services)	$11,553.00
Actual + Commitments	$49,459.65
Amount Remaining	$105,520.35

7. **Action Requested of the Board of Directors:**

- Authorize a budget modification, adding $53,880.00 to project #9510 – Long-Term Environmental Monitoring Program.
- Authorize contract negotiation with Owl Ridge Natural Resource Consultants, to complete the LTEMP scope of work in RFP #951.21.06, and with Payne Environmental Consultants, to support Owl Ridge's work, at a total aggregate cost not to exceed $77,000.00

8. **Alternatives:** None recommended.

9. **Attachments:** None.

Briefing for PWSRCAC Board of Directors – January 2022

ACTION ITEM

Sponsor: Joe Lally and the LRP Committee
Project number and name or topic: 210 – Long Range Planning

1. **Description of agenda item:** During the months of September through December 2021, the Long Range Planning Committee has worked with PWSRCAC staff, committees, and the Board to update the Five-Year Long Range Plan for Fiscal Years 2023–2027. An updated draft FY2023-FY2027 Long Range Plan will be provided for Board consideration and approval. Board, committee, and staff members will be participating in a Long Range Planning workshop just prior to the January Board meeting to discuss the draft plan and to develop a recommendation for Board approval.

2. **Why is this item important to PWSRCAC:** The Board adopted the current PWSRCAC Five-Year Long Range Plan and has committed to the use of the plan and the Long Range Planning process to develop annual work plans and budgets as well as continually revising and improving the Long Range Plan itself. The Board has directed its members and staff to work together to follow the Long Range Planning process.

3. **Previous actions taken by the Board on this item:** Contact staff for a list of action items prior to 2018.

Meeting	Date	Action
Board	1/18/18	The Board approved the Five-Year Strategic Plan for Fiscal Years 2019-2023 as developed and finalized for consideration by the Board at the January 17, 2018 LRP work session with the noted amendment on page 6.
Board	5/2/18	The Board appointed the following to the FY19 Strategic Planning Committee: Hart, Miller, Faulkner and the chairs of the five technical committees.
Board	9/20/18	The Board approved the protected projects (#651, #9510, #3200, #3300, #3610, and #3610) as outlined in 4-7 Attachment A, as amended (project #6534 was removed from the approved projects list).
Board	1/24/19	The Board approved the projected project list for the upcoming Long Range Planning Process as presented in Attachment A to the 4-9 briefing sheet.
Board	5/2/19	The Board appointed the following to the FY20 Long Range Planning Committee: Thane Miller, Rebecca Skinner, Cathy Hart, and the chairs of the five technical committees.
Board	9/19/19	The Board approved the projected project list for the upcoming Long Range Planning Process as presented in Attachment A to the 4-9 briefing sheet.
Board	1/24/20	The Board approved the Five-Year Long-Range Plan for Fiscal Years 2021–2025 as developed and finalized for consideration by the Board at the January 22, 2020, Long-Range Plan work session.
Board	9/17/20	The Board approved the protected project list for the upcoming LRP process as presented in Attachment A to the Item 4-7 briefing sheet. Each Director is asked to take individual action over the next several months by participating in the LRP process.

Board	1/28/21	Approval of the Five-Year Long Range Plan for Fiscal Years 2022-2026 as developed and finalized for consideration by the Board at the January 27, 2021 Long Range Plan work session.
Board	9/16/21	The Board approved the protected project list for the upcoming LRP process as presented in Attachment A to the Item 4-8 briefing sheet. Each Director is asked to take individual action over the next several months by participating in the LRP process.

4. **Action Requested of the Board of Directors:** Approval of the Five-Year Long Range Plan for Fiscal Years 2023–2027 as developed and finalized for consideration by the Board at the January 26, 2022 Long Range Plan work session.

5. **Attachments:** PWSRCAC draft Five-Year Long Range Plan for Fiscal Years 2023–2027.

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Prince William Sound Regional Citizens' Advisory Council

Five-Year Long Range Plan

July 2022 through June 2026
(Fiscal Years 2023-2027)

Prepared by
The PWSRCAC Long Range Planning (LRP) Committee in collaboration with PWSRCAC Staff & Volunteers

Adopted by the PWSRCAC Board of Directors on _____

Citizens promoting environmentally safe operation of the Alyeska terminal and associated tankers.

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Appendices

1. Foreword and Acknowledgements

Since 2001, the Prince William Sound Regional Citizens' Advisory Council (PWSRCAC) has annually reviewed and updated its long term plan and planning process. The document is focused on new and continuing projects for the next five years, with a special focus on projects proposed for the upcoming fiscal year (FY2023). This document is intended to serve as a guide for the organization to achieve its mission of promoting environmentally safe operation of the Valdez Marine Terminal and associated tankers. The final FY2023 budget will be approved at the May 2022 Board meeting.

The project prioritization process used in 2021 was similar to that used in 2020. Letters soliciting project ideas were broadly disseminated to stakeholder entities, including industry and regulatory agencies. All staff, Board, and technical committee members were invited to submit suggestions for new projects. During the January 2011 Long Range Planning workshop, the Board requested that any ongoing projects presumed to be permanent, ongoing parts of the Council's operations not be included in the project scoring process. Accordingly, the technical committees prioritized their own projects related to their committee's work and also recommended projects to be protected or not ranked. All proposed projects were presented for discussion at the Volunteer Workshop in early December 2021. Projects proposed for FY2023 were distributed to the Board and staff for ranking, with a request that the following criteria be strongly considered during the ranking process: 1) relevance to achieving PWSRCAC's mission; 2) extent to which there is alignment with PWSRCAC's strategic plan; 3) benefit to member organizations; 4) probability of success; and 5) cost effectiveness.

Members of the 2021 Long Range Planning Committee (LRPC) were Board members Amanda Bauer, Elijah Jackson, Robert Archibald, and Patience Andersen Faulkner; committee chairs Trent Dodson, Jim Herbert, Steve Lewis, Davin Holen, and IEC member Cathy Hart (chair LRPC). Staff, with help from technical committee members and stakeholders, developed most of the project descriptions and budgets.

This five-year plan continues the scope of work and vision embodied in PWSRCAC's past plans balanced with broad-based review and input. In January 2010, the Board developed a draft one-page strategic planning document with the assistance of the Foraker Group that has been further refined over the years, including a major revision in 2016. This document has been incorporated into this five-year plan and process for developing projects that support PWSRCAC's mission and it is included in this document on page 6. The one-page plan is reviewed and updated accordingly along with this entire document.

The Long Range Planning Committee thanks all those who contributed to this effort.

2. Purpose and Background

Introductory Comments

The Prince William Sound Regional Citizens' Advisory Council (Council) is an independent nonprofit corporation whose mission is to promote environmentally safe operation of the Valdez Marine Terminal and associated tankers. Our work is guided by the Oil Pollution Act of 1990 and our contract with Alyeska Pipeline Service Company. PWSRCAC's 18 member organizations are communities in the region affected by the 1989 Exxon Valdez oil spill, as well as commercial fishing, aquaculture, Native, recreation, tourism and environmental groups, and the Alaska Chamber of Commerce.

This five-year plan is intended to provide a framework, process, and template, within which annual work plans and budgets can be developed. This plan is a tool for carrying out our work and assessing our progress. The planning process included in this document establishes the timeline and responsibilities for annual review of the five-year plan. It provides the Board of Directors with a means to control expenditures and ensure resources for our most important projects and priorities.

This plan builds upon the extensive foundations and work that the Council has accomplished throughout its 31 years of operation and evolution. It represents a comprehensive road map to help us design, develop, prioritize and achieve the goals of PWSRCAC on behalf of the citizens we represent. If you are experienced with the PWSRCAC long range planning process, and would like to skip right to the results of this year's efforts, see
Figure 6 - FY2023-FY2027 Projected Cost and Completion Forecast on pages 25-27.

Overall Vision

After a 1998 PWSRCAC planning workshop, the Board adopted the following long-range (10- to 30-year) vision to provide the context by which we work toward our mission.

> "PWSRCAC's performance is such that governments and industries solicit and value citizen input at all levels and stages of oil transportation decisions that potentially impact the environment."

Mission: The Core Purpose, Our Reason for Existing

This simple mission statement adopted in 1990 has served our organization well, and this plan does not propose any change. We are:

> "Citizens promoting the environmentally safe operation of the Alyeska terminal and associated tankers."

Driving Forces

- Constituent-based Board and technical committees
- Public concerns
- Oil Pollution Act of 1990
- Alyeska contract
- State and federal laws and regulations (permits and renewals)

- State and national political priorities
- Industry policies and practices
- Technology
- Oil spills and other environmental incidents

Values

The Board adopted the following Core Values after a 1998 planning workshop:

- The foundation of PWSRCAC is volunteerism
- Providing an effective voice for citizens
- Integrity through truth and objectivity
- Promote vigilance and combat complacency

Commitment

The Prince William Sound Regional Citizens' Advisory Council is committed to building and maintaining an organization that fosters teamwork and continuous improvement to minimize real and potential environmental and human health impacts from oil industry activities, representing our citizen constituents and member entities, and fostering creative solutions to challenges with a dedicated, highly-skilled and diverse work force.

We are committed to serving each member entity equally and to the fullest extent possible to maximize protection from pollution relating to oil industry operations.

To accomplish this:

- We will listen closely to our constituents and member entities through their representatives, understand their needs, and explain clearly the needs, responsibilities and mission of the Council and its programs.

- We will work in partnership with the oil industry and the associated regulatory agencies as much as possible to further the Council's mission to minimize the risk of oil spills and other adverse impacts from oil industry activities.

- We will act promptly, fairly, professionally, and courteously in all of our endeavors, and hold ourselves accountable for our individual and organizational actions.

In January 2012, the Board adopted the following One-Page Strategic Plan that includes additional guidance and organizational direction. This one-page plan is intended to supplement the overall vision, purpose, driving forces and values contained in the entire Five-Year Long Range Plan. The One-Page Strategic Plan is reviewed annually and updated accordingly, along with this entire document. The most recent changes to the One-Page Strategic Plan were approved in January 2020.

Prince William Sound Regional Citizens' Advisory Council
One-Page Strategic Plan

Mission Statement: Citizens promoting the environmentally safe operation of the Alyeska terminal and associated tankers

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Core Purpose: Citizen oversight to prevent oil spills, minimize environmental impacts and promote response readiness

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Core Values

- Represent the interests of our stakeholders by providing an effective voice for citizens
- The foundation of PWSRCAC is volunteerism
- Promote vigilance and combat complacency
- Organizational transparency and integrity through truth and objectivity
- Foster environmental stewardship

Overarching Goals and Objectives (see pages 14-16 for a more complete list of objectives)

- **Compliance with OPA90 and Alyeska contractual requirements.**
  - ❖ Annual re-certification and funding
  - ❖ Maintain regional balance
  - ❖ Link projects and programs to OPA90 and Alyeska contract

- **Continue to improve environmental safety of oil transportation in our region.**
  - ❖ Monitor and review development of, and compliance with, laws and regulations
  - ❖ Pursue risk-reduction measures and promote best available technologies and best practices
  - ❖ Monitor operations and promote a safe and clean marine terminal
  - ❖ Monitor and review the condition of the tanker fleet/maritime operations
  - ❖ Monitor and promote the safe operation of all Alyeska/SERVS-related on-water assets
  - ❖ Monitor and review environmental indicators
  - ❖ Promote and facilitate effective research for scientific, operational and technical excellence

- **Develop and maintain excellent external and internal communication.**
  - ❖ Advocate for government and industry measures to improve the environmental safety of oil transportation
  - ❖ Maintain and improve relationships with government, industry and communities
  - ❖ Be the model for citizen oversight and provide support for other citizens' advisory groups
  - ❖ Ensure availability of PWSRCAC information
  - ❖ Work to improve availability of information to PWSRCAC from industry sources

- **Achieve organizational excellence.**
  - ❖ Effective short and long term planning, with clear and measurable goals for projects
  - ❖ Fiscally responsible, efficient, and easily understood financial procedures and reporting
  - ❖ Committed to continuous improvement
  - ❖ Recognize people as the most important asset of the organization
  - ❖ Recruit and develop knowledgeable and committed Board members, volunteers and staff
  - ❖ Strong volunteer structure and support for volunteers

3. Operational Philosophy and Organization

Organizational Culture

The Prince William Sound Regional Citizens' Advisory Council was created in the wake of the Exxon Valdez oil spill, an environmental disaster that affected almost every aspect of life in the communities within our region. Community leaders and local citizens rallied to support the creation of this organization and became very engaged in our work at every level. With time and healing and significant improvements in the safety of oil transportation in Prince William Sound, local involvement has waned. Driven by the urgent need to act on the part of all stakeholders, major changes have taken place since 1989. The risk of a catastrophic oil spill in Prince William Sound or the Gulf of Alaska has been significantly reduced while the ability to respond if prevention fails has increased. PWSRCAC has developed processes and relationships that have contributed to those improvements. The challenge now is to keep working; keep doing what we do well; and, at the same time, meet the changing needs of our constituents.

Our members consist of communities and interest groups throughout the area affected by the Exxon Valdez oil spill in Prince William Sound, including the outer Kenai Peninsula and Kodiak Island. Our work must always focus on protecting the interests of the people in our region. Because of the different needs and perspectives within our region, everyone's priorities cannot always be met. It is important to cultivate a culture that is open to all citizens with the appropriate respect and consideration for differing viewpoints. Addressed fully and with open minds, our differences can become our strengths and lead to more effective solutions.

OPA90 mandates the establishment of the Prince William Sound and Cook Inlet regional citizens' advisory councils as "demonstration programs." Coastal communities around the world look to us for assistance to develop ways for local citizens to have a say in the oil transportation decisions that affect their local environment and the people who live there. Within the limits of our resources, PWSRCAC will continue to provide information and support to local communities on the West Coast of the United States and elsewhere, sharing the lessons we have learned, our successes, and our challenges.

In order to ensure that PWSRCAC is successful in meeting its OPA90 mandate, its mission, and its overarching goals, the organization must remain healthy and productive with a strong and secure structure. While this is a challenge in itself, it is equally important to maintain the organization's independence and at the same time build strong external relationships. PWSRCAC must balance its sustainable operations with the need to effectively advise and, when necessary, to provide constructive criticism to the oil industry and/or regulatory agencies. It is also important to track and assess overall organizational administrative costs in order to effectively review how efficiently PWSRCAC is meeting its responsibilities, accomplishing its mission and carrying out the important projects and programs within its budgetary constraints. We will seek to apply organizational excellence in everything that we do.

Resources

PWSRCAC's resources consist primarily of the people in our organization and the constituents they represent, healthy relationships with government, industry, and other non-governmental organizations, and secure sources of funding. Considering the importance of our mission and the

complexity of our tasks, we must be creative in how we use those resources. We will use our resources wisely and we will be accountable for all usage of those resources.

People, the PWSRCAC team:

The backbone of the PWSRCAC is its people. The team is comprised of a volunteer Board of Directors, five technical committees and a professional staff. The diverse backgrounds, technical expertise, and passions for accomplishing PWSRCAC's mission by these individuals, when unified by our mission statement and core purpose, provide our main strength.

Board of Directors:

The 19 PWSRCAC Board members are appointed by either communities in the region affected by the 1989 Exxon Valdez oil spill or Native, commercial fishing, aquaculture, recreation, tourism, environmental groups, and the State Chamber of Commerce. Directors serve on a volunteer basis for two-year terms.

Technical committees:

Each of the five PWSRCAC technical committees is focused on a specific portion of the overall PWSRCAC mission. Committee membership is open to Alaskans subject to acceptance by the committee and Board. Members of the committees often have professional backgrounds directly related to the committee purpose.

The five technical committees are:

- Scientific Advisory Committee (SAC)
  Mission statement: "Scientists and citizens promoting the environmentally safe operations of the terminal and tankers through independent scientific research, environmental monitoring, and review of scientific work."
- Oil Spill Prevention and Response Committee (OSPR)
  Mission statement: "The Oil Spill Prevention and Response (OSPR) Committee works to minimize the risk and impacts associated with oil transportation through strong spill prevention and response measures, adequate contingency planning, and effective regulations."
- Terminal Operations and Environmental Monitoring Committee (TOEM)
  Mission statement: "The Terminal Operations and Environmental Monitoring (TOEM) Committee identifies actual and potential sources of episodic and chronic pollution at the Valdez Marine Terminal."
- Port Operations and Vessel Traffic Systems Committee (POVTS)
  Mission statement: "The Port Operations and Vessel Traffic Systems (POVTS) Committee monitors port and tanker operations in Prince William Sound."
- Information and Education Committee (IEC)
  Mission statement: "The Information and Education Committee (IEC) fosters public awareness, responsibility, and participation through information and education."

Staff:

The PWSRCAC currently has a budget for a professional staff of 18 full-time equivalent positions Senior management is comprised of the Executive Director, a Director of Administration, a Financial Manager, a Director of Communications, and a Director of Programs. The administrative staff consists of the Executive Assistant and two Administrative Assistants. Program staff consists of the Outreach Coordinator and eight Project Managers.

Together these three groups are the PWSRCAC core organization. Figure 1 presents a tabular review of the PWSRCAC team structure and the roles and responsibilities of each group. Appendix A, PWSRCAC Internal Structure and Relationships, presents a more detailed review of the PWSRCAC internal structure and operational relationships.

Figure 1: The PWSRCAC Team

	Board	Committees	Staff
MEMBERSHIP	19 volunteer members, appointed and representing 18 member entities	• Five technical committees: 32-40 volunteer members recruited and appointed by the Board • Legislative Affairs Committee: 6-10 volunteer Board members • Executive Committee: Board officers and elected at-large members • Board Governance Committee: 3-6 volunteer Board members • Finance Committee: minimum 4 Board members (Board treasurer as chair) • Long Range Planning Committee: minimum 3 volunteer Board members plus chairs of each technical committee	• Currently approved 18 full-time equivalents (1) Executive Director • (1) Director of Administration • (1) Director of Programs • (1) Director of Communications • (1) Financial Manager • (3) Administrative Staff (executive assistant and two administrative assistants) • (1) Outreach Coordinator • (9) Project Managers, (two committee support, five major programs, a website coordinator, and a drill monitor)

ROLES AND RESPONSIBILITIES	• Policies and Priorities • Budget and contract approvals • Approvals of reports and recommendations • Individual service on technical committees, working groups, and project teams • Plan and develop objectives	• Scoping of issues and development of proposed projects • Research and literature reviews • Review reports, policies, bylaws and position statements and make recommendations to the Board • Individual service on working groups and project teams • XCOM serves to address time sensitive issues that cannot wait for a regularly scheduled Board meeting except when an issue is deemed to be important enough to warrant a special meeting or Board teleconference • Main contact between Board and outside independent auditor • Periodic detailed review of financial statements and internal controls	• Administration of organization and support for Board and committees • Provide information about PWSRCAC and issues to Board, committees, member entities, government agencies, industry, and the public • Develop and maintain relationships with government agencies and oil shipping industry. Develop objectives, schedule and budgets for PWSRCAC programs and projects. Manage and administer contracts for technical services. Report program and project status to management, Board and committees. Coordinate review and acceptance of reports and recommendations.

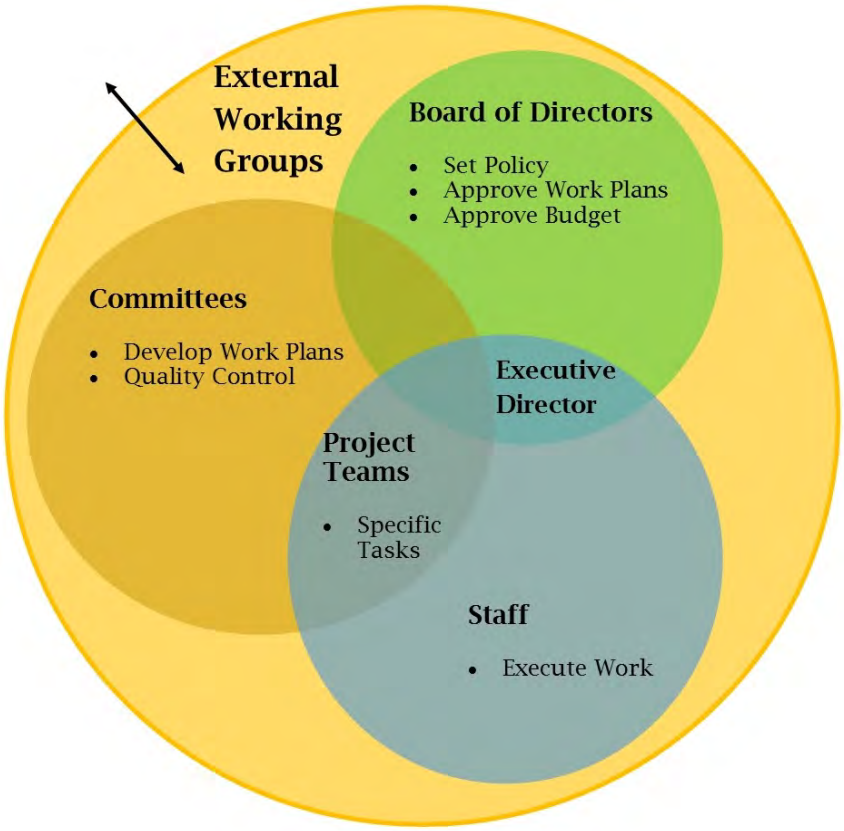
Relationships

One of the objectives of OPA90 was to foster partnerships among the oil industry, government agencies and local citizens. We have learned during the past three decades that partnerships among stakeholders can lead to good policies, safer transportation of oil, better oil spill prevention and response capabilities, and improved environmental protection. Ex-officio members and other organizations routinely participate in the technical committee meetings, contributing expertise and other assistance with PWSRCAC projects. Many of PWSRCAC's major successes have been jointly achieved through technical and regulatory working groups and funding partnerships among government, industry and citizen representatives. Some notable examples include:

Project	Partners
Valdez Marine Terminal Contingency Plan Coordination Working Group (1997-present)	ADEC, Environmental Protection Agency (EPA), Bureau of Land Management (BLM), USCG, APSC
Potential Places of Refuge (2015-2017)	Alaska's Institute of Technology (AVTEC), SWAPA, Safeguard Marine
Project Jukebox (2013-present)	University of Alaska Fairbanks
Youth Involvement (2010-present)	Alaska Geographic, Valdez City Schools, PWSSC, Chugach School District, Copper River Watershed Project, Alaska SeaLife Center, Kachemak Bay Research Reserve, Center for Alaskan Coastal Studies (CACS), Kodiak Island Borough School District, Friends of Alaska National Wildlife Refuges, SPACE (Valdez), Children of the Spills (Katie Gavenus), Alaska Tsunami Bowl, Kenai Peninsula Borough School District, Baranof Museum, Chugach Children's Forest, Chugach National Forest, Wrangell Institute of Science & the Environment (WISE), Alutiiq Tribe of Old Harbor, Cordova City Schools, Alaska Science and Engineering Fair, Kenai Fjords National Park, Arctic Youth Ambassadors, Homer Flex High School, Valdez City Schools, Alaska Marine Conservation Council, Seed Media, Valdez Museum
Alaska Invasive Species Workgroup (2010-present)	ADFG, USFWS, US Army, Animal & Plant Health Inspection Service (APHIS), US Geological Survey (USGS), The Nature Conservancy, NPS, NOAA, SeaGrant Alaska, ADNR, DOI, ADEC, USFS, Prince William Soundkeeper, BLM, Alaska Soil & Water Conservation Districts
Marine Transition Participant Team (2016-2019)	APSC/SERVS, Conoco Phillips/Polar Tankers, ADEC, Crowley, USCG, Edison Chouest Offshore (ECO)
Marine Invasive Species (1996-present)	Smithsonian Environmental Research Center (SERC)
Fishing Vessel Program Outreach Tour (2016-present)	APSC/SERVS, Kenai Fjords Tours, Seward Chamber of Commerce, Stan Stephens Cruises, Copper River Watershed Project, Chugach School District, Whittier City Council
Port Valdez Weather Buoys (2019-present)	City of Valdez, PWSSC, Fairweather Science, AOOS, JOA Surveys, NOAA PORTS, APSC

Figure 2 shows PWSRCAC's teams in the larger context of government, industry and other non-governmental organizations (NGOs).

Figure 2: Shared Leadership, True Teamwork



Funding

- PWSRCAC's contract with Alyeska Pipeline Service Company is the primary means and most secure source of funding. The contract was originally signed in 1990 and continues as long as oil flows through the Trans-Alaska Pipeline to the loading terminal at Port Valdez. The funding level is reviewed every three years, with the most recent period running from July 1, 2020 to June 30, 2023. Funding is typically adjusted to the Anchorage Consumer Price Index (Anchorage CPI). Any adjustments are agreed upon by signing a triennial contract addendum. The current level of funding is $3,716,000.
- Partnerships with industry, government and non-governmental agencies have provided significant resources in the past, including cash and in-kind donations, for specific projects.

Overarching Goals and Objectives

This plan encompasses four overarching goals, each of which is supported by several specific, measurable objectives. The Board of Directors endorsed the goals in 1998 to correlate with the established vision, mission and core values of the organization. These goals are:

- Total compliance with OPA90 and Alyeska contractual requirements
- Continue to improve environmental safety of oil transportation in our region
- Develop and maintain excellent external and internal communication
- Achieve organizational excellence

As presented below, each overarching goal is supported by objectives which, when accomplished, serve and support it.

1. **Total compliance with OPA90 and Alyeska contractual requirements.**

   Objectives:
   - Annual re-certification
   - Review funding
   - Monitor OPA90 for changes in PWSRCAC status
   - Maintain regional balance
   - Link projects and programs to OPA90 and Alyeska contract

Figure 3 presents OPA90 and Alyeska Contract requirements for PWSRCAC activities.

Figure 3: OPA90 and Alyeska contractual requirements

OPA90	Alyeska Contract
Regional Balance, broadly representative of communities and interests in the region.	Provide local and regional input, review and monitoring of Alyeska's oil spill response and prevention plans and capabilities, environmental protection capabilities, and the actual and potential environmental impacts of the terminal and tanker operations.
Provide advice to regulators on the federal and state levels.	Increase public awareness of subjects listed above.
Provide advice and recommendations on policies, permits, and site-specific regulations relating to the operation and maintenance of terminal facilities and crude oil tankers.	Provide input into monitoring and assessing the environmental, social and economic consequences of oil related accidents and actual or potential impacts in or near Prince William Sound.
Monitor the environmental impacts of the operation of the terminal facilities and crude oil tankers and operations and maintenance that affect or may affect the environment in the vicinity of the terminal facilities.	Provide local and regional input into the design of appropriate mitigation measures for potential consequences likely to occur as a result of oil or environmental related accidents or impacts of terminal and tanker operations.
Review the adequacy of oil spill prevention and contingency plans for the terminal facilities and crude oil tankers operating in Prince William Sound and review the plans in light of new technological developments and changed circumstances.	Provide recommendations and participate in the continuing development of the spill prevention and response plan, annual plan review, and periodic review of operations under the plan including training and exercises.
Provide advice and recommendations on port operations, policies and practices.	Other concerns: comment on and participate in selection of research and development projects.
Conduct scientific research and review scientific work undertaken by or on behalf of the terminal or oil tanker operators or government entities.	Review other important issues related to marine oil spill prevention and response concerns that were not obvious when the contract was signed.
Devise and manage a comprehensive program of monitoring the environmental impacts of the operations of the terminal facility and crude oil tankers.	Review other concerns agreed upon by the Council regarding actual or potential impacts of terminal or tanker operations.
Monitor periodic drills and testing of oil spill contingency plans.	
Study wind and water currents and other environmental factors in the vicinity of the terminal that may affect the ability to prevent, respond to, contain and clean up an oil spill.	
Identify highly sensitive areas that may require specific protective measures.	

OPA90	Alyeska Contract
Monitor developments in oil spill prevention, containment, response and cleanup technology.	
Periodically review port organization, operations, incidents and the adequacy and maintenance of vessel traffic service systems designed to ensure safe transit of crude oil tankers pertinent to terminal operations.	
Periodically review the standards for tankers bound for, loading at, exiting from, or otherwise using the terminal facilities.	
Foster partnerships among industry, government and local citizens.	

2. **Continue to improve environmental safety of oil transportation in our region.**

   Objectives:
   - Monitor and review development of, and compliance with, laws and regulations
   - Pursue risk-reduction measures
   - Investigate best available technologies
   - Monitor operations and promote a safe and clean marine terminal
   - Monitor and review the condition of the tanker fleet/maritime operations
   - Monitor and promote the safe operation of all Alyeska/SERVS-related on-water assets
   - Monitor and review environmental indicators
   - Monitor and review development of and compliance with laws and regulations

3. **Develop and maintain excellent external and internal communication.**

   Objectives:
   - Advocate for government and industry measures to improve the environmental safety of oil transportation
   - Maintain and improve relationships and work with government officials
   - Maintain and improve partnerships with industry
   - Maintain and improve relationships with communities
   - Support other citizens' advisory groups
   - Ensure availability of PWSRCAC information
   - Improve availability of information to PWSRCAC from industry sources

4. **Achieve organizational excellence.**

   Objectives:
   - Effective short- and long-term planning
   - Fiscally responsible, efficient, and easily understood financial planning, tracking, and reporting procedures
   - Remain committed to continuous improvement

- Recognize people as the most important asset of the organization
- Have all the necessary resources
- Recruit and develop knowledgeable and committed Board members, volunteers and staff
- Provide strong volunteer structure and support for volunteers
- Maintain clear policies and procedures

Status Review

Where are we today?

During its 31-year history, PWSRCAC has built an effective organization and contributed significantly to major improvements in the system of oil transportation safety at the Valdez Marine Terminal and in Prince William Sound and the Gulf of Alaska. As discussed in the section on organizational culture, we are now challenged to build on the successes of the past to meet the changing needs of our constituents and changing dynamics of oil transportation issues. The LRPC summarized our Strengths, Weaknesses, Opportunities and Threats as follows.

- Strengths: history, passionate participants, worthy cause, good staff, respectability, political credibility
- Weaknesses: internal conflict, highly opinionated individuals, difficulty in recruiting dedicated younger volunteers
- Opportunities: (political and educational) to influence the oil industry to create the safest operation possible, with zero potential for spills and other environmental and/or human health impacts
- Threats: reactive vs. proactive organizational culture, regulatory and political priorities, outside interests supporting personal agendas, thinking small, internal competition for resources, conflicting priorities

4. Process and Products

Process

PWSRCAC promotes the environmentally safe operation of the Valdez Marine Terminal and the associated crude oil tankers on behalf of the citizens of our region. The Oil Pollution Act of 1990 and our contract with Alyeska Pipeline Service Company outline what is expected from our organization. In essence, we observe, verify, inform and advise. During the past thirty-one years, our internal structure has evolved in order to meet these objectives. This structure is described in the preceding section.

Communication and coordination are key to our success – internally with our Board, staff, committees, and our constituents and externally with the oil industry and government officials. Figure 4 shows how our work is carried out internally, from the planning stage through completion by the technical committees, staff, project teams and the Board of Directors.

Figure 4. Planning and Implementation Process for Program Activities and Projects

Phase	Committees (plan, monitor, accept)	Staff (coordinate and complete)	Project Teams (assist, review, advise)	Board (review and approve)
Long-range (Five-Year) Plan	• identify future issues relating to each program • recommend specific program components and projects to Board	• support committees with information and options for study • consolidate committee recommendations • prepare comprehensive plan for presentation to Board		• affirm and/or amend mission, vision, core values, and goals • provide guidance and direction to committees • annually adopt five-year plan
Annual Work Plan (Budget)	• identify specific projects and program components for the coming year • develop objectives and define final product	• support committees with information and planning tools • develop implementation plan for projects and programs • finalize consolidated budget and work plan		• review committee proposals and provide input • approve annual work plan and budget
Implementation	• monitor progress • provide input / guidance to project team and project manager • preview requested Board actions	• lead project teams • administer contracts • status reports to committees, Board, and public information staff	• review documents and input from committees • advise staff and assist with development of recommendations for advice to industry and agencies	• approve contracts • monitor progress and provide input to project team • approve interim recommendations and advice
Closure	• determine that final product meets objectives • recommend acceptance by Board	• close contracts • finalize proposed recommendations and advice • presentation to committee • prepare briefings and presentations for Board	• assist staff with presentation to Board • recommendations to committees for future related work	• accept and approve work products and recommendations and advice • take action or adopt policy based on findings of project

NOTE: The shading indicates where the primary responsibility is for each phase of a program or project, beginning with the technical committees, working through with staff and project teams, and finally Board approval of the product and final recommendations. Technical committees generally meet monthly; project teams meet as needed to abide by project schedules; and the Board meets three times a year to approve work plans and budgets and accept final products.

Products

We may not think of our work as being "products" but as an entity we are what we produce. The following are the goods and services that are created by the Prince William Sound Regional Citizens' Advisory Council which, when provided, generate continued support for its work:

- A voice and forum for the interests and concerns of citizens and communities.
- Comments on and recommendations for oil industry and regulatory agency proposals and action.
- Committee oversight and scientific review of the impacts of terminal and tanker operations on communities and the environment.
- Information and education about the environmental implications of oil transportation and terminal operations.
- Recommendations and information on legislation and regulations.
- Advice to the public, industry and regulators on ways to reduce the environmental risks associated with terminal and tanker operations.

The ultimate success of our work is measured by the outcome, a clearly visible and demonstrated improvement in the system that results from our recommendations and advice. A few of our milestones and significant accomplishments include:

- Extensive Partnerships with industry and regulators on key projects.
- Installation of two metocean weather buoys in Port Valdez (one at the VMT and the other at the Valdez Duck Flats) that provide real-time weather observations to improve navigation safety and oil spill response in Port Valdez.
- Cleaner air in Port Valdez after installation of the tanker vapor control system at the Valdez Marine Terminal.
- Enhanced tractor tugs designed and built to escort oil tankers in Prince William Sound.
- Development of Geographic Response Strategies to protect environmentally sensitive areas in response to an oil spill.
- A Prince William Sound Marine Fire Response Plan and more than 100 local land-based firefighters trained and certified to respond to a marine fire.
- Involvement of younger generations in PWSRCAC programs and projects through the Youth Involvement and Oil Spill Curriculum projects.
- Upgraded fire suppression systems on the crude oil storage tanks and at the East Metering facilities at the Valdez Marine Terminal.
- Significantly reduced emissions of hazardous air pollutants from ballast water treatment processes with installation of vapor control on the 90s tanks at the Valdez Marine Terminal.
- Removal of a nationwide exemption for emissions from crude oil transportation under a Federal rule-making, and resulting modifications to the ballast water treatment plant, further reducing hazardous air pollutants from the Valdez Marine Terminal.
- Federal legislation securing two escort tugs for all laden tankers in Prince William Sound.
- Increased community awareness of the state-of-the-art fishing vessel training program.
- Improved crude oil piping inspections, through piping system modifications allowing for comprehensive, internal inspections at the Valdez Marine Terminal.
- A citizen-based monitoring system for early detection of invasive species.

Equally important, but less tangible, is our responsibility to monitor compliance with state and federal regulations and review permit applications and contingency plans. We provide comments, suggestions, and recommendations that strengthen environmental protection measures and ensure that plans are adequate to respond effectively if prevention measures fail. To develop these products, a three-tiered work structure has evolved consisting of programs, projects, and initiatives.

Programs

The operations of PWSRCAC are organized by program, each closely related to specific OPA90 and contractual requirements and aligned with the technical committees.
A program includes all ongoing activities, including projects and initiatives, related to PWSRCAC-specific areas of interest. The ongoing tasks are generally planned and carried out by staff and volunteers with limited reliance on outside contracts. PWSRCAC's operation includes the following major programs:

Communications and Technical Programs

- Public Information & Community Outreach
- Terminal Operations & Environmental Monitoring
- Maritime Operations
- Oil Spill Response Planning and Preparedness
- Scientific Research & Assessment

Support Programs

- Administration
- Board and Committee Support

Projects

Projects are developed annually by the committees and staff and are designed to meet specific objectives related to issues associated with the Council's mission as driven by concerns raised by citizens, committees, Council members, and the technical programs. Projects normally have starting and ending dates, as well as clearly defined products and outcomes, and often require outside expertise and/or services.

However, some projects—such as the Observer and the Annual Report—do not have clear starting and ending dates, but instead are presumed to be permanent, ongoing parts of the Council's operations. Any such projects determined to be permanent and ongoing or mandatory obligations based on OPA90 or our contract with Alyeska are to be classified as protected projects. The Board will annually review and approve any recommendations for protected projects. Protected projects are not subject to the project ranking process as outlined later in this plan.

5. Five-Year Plan

The Model Five-Year Planning Cycle

The annual planning cycle needed to develop the Annual Work Plan and associated budgets must include an evaluation of current projects and a projection of future efforts. This process cannot be achieved without cohesive efforts carried throughout the entire year. The planning cycle presented below contains these six major elements:

- Evaluation of current projects
- Proposals for new projects
- First draft of upcoming year's Annual Work Plan
- Selection and timing of ongoing and new projects for inclusion in the Annual Work Plan
- Second draft of Annual Work Plan with associated budget and project details including confirmation of project prioritization
- Incorporation of Annual Work Plan and budgeted projects into operations

Figure 5, Annual Process for Five-Year Planning and Budgeting, is a presentation of this planning cycle as applied to the PWSRCAC operation. The tasks involved in the planning cycle, the individuals and groups responsible for each task, and the timeline for their completion are delineated.

Figure 5
ANNUAL PROCESS FOR LONG RANGE PLANNING AND BUDGETING

TASK	PERSONNEL	TIMELINE
Appoint members to the Long Range Planning Committee (LRPC)	Board, Committees and Staff	May
Incorporate Board guidance via review of long range plan status into five-year plan starting with next fiscal year	Management team and LRPC	May - August
Conduct and participate in discussions to evaluate current projects and develop ideas for new work. Prepare briefing sheets for new projects	LRPC, Board, Committees and Staff	October - November
Prepare draft five-year plan from survey data and review of existing plan	LRPC	December
Workshop to review and amend draft five-year plan	Board, Committees and Staff	Prior to January meeting
Five-year plan adopted	Board	January meeting
Begin budget preparation for upcoming fiscal year	Committees, working groups and staff	February - March
Draft budget sheets prepared	Project Staff	March - April
Draft budget sheets reviewed by executive staff to compile balanced budget; Finance Committee then reviews draft budget and recommends to full Board	Executive Director, Financial Manager, finance committee	April
Budget Workshop	Board, Committees and Staff	Prior to May meeting
Adopt final budget	Board	May meeting

Evaluation of Current and Proposed Projects

A review of the fiscal status of all current projects (FY2022) was conducted and projected FY2023-FY2027 project costs were developed along with completion dates when known. This data is presented in Figure 6, FY2023-FY2027 Projected Cost and Completion Forecast. The Board adopted a net asset stabilization policy wherein net assets are targeted to be no less than $350,000 and would be used only in extraordinary circumstances. The Board-approved amount is currently $400,000. These funds are separate from the current and future operating budgets.

Figure 6
FY2023-FY2027 Projected Cost and Completion Forecast

Programs and Projects	Current Approved Budget FY2022	Proposed FY2023	Proposed FY2024	Proposed FY2025	Proposed FY2026	Proposed FY2027
INFORMATION & EDUCATION						
3200--Observer Newsletter	$6,000	$7,500	$8,000	$8,500	$9,000	$9,500
3300--Annual Report	$7,400	$10,000	$10,400	$10,800	$11,200	$11,600
3410--Fishing Vessel Outreach Pilot	$15,000	$19,000	$19,570	$20,157	$20,762	$21,385
3530--Youth Involvement	$45,750	$50,750	$50,750	$50,750	$50,750	$50,750
3562--Update Then & Now		$4,400	$5,600			
3610--Website Presence BAT	$12,080	$7,080	$7,434	$7,805	$8,195	$8,605
3620--Connecting With Our Communities	$15,000					
3903--Internship	$3,300	$4,000	$4,120	$4,244	$4,371	$4,502
6560--Peer Listener Training	$35,000					
3XXX--Cultivating Robust Engagement		$10,000				
3XXX--Connecting w/ Young Maritime Adults		$7,000	$3,000			
Subtotal	$139,530	$119,730	$108,874	$102,256	$104,278	$106,342
TERMINAL OPERATIONS & ENVIRONMENTAL MONITORING						
5056--Tank 8 Internal Inspection Review	$19,136					
5057--APSC Appeal of Air Quality Rule	$39,200					
5081--Crude Oil Tank 7 + BWT Tank 94	$75,088					
5081--BWT Tank 93 Maintenance Review		$60,000	$60,000		$60,000	
5591--Crude Oil Piping Inspections Review		$51,744				
5640--ANS Crude Oil Properties	$5,000					
5640--ANS Crude Oil Properties Donated Services	$22,800					
5XXX--VMT Oil Spill Prevention Plan Review		$40,000				
5XXX--Review of VMT Mechanical Integrity Program			$40,000			
5XXX--Ballast Water Effluent Toxicity Testing Review			$40,000			
5XXX--Regulatory Compliance Assessment			$20,000			

Figure 6 (continued)
FY2023-FY2027 Projected Cost and Completion Forecast

Programs and Projects	Current Approved Budget FY2022	Proposed FY2023	Proposed FY2024	Proposed FY2025	Proposed FY2026	Proposed FY2027
5XXX--Shore Power for Tankers at VMT				$40,000		
5XXX--Review of Most Recent Tank Inspection Reports				$50,000		
5XXX--Review of Air Emissions from the VMT 2000-2021				$40,000		
Subtotal	$161,224	$151,744	$160,000	$130,000	$60,000	$0
OIL SPILL PREVENTION & RESPONSE						
6510--State Contingency Plan Reviews	$85,000	$119,000	$127,500	$136,800	$140,904	$145,131
6511--History of Contingency Planning	$25,000	$50,000				
6530--Weather Data/Sea Currents	$14,400	$16,400	$16,400	$16,400	$16,400	$16,400
6531--Port Valdez Weather Buoys	$42,500	$41,500	$41,500	$41,500	$41,500	$41,500
6531--Port Valdez Weather Buoys City of Valdez Grant Funds	$8,700					
6531--Port Valdez Weather Buoys Donation	$20,000					
6534--Cape Hinchinbrook Weather	$500					
6536--Analysis of Weather Buoy Data	$15,000	$17,000	$17,510	$18,035		
6540--Copper River Delta/Flats GRS History	$20,000	$22,500	$10,000			
7050--Out of Region Equipment Survey	$30,000					
6532--Mesoscale Weather Modeling in PWS		$50,000	$10,000	$10,000	$10,000	$10,000
6XXX--Documenting UAV Use in Spill Prevention/Response		$15,000				
65XX--Lower Copper River Delta Weather Station		$50,000	$3,600	$3,600	$3,600	$3,600
7XXX--ESI Mapping Update Via ShoreZone Imagery			$75,000			
8XXX--Drifting Tanker Simulator Study		$55,000				
Subtotal	$261,100	$436,400	$301,510	$226,335	$212,404	$216,631

Figure 6 (continued)
FY2023-FY2027 Projected Cost and Completion Forecast

Programs and Projects	Current Approved Budget FY2022	Proposed FY2023	Proposed FY2024	Proposed FY2025	Proposed FY2026	Proposed FY2027
PORT OPERATIONS & VESSEL TRAFFIC SYSTEMS						
8012--Line Throwing Device Trials	$39,500					
8013--AIS/Radar Whitepaper	$12,500					
8014--USCG Basic/Advanced Emergency Ship	$30,000					
80XX--Escort Tug BAT Assessment		$65,000				
80XX--MASS Technology Review		$35,000				
80XX--Miscommunication in Maritime Contexts		$55,000	$50,000	$50,000		
80XX--Sustainable Shipping, Phase 1		$35,000	$35,000	$35,000		
Subtotal	$82,000	$190,000	$85,000	$85,000	$0	$0
SCIENTIFIC ADVISORY						
9110--Spatial Variability of Marine Birds	$40,400	$41,700				
9510--Long Term Environmental Monitoring Program	$154,980	$153,850	$158,466	$163,219	$168,116	$173,160
9511--Herring/Forage Fish Survey	$46,300	$4,000				
9512--Oxygenated Hydrocarbons	$18,000	$52,400				
9513--Hydrocarbon Sensor	$4,700	$7,500	$7,500	$7,500	$7,500	$7,500
9520--Marine Invasive Species	$56,870	$60,254	$190,846			
952X--Marine Invasive Species Internships		$4,500	$3,500	$3,500	$3,500	$3,500
9550--Dispersants	$50,000	$30,880	$10,000	$10,000		
9XXX--Assessing Changes in Native Marine Invertebrate Species within Valdez Arm		$32,486	$20,788	$21,308	$21,841	
9XXX--Comprehensive Update of Subsistence Harvests & Uses in PWS		$49,750	$99,350	$81,050		
9XXX--Toxicity of Treated Ballast Water Effluent to Calanoid Copepods		$86,712	$80,034			
Subtotal	$371,250	$524,032	$570,484	$286,577	$200,957	$184,160
Committee Subtotals	$1,015,104	$1,421,906	$1,225,868	$830,168	$577,639	$507,132

Figure 6 (continued)
FY2023-FY2027 Projected Cost and Completion Forecast

Programs and Projects	Current Approved Budget FY2022	Proposed FY2023	Proposed FY2024	Proposed FY2025	Proposed FY2026	Proposed FY2027
PROGRAMS						
3100--Public Information	$1,505	$7,685	$7,916	$8,153	$8,398	$8,650
3500--Community Outreach	$48,800	$64,085	$66,008	$67,988	$70,027	$72,128
3600--Public Communications Program	$1,699	$3,639	$4,300	$5,000	$5,150	$5,305
4000--Program and Project Support	$1,609,573	$1,657,860	$1,707,596	$1,758,824	$1,811,589	$1,865,936
4010--Digital Collections Program	$7,850	$8,086	$8,328	$8,578	$8,835	$9,100
5000--Terminal Operations Program	$15,000	$15,450	$15,914	$16,391	$16,883	$17,389
6000--Spill Response Program	$10,800	$16,000	$16,000	$16,000	$16,000	$16,000
7000--Oil Spill Response Operations Program	$1,050	$7,050	$7,235	$7,420	$7,605	$7,790
7520--Preparedness Monitoring	$33,500	$40,400	$44,400	$50,400	$51,912	$53,469
8000--Maritime Operations Program	$12,000	$13,000	$13,000	$13,000	$13,000	$13,000
9000--Environmental Monitoring Program	$800	$12,100	$12,100	$12,100	$12,100	$12,100
Subtotal	$1,742,577	$1,845,355	$1,902,796	$1,963,853	$2,021,498	$2,080,867
LEGISLATIVE AFFAIRS						
4400--Federal Government Affairs	$51,600	$53,148	$54,742	$56,385	$58,076	$59,819
4410--State Government Affairs	$30,000	$30,900	$31,827	$32,782	$33,765	$34,778
4500--DR&R Research	$20,000	$20,600	$21,218	$21,855	$22,510	$23,185
Subtotal	$101,600	$104,648	$107,787	$111,021	$114,352	$117,782
BOARD OF DIRECTORS						
1350--Information Technology	$2,000	$2,060	$2,122	$2,185	$2,251	$2,319
2100--Board Administration	$135,941	$140,019	$144,220	$148,546	$153,003	$157,593
2150--Board Meetings	$92,500	$95,275	$98,133	$101,077	$104,110	$107,233
2200--Executive Committee	$0					
2220--Governance Committee	$0					
2222--Finance Committee	$0	$3,850	$3,966	$4,084	$4,207	$4,333
2700--Legislative Affairs Committee	$0	$16,275	$16,763	$17,266	$17,784	$18,318
Subtotal	$230,441	$257,479	$265,204	$273,160	$281,355	$289,795

Figure 6 (continued)
FY2023-FY2027 Projected Cost and Completion Forecast

Programs and Projects	Current Approved Budget FY2022	Proposed FY2023	Proposed FY2024	Proposed FY2025	Proposed FY2026	Proposed FY2027
COMMITTEES & COMMITTEE SUPPORT						
2250--Committee Support	$127,157	$130,972	$134,901	$138,948	$143,116	$147,410
2300--Oil Spill Prevention & Response	$1,600	$1,648	$1,697	$1,748	$1,801	$1,855
2400--Port Operations & Vessel Traffic System	$1,600	$1,648	$1,697	$1,748	$1,801	$1,855
2500--Scientific Advisory Committee	$1,600	$1,648	$1,697	$1,748	$1,801	$1,855
2600--Terminal Operations & Environmental Monitoring	$1,600	$1,648	$1,697	$1,748	$1,801	$1,855
2800--Information and Education Committee	$1,600	$1,648	$1,697	$1,748	$1,801	$1,855
Subtotal	$135,157	$139,212	$143,388	$147,690	$152,120	$156,684
GENERAL & ADMINISTRATIVE						
1000--General and Administrative	$536,477	$552,571	$569,148	$586,223	$603,810	$621,924
1050--General and Administrative--Anchorage	$138,803	$142,967	$147,256	$151,674	$156,224	$160,911
1100--General and Administrative--Valdez	$180,180	$185,585	$191,153	$196,888	$202,794	$208,878
1300--Information Technology	$116,390	$119,882	$123,478	$127,182	$130,998	$134,928
Subtotal	$971,850	$1,001,006	$1,031,036	$1,061,967	$1,093,826	$1,126,641
Subtotals	$4,196,729	$4,769,605	$4,676,078	$4,387,859	$4,240,790	$4,278,902
Contingency (Current Year Budget)	$263,810	$50,000	$50,000	$50,000	$50,000	$50,000
Total Expenses	$4,460,539	$4,819,605	$4,726,078	$4,437,859	$4,290,790	$4,328,902

New Projects and Initiatives

Each year since 2004, all members of the PWSRCAC team are polled for suggestions of new projects and initiatives. In addition, solicitation letters went out to ex-officio members and various stakeholders inviting suggestions for new projects that support the mission of the organization. Some of the proposed new projects are merged into existing programs. Staff and committee members then prepared briefing sheets and cost projections for the proposed projects. The project proposals are then discussed and evaluated by the LRPC and the various technical committees.

Project Scoring

The proposed projects and initiatives were evaluated for relevance to the PWSRCAC mission, value to PWSRCAC, benefit to member entities, probability of success, and cost effectiveness.

The five technical committees were asked to prioritize the proposed projects that fall within their purview (Figure 7). Projects to be ranked were forwarded to staff and all Board members with the committee prioritization information. All staff members and fifteen of nineteen Board members responded with their project scores using the approved project ranking sheet. The rated project scorings are presented in Figure 8, Project Scoring Matrix.

Figure 7
Committee Prioritization

Each Committee was asked to prioritize their proposed projects and initiatives for the Long Range Planning Process. Following is each committee's prioritization with the highest priority project listed as number one.

POVTS Committee – FY2023 Budget and Prioritization

POVTS Committee Prioritization	Project #	Project Name	Budget
1	8XXX	Miscommunication in Maritime Contexts	$55,000
2	8XXX	Sustainable Shipping Phase 1	$35,000
3	8012	Escort Tugboat BAT Assessment	$65,000
4	8XXX	MASS Technology Review	$35,000

OSPR Committee – FY2023 Budget and Prioritization

OSPR Committee Prioritization	Project #	Project Name	Budget
Protected	6510	State Contingency Plan Reviews	$119,000
Protected	6530	Weather Data & Sea Currents	$16,400
Protected	6531	Port Valdez Weather Buoys	$41,500
1	65XX	Copper River Delta Weather Station	$50,000
2	65XX	Mesoscale Weather Modeling	$50,000
3	6536	Analysis of Port Valdez Weather Buoy Data	$17,000
4	6540	Copper River Delta & Flats Whitepaper Workshop	$22,500
5	6511	History of VMT C-Planning	$50,000
6	80XX	Stricken Tanker Simulator Drift Study	$55,000
7	6XXX	UAV Use During Spills Whitepaper	$15,000

IE Committee – FY2023 Budget and Prioritization

IE Committee Prioritization	Project #	Project Name	Budget
Protected	3200	Observer Newsletter	$7,500
Protected	3300	Annual Report	$10,000

Protected	3610	Web BAT	$8,800
1	3530	Youth Involvement	$50,750
2	3903	Internship	$4,000
3	3410	Fishing Vessel Outreach	$19,000
4	3XXX	Connecting with Young Maritime Adults	$7,000
5	3562	Update Then & Now	$4,400
6	3XXX	Cultivating Robust Engagement	$10,000

TOEM Committee – FY2023 Budget and Prioritization

TOEM Committee Prioritization	Project #	Project Name	Budget
1	5591	Crude Oil Piping Inspection Review	$51,744
2	5XXX	VMT Spill Prevention Plan Review	$40,000
3	5081	Tank 93 Maintenance Review	$60,000

SA Committee – FY2023 Budget and Prioritization

SA Committee Prioritization	Project #	Project Name	Budget
Protected	9510	LTEMP	$153,850
1	9550	Dispersants	$10,000
2	9XXX	Update of Subsistence Harvests & Uses in PWS	$49,750
3	9XXX	Toxicity of Treated BW Effluent to Calanoid Copepods	$86,712
4	952X	Marine Invasive Species Internships	$4,500
5	9110	PWS Marine Bird Winter Survey	$41,700
6	9513	Using a Hydrocarbon Sensor to Monitor the Environmental Impacts of the Valdez Marine Terminal	$7,500
7	9520	Marine Invasive Species	$60,254
8	9XXX	Assessing Changes in Native Marine Invertebrates Over Time	$32,486

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Figure 8 - Project Scoring Matrix

Ranked by equal weight*	Ranked by total points	Staff	Lead Comm	Lead Comm Rank		FY2023 Projects	Projected FY2023 Budget	Assigned by Staff Points	Assigned by Board Points	Assigned By All Points
1	1	AS	POVTS	1	8XXX	Miscommunication in Maritime Contexts	$55,000	76	58	134
2	2	AL	TOEM	1	5591	Crude Oil Piping Inspection Review	$51,744	78	51	129
3	4	BO	IEC	3	3410	Fishing Vessel Outreach	$19,000	73	49	122
4	3	RR	OSPR	3	6536	Analysis of Port Valdez Weather Buoy Data	$17,000	75	47	122
5	5	DV	SAC	1	9550	Dispersants	$10,000	65	53	118
6	6	AL	TOEM	2	5XXX	VMT Spill Prevention Plan Review	$40,000	68	48	116
7	8	DV	SAC	2	9XXX	Update of Subsistence Harvests & Uses in PWS	$49,750	65	49	114
8	7	LS	OSPR	5	6511	History of VMT C-Planning	$50,000	69	45	114
9	9	AS	OSPR	1	65XX	Copper River Delta Weather Station	$50,000	66	46	112
10	10	AL	TOEM	3	5081	Tank 93 Maintenance Review	$60,000	64	47	111
11	11	BO	IEC	1	3530	Youth Involvement	$50,750	66	42	108
12	12	AS	POVTS	3	8012	Escort Tugboat BAT Assessment	$65,000	45	52	97
13	13	DV	SAC	5	9110	PWS Marine Bird Winter Survey	$41,700	60	34	94
14	14	AS	OSPR	6	80XX	Stricken Tanker Simulator Drift Study	$55,000	36	48	84
15	15	DV	SAC	3	9XXX	Toxicity of Treated BW Effluent to Calanoid Copepods	$86,712	38	45	83
16	16	DV	SAC	4	952X	Marine Invasive Species - Internships	$4,500	48	35	83
17	17	AS	POVTS	2	8XXX	Sustainable Shipping Phase 1	$35,000	38	43	81
18	18	DV	SAC	7	9520	Marine Invasive Species	$60,254	49	29	78
19	19	AJ	IEC	5	3562	Update Then & Now	$4,400	43	32	75
20	22	BO	IEC	2	3903	Internship	$4,000	30	40	70
21	20	JR	OSPR	4	6540	Copper River Delta & Flats Whitepaper Workshop	$22,500	38	33	71
22	21	AS	OSPR	2	6532	Mesoscale Weather Modeling	$50,000	41	29	70
23	23	DV	SAC	6	9513	Hydrocarbon Sensor Monitoring of VMT Impacts in Port Valdez	$7,500	31	32	63
24	24	AJ	IEC	4	3XXX	Connecting with Young Maritime Adults	$7,000	30	32	62
25	25	BO	IEC	6	3XXX	Cultivating Robust Engagement	$10,000	26	23	49
26	26	AS	POVTS	4	8XXX	MASS Technology Review	$35,000	15	29	44
27	27	JR	OSPR	7	6XXX	UAV Use During Spills Whitepaper	$15,000	10	28	38
28	28	DV	SAC	8	9XXX	Assessing Changes in Native Marine Invertebrates Over Time	$32,486	7	26	33

*This column was added to reflect an average ranking to negate the fact that more staff than Board members participated, and to give equal weight to Board and staff rankings.

Protected Projects – Not Ranked

Staff	Lead Comm	Lead Comm Rank		FY23 Projects	Budget
AJ	IEC	Protected	3200	Observer Newsletter	$7,500
BT	IEC	Protected	3300	Annual Report	$10,000
AJ	IEC	Protected	3610	Web BAT	$8,800
LS	OSPR	Protected	6510	State Contingency Plan Reviews	$119,000
AS	OSPR	Protected	6530	Weather Data & Sea Currents	$16,400
AS	OSPR	Protected	6531	Port Valdez Weather Buoys	$41,500
AL	SAC	Protected	9510	LTEMP	$153,850

Project and Initiative Timeline

The LRPC and PWSRCAC management staff have prepared the projected new project and initiatives timelines based on the assumptions of fund availability as discussed above and management projections of staff availability. Some efforts are projected as continuing each year, some recur at intervals and some are one-year projects. These timelines are presented in Figure 6: FY2023-FY2027 Projected Cost and Completion Forecast.

6. Annual Evaluation and Update

The Planning Cycle

In the original planning effort, the LRPC had two objectives. The goal was to produce an annual five-year planning process and, within that framework, to develop the first annual iteration of the PWSRCAC five-year plan. The planning process detailed in Figure 5, Process for Five-Year Planning and Budgeting, is the LRPC recommendation for annual planning. The evaluation of current programs, new projects and initiatives and the timeline described in the previous section of this plan are the first three phases of the FY2023 five-year plan. The actual budget development and operational implementation by Board and staff will complete the first-year planning cycle. Annual continuation of the planning process is essential.

Planning Tools

This plan was developed through several steps involving the gathering, sorting, rating and displaying of input data. Appendices B and C contain samples of the tools used in the preparation of this plan. It is recommended that they be utilized in the annual update cycle.

Projects Outside of the Planning Cycle

The Council evaluates unsolicited project proposals and requests for project support under the same standards as any other proposal to expend Council funds. Whenever possible, projects and concepts should be submitted as part of this process. However, unsolicited project proposals may be suggested or brought to the Council outside of the normal Long Range Planning process and timeline as identified in Figure 5. These proposals will be evaluated through the Unsolicited Proposal Procedure found in Appendix D.

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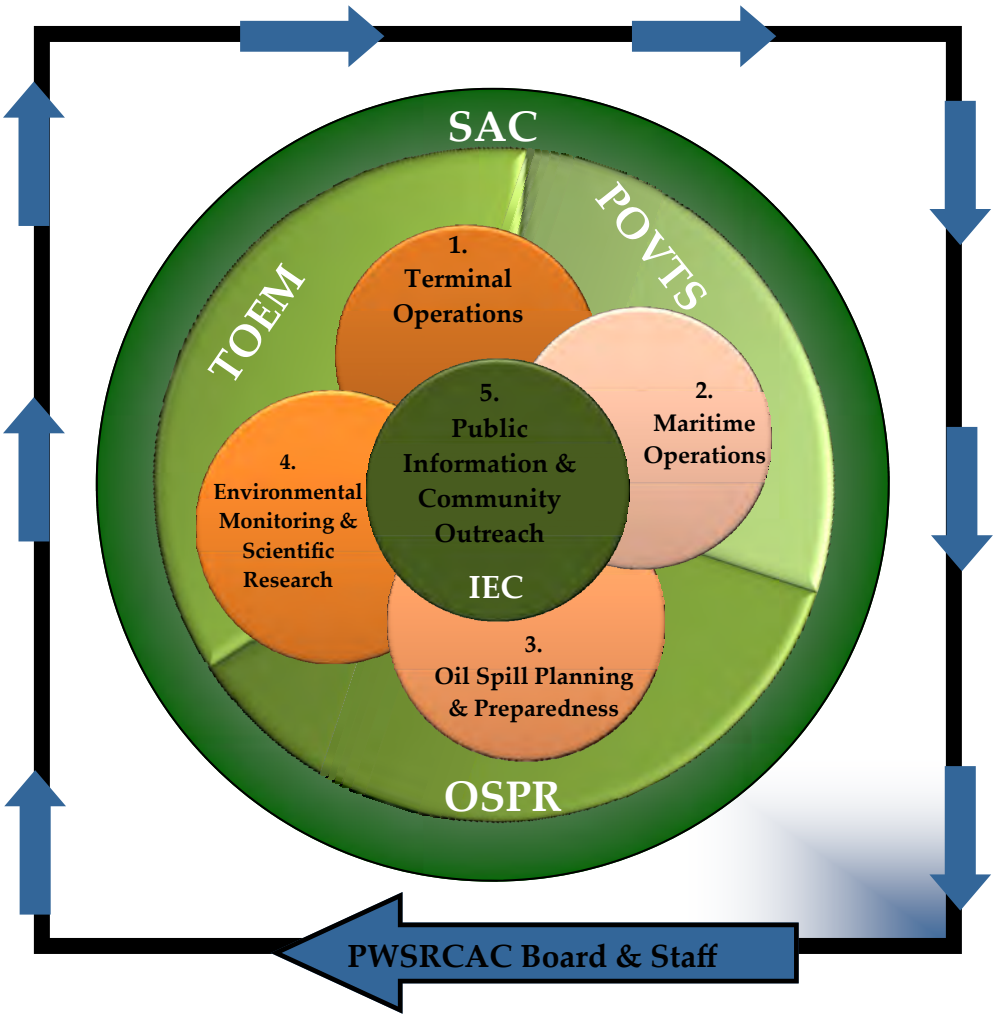
Appendix A

PWSRCAC's Internal Structure and Relationships



PWSRCAC Technical Committees

POVTS: Port Operations and Vessel Traffic Systems

OSPR: Oil Spill Prevention and Response

TOEM: Terminal Operations and Environmental Monitoring

SAC: Scientific Advisory Committee

IEC: Information and Education Committee

1. **Terminal Operations Program (TOEM Committee):** This program addresses actual and potential environmental effects of operations at the Valdez Marine Terminal, including air and water quality issues, oil spill prevention and fire protection. The program is linked to Environmental Monitoring (4).
2. **Maritime Operations Program (POVTS Committee):** This program addresses tanker and escort operations and vessel traffic issues, including navigational safety, tug trials and exercises, tanker maintenance and structural integrity, incident monitoring, ballast water management, human factors, and training programs. This program is closely linked to the oil spill program (3), particularly regarding prevention requirements for contingency plans, and it coordinates with the environmental monitoring program (4) on issues such as non-indigenous species.
3. **Oil Spill Planning and Preparedness (OSPR Committee):** This program has two major components: oil spill planning, and preparedness for oil spill response. State, federal, and industry oil spill prevention and response plans (contingency plans) are reviewed and recommendations are developed based on regulatory requirements, stakeholder concerns, new information and technological developments. Response capability is monitored through observations of and participation in drills and exercises. This program is linked to Environmental Monitoring (4) especially regarding research into and development of response technologies such as dispersants, in-situ burning, and bioremediation, and it coordinates with Terminal (1) and Maritime operations (2) for relevant portions of the contingency plans.
4. **Environmental Monitoring & Scientific Research (SAC):** This program develops and implements environmental monitoring projects throughout the region, including PWSRCAC's Long Term Environmental Monitoring program which has been in place since 1993. Additionally, this program reviews and advises on all PWSRCAC scientific studies and technical reviews.
5. **Public Information and Education (IEC):** This program fosters public awareness, responsibility, and participation in PWSRCAC's programs described above through information and education. The components of this program include public information, community outreach and education, and volunteer coordination.
6. **PWSRCAC Board & Staff:** The Board provides the framework for PWSRCAC's work including policies, program and project priorities, official positions and management oversight. The staff provides professional leadership and support for the Board, the committees and all programs and projects, any carries out the daily operations of the Council.

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APPENDIX B

PWSRCAC Long Range Planning
PROJECT
BRIEFING TEMPLATE

Submitted by: _____

1. What is the name of the new project?

2. Give a brief description of the new project.

3. Why is this new project important to our organization, mission and/or our constituents?

4. What would be accomplished as a result of successfully completing the new project?

5. What is the probability of successfully completing the project?

6. What is the estimated cost to complete this new project?

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PWSRCAC Long Range Planning
PROJECT
PROPOSAL TEMPLATE

1. Submitted by (name, title, address, phone, email).

2. Title of new project.

3. Provide a project description including methods, goals, objectives, and approximate timeline including reporting dates. For projects collecting data, indicate the proposed sample size(s) and approximate cost per sample. Applicants are encouraged to use tables, graphs, and maps to delineate project sampling, especially as they relate to study design and sampling analysis.

4. What would be accomplished as a result of successfully completing this new project? How will the results of this project be shared with our organization, our constituents, and/or the public? What products are expected?

5. What is the likelihood of successfully completing this project? Are there challenges that are likely to impact the success or timing of the project?

6. How would this project support the PWSRCAC organization and mission?

7. Project budget: provide estimated budget information for personnel involved, travel, sample collection and analysis, equipment and supplies, report writing, report presentation, and administrative support as applicable. Does the project leverage other, non-PWSRCAC funds or activities? Is maintenance or follow-up work anticipated after completion of this project?

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APPENDIX C

FY2023 Proposed Projects Ranking Sheet

Name: _____

- You have a total of **75 points**. You must use all 75 points.
- **No more than 5 points** should be given to an individual project.
- Ranking is confined to projects proposed for FY23.

Please consider the following criteria when ranking projects:
1) relevance to PWSRCAC's mission
2) value to PWSRCAC
3) benefit to member organizations
4) probability of success
5) cost effectiveness

Staff	Lead Comm	Lead Comm		FY2023 Projects	Projected FY2023	Assigned Points
AS	POVTS	1	8XXX	Miscommunication in Maritime Contexts	$55,000	
AS	POVTS	2	8XXX	Sustainable Shipping Phase 1	$35,000	
AS	POVTS	3	8012	Escort Tugboat BAT Assessment	$65,000	
AS	POVTS	4	8XXX	MASS Technology Review	$35,000	
AS	OSPR	1	65XX	Copper River Delta Weather Station	$50,000	
AS	OSPR	2	6532	Mesoscale Weather Modeling	$50,000	
RR	OSPR	3	6536	Analysis of Port Valdez Weather Buoy Data	$17,000	
JR	OSPR	4	6540	Copper River Delta & Flats Whitepaper Workshop	$22,500	
LS	OSPR	5	6511	History of VMT C-Planning	$50,000	
AS	OSPR	6	80XX	Stricken Tanker Simulator Drift Study	$55,000	
JR	OSPR	7	6XXX	UAV Use During Spills Whitepaper	$15,000	
BO	IEC	1	3530	Youth Involvement	$50,750	
BO	IEC	2	3903	Internship	$4,000	
BO	IEC	3	3410	Fishing Vessel Outreach	$19,000	
AJ	IEC	4	3XXX	Connecting with Young Maritime Adults	$7,000	
AJ	IEC	5	3562	Update Then & Now	$4,400	
BO	IEC	6	3XXX	Cultivating Robust Engagement	$10,000	
AL	TOEM	1	5591	Crude Oil Piping Inspection Review	$51,744	
AL	TOEM	2	5XXX	VMT Spill Prevention Plan Review	$40,000	
AL	TOEM	3	5081	Tank 93 Maintenance Review	$60,000	
DV	SAC	1	9550	Dispersants	$10,000	
DV	SAC	2	9XXX	Update of Subsistence Harvests & Uses in PWS	$49,750	
DV	SAC	3	9XXX	Toxicity of Treated BW Effluent to Calanoid Copepods	$86,712	
DV	SAC	4	952X	Marine Invasive Species - Internships	$4,500	
DV	SAC	5	9110	PWS Marine Bird Winter Survey	$41,700	
DV	SAC	6	9513	Hydrocarbon Sensor Monitoring of VMT Impacts in Port Valdez	$7,500	
DV	SAC	7	9520	Marine Invasive Species	$60,254	
DV	SAC	8	9XXX	Assessing Changes in Native Marine Invertebrates Over Time	$32,486	
					$989,296	0

Appendix D

Prince William Sound Regional Citizens' Advisory Council
Administrative Procedure

Unsolicited Project Proposals and Requests for Project Support

Adopted by the PWSRCAC Board on January 17, 2013

The Prince William Sound Regional Citizens' Advisory Council has a well-developed annual proposal and project evaluation and development process. Submissions into this long-range planning and work plan development process usually occur in September. Whenever possible, projects and concepts should be submitted as part of this process.

Handling of unsolicited project proposals and requests for project support

The Council evaluates unsolicited project proposals and requests for project support under the same standards as any other proposal to expend council funds.

Chief among those standards are whether the project furthers the council mission consistent with the requirements of the Oil Pollution Act of 1990 and the Council's funding contract with Alyeska Pipeline Service Co.; whether it merits a higher priority ranking than projects on the deferred list in the Council's Long-Range Plan; and whether a suitable entity can be found to bring the project to a successful conclusion.

In order to assure fair and equal evaluation of project proposals, all proposals must include the following parts:

- Title of the project.
- Name, affiliation, and contact information of Principal and Associate Investigators/Contractors.
- A clear statement of how the proposed project relates to the Council's mission under its legislative and contractual mandates.
- A clear statement of why the proposed project is time critical and must be considered before the next formal planning process.

Like all of the Council's projects, the body of the proposal must answer the following questions:

- What will the project accomplish, including its relationship to the Council's mission and other on-going projects?
- How will the project be accomplished?
- Where will the work be done; including facility use agreements where necessary?
- By whom?
- How will the Council's share of the project costs be spent? Include a budget.

Note that, if the Council does adopt a project idea submitted as part of an unsolicited project proposal or as part of a request for project support, the Council may,

- in the case of a request for project support, elect to undertake the project on its own rather than providing financial support to another organization desiring to do so, or,
- in the case of an unsolicited project proposal, undertake the project, but put it out for competitive procurement rather than awarding it on a sole-source basis to the entity submitting the proposal.

Appendix D

This Administrative Procedure is intended to guide the council staff and volunteers in evaluating and developing unsolicited project proposals and requests for project support received by the Council in light of the standards stated above.

Routing of unsolicited project proposals and requests for project support
An unsolicited project proposal or request for financial support reaching the Council should be referred to the appropriate technical committee through the project manager, who will manage the proposal or request's evaluation and development through the committee process in the same way any other project idea would be managed at the Council.

Evaluating and developing unsolicited project proposals and requests for project support

A. Committee Process
A committee reviewing an unsolicited project proposal or request for support must take the following steps:

Step 1
Determine whether the proposed project furthers the council mission consistent with the requirements of the Oil Pollution Act of 1990 and the Council's funding contract with Alyeska. If not, it should not receive further consideration by the committee.

If the committee determines the proposed project does further the council mission, a finding to that effect should be recorded in the committee minutes and the committee should proceed to Step 2.

Step 2
Determine whether the proposed project can be deferred for consideration in the normal ranking process during the next round of the Council's long-range planning process. If so, it should be handled through that process and not receive further consideration under this Administrative Procedure.

If the committee determines the proposed project requires immediate consideration, a finding to that effect should be recorded in the committee minutes and the committee should proceed to Step 3.

Step 3
Determine whether, in the committee's opinion, the proposed project merits a higher ranking than all projects appearing on the council budget's deferred projects list because of insufficient funds. If not, the proposed project should not receive further consideration under this Administrative Procedure. (Projects appearing on the deferred project list for timing or technical reasons are not required to be factored into this determination.)

If the proposed project is deemed by the committee to outrank all projects on the deferred projects list, a finding to that effect should be recorded in the committee minutes and the committee should proceed to Step 4.

Appendix D

Step 4
Determine whether the Council, to best further its mission, should handle the matter as proposed or requested by the submitter, or should instead,

- in the case of a request for project support, undertake the project on its own rather than provide financial support to the submitter, or,
- in the case of an unsolicited project proposal, undertake the project, but put it out for competitive procurement rather than award it on a sole-source basis to the submitter.

The committee's findings and recommendations on this point should be recorded in the committee minutes and be included in the project proposal forwarded for approval and funding.

Step 5
The project manager who works with the committee recommending the project shall prepare the necessary documentation, including a proposed budget modification if needed, after which the project proposal should be presented to the executive director, executive committee, or board for consideration as would happen with any other proposed new project or expenditure falling outside the normal long-range planning process.

B. Final Fiscal Review and Action
The executive director will, following consultation with the director of programs, the director of administration, and the financial manager, determine whether the project can go forward following the committee's recommendation without jeopardizing higher-priority projects on the deferred projects list, or other scheduled PWSRCAC obligations. If he or she determines that it can, the executive director shall handle the project proposal from this point forward in accordance with standard council bylaws, policies, and practices regarding project approval, budgeting, and funding.

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Appendix E.

Proposed Projects FY 2023

Oil Spill Prevention & Response Committee

- 6510 State Contingency Plan Review — P T
- 6530 Weather Data & Sea Currents — P
- 6531 Port Valdez Weather Buoys — P
- 65XX Copper River Delta WX Station
- 6532 Mesoscale WX Modeling — P
- 653X Analysis of Port Valdez Weather Buoys Data
- 6511 CRDF GRS Workshop
- 6511 History of VMT Contingency Planning
- 80XX Drifting Tanker Simulation Study
- 6XXX UAV Use in Alaska

Terminal Operations & Environmental Monitoring Committee

- 5591 Crude Oil Piping Review
- 5XXX Oil Spill Prevention Plan Review
- 5081 BW Tank 93 Maintenance Review

Scientific Advisory Committee

- 9510 Long Term Environmental Monitoring (LTEMP) — T
- 9550 Dispersants
- 9XXX Update of Subsistence Harvests in PWS
- 9XXX Toxicity of Treated BW to Copepods
- 952X Marine Invasive Species — Internships
- 9110 Marine Bird Surveys in Winter
- 9XXX HC Sensor Monitoring of VMT Impacts
- 9520 Marine Invasive Species
- 9XXX Assessing Changes in Marine Invertebrates

Port Operations & Vessel Traffic Systems Committee

- 80XX Miscommunication in Maritime Contexts
- 80XX Sustainable Shipping Phase 1
- 80XX Escort Tugboat BAT Assessment
- 8XXX MASS Technology Review

Information & Education Committee

- 3200 The Observer — P T O S
- 3300 Annual Report — P T O S
- 3610 Web Presence BAT — P T O S
- 3530 Youth Involvement
- 3903 Internship — P T O S
- 3410 F/V Program Outreach — O
- 3XXX Connecting w Young Maritime Adults
- 3562 Update “Then & Now”
- 3XXX Cultivating Robust Engagement

P POVTS T TOEM O OSPR S SAC I IEC

Darker shaded boxes indicate that a project is protected or the funds are already committed.

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Briefing for PWSRCAC Board of Directors – January 2022

INFORMATION ITEM

Sponsor: Nelli Vanderburg
Project number and name or topic: 707 Incident Report

1. **Description of agenda item:** Staff will present a summary of incidents reported to PWSRCAC that have occurred in the year 2021. Incident reports include oil spills, fires, malfunctions causing shutdowns, navigational closures, and tanker or escort incidents. The presentation will also include terminal and tanker statistics.

2. **Why is this item important to PWSRCAC:** Often staff and committee discussions, activities, and recommendations to the Board are guided by incidents that have raised specific issues or questions about tanker and terminal operations. This information can also be helpful to understand trends and demonstrate improvements to the system.

3. **Previous actions taken by the Board on this item:** None.

4. **Summary of policy, issues, support or opposition:** This item is for information only.

5. **Relationship to LRP and Budget:** None.

6. **Action Requested of the Board of Directors:** No requested actions; this item is for information only.

7. **Attachments:** None.

PRINCE WILLIAM SOUND
REGIONAL CITIZENS' ADVISORY COUNCIL

January 2022
Status Report

3100 – Public Information Program

Objectives: Inform general public, member entities, and agency and industry partners of PWSRCAC projects. Support legal requirements for ongoing updates to the public.

Accomplishments since last report: Staff continues to inform the general public and others about PWSRCAC's projects and mission through publications and online presence.

3300 – Annual Report

Objectives: Prepare and publish PWSRCAC's Annual Report each year to inform the general public, member entities, and agency and industry partners of PWSRCAC projects and activities; and support legal requirements for ongoing updates to the public.

Accomplishments since last report: Work to create the content and design for the 2020-2021 report was completed. The report has been posted to the Council's website and printed copies have been distributed.

3410 – Fishing Vessel Program Community Outreach

Objectives: For bringing the realities of oil spill response tactics, equipment, and planning to life for citizens within the Exxon Valdez oil spill region communities, the fishing vessel community outreach program is a perfect venue. Each fall and spring SERVS holds its fishing vessel program training in the following communities: Cordova, Valdez, Whittier, Seward, Homer, and Kodiak. The on-water portion of the training, in partnership with Alyeska/SERVS, shows real-time capabilities of oil spill response equipment and tactics. This project contracts a local tour boat that will allow interested students, members of the public, and media to observe and learn about oil spill response.

Accomplishments since last report: A spring 2022 event in Seward is tentatively scheduled.

3500 – Community Outreach Program

Objectives: Increase awareness of PWSRCAC and increase communications with member organizations and communities in the Exxon Valdez oil spill region.

Discussion: A blend of virtual and in-person outreach as some live conferences and events resume. A key effort has included encouraging public comment on ADEC's regulatory reform package; comments are due January 31, 2022.

Accomplishments since Last Report:

- A third Volunteer Connections Zoom event gave volunteers a chance to connect informally
- Presentations to academic institutions: PWS College, and University of Alaska Fairbanks Water & Environmental Research Center

Booth exhibited at conferences: Alaska Association of Harbormaster and Port Authorities, and Alaska Municipal League

3530 – Youth Involvement

Objectives: Select proposals for youth activities, in collaboration with partner agencies and organizations throughout the Exxon Valdez oil spill region. Coordinate activities to facilitate hands-on learning about topics related to the Council's mission. Where appropriate and feasible, participate in mission-relevant youth activities.

Accomplishments since last report:

- Center for Alaskan Coastal Studies (CACS) created virtual field trips made up of multiple short video segments, written classroom/homeschool lessons, nature exploration activities, and live Q&A session with CACS staff, and presented them to student groups around the region.
- Projects to occur in Spring & Summer 2022 were selected in January.

3600 – Public Communications Program

Objectives: This program disseminates information and increases awareness through the Observer newsletter and the Council's online presence. This program helps publicize information generated from the Council's technical committee projects. Project results and information will be disseminated in a format that is easily understood by the general public.

The Observer: The Council's newsletter, *The Observer*, is produced three times per year in both print and email format.

3610 – Web Best Available Technology

Objectives: This project helps ensure the Council's websites and web presence uses the best and most up-to-date technology available by funding new features, repairs, and upgrades to the Council's websites. This includes regular maintenance and technical upgrades as well as upgrades to such aspects as user experience and branding.

Current projects: Staff is implementing security upgrades and preparing for a major technical upgrade to the platform that is used to create and manage the content on all Council websites.

Website data: Website usage for www.pwsrcac.org is tracked through Google Analytics for information such as numbers of visitors, location of visitors, how visitors found the site, which pages are visited most often, how much time is spent on particular pages, whether visitors were engaged enough to visit more than one page and much more.
Hot topics from 9/10/2021 to 12/9/2021 (other than home page).

1. Requests for proposals ↑
2. About staff
3. Columbia Glacier
4. Personal stories from EVOS
5. History of EVOS
6. Alaska Oil Spill Lesson Bank ↑
7. September Board of Directors meeting
8. Job listings

9. Regulatory reform ↑
10. Ballast water treatment

↑ denotes hot topics compared to previous four months.
Please contact Project Manager Amanda Johnson if you would like more details.

3620 – Connecting with Our Communities – Pending Funding in FY2022

Objectives:

1. Contract with a public relations firm to work with the Council to develop a long-term communications and public image strategy.
2. Develop Council image, messaging, and voice, as well as contemporary ways to communicate who we are to the public within the EVOS region and beyond.
3. Implement the strategy and evaluate its effectiveness in the short run. Make changes as necessary and implement for the long term.

Accomplishments since last report: Due mostly to pandemic considerations, the media training deliverable has not been conducted. The Board approved a budget modification at their September meeting to carry over the remaining contract funds into the FY22 budget to hopefully conduct this deliverable in spring of 2022.

3903 – Youth Internship

Objectives: Coordinate with regional secondary and/or higher education institutions to recruit students for internships, coordinate with other committees to help support students' education goals while meeting appropriate PWSRCAC project needs.

Accomplishments since last report: Intern Rosie Brennan completed extensive outreach to educators around the state, including teachers, informal educators, homeschool parents, and curriculum planners. She presented to IEC a thorough report of outreach activities that the Council can use going forward to continue to promote its educator resources, including the Alaska Oil Spill Lesson Bank.

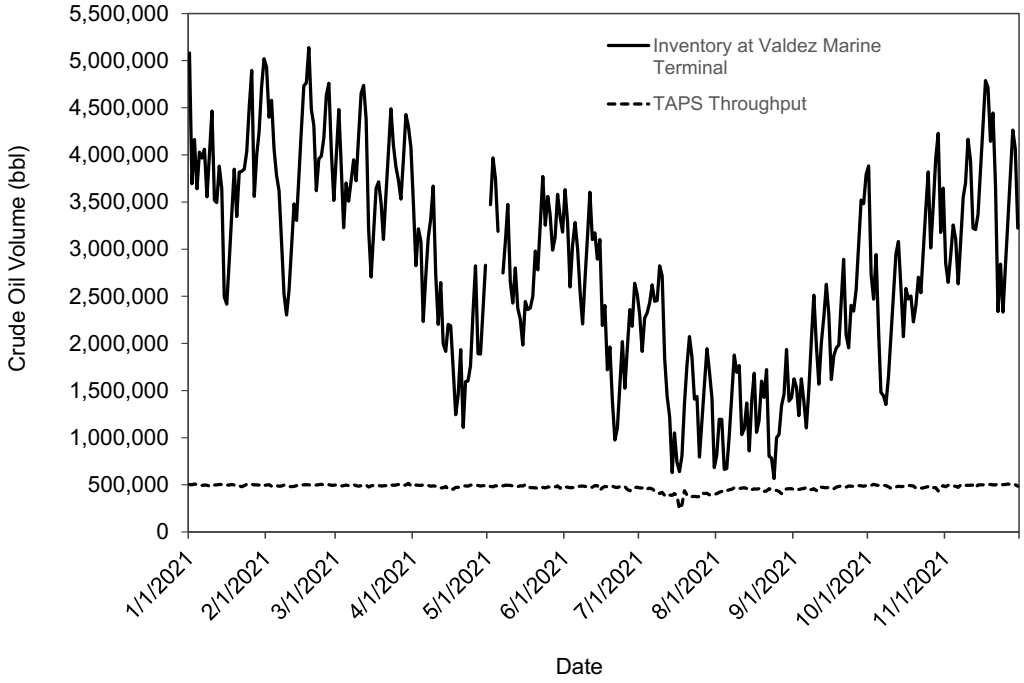
5000 – Terminal Operations Program

Objectives: The goal of the Terminal Operations and Environmental Monitoring Program is to prevent hazardous liquid spills and minimize the actual and potential environmental impacts associated with the operation and maintenance of the Valdez Marine Terminal.

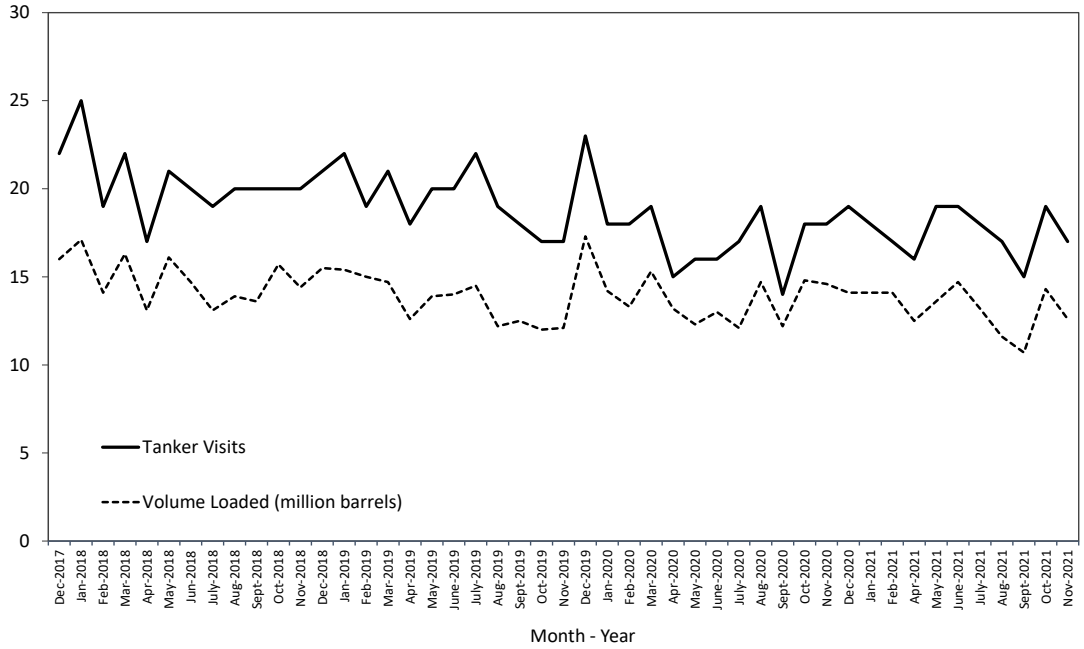
Accomplishments since last report: Monitored spills associated with operation and maintenance of the terminal, crude oil laden tanker ship tug escorts, 2021 VMT projects, and water quality of effluent discharged from the VMT Ballast Water Treatment Facility (BWTF) and sewage treatment facility. Additionally, Taku Engineering was selected through a request-for-proposals process to assist with ad hoc work related to monitoring and providing advice related to the operation and maintenance of the Valdez Marine Terminal.

Attachments: Graphs depicting a variety of data related to the operation and environmental impacts of the Valdez Marine Terminal.

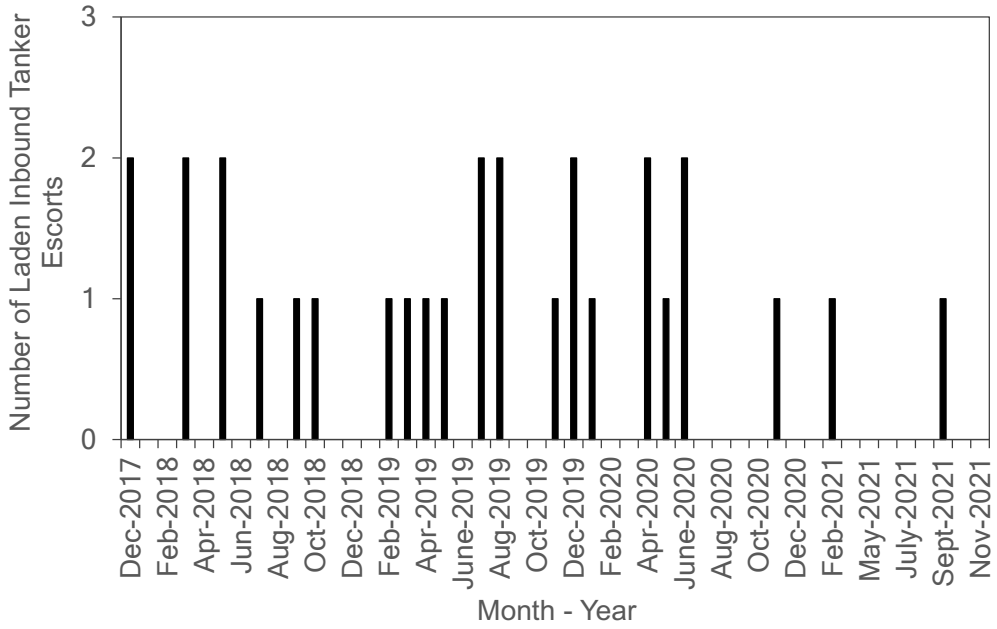
- **2021 Daily Oil Inventory at the Valdez Marine Terminal and Trans-Alaska Pipeline Throughput.** (Source: Alaska Department of Revenue - Tax Division, http://tax.alaska.gov/programs/oil/production.aspx.)



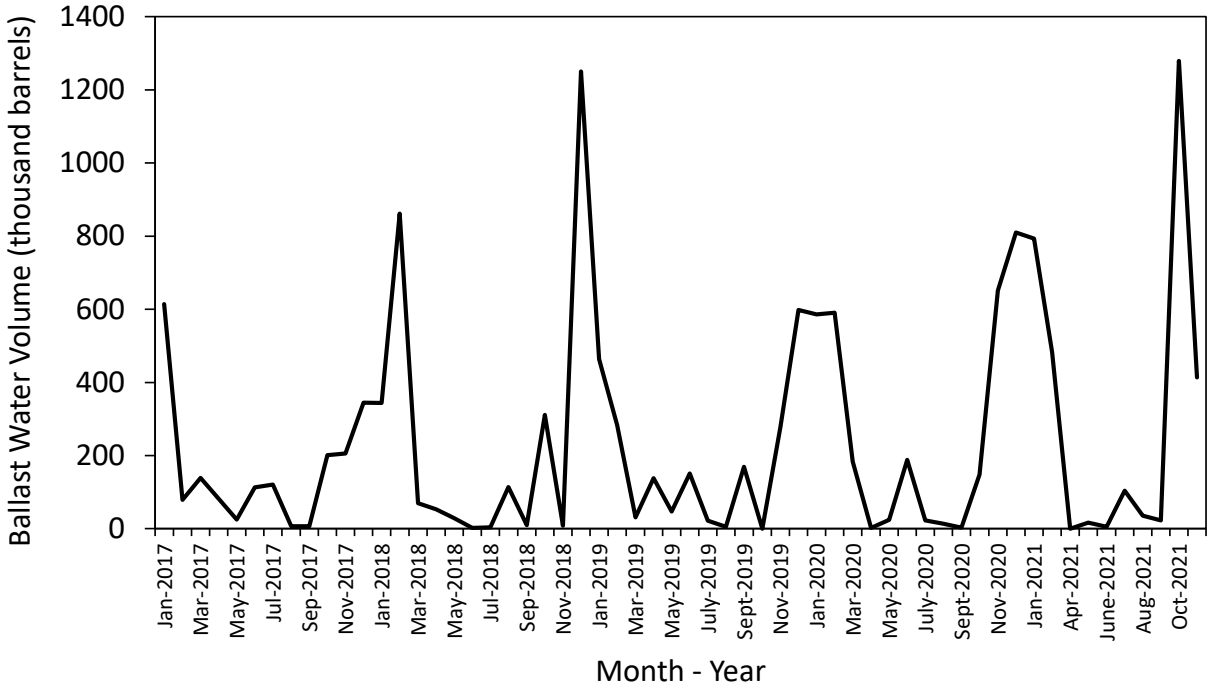
- **Number of tanker visits and crude oil volume loaded onto ships from VMT.** (Source: Alyeska Pipeline Service Company. Partitioned by VMT vessel arrival date).



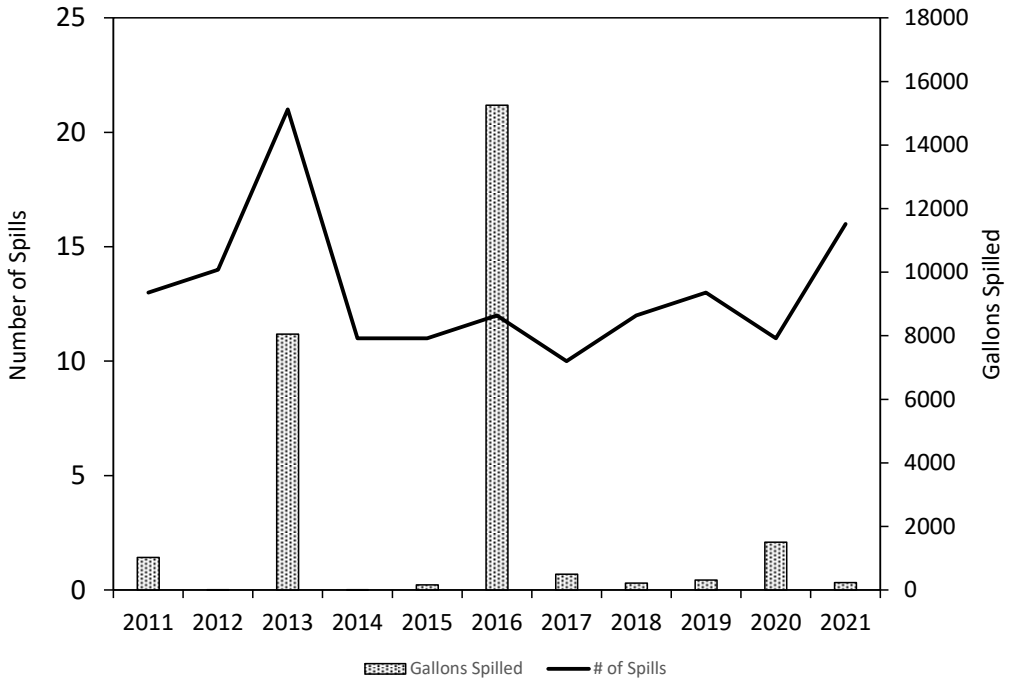
- **Inbound, laden tanker escorts to VMT.** (Source: Alyeska Pipeline Service Company. Partitioned by VMT vessel arrival date.)



- **Monthly ballast water deliveries to Ballast Water Treatment Facility from tanker ships.** (Source: Alyeska Pipeline Service Company. Partitioned by VMT vessel arrival date, current through February 2021.)



- **Annual spills associated with the operation and maintenance of the VMT.** This chart shows all spills, of all types (e.g., hydraulic fluid, crude oil, lube oil, ballast water, PFAS-fire foam), to containment or to the environment (i.e., land or water). (Source: Alyeska Pipeline Service Company.)



5056 – Tank 8 Internal Inspection Review

Overall Goal: The FY2021 goal of this project was to review the records and procedures used to maintain the integrity of Tank 8, in order to ensure the risk of a spill from this large oil storage tank are minimized. The FY2022 goal of this project is to ensure that the design of Tank 8's new floor and cathodic protection system (scheduled for installment in 2023) are aligned with industry best practices and designed to protect the tank bottom for the life of the structure.

Accomplishments since last report: The Council finalized a sole-source contract with Taku Engineering to complete the FY 2022 scope of work.

5057 – Alyeska's Appeal of EPA's July 2020 Air Quality Rule (NESHAP OLD): Establishing a Council Position

Overall Goal: This project will entail the review of an EPA air quality rule that is applicable at the Valdez Marine Terminal and review Alyeska's subsequent appeal stating that certain parts of the new rule should not go into effect because those particular provisions would adversely affect the operation and maintenance of the terminal.

Accomplishments since last report:

- John Beath Environmental, the Council's contractor for this project, provided a draft report and verbal presentations to the Terminal Operations and Environmental Monitoring Committee.
- The Council provided John Beath Environmental with comments on the draft report, and John Beath worked to update the draft report based on comments received.
- The Terminal Operations and Environmental Monitoring Committee voted to recommend John Beath Environmental's report to the Board for acceptance and recommended that the Council should send a letter to the EPA in support of Alyeska's appeal.

5081 – Crude Oil Tank 7 and Ballast Water Tank 94 Maintenance Review

Overall Goal: This project would entail performing a technical review of the maintenance of crude oil storage Tank 7 and ballast water storage Tank 94 at the Valdez Marine Terminal. Both Tank 7 and Tank 94 are scheduled to undergo comprehensive internal inspections in 2021. The last time Tank 7 underwent a similar internal inspection was in 2008, and Tank 94's last internal inspection occurred in 2012. The 2021 internal inspections of both tanks will result in a large amount of new information pertaining to the past, current, and future maintenance of each storage tank. Additionally, since their last internal inspections were done back in 2008 and 2012, Alyeska has gathered and maintained other information, such as cathodic protection system testing records and external inspection results pertinent to the maintenance of Tanks 7 and 94. The new information generated from the 2021 internal inspections and the other, older information must all be considered to continue to safely maintain each of these tanks. This project is necessary to ensure that Alyeska is using industry best practices and considers all the pertinent information in the decisions they make to safely maintain both tanks, now and in the future.

Accomplishments since last report:

- The Council entered into a contract with Taku Engineering, LLC to complete this project.
- On November 10, 2021, staff from Taku Engineering and the Council joined Alyeska personnel to perform a site visit of crude oil storage Tank 7 to observe the status of its maintenance and internal inspection.
- On November 30, 2021, Taku Engineering issued a preliminary report pertaining to the November Tank 7 site visit with recommendations for Alyeska to consider implementing before putting the tank back into service.
- On December 1, 2021, the Council sent a letter and the preliminary Tank 7 report to Alyeska, urging Alyeska to implement the recommendations provided by Taku Engineering.

5640 – ANS Crude Oil Properties

Objectives: This project entails analyzing the physical and chemical properties of Alaska North Slope crude oil and interpreting how those properties would impact the effectiveness of oil spill response measures including mechanical recovery, in-situ burning, and dispersants.

Accomplishments since last report: Environment and Climate Change Canada's oil lab began to perform chemical and physical analyses on the November 2019 Alaska North Slope crude oil sample (this was long-delayed due to COVID-19 restrictions the lab was under).

6000 – Oil Spill Response Program

Objectives: Through this program, PWSRCAC develops positions and recommendations on oil spill response technologies; reviews state and federal contingency plans (c-plans) and plan-related issues; promotes compliance, enforcement, and funding of existing environmental regulations; and promotes the incorporation of local knowledge of sensitive areas into contingency planning.

Accomplishments since the last report:

Regional and Area Planning:

Alaska Regional Response Team (ARRT): General information on the ARRT can be found HERE and meeting summaries and presentations can be found HERE. The next ARRT in-person meeting is scheduled for February 17, 2022 in Anchorage.

Agenda topics from the September 2021 meeting include:

- Geographic Response Strategies (GRS) mapping applications
- USCG, EPA, and ADEC response authorities and jurisdictions
- Update on EPA Subpart J – Subpart J, as part of the National Contingency Plan (NCP), governs the use of dispersants and any other chemical or biological agent to respond to oil discharges.
- Update on navigable waters of the US

Alaska Regional Contingency Plan Public Review: Comments were submitted on the public review of the Alaska Regional Contingency Plan (RCP) on August 5, 2021. No further information is available.

Prince William Sound Area Contingency Plan (PWS ACP): The PWS ACP is expected to go out for public comment sometime in the near future.

Agenda items from the September 2021 PWS AC meeting include:

- Alternative Planning Criteria
- GRS to GIS update
- Wildlife Protection Guidelines update

Arctic and Western Alaska Area Contingency Plan (AWA ACP): Informal comments were submitted on the AWA ACP in August. Staff has attended the Admin Subcommittee and Geographic Response Plan Subcommittee meetings over the last few months.

Agenda items from the December 2021 AWA AC meeting include:

- Wildlife Protection Guidelines update
- GRS to GIS transition update
- Use of Unmanned Aerial Systems (UAS) in GRS
- AWA ACP will be updated and signed before the end of 2021.

ADEC Public Review of updates to 18 AAC Chapter 75: ADEC posted its Notice of Proposed Changes to Oil Pollution Prevention Requirements in the Regulations of Alaska Department of Environmental Conservation on November 1, 2021 available HERE. The 90-day public review runs from November 1, 2021, to January 31, 2022.

- Staff and contractors have been reviewing proposed changes and developing comments.
- Staff members Brooke Taylor and Betsi Oliver have been doing outreach to our committees, Board members, member entities, and other stakeholders.

There will be a presentation on this topic at the Board meeting.

BP-Hilcorp Transaction: On December 14, 2020, the Regulatory Commission of Alaska (RCA) issued an Order Granting Applications Subject to Conditions regarding the transfer of TAPS assets (including the Valdez Marine Terminal) from BP Pipelines to Harvest Alaska. PWSRCAC plans to submit an amicus curiae brief in support of the City of Valdez appeal to the RCA's March and December 2020 orders allowing Hilcorp/Harvest Alaska to keep financial information confidential and granting the transfer of BP's assets to Hilcorp.

- PWSRCAC is waiting to see if the Alaska Supreme Court accepts the City of Valdez appeal.
- If the appeal is accepted, the court will issue a briefing schedule which will indicate when our amicus curiae brief is due.
- If the court does not accept the case, we will not file our brief.

6510 – Contingency Planning Project

Objectives: The purpose of this project is to monitor, review, and comment on state and federal c-plans for the Valdez Marine Terminal and the Trans Alaska Pipeline System tankers that transit Prince William Sound. Reviewing c-plans is a major task for PWSRCAC as outlined in both the PWSRCAC/Alyeska contract and OPA 90.

The Prince William Sound Tanker Oil Discharge Prevention and Contingency Plan (PWS Tanker C-Plan) and associated vessel response plans for Alaska Tanker Company, Andeavor, Crowley Alaska Tankers, Hilcorp North Slope, and Polar Tankers (last renewed on February 1, 2017) will expire in 2022. Alyeska Pipeline Service Company (Alyeska) Valdez Marine Terminal Oil Discharge Prevention and Contingency Plan (VMT C-Plan) was last renewed on November 15, 2019, and will expire in 2024.

Accomplishments since last report:

Prince William Sound Tanker C-Plan (PWS Tanker C-Plan):

The following is the timeline for the renewal of the PWS Tanker C-Plan:

May 21, 2021	Plan submitted for sufficiency review
June 9, 2021-July 23, 2021	Public review of plan renewal
October 7, 2021	ADEC issues requests for additional information
November 1, 2021	Shippers provide responses to RFAIs
Nov 18, 2021 – Dec 2, 2021	Public review of responses to RFAIs

Documents can be viewed on OSPR's website HERE.

There will be a presentation on the PWS Tanker C-Plan renewal at the Board meeting.

Valdez Marine Terminal C-Plan (VMT C-Plan):

VMT Coordination Workgroup: The VMT Coordination Group met on December 9, 2021, and addressed updates to the workgroup charter.

VMT C-Plan Condition of Approval 3C: On October 6, 2021, ADEC approved a request for completion from Alyeska on Condition of Approval (COA) 3C from the November 15, 2019 approval of the VMT C-Plan. On May 25, 2021, Alyeska successfully completed the deployment of Drainage 58. On August 19, 2021, Alyeska successfully completed deployment for Drainage 51, thus meeting the requirements of COA 3C.

Requests for Informal Review: On December 2, 2021, ADEC issued a decision on PWSRCAC's requests for informal review on the November 15, 2019 approval of the VMT C-Plan. Highlights are:

- ADEC is requiring Alyeska to evaluate the integrity of no less than 10% of the buried CBA liner.
- If ADEC denies APSC's proposed method to evaluate the CBA liner, APSC will be required to incorporate feedback from ADEC into the evaluation methods and submit that no later than 30 days after denial.
- If ADEC determines the approved method causes unacceptable damage to the liner, ADEC may approve an alternative evaluation method and timeline proposed by APSC.
- APSC must provide a report to ADEC on the findings of the evaluation within six months after completion of the work or six months before submittal of the new plan renewal, whichever is earlier.
- Failure to demonstrate the CBA liner is sufficiently impermeable may require the liner to be replaced, removal of the 60% prevention credit, and an updated plan to meet the Response Planning Standard.

- No change was needed to address deficiencies with Drainage 58.
- There are adequate numbers of personnel to respond to a Scenario 5 spill. (Scenario 5 is a Response Planning Standard-sized spill of 204,180 barrels (bbl) of Alaska North Slope crude, where 155,000 bbl reaches open water and the remainder is retained on land.)

6511 – History of Contingency Planning

Objectives: The purpose of this project is to take a long-term view of contingency planning in Alaska spanning over 30 years since the *Exxon Valdez* spill. This project will document where progress has been made and where protections have decreased through the established regulatory record. The first phase of this project is focused on the Prince William Sound tankers and the second phase will focus on the Valdez Marine Terminal. The final report from each phase will capture the evolution of contingency planning in Alaska by identifying key issues, themes, and trends over time.

Accomplishments since last report: This project has been deferred until FY2023, to identify and organize the extensive list of documents related to the VMT-C-plan that PWSRCAC has collected over the last 30 years.

6530 – Weather Data / Sea Currents Project

Objectives: This project studies wind, water current, and other environmental factors near the Valdez Marine Terminal, in Prince William Sound, and in the Gulf of Alaska. Weather conditions affect the safe navigation of vessels and aids the ability to prevent, respond to, contain, and clean up an oil spill. Accurate weather data for the region supports research and decision making in areas like oil spill response, traffic management, vessel performance specification, and contingency planning.

Accomplishments since last report:

- Our two weather stations are operating normally and we have had no maintenance issues with them.
- AOOS has offered the Council a grant of $20,000 to install a Conductivity, Temperature, and Depth (CTD) sensor in Port Valdez.

6531 – Port Valdez Weather Buoys

Objectives: This project originally assembled and deployed, and continues to maintain two buoys which measure ocean currents and common weather parameters in Port Valdez. The first buoy is installed near Jackson Point [61.0910°N 146.3811°W]. The second buoy is installed at the Valdez Duck Flats [61.1201°N | 146.2914°W]. The Prince William Sound Science Center (PWSSC) partners with the Council to facilitate this project.

The Oil Pollution Act of 1990 requires the Council to study wind and water currents and other environmental factors in the vicinity of the terminal facilities which may affect the ability to prevent, respond to, contain, and clean up an oil spill.

The Council's Board of Directors has long advocated that robust weather monitoring systems be located in the vicinity on the Valdez Marine Terminal (VMT). This includes proposals to install ultrasonic anemometers at the loading berths and a weather station at the VMT. The Council's Board passed a resolution expressly requesting a weather station be employed at the terminal on January 22, 2016.

Weather is a significant factor in the management of safe crude oil transportation through Prince William Sound. Some of these concerns include marine safety, tanker escort operations, oil spill contingency planning, containment boom design, and safe loading of oil tankers.

Accomplishments since last report:

- The fall haul out and service visit was successful. The buoy hulls were cleaned, zinc anodes replaced, sensors replaced as needed, and batteries recharged. A representative from JOA Surveys will attend the spring 2022 haul out.
- Funding for this project was in included in the AOOS five-year program planning proposal. One of their priorities is to improve marine safety and there is an interest in weather related projects.
- In a related effort, AOOS has offered a $20,000 grant to the Council to install a CTD sensor in Port Valdez. Information from this sensor would become part of the PORTS site for Port Valdez.

6534 – Cape Hinchinbrook Weather Surveillance

Overall Goal: Working cooperatively with the Prince William Sound Science Center (PWSSC), this project seeks to provide improved observations of weather and wave conditions seen at the Hinchinbrook Entrance to Prince William Sound. The primary focus of this effort will be the eastern portion of the Entrance that encompasses the established vessel traffic lanes that pass by Cape Hinchinbrook.

Initially, this project will be focused on securing a land use permit from the U.S. Coast Guard and U.S. Forest Service at Cape Hinchinbrook. The follow-on project will be the installation of an upland weather station and supporting equipment at the Cape. This equipment will provide observations of standard meteorological variables, wind speed and direction, temperature, humidity, and barometric pressure at the Cape. Power to the equipment installed on the uplands will be provided by solar panels and a wind generator. Data generated by the equipment will be telemetered out via cellular modem link to the Naked Island communications site.

Once the site is established, additional instruments may be considered, including an X-band (8.0 to 12.0 GHz) wave radar and a subsurface moored wave gauge.

Accomplishments since last report:

- The project was included in the current Long Range Planning process and the funding request is for potential permit fees needed to secure a land use permit from the Coast Guard. Establishment of a weather station at Cape Hinchinbrook will be proposed once a permit is secured.
- Funding for this project was in included in the AOOS five-year program planning proposal. One of their priorities is improving marine safety and there is an interest in weather related projects.
- Staff continues to work with the 17th Coast Guard District on permitting for the weather station.
- This project was deferred to an off year in the FY2023 long range planning process.

6536 – Analysis of Weather Buoy Data

Objectives: In 2019, PWSRCAC was able to install two weather buoys in Port Valdez, one in the vicinity of the Valdez Marine Terminal and the other near the Valdez Duck Flats. The buoys are expected to collect weather data for at least five years. This project is the first of five projects that would take the data collected in each of the five years and perform an analysis to determine any weather trends throughout the year and seasonally. The analysis includes current and wind direction and speed

information, wave direction and heights, and other pertinent information that can be obtained from the weather data.

Accomplishments since last report: The first Project Team meeting for this year's project is scheduled for the Week of December 6 to discuss the direction of the contracting process for this project.

6540 – History of Copper River Delta Flats GRS

Objective: The purpose of this project is to develop a white paper that captures the history of developing geographic response strategies (GRS) in the Copper River Delta and Flats (CRDF) area. GRSs are pre-built response strategies used to protect pre-identified sensitive areas in the event of an oil spill. Considering CRDF is part of the Prince William Sound Area Contingency Plan (PWS ACP), this information would be applicable to this plan. The white paper would document the significance of protecting this valuable, fragile ecosystem, and explain the current status of the GRS.

Accomplishments since last report: The project officially went live in early September. Staff and Nuka met for a short kick-off meeting to talk through project intent and goals, and confirm the scope of work and deliverables prior to work beginning. Nuka generated a brief summary of this meeting and project research began afterwards.

Prior to this meeting, Staff spent a significant amount of time sorting through and making sure related paper documentation was captured in our document management system. This included a large volume of physical files from former staffers Dan Gilson and Joe Banta, and Council volunteer Steve Lewis that were directly or tangentially related to this project. Through this process, project manager Jeremy Robida flagged a lot of documents that would be of interest and provided this list to Nuka. Project manager assistant Nelli Vanderburg was instrumental in getting these documents in order.

Accomplishments since last report: Nuka is still engaged with the "research" phase of the project. Almost all of documentation within our document management system has been reviewed and identified, and Nuka is now transitioning to interviews with those involved in the CRDF GRS development process. Several interviews have been conducted so far.

6560 – Peer Listener Training

Objectives: Review and assess the Peer Listener Training and similar programs nationwide to ascertain current best practices. The resulting report will inform the Council's decisions about how to revise the Peer Listener Training program, the associated manual (an appendix of "Coping with Technological Disasters: A User-Friendly Guidebook"), and the train the trainer program going forward.

Accomplishments since last report: After extensive research to identify potential contractors, the project team selected Purpose Driven Consulting to proceed with the research phase of this project. The research, expected to be completed this spring, will inform Phase II of the project to update the Council's 30-year-old Peer Listener Training program, which is also budgeted for this fiscal year.

7000 – Oil Spill Response Operations Program

Objective: This program encompasses monitoring and reporting on the activities related to the operational readiness of the oil spill response personnel, equipment, and organization of the TAPS shipping industry. The program also encompasses monitoring actual oil spill incidents within our region

and evaluation of overall response readiness. Additionally, the program includes the planning and implementation of PWSRCAC's Incident Response Plan.

Accomplishments since last report: Staff members Linda Swiss and Jeremy Robida covered a variety of "planning" meetings; the Inland meeting 9/21, the ARRT meeting 9/23, and then the PWS Area Committee meeting on 9/28. It's been challenging to track what each area and their respective sub-committees are working on, and with Area plans being managed via the "sponsorship model" attending any-and-all of these meetings seems important. A variety of topics were covered at these meetings and further detailed notes are available. In terms of OSPR interests, highlights include:

Inland meeting 9/21

- CIRCAC presented on some inland GRS work they've been doing. They've created new sites along the road corridor to address potential highway spills. These new sites are already completed in a GIS based format. It was noted how the Arctic Western AK (AWA) Area plan had the GRS workgroup in motion and the how the immediate goal was getting this GIS-based system up and functional, before addressing any new GRS site information.

ARRT meeting

- AWA Area plan secretary, LCDR Matt Richards addressed how a GRS validation exercise was held in Kodiak in September. An unmanned aerial vehicle (UAV) was used to fly several GRS sites and produce images of these sites and verify suggested tactics. It's anticipated that this vetting via UAV will continue with other sites. The protocols for managing this imagery and making edits to a GRS site via NOAA's collector app were also tested, but these protocols are still being formalized. The USCG, ADEC, and University of Alaska Fairbanks were involved with this effort.
- CDR Jereme Altendorf further addressed the GRS to GIS process and gave a brief history of how the GRSs were converted. He cited how all of the GRS information was back with ADEC now and how protocols for making updates were still to be finalized. Defining this update process was deemed critical before this information is uploaded to the ADEC website. Altendorf said it was important that OSROs, industry, RCACs, etc. be able to suggest changes as sites were deployed.
- ADEC's SPAR director Tiffany Larson gave both opening and closing remarks, but did not touch on the regulatory reform and public comment process that was set to open as of 11/1/21.

PWS Area Committee meeting

- AWA Area plan secretary LCDR Matt Richards was in town for this meeting and spoke to the GRS to GIS update process, providing essentially the same information as the ARRT meeting noted above. Project manager Jeremy Robida inquired about the backlog of GRS sites in PWS, citing how these sites had been deployed via SERVS, how SERVS had suggested edits, how these edits were approved via the Federal and State On-Scene Coordinators at the area plan level, but that actual updates were still showing as pending on ADEC's website and have been for years. The point person managing GRSs for ADEC was concentrating his efforts on getting the GIS-based system up and functional and it's unclear how and when these pending edits will be addressed.
- There was also an afternoon session and workshop to discuss a hypothetical spill in Cordova and how that would be managed. This discussion was led by the USCG. The scenario related to an Articulated Tank Barge (ATB) from Kirby Marine, which grounds due to a hacked AIS system/signal. The two forward tanks of the barge were of most concern given the scenario and equate to a potential spill volume of 8,400 barrels. Participants discussed some of their initial reactions to this spill event. The group was supposed to meet again at the end of October, but nothing has been announced yet.

There was an unannounced call-out of the rapid response fleet vessels based in Cordova, for an OSRB deployment near Johnstone Point on 11/8. Project manager Robida had intended to observe the

exercise via chartered vessel, but unfortunately weather in the Valdez Arm did not allow for this to happen. Winds had picked up that morning in the Valdez Narrows and were blowing a consistent high 20s with gusts touching 30 knots. The captain of the vessel cancelled the trip for safety reasons, knowing it would be a rough ride with freezing spray, especially on the transit back. As with other Council charted vessels in the past, seats were offered to the USCG and ADEC, so they could also view the exercise. A member of the USCG had planned to join the cancelled trip. Staff will continue to monitor upcoming exercises and charter vessels as opportunities and timing allows.

7030 – Contracted Fleet Vessel Readiness Verification / Staff-Led Dock Walk

Objective: Contracted vessels serve a vital role in the Prince William Sound tanker and Valdez Marine Terminal contingency plans because almost all of the response tactics described in these plans require contracted vessels and their trained crews to implement. With this project, PWSRCAC intends to conduct a physical survey of a given port (or multiple ports) and attempt to verify that vessels self-reporting as available, actually are available.

There are approximately 400 vessels and associated crews on contract with SERVS. These vessels are predominantly commercial fishing vessels and fall into four categories: (1) Tier I vessels (or the "core" fleet of approx. 50+ vessels on contract), located in ports within Prince William Sound and required to be ready to respond within six hours; (2) A subset of approximately eight Tier 1 vessels (referred to as Rapid Response Vessels), strictly Cordova-based, and expected to be underway within an hour of notification; (3) Tier II vessels (the bulk of the fleet, numbering 300+), in ports both within and outside of Prince William Sound, and expected be ready to respond within 24 hours, with a total of 40 vessels anticipated to depart by hour 18; and (4) Tier III vessels, which the contingency plans include discussion on, but the Tier III program is simply a recruitment program with no vessels currently on contract.

A minimum number of vessels from each tier are expected to be available and ready to respond, so as to meet specific timing metrics captured within contingency plans, and therefore, satisfy state regulatory requirements. Alyeska/SERVS verifies vessel availability via phone calls to the captains (check-in frequency based on contract tier) and reports this information to ADEC on a quarterly basis to ensure that available vessel count is sufficient to meet readiness requirements. ADEC is able to request this vessel availability information at their discretion.

Given response planning standard volumes and c-plan scenarios, the PWS Tanker C-Plan is much more reliant on contracted vessels to implement a response than the VMT C-Plan. For example, the tanker plan scenario requires a total of approximately 279 vessels to be operational within the first 72 hours of a spill. Having approximately 400 vessels on contract allows some flexibility with meeting this requirement and safeguards against vessels being out for repairs, captains being out of town, etc.

Accomplishments since last report: Staff recently completed a dock walk in Port Valdez using 3rd quarter 2021 availability information. For 3rd quarter, a total of 38 vessels were listed as "available" among Port Valdez based vessels; 21 of these vessels were Tier 1, and the remaining 17 were Tier 2. A total of 32 of the listed vessels were identified in the harbor or in the uplands drydock area during the walk. Staff discussed these numbers and observations further with the OSPR Committee during their early December meeting.

A 4th quarter dock walk will also be done in mid-January and staff will address both the 3rd and 4th quarter walks in a formal report that will be discussed with the OSPR Committee.

Caveats to these dock walks: 1) There is often lag time between when the paper availability report is acquired and when the walk is actually conducted, meaning what's on paper and what's observed may not match. 2) Not every vessel is typically "found," during these walks, but this does not mean these vessels do not exist or could not meet reported availability timing, etc. 3) Other vessel readiness metrics, such as crew availability, whether or not USCG safety decals are current, if HAZWOPER certifications of crew were current, etc., were not investigated. This exercise is simply about getting a snapshot of the state of the vessels themselves. 4) Council is tasked with monitoring response readiness, but we are not in a position to address contractual relationships, enforce contract terms, or force specific actions on vessel availably. PWSRCAC is simply offering these observations in an informational capacity and for the sake of having a conversation about vessel readiness, since these vessels play such a prominent role in contingency planning.

7050 – Out of Region Equipment Survey

Objective: The project will identify "out-of-region" spill response equipment that's available to cascade into PWS and/or the Gulf of Alaska vicinity during an oil spill. This is equipment that is called for via planning assumptions to support a large spill response effort and outfit nearshore recovery task forces beyond what is already available from the SERVS inventory. This project will document who owns this equipment, discuss the formal equipment sharing/purchase relationships that are already in place between the various PWS shippers and the greater worldwide Oil Spill Removal Organization (OSRO) community, as well as any governmental equipment sources such as the USCG or Navy Supervisor of Salvage (NAVSUPSALV). The project will also address timing and logistical information related to movement of such equipment.

Accomplishments since last report: This project was initiated via budget modification at the September 2021 Board of Directors meeting. A RFP has been drafted, reviewed by staff, and is now in the process of final edits before it is released. This RFP is available HERE.

7520 – Preparedness Monitoring

Objectives: PWSRCAC's Drill Monitoring program falls under a broader program called Oil Spill Response Operations. Objectives for the Drill Monitoring program are to promote oil spill response operational readiness within the EVOS region by observing, monitoring, and reporting on spill response drills, exercises, and training; to provide citizens, regulatory agencies, and responders (Alyeska and the shippers) with independent observations and recommendations to improve preparedness; and provide citizen oversight. Tasks to be completed include:

- Monitor and report on regular oil spill drills and training exercises at the VMT and throughout the Exxon Valdez oil spill region to citizens, the Board, industry, and regulatory agencies.
- Provide quarterly recommendations to the PWSRCAC Board of Directors.
- Keep PWSRCAC's standing committees (OSPR, TOEM, POVTS, IEC, and SAC) informed.
- Produce an annual report on effectiveness and progress of the regularly monitored drills.
- Continue developing and implementing staff training for drill monitoring.

Recent Exercises:

Andeavor and Marathon PWS Shipper's Exercise – Canceled

This exercise was postponed in 2020, due to COVID-19 and was rescheduled to October 2021. Alaska's COVID-19 surge was at its highest point in October 2021, so the decision was made to cancel this exercise and replace it with a series of workshops and trainings for the response community focusing on Prince William Sound. There will be two workshops that are in the process

of being planned. One for wildlife response and for the regional stakeholder committee. There are also going to be ICS-300 trainings and a IAP application training.

Solomon Gulch Hatchery Deployment Training – October 9, 2021
Alyeska conducted a training for the newer TCC response crew members on the sensitive area protection tactic for the Solomon Gulch Hatchery in Port Valdez.

Valdez Marine Terminal Drainage 51 Settlement Pond Deployment – August 19, 2021
Alyeska conducted a deployment exercise for containing oil in the settlement ponds for Drainage 51 on the VMT.

Upcoming Drills and Exercises
Crowley Alaska Tankers Shippers exercise – May 2022
VMT Scenario 4 Exercise – August 2022

8000 – Maritime Operations Program

Objectives: This program reviews port organization, operations, incidents, and the adequacy and maintenance of the Coast Guard Vessel Traffic System, and coordinates with the Port Operations and Vessel Traffic Systems (POVTS) Committee. Major program components include participation with the Valdez Marine Safety Committee (VMSC), monitoring changes to the escort system, reviewing Best Available Technology documents for the tanker escort system and the Vessel Emergency Response Plan (VERP), participating in monthly SERVS/PWSRCAC and ADEC/PWSRCAC communication meetings, and supporting maintenance for the NOAA weather stations.

Accomplishments since last report:

- An article on the Rescue Tug Project was published by International Tug and Salvage in October. We anticipate reprints of the article to be available soon.
- The Maritime Operations Project Manager is participating in the Alaska Spatial Priorities Study, focusing on the Gulf of Alaska and Prince William Sound.
- A list of potential projects was provided to POVTS and OSPR Committee members. The Committees developed future projects that were part of the current LRP process.
- The Maritime Operations Project Manager is participating in the interagency Barry Arm project team for the Council.
- Staff is working to produce a descriptive video documenting our field trials of line throwing equipment, highlighting the study's results that underscore best techniques in their use and to help improve user experiences with the equipment.
- Staff worked with the Legislative Affairs Committee (LAC) to develop a white paper on use of AIS and radar equipment in the Sound.

8012 – Field Trials of Messenger Line Throwing Devices and Video

Objectives: This project will evaluate the effectiveness of line throwing devices identified as being best available technology in the 2020 report, "Tanker Towline Deployment BAT Review." Field trials of this equipment will underscore best techniques in their use and will improve user experiences with the equipment. Results will be used to develop a set of recommended practices that will be shared with industry. A final report on the project findings will be presented to the Council.

Oil tankers operating in Prince William Sound are required to carry emergency towing equipment. The availability of this equipment can allow a stricken tanker to be towed safely to a place of refuge, where

further action can be taken to stabilize the vessel. A key action that must occur in the use of one of these towing systems is to successfully make the final connection between the tow package messenger line and the vessel to be towed. Passing messenger lines to stricken vessels can be passed by hand, heaved or thrown aboard, projected by mechanical means, or picked out of the water. Weather is often a factor in vessel casualties and retrieving a line can be difficult and dangerous in poor weather.

This last year, the Council contracted the maritime research firm Glosten to evaluate the technologies available to pass or deploy messenger lines to vessels in distress to determine what constitutes best available technology (BAT), and then using a similar approach, compare currently used line handling technologies with alternatives identified by the consultant. The final report, "Tanker Towline Deployment BAT Review," has been well received and should prove useful in the future.

Accomplishments since last report:

- Field work and the final report have been completed.
- The POVTS Committee recommended acceptance of the report by the Board.
- A contract has been completed to develop a video presentation that details the projects outcomes. There was significant photo and video documentation of the trials.
- Staff worked to develop a scope of work, desired outcomes and goals for the video.
- A contract has been completed with On Point Outreach that will develop a video presentation that details the project's outcomes.

8013 – Vessel Traffic System Use of AIS and Radar White Paper

Objectives: The Council has invited proposals to produce a white paper to evaluate, compare, and contrast the utilization of Automatic Identification System (AIS) and land-based radar in Vessel Traffic System operations. The selected contractor will ascertain and review research papers and literature related to this topic; summarize findings of this technology review; prepare a white paper on the subject of AIS and radar use; identify gaps in the research on this topic; and provide recommendations for future research. The final work product of this effort is a report detailing the results.

In its efforts to encourage legislators and the Coast Guard to replace the radar systems used in Prince William Sound, there will need to be accurate resources available that describe the issue well and are based on quality researched facts. This project is intended to provide this resource document.

Accomplishments since last report:

- Working with members of POVTS, LAC, and staff, C-CORE has completed the white paper which was accepted by the Executive Committee on August 12, 2021.
- Staff is working with Roy Jones on a cover letter for the report.

8014 – USCG Basic and Advanced Emergency Ship Handling Training

Objectives: AVTEC - Alaska Maritime Training Center (AMTC) is working to develop simulator intensive Basic and Advanced Emergency Ship Handling courses that meet the International Maritime Organization (IMO) training guidelines and are U.S Coast Guard (USCG) approved. These courses will better prepare mariners for real life situations, including emergency ship maneuvering. Much of this training will be assessment-based and will utilize AMTC's full mission bridge simulator. Most simulations will take place in Prince William Sound using the enhanced vessel database developed by AMTC.

Council will contract with AVTEC faculty to develop and implement these courses, including gaining USCG course approval. Through this work, AVTEC will be able to help close the existing knowledge gap and get people certified to fill critical infrastructure positions within the maritime industry. This project promotes the safe operation of marine vessels in Alaska and beyond.

Accomplishments since last report:

- A contract has been completed with AVTEC/State of Alaska to complete this project. Updates will be provided by AVTEC-AMTC as the project progresses.
- AVTEC has completed the first deliverable of the project, the Course Syllabus, Lesson Plans, and Instruction Manual.

9000 – Environmental Monitoring Program

Objectives: Coordinate projects developed and overseen by the Scientific Advisory Committee and obtain scientific knowledge and technical information with regard to issues related to the actual and potential environmental impacts of the Valdez Marine Terminal and associated crude oil tankers. The notable tasks to be accomplished under this program are as follows:

- Project manager to attend at least one technical scientific conference
- Plan and complete budgeted environmental monitoring and scientific research projects
- Conduct PWSRCAC Science Night

Accomplishments since last report: Projects managed under this program continue to be planned and executed successfully. The Science Night event typically held in December was cancelled.

9110 – Monitoring Spatial Variability of Marine Birds During Winter in PWS Tanker Escort Zone

Objectives: Provide up-to-date information on winter marine bird density and distribution throughout the Prince William Sound tanker transit zone, including under-surveyed areas such as the open waters and adjacent bays in and around Port Valdez, Valdez Arm, Tatitlek Narrows, Port Fidalgo, and Port Etches. Here are the notable tasks to be accomplished under this project:

- Perform winter bird surveys in Prince William Sound for three consecutive years
- Analyze data obtained during winter bird surveys
- Report the results of the analysis
- Make winter bird survey maps readily available for use by spill response managers

Accomplishments since last report: This report was presented to the Board at the September 2021 meeting and was accepted. The contract has been closed.

9510 – Long-Term Environmental Monitoring Project

Objectives: Comprehensively monitor the actual and potential environmental impacts related to the Valdez Marine Terminal and associated crude oil tankers and provide the Council with information about the presence and effects of hydrocarbons generated by the terminal facility and associated tankers. Here are the notable tasks to be accomplished under this project:

- Obtain environmental samples in Port Valdez: marine sediments, mussels, and passive sampling devices
- Analyze environmental samples
- Interpret and report results of sample analysis
- Present analytical findings to the PWSRCAC Board of Directors

- Maintain Environmental Monitoring Project plan

Accomplishments since last report:

- All the 2021 oil chemistry lab analyses were completed, and associated data was provided to the Council.
- The draft-final April 2020 Oil Spill Executive Summary report was reviewed by SAC and recommended for acceptance by the Board.
- SAC recommended the proposal provided by Dr. Liz Bowen of the United States Geological Survey pertaining to transcriptomics aspects of LTEMP, at an amount not to exceed $75,600, be accepted by the Board.
- A request-for-proposals was issued pertaining to the interpretation and reporting on the 2021 LTEMP oil chemistry results. Based on the review of responses received and the original scope of work, the proposal evaluation team elected to issue an updated request-for-proposals with a revised scope of work. Proposals are due in late December, 2021.

9511 – Herring and Forage Fish Surveys

Objectives: Monitor schools of herring and other forage fish species to identify areas in the Sound where they tend to concentrate. Here are the notable tasks to be accomplished under this project:

- Conduct aerial surveys of forage fish in Prince William Sound
- Analyze aerial survey data and report on the results
- Make aerial survey maps readily available for use by spill response managers

Accomplishments since last report: Contractors from the Prince William Sound Science Center have written a report with the results of the survey conducted earlier this year. The report will be presented to the Board at the January 2022 meeting. It is recommended by the Scientific Advisory Committee that the Board accept the report as meeting the terms of the contract and ready to distribute to the public.

9512 – Determining Concentration and Composition of Oxygenated Hydrocarbons from the VMT

Objectives: The goal of this project is to determine the types and amount of oxygenated hydrocarbons that are released from the Ballast Water Treatment Facility at the Valdez Marine Terminal. The notable tasks to be accomplished under this project are as follows:

- Collect monthly water samples from the Ballast Water Treatment Facility following discharge of oily ballast water by tankers
- Analyze the samples to determine the chemical composition and concentration of oxygenated hydrocarbons
- Interpret and report findings of the analysis and prepare the report for publication in a peer-reviewed journal
- Produce recommendations on future research to understand the fate, transport, and toxicity of oxygenated hydrocarbons in the marine environment

Accomplishments since last report: Council staff have continued to communicate with Alyeska regarding obtaining water samples from the Ballast Water Treatment Facility. Staff provided Alyeska an updated scope of work in response to concerns related to COVID and the proposed sampling protocol. Alyeska has agreed to support the modified scope of work. Staff will be working with the contractor and Alyeska to arrange sample collection, shipment, and analysis.

9513 – Hydrocarbon Sensor Monitoring of Valdez Marine Terminal Impacts in Port Valdez

Objectives: Measure the concentration of hydrocarbons in the marine waters of Port Valdez on a continuous basis to support real-time or rapid assessment of the hydrocarbons generated by the Valdez Marine Terminal and associated tankers. The notable tasks to be accomplished under this project are as follows:

- Install a hydrocarbon sensor on the Council's weather buoy adjacent to the Valdez Marine Terminal
- Collect and review data acquired by the sensor and make the data publicly available online
- Perform annual maintenance on the sensor

Accomplishments since last report: There have been no notable accomplishments on this project since the last report.

9520 – Marine Invasive Species

Objectives: Understand and minimize the environmental impacts of invasive species potentially arriving in the PWSRCAC region from tanker ballast water and hull fouling. Here are the notable tasks to be accomplished under this project:

- Obtain plankton samples in Port Valdez at three sites: the small boat harbor, Valdez Container Terminal, and Valdez Marine Terminal
- Perform metagenetic analysis on plankton samples to identify variability in the plankton community between locations and through time, and identify any nonindigenous species
- Interpret and report results of plankton metagenetic analysis
- Conduct monitoring of invasive crab and tunicate species in Valdez and Cordova

Accomplishments since last report:

- Council interns from Cordova and Valdez completed the 2021 monitoring season for European green crab, fortunately not detecting any of this species in their traps.
- Council staff completed collection of plankton samples from three sites in Port Valdez.
- Plankton samples were shipped to the Smithsonian Environmental Research Center for analysis. The contractor has requested and been granted an extension to the originally agreed upon due date for submitting results due to a supply backorder caused by the pandemic.

9550 - Dispersants

Objectives: This project entails reviewing and potentially updating the Council's current position regarding the use of dispersants in the event of an oil spill in our region. The current position states that the Council does not support the use of dispersants for spill response in Prince William Sound. This project would also involve updating Council documents that are used to technically support and educate the public about the Council's official dispersant use position.

Accomplishments since last report: Contracts have been finalized with Nuka Research and Planning as lead facilitator and Spill Science as a technical expert for the project. The project team met to initiate the project and establish a timeline for deliverables. Council staff communicated with Board members and contractors to schedule a facilitated workshop in March 2022 to discuss possible position statements the Council could adopt related to dispersants use in the Prince William Sound region. Board members are highly encouraged to participate in this workshop.