# Annual Drill Monitoring Report

# 2004

**Approved by the PWSRCAC Board of Directors**
**May 12, 2005**

## TABLE OF CONTENTS

## 1.0 Introduction

The following is Prince William Sound Regional Citizens Advisory Council's (PWSRCAC) 2004 Annual Drill Monitoring Report based, in part, on information from the report presented to PWSRCAC by the former independent drill monitor contractor, Tim Jones. This report has been modified to reflect the full range of drill monitoring activities and developments that took place throughout 2004.

## 2.0 Drill Reports Index and Other Activities

**(Drill Reports written by Tim Jones unless otherwise noted)**

| DATE | No. | TYPE |
|---|---|---|
| 12/11/03 | 1 | Polar Discovery/Tanerliq Tether Exercise |
| 1/20/04 | 2 | SeaRiver Columbia Bay/Alert Tether Exercise |
| 1/20/04 | 3 | Tether Exercise SR Columbia Bay/Alert/Nanuq – Rhonda Williams |
| 1/21/04 | 4 | Polar Alaska/Alert Tow Exercise |
| 1/21/04 | 5 | Tether Exercise Polar Alaska/Alert/Nanuq – Rhonda Williams |
| 1/23/04 | 6 | Marine Columbia/Attentive Tether Exercise |
| 1/24/04 | 7 | Overseas Washington/Aware Tether Exercise |
| 2/6/04 | 8 | Overseas Washington/Aware/Nanuq Heavy Weather Tow Exercise |
| 2/11/04 | 9 | Nearshore Free Oil |
| 2/27/04 | 10 | Whittier Nearshore Free Oil |
| 3/2-4/04 | 11 | Operations Section Implementation Tabletop |
| 3/11/04 | 12 | Dry Decontamination demonstration |
| 3/26/04 | 13 | 450-1 Transrec |
| 4/19/04 | 14 | Aerial Dispersant Delivery System (ADDS) Pack |
| 4/22/04 | 15 | Lightering |
| 4/26-5/5/04 | 16 | Annual Fishing Vessel Training - Valdez, Cordova |
| 4/28/04 | 17 | Jack Bay/Tug Pathfinder Spill |
| 4/29/04 | 18 | Initial Response Incident Command (IRIC) Training |
| 5/11/04 | 19 | Winter 2003-2004 Ship Assist Exercises |
| 5/25/05 | 20 | Cordova Community Response Center Inspection |
| 8/4/04 | 21 | National Preparedness Response Exercise Program (NPREP) -PWSRCAC |
| 8/4/04 | 22 | On-Water Exercise with ConocoPhillips NPREP Area Excercise |

| | | |
|---|---|---|
| 8/16-20/04 | 23 | Geographic Response Strategies Deployments |
| 8/30/04 | 24 | Nearshore Tabletop |
| 9/1/04 | 25 | Copper River Flats Deployment |
| 9/20/04 | 26 | Cordova Fishing Vessel Training and Unannounced Nearshore Drill – Tony Parkin |
| 9/22/04 | 27 | Nearshore Response Drill |
| 9/29/04 | 28 | VMT Settlement Ponds |
| 10/14/04 | 29 | VMT Scenario 4 Valdez Duck Flats |
| 10/29/04 | 30 | Polar Discovery/Nanuq Tow Exercise |
| 12/1/04 | 31 | SeaBulk Arctic/Tanerliq Tow Exercise |
| 12/17/04 | 32 | Overseas Washington/Aware Tow Exercise |
| 12/17/04 | 33 | ADEC Unannounced Call-Out Drill – Dan Gilson |

OTHER REPORTS

| | |
|---|---|
| 1/14/04 | Towline Break Review |
| 6/24/04 | Aware Line Parting |
| 7/6/04 | Alert Line Rewinding |
| 7/9/04 | Aware Line Rewinding |

**CONTINGENCY PLAN REVIEW**: The independent drill monitor was an active member of the contingency plan project team. This involved attending weekly meetings, providing analysis and background for various escort and response issues, and researching several aspects of the plan and related issues.

**DRILL AND EXERCISE OBJECTIVES DEVELOPMENT**: In 2002, the Alaska Department of Environmental Conservation (ADEC), in conjunction with industry and PWSRCAC, began the workgroup process of developing standardized objectives to facilitate evaluation of industry escort and response training, exercises, and drills. In 2003, the nearshore exercise evaluation criteria workgroup developed evaluation standards for open water responses and nearshore evaluation standards were completed in 2004.

**READINESS**: The independent drill monitor maintained a state of readiness and was prepared to respond to an incident in Prince William Sound on a 24-hour basis and at times assumed periodic, formalized "on-call" duty in Valdez. This means accepting an on-call status 24 hours a day in case of an oil spill. It also involved maintenance of monitoring equipment for communications and documenting events.

**MEETINGS**: The independent drill monitor regularly attended Oil Spill Prevention and Response (OSPR) Committee meetings, occasionally Port Operations and Vessel Traffic (POVTS) Committee meetings, and PWSRCAC meetings as required.

## 3.0 MAJOR DEVELOPMENTS

There was a wide range of issues addressed involving aspects of drill monitoring and prevention response readiness throughout 2004. Some significant changes in operations were made and exercised along with experimentation into new operational techniques that were exercised during the year.

A significant development was the proposed removal of response supervisors from escort tugs. In the past, the Alyeska Pipeline Service Company (APSC) Ship Escort/Response Vessel System's (SERVS) supervisor had been aboard each escort. In 2004, this was changed to two supervisors on duty who may or may not be on board a tug or an escort. To assume their responsibilities during an event, Crowley Maritime's (owners and operators of the tugs) masters and mates received training as Initial Response Incident Commanders (IRIC). There was concern of a potential removal of initial decision making from the scene of the spill to the command center. The purpose of the onboard IRIC was defined as largely gathering information and reporting to operations personnel in the Valdez Emergency Operations Center (VEOC). It was also stressed that the onboard IRIC could order equipment deployed on scene or sent to the scene from other sites.

The effectiveness of this change will be monitored by the new PWSRCAC staff member who is responsible for drill monitoring. The role and performance of the IRIC will be closely observed during drills and exercises in 2005.

Prior to 2003, decontamination (decon) during a response had not been a large focus of drills and exercises. In 2003, plans were developed and exercised to integrate decon into all drills and exercises to refine techniques, develop strategies, and select appropriate decon equipment. A dry decon system was implemented on-board the Transrec barges where workers removed and discarded contaminated clothing into connexes outfitted with equipment necessary for personnel decontamination. These connexes were placed on each of the barges. This was successfully demonstrated during an exercise in early February 2004 and will continue to be assessed in future drills and exercises.

The Copper River Flats have always been an area of concern for PWSRCAC and particularly Cordova citizens and gillnet fishermen who work the Flats. On September 1, 2004, SERVS and several bowpickers were deployed to the Flats to test response booming and skimming techniques and strategies. Due to adverse weather and tides, the supply vessel *Krystal Sea* did not make the trip and equipment was loaded onto fishing vessels in Cordova. This equipment was deployed on the Flats in various configurations and observations and comments were recorded. A number of changes to planned strategies were implemented as a result of this exercise including loading more powerful bowpickers in Cordova with equipment to take to a response. This exercise shows positive progress is being made between SERVS and local fishermen, and this cooperation will continue to be tracked during drills and exercises.

Nine tanker-assist exercises were documented during 2004. The most important exercise was a heavy weather exercise conducted on January 24, 2004 with the laden tanker *Overseas Washington* in Hinchinbrook Entrance. During this exercise, two tanker saves were practiced using both a prevention/response azimuthing tug (PRT) and a cycloidal drive tug (ETT). Conditions at the time had seas approaching 13 feet and winds up to 40 mph. In both exercises, the tugs were able to bring the ship under control within the geographic limits of Hinchinbrook Entrance effecting advances and transfers within one-half mile. As the PRT recovered its line, the winch failed due to a hydraulic malfunction in the winch drum. The same PRT, the *Aware,* also experienced multiple line breaks during the year. Eventually, the line was rewound, and a Teflon blanket was placed over the lower wraps to prevent the line from diving to the drum. Additionally, the flanges on the winch drum were placed with thicker steel to ensure no lateral displacement of the line on the winch under tension. The tug and escort system is of great importance to PWSRCAC and will continue to be tracked under the drill monitoring and tug escort projects.

One actual spill was reported on April 28, 2004 when diesel fuel spilled from a Crowley Maritime tug during a fishing vessel exercise in Jack Bay. Estimates of the quantity spilled varied, but it was thought to be approximately 100 gallons. Initial response was delayed through decision making problems and eventually best estimates showed only 15 to 20 gallons were recovered. This incident raised many questions about the response including tactics used in the response and the actual amount of diesel recovered.

## 4.0 Ongoing Concerns

As part of the 1998 contingency plan review, the independent drill monitor was asked to compile a list of lessons learned over the years since the program began in 1992. That list is included in the annual report with updates for those areas addressed during the year.

**WASTE STREAM MANAGEMENT**: Disposal of recovered oil is an issue that has been discussed during several drills and exercises over the years. The most likely solution appears to be pumping secondary storage barges into a tanker of opportunity as recovered liquids cannot be put through the Valdez Marine Terminal's (VMT) ballast water treatment plant without some measure of treatment beforehand. Using a tanker of opportunity would take that ship out of service for a considerable period of time with the likely disposal facility of a tanker full of recovered liquids to take place at the R-2 refinery in Freeport, Texas which can handle highly emulsified oil. Much work has been accomplished over the past year leading to improvements in the Waste Management Plan. This issue is always a focus of staff during drills and exercises.

**MOVING A DAMAGED TANKER**: Early drills had the stricken tanker taken to Outside Bay, Naked Island following an incident in Prince William Sound. This location has been questioned and no specific location to take a disabled tanker has been formally agreed upon. A significant amount of work was conducted within the Places of Refuge work group in 2004. This multi-stakeholder group developed selection criteria for places to be considered temporary locations for stricken tankers, and PWSRCAC staff has been very active in this workgroup process. This issue will continue to be a focus for PWSRCAC staff during drills and exercises that involve moving damaged tankers.

**GRAHAM REC SKIMMER**: Even after its re-engineering in 1994/95, the Graham Rec skimmer's capability remains questionable even though use of it is mandated for 12 of the first 24 hours to meet the 72-hour/300,000 barrel planning standard. By definition, it is to be used in a static situation in thick oil, yet it is part of a dynamic skimming operation, namely the Transrec barges. The use of the Graham Rec raised many concerns including skimmer efficiency, pumping rate, hose length, and ability to function in rough conditions. The issue of the Graham Rec skimmers has recently been resolved as SERVS has started the process to replace the Graham Rec skimmers with one additional Transrec skimmer per barge.

**VALDEZ DUCK FLATS**: Several exercises over the years have shown planned boom configurations for the Duck Flats placing boom perpendicular to tidal currents, leading to entrainment under the boom and allowing oil into the Duck Flats area. Studies of currents on the

Duck Flats have been planned but not carried out, and the boom plan has not been adjusted. In winter operations, ice floats off the Flats that can damage or sink boom. On March 17, 1999, PWSRCAC's independent drill monitor, an ADEC representative, and SERVS personnel tested currents during a Duck Flats deployment. At that particular time, currents were found to be of less velocity than could be expected to cause entrainment and from a direction making an effective angle to the boom. It was pointed out at the time that currents need to be studied over a variety of tide ranges in order to develop a full understanding of tide direction and strength on the Flats.

**PORT VALDEZ CURRENTS**: Experience in exercises and actual spills has shown currents in Port Valdez are not always predictable. This has created difficulties with booms at the hatchery, Duck Flats, VMT, and during various shoreline deployments throughout the Port. Current information for the Port in the ATOM trajectory model is marginal at best. Since the Port is accepted as the most likely location for a spill, studies of currents need to be made and this should include local knowledge from fishermen with experience in the Port. For future drills and exercises in this area, PWSRCAC will monitor the currents that act against the deployed boom and will bring any deployment issues to SERVS during the time the exercises are conducted.

**SOLOMON GULCH HATCHERY PROTECTION**: It was noted during the Eastern Lion spill in May 1994 that oil can move from Berth 1 at the VMT to the hatchery in about an hour on certain tides and currents. Several improvements in the hatchery protection program have been made since then, but deployment still takes more than four hours. It was recommended that a plan be developed for interim deflection away from the hatchery while booms are being deployed. In March 2002, SERVS attempted a deployment on the west side of the hatchery using CSI boom rather than the slower deployment of Shore Guardian boom. Though tide and winds interfered with deployment, the boom was in place and could have been deflecting oil away from netpens in approximately an hour. This time compared favorably with four and a half hours to complete the formations using the Shore Guardian boom. In addition, during two exercises involving the VMT, personnel addressed hatchery protection early, dispatching mitigating equipment to the area between the VMT and the hatchery.

**IN-SITU BURNING**: It has been shown in tests that 3 percent by weight of burned oil sinks to the bottom with a consistency of peanut brittle. The PWSRCAC Dispersants\Burning Project team is aware of this issue, and staff developed a white paper to address the positive and negative implementations of in-situ burning as a response option.

**COMMUNICATIONS**: PWSRCAC noted several communications concerns primarily regarding the fact that in a major response there will not be enough VHF frequencies available for all the on-water response task forces.

Specific concerns include:

**Use of frequencies**: In a nearshore exercise on September 22, 2004, two strike teams were deployed and five VHF channels were used for various parts of the operation. In a major response, as many as 45 strike teams could be in operation, and this would quickly clog VHF communications. One improvement was noted during an exercise in 2004 in which strike team vessels worked the deployments off the deployment barge on their strike team frequencies rather than designating another frequency for the barge deck.

**Boom deployment:** It has been observed in several boom deployments involving fishing vessels, particularly from Barge 500-2, that there is not a consistent communication protocol between the barge and fishing vessels. Occasionally the fishing vessel has been observed maintaining strain on tow lines while barge deck crew were working on the boom reel, creating the potential for a serious accident. A watch needs to be maintained to monitor the vessel and the deployment crew constantly. Also, voice commands and hand signals should be standardized.

**Transrec formations**: Often the tug captain controlling the barge holds the command. However, this operator cannot see the boom apex or the position of the skimmers within the boom. A watch should be maintained and commands given from a position at the stern of the barge in order to ensure the proper positioning of boom and skimmers.

In an effort to develop objectives for evaluating open-water exercises, communications were addressed with specific goals identified and to be included as objectives and evaluation criteria in future exercises.

**OFFSHORE RESPONSE**: An exercise on August 8, 1996 demonstrated offshore capabilities outside Prince William Sound. The exercise occurred on a very calm day near Seal Rocks and as a result did not give any realistic picture of offshore capabilities. Questions raised from that exercise include:

1. The choice of Vikoma Ocean Boom and whether it was adequate for offshore work considering North Sea operators have abandoned it in favor of the RO 3500 which is larger, stronger, and takes less tending.

2. De-rated capacities of barges to meet offshore manning requirements.

3. Effectiveness of electronic communications equipment to reach the operating units.

In 1998, SERVS took delivery of two NOFI 1000 boom systems for use with the Transrec barges. These appeared to be more suitable booms for offshore work and for helping with barge control. These booms were being refined before adding them to the SERVS inventory. To date, these have not been observed in use. In 2001, SERVS did one mobilization drill that sent a barge from Port Valdez to Hinchinbrook Entrance to test its response time.

**TECHNIQUES**: Much of the strategy and techniques appear to be rigid according to the contingency plan. Worldwide, techniques and strategies differ and training for supervisory personnel should include instruction in techniques employed by other Oil Spill Response Organizations (OSROs). For example, during an exercise in Chenega in 1997, a standard technique used by Clean Coastal Waters was attempted and appeared to work with fishing vessels and the landing craft *Krystal Sea*. Considering the constantly fluid nature of an oil spill response, supervisors should have as many strategies and techniques as possible available to them. There have recently been two large developments in the area of oil spill response strategies and techniques. These include a work group comprised of PWSRCAC, ADEC, SERVS, and representatives from the Response Planning Group (RPG) formed to assess response strategies used in the nearshore response arena. Additionally, a statewide Tactics Work Group has been formed and is working towards developing a handbook of alternate response techniques to be used throughout Alaska.

**MATCHING FISHING VESSELS AND EQUIPMENT**: For many years fishing vessel operators have suggested SERVS match equipment with individual vessel hydraulic systems rather than place a power pack on the deck of each vessel. This past year has seen the introduction of a compatible hydraulic oil in the SERVS equipment that can be used with other types of hydraulic systems. This is to make potential use of vessel hydraulic systems and not be so reliant on the SERVS power packs.

**EXCLUSION BOOMING**: The contingency plan shows exclusion booming of a bay with the boom straight across the mouth or with two layers of boom. As tidal currents generally move in and out parallel to the lay of the bay, this puts the boom directly perpendicular to the flow and, as experience in previous exercises has shown, causes entrainment, allowing oil into a bay that is being protected. The development of Geographic Response Strategies is an ongoing project in which PWSRCAC is very involved. Strategies are developed to protect specific bays and sensitive areas. Exercises are then conducted to test boom deployment strategies. Following these deployments, protection strategies may be modified if necessary to ensure areas can be protected to the greatest extent possible.

**BOOM TOWING DIRECTION**: Beginning in 1993, several reports mentioned vessels towing boom into the wind. This causes splash-over and entrainment. Several times it had been suggested boom be towed downwind, but this has not been demonstrated to any degree in subsequent exercises. Tugs have more difficulty controlling barges towing downwind than they do towing upwind. This was observed in a 2002 exercise, and as expected, the new PRT and ETT tugs were able to maintain a steady, almost static barge position no matter what the current. However, fishing vessels towing the boom downwind experienced difficulty maintaining the formation and tended to overtake the barge because of higher towing speeds necessary to maintain the shape of the boom.

**ENTRAPMENT MODULE DEFLECTION BOOMS**: Booms directing floating oil into a nearshore area for skimming over the past several exercises have been difficult to maintain as they tend to belly, collect oil, and then entrain, allowing oil to pass behind the boom. These booms generally are anchored at the shoreline and offshore. Live dynamic deflection with two vessels holding the boom has been shown to maintain shape and better serve to keep oil away from nearshore areas. This is an important issue and will continue to be monitored by the PWSRCAC drill monitor.