An aerial photograph showing two large vessels in a turbulent sea. The vessel on the right is a red and white tugboat, while the vessel on the left is a dark-hulled cargo ship. The water is dark blue with white foam from the waves. In the background, a rugged, rocky coastline is visible under an overcast sky. The entire image is framed by a thick blue border.

U. S. Coast Guard – MSO Anchorage
510 L. Street, Suite 100
Anchorage, Alaska 99501

M/V Selendang Ayu Incident After Action Review

July 31, 2005

“Nature encourages no looseness, pardons no errors.”

-- Ralph Waldo Emerson

Consulting Services Provided by:

**Wood & Associates – Anchorage, AK
Bill Wood and Joe Stam, Project Consultants**

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NOTICE

Wood & Associates derived the information to support this report primarily from interviews conducted with U. S. Coast Guard, Anchorage Marine Safety Office (MSO) staff and others from responding organizations, and from analyses of Coast Guard planning and incident documentation.

We believe all to whom we spoke were being honest and forthright, and shared their comments with the intent of helping the USCG evaluate response plans, objectives, and results. We found the documentation comprehensive, and to the best of our knowledge it accurately reflects the Coast Guard's involvement on the incident. Therefore, based on mutual good faith efforts, we feel it is reasonable for the Coast Guard to rely on this report to document how prepared the Anchorage MSO was to respond to this incident.

Because of the subjective nature of the project, Wood & Associates is not responsible for errors or omissions in this document, or for the decisions made or results obtained from the use of this information.

This report is considered confidential. It is intended solely for internal USCG's use to determine the extent to which they met area contingency and incident response plans and what policies, procedures, and practices they may choose to use at some future time.

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I. Executive Summary

"The effectiveness of our planning is reflected in the mirror of our experience."

-- Anon.

1 AAR Project Scope and Approach

Wood & Associates was engaged to complete an After-Action Review (AAR) of the USCG MSO Anchorage response to the M/V *Selendang Ayu Incident*. The scope of work was to determine the extent to which the MSO met response plan objectives, for the period December 7, 2004 to February 13, 2005, and to document lessons learned.

The consultants analyzed data, conducted over 15 interviews, gathered response operations information, and summarized lessons learned.

The remainder of this report describes how the response plan core components were exercised and includes information to fulfill a portion of the On-Scene Commander requirement of 40 CFR 300.165.

2 Response Criteria

The National Preparedness for Response Exercise Program (PREP) is a multi-agency program to exercise and evaluate government Area Contingency Plans and industry Spill Response Plans. The exercise program represents minimum guidelines for ensuring overall preparedness within the area's response community. Whether exercised or used in response to an actual incident, the Coast Guard views the program as an opportunity to evaluate and improve its response plans and the response system.

The chart on the next page represents, in the professional opinion of the project consultants and based on supporting information contained within this report, whether the USCG demonstrated the ability to meet the PREP criteria. The chart also includes areas for improvement identified by both the USCG and the consulting team.

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PREP Criteria Summary

Criteria	Demonstrated Ability ¹	Lessons Learned ²
1. Notifications	X	
2. Staff Mobilization	X	
3a. Unified Command	X	
3b. Response Management System:		
Operations	X	X
Planning	X	
Logistics	X	X
Finance	X	X
Public Affairs	X	
Safety Affairs	X	X
Legal Affairs	X	
4. Source Control	X	
5. Assessment	X	
6. Containment	X	
7. Recovery	X	
8. Protection	X	
9. Disposal	X	
10. Communications	X	X
11. Transportation	X	
12. Personnel Support	X	X
13. Equipment Maintenance & Support	X	
14. Procurement	X	
15. Documentation	X	

¹ Evidence of these criteria being met was taken primarily from incident documentation provided by the USCG-Anchorage MSO, interview information, and materials provided by Alaska Department of Environmental Conservation.

² Details follow in the body of the report.

II. *M/V Selendang Ayu* Incident Overview³

On December 7, 2004 at 0400, the *M/V Selendang Ayu*, a 712' bulk carrier carrying a cargo of soybeans, notified the Dutch Harbor Harbor Master, who relayed the message to Marine Safety Detachment (MSD) Unalaska, that they had lost power and were adrift about 27 NM Northwest of Bogoslov Island. The vessel had a crew of 26 members and reported no injuries. Local weather at the time was 30-40 knot winds, seas at 20-25' and blowing snow. The vessel had been adrift for 13 hours before MSD Unalaska was notified, and was drifting at 2.5-3.5 knots.

Upon receiving the initial call, the MSO Anchorage command conducted a conference call with MSD Unalaska, and the decision was made to deploy a tugboat to the scene. At 0810, MSO Anchorage executed a Basic Ordering Agreement with Magone Marine to deploy the tug Redeemer, which departed Unalaska at 1100. Following the meeting, MSO Anchorage implemented an ICS organization at the unit, accessed the Oil Spill Liability Trust Fund, and began notifying stakeholders. MSO Anchorage maintained regular communications with the CG District 17 Command Center, which was tracking the vessel, to determine the condition and location of the vessel and prepare for a possible grounding on Bogoslov or Unalaska Island.

At 1315, MSO Anchorage deployed 4 personnel to Unalaska to establish an Incident Command Post. At 1330, a meeting was held at the MSO among the Federal On Scene Coordinator (FOSC); State On Scene Coordinator (SOSC); US Fish and Wildlife Service (USFWS); Alaska Chadux Corporation, an Oil Spill Removal Organization (OSRO); and Pacific Rim Logistics, a spill management team, both of which the Responsible Party hired to respond to the potential grounding. At 1500, MSO Anchorage conducted a teleconference with the CG District Seventeen commanders for Marine Safety, Operations, and Office of Search and Rescue. The purpose of the call was to discuss plans for evacuating the crew of the drifting freighter, likely grounding locations given the vessel's current set and drift, and contingencies for oil spill response. (The FOSC met with agencies and contractors again at 1700 to discuss the latest developments in the incident, resources at risk, and possible contingencies.)

By 2035, two commercial tug boats, the Redeemer and Sydney Foss, and the USCGC ALEX HALEY were on scene, and an additional tug was standing by in Dutch Harbor. Two USCG H-60 Jayhawk Helicopters from Air Station Kodiak were standing by in Cold Bay. At 2040, the tug Sydney Foss took the *M/V Selendang Ayu* under tow.

At 0740 on 8 Dec, the tug Sydney Foss reported that the tow cable had parted. A

³ This information was compiled from original USCG logs and reports; pictures and timelines were acquired from USCG and ADEC Power Point Presentations.

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third tug, the James Dunlap, was on-scene but unable to establish tow due to severe sea conditions, leaving the tug's deck awash. At 1402, the Coast Guard began evacuating non-essential crewmembers to the USCGC Alex Haley and Dutch Harbor airport via helicopter. At 1525, after multiple attempts to take the freighter under tow, the vessel was anchored about ½ mile off the coast of Unalaska Island. At 1740, the anchors appeared to be dragging and the USCG began to evacuate the remaining crew.

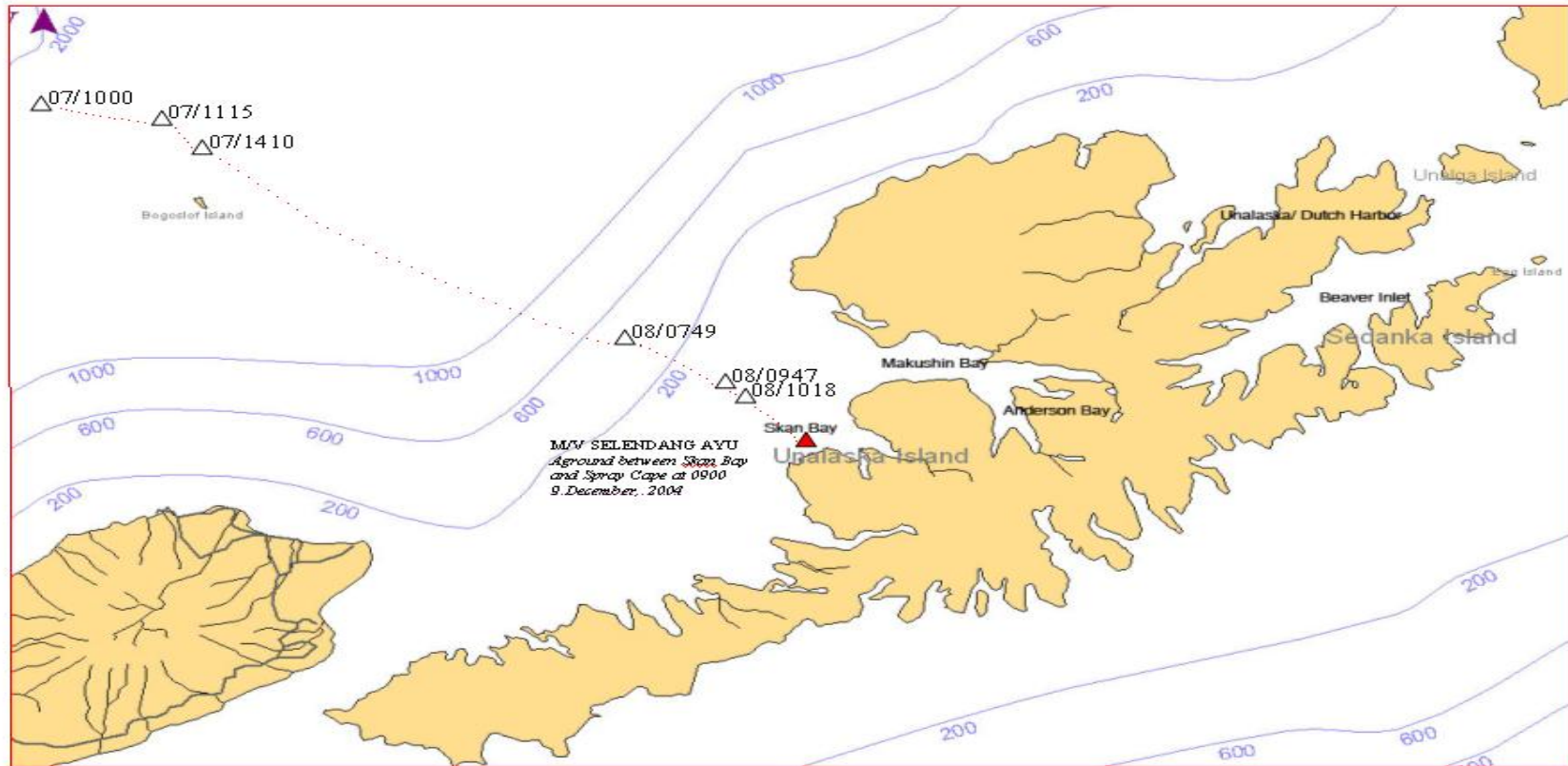
Weather conditions at the site of the grounding were severe, with 40-knot winds, 22-foot seas, and temperatures hovering just below freezing. At 1823 a USCG Jayhawk helicopter crashed during rescue operations with ten persons on board. Three CG helicopter personnel and one vessel crewmember were rescued; six M/V Selendang Ayu crewmembers were lost at sea.



At 1914 on 8 Dec, the heavy seas and wind washed the *M/V Selendang Ayu* aground on Unalaska Island between Skan Bay and Spray Cape. Shortly thereafter, the vessel broke in half amidships.



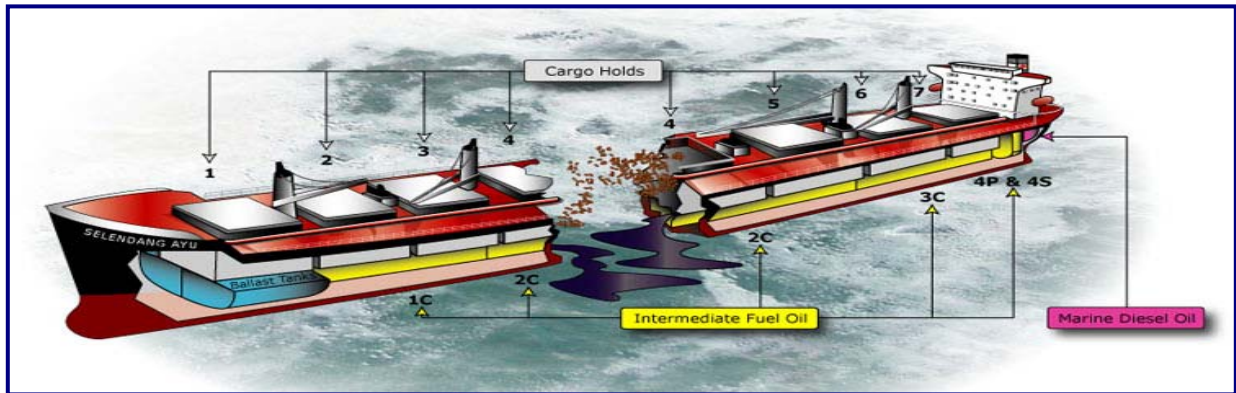
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- 0400 Dec 7: CG is notified that *M/V Selendang Ayu* had lost engine power and is drifting towards Unalaska Island.
- 0740 Dec 8: Tug *Sydney Foss* reports breaking a tow cable in an attempt to tow the freighter.
- 1525 Dec 8: *M/V Selendang Ayu* has drifted into shallow water off Skan Bay and has dropped anchor.
- 1740 Dec 8: Anchor fails to hold and Coast Guard begins evacuation of remaining crew.
- 1823 Dec 8: Coast Guard rescue helicopter crashes with ten persons aboard.
- 1914 Dec 8: *M/V Selendang Ayu* breaks in two, pounded by heavy seas.

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The M/V Selendang Ayu was carrying a cargo of 3 million cubic feet of soybeans, approximately 446,280 gallons of Intermediate Fuel Oil (IFO), 21,058 gallons of Marine Diesel Oil (MDO), and 10,515 gallons of miscellaneous engine oils.



At 1815 on 8 Dec, the Unified Command was established at an Incident Command Post in the Grand Aleutian hotel in Dutch Harbor. As soon as the Unified Command was in place and the Incident Management Team staffed, plans were developed to initiate beach and wildlife assessments, shoreline and wildlife protection, response logistics, beach clean up, mitigation, and waste management.



On February 13, 2005, with the most critical and immediate incident objectives met, the Unified Command suspended clean-up activities and implemented the Winter Operations Plan, which primarily consisted of monitoring the condition of the shipwreck and preparing for spring shoreline assessment and clean-up operations. At the conclusion of the initial



clean-up phase, approximately 70% of gross oil contamination had been removed from beaches identified as a priority for cleaning, 142,121 gallons of contaminated fuel and oil had been successfully lightered from the wreck, and approximately 639 cubic yards of oily waste was removed from the beaches. Spring and Summer operational plans include resumption of SCAT surveys, cultural resource protection, waste management, fisheries water quality sampling, and other related activities as warranted.

III. Resources at Risk and Economic Impacts

- A. *Resources at Risk:* The spill impacted shorelines within the Alaska Maritime National Wildlife Refuge and other environmentally sensitive areas, including marshes and anadromous streams. Several species of marine mammals were at risk, including stellar sea lions, harbor seals, and sea otters. The spill posed a potential threat to numerous species of birds and water fowl,

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including common murre, crested auklets, horned grebes, pelagic cormorants, and long-tailed ducks. There was also a risk for oiling of shellfish.

B. *Economic Impacts:*

1. Natural Resources – The Bering Sea Snow Crab fishery opened on 15 Jan 05 and closed on 20 Jan 05, with a harvest of 20.9 million pounds. Crab vessels store their crab in fish holds that utilize re-circulating sea water. Prior to the 2005 season, crab boats returning from the Bering Sea would generally anchor in Unalaska Bay while waiting to offload their catch at a seafood processing facility. Tar balls were discovered in Captain's Bay on 12 Jan 05, heightening concerns that oil could enter a vessel's crab hold and contaminate the catch.

The area from Cape Kovrizhka south to Spray Cape was closed to all commercial fishing, except halibut fishing, from the time the incident occurred until 7 Oct 05. The State required mandatory inspections of all halibut caught within this area.

Subsistence resources, including fish and shellfish, in Skan, Makushin, and Pumicestone Bays and surrounding areas were at risk of becoming contaminated.

2. Response Costs -- USCG costs through 13 Feb 05 were over \$5.6 million. Overall response costs through mid-February were \$40-60 million, which does not include the vessel value, salvage costs or cost recovery.



- Makushin Bay closed to all fisheries.
- State of Alaska Zero Tolerance Policy.
- Seafood Inspection procedures.
- Recommended track lines for Commercial Vessels entering and exiting Unalaska Bay.
- Sport and Subsistence fisheries are also impacted.
- Safety zone established around the site.

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In the AAR team's opinion, three issues helped to mitigate resource risks and economic impacts:

- The isolated location of the incident.
- The Unified Command's ability to quickly respond on-scene with a variety of control, assessment, and clean-up capabilities.
- The Unified Command's ability to implement a region specific oil spill contingency plan and related incident management systems.



IV. Evaluation of PREP Criteria

"Men are wise in proportion, not to their experiences

but in their capacity to learn from their experiences."

-- Paraphrase of George Bernard Shaw

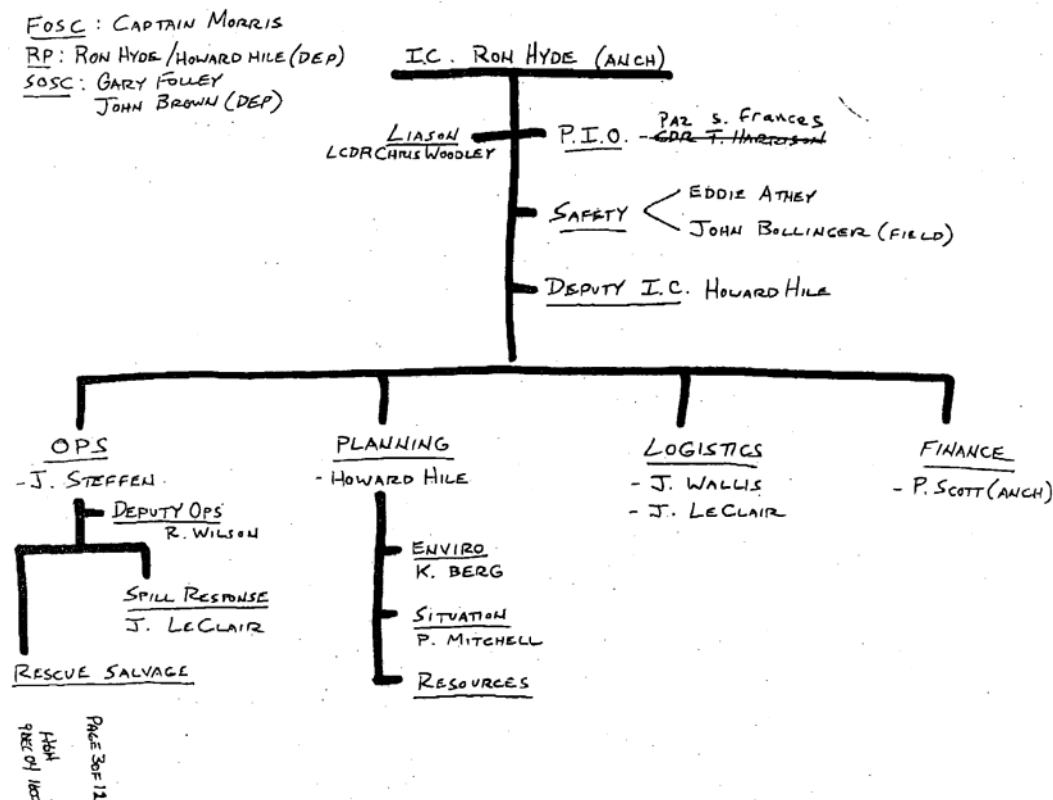
1. **Notifications:** Test the notifications procedures identified in the Area Contingency Plan and the associated Responsible Party Response Plan.

Discussion: Marine Safety Detachment Unalaska was notified at 0400 on 7 Dec 04 that the vessel was dead in the water, and by 1010, MSO Anchorage had made initial notifications to all appropriate parties as outlined in the Aleutians Subarea Contingency Plan and MSO Anchorage oil spill response procedures. The early morning time period somewhat delayed notifications, as CG and other agency personnel were arriving to work. As the situation evolved and its gravity became more apparent, additional parties were notified.

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2. **Staff Mobilization:** Demonstrate the ability to assemble the spill response organization identified in the Area Contingency Plan and associated Responsible Party Response Plan⁴.

Discussion: MSO Anchorage recognized the potential for a serious oil spill upon being notified that the freighter was dead in the water and immediately began mobilizing a response as outlined in the Aleutians Subarea Contingency Plan. MSO Anchorage formed a small incident command organization in Anchorage and established a Joint Information Center (JIC) to handle the anticipated media interest. Contact was made with the Responsible Party and their Alaska based logistics contractor, Pacific Rim Logistics (PRL). Coast Guard, state, and other agency personnel and Alaska Chadux Corporation (Oil Spill Response Organization (OSRO) contractor) mobilized in Dutch Harbor on 7 Dec 04 to establish an ICP and begin other related preparatory work in the event the M/V Selendang Ayu grounded. The first Incident organization Chart, created 9 Dec 04, is shown below.



⁴ The M/V Selendang Ayu was a non-tank vessel on innocent passage through U.S. waters and therefore was not required to have a Vessel Response Plan under Federal regulations in place at that time.

3. Ability to Operate within the Response Management System Described in the Plan:

3.1 Unified Command: Demonstrate the ability of the spill response organization to work within a unified command.

Discussion: A Unified Command (UC) was established on 7 Dec 04 consisting of the FOSC (Commanding Officer, MSO Anchorage), SOSC (ADEC), and the Responsible Party Incident Commander (Gallagher Marine Services). The UC immediately started to develop incident objectives and engaged the OSRO to provide oil spill response should the vessel run aground. The initial incident objectives were:

- Safety of the crew and vessel.
- Prevent the discharge of oil from the vessel.
- Track the location of the vessel.
- Update Federal and State agencies and stakeholders.
- Protect the environment.



The UC started the process of placing resource orders for personnel, equipment, supplies, and related pollution response resources to be staged in Dutch Harbor. At this point in time there was no spill and the hope was that the vessel could still be taken under tow and a spill averted. After the vessel went aground and broke in two, the UC continued to develop the IMT organization in order to respond to the resultant fuel oil spill. An Incident Action Plan (IAP) was developed in stages as the situation

and on-scene needs dictated. The first complete IAP was produced and utilized for the operational period starting at 0800 on 10 Dec 04.

3.1.1 Federal Representation: Demonstrate the ability to consolidate the concerns and interests of the other members of the unified command into a unified strategic plan with tactical operations.

Discussion: As per the Unified Plan, the CO of MSO Anchorage is pre-designated as the Federal On-Scene Coordinator (FOSC) for oil discharges in the coastal zone. The FOSC also represented the interests of and received technical assistance from the US Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration (NOAA), and the National Weather Service (NWS). The FOSC also coordinated involvement by cooperating federal agencies, namely the FBI and National Transportation Safety Board (NTSB), who were not directly involved in the response but were conducting investigations of the incident.

3.1.2 State Representation: Demonstrate the ability to function within the unified command structure.

Discussion: As per the Unified Plan, the State On-Scene Coordinator (SOSC) was pre-designated by the Commissioner of ADEC for the response area. The SOSC also represented the interests of and received technical assistance from the Alaska Department of Fish and Game and Department of Natural Resources.

3.1.3 Local Representation: Demonstrate the ability to function within the unified command structure.

Discussion: The Unified Plan states that Local On-Scene Coordinators (LOSCs) are normally part of the Unified Command as long as there is an immediate threat to public safety and/or the incident occurs within their local jurisdiction. Because the discharge occurred in a remote region off the coast of Unalaska Island, approximately 50 nautical miles from Dutch Harbor, there were no immediate threats to public safety. The incident occurred in state waters, outside of local jurisdiction. Therefore, the local government did not serve on the Unified Command. However, local interests were brought to the attention of the Unified Command by the Liaison Officer and through other avenues, including public meetings and regularly scheduled teleconferences with landowners.

3.1.4 Responsible Party (RP) Representation: Demonstrate the ability to function within the unified command structure.

Discussion: The Responsible Party, IMC Shipping, contracted with Gallagher Marine Services (GMS) to provide a spill management team. As per the Unified Plan, because the RP was responding and had adequate resources to dedicate to the containment, control, and cleanup effort, the UC designated the Responsible Party On-Scene Coordinator (RPOSC) to act as the Incident Commander (IC).

3.2. Response Management System: Demonstrate the ability of the response organization to operate within the framework of the response management system identified in their respective plans.

Discussion: The Aleutian Subarea Contingency Plan stipulates three staffing levels as benchmarks in the ramp up process to a full oil spill response. The response organizations met or exceeded all three of these timelines by taking a proactive approach to the *potential* for an oil spill if the M/V Selendang Ayu ran aground.

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The contingency plan states:
"The **Initial Response Team** (Hours 0-6) will consist primarily of first responders who will carry out initial response actions."
MSD Unalaska and MSO Anchorage completed required notifications

Coast Guard and commercial vessels stationed on-scene provided information concerning the freighter's status and environmental conditions through their respective

established channels, which was then passed to MSO Anchorage. MSO Anchorage established an ICS organization in Anchorage, advised the Responsible Party of their legal requirement to initiate recovery actions, and briefed the federal, state, and local government agencies and natural resource trustees regarding the spill status and ramp up procedures.

The contingency plan states: "The **Transitional Response Team** (Hours 6-96) will form as additional personnel arrive on-scene and ICS functions are added." The response organization continued to mobilize personnel and equipment to Dutch Harbor and established the RP's logistics contractor, Pacific Rim Logistics (PRL), satellite office in Anchorage to provide logistics support to the response effort. The JIC was established and first functioned at MSO Anchorage. The decision was made to move it to PRL's rented satellite office where logistics were being coordinated due to a lack of adequate space at the MSO and to prevent conflicts with routine MSO business. The ICP was established in Dutch Harbor during this time, and the UC mobilized in Dutch Harbor and began staffing the ICP, continued to develop response objectives, and created the first Incident Action Plan (IAP).

The contingency plan states: "The **Full Response Team** (by Hour 96) will be complete when full ICS staffing levels have been reached. Qualified personnel within the ICS will identify resources and equipment necessary for an effective response." The response organizations were in place and the basic structure of a full response team was organized and on site by Hour 96.

Each section of the Incident Command was staffed by Federal, State, and RP personnel, which promoted representation of the best interests of each of the three separate entities.

3.2.1 Operations: Demonstrate the ability to coordinate or direct operations related to the implementation of action plans contained in the



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respective response and contingency plans developed by the unified command.

Discussion: The operations section contributed to the preparation of the ICS-204 forms contained within the IAPs and operational plans, ensuring that the plans could be realistically executed using available resources.

During the height of the response, the operations section included a salvage group, spill cleanup branch, dispersant group, near shore group, offshore group, shoreline recovery group, protection group, and vessel support group.

3.2.2 Planning: Demonstrate the ability to consolidate the various concerns of the members of the unified command into joint planning recommendations and specific long-range strategic plans. Demonstrate the ability to develop short-range tactical plans for the operations division.

Discussion: The first Incident Action Plan (IAP) was implemented for the operational period of 0800 10 Dec to 0800 11 Dec. The unified command continued to maintain a 24 hour operational period until 26 Dec, when the period was increased to 3 days. The IAPs were prepared by the planning section, following standard ICS procedures.

The first IAP included plans for deploying boom; staging for and commencing skimming operations; and conducting overflights to observe the status of oil dispersion throughout Skan and Makushin Bays and provide the salvage team with an opportunity to view the condition of the grounded freighter.

Plans were developed as the situation evolved, including a Site Safety Plan; Dead, Oiled Wildlife Handling Protocol; Waste Management Plan; Medical Plan; Salvage Plan; Recovered Oil Disposal Plan; Cultural Resource Policy; and Crew Recovery Policy. A winter operations plan was approved by the Unified Command prior to standing down from the emergency response phase.

The environmental unit included a water sampling group; shoreline oiling assessment task force; and technical specialists such as the NOAA Scientific Support Coordinator and historic properties specialist.

3.2.3 Logistics: Demonstrate the ability to provide the necessary support of both the short-term and long-term action plans.

Discussion: The logistics section consisted of a support branch, services branch, and Anchorage logistics unit. The support branch included a supply unit, facilities unit, air transportation unit, vessel support unit, ground support unit, and waste management unit. The services branch provided information technology support to the ICP. The Anchorage logistics unit consisted of PRL and Coast Guard personnel that ordered supplies and

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coordinated the transportation of personnel and equipment to and from Dutch Harbor.

3.2.4 Finance: Demonstrate the ability to document the daily expenditures of the organization and provide cost estimates for continuing operations.

Discussion: The finance section tracked costs and maintained contracts associated with the response. The Coast Guard initially provided finance specialists from the Pacific Strike Team and National Pollution Funds Center to assist in tracking Coast Guard costs. This function later was transferred to MSO Anchorage.

3.2.5 Public Affairs: Demonstrate the ability to form a joint information center (JIC) and provide the necessary interface between the unified command and the media.

Discussion: A JIC initially mobilized at MSO Anchorage, and later re-located to PRL's satellite office in Anchorage. Public Affairs specialists from the Coast Guard, ADEC, and RP also mobilized at the ICP in Unalaska to assist in coordinating press conferences, collecting photographs and information from on-scene, and preparing press releases.

3.2.6 Safety Affairs: Demonstrate the ability to monitor all field operations and ensure compliance with safety standards.

Discussion: The Responsible Party provided a Safety Officer, who developed a Site Safety Plan. The Assistant Safety Officer position was staffed by Coast Guard personnel, who helped to ensure compliance with federal regulations and Coast Guard safe work practices.

3.2.7 Legal Affairs: Demonstrate the ability to provide the unified command with suitable legal advice and assistance.

Discussion: Each member of the Unified Command relied on their respective agency or company's legal office. The FOSC received legal assistance from CG District 17.

4. Source Control: Demonstrate the ability of the spill response organization to control and stop the discharge at the source.

Discussion: A major release of oil product occurred immediately following the grounding and subsequent break-up of the M/V Selendang Ayu. Due to

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inclement weather conditions that made the wreck inaccessible, responders were unable to prevent this initial release.

4.1 Salvage and 4.3 Lightering: Demonstrate the ability to assemble and deploy salvage/lightering resources identified in the response plan.

Discussion: On 15 Dec 04, SMIT Americans, Inc, was contracted to remove the remaining fuel oil from the freighter's stern section. Portions of the vessel's superstructure were removed to allow a small helicopter to transport salvage personnel and equipment onboard. Fuel was pumped from the vessel's tanks into 2,000-gallon fuel storage isotanks, which were flown by a Chinook heavy-lift helicopter to a former quarry site in Dutch Harbor. Approximately 125,228 gallons IFO; 11,293 gallons MDO; and 5,600 gallons miscellaneous engine oils were lightered off the vessel.

Lightering



5. Assessment: Demonstrate the ability of the spill response organization to provide an initial assessment of the discharge and provide continuing assessments of the effectiveness of the tactical operations.

Discussion: MSO Anchorage began assessing the potential of an oil spill before the M/V Selendang Ayu grounded. The NOAA Scientific Support Coordinator (SSC) was contacted at 1125 on 7 Dec 05 and asked to make an initial assessment of resources at risk. The SSC issued an initial spill trajectory analysis and a resources-at-risk assessment report on the afternoon of 7 Dec 05.



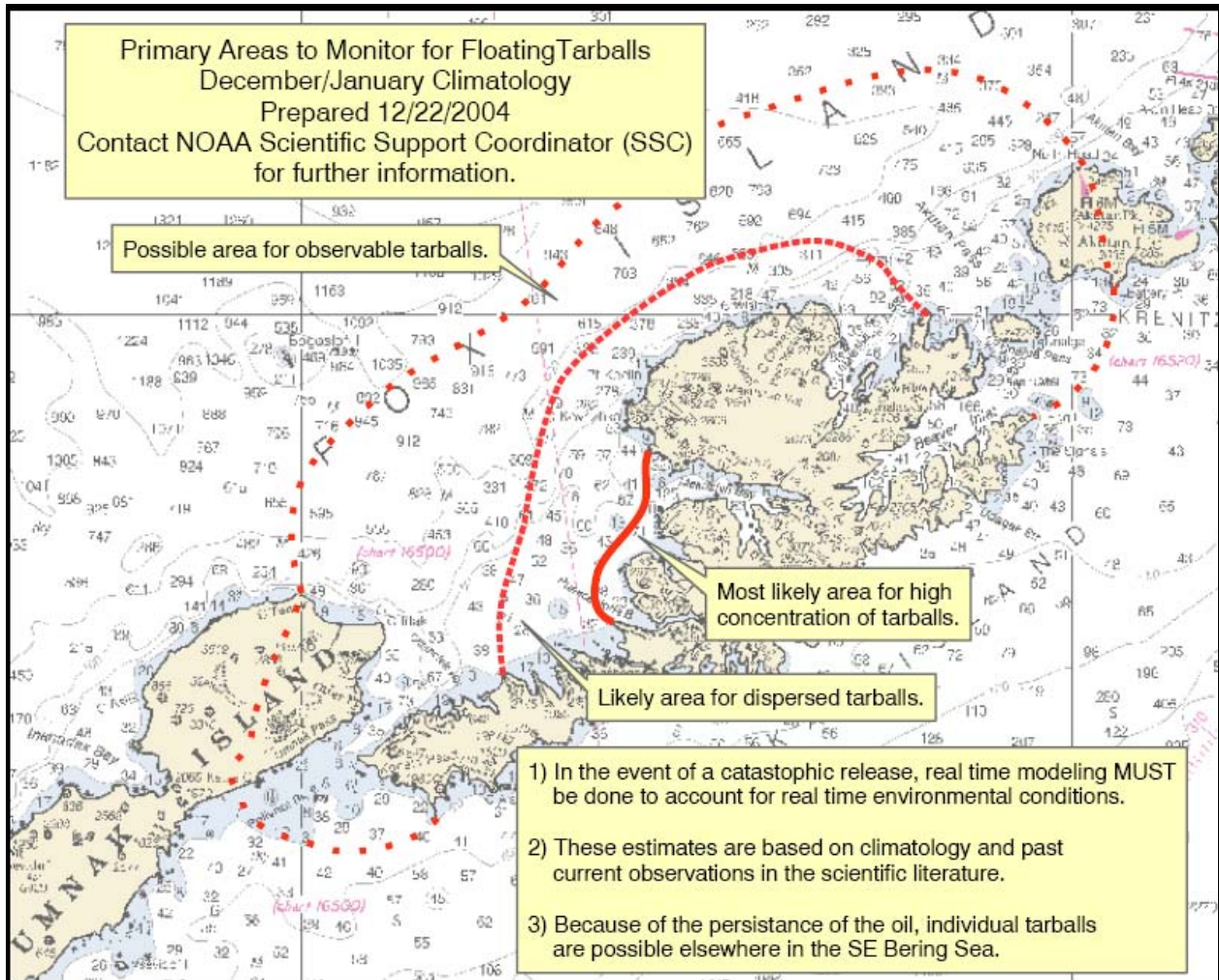
USCG vessels and aircraft on-scene provided reports of oiling and weather observations to District 17, who relayed this information to MSO Anchorage. On 10 Dec, commercial aircraft and



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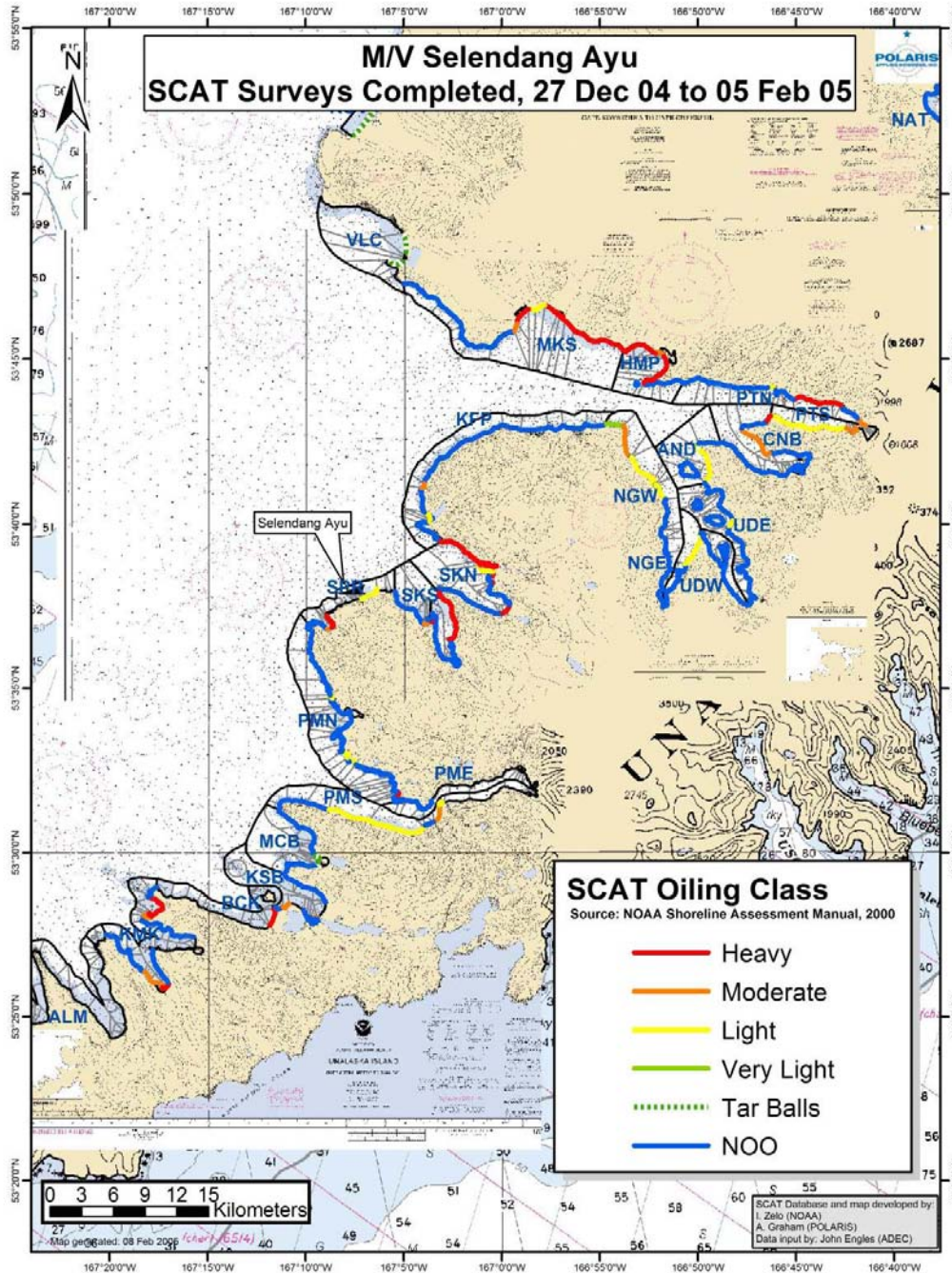
vessels contracted by the RP for clean-up were on-scene and began to provide oiling observations to the Unified Command.

On 22 Dec 05, the NOAA SSC provided a trajectory analysis of the likely movement of tarballs in the vicinity of Unalaska Island, which is shown below.

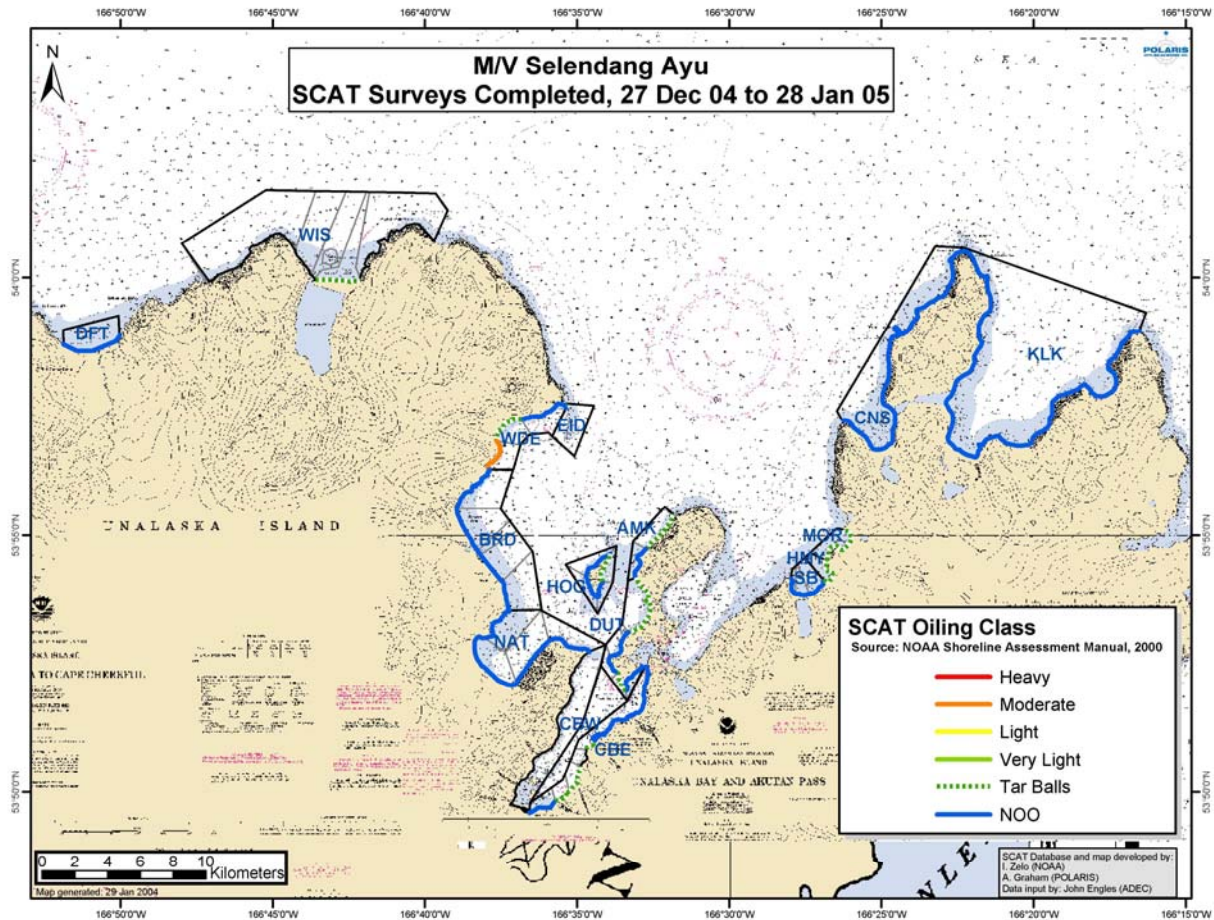


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Shoreline Clean-up and Assessment Technique (SCAT) teams, consisting of representatives from NOAA; USCG; ADEC; and Polaris, the RP's environmental consulting team, conducted initial shoreline segment surveys on heavily impacted and sensitive areas from 27 Dec 04- 5 Feb 05 to identify high-priority clean-up areas. Maps indicating the extent of observed oiling are shown below and on the following page.



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6. **Containment:** Demonstrate the ability of the spill response organization to contain the discharge at the source or in various locations for recovery operations.

Discussion: Severe weather conditions on site precluded containment activities at the discharge source. Pre-deployment of protective boom and other oil spill response equipment was initiated before the spill occurred.

7. **Recovery:** Demonstrate the ability of the spill response organization to recover, mitigate, and remove the discharged product. Includes mitigation and removal activities (e.g. dispersant use, in situ burning, and bioremediation).

Discussion: The UC obtained approval for the use of dispersants and in situ burning through state and federal permitting processes. These activities were field tested, prepared and staged; however, neither activity was utilized

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on this spill. Very little skimming was accomplished because of the severe weather, properties of the oil, and rough sea conditions. Protective booming was placed in sensitive areas to prevent further contamination. Shoreline clean up activities were initiated on 16 Dec 04 and continued through the conclusion of the emergency phase. Shoreline clean-up techniques used during this time period included mechanical removal of tar patties and oiled sediment and cutting and removal of oiled vegetation. At the conclusion of winter operations gross oil contamination had been removed from 70% of beaches identified as areas very likely to have oil remobilized through tidal and wave activity.

"Current Buster"



- 8. Protection:** Demonstrate the ability of the spill response organization to protect the environmentally and economically sensitive areas identified in the Area Contingency Plan and the respective industry response plan.

Discussion: The spill response organization was very proactive in attempting to protect the environmentally and economically sensitive areas threatened by the spill. USCG cutters and contract vessels with oil spill response equipment and capabilities were dispatched to the site, and the RP contracted an OSRO (the Alaska Chadux Corporation) for spill response before the spill occurred.

8.1 Protective Booming: Demonstrate the ability to assemble and deploy sufficient resources to implement the protection strategies contained in the Area Contingency Plan and the respective industry response plan.



Discussion: Contract vessels were able to begin booming sensitive areas on 12 Dec and continued thereafter as conditions allowed until booming of all selected sites was completed. The effectiveness of this protective booming was largely untested, as there were no additional major oil releases from the vessel following the initial discharge.

8.2 Water Intake Protection: Demonstrate the ability to quickly identify water intakes and implement the proper protection procedures from the Area Contingency Plan or develop a plan for use.

Discussion: The unified command identified a risk of tarballs entering the crab holds of fishing vessels returning from the Bering Sea Opilio crab fishery. On 20 Dec 04, ADEC established a work group to address the risk to commercial fisheries, which recommended establishing a water quality sampling program. This program was implemented by the ADEC and RP, and water quality sampling operations were conducted from 25 Dec 04- 24 Mar 05. On 21 Jan 05, the Unified Command released recommendations via Broadcast Notice to Mariners for vessels returning from the Opilio crab fishery, encouraging vessel operators to contact their processors for recommended return routes. The guidance also outlined locations where oil had been detected based on results from the water quality sampling program.

The Unified Command also identified the risk for tar balls to enter seawater intakes of seafood processing plants. The Unified Command met with the plants' operators and informed them of the potential risk. The State of Alaska mobilized extra seafood inspectors to Unalaska to increase the probability of detecting any contaminated seafood product. The water quality sampling program also included measures to detect contamination at the seawater intakes.

8.3 Wildlife Recovery and Rehabilitation: Demonstrate the ability to quickly identify these resources at risk and implement the proper protection procedures from the Area Contingency Plan to develop a plan for use.

Discussion: International Bird Rescue Research Center was contracted to capture and rehabilitate oiled birds. An incident-specific protocol for handling dead, oiled wildlife was developed by the USFWS on 22 Dec 04 to enable all response workers to assist with carcass recovery efforts. R/V Cape Flattery, F/V Norseman, and M/V Exito served as platforms for recovering oiled wildlife and removing oiled carcasses. A total of 29 birds were captured and transported to the Alaska Wildlife Response Center in Anchorage. 10 of these birds were cleaned and released, while 19 died in captivity. At the conclusion of winter operations, a total of 1,606 bird carcasses and 6 oiled marine mammal carcasses were recovered.

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9. **Disposal:** Demonstrate the ability of the spill response organization to dispose of the recovered material and contaminated debris.

Discussion: A Hazardous Waste Disposal Plan was developed, approved by the UC on 17 Dec 05, and effectively implemented and monitored.



Approximately 639 cubic yards of oily solid waste was removed by beach clean-up crews in 4-mil clear visquene bags and stored onboard the response vessels in lined 1-cubic yard supersacks, which were transported to Dutch Harbor in the crab hold of a support vessel. The supersacks were off-loaded at the pier onto flat-bed trucks, where they were transported to a temporary interim waste storage facility at "Agnes Beach." Eventually, the supersacks were transported by barge to disposal facilities in Oregon.

The approximately 125,228 gallons IFO; 11,293 gallons MDO; and 5,600 gallons miscellaneous engine oils that were lightered off the vessel in 2,000-gallon fuel storage isotanks were transported to a former quarry site in Dutch Harbor by Chinook helicopter. The isotanks were then loaded onto flat-bed trucks and transported to the Magone Marine shipyard, where the oil was heated and transferred into temporary storage tanks so that the isotanks could be re-used for transport by helicopter. Eventually, the recovered oil was transported by barge to a disposal facility near Seattle, WA. All liquid and solid waste was tracked and measured by contractor personnel upon arrival in Dutch Harbor and delivery to the waste disposal facility.

10. **Communications:** Demonstrate the ability to establish an effective communications system for the spill response organization.

- Daily public meetings keep locals informed
- Tribal and Native Corporation liaison
- Website gets record number of hits
- National and International media interviews



10.1 Internal Communications: Demonstrate the ability to establish an intra-organization communications system. This encompasses communications at the command post and between the command post and deployed resources.

Discussion: The remoteness of the spill location and lack of communications infrastructure presented difficulties in establishing a communications system between the ICP and deployed resources in Makushin and Skan Bays. Radio repeaters were placed atop several mountains, but were rendered inoperable by high winds and freezing conditions. The IMT utilized a combination of unreliable cell phone coverage, satellite phones, VHF radio, and designation of a command and control vessel to provide a basic level of communication that allowed the implementation of the spill response organization. The USCG Incident Management Assist Team and RP provided the trained technical specialists and equipment to provide a computer network and telecommunications system at the ICP. Internet connectivity was a vital means of communication both within and outside the ICP.

10.2 External Communications: Demonstrate the ability to establish communications both within the response organization and with other entities (e.g. RRT, claimants, media, regional or HQ agency offices, non-governmental organizations, etc).

Discussion: The JIC in Anchorage and the Public Information Officer and assistants in Dutch Harbor coordinated the release of information to the media. The State of Alaska and USCG District 17 established incident websites, which were used to quickly disseminate information to the public. For the first several weeks of the response, the Unified Command conducted daily Public Meetings at the Unalaska Town Hall. Meeting announcements and other important spill response information, including procedures for reporting tar balls and oiled wildlife, were announced on Unalaska's local cable channel. The Unified Command conducted daily teleconferences with affected landowners, including several tribal corporations and the USFWS. The FOSC provided daily updates to appropriate CG units and other agencies via daily Pollution Reports (POLREPS) and Executive Summaries. The SOSC released daily Situation Reports (SITREPs) on the ADEC website. State and Coast Guard personnel at the ICP shared their reports prior to release to ensure consistency of the reported information.

11. Transportation: Demonstrate the ability to provide effective multi-mode transportation both for execution of the operations and support functions.

11.1 Land Transportation: Demonstrate the ability to provide effective land transportation for all elements of the response.

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Discussion: Early in the response, MSO Anchorage assisted in transporting CG personnel and equipment arriving from outside of Alaska to and from the Anchorage airport. Both the CG and RP rented vehicles for shared use by their respective personnel for transportation in Unalaska.

11.2 Waterborne Transportation: Demonstrate the ability to provide effective waterborne transportation for all elements of the response.

Discussion: Skiffs were the primary means for transporting response workers and agency personnel from their berthing vessels to work sites. Skiffs were also sometimes employed by SCAT teams to access beach segments. Two support vessels were used to re-supply the berthing vessels, transport agency monitors between Dutch Harbor and the berthing vessels, and transport recovered oiled solid wastes to Dutch Harbor.

11.3 Airborne Transportation: Demonstrate the ability to provide effective airborne transportation for all elements of the response.

Discussion: Once a resource request was approved by the ICP in Dutch Harbor for mobilizing or demobilizing personnel, PRL purchased airplane tickets or chartered aircraft as needed to transport personnel between Anchorage and Dutch Harbor. PRL worked closely with Pen Air, the passenger airline that serves Dutch Harbor, to make flight arrangements, as available seating was extremely limited due to the small number of daily scheduled flights to and from Dutch Harbor (four), weather delays and cancellations, and the high volume of traffic by employees of the fishing industry. PRL contracted and coordinated the transport of required supplies and equipment by air to and from Dutch Harbor, including Coast Guard equipment.

The RP contracted several commercial air assets, including a Grumman Goose fixed wing aircraft, a Bell 105 3-passenger helicopter, and an Astar 4-passenger helicopter. These aircraft were used primarily for conducting overflights to observe the extent of sheening on the water and oiling of shoreline segments and for transporting agency and PR monitors to and from the work areas.

The salvor, Smit Americas, used a Bell 212 helicopter to transport personnel and equipment to and from the grounded freighter. A heavy lift Chinook helicopter was used to transport isotanks containing recovered oil from the vessel to Dutch Harbor.

Two CG HH-60 and one CG HH-65 aircraft were engaged in the initial search and rescue operations. A CG HH-60 was used for conducting salvage

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assessments. CG aircraft remained on search and rescue stand-by in Dutch Harbor until lightering operations were complete.

- 12. Personnel Support:** Demonstrate the ability to provide the necessary support of all personnel associated with the response.

12.1 Management: Demonstrate the ability to provide administrative management of all personnel involved in the response. This requirement includes the ability to move personnel into or out of the response organization with established procedures.

Discussion: Initial sign-in and demobilization processes were developed for tracking the movement of personnel into and out of the response organization. Each agency and company provided administrative management of its personnel.

12.2 Berthing: Demonstrate the ability to provide overnight accommodations on a continuing basis for a sustained response.

Discussion: Clean-up contractors and agency field monitors were berthed onboard vessels. ICP personnel were lodged in the Grand Aleutian and Unisea hotels and other local establishments. Due to limitations in lodging on Unalaska Island and additional constraints imposed on available accommodations due to the influx of fishing industry employees, the RP managed lodging for all ICP personnel.



12.3 Messing: Demonstrate the ability to provide suitable feeding arrangements for personnel involved with the management of the response.

Discussion: Field personnel received meals onboard their berthing vessels. Several dining facilities were located in Unalaska for use by ICP personnel, including two restaurants inside the hotel where the ICP was established.

12.4 Operational and Administrative Spaces: Demonstrate the ability to provide suitable operational and administrative spaces for personnel involved with the management of the response.

Discussion: The RP contracted a conference room at the hotel in which to hold meetings. Office equipment, including a fax machine and several copy machines, were available in the ICP. The ICP itself was a large, open room without any inner divisions or barriers.

12.5 Emergency Procedures: Demonstrate the ability to provide emergency services for personnel involved in the response.

Discussion: Emergency procedures were developed by the Safety Officer and outlined in the Site Safety Plan, including evacuation procedures for the ICP and beach, skiff, and helicopter operations. In the event of a medical emergency, personnel could be evacuated from work areas by helicopter and transported to Unalaska, where a clinic was available.

13. Equipment Maintenance and Support: Demonstrate the ability to maintain and support all equipment associated with the response.

Discussion: The RP ensured that response equipment was supported and maintained, either by their personnel directly or by contracting for the services. If questions of timeliness or capability arose, the FOSC ordered needed maintenance support or replacement equipment.

14. Procurement: Demonstrate the ability to establish an effective procurement system.

14.1 Personnel: Demonstrate the ability to procure sufficient personnel to mount and sustain an organized response. This requirement includes insuring that all personnel have qualifications and training required for their position within the response organization.

Discussion: The Safety Officer verified that clean-up workers possessed current Hazardous Waste Operations (HAZWOPER) certifications. CG personnel conducted boardings of response vessels to ensure the crews were adequately prepared to respond to contingencies, and that skiff operators and vessel captains were licensed. CG personnel were certified in HAZWOPER and basic ICS.

14.2 Response Equipment and 14.3 Support Equipment: Demonstrate the ability to procure sufficient response equipment to mount and sustain an organized response and the ability to procure sufficient support equipment to support and sustain an organized response.

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Discussion: The RP procured required response and support equipment. When the RP was unable to acquire equipment or services or when the equipment was owned by the CG, the FOSC procured the required items.

- 15. *Documentation:*** Demonstrate the ability of the spill response organization to document all operational and support aspects of the response and provide detailed records of decisions and actions taken.

Discussion: The IMT at Unalaska established a Documentation unit to compile incident documentation. MSO Anchorage also maintained a file of reports, correspondence, and logs generated by the Coast Guard. At the end of the incident period, the RP provided the original documentation package to the FOSC and a copy to the SOSC. Documentation of USCG activities on the spill, including cost documentation and POLREPs, was accomplished in accordance with Coast Guard directives .

V. Key Findings and Lessons Learned⁵

"Experience is a hard teacher: she gives the test first, the lesson later."

-- Vernon Saunders Law

Operations

- Because of the remoteness of the location and the severe weather conditions, at first it appeared that the RP operations section was reluctant to begin clean up operations. The UC stressed to the operations section the importance of commencing clean-up operations and ensured high priority beaches were cleaned.
- The UC decision to utilize a helicopter to lighter oil from the stern portion of the M/V Selendang Ayu resulted in the successful removal of all recoverable fuel and oil from the vessel. Lightering operations were scheduled to commence on 2 Jan 05 and were completed on 2 Feb 05. The heavy lift helicopter was unable to fly on eighteen out of thirty-one days, or 58%, of this time period due to unsafe weather conditions and was unable to fly on an additional day due to mechanical problems. Though the significant weather delays increased the cost of the operation, as well as increasing the risk of additional oil discharges from the vessel, contractor personnel were able to take advantage of some weather delay days to conduct internal transfers and salvage operations required to prepare the isotanks for off-load.
- Some problems were encountered in acquiring needed response equipment from other COTP zones and OSROs because they were reluctant to move equipment out of their area of responsibility. Pre-response, mutual aid agreements, including the identification of types of equipment needed for various types of responses, would help assure needed equipment and other resources are available in the future.



Logistics

- Early in the response, MSO Anchorage issued travel orders to USCG personnel to expedite responders' arrival in Dutch Harbor, enabling a rapid mobilization of CG personnel. Once the ICP was staffed, the request for personnel should have originated from the ICP; instead, some units sent members to Unalaska, unsolicited. Due to limited flight and lodging availability, these extraneous personnel used resources that could have been more appropriately allocated to further response efforts, in addition to creating confusion and unduly burdening the logistics system. Units were also erroneously issuing orders to personnel using MSO Anchorage's travel

⁵ Only summary comments of significant impact to the USCG are included in this section, due to the abbreviated nature of the project timeline and the comprehensive information provided to project staff.

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order number rather than their unit tonnage, necessitating these orders to be cancelled and re-issued before the members could be reimbursed for travel expenses. A third source of resource ordering issues was that CG personnel were making their own flight and lodging arrangements when PRL staff were also making flight and lodging reservations, resulting in flights and hotel rooms being "double-booked." This practice increased expenses for PRL and also needlessly wasted valuable seats on flights and hotel accommodations, already in short supply. These issues could be prevented in the future by mobilizing all personnel through the ICP and educating potentially affected Coast Guard units on the personnel solicitation and travel processes.

- Due to the remoteness of the incident, much of the logistics ordering was conducted from PRL's office in Anchorage. Coast Guard personnel were assigned to PRL to augment their staff and provide expertise concerning Coast Guard procurement and travel processes. In addition, MSO Anchorage created an "Incident Duty Officer" position to assist PRL and coordinate logistics with the ICP in Unalaska. The seemingly redundant roles of the Coast Guard personnel at MSO Anchorage, PRL, and the ICP at Unalaska sometimes created confusion. Roles and their associated tasks need to be more clearly defined.
- The resource ordering process specific to the incident was not made clear to ICP personnel for the first several weeks of the incident. As a result, resource requests frequently needed to be returned to the originator for missing signatures or other required information, delaying the ordering of vital equipment and personnel. In addition, there was no established means for ICP personnel to know when or if their request had been approved; this was especially frustrating when the required item was a personnel relief, as incoming and outgoing personnel were often unaware of their travel status until immediately prior to their travel date. These issues could be prevented in future incidents by ensuring all response personnel are aware of the procedure for completing and routing resource requests and establishing a resource request tracking system.

Safety

- Over the course of the response, field personnel committed some minor safety lapses. Generally, these safety violations were corrected on the spot by field supervisors or Coast Guard and ADEC field monitors. When an agency monitor believed an issue wasn't adequately addressed at the lowest level, the monitor reported the incident to the State or Federal Deputy Operations Section Chief (OSC), who discussed the issue with the RP's OSC. Due to the remoteness of the field operations and the time and logistical constraints in accessing the work sites, the Safety Officer very rarely visited the field, increasing the likelihood for dissonance between the written Safety Plan and the way in which it was executed in the field. The RP's field supervisors and agency monitors were, therefore, crucial in ensuring compliance with the written Safety Plan.

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- The initial Site Safety Plan developed by the RP appeared to be a redraft of a lower 48 plan and was inadequate for this incident. The USCG required that the plan be re-written to address the incident.

Communications

- The Coast Guard Pollution Report (POLREP) System is the established means for disseminating information concerning pollution cases to other Coast Guard units. POLREPs must be transmitted through the Coast Guard Message System; therefore, personnel must have access to the Coast Guard network to release a POLREP message. For the first several weeks of the response, personnel were unable to access the CG network at the ICP and needed to travel to the local Marine Safety Detachment to release the POLREP. This became cumbersome, as the POLREP was being released twice daily, at 0800 and 2000, early in the response, and CG personnel had numerous other responsibilities in addition to the POLREP. Because the POLREP was issued only twice daily, CG personnel from other units frequently called the ICP seeking information that was more current or not contained in the POLREP, placing additional strain on the ability of CG personnel to complete their duties. The earliest possible establishment of the "Web EOC" tool will significantly help resolve this issue.
- During the initial response, the Executive Summary form was used to brief D17 and various State and RP entities. This exacerbated the POLREP situation because it was a request for similar information in a different format and added to the workload of the personnel preparing the POLREPs. The Coast Guard should review its POLREP and ICS system of reports and forms so as to maximize the effectiveness of the reporting system while minimizing the amount of required time and effort.
- D17 implemented the Web EOC program several days after the start of the incident. Some CG personnel were trained and comfortable with using the program, while others were not. There was a limit to the size of a file that could be uploaded onto Web EOC, and so it was not an appropriate means for sharing large files. Due to the slow internet connection at the ICP in Unalaska, the application would sometimes freeze when a user would attempt to upload files. The system also presented redundancies with the Coast Guard D-17 Public Affairs and ADEC incident specific websites, POLREPs, and Executive Summaries. This system and other systems should be evaluated to determine its potential for serving as an information-sharing tool during large-scale incidents; the most appropriate system should be selected, and CG personnel should be trained in its use.
- The IMT was unable to overcome issues surrounding the "hard" communications system. Various options were tried (command and control vessels, mountain top VHF repeaters, cell phone systems, satellite phones, etc.) but the issue was never resolved during winter operations. Using a combination of different technologies, the UC was able to accomplish its objectives. However, the lack of an effective communications system

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between the ICP and response vessels presented safety concerns and made it difficult to conveniently pass reports to and from the field.

Personnel Issues

- The training level appeared adequate for all CG initial responders. Most interviewees had been trained to the I-300 Intermediate ICS level however most had no practical experience to augment their training. It was common to hear the term "trial by fire" in learning how to accomplish their assigned incident duties. Some felt they did not understand the duties of their assigned positions and for that reason did not participate as fully as they could have. The USCG's heightened focus on its Homeland Security (HLS) mission may have had a detrimental impact on oil spill response specific training; however, exercises associated with the HLS mission using ICS will provide USCG personnel an opportunity to gain experience in their ICS positions.
- There were numerous responders from various USCG offices and federal agencies assigned to this incident. The roles of these responders were confusing and at times difficult to track. Role clarity and task assignments need to be more clearly defined so responders and existing field staff better understand work assignments and responsibilities. Continued adoption of ICS by all agency responders will improve coordination in the future.

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VI. Appendices

- A. Project Organization and Staffing
- B. Individuals Interviewed and Documents Reviewed

Project Organization and Staffing

Bill Wood, owner of Wood & Associates an Anchorage-based management consulting firm, served as lead consultant and project manager. Bill has over 25 years of experience facilitating and implementing planning, organizational development and quality assurance systems in various corporations, not-for-profit organizations, and public sector agencies.

He is a recognized expert in strategic business planning, organizational development, project management, and organizational capacity building. Bill is a former manager in the Anchorage office of Price Waterhouse, and was a registered consultant with the World Bank. He provides services primarily in Alaska, Western Canada, and the Pacific Northwest.

Wood & Associates hired *Joe Stam* to provide consulting and technical support on this project. Mr. Stam is a well know incident command and incident management expert with 30 years of incident management experience in Alaska, Western Canada and the lower 48 states.

Joe has national certification and experience as an Area Commander, Type 1 Incident Commander, and Type 1 Operations Section Chief. He was Incident Commander of one of the 16 National Incident Management Teams and has experience in managing all-risk incidents including the Exxon Valdez Oil Spill and the South Central Alaska Flood Incident. In 2001, he led the Alaska Incident Management Team to New York City to assist in management of the World Trade Center Terrorist Attack Incident.

Mr. Stam also has national certification and experience as a NIIMS ICS Instructor and was on the cadre of the National Advanced Resource Technology Center where he instructed courses in advanced incident management. Joe recently retired from the Department of Natural Resources where he was Chief of Fire & Aviation and is now operating Stam Consulting, LLC.

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Individuals Interviewed and Documents Reviewed

Personnel Interviewed⁶

1. Capt Ron Morris (retired)
2. CPO Durden, MSO
3. Dr. John Whitney, NOAA
4. ENS Williams, MSO
5. Gary Folley, DEC
6. John Brown, DEC
7. John LeClair, Chadux
8. LCDR Woodley, MSO
9. LCDR McNutt, MSO
10. Leslie Pearson, DEC
11. LT Farrell, CG District 17
12. LT Gillman, MSO
13. LT Jerome, MSO
14. MST1 Mitchell, MSO
15. Randy Cox, DNR
16. Sam Means, DNR

Documentation Reviewed:

- ADEC and the USCG District 17 M/V Selendang Ayu Incident PowerPoint presentation
- ADEC Situation Reports
- ADEC Website at <http://www.state.ak.us/dec/spar/perp>
- Alaska Incident Management System Guide for Oil and Hazardous Substance Response - November 2002 edition
- Aleutian Subarea Contingency Plan
- Lessons Learned from USCG Anchorage MSO Debriefing and Web-EOC
- M/V Selendang Ayu Incident Action Plans
- M/V Selendang Ayu Events Sequence published by ADEC
- National Preparedness For Response Exercise Program (PREP) Guidelines.
- NIIMS ICS Manual
- PMS 310-1 Wildland and Prescribed Fire Qualification System Guide
- POLREPS #1 - #87
- USCG Anchorage MSO M/V Selendang Ayu Case Books 1 & 2
- USCG Chronological Event Listing for the period 07Dec2004 through 12Dec2004
- USCG Incident Management Handbook, COMDTPUB P3120.17
- USCG Web-EOC Background Data

⁶ Additional individuals were on the initial interview list but were unavailable before the completion of this draft document.