

THE FOSS BARGE 248-P2 OIL SPILL: A CHALLENGE IN SPILL MANAGEMENT

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ABSTRACT

On December 30, 2003, a 4620 gallon spill of heavy oil occurred from the tank barge FOSS 248-P2 as it was loading bunker fuel at the Chevron Point Wells oil storage facility at Shoreline (Seattle), Washington. Under the Northwest Area Contingency Plan (NWACP), a unified command made up of a responsible party Incident Commander (IC) from Foss Maritime, a federal on-scene coordinator (OSC) from the U.S. Coast Guard (USCG), a state OSC from the Washington Department of Ecology, a tribal OSC from the Suquamish Tribe and a local OSC from the Kitsap County Department of Emergency Management (KDEM) formed to manage the spill. A large on-water response force was mobilized but the oil quickly impacted an important environmentally sensitive marsh and beaches owned by both the Suquamish Tribe and the State of Washington. Commercial and recreational shellfish beds, beach sediments, a pristine marsh and high use public beaches were all affected by the spill. A significant four-month cleanup effort occurred on the beaches and marsh to remove the oil. Operational cleanup endpoints were established for the beaches and marsh. Shellfish and sediment sampling and monitoring plans were developed jointly by agency and tribal workgroups. The Suquamish Tribe was placed in the lead for conducting beach surveys under a long term monitoring plan approved by the unified command. The five members of the unified command faced major challenges during the spill due to overlapping federal, state, local and tribal jurisdictions, land ownership disputes, political consequences, cleanup/operational problems, shellfish and sediment contamination concerns, public outreach issues and the inexperience of several agencies involved. This paper will explore the unique challenges faced by the unified command in responding to the spill.

DISCUSSION

Introduction: Shortly after midnight on December 30, 2003, an oil spill occurred from the Foss Barge 248-P2 as it was loading bunker fuel oil #6 from the Chevron Pt. Wells facility near Seattle, Washington. Approximately 4620 gallons of bunker oil spilled into Puget Sound before the oil flow was stopped. Oil initially moved 6 miles south of the facility before traveling about 6 miles to the northwest towards the Port Madison area around noon. By 1:30 p.m., oil had impacted a 1-1/2 mile stretch of cobble and sand beach including the Doe-Kag-Wats estuarine marsh, a critical habitat belonging to the Suquamish Tribe. The affected beach was located in a rural area of Kitsap County near the small community of Indianola. This beach was a popular area for shellfish harvest-

ing, hiking, photography, fishing, youth activities, and tribal uses including cultural celebrations. Active cleanup operations lasted four months followed by five months of longer term monitoring of the affected beaches.

On day 1 of the response, there were 52 people in the on-water skimmer group, 56 people in the on-shore group and 136 people in the command post at the National Response Corporation Environmental Service (NRCES) office at Pt. Wells. Eight on-water skimmers, 13 response workboats, 3 shallow water barges, 5 vacuum trucks and 3 helicopters were employed in the response. About 17,000 feet of boom was deployed at the facility and at 8 locations identified by geographic response plans (GRPs) protecting environmentally sensitive sites. Two large wildlife rescue and rehabilitation trailers owned by Washington Department of Fish and Wildlife (WDFW) and NRCES were set up near the command post to handle birds and other wildlife affected by the oil spill.

Logistics and weather conditions were challenging during the spill. Weather during the first few days of the spill was unusually cold for the Seattle area with temperatures hovering in the 20's followed by 2 days of snow. Rainy, windy conditions were also common in the months of cleanup. Primary access to the impacted beach area was via a small, narrow dirt road that ran through a quiet, rural residential area before passing by a youth camp and finally ending on tribal property. The only other access point was from a boat launch at the eastern end of the impacted beach that provided a staging area for equipment, supplies and personnel.

Initial Response

Initial Containment/Spill Tracking: Two workboats initially launched by Chevron to deploy containment boom around the barge failed to start due to engine problems. After the boats could not be started, NRCES arrived with their own boat and deployed initial containment boom nearly 1-1/2 hours later. This delay in initially containing the oil spill caused the majority of the spilled oil to spread out and move south of the facility with the currents.

Aerial Surveillance: Tracking the movement of the oil at night during the first few hours of the spill was ineffective. Nighttime infrared spill detection (IR) assets or other possible surveillance methods were not considered. As a result, there was no active surveillance of the spill for nearly eight hours until daylight arrived. Winds and current quickly moved the oil south of the spill site during the night. Due to the lack of crew because of the holidays, scheduled maintenance and other factors, there were few commercial helicopters available for directing on-water resources and conducting aerial surveillance. The first helicopter on-scene was chartered by the Washington Department of Ecology (Ecology) and arrived at 8:30 a.m. A second helicopter chartered by Foss was on-scene by 11:00 a.m. On day two, a third helicopter was used to

support response operations. United States Coast Guard (USCG) helicopters or fixed wing assets were not utilized during the spill.

Unified Command Issues

Organization: During the first three hours of the spill, a unified command (UC) made up of first responders from Foss Maritime Corporation (Foss), the USCG and the Ecology was quickly formed. A command post was set up at NRCES's offices at the Pt. Wells facility. Objectives were rapidly developed, an operational period established and a large call-out of response resources from all of the region's major cleanup cooperatives and contractors began mobilizing to the scene. At 8:00 a.m., initial responders from Foss, USCG and Ecology turned the spill over to a Foss incident commander (IC), the USCG federal on-scene coordinator (FOSC), and the Ecology state on-scene coordinator (SOSC) for longer-term management and control under the unified command system. After field reports indicated that oil had crossed Puget Sound and impacted tribal lands on Kitsap Peninsula, a Suquamish tribal representative joined the UC on day two.

The Kitsap Department of Emergency Management (KDEM) is normally very active in spill response issues for lands in their jurisdiction. In previous spills, KDEM had assumed the role of the local on-scene coordinator (LOSC) and provided valuable input on local issues associated with the incident. In this spill, however, KDEM did not integrate into the unified command as the LOSC until several days into the spill due to some initial internal county communication problems that occurred when they were notified on the first day of the spill. One of the important issues that immediately came up after oil had affected beaches near the Doe-Kag-Wats marsh was shellfish closures to protect the public's health and safety. The Kitsap County Health District quickly decided to close affected beaches to all shellfish harvesting. When KDEM did join the UC, they remained active in response efforts throughout the rest of the spill. However, the absence of a LOSC when the UC was initially formed prevented full local involvement on issues such as interagency coordination, logistics, public involvement and cleanup issues. Once KDEM joined the UC, local issues were integrated effectively into decision-making.

The ICS process: An ICS 201 was developed in the first hours of the spill as a tool in initially managing and documenting response actions. The 201 provided information on initial response objectives, organization, resources and actions taken. At approximately 8:00 a.m. on December 30, the initial incident commander (IIC) held a 201 briefing and turned over response operations to a unified command composed of a Foss IC, a USCG FOSC and an Ecology SOSC. After the 201 briefing was held, the UC conducted a unified command meeting and developed objectives for the first 24-hr operational period. A 201 was used in conjunction with a series of assessment meetings to initially track response operations until early afternoon of the first day when the UC decided to begin development of a formal incident action plan. During the first few days of the spill, relatively short 24-hour operational periods were used but as the response operations progressed from the emergency to the project phase of cleanup, longer periods stretching from a few days to several weeks occurred.

Jurisdictional Issues

Tribal Issues: While Foss, Ecology, the USCG and KDEM had worked together extensively over the years, this was the first time the Suquamish Tribe had been involved in responding to a significant oil spill. The Tribe's standing as a sovereign nation with lands directly impacted by the spill had a major influence in UC decision making during the spill. The Tribal OSC (TOSC) who worked in the UC during the spill was a fish biologist with very little spill

experience. To his credit, however, he quickly integrated into the UC and immediately established excellent communication and a strong rapport with the rest of the UC members. As the spill evolved, it became apparent that the TOSC did not have tribal authority to make decisions on certain cultural, subsistence, health, and environmental issues. In these circumstances, the TOSC had to defer the issue to a higher political level within the tribe such as the tribal executive director, chairman or council. At times, this delayed communications and complicated decision-making by the UC.

The oil spill impacted an area of Port Madison that is owned by multiple state, local and private parties. The Suquamish Tribe claimed ownership of the majority of the Doe-Kag-Wats marsh, the hardest hit and most environmentally sensitive area affected by the spill. However, the Washington Department of Natural Resources (DNR), the primary owner of State lands, also claimed ownership for part of the marsh as well as the oiled beaches. This jurisdictional dispute caused delays in coordinating and approving cleanup activities for the marsh and beaches since both the DNR and the Tribe had to agree on cleanup plans before they could be initiated. Eventually, agreement was reached on ownership issues and DNR acceded to the Tribe's ownership of the marsh and the surrounding upper beach areas.

As a UC member, the Suquamish Tribe had a major influence on response related decisions on this spill. Their position in the UC affected how other local, state and federal natural resource trustees dealt with spill issues, particularly concerning shellfish and sediment contamination issues. While some agencies understood the Tribe's status within the UC as the landowner whose natural resources had been most affected by the spill, other agencies (e.g. DNR) did not appear to always understand this fact, especially concerning cleanup decisions affecting the beaches and marsh.

Meeting tribal expectations regarding spill notifications were problematic. Under existing state notification protocols, Ecology directly notifies the tribes on spills affecting their lands or natural resources. In this case, Ecology made at least two separate notifications to the Suquamish Tribe. As a result of these notifications, a TOSC joined the UC on the morning of the second day of the spill. However, it became apparent that tribal staff had not notified all of their political leaders when a tribal elder told the press that he had not been informed of the spill. Of course, the press picked up on this controversy and the UC was criticized despite the fact that notifications had been properly made to the tribe.

DNR: As the primary owner of state lands in Washington, DNR was a key player in this spill. Yet, they had very limited spill response experience or knowledge of the incident management system. As a result, DNR was on a steep learning curve during the incident. Staff had to be educated on technical cleanup issues, the incident command system (ICS) process, response capabilities, agency roles and responsibilities, and a wide range of other spill related topics. This, in turn, led to sense of frustration and delayed decision-making by the UC, coordination and communications problems, and other management challenges.

Private Ownership Issues: Adjacent to the marsh was a privately owned youth facility, Camp Indianola. Youth groups were scheduled to begin arriving in early January. The owner of the camp was very concerned about the effect of the spill on his operations and business opportunities as well as any environmental impacts the oil might have on his property. The primary road for accessing the spill area was through his property so there was a constant flow of people, vehicles, equipment and supplies running by his camp during the spill. His property was also used as a staging area for a cleanup crew working on the beach. Throughout the spill, the liaison officer worked closely with the camp owner to address his concerns and keep him informed of cleanup work.

Environmental Cleanup Issues

Cleanup Standards: One of the primary issues that faced the UC during the spill was to identify criteria used to determine when active cleanup operations would end. Many state, federal, local and tribal issues needed to be addressed in the development of these cleanup endpoints for the beaches and shellfish potentially affected by the spill. The Tribe had major concerns about the oil's effect on commercial geoduck clam beds, intertidal recreational shellfish harvesting, and the continued use of the beaches and marsh by their members for recreational and cultural uses. DNR was primarily interested in ensuring that state lands such as the beaches and shoreline met applicable state cleanup standards, contamination levels did not pose a threat to state owned natural resources, and that the impacts on the public's use of state lands were minimized. Kitsap County was concerned that the public would still be able to safely use the beaches after the spill for recreational use and shellfish harvesting. The USCG wanted definitive cleanup endpoints that provided measurable means of determining when beach cleanup operations would end. Ecology focused on developing realistic cleanup standards while working with other state agencies and resource trustees (e.g. DNR) to ensure their concerns were adequately being addressed in the process.

The final plan agreed upon by the UC was to develop active cleanup endpoints to minimize human health risks, enhance the recovery of impacted areas and reduce the threat of additional or prolonged impacts to natural resources. Immediate response actions were intended to remove mobile oil from the environment to the extent practical and minimize the potential for additional impacts. As a result, the criteria for determining when active cleanup was completed focused on assessment of shoreline oiling conditions. Longer-term assessment and monitoring focused on qualitative and quantitative analysis to ensure that any residual oil did not pose a threat to human health through the consumption of tainted shellfish. This longer-term plan entailed the development of a shellfish and sediment plan as well as an extended shoreline assessment and monitoring program.

The specific criteria for assessing shorelines and identifying cleanup techniques were based on the procedures adopted by the National Oceanographic and Atmospheric Administration (NOAA) in the 2000 Shoreline Assessment Manual. Active cleanup was considered complete when the shorelines passed criteria described for beach types affected by the spill. For example, for mixed sand and gravel beaches (ESI-5), active shoreline cleanup was completed when there was no sheening on the water, oil on the substrate was not mobile or readily recoverable **and** subsurface oiling was no greater than a trace, to the extent feasible.

It was also recognized that oiling conditions might change in the future due to weather or other factors so an operational cleanup and monitoring plan was developed for the oiled marsh and associated shoreline areas. The same operational cleanup endpoints described earlier were used as the criteria to determine if cleanup operations needed to be re-initiated during the monitoring phase. The Tribe was given the responsibility to conduct weekly beach inspections and marsh. If it was determined that additional cleanup was necessary, notifications would be made to the UC who would determine the appropriate course of action. The length of the monitoring phase continued until September 30, 2004. As of the time this paper was written, no significant re-mobilization of oil has been observed from monitoring activities.

Shellfish and Sediment Contamination: Immediately offshore from the oiled beaches and marsh were important commercial geoduck clam shellfish beds that were scheduled to open for harvesting by April 1, 2004. Non-tribal quotas for the geoducks

had been met in 2003 so only the Suquamish tribe was allowed to conduct a commercial fishery this year. In addition, the oiled beach and marsh were used extensively by the public and Tribe for recreational shellfish harvesting during the spring and summer months. As a result, there was a critical need to determine if the geoducks and other shellfish would meet specific human health criteria for shellfish consumption. In addition, it was necessary to assess source oil contamination of the intertidal and sub tidal zone relative to Washington's sediment management standards.

Personnel from Ecology, DNR, WDFW, and the Washington Department of Health, Kitsap Health District (KHD), the Tribe, and (NOAA) met over a period of several months during the spill to develop a comprehensive sediment and shellfish sampling and analysis plan (SAP). This plan involved developing sampling points in the sub tidal and intertidal zones, collecting tissue and sediment samples, analyzing them for hydrocarbon content and performing organoleptic tests on the shellfish samples. Difficulties in weather, field logistics, sample collection and analysis and organizing a qualified organoleptic panel on the east coast all contributed to delays in a decision to open the fishery until just hours before it was scheduled to occur on April 1.

Oiled beaches were segmented to allow a systematic way of documenting beach cleanup, sampling and long-term monitoring work. As cleanup in each beach segment was completed, a multi-agency and tribal sign-off team (SOFT) conducted field inspections to assess the adequacy of cleanup operations. If observed beach or marsh conditions did not meet the established active cleanup endpoint criteria, further work occurred until the endpoints were reached. This inspection process by the SOFTs was a challenge, due to the scheduling difficulties, weather, and tidal conditions. On April 22, 2004, the UC determined that the marsh and all beaches affected by the spill had met the cleanup criteria and no further cleanup was required.

Public Outreach

There were extensive public outreach efforts during this spill. The Joint Information Center (JIC) and the UC initially handled press and media issues through press releases, press conferences, and individual inquiries. The liaison officer worked closely with private landowners, legislative representatives, environmental groups, agency officials and others to keep them informed of spill response activities. The Washington Legislature held a special hearing on January 15, 2004 regarding the spill and members of the UC, environmental groups, and the public testified. As a result of spill, the Legislature passed a bill that included a requirement for Ecology to study oil transfers and pre-booming of oil vessels operating in Washington. Additionally, Kitsap County provided information on the oil spill at a local community meeting held near Indianola.

There was keen interest in the spill and major concerns were expressed by public and private property owners near the affected beaches and marsh. Most of their concerns involved the cleanup of oiled beaches and the use of the shoreline for recreational uses such as hiking, shellfish harvesting, diving, camping, picnicking and other uses.

Cleanup Operations

On-water recovery: Eight on-water skimmers and three shallow water barges with a combined Estimated Daily Recovery Capacity (EDRC) of over 61,000 barrels (2.6 million gallons) of oil were used in the spill. Approximately 700 gallons of oil was recovered, 15% of the total spilled. The lack of effective containment at the barge during the first hour of the spill prevented higher recovery from occurring in open water by the substantial skimming resources responding to the spill. On-water recovery efforts

were also hampered by the lack of air support to direct skimming operations and the rapid movement of oil by winds and currents to the Port Madison shoreline in Kitsap County.

Shoreline cleanup: Oil stranded on a shoreline made up of a salt marsh, mixed sand and gravel beaches, rocky substrate and logs and other woody debris. Bad tides prevented workers from getting access to the affected beaches for days at a time and limited cleanup activities. Cleanup workers used oil sorbents such as sweep, pads, booms and pompom/snare lines to manually recover oil along the beaches. Midway through the response, a 400' long layer of subsurface oil in the finer substrate of the beach was discovered. After evaluating several different cleanup techniques including manual agitation, trenching and mechanical tilling, the most effective method for removing the buried oil was found to be using a low pressure flooding system with ambient seawater to flush oil out of the sediments. In the marsh, cleanup crews clipped oiled vegetation and used pitchforks and sorbents to remove oil contamination.

CONCLUSION

The Foss Barge 248-P2 oil spill presented many spill response challenges. This was the first significant spill in the state of Washington in which a tribal OSC and local OSC joined the RPIC, SOSOC and FOSC in decision making within the unified command. Tides, cold temperature and snowy weather hampered cleanup efforts. The oil spill directly affected important natural resources

owned by the Suquamish Tribe, a sovereign nation recognized by the federal and state governments. Shellfish and sediment contamination were major issues of concern during the spill. Despite these difficulties, however, the spill was successfully cleaned up and important working relationships and partnerships were developed between those involved in the response. Valuable lessons were learned about how to further improve oil spill response that can be carried over to the next incident that occurs in Washington. Lessons learned included: 1) take advantage of available IR technology to assess oil spills at night, 2) use other methods of tracking oil movement at night such as lighted buoys or sorbent pads, 3) develop better planning standards for beach cleanup, 4) provide ICS training to tribes and 6) modify GRPs strategies as necessary to maximize resource protection.

BIOGRAPHY

Paul O'Brien has worked for the Washington Department of Ecology as the State On-Scene Coordinator in the Northwest Regional Office in Bellevue, Washington for the past 16 years. Before that, Paul worked for the Alaska Department of Environmental Conservation for 12 years, including 7 years as the manager of the agency's oil pollution control program. During those years, he has worked on many oil and hazardous materials spills including the 1999 Olympic Pipeline explosion as well as spills from tankers, barges, pipelines and other sources. Paul has a B.S. in Physics.