

**LUMMI NATION
SPILL PREVENTION AND RESPONSE CAPABILITY
DEVELOPMENT**

2009 Annual Synthesis Report



Prepared For:
Lummi Indian Business Council

Prepared By:
Water Resources Division
Lummi Natural Resources Department

December 2010

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Introduction

Large amounts of crude oil, petroleum products, and other hazardous materials are transported and stored near the Lummi Indian Reservation. These hazardous materials are transported by ships, pipelines, trucks, and railroad and are used, produced, and/or stored throughout the Reservation area, particularly in the Cherry Point Heavy Impact Industrial Zone immediately north of the Reservation boundary. Accidents, equipment failure, and human error have the potential to result in large spills and disastrous human and environmental consequences. Many of these hazardous materials are toxic to people and animals if inhaled or contacted. Oil and chemical spills or releases to waters on or adjacent to the Reservation have the potential to threaten public health and safety and destroy some of the most productive and valuable ecosystems in the world. Spills or releases of petroleum products, chemicals, or other hazardous materials to land can threaten public safety, public health, and the environment. To date, there has not been a large hazardous material spill on the Reservation that has impacted Lummi Nation Waters. However, future residential and economic growth on the Reservation, in the adjacent Cherry Point Heavy Impact Industrial Zone, and in areas upstream from the Reservation will increase the risk of a hazardous material emergency on the Reservation.

Because of the potential consequences, it is important for the Lummi Nation to develop and implement a plan to effectively respond to a hazardous material spill or release on or adjacent to the Reservation. The Lummi Natural Resources Department has been actively developing spill response capabilities since the mid-1990s and completed the Lummi Nation Spill Prevention and Response Plan in October 2005 (LWRD 2005). Continuing efforts to develop spill prevention and response capabilities include staff training and spill response drills, equipment upgrades, planning, research, and public outreach. These efforts contribute to achieving the Lummi Nation goals of protecting the public health and safety of Reservation residents and protecting treaty rights to fish and gather throughout all usual and accustomed areas. These activities also contribute to achieving the EPA strategic goals of clean and safe water and healthy communities and ecosystems.

This annual synthesis report is a summary of the Lummi Nation spill prevention and response capability development activities conducted during the January 1, 2009 through December 31, 2009 period. The activities are divided into the following categories: Staff Training and Oil Spill Response Drills, Equipment, Planning, Oil Spill Response Incidents, Public Outreach, and Data Collection/Research.

Spill Prevention and Response Capability Development Activities

1. Staff Training and Oil Spill Response Drills:

Spill prevention and response training for staff members is conducted through both dedicated classes and through table-top and boom deployment exercises. The staff members identified below attended the following training programs, workshops, or oil spill response drills during 2009. Agendas or lists of training topics were transmitted to the EPA as part of semi-annual progress reports and are not being transmitted as part of this annual synthesis report.

- a) Introduction to the Incident Command System, February 10, 2009. Attendee: Jean Snyder
- b) National Incident Management System (NIMS), An Introduction, February 13, 2009. Attendee: Jean Snyder
- c) Two Lummi Water Resources Division staff participated in a May 6, 2009 inland river oil spill response training sponsored by the Kinder-Morgan Pipeline company. Attendees: Jeremy Freimund, Frank Lawrence III
- d) On July 27, 2009, in conjunction with the Marine Spill Response Corporation (MSRC), members of the Lummi Nation Spill Response Team conducted a spill drill to test the new Geographic Response Plan (GRP), North Puget Sound No. 11 (NPS-11) and to practice a U-shape deployment and tow of boom between two response vessels. The drill included the deployment of three vessels and 1,000 feet of boom along the Sandy Point peninsula of the Reservation. Participants included 14 Lummi Natural Resources Department staff members, two Lummi Police Department staff, and two staff from MSRC. Attendees: See attached memorandum.
- e) On September 22, 2009, members of the Lummi Nation Spill Response Team conducted a spill drill to test the new Geographic Response Plan (GRP), North Puget Sound No. 23 (NPS-23). The drill included the deployment of one vessel and 1,000 feet of boom near Fisherman's Cove on the Reservation. Three staff members from the Marine Spill Response Corporation (MSRC) and their vessel joined the drill for the initial phase but were called away for a surprise quality assurance drill by MSRC Headquarters before the boom was deployed. Drill participants included 13 Lummi Natural Resources Department staff members. Attendees: See attached memorandum.
- f) Introduction to the Incident Command System, November 10, 2009. Attendee: Monika Lange
- g) Two staff members participated in a November 19, 2009 demonstration of the MSRC Wildlife Rehabilitation Unit. Attendees: Monika Lange, Craig Dolphin

2. Equipment:

- a) The Lummi Nation spill response equipment was posted on the Western Response Resource List (WRRL) database.

3. Planning:

- a) Reviewed and commented on the new oil spill response strategies identified in the North Puget Sound Geographic Response Plan (GRP) and met with Department of Ecology staff on February 11, 2009.
- b) The Water Resources Manager reviewed and provided written comments on the draft US/Canada Transboundary Project Report developed by the Pacific States/British Columbia Oil Spill Task Force.

4. Oil Spill Response Incidents:

- a) Water Resources Division staff responded on October 30, 2009 to a reported oil spill in a parking lot at Fisherman's Cove on the Reservation. Approximately 30 sorbent pads were used to clean up the spill (see attached report).

5. Public Outreach:

The oil spill prevention and response activities were publicized in the community through articles in the Lummi Nation monthly newspaper (*Squol Quol*).

- a) One *Squol Quol* article reported the participation in the Inland Waters Spill Drill on May 6, 2009.
- b) One *Squol Quol* article described the spill drill conducted by the Lummi Natural Resources Department on July 27, 2009.

6. Data Collection/Research:

The Lummi Natural Resources Department staff regularly conducts data collection activities and research in support of the overall departmental mission to protect and restore tribal natural resources. These data collection/research activities support the goals of the oil spill prevention and response capability development by documenting background and ambient conditions. This information will be useful in evaluating the effectiveness of response efforts in the event of an oil spill and to protect public health and safety.

Although some of these data collection/research and related activities are funded through the EPA (e.g., the ambient water quality monitoring program), other data collection and research activities are supported through other funding sources.

Data collection/research activities conducted during 2009 that were focused on quantifying the tribal natural resources on tribal tidelands included the following:

- a) The fieldwork for Lummi Intertidal Baseline Inventory (LIBI) was conducted. The LIBI is intended to delineate the ecological baseline of the Lummi tidelands. The LIBI survey included the annual Manila Clam Stock Assessment.

Reference:

Lummi Water Resources Division (LWRD). 2005. Oil Spill Prevention and Response Plan. Prepared for the Lummi Indian Business Council. October

ATTACHMENTS

INTEROFFICE MEMORANDUM

TO: MERLE JEFFERSON
FROM: STACY FAWELL *Stacy Fawell*
SUBJECT: SANDY POINT SPILL DRILL, JULY 27, 2009
DATE: 7/30/2009
CC: LEROY DEARDORFF, JEREMY FREIMUND, RANCE SUTTON

The purpose of this memo is to summarize the boom deployment practice held on July 27, 2009 by the Lummi Natural Resources Department. The purpose of the practice was to test the new Geographic Response Plan (GRP), North Puget Sound (NPS)-11 on Sandy Point (Figure 1) and to attempt a U-shape deployment and tow of boom behind two response vessels. Two staff members from Marine Spill Response Corporation's (MSRC) Bellingham office joined us to help lead the drill and provide guidance and training.

In attendance were:

Merle Jefferson	LNR	Jamie Mattson	LNR – Water
Leroy Deardorff	LNR	Jean Snyder	LNR – Water
Jeremy Freimund	LNR - Water	Victor Johnson	LNR – Water
Chad Huntley	MSRC	Frank Lawrence	LNR – Water
Peter	MSRC	Stacy Fawell	LNR - Water
Rob Jefferson	LNPD	Ryan Vasak	LNR – Harvest
Ed Conway	LNPD	Michael LeMoine	LNR – Harvest
Gregg Dunphy	LNR – TFW	Robert Hall	LNR - Seaponds
Latisha Toby	LNR - TFW	Bill Revey	LNR – Seaponds

The practice began with an organizational meeting held in the Sam Cagey conference room. Jeremy Freimund described the purpose of the practice and the general plan of approach and gave a spill scenario. Chad Huntley gave direction on boom towing and placement and you made sure that participants were assigned to specific platforms. We then mobilized the two boats (the Water Resources Division's *Responder* and the Lummi Nation Police Department's *Bramm*) and the boom trailer and collected anchors, tow bridles, and life jackets from the spill container. The MSRC staff returned to Bellingham to motor their 42 foot response vessel *Grebe* out to Sandy Point. The three vessels and the crew assigned to the shore each had a VHF radio and had agreed to start communications on Channel 80a. The shore crew met the boom trailer at the north end of Sandy Point at the beach access point at the end of South Beach Way. When the two Lummi vessels arrived, the shore crew unloaded 1000 feet of boom from the trailer and passed it off to the *Responder*. With the *Bramm's* assistance, the *Responder* towed the boom south to the North Cape of the Sandy Point Marina entrance channel to the location of NPS-11. Jeremy had previously called the owner of 4301 Sucia Drive and was granted permission to access the beach across his private property. The *Responder* crew passed an end of the boom to the shore crew who created a shore

anchor using the existing rip-rap boulders and the tow bridle line. They created a second shore anchor to attempt to diffuse the tension on the first by tying off the first anchor point on the boom to the rip-rap. Following the pre-determined strategy, the two Lummi boats first anchored the boom towards the entrance channel piers to practice a deflection strategy for a refinery spill (Figure 2). They next moved the anchors to the north to create a collection strategy (Figure 3). Thirdly, the boats released the water anchors and created enough slack for the shore crew to release the shore anchor. The Bramm picked up the shore end of the boom and the two boats created a U-shape collection strategy between them (Figure 4). The *Responder* then towed the 1000 feet of boom back up to the trailer site where it was reloaded and the trailer was returned to the tribal center.

Things that went well during this drill were:

- Coordination. The pre-meeting made sure that everyone understood the plan for the day, had a chance to ask questions, and understood their assignment (boat or shore).
- Communications. Radio communication worked well. The boats were able to communicate and understand each others actions and the MSRC boat was able to coach the two LNR boats.
- Boat and boom handling. All transfers and anchoring of boom seemed to go smoothly.
- Simulation. Jeremy created a spill scenario and made some local notifications (ConocoPhillips, Whatcom County Fire District 17, and the Washington State Department of Ecology field office). This preparation made the exercise more like a professional drill and gave a realistic situation to simulate.

Areas for improvement are:

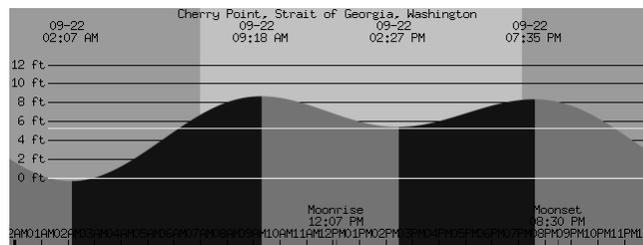
- Leave time for a debriefing to collect thoughts on what was successful and what needs improvement.
- Conduct drills more frequently (greater than once per year). Possibly do practices/drills that don't involve boom such as just practicing anchor setting and recovery.
- Store the *Responder's* equipment in a separate container from the spill equipment. There is not enough room for both in the spill container and the boat equipment, as currently stored in the aisle of the container, makes it difficult to access the spill equipment.
- Have one person assigned to be in charge. There was a lack of guidance to the boats during the U-shaped collection strategy.
- There should be tools on hand for loosening shackles.
- Make sure all lines are stored neatly coiled. Tangles in the tow bridle lines caused delays.
- Lay out and check all of the anchors. It was reported that some of the attachments are incorrect and the crown lines are too thin and need to be replaced with thicker rope. Also, some of the floats for the 40 pound anchors have not been inflated and should be filled to be ready for use.
- Purchase a fence-post driver for creating shore anchors.
- Use trajectory modeling to set a goal for the drill.
- One thousand feet was too much for the U-shaped collection strategy. The boom itself was being pulled underwater at the bottom of the U.
- Bails of sorbent material should be brought along on the drill, but not used, to more closely simulate a real spill response.

Recommendations for the second drill of 2009

The second drill of 2009 should be scheduled in August or September, 2009. Potential dates, based on the tide predictions and the *Responder's* water sampling schedule, are September 8, 11, 21, 22, 24, and 25.

Potential locations for this drill are NPS-23 (new but replaces old NPS 18 at Gooseberry Point) in Fisherman's Cove and NPS 28 (new) and NPS 31 (old NPS 20) off of Portage Island (Figure 5). These strategies each use 1000 feet of boom. Another option is the new NPS-10 in the Nooksack River at the Lummi Bay hatchery pump station. This deployment does not have a specified amount of boom and shows an exclusion/collection strategy for an upriver spill stretching from the east bank of the river south of the pump station to the west bank of the river north of the pump station. I recommend testing the three 1000 foot Hale Passage strategies (NPS -23, NPS-28, and NPS-31) on September 22, 2009. The tides and currents for this date are:

Tides for 9/22/2009		
Low	2:07 am	-0.38 ft
High	9:18 am	8.61 ft
Low	2:27 pm	5.36 ft
High	7:36 pm	8.29 ft



Currents for 9/22/2009		
Slack water	7:05 am	
Max ebb	11:16 am	1.6 knots
Slack water	3:19 pm	
Max flood	4:37 pm	1.1 knots
Slack water	6:11 pm	



Figure 2 - NPS-11 Deployed as a deflection strategy



Figure 3 - NPS 11 Deployed as a collection strategy



Figure 4 – U-shaped collection strategy

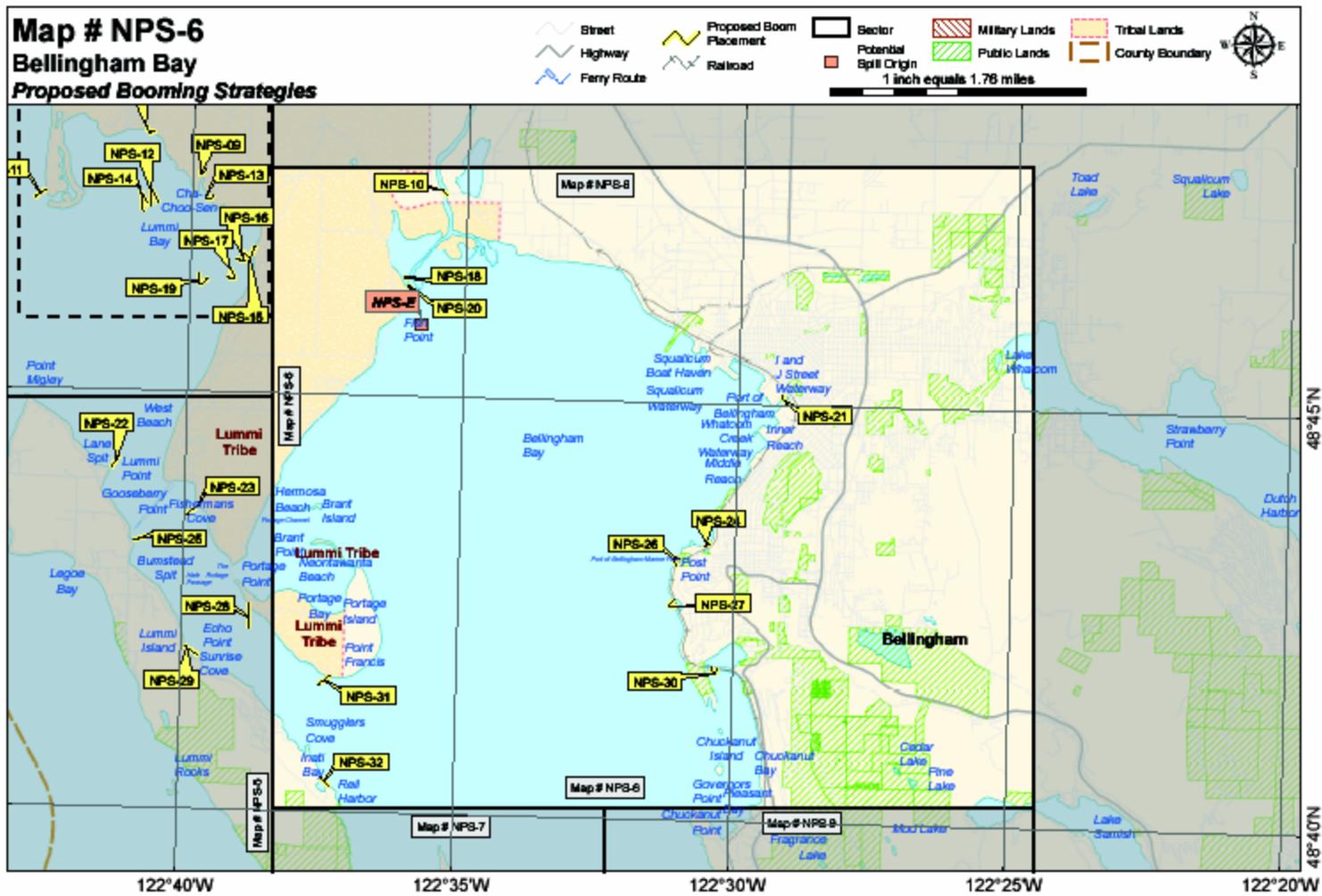


Figure 5 NPS 23, 28, and 31 in Hale Passage

INTEROFFICE MEMORANDUM

TO: MERLE JEFFERSON
FROM: STACY FAWELL
SUBJECT: FISHERMAN'S COVE SPILL DRILL, SEPTEMBER 22, 2009
DATE: 9/24/09
CC: LEROY DEARDORFF, JEREMY FREIMUND

The purpose of this memo is to summarize the boom deployment practice held on September 22, 2009 by the Lummi Natural Resources Department. The purpose of the practice was to test one or all of three new Geographic Response Plans (GRPs), North Puget Sound (NPS)-23, NPS-28, and NPS-31. NPS-23 is between Fisherman's Cove and the Stommish Grounds, and NPS-28 and NPS-31 are on Portage Island (Figure 1). All three are 1000 foot collection or deflection strategies. Three staff members from Marine Spill Response Corporation's (MSRC) Bellingham office joined us but were called away for a surprise quality assurance drill before we began the deployments.

In attendance were:

Leroy Deardorff	LNR	Gregg Dunphy	LNR – TFW
Jeremy Freimund	LNR - Water	Robert Hall	LNR - Seaponds
Jamie Mattson	LNR – Water	Don Kruse	LNR-Harvest
Jean Snyder	LNR – Water	Flavian Point	LNR-Shellfish
Victor Johnson	LNR – Water	Carl Lawrence	LNR-Shellfish
Frank Lawrence, III	LNR – Water	Ed Hillaire	LNR-Shellfish
Stacy Fawell	LNR - Water		

The practice began with an organizational meeting held in the Sam Cagey conference room. Jeremy Freimund described the purpose of the practice and the general plan of approach and gave a spill scenario. The scenario included a listing of notifications that had been made, safety issues, and logistical considerations. Jeremy also quickly explained the Incident Command System to those who have not had training and explained that Leroy would act as Incident Commander. Jeremy reviewed the three GRPs, the tide and current predictions, the plan for launching and deploying the boom, and made sure staff were assigned to specific platforms. It was decided at the meeting that we would only attempt NPS-23 and NPS-28 because of the length of time it would take to tow the 1000' of boom to Point Francis for NPS-31. At this point, the MSRC staff were called back to Squalicum Harbor to participate in their company-wide drill.

We then mobilized the Water Resources Division's *Responder* and the boom trailer and collected anchors, tow bridles, and life jackets from the spill container. The boat crew and shore crew each had a VHF handheld radio and had agreed to start communications on Channel 80a. The shore crew met the boom trailer at the boat launch near Finkbonner Shellfish near the Stommish Grounds, unloaded 1000 feet of boom from the trailer, and passed it off to the *Responder*. The *Responder* towed

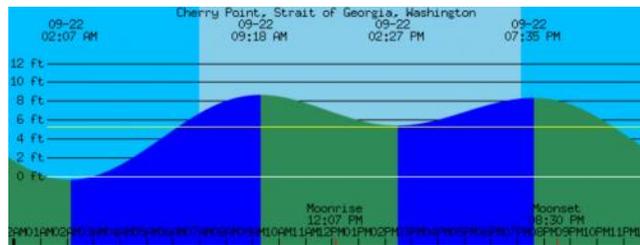
the boom slightly north to the small point between Fisherman’s Cove and the Stommish Grounds beach to set NPS-23. Jeremy and Leroy created a shore anchor by securing one end of the boom with a tow bridle to a driftwood stump on the beach. The *Responder* pulled the boom out at an angle to the northwest and set two anchors: one at the end and one at an anchor point in the middle of the 1,000 feet. The ebb current of approximately 1.6 knots pulled the boom into an arc (Figure 2) instead of a straight line to the shore and it was decided to practice completely resetting the strategy and not attempt NSP-28 and NPS-31 on Portage Island. This decision was also made as a second boat would have been helpful for bringing a shore crew to Portage Island while the *Responder* maneuvered the boom.

After lunch, some of the boat crew rotated positions with the shore crew. The *Responder* released the two anchors and the shore crew released the shore anchor. The *Responder* doubled-up the boom and towed it to the south and back to the north, and transferred one end to the shore crew. The shore end was anchored to the same driftwood and the boat pulled the boom out to the north northwest. There was some difficulty with the wind pushing the boom onto shore but the *Responder* was able to maneuver it into a north-northwest angle and again place the two anchors. The final deployment was a collection strategy of 1000 feet of boom (Figure 3).

The boom was towed back to the boat ramp and loaded back onto the boom trailer. A de-briefing was held on the beach and is summarized below.

The predicted conditions for the day were:

Tides for 9/22/2009		
Low	2:07 am	-0.38 ft
High	9:18 am	8.61 ft
Low	2:27 pm	5.36 ft
High	7:36 pm	8.29 ft



Currents for 9/22/2009		
Slack water	7:05 am	
Max ebb	11:16 am	1.6 knots
Slack water	3:19 pm	
Max flood	4:37 pm	1.1 knots
Slack water	6:11 pm	

Things that went well during this drill were:

- Coordination. The pre-meeting made sure that everyone understood the plan for the day, had a chance to ask questions, and understood their assignment (boat or shore).
- Boat and boom handling. All transfers and anchoring of boom seemed to go smoothly.
- Simulation. Jeremy created a spill scenario and made some local notifications (ConocoPhillips, LNPD). This preparation made the exercise more like a professional drill and gave a realistic situation to simulate.
- Debriefing. A debriefing was held at the beach while all participants were still in one place. This debriefing provided an excellent list of concerns and areas for improvement.
- Shore anchor. The shore anchor worked well and was easy to tie off to.
- Gear improvements since the July 27, 2009 drill.

- Five of the nine crown lines were changed out to 5/8 inch line to match the line on the rest of the anchor assembly.
- The spill container was better organized with a second shelving unit so that the boat gear is less in the way and the spill gear is easier to access. It was much easier this time to visually review what was needed.
- Carabiners (borrowed) were used for attaching the crown lines to the anchor points.
- All anchor floats were inflated and are ready for use.
- All of the anchors were checked and do have holes drilled for attachment of the crown line.

Areas for improvement are:

- Communications. Both the shore and boat crews commented that there were gaps in communication and that would have liked to have heard more of what the other team was thinking, especially as far as strategy for positioning the boom in the current and wind. The boat crew wanted to hear more direction from the Incident Commander.
- Conduct drills more frequently (greater than twice per year). Possibly do practices/drills that don't involve boom such as just practicing anchor setting and recovery. Possibly do two field drills per year and two classroom trainings per year.
- Boat gear. Although this has been improved, the *Responder's* equipment still needs to be stored in a separate container from the spill equipment.
- Gear improvements.
 - We still need to finish splicing the new 5/8 inch line onto the remaining four crown line buoys.
 - There is some small line on the anchor setups that needs to be changed out to 5/8 inch line.
 - It was recommended to purchase stainless steel, non-locking, carabiners to use for connecting the crown lines to the anchor points. This would be faster and simpler than using the shackles.
 - We still need to purchase a fence post driver for installing fence posts for oil snare (pom-poms).
- Weather conditions. It was recommended that deployments be attempted in inclement conditions, to be better prepared for an actual spill.

GRP-Specific Comments

- Vacuum truck access. Vacuum truck access may be difficult at NPS-23. The truck could be parked along Lummi View Drive but the hose would need to be passed down over the bluff to the water's edge.
- There are many large rocks under water and along the beach near the shore anchor point.
- The wind and currents were fairly mild on our test day (predicted maximum 1.6 knot ebb current at 11:16 and predicted winds of 5-10 knots from the North) but still created difficulty in setting the boom.

Recommendations for future drills

The next GRPs that should be prioritized for testing are NPS-28 and NPS-31 on Portage Island, the Seaponds strategies (NPS-12, NPS-14, NPS-15, NPS-16, NPS-17, and NPS-19), and NPS-10 at the Nooksack River pump station.

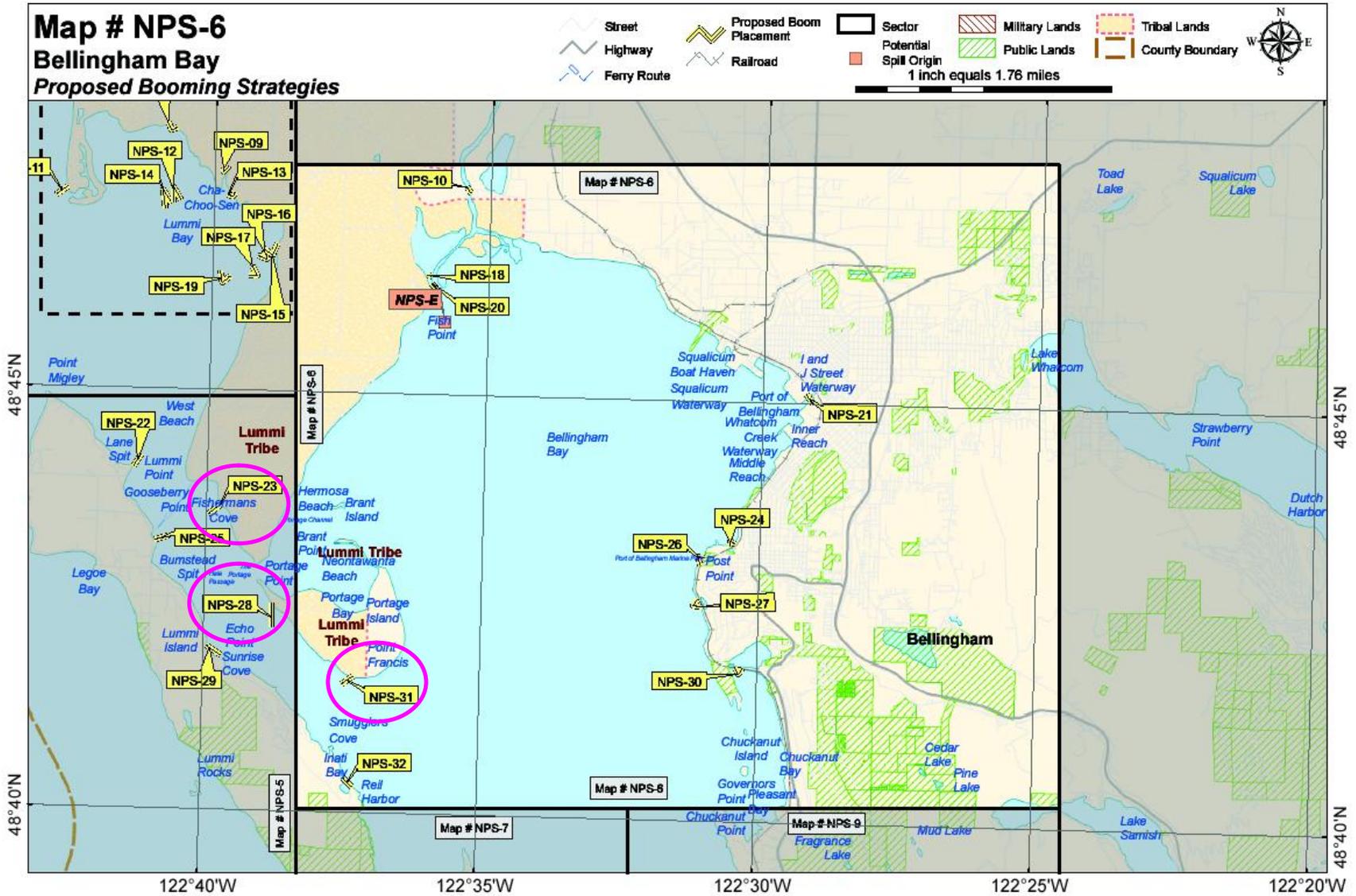


Figure 1 2009 North Puget Sound Geographic Response Plans, Strategy NPS-23, NPS-28, and NPS-31



Figure 2 - NPS-23 showing difficulty with the current



Figure 3 - NPS 23 Deployed as a collection strategy

Jeremy Freimund

From: Jeremy Freimund
Sent: Monday, November 02, 2009 11:55 AM
To: Jamie L. Mattson; Leroy Deardorff; Merle Jefferson Sr.
Cc: Zuni Raynell (E-mail); Ralph C. Jefferson Jr.
Subject: FW: Gooseberry Point- Oil Spill Response

Thanks Jamie,
I am forwarding this to others for their information.
Kind Regards,
Jeremy

Jeremy R. Freimund, P.H.
Water Resources Manager
Lummi Natural Resources Department
2616 Kwina Road
Bellingham, WA 98226

Tel: 360-384-2212
Fax: 360-384-4737

-----Original Message-----

From: Jamie L. Mattson
Sent: Monday, November 02, 2009 11:25 AM
To: Jeremy Freimund
Subject: Gooseberry Point- Oil Spill Response

Jeremy,

Per your request Victor Johnson and I responded to a small oil spill near Gooseberry Point boat launch at 4:30pm on Friday, October 30. According to the dock operator (and later partially verified by the boat owner), the oil spill was caused when oil and water from the bilge of a boat stored down at the dock was drained from the boat and overflowed from the bucket used to retail the oil/water mix. Victor, the boat owner and I used approx. 30 sorbent pads to clean up the oil and have retained the waste for proper disposal at the toxics disposal site at a rate of 0.92 cents/lb with a minimum charge of \$10, presumably to be billed to the responsible party. Please find attached photos taken to document the spill and subsequent clean-up. Additionally, I will complete the Incident Communication/Unit Log to further document the spill, corresponding clean-up and disposal of toxics to waste site.

Best Wishes,
Jamie

Jamie L. Mattson
Water Resources Specialist I
Lummi Natural Resources Department

Lummi Nation 2616 Kwina Road
Bellingham, WA 98226
jamiem@lummi-nsn.gov
Office: 360-384-2233 x2712

11/2/2009



Figure 1- Boat responsible for spill and corresponding layer of oil on puddle



Figure 2- Layer of oil on puddle and photo documentation of bucket which overflowed



Figure 3- Extent of spill



Figure 4- License plate of responsible boat owner



Figure 5- Photo documentation of puddle after oil spill clean-up



Figure 6- Soiled sorbent pads