



MEMORANDUM

To: SR 520 Program Files

From: Sharon Love, FHWA Environmental Program Manager;
Allison Hanson, WSDOT ESO Mega Projects Environmental Director

Date: June 6, 2013

Copies To: Dave Becher, WSDOT SR 520 Floating Bridge & Landings Engineering Manager;
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Rona Spelleccacy, SR 520 Environmental Planner

**Subject: SR 520, I-5 to Medina: Bridge Replacement and HOV Project –
Pontoon Repairs at Vigor Industrial Drydocks**

The purpose of this memorandum is to document National Environmental Policy Act (NEPA), State Environmental Policy Act (SEPA), Endangered Species Act (ESA), and Section 106 and 4(f) compliance for the SR 520, I-5 to Medina: Bridge Replacement and HOV Project associated with use of two floating industrial drydocks for pontoon repairs. One of the floating drydocks is located in Seattle, Washington, and the second is located in Portland, Oregon.

Environmental documentation for the SR 520, I-5 to Medina: Bridge Replacement and HOV Project includes the Final Environmental Impact Statement (June 2011) and supporting discipline reports, the Record of Decision (August 2011), SEPA Addenda (October and November 2011) NEPA Environmental Reevaluations (December 2011, January 2012, July 2012, October 2012, February 2013, and February 2013), and other memoranda. As the project proceeds with final design and construction, proposed modifications to design and delivery methods have been compared to findings in the Final Environmental Impact Statement (FEIS), Record of Decision (ROD), and other existing reports and documentation.

As described in the FEIS, 21 longitudinal pontoons, two cross pontoons, and 54 supplemental stability pontoons will support the new floating bridge across Lake Washington. WSDOT has determined that two of the pontoons that have been constructed to date, including one longitudinal pontoon (Pontoon T), and one cross pontoon (Pontoon W), require repairs in drydocks before they can be installed to support the floating bridge structure.

The pontoons in need of repair are currently moored in Lake Washington. WSDOT is proposing to utilize one industrial drydock located in Seattle, Washington and one industrial drydock located in Portland, Oregon, to complete the repair work needed on Pontoons T and W. The drydocks would provide a dry environment to complete the repair work which would expedite the repairs.

Additional detail about the drydock operation and the repair activities to be conducted are provided below.

Floating drydock operations

The drydocks are registered naval vessels that are leased and operated by Vigor Industrial. Vigor's Seattle site is comprised of 27 acres located in Elliott Bay at 1801 16th Avenue SW, Seattle, Washington. The Portland site is comprised of 60 acres located on the Willamette River at 5555 N. Channel Ave, Portland, Oregon. Both facilities are used for a variety of industrial activities associated with ships and marine equipment and structures, including shipbuilding, repair, maintenance, fabrication, and other industrial services.



Vigor Industrial Drydock, Seattle, WA



Vigor Industrial Drydock, Portland, OR

The Vigor Industrial drydocks are floating drydocks that are permitted as vessels. A floating dry dock is a type of submersible barge with large side walls that include ballast tanks, which are called wing walls. The drydocks are configured with ballast tanks and buoyancy tanks which control the submersion and re-floating of the drydock. The ballasting and de-ballasting of the tanks are controlled by pumps and flood valves.

Figures 1 and 2 demonstrate how the drydock operates. The ballast tanks are used to lower the drydock; a vessel is floated into position, and the tanks are de-ballasted to bring the drydock floor up to the elevation for the vessel to be repaired. The drydock is open at either end throughout operation, allowing water to flow freely out of the drydock as it is positioned in the water.



Example of floating drydock

In the normal, un-ballasted condition the ballast tanks are not flooded. The dock floats at its normal operating freeboard and the deck of the dock is above the water line (Figure 1). To load a vessel on to the dock, the flood valves are opened by motor operators on the safety deck. Sea water then floods in to the ballast tank. As the dock begins to sink, the flooding is controlled by opening or closing the flood valves. These are gate valves and can be opened in increments to allow faster or slower flooding. Once the dock reaches the appropriate depth, the flood valves are closed and the dock remains at that depth due to the lift provided by the buoyancy tanks along the centerline of the dock.

Figure 1. Schematic of drydock ballast operations

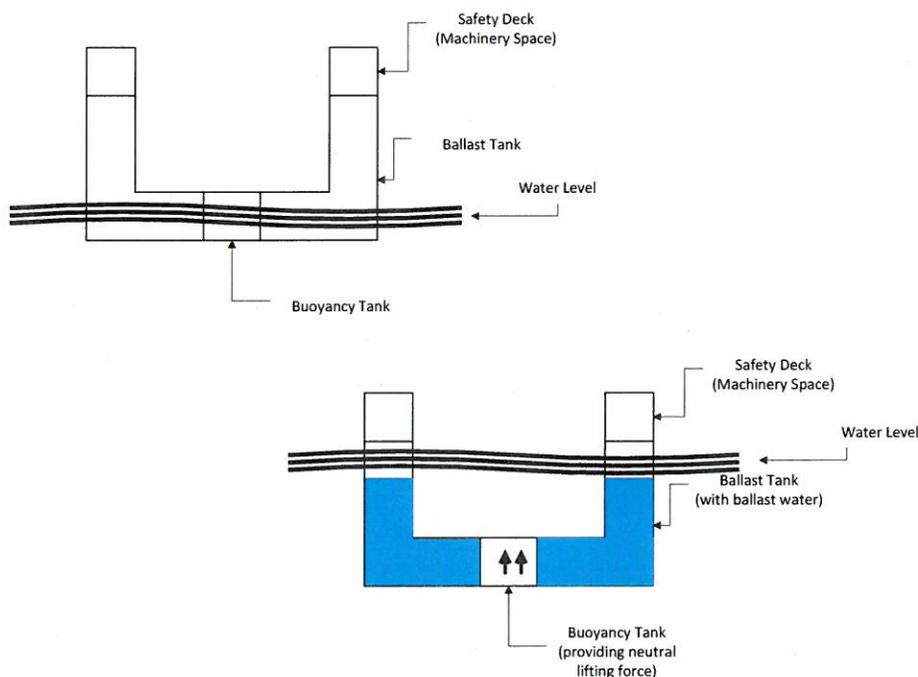
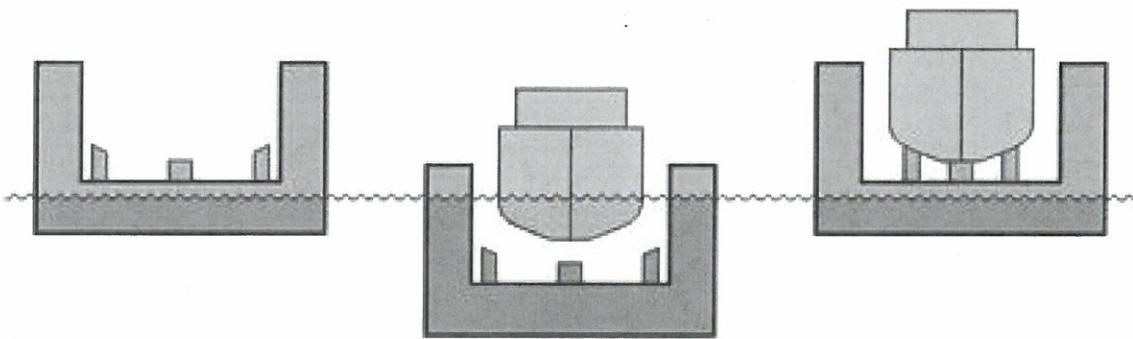


Figure 2. Schematic of placement of vessel in drydock



The vessel is then floated over the deck of the dock and positioned over the blocks (Figure 2). The vessel is held in place over the blocks by mooring lines from the tops of the wing walls. Once in position, the ballast water is pumped out of the ballast tanks and the dock begins to rise in the water until the blocks make contact with the underside of the vessel. At that point the dock begins lifting both itself and the vessel out of the water. De-ballasting of the wing walls continues until the deck of the dock is lifted clear of the water.

Pontoon Repair Activities

Pontoon T would be towed to the Portland drydock, where repairs would begin by late June 2013 and last approximately two months. Pontoon W would be towed to the Seattle drydock, where repairs would begin by August 2013 and last approximately two months.

Towing the pontoons to and from the drydocks will require up to two tugboats, a process similar to moving a barge or other large vessel. This type of activity regularly occurs throughout Puget Sound and the Columbia and Willamette Rivers as part of standard shipyard operations. Pontoon transport will follow existing shipping lanes. Pontoon transport activities will be similar to those described in the FEIS, with the exception of the location of the Portland facility. No adverse effects are anticipated to result from pontoon towing activities.

Once transported to the dry dock, pontoon activities include repair of cracks that occurred during the concrete curing process, and installation of additional structural reinforcement referred to as transverse post-tensioning. First, epoxy resin would be injected into the cracks on the underside of the pontoon. Approximately 10 gallons of epoxy would be used for each pontoon. Once the cracks have been repaired, transverse post tensioning would be installed through the pontoon walls. This process is similar to the process used to join the supplemental stability pontoons to the longitudinal pontoons. The post tension tendons run transversely through the pontoon interior walls and are anchored to the exterior walls. Once the tendons have been stressed, the anchor heads will be covered in a concrete block to protect the reinforcement structures. Finally, Carbon Fiber Reinforced Polymer would be adhered to the underside of the pontoon and impregnated with epoxy resin to protect the epoxy injected crack repair areas.

Secondary containment would be placed inside the drydock during the application of epoxy resin and installation of the concrete blocks over the anchor heads to prevent any epoxy or concrete spilling onto the drydock floor. The drydock floor would be cleaned of any debris prior to flooding of the ballast tanks and lowering of the drydock into the water, which is consistent with the facilities' standard operating procedures. The water used for ballasting the drydocks and any stormwater collected from the drydock floor would be treated prior to discharge as required by the facilities' existing permits. These best management practices would be implemented as part of the Vigor facilities' standard operations to ensure that no material or debris associated with the repair activities would be released to open water.

Once repairs are completed, the pontoons would be lowered back into the water (by reversing the drydock ballasting operation described above), towed back to Lake Washington, and temporarily moored until they could be installed to support the floating bridge.

Consistency with Environmental Documentation

The activities described above are consistent with the existing uses of the Vigor Industrial drydock facilities. The drydocks are U.S. Naval vessels that are operated under the same permit requirements as vessels. FHWA and WSDOT have determined that use of the Vigor Industrial drydock facilities does not warrant ESA consultation and that no analysis is necessary for Endangered Species Act compliance.

The Vigor facilities are located outside the limits of construction that were identified in the Final EIS, and were referenced in the Memorandum of Agreement among WSDOT, FHWA, and the Muckleshoot Indian Tribe (MIT); however, no additional impacts to tribal fisheries are expected beyond those previously described in the Final EIS and ROD.

FHWA and WSDOT are engaging in government-to-government consultation with the MIT regarding the proposed activities at the Seattle Vigor facility. This coordination would allow tribal concerns associated with the proposed activities to be properly considered and addressed. This commitment regarding continued coordination is documented in the Final EIS, and has been maintained throughout the government-to-government consultation.

Although there are some tribes in the Portland area with fishing rights the vicinity of the Portland Vigor facility, the Willamette River is not an area of concern and the proposed activities would not impact any tribal fishing activities. FHWA and WSDOT have determined that no consultation would be required with any tribes for the use of the Portland drydock.

No physical improvements would be made to the drydock facilities. The activities described above would not require ground disturbing activities or other improvements inconsistent with the current operation of the facilities, and would not have potential to affect any adjacent historic resources. A WSDOT Cultural Resources Specialist has determined that no additional analysis or consultation is necessary for Section 106 compliance or Section 4(f) compliance for historic properties.

As documented above, the project remains compliant with current federal, state, local, and departmental regulations and directives with regard to NEPA/SEPA processes, Section 106 and 4(f), and the Endangered Species Act. No additional environmental review is required.

We have reviewed and agree with the contents of this memorandum.

Region / Mode Official,

AMG MITING

Date

6/6/13

FHWA Official

Shawn P. Love

Date

6/6/2013