State of Oregon
Department of Environmental Quality Memorandum

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To: ECSI #54 File, Union Pacific Railroad Tie Treating Plant Site, The Dalles, Oregon

Through: David Anderson, Cleanup Program Manager, Eastern Region

From: A. Scott Yankey, Cleanup Project Manager, Eastern Region

Subject: Staff Memorandum in Support of Partial System Shutdown for Module 2/3

The Groundwater Remedial Action Objectives at the Union Pacific Railroad Company Tie Treating Plant Superfund site (Site) in The Dalles, Oregon are in place to protect reasonably likely future groundwater users hydraulically downgradient of the Site as well as Site industrial workers from exposure to identified contaminants related to past tie treatment process releases. One of the methods used at the Site to achieve these objectives is the operation of a creosote oil (also known as a Dense Non-Aqueous Phase Liquid or DNAPL) recovery system in combination with a hydraulic containment system. The DNAPL extraction system pumps DNAPL and water from several extraction wells in the unconfined aquifer, recovers the DNAPL for disposal, treats the water, and reinjects the treated water to enhance further DNAPL recovery. There is also a hydraulic containment system that utilizes a series of wells that are pumped to lower the water level in the Site area to prevent impacted groundwater from migrating away from the Site. Module 1 of the DNAPL extraction system began operation in April 1999 and was shut down in 2010 after reaching its recovery endpoint based upon removal of 95 percent of the recoverable DNAPL. Module 2/3 began operation in February 2004 and is currently operational. Module 2/3 is composed of smaller system elements identified as Units 1, 2, and 3.

As discussed in the last Five Year Review evaluation of the Site, dated May 9, 2017, DEQ continues to evaluate criteria to determine the effectiveness of the DNAPL extraction system and possible modifications to the system to increase DNAPL recovery and removal. Jacobs Engineering Group Inc. (Jacobs) has recently provided DEQ the results of analyses performed on the Module 2/3 system. These analyses indicate that a portion of the Module 2/3 system has reached its recovery endpoint and could be shutdown. The analyses also indicate that the proposed shutdown of a portion of the Module 2/3 system would likely also increase the DNAPL removal effectiveness in the remaining portion of the Module 2/3 system.

Jacobs has specifically provided support for and requested the shutdown of five extraction wells: Four extraction wells from Unit 2 of Module 2/3 (EX-16, 17, 18, and 24) and one extraction well from Unit 3 of Module 2/3 (EX-23). In addition, Jacobs has provided support for the shutdown of three Unit 2 injection wells (IN-23, 24, and 28). These are unproductive DNAPL extraction wells and their associated injection wells. The analyses indicate that Unit 2 is no longer required to meet the groundwater remedial action objectives and that continued operation of Unit 2 reduces the effectiveness of Units 1 and 3. Therefore, DEQ is planning to approve the proposed partial system shutdown.

The extraction and injection wells to be shutdown will remain in place and available for re-activation in the event that DNAPL rebound monitoring indicates that DNAPL continues to be mobile in this portion of the Site. Upon completion of a one-year DNAPL rebound monitoring period, UPRR may request permission from DEQ to decommission these wells and the Unit 2 equipment. This request will be evaluated by DEQ, based upon the results of additional Site monitoring results.

These changes are a positive development and indicate that the DNAPL recovery system is operating as designed and that DNAPL removal is being achieved. There are no other prosed changes to the Site remedial system, including the Site hydraulic containment system.