MEMORANDUM FOR RECORD

SUBJECT: *Columbia Riverkeeper v. USACE*, No. 2:13-md-2494-LRS (E.D. Wash.) Settlement Agreement

Per the subject Settlement Agreement attached to the court's order of dismissal without prejudice entered on August 14, 2014, the Corps has obligations due by February 14, 2016, pertaining to the use of Environmentally Acceptable Lubricants (EALs) and the implementation of Oil Accountability Plans at the Bonneville, The Dalles, John Day, McNary, Ice Harbor, Lower Monumental, Little Goose, and Lower Granite dams on the Columbia and Snake Rivers. Following is a summary of the status of the Corps' fulfillment of those obligations.

a. Environmentally Acceptable Lubricants (EALs).

Paragraph 4(a) of the Settlement Agreement required the Corps to "complete an assessment of whether it is technically feasible to switch from using grease as a lubricant on certain 'in-water' equipment, including wicket gates for the hydropower turbines, navigation locks and certain fishway equipment, to using one or more EALs as a lubricant on such equipment . . .." The Settlement Agreement called for the Corps to complete this assessment within twelve months of the Settlement Agreement, *i.e.*, by August 2015, and "to switch to using one or more EALs as a lubricant on the in-water equipment where the Corps has determined that doing so is technically feasible" within eighteen months of the Settlement Agreement, *i.e.*, by February 2016.

The Settlement Agreement provides that "[t]he Corps' evaluation of technical feasibility will be confined to the question of whether one or more EALs can be used without risk of potential damage to the equipment." The Corps completed assessments by August 2015 and, due to the risk of potential damage to the equipment, determined that it was not feasible at that time to switch to using EALs. Based on the assessments, the Corps concluded that further testing would be necessary to demonstrate that an EAL does not pose a risk of potential damage to the equipment. After August 2015, the Corps continued to evaluate the use of EALs on in-water equipment at the Dams, to consider whether it may be feasible to switch to using EALs in the future. As a result of that further evaluation, as explained below, the Corps has determined that it will be feasible to switch to using EALs at the next scheduled maintenance in Fiscal Year 2017 for certain non-hydroelectric in-water equipment that has a negligible or low risk of potential damage. With regard to other in-water equipment, as set forth below, the Corps has decided to perform "proof of concept" testing to ascertain whether EALs may be feasible for use in the future.

i. <u>Identification of EALs</u>

EALs were defined in the Settlement Agreement to mean "those lubricants that have been demonstrated to meet standards for biodegradability, toxicity and

bioaccumulation potential that minimize their likely adverse consequences in the aquatic environment compared to conventional lubricants, as set forth in Section 4 of EPA 800-R-11-002, 'Environmentally Acceptable Lubricants' (November 2011), and includes, but is not limited to, products labeled by [certain identified labeling programs]." In order to evaluate the feasibility of switching to EALs as provided in the Settlement Agreement, it was necessary for the Corps to perform additional research, after the Settlement Agreement was executed, to identify potentially suitable and commercially available lubricants meeting this definition.

The Settlement Agreement indicated that the Corps "already uses EALs on certain 'in-water' equipment at The Dalles and John Day dams." This statement reflected the Corps' use at those dams of the product "Mobil SHC 101 EAL," which is marketed as a grease "designed specifically for applications that require environmentally sensitive lubricants." See http://www.mobil.com/USA-English/Lubes/PDS/GLXXENGRSMOMobil_SHC_Grease_100_EAL_Series.aspx. During the Corps' assessment of the technical feasibility of switching to EALs at the dams, the Corps concluded that the Mobil SHC 101 EAL grease does not actually satisfy the criteria for "EAL" as defined in the Settlement Agreement. The "EAL" in its title stands for an "Environmental Awareness Lubricant", not "Environmentally Acceptable Lubricant." While the grease is characterized as "environmentally sensitive" or "environmentally friendly" by the manufacturer, and offers some benefits in environmentally sensitive applications, the grease is not labeled by any of the labeling programs identified in the Settlement Agreement and has not been demonstrated to meet the standards for bioaccumulation as set forth in the Settlement Agreement. Therefore, the Corps determined that different lubricants would need to be evaluated in order to satisfy the terms of the Settlement Agreement. The Corps included the in-water equipment at The Dalles and John Day dams along with the in-water equipment at the other six dams in the Corps' assessment of whether it is technically feasible to switch to EALs on certain in-water equipment.

The Corps approached the evaluation of EAL use by examining the feasibility of switching to EALs, as defined in the Settlement Agreement, on: (1) hydroelectric plant "in-water" equipment (including wicket gates for hydropower turbines) and (2) non-hydroelectric "in-water" equipment (including navigation locks and certain fishway equipment) at all eight dams. The assessments for each of these types of equipment are summarized below.

ii. Hydroelectric In-Water Equipment

The Corps contracted with HDR Engineering to assess the technical feasibility of switching to EALs on certain in-water hydroelectric plant in-water equipment. On July 28, 2015, HDR produced a report entitled "Environmentally Acceptable Lubricant Grease for Hydropower Applications." See Exhibit 1. The report identified various products that met the EAL criteria and concluded that based on laboratory data alone, switching to EALs appeared technically feasible on wicket gates. However, since there was an absence of wicket gate bushing performance history with the EAL shown to be

most compatible, the report concluded that there was some "unquantified risk of damage to the equipment." The report recommended that a "proof of concept" be completed to test a sampling of in-service equipment prior to full implementation. The report also looked at the feasibility of switching to EALs on wire ropes and recommended that further testing be done to check for compatibility issues between EALs and the in-service grease. Based on this information, the Corps concluded in August 2015 that it was not technically feasible (without risk of potential damage to the equipment) to switch to EALs at that time and that further testing and evaluation would be necessary.

The proof of concept test for hydropower wire ropes began on certain equipment at Ice Harbor in December 2015 and on certain equipment at Bonneville in January 2016. Testing will begin on other equipment at Ice Harbor in February or March 2016. The wire ropes will be monitored for 12 months. At the conclusion of the monitoring period, a determination of feasibility will be made. If deemed feasible, the Corps plans to switch to EALs on hydropower wire ropes at all eight projects. Testing of wicket gates is expected to begin in May 2016 at Lower Granite and The Dalles projects. Testing of wicket gates at Bonneville Second Powerhouse and McNary Dam is expected to follow in July and August 2016, respectively. The wicket gates will be monitored for 12 months after introducing the EAL grease. At the conclusion of the monitoring period, a determination of feasibility will be made. If deemed feasible, the Corps plans to begin switching to EALs on at each of the projects that have greased wicket gates.

iii. Non-Hydroelectric In-Water Equipment

The Corps utilized the U.S. Army Engineer Research and Development Center (ERDC) to evaluate the use of EALs on non-hydroelectric plant in-water equipment. In August 2015, ERDC produced a report entitled "Evaluation of Environmentally Acceptable Lubricants (EALs) Non-Hydropower Uses for NWD and NWW Dams." See Exhibit 2. The report found that there were EAL greases available for non-hydroelectric uses and that these EALs appeared to meet performance needs. However, the report based this conclusion in large part on the Corps' experience in using "environmentally friendly" greases, which were not demonstrated to be EALs as set forth in the Settlement Agreement. As noted in the report, the greases already in use by the Corps, such as Mobil SHC 101 EAL, were not labeled by any labeling program and lacked data for at least one of the EAL criteria. Based on this information and a lack of performance history in using EALs, the Corps concluded in August 2015 that it was not technically feasible (without risk of potential damage to the equipment) to switch to EALs at that time and that further testing and evaluation would be necessary.

After August 2015, the Corps assessed the level of risk of potential damage to various types of non-hydroelectric in-water equipment and continued to evaluate the feasibility of switching to EALs on this type of equipment. As a result of that further evaluation, in February 2016, the Corps determined that it will be feasible to switch to using EALs at the next scheduled maintenance in Fiscal Year 2017 for certain non-

hydroelectric in-water equipment that require greasing and has a negligible or low risk of potential damage, provided that the equipment is not similar to the wire ropes that are undergoing the hydropower proof of concept testing. For the non-hydroelectric wire rope equipment that is similar to the hydroelectric wire rope equipment being tested, a determination of feasibility will be made following the conclusion of that testing.

For non-hydroelectric in-water equipment that has a moderate risk of potential damage when switching to EALs, the Corps will perform a proof of concept test. The Corps expects to initiate this testing in January or March 2017, which coincides with respective scheduled fishway and navigation lock equipment outages that will be necessary to initiate the test. The equipment will be monitored for 12 months after introducing the EAL grease. At the conclusion of the monitoring period, a determination of feasibility will be made. If deemed feasible, the Corps plans to begin switching to EALs on the in-water equipment that needs greasing.

b. Oil Accountability Plans.

Per paragraph 4(b) of the Settlement Agreement, the Corps has developed reports that include a description of the results of the monitoring and any assessments that occurred during the preceding reporting period. The Corps has made those reports publically available at http://www.nwd.usace.army.mil/Missions/Environmental/OilAccountability.aspx.

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Enclosures: