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UNITED STATES DISTRICT COURT
DISTRICT OF OREGON
PORTLAND DIVISION

DESCHUTES RIVER ALLIANCE, an
Oregon nonprofit corporation,

Plaintiff,

v.

PORTLAND GENERAL ELECTRIC
COMPANY, an Oregon corporation,

Defendant.

Case No.: 16-cv-01644-SI

DECLARATION OF MEGAN HILL

1. My name is Megan Hill. I am competent to testify to the matters stated herein, which are true and correct to the best of my knowledge, information, and belief. Except as otherwise indicated, this declaration is based on my personal knowledge.

2. I have a Master of Science in Environmental Science from Washington State University. My Master's thesis focused on habitat use and physiology of hatchery and wild steelhead trout. After receiving my Master's degree, I completed two years of post-graduate studies at the University of Georgia. Prior to my graduate work, I received a Bachelor of Arts, Environmental Studies and Biology major, from Knox College.

3. Since 2007, I have been employed by Portland General Electric Company (PGE) at the Pelton Round Butte Hydroelectric Project (Project). I have been the Fisheries and Water Quality Manager at the Project since 2015. From 2007 to 2015, I was the Native Fish Studies Team Leader for PGE at the Project. In this position I lead the test and verification studies program. These studies are designed to evaluate the reintroduction and fish passage program and inform adaptive management actions. Prior to working for PGE I was employed by the U.S. Fish and Wildlife Service (USFWS). Throughout my work at PGE and USFWS, I have co-authored four peer-reviewed publications in scientific journals.

4. Before the Selective Water Withdrawal Facility (SWW) was constructed and began operation in late 2009, the Project was a complete barrier to the passage of resident and anadromous fish in the Deschutes River. This isolated the Deschutes River Basin upstream of the Project from the basin downstream and resulted in the extirpation of all anadromous fish runs upstream of the Project. Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead trout (*Oncorhynchus mykiss*), the anadromous form of rainbow trout, were eliminated from the upper basin. Sockeye salmon (*Oncorhynchus nerka*) in the upper basin became landlocked and transformed into a non-anadromous form of the species, known as kokanee. Bull trout (*Salvelinus confluentus*) in the upper basin, although not generally anadromous, were cut off from feeding grounds in the lower Deschutes River. Two of these fish populations, Middle

Columbia River steelhead and Columbia River bull trout, are listed as threatened under the federal Endangered Species Act.

5. As reflected in the documents associated with the new Federal Energy Regulatory Commission (“FERC”) license for the Project issued in 2005, when Round Butte Dam was constructed in 1964, its high elevation—440 feet—necessitated novel fish passage methodologies. Adult fish migrated upstream through a 2.84-mile ladder to Pelton Dam. They then swam through Lake Simtustus to the base of Round Butte Dam, where they were lifted over the dam using a bucket tramway into Lake Billy Chinook, the reservoir impounded by the dam. Downstream juvenile fish migrants were captured in a surface collector in the reservoir near Round Butte Dam and then transported by truck or pipe below the dam. However, fish passage soon proved to be ineffective, largely because the absence of a strong downstream surface current in Lake Billy Chinook prevented most juvenile migrants from being attracted to the downstream fish collection facility. As a result, the Project’s fish passage facilities were abandoned between 1968 and 1973 and replaced with a hatchery at the base of the Round Butte Dam. In addition to the relicensing documents, historical Project fish passage information can be found in Ratliff, D.E., and E.E. Schulz, “Fisheries Program at the Pelton Round Butte Hydroelectric Project (Oregon), 1956-1995” (PGE 1999).

6. Among the fundamental objectives of the multi-party Settlement Agreement for the relicensing of the Project were the restoration of fish passage through the Project and the re-establishment of anadromous fish runs upstream of the Project. These objectives are implemented through the Settlement Agreement’s “Fish Passage Plan,” which is incorporated into the Project’s license, as well as the Clean Water Act section 401 certification for the Project issued by the Oregon Department of Environmental Quality (DEQ). The stated goals of the Fish

Passage Plan are to “establish self-sustaining harvestable anadromous fish runs of Chinook, steelhead and sockeye above the Project” and, “during all months of the year,” to “provide for safe, timely and effective upstream and downstream fish passage of adult and juvenile life stages of spring and fall Chinook, summer steelhead, sockeye salmon, bull trout, rainbow trout, and mountain whitefish.” These goals are set forth in appendices C and D of the FERC license for the Project and are incorporated by reference in condition G.9 of the DEQ certification.

7. The SWW is the centerpiece of the Fish Passage Plan. In accordance with the FERC license, PGE and the Tribe designed the SWW in consultation with the license’s “Fish Committee,” which includes DEQ and several other federal, state, and tribal agencies, as well as non-governmental entities. The final design of the SWW was approved by the “Fish Agencies” and FERC. The “Fish Agencies” are the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, the Oregon Department of Fish and Wildlife, and the Branch of Natural Resources of the Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSRO).

8. Before the SWW began operating, Round Butte Dam could withdraw water for power generation only from a low-level intake, approximately 230 feet below the surface of Lake Billy Chinook. The SWW includes a surface intake in the reservoir that is connected through a vertical conduit to the dam’s original low-level intake, where water from the surface intake can mix with water from the lower levels of the reservoir before discharging through the powerhouse at the base of the dam. The low-level intake is screened to exclude fish and includes gates that can be opened and closed to control the proportion of low-level and surface water discharged through the powerhouse. The top of the SWW includes facilities to collect and evaluate downstream-migrating fish and prevent them from being entrained in the vertical

conduit and discharged through the powerhouse. The collected fish are either returned to the reservoir or trucked to a release point in the Deschutes River downstream of the Project to continue their migration. Upstream-migrating fish are collected at a fish trap at the downstream end of the Project near the Reregulating Dam and then trucked upstream for release above Round Butte Dam.

9. The SWW has succeeded in restoring fish passage through the Project and reconnecting the upper and lower basins. Juvenile Chinook salmon, steelhead trout, and sockeye move in the top of the water column. By withdrawing water from the surface of Lake Billy Chinook, the SWW creates currents that these fish can follow, drawing them into the collection facility. Each year the fish facilities at the SWW collect thousands of downstream-migrating juvenile salmon and steelhead, which are then transported to the Deschutes River below the Project to continue their migration to the ocean. When these fish return as adults, many of them are passed upstream to spawn in their natal streams. PGE has documented salmon and steelhead utilizing their historic habitat in the upper basin and documented spawning of all three species. Except for a short shutdown to complete annual maintenance during the off-peak migration period, the Project's fish collection and transport facilities are operated year-round to provide year-round fish passage through the Project, as required by the Fish Passage Plan.

10. Although fish passage has been restored and anadromous fish runs have returned upstream of the Project, the fish passage and reintroduction targets in the FERC license have not yet been met. The license requires several test and verification studies that are designed to evaluate the performance of the reintroduction and fish passage program. Through these studies, and working with the Fish Committee, PGE has identified and is addressing several impediments

to fish passage. These program improvements continue to have positive results on fish passage and the reintroduction of anadromous fish upstream of the Project.

11. If fish passage were the only objective of the SWW, it would be operated to withdraw water only from the surface of Lake Billy Chinook. This is because the surface withdrawals generate the reservoir surface flows that are essential for attracting downstream migrants to the fish collection facilities at the top of the SWW. The only reason for the SWW to withdraw water from the lower levels of the reservoir is to reduce the Project's effects on water quality—especially temperature—in the river downstream of the Project.

12. Increasing the proportion of lower-level water withdrawn through the SWW (and thereby decreasing the proportion of surface water) has a negative effect on fish passage. The reduction in surface withdrawals reduces the surface flows in the reservoir forebay that are needed to attract downstream-migrating fish into the fish collection facilities at the SWW. There is a strong, positive relationship between SWW surface flows and the number of downstream migrating fish that can be captured and transported downstream below the Project. This is documented in Pyper, B., "Effect of Flow on Downstream Passage of PIT-tagged Juvenile Chinook and Steelhead at Round Butte Dam, Madras, Oregon" (PGE 2016). Increases in the proportion of low-level water withdrawn through the SWW for temperature and other downstream water quality purposes must be carefully balanced against the adverse effects on fish passage, particularly during the critical downstream migration of salmon and steelhead smolts.

I declare under penalty of perjury that the foregoing is true and correct.

DATED this 25th day of April, 2018, in Madras, Oregon.



Megan Hill