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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 LEE CRAMER

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1. My name is Lee Cramer. 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 Bachelor of Science in Mechanical Engineering and a Master of Business Administration, both from Oregon State University. I have been a Mechanical Engineer at Portland General Electric Company (PGE) since August of 2008 and am a licensed professional engineer in the state of Oregon.

3. Round Butte Dam is the uppermost dam in the Pelton Round Butte Hydroelectric Project on the Deschutes River. The dam is 440 feet high and impounds a reservoir known as Lake Billy Chinook. As originally constructed, the powerhouse at the dam could withdraw water from the reservoir only through a low-level intake, approximately 240 feet below the surface. Pursuant to the terms of the new Federal Energy Regulatory Commission (FERC) license for the Project issued in 2005, as well as the conditions of the Clean Water Act section 401 certification issued for the Project by the Oregon Department of Environmental Quality, a Selective Water Withdrawal Facility (SWW) was constructed in Lake Billy Chinook, just upstream of the dam. The SWW allows the dam's powerhouse to draw water from the surface of the reservoir, as well as the low-level intake.

4. The SWW draws water from the surface of the reservoir through screens that channel downstream-migrating fish into a collection facility, where they can be sorted and either trucked downstream to the Deschutes River below the Project or returned to the reservoir. The water drawn through the SWW's surface structure then flows down a vertical conduit to the original low-level powerhouse intake, where it can combine with water withdrawn from the lower portion of the reservoir through fish screens and the SWW's bottom control gates.

5. The position of the bottom gates can be adjusted to change the blend of low-level and surface water discharged downstream through the powerhouse. The blend is controlled only by the bottom gates. There are no gates at the top of the SWW to shut off surface flow through

the SWW. When the SWW's bottom gates are closed, the SWW draws water solely from the surface of the reservoir. When the bottom gates are fully open (sometimes informally and incorrectly referred to as "100 percent bottom withdrawal" or "100 percent bottom flow"), water continues to flow through the top of the SWW, such that the maximum proportion of low-level flow that can be discharged through the SWW is approximately 60 percent. Flow from the surface of the reservoir through the SWW ceases only when the power generation units at the dam are not operating and no water is withdrawn from the reservoir through the powerhouse. When the generating units are not operating, water accumulates in Lake Billy Chinook and is not discharged downstream.

6. Based on flow evaluations during the initial start-up of the SWW, the relationships between the bottom gate opening sizes and the proportions of low-level and surface water withdrawn through the SWW were included in the SWW's computerized control system. When a change in the proportion is needed, the operator inputs the desired proportion into the control system, which determines how far to open or close the bottom control gates and then adjusts the gate openings accordingly.

7. The proportion of water withdrawn from the top or the bottom of the SWW has no effect on power generation. From the standpoint of Project revenues, it does not matter whether water for the power generation turbines at Round Butte Dam is withdrawn through the top or the bottom of the SWW.

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

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

Lee Cramer

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