1.0 SUMMARY

1.1 INTRODUCTION

The Condit Hydroelectric Project, located on the White Salmon River in Klickitat and Skamania Counties, Washington, was constructed in 1912 and 1913 and has produced electricity since it was completed. PacifiCorp is proposing to cease electricity generation at the Condit Hydroelectric Project on October 1, 2010, and commence removal of the dam later the same month. The Washington State Department of Ecology (Ecology) conducted an environmental review under the State Environmental Policy Act (SEPA) comparing the effects of continued operation of the dam (the no-action alternative) with the removal of the dam (proposed action). This process culminated with a Final Supplemental Environmental Impact Statement (SEIS) published in March 2007, which supplemented earlier National Environmental Policy Act (NEPA) environmental impact statements (EISs) produced by the Federal Energy Regulatory Commission (FERC) in 1996 and 2002. After the Final SEPA SEIS was published, additional sediment sampling reported mercury levels in Northwestern Lake sediment that exceed screening criteria, thus warranting further analysis. This brought into question the conclusions of the Final SEPA SEIS concerning contaminants in the sediment and effects of releasing them. To resolve the questions, Ecology elected to produce a Supplement to the Final SEPA SEIS (the Draft Second Supplemental EIS or Draft Second SEIS). In addition, the proposed location for disposal of the concrete from the dam has been changed. Disposal is now proposed to occur in the area where the wood-stave flowline will be removed, which is between the dam and the surge tank, roughly parallel to the White Salmon River.

1.2 ADOPTION OF NATIONAL ENVIRONMENTAL POLICY ACT DOCUMENTS

The Final SEPA SEIS supplemented the following NEPA documents:

- Condit Hydroelectric Project Final Environmental Impact Statement, FERC No. 2342-005, Washington (FERC 1996)
- Final Supplemental Final Environmental Impact Statement, Condit Hydroelectric Project, Washington, FERC Project No. 2342 (FERC 2002)

These documents identified and evaluated a range of reasonable alternatives to the proposal, identified probable significant impacts associated with the proposal and its alternatives, and addressed mitigation measures to be imposed by FERC. The NEPA documents were evaluated to verify, from Ecology's perspective, whether a reasonable range of alternatives were considered and whether all probable significant adverse impacts associated with the proposal were adequately identified and assessed. It was determined that, while these documents form a substantial basis for environmental review of the project and largely meet Ecology's environmental review standards, some supplemental evaluation of probable significant adverse impacts would be needed to satisfy the requirements of SEPA (Chapter 43.21C Revised Code of Washington) and SEPA Rules (Chapter 197-11 Washington Administrative Code [WAC]).

In the SEPA SEIS, Ecology adopted the aforementioned NEPA documents, pursuant to the provisions of WAC 197-11-610 and 630, to partially satisfy its requirements for SEPA compliance. This Draft Second Supplemental EIS further supplements the Final SEPA SEIS.

1.3 FOCUS OF THIS DRAFT SECOND SEIS

The primary focus of this Draft Second SEIS is on the potential effects of mercury in sediments that would be released into the White Salmon and Columbia Rivers, and on the effects of disposing of the concrete in a new location. (See Section 2.4 for a complete list of issues addressed in this Supplement.)

1.4 DESCRIPTION OF PROPOSED ACTION

The existing Condit Hydroelectric Project includes a concrete dam, an approximately 1.8-mile-long reservoir, a 13.5-foot-diameter wood-stave pipeline of approximately one mile in length, a reinforced-concrete surge tower, two 650-foot-long penstocks (one steel and one wood), and a powerhouse structure housing two turbines with an installed capacity of 14,700 kilowatts.

The proposed action includes draining the reservoir through a tunnel that would be constructed through the dam, removing the dam, removing the wood stave pipeline, the surge tank, and the two penstocks, and partially filling the tail race at the power house. Concrete from the dam originally was to be hauled to a storage/disposal area located a few thousand feet upstream of the dam and owned by PacifiCorp. The revised plan is to dispose of the concrete in the existing flowline alignment between the dam and the surge tank. Details of the proposed action are described in the Project Removal Design Report (PacifiCorp Energy 2009a), which supersedes the 2004 Project Description (PacifiCorp 2004). The Project Description included numerous plan documents designed to minimize or eliminate potential impacts related to the project. These plans also have been updated and are referenced in other sections of this Supplement.

1.5 SCHEDULE

The Settlement Agreement was entered into in 1999 to resolve all issues in the proceeding for relicensing the project by FERC. It was amended in 2005. Under the Settlement Agreement and upon FERC approval, PacifiCorp would continue to operate the project under the terms of its existing FERC license on a year-by-year basis until the dam removal could begin, whereupon PacifiCorp would cease generating power at the project. This is now proposed to be October 1, 2010.

If all applicable permits, easements, and contracts have been obtained, project removal activities would commence in August 2010. The demolition and removal of Condit Dam and other project facilities are estimated to take about one year. Monitoring would then continue until performance criteria are met.

1.6 SUMMARY OF IMPACTS AND MITIGATION MEASURES

1.6.1 Impacts and Mitigation Measures

Impacts and mitigation measures relating to mercury in the sediments and the revised concrete disposal area are summarized by element of the environment in Table 1.

1.6.2 Significant Unavoidable Adverse Impacts

Geology, Soils, and Sediments

The Final SEPA SEIS already identified the release of sediment as causing unavoidable adverse impacts in the lower White Salmon River and in the Underwood In Lieu Fishing Access Site at the mouth of the White Salmon River.

The simultaneous release of the mercury in the sediments could cause the deposition of sediment with higher concentrations of mercury than screening criteria. Sediment concentrations in samples from the Underwood In Lieu Fishing Access Site indicate that the mercury levels there are similar to the levels found in Northwestern Lake fine sediments. The effects of deposition of the sediment are not expected to rise to a significant level for aquatic organisms or for people.

Water Resources

Significant unavoidable adverse impacts identified in the Final SEPA SEIS with respect to surface water include massive turbidity and sediment transport as part of the dam breaching and removal. Total suspended solids (TSS) within the six hours after the dam breach could range from 100,000 to 250,000 parts per million (ppm) and turbidity values could range from 50,000 to 127,000 nephelometric turbidity units (NTUs). Elevated TSS and NTU are expected episodically throughout the first year following the dam breach, as bank and river channel stabilization occurs. Elevated turbidity levels are expected in the Bonneville pool, where the waters of the Columbia River and the White Salmon River mix. Clay particles will likely remain suspended in the Columbia River, thus temporarily increasing turbidity all the way to the mouth of the Columbia River.

After the Final SEPA SEIS was published, additional sediment sampling reported mercury levels in Northwestern Lake sediment that exceed regulatory thresholds. Additional analysis (GEC 2009) concluded that mercury concentrations in the water column would likely exceed Ecology's acute and chronic water quality criteria for the protection of aquatic life in the White Salmon River for 20 and 49 days, respectively, following dam removal. The US Environmental Protection Agency (EPA) acute and chronic water quality guidelines or criteria for the protection of human health also would be exceeded in the White Salmon River for 22 and 39 days, respectively. Mercury concentrations would be sufficiently diluted once entering the Columbia River so that the neither the Ecology acute criterion for the protection of aquatic life nor the EPA acute water quality criterion for the protection of human health would be exceeded within or downstream of Bonneville Pool. The Ecology chronic water quality criterion for the protection of aquatic life likely would be exceeded for 17 days in the Bonneville Pool, and for seven days at Quincy, Oregon. Within Bonneville Pool, the EPA chronic mercury criterion would likely be exceeded for five days.

Significant unavoidable adverse impacts were not identified with respect to groundwater or from the concrete disposal.

Aquatic Resources

The Final SEPA SEIS stated that all fish and aquatic macroinvertebrates within the White Salmon River channel downstream of the dam will likely be killed or displaced by the load of suspended solids that will occur during dam breaching. The populations of macroinvertebrates will likely take several years to fully reestablish. In the Columbia River, the effects would be substantially less and would diminish downstream of the mouth of the White Salmon River.

The lack of acute mercury exceedance and the relatively short durations of chronic mercury exceedance in the Columbia River suggest that the dam breaching is not likely to result in long-term impacts to aquatic organisms in the Columbia River associated with mercury toxicity. Any fish likely to be affected by acute mercury exceedance in the White Salmon River after the breaching of Condit Dam would have been killed by the high levels of suspended sediments present in the river immediately following the breaching of the dam and continued high levels of suspended sediments present during the period of elevated concentrations of mercury present in the lower White Salmon River.

The lack of correlation between mercury concentrations present in sediments and the tissues of juvenile salmonids collected in tributaries of the Bonneville Pool, as well as the relative health and abundance of salmonids in the White Salmon River despite the elevated levels of mercury in the basin's sediments, both suggest that dam breaching is unlikely to result in long-term impacts associated with mercury bioaccumulation to fish or their forage base in the Columbia River.

In addition, the deposited sediments would be deep enough (up to five feet) at the Underwood In Lieu Fishing Access Site and the adjacent Columbia River/Bonneville Pool that most of the volume would be effectively isolated from both the methylating bacteria and the organisms that might bioaccumulate the mercury. The clay and fine silt fraction would either be carried out to the Pacific Ocean or would be deposited over a broad area and diluted by other sediments being carried by the Columbia River and its tributaries.

Wetland Resources

No additional unavoidable adverse wetland impacts are expected as a result of the changes in the project since the Final SEPA SEIS.

Terrestrial Resources

There will be no significant unavoidable adverse impacts.

Transportation

With the implementation of the identified mitigation measures, no significant unavoidable adverse transportation or traffic impacts are expected to occur.

Air Quality

There are unlikely to be any significant unavoidable adverse impacts from demolition of the Condit Dam if the mitigation measures are implemented fully and in a timely fashion.

Land Use/Critical Areas

If the PacifiCorp Sediment Assessment, Stabilization, and Management Plan (PacifiCorp Energy 2008a), Revegetation and Wetland Management Plan (PacifiCorp Energy 2009b) and Erosion Control Plan (PacifiCorp Energy 2008b) are implemented, no long-term unavoidable significant adverse impacts to land use/critical areas are anticipated. There would be short-term unavoidable impacts to sites along or near the reservoir that would be used for work areas, construction staging or for disposal, and from the access roads that would be built in several locations.

Aesthetics and Scenic Resources

No additional unavoidable adverse impacts are expected as a result of the changes in the project since the Final SEPA SEIS.

Public Safety

If the proposed mitigation measures for public safety are implemented, no significant unavoidable impacts are expected.

Public Services

If the Public Safety and Traffic Control Plan (PacifiCorp Energy 2009c) is implemented, no significant unavoidable adverse impacts are expected.

1.6.3 Secondary and Cumulative Effects

Secondary or indirect effects are those that are caused by the proposed project that are later in time or farther removed in distance than direct impacts, but which are still reasonably foreseeable. A theoretical example might be the development of mercury bioaccumulation affecting aquatic species at some time months or years after the sediment containing the mercury is deposited.

Cumulative effects are impacts on the environment that result from the incremental consequences of a project when added to other past or reasonably foreseeable future actions (regardless of who would take the future action). The cumulative effects may be undetectable when viewed individually, but add to other disturbances and eventually lead to a measurable change. No cumulative adverse effects are expected for this project.

Aquatic Resources

The primary consideration for cumulative effects on aquatic resources is concern whether anadromous salmonid stocks that are already depressed by the effects of dams and reservoirs on the Columbia River and other influences will be significantly harmed by the sediment released from Northwestern Lake during the breaching of Condit Dam. The mitigation proposed to protect the fall Chinook salmon is trapping adults and releasing them upstream of the project area, although the Biological Opinions (NMFS 2006) approved trapping and hatchery-rearing one year-class. This mitigation appears to address the concern for that species. Long-term effects on salmonids are viewed as beneficial.

Transportation

The proposed project would cause a small increase in trips on local roads, but is not anticipated to create traffic congestion or a diminution of the level of service (LOS) at any affected

intersection. Other projects in the area (if any) are not anticipated to have overlapping construction and/or demolition periods. It is anticipated that construction/demolition vehicles for overlapping projects traveling into or out of Washington State would be via State Route (SR) 14 and would not result in cumulative impacts on SR 141 or Powerhouse Road.

Land Use/Critical Areas

No additional unavoidable adverse impacts are expected as a result of the changes in the project since the Final SEPA SEIS.

Table 1
Summary of Impacts and Mitigation Measures

Impacts	Mitigation
Geology, Soils, and Sediments	
Woody debris released from the reservoir sediment might clog the drain tunnel and interfere with draining the reservoir.	The tunnel has been redesigned to have a shape less conducive to clogging and to have a vent hole that would allow explosives to be used to clear it. Measures to prevent clogging, such as removing debris from near the tunnel, and means of clearing clogs (crane, blasting) will be implemented as needed.
Mercury concentration in deposited sediment is assumed to be the average of 0.617 milligrams/kilogram and would be above the sediment criteria.	Only the coarser fraction will be deposited, while the finest (most bioavailable) component will go to the ocean and be diluted. In the Underwood In Lieu Fishing Access Site and nearby Columbia River, only the surface few inches of the deposit will be accessible to biota and methylating and demethylating bacteria. Further downstream, thin deposits will be mixed with sediment from other sources and covered within a few months. Sediment monitoring will be conducted to compare areas with deposits to other areas in the Columbia River.
Water Resources	
There is potential for water leached from concrete disposal to increase pH of the White Salmon River or groundwater.	Concrete will be in rubble or blocks with relatively low surface area and will be covered with soil. Water will be directed away from it, and soil has buffering capacity. Long-term water quality monitoring in the river is proposed, including pH.
The mercury level in the water column will exceed the acute water quality criterion in the White Salmon River for an estimated 20 days, probably not all consecutive. The chronic water quality criterion would be exceeded in the White Salmon River for up to 49 days and in the Columbia River for 17 days, also probably not consecutively.	The mercury acute screening exceedances in the White Salmon River will be limited to the times when TSS level is high.
The potential for water quality effects will extend past the initial activities planned for dam removal and sediment stabilization.	Monitoring of applicable water quality parameters, including turbidity, TSS, and pH, as well as observation and documentation of banks and fish passage, will continue from a month before the commencement of dam removal activities until such time that performance criteria are met (PacifiCorp 2004). In addition, PacifiCorp would conduct turbidity monitoring in the Bonneville pool for four weeks after the dam is breached and conduct turbidity monitoring at three locations in the White Salmon River for a period of 10 years after the dam is breached.

Table 1 (Continued)
Summary of Impacts and Mitigation Measures

Impacts	Mitigation
Aquatic Resources	
The disposal of concrete in the flowline alignment parallel with the White Salmon River might allow water leaching through the concrete to increase the pH to the point (above pH 9) where it might adversely affect aquatic biota.	The erosion control and revegetation measures to be implemented are expected to prevent any chance of the pH rising in the White Salmon River.
The sediment from the reservoir with its included mercury will raise the mercury level in the water during the flushing of sediment from the reservoir above acute toxicity criteria for an estimated 20 days.	The biota (receptors) in the White Salmon River are all expected to be dead or displaced from the high initial TSS concentrations, thus negating concerns with acute levels of mercury.
The chronic water quality thresholds would be exceeded in the White Salmon River for up to 49 days and in the Columbia River for 17 days, probably not consecutively.	Because of the relatively short duration at chronic levels, populations of biota are not expected to change as a result of the mercury.
The sediment newly deposited downstream of the dam (mostly in the Underwood In Lieu Fishing Access Site and in the Columbia River up to one mile downstream of the mouth of the White Salmon River) would have a mercury concentration assumed to be the average of 0.617 milligrams/kilogram.	Since most of the clay and fine silt particles will not be deposited in the Bonneville Pool, and the coarser material will be deposited up to five feet deep, relatively little mercury will be bioavailable or available to methylating and demethylating bacteria. Also, very little fish diet in the Bonneville Pool comes from benthic organisms from areas where the deposits would occur. Therefore, no measurable effects on aquatic organisms of the food chain or higher trophic levels are expected.
Salmon trying to enter the White Salmon River to spawn while the mass of sediment is passing would be killed and no reproduction of anadromous fish will occur until levels of suspended solids fall below lethal levels and migration to suitable spawning gravels above the upstream end of the reservoir becomes possible.	To prevent the loss of a Chinook year-class, the White Salmon Working Group has proposed to capture the fall Chinook returning to the White Salmon River before the dam is breached in October, and transport them upstream of the project area. The dam will be breached in October to minimize the risk of harm to seasonal fish runs. The timing would take advantage of the rainy season, when there will be fewer adverse effects on recreation and aquatic life. The high flows of the season will aid in transporting sediment from the reservoir. The successful capture and transport of adult fish was demonstrated in 2008.
The old cofferdam in the reservoir upstream of the dam is expected to be a barrier to upstream migration by anadromous fish. If the removal is delayed, the removal may cause a spike in TSS and mercury downstream.	Cofferdam removal will occur as soon as possible after dam removal.
Transportation	
Approximately 1,000 truck loads of sediment hauled from the drained reservoir to cover the concrete removed from the dam will travel on SR 141 to the Powerhouse Road.	The change in traffic numbers is too small to change LOS or other metrics. Mitigation measures already planned for traffic safety should cover the additional truck trips.

Table 1 (Continued)
Summary of Impacts and Mitigation Measures

Impacts	Mitigation
Land Use/Critical Areas	
The new location for concrete disposal is mostly within 200 horizontal feet of the White Salmon River, within the Shoreline Management zone.	The soil covering and revegetation would restore more of a natural character to the environment instead of an industrial character with the flowline in place. The disposal area is within the FERC project boundary and may be deemed exempt from the Shoreline Management Act.