

Electronically filed on September 30, 2015

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

**Subject: Condit Hydroelectric Project (FERC Nos. 2342-005 and 2342-011)
Submittal of the 2015 Annual Sediment Assessment Report**

Dear Ms. Bose:

Enclosed please find PacifiCorp's 2015 Annual Sediment Assessment Report (Report) associated with the decommissioning of the Condit Hydroelectric Project. This Report is submitted in compliance with PacifiCorp's Sediment Assessment, Stabilization and Management Plan filed on March 16, 2011, as supplemented on May 5, 2011, and May 11, 2011, pursuant to ordering paragraph (M) of the Commission's *Order on Rehearing, Denying Stay, and Dismissing Extension of Time* for the Condit Hydroelectric Project, as modified by ordering paragraph (c) of the Commission's *Order Modifying and Approving Sediment Assessment, Stabilization and Management Plan* issued May 12, 2011.

Based on ground-level visual observations, this Report documents the ongoing stability of the sediments remaining in the former reservoir area. PacifiCorp intends to continue monitoring the reservoir sediment stability coincidental with the revegetation effort. Monitoring will include inspections following any flow events exceeding the 5-yr recurrence interval threshold for the White Salmon River. Per the 401 certification, post-flood inspections will "identify unstable slopes, debris jams and fish passage problems". PacifiCorp will submit a sediment monitoring report to the FERC and the State of Washington Department of Ecology by September 30, 2016, with updated observations of sediment stability conditions. The 2016 report will include a recommendation as to whether continued sediment monitoring is warranted.

This letter and its attachment have been filed electronically. The security classification of each component in this packet is shown in the Enclosure list below. A complete copy has been sent to the Director, Division of Dam Safety and Inspections in Washington, DC; to the Regional Engineer, Division of Dam Safety and Inspections, Portland Regional Office, and an electronic copy to those listed in the docket service list. In addition, a copy has also been sent to the State of Washington, Department of Ecology, to fulfill an obligation of PacifiCorp under Condit Dam Decommissioning Project's 401 Water Quality Certification Order No. 8049.

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If you have any questions concerning this document, please contact Tom Hickey at (503) 813-5685 or at thomas.hickey@pacificorp.com.

Sincerely,



Mark A. Sturtevant
Managing Director, Hydro Resources

MAS: TH: km

Encl:	Letter – Public
	2015 Annual Sediment Assessment Report – Public

eFile: Kimberly D. Bose, Secretary
Via eLibrary at www.ferc.gov

cc: Director, Division of Dam Safety and Inspections
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

eMail: Copy provided via eMail to
those parties so designated on
the FERC Service List

cc: Douglas L. Johnson, Regional Engineer
Federal Energy Regulatory Commission
805 SW Broadway, Suite 550
Portland, OR 97205

cc: Loreé Randall
Washington Depart of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Condit Hydroelectric Project Decommissioning

FERC Project No. 2342

ANNUAL SEDIMENT ASSESSMENT REPORT - 2015



September 25, 2015

Project Description

The Condit Hydroelectric Project was completed in 1913 on the White Salmon River in Skamania County and Klickitat County, Washington. The Condit Hydroelectric Project has been removed as outlined in the Project Removal Design Report dated March 15, 2011; 12 supporting management plans; the Washington Department of Ecology (Ecology) 401 certification; the US Army Corps of Engineers 404 permit, and the Federal Energy Regulatory Commission (FERC) Surrender Order. Dam removal was completed in September of 2012. Significant revegetation work was completed in March 2013. Supplemental tree planting was performed in March 2014. The establishment of vegetation is being monitored.

A specific Sediment Assessment, Stabilization, and Management Plan, (PacifiCorp, 2011) was developed to address sediment stability and management issues that were expected to occur in the decommissioning process. This plan identified general goals and procedures for 1) performing a post-dewatering assessment, 2) mapping the sediment which remains in the reservoir area, 3) estimating the quantity of sediment remaining in the reservoir area, 4) evaluating the stability of sediment slopes and banks in the reservoir area, 5) determining corrective actions as needed, and 6) evaluating fish passage through the former reservoir.

Regulatory Requirements

A Clean Water Act Section 404 permit was issued for this project (US Army Corps of Engineers, Regulatory Division, May 13, 2011). The 404 permit requires that the applicant (PacifiCorp) implement the Management Plan (Sediment Assessment, Stabilization, and Management Plan, PacifiCorp, 2011) as approved by the FERC.

A Clean Water Act Section 401 certificate was issued for this project (Washington Department of Ecology (Ecology), Water Quality Certification Order No. 8049, of October 12, 2010). The 401 certification also requires that the applicant (PacifiCorp) implement the management plan (Sediment Assessment, Stabilization, and Management Plan, PacifiCorp, 2011).

The FERC April 2011 Surrender Order required PacifiCorp to submit a Sediment Assessment, Stabilization, and Management Plan in accordance with the Ecology 401 certification. The FERC Order Modifying and Approving Sediment Assessment, Stabilization, and Management Plan (FERC, May 12, 2011) incorporated elements of the Sediment Assessment, Stabilization, and Management Plan into their requirements.

PacifiCorp has submitted several reports to FERC and Ecology addressing sediment behavior: a Draft Sediment Behavior Report (December 2011), Post-Reservoir-Dewatering Assessment Report (February 2012), the 2012 Annual Sediment Assessment Report (September 2012), the 2013 Annual Sediment Assessment Report (September 2013), and the 2014 Annual Sediment Assessment Report (September 2014).

Stability of Reservoir Sediment since 2014

Periodic site inspections conducted over the last year have confirmed sediment deposits in the former reservoir area have remained stable during this reporting period. This can be attributed to the ongoing effectiveness of factors including low slope angles, good herbaceous cover, and the collection of water from the hillsides into natural or graded channels. There have been no observed mass failures of reservoir sediments. Herbaceous cover has continued to develop and has been effective in limiting surface erosion. No further degradation has been observed at the rockfall that occurred in January 2014 on an existing vertical rock face along the White Salmon River located approximately one mile upstream of the dam site and opposite Graves Road.

During this reporting period of October 1, 2014 to September 30, 2015, one flow event in October 2014 exceeded the 10-year flood recurrence interval of 1,159 cubic feet per second (cfs) for October. The flow event peaked at 1,210 cfs. The highest recorded flow during this reporting period was 2,820 cfs on February 10, 2015. This flow did not exceed a 5-year flood recurrence for the month of February. These flows have scoured some riverbank soils at or below the high water line, but no major riverbank retreat was observed. Considerable growth of willows, cottonwoods, and alders along the riparian zone of the White Salmon River has contributed to bank stability.

In the area along the right bank between Northwestern Lake Bridge and Buck Creek where bank erosion was observed in 2014, corrective measures were implemented in the fall of 2014 after consultation with the Department of Ecology. The eroded bank was stabilized with the placement of a brush mattress, willow stake plantings and live fascine bundles. The fascine bundles at the toe of the slope were undercut by winter flows (see attached photo at high flow) but the brush mattress remains in place on the slope and the willow stake plantings are becoming established. Additional willow stakes are needed at the toe of this slope and monitoring will be ongoing.

As the riparian zone vegetation continues to mature throughout the project area, the potential for riverbank scour during high-flow events continues to decrease. The river channel has remained in essentially the same horizontal alignment since the initial downcutting through reservoir sediments in the days after the dam was breached and especially since the grading of the reservoir sediments was completed in August 2012. The attached photographs illustrate that the reservoir sediments have remained stable for the past year.

Tributary Stream Channels

Tributary stream channels that flow into the White Salmon River within the former reservoir area are a mix of perennial and ephemeral streams. There are ten tributary streams that drain into the reservoir area, eight of which cross sediment deposits, and four of those are ephemeral. The 2014 Annual Sediment Assessment Report identified the need for repairs at a grade control element located on the right bank approximately 120 feet upland from the river's edge and 3,500

feet downstream of Northwestern Lake Bridge. This repair was completed in June 2015 by excavation of the area affected and replacement and compaction of the soil surrounding the grade control element. The repaired area will be seeded during the fall of 2015.

None of the tributary stream channels have migrated laterally, cut down significantly, nor have the channels undercut adjacent slope areas. There has been significant development of riparian vegetation in, and adjacent to, tributary streambeds.

Engineered Log Jams

The seven Engineered Log Jams (ELJ) that were placed to facilitate the development of riparian zones adjacent to the river remain intact and stable with no significant changes noted. Some additional woody debris from the river has accumulated at the ELJs.

Recreational Cabin Removal

As noted in the 2014 Annual Sediment Assessment Report, a cabin built on a site leased from PacifiCorp on the right side of the mouth of Buck Creek was identified as a safety hazard due to the potential for riverbank erosion to undermine the cabin. In the fall of 2014 the cabin was removed. The slope below the Buck Creek cabin was graded to a 2:1 slope to minimize erosion potential, and the cabin site and slope were seeded.

An additional cabin, built on a site leased from PacifiCorp located approximately 600 feet upstream of Northwestern Lake Bridge on the left bank of the river, was identified as at risk due to the potential for erosion to undermine the cabin during flood events. PacifiCorp purchased the cabin in July 2015 and plans to remove it. Although the river bank is steep in this area, it is consistent with the slope shown on the topographic map of the area from 1912 before the reservoir was filled. Grading to lower the slope angle after the cabin is removed is not planned.

Annual Qualitative Assessment

Periodic site inspections have indicated that the remaining reservoir sediments have exhibited no visible erosion in the past year. There have been no observed areas of major sediment instability. In the FERC Order Modifying and Approving (the) Sediment Assessment, Stabilization and Management Plan (FERC, May 12, 2012) the licensee is required to submit a progress report by September 30 of each year. In addition, the 401 certification issued by Ecology states "a stable condition" will generally be attained when:

- a. Remaining slopes and banks are stable and do not present a public safety risk,
- b. The river within the former reservoir area has attained a stable course and channel width, and
- c. The amount of sediment released from the reservoir is no longer significant, as determined from the water quality (turbidity) measurements and from LiDAR sediment mapping and sediment quantity calculations.

Two of these criteria for a stable condition have been met. Inspections of the former reservoir have shown conditions consistent with the 2012 and 2013 LiDAR surveys and confirmed that the river within the former reservoir has attained a stable course and channel width since August of 2012. Based on monitoring results, water quality was considered acceptable by Ecology and monitoring was discontinued in December 2013.

The criterion for stable slopes has been met in the reservoir area from the dam site upstream to Northwestern Lake Bridge. Ongoing monitoring of the riverbanks upstream of Northwestern Lake Bridge is needed to confirm the effectiveness of the measures implemented in this area during this reporting period. In addition, monitoring is needed related to anticipated cabin removal on the left bank.

PacifiCorp intends to continue monitoring throughout the reservoir area coincidental with the monitoring of the revegetation effort to confirm stability throughout the project area, especially related to any flood events. PacifiCorp will conduct inspections following flow events exceeding the 5-year recurrence interval threshold. Per the 401 certification, post flood inspections will "identify unstable slopes, debris jams and fish passage problems." PacifiCorp will submit a sediment monitoring report to FERC and Ecology by September 30, 2016, summarizing the observed sediment stability conditions during the year.



View of the right bank from Powerhouse Road, with the dam site at the left side of the photo.
September 11, 2015



View of the left bank. Center of photo is approximately 2,000 feet upstream of the dam site.
May 21, 2015



View of the left bank. Center of photo is approximately 2,000 feet upstream of the dam site. –
September 9, 2015



View of the right bank. Center of photo is approximately 3,000 feet upstream of the dam site. –
September 10, 2015



View of the left bank in the vicinity of Graves Road – September 9, 2015



View downstream from Northwestern Lake Bridge – May 19, 2015



View downstream from Northwestern Lake Bridge – September 9, 2015



View of the right bank with the center of the photo approximately 3,000 feet downstream of Northwestern Lake Bridge – September 10, 2015



View of right bank just upstream of Northwestern Lake Bridge in the area repaired during the fall of 2014. Photo taken on February 9, 2015 during the highest-flow event of the reporting period. Flow was approximately 2,200 cfs at the time of the photo and the flow peaked at 2,820 cfs on February 10.



View upstream from Northwestern Lake Bridge – September 9, 2015.



Cabin 9DF Removal Site at the confluence of Buck Creek and the White Salmon River



Cabin 9DF Removal Site at the confluence of Buck Creek and the White Salmon River.
September 9, 2015



View of the right bank across from Graves Road at the site of the rockfall in January 2014.
Photo taken September 10, 2015