PACIFICORP ENERGY
A DIVISION OF PACIFICORP

Wallowa Falls Project Relicensing
January 15, 2013

Initial Study Report
Meeting Summary

Start Time: 9:00 a.m.	**End Time**: 4:00 p.m.
Subject: Status of relicensing studies and stakeholder input on progress and methods	**Attendees**: See attendance list at the conclusion of this summary

The comments identified in the table below were either submitted orally at the Initial Study Report Meeting of January 15 & 16 or were received in written comment letters submitted to PacifiCorp. Comment letters were received from the U.S. Fish and Wildlife Service (USFWS), U.S. Forest Service (USFS), and Oregon Department of Fish and Wildlife (DFW), and are provided in Appendix A.

Stakeholder Requests and PacifiCorp Responses - January 15, 2013
US Forest Service: GIS Data Sharing – Request that PacifiCorp share all GIS data from information collected during field studies. (Attachment A)
PacifiCorp Response: GIS Data Sharing *– PacifiCorp will provide GIS shape files for resources inventoried on National Forest Lands studied in preparation of the License Application. Data includes shape files for resource specific study areas, vegetation cover typing, noxious weed inventory, wetland and riparian inventory, botanical; survey area, special habitats, aquatic surveys, roads and trails, and project features. (Attachment A)*
US Forest Service: Study Modifications (GPS Survey Sites) – PacifiCorp should GPS all survey sites during the 2013 field studies and share all raw data, GIS mapping files, and survey locations associated with each field study with the US Forest Service. (Attachment A)
PacifiCorp Response: Study Modifications (GPS Survey Sites) – *PacifiCorp will collect field site location data during 2013 field work, convert the locations into GIS shape files as appropriate and provide the GIS shape files covering National Forest Lands to the Forest Service. (Attachment A)*
US Forest Service: Study Modifications (Study Area Discrepancies) – The USFS is requesting PacifiCorp to clarify and verify the consensus agreed to that 100 meters was adequate or an appropriate measure to assess project impacts for large home range rare, threatened and endangered species. The USFS agrees that the survey vicinity for botanical resources (noxious weed surveys, riparian and wetland delineation, sensitive plant and vegetative cover type surveys) and general wildlife observations is sufficient at 100m. Please describe PacifiCorp's reasoning for encompassing all surveys into the 100m radius.

(Attachment A)

PacifiCorp Response: Study Modifications (Study Area Discrepancies) – *PacifiCorp initially described a* ***Project vicinity*** *of a ¼ mile radius around Project facilities in the Pre-Application Document (PAD)(pg. 36). The intent of the Project vicinity discussed in the PAD was to provide a high-level view of potential sensitive terrestrial resources near the project facilities. This Project vicinity was not intended to be construed as the proposed study area. The Proposed Study Plan (August 2011) defined the* ***Study Area*** *for terrestrial resources as:*

"*The Study Area will include the entire area* ***within the proposed Project Boundary*** *as is described in Wallowa Falls Hydroelectric Project FERC No. P-308 Notice of Intent to Relicense and Pre-Application Document and shown in Appendix A (PacifiCorp Energy 2011).*"

PacifiCorp consulted with the Forest Service (Mike Gerdes) regarding the extent of the terrestrial study area in a phone call on September 14, 2011 and subsequently in a phone meeting on September 26, 2011. Mr. Gerdes expressed concern that the PacifiCorp proposed terrestrial resources-Study Area (the proposed project boundary) was inadequate. In a letter dated October 20, 2011; the Forest Service requested the study area for terrestrial resources be modified to include all lands within 100 meters of Project features. PacifiCorp subsequently adopted this recommendation into the Revised Study Plan which was approved by the FERC Director on January 3, 2012. PacifiCorp assumed at the time of these discussions that the Forest Service requested study area was adequate to assess project impacts for terrestrial resources, rare, threatened and endangered species, including species with large home ranges. (Attachment A)

US Forest Service: Vegetation Species – PacifiCorp should clarify the vegetation species it identified in the Wetland Delineation Report. PacifiCorp should verify the identification of Reed Canary grass in the survey area and coordinate with the Wallowa Mountains Office botanist Jerold Hustafa to identify the location and action items needed to suppress and control the further spread of this invasive species. (Attachment A)

PacifiCorp Response: Vegetation Species – *The reed canary grass area identified in the tailrace wetland will be reevaluated to confirm the identification in the 2013 growing season June 1 to August 31. The work will be completed in conjunction with the Royal Purple Creek wetland delineation described below. The results will be presented in the Updated Study Report in January 2014. A technical memo summarizing the results will be released to stakeholders in the fall of 2013 if available. (Attachment A)*

US Forest Service: Wetland surveys on Royal Purple Creek – The USFS requests that PacifiCorp revisit Royal Purple Creek to survey the wetlands associated with the Project area as it relates to the Royal Purple Creek intersection. This area is subject to Project impacts and warrants assessment and inclusion in the wetland report. Please coordinate with the Wallow Mountains Ranger District Botanist, Jerold Hustafa, for maps and locations.

PacifiCorp should survey the wetlands associated with Royal Purple Creek. It is also recommended that the surveyors and/or investigators for this report be identified similar to all other Initial Study Progress Reports. (Attachment A)

PacifiCorp Response: Wetland surveys on Royal Purple Creek – *PacifiCorp will agree to have the wetlands associated with Royal Purple Creek from the diversion point to the confluence with the East Fork Wallowa River delineated by a wetland professional. The wetland will be delineated using the U.S Army Corp of Engineers guidelines and the primary purpose will be to determine the extent of the wetland boundaries, the source(s) of hydrology, and to what, if any, existing project impacts may be on the wetlands. The results will be presented in the Updated Study Report in January 2014. A technical memo summarizing the results will be released to stakeholders in the fall of 2013 if available. (Attachment A)*

Oregon Dept. of Fish and Wildlife: Instream Flow and Habitat (Flow Monitoring/Data Collection) - Tim Hardin, Oregon Dept. of Fish & Wildlife, requested Excel files of data collected for the Instream Flow Incremental Method habitat modeling study.

PacifiCorp Response: Instream Flow and Habitat *(Instream Flow and Habitat/Data Collection) – PacifiCorp will continue to work cooperatively with ODFW in sharing data files and reviewing model outputs.*

Oregon Dept. of Fish and Wildlife: Water Resources - Section 1.3.3 (first paragraph on page 6) states that accretion of 1 to 2 cfs is assumed to occur in the bypass reach. This appears to be a contradiction of the Instream Flow Study Progress Report which states that accretion is minimal (page 4, first paragraph). It is unclear whether this statement is referring to the historic or current understanding of accretion in the system. The study results presented in the Water Resources Study Progress Report and the Instream Flow Study Progress Report indicate that accretion varies by season. Please clarify the intent of the accretion discussion in this section. (Attachment B)

PacifiCorp Response: Water Resources – *The reference to accretion of 1 to 2 cfs in section 1.3.3 was based on historic estimates made prior to the latest flow data collection for the Water Resources Study. This reference will be corrected in the Water Resources Final Technical Report based on a more complete analysis of base-flows and runoff contributions using the latest flow data from the study. The term "accretion" has presented some ambiguity in the Water Resources Report as well as the Instream Flow Report. References to accretion in both final technical reports will be replaced with clear distinctions between base-flows and runoff. (Attachment B)*

Oregon Dept. of Fish and Wildlife: Water Resources - Section 3.1.2 (page 19) – The report refers to WY 2010. It appears that it should refer to WY 2012, which is defined in 3.1.1 in the second paragraph. This appears to be a typographical error. Please correct it throughout the report. (Attachment B)

PacifiCorp Response: Water Resources – – *This typographical error will be corrected in the Water Resources Final Technical Report. (Attachment B)*

Oregon Dept. of Fish and Wildlife: Water Resources - Figure 3.1 (page 22) - The graph shows the water level in the tailrace in late August 2012 being about 2 cfs however; ODFW personnel observed that the tailrace was dry on August 31, 2012. These data are also presented in Appendix A, Table A-1. This comment was raised at the January 15, 2013 meeting and an explanation was provided by PacifiCorp regarding how these data were

calculated. It was also stated that the actual gage data are available. In the Final Study Report, please provide either the explanation on how the data were calculated or the actual gage data, so that they may be appropriately interpreted. (Attachment B)

PacifiCorp Response: Water Resources – *Tailrace discharge values will be corrected in the Water Resources Final Technical Report, and flow data for the tailrace will be provided in an appendix to the report. (Attachment B)*

Oregon Dept. of Fish and Wildlife: Hydrology – In general, the Study Progress Report provides a better understanding of flows in the bypass reach, however, the role of accretion does not appear to be well understood, or at least not well described. At the January 15, 2013 meeting, a definition of accretion was presented, which had not previously been defined in discussions or reports. This may differ from other definitions of accretion, even from other Study Progress Reports, such as the Instream Flow report. For instance, Table A-1 of the Water Resources report shows that in summer 2012, flow in BPL was often less than in BPU, indicating flow loss, rather than accretion. Based on the data available, it is unclear to ODFW whether anything can be concluded about accretion. The understanding of accretion will be important in the discussions of minimum flow and the location (siting) of the flow gage (i.e. minimum flow compliance point). In the Final Study Report please provide further clarification and discussion of accretion and water flow in the bypass reach. (Attachment B)

PacifiCorp Response: Hydrology – *PacifiCorp agrees that accretion was ambiguously defined, and although the term is commonly used in the context of sediment movement or meteorological phenomena, accretion is not technically a hydrology term. PacifiCorp will provide a more complete analysis of base-flows and runoff in the Water Resources Final Technical Report based on the full WY 2012 flow data set. PacifiCorp also will conduct a second year of flow monitoring data collection at four sites in 2013 (i.e., sites EFI, BPU, BPL, and PHT) and report the results in the Updated Study Report in January 2014. These efforts should help to distinguish between flow contributions from base-flows versus flow contributions from runoff, and how the balance of these flow sources varies throughout the year. PacifiCorp will ensure that definitions and characterizations of the different flow contributions are consistent among study reports. (Attachment B)*

Oregon Dept. of Fish and Wildlife: Aquatics - Sections 3.4, Results - Several different fish barriers, or possible partial barriers, in the bypass reach are referred to in the report. On the maps provided (such as Figure 3.3.1) please indicate the location of all barriers that are discussed in Section 3.4. This will help in the understanding of the distribution of fish within the bypass reach. Further, a portion of the bypass reach above the anadromous fish barrier (a 10+ foot high waterfall) was electrofished. Please indicate on the map where this sample was performed. Photographs of the barriers would also be helpful. (Attachment B)

PacifiCorp Response: Aquatics - *Partial and full fish barriers, as well as the fish presence survey index area upstream of the lowermost anadromous fish barrier, will be identified and labeled in the Final Technical Report. (Attachment B)*

Oregon Dept. of Fish and Wildlife: Aquatics - Section 3.5 (page 17) – The third paragraph states that the efforts to seine the forebay were inconclusive to determine the fish presence. The fish sampling of the forebay occurred after it was drained, during which all

water and some sediment were evacuated, according to the Sediment and Substrate Characterization Technical Memorandum. ODFW recommends that the forebay be seined in 2013. It is suspected that fish are washed into the forebay after the high water flows during spring/early summer snow melt. Sampling in 2013, after snow melt, will provide more conclusive evidence of the presence of fish in the forebay. It is assumed that the forebay will not be drained in 2013. (Attachment B)

PacifiCorp Response: Aquatics *- PacifiCorp will conduct one forebay sampling event in the summer of 2013. Due to the bathymetry of the forebay, seining surveys will not be employed. Instead, a snorkel survey to visually quantify and document species residing within the forebay will be utilized. (Attachment B)*

Oregon Dept. of Fish and Wildlife: Aquatics - The objective of the Macroinvertebrate study, as stated in the Revised Study Plan (December 2011) was to determine species composition and relative abundance to gain an understanding of the current macroinvertebrates in the bypass reach. The Study Progress Report indicates that the sampling occurred after the forebay was drained, releasing sediment and organisms from the forebay into the bypass reach. Therefore, the sampling did not reflect the normal operating environment (or baseline) of the bypass reach, and thus does not provide a full understanding of the current, or normal, macroinvertebrate community. ODFW therefore recommends that the macroinvertebrate sampling be repeated in 2013. (It is assumed that the forebay will not be drained in 2013.) Further, the data presented in the Study Progress Report need additional analysis and interpretation to describe the ecological significance of the species present. This will help with the understanding of the macroinvertebrate community in the bypass reach and their use in the assessment of ecosystem health. (Attachment B)

PacifiCorp Response: Aquatics *- PacifiCorp will conduct additional analysis of the macroinvertebrate sample collected in 2012 to clarify the points below:*

- *Describe species composition of the "other aquatic macroinvertebrate species" category used in the Study Progress Report.*
- *Describe the ecological context of the sampled species composition particularly regarding the species Oligochaeta (segmented worm).*

This information will be presented in the Aquatics Final Technical Report in June 2013 and used to determine whether or not additional aquatic macroinvertebrate sampling is needed. Unless the additional analysis provided in the June 2013 Final Technical Report indicates it is not necessary by mutual agreement with stakeholders, PacifiCorp will collect an additional macroinvertebrate sample in the summer\fall of 2013 using the methods and locations employed for the 2012 macroinvertebrate sampling and analysis described above. The results will be presented in the Updated Study Report in January 2014.
(Attachment B)

Oregon Dept. of Fish and Wildlife: Aquatics - Figures 5.3.1, 5.3.2 and 5.3.3 would be more useful if the categories reflected ecologically significant groups (such as tolerance/intolerance, feeding group, sensitivity to impairment) rather than species. (Attachment B)

PacifiCorp Response: Aquatics *- PacifiCorp will conduct additional analysis of the macroinvertebrate sample collected in 2012 to clarify the points below:*

- *Describe species composition of the "other aquatic macroinvertebrate species" category used in the Study Progress Report.*
- *Describe the ecological context of the sampled species composition particularly regarding the species Oligochaeta (segmented worm).*

(Attachment B)

US Fish & Wildlife Service: Sediment and Substrate Characterization – PowerPoint presentation (1/15/13, Slide 61) -- Copper levels exceed the EPA Freshwater Thresholds for Units B & C. Why are the copper levels high? If this is naturally sourced copper from the watershed are copper levels expected to remain high in the reservoir sediment?
Will there be any remedial action to deal with the copper? A monitoring protocol? (Attachment C)

PacifiCorp Response: Sediment and Substrate Characterization *- The Wallowa Mountains lie on the north edge of a belt of metalliferous deposits that extend from central Grant County in Oregon eastward to Hells Canyon and beyond into Idaho. The principal metals found in the area are gold, copper and silver and minor amounts of lead (Weis et.al, E-27). The dominant parent rock type observed near the upper (southern) portion of the Project appears to be andesite from the Clover Creek Greenstone formation and basaltic andesite from the Columbia River Basalt Group (PacifiCorp 2012).*

The mineral survey of the Eagle Cap Wilderness conducted in the 1970's by the U.S. Geological Survey and U.S. Bureau of Mines indicates that the background content of copper in basalt from the Columbia River Group runs from 100-300 parts per million (ppm) (Weis et.al, E-29). Copper was found to be the most abundant metal within the Eagle Cap Wilderness study area and was found in anomalous (100 ppm or more) quantities throughout the area. Significant concentrations of copper were found in the Aneroid Lake Basin which lies southeast of the Project area as well as in some shears and quartz veins in greenstone formation (Weis et.al, E-33).

Based on the above summarized information regarding the geologic setting of the project area and the fact that the geographic area immediately upstream of the project is a designated wilderness area with no known anthropogenic sources for copper contamination, PacifiCorp believes that the detected copper concentrations in forebay sediments are indicative of naturally occurring background levels of copper.

Copper tends to bind to organic materials and sediment is a sink for copper. By implementing the proposed action of regular forebay flushing during spring high flows, PacifiCorp will be mimicking the transport of sediments through the system at the point in the hydrograph when transport would be most likely to naturally occur. Routine forebay flushing will reduce entrainment of significant quantities of sediment in the forebay and allow for a more natural sediment transport regime throughout the lower East Fork Wallowa River.

PacifiCorp plans no further action actions related to copper detections in forebay sediment samples. (Attachment C)

Works Cited:
PacifiCorp; Wallowa Falls Hydroelectric Project FERC Project No. P-308 Study Progress Report (Draft Technical Report) Geology and Soils. 2012

Weis, Paul L., Gualtieri, J.L., and Cannon, William F., U.S. Geological Survey; Tucheck, Ernest T., McMahan, Ariel B. and Federspiel, Francis E., U.S. Bureau of Mines. Mineral resources of the Eagle Cap Wilderness and Adjacent Areas, Oregon. Geological Survey Bulletin 1385-E. 1976.

US Fish & Wildlife Service: Sediment and Substrate Characterization – PowerPoint presentation (1/15/13, Slide 69) —Transect 4 has high sediment levels. You had mentioned in meeting that this transect contained a side channel. You had stated that these transects were not based on habitat. Recommend you describe the habitat features of these transects to help in determining effects to bull trout critical habitat. (Attachment C)

PacifiCorp Response: Sediment and Substrate Characterization - *The habitat features of each of the Wolman pebble count transects locations (e.g. riffle, pool, etc.) will be described in the Final Sediment and Substrate Characterization Technical Report. (Attachment C)*

US Fish & Wildlife Service: Sediment and Substrate Characterization – PowerPoint presentation (1/15/13, Slide 70) -- Do the data reflect transects 4, 3, and 2 or 3, 2, and 1? The title and legend are contradictory. (Attachment C)

PacifiCorp Response: Sediment and Substrate Characterization - *Substrate bulk samples were collected at transects 4, 3 and 2. The contradiction on Slide 70 of the PowerPoint presentation has been corrected and posted on the PacifiCorp project website. (Attachment C)*

US Fish & Wildlife Service: Sediment and Substrate Characterization – PowerPoint presentation (1/15/13, Slide 72) - We agree that flushing with the earlier peak (in early June) will minimize impacts to species and habitat. However, the turbidity monitoring does not coincide with the accidental sediment release, and we do not have turbidity data for other flushing events. Is there any estimations of what turbidity levels might be given the quantity and caliber of sediment and the expected flows? Could an "operating envelope" be developed for flushing that requires flushing above a certain flow threshold? We recommend a turbidity monitoring plan associated with the flushing for at least three years. (Attachment C)

PacifiCorp Response: Sediment and Substrate Characterization - *At this time there are no estimations of turbidity during flushing, other than visual observations during the 2012 reservoir draining and past flushing events.*

Estimating turbidity levels during flushing events based on existing data (grain size distribution, sediment volume, and potential flow) is difficult for several reasons:
1) Turbidity is related to suspended sediment concentrations, but there is not a linear relationship between the two. In addition, turbidity can be affected by dissolved solids, organic matter, and other water clarity constituents that cannot be predicted from existing information.
2) The suspended sediment concentrations during flushing events will vary through time

as the flow through the forebay erodes and transports accumulated material downstream. One could theoretically calculate average suspended sediment concentrations given the percent silt/clay in the forebay deposits, estimated total volume of sediment that would be eroded, and total volume of water during the flush. However, this calculation would not be very meaningful because, as with the turbidity levels measured during June flows at the project, the actual suspended sediment concentrations will vary depending upon actual flow during the flushing event(s).

Collecting turbidity data during an actual flushing event will be the best way to evaluate the range of turbidity levels expected during future flushing events; the data collected will provide a relationship between flow, turbidity, and the volume of eroded sediment. To this end, turbidity will be monitored during the planned forebay flushing event in June 2014.

The challenge with an "operating envelope" or prescribed flushing flows would be, given the remoteness of the project location, PacifiCorp's ability to mobilize staff to the site for the required flushing operations and associated monitoring actions during a given flow. The 2012 hydrograph indicates that stream flows within the month of June can vary by as much as 28 cubic feet per second (cfs) in as little as 48 hours. Such a dynamic and unpredictable hydrograph may make it very challenging to flush within a target range of flows. Given the unpredictability of flows, PacifiCorp suggests that priority be given to flushing forebay sediments as early in June as possible to increase the likelihood that subsequent peak flow events will transport flushed sediments through the system.

PacifiCorp agrees that a turbidity monitoring plan for forebay flushing operations is warranted. Such a plan will be included in the Preliminary License Proposal. (Attachment C)

US Fish & Wildlife Service: Sediment and Substrate Characterization – The US Fish and Wildlife Service requests a draft of the Biological Assessment be submitted prior to it being formally submitted as part of the Clean Water Act Section 404 permit for 2014 Forebay Flushing.

PacifiCorp Response: Sediment and Substrate Characterization – *PacifiCorp will submit a draft Biological Assessment for flushing the forebay in 2014 to Gretchen Sausen (US Fish & Wildlife) at the same time it is submitted to the U.S, Army Corps of Engineers.*

US Fish & Wildlife Service: Sediment and Substrate Characterization Technical Memorandum - Use English units throughout the project description. (Attachment D)

PacifiCorp Response: Sediment and Substrate Characterization Technical Memorandum *- English units will be used throughout the project description section and Standard International units will be used throughout the rest of the Final Sediment and Substrate Characterization Technical Report.*

US Fish & Wildlife Service: Sediment and Substrate Characterization Technical Memorandum - Provide a base map with all sampling locations in detail, not just general areas – for example, plot the sampling location for the Surface Sediment Sampling in the forebay. (Attachment D)

PacifiCorp Response: Sediment and Substrate Characterization Technical Memorandum *- A base map for Wolman pebble count-transect locations was provided in the draft Technical Memorandum. A sampling map for the surface sediment samples collected in the forebay will be provided in the Final Sediment and Substrate Characterization Technical Report. (Attachment D)*

US Fish & Wildlife Service: Sediment and Substrate Characterization Technical Memorandum - Number the four objectives listed on page 3, then refer to these objectives when describing both the Field Activities and the Data Analyses – for instance. "sediment volumetric survey" in Table 1 addresses Objective 1 "determine volume of sediment material entrained in the project forebay." Cross walking this information will make the report much more understandable. (Attachment D)

PacifiCorp Response: Sediment and Substrate Characterization Technical Memorandum *- The study objectives will be clearly correlated to specific field activities and data analysis in the Final Sediment and Substrate Characterization Technical Report.*

US Fish & Wildlife Service: Sediment and Substrate Characterization Technical Memorandum - If 316 cy [cubic yards] of sediment was unintentionally evacuated in August, then I assume this reduces the total forebay storage from 560 cy down to 144 cy. Or was the 316 cy lost prior to the forebay survey, which then means that there was originally 704 cy yards of material. This is not clear in the report. (Attachment D)

PacifiCorp Response: Sediment and Substrate Characterization Technical Memorandum *– There were 560 cubic yards of sediment entrained in the forebay prior to the August 2012 forebay draining. During that draining, 316 cubic yards of material was evacuated from the forebay, leaving approximately 244 cubic yards of materials in the forebay as of the second week of August 2012. (Attachment D)*

US Fish & Wildlife Service: Sediment and Substrate Characterization Technical Memorandum - Table 2 needs to be converted into a map. (Attachment D)

PacifiCorp Response: Sediment and Substrate Characterization Technical Memorandum *– Comment noted.*

US Fish & Wildlife Service: Sediment and Substrate Characterization Technical Memorandum - If Figure 3 is the surface Wolman pebble count, then is Table 3 the subsurface samples? (Attachment D)

PacifiCorp Response: Sediment and Substrate Characterization Technical Memorandum *– Both Figure 3 and Table 3 pertain to Wolman pebble counts. (Attachment D)*

US Fish & Wildlife Service: Sediment and Substrate Characterization Technical Memorandum - Combine surface, subsurface and forebay particle size distribution information onto one chart for comparison purposes. (Attachment D)

PacifiCorp Response: Sediment and Substrate Characterization Technical Memorandum *– Such a chart was provided on Slide 68 of the January 15th Meeting PowerPoint presentation. This chart will also be included in the Final Sediment and Substrate Characterization Technical Report. (Attachment D)*

US Fish & Wildlife Service: Sediment and Substrate Characterization Draft Technical Memorandum - Analyze and summarize the results from the surveys and sampling. (Attachment D)

PacifiCorp Response: Sediment and Substrate Characterization Technical Memorandum – *The intent of the Technical Memorandum was to document what survey activities were completed and what data was collected during the 2012 field season. PacifiCorp recognizes that further analysis is required to determine the potential effects of forebay flushing on bull trout and designated Critical Habitat. A more thorough analysis of data collected will be provided in the Final Sediment and Substrate Characterization Technical Report as well as the future Biological Assessment for Section 7 consultation under the Endangered Species Act for the proposed relicensing of the Wallowa Fall Hydroelectric Project. (Attachment D)*

US Fish & Wildlife Service: Geology and Soils Draft Technical Report (Page 8) — "There is the potential for debris flow slides to occur upstream of the dam that could generate significant quantities of sediment and debris that could cause sedimentation issues at the forebay". Recommend this be included in the baseline for consultation on bull trout for annual forebay flushing (Corps and FERC relicense). (Attachment C)

PacifiCorp Response: Geology and Soils Draft Technical Report (*Page 8) -*
The potential for debris flow slides to occur upstream of the dam will be noted in the environmental setting discussion of documents supporting Section 7 consultation under the Endangered Species Act for the proposed relicensing of the Wallowa Fall Hydroelectric Project. (Attachment C)

US Fish & Wildlife Service: Aquatic Studies Draft Technical Report (Page 17) - Fish sampling at forebay—"The fact that no fish were captured or observed during the two project forebay surveys is inconclusive with respect to fish presence within this area". Recommend the presence/absence fish survey be repeated at a minimum once in late summer (August or September 2013 and not during a flush of forebay), at the forebay and upstream to get a baseline, as survey in 2012 was post accidental sediment flush at forebay. (Attachment C)

PacifiCorp Response: Aquatic Studies Draft Technical Report (*Page 17) PacifiCorp will conduct one forebay sampling event in the summer of 2013. Due to the bathymetry of the forebay, seining surveys will not be employed. Instead, a snorkel survey to visually quantify and document species residing within the forebay will be utilized. (Attachment C)*

US Fish & Wildlife Service: Aquatics - Macro-invertebrates (Pages 24-31) - Macro-invertebrate survey was conducted post August accidental forebay flush in 2012. To capture a true baseline, we recommend a macro-invertebrate survey be conducted in August 2013. The data presented in the 2012 report needs additional analysis to determine stream health (ecological condition and species sensitivity to impairment). Recommend analysis of sample include taxa richness/diversity within each sample, composition measures, tolerance/intolerance measures, and feeding measures (presented in enough detail to be meaningful, easy to understand for the layperson). The resurvey in 2013 will need the same amount of analysis (mentioned above) for the data to be meaningful. This macro-

invertebrate data and analysis will be used; 1) in conjunction with the water quality and flow data to assess ecological health of the aquatic system; and 2) in ESA consultation for bull trout species and critical habitat for this project. (Attachment C)

PacifiCorp Response: Aquatics – Macro-invertebrates *- PacifiCorp will conduct additional analysis of the macroinvertebrate sample collected in 2012 to clarify the points below:*

- *Describe species composition of the "other aquatic macroinvertebrate species" category used in the Study Progress Report.*
- *Describe the ecological context of the sampled species composition particularly regarding the species Oligochaeta (segmented worm).*

This information will be presented in the Aquatics Final Technical Report in June 2013 and used to determine whether or not additional aquatic macroinvertebrate sampling is needed. Unless the additional analysis provided in the June 2013 Final Technical Report indicates it is not necessary by mutual agreement with stakeholders, PacifiCorp will collect an additional macroinvertebrate sample in the summer\fall of 2013 using the methods and locations employed for the 2012 macroinvertebrate sampling and analysis described above. The results will be presented in the Updated Study Report in January 2014.
(Attachment C)

US Fish & Wildlife Service: Fish Migration Barriers - Recommend all potential fish migration barriers be identified in future reports, exact location (river mile) and identified on a map. (Attachment C)

PacifiCorp Response: Fish Migration Barriers *- - All partial and full fish barriers will be identified and labeled within the Final Technical Report. (Attachment C)*

US Fish & Wildlife Service: Water Resources Draft Technical Report (Page 6) - Accretion of flow and minimum flow need for fish. In the meeting on 1/15/13 the presenter had suggested that accretion (your definition) was defined differently than others definition. Please include your definition in your updated reports. Mention of natural accretion of flow of 1-2 cfs assumed to occur in bypass reach, this needs further quantification. Estimate of pipe release. This needs accurate measurement. Accretion does not appear to be steady throughout year; in August-September losing flow from what is estimated at diversion and what is measured downstream at gage. Mention of leakage at dam, but if this does not occur in dry period, this will not provide necessary flow to downstream fish and habitat. A minimum flow will need to be established and measured in bull trout habitat on the EF Wallowa River. (Attachment C)

PacifiCorp Response: Water Resources Draft Technical Report *(Page 6) - PacifiCorp will ensure that definitions and characterizations of accretion are clear and consistent in the Water Resources Final Technical Report by replacing references to accretion with clearly-defined references of base-flow and runoff. The reference to accretion of 1 to 2 cfs in the Draft Technical Report was based on limited estimates made prior to the latest flow data collection for the Water Resources Study. This reference will be corrected in the Water Resources Final Technical Report based on a more complete analysis of base-flow and runoff using the latest flow data from the study. Definition and characterization of accretion in the Instream Flow Final Technical Report will also be corrected accordingly. PacifiCorp plans to coordinate with ODFW, USFWS, and other interested stakeholders on instream*

flow needs for supporting habitat in the East Fork, which will include consideration of base-flow variability throughout the year. (Attachment C)

US Fish & Wildlife Service: Water Resources Draft Technical Report (Page 6) - Forebay flushing, please update with current information for bull trout. Refer to sediment characterization report for June recommended flushing to benefit bull trout and other fish species. (Attachment C)

PacifiCorp Response: Water Resources Draft Technical Report *(Page 6) - The information on forebay flushing and bull trout will be revised as appropriate in the Water Resources Final Technical Report based the latest information from the Sediment Characterization and Aquatics Resources studies. (Attachment C)*

US Fish & Wildlife Service: Water Resources Draft Technical Report (Pages 12, 16) - Turbidity –It was conducted in 2012, refer to sediment characterization report. (Attachment C)

PacifiCorp Response: Water Resources Draft Technical Report *(Pages 12, 16) - The Water Resources Final Technical Report will refer to the Sediment Characterization study for information on turbidity. (Attachment C)*

PacifiCorp: Instream Flow and Habitat: Planned 2013 Study Activities

Instream Flow and Habitat: PacifiCorp will arrange a stakeholder meeting in March\April to discuss Physical Habitat Simulation Model (PHABSIM) results and recommendations.

PacifiCorp: Aquatics – Bull Trout Evaluation: Planned 2013 Study Activities

- 38 bull trout tissue samples collected during 2012 EF Wallowa electro-fishing surveys are currently undergoing genetic analysis at the Abernathy Lab.
- No bull trout tagged during the EF Wallowa River electro-fishing surveys were encountered at the fixed Passive Integrated Transponder (PIT) tag antenna located near the stream mouth in 2012; additional electrofishing surveys with the goal of recapturing these tagged individuals will be completed in summer 2013.
- An additional season of migration data past fixed PIT tag antennas will be completed in the fall of 2013.
- Data analysis and Final Technical Report will be completed December 2013.

Meeting Minutes

Introduction

Following introductions, Russ Howison (PacifiCorp) reviewed Near Term Relicensing Schedule as indicated below:

Party	Milestone	Date
FERC	Director's Study Plan Determination	January 4, 2012
PacifiCorp	Conduct Studies	Spring-Fall 2012
All stakeholders	Study Progress Meeting	October 23, 2012
PacifiCorp	Study Progress Report	December, 2012
PacifiCorp	File Initial Study Report (ISR)	January 3, 2013
All stakeholders	Initial Study Report Meeting	By January 17, 2013
PacifiCorp	File ISR Meeting Summary	By February 2, 2013
All Stakeholders	Disputes/Requests to Amend Study Plan Due to FERC	March 3, 2013
All Stakeholders	Responses to Requests Due to FERC	April 3, 2013
FERC	Director's Determination	May 3, 2013
PacifiCorp	Second Study Season (as needed)	Spring Summer 2013
PacifiCorp	Final Technical Report (assumes 1 study season)	June 2013
PacifiCorp	File Preliminary Licensing Proposal	October 1, 2013

Party	Milestone	Date
All stakeholders	Preliminary Licensing Proposal Comments Due	December 30, 2013
PacifiCorp	File Updated Study Report (USR)	January 3, 2014
All stakeholders	Updated Study Report Meeting	By January 17, 2014
PacifiCorp	File USR Meeting Summary	February 2, 2014
PacifiCorp	File Final License Application	February 28, 2014
PacifiCorp	Issue Public Notice of App. Filing	March 14, 2014
Party	**Post Filing Milestone**	**Date**
FERC	Issue Public Tendering Notice	March 14, 2014
FERC	Director's Determination on Any Additional Study Requests	March 30, 2014
FERC	Issue Ready for EA Notice	April 29,2014
Agencies	Terms, Condit's, Recomm's Due	June 28, 2014
FERC	Issue License Order	March 25, 2015

Matt Cutlip (FERC – Portland) communicated that since PacifiCorp submitted its Initial Study Report (ISR) one day early (January 3, 2013) the schedule presented in the meeting may not be accurate by a day or two. The correct dates are provided in Appendix B of the FERC Scoping Document 2, dated August 4, 2011. Any additional changes to the schedule will be issued by the Federal Energy Regulatory Commission (FERC).

Howison informed the attendees that as they continue to review the Study Progress Report and ISR they are welcome to submit additional comments to PacifiCorp. PacifiCorp is not closing the comment period after March 3, 2013.

Cutlip also explained that the goal of this meeting is to work things out informally, and summarize issue resolution in this Meeting Summary. Stakeholder comments on the proposed studies for 2013 or disputes, if any, must be filed with the FERC by March 4, 2013. The March 3rd date indicated above is incorrect. Any request to modify an ongoing FERC-approved study must meet the criteria identified in 18 CFR §5.15(d). Any proposal for new information gathering or studies must meet the criteria identified in 18 CFR Section §5.15(e). The goal is to resolve any and all issues as early in the process as possible. As the Project moves forward the bar becomes higher for study requests, so this is the best time to resolve study issues and concerns.

Howison reviewed the meeting objectives; to provide a quick review of the study methods, results to date, and to discuss any proposed modifications to the ISR identified 2013 study efforts in light of the progress to date of the studies and data collected. Both the ISR and a copy of the ISR Meeting presentation given by the resource leads at the meeting can be found at:

ISR:
http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Hydro/Hydro_Licensing/Wallowa%20Falls/WFHP_Initial_Study_Rpt_Final_Jan_2013-P8.pdf

Presentation:
http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Hydro/Hydro_Licensing/Wallowa%20Falls/ISR_Meeting_MASTER_Day_1_01_15_13_FINAL.pdf

Geology & Soils
Howison identified the study objectives, study area and methods. Brent Black, (Cornforth Consultants) informed the attendees that a desk top analysis was completed in August, 2012 followed by a 3-day walking field reconnaissance in September 2012, followed by the risk and needs assessment. No variances from the study plan have occurred to date. At this time, it appears that the field data collected is sufficient to meet study objectives.

Black reviewed the geologic hazards which include:

- The project area has no history of large translational landslides and no signs of ancient landslide terrain or global instability were observed during the site reconnaissance.
- No historically active deep-seated slumps or rotational slides were observed as well.
- History of debris flows in the drainages of the E. and W. Fork of the Wallowa River.
- A significant debris flow slide occurred in 2006 on the west slope across the East Fork Wallowa River. The debris flow slide occurred on the opposite side of the river from the penstock, and the event deposited a significant amount of debris and sediment that temporarily dammed the river.
- Based on the steeper slopes and thinner soil and vegetation cover, the western slopes above the East Fork Wallowa River appear more susceptible to debris flows than the eastern slopes; therefore, the penstock and access road are less vulnerable to this type of slide event.

The meeting presentation includes a Google earth map that illustrates the difference in the topography of the east fork canyon; west side vs. east side. The west is steeper terrain, and has seen several geologically recent debris flows. The east side includes talus fields, which lack trees in many areas. The hazards associated with rockfall or instability of the talus pile along this segment is considered low. The penstock is located on the east side of the East Fork for most of its length. Approximately 1,400 feet downstream of the dam the penstock crosses to the upslope (east) side of the access road, where it is less susceptible to local failures associated with the road cuts and fills. The most significant geologic hazard is likely a debris flow event. However, based on the steeper slopes and thinner soil and vegetation cover, the western slopes above the East Fork Wallowa River appear more susceptible to debris flows than the eastern slopes; therefore, the penstock and access road are less vulnerable to this type of slide event.

No study modifications are proposed at this time. Preliminary recommendations for future management are described below:

- Continue erosion control practices and vegetation management throughout the project area.

- Assess the tree conditions and remove any trees along the penstock alignment and the Royal Purple Creek diversion flowline that represents a hazard.
- Continue to monitor the access road and cut and fill slopes along the penstock alignment paying particular attention to the Royal Purple Creek drainage area and the segment between the dam and where the penstock is located on the west side (down slope) of the access road (approximate Stations 0+00 to 17+50).

Gretchen Sausen (US Fish & Wildlife Service) inquired what the erosion control practices are. Black responded that roads are not used often; not traveled by pickup trucks. Quad use occurs only on a monthly basis. There are few culverts on the Project site (mainly the switch-back at Royal Purple Creek) are inspected monthly for clogs and debris. Water bars in the Creek area could use some attention. Minor erosion; does not appear to be a sedimentation issue at this time.

Some erosion at Royal Purple Creek switch-back area; associated with the steeper cuts in switch-backs, soils in over-steepened cuts are predominately granular glacial till and colluvium that will naturally travel until they reach their natural angle of repose. Because of the poor quality soils, it is difficult to get vegetation established in these granular materials.

Jerry Hustafa (US Fish & Wildlife Service) asked about snow slides and the overall stability of talus slopes

Black explained that localized areas of minor sloughing associated with cut and side cast construction techniques along the access road were observed during the site reconnaissance. These areas do not pose an immediate risk to the penstock; however, they will likely continue to be an access road maintenance issue. Howison expressed that the FTR will include recommendations and how to address slumps; and a general ongoing program for hazard evaluation.

Howison expressed that the FTR will include recommendations on how to address slumps; and a general ongoing program for hazard evaluation.

Black said that the slope is angled at 30° - 35°; pretty typical of talus slopes. The penstock is constructed through angular interlocked talus. This material is interlocking and free draining in nature, which increases shear strength. Risk is low for rock fall to reach the penstock. A large debris flow is the most likely geologic hazard. On the west side of the canyon opposite the penstock, potential for debris flows appears higher. Therefore, the potential for direct impact to penstock appears low. There is also the potential for debris flow slides to occur upstream of the dam that could introduce sediment and debris to the forebay. This material would likely be retained by the dam and could subsequently be removed during a planned flushing of the forebay.

Sausen said that “there is the potential for debris flow slides to occur upstream of the dam that could generate significant quantities of sediment and debris this in turn could cause sedimentation issues at the forebay”. She recommended this be included in the baseline for consultation on bull trout for annual forebay flushing (Corps and FERC relicense).

Terrestrial Resources – Noxious Weed Study
Howison identified the study objectives, study area, study methods, field work conducted to date, study status and discussion points. Howison also pointed out that the study area is wider than the proposed project boundary. To date no variances from the study plan have occurred.

No additional field work or study modifications are proposed at this time.

Hustafa was confused about the extent of the terrestrial study area that was agreed to. PacifiCorp initially described a study area of a ¼ mile radius around Project facilities in the Pre-Application Document (pg. 36).

Kendel Emmerson (PacifiCorp) said that because of the steep topography it would be difficult to do a Plant Association Group (PAG) analysis within ¼ mile radius of the Project.

Howison recalled that PacifiCorp's revised study plan identified a 100 meter radius from a PacifiCorp facility, but said that he would go back through the record to determine how this was arrived at and follow up with the Forest Service (results are provided in the table above).

Emmerson identified study objectives, study area, methods, discussion points and field work conducted. She also provided maps that illustrated existing noxious weed locations and document results.

Hustafa asked if the riparian areas around Royal Purple Creek diversion are considered riparian and not wetland. Emmerson said that the section of Royal Purple Creek adjacent to the diversion dam is a pretty narrow riparian zone and did not have a wetland influence. Kaylea Foster (PacifiCorp) indicated that area (around the diversion dam) is an amazingly steep v-shaped valley and does not facilitate a wetland to any degree.

Hustafa also pointed out that the photo description on page 29 of the December 2012 Study Progress Report for Terrestrial Resources indicates reed canary grass is present when the botanical consultants did not report any reed canary grass. Hustafa requested PacifiCorp revisit the report and make appropriate changes to the text and Figure 5.

Dan Gonzalez (USFS) requested PacifiCorp send copies of GIS shape files, for all resources on National Forest Lands to the USFS.

No additional field work or study modifications are proposed at this time.

Terrestrial Resources – Riparian and Wetland Study
Emmerson identified the study objectives, study area, methods, field work conducted to date, and discussion points. Emmerson noted that most of the East Fork Wallowa river banks within the Study Area are inaccessible, so points were collected where accessible and then corrected, as needed, on aerial imagery.

A few small wetlands and tributaries were located and a map was included in the presentation for review of attendees.

No additional field work or study modifications are proposed at this time.

Terrestrial Resources – Vegetation Cover Study
Emmerson identified the study objectives, study area, methods, field work conducted to date, and discussion points. Emmerson noted that most of the East Fork Wallowa river banks within the Study Area are inaccessible, so points were collected where accessible and then corrected, as needed, on aerial imagery.

Emmerson pointed out that several areas were inaccessible and had to be assessed from vantage points. Because there are no plant association groups (PAGs) that accurately described the talus slopes, three PAGs had to be created to capture this information. Talus slopes were divided into 3 categories Talus (TALU) for areas that were bare rock with less than 25% vegetation cover, Talus-shrub (TALU-SHRU) are talus slopes with mixed shrub cover that is $\geq$ 25%, and talus slopes that had quaking aspen tree cover that is $\geq$ 25% as Talus/Aspen (TALU-POTR).

Hustafa asked what component of the work was done by in-house specialists vs. contractors. Emmerson said that all work completed was internal at PacifiCorp with in-house GIS group; if any ground disturbance is proposed in a potential wetland, PacifiCorp would hire a wetland delineation specialist. This level of analysis is not warranted for relicensing effort.

In response to a question from Hustafa, Emmerson replied that PacifiCorp did use the PAG groups developed by the Forest Service.

Emmerson also included a map in the presentation for attendee review that delineates the distinct plant communities into vegetation cover type polygons using aerial imagery, topography, streams, roads and existing GIS datasets.

Hustafa also asked how much analysis was done as a desktop review of aerial imagery vs. what was reviewed in-field. Emmerson said that the imagery has a lot of shadows in the study area so you can't see the vegetation class between shrubs and trees. In June & July 2012 she covered 65% - 70% of the study area by walking the study area to ground-truth the aerial imagery.

No additional field work or study modifications are proposed at this time.

Terrestrial Resources – Wildlife Study
Howison identified study objectives, study area, methods, discussion points and field work conducted.

Howison pointed out that the surveys confirmed the presence of the known sensitive species and determined the presence of the Rocky Mountain tailed frog in the waters upstream of the fore bay and the likely assumption is they are downstream (in the bypass reach) also.

Hustafa asked if there is a program of hazard tree reduction. Howison said yes, not as routinely as we would like but we do have one. He further stated that PacifiCorp plans to develop for the license application an annual routine program. Weatherly expressed that historically PacifiCorp has conducted a hazard tree analysis every 3 years.

No additional field work or study modifications are proposed at this time.

<Break 10:15am>
<Reconvene 10:30am>

Water Resources
Ken Carlson (CH2M Hill) identified study objectives, study area, data collection activities and status of data collection activities.

Carlson informed the attendees that the East Fork watershed area is smaller than the West Fork watershed area, which is a factor in water temperature conditions as presented later. Historically, there were USGS gage sites in the lower end of bypass reach and in the powerhouse tail race. There was an additional reporting site (bypass reach + tailrace) for estimating the total flow the East Fork was providing to the Project. This data provides approximately a 60-year record of East Fork Wallowa flows.

Carlson reviewed the 2012 data collection highlights and provided charts that illustrated the following:

- Average Monthly Flows by study sites
- Accretion in Bypass Reach
- Peak Flows in Bypass Reach
- Water Temperature Regime
- Dissolved Oxygen
- Saturation Levels & Elevation
- Total Dissolved Gas (TDG) Measurements
- Turbidity

Additional work proposed includes the following:

- No additional data collection in 2013 recommended at this time
- No other additional actions or adjustments needed for this study
- During 2013, water resources data analyses will be completed
    - Assessment of Project-related effects on water resources
    - Assessment of compliance with State water quality standards
    - Final results and recommendations for the Final Technical Report
        - Anticipated completion: June 2013

Carlson notes that 2012 average flows are near historic averages. Carlson presented hydrographs of daily average flows at the East Fork Intake (EFI), Royal Purple Intake (RPI) and Powerhouse Tailrace (PHT) sites.

Tim Hardin (Oregon Dept. of Fish & Wildlife) asked if it is accurate to say that if the PHT flow was only as high as 14 cubic feet per second (cfs) in the reporting period, then it's safe to say that PHT won't ever get to 16 cfs.

Howison replied that the Project is capable of diverting the full water right of 16 cfs and that it appears from the hydrograph included in the presentation that PHT flows were near 16 cfs for a short time in May-June of 2012. The Project does on occasion divert the full 16 cfs.

Elizabeth Moats (Oregon Dept. of Fish & Wildlife) asked when the powerhouse is shut down, why is their 2 cfs showing on the graph for PHT flow?

Weatherly said that during the vast majority of unit trips there is a deflector plate that is engaged and approximately 2 cfs continues to flow past the turbine into the tailrace. This prevents the tailrace from being completely dewatered when the powerhouse is shut down in most cases. There are instances when either a loss of penstock pressure or a loss of power to the intake headgate structure where the headgate closes and the PHT is dewatered. Additionally, the headgate is closed for safety reasons during certain maintenance actions. In these cases, a fish salvage of the powerhouse tailrace is performed.

An issue was identified on the hydrograph in the presentation where PHT flow is shown as being approximately 2 cfs in August and September but the headgate was known to be closed for maintenance reasons and a fish salvage was performed.

Foster explained that this is due to the fact that the rating curve used to calculate PHT flow assumes the deflector plate has engaged and the headgate remains open. Foster informed the attendees that she will modify the graph to reflect 0 cfs flow during periods when the headgate was closed.

Sausen asked how potential climate change effects would be considered is the analysis supporting the FERC license.

Cutlip said climate change will not be addressed by FERC in the NEPA documents. It was not raised as an issue in scoping. Bull trout will be addressed under Endangered Species Act consultation with the US Fish & Wildlife Service.

Carlson indicated that the Water Resources Final Technical Report would discuss climate change qualitatively in terms of what effect it may have on long-term hydrologic conditions. This would be based on available literature on estimated regional effects of climate change on hydrologic conditions.

Regarding water temperature conditions, Carlson explained that all seven sites monitored for water temperature (i.e., sites EFI, RPI, BPU, BPL, PHT, WFI, and WRC) are classified as “cold” regime, which is the coldest of the classifications for North American streams and rivers. Further, the water temperature regime in the East Fork is consistently cooler than the West Fork, which is likely explained by differences in relative elevation and solar exposure due to the smaller watershed size of the East Fork. Carlson pointed out that the trends in the 7-day maximum in the East Fork indicates a warming between the lower and upper ends of the bypass reach in spring and summer. Because of the significant elevation drop in the bypass reach, such warming is expected. However, Carlson indicated that additional analysis will be done for the final technical report to assess how Project diversion (to the Powerhouse) might contribute to this warming.

Carlson next reviewed the dissolved oxygen (DO) results, which indicate that DO concentrations are at or near 100 percent saturation in all measurements relative to natural ability to hold dissolved oxygen. Carlson then presented the total dissolved gas (TDG) results from the powerhouse tailrace showing that TDG concentrations are at or near 100 percent saturation in all

measurements. These results indicated that, as expected, TDG super-saturation is not a concern relative to powerhouse discharges. Carlson described that turbidity measurements were not taken as part of the Water Resources study during 2012 because routine forebay flushing did not occur. Turbidity and other sediment quality data were obtained as part of the evaluation of sediments during a forebay drawdown as Briana Weatherly will present next.

Moats asked for an explanation of the difference between forebay flushing and drawdown. Is forebay flushing part of normal operation? If so it will need to be evaluated as part of the relicensing process.

Howison informed the attendees that "flushing" includes mobilization of sediments with a high pressure water hose. Drawdown consists of opening the low level outlet and draining the forebay with no active flushing of sediment. PacifiCorp will propose to annually flush the forebay under a new license.

Hardin noted that the estimates of flow accretion in the bypass reach indicate considerable seasonal variation. As a result, Tim thinks that the compliance point for addressing instream flow needs in the bypass reach may need to be moved downstream (from current location at the upper end of the bypass reach). Carlson noted that the appropriate point for future instream flow compliance will require additional analysis and discussion as part of the instream flow study (presented later by Kaylea Foster).

Howison added that after discussing the 2012 water quality studies with John Dadoly of Oregon Department of Environmental Quality on January 14, PacifiCorp has agreed to conduct a second year of flow monitoring data at four sites in 2013 (i.e., sites EFI, BPU, BPL, and PHT). The results of this monitoring will be provided in the updated study report in January 2014.

Foster said that she recently changed out the level loggers with new equipment that has improved fine scale recording capability. PacifiCorp's 2013 data should be more refined due to instrument advances.

Moats indicated that she has a concern with freezing in the bypass reach. Carlson said that the water temperature data shows that conditions never quite reached the freezing level.

Sausen would like PacifiCorp to add its definition of accretion in the updated reports. Mention of natural accretion of flow of 1-2 cfs assumed to occur in bypass reach, this needs further quantification. Estimate of pipe release. This needs accurate measurement. Accretion does not appear to be steady throughout year; in August-September losing flow from what is estimated at diversion and what is measured downstream at gage. Mention of leakage at dam, but if this does not occur in dry period, this will not provide necessary flow to downstream fish and habitat. A minimum flow will need to be established and measured in bull trout habitat on the EF Wallowa River.

In addition, Sausen requested PacifiCorp please update the forebay flushing discussion with current information for bull trout. Refer to sediment characterization report for June recommended flushing to benefit bull trout and other fish species.

Sausen - Page 12, 16--Turbidity –It was conducted in 2012, refer to sediment characterization report.

There was one variance from the Study Plan in 2012: no routine forebay flushing occurred in 2012. Therefore, no turbidity sampling was conducted in August of 2012.

Carlson informed the attendees that as expected, the 2012 data confirmed that overall water quality is excellent, due to the relatively pristine location and characteristics of watershed area. Final Technical Report (June 2013) will provide final results, analyses, and recommendations.

<Break 11:30am>
<Reconvene 1:00pm>

Sediment and Substrate Characterization
Briana Weatherly (PacifiCorp) identified the purpose of data collection to anticipate and monitor potential changes in water quality and substrate composition in the bypass reach related to the planned activity of flushing sediment from the forebay. She also identified the study area, objectives, methods and field work conducted to date.

Weatherly informed the attendees that PacifiCorp is working on a replacement for the low level outlet headgate. This would allow flushing of the forebay in June during high runoff. PacifiCorp's current plan is replace the headgate in 2014 after the proposed 2014 flushing activity. After flows drop off, temporary outage (not generating), replace gate at that time.

Howison indicated that two Endangered Species Act consultations will be required for forebay flushing. One consultation will occur under the existing license for flushing in 2014 and one consultation will occur for annual flushing under the new license. It is reasonable to assume that the consultation done for forebay flushing in 2014 will be applicable to annual forebay flushing proposed under a new license.

Weatherly reported that the forebay was last flushed in 2009 during annual maintenance. In August of 2012 a sediment volumetric survey of the forebay was completed and the volume of sediment in the forebay was calculated to be approximately 560 cubic yards. Approximately 316 cubic yards were released in August 2012 during the forebay drawdown. Two hundred and forty four cubic yards are estimated to remain.

Weatherly reviewed grain size distribution and metals concentration results for sediment samples collected from the Project forebay in 2012. Weatherly also reviewed the results of Wolman pebble counts completed in the East Fork Wallowa River bypass reach. All transects were in documented fish habitat.

Moats asked if the final report would include an analysis of detected levels of heavy metals.

Weatherly stated that PacifiCorp will be issuing a FTR that will discuss heavy metal analysis in more detail. This will include a discussion of expected sources and environmental fate of metals detected in forebay sediments.

Weatherly presented analysis for small grain size classes for all samples; the small range of grain sizes 0.63 mm- 2mm have the potential to fill in interstitial spaces and silts and clays are more likely to create turbidity. Weatherly noted that transect locations were not selected based on habitat types, so it is difficult to draw conclusions about substrate grain size distributions and impacts to spawning gravels. Weatherly will provide more description of habitat types for each of the Wolman pebble count transect locations in the final technical report.

Bulk samples of sub-armor layer or river substrates were collected at Wolman pebble count transect locations 4, 3, and 2. Photos of each transect were provided for attendee review.

Weatherly discussed the June 2012 turbidity measurement results. Background turbidity at the lower staff gage (below the road bridge) in the bypass reach was measured continuously for the month of June 2012. A comparison the stream flows and turbidity show that highest turbidity levels appear to occur during the first high flow spike in the spring. Weatherly indicated that it would be beneficial to flush sediments earlier in the month of June to take advantage of early high flows and subsequent flow peaks to re-work/move sediment through the system.

Suspended sediment grab samples were collected 100m upstream of lower staff gage on June 14, 2012. All samples were below laboratory reporting limit of 34 mg/L.

Weatherly also reviewed the following discussion points:

- Periodic removal of sediment from the forebay is necessary for continued project operation.
- PacifiCorp will be pursuing all necessary permits and the associated Biological Opinion to flush the forebay in June 2014.
- Forebay flushing will occur annually after 2014 for the term of the current and any future FERC license.
- PacifiCorp is proposing that a Sediment and Substrate Characterization Study Plan be added to the Integrated Licensing Process for the Wallowa Falls Hydroelectric Project

PacifiCorp proposes the following additional work in 2013:

- Repeat Wolman pebble counts and photo documentation of site conditions at the same five transect locations after spring high flows.
- If the initial Wolman pebble counts indicate sediment is still present in the lower bypass reach, collect a second set of pebble counts and photos in late summer or early fall.
- During the month of June only conduct continuous monitoring of background turbidity levels in the East Fork Wallowa River at the upper staff gage upstream of the forebay and the lower staff gage below the road bridge.

Sausen asked if the US Fish and Wildlife Service will receive a draft of the Biological Assessment prior to it being formally submitted.

Weatherly agreed to submit a draft Biological Assessment for flushing the forebay in 2014 to Gretchen Sausen (US Fish & Wildlife) at the same time it is submitted to the U.S, Army Corps of Engineers.

Sausen communicated to the attendees that copper levels exceed the EPA Freshwater Thresholds for Units B & C. Why are the copper levels high? If this is naturally sourced copper from the watershed, are copper levels expected to remain high in the reservoir sediment? Will there be any remedial action to deal with the copper or a monitoring protocol?

Transect 4 has high sediment levels. Weatherly had mentioned that this transect contained a side channel and that these transects were not based on habitat. Sausen recommends we describe the habitat features of these transects to help in determining effects to bull trout critical habitat.

Sausen asked if the data reflects transects 4, 3, and 2 or 3, 2, and 1? The title and legend are contradictory. Weatherly responded that bulk samples were collected at Wolman pebble count transects 4, 3 and 2. The contradiction on Slide 70 of the PowerPoint presentation, regarding substrate bulk sample locations, has been corrected and posted on the PacifiCorp Wallowa Falls Project website.

PacifiCorp agrees that flushing during peak runoff (in early June) will minimize impacts to species and habitat. However, the existing turbidity monitoring data does not coincide with the accidental sediment release that occurred in August 2012. PacifiCorp does not have turbidity data for other flushing events. Weatherly was asked if there are any estimations of what turbidity levels might be given the quantity and caliber of sediment and the expected Instream flows. How would expected turbidity levels compare to state water quality standards?

Weatherly responded that the highest background turbidity recorded in the bypass reach in June 2012 was approximately 30 nephelometric turbidity units (NTU). The state water quality standard for turbidity is that human activity can cause no more than ten percent increase over background turbidity levels. Based on past visual observations of turbidity in the bypass reach during forebay flushing, it is very unlikely that compliance with that standard can be achieved during forebay flushing. Turbidity levels during flushing will likely be well in excess of ten percent over background. Although turbidity levels will be high, they will be short term in duration.

Sausen asked if an "operating envelope" could be developed for flushing that requires flushing above a certain flow threshold. Sausen recommends a turbidity monitoring plan associated with the flushing for at least three years.

Howison noted the following from the Initial Study Report (January 2013), "*A final technical report will be issued following completion of the 2013 field studies (no later than November 30, 2013). The report will describe study objectives, methods, and results in a manner and format suitable to support consultation under Section 7 of the ESA for potential effects to bull trout"*.

Aquatic Resources – Species Composition

Jeremiah Doyle (PacifiCorp) informed the attendees of the objectives, study area, methods, field work conducted to date and study status.

The variance to the plan included the following:

- Due to high flows, the "spring" sampling period was not attempted.

- The electrofishing survey of the bypass reach scheduled for July per the FERC Study Plan Determination was postponed and conducted in August due to high flows not conducive to the setting of block-nets.
- Due to the presence of spawning kokanee, presence/absence electrofishing surveys of the margins of the West Fork Wallowa River between the Project tailrace and the East Fork Wallowa River were halted and not completed.
- The "fall" time-frame seining survey of the Project forebay was not completed after a snorkel survey prior to the seining work identified zero fish presence. Bathymetry of the forebay is not conducive to seining.

Doyle reviewed graphs in the presentation that illustrated the average fork length by species captured, spatial area within the East Fork Wallowa River (below the anadromous fish barrier) where captured species were encountered, general size distribution of fish captured below the anadromous fish barrier during East Fork Wallowa species composition electrofishing surveys, and condition factors (K) of fish sampled from the East Fork. Doyle chose the condition factor (K) for fish condition analysis as it is the most common and accepted way to evaluate fish condition and was requested by the Forest Service.

Sausen suggested that the forebay species abundance and composition sampling is not a true baseline. Fish were likely evacuated as a result of the forebay flushing earlier in the summer, and thus, it is not a true portrayal. Doyle clarified he was not implying there are no fish in the forebay, just no fish present during the surveys.

Sausen further stated that the fact that no fish were captured or observed during the two project forebay surveys is inconclusive with respect to fish presence within this area.

Sausen recommends the presence/absence fish survey be repeated at least once in late summer (August or September 2013). The survey should not occur after a flush or draining of the forebay. This is due to the fact that the survey in 2012 was post accidental sediment flush at forebay and most likely adversely affected the results.

Weatherly clarified that for the lower bypass reach, when the August electrofishing was occurring; there was no evidence of sediment (from the forebay draining) below the fish barrier (6-8 days after forebay was drained).

The field work portion of the Study Plan is substantially complete and the main goals and objectives were accomplished in 2012.

Additional work proposed includes additional data analysis and a Final Technical Report will be issued in June 2013.

As a result of the USFWS request, PacifiCorp agrees to conduct one aquatic sampling event in the forebay in summer of 2013. No forebay drawdown or flushing is planned for 2013.

Aquatic Resources – Bull Trout Use of Project Tailrace and Bypass

Doyle informed the attendees that the objective was to provide a better understanding of the current Wallowa River bull trout population upstream of Wallowa Lake, specifically with concern to the Project tailrace and bypassed East Fork Wallowa River. It was anticipated this

study would shed light on the current distribution of bull trout in waters around the Project; specifically, spatial and temporal distribution within the East Fork Wallowa River natural channel and Project tailrace.

Doyle further stated that bull trout captures for tagging purposes came from previously identified streams during electrofishing surveys. Bull trout inhabiting lacustrine areas were captured via passively set tangle nets.

The question was posed as to why Doyle thought most of the bull trout captures occurred in the upper portion of the East Fork Wallowa and if he thought it was a resident life-history population. Doyle stated that it is commonly accepted that bull trout prefer colder water found at higher elevation. Doyle also stated that at this juncture, and with the limited amount of data available, it is difficult to say whether the observed bull trout are a resident population, or simply rearing juveniles from a population exhibiting a fluvial or adfluvial life-history.

The field work conducted to date includes bull trout capture events completed in September 2012. Fixed Passive Integrated Transponder (PIT) antennas were installed in July 2012 and are currently in streams collecting data.

Doyle provided a picture for attendee review of two bull trout (male 550mm fork length, female 415mm fork length) captured in the Project tailrace during an outage on August 13; after tag insertion they were released into the WF Wallowa River at the tailrace confluence. The male was subsequently detected moving upstream past the EF Wallowa River PIT antenna on August 29 and detected leaving the system on September 25. The female was detected moving upstream past the EF Wallowa River PIT antenna on September 5 and detected leaving the system on September 22.

Additionally, a bull trout/brook trout hybrid (215mm fork length) captured and tagged during the same August 13 outage was detected moving past the Project tailrace PIT antenna multiple times between the months August - December. This appears to possibly be an over-wintering fluvial fish. From available data collected to date, it seems multiple life-history traits are being exhibited within the upper EF and WF Wallowa River basins.

Additional work proposed includes the following:

- To date, 55 bull trout have been captured by PacifiCorp employees above the Wallowa Lake Irrigation Dam. Of these, 17 have been analyzed by the USFWS Abernathy Genetics Lab with 15 identified as pure bull trout and 2 identified as brook trout/bull trout hybrids. 38 samples collected during EF Wallowa efishing surveys are currently awaiting analysis at the Abernathy Lab.
- No bull trout tagged during the EF Wallowa River efishing surveys were encountered at the fixed Passive Integrated Transponder (PIT) tag antenna located near the stream mouth in 2012, additional electrofishing surveys with the goal of recapturing these tagged individuals will be completed in summer 2013.
- An additional season of migration data past fixed PIT tag antennas will be completed in the fall of 2013.
- Data analysis and Study Progress Report will be completed December 2013.

There were no variances to the FERC Study Plan Determination during the course of this Study.

<Break 2:45pm>
<Reconvene 2:50pm>

Aquatic Resources – Macroinvertebrate Surveys
Doyle discussed the objective of this study was to determine the relative abundance and composition of macroinvertebrate species residing within waters in and around the Project. He further reviewed the study area, methods, field work conducted to date and the study status.

Doyle provided graphics that illustrated dominate species observed in the East Fork above the forebay site and the middle site.
Discussion points included the following:

- Field work portion of the Study Plan is complete and the main goals and objectives were accomplished in 2012. Analyses of the samples were conducted by Aquatic Biology Associates in Corvallis, Oregon.
- Sample locations; the EF Wallowa River just above the Project forebay, the EF Wallowa River 500 meters upstream from the confluence with the WF Wallowa River, and the EF Wallowa River just upstream from the confluence with the WF Wallowa River.
- Samples were gathered on August 23, 2012 and sent to the lab for analysis.
- Taxon richness and diversity increased within the three samples collected the further downstream the sample location. Percent composition of species intolerant to higher water temperatures and lower dissolved oxygen levels also increased in the downstream samples when compared to the samples taken from upstream.
- Though tolerant taxon increased in samples taken from lower in the stream reach, all three samples collected were dominated by moderate to highly intolerant aquatic macroinvertebrate species, indicative of high water quality. 93 percent of the upper sample, 69 percent of the middle sample, and 52 percent of the lower sample consisted of caddisflies, mayflies, or stoneflies known to have stringent habitat requirements in terms of low water temperatures and high dissolved oxygen content.

Sausen expressed that she would like to see the percentages broken out more; show it differently; particularly the portions of 41% - 43%. It would be helpful if it were laid out by ecological functional group rather than by species composition. Sausen expressed that the macro-invertebrate survey was conducted post-August accidental forebay flush in 2012. To capture a true baseline, she recommends a macro-invertebrate survey be conducted in August 2013. The data presented in the 2012 report needs additional analysis to determine stream health (ecological condition and species sensitivity to impairment). Recommend analysis of sample include taxa richness/diversity within each sample, composition measures, tolerance/intolerance measures, and feeding measures (presented in enough detail to be meaningful, easy to understand for the layperson). The resurvey in 2013 will need the same amount of analysis (mentioned above) for the data to be meaningful. This macro-invertebrate data and analysis will be used; 1) in conjunction with the water quality and flow data to assess ecological health of the aquatic system; and 2) in ESA consultation for bull trout species and critical habitat for this project.

Moats said that with the flush the macroinvertebrates may have all end up in the middle site; artificially skewing results. She proposes another sample season of macroinvertebrate due to flushing; not truly representing baseline. The data does verify the water quality data;

Ken Carlson suggested that we have what we need and PacifiCorp followed the Study Plan Determination objectives, if we did more it would be for other reasons. The bypass reach has a very diverse macroinvertebrate population; and the data is showing what we would expect.

Moats would like to see more information in the report as to what the findings mean. Tease the information out a bit more, especially in relation to the flushing and how this may change species spatial distribution.

Weatherly said that this data-set is what the baseline conditions would be for normal operations during the past thirty years after annual flushing events in the past. Historically flushing in July-August is not unusual.

Cutlip said that in terms of what's needed for the NEPA analysis what PacifiCorp has performed is adequate. Cutlip then posed a question to the group: is this really a bull trout issue? What question would additional data answer?

Carlson suggested PacifiCorp do additional interpretation of the data collected in order to facilitate a more informed decision on additional data needs.

Regarding Project tailrace dewatering events due to unit trips or maintenance activities, Moats asked how the fish react when going from really low cfs to 15cfs and vice versa. Doyle said that fish are attracted to moving water and most likely move back in when the flow increases. Doyle mentioned this was verified by the PIT antenna located at the mouth of the Project tailrace, the interrogated bull trout/brook trout hybrid was documented moving in and out of the system with receding and increasing flows.

Moats and Sausen expressed they would like PacifiCorp to note in maps where the locations of anadromous and resident fish barriers in the bypass reach are located.

There were no variances to the FERC Study Plan Determination made during the course of this Study.

PacifiCorp will conduct additional analysis of the macroinvertebrate samples collected in 2012 to clarify the points below:

- Describe species composition of the "other aquatic macroinvertebrate species" category used in the Study Progress Report.
- Describe the ecological context of the sampled species composition particularly with regard to the species Oligochaeta (segmented worm).
- This information will be included in the June 2013 Aquatic Resources Final Technical report and used to determine whether or not additional aquatic macroinvertebrate sampling is warranted.

Unless the additional analysis provided in the June 2013 Final Technical Report indicates it is not necessary, through mutual agreement with stakeholders, PacifiCorp will collect one macroinvertebrate sample in the summer of 2013 using the methods and locations employed

during the 2012 macroinvertebrate sampling. The results will be included in the Updated Study Report in January 2014.

Instream Flow and Habitat
Kaylea Foster (PacifiCorp) explained to the attendees that the objective of this study is to emulate hydraulic conditions and salmonid habitat over a range of flows in project-affected waters to support a biologically sound decision for establishing minimum flows in the East Fork Wallowa bypass reach. She further discussed the methods, field work conducted to date and study status.

Foster indicated that she created 3 separate models 1) low, 2) medium and 3) high. Average results out where they overlap.

Additional work proposed includes the following:

- No additional field data collection is proposed at this time.
- Modeling and QA\QC of model results is expected to be complete by mid-February 2013.
- A stakeholder meeting to discuss model results is proposed for March 2013.
- Additional meetings to discuss results may be arranged as needed.

Wrap Up and Next Steps
Action items are included on Page 1 of this Meeting Summary Report.

PACIFICORP ENERGY
A DIVISION OF PACIFICORP

Wallowa Falls Hydroelectric Dam Relicensing
Initial Study Report Stakeholder Meeting
January 15, 2013 – 9:00 am – 4:00 pm

Meeting Room – PacifiCorp, 111 W. North Street, Enterprise, OR 97282

Participant Name	Agency/Company	
Russ Howison Russ.howison@pacificorp.com	PacifiCorp Energy	
Kim McCune	PacifiCorp Energy	
Kendel Emmerson	PacifiCorp Energy	
Kaylea Foster	PacifiCorp Energy	
Jeremiah Doyle	PacifiCorp Energy	
Briana Weatherly	PacifiCorp Energy	
Ken Carlson	CH2M Hill	Consultant
Mark Mullins	CH2M Hill	Consultant
Brent Black	Cornforth Consultants	Consultant
Matt Cutlip	FERC - Portland	
David Turner	FERC – OEP Wildlife Biologist	
Jennifer Harper	FERC – OEP Civil Engineer	
Daniel Gonzalez	US Forest Service	
Gretchen Sausen	US Fish & Wildlife Service	
Jerold Hustafa	US Fish & Wildlife Service	
Allen Miller	US Fish & Wildlife Service	
Tim Hardin	Oregon Dept of Fish & Wildlife	

Participant Name	Agency/Company	
Elizabeth Moats	Oregon Dept of Fish & Wildlife	
Pat Baird	Nez Perce Tribe	

Attachment A

Wallowa Falls Project
FERC Project P-308
USDA Forest Service Comments on the Study Progress Reports and Follow Up Correspondence to Materials Presented at the January 15 and 16 Meeting In Enterprise, Oregon.

Russ Howison
Relicensing Project Manager
Hydro Resources
PacifiCorp Energy

Russ:

Thanks to you and your staff for holding the Wallowa Falls Initial Study Report Meeting last week. I appreciate the openness and integrated discussions held during each of the study presentations. The following comments are a follow up to verbal comments from USDA Forest Service (USFS) staff during the discussions.

1. **GIS Data Sharing** – The USFS requested on December 2, 2011, that PacifiCorp share all GIS data from information collected during field studies. See Response to Agency and Tribe Comments on Proposed Study Plans Matrix, pg. 5.

The USFS is requesting this information to update USFS district records for resources and to allow the USFS to conduct an independent analysis of resources.

PacifiCorp agreed to provide this information in its response to USFS comments, but has to date not done so.

The maps included in each of the study result reports are of poor quality and difficult to identify location and detail. When referencing data and information as it relates to a particular management area or special status species a clear and detailed map is needed to clarify the importance of the area and how it corresponds to potential direct and indirect impacts.

Recommendation: The USFS reiterates its request here that PacifiCorp provide this information as soon as possible. In the alternative, if PacifiCorp is unwilling to provide the information, the USFS requests that PacifiCorp clarify in writing its justification for not providing the information as previously agreed to in the Revised Study Plans.

2. **Study Modification:** PacifiCorp has not GPS all survey sites during the 2013 field studies and shared all raw data, GIS mapping files, and survey locations associated with each field study with the USFS.

During the initial study result presentations stakeholders, including USFS staff indicated the poor map quality and clarity. When asked if stakeholders could get a copy of the data to generate maps and locations, PacifiCorp staff stated they did not GPS sites during their surveys and that all maps in the reports were generated from staff memory and general knowledge of survey locations.

In order to understand the full extent of the information and analysis in the study reports it is important to correlate information with accurate locations. Furthermore, it is even more important to verify the importance and nature of these locations for ongoing and future management. Thus, the USFS is again requesting that PacifiCorp, as originally requested by the USFS its Initial Study Plan comments, to share GIS data and survey locations for the purposes of updating district records for resources and to allow USFS to conduct independent analysis of resources.

Recommendation

PacifiCorp should GPS all survey sites during the 2013 field studies and share all raw data, GIS mapping files, and survey locations associated with each field study with the USFS.

3. There are study area discrepancies as related to initial field surveys and results.

From the Draft Study Report Status Document and the Initial Study Result Presentations for terrestrial resources and special status and weed plants, PacifiCorp reports indicated the "Study Area" as "all lands owned by PacifiCorp or USFS that are within 100-meters of a PacifiCorp facility."

The USFS is requesting PacifiCorp to clarify and verify the consensus agreed to that 100 meters was adequate or an appropriate measure to assess project impacts for large home range rare, threatened and endangered species.

The USFS agrees that the survey vicinity for botanical resources (noxious weed surveys, riparian and wetland delineation, sensitive plant and vegetative cover type surveys) and general wildlife observations is sufficient at 100m.

However, the USFS recommends that for large home range rare, threatened and endangered species the Project vicinity described in PacifiCorp's Preliminary Application Document (PAD), Section 2.2 (2.0 mile radius) be employed.

In the Revised Study Plans, filed by PacifiCorp to FERC on 12/02/2011, page 28, section 3.5.5 Terrestrial Study Area, it states:

> The Study Area will include all lands and aquatic areas that are owned by PacifiCorp or USFS and are within 100-meters of a Project facility as shown in Appendix A. **This will include the entire area within the proposed Project Boundary as described in the Wallowa Falls Hydroelectric Project FERC No. P-308 Notice of Intent to Relicense and Pre-Application Document (PacifiCorp Energy 2011).**

However, in PacifiCorp's PAD, it states:

> [f]or the purposes of this document Project area is defined as all lands and waters within the existing and proposed Project boundaries. Unless otherwise specified, (i.e. Section 3.4

Wildlife and Botanical Resources) Project vicinity is defined as all lands and waters within a **2 mile radius** of the existing and proposed Project boundaries.[1]

The information related to the study area in the progress reports vs. the Project area description in the PAD is confusing and somewhat conflicting.

Recommendation

Please describe PacifiCorp's reasoning for encompassing all surveys into the 100m radius.

4. PacifiCorp should clarify the vegetation species it identified in the Wetland Delineation Report.

In PacifiCorp's Wetland Delineation Report, the USFS requested clarification regarding the report of Reed Canary-grass in the surveyed meadow. If this species is accurately identified, it is of high concern to USFS management for invasive plants and noxious weeds and another reason that the USFS is requesting PacifiCorp GPS field survey sites. GPS field survey sites would assist in accurately identifying management areas of concern.

Recommendation
PacifiCorp should verify the identification of Reed Canarygrass in the survey area and coordinate with the Wallowa Mountains Office botanist Jerold Hustafa to identify the location and action items needed to suppress and control the further spread of this invasive species.

5. The wetland surveys on Royal Purple Creek should be redone.

The USFS requests that PacifiCorp revisit Royal Purple Creek to survey the wetlands associated with the Project area as it relates to the Royal Purple Creek intersection. This area is subject to Project impacts and warrants assessment and inclusion in the wetland report. Please coordinate with the Wallow Mountains Ranger District Botanist, Jerold Hustafa, for maps and locations.

Recommendation
PacifiCorp should survey the wetlands associated with Royal Purple Creek. It is also recommended that the surveyors and/or investigators for this report be identified similar to all other Initial Study Progress Reports.

If you have questions on our comments, requests, and/or recommendations, please contact me via email or by phone.

Sincerely,

Daniel Gonzalez
Energy Coordinator, WWNF
dgonzalez@fs.fed.us
Office: 541-962-6533

[1] See PAD filed by PacifiCorp on February 23, 2011, page 9, section 2.2 Project Area, Vicinity, and Maps.

McCune, Kimberly

From: Howison, Russ
Sent: Tuesday, January 22, 2013 4:14 PM
To: dgonzalez@fs.fed.us
Cc: Meyer, Carole; McCune, Kimberly; Emmerson, Kendel
Subject: Clarification on GIS data and Terrestrial Study Area.

Dan,

I went back through the consultation record and wanted to clarify 2 points we discussed last week.

First, in a letter from M. Schwalbach to PacifiCorp dated October 20, 2011, the Forest Service did request PacifiCorp share raw data including GIS information and clearly described the intended use. We agreed to share the data on page 5 of our comment response matrix to the proposed study plans which was attached to the revised study plans filed with FERC in December 2011. Therefore, we have received a formal request for the information and I will work toward getting that to you ASAP. We do not need anything additional from the Forest Service regarding this request. I apologize for the confusion on this point during our meeting last week. I plan to have my GIS technician put the shape files on CDs and will send those to you.

Second, regarding the questions Jerry had about the extent of the terrestrial study area that was agreed to. PacifiCorp initially described a Project vicinity (study area) of a ¼ mile radius around Project facilities in the Pre-Application Document (pg. 36). You may recall on the phone during the meeting that Kendel reminded me that because of the steep topography it would be difficult to do a formal Plant Association Group (PAG) level of analysis within ¼ mile radius of the Project. The PAD was admittedly vague on methods and study area extent. We did not specifically identify the PAG level of analysis in the PAD.

Additional review of the record shows that PacifiCorp revised its proposed study area after the Forest Service requested the study identify specific PAGs in the study area. PacifiCorp consulted with the Forest Service (Mike Gerdes) regarding the terrestrial study area issue and in the same letter dated October 20, 2011, the Forest Service requested the study area for terrestrial resources be modified to include all lands within 100 meters of Project features. PacifiCorp subsequently adopted this recommendation into the Revised Study Plan which was approved by the FERC Director on January 3, 2012.

I hope this helps to clarify some issues raised at last week's meeting. We will include these points in the meeting summary document. I would appreciate it if you could pass the terrestrial study area information on to Jerry.

Take Care,
Russ

Attachment B

Oregon
John A. Kitzhaber, MD, Governor

Department of Fish and Wildlife
Northeast Region
107 20th Street
La Grande, OR 97850
(541) 963-2138
FAX (541) 963-6670

January 25, 2013

Russ Howison
PacifiCorp Energy
825 NE Multnomah, Suite 1500
Portland, OR 97232
Russ.Howison@pacificorp.com

Subject: Wallowa Falls Hydroelectric Project (FERC P-308)
Study Progress Reports

Dear Mr. Howison:

Oregon Department of Fish and Wildlife (ODFW) received the Wallowa Falls Hydroelectric Project (FERC P- 308) Study Progress Reports via email on December 17, 2012. ODFW also attended the Study Report Meeting on January 15, 2013 and provided comments on the study reports. While we feel that our comments were adequately recorded, we provide these written comments for clarity.

Water Resources

1. Section 1.3.3 – The first paragraph on page 6 states that accretion of 1 to 2 cfs is assumed to occur in the bypass reach. This appears to be a contradiction of the Instream Flow Study Progress Report which states that accretion is minimal (page 4, first paragraph). It is unclear whether this statement is referring to the historic or current understanding of accretion in the system. The study results presented in the Water Resources Study Progress Report and the Instream Flow Study Progress Report indicate that accretion varies by season. Please clarify the intent of the accretion discussion in this section.
2. Page 19, Section 3.1.2 – The report refers to WY 2010. It appears that it should refer to WY 2012, which is defined in 3.1.1 in the second paragraph. This appears to be a typographical error. Please correct it throughout the report.
3. Page 22, Figure 3.1 - The graph shows the water level in the tailrace in late August 2012 being about 2 cfs however; ODFW personnel observed that the tailrace was dry on August 31, 2012. These data are also presented in Appendix A, Table A-1. This comment was raised at the January 15, 2013 meeting and an explanation was provided by PacifiCorp regarding how these data were calculated. It was also stated that the actual gage data are available. In the Final Study Report, please provide either the explanation on how the data were calculated or the actual gage data, so that they may be appropriately interpreted.
4. Hydrology – In general, the Study Progress Report provides a better understanding of flows in the bypass reach, however, the role of accretion does not appear to be well understood, or at least not well described. At the January 15, 2013 meeting, a definition of accretion was

presented, which had not previously been defined in discussions or reports. This may differ from other definitions of accretion, even from other Study Progress Reports, such as the Instream Flow report. For instance, Table A-1 of the Water Resources report shows that in summer 2012, flow in BPL was often less than in BPU, indicating flow loss, rather than accretion. Based on the data available, it is unclear to ODFW whether anything can be concluded about accretion. The understanding of accretion will be important in the discussions of minimum flow and the location (siting) of the flow gage (i.e. minimum flow compliance point). In the Final Study Report please provide further clarification and discussion of accretion and water flow in the bypass reach.

Aquatics

5. Sections 3.4, Results - Several different fish barriers, or possible partial barriers, in the bypass reach are referred to in the report. On the maps provided (such as Figure 3.3.1) please indicate the location of all barriers that are discussed in Section 3.4. This will help in the understanding of the distribution of fish within the bypass reach. Further, a portion of the bypass reach above the anadromous fish barrier (a 10+ foot high waterfall) was electrofished. Please indicate on the map where this sample was performed. Photographs of the barriers would also be helpful.
6. Section 3.5, page 17 – The third paragraph states that the efforts to seine the forebay were inconclusive to determine the fish presence. The fish sampling of the forebay occurred after it was drained, during which all water and some sediment were evacuated, according to the Sediment and Substrate Characterization Technical Memorandum. ODFW recommends that the forebay be seined in 2013. It is suspected that fish are washed into the forebay after the high water flows during spring/early summer snow melt. Sampling in 2013, after snow melt, will provide more conclusive evidence of the presence of fish in the forebay. It is assumed that the forebay will not be drained in 2013.
7. Macroinvertebrate Study – The objective of the study, as stated in the Revised Study Plan (December 2011) was to determine species composition and relative abundance to gain an understanding of the current macroinvertebrates in the bypass reach. The Study Progress Report indicates that the sampling occurred after the forebay was drained, releasing sediment and organisms from the forebay into the bypass reach. Therefore, the sampling did not reflect the normal operating environment (or baseline) of the bypass reach, and thus does not provide a full understanding of the current, or normal, macroinvertebrate community. ODFW therefore recommends that the macroinvertebrate sampling be repeated in 2013. (It is assumed that the forebay will not be drained in 2013.) Further, the data presented in the Study Progress Report need additional analysis and interpretation to describe the ecological significance of the species present. This will help with the understanding of the macroinvertebrate community in the bypass reach and their use in the assessment of ecosystem health.
8. Figures 5.3.1, 5.3.2 and 5.3.3 would be more useful if the categories reflected ecologically significant groups (such as tolerance/intolerance, feeding group, sensitivity to impairment) rather than species.

ODFW appreciates the opportunity to comment on the Study Progress Reports. Please feel free to contact me if you have any questions or require clarification (Elizabeth.a.osiermaots@state.or.us or 541-962-1832).

Sincerely,

Elizabeth A.O. Moats
NE Region Hydropower Coordinator

Service List
C (electronic mail):
Ken Homolka – ODFW
Tim Harden - ODFW
Dan Gonzales - USFS
John Dadoly -ODEQ
Gretchen Sausen- FWS

Attachment C

McCune, Kimberly

From:	Sausen, Gretchen <gretchen_sausen@fws.gov>
Sent:	Thursday, January 17, 2013 6:30 PM
To:	Howison, Russ
Cc:	OSIERMOATS Elizabeth A; Tim S Hardin; Daniel Gonzalez; DADOLY John
Subject:	FWS comments to Wallowa Falls Hydro FERC study progress reports
Attachments:	Service Comments to Pacificorps on draft technical reports Wallowa Fallls Hydroelectric Project 1_17_13.pdf

Hi Russ. Here are Fish and Wildlife Service comments to the study progress reports and to information presented at meeting on January 15, 2013. Many of these comments should be similar to the meeting notes and some are in addition. Janine Castro (our geomorphologist) has previously provided technical input to the sediment characterization report and her input to the sediment characterization power point slides are included in these comments. If you have any questions on our comments, let me know. Thanks. Gretchen

Gretchen Sausen
USFWS - La Grande Field Office
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(541) 962-8695
Fax: (541) 962-8581
gretchen_sausen@fws.gov

Service Comments to Wallowa Falls Hydroelectric Project FERC Project No. P-308 Study Progress Reports (Draft Technical Reports, dated December 2012) and Post 1/15/13 meeting (prior to meeting notes) 1/17/13

Sediment Characterization Slides presented on 1/15/13 (input to draft report provided earlier)

1. Slide 61 -- Copper levels exceed the EPA Freshwater Thresholds for Units B & C. Why are the copper levels high? If this is naturally sourced copper from the watershed, are copper levels expected to remain high in the reservoir sediment? Will there be any remedial action to deal with the copper? A monitoring protocol?

2. Slide 69—Transect 4 has high sediment levels. You had mentioned in meeting that this transect contained a side channel. You had stated that these transects were not based on habitat. Recommend you describe the habitat features of these transects to help in determining effects to bull trout critical habitat.

3. Slide 70 -- Do the data reflect transects 4, 3, and 2 or 3, 2, and 1? The title and legend are contradictory.

4. Slide 72 -- We agree that flushing with the earlier peak (in early June) will minimize impacts to species and habitat. However, the turbidity monitoring does not coincide with the accidental sediment release, and we do not have turbidity data for other flushing events. Is there any estimations of what turbidity levels might be given the quantity and caliber of sediment and the expected flows? Could an "operating envelope" be developed for flushing that requires flushing above a certain flow threshold? We recommend a turbidity monitoring plan associated with the flushing for at least three years.

Geology and Soils Draft Technical Report

1. Page 8—"There is the potential for debris flow slides to occur upstream of the dam that could generate significant quantities of sediment and debris that could cause sedimentation issues at the forebay". Recommend this be included in the baseline for consultation on bull trout for annual forebay flushing (Corps and FERC relicense).

Aquatic Studies Draft Technical Report

1. Page 17, Fish sampling at forebay—"The fact that no fish were captured or observed during the two project forebay surveys is inconclusive with respect to fish presence within this area". Recommend the presence/absence fish survey be repeated at a minimum once in late summer (August or September 2013 and

not during a flush of forebay), at the forebay and upstream to get a baseline, as survey in 2012 was post accidental sediment flush at forebay.

2. **Macro-invertebrates**—Pages 24-31, Macro-invertebrate survey was conducted post August accidental forebay flush in 2012. To capture a true baseline, recommend a macro-invertebrate survey be conducted in August 2013. The data presented in the 2012 report needs additional analysis to determine stream health (ecological condition and species sensitivity to impairment). Recommend analysis of sample include taxa richness/diversity within each sample, composition measures, tolerance/intolerance measures, and feeding measures (presented in enough detail to be meaningful, easy to understand for the layperson). The resurvey in 2013 will need the same amount of analysis (mentioned above) for the data to be meaningful. This macro-invertebrate data and analysis will be used; 1) in conjunction with the water quality and flow data to assess ecological health of the aquatic system; and 2) in ESA consultation for bull trout species and critical habitat for this project.

3. Fish migration barriers—Recommend all potential fish migration barriers be identified in future reports, exact location (river mile) and identified on a map.

Water Resources Draft Technical Report

4. Page 6—Accretion of flow and minimum flow need for fish. In the meeting on 1/15/13 the presenter had suggested that accretion (your definition) was defined differently than others definition. Please include your definition in your updated reports. Mention of natural accretion of flow of 1-2 cfs assumed to occur in bypassed reach, this needs further quantification. Estimate of pipe release. This needs accurate measurement. Accretion does not appear to be steady throughout year; in August-September losing flow from what is estimated at diversion and what is measured downstream at gage. Mention of leakage at dam, but if this does not occur in dry period, this will not provide necessary flow to downstream fish and habitat. A minimum flow will need to be established and measured in bull trout habitat on the EF Wallowa River.

5. Page 6—Forebay flushing, please update with current information for bull trout. Refer to sediment characterization report for June recommended flushing to benefit bull trout and other fish species.

6. Page 12, 16--Turbidity –It was conducted in 2012, refer to sediment characterization report.

Attachment D

McCune, Kimberly

From: Sausen, Gretchen <gretchen_sausen@fws.gov>
Sent: Tuesday, December 11, 2012 8:27 AM
To: Weatherly, Briana
Subject: Fwd: Wallowa Falls Sediment and Substrate Characterization

Good morning Briana. We read your sediment and substrate characterization report and have some comments. Janine Castro has provided them in this email. Really appreciate your work getting this data collected (pebble counts looked cold!) and documented, just need a few more things for clarity of the results of data. Any questions, let me know. Thanks! Gretchen

Gretchen Sausen
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---------- Forwarded message ----------
From: **Castro, Janine** <janine_m_castro@fws.gov>
Date: Tue, Dec 11, 2012 at 7:25 AM
Subject: Wallowa Falls Sediment and Substrate Characterization
To: Gretchen Sausen <gretchen_sausen@fws.gov>, Ann Gray <ann_e_gray@fws.gov>, Gary Miller <gary_miller@fws.gov>

Good morning,

I have read through the PacificCorp report in more detail and have the following recommendations:

- Use English units throughout the project description (SI units are used in some places -- i.e. penstock length).
- Provide a base map with all sampling locations in detail, not just general areas -- for example, plot the sampling locations for Surface Sediment Sampling in the forebay.
- Number the four objectives listed on page 3, and then refer to these objectives when describing both the Field Activities and the Data Analyses -- for instance, "sediment volumetric survey" in Table 1 addresses Objective 1 "determine volume of sediment material entrained in the project forebay". Cross-walking this information will make the report much more understandable.
- If 316 cy of sediment was unintentionally evacuated in August, then I assume this reduces the total forebay storage from 560 cy down to 144 cy. Or was the 316 cy lost prior to the forebay survey, which then means that there was originally 704 cy yards of material. This is not clear in the report.
- Table 2 needs to be converted to a map.
- If Figure 3 is the surface Wolman pebble count, then is Table 3 the subsurface samples?
- Combine surface, subsurface and forebay particle size distribution information onto one chart for comparison purposes.

- Analyze and summarize the results from the surveys and sampling.

Overall, PacificCorp appears to have collected some very useful data, but it is lacking synthesis. While the technical memorandum contains Introduction and Methods (2012 Field Activities) sections, it does not provide any analysis or conclusions. Pertinent information that should be summarized includes water quality information regarding exceedance thresholds for any heavy metals or other contaminants, and turbidity measurements plotted with reference to standards.

Please let me know if you have any questions regarding my comments. I look forward to reviewing the next iteration of this report.

Thanks,
Janine

Janine Castro, Geomorphologist
US Fish and Wildlife Service
National Marine Fisheries Service
Portland, Oregon
503.231.6977