



Oregon

John A. Kitzhaber, M.D., Governor

Water Resources Department

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December 31, 2002

Mr. Toby Freeman
Manager
Hydro Relicensing
PacifiCorp
825 NE Multnomah – Suite 1500
Portland, OR. 97232

RE: COMMENTS ON PACIFICORP'S DRAFT LICENSE APPLICATION FOR THE PROSPECT HYDROELECTRIC COMPLEX, (FERC Project P-2630-000).

Dear Mr. Freeman:

Enclosed please find attached comments prepared by the State of Oregon's Hydroelectric Application Review Team (HART). HART appreciates the opportunity to comment on the Draft License Application (DLA) for the Prospect Hydroelectric Complex (Project), issued October 1, 2002.

Prospect HART is comprised of the Oregon Water Resources Department (OWRD), Oregon Department of Fish and Wildlife (ODFW), Oregon Department of Environmental Quality (ODEQ), and the Oregon Public Utility Commission (OPUC). It has participated in this traditional relicensing since PacifiCorp requested its formation in September 1999.

HART has appreciated the opportunity to participate in past collaborative relicensing efforts with PacifiCorp and looks forward to continuing to work to resolve issues to our mutual satisfaction throughout the duration of this relicensing process.

The Prospect HART is tasked under Oregon law with "participat[ing] to the fullest extent possible in all proceedings conducted pursuant to the Federal Energy Regulatory Commission (FERC) relicensing process for the project." ORS 543A.400(4)(b). FERC rules provide a ninety-day period to comment on the DLA. 18 C.F.R 16.8(c)(5). In fulfillment of this requirement, the following HART agencies have prepared comments, which are attached as follows:

ODEQ
ODFW
OWRD
OPUC

Attachment 1
Attachment 2
Attachment 3
Attachment 4

HART acknowledges there is a substantial amount of information contained in the DLA. Based on our initial review, however, there are areas in which additional information is needed for HART to be able to effectively evaluate water quality, fish and wildlife resources, and other issues. The attached comments describe specific areas in which additional detailed information or clarification is needed.

Again, the HART appreciates the opportunity to provide comments on the DLA and looks forward to continuing to work with PacifiCorp and other stakeholders in a collaborative and productive manner.

If you have any questions or concerns regarding these comments, please do not hesitate to contact me at (503) 378-8455, ext. 289.

Sincerely,

R. Craig Kohanek

R. Craig Kohanek
Hydroelectric Project Analyst
Oregon Water Resources Department

ATTACHMENT

1

Oregon Department of Environmental Quality

COMMENTS ON PACIFICORP'S DRAFT LICENSE APPLICATION

For

Prospect 1, 2, & 4 Hydroelectric Project

(FERC 2630)

December 2002

**OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
COMMENTS ON DRAFT LICENSE APPLICATION FOR
PACIFICORP
PROSPECT HYDROELECTRIC PROJECT
FERC No. P-2630**

December 2002

GENERAL COMMENTS

1. Print document on both sides of page where practicable.

Recommendation: Same.

2. The final application should refrain from unsubstantiated generalizations that the Project complies with water quality standards, or has insignificant effect on beneficial uses and current condition of natural resources in and near the Project boundary.

Recommendation:

The final application should include unbiased and technically supported identification of where the Project has an effect or no effect on aquatic and terrestrial ecology including water quality and beneficial uses. Data gaps should be identified and corrected in the final license application.

3. The absence of 303d listings within Project study area at present does not indicate that ODEQ believes the Project has no adverse impacts on water quality or beneficial uses.

Recommendation:

PacifiCorp should provide sufficient data for ODEQ to reasonably conclude that Project impacts on water quality and beneficial uses have been identified, and PME measures are committed to that address the Project-related impacts. Appropriate effectiveness monitoring and adaptive management could be critical components to support Department finding of reasonable assurance of achieving water quality standard and protection of beneficial uses. Further, physical changes in Project structures or operation that may potentially adversely affect water quality or beneficial uses should comply with antidegradation requirements of OAR 340-41. Electronic compilations of

water quality data should be provided with the final application and 401 application.

SPECIFIC COMMENTS

1. The Study Area Boundary should include the South Fork Rogue River below the confluence of the Middle Fork Rogue River to Lost Creek Reservoir.

Recommendation:

The South Fork Rogue River below the confluence with the Middle Fork is part of the bypass reach affected by the Project diversions. It is plausible that the Project has effects on water quality and beneficial uses in the bypass reach. Including the South Fork Rogue River below the confluence with the Middle Fork in the study area is necessary to more completely assess Project effects on water quality and beneficial uses.

2. The draft License Application uses 1990 Census (Exhibit E1.10).

Recommendation:

Please use 2000 Census data.

3. Exhibit E2.1. The ODEQ has discussed applicable water quality requirements during the First Stage Consultation and subsequent meetings to tour Project facilities. See ODEQ letter of March 7, 2000. It is incorrect to conclude in the draft License Application however, that ODEQ has agreed that PacifiCorp has completed studies of Project effects on water quality and beneficial uses. The draft License Application does not appear to provide sufficient information for the ODEQ to evaluate the Project's effects on water quality and beneficial uses. ODEQ has commented on draft study plans for temperature, DO, TDG, and others. These draft plans were submitted to the agencies for comment during the data collection phase. As a result, not all agency comments were incorporated into field studies.

Recommendation:

Revise text in License Application to reflect agency consultation on proposed study plans may not have been integrated into field studies. The merits of application for Section 401 certification will be reviewed by ODEQ as provided in OAR 340, Division 48.

4. Exhibit E2.5.3.5. The worst-case weather is not documented to local conditions. The location where rainfall was measured was not identified and the length of historical record used for comparison was omitted.

Recommendation:

Fully describe meteorological stations and conditions.

5. Exhibit E2.8.1. Temperature and DO violations of water quality criteria were observed in the Project Study area. The basis for projecting compliance is not well founded.

Recommendation:

Base conclusions of compliance upon objective study of conditions. For temperature, see ODEQ letter of July 22, 2002.

6. Reference to run-of-river operation may be incorrect as the instream flow differs below Project diversions.

Recommendation:

Qualify operation as having limited storage. Diversion of instream flow affects quantity of flow below diversions.

7. Periodicity Chart Table 4.1.1 does not include Brook or Brown trout.

Recommendation:

The dissolved oxygen instream standard for cold-water spawning periods applies to salmonids. Brook and brown trout are present in Project-affected waters. The periodicity table should include these salmonid species. As discussed at the December 11, 2002 meeting with agencies and PacifiCorp representatives present, ODEQ will consider ODFW advice for fish management plans for the upper Rogue basin.

8. Figures in Exhibit E2. The figures are too small to fully represent the water quality data.

Recommendation:

ODEQ suggests that PacifiCorp enlarge figures depicting summaries of water quality data.

9. Exhibit E2. Maintenance causes greater than 10 % turbidity increase as measured during water quality studies. Conclusion that turbidity has minimal effect on beneficial uses is not documented.

Recommendation:

Provide basis and analysis of data in support of no impact conclusion.

10. Exhibit E3.1.6.1. The draft license application appears to conclude that changes in geomorphology and sediment budget are not an environmental concern or adverse project impact.

Recommendation:

The discussion should include an impartial analysis of project effect on stream morphology including impacts from canal maintenance, dredging, and flume failures.

11. Exhibit E1.6.3. PacifiCorp has not completed a study of ramping effects.

Recommendation:

No agency comment can be made at this time on ramping. ODEQ should be included in agency consultation where ramping impacts beneficial uses, aquatic ecosystem, or if water quality is diminished or impaired.

12. Exhibit E6. The application does not present the water quality effects of dredging the Middle Fork and Red Blanket dam impoundments, removal of sediment from the powerhouse 1 and 2 forebay, and flume failure.

Recommendation:

The water quality effects of Project maintenance and unplanned water conveyance disruption should be addressed in the application. Include summaries of Project records and document studies used to determine Project effects.

13. Appendix 4. PacifiCorp provided no management plans.

Recommendation:

Include appropriate management plans in the application.

14. Volume 2, appendix 1. Technical report does not estimate stream warming due to Project diversion.

Recommendation:

Evaluate potential to reverse warming through augmenting bypass reach flow or other PME measures.

15. Volume 2, appendix 1. The chlorophyll-a values may have an error in units.

Recommendation:

Check units on reported chlorophyll-a data.

16. Volume 2, appendix 1, table 4.2.2. Results of metal analysis were not compared to applicable Oregon standards.

Recommendation:

Use Table 20 of OAR 340, Division 41. Appropriate detection limits should be followed in analytical work.

17. Volume 2, appendix 1. Violation of turbidity standard resulting from instream measurements during canal maintenance was not addressed.

Recommendation:

Address turbidity standard compliance during Project related operations and maintenance.

18. Historic Resource Inventory. Page 3 indicates combined diversion is 1080 cfs. Water right is 1050 cfs.

Recommendation:

Correct the quantity of allowed diversion in text.

19. Land Use Technical Report page 33. The total estimated water loss may be low. The loss from flow lines is estimated to be 18 cfs elsewhere in draft license application and photos of bluff at Powerhouse 2 show leakage in excess of 3-5 cfs.

Recommendation:

Provide more accurate and consistent description of estimated water loss.

20. Visual Resources Report, page 4. Text indicates photos were taken at each KOP. Figure 3.0.2 shows where photos were taken. It appears no photos were taken at KOP 4, 5, 6, 8, 9, 10 and 11.

Recommendation:

Orientation of photos should identify where KOP is.

21. Appendix 4 is blank.

Recommendation:

Include referenced management plans.

22. Low Temperature Extreme water quality standard of OAR 340-41-120(11) was not addressed.

Recommendation:

Groundwater accretion in bypass reaches may suppress instream temperature during cold weather months. The draft license application does not provide instream data to ascertain if Project diversions cause lower than normal temperatures to be present. Data should be obtained that identifies Project effect in bypass reaches during cold weather months.

23. Narrative Water Quality standards of OAR 340, Division 41. The draft License Application does not discuss project effects on meeting narrative water quality standards and antidegradation requirements.

Recommendation:

Include in the License Application a review of Project effects on complying with narrative water quality standards and antidegradation. Identify PME measures that address water quality issues.

ATTACHMENT

2

Oregon Department of Fish and Wildlife COMMENTS ON PACIFICORP'S DRAFT LICENSE APPLICATION

For

Prospect 1, 2, & 4 Hydroelectric Project

(FERC 2630)

December 2002

Oregon Department of Fish and Wildlife
Portland, Oregon



Oregon

John A. Kitzhaber, M.D., Governor

Department of Fish and Wildlife

Southwest Region

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December 31, 2002

Mr. Toby Freeman
Manager
Hydro Licensing
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825 N.E. Multnomah, Suite 1500
Portland, Oregon 97232



Re: Comments on Draft Application for License Renewal, P-2630

Dear Mr. Freeman:

The Oregon Department of Fish and Wildlife (ODFW) has reviewed the Draft License Application (DLA). The attached comments are provided to assist PacifiCorp in completing relicensing studies and preparing its final license application.

We appreciate PacifiCorp's efforts to obtain ODFW's views on issues, and fish and wildlife study requirements for relicensing the project. However, we are disappointed that in a number of areas, as detailed in the attached comments, the DLA fails to provide information requested by ODFW. In some cases field studies and data analysis have not been completed. In other cases PacifiCorp either chose not to conduct certain studies recommended by ODFW, or chose not to use standard study methodologies recommended by ODFW. We are hopeful that the final license application will satisfy ODFW's information requests and recommendations on fish and wildlife protection, mitigation, and enhancement measures.

ODFW appreciates this opportunity to comment on the DLA and desires to work cooperatively with PacifiCorp through the remainder of the relicensing process. If you have any questions regarding these comments please call me at 541-440-3353, or send email to Ken.Homolka@state.or.us.

Sincerely,

Ken Homolka

Ken Homolka
Hydropower Coordinator
Southwest Region

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GENERAL COMMENTS

OVERALL ASSESSMENT OF THE DRAFT LICENSE APPLICATION

PacifiCorp informed the state Hydroelectric Application Review Team (HART) that a complete Draft License Application (DLA) could not be filed with the state one year prior to filing a final license application with the Federal Energy Regulatory Commission (FERC) (June 2002). The HART granted a 90-day extension for filing the DLA to assist PacifiCorp in developing a more complete DLA. Even with the additional time, PacifiCorp informed the HART that essential information could not be collected, and studies could not be completed in time for inclusion in the DLA. The DLA is lacking critical information needed to assess project impacts; including, fish entrainment studies, macroinvertebrate studies, ramping rate studies, and instream flow studies. Therefore, ODFW can only conclude that the application is incomplete and does not provide sufficient information to evaluate the impact of the project on the state's fish and wildlife resources and support recommendations for protection, mitigation, and enhancement measures (PM&E's).

The DLA needs to be revised to include results of appropriate field studies and revised to include appropriate PM&E's for fish and wildlife.

OVERALL ASSESSMENT OF CONSULTATION PROCESS

ODFW identified important scoping issues, identified potential opportunities for PM&E's, and provided information requested by PacifiCorp regarding ODFW's statutes, rules, goals, and plans. PacifiCorp allowed only a few days for agency review and comments on draft study plans. Fieldwork was undertaken without incorporation of agency recommendations for improvement of draft study plans. Interim progress and study results have not been shared with ODFW.

ODFW'S STATUTES, POLICIES, AND RULES

ODFW's goals and objectives for the fish and wildlife populations affected by the project are found in the following statutes (ORS) and rules (OAR). In addition, ODFW has authority pursuant to Section 10(j) of the Federal Power Act (FPA) and the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.) to provide recommended terms and conditions to FERC to protect mitigate and enhance fish and wildlife and their habitat affected by operation and management of the project.

- Wildlife Policy (ORS 496.012)
Establishes wildlife management policy to prevent serious depletion of any indigenous species and maintain all species of fish and wildlife at optimum levels.
- Oregon Plan for Salmon and Watersheds (ORS 541.405)
Restore native fish populations, and the aquatic systems that support them, to productive and sustainable levels that will provide environmental, cultural, and economic benefits.
- Policy to Restore Native Stocks (ORS 496.435)
Establishes goal of the State of Oregon to restore native stocks of salmon and trout to their historic levels of abundance.
- ODFW's Fish Passage Law (ORS 509.580 - 509.645)
Establishes as state policy that upstream and downstream passage is required at all artificial obstructions in those Oregon waters in which migratory native fish are currently or have historically been present. For existing hydroelectric projects, relicensing by the Federal Energy Regulatory Commission (FERC) is the "trigger" that initiates consideration of fish passage.
- General Fish Management Goals (OAR 635-007-0510)
Fish shall be managed to take full advantage of the productive capacity of natural habitats, and ODFW shall address losses in fish productivity due to habitat degradation through habitat restoration.
- Natural Production Policy (OAR 635-007-0521-0524)
Protect and promote natural production of indigenous fishes.
- Wild Fish Management Policy (OAR 635-007-0525-0529)
Protect genetic resources of wild fish.
- Wild Fish Gene Resource Conservation Policy (OAR 635-007-0536-0538)
Manage wild fish to maintain their adaptiveness and genetic diversity.
- Trout Management (OAR 635-500-0100-0120)
Maintain the genetic diversity and integrity of wild trout stocks; and protect, restore, and enhance trout habitat.
- Fish and Wildlife Habitat Mitigation Policy (OAR 635-415-0000-0030)
Require or recommend mitigation for losses of fish and wildlife habitat.
- Oregon's Elk Management Plan

Protect and enhance elk populations in Oregon to provide optimum recreational benefits to the public and to be compatible with habitat capability and primary land uses.

- Oregon's Black Bear Management Plan
Maintain healthy populations of black bear consistent with public desires and state law.
- Oregon's Cougar Management Plan
Maintain healthy populations of cougar consistent with public desires and state law.
- Wildlife Diversity Plan (OARs 635-100-0001 through 0030)
Maintain Oregon's wildlife diversity by protecting and enhancing populations and habitats of native wildlife at self-sustaining levels throughout natural geographic ranges.

RELICENSING ISSUES

PacifiCorp issued its First Stage Consultation Document (FSCD) in January 2000. ODFW reviewed the document and provided written comments to PacifiCorp (ODFW 2000a) identifying important relicensing issues and recommended methodologies to collect information for assessing project impacts. ODFW believes these issues must be addressed to support protection, mitigation, and enhancement measures for relicensing. These issues are reviewed below along with ODFW's assessment of the information provided in the DLA.

Minimum Flows in Bypass Reaches

Problem Statement- Minimum flows for project bypass reaches were not developed using currently accepted methodology for determining relationships between flow and habitat for aquatic life (Instream Flow Incremental Methodology (IFIM)). ODFW recommended in its comments that new minimum flow requirements based on IFIM are needed for all project bypass reaches.

Status in DLA- PacifiCorp has conducted IFIM studies on North Fork, Middle Fork, and Red Blanket Creek bypass reaches. Fieldwork is in progress on the South Fork. The DLA is incomplete: Study results and proposals for new minimum flow requirements are not included.

ODFW Recommendation- Revise the DLA to include both the IFIM results and proposals for new minimum flow requirements. Follow IFIM protocol and

negotiate with ODFW and other resource users on minimum flow proposals and include the information in the Final License Application (FLA).

Upstream Fish Passage

Problem Statement- The fish ladder at Middle Fork Diversion does not meet present day criteria. The fish ladder at Red Blanket Diversion was damaged and abandoned. North Fork Diversion does not have a fish ladder. State law requires fish ladders for upstream passage of game fish.

Status in DLA- PacifiCorp does not propose construction or modification of fish ladders as protection, mitigation, or enhancement measures for fish passage in the DLA.

ODFW Recommendation- PacifiCorp needs to consult with ODFW to develop provisions for fish ladders, and include those provisions in the FLA.

(Note: in a letter to PacifiCorp dated November 19, 2002, ODFW explained fish passage law and the requirement to develop a Memorandum of Agreement (MOA) with the Oregon Fish and Wildlife Commission (FWC) to implement any alternative mitigation in lieu of fish passage. ODFW and PacifiCorp will brief the FWC in early 2003 on fish passage measures for relicensing. ODFW expects fish passage measures to include fish ladders on Red Blanket and Middle Fork dams, and a fish ladder or alternative mitigation in lieu of a fish ladder at the North Fork Dam. The development of a MOA with the FWC would result in fish passage facilities or alternative mitigation that would satisfy requirements for fish passage at the North Fork Dam.)

Fish Entrainment in Power Canals

Problem Statement- The North Fork, Middle Fork, and Red Blanket diversions, all of which divert most of the stream flow, are not screened to prevent fish from becoming entrained in to the power canals.

Status in DLA- PacifiCorp has not undertaken fish entrainment studies as recommended by ODFW and has not consulted on design of screens for the diversions. PacifiCorp does not quantitatively evaluate fish entrainment in the DLA. PacifiCorp does not propose construction of fish screens as a protection, mitigation, or enhancement measure in the DLA. The DLA is incomplete.

ODFW Recommendation- PacifiCorp should consult further with ODFW to develop provisions for fish screening at North Fork, Middle Fork, and Red

Blanket diversions, and include those provisions in the FLA. PacifiCorp will need to design, construct, and evaluate fish screening at all three diversions.

Ramping Rates

Problem Statement- Project-caused flow fluctuations in the bypass and full flow reaches can adversely impact fish and amphibian populations, as well as ecosystem processes. Evaluate current ramping practices for frequency, magnitude, and duration; and public safety issues or other potential problems.

Status in DLA- Studies were not completed in time for inclusion into the DLA. PacifiCorp proposes to identify ramping rates in consultation with ODFW.

ODFW Recommendation- Consult with ODFW to modify ramping rates. Prevent or minimize project-caused flow fluctuations to protect fish, wildlife, and other aquatic resources. Include proposed ramp rate restrictions in the FLA.

Aquatic Habitat Surveys

Problem Statement- Habitat condition within areas impacted by the project need to be assessed and compared to conditions upstream of the diversions, as appropriate, to better assess project impacts and lead to more effective mitigation measures.

Status in DLA- General habitat information was included in the DLA, however the habitat inventory study was not consistent with ODFW's standards and did not incorporate ODFW's comments.

ODFW Recommendation- Consult with ODFW to incorporate comments into study plan for habitat inventory, assess project impacts on habitat, and develop PME's for the FLA.

Stream Geomorphology

Problem Statement- Dams can cause changes to channel morphology or fluvial processes with deleterious effects on stream and riparian habitats, including channel incision and/or widening, increased bank erosion, and reduced channel migration.

Status in DLA- The discussion on geomorphology and fish habitat in the DLA is confined to sediment input from project activities, such as flume failures. The DLA does not include an assessment of the project effects on bedload recruitment below project diversions.

ODFW Recommendation- Conduct a study to determine project effects on bedload recruitment. Use the results of the study to propose PME's in consultation with ODFW and include the proposals in the FLA.

Fish Distribution and Abundance

Problem Statement- The existing operation on the project alters the natural flow regimes of the North Fork, Middle Fork, South Fork, and Red Blanket Creek and reduces the habitat available to fish resources. In addition, other project-caused impacts; including water quality, geomorphic, fish entrainment, and lack of upstream fish passage can also reduce the abundance and distribution of fish above, within, and below the project area.

Status in DLA- PacifiCorp did not incorporate agency comments into the study plan. The study methodology is not adequate to collect data needed to detect project impacts on fish populations. The information in the DLA is not useful for assessing fish distribution and abundance.

ODFW Recommendation- Additional information will be necessary to assess project impacts on fish distribution and abundance. Consult with ODFW to incorporate comments into study plan, assess project impacts, and include PME's in the FLA.

Water Quality

Problem Statement- Degraded water quality can impact fish populations, amphibians, and other aquatic organisms. Fish survival and growth, incubation, and emergence are directly related to water temperature. If the project alters water temperature, fish populations can be adversely affected. In addition, emergency project shutdowns, maintenance, and flume failures can cause increases in turbidity. While turbidity that may result from project shutdowns or maintenance may be natural stream material, pulses of quantities of river sediment could negatively impact aquatic invertebrates, fish populations, and recreation.

Status in DLA- PacifiCorp is currently modeling project affects on water temperature under various flow regimes, and implies that timing of project maintenance will be changed to minimize turbidity.

ODFW Recommendation- Modify project operations to comply with ODEQ criteria. Develop an Action Plan for flume failures to assess environmental damage and develop mitigation plans.

Terrestrial Resources

Problem Statement- The wildlife crossings now in place are too narrow to provide adequate passage for big game, may not be strategically located, and do not provide adequate crossing opportunities. Habitat fragmentation resulting from project waterways prevents unrestricted movement on species with limited dispersal ability and patchy distribution such as small mammals and amphibians.

Status in DLA- Results of general surveys to estimate presence or absence was presented, but no modifications were made to the study plans to assess project impacts. Wildlife crossings were not thoroughly evaluated using ODFW recommended techniques. Project effects on habitat fragmentation and connectivity for small mammals and amphibians were not determined.

ODFW Recommendation- Determine project impacts on wildlife populations using recommended methods. Consult with ODFW to incorporate comments into study plans, assess project impacts, and include PME's in the FLA.

Cumulative Impacts

Problem Statement- The incremental impact of the project and nearby land use practices on the environment needs to be analyzed. Cumulative effects can result from individually minor, but collectively significant impacts occurring over the lifetime of the project.

Status in DLA- This section does not address all the potential sources of minor impacts that could cumulatively become significant. The results from studies on fish distribution and abundance should not be cited as indicators of cumulative effects of the project in fish populations. Extensive environmental studies are needed to analyze cumulative effects.

ODFW Recommendation- Conduct cumulative effects analysis of project and other impacts including project-caused flow reductions in bypass reaches, sediment, flume failures, water quality, ramping, other land use practices, and operation of the Prospect 3 project (FERC 2337). The analysis should be comprehensive and include evidence to support conclusions.

IMPORTANCE OF FISH AND WILDLIFE RESOURCES

ODFW considers the fish and wildlife resources affected by the project to be very important. Prospect 1,2, and 4 is considered by FERC to be a "major" project because it has a generating capacity of more than 1.5 megawatts (41.5 MW). By environmental standards, it should also be considered a large project. For

example, it consists of three diversion dams (the North Fork Dam is 50 ft. in height) and can cumulatively divert up to 1,050 cfs from four rivers and streams. The project-caused impacts to the environment and fish and wildlife populations are not any more benign than for other large hydroelectric projects. For example, nearly 14-miles of fish bearing stream reaches have greatly reduced flows due to project diversions, project diversion canals are not screened to prevent entrainment of fish, two of the diversions do not have fish ladders, and the one existing ladder is likely not adequate for efficient fish passage. One difference between this project and some other large projects in Oregon is that anadromous fish no longer have access the project area because of the construction of William L. Jess Dam by the US Army Corps of Engineers. ODFW is participating in the Prospect 1, 2, and 4 relicensing process to ensure that the project is brought up to current environmental standards consistent with its statutes, rules, plans, and goals for protection, mitigation, and enhancement.

SPECIFIC COMMENTS

STREAM FLOW STUDIES AND STREAM HYDROLOGY

DLA lacks information on Stream Flow Studies, and lacks analysis of reduced stream flow on habitat, fish abundance and distribution, and cumulative impacts.

ODFW considers stream flow diversion as one of the most important issues for relicensing. The Middle Fork receives 25 cfs from July 1 to September 15 and 10 cfs at all other times, the South Fork receives the flow release from the Middle Fork (including Red Blanket), and Red Blanket Creek and the Rogue River have no minimum flow requirements but receive minimal amounts through a notch in the dam or leakage. Streamflow reductions of this magnitude cause severe impacts to fish populations and their habitat in these reaches; however, these impacts have not been assessed in the DLA. PacifiCorp needs to assessment the magnitude of flow reduction caused by the project as well as the seasonal duration, or percentage of time that stream flow is equal to or less than the water right, and how lack of water can impact stream habitat and fish populations. Analysis of impacts caused by reduced flow could have appropriately been synthesized and included in the Habitat Inventory, Fish Distribution and Abundance, and Cumulative Impacts sections, but has not.

Recommendations:

Complete stream flow study on the South Fork. Work with the agencies to review study data, modeling, and outputs. Apply the basic tenets of IFIM and work with the agencies to identify relicensing stream flow regime.

Include an analysis of the project effects on stream flow reduction, including timing and magnitude. Analyze impacts of stream flow reduction in relation to stream habitat, fish distribution and abundance, and cumulative impacts.

.....

Project is characterized as run-of-the-river operation and the South Fork affected reach is not included in as a project affected reach.

Volume 1, Initial Statement, pg. 4, 3rd paragraph,
Exhibit A Section A1.0, pg. 2, 4th paragraph,
1.1 Pg. 5, section B1.2.1, and
Possibly other areas of the DLA-

ODFW concurs with comments previously made by the U.S. Fish and Wildlife Service (FWS) (FWS 2001) regarding “run-of-the-river characterization. We believe this statement is not accurate because “run-of-river” refers to those projects where the flow above the dam is the same as the flow immediately below the dam. This is not the case with this project. Diverted water is transferred from the South Fork Rogue, Middle Fork Rogue, and Red Blanket Creek and discharged into another stream channel (North Fork Rogue). The flow released into the North Fork below the powerhouses results in flows greater than would naturally occur in this channel. Therefore, stream flow below the diversions is not the same as stream flow above the diversions.

Volume 1, Initial Statement, pg. 4, 3rd paragraph- The South Fork bypass reach below its confluence is not identified in this section as a project-affected reach.

Recommendations:

PacifiCorp should not characterize the project as run-of-the-river.

The South Fork bypass reach should be included in descriptions of project-affected reaches.

.....

ODFW disagrees with the statement: The project spills during most of the year, especially during spring and early summer when most downstream migration occurs.

Volume 1, Executive Summary, pg. 8, 5th paragraph- This statement is unsupported by data as PacifiCorp did not conduct entrainment studies at the project diversions, and no studies were conducted to confirm the periodicity of fish migrations. Rainbow and cutthroat trout will move upstream and downstream within a stream system year round.

Recommendation:

Remove this statement as speculative.

.....

PacifiCorp states that it will identify and institute appropriate instream flow regimes for project bypass reaches.

Volume 1, Executive Summary, pg. 9, 3rd paragraph, last sentence- One of the purposes of conducting the Instream Flow Incremental Methodology is that it involves group decision-making, which requires input from all the stakeholders throughout the entire process.

Recommendation:

PacifiCorp should consult with ODFW and other agencies to evaluate and select minimum flow requirements.

.....

The South Fork Rogue River bypass reach (the reach downstream of its confluence with the Middle Fork to Lost Creek Reservoir) is not included.

1.2 Exhibit B, pg. 4, section B1.1- PacifiCorp's diversions on Middle Fork and Red Blanket Creek (as well as the Prospect 3 project (FERC 2337) capture water destined for the South Fork. The project reduces flow in this four-mile reach of the South Fork and this should be acknowledged in the DLA.

Recommendation:

Include this reach of the South Fork when describing project-impacted reaches.

.....

Gauge and flow records, and flow duration curves for the South Fork have been omitted.

Exhibit B, pg. 8, section B2.1- The project is dependent on diversion of water from the South Fork.

Recommendation:

This hydrologic data for the South Fork should be included.

.....

The quality of these graphs is poor

Exhibit B, pgs. 15-18, Figures B2.2-1 through B2.2-4,

Attachment 2
ODFW Comments
Prospect Nos. 1,2,4
and text in Exhibit E1, pg. 5, 5th and 6th paragraphs-

These graphics are difficult to interpret because of the poor quality, log-scale on the y-axis, and overlapping series.

Recommendation:

Improve the quality of the graphics so they can be read and interpreted. Change the scale on the y-axis. Reduce the number of series per graph.

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ODFW reviewed the hydrograph data for the project area that are presented in the DLA, and found several inconsistencies when cross-referencing this data with the hydrograph data presented in the FSCD.

Text in Exhibit E1, pg. 5, 5th and 6th paragraphs; and graphs in Exhibit B, Figures B2.1-1 through B2.1-4-

The stacked bar graphs in the DLA appear to represent the cumulative total of maximum, mean, and minimum flow values because the y-axis values are extraordinarily large for each of the drainages. For example, the November data (table) in the FSCD for the Rogue River below Prospect (USGS 14330000) has average, maximum, and minimum values of 1,245, 2,100, and 728 cfs respectively. The November data (Figure B2.1-2) for the same site in the DLA suggests a minimum flow of approximately 700+ cfs, a mean flow of approximately 2,000 cfs, and a maximum flow of approximately 4,000+ cfs. The cumulative sum of flow from the FSCD (1,245 + 2,100 + 728) equals 4,073, which approximately corresponds to the top point of the November bar graph in the DLA.

The base periods for North Fork flow data above Prospect are inconsistent at various points in the DLA. The data for Rogue River above Prospect (USGS 14328000) presented in the FSCD is for water years 1944 – 1997. However, figure B2.1-1 in the DLA represents water years 1969-1997. In the text and in Table E1.2-1 in Exhibit E1(pages 5 and 6) PacifiCorp identifies the period of record as beginning in 1944.

Figure B2.1-3 (Red Blanket abv. the diversion, USGS 14333500) is described as water years 1944 – 1955, but according to information in the FSCD that gauge was operational through 1981 (or 1982, two different dates are listed in the FSCD).

Figure B2.1-4 (Middle Fork, USGS 14333000) is described as water years 1944 – 1997, but according to information in the FSCD that gauge was operational only through 1955.

Recommendations:

Review the data used for the bar graph to ensure minimum, maximum, and mean values are represented, not cumulative value.

Review the data used in the graphic to ensure that the period of record analyzed is accurately identified.

.....

The text describing Table E1.2-1 incorrectly identifies the period of record for analysis as 1944 – 1997

Exhibit E1, pg. 6 -, Each of the four gauges has a variable period of record as identified in the table.

Recommendation:

Revise the text

.....

UPSTREAM FISH PASSAGE

PacifiCorp did not include measures to provide upstream fish passage in its PM&E proposals.

PacifiCorp does not provide proposals for fish passage at project diversions. PacifiCorp has suggested that there are options to traditional fish ladders and screens to provide enhanced benefit to fisheries resources in the basin, and refers to “alternative passage methods and facilities and preliminary engineering designs for upstream and downstream passage facilities at locations where the feasibility of successful passage appeared reasonable.” The DLA also includes “preliminary engineering designs used in the evaluation of reasonable passage options.” In its Fish Passage Structures Study, PacifiCorp proposed to “identify and evaluate cost-effective solutions to provide both upstream and downstream fish passage opportunities at the project”.

Recommendation:

See recommendation under General Comments, Upstream Passage.

.....

ODFW reviewed the fish ladder concepts shown in the DLA for the Middle Fork and Red Blanket diversions. ODFW engineering staff has identified several issues that PacifiCorp will need to consider for designing these fish facilities.

See Exhibit E3, Section 3.1.3.4 Fish Passage Facilities, pages 22-36

Middle Fork Dam

Headgate on exit may restrict fish passage. PacifiCorp proposes that a headgate be used to control the flow in the ladder. Unless the stage/discharge relationship upstream of the dam is determined, it is difficult to assess the adequacy of this proposal. Hydraulically, this orifice/gate design would be evaluated as a submerged orifice, and the flow rate would depend on the head differential between the river and the first pool of the ladder. For example, a flow of 6 cfs in the fish ladder will occur at a head difference of 3 in. As the river rises the gate will need to be closed down to maintain a flow of 6 cfs, and as the river continues to rise the gate must be closed down further. Potentially the gate may need to be closed down to the point where fish are unable to exit the ladder due to reduced orifice area or high velocity. Therefore, the stage-discharge must be considered when designing the ladder to ensure that it functions efficiently over a wide range of flows.

Design ladder for juvenile and adult trout. The design indicates that there will be 16 pools, with 1 ft of drop between pools. The stage-discharge relationship will be needed to evaluate the adequacy of the ladder height. A one-foot drop between fish ladder pools is generally considered acceptable for adult anadromous fish (steelhead and salmon); however, because anadromous fish are not present in the project area, the ladder design must be based on the current understanding of juvenile and adult trout passage needs.

Locate ladder entrance closer to dam. The ladder entrance extends over 105 ft. downstream of the dam. Fish may not find an entrance located that far downstream of the dam.

Design ladder for 10 percent exceedance event. The design basis for the ladder should be the 10 percent exceedance event for the mean daily flows during the month of highest flows. Based on the US Geological Survey study for this gauge, the design flow (in the river) would be 397 cfs. When project diversion is subtracted from the 397 cfs, approximately 247 cfs will be in the river (spilling over the dam). The ladder design may need to include some measure to increase fish attraction to the ladder entrance depending on the design flow of the ladder.

Reduce reliance on manual adjustment. A ladder design that incorporates automatic adjustment to fluctuating river flows to maintain operational efficiency is preferable to one that depends on frequent observation and manual adjustment.

Recommendations:

Given the remote location, special consideration must be given to the design to minimize maintenance problems.

Determine the stage-discharge relationship upstream and downstream of the dam. Base the ladder design on relationship to ensure the ladder entrance and exit operate efficiently over a range of flows.

Jump heights in the ladder should be 0.5 – 0.75 ft, rather than the 1-foot indicated. This recommendation is based on the current understanding of passage requirements for juvenile and adult trout

ODFW recommends PacifiCorp consider a ladder design with a zigzag to ensure that the entrance is located near the dam.

The design basis for the ladder should be the 10 percent exceedance event for the mean daily flows during the month of highest flows (i.e. 397 cfs).

The ladder design may need to include some measure to increase fish attraction to the ladder entrance depending on the design flow of the ladder.

Incorporate a ladder design that relies as little as possible on frequent manual adjustments to maintain efficient passage conditions.

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Red Blanket Dam

Evaluate ladder design based on stage/discharge data. Reviewing the drawings of the existing structure, it looks as if the spillway elevation is 2621 ft. The report, on p. 27 of E3, indicates the downstream channel is approximately 11 ft below the spillway (el. 2610-ft). The total head on the fishway indicated on p. 28 of E3 is 16 feet. Stage / discharge data upstream and downstream of the dam are needed to design the fishway, but a preliminary review of the project would suggest the ladder should be 11 feet high.

Ladder entrance should be near the dam. The natural channel bypass will not have good attraction flows 200 – 300 ft downstream of the spillway. The best location for the fishway entrance would be near the end of the turbulence downstream of the stilling basin. Apparently this is somewhat remote, for operators attending to the diversion structure, and so ideally the fishway design would require little operation. The fishway could be designed at the existing low flow notch. The existing notch is 5 ft wide, and could be shortened to reduce flows in the fishway at higher stages. A small pipe could be added to provide

attraction flows adjacent to the entrance at higher stages. It would be helpful to have more information on the existing low flow notch in the spillway, specifically on the elevation of the notch. Assuming the minimum flow of 5 cfs occurs at the minimum water level indicated on the proposed screen drawing (2621.0 ft), the elevation of the notch would be approximately 2620.6 ft.

Consider another passage alternative. One alternative for fish passage is to restore and stabilize the downstream channel to its original grade. The design would involve matching the slope of the stream (assuming it is stable), and simply raising it in 0.5 ft increments (w/ boulder weirs), continuing the channel slope in between the weirs.

Identify stage relationships. Depending on the downstream stage / discharge relationship, preliminary review of the project indicates there is very little fluctuation in stage either upstream or downstream of the dam. If this is true, little or no operation of the fishway entrance will be necessary. Operation would be needed if the entrance becomes submerged. The actual stage relationships should be identified.

Headgate on exit may restrict fish passage. Operating a gate on the fishway exit may be problematic, as identified for the Middle Fork Fishway review. Ideally, the fishway would not require operation. It would be useful to identify the limiting conditions effecting the operator's ability to divert 75 cfs (e.g. what water elevation is needed in the canal?).

Wingwalls may cause problems. The proposed wingwalls intended to prevent deposition may actually cause deposition.

Recommendations:

Given the remote location, special consideration must be given to the design to minimize maintenance problems.

Determine the stage-discharge relationship upstream and downstream of the dam. Base the ladder design on relationship to ensure the ladder entrance and exit operate efficiently over a range of flows.

Jump heights in the ladder should be 0.5 – 0.75 ft, rather than the 1-foot indicated. This recommendation is based on the current understanding of passage requirements for juvenile and adult trout

We recommend a jetty type of design to encourage scour and prevent deposition. In addition, a sediment sluice may be needed. The fishway may be designed to reduce sedimentation by using weir slots that extend to the floor.

.

A design for a conventional fish ladder at Red Blanket is not included in the DLA.

Exhibit E3, pg. 27, 28- The DLA describes a new fish ladder for the Red Blanket diversion that would be constructed “adjacent to the existing spillway right abutment wall”, the reader is directed to Figure E3.1-6, but this figure is labeled “Red Blanket Creek Diversion Dam *Fish Screen*” and shows the canal intake location not the diversion dam.

Recommendations:

Include a Figure of the conventional ladder design.

.....

A proposal for a fish ladder or alternative mitigation at the North Fork Dam is not included in the DLA

Exhibit E3, pg. 32, first full paragraph, last sentence- Reference is made to a “passage feasibility study”. The reference should be the “Fish Passage Structures Study”. The height of the North Fork Dam does not preclude construction of a fish ladder. However, in this case alternative mitigation could be practical (See General Comments, Upstream Passage).

Recommendations:

Cite the correct study.

Delete reference about constructing a fish ladder over a 50-ft dam is impossible.

Continue to work with ODFW to develop alternative mitigation proposals for a MOA.

PM&E options for the North Fork Dam should include a proposal for a fish ladder or alternative mitigation.

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DOWNSTREAM FISH PASSAGE

1.3 PacifiCorp did not conduct any studies to assess downstream fish migration, or quantify entrainment into project power canals. PacifiCorp did not include measures to prevent entrainment of downstream migrating fish in its PM&E measures. PacifiCorp cited outdated or inappropriate criteria for fish protection facilities.

In the FSCD, PacifiCorp proposed assessing entrainment of fish into the unscreened power canals by comparing water velocity at the canal intake with the swimming capability of fish, with the inference that low velocity suggested low entrainment. From a fish behavioral perspective, this is not a sound method to estimate entrainment, because fish are not able to distinguish the difference between entering the canal or passing over the diversion spillway. Studies at other hydroelectric projects indicate that entrainment is approximately proportional to diversion flow. ODFW's comments on the FSCD clearly identified (1) that PacifiCorp's proposal can not be used to assess entrainment, (2) that there is a need to conduct biological entrainment studies, and (3) that there is accepted methodology to determine the extent of entrainment of fish into the unscreened canals. ODFW reiterated the need to conduct entrainment studies in its comments on study plans (ODFW 2000b), in a letter to Terry Flores (ODFW 2002a), and during a project site visit (ODFW 2002b).

PacifiCorp has not conducted entrainment studies, and has indicated it will evaluate entrainment at intake structures by conducting baseline studies that evaluate impacts to fish distribution and abundance caused by the project, and by using information from relicensing studies and data gathered on fish management goals/practices.

ODFW has found that PacifiCorp's study on fish distribution and abundance is not useful for determining project impacts on distribution and abundance. Even so, evaluating entrainment was not one of the objectives of the fish distribution and abundance study, nor would this type of study be useful for evaluating entrainment.

PacifiCorp acknowledges that entrainment occurs, but dismisses the impact as insignificant without biological data, i.e. entrainment, timing of downstream migration. There are several places in the DLA where this occurs, including Exhibit E3, pg. 44, Downstream Passage and Entrainment in Project Canals.

The most reasonable, feasible, and reliable fish passage facilities are those that comply with ODFW's criteria for fish protection. These criteria are science based; are known to protect fish; are consistent with ODFW's policies, plans, and goals; and will ensure safe and effective fish passage facilities. PacifiCorp suggests that fish screening criteria for fingerling sized fish (>60 mm) established by the National Marine Fisheries Service (dated 1995) may be appropriate. ODFW and other agencies have found that the majority of streams have a fry lifestage present, especially headwater streams such as the project area. ODFW and federal agencies apply fry standards in all systems where fry are present (e.g. the Prospect system).

The DLA also cites obsolete ODFW road crossing criteria from 1991.

Recommendation:

See recommendation for fish screening under General Comments, Fish Entrainment in Power Canals.

Request current Road-Crossing Criteria from ODFW.

.....

The only project dam with a functional fish passage facility is the Middle Fork Dam; none of the diversions are screened.

Exhibit A, pg. 15, section A3.5- The first sentence reads that “fish passage facilities” are located at the Middle Fork and Red Blanket diversion structures. The term fish passage facilities can include down stream passage facilities; however, neither diversion has a fish screen. It would be more accurate to refer to the Middle Fork “facility” as a fish ladder. The first sentence implies that fish can pass over Red Blanket diversion, but upon reading further, the last paragraph of this section clarifies that this “fishway” has been damaged by flooding and is abandoned.

Recommendation:

Delete the first sentence from this section.

.....

ODFW reviewed the fish screen concepts shown in the DLA for the Middle Fork and Red Blanket diversions. ODFW engineering staff has identified several issues that PacifiCorp will need to consider for designing these fish facilities.

See Exhibit E3, Section 3.1.3.4 Fish Passage Facilities, pages 22-36

Middle Fork Diversion

Design should be based on stage/discharge relationship. Figure E3.1-4 indicates the canal operating level is 3.25 ft. above the floor of the canal. The text describing the existing canal (pg. 23) indicates the spillway is 9 ft. above the floor of the intake. This information suggests to ODFW that the water level in the canal could overtop the screen. The design of the fish ladder will need to be based on the stage/discharge relationship at the dam (upstream in particular, but also downstream for the ladder entrance and screen bypass location).

Injury and predation concerns. There could be predation and injury concerns associated with the location of the bypass exit.

Manual cleaner not adequate. PacifiCorp proposes that the screen be manually cleaned. Manual cleaning will not be adequate to maintain efficient fish passage conditions at a screen as large as this one (150 cfs).

Wedge-wire may not work. Wedge-wire mesh may plug with pine needles or sand. Bending can occur when sand is plugged into the mesh, or from impact on the face of the screen. Wedge-wire is the least desirable screen material.

No headgate control. It appears there is no headgate on the canal, or any other means to control the flow in the diversion.

Screens need baffles. Because the design does not include baffles on the downstream side of the screen, there is no mechanism to adjust flow patterns. Therefore, there will likely be areas on the screen where approach velocity exceeds criteria and sweeping velocity is not adequate to meet criteria.

Unacceptable screen angle. The angle of the screen is sharp (<5 degrees), which could lead to areas of high approach velocity at the downstream end of the screen, and very low approach velocity at the upstream end. This will result in inefficient use of the screen area.

Flow control structure needed. The design does not include a proposal for a control structure in the fish bypass. A control structure would be used to control the flow in the bypass over a range of depths on the screen caused by variable diversion flow.

Recommendations:

Given the remote location, special consideration must be given to the design to minimize maintenance problems.

Review the design to ensure that screen elevations are compatible with elevation of diversion structures. Provide and analyze stage-discharge relationship at the site.

The screen bypass location must be carefully located to reduce predation and injury. Considerations should include proximity to cover, increased velocities to promote dispersion, and sufficient flow depth to reduce injury.

Revise the screen design to include an automated cleaning system. If an automated cleaning system is not feasible, the simplest cleaning system is the rotating drum screen. The drum can be turned by paddle wheels, eliminating the need for power. Drum screens operate well through a small range of flow depths. Wiper brush cleaning systems may also be powered by paddle wheels.

ODFW recommends using punch plate screen material if fir needles or sand is abundant in the river system. Or, for durability and in locations where sands are not prevalent, profile bar may be used.

ODFW recommends some form of flow control be installed at the head of the canal, either a gate or weirs, to control flow into the diversion.

The design must include behind-screen baffles so approach and sweeping velocity can be adjusted across the screen face. This will eliminate velocity “hotspots” and maintain velocity within criteria.

Consult with ODFW to modify the angle of the screen to improve through-flow efficiency. ODFW recommends PacifiCorp consider reducing the footprint by using a deeper screen.

ODFW recommends using an adjustable ramp to gradually reduce the flow depth in the bypass. Operators can then control the flow in the bypass through a range of depths at the screen. Use of a gate will cause high velocities at low flows (when the gate is closed down) and at deeper flows (when the head on the gate will be increased), potentially injuring fish.

Red Blanket Diversion

Screen area may be excessive. If the canal can divert 75 cfs when it is 5 feet deep, the design screen area would be 187.5 square feet. The screen length needed would be 37.5 ft long. Drawings indicate the proposed screen is 154 ft long, which may be excessive.

Predation and injury concerns. There could be predation and injury concerns associated with the location of the bypass exit.

Design lacks headgate control. It appears there is no headgate on the canal, or any other means to control the flow in the diversion.

Flow control structure needed. The design does not include a proposal for a control structure in the fish bypass. A control structure would be used to control the flow in the bypass over a range of depths on the screen caused by variable diversion flow.

Headgate may restrict fish passage. One alternative proposes the screen bypass be combined with a natural channel fishway. The bypass would be controlled with a 5 ft x 5 ft headgate. The gate has a capacity of 190 cfs, and velocities nearing 8 ft / s. Closing the gate will increase velocities, causing a barrier for upstream passage. ODFW would recommend the use of overflow

weirs to control flow to the bypass. A series of weirs may be needed to provide passage into the screen.

Geotech fabric may cause failure. The natural channel is designed with a geotech fabric, which can cause piping and provide a failure plane during high flow events.

Recommendations:

Given the remote location special consideration must be given to the design to minimize maintenance problems.

Re-evaluate the screen dimensions to achieve approach and sweeping velocity criteria

The screen bypass location must be carefully located to reduce predation and injury. Considerations should include proximity to cover, increased velocities to promote dispersion, and sufficient flow depth to reduce injury.

ODFW recommends some form of flow control be installed at the head of the canal, either a gate or weirs, to control flow into the diversion.

ODFW recommends using an adjustable ramp to gradually reduce the flow depth in the bypass. Operators can then control the flow in the bypass through a range of depths at the screen. Use of a gate will cause high velocities at low flows (when the gate is closed down) and at deeper flows (when the head on the gate will be increased), potentially injuring fish.

Do not use geotech fabric as proposed.

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RAMPING RATES

ODFW considers project ramping as a very serious impact on aquatic resources in the bypass reaches. The effects of project ramping have not been evaluated and measures to reduce the impact of ramping have not been identified.

Pg. 20, Section 3.1.3.3 Instream Ramping Rates- PacifiCorp has provided a brief general description of project activities that cause rapid flow fluctuations (ramping) in project bypass reaches. ODFW agrees with the need to conduct field studies and analysis of project operations that cause ramping. PacifiCorp's original draft study plan was sent out for review on January 12, 2001. PacifiCorp recently (October 11, 2002) sent a revised study plan for review and conducted field studies on November 26, 2002. As part of the ramping study, PacifiCorp

proposes to document the frequency and duration of scheduled and unscheduled ramping events. While the results of the field work were not completed in time to be included in the DLA, the documentation of frequency and duration (documenting past practices) could have been completed and presented in the DLA, but were not. The brief description of project ramping in the DLA appears to suggest that project ramping is infrequent. Although, it is ODFW's understanding that the wood stave flumes must remain wet during prolonged project maintenance, therefore the canals are dewatered and watered-up daily causing ramping in the bypass reaches for the duration of maintenance. Any documentation of project ramping events should also include how PacifiCorp manages water from the Prospect 3 project during maintenance of the Prospect 1, 2, and 4 project. The documentation should clarify whether the Prospect 3 project is shutdown simultaneously with the Prospect 1, 2, and 4 project for maintenance, or whether the water is discharged into the Middle Fork.

Project practices that cause flow fluctuations in project bypasses, as well as the reach below the powerhouse, should be eliminated or at least minimized in frequency. Ramping rates should at least be consistent with interim rates proposed by Hunter (1992) when unavoidable (e.g., maintenance). PacifiCorp should also develop protection measures consistent with FERC requirements at other hydroelectric projects. For example, the North Fork bypass reach and full flow reach (below the powerhouses) can be rapidly down-ramped and up-ramped during unit trips, causing both environmental and public safety concerns. FERC proposed resolving ramping issues in the Draft Environmental Impact Statement for the North Umpqua Hydroelectric Project (FERC 1927) as follows:

“Because many disruptions in flow result from brief turbine shutdowns (e.g., because of load rejections), hydroelectric projects should be capable of providing several hours of continuous flow under powerhouse shutdown conditions. A flow continuation measure would allow the flow regime in both the bypassed reach and downstream from the powerhouse to remain essentially unchanged during intermittent shutdown.”

ODFW believes this would be an appropriate measure to eliminate rapid water level fluctuations caused by load rejection at the project.

Recommendations:

Complete ramping study, consult with agencies to implement ramp rate restrictions consistent with study results, interim ramp rates from Hunter (1992), and operational modifications required by FERC at other hydroelectric projects.

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AQUATIC HABITAT SURVEYS

PacifiCorp did not give an adequate amount of time for the agencies to review the draft Aquatic Habitat Inventory Study Plan and initiated the study without incorporating agency comments. Study objectives have not been met and comprehensive habitat surveys of the project area were not conducted.

References to the aquatic habitat inventory are found in several sections of the DLA (e.g. Volume 1, Section E3.1.3.1 and Volume 2, Final Technical Reports. The Aquatic Habitat Inventory Study Plan included in the DLA is dated July 18, 2000. The study plan in the DLA is the same version submitted to the agencies for review (PacifiCorp 2000). In its July 18, 2000 cover letter, PacifiCorp asked the agencies to comment on the study plan by July 27, 2000 to “allow us (PacifiCorp) to have your (agency) input prior to initiating the surveys on August 1st”. The comment period did not allow PacifiCorp time to review the comments, incorporate agencies comments into a final study plan, or allow any further discussion on how to design an acceptable study. ODFW provided comments to PacifiCorp on August 22, 2000 (ODFW 2000b), with follow-up comments on September 14, 2000 (ODFW 2000c), where we expressed concerns regarding the adequacy of the study plan.

PacifiCorp characterized the project area as having a “generally inaccessible nature”. PacifiCorp proceeded to conduct habitat inventory on a sub-sample of only 30 percent of “*each accessible reach*” without agreement from the agencies. Based on ODFW’s assessment of the project area we believe that the vast majority of the project is accessible. The sub-sample was not representative of the entire bypass reach. At best, it was only representative of those reaches that PacifiCorp determined were accessible. In addition, a 30 percent sample may not have detected or accounted for important habitats that are not very abundant.

In the draft study plan, before any field work was initiated, PacifiCorp concluded; 1) the project area is of a “generally inaccessible nature”, and 2) “much of the inaccessible areas are steep gradient bedrock with a predominance of cascade plunge-pool habitat in deeply incised canyons.” However, this is not supported by; 1) the data summary in the DLA, 2) the narrative habitat description of the lower Middle Fork where the habitat is described as “almost exclusively of pocket water...”, and 3) ODFW’s field visits to the South Fork.

The results of the habitat inventory were to be used as a basis for fish population study sites and to extrapolate the results (fish distribution and abundance) to the project area as a whole, and to contribute to the analysis of factors limiting trout populations in the study area. However, PacifiCorp sampled for fish distribution and abundance in small sample reaches that were not representative of the results of the habitat inventory. Therefore, the results can not be extrapolated to the whole project.

PacifiCorp partially addressed one of ODFW’s comments on the study plan by establishing a sub-reach on the Middle Fork from Red Blanket confluence to the South Fork Confluence. PacifiCorp declined to conduct a formal habitat inventory in the reach, but assessed “the general character of aquatic habitat” in the reach. Because a quantitative and categorical inventory was not conducted, the data for this sub-reach is not presented in a table format, as are the other sub-reaches. Therefore, a comparison with the other reaches is not possible. This sub-reach is listed in Table 4.2-2 along with the other sub-reaches as the only reach being 100 percent surveyed, but later in the DLA it is clarified that a formal habitat survey was not conducted.

The inaccessible reaches were characterized in the draft study plan as “steep gradient bedrock with a predominance of cascade plunge-pool habitat in deeply incised canyons”. Based on the narrative of the assessment in the DLA this reach “consisted almost exclusively of pocket water...” This sub-reach is approximately 0.7 miles long, and is a significant length of the project affected reaches. The habitat in this reach was not represented by the 30 percent sampling of the upper Middle Fork.

Recommendations:

PacifiCorp should consult with the agencies, incorporate agency comments into a revised study plan, and conduct a study that will meet study objectives. Use study results to provide a basis for locating fish population study sites and extrapolating the results to the project as a whole.

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The DLA lacks detailed information collected during the Aquatic Habitat Inventory. Detailed data summaries, maps, and photographs were not included in the DLA.

The second objective of the aquatic habitat inventory is to describe “the size and location of gravel deposits”. The size of the gravel deposits is generally described in the text, but the location is not mapped or otherwise identified. In addition, the map (Volume 2, Figure 4.2-1) identifies the stream reaches within which the 30 percent inventory was conducted, but not where the habitat mapping actually occurred. The map legend identifies “Habitat Mapping Site”, but these are actually the sub-reaches within which the mapping occurred. The reaches where habitat mapping actually occurred should be identified on the map.

Exhibit E3, pg. 9, Section E3.1.3.1 Aquatic Habitat Inventory- The study plan suggests that PacifiCorp intended to collect habitat data in much more detail than given in the DLA. For example, five general habitat categories were proposed: riffle, cascade, flatwater, pool, and special case types. These were further

divided in to 16 different habitat unit types. The data tables presented in the DLA include a combination of the percentages of general habitat categories and specific unit types, e.g. pool, riffle, run, pocket water, and cascade. Five pool and two riffle habitat types were proposed for the survey, but the data in the DLA is simply presented as general categories of “pool” and “riffle”. The study plan suggests that this information was recorded on a “Stream Habitat Inventory Data Sheet”. The detailed results of the fieldwork, the location of specific habitat types within each reach (field maps), and photographs should have been included in the DLA for ODFW’s consideration.

In addition, the DLA indicates that 1,327 m of 4,419 m were inventoried on Red Blanket Creek between the diversion dam and the top of the waterfall, but ODFW has not found a description of where the inventory started and ended. This reach has been potentially impacted by a number of flume failures in recent years and ODFW believes it is important to have habitat information above and below the flume crossing.

Recommendations:

Include a habitat data *summary* for each bypass and above diversion reaches in table format. The table should include; habitat unit type, number of units, total length, average length, length as a percentage of segment, average width, total area, average area, area as a percentage of total, average depth, and average percent slope. The DLA should also include the habitat data for each bypass and above diversion reaches in table format that includes; habitat sequence number, type, cumulative number of each habitat type, length, cumulative length, width, area, max. depth, percent slope, and change in elevation. The DLA needs to include 11 by 17 inch habitat maps of a scale of approximately 1-in. to 100 ft. for all inventoried reaches

The DLA needs to include all the photographs taken in the inventoried reaches (study plan section 2.5 Photography Protocol). Photographs should be at least 3.0 in by 4.5 in and presented two on a page.

A description of the starting and ending points for the Red Blanket survey needs to be included.

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STREAM GEOMORPHOLOGY

PacifiCorp has not conducted a Geomorphology Study

The North Fork Dam, the largest on the project, has an overall height of 50 ft. and the impoundment has approximately 260-acre feet on storage volume. In comments on the FSCD, ODFW recommended that PacifiCorp conduct a study

to characterize the historic and current sediment regime for sediment composition, bedload movement, stream gradient, and gravel deposition areas. The information on hydrology and sediment would be synthesized to estimate project impacts and potentially identify habitat bottlenecks, such as quality and quantity of spawning gravel. ODFW reiterated the need to study project effects on river geomorphology in a letter to Terry Flores (ODFW 2002a), during a meeting with John Sample in December 2001, and during a project site visit (ODFW 2002b). In response, PacifiCorp has suggested that they have been working on geomorphology issues; however, ODFW requested, but did not receive a draft study plan. The DLA contains a few paragraphs of discussion on sediment inputs in the Red Blanket and Middle Fork reaches, but offers no study results or data to support the conclusion of insignificant impact, and more importantly does not discuss the North Fork Dam and stream reaches downstream.

The habitat in the North Fork below the dam (E3, page 12) is described in the DLA as follows;

“The channel in this segment is dominated by bedrock, followed by cobble and boulder substrate. Riparian growth along the channel is sparse, and does not provide much input of allochthonous vegetative matter, terrestrial insects or cover for fish. Spawning gravels are present in a few patches, but are otherwise limited because of channel morphology. When flows increase by even a relatively small amount, there is likely a substantial increase in depth and velocity in the low-flow channel (trench). High water velocity and stream energy may mobilize many of the smaller substrate elements, such as spawning gravel and transport them downstream. The transport of gravels through and out of the reach reduces the amount of spawning gravel available.”

The description of this reach is consistent with impacts associated with stream habitat below a bedload-capturing dam; presence of bedrock, cobble and boulder, and few patches of spawning gravels. No analysis was conducted to determine the role of the dam in reducing or eliminating bedload recruitment. The potential effects of reduced bedload supply would be expected, at a minimum, to occur downstream to the confluence with the next major tributary. The reach of the North Fork downstream of the Mill Creek Road is characterized in the DLA as having substrate dominated by boulder/cobble, a relatively coarse substrate.

The Oregon Plan for Salmon and Watersheds, provides direction to state agencies to restore channel morphology to more natural conditions so as to ensure interaction with the floodplain, presence of meanders, channel complexity, and recruitment of gravel and woody debris to support habitat for rearing, holding and spawning by salmonids and other species of concern. The Oregon Water Resources Department in cooperation with other agencies will

identify which hydroelectric facilities need a geomorphic analysis as part of the environmental evaluation for state reauthorization of these facilities.

Recommendation:

ODFW recommends that PacifiCorp conduct an analysis to determine the effects of the North Fork Dam and reservoir on geomorphology downstream of the dam.

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Information in the DLA is not based on a thorough analysis of project effects on geomorphology

Exhibit E3, Pg. 41, Section E3.1.6.1, Geomorphology and Fish Habitat- This section of the DLA simply contains a narrative description that suggests minimal impacts to stream habitat without support of study data or analysis.

Flume failures- Whether the impacts of flume failures are long- or short-term is irrelevant, it is still an impact that needs to be assessed for severity and mitigated. PacifiCorp has not conducted detailed analysis of the immediate, long-term, or short-term impacts of flume failures on stream habitat. PacifiCorp conducted a habitat survey after the 2001 flume failure, but it was conducted over three months after the failure, likely too late to assess the short-term impacts. Further, due to the lack of habitat damage assessments following other recent flume failures and lack of baseline analysis of habitat conditions there is no information upon which to conclude that impacts are insignificant. ODFW recommended that an assessment of the impact of flume failures as well as methods to prevent or minimize flume failures be included in relicensing studies (ODFW 2001).

Diversion Dams- The differences in geomorphology upstream and downstream of project facilities are consistent with the effects of artificial barriers.

Recommendations:

Develop a draft geomorphology study plan in consultation with the agencies.

Develop a plan to assess and mitigate for the impact of flume failures, and modify project facilities to prevent or minimize flume failures.

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PacifiCorp has not addressed project affects on stream geomorphology. PacifiCorp should develop an emergency action plan to assess short- and long-term impact of flume failures on stream and floodplain habitat and fish and wildlife populations.

Pg. 46, Section E3.1.7.1 Geomorphology and Fish Habitat- ODFW provided detailed comments previously in this document explaining why a geomorphology study is necessary. The title of this section suggests PacifiCorp addressed concerns regarding project effects on stream geomorphology and habitat. This section only covers measures to reduce the occurrence of flume failures and measures for sediment management. ODFW agrees that measures to reduce or eliminate flume failures must be implemented, and fully supports meaningful modifications to the project; however, this section should also include an action plan for immediately assessing the impacts (short- and long-term) of major inputs of fine sediment caused by catastrophic flume failure.

Recommendations:

This section should be re-tilted because it does not discuss geomorphology.

PacifiCorp should develop an emergency action plan for assessing short- and long-term impacts caused by project flume failures. Impacts to fish and wildlife populations will need to be mitigated.

.....

FISH DISTRIBUTION AND ABUNDANCE

PacifiCorp did not give an adequate amount of time for the agencies to review the draft Sampling Study Plan and initiated the study without incorporating agency comments. In addition, it conducted the study using inadequate methodology. The data collected is generic and can not be used to assess project impacts to fish distribution and abundance. PacifiCorp makes conclusions without supporting data.

References to fish distribution and abundance can be found in several sections of the DLA (e.g. Volume 1, Section E3.1.2.1 and Volume 2, Final Technical Reports). The Fish Distribution and Abundance Sampling Study Plan included in the DLA is dated August 1, 2000, and is the same version that was submitted to the agencies for review at that time (PacifiCorp 2000). In its August 1, 2000 cover letter, PacifiCorp asked the agencies to provide comments on the study plan by August 21, 2000 to “allow us (PacifiCorp) to have your (agency) input prior to initiating the surveys”. In this case, PacifiCorp requested the agencies to comment within a three-week time period. This time line did not allow PacifiCorp any time to review the comments, incorporate agency comments into a final study plan, or allow any further discussion on how to design an acceptable study that would provide meaningful information. ODFW provided some comments to PacifiCorp on August 22, 2000 (ODFW 2000b), with follow-up comments on September 14, 2000 (ODFW 2000c), where we expressed serious concerns regarding the adequacy of the study plan and the likelihood that proposed study objectives would not be met.

PacifiCorp proposed to sample two 50-meter stations above and below the diversions to represent over 13 miles of diverted stream reaches affected by the project. PacifiCorp proposed characterizing fish populations by sampling a total of 300-meters, or about 1.4 percent of the bypass reaches. The study design is insufficient to meet the objectives on pages 1-3 of the study plan. Most of this can be attributed to focusing on reducing observational sampling error (second stage variance), in lieu of addressing extrapolation error (first stage variance). ODFW suggested that the spirit of the cited references be followed, i.e. Hankin and Reeves 1988, Hicks and Watson 1985, and Hillman et al. 1992. All address population estimation over an entire basin, or at least large reaches of stream. The sampling plan of “two 50-meter long stations” to describe any of the four stated objectives is very far from adequate. ODFW doubted whether anything meaningful other than generic data could be generated. Generic data will not be adequate to identify potential project impacts on fish populations, or to identify measures to eliminate or minimize impacts that may be identified.

ODFW suggested a rigorous sampling design based on the reality of high first stage variance typical to Cascade streams. A sampling plan based on distribution and abundance may need 10 to 20 times the effort to even approach a meaningful and adequate sampling design. Such an effort is typical of salmonid research programs conducted by ODFW and other entities in the Pacific Northwest. ODFW further recommended that PacifiCorp work with ODFW to revise the study plan to incorporate appropriate sample size and sampling methodology to ensure statistically valid results.

PacifiCorp did not address the agency concerns, conducted the study as it was originally proposed, and included in its DLA the same version of the study plan (August 1, 2000) as originally distributed for review and comment.

Using the study results PacifiCorp compares fish abundance in approximately 100 m of stream below each diversion with approximately 50 to 100 m of stream above each diversion. The comparison of small reaches of stream does not provide useful information for assessing fish distribution, abundance, limiting factors, or entrainment. The confidence intervals only apply to the population estimate within the small area sampled. The resulting estimate of rainbow trout density per 100 m of stream can not be applied to any other stream reach, above or below the diversion, because the estimates are not representative of the stream reaches, and do not take into account variability of habitat or fish abundance in either reach.

Stream habitat types are based on their hydraulic characteristics, which rainbow trout will use differently, thereby resulting in different densities of fish in each habitat type. The stream habitat composition of the reaches sampled for fish distribution and abundance in most cases were significantly different, although habitat composition was most similar in the reaches sampled in Red Blanket

Creek. For example, the habitat composition where sampling was conducted in the Middle Fork consisted of:

Above the diversion dam	Below the diversion dam	Below the highway bridge
15 percent riffle	0 percent riffle	60 percent riffle
0 percent run	70 percent run	20 percent run
85 percent pool	30 percent pool	20 percent pool

Habitat in these reaches is significantly different, and therefore fish density is expected to be variable between these reaches. Also, the sampled reaches were not representative of the habitat types found during the habitat surveys. For example, PacifiCorp found the habitat above the Middle Fork Dam to consist of 48.5 percent riffle, 0 percent run, and 51.5 percent pool; significantly different from the habitat sampled for fish abundance. This holds true for the other reaches sampled in the Middle Fork as well as other reaches (see DLA Tables 5.2-1 and 4.2-3 through 4.2-10).

According to the study proposal, length frequency histograms and length at age classifications were to be provided for trout species. This information is lacking in the DLA and ODFW has not received this data for review.

1.4

The first line of the “Conclusions” reads; “The information collected indicates that the Project facilities are not affecting the overall population density of rainbow trout in the 3 bypass reaches.” This “conclusion” is baseless due to the high variability of the data collected (above discussion). The study reaches are not representative of the bypass reaches. Therefore, the study results cannot be extrapolated to the much larger bypass reach.

The apparent difference in age structure of rainbow trout upstream of Mill Creek Drive is likely due to the poor habitat in that reach. The poor habitat can be attributed to the fact that the historic average monthly stream flow immediately upstream of the dam (USGS 14328000), which ranges from 442 cfs to 1,410 cfs, can be reduced to 20 cfs of leakage below the dam because of project diversion for significant periods of the year. Also, the dam may reduce bedload recruitment in this reach, thereby contributing to the boulder, cobble, and bedrock substrate. Project-caused flow fluctuations (load rejection) may cause impacts to fish populations.

Exhibit E3, Pg. 3, Section E3.1.2.1- In commenting on the FSCD, ODFW had expectations for developing a meaningful study through consultation, and recommended that PacifiCorp design the study so statistically valid conclusions could be drawn from the results. ODFW also recommended that stream reaches

sampled above and below the diversions have similar distribution of habitat types. In additional comments, ODFW provided rationale for concluding that the study proposal would only provide general data not adequate to meet the study objectives.

In addition, ODFW now has several new concerns based on information included in the DLA.

- Table E3.1-2 is titled “Density of Rainbow Trout Per 100 Meters of Stream. Fish density is usually the number of individuals per unit area (Armantrout 1998). In the DLA the “density” is linear and apparently not based on a common unit of area (e.g. acres) making comparison of density above and below the project difficult.
- Fish distribution and abundance surveys were conducted in habitats types that varied substantially among the survey locations, and from the results of the habitat types inventoried during the habitat survey studies. This complicates making comparisons of fish populations above and below the diversions, as well as assessing fish abundance in the unsampled bypass reaches (98.6%).
- The DLA reads “The density of rainbow trout upstream of the diversion (Middle Fork) could not be statistically compared to the sites downstream of the diversion because comparable data were not available (the upstream site could not be electrofished)”. PacifiCorp still made comparison of data that could not be statistically compared by concluding there is likely not a substantial difference between populations above and below the diversion.
- Data collected in the Rogue River suggests the number of fish per 100 M in the reach above Mill Creek Drive, a highly project impacted reach, has a higher density of fish than full flow reaches above the project or in the reach below Mill Creek Drive which receives substantial flow from accretion. The differences in numbers of fish in each survey section is explained in the DLA (Exhibit E3, page 7) by the difficulty in making observations of fish, because of deep, fast flowing water may have impaired visibility by the observers or fish may have been better able to avoid the observers. The data collected on the Rogue River is not adequate to meet study objectives and should not be used for analysis. Recognizing the problems associated with the sampling this reach, additional methods should have been considered to achieve the objectives.
- Rainbow trout exhibited poor condition factor below the Red Blanket diversion. Currently, there is no data to suggest that the fish in this reach are within range of condition factors found in the other reaches and there is not an adverse impact. If PacifiCorp suspected a problem with its equipment

additional samples should have been collected to confirm or refute the condition factor.

- There seems to be substantial data collection issues that further complicate analyzing fish distribution and abundance.

Recommendations:

The study design is not technically sound for the purpose concluding that the project is not affecting fish distribution and abundance in the bypass reaches. PacifiCorp should consult with the agencies, incorporate agency comments into a revised study plan, and conduct a study that will provide useful information upon which to base protection, mitigation, and enhancement measures.

.....

PacifiCorp speculates that extensive stocking of hatchery rainbow trout has likely resulted in introgression of hatchery genetics into wild populations.

Volume 1, Executive Summary, pg. 8, 3rd paragraph,
Exhibit E3, Section 3.1.6.4, pg. 43, 3rd paragraph, and
Possibly other sections of the DLA
See following comment

Recommendation:

Delete reference regarding extensive stocking and hatchery/wild trout genetics, as the evidence does not support this statement.

.....

PacifiCorp states that it did not find cutthroat trout during surveys, and speculates that extensive stocking of hatchery rainbow trout has likely resulted in introgression of hatchery genetics into wild populations.

Exhibit E3, pg. 8, Section 3.1.2.2, Second paragraph- ODFW places a high priority on managing the upper Rogue River (above William L. Jess Dam) for indigenous wild cutthroat and rainbow trout.

Cutthroat trout are present in the Rogue River above and below the project. ODFW has found cutthroat in tributaries of the South Fork Rogue, Imnaha Creek, and Mill Creek. PacifiCorp conducted surveys to estimate fish abundance and distribution in only 1.4 percent of the bypass reaches, leaving over 98 percent of the project bypasses unsampled. In addition, the apparent lack of cutthroat in the project area could be the result of project impacts on stream habitat.

PacifiCorp suggests that because hatchery rainbow trout have been stocked near the project they may have interbred with wild trout. Currently, the baseline condition is to stock the Cape Cod strain of hatchery rainbow trout in the Rogue River (North Fork), a strain which is likely reproductively isolated from the native rainbow trout because they spawn in the late fall or early winter, while the native trout spawn in the spring. These fish are stocked to create an instant fishery and the likelihood of their living through the winter is slight (ODFW 1987).

ODFW applies a conservative management approach for trout populations in the Middle Fork, South Fork, and Red Blanket Creek and does not stock hatchery fish in these streams. These streams are managed using Option A of the Trout Plan using the following guidelines;

- No hatchery fish will be stocked.
- Habitat protection, rehabilitation, and enhancement are the primary management activities.
- Harvest and angling effort will be regulated in accordance with the management alternative selected.

ODFW actively pursues and promotes habitat protection and enhancement to maximize the productivity of the stock, conserve stock fitness and life history characteristics, and to maintain healthy trout populations with multiple age classes. Unique native populations may require additional recognition for protection, such as populations isolated above natural barriers. Coastal rainbow trout isolated above anadromous fish barriers in Southwest Oregon appear to be unique and are managed conservatively.

Recommendation:

Remove speculation regarding extensive stocking and hatchery/wild trout genetics, as the evidence does not support this statement.

.

The information presented about ODFW’s fish stocking program suggests that more fish are stocked in the vicinity of the project than actually occurs.

Exhibit E3, pg. 8, Section E3.1.2.3- ODFW currently stocks hatchery fish only in the North Fork Rogue River and tributaries. The fish stocking records obtained by PacifiCorp from ODFW’s Portland Office were not specific enough to identify the exact locations of where fish were stocked. Therefore, PacifiCorp could only state that “...a portion of these fish were stocked in or near Project water bodies...”. However, this implies that fish stocking can/does occur throughout the project area (i.e. Middle Fork, Red Blanket, South Fork, and associated impoundments), but this is not the case. More specific information regarding ODFW’s stocking program in the North Fork Rogue River is available. For example, upstream of Lost Creek Reservoir, ODFW stocks fish at 13 sites on the North Fork Rogue and tributaries; however, only one of these sites is near the

project, Mill Creek Bridge. Approximately 35,600 fish are stock in the North Fork and tributaries between May and September, with about 2,375 stocked per week. Each of the 13 stocking sites receive approximately 180 fish per week, meaning about 2,700 fish are stocked in the vicinity of the project each year.

Recommendation:

Revise this section to use the above information to accurately describe ODFW’s fish stocking program in the project vicinity.

.....

WATER QUALITY

Project flume failures affect water quality and should be discussed in this section.

See Volume 1, Executive Summary Pg. 5 2nd paragraph-

Recommendation:

PacifiCorp should include discussion of potential impacts of flume failures on water quality and what measures will be implemented to address this issue.

.....

The DLA lists three sources of water for the project (Middle Fork, Red Blanket, and Rogue River), and gauging information for the South Fork is omitted.

1.5 Exhibit E2 Pg. 6, Section E2.3.2- Water from the South Fork is also diverted into the project (see pg. 5, Section E2.2.1 Water Rights).

Recommendations:

Revise the text to reflect the contribution of the Prospect 3 water to the Prospect 1, 2, and 4 project.

The discussion of hydrology should also include the South Fork because it is impacted by water withdrawals for the project from the Middle Fork, Red Blanket, and South Fork.

.....

In this description of project-affected reaches the lower four miles of the South Fork has been included.

Exhibit E2 Pg. 7, Section E2.3.3, last paragraph- As previously noted this reach has been omitted from similar descriptions in the DLA.

Recommendation:

Add a similar description of the South Fork to previous sections as recommended
.....

In this section of the DLA, flow below the North Fork Dam (leakage) is estimated at 15 cfs, while in previous sections (i.e. pg. 6, section B1.2.2) leakage is estimated at 20 cfs.

See Exhibit E2 Pg. 8, Section E2.3.3.1-

Recommendation:

Review DLA for consistency and accuracy
.....

TERRESTRIAL RESOURCES

Terrestrial Studies were not comprehensive and did not provide data useful for assessing project impacts and identifying protection, mitigation, and enhancement measures.

Pg. 72, Section E3.2.2.2 Wildlife Resources,
Pg. 112, Section E3.2.5.2 State Agencies-
General surveys are designed to detect presence or absence of a species and do not indicate how the project affects wildlife populations. Project impacts to wildlife populations would include alteration of habitat, alteration of water regimes, ramping, and fragmentation of populations with possible decreases in populations, and alteration of historic dispersal corridors that allow gene flow. Detailed studies were not conducted to identify project impacts and provide a basis for protection, mitigation, and enhancement measures.

The wildlife crossings now in place are too narrow to provide adequate passage for big game and may not be strategically located. Conducting basic track counts over the course of a few days does not provide information about animal behavior at the crossings, such as reluctance or refusal to use the structures.

Recommendations:

Conduct studies that provide meaningful (more than generic presence/absence) information to identify project impacts and provide a basis for protection, mitigation, and enhancement measures.

Document and evaluate wildlife use (or non-use behavior) of the crossings by monitoring with video cameras.

.....

Modification of existing wildlife crossings not included.

See Volume 1, Executive Summary, pg. 7 Proposed New PM&E's Measures-

Recommendation:

Revise the application to read: Consult with resource agencies to develop a plan for developing additional wildlife crossings at suitable locations on the fenced canals, *and to modify existing wildlife crossings to bring them up to date with current standards;*

.....

PacifiCorp acknowledges that wildlife may be impacted by the project, but the losses are justified by concluding that the impact is not large enough to warrant concern.

Pg. 29, Section E6.1.18 Wildlife- ODFW does not consider entrapment of wildlife acceptable. Losses of wildlife from project-causes are inconsistent with ODFW's policies and guidelines for wildlife management.

Recommendation:

PacifiCorp should collect information to document the extent of impacts and propose measures to protect wildlife and mitigate the losses.

.....

Fencing of the water conveyance system likely does not protect all wildlife

Exhibit E3, pg. 107, Section E3.2.3 Existing Terrestrial Mitigation, Protection, and Enhancement Measures- the intent of the fencing is to prevent medium and large wildlife species from accessing the waterways, the effect of the project on populations of small animals is unknown.

Recommendation:

Collect information regarding project effects on small animals and propose protection, mitigation, and enhancement measures in consultation with the agencies.

.....

CUMULATIVE IMPACTS

Cumulative impacts have not been thoroughly analyzed and relies on studies that were not technically sound.

Pg. 44, 45, E3.1.6 Cumulative Impacts-

Impacts of suspended sediment. The adverse impacts to aquatic organisms of large quantities of suspended sediment and fine sediments deposited on the streambed are well documented in scientific literature. ODFW believes the impacts of the project are significant.

Diversion of stream flow. Natural contributions of groundwater in some portions of the project bypass reaches do not compensate for the diversion of water for the project. PacifiCorp has not included an analysis of the cumulative effects caused by its diversion of stream flow from approximately 14 miles of streams. Stream flow in the bypass is not increased by groundwater contribution, but is decreased by project diversion.

Fish distribution and abundance. The results of the study do not provide information to assess project impacts on fish populations.

Condition factors of fish populations. Project impacts can not be ruled out as the cause of the low condition factor of fish in the Red Blanket bypass reach.

Displacement of fish to suitable habitat. The cumulative impacts analysis needs to acknowledge the obvious, and major, project-caused impact to the North Fork above Mill Cr. Drive- diversion of almost the entire river flow (the flow in this reach is provided by 20 cfs of leakage through the dam) and the likely reduction of spawning gravel by its capture in the reservoir. Fish that are not able to find suitable habitat in this reach cannot simply move to better habitat downstream. The downstream habitat whether pristine or degraded will already be occupied to its carrying capacity. Project impacts to habitat in the bypass reaches are an overall loss to the quantity of suitable habitat in the Rogue River.

Recommendations:

The section on cumulative impacts needs to be further developed to include a thorough analysis of project-caused impacts and other impacts in the project area including an analysis the Prospect 3 project. The likely impacts of substantial flow reduction in project bypass reaches need to be analyzed in this section. Also, additional information is necessary to assess fish distribution and abundance, stream habitat, fish condition, and stream geomorphology to develop an adequate assessment of cumulative impacts.

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MISCELLANEOUS ISSUES

PacifiCorp is applying to the Federal Energy Regulatory Commission (FERC) for a 50-year license.

Pg. 1- Section 1- The current license was issued in 1980, but was retroactive to 1965, and has been in effect for nearly 40 years. A new license for this project should be reopened in 30-years so continuing impacts to fish and wildlife can be reassessed. The current DLA does not include proposals to significantly modify project structures or operations to address long-standing impacts to fish and wildlife resources. A longer license term will only delay bringing the project up to date with rapidly changing environmental protection measures in the future.

Recommendation:

The project should be licensed for no more than 30-years.

.....

The DLA is incomplete

Volume 1, Executive Summary, pg. 2, Section 1.2.2, last sentence: Studies should be developed and modified in consultation with the agencies. 18CFR16.8(c) requires the applicant to complete all reasonable and necessary studies and obtain all reasonable and necessary information requested by the resource agencies to determine the impact of the project, suitable mitigation and enhancement measures, or to minimize impacts on significant resources.

Recommendation:

Revise this section of the DLA to reflect actual status of studies requested by ODFW and consultation history with the agencies.

.....

The DLA incorrectly includes steelhead as a “listed” species in the Rogue River below William L. Jess Dam.

Volume 1, Executive Summary, pg. 8, 3rd paragraph, and Exhibit E3, pg. 8, Section E3.1.2.2, 1st paragraph, last sentence- As Of April 2001, the National Marine Fisheries Service did not warrant the Klamath Mountains Province Steelhead ESU for listing under the Endangered Species Act.

Recommendations:

Delete reference to steelhead as a “listed” species.

.....

The study area boundary does not include the South Fork Rogue River from its confluence downstream to Lost Creek Reservoir

Exhibit A, Figure A1.0-1,
See Exhibit E1, Figure E1.1-2, and
1.6 Pg. 5, 1st paragraph-

The project map includes the relicensing study area boundary; however, the bypassed reach of the South Fork Rogue River from the confluence with the Middle Fork Rogue River to Lost Creek Reservoir is not included in the boundary. ODFW specifically recommended in its FSCD comments that this reach of the South Fork be included the study area (ODFW 2000a), and PacifiCorp conducted several studies in this reach, including a flow study, ramping study, macroinvertebrate study, water quality studies, and habitat surveys.

Recommendation:

Revise the study area delineated on the map to include the South Fork.

.....

What capital and O&M cost estimates are included in “Aquatics”?

1.7 Exhibit D Pg. 3, section 2.0, Table D2.0-1- The cost for aquatics is listed as \$19,444,000. What modifications and enhancements is this estimate based on?

Recommendation:

Provide requested information

.....

A wetland was created to mitigate for the filling of wetlands for flume improvements not to compensate for flume failures.

Exhibit E1, pg. 8, Section E1.7, last paragraph, last sentence- This sentence identifies creation of a small mitigation wetland to compensate for a flume failure. The wetland created in the project area was mitigation for structural improvements to Flume 5. PacifiCorp filled approximately 0.08 acres of jurisdictional wetlands though it was required to create 0.12 acres of wetlands as mitigation.

Recommendation:

Review purpose for establishing the wetland, and modify application as necessary.

.....

Cole M. Rivers hatchery was constructed to mitigate for William L. Jess, Applegate, and Elk Creek dams.

Exhibit E3, pg. 3, Section E3.1.1.2, 2nd paragraph- The Corps initiated construction of a dam on Elk *Creek*, near Lost Creek Reservoir, not Elk River.

Recommendation:

Correct the text

.....

An incorrect reference is made of the Oregon Wildlife Commission.

Pg. 36, 37, Oregon Department of Fish and Wildlife- The commission is called the "Oregon Fish and Wildlife Commission" not the "Oregon Wildlife Commission".

Recommendation:

Correct and modify this section.

.....

The list of fish management plans is incomplete

Pg. 37, Section E3.1.4.2, Fisheries Resource Management Plans- The DLA lists several fisheries management plans; however, the list is incomplete.

Recommendation:

PacifiCorp should contact ODFW for a complete list of comprehensive plans and include these in the revised application.

.....

The project does not comply with ODFW fish management plans.

Pg. 40, Section E3.1.4.3 Compliance with Fisheries Management Plans-

ODFW brought important issues forward during the consultation process. These concerned stewardship, design and implementation of studies, and compliance with fish management plans.

Stewardship concerns- Project flumes have had repeated serious failures in recent years, with failures occurring in 1995, 1998, 1999, and 2001. ODFW is usually notified of the failures, but typically no comprehensive efforts are made by PacifiCorp to quantify the potential adverse impacts to water quality or aquatic

organisms. At ODFW's insistence after the 2001 failure, PacifiCorp conducted a habitat assessment in Red Blanket Creek below the failure site, but not until over three months after the failure occurred. ODFW recommends that habitat damage assessments to be conducted as soon as the site can be safely accessed.

Study consultation concerns- ODFW has commented previously in this document regarding its recommended studies that have not been conducted, studies that have not included ODFW's recommendations, short review and comment periods on draft study plans, and interpretation of study results.

Resource management compliance- The project is not operated in compliance with fish management plans. The project continues to entrain indigenous trout into unscreened diversion canals, completely block or inhibit upstream passage of trout at all project diversion dams, and substantially reduces flow in approximately 14 miles of streams. The small amount of water that leaks through the North Fork Dam and passes through the "notch" on Red Blanket Dam into these bypass reaches is not based on any scientific analysis of fish habitat. The few fish facilities on the project have not been maintained in effective operating condition; for example the Red Blanket Dam fish ladder was abandoned after flood damage many years ago.

Recommendation:

This section should acknowledge the important resource issues that must be addressed through relicensing, including; addressing the immediate, short- and long-term effects of flume failures; unresolved relicensing study issues, and compliance with fishery management plans.

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Consultation with the FWS is not included. Incorrectly lists the Oregon Department of Fish and Game. List of issues incomplete and not accurately stated

Pg. 40, Section E3.1.1- Consultation with Federal and State Agencies- This section does not include consultation with the FWS, which has an important role in the relicensing process and has identified similar issues and concerns as ODFW.

Section E3.1.5.2- This section lists the Oregon Department of Fish and Game. Change to Oregon Department of Fish and Wildlife.

This section includes some issues identified by ODFW. The list is very incomplete and the wording cryptic. For example;

“Effects of substrate composition on the abundance of aquatic macroinvertebrates in Red Blanket Creek”. This should refer to the effects of the project (e.g. flume failures) on the substrate composition by causing high quantities of sediment, which can disrupt invertebrate communities, an important source of food for fish.

“Effects of the natural bedrock shelf located downstream of the North Fork diversion dam on fish habitat in the Rogue River”. This is a project ramping/standing habitat concern.

“Effect of channel morphology on the availability of spawning gravel in the Rogue River”. This should refer to the effects of the North Fork Dam on the availability of spawning gravel.

ODFW identified numerous relicensing issues in its comments on the FSCD and used those issues as the basis for these comments on the DLA. Those issues have not been included here.

Recommendations:

Include a discussion of consultation with the FWS.

Change the Oregon Department of Fish and *Game* to the Oregon Department of Fish and *Wildlife*.

Revise the current list by including the issues from the General Comments in this document.

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Consultation on ramping rates must include ODEQ and FWS in addition to ODFW.

Pg. 47, Section E3.1.7.3 Ramping Rates- PacifiCorp proposes to identify ramping rates in consultation with ODFW.

Recommendation:

Include ODFW, FWS, and ODEQ in consultation on ramping rates.

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Several state fish and wildlife management plans have not been included in this section.

See pg. 110, State Management Plans.

Recommendation:

PacifiCorp should contact ODFW for a complete list of fish and wildlife related plans.

.....

Section E6.7 does not include a description of the short-term and long-term impacts of flume failures on the project floodplains.

Failure of project flumes, in particular flume 5, has caused impacts to floodplains in the project area.

Recommendation:

This section should include an analysis of the short- and long-term impacts of the flume failures on floodplains.

.....

Section E6.11.7 does not include a description of PacifiCorp’s mitigation wetland

Pg. 28, Section E6.11.7 Wetlands and Floodplains- PacifiCorp acknowledges that the majority of wetlands in the project area are the result of leaking flumes and penstocks, while other wetlands nearby “are outside of the control of PacifiCorp”. However, a mitigation wetland that PacifiCorp is responsible for maintaining is not described in this section. In 1995 PacifiCorp conducted structural improvements to Flume 5, filled approximately 0.08 acres of jurisdictional wetlands, and was required to create 0.12 acres of wetlands as mitigation.

Recommendation:

A description of the mitigation wetland should be included in this section.

.....

VOLUME II- FINAL TECHNICAL REPORTS

Volume II contains Appendix 1, Final Technical Reports. ODFW’s primary interest in the technical reports are the Fish Habitat, Distribution and Abundance; Instream Flow Study; Fish Passage Structures Study; Wildlife Resources; Water Use and Quality; and Sediment Load Analysis. ODFW provided comments on the study plans early in the relicensing process and provided comments specific to these studies previously in this document, therefore ODFW references those earlier comments as appropriate.

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- ODFW. 2000b. Comments on Study Plans for Prospect 1, 2, and 4 Hydroelectric Project. Letter from Ken Homolka (ODFW) to Todd Olson (PacifiCorp), August 22, 2000. Oregon Department of Fish and Wildlife, Portland, Oregon.
- ODFW. 2000c. Additional Comments on Study Plans for Prospect 1, 2, and 4 Hydroelectric Project. Letter from Ken Homolka (ODFW) to Todd Olson (PacifiCorp), September 14, 2000. Oregon Department of Fish and Wildlife, Portland, Oregon.
- ODFW. 1987. Trout Plan. Oregon Department of Fish and Wildlife, Portland, Oregon.
- PacifiCorp. 2000. Fish Distribution and Abundance Sampling Plan. Letter from Todd Olson (PacifiCorp) to Ken Homolka (ODFW) and Larry Rasmussen (USFWS), August 1, 2000. PacifiCorp, Portland, Oregon.

ATTACHMENT

3

Oregon Department of Water Resources

**COMMENTS ON PACIFICORP'S DRAFT LICENSE
APPLICATION**

For

Prospect 1, 2, & 4 Hydroelectric Project

(FERC 2630)

December 2002

Oregon Water Resources Department
Salem, Oregon



Oregon

John A. Kitzhaber, M.D., Governor

Water Resources Department

Commerce Building
158 12th Street NE
Salem, OR 97301-4172
(503) 378-3739
FAX (503) 378-8130

December 31, 2002

Toby Freeman
Manager
Hydro Licensing
PacifiCorp
825 NE Multnomah – Suite 1500
Portland, OR 97232

Re: Comments on Draft Application for License Renewal, P-2630

Dear Mr. Freeman:

The Oregon Water Resources Department (OWRD) appreciates the opportunity to comment on the Draft License Application (DLA) for the Prospect Hydroelectric Project (Project) issued on October 1, 2002. OWRD has participated in this traditional relicensing process since PacifiCorp requested the formation of a Hydroelectric Application Review Team (HART) in September 1999.

While this Project does not require state reauthorization of water rights because it operates under non-expiring power claims (PCs), OWRD has identified a couple of issues that it would like you to consider and work cooperatively with OWRD to reconcile. OWRD recognizes and appreciates the applicant's efforts to conduct a constructive relicensing process and it is our sincere hope that the issues that we have identified can be resolved before PacifiCorp submits their final application in July 2003. If you have any questions or concerns regarding these comments, please do not hesitate to contact me at (503) 378-8455, ext. 289

Sincerely,

R. Craig Kohanek

R. Craig Kohanek
Hydroelectric Project Analyst
Oregon Water Resources Department

**OREGON WATER RESOURCES DEPARTMENT
COMMENTS ON DRAFT LICENSE APPLICATION FOR
PACIFICORP
PROSPECT HYDROELECTRIC PROJECT
FERC No. P-2630**

December 2002

Specific Comments

- 1. PacifiCorp should install real-time telemetry gauges at the point where water enters a project waterway and at the intakes to the individual powerhouses.**

PacifiCorp's Prospect project has a long and well-documented history of wasting water due to leakage, waterway (i.e. flume, stave, canal, and conduit) failures due to insufficient maintenance and replacement of faulty systems, and vandalism. Though PacifiCorp has made some capital improvements to these waterways and has committed to continue making improvements, OWRD believes that to ensure that water is not being wasted and that only the permitted amount is being used, PacifiCorp should install and maintain real-time telemetry gauging.

Additionally, PacifiCorp's Draft License Application (DLA) indicates that the project's combined hydraulic capacity is in excess of the company's water rights. OWRD would like PacifiCorp to install gauging that will adequately ensure that only the amount of water permitted under their water rights is being appropriated.

Under Oregon law, water must be used beneficially for a specified purpose without waste. Oregon Revised Statute (ORS) 540.610(1). Based on this requirement, together with the economic and ecological importance of using only the allotted amount of water for a beneficial and designated use without waste, PacifiCorp should demonstrate empirically that the previously sited standard is being met.

Recommendation

PacifiCorp should demonstrate empirically that the previously cited standard is being met by installing real-time telemetry gauges at the point where water enters project waterways and at the intakes to the individual powerhouses. Additionally, the installation of the gauge stations and the data acquisition should conform with applicable United State Geological Survey (USGS) standards in existence at the time the new license is issued.

2. **PacifiCorp’s request for a 50-year Federal Energy Regulatory Commission (FERC) license is inconsistent with the Federal Power Act.**

With regard to license terms, the Federal Power Act (Act) “specifies a number of factors the Commission is required to consider in acting on applications for new license following the expiration of existing licenses.” One of the factors of the Act specifies that “any new license shall be for a term which the Commission determines to be in the public interest, but not less than 30 years, nor more than 50 years. This provision is consistent with Commission policy which was to establish 30-year terms for those projects which proposed no new construction or capacity, 40-year terms for those projects that proposed a moderate amount of new development, and 50-year terms for those projects that proposed a substantial amount of new development.” Based on the draft application, it does not appear that PacifiCorp has proposed a substantial amount of new development, which would warrant a 50-year license term.

Recommendation

PacifiCorp should clarify how their project qualifies for a 50-year license term based on the requirements of the Act.

ATTACHMENT

4

Oregon Public Utilities Commission

COMMENTS ON PACIFICORP'S DRAFT LICENSE APPLICATION

For

Prospect 1, 2, & 4 Hydroelectric Project

(FERC 2630)

December 2002

Oregon Public Utilities Commission
Salem, Oregon

**OREGON PUBLIC UTILITIES COMMISSION
COMMENTS ON DRAFT LICENSE APPLICATION FOR
PACIFICORP
PROSPECT HYDROELECTRIC PROJECT
FERC No. P-2630**

December 2002

SPECIFIC COMMENTS

- 1. The Resource and Marketing Planning Program (RAMPP-6) is not indicative of current or future conditions and a different program should be used.**

Exhibit D - Statement of Costs and Financing.

In Exhibit D6.0 - Alternative Power Sources - PacifiCorp references the source of its discussion as RAMPP-6 (Resource and Marketing Planning Program). This is a document that used various input variables that were developed prior to May 2000. This is prior to the unprecedented price volatility experienced in the Western electricity market. Therefore, the input assumptions in RAMPP-6 do not reflect the current and future structure of the electric industry, wholesale energy markets, or PacifiCorp itself. For these reasons in Order No. 02-681 (Issued Oct 7, 2002) the Oregon Public Utility Commission (OPUC) determined that RAMPP-6 should not be acknowledged as a plan that is reflective of the current state of the electricity industry. Therefore, I recommend the discussion of Alternative Power Sources in Section D be updated by Pacific to reflect the Supply Side Resource Option discussed on pages 72 through 78 of Pacific's 2002 Integrated Resource Plan (Draft Issued October 2002). This revised discussion should reflect resource option cost estimates that are higher than those currently stated in Exhibit D, particularly for cogeneration.

Recommendation:

PacifiCorp, in consultation with the OPUC, should identify a more current and comprehensive Resource and Marketing Planning Program that accounts for the price volatility that has occurred and is anticipated in the future.