Kangley-Echo Lake Transmission Line Project DEIS
Appendix A – Final Fisheries Technical Report

Summary of Major Comments to Appendix A – Final Fisheries Technical Report
Seattle Public Utilities
September 4, 2001

GENERAL COMMENTS

1. The analysis in the DEIS and technical appendix is inadequate due to:
   - lack of assessment of Type 4 and 5 streams;
   - factual errors
   - lack of thorough erosion assessment
   - scant site-specific information on streams and no quantification of impacts by stream crossing
   - lack of disclosure as to the extent of clearing in riparian areas, which effectively precludes an evaluation of project effects
2. The DEIS and technical appendix should commit to compensatory mitigation in acknowledgment of the project's moderate to high impacts to fish habitat.
3. The DEIS and technical appendix should thoroughly address cumulative effects of creating additional ROW adjacent to the existing ROW.
4. The DEIS and technical appendix should discuss steelhead trout in greater detail throughout.

SPECIFIC COMMENTS

***DEIS Appendix citations in italics*; SPU comments in normal font.**

1.0 Executive Summary

"This report describes the existing conditions and potential impacts on vegetation ....."

This is the fisheries technical report.

"This report serves as the primary basis for the vegetation ...."

This is the fisheries technical report.

1.1.1.2 Clearing

"Non-merchantable timber may or may not be burned ...."

This statement conflicts with the project's Biological Assessment (BA), which claims there will be no burning. The DEIS, its technical appendices, and associated permitting documents need to present a complete and consistent description of the proposed action.

This activity, if allowed within Cedar River Watershed (CRW), would be with the approval of SPU relative to scheduling and methods. The DEIS and technical appendix should commit to ensuring all methods proposed in this section would meet and be conducted by SPU standards and approval for those portions of the project constructed in the CRW.

"... (BMPs) for timberland would also be used."

The DEIS and technical appendix should commit to ensuring all methods proposed in this section would meet and be conducted by SPU standards and approval for those portions of the project constructed in the CRW.

"Trees would be cleared within the ROW as well as outside of the ROW to prevent trees from falling on the lines."

SPU is unable to comment effectively without more specific tree removal plans. Also, there is no mention of the temporary 50 ft construction easement BPA previously mentioned in this technical appendix (but which is not mentioned in the DEIS). The DEIS and technical appendices need to speak consistently on the nature of project features.

"Additional BMPs for timberland would also be used."

What BMPs will be used? The DEIS and the technical appendices need to present a complete and accurate analysis of fisheries and potential impacts, which is related, in part to the disclosure of the BMPs to be used.

"Total amount of clearing [for towers] for this project is unknown at this time."
"An additional amount of land would be cleared for roads that are needed off the ROW and for roads to be in poor condition and requiring upgrading by BPA"

SPU can not comment effectively without more specific information about grading plans. As evidenced by information presented in the project's BA, BPA has identified locations for towers and new roads and so should be able (in the DEIS and its technical appendices) to estimate the total amount of clearing for the proposed action. The DEIS and the technical appendices need to present a complete and accurate environmental analysis, which includes the disclosure of such known project characteristics. Also, The DEIS and technical appendices should commit to ensuring all methods proposed in this section would meet and be conducted by SPU standards and approval for those portions of the project constructed in the CRW.

1.1.1.3 Access Road Construction and Improvement

The DEIS and technical appendix should commit to ensuring all methods proposed in this section would meet and be conducted by SPU standards and approval for those portions of the project constructed in the CRW.

"Access roads would be 16 ft wide, with additional road widths of up to 20 ft for curves."

SPU believes these road widths are excessive. The DEIS should explain and justify these road prism dimensions. SPU can not comment effectively without more specific information about road plans. As evidenced by information presented in the project's BA, BPA has identified locations for new roads and so should be able (in the DEIS and its technical appendices) to firmly estimate the total amount of clearing/ road-building for the proposed action.

The DEIS and the technical appendix fail to present a complete and accurate environmental analysis because they fail to disclose such known project characteristics as location and kinds of roads. Road locations depicted in the BA are often distant from the proposed action. The DEIS and technical appendix should explain and justify the location of these roads. The DEIS and the technical appendix should acknowledge that all road plans affecting the CRW would be subject to SPU review and approvals.

"...roads would be constructed and used outside the ROW."
"Where temporary roads are used...."

SPU can not comment effectively without more specific information on road plans. As evidenced by information presented in the project's BA, BPA has identified locations for towers and new permanent and temporary roads and so should be able to firmly estimate the total amount of clearing for the proposed action.

The DEIS and the technical appendix need to present a complete and accurate environmental analysis, which includes the disclosure of such known project characteristics as location and types of roads.

1.1.1.4 Storage, Assembly, and Refueling Areas

The DEIS and technical appendix should address the locations for these facilities as well as related clearing/land-disturbance impacts, their adjacency to sensitive areas, and containment and fire safety design. The DEIS provides no descriptions or specifications for refueling or hazardous materials storage areas, which prevents effective review of the proposed action.

All refueling and hazardous material usage/storage facilities would be required by SPU to be outside the CRW boundary. To protect the municipal water supply, SPU has "no-tolerance" objectives for spills or leaks of hazardous materials in the CRW. The DEIS and technical appendix should indicate how all spills would be prevented in the CRW.

1.1.1.5 Tower Site Preparation

"BMPs would be used during clearing and construction to reduce impacts."

The DEIS and technical appendix should describe what these BMPs include. The DEIS and technical appendix should commit to ensuring all methods proposed in this section would meet and be conducted by SPU standards and approval for those portions of the project constructed in the CRW.

"An average area of 30,000 sq. ft would be disturbed at each tower site. Additional areas that could be disturbed could include the site where the conductor is strung and pulled. These disturbances could be as large as 370 ft radius from the tower center."

The DEIS and technical appendix should disclose estimates of where grading will occur and how much area will be graded. The DEIS, its technical appendices, and associated permitting documents need to present a complete and consistent description of the proposed action.

"...construction crews would remove selected trees in a 50 to 60 ft wide area on each side of the ROW. (i.e. to compensate for or anticipate resulting blowdown after initial ROW clearing"

The DEIS and technical appendix should describe volume or number estimates for tree removal in this 50 to 60 ft zone. The DEIS and its technical appendix need to present a complete description of the proposed action.

"...four footings been placed in holes that have been excavated, augured, or blasted."

Use of blasting is a concern in the CRW. The DEIS and technical appendix should describe the likely blasting plan and evaluate the impacts of blasting on stream and fish resources. The DEIS and its technical appendix need to present a complete description of the proposed action.

"Noise and dust would be generated...."

The DEIS and its technical appendix need to evaluate the impact of noise and dust generation on the affected fish populations. The DEIS needs to present a complete description of the proposed action.

1.1.1.9 Site Restoration and Clean-up

"..... pull site locations would be reshaped and ... "

The DEIS and technical appendix should describe what "reshaping" will include. Reshaping should include considerations for proper drainage.

".... Access roads would be repaired."

The DEIS and technical appendix should describe what "repair" means.

"... reseeded with grass or an appropriate seed mixture ... "

The DEIS and technical appendix should commit to ensuring all methods proposed in this section would meet and be conducted by SPU standards and approval for those portions of the project constructed in the CRW. Seed mixes should be composed of native seed species (i.e., grasses and shrubs) and meet SPU approval.

1.1.2.6 No Action Alternative

The DEIS and technical appendix should provide data and/or references documenting how this conclusion was reached.

1.2 Key Issues for Fisheries

The DEIS and technical appendix should address adverse impacts on habitat for coho salmon.

"Under the HCP, all forest clearing is prohibited except for purposes of habitat restoration."

This statement is incorrect. The DEIS and technical appendix should restate and clarify this concept relative to the final version of the HCP (2000).

1.3 Major Conclusions

"All action alternatives would have similar impacts to fish and their habitat. All action alternatives would require removal of riparian forest vegetation in an area where such activity has previously been determined to cause adverse effects to fish species listed as threatened under the ESA. Although some measures could be taken to minimize vegetation clearing in riparian areas, the residual impacts would persist throughout the life of the project."

This comment and the statement on page 23 (paragraph 5) of the technical appendix indicate impacts to ESA-listed fish species would be high. Despite these adverse impacts to listed fish, the DEIS and its technical appendix contain no substantive commitment to compensatory mitigation. Is BPA's conclusion, then, that there are no mitigation actions available that would reduce adverse effects of riparian vegetation clearing on ESA-listed fish to negligible levels? The DEIS and technical appendix should fully disclose this conclusion.

The DEIS and technical appendix should define what measures *"could be taken"* and what *"methods are available."*

2.1 Data Sources and Study Methods

"The CRW HCP (City of Seattle 1998)"

In section 1.2 above, City of Seattle 2000 is referenced, but it is not included in this list. This section and any other references to the HCP should be revised, updated, and clarified throughout the DEIS and its technical appendices to reflect content of the final version of the HCP (2000).

"The impact assessment for this analysis relied upon remote methods to identify potential fish-bearing streams...."

The known distribution of fish in the project area should be used in the analysis wherever it confirms a greater distribution than the remotely sensed data indicates. Some stream reaches that contain fish are not indicated as such in the analysis. Consultation with SPU Cedar Falls biologists may be beneficial. The DEIS and the technical appendix need to present a complete and accurate analysis of fisheries and potential impacts.

"The GIS database was not found to include any non-fish-bearing streams, so these streams were not inventoried. It is assumed that the project area contains at least twice as many non-fish-bearing streams as fish-bearing streams."

It is well-known that non-fish bearing streams (Types 4 and 5) have a water quality impact on downstream reaches that are fish-bearing. The CRW HCP has a standard of 150 ft buffer for clearing on Type 4 and 100 ft for Type 5. Lack of inventory of Type 4 and 5 streams and lack of impact analysis on these streams are significant deficiencies in the DEIS and this technical appendix. The DEIS and technical appendix should inventory Type 4 and 5 streams and consider the potential impacts of the proposed action on these stream and fish resources. The DEIS and the technical appendix need to present a complete and accurate analysis of fisheries and potential impacts.

"Color aerial photographs were reviewed to collect information about the size and species composition of riparian vegetation, and the existing riparian shade, along all potentially affected streams. This review used methods established for watershed analysis in Washington (WFPB 1998). Field studies were undertaken to visit representative examples of fish-bearing streams, observe channel geomorphology and fish habitat, and ground-truth the aerial photograph assessment."

Color aerial photographs were 1:24,000 scale. It is questionable whether this scale is adequate for Washington Watershed Analysis methodology. The DEIS and technical appendix should describe what Washington watershed methodologies were used (that is, which modules were used).

"For the impact assessment, it was assumed that the action alternatives would require clearing vegetation over a 150 ft wide corridor along the entire project area. This assumption is conservative because BPA would seek to minimize vegetation clearing in riparian areas by not placing towers in riparian areas."

The statement conflicts with other statements in the DEIS and its technical appendices. The ROW would be 150 ft with or without towers; the DEIS indicates that clearing could occur in an area as wide as 400 ft. The DEIS and technical appendices need to speak consistently on the nature of project features (number location, width, etc.) of the proposed action.

"...it was assumed that the action alternative would require clearing vegetation over a 150 ft wide corridor...."

This assumption is incorrect based on conflicting information provided in sections 1.1.1.2 and 1.1.1.5. The DEIS and technical appendices need to speak consistently on the nature of features of the proposed action.

3.2.1 Cedar River Watershed Habitat Conservation Plan

Any reference to "ecological reserve" in this or any other section of the DEIS or its technical appendices is incorrect. The "ecological reserve" as a "conservation strategy" is not included in the final signed version of

the HCP (2000). This section and any other references to the HCP should be revised, updated, and clarified throughout the DEIS and its technical appendices to reflect content of the final version of the HCP (2000).

3.2.1 CRW HCP

"...principal water supply for the City of Seattle..."

The Cedar River Watershed is not the principal water supply just for the citizens of Seattle, but numerous other communities as well (27 additional purveyors and communities), totaling 1.3 million people. The DEIS and technical appendix should accurately describe the role of the Cedar River Watershed.

3.4.1 Alternative 1

The DEIS and the technical appendix need to present a complete and accurate analysis of fisheries and potential impacts. Several errors in this section suggest the environmental analysis for the CRW portion of the proposed action was not thorough. These errors include:

Segment C –
"...the floodplain (of the Cedar River) is not confined... (where it crosses the proposed ROW)"

The river is actually moderately confined within a glacial fluvial terrace.

"Currently, this reach of the Cedar River supports rainbow and cutthroat trout."

The Cedar River also contains non-salmonid species.

"Currently, this reach of the Cedar River supports rainbow and cutthroat trout."

Although this statement is true, it is misleading insofar as these two species occur in a ratio of approximately 99 to 1 (rainbow to cutthroat). The DEIS and technical appendix should state this clearly so as to not be misleading. The same clarification should be made in all other sections where similar statements occur.

"Once passage around the Landsburg Diversion Dam has been established (in September 2002), it is likely that this reach would support all anadromous species now prevented from upstream migration by the Landsburg Diversion Dam, including chinook, coho salmon, and steelhead."

Sockeye will be prevented from passage beyond Landsburg even with the new passage facility. The DEIS and technical appendix should correct this statement in all sections in which it occurs in error.

Segment D –
"The affected streams have a pool-riffle morphology..."

As described in the paragraph above, many streams in this segment flow down relatively steep slopes (20 to 40 percent). Stream gradients on these slopes are generally too high to support pool-riffle morphology and are more commonly step-pool or cascade channel types.

"Rock Creek, downstream of this segment, is known to be used by cutthroat trout and, where it joins with the Walsh Lake diversion ditch, by coho salmon and Walsh Lake kokanee."

Rock Creek does not join with the Walsh Lake diversion ditch. It flows directly to the Cedar River and is not connected to the ditch. The DEIS and the technical appendix need to present a complete and accurate analysis of fisheries and potential impacts.

3.4.2 Alternative 2
Segment G

"Currently, this reach of the Cedar River supports rainbow and cutthroat trout."

Non-salmonid species are also present there. See comment re: ratio in comment above. The DEIS and the technical appendix need to present a complete and accurate analysis of fisheries and potential impacts.

"Once passage around the Landsburg Diversion Dam has been established in September 2002, it is likely that this reach would support all anadromous species now prevented from upstream migration by the dam, including chinook, coho and sockeye salmon, and steelhead."

Not all anadromous species will be allowed passage. See comments above. The DEIS and the technical appendix need to present a complete and accurate analysis of fisheries and potential impacts.

3.4.3 Alternative 3

Another error/omission: Taylor Creek also has resident cutthroat trout. See the more detailed comment in SPU's review of the DEIS. The DEIS and the technical appendix need to present a complete and accurate analysis of fisheries and potential impacts.

Segment J

"Within the project area, Taylor Creek is known to contain resident rainbow trout, but a natural falls near its mouth renders the stream inaccessible to anadromous fish."

Non-salmonid species are also present. SPU data indicate that Taylor Creek has predominately cutthroat trout and perhaps relatively small numbers of rainbow trout. The DEIS and the technical appendix need to present a complete and accurate analysis of fisheries and potential impacts.

"Currently, this reach of the Cedar River supports rainbow and cutthroat trout."

Non-salmonid species are also present. See previous comment on ratio. The DEIS and the technical appendix need to present a complete and accurate analysis of fisheries and potential impacts.

3.5 Access Roads

"All new access roads would that have the potential to affect fish-bearing streams would be situated within the alternative ROW's...."

This statement appears to be inconsistent with information provided in Section 1.1.1.3. Also, it appears the effects of temporary roads and construction of the 50 ft temporary construction easement previously mentioned by BPA (but not mentioned in the DEIS) are not considered at all in this environmental analysis.

4.0 Environmental Consequences

"All of these are recognized as common impacts to fish populations and habitat as a result of timber harvest and associated activities in mountainous terrain in the Pacific Northwest (WFPB 1998, City of Seattle 1998). It is largely incidental that timber harvest would be followed by installation of a transmission line for the proposed project."

This statement appears to suggest: "the proposed action is no different than a timber harvest, it just happens that BPA will be putting in a transmission line after the trees are cut." This statement obscures the point that

timber harvest would not happen if the transmission line was not constructed. It also fails to acknowledge the notion that impacts of the proposed vegetation clearing in the ROW would be long-term and on-going—much longer and more disruptive than a timber harvest. The DEIS and the technical appendix need to present an accurate description of the proposed action. More importantly, the CRW HCP provides long-term protection status to forests in the CRW. Thus, these forests will continue to age and provide increasingly unique, low elevation conifer forest habitats in the rapidly developing Puget Sound region. The DEIS and technical appendix should acknowledge the unique long-term forest protection status provided by the HCP. BPA's environmental analysis should be conducted recognizing the increasing regional biodiversity value of the forest it proposes to permanently clearcut.

"...or toxicity or deterioration of water quality from accidental spills of hazardous materials."

The DEIS and technical appendix should evaluate the potential of leaching of metals from the towers or lines, and the associated risks to water quality.

4.1 Construction Impacts
4.1.1 Impacts Common to All Action Alternatives
4.1.1.1 Impacts

Disturbance to Fish Habitat from Removal of Riparian Vegetation

"Riparian trees protect fish habitat by filtering runoff before it reaches the stream, shading the stream and reducing mid-summer temperatures, providing LWD to streams which increases habitat complexity, and providing organic matter to the stream which increases productivity in the aquatic food chain".

Riparian trees and vegetation also provide soil stability, shoreline stabilization, and insects as food.

"BPA would prepare a clearing plan ..."

All methods proposed in this plan would have to meet and be conducted by SPU standards and with SPU approval for all areas within CRW.

"... drainage features would be installed where needed in accordance with the Washington Forest Practices Rules (WSFPR).

SPU standards would have to be followed if they exceed WSFPR and would be subject to SPU approval for areas in CRW.

Culvert or Bridge Installation—

"Some fish in the streams along the proposed transmission line ROW, including sensitive species such as bull trout, steelhead, and salmon, migrate upstream to spawn."

Although it is mentioned elsewhere in the report that bull trout are not likely to be found in the project area due to warm stream temperatures, it is implied that they are here. The CRW HCP presents strong evidence that bull trout are not resident in the lower Cedar River system, but this source is not cited in this technical appendix. The DEIS and technical appendix need to present a complete and consistent analysis of fisheries and potential impacts.

"BPA would comply with guidelines for fish passage in the design ....."

The DEIS and technical appendix should commit to ensuring all pertinent plans would meet and be conducted by SPU standards and approval for those portions of the project constructed in the CRW.

Fine Sediment Delivery to Streams—

"Clearing of the transmission line ROW, grading and placement of tower footings, and construction of new access roads and their associated stream crossing structures would expose soil to the erosive forces of wind, rain, and surface runoff during construction and until sites were revegetated. Such erosion would deliver fine sediment into streams....Construction of the transmission line would cause low impacts to fish and their habitat as a result of erosion and sedimentation... BMPs that would minimize potential impacts to fish from turbidity and sedimentation."

This analysis of potential erosion effects does not mention that the types of soils the ROW passes through on the south slope of Brew Hill are poorly consolidated glacial sediments that easily erode. SPU has observed active erosion in the existing ROW where Rock Creek is incised into a narrow ravine. Although a note in this report mentions the existing ROW offers a good basis for predicting effects of the proposed ROW, impacts of the existing ROW to streams (such as erosion) are rarely mentioned in the analysis. Rather than acknowledging that such erosion could be an ongoing problem, the analysis states that revegetation and BMPs will readily eliminate erosional effects. This is questionable considering BPA's present level of management of its existing ROW. The DEIS and the technical appendix need to present a complete and accurate analysis of fisheries and potential impacts.

"BPA has constructed transmission lines using a number of standard construction practices and BMPs that would minimize ...."

The DEIS and technical appendix should commit to ensuring all pertinent plans would meet and be conducted by SPU standards and approval for those portions of the project constructed in the CRW.

Adverse Effects to Fish from Accidental Spills of Hazardous Materials --

"Spill Prevention and Contingency Plan..."

The DEIS and technical appendix should commit to ensuring all pertinent plans would meet and be conducted by SPU standards and approval for those portions of the project constructed in the CRW.

Impacts to Species Listed and Proposed for Listing under the Endangered Species Act—

Impacts of reduced LWD input and increased stream temperatures are described as possible impacts to listed or proposed listed species. Sedimentation, as described just above, is also a potential impact.

"Other streams in the project area are too narrow and steep to support chinook salmon spawning habitat, and all streams in the project area are too warm to support bull trout spawning habitat."

This is likely untrue for Steele Creek and lower Taylor Creek. The DEIS and technical appendix need to present a complete and consistent analysis of fisheries and potential impacts.

"... all streams in the project area are too warm to support bull trout."

The DEIS and technical appendix should provide data or appropriate references to support this contention. The DEIS and technical appendix need to present a complete and consistent analysis of fisheries and potential impacts.

4.1.1.2 Mitigation

The term "mitigation" as used here appears to refer to methods for minimizing impacts, not actions to replace lost function. One of the most serious deficiencies in the DEIS and all of its technical appendices is the lack of compensatory mitigation for the unavoidable impacts that would occur. Impacts to fish populations and habitat (including listed species) are acknowledged in the DEIS and its technical appendices, yet no compensatory mitigation is recommended to compensate for these impacts. The DEIS and technical appendices should commit to compensatory mitigation for unavoidable impacts.

BPA is obligated to acknowledge and meet the intent of local regulations, including sensitive areas provisions. For example, King County requires other public utilities such as Puget Sound Energy to compensatorally mitigate every tree removed from wetland and riparian habitats during operation and maintenance of their transmission system. The DEIS and technical appendix should commit to similar or other adequate and appropriate compensatory mitigation to meet the intent of local sensitive areas provisions.

The DEIS and technical appendix should acknowledge that all pertinent plans, BMPs, and methods mentioned in this section would meet SPU standards and be subject to SPU approval for all areas within CRW.

"To minimize potential impacts to fisheries habitat from clearing of vegetation:
BPA would site the transmission line to minimize clearing of riparian vegetation..."

Locating the proposed transmission line ROW alternatives appear to be relatively fixed. Information presented in the BA on the location of project facilities for the proposed action also suggests these features are relatively fixed. Therefore, siting the line to minimize clearing of riparian vegetation is unlikely. The DEIS, its technical appendices, and associated permitting documents need to present a complete and consistent description of the proposed action.

"Culverted crossings in areas where fish are present would be designed to achieve appropriate flow and depth for fish passage and would be large enough to prevent clogging with debris."

How large would these be? It seems unlikely that absolute prevention of debris clogging would be achieved. What about maintenance of culverts? The DEIS and technical appendix should describe the process for determining the size and location of culverts, and should disclose who will be responsible for maintaining roads and culverts. The DEIS and technical appendix need to present a complete and consistent analysis of fisheries and potential impacts.

To minimize the potential for increases in fine sediment delivery to streams:
"...In areas that could be susceptible to erosion, BPA would stabilize the site or road using a variety of methods, which may include riprapping or mulching."

Mulching is not likely to stabilize the site or road, although it could provide some temporary reduction in sedimentation. Riprapping along waterbodies is generally not a desirable form of bank stabilization, except where absolutely necessary to protect built structures. In such cases, King County has required compensatory mitigation for the use of riprap. The DEIS and technical appendix should describe the compensatory mitigation to be implemented should riprap be used.

"BPA would site towers and roads appropriately, use sediment and erosion control methods during construction, and minimize clearing of riparian vegetation."

The DEIS and technical appendix should describe these project components. Information provided in the BA suggests that BPA has conducted sufficient design engineering for the proposed action as to be able to describe these components in detail. The DEIS' s "trust us"approach is not satisfactory for this proposed action.

"BPA uses several standard methods to minimize erosion and sedimentation associated with transmission line construction."

The DEIS and technical appendix should describe these "standard methods."

"Except at stream crossings, roads would be constructed outside of the riparian corridors of streams,"

Does this mean the HCP 300 ft buffer? The DEIS and technical appendix should define what is intended by "riparian corridors."

"BPA would comply with the standards and guidelines established in the Record of Decision (ROD) for vegetation management (BPA 2000)."

The DEIS and technical appendix should include a summary. It is not reasonable for readers to obtain and read the ROD.

"To avoid potential impacts to fish from acoustic shock"

Specifically, "working within WDFW windows" is missing.

4.1.1.3 Cumulative Impacts

There is no mention of cumulative impacts relative to the existing transmission line ROW. Clearing of the existing ROW has resulted in loss of LWD recruitment, reduced shading to streams, and probably increased erosion. Yet the analysis in this report does not address the cumulative effects that the proposed transmission ROW would have to these already existing impacts. This comment applies to all the Cumulative Impacts assessments in the DEIS and its technical documents.

4.1.1.4 Unavoidable Effects, Irreversible, or Irretrievable Commitment of Resources
"Even with BMPs to control erosion, road construction would likely cause some fine sediment to enter nearby streams. This effect could be minimized by consistent monitoring, especially during storm events, and by proper maintenance of road and stream crossings."

No monitoring program is described anywhere in the DEIS or this technical appendix that would address sediment input to streams. Unless BPA is committed to implementing such a monitoring program, this reference should be eliminated and BPA's intent to do no such monitoring should be disclosed. However, the DEIS and technical appendix should describe commitments to avoiding, minimizing, and correcting erosion problems.

"This effect could be minimized by consistent monitoring, especially during storm events, and by proper maintenance of road and stream crossings."

Is BPA committing to such monitoring and maintenance?

"..... because water temperatures are generally too high to support bull trout ..."

The DEIS and technical appendix need to provide data or appropriate reference to support these conclusions.

4.1.3 Alternative Transmission Line Impacts
4.1.3.1 Alternative 1
Impacts—

"Construction of Alternative 1 would result in the clearing of 33 ac. within 300 ft. of potentially fish-bearing streams, and 12 ac. within 100 ft. of potentially fish-bearing streams. About 2,900 ft. of stream would be within the cleared ROW."

This generalized accounting of clearing includes no site-specific information. There is no information presented about how much clearing is associated with what stream crossing. The DEIS and technical appendix need to present a complete and consistent analysis of fisheries and potential impacts.

Cumulative Impacts—
Stream Temperature:
"Proposed vegetation clearing would not comply with riparian shade protections called for by either the Washington Forest Practices Rules or the CRW HCP, and may result in local peak stream temperatures exceeding metabolic optima for salmonids. In streams only utilized by resident salmonids, this would constitute a moderate impact. In the three streams potentially utilized by threatened salmonid species (Cedar River, Raging River, and Rock Creek), this could constitute a high impact...The third stream, Rock Creek, would be crossed in a headwaters area and would be very unlikely to be utilized by chinook salmon (which avoid such narrow, high-gradient streams) or bull trout (which do not spawn in such warm streams). These considerations may result in a low impact to threatened species, but this conclusion cannot be confirmed until the extent of clearing needed in the affected areas is known."

This section needs to disclose that Rock Creek will likely have coho salmon, a species proposed for listing. It should receive protection equivalent to listed species, and therefore rates as a **high** impact. Also, this environmental analysis is not clear with regard to the extent of clearing. The results of this analysis can not be evaluated. The DEIS and technical appendix need to assume a specific level, presumably a maximum level, of clearing for a review of the analysis to be possible. The DEIS and technical appendix need to present a complete and consistent analysis of fisheries and potential impacts.

LWD Recruitment:

"Currently, LWD recruitment is protected by provisions of the Washington Forest Practices Act and the Cedar River and WDNR HCPs that ensure retention of riparian forest buffers 100 to 300 ft. wide. Proposed vegetation clearing would not comply with those protections and may result in reduced LWD recruitment and resulting adverse impacts to in-stream fish habitat."

No attempt is made to quantify how much stream would be affected by clearing of these buffer areas. SPU has estimated that approximately 1,800 ft of Rock Creek is within 300 ft of the cleared right of way. Streams that run parallel to the ROW will have more impact. The DEIS and technical appendix need to present a complete and consistent analysis of fisheries and potential impacts.

"Because no herbicides would be used in vegetation control within 400 ft. of streams and none would be used in the CRW, cumulative effects of toxic substances from the power line would be unlikely even when combined with other sources in the watersheds."

Again, are there any toxics (metals) leaching off the lines or towers? The DEIS and technical appendix should evaluate the potential for such leaching, and the associated risks to water quality.

4.1.3.2 Alternative 2
Impacts—

The Alternative 2 ROW would be 9 mi. long and cross 11 fish-bearing (Type 1, 2, or 3) streams and an unknown number of non-fish-bearing (Type 4 or 5) streams.

Descriptions of segments E, F, and G (the difference from Alternative 1) only identify the Cedar River – yet 2 additional stream crossings are numbered here compared to Alternative 1. The DEIS and technical appendix need to present a complete and consistent analysis of fisheries and potential impacts.

"New roads would cross two fish-bearing streams, requiring that culverts or bridges be built."

Where would these features be located? Previous sections have not identified them. Reviewers are unable to assess environmental impacts without knowing where these new crossings would be.

4.1.3.3 Alternative 3
Cumulative Impacts—
Stream Temperature:
"The one stream potentially utilized by threatened salmonid species, the Cedar River, runs in a relatively deep canyon where little vegetation clearing may be required—in this case, a low impact would be expected for threatened species. If extensive clearing were required, however, this would result in a high impact."

As mentioned above, the DEIS and technical appendix need to be specific about anticipated environmental impacts. Reviewers need to know if this extensive clearing will or will not occur to be able to assess the impacts of the proposed action.

Table 5

This table contains incorrect information. For example, based on data provided in Burton (1999), the earliest confirmed sighting of Chinook salmon in the Cedar River is August 18. Based on data in Burton (1997), the latest recorded steelhead spawning is June 11, and the latest date of completion of steelhead spawning is August 11. The DEIS and its environmental analyses should be based on correct information on the affected natural resources. This table should be revised to include correct information. (Burton, Karl. 1997. Cedar River steelhead monitoring program annual report. Seattle Public Utilities.) (Burton, Karl. 1999. Temporal and spatial distributions of Cedar River Chinook salmon spawning activity. Seattle Public Utilities.)

Also, this or another table should address lamprey species in the same manner.

4.1.3.6 Access Roads
Cumulative Impacts—*Because all roads in the project area are currently managed to avoid delivery of fine sediment to fish-bearing streams, cumulative impacts due to roads would be low under each of the action alternatives.*

This statement is unclear. Not all roads in the project area are currently designed or managed to avoid delivery of fine sediment to streams. Also, it is SPU's opinion that BPA currently does not manage the roads it uses in the CRW such that delivery of fine sediment to fish-bearing streams is avoided. Roads in the CRW are the most significant sources of sediment to streams. Adding more than 1.5 mi of new roadway and impervious surface is a clear and significant cumulative impact. The DEIS and technical appendix need to state clearly what is meant by this statement and acknowledge the significant role of roads in contributing sediment to streams. SPU believes the cumulative impacts of adding such new roads are greater than "low."

4.2 Operation and Maintenance Impacts
4.2.1 Impacts Common to All Action Alternatives
4.2.1.1 Impacts

"... routine monitoring of the transmission line."

In addition, BPA should be "on call" for response if notified of a problem or need for maintenance at any time by SPU.

"During routine maintenance, BPA would also inspect roads, identify potential erosion problems, and correct any erosion problems identified."

An earlier section suggested that inspections would need to be done after storms.

5.3.1 CRW HCP

The DEIS and technical appendix should clearly acknowledge that the proposed action does not comply with riparian and stream protection provisions specified in the City's HCP.