BEFORE THE STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL

In the Matter of Application No. 96-1 OLYMPIC PIPE LINE COMPANY CROSS CASCADE PIPELINE PROJECT	)	TESTIMONY OF DONALD FINNEY • Fish Habitat • Stream Crossings • Land Use

1. I, Donald E. Finney, am a Senior Ecologist with the King County Department of Development and Environmental Services. In that capacity, I am routinely called upon to evaluate whether various development proposals within unincorporated King County are in compliance with County land use and zoning requirements pertaining to streams and fish. I am familiar with County land use plans and zoning code provisions bearing on the proposed routing of the Cross Cascade Pipeline within King County. I have reviewed the likely stream crossing and fish habitat impacts of the proposed pipeline route through King County and give this testimony of my own personal knowledge in support of the County's position that the currently proposed pipeline is not consistent with County land use plans and zoning ordinances and that compliance with such plans and ordinances should be required as part of any site certification issued for the proposed pipeline project.

2. I have conducted three separate field site visits and have reviewed the majority of the lower Snoqualmie River tributaries that will be crossed by this project. I have also reviewed the

majority of the proposed stream crossings east of Boxley Creek to Hanson Creek. I have reviewed King County's review and comment letter on the pipeline project as well as excerpts from the DEIS and ASC. I have had numerous discussions with King County staff including Randy Sandin, Nick Gillen and Steve Bottheim and met with OPL staff and their consultants on October 22, 1998 to discuss stream crossing issues.

3. The project corridor proposes to cross 64 streams through unincorporated King County. Eight of the crossings are through Class 1 streams, seventeen are Class 2 streams used by salmonids, four are Class 2 streams that are not used by salmonids, and thirty-five are Class 3 streams. Thirty-nine of the streams are proposed to be crossed using existing bridges or the pipeline will be placed either over or under existing culverts. Twenty-five streams including four Class 1, eleven Class 2, and ten Class 3 are proposed to be open trenched. All areas directly impacted during construction will be restored, but OPL is not proposing any additional mitigation for reduced or lost function and value of the stream or riparian corridor or to mitigate for indirect impacts such as water quality degradation, sedimentation, loss of buffer, or incidental or direct fish kills. Three of the Class I streams, Cherry Creek, Tolt River and Griffin Creek, have an associated wetland riparian corridor. These same crossings are located in active landslide areas. It is likely that additional streams that meet King County's stream definition will be encountered during construction.

4. The foregoing King County Comprehensive Plan stream and shoreline policies are implemented, in part, by the following pertinent zoning code provisions:

- KCC 21A.24.360 (establishing minimum buffer requirements for streams);
- KCC 21A.24.370(A)(requiring special studies for alteration of any stream or buffer);
- KCC 21A.24.370(D)(Utilities not allowed in stream buffers unless no practical

alternatives exist and provisions of KCC 21A.24.330 are met);

- KCC 21A.24.370(G)(stream crossings not allowed unless crossings: use bridges or other techniques that do not disturb the bed or bank; are constructed during summer low flow; are constructed outside of spawning areas unless no practical alternative is available; do not diminish flood capacity; and, for utilities, are laterally drilled four feet below maximum scour depth, except Class III streams may be open cut when dry);

- KCC 21A.24.130 (requiring mitigation, as defined in KCC 21A.06.750 -- in the following descending order of preference: avoidance, minimization, rectification, reduction or elimination over time, compensation by replacing, enhancement, and monitoring -- to protect sensitive areas and their buffers);

- KCC 21A.24.380(Replacement or enhancement is required when a stream or buffer is altered. Replacement or enhancement shall result in no net loss of stream functions and result in no impact to streams);

- KCC 21A.24.380(F)(Mitigation shall be on site and in-kind unless on site mitigation is not possible, mitigation occurs within the same sub-basin and greater biologic and hydrologic functions are achieved.);

- KCC 21A.24.070 (Utility may apply for exception from stream standards if no practical alternative exists with less impact on the sensitive area, and the proposal minimizes sensitive area impacts).

5. King County Zoning Code section 21A.24.020 precludes development from occurring within rivers, streams and associated buffers unless the foregoing minimum requirements are satisfied.

6. The following principles concisely summarize the most significant King County zoning and shoreline development regulations affecting the siting and construction of a utility in a wetland and/or stream:

- Utilities may be allowed in a wetland buffer if there are no practical alternatives but utilities are not allowed within wetlands themselves.

- Utilities may be allowed in a stream buffer if no practical alternative exists but utilities are not allowed to cross a Class 1 or 2 stream unless they are laterally

drilled or placed on an existing bridge. Class 3 streams may be open cut when dry.

- Exceptions to the provisions of the sensitive area ordinance may be made based upon a showing that no practical alternative exists with less impact on the sensitive area and impacts to sensitive areas are minimized. Exceptions from the shoreline code are not allowed.

7. Paragraph 8 provides a brief description of a few of the more sensitive stream crossings in King County, that includes a more detailed description of site conditions and probable impacts. The pipeline route has been separated into two segments to simplify this discussion.

8. Segment 1 of the pipeline within King County runs from the Snohomish County line to the City of Snoqualmie.

Stream Crossing #18 and 19, Wetland Crossing 260709 – North Fork Cherry Cr.

The stream buffer at this crossing has been impacted by BPA clearing and apparent grazing. The buffer consists predominately of grass and low shrubs and a few scattered trees. The meandering stream is very low gradient and contains very good rearing habitat in a confined channel with fairly deep pools. I observed large patches of very clean and well sorted trout sized spawning gravel at the crossing site, and one patch of salmon spawning size gravel at the edge of the BPA right of way. (See Exhibit 1).

Stream Crossing #20, Wetland 260716 – Cherry Creek

Cherry Creek is a Class 1 stream that flows through a Class 2 forested wetland. The pipeline has been routed though a portion of the wetland that has been previously altered and consists primarily of scrub-shrub vegetation. The stream channel and riparian corridor are in good condition and provide excellent spawning and rearing habitat for a variety of resident and anadromous salmonids. This is an excellent low gradient (less than 2%) stream with a good balance of pool-riffle-run. There is suitable substrate at the proposed crossing for spawning and this reach provides excellent rearing habitat for salmonids. (See Exhibit 2). I observed a chum carcass at the crossing site on January 14, 1999, and observed excellent spawning habitat both upstream and downstream of the crossing site. The stream buffer is in surprisingly good shape considering the BPA lines overhead. Shrubs and trees up to 16 inches in diameter (DBH) are abundant through the buffer. I measured the only buffer trees maintained by BPA and the cut stumps of four trees measured 16, 18, 20 and 20 inches DBH. The rest of the trees were left intact. Cherry Creek is a large stream with high quality spawning and rearing habitat for several salmon species. Landslide hazard areas have been identified on both the north and south slopes of the stream corridor. The toe of the southern

slope is located in the thalweg of the creek. In addition to being expressly prohibited under King County zoning regulations, (see KCC 21A.24.370(G)) open trenching would cause significant short and long-term impacts that have not been considered and for which OPL is not proposing to mitigate.

Stream Crossing # 22, Wetland Crossing #260727A - Harris Creek

This low gradient creek flows in multiple channels within a wide canary grass wetland under the BPA powerlines. The buffer consists of grass and patches of willows. The stream channels appear to be narrow and very deep, and provide excellent rearing habitat for salmonids. I was not able to determine the substrate type due to the depth of the slow moving water and was not able to view the main thread of flow due to our inability to cross the deep side channel we encountered on the south edge of the floodplain. (see Exhibit 3)

Stream Crossing #26 and #27, Wetland Crossing # 250714 – Tolt River

The Tolt River, a Class 1 water, is a gravel bed, fast flowing river that is subject to high risk of rapid stream incision, bank erosion and shifts in the location of the main channel. (See Exhibit 4). The proposed crossing is located in a mapped channel migration area and an area that is known to have avulsed repeatedly over the past 20 years and as recently as 1990. (see affidavit of Terry Butler) The Tolt River splits into two channels approximately 2100 feet upstream of the proposed crossing location. The two channels recombine approximately 1000 feet downstream. The two channels are approximately 1200 feet apart which represents the approximate width of the floodplain and the approximate extent of the channel migration hazard area at the proposed crossing. The main river channel is identified as Stream Crossing #26. Stream Crossing #27 is a major side channel. It should be noted that prior to 1990, the main Tolt River channel was in the location of the present day side channel. The 1990 floods caused a major realignment of the Tolt River channel. The 1995/1996 floods caused major damage to the King County levee that the proposed pipeline intends to cross. Repairs to this levee were completed in 1997 which included a number of fish enhancement features, including large woody debris, rock spurs, and revegetation of the bank. These features would need to be carefully recreated if they are impacted by the pipeline construction. On September 24, 1998 I observed and photographed what appeared to be a chinook carcass at the proposed crossing. (See Exhibit 5) The Tolt Side Channel crosses through a Class 2 forested wetland. Both river channels and riparian corridors are in generally excellent condition and provide spawning and summer rearing habitat for all principal anadromous and resident salmonid species, including Puget Sound Chinook. Chum salmon were observed spawning at the proposed crossing during a field inspection that was conducted on November 10, 1998. (Personal communication with Randy Sandin) The substrate throughout this reach is suitable for chinook spawning.

OPL is proposing to open trench both of the Tolt River channels, the full extent of the floodplain and the landslide hazard areas on each side of the river. In addition to being

expressly prohibited under King County zoning regulations, (KCC 21A.24.370(G)), open trenching will cause significant short and long term impacts that have not been considered and for which OPL is not proposing to mitigate. During the proposed construction window, it is likely that late, winter steelhead eggs or alevins will be present in the substrate and juvenile salmon, including Puget Sound chinook, will be rearing in both reaches of the river. Because of the nature of the substrate in this area and the amount of area that will be dewatered, it is not possible to completely remove fish from these reaches and two significant fish kills can be expected during the dewatering process. I have direct experience with large scale river relocations such as this (See exhibit 6) and can verify that there are large direct losses of fish and aquatic insect life during channel changes. Large, suddenly exposed riverbed areas with large substrate, in combination with the short window to save dying organisms yields at best saving only a small percentage of the total existing fish life. Flopping small fish have to be collected individually, by hand, a very labor intensive and generally futile exercise given the area of river bed suddenly exposed. The substrate on the Tolt River is very large boulders, cobbles and riprap, necessitating a fish rescuer to hand move each rock to find the fish. Some rocks are too heavy to be moved by hand. Even if large numbers of fish are collected, stress on the juvenile fish is extreme and a high percentage mortality would be expected. Juvenile chinook salmon would be expected to be present during the time proposed for the pipeline crossing construction. Adult salmon and steelhead may also be present. Extrication of an adult fish from a deep pool that will not fully drain out after the channel relocation is very difficult and stress inducing to the fish. River channel relocations done in the late summer/ early fall at this crossing could also dry up salmon redds, particularly of early spawning fall chinook, a potentially threatened species under the ESA.

Stream Crossing #28 – Griffin Creek

Griffin Creek, a Class 1 stream, is the major producer of coho salmon in the Snoqualmie River system. The majority of the coho spawning occurs in the reach of Griffin Creek starting approximately 0.7 miles upstream of the proposed crossing to a point 1.3 miles downstream. Steelhead are also known to spawn at the location of the proposed crossing and the substrate is suitable for chinook spawning. Even though this crossing is within the BPA right-of-way and within the Forest Production District, the stream channel and riparian corridor are relatively undisturbed. This is an excellent low-gradient (less than 2%) stream with a good balance of pool-riffle-run and excellent in-stream habitat for summer rearing. Landslide hazards are located on both sides of the proposed stream crossing. Open trenching of this stream will cause significant short and long-term impacts that have not been acknowledged and for which OPL is not proposing to mitigate. By following the route discussed in the preceding section, these impacts are avoided. It should be noted the DEIS has not accurately described fish utilization within Griffin Creek. For instance, the DEIS fails to mention that Puget Sound chinook and chum salmon are known to use Griffin Creek or that steelhead redds have been found immediately downstream of the proposed crossing. (DEIS page 3-153, see also Williams et.al. 1975, Snohomish 1103) There is an unusually intact riparian buffer at this creek crossing, given that it is under the BPA powerline. Large

mature spruce trees have been retained under the lines along with other trees and a dense shrub layer. The spawning and rearing habitat at the crossing and immediately upstream and downstream is of excellent quality. (See Exhibit 7).

9. Segment II – City of Snoqualmie to Snoqualmie Tunnel

10. At MP 43.2, the proposed corridor leaves the John Wayne Trail (JWT) and follows the Homestead Valley Road. In at least two locations along this proposed alignment, the corridor is within shoreline management jurisdiction. (Crossings 51 and 56) At both of these locations, the pipeline will be located within a channel migration hazard area. In addition, two Class 2-salmonid streams (Mine Creek and Hall Creek) are proposed to be open trenched.

11. Impacts to both of these streams could be avoided by either utilizing the existing bridges located immediately downstream of the proposed crossing location, HDD or by relocating back to the JWT. HDD would not require direct impacts to wetlands and streams since the existing road corridor in this area is wide enough that additional clearing would not be needed to accommodate the HDD staging areas. The JWT is also a feasible alternative since the Washington State Parks Department just replaced the Hall Creek Trestle. The JWT is probably a preferred alternative since it would also move the pipeline corridor outside of the South Fork Snoqualmie River channel migration hazard area and further reduce the potential for a potential leak or rupture resulting from exposure of the pipe from lateral spreading of the river. The need for future bank stabilization to protect the pipe from exposure, which would be in conflict with the provisions of King County's shoreline regulations, would also be eliminated. There are numerous feasible, practicable alternatives that could be utilized that would have less impacts on sensitive areas and that are more consistent with OPL's stated principles in route selection. Since all of these alternatives avoid direct impact to wetlands and streams, they would generally be consistent with

King County's zoning and development regulations affecting wetlands and streams. The JWT alternative would be outside of shoreline jurisdiction and would not be directly regulated under King County's shorelines code.

12. The pipeline corridor rejoins the JWT at approximately MP 46.9 and follows the trail to approximately MP 49.8. No wetlands or streams will be directly impacted from construction of this portion of the project. Between MP 49.8 and the tunnel, there are two alternatives that are being evaluated. OPL's preferred alternative would be to leave the JWT to use the Tinkham road corridor and then rejoining the JWT west of Humpback Creek in the vicinity of MP 55. In at least two locations along Tinkham Road, the corridor appears to be within shoreline management jurisdiction. (Crossings 72 and 76-77) At both of these locations, the pipeline will be located within an active, channel migration hazard area. In addition, OPL proposes to open trench two class 2-s streams, one class 2 stream and two class three streams. In addition to being expressly prohibited under King County zoning and regulations (see e.g. KCC 21A.24.370(G)) open trenching would cause significant short and long term impacts that have not been considered and for which OPL is not proposing to mitigate.

13. There are existing bridges located immediately downstream of the proposed crossing locations. OPL has not demonstrated that the existing bridges are unsafe or are not capable of withstanding flood flows. There would be no direct impacts to these streams or the riparian corridor if these bridges were utilized.

14. In addition to my experience with the effects of stream dewatering on fish mortality, I also have considerable experience with the effects of pipeline construction at stream crossings that were buried and became exposed, requiring repairs to protect the pipe from potential damage due to

stream scour. I have reviewed many projects to repair the Northwest Gas pipelines in a large river, medium sized stream and small Class 3 stream. At Covington Creek (See exhibit 8) one gas line is buried and one is an overhead crossing. Several repairs were attempted over a series of years to rebury the exposed pipe, until it was finally rerouted over head, parallel to the existing overhead pipeline. The major river crossings I have reviewed were on the White River. Both the City of Tacoma's Pipeline 1 and the NW Gas Pipeline have had repeated problems with river exposure and subsequent repairs. (See exhibit 9) I have also been involved with a small Issaquah Creek tributary that exposed the NW Gas line and had to be repaired with a series of weirs and bed controls. The following describes likely impacts to salmon streams from open trench construction that have not been quantified in this application and for which OPL is not proposing mitigation. The buffer, banks and stream beds can be directly impacted in the following ways:

Stream Bed

- Destabilization of bed materials from excavation and replacement.
- Head cutting due to the destabilization noted above.
- Increased scour due to scrambling of natural layering and sorting of bed materials.
- Change in the percent fines both at the excavation site and downstream. As the percentage of fine sediments increases, fish egg survival decreases.
- In my experience, salmon will rarely use freshly excavated spawning gravels the first fall after the disruption, therefore losing that spawning area to production for at least one spawning season. This is particularly true of Chinook salmon.
- The bed disruption and fluming or temporary removal of flowing water will eliminate fish uses in the area. Assuming this activity is limited to the summer months, May and

June spawning steelhead eggs and alevins would still be in the gravel incubating and could be killed outright, or in redds immediately downstream, could be entombed by construction generated and unnaturally timed silt deposition at the gravel surface. Rearing fish with established territories will be displaced into already established territories of other fish or could be killed outright during the dewatering/fluming process.

- Aquatic insect production will be temporarily eliminated from the excavated area, and could be impacted in downstream areas by silt generated from the excavated areas.
- In cases where channels are proposed to be changed and flows are to be routed back and forth between channels, increased scour and movements of gravels and sediments could occur if the receiving channel is not adequately sized to handle the increased flows. This activity can increase turbidity downstream for many miles, at a time of year natural turbidity is at or near zero. Direct kills of rearing fish are inevitable when moving river channels. Collection of fish in dessicating river channels is extremely difficult. In my experience on a large substrate river, the majority of the fish cannot be collected in time to prevent a fish kill. In addition, channel flow swapping can alter the flow regime permanently due to unintended bed cross section alterations at the diversion point.

Stream Banks and Buffers

- The banks will be destabilized, or existing instability increased. This can lead to the need to stabilize or riprap the bank, thus elimination of existing and future vegetation, altering or eliminating existing cover elements such as LWD, undercut banks, and overhanging and in water vegetation.
- In the buffer and bank area, construction and on-going maintenance will eliminate buffer

vegetation, including herb, shrub and overstory. Mature trees will be lost and/or pruned, reducing bank stability, shading, litter, and LWD recruitment to the stream channel. For the area to be replanted with trees, a long recovery period will elapse before the mature tree functions are equal to the existing trees. This recovery period is equal to the age of the mature trees removed, possibly 80 years or more.

14. In summary**,** there are a variety of technically feasible, economically viable and practicable options available to OPL to site and construct this project in a manner that would avoid alterations of streams, wetlands and their respective buffers and that would still satisfy the stated purpose and need of this proposal, but at much reduced environmental cost.

15. For these reasons, we have concluded that this project is not consistent with King County's zoning regulations relative to the development or siting of a utility facility in or near streams.

16. If the project application were amended to conform to the conditions or standards that follow, the supplemental conditions identified in subsequent portions of this letter, the mitigation measures summarized in Appendix C of the DEIS and the supplemental mitigation measures proposed by the DEIS, construction and siting of this project would be consistent with King County stream regulations. We would recommend that the following measures be required as supplemental project mitigation.

- The pipeline route shall be located to avoid all Class 1 and Class 2 streams and all wetlands associated or hydrologically connected to these streams. Where avoidance is not possible, Class 1 and 2 streams and associated wetlands shall be crossed by laterally drilling at a minimum depth of four feet below maximum scour depth or by using existing bridges. Bore pits or associated staging areas will be located outside of stream and wetland buffers. Class 3 streams may be crossed by open trenching, when dry. No wet trenching will be allowed.

- All streams shall be inventoried and classified in accordance with King County Stream Classification(s) found in KCC 21A.06.1240 and will be accurately shown on the final construction plans. For all stream crossings that are not proposed to be bridged or bored, the applicant shall provide a Level 1stream survey. The survey must include two reaches equal to 20 times the average stream width both up and downstream of the crossing. Total survey length will be equal to 40 times the stream width. The stream survey will be completed in conjunction with development of detailed construction plans In conjunction with development of final engineering plans, the following elements of a Level II survey will be completed for all Class I and II stream crossings to provide baseline data for future impact assessment. This baseline data shall be updated every five years.

  List all fishes that are known to inhabit the stream. Describe their life history characteristics, spawning and rearing seasons.

  Provide spawner counts for all anadromous salmonids that use the particular stream system where the crossing occurs and ¼ mile up and down stream. Use WDF format, but add male and female numbers.

  Provide redd surveys for all anadromous salmonids that use the particular stream system where the crossing occurs and ¼ mile up and down stream. The surveys should be conducted during the appropriate time for each species.

  Electrofish the crossing sites during the appropriate time period to determine juvenile rearing use. Use one pass only for qualitative information: 2 x 100-feet long representative sections within 500 feet downstream of the crossing and 1 x 100-feet long sections within 250 feet upstream of the crossings. Include species, nos., and standard lengths of all salmonids.

- To provide base line data to assess damage from future maintenance activities, and to provide a basis for related mitigation, provide post-project time zero (i.e. “as built”) color print photographs of each stream, river or wetland crossing depicting the crossing from both sides, and from 100 feet away looking toward the stream or river. This base line photographic information of each crossing will be updated every five years.

- The floodplain areas associated with riparian habitat shall be preserved to the maximum extent possible to enhance and protect the fish and wildlife.

- A Riparian Enhancement/Restoration Plan incorporating native ground cover, shrubs, and trees shall be developed for each stream that is impacted by this project. This shall include that area beginning at the Ordinary High Water Mark (OHWM), continuing upland for the entire extent of Shorelines jurisdiction or 200 feet upland of the OHWM. For that area along the OHWM, the plan shall incorporate plantings appropriate for the riverine environment. An important element to the enhancement plan should include

tree and shrub plantings adjacent to the river to provide shade and habitat and bank stability.

- Detailed, site-specific enhancement/restoration plans shall be prepared by a qualified aquatic ecologist for each stream that is impacted by this project. Analysis of upstream and downstream characteristics is required. The analysis shall include, at a minimum, existing fisheries habitat, geomorphology and hydraulics. The plan shall specify use of indigenous riparian vegetation, and shall specify size distribution and depth of placement of all gravels used instream. Gravel characteristics shall be justified based on criteria including maximum potential scour depth, and fish species use at each location. A minimum 5-year monitoring schedule with reports on the first, third and fifth years.

- Disturbed upland areas adjacent to stream or wetland habitats shall be revegetated to create habitats of comparable or better quality than existing adjacent upland habitats.

DATED this _____ day of _____, 1999

_____

DONALD E. FINNEY