BEFORE THE STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL

IN RE APPLICATION NO. 96-1

OLYMPIC PIPE LINE COMPANY:
CROSS CASCADE PIPELINE PROJECT

EXHIBIT _____ (  )

REBUTTAL TESTIMONY OF A. DAVID EVERY, Ph.D.

ISSUES: STREAM CROSSINGS, WETLANDS, AND ASSOCIATED HABITATS

SPONSOR: OLYMPIC PIPE LINE COMPANY

**Q. Please state your name, business address, and employment position.**

A. My name is A. David Every. I am a Senior Ecologist at Dames & Moore in Seattle. My business address is 500 Market Place Tower, 2025 First Avenue, Seattle, Washington 98121.

**Q. What is the subject matter of your testimony?**

A. Stream crossings, wetlands, and associated vegetation, wildlife, and habitat issues.

**Q. Summarize your professional qualifications and education.**

A. I hold a Ph.D. in Botany from the University of Washington, 1977; a M.S. in Botany, University of Utah, 1969; and a B.S. in Zoology from the University of Utah, 1967.

**Q. Can you summarize your relevant professional experience?**

A. My professional background includes Senior Ecologist with Dames & Moore for eleven years, and over 20 years' consulting experience. During this time, I have worked on numerous land use projects involving wetlands, wildlife, and vegetation, and have conducted or managed numerous EISs. I have proven experience as an environmental consultant on wetland and terrestrial ecological issues throughout the United States. I have conducted and supervised baseline studies, habitat and resource inventories, including threatened and endangered species studies, impact assessments, mitigation studies, reclamation planning, and permitting assistance for vegetation, wetlands, wildlife habitat, and wildlife.

**Q. To which prefiled testimony are you responding?**

A. I am responding to issues raised by many witnesses, including Erik Stockdale, Sarah Cooke, Randy Sandin, Donald Finney, George Wooten, Bob Zeigler, Ron Freisz, Nick Gillen, Damien Hooper, David Wilderman, Douglas Pineo, Jerry Benson, and Brent Renfrow.

**Q. What materials have you reviewed in preparing your testimony?**

A. I have reviewed the Application for Site Certification, 96-1, dated May 1998, the Draft Preliminary Wetland Mitigation Plan (Dames & Moore, August 25,1998) (attached as an exhibit to this testimony), and three technical reports which have previously been filed with EFSEC: the Wetlands Technical Report (Dames & Moore, May 28, 1997); the Vegetation Report (Dames & Moore, February 28, 1997); and the Biological Evaluation (Dames & Moore, February 28, 1997).

**Q. Can you summarize your testimony?**

A. My testimony addresses the studies we performed for both uplands and wetlands, the results of our analysis of potential impacts, and the proposed mitigation measures.

## Response to Concerns re: Impacts to Shrub-Steppe Habitat

**Q. A number of commenters have raised concerns regarding the potential impact of pipeline construction and operation to the Shrub-Steppe habitat found in parts of eastern Washington. What measures is OPL proposing to minimize or avoid such impacts?**

A. OPL is proposing many important mitigation techniques to minimize impact to this habitat. Many of these techniques are proposed and supported by witnesses opposing the pipeline application.

- One important measure is to locate the route to correspond with existing dirt roads where possible. This takes advantage of approximately a 12- to 15-foot wide previously disturbed area that is also a linear feature. For example, about half the pipeline's distance through the Gingko State Park is on such existing roads.

- Some of the route is also along fencelines where some level of previous disturbance has occurred. These are often along the edge of a block of shrub steppe habitat, thus minimizing fragmentation.

- OPL has committed to "double ditching", meaning the topsoil layer will be separated from the rest of the trench spoil and placed back as the top layer of soil during backfilling. This method is intended to restore the topsoil with its stock of seeds and roots and microbes, which will help in restoring the shrub steppe habitat after the construction is completed.

- OPL has committed to no more than a 60-foot construction corridor and to a 30-foot wide construction corridor through sensitive habitats (*e.g.*, Gingko State Park shrub steppe, riparian habitats, wetlands).

- Staging areas will be planned and implemented, with the assistance of the environmental monitors, to avoid high-quality habitat areas.

- On-the-ground surveys have been conducted to identify rare plant populations and especially sensitive wildlife habitat features or use areas. Information and data from the

Department of Fish and Wildlife and other agency biologists was used to supplement the field data. The route has been fine-tuned to some degree to avoid these areas. Further "clearance" surveys will be conducted in specific areas suspected by agency biologists of containing these resources (such as suspected snake dens), and the environmental monitors will look for opportunities to further avoid or reduce impacts by additional route fine-tuning.

- Excess trench spoils, especially rocks, will be hauled to approved disposal sites. The environmental monitor will approve all sites.

**Q. Can you comment on the specific "Condition Zone" mitigation measures suggested by Jerry Benson?**

A. The Condition Zone methods described in his testimony are proven ones that would generally be appropriate to adopt for the detailed revegetation plans. They take elevation and rainfall into consideration, which will be important along with soil depth and other factors. The micro-plot approach for monitoring success is one standard approach used in shrub steppe habitats. It may also be appropriate to use other variations such as ones ascribed to Braun-Blaunqet. These plot measurement methods allow a rapid means of measuring cover by species.

**Q. Can you respond to David Wilderman's specific concerns about the difficulty of implementing revegetation measures along the pipeline route?**

A. Many of his concerns about the difficulty of restoring the shallow soil vegetation areas will be resolved by applying the Condition Zone methods recommended by Mr. Benson when developing the detailed revegetation plan. Also important is OPL's commitment to careful

management of the construction process to minimize impacts, placing native topsoil at the surface of the backfill, and avoiding the spread of noxious weeds. In its application to the State Parks and Recreation Commission, OPL has offered to establish a research program through Central Washington University to investigate restoration of the key State Park habitats.

**Q. Please respond to Douglas Pineo's concerns regarding the potential visual impacts to vegetation in the vicinity of the proposed Columbia River crossing.**

A. With OPL employing the measures discussed above, the visual impact should be negligible. Furthermore, in some areas in Gingko State Park, the pipeline route was recently moved slightly to place the pipeline route on an existing unpaved road, and this will help to make it less visible.

**Q. Brent Renfrow has suggested that mitigation measures should include the acquisition of six acres of protected land for every disturbed acre and the limitation of construction to the narrowest corridor possible. Can you comment on this suggestion?**

A. Following existing disturbed corridors has been done to a large extent, and further opportunity is very limited. The concept of preserving shrub steppe habitat as compensation for impacts has not been discussed. Perhaps the concept could be included in discussions about mitigation. OPL has committed to reducing the construction corridor width in certain sensitive habitats. OPL has also committed to a number of measures designed to ensure the success of the revegetation, including monitoring the regrowth, with additional steps to be taken if the regrowth does not occur.

**Responses to Concerns re: Wetlands**

**Q. Several witnesses have suggested that OPL has not completed sufficient field evaluation and boundary surveys of the wetlands it has identified. Can you describe what OPL has done to identify potential wetland impacts?**

A. As described in the Wetlands Technical Report (Dames & Moore, May 28, 1997), wetlands were *identified* within 200 feet of the proposed route and *delineated and assessed* if they were to be directly impacted by the pipeline, *e.g.*, bisected by pipeline construction. If the pipeline is to be constructed in a road or rail trail that presently bisects a wetland, then the presumption is that no direct wetland impacts would occur from constructing in the road or trail (given mitigation measures such as erosion control) and that therefore the wetland did not need to be delineated (because of no loss of acreage) nor assessed (because of no direct impact to functions). Also, note that OPL's wetland delineations were verified by the Army Corps of Engineers and, in some cases, the NRCS and DOE staff as well.

Wetland determinations were made by Dames & Moore biologists using the Army Corps of Engineers Wetlands Delineation Manual (1987) for identifying and delineating jurisdictional wetlands. Using the definition from the manual, wetlands are defined as:

> *Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.*

The methodology for wetland delineation was based on the presence of three criteria: hydrophytic vegetation, hydric soils, and wetland hydrology. Hydrophytic vegetation consists of those plant species adapted to grow in water, saturated soil, or on a substrate that at least

periodically lacks oxygen. Hydric soils are saturated, flooded, or ponded long enough during the growing season to become deoxygenated in the upper soil horizon. Wetland hydrology includes seasonal, periodic or permanent inundation, or soil saturation, which create anaerobic conditions in the soil for a sufficient portion of the growing season to engender development of hydric soils.

In most cases, the use of the routine method described in the Corps manual was used to identify and delineate wetlands along the route. However, in some cases this was not possible. There are a few areas along the route where access was not granted during pipeline design and right-of-way negotiations. In these latter cases, delineations were conducted off-site using aerial photographs, NWI maps, and soil surveys.

**Q. What other materials did OPL rely on to identify potential wetland impacts?**

A. Existing information was reviewed to gain specific background knowledge and to identify the potential for wetlands to occur on the project site. Documents reviewed as part of the present study include:

- King County Wetland Inventory, 1990
- Snohomish County Stream and Wetland Survey Map Atlas, 1990
- USDA Soil Conservation Service (SCS), Soil Surveys of King County Area (1973), Snohomish County (1983), and Grant County, Washington, (1984)
- Department of Natural Resources and SCS soils maps for Kittitas County (unpublished)
- USDA SCS soils maps of Franklin County (unpublished)
- USDA SCS, Hydric Soils of the United States, 1991
- USDI U.S. Fish and Wildlife Service, National Wetland Inventory Maps

- USGS Geological Topographic Survey Maps, 7.5 minute quadrangles
- Aerial photographs of June 27 and August 25, 1995, 1:7200 scale
- Topographic maps with a 10-foot contour interval

**Q. What areas of the pipeline route were covered by the OPL sponsored survey?**

A. Wetland field work was conducted by Dames & Moore biologists between August 1995 and April 1997. The routine on-site determination methodology described in the Corps manual was used except at those sites where on-site work was not possible. Access has been obtained to all but three of the areas along the proposed pipeline route that may contain wetlands.

Two of the sites for which access has not been obtained are in King County, in Section 34, Township 26 North, Range 07 East (approximately 1/2 mile southeast of the Harris Creek crossing at MP 19.8) and in Section 14, Township 25 North, Range 07 East (approximately 1/4 mile northwest of the Tolt River crossing at MP 23.4). The MP 19.8 site does contain a wetland, number 260734. This wetland was mapped based on aerial photograph interpretation and assessed by visiting the off-site portion of the wetland to the northeast. The MP 23.4 site has no mapped topographic depressions or features on aerial photographs to suggest the presence of wetlands, and it can be further assessed after an agreement is reached with the landowner. If a wetland does exist on the site, and it cannot be avoided, an amended application will be submitted.

In one other case, permission was not granted to access a site with a known wetland, number 152806A. This wetland is in Section 6, Township 15 North, Range 28 East, and was assessed from the highway right-of-way, approximately 40 feet from the crossing location.

**Q. Please respond to the suggestions by some witnesses that OPL and Dames & Moore's identification and assessment of wetlands was inadequate.**

A. Dames & Moore biologists identified wetlands in a 200-foot-wide corridor (*i.e.*, 100 feet on each side of the proposed centerline). A 200-foot-wide corridor was evaluated to allow for minor routing changes. The typical construction right-of-way width is 60 feet. At trenched stream and wetland crossings the construction right-of-way will be narrowed to a maximum width of 30 feet. Several river and stream crossings will be accomplished by drilling underneath the water body or by suspending the pipeline from a bridge. Staging areas for drilling and the locations of the pump stations and the terminal at Kittitas were also examined for the presence of wetlands. Therefore, the area studied in the field adequately assesses the area potentially affected by the proposed pipeline.

At each prospective wetland area, sample plots were established. These plots typically covered the plant community located within a 12-foot radius and a soil pit. Plots were selected both in areas where vegetation indicated a likelihood of a wetland and in areas outside the wetland boundary. All plots were sampled for vegetation, soils, and hydrology. Wetland boundaries were determined in the field based on plot data, visual observations, and aerial photograph interpretation. Wetland boundaries, unique identification numbers, plot locations, and wetland classification (Cowardin et al., 1979) were marked on digital orthophotos in the field. The Cowardin method is a system of classifying wetlands based on their ecological system (*e.g.*, estuarine, riverine, or palustrine) and their dominant vegetation (*e.g.*, forested, scrub/shrub, or emergent). This classification system should not be confused with the categorization system developed by WDOE to rank wetlands by their relative value.

Each wetland identified was given a unique number based on the Township, Range, and Section in which the wetland is located. Although legal descriptions are usually listed as Section, Township, Range, this method was chosen to allow for the rapid location of any wetland on a map along this very long corridor. In cases where more than one wetland lies within the study area in a given Section, the wetlands were given an alpha character in addition to the six-digit number. For example, two wetlands located in Section 21, Township 18 North, Range 12 East would be labeled 181221A and 181221B. Route maps showing the location of wetlands are shown in Appendix A of the Wetlands Technical Report.

Wetland determination data were recorded on field sheets for each plot, and these data sheets are presented in Appendix B of the Wetlands Technical Report. Wetland boundaries were flagged and verified by Corps staff. It was proposed by the applicant and accepted by staff at the Corps that surveying of wetland boundaries was not necessary at this stage. The wetland boundaries that were drawn on the digital orthophotos were used to generate maps of each wetland.

**Q. Several witnesses, including Sarah Cooke and Eric Stockdale, claim it is inappropriate to characterize the impact to wetlands by examining the pipeline's 30 foot footprint, suggesting a 200 foot project zone instead to measure "indirect impacts" as well as direct impacts. What are the potential direct and indirect impacts to wetlands, and what are some of the ways OPL will minimize them?**

A. Wetland impacts are fully disclosed in the application, including indirect wetland impacts, such as sedimentation or hydrologic impacts to wetlands outside the 30' construction corridor. As described in the Draft Wetland Mitigation Plan (Dames & Moore, August 25, 1998) (attached as an exhibit), most of the impacts will occur during construction (*e.g.*, trenching and

backfilling activity), because the existing vegetation and soils within the construction right-of-way will be disturbed. No pipeline access roads will be constructed through wetlands. Impacts to wetlands will occur during right-of-way preparation and pipeline installation along the proposed corridor. Most of the construction activity will result in short-term impacts to wetland functions and values. Short-term impacts associated with this project include clearing woody vegetation to prepare for trenching operations, stockpiling of spoil material during pipeline installation, construction traffic over vegetation in part of the construction corridor, and mixing of topsoil.

The vegetation of wetlands and their buffers will be affected in numerous ways, both directly and indirectly, by both the construction and the operation and maintenance of the pipeline project. Temporary and permanent impacts will include loss of vegetation and other habitat features, such as stumps, downed logs, and snags. Direct impacts include the removal of vegetation for pipeline construction and soil disturbance as the trenches are excavated and backfilled. Indirect impacts include damage to vegetation from water quality degradation, sedimentation, introduction of invasive species, compaction and loss of topsoil, and changes to wetland hydrology. Not all of these impacts will occur to any given wetland, and all impacts can be reduced or otherwise mitigated. No loss of wetland acreage is anticipated.

A total of approximately 38,000 cubic yards of backfill will be placed in the wetlands. Filling usually refers to a permanent wetland impact from placing fill materials in wetlands for such structures as buildings or roads. However, filling of wetlands also includes trenching and backfilling for pipelines. Trenching can usually be done so that wetlands can be restored. For this project, trenching and backfilling would account for most of the impacts to wetlands. In some cases, there will be additional direct impacts to wetlands from jacking and boring under roads, such as the wetlands near Maltby Road, Little Bear Creek Road, Highway 203, Lake

Fontel Road, and Kelly Road. However, jacking and boring activities will not increase the footprint of construction impacts in wetlands.

The water quality parameters that may be affected by this project are total suspended solids (TSS) and total phosphorus during and after construction, and petroleum products during operations. Impacts from TSS are anticipated to be temporary in nature as sediments settle in wetlands and other downstream resources during and immediately after construction. Phosphorus would only impact aquatic systems where it is the limiting factor. These impacts will be minimized with erosion and sediment control measures.

Impacts to wetland vegetation may be short-term or long-term. Emergent wetlands within the right-of-way will, in all likelihood, revegetate, but the intrusion of invasive plants is a distinct possibility and could result in a long-term impact. Shrub-scrub wetlands will revegetate after being replanted. Forested wetlands will also revegetate; however, only shrub and emergent cover will be allowed in the forested portions of wetlands that are directly impacted.

Vegetation clearing occurs when woody vegetation (shrubs and trees) and herbaceous vegetation (grasses and forbs) are removed from the wetland. Vegetation clearing alone would not necessarily reduce the total wetland area, and for many impacted wetlands, it will be possible for the wetland to maintain most of its original functions. The impact most likely to be permanent is the conversion of wetland areas currently covered with woody wetland vegetation to herbaceous wetland vegetation. Since woody vegetation takes longer to grow than herbaceous vegetation, clearing vegetation from forested and scrub-shrub wetlands will affect some wetland functions for a longer period of time (assuming the woody vegetation is re-planted and allowed to grow). Impacts to wetland buffers would be considered indirect impacts to the wetlands, but nevertheless may be long-term where trees are perennially removed from

wetland buffers in the right-of-way. This will only occur in five wetlands that presently have forested buffers.

**Q. Some witnesses have expressed concerns about the potential impacts to wetland hydrology arising from construction of the pipeline. Can you address those impacts?**

A. Changes in wetland hydrologic regimes can directly impact the plant communities and wildlife habitat of the wetlands (Azous, 1991). Increases in the average monthly water level fluctuation during the growing season or an increase or decrease in the average water level beyond the range of tolerance in a wetland during the growing season may change the habitat value for vegetation. Wetlands with altered hydrologic regimes may become dominated by plants relatively tolerant of water level changes or water level fluctuations, such as hardhack, reed canary grass, and cattail (*Spirea douglasii*, *Phalaris arundinacea*, and *Typha latifolia*). Plant species that are less tolerant of changes in wetland hydrology often have greater habitat value. Wildlife habitat may also be compromised by changes in hydrology, especially for amphibians and ground-nesting birds (Taylor, 1993).

Impacts to wetland hydrology and soils would be long-term. Wetland hydrology could be impacted by trenching and by installing the pipeline or by jack and bore pits, and therefore site-specific mitigation measures will be implemented to address these concerns. Baseline information on the hydrology of each of the 77 wetlands that may be trenched has been developed to determine which of these wetlands may be at risk of hydrologic change by the construction of the pipeline. In all cases, crossing the wetlands will be accomplished by installing the pipeline in a trench approximately five feet deep and then replacing the subsoil and soil.

There are three types of risks of substantially altering wetland hydrology that have been identified. The first type would be draining a wetland by allowing the water to flow out of the wetland along the pipeline trench, presumably in material with greater hydraulic conductivity than the native material. This could occur when a wetland is located on a slope. When a wetland is located in a topographic depression or river valley, it could not be drained through the trench because the trench in the wetland is at the lowest point. The only wetlands subject to this risk are those that are crossed by the pipeline on a slope where the pipeline continues downgrading of the wetland.

The second type of risk would be the case of a wetland situated on a thin impermeable layer that may be drained by puncturing the impermeable layer with the pipeline trench. If the impermeable layer is more than 8 or 10 feet below the surface, it would not be penetrated by the trench and the wetland would not be drained.

The third type of alteration of wetland hydrology could be caused by changing the subbasin that drains to a particular wetland by diverting subsurface flows through the pipeline trench. This could only occur where the pipeline trench is located on a slope above a wetland that is fed by shallow subsurface flow. A review of the topography along the pipeline route shows that this could potentially occur at three sites: Sec. 13, T 22 N, R 10 E and Sec. 18, T 22 N, R 11 E, (between Tinkham Road and the JW Trail); Sec. 10, T 20 N, R 13 E (south of Lake Easton); and Sec 4, T 19 N, R 15 E (north of Peoh Point). This potential alteration of wetland hydrology will be prevented by the use of impervious trench plugs in those areas along the pipeline route where the gradient of the trench and the hydraulic conductivity of the backfill could divert the shallow subsurface flow.

Each of the 77 wetlands has been categorized in terms of hydrologic input, shape, size, surficial geology, soils, and the risk of either draining through the trench or draining through the

subsoil. Categories of hydrologic inputs are either a surface connection to a stream, river, or lake, groundwater discharge, surface runoff, or any combination of these, along with the direct precipitation that all wetlands receive. There are no estuaries along the Cross Cascade pipeline route.

The shape categories are surface depressional, floodplain, slope, or other. A depressional wetland is located in a topographic depression in the landscape. A floodplain wetland is located on a floodplain and is hydrologically connected to the river or stream by either surface or subsurface flows, or both. A slope wetland is located on a slope, and may either be a small depression fed by surface flows or an area of shallow groundwater discharge. Other wetlands are those that do not fit into any of these shape categories. The geology and soils are based on interpretation of aerial photographs and soil surveys, respectively, and are used to determine whether or not there is a possibility of a shallow impermeable layer occurring under the wetland.

The rationale for evaluating the risk of changes in wetland hydrology by categorizing all of the wetlands is based on logic and the process of elimination. Water cannot flow out of a wetland through the pipeline trench if it would have to run uphill. Only those wetlands located on slopes that are also crossed by the pipeline in a direction other than parallel to the contour line are at risk of being drained in this manner. All wetlands located at the lowest point in the subbasin are eliminated from this risk category. Through this process, 71 wetlands are eliminated from this risk category, and only six wetlands are considered to be at risk of being drained through the pipeline trench. In these cases, trench plugs will be installed to prevent this from occurring.

Likewise, water cannot flow out of a wetland through the subsoil if the impermeable layer extends to a depth greater than the depth of the pipeline trench. Only those wetlands

located on thin layers of low permeability material such as caliche or clay are at risk of being drained in this manner. All wetlands located on basal till or in alluvium associated with a river or stream or those that are fed by groundwater discharge are eliminated from this risk category. A total of 49 wetlands are eliminated from the category of being drained through the subsoils and 28 wetlands are considered to potentially be subject to this risk. This will be prevented by inspecting the trench at these wetlands to determine if such a layer has been penetrated. If so, an impermeable layer will be installed in the pipeline trench prior to backfilling in these wetland areas.

Prior to construction, each of the wetlands that will be directly impacted will be evaluated with respect to each of the three risks described above. For those wetlands that cannot be assessed without an analysis of the subsurface geology, inspection and assessment will occur during the trenching process. Mitigative measures will be employed at all wetlands at risk of being drained. These mitigative measures are the use of trench plugs to prevent the lateral movement of subsurface flows, and the re-creation of an impervious layer under wetlands for which this layer is bisected. Table 4 in the Wetland Technical Report characterizes the hydrogeomorphology of the 75 wetlands that will be trenched. Also indicated is whether or not the potential risk of altering the hydrology exists for each wetland.

**Q. Can you address the potential impacts to surface water hydrology and the possibility for increased risk of downstream flooding that might result from pipeline construction through wetlands?**

A. An analysis of the unique features of this project leads to the conclusion that altering the surface water hydrology either upstream or downstream of wetlands is not a significant risk in this particular case. Typical construction projects result in the creation of large areas of impervious

surfaces and/or the filling and permanent destruction of wetland areas. Creation of impervious surfaces alters the hydrograph of the subbasin, increasing peak flows and decreasing low flows and groundwater recharge. The filling and permanent destruction of wetlands results in a loss of detention capacity in the landscape. These activities increase the risk of downstream flooding.

Construction and operation of the Cross Cascade pipeline, however, will not significantly alter surface water hydrology nor will it result in increased risks of downstream flooding. This is for two reasons.

First, except for a few isolated situations, construction of this project will not create impervious surfaces. The exceptions to this are the pump station and block valve sites. The block valve sites will be approximately 20 feet by 20 feet and the pump stations are less than 1 acre in size, except for the Kittitas terminal, which will be approximately 20 acres in size. All pump station and block valve sites will have adequate detention facilities to prevent any exacerbation of downstream flooding. Details of the detention/retention facilities for the Kittitas terminal are found in Section 2.7 of the Site Certification Application.

Second, no wetlands will be permanently destroyed. None of the block valve and pump station sites are located in wetlands. Although backfilling will occur in the pipeline trenches, including those that are located in wetlands, no other filling of wetlands will occur and the detention/retention capacity of the wetlands will not be altered.

**Q. Please respond to the concerns of some witnesses regarding the potential for ongoing operational impacts to wetlands crossed by the pipeline.**

A. Operational impacts to wetland vegetation will be largely avoided by not maintaining the 30 foot right-of-way through wetlands, with the exception of selected tree removal to maintain

visibility for inspections. Impacts to wetland water quality during operations may result if a spill of fuel should occur. Petroleum product releases are addressed at length in Section 2.9 of the Site Certification Application and by other rebuttal testimony submitted by OPL.

**Q. Sarah Cooke and George Wooten suggest that many more wetland areas exist along the pipeline route than are discussed in the application. Can you respond?**

A. There *are* more wetlands along the route (within 200' of the proposed pipeline centerline), such as along the rail trail between Snoqualmie Pass and Easton. That doesn't necessarily mean that there will be direct impacts to those wetlands, and in fact, it is the applicant's position that there will not be direct impacts to those wetlands other than the wetlands that have been delineated.

Perhaps it is important to draw the distinction between the Corps regulatory process, which has to do with wetland dredge and fill, and the state and local government regulatory processes, which also include impacts to buffers, water quality, fish habitat, and shorelines of the State. The Corps has verified the wetland delineations. With reference to the assertion that there are additional impacts to buffers, water quality, fish habitat, and shorelines beyond those that the applicant has specifically disclosed, it is the applicant's position that there are not additional impacts for the reasons described above.

**Q. Sarah Cooke asserts that OPL failed to evaluate water quality impacts to wetlands during construction. Can you describe what measures Olympic will take to minimize or eliminate potential water quality impacts?**

A. As outlined in the Draft Wetland Mitigation Plan and in Subsection 3.4.2.3 of Application 96-1 (Mitigation Measures), where wetland avoidance is not feasible, OPL's wetland mitigation strategies will include the following construction techniques to minimize impacts:

- All construction equipment will be refueled at least 100 feet from water bodies or wetland boundaries.
- All equipment will be inspected and cleaned prior to entering a wetland.
- All activities within the wetland and buffer will be kept to the minimum disturbance area possible.
- Where wetlands must be crossed, the pipeline has been routed through the least sensitive portions of the wetland if it was feasible.
- Pipeline construction impacts to wetlands will be minimized by using the narrowest possible corridor (30') and by constructing during a time of year when the resources (*i.e.*, nesting or migrating waterfowl or fish) are either not present or less vulnerable.
- Along with other temporary erosion and sedimentation controls, filter fencing and straw bales will be used during construction to minimize sedimentation in wetlands and to deter construction equipment operators from venturing further than absolutely necessary into sensitive areas.
- Pipe will be welded together in sufficient lengths to cross each wetland prior to lowering the pipeline into the trench.
- To the extent possible, construction through wetlands will occur when water levels are low. Turbid water that is pumped from the pipeline trench during construction will be routed to temporary surface water detention facilities prior to discharge.
- Trench plugs will be used, as necessary, to prevent diversion of subsurface water from wetlands.
- The scrub-shrub and forested portions of wetlands have been avoided to the greatest extent possible.
- In wetlands and riparian areas, vegetation that must be removed will be cut at ground level, leaving existing root systems intact. The pulling of tree stumps and grading activities will be limited to those that would directly interfere with trenching, pipe installation and backfill.
- Matting will be used to support construction equipment in all wetlands.

- When matting is used, all construction activities will be carried out from the matting. Equipment will not be allowed in the wetland off the mats, at any time. The mats will be inspected prior to placing in the wetland and mats with foreign material will not be used.

- Grading will not occur in wetlands, and construction techniques that minimize the compaction and mixing of wetland soils will be utilized.

- The upper 6" to 12" of hydric topsoil will be removed, stored separately from the subsoils that are excavated, and protected throughout construction. This material may be stockpiled in adjacent upland areas. When construction is complete, the hydric soils will be mixed with mulch to increase the bulk, as needed, and replaced on top of the subsoils.

- At a minimum, all spoil will be contained within sediment filter devices.

- The materials removed from the trench below the topsoil level may also be stockpiled in adjacent upland areas. However, these subsoils will not be placed on top of, nor mixed with, the topsoil previously segregated.

**Q. How will OPL ensure compliance with these mitigation measures and construction practices?**

A. During pipeline construction, inspections will occur to ensure that the components of the wetland mitigation plan and the Temporary Erosion and Sediment Control Plan are being implemented. The environmental compliance inspectors will report directly to EFSEC and will have independent stop-work authority. The inspector will inform EFSEC staff if construction monitoring indicates that construction-related activities in wetlands do not agree with construction design plans. This will ensure that construction complies with permit stipulations.

**Q. Some witnesses have complained that the application does not specify how, and under what circumstances, the pipeline alignment might be changed to minimize wetland impacts further. Can you address this issue?**

A. If additional wetlands are discovered during construction, the route may be adjusted slightly to avoid those wetlands if this is feasible. This may require changes in design and in landowner agreements. If additional wetland impacts would result from wetlands that cannot be avoided, then an application revision to both EFSEC and the Army Corps of Engineers, if the wetlands are jurisdictional wetlands, would be submitted for review.

**Q. Please respond to the concern expressed by some witnesses that OPL's reliance on existing rights-of-way somehow discounts the impacts on wetlands already within those rights-of-way.**

A. The law requires that wetland impacts be minimized, and part of the strategy to achieve this is by following previously impacted corridors including previously impacted wetlands. This doesn't discount impacts, it minimizes and avoids them. All wetland impacts are disclosed in the Wetland Technical Report and Draft Wetland Mitigation Plan.

**Q. Can you address the concerns raised by witnesses about the potential impacts of a petroleum products spill on wetland areas?**

A. Petroleum product releases are covered in Section 2.9 of the Site Certification Application. They are also addressed at length in other rebuttal testimony filed by OPL. In general, while the effects of a spill could be significant if it happened, the likelihood of a spill happening at a given wetland is extremely small.

**Q. How will OPL achieve successfully at least 80% restoration of total cover in wetland, buffer and riparian vegetations?**

A. The short answer is to replace the soil, replant the vegetation, and monitor over time. If this level of restoration is not achieved, then additional restoration actions would occur. A more detailed description of these measures is included in the Draft Preliminary Wetlands Mitigation Plan, which describes how most of the wetlands and buffers crossed by the proposed pipeline can be restored or partially restored in terms of acreage, functions, and values once construction is complete.

Of the 77 wetlands, 73 of them have buffers that are not forested within the construction corridor. These wetland buffers will be restored after construction by replanting vegetation similar to that found at the time of construction. For example, wetland buffers with shrubs will be replanted in shrubs, buffers that are in crops or pasture will likewise be replanted, and those buffers that are unvegetated at the time of construction (such as roads, unplanted cropland, or the rail trail) will not be replanted. As in all upland areas of the pipeline construction corridor, mitigative measures to control erosion and to control invasive plant species will be implemented in wetland buffers. Therefore, the impacts to these buffers will be minimized.

The remaining five wetlands have forest cover in all or part of their buffers within the construction corridor. These five wetlands are 270729, 250714, 250736, 240806, and 240807. Impacts to these buffers will be mitigated by replanting the impacted portion of the buffers with trees and shrubs. In order to maintain a corridor along the pipeline that is visible from the air, it will be necessary to maintain a cover of low shrubs and not trees for a width of 30 feet along the pipeline route. Since the width of the construction corridor in upland areas is a maximum

of 60 feet, half of the forested wetland buffers will be reforested and half will be revegetated with native shrubs, grasses and forbs.

The permanent loss of forest cover in the buffer around wetlands 270729 and 250714 will be less than 3% of the total buffer area in each case. These buffers lie between the wetlands and commercial forest land. In the case of wetland 250714, the buffer on the south side of the wetland was clearcut in 1996.

The permanent loss of forest cover in the buffer around wetland 250736 is less than 1% of the total buffer area. The buffer to the south lies between the wetland and commercial forest land and to the north lies between the wetland and a logging road.

In wetlands 240806 and 240807, the pipeline route follows a logging road through a private tree farm. The permanent loss of forest cover in the buffers around these wetlands is less than 1%, and the buffers lie between the wetlands and commercial forest land.

The most important wetland buffer with forested cover that will be impacted is the buffer to the north of wetland 250736. This buffer lies between the wetland associated with Griffin Creek and the logging road. The most valuable function that this buffer provides is the improvement of the quality of the surface water that runs off the road and into Griffin Creek. This function of water quality improvement can be performed as well by a buffer with shrubs, grasses, and forbs.

The land use adjacent to the buffers in the other four wetlands is of low intensity. For this reason, and because only a small percentage of the wetland buffers will be permanently altered, the impacts will be minor.

Several crossings mentioned by some of the witnesses were small streams and tributaries in Kitittas County. These are all heavily impacted by land use practices, particularly agriculture, and they have little, if any fisheries or native vegetation values. Nevertheless,

specific protective measures and inspections are committed to for these crossings as well as all others.

Restoration of wetland hydrology is essential to the maintenance of wetland functions and values. Wetland hydrology will be maintained using the methods outlined above. Wetland related restoration measures to be included in the Cross Cascade Pipeline Project will consist of the following:

- Where trenching occurs through open water, aquatic bed, emergent, and scrub-shrub wetlands, soils and vegetation will be replaced. Forested wetlands disturbed by trenching will be replanted with native shrub and emergent vegetation. The method to control invasive vegetation will be determined by the extent of the problem and whether or not the species is on the state noxious weed list. In all cases, equipment will be cleaned before entering a wetland and beneficial vegetation will be replanted using certified weed-free seed. If no noxious weeds are present in the wetland before construction, then any weeds present after construction will be hand pulled during the first growing season.

- In locations where construction requires the removal of wetland buffer vegetation, the buffers will be replanted in cover types similar to those that occur prior to construction. In the cases of forested buffers, they will be replanted in trees and, for a width of 30 feet, with shrubs, forbs and grasses. Only native vegetation will be replanted.

- Where trenching through a wetland may alter the hydroperiod (*i.e.,* excavating through a hardpan layer, or altering the topography, soil or sub-basin which supports wetland hydrology), soil, subsoil and/or topographic conditions will be recreated as nearly as possible to restore the existing wetland hydrology. During excavation in wetlands, a trained inspector will determine if mitigation measures are needed to address potential impacts from changes in wetland hydrology. If the determination is made that mitigation is needed, then measures will be implemented at that site.

- Wetland areas that are trenched in late spring or summer will typically be replanted in autumn with nursery stock. Wetlands trenched prior to the growing season will be replanted as soon as practicable. Where appropriate, wetland vegetation will be stockpiled by heeling in the roots in wet mulch and then re-planted in the wetland immediately after construction. In all cases, native vegetation and certified weed-free seeds will be used.

- Areas on slopes above wetlands that are cleared for construction will be covered with mulch, matting, or hydroseeding and re-planted to restore vegetative cover and to prevent soil erosion and sedimentation in the wetlands.

**Q. Can you respond to witness concerns regarding OPL's proposed compensatory mitigation ratios and the cost of such measures?**

A. First of all, any commenter must understand that we are proposing to avoid loss of wetland acreage and to minimize the loss of wetland function. Since no wetland will be filled such that it no longer exists and all wetlands will have their wetland hydrology, soils, and vegetation

restored after construction, there will be no loss of wetland acreage from the project. Therefore, the compensation will be directed towards replacing functions that are impacted, such as those related to vegetation cover, water quality, and habitat**.** *These functions will be created by enhancing existing wetlands, not creating new wetlands.* This is to meet the goal of no net loss of wetland acreage, value, or function. Since no wetlands will be lost or converted to nonwetland, the proposed compensation ratios are appropriately lower than recommended by the regulatory agencies for situations where wetlands are permanently filled. Otherwise, the incentive to restore wetlands is lost.

The most cost-effective wetland enhancement for the applicant to produce would be in previously degraded wetlands where hydrology already exists or can be restored very readily**.** *The applicant is not proposing to create wetlands out of uplands.* If this is not understood, then any cost estimates are meaningless at best and misleading at worst.

It is also more cost-effective for the applicant and the public to create wetland functions by enhancing wetlands on lands that are publicly owned rather than purchasing land for enhancement. This allows 100% of the funds dedicated for compensation by the applicant to be directed towards enhancement of wetlands, rather than to spend a substantial portion on purchasing the land, and the long-term management of the properties is assured.

The details of proposed compensation sites are given in the proposed Wetlands Mitigation Plan. It is not clear from their testimony whether the witnesses concerned with this issue have reviewed this plan.

**Q. Can you comment on some of the specific mitigation measures suggested by the witnesses?**

A. Many, if not most, of the measures suggested by the witnesses testifying about wetlands have already been committed to by OPL. For example, Sarah Cooke recommends that the pipeline

design should be based on the King County Surface Water Design Manual and WADOE Stormwater Management Manual. These will be used where applicable in developing final erosion and sediment control measures. Similarly, OPL is already following Sarah Cooke's suggestion that only WFDW plants be used for revegetation. Several witnesses recommend trained inspectors with stop-work authority to oversee the construction process. OPL has already committed to have such inspectors. And, as some witnesses recommended, OPL will follow all of the mitigation measures set forth in appendix C of the DEIS during the design phase of the project, as these measures come directly from the Application for Site Certification 96-1.

END OF REBUTTAL TESTIMONY

I declare under penalty of perjury that the above testimony is true and correct to the best of my knowledge. Executed this 24th day of March, 1999.

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A. David Every, Ph.D.