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**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

EXHIBIT _____ (RCF-T)

**PREFILED DIRECT TESTIMONY
WASHINGTON DEPARTMENT OF FISH & WILDLIFE**

WITNESS: RON FRIESZ

(Fish & Wildlife Impacts, Particularly to Shrub Steppe, Stream Crossings, and Wetlands,
from Columbia River to Pasco, Washington)

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Q: Please state your name, business address, position, professional experience and education.

A: My name is Ronald (Ron) C. Friesz. My business address is Washington Department of Fish and Wildlife, 1550 Alder Street N.W., Ephrata, WA 98823. I am an Area Habitat Biologist for the Washington Department of Fish and Wildlife (WDFW) stationed in Region 2 at Ephrata. My duties include review of environmental planning documents submitted by local, state and federal agencies. I assess habitat values and potential impacts to fish and wildlife resources for various types of proposed land and water actions. I provide technical assistance and recommendations to mitigate impacts to the fish and wildlife resource. I have over 20 years of working experience with the WDFW in central Washington including Grant, Adams, and Franklin Counties. This work has included wildlife surveys and habitat evaluations in the shrub steppe, wetland/riparian, and agricultural environments. I have a B.S. degree in Fish and Wildlife Management from Oregon State University.

Q: What topics will your testimony address?

A: The area of my testimony is for the proposed pipeline route in Grant, Adams, and Franklin Counties or that portion of the project between the Columbia River and Pasco. My testimony covers three main habitats of concern, shrub steppe, stream crossings and wetlands.
The proposed pipeline route within the three counties area is about 80 miles long, and

1 traverses through the semi-arid environment of eastern Washington. The topography is
2 generally a southward sloping plain interrupted by the Saddle Mountains and Frenchman
3 Hills. The soils types are quite diverse, but many are formed by windblown deposits
4 which tend to be highly erodible. Some areas including Crab Creek and the Eagle Lakes
5 drainage are dissected by the channeled scablands where ancient floods exposed the
6 underlain basalt formations. The annual precipitation averages less than 10 inches which
7 supports non-forested vegetation consisting of various desert shrubs, grasses and
8 flowering plants. These plant communities are collectively referred to as shrub steppe
9 habitat and are extremely important for supporting many species of endemic and
10 introduced wildlife.
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14 The proposed project also traverses through the Columbia Basin Irrigation Project.
15 Beginning in 1943, the Bureau of Reclamation developed a system of reservoirs, canals
16 and laterals that diverted water from the Columbia River at Coulee Dam to irrigate the
17 fertile soils of the Columbia Basin. Today, over one-half million acres are managed as
18 irrigated crop land. The major crops are wheat, corn, potatoes, alfalfa hay, and more
19 recently large blocks of orchards have been developed. The long-term effect of irrigation
20 has caused the ground water table to raise dramatically creating a system of lakes,
21 wasteways, and associated wetlands that have provided an abundance of excellent fish
22 and wildlife habitats.
23

24 To assist my evaluation, I reviewed portions of the Project Draft Environmental Impact
25 Statement (Forest Service, EFSEC, September, 1998); studied the Project Map Atlas,
26

1 (Dames & Moore, May 11, 1998) and visited portions of the pipeline route that were
2 accessible by vehicle.
3

4 **Q: What is shrub steppe habitat and why is it important?**
5

6
7 A: The shrub steppe ecosystem generally refers to arid plant communities consisting of
8 different layers of perennial grasses with an over-story of shrubs. In the project area, the
9 primary habitat consist of one or two species of sagebrush in association with various
10 species of grasses and wild flowering plants. The exact plant makeup or structure varies
11 greatly depending on soil type, aspect, slope, available moisture, and other site
12 characteristics. In deeper, loamy soils, big sage and bluebunch wheatgrass are usually
13 dominate. On sandier sites, big sage, and needle-and-thread grass often prevail while in
14 shallow, rockier soils, rock sage and Sandberg's blue grass are usually dominant.
15

16
17 Shrub steppe is very important wildlife habitat. Studies conducted by the WDFW in
18 1988-90 found 94 species of birds utilizing the sage brush/grass communities for habitat.
19 Many were common species capable of living in other habitats such as grasslands and
20 cultivated fields, but several other species were endemic or largely dependent on the dry
21 shrub steppe environment. Four species were sagebrush obligates or species found only
22 to occur sagebrush habitats. These were sage thrashers, sage sparrows, Brewer's
23 sparrows, and sage grouse. Shrub steppe also provides important habitat for several
24 species of mammals and reptiles. The mammals include mule deer, jackrabbits, bobcats,
25
26

1 several species of small mammals and bats. The reptiles include five species of snakes
2 and four species of lizards.

3
4 **Q: What species of concern use shrub steppe habitat?**

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6
7 A: There are several species of concern that depend on shrub steppe for habitat. The pygmy
8 rabbit is listed as state endangered; sage grouse, sharp-tailed grouse, ferruginous hawks
9 are listed as state threatened; and, candidate species for possible listing are sage sparrow,
10 sage thrasher, loggerhead shrike, burrowing owl, Washington ground squirrel, Merriam's
11 hrew, and striped whipsnake.

12
13
14 There are no known critical habitats for pygmy rabbits, or sharp-tailed grouse within the
15 pipeline route. However, there are potential impacts to important habitats for sage
16 grouse, particularly in Kittitas County, and to all of the candidate species listed above.
17 Other designated Priority Species dependent on shrub steppe within the project boundaries
18 are long-billed curlews, chukar partridge, prairie falcon and white-tailed jackrabbit.

19
20 **Q: What is the status/condition of shrub steppe habitat?**

21 A: Changes in land use over the past several decades have resulted in the loss of over one-
22 half of Washington's shrub steppe habitat. Development of agriculture and use of
23 irrigation to expand farming and orchards has reduced the once expansive shrub steppe
24 zone to a fragmented landscape with only a few large remaining tracts including the
25 Yakima Training Center and the Hanford Reservation. From analysis of current land use
26

1 and satellite imagery, it was estimated only 40 percent of the original shrub steppe
2 remains in the state. In Grant, Adams and Franklin Counties an average of only 35
3 percent of the original habitat remains. From an evaluation of the Project Map Atlas, it
4 appears about 40 percent of the pipeline route in the three county area traverses through
5 or adjacent to shrub steppe habitat.
6

7
8 The value or suitability of the remaining shrub steppe habitat has been reduced by
9 fragmentation and disturbances associated with past management activities. Most of the
10 areas with deeper soils have been converted to agriculture leaving a majority of the
11 remaining shrub steppe in shallow, rocky soils. Surface disturbances primarily from
12 over-grazing, off-road vehicles and wildfire have allowed the invasion of exotic plants
13 which has altered once complex native plant communities into more simple plant
14 communities with heavy infestations of non-native, annual grasses and weeds.
15

16 Cheatgrass, an exotic annual grass, is widely known as a primary replacement species,
17 and is responsible for reducing habitat quality for many species of endemic birds. Once
18 disturbed, shrub steppe communities are very difficult, if not impossible, to restore to
19 their original condition, particularly sites with shallow soils.
20

21
22 As a result, much of the remaining habitat is no longer suitable for many native species of
23 wildlife, particularly those species dependent upon larger, deeper soiled tracts covered
24 with diverse native plant communities. Therefore, due to the dramatic losses in both
25 quantity and quality, the WDFW and other management agencies place a high priority for
26

1 protecting the remaining shrub steppe habitat.

2
3 The emphasis on protecting large tracts of good condition shrub steppe does not,
4 however, diminish the importance of smaller blocks of sagebrush cover located within
5 developed areas. In many cases, the small blocks of sagebrush represent the only
6 permanent year-round cover and provide important nesting and wintering areas for the
7 more adaptable species. For example, scattered tracts of shrub steppe within the
8 irrigation project have long been considered critical for maintaining viable populations of
9 ring-necked pheasants. The scattered tracts also provide important habitat for other
10 priority species including burrowing owls, long-billed curlews, and even waterfowl when
11 the scattered tracts are associated with wetlands.
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15 **Q: What are potential impacts and mitigation for impacts to shrub steppe habitat?**

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18 A: The construction and operation of the pipeline would add cumulative impacts to the shrub
19 steppe habitat. Even with mitigation and careful planning, there would be a net loss of
20 habitat base and further reduction of habitat suitability. These impacts would weaken the
21 overall capability of the ecosystem to maintain species diversity in both the plant and
22 animals communities.

23 Recognizing the importance and vulnerability of shrub steppe habitat, the Applicant must
24 carefully plan this Project to avoid or minimize impacts. Unavoidable impacts, if
25 allowed, should be mitigated through effective habitat restoration and replacement of lost
26

1 habitat values through forms of compensatory mitigation. Listed below are some
2 strategies to help avoid or minimize impacts:

- 3
4 • Existing Corridors. A major consideration should be to route the pipeline in currently
5 disturbed sites such as existing transportation and electrical transmission right-of-ways.
6
7
- 8 • Staging Areas. Another important strategy for minimizing impacts to shrub steppe or
9 other habitat types is proper planning, identification and development of staging areas to
10 be used for equipment storage and maintenance, office trailers, crew parking lots, etc.,
11 Staging areas should be held to a minimum number and size, and should be located
12 outside of important habitat areas. Ideally, all staging areas will be located in currently
13 developed or disturbed sites.
14

15
16 Staging area planning is critical in minimizing avoidable habitat impacts for the project.
17 A recent 230kV power line project in Grant County provided little planning for
18 equipment staging and construction areas. This caused extensive and unnecessary
19 impacts to uplands habitats resulting in the potential loss of vegetation, soil compaction
20 and contamination and weed invasion. The lack of planning would make site restoration
21 much more difficult.
22

- 23 • Clearance Surveys. Pre-construction surveys should be implemented to identify sites
24 with priority habitats. This would allow for final alignment of the pipeline route to avoid
25 the more sensitive plant communities and to adjust timing of project activities to avoid
26

1 sensitive periods, e.g. nesting seasons. Clearance surveys should be carefully designed
2 for a number of priority habitats and species to include sites of high quality shrub steppe
3 plant communities; nesting territories of raptors including ferruginous hawks, Swainson's
4 hawks, prairie falcons and burrowing owls; reptile dens or hibernaculum; and
5 Washington ground squirrel colonies. To be effective, the survey would require detailed
6 planning, careful analysis of species biology and consultation with agency biologists or
7 other authorities who have local knowledge.
8

- 9
10 • Restoration Plan. All disturbed sites should be restored with native grasses, forbs and
11 shrubs. To aid the re-establishment of the desired vegetation, culturally developed
12 varieties of native plant materials should be used. The topography should be contoured
13 into natural appearing landscapes while using careful soil management to ensure proper
14 rotation of the soil horizons. Successful restoration will be extremely difficult in areas
15 with shallow, rocky soil. In these areas, other strategies may need to be developed,
16 particularly if large volumes of excess excavated material need to be managed. The
17 disposal of excess material should be carefully planned to avoid compounding impacts at
18 off-site locations. Restoration plans should also include strategies to control soil erosion
19 and weed invasion.
20

21
22 For a project of this magnitude, a detailed and approved reclamation plan should be a
23 condition of project approval. The plan should have contingencies for all soil types and
24 moisture regimes. Assistance should be sought from local authorities including the
25 WDFW Vegetation Management Team and of the Natural Resources Conservation
26

1 Service (NRCS).

2
3 **Q: What are the specific impacts and mitigation measures for impacts to shrub steppe**
4 **habitat?**

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6
7 A: The following are comments for specific locations of shrub steppe habitat arranged by
8 county:

- 9 • Grant County. Potential impacts to the shrub steppe zone along the Columbia River
10 Gorge is a major concern. The habitat occurs on a mosaic of shallow rocky soils and
11 deeper sandy soils. The landscape is dominated by basalt outcroppings, near vertical
12 cliffs and talus slopes. The area also has a scattering of sand dunes, wetlands and riparian
13 zones. This unique combination of habitats is designated a priority habitat by the
14 WDFW.

15
16 Many of the plant communities are very fragile and sensitive to disturbance. The
17 condition of the habitat varies from place to place depending on site management history.
18 Some of the steeper, more isolated sites contain plant communities in very good condition
19 while others on lower, flatter areas have been subjected to heavy grazing, off-road
20 vehicles and rock mining.

21
22 The area provides valuable habitat for a diverse population of wildlife primarily a
23 community of song birds, raptors, small mammals and reptiles adapted to the desert-like
24 environment. The priority species expected to occur are chukars, sage sparrows, sage
25 thrashers, loggerhead shrikes, prairie falcons and possible the striped whipsnake which is
26

1 now quite rare in the state.

2 The area is noted for its reptilian population likely due to its variety of sandy and rocky
3 soils that provide ideal habitats. Besides the striped whipsnake, the area is likely to be
4 inhabited by night snakes, rattlesnakes, gopher snakes, racers, sagebrush lizards, side-
5 blotched lizards and western skinks. The snake species have strong site fidelity to
6 hibernaculum or den sites which are usually located in underground burrows, rock
7 crevices or talus slopes. The dens provide stable environments in terms of temperature,
8 ventilation and humidity and are critical for the survival of snakes through the winter
9 months. Individual den sites may be used by many individuals of one to four species. It
10 would be critical to identify and avoid potential den sites before construction of the
11 project. Accidental disturbances of dens during the winter months could extirpate snake
12 populations overnight.
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16 The area is part of a large, contiguous block of shrub steppe that extends for several miles
17 along the Columbia River corridor. Large blocks of shrub steppe are necessary for
18 species that have large home ranges such as bobcats, mule deer and sage grouse. Plus,
19 the larger blocks provide habitat connectivity and movement corridors that are important
20 for maintaining viable populations for many species across the landscape.
21

22 Potential Impacts. By not knowing which of the five proposed Columbia River crossings
23 that would be used, it is difficult to judge habitat impacts. It appears impacts would be
24 greater for the two northern options (wet trench north I-90 Bridge, I-90 Bridge; OPL Map
25 Atlas, p. 62b) because these routes would require construction through approximately 5
26

1 miles or more of open space containing shrub steppe habitat (between SR26 and the
2 Beverly Burke Road; OPL Map Atlas, pp. 63a, 64b, 65). It appears these impacts could
3 largely be avoided by routing the pipeline along SR 26 to Royal City where the project
4 would intercept the pipeline route at mile marker 170. To my knowledge this was not
5 considered as an alternate route.
6

7
8 The options of crossings over Wanapum Dam or the horizontal drilling below the dam
9 (OPL Map Atlas, p. 64) would require construction through approximately 2-3 shrub
10 steppe miles of habitat; and, it appears the crossing at the railroad bridge (OPL Map
11 Atlas, p. 65a) would disturb even less open space by aligning more with county road
12 right-of-ways, primarily the Beverly Burke Road.
13

14
15 Through careful planning, impacts during construction should be restricted to the extent
16 possible not to exceed the proposed 60 foot wide construction corridor. However,
17 construction through the steep, rocky terrain may be considerably more difficult than in
18 other areas. Blasting or other strategies may be required to bury the pipe to the required
19 depth. This may result in excessive overburden composed largely of rock rubble leading
20 to greater areas of disturbance than expected. The accumulation of overburden could
21 create special problems with overburden storage or deposition. The lack of soil depth
22 would make site restoration much more difficult, if not impossible. Construction through
23 these areas will likely result in a permanent disturbance and loss of habitat. Restoration
24 may require innovative strategies to recover habitat values and prevention of weeds.
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As previously stated, the final route selection should utilize existing transportation and power line corridors to the extent possible to avoid unnecessary impacts to open space and associated habitats. The route selection process should also carefully coordinate habitat values on both sides of the Columbia River (Grant and Kittitas County) to minimize overall impacts to all habitat types of concern.

- Adams County. Between mile markers 183.5 to 187.5 (OPL Map Atlas, pp. 80-82), the proposed pipeline route is adjacent to the south side of an irrigation canal along the north toe of Saddle Mountain. The route is in a somewhat disturbed corridor of habitat likely associated with the construction and operation of the irrigation canal. However, immediately up slope from the project is a large tract of shrub steppe vegetation that for the most part is in very good condition. Habitat suitability appears high and would be expected to support many species of endemic wildlife.

To minimize habitat impacts, this section of the proposed route appears to be in a logical location provided the habitat values on the adjacent slopes are understood and identified. Guidelines should be established to avoid the habitat of concern by strictly containing all construction activities inside the 60 foot construction corridor.

The last 1.5 miles of this section angles southward away from the canal to cross over the east end of Saddle Mountain (mile marker 187.5-189; OPL Map Atlas, p. 82). This area

1 is steeper and appears to be heavily used by cattle. As part of a large tract, habitat values
2 remain high and construction impacts should be minimized. Efforts should be made to
3 align the project along vehicle trails or fence lines. Intensified management may be
4 required to control erosion and to restore vegetation on the steeper slopes.
5

6
7 • Franklin County. Between mile markers 191-194 (OPL Map Atlas, p. 84) the proposed
8 pipeline route is located in a power line corridor between irrigation circle pivots. Much
9 of the site is covered with shrub steppe vegetation that is in fair condition. This area
10 appears to be a logical choice for the pipeline route, but the strip of vegetation represents
11 some of the only remaining natural habitat in an otherwise heavily developed agricultural
12 area. Typical to much of Franklin County, the shrub steppe habitat has been disturbed and
13 is invaded with various annual grasses and weeds, but it does still contains a good
14 component of needle and thread grass with an over-story of gray rabbitbrush. It
15 represents an island of habitat important to pheasants and many species of endemic
16 wildlife. Disturbance to the habitat should be restricted to the 60 foot construction
17 corridor followed with effective restoration of the native vegetation.
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21 Bailie Boy's Ranch. (mile marker 197-202.5; OPL Map Atlas, pp. 86-88). In this section,
22 shallow, rocky soils support a sagebrush/bunchgrass range that have been heavily
23 impacted by long-term grazing. It has heavy infestations of annual grasses and weeds. A
24 primary value of the habitat is to provide important buffers to wetland and riparian
25 habitats that are interspersed throughout the area, although the shrub steppe vegetation
26

1 likely provides habitat for some priority species including long-billed curlews, loggerhead
2 shrikes and burrowing owls.

3
4 Between mile markers 222-227.5 (OPL Map Atlas, pp. 97-99), the proposed pipeline
5 route is again within a electrical power line right-of-way located in between irrigation
6 circle-pivots and through remnant blocks of shrub steppe habitat. The condition of the
7 habitat ranges from fair to poor depending on the intensity of past disturbances including
8 grazing, vehicles, and farming activities. In most areas the original sagebrush cover was
9 long ago removed by fire. The remaining native cover is mostly restricted to Sandberg's
10 bluegrass, needle and thread grass and a few species of wild flowering plants. Most sites
11 are heavily invaded by annual grasses and weeds. But, all represent remnant patches of
12 permanent cover important to various wildlife species including burrowing owls, long-
13 billed curlews, pheasants, song birds, and possibly Washington ground squirrels. This
14 section appears to be a logical selection for the pipeline route, provided habitat values are
15 understood and impacts are limited to the 60 foot construction corridor.
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20 **Q: What are the issues related to the Project stream crossings?**

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22 A: In the three county area of my testimony, there are approximately 63 stream crossing
23 listed on the planning maps (OPL Map Atlas, pp. 62b- 96). Nearly half of these appear to
24 be crossings at irrigation water delivery canals where habitat values would be of less
25 concern. The focus of my testimony is on the remaining crossings where many are
26

1 directly or indirectly associated with important fish and wildlife habitats. Careful,
2 detailed planning should occur at each crossing to avoid or minimize detrimental impacts.

3
4 Depending on the construction methods used, the crossings could directly impact
5 associated riparian/wetland and aquatic habitats. This could result in a long term net loss
6 of habitat values depending on the magnitude of impacts and the effectiveness of habitat
7 restoration. Successful restoration will likely vary from site to site, largely depending on
8 soil conditions along the stream banks. There could also be short-term and long-term
9 impacts to water quality from sedimentation during the construction period or from
10 potential petroleum product spills during operation of the pipeline.
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14 The drainages of concern occur as natural streams, wasteways or in most cases as a
15 combination of both. The wasteways are part of the Columbia Basin Irrigation Project
16 and serves to delivery collected irrigation return flows either back into the irrigation
17 system or directly to the Columbia River. The main trunk wasteways are allowed to flow
18 through the natural terrain and function much as natural streams that provide important
19 fish and wildlife habitats. Some provide important salmon and steelhead habitat as they
20 approach the Columbia River. Stream sedimentation during construction may cause
21 detrimental impacts. However, of much greater concern would be potential spills of
22 petroleum products. Many of the wasteways have steep gradients and potential spills
23 could be dispersed over long distances in a short amount of time.
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1 There would be concern at all crossings; however, the risk would be higher at the major
2 crossings including Sand Hollow Wasteway, several small drainages east of the Beverly
3 Burke Road, Royal Wasteway, Lower Crab Creek, Eagle Lakes Drainage, White Bluffs
4 Wasteway (WB10) and Esquatzel Coulee.
5

6
7 Listed below are specific sites of concerns:

- 8
9 • Sand Hollow Wasteway. (SC24a; OPL Map Atlas, p. 63b) If either the I-90 Bridge or a
10 wet trench north of I-90 is selected for the Columbia River crossing, the proposed
11 pipeline route would cross the lower end of Sand Hollow Wasteway near the highway
12 junction of SR26 and SR243. The wasteway serves to deliver irrigation return flows from
13 irrigated farm ground west of Royal City to the Columbia River. The lower mile
14 functions much as a natural stream and provides suitable habitat that has attracted
15 spawning fall chinook
16 salmon since 1987. In November 1998, 33 fall chinook redds were documented by the
17 Bureau of Reclamation. Steelhead, a federally listed species, are also suspected to occur.
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21 A crossing here should be aligned to avoid spawning substrates and timed to avoid the
22 spawning activity and emergence and out migration of juvenile anadromous fish.
23

24
25 The Quincy Irrigation District and the Othello Conservation District are jointly
26 developing a watershed plan for the Sand Hollow wasteway. Their main objective is to

1 implement best management farming practices in the upper watershed to improve water
2 quality. Given these groups current efforts to improve water quality, construction and/or
3 operation of the Project must not be allowed to cause new detrimental impacts.
4

- 5
6 • East of Beverly Burke Road. (mile markers 154-159; OPL Map Atlas, pp. 67-68). Three
7 (SC225-228), and possible a fourth (SC 229) proposed crossings of unnamed streams east
8 of the Beverly-Burke Road drain from high quality wetlands. However, of more concern
9 are habitats downstream from the crossings. In less than two miles, these drainages flow
10 directly into a chain of lakes and wetlands inside the Lower Crab Creek Wildlife Area.
11 This area includes extremely productive wetlands and fisheries associated with Lenice,
12 Merry, and Nunnally Lakes. The lakes support important waterfowl production and a
13 ‘quality rainbow trout fishery’ of statewide significance. The proposed crossings are
14 located near steep slopes composed of highly erodible soils. The risk of unstable stream
15 channels and associated water quality problems appears significantly high, particularly
16 when considering the potential impacts from a petroleum product spill. An alternate
17 route to avoid this area should be seriously considered, perhaps north along SR26.
18
19

- 20
21 • Lower Crab Creek. (SC26e; mile marker 180.6; OPL Map Atlas, p. 79). The soil profiles
22 including the stream beds near the Grant/Adams County line are characterized with
23 hardpans of fine clay overlain with alluvial and loess (wind-formed)soils. The streambed
24 contains very little gravel or rock material. If the hardpan layers are disturbed and not
25 managed correctly, serious erosion problems could result. Adjacent landowners are
26

1 currently experiencing serious main stem headcuts and associated bank erosion. This
2 problem is further complicated by year-round, high flows resulting from increased ground
3 water associated with irrigation return flows.
4

5
6 The fisheries resource in this section of Lower Crab Creek is not currently of major
7 importance. However, increases in water quality problems could compound impacts to
8 important wetlands utilized by waterfowl, sandhill cranes and shorebirds. The concern
9 for fisheries resources increases dramatically 12 miles down stream at the confluence of
10 the Red Rock Lake Wasteway which is supporting a small run of chinook salmon. Spills
11 of petroleum products could potentially be very damaging.
12

- 13
14 • White Bluffs (WB10 Wasteway). (SC259; mile marker 194.5 OPL Map Atlas, p. 85).
15 The proposed crossing of the WB10 wasteway is about one mile above boundary of the
16 Wahluke Wildlife Area. Direct construction impacts to site wetland habitats would likely
17 be of moderate concern, however, potential impacts to water quality downstream into the
18 Wildlife Area would be a major concern. The Wildlife Area contains very productive
19 emergent wetlands that support a diverse wildlife population and a warm water fishery.
20 The area also provides important public hunting and fishing.
21

- 22
23 • Eagle Lakes Drainage. (SC 262; mile 199.8, OPL Map Atlas, p. 87) This crossing occurs
24 in a natural drainage through channeled scablands south of Eagles Lakes. The stream
25 flows in and out of large, diverse emergent wetlands and riparian zones, and provides
26

1 very important habitat for diverse populations of wildlife and a warm water fisheries.
2 The drainage is particularly important for wintering waterfowl. The area is managed for
3 public hunting under perpetual hunting rights owned by the WDFW. The proposed
4 crossing is immediately above Bailie Lake which is one of the larger wetlands in the
5 complex. The crossing should be designed to minimize impacts to wetland/riparian
6 habitats. Prevention of water quality impacts, particularly spills of petroleum products,
7 should be a major design consideration.
8

9
10 The drainage enters the Hanford Reach of the Columbia River approximately 10 miles
11 below the crossing location. This part of the river contains extremely important habitat
12 for salmon and steelhead as well as for bald eagles. A salmon hatchery and steelhead
13 rearing facility operated by the WDFW are located here. Evaluations of potential impacts
14 to the facility's water supply should be made.
15

- 16
17 • Esquatzel Coulee. (SC 284; mile 221.5; OPL Map Atlas, p. 96). Esquatzel coulee is a
18 natural stream augmented with irrigation return flows. The crossing is in an area with
19 intensive agricultural development. It contains permanent cover consisting of a
20 combination of shrub steppe, emergent wetlands and Russian olive trees. The area is
21 impacted by past farming activities, contains trash and is invaded with weeds, but it does
22 represent some of the best remaining wildlife habitat in the area. It should be protected to
23 the extent possible.
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Again, there would be potential downstream water quality impacts to salmonid habitats in the Columbia River from sediments during construction or from petroleum products spills during operation. The Columbia River is approximately eight miles below the Esquatzel crossing.

Q: What are wetlands and why are they important?

A: In the three county area, the proposed pipeline route crosses or is adjacent to numerous wetlands of various types and sizes. Wetlands are extremely important habitat for fish and wildlife by providing year-round sources of food, cover and water. Wetlands in the dryer habitats of eastern Washington have the added importance by providing an “oasis effect” that benefit numerous species of terrestrial wildlife more often associated with shrub steppe or cultivated areas.

1 **Q: Which species use the wetland habitat?**

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4 A: The wetlands provide important habitat for many species of ducks, grebes, rails, game
5 birds, shorebirds, songbirds, raptors, furbearer, fish, reptiles and amphibians. Priority
6 management species include concentrations of breeding and wintering waterfowl, ring-
7 necked pheasants, sandhill cranes, black-crowned night-herons, great blue herons,
8 American avocets, and black-necked stilts.

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Q: What are the types of wetlands and types of impacts expected from the Project?

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A: The wetland habitats should be avoided to the extent possible during the construction and

1 operation of the pipeline. For wetlands that can't be avoided, detailed planning should be
2 required to minimize impacts and to implement restoration actions. Perhaps of most
3 concern, are potential impacts to wetland hydrology. Sections of buried pipe which are
4 compacted in columns of gravel fill material could potentially dam or displace water that
5 supports wetlands or portions of wetlands down gradient from the project. Impacts to
6 wetland hydrology can also occur outside the wetlands if road or pipeline construction
7 alters water flow into the wetlands by blocking subsurface flows. Such conditions could
8 eliminate down gradient wetlands.
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11 The displacement or compaction of the saturated or hydric soils may prevent re-
12 establishment of wetland vegetation and critical soil microorganisms.
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14
15 The outer, vegetated edges of wetlands, or the buffer zones, are very important for
16 protecting the ecological functions and values of wetlands. They serve to protect the
17 interior wetland habitats, and perhaps equally important, they provide other valuable
18 habitats along drier edges of wetlands. Wetland buffers provide critical nesting, foraging,
19 and hiding habitat for many species of birds as well as other forms of wildlife. Buffer
20 zones with important habitat values may extent for several hundred feet landward of some
21 wetlands borders. Planning efforts to avoid or minimize impacts to wetlands should also
22 consider the values of the buffers.
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26 Large Wetland Complexes. The proposed pipeline route crosses or parallels several very

1 large wetland complexes characterized with sections of open water and fringed with
2 emergent vegetation including cattails and bulrush. Many have woody borders of willow
3 and/or Russian olive that provide additional habitat structure. They are extremely
4 important for a diversity of wildlife including waterfowl, herons, songbirds, hawks, owls,
5 muskrats and beaver. Examples of these types of wetlands occur at mile markers 158.5,
6 191.5 and 199.8.
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9 Alkaline Environments. Wetlands that occur in highly alkaline environments provide a
10 different and unique type of habitat that supports different plant and animal communities
11 relative to freshwater wetlands. A series of this type of wetlands are adjacent to SR26
12 between Royal City and the Grant/Adams County line. They support different types of
13 biota adapted to living in brackish environments with high pH's. Typically, these
14 wetlands are characterized by short, sparse, salt tolerant emergent vegetation such as
15 three-square bulrush while the buffer areas are often covered with salt tolerant species
16 such as saltgrass and greasewood. Cattails and other tall emergents have lower salt
17 tolerance and are usually absent. It is believed most of these wetlands receive hydrology
18 from ground water sources perhaps making them more vulnerable to excavation and
19 filling associated with pipeline construction. They are often very rich in nutrients and
20 usually have dense populations of invertebrates. Their high pH levels won't support fish
21 which in turn make ideal habitats for tiger salamanders. The low, sparse vegetation and
22 otherwise open wetlands makes ideal habitat for bird species that prefer areas with low
23 growing, sparse vegetation. Several species of shorebirds, and sandhill cranes prefer this
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1 type of habitats. These environments may pose different challenges in analyzing and
2 mitigating impacts. Samples of very productive alkaline wetlands occur near the
3 Adams/Grant county line (mile marker 179.5-182).
4

5
6 Small Isolated Wetlands. Many smaller wetlands occur at numerous locations along the
7 pipeline route. Some have simple plant communities, heavy infestation of weeds, and
8 evidence of past disturbances such as over grazing. Even though these sites are not as
9 critical as larger, more diverse wetlands, the importance of these sites should not be
10 underestimated. They provide important wildlife habitat, particularly for terrestrial
11 wildlife through the “oasis effect.” Many provide sources of food, cover and water for
12 wildlife in a large radius in the surrounding area. Similar to small tracts of shrub steppe,
13 they often represent the only permanent cover in heavily developed areas. In fact, many
14 of the sites occur in complexes of sagebrush, emergent wetland vegetation, willows and
15 sometimes Russian olive trees. An example of these small wetland complexes occurs at
16 Basin City near mile marker 202.5. Many of these sites are critical for maintaining
17 wildlife, such as pheasants, across the landscape. Disturbance to these sites should be
18 minimized to the extent possible.
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22 **Q: What are the wetlands of specific concern?**
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24
25 A: The wetlands of specific concern include:

- 26 • Lower Crab Creek Wildlife Area (mile marker 158.5; OPL Map Atlas, p. 68). Based on

1 the Project Map Atlas, the proposed pipeline route traverses through a portion of a large
2 emergent wetland complex on property managed by the WDFW. These wetlands are
3 supported by irrigation return flows. They are important wildlife habitats that produce
4 pheasants, ducks and many species of non-game wildlife and provide public access for
5 hunting and wildlife viewing. Considerations should be made to re-route the pipeline
6 around the wetland complex and careful evaluations should be made to assure the buried
7 pipe and compacted gravel column would not alter the wetland hydrology.
8

- 9
10 • Royal Wasteway (mile marker 179; OPL Map Atlas, p.78). The proposed pipeline route
11 parallels SR 26 for 12.5 miles east of Royal City (169.5-182). This appears to be a good
12 choice to avoid other sensitive habitats associated with the Lower Crab Creek valley.
13 However, there are important habitats along the highway right-of-way that will require
14 careful planning to avoid or minimize impacts. One of these is the crossing of the Royal
15 Wasteway and its associated emergent wetland. A dense stand of cattails provides
16 excellent quality habitat. The wasteway is established in a channel through basalt
17 formations. These hardened areas may require different strategies, e.g. blasting, to
18 excavate and bury the pipe to the required depth to avoid impacting the stream dynamics.
19 The wasteway flows directly into Crab Creek about one mile below the crossing
20 compounding concerns for impacts to water quality.
21

- 22
23 • Alkaline Wetland. (mile marker 179.7; OPL Map Atlas, p. 78) Less than one mile east
24 of the Royal Wasteway, the pipeline route traverses an alkaline wetland that has been
25 bisected by the highway. As described above, alkaline wetlands are unique by supporting
26

1 different type of vegetation and animal life. This wetland is important habitat for nesting
2 and migrating shorebirds. The breeding species include black-necked stilts, American
3 avocets and Wilson's phalaropes which are designated priority species based on their
4 vulnerability during the breeding season. The wetland contains small islands that are
5 used for nesting sites and should be protected. The area is well known by the local
6 birders. Construction activities should avoid the nesting season between April 1 and July
7 15; and to avoid impacts to migrant shorebirds, construction should be delayed until after
8 September.

10
11 On the opposite or south side of the highway, the wetland extends into a large, open flat
12 that is used heavily by roosting sandhill cranes during the spring migration (early March
13 to early May) and by fewer numbers during the fall migration (September-October).
14 Construction activities should be timed to avoid disturbance, particularly during the
15 spring migration when larger numbers of cranes stay in the area longer and are involved
16 with courtship behavior.
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20 • Complex of Alkaline Wetlands. (mile marker 180-182; OPL Map Atlas, p. 79) In this
21 two mile stretch, several small wetlands provide important habitat for shorebirds and
22 waterfowl. Some of the larger wetlands along the north side serve as day roosts for
23 sandhill cranes.

24
25 • North Franklin County. (mile marker 191.5; OPL Map Atlas, p. 84) This is a large
26 diverse wetland containing areas of open water, emergent vegetation and patches of

1 willows. Some of the willows are large, mature and decadent trees that provide snag
2 habitat and perching sites. It appears most impacts could be avoided by skirting the east
3 edge of the wetland and placing the crossing at the northeast corner where the wetlands
4 narrows to a channel. Also, it appears the wetland is primarily supported by irrigation
5 return flows. Impacts could be further reduced by timing construction after the irrigation
6 season. The mature,
7
8 decadent willow trees should be avoided. They provide valuable habitat that would be
9 difficult to replace.

- 10 • Bailie Boy's Ranch. (mile marker 197-202; OPL Map Atlas, pp. 86-88). This portion of
11 the pipeline route traverses a section of channeled scabland covered with shrub steppe
12 vegetation. The area is interspersed with wetlands and riparian zones associated with the
13 Eagle Lakes drainages as well as hill-side seeps. The wetlands/riparian areas provide
14 valuable habitat for a diverse population of wildlife. Much of the overstory is composed
15 of Russian olive trees which many land managers consider an invader species that
16 replaces other more valuable wetland vegetation. However, the value of Russian olive
17 needs to be evaluated on a case by case basis. In this area it appears Russian olive are
18 important for supporting many species of wildlife including pheasants, quail, ducks, and
19 beaver. To the extent possible impacts to these wetlands including stands of Russian
20 olive should be avoided.

- 21 • Homestead Corner. (mile marker 211.5; OPL Map Atlas, p. 92). This wetland is a
22 cattail-rimmed pond with an outer border of Russian olive. It provides excellent quality
23 habitat for waterfowl, pheasants and a diversity of other non-game birds. It has added
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importance by being the only permanent cover in a heavily developed agricultural area. It appears the proposed crossing is up gradient from the main part of the wetland which would minimize direct impacts to wetland vegetation. However, there may be some risk of the buried pipe interfering with the wetland hydrology.

END OF DIRECT TESTIMONY

I declare under penalty of perjury that the above testimony is true and correct to the best of my knowledge.

EXECUTED this _____ day of February, 1999.

RON FRIESZ