

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26

**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 _____ (JB-T)

**PREFILED DIRECT TESTIMONY
WASHINGTON DEPARTMENT OF FISH & WILDLIFE
WITNESS: JERRY BENSON
(Shrub Steppe and Riparian Habitat Restoration Potential and Methodology)**

1 **Q. Please state your name and address.**

2
3 A. Jerry D. Benson
4 1145 South Jefferson Avenue
5 Moses Lake, Washington 98837

6 **Q. What is your occupation?**

7 A. I am an Vegetation Management Biologist with the Washington State
8 Department of Fish and Wildlife, in the Lands and Habitat Program.

9 **Q. What is your educational background and professional experience?**

10 A. I graduated from Central Washington University with a B.A. in Botany in
11 1970. I was employed by the Washington State Department of Game in
12 March of 1971 as an Agricultural Technician with duties of managing a soil
13 and moisture conservation program and a noxious weed control project on
14 approximately 140,000 acres in central Washington. Since that time, I have
15 worked on numerous projects restoring habitat and providing vegetation
16 rehabilitation and management consultation over a broad portion of
17 Washington State. I have been involved in numerous projects starting from
18 bare ground up through producing wildlife habitat. These include projects
19 such as the Wells Hydro-Electric Project wildlife mitigation; US Army Corps
20 of Engineers, Snake River wildlife mitigation; and BPA's Columbia River
21 wildlife mitigation. Other areas of vegetation consultation are the USDA
22 Conservation Reserve Program, along with on going WDFW Wildlife Area
23 program habitat restoration projects. As a part of these projects I have
24
25
26

1 designed planting schemes, selected appropriate species, established site
2 preparation methods and prescribed post plant management techniques .

3 **Q. Please summarize the topics you will address.**

4 A. I have been assigned to review for habitat restoration potential, those
5 portions of the proposed Cross Cascade Pipeline that are traversing the shrub
6 steppe and riparian areas of eastern Washington. This assignment was to
7 ascertain whether the shrub steppe habitat restoration proposals could be
8 successful and whether or not they will be beneficial to wildlife. I have also
9 been assigned to determine, based on my experience, what would be the most
10 beneficial to wildlife, and practicable way of rehabilitating the construction
11 corridor.
12
13
14

15 **Q. Are you familiar with the Cross Cascade Pipeline corridor area in**
16 **Eastern Washington?**

17 A. I have conducted field observations over the corridor area on numerous
18 occasions evaluating the vegetative communities, physical topography, and
19 area soils.
20
21

22 **Q. Have you an assessment of the revegetation potential for the area?**

23 A. Much of the area is shrub-steppe vegetation with annual precipitation of only
24 7 to 12 inches. It is these areas where the greatest challenges for successful
25 restoration occur. Shrub-steppe is a unique plant community, that for the
26

1 most part in Washington, only exists in harsh environments. Because of the
2 low rainfall, droughthy conditions these communities are very easily
3 destroyed and difficult to restore. Most of the plant species in a shrub-steppe
4 community are long lived perennials that take many years to become
5 established and successfully occupy the site.
6

7 **Q. Are you knowledgeable about vegetation-wildlife relationships as a**
8 **component of wildlife habitat?**

9 A. As a result of practicing the art of vegetation propagation for wildlife habitat,
10 I have become acutely aware and knowledgeable of the wildlife-wildlife
11 habitat interrelationship. I have principally worked with habitat for upland
12 birds and waterfowl, and big game species.
13
14

15 **Q. What important points should be considered in a revegetation**
16 **program that will provide benefits to wildlife?**

17 A. In the composition of natural plant communities a unique mosaic exists. It is
18 this diversity of species that provides the direct long-term benefit. In a
19 typical non-native revegetation program, the natural diversity is destroyed
20 and often replaced with disjunct species not previously found on the site.
21 This situation is compounded by the openness of the pipeline corridor as a
22 ribbon across the landscape. It is vitally important to attempt to reduce the
23 impact of this disjunct ribbon of species by using native species to the full
24 extent possible.
25
26

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26

Q. Do you have a recommendation for site rehabilitation to avoid the problem of dissimilar species?

A. I recommend a “Condition Zone” specific system for vegetation reestablishment. Exhibit ___ (JB-1) contains examples of detailed site-specific criteria for zones that will be encountered during construction of the Cross Cascade Pipeline in Eastern Washington. Use of the species and cultural practices recommended for each Condition Zone will expedite successful revegetation that simulates the original conditions.

Q. As part of your “Condition Zone” approach, are there specific variations within a zone that would materially affect species selection or establishment?

A. As part of the zonal analysis, conditions such as elevation, annual precipitation, soil type aspect, and pH, all separately and collectively affect the species or cultural adjustment that may become necessary. These adjustments can only be made site by site by an experienced vegetation establishment and management specialist.

Q. Based upon your experience with on-site revegetation work, can you recommend a method of determining revegetation success?

1 A: Yes. Over time, many methods have been devised for measuring vegetation
2 and its response to various treatments. The WDFW has tried several of these
3 methods and has determined that use of the microplot-canopy coverage
4 method (Daubinmire 1959) is the most efficient system presently available.
5 The system is simple and provides the most important information for the
6 amount of time and training required to use it. See Exhibit ____ (JB-2).

7
8
9 This system should be applied on a systematic basis both prior to, and after,
10 construction to measure vegetation both on the site and on adjacent
11 off-project areas. Over the length of the construction area in Eastern
12 Washington, eleven major condition zones are crossed. Based on application
13 of the microplot-canopy coverage method, approximately 80 transects would
14 have to be established. To properly evaluate the success of revegetation
15 efforts, the plot analysis should be monitored annually, initially, and
16 ultimately biennially for a minimum of ten years. The plots must be read
17 during the active growing season, at the same time of the year for the entire
18 monitoring period.

19
20
21
22 **Q. Are there areas that you feel will be particularly difficult to**
23 **revegetate?**

24
25 A. Yes. The pipeline route crosses very rugged terrain, and there are numerous
26 instances of severe soil and climatic conditions. These sites almost invariably

1 have some existing vegetation and, with intensive techniques, equivalent or
2 better cover can and should be established. Some of the special techniques
3 for these sites include: collecting seed from specially adapted species that are
4 already on-site or are from very similar adjacent areas; using fiber mats,
5 straw mulching and tacking, transplanting species that are difficult to
6 propagate and special timing of cultural methods. Under these conditions,
7 plantings should be made with species adapted to the site which are started
8 in a nursery and transplanted only when they are well established. These
9 sites should be discovered and documented by ground reconnaissance at least
10 1½ years prior to actual construction to allow sufficient time to formulate a
11 specific rehabilitation plan.
12
13
14

15 **Q. What role should pesticides play in a revegetation program?**

16 A. The use of some herbicides may be necessary to prevent the invasion of
17 noxious weeds in areas and to facilitate the establishment of perennial
18 vegetation in specific areas. Herbicide applications should be limited to only
19 spot treatments of perennial weeds at specific sites. Most of the
20 recommended seeding mixtures contain deciduous shrubs and/or broadleaf
21 forbs. The most commonly used herbicides select against these types of
22 plants. If areas that have a preexisting weed problem are in the corridor,
23 every effort should be made to avoid mechanical spreading of weed seeds and
24 only herbicide tolerant grasses should be planted on these sites.
25
26

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26

END OF DIRECT TESTIMONY

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

DATED this _____ day of February, 1999.

JERRY BENSON