BEFORE THE STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL

IN RE APPLICATION NO. 99-1

SUMAS ENERGY 2 GENERATION FACILITY

EXHIBIT _____ (ADE-T)

APPLICANT'S PREFILED TESTIMONY

WITNESS : A. DAVID EVERY, Ph.D.

Q. Please state your name and business address.

A. My name is David Every. My business address is URS Corporation, 1501 4th Avenue, Suite 1400, Seattle, Washington 98101.

Q. What subjects do you intend to address in your testimony?

A. First, I will provide my background and explain my role in connection with this project.

Second, I will provide an overview of the project changes regarding wetlands that are found in the Second Revised Application.

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Third, I will address the wetland impacts associated with the SE2 project, as modified in the Second Revised Application.

Fourth, I will address the wetland mitigation proposal contained in the Second Revised Application.

Background

Q. What is your position at URS Corporation?

A. My title is Principal Ecologist. I manage the biologists in the Seattle office. Collectively, we conduct the studies and write the documents needed to address wetland regulation requirements (delineation reports, mitigation plans, and permit applications), Endangered Species Act consultation (biological assessments), various permit requirements, and biological impact assessments for SEPA and NEPA. I often serve as a project or task manager and provide senior review of my staff's work. I am often called upon as an expert witness.

Q. Could you describe your background and experience?

A. I received a bachelor's degree in zoology and a master's degree in botany from the University of Utah. My Ph.D. is in botany from the University of Washington. I have worked as an environmental consultant for more than 25 years, 15 of which have been with my present employer. I served as an expert witness for the first time on a wetland issue about 25 years ago, and have done so many times since then.

At URS Corporation (previously Dames & Moore), I have had a wetland practice since 1988. I have had from one to six staff working directly with me on wetland

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work during that time. We have conducted literally hundreds of wetland studies, including delineations and delineation reports, permit applications, mitigation plans, monitoring and monitoring plans, inventories, negotiated or even mediated agreements, and expert witness testimony. Projects have ranged in scope from small residential or commercial developments to municipal utilities, roads, pipelines, transmission lines, mines, and electric power plants. I have negotiated mitigation agreements on dozens of projects.

A copy of my curriculum vitae is attached as Exhibit _____ (ADE-1).

Q. During the first round of hearings, the Council heard wetland testimony from John Wong of Bexar Environmental. Can you explain your role on the Sumas Energy 2 (SE2) project in relationship to Mr. Wong?

A. Yes. SE2 originally retained Mr. Wong to perform a wetland investigation of the project site, to prepare a wetland mitigation plan, and to assist SE2 in connection with the EFSEC process and the Corps of Engineers Section 404 permitting process. Mr. Wong prepared a series of wetland reports and mitigation plans, and he appeared as a witness for SE2 during the first round of hearings. Shortly after the hearings, Mr. Wong accepted a position with the Corps of Engineers in Texas. SE2 then asked me to review the work Mr. Wong had performed and to essentially pick up where he left off. Mr. Wong and I both attended meetings with the Department of Ecology concerning wetlands in the early fall of 2000 before he left for Texas. He gave me his files and explained his work. The subsequent work in wetland delineations and the development of the wetland mitigation plan has been under my direction.

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Q. Has anyone else at URS been assisting you in your work regarding wetlands?

A. Yes. Greg Mazer who is a wetland biologist at URS with seven years of experience performing wetland delineations and developing wetland mitigation plans. A copy of his curriculum vitae is attached as Exhibit _____ (ADE-2). Jeff Walker, a URS wetland biologist and botanist with five years of experience also assisted to a lesser degree. A copy of his curriculum vitae is attached as Exhibit _____ (ADE-3).

Q. Can you describe what work you and others at URS have performed regarding wetlands?

A. Based on review of John Wong's wetland reports, a 1991 wetland report by David Evans Associates, and the Corps of Engineers permit documents, URS wrote the wetland part of the January 2000 Site Certification Application. We also conducted wetland field work for the proposed transmission line between the site and the Canadian border to assist in avoiding wetland impacts. We reviewed John Wong's June 2000 wetland report and we reviewed John Wong's proposed mitigation plan.

We also participated in two meetings with the Ecology wetland staff members working on EFSEC's 401 Certification to discuss the extent to which farmed areas of the project site that the Corps of Engineers had determined to be "prior converted croplands" (and not jurisdictional wetlands) would be considered "wetlands" under Ecology's criteria. During the second of those meetings, in October 2000, we agreed with Ecology on the proper delineation of wetlands at the project site and produced a

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hand-drawn map of the agreed-upon wetland area. John Wong left for Texas soon after the meeting, and URS had the hand-drawn map converted to a CAD map.

After SE2 decided to eliminate the backup oil fuel tanks, we revised the mitigation plan and wetland impact map, and rewrote the wetland section, found in Section 3.4, for the Second Revised Site Certification Application. We have since performed an updated delineation of wetlands in the various mitigation areas addressed in the plan and further analyzed the functional values of the wetlands impacted and the wetland mitigation proposal.

Summary

Q. Can you generally compare the wetland impacts and mitigation of the Second Revised Application, with the impacts and mitigation considered by the Council during the first round of hearings.

A. Yes. The easiest way to provide an overview is to compare a couple of figures. During the first round of hearings, John Wong presented a "Wetland Delineation & Mitigation Report" dated June 26, 2000, which was admitted into evidence as Exhibit 161.4. This report superceded the wetland information that had been provided in the January 2000 Application. John Wong's June 2000 report contained a color figure that illustrated the proposed mitigation plan. For everyone's convenience, I am attaching a copy of that figure to my testimony as Exhibit ADE-4.

If you look at Exhibit ADE-4, it shows the western portion of the project site and the southern portion of the Port of Bellingham property east of the project site being used

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as mitigation areas. Note that a portion of the West Mitigation Area is being used for the stormwater detention ponds, which have many wetland characteristics, but would typically not be included in the compensatory mitigation calculations.

The impacts and mitigation associated with the revised project are depicted in Exhibit ADE-5 to my testimony. (This is a slight revision of Figure 3.4-5 from the Second Revised Application; it now correctly depicts the proposed forested upland areas.) The elimination of the diesel storage tank has allowed SE2 to enlarge and move the stormwater detention ponds so that they are immediately south of the power plant. As a result, the impact to wetlands has been reduced and the West Mitigation Area has been expanded. The stormwater detention ponds continue to have wetland characteristics and, therefore, help to enhance the ecological connectivity between the west mitigation area and the mitigation on the Port of Bellingham property.

Wetland Impacts

Q. Can you explain what wetlands will be impacted by the project, as modified in the Second Revised Application?

A. Yes. The project will result in the filling of 9.45 acres of wetlands for construction of the plant. Of this wetland area, 8.45 acres are farmed wetlands (FWP) and 1.0 acre is a wetland ditch (W). The wetland area to be impacted by this proposed project is classified as palustrine emergent (PEM) wetland. The wetlands and wetland buffers within the plant site have been greatly disturbed by prior agricultural practices. These areas have been cultivated to produce corn and have been allowed to support overgrown meadow habitat. Thus, the wetland to be impacted by the proposed

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development is considered to be low quality due to the presence of exotic species, hydrologic alterations (ditching/drain tile), agricultural activity (haying, corn), and evidence of pollutants (sedimentation).

Q. Some people may be confused because these numbers seem very different from the numbers in the January 2000 application, and a little different from those in John Wong's June 2000 report. Can you explain that difference?

A. Yes. Let me compare the three sets of numbers you mentioned for wetland impacts.

Comparison of Wetland Impact Determinations

Wetland Type	January 2000 Application	June 2000 Wetland Report	June 2001 Second Revised Application
Farmed Wetland (FWP)	0.9 acre	7.76 acres	8.45 acres
Wetland Ditch	1.0 acre	1.0 acre	1.0 acre
Total:	**1.9 acres**	**8.76 acres**	**9.45 acres**

The January 2000 Application contained John Wong's initial assessment of wetland impacts. He relied primarily upon a Corps of Engineers certified delineation and the Corps of Engineers guidelines. As a result, he did not consider areas of "prior converted cropland" to be wetlands. The Corps of Engineers accepted this approach, but the Washington Department of Ecology objected.

In preparing the June 2000 report, Mr. Wong went back and re-delineated the wetlands using the Department of Ecology's criteria, without regard to the Corps exclusion of prior converted cropland. As a result, the wetland acreages identified in

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his June 2000 report were substantially higher, even though the footprint of the project had not changed since the January 2000 application.

The wetland acreages in the Second Revised Application are based on the wetland delineation that Andy McMillan and Susan Meyer from Ecology, John Wong and I agreed upon after carefully examining all of the field data during our meeting in October 2000. These acreages are similar to those identified in Mr. Wong's June 2000 report, but they do reflect our discussions with wetland specialists at the Department of Ecology. Thus, even though the footprint of the facility has gotten smaller, we have acknowledged that a slightly higher number of acres of the impacted area could be classified as wetlands under Ecology's criteria. I think that's the source of confusion, the acreage number went up even though the area of impact was reduced. The important point in my mind is that the Second Revised Application has reduced the area impacted and increased the area devoted to mitigation.

Q. Can you describe the value of the wetlands that are impacted?

A. In general, the values of the existing wetlands are low. They provide relatively little of the hydrologic functions wetlands also serve, and provide very little habitat value given their disturbed state and surroundings.

We undertook a more detailed assessment of wetland functions for the site using the *Washington State Method for Assessing Wetland Functions* (Ecology, 1999). This method is based on the Hydrogeomorphic Approach for Assessing Wetland Functions (HGM Approach).

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Currently, the wetland's ability to remove sediment from surface water inputs is rated moderate whereas its ability to remove nutrients is rated moderately low. The performance ratings reflect, but are not limited to, the wetland's live and dead surface water storage, the percent of area with clay or organic soils, outlet constriction, and vegetation aspects. The potential for removing heavy metals and toxins is moderately low. Because few toxins enter the wetland, toxin removal is a function the wetland has little opportunity to perform currently.

The wetland's current ability to reduce peak flows is moderate according to the model. The wetland's ability to decrease downstream erosion is rated as moderately low. Factors considered in rating the quality of these two functions include elevational difference between outlet bottom and flood marks, outlet constriction, percent of forest and shrub area, and ratio of inundated area to contributing basin.

The potential for the wetland to recharge groundwater is very low. The ditch directs surface water through the wetland at a rate much faster than had occurred prior to the establishment of the ditch. In addition, infiltration rates are estimated to be fairly slow at this site due to the deep layers of silty soil.

The overall habitat suitability function is rated as low. Disturbance by historical and current agricultural practices has greatly degraded the wetland's habitat value. Plant species diversity, structural complexity, and the amount of habitat features in this wetland are all minimal. Interspersion between vegetation classes and between

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vegetation classes and standing or flowing water is also minimal. Although the PSS/PFO wetland community lies adjacent, most of the meadow and corn field portion of the wetland is surrounded by roads, other farm fields, and commercial development. Thus, the wetland buffer is in a degraded condition and ecological connectivity to areas that provide wildlife habitat is minimal.

Q. Using Ecology's rating system, what "category" are the wetlands that will be impacted by the SE2 project?

A. We rated the meadow and corn field portions of the on-site wetland according to the *Washington State Wetlands Rating System for Western Washington*, 2nd Edition (Ecology, 1993). This rating system is designed to differentiate between wetland quality based on rarity, irreplaceability, sensitivity to disturbance, and functional performance. We rated the meadow and cornfield portion as a Category III wetland since it is greater than 2 acres in size, but scored less than 22 points on Question 4 of the rating form. The wetland is not a Category I or II wetland because it does not provide habitat for sensitive or important wildlife or plants, is not difficult to replace, is not regionally rare, and does not provide very high functional performance (as discussed below). It is considered to be a low quality Category III due to the presence of exotic species, hydrologic alterations (ditching/drain tile), agricultural activity (haying, corn), and evidence of pollutants (sedimentation).

Wetland Mitigation Proposal

Q. Can you describe the wetland mitigation proposal contained in the Second Revised Application in more detail?

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A. As described in Section 3.4 of the Application for Site Certification, wetlands will be enhanced and created on site as part of the compensatory mitigation required to offset proposed wetland impacts. The western half of the plant site, or "West Mitigation Area," will be used for compensatory mitigation, and plant construction will only occur in the eastern half of the plant site. The Port of Bellingham property, or "East Mitigation Area," will also be used for compensatory mitigation (see Exhibit ADE-5). All wetlands within the mitigation sites will be enhanced and much of the uplands within the mitigation sites will be converted to wetlands. The remaining uplands will be enhanced to support forested habitat and serve as a wetland buffer.

Within the meadow and corn field portions of the mitigation sites, cover by non-native species will be greatly reduced and a variety of wetland habitat types will be established. Topographic modifications will be made to create palustrine aquatic bed (PAB) communities that are semi-permanently flooded and support aquatic plants. Additionally, palustrine emergent wetland communities that are seasonally flooded (PEMC) will be created adjacent to and near the PAB communities. The PEMC communities will support a variety of wetland grasses, sedges, rushes, and flowering herbs. Palustrine scrub-shrub (PSS) and palustrine forested (PFO) wetland communities will be established as well. These communities will comprise the majority of the compensatory mitigation areas and will support a variety of native trees and shrubs. Native coniferous evergreen and broad-leaved deciduous trees will be planted in the areas where upland forest will be established.

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To enhance the forested wetland area in the northwest portion of the site (the PSS/PFO wetland community), we propose to plant several hundred western red cedars and western hemlocks. This area contains large patches dominated by Himalayan blackberry, a non-native, invasive shrub that tends to out-compete native shrubs and small trees. The coniferous evergreen trees will eventually provide shade sufficient to greatly reduce cover by this species. Upon reaching maturity, the trees will modify environmental conditions to greatly benefit native flora and fauna.

Upland forest will be established within the approximately 1 acre of upland meadow corn field located in the southern portion of the mitigation areas and 2.78 acres of grassy median between Haul Road and State Route 9.

Q. How much wetland mitigation will this provide?

A. The wetland mitigation areas will have a total size of 21.56 acres. SE2 will enhance 17.83 acres of wetland, and create 3.73 acres of wetland from upland meadow and corn field. An additional 3.78 acres of upland meadow, corn field, and median strip uplands will be converted to upland forest to serve as wetland buffer. The following table provides more detail about the types of wetland mitigation provided.

Table 2: Comparison between estimated extent of existing and proposed vegetation classes in compensatory mitigation areas.

Vegetation Communities	Area of Existing Vegetation Communities (acres)	Area of Existing Vegetation Communities to be Removed by Construction (acres)	Estimated Area of Vegetation Communities 20 Years After Compensatory Mitigation (acres)

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Palustrine Aquatic Bed (PAB) Wetland	0	0	0.3
Palustrine Emergent – Temporarily Flooded (PEMA) Wetland	16.93	8.45	0 (remaining 8.48 acres converted to other wetland classes)
Palustrine Emergent – Seasonally Flooded (PEMC) Wetland	1.55	1.0	1.4 (0.85 acres of this 1.4 acres will be created from PEMA wetland communities)
Palustrine Scrub-Shrub (PSS) Wetland	0	0	1.2
Palustrine Forested (PFO) Wetland	0	0	9.86
PSS/PFO Wetland	8.8	0	8.8
Meadow and Corn Field Upland	14.51	9.78	0 (remaining 4.73 acres converted to other vegetation classes)
Forested Upland	0	0	3.78
Median Strip Upland	2.78	0	0 (remaining 2.78 acres converted to upland forest)
Total	44.57	19.23	25.34

Q. In your calculation of mitigation acreage, are you counting any of the acreage associated with the stormwater treatment ponds located south of the facility?

No. We have not included any of that acreage in our calculations. The ponds occupy approximately 1.39 acres of the project site and they will serve several wetland functions. The entire area occupied by the ponds and their surrounding grassy berms is approximately 2.71 acres. The ponds will support wetland vegetation, and provide

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some habitat functions. They will also provide runoff detention and water quality improvement. In this case, the stormwater ponds also provide some continuity of habitats between the West Mitigation Area and the East Mitigation Area on the Port of Bellingham Property.

Q. With respect to the mitigation areas where SE2 will be creating and enhancing wetlands, what monitoring and maintenance has SE2 proposed to perform to ensure that the mitigation is effective over time?

A. Wetland enhancement and creation will be implemented under strict supervision by the designers to ensure that the plan is executed appropriately. Monitoring and maintenance of compensatory mitigation will be guided by pre-established performance standards, maintenance requirements, and appropriate contingencies. A 5-year monitoring plan will be implemented to assess the degree to which established objectives are being met for native plant cover, installed plant cover, persistence of soil saturation, and persistence of pond inundation. If monitoring results show that performance standards are not being met, then appropriate contingency actions will be taken so that the performance standards are being met. The success of the wetland mitigation measures will also continue to be reviewed by EFSEC on a regular basis as part of regular project reporting, much like is currently done today for nuclear power plants.

Q. In your opinion, will the mitigation proposal result in an improvement in overall wetland function.

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A. Yes. Overall wetland performance will improve due to the improvement of several wetland functions as predicted by application of the *Washington State Wetland Functional Assessment Method* (Ecology, 1993). The gain in overall functional performance from the proposed compensatory mitigation for the SG2F will be much greater than the loss from the proposed construction.

Q. Could you explain the improvement in wetland function in more detail?

A. The improvements will be caused by a number of factors.

1. Improved Sediment and Nutrient Removal

At a minimum, the performance of sediment and nutrient removal functions is predicted to remain the same 20 years after compensatory mitigation is initiated. However, the model may not be incorporating the benefits to sediment and nutrient removal provided by seasonally inundated ponds. With both the detention ponds, and the seasonally inundated ponds planned as part of the wetland enhancements, suspended sediment and its associated nutrients (especially phosphorus) will drop from the water column and become sequestered in the ponds at higher rates than currently occurs. I expect, therefore, that there will be a net improvement in the function of sediment and nutrient removal.

2. Decreased Downstream Erosion

The wetland's current ability to reduce peak flows will remain moderate according to the model. However, the wetland's ability to reduce downstream erosion will improve from moderately low to moderate. The erosion-control function will be

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improved because the area of forest and scrub-shrub dominated communities will greatly increase via compensatory mitigation. The woody vegetation will intercept more rainfall and thus moderate runoff and reduce erosion from the site.

3. Improved Groundwater Recharge

The potential for the wetland to recharge groundwater will slightly improve. The improvement will be caused by the creation of seasonally inundated ponds that will allow more surface water to infiltrate.

4. Improved Habitat Conditions

The proposed wetland enhancement and creation will greatly improve habitat conditions on site. Control of invasive plants and establishment of native vegetation will enhance wildlife habitat as well as increase native plant species richness. Installation of the various vegetation classes will provide a mix of habitats upon which many wetland-dependent organisms rely. The PAB and PEM communities to be created on site will provide high quality habitat for native invertebrates (mostly insects), amphibians, and birds. In particular, these areas may eventually support breeding and foraging areas for waterfowl, migrating and resident shorebirds, songbirds, and native amphibians. The addition of scrub/shrub vegetation to selected areas will benefit habitat suitability functions by providing additional food, cover, and forage for wildlife. Wildlife that requires shrub habitats such as some songbirds will be attracted to the site. In addition, shrubs will augment organic matter accumulation and provide greater structural complexity. These factors will attract more insects and other primary consumers, thereby providing enhanced food chain support. The mosaic

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of PSS and PEM communities will create more "edges" (transition areas between plant communities), which will likely augment both wildlife and plant diversity.

5. Improved productivity and release of organic matter downstream

The new wetland communities will produce and retain additional organic matter, and will release some organic matter to downstream areas during high flows. (Due to model weaknesses, the Washington state method only predicts a small increase in primary production and organic export as a result of the proposed mitigation.) This organic matter serves as the basis for food webs in downstream ecosystems.

6. Improved habitat in the Forested Wetland Community

The functional performance of the PSS/PFO wetland area will be improved by installing native coniferous trees such as western red cedar and western hemlock. Upon reaching maturity, these trees may provide habitat for a variety of animals, including providing shelter and thermal insulation for mammals such as deer and nesting and foraging locations for squirrels and birds such as brown creepers, dark-eyed juncoes, and some warblers. The trees also suppress establishment and growth of Himalayan blackberry and other non-native, invasive plants. In addition, they may create environmental conditions that encourage the establishment of native shrubs and herbs not currently inhabiting the site.

Q. Is there a way to quantify this assessment of functional values under the Washington State Wetland Functional Assessment Method

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A. Yes. The following table compares the functional performance of the existing wetlands with the functional performance of the proposed mitigation areas.

Wetland Function	Functional Value Before Compensatory Mitigation	Functional Value 20 Years After Compensatory Mitigation	Relevant Measures or Indicators
Potential for Removing Sediments	5	5	live & dead storage, outlet constriction, % area seasonally inundated, % area vegetated, % area with emergent vegetation class
Potential for Removing Nutrients	3	3	index for removing sediments, % area with clay or organic soils, % area seasonally inundated minus % area permanently inundated, outlet constriction
Potential for Removing Heavy Metals and Toxic Organics	4	3	index for removing sediments, % area with clay or organic soils, soil pH, % area with emergent vegetation class, % area seasonally inundated
Potential for Reducing Peak Flows	4	4	elevational difference between outlet bottom & flood marks, outlet constriction, ratio of inundated area to contributing basin
Potential for Decreasing Downstream Erosion	3	5	elevational difference between outlet bottom & flood marks, outlet constriction, % forest and shrub area, ratio of inundated area to contributing basin
Potential for Recharging Groundwater	1	2	Infiltration rate category of soils, % area seasonally inundated minus % area permanently inundated
General Habitat Suitability	2	5	Buffer condition, % area with canopy closure, maximum number of strata, snags, vegetation class interspersion, LWD, number of water regimes, number of water depth categories, water and vegetation interspersion, number of native plant species, presence of mature trees, edge habitat, land uses within 1 km of wetland

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Habitat Suitability for Invertebrates	2	7	Channels or streams with permanently flowing water, substrates surface types, vegetation class interspersion, LWD, water and vegetation interspersion, maximum number of strata present, number of plant assemblages, number of water regimes, categories of different aquatic bed structures, presence of tannins (-)
Habitat Suitability for Amphibians	1	5	Buffer condition, surface substrate types, water and vegetation interspersion, LWD, % area with permanent inundation, size & structure of submerged vegetation, water pH, land uses within 1 km of wetland
Habitat Suitability for Anadromous Fish	N/A	N/A	No anadromous fish can or will be able to access the site.
Habitat Suitability for Resident Fish	N/A	N/A	No resident fish can or will be able to access the site.
Habitat Suitability for Birds	2	4	Buffer condition, snags, vegetation class interspersion, edge habitat, special habitat features (i.e. wetland within 8 km of a brackish or salt water estuary), % permanent open water, index for invertebrate habitat suitability, index for amphibian habitat suitability, index for fish habitat suitability, % canopy closure (-)
Habitat Suitability for Mammals	2	3	Buffer condition, number of water depth categories, corridor condition, beaver foraging opportunity, emergent vegetation class presence, water and vegetation interspersion, % area of open water and aquatic bed, banks with fine-textured soils, channel with permanent flowing water, index of either anadromous or resident fish habitat suitability, land uses within 1 km of wetland (-)
Native Plant Richness	1	5	Maximum number of strata, number of plant assemblages, presence of mature trees, number of native plant species, % area covered by sphagnum bog, % area dominated by non-native plant species (-)

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Potential for Primary Production and Organic Export	5	6	% area vegetated, % area with non-evergreen vegetation, % area with herbaceous understory, extent of organic soils, % area seasonally inundated, % area covered by a sphagnum bog
Total Performance Value	35	57	

Q. Do you believe that the gain in overall wetland functional performance from the proposed compensatory mitigation will be greater than the loss of the functions of the existing meadow wetlands?

A. Yes, I think the gain in overall functional performance from development of a variety of wetland types and vegetation structure will be much greater than the loss of cornfields and weedy meadows from the proposed construction. Another way of assessing overall functional performance is in terms of functional units, the product of wetland functional performance and wetland acreage. The functional unit concept is described in the *Montana Wetland Assessment Method* (Berglund, 1999). Although the wetland functional performance is influenced by wetland size, this measurement essentially gives equal importance to wetland functional performance and wetland size. Functional units can be used to compare gain and loss in overall wetland functional performance.

The functional performance of wetlands to be lost by construction of the proposed power generation facility is similar to the functional performance of the meadow portions of the compensatory mitigation sites. The habitat suitability functions have particularly low performance value. The values that the model produced were

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summed and then multiplied by wetland acreage to be lost by the proposed construction. The sum of wetland functional performance is 35 and the size of the proposed wetland fill is 9.45 acres. The result is a loss of 330.75 functional units.

The net gain in functional units from the proposed compensatory mitigation was derived by first calculating the current functional units provided by the meadow and corn field portion of the on site wetland to be utilized for compensatory mitigation. These portions of the wetland total 9.81 acres in size and their current wetland functional performance is estimated at 35. Therefore, they currently provide a total of 343.35 functional units. It is estimated that enhancing and creating wetlands in the meadow portions of the compensatory mitigation areas will improve functional performance by 22 points after 20 years. The proposed compensatory mitigation will expand the wetland area by approximately 2.34 acres. Thus, this portion of the mitigation area will eventually provide approximately 692.55 functional units (12.15 acres multiplied by 57 functional value points). Enhancing the PSS/PFO wetland community will increase the functional units provided even further; however, this assessment has not yet been made. Thus, the compensatory mitigation sites will gain at least 349 functional units (692.55 subtracted by 343.35). The ratio of net gain in functional units (>349) to the loss in functional units from the proposed construction (330.75) is well over 1:1.

Q. How does the wetland mitigation proposal compare to the Department of Ecology's recommended mitigation ratios?

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A. Ecology has issued several guidance documents regarding the regulation of wetlands. In those documents, Ecology emphasizes that "the goal is always to replace the lost functions at a 1:1 ratio." Ecology, *How Ecology Regulates Wetlands* p.15 (April 1998). Ecology has explained, however, that since mitigation projects do not always succeed in fully replacing the functional value of impacted wetlands, "it is almost always necessary to increase the replacement acreage in order to accomplish this." *Id.*

As a general matter, SE2 is proposing a greater than 2-to-1 mitigation ratio, with a total impact area of 9.45 acres and a total mitigation area of 21.56 acres. Ecology generally recommends mitigation ratios that range from 1.25-to-1 to 12-to-1 depending upon the class of wetland being impacted and the type of mitigation being implemented. The application of Ecology's mitigation ratios guidance, however, is fairly complicated, and applies different ratios to different classes of wetlands and different types of mitigation.

The wetlands being impacted by the SE2 project are Category III wetlands, and Ecology guidelines generally suggest that Category III emergent wetlands have compensatory mitigation ratios of 4:1 for wetland enhancement and 2:1 for wetland creation. Ecology emphasizes, however, that these ratios are merely "general guidelines" and can be adjusted up or down. *How Ecology Regulates Wetlands*, p. 16. In fact, during the first round of these hearings, Eric Stockdale from the Department of Ecology warned about becoming a "ratio zombie."

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Given the particular wetland impacts at issue in this case, and the specific mitigation plan being proposed, we believe that a downward adjustment in the enhancement ratio to 2.5:1 and the creation ratio to 1.25:1 is justified. Using the 2.5:1 ratio, the enhancement of 17.83 acres of wetland will satisfactorily compensate for 7.13 acres of wetland impact. Using the 1.25:1 ratio, the creation of 3.73 acres of wetland will satisfactorily compensate for 2.98 acres of wetland impact. Thus, the proposed compensatory mitigation will compensate for a total of 10.11 acres of wetland impacts using the above ratios, which is greater than the proposed 9.45 acres of wetland impact.

Q. Please explain why you think the downward adjustment is appropriate.

A. There are several reasons: First, Ecology's general guidelines apply equally to all Category II and Category III wetlands, yet the wetlands at the SE2 site are lower in quality and have less functional value than most Category II and Category III wetlands. The plant will cause the filling of 9.45 acres of what currently is a corn field. This farmed wetland and much of the wetland in the west mitigation area have already been greatly disturbed by historical and current agricultural practices. These low-quality wetland areas are currently rated as Category III wetlands and are providing only minimal performance of wetland functions. The loss of such wetlands will constitute only minimal environmental impact.

Second, at this site, Ecology's general ratios are not necessary to fully replace the functions lost as a result of SE2's project. Ecology's goal is 1-to-1 replacement of lost functions. As explained above, the proposed compensatory mitigation will

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significantly improve overall wetland functional performance on site by improving sediment and nutrient removal, decreasing downstream erosion, improving groundwater recharge, improving wildlife habitat both in the enhanced and created wetland areas and in the PSS/PFO wetland, and improving productivity and release of downstream organic matter. The planned enhancements will convert a low quality Category III wetland into a Category II wetland within 20 years. Thus, even without a 4:1 ratio of enhancement, wetland functions will be more than fully replaced.

Third, in this case, the proposed compensatory mitigation aims to greatly improve the quality of a moderate expanse of wetlands rather than only moderately improve the quality of a large expanse of wetlands. The significant degree of enhancement is not taken into account in the pure calculation of acreage ratios.

Fourth, the likelihood of success in implementing the wetland mitigation plan justifies a downward adjustment in ratios. Ecology's basis for greater than 1:1 ratios is in large part its prior experience with mitigation proposals that do not succeed as planned. Ecology has acknowledged, however, that lower ratios are appropriate based on a demonstration of likely success. *How Ecology Regulates Wetlands* p. 16. In this case, URS has extensive experience in successful wetland enhancement and creation, and has recently designed and implemented enhancement of a similar wetland mitigation project in western Whatcom County that is well on the way to success. Moreover, SE2's proposal includes a commitment for on-going monitoring and achievement of performance standards. EFSEC's continuing oversight on this project ensures that any necessary actions will be taken so that the mitigation will succeed.

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Fifth, SE2 has also proposed to establish forested buffer areas, which are valuable but not counted in a strict calculation of ratios. Establishing 3.78 acres of forested buffer in uplands near the south edges of the mitigation sites will further enhance functional performance for the mitigation wetlands. The portion of the buffer south of Haul Road will mainly provide wildlife habitat for wetland-dependent organisms, thereby increasing the ecological connectivity between the two mitigation sites. Haul Road is not expected to receive much traffic. The portion of the buffer north of Haul Road should provide all functions typical of buffers including erosion control, filtration of sediments, nutrients, and toxins, reduction of intrusion and other disturbances, and provision of wildlife habitat.

Sixth, SE2 has also proposed to create a stormwater detention system with significant wetland characteristics that will serve wetland functions but it is not counted in the calculation of ratios. Even though we have not included the stormwater detention ponds within the wetland compensatory mitigation plan, the stormwater detention ponds will support native wetland vegetation. Thus, in addition to detaining runoff and improving water quality, the stormwater ponds will provide some habitat functions and hence some ecological connectivity between the west and east mitigation sites.

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Q. How does this mitigation plan compare to other mitigation plans you've seen accepted by the Department of Ecology?

A. This mitigation plan offers at least as much compensation as other recent examples. Also, the relative ratios are similar.

END OF TESTIMONY

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