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BEFORE THE STATE OF WASHINGTON  
ENERGY FACILITY SITE EVALUATION COUNCIL

In the Matter of Application No. 99-1:

SUMAS ENERGY 2 GENERATION  
FACILITY

**EXHIBIT \_\_\_\_ (DS-RT)**

**APPLICANT'S PRE-FILED REBUTTAL TESTIMONY**

**WITNESS: DOUGLAS SOVERN**

**Q. Would you please reintroduce yourself to the Council.**

A. My name is Douglas Sovern. I am a civil engineer and am employed by URS Corporation as a civil engineer specializing in hydraulics, including drainage and flood control, stream rehabilitation, stormwater/wastewater treatment, and subsurface drainage.

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

A. I will be responding to the written testimony of Yaroslav Shumuk filed on October 1, 2001 on behalf of the Province of British Columbia.

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**Q. Mr. Shumuk discusses in some detail how overflows from large floods in the Nooksack River basin can flow into the Sumas River/Johnson Creek basin and states that “the Second Revised Application does not appear to recognize the phenomenon.” Shumuk PFT, p. 4:16-5:13. What is your response to this statement?**

A. Mr. Shumuk also acknowledges that this phenomenon has been taken into account in the flood modeling. Shumuk PFT, p. 5:13-14. In fact, all involved in this project are well aware of the reality of overflows from the Nooksack River during large floods and have taken this issue into account. To the extent his discussion suggests otherwise, therefore, it is simply incorrect.

**Q. Do you agree with Mr. Shumuk that the Council should be concerned about the possibility of an increase in flood levels in British Columbia as a result of the fill at the SE2 site?**

A. No. First, I noticed that Mr. Shumuk himself recognizes that “[b]ecause the area of flooding is large, th[e] increase in flood volume would be spread over a wide area and the incremental increase in peak flood heights would be small.” Likewise, in the Draft Supplemental Environmental Impact Statement (February 7, 2001) (“D-SEIS”), the Council’s independent consultant, Jones & Stokes, references a study that was done of a somewhat smaller site immediately north of the SE2 site. That study concluded that filling to bring the property above the 100-year floodplain would only result in a 2-inch rise in the immediate vicinity. D-SEIS, p. 3.6-1.

1 Of course, all the professionals engaged in this work agree that as a general matter,  
2 loss of overbank storage from filling in the floodplain results in some increase in  
3 downstream flow rates. The question here is whether the impacts of a particular site  
4 are measurable. In the case of the SE2, the downstream impacts on flow rates are  
5 almost certainly not measurable. As demonstrated by the study mentioned above  
6 showing that filling at a site similar to SE2 would cause only a 2-inch rise in flood  
7 levels near the site, any increase in flood levels will be minimal and local. Moreover,  
8 these local influences, including any influence from the SE2 site, are propagated  
9 upstream and are quickly dampened and then eliminated. Consequently, there is no  
10 reason to anticipate *any* measurable increase in flood levels downstream, *i.e.*, in  
11 British Columbia. In addition, to the extent any issues in this regard were to arise,  
12 they would be dealt with by the modeling program already contemplated. It is thus  
13 misleading to suggest that there could be increases in flood levels in British Columbia  
14 from the SE2 site that might be a cause for concern.  
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31 **Q. Mr. Shumuk further states that the Council should consider the possibility of**  
32 **“cumulative effects” if at some point in the future, other sites —presumably in**  
33 **either Canada or the United States — are filled. Do you agree?**  
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37 **A.** No. Under current land use regulations, filling of the area outside of the floodway of  
38 the regulatory floodplain is permitted so long as the total rise of flood elevation for  
39 the regulatory flood (100-year in the United States) is no greater than one foot. If  
40 SE2’s proposal is not approved, then the site may well be developed for a use that is  
41 not subject to the review of a body such as EFSEC. In such case, filling of the  
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1 floodplain would be permitted to the limits allowed by the currently-in-effect land use  
2 regulations, namely, a one-foot rise in the level of the 100-year flood.  
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6 **Q. Another issue that Mr. Shumuk describes as a “small but definite possibility” is**  
7 **the rerouting of flood waters into British Columbia as a result of filling the SE2**  
8 **site. Do you agree that this is a cause for concern?**  
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12 **A.** No. Under many circumstances, this point could be a concern. It is important to  
13 recognize the potential redistribution of flows that could cause harm to downstream  
14 properties. In the case of the SE2 site, flow through the floodplain has very low  
15 velocities, and a railroad embankment that lies downstream of the SE2 site and that  
16 controls the flow distribution to areas below the site controls the flow distribution  
17 across the floodplain. The modeling currently underway will be capable of  
18 identifying any significant shifts of flow distribution, but the probability of significant  
19 shifts can generally be derived by basic characterization of the flow controls across  
20 the site. The railroad embankment is one of those controls. Extensive modeling,  
21 beyond the work currently underway is not necessary.  
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35 **Q. Do you agree with Mr. Shumuk’s suggestion that a 200-year return period**  
36 **should be used to evaluate the possible impacts on flooding from filling the SE2**  
37 **site?**  
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41 **A.** The 200-year return period is not significantly greater than the 100-year event. The  
42 difference between these two events is not statistically or hydraulically significant.  
43 We concur that it is important to look at larger events, whether through use of a less  
44 frequent return period such as the 200 or 500-year event, or by considering an event  
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1 equal to 2 or 3 times the 100-year event. In most cases, the relative difference  
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3 between pre-development and and post-development flow rates and volumes for  
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5 larger events is much smaller for large storm/runoff events compared to smaller  
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7 events. In many cases, the difference between pre and post conditions for large  
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9 storms does not produce hydrologic results that are statistically different. For the SE2  
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11 site, an examination of one significantly larger flood will provide the insight needed  
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13 to address any unusual condition created from development of the SE2 site.  
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17 **Q. Mr. Shumuk says that contrary to your testimony that mitigation can be easily**  
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19 **accomplished, mitigation would be difficult due to the cost of acquiring land and**  
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21 **problems locating an appropriate mitigation site. What is your reaction to this**  
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23 **suggestion?**

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25 A. Relative to the scale of this project, the cost of land acquisition to mitigate flooding  
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27 cannot be a major factor. Mr. Shumuk acknowledges that the possibility of  
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29 significant impacts to area hydraulics as a result of this site is small at best. *See, e.g.,*  
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31 Shumuk PFT, p. 6:19 (describing flood water rerouting as “a small but definite  
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33 possibility”). Relative to the expected impacts, the scale of the needed projects is  
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35 very unlikely to require significant land form modifications to mitigate hydraulic  
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37 effects of this project.  
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41 **END OF TESTIMONY**  
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