## Water Resources Consulting L.L.C.
Peter Willing, Ph.D.

September 26, 2000

Mr. Ray Hellwig, Regional Director                    TRANSMITTED BY FAX
Northwest Regional Office
Washington State Department of Ecology
3190 160th Ave. S.E.
Bellevue, Washington 98008-5452

RE: Further Supplemental Information, Des Moines Creek Flow Augmentation Facility

Dear Mr. Hellwig,

This letter comments on the latest addition to the accumulating documents relating to flow augmentation in Des Moines Creek. Please recollect that the flow augmentation plan for Des Moines Creek now consists of the following documents:

- Implementation Plan for the Des Moines Creek Flow Augmentation Facility, July 25, 2000. The "preferred option" in this version of the plan was to use water from a port-owned well.

- Revised Implementation Plan for the Des Moines Creek Flow Augmentation Facility, August 18, 2000. This version of the plan maintained the preference for the well source, but also discussed Seattle water.

- Flow Augmentation Update, email from Keith Smith to Tom Luster, September 6, 2000. This revision stated that "the primary source is water from Seattle Public Utilities."

- Des Moines Creek Flow Augmentation Preliminary Design," written by Kennedy/Jenks Consultants for the Port of Seattle, dated September 2000. This version says that water from SPU is "currently the preferred source" of flow augmentation water.

The series is evidently not complete yet, as the last one makes repeated reference to "the next submittal" and the "final submittal to Ecology." We have no idea when we shall see these future installments. The existing documents are all incomplete, inconsistent, and give a sense of haphazard planning to the Port of Seattle's approach to this important problem. I have commented on the first three submittals in letters of September 5th and September 15th, to Tom Luster of your department. Most of the defects I have previously identified still remain in the latest version. The most important ones are the following:

- The most serious drawback to all of the Port's submittals is that the Port of Seattle has secured no source of water for flow augmentation.

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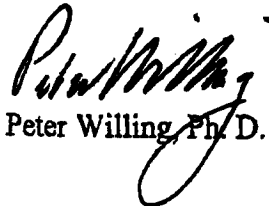Mr. Ray Hellwig                          2                    September 26, 2000

- The most recent submittal shows no apparent awareness that SPU water from the existing water main at the south end of runway 34R will not be of a suitable temperature for flow mitigation purposes during the season when it will be most needed.

- The Kennedy/Jenks submittal makes no mention of fluoride removal or of fluoride as a water quality concern in a natural stream. Fluoride toxicity to fish and other biota was amply discussed in a letter to Tom Luster from Dr. John Strand of August 21, 2000.

- The proposal suffers from being highly maintenance intensive and failure prone. By its own admission, solid sodium sulfate is hygroscopic, which makes it ill suited to discontinuous operation. The programmable control setup is prone to bad readings from the downstream weir, which is naturally subject to fouling by falling leaves and other floating debris.

- While showing chemical reactions for several common chlorine removal techniques, no chemical reaction is shown for the preferred compound. Thus the residual chemicals are not identified, nor are their effects assessed. It would be useful to know, for instance, what effect the preferred chemical would have on pH.

- The consultant claims experience in treating large flows, and in removing chloramines; but does not claim experience or satisfactory results with small flows and chlorine, which are the challenge in this application.

- The latest revision of the plan is a narrow and over-particularized engineering design for a water source that has not been secured.

Please consider these comments in your deliberations as to whether the Port's plans for augmenting Des Moines Creek contribute to a reasonable assurance that water quality standards will be met. I submit to you that a "preliminary design" with no secure water source will not meet that test.

Sincerely,

Peter Willing, Ph. D.