

Water Resources Consulting L.L.C.

Peter Willing, Ph.D.

July 6, 2001

U.S. Army Corps of Engineers
Regulatory Branch
P.O. Box 3755
Seattle, Washington 98124-2255
ATTENTION: Muffy Walker, Gail Terzi

Washington State Department of Ecology
3190 160th Ave. S.E.
Bellevue, Washington 98008-5452
ATTENTION: Ann Kenny

RE: Department of the Army Section 404 Permit Application, SeaTac Airport
Reference: 1996-4-02325

Dear Ms. Walker, Terzi, and Kenny:

The Port of Seattle has submitted to Ecology a document entitled "Low Flow Analysis - Flow Impact Offset Facility Proposal," written by Parametrix, dated July 2001. This letter comments on behalf of the Airport Communities Coalition on that document, within the constraints of a very short review period. Please also refer to letters from Water Resources Consulting dated September 19, 2000; February 15, 2001; March 12, 2001; and July 18, 2001.

Although the new low flow study is more substantial in terms of sheer weight than the December 2000 Low Streamflow Analysis, it is not more substantial in terms of reasonable assurance that the Port's SeaTac plans will meet water quality standards in the three main creeks. The Department of Ecology and the Corps of Engineers have been asked to accept a monstrous 15 pounds of unnecessary paper print-out of hourly stream flow calibration data in lieu of a mature and well considered proposal.

The text of the document is not finished. Missing information is shown by "wild card" dummy figure numbers referring to figures that do not exist, essential appendices are missing, cross references are not functional, sections end with the announcement "section not complete." The Port's acknowledged confusion necessitated a clarification letter dated July 25, 2001. The whole effort has the appearance of a desperate effort to submit something, regardless of quality. This characteristic makes it consistent with previous submittals from the Port. Please remember that this is the Port's third augmentation water source, and its third application for 401 certification, since 1998.

The cover letter says that "the vaults will include features (both structural and operational) for managing water quality to ensure there are no adverse impacts from discharges from the flow impact offset facility." No structural features are shown on any drawings; so far they warrant only a conceptual description. The section on operation says "The Final Plan will include the details and specificity that is not available at the present time" (p. 25). The "proposed general operating

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schedule" (p. 27) says that "if potential water quality violations are indicated," the Port will "install/maintain filters for sediments/turbidity/metals" and "install portable aerators for DO." These steps cannot be done at the last minute, as an afterthought, with any expectation that they will work. They have to be designed, built, tested, and refined before the need for them arises. A loose plan to install something after the need becomes apparent, falls short of reasonable assurance.

Reference (p. 14, 15) is made to work in progress, and data that has not been submitted. The Port is currently investigating filtration of stormwater, including the effectiveness of several filtration media; the data will be available before final design but are not available now. The Port also recently started recording temperature in several stormwater vaults, but does not care to share the data so the public can evaluate it.

The new low flow analysis says that there is a requirement for a total of 46 acre feet of storage in the three watersheds, consisting of 18.8 acre feet in the Miller Creek watershed, 15 acre feet in Walker Creek, and 12.2 acre feet in Des Moines Creek. The plan offers no allocation of these volumes to specific stormwater vaults. It has no drawings showing where these volumes will be stored. The December 2000 Stormwater Management Plan and its subsequent modifications show specific capacities for 8.7 acre feet in Miller Creek and 1.8 acre feet in Des Moines Creek, which is less than a quarter of what is needed. The location of the remaining three quarters is left up to the reader's imagination. Obviously temporary language on page 19 suggests that the carry-over storage vaults have not been selected. Ecology is being asked to accept an incomplete concept, rather than a mature design, as a basis for issuance of a 401 certification for the airport.

The Port has argued energetically in the past for consideration of non-hydrologic impacts (p.4). Repeated refinements of the analysis have resulted in a decrease in the amount of water the Port wishes to take credit for from the cessation of pre-buy-out withdrawals. Now the effect of stopping these withdrawals appears to be slightly outweighed by the negative low flow effects of Port construction. The Port now proposes to remove from consideration all non-hydrologic effects (facilitated meeting notes, July 9, 2001). When the net effect looked positive, the Port was keen to include it; now that it looks negative, the Port wants to set it at zero. It is possible that further analysis will result in more negative effects from airport construction on low stream flows. The Port is not able to provide reasonable assurance that it will protect low flows.

Our previous letters have commented extensively on the adequacy of proposed best management practices, observing in particular that grassed swales are unproven and reliance on them unwarranted for the intended pollutant stream. The Port has now referred to structural features that include (p. 6) sediment traps, settling areas, vents, and passive aeration. "Provisions" for additional filtration and aeration have supposedly been made, but they are not available for agency or public review as a basis for a permit decision. The Port is evaluating various active aeration techniques, but they are still presented in a tentative mode, which might be paraphrased thus: "they won't be necessary, but if they are, we will explore them further." P. 19 extolls the virtues of microbubble diffusers, but the Port has offered no performance data on them or explained how they would work on the specific flow volumes and quality they are proposing to treat. The plan sheets available for review show only 25% of the storage volume they profess to require, and none of the purported design details that might influence the quality of the discharge. As far as the reviewer is concerned, it is all imaginary. Instead of reasonable assurance, the Port offers unquantifiable unenforceable promises.

Page 20 says "the operation of BMP's on the airfield (biofiltration swales) would reduce the opportunity and concentrations of any nutrients that exist prior to the stormwater entering the vaults." We have pointed out before, as has King County DNR, that the BMP's the port is talking about are not very good at removing nutrients: over a large number of monitoring studies, the best performance for removal of nitrogen and phosphorus is 45%, and the worst is 15% (EPA 1999, p. 5-82; Claytor, 1996 p. 3-5). (Note: excerpts from these authorities were sent to you with my supplemental letter to Ann Kenny, dated July 18, 2001). In spite of the documentation of inadequate performance, and demonstrably erroneous assumptions, the Port proposes to assume the stormwater flows will be devoid of nutrients and does not propose to sample for them. How they will implement a treatment scheme when they will not even know what they are treating for remains a mystery. Claytor et al. do not reach the same conclusions the Port reaches from its data that show metals "associated with particulates." To the contrary, they find that large portions of metals, particularly copper, zinc, and cadmium tend to favor the dissolved state, especially in low turbidity waters (Claytor, 1996 p. 4-20; Minton, 2001) These findings also show that remobilization of metals is a significant process.

Several references to an "adaptive management strategy" are made in the low flow documents (One example is on p. 8 of the "executive summary.") While it may be wise for the Port to anticipate that unforeseen problems will force new solutions, the Department of Ecology should not rely on future "adaptive management," or attempts to figure it out later, as a present substitute for reasonable assurance that the Port's water quality protection scheme will actually work.

Page 17 has an elaborate argument as to why elevated biological oxygen demand due to runway de-icing episodes should not affect the dissolved oxygen levels in stored stormwater. While comforting if taken at face value, it has no substance and misrepresents what is taking place at the airport. We have already observed that the Port does not know which facilities or outfalls will host $\frac{3}{4}$ of the stored stormwater. In addition, the Port's Discharge Monitoring Report for the first quarter of 2001 shows propylene glycol at SDS3 (Des Moines Creek) of 407 milligrams per liter. This was presumably related to de-icing conditions on February 8 and 16, when 15,000 and 19,000 gallons of glycols respectively were used for aircraft de-icing. One of the reasons the Port hopes for no effect is that de-icing "typically happens during the early winter months when reserved stormwater releases from the [vaults] would not take place." This statement indicates that the Port has not thought out what it is doing. Elsewhere in the report, they say they will continue releasing stored stormwater until it is all gone even if that is past October 15. There are only three months a year in which daily use of glycols does not exceed 100 gallons per day (Aircraft Deicing Report April 2000 through March 2001).

The Port of Seattle's regular submission of quantities of new materials in support of its Section 401/404 application, including the most recent low flow study, has not raised the quality of the application to the point of providing reasonable assurance that the Port's projects will meet water quality standards.

Thank you for taking into account the enclosed views.

Sincerely,


Peter Willing, Ph. D.

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REFERENCES

Claytor, R.A and T.R. Schueler, 1996. Design of Stormwater Filtering Systems. Center for Watershed Protection, Silver Spring, MD. Supplemental funding by USEPA Region 5.

EPA, 1999. Preliminary Data Summary of Urban Stormwater Best Management Practices. EPA-821-R-99-012.

Minton, G. 2001. Stormwater Treatment: Chemical, Biological and Engineering Principles. Professional Engineering Practice Liaison Program, University of Washington. February 8 and 9, 2001.