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POLLUTION CONTROL HEARINGS BOARD
FOR THE STATE OF WASHINGTON

AIRPORT COMMUNITIES)
COALITION,)
Appellant,)
v.)
STATE OF WASHINGTON,)
DEPARTMENT OF ECOLOGY; and)
THE PORT OF SEATTLE,)
Respondents.)

No. 01-133

DECLARATION OF DR. PETER
WILLING IN SUPPORT OF ACC'S
MOTION FOR STAY

(Section 401 Certification No.
1996-4-02325 and CZMA
concurrency statement, issued August
10, 2001)

Dr. Peter Willing declares as follows:

1. I am over the age of 18, am competent to testify, and have personal
knowledge of the facts stated herein.

2. My education and experience consists of a Master of Science degree and
a Doctor of Philosophy degree, both from the Department of Natural Resources at
Cornell University, Ithaca, New York. My graduate work concentrated on the
relationships between land use and water quality of lakes and streams. I have taken
specialized training courses in Applied Fluvial Geomorphology at the Wildland
Hydrology Center, Pagosa Springs, Colorado, and on "Stormwater Treatment:

Exhibit	354
Date	2/15/02
Witness	Willing
Diana Mills, Court Reporter	

HELSELL FETTERMAN LLP
1500 Puget Sound Plaza
1325 Fourth Avenue
Seattle, WA 98101-2509

Rachael Paschal Osborn
Attorney at Law
2421 West Mission Avenue
Spokane, WA 99201

DECLARATION OF DR. PETER WILLING IN
SUPPORT OF ACC'S MOTION FOR STAY-1

1 Biological, Chemical, and Engineering Principles" through the Professional
2 Engineering Practice Program, University of Washington.

3 3. I am a Principal in the Bellingham firm of Water Resources Consulting,
4 L.L.C., which I founded in 1989. The firm specializes in hydrology of surface and
5 ground waters, water quality, monitoring network design, stormwater management
6 strategy, and hydrologic basis of water rights. I have served in public sector positions
7 including general manager of a mid-sized public water system and environmental
8 manager for a municipal electric utility. I hold Adjunct Faculty appointments in
9 Geology and in Huxley College at Western Washington University, Bellingham.

10 4. I am a member of the American Water Resources Association and the
11 American Geophysical Union.

12 5. I have analyzed, reviewed, and commented on Port of Seattle proposals
13 for Sea-Tac airport on numerous occasions since November 1999. These undertakings
14 have all been on behalf of the Airport Communities Coalition. I have commented by
15 letter on the implementation plan for the Des Moines Creek Flow Augmentation
16 Facility (September 5, 2000 and September 26, 2000); the Sea-Tac Stormwater Master
17 Plan (September 19, 2000); the Section 404 permit application (February 16, 2001);
18 the NPDES permit major modification (March 12, 2001); supplemental information on
19 the Section 404 permit application (Best Management Practices) (July 18, 2001); and
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DECLARATION OF DR. PETER WILLING IN
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HELSELL FETTERMAN LLP
1500 Puget Sound Plaza
1325 Fourth Avenue
Seattle, WA 98101-2509

Rachael Paschal Osborn
Attorney at Law
2421 West Mission Avenue
Spokane, WA 99201

1 low flow analysis regarding the Section 404 permit application (August 6, 2001).

2 Copies of these letters are attached.

3 6. I have reviewed the Department of Ecology's Water Quality Certification
4 No. 1996-4-02325 for construction of a third runway at Sea-Tac Airport, issued on
5 August 10, 2001. This certification contains numerous expectations of future
6 performance, reliance on undefined not-yet-developed "contingencies," and general
7 expectations that fall short of reasonable assurance that the construction will protect
8 water quality standards. I will illustrate these deficiencies by reference to two specific
9 problems. The first is the Port of Seattle's flawed analysis of low streamflows and its
10 changing plans to augment these flows from different water sources. The second
11 problem relates to water quality aspects of the Port's proposed stormwater
12 management plans, which fail to offer assurance that the third runway project will not
13 perpetuate the Port's consistent pattern of water quality violations. As discussed
14 below, none of these plans offer a competent basis for certification that water quality
15 standards will not be violated. The latest plan, relied upon in Ecology's 401 decision,
16 is a last-minute stop-gap rather than a serious and technically sound plan for
17 mitigating flow impacts caused by the Port's projects on Class AA streams.
18
19
20

21 7. My declaration relies in many places on previous analyses that I have
22 made. Rather than repeat these analyses in their entirety, I have summarized them for
23
24
25

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HELSELL FETTERMAN LLP
1500 Puget Sound Plaza
1325 Fourth Avenue
Seattle, WA 98101-2509

Rachael Paschal Osborn
Attorney at Law
2421 West Mission Avenue
Spokane, WA 99201

AR 021224

1 clarity and convenience. A compilation of the original letters and statements is
2 attached, and should be consulted for detail and references to literature.

3 Low Flow Augmentation

4 8. The history of the Port of Seattle's inability to propose a reliable and
5 convincing water source for flow augmentation in Des Moines Creek was one of four
6 reasons why the Port was forced to withdraw its application for a 401 permit in 1998.
7 Since then the Port's iterative analyses of the low flow behavior of the streams has led
8 to expansion of the flow augmentation scheme to include the Miller and Walker Creek
9 basins as well as Des Moines Creek. The following is a brief chronology of the Port's
10 flow augmentation proposals:
11

- 12 • In July 2000, the Port's "preferred option" for augmentation was to use water
13 from a Port-owned well. In August the Port maintained the preference for the
14 well source, but also discussed Seattle Public Utilities water as an alternative.
15 By September 2000, the Port had decided that "the primary source is water
16 from Seattle Public Utilities."
- 17 • By December 2000 the Port's plan had reverted to the existing Port-owned well
18 on the Tye Golf Course as the source of augmentation water. However, in
19 different documents at that same time, the Port also proposed to construct
20 additional storage facilities that would hold stormwater for augmenting dry
21 season low stream flows. In January 2001 the port was still "investigating other"
22 sources of water in the [Des Moines Creek] basin."
- 23 • Sometime after January 2001, the stormwater storage concept gained currency
24 as the favored mode of flow augmentation. However, it required substantial
25 retrofitting and revision of the December 2000 Stormwater Management Plan
because the announced volumes of required stormwater storage did not agree
with the volumes shown on the plans for individual detention facilities.
Revisions continued with the July 2001 "Low Flow Analysis/flow Impact Offset

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HELSELL FETTERMAN LLP
1500 Puget Sound Plaza
1325 Fourth Avenue
Seattle, WA 98101-2509

Rachael Paschal Osborn
Attorney at Law
2421 West Mission Avenue
Spokane, WA 99201

1 Facility Proposal," the most current rendition of the concept available prior to
2 Ecology's issuance of its 401 decision in August 2001.

3 9. The two major flow augmentation schemes attempted and then rejected
4 by the Port had serious defects that ultimately disqualified them as a water source for
5 mitigation of low flows in Sea-Tac area streams. The third plan suffers its own set of
6 defects, as described below.

7
8 10. The Port's first proposal involved acquisition of an existing well on the
9 Tyee Golf Course. However, this well was not used at all for a period of years, and
10 then was used without benefit of a water right for many more years. It is highly
11 unlikely there is a valid water right for the well. Moreover, the well was not legally
12 constructed under state law, exploiting three different aquifers in a common casing in
13 contravention of state rules for protection of upper aquifer zones.

14
15 11. The Port next approached Seattle Public Utilities about providing
16 augmentation water, however, it was determined that the import of water from the
17 Cedar River presented both chemical and physical disqualifications. The temperature
18 of Cedar River water is as high as 20 degrees C for much of the time when
19 supplemental water is most needed, and 16 degrees C maximum is the water quality
20 standard for Class AA streams. The scheme to use this water relied on technological
21 inputs whose continuity could not be assured, and the water would also have had to
22 be purged of drinking water conditioning chemicals such as chlorine and fluoride.
23

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HELSELL FETTERMAN LLP
1500 Puget Sound Plaza
1325 Fourth Avenue
Seattle, WA 98101-2509

Rachael Paschal Osborn
Attorney at Law
2421 West Mission Avenue
Spokane, WA 99201

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1 12. The present plan, carry-over storage of stormwater, was first suggested
2 by the Port in its Low Streamflow Analysis (first version, December 2000). The Port
3 settled on this plan to the apparent exclusion of the earlier ones in July, 2001. My
4 comments on this plan were communicated to the Department of Ecology by letter of
5 August 6, 2001 (attached). My conclusions were that the July 2001 "Low Flow
6 Analysis/Flow Impact Offset Facility Proposal" was manifestly an incomplete effort,
7 showing gaps in the text and missing essential figures and appendices. These defects
8 and the resulting confusion were acknowledged by the Port in a clarification letter
9 dated two days after its July report was released. Eglick Decl. at ¶ P. In sum, the
10 proposal has the appearance of a stop-gap, even though stored stormwater is the third
11 augmentation water source the Port has pursued since 1998.
12

13
14 13. The use of stormwater for streamflow augmentation clearly raises
15 concerns about water quality. Nonetheless, the 401 Certification relies on promises
16 that water quality problems will be resolved in the future, rather than on substantial
17 plans to address the issue. The July 2001 low flow proposal makes general promises
18 that, "if potential water quality violations are indicated," the Port will _____
19 "install/maintain filters for sediments/turbidity/metals" and "install portable aerators
20 for DO." However, these types of measures cannot be taken at the last minute, as an
21 afterthought, with any expectation that they will work. They must to be designed,
22 built, tested, and refined before the need for them arises. The Port's plan to install
23

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25
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HELSELL FETTERMAN LLP
1500 Puget Sound Plaza
1325 Fourth Avenue
Seattle, WA 98101-2509

Rachael Paschal Osborn
Attorney at Law
2421 West Mission Avenue
Spokane, WA 99201

AR 021227

1 something after the need becomes apparent, with no specific prior attention to what
2 will be required and whether or how it will work, is likely to lead to stream
3 degradation and falls short of the reasonable assurance required under the Clean
4 Water Act.

5
6 14. This shortcoming is significant because of serious questions about the
7 suitability of the stored stormwater proposed by the Port of Seattle as a flow
8 augmentation source for the creeks around Sea-Tac airport. The Port's plan for this
9 scheme indicates dead storage discharge lines in the bottom of the vault. If built as
10 shown, the first discharge to the receiving Class AA streams, which would already be
11 under stressed low flow conditions, would be an anoxic slug of sediment laden water
12 carrying a six-month accumulation of pollutant load. The Port claims that pollutant
13 species will be bound by adsorption to soil particles and rendered biologically
14 inactive. To the contrary, under anaerobic conditions, which the Port concedes will
15 occur, many bound inorganic compounds will go back into solution and become
16 biologically available upon release of water to the streams. Other than sporadic
17 references to re-aeration of the stormwater, the Port has not proposed any treatment to
18 bring stormwater up to a standard appropriate for release to Class AA receiving
19 waters.
20
21

22 15. Ecology's 401 decision acknowledges the contingencies in the Port's
23 proposal and accepts them in lieu of specific plans demonstrating how the Port will
24

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HELSELL FETTERMAN LLP
1500 Puget Sound Plaza
1325 Fourth Avenue
Seattle, WA 98101-2509

Rachael Paschal Osborn
Attorney at Law
2421 West Mission Avenue
Spokane, WA 99201

AR 021228

1 come up with water of adequate quantity and quality to assure local streams are
2 protected. The 401 Certification simply tells the Port to come up with plans in the
3 future to cover problems and obvious gaps in the existing plan:

- 4 a. to offset a less than anticipated recharge rate into the fill
5 (Certification condition I.a.vii)
- 6 b. to address wetland impacts that manifest themselves after
7 monitoring (Certification condition I.a.x)
- 8 c. to address the necessity of treating stormwater to bring it to a
9 standard acceptable for release to streams (Certification condition
10 I.e.v)
- 11 d. to cover the potential shortfall of water in June and July
12 (Certification condition I.e.vi). The July 2001 Low Flow Analysis
13 defined the flow enhancement schedule as starting in late July for
14 only one creek, and the others were in August

15 16. This collection of undeveloped contingency plans does not add up to
16 reasonable assurance that the Port's activities will not violate water quality standards.
17 Two of these contingency situations (a and d, above) will require the Port to obtain
18 more water for augmenting stream flow. Simply finding a source of water is a
19 problem that has confounded the Port's past attempts to obtain a 401 certification for
20 the Third Runway. The contingency conditions of this permit contain no more
21 certainty than has been present in the vague and constantly changing plans of
22 previous attempts.

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HELSELL FETTERMAN LLP
1500 Puget Sound Plaza
1325 Fourth Avenue
Seattle, WA 98101-2509

Rachael Paschal Osborn
Attorney at Law
2421 West Mission Avenue
Spokane, WA 99201

AR 021229

1 17. King County Department of Natural Resources also identified numerous
2 deficiencies in the Port's latest low flow augmentation scheme (letter of August 3,
3 2001 from Pam Bissonnette to Ann Kenny). These deficiencies include:

- 4 • no detailed design for constant discharge from stormwater vaults under varying
- 5 head conditions
- 6 • need for mechanical aeration of stormwater while it is in storage in various
- 7 vaults
- 8 • no provision for low flow events in July
- 9 • resorting to impervious surface to increase yield of surface runoff in order to
- 10 maximize yield for flow augmentation, instead of allowing natural percolation,
- 11 groundwater recharge, and discharge to streams
- 12 • need for water quality treatment at vaults
- 13 • difficulty of delivering water from the vaults to the intended receiving streams
- 14 • problems of maintenance, operation, monitoring, and design
- 15 • lack of complete conceptual drawings

16 18. The low flow mitigation plan is based on a low flow technical analysis
17 that omits important hydrologic factors in its assessment of the impacts of the Third
18 Runway. For example, hydrologic effects of reconstructing the third wastewater
19 lagoon are omitted from calculations of groundwater base flow and consequent dry
20 season streamflow. Ecology's 401 certification simply ignores this omission.

21 19. The 401 decision similarly disregards significant uncertainty in the
22 Port's low flow modeling exercises. If there is a large chance of being wrong in the
23 estimates of very small stream flows and augmentation requirements, then there is a
24 high likelihood of degrading beneficial uses of the streams. And in fact, there is a
25 large chance of being wrong. The Port's own data show that the error between

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HELSELL FETTERMAN LLP
1500 Puget Sound Plaza
1325 Fourth Avenue
Seattle, WA 98101-2509

Rachael Paschal Osborn
Attorney at Law
2421 West Mission Avenue
Spokane, WA 99201

1 modeled and observed flows, or calibration error, is 100% for certain low flow
2 periods.

3 20. In sum, the Port's low flow augmentation plan is based on flawed
4 technical analysis and contingencies that do not befit a critical mitigation element.
5 The augmentation plan is not likely to protect beneficial uses of Des Moines, Miller
6 and Walker Creeks and unacceptable water quality degradation will result.
7

8 Stormwater management at Sea-Tac Airport

9
10 21. The Port's stormwater discharges have a long history of violations of
11 water quality standards. Some of these show up in Discharge Monitoring Reports for
12 1998 and 1999. The Port's response to these violations has been to degrade the quality
13 of the data so it no longer shows violations. It has reduced the frequency of sampling,
14 eliminated upstream samples so upstream and downstream locations cannot be
15 compared, and used median hardness values so the metal concentrations cannot be
16 compared to water quality standards. These techniques have disguised the likelihood
17 that metals concentrations are in violation by factors of 7 to 9 times the chronic
18 toxicity standard. The effect of this distorted and selective use of the data is to make it
19 look as though the metals analyses comply with the water quality standards, when in
20 fact they do not.
21

22 22. As an example, the receiving waters of both Des Moines and Miller
23 Creeks are already degraded below Class AA levels for copper. Discharges exceeding
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25
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HELSELL FETTERMAN LLP
1500 Puget Sound Plaza
1325 Fourth Avenue
Seattle, WA 98101-2509

Rachael Paschal Osborn
Attorney at Law
2421 West Mission Avenue
Spokane, WA 99201

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1 the water quality criterion for copper at the end of the pipe are worsening the problem
2 for the receiving waters. WAC 173-201A-040 (1) says that "toxic substances shall not
3 be introduced above natural background levels in waters of the state which have the
4 potential either singularly or cumulatively to adversely affect characteristic water
5 uses, cause acute or chronic toxicity to the most sensitive biota dependent on those
6 waters, or adversely affect public health. . ." Based on this requirement, the Port is
7 violating water quality regulations and degrading water quality in Sea-Tac area
8 streams.
9

10 23. Ecology has recognized the already degraded condition of Sea-Tac area
11 streams: "From the available data, the ambient water quality generally does not meet
12 the Class AA water quality criteria given in Chapter 173-201A WAC for copper (Miller
13 Creek and Des Moines Creek), temperature and fecal coliform (Des Moines Creek). Des
14 Moines Creek is listed on the Department's 1996 303(d) list for fecal coliform. The
15 Department will use the Class AA water quality criteria for Des Moines Creek and
16 Miller Creek in the proposed [NPDES] permit." (Fact Sheet accompanying Port's
17 NPDES permit).
18

19 24. The Port's plans for managing the quality of stormwater at Sea-Tac Airport
20 are summarized in Chapter 7, volume 1, of the Stormwater Management Plan. The
21 plans describes a selection of appropriate Best Management Practices (BMPs) from the
22 catalog of measures recommended by King County in its Stormwater Design Manual.
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HELSELL FETTERMAN LLP
1500 Puget Sound Plaza
1325 Fourth Avenue
Seattle, WA 98101-2509

Rachael Paschal Osborn
Attorney at Law
2421 West Mission Avenue
Spokane, WA 99201

1 The manual's measures span a range from relatively simple devices designed to
2 remove sediment, to more sophisticated facilities designed to remove chemical and
3 biological constituents. The King County manual organizes the best management
4 practices into five different "menus." The first is the Basic Water Quality Menu, which
5 sets a treatment goal of removal of 80% of the suspended solids, or sediment, from the
6 waste stream. Two of the seven options from the basic menu, which figure most
7 heavily in the Port's planning for stormwater quality management, are filter strips and
8 biofiltration swales.
9

10 25. A filter strip is a gently sloping grassed area intended to treat
11 stormwater runoff from roads and other paving before it concentrates into discrete
12 channels. A biofiltration swale is a low grassed ditch cover that is designed to
13 increase friction on the flowing water, thereby reducing velocity and causing
14 suspended materials to drop out. The height and quality of the grass cover are critical
15 and require attentive maintenance. As discussed below, the Port's selection of these
16 treatment BMPs is inappropriate given the pollutants found in the airport's
17 stormwater waste stream.
18

19 26. The Port's stormwater treatment plans for metals may also be inferred
20 from the Section 401 requirement to conduct a Water Effects Ratio Study (WERS). As
21 set forth in WAC 173-201A-040(d), WERS are conducted in order to allow a pollutant
22 discharger to deviate from the regulatory water quality criteria. The Port claims to
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HELSELL FETTERMAN LLP
1500 Puget Sound Plaza
1325 Fourth Avenue
Seattle, WA 98101-2509

Rachael Paschal Osborn
Attorney at Law
2421 West Mission Avenue
Spokane, WA 99201

AR 021233

1 have previously conducted a WERS bench screening analysis, however, that analysis
2 has not been made available for review by Ecology or the public as required by water
3 quality regulations. Nonetheless, the Port has indicated that it intends to rely upon
4 the WERS analysis to obtain less stringent, site-specific standards for its discharge
5 points. This strategy seems a clear admission that the Third Runway Project will not
6 comply with existing water quality criteria.
7

8 27. The Section 401 Certification calls for retrofit of existing stormwater
9 facilities, but at the Port's option. The Port has already indicated that it plans to leave
10 80 acres of pollution-generating surface at the airport (i.e., without stormwater
11 treatment facilities of any kind) in their current condition for the indefinite future.
12 The draft Ecology Stormwater Manual requires application of stormwater
13 requirements to the "maximum extent practicable" for the entire site. The Port,
14 claiming compliance with the Ecology manual, has stated that, on the basis of cost,
15 retrofitting of these areas is "not currently practicable," and intercepting the waste
16 flow is not worth it. This conclusion is based on unverified Port claims of vault
17 construction cost.
18

19 28. The Port also intends to rely upon existing bioswales to control and treat
20 runoff caused by new Third Runway construction. I observed in an earlier comment
21 letter that the Port's stormwater management plan does not contain any inventory of
22 existing bioswales. The Port responded that "ground truthing and examination of
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HELSELL FETTERMAN LLP
1500 Puget Sound Plaza
1325 Fourth Avenue
Seattle, WA 98101-2509

Rachael Paschal Osborn
Attorney at Law
2421 West Mission Avenue
Spokane, WA 99201

1 plans" was carried out, but no unified catalog of facilities has ever been offered for
2 independent verification. Without appropriate detail, there is no basis for an outside
3 observer or regulator to conclude that existing bioswales will meet water quality-
4 objectives.

5
6 29. The deficiencies of the Port's stormwater management proposal in
7 controlling water quality are numerous. The Port proposes to apply Basic Water
8 Quality BMPs to its stormwater, despite the complex assortment of pollutants,
9 including metals, that do not respond to these measures. The only menu from the
10 King County Stormwater Design Manual that is explicitly oriented to the removal of
11 metal contaminants is the Resource Stream Protection menu, which sets 50% removal
12 of zinc as its target on the assumption that measures from this menu will also remove
13 other metals. The Manual recommends combinations of best management practices to
14 treat metal-laden wastes, for example a biofiltration swale in series with a sand filter.
15 The Port has not proposed, nor has Ecology required, that combination treatment
16 measures identified in both the King County and Ecology stormwater manuals be
17 adopted at Sea-Tac. King County's review of the Sea-Tac plan made clear that the
18 third runway project would have been subject to large site drainage review if it were
19 under full King County DNR jurisdiction, and consequently the Port would have been
20 asked to adopt the more sophisticated provisions of the King County manual. Because
21 King County had no jurisdiction to impose such a review, and Ecology has failed to do
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25
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HELSELL FETTERMAN LLP
1500 Puget Sound Plaza
1325 Fourth Avenue
Seattle, WA 98101-2509

Rachael Paschal Osborn
Attorney at Law
2421 West Mission Avenue
Spokane, WA 99201

1 so in its 401 certification, the result for Sea-Tac streams is that they will continue to
2 receive contaminated stormwater such as has resulted in past water quality violations.

3 30. The Port has-picked the simplest and cheapest methods of stormwater
4 treatment, and then argued that bioswales and filter strips are accepted under the
5 King County and draft Ecology stormwater management manuals for treatment of oil,
6 grease, and metals. However this conclusion is not borne out by an inspection of
7 either manual. The Port apparently did not follow the step-by-step treatment facility
8 selection procedure in either manual. Had the Port done so, it would have found its
9 way to enhanced treatment measures, combination treatment trains, and measures
10 specifically designed to treat the pollutant load of Sea-Tac stormwater. The draft
11 Ecology manual Enhanced Treatment Menu "applies to discharges from industrial,
12 commercial, and multi-family sites, and from arterials and highways to fish-bearing
13 streams, waters tributary to fish-bearing streams, or small lakes." It sets as a
14 performance goal a higher rate of removal of dissolved metals than most Basic
15 Treatment facilities.

16 31. Independent researchers have evaluated the efficacy of the Port's
17 proposed BMPs such as filter strips and bioswales for removing pollutants of concern.
18 They have found the type of BMPs proposed by the Port to be ineffective against many
19 pollutants, including metals. The Port's plans consist of the same BMPs they have
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HELSELL FETTERMAN LLP
1500 Puget Sound Plaza
1325 Fourth Avenue
Seattle, WA 98101-2509

Rachael Paschal Osborn
Attorney at Law
2421 West Mission Avenue
Spokane, WA 99201

1 used in the past, that have resulted in continued violation of water quality standards.

2 There is no reason to anticipate a changed result.

3 32. In issuing its water quality certification, Ecology has joined the Port in
4 ignoring the substantial body of technical literature that demonstrates the
5 ineffectiveness of bioswales and filter strips in removing chemical pollutants. The
6 issue has proceeded beyond the academic debate level: on June 20, 2001, the
7 Washington State Chapter of the American Public Works Association wrote comments
8 on the draft Ecology Stormwater Manual as follows: "... substantial concern exists
9 over the performance of some of the approved BMPs, particularly swales and filter
10 strips. These BMPs do not perform consistently in the field. They need a substantial
11 factor of safety..."

12
13
14 33. In a review of 30 published monitoring reports on BMP effectiveness, a
15 1996 EPA funded study found that "Removal of soluble metals [in grass swales],
16 however, was only 20 to 50%... many trace metals are primarily found in soluble
17 forms (cadmium, copper and zinc), while others are mostly attached to sediment
18 particles (iron and lead). Other researchers have found that swales were not very
19 effective at adsorbing soluble metal species. Adsorption requires that a metal be
20 present in runoff as a positively charged cation that can be adsorbed to a negatively
21 charged particle in the soil or organic layer. Metals, however, can be found in a
22 complex number of ion species depending on the prevailing acidity (pH) of runoff.
23
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HELSELL FETTERMAN LLP
1500 Puget Sound Plaza
1325 Fourth Avenue
Seattle, WA 98101-2509

Rachael Paschal Osborn
Attorney at Law
2421 West Mission Avenue
Spokane, WA 99201

AR 021237

1 Some metals such as zinc readily adsorb to soil at pH levels typical of stormwater
2 runoff of 6.5 to 8.0, but many others (aluminum, cadmium, copper, chromium and
3 lead) show little tendency to adsorb to soils within this pH range. Consequently, the
4 ability of swale soils to remove many soluble trace metals tends to be rather low.”

5
6 34. Under a joint project between the American Society of Civil Engineers
7 and the Environmental Protection Agency, an analysis of numerous studies of
8 stormwater BMP effectiveness has been undertaken (citations to literature in my letter
9 of July 18, 2001, attached). The results show low or even negative effective removal
10 rates (remobilization) for many pollutant species, including metals. Some of the
11 observations of this study are relevant. First, “In semi-arid climates, grass filter strips
12 may need to be irrigated to maintain a dense stand of vegetation and to prevent export
13 of unstabilized soil.” Sea-Tac Airport may be considered a semi-arid climate for
14 several months of the year. There is also a winter dormant period in most years when
15 grass growth is inadequate to offer good filtration performance. Second, typical
16 removal percentages for grassed swales and vegetated filter strips are 15-45%, and 30-
17 65% respectively. Open channel vegetated systems show a very wide range of
18 pollutant removal efficiency, including negative removals (i.e. more is detected going
19 out than in). Third, “If open channel systems are not properly maintained, significant
20 export of sediments and associated pollutants such as metals and nutrients can occur
21 from eroded soil.”
22
23

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HELSELL FETTERMAN LLP
1500 Puget Sound Plaza
1325 Fourth Avenue
Seattle, WA 98101-2509

Rachael Paschal Osborn
Attorney at Law
2421 West Mission Avenue
Spokane, WA 99201

AR 021238

1 35. High coliform bacteria counts in Sea-Tac area streams have not been
2 accounted for and may actually be originating in the Port's stormwater treatment
3 facilities. The technical literature has abundant information on bacteria-loading
4 associated with biofiltration swales. Results compiled from a range of BMP
5 performance monitoring efforts conclude that bioswales or open grassed channels
6 have either low or negative removal efficiencies for fecal coliform. Negative removal
7 efficiency means that more bacteria were measured in the discharge than were
8 measured in the inflow to the BMP in question. This result was observed in the 1992
9 Metro study on which the Port relies, as well as numerous others. It appears that
10 bioswales can support bacterial growth and behave as a source of bacteria themselves.
11 The Port's stormwater treatment plan does not address this eventuality.

12
13 36. The Port's heavy reliance on biofiltration BMPs as a stormwater quality
14 control strategy is based largely on one study, the conclusions of which are no longer
15 supported by King County. In 1992, King County (then Metro) published a document
16 entitled *Biofiltration Swale Performance, Recommendations, and Design*
17 *Considerations*; this guidance document was funded in part by Department of Ecology.
18 The Port's reliance on this one study is misplaced. Since 1992 hundreds of other
19 assessments of BMP performance have been carried out, few with the same optimistic
20 conclusions reported for the Metro study. In its review of the Stormwater
21 Management Plan for the Third Runway, King County DNR (the successor to Metro)

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DECLARATION OF DR. PETER WILLING IN
SUPPORT OF ACC'S MOTION FOR STAY-18

HELSELL FETTERMAN LLP
1500 Puget Sound Plaza
1325 Fourth Avenue
Seattle, WA 98101-2509

Rachael Paschal Osborn
Attorney at Law
2421 West Mission Avenue
Spokane, WA 99201

1 did not agree with the Port's account of the 1992 report: "removal of metals is not the
2 performance goal of this [type of] facility. The existing relatively high Cu
3 concentrations off the runways indicate they [bioswales] are not great at metals.
4 removal." The 1992 Metro study did not report dissolved copper, a major pollutant
5 that does not respond well to bioswale treatment, which is a major Sea-Tac pollutant.
6 A major nationwide survey of later studies, carried out by the American Society of
7 Civil Engineering, reports that more than half the dissolved copper and other metals
8 routinely pass through bioswales and remain in the waste stream.

10 37. The low effectiveness of the Port's strategy of conventional BMPs in
11 removing pollutants is all the more serious given the low remaining flows in area
12 creeks, which can provide very little dilution of incoming waste streams. The Port's
13 low stream flow analyses show low flows for Miller, Walker, and Des Moines Creeks
14 that will provide little if any dilution under typical low flow conditions. The "first
15 flush" of accumulated pollutants in stormwater runoff from the next rainstorm will
16 have severe water quality impacts on these streams.

18 38. The Port's stormwater quality control strategy does not constitute "all
19 known and reasonable treatment" or AKART. The King County reviewer of the Port's
20 stormwater plan agreed, noting in comments on Ecology's draft 401 water quality
21 certification that the "CSMP (the stormwater plan) could easily be challenged as not
22

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DECLARATION OF DR. PETER WILLING IN
SUPPORT OF ACC'S MOTION FOR STAY-19

HELSELL FETTERMAN LLP
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Rachael Paschal Osborn
Attorney at Law
2421 West Mission Avenue
Spokane, WA 99201

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1 being AKART [all known and reasonable technology]. SWDM (King County Surface
2 Water Design Manual) is not AKART." Eglick Decl. at ¶ 1.

3 39. Ecology's 401 Certification has acquiesced in the Port's Sea-Tac
4 stormwater strategy, which is to say "we'll figure out a way to treat it if it is later
5 proved that we have to." This defers the inevitable argument over whether or not they
6 have to, until some later date, by which time the construction will have long since
7 been completed, and the irreparable harm to local streams will have been done. There
8 is a built-in assumption in the permit that violation of water quality standards is —
9 permissible, during the indefinite experimental period while they improvise
10 solutions.
11

12 40. To contemplate inappropriate use of Best Management Practices for
13 treatment of the acknowledged pollutant stream in the Sea-Tac stormwater, and
14 release of stored stormwater without treatment into local streams, falls far short of the
15 required reasonable assurance that the Port's projects will meet water quality
16 standards.
17

18 I declare under penalty of perjury under the laws of the State of Washington
19 that the foregoing is true and correct.
20

21 DATED this 12th day of September, 2001, at Seattle, Washington.

22 
23 Peter Willing, Ph.D.

24 GALUACCPCHBWILLING-DECL-STAY-0911

25 HELSELL FETTERMAN LLP
1500 Puget Sound Plaza
1325 Fourth Avenue
Seattle, WA 98101-2509

Rachael Paschal Osborn
Attorney at Law
2421 West Mission Avenue
Spokane, WA 99201

DECLARATION OF DR. PETER WILLING IN
SUPPORT OF ACC'S MOTION FOR STAY-20

Attachments to the Declaration of Dr. Peter Willing

- Exhibit A Peter Willing, Ph.D., *Curriculum Vitae*.
- Exhibit B Letter Dated September 5, 2000, to Mr. Tom Luster, Washington State Department of Ecology
- Exhibit C Letter Dated September 19, 2000, to Mr. Ray Hellwig, Regional Director, Northwest Regional Office, Washington State Department of Ecology
- Exhibit D Letter Dated September 26, 2000, to Mr. Ray Hellwig, Regional Director, Northwest Regional Office, Washington State Department of Ecology
- Exhibit E Letter Dated February 16, 2001, to U.S. Army Corps of Engineers
- Exhibit F Letter Dated March 12, 2001, to Mr. Chung Yee, Washington State Department of Ecology
- Exhibit G Letter Dated July 18, 2001, to Washington State Department of Ecology and U.S. Army Corps of Engineers
- Exhibit H Letter Dated August 6, 2001, to U.S. Army Corps of Engineers and Washington State Department of Ecology
- Exhibit I Letter Dated August 3, 2001 from Ms. Pam Bissonnette to Ms. Ann Kenny, Senior Permit Specialist, Washington State Department of Ecology