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POLLUTION CONTROL HEARINGS BOARD
FOR THE STATE OF WASHINGTON

AIRPORT COMMUNITIES COALITION, and
CITIZENS AGAINST SEA-TAC EXPANSION,

Appellants/Intervenors,

v.

DEPARTMENT OF ECOLOGY and
THE PORT OF SEATTLE,

Respondents.

No. PCHB 01-160

RESPONDENTS' PROPOSED FINDINGS
OF FACT AND CONCLUSIONS OF LAW

Respondents Department of Ecology ("Ecology") and the Port of Seattle ("Port") jointly submit the following proposed Findings of Fact and Conclusions of Law for the Board's consideration. Respondents have followed the outline submitted by the Board on April 8, 2002.

RESPONDENTS' PROPOSED FINDINGS OF FACT AND
CONCLUSIONS OF LAW

ORIGINAL

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RESPONDENTS’ PROPOSED FINDINGS OF FACT AND
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1 **I. INTRODUCTION**

2 1. This case involves a large public works project, the construction of the improvements
3 associated with the Port of Seattle's Master Plan Update ("MPU") at Seattle-Tacoma International
4 Airport ("STIA"). Those improvements include the construction of a third runway at STIA, new
5 parking and access roads, new terminal facilities, aircraft maintenance areas and other support
6 facilities.

7 2. Construction of the MPU improvements will require the placement of fill material in
8 wetlands that are waters of the United States. As a result, the Port has applied for a permit from the
9 U.S. Army Corps of Engineers ("Corps") under §404 of the federal Clean Water Act ("CWA") (33
10 U.S.C. §1344) before undertaking any discharge of fill into waters of the United States. As part of
11 the §404 approval process, Ecology has issued a certification under §401 of the Clean Water Act (33
12 U.S.C. §1341) that the MPU improvements will meet Washington's water quality standards.

13 3. Ecology issued an initial certification on August 10, 2001 and subsequently reissued a
14 revised §401 Certification on September 21, 2001. The §401 Certification was appealed by the
15 Airport Communities Coalition ("ACC"). Citizens Against Sea-Tac Expansion ("CASE") later
16 intervened in the appeal.

17 4. This matter came before the Board for a hearing on the merits on March 18-29, 2002.
18 The Board was composed of Kaleen Cottingham, presiding, Robert V. Jensen, and William Lynch.

19 5. Appearances were as follows:

20 For ACC: Peter Eglick, Kevin Stock and Michael Witek of Helsell Fetterman LLP; Rachel
21 Paschal Osborn; and Richard Poulin of Smith & Lowney PLLC;

22 For CASE: Richard Poulin of Smith & Lowney PLLC;

23 For the Department of Ecology: Joan Marchioro, Thomas Young and Jeff Kray of the
24 Washington Attorney General's Office, Ecology Division;

1 For the Port of Seattle: Linda Strout, General Counsel and Traci Goodwin, Senior Port
2 Counsel of the Port of Seattle; Roger Pearce and Steven Jones of Foster Pepper & Shefelman PLLC;
3 Gillis Reavis, Jay Manning and Tanya Barnett of Brown Reavis & Manning PLLC.

4 **II. STATEMENT OF ISSUES**

5 6. The parties stipulated to a list of 22 issues to be presented to the Board for resolution.
6 The Board granted summary judgment on one of those issues (Issue No. 14) before the hearing.
7 Another issue (Issue No. 20) was withdrawn following the hearing on the merits, leaving 20 issues
8 for resolution by the Board. The remaining issues have been grouped below in topic areas, both to
9 facilitate the resolution of similar issues and as an outline for the findings of fact and legal
10 conclusions.

11 **1. WATER QUALITY AND STORMWATER**

12 a. Do the stated limitations on the temporal, operational, and geographic scope
13 of the Certification, including its limitation to "Port 404 projects," violate the requirements of
14 Section 401 of the Clean Water Act and applicable state water quality law? (Issue No. 3)

15 b. Is there reasonable assurance that the Third Runway and related projects, for
16 which a Clean Water Act Section 401 certification is required, will not violate §401 and
17 applicable water quality law? (Issue No. 4)

18 c. Must there be reasonable assurance that a proposed project will not violate
19 §401 and applicable water quality law when a §401 Certification is issued? (Issue No. 5)

20 d. Is there reasonable assurance that §401 and applicable water quality law will
21 not be violated if the Certification relies on data, reports, and plans that were not in being at
22 the time of issuance of the Certification? (Issue No. 6)

23 e. Did Ecology have reasonable assurance that §401 and applicable water quality
24 laws would not be violated when it relied on a stormwater detention system that may require
25 future compliance with dam safety regulations (chapter 173-175 WAC) and may require a
26 dam safety permit prior to commencing construction? (Issue No. 22)

f. Is there reasonable assurance that §401 and applicable water quality law will
not be violated as a result of the stormwater impacts (with the identified mitigation) of the
Third Runway Project? (Issue No. 10)

g. Is there reasonable assurance that §401 and applicable water quality law will
not be violated if discharges from the airport have violated water quality standards or the
Port's NPDES (§402) permit? (Issue No. 11)

1 h. May a certification of reasonable assurance that §401 and applicable water
2 quality law will not be violated be based upon current and future NPDES (§402) permits?
(Issue No. 12)

3 i. Is there reasonable assurance that §401 and applicable water quality law will
4 not be violated if the certification authorizes a mixing zone without compliance with
5 applicable procedural and substantive requirements for authorization of such a zone? (Issue
6 No. 13)

7 j. Is there reasonable assurance that §401 and applicable water quality law will
8 not be violated where the Certification allows future amendment of its terms “by any future
9 Ecology-approved NPDES (§402) permit for the Seattle-Tacoma international Airport
10 (STIA) . . . as determined in that permit”? (*See, e.g.*, amended Certification at 4, § 1.f.) (Issue
11 No. 21)

12 2. LOW FLOW

13 a. Is there reasonable assurance that §401 and applicable water quality law will
14 not be violated as a result of low flow impacts (with the identified mitigation) of the Third
15 Runway Project? (Issue No. 8)

16 3. WATER RIGHTS

17 a. Must the Port obtain a water right to implement the low stream flow
18 conditions in the certification and if so:

19 (a) is there reasonable assurance that §401 and applicable water quality
20 law will not be violated in the absence of such a water right; and

21 (b) is there reasonable assurance that §401 and applicable water quality
22 law will not be violated in the absence of review of a water right application
23 under the State Environmental Policy Act (“SEPA”)? (Issue No. 9)

24 4. FILL CRITERIA, EMBANKMENT AND MSE WALL

25 a. Is there reasonable assurance that §401 and applicable water quality law will
26 not be violated as a result of the embankment and fill criteria, including:

(a) the method of determining compliance with the fill criteria;

(b) embankment and wall construction specifications; and

(c) groundwater discharges from the embankment and Mechanically
Stabilized Earth (“MSE”) wall. (Issue No. 15)

b. Is there reasonable assurance that §401 and applicable water quality law will
not be violated as a result of the possibility of MSE wall and embankment failure? (Issue No.
16)

1 **5. GROUNDWATER AND WETLANDS**

2 a. Is there reasonable assurance that potential migration and discharge of
3 existing groundwater pollutants originating from the airport (with the identified mitigation)
4 will not violate §401 and applicable water quality law? (Issue No. 17)

5 b. Is there reasonable assurance that §401 and applicable water quality law will
6 not be violated if the Port is in violation of the terms of the MTCA Agreed Order for SeaTac
7 International Airport (Ecology Order No. 97TC-N122, dated 5/15/99)? (Issue No. 18)

8 c. Is there reasonable assurance that §401 and applicable water quality law will
9 not be violated as a result of wetland fill, stream alteration and identified mitigation
10 activities? (Issue No. 19)

11 **6. MONITORING**

12 a. Is there reasonable assurance that §401 and applicable water quality law will
13 not be violated if (1) the Certification relies on future monitoring; or (2) if the Certification
14 fails to require adequate pre-construction monitoring? (Issue No. 7)

15 **7. PUBLIC PROCESS – NOTICE**

16 a. Did Ecology violate applicable law pertaining to public and agency notice,
17 hearing, comment and modification regarding the original 401/404 application and Amended
18 Certification? (Issue No. 1)

19 **8. COASTAL ZONE MANAGEMENT ACT**

20 a. Does Ecology’s concurrence with the Port’s consistency certification, issued
21 pursuant to the Coastal Zone Management Act (“CZMA”), fail to comply with the
22 requirements of the CZMA and Washington’s approved Coastal Zone Management Plan?
23 (Issue No. 2)

24 **III. PROCEDURAL HISTORY**

25 7. The proposal to construct the MPU improvements at STIA was the culmination of
26 years of study, debate, and decisions by governmental bodies and elected officials in the Puget
27 Sound region to address the region’s commercial air transportation needs and, in particular, to
28 address poor weather delays and increasing demand on facilities at STIA. In 1996, the regional
29 transportation planning organization – the Puget Sound Regional Council (“PSRC”) – adopted
30 resolutions adding a third runway at STIA to the Regional Transportation Plan for the Puget Sound

1 region and determining that a new major supplemental airport, at a location other than STIA, was not
2 feasible.¹

3 8. Because some of the MPU improvements require filling waters of the United States,
4 the Port submitted a Joint Aquatic Resource Permit Application (“JARPA”) to the Corps and
5 Ecology in December 1996.² At that time the Port did not have title to a number of properties on the
6 westside of STIA that would be necessary for completion of the project. These properties are
7 located in the area between the embankment for the second runway and SR 509. After the JARPA
8 application was submitted and public notice was issued, the Port began acquiring the westside
9 properties and gaining access to those properties. Because new wetlands were discovered after
10 gaining access to the westside properties, a second public notice was issued.³

11 9. The Port also submitted a Coastal Zone Management Act (“CZMA”) Consistency
12 Statement to Ecology in December 1999. At Ecology’s request, the Port resubmitted its CZMA
13 Consistency Statement on May 22, 2000. That Consistency Statement was revised on January 22,
14 2001.⁴

15 10. Pursuant to 33 C.F.R. §325.2(b)(ii), Ecology must complete its review and issue a
16 §401 Certification within one year of the filing of the JARPA application. In response to a request
17 from Ecology for additional time to complete its §401 review, the Port agreed to withdraw the
18 JARPA application in September 2000 and resubmitted that application to the Corps in December
19 2000.⁵

20 11. Prior to the issuance of the §401 Certification by Ecology, a number of challenges
21 were brought to decisions by other agencies related to the Port’s MPU improvements.

22 12. In 1997, the FAA issued a Record of Decision (“ROD”), which approved the Port’s
23 MPU improvements, concluding that no possible or prudent alternatives to the MPU projects

24 ¹ *City of Des Moines v. Puget Sound Regional Council*, 97 Wn. App. 920, 988 P.2d 993 (1999), *review denied*, 140
25 Wn.2d 1022 (2000).

26 ² Direct Testimony of Elizabeth Leavitt, ¶¶ 6-8.

³ Direct Testimony of Elizabeth Leavitt, ¶¶ 6-7, Exhibits 1207; 2062; and 1198.

⁴ Direct Testimony of Elizabeth Leavitt, ¶ 14, Exhibits 1174 and 2132.

⁵ Direct Testimony of Elizabeth Leavitt, ¶ 8.

1 existed, and concluding that all reasonable steps had been taken to minimize environmental
2 impacts.⁶ ACC appealed the FAA's ROD to the United States Court of Appeals for the Ninth
3 Circuit. The Ninth Circuit upheld the FAA's decision.⁷

4 13. ACC also appealed the legal adequacy of the Port and FAA's Final Environmental
5 Impact Statement and the Supplemental Environmental Impact Statement to the Port's independent
6 Hearing Examiner. The Hearing Examiner determined that the FEIS and SEIS for the Master Plan
7 Update development actions were legally adequate.⁸

8 14. The decision of the Port's Hearing Examiner was further appealed by ACC to the
9 King County Superior Court, which upheld the Hearing Examiner's decision, and to Division One of
10 the Washington State Court of Appeals. The Court of Appeals upheld the decisions of both the
11 Port's Hearing Examiner and the King County Superior Court and affirmed that the Port's
12 environmental review was legally adequate.⁹

13 15. Ecology initially issued its §401 Certification on August 10, 2001. ACC appealed the
14 §401 Certification on August 23, 2001 and filed a Motion for Stay of the §401 Certification on
15 September 12, 2001.

16 16. On September 10, 2001, the Port filed a Notice of Appeal of the §401 Certification.
17 That same day, the Port and Ecology filed a Stipulation and Agreed Order of Dismissal, in which
18 Ecology and the Port agreed to certain changes in the §401 Certification. ACC lodged objections to
19 the stipulation. After two status conferences before the Board, Ecology stated that it would rescind
20 the existing §401 Certification and issue a new §401 Certification in lieu of requesting that the Board
21 approve the Stipulation and Agreed Order of Dismissal. The parties agreed to this proposal, which
22 was reflected in an Agreement and Order Re Rescission of 401 Certification, which was signed by all
23 parties and entered by the Board on September 20, 2001.

24 ⁶ Exhibit 1086.

25 ⁷ *City of Normandy Park v. Port of Seattle*, 165 F.3d 35 (9th Cir. 1998).

26 ⁸ Exhibit 1093 (Judge Robert H. Alsdorf's Findings of Fact, Conclusions of Law and Final Order upholding the Hearing
Examiner's decision); see *City of Des Moines v. Puget Sound Regional Council*, 108 Wn. App. 836, 988 P.2d 27 (1999),
review denied, 140 Wn.2d 1027 (2000).

⁹ *Des Moines v. Puget Sound Regional Council*, 108 Wn. App. 836, 988 P.2d 27, *review denied*, 140 Wn.2d 1027 (2000).

1 17. Ecology rescinded the existing §401 Certification and issued a new §401 Certification
2 on September 21, 2001.

3 18. ACC filed a Notice of Appeal of Reissued/Amended Section 401 Certification on
4 October 1, 2001. Consistent with the Agreement and Order Re Rescission of 401 Certification,
5 ACC's prior Notice of Appeal and motion for stay were incorporated into the new appeal as if they
6 had been originally filed in that case. A hearing on the motion for stay was held on October 15,
7 2001, and the Board issued an Order Granting Motion to Stay the Effectiveness of Section 401
8 Certification on December 17, 2001.

9 19. Prior to the hearing on the merits, the Board considered two motions for summary
10 judgment. The first was ACC's motion for summary judgment on the water right issue (Issue No.
11 9). At the time this summary judgment was decided, the Board consisted of two members, who split
12 on the disposition of the motion. Based on this split between the two Board members, ACC's
13 motion was denied. Subsequently, a third member was appointed to the Board prior to the March
14 2002 hearing on the merits. Accordingly, the Board asked the parties to submit evidence on this
15 issue at the hearing on the merits.

16 20. The second summary judgment motion was brought by the Port on the SEPA issue
17 (Issue No. 14). The Board granted the Port's motion on this issue under a separate order, dated
18 March 14, 2002, finding that the environmental documents prepared by the Port and FAA contained
19 a detailed look at the impacts of the MPU project and proposed mitigation, even though some of the
20 mitigation plans had become more detailed over time. Based on that order, the Board directed that
21 no evidence on Issue No. 14 be presented at the hearing.

22 21. The hearing on the merits was held before the Board on March 18 through 29, 2002.
23 For the convenience of the Board and to reduce the time of the hearing, direct testimony from
24 witnesses was submitted in writing prior to the hearing. At the hearing, the parties also presented
25 witnesses for direct examination, cross-examination and questions from members of the Board. In
26 addition, the Board allowed Appellants to submit portions of certain deposition testimony as part of
the evidence in the case, and Respondents were allowed to submit counter-designations of deposition

1 testimony. Rulings on the admissibility of the various exhibits offered by the parties are contained
2 in a separate order issued by the Board.

3 **IV. ACRONYMS USED IN THIS OPINION**

- 4 ACC: Airport Communities Coalition
5 AKART: All Known Available Reasonable Methods of Treatment
6 AOMA: Airport Operations and Maintenance Area
7 BA: Biological Assessment
8 BMP: Best Management Practice
9 BO: Biological Opinion
10 CASE: Citizens Against Sea-Tac Expansion
11 CWA: Clean Water Act
12 CZMA: Coastal Zone Management Act
13 CZMP: Coastal Zone Management Plan
14 EFH: Essential Fish Habitat Study
15 FAA: Federal Aviation Administration
16 HSPF: Hydrologic Simulation Program – Fortran model
17 IWS: Industrial Wastewater System
18 JARPA: Joint Aquatic Resources Permit Application
19 MSES: Mechanically Stabilized Earth
20 MTCA: Model Toxics Control Act
21 MPU: Master Plan Update
22 NRMP: Natural Resources Mitigation Plan
23 PPM: Parts Per Million
24 PQL: Practical Quantitation Limit

1 PSRC: Puget Sound Regional Council
2 ROD: Record of Decision
3 SEPA: State Environmental Policy Act
4 SMA: Shoreline Management Act
5 SMP: Stormwater Management Plan
6 SPLP: Synthetic Precipitation Leaching Procedure
7 STIA: Seattle-Tacoma International Airport
8 TPH: Total Petroleum Hydrocarbons
9 WET: Whole Effluent Toxicity
10 WER: Water Effects Ratio
11 WFAM: Washington Functional Assessment Methodology for Wetlands

12 **V. FINDINGS OF FACT**

13 **A. GENERAL**

14 **1. DESCRIPTION OF THE PROJECT**

15 22. The MPU improvements include a new 8,500-foot parallel air-carrier runway
16 approximately one-half mile west of existing runways, a 600-foot extension of existing Runway
17 34R, extension of existing runway safety areas, terminal improvements, and construction of the
18 South Aviation Support Area to accommodate aircraft maintenance and air cargo facilities.¹⁰ Many
19 of the Port's proposed MPU projects do not involve the discharge of fill into waters of the United
20 States and, therefore, do not require a §404 permit from the Corps. The projects requiring fill in
21 waters of the United States are the new third runway and its embankment, the relocation of South
22 154th Street associated with the construction of the new third runway embankment, the runway
23 safety areas needed to meet FAA requirements, the development of the South Aviation Support
24 Area, and the potential borrow sources for fill material for the new third runway embankment.¹¹

25 _____
¹⁰ Direct Testimony of Elizabeth Leavitt, ¶ 9-11; Exhibit 1207.

26 ¹¹*Id.*

1 23. With regard to those aspects of the proposed MPU improvements that do require
2 discharges of fill material into waters of the United States, the Port has proposed, and Ecology has
3 required in the §401 Certification, extensive mitigation to restore and address impacts to existing
4 wetlands, to protect streams, to develop new wetlands, and to construct stormwater facilities that will
5 detain and treat stormwater, and to retrofit existing stormwater facilities.¹²

6 24. The STIA site includes portions of the watersheds of three creek systems: (1)
7 Miller/Walker Creek (Walker Creek is located off STIA property and is a tributary of Miller Creek;
8 the Walker Creek watershed has been separately identified by the Port for low flow mitigation
9 purposes); (2) Des Moines Creek; and (3) the Green/Duwamish River watershed (the Gilliam Creek
10 watershed). The Gilliam Creek (Green/Duwamish) watershed is in the extreme northeast corner of
11 STIA, on the other side of the Airport Drive. None of the Port's MPU projects are located in the
12 Gilliam Creek watershed.¹³

13 2. **DESCRIPTION OF THE §401 CERTIFICATION**

14 25. The Port's JARPA application was first submitted in 1996 and, in 1997 the Corps
15 issued a public notice of the Port's application. In April 1998, the Corps and Ecology conducted the
16 first of three joint public hearings on the application. A significant number of public comments were
17 submitted to the Corps and Ecology, and the Port prepared detailed written responses to the
18 comments.¹⁴ In July 1998, following in-depth review of the permit application, Ecology issued a
19 §401 certification for the project, which included a significant number of conditions.¹⁵

20 26. During this time period, the Port was acquiring properties on the west side of STIA
21 that were necessary for construction of the new runway. After acquiring the properties and
22 conducting on-the-ground wetland delineations, the Port discovered more wetlands than had
23

24 ¹² Exhibit 1.

25 ¹³ Direct Testimony of Elizabeth Leavitt, ¶ 12.

26 ¹⁴ Exhibit 1019.

¹⁵ Exhibit 1104.

1 previously been estimated from aerial photos and distant observations from nearby rights-of-way.¹⁶
2 Accordingly, in September 1999, the Corps issued a revised public notice, which reinitiated
3 Ecology's review under §401.¹⁷ The Corps and Ecology conducted another public hearing. Once
4 again, extensive public comments were submitted, and the Port again prepared detailed written
5 responses to those comments.¹⁸

6 27. Ecology's reinitiated §401 review was more extensive than its original review.
7 Ecology contracted with King County to review the Port's proposed stormwater management plan
8 for compliance with the technical requirements of the King County Surface Water Design Manual.¹⁹
9 King County conducted a multi-year review of the plan. Following that review, King County
10 approved the revised stormwater management plan.²⁰

11 28. Ecology also contracted with Pacific Groundwater Group to conduct a study of the
12 potential impacts of the proposed runway embankment on aquifers, wetlands and streams in Miller,
13 Walker, and Des Moines Creeks basins, culminating in the *Sea-Tac Runway Fill Hydrologic Studies*
14 *Report (2000)*.²¹ During this period, the Port was also required to prepare numerous technical and
15 environmental reports regarding wetlands and aquatic resources, including but not limited to the
16 following:

17 *Biological Assessment, Master Plan Update Improvements, Seattle-Tacoma International*
18 *Airport (Parametrix 2000)*²²

19 *Seattle-Tacoma Airport Master Plan Update Low Streamflow Analysis (Earth Tech, Inc.*
20 *2000)*²³

21 *Wetland Functional Assessment and Impact Analysis, Master Plan Update Improvements,*
22 *Seattle-Tacoma International Airport (Parametrix 2000)*²⁴

22 ¹⁶ Direct Testimony of Elizabeth Leavitt, ¶ 7.

23 ¹⁷ *Id.*

23 ¹⁸ Exhibit 1244.

24 ¹⁹ Direct Testimony of Kelly Whiting, ¶ 2; Oral Testimony of Kelly Whiting, March 26, 2002, at 76:8-78:9.

24 ²⁰ Direct Testimony of Kelly Whiting, ¶¶ 4-7; Oral Testimony of Kelly Whiting, March 26, 2002, at 76:8-20; 83:9-17.

25 ²¹ Direct Testimony of Dave Garland, ¶¶ 6-10; Oral Testimony of Dave Garland, March 22, 2002, at 141:5-21, 142:5-8,
143:2-5, 18-22; Exhibit 1178.

25 ²² Exhibit 1175.

26 ²³ Exhibit 1217.

1 *Natural Resource Mitigation Plan, Master Plan Update Improvements, Seattle-Tacoma*
2 *International Airport (Parametrix 2001)*²⁵

3 *Subsurface Conditions Data Report 404 Permit Support Third Runway Embankment (Hart*
4 *Crowser, July 1999)*²⁶

5 *Stability Review of RECo 30% Design Third Runway Embankment Project (Draft*
6 *Memorandum Hart Crowser, November 2000)*²⁷

7 *Geotechnical Engineering Analyses and Recommendations Third Runway Embankment*
8 *(Draft Memorandum Hart Crowser, December 2000)*²⁸

9 *Revised Methods and Results of Liquefaction Analysis Third Runway Embankment (Draft*
10 *Memorandum Hart Crowser, March 2001).*²⁹

11 29. In December 2000, the Corps issued another revised public notice, inviting further
12 public comment on the application and studies.³⁰ In January 2001, the Corps and Ecology conducted
13 a third public hearing and accepted additional public comments.

14 30. The §401 Certification was thoroughly reviewed by Ecology and contains more than
15 30 pages of conditions to assure compliance with state water quality standards, including the first
16 imposition of minimum criteria for fill dirt ever issued by Ecology. In addition to conditions
17 governing the construction, operation and monitoring of new facilities, Ecology also required the
18 Port to retrofit its existing stormwater system. This retrofit will improve the water quality of the
19 existing stormwater discharges at STIA.³¹

20 **B. ISSUE - SPECIFIC FINDINGS**

21 **1. WATER QUALITY AND STORMWATER**

22 31. Reasonable assurance that stormwater discharges from STIA will comply with
23 applicable water quality standards is based both on the Port's existing NPDES permit and the

24 ²⁴ Exhibit 1215.

25 ²⁵ Exhibit 2014.

26 ²⁶ Exhibit 1125.

²⁷ Exhibit 1211.

²⁸ Exhibit 1218.

²⁹ Exhibit 1235.

³⁰ Exhibit 2132.

³¹ Direct Testimony of Ann Kenny, ¶ 49.

1 additional conditions and requirements contained in the §401 Certification. Through the NPDES
2 process, the Port will be required to adopt and implement new and additional best management
3 practices (“BMPs”) to control and treat stormwater, including conditions required by the §401
4 Certification. In addition, the §401 Certification requires the Port to retrofit the existing stormwater
5 management system at the STIA facility.³² The entire facility must be retrofit for stormwater
6 quantity mitigation, and the flow regime will match the volume of water that would be expected
7 from pre-Airport conditions (10% impervious surface, 15% grassland, and 75% forest).³³ All but 80
8 acres of the existing Airport will be retrofit for stormwater quality BMPs.³⁴ Moreover, prior to any
9 discharge from operations on new impervious surfaces, the Port will also be required to conduct a
10 site-specific study that will develop site-specific water quality parameters, appropriate limitations,
11 and monitoring requirements that will be protective of aquatic life in the receiving waters.³⁵ These
12 criteria must be in place before any pollutant-generating operations can be conducted on any of the
13 new impervious surfaces authorized in the §401 Certification.³⁶

14 32. The ongoing monitoring and whole effluent toxicity testing at STIA shows that
15 existing STIA discharges to area streams do not do not cause any toxicity in receiving waters near
16 STIA.³⁷ The Port’s NPDES permit, both by its terms and by the manner in which it has been
17 implemented to date, together with the conditions in the §401 Certification, establish reasonable
18 assurance that the Port’s stormwater management system can be implemented to maintain
19 compliance with water quality standards.
20
21

22 _____
23 ³² Exhibit I, Conditions J.1.b and J.1.c; Direct Testimony of Paul Fendt, ¶ 91; Exhibit 1213 at §§2.1.2, 2.1.3, 6.2.2, 7.1.4,
7.1.5, and Appendix A, Table A-3.

24 ³³ Direct Testimony of Kelly Whiting, ¶ 6; Direct Testimony of Kevin Fitzpatrick, ¶ 18; Oral Testimony of Kelly
Whiting, March 26, 2002, at 80:5-21.

25 ³⁴ Oral Testimony of Kelly Whiting, March 26, 2002, at 80:11-81:14.

26 ³⁵ Exhibit I, Conditions J.2.a.

³⁶ *Id.*, see also Direct Testimony of Kevin Fitzpatrick, ¶¶ 13-17.

³⁷ Direct Testimony of Charles Wisdom, ¶¶ 62-70.

1 33. ACC and CASE have not shown that there are violations of the Port’s NPDES permit,
2 or of applicable water quality standards in the receiving waters due to Port discharges, or that it is
3 infeasible to apply adaptive management to maintain compliance with water quality standards.

4 34. The Port’s NPDES permit states that “Compliance with this permit is deemed
5 compliance with the Federal Water Pollution Control Act, also known as the Clean Water Act (33
6 U.S.C. §1251 *et seq.*) and the Water Pollution Control Act (RCW 90.48).”³⁸ The Port’s NPDES
7 permit covers stormwater discharges from STIA – both from construction activities and stormwater
8 associates with industrial activities – including the proposed MPU improvements. Ecology
9 conditioned the §401 Certification on the Port’s continuing compliance with its NPDES permit
10 (§401 Certification, Condition H).³⁹ Consistent with the existing NPDES permit and the §401
11 Certification, the Port has prepared a Comprehensive Stormwater Management Plan (“SMP”) to
12 manage both the peak flow and low flow impacts that would otherwise result from the MPU
13 improvements.⁴⁰

14 35. Peak flow impacts, i.e., impacts from stormwater falling on the new impervious
15 surfaces constructed as part of the MPU improvements, could result in adverse impacts such as
16 erosion, scouring of area streambeds and habitat destruction unless those impacts are appropriately
17 managed.⁴¹ Under the Port’s SMP, peak flow impacts from new and existing impervious surface
18 will be mitigated by capturing all stormwater runoff and detaining it in 344.1 acre-feet of stormwater
19 detention facilities, including ponds and vaults.⁴² As required by the Ecology and King County
20 stormwater manuals, stormwater collected in the detention facilities will be released at specifically
21 selected flow rates in order to avoid peak flow impacts.⁴³

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24 ³⁸ Exhibit 1094, p. 8..

25 ³⁹ Exhibit 1, Condition H.

26 ⁴⁰ Exhibit 1213.

⁴¹ Direct Testimony of Paul Fendt, ¶ 14.

⁴² *Id.*

⁴³ *Id.*, Oral Testimony of Kelly Whiting, March 26, 2002, at 79:4-23.

1 36. During the drier months of the year, low flow impacts to area streams could also
2 result because the new impervious surfaces constructed as part of the MPU improvements will
3 change the groundwater infiltration patterns. As mitigation for these low flow impacts, Ecology has
4 required some of the stormwater collected in the vaults to be detained and slowly released to Walker
5 and Des Moines Creeks during the summer months.⁴⁴

6 37. The MPU projects will be constructed on existing STIA property or, in the case of the
7 third runway, on recently acquired residential land. Many existing land uses and sources of adverse
8 water quality impacts will be removed as a result of the MPU projects. For example, over 400
9 houses and businesses will be removed, which had previously contributed stormwater pollutants
10 such as sediment, metals, pesticides, herbicides, fertilizers, and animal waste. In addition, farms in
11 the Port's acquisition area will be removed, reducing pollutants commonly associated with farms,
12 such as sediments, animal waste and agrichemicals.⁴⁵

13 38. The evidence presented at the hearing also showed that the stormwater discharges
14 from STIA typically have lower concentrations of stormwater pollutants than stormwater from
15 typical urban land uses in the region and nationwide.⁴⁶

16 39. The Port applied in December 2001 for renewal of its NPDES permit. In connection
17 with the processing of the renewal application, Ecology will have the opportunity to review the
18 existing stormwater controls that the Port is currently using under its existing permit and require the
19 Port to implement BMPs as appropriate and necessary to improve stormwater quality.⁴⁷

20 40. The evidence showed that a portion of Des Moines Creek – located downstream from
21 the Airport adjacent to Puget Sound – is listed pursuant to Section 303(d) of the Clean Water Act as
22 exceeding applicable standards for fecal coliform bacteria. There are no affected Section 303(d)-
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24 ⁴⁴ Direct Testimony of Paul Fendt, ¶¶ 7-10, 14-18, 25-30.

25 ⁴⁵ Direct Testimony of Paul Fendt, ¶ 82; Direct Testimony of Donald Weitkamp, ¶ 17.

26 ⁴⁶ Direct Testimony of Paul Fendt, ¶ 84; Direct Testimony of Keith Smith, ¶ 4.

⁴⁷ Oral Testimony of Kevin Fitzpatrick, March 22, 2002, at 42:10-25, 116:22-117:15; Oral Testimony of Paul Fendt, March 27, 2002, at 167:13-21.

1 listed stream segments for any other pollutant. There was no evidence that the MPU Improvements
2 would result in the addition of more fecal coliform to Des Moines Creek and the only evidence
3 showed that no additional fecal coliform was anticipated from the MPU improvements.⁴⁸ Moreover,
4 the NPDES permit process allows Ecology to place limitations in the Port's NPDES permit that can
5 include any legally applicable requirements necessary to implement total maximum daily loads that
6 may be established pursuant to Section 303(d). WAC 173-220-130(1)(b)(iii).

7 **41. Stormwater Treatment BMPs.** Under WAC 173-201A-160(3)(d), BMPs are the
8 primary method of obtaining compliance with water quality standards as they apply to stormwater.
9 Consistent with this regulation, the Port's NPDES permit requires design and implementation of
10 BMPs to mitigate any adverse water quality impacts of stormwater runoff.⁴⁹ The Port's
11 implementation of BMPs has complied with the terms of its existing NPDES permit and all of the
12 conditions of that permit.⁵⁰ The Board finds that reliance on the NPDES permit, along with the
13 conditions in the §401 Certification, is appropriate to rely on to assure compliance with state water
14 quality standards.

15 **42.** In addition to compliance with the Port's NPDES permit, the Port's Stormwater
16 Management Plan complies with the King County Surface Water Design Manual, which exceeds the
17 requirements of the 1992 Ecology Manual that was applicable to this application.⁵¹ The Port has
18 selected and applied BMPs in a manner consistent with the King County manual.

19 **43.** The primary components of the existing stormwater treatment system at STIA are
20 filter strips and bioswales. Filter strips are grassy areas that slow stormwater runoff rates, allowing
21 removal of stormwater pollutants through settling of particulates and other processes. Some
22 stormwater infiltrates into the ground and, as a result, metals and organic compounds are removed as

23 ⁴⁸ Oral Testimony of Elizabeth Leavit, March 26, 2002, 184:6-28.

24 ⁴⁹ Direct Testimony of Kevin Fitzpatrick, ¶ 5; Oral Testimony of Kevin Fitzpatrick, March 22, 2002, at 106:13-107:3;
110:5-3.

25 ⁵⁰ Oral Testimony of Kevin Fitzpatrick, March 22, 2002, at 42:2-9; Direct Testimony of Keith Smith, ¶ 15.

26 ⁵¹ Direct Testimony of Paul Fendt, ¶¶ 18, 30; Direct Testimony of Kelly Whiting, ¶ 7; Oral Testimony of Kelly Whiting,
March 26, 2002, at 83:14-17; Exhibit 1268.

1 these pollutants bind to the organic material in the soil. Bioswales are grassy, flat-bottomed swales
2 that receive stormwater runoff after it has been collected in a detention facility. Vaults and ponds
3 also treat stormwater by allowing for additional settling and removal of particulates.⁵²

4 44. **Retrofit of Existing Areas at STIA.** In addition to these existing BMPs, the §401
5 Certification requires that built areas at STIA and surrounding developed areas recently acquired by
6 the Port will be retrofit to currently applicable standards. Ecology imposed the requirement to
7 retrofit existing stormwater management facilities as Condition J in the §401 Certification, including
8 a requirement that the Port assure that 20% of the retrofitting had been accomplished for every 10%
9 of new impervious surface added to the project.⁵³

10 45. Under the Port's SMP, which is required to be implemented by the §401
11 Certification, the Port will retrofit the STIA stormwater management system to match flows from a
12 theoretical basin pre-development condition.⁵⁴ Under the § 401 Certification, the Port is required to
13 implement the SMP. The targeted pre-development flow regime is the flow that would occur from a
14 watershed land coverage of 10 percent impervious surfaces, 15 percent pervious grass and 75
15 percent pervious forest.⁵⁵ Implementation of this target flow regime will reduce existing peak flows
16 in the affected streams and enhance existing water quality. This retrofit requirement goes beyond
17 the requirements of the King County Surface Water Design Manual.

18 46. In addition to this stormwater quantity retrofit of the entire STIA facility, the
19 evidence showed that STIA will also be retrofitted for stormwater quality BMPs, with the exception
20 of the 80 acres of the airfield immediately adjacent to the terminal. This area was not considered
21 practicable to retrofit, based on the impacts to ongoing operations at STIA.⁵⁶ Implementing new
22 BMPs in the Port's existing stormwater management facilities will have the effect of improving the

23 ⁵² Direct Testimony of Paul Fendt, ¶¶ 9, 18.

24 ⁵³ Exhibit 1, Condition J(1)(c); Oral Testimony of Paul Fendt, March 27, 2002, at 114:20-116:22.

25 ⁵⁴ Ex. 1213, at §§ 2.1.2, 2.1.3, 6.2.2, 7.1.4 and Appendix A (Table A-3).

26 ⁵⁵ Oral Testimony of Kevin Fitzpatrick, March 22, 2002, at 45:19-47:1; Oral Testimony of Kelly Whiting, March 26,
2002, at 80:6-18.

⁵⁶ Oral Testimony of Paul Fendt, March 27, 2002, at 114:20-117:6.

1 water quality of stormwater currently being discharged from the Port's existing stormwater
2 management system.⁵⁷

3 **47. Whole Effluent Toxicity Testing.** The Port's existing NPDES permit requires
4 periodic whole effluent toxicity ("WET") testing of the Port's principal stormwater discharges.⁵⁸ As
5 its name implies, WET tests assess the aggregate toxicity of the whole effluent sample, which
6 reflects the effect of all constituents together in addition to toxicity from individual chemical
7 constituents. WET tests use sensitive aquatic species such as waterfleas or juvenile fathead
8 minnows, which are placed in a whole effluent sample and then monitored to assess mortality among
9 the test organisms.⁵⁹

10 **48.** WET testing has advantages over chemical analysis of discharges in that it relies on a
11 direct measurement of toxicity to aquatic life, rather than presumed toxicity based on a measured
12 chemical concentration. In addition, because WET testing tests the "whole effluent," it provides a
13 test of what affected aquatic organisms actually are exposed to in a sample of actual effluent water.⁶⁰

14 **49.** In addition to the WET tests conducted pursuant to the NPDES permit,⁶¹ the Port
15 undertook instream WET testing during 1999 and 2000. All samples were taken during qualifying
16 storm events, which are defined in the testing protocols contained in the Port's NPDES permit.⁶²

17 **50.** During these qualifying storm events, the Port collected in-stream samples below Port
18 stormwater discharge points in Miller Creek, Walker Creek, and the east and west branches of Des
19 Moines Creek. In addition, the Port collected stormwater discharged from STIA stormwater outfalls
20 (prior to the receiving water) including Outfall SDS3. Outfall SDS3 was specifically selected for
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⁵⁷ Oral Testimony of Paul Fendt, March 27, 2002, at 115:3-116:22.

24 ⁵⁸ Direct Testimony of Charles Wisdom, ¶ 62.

25 ⁵⁹ *Id.* at ¶¶ 63-64.

26 ⁶⁰ *Id.*

⁶¹ Oral Testimony of Charles Wisdom, March 27, 2002, at 40:6-15.

⁶² Exhibit 1094 at 31-36.

1 toxicity testing because it drains a majority of the STIA airfield and was therefore considered to be
2 representative of future stormwater runoff from the new third runway project.⁶³

3 51. All samples were tested for toxicity using standard Ecology and EPA test protocols at
4 a Department of Ecology accredited testing laboratory. The results of all in-stream tests showed 100
5 percent survival of the organisms used in the WET testing and no toxicity.⁶⁴ Because the in-stream
6 samples exhibited no toxicity, instream toxic effects cannot be attributed to the Port's discharges.
7 Significantly, there was not toxicity from the effluent water at outfall SDS3, which was considered
8 most representative of the new project.⁶⁵ Toxicity was found at only one outfall, Outfall SDN1,
9 which is an in-pipe location well upstream from receiving waters and upstream of a water quality
10 treatment facility at Lake Reba. The Port traced the toxicity to leaching zinc from galvanized
11 roofing and is committed to implementing BMPs to correct this problem.⁶⁶ This existing galvanized
12 roof issue is not an issue for the improvements proposed as part of the MPU, because that type of
13 roof will not be used for the MPU improvements.

14 52. The results of WET testing demonstrate that there was no in-stream toxicity
15 associated with STIA stormwater discharges, and that there will not be toxicity associated with
16 stormwater from the new facilities constructed as part of the MPU improvements.

17 **53. Ecology Has Required the Development of Site-Specific Water Quality Criteria.**
18 The §401 Certification prohibits the discharge of any stormwater from operations on new MPU
19 impervious surfaces until a site-specific study (a "water effects ratio study" or "WER study") has
20 been completed and approved by Ecology and appropriate limitations and monitoring requirements
21 have been established in the Port's NPDES permit.⁶⁷

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24 ⁶³ Direct Testimony of Charles Wisdom, ¶ 65; Oral Testimony of Charles Wisdom, March 27, 2002, at 45:20-46:17.

25 ⁶⁴ *Id.* at ¶ 18; Oral Testimony of Charles Wisdom, March 27, 2002, at 45:20-47:23.

26 ⁶⁵ Oral Testimony of Charles Wisdom, March 27, 2002, at 45:20-47:17.

⁶⁶ *Id.* at ¶¶ 66-69; Oral Testimony of Charles Wisdom, March 27, 2002, at 47:24-48:7.

⁶⁷ Exhibit I, Condition J.2.a.

1 54. The evidence showed that a site-specific water effects ratio (“WER”) provides the
2 best indication of the metal concentration that would be expected to actually cause toxicity to aquatic
3 species in a water body.⁶⁸ The way that a WER does this is by determining the ratio between a
4 metal’s toxicity in actual site water, comparing that with the toxicity in laboratory water (which is
5 used to develop generic numeric water quality standards), and then adjusting the generic numeric
6 criterion based on that ratio.⁶⁹

7 55. The use of a WER to tailor water quality criteria to site-specific conditions is based
8 on the fact that the amount of metal that is actually “bioavailable” to organisms living within the
9 receiving waters is what determines whether any specific amount of metal is actually toxic. The
10 bioavailability (and hence toxicity) of chemicals in receiving streams, creeks, or rivers, is reduced by
11 the presence of natural constituents such as suspended particles or organic matter.⁷⁰ The WER
12 approach is an approved and accepted means to regulating toxic substances under the state Water
13 Quality Standards at WAC 173-201A-040(3)(dd).

14 56. The U.S. EPA has recognized that published national water quality criteria are
15 frequently more stringent than necessary for the protection of site waters. The reason for this is
16 because site-specific water quality conditions are often quite different from those under which the
17 national criteria were developed (i.e., laboratory water). Consistent with this view, EPA has
18 recommended the development of site-specific criteria via WER studies.⁷¹ Numerous guidelines
19 have been distributed for this purpose.⁷²

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21 ⁶⁸ Oral Testimony of Edward O’Brien, March 25, 2002, at 40:15-41:2.

22 ⁶⁹ Direct testimony of William Stubblefield, ¶14.

23 ⁷⁰ *Id.*; Direct Testimony of Charles Wisdom, ¶¶ 52-54..

24 ⁷¹ Oral Testimony of Peter Willing, March 21, 2002, at 35:21-36:9; Direct Testimony of Charles Wisdom, ¶ 52.

25 ⁷² Direct Testimony of William Stubblefield, ¶¶ 13-15, citing Carlson et al. 1984, USEPA 1992, Prothro 1993, USEPA
26 1994, USEPA 2001. Other guidelines cited by Dr. Stubblefield are “Guidelines for Deriving Numerical National Water
Quality Criteria for the Protection of Aquatic Organisms and their Uses” (Stephan et al. 1985); “Guidelines for Deriving
Numerical Aquatic Site-Specific Water Quality Criteria by Modifying National Criteria” (Carlson et al. 1984); “Interim
Guidance on Interpretation and Implementation of Aquatic Life Criteria for Metals” (USEPA 1992); “Interim Guidance
on the Determination and Use of Water-Effect Ratios for Metals” (USEPA 1994); “Interim Final Rule for the
Establishment of Numeric Criteria for Priority Toxic Pollutants” (USEPA 1995); and “Streamlined Water-Effect Ratio
Procedure for Discharges of Copper” (USEPA 2001).

1 57. In a WER study, concurrent toxicity tests are used to calculate the ratio of a
2 chemical's toxicity in site-water to its toxicity in purified laboratory water. The chemical of concern
3 is spiked into the laboratory water and site-water at known concentrations. A median lethal
4 concentration is then determined for each water, and the two are compared to generate a WER. This
5 ratio provides an empirical determination of the difference in metal bioavailability between the site-
6 water and laboratory water, expressed as a ratio.⁷³

7 58. This ratio is used to adjust the numeric water quality criterion. For example, if the
8 water quality criterion for a chemical is 3 µg/L, and a WER of 3 is derived for a particular site, the
9 resulting site-specific water quality criterion would be 9 µg/L. The resulting standard gives the
10 necessary level of protection intended by the more generic (laboratory water) standard, but with the
11 standard adjusted for the particular characteristics of the water in that particular stream.⁷⁴

12 59. Any site-specific standards that are developed based on a WER study would not
13 constitute a relaxation of environmental protection. Instead, the WER approach is designed to
14 produce a site-specific standard that is fully protective of the organisms within the streams.⁷⁵

15 60. **The Impact of Water Effects Ratios.** The Port has already undertaken preliminary
16 screening analyses of stormwater discharges as part of the preparation of a WER study, consistent
17 with WAC 173-201A-040(dd).⁷⁶

18 61. Range-finding WER studies have been conducted by the Port using water collected
19 from multiple sites in Miller, Walker, and Des Moines Creeks. Range-finding studies are
20 preliminary WER studies used to determine whether a site-specific ratio for a particular pollutant is
21 possible and, if so, what the "range" of the ratio might be.⁷⁷ The site-specific studies required by the
22 §401 Certification will result in WER numbers and will also show whether specific pollutants are

23 _____
⁷³ Direct testimony of Charles Wisdom, ¶ 53.

24 ⁷⁴ *Id.*; Oral Testimony of Kevin Fitzpatrick, March 22, 2002, at 52:18-53:17.

25 ⁷⁵ Direct Testimony of William Stubblefield, ¶ 21; Oral Testimony of Kevin Fitzpatrick, March 22, 2002, at 103:24-
104:8.

26 ⁷⁶ Direct Testimony of Charles Wisdom, ¶ 55.

⁷⁷ *Id.* at ¶¶ 55-59.

1 attributable to stormwater discharges from the Port, or whether they are attributable to other sources.
2 When accepted by Ecology, site-specific criteria developed by the WER study would apply in lieu of
3 the generic numeric water quality criteria.

4 62. The Port undertook range-finding studies for both copper and zinc, because toxic
5 metals screening tests had disclosed that these two metals were the metals of concern for STIA
6 stormwater discharges.⁷⁸

7 63. These range-finding studies showed a probable WER for copper for Miller, Walker
8 and Des Moines Creeks that ranged from 6 to 28. That is, copper was shown to be between 6 to 28
9 times less toxic in site-water than in laboratory water. The data from these studies suggest that the
10 applicable water quality criterion for copper could be increased by a factor of between 6 to 28 and
11 still remain protective of sensitive species in the Miller, Walker, and Des Moines Creek systems.⁷⁹

12 64. In addition to the range-finding WER studies, the Port has undertaken recent
13 monitoring studies within the area streams to determine whether there are exceedances of numeric
14 water quality criteria for copper or zinc during storm events. These studies have shown no
15 exceedances of the state's numeric water quality criteria for either zinc or copper in Miller Creek and
16 Walker Creek. The results have shown limited exceedances at some locations for some storm events
17 in Des Moines Creek. However, the sampling locations that recorded exceedances in Des Moines
18 Creek receive substantial contributions of stormwater from commercial and industrial sources
19 outside the Port's property, including International Boulevard.⁸⁰ Consequently, it is not possible to
20 determine the precise relative contributions of the metals attributable to the Port.⁸¹

21 65. Even were all of the metals shown in the samples attributed to the Port, the evidence
22 indicates that application of a WER for copper would mean that the applicable criteria would be
23 above any of the levels of these metals that were actually measured in the samples. A WER study

24 ⁷⁸ Direct Testimony of William Stubblefield, ¶ 23.

25 ⁷⁹ *Id.* at ¶ 19.

26 ⁸⁰ *Id.* at ¶¶ 22-27.

⁸¹ Oral Testimony of Kevin Fitzpatrick, March 22, 2002, at 111:16-112:17; 115:3-116:3.

1 for zinc is currently underway and could also result in the same types of applicable criteria. In
2 addition, experts for both the Port and ACC testified that there are currently-available BMPs (such as
3 wet ponds, leaf filters, filter media, etc.) that can effectively reduce the copper or zinc levels in STIA
4 stormwater,⁸² if application of those BMPs is shown to be necessary after conclusion of the site-
5 specific study.⁸³

6 66. The Board finds that the range-finding WER studies undertaken by the Port
7 demonstrate that development of site-specific standards is feasible at STIA and that the site-specific
8 study required by Ecology will provide reasonable assurance of compliance with state water quality
9 standards.

10 67. **Numeric Water Quality Criteria and Stormwater Sampling.** Ecology employs
11 numeric water quality standards, narrative standards and an antidegradation standard in order to
12 maintain water quality.

13 68. As was noted above, the Port's NPDES permit states that compliance with that permit
14 constitutes compliance Clean Water Act⁸⁴ and, under the WAC 173-201A-160(3), Ecology uses
15 BMPs as the primary method of attaining compliance with water quality standards for stormwater
16 discharges. Ecology also recognizes BMPs as effluent limits.⁸⁵ Accordingly, implementation of
17 appropriate BMPs is presumed to result in compliance with state water quality standards and
18 Ecology will rely on compliance with BMPs for reasonable assurance of compliance with water
19 quality standards.⁸⁶

20 69. One of the requirements of the Port's NPDES permit is that the Port must monitor its
21 stormwater discharges. This monitoring is done by taking stormwater samples, using methods
22 specified in the NPDES Permit. Samples are taken at each of the Port's 14 stormwater outfalls

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⁸² Oral Testimony of Peter Willing, March 21, 2002, at 52:10-17; 54:11-20.

24 ⁸³ Direct Testimony of William Stubblefield, ¶¶ 28-29; Oral Testimony of William Stubblefield, March 28, 2002, at
25 65:24-68:14; Oral Testimony of Kevin Fitzpatrick, March 22, 2002, at 101:4-24; 116:4-118:5.

⁸⁴ Oral Testimony of Keith Smith, March 27, 2002, at 34:17-24.

⁸⁵ Oral Testimony of Kevin Fitzpatrick, March 22, 2002, at 41:5-12.

26 ⁸⁶ Oral Testimony of Keith Smith, March 26, 2002, at 202:1-7; March 27, 2002, at 34:17-23.

1 throughout the year, with sampling frequencies specified by Ecology in the NPDES permit.⁸⁷
2 Because the Port's NPDES permit addresses stormwater quality primarily through the application of
3 BMPs, the general purpose of the Port's stormwater monitoring has been to determine the
4 effectiveness of the applicable BMPs.⁸⁸ The sampling is used to assess whether the BMPs required
5 under that permit are effective, consistent with the adaptive management strategy employed under
6 the Clean Water Act and the Port's NPDES permit.⁸⁹

7 70. Because sampling is done to assess the overall effectiveness of BMPs, most of the
8 sampling locations specified by the NPDES permit are upgradient from the receiving waters and, in
9 many instances, upgradient from where treatment takes place prior to discharge.⁹⁰ Based on this
10 fact, the sampling results are not be truly indicative of the water quality of the stormwater discharges
11 as they enter the receiving waters, or of the water quality in the receiving streams themselves.

12 71. At the hearing, both ACC and CASE claimed that the Port's stormwater discharge
13 reports from 1993 through 1997 showed multiple violations of the numeric water quality criteria.
14 Washington's numeric water quality criteria for various pollutants are contained in WAC 173-201A-
15 040. These numeric criteria are applicable unless site-specific criteria, such as those that would be
16 developed by a WER study, are developed, in which case the site-specific criteria would be the
17 applicable numeric water quality criteria.

18 72. Appellants maintained that the Port's historic stormwater monitoring reports showed
19 levels of zinc and copper contained in the Port's stormwater discharges which violated these numeric
20 criteria. However, any analysis of whether there is an exceedance of the zinc and copper standards
21 in WAC 173-201A-040 requires (1) hardness data measured in the receiving water; (2) sampling
22 over a set period of time; (3) the sampling to be conducted in receiving waters (waters of the state),
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24 ⁸⁷ Exhibit 1094 at 13-15.

25 ⁸⁸ Direct Testimony of Keith Smith, ¶ 2; Oral Testimony of Keith Smith, March 26, 2002, at 202:1-7; March 27, 2002, at
26 8:8-14.

⁸⁹ Oral Testimony of Kevin Fitzpatrick, March 21, 2002, at 42:10-25.

⁹⁰ Direct Testimony of Keith Smith, at ¶ 3.

1 not upstream of those receiving waters, and (4) measurement of the dissolved fraction of metals, as
2 opposed to total recoverable metals.⁹¹

3 73. The absence of any of these factors has a significant impact on whether data shows
4 any exceedance of the numeric water quality criteria. For example, evidence was presented that the
5 hardness of stormwater can vary significantly over short periods of time during single rainfall
6 events. As a result, the numeric water quality criteria themselves can vary during a single rainfall
7 event.⁹² While the data did show some instantaneous exceedances of numeric criteria, the historic
8 sampling data did not present the data in a way that showed exceedances of water quality standards.
9 In the historic sampling data presented, one or more of the required elements were missing – either
10 the hardness data (averaged over the correct time period) was missing, the sampling was done in-
11 pipe rather than in receiving water, the sampling was an instantaneous reading rather than an average
12 over the time period required in WAC 173-201A-040, or the sampling showed total recoverable
13 metals rather than the dissolved fraction.⁹³ Even the in-stream sampling from 1997 was not done
14 over the proper time period to determine compliance with numeric criteria,⁹⁴ and also did not show
15 what contribution of metals in-stream were from the Port's stormwater and what contribution came
16 from other sources such as area highways and roadways that drain to the same creeks.⁹⁵ Ecology's
17 witnesses testified that the historic sampling for metals showed instantaneous exceedances (which
18 are not averaged over the time period to constitute an actual exceedance), but also agreed that copper
19 and zinc were certainly constituents of concern, which is why Ecology required a site-specific study
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22 ⁹¹ Oral Testimony of Peter Willing, March 21, 2002, at 31:13-18; 44:14-45:4; 47:3-48:8; 51:4-9; Oral Testimony of John
23 Strand, March 22, 2002, at 3:14-5:2.

24 ⁹² Oral Testimony of Peter Willing, March 21, 2002, at 32:20-33:8.

25 ⁹³ Oral Testimony of Peter Willing, March 21, 2002, at 44:24-45:4, 46:12-20; 47:1; 49:24, 72:18-23; Oral Testimony of
26 John Strand, March 22, 2002, at 3:13-5:3; Oral Testimony of Keith Smith, March 26, 2002, at 203:9-24; 205:20-207:23.

⁹⁴ Oral Testimony of Keith Smith, March 26, 2002, at 205:20-206:1, 207:14-23.

⁹⁵ Oral Testimony of Keith Smith, March 26, 2002, at 203:11-24; Oral Testimony of Peter Willing, March 21, 2002, at
40:11-23; Oral Testimony of John Strand, March 21, 2002, at 13:13-22.

1 to be completed, approved, and appropriate limits and monitoring requirements established prior to
2 operation of any of the new pollutant-generating impervious surfaces at STIA.⁹⁶

3 74. In the event the site-specific study shows any problem with zinc and copper levels in
4 the area streams was caused by the Port, as opposed to area highways which discharge the same
5 types of metals, witnesses for both the Port and Appellants agreed that there were BMPs available to
6 treat that stormwater. Ecology agreed that those BMPs could be imposed through the Port's NPDES
7 permit if the site-specific study indicated a need for additional controls..⁹⁷

8 75. Based on this evidence, the Board finds that there is reasonable assurance that the
9 Port's stormwater discharges will comply with state numeric water quality standards.

10 76. **Glycols.** Glycols are utilized to de-ice airplanes during certain weather conditions.
11 The evidence showed that most glycol usage at STIA is limited to infrequent, one- or two-day winter
12 weather episodes.⁹⁸ There are no numeric state or national water quality standards for glycols.

13 77. Nearly all of the glycols used at STIA are routed to the industrial wastewater system
14 ("IWS"), because all of the application of glycol must take place in the portion of STIA that drains
15 to the IWS.⁹⁹ Accordingly, any glycols appearing in stormwater samples come from drip or shear
16 off the wings of planes as they taxi or take off outside of the IWS area, or as the planes wait in line
17 on a runway to take off.¹⁰⁰

18 78. The evidence showed that 99% of the glycols applied to commercial aircraft at STIA
19 in 1998/1999 were Type I glycols, which are less toxic than other types of glycols.¹⁰¹ While ACC
20 presented evidence regarding the toxicity of glycols, the Port presented evidence that called into
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22 ⁹⁶ Written Testimony Kevin Fitzpatrick, ¶ 16; Oral Testimony of Kevin Fitzpatrick, March 22, 2002, at 116:4-118:5;
§401 Certification Condition J.2.a.

23 ⁹⁷ Oral Testimony of Kevin Fitzpatrick, March 22, 2002, at 116:4-118:5; Oral Testimony of Peter Willing, March 21,
2002, at 52:10-17; 54:11-20; Oral Testimony of William Stubblefield, March 28, 2002, at 65:24-68:13.

24 ⁹⁸ Direct Testimony of Keith Smith, ¶ 25; Oral Testimony of Keith Smith, March 26, 2002, at 208:15-25; Direct
Testimony of Charles Wisdom, ¶ 20.

25 ⁹⁹ Written Testimony of Keith Smith, ¶ 25; Oral Testimony of Keith Smith, March 26, 2002, at 209:1-22.

26 ¹⁰⁰ Direct Testimony of Charles Wisdom, ¶ 22.

¹⁰¹ Oral Testimony of John Strand, March 22, 2002, at 23:17-24.

1 question the validity of any conclusion of toxicity based on those sources.¹⁰² The Board finds that
2 the evidence on glycol toxicity from Dr. Charles Wisdom was credible. Dr. Wisdom testified that
3 none of the glycol amounts found in streams near STIA are present in quantities that are toxic to
4 sensitive organisms or stream quality.¹⁰³ In light of this evidence, the Board finds that Appellants
5 have not sustained their burden of proof to show violations of water quality standards based on the
6 presence of glycol in the Port's stormwater samples.

7 **79. Impacts on Wildlife Habitat.** The evidence presented at the hearing showed that
8 Miller, Walker and Des Moines Creeks currently support a diverse fish population. However, these
9 streams are disturbed and have been significantly altered by urban development, making them more
10 suitable for non-native, introduced species than for salmonids.¹⁰⁴

11 **80.** The evidence demonstrated that construction of the MPU improvements and proposed
12 mitigation will not adversely affect habitat conditions in these streams. The mitigation for the
13 project will restore previously degraded habitat, will treat stormwater entering the streams and will
14 mitigate for low flow impacts.¹⁰⁵

15 **81.** The Port prepared a Biological Assessment ("BA") for the actions being taken
16 pursuant to the Port's Master Plan Update, as required by the Endangered Species Act. This BA was
17 submitted to the National Marine Fisheries Service and the U.S. Fish & Wildlife Service
18 (collectively, the "Services"). The BA concluded that construction of the MPU improvements is not
19 likely to adversely affect the species listed under the Endangered Species Act. The Services
20 concurred in this conclusion.¹⁰⁶

23 ¹⁰² *Id.* at ¶¶ 28-39; Oral Testimony of Charles Wisdom, March 27, 2002, at 56:10-21; 57:1-58:1.

24 ¹⁰³ Direct Testimony of Charles Wisdom, ¶¶ 21-39; Oral Testimony of Charles Wisdom, ¶¶ 21-39; Oral Testimony of
Charles Wisdom, March 27, 2002, at 54:4-60:11; *see* Exhibit 1175.

25 ¹⁰⁴ Direct Testimony of Donald Weitkamp, ¶¶ 3, 13, 19; Oral Testimony of Donald Weitkamp, March 27, 2002, at 79:7-
81:12, and at 83:21-85:4

26 ¹⁰⁵ *Id.* at ¶¶ 4, 17-18, 31.

¹⁰⁶ *Id.* at ¶¶ 23-25.

1 82. ACC had previously challenged both the Port's and the FAA's compliance with the
2 Endangered Species Act, bringing a lawsuit that contended that the FAA ROD was issued in
3 violation of the ESA. Following the issuance of the BA and the acceptance of the conclusions
4 contained in the BA by the Services in their Biological Opinion, ACC dismissed its ESA lawsuit,
5 stating that "[t]he effect of the biological opinion and concurrence letter is exactly what ACC had
6 sought to achieve in this case and related district court case – to provide substantial additional
7 protections for bull trout, chinook salmon and marbled murrelets."¹⁰⁷

8 83. In addition to the BA, an analysis of Essential Fish Habitat was undertaken as
9 required by federal law. That analysis concluded that the Port's MPU projects would have no
10 adverse effects on chinook or pink salmon and that no long-term effects will occur to coho salmon.
11 While there may be some short-term effects on coho salmon, the EFH study concluded that habitat
12 restoration projects undertaken in conjunction with the construction of the MPU improvements
13 would provide a long-term benefit.¹⁰⁸

14 84. With respect to other aquatic life, the testimony of Dr. Donald Weitkamp was
15 credible and showed that the MPU improvements will not adversely affect stream habitat.

16 85. With respect to salmonids in particular, the normal low flow conditions of the area
17 streams do not provide desirable salmonid habitat in the vicinity of STIA. The project will not
18 change these limiting flow conditions for any of the four area streams, nor will it make stranding or
19 mortality of fish more likely.¹⁰⁹

20 2. LOW FLOW

21 86. The MPU improvements will add new impervious surface to the Miller Creek
22 watershed(106 acres), the Walker Creek watershed (6 acres), and the Des Moines Creek watershed
23 (28 acres). Without mitigation, this new impervious surface would increase peak flow rates in area
24

25 ¹⁰⁷ Exhibit 1252 at 3.

26 ¹⁰⁸ Direct Testimony of Donald Weitkamp, ¶ 26.

¹⁰⁹ *Id.* at ¶ 37.

1 streams during rainstorms, and would reduce flows during seasonal low flow periods in Walker and
2 Des Moines Creeks.¹¹⁰

3 87. The projected impacts to stream flow from the MPU improvements during low flow
4 periods are relatively small. In Walker Creek, the estimated net impact would be a reduction of 0.11
5 cubic feet per second (cfs), which translates to a decrease of 3 mm in depth and 30 mm in width. In
6 Des Moines Creek, average flows would be reduced by an estimated 0.8 cfs, or 9 mm in depth and
7 101 mm in width.¹¹¹ The modeling showed little or no change to total stream flow in Miller Creek
8 during low flow periods.¹¹²

9 88. The Port proposes to mitigate these low flow impacts using three methods:
10 (1) seepage of infiltrated stormwater from the new third runway embankment (in the Miller and
11 Walker Creek basins); (2) detention and release of stored stormwater during the summer low flow
12 season (in the Des Moines and Walker Creek basins); and (3) retirement of existing water uses (in
13 the Miller Creek basin).¹¹³ Just as with mitigation for peak flow impacts, the purpose of mitigation
14 for low flow impacts is to mimic pre-development conditions -- maintaining streamflows in as close
15 to pre-development conditions as possible in order to protect habitat and aquatic organisms and to
16 ensure that water quality standards will be met.¹¹⁴

17 89. A portion of the rain that falls on the embankment will move into and through the
18 embankment, rather than run off as stormwater. Some of it will emerge as seeps that will flow into
19 Walker and Miller Creeks. The maximum flow of infiltrated stormwater will reach Miller Creek in
20 July, approximately six to seven months after the maximum rainfall. Because this seepage will
21 reduce the overall low flow impact on Walker Creek, less mitigation from stormwater detention is
22 needed.¹¹⁵

23 _____
¹¹⁰ Direct Testimony of Paul Fendt, ¶ 7.

24 ¹¹¹ *Id.* at ¶ 37; Oral Testimony of Paul Fendt, March 27, 2002, at 119:19-25.

25 ¹¹² Oral Testimony of Paul Fendt, March 27, 2002, at 119:23-24.

26 ¹¹³ *Id.* at ¶ 15; Oral Testimony of Paul Fendt, March 27, 2002, at 123:2-10.

¹¹⁴ *Id.* at ¶ 11.

¹¹⁵ *Id.* at ¶ 16.

1 90. Seepage from the embankment will entirely eliminate the need for low-flow
2 mitigation in Miller Creek.¹¹⁶ Detaining stormwater and releasing it during low flow periods will
3 mitigate low flow impacts in Des Moines Creek and Walker Creek. Detained stormwater will be
4 discharged continuously into the affected streams during the low stream flow period for each of the
5 streams. The slow release of detained water will replicate the timing and amount of stormwater
6 baseflow. The amount of low flow releases necessary to mitigate low flow impacts from the MPU
7 improvements has been determined using hydrologic modeling.

8 91. **Analysis of Historic Flows.** The Port formulated its low flow mitigation plans based
9 on an evaluation of historical streamflows. This evaluation was based on analysis of 47 years of
10 precipitation reports. From these records, the Port identified historical streamflow levels, daily and
11 weekly average flows, and baseflow (groundwater seepage or surface water released from lakes or
12 wetlands).¹¹⁷

13 92. Using this data, the Port’s consultants identified a low flow period, i.e., the time of
14 year when stream flows are typically at their lowest. They also identified a mitigation period and a
15 volume of water necessary to mitigate the low flow impacts for Walker and Des Moines Creeks.
16 The Port quantified these effects through hydrologic modeling, using the Hydrologic Simulation
17 Program — FORTRAN (“HSPF”), Hydrus and Slice hydrologic models.

18 93. **Modeling of Low Flow Impacts.** HSPF was used to model runoff and to account for
19 evapotranspiration into the atmosphere. For Miller Creek and Walker Creek, these data were then
20 input into the Hydrus and Slice models to determine the amount of surface runoff expected, the
21 movement of water that will infiltrate through the embankment, the amount of water that would flow
22 into the drains underlying the embankment and the amount that would seep into the till layer. The
23
24

25 ¹¹⁶ *Id.* at ¶ 15.

26 ¹¹⁷ *Id.* at ¶¶ 40-49.

1 resulting data were then input back into the HSPF model to determine the timing of flows back to the
2 streams.¹¹⁸

3 94. All of the witnesses that testified about hydrologic modeling agreed that the HSPF
4 model was the appropriate tool to model low stream flows. The data generated from the HSPF
5 modeling was used to design facilities to capture, detain, treat, and release stormwater.¹¹⁹

6 95. Appellants questioned the Port's use of several models to simulate the various phases
7 of water transport from precipitation to streams and to compare pre-construction and post-
8 construction conditions. Based on the evidence presented, the Board is satisfied that no single model
9 could have accurately and effectively simulated hydrologic conditions in a project of this complexity
10 and that the data reflecting the Port's comparison of pre- and post-construction conditions was
11 accurate within a reasonable margin of error.

12 96. Appellants also questioned the Port's modeling of flow through the embankment,
13 criticizing some of the assumptions that underlay that modeling and the application of the Hydrus
14 and Slice models. Based on the evidence presented, the Board finds that Appellants have not met
15 their burden of showing the modeling assumptions were unreasonable or would lead to a violation of
16 state water quality standards.

17 97. The evidence presented demonstrated that the Port's application of the Hydrus and
18 Slice models resulted in modeled data that provided reasonable assurance to Ecology regarding the
19 infiltration that could be expected from the embankment. The evidence presented supports the
20 Port's assumptions with respect to the makeup of the fill to be used in the embankment.

21 98. Appellants' assertion that the embankment will take months or years to saturate is at
22 odds with the fact that the fill used for the embankment will already have existing moisture content,
23 as well as the fact that the embankment will be exposed to precipitation throughout the estimated
24 six-year construction period. Evidence presented at the hearing showed that groundwater already

25 ¹¹⁸ Direct Testimony of Charles Ellingson, ¶¶ 6-7; Direct Testimony of Joseph Brascher, ¶¶ 7-8.

26 ¹¹⁹ Direct Testimony of Paul Fendt, ¶¶ 37-49; Oral Testimony of Paul Fendt, March 26, 2002, at 106:23-107:17.

1 discharges from the base of fill placed in the embankment, indicating that moisture content of the fill
2 and the necessity of a “wetting up” period are not valid concerns.¹²⁰

3 99. **Model Calibration.** Much of Appellants’ challenge to the Port’s modeling efforts
4 were criticisms of the calibration of certain models or the failure to account for water possibly lost as
5 a result of improvements to the Port’s IWS system. Based on the evidence presented, the Board
6 finds that, while simulated flows did not exactly match measured flows, all witnesses agreed that no
7 model would produce an exact replication of measured data. In fact, all witnesses agreed that a
8 model may be properly calibrated even though it does not match observed data exactly, with some
9 witnesses testifying that a calibration that attempted to exactly duplicate observed data would be
10 suspect.¹²¹

11 100. While Appellants’ witnesses were critical of certain calibrations, they either failed to
12 quantify the impacts that they asserted or their evidence (particularly with respect to impacts from
13 the IWS system) was speculative. Evidence was also presented that calibration and modeling was an
14 iterative process, with each successive effort attempting to provide a better fit than the last.¹²²

15 101. In addition, the Board finds that reasonable assurance that low flow impacts will be
16 mitigated has been supplied by conditions imposed by Ecology in the §401 Certification. These
17 conditions require the Port to monitor streamflows and seepage from the embankment and, if
18 necessary, to implement contingency measures to mitigate the project’s low flow impacts. The
19 evidence showed that such contingency measures were feasible and could be accomplished through
20 modification of the times and rates at which detained stormwater is released, and that there will be
21 sufficient stormwater detention to meet any contingencies that monitoring reveals. Thus, even if the
22 iterative monitoring process shows changes to the necessary mitigation, monitoring will provide a

23 _____
24 ¹²⁰ Direct Testimony of Charles Ellingson, ¶¶ 33-35; Oral Testimony of Dave Garland, March 22, 2002, at 147:8-148:19.

25 ¹²¹ Direct Testimony of Paul Fendt, ¶¶ 50-51; Direct Testimony of Joseph Brascher, ¶¶ 11-12, 24; Direct Testimony of
26 Kelly Whiting, ¶ 11; Oral Testimony of Joseph Brascher, March 27, 2002, at 191:17-21; 193:8-18, Oral Testimony of
Kelly Whiting, March 26, 2002, at 143:9-14.

¹²² Direct Testimony of Paul Fendt, ¶¶ 50-51; Direct Testimony of Joseph Brascher, ¶¶ 11-12, 18-19, 24; Oral Testimony
of Joseph Brascher, March 27, 2002, at 203:1-6; Oral Testimony of Kelly Whiting, March 26, 2002, at 85:19-86:13.

1 means to adjust the stormwater management system to release sufficient flows to mitigate low flow
2 impacts.¹²³

3 102. Based on the evidence presented at the hearing, the Board finds that the Port's low
4 flow mitigation plan is feasible and that the low flow mitigation improvements are constructable. In
5 addition, the Board finds that mitigation of low flows goes beyond the requirements of the King
6 County Surface Water Design Manual. Based on this evidence, the Board finds that Ecology had
7 reasonable assurance that the small low flow impacts generated by construction of the MPU
8 improvements will be fully mitigated.

9 3. WATER RIGHTS

10 103. As described above, the Port plans to mitigate the low flow impacts of the project by
11 releasing detained stormwater to affected creeks during dry months. Rain falling on the third
12 runway area will either infiltrate into the pervious, or will be collected from impervious surfaces in
13 catch basins and then conveyed to detention facilities, including ponds and vaults. Both infiltration
14 and the use of detention facilities are among the menu of BMPs described in Ecology's stormwater
15 management manual for western Washington.¹²⁴ The Port is required under its NPDES permit to
16 select from this menu BMPs that will protect water quality and "reduce hydrologic disruption."¹²⁵

17 104. The primary purposes of the Port's stormwater management system are protecting
18 water quality and replicating predevelopment flow conditions in neighboring streams.¹²⁶ High flows
19 can lead to erosion, scouring, and loss of fish habitat, while low flows can also jeopardize fish and
20 affect water quality, including increasing water temperatures.¹²⁷

21 105. For example, to match the peak flows that would have occurred prior to development,
22 the Port will detain stormwater in its detention facilities for more than half the year.¹²⁸ To avoid low

23 _____
¹²³ Oral Testimony of Paul Fendt; March 27, 2002, at 126:13-127:24.

24 ¹²⁴ Direct Testimony of Steven Swenson, ¶¶ 10-13.

25 ¹²⁵ *Id.* at ¶¶ 6-9.

26 ¹²⁶ Direct Testimony of Paul Fendt, ¶¶ 14-19.

¹²⁷ *Id.* at ¶14; Direct Testimony of Steven Swenson, ¶ 5.

¹²⁸ Direct Testimony of Paul Fendt, ¶ 25.

1 flows, the Port will detain approximately 9% of the collected stormwater for an additional period of
2 weeks or months.¹²⁹ In both cases, detained stormwater will be slowly released at precise rates to
3 the affected creeks.¹³⁰ To maintain water quality in neighboring creeks, the Port will use filter strips
4 and bioswales, and will allow for settlement in detention ponds and vaults.¹³¹

5 106. It is not uncommon for stormwater management systems to detain water for periods
6 of weeks or months.¹³² Nor is it uncommon to carefully control the rate and time at which
7 stormwater is released from a detention facility,¹³³ or to use filter strips, bioswales, and settlement in
8 detention facilities as treatment methods.¹³⁴ Based on the evidence, the Board finds that the Port's
9 stormwater management system (to handle water quality concerns and both peak and low flow
10 impacts) is consistent with the requirements of its NPDES permit and Ecology's stormwater
11 management manual. The systems and facilities the Port plans to use to manage its stormwater are
12 the same ones used in typical stormwater management systems. We also find that the objectives of
13 the Port's system are indistinguishable from other stormwater management systems common
14 throughout western Washington.

15 4. FILL CRITERIA, EMBANKMENT AND MSE WALL

16 107. The third runway will be built on an earthen embankment constructed with imported
17 fill material.¹³⁵ The eastern boundary of the embankment will abut the existing airfield at STIA,
18 while the western boundary will either be sloped or bounded by one of three MSE walls.¹³⁶ Fill used
19 in the embankment will range from several feet to 165 feet thick.¹³⁷ At the base of the embankment
20 the Port will construct a drainage layer, which is intended to prevent groundwater pressures from
21

22 ¹²⁹ *Id.* at ¶ 17.

23 ¹³⁰ *Id.* at ¶¶ 14, 17.

24 ¹³¹ *Id.* at ¶ 18; Direct Testimony of Steven Swenson ¶ 19.

25 ¹³² Direct Testimony of Steven Swenson, ¶ 18; Direct Testimony of Paul Fendt, ¶¶ 23-29.

26 ¹³³ Direct Testimony of Steven Swenson, ¶ 20.

¹³⁴ *Id.* at ¶ 19.

¹³⁵ Direct Testimony of Linn Gould, ¶ 5.

¹³⁶ *Id.*

¹³⁷ *Id.*

1 building up within the embankment when the groundwater table rises during winter months, and to
2 direct groundwater flow away from the embankment to prevent geotechnical instability.¹³⁸

3 108. There will be three MSE walls along the embankment: a North Wall about 1,300 feet
4 long and up to 90 feet high; a West Wall about 1,450 feet long and up to 135 feet high; and a South
5 Wall about 900 feet long and up to 50 feet high.¹³⁹ The three MSE walls along the embankment will
6 use strips of steel in the compacted fill material and a relatively thin reinforced concrete facing to
7 form a vertical retaining wall face.¹⁴⁰ The reinforcing strips extend into the embankment fill behind
8 the wall, perpendicular to the wall face.¹⁴¹ Friction between the strips and the layers of compacted
9 soil will prevent the strips from pulling out, and will support the wall face.¹⁴²

10 109. **Potential for MSE Wall Failure.** The Port's team of experts evaluated a number of
11 retaining wall designs, wall and embankment slope geometric configurations, and methods for
12 making subgrade improvements below the MSE walls.¹⁴³ The Port's review and analysis of the
13 MSE wall and associated construction was very extensive, employing the services of numerous
14 engineering and consulting firms, consultation with state officials, and peer review by an
15 Embankment Technical Review Board.¹⁴⁴ The Port decided on an approach and produced a design,
16 which it submitted, along with backup information, to an Embankment Technical Review Board
17 convened by the Port specifically to review the MSE wall design.¹⁴⁵

18 110. The Technical Review Board was composed of internationally-recognized experts in
19 the construction of MSE walls, in seismic design and earthquake engineering, and in geotechnical
20 and seismic computer modeling.¹⁴⁶ The Technical Board convened several times in 2000 and 2001
21

22 ¹³⁸ *Id.* at ¶6.

23 ¹³⁹ *Id.* at ¶ 28.

24 ¹⁴⁰ Direct Testimony of Michael Bailey, ¶ 29.

25 ¹⁴¹ *Id.*

26 ¹⁴² *Id.*

¹⁴³ *Id.* at ¶¶ 9-11.

¹⁴⁴ *Id.* at ¶¶ 16-26.

¹⁴⁵ *Id.* at ¶¶ 23-26.

¹⁴⁶ *Id.* at ¶¶ 23-24.

1 to review the design and to conduct a peer review of the work already done by the Port's design
2 team.¹⁴⁷ In November 2001, the Review Board recommended some modifications, but otherwise
3 agreed with the approach taken.¹⁴⁸ The Port has not prepared final construction plans, so there could
4 be additional refinements to the design of the West MSE Wall.¹⁴⁹ However, the evidence showed
5 that the Port did not anticipate making any design changes that would have environmental
6 consequences.¹⁵⁰ We find that the design of the West MSE Wall is sufficiently complete to
7 determine whether the wall has any potential impact on water quality.

8 111. The West MSE Wall is designed to withstand an earthquake with a 10% probability
9 of occurring in any 50-year period, which on average will occur once every 475 years.¹⁵¹ This is the
10 same standard commonly used for highway bridges and public structures, including San Francisco's
11 Bay Area Rapid Transit system.¹⁵² It is also the standard adopted in the current version of a national
12 code for transportation structures, the AASHTO Code.¹⁵³ We find that the Port used the appropriate
13 design level earthquake.

14 112. Part of the analysis undertaken during design of the West MSE Wall was a
15 deformation analysis, which considered the effect that the design earthquake would have on the
16 wall.¹⁵⁴ The deformation analyses found that a catastrophic failure – i.e., a failure that would cause
17 the wall to fall down or soil from it to be spilled into Miller Creek – was highly unlikely.¹⁵⁵
18 Analyses also showed that liquefaction that might occur during an earthquake would not clog the
19 underdrain beneath the West MSE Wall.¹⁵⁶

21 ¹⁴⁷ *Id.* at ¶ 25.

22 ¹⁴⁸ *Id.* at ¶ 26

23 ¹⁴⁹ *Id.* at ¶ 15.

24 ¹⁵⁰ *Id.* at ¶¶ 15, 39.

25 ¹⁵¹ *Id.* at ¶ 45.

26 ¹⁵² *Id.* at ¶¶ 46-47, 50.

¹⁵³ *Id.* at ¶¶ 33-34.

¹⁵⁴ *Id.* at ¶¶ 48-49

¹⁵⁵ *Id.* at ¶ 37.

¹⁵⁶ *Id.* at ¶ 64.

1 113. Appellants submitted testimony that the results of one of the computer models the
2 Port used, FLAC, have not been validated by checking them against the performance of actual MSE
3 structures under loadings that would be experienced during the design earthquake. However, since
4 no actual data were available for a wall of similar height, the Port relied on the expertise of the
5 Technical Review Board and on literature values to perform its analysis.¹⁵⁷ It also used multiple
6 analytical processes to verify that the West MSE Wall will perform well in an earthquake.¹⁵⁸ We
7 find that this level of analysis was reasonable.

8 114. Based on the evidence submitted, the Board finds that the Port's design and analyses
9 are adequate to demonstrate that the West MSE Wall is not likely to fail in such a way that it causes
10 a violation of water quality standards.

11 115. **Fill Criteria.** Condition E of the §401 Certification requires the Port to undertake a
12 multi-step process to ensure that fill used in the embankment will not threaten water quality,
13 beginning with a limitation on the sources from which the Port can accept fill.¹⁵⁹

14 116. Condition E also requires the Port to conduct an Environmental Site Assessment in
15 accordance with standards developed by the American Society of Testing and Materials before
16 accepting fill from any source.¹⁶⁰ These Environmental Site Assessments include, among other
17 things, a review of relevant records, interviews with site owners and others with knowledge of site
18 history, and site reconnaissance, as well as sampling and analysis of soil from the proposed
19 source.¹⁶¹

20 117. The sampling requirements set forth in Condition E of the §401 Certification specify
21 only the minimum sampling requirements that apply when the Phase I Environmental Site
22 Assessment indicates there is no likelihood of contamination.¹⁶² These requirements include the

23 ¹⁵⁷ *Id.*

24 ¹⁵⁸ *Id.* at ¶¶ 53-54.

25 ¹⁵⁹ Direct Testimony of Elizabeth Clark, ¶ 27; Exhibit 1, Condition E.1.c.

26 ¹⁶⁰ Exhibit 1, Condition E.1.a.

¹⁶¹ Direct Testimony of Elizabeth Clark, ¶ 28.

¹⁶² *Id.* at ¶ 29; Exhibit 1, Condition E.1.a.

1 minimum number of samples to be collected and the analytes for which testing must always be
2 performed.¹⁶³ If contamination is suspected as the result of a Phase I Environmental Site
3 Assessment, the Port must consult with Ecology to determine the number of samples to be taken
4 during the Phase II Site Assessment or other appropriate sampling requirements.¹⁶⁴

5 118. Condition E includes numeric criteria for 14 metals and for total petroleum
6 hydrocarbons (“TPH”).¹⁶⁵ Ecology originally established these numeric fill criteria using the Model
7 Toxics Control Act (“MTCA”) as guidance.¹⁶⁶ Where available, Ecology set the numeric fill criteria
8 at MTCA Method A levels, which Ecology deems protective of human health and the environment
9 at all sites (i.e., for unrestricted land use).¹⁶⁷

10 119. For those constituents for which no Method A level exists, Ecology used the “fixed
11 parameter three-phase partitioning model” described in WAC 173-340-747 to calculate numeric fill
12 criteria.¹⁶⁸ This model performs a “back-calculation” that starts with the numeric water quality
13 criteria for the receiving water and works backward to derive soil concentrations that are protective
14 of water quality.¹⁶⁹ Ecology then compared the soil concentrations derived using the back-
15 calculations to two other sets of numbers: natural background concentrations (set at the 90th
16 percentile, which is a value that is higher than 90% of the samples taken but lower than 10% of the
17 samples taken) and practical quantitation limits (“PQLs”), the latter of which are the lowest levels at
18 which laboratories can reliably measure certain substances.¹⁷⁰ If the back-calculated soil
19 concentrations were lower than either of these numbers, Ecology adjusted the soil concentrations so
20 they were equal to the 90th percentile natural background concentration or the PQL.¹⁷¹

21
22 ¹⁶³ Exhibit 1, Condition E.1.a.

23 ¹⁶⁴ Direct Testimony of Elizabeth Clark, ¶ 29; Exhibit 1, Condition E.1.a.

24 ¹⁶⁵ Exhibit 1, Condition E.1.b.

25 ¹⁶⁶ Direct Testimony of Chung Yee, ¶¶ 2-4.

26 ¹⁶⁷ *Id.* at ¶ 7; WAC 173-340-700(5)(a).

¹⁶⁸ Direct Testimony of Chung Yee, ¶ 8.

¹⁶⁹ Direct Testimony of Linn Gould, ¶ 15.

¹⁷⁰ Direct Testimony of Chung Yee, ¶¶ 11-13.

¹⁷¹ *Id.* at ¶ 11.

1 120. The numeric fill criteria described in the preceding paragraph apply to the general
2 embankment fill.¹⁷² For certain constituents, Ecology also set more stringent numeric criteria for fill
3 placed in the “drainage layer cover,” which is a wedge-shaped portion of the embankment that will
4 directly overlie the drainage layer.¹⁷³

5 121. If the fill material exceeds any of the numeric fill criteria, the Port may test it using
6 the Synthetic Precipitation Leaching Procedure (“SPLP”) to assess whether a particular constituent
7 in the tested soil will leach at rates with the potential to threaten water quality.¹⁷⁴ In the SPLP, fill
8 material is placed in a column and liquid comparable to acid rain is passed through it.¹⁷⁵ The
9 laboratory then analyzes the resulting leachate to determine the concentration of soil constituent
10 chemicals of interest. SPLP analysis results are then used to determine if the Port may use that fill
11 material.¹⁷⁶

12 122. The Port performed a modeling analysis of the numeric fill criteria in the §401
13 Certification to verify that they are protective of water quality.¹⁷⁷ The model considered infiltration
14 of water through the embankment, leaching of compounds in the embankment by infiltrating water,
15 and transport of those compounds through the embankment.¹⁷⁸ The model assumed that all of the
16 fill to be placed in the general embankment contained the maximum concentrations of metals
17 allowed under the §401 Certification.¹⁷⁹ The model results showed that at no time over a thousand-
18 year period would any of the water discharging from the toe of the embankment exceed ambient
19 water quality standards for any of the metals listed in the §401 Certification.¹⁸⁰

20
21
22 ¹⁷² Exhibit 1, Attachment E at Table 1.

23 ¹⁷³ Direct Testimony of Linn Gould, ¶ 7.

24 ¹⁷⁴ *Id.* at ¶ 18; Exhibit 1, Condition E.1.b.

25 ¹⁷⁵ Direct Testimony of Linn Gould at ¶ 19.

26 ¹⁷⁶ *Id.*

¹⁷⁷ Direct Testimony of Michael Riley, ¶ 2.

¹⁷⁸ *Id.* at ¶ 7.

¹⁷⁹ *Id.* at ¶ 21.

¹⁸⁰ *Id.* at ¶ 27.

1 123. The Port also performed a sensitivity analysis of these modeling results in which the
2 embankment was assumed to be made up entirely of soil with the most leachable metal (arsenic) at a
3 concentration 10 times the concentration allowed in the §401 Certification.¹⁸¹ The results of the
4 sensitivity analysis showed that at no time over a thousand-year period would the water discharging
5 from the toe of the embankment exceed the ambient water quality standard for arsenic,
6 notwithstanding its presence in the embankment at 10 times the concentration allowed in the §401
7 Certification.¹⁸² Based on the Port's modeling and sensitivity analysis, the Board finds that
8 Ecology's fill criteria are protective of water quality.¹⁸³

9 124. Appellants argued that mistakes were made in the selection of the numeric fill
10 criteria. For example, Appellants claimed that, in some cases, the wrong PQLs and natural
11 background concentrations were used. Appellants failed, however, to provide credible evidence that
12 any constituent in the fill at levels allowed under the §401 Certification would have the potential to
13 adversely affect water quality. Moreover, the Board finds that Ecology's approach to determining
14 the numeric fill criteria was reasonable and was validated by the Port's modeling, which showed no
15 reasonable possibility of water quality impacts. Therefore, regardless of how the fill criteria were
16 selected, we find that they are protective of water quality.

17 125. Appellants also raised concerns about some of the fill material the Port accepted for
18 placement in the embankment prior to issuance of the §401 Certification. In 1998 and again in 1999,
19 the Port voluntarily entered into fill acceptance agreements with Ecology.¹⁸⁴ Among other things,
20 these fill criteria acceptance agreements set numeric limits on the concentrations of various
21 constituents in fill to be placed in the embankment.¹⁸⁵ It was uncontroverted that, except for the
22 Black River Quarry fill described below, all of the fill accepted for placement in the embankment
23

24 ¹⁸¹ *Id.* at ¶ 32; Exhibit 1320.

25 ¹⁸² *Id.*

26 ¹⁸³ Oral Testimony of Michael Riley, March 28, 2002, at 160:6-11.

¹⁸⁴ Direct Testimony of Elizabeth Clark, ¶¶ 5-6; Exhibits 1003 and 1004.

¹⁸⁵ *Id.*

1 before issuance of the §401 Certification complied with the 1998 and 1999 fill acceptance
2 agreements.¹⁸⁶

3 126. Some fill material placed in the embankment from the Hamm Creek Restoration
4 Project contained very low concentrations of some compounds, including DDT and PCB.¹⁸⁷ Some
5 fill material from the Black River Quarry contained low concentrations of total petroleum
6 hydrocarbons (“TPH”).¹⁸⁸ The Port also found TPH in fill at the First Avenue Bridge and Summit
7 Ridge sites, but the evidence showed that none of the First Avenue or Summit Ridge fill material is
8 placed in the embankment.¹⁸⁹ The Port’s model of constituent transport through the Third Runway
9 embankment also addresses Appellants’ concerns about fill material currently in place. Results of
10 the modeling showed that none of the chemicals in the Hamm Creek or Black River Quarry fill is
11 expected to discharge from the embankment in concentrations that exceed ambient water quality
12 standards.¹⁹⁰

13 127. Appellants argued that use of the SPLP is a “loophole” that would allow
14 contaminated fill material to be placed in the embankment. The Port presented credible evidence
15 that the SPLP is an accepted test for determining under real-world conditions the extent to which
16 constituents will leach from soil.¹⁹¹ Port witnesses also explained that if the SPLP could not be used,
17 the Port would probably reject fill material that posed no threat to water quality.¹⁹² This is because
18 some of the numeric fill criteria are set at natural background levels, which are conservatively
19 defined by Ecology in this instance as levels higher than 90% of the samples and lower than 10% of
20 the samples.¹⁹³ For example, the natural background concentration of chromium in Washington
21

22 _____
¹⁸⁶ Direct Testimony of Elizabeth Clark, ¶ 7.

23 ¹⁸⁷ *Id.* at ¶ 20.

24 ¹⁸⁸ *Id.* at ¶ 12.

25 ¹⁸⁹ *Id.* at ¶¶ 23-26; Oral Testimony of Elizabeth Clark, March 28, 2002, at 139:5-6.

26 ¹⁹⁰ Direct Testimony of Michael Riley, ¶¶ 28-29.

¹⁹¹ Direct Testimony of Linn Gould, ¶¶ 18-20.

¹⁹² *Id.* at ¶¶ 21-22.

¹⁹³ *Id.* at ¶ 22.

1 ranges from 12 mg/kg to 235 mg/kg.¹⁹⁴ The 90th percentile background level is 48 mg/kg, because
2 90% of the samples have concentrations between 12 mg/kg and 48 mg/kg.¹⁹⁵ Soils with
3 concentrations between 49 mg/kg and 235 mg/kg, even though they are naturally-occurring and have
4 not been influenced by any human activity, will exceed this 90th percentile background value.¹⁹⁶ If
5 only one constituent were sampled for, 10% of naturally-occurring soils would fail the numeric fill
6 criterion and therefore be rejected for use in the embankment.¹⁹⁷ If the same soil is tested for
7 multiple constituents, any one of which can disqualify the soil for use as fill, the probability of that
8 soil being rejected goes up significantly even though the soil is naturally-occurring and
9 uncontaminated.¹⁹⁸ Use of the SPLP allows the Port to determine which of the soils that fail the
10 numeric fill criteria would actually leach at a rate that threatens water quality.

11 128. Appellants also pointed out that ambient water quality criteria are not available for
12 all of the chemical constituents listed in the §401 Certification, with the result that in some cases the
13 Port has nothing against which to compare its test results or modeling.

14 129. While Appellants are correct that ambient water quality criteria do not exist for all of
15 the chemicals listed in the §401 Certification for those chemicals, the Port identified concentrations
16 that are protective of aquatic receptors.¹⁹⁹ The Port determined these protective concentrations after
17 conducting a search of EPA databases and other literature.²⁰⁰ The Port's use of these derived figures
18 to decide whether the fill material is acceptable is a reasonable approach and is reasonably calculated
19 to protect water quality.

20 130. Appellants also argued that the sampling requirements in the §401 Certification are
21 inadequate, at least for sources that would provide large amounts of fill material. Witnesses for both
22

23 ¹⁹⁴ *Id.*

24 ¹⁹⁵ *Id.*

25 ¹⁹⁶ *Id.*

26 ¹⁹⁷ Oral Testimony of Linn Gould, March 28, 2002, at 104:16-19.

¹⁹⁸ *Id.* at 105:1-12; Direct Testimony of Linn Gould, ¶ 22.

¹⁹⁹ Direct Testimony of Linn Gould, ¶¶ 32-35.

²⁰⁰ Exhibit 1320, Attachment A.

1 Appellants and Respondents testified that the number of samples needed depends on the variability
2 in their results.²⁰¹ If there is little variability, then the minimum number of samples required under
3 the §401 Certification is sufficient.²⁰² If there were significant variability, then more samples might
4 be necessary.²⁰³ However, the §401 Certification establishes only the minimum number of samples
5 to be collected.²⁰⁴ The Port must submit its sampling results to Ecology before accepting any fill
6 material, and Ecology may always require that more samples be taken.²⁰⁵

7 131. Appellants also pointed to an email message from Pete Kmet of Ecology's toxics
8 cleanup program, who provided comments on a draft of Condition E of the § 401 Certification. Mr.
9 Kmet suggested, based on Ecology's petroleum contaminated soil guidance, that the § 401
10 Certification require additional sampling of candidate fill sources.²⁰⁶ Another Ecology witness
11 testified that he did not increase the minimum sampling requirements because the sampling regime
12 Mr. Kmet suggested was appropriate for sites known to be contaminated, not for sites believed to be
13 uncontaminated.²⁰⁷ We find that the minimum sampling requirements in the §401 Certification are
14 appropriate given Ecology's oversight and ability to require more samples when necessary, and
15 given that the minimum requirements apply only to fill material believed to be uncontaminated
16 based on the results of a Phase I assessment.

17 132. Ecology witnesses testified that it was a mistake to include numeric fill criteria for
18 TPH in the §401 Certification.²⁰⁸ According to these witnesses, Ecology's objective in establishing
19
20

21 ²⁰¹ Oral Testimony of Patrick Lucia, Hearing Transcript, March 20, 2002 at 116:9-16; Direct Testimony of Patrick Lucia,
22 ¶ 16; Kmet Deposition at 16-17.

²⁰² *Id.*

²⁰³ Direct Testimony of Elizabeth Leavitt, ¶ 19.

²⁰⁴ Exhibit 1, Condition E.1.a.; Direct Testimony of Ann Kenny, ¶ 29; Direct Testimony of Elizabeth Leavitt, ¶ 19;
Direct Testimony of Elizabeth Clark, ¶ 29.

²⁰⁵ Exhibit 1, Condition E.1.a.; Direct Testimony of Ann Kenny, ¶ 29.

²⁰⁶ Exhibit 15.

²⁰⁷ Oral Testimony of Chung Yee, March 25, 2002, at 5:12-6: 14.

²⁰⁸ Oral Testimony of Ann Kenny, March 18, 2002, at 172:7-15; 173:1-17; Oral Testimony of Kevin Fitzpatrick, March
26 22, 2002, at 50:16-25, 51, and 52:1-17.

1 the fill criteria was to prohibit the use of fill material that included any man-made constituents.²⁰⁹
2 These witnesses testified that TPH should therefore not be allowed in the fill material accepted for
3 use in the third runway embankment.²¹⁰

4 133. The Port presented testimony that standard tests for petroleum hydrocarbons will
5 sometimes register positive results for TPH when even very small amounts of decayed plant matter
6 are present in the tested soil sample.²¹¹ These standard tests do not distinguish between these
7 naturally occurring compounds and the refined petroleum products present at contaminated sites.²¹²
8 As such, the detection of TPH does not conclusively demonstrate that a site actually contains man-
9 made petroleum. The numeric fill criteria for TPH in the general embankment fill are based on
10 MTCA Method A levels: 2000 ppm for heavy oils and diesel, and 30 ppm for gasoline.²¹³

11 134. Ecology established Method A levels for TPH after considering several different
12 “exposure pathways,” or ways in which human and ecological receptors could come in contact with
13 TPH in soil.²¹⁴ Ecology calculated concentrations that would be protective of each of those
14 pathways, and then based the MTCA Method A level on the pathway requiring the most stringent
15 concentration, the soil-to-groundwater leaching pathway.²¹⁵ The Board finds that the numeric fill
16 criteria for TPH in the §401 Certification are protective of water quality.²¹⁶

17 135. The specifications that the Port has developed for its vendors allow no more than 460
18 ppm TPH (diesel range and heavy oil) in fill material to be used in the third runway embankment.²¹⁷
19 This is the same concentration that applies to TPH in fill used in the drainage layer cover, the most
20

21 ²⁰⁹Oral Testimony of Ann Kenny, March 18, 2002, at 172:7-10; Oral Testimony of Kevin Fitzpatrick, March 22, 2002, at
51:2-5 and 52:6-17.

22 ²¹⁰Oral Testimony of Ann Kenny, March 18, 2002, at 126:7-10; Oral Testimony of Kevin Fitzpatrick, March 22, 2002,
at 52:6-17.

23 ²¹¹Oral Testimony of Linn Gould, March 28, 2002, at 109:6-22.

24 ²¹²*Id.* at 108:24-109:22; Oral Testimony of Elizabeth Clark, March 28, 2002, at 137:6-138:6.

24 ²¹³Direct Testimony of Chung Yee, ¶ 14; Direct Testimony of Linn Gould, ¶ 26.

25 ²¹⁴Direct Testimony of Linn Gould, ¶ 26.

25 ²¹⁵*Id.*

26 ²¹⁶Oral Testimony of Linn Gould, March 28, 2002, at 108:17-20.

26 ²¹⁷Oral Testimony of Elizabeth Clark, March 28, 2002, at 129:13-22.

1 stringent set of criteria in the §401 Certification.²¹⁸ While the Board finds that the criteria in the
2 §401 Certification for general fill are protective of water quality, the Port's agreement to accept, for
3 general fill, the lesser levels of TPH established for the drainage layer cover represents an even
4 greater level of protection.

5 5. GROUNDWATER AND WETLANDS

6 136. **Groundwater Contamination Beneath the AOMA.** The Port has found
7 contamination in groundwater beneath the Airport Operations and Maintenance Area ("AOMA"),
8 apparently caused by airline fueling and maintenance operations.²¹⁹ The AOMA is an area that
9 includes the passenger terminals and aircraft maintenance hangars, gates, and fueling areas.²²⁰ It is
10 located to the east of the airfield, taxiways and runways, where planes are not fueled or serviced.²²¹
11 The western border of the AOMA is approximately one-half mile from where the third runway will
12 be located.²²²

13 137. In 1999, Ecology issued an Agreed Order under MTCA requiring the Port to
14 investigate the nature and extent of this groundwater contamination.²²³ Appellants did not show that
15 the Port was violating the 1999 Agreed Order, and testimony from Ecology witnesses showed that
16 the Port was in compliance with the Agreed Order.²²⁴ Appellants claimed that Ecology lacked
17 reasonable assurance that water quality standards would be met because this contamination could
18 migrate from the AOMA, and because the Port has not completed all phases of the investigation
19 required by the MTCA order.

20 138. The Port and Ecology presented evidence that, pursuant to the MTCA order, the Port
21 has undertaken a preferential pathways analysis to determine the sources of groundwater
22

23 ²¹⁸ Exhibit 1, Attachment E at Table 1.

24 ²¹⁹ Direct Testimony of John Strunk, ¶ 9.

25 ²²⁰ Oral Testimony of John Strunk, Hearing Transcript, March 28, 2002 at 199:19-24.

26 ²²¹ Direct Testimony of John Strunk, ¶ 2.

²²² *Id.* at ¶ 8.

²²³ Exhibit 72.

²²⁴ Direct Testimony of Ching Pi Wang, ¶¶ 3-8; Oral Testimony of Ching-Pi Wang, March 25, 2002, at 86:10-87:3..

1 contamination in the AOMA, the lateral and vertical extent of that contamination, and the direction
2 in which groundwater beneath the AOMA flows.²²⁵

3 139. The Port and Port tenants have installed a large array of groundwater monitoring
4 wells in and around the AOMA, and collected samples from them.²²⁶ These samples, taken over
5 many years from wells installed both prior to and following the execution of the Agreed Order,
6 indicate that there is contamination from airline fueling and maintenance activities in shallow,
7 perched water zones beneath the AOMA, and in the deeper Qva aquifer.²²⁷ The monitoring wells
8 also indicate that contamination in both groundwater units has migrated very little.²²⁸

9 140. The Port also determined that, while groundwater flow in the shallow perched water
10 zones beneath the AOMA is variable, it frequently moves away from the area of the third runway
11 embankment.²²⁹ Groundwater in the deeper Qva aquifer flows generally to the west at depths of
12 approximately 60 to 90 feet below ground surface.²³⁰

13 141. Appellants argued that development activities, such as construction of utility
14 corridors and dewatering associated with subgrade improvements, could draw the AOMA
15 groundwater contamination toward the third runway embankment.

16 142. Existing utility corridors at STIA tend to be close to the ground surface, above the
17 shallowest contaminated groundwater.²³¹ The utility corridors are circuitous and complex, with
18 frequent changes in direction.²³² The evidence showed there has been no significant migration of
19 groundwater contaminants along these corridors.²³³

22 ²²⁵ Direct Testimony of John Strunk, ¶ 4; Exhibit 1254; Direct Testimony of Ching Pi Wang, ¶¶ 3-8.

23 ²²⁶ Direct Testimony of John Strunk, ¶ 9.

24 ²²⁷ *Id.* at ¶¶ 9, 13.

25 ²²⁸ *Id.* at ¶¶ 10, 14.

26 ²²⁹ Direct Testimony of John Strunk, ¶ 7; Direct Testimony of Ching-Pi Wang, ¶ 8.

²³⁰ Direct Testimony of John Strunk, ¶ 12.

²³¹ *Id.*

²³² *Id.*

²³³ *Id.*; Oral Testimony of Ching-Pi Wang, Hearing Transcript, March 25, 2002 at 84:11-14.

1 143. In addition, under Condition F.1 of the §401 Certification, Ecology recently approved
2 a series of BMPs that the Port will use during construction of subsurface utilities, including
3 backfilling any new trenches with low permeability material to prevent migration of contaminated
4 groundwater.²³⁴ No evidence was presented that these BMPs were inadequate to prevent the
5 movement of contaminated groundwater through utility corridors. Moreover, the Port's plans are to
6 construct only one new utility line between the AOMA and the third runway, and this line will not
7 intersect contaminated groundwater.²³⁵

8 144. Based on the evidence presented, the Board finds that, although the Port has not
9 presently completed all of the work required by the MTCA order, it has completed sufficient work to
10 demonstrate that groundwater contamination is confined to the AOMA and is not likely to migrate
11 outside of the AOMA or toward the third runway embankment.²³⁶ We further find that it is very
12 unlikely that contaminated groundwater would be induced to migrate to the third runway
13 embankment area via utility corridors or other construction activity.²³⁷

14 145. Finally, the Board also finds it unlikely that dewatering activities could cause
15 contaminated groundwater to migrate any significant distance.²³⁸ The three areas that will be
16 dewatered during construction of the third runway are located at the South MSE Wall, the West
17 MSE Wall, and the North MSE Wall.²³⁹ These areas are between one-half mile and one mile from
18 the AOMA, where the groundwater contamination is located.²⁴⁰ The Port presented evidence that
19 dewatering during excavation could draw water from up to 80 feet beyond the excavation boundary,
20 while Appellants presented evidence that water could be drawn from up to 175 feet beyond the
21 excavation boundary.²⁴¹ Since there is no evidence of any groundwater contamination within 175

22 ²³⁴ *Id.* at ¶ 21.

23 ²³⁵ Direct Testimony of John Strunk, ¶ 17.

24 ²³⁶ Oral Testimony of Ching-Pi Wang, Hearing Transcript, March 25, 2002 at 107:3-9.

25 ²³⁷ *Id.* at 101:3-6.

26 ²³⁸ Direct Testimony of John Strunk at ¶¶ 22-23.

²³⁹ *Id.* at ¶ 22.

²⁴⁰ *Id.*

²⁴¹ *Id.* at ¶ 22; Direct Testimony of Edward Kavazanjian at 6.

1 feet from the areas where dewatering will occur, we find that dewatering will not affect the
2 movement of contaminated groundwater.

3 146. **Wetlands.** Wetlands are waters of the state, and Ecology's goal for wetland
4 protection is no net loss of wetland functions. The Port's MPU projects will permanently fill 18.37
5 acres of wetlands and 0.92 acres of prior converted cropland near STIA, for a total of 19.29 acres of
6 permanent impacts to wetlands. Construction will temporarily affect 2.05 acres of wetlands.²⁴²
7 While the 2.05 acres will be restored, Ecology has considered the 2.05 acres of impact a wetland
8 impact for which it has required mitigation. The total wetland impacts, permanent and temporary,
9 are 21.34 acres.

10 147. The Port's plan to mitigate these impacts is outlined in its Natural Resources
11 Mitigation Plan ("NRMP"). Ex. 2014. Mitigation is planned both on-site, in the sub-basins adjacent
12 to STIA, and off-site, at a 65-acre site in Auburn. The total mitigation proposed by the Port exceeds
13 Ecology's 2:1 mitigation target, and the on-site mitigation portion meets Ecology's project goal of
14 1:1 mitigation on-site.²⁴³

15 148. As required by Ecology guidance, the Port's primary strategy in addressing wetland
16 impacts was to avoid or minimize the impacts to wetlands and streams. A primary example of this
17 approach is the Port's plan to construct the West MSE wall rather than relocate a second section of
18 Miller Creek and to avoid two acres of impacts to high quality wetlands. Where avoidance was not
19 possible, the Port has proposed the creation of new wetlands, and the restoration or enhancement of
20 existing wetlands and riparian habitat.²⁴⁴

21 149. Appellants asserted during the hearing that construction of the MPU improvements
22 would violate Washington's antidegradation policy, found at WAC 173-201A-070 ("Existing
23 beneficial uses shall be maintained and protected and no further degradation which would interfere
24

25 ²⁴² Ex. 1214; Ex. 2018.

26 ²⁴³ Ex. 2014; Direct Testimony of Erik Stockdale, ¶¶ 8-10.

²⁴⁴ Direct Testimony of James Kelley, ¶¶ 35-36.

1 with or become injurious to existing beneficial uses shall be allowed”). As discussed more fully
2 below, the Board finds that the Port’s plans for wetland mitigation will not violate the
3 antidegradation policy and that the Port’s proposed wetland mitigation plan will fully mitigate for all
4 wetland functions impacted by the construction of the MPU improvements.

5 150. **In-Basin Wetland Mitigation.** In the sub-basins on or adjacent to STIA, the Port
6 proposes to: (1) restore 11.95 acres of degraded wetlands; (2) enhance 22.32 acres of degraded
7 wetlands; and (3) enhance 54.9 acres of wetland and riparian buffers. While siting new wetland
8 creation in-basin was difficult because of aircraft safety concerns about new wildlife attractants, the
9 goal of Ecology was to have the Port replace all impacted wetland functions in basin, with the
10 exception of the wildlife attractant functions.²⁴⁵

11 151. The Port’s planned in-basin mitigation includes improvement to over 112 acres of
12 land in the affected basins, including the enhancement of over 1.4 miles of degraded urban streams.
13 The NRMP also requires preservation of over 2 acres of wetland and 21 acres forest buffer.²⁴⁶

14 152. **Off-Site Mitigation.** In addition to these in-basin mitigation measures, the Port will
15 construct wetland mitigation off-site on a 65-acre parcel in the City of Auburn. This mitigation site
16 will provide high-quality, diverse, forested, shrub, emergent, and open water wetland habitats and
17 functions to a site where these functions are currently absent or degraded.²⁴⁷

18 153. The Auburn off-site mitigation involves wetland restoration, wetland creation, and
19 wetland enhancement. The mitigation establishes 17.2 acres of forested wetland, 6.0 acres of shrub
20 wetland, 6.2 acres of emergent wetland, 0.60 acres of open water, and 19.5 acres of emergent
21 wetland habitat. These habitats will be protected with approximately 15.9 acres of forested upland
22 buffers.²⁴⁸

23
24 _____
²⁴⁵ Ex. 2018; Direct Testimony of James Kelley, ¶¶ 37-48; Direct Testimony of Erik Stockdale, ¶¶ 5, 11.

²⁴⁶ Ex. 2018.

²⁴⁷ Direct Testimony of James Kelley, ¶¶ 46-48; Direct Testimony of Katie Walter, ¶ 24; Oral Testimony of James
Kelley, March 29, 2002, at 19:8-21:18.

²⁴⁸ *Id.*

1 154. The Port proposed to construct the Auburn wetland mitigation site because of serious
2 concerns regarding aircraft safety from creation of new wildlife attractants, such as waterfowl and
3 flocking birds, near runways for commercial aviation.²⁴⁹ The proposed mitigation at the Auburn site
4 is provided pursuant to the legislative guidance in RCW 90.74. The proposed project is a public
5 transportation project, and the Auburn site is in the same Water Resource Inventory Area as STIA.
6 The evidence showed that all reasonable in-basin mitigation opportunities have been exhausted and
7 that the mitigation at the Auburn site would provide an overall gain in wetland values.²⁵⁰

8 155. In addition, Ecology required in the §401 Certification that the Port execute and
9 record restrictive covenants to protect the entire 178 acres of mitigation area. The covenants require
10 that the mitigation areas be preserved in a natural state, prohibiting future development activity.

11 156. **The Port's Wetland Mitigation Plan.** The Port's proposed wetland mitigation plan
12 will result in the removal of sources of pollutants to wetlands, and to the Miller, Des Moines and
13 Walker Creeks by removing land uses that contribute excess nitrogen and other pollutants. The
14 evidence showed that the replacement of lawns, golf courses, farmland, streets, driveways, and home
15 sites with natural vegetation will restore a natural pattern of nitrogen cycling to the landscape.²⁵¹

16 157. The evidence presented at the hearing demonstrated that water quality functions in the
17 Miller Creek wetland and buffer mitigation area will improve with the removal of the urban uses
18 adjacent to the creek and with the Port's mitigation measures.²⁵² Houses and buildings, lawns and
19 driveways will be removed from the mitigation area, thereby removing features and land uses that
20 contribute to the degradation of water quality.²⁵³

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22 _____
23 ²⁴⁹ Direct Testimony of James Kelley, ¶¶ 44-48; Direct Testimony of Eric Stockdale, ¶¶ 45-49.

24 ²⁵⁰ Direct Testimony of Eric Stockdale, ¶¶ 11-18; Direct Testimony of Donald Weitkamp, ¶ 39; Oral Testimony of Erik
25 Stockdale, March 25, 2002, at 189:8-190:4 and March 26, 2002, at 29:3-30:23; Oral Testimony of James Kelley, March
26 29, 2002, at 26-24-31:3.

²⁵¹ Direct Testimony of Jan Cassin, ¶¶ 11-18; Direct Testimony of Eric Stockdale, ¶ 17; Oral Testimony of James Kelly,
March 29, 2002, at 3:8-4:7.

²⁵² Direct Testimony of Eric Stockdale, ¶¶ 2-5; Direct Testimony of Donald Weitkamp, ¶¶ 15-18, 26, 31.

²⁵³ Direct Testimony of Eric Stockdale, ¶ 17; Direct Testimony of Jan Cassin, ¶¶ 10-18.

1 158. A large number of septic systems located near wetlands will be removed or have
2 already been removed. The project will also remove livestock grazing activities in the Miller Creek
3 basin and associated wetlands, an activity that contributes to degradation of water quality and
4 prevents native vegetation from growing in wetlands or buffers. Outside of the mitigation area, the
5 removal of streets and residential land uses will reduce the amount of pollutant loading to the
6 wetland and stream system.²⁵⁴

7 159. The Board finds that the Port's planned in-basin mitigation will provide aquatic and
8 terrestrial habitat functions, protect water quality in the creek systems, and restore a more natural
9 level of ecological function to degraded wetland and buffer habitat. With the exception of waterfowl
10 habitat, these in-basin benefits fully replace the in-basin functions that will be impacted by
11 construction of the MPU improvements.²⁵⁵ The Board also finds that the proposed out-of-basin
12 mitigation in Auburn will provide waterfowl habitat and other wetland functions that are
13 significantly improved above baseline conditions.²⁵⁶

14 160. **The Port's Functional Assessment Technique Was Appropriate.** The evidence
15 presented at the hearing indicated that the Port used several functional assessment methodologies in
16 preparing the wetlands functional assessment. The evidence showed that the functional assessment
17 was based on a process that is accepted in the profession of wetland ecology and that both the Corps
18 of Engineers and Ecology reviewed that functional assessment.²⁵⁷ Appellants criticized the Port's
19 functional assessment method, but none of the evidence at the hearing showed that the functional
20 assessment was incorrect. Instead, the testimony of Dr. Kelley, Katie Walter, and Erik Stockdale
21 was credible that the functional assessment was done by an acceptable method and accurately
22

23 ²⁵⁴ *Id.*

24 ²⁵⁵ Direct Testimony of James Kelley, ¶¶ 49-84; Direct Testimony of Eric Stockdale, ¶¶ 2, 5-7; Direct Testimony of Jan
Cassin, ¶¶ 12-15; Oral Testimony of James Kelley, March 29, 2002, at 30:23-31:3.

25 ²⁵⁶ Direct Testimony of James Kelley, ¶¶ 46-47; Direct Testimony of Katie Walter, ¶ 24; Oral Testimony of James
Kelley, March 29, 2002, at 19:8-21:18.

26 ²⁵⁷ Oral Testimony of James Kelley, March 29, 2002, at 9:16-12:25.

1 represented the existing conditions of the wetlands and wetland functions on-site.²⁵⁸ Dr. Kelley's
2 testimony was credible that another competent wetland ecologist could peer review that
3 document.²⁵⁹

4 161. Appellants also asserted that the Port's functional assessment was insufficient,
5 because the Port did not employ the Washington Functional Assessment Methodology ("WFAM")
6 for wetlands assessment. The Board finds that use of WFAM was not necessary, based on the fact
7 that WFAM does not apply to slope wetlands, and would therefore be applicable to only 25% of the
8 wetlands on site. The evidence at the hearing showed that, notwithstanding the inapplicability of the
9 WFAM assessment technique to the wetlands on the Port site, the Port's consultants ran the WFAM
10 assessment on wetlands on-site, and that the WFAM ratings were equal to or lower than the Port's
11 more conservative technique.²⁶⁰

12 162. **Mitigation Credit.** Appellants asserted that the mitigation ratios used by Ecology for
13 mitigation credit were miscalculated, asserting that too much credit was given by Ecology to
14 restoration of wetlands at the Vacca Farm site and for open water wetlands.

15 163. Based on the evidence presented, the Board finds that Ecology's wetland ratios are
16 not rigid rules, but are tools which Ecology uses for guidance. The ratios can be adjusted depending
17 on the facts of the individual case – including the quality of wetlands being impacted, the functions
18 being impacted, the quality of the mitigation being provided, and the likelihood of that mitigation's
19 success.²⁶¹ Here, the evidence showed that the wetlands being impacted by the MPU projects are not
20
21

22 ²⁵⁸ Direct Testimony of Katie Walter, ¶¶ 3-6; Oral Testimony of Katie Walter, March 25, 2002, at 138:3-139:6; Oral
23 Testimony of Erik Stockdale, March 25, 2002, at 172:12-173:9; Oral Testimony of James Kelley, March 29, 2002, at
10:9-10:20.

24 ²⁵⁹ Oral Testimony of James Kelley, March 29, 2002, at 13:1-13:6; Oral Testimony of James Kelley, March 29, 2002, at
13:10-14:15.

25 ²⁶⁰ Direct Testimony of James Kelley, ¶¶ 20-25; Direct Testimony of Katie Walter ¶¶ 3-6.

26 ²⁶¹ Direct Testimony of Erik Stockdale, ¶¶ 6-13; Oral Testimony of Erik Stockdale, March 25, 2002, at 170:14-171:4,
and at 176:11-178:11.

1 pristine and that all of those wetlands have been significantly degraded by ongoing land uses or past
2 land use practices.²⁶²

3 164. In addition, the evidence demonstrated that there is no single, precise definition of
4 wetland restoration or enhancement that is universally accepted. Because enhancement is generally
5 defined as improving or enhancing one or more functions, and restoration is generally defined as
6 returning a degraded system to a former condition, there is no hard line between enhancement and
7 restoration. As a result, the characterization of particular actions as restoration or enhancement is a
8 matter of judgment and may differ based on the degree to which functions that are degraded are
9 restored or improved.²⁶³

10 165. The Board finds that, in order to qualify as restoration, a wetland does not have to
11 have its functions completely absent. Wetlands with degraded functions can be restored. More
12 important than whether an action is called restoration or enhancement is whether the impacted
13 wetland functions are being replaced. At the Vacca Farm mitigation site, for example, a degraded
14 wetland area that has been used for farming and grazing will be restored and will be returned to its
15 historic peat wetland condition, with a resumption of the peat-farming process.²⁶⁴ Here, the
16 testimony of Port wetland experts Dr. James Kelley and Dr. Jan Cassin and the testimony of Ecology
17 wetland expert Erik Stockdale was credible and showed that all wetland functions were being
18 replaced in-basin (with the exception of waterfowl habitat) and that additional high-quality wetlands
19 were being created off-site in Auburn adjacent to the Green River.²⁶⁵

20 166. **Impacts to Fish Habitat.** Appellants asserted that filling wetlands would result in an
21 impact to stream hydrology or fish habitat. The evidence presented at the hearing did not support
22

23 _____
24 ²⁶² Direct Testimony of Eric Stockdale, ¶¶ 6-13.

²⁶³ Direct Testimony of Jan Cassin, ¶¶ 16-22.

²⁶⁴ Oral Testimony of James Kelley, March 29, 2002, at 24:24-26:23; Oral Testimony of Jan Cassin, March 28, 2002, at 227:19-228:20.

²⁶⁵ Oral Testimony of Erik Stockdale, March 25, 2002, at 178:12-18:9; Direct Testimony of Erik Stockdale, ¶¶ 5, 11; Direct Testimony of James Kelley, ¶¶ 37-48; Oral Testimony of James Kelley, March 29, 2002, at 30:23-31:3.

1 this assertion. To the contrary, the weight of the evidence was that there would be no impact to fish
2 or stream habitat from the construction of the MPU improvements.²⁶⁶

3 167. As was noted above, this is a conclusion with which the U.S. Fish and Wildlife
4 Service and the National Marine Fisheries Service both agreed, based on their issuance of a
5 Biological Opinion concurring with the Biological Assessment. The evidence presented at the
6 hearing demonstrated that restoration of the riparian corridor will significantly improve stream
7 habitat, not degrade it.²⁶⁷

8 168. **Mitigation Plan for Riparian Corridor.** Ecology allowed the Port some in-basin
9 credit for enhancing riparian buffers. The evidence supported Ecology's granting of credit based on
10 the importance of riparian buffers and the fact that those buffers will perform many of the functions
11 that the existing wetlands perform.²⁶⁸

12 169. Riparian buffers play a significant role in enhancing and restoring wetland and
13 aquatic system functions. Replacing the existing farmland, nursery/greenhouse operations,
14 buildings, golf course, and residential lawns along Miller and Des Moines Creeks with forested
15 and/or native shrub buffers will significantly enhance aquatic habitat for native fish species by
16 removing pollutants, and by contributing shade, particulate organic matter, and large woody debris
17 to the streams.²⁶⁹

18 170. Under the Port's NRMP, existing detrimental uses will be removed and sources of
19 existing pollutants to the streams will be removed. Areas that are currently residential lawn, garden,
20 nursery, and golf course will be replaced with native forested or shrub vegetation. These actions will
21 provide greater sediment and nutrient trapping, provide greater water quality benefits, and provide
22 shade, organic matter, and large woody debris to the streams.²⁷⁰

23 ²⁶⁶ Direct Testimony of Donald Weitkamp, ¶¶ 35, 37-38; Direct Testimony of James Kelley, ¶¶ 29-30.

24 ²⁶⁷ Direct Testimony of Donald Weitkamp, ¶¶ 15-18, 26-31.

25 ²⁶⁸ Direct Testimony of Eric Stockdale, ¶¶ 16-33; Direct Testimony of Jan Cassin, ¶¶ 34-45.

26 ²⁶⁹ *Id.*

²⁷⁰ Direct Testimony of Jan Cassin, ¶¶ 34-41; Direct Testimony of Eric Stockdale, ¶¶ 16-33; Direct Testimony of James Kelley, ¶¶ 49-84.

1 171. The Board finds that a significant benefit of the riparian buffers being proposed by
2 the Port lies in the creation of a large, unfragmented habitat (more than 1.4 miles in length, and an
3 average 200 feet wide). This will be a continuous, predominantly forested corridor connecting
4 wetland and riparian habitat from Lora Lake to Des Moines Memorial Drive. Such large,
5 unfragmented habitat patches are extremely rare in urban areas.

6 172. **Relocation of Miller Creek.** With respect to the relocated section of Miller Creek,
7 the evidence showed that the forested buffer area is a minimum of 60-feet wide. The species types
8 that will be planted in the riparian area will provide ample significantly improved habitat and shade
9 to the creek.²⁷¹ Moreover, because of the nature of the peat soils and the levels of the perched
10 groundwater, the stream will not be perched above groundwater and lose water by seepage.²⁷²

11 173. The evidence indicated that the geotextile liner utilized for stream construction is
12 more porous than the peat that it abuts by an order of magnitude. The evidence demonstrated that
13 this liner will not clog (at least not any more than peat will clog) and will not adversely impact
14 stream hydrology.²⁷³

15 174. **Embankment Design and Adaptive Management.** Appellants also argued that a
16 recent revision to the embankment construction plan will result in the elimination of water predicted
17 to seep to the existing downslope wetlands. The Board finds that this claim is not supported by the
18 evidence at the hearing.

19 175. The evidence showed that the plan to excavate non-bearing soils under the MSE Wall
20 has been analyzed as part of the project for several years. In addition, the embankment has been
21 designed to deliver water specifically to the existing, downslope wetlands.²⁷⁴ The amount of water
22 seeping from the embankment to downslope wetlands will be no less than under existing
23

24 _____
²⁷¹ Direct Testimony of Jan Cassin, ¶¶ 46-51.

25 ²⁷² Direct Testimony of Jan Cassin, ¶¶ 51-55; Direct Testimony of Katie Walter, ¶ 28.

26 ²⁷³ Direct Testimony of James Kelley, ¶ 54; Direct Testimony of Jan Cassin ¶¶ 51-55.

²⁷⁴ Direct Testimony of Michael Bailey, ¶¶ 57-60; Direct Testimony of James Kelley, ¶¶ 30-31; Ex. 2018 at App. E.

1 conditions.²⁷⁵ Finally, under the Port's adaptive management plan, the Port can alter the delivery
2 points of the water as needed to provide adequate hydrology for the existing wetlands.²⁷⁶

3 176. The mitigation planning and designs are based on scientifically recognized methods
4 to create, restore, and enhance wetlands and streams. These methods are focused on creating
5 restored systems that are sustainable over time.²⁷⁷

6 177. Following agency guidelines, the mitigation plan for the site evaluated site conditions
7 (soil, hydrology, vegetation, and landscape conditions) to determine restoration approaches that will
8 establish desired ecological functions in a sustainable manner.²⁷⁸ The mitigation sites are assured
9 long-term protection by restrictive covenants that legally protect them from other uses. These
10 approaches are designed to ensure that wetland functions are ultimately replaced and that the
11 duration of temporal impacts is minimized.²⁷⁹

12 178. The § 401 Certification and NRMP contain performance standards to ensure the
13 continued functioning of the remaining on-site wetlands downslope from the embankment.
14 Appellants criticized the performance standards and the data on which they were based. The
15 evidence showed that the wetlands had been observed for several years and monitored for over a
16 year.²⁸⁰ The testimony of Jan Cassin and Katie Walter was credible that a performance standard
17 based purely on hydroperiod was not advisable for those slope wetlands because the natural
18 hydroperiod would vary significantly from year-to-year.²⁸¹ The testimony of Ms. Walter and
19 Ms. Cassin was also credible that the performance standards, when combined with the 15 years of
20
21

22 ²⁷⁵ *Id.*

23 ²⁷⁶ *Id.*

24 ²⁷⁷ Direct Testimony of Katie Walter, ¶¶ 7-25; Direct Testimony of Jan Cassin ¶ 57-58; Direct Testimony of James
Kelley, ¶¶ 31-34, 80-86.

25 ²⁷⁸ Direct Testimony of Dr. Jan Cassin, ¶¶ 57-58, 65.

26 ²⁷⁹ *Id.*

²⁸⁰ Oral Testimony of Jan Cassin, March 28, 2002, at 214:17-215:18.

²⁸¹ Oral Testimony of Jan Cassin, March 28, 2002, at 213:15-214:25; Direct Testimony of Katie Walter, ¶¶ 14-20.

1 combined monitoring and ability to adaptively manager the downslope wetlands, were adequate and
2 would allow the wetlands to meet the target functions in the mitigation plan.²⁸²

3 179. In sum, the Board finds that the wetland mitigation requirements in the §401
4 Certification are detailed and comprehensive, and that those requirements will fully mitigate for both
5 the direct and indirect impacts of wetland filling required by construction of the MPU
6 improvements. Avoidance of and mitigation for impacts has been exhaustively considered on a
7 function by function basis and, where avoidance was not possible, the mitigation proposed by the
8 Port will replace all functions provided by the impacted wetlands and it will result in water quality
9 and other ecological benefits to the remaining wetlands and streams.

10 6. MONITORING

11 180. As has been noted above, the Port is subject to an existing NPDES permit issued by
12 Ecology under §402 of the Clean Water Act which governs both industrial and construction
13 stormwater discharges. Ecology required ongoing compliance with all of the terms of the NPDES
14 permit as one of the conditions of the §401 Certification (Condition J).

15 181. Ecology also required the submittal of a number of plans or revisions to existing plans
16 as conditions to the §401 Certification (e.g., a Revised Low Streamflow Plan, Mitigation Plan for
17 Wetland A17, proposed BMPs to prevent transport of contamination along utility corridors, Revised
18 NRMP, and a Stormwater Operations and Maintenance Plan).

19 182. In addition to these future plans, Ecology imposed monitoring requirements with
20 respect to a number of conditions, including monitoring of wetland mitigation for a period of 15
21 years, surface water and ground water and monitoring to assure that there was no transport of
22 contaminants via utility corridors for a period of eight years, post-construction monitoring of fill
23 criteria, and low flow monitoring extending in perpetuity.

24
25 ²⁸² Direct Testimony of Katie Walter, ¶¶ 7-13; Oral Testimony of Katie Walter, March 25, 2002, at 139:15-141:1; Oral
26 Testimony of Erik Stockdale, March 25, 2002, at 184:13-189:7; Direct Testimony of Jan Cassin, ¶¶ 57-58; Oral
Testimony of Jan Cassin, March 28 2002, at 213:21-214:25.

1 183. ACC and CASE asserted that Ecology's reliance on submittals, plans and monitoring
2 that were developed after the issuance of the §401 Certification precluded a finding that Ecology had
3 reasonable assurance at the time the §401 Certification was issued.

4 184. The weight of the evidence was that, at the time the §401 Certification was issued,
5 Ecology had reasonable assurance that construction of the Port's MPU improvements would comply
6 with state water quality standards and that each of the different plans submitted by the Port was
7 feasible and the improvements required by those plans are constructable.

8 185. The Board finds that the submittals required by Ecology following issuance of the
9 §401 Certification are necessary for clarification, or provide necessary details to the various plans
10 produced by the Port. However, the Board also finds that the fact that additional plans are to be
11 submitted after the date of the issuance of the §401 Certification does not, by itself, call into question
12 whether Ecology had reasonable assurance of compliance with water quality standards at the time
13 the §401 Certification was issued.

14 186. As elaborated more fully in the Board's Conclusions of Law, the Board's review of
15 Ecology's decision to issue the §401 Certification is *de novo*. As a result, the Board makes its
16 decision as to reasonable assurance based on the evidence that was presented to the Board at the time
17 of the hearing on the merits, not at the time of the issuance of the §401 Certification.

18 7. PUBLIC PROCESS – NOTICE

19 187. As was noted above in the Procedural History, the Port first filed its JARPA
20 Application in December 1996.²⁸³ Ecology and the Corps issued a public notice on that application
21 on December 19, 1997 and held a public hearing on that application on April 9, 1998.²⁸⁴ Comments
22 on that application were received from members of the public, and the Port responded to those
23 comments.²⁸⁵

24
25 ²⁸³ Exhibit 1074.

26 ²⁸⁴ Exhibit 1090.

²⁸⁵ Exhibit 1019.

1 188. After the Port's initial JARPA application and public notice was issued, the Port
2 discovered that there would be more wetland impacts than had originally been assumed. Based on
3 this new information, a revised public notice was issued on September 30, 1999 and a second public
4 hearing was held on November 3, 1999.

5 189. In response to a request from Ecology for additional time to complete its §401
6 review, the Port agreed to withdraw its application in 2000 and to resubmit a new JARPA to the
7 Corps. Based on the resubmittal of the Port's JARPA application, the Corps and Ecology issued a
8 second revised public notice on December 27, 2000.²⁸⁶

9 190. A public hearing was held on the Port's re-issued JARPA application on January 26
10 and 27, 2001. Public Comments were received during the formal comment period that ran from
11 December 27, 2000 to February 16, 2001.²⁸⁷ Ecology continued to receive and review public
12 comments submitted after the close of the formal written comment period.

13 191. Ecology issued its §401 Certification on August 10, 2001.²⁸⁸ ACC filed its notice of
14 appeal on August 23, 2001. On September 10, 2001, the Port filed a Notice of Appeal of the §401
15 Certification. That same day, the Port and Ecology filed a Stipulation and Agreed Order of
16 Dismissal, in which Ecology and the Port agreed to certain changes in the §401 Certification.

17 192. Consistent with an agreement between the parties, Ecology rescinded the existing
18 §401 Certification and issued a new §401 Certification on September 21, 2001.²⁸⁹ Ecology did not
19 issue a new public notice in connection with the rescission and issuance of the amended §401
20 Certification.

21 8. COASTAL ZONE MANAGEMENT ACT

22 193. The Port submitted a Coastal Zone Management Act Consistency Statement to
23 Ecology in December 1999. That Consistency Statement was supported by numerous documents

24 ²⁸⁶ Exhibit 2132.

25 ²⁸⁷ Exhibit 1244.

26 ²⁸⁸ Exhibit 2.

²⁸⁹ Exhibit 1.

1 submitted during Ecology's review, including Clean Air Act consistency statements from the
2 governor of Washington, the Port and FAA Environmental Impact Statements and SEPA Addenda
3 prepared for the MPU projects, and information showing that the streams near STIA were not
4 jurisdictional streams for purposes of the Washington Shoreline Management Act ("SMA").²⁹⁰

5 194. The Consistency Statement was also supported by information showing SMA
6 exemptions for the wetland mitigation site work proposed in the City of Auburn, and numerous
7 documents and studies regarding state water quality requirements.²⁹¹

8 195. At Ecology's request, the Port resubmitted its CZMA Consistency Statement on May
9 22, 2000. That Consistency Statement was revised on January 22, 2001.²⁹²

10 196. Ecology's §401 Certification constituted concurrence by Ecology that construction of
11 the Port's MPU improvements would be consistent with Washington's approved Coastal Zone
12 Management Program ("CZMP"). The potentially relevant "enforceable policies" of the
13 Washington CZMP include the Clean Air Act, the SMA, SEPA, and the Clean Water Act.

14 197. Appellants did not raise any issues with respect to the Clean Air Act in its appeal of
15 Ecology's §401 Certification. In addition, prior to the hearing on the merits, the Board granted
16 summary judgment to the Port on the issue of SEPA compliance. The Board's decision on that issue
17 is contained in a separate order from the Board. Based on the fact that the area streams were not
18 within SMA jurisdiction and that the Port obtained SMA exemptions for wetland mitigation from the
19 City of Auburn, there are no SMA issues that arise with respect to Ecology's acceptance of the
20 Port's CZMA Consistency Statement.

21 198. The only remaining issue under the CZMA is compliance with the Clean Water Act.
22 This Final Order addresses the issue of whether or not the Port's proposed MPU improvements
23 comply with the Washington's state water quality standards. The Port's compliance with the
24

25 ²⁹⁰ Direct Testimony of Elizabeth Leavitt, ¶ 14.

26 ²⁹¹ *Id.*

²⁹² *Id.* The revised CZMA Consistency Statement appears as Exhibit 1226.

1 NPDES permit is deemed to constitute compliance with the Clean Water Act for those discharges
2 governed by that Permit. With respect to the other water quality standards applicable to the Port's
3 proposed plans, those are addressed elsewhere in these findings and conclusions.

4 199. Any conclusion of law deemed to be a finding of fact is hereby adopted as such.

5 200. Based on the foregoing findings of fact, the Board enters the following:

6 **VI. CONCLUSIONS OF LAW**

7 **A. STANDARD OF REVIEW**

8 201. ***De Novo Review and Appropriate Deference to Ecology.*** The Board has
9 jurisdiction over this appeal pursuant to RCW 43.21B.110. The Board reviews the issues raised *de*
10 *novo*. WAC 371-08-485(1). *U.S. Dep't of Energy v. Dep't of Ecology*, PCHB No. 97-1157 (1998).

11 202. Under *de novo* review the parties are allowed to present all relevant evidence at the
12 hearing on the merits in order to enable the Board to make an informed and final decision. In an
13 appeal of a §401 Certification, the Board decides *de novo* whether the proposed project meets
14 applicable water quality standards. That determination is "based on the proposed project as it is
15 presented to the Board" at the hearing. *Barrish & Sorenson Hydroelectric v. Dep't of Ecology*,
16 PCHB No. 94-193 (Conclusion of Law 4) (1995).

17 203. The *de novo* review standard does not require the Board to accord deference to
18 Ecology's factual or legal determination in the §401 Certification. *Beuchel v. Dep't of Ecology*, 125
19 Wn.2d 196, 202, 884 P.2d 910 (1994). The Board may, however, give substantial weight to the
20 conclusions of Ecology on technical issues. Some degree of deference to Ecology on technical
21 issues is appropriate, because of Ecology's specialized knowledge and expertise. *Dep't of Ecology*
22 *v. P.U.D. 1 of Jefferson County*, 121 Wn.2d 179, 201, 849 P.2d 646 (1993), *aff'd*, 511 U.S. 700, 114
23 S. Ct. 1900, 128 L. Ed. 2d 716 (1994).

24 204. Because many of the technical issues raised by Appellants are encompassed within
25 Ecology's expertise, the Board has accorded Ecology's decisions regarding factually complex and
26

1 technical areas substantial weight. *See, e.g., Hubbard v. Dep't of Ecology*, 86 Wn. App. 119, 123,
2 936 P.2d 27 (1997) (holding in the context of a hydraulic continuity analysis that Ecology's
3 conclusions are "entitled to great weight" due to its expertise); *Harvest States Cooperatives v. Dep't*
4 *of Ecology*, PCHB No. 94-169 (Conclusion of Law VIII) (1995) (ruling that Ecology was "entitled
5 to great deference" in the methods of analysis it employed in deciding to require a water quality
6 discharge permit).

7 205. In addition, the Board is to fully consider and weigh Ecology's interpretation of
8 statutes and rules that it is charged with administering. *See Kaiser Aluminum v. Dep't of Ecology*, 32
9 Wn. App. 399, 404, 647 P.2d 551 (1982); *cf. Federated American Ins. Co. v. Marquardt*, 108 Wn.2d
10 651, 656, 741 P.2d 18 (1987) (ruling that an agency's "interpretation of [its] own regulation is
11 entitled to great weight").

12 **B. BURDEN OF PROOF**

13 206. WAC 371-08-485(2) provides:

14 The issuing agency shall have the burden of proof in cases involving penalties or
15 regulatory orders. In other cases, the appealing party shall have the initial burden of
16 proof.

17 Ecology's issuance of a §401 Certification is similar to that of a permit decision and, as a result, the
18 burden of proof falls on the party challenging a certification. *See, e.g., Bowers v. PCHB*, 103 Wn.
19 App. 587, 597-99, 13 P.3d. 1076 (2000); *Port Townsend Paper Corp. v. Dep't of Ecology*, PCHB
20 No. 98-77 (1999) (ruling that the appellant had the burden of proof when challenging the opacity
21 limitations that Ecology placed in the appellant's air permit).

22 207. As the appealing parties, ACC and CASE have the burden of proof. WAC 371-08-
23 485(2); *Friends of the Earth v. Ecology*, PCHB Nos. 87-63 and 87-64 (Final Findings of Fact,
24 Conclusions of Law and Order) (May 17, 1988) at Conclusion of Law IV. The reasonable assurance
25 test is met if the Board finds by a preponderance of the evidence that violations of water quality
26 standards are not, in fact, likely to occur. *Id.* at Conclusion of Law VI.

1 **C. §401 CERTIFICATION AND REASONABLE ASSURANCE**

2 208. The §401 Certification at issue in this case was issued pursuant to §401 of the Clean
3 Water Act, 33 U.S.C. §1341, which states:

4 Any applicant for a Federal license or permit to conduct any activity including, but
5 not limited to, the construction or operation of facilities, which may result in any
6 discharge into navigable waters, shall provide the licensing or permitting agency a
7 certification from the State in which the discharge originates or will originate that any
8 such discharge will comply with the applicable provisions of 1311, 1312, 1313, 1316,
9 and 1317 of this Title.

10 209. In issuing the §401 Certification, Ecology has certified that the Port’s proposed
11 construction of the MPU improvements pursuant to a §404 permit will comply with applicable water
12 quality laws. A §401 Certification means that the state has reasonable assurance that there will be
13 compliance with water quality laws. *Okanogan Highlands Alliance v. Ecology*, PCHB No. 97-146 et
14 al. (Final Findings of Fact, Conclusions of Law and Order) (January 19, 2000) at ¶¶ 62-63.

15 210. **Reasonable Assurance Standard.** A §401 Certification must be based on a valid
16 finding that “there is a reasonable assurance that the activity will be conducted in a manner which
17 will not violate applicable water quality standards.” 40 CFR § 121.2(a)(3); *PUD No. 1 of Jefferson*
18 *County v. Washington Dep’t of Ecology*, 511 U.S. 700, 712, 114 S. Ct. 1900, 128 L. Ed. 2d 716
19 (1994).

20 211. In order to overturn a §401 Certification, Appellants must establish by a
21 preponderance of the evidence that there is no reasonable assurance that the applicable provisions of
22 the Clean Water Act and state water quality standards will be complied with. *Friends of the Earth*,
23 PCHB No. 87-63. The preponderance of the evidence standard means that the ACC must proffer
24 more than a guess or mere speculation that water quality standards will not be met by the project.
25 *See Friends of the Earth*, PCHB No. 87-63 at 28.

26 212. As elaborated in more detail below, the Board concludes that, as part of its reasonable
assurance, Ecology may rely on the Port’s NPDES permit and revisions that are made to that permit
as part of the adaptive management strategy employed in the administration of that permit.

1 Likewise, the Board concludes that Ecology may incorporate appropriate §401 Certification
2 conditions into the Port's NPDES permit, thus allowing for future enforcement of those conditions.

3 213. Pursuant to the enforcement authority granted to Ecology in Chap. 90.48 RCW, and
4 by incorporating certain of the conditions of the §401 Certification into the Port's NPDES permit,
5 Ecology has reasonable assurance that the conditions in the §401 Certification will continue beyond
6 the expiration of the §404 Permit. *See Protect the Peninsula's Future et al v. Dept. of Ecology,*
7 *PCHB No. 96-178 and 179 (Order granting summary judgment and dismissal) (approving §401*
8 *certification that conditioned future discharge from newly constructed outfall on compliance with*
9 *revised NPDES permit and prohibiting discharge from such outfall until such revised permit was*
10 *issued).*

11 214. The Board also concludes that Ecology may impose conditions in the §401
12 Certification requiring preparation and submission of revised plans or require future monitoring. In
13 addition, Ecology may impose requirements to monitor actions required under the §401 Certification
14 as a means of maintaining reasonable assurance after the §401 Certification has been issued.

15 **D. SCOPE AND TIMING OF A §401 CERTIFICATION**

16 215. **Scope of the §401 Certification.** In reviewing an application for a §401
17 certification, the state can consider the water quality impacts of the proposed project, not just those
18 of the anticipated discharge. *PUD No. 1 of Jefferson County, 511 U.S. at 710-11, 114 S. Ct. 1900,*
19 *128 L. Ed. 2d 716.* The conditions in a §401 Certification then become conditions of the federal
20 license or permit. 33 U.S.C. §1341(d).

21 216. In this case, the Port is seeking a §404 Permit from the Corps and a §401 Certification
22 from Ecology to construct the MPU improvements identified in its JARPA Application. The §404
23 Permit and, therefore, the §401 Certification, have a limited life. *See Corps Public Notice; §401*
24 *Certification Condition B(2).*

1 217. Based on the limited life of the §404 permit, Ecology issued the §401 Certification as
2 an order under Chap. 90.48 RCW, thereby ensuring that conditions that might otherwise expire with
3 the §404 Permit would continue into the future.

4 218. In addition, consistent with the conclusions that the Board has already outlined above,
5 where an applicant has an individual NPDES permit to operate its facility, Ecology may incorporate
6 appropriate §401 Certification conditions into that permit, thus allowing for future enforcement of
7 those conditions. Conversely, Ecology may rely on the Port's NPDES permit and adaptive
8 management to assure that the most current BMPs are being employed to ensure compliance with
9 water quality standards.

10 219. The scope of the §401 Certification issued to the Port is appropriate and within the
11 authority granted Ecology. The Port operates STIA under an individual NPDES permit, which is
12 presently under review for renewal. In that process, Ecology may include appropriate §401
13 Conditions into the renewed NPDES permit. *See, e.g.*, §401 Condition J(2)(a). By utilizing the
14 authority granted under Chap. 90.48 RCW and incorporating conditions into the Port's NPDES
15 permit, Ecology has guaranteed that conditions in the §401 Certification will continue beyond the
16 expiration of the §404 Permit.

17 220. **Timing.** Appellants argued that reasonable assurance must have existed on
18 September 21, 2001, the date that Ecology issued the §401 Certification, and that in resolving this
19 case, the Board should consider only evidence that existed on or before that date.

20 221. As stated above, the Board's review of the §401 Certification is *de novo*. The Board
21 has previously held that the determination of whether there is reasonable assurance that a project will
22 comply with state water quality standards occurs at the hearing before the Board, not at some earlier
23 date. *Barrish & Sorenson Hydroelectric Co. v. Ecology*, PCHB No. 94-193 (Sept. 26, 1995 Final
24 Order) (in appeal of §401 decision, the Board "must make a decision based on the proposed project
25 as it is presented to the Board at this hearing"); *Weyerhaeuser v. Tacoma-Pierce County Health*

1 Dep't, PCHB No. 99-067 (Sept. 23, 1999 Order on Motions to Dismiss) (Board determines
2 consistency "as of the date of hearing").

3 222. §401(d) of the Clean Water Act specifically provides for the inclusion in a §401
4 Certification of conditions requiring future monitoring necessary to assure that the applicant
5 complies with applicable water quality standards and any other appropriate requirement of state law.
6 33 U.S.C. § 1341(d). The §401 Certification issued to the Port includes monitoring conditions that
7 are in compliance with §401(d).

8 223. In the §401 Certification, Ecology required the submittal of revised plans or reports
9 addressing specific conditions in the Certification. *See, e.g.*, Condition D(3), Revised NRMP; D(4),
10 Conceptual Plan for Wetland A17 Complex; D(7)(a)(iii), Mitigation As Built Report; E(2), Fill
11 Placement As Built Reports; F(1), Plan to Prevent Transport of Contaminants; I (1), Revised Low
12 Streamflow Analysis and Summer Low Flow Impact Offset Facility Proposal.

13 224. In addition, consistent with §401(d), the §401 Certification requires the Port to
14 monitor specific aspects of the project and directs the Port to develop appropriate monitoring plans
15 for Ecology's review and approval. *See, e.g.*, Condition A(2), Instream/Shoreline Work Monitoring
16 Plan; D(7), Annual Wetland Monitoring Report; E(3), Fill Embankment Seepage Monitoring Plan;
17 I(e), Low Flow Stream Monitoring; K8(3), Stormwater Monitoring Plan for Construction and
18 Stormwater Discharges.

19 225. As required by the §401 Certification, the Port has revised existing plans and
20 developed monitoring plans and submitted those documents to Ecology for its review. These
21 conditions are not unique to this §401 Certification, nor do they indicate that Ecology does not have
22 reasonable assurance does not exist that the project will comply with applicable water quality
23 standards. The Board has taken all reports produced (up until the cutoffs in the prehearing orders)
24 into consideration when ruling on this appeal.

1 **E. ISSUES PRESENTED TO THE BOARD**

2 **1. WATER QUALITY AND STORMWATER**

3 a. Do the stated limitations on the temporal, operational, and geographic
4 scope of the Certification, including its limitation to “Port 404 projects,” violate the
5 requirements of Section 401 of the Clean Water Act and applicable state water quality
6 law? (Issue No. 3)

7 b. Is there reasonable assurance that the Third Runway and related
8 projects, for which a Clean Water Act Section 401 certification is required, will not
9 violate §401 and applicable water quality law? (Issue No. 4)

10 c. Must there be reasonable assurance that a proposed project will not
11 violate §401 and applicable water quality law when a §401 Certification is issued?
12 (Issue No. 5)

13 d. Is there reasonable assurance that §401 and applicable water quality
14 law will not be violated if the Certification relies on data, reports, and plans that were
15 not in being at the time of issuance of the Certification? (Issue No. 6)

16 e. Did Ecology have reasonable assurance that §401 and applicable water
17 quality laws would not be violated when it relied on a stormwater detention system
18 that may require future compliance with dam safety regulations (chapter 173-175
19 WAC) and may require a dam safety permit prior to commencing construction? (Issue
20 No. 22)

21 f. Is there reasonable assurance that §401 and applicable water quality
22 law will not be violated as a result of the stormwater impacts (with the identified
23 mitigation) of the Third Runway Project? (Issue No. 10)

24 g. Is there reasonable assurance that §401 and applicable water quality
25 law will not be violated if discharges from the airport have violated water quality
26 standards or the Port’s NPDES (§ 402) permit? (Issue No. 11)

 h. May a certification of reasonable assurance that §401 and applicable
 water quality law will not be violated be based upon current and future NPDES
 (§ 402) permits? (Issue No. 12)

 i. Is there reasonable assurance that §401 and applicable water quality
 law will not be violated if the certification authorizes a mixing zone without
 compliance with applicable procedural and substantive requirements for authorization
 of such a zone? (Issue No. 13)

 j. Is there reasonable assurance that §401 and applicable water quality
 law will not be violated where the Certification allows future amendment of its terms
 “by any future Ecology-approved NPDES (§ 402) permit for the Seattle-Tacoma
 international Airport (STIA) . . . as determined in that permit”? (*See, e.g.*, amended
 Certification at P. 4, § 1.f.) (Issue No. 21)

1 226. **Reliance on the Port’s NPDES Permit and the Interaction Between §401 and**
2 **§402 of the Clean Water Act.** Ecology’s regulations for water quality state that “the primary
3 means to be used for requiring compliance with the [water quality] standards shall be through best
4 management practices required in waste discharge permits, rules, orders, and directives issued by the
5 department for activities which generate stormwater pollution.” WAC 173-201A-160(3)(d).
6 Consistent with this regulation, the Port’s NPDES permit regulates stormwater discharges from
7 STIA through the use of BMPs, but does not contain specific effluent limits for stormwater.

8 227. Ecology has issued a Water Quality Policy that defines how decisions will be made
9 for §401 Certifications sought by applicants that are already subject to an existing NPDES permit.
10 *WQP Policy 1-22*, effective March 31, 2000.

11 228. Ecology’s Water Quality Policy states that, where an applicant is already subject to an
12 NPDES permit (a §402 permit), water quality standards for stormwater discharges governed by
13 NPDES permit are to be addressed through the §402 permitting process. The policy further provides
14 that “[w]here both a Water Quality Certification under Section 401 . . . and an NPDES permit under
15 Section 402 of the CWA are necessary, they will be applied in a non-duplicative and complementary
16 manner.” *Id.* at 2.

17 229. The Board concludes that it was reasonable for Ecology to rely on the Port’s NPDES
18 permit and Ecology’s NPDES permitting process as one of the bases for providing reasonable
19 assurance of compliance with state water quality standards when issuing a water quality certification
20 under §401 of the Clean Water Act. In the §401 Certification, Ecology has also gone beyond the
21 requirements of the NPDES permit in several areas, such as requiring retrofit of existing stormwater
22 facilities, requiring numeric fill criteria for imported fill, and requiring a site-specific WER study to
23 be completed and prohibiting any discharge from operations of the Port’s new facilities until that
24 study is approved and appropriate limitations and monitoring requirements are established in the
25 Port’s NPDES permit. The Board concludes that Ecology has not placed sole reliance on the
26

1 NPDES permit, but has instead utilized the §401 Certification to require measures not currently
2 specified in the Port's NPDES permit.

3 230. In order to issue an NPDES permit to the Port, Ecology concluded that stormwater
4 discharges from STIA would comply with applicable water quality standards under WAC 173-
5 201A-030.

6 231. Ecology's decision to condition the §401 Certification upon compliance with existing
7 and future Ecology-issued NPDES permits is consistent with the Board's prior rulings and the CWA.
8 *See Protect the Peninsula's Future et al v. Dept. of Ecology*, PCHB No. 96-178 and 179 (Order
9 granting summary judgment and dismissal). In *Protect the Peninsula's Future*, the Board held that
10 "[c]onsideration of any concerns regarding the water quality impacts from operation of the extended
11 outfall will have to wait until issuance of the revised NPDES permit." *Id.*

12 232. This same standard for reasonable assurance was upheld by the Board in *Okanogan*
13 *Highlands Alliance v. Dept. of Ecology*, PCHB Nos. 97-146 et al (Order denying summary
14 judgment). In that case, the Board held that the mandates of §401 may be satisfied by conditioning
15 the certification on the issuance of an NPDES permit.

16 233. Section 401 establishes procedural requirements for the state to ensure that an
17 applicant's proposed discharge will comply with applicable water quality limitations. 33 U.S.C.
18 §1341(a). In turn, §402(a)(1) only allows Ecology to permit discharges that comply with the
19 requirements necessary to meet water quality standards. *See* 33 U.S.C. §§1342(a)(1) and
20 1311(b)(1)(C). *See also* 40 C.F.R. §122.44(d)(1) (requiring NPDES permits to contain limits
21 necessary to protect water quality standards).

22 234. Ecology's NPDES regulations require the same result. WAC 173-220-130(1)(a) and
23 (b) require that any NPDES permit apply and ensure compliance with all known, available, and
24 reasonable methods of treatment, including effluent limitations established under §§301, 302, 306
25 and 307 of the CWA and any more stringent limitations, including those necessary to meet water
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1 quality standards. Stormwater NPDES permits are subject to these strict requirements for
2 compliance with water quality standards. WAC 173-201A-160(3) states that stormwater discharges
3 shall “comply with the water quality standards.” *See also* §404(p), 33 U.S.C. 1342(p) (stormwater
4 discharges “shall meet all applicable provisions of this section”).

5 235. The purpose of both §401 and §402 is to ensure compliance with water quality
6 requirements, including water quality standards. As a result, Ecology is entitled to rely on the Port’s
7 current and future NPDES permits to provide reasonable assurance that stormwater discharges will
8 meet the requirements of §401, since the same water quality standards apply for both NPDES
9 permits and §401 certifications.

10 236. The primary means for achieving water quality standards for stormwater discharges is
11 through implementing site-specific BMPs. BMPs are accepted effluent limitations in a permit
12 regulating stormwater. *Save Lake Sammamish v. Dept. of Ecology*, PCHB 95-141 (1996). *See* 40
13 C.F.R. § 122.44. In *Save Lake Sammamish* the Board stated:

14 The focus of stormwater regulation has been on controlling the source of pollution,
15 i.e., the head of the pipe as opposed to the end of the pipe as is more typical under the
16 NPDES program. Implicit in this approach is the need to adjust and refine the
17 regulation of stormwater over time.

18 As the state proceeds to implement stormwater permits it is entitled to a presumption
19 that its regulatory approach is consistent with the anti-degradation policy. . . . This
20 permit is thus part of a regulatory program that is progressing and refining stormwater
21 control measures. As a matter of law this context establishes that the permit as issued
22 is consistent with the anti-degradation policy. The department is not required to have
23 perfect knowledge of the outcome of stormwater regulation before it proceeds. As one
24 court stated, “this ambitious statute is not hospitable to the concept that the appropriate
25 response to a difficult pollution problem is not to try all.”

26 *Save Lake Sammamish*, PCHB 95-141, at 9 (1996) (quoting *NRDC v. Costle*, 568 F.2d 1369, 1380
(D.C. Cir. 1977) (“When numeric effluent limitations are infeasible, EPA may issue permits with
conditions designed to reduce the level of effluent discharges to acceptable levels”).

237. The Board acknowledges that Ecology has recently issued one NPDES permit in
which numeric effluent limitations were imposed on stormwater discharges, i.e., the Cascade Pole

1 Lumber Company NPDES Permit, put into the record by ACC. The Board concludes that the facts
2 under which that NPDES permit were issued make it inapposite to this case. The Board is not
3 persuaded that the imposition of numeric water quality standards in the current §401 Certification is
4 necessary in order to have reasonable assurance of compliance with state water-quality standards.
5 After the site-specific study required by the §401 Certification (and prior to any discharge from
6 operations on the new impervious surfaces at STIA), Ecology will establish appropriate limitations
7 and monitoring requirements for zinc or copper, and the evidence at the hearing showed that
8 adequate mitigating measures were available should they be required to meet those limits.

9 238. In sum, the Board concludes that the water quality standards under both §401 and
10 §402 of the CWA are the same. Ecology must have “reasonable assurance” that the Port’s
11 stormwater discharges would comply with water quality standards when it initially issued the
12 existing stormwater NPDES permit. Ecology must likewise have the same assurance when it
13 modifies the Port’s NPDES permit in the near future. Appellants’ contention that reasonable
14 assurance requires something more in the context of a §401 Certification is contrary to the Clean
15 Water Act. Moreover, Ecology has imposed conditions in the §401 Certification (such as the fill
16 criteria and the retrofit of the existing facilities) over and above what can be required under §402.

17 239. **Site-Specific Standards (Water Effects Ratio).** The development of site-specific
18 water quality criteria for metals using a water effects ratio is specifically allowed under WAC 173-
19 201A-040(3), which states “The department may revise [water quality] criteria on a state-wide or
20 waterbody-specific basis as needed to protect aquatic life occurring in waters of the state and to
21 increase the technical accuracy of the criteria being applied.” WAC 173-201A-040(3)(dd) states that
22 “[m]etals criteria may be adjusted on a site-specific basis when data are made available to the
23 department clearly demonstrating the effective use of the water effects ratio approach established by
24 USEPA, as generally guided by the procedures in USEPA Water Quality Standards Handbook,
25 December 1983, as supplemented or replaced.” The Board concludes that, given the difficulty of
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1 regulating stormwater and the multiple contributors to stormwater pollutants in the area streams, the
2 WER study condition is appropriate and will provide reasonable assurance that the MPU
3 improvements will meet state water quality standards.

4 **240. Mixing Zones.** The §401 Certification does not authorize a mixing zone without
5 compliance with procedural and substantive requirements of the state water quality standards at
6 WAC 173-201A-100. Condition A.2 in the §401 Certification recognizes the existing mixing zone
7 for turbidity afforded to in-water and shoreline construction under the water quality standards.
8 WAC 173-201A-110(3). The §401 Certification further conditions the regulatory mixing zone for
9 construction-related turbidity by requiring submission and approval of a monitoring plan for each in-
10 water or shoreline construction project. The plan must include provisions to ensure that qualified
11 Port staff or contractors are on-site during construction to implement the plan, that the plan minimize
12 any mixing zone in accordance with WAC 173-201A-100(4) and (6), corrective action if the
13 numeric turbidity standard is not being met at the boundary of the mixing zone and submission of
14 monitoring reports to Ecology.

15 **241.** Under the §401 Certification, any construction mixing zone would presumably be 100
16 feet down stream of any construction where the stream flow is less than 10 cfs, WAC 173-201A-
17 110(3)(a), or such smaller area determined in the monitoring plan. No other mixing zone is
18 authorized or permitted by the §401 Certification. Appellants have failed to establish that these
19 conditions are unlawful or otherwise fail to fully provide reasonable assurance that in-water and
20 shoreline construction will be compliance with water quality standards. The Board finds that the
21 evidence presented provides reasonable assurance that the implementation of the conditions in the
22 §401 Certification will assure that construction and operation of the MPU Improvements will not
23 impact water quality of the area streams, consistent with state water quality regulations.

24 **242. Dam Safety Permit.** Consistent with its findings on timing and monitoring, the
25 Board finds that Ecology was entitled to issue the §401 Certification in the absence of a dam safety
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1 permit. Ecology was aware that some of the Port's proposed stormwater facilities would require a
2 dam safety permit from Ecology. In accordance with this knowledge, Condition G requires the Port
3 to obtain the necessary dam safety permits prior to construction of any facility to which this
4 condition would apply. There was no evidence at the hearing showing that obtaining a dam safety
5 permit was infeasible. Ecology was entitled to require the Port to obtain dam safety permits, where
6 necessary, as a condition of the §401 Certification.

7 243. There is also reasonable assurance that water quality standards will not be violated
8 because Ecology reviewed the sizing of the stormwater facilities and determined that they are
9 appropriately sized for stormwater collection purposes. Ecology also required that, if any of the
10 stormwater facilities changed during final design, the Port was to provide Ecology with those
11 changes for its review and written approval. Condition G is an appropriate component of Ecology's
12 reasonable assurance determination.

13 244. **404 Projects.** The evidence presented at the hearing did not demonstrate that
14 Ecology's use of the defined term "404 Projects" in the §401 Certification would have any impact on
15 the efficacy of the conditions in the §401 Certification or on whether Ecology had reasonable
16 assurance that water quality standards would be maintained. Accordingly, the Board concludes that
17 Appellants have not sustained their burden with respect to this issue.

18 2. LOW FLOW

19 a. Is there reasonable assurance that §401 and applicable water quality
20 law will not be violated as a result of low flow impacts (with the identified
mitigation) of the Third Runway Project? (Issue No. 8)

21 245. Ecology's §401 Certification provides reasonable assurance that low flow impacts
22 will be mitigated because it requires the Port to implement and revise the July 2001 Low Flow Plan.
23 Further, the Port has either made or rendered moot most of the revisions requested by Ecology in its
24 December 2001 Low Flow Plan. The Port is continuing to refine the modeling that forms the basis
25 of the plan in response to ongoing review by Ecology's consultant. This iterative process of
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1 continuous review by technical experts and further refinement by the Port in response to that review,
2 provides reasonable assurance that low flow impacts will be mitigated.

3 246. The Board concludes that the Port’s low flow mitigation plan is sufficient to provide
4 Ecology with reasonable assurance that low flow impacts from the MPU improvements will be
5 mitigated. The evidence indicated that the models used to predict low flow impacts and to establish
6 the mitigation levels for those impacts were appropriately calibrated. In addition, the weight of the
7 evidence demonstrated that the Port’s low flow mitigation plan was feasible and constructable.

8 247. The Board concludes that the model preparation and calibration is an iterative process
9 and, as such, there is reasonable assurance that low flow impacts could be effectively mitigated,
10 notwithstanding the need for some additional fine tuning and refinements to the low flow models.
11 Moreover, should the actual performance of the project require additional low flow mitigation, the
12 required monitoring will show this fact and the testimony showed that additional mitigation is
13 feasible.

14 **3. WATER RIGHTS**

- 15 a. Must the Port obtain a water right to implement the low stream flow
16 conditions in the certification and if so:
- 17 (a) is there reasonable assurance that §401 and applicable water quality
18 law will not be violated in the absence of such a water right; and
 - 19 (b) Is there reasonable assurance that §401 and applicable water
20 quality law will not be violated in the absence of review of a water
right application under the State Environmental Policy Act (“SEPA”)?
(Issue No. 9)

21 248. The Board concludes that it is not necessary for the Port to obtain a water right in
22 order for there to be reasonable assurance that water quality standards will be met. The Port is
23 already legally required, both by the terms of the §401 Certification and under its NPDES permit, to
24 capture, detain, and control the discharge of stormwater at STIA. The Port is subject to substantial
25 civil and criminal penalties if it fails to comply with the requirements of the §401 Certification and
26 NPDES permit. *See* RCW 90.48.140 and .144; 33 U.S.C. §§1319 and 1365. As such, a water right

1 would not provide any additional certainty that the Port will manage its stormwater as required by
2 the §401 Certification and the NPDES permit.

3 249. The Board further concludes that the Port’s management of stormwater in this case
4 and as required by the §401 Certification to replicate predevelopment hydrologic conditions, with no
5 other use being made of the water, does not require a water right. This is the case irrespective of
6 whether the stormwater management plan includes low flow mitigation. We reach this conclusion
7 because management of stormwater of this nature does not constitute a beneficial use of water. In
8 the absence of a beneficial use a water right is not required.

9 250. In Washington, water rights are subject to the doctrine of prior appropriation. RCW
10 90.03.010; *Postema v. Pollution Control Hearings Board*, 142 Wn.2d 68, 79 (2000); *Neubert v.*
11 *Yakima-Tieton Irrigation District*, 117 Wn.2d 232, 240-41 (1991). Under this doctrine, a water right
12 is required only where a person proposes to appropriate and use water beneficially. A water right
13 may be granted only where water is available for appropriation, the proposed use is beneficial, the
14 proposed right would not impair existing rights, and the use is in the public interest. *Postema* at 79;
15 see also RCW 90.03.290.

16 251. Appellants argued that the Port needs a water right because its proposed capture and
17 detention of stormwater is an appropriation, and because mitigating low flows to protect fish and
18 other aquatic organisms is a beneficial use of water. We disagree with both contentions. With
19 regard to the appropriation issue, we note that under its NPDES permit, the Port is legally required to
20 capture, detain, treat, and control the release of stormwater at STIA. The Port proposes to do so in a
21 way that both protects water quality and mimics streamflows that existed prior to project
22 development. The term “appropriation” implies that water is being captured or controlled so as to
23 allow a beneficial use of the water. *E.g.*, *Department of Ecology v. Grimes*, 121 Wn.2d 459, 468,
24 852 P.2d 1044 (1993) (water rights are established by appropriating water for beneficial use). We
25 conclude that the Port’s management of stormwater does not constitute a beneficial use. In the
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1 absence of a beneficial use, we conclude that capturing stormwater, where doing so is required by an
2 NPDES permit, is not an appropriation.

3 252. Managing stormwater to protect water quality and stream flows is clearly beneficial,
4 but it is just as clearly not a “beneficial use” within the meaning of RCW 90.03.290. RCW
5 90.54.020(11) distinguishes between water “uses” and “water management programs,” including
6 “water quality, flood control, drainage, erosion control and storm runoff.” This legislative
7 enactment demonstrates that the management of stormwater for the purposes identified in the
8 stormwater manual – protecting water quality, and controlling high and low flows – is not a
9 recognized “beneficial use” under Washington law.

10 253. Appellants expressed concern that a conclusion that the Port did not need a water
11 right would create a loophole that would allow others to detain stormwater and use it for purposes
12 unrelated to stormwater management, such as irrigation or industrial use, without benefit of a water
13 right. The Port is not proposing any such unrelated use, and our decision is limited to the
14 management of stormwater pursuant to an NPDES permit, where the goal is to replicate
15 predevelopment conditions and no other use is made of the water.

16 254. Appellants argued that some of the Board’s prior decisions require a different result.
17 In *Okanogan Highlands Alliance v. Ecology*, PCHB Nos. 97-146 *et al.* (Summary Judgment on
18 Stipulated Issues Nos. 20, 21 and 22) (October 23, 1998), the project proponent planned to mitigate
19 low flow impacts with water from a lake that would form after the project, a gold mine, stopped
20 operating. We ruled that “[w]ater right changes should be issued to clearly record the right and
21 priority of water necessary to implement the [low flow mitigation plan].” *Id.*

22 255. The situation in *Okanogan Highlands Alliance* was different from the situation here.
23 Unless the project proponent in that case obtained a water right securing its right and priority to the
24 lake water, another appropriator could have established a more senior right to it, which might have
25 meant that the proponent’s mitigation obligation could not be met in the future. There is no such
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1 danger here. Because the Port will meet its low flow mitigation requirement with stormwater that it
2 is already required to capture, detain, and release, that would not be legally possible for another
3 appropriator to deprive the Port of necessary mitigation water. In addition, as a practical matter,
4 STIA is a secure facility with strict property access limitations. It would not be possible for a third
5 party to enter the facility and capture stormwater. Therefore, the reasons for requiring a water right
6 in *Okanogan Highlands Alliance* are not present here.

7 256. Appellants also pointed to our decisions in *L.G. Design, Inc. v. Ecology*, PCHB Nos.
8 96-20 and 96-25 (1997); *Auburn School District v. Ecology*, PCHB No. 96-91 (1996); *Black River*
9 *Quarry v. Ecology*, PCHB No. 96-56 (1996); and *Manke Lumber Co. v. Ecology*, PCHB No. 96-102
10 (1996) as requiring a water right. All of these cases involved the proposed withdrawal of
11 groundwater where water supplies were limited.

12 257. In those cases, the applicants proposed to mitigate the impacts of their water use by
13 various means, including removing vegetation and capturing stormwater runoff. In each case, we
14 ruled that no mitigation credit could be claimed because the applicant was not offering any new
15 water to mitigate for the amount to be withdrawn. With regard to stormwater runoff, for example,
16 we wrote that if the applicant had not created new impervious surfaces the stormwater would
17 “naturally recharge the system and benefit the base flows of streams. No credit is merited nor
18 authorized under the Water Code for returning to nature what originally belonged to it.” *See Black*
19 *River Quarry, Inc. v. Ecology*, PCHB No. 96-56 (Final Findings of Fact, Conclusions of Law and
20 Order) (November 15, 1996).

21 258. In this case, the question is not whether the Port may claim mitigation credit for
22 stormwater that runs off impervious surfaces. Instead, the question is whether the Port’s
23 management of stormwater pursuant to the terms of its NPDES permit and §401 Certification
24 requires a water right in the first place. The decision we reach here is not inconsistent with our
25 previous rulings.

1 259. Appellants also argued that the Port should obtain an instream flow right, which
2 would prevent withdrawals downstream from the point of discharge, protecting the discharged water
3 from that point to the mouth of the streams where they enter Puget Sound. This argument assumes
4 that the Port is required to protect the mitigation water after it has been released to the stream. The
5 §401 Certification does not require this, and we conclude that such a requirement would exceed the
6 reach of §401. Under §401, the Port must mitigate the impacts of its own project, not impacts
7 caused by activities other than its project. The Port will mitigate the impacts of the MPU
8 improvements by discharging water at the locations and in the amounts it would have been
9 discharged if the project were never built. The Port is not required to protect the water after
10 discharge any more than it is currently required, under predevelopment conditions, to protect water
11 that discharges naturally to the stream.

12 260. Moreover, a private water right to maintain instream flow is not recognized under
13 Washington law. An appropriation for a water right requires a diversion and application of water for
14 beneficial use. *Postema*, 142 Wn.2d at 79. In Washington, instream flows are recognized as
15 beneficial uses, but the right to establish instream flows rests exclusively with Ecology. RCW
16 90.03.247. When an instream flow is created, it is a right held by the state and not by an individual
17 permittee. *Id.*; see also RCW 90.42.040 (requiring trust water rights to be held by the state).

18 261. In other Western states, the existence of such an “exclusive” process has led the
19 courts to conclude that private parties may not appropriate water for instream flows, because to do so
20 would be contrary to the statutory scheme. A. Dan Tarlock, *Law of Water Rights and Resources*,
21 §5.07(3), 5-35 (1996); 2 *Waters and Water Rights* § 13.05(a) (2001). *Bevan v. Department of*
22 *Ecology*, PCHB No. 48 (1972) is an early PCHB decision ruling that an applicant could obtain a
23 right to a certain flow in surface water to support fish propagation research. Even in that decision,
24 the Board was clear that its ruling was “*sui generis*” (i.e. one of a kind) and “not in any sense the
25 establishment of a minimum flow by private action.” *Bevan* at 4.

1 262. We have since distinguished this early ruling and concluded that water rights are
2 created by “diligent development physically applying waters to some useful purpose through a
3 diversion or, at least, some alteration of the natural state of things.” *Wenatchee-Chiwawa Irrigation*
4 *District v. Ecology*, PCHB 85-215, at 11 (1986). *See Postema*, 142 Wn.2d at 79 (a water right may
5 be acquired where available public water is appropriated for a beneficial use, subject to existing
6 rights). We therefore conclude that a private instream flow right is not available to the Port, and is
7 not necessary to provide reasonable assurance.

8 263. In sum, we conclude that a water right is not necessary here to provide reasonable
9 assurance that water quality standards will be met. Rather, it is the Port’s NPDES permit and the
10 §401 Certification itself that provides the assurance that stormwater will be managed in a manner
11 that will protect characteristic and existing uses in area streams. In addition, we conclude that no
12 water right is required for the Port to manage its stormwater as required by its NPDES permit and
13 the §401 certification. Where stormwater is being managed as required by an NPDES permit, the
14 goal is to replicate predevelopment hydrologic conditions and if no other use is made of the water, a
15 water right is not required.

16 264. Since we conclude that the Port does not need a water right to provide reasonable
17 assurance, we necessarily conclude that there can be reasonable assurance in this case without SEPA
18 review of a water right application.

19 **4. FILL CRITERIA, EMBANKMENT AND MSE WALL**

20 a. Is there reasonable assurance that §401 and applicable water quality
21 law will not be violated as a result of the embankment and fill criteria,
22 including:

23 (a) the method of determining compliance with the fill criteria;

24 (b) embankment and wall construction specifications; and

25 (c) groundwater discharges from the embankment and Mechanically
26 Stabilized Earth (“MSE”) wall. (Issue No. 15)

1 b. Is there reasonable assurance that §401 and applicable water quality
2 law will not be violated as a result of the possibility of MSE wall and
embankment failure? (Issue No. 16)

3 265. The Board concludes that the fill criteria in Condition E of the §401 Certification,
4 including Attachment E, provide reasonable assurance that the fill used to construct the third runway
5 embankment will not violate water quality standards. Although the Board finds that the numeric fill
6 criteria in the §401 Certification for TPH are protective of water quality, we also note that none of
7 the parties objected to lowering the 2000 ppm limit for diesel and heavy oil. The Port presented
8 testimony that its bid specifications preclude acceptance of fill with concentrations of diesel or heavy
9 oil that exceed 460 ppm. Since there appears to be no reason to retain the 2000-ppm limit, we
10 conclude that the numeric fill criteria for diesel and heavy oil should be lowered to 460 ppm. We
11 also conclude that there is reasonable assurance that the MSE Walls to be used in the embankment
12 will not fail and cause violations of water quality standards.

13 5. GROUNDWATER AND WETLANDS

14 a. Is there reasonable assurance that potential migration and discharge of
15 existing groundwater pollutants originating from the airport (with the
16 identified mitigation) will not violate §401 and applicable water quality law?
(Issue No. 17)

17 b. Is there reasonable assurance that §401 and applicable water quality
18 law will not be violated if the Port is in violation of the terms of the MTCA
19 Agreed Order for SeaTac International Airport (Ecology Order No. 97TC-
N122, dated 5/15/99)? (Issue No. 18)

20 c. Is there reasonable assurance that §401 and applicable water quality
21 law will not be violated as a result of wetland fill, stream alteration and
22 identified mitigation activities? (Issue No. 19)

23 266. **Groundwater Contamination Beneath the AOMA.** The Board concludes there is
24 reasonable assurance that construction of the proposed MPU improvements will not cause
25 contaminated groundwater beneath the AOMA to migrate to the Third Runway area and discharge in
26 violation of applicable water quality standards. We conclude that, for purposes of determining
whether there is reasonable assurance, the Port need not complete the entire groundwater study set

1 forth in the Agreed Order. Sufficient information is available based on the work performed to date
2 to conclude that the contaminated groundwater that is the subject of the MTCA order is confined to
3 the AOMA, and that construction of the third runway will not result in any significant migration.

4 267. Appellants argued that a certification that Governor Locke provided to the Secretary
5 of Transportation in 1997 required completion of the MTCA groundwater study before the §401
6 Certification could be issued. We do not read the Governor's certification to impose this
7 requirement. The Governor's certification, which was written pursuant to 49 U.S.C. §47101, stated
8 that "there is reasonable assurance that the airport development project involving the Sea-Tac third
9 runway will be located, designed, constructed and operated so as to comply with applicable air and
10 water quality standards" if, among other things, the Port "complete[s] a ground water evaluation at
11 the airport as defined in the MTCA Agreed Order."

12 268. Nothing in the Governor's certification sets a deadline for completing the MTCA
13 groundwater evaluation, or prohibits issuance of a §401 certification until the groundwater
14 evaluation is done. Moreover, we note that the Governor found he had reasonable assurance that
15 water quality standards would be met as of 1997, even though the groundwater study would not be
16 performed until sometime in the future. If it were necessary to complete all aspects of the Agreed
17 Order's groundwater study before reasonable assurance could exist, then the Governor would not
18 have issued his certification in 1997. Our conclusion is consistent with that reached by the Attorney
19 General's Office in an informal opinion issued to Representative Shay Schual-Berke dated August
20 14, 2001. The opinion states that the Governor's letter did not "promise that the ground water
21 evaluation in question will be completed before any permits or certifications are granted in
22 connection with the Port's proposal to construct a third runway."

23 269. **The Port's NRMP Will Mitigate for Wetland Impacts from the MPU Projects.**
24 The Port's NRMP outlines the mitigation taking place both on-site (in the sub-basins adjacent to the
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1 Airport) and off-site (at a 65-acre site in Auburn). The mitigation provides mitigation in excess of
2 Ecology's 2:1 mitigation target for the project.

3 270. As defined by Ecology guidance documents, mitigation means reducing the total
4 adverse impacts of a project to an acceptable level, which means no net loss of wetland functions,
5 and can be accomplished through a variety of methods or actions. Consistent with the policy of the
6 Corps, Ecology's definition of mitigation includes avoiding, minimizing, rectifying, reducing, and
7 compensating for impacts.

8 271. **Mitigation Credit.** Ecology has established mitigation credit ratios as tools to be
9 used to determine when mitigation adequately compensates for wetland impacts. The mitigation
10 credit ratios are not requirements, and are not intended to be rigidly applied. Rather, credit ratios are
11 "general guidelines" and recommendations that are intended to be used with flexibility, taking into
12 account the replacement and/or improvement in wetland functions, as well as the likelihood of
13 success of the proposed mitigation plan. Here, Ecology took appropriate factors into account and
14 applied the mitigation ratio guidance documents in an appropriate manner.

15 272. **Off-Site Mitigation Is Appropriate.** Washington law specifically allows out-of-
16 basin mitigation. RCW 90.74.020 (for public infrastructure projects, "the departments of ecology
17 and fish and wildlife may not limit the scope of options in a mitigation plan to areas on or near the
18 project site, or to habitat types of the same type as contained on the project site"). This is consistent
19 with the requirements of the Corps. *See* 33 C.F.R 320(r) at n.1. Off-site mitigation is also consistent
20 with Ecology's guidance on wetland mitigation.

21 273. In addition, the requirements of RCW 90.74 must be construed together with the
22 broad, general antidegradation policy of RCW 90.48.010 and WAC 173-201A-070 because both
23 statutes treat the same subject matter. *Hallauer v. Spectrum Properties, Inc.*, 143 Wn.2d 126, 146,
24 18 P.2d 540 (2001) (statutes treating the same subject must be read as a unified whole, but when the
25 statutes conflict, the specific statute will control the general statute). Here, the Legislature's specific
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1 direction allowing off-site mitigation for public infrastructure project is the more specific legislative
2 directive.

3 274. The evidence presented at the trial showed that the Port was limited in its ability to
4 create new wetlands on-site due to the FAA's requirement that forbids the creation of new wetlands
5 within 10,000 feet of a runway. Under FAA rules, wildlife attractants, such as wetlands, may be
6 sited no closer than 10,000 feet from turbine aircraft movement areas. The FAA imposed this
7 requirement as a condition of its 1997 Record of Decision approving the new third runway.

8 275. The Board concludes that the FAA's prohibition on the creation of wildlife attractants
9 imposes a significant constraint on the wetland mitigation that can be provided for the MPU projects,
10 requiring that the certain wildlife functions be replaced using off-site mitigation. However, with the
11 exception of the waterfowl habitat function performed by the impacted wetlands, the Port and
12 Ecology worked to devise a mitigation plan that replaces all impacted wetland functions in the
13 impacted basin. In addition, the Port is creating high quality wetlands at the 65-acre Auburn site,
14 which includes open water for waterfowl habitat.

15 276. The Board also concludes that Ecology appropriately followed the requirements of
16 RCW 90.74 and correctly determined that the mitigation plan offered equal or better biological
17 functions, compared to existing conditions, for the wetland resources identified in the mitigation
18 plan. Ecology required reasonable mitigation onsite, and the evidence showed that (with the
19 exception of waterfowl habitat functions) all wetland functions impacted in-basin were being
20 mitigated in-basin, with additional significant and high-quality mitigation (including mitigation for
21 waterfowl habitat loss) being provided off-site in Auburn.

22 277. The Board also concludes that the Port's functional assessment of wetlands was
23 sufficient to provide Ecology with reasonable assurance. The Board finds that use of WFAM was
24 not necessary, based on the fact that WFAM does not apply to slope wetlands, and would therefore
25 be applicable to only 25% of the wetlands on site.

1 278. In sum, the Board concludes that the Port's proposed wetland mitigation plan, as
2 outlined in the NRMP, provides reasonable assurance that there will be no loss of wetland functions
3 and no violation of water quality standards as a result of the wetland fill, stream alteration or wetland
4 mitigation activities associated with the construction of the MPU improvements.

5 **6. MONITORING**

6 a. Is there reasonable assurance that §401 and applicable water quality
7 law will not be violated if (1) the Certification relies on future monitoring; or
8 (2) if the Certification fails to require adequate pre-construction monitoring?
(Issue No. 7)

9 279. Consistent with its findings as outlined above and with its prior rulings, the Board
10 concludes that it is free to consider both verbal and documentary evidence, plans and other work
11 product that was generated between the time of the issuance of the §401 Certification on September
12 21, 2001 and the commencement of the hearing on the merits in making a determination of whether
13 reasonable assurance exists.

14 280. The Board also concludes that Ecology may impose appropriate conditions in the
15 §401 Certification that require submission of revised plans or the requirements for future monitoring,
16 and that Ecology's conditions were appropriate in this case. In addition, Ecology may require
17 monitoring of actions required by conditions to the §401 Certification that takes place after the §401
18 Certification is issued and proceeds for either a finite period of time into the future, or, if
19 appropriate, continues in perpetuity. *Cf. Anderson v. Pierce Cy.*, 86 Wn. App. 290, 293 n.2, 936
20 P.2d 432 (1997) (upholding permit for soil bioremediation facility on condition that project comply
21 with Puget Sound Air Pollution Control Agency regulations). Here, the monitoring requirements in
22 the §401 Certification are appropriate.

23 281. The §401 Certification requires monitoring to ensure that required mitigation is
24 provided and effective, and to identify potential problems that may need further mitigation. Many of
25 these conditions are part of the adaptive management approach Ecology used in order to be certain
26

1 that mitigation measures will be successful. Such monitoring allows the project mitigation to adapt
2 so that state of the art technology and AKART are being applied.

3 282. Washington and federal courts have specifically approved this adaptive management
4 approach. *West 514, Inc. v. Spokane Cy.*, 53 Wn. App. 838, 844-849, 770 P.2d 1065 (1989)
5 (upholding approval of shopping mall that depended on future air quality monitoring to “confirm
6 that the project will not have a significant adverse environmental impact”); and *Friends of the*
7 *Payette v. Horseshoe Bend Hydroelectric Co.*, 988 F.2d 989, 993 (9th Cir. 1993) (upholding
8 condition that required water quality monitoring to determine compliance with state water quality
9 standards and additional mitigation if monitoring disclosed any problems). Moreover, §401 of the
10 Clean Water Act itself expressly states that the state can include monitoring conditions in its
11 certification. 33 U.S.C. § 1341(d).

12 283. In addition, as has already been noted above, the Board concludes that it was
13 appropriate for Ecology to rely on the Port’s existing and future NPDES permits as one of its bases
14 for reasonable assurance of compliance with water quality standards.

15 **7. PUBLIC PROCESS – NOTICE**

16 a. Did Ecology violate applicable law pertaining to public and agency
17 notice, hearing, comment and modification regarding the original 401/404
application and Amended Certification? (Issue No. 1)

18 284. Public notice is triggered by the submission of an application for a §401 Certification
19 or CZMA consistency concurrence. WAC 173-225-030; 15 CFR § 930.61(a). In compliance with
20 these provisions, public notice of the project was provided by means of the joint Corps and Ecology
21 Public Notice issued by the Corps on December 27, 2000. The Corps and Ecology received and
22 considered public comments and held a joint public hearing regarding the project on January 26 and
23 27, 2001. These activities constitute full compliance with applicable public notice and comment
24 requirements.

1 285. Ecology was not required to conduct additional public notice when it issued the
2 Amended §401 Certification on September 21, 2001, because the amendment did not result in
3 changes to the proposed project and, thus, no new application was required. See WAC 173-225-
4 030; 15 CFR §930.61(a). The Amended §401 Certification adjusted only the conditions that applied
5 to the project and, because the project itself was not changed, submission of a new application was
6 not warranted.

7 286. Ecology had previously determined on August 10, 2001 that the project was
8 consistent with Washington's Coastal Zone Management Program (CZMP), and due to the fact that
9 only the project conditions were adjusted, additional public notice was not required. Accordingly,
10 the Board finds that the public notice and comment process that Ecology followed for the §401
11 Certification complied with WAC 173-225-030 and 15 CFR § 930.61(a).

12 287. Appellants argued in their pre-hearing memorandum that Ecology's rescission and
13 reissuance of the Amended §401 Certification was invalid based on the fact that EPA had not had an
14 opportunity to review the changes to the §401 Certification. Appellants' position is contrary to
15 applicable law, which does not require EPA review prior to amendment of a §401 certification by
16 Ecology. See *Roosevelt Campobello International Park Commission v. Environmental Protection*
17 *Agency*, 684 F.2d 1041, 1056 (1st Cir.1982) (Both EPA and the federal courts have interpreted
18 §401(d) of the Clean Water Act as removing authority from either federal courts or agencies to
19 review the validity of requirements imposed under state law or in a state's §401 Certification); *U.S.*
20 *v. Marathon Development Corp.*, 867 F.2d 96, 100 (1st Cir. 1989) (same) (citing *Campobello*).

1 **8. COASTAL ZONE MANAGEMENT ACT**

2 a. Does Ecology's concurrence with the Port's consistency certification,
3 issued pursuant to the Coastal Zone Management Act ("CZMA"), fail to
4 comply with the requirements of the CZMA and Washington's approved
Coastal Zone Management Plan? (Issue No. 2)

5 288. **CZMA Consistency Concurrence Properly Granted.** The Port's project will occur
6 in Washington's coastal zone. As a result, the Port is required to obtain a CZMA consistency
7 concurrence statement from Ecology.

8 289. The Port submitted an application for Certification of Consistency with Washington's
9 CZMP. In reviewing the Port's application, Ecology verified that the Port had complied with the
10 enforceable policies of Washington's CZMP. In that review, Ecology verified that (a) the Port had
11 completed its SEPA review; (b) the Port obtained a shoreline exemption from the City of Auburn for
12 the proposed wetland mitigation site; (c) the Port had a valid individual NPDES permit for the
13 airport site, had obtained a general NPDES stormwater permit for construction of the Auburn
14 mitigation site, and was issued a §401 certification for the proposed project; and (d) the Port had the
15 appropriate discharge permits from the Puget Sound Clean Air Agency and the scope of the project
16 had not changed so as to alter Ecology's determination that the SeaTac area was in compliance with
17 National Ambient Air Quality Standards for carbon monoxide and nitrous oxide.

18 290. The sole outstanding issue for CZMP consistency is whether there is reasonable
19 assurance that the project as proposed and conditioned will meet applicable water quality standards.
20 As is elaborated throughout this order, the Board finds that Ecology's issuance of the §401
21 Certification was appropriate and, therefore, Ecology properly concurred that the Port's project is
22 consistent with Washington's CZMP.

23 **VII. CONCLUSIONS**

24 291. Based on the findings of fact and conclusions of law above, the Board concludes
25 there is reasonable assurance that construction of the Port's proposed MPU improvements will not
26 result in a violation of state water quality standards. Ecology's issuance of the §401 Certification,

1 with the imposition of the conditions in the §401 Certification, provide reasonable assurance that
2 state water quality standards will be met.

3 292. Any finding of fact deemed to be a conclusion of law is hereby adopted as such.

4 **VIII. ORDER**

5 293. Based on the Findings of Fact and Conclusions of Law outlined above, the Board
6 concludes that reasonable assurance exists that the construction of the Port's proposed MPU
7 improvements will comply with state water quality standards. Accordingly, the appeals of the §401
8 Certification for the Port's MPU projects are hereby denied, with the sole exception that the Board
9 modifies the numeric fill criteria (diesel and heavy oil) to 460 ppm. In addition to denying the
10 appeal, with this Order, the Board's stay entered on December 17, 2001, is hereby lifted.

11 IT IS SO ORDERED.

12 Dated this _____ day of _____, 2002.

13 Pollution Control Hearings Board

14
15
16 _____
Kaleen Cottingham, Presiding

17
18 _____
Robert V. Jensen, Board Member

19
20
21 _____
William Lynch, Board Member

