

POLLUTION CONTROL HEARINGS BOARD
FOR THE STATE OF WASHINGTON

AIRPORT COMMUNITIES COALITION,

Appellant,

CITIZENS AGAINST AIRPORT
EXPANSION,

Intervenor,

v.

STATE OF WASHINGTON,
DEPARTMENT OF ECOLOGY; and
THE PORT OF SEATTLE,

Respondents.

PCHB NO. 01-160

FINDINGS OF FACT, CONCLUSIONS OF
LAW, AND ORDER

I. INTRODUCTION

This matter came on for hearing before the Pollution Control Hearings Board (Board) on March 18-29, 2002. The Board was comprised of Kaleen Cottingham, presiding, Robert V. Jensen, and William H. Lynch. The Appellant, Airport Communities Coalition (ACC), and Intervenor, Citizens Against Airport Expansion (CASE), challenge the Port of Seattle's (Port) §401 Water Quality Certification issued on September 21, 2001, by the Department of Ecology

1 (Ecology) for the construction of a Third Runway, and related projects at the Seattle-Tacoma
2 International Airport (Airport).

3 Appellant Airport Communities Coalition (ACC) was represented by Peter Eglick, Kevin
4 Stock and Michael Witek of Helsell Fetterman, and Rachael Paschal Osborn; Intervenor Citizens
5 Against Airport Expansion (CASE) was represented by Richard Poulin of Smith & Lowney;
6 Respondent Washington State Department of Ecology (Ecology) was represented by Joan
7 Marchioro, Thomas Young, and Jeff Kray, Assistant Attorneys General; and Respondent Port of
8 Seattle (Port) was represented by Jay Manning and Gillis Reavis of Brown Reavis & Manning,
9 Roger Pearce and Steven Jones of Foster Pepper & Shefelman, and Port Counsel Linda Strout
10 and Traci Goodwin.

11 Pre-hearing briefs and pre-filed written direct testimony were submitted, witnesses were
12 sworn and heard, exhibits were introduced, portions of eight depositions were published, and the
13 parties presented arguments to the Board. On April 9, 2002, an evidentiary order was issued,
14 along with a final matrix of exhibits, identifying the exhibits admitted in this case, and for what
15 purpose. Based upon the evidence presented, the Board makes the following Findings of Fact
16 and Conclusions of Law.

17 II. STATEMENT OF THE ISSUES

18 The parties stipulated to a list of 22 issues to be presented to the Board for resolution.
19 The Board granted summary judgment on one of those issues (Issue No. 14) before the hearing.
20 Another issue (Issue No. 20) was withdrawn following the hearing on the merits, leaving 20
21 issues for resolution by the Board. The remaining issues have been grouped below in topic

1 areas, both to facilitate the resolution of similar issues, and as an outline for the Findings of Fact
2 and Conclusions of Law.

3 1. WATER QUALITY AND STORMWATER

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

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

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

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

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

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

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

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

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

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

13 2. LOW FLOW

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

17 3. WATER RIGHTS

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

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

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

4 4. FILL CRITERIA, EMBANKMENT AND MSE WALL

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

7 (a) the method of determining compliance with the fill criteria,

8 (b) embankment and wall construction specifications, and

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

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

13 5. GROUNDWATER

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

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

1 c. Is there reasonable assurance that §401 and applicable water quality law will not
2 be violated as a result of wetland fill, stream alteration, and identified mitigation activities?

3 (Issue No. 19)

4 6. WETLANDS

5 a. Is there reasonable assurance that §401 and applicable water quality law will not
6 be violated as a result of wetland fill, stream alteration, and identified mitigation activities?

7 (Issue No. 19)

8 7. MONITORING AND ADAPTIVE MANAGEMENT

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

12 8. PUBLIC PROCESS – NOTICE

13 a. Did Ecology violate applicable law pertaining to public and agency notice,
14 hearing, comment, and modification regarding the original §401/404 application and Amended
15 certification? (Issue No. 1)

16 9. COASTAL ZONE MANAGEMENT ACT

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

1 III. PROCEDURAL HISTORY

2 The proposal to construct the improvements at the Seattle-Tacoma International Airport
3 (Airport) was the culmination of years of study, debate, and decisions by governmental bodies
4 and elected officials in the Puget Sound region to address the region’s commercial air
5 transportation needs and, in particular, to address poor weather delays and increasing demand on
6 facilities at the Airport. In 1996, the regional transportation planning organization—the Puget
7 Sound Regional Council—adopted resolutions adding a Third Runway at the Airport to the
8 Regional Transportation Plan for the Puget Sound region and determining a new major
9 supplemental airport, at another location, was not feasible.

10 The Plan developed by the Port is called the Master Plan Update (MPU) and includes the
11 proposed Third Runway and related facilities. Because some of the improvements require filling
12 waters of the United States, the Port submitted a Joint Aquatic Resource Permit Application
13 (JARPA) to the U.S. Army Corps of Engineers and Ecology in December 1996. A JARPA is the
14 form used to apply for Hydraulic Project Approvals, Shoreline Management Permits, Approvals
15 for Exceedance of Water Quality Standards, Water Quality certifications, and U.S. Army Corps
16 of Engineers §404 and §10 (of the Rivers and Harbor Act) permits.

17 At the time of application, the Port did not have title to a number of properties on the
18 westside of the Airport necessary for completion of the project. These properties are located in
19 the area between the embankment for the second runway and State Route (SR) 509. After the
20 JARPA application was submitted and public notice was issued, the Port began acquiring the
21

1 westside properties and gaining access to those properties. Because new wetlands were
2 discovered after gaining access to the westside properties, a second public notice was issued.

3 The Port also submitted a Coastal Zone Management Act (CZMA) Consistency
4 Statement to Ecology in December 1999. At Ecology's request, the Port resubmitted its CZMA
5 Consistency Statement on May 22, 2000. The Consistency Statement was revised on January 22,
6 2001.

7 Pursuant to 33 C.F.R. §325.2(b)(ii), Ecology must complete its review and issue a §401
8 certification within one year of the filing of the JARPA application. In response to a request
9 from Ecology for additional time to complete its §401 review, the Port agreed to withdraw the
10 JARPA application and resubmitted an application to the Corps on October 25, 2000.

11 The filing of the JARPA constituted an application to the Army Corps of Engineers for a
12 permit pursuant to §404 of the Clean Water Act (33 U.S.C. 1344) for permission to discharge
13 dredge or fill materials into waters of the United States, i.e., the filling of wetlands necessary for
14 construction of the Port's proposed Third Runway and other Master Plan Update Improvements.

15 The JARPA application also constituted an application under §401 of the Clean Water
16 Act (33 U.S.C. 1341) for certification by the State of Washington as to whether or not the Port's
17 proposal complied with applicable water quality laws.

18 On August 10, 2001, Ecology issued Order No. 1996-4-02325, a §401 certification, and a
19 Coastal Zone Management Act consistency statement for the Port's proposed Third Runway and
20 other Master Plan Update projects. The §401 certification was appealed on August 23, 2001, by
21 ACC, and assigned PCHB Case No. 01-133. On September 10, 2001, the Port of Seattle filed its

1 own Notice of Appeal of the August §401 certification, which was assigned PCHB Case No. 01-
2 150. At the same time, the Port filed a Stipulation and Agreed Order signed by Ecology for
3 entry by the Board to modify the §401 certification and, on that basis, dismiss the Port's appeal.
4 It also would have potentially mooted ACC's appeal. ACC objected to entry of the Order.

5 After two status conferences before the Board, Ecology indicated it would rescind the
6 existing §401 certification and issue a new §401 certification in lieu of requesting the Board to
7 approve the Stipulation and Agreed Order of Dismissal. All parties, including ACC, agreed to
8 this proposal, which was reflected in an Agreement and Order signed by all parties and entered
9 by the Board on September 20, 2001.

10 Ecology thereafter withdrew the August §401 certification and issued a new one, on
11 September 21, 2001, Order No. 1966-4-02325 (Amended-1). Pursuant to the stipulation, the
12 pleadings on ACC's prior appeal and Motion for Stay were transferred to a new appeal file
13 (PCHB Case No. 01-160) for the September §401 certification.

14 The Board heard oral argument on ACC's Motion for Stay on October 15, 2001. On
15 December 17, 2001, the Board issued its Order Granting ACC's Motion to Stay the
16 Effectiveness of the §401 certification. On December 21, 2001, Citizens Against Sea-Tac
17 Expansion (CASE) was granted Appellant Intervenor status.

18 Prior to the hearing on the merits, the Board considered two motions for summary
19 judgment. The first was ACC's motion for summary judgment on the water right issue (Issue
20 No. 9). At the time this summary judgment was decided, the Board consisted of two members,
21 who split on the disposition of the motion. Based on this split decision, ACC's motion was

1 denied. Subsequently, a third member was appointed to the Board prior to the March 2002
2 hearing on the merits. Accordingly, the Board reserved resolution of this issue until the final
3 decision on the merits.

4 The second summary judgment motion was brought by the Port on the SEPA issue (Issue
5 No. 14). The Board granted the Port's motion on this issue under a separate order, dated March
6 14, 2002, finding the environmental documents prepared by the Port and FAA contained a
7 detailed look at the impacts of the project and proposed mitigation, even though some of the
8 mitigation plans had become more detailed over time. The decision on this motion for summary
9 judgment is incorporated into this decision by reference.

10 The hearing on the merits was held before the Board on March 18 through March 29,
11 2002. For the convenience of the Board and to reduce the time of the hearing, direct testimony
12 from witnesses was submitted in writing prior to the hearing. At the hearing, the parties also
13 presented witnesses for direct examination, cross-examination, and questioning by members of
14 the Board. In addition, the Board allowed Appellants to submit portions of certain deposition
15 testimony as part of the evidence in the case, and Respondents were allowed to submit counter-
16 designations of deposition testimony. Rulings on the admissibility of the various exhibits
17 offered by the parties are contained in a separate order issued by the Board, dated April 9, 2002.

18 After closing arguments on March 29, 2002, the Board left the record open for several
19 purposes, which have been separately addressed in subsequent orders, which are incorporated
20 into this decision by reference. The Board also set a schedule for submission by the parties of
21 proposed Findings of Fact and Conclusions of Law pursuant to RCW 34.05.461(8)(a).

1 IV. FINDINGS OF FACT

2 A. GENERAL

3 1. DESCRIPTION OF THE PROJECT

4 The improvements at the Airport contained in the MPU include a new 8,500-foot parallel
5 runway approximately one-half mile west of the existing two runways, a 600-foot extension of
6 existing Runway 34R, extension of existing runway safety areas, terminal improvements, and
7 construction of the South Aviation Support Area to accommodate aircraft maintenance and air
8 cargo facilities.

9 The Third Runway portion of the project is to be constructed in the Miller Creek, Walker
10 Creek, and Des Moines Creek watersheds. In addition, some of the mitigation occurs at a
11 proposed off-site mitigation area in Auburn, which is outside the individual watersheds impacted
12 by the project, but within the same administrative Water Resource Inventory Area (WRIA),
13 WRIA 9. Miller, Walker, and Des Moines Creeks are all classified as Class AA waters of the
14 state, the highest and most protective category established for state waters. Des Moines Creek
15 and Miller Creek have been administratively closed for further consumptive appropriation
16 throughout the entire year.

17 The project would fill all or portions of 50 wetlands. As a result of the filling of these
18 wetlands, the project cannot proceed without a permit approval under §404 of the federal Clean
19 Water Act, a permit program administered by the U.S. Army Corps of Engineers. As a
20 prerequisite to issuance of a §404 permit, the state must issue a Clean Water Act §401

1 certification. The project would also require filling and reconstruction of portions of Miller
2 Creek and portions of drainage channels in the Miller and Des Moines Creek basins.

3 The site of the proposed Third Runway is currently a wooded canyon encompassing
4 Miller Creek, the bottom of which lies approximately 150 feet below the level of the Airport's
5 existing runways. To provide the site for the Third Runway, the Port proposes to fill the canyon
6 with over twenty (20) million cubic yards of fill. Under the fill, the Port would construct a
7 drainfield to capture and transport groundwater.

8 The Port proposes an elaborate system of embankments and retaining structures to keep
9 the 20 million cubic yards of fill in place. One element of this would be a 135-foot-high
10 mechanically stabilized earth (MSE) wall with a 20-foot high sloped embankment above the wall.
11 This section of the wall would run for approximately 1,500 feet. The proposed construction
12 footprint for the MSE wall comes within approximately 50 feet of Miller Creek.

13 2. DESCRIPTION OF THE §401 CERTIFICATION

14 The Port's JARPA application was first submitted in 1996. In 1997 the Corps issued a
15 public notice of the Port's application. In April 1998, the Corps and Ecology conducted the first
16 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. 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.

20 During this time period, the Port was acquiring properties on the west side of the Airport
21 necessary for construction of the new runway. After acquiring the properties and conducting on-

1 the-ground wetland delineations, the Port discovered more wetlands than previously estimated
2 from aerial photos and distant observations from nearby rights-of-way. Accordingly, in
3 September 1999, the Corps issued a revised public notice, which reinitiated Ecology's review
4 under §401. The Corps and Ecology conducted another public hearing. Once again, extensive
5 public comments were submitted, and the Port again prepared detailed written responses to those
6 comments.

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

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

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

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

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

3 *Natural Resource Mitigation Plan, Master Plan Update Improvements, Seattle-*
4 *Tacoma International Airport (Parametrix 2001)*

5 *Subsurface Conditions Data Report 404 Permit Support Third Runway Embankment*
6 *(Hart Crowser, July 1999)*

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

9 *Geotechnical Engineering Analyses and Recommendations Third Runway*
10 *Embankment (Draft Memorandum Hart Crowser, December 2000)*

11 *Revised Methods and Results of Liquefaction Analysis Third Runway Embankment*
12 *(Draft Memorandum Hart Crowser, March 2001)*

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

16 The §401 certification was issued on September 21, 2001. As discussed above, the
17 September §401 certification replaced an earlier version of the certification issued on August 10,
18 2001. The §401 certification is limited to the work described in the October 25, 2000, JARPA,
19 as amended. The §401 certification is further subject to the conditions contained in the Order
20 itself and to the water quality and aquatic resource related conditions of the: 1) Hydraulic Project
21 Approval (HPA) issued by the Department of Fish and Wildlife, 2) the National Pollution
Discharge Elimination System (NPDES) permit #WA-002465-1 issued by Ecology on February
20, 1998 and modified on May 29, 2001, and 3) the NPDES General Stormwater Permit for
Construction Activity #S03-00491 issued by Ecology on April 4, 2001. The conditions

1 contained in the §401 certification itself are enumerated in fifteen sections (A through O)
2 intended to ensure compliance with all appropriate water quality law.

3 Those specific conditions address:

- 4 A. Water Quality
- 5 B. Permit Duration
- 6 C. Notification and Reporting Requirements
- 7 D. Wetland, Stream and Riparian Mitigation
- 8 E. Conditions for Acceptance of Fill
- 9 F. Prevention of Transport of Contaminants
- 10 G. Dam Safety Requirements
- 11 H. Upland Construction Activities
- I. Mitigation of Low Flow Impacts
- J. Operational Stormwater Requirements
- K. Construction Stormwater Limitations and Monitoring Requirements
- L. Emergency/Contingency Requirements
- M. General Conditions
- N. Violations of the Order
- O. Appeal Process

12 Originally the §401 certification (August version) provided "This Order shall be valid
13 during construction and long-term operation and maintenance of the project." As revised in
14 September, the current §401 certification provides in pertinent part the Order shall be valid
15 during construction of the project, with several, but not all, provisions valid during long-term
16 operation and maintenance of the project. Some of the provisions that are valid for the long-term
17 are: 1) restrictive covenants protecting the mitigation areas, 2) the Final Natural Resources
18 Mitigation Plan (NRMP) as amended, and 3) the low streamflow facilities and the revised Low
19 Stream Flow Plan as amended. Some of the provisions only apply for a fixed duration: 1)
20 provisions regarding wetland, stream, and riparian mitigating monitoring and reporting, 2) the
21 Surface Water and Groundwater Monitoring Plan, and 3) the plan to monitor potential

1 contaminant transport via subsurface utility lines. The remainder of the provisions applies only
2 during construction.

3 The provisions of the operational stormwater requirements (condition J), to the extent
4 they are incorporated into and superseded by any future NPDES permit for the Airport, shall be
5 superseded as determined in the NPDES permit. If a condition is not incorporated, it shall
6 remain in effect as provided in condition J.

7 The §401 certification is a one-time opportunity for the State to assure water quality
8 standards will be met, whereas the §402 permit (the NPDES permit) will be periodically
9 reviewed and updated to assure water quality standards will be met.

10 B. ISSUE SPECIFIC FACTS

11 1. WATER QUALITY AND STORMWATER

12 a. General

13 The three creeks impacted by the projects at the Airport are Miller, Des Moines, and
14 Walker Creeks. They are typical of Puget Sound lowland creeks in urbanizing areas. Portions of
15 these creeks have been channelized, ditched, and straightened. All three creeks have reasonably
16 abundant fish life.

17 The construction of the proposed projects at the Airport will result in increased
18 impervious surfaces and increased stormwater runoff. Construction of the projects will add
19 approximately 305 acres of new impervious surface at the Airport (approximately 103 acres in
20 the Miller Creek watershed, approximately 6 acres in the Walker Creek watershed, and
21 approximately 128 acres in the Des Moines Creek watershed). In addition, runoff from

1 approximately 67 acres of new impervious surface will be directed to the Industrial Wastewater
2 System (IWS).

3 Drainage from most of the areas of industrial activity is routed to the IWS for treatment
4 prior to discharge to Miller and Des Moines Creek. The other areas of the Airport drain to the
5 Stormwater Drainage System (SDS), which routes water to various detention facilities prior to
6 discharge to Miller and Des Moines Creeks. The sub-basins on the northern side of the Airport
7 route stormwater to Lake Reba, which discharges to Miller Creek. Runoff from the Northeast
8 Parking lot flows into a vault, which also discharges to Lake Reba. Stormwater from the
9 southern, eastern, and western portions of the Airport is detained in either Tyee or Northwest
10 Ponds prior to discharge to Des Moines Creek. One drainage sub-basin, SDS-3, discharges
11 directly to Des Moines Creek. SDS-3 is the main discharge for the runway. The Airport
12 contributes 5% of the flow to Miller and Walker Creek and 27% of the flow to Des Moines
13 Creek.

14 The §401 certification is subject to the Port's National Pollutant Discharge Elimination
15 System (NPDES) permit. The future NPDES permit can supersede the §401 certification
16 provisions. The NPDES permit requires the Port to comply with Best Management Practices
17 (BMPs) for the control and treatment of stormwater. The BMPs are set forth in the Storm Water
18 Pollution Prevention Plan (SWPPP). The NPDES permit requires the Port to maintain the
19 existing SWPPP according to the special condition in the NPDES. Numerous source control and
20 treatment BMPs have been completed at the Airport over the past several years. As part of the
21 Port's annual SWPPP review and update, the Port reviews existing BMPs and, as appropriate,

1 identifies and selects new BMPs. Whenever a self-inspection reveals the pollution prevention
2 measures and controls are inadequate to meet water quality standards, due to the discharge of or
3 the potential to discharge, the SWPPP shall be modified, as appropriate. The Port shall
4 implement any modifications to the SWPPP in a timely manner.

5 The BMPs shall be selected from the most recently published edition of the Storm Water
6 Management Manual (SWMM) or manuals deemed equivalent by Ecology, available at least 120
7 days before the selection of the BMPs. Site-specific BMPs may be selected appropriate for
8 airport industrial activities with approval of Ecology.

9 The water quality of the Third Runway stormwater runoff is expected to be similar to
10 the water quality of stormwater discharged through Outfall SDS-3 in recent years. Sub-basin
11 SDS-3 consists almost exclusively of runways, taxiways, and grass infields. The Third Runway
12 and new taxiways will add more of the same. Thus, when Ecology and the Port evaluate
13 expected water quality impacts from construction of the Third Runway, they use SDS-3
14 discharges as a surrogate for future Third Runway-related discharges. Stormwater from the vast
15 majority of the airfield is discharged through outfall SDS-3. Stormwater discharges from Outfall
16 SDS-3 flow through a swale to the Northwest Ponds and into the west tributary of Des Moines
17 Creek.

18 There are no non-Port contributors of stormwater upstream of SDS-3, and all stormwater
19 that discharges through SDS-3 is runoff from the Port of Seattle.

20 While some conditions in the §401 certification are standard boilerplate, the §401
21 certification imposes other conditions where Ecology has uncertainties whether the project will

1 comply with water quality standards. The conditions are aimed at addressing the uncertainties
2 uncovered in Ecology’s reasonable assurance analysis. Each of these conditions addresses
3 essential components of the Third Runway Project and the proposed mitigation. Many of these
4 conditions require the Port to submit additional data, plans, and reports. Where the conditions
5 require the Port to submit new information to Ecology, Ecology reserves the right in the §401
6 certification to review and approve all new plans. The list of additional information Ecology
7 seeks through the conditions is very long and includes: a mitigation plan for permanent impacts
8 to the Wetland 17A complex, a plan to prevent interception of contaminated groundwater and to
9 monitor potential contaminant transport via subsurface utilities, a revised NRMP, a Surface
10 Water and Groundwater Monitoring Plan, a revised Low Streamflow Analysis and Low Flow
11 Offset Proposal, a Construction Stormwater Pollution Prevention Plan and Erosion and Sediment
12 Control Plan, a Spill Prevention and Containment Plan, a site specific study before stormwater
13 from new surfaces can be discharged into receiving waters, and a Stormwater Facilities
14 Operation and Maintenance Plan.

15 These post-certification plans and reports are needed for Ecology to have reasonable
16 assurance that the project will comply with water quality laws.

17 The Port’s NPDES permit covers stormwater discharges from the Airport—both from
18 construction activities and stormwater associated with industrial activities—including the
19 proposed improvements. Ecology conditioned the §401 certification on the Port’s continuing
20 compliance with its NPDES permit. Consistent with the existing NPDES permit and the §401
21

1 certification, the Port has prepared a Comprehensive Stormwater Management Plan to manage
2 both the peak flow and low flow impacts, which would otherwise result from the improvements.

3 Peak flow impacts, *i.e.*, impacts from stormwater falling on the new impervious surfaces
4 constructed as part of the improvements, could result in adverse impacts such as erosion,
5 scouring of area streambeds, and habitat destruction, unless those impacts are appropriately
6 managed. Under the Port's SMP, peak flow impacts from new and existing impervious surfaces
7 will be mitigated by capturing all stormwater runoff and detaining it in 344.1 acre-feet of
8 stormwater detention facilities, including ponds and vaults. As required by the Ecology and
9 King County stormwater manuals, stormwater collected in the detention facilities will be
10 released at specifically selected flow rates in order to avoid peak flow impacts.

11 During the drier months of the year, low flow impacts to area streams could also result
12 because the new impervious surfaces constructed as part of the improvements will change the
13 groundwater infiltration patterns. As mitigation for these low flow impacts, Ecology has
14 required some of the stormwater collected in the vaults to be detained and slowly released to
15 Walker and Des Moines Creeks during the summer months. Not only do Appellants challenge
16 the absence of a water right for this water use, but also have raised concerns with the quality of
17 the water held in the vaults. Of particular concern is the potential lack of dissolved oxygen,
18 contaminants from the stormwater, changed pH from the new concrete, and turbidity from the
19 first flush of released retained water. The Appellants have not, however, shown these water
20 quality concerns will not be adequately addressed by the conditions in the §401 certification.

1 The projects will be constructed on Airport-owned property or, in the case of the Third
2 Runway, on recently acquired residential land. Many existing land uses and sources of adverse
3 water quality impacts will be removed as a result of the projects. For example, over 400 houses
4 and businesses will be removed, which had previously contributed stormwater pollutants such as
5 sediment, metals, pesticides, herbicides, fertilizers, and animal waste. In addition, farms in the
6 Port's acquisition area will be removed, reducing pollutants commonly associated with farms,
7 such as sediments, animal waste, and agrichemicals.

8 The §401 certification (Condition J) prohibits any releases of stormwater from the new
9 impervious surfaces until a site-specific study (Water Effects Ratio Study) is complete and
10 Ecology sets effluent limits via the NPDES permit.

11 b. Reliance on the NPDES permit

12 Ecology employs numeric water quality standards, narrative standards, and an anti-
13 degradation standard in order to maintain water quality. Ecology uses BMPs as the primary
14 method of attaining compliance with water quality standards for stormwater discharges.

15 The Port applied in December 2001 for renewal of its NPDES permit. In connection with
16 the processing of the renewal application, Ecology will have the opportunity to review the
17 existing stormwater controls the Port is currently using under its existing permit and require the
18 Port to implement new and additional Best Management Practices (BMPs) as appropriate and
19 necessary to control and treat stormwater, including conditions required by the §401
20 certification. In addition, the §401 certification requires the Port to retrofit the existing
21 stormwater management system at the Airport. The target flow regime will match the flow from

1 a theoretical basin in a predevelopment condition, i.e. the volume of water, which would be
2 expected from pre-Airport conditions: 10% impervious surface, 15% grassland, and 75% forest.
3 This ratio was derived from the Des Moines Creek Basin Study and is viewed as the most
4 beneficial type of flow regime/flow control for that stream to adequately recover. All but 80
5 acres of the existing Airport will be retrofitted for stormwater quality BMPs.

6 A portion of Des Moines Creek—located downstream from the Airport adjacent to Puget
7 Sound—is listed pursuant to Section 303(d) of the Clean Water Act as exceeding applicable
8 standards for fecal coliform bacteria. There are no affected Section 303(d)-listed stream
9 segments for any other pollutant, although the potential exists for Ecology to list copper. There
10 was no evidence the projects proposed at the Airport would result in the addition of more fecal
11 coliform to Des Moines Creek. Moreover, the NPDES permit process allows Ecology to place
12 limitations in the Port's NPDES permit, which can include any legally applicable requirements
13 necessary to implement total maximum daily loads ultimately established pursuant to Section
14 303(d). WAC 173-220-130(1)(b)(iii).

15 Stormwater discharges at the Airport have been regulated under a NPDES permit since
16 1994. The Port's current NPDES permit was issued in February 1998. The Port's NPDES permit
17 does not authorize a mixing zone for stormwater discharges. As a result, compliance with
18 surface water quality criteria is at the point of discharge. The NPDES permit requires the
19 preparation of a SWPPP covering areas of industrial aviation activity that drain to the Port's SDS
20 and to the IWS.

21 There are several non-Port areas that drain to the SDS:

- 1 1. Portions of State Route (SR) 518 (drains to SDN-1)
- 2 2. Portions of SR 99 (International Blvd) (drains to SDE-4)
- 3 3. Portions of south 188th Street (drains to SDS-1, SDS-2 and SDS-3)
- 4 4. Portions of 16th Ave. South (drains to SDS-2)

5 One of the requirements of the Port's NPDES permit is the Port must monitor its
6 stormwater discharges. This monitoring is done by taking stormwater samples, using methods
7 specified in the NPDES Permit, for each of the Port's 14 stormwater outfalls throughout the year,
8 with sampling frequencies specified by Ecology in the NPDES permit. Because the Port's
9 NPDES permit addresses stormwater quality primarily through the application of BMPs, the
10 general purpose of the Port's stormwater monitoring has been to determine the effectiveness of
11 the applicable BMPs. The sampling is used to assess whether the BMPs required under that
12 permit are effective, consistent with the adaptive management strategy employed under the
13 Clean Water Act and the Port's NPDES permit.

14 Most of the sampling locations specified by the NPDES permit are upgradient from the
15 receiving waters and, in many instances, upgradient from where treatment takes place prior to
16 discharge. The location of these monitoring points was the result of a stipulation/agreed Order in
17 another case between ACC/CASE and the Port. The sampling is not instream due to potential
18 contributions from non-Port sources. The current locations better characterize the Port's
19 discharges, but do not help characterize the condition of the receiving water. Based on this fact,
20 the sampling results are not truly indicative of the water quality of the stormwater discharges as
21 they enter the receiving waters, or of the water quality in the receiving streams themselves.

1 The Port has designated monitoring installations. These inspection points and in some
2 cases monitoring stations appear in many places to be substantially removed from the point at
3 which the stormwater or pipe discharges into Des Moines Creek or Miller Creek.

4 c. Stormwater Treatment BMPs

5 The Port's NPDES permit requires design and implementation of BMPs to mitigate any
6 adverse water quality impacts of stormwater runoff. Ecology's approach, as evidenced by
7 testimony, is a "presumptive approach" to dissolved metals in industrial stormwater. Ecology
8 assumes that compliance with BMPs will result in no water quality violations, except in certain
9 situations. To address those certain situations, Ecology created a treatment list of BMP choices
10 for those Industrial and highway sites where dissolved metals might be present. The primary
11 water quality "treatment BMP" proposed for the stormwater that will runoff from the new
12 impervious areas of the Third Runway and taxiways is "filter strips." Filter strips are the
13 existing treatment BMPs currently in place at SDS-3. While they may be effective to remove
14 suspended solids including particulate metals, filter strips and biofiltration swales are not
15 effective in removing dissolved metals from stormwater. This is due to the relative lack of
16 suspended particulate matter in the Airport's stormwater waste stream, and the difficulty of
17 achieving a level flow-spreading configuration in such facilities. In late June of 1998, Ecology
18 and Port staff conducted a Reasonable Potential Analysis to determine whether stormwater
19 discharges from the proposed Third Runway had a reasonable potential to exceed water quality
20 standards. Using data from Outfall SDS-3 to represent predicted runoff from the Third Runway,
21 determining surface water quality criteria based on stated hardness values, and considering

1 expected "removal efficiencies" of various BMPs, the Reasonable Potential Analysis predicted
2 resulting "effluent pollutant concentrations." The Reasonable Potential Analysis predicted
3 "Copper concentrations after treatment remained higher than the criteria." As a result, Ecology
4 concluded, "The Port must go beyond minimum BMPs in order for the project to be certified."
5 However, Ecology's current §401 certification acquiesces in the Port's proposal to use basic
6 BMPs. In developing its Storm Water Management Manual for Western Washington
7 (SWMMWW), Ecology found the basic treatment list of BMPs is not sufficient to assure that the
8 concentrations of dissolved metals in stormwater discharges from industrial and commercial land
9 uses will comply with water quality standards. Ecology therefore created an enhanced treatment
10 list of BMP options applying to industrial and commercial land use sites and high-use road
11 systems, to restrict the available BMP options to those Ecology has determined have the
12 potential to achieve a higher degree of dissolved metals removal.

13 Along with infiltration, large sand filters, amended sand filters, and stormwater treatment
14 wetlands, the SWMMWW's enhanced treatment list recommends the use of "two facility
15 treatment trains" to remove dissolved metals. Filter strips are only available as treatment BMPs
16 when applied in combination with Linear Sand Filters in a two-facility treatment train.

17 Metals of concern include copper and zinc. The copper may be originating from aircraft
18 tires and may be coming from vehicle tires and brakes along International Boulevard (also
19 known as highway 99) or other areas upgradient from the airport. As early as 1999, Ecology and
20 the Port became aware metals concentrations in untreated stormwater runoff from uncoated,
21 galvanized metal roofs at the Airport was causing zinc toxicity in discharges from Outfall SDN-

1 1, which is an in-pipe location upstream from receiving waters and upstream of a water quality
2 treatment facility at Lake Reba. The Port traced the toxicity to leaching zinc from galvanized
3 roofing and is committed to implementing BMPs to correct this problem. This existing
4 galvanized roof issue is not an issue for this §401 certification, as the improvements proposed do
5 not include that type of roofing material.

6 Any analysis of whether there is an exceedance of the zinc and copper standards in WAC
7 173-201A-040 requires: (1) hardness data measured in the receiving water, (2) sampling over a
8 set period of time, (3) the sampling to be conducted in receiving waters (waters of the state), not
9 upstream of those receiving waters, and (4) measurement of the dissolved fraction of metals.

10 Data provided by the Port show metal concentrations in discharges as total recoverable
11 metals, which are not directly comparable to the dissolved fraction listed in the water quality
12 standards. However, this data does serve as an indication of metal concentrations to be expected
13 in the discharges of stormwater. Median metals concentrations from airfield stormwater
14 typically range from 0.012 to 0.031 mg/l copper, 0.001 to 0.003 mg/l lead, and 0.020 to 0.051
15 mg/l zinc. These are values, however, sampled at points prior to entering the receiving waters.
16 Additional treatment as the stormwater continues through the system is expected to result in
17 lower metal concentrations actually entering the receiving waters. The Board is not, however,
18 convinced the Port has done an adequate job in sampling to ascertain the status of the receiving
19 waters.

20 In the Port's previous NPDES permit, which took effect in 1994, Ecology required the
21 Port to conduct a "Receiving Environment Monitoring Study" evaluating the impact of the

1 Airport's stormwater discharges to Miller and Des Moines Creeks. The resulting 1997
2 Stormwater Receiving Environment Monitoring Report confirmed metals concentrations
3 exceeded federal and state water quality criteria both above and below the Airport's stormwater
4 outfalls, and in the Airport's stormwater discharges. The Port monitored dissolved metals
5 concentrations at stormwater outfalls and at in-stream locations upstream and downstream of the
6 Port's discharges in Miller and Des Moines Creeks. The Port compared the measured metals
7 concentrations with federal and state water quality criteria and standards. In Des Moines Creek,
8 copper and zinc were exceeded upstream and downstream of the outfall. In Miller Creek, zinc
9 exceeded the water quality criterion upstream and downstream, but copper only downstream of
10 the outfall. In Des Moines Creek, copper and zinc criteria were exceeded in samples from both
11 upstream and downstream of the discharge, as well as in the stormwater discharge itself.
12 However, dissolved zinc concentrations downstream of stormwater discharges in Des Moines
13 Creek only exceeded the criterion about 20 percent of the time. The Report shows the high (i.e.,
14 above-the-standard) levels of dissolved copper discharged from the Airport's outfalls caused the
15 concentrations of dissolved copper in Des Moines Creek to increase—specifically, the
16 concentrations downstream from the Port's discharges are greater than the upstream
17 concentrations, and both exceed the water quality criteria for copper. The 1997 Report also
18 found in Des Moines Creek, dissolved copper concentrations were highest in samples from the
19 stormwater outfalls, particularly SDS-3 (45.5 ug/l) and SDE-4 (34 ug/l).

20 Stormwater sampling data presented in the Port's 2001 Annual Stormwater Monitoring
21 Report also shows copper levels in SDS-3's discharges are higher than the copper levels in other

1 Airport stormwater discharges. Specifically, the sampling data indicates more than 75% of the
2 stormwater discharges from "all outfalls" at the Airport exceed the Port-calculated acute
3 freshwater criteria for copper. The copper levels in stormwater discharges from the "airfield
4 only" outfalls are higher. And the copper levels in stormwater discharges from SDS-3—the
5 outfall that drains most of the airfield—are higher still. In 1998, Ecology informed the Port that
6 Des Moines and Miller Creeks were not meeting water quality standards for copper, zinc,
7 temperature, as well as fecal coliform. Further, Ecology's current NPDES Permit Fact Sheet for
8 Sea-Tac reports that concentrations of total recoverable copper in ambient waters both upstream
9 and downstream of the Port's stormwater discharges generally exceeded the water quality
10 criteria.

11 In February 2001, the City of Des Moines released a report detailing the results of a five-
12 year, in-stream water quality monitoring program in Des Moines Creek and three other area
13 creeks. After monitoring 25 storm events and 15 base flow events at eight sampling stations in
14 the four creeks studied, the Report showed the sampling station closest to the Airport—upper
15 Des Moines Creek station "DM-1"—shared both the highest total copper concentrations, and the
16 highest storm and base flow dissolved copper concentrations. The Report concluded 40% of the
17 storm flow samples at sampling station DM-1 exceeded the Washington state Class AA water
18 quality criterion for dissolved copper—the highest "All Years" percentage of any monitoring
19 station. The Report further concluded, "runoff carrying pollutants from SeaTac Airport (which
20 is located upstream of station DM-1) may be responsible for higher dissolved copper
21 concentrations in upper Des Moines Creek."

1 Site-specific analysis can override minimum requirements. Ecology determined the
2 Airport was an appropriate place for site-specific analysis. The uses and the size of the Airport
3 in relation to the watersheds mean the Airport will have a disproportionate impact on the
4 watershed.

5 The 2001 Stormwater manual does not set a specific performance goal for removal of
6 dissolved metals because there is not a lot of data nationwide on effective BMPs for dissolved
7 metal removal. Instead Ecology chose to list BMPs on the enhanced list as doing a better job on
8 removing dissolved metals. Ecology has been employing a testing protocol to see how well the
9 BMPs work. However, the §401 certification contains no requirement for the Port to implement
10 any stormwater treatment measures beyond the King County Basic Water Quality list, despite
11 the demonstrated problems of dissolved metals in the Port's stormwater discharges.

12 The SWPPP includes both source control BMPs and treatment BMPs. The source
13 control BMPs include: spill containment and control, elimination of de-icing materials, and re-
14 routing stormwater to the IWS. The treatment BMPs include facilities such as filter strips,
15 compost/peat filters, wet ponds, and other facilities, which filter out and remove pollutants from
16 stormwater prior to discharge into area streams.

17 The primary components of the existing stormwater treatment system at the Airport are
18 filter strips and bioswales. Filter strips are grassy areas, which slow stormwater runoff rates,
19 allowing removal of stormwater pollutants through settling of particulates and other processes.
20 Some stormwater infiltrates into the ground and, as a result, metals and organic compounds are
21 removed as these pollutants bind to the organic material in the soil. Bioswales are grassy, flat-

1 bottomed swales, which receive stormwater runoff after it has been collected in a detention
2 facility. Vaults and ponds also treat stormwater by allowing for additional settling and removal
3 of particulates.

4 The Appellants argue the Port should have selected more effective BMPs from the
5 enhanced treatment list of BMPs, including sand, compost, or active medium filters. They argue
6 filter strips and bioswales alone will not control the dissolved metals. This was confirmed by
7 Ecology’s witness (O’Brien) who said biofiltration swales alone would not control dissolved
8 metals. He indicated the use of biofiltration should be done in combination with other treatment
9 options, such as an amended sand filter or a basic sand filter, and some other treatment
10 combination. The Board agrees and further conditions the §401 certification to require BMPs be
11 selected from the enhanced treatment list for better removal of dissolved metals, to provide
12 reasonable assurance the Port’s stormwater discharges will not violate the relevant water quality
13 standards. This is particularly important to address the potential listing of copper on the 303(d)
14 list.

15 The water quality standards for metals in WAC 173-201A-040 are hardness dependent.
16 Hardness data is the sum of calcium and magnesium in the water. Hardness renders metal ions
17 in water less toxic by excluding negatively charged exchange sites for the metals to attach
18 themselves. Knowing the hardness of the water is necessary to determine the criteria for certain
19 dissolved metals in stormwater. The hardness of the water can change or vary over a short
20 stretch of time or space (such as following a rain event). As a result of the ability of hardness to
21 vary, sampling protocols exist. Appellants argue the absence of hardness data makes it

1 impossible to demonstrate that specific numeric water quality standards are being exceeded. The
2 Board finds hardness data of the receiving water and the stormwater effluent would make
3 comparisons between total recoverable metal concentrations in the stormwater effluent with
4 acute and chronic criteria for metals easier; however, these comparisons are still possible to
5 make by relying on historic seasonal values for hardness in the same receiving waters.

6 The acute toxicity testing is referred to as Whole Effluent Toxicity (WET) testing and
7 determines the toxicity of the Port's stormwater to certain sensitive marine organisms. Those
8 tests indicated acute toxicity in the effluent at the Port's SDN-1 outfall, but at no others. The
9 metal of concern at SDN-1 is zinc. The Port traced the source of the zinc to certain metal
10 covered roofs in that area and proposed steps to eliminate the pollution source.

11 The water quality standards for copper, lead, and zinc require showing an exceedance of
12 the numeric criteria on an average basis over time. The acute criteria for copper, lead, and zinc
13 are expressed as one-hour average concentrations, not to be exceeded more than once every three
14 years on the average. The chronic criteria are expressed as a four-day average concentration, not
15 to be exceeded more than once every three years on average.

16 The Port's sampling shows instantaneous exceedances of the numeric water quality
17 criteria, but they do not show that the criteria were exceeded for the necessary length of time.
18 Further, the historic sampling data did not present the data in a manner showing exceedances of
19 water quality standards. In the historic sampling data presented, one or more of the required
20 elements were missing—either the hardness data (averaged over the correct time period) was
21 missing, the sampling was done in-pipe rather than in receiving water, the sampling was an

1 instantaneous reading rather than an average over the time period required in WAC 173-201A-
2 040, or the sampling showed total recoverable metals rather than the dissolved fraction. Even
3 the in-stream sampling from 1997 was not done over the proper time period to determine
4 compliance with numeric criteria, and also did not show what contribution of metals in-stream
5 were from the Port's stormwater, and what contribution came from other sources such as area
6 highways and roadways that drain to the same creeks. This appears to be related more to the
7 sampling methods than to any chemical changes.

8 Further, due to the location of sampling, these exceedances in the monitoring report do
9 not show concentrations in the receiving waters. These water quality standards apply to the
10 receiving waters. Ecology and the Port argued in order to establish a violation of the water
11 quality standards for metals in the receiving waters, it would be necessary for the Port to sample
12 both upstream and downstream of its discharges. This, they argue, is difficult, if not impossible
13 because the Airport's discharges pass through pipes, ponds, ditches, and other detention facilities
14 before reaching the streams.

15 The NPDES permit does not currently require the Port to monitor upstream or
16 downstream of its stormwater outfalls, nor does the permit require the Port to monitor for the
17 dissolved fractions of copper, lead, or zinc. The NPDES permit does not currently require the
18 Port to monitor the hardness of the receiving water. The NPDES does, however, require acute
19 toxicity testing for stormwater. The Board finds this lack of monitoring to result in, at best,
20 confusing and, at worst, inaccurate data. Therefore, the Board further conditions the §401
21

1 certification to require sampling upstream and downstream from its stormwater outfalls, and to
2 require the Port to monitor the hardness of the receiving waters.

3 d. Retrofit of existing areas at the Airport

4 In addition to these existing BMPs, the §401 certification requires the Port to retrofit to
5 currently applicable standards built areas at the Airport and surrounding developed areas
6 recently acquired by the Port. Ecology imposed the requirement to retrofit existing stormwater
7 management facilities as Condition J in the §401 certification, including a requirement the Port
8 assure that 20% of the retrofitting is accomplished for every 10% of new impervious surface
9 added to the project. The Port must maintain this rate of retrofit unless it can demonstrate to
10 Ecology's satisfaction that such a rate is not feasible. Testimony indicated such a showing does
11 not alleviate the Port from completing the retrofit. It is assumed, although not set forth in the
12 §401 certification, by the time 50% of the new impervious surfaces have been constructed, 100%
13 of the retrofit will be completed as well. The feasibility language allows the rate of retrofitting to
14 be adjusted based on operational constraints. The Board imposes a further condition on the §401
15 certification to assure this assumption of 100% retrofit is part of the collective understanding.

16 e. Whole effluent toxicity testing

17 The Port's existing NPDES permit requires periodic whole effluent toxicity (WET)
18 testing of the Port's principal stormwater discharges. As its name implies, WET tests assess the
19 aggregate toxicity of the whole effluent sample, which reflects the effect of all constituents
20 together in addition to toxicity from individual chemical constituents. WET tests use sensitive
21 aquatic species such as waterfleas or juvenile fathead minnows, which are placed in a whole

1 effluent sample and then monitored to assess mortality among the test organisms. Testing for
2 mortality, but not testing for impairment, or loss of function, we find does not measure injury to
3 existing beneficial uses. Therefore, we add a condition to this certification requiring future toxic
4 testing for sensitive organisms, related to this certification, to monitor and measure as well, not
5 only mortality, but impairment and loss of function of the tested organisms.

6 In addition to the WET tests conducted pursuant to the NPDES permit, the Port
7 undertook instream WET testing during 1999 and 2000. All samples were taken during
8 qualifying storm events, which are defined in the testing protocols contained in the Port's
9 NPDES permit.

10 During these qualifying storm events, the Port collected in-stream samples below Port
11 stormwater discharge points in Miller Creek, Walker Creek, and the east and west branches of
12 Des Moines Creek. In addition, the Port collected stormwater discharged from the Airport's
13 stormwater outfalls (prior to the receiving water) including Outfall SDS-3. Outfall SDS-3 was
14 specifically selected for toxicity testing because it drains a majority of the Airport's airfield and
15 was therefore considered to be representative of future stormwater runoff from the new Third
16 Runway project.

17 All samples were tested for toxicity using standard Ecology and EPA test protocols at a
18 Department of Ecology accredited testing laboratory. The results of all in-stream tests showed
19 100 percent survival of the organisms used in the WET testing.

20 f. Site specific water quality criteria and Water Effects Ratio Study
21

1 The §401 certification prohibits the discharge of any stormwater from operations on new
2 impervious surfaces until a site-specific study (a “water effects ratio study” or “WER study”) has
3 been completed and approved by Ecology and appropriate limitations and monitoring
4 requirements have been established in the Port’s NPDES permit. The WER study determines
5 how metals are moving from fractions of dissolved metal state or particulate state, and to
6 generally advance the knowledge of metals in the receiving waters. The purpose of the WER
7 study is to tell Ecology whether there are local effects in the receiving waters that result in
8 different partitioning of metals. The §401 certification does not establish any deadline for the
9 study, but requires the Port to consult with Ecology to determine an appropriate time for its
10 submittal. A site-specific water effects ratio provides an indication of the metal concentration,
11 which would be expected to actually cause toxicity to aquatic species in a water body. The study
12 is intended to advance Ecology’s knowledge as to exactly how metals in stormwater discharges
13 would behave in the receiving water. The WER study is intended to determine whether there are
14 seasonal or local conditions in the local streams that might affect the partitioning of metals in the
15 receiving waters. The way a WER does this is by determining the ratio between a metal’s
16 toxicity in actual site water, comparing that with the toxicity in laboratory water (which is used
17 to develop generic numeric water quality standards), and then adjusting the generic numeric
18 criterion based on that ratio. A median lethal concentration is determined for each water, and the
19 two are compared to generate a WER. This ratio provides an empirical determination of the
20 difference in metal bioavailability between the site-water and laboratory water, expressed as a
21 ratio.

1 This ratio is used to adjust the numeric water quality criterion. The resulting standard
2 gives the necessary level of protection intended by the more generic (laboratory water) standard,
3 but with the standard adjusted for the particular characteristics of the water in that particular
4 stream.

5 The use of a WER study to tailor water quality criteria to site-specific conditions is based
6 on the fact the amount of metal that is actually “bioavailable” to organisms living within the
7 receiving waters is what determines whether any specific amount of metal is actually toxic. The
8 bioavailability (and hence toxicity) of chemicals in receiving streams, creeks, or rivers, is
9 reduced by the presence of natural constituents such as suspended particles or organic matter.

10 Appellants raised concerns the WER study could result in reduced standards; however
11 Ecology witnesses indicated that the WER Study would not lessen any of the standards. It will
12 just provide a more accurate translator as to how the metal is actually behaving in the receiving
13 water and thus is designed to produce a site-specific standard that is fully protective of the
14 organisms within the streams.

15 Following the WER Study, under the NPDES (including future NPDES permits),
16 Ecology can require all necessary source and treatment BMPs. If those are inadequate, Ecology
17 can have the Port evaluate innovative or new treatment technologies that would control and
18 reduce the metals in the receiving waters.

19 The Port has already undertaken preliminary screening analyses of stormwater discharges
20 as part of the preparation of a WER study. Range-finding WER studies have been conducted by
21 the Port using water collected from multiple sites in Miller, Walker, and Des Moines Creeks.

1 Range-finding studies are preliminary WER studies used to determine whether a site-specific
2 ratio for a particular pollutant is possible and, if so, what the “range” of the ratio might be. The
3 site-specific studies required by the §401 certification will result in WER numbers and will also
4 show whether specific pollutants are attributable to stormwater discharges from the Port, or
5 whether they are attributable to other sources. When accepted by Ecology, site-specific criteria
6 developed by the WER study would apply in lieu of the generic numeric water quality criteria.

7 The Port undertook range-finding studies for both copper and zinc, because toxic metals
8 screening tests had disclosed that these two metals were the metals of concern for the Airport
9 stormwater discharges. These range-finding studies showed a probable WER for copper for
10 Miller, Walker, and Des Moines Creeks that ranged from 6 to 28. That is, copper was shown to
11 be between 6 to 28 times less toxic in site-water than in laboratory water. The data from these
12 studies suggest the applicable water quality criterion for copper could be increased by a factor of
13 between 6 and 28 and still remain protective of sensitive species in the Miller, Walker, and Des
14 Moines Creek systems. Given the sampling concerns raised earlier, the Board does not believe
15 the water quality criterion should be increased. The WER study results shall only be used if the
16 data suggests the water quality criterion should be lowered; i.e., made stricter. The Board
17 therefore further conditions the §401 certification to limit the use of the WER study.

18 g. Glycols

19 Glycols are used to de-ice airplanes during certain weather conditions. The evidence
20 showed most glycol usage at the Airport is limited to infrequent, one- or two-day winter weather
21 episodes. There are no numeric state or national water quality standards for glycols. Nearly all

1 of the glycols used at the Airport are routed to the Industrial Wastewater System (“IWS”),
2 because all of the application of glycol must take place in the portion of the Airport that drains to
3 the IWS. Accordingly, any glycols appearing in stormwater samples come from drip or shear off
4 the wings of planes as they taxi or take off outside of the IWS area, or as the planes wait in line
5 on a runway to take off. There are three types of glycols used at the Airport: Type 1 (de-icing),
6 Type 2 (Anti-icing), and Type 4 (Anti-icing). The concern is primarily with the additives, which
7 make the glycols stick to the Aircraft. Types 2 and 4 have more additives and thus are more
8 toxic than Type 1. Ninety-nine percent (99%) of the glycols applied to commercial aircraft at
9 the Airport in 1998/1999 were Type I glycols, .8% are Type 2, and .2% are Type 4. None of the
10 glycol amounts found in streams near the Airport are present in quantities, which cause mortality
11 to sensitive organisms.

12 h. Mixing Zones

13 The proposed projects at the Airport include work that would occur in water or adjacent
14 to water along the shoreline. This work includes relocating the channel of Miller Creek, and
15 numerous instream projects such as demolishing existing bridge abutments. The §401
16 certification authorizes mixing zones for turbidity resulting from instream and shoreline
17 construction activities, and requires the Port to demonstrate to Ecology it has minimized any
18 mixing zone in accordance with WAC 173-201A-100(6). The §401 certification places no
19 specific limitations on the size or scope of the preauthorized mixing zones. The mixing zones
20 are intended to authorize the "temporary suspension" of water quality standards for turbidity
21 during the construction of in-water projects. The §401 certification also contemplates

1 exceedances of the turbidity standard beyond the mixing zones, describing what actions should
2 be taken in the event that "monitoring indicates turbidity standards are not being met at the
3 boundary of the mixing zone." The §401 certification does not require the Port to stop work, or
4 to stop the exceedance of the turbidity standard in such an event, nor does it require the Port to
5 notify Ecology when such an exceedance occurs.

6 The §401 certification does not require the Port to identify or implement Best
7 Management Practices before authorizing the mixing zone for turbidity. Instead, it calls for the
8 Port to submit a "monitoring" plan for review, prior to the start of construction. The §401
9 certification defers, until the Port submits the monitoring plan, any demonstration the proposed
10 construction in streams can and will occur in compliance with applicable standards, including the
11 requirement for minimization in accordance with WAC 173-201A-100(6).

12 Aside from the mixing zones for turbidity resulting from instream and shoreline
13 construction activities, no other mixing zones are authorized or referenced by the §401
14 certification.

15 i. Impact on wildlife habitat

16 Miller, Walker and Des Moines Creeks currently support a diverse fish population.
17 However, these streams are disturbed and have been significantly altered by urban development.
18 The Port prepared a Biological Assessment for the actions being taken pursuant to the Port's
19 Master Plan Update, as required by the Endangered Species Act. This Biological Assessment
20 was submitted to the National Marine Fisheries Service and the U.S. Fish & Wildlife Service
21 (collectively, the "Services"). The Biological Assessment concluded construction of the

1 improvements at the Airport is not likely to adversely affect the species listed under the
2 Endangered Species Act. The Services concurred in this conclusion.

3 In addition to the Biological Assessment, an analysis of Essential Fish Habitat was
4 undertaken as required by federal law. That analysis concluded the Port’s projects would have
5 no adverse effects on Chinook or pink salmon and that no long-term effects will occur to Coho
6 salmon. While there may be some short-term effects on Coho salmon, the study concluded that
7 habitat restoration projects undertaken in conjunction with the construction of the Airport
8 improvements would provide a long-term benefit.

9 j Dam safety

10 The proposed improvements at the airport include stormwater management facilities with
11 vast storage capacity. The sizes of the vaults were calculated based on the volume of water
12 necessary to fulfill the required low flow mitigation. The resulting “worst case” volume is 18.5
13 acre-feet of water for Walker Creek and 13.5 acre-feet of water for Des Moines Creek. Five
14 different ponds will impound volumes of water between 15.7 acre-feet and 92 acre-feet. The
15 §401 certification (Condition G) acknowledges some of the Port’s proposed stormwater
16 management facilities will be subject to dam safety regulations (Chapter 173-175 WAC).
17 Ecology did not require, prior to issuance of the §401 certification, the Port to have the dam
18 safety permits in hand or to identify stormwater management facilities subject to dam safety
19 regulations. The §401 certification does, however, require the Port to “obtain a dam safety
20 permit from Ecology prior to commencement of construction” for any facilities meeting the
21 requirements of Chapter 173-175 WAC.

1 2. LOW FLOW

2 a. General

3 The streams affected by the Port’s Third Runway Project, Des Moines, Miller, and
4 Walker Creeks, are designated as Class AA streams under state water quality standards. This
5 classification designates the streams as “extraordinary” waters and confers the highest level of
6 protection under state water quality regulations.

7 Des Moines, Miller, and Walker Creeks support diverse and abundant fish populations,
8 including salmon and trout. Maintenance and protection of fish habitat is a characteristic use of
9 Class AA streams. Des Moines, Miller, and Walker Creeks also support a significant amount of
10 public recreation, flowing through public parks in Des Moines and Normandy Park, before
11 finally discharging to Puget Sound. Maintenance of recreational uses is a characteristic use of
12 Class AA streams.

13 Des Moines, Miller, and Walker Creeks are small streams and flow at very low levels
14 during the summer months. The removal of even small quantities of water from these streams
15 poses significant hazards to their aquatic health.

16 The Airport comprises a significant portion of the Des Moines, Miller, and Walker Creek
17 watersheds. The Third Runway Project will reduce already low flows in Des Moines, Walker,
18 and Miller Creeks during the summer and early fall season. This reduction is expected to
19 degrade the ability of these creeks to support characteristic uses, and mitigation is therefore
20 required. The reductions to flows will be caused by the addition of new impervious surfaces to
21 the Miller Creek watershed (103 acres), the Walker Creek watershed (6 acres), and the Des

1 Moines Creek watershed (128 acres). Without mitigation, these new impervious surfaces would
2 increase peak flow rates in area streams during rainstorms, and would reduce flows during
3 seasonal low flow periods in Walker and Des Moines Creeks.

4 The purpose of stormwater management is to attenuate peak and low flow impacts of,
5 and water quality degradation from, water running off of impervious surfaces. Stormwater
6 management often involves the capture of water in detention facilities, which release water
7 directly to streams or infiltrate water to groundwater.

8 The two major guidance documents for managing western Washington stormwater, the
9 1998 King County Surface Water Design Manual and the 2001 Ecology Manual, both recognize
10 stormwater can also be utilized to maintain base flows in streams during low flow periods. The
11 method described in both manuals involves infiltration of stormwater into the ground, which
12 eventually re-emerges as base flow in affected streams.

13 In order to identify low flow impacts, the Port modeled both pre- and post-construction
14 hydrologic conditions in Miller, Walker, and Des Moines Creeks. The difference between the
15 two conditions is intended to represent the streamflow impacts caused by the Third Runway
16 project for which mitigation is required.

17 The pre-construction model was based on the land use in the area in 1994. Using the
18 Hydrologic Simulation Program—FORTRAN (HSPF), the Port analyzed how, in the context of
19 the 1994 land uses, various levels of rainfall (derived from a variable period of record) would
20 reach the streams through direct runoff, stormwater system drainage, or groundwater infiltration
21 and flow paths. This analysis was then used to model the lowest seven-day period of low flows

1 for each year and the seasonal windows within which those low flows occur. From this
2 information the Port selected the threshold flows below which mitigation would be required
3 (0.33 cfs for Des Moines Creek, 0.77 cfs for Walker Creek, and 0.73 cfs for Miller Creek), and
4 the mitigation window (July 24-Oct 24 for Walker Creek and July 30-Oct 31 for Des Moines
5 Creek). However, the Des Moines Creek Augmentation Preliminary Design is based on data
6 showing the flow to be 1 cfs at the monitoring station. The 1998 plan also proposed a 1 CFS
7 flow for Des Moines Creek. The Board finds the correct threshold flow to be 1 CFS, below
8 which mitigation will be required. The Board further conditions the §401 certification to include
9 this corrected threshold flow of 1 CFS for Des Moines Creek.

10 For post-construction modeling, the Port projected land uses for the year 2006 (including
11 the embankment and new runway, but excluding the Industrial Wastewater System (IWS) and
12 Des Moines basin fill borrow areas). Again, the Port analyzed, using HSPF and two
13 groundwater models (Hydrus and Slice), how differing levels of rainfall on those surfaces would
14 reach the streams through infiltration and run-off. Utilizing the results from the various rainfall
15 scenarios, the Port projected summer streamflows following completion of the Third Runway
16 project. Comparing the 2006 low flow model results to the 1994 low flow conditions, the Port
17 calculated its mitigation requirements to be 0.11 cfs for Walker Creek, 0.08 cfs for Des Moines
18 Creek, and 0 cfs for Miller Creek. In Walker Creek, the estimated net impact of 0.11 cubic feet
19 per second (cfs) translates to a decrease of 3 millimeter (mm) in depth and 30 mm in width. In
20 Des Moines Creek, the average flow reduction of 0.8 cfs translates to a decrease of 9 mm in
21 depth and 101 mm in width. The modeling showed little or no change to total stream flow in

1 Miller Creek during low flow periods. Given the Board’s finding above on the threshold flow
2 for Des Moines Creek, the mitigation requirement for Des Moines Creek is greater than the
3 estimate of 0.08 cfs. The Board further conditions the §401 certification to require this greater
4 level of mitigation flows for Des Moines Creek.

5 The Port proposes to mitigate these low flow impacts using three methods: (1) seepage
6 of infiltrated stormwater from the new Third Runway embankment (in the Miller and Walker
7 Creek basins), (2) detention and release of stored stormwater during the summer low flow season
8 (in the Des Moines and Walker Creek basins), and (3) retirement of existing water uses (in the
9 Miller Creek basin). Just as with mitigation for peak flow impacts, the purpose of mitigation for
10 low flow impacts is to mimic pre-development conditions—maintaining streamflows in as close
11 to pre-development conditions as possible in order to protect habitat and aquatic organisms and
12 to ensure water quality standards will be met. The maintenance of streamflows is not, however,
13 the same as an established instream flow level for the length of these creeks. Rather, the
14 mitigation is required at a point shortly after leaving the Port’s project area.

15 The conditions contained in the §401 certification, pertaining to low stream flow
16 mitigation, are intended to offset the reduction in flow that will occur in Des Moines, Miller, and
17 Walker Creeks. The Port has prepared a low flow mitigation plan proposing to capture
18 stormwater in “reserve storage,” and release it at precise rates during a specified mitigation
19 period in Walker and Des Moines Creeks.

20 A portion of the rain falling on the embankment will move into and through the
21 embankment, rather than run off as stormwater. Some of it will emerge as seeps, which will

1 flow into Walker and Miller Creeks. The maximum flow of infiltrated stormwater will reach
2 Miller Creek in July, approximately six to seven months after the maximum rainfall. Because
3 this seepage will reduce the overall low flow impact on Walker Creek, less mitigation from
4 stormwater detention is needed.

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

12
13
14 b. Analysis of historic flows

15 The Port formulated its low flow mitigation plan based on an evaluation of historical
16 streamflows. This evaluation was based on analysis of 47 years of precipitation reports. From
17 these records, the Port identified historical streamflow levels, daily and weekly average flows,
18 and base flow (groundwater seepage or surface water released from lakes or wetlands).

19 Using this data, the Port's consultants identified a low flow period, *i.e.*, the time of year
20 when stream flows are typically at their lowest. They also identified a mitigation period and a
21 volume of water necessary to mitigate the low flow impacts for Walker and Des Moines Creeks.

1 The Port quantified these effects through hydrologic modeling, using the Hydrologic Simulation
2 Program — FORTRAN (“HSPF”), Hydrus and Slice hydrologic models.

3 c. Modeling of low flow impacts

4 The HSPF model was used to model runoff and to account for evapotranspiration into the
5 atmosphere. For Miller Creek and Walker Creek, this data was then input into the Hydrus and
6 Slice models to determine the amount of surface runoff expected, the movement of water
7 infiltrating through the embankment, the amount of water flowing into the drains underlying the
8 embankment, and the amount seeping into the till layer. The resulting data was then input back
9 into the HSPF model to determine the timing of flows back to the streams.

10 The HSPF model was the appropriate tool to model low stream flows. The data
11 generated from the HSPF modeling was used to design facilities to capture, detain, treat, and
12 release stormwater.

13 Appellants questioned the Port’s use of several models to simulate the various phases of
14 water transport from precipitation to streams and to compare pre-construction and post-
15 construction conditions. Based on the evidence presented, the Board is satisfied no single model
16 could have accurately and effectively simulated hydrologic conditions in a project of this
17 complexity, and the data reflecting the Port’s comparison of pre- and post-construction
18 conditions was accurate within a reasonable margin of error.

19 Appellants also questioned the Port’s modeling of flow through the embankment,
20 criticizing some of the assumptions underlying that modeling and the application of the Hydrus
21 and Slice models. Based on the evidence presented, the Board finds Appellants have not met

1 their burden of showing the modeling assumptions were unreasonable or would lead to a
2 violation of state water quality standards.

3 The evidence presented demonstrated that the Port’s application of the Hydrus and Slice
4 models resulted in modeled data reasonably expected from infiltration through the embankment.
5 The evidence presented supports the Port’s assumptions with respect to the makeup of the fill to
6 be used in the embankment.

7 The fill used for the embankment will have existing moisture content and will be exposed
8 to precipitation throughout the estimated six-year construction period. Groundwater already
9 discharges from the base of fill placed in the embankment, indicating that the moisture content of
10 the fill and the necessity of a “wetting up” period are not valid concerns.

11
12 d. Model calibration

13 Proper calibration of the model gives greater confidence that the modeled results are
14 those expected to occur. Calibration is a critical step in model development by which the model
15 output, achieved through simulation of environmental conditions, is compared with actual,
16 observed data (such as stream gauge records) to determine whether model predictions are valid
17 and reliable. Model calibration was done for each of the three affected streams.

18 Much of Appellants’ challenge to the Port’s modeling efforts involve criticisms of the
19 calibration of certain models or the failure to account for water possibly lost as a result of
20 improvements to the Port’s IWS. The Board finds, while simulated flows did not exactly match
21

1 measured flows, no model would produce an exact replication of measured data. A model may
2 be properly calibrated even though it does not match observed data exactly.

3 While Appellants' witnesses were critical of certain calibrations, they either failed to
4 quantify the impacts they asserted or their evidence (particularly with respect to impacts from the
5 IWS system) was speculative. Evidence was also presented showing calibration and modeling
6 was an iterative process, with each successive effort attempting to provide a better fit than the
7 last.

8 In addition, conditions imposed by Ecology in the §401 certification mitigate for
9 potential low flow impacts. These conditions require the Port to monitor streamflows and
10 seepage from the embankment and, if necessary, implement contingency measures to mitigate
11 the project's low flow impacts. The evidence shows such contingency measures are feasible and
12 can be accomplished through modification of the times and rates at which detained stormwater is
13 released, and there will be sufficient stormwater detention to meet any contingencies revealed by
14 the monitoring. Thus, even if the iterative monitoring process shows changes to the necessary
15 mitigation, monitoring will provide a means to adjust the stormwater management system to
16 release sufficient flows to mitigate low flow impacts.

17 e. Target flows

18 The Low Flow Plan indicates that the impacts of the Third Runway Project will reduce
19 base flows in local streams as early as June each year, when streamflows drop to their seasonal
20 lows. Mitigation, however, will not commence until July 24 for Des Moines Creek and August 1
21 for Walker Creek. The §401 certification requires the Port to monitor adverse impacts to aquatic

1 biota during June and July. Again, the evidence demonstrates contingency measures are in
2 place, which require modification of the times and rates of release of detained stormwater.
3 Appellants have not shown that these provisions are inappropriate or inadequate.

4 3. WATER RIGHTS

5 As noted above, the Third Runway Project will significantly alter the hydrology of the
6 airport property. Because of these impacts, the Port must mitigate through low flow
7 augmentation in Des Moines and Walker Creeks. The proposed source of water for the low flow
8 augmentation plan is stormwater from the Port's property. The Port proposes to capture, detain
9 and then release 19.0 acre-feet of stormwater to Walker Creek at the rate of .11 cubic feet per
10 second (cfs), continuously between August 1 and October 31 each year. The Port's
11 augmentation plan also involves the release of 13.5 acre-feet of water to Des Moines Creek at
12 the rate of 0.08 cfs, continuously between July 24 and October 24 each year. The Port does not
13 propose any low flow mitigation for Miller Creek.

14 To match the peak flows, which would have occurred prior to development, the Port will
15 detain stormwater in its detention facilities for more than half the year. To avoid low flows, the
16 Port will detain approximately 9% of the collected stormwater for an additional period of weeks
17 or months. In both cases, detained stormwater will be slowly released at precise rates to the
18 affected creeks.

19 It is not uncommon for stormwater management systems to detain water for periods of
20 weeks or months. What is different in this stormwater management system is the manner in
21

1 which the stormwater is released from a detention facility. Here, the water will be used to
2 augment seasonal low flows in a manner distinct from infiltration.

3 Des Moines and Miller Creeks are presently closed to the issuance of new "consumptive"
4 water rights. WAC 173-509-040(1). Although applications are pending, neither surface nor
5 groundwater rights are being issued in this area at this time.

6 4. FILL CRITERIA, EMBANKMENT AND MSE WALL

7 a. General

8 The Third Runway will be constructed west of the two existing airport runways. Moving
9 west from the existing runways, the ground elevation drops and forms the drainage basins for
10 Des Moines, Miller, and Walker Creeks. To construct the Third Runway, the existing drainage
11 basins west of the airport would need to be filled with approximately 20 million cubic yards of
12 fill material. The Third Runway would then be built on an earthen embankment constructed with
13 imported fill material. In places, the embankment would be retained by a mechanically
14 stabilized earth ("MSE") wall 135 feet high at its tallest point (and further topped with a twenty-
15 foot-high sloped embankment for a total height of 155 feet), for a distance of 1,500 feet. The
16 eastern boundary of the embankment abuts the existing airfield at the Airport, while the western
17 boundary would either be sloped or bounded by one of three MSE walls. At the base of the
18 embankment, the Port proposes to construct a drainage layer, which is intended to prevent
19 groundwater pressures from building up within the embankment when the groundwater table
20 rises during winter months, and to direct groundwater flow away from the embankment to
21 prevent geotechnical instability. The drainage layer would be three feet thick and be designed to

1 collect groundwater seepage through the embankment and transport this water under the MSE
2 wall to wetlands between the wall and the relocated Miller Creek.

3 Three MSE walls are planned along the embankment: a North Wall about 1,300 feet long
4 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. The three MSE walls along the embankment
6 would use strips of steel in the compacted fill material and a relatively thin reinforced concrete
7 facing to form a vertical retaining wall face. The reinforcing strips would extend into the
8 embankment fill behind the wall, perpendicular to the wall face. Friction between the strips and
9 the layers of compacted soil are designed to prevent the strips from pulling out, and would
10 support the wall face

11 b. Potential for MSE Wall failure and seismic risk

12 The West MSE Wall is designed to withstand an earthquake with a 10% probability of
13 occurring in any 50-year period, which on average will occur once every 475 years. This equates
14 to an average magnitude of 6.7 for the design earthquake. It is also the standard adopted in the
15 current version of a national code for transportation structures by the American Association of
16 State Highway and Transportation Officials (AASHTO). In contrast, the designers for the new
17 Tacoma Narrows Bridge use the more conservative 3% in 75 years design event with an average
18 return of 2,500 years. Similarly, the design for a new Alaskan Way viaduct in Seattle calls for
19 use of the 3% in 75 years design event. The Port's selection of the less protective "design
20 earthquake" standard is based on concluding the Third Runway is not an essential, or lifeline,
21 facility. A lifeline facility is one that is to be serviceable after an earthquake to assist in the

1 emergency response. The Port determined this facility, the Third Runway, is not a lifeline
2 facility and thus the standards for typical commercial high-rise buildings or highways is
3 adequate. The Board agrees. This facility is not a lifeline facility, as there are two other
4 runways at the Airport along with other, smaller regional airports nearby. The appropriate
5 standard for this Board is not whether this facility is an essential facility, but rather will it sustain
6 any environmentally damaging failure during an earthquake.

7 The Port’s analyses of the soils beneath the proposed site of the MSE wall showed the native
8 soils are soft or loose and will not provide a suitable foundation due to seismic shaking (termed
9 “liquefaction”). As a result, the Port proposed using in-ground “stone columns” to support the
10 MSE structure to avoid open excavation immediately adjacent to Miller Creek and associated
11 wetlands, and to avoid any potential short-term impacts associated with temporary construction
12 dewatering. After studying stone column field tests, the Port concluded better construction
13 reliability would be achieved by removing and replacing the poor soils. The proposed excavation
14 might encroach upon Miller Creek in some locations, requiring relocation of the stream channel.

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

1 We find the Port used the appropriate design level earthquake, and that the modeling was
2 adequate.

3 c. Fill criteria

4 There is a risk surface water runoff from the embankment could transport embankment
5 contaminants to area wetlands and streams. Further, groundwater percolating through the
6 embankment to wetlands and streams below could transport contaminants to those waters. The
7 §401 certification proposes to address this risk through imposition of procedures and criteria
8 concerning placement of fill at the site.

9 The §401 certification generally defines acceptable fill sources as including state-
10 certified borrow pits, contractor-certified construction sites, and Port of Seattle-owned
11 properties. It further defines prohibited fill sources as fill sources which “in whole or in part
12 consist of soils or materials that are determined to be contaminated following a Phase 1 or Phase
13 2 site assessment.” State Certified borrow pits are those that the Washington Department of
14 Transportation has found to have geotechnically suitable material, not necessarily contaminant
15 free. The Washington Department of Transportation testing does not include testing for
16 contaminants.

17 The lynchpin of Condition E is numeric fill criteria establishing allowable concentration
18 limits for certain identified contaminants—metals and components of total petroleum
19 hydrocarbons—stated in allowable milligrams of contaminant per kilogram of soil. The analysis
20 described below evaluates whether a particular contaminant is present and if so, can it be
21 detected, is it mobile, will it bind to the soil and finally, what is the risk?

1 Condition E of the §401 certification requires the Port to undertake a multi-step process
2 to ensure fill used in the embankment will not threaten water quality, beginning with a limitation
3 on the sources from which the Port can accept fill.

4 Condition E also requires the Port to conduct an Environmental Site Assessment in
5 accordance with standards developed by the American Society of Testing and Materials before
6 accepting fill from any source. Initial “screening” of fill sources occurs through “Phase I”
7 assessment procedures. This Phase I assessment includes, among other things, a review of
8 relevant records, maps and aerial photos, interviews with owners, and on-site inspections to
9 determine whether there might be contamination on the property. Phase II screening occurs
10 when the potential exists for soil contamination, and includes interviews with site owners and
11 others with knowledge of site history, site reconnaissance, and sampling and analysis of soil
12 from the proposed source. The Fill Criteria chart shown on page 17 of the §401 certification has
13 been superseded by Attachment E (which is the last page of the §401 certification) as a result of
14 the USFWS Biological Opinion. The fill criteria are as follows:

Attachment E/SPLP Workplan Table 1

Table 1
Criteria for Drainage layer cover and other Port 404 Projects.

Constituent	Ecology special criteria for drainage layer cover (mg/kg)	FWS drainage layer cover criteria (mg/kg)	Final drainage layer cover criteria (most conservative of FWS and Ecology values) (mg/kg)	Ecology criteria for remainder of embankment and other Port 404 Projects (mg/kg)
Antimony		NA	16	16
Arsenic		7	7	20
Barium		12,000	12,000	NA
Beryllium		NA	0.6	0.6
Cadmium		1	1	2
Chromium	42	48	42	2000
Copper		NA	36	36
Lead	220	24	24	250
Mercury		0.07	0.07	2
Nickel	100	NA	48	110
Selenium		5	5	5
Silver		5	5	5
Thallium		NA	2	2
Zinc		NA	85	85
Gasoline		NA	30	30
Diesel	460	NA	460	2000
Heavy Oils		NA	2000	2000

The sampling requirements set forth in Condition E of the §401 certification are a safety net following a Phase I or Phase II Assessment. The §401 certification specifies the minimum number of samples that must be taken when the Phase I Environmental Site Assessment indicates there is no likelihood of contamination. These requirements are to confirm the results of the Phase I and Phase II Assessments and include the number of samples to be collected and the analytes for which testing must be performed. The numbers of samples required are:

Cubic Yards of soil	Minimum number of Samples
<1,000	2
1,000 – 10,000	3
10,000 – 50,000	4
50,000 – 100,000	5
>100,000	6

1 The Appellants argue sampling numbers should be aimed, much like the requirements of the
2 Model Toxics Control Act (MTCA), at getting 95% chance of meeting the standard. They
3 further argue the numbers of samples depend on the variability of the site, rather than a fixed
4 number as indicated in the chart above. If contamination is suspected as the result of a Phase I
5 Environmental Site Assessment, the Port must consult with Ecology to determine the number of
6 samples to be taken during the Phase II Site Assessment or other appropriate sampling
7 requirements. The results of the sampling are then compared to the numeric fill criteria in the
8 §401 certification to determine the suitability of the fill source for Port 404 projects.

9 Condition E includes numeric criteria for 14 metals and for total petroleum hydrocarbons
10 (“TPH”). Ecology based some of the numeric fill criteria on MTCA Method A cleanup criteria,
11 which have been established under legislation for remediation of contaminated sites. Ecology
12 used MTCA Method A as a starting point for the fill criteria because there was no other guidance
13 on how to determine fill criteria, except for criteria on contaminated fill or soil.

14 For those constituents for which no Method A level exists, Ecology used the “fixed
15 parameter three-phase partitioning model” described in WAC 173-340-747 to calculate numeric
16 fill criteria. This model performs a “back-calculation,” which starts with the numeric water
17 quality criteria for the receiving water and works backward to derive soil concentrations
18 protective of water quality. Ecology then compared the soil concentrations derived using the
19 back-calculations to two other sets of numbers: natural background concentrations (set at the
20 90th percentile, which is a value higher than 90% of the samples taken, but lower than 10% of the
21

1 samples taken), and practical quantitation limits (PQLs)¹. If the back-calculated soil
2 concentrations were lower than either of these numbers, Ecology adjusted the soil concentrations
3 so they were equal to the 90th percentile natural background concentration or the PQL. Thus, in
4 some instances the calculated §401 Certificate contaminant limits were adjusted based upon
5 Ecology Publication 94-115, *Natural Background for Soil Metals in Puget Sound*, or upon the
6 PQL found in a 1993 Ecology implementation memo.

7 The numeric fill criteria described above apply to the general embankment fill. For
8 certain constituents, Ecology also set more stringent numeric criteria for fill placed in the
9 “drainage layer cover,” which is a wedge-shaped portion of the embankment that will directly
10 overlie the drainage layer. One of the provisions of the §401 certification allows “compliance
11 options” under Condition E. One of these allows construction of a “wedge” (also called the
12 “drainage layer cover”) of less contaminated soil 40 feet thick at the face of the embankment
13 sloping back, at a rate of 2%.

14 Despite the testimony of Ecology witnesses on the calculation numeric fill criteria,
15 evidence was presented showing the §401 certification allows contamination at levels above the
16 calculated values derived for the protection of surface water and/or groundwater for seven of the
17
18
19

20 ¹ A PQL is defined in the MTCA Regulations as “the lowest concentration that can be reliably measured within specified limits
21 of precision, accuracy, representativeness, completeness and comparability during routine laboratory conditions, using
Department approved methods.” WAC 173-340-200.

1 thirteen contaminants of concern. While it appears a few of the constituents such as beryllium,
2 copper, and zinc were in fact set to natural background, the §401 certification limits are higher
3 than natural background² for many of the constituents such as arsenic, cadmium, lead and
4 mercury. In making adjustments up to the PQL, Ecology’s expert misread the “thumbs up” icon
5 in the 1993 Ecology implementation memo. As a result, Ecology failed to recognize other test
6 methods available with lower PQLs. Actual sampling data supplied by the Port indicates its
7 testing methodologies are in fact capable of detecting concentration limits for nearly all the
8 contaminants of concern, at levels below .5 mg/kg—significantly lower than the PQLs utilized in
9 establishing the numeric fill criteria in the §401.

16 ² For example, the §401 limit for antimony is 16 milligrams/kilogram (mg/kg), yet Ecology calculated that the
17 allowable level of antimony for the protection of ground water should be no more than 5.79 mg/kg. The §401 certification
18 allows arsenic at concentrations of 29 mg/kg, yet Ecology calculated that no more than 2.92 mg/kg of arsenic should be allowed
19 for the protection of groundwater. The §401 certification allows 2 mg/kg of cadmium, yet Ecology calculated that to protect
20 surface water no more than .09 mg/kg of cadmium should be allowed in the soil and no more than .69 mg/kg of cadmium should
21 be allowed in the soil to protect groundwater. The §401 certification allows lead at levels of up to 250 mg/kg, yet Ecology
calculated that no more than 234 mg/kg of lead should be allowed for the protection of surface water. For mercury, the §401
certification allows 2 mg/kg, yet Ecology calculated that for the protection of surface water the standard should be no more than
.01 mg/kg. The §401 certification allows 5 mg/kg of selenium in the soil, yet Ecology calculated that for the protection of
surface water no more than .52 mg/kg of selenium should be allowed in the soil. Finally, the §401 certification allows 5 mg/kg
of silver, and yet Ecology calculated that no more than .28 mg/kg of silver should be allowed based on the protection of surface
water.

1 A comparison of the values is presented in the table below:

2

3 Contaminant	401	Surface	Ground	Natural
4		Water	Water	Background
5 Antimony	16		5.79	Na
6 Arsenic	20		2.92	7
7 Cadmium	2	.09	0.69	1
8 Lead	250	234		24
9 Mercury	2	.01		.07
10 Selenium	5	0.52		Na
11 Silver	5	0.28		Na

12

13 The numeric fill criteria allow for concentrations of gasoline to be present at 30
14 milligrams/kilogram (mg/kg), and diesel and heavy oil at up to 2,000 mg/kg. Gasoline is a
15 refined petroleum product, which is not found in its refined state in nature. The Port argued
16 man-made petroleum constituents would not be allowed, but some natural occurring TPH (Total
17 Petroleum Hydrocarbons) might show up as part of the sampling, derived from the natural
18 decomposition of organic compounds. The Board is not persuaded by this argument. In fact,
19 Ecology's witness indicated a mistake had been made in keeping the limit for TPH on the chart.
20 The Board therefore finds the acceptable limit for the fill criteria should be based on the natural
21

1 background levels, when available. When not available, the “back calculations” done by
2 Ecology to protect groundwater and surface water should be used. Only when neither is
3 available should the MTCA standards be used. Therefore, the Board finds the appropriate fill
4 criteria to be as follows:

5	Antimony	5.79 mg/kg
6	Arsenic	7 mg/kg
7	Barium	12,000 mg/kg
8	Beryllium	.6 mg/kg
9	Cadmium	1 mg/kg
10	Chromium	42 mg/kg
11	Copper	36 mg/kg
12	Lead	24 mg/kg
13	Mercury	.07 mg/kg
14	Nickel	48 mg/kg
15	Selenium	.52 mg/kg
16	Silver	.28 mg/kg
17	Thallium	2 mg/kg
18	Zinc	85 mg/kg
19	TPH	0
20		

1 Under the §401 certification, proposed fill criteria are to be applied based on sampling
2 and testing protocols. The fill source sampling is governed by the chart on page 16 of the §401
3 certification, which requires no more than six samples from a fill source greater than 100,000
4 cubic yards. Peter Kmet, Ecology’s toxics cleanup program senior engineer, recommended that
5 ten samples be required for every 2,000 cubic yards for Port-owned properties and construction
6 sites, with one additional sample for every 500 cubic yards. Even for so-called “native” borrow
7 pits, Mr. Kmet recommended 15 samples for sites between 50,000 and 500,000 cubic yards plus
8 one sample for every additional 100,000 yards to ensure protection of water resources. The
9 Appellants’ expert recommended the 401 Certification should have required a determination for
10 each site of the number of samples needed to reach a “95% confidence level that you will meet
11 the [contaminant] criteria.” The Board finds the minimum number of samples to be inadequate
12 and thus further conditions the §401 certification to require the same minimum number of
13 samples as is required for sampling under MTCA.

14 If the fill material exceeds any of the numeric fill criteria, the §401 certification allows
15 the Port to use the Synthetic Precipitation Leaching Procedure (SPLP) to assess whether a
16 particular constituent in the tested soil will leach at rates with the potential to threaten water
17 quality. In the SPLP, fill material is placed in a column, and liquid comparable to acid rain is
18 passed through it. The laboratory then analyzes the resulting leachate to determine the
19 concentration of soil constituent chemicals of interest. SPLP analysis results are then used to
20 determine if the Port may use that fill material, even if it initially exceeded the numeric fill
21 criteria. The SPLP is a test in which fluid is passed through a soil sample with the fluid then

1 collected and analyzed for contaminants. The results from the SPLP are then compared to fresh
2 water ambient water quality criteria in WAC 173-201A-040 (adjusted for PQLs). Conflicting
3 testimony from the Respondents indicated the SPLP procedure could not be used to approve
4 material that exceeded MTCA Method A standards. However, a Port consultant acknowledged
5 after site sampling shows a site has failed the MTCA Method A based initial screening criteria,
6 the Port uses the SPLP to approve the importation of fill material.

7 Concerns were raised the SPLP procedure does not address the complete set of water
8 quality standards, only the toxic substances surface water standards (WAC 197-201A-040), and
9 ignores state groundwater standards such as Chapter 173-200 WAC. A second concern is only
10 one SPLP sample is required to be collected for each original screening sample that exceeds the
11 screening criteria. The concern is no statistically meaningful test protocol exists for using the
12 SPLP. A third concern is the SPLP method is in large part incapable of detecting contaminants
13 of concern at the levels established in WAC 173-201A-040. This is because the freshwater
14 criteria listed in WAC 173-201A, utilized as a benchmark for the SPLP testing, are hardness-
15 dependent. Ten of the 13 metals listed in the §401 certification have a hardness-adjusted
16 freshwater chronic standard lower than 50 micrograms/liter. The SPLP procedure is, however,
17 ineffective at determining compliance with water quality standards for these metals because the
18 SPLP's reporting limit is higher than the §401 contamination limit.³ Finally, WAC 173-201A-
19 040, the surface water toxic substances criteria, do not establish standards for antimony,

1 beryllium, silver, and thallium, which are all listed as constituents of concern under the §401
2 certification. Thus, there is no standard in WAC 173-201A-040 for these contaminants by which
3 to evaluate the SPLP test results.

4 The Port performed a modeling analysis of the numeric fill criteria in the §401
5 certification to verify they are protective of water quality. The model considered infiltration of
6 water through the embankment, leaching of compounds in the embankment by infiltrating water,
7 and transport of those compounds through the embankment. The model assumed the entire fill
8 in the general embankment contained the maximum concentrations of metals allowed under the
9 §401 certification. The model results showed water discharging from the toe of the embankment
10 would not exceed ambient water quality standards for any of the metals listed in the §401
11 certification at any time over a thousand-year period

12 The Port also performed a sensitivity analysis of these modeling results in which the
13 embankment was assumed to be made up entirely of soil with the most leachable metal (arsenic),
14 at a concentration 10 times the concentration allowed in the §401 certification. The results of the
15 sensitivity analysis showed that the water discharging from the toe of the embankment would not
16 exceed the ambient water quality standard for arsenic, notwithstanding its presence in the
17 embankment at 10 times the concentration allowed in the §401 certification at any time over a
18 thousand-year period.

21 ³ The 10 metals with hardness adjusted fresh water chronic criterion less than 50 micrograms/liter include antimony, beryllium, cadmium, total chromium, copper, lead, mercury, selenium, silver and thallium. See Ex. 280. The SPLP is not used to test for petroleum contamination.

1 However this testimony was rebutted. The Board is concerned with the intended use of
2 the SPLP process. Therefore, the Board finds the SPLP process should not be used to allow the
3 importation of fill above the fill criteria.

4 Finally, nothing in this opinion requires the Port to remove any fill that has already been
5 imported to the Airport site.

6 5. GROUNDWATER

7 The majority of the existing wetlands west of the airport are hydrologically maintained
8 by groundwater and seeps emanating from a shallow groundwater aquifer, which daylights along
9 the western slope of the plateau abutting the Port's proposed fill. The Port has found
10 contamination in groundwater beneath the Airport Operations and Maintenance Area
11 ("AOMA"). Jet fuel, gasoline, industrial solvents, mineral spirits, lubricating oil, and aircraft
12 deicing fluids have all been found in the soil and groundwater within the AOMA. The AOMA is
13 an area that includes the passenger terminals and aircraft maintenance hangars, gates, and fueling
14 areas. It is located to the east of the airfield, taxiways and runways, where planes are not fueled
15 or serviced. The western border of the AOMA is approximately one-half mile from where the
16 Third Runway will be located. The contaminated aquifer (the Qva aquifer) flows generally to
17 the west and northwest from the AOMA in the direction of Miller Creek and the sloped
18 wetlands.

19 In 1999, Ecology issued Agreed Order No. 97TC-N122 under the Model Toxics Control
20 Act (MTCA) requiring the Port to investigate the nature and extent of this groundwater
21 contamination. The Agreed Order requires the Port to develop a model to predict groundwater

1 flow and contaminant fate and transport beneath the Airport. Appellants did not prove the Port
2 was violating the 1999 Agreed Order. Appellants claim Ecology lacked reasonable assurance
3 that water quality standards would be met because this contamination could migrate from the
4 AOMA, and because the Port has not completed all phases of the investigation required by the
5 MTCA order.

6 The Port and Ecology presented evidence, pursuant to the MTCA order, that the Port has
7 undertaken a preferential pathways analysis to determine the sources of groundwater
8 contamination in the AOMA, the lateral and vertical extent of that contamination, and the
9 direction in which groundwater beneath the AOMA flows.

10 The Port and Port tenants have installed a large array of groundwater monitoring wells in
11 and around the AOMA, and collect samples from them. These samples, taken over many years
12 from wells installed both prior to and following the execution of the Agreed Order, indicate there
13 is contamination from airline fueling and maintenance activities in shallow, perched water zones
14 beneath the AOMA, and in the deeper Qva aquifer. The monitoring wells also indicate
15 contamination in both groundwater units has migrated very little.

16 The Port also determined, while groundwater flow in the shallow perched water zones
17 beneath the AOMA is variable, it frequently moves away from the area of the Third Runway
18 embankment. Groundwater in the deeper Qva aquifer flows generally to the west at depths of
19 approximately 60 to 90 feet below ground surface.

1 Appellants argue that development activities, such as construction of utility corridors and
2 dewatering associated with subgrade improvements, could draw the AOMA groundwater
3 contamination toward the Third Runway embankment.

4 Existing utility corridors at the Airport are close to the ground surface, above the
5 shallowest contaminated groundwater. The utility corridors are circuitous and complex, with
6 frequent changes in direction. The evidence showed there has been no significant migration of
7 groundwater contaminants along these corridors.

8 In addition, under Condition F.1 of the §401 certification, Ecology recently approved a
9 series of BMPs that the Port will use during construction of subsurface utilities, including
10 backfilling any new trenches with low permeability material to prevent migration of
11 contaminated groundwater. No evidence was presented that these BMPs are inadequate to
12 prevent the movement of contaminated groundwater through utility corridors. Moreover, the
13 Port's plans are to construct only one new utility line between the AOMA and the Third
14 Runway, and this line will not intersect contaminated groundwater.

15 Based on the evidence presented, the Board finds, although the Port has not presently
16 completed all of the work required by the MTCA order, it has completed sufficient work to
17 demonstrate groundwater contamination is confined to the AOMA and is not likely to migrate
18 outside of the AOMA or toward the Third Runway embankment. The Board further finds it very
19 unlikely contaminated groundwater would be induced to migrate to the Third Runway
20 embankment area via utility corridors or other construction activity.

1 Finally, the Board finds it unlikely dewatering activities could cause contaminated
2 groundwater to migrate any significant distance. The three areas proposed for dewatering during
3 construction of the Third Runway, are located at the South MSE Wall, the West MSE Wall, and
4 the North MSE Wall. These areas are between one-half mile and one mile from the AOMA,
5 where the groundwater contamination is located. The Port presented evidence that dewatering
6 during excavation could draw water from up to 80 feet beyond the excavation boundary, while
7 Appellants presented evidence water could be drawn from up to 175 feet beyond the excavation
8 boundary. Since there is no evidence of any groundwater contamination within 175 feet from
9 the areas where dewatering will occur, we find dewatering will not affect the movement of
10 contaminated groundwater.

11 6. WETLANDS

12 a. General

13 The Port's projects at the Airport will permanently fill 18.37 acres of wetlands and 0.92
14 acres of prior converted cropland, for a total of 19.29 acres of permanent impacts to wetlands.
15 Construction will temporarily affect 2.05 acres of wetlands. While the 2.05 acres will be
16 restored, Ecology has considered the 2.05 acres of impact a wetland impact for which mitigation
17 is required. The total wetland impacts, permanent and temporary, are 21.34 acres. The Port's
18 plan to mitigate these impacts is outlined in its Natural Resources Mitigation Plan (NRMP).
19 Mitigation is planned both on-site, in the sub-basins on or adjacent to the Airport, and off-site, at
20 a 65-acre site in Auburn.

1 The mitigation plan for the site conditions (soil, hydrology, vegetation, and landscape
2 conditions) determines the restoration approaches, which will establish desired ecological
3 functions in a sustainable manner. The mitigation sites are assured long-term protection by
4 restrictive covenants legally protecting them from other uses. These approaches are designed to
5 ensure wetland functions are ultimately replaced and that the duration of temporal impacts is
6 minimized.

7 In the sub-basins on or adjacent to the Airport, the Port proposes to: (1) restore 11.95
8 acres of degraded wetlands, (2) enhance 22.32 acres of degraded wetlands, (3) enhance 54.93
9 acres of wetland and riparian buffers, and (4) preserve 23.55. While siting new wetland creation
10 in-basin was difficult because of aircraft safety concerns about new wildlife attractants, the goal
11 of Ecology was to have the Port replace all impacted wetland functions in-basin, with the
12 exception of the wildlife attractant functions. The following chart shows the actual acres of
13 mitigation proposed and the mitigation credits assigned to each component of the NRMP:

Table 4.1-3. Summary of wetland mitigation credit for Seattle-Tacoma International Airport Master Plan Update improvements. (All impacts and mitigation occur in WRIA 9.)

Mitigation	Mitigation Area (ac)	Mitigation Credit
ON-SITE		
<u>Wetland Restoration</u> - Credit ratio 1: 1		
Remove Fill Adjacent to Lora Lake	1.00	1.00
Remove Fill at Des Moines Way Nursery Site	2.00	2.00
Remove Fill at Wetland A17	0.30	0.30
Vacca Farm (prior converted cropland and other upland)	6.60	6.60
Temporary Impact	2.05	2.05
	Subtotal 11.95	11.95
<u>Wetland Enhancement</u> - Credit ratio 1:2		
Des Moines Way Nursery	0.86	0.43
Vacca Farm (Farmed Wetland, Other Wetlands, Lora Lake)	5.70	2.85
Wetlands in Miller Creek Wetland and Riparian Buffer	10.25	5.12
Type Valley Golf Course	4.50	2.25
Wetland in Des Moines Creek Buffer	1.01	0.51
	Subtotal 22.32	11.16
<u>Buffer Enhancement</u> - Credit ratio 1:5		
Miller Creek Buffer, South of Vacca Farm	40.86	8.17
Vacca Farm	4.58	0.92
Lora Lake	1.81	0.36
Tyee Valley Golf Course Mitigation Area Buffer	1.57	0.31
West Branch Des Moines Creek Buffer	3.38	0.68
Des Moines Way Nursery	2.73	0.55
	Subtotal 54.93	10.99
<u>Preservation</u> - Credit Ratio 1:10		
Borrow Area 3 Wetland	2.35	0.24
Borrow Area 3 Buffer	21.20	2.10
	Subtotal 23.55	2.34
	Total On-Site 112.75	36.44
OFF-SITE		
<u>Wetland Creation</u> - Credit ratio 1 :1		
Forest (17.20 acres), shrub (6.0 acres), emergent (6.20 acres), and open water (0.60 acres)	29.98	29.98
Wetland Enhancement- Credit ratio 1:2	19.50	9.75
Buffer Enhancement - Credit ratio 1:5	15.90	3.18
	Total Off-Site 65.38	42.91
	TOTAL 178.13	79.35

1 Further clarification on one aspect of the mitigation, Lora Lake, is provided in Table 5.1-
2 1 in the NRMP. That chart indicates the 3.06 acres of wetland enhancement credit is given for
3 the surface of Lora Lake.

4 The §401 certification requires the Port to implement the mitigation detailed in the
5 NRMP. The NRMP provides for a 2:1 ratio (two acres of mitigation for every one acre of
6 impact) of wetland mitigation credits and a no net loss of wetland functions. The mitigation sites
7 are designed to replace the variety of wetland functions impacted by the project. Mitigation for
8 the 19.29 acres of wetland fill is detailed in the chart shown above.

9 Ecology's wetland guidance (How Ecology Regulates Wetlands, Ecology publication 97-
10 112) sets forth general mitigation ratios. Ratios help determine equivalency between the wetland
11 function lost and proposed mitigation. These ratios may be adjusted based on site-specific
12 factors, including:

- 13 1. The types(s) of wetlands being filled
- 14 2. The likelihood the mitigation action will be successful
- 15 3. The time it will take for the action to be fully successful
- 16 4. The location of the mitigation actions
- 17 5. How well the mitigation wetlands will persist on the landscape

18 This guidance document is silent on Ecology's current practice of granting mitigation
19 credit for upland buffers, as well as Ecology's recognition of the FAA's concern about wetland
20 mitigation around airports (due to bird-strike concerns).

1 Ecology argues there are at least two means to apply mitigation ratios. One way is to
2 give credit 1:1 for every new acre of wetland created or restored, credit of 2:1 for wetland area
3 enhancement, credit of between 5:1 and 10:1 for riparian/buffer enhancement and preservation,
4 and require the total mitigation credit equal at least double (2:1) the area being filled. The other
5 method is to follow the general ratios contained in Ecology’s guidance. The Port opted for the
6 former.

7 The Appellants argue that the Port received “credit” for projects, which are not wetland
8 restoration. They argue that restoration should cover actions to re-establish wetlands or wetland
9 functions currently absent, not for restoring degraded wetlands. Further, the Appellants argue
10 mitigation credit should not have been given for restoring existing wetlands or for open water
11 (Lake Lora), or for applying credit to preserving wetlands, which are already subject to
12 protection under existing state and federal laws and regulations. Finally, they contend the Port
13 did not reasonably exhaust its search for on-site wetland mitigation.

14 The Port’s planned in-basin mitigation includes improvement to over 112 acres of land in
15 the affected basins, including the enhancement of over 1.4 miles of degraded urban streams. The
16 NRMP also requires preservation of over 2 acres of wetland and 21 acres forest buffer. In
17 evaluating in-basin mitigation opportunities, the Port did not fully evaluate the headwater
18 wetland in the Walker Creek basin for its potential to serve as mitigation.

19
20 In addition to these in-basin mitigation measures, the Port proposes to construct wetland
21 mitigation off-site on a 65-acre parcel in the City of Auburn. This mitigation site would provide

1 forested, shrub, emergent, and open water wetland habitats and functions to a site where these
2 functions are currently absent or degraded.

3 The Auburn off-site mitigation involves wetland restoration, wetland creation, and
4 wetland enhancement. The mitigation establishes 17.2 acres of forested wetland, 6.0 acres of
5 shrub wetland, 6.2 acres of emergent wetland, 0.60 acres of open water, and 19.5 acres of
6 emergent wetland habitat. These habitats will be protected with approximately 15.9 acres of
7 forested upland buffers.

8 The Port proposed to construct the Auburn wetland mitigation site because of serious
9 concerns regarding aircraft safety from creation of new wildlife attractants, such as waterfowl
10 and flocking birds, near runways for commercial aviation. The Auburn site is in the same Water
11 Resource Inventory Area as the Airport (WRIA 9).

12 In addition, the §401 certification requires the Port to execute and record restrictive
13 covenants to protect the entire 178 acres of mitigation. The covenants require the mitigation
14 areas be preserved in a natural state, prohibiting future development activity.

15 The Port's proposed wetland mitigation plan will result in the removal of sources of
16 pollutants to wetlands, and to the Miller, Des Moines, and Walker Creeks by removing land
17 uses, which contribute excess nitrogen and other pollutants. The replacement of lawns, golf
18 courses, farmland, streets, driveways, and home sites with natural vegetation will restore a
19 natural pattern of nitrogen cycling to the landscape. The water quality functions in the Miller
20 Creek wetland and buffer mitigation area will improve with the removal of the urban uses
21 adjacent to the creek and with the Port's mitigation measures. Houses and buildings, lawns and

1 driveways will be removed from the mitigation area, thereby removing features and land uses
2 contributing to the degradation of water quality.

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

9 The Appellants argue the Port's assessment of the various functions of the wetlands used
10 an improper, non-replicable methodology, and the Port failed to adequately measure the area's
11 hydroperiod, thus underestimating the success of the mitigation.

12 b. Functional Assessment

13 A functional assessment is a method used to evaluate and quantify the functions that
14 wetlands afford. To determine whether a wetland mitigation plan is consistent with water
15 quality standards, it is first necessary to know what functions will be lost and then to assess
16 whether those functions will be effectively replaced.

17 The Port used several functional assessment methodologies in preparing the wetlands
18 functional assessment. The primary functional assessment used by the Port is based on a process
19 accepted in the profession of wetland ecology and which has been reviewed by both the U.S.
20 Army Corps of Engineers and Ecology. Appellants criticize the Port's functional assessment
21 method as not being a peer-reviewed method. Appellants argue the wetland functional

1 assessment done by the Port’s consultant was largely based on best professional judgment and
2 not upon a replicable functional assessment method. Appellants also argue leading treatises in
3 the field of such as “Compensating for Wetland Losses Under the Clean Water Act” from the
4 National Research Council caution against the use of subjective best professional judgment in
5 assessing wetland functions, and instead advocate for science-based rapid assessment
6 procedures.

7 The Port did not use the Washington Functional Assessment Method (WFAM) allegedly
8 because it was not available when the Port was preparing its functional assessment and because
9 the Port was concerned it would underrate the functions of sloped wetlands. Seventy-seven
10 percent (77%) of the wetlands are sloped wetlands. The remaining 23% of the wetlands
11 involved are either riverine or depressional wetlands and would have been acceptable for using
12 the WFAM as the method to determine their functions.

13 Finally, the Appellants argue because the Port did not use a peer-reviewed published
14 methodology for its functional assessment, it is not possible for other wetland scientists to
15 replicate and confirm the Port’s assessment. Because of these limitations, Appellants argue the
16 functional assessment does not accurately represent the existing conditions of the wetlands and
17 wetland functions on-site. While the Board is troubled by the method used by the Port, the Board
18 finds the Appellants have not shown WFAM should have been used since WFAM does not apply
19 to sloped wetlands, and would therefore be applicable to only 23% of the wetlands on site. The
20 evidence at the hearing showed, notwithstanding the inapplicability of the WFAM assessment
21 technique to the wetlands on the Port site, the Port’s consultants ran the WFAM assessment on

1 wetlands on-site, and the WFAM ratings were equal to or lower than the Port's more
2 conservative technique.

3 As noted above, the Board is concerned with the lack of a good tool for assessing sloped
4 wetlands. There was conflicting testimony on whether sloped wetlands function similarly to
5 depressional wetlands. The predominance of sloped wetlands on the project area warranted
6 special attention or recognition. However, the Appellants did not present a compelling
7 alternative.

8 The Appellants further argue the wetland performance standard (groundwater within 10")
9 is inadequate for several reasons. First, they allege the Port did not do enough data gathering to
10 capture the full range of the hydrology occurring in the wetlands. Second, the time of year for
11 measuring this performance should be during the dry time of the cycle. The hydroperiod is from
12 October to October. The hydroperiod shows the presence of water, either standing or shallow
13 groundwater, and tracks its pattern over the course of the year. Wetland systems are very
14 complex and the hydroperiod is just one of the tools to determine and protect the functions. The
15 performance standard for wetlands (found on page 8 of the §401 certification) includes
16 monitoring to assure "groundwater within the upper 10 inches from at least March to mid-April
17 in years of normal rainfall." This measurement occurs during some of the wettest times of the
18 year and won't monitor whether the wetland will function during the driest months (August
19 through October). For this reason, the Board adds a further condition to modify the performance
20 standard for wetlands to ensure the Port matches the hydroperiods of the wetlands pre- and post
21

1 project, in order to maintain and perpetuate wetland characteristics, such as standing or flowing
2 water, wetland resources, and wetland functions.

3 The concern with the mitigation credits received for Lake Lora is although the Port will
4 be doing some enhancement work along the perimeter of the lake, such as removing the human
5 intrusions (lawns, bulkheads, etc.), the Port will not be doing anything to the surface of the
6 water. The Port received 3.06 acres of mitigation credit for the surface of the Lake. Appellants
7 argue Ecology should not have granted mitigation for the whole lake simply because there are
8 some proposed habitat restoration activities along the shoreline.

9 More problematic to the Board is the calculating of buffers as mitigation for wetland
10 impacts. Riparian buffers may be an appropriate component of a wetlands mitigation plan, but
11 only as an adjunct to meeting the baseline criteria of no-net loss of aquatic resources. No-net
12 loss is measured in both acreage and function, so in order to achieve no net loss in acreage,
13 projects must, at minimum, restore or create an equal area of wetland. Enhancement activities
14 and upland preservation should not be used in exchange for the baseline acres and are not a
15 substitute for replacement of actual wetland losses. While the Board supports the concept of
16 buffering wetlands, such buffers should be added to assure the sustainability of the mitigation of
17 actual wetland mitigation. Thus wetland impacts must be mitigated with restored, enhanced or
18 created wetlands, not with buffers.

19 The Board is also not persuaded the preservation of the existing wetlands, identified as
20 adjacent to Borrow Area 3, qualifies for mitigation credit. Ecology and the Port have argued,
21 without any citation in support of their contention, this wetland is not protected under existing

1 law. We are not persuaded by this argument. The forested wetland, comprising 2.35 acres is
2 adjacent to Borrow Area 3. The Port has no plans to modify this wetland as part of the current
3 project. The wetland lies within the City of SeaTac. Although the Port and SeaTac apparently
4 have considered marketing this area, they have not reached any final agreement. The area lies
5 within the jurisdiction of both the Growth Management Act and the Forest Practices Act. Both
6 of these laws have mechanisms to protect valuable wetlands. This wetland is habitat to the
7 pacific treefrog. Because the wetland dries out in the fall, it is not subject to invasion from
8 bullfrogs, an introduced species, which is highly predatory on native amphibians. The wetland
9 lies across an abandoned road form Des Moines Creek Park. The Port seeks a 10:1 mitigation
10 credit for preserving 2.35 acres of wetland and 21.2 acres of buffer, representing a total of 23.55
11 mitigation acres.

12 The 112.75 acres of on-site mitigation, minus the 3.06 acres for the surface of Lora Lake,
13 equals 109.69 acres of mitigation or 33.38 acres of mitigation credit. Of the 109.69 acres, 54.93
14 acres are buffer enhancement (counted as 10.99 acres of mitigation credit). If the buffer
15 enhancement and the 23.55 acres for preservation of the forested wetland and buffer are
16 removed, the NRMP includes 31.21 acres of mitigation or 20.05 acres of mitigation credit. This
17 amount is insufficient to meet the 2:1 ratio and to mitigate for the 21.34 acres of wetland
18 impacts. The Board finds the Port has not yet fully mitigated the impacts to the filled wetlands
19 and wetland functions. Testimony before the Board indicated there were opportunities for in-
20 basin mitigation, which were apparently overlooked because they were smaller in size. For
21 example, there appear to be in-basin mitigation opportunities as the headwater wetland in the

1 Walker Creek basin. There appears to be other in-basin mitigation opportunities in Walker,
2 Miller, and Des Moines Creek basins that had not been pursued as documented in a February
3 2000 memorandum. In identifying acreage to meet the 2:1 mitigation ratio, the Board
4 encourages the Port to evaluate the potential opportunities in the headwaters to Walker Creek.

5 The Port proposes as its key in-basin mitigation site 6.6 acres of what is known as the
6 Vacca farm property. The Appellants allege the Port gave itself too much credit for this portion
7 of the mitigation proposal by treating the Vacca Farm site as a “restoration” project when it is, at
8 best, an enhancement project. Wetland restoration refers to the re-establishment of a wetland in
9 an area where a wetland historically existed, but which now performs little or no wetland
10 functions. Enhancement refers to increasing one or more functions of an existing wetland. There
11 appears to be an effort underway to change the working definitions between these two terms so
12 “enhancement” means improving or enhancing one or more functions, and “restoration” means
13 returning a degraded system to a former condition. This new approach would move away from a
14 hard line distinction between enhancement and restoration, and would result in the
15 characterization of particular actions as restoration or enhancement as a matter of judgment,
16 which may differ based on the degree to which functions that are degraded are restored or
17 improved. Thus, in order to qualify as restoration, a wetland does not have to be completely
18 without functions. Wetlands with degraded functions can be restored. More important than
19 whether an action is called restoration or enhancement is whether the impacted wetland
20 functions are being replaced. At the Vacca Farm mitigation site, for example, a degraded

1 wetland area that has been used for farming and grazing will be restored and will be returned to
2 its historic peat wetland condition, with a resumption of the peat-forming process.

3 For purposes of the NRMP, the Vacca farm mitigation has been designated “restoration”
4 and given a 2 to 1 credit. The Port claims it is restoring 6.6 acres of Vacca Farm in Table 4.1-3
5 (12.3 acres is reported in Table 4.1-2) of the NRMP.

6 The Appellants argue Vacca farm cannot be given restoration credit because it is already
7 a jurisdictional wetland under the Department of Ecology’s guidelines. The Board disagrees.
8 There is not a hard line distinguishing restoration from enhancement. Depending on the
9 circumstances, a former wetland may be so degraded that efforts to correct past practices may
10 qualify as restoration. This distinction is one for best professional judgment. Appellants have
11 not shown the judgment used was biologically flawed.

12 Finally, the Appellants question the plantings in the mitigation areas as inadequate to
13 result in the creation of forested wetlands. While it may take time to mature, Appellants have
14 not shown that forested wetlands will not be created by the conditions imposed in the §401
15 certification and the NRMP.

16 While delineating wetlands is a fairly precise science, determining the functions and
17 relative importance of each wetland is a combination of science and art, which relies heavily on
18 professional judgment.

19 The professional judgment is required to evaluate the degree to which the wetland, and
20 the entire watershed, is currently degraded, and what steps would best protect or enhance the
21 functioning abilities of the area as a whole. Professional judgment is required to evaluate

1 whether a large wetland creation would be more beneficial to the flora and fauna of the area than
2 a series of dispersed smaller wetlands. And finally, professional judgment is required to evaluate
3 the long-term sustainability of any mitigation. A determination of the risk of success is
4 necessary and may affect the replacement ratios; the higher the risk of failure, the higher the
5 requirement for credit to cover the potential risk (1:1 may be appropriate for low risk mitigation,
6 whereas 10:1 may be appropriate for high risk mitigation). These kinds of evaluations do not
7 lend themselves to formulaic ratios. The ratios set forth in Ecology’s guidance manual are
8 guidelines. Good reasons must exist to deviate from those guidelines; reasons supported by best
9 professional judgment.

10 Approximately 65 acres of wetland mitigation are proposed at a site several miles away,
11 near Auburn, along the Green River (the “Auburn Offsite Mitigation”). The Green River basin
12 is not in the same hydrologic or biologic watershed as Miller, Walker, or Des Moines Creeks,
13 although it is within the same administratively defined WRIA.

14 The Board finds Ecology’s wetland ratios are not rigid rules, but are tools Ecology uses
15 for guidance. They are, however, an indication of the best available science. For that reason, the
16 ratios can be adjusted upwards, depending on the facts of the individual case—including the
17 quality of wetlands being impacted, the functions being impacted, the quality of the mitigation
18 being provided, and the likelihood of that mitigation’s success. Here, the evidence showed the
19 wetlands being impacted by the Airport projects are not pristine. All of those wetlands have been
20 significantly degraded by ongoing land uses or past land use practices.

1 Appellants assert that filling wetlands would result in an impact to stream hydrology or
2 fish habitat. Given the conditions imposed by Ecology and this Board, the filling will not impact
3 stream hydrology or fish habitat, so as to violate the anti-degradation standard.

4 c. Embankment impacts to wetlands

5 Appellants also argue that a recent revision to the embankment construction plan would
6 result in the elimination of water predicted to seep to the existing downslope wetlands. The
7 Board finds this claim is not supported by the evidence. The evidence showed that the plan to
8 excavate non-bearing soils under the MSE Wall has been analyzed as part of the project for
9 several years. In addition, the embankment has been designed to deliver water specifically to the
10 existing, downslope wetlands. The amount of water seeping from the embankment to downslope
11 wetlands would be no less than under existing conditions. Finally, under the Port's adaptive
12 management plan, the Port can alter the delivery points of the water as needed to provide
13 adequate hydrology for the existing wetlands.

14 The §401 certification and NRMP contain performance standards to ensure the continued
15 functioning of the remaining on-site wetlands downslope from the embankment. Appellants
16 criticized the performance standards and the data on which they were based. The evidence
17 showed the wetlands had been observed for several years and monitored for over a year. A
18 performance standard based purely on hydroperiod was not advisable for those sloped wetlands
19 because the natural hydroperiod would vary significantly from year-to-year. The performance
20 standards, when combined with the 15 years of combined monitoring and ability to adaptively
21

1 manage the downslope wetlands, were adequate and would allow the wetlands to meet the target
2 functions in the mitigation plan.

3 7. MONITORING AND ADAPTIVE MANAGEMENT

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

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

12 In addition to these future plans, Ecology imposed monitoring requirements with respect
13 to a number of conditions, including monitoring of wetland mitigation for a period of 15 years,
14 surface water and groundwater and monitoring to assure there was no transport of contaminants
15 via utility corridors for a period of eight years, post-construction monitoring of fill criteria, and
16 low flow monitoring extending in perpetuity.

17 The Appellants argue Ecology's reliance on submittals, plans, and monitoring developed
18 after the issuance of the §401 certification precluded a finding Ecology had reasonable assurance
19 at the time the §401 certification was issued. The Board disagrees. In order to rely on adaptive
20 management, the required monitoring and subsequent changes must be set forth with specificity
21 and must meet the reasonable assurance test, which means the future action and outcome must be

1 reasonably certain to occur. To meet the test, specific enforceable requirements must be
2 contained in the §401 certification in the event monitoring data indicate water quality standards
3 are being violated.

4 The Board finds that the post-certification submittals required by Ecology are necessary
5 for clarification, or provide necessary details to the various plans produced by the Port. The
6 Board also finds that the fact that additional plans are to be submitted after the date of the
7 issuance of the §401 certification does not, by itself, call into question whether Ecology had
8 reasonable assurance of compliance with water quality standards at the time the §401
9 certification was issued. Rather, whether the additional, future plans or changes brought about
10 following the review of monitoring results provide an adequate basis for reasonable assurance
11 depends on the specific condition set forth in the §401 certification.

12 Adaptive management is appropriately used when an existing discharger is required to
13 comply with specific water quality standards, or for Ecology to determine the technology, which
14 constitutes all known, available and reasonable technology (AKART) for existing and future
15 dischargers. This tool, however, should not be used to enable a new discharge to delay meeting
16 existing water quality standards, until after the discharge has commenced. Likewise, adaptive
17 management may not be employed to avoid enforcement of Washington's rigorous water
18 pollution laws and regulations.

19 The following future plans or adaptive management provisions found in the §401
20 certification provide less than specific language assuring that the future plan or changes resulting
21 from monitoring will occur. Condition D(1)(h) of the §401 certification requires the Port to

1 delineate the wetlands at intervals of five, ten and fifteen years. If the delineation shows the
2 boundaries have decreased, “then additional in-basin mitigation may be required.” The Board
3 finds that should the wetlands decrease, additional in-basin mitigation shall be required.

4 Condition E (3) of the §401 certification uses the word “may” rather than a mandatory
5 requirement to take action based on post-construction monitoring. The Board finds this
6 condition must have more certainty in the outcome. Therefore, the Board further conditions this
7 requirement to require Ecology to take action to eliminate the exceedances in the event
8 monitoring detects exceedances of the water quality criteria in either surface or groundwater.
9 This may include a revision to the fill criteria and/or corrective action.

10 Condition B (and its cross reference to Conditions E(3) and F(1)) of the §401
11 certification only requires certain monitoring to be performed for a duration no less than eight
12 years. It could be years following construction of the embankment—which itself will take years
13 to construct—before the actual fate of water and contaminants infiltrating through the
14 embankment is known. Thus, as the certification is currently written, monitoring of the
15 embankment seepage could be discontinued before the embankment has even reached
16 equilibrium and begun discharging water in a steady state. Therefore, the Board finds the
17 monitoring should continue for at least eight years from the conclusion of construction and,
18 should monitoring reveal exceedances, Ecology shall further extend the period of monitoring.
19 This is a further condition on the §401 certification.

20 Condition F(1) of the §401 certification requires the Port to monitor the potential fate and
21 transport of known contaminants beneath the AOMA, which could migrate to other parts of the

1 Airport via subsurface utility lines or other preferred pathways. It appears from testimony
2 Ecology did not intend to include any durational limit. In fact, Ecology’s staff indicated, “the
3 duration should be indefinite, as long as the contaminants are there monitoring should continue.”
4 The Board agrees. Further, Condition F(1) does not specify what corrective action should occur
5 to address the transport of these contaminants when they are detected by the monitoring that is
6 required. The Board further conditions this monitoring requirement for as long as there are
7 contaminants in the AOMA. However, the implementation of any corrective measures is
8 appropriately addressed by the consent decree and/or enforcement actions under MTCA.

9 8. PUBLIC PROCESS—NOTICE

10 As was noted above in the Procedural History, the Port first filed its JARPA Application
11 in December 1996. Ecology and the Corps issued a public notice on that application on
12 December 19, 1997, and held a public hearing on that application on April 9, 1998. Comments
13 on that application were received from members of the public, and the Port responded to those
14 comments.

15 After the Port’s initial JARPA application and public notice were issued, the Port
16 discovered there would be more wetland impacts than had originally been assumed. Based on
17 this new information, a revised public notice was issued on September 30, 1999, and a second
18 public hearing was held on November 3, 1999.

19 In response to a request from Ecology for additional time to complete its §401 review,
20 the Port agreed to withdraw its application in 2000 and to resubmit a new JARPA to the Corps.

1 Based on the resubmittal of the Port's JARPA application, the Corps and Ecology issued a
2 second revised public notice on December 27, 2000.

3 A public hearing was held on the Port's re-issued JARPA application on January 26 and
4 27, 2001. Public Comments were received during the formal comment period, which ran from
5 December 27, 2000 to February 16, 2001. Ecology continued to receive and review public
6 comments submitted after the close of the formal written comment period.

7 Ecology issued its §401 certification on August 10, 2001. ACC filed its notice of appeal
8 on August 23, 2001. On September 10, 2001, the Port filed a Notice of Appeal of the §401
9 certification. That same day, the Port and Ecology filed a Stipulation and Agreed Order of
10 Dismissal, in which Ecology and the Port agreed to certain changes in the §401 certification.
11 The Board did not accept this stipulation. As a result, the parties reached an agreement by which
12 Ecology rescinded the existing §401 certification and issued a new §401 certification on
13 September 21, 2001. Ecology did not issue a new public notice in connection with the rescission
14 and issuance of the amended §401 certification.

15 Appellants allege between August 10 and September 21, when Ecology rescinded the
16 August certification and issued a new one, Ecology and the Port engaged in private negotiations
17 to arrive at the September §401 certification conditions. Along with this, Appellants argue
18 neither party disclosed to the Board or ACC that such negotiations were taking place. The
19 Appellants contend, as a result of these actions, the only avenue open to the public was to appeal
20 the revised §401 decision. The Board does not find that the public has been excluded from the
21 process.

1 9. COASTAL ZONE MANAGEMENT CONSISTENCY

2 A certification with Washington’s Coastal Zone Management Program is required for
3 U.S. Army Corps of Engineers-authorized projects and other federally licensed or permitted
4 projects. Unlike other certifications issued by the State, the project proponent prepares the
5 Coastal Zone certification, which includes a project description, a brief assessment of the
6 impacts, and a statement that the project complies with the Coastal Zone Management Program.
7 Ecology reviews the certification and the proposed project for consistency with state
8 environmental requirements. If the project is consistent, Ecology concurs with the certification
9 in writing. The Port submitted a Coastal Zone Management Act Consistency Statement to
10 Ecology in December 1999. That Consistency Statement was supported by numerous documents
11 submitted during Ecology’s review, including Clean Air Act consistency statements from the
12 Governor, the Port and FAA Environmental Impact Statements and SEPA Addenda prepared for
13 the Airport’s projects, and information showing that the streams near the Airport are not
14 jurisdictional streams for purposes of the Washington Shoreline Management Act.

15 The Consistency Statement was also supported by information showing Shoreline
16 Management Act exemptions for the wetland mitigation site work proposed in the City of
17 Auburn, and numerous documents and studies regarding state water quality requirements.

18 At Ecology’s request, the Port resubmitted its CZMA Consistency Statement on May 22,
19 2000. That Consistency Statement was revised on January 22, 2001. The Port did not submit a
20 new CZMA application after August 10, 2001, and Ecology did not issue a new public notice
21 relating to the CZMA concurrency process.

1 When it issued the amended §401 certification on September 21, 2001, Ecology also
2 concurred with the Port's certification that the proposed Improvement Projects at the Airport are
3 consistent with Washington's approved Coastal Zone Management Program (CZMP). The
4 CZMP is set forth in *Managing Washington's Coast - Washington's Coastal Zone Management*
5 *Program*, Department of Ecology Publication Number 00-06-029 (February 2001). The
6 potentially relevant “enforceable policies” of the Washington CZMP include the Clean Air Act,
7 the Shoreline Management Act, State Environmental Policy Act, and the Clean Water Act.

8 Appellants did not raise any issues with respect to the Clean Air Act in its appeal of
9 Ecology’s §401 certification. In addition, prior to the hearing on the merits, the Board granted
10 summary judgment to the Port on the issue of SEPA compliance. The Board’s decision on that
11 issue is contained in a separate order from the Board. Based on the fact that the area streams are
12 not within SMA jurisdiction, and because the Port obtained SMA exemptions for wetland
13 mitigation from the City of Auburn, there are no SMA issues with respect to Ecology’s
14 acceptance of the Port’s CZMA Consistency Statement.

15 The only remaining issue under the CZMA is compliance with the Clean Water Act.
16 This Final Order addresses the issue of whether or not the Port’s proposed improvements at the
17 Airport comply with the Washington’s state water quality standards. The Port’s compliance with
18 the NPDES permit is deemed to constitute compliance with the Clean Water Act for those
19 discharges governed by that Permit. With respect to the other water quality standards applicable
20 to the Port’s proposed plans, those are addressed elsewhere in these findings and conclusions.

21 Any Conclusion of Law deemed to be a Finding of Fact is hereby adopted as such.

1 Based on the foregoing Findings of Fact, the Board enters the following:

2 V. CONCLUSIONS OF LAW

3 A. STANDARD OF REVIEW

4 The Board has jurisdiction over this appeal pursuant to RCW 43.21B.110. The Board
5 reviews the issues raised *de novo*. WAC 371-08-485(1). *U.S. Dep't of Energy v. Dep't of*
6 *Ecology*, PCHB No. 97-1157 (1998).

7 Under *de novo* review, the parties are allowed to present all relevant evidence at the
8 hearing on the merits in order to enable the Board to make an informed and final decision. The
9 *de novo* review standard does not require the Board to accord deference to Ecology's factual or
10 legal determination in the §401 certification. *Beuchel v. Dep't of Ecology*, 125 Wn.2d 196, 202,
11 884 P.2d 910 (1994). The Board has previously relied upon this *de novo* review authority for
12 purposes of reviewing a §401 certification and determining whether a project complies with
13 Washington water quality standards. *Barrish & Sorrenson Hydroelectric v. Dep't. of Ecology*,
14 PCHB No. 94-193 (1995), Conclusion 4 (“[t]he Board must make a decision based on the
15 proposed project as it is presented to the Board at this hearing”). However, *Barrish & Sorrenson*
16 *Hydroelectric* involved a project far smaller in scope and complexity than the proposal here and
17 the parties did not address, nor did the Board consider or analyze, how the Board's *de novo*
18 review of the §401 certifications is limited as “otherwise provided by law.” WAC 371-08-485.

19 In *Okanogan Highlands Alliance, et al. v. Department of Ecology*, PCHB Nos. 97-146,
20 97-182, 97-183, 97-186, and 99-019, the Board noted the late submission of information by
21 respondents as confirming the uncertainty precluding upholding the §401 there. However,

1 Okanogan *Highlands Alliance* did not directly address how the Clean Water Act’s requirement
2 of reasonable assurance prior to the state’s §401 certification, defines the scope of the Board’s *de*
3 *novο* review for an even more complex project such as the Third Runway. The question this
4 Board must now answer is, whether, consistent with the mandate for §401 certification in the
5 Clean Water Act, it reviews *de novo* Ecology’s Third Runway certification based upon the
6 record at the time Ecology issued the certification, or whether its review can be based upon that
7 record plus post-certification data, plans and reports. We conclude, because the Clean Water Act
8 and applicable federal regulations require Ecology to have reasonable assurance in order to issue
9 a legally defensible water quality certification, this Board’s *de novo* review of §401 certifications
10 must be based upon the record before Ecology at the time the certification is issued. To hold
11 otherwise would blur the distinction between Ecology and the Board’s statutory roles, ignore the
12 requirements of the Clean Water Act, and foster issuance of speculative and incomplete permits.

13 However, the Board may use that record to impose further conditions on the §401
14 certification. A finding of reasonable assurance can be made by the Board using the record
15 available to Ecology at the time Ecology made its decision. The Board may impose further
16 conditions to Ecology’s determination. Without these conditions, there would not be reasonable
17 assurance. In a previous §402 challenge, the Board imposed further conditions to the permit
18 issued by Ecology. See: *Marine Environmental Consortium, et al v. Ecology*, PCHB 96-257
19 (Final Findings of Fact and Conclusion of Law 1998); *San Juan County v. Natural Resources*, 28
20 Wn. App. 796, 800, 626 P.2d 995 (1981). Further, Ecology and the Board may rely on the
21 conditions, which require completion of post-certification studies, plans, and reports so long as

1 the implementation and outcome of those post-certification studies, plans, and reports meet the
2 same reasonable assurance test. This requires that the implementation and outcomes from these
3 post-certification studies, plans, and reports be set forth in sufficient detail in the §401
4 certification, including: the study requirements and expected outcomes, specific timeframes for
5 the initiation and completion of the future studies or plans, and provisions or conditions to assure
6 that the outcomes, if requiring changes, will be implemented.

7 The Washington Legislature designated the Department of Ecology (not the Board) as the
8 state water pollution control agency for purposes of the federal Clean Water Act. RCW
9 90.48.260. In so doing, it mandated Ecology to take all action necessary for Washington “to
10 meet the requirements” of the CWA. *Id.*; *Dept. of Ecology v. Public Utility Dist. No. 1 of*
11 *Jefferson County*, 121 Wn.2d 179, 187, 849 P.2d 646 (1993) (“[S]ection 401 required Ecology to
12 certify that the Elkhorn project would not degrade fish habitat and spawning in the
13 Dosewallips”) (emphasis added). Ecology’s role under Section 401 is to assure and certify
14 “compliance with state water quality standards.” *Dept. of Ecology*, 121 Wn.2d at 187.

15 In contrast, this Board was not established by the Legislature to do the work of Ecology,
16 but rather was to provide “uniform, independent review” of Ecology actions. *Martin Marietta*
17 *Aluminum v. Woodward*, 84 Wn.2d 329, 332-33, 525 P.2d 247 (1974). As this Board has
18 previously recognized, the Board “is wholly a creature of statute and thus the scope of our
19 reviewing authority is statutorily established.” *Tulalip Tribes of Washington v. State of*
20 *Washington*, PCHB No. 87-64 (1988), Order Granting Motion to Dismiss Issues Concerning
21 Tribal Treaty Rights at 2, *citing Human Rights Commission v Cheney School District*, 97 Wn. 2d

1 118, 641 P.2d 143 (1982). The Board has also recognized that “the reach of our reviewing
2 authority is governed by the substantive requirements of the acts under which permits,
3 certificates, or licenses are issued. No further power is expressed nor implied in our
4 jurisdictional grant.” *Id.*

5 In the context of the Clean Water Act and §401 certifications, the relevant information
6 upon which the Board must base its independent *de novo* review of Ecology’s action is the
7 information relied upon by Ecology, including explanations of that information as may be
8 offered as evidence to this Board. This is because, as explained more fully below, the Clean
9 Water Act and applicable federal regulations require Ecology to have reasonable assurance the
10 project will not result in a violation of state water quality standards when the agency certifies the
11 project pursuant to Section 401 of the Act. The very essence of a certification is at the time of
12 issuance “the state has reasonable assurance that there will be compliance with water quality
13 laws.” *Okanogan Highlands Alliance v. Ecology*, PCHB No. 97-146 (2000), Conclusion 63,
14 *citing Friends of the Earth v. Ecology*, PCHB No. 87-64 (1988).⁴ As a result, the Board’s *de*
15 *novo* review is necessarily bounded by the CWA as “otherwise provided by law.” WAC 371-08-
16 485.

20 ⁴ See Order Granting Stay at 4; 40 CFR §121.2(a)(3); *PUD No. 1 v. Washington Dept. of Ecology*, 511 U.S. 700,
21 712 (1994); See: 33 U.S.C. §1341(a)(1), (d); *OHA, supra*, Final Findings of Fact, Conclusions of Law and Order
(January 19, 2000), Conclusion Nos. 62-65.

1 Of course, because it does have independent *de novo* review authority, the Board is not
2 bound by Ecology’s determination of reasonable assurance. *See, e.g., C.R. Johnson, Inc. v. Dept.*
3 *of Ecology*, PCHB 00-0121 (2000).

4 While respondents Ecology and the Port acknowledge the *de novo* standard of review,
5 both argue Ecology’s certification is entitled to “great deference” by the Board, citing, among
6 other authorities, *Hillis v. Department of Ecology*, 131 Wn.2d 373, 396, 932 P.2d 139 (1997),
7 *Federated American Ins. Co. v. Marquardt*, 108 Wn.2d 651, 656, 741 P.2d 18 (1987) and *Kaiser*
8 *Aluminum v. Dept. of Ecology*, 32 Wn. App. 399, 404, 647 P.2d 551 (Div. 2 1982). None of
9 these cases support the proposition. Neither *Hillis* nor *Federated* involved Board review at all,
10 and in *Kaiser*, the court did not address Board deference to Ecology, but stated that an
11 interpretation “by the agency which promulgated the regulation initially and concurred in by the
12 Board, is entitled to great weight.” *Kaiser, supra*, at 404. The deference the respondents now
13 demand would be inconsistent with the Board’s independent role of reviewing the evidence
14 presented to Ecology to support the application. In any event, even if deference applied, it
15 would have its limits, since “an agency’s view of the statute will not be accorded deference if it
16 conflicts with the statute Ultimately it is for the court [or, in this case the Board] to
17 determine the meaning and purpose of a statute. *Postema* 142 Wn.2d at 77.

18 *De novo* means anew; afresh, a second time. *Black’s Law Dictionary*, 392 (5th ed. 1979).
19 To maintain our independence and the integrity of our role as a quasi-judicial body charged with
20 the obligation to adjudicate actions of the Department of Ecology, this Board will make its own
21

1 independent assessment of the relevant information relied upon by Ecology in granting or
2 denying a §401 certification.

3 B. BURDEN OF PROOF

4 WAC 371-08-485(2) provides:

5 The issuing agency shall have the burden of proof in cases involving
6 penalties or regulatory orders. In other cases, the appealing party shall
7 have the initial burden of proof.

8 Ecology's issuance of a §401 certification is similar to that of a permit decision and, as a
9 result, the burden of proof falls on the party challenging a certification. *See, e.g., Bowers v.*
10 *PCHB*, 103 Wn. App. 587, 597-99, 13 P.3d. 1076 (2000); *Port Townsend Paper Corp. v. Dep't*
11 *of Ecology*, PCHB No. 98-77 (1999).

12 As the appealing parties, ACC and CASE have the burden of proof. WAC 371-08-
13 485(2); *Friends of the Earth v. Ecology*, PCHB Nos. 87-63 and 87-64 (Final Findings of Fact,
14 Conclusions of Law and Order) (May 17, 1988) at Conclusion of Law IV. The reasonable
15 assurance test is met if the Board finds by a preponderance of the evidence that violations of
16 water quality standards are not, in fact, likely to occur. *Id.* at Conclusion of Law VI. A §401
17 certification must be based on a valid finding that "there is a reasonable assurance that the
18 activity will be conducted in a manner which will not violate applicable water quality standards."
19 40 CFR § 121.2(a)(3); *PUD No. 1 of Jefferson County v. Washington Dep't of Ecology*, 511 U.S.
20 700, 712, 114 S. Ct. 1900, 128 L. Ed. 2d 716 (1994).

21 In order to overturn a §401 certification, Appellants must establish by a preponderance of
the evidence that there is no reasonable assurance that the applicable provisions of the Clean

1 Water Act and state water quality standards will be complied with. *Friends of the Earth*, PCHB
2 No. 87-63. The preponderance of the evidence standard means the ACC must proffer more than
3 a guess or mere speculation that water quality standards will not be met by the project. *See*
4 *Friends of the Earth*, PCHB No. 87-63 at 28. “Preponderance of the evidence means evidence
5 that is more probably true than not true.” *In re Seago*, 82 Wn.2d 736, 746, 513 P.2d 831 (1973).
6 “‘Reasonable assurance’ means something is reasonably certain to occur. Something more than
7 a probability; mere speculation is not sufficient.” *Airport Communities Coalition v. Dept. of*
8 *Ecology*, PCHB No. 01-0160, Order Granting Motion to Stay. Thus, in the context of this
9 appeal, this Board must be persuaded it is more probably true than not Ecology did not have
10 reasonable certainty when it issued the §401 certification that the proposed project would
11 comply with applicable provisions of the Clean Water Act and the state water quality standards.

12 C. §401 CERTIFICATION AND REASONABLE ASSURANCE

13 A water quality certification is required of any applicant for a federal license or permit to
14 conduct any activity, which may result in any discharge into surface waters. This includes
15 discharge of dredge and fill material into water or wetlands. The federal agency is provided a
16 certification from the state the discharge complies with the discharge requirements of federal law
17 and the aquatic protection requirements of state law.

18 The §401 certification at issue in this case was issued pursuant to §401 of the Clean
19 Water Act, 33 U.S.C. §1341, which states:

20 Any applicant for a Federal license or permit to conduct any activity including,
21 but not limited to, the construction or operation of facilities, which may result in
any discharge into navigable waters, shall provide the licensing or permitting

1 agency a certification from the State in which the discharge originates or will
2 originate that any such discharge will comply with the applicable provisions of
1311, 1312, 1313, 1316, and 1317 of this Title.

3 In issuing the §401 certification, Ecology has certified the Port’s proposed construction
4 of the improvements at the Airport pursuant to a §404 permit will comply with applicable water
5 quality laws. A §401 certification means the state has reasonable assurance that there will be
6 compliance with water quality laws. *Okanogan Highlands Alliance v. Ecology*, PCHB No. 97-
7 146 et al. (Final Findings of Fact, Conclusions of Law and Order) (January 19, 2000).
8 Reasonable assurance requires “specific knowledge of the potential impacts from the
9 development and meaningful means of preventing and protecting against the adverse
10 consequences of the development.” *OHA*, at Conclusion 59.

11 As elaborated in more detail below, the Board concludes, as part of its reasonable
12 assurance, Ecology may rely on the Port’s NPDES permit and revisions made to that permit as
13 part of the adaptive management strategy employed in the administration of the permit.
14 Likewise, the Board concludes Ecology may incorporate appropriate §401 certification
15 conditions into the Port’s NPDES permit, thus allowing for future enforcement of those
16 conditions.

17 Pursuant to the enforcement authority granted to Ecology in Chap. 90.48 RCW, and by
18 incorporating certain of the conditions of the §401 certification into the Port’s NPDES permit,
19 Ecology has reasonable assurance the conditions in the §401 certification will continue beyond
20 the expiration of the §404 Permit. *See Protect the Peninsula’s Future et al v. Dept. of Ecology*,

1 PCHB No. 96-178 and 179 (Order granting summary judgment and dismissal) (approving §401
2 certification conditioning future discharge from newly constructed outfall on compliance with
3 revised NPDES permit and prohibiting discharge from such outfall until such revised permit was
4 issued).

5 The Board also concludes Ecology may impose conditions in the §401 certification
6 requiring preparation and submission of revised plans or require future monitoring. In addition,
7 Ecology may impose requirements to monitor actions required under the §401 certification as a
8 means of maintaining reasonable assurance after the §401 certification has been issued.

9 Pursuant to RCW 43.21B.110, this Board has jurisdiction to decide appeals of §401
10 certifications issued by the Department of Ecology. This appeal process is an integral part of the
11 State of Washington water pollution control laws. *Friends of the Earth*, PCHB No. 87-64,
12 Dissent at IX. The Board conducts its review of Ecology's §401 certifications with an eye
13 toward furthering the stated objectives of the Clean Water Act, 33 U.S.C. § 1251, *et. seq.*, and
14 the State of Washington Water Pollution Control Act, RCW 90.48.010 *et. seq.*

15 The objective of the Clean Water Act is "to restore and maintain the chemical, physical,
16 and biological integrity of the Nation's waters." 33 U.S.C. §1251(a). Consistent with the
17 objectives of the CWA, Washington State's legislative enacted policy is:

18 to maintain the highest possible standards to insure the purity of all waters of the state
19 consistent with public health and public enjoyment thereof, the propagation and
20 protection of wild life, birds, game, fish and other aquatic life, and the industrial
21 development of the state, and to that end require the use of all known available and
reasonable methods by industries and others to prevent and control the pollution of the
waters of the state of Washington. Consistent with this policy, the state of Washington

1 will exercise its powers, as fully and as effectively as possible, to retain and secure high
2 quality for all waters of the state.

3 RCW 90.48.010.

4 In keeping with the legislative intent of both the CWA and the State Water Pollution
5 Control Act, this Board will aggressively enforce the State's anti-degradation policy:

6 Waters of the state shall be of high quality. Regardless of the quality of the waters of the
7 state, all wastes and other materials and substances proposed for entry into said waters
8 shall be provided with all known, available, and reasonable methods of treatment prior to
9 entry. Notwithstanding that standards of quality established for the waters of the state
would not be violated, wastes and other materials in the substances shall not be allowed
to enter such waters which will reduce the existing quality thereof, except in those
situations where it is clear that overriding considerations of the public interest will be
served.

10 RCW 90.54.020(3)(b). The Board will invoke and enforce the state's anti-degradation policy "to
11 prevent a decline in existing water quality and to insure the application of 'all known, available
12 and reasonable methods' to the treatment of discharges." *Friends of the Earth*, PCHB No. 87-
13 64, Conclusion IX.

14 In the context of §401 certifications, the State's anti-degradation policy dictates
15 "reasonable assurance that any impacts to aquatic resources will be fully mitigated." *Airport*
16 *Communities Coalition v. Dept. of Ecology*, PCHB No. 01-0160, Order Granting Motion to Stay
17 at 4, *citing OHA, supra*.

18 D. SCOPE AND TIMING OF A §401 CERTIFICATION

19 Section 401 of the Clean Water Act requires an applicant for a federal permit for
20 construction, which will result in a discharge into navigable waters and wetlands, to obtain from
21 the state where the discharge will occur, a certification that the discharge will comply with

1 applicable water quality standards. 33 U.S.C. §1341(a). Under Section 401, Ecology has broad
2 authority to impose geographic, operational, and temporal limitations “on the project in general
3 to assure compliance with various provisions of the Clean Water Act and with ‘any other
4 appropriate requirement of State law.’” *PUD No.1 of Jefferson County v. Washington Dep’t of*
5 *Ecology*, 511 U.S. 700, 711-712, 114 S. Ct. 1900, 128 L. Ed. 2d 716 (1994). Section 401(d) of
6 the Act also authorizes the State to impose “additional conditions and limitations on the activity
7 as a whole once the threshold condition, the existence of a discharge, is satisfied.” *Id.* at 712
8 (emphasis added). This broad scope of Ecology’s authority comports with EPA regulations
9 expressly interpreting Section 401 as requiring the State to find that “there is a reasonable
10 assurance that the activity will be conducted in a manner which will not violate applicable water
11 quality standards.” *Id.*, citing 40 CFR §121.2(a)(3) (1993) (emphasis added).

12 Ecology itself has consistently and broadly defined the scope of its §401 certifications. In
13 reviewing an application for a §401 certification, the state can consider the water quality impacts
14 of the proposed project, not just those of the anticipated discharge. *PUD No. 1 of Jefferson*
15 *County v. Washington Dep’t of Ecology*, 511 U.S.700, at 710-11, 114 S. Ct. 1900, 128 L. Ed. 2d
16 716. (1994). The conditions in a §401 certification then become conditions of the federal license
17 or permit. 33 U.S.C. §1341(d).

18 In this case, the Port is seeking a §404 Permit from the Corps and a §401 certification
19 from Ecology to construct the Airport improvements identified in its JARPA Application. The
20 §404 Permit and, therefore, the §401 certification, have a limited life. *See* Corps Public Notice;
21 §401 certification Condition B(2).

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

4 In addition, consistent with the conclusions the Board has already outlined above, where
5 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
7 of those conditions. Conversely, Ecology may rely on the Port's NPDES permit and adaptive
8 management to assure the most current BMPs are being employed to ensure compliance with
9 water quality standards.

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

17 Moreover, Section 401 of the CWA explicitly provides that the scope of a §401
18 certification covers both construction activity and long-term operations of the facility. 33 U.S.C.
19 §1341(a). Thus, any consideration of whether the project will comply with applicable water
20 quality standards must consider not only short-term construction impacts, but also the potential
21 long-term impacts of operating the facility in the long-term.

1 The scope of a §401 certification is based upon both federal and state water quality laws.
2 Under Section 401 of the CWA, “[t]he applicable provisions include Sections 301, 302, 303, 306
3 and 307 of the Clean Water Act, which deal with both effluent standards for discrete discharges
4 and state-created water quality standards for receiving waters.” *Friends of the Earth*, PCHB No.
5 87-64, Conclusion IV. State “water quality standards are composed of three elements: numeric
6 criteria for conventional pollutants and toxic substances, WAC 173-201A-030(1)(c) and WAC
7 173-201A-040; narrative criteria protecting beneficial uses of state waters, WAC 173-201A-
8 030(1)(a) and (b); and an anti-degradation standard. RCW 90.54.020(3) and WAC 173-201A-
9 070. Washington’s water quality standards include procedural and substantive requirements for
10 determining compliance.” *Airport Communities Coalition v. Dept. of Ecology*, PCHB No. 01-
11 0160, Order Granting Motion to Stay at 5.

12 Section 401(d) of the Clean Water Act specifically provides for the inclusion in a §401
13 certification of conditions requiring future monitoring necessary to assure the applicant complies
14 with applicable water quality standards and any other appropriate requirement of state law.
15 33 U.S.C. § 1341(d). The §401 certification issued to the Port includes monitoring conditions in
16 compliance with §401(d).

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

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

7 E. SPECIFIC CONCLUSIONS OF LAW

8 1. WATER QUALITY AND STORMWATER

9 Appellants argue Ecology violated the Clean Water Act by not having reasonable
10 assurance when it issued the §401 certification on August 10, 2001, or when it re-issued the
11 certification on September 21, 2001. Respondents contend any uncertainty regarding the
12 project’s ability to comply with water quality standards is sufficiently diminished by the
13 conditions in the §401 certification requiring the Port to submit post-certification data, plans, and
14 reports even though Ecology has not had an opportunity to review and approve the post-
15 certification information.

16 The Clean Water Act and the Board’s previous decisions regarding what is required of
17 Ecology before it can issue a certification pursuant to §401 are unequivocal: Ecology must have
18 reasonable assurance the project will not result in a violation of state water quality standards at the
19 time Ecology certifies the project pursuant to Section 401 of the Clean Water Act. The very essence
20 of a certification is that at the time of issuance “the state has reasonable assurance that there will be
21

1 compliance with water quality laws.” *OHA*, supra, Conclusion 63 (emphasis added) *citing Friends of*
2 *the Earth v. Ecology*, PCHB No. 87-64 (1988).⁵

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

9 Ecology has issued a policy defining how decisions will be made for §401 certifications
10 sought by applicants are already subject to an existing NPDES permit. *WQP Policy 1-22*,
11 effective March 31, 2000. This policy states, where an applicant is already subject to an NPDES
12 permit (a §402 permit), water quality standards for stormwater discharges governed by NPDES
13 permit are to be addressed through the §402 permitting process. The policy further provides
14 “[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
16 complementary manner.” *Id.* at 2.

17 The Board concludes it was reasonable for Ecology to rely on the Port’s NPDES permit
18 and Ecology’s NPDES permitting process as one of the bases for providing reasonable assurance

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20 ⁵ See Order Granting Stay at 4; 40 CFR §121.2(a)(3); *PUD No. 1 v. Washington Dept. of Ecology*, 511 U.S. 700,
21 712 (1994); See: 33 U.S.C. §1341(a)(1), (d); *Okanogan Highlands Alliance et al. v Department of Ecology and*

1 of compliance with state water quality standards when issuing a water quality certification under
2 §401 of the Clean Water Act. In the §401 certification, Ecology has also gone beyond the
3 requirements of the NPDES permit in several areas, such as requiring retrofit of existing
4 stormwater facilities, requiring numeric fill criteria for imported fill, and requiring a site-specific
5 WER study to be completed, and prohibiting any discharge from operations of the Port's new
6 facilities, until that study is approved and appropriate limitations and monitoring requirements
7 are established in the Port's NPDES permit. The Board concludes Ecology has not placed sole
8 reliance on the NPDES permit, but has instead utilized the §401 certification to require measures
9 not currently specified in the Port's NPDES permit.

10 In order to issue an NPDES permit to the Port, Ecology concluded stormwater discharges
11 from the Airport would comply with applicable water quality standards under WAC 173-201A-
12 030.

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

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20
21 *Battle Mountain Gold Company*, PCHB Nos. 97-146, 97-182, 97-183, 97-186, and 99-019, Final Findings of Fact,
Conclusions of Law and Order (January 19, 2000), Conclusion Nos. 62-65 ("OHA").

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

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

11 Ecology's NPDES regulations require the same result. WAC 173-220-130(1)(a) and (b)
12 require that any NPDES permit apply and ensure compliance with all known, available, and
13 reasonable methods of treatment, including effluent limitations established under §§301, 302,
14 306, and 307 of the CWA and any more stringent limitations, including those necessary to meet
15 water quality standards. WAC 173-201A-160(3) states that stormwater discharges shall "comply
16 with the water quality standards."

17 The purpose of both §401 and §402 is to ensure compliance with water quality
18 requirements, including water quality standards. As a result, Ecology is entitled to rely on the
19 Port's current and future NPDES permits to provide that reasonable assurance stormwater
20 discharges will meet the requirements of §401, since the same water quality standards apply for
21 both NPDES permits and §401 certifications.

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

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

9 As the state proceeds to implement stormwater permits, it is entitled to a
10 presumption that its regulatory approach is consistent with the anti-degradation policy.
11 This permit is thus part of a regulatory program that is progressing and refining
12 stormwater control measures. The department is not required to have perfect knowledge
13 of the outcome of stormwater regulation before it proceeds. As one court stated, “this
14 ambitious statute is not hospitable to the concept that the appropriate response to a
15 difficult pollution problem is not to try all.” *Save Lake Sammamish*, PCHB 95-141, at 9
16 (1996) (quoting *NRDC v. Costle*, 568 F.2d 1369, 1380 (D.C. Cir. 1977) (“When numeric
17 effluent limitations are infeasible, EPA may issue permits with conditions designed to
18 reduce the level of effluent discharges to acceptable levels”).

19 The Board acknowledges that Ecology has recently issued one NPDES permit in which
20 numeric effluent limitations were imposed on stormwater discharges, i.e., the Cascade Pole
21 Lumber Company NPDES Permit. This decision, however, has not been appealed to us, and

1 therefore is not binding on the Board. *See Buechel v. Department of Ecology*, 125 Wn.2d 196,
2 210-11, 884 P.2d 910 (1994) (Shorelines Hearings Board affirmed in ruling it was not bound by
3 local government shoreline decisions, inconsistent with a local shoreline master program, which
4 decisions had not been appealed to the Board). The Board is not persuaded that the imposition
5 of numeric water quality standards in the current §401 certification is necessary in order to have
6 reasonable assurance of compliance with state water-quality standards. After the site-specific
7 study required by the §401 certification (and prior to any discharge from operations on the new
8 impervious surfaces at the Airport), Ecology will establish appropriate limitations and
9 monitoring requirements for zinc and copper. The evidence at the hearing showed adequate
10 mitigating measures were available should they be required to meet those limits.

11 The Board does find, however, that certain aspects of the BMPs and monitoring require
12 further conditioning by the Board. Those further conditions are set forth in the Findings of Fact and
13 in the summary of further conditions at the end of this opinion.

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

1 The development of site-specific water quality criteria for metals using a water effects
2 ratio is specifically allowed under WAC 173-201A-040(3), which states, “The department may
3 revise [water quality] criteria on a state-wide or waterbody-specific basis as needed to protect
4 aquatic life occurring in waters of the state and to increase the technical accuracy of the criteria
5 being applied.” WAC 173-201A-040(3)(dd) states “[m]etals criteria may be adjusted on a site-
6 specific basis when data are made available to the department clearly demonstrating the effective
7 use of the water effects ratio approach established by USEPA, as generally guided by the
8 procedures in USEPA Water Quality Standards Handbook, December 1983, as supplemented or
9 replaced.” The Board concludes, given the difficulty of regulating stormwater and the multiple
10 contributors to stormwater pollutants in the area streams, the WER study condition is appropriate
11 when used to make more restrictive (lower) the water quality criterion. To rule otherwise, under
12 the facts of this case, would be contrary to the clear objectives of the state and federal water
13 pollution laws of eliminating pollution to the nations waters from all discharges, including those
14 of stormwater. As conditioned by the Board, the WER study will provide reasonable assurance
15 that the improvements at the Airport will meet state water quality standards.

16 The presence of known and existing contaminants at the Airport and within the embankment
17 fill make monitoring of surface and groundwater an imperative for reasonable assurance. Ecology’s
18 own toxics cleanup coordinator testified “the duration should be indefinite; as long as the
19 contaminants are there, monitoring should continue.” Where the condition began running in
20 September and construction of the proposed project is expected to last four years, a monitoring plan,
21 which allows the Port to cease monitoring for contaminants whose presence is acknowledged is

1 insufficient. Therefore, as noted earlier, the Board further conditions the §401 certification to extend
2 the period of monitoring at least eight years from the conclusion of construction and further if the
3 monitoring reveals exceedances.

4 The §401 certification does not authorize a mixing zone without compliance with
5 procedural and substantive requirements of the state water quality standards at WAC 173-201A-
6 100. Condition A.2 in the §401 certification recognizes the existing mixing zone for turbidity
7 afforded to in-water and shoreline construction under the water quality standards. WAC 173-
8 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
10 each in-water or shoreline construction project. The plan must include provisions to: 1) ensure
11 that qualified Port staff or contractors are on-site during construction to implement the plan, 2)
12 the plan minimizes any mixing zone in accordance with WAC 173-201A-100(4) and (6), 3)
13 corrective action is taken if the numeric turbidity standard is not being met at the boundary of the
14 mixing zone, and 4) the Port submits monitoring reports to Ecology.

15 Under the §401 certification, any construction mixing zone would presumably be 100
16 feet downstream 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 prove that these
19 conditions are unlawful, or otherwise fail to fully provide reasonable assurance that in-water and
20 shoreline construction will be in compliance with water quality standards.

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

9 The purpose of the dam safety regulations is to “provide for the design, construction,
10 operation, maintenance, and supervision of dams in a manner consistent with accepted
11 engineering practice.” WAC 173-175-010. The term “dam” is broadly defined under the
12 regulations and includes “any artificial barrier and/or any controlling works, together with
13 appurtenant works that can or does impound or divert water.” WAC 173-175-030. As the
14 regulations reflect, they are specifically concerned with storage of water in impoundments,
15 which could result in failure and release:

16 Dams which can impound a volume of 10 acre feet or more of water as measured
17 at the dam crest elevation. The 10-acre-feet threshold applies to dams which can
18 impound water on either an intermittent or permanent basis. Only water that can
19 be stored above natural ground level and which could be released by a failure of
20 the dam is considered in assessing the storage volume. The 10-acre-feet threshold
21 applies to any dam which can impound water of any quality, or which contains
any substance in combination with sufficient water to exist in a liquid or slurry
state at the time of initial containment.

WAC 173-175-020(1).

1 Many of the proposed stormwater management facilities exceed the 10-acre-foot threshold—
2 some by several multiples—and will be in proximity to project-area streams.

3 In *Friends of the Earth v. Ecology*, PCHB Nos. 87-63 and 87-64 (1988), Appellants argued
4 the Navy proposal (and its §401 certification) was unlawful because the Navy had not obtained an oil
5 discharge permit pursuant to RCW 90.48.343. The Board declined to issue a declaratory ruling on the
6 applicability of a legal provision which is distinct from the water quality certification approval
7 process. In the case before us, the §401 certification is appropriately conditioned to require that dam
8 safety permits be obtained, as necessary. Those permits do not need to be obtained in order for
9 reasonable assurance to exist. Failure to obtain those permits, if required, is a violation of the terms of
10 the §401 and can be addressed at some future time.

11 There is also reasonable assurance water quality standards will not be violated because
12 Ecology appropriately sized the stormwater facilities for stormwater collection purposes.
13 Ecology also required, if any of the stormwater facilities change during final design, the Port is
14 to provide Ecology with those changes for its review and written approval. Condition G is an
15 appropriate component of Ecology’s reasonable assurance determination.

16 As set forth above and pursuant to the requirements of the Clean Water Act, the Board’s
17 independent *de novo* review of Ecology’s §401 certification is based upon the record relied upon
18 by Ecology to conclude it had reasonable assurance that the proposed project would comply with
19 applicable water quality laws. Respondents argue that Ecology’s reasonable assurance is based,
20 in part, upon conditions in the §401 certification, which allow the Port to submit additional data,
21 plans, and reports on the assumption they will satisfactorily resolve outstanding uncertainties.

1 Consistent with our *de novo* review as defined by the Clean Water Act and as a matter of simple
2 logic, we conclude post-certification data, reports, and plans that were not in being at the time of
3 issuance of the certification and which at the time of certification had yet to be reviewed,
4 considered, and approved by Ecology can form the basis of Ecology's determination of
5 reasonable assurance. This does not mean Ecology and other applicants are free to build a case
6 while a §401 certification is on appeal to this Board. This would leave §401 certifications as
7 moving targets and make Board review of such moving targets unmanageable.

8 This Board has previously held that Ecology cannot have reasonable assurance for §401
9 certifications where it "defers the entire analysis to the NPDES permit application process":

10 That would be tantamount to writing a blank check for extensive construction related to
11 the mine without ever knowing whether it is feasible to comply with water quality laws
12 in its operation. It would be in derogation of section 401 and defy common sense to
13 proceed without reasonable assurance that discharges can be regulated under an NPDES
14 permit.

15 *OHA*, Order Denying Summary Judgment on Waste Rock Discharges at 2, 1999.

16 However, as noted above, if the post-certification actions meet the reasonable assurance
17 test (reasonably certain to occur), Ecology and this Board may rely on those future occurrences
18 to certify that the proposed project will comply with applicable water quality laws.

19 Under Washington law, BMPs are not a substitute for strict compliance with water
20 quality standards, but rather must be applied so as *to assure compliance* with water quality
21 standards. Under Washington's water quality standards, activities causing pollution of
stormwater "shall be conducted so as to comply with the water quality standards." WAC 173-
201A-160(3)(d). This is particularly so in the context of a §401 certification.

1 While BMPs are the "primary means" to be used for requiring compliance with the
2 standards, the standards further require the "consideration and control procedures" in WAC 173-
3 201A-160(3)(b) and (c) "apply to the control of pollutants in storm water." Subpart 160(3)(b)
4 further requires:

5 Best management practices shall be applied so that when all appropriate
6 combinations of individual best management practices are utilized, violation of
7 water quality criteria shall be prevented. * * * Best management practices
8 established in permits, orders, rules, or directives of the department shall be
9 reviewed and modified, as appropriate, so as to achieve compliance with water
10 quality criteria.

11 WAC 173-201A-160(3)(b) (emphasis added). On the basis of these provisions of the water
12 quality standards, we conclude where BMPs are adequate to assure compliance with water
13 quality standards, reliance on a BMP-based permit can satisfy the requirements of CWA
14 §401(d). The Board, as noted earlier, has conditioned the §401 certification to require selection
15 of BMPs from the enhanced list.

16 2. LOW FLOW

17 In Washington, projects that impact stream flows and instream uses are subject to special
18 scrutiny in the permitting process. Class AA streams, such as Des Moines, Miller, and Walker
19 Creeks, "shall markedly and uniformly exceed the requirements" for designated characteristic
20 uses, including fish migration, spawning and rearing, recreational use, including primary human
21 contact, and aesthetic use. WAC 173-201A-030(1).

1 To obtain §401 certification, the Port must demonstrate that legal and practical means were
2 (and are) in place to permanently mitigate low flow impacts. *Ecology v. PUD No. 1 of Jefferson*
3 *County*, 121 Wn.2d 179, 185-192, 849 P.2d 656 (1993), *aff'd*, 511 U.S. 700 (1994).

4 Ecology's §401 certification provides that reasonable assurance low flow impacts will be
5 mitigated because it requires the Port to implement and revise the July 2001 Low Flow Plan.
6 The Port is continuing to refine the modeling, which forms the basis of the plan in response to
7 ongoing review by Ecology's consultant. This iterative process of continuous review by
8 technical experts and further refinement by the Port in response to that review, provides
9 reasonable assurance that low flow impacts will be mitigated.

10 The Board concludes the Port's low flow mitigation plan is sufficient to provide Ecology
11 with reasonable assurance that low flow impacts from the MPU improvements will be mitigated.
12 The evidence indicated the models used to predict low flow impacts and to establish the
13 mitigation levels for those impacts were appropriately calibrated. In addition, the weight of the
14 evidence demonstrated that the Port's low flow mitigation plan was feasible and constructable.

15 The Board concludes the model preparation and calibration is an iterative process and, as
16 such, there is reasonable assurance that low flow impacts could be effectively mitigated,
17 notwithstanding the need for some additional fine-tuning and refinements to the low flow
18 models. Moreover, should the actual performance of the project require additional low flow
19 mitigation, the required monitoring will reveal this fact and the testimony showed that additional
20 mitigation is feasible.

1 As noted above, the Board imposed a further condition to set the threshold flow for Des
2 Moines Creek at 1 CFS, below which mitigation will be required.

3 3. WATER RIGHTS

4 All waters of the state are public waters and subject to appropriation for beneficial use
5 under the processes set forth in the state Water Code. RCW 90.03.010; RCW 90.03.250. All
6 uses of state waters require a permit. RCW 90.03.010; 90.03.250. Two exceptions to the water
7 code permitting requirements do exist, but neither apply here. RCW 90.44.050 (small domestic
8 wells exempt) and RCW 90.03.252; 90.46.150 (reclaimed wastewater exempt).

9 Stormwater is a public water resource and therefore constitutes water of the state. The
10 capture of stormwater absent beneficial use does not require a water right. However, the capture
11 of stormwater, under these circumstances, is a beneficial use, as defined by the water code, and
12 does require a water right.

13 Beneficial use is a term of art under the water code and encompasses two principal
14 elements of a water right: purpose and quantity. *Grimes v. Ecology*, 121 Wn.2d 459, 468, 852
15 P.2d 1044 (1993). When referring to purpose, beneficial use is defined to mean productive, “end
16 use” of water. The legislature has defined beneficial uses of water to include “fish and wildlife
17 maintenance and enhancement . . . and preservation of environmental and aesthetic values, and
18 all other uses compatible with the enjoyment of the public waters of the state[.]” RCW
19 90.54.020(1); see also RCW 90.14.031(2).

20 Flow augmentation and the use of water for stream flow mitigation are beneficial uses of
21 water for which a water right is required. See, *Conifer Ridge Enterprises v. Ecology*, PCHB No.

1 96-11 (1998); *Okanogan Highlands Alliance v. Ecology*, PCHB No. 97-146, *et seq.*, Summary
2 Judgment on Stipulated Issues Nos. 20, 21 and 22 (10/23/98); *see also Bevan v. Ecology*, PCHB
3 No. 48 (1972).

4 The facts presented here are unlike familiar instances in which stormwater is not
5 purposefully captured to be put to a beneficial use. Several of the Respondents' experts
6 acknowledged this distinction, conceding they had never seen a plan like that proposed by the
7 Port included in a stormwater management plan. Further, low flow augmentation as proposed by
8 the Port contains all the classic elements of a water right, including instantaneous and annual
9 quantities and season of use. RCW 90.03.260, .290; *see Ecology v. Theodoratus*, 135 Wn.2d
10 582, 957 P.2d 1241 (1998).

11 Here, where the capture is for a specific beneficial purpose, and a purpose that must be
12 maintained in perpetuity, the basic principles of water law enumerated above govern. Capture of
13 stormwater for use as low flow augmentation requires a water right because it is materially
14 different under the law from familiar stormwater management activities. Stormwater infiltration
15 facilities *per se* do not fall within this rule. Although such facilities may as an incident of their
16 function enhance base flows, they are not purposefully designed—and required—to create an
17 instream flow right in perpetuity.

18 The diversion and impoundment system combined with the subsequent application of
19 water to a beneficial use takes the Port's plan beyond simple "management" of stormwater to an
20 appropriation triggering water code requirements. In doing so, no conflict arises between
21 stormwater management goals, e.g., RCW 90.54.020(11) and the permitting requirements of the

1 state Water Code, Chapter 90.03 RCW. It is possible to manage and use water at the same time;
2 stormwater management and water code requirements are not mutually exclusive.

3 The Water Code is intended to be a complete system for the distribution and regulation of
4 the waters of the state. Neither the Board nor Ecology can create an exemption in the water code
5 that is not expressly set forth by the legislature. *See Kim v. Ecology*, PCHB No. 98-213, Order
6 on Summary Judgment (1999).

7 As noted earlier, the low flow plan is not the establishment of a minimum flow in the creek
8 for its entire length. Rather, it is the establishment of a mitigation amount of flow, which must be
9 present at a particular point at the edge of the project area.

10 The water right will give the state clear enforcement authority, rather than relying on the
11 inclusion of a condition in the 404 permit with enforcement by the Corps, whose usual duties do not
12 include regulating or controlling water quantity.

13 In the Okanogan Highlands, the Board ruled “[w]ater right changes should be issued to clearly
14 record the right and priority of water necessary to implement the [low flow mitigation plan].”
15 *Okanogan Highlands Alliance v. Ecology*, PCHB Nos. 97-146 *et al.* (Summary Judgment on
16 Stipulated Issues Nos. 20, 21 and 22) (October 23, 1998). The same need exists here to assure the
17 perpetual nature of the mitigation.

18 Appellants have shown, absent a water right, the Port cannot demonstrate that legal means are
19 in place to permanently mitigate the low flow impacts of the Third Runway Project. Therefore, the
20 Board further conditions the §401 certification to require the Port to obtain a water right. With this
21

1 further condition, the Port has shown that reasonable assurance water quality standards will not be
2 violated.

3 Finally, the closure of Miller and Des Moines Creeks are only for consumptive rights. The
4 use of the water here is not consumptive and therefore not excluded by the regulatory closure.

5 Ecology does not need the Port to receive the water right to find reasonable assurance.
6 Rather, much like the Dam Safety condition, the Port must obtain the water right before any beneficial
7 use of the water may be made.

8 The concern raised of the potential for Miller and Des Moines Creek to be open to further
9 consumptive appropriation in the future is speculative, and thus the Board does not find that it impairs
10 the ability of Ecology to render a reasonable assurance determination.

11 Appellants also argue that the Port should obtain an instream flow right, which would
12 prevent withdrawals downstream from the point of discharge, protecting the discharged water
13 from that point to the mouth of the streams where they enter Puget Sound. This argument
14 assumes the Port is required to protect the mitigation water after it has been released to the
15 stream. The §401 certification does not require this, and we conclude such a requirement would
16 exceed the reach of §401. Under §401, the Port must mitigate the impacts of its own project, not
17 impacts caused by activities other than its project. The Port will mitigate the impacts of the
18 improvements at the Airport by discharging water at the locations and in the amounts it would
19 have been discharged if the project were never built. The Port is not required to protect the
20 water after discharge any more than it is currently required, under predevelopment conditions, to
21 protect water that discharges naturally to the stream.

1 Moreover, a private water right to maintain instream flow is not recognized under
2 Washington law. In Washington, instream flows are recognized as beneficial uses, but the right
3 to establish instream flows rests exclusively with Ecology. RCW 90.03.247. When an instream
4 flow is created, it is a right held by the state and not by an individual permittee. *Id.*; *see also*
5 RCW 90.42.040 (requiring trust water rights to be held by the state).

6 In other Western states, the existence of such an “exclusive” process has led the courts to
7 conclude that private parties may not appropriate water for instream flows, because to do so
8 would be contrary to the statutory scheme. A. Dan Tarlock, *Law of Water Rights and Resources*,
9 §5.07(3), 5-35 (1996); 2 *Waters and Water Rights* § 13.05(a) (2001). *Bevan v. Department of*
10 *Ecology*, PCHB No. 48 (1972) is an early PCHB decision ruling an applicant could obtain a right
11 to a certain flow in surface water to support fish propagation research. Even in that decision, the
12 Board was clear that its ruling was “*sui generis*” and “not in any sense the establishment of a
13 minimum flow by private action.”

14 We therefore conclude that a private instream flow right is not available to the Port, and
15 is not necessary to provide reasonable assurance.

16 In sum, we conclude that a water right is necessary here to implement the low flow plan
17 and thus is necessary to provide reasonable assurance that water quality standards will be met.

18 4. FILL CRITERIA, EMBANKMENT AND MSE WALL

19 For there to be reasonable assurance the Third Runway project will comply with
20 applicable water quality standards, there must be reasonable assurance that surface water run-off
21 from the embankment and water flowing through and out of the drainage layer will not degrade

1 the Class AA ratings of Des Moines, Miller, and Walker Creeks and will not result in violation
2 of Washington’s toxic substance water quality standard. For Class AA waters, “water quality of
3 this class shall markedly and uniformly exceed the requirements for all or substantially all uses.”

4 WAC 173-201A-030(1)(a). Washington’s toxic substances water quality standard states:

5 Toxic substances shall not be introduced above natural background levels in waters of the
6 state which have the potential either singularly or cumulatively to adversely affect
7 characteristic water uses, cause acute or chronic toxicity to the most sensitive aquatic
8 biota dependent upon those waters, or adversely affect public health, as determined by
9 the Department.

10 WAC 173-201A-040(1); *see also* WAC 173-201A-030(1)(c)(vii).

11 It is undisputed that absent appropriate conditions there is a risk that contaminants in the fill
12 could cause violations of groundwater or surface water standards. For these reasons, as noted above,
13 the Board further conditioned the §401 certification by the modification of the fill criteria.

14 5. GROUNDWATER

15 The Board concludes there is reasonable assurance that construction of the proposed
16 improvements at the Airport will not cause contaminated groundwater beneath the AOMA to
17 migrate to the Third Runway area and discharge in violation of applicable water quality
18 standards. The Board concludes, for purposes of determining whether there is reasonable
19 assurance, that the Port does not need to complete the entire groundwater study set forth in the
20 MTCA Agreed Order. Sufficient information is available, based on the work performed to-date,
21 to conclude that the contaminated groundwater that is the subject of the MTCA order is confined
to the AOMA, and construction of the Third Runway will not result in any significant migration.

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

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

20 6. WETLANDS

1 The purpose of water quality standards is to prevent water quality from falling below
2 acceptable levels. *PUD No. 1 of Jefferson County, et al., v. Washington Department of Ecology,*
3 *et al.*, 511 U.S. 700, 704, (1994), 114 S. Ct. 1900, 128 L. Ed. 2d 716 (1994). Waters of the state
4 include “lakes, rivers, ponds, streams, inland waters, salt waters, *wetlands*, and all other surface
5 waters of the state and water courses within the jurisdiction of the State of Washington.” WAC
6 173-201A-020 (emphasis added). Thus, wetlands are waters of the state protected by the state’s
7 water quality standards. For there to be reasonable assurance the Port’s Third Runway proposal
8 complies with water quality standards, there must be reasonable assurance that impacts to
9 wetlands will be mitigated in a manner consistent with Washington State’s anti-degradation
10 policy:

11 Existing beneficial uses shall be maintained and protected and no further
12 degradation which would interfere with or become injurious to existing beneficial
uses shall be allowed.

13 WAC 173-201A-070(1). The anti-degradation policy as applied to wetlands mandates that
14 impacts be avoided, minimized, and compensated. *Okanogan Highlands Alliance v. Dept. of*
15 *Ecology*, PCHB No. 97-146, 97-182, 97-183, 97-186, 99-014 (2000) at Conclusion of Law 67.
16 Ecology’s own guidelines under these standards provide:

17 the primary means for protecting water quality in wetlands is to implement the
18 anti-degradation section of the water quality standards. The anti-degradation
19 policy in the water quality standards establishes the bottom line for water quality
20 protection in Washington’s waters: ‘existing beneficial uses shall be maintained
21 and protected and no further degradation which would interfere with or become
injurious to beneficial uses shall be allowed.’

1 Water Quality Guidelines for Wetlands, Dept. of Ecology Publication No. 96-06 (April 6, 1996).

2 In applying the anti-degradation policy to wetlands, the Board has explained:

3 the anti-degradation policy is expressed in terms of a goal that there be no net loss
4 of wetlands. In regulating activities impacting wetlands the Department requires
a staged analysis and mitigation ratio.

5 *Okanogan Highlands, supra*, at Conclusion 66 (citing *O'Hagen v. DOE*, PCHB No. 95-25
6 (1995). Here, the Port's proposal does not comply with the anti-degradation standard because it
7 adequately compensates for or replaces lost resources.

8 The NRMP's wetland mitigation proposal provides appropriate ratios for mitigating
9 impacts, except as noted earlier for buffers, for the surface of Lora Lake and for preservation.

10 The Port's NRMP outlines the mitigation taking place both on-site (in the sub-basins
11 adjacent to the Airport) and off-site (at a 65-acre site in Auburn). The NRMP provides
12 mitigation, which does not meet Ecology's 2:1 mitigation target for the project.

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

18 Ecology has established mitigation credit ratios as tools to be used to determine when
19 mitigation adequately compensates for wetland impacts. The mitigation credit ratios are not
20 requirements, and are not intended to be rigidly applied. Rather, credit ratios are "general
21 guidelines" and recommendations, which are intended to be used with flexibility and best

1 professional judgment, taking into account the replacement and/or improvement in wetland
2 functions, as well as the likelihood of success of the proposed mitigation plan. Here, Ecology
3 did not apply the mitigation ratio guidance documents in an appropriate manner. Ecology erred
4 in using upland buffers to mitigate for wetland impacts, counting lake surface area, and allowing
5 preservation of areas already protected under existing state laws and regulations, to be counted
6 as mitigation.

7 Washington law specifically allows out-of-basin mitigation. RCW 90.74.020 (for public
8 infrastructure projects, “the departments of ecology and fish and wildlife may not limit the scope
9 of options in a mitigation plan to areas on or near the project site, or to habitat types of the same
10 type as contained on the project site”). This is consistent with the requirements of the Corps.
11 *See* 33 C.F.R 320(r) at n.1. Off-site mitigation is also consistent with Ecology’s guidance on
12 wetland mitigation. However, out-of-basin mitigation should occur only after all reasonable in-
13 basin options have been evaluated. Acceptable reasons for choosing out-of-basin options
14 include whether available options in-basin are sustainable and/or in-basin opportunities conflict
15 with important public health or safety policies, as here with the need to minimize bird-strike
16 potentials at the airport.

17 The evidence presented at the trial showed the Port was somewhat limited in its ability to
18 create new wetlands in-basin due to the FAA’s requirement forbidding the creation of new
19 wetlands within 10,000 feet of a runway. Under FAA rules, wildlife attractants, such as
20 wetlands, may be sited no closer than 10,000 feet from turbine aircraft movement areas. The
21 FAA imposed this requirement as a condition of its 1997 Record of Decision approving the new

1 Third Runway. With the exceptions noted above and in consideration of the FAA requirement
2 the Port and Ecology worked to devise a mitigation plan, which replaces all impacted wetland
3 functions in the impacted basin. In addition, the Port is creating high quality wetlands at the 65-
4 acre Auburn site, which includes open water for waterfowl habitat.

5 The Board also concludes the Port's functional assessment of wetlands was sufficient to
6 provide Ecology with reasonable assurance. The Board finds use of WFAM was not necessary,
7 based on the fact WFAM does not apply to sloped wetlands, and would therefore be applicable
8 to only 23% of the wetlands on site.

9 In sum, the Board concludes the Port's proposed wetland mitigation plan, as outlined in
10 the NRMP, and as further conditioned by the Board, provides reasonable assurance there will be
11 no loss of wetland functions and no violation of water quality standards as a result of the wetland
12 fill, stream alteration, or wetland mitigation activities associated with the construction of the
13 improvements at the Airport.

14 7. MONITORING AND ADAPTIVE MANAGEMENT

15 Consistent with its Findings as outlined above and with its prior rulings, the Board
16 concludes both Ecology and the Board may rely on adaptive management processes, including
17 post-certification studies, plans, and reports in making a determination of whether reasonable
18 assurance exists. The Board has taken great care, in creating additional conditions governing
19 monitoring, to ensure the ultimate goal of adaptive management-based processes is that they lead
20 to specifically enforceable requirements in compliance with state water quality standards. This
21 is the overriding principle that shall govern these processes. Adaptive management shall not be

1 used to defer or delay implementation of state water quality standards, but rather may be used
2 when information or technology is unknown or uncertain

3 The Board also concludes Ecology may impose appropriate conditions in the §401
4 certification that require submission of revised plans or the requirements for future monitoring,
5 and Ecology’s conditions, as further conditioned by the Board, were appropriate in this case.

6 In addition, Ecology may require monitoring of actions required by conditions to the
7 §401 certification that takes place after the §401 certification is issued, and proceeds for either a
8 finite period of time into the future, or, if appropriate, continues in perpetuity. *Cf. Anderson v.*
9 *Pierce Cy*, 86 Wn. App. 290, 293 n.2, 936 P.2d 432 (1997). Here, the monitoring requirements
10 in the §401 certification are appropriate.

11 The §401 certification requires monitoring to ensure that required and effective
12 mitigation is provided, and to identify potential problems, which may need further mitigation.
13 Many of these conditions are part of the adaptive management approach Ecology used in order to
14 be certain mitigation measures would be successful. Such monitoring allows the project
15 mitigation to adapt as state of the art technology and AKART are being applied.

16 Washington and federal courts have specifically approved this adaptive management
17 approach. *West 514, Inc. v. Spokane Cy.*, 53 Wn. App. 838, 844-849, 770 P.2d 1065 (1989)
18 (upholding approval of shopping mall that depended on future air quality monitoring to “confirm
19 that the project will not have a significant adverse environmental impact”); *Friends of the*
20 *Payette v. Horseshoe Bend Hydroelectric Co.*, 988 F.2d 989, 993 (9th Cir. 1993) (upholding
21 condition, which required water quality monitoring to determine compliance with state water

1 quality standards and additional mitigation if monitoring disclosed any problems). Moreover,
2 §401 of the Clean Water Act itself expressly states the state can include monitoring conditions in
3 its certification. 33 U.S.C. § 1341(d).

4 In addition, as has already been noted above, the Board concludes it was appropriate for
5 Ecology to rely on the Port's existing and future NPDES permits as one of its bases for
6 reasonable assurance of compliance with water quality standards.

7 8. PUBLIC PROCESS—NOTICE

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

15 Ecology was not required to conduct additional public notice when it issued the
16 Amended §401 certification on September 21, 2001, because the amendment did not result in
17 changes to the proposed project and, thus, no new application was required. *See* WAC 173-225-
18 030; 15 CFR §930.61(a). The Amended §401 certification adjusted only the conditions
19 applicable to the project and, because the project itself was not changed, submission of a new
20 application was not warranted.

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

6 Appellants argue in their pre-hearing memorandum that Ecology's rescission and
7 reissuance of the Amended §401 certification was invalid because EPA had not reviewed the
8 changes to the §401 certification. Appellants' position is contrary to applicable law, which does
9 not require EPA review prior to amendment of a §401 certification by Ecology. *See Roosevelt*
10 *Campobello International Park Commission v. Environmental Protection Agency*, 684 F.2d
11 1041, 1056 (1st Cir.1982) (Both EPA and the federal courts have interpreted §401(d) of the
12 Clean Water Act as removing authority from either federal courts or agencies to review the
13 validity of requirements imposed under state law or in a state's §401 certification); *U.S. v.*
14 *Marathon Development Corp.*, 867 F.2d 96, 100 (1st Cir. 1989).

15 9. COASTAL ZONE MANAGEMENT CONSISTENCY

16 The Port's project will occur in Washington's coastal zone. As a result, the Port is
17 required to obtain a CZMA consistency concurrence statement from Ecology.

18 The Port submitted an application for certification of Consistency with Washington's
19 CZMP. In reviewing the Port's application, Ecology verified the Port had complied with the
20 enforceable policies of Washington's CZMP. In that review, Ecology verified (a) the Port had
21 completed its SEPA review, (b) the Port obtained a shoreline exemption from the City of Auburn

1 for the proposed wetland mitigation site, (c) the Port had a valid individual NPDES permit for
2 the airport site, had obtained a general NPDES stormwater permit for construction of the Auburn
3 mitigation site, and was issued a §401 certification for the proposed project, and (d) the Port had
4 the appropriate discharge permits from the Puget Sound Clean Air Agency, and the scope of the
5 project had not changed to alter Ecology's determination that the SeaTac area was in compliance
6 with National Ambient Air Quality Standards for carbon monoxide and nitrous oxide.

7 The sole outstanding issue for CZMP consistency is whether there is reasonable
8 assurance that the project as proposed and conditioned will meet applicable water quality
9 standards. As is elaborated throughout this order, the Board concludes Ecology's issuance of the
10 §401 certification was appropriate and, therefore, Ecology properly concurred that the Port's
11 project is consistent with Washington's CZMP.

12 V. CONCLUSIONS

13 Based on the Findings of Fact and Conclusions of Law above, the Board concludes,
14 Ecology's issuance of the §401 certification, with the imposition of the conditions in the §401
15 certification and with the conditions imposed by this Board, provide reasonable assurance that
16 state water quality standards will be met.

17 As noted throughout this order, the Board imposes the following additional conditions of
18 the §401 certification:

- 19 1. BMPs shall be selected from the enhanced treatment list for better removal of
20 dissolved metals;

1 2. The Port shall sample of stormwater above and below stormwater outfalls and a
2 monitor the hardness of the receiving waters;

3 3. Water quality testing for toxicity to sensitive organisms, by the Port and approved
4 by Ecology, shall measure injury, as well as mortality of those organisms;

5 4. 100% of the stormwater management facility retrofit shall be completed by the
6 time 50% of the impervious surfaces have been constructed;

7 5. Use of the WER study is limited so that the study results shall only be used if the
8 data suggests the water quality criterion should be lowered;

9 6. The level of mitigation flows for Des Moines Creeks is 1 CFS, below which
10 mitigation is required;

11 7. The fill criteria are modified as follows:

12	Antimony	5.79 mg/kg
13	Arsenic	7 mg/kg
14	Barium	12,000 mg/kg
15	Beryllium	.6 mg/kg
16	Cadmium	1 mg/kg
17	Chromium	42 mg/kg
18	Copper	36 mg/kg
19	Lead	24 mg/kg
20	Mercury	.07 mg/kg
21		

Nickel	48 mg/kg
Selenium	.52 mg/kg
Silver	.28 mg/kg
Thallium	2 mg/kg
Zinc	85 mg/kg
TPH	0

8. The SPLP process may not be used to authorize the importation of fill that exceeds the modified fill criteria;

9. The minimum number of samples of the proposed fill shall be increased to reflect the number of samples required under MTCA;

10. The performance standard for wetlands is modified so that the Port matches the hydroperiods of the wetlands pre- and post project, in order to assure the long-term maintenance and perpetuation of wetland characteristics, such as standing or flowing water, wetland resources, and wetland functions.

11. The Port shall mitigate for on-site wetland loss at the ratio of no less than 2:1. This ratio shall not include wetland buffers or preserving wetlands that are already protected. In order to meet this ratio, the Port is urged to consider enhancing the Walker Creek headwaters wetlands

1 12. Condition (D)(1)(h) is modified so that if the future wetland delineations show the
2 wetland boundaries have decreased, additional in-basin mitigation shall be required.

3 13. The language in the monitoring requirement of Condition E(3) is modified so that
4 in the event monitoring detects exceedances of the water quality criteria in either surface or
5 groundwater, Ecology shall take action to eliminate the exceedances. This may include a
6 revision to the fill criteria and/or corrective action;

7 14. The monitoring duration in Condition B (and its cross references to E(3) and
8 F(1)) shall continue for at least 8 years from the conclusion of construction and, should
9 monitoring reveal exceedances, Ecology shall further extend the period of monitoring;

10 15. The monitoring in Condition F(1) is modified so that monitoring continues for as
11 long as there are contaminants in the AOMA;

12 16. The Port shall obtain a water right to use water as proposed mitigation under the
13 Low Flow Plan.

14 Any Finding of Fact deemed to be a Conclusion of Law is hereby adopted as such.

15 IX. ORDER

16 Based on the Findings of Fact and Conclusions of Law outlined above, the Board
17 concludes, with the further conditions imposed by the Board, there is reasonable assurance the
18 construction of the Port's proposed improvements at the Airport will comply with state water
19 quality standards. Accordingly, the Board affirms Ecology's §401 certification for the Port's
20 projects as modified by the conditions established by the Board in this Order. In addition, the
21 Board's stay entered on December 17, 2001, is lifted.

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IT IS SO ORDERED.

Dated this 12th day of August 2002.

Pollution Control Hearings Board

Kaleen Cottingham, Presiding

Robert V. Jensen, Board Member

William Lynch, Board Member