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

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

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

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

II. STATEMENT OF THE ISSUES

The parties stipulated to a list of 22 issues to be presented to the Board for resolution. The Board granted summary judgment on one of those issues (Issue No. 14) before the hearing. Another issue (Issue No. 20) was withdrawn following the hearing on the merits, leaving 20

issues for resolution by the Board. The remaining issues have been grouped below in topic areas, both to facilitate the resolution of similar issues, and as an outline for the Findings of Fact and Conclusions of Law.

1. WATER QUALITY AND STORMWATER

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

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

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

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

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

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

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

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

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

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

2. LOW FLOW

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

3. WATER RIGHTS

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

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

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

4. FILL CRITERIA, EMBANKMENT AND MSE WALL

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

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

(b) embankment and wall construction specifications, and

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

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

5. GROUNDWATER

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

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

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

6. WETLANDS

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

7. MONITORING AND ADAPTIVE MANAGEMENT

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

8. PUBLIC PROCESS – NOTICE

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

9. COASTAL ZONE MANAGEMENT ACT

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

III. PROCEDURAL HISTORY

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

The Plan developed by the Port is called the Master Plan Update (MPU) and includes the proposed Third Runway and related facilities. Because some of the improvements require filling waters of the United States, the Port submitted a Joint Aquatic Resource Permit Application

(JARPA) to the U.S. Army Corps of Engineers and Ecology in December 1996. A JARPA is the form used to apply for Hydraulic Project Approvals, Shoreline Management Permits, Approvals for Exceedance of Water Quality Standards, Water Quality certifications, and U.S. Army Corps of Engineers §404 and §10 (of the Rivers and Harbor Act) permits.

At the time of application, the Port did not have title to a number of properties on the westside of the Airport necessary for completion of the project. These properties are located in the area between the embankment for the second runway and State Route (SR) 509. After the JARPA application was submitted and public notice was issued, the Port began acquiring the westside properties and gaining access to those properties. Because new wetlands were discovered after gaining access to the westside properties, a second public notice was issued.

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

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

The filing of the JARPA constituted an application to the Army Corps of Engineers for a permit pursuant to §404 of the Clean Water Act (33 U.S.C. 1344) for permission to discharge

dredge or fill materials into waters of the United States, i.e., the filling of wetlands necessary for construction of the Port's proposed Third Runway and other Master Plan Update Improvements.

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

On August 10, 2001, Ecology issued Order No. 1996-4-02325, a §401 certification, and a Coastal Zone Management Act consistency statement for the Port's proposed Third Runway and other Master Plan Update projects. The §401 certification was appealed on August 23, 2001, by ACC, and assigned PCHB Case No. 01-133. On September 10, 2001, the Port of Seattle filed its own Notice of Appeal of the August §401 certification, which was assigned PCHB Case No. 01-150. At the same time, the Port filed a Stipulation and Agreed Order signed by Ecology for entry by the Board to modify the §401 certification and, on that basis, dismiss the Port's appeal. It also would have potentially mooted ACC's appeal. ACC objected to entry of the Order.

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

Ecology thereafter withdrew the August §401 certification and issued a new one, on September 21, 2001, Order No. 1966-4-02325 (Amended-1). Pursuant to the stipulation, the

pleadings on ACC's prior appeal and Motion for Stay were transferred to a new appeal file (PCHB Case No. 01-160) for the September §401 certification.

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

Prior to the hearing on the merits, the Board considered two motions for summary judgment. The first was ACC's motion for summary judgment on the water right issue (Issue No. 9). At the time this summary judgment was decided, the Board consisted of two members, who split on the disposition of the motion. Based on this split decision, ACC's motion was denied. Subsequently, a third member was appointed to the Board prior to the March 2002 hearing on the merits. Accordingly, the Board reserved resolution of this issue until the final decision on the merits.

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

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

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

IV. FINDINGS OF FACT

A. GENERAL

1. DESCRIPTION OF THE PROJECT

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

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

The project would fill all or portions of 50 wetlands. As a result of the filling of these wetlands, the project cannot proceed without a permit approval under §404 of the federal Clean Water Act, a permit program administered by the U.S. Army Corps of Engineers. As a prerequisite to issuance of a §404 permit, the state must issue a Clean Water Act §401 certification. The project would also require filling and reconstruction of portions of Miller Creek and portions of drainage channels in the Miller and Des Moines Creek basins.

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

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

2. DESCRIPTION OF THE §401 CERTIFICATION

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

During this time period, the Port was acquiring properties on the west side of the Airport necessary for construction of the new runway. After acquiring the properties and conducting on-the-ground wetland delineations, the Port discovered more wetlands than previously estimated from aerial photos and distant observations from nearby rights-of-way. Accordingly, in September 1999, the Corps issued a revised public notice, which reinitiated Ecology's review under §401. The Corps and Ecology conducted another public hearing. Once again, extensive public comments were submitted, and the Port again prepared detailed written responses to those comments.

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

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

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

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

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

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

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

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

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

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

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

The §401 certification was issued on September 21, 2001. As discussed above, the September §401 certification replaced an earlier version of the certification issued on August 10, 2001. The §401 certification is limited to the work described in the October 25, 2000, JARPA, as amended. The §401 certification is further subject to the conditions contained in the Order itself and to the water quality and aquatic resource related conditions of the: 1) Hydraulic Project 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 contained in the §401 certification itself are enumerated in fifteen sections (A through O) intended to ensure compliance with all appropriate water quality law.

Those specific conditions address:

A. Water Quality
B. Permit Duration
C. Notification and Reporting Requirements
D. Wetland, Stream and Riparian Mitigation

E. Conditions for Acceptance of Fill
F. Prevention of Transport of Contaminants
G. Dam Safety Requirements
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

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

The provisions of the operational stormwater requirements (condition J), to the extent they are incorporated into and superseded by any future NPDES permit for the Airport, shall be

superseded as determined in the NPDES permit. If a condition is not incorporated, it shall remain in effect as provided in condition J.

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

B. ISSUE SPECIFIC FACTS

1. WATER QUALITY AND STORMWATER

a. General

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

The construction of the proposed projects at the Airport will result in increased impervious surfaces and increased stormwater runoff. Construction of the projects will add approximately 305 acres of new impervious surface at the Airport (approximately 103 acres in the Miller Creek watershed, approximately 6 acres in the Walker Creek watershed, and approximately 128 acres in the Des Moines Creek watershed). In addition, runoff from approximately 67 acres of new impervious surface will be directed to the Industrial Wastewater System (IWS).

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

The §401 certification is subject to the Port's National Pollutant Discharge Elimination System (NPDES) permit. The future NPDES permit can supersede the §401 certification provisions. The NPDES permit requires the Port to comply with Best Management Practices (BMPs) for the control and treatment of stormwater. The BMPs are set forth in the Storm Water Pollution Prevention Plan (SWPPP). The NPDES permit requires the Port to maintain the existing SWPPP according to the special condition in the NPDES. Numerous source control and treatment BMPs have been completed at the Airport over the past several years. As part of the Port's annual SWPPP review and update, the Port reviews existing BMPs and, as appropriate, identifies and selects new BMPs. Whenever a self-inspection reveals the pollution prevention

measures and controls are inadequate to meet water quality standards, due to the discharge of or the potential to discharge, the SWPPP shall be modified, as appropriate. The Port shall implement any modifications to the SWPPP in a timely manner.

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

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

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

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

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

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

The Port's NPDES permit covers stormwater discharges from the Airport–both from construction activities and stormwater associated with industrial activities–including the proposed improvements. Ecology conditioned the §401 certification on the Port's continuing compliance with its NPDES permit. Consistent with the existing NPDES permit and the §401

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

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

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

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

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

b. Reliance on the NPDES permit

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

The Port applied in December 2001 for renewal of its NPDES permit. In connection with the processing of the renewal application, Ecology will have the opportunity to review the existing stormwater controls the Port is currently using under its existing permit and require the Port to implement new and additional Best Management Practices (BMPs) as appropriate and necessary to control and treat stormwater, including conditions required by the §401 certification. In addition, the §401 certification requires the Port to retrofit the existing stormwater

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

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

Stormwater discharges at the Airport have been regulated under a NPDES permit since 1994. The Port's current NPDES permit was issued in February 1998. The Port's NPDES permit does not authorize a mixing zone for stormwater discharges. As a result, compliance with surface water quality criteria is at the point of discharge. The NPDES permit requires the

preparation of a SWPPP covering areas of industrial aviation activity that drain to the Port's SDS and to the IWS.

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

1. Portions of State Route (SR) 518 (drains to SDN-1)

2. Portions of SR 99 (International Blvd) (drains to SDE-4)

3. Portions of south 188th Street (drains to SDS-1, SDS-2 and SDS-3)

4. Portions of 16th Ave. South (drains to SDS-2)

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

Most of the sampling locations specified by the NPDES permit are upgradient from the receiving waters and, in many instances, upgradient from where treatment takes place prior to discharge. The location of these monitoring points was the result of a stipulation/agreed Order in another case between ACC/CASE and the Port. The sampling is not instream due to potential

contributions from non-Port sources. The current locations better characterize the Port's discharges, but do not help characterize the condition of the receiving water. Based on this fact, the sampling results are not truly indicative of the water quality of the stormwater discharges as they enter the receiving waters, or of the water quality in the receiving streams themselves.

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

c. Stormwater Treatment BMPs

The Port's NPDES permit requires design and implementation of BMPs to mitigate any adverse water quality impacts of stormwater runoff. Ecology's approach, as evidenced by testimony, is a "presumptive approach" to dissolved metals in industrial stormwater. Ecology assumes that compliance with BMPs will result in no water quality violations, except in certain situations. To address those certain situations, Ecology created a treatment list of BMP choices for those Industrial and highway sites where dissolved metals might be present. The primary water quality "treatment BMP" proposed for the stormwater that will runoff from the new impervious areas of the Third Runway and taxiways is "filter strips." Filter strips are the existing treatment BMPs currently in place at SDS-3. While they may be effective to remove suspended solids including particulate metals, filter strips and biofiltration swales are not effective in removing dissolved metals from stormwater. This is due to the relative lack of suspended particulate matter in the Airport's stormwater waste stream, and the difficulty of achieving a level

flow-spreading configuration in such facilities. In late June of 1998, Ecology and Port staff conducted a Reasonable Potential Analysis to determine whether stormwater discharges from the proposed Third Runway had a reasonable potential to exceed water quality standards. Using data from Outfall SDS-3 to represent predicted runoff from the Third Runway, determining surface water quality criteria based on stated hardness values, and considering expected "removal efficiencies" of various BMPs, the Reasonable Potential Analysis predicted resulting "effluent pollutant concentrations." The Reasonable Potential Analysis predicted "Copper concentrations after treatment remained higher than the criteria." As a result, Ecology concluded, "The Port must go beyond minimum BMPs in order for the project to be certified." However, Ecology's current §401 certification acquiesces in the Port's proposal to use basic BMPs. In developing its Storm Water Management Manual for Western Washington (SWMMWW), Ecology found the basic treatment list of BMPs is not sufficient to assure that the concentrations of dissolved metals in stormwater discharges from industrial and commercial land uses will comply with water quality standards. Ecology therefore created an enhanced treatment list of BMP options applying to industrial and commercial land use sites and high-use road systems, to restrict the available BMP options to those Ecology has determined have the potential to achieve a higher degree of dissolved metals removal.

Along with infiltration, large sand filters, amended sand filters, and stormwater treatment wetlands, the SWMMWW's enhanced treatment list recommends the use of "two facility

treatment trains" to remove dissolved metals. Filter strips are only available as treatment BMPs when applied in combination with Linear Sand Filters in a two-facility treatment train.

Metals of concern include copper and zinc. The copper may be originating from aircraft tires and may be coming from vehicle tires and brakes along International Boulevard (also known as highway 99) or other areas upgradient from the airport. As early as 1999, Ecology and the Port became aware metals concentrations in untreated stormwater runoff from uncoated, galvanized metal roofs at the Airport was causing zinc toxicity in discharges from Outfall SDN-1, which is an in-pipe location upstream from receiving waters and upstream of a water quality treatment facility at Lake Reba. The Port traced the toxicity to leaching zinc from galvanized roofing and is committed to implementing BMPs to correct this problem. This existing galvanized roof issue is not an issue for this §401 certification, as the improvements proposed do not include that type of roofing material.

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

Data provided by the Port show metal concentrations in discharges as total recoverable metals, which are not directly comparable to the dissolved fraction listed in the water quality standards. However, this data does serve as an indication of metal concentrations to be expected in the discharges of stormwater. Median metals concentrations from airfield stormwater

typically range from 0.012 to 0.031 mg/l copper, 0.001 to 0.003 mg/l lead, and 0.020 o 0.051 mg/l zinc. These are values, however, sampled at points prior to entering the receiving waters. Additional treatment as the stormwater continues through the system is expected to result in lower metal concentrations actually entering the receiving waters. The Board is not, however, convinced the Port has done an adequate job in sampling to ascertain the status of the receiving waters.

In the Port's previous NPDES permit, which took effect in 1994, Ecology required the Port to conduct a "Receiving Environment Monitoring Study" evaluating the impact of the Airport's stormwater discharges to Miller and Des Moines Creeks. The resulting 1997 Stormwater Receiving Environment Monitoring Report confirmed metals concentrations exceeded federal and state water quality criteria both above and below the Airport's stormwater outfalls, and in the Airport's stormwater discharges. The Port monitored dissolved metals concentrations at stormwater outfalls and at in-stream locations upstream and downstream of the Port's discharges in Miller and Des Moines Creeks. The Port compared the measured metals concentrations with federal and state water quality criteria and standards. In Des Moines Creek, copper and zinc were exceeded upstream and downstream of the outfall. In Miller Creek, zinc exceeded the water quality criterion upstream and downstream, but copper only downstream of the outfall. In Des Moines Creek, copper and zinc criteria were exceeded in samples from both upstream and downstream of the discharge, as well as in the stormwater discharge itself. However, dissolved zinc concentrations downstream of stormwater discharges in Des Moines

Creek only exceeded the criterion about 20 percent of the time. The Report shows the high (i.e., above-the-standard) levels of dissolved copper discharged from the Airport's outfalls caused the concentrations of dissolved copper in Des Moines Creek to increase—specifically, the concentrations downstream from the Port's discharges are greater than the upstream concentrations, and both exceed the water quality criteria for copper. The 1997 Report also found in Des Moines Creek, dissolved copper concentrations were highest in samples from the stormwater outfalls, particularly SDS-3 (45.5 ug/l) and SDE-4 (34 ug/l).

Stormwater sampling data presented in the Port's 2001 Annual Stormwater Monitoring Report also shows copper levels in SDS-3's discharges are higher than the copper levels in other Airport stormwater discharges. Specifically, the sampling data indicates more than 75% of the stormwater discharges from "all outfalls" at the Airport exceed the Port-calculated acute freshwater criteria for copper. The copper levels in stormwater discharges from the "airfield only" outfalls are higher. And the copper levels in stormwater discharges from SDS-3—the outfall that drains most of the airfield—are higher still. In 1998, Ecology informed the Port that Des Moines and Miller Creeks were not meeting water quality standards for copper, zinc, temperature, as well as fecal coliform. Further, Ecology's current NPDES Permit Fact Sheet for Sea-Tac reports that concentrations of total recoverable copper in ambient waters both upstream and downstream of the Port's stormwater discharges generally exceeded the water quality criteria.

In February 2001, the City of Des Moines released a report detailing the results of a five-year, in-stream water quality monitoring program in Des Moines Creek and three other area

creeks. After monitoring 25 storm events and 15 base flow events at eight sampling stations in the four creeks studied, the Report showed the sampling station closest to the Airport—upper Des Moines Creek station "DM-1"—shared both the highest total copper concentrations, and the highest storm and base flow dissolved copper concentrations. The Report concluded 40% of the storm flow samples at sampling station DM-1 exceeded the Washington state Class AA water quality criterion for dissolved copper—the highest "All Years" percentage of any monitoring station. The Report further concluded, "runoff carrying pollutants from SeaTac Airport (which is located upstream of station DM-1) may be responsible for higher dissolved copper concentrations in upper Des Moines Creek."

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

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

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

The primary components of the existing stormwater treatment system at the Airport are filter strips and bioswales. Filter strips are grassy areas, which slow stormwater runoff rates, allowing removal of stormwater pollutants through settling of particulates and other processes. Some stormwater infiltrates into the ground and, as a result, metals and organic compounds are removed as these pollutants bind to the organic material in the soil. Bioswales are grassy, flat-bottomed swales, which receive stormwater runoff after it has been collected in a detention facility. Vaults and ponds also treat stormwater by allowing for additional settling and removal of particulates.

The Appellants argue the Port should have selected more effective BMPs from the enhanced treatment list of BMPs, including sand, compost, or active medium filters. They argue filter strips and bioswales alone will not control the dissolved metals. This was confirmed by Ecology's witness (O'Brien) who said biofiltration swales alone would not control dissolved metals. He indicated the use of biofiltration should be done in combination with other treatment options, such as an amended sand filter or a basic sand filter, and some other treatment combination. The Board agrees and further conditions the §401 certification to require BMPs be

selected from the enhanced treatment list for better removal of dissolved metals, to provide reasonable assurance the Port's stormwater discharges will not violate the relevant water quality standards. This is particularly important to address the potential listing of copper on the 303(d) list.

The water quality standards for metals in WAC 173-201A-040 are hardness dependent. Hardness data is the sum of calcium and magnesium in the water. Hardness renders metal ions in water less toxic by excluding negatively charged exchange sites for the metals to attach themselves. Knowing the hardness of the water is necessary to determine the criteria for certain dissolved metals in stormwater. The hardness of the water can change or vary over a short stretch of time or space (such as following a rain event). As a result of the ability of hardness to vary, sampling protocols exist. Appellants argue the absence of hardness data makes it impossible to demonstrate that specific numeric water quality standards are being exceeded. The Board finds hardness data of the receiving water and the stormwater effluent would make comparisons between total recoverable metal concentrations in the stormwater effluent with acute and chronic criteria for metals easier; however, these comparisons are still possible to make by relying on historic seasonal values for hardness in the same receiving waters.

The acute toxicity testing is referred to as Whole Effluent Toxicity (WET) testing and determines the toxicity of the Port's stormwater to certain sensitive marine organisms. Those tests indicated acute toxicity in the effluent at the Port's SDN-1 outfall, but at no others. The

metal of concern at SDN-1 is zinc. The Port traced the source of the zinc to certain metal covered roofs in that area and proposed steps to eliminate the pollution source.

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

The Port's sampling shows instantaneous exceedances of the numeric water quality criteria, but they do not show that the criteria were exceeded for the necessary length of time. Further, the historic sampling data did not present the data in a manner showing exceedances of water quality standards. In the historic sampling data presented, one or more of the required elements were missing–either the hardness data (averaged over the correct time period) was missing, the sampling was done in-pipe rather than in receiving water, the sampling was an instantaneous reading rather than an average over the time period required in WAC 173-201A-040, or the sampling showed total recoverable metals rather than the dissolved fraction. Even the in-stream sampling from 1997 was not done over the proper time period to determine compliance with numeric criteria, and also did not show what contribution of metals in-stream were from the Port's stormwater, and what contribution came from other sources such as area highways and roadways that drain to the same creeks. This appears to be related more to the sampling methods than to any chemical changes.

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

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

d. Retrofit of existing areas at the Airport

In addition to these existing BMPs, the §401 certification requires the Port to retrofit to currently applicable standards built areas at the Airport and surrounding developed areas recently acquired by the Port. Ecology imposed the requirement to retrofit existing stormwater management facilities as Condition J in the §401 certification, including a requirement the Port

assure that 20% of the retrofitting is accomplished for every 10% of new impervious surface added to the project. The Port must maintain this rate of retrofit unless it can demonstrate to Ecology's satisfaction that such a rate is not feasible. Testimony indicated such a showing does not alleviate the Port from completing the retrofit. It is assumed, although not set forth in the §401 certification, by the time 50% of the new impervious surfaces have been constructed, 100% of the retrofit will be completed as well. The feasibility language allows the rate of retrofitting to be adjusted based on operational constraints. The Board imposes a further condition on the §401 certification to assure this assumption of 100% retrofit is part of the collective understanding.

e. Whole effluent toxicity testing

The Port's existing NPDES permit requires periodic whole effluent toxicity (WET) testing of the Port's principal stormwater discharges. As its name implies, WET tests assess the aggregate toxicity of the whole effluent sample, which reflects the effect of all constituents together in addition to toxicity from individual chemical constituents. WET tests use sensitive aquatic species such as waterfleas or juvenile fathead minnows, which are placed in a whole effluent sample and then monitored to assess mortality among the test organisms. Testing for mortality, but not testing for impairment, or loss of function, we find does not measure injury to existing beneficial uses. Therefore, we add a condition to this certification requiring future toxic testing for sensitive organisms, related to this certification, to monitor and measure as well, not only mortality, but impairment and loss of function of the tested organisms.

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

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

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

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

The §401 certification prohibits the discharge of any stormwater from operations on new impervious surfaces until a site-specific study (a "water effects ratio study" or "WER study") has been completed and approved by Ecology and appropriate limitations and monitoring requirements have been established in the Port's NPDES permit. The WER study determines how metals are moving from fractions of dissolved metal state or particulate state, and to

generally advance the knowledge of metals in the receiving waters. The purpose of the WER study is to tell Ecology whether there are local effects in the receiving waters that result in different partitioning of metals. The §401 certification does not establish any deadline for the study, but requires the Port to consult with Ecology to determine an appropriate time for its submittal. A site-specific water effects ratio provides an indication of the metal concentration, which would be expected to actually cause toxicity to aquatic species in a water body. The study is intended to advance Ecology's knowledge as to exactly how metals in stormwater discharges would behave in the receiving water. The WER study is intended to determine whether there are seasonal or local conditions in the local streams that might affect the partitioning of metals in the receiving waters. The way a WER does this is by determining the ratio between a metal's toxicity in actual site water, comparing that with the toxicity in laboratory water (which is used to develop generic numeric water quality standards), and then adjusting the generic numeric criterion based on that ratio. A median lethal concentration is determined for each water, and the two are compared to generate a WER. This ratio provides an empirical determination of the difference in metal bioavailability between the site-water and laboratory water, expressed as a ratio.

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

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

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

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

The Port has already undertaken preliminary screening analyses of stormwater discharges as part of the preparation of a WER study. Range-finding WER studies have been conducted by the Port using water collected from multiple sites in Miller, Walker, and Des Moines Creeks. Range-finding studies are preliminary WER studies used to determine whether a site-specific ratio for a particular pollutant is possible and, if so, what the "range" of the ratio might be. The site-specific studies required by the §401 certification will result in WER numbers and will also

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

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

g. Glycols

Glycols are used to de-ice airplanes during certain weather conditions. The evidence showed most glycol usage at the Airport is limited to infrequent, one- or two-day winter weather episodes. There are no numeric state or national water quality standards for glycols. Nearly all of the glycols used at the Airport are routed to the Industrial Wastewater System ("IWS"), because all of the application of glycol must take place in the portion of the Airport that drains to

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

h. Mixing Zones

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

be taken in the event that "monitoring indicates turbidity standards are not being met at the boundary of the mixing zone." The §401 certification does not require the Port to stop work, or to stop the exceedance of the turbidity standard in such an event, nor does it require the Port to notify Ecology when such an exceedance occurs.

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

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

i. Impact on wildlife habitat

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

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

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

j Dam safety

The proposed improvements at the airport include stormwater management facilities with vast storage capacity. The sizes of the vaults were calculated based on the volume of water necessary to fulfill the required low flow mitigation. The resulting "worst case" volume is 18.5 acre-feet of water for Walker Creek and 13.5 acre-feet of water for Des Moines Creek. Five different ponds will impound volumes of water between 15.7 acre-feet and 92 acre-feet. The §401 certification (Condition G) acknowledges some of the Port's proposed stormwater management facilities will be subject to dam safety regulations (Chapter 173-175 WAC). Ecology did not require, prior to issuance of the §401 certification, the Port to have the dam safety permits in hand or to identify stormwater management facilities subject to dam safety regulations. The §401 certification does, however, require the Port to "obtain a dam safety

permit from Ecology prior to commencement of construction" for any facilities meeting the requirements of Chapter 173-175 WAC.

2. LOW FLOW

a. General

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

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

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

The Airport comprises a significant portion of the Des Moines, Miller, and Walker Creek watersheds. The Third Runway Project will reduce already low flows in Des Moines, Walker, and Miller Creeks during the summer and early fall season. This reduction is expected to

degrade the ability of these creeks to support characteristic uses, and mitigation is therefore required. The reductions to flows will be caused by the addition of new impervious surfaces to the Miller Creek watershed (103 acres), the Walker Creek watershed (6 acres), and the Des Moines Creek watershed (128 acres). Without mitigation, these new impervious surfaces would increase peak flow rates in area streams during rainstorms, and would reduce flows during seasonal low flow periods in Walker and Des Moines Creeks.

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

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

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

The pre-construction model was based on the land use in the area in 1994. Using the Hydrologic Simulation Program—FORTRAN (HSPF), the Port analyzed how, in the context of the 1994 land uses, various levels of rainfall (derived from a variable period of record) would reach the streams through direct runoff, stormwater system drainage, or groundwater infiltration and flow paths. This analysis was then used to model the lowest seven-day period of low flows for each year and the seasonal windows within which those low flows occur. From this information the Port selected the threshold flows below which mitigation would be required (0.33 cfs for Des Moines Creek, 0.77 cfs for Walker Creek, and 0.73 cfs for Miller Creek), and the mitigation window (July 24-Oct 24 for Walker Creek and July 30-Oct 31 for Des Moines Creek). However, the Des Moines Creek Augmentation Preliminary Design is based on data showing the flow to be 1 cfs at the monitoring station. The 1998 plan also proposed a 1 CFS flow for Des Moines Creek. The Board finds the correct threshold flow to be 1 CFS, below which mitigation will be required. The Board further conditions the §401 certification to include this corrected threshold flow of 1 CFS for Des Moines Creek.

For post-construction modeling, the Port projected land uses for the year 2006 (including the embankment and new runway, but excluding the Industrial Wastewater System (IWS) and Des Moines basin fill borrow areas). Again, the Port analyzed, using HSPF and two groundwater models (Hydrus and Slice), how differing levels of rainfall on those surfaces would reach the streams through infiltration and run-off. Utilizing the results from the various rainfall scenarios, the Port projected summer streamflows following completion of the Third Runway project.

Comparing the 2006 low flow model results to the 1994 low flow conditions, the Port calculated its mitigation requirements to be 0.11 cfs for Walker Creek, 0.08 cfs for Des Moines Creek, and 0 cfs for Miller Creek. In Walker Creek, the estimated net impact of 0.11 cubic feet per second (cfs) translates to a decrease of 3 millimeter (mm) in depth and 30 mm in width. In Des Moines Creek, the average flow reduction of 0.8 cfs translates to a decrease of 9 mm in depth and 101 mm in width. The modeling showed little or no change to total stream flow in Miller Creek during low flow periods. Given the Board's finding above on the threshold flow for Des Moines Creek, the mitigation requirement for Des Moines Creek is greater than the estimate of 0.08 cfs. The Board further conditions the §401 certification to require this greater level of mitigation flows for Des Moines Creek.

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

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

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

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

b. Analysis of historic flows

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

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

c. Modeling of low flow impacts

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

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

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

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

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

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

d. Model calibration

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

Much of Appellants' challenge to the Port's modeling efforts involve criticisms of the calibration of certain models or the failure to account for water possibly lost as a result of improvements to the Port's IWS. The Board finds, while simulated flows did not exactly match measured flows, no model would produce an exact replication of measured data. A model may be properly calibrated even though it does not match observed data exactly.

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

In addition, conditions imposed by Ecology in the §401 certification mitigate for potential low flow impacts. These conditions require the Port to monitor streamflows and seepage from the embankment and, if necessary, implement contingency measures to mitigate the project's low flow impacts. The evidence shows such contingency measures are feasible and

can be accomplished through modification of the times and rates at which detained stormwater is released, and there will be sufficient stormwater detention to meet any contingencies revealed by the monitoring. Thus, even if the iterative monitoring process shows changes to the necessary mitigation, monitoring will provide a means to adjust the stormwater management system to release sufficient flows to mitigate low flow impacts.

e. Target flows

The Low Flow Plan indicates that the impacts of the Third Runway Project will reduce base flows in local streams as early as June each year, when streamflows drop to their seasonal lows. Mitigation, however, will not commence until July 24 for Des Moines Creek and August 1 for Walker Creek. The §401 certification requires the Port to monitor adverse impacts to aquatic biota during June and July. Again, the evidence demonstrates contingency measures are in place, which require modification of the times and rates of release of detained stormwater. Appellants have not shown that these provisions are inappropriate or inadequate.

3. WATER RIGHTS

As noted above, the Third Runway Project will significantly alter the hydrology of the airport property. Because of these impacts, the Port must mitigate through low flow augmentation in Des Moines and Walker Creeks. The proposed source of water for the low flow augmentation plan is stormwater from the Port's property. The Port proposes to capture, detain and then release 19.0 acre-feet of stormwater to Walker Creek at the rate of .11 cubic feet per second (cfs), continuously between August 1 and October 31 each year. The Port's

augmentation plan also involves the release of 13.5 acre-feet of water to Des Moines Creek at the rate of 0.08 cfs, continuously between July 24 and October 24 each year. The Port does not propose any low flow mitigation for Miller Creek.

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

It is not uncommon for stormwater management systems to detain water for periods of weeks or months. What is different in this stormwater management system is the manner in which the stormwater is released from a detention facility. Here, the water will be used to augment seasonal low flows in a manner distinct from infiltration.

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

4. FILL CRITERIA, EMBANKMENT AND MSE WALL

a. General

The Third Runway will be constructed west of the two existing airport runways. Moving west from the existing runways, the ground elevation drops and forms the drainage basins for Des Moines, Miller, and Walker Creeks. To construct the Third Runway, the existing drainage

basins west of the airport would need to be filled with approximately 20 million cubic yards of fill material. The Third Runway would then be built on an earthen embankment constructed with imported fill material. In places, the embankment would be retained by a mechanically stabilized earth ("MSE") wall 135 feet high at its tallest point (and further topped with a twenty-foot-high sloped embankment for a total height of 155 feet), for a distance of 1,500 feet. The eastern boundary of the embankment abuts the existing airfield at the Airport, while the western boundary would either be sloped or bounded by one of three MSE walls. At the base of the embankment, the Port proposes to construct a drainage layer, which is intended to prevent groundwater pressures from building up within the embankment when the groundwater table rises during winter months, and to direct groundwater flow away from the embankment to prevent geotechnical instability. The drainage layer would be three feet thick and be designed to collect groundwater seepage through the embankment and transport this water under the MSE wall to wetlands between the wall and the relocated Miller Creek.

Three MSE walls are planned along the embankment: a North Wall about 1,300 feet long and up to 90 feet high, a West Wall about 1,450 feet long and up to 135 feet high, and a South Wall about 900 feet long and up to 50 feet high. The three MSE walls along the embankment would use strips of steel in the compacted fill material and a relatively thin reinforced concrete facing to form a vertical retaining wall face. The reinforcing strips would extend into the embankment fill behind the wall, perpendicular to the wall face. Friction between the strips and

the layers of compacted soil are designed to prevent the strips from pulling out, and would support the wall face

b. Potential for MSE Wall failure and seismic risk

The West MSE Wall is designed to withstand an earthquake with a 10% probability of occurring in any 50-year period, which on average will occur once every 475 years. This equates to an average magnitude of 6.7 for the design earthquake. It is also the standard adopted in the current version of a national code for transportation structures by the American Association of State Highway and Transportation Officials (AASHTO). In contrast, the designers for the new Tacoma Narrows Bridge use the more conservative 3% in 75 years design event with an average return of 2,500 years. Similarly, the design for a new Alaskan Way viaduct in Seattle calls for use of the 3% in 75 years design event. The Port's selection of the less protective "design earthquake" standard is based on concluding the Third Runway is not an essential, or lifeline, facility. A lifeline facility is one that is to be serviceable after an earthquake to assist in the emergency response. The Port determined this facility, the Third Runway, is not a lifeline facility and thus the standards for typical commercial high-rise buildings or highways is adequate. The Board agrees. This facility is not a lifeline facility, as there are two other runways at the Airport along with other, smaller regional airports nearby. The appropriate standard for this Board is not whether this facility is an essential facility, but rather will it sustain any environmentally damaging failure during an earthquake.

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

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

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

c. Fill criteria

There is a risk surface water runoff from the embankment could transport embankment contaminants to area wetlands and streams. Further, groundwater percolating through the

embankment to wetlands and streams below could transport contaminants to those waters. The §401 certification proposes to address this risk through imposition of procedures and criteria concerning placement of fill at the site.

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

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

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

Condition E also requires the Port to conduct an Environmental Site Assessment in accordance with standards developed by the American Society of Testing and Materials before accepting fill from any source. Initial "screening" of fill sources occurs through "Phase I" assessment procedures. This Phase I assessment includes, among other things, a review of relevant records, maps and aerial photos, interviews with owners, and on-site inspections to determine whether there might be contamination on the property. Phase II screening occurs when the potential exists for soil contamination, and includes interviews with site owners and others with knowledge of site history, site reconnaissance, and sampling and analysis of soil from the proposed source. The Fill Criteria chart shown on page 17 of the §401 certification has been superseded by Attachment E (which is the last page of the §401 certification) as a result of 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 1 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

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

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

For those constituents for which no Method A level exists, Ecology used the "fixed parameter three-phase partitioning model" described in WAC 173-340-747 to calculate numeric fill criteria. This model performs a "back-calculation," which starts with the numeric water quality criteria for the receiving water and works backward to derive soil concentrations protective of water quality. Ecology then compared the soil concentrations derived using the back-calculations to two other sets of numbers: natural background concentrations (set at the 90th

percentile, which is a value higher than 90% of the samples taken, but lower than 10% of the samples taken), and practical quantitation limits (PQLs)[1]. If the back-calculated soil concentrations were lower than either of these numbers, Ecology adjusted the soil concentrations so they were equal to the 90th percentile natural background concentration or the PQL. Thus, in some instances the calculated §401 Certificate contaminant limits were adjusted based upon Ecology Publication 94-115, *Natural Background for Soil Metals in Puget Sound*, or upon the PQL found in a 1993 Ecology implementation memo.

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

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

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

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

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[2] For example, the §401 limit for antimony is 16 milligrams/kilogram (mg/kg), yet Ecology calculated that the allowable level of antimony for the protection of ground water should be no more than 5.79 mg/kg. The §401 certification allows arsenic at concentrations of 29 mg/kg, yet Ecology calculated that no more than 2.92 mg/kg of arsenic should be allowed for the protection of groundwater. The §401 certification allows 2 mg/kg of cadmium, yet Ecology calculated that to protect 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 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.

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

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

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

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

Antimony	5.79 mg/kg
Arsenic	7 mg/kg
Barium	12,000 mg/kg
Beryllium	.6 mg/kg
Cadmium	1 mg/kg
Chromium	42 mg/kg
Copper	36 mg/kg
Lead	24 mg/kg
Mercury	.07 mg/kg
Nickel	48 mg/kg
Selenium	.52 mg/kg
Silver	.28 mg/kg
Thallium	2 mg/kg
Zinc	85 mg/kg
TPH	0

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

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

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

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

SPLP's reporting limit is higher than the §401 contamination limit.[3] Finally, WAC 173-201A-040, the surface water toxic substances criteria, do not establish standards for antimony, beryllium, silver, and thallium, which are all listed as constituents of concern under the §401 certification. Thus, there is no standard in WAC 173-201A-040 for these contaminants by which to evaluate the SPLP test results.

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

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

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[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.

embankment at 10 times the concentration allowed in the §401 certification at any time over a thousand-year period.

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

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

5. GROUNDWATER

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

In 1999, Ecology issued Agreed Order No. 97TC-N122 under the Model Toxics Control Act (MTCA) requiring the Port to investigate the nature and extent of this groundwater contamination. The Agreed Order requires the Port to develop a model to predict groundwater flow and contaminant fate and transport beneath the Airport. Appellants did not prove the Port was violating the 1999 Agreed Order. Appellants claim Ecology lacked reasonable assurance that water quality standards would be met because this contamination could migrate from the AOMA, and because the Port has not completed all phases of the investigation required by the MTCA order.

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

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

The Port also determined, while groundwater flow in the shallow perched water zones beneath the AOMA is variable, it frequently moves away from the area of the Third Runway

embankment. Groundwater in the deeper Qva aquifer flows generally to the west at depths of approximately 60 to 90 feet below ground surface.

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

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

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

Based on the evidence presented, the Board finds, although the Port has not presently completed all of the work required by the MTCA order, it has completed sufficient work to demonstrate groundwater contamination is confined to the AOMA and is not likely to migrate outside of the AOMA or toward the Third Runway embankment. The Board further finds it very

unlikely contaminated groundwater would be induced to migrate to the Third Runway embankment area via utility corridors or other construction activity.

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

6. WETLANDS

a. General

The Port's projects at the Airport will permanently fill 18.37 acres of wetlands and 0.92 acres of prior converted cropland, for a total of 19.29 acres of permanent impacts to wetlands. Construction will temporarily affect 2.05 acres of wetlands. While the 2.05 acres will be restored, Ecology has considered the 2.05 acres of impact a wetland impact for which mitigation is required. The total wetland impacts, permanent and temporary, are 21.34 acres. The Port's plan to mitigate these impacts is outlined in its Natural Resources Mitigation Plan (NRMP).

Mitigation is planned both on-site, in the sub-basins on or adjacent to the Airport, and off-site, at a 65-acre site in Auburn.

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

In the sub-basins on or adjacent to the Airport, the Port proposes to: (1) restore 11.95 acres of degraded wetlands, (2) enhance 22.32 acres of degraded wetlands, (3) enhance 54.93 acres of wetland and riparian buffers, and (4) preserve 23.55. While siting new wetland creation in-basin was difficult because of aircraft safety concerns about new wildlife attractants, the goal of Ecology was to have the Port replace all impacted wetland functions in-basin, with the exception of the wildlife attractant functions. The following chart shows the actual acres of 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		
Wetland Restoration - 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
Wetland Enhancement - 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	0.5I
Subtotal	22.32	11.16
Buffer Enhancement- 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
Preservation - *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		
Wetland Creation - 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

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

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

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

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

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

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

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

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

In addition to these in-basin mitigation measures, the Port proposes to construct wetland mitigation off-site on a 65-acre parcel in the City of Auburn. This mitigation site would provide forested, shrub, emergent, and open water wetland habitats and functions to a site where these functions are currently absent or degraded.

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

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

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

The Port's proposed wetland mitigation plan will result in the removal of sources of pollutants to wetlands, and to the Miller, Des Moines, and Walker Creeks by removing land uses, which contribute excess nitrogen and other pollutants. The replacement of lawns, golf courses, farmland, streets, driveways, and home sites with natural vegetation will restore a natural pattern

of nitrogen cycling to the landscape. The water quality functions in the Miller Creek wetland and buffer mitigation area will improve with the removal of the urban uses adjacent to the creek and with the Port's mitigation measures. Houses and buildings, lawns and driveways will be removed from the mitigation area, thereby removing features and land uses contributing to the degradation of water quality.

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

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

b. Functional Assessment

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

The Port used several functional assessment methodologies in preparing the wetlands functional assessment. The primary functional assessment used by the Port is based on a process accepted in the profession of wetland ecology and which has been reviewed by both the U.S. Army Corps of Engineers and Ecology. Appellants criticize the Port's functional assessment method as not being a peer-reviewed method. Appellants argue the wetland functional assessment done by the Port's consultant was largely based on best professional judgment and not upon a replicable functional assessment method. Appellants also argue leading treatises in the field of such as "Compensating for Wetland Losses Under the Clean Water Act" from the National Research Council caution against the use of subjective best professional judgment in assessing wetland functions, and instead advocate for science-based rapid assessment procedures.

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

Finally, the Appellants argue because the Port did not use a peer-reviewed published methodology for its functional assessment, it is not possible for other wetland scientists to replicate and confirm the Port's assessment. Because of these limitations, Appellants argue the functional assessment does not accurately represent the existing conditions of the wetlands and

wetland functions on-site. While the Board is troubled by the method used by the Port, the Board finds the Appellants have not shown WFAM should have been used since WFAM does not apply to sloped wetlands, and would therefore be applicable to only 23% of the wetlands on site. The evidence at the hearing showed, notwithstanding the inapplicability of the WFAM assessment technique to the wetlands on the Port site, the Port's consultants ran the WFAM assessment on wetlands on-site, and the WFAM ratings were equal to or lower than the Port's more conservative technique.

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

The Appellants further argue the wetland performance standard (groundwater within 10") is inadequate for several reasons. First, they allege the Port did not do enough data gathering to capture the full range of the hydrology occurring in the wetlands. Second, the time of year for measuring this performance should be during the dry time of the cycle. The hydroperiod is from October to October. The hydroperiod shows the presence of water, either standing or shallow groundwater, and tracks its pattern over the course of the year. Wetland systems are very complex and the hydroperiod is just one of the tools to determine and protect the functions. The performance standard for wetlands (found on page 8 of the §401 certification) includes

monitoring to assure "groundwater within the upper 10 inches from at least March to mid-April in years of normal rainfall." This measurement occurs during some of the wettest times of the year and won't monitor whether the wetland will function during the driest months (August through October). For this reason, the Board adds a further condition to modify the performance standard for wetlands to ensure the Port matches the hydroperiods of the wetlands pre- and post project, in order to maintain and perpetuate wetland characteristics, such as standing or flowing water, wetland resources, and wetland functions.

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

More problematic to the Board is the calculating of buffers as mitigation for wetland impacts. Riparian buffers may be an appropriate component of a wetlands mitigation plan, but only as an adjunct to meeting the baseline criteria of no-net loss of aquatic resources. No-net loss is measured in both acreage and function, so in order to achieve no net loss in acreage, projects must, at minimum, restore or create an equal area of wetland. Enhancement activities and upland preservation should not be used in exchange for the baseline acres and are not a substitute for replacement of actual wetland losses. While the Board supports the concept of

buffering wetlands, such buffers should be added to assure the sustainability of the mitigation of actual wetland mitigation. Thus wetland impacts must be mitigated with restored, enhanced or created wetlands, not with buffers.

The Board is also not persuaded the preservation of the existing wetlands, identified as adjacent to Borrow Area 3, qualifies for mitigation credit. Ecology and the Port have argued, without any citation in support of their contention, this wetland is not protected under existing law. We are not persuaded by this argument. The forested wetland, comprising 2.35 acres is adjacent to Borrow Area 3. The Port has no plans to modify this wetland as part of the current project. The wetland lies within the City of SeaTac. Although the Port and SeaTac apparently have considered marketing this area, they have not reached any final agreement. The area lies within the jurisdiction of both the Growth Management Act and the Forest Practices Act. Both of these laws have mechanisms to protect valuable wetlands. This wetland is habitat to the pacific treefrog. Because the wetland dries out in the fall, it is not subject to invasion from bullfrogs, an introduced species, which is highly predatory on native amphibians. The wetland lies across an abandoned road form Des Moines Creek Park. The Port seeks a 10:1 mitigation credit for preserving 2.35 acres of wetland and 21.2 acres of buffer, representing a total of 23.55 mitigation acres.

The 112.75 acres of on-site mitigation, minus the 3.06 acres for the surface of Lora Lake, equals 109.69 acres of mitigation or 33.38 acres of mitigation credit. Of the 109.69 acres, 54.93 acres are buffer enhancement (counted as 10.99 acres of mitigation credit). If the buffer

enhancement and the 23.55 acres for preservation of the forested wetland and buffer are removed, the NRMP includes 31.21 acres of mitigation or 20.05 acres of mitigation credit. This amount is insufficient to meet the 2:1 ratio and to mitigate for the 21.34 acres of wetland impacts. The Board finds the Port has not yet fully mitigated the impacts to the filled wetlands and wetland functions. Testimony before the Board indicated there were opportunities for in-basin mitigation, which were apparently overlooked because they were smaller in size. For example, there appear to be in-basin mitigation opportunities as the headwater wetland in the Walker Creek basin. There appears to be other in-basin mitigation opportunities in Walker, Miller, and Des Moines Creek basins that had not been pursued as documented in a February 2000 memorandum. In identifying acreage to meet the 2:1 mitigation ratio, the Board encourages the Port to evaluate the potential opportunities in the headwaters to Walker Creek.

The Port proposes as its key in-basin mitigation site 6.6 acres of what is known as the Vacca farm property. The Appellants allege the Port gave itself too much credit for this portion of the mitigation proposal by treating the Vacca Farm site as a "restoration" project when it is, at best, an enhancement project. Wetland restoration refers to the re-establishment of a wetland in an area where a wetland historically existed, but which now performs little or no wetland functions. Enhancement refers to increasing one or more functions of an existing wetland. There appears to be an effort underway to change the working definitions between these two terms so "enhancement" means improving or enhancing one or more functions, and "restoration" means returning a degraded system to a former condition. This new approach would move away from a

hard line distinction between enhancement and restoration, and would result in the characterization of particular actions as restoration or enhancement as a matter of judgment, which may differ based on the degree to which functions that are degraded are restored or improved. Thus, in order to qualify as restoration, a wetland does not have to be completely without functions. Wetlands with degraded functions can be restored. More important than whether an action is called restoration or enhancement is whether the impacted wetland functions are being replaced. At the Vacca Farm mitigation site, for example, a degraded wetland area that has been used for farming and grazing will be restored and will be returned to its historic peat wetland condition, with a resumption of the peat-forming process.

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

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

Finally, the Appellants question the plantings in the mitigation areas as inadequate to result in the creation of forested wetlands. While it may take time to mature, Appellants have not

shown that forested wetlands will not be created by the conditions imposed in the §401 certification and the NRMP.

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

The professional judgment is required to evaluate the degree to which the wetland, and the entire watershed, is currently degraded, and what steps would best protect or enhance the functioning abilities of the area as a whole. Professional judgment is required to evaluate whether a large wetland creation would be more beneficial to the flora and fauna of the area than a series of dispersed smaller wetlands. And finally, professional judgment is required to evaluate the long-term sustainability of any mitigation. A determination of the risk of success is necessary and may affect the replacement ratios; the higher the risk of failure, the higher the requirement for credit to cover the potential risk (1:1 may be appropriate for low risk mitigation, whereas 10:1 may be appropriate for high risk mitigation). These kinds of evaluations do not lend themselves to formulaic ratios. The ratios set forth in Ecology's guidance manual are guidelines. Good reasons must exist to deviate from those guidelines; reasons supported by best professional judgment.

Approximately 65 acres of wetland mitigation are proposed at a site several miles away, near Auburn, along the Green River (the "Auburn Offsite Mitigation"). The Green River basin is

not in the same hydrologic or biologic watershed as Miller, Walker, or Des Moines Creeks, although it is within the same administratively defined WRIA.

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

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

c. Embankment impacts to wetlands

Appellants also argue that a recent revision to the embankment construction plan would result in the elimination of water predicted to seep to the existing downslope wetlands. The Board finds this claim is not supported by the evidence. The evidence showed that the plan to excavate non-bearing soils under the MSE Wall has been analyzed as part of the project for several years. In addition, the embankment has been designed to deliver water specifically to the existing, downslope wetlands. The amount of water seeping from the embankment to downslope wetlands would be no less than under existing conditions. Finally, under the Port's adaptive

management plan, the Port can alter the delivery points of the water as needed to provide adequate hydrology for the existing wetlands.

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

7. MONITORING AND ADAPTIVE MANAGEMENT

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

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

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

The Appellants argue Ecology's reliance on submittals, plans, and monitoring developed after the issuance of the §401 certification precluded a finding Ecology had reasonable assurance at the time the §401 certification was issued. The Board disagrees. In order to rely on adaptive management, the required monitoring and subsequent changes must be set forth with specificity and must meet the reasonable assurance test, which means the future action and outcome must be reasonably certain to occur. To meet the test, specific enforceable requirements must be contained in the §401 certification in the event monitoring data indicate water quality standards are being violated.

The Board finds that the post-certification submittals required by Ecology are necessary for clarification, or provide necessary details to the various plans produced by the Port. The Board also finds that the fact that additional plans are to be submitted after the date of the issuance of the §401 certification does not, by itself, call into question whether Ecology had reasonable assurance of compliance with water quality standards at the time the §401 certification was issued. Rather, whether the additional, future plans or changes brought about

following the review of monitoring results provide an adequate basis for reasonable assurance depends on the specific condition set forth in the §401 certification.

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

The following future plans or adaptive management provisions found in the §401 certification provide less than specific language assuring that the future plan or changes resulting from monitoring will occur. Condition D(1)(h) of the §401 certification requires the Port to delineate the wetlands at intervals of five, ten and fifteen years. If the delineation shows the boundaries have decreased, "then additional in-basin mitigation may be required." The Board finds that should the wetlands decrease, additional in-basin mitigation shall be required.

Condition E (3) of the §401 certification uses the word "may" rather than a mandatory requirement to take action based on post-construction monitoring. The Board finds this condition must have more certainty in the outcome. Therefore, the Board further conditions this requirement to require Ecology to take action to eliminate the exceedances in the event

monitoring detects exceedances of the water quality criteria in either surface or groundwater. This may include a revision to the fill criteria and/or corrective action.

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

Condition F(1) of the §401 certification requires the Port to monitor the potential fate and transport of known contaminants beneath the AOMA, which could migrate to other parts of the Airport via subsurface utility lines or other preferred pathways. It appears from testimony Ecology did not intend to include any durational limit. In fact, Ecology's staff indicated, "the duration should be indefinite, as long as the contaminants are there monitoring should continue." The Board agrees. Further, Condition F(1) does not specify what corrective action should occur to address the transport of these contaminants when they are detected by the monitoring that is required. The Board further conditions this monitoring requirement for as long as there are

contaminants in the AOMA. However, the implementation of any corrective measures is appropriately addressed by the consent decree and/or enforcement actions under MTCA.

8. PUBLIC PROCESS—NOTICE

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

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

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

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

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

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

9. COASTAL ZONE MANAGEMENT CONSISTENCY

A certification with Washington's Coastal Zone Management Program is required for U.S. Army Corps of Engineers-authorized projects and other federally licensed or permitted projects. Unlike other certifications issued by the State, the project proponent prepares the Coastal Zone certification, which includes a project description, a brief assessment of the

impacts, and a statement that the project complies with the Coastal Zone Management Program. Ecology reviews the certification and the proposed project for consistency with state environmental requirements. If the project is consistent, Ecology concurs with the certification in writing. The Port submitted a Coastal Zone Management Act Consistency Statement to Ecology in December 1999. That Consistency Statement was supported by numerous documents submitted during Ecology's review, including Clean Air Act consistency statements from the Governor, the Port and FAA Environmental Impact Statements and SEPA Addenda prepared for the Airport's projects, and information showing that the streams near the Airport are not jurisdictional streams for purposes of the Washington Shoreline Management Act.

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

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

When it issued the amended §401 certification on September 21, 2001, Ecology also concurred with the Port's certification that the proposed Improvement Projects at the Airport are consistent with Washington's approved Coastal Zone Management Program (CZMP). The CZMP is set forth in *Managing Washington's Coast - Washington's Coastal Zone Management*

Program, Department of Ecology Publication Number 00-06-029 (February 2001). The potentially relevant "enforceable policies" of the Washington CZMP include the Clean Air Act, the Shoreline Management Act, State Environmental Policy Act, and the Clean Water Act.

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

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

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

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

V. CONCLUSIONS OF LAW

A. STANDARD OF REVIEW

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

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

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

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

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

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

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

In contrast, this Board was not established by the Legislature to do the work of Ecology, but rather was to provide "uniform, independent review" of Ecology actions. *Martin Marietta Aluminum v. Woodward,* 84 Wn.2d 329, 332-33, 525 P.2d 247 (1974). As this Board has previously recognized, the Board "is wholly a creature of statute and thus the scope of our reviewing authority is statutorily established." *Tulalip Tribes of Washington v. State of*

Washington, PCHB No. 87-64 (1988), Order Granting Motion to Dismiss Issues Concerning Tribal Treaty Rights at 2, *citing Human Rights Commission v Cheney School District*, 97 Wn. 2d 118, 641 P.2d 143 (1982). The Board has also recognized that "the reach of our reviewing authority is governed by the substantive requirements of the acts under which permits, certificates, or licenses are issued. No further power is expressed nor implied in our jurisdictional grant." *Id.*

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

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

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

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[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, 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.

De novo means anew; afresh, a second time. *Black's Law Dictionary,* 392 (5th ed. 1979). To maintain our independence and the integrity of our role as a quasi-judicial body charged with the obligation to adjudicate actions of the Department of Ecology, this Board will make its own independent assessment of the relevant information relied upon by Ecology in granting or denying a §401 certification.

B. BURDEN OF PROOF

WAC 371-08-485(2) provides:

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

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

As the appealing parties, ACC and CASE have the burden of proof. WAC 371-08-485(2); *Friends of the Earth v. Ecology*, PCHB Nos. 87-63 and 87-64 (Final Findings of Fact, Conclusions of Law and Order) (May 17, 1988) at Conclusion of Law IV. The reasonable assurance test is met if the Board finds by a preponderance of the evidence that violations of water quality standards are not, in fact, likely to occur. *Id.* at Conclusion of Law VI. A §401 certification must be based on a valid finding that "there is a reasonable assurance that the activity will be conducted in a manner which will not violate applicable water quality standards."

40 CFR § 121.2(a)(3); *PUD No. 1 of Jefferson County v. Washington Dep't of Ecology*, 511 U.S. 700, 712, 114 S. Ct. 1900, 128 L. Ed. 2d 716 (1994).

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

C. §401 CERTIFICATION AND REASONABLE ASSURANCE

A water quality certification is required of any applicant for a federal license or permit to conduct any activity, which may result in any discharge into surface waters. This includes discharge of dredge and fill material into water or wetlands. The federal agency is provided a

certification from the state the discharge complies with the discharge requirements of federal law and the aquatic protection requirements of state law.

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

> Any applicant for a Federal license or permit to conduct any activity including, 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 agency a certification from the State in which the discharge originates or will originate that any such discharge will comply with the applicable provisions of 1311, 1312, 1313, 1316, and 1317 of this Title.

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

As elaborated in more detail below, the Board concludes, as part of its reasonable assurance, Ecology may rely on the Port's NPDES permit and revisions made to that permit as part of the adaptive management strategy employed in the administration of the permit. Likewise, the Board concludes Ecology may incorporate appropriate §401 certification

conditions into the Port's NPDES permit, thus allowing for future enforcement of those conditions.

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

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

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

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

> to maintain the highest possible standards to insure the purity of all waters of the state consistent with public health and public enjoyment thereof, the propagation and protection of wild life, birds, game, fish and other aquatic life, and the industrial 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 will exercise its powers, as fully and as effectively as possible, to retain and secure high quality for all waters of the state.

RCW 90.48.010.

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

> Waters of the state shall be of high quality. Regardless of the quality of the waters of the state, all wastes and other materials and substances proposed for entry into said waters shall be provided with all known, available, and reasonable methods of treatment prior to 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.

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

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

D. SCOPE AND TIMING OF A §401 CERTIFICATION

Section 401 of the Clean Water Act requires an applicant for a federal permit for construction, which will result in a discharge into navigable waters and wetlands, to obtain from the state where the discharge will occur, a certification that the discharge will comply with applicable water quality standards. 33 U.S.C. §1341(a). Under Section 401, Ecology has broad authority to impose geographic, operational, and temporal limitations "on the project in general to assure compliance with various provisions of the Clean Water Act and with 'any other appropriate requirement of State law.'" *PUD No.1 of Jefferson County v. Washington Dep't of Ecology*, 511 U.S. 700, 711-712, 114 S. Ct. 1900, 128 L. Ed. 2d 716 (1994). Section 401(d) of the Act also authorizes the State to impose "additional conditions and limitations on the activity as a whole once the threshold condition, the existence of a discharge, is satisfied." *Id.* at 712 (emphasis added). This broad scope of Ecology's authority comports with EPA regulations expressly interpreting Section 401 as requiring the State to find that "there is a reasonable assurance that the activity will be conducted in a manner which will not violate applicable water quality standards." *Id., citing* 40 CFR §121.2(a)(3) (1993) (emphasis added).

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

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

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

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

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

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

The scope of a §401 certification is based upon both federal and state water quality laws. Under Section 401 of the CWA, "[t]he applicable provisions include Sections 301, 302, 303, 306 and 307 of the Clean Water Act, which deal with both effluent standards for discrete discharges and state-created water quality standards for receiving waters." *Friends of the Earth*, PCHB No. 87-64, Conclusion IV. State "water quality standards are composed of three elements: numeric criteria for conventional pollutants and toxic substances, WAC 173-201A-030(1)(c) and WAC 173-201A-040; narrative criteria protecting beneficial uses of state waters, WAC 173-201A-030(1)(a) and (b); and an anti-degradation standard. RCW 90.54.020(3) and WAC 173-201A-

070. Washington's water quality standards include procedural and substantive requirements for determining compliance." *Airport Communities Coalition v. Dept. of Ecology*, PCHB No. 01-0160, Order Granting Motion to Stay at 5.

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

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

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

E. SPECIFIC CONCLUSIONS OF LAW

1. WATER QUALITY AND STORMWATER

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

The Clean Water Act and the Board's previous decisions regarding what is required of Ecology before it can issue a certification pursuant to §401 are unequivocal: Ecology must have reasonable assurance the project will not result in a violation of state water quality standards at the time Ecology certifies the project pursuant to Section 401 of the Clean Water Act. The very essence of a certification is that at the time of issuance "the state has reasonable assurance that there will be compliance with water quality laws." *OHA,* supra, Conclusion 63 (emphasis added) *citing Friends of the Earth v. Ecology,* PCHB No. 87-64 (1988).[5]

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[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, 712 (1994); See: 33 U.S.C. §1341(a)(1), (d); *Okanogan Highlands Alliance et al. v Department of Ecology and 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").

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

Ecology has issued a policy defining how decisions will be made for §401 certifications sought by applicants are already subject to an existing NPDES permit. *WQP Policy 1-22*, effective March 31, 2000. This policy states, where an applicant is already subject to an NPDES permit (a §402 permit), water quality standards for stormwater discharges governed by NPDES permit are to be addressed through the §402 permitting process. The policy further provides "[w]here both a Water Quality certification under Section 401 . . . and an NPDES permit under Section 402 of the CWA are necessary, they will be applied in a non-duplicative and complementary manner." *Id.* at 2.

The Board concludes it was reasonable for Ecology to rely on the Port's NPDES permit and Ecology's NPDES permitting process as one of the bases for providing reasonable assurance of compliance with state water quality standards when issuing a water quality certification under §401 of the Clean Water Act. In the §401 certification, Ecology has also gone beyond the requirements of the NPDES permit in several areas, such as requiring retrofit of existing stormwater facilities, requiring numeric fill criteria for imported fill, and requiring a site-specific

WER study to be completed, and prohibiting any discharge from operations of the Port's new facilities, until that study is approved and appropriate limitations and monitoring requirements are established in the Port's NPDES permit. The Board concludes Ecology has not placed sole reliance on the NPDES permit, but has instead utilized the §401 certification to require measures not currently specified in the Port's NPDES permit.

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

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

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

Section 401 establishes procedural requirements for the state to ensure that an applicant's proposed discharge will comply with applicable water quality limitations. 33 U.S.C. §1341(a).

In turn, §402(a)(1) only allows Ecology to permit discharges that comply with the requirements necessary to meet water quality standards. *See* 33 U.S.C. §§1342(a)(1) and 1311(b)(1)(C). *See also* 40 C.F.R. §122.44(d)(1) (requiring NPDES permits to contain limits necessary to protect water quality standards).

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

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

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

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

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

The Board acknowledges that Ecology has recently issued one NPDES permit in which numeric effluent limitations were imposed on stormwater discharges, i.e., the Cascade Pole Lumber Company NPDES Permit. This decision, however, has not been appealed to us, and therefore is not binding on the Board. *See Buechel v. Department of Ecology*, 125 Wn.2d 196, 210-11, 884 P.2d 910 (1994) (Shorelines Hearings Board affirmed in ruling it was not bound by local government shoreline decisions, inconsistent with a local shoreline master program, which decisions had not been appealed to the Board). The Board is not persuaded that the imposition of

numeric water quality standards in the current §401 certification is necessary in order to have reasonable assurance of compliance with state water-quality standards. After the site-specific study required by the §401 certification (and prior to any discharge from operations on the new impervious surfaces at the Airport), Ecology will establish appropriate limitations and monitoring requirements for zinc and copper. The evidence at the hearing showed adequate mitigating measures were available should they be required to meet those limits.

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

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

The development of site-specific water quality criteria for metals using a water effects ratio is specifically allowed under WAC 173-201A-040(3), which states, "The department may revise [water quality] criteria on a state-wide or waterbody-specific basis as needed to protect

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

The presence of known and existing contaminants at the Airport and within the embankment fill make monitoring of surface and groundwater an imperative for reasonable assurance. Ecology's own toxics cleanup coordinator testified "the duration should be indefinite; as long as the contaminants are there, monitoring should continue." Where the condition began running in September and construction of the proposed project is expected to last four years, a monitoring plan, which allows the Port to cease monitoring for contaminants whose presence is acknowledged is insufficient. Therefore, as noted earlier, the Board further conditions the §401 certification to extend

the period of monitoring at least eight years from the conclusion of construction and further if the monitoring reveals exceedances.

The §401 certification does not authorize a mixing zone without compliance with procedural and substantive requirements of the state water quality standards at WAC 173-201A-100. Condition A.2 in the §401 certification recognizes the existing mixing zone for turbidity afforded to in-water and shoreline construction under the water quality standards. WAC 173-201A-110(3). The §401 certification further conditions the regulatory mixing zone for construction-related turbidity by requiring submission and approval of a monitoring plan for each in-water or shoreline construction project. The plan must include provisions to: 1) ensure that qualified Port staff or contractors are on-site during construction to implement the plan, 2) the plan minimizes any mixing zone in accordance with WAC 173-201A-100(4) and (6), 3) corrective action is taken if the numeric turbidity standard is not being met at the boundary of the mixing zone, and 4) the Port submits monitoring reports to Ecology.

Under the §401 certification, any construction mixing zone would presumably be 100 feet downstream of any construction where the stream flow is less than 10 cfs, WAC 173-201A-110(3)(a), or such smaller area determined in the monitoring plan. No other mixing zone is authorized or permitted by the §401 certification. Appellants have failed to prove that these conditions are unlawful, or otherwise fail to fully provide reasonable assurance that in-water and shoreline construction will be in compliance with water quality standards.

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

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

> Dams which can impound a volume of 10 acre feet or more of water as measured at the dam crest elevation. The 10-acre-feet threshold applies to dams which can impound water on either an intermittent or permanent basis. Only water that can be stored above natural ground level and which could be released by a failure of the dam is considered in assessing the storage volume. The 10-acre-feet threshold 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).

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

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

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

As set forth above and pursuant to the requirements of the Clean Water Act, the Board's independent *de novo* review of Ecology's §401 certification is based upon the record relied upon by Ecology to conclude it had reasonable assurance that the proposed project would comply with applicable water quality laws. Respondents argue that Ecology's reasonable assurance is based,

in part, upon conditions in the §401 certification, which allow the Port to submit additional data, plans, and reports on the assumption they will satisfactorily resolve outstanding uncertainties. Consistent with our *de novo* review as defined by the Clean Water Act and as a matter of simple logic, we conclude post-certification data, reports, and plans that were not in being at the time of issuance of the certification and which at the time of certification had yet to be reviewed, considered, and approved by Ecology can form the basis of Ecology's determination of reasonable assurance. This does not mean Ecology and other applicants are free to build a case while a §401 certification is on appeal to this Board. This would leave §401 certifications as moving targets and make Board review of such moving targets unmanageable.

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

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

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

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

Under Washington law, BMPs are not a substitute for strict compliance with water quality standards, but rather must be applied so as *to assure compliance* with water quality

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.

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

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

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

2. LOW FLOW

In Washington, projects that impact stream flows and instream uses are subject to special scrutiny in the permitting process. Class AA streams, such as Des Moines, Miller, and Walker Creeks, "shall markedly and uniformly exceed the requirements" for designated characteristic

uses, including fish migration, spawning and rearing, recreational use, including primary human contact, and aesthetic use. WAC 173-201A-030(1).

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

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

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

The Board concludes the model preparation and calibration is an iterative process and, as such, there is reasonable assurance that low flow impacts could be effectively mitigated, notwithstanding the need for some additional fine-tuning and refinements to the low flow models. Moreover, should the actual performance of the project require additional low flow

mitigation, the required monitoring will reveal this fact and the testimony showed that additional mitigation is feasible.

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

3. WATER RIGHTS

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

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

Beneficial use is a term of art under the water code and encompasses two principal elements of a water right: purpose and quantity. *Grimes v. Ecology*, 121 Wn.2d 459, 468, 852 P.2d 1044 (1993). When referring to purpose, beneficial use is defined to mean productive, "end use" of water. The legislature has defined beneficial uses of water to include "fish and wildlife maintenance and enhancement . . . and preservation of environmental and aesthetic values, and

all other uses compatible with the enjoyment of the public waters of the state[.]" RCW 90.54.020(1); see also RCW 90.14.031(2).

Flow augmentation and the use of water for stream flow mitigation are beneficial uses of water for which a water right is required. See, *Conifer Ridge Enterprises v. Ecology*, PCHB No. 96-11 (1998); *Okanogan Highlands Alliance v. Ecology*, PCHB No. 97-146, *et seq.*, Summary Judgment on Stipulated Issues Nos. 20, 21 and 22 (10/23/98); *see also Bevan v. Ecology*, PCHB No. 48 (1972).

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

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

instream flow right in perpetuity.

The diversion and impoundment system combined with the subsequent application of water to a beneficial use takes the Port's plan beyond simple "management" of stormwater to an appropriation triggering water code requirements. In doing so, no conflict arises between stormwater management goals, e.g., RCW 90.54.020(11) and the permitting requirements of the state Water Code, Chapter 90.03 RCW. It is possible to manage and use water at the same time; stormwater management and water code requirements are not mutually exclusive.

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

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

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

In the Okanogan Highlands, the Board ruled "[w]ater right changes should be issued to clearly record the right and priority of water necessary to implement the [low flow mitigation plan]." *Okanogan Highlands Alliance v. Ecology*, PCHB Nos. 97-146 *et al.* (Summary Judgment on

Stipulated Issues Nos. 20, 21 and 22) (October 23, 1998). The same need exists here to assure the perpetual nature of the mitigation.

Appellants have shown, absent a water right, the Port cannot demonstrate that legal means are in place to permanently mitigate the low flow impacts of the Third Runway Project. Therefore, the Board further conditions the §401 certification to require the Port to obtain a water right. With this further condition, the Port has shown that reasonable assurance water quality standards will not be violated.

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

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

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

Appellants also argue that the Port should obtain an instream flow right, which would prevent withdrawals downstream from the point of discharge, protecting the discharged water from that point to the mouth of the streams where they enter Puget Sound. This argument assumes the Port is required to protect the mitigation water after it has been released to the stream. The §401 certification does not require this, and we conclude such a requirement would

exceed the reach of §401. Under §401, the Port must mitigate the impacts of its own project, not impacts caused by activities other than its project. The Port will mitigate the impacts of the improvements at the Airport by discharging water at the locations and in the amounts it would have been discharged if the project were never built. The Port is not required to protect the water after discharge any more than it is currently required, under predevelopment conditions, to protect water that discharges naturally to the stream.

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

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

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

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

4. FILL CRITERIA, EMBANKMENT AND MSE WALL

For there to be reasonable assurance the Third Runway project will comply with applicable water quality standards, there must be reasonable assurance that surface water run-off from the embankment and water flowing through and out of the drainage layer will not degrade the Class AA ratings of Des Moines, Miller, and Walker Creeks and will not result in violation of Washington's toxic substance water quality standard. For Class AA waters, "water quality of this class shall markedly and uniformly exceed the requirements for all or substantially all uses." WAC 173-201A-030(1)(a). Washington's toxic substances water quality standard states:

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

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

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

5. GROUNDWATER

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

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

Nothing in the Governor's certification sets a deadline for completing the MTCA groundwater evaluation, or prohibits issuance of a §401 certification until the groundwater evaluation is done. Moreover, we note the Governor found he had reasonable assurance water

quality standards would be met as of 1997, even though the groundwater study would not be performed until sometime in the future. If it were necessary to complete all aspects of the Agreed Order's groundwater study before reasonable assurance could exist, then the Governor would not have issued his certification in 1997. Our conclusion is consistent with the Attorney General's Office in an informal opinion issued to Representative Shay Schual-Berke dated August 14, 2001. The opinion states the Governor's letter did not "promise that the ground water evaluation in question will be completed before any permits or certifications are granted in connection with the Port's proposal to construct a Third Runway."

6. WETLANDS

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

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

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

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

Water Quality Guidelines for Wetlands, Dept. of Ecology Publication No. 96-06 (April 6, 1996). In applying the anti-degradation policy to wetlands, the Board has explained:

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

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

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

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

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

Ecology has established mitigation credit ratios as tools to be used to determine when mitigation adequately compensates for wetland impacts. The mitigation credit ratios are not requirements, and are not intended to be rigidly applied. Rather, credit ratios are "general guidelines" and recommendations, which are intended to be used with flexibility and best professional judgment, taking into account the replacement and/or improvement in wetland functions, as well as the likelihood of success of the proposed mitigation plan. Here, Ecology did not apply the mitigation ratio guidance documents in an appropriate manner. Ecology erred in using upland buffers to mitigate for wetland impacts, counting lake surface area, and allowing preservation of areas already protected under existing state laws and regulations, to be counted as mitigation.

Washington law specifically allows out-of-basin mitigation. RCW 90.74.020 (for public infrastructure projects, "the departments of ecology and fish and wildlife may not limit the scope

of options in a mitigation plan to areas on or near the project site, or to habitat types of the same type as contained on the project site"). This is consistent with the requirements of the Corps. *See* 33 C.F.R 320(r) at n.1. Off-site mitigation is also consistent with Ecology's guidance on wetland mitigation. However, out-of-basin mitigation should occur only after all reasonable in-basin options have been evaluated. Acceptable reasons for choosing out-of-basin options include whether available options in-basin are sustainable and/or in-basin opportunities conflict with important public health or safety policies, as here with the need to minimize bird-strike potentials at the airport.

The evidence presented at the trial showed the Port was somewhat limited in its ability to create new wetlands in-basin due to the FAA's requirement forbidding the creation of new wetlands within 10,000 feet of a runway. Under FAA rules, wildlife attractants, such as wetlands, may be sited no closer than 10,000 feet from turbine aircraft movement areas. The FAA imposed this requirement as a condition of its 1997 Record of Decision approving the new Third Runway. With the exceptions noted above and in consideration of the FAA requirement the Port and Ecology worked to devise a mitigation plan, which replaces all impacted wetland functions in the impacted basin. In addition, the Port is creating high quality wetlands at the 65-acre Auburn site, which includes open water for waterfowl habitat.

The Board also concludes the Port's functional assessment of wetlands was sufficient to provide Ecology with reasonable assurance. The Board finds use of WFAM was not necessary,

based on the fact WFAM does not apply to sloped wetlands, and would therefore be applicable to only 23% of the wetlands on site.

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

7. MONITORING AND ADAPTIVE MANAGEMENT

Consistent with its Findings as outlined above and with its prior rulings, the Board concludes both Ecology and the Board may rely on adaptive management processes, including post-certification studies, plans, and reports in making a determination of whether reasonable assurance exists. The Board has taken great care, in creating additional conditions governing monitoring, to ensure the ultimate goal of adaptive management-based processes is that they lead to specifically enforceable requirements in compliance with state water quality standards. This is the overriding principle that shall govern these processes. Adaptive management shall not be used to defer or delay implementation of state water quality standards, but rather may be used when information or technology is unknown or uncertain

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

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

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

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

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

8. PUBLIC PROCESS—NOTICE

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

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

Ecology had previously determined on August 10, 2001, that the project was consistent with Washington's Coastal Zone Management Program (CZMP), and due to the fact only the project conditions were adjusted, additional public notice was not required. Accordingly, the

Board concludes the public notice and comment process that Ecology followed for the §401 certification complied with WAC 173-225-030 and 15 CFR § 930.61(a).

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

9. COASTAL ZONE MANAGEMENT CONSISTENCY

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

The Port submitted an application for certification of Consistency with Washington's CZMP. In reviewing the Port's application, Ecology verified the Port had complied with the enforceable policies of Washington's CZMP. In that review, Ecology verified (a) the Port had completed its SEPA review, (b) the Port obtained a shoreline exemption from the City of Auburn for the proposed wetland mitigation site, (c) the Port had a valid individual NPDES permit for the airport site, had obtained a general NPDES stormwater permit for construction of the Auburn

mitigation site, and was issued a §401 certification for the proposed project, and (d) the Port had the appropriate discharge permits from the Puget Sound Clean Air Agency, and the scope of the project had not changed to alter Ecology's determination that the SeaTac area was in compliance with National Ambient Air Quality Standards for carbon monoxide and nitrous oxide.

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

V. CONCLUSIONS

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

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

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

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

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

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

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

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

7. The fill criteria are modified as follows:

Antimony	5.79 mg/kg
Arsenic	7 mg/kg
Barium	12,000 mg/kg
Beryllium	.6 mg/kg
Cadmium	1 mg/kg
Chromium	42 mg/kg
Copper	36 mg/kg
Lead	24 mg/kg
Mercury	.07 mg/kg
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

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

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

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

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

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

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

IX. ORDER

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

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