

# Sea-Tac Airport Third Runway 401 Permit Negotiations

## MEETING NOTES SUMMARY

October 2<sup>nd</sup> through December 8<sup>th</sup>, 2000

This Meeting Notes Summary is a compilation of discussions regarding issues related to a potential 401 Permit from the Department of Ecology for the Port of Seattle's proposed Stormwater Master Plan Update and third runway construction. This summary has been developed to facilitate additional discussions on specific issues. Material from individual meeting notes regarding process logistics has not been included. Floyd & Snider Inc. has prepared the notes and this summary.

Please reply to Rachel at (206) 292-2078, fax (206) 682-7867, [rachelm@floyd-snider.com](mailto:rachelm@floyd-snider.com) with comments on the accuracy of these notes by 5pm, Wednesday, 12/13/00.

### Definition of Terms Used in these Notes

The purpose of these technical discussions is to clarify known issues and submittal requirements for documents adequate for Ecology and public review. Discussions of potential 401 condition language in these notes are subjective only. Language included in these notes does not in any way presuppose an Ecology decision regarding 401 issuance or preclude development of 401 requirements or conditions following review of the full record.

Resolution (general): The use of variations of the term "resolution" are for the purposes of these negotiations and refer only to the work of these technical negotiations between the Port of Seattle and the Department of Ecology. The terms are not intended to imply that, through these negotiations only, any issue has reached "final" resolution. Final resolution is subject to Ecology's receipt and approval of necessary documentation, subsequent public review and comment, evaluation of public comment and the final permit decision.

Resolved: The term "resolved" is used in these notes to mean that subsequent discussion of the issue is not necessary in these negotiations. This term assumes that subsequent documentation submitted on these issues will be consistent with the meeting discussions, and be adequate for public review.

Resolution Pending Review of Additional Information: This phrase is used to indicate that a possible or likely solution to the issue was identified in the meeting. Additional information will be submitted for review, and further discussion in these meetings will determine whether the issue is "resolved".

Action Items Defined for Further Discussion: This phrase is used to indicate that the issue was discussed, and action items defined for the production of additional information or documentation. Following submittal of such additional information, the issue requires further discussion.

**AR 029093**

ECY00019049

**DOCUMENTATION OF NEGOTIATIONS: MASTER LIST OF ISSUES**

Ecology and the Port have agreed to maintain a single "master list of issues" that is updated at each meeting during these negotiations. It has been agreed that individual participants in these negotiations will not maintain other lists of issues separate from this master list. The following summary table is used to document this master list of 401 Permit technical issues.

All issues included on the list have been identified by the Port or Ecology for resolution prior to issuance of the 401 permit. Resolution of these issues is the purpose of these technical negotiations. It is recognized that additional issues requiring resolution may be identified through public comment.

Definition of these issues and actions to resolve are included in meeting notes. Any comment on this master list of issues should be directed to Kate Snider at Floyd & Snider.

401 Technical Issues Requiring Resolution	RESOLVED	RESOLUTION PENDING REVIEW OF ADDITIONAL INFORMATION	ACTION ITEMS DEFINED FOR FURTHER DISCUSSION	NOT YET DISCUSSED
<b>Administrative</b>				
• Documentation, master list of issues	✓			
• Clarification of purpose of these discussions	✓			
<b>1. Stormwater Master Plan – Detention Sizing</b>				
<b>Key Issues Discussed 10/2</b>				
• Basin Acreage Discrepancies	✓			
• Use of different Target Flow Regimes for different basins	✓			
• Permeability assumptions of Airport fill material	✓			
• Infiltration evaluation of detention ponds	✓			
• Project effect on Low Stream Flows (Base Flows)	✓			
• Use and documentation of HSPF and KCRS models	✓			
• North Employees Parking Lot	✓			
• SDW2 land use conditions	✓			
• SASA facility volumes	✓			
• SASA facility compliance with KC off-site flow criteria	✓			
• SDS-7, SDS3-A, SDS-3, SDS-2, 5, 6 collection areas	✓			
• New information for Walker Creek calibration	✓			
• IWS model input consistency with SMP	✓			
• SDE-3 conditions	✓		<b>AR 029094</b>	

ECY00019050

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Floyd & Snider Inc.

<b>401 Technical Issues Requiring Resolution</b>	<b>RESOLVED</b>	<b>RESOLUTION PENDING REVIEW OF ADDITIONAL INFORMATION</b>	<b>ACTION ITEMS DEFINED FOR FURTHER DISCUSSION</b>	<b>NOT YET DISCUSSED</b>
<b>Add'l Issues Discussed 10/6</b>				
• IWS Pump station overflow modeling	✓			
• IWS Pump station land use values	✓			
• IWS Pump station routing of water quality design storm	✓			
• IWS Lagoon capacities	✓			
• Modeling of potential IWS Lagoon overflow	✓			
• Filter Strip BMPs	✓			
• IWS treatment performance	✓			
• SDN1-OFF	✓			
• SDN-6 Cargo	✓			
• SDW1B impacts to Wetland 39B	✓			
• Des Moines Creek Basin Plan consistency	✓			
• All items in the 9/14/00 King County comment letter not specifically listed above	✓			
<b>2. Flow augmentation for Des Moines Creek</b>	✓			
<b>3. Potential South Access Road impacts to Tye Pond</b>	✓			
<b>4. Borrow Site #3 hydrology</b>	✓			
<b>5. HPA / 401 issuance relationship</b>	✓			
<b>Add'l Issues Raised by Ecology on 10/10</b>				
• Potential impacts of SR 509 Interchange	✓			
• Potential aquitard breaches in Walker Creek basin	✓			
• Runway De-icing / Dissolved Oxygen study	✓			
• Compliance with Kludt settlement	✓			
• Contaminated soil stockpile facility	✓			
• Structural feasibility of proposed big vaults	✓			
• NEPA /SEPA revision timing	✓			
<b>Natural Resources Mitigation Plan (Issues raised by Ecology on 10/10, discussed 10/13)</b>				
• NRMP consistency with SMP	✓			
• Maintenance of wetland 18, 37, 39B hydrology	✓			

ECY00019051

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401 Technical Issues Requiring Resolution	RESOLVED	RESOLUTION PENDING REVIEW OF ADDITIONAL INFORMATION	ACTION ITEMS DEFINED FOR FURTHER DISCUSSION	NOT YET DISCUSSED
• NRMP incorporation of technical responses to previously identified issues	✓			
• S. Access Road/Tyee Pond Impacts	✓			
• Vacca Farm floodplain habitat design elements	✓			
• Stormwater pond cross sections	✓			
• Performance standards	✓			
• Documentation of indirect impacts	✓			
• Wetland delineations	✓			
• Documentation of Miller Creek buffer	✓			
• Fencing/signage for buffers/mitigation areas	✓			
• Restrictive Covenant for Auburn mitigation site	✓			
• Buffer planting in area of potential RDF	✓			
• Wetland impact analysis of IWS expansion	✓			
• Source of irrigation water for mitigation areas	✓			
• Mitigation Fund	✓			
<b>NPDES Major Modification</b>	✓			
<b>Add'l Issues Raised by Ecology on 10/20</b>				
• Timing of Corps public notice	✓			
• Temp. const. staging area w/in SASA footprint	✓			
• Water quality BMPs (401/402)	✓			
• Lagoon #3 potential direct impacts	✓			
• Add'l wetlands on Auburn site	✓			
• 401 relationship to A.O./Gov. Cert. for MTCA GW study	✓			
• Potentially contaminated properties in S. Runway Protection Zone	✓			
• Soil Quality at Borrow Sites	✓			
• Potential confirmation of groundwater quality w/in embankment	✓			
• Construction stormwater management	✓			
• Clean Air and CZM	✓			

<b>401 Technical Issues Requiring Resolution</b>	<b>RESOLVED</b>	<b>RESOLUTION PENDING REVIEW OF ADDITIONAL INFORMATION</b>	<b>ACTION ITEMS DEFINED FOR FURTHER DISCUSSION</b>	<b>NOT YET DISCUSSED</b>
<ul style="list-style-type: none"> <li>• Compatibility of potential RDF and Tyee mitigation</li> </ul>	✓			
<b>Add'l SMP Issues Identified on 10/27</b>				
<ul style="list-style-type: none"> <li>• SDW1A facility sizing</li> </ul>	✓			
<ul style="list-style-type: none"> <li>• SMP Clarification regarding water quality BMPs</li> </ul>	✓			

**1. STORMWATER MASTER PLAN ISSUES**

**Issue: Basin Acreage Discrepancies**

**10/2 - RESOLUTION PENDING REVIEW:** Parametrix provided a table describing how watershed areas were grouped that clarifies information and likely resolves discrepancy. Possible explanation is that Walker Creek acreages were double counted during review. King County will review table to confirm.

An additional 80-acre discrepancy is due to the difference between pre- and post- conditions for lakes and detention ponds. Parametrix will describe this discrepancy, as a table with annotations. King County will review.

**10/6 - RESOLVED:** Parametrix provided a supplemental table defining pre- and post- acreages, including conditions for lakes and detention ponds. The table was reviewed and resolved previous questions raised about the information.

**Issue: Use of different Target Flow Regimes for different basins**

**10/2 - RESOLVED:** All detention facilities will be designed based on 75% Forested, 15% grass, and 10% impervious surface target flow regime. This will result in re-design of basins such as SDW-3A, SDW-1A, SDW-1B, SDW-2, SDN-2X, SDS-2, SDS-5 and SDS-6.

**Issue: Permeability assumptions of Airport fill material**

**10/2 - RESOLVED:** Permeability of fill material used for the Draft SMP is acceptable. However, artifacts remain in SMP text based on fill permeability assumptions from previous versions of the SMP. SMP text will be revised to remove discrepancies.

**Issue: Infiltration evaluation of detention ponds**

**10/2 - RESOLVED:** Although the Port will evaluate the infiltration potential of detention ponds, detention volumes will not be reduced based on this evaluation, nor will the evaluation be used to request base-flow mitigation credit.

Designed infiltration into embankments will not be considered, based on Port geotechnical evaluation and long-term embankment stability concerns. Port will send memo documenting geotechnical evaluation to Ecology.

*Editor's Note:* Additional discussion regarding infiltration evaluation is included later in these notes under the issue heading "SDW1A facility sizing" on 11/29.

**Issue: Project Effect on Low Stream Flows (originally called Base Flows)**

**10/2 - ACTION ITEMS DEFINED FOR FURTHER DISCUSSION:** Port will summarize modeling conclusions related to base flow. This work will include: 1) review allocation of mass balance re: component contributions to base flow; 2) convert HSPF model output to hydrograph form to better define base flow conditions during critical summer low flow periods.

Based on that documentation, Ecology, King County and Port will further discuss: 1) conclusions regarding potential negative impacts to base flow; 2) use of offset for other non-hydrologic factors; 3) contributions to base flow from embankment discharge.

**10/6 - ACTION ITEMS DEFINED FOR FURTHER DISCUSSION:** Parametrix summarized progress on action items applicable to all three basins (Des Moines, Miller and Walker). 1) Work is underway re: allocation of mass balance to determine component contributions to base flow. 2) Norm Crawford, HSPF author, is developing an allocation analysis on a unit basis by soil type. This will provide an independent check and explain implications of period factors. Results of items 1 and 2 will be included in Appendix F. 3) Pacific Groundwater Group will work with the Port team to discuss correlation/conceptual interface of the "SLICE" modeling performed for Ecology aquifer study and the hydrogeologic modeling done with HSPF by the 3<sup>rd</sup> Runway team. The deliverable for this work will be a technical memo for reviewers that will not be included in the SMP. 4) Parametrix is developing hydrograph output isolating the "AGWO" groundwater input component of base flow for low-flow periods at in-stream points (such as RDF, SR 509, and near mouth for Des Moines Creek). Hydrograph output of all contributions will additionally be developed for comparison. KCR requested that this work additionally include some statistics re: change over 48 years as a % increase or decrease in base flows during critical low-flow periods. KCR will provide requirements for statistics to Parametrix. Model parameters for the fill material will be based on the parameters described on page A-17 of the 8/00 SMP, with the exception of the DEEPFR variable which would be set to value used throughout the stream basin.

Status of base flow action items will be reviewed at the 10/13 meeting. Objective is to communicate the result regarding potential negative impact to base flows at critical low-flow periods as soon as possible.

**10/13 - RESOLUTION PENDING REVIEW:** All base flow action items documented in 10/6 meeting notes are underway. Consultation held with Norm Crawford, PGG, Hart Crowser, Earth Tech and Parametrix regarding correlation between HSPF stormwater modeling and PGG modeling determined that: 1) embankment fill is expected to behave as reported in the PGG report and as observed on-site, delaying water discharge; and 2) HSPF model not suited for analysis of this condition due to small area of embankment fill influence, aggregate inflow parameter, the short duration of storage in the upper fill zone, and insufficient data to calibrate HSPF to represent condition of embankment fill soils. Results of the consultation recommend that the Hydrous model used by PGG be rerun using HSPF output for initial infiltration as input to the Hydrous model in order to analyze all components effecting base flows. In addition, other non-hydrologic affects (i.e. septic tanks) will be evaluated but not "modeled" in Hydrous. The results of this analysis will be documented in a technical memo as late summer (low-flow period) hydrographs (or table of this information) at specific performance points with an accounting sheet of considered contribution/reduction sources. This technical memo will be referenced in both the SMP and the NRMP. Ecology's Dave Garland will review this deliverable.

**10/20 - RESOLUTION PENDING REVIEW:** A summary of base flow work will be presented at the 10/27 meeting.

ECY00019054

**10/27 - RESOLUTION PENDING REVIEW:** A summary of ongoing base flow work was presented. Modeling has been performed by both PGG and Hart Crowser to evaluate the effect of the embankment on creek base flows. Both studies support a delayed water discharge effect from the embankment fills to the creek, potentially augmenting late-summer Miller Creek low flows. Efforts are underway to extrapolate the unit-area results for the full fill footprint. Embankment behavior results will be integrated with HSPF results and non-hydrological effects to develop a combined evaluation of net project effect on base flows, focusing on the August/September low flow periods, at specific in-stream locations. The study does not currently take into account secondary infiltration of runway pavement runoff. This input could be evaluated if analysis without it identifies a potential base flow concern.

The product of this work effort will be a technical memo that can be referenced by both the SMP and NRMP. The base flow technical memo is expected to be submitted for Ecology review mid-November.

**10/31 - RESOLUTION PENDING REVIEW:** Preliminary results of base flow analysis, for Des Moines Creek Basin at a minimum, will be presented 11/7. Technical memo will be submitted in mid-November.

**11/7 - RESOLUTION PENDING REVIEW:** The cumulative base flow evaluation (HSPF model, embankment seepage, non-hydrologic effects) is underway. HSPF results for all 3 basins will also look at the effect of long-term drawdowns of the detention facilities. King County will provide information to the Port and Ecology regarding potential water quality effects of vault storage. King County will also verify whether the base flow analysis should be for low-flow monthly averages or for a 7-day low flow period.

Evaluation of the embankment's effects shows there is good correlation between Hart Crowser and PGG modeling. Both models predict an increase in Miller Creek base flow in August and September from the embankment. Neither Walker nor Des Moines Creeks show an appreciable increase or decrease in base flow caused by embankment seepage. These results will be added to the HSPF results and non-hydrologic effects in order to determine the cumulative effects on base flow.

**11/13 - RESOLUTION PENDING REVIEW:** Analysis is underway. Results will require QC review before completion of the final draft Base Flow Technical Memo.

**11/29 - RESOLUTION PENDING REVIEW:** Analysis underway examines Low Stream Flows and it was agreed that "Low Stream Flows" is a more correct name for this issue. Preliminary results of HSPF August/September average flows and 7-day, 2-year low flows were discussed for each basin. Preliminary results of precipitation infiltration and delayed discharge through the embankment fill soils, infiltration through biofiltration strips and swales of runoff from impervious areas, and non-hydrological effects (changes in cultural influences) were discussed. A final tech memo will be prepared based on these analyses and will compare these analyses to the analysis performed in the 1999 submittal. The HSPF portion of the final tech memo will be consistent with the facilities proposed in the final draft SMP.

**12/8 - RESOLVED:** As discussed in previous meetings, a technical memorandum regarding project effect on low stream flows will be part of the package that is released for public comment. The technical memorandum will be referenced by both the SMP and the NRMP. The memo will describe combined project effect on low stream flows based on HSPF results, embankment discharge evaluation and cultural (non-hydrological) effects. The HSPF results for critical low stream flows will now include effects of the designed infiltration facilities at SDW1A and SDW1B.

For areas where it is determined that the project will have negative impacts on critical low stream flows, stormwater storage in excess of detention requirements will be reserved specifically for low-flow augmentation purposes. There will not be a separate Flow Augmentation Plan produced for any

of the basins. The SMP and Low-Flow Stream Flow memo will show no overall low-flow impacts due to a combination of detention, infiltration and stormwater retained specifically for low-flow release.

Documents produced for public comment will include proposed flow augmentation facilities, with accompanying monitoring and operational description.

**Issue: Use and documentation of HSPF and KCRS models**

10/2 - RESOLUTION PENDING REVIEW: All agreed that use of HSPF model is appropriate, and HSPF results are authoritative for detention decisions. The KCRS model will continue to be used for preliminary sizing and definition of input parameters for HSPF.

Inconsistencies between the KCRS results presented in Attachment F of Appendix A of the Draft SMP and HSPF input parameters will be resolved through the following action items: 1) King County will provide runoff files for use in running KCRS model; 2) Parametrix will use runoff files to rerun KCRS model, adjust HSPF input parameters (F tables) and re-run HSPF; 3) a revised Appendix A will be delivered to King County for review. Revised flow duration graphs will be plotted using a normal scale. Electronic files will additionally be delivered to King County.

Group assumptions are that resultant revisions will have the following characteristics: 1) KCRS and HSPF input should be the same, with the exception of input regarding grading of detention ponds. Any additional discrepancies need documentation. 2) Output from the two models will be different because the models vary in approach. However, output from the two models should be very similar, and resultant stage/discharge curves should line up; 3) Performance goals for detention are unchanged.

SDN-1 (SDN-1, SDN-1LWR) was originally not modeled in HSPF. This modeling has been completed and will be included in the deliverables listed above.

The revisions described above should address specific King County questions regarding performance of Facility 3X and others. King County provided a written description of specific facility performance concerns that should be addressed by this work.

10/6 - RESOLUTION PENDING REVIEW: Between 10/2 and 10/6, KCR provided new runoff files for Parametrix re-run of the HSPF modeling. Preliminary review of model results for Des Moines and Walker basins show the anticipated consistency between KCRS runoff files and HSPF output, and confirm sizing of detention facilities. Miller basin results were inconclusive due to possible errors or inconsistencies in runoff files.

King County to review and verify runoff files and resend to Parametrix 10/9/00. New files will include revision to fill parameters. Parametrix submitted electronic files to King County to assist review and verification. King County will also send Parametrix KCRS rainfall records for comparison with HSPF.

Example reformat of graphs is acceptable to King County.

KCR suggested adjusting orifice capacities so that low end of target flows are still achieved and overflows are minimized. Clarification was made that model can be used with three orifices.

Parametrix submission of model results to KCR for review will be incremental, as follows: 1) Revised Appendix B (Walker Creek Calibration); 2) Revised Appendix A materials separately submitted for each basin [Des Moines, Walker (following number 1, above) and Miller (following resolution of runoff file problem)].

**AR 029100**



**10/13 - RESOLUTION PENDING REVIEW:** The Miller Creek runoff file error/inconsistency was found, and work is underway to model this basin. Parametrix submitted the revised Appendix A material for Des Moines Creek basin to King County and Ecology.

**10/20 - RESOLUTION PENDING REVIEW:** All necessary Des Moines Creek Basin deliverables have been provided to King County. Walker Creek Basin pond sizing / HSPF and KCRTS model runs are complete and will be provided to King County 10/23.

Consultant J. Brasher is confirming additional source of error in Miller Creek runoff files for HSPF / KCRTS comparison. HSPF model run completed for all but 3 ponds. Submittal of Miller Creek deliverables targeted for the coming week.

**10/24 - RESOLUTION PENDING REVIEW:** Walker Creek Basin pond sizing / HSPF and KCRTS model runs will be delivered to King County today. King County received and reviewed the Des Moines Creek Basin package that did not contain the latest model information for SASA. King County will review SASA and provide comments as necessary (to be discussed Friday 10/27). Overall, the material presented in the Des Moines Basin deliverable meets performance goals and none of the comments provided and listed below would change the outcomes/pond sizes presented in the material. Results from the discussion of the deliverable include:

- Consistent approach between basins needed for including or not including existing large storage facilities in the model for pre-developed conditions. King County has no preference. Parametrix will evaluate whether to include or to exclude these facilities.
- Parametrix will clarify and address discrepancies in input files (basins DM3, DM9, DM14).
- Parametrix will include a stage corresponding to riser overflow in the summary table of KCRTS/HSPF comparison. King County recommends including a stage at which every orifice kicks in.
- Parametrix will clarify when presenting volumes in F Tables, Appendix C and SMP whether the volume refers to volume of storage provided (top of riser) or to volume of storage at a maximum modeled stage. Parametrix will ensure that volumes presented in the model and Appendix C are the same (F Tables 40, 43).
- Parametrix will clarify which are and which are not overflows, why, and ensure that they are modeled consistently.
- King County recommends including a stage at 17.5 feet in SDS-3.
- Parametrix will double check that the 256 discharge combines with the 98 ac/ft discharge before releasing and clarify this in the schematic and model.
- Parametrix will review pre- and post- land use values in off-site basins (DM3, 4, 6, 7, 9, 10, 11, 12, 13, and 22) to make values consistent or clarify why values are different.
- Parametrix will adjust duration plots to capture points in the range of flows that are most pertinent (adjustment to User-defined class limit and check of data set re: annual peaks).
- Parametrix will label the location of the POC in the model.

Source of error in Miller Creek runoff files still unknown. Problem could be in either KCRTS or HSPF runoff files. Materials provided to King County (in two partial "works-in-progress" submittals 10/22 and 10/24) include pond sizing according to HSPF model, excluding NEPL. King County review of provided materials (in HSPF) will not begin until source of error in runoff files is found in case the problem is determined to be in HSPF. Parametrix will email most current .wdm and input files to J. Brascher 10/25. J. Brascher will research source of error 10/25.

**AR 029101**

**10/27 - RESOLUTION PENDING REVIEW:** King County received and reviewed the materials provided for Des Moines Creek Basin. The materials were discussed at the 10/24 meeting, and items were identified to clean up the documentation. King County stated that based on the existing information in the SDS basins draining to the west branch of Des Moines Creek, the west branch mitigations are acceptable under King County standards. King County will review the hydrology of the east branch SASA facility and provide comments 10/30.

Walker Creek Basin pond sizing / HSPF and KCRS model runs (appendix A) and calibration documentation (revised Appendix B) have been submitted to King County.

Source of error in Miller Creek runoff files was found 10/25 in the fill parameters of the HSPF model. Pond sizing and model runs (Appendix A), except for NEPL and SDW1A, will be submitted to King County 10/27.

**10/31 - RESOLVED:** King County completed review of Miller Creek and Walker Creek SMP deliverables, excluding SDW1A and NEPL facilities. The King County reviewer has provided comments to Ecology and the Port. There may be 2-3 opportunities to downsize facilities. In general, if the final draft SMP is consistent with the reviewed interim deliverables, then King County is confident that they can give approval to the SMP following final draft review in late November.

### Issue: North Employees Parking Lot (NEPL)

**10/2 - RESOLUTION PENDING REVIEW:** NEPL detention requirements will be re-evaluated based on the following changes in evaluation technique: 1) effect of new runoff files received from King County; 2) pre-condition soil parameters will be checked using site-specific soils information from NEPL design; 3) the NEPL and M6 basins will be combined to determine detention requirements.

**10/6 - RESOLUTION PENDING REVIEW:** Acquisition of site-specific soil information is underway. This deliverable will be included in the Miller watershed Appendix A package, defined above.

**10/20 - RESOLUTION PENDING REVIEW:** Results of research into site-specific soil data and the proposal to combine the NEPL and M6 basins do not significantly affect re-evaluation of detention requirements per 10/2 meeting. A technical meeting will be held 10/24 to discuss NEPL alternatives and other remaining SMP action items and deliverables.

**10/24 - RESOLUTION PENDING REVIEW:** Many options to address this subbasin were discussed. Four options will be presented and discussed at the meeting Friday 10/27.

1. High flow bypass to IWS outfall
2. Infiltration
3. Change of performance standards
4. Water re-use to augment summer Miller Creek flows

**10/27 - RESOLUTION PENDING REVIEW:** NEPL detention facility was constructed in 1997 based on the then-current 1990 KC manual requirements with City of SeaTac review. KC manual does currently vest facilities constructed under past requirements, although this policy is changing. Based on today's KC manual, if NEPL were to be constructed today by itself, it would require a Level 1 continuous flow model or a Level 2 if there were evidence of downstream erosion. Although this facility has already been constructed, it is included as a master plan project. Current modeling as a master plan project, with basin-specific parameters and consistent flow control requirements for all basins, yields an ever-increasing facility size, unable to be fully drained.

Options for addressing this subbasin that were discussed include:

- Accept existing NEPL facility, understanding that future potential facility alterations could be determined and required under the NPDES permit. The 401 would be conditioned to require monitoring at the NEPL vault outlet (concurrent with Miller Creek Detention/Lake Reba) and

monitoring for downstream erosion. Potential impacts, if found, could be addressed through a basin plan project or a 402 amendment. This approach would allow recommendations of the Miller Creek Basin Plan to be taken into account, such as for target stream flow performance standards.

- Utilize regional soil parameters (rather than basin-specific); would likely result in requirement for approximately 18 additional ac/ft of storage
- Water re-use to augment summer Miller Creek flows, with appropriate storage volume
- High flow bypass to direct discharge to Puget Sound
- Infiltration (potentially restricted in aquifer protection area)

The Port and Ecology will further discuss options.

**10/31 - RESOLUTION PENDING REVIEW:** The Port will check whether or not there is existing data relative to potential downstream impact of the existing NEPL facility. The 401 could include requirements for monitoring to determine potential downstream impacts of the existing facility and require alteration if necessary. King County requests that work for the NEPL facility be done consistent with basin plan recommendations under development by the Basin Planning Committee. Ecology will discuss this issue internally and discuss again 11/7.

**11/7 - RESOLUTION PENDING REVIEW:** The Port confirmed that there is no existing data to determine potential downstream impact of the existing NEPL facility. The Port is evaluating vault performance and potential past overflow based on maintenance records and visual indications. Parametrix will model the existing facility and compare the results to observed vault performance. Water runoff data may be available from the construction of NEPL prior to paving that could be used to develop site-specific parameters for use in the modeling of this basin. Ecology requests that this work be performed and discussed as the next step on this issue. Ecology is reluctant to require monitoring of potential downstream impacts and potential subsequent facility alteration under the 401 permit.; those issues are more appropriately addressed in a 402 permit.

**11/29 - RESOLUTION PENDING REVIEW:** The Port is developing a draft workplan for performance monitoring at the existing vault and for downstream effects of the existing facility. Ecology will provide feedback to the Port about the acceptability of a monitoring approach prior to determining potential need to retrofit the existing facility. Work regarding revised detention sizing will continue based on use of site-specific soil and flow data. A site-specific soils report characterizing pre-construction soil characteristics has been reviewed for use in modeling efforts. Hart Crowser will provide Ecology, King County and Aquaterra with a copy of this report.

**12/8 - RESOLVED:** The Port will propose an additional 13.9-ac/ft vault to retrofit the NEPL facility. This proposal uses the Miller Creek parameters and takes the constructed site back to the target flow regime (75, 15, 10), consistent with the approach to retrofit other constructed facilities. King County noted that the downstream regional facility assists with the rationale to retrofit NEPL as a constructed facility.

**Issue: SDW2 does not meet King County requirement for 1979 land use conditions or better**

**10/2 - RESOLVED:** Detention calculations will be revised using 1.71 acres of impervious surface (1994 conditions) to set the target flow regime, with the 2006 sub-basin boundary. Associated clarifying text will be added to the SMP.

**Issue: SASA facility model volume estimate vs. proposed storage volume**

**10/2 - RESOLVED:** Revised modeling of the SASA area will include the following: 1) 1994 calibration will be used for offsite areas in existing conditions; 2) Onsite areas will be modeled with

future land use and 10-15-75 target flow regime, using proposed flow control facilities; 3) only the pond sizing that has been selected for construction will be modeled; 4) comparison at the evaluation point will only address port facilities, not whole watershed retrofit. Note: SASA facility may require redesign if calculations described below re: off-site flow input do not show compliance with King County manual requirements.

**10/31 - RESOLVED:** King County has completed review of SASA facility and provided feedback to Ecology and Parametrix.

**Issue: Is SASA facility, proposed as an in-stream, non-regional facility, in compliance with King County manual requirements restricting percentage of off-site flow?**

**10/2 - RESOLUTION PENDING REVIEW:** Calculations will be made to determine compliance with this requirement. 100-yr off-site peak flows to the facility are required to be less than ½ 100-yr onsite peak flows to the facility - from SASA, SDS-1 and SDE-4.

**10/6 - RESOLUTION PENDING REVIEW:** Compliance will be demonstrated and presented in the Des Moines watershed Appendix A package.

**10/13 - RESOLUTION PENDING REVIEW:** Parametrix requested and received clarification from King County. Based on this information, Parametrix will provide material to King County and Ecology on 10/16.

**10/20 - RESOLUTION PENDING REVIEW:** Parametrix and King County have developed a proposed evaluation of SASA facility flows to address compliance of the in-stream facility with King County Manual requirements. This proposed evaluation will be discussed with Ecology in a King County-Ecology meeting scheduled for Thursday 10/26.

**10/24 - RESOLUTION PENDING REVIEW:** King County is willing to support the proposed evaluation of SASA facility flows to address compliance of the in-stream facility with King County Manual requirements. This proposed evaluation will be discussed with Ecology in a King County-Ecology meeting scheduled for Thursday 10/26.

**10/27 - RESOLUTION PENDING REVIEW:** King County received justification documentation for a waiver of these King County criteria. King County is willing to support the waiver of off-site flow criteria to leave the facility in-line as long as an evaluation shows cumulative flow conditions at 200<sup>th</sup> monitoring station are acceptable. This evaluation should be performed following changes to some land use values for the watershed, as defined on 10/24.

**10/31 - RESOLUTION PENDING REVIEW:** An evaluation of cumulative flow conditions at 200<sup>th</sup> monitoring station will be presented and discussed 11/7.

**12/8 - RESOLVED:** The SMP includes an in-stream detention facility at this location. King County has reviewed information submitted to date and has concluded the in-stream facility is acceptable, but requires a waiver of King County off-site flow criteria. King County will review new information and discuss the waiver proposal with Ecology, concurrent with public comment.

**Issue: SDS-7, SDS3-A, SDS-3, SDS-2, 5, 6 demonstration of feasibly meeting flow control performance standard.**

**10/2 - RESOLUTION PENDING REVIEW:** Parametrix will demonstrate feasibility of meeting flow control performance standard with point of compliance just upstream of NW ponds.

AR 029104

**10/6 - RESOLUTION PENDING REVIEW:** Parametrix will demonstrate feasibility of meeting flow control performance standard with point of compliance just upstream of NW ponds. This will be presented in the Des Moines watershed Appendix A package.

**10/31 - RESOLVED:** King County has completed review of these facilities and provided feedback to Ecology and Parametrix.

#### **Issue: New information for Walker Creek calibration**

**10/2 - RESOLUTION PENDING REVIEW:** Port will evaluate new information regarding a culvert on Des Moines Way that reportedly drains the large wetland, and determine need for calibration adjustment and F table revision.

**10/6 - RESOLUTION PENDING REVIEW:** Calibration document will be reviewed to determine whether or not the Walker Creek culvert was modeled in the previous SMP draft and already included in the F tables.

**10/13 - RESOLUTION PENDING REVIEW:** King County and consultant Joe Brasher will meet and perform a field check on 10/16 to support Walker Creek calibration. Results of this work will be submitted to King County and Ecology on 10/19.

**10/20 - RESOLUTION PENDING REVIEW:** Calibration results provided to King County following site visit 10/16. Documentation of results (revised Appendix B) is targeted for submittal in the next week following resolution of Miller Creek HSPF/KCRTS work by J. Brascher.

**10/24 - RESOLUTION PENDING REVIEW:** Calibration documentation (revised Appendix B) prepared by J. Brascher will be transmitted by email to King County 10/25.

**10/27 - RESOLUTION PENDING REVIEW:** Walker Creek Basin pond sizing / HSPF and KCRTS model runs (appendix A) and calibration documentation (revised Appendix B) have been submitted to King County.

**10/31 - RESOLVED:** King County has completed review of the revised Walker Creek calibration (Appendix B) and provided feedback to Ecology and Parametrix.

#### **Issue: IWS model input consistency with lagoon expansion proposed in SMP**

**10/2 - RESOLVED:** HSPF modeling will be revised to be consistent with facilities actually planned for construction in the Des Moines Creek watershed. This will address a current inconsistency between the SMP and HSPF input. Note: there are additional comments on IWS modeling that have not yet been discussed.

#### **Issue: Is SDE-3 addressed properly?**

**10/2 - RESOLVED:** SDE-3 was determined to be a mapping error.

#### **Issue: IWS – Pump Station overflow modeling**

**10/6 - RESOLUTION PENDING REVIEW :** Check pump station configuration and resultant modeling of both pumped and overflow conditions. If the pump stations are connected in series, modeling of overflow conditions should be confirmed.

**AR 029105**

10/13 - RESOLUTION PENDING REVIEW: The Port reported that pump station overflows to the stormwater system are connected in series. The Miller Creek basin model will be rerun based on this information.

10/27 - RESOLVED: Review of SMP-related IWS issues concluded that they have been resolved.

**Issue: IWS – Pump station land use values**

10/6 - RESOLVED: Pump station land use values will be adjusted.

**Issue: IWS – Pump station routing of water quality design storm**

10/6 - RESOLUTION PENDING REVIEW: Port will review facility design and confirm that downstream pump station will be able to adequately route water quality design storm to IWS. This evaluation will consider timing of receipt of overflow from upstream pump station. Retrofit or redesign of pump stations would be necessary if routing is inadequate. Text addressing this issue will be added to SMP Water Quality section.

10/13 - RESOLUTION PENDING REVIEW: Confirmation of pump station piping configuration (discussed above in Pump Station Overflow Modeling Issue) will likely resolve this issue.

10/27 - RESOLVED: Review of SMP-related IWS issues concluded that they have been resolved.

**Issue: IWS – Lagoon capacities**

10/6 - RESOLVED: Port will provide a new F Table that uses the accurate (larger) capacity of 249 ac/ft.

**Issue: IWS – Modeling of potential IWS Lagoon overflow**

10/6 - ACTION ITEMS DEFINED FOR FURTHER DISCUSSION: Modeling completed by Kennedy Jenks for lagoon expansion will be reviewed to determine whether it was based on a continuous flow model. If not, the KCRTS model will be run assuming pump stations don't exist (all water flows directly to lagoons), using continuous flow model with full acreages included. If this effort shows an overtopping concern, then the HSPF model would be adapted to thoroughly model the lagoon. Additionally, the existing HSPF input file notes will be cleaned up re: this issue.

10/13 - RESOLUTION PENDING REVIEW: The Port will provide to King County and Ecology a previously completed report by Kennedy Jenks that addresses this issue.

10/20 - RESOLUTION PENDING REVIEW: Modeling performed by Kennedy-Jenks for lagoon design has been submitted to King County for review relative to this issue.

10/24 - RESOLUTION PENDING REVIEW: Kennedy-Jenks material provided to King County included the discussion of the analysis, not the analysis itself. King County raised questions regarding a statement in the report about safety of the easterly containment dike and about summer overtopping during construction of the Lagoon #3. Parametrix will messenger these questions to the Port. A Feb 2000 K-J report statement about maximum practical storage volume is inconsistent with SMP volume. Parametrix will request this report from the Port and evaluate the inconsistency.

Kennedy-Jenks material did not address King County concerns regarding a continuous vs. event model of the lagoon system. Parametrix will evaluate a continuous flow model either in KCRTS or in a spreadsheet model and include this material in the SMP. The continuous flow model will look at discharge limits during storm events over a range of processing rates.

Parametrix will include the following sentence in the SMP text: "IWS sizing assumes no other diversions."

10/27 - RESOLVED: Material from the Kennedy-Jenks report, and additional modeling has resolved this issue. Modeling concludes lagoon will not overtop with current processing rates. This independent analysis will be added to the SMP, and does not need to be added in the SMP stream modeling. A minimum processing rate to prevent overtopping will be defined for reference to IWS lagoon operation manual. Parametrix will ensure volume used in model is consistent with volume presented in Feb 2000 Kennedy-Jenks report.

King County conversations with the Port have resolved additional questions that were identified on 10/24 regarding statements made in the Kennedy-Jenks report. Review of other SMP-related IWS issues concluded that they have been resolved.

**Issue: Filter Strip BMPs**

10/6 - RESOLVED: Issue acknowledged, SMP should reference requirements under the 402 permit.

**Issue: IWS Treatment Performance**

10/6 - ACTION ITEMS DEFINED FOR FURTHER DISCUSSION: Port will check whether influent data and evaluation is available in Kennedy Jenks material prepared in support of lagoon expansion.

10/13 - RESOLVED: Port reported that influent data and evaluation is available from Kennedy Jenks material. Parametrix will include language in the SMP addressing this issue.

**Issue: SDN1-OFF**

10/6 - RESOLVED: Clarification that all areas within Master Plan projects and existing airport facilities' footprint are being retrofitted. There is no expectation that undeveloped areas would be retrofit.

**Issue: SDN-6 Cargo**

10/6 - RESOLVED: Parametrix agreed to include a comment line in F tables for this facility and other basins re: detention pond depth (bottom of live storage to line of riser overflow) for ease of review. SMP Section 6 will be made consistent with facility size in Appendix A.

**Issue: SDW1B Impacts to Wetland 39B**

10/6 - RESOLUTION PENDING REVIEW: Regarding pond discharge location relative to wetland, if Ecology wetlands review accepts the proposed design, it is acceptable to King County SMP reviewer.

**Issue: Des Moines Creek Basin Plan consistency**

10/6 - ACTION ITEMS DEFINED FOR FURTHER DISCUSSION: An action item related to this issue was defined to compare the impervious area assumptions in the Basin Plan and the SMP to provide perspective for further discussions.

10/13 - RESOLVED: Port and Ecology agreed that the SMP is a stand-alone document that can receive approval without any reliance on a potential future RDF. If the Port proposes use of the RDF in the future, review and approval of an amended SMP would be necessary. The 401 Permit may reference this requirement.

**AR 029107**

**10/20 - RESOLVED:** King County will provide a comparison of impervious surface assumptions in the Basin Plan with the 3<sup>rd</sup> Runway SMP impervious surface assumptions. This work is a lower priority than review of SMP deliverables.

**Issue: All items in the 9/14 King County Comment Letter not specifically listed above.**

**10/6 - RESOLVED:** Meeting participants went through the King County Enclosure 2, Specific Review Comments Volume 1 (dated September 14, 2000) page by page. It was agreed that all comments have been addressed either directly or indirectly in the SMP Issues described above.

## 2. FLOW AUGMENTATION FOR DES MOINES CREEK ISSUE

**10/10 - Potential 401 condition:** No construction of runway pavement or SASA impervious surfaces would be allowed until a flow augmentation plan with an identified source of water is approved.

**10/10 - RESOLUTION PENDING REVIEW:** The Port has asked Ecology to consider using the Hillis Rule to prioritize approval of the Port well or SPU water as the source of flow augmentation. Port is also initiating search for additional water rights in the basin with potential for change in use applications. Flow augmentation plan has received initial Ecology review, and is being finalized. Tom Luster will call Keith Smith with additional comments. The plan focuses on SPU water as the primary source alternative and the Port well as the secondary alternative. Suggestion made by King County that Port and Des Moines Basin Plan Committee consider a joint application for use authorization of golf course well. Ecology will hold additional internal discussions about this potential 401 condition to determine if it provides reasonable assurance.

**10/20 - RESOLVED:** Ecology stated that the proposed 401 condition is acceptable and provides reasonable assurance. "No construction of runway pavement or SASA impervious surfaces would be allowed until a flow augmentation plan with an identified source of water is approved" (10/10 meeting notes).

**11/29 - RESOLUTION PENDING REVIEW:** After Ecology can evaluate the final Low Stream Flow tech memo they will make decisions regarding mitigation requirements. Potential augmentation opportunities and approaches were discussed.

**12/8 - RESOLVED:** For the Des Moines Creek basin, the critical low stream flow impact evaluation will address consistency with the Des Moines Creek Basin Plan approach regarding total critical low flows, and the effect that Port actions under these documents will have on total stream low flows.

## 3. POTENTIAL S. ACCESS ROAD IMPACTS TO TYEE POND ISSUE

**10/10 - Potential 401 condition:** Tyee Pond will be protected in Third Runway project. If a subsequent project were to propose impact to Tyee Pond, appropriate permitting and mitigation would be required.

**10/10 - RESOLUTION PENDING REVIEW:** Ecology proposed a buffer around Tyee Pond and the East branch of Des Moines Creek be considered for implementation as a Restrictive Covenant. If a future project were to impact this buffer, the permit process and mitigation would be required. The Port will evaluate the logistics of a buffer for further discussion.

**10/13 - RESOLUTION PENDING REVIEW:** The Port highlighted that the existing Tyee Pond provides a stormwater management spill control function, a function overlooked in discussions at the 10/10 meeting. The Des Moines Creek Basin Plan envisions Tyee Pond's continued use for spill containment. The SMP does not propose any change to the use or maintenance of the pond.



Ecology and the Port will confirm that the Corps is fully informed of the spill containment function to factor into decision-making. During evaluation of a potential buffer at Tye Pond, restrictive covenant language will be checked re: acknowledgement of the stormwater management spill control function. The Port is reviewing the feasibility of a 100-foot buffer around the Tye Pond.

**10/20 - RESOLUTION PENDING REVIEW:** Ecology recognizes ongoing use of Tye Pond for spill containment and stormwater management. The Des Moines Creek Basin Plan envisions Tye Pond's continued use for spill containment and stormwater management. These uses will not be considered as new or additional impacts. The Restrictive Covenant will recognize the uses and allow access for maintenance and potential remediation if a spill were to occur.

Evaluation of a buffer, as discussed in previous meetings, is ongoing.

**10/27 - RESOLVED:** The Port evaluated the feasibility of a buffer for Tye Pond and east and west Des Moines Creek, and provided Ecology with a map of the proposed buffer. Ecology feedback is requested, although the proposal may be included in the revised NRMP if no feedback is given within the time allowed. The Port will submit Restrictive Covenant language to Ecology. The Port clarified that Port is not requesting mitigation credit for the proposed Tye buffer – it has not been factored into mitigation ratios.

**10/31 - RESOLUTION PENDING REVIEW:** Ecology, Corps, DOT and Port will coordinate review of restrictive covenant language, to confirm consistency in approach for the DOT project and the Port 401 process.

**11/7 - RESOLUTION PENDING REVIEW:** Discussions between Ecology and DOT are underway regarding consistency in approach for the DOT project and the Port 401 process re: potential future impacts of the South Access Road project on Tye Pond area wetlands. In the 401 process, Ecology has requested placement of a buffer with restrictive covenant around Tye Pond, as a mechanism to confirm that any future projects (including the S. Access Road) that may propose an impact in this area would have to mitigate. The Port understands that the Corps interpretation of restrictive covenants is that they may prevent any future actions in the area. Legal research is being performed regarding the Corps' restrictive covenants. The Port will set up a meeting between Ecology's DOT liaison, A. Kenny, E. Stockdale/Ecology wetlands consultant, DOT, the Port, and the parties' legal teams to discuss.

**11/13 - RESOLUTION PENDING REVIEW:** WSDOT received a formal non-concurrence letter from the Corps because the South Access alternative goes through an area with a proposed Restrictive Covenant. Efforts to schedule an expedited coordination meeting are underway.

Three questions need answered to move this issue forward:

1. Did Ecology factor avoidance of Tye Pond into their mitigation decision? The Port did not factor the Tye Pond buffer into their formal mitigation credits.
2. Can WSDOT move forward with a preferred alternative assuming that any impact to Tye Pond or its buffer can be mitigated?
3. How should avoidance of Tye Pond be characterized in the NRMP?

**11/29 - RESOLUTION PENDING REVIEW:** Ecology would accept removal of language regarding the restrictive covenant at Tye Pond from the JARPA application, and clarification in the JARPA application that Tye Pond buffers are not part of the mitigation package for master plan projects. For the 401 permit, Ecology will require a restrictive covenant on the pond and its buffers that will require mitigation for any future direct or indirect impacts to the pond or buffers. This would not prevent future impacts, but would require mitigation. The Ecology-WSDOT liaison is comfortable with this approach. A meeting with the Corps to coordinate this issue is potentially scheduled for 12/6.

Ecology's wetland consultant will need to evaluate the adequacy of the proposed buffer.

#### 4. BORROW SITE #3 HYDROLOGY ISSUE

**10/10 - Potential 401 condition:** Port would not excavate Borrow Site #3 until Ecology received and approved a plan addressing potential hydraulic impact on nearby wetlands.

**10/10 - RESOLUTION PENDING REVIEW:** Port consultants from Hart Crowser presented design concepts for a potential swale to be built on the cut slope to collect and route seepage to the higher elevations of the upper wetland. Volumes discharged would be controlled by a weir and lower wetlands would be maintained through existing hydraulic mechanisms. Port will provide Ecology and Corps with a concept design report and engineering feasibility analysis for the proposed swale mitigation measure. Ecology will hold additional internal discussions about this potential 401 condition to determine if it provides reasonable assurance.

**10/20 - RESOLVED PENDING REVIEW:** Port submitted (10/20) proposed mitigation plan as described in 10/10 meeting to Ecology. Dave Garland will lead Ecology's review of the plan. Port requests Ecology's review be completed by early November to meet the goal of Ecology/Port issue resolution before mid-December. If this mitigation plan for wetland hydrology were accepted, the 401 would be conditioned to require construction of mitigation as part of Borrow Site #3 excavation. The mitigation plan submittal will be provided to the Corps. The proposed mitigation plan will be incorporated into the Wetland Functional Assessment & Impact Analysis.

The Port's excavation and use of borrow sites may require an NPDES permit under general sand and gravel.

**10/31 - RESOLUTION PENDING REVIEW:** D. Garland (Ecology) will review and write a memo to file approximately 11/7-11/8. Ecology will provide feedback to the Port before 11/15.

**11/29 - RESOLUTION PENDING REVIEW:** D. Garland completed his review and has provided a memo for Ecology's internal use. Input is needed from an Ecology wetland expert. Processes for contracting with a wetland expert are underway. Ecology will not be able to provide the Port with feedback on the Borrow Site #3 hydrology proposal for at least 2 weeks.

**12/8 - RESOLVED:** The documents produced for public comment will include the mitigation as proposed. Ecology has selected Shannon and Wilson to provide wetland expertise. They will review the Borrow Site #3 proposal concurrent with the public comment period.

#### 5. HPA / 401 ISSUANCE RELATIONSHIP

**10/10 - Potential 401 condition:** Projects will not be constructed without required HPAs.

**10/10 - RESOLUTION PENDING REVIEW:** Ecology will confirm with Fisheries what is needed relative to the SMP / 401 Permit in order to issue the HPAs. Reportedly, Fisheries is prepared to issue the required HPAs pending completion of the SMP. If HPAs are not acquired before 401 Permit issuance, proposed HPA conditions would be reflected in the 401 conditions.

**10/13 - RESOLVED:** Ecology confirmed with Fisheries that a letter from either King County or Ecology stating that the SMP document is "approvable" pending public review and a copy of the SMP is required in order to issue the HPAs.

**AR 029110**

**ADDITIONAL ISSUES RAISED BY ECOLOGY ON 10/10****Issue: Potential wetland impacts of the proposed SR 509 Interchange**

**10/10 - RESOLUTION PENDING REVIEW:** The Port has provided the Corps with the revised design of the SR 509 interchange that avoids impacts to the nearby wetland. King County requested a copy of the revised design, along with any revised hydrology report and changes to the erosion control plan. The Port will provide a copy of this report to Ecology and King County. The redesign of interchange alignment avoids direct wetland impact, and does not result in new information relative to indirect impacts to wetlands.

**10/27 - RESOLUTION PENDING REVIEW:** King County received the 509 interchange materials. These materials will be reviewed after 11/16 and annotated final comment will be provided to Ecology, per schedule and process discussion (see below).

**10/31 - RESOLUTION PENDING REVIEW:** A. Kenny will follow-up regarding Ecology comment on previously submitted impact analysis for the 509 temporary interchange.

**11/13 - RESOLVED:** This information will be included in the revised NRMP and Impact Assessment.

**Issue: Potential aquitard breaches in Walker Creek basin**

**10/10 - RESOLUTION PENDING REVIEW:** Earth Tech will review PGG documentation of issue. Use of a detention vault may negate the issue in Miller Creek basin.

**10/27 - RESOLUTION PENDING REVIEW:** Hart Crowser will evaluate the proposed Walker Creek detention facility excavation relative to the integrity of the underlying confining "aquitard" layer.

**10/31 - RESOLUTION PENDING REVIEW:** Hart Crowser and PGG are meeting to discuss this week. Outcome will be presented 11/7, if not communicated beforehand.

**11/7 - RESOLVED:** Hart Crowser and PGG concur, per email, that excavation for temporary Pond B will not breach the aquitard. The Port will evaluate additional mitigation measures to reduce seepage inflow. Details and/or notes re: potential mitigation measures to reduce seepage will be provided in the revised HNTB drawings included as an SMP appendix.

**Issue: Runway De-Icing / Dissolved Oxygen Study**

**10/10 - ACTION ITEMS DEFINED FOR FURTHER DISCUSSION:** Ecology will internally discuss consistency between the 401 and 402 processes, and propose specific language for a 401 condition, or additional action items relative to this issue.

**10/13 - RESOLUTION PENDING REVIEW:** Ecology and Port discussed the timing and potential phased review of the Runway De-Icing / Dissolved Oxygen Study, as well as its relationship to the 401 permit. The Runway De-Icing / Dissolved Oxygen Study will be submitted to Ecology prior to final 401 decision. Target date for submittal is early to mid November. Ecology determined that the following statement characterizes the relationship of this study to the 401: "Ecology and the Port have agreed that the 401 Permit will be conditioned as necessary to address any water quality concerns identified in the Runway De-Icing / Dissolved Oxygen Study, while recognizing that the 402 NPDES Permit process will address ongoing monitoring and BMP requirements".

**10/31 - RESOLUTION PENDING REVIEW:** Study submittal to Ecology is expected 11/15.

**AR 029111**

**Issue: Compliance with Kludt settlement**

10/10 - RESOLVED: In the SMP, the Port will document that discharge conditions from the Lake Reba control structure are unchanged post-project. Additionally, the SMP will document compliance with the King County Manual regarding control of 100-year peak flow frequencies in areas of potential severe flooding.

**Issue: Contaminated soil stockpile facility**

10/10 - RESOLVED: Ecology asked about the Decant/Chemical Accumulation Area described in a recently-submitted SWPPP and how those project elements fit in with the fill being brought to the airfield. The Port stated that these facilities were constructed to handle demolition material being removed from the airfield and that the facilities are not part of the expansion project.

**Issue: Structural feasibility of proposed big vaults**

10/10 - RESOLVED: The Port will provide documentation regarding structural feasibility of vault construction.

10/27 - RESOLVED: Port submitted materials to Ecology and King County regarding the structural feasibility of big vaults.

**Issue: If NEPA changes are required by Corps or FAA, then SEPA must be revised and adopted for 401 approval**

10/10 - RESOLVED: The Port acknowledged the statement and suggested no NEPA changes are required.

**NATURAL RESOURCES MITIGATION PLAN**

10/10 - ACTION ITEMS DEFINED FOR FURTHER DISCUSSION: The final application to Ecology for the 401 permit will include four documents: Stormwater Master Plan (SMP), Wetland Functional Assessment & Impact Analysis, Wildlife Hazard Plan, and Natural Resource Mitigation Plan (NRMP). It is acknowledged by both the Port and Ecology that following resolution of SMP technical issues, the NRMP and Wetland Functional Assessment & Impact Analysis must be reviewed and revised as necessary to ensure consistency with the SMP.

At the 10/10 meeting, Ecology provided a memo authored by Erik Stockdale (NRMP Ecology reviewer) that lists issues related to the NRMP requiring resolution. A cursory review by the Port identified the need to review the list directly with Mr. Stockdale to determine whether previous Port submittals have adequately addressed many of the issues included on the list, and to clarify any remaining issues. Ecology will request Mr. Stockdale's attendance at the 10/13 meeting, at which issues related to the NRMP can be reviewed, and an agreed to list of remaining issues developed. Tom Luster will call Jim Kelley to provide several other wetland-related issues for the Port's review and response.

Prior to the 10/13 meeting, Parametrix will review the list of issues submitted by Ecology, identify documents already submitted to Ecology that may address the issues, and add any further issues to the list that warrant discussion with the Ecology reviewer. Ecology participants at the 10/10 meeting additionally raised the following issues (that may already be on the Stockdale list) to be included in an NRMP issues discussion:

**AR 029112**

1. SDW1B potential impacts to Wetland 39B (included in SMP issues)
2. Potential indirect impacts to Wetlands 18 and 37
3. Potential wetland impacts from Lagoon #3 expansion
4. Cumulative wetland impacts at the south end of airport

Ecology requested an independent consultant be engaged to assist Ecology with the review and tracking resolution of the NRMP, similar to the assistance that King County provides to review the SMP.

**10/13** - Issues discussed (below) include items documented by Erik Stockdale in an Ecology Internal Memo dated October 9, 2000, and additional items identified by T. Luster. In summary, it was determined that technical issues related to the NRMP have been negotiated and resolved previously between the Port and Ecology. It was agreed that a revised NRMP will be developed that will: 1) update all information to be consistent with technical decisions that have been made; 2) include material prepared in response to public comments; 3) confirm consistency with the SMP; 4) add additional detail to drawings as requested below. It was determined that the Port could proceed with development of the revised NRMP, to be completed mid-November. Ecology final review of the NRMP can proceed concurrent with public comment.

**Issue: NRMP consistency with the SMP**

**10/13 - RESOLVED:** Once the SMP is finalized, the NRMP will be revised if necessary to be consistent. Detention pond sizing and/or depths could potentially be changed during completion of the SMP. NRMP review following SMP completion must confirm that ponds still fit within impact footprints. Port will ensure that documents submitted to Ecology and the Corps are consistent. Ecology will coordinate with the Corps regarding technical consistency within and among all documents produced for public comment, including the SMP and NRMP.

**Issue: Maintenance of wetland hydrology (e.g. 18, 37, 39B)**

**10/13 - RESOLVED:** Parametrix will clarify in the NRMP and in the Wetland Functional Assessment & Impact Analysis (impact assessment) how the seepage swale at the base of the embankment will be routed and discharged maintain wetland hydrology. Existing SMP and NRMP figures showing the swale will be clarified and notes added. Drawings used in multiple deliverables should be consistent.

**Issue: NRMP Incorporation of previously submitted technical responses to previously identified issues**

**10/13 - RESOLUTION PENDING REVIEW:** Parametrix has previously provided technical information to Ecology responding to comments received from A. Azous, however, the Port has not received feedback from Ecology on those materials. Parametrix requested a brief meeting with E. Stockdale to discuss the response to comments documents before that material is incorporated into the NRMP revision. Ecology will confirm whether such a meeting is necessary. However, all agreed that the Port may incorporate that material into the NRMP. Implementation Addenda will also be incorporated into the revised NRMP.

**10/27 - RESOLVED:** Ecology reported that previously submitted technical responses should be incorporated into the NRMP without further internal review.

**AR 029113**

**Issue: S. Access Road/Tyee Pond Impacts**

**10/13 - RESOLUTION PENDING REVIEW:** This issue relates to the South Access Road/Tyee Pond issue discussed initially at 10/10 meeting. Any Tyee Pond/east Des Moines Creek buffer described in

a restrictive covenant will be added to the NRMP (drawing C-2 from Appendix C to the Implementation Addenda). Ecology proposed a 100' buffer for Tyee Pond/east Des Moines Creek. The Port will re-evaluate the buffer proposal on Tyee Pond and the East and West Branches of Des Moines Creek and report back to Ecology. Material regarding South Access Road realignment and temporary interchange indirect impacts will be updated in the revised NRMP.

*Editor's Note:* Additional discussions regarding the S. Access Road / Tyee Pond relationship are captured in these notes under Main Issue #3 "Potential S. Access Road Impacts to Tyee Pond" (above). The issue as described under the Natural Resources Mitigation Plan is RESOLVED.

**Issue: Vacca Farm floodplain habitat design elements**

**10/13 - RESOLVED:** Parametrix will show more specificity in drawings, text and notes relative to microtopography, wood placement, etc. to provide assurances to Ecology that more complex habitat structure will be added in the floodplain.

**Issue: Stormwater pond cross sections**

**10/13 - RESOLVED:** Parametrix will provide cross section drawings of all open ponds adjacent to wetlands that will include elements such as pond, drainage channels, buffer, wetland, creek, and groundwater table elevation. The ponds, drainage channels, creeks, etc. relative to the buffer mitigation will be shown in the NRMP. Evaluation of the cross sections, groundwater issues, etc. for potential indirect wetland impacts will be provided in the wetland assessment report.

**Issue: Performance standards**

**10/13 - RESOLVED:** Parametrix will add a table and/or text in the revised NRMP to describe the performance standards used for particular wetlands. Ecology will check with the Corps regarding the ability of the performance standards to be measured in the field. Port will help to make this communication happen.

**Issue: Documentation of indirect impacts**

**10/13 - RESOLVED:** The revised wetland impact assessment will include more technical information and documentation regarding indirect impacts to wetlands. This information is largely contained in letters responding to comments provided by A. Azous. The revised wetland impact assessment will also address stormwater ponds, borrow area 3, wetland 39b, and SR-509 temporary interchange issues.

**Issue: Wetland delineation west of Miller Creek**

**10/13 - RESOLVED:** The wetlands west of Miller Creek have been delineated, will be described in the Wetland Delineation Report and accounted for in the revised NRMP. The Wetland Delineation Report will be a part of the re-notice for public comment. These wetlands have not yet been verified by the Corps, and wetland enhancement credits are not currently incorporated in the documents. If the Corps verifies these wetlands prior to public notice, mitigation credits will be calculated for wetlands within the Miller Creek buffer and included in the revised NRMP.

**11/07 - RESOLVED:** Corps delineation of wetlands west of Miller Creek is partially complete as of this date. The Corps will complete the delineation of the remaining two areas 11/8.

**AR 029114**

**Issue: Documentation of Miller Creek buffer**

**10/13 - RESOLVED:** Parametrix will clarify Map C-3 of Appendix D relative to temporary construction line and buffer. This sheet will be revised to indicate the location of the Miller Creek Buffer relative to the temporary construction impacts and the stormwater management features.

**Issue: Fencing and signage for buffers / mitigation areas**

**10/13 - RESOLVED:** Revised NRMP will identify fencing and signage for long-term protection of buffers/mitigation areas from public access (i.e. Auburn mitigation site). Port will review placing fencing and/or signage around protected mitigation areas within secured airport property to prevent encroachment by construction and maintenance activities. Restrictive covenants should address potential need for revised fencing/signage requirements based on future land use.

**Issue: Restrictive Covenant language for Auburn mitigation site**

**10/13 - RESOLVED:** Ecology will check with their Attorneys about Restrictive Covenant language regarding long-term wetland mitigation use of the Auburn site to be certain that the language restricts use for stormwater management by others, consistent with King County and Ecology manuals.

**Issue: Buffer planting in area of potential RDF**

**10/13 - RESOLVED:** NRMP drawings will be revised to eliminate planting exclusion zone for a potential future RDF. This area will be planted by the Port before the end of 2004. Sheet C-2 of Appendix C will be revised to show buffer plantings.

**Issue: Wetland impact analysis of IWS lagoon expansion**

**10/13 - RESOLVED:** Assessment of direct/indirect wetland impacts from IWS lagoon expansion will be included in the revised Wetland Functional Assessment & Impact Analysis. This was provided to Ecology in a Memo from Jim Kelley on 9/5/00. The IWS lagoon expansion is not a Stormwater Master Plan project, but is "reasonably foreseeable".

**Issue: Source of irrigation water for mitigation areas**

**10/13 - RESOLVED:** Text explaining the source of irrigation water for mitigation areas will be included in the revised NRMP. The sources included will be from existing providers.

**Issue: Mitigation Fund**

**10/13 - RESOLVED:** The revised NRMP will reflect the Port's commitment to a \$150K mitigation fund for the Des Moines and Miller Creek watersheds. The sunset clause will be modified to provide for the identification of projects by 2002. Permitting and implementation may occur after that date.

**NPDES MAJOR MODIFICATION ISSUE**

**10/13 - RESOLVED:** The NPDES major modification application process underway is not related to the 401 permit process. Notification and potential public hearing decisions will be coordinated with Ecology if necessary.

**10/20 - RESOLVED:** 401 permit issuance is not conditional on the major modification to the 402 permit proposed for the 509 interchange. The 401 permit would address mitigation for stormwater and potential wetland impact. The 402 permit would apply to discharge from facilities to Walker Creek.

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**10/31 - RESOLVED:** Ecology desires to not confuse public notice for the NPDES Major Modification with public notice for the 401. Therefore, the proposed schedule is as follows:

First week of January 2001: Public Notice for Major Modification and 30-day notice of hearing

Mid-February 2001: Close of public comment period

First 2 weeks of March 2001: Final modification and response to comments issued

**11/13 - RESOLVED:** The NPDES Major Modification schedule for public comment and hearing cannot be expedited due to Ecology staffing constraints. If the 401 public notice schedule becomes overlapped with the major modification schedule, the schedule goal would be to space the public hearings at least one week apart.

**11/29 - RESOLVED:** Current targets for the 401 public hearing and the Major Modification public hearing are consistent with previously established goals for a separation of at least one week.

## ADDITIONAL ISSUES RAISED BY ECOLOGY ON 10/20

### Issue: Timing of Corps public notice

**10/20 - RESOLVED:** Ecology's 401 schedule will assume public notice in early December, per 10/10 notes. Port to clarify with Corps the relationship of public notice relative to a Biological Opinion.

### Issue: Temporary construction staging area under construction within SASA footprint

**10/20 - RESOLUTION PENDING REVIEW:** The Port prepared a SWPPP and submitted a construction monitoring plan to Ecology in January for this 30-acre temporary facility well within the SMP 80-acre SASA project impervious surface footprint. As a temporary facility, it is outside the jurisdiction of the Corps. Detention facility has been designed to exceed requirements of King County manual. Port and Ecology will check whether the facility is meeting King County "high traffic" stormwater management requirements, related to NPDES compliance in SWPPP. The Port will provide a copy of the SWPPP to Ecology. Ecology will discuss with King County the requirements for temporary construction (TESC) activities defined in the SMP.

**10/31 - RESOLUTION PENDING REVIEW:** The Port provided Ecology with information that the facility does not qualify as a high traffic area. The facility is meeting Ecology and King County stormwater management requirements for temporary facilities under the facility's 402 permit and SWPPP.

The facility has been constructed in an area subject to the 401 permit. Because the facility has added impervious surface within the future SASA area, Ecology has raised a concern regarding potential linkage to 401 requirements re: potential base flow impacts. This issue will be discussed again on 11/7, following update on Des Moines creek base flow evaluation.

**11/7 - RESOLUTION PENDING REVIEW:** The Port will submit information to Ecology regarding the operation of the staging area's stormwater management system.

**12/8 - RESOLVED:** This facility complies with storm water management requirements for temporary facilities. The change in the proposed approach for flow augmentation also supports this issue's resolution. Additional information regarding the facility's operation was provided to Ecology.

### Issue: Water Quality BMPs: 401/402 interface

**10/20 - RESOLVED:** Continued improvements for water quality BMPs for new and existing outfalls will be determined and managed under the 402 permit, not the 401. The 401 permit sets the baseline

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for BMP requirements. Monitoring of effectiveness and any necessary improvements of treatment BMPs for new and existing outfalls will be conducted under 402.

**Issue: Lagoon #3 potential direct impacts**

10/20 - RESOLVED: Indirect impacts from the Lagoon #3 expansion are under evaluation. There are no direct impacts from Lagoon #3 expansion. Ecology will confirm this with the Corps and/or through review of Eric Stockdale's list of issues. The fate and transport of contamination in the area of Lagoon #3 is not an issue of concern for the 401; it is managed under the 402.

**Issue: Additional wetlands at the Auburn Site**

10/20 - RESOLVED: The winter 1997 Corps wetland delineation has been used as the basis of mitigation plans at the Auburn site. During this 1997 delineation, the Corps observed other wet spots, assumed to not be wetlands due to above-average rains and non-wetland soils, and did not take jurisdiction of these wet spots. Groundwater monitoring since 1996 has shown that some areas have a high groundwater table of long duration.

An August 2000 Corps review of 1999 data suggested a re-delineation of wetlands in these additional areas of high groundwater. 1999-2000 winter is characterized as a "normal" rainfall year. A September 2000 site visit showed wetland soils and some wetland vegetation. A wetland delineation has just been performed, and the Corps will verify (scheduled for 11/8). Current delineation shows 14 acres of additional wetlands located mostly on the western portion of the site. Therefore, 14 acres of "restoration" credit will move to "enhancement" credit, resulting in a 7-acre drop in total mitigation credits achieved at the Auburn site. Based on this information, there are 2.1-acres of wetland created at Auburn for each acre of wetland filled for 3<sup>rd</sup> Runway construction. This change is still within the environmental mitigation ratio objective of 2:1.

Excavation, grading and planting plans will be revised based on this new information. All documents will be revised accordingly. New mapping and a table were provided to Ecology for preliminary review.

11/07 - RESOLVED: Corps has not been able to schedule wetland delineation for the Auburn site due to staff availability. Efforts to schedule the delineation are underway.

11/13 - RESOLVED: The Corps wetland delineation is now scheduled for 11/30, 12/1.

**Issue: 401 relationship with Agreed Order/Governor's Certification for MTCA groundwater study**

10/20 - RESOLVED: Changes in the way the Agreed Order is implemented or in the scope of the Agreed Order will not affect issuance of the 401. Master Plan actions would not preclude any potential Ecology action related to the Agreed Order.

**Issue: Potentially contaminated properties in the South Runway Protection Zone**

10/20 - RESOLVED: The properties in question are being acquired for the runway protection zone and will be assessed and remediated as necessary associated with Port acquisition. They will not be buried under runway fill – runway construction will not impact their ability to be remediated. The FAA requires no construction in this area other than runway support facilities such as light lanes.

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**Issue: Soil Quality at Borrow Sites**

**10/20 - RESOLVED:** Soil excavated from borrow sites must meet embankment fill criteria for use in 3<sup>rd</sup> Runway embankments. No further obligation needed in 401 permit.

**Issue: Potential confirmation of groundwater quality within the embankment**

**10/20 - ACTION ITEMS DEFINED FOR FURTHER DISCUSSION:** Ecology requested that the Port identify methodologies that could be used to confirm post-construction quality of groundwater within the embankment. Port will evaluate for further discussion.

**11/7 - RESOLVED:** Ecology has discussed potential sampling options with the Port, and is pursuing further consideration of this matter internally.

**Issue: Construction stormwater management**

**10/20 - RESOLVED:** Ecology and the Port will clarify scope and reporting for third party oversight and construction crew training requirements that is already required in the Sea-Tac 402. The 401 should reiterate importance of these 402 requirements.

**Issue: Clean Air and CZM**

**10/20 - RESOLVED:** Ecology will re-confirm with internal staff that there are no new issues to be addressed regarding air compliance.

**Issue: Compatibility of potential RDF and Tye mitigation**

**10/20 - RESOLVED:** Mitigation proposed at Tye Golf Course would not be adversely affected by a potential future RDF.

**ADDITIONAL SMP ISSUES IDENTIFIED ON 10/27****Issue: SDW1A facility sizing**

**10/27 - RESOLUTION PENDING REVIEW:** SDW1A, one of 4 proposed Miller Creek facilities, is in a subbasin consisting of a large portion of fill. This is causing pond sizing difficulties similar to NEPL - ever-increasing facility size, unable to be fully drained. Parametrix will prioritize evaluation of infiltration or water reuse to address problem. If infiltration includes pumping, pump maintenance would need to be addressed. A water reuse option would need to address quality of stored and released water. If low permeability or high groundwater underlies outwash soils, these soils may be modeled as till, which may change the pond sizing requirements.

**10/31 - RESOLUTION PENDING REVIEW:** Proposed facility sizing approach will be presented and discussed 11/7.

**11/7 - RESOLUTION PENDING REVIEW:** Work is underway regarding facility sizing approaches for this basin. Due to the level of work effort, the revised SMP will not be completed by the previously targeted date of 11/16/00.

**11/29 - RESOLUTION PENDING REVIEW:** The use of infiltration in addition to detention is being considered for SDW1A and SDW1B. Infiltration evaluations have been conducted based on requirements of the King County manual. Port consultants have demonstrated conceptual feasibility of infiltration to meet HSPF detention sizing goals. This information will be included in the revised SMP. Soils and backup calculations will be provided to King County and Ecology for review and

discussion prior to SMP issuance. Additional testing will be required along the alignment of the proposed infiltration facilities to complete design following issuance of the SMP.

**12/8 - RESOLVED:** The proposed infiltration system for SDW1A and SDW1B was presented, and will be included in documents released for public comment. King County requested that the designers make sure rainfall is not double-counted in the modeling, and maintenance of the pumped system is addressed.

**Issue: SMP Clarification regarding water quality BMPs**

**10/27 - RESOLVED:** Parametrix will clarify in the SMP text that proposed SMP facilities would not prevent implementation of Ecology's new Storm Water Manual (January 2001) water quality BMPs through the Port's NPDES permit.

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