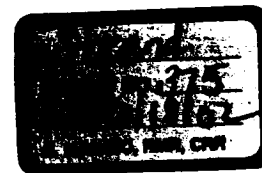


POLLUTION CONTROL HEARINGS BOARD
FOR THE STATE OF WASHINGTON

CITIZENS AGAINST SEATAC)
EXPANSION,)
Appellant,)
v.)
DEPARTMENT OF ECOLOGY and)
THE PORT OF SEATTLE,)
Respondents)

No. 01-090

DECLARATION OF
JOHN A. STRAND, Ph.D.



I, John A. Strand, declare as follows:

1. I declare the following from personal knowledge and am competent to testify thereto before the Board if necessary.
2. I am an internationally recognized fisheries biologist with over 25 years experience specializing in studies to determine potential effects of human activities on aquatic resources. I received my Ph.D. in Fisheries Biology from the University of Washington in 1975 and currently am the Principal Biologist for Columbia Biological Assessments. I am also an adjunct faculty member of the Environmental Sciences and Regional Planning Program at Washington State University Tri-Cities. I have extensive experience assessing the ecological risks from discharges of contaminants to surface waters on sensitive aquatic species and their habitats. I also have substantive local knowledge, having studied the fate of stormwater residuals in both Miller and Des Moines Creeks for the Airport Communities Coalition (ACC), an

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organization composed of the Cities of Burien, Des Moines, Federal Way, Normandy Park and Tukwila and the Highline School District. With the King County Department of Natural Resources, I also recently investigated the fate and effects of combined sewer overflows on aquatic life in the Green and Duwamish Rivers. In addition, a considerable part of my professional career has been spent evaluating the environmental impacts of engineered structures on water resources including a wide variety of projects and field studies in Washington, California, Alaska, British Columbia, Guam and Venezuela. Attached hereto as Exhibit A is a true and correct copy of my Curriculum Vitae.

3. I understand that Citizens Against SeaTac Expansion (CASE) has filed an appeal with the Pollution Control Hearing Board (NCHB) challenging the legality of the major modifications to the Port of Seattle's existing National Pollution Discharge Elimination System Permit (NPDES). I also understand that CASE has requested a stay of the effect of the NPDES major modification until the questions it has raised concerning compliance with the Clean Water Act have been resolved by the PCHB. I am submitting this declaration in support of CASE's appeal and motion for stay because I am convinced that the modified NPDES will not protect the valuable and remaining water resources around SeaTac International Airport and will, in fact, result in likely harm to these sensitive streams and the aquatic life within them.

4. I have previously reviewed and evaluated the modifications to the Port of Seattle's (Port's) existing NPDES Permit on behalf of the ACC. Attached hereto as Exhibit B is a true and correct copy of the comments I submitted to the Department of Ecology (Ecology) on March 12, 2001 on behalf of the ACC. While my March 12, 2001 comment letter sets forth my opinions regarding the major problems with the modifications, I am submitting this declaration to reiterate and reinforce that Walker and Gilliam Creeks are valuable water resources worthy of

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the Board's utmost review and Clean Water Act protection. In particular, I believe that Ecology's failure to identify specific locations of new construction-related stormwater outfalls denied the public any meaningful opportunity to comment or to assess the likely impacts of the construction projects facilitated by the modification. As I stated in my previous comments to Ecology, "A new (revised) NPDES Permit should list and locate all of the proposed stormwater or de-watering discharges and require compliance with Washington Water Quality Standards without qualification."

5. The major modification identifies Walker and Gilliam Creeks as new receiving waters for construction stormwater discharges. This is a significant modification given the current health and conditions of the creeks. Both creeks support a diverse and abundant fish fauna.

6. Walker Creek is relatively pristine and supports substantial aquatic life. Coho and chum salmon spawn and rear in Walker Creek. Cutthroat trout can also be found in the creek. Warm water fish species including yellow perch, black crappie, large mouth bass, and pumpkinseed sunfish frequent the surrounding creeks of the Airport including Walker and Gilliam Creeks. Prickly sculpin, three-spined stickleback, and crayfish also occur throughout the creeks. Walker Creek has never before been subjected to discharges under an NPDES permit. Any discharge of pollutants into the stream will result in degradation from its current condition. Construction stormwater discharged in Walker Creek is also significant because Walker joins Miller Creek a short distance from the estuary with Puget Sound. Pollutant loading into Miller Creek and the estuary will increase as a direct result of any new outfalls on Walker Creek.

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7. Similarly, the addition of Gilliam Creek to the NPDES permit is significant in that chinook salmon, a listed species under the Endangered Species Act, are known to frequent the lower reaches of Gilliam Creek. Gilliam also supports many of the fish species I have identified in Paragraph 6. Gilliam is a small creek with relatively low flows. The limited discharges Gilliam now receives are already impacting the creek. For example in February 2000, outfall 012 discharged 96 milligrams per liter of total suspended solids (TSS) into Gilliam despite the creek receiving discharges from a very limited area of the airport. The addition of new airport outfalls into Gilliam will likely result in harm to fish and fish habitat.

8. A serious deficiency of the modified NPDES permit is its failure to identify the location of the proposed new outfalls on Walker and Gilliam Creeks. Without detailed and precise identification of the specific outfall locations, the public was denied the opportunity to provide meaningful comment on the impacts of the outfalls and the discharges to these creeks. The modified permit allows the Port *carte blanche* to add discharges to Walker and Gilliam Creeks anywhere along their banks. Any meaningful assessment of the impact of construction stormwater discharges to the creeks must take into consideration the specific location of the outfalls because aquatic life is not uniformly distributed throughout the streams. Based on different stream structure (channel type), local abundance and diversity of valued aquatic life will vary.

For example, if the Port locates an outfall in the wetlands and headwaters of Walker Creek, they could impact a key rearing area for both juvenile cutthroat trout and coho salmon in Walker Creek. Increased sediment loading from an outfall discharging to wetlands #s 43, 44, which essentially give rise to the headwaters of Walker Creek, could harm both trout and salmon throughout much of Walker Creek by affecting the production of their key prey species, e.g.,

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dragonflies, damselflies, caddis flies, mayflies, and crayfish. Increased sedimentation in these productive wetlands can stress aquatic insects and other aquatic life by interfering with their filter feeding, breathing, and reproduction. While spawning of adult trout and salmon occurs in the lower reach of Walker Creek near its confluences with Miller Creek, juvenile trout and salmon have historically exploited Walker Creek up to Des Moines Memorial Drive. Wetland #44, through which Walker Creek flows, lies to the east of Des Moines Memorial Drive. Ecology's failure to identify the specific locations of the outfalls on Walker and Gilliam Creeks has prevented me from making these and other types of impact assessments.

9. As I also observed in my comments to Ecology, "the proposed permit modification does not specify how many new sources of storm water or construction de-watering discharges will occur." Information about the number of outfalls is important and necessary to informed comment, because multiple discharges can affect stream hydrology and fish habitat in ways that single discharges cannot. For example, the Port's proposed mitigation that relies on best management practices (BMPs), cannot guarantee removal of all the suspended solids, metals, or other chemicals in stormwater runoff. Detention ponds, the BMP of choice, can remove only 80-90 percent of suspended solids, 60-70 percent of the phosphorus, and 40-90 percent of heavy metals. Their efficacy varies and is dependent on a number of factors, among others: influent particle size, pond volume, settling time, and thru-put, none of which have been adequately studied by the Port, particularly as they relate to suspended solid and chemical residuals in the project streams. With the declared intent to increase the number of stormwater outfalls and construction dewatering discharges, the volumes of stormwater in the project streams will increase, as will the quantities of suspended solids, metals and other chemicals entering the project streams. Unfortunately, there is no attempt by the Port to assess the overall

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impacts to project streams of the proposed multiple discharges, even though doing so is required by the *National Environmental Policy Act Regulations* (40 CFR 1500). Each of the proposed outfalls or construction de-watering discharges, as presently described and assessed, stand alone and have not been evaluated in the context of the overall change in water quality that they could bring to the project streams. Even if the Port does not believe there can be cumulative impacts associated with the proposed additional (unspecified) discharges, they are remiss for not considering this possibility and providing a rational assessment. Technology (simulation modeling and risk assessment) is available to assess the potential impacts of both multiple discharges and multiple contaminants in the project streams. In my opinion, the Port's work is incomplete and for this reason, their NPDES permit major modification should be denied.

10. There is also the issue of "timing," which I did not address in my letter to WDOE on March 12, 2001 (see exhibit B). Construction-related impacts (including de-watering discharges) have the potential to be greatest when trout and salmon are spawning; that is, when their eggs (embryos) are laid in the gravel on the stream bottom. Construction (including de-watering discharges) conducted during and following spawning (known as the salmon window) can result in increased runoff containing fine sediment that can enter the gravel and smother the developing embryos. To the best of my knowledge, construction of the various facilities associated with the third runway, are not generally scheduled to avoid the "salmon window,"

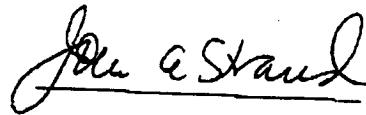
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which occurs in the project creeks from mid-October through early January. Not specifying when construction will occur, and when the proposed outfalls will be operable (that is, discharging), further denies the public key information on which to base their comments regarding potential impacts.

Declared under penalty of perjury in Richland, Washington on this 20th day of July, 2001.



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**John A. Strand, Ph.D., Fellow A.I.F.R.B.
Fisheries Biologist**

Dr. Strand is an internationally recognized fisheries biologist specializing in studies to determine potential effects of human activities on aquatic resources. During his 25 years of experience (post Ph.D.), he has conducted and managed a wide variety of projects, large and small, in Washington, California, Alaska, British Columbia, Guam, and Venezuela. These included field studies to evaluate environmental impacts of engineered structures, and field and laboratory studies to assess ecological risks from discharge of contaminants to surface waters, including sewage, storm water, oil, other organic chemicals, radionuclides, and heavy metals. Of key interest is the design of strategies to mitigate impacts on threatened, endangered, or sensitive aquatic species, and their habitats.

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Education:

Ph.D.; University of Washington; Fisheries Biology; 1975
M.S.; Lehigh University; Biology; 1962
B.A.; Lafayette College; Biology; 1960

Employment:

1999- Principal Biologist, Columbia Biological Assessments, Richland, WA. Also, Adjunct Faculty, Environmental Sciences and Regional Planning Program, Washington State University Tri-Cities, Richland, WA.
1996-1999; Water Quality Planner,
King County Department of Natural Resources, Seattle, WA.
1993-1995; Senior Biologist and Group Leader,
EA Engineering, Science, and Technology, Inc, Redmond, WA.
1990-1993; Manager and Co-Chair, Exxon Valdez Oil Spill Restoration Planning Working Group,
NOAA/NMFS, Auke Bay, AK.
1969-1990; Senior Research Scientist and Manager, Battelle, Pacific Northwest Laboratory; Richland and Sequim, WA. Also, Affiliate Faculty (1987-1991), School of Fisheries, University of Washington, Seattle, WA.

Registration/Certification:

Fellow, American Institute of Fisheries Research Biologists; 1993
Certified Fishery Scientist (No. 442), American Fishery Society; 1969

Specialized Training:

Health and Safety Training for Hazardous Waste Sites; 1996; 1997; 1998
Wetland Delineation, Shoreline Community College; 1996
Litigation Support Short Course, EA Engineering, Science, and Technology, Inc.; 1994
Project Manager Training, EA Engineering, Science, and Technology, Inc.; 1994
NEPA Refresher Training, US Forest Service; 1991

Experience:

Resource Management and Planning--- From 1992-1993, was Federal Co-chair of Exxon Valdez Oil Spill Restoration Planning Work Group in Anchorage, Alaska. Responsible for developing a restoration plan, and for designing, implementing long-term restoration and monitoring projects for injured resources and human services. Served as member of the Sequim Bay Watershed Management Committee from 1987-1990 and helped prepare the *Sequim Bay Watershed Management Plan*. The Plan focused on mitigation of cumulative effects on salmon and other fishery resources of nonpoint source pollution from timbering, road building, agriculture, marina operations, and failed septic systems throughout the watershed. In 1999, served as member of King County Biological Review Panel with responsibility to evaluate King County policies and programs (e.g., Sensitive Areas Ordinance, Clearing and Grading Code, Surface Water Design Manual, and basin plans) most relevant to conservation of threatened chinook salmon.

Regulatory Compliance---From 1970 to 1990, conducted and managed numerous reviews of Section 316 (a) (b) Demonstrations of Compliance with the Clean Water Act. As a basis for applying Section 316 requirements and procedures, conducted assessments of power plant impacts on marine and estuarine resources. In 1988, performed chemical analyses and bioassays in support of National Pollution Discharge Elimination System (NPDES) Permit renewals at oil industry facilities in Port Valdez and Cook Inlet, Alaska. In 1994, designed monitoring plans to address "special conditions" of NPDES permit renewals at two coastal power plants in California. Following provisions of Endangered Species Act (ESA), in 1995 evaluated agency biological opinion and conducted field studies to assess potential impacts of construction and operation of a proposed gold mine on habitat use by endangered spring and summer run chinook salmon in the Salmon National Forest, Salmon, Idaho.

Environmental Impact Assessment---From 1970 to 1994, conducted and managed numerous studies to assess impacts of technology development on aquatic and terrestrial ecosystems, including wetlands. Assessed environmental impacts for nuclear power plants, petroleum and synthetic fuel refineries, mines and smelters, an acoustic measurement station, a marine mammal holding area, a solid waste management facility, an aviation fuels pipeline, and a bridge. In 1994, directed an environmental assessment of alternate sites for construction of replacement housing at McChord Air Force Base, Washington.

Aquatic Toxicology and Risk Assessment---From 1970 to 1999, studied fate and effects of chemical contaminants in aquatic systems. In 1980, developed exposure pathway models and determined potential ecological and human health risks associated with metals and radionuclides released from a hypothetical uranium mine and smelter at three locations in British Columbia. In 1989, studied persistence of spilled Bunker C fuel oil in beach sediments and in shellfish found intertidally in Olympic National Park, Washington. In 1990, evaluated survey design and sampling procedures to determine the fate of oil refinery and coking plant wastes in sediments and benthic biota in Amuay Bay, Venezuela. In 1995, prepared sampling plans to study fate of metals and organic contaminants in groundwater and marine sediments in Liberty Bay, Washington. From 1996 to 1998, studied ecological risks of combined sewer overflows in the Duwamish River and in Elliott Bay, Washington, with particular interest on potential impacts to out migrating chinook and chum salmon. From 1999 to the present, assessed risks to fish and other aquatic life from stormwater additions to the Miller Creek, Walker Creek, and Des Moines Creek Watershed, King County, Washington.

Selected Publications and Presentations:

Concannon, D., D. Finney, R. Fuerstenberg, H. Haemmerle, G. Lucchetti, A. Johnson, and J. Strand. Chapter 6. Biological Review Panel. 1999. *In Return of the Kings, Strategy for the Long-Term Conservation and Recovery of the Chinook Salmon*. King County's Response Report to the Proposed Endangered Species Act Listing. King County Endangered Species Act Policy Coordination Office, Seattle, Washington.

Strand, J., K. Stark, K. Silver, C. Laetz, T. Georgianna, T. McElhany, K. Li, and S. Mickelson. 1998. Bioaccumulation of Chemical Contaminants in Transplanted and Wild Mussels in the Duwamish River Estuary, Puget Sound, Washington. *In Proceedings of Puget Sound Research '98*. Puget Sound Water Quality Action Team. March 12-13, 1998, Seattle, Washington.

Strand, J.A. 1993. Restoration Planning Following the *Exxon Valdez* Oil Spill. In *Exxon Valdez Oil Spill Symposium. Abstract Book.* Exxon Valdez Oil Spill Trustee Council, University of Alaska Sea Grant College Program, and the American Fisheries Society. February 2-5, 1993, Anchorage, Alaska.

Strand, J.A., V.I. Cullinan, E.A. Crecelius, T.J. Fortman, R.J. Citterman and M.L. Fleischmann. 1992. Fate of Bunker C fuel oil in Washington coastal habitats following the December 1988 Nestucca oil spill. *Northwest Sci.* 66 (1):1-14.

Cullinan, V.I., E.A. Crecelius, and J.A. Strand. 1991. Evaluation of Lagoven, S. A., Refinery Environmental Monitoring Plan of Amuay Bay, Venezuela. Final Report. Prepared for Bariven Corporation by Battelle, Pacific Northwest Laboratories, Richland, Washington.