

7.0 Response to Comments

7.0 Response to Comments

The Oil Pollution Act of 1990 (33 U.S.C. § 2701 et seq.), and the NOAA Damage Assessment Regulations (15 C.F.R. Part 990 et seq.) require that the public be provided an opportunity to review and comment on oil spill restoration plans. The Trustees prepared a draft restoration plan for the Olympic Pipe Line Incident. The plan was made available for public review and comment on March 7, 2002 (AR #142). Public advertisements announcing the availability of the draft Damage Assessment and Restoration Plan (DARP) and the public meeting were placed in the Seattle Times, Seattle Post-Intelligencer, and Bellingham Herald (AR #146-148). Copies of the plan were made available at the Bellingham City Hall, Bellingham Library, and Bellingham Department of Public Works. Copies of the plan were provided free of charge to all interested parties. The City of Bellingham arranged for public tours of the proposed restoration sites and developed a video restoration tour that was broadcast on the local cable network (AR #149). The Trustees prepared a summary brochure on the proposed projects (AR #150) and held a public meeting at the Bellingham City Council Chambers on March 20, 2002 to present the plan. A copy of the presentation and a videotape of the meeting are included in the Record (AR #151, 152). The Trustees made copies of the Administrative Record available at locations in Seattle and Bellingham. Finally, the Trustees prepared a publicly accessible Internet site (www.darcnw.noaa.gov/whatcom.htm) and posted copies of the Notice of Intent to Conduct Restoration Planning, the draft restoration plan, and photographs of the Incident.

The public comment period closed on April 8, 2002. A total of three sets of comments were received on the plan from the following individuals and organizations:

- Rich Elliott, Davis Wright Tremaine, representing Equilon
- Wendy Scherrer, Nooksack Salmon Enhancement Association (NSEA)
- Marlene Robinson

Copies of the written comments received during the comment period and the public meeting presentation are included in the Administrative Record.

7.1 Overview of Comments:

In general, comments were in favor of the preferred alternatives and helpful in clarifying the descriptions of the losses and proposed restoration projects. However, two commenters questioned the adequacy of the long-term maintenance and monitoring component of the plan. No comments suggested additional categories of injuries or losses that should have been addressed during the restoration planning process. Finally, no adverse comments were received regarding the technical sufficiency of the Trustees' assessment and quantification of natural resource injuries.

The comments pertained to five main categories: 1) questions regarding the long-term maintenance and monitoring budget; 2) proposals for education and community projects; 3) questions and comments on the proposed restoration options; 4) comments on the restoration planning process; and 5) requests to clarify, add, or delete text in the document.

This section summarizes and responds to the comments. Comments are organized by general themes and similar comments are combined.

7.2 Comments on Long-Term Monitoring & Maintenance:

Comment: *The commenter expressed concern that the proposed long-term monitoring and maintenance will not ensure pre-incident restoration. The commenter asks whether the Trustees could show that the current cost figures for maintenance and monitoring tasks are adequate. The commenter recommended building more flexibility into the plan. The commenter requested clarification of the budget, the role of the City of Bellingham, and the length of activity associated with long-term monitoring and maintenance. (NSEA) (Robinson)*

Response: The proposed restoration plan was developed to bring the affected natural resources back to their pre-spill condition and compensate for the interim loss of natural resources while recovery occurs. The Trustees are developing a more detailed budget, schedule, and scope of work for the maintenance and monitoring plan. As part of this effort, the Trustees have confirmed that the maintenance and monitoring budget is adequate. The Trustees are developing an agreement for the management of the maintenance and monitoring plan. The categories of monitoring activities, as well as monitoring protocols and reporting criteria, will be included in the agreement. The City of Bellingham will implement the maintenance and monitoring fund through its Environmental Resources Division of Public Works as lead, in coordination with the Parks Department, for all maintenance, monitoring, and restoration activities. The Trustees did not assume that all tasks associated with the maintenance and monitoring of trees, slopes, fish, water quality, structures, macroinvertebrates, and restoration projects generally, would be funded by this fund. Administration costs will be addressed in the management agreement. Further, the City of Bellingham is committed to incorporating the maintenance and monitoring activities into existing programs, and will not overrun the budget with administration costs.

Comment: *The commenter was concerned that the Olympic Pipe Line Company is not being held responsible for the costs of all aspects of the Incident throughout all the years of restoration. The commenter asked why the Company should not have liability for the potential failures of restoration projects and for maintenance, monitoring and administration. (Robinson)*

Response: The Trustees believe Olympic Pipe Line has been held accountable and that injuries to the stream will be compensated by this plan. Given the options available, the Trustees chose to maximize restoration projects and acquisition, but the plan still has a substantial monitoring and maintenance effort. The company has responsibility for ensuring that the projects operate as anticipated and the company will be directly responsible for monitoring and mid-course corrections during construction to ensure that the projects are built properly, including initial survival of vegetation and proper hydrologic function. The monitoring and maintenance budget is designed to address longer term issues once the construction is complete and the project is functioning as designed.

Comment: *The commenter asked who is responsible if there is a slope failure and asked about risks from dangerous trees and who is responsible for liability if someone is hurt from falling tree parts? The commenter also asked whether the park would need to be kept closed longer than anticipated in the plan..(Robinson)*

Response: Trees in the gorge are not in a public access area. Steps have been taken to eliminate the hazard tree risks in areas open to the public. Trees in areas open to the public are being monitored and have been removed by Olympic Pipe Line as hazards when identified. The Plan anticipates that the availability of new Park areas will compensate for continued Park closures in areas that remain hazardous.

7.3 Comments on Education & Community Involvement:

Comment: *The commenter proposed the amendment of restoration activities to include education and community involvement. The commenter requested inclusion of the fact that Whatcom Creek provides sites for educational programs and suggested amending the language regarding lost human-use services to include educational programs. The commenter proposed the establishment of a dedicated fund for a community education and participation program and suggested a \$1.85 million estimate of costs over 10 years. (NSEA) (Robinson)*

Response: The Trustees considered education projects along with other restoration alternatives and concluded that while there are existing programs and funds available for salmon and water quality education, large blocks of funding for land acquisition and habitat restoration projects are harder to obtain. Therefore, the Trustees disagree with the suggestion that a fund be established for restoration education specific to Whatcom Creek. However, each of the proposed restoration projects will have interpretive signage.

7.4 Comments on the Proposed Restoration Options:

Comment: *The commenter approved of the Preferred Alternative to acquire land and focus on fishery enhancement activities. The commenter approved of the Trustees' diligent work in immediate restoration and their use of the best available science in initial assessment and emergency restoration activities. The commenter also approved of the innovation and cooperation between the Trustees and the Olympic Pipe Line Company. (NSEA) (Robinson)*

Response: The Trustees concur that a cooperative, restoration-based settlement benefits both the public and the environment. The Trustees also agree that the proposed land acquisition along the creek and construction of off-channel salmonid habitats at Salmon Park and Cemetery Creek will provide direct and long-term benefits to Whatcom Creek.

Comment: *The commenter identified the loss of shade as an issue and mentioned increasing the shade cover over other sections of the Creek. The commenter noted that two good places for increasing the shade are the open section through the Diehl Ford property and the gabioned areas. (NSEA) (Robinson)*

Response: Creation of shade was discussed during the restoration planning process. Temperature is certainly an issue on Whatcom Creek, now, as it was before the Incident. The Trustees feel that replanting of the burn area was an important step in recovering that shade function and note that almost 38,000 trees were planted to restore the affected riparian areas. The Trustees considered planting larger trees but after discussion with various experts, concluded that the larger trees would have a lower rate of survival and growth, and would potentially result in further injury to vegetation because heavy equipment and roads would be necessary to transport and plant large trees.

Comment: *The commenter asked how water quality in Whatcom Creek would be improved to compensate for soil contamination. The commenter also asked whether measures could be taken to reduce contamination inputs. (NSEA)*

Response: There has not been an ongoing impairment of surface water quality from the Incident. The only remaining groundwater contamination is at the Water Treatment Plan. Under the state regulatory process, a groundwater treatment system is operating near the break site and long-term remediation of that contamination is an obligation that Olympic Pipe Line retains until the contamination is removed.

Comment: *The commenter noted that the proposed 4- acre acquisition site has noxious weeds and bad fill material and asked who would be responsible for managing and paying for the design and restoration work at that site? (NSEA)*

Response: Restoration projects will be pursued on both of the properties acquired as part of this plan. The City's Environmental Resource Division will seek grant and other funding, with matching funds from current City activities. The Department of Ecology has analyzed the fill material on Haskell's property and a No Further Action order was issued. Noxious weeds will be included in ongoing noxious weed control programs. The ERD will be responsible for restoration projects on this site. The Parks Department will be responsible for trail development.

Comment: *The commenter requested a description of recovery efforts to date. (NSEA)*

Response: The draft restoration plan includes a summary of the recovery efforts implemented to date for the Olympic Pipe Line Incident. More detailed information is included in the Administrative Record Documents, including the emergency restoration plan and vegetation planting efforts.

7.5 Comments on Development of the Plan:

Comment: *The commenter reported that it has been difficult to wait so long for a long-term restoration plan. The commenter wrote that the process of developing the RP/EA was secretive and was concerned that the NSEA was never consulted. The commenter recommended that NSEA be included as a primary partner in long-term restoration. (Robinson)*

Response: The restoration efforts were not developed in secrecy. The emergency restoration plan was made available for public review. A Notice of Intent to conduct restoration planning was published in the Bellingham Herald. The restoration concepts in the draft restoration plan were presented with alternatives for public review and comment. Information requests were made to NSEA in development of the plan. Restoration planning is inherently time-consuming, as the Trustees must conduct studies and surveys to evaluate injuries to natural resources in order to determine appropriate restoration alternatives. Because of the extent of the initial injuries, much of the restoration work had to be implemented on an emergency basis to stabilize the area.

7.6 Clarifications, Additions, And Deletions:

Comment: *The commenter asked what "a diverse suite of fish and other organisms" means. The commenter also asked for more details concerning the word "suite" in the phrase "a suite of proposed restoration alternatives." (NSEA)*

Response: Suite typically refers to a group of species. In this case, it refers to the community of finfish, shellfish, lamprey, aquatic insects, and crustaceans that were known to inhabit the Creek prior to the Incident. The second use of the word reflects a range of related or similar restoration projects.

Comment: *The commenter asked what "lost human-use restoration" means. (NSEA)*

Response: One of the services provided by natural resources is human use, including recreational use. An example of a lost human use is a closure of a park or recreational fishery. Under OPA, the Trustees may assess and restore these losses. In this Incident, the proposed land acquisitions and park improvements are designed, in part, to restore or compensate for the lost human uses.

Comment: *The commenter asserts that the phrase "no action with natural recovery" is misrepresentative of the restoration alternative it describes and asked that it be changed to "no action." The commenter also requested that, at another point in the document, the phrase "natural recovery" be replaced with "no action." (NSEA)*

Response: The no-action alternative is the same as natural recovery. Biological communities have a large capacity to heal themselves provided that other stressors are reduced. In some instances, taking no action to allow natural recovery may be more beneficial to the injured resource, and the Trustees have chosen this option where appropriate.

Comment: *The commenter requested other changes in language at three points in the document: (1) replace "sea-run rainbow trout" with "steelhead", (2) replace "resident" with "resident and anadromous", and (3) clarify a sentence describing Whatcom Creek as an important resource. (NSEA)*

Response: The language has been changed to reflect the commenter's suggestions.

Comment: *The commenter requested that the restoration plan include mention of the loss of 15,000 hatchery rainbow trout in Bellingham Technical College Hatchery.(NSEA)*

Response: The loss of the hatchery fish is included in the fish kill numbers cited in the restoration plan and is addressed in the detailed fish kill report prepared by Washington Department of Fish and Wildlife that is included in the Administrative Record. The Trustees note that OPLC directly paid claims for losses at the hatchery resulting from the spill (D. Doty, WDFW, Pers. Comm.).

Comment: *The commenter requested inclusion of a sentence regarding NSEA's implementation of prior restoration on Whatcom Creek, as well as a change of language clarifying NSEA's role in the installation of a fish ladder. (NSEA)*

Response: The Trustees recognize that NSEA has made important contributions to the Creek's restoration prior to the Incident. Others groups, including schools, civic groups, non-profits, federal and state agencies, City of Bellingham, Whatcom County, and tribes have also had a role in the restoration of Whatcom Creek, either through the work of NSEA or on their own. The Trustees will clarify the role of NSEA with regard to installation of the fish ladder.

Comment: *The commenter requested inclusion, at two points each in the document, of the fact that Whatcom Creek provides the largest chum recreational fishery in Washington State, that Whatcom Creek is a resource for commercial fishing in Bellingham Bay, and that all of the trout at Bellingham Technical College's hatchery died as a result of the Incident. (NSEA)*

Response: The commenter's language has been added. However, while it is true that one of the services provided by the Creek is the support of commercial fisheries, the Plan is not intended to address private losses incurred by commercial fisherman or other private business losses. Under OPA, claims for those losses must be brought by the private claimants.

Comment: *The commenter requested inclusion of the fact that two boys and a young man died as a result of the Incident. (NSEA)*

Response: The Trustees discussed this issue at some length and decided that mentioning the loss of life in the restoration plan might mislead some readers to believe that the proposed restoration alternatives were designed to address or compensate for the loss of life. Instead, the Trustees included a statement in the introduction of the plan clarifying that the proposed restoration alternatives were designed only to compensate for injuries to natural resources. This should not be interpreted as a lack of recognition or compassion by the Trustees for the death of the three individuals.

Comment: *The commenter requested deletion of a reference to Equilon having been the operator of the Olympic Pipe Line Company at the time of the Incident. (Equilon)*

Response: The Trustees have no compelling information that supports changing the language in the restoration plan. The U.S. Department of Justice and U.S. Environmental Protection Agency name Equilon as the operator of the Olympic Pipe Line Company at the time of the Incident.

Comment: *The commenter suggested that the description of human use losses in Section 1.10 include the loss of environmental education (NSEA)*

Response: The description has been added. However, the Trustees believe these losses are included in the overall park closure. The park closure analysis included estimated lost visits for all activities, including those for educational purposes. The proposed park enhancements and land acquisition should provide opportunity for environmental education along with other outdoor recreation activities.

8.0 PREPARERS, AGENCIES, AND PERSONS CONSULTED

8.0 Preparers, Agencies, and Persons Consulted

1. National Oceanic and Atmospheric Administration

Doug Helton
Michelle DeBlasi
Gail Siani
Nick Iadanza

2. U.S. Fish and Wildlife Service

Jeff Krausmann

3. State of Washington

Dick Logan
Richard Grout
Dan Doty
Steve Hood

4. Lummi Nation

5. Nooksack Tribe

6. City of Bellingham

Clare Fogelsong

7. Olympic Pipe Line Company

Michael Macrander
Tony Palagy
Mike Condon
Jim Clark
Polaris Applied Sciences. Inc.
Inter-Fluve, Inc.

9.0 REFERENCES

9.0 References

- Adams, S., Frissell, C., and B. Rieman, 2001. Geography of Invasion in Mountain Streams: Consequences of Headwater Lake Fish Introductions. *Ecosystems*: pp. 296-307
- Agee, J., 1993. *Fire Ecology of Pacific Northwest Forests*. Island Press, Washington, DC.
- Albers, P. and M. Gay, 1982. Unweathered and Weathered Aviation Kerosine: Chemical Characterization and Effects on Hatching Success of Duck Eggs. *Bulletin of Environmental Contaminants and Toxicology*, Vol. 28, pp. 430-434
- American Fisheries Society, 1992. Investigation and valuation of fish kills. American Fisheries Society Special Publication 24. American Fisheries Society, Washington, DC.
- AMOCO Oil, 1999. Amoco Regular Lead-Free Gasoline-Gasoline Automotive, Material Safety Data Sheet, AMOCO Oil Company, Chicago, IL.
- Ashbrook, C. , and D. Doty, 2000. Fish and wildlife in-stream mortality assessment following the Olympic Pipeline gasoline spill in Bellingham, Washington on June 10, 1999, Final Report
- Axon, JR, L Hart, and V Nash. 1980. Recovery of tagged fish during the Crooked Creek Bay rotenone study at Barkley Lake, Kentucky. *Proceedings of the Annual Conference Southeastern Association of Fish and Wildlife Agencies* 33 (1979): 680-687
- Ball, J., and D, Graper, 1993. Planting a Tree with a Tree Moving Machine. South Dakota State University Cooperative Extension Service Publication Extra 6021.
- Ball, RC, 1948. Recovery of marked fish following a second poisoning of the population in Ford Lake, Michigan. *Transactions of the American Fisheries Society* 75:36-42.
- Belt, G., Laughlin, J. and T. Merrill. 1992. Design of Forest Riparian Buffer Strips for the Protection of Water Quality: Analysis of Scientific Literature. Idaho Forest, Wildlife and Range Policy Analysis Group, Report #8, University of Idaho.
- Berry, W., and J. Brammer, 1977. Toxicity of Water-Soluble Gasoline Fractions to Fourth-Instar Larvae of the Mosquito *Aedes aegypti*. *Environmental Pollution* 13 (1977), pp. 229-234.
- Bonneville Power Administration, 1990. Analysis of Salmon and Steelhead Supplementation, Technical Report, US Department of Energy, Bonneville Power Administration, Division of Fish and Wildlife, September 1990.

Brocksen, R., and H. Bailey, 1973. Respiratory Response of Juvenile Chinook Salmon and Striped Bass Exposed to Benzene, a Water-soluble Component of Crude Oil. Proceedings of the Joint Conference on Prevention and Control of Oil Spills. Washington, DC , pp. 783-791

Brown, J.; Smith, J., and J. Kapler (eds.) 2000. Wildland Fire in Ecosystems: Effects on Flora. General Technical Report RMRS-GTR- Vol. 2. Odgen UT. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

Bue, B.G, Sharr, S., and J.E Seeb, 1998. Evidence of Damage to Pink Salmon Populations Inhabiting Prince William Sound, Alaska, Two Generations after the Exxon Valdez Spill. Transactions of the American Fisheries Society 127: pp. 35-43.

Carls, M., Rice, S., and J.E. Hose, 1999. Sensitivity of Fish Embryos to Weathered Crude Oil: Part I. Low-level exposure during incubation causes malformations, genetic damage, and mortality in larval Pacific Herring (*Chupea pallasii*). Environmental Toxicology and Chemistry, Vol 18, No. 3 pp. 481-493.

Carls, M.G, Heintz, R., Moles, A., Rice, S.D., and J.W. Short, 2001. Long-Term Biological Damage: What is Known, and how should that Influence Decisions on Response, Assessment, and Restoration. Proceedings of the 2001 International Oil Spill Conference, Tampa, Florida. American Petroleum Institute Publication No. 14710.

City of Bellingham Department of Planning and Community Development, 1995. 1995 Bellingham Comprehensive Plan.

City of Bellingham Dept. of Parks and Recreation, 1990. Bellingham Trail Guide

City of Bellingham Office of Planning and Development, 1988. Shoreline Management Master Program Update 1988

City of Bellingham, 1999. Whatcom Creek Waterfront Action Program (WCWAP) Summary (http://www.cob.org/oncd/source/htm/special_proj/wcwap/INDEX.HTM)

Cline, P., Delfino, J., and P. Rao, 1991. Partitioning of Aromatic Constituents into Water from Gasoline and Other Complex Solvent Mixtures. Environmental Science and Technology 25 pp. 914-920.

CONCAWE, 1992, Gasolines. Report No. 92/103.

CONCAWE, 1996. Acute Aquatic Toxicity of Gasolines; Report on CONCAWE Test Program. Report No. 96/57.

DeGraeve, G., Elder, R., Woods, D., and H. Bergman. 1982. Effects of Naphthalene and Benzene on Fathead Minnows and Rainbow Trout. *Archives of Environmental Contaminants and Toxicology* 11, pp 487-490.

Delzer, G., Zogorski, J., Lopes, T., and R. Bosshart, 1996. Occurrence of Gasoline Oxygenate MTBE and BTEX Compounds in Urban Stormwater in the United States, 1991-95. *Water Resources Investigations Report* 96-4145.

Derveer, W., Nadeau, R., and G. Case, 1995. A Screening-Level Evaluation of Impacts to a Montana Lotic Macroinvertebrate Community From a Fuel Oil Spill. *Proceedings of the 1995 International Oil Spill Conference*, American Petroleum Institute, Washington, DC.

Devlin, E., Brammer, J., and R. Puyear, 1982. Acute Toxicity of Toluene to Three Age Groups of Fathead Minnows (*Pimephales promelas*). *Bulletin of Environmental Contaminants and Toxicology* 29, pp. 12-17.

Eissinger, A., 1995. *City of Bellingham Wildlife and Habitat Assessment; an Inventory of Existing Conditions and Background Information and Wildlife Habitat Plan*, December 1995. Prepared by Nahkeeta Northwest Wildlife Resource Services for the City of Bellingham Department of Planning and Community Development

Everest, F., Beschta, R., Scrivener, J., Koski, K., Sedell, J. and C.J. Sederholm. 1987. Fine Sediment and Salmonid Production: A Paradox. pp 98-142 in Salo, E. and T. Cundy (Eds.) *Streamside Management: Forestry and Fisheries Interactions*. Contribution No. 57, Institute of Forest Resources, University of Washington, Seattle, WA.

French-McKay, D., 2000. *Preassessment Modeling of Fates and Marine Injuries Resulting from the June 1999 Gasoline Spill into Whatcom Creek*. Prepared for NOAA Damage Assessment Center, Silver Spring, MD.

French-McKay, D., 2001. *Development and Application of an Oil Toxicity and Exposure Model, OilToxEx*. Prepared for the NOAA Damage Assessment Center, Rapid Assessment Program, January 2001.

Galassi, S., Mingazzini, M., Vigano, L., Cesareo, D., and M. Tosato, 1987. Approaches to Modeling Toxic Response of Aquatic Organisms to Aromatic Hydrocarbons. *Toxicology and Environmental Safety* 16, pp. 158-169.

Geiger, D., Brooke, L., and D. Call (Eds) 1990. *Acute Toxicities of Organic Chemicals to Fathead Minnows (Pimephales promelas)*. Center for Lake Superior Environmental Studies, University of Wisconsin-Superior

GeoEngineers, 1999. *Site Characterization and Remediation Report, Pipeline Release Areas, Whatcom Creek Incident, Bellingham, Washington, Volume I of II*

GeoEngineers, 1999. Site Characterization and Remediation Report, Pipeline Release Areas, Whatcom Creek Incident, Bellingham, Washington, Volume II of II

Gieger, H.J., Bue, B.G., Sharr, S., Wertheimer, A.C., and T.M. Willette, 1996. A Life History Approach to Estimating Damage to Prince William Sound Pink Salmon Caused by the Exxon Valdez Oil Spill. American Fishery Society Symposium 18:487-498.

Graves, N., 1985. A Northern Idaho Gasoline Spill and Cleanup Using Stream Bed Agitation. Proceedings of the 1988 International Oil Spill Conference, American Petroleum Institute, Washington, DC.

Gresswell, R.E. 1999. Fire and Aquatic Ecosystems in Forested Biomes of North America. Transactions of the American Fisheries Society Vol. 128, No. 2, pp. 193-221.

Hayne, DW., RD Ober, LE Schaaf, and DG Scott, 1980. Comparison of second-day pickup with numbers estimated by Pollution Committee counting guidelines- Barkley Lake study. Proceedings of the Annual Conference Southeastern Association of Fish and Wildlife Agencies 33(1979):738-752

HDR Engineering, 1995. Watershed Master Plan, September, 1995. Prepared for the City of Bellingham Department of Public Works.

Heintz, R., Short, J., and S. Rice, 1999. Sensitivity of Fish Embryos to Weathered Crude Oil: Part II. Increased Mortality of Pink Salmon (*Oncorhynchus gorbuscha*) embryos incubating downstream from weathered Exxon Valdez crude oil. Environmental Toxicology and Chemistry 18, pp 494-503.

Heintz, R.A, Rice, S.D., and B. Bue, 1996. Field and Laboratory Evidence for Reduced Fitness in Pink Salmon that Incubate in Oiled Gravel. Proceedings of the Symposium on Contaminant Effects on Fish, International Congress on the Biology of Fishes, San Francisco State University, July, 1996.

Helfield, J. and R. Naiman. 2001. Nutrients from salmon carcasses enhance streamside forest growth and long-term salmon production. Journal of Ecology 82(9) pp. 2403-2409.

Henley, JP. 1967. Evaluation of rotenone sampling with scuba gear. Proceedings of the Annual Conference Southeastern Association of Game and Fish Commissioners 20(1966): 439-446

Hodson, P., Dixon, D., and K. Kaiser, 1984. Measurement of Median Lethal Dose as a Rapid Indicator of Contaminant Toxicity to Fish. Environmental Toxicology and Chemistry Vol 3, pp. 243-254.

Huyck, V. and E. Paulson (Eds.) 1997. Petroleum in the Freshwater Environment: An Annotated Bibliography. American Petroleum Institute Publication 4640, Washington DC.

- Hyatt, T. and R. Naiman, 2001. The Residence Time of Large Woody Debris in the Queets River, Washington. *Ecological Applications* 11(1), pp. 191-202.
- Kennedy, G., and C. Strange., 1986. The effects of intra- and inter-specific competition on the survival and growth of stocked juvenile Atlantic salmon, *Salmo salar* L., and resident trout, *Salmo trutta* L., in an upland stream.
- Korn, S., Moles, A., and S. Rice, 1979, Effects of Temperature on the Median Tolerance Limit of Pink Salmon and Shrimp Exposed to Toluene, Naphthalene, and Cook Inlet Crude. *Bulletin of Environmental Contaminants and Toxicology* 21, pp. 521-525.
- Labay, A.B. and D. Buzan. 1999. A Comparison of Fish Kill Counting Procedures on a Small, Narrow Stream. *N.A. Journal of Fisheries Mgmt* 19:209-214.
- Manifold, S., Colebrook, B., Baldwin, L. Grace, L., and C. Behee, 2000. Whatcom Creek Invasives Survey Report, February 2000. Bellingham Parks and Recreation Department, Bellingham, WA.
- Marty, G.D., Heintz, R.A, and D.E. Hinton, 1997. Histology and Teratology of Pink Salmon Larvae near the Time of Emergence from Gravel Substrate in the Laboratory. *Canadian Journal of Zoology* 75: 978-988.
- Michael, H., 2000. Protocols and Guidelines for Distributing Salmonid Carcasses to Enhance Stream Productivity in Washington State. Washington State Department of Fish and Wildlife.
- Minshall, G., Robinson, C., and D. Lawrence, 1997. Postfire responses of Lotic Ecosystems in Yellowstone National Park, U.S.A. *Canadian Journal of Fisheries and Aquatic Science* No. 54, pp. 2509-2525.
- Moles, A., 1980. Sensitivity of Parasitized Coho Salmon Fry to Crude Oil, Toluene, and Naphthalene. *Journal of the American Fisheries Society* 109: 293-297.
- Moles, A., Rice, S., and S. Korn, 1979. Sensitivity of Alaskan Freshwater and Anadromous Fishes to Prudhoe Bay Crude Oil and Benzene. *Transactions of the American Fisheries Society* 108, pp. 408-414.
- Morrow, J., 1973. Oil-Induced Mortalities in Juvenile Coho and Sockeye Salmon. *Journal of Marine Research* Volume 31, No. 3, pp. 135-143.
- Morrow, J., 1974. Effects of Crude Oil and Some of its Components on Young Coho and Sockeye Salmon. U.S. Environmental Protection Agency Project R801039, Project Element 1BAO22, Washington DC.

- Nakano Dennis Landscape Architects, 1995. Whatcom Creek Trail Master Plan, May 1995. Prepared for the City of Bellingham Parks Department.
- National Marine Fisheries Service, 1999. Chinook Salmon, (*Oncorhynchus tshawytscha*), Puget Sound ESU Listed Threatened, March 1999
- National Oceanic and Atmospheric Administration, Damage Assessment Center, 2000. Whatcom Creek Incident: Preassessment Data Report, Final Draft, 3/20/00, Prepared by Industrial Economics, Inc.
- National Oceanic and Atmospheric Administration, 1995. Physical Process Affecting the Movement and Spreading of Oils in Inland Waters. National Oceanic and Atmospheric Administration HAZMAT Report 95-7, Seattle, Washington
- National Oceanic and Atmospheric Administration, 2000. Habitat Equivalency Analysis: An Overview. NOAA Damage Assessment Center, Silver Spring, MD.
- Neff, J. 2002. Bioaccumulation in Marine Organisms. Effect of Contaminants from Oil Well Produced Water. Elsevier Science Publishers, Amsterdam. In Press.
- Olympic Pipe Line Company, 1999. Preliminary Emergency Restoration Plan for Whatcom Creek and Whatcom Falls Park, Bellingham, Washington, June 22, 1999.
- Olympic Pipe Line Company, 1999. Whatcom Creek Sampling and Chemical Analytical Analysis Plan, June 10, 1999
- Olympic Pipe Line Company, 2000. Draft Whatcom Creek Draft Long-Term Restoration Plan and Appendices, Prepared by Polaris Consultants, Kirkland, WA.
- Peterson, C.H., 2001. The "Exxon Valdez" Oil Spill in Alaska: Acute, Indirect, and Chronic Effects on the Ecosystem. *Advances in Marine Biology*, Vol. 39, pp. 3-103.
- Pickering, Q., Carle, D., Pilli, A., Willingham, T., and J. Lazorchak, 1989. Effects of Pollution on Freshwater Organisms. *Journal of the Water Pollution Control Federation*, Vol 61, No. 6, pp.998-1042.
- Pontasch, K. and M. Brusven, 1988. Diversity and Community Comparison Indices: Assessing Macroinvertebrate Recovery Following a Gasoline Spill. *Water Research* Vol 22, No. 5, pp. 619-626.
- Pontasch, K. and M. Brusven, 1989. Macroinvertebrate and Periphyton Response to Streambed Agitation for Release of Substrate-Trapped Hydrocarbons. *Archives of Environmental Contaminants and Toxicology* 18, pp. 545-553.

- Pontasch, K., and M. Brusven, 1987. Periphyton Response to a Gasoline Spill in Wolf Lodge Creek, Idaho. *Canadian Journal of Fisheries and Aquatic Sciences*, Vol. 44, pp. 1669-1673.
- Rice, S.D, Moles, D., Karinen, J., Korn, S., Carls, M., Broderson, C., Gharrett, J., and M. Babcock, 1984. Effects of Petroleum Hydrocarbons on Alaskan Aquatic Organisms. U.S. Department of Commerce, National Marine Fisheries Service Tech. Memo. NMFS F/NWC-67.
- Rinne, J. 1996. Short-Term Effects of Wildfire on Fishes and Aquatic Macro-invertebrates in the Southwestern United States. *North American Journal of Fisheries Management* 16, pp. 653-658.
- Robichaud, P., Beyers, J., and D. Neary. 2000. Evaluating the Effectiveness of Post Fire Rehabilitation Treatments. General Technical Report RMRS-GTR- 63. Odgen UT. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.
- Roni, P., and A. Fayram, 2000, Estimating winter salmonid abundance in small western Washington Streams: a comparison of three techniques. National Marine Fisheries Service, NW Fisheries Science Center, Seattle, WA.
- Roni, Phil, 2001. Responses of Fishes and Salamanders to Instream Restoration Efforts in Western Oregon and Washington. Project Completion Report. National Marine Fisheries Service, NW Fisheries Science Center, Seattle, WA
- Roper, B., Konhoff, D., Heller, D., and K. Wieman, 1998. Durability of Pacific Northwest Instream Structures Following Floods. *North American Journal of Fisheries Management* 18, pp 686-693.
- Schmetterling, D., and R. Pierce, 1999. Success of Instream Habitat Structures After a 50-Year Flood in Gold Creek, Montana. *Restoration Ecology* Vol. 7, No. 4, pp. 369-375.
- Schultz, D., and L. Tebo, 1975. Boone Creek Oil Spill. Proceedings of the 1975 Conference on Prevention and Control of Oil Pollution, American Petroleum Institute, Washington, DC.
- Sharr, S., Moffitt, S.D., and A.K. Craig, 1996. Effects of the Exxon Valdez on Pink Salmon Embryos and Preemergent Fry. *American Fisheries Society Symposium* 18: pp. 619-627.
- Smith, J. (ed.), 2000. Wildland Fire in Ecosystems: Effects of Fire on Fauna. General Technical Report RMRS-GTR- 42, Volume 1.U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station
- Spina, A., and D. Tormey , 2000. Postfire Sediment Deposition in Geographically Restricted Steelhead Habitat. *North American Journal of Fisheries Management* Vol. 20: pp. 562-569

Stanford, J. and F. Hauer, 2002. Mitigating the impacts of Stream and Lake regulation in the Flathead River Catchment, Montana, USA: An ecosystem perspective. *Aquatic Conservation: Marine and Freshwater Ecosystems*, Vol. 2, pp. 35-63.

Stein, J.E, Krahn, M.M., Collier, T.K. and J.P. Meador, 1998. Oil Spill Response: Assessing Exposure and Effects in Fishery Resources. Proceedings of the First Joint Meeting of the CEST Panel, Hayama, Japan.

Stone, V.A., 2000. Whatcom Creek Water Quality in the 1990s and the ecological effects of a gasoline pipeline leak and fire in Bellingham, WA. Masters Thesis, Western Washington University.

Sullivan, K., Martin, D., Cardwell, R., Toll, J. and S. Duke., 2000. An Analysis of the Effects of Temperature on Salmonids of the Pacific Northwest with Implications for Selecting Temperature Criteria. Sustainable Ecosystems Institute, Portland, OR.

Swartz, R.C. Schults, D., Oxretich, R., Lamberson, J., Cole, F., DeWitt, T., Redmond, M., and S. Ferraro, 1995. Σ PAH: A Model to Predict the Toxicity of Polynuclear Aromatic Hydrocarbon Mixtures in Field-Collected Sediments. *Environmental Toxicology and Chemistry*, Vol 14., No. 11, pp. 1977-1987.

Taylor, E., Steen, A., and D. Fritz, 1995. A review of environmental effects from oil spills into inland waters. *In Proc. of the 18th Arctic and Marine Oil Spill Program Tech. Sem.*, June 14-16, Edmonton, Env. Canada., p. 1095-1115.

Thayer, D.V., 1977. Whatcom Creek Salmon Rearing. Huxley College of Environmental Studies, Western Washington State College, Bellingham, WA.

US Environmental Protection Agency, 1999. Federal On-Scene Coordinator's Report for the Whatcom Creek Olympic Pipe Line Incident, Bellingham, WA.

US Environmental Protection Agency, 1999. Olympic Pipe Line Major Gasoline Spill Whatcom Creek POLREP #16 Bellingham, Washington.

US Geological Survey, 2002. Physical Habitat Simulation (PHABSIM) Software, Midcontinent Ecological Science Center.

Wakehan, S., Davis, A., and J. Karas, 1983, Mesocosm Experiments to Determine the Fate and Persistence of Volatile Organic Compounds in Coastal Seawater. *Environmental Science and Technology* Vol. 17, pp. 611-617.

Walsh, D., Armstrong, J., Bartley, T., Salman, H., and P. Frank, 1977. Residues of Emulsified Xylene in Aquatic Weed Control and their Impact on Rainbow Trout. US Department of the Interior, Bureau of Reclamation Report REC-ERC-76-11.

Waples, R., 1995. Evolutionarily significant units and the conservation of biological diversity under the Endangered Species Act.

Waples, R., and C. Do., 1994. Genetic risk associated with supplementation of Pacific salmonids: Captive broodstock programs. *Canadian Journal of Fisheries and Aquatic Sciences* 51 (Suppl. 1): 310-329.

Washington State Department of Ecology, 1999. Lake Whatcom Watershed Cooperative Drinking Water Project. Results of 1998 Water, Sediment and Fish Tissue Sampling. Publication No. 99-337.

Washington State Department of Ecology, 2000. Bellingham Bay Pilot Project, Fact Sheet: Bellingham Bay Comprehensive Strategy, Final EIS, October 2000.

Washington State Department of Fish and Wildlife, 1997. Policy of Washington Department of Fish and Wildlife and Western Washington Treaty Tribes Concerning Wild Salmonids

Waters, T.F., 1995. Sediments in Streams: Sources, Biological Effects and Control. American Fisheries Society Monograph 17, American Fisheries Society, Bethesda, MD.

10.0 Appendices

10.0 Appendices

10.1 Acronyms and Glossary

Acronyms

AR	Administrative Record
BMPs	Best Management Practices
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
°C	Centigrade (degrees)
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
cfs	Cubic Feet Per Second
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
Draft RP/EA	Draft Restoration Plan and Environmental Assessment
DSAYs	Discounted Service Acre-Years
EA	Environmental Assessment
EFH	Essential Fish Habitat (under MSFCMA)
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESU	Ecologically Significant Unit
FONSI	Finding of No Significant Impact
FWCA	Fish and Wildlife Coordination Act
GPS	Global Positioning System
HAZMAT	NOAA's Hazardous Materials Response and Assessment Division
HEA	Habitat Equivalency Analysis
JRC	Joint Restoration Committee
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MTCA	Model Toxics Control Act
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPL	National Priorities List
NRDA	Natural Resource Damage Assessment
OAHP	Office of Archaeology and Historic Preservation
OPA	Oil Pollution Act of 1990
OPLC	Olympic Pipe Line Company (the Company)
PHABSIM	Physical Habitat Simulation Model
RCW	Revised Code of Washington

RDA	Resource Damage Assessment
RP(s)	Responsible Party or Parties
RP/EA	Restoration Plan and Environmental Assessment
SEPA	State Environmental Policy Act
SIMAP	Spill Impact Map
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WDOE	Washington Department of Ecology

Glossary

anadromous: fish, such as salmon, that live in the ocean but reproduce in freshwater

benthic: relating to, or occurring at the bottom of a body of water

biota: the flora and fauna of a region

estuarine: relating to, or formed in an estuary- an inlet of the sea influenced by freshwater

gabion: a basket or cage filled with earth or rocks and used especially in building a support or abutment

intertidal: The region of the shoreline between the high tide mark and the low tide mark.

invasive species: a species that is 1) non-native (or alien) to the ecosystem under consideration and 2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health

invertebrate: lacking a spinal column (backbone or vertebrae); of or relating to invertebrate animals, such as crustaceans, mollusks, worms, gastropods and insects, that lack a backbone or spinal column

macroinvertebrate: An invertebrate visible without the aid of magnification

marine: of or relating to the sea

planform: pattern of a stream channel as seen from the air (e.g. straight or meandering)

riparian: relating to or living or located on the bank of a natural watercourse (as a river) or sometimes of a lake or a tidewater

riprap: a loose assemblage of broken stones erected in water or on soft ground as a foundation

refugia: a place or source of shelter or safety; a sanctuary

salmonid: any of a family (Salmonidae) including salmon or trout

trophic: of or relating to nutrition, generally referring to flow of food or energy from one ecological level to another.

watershed: a region or area bounded peripherally by a divide and draining ultimately to a particular watercourse or body of water

10.2 Index to the Administrative Record

Record Number	Author	Date	Title
001	OPLC	1999	Emergency Restoration Plan for Whatcom Creek and Whatcom Falls Park, Bellingham, Washington
002	NOAA Damage Assessment Center	2000	Whatcom Creek Incident: Preassessment Data Report, Final Draft, 3/20/00.
003	OPLC	1999	Recap Ferndale Station to Bayview Products Terminal 16'' pipeline Displacement Activities (Spill Volume)
004	US EPA	1999	Olympic Pipe Line Major Gasoline Spill Whatcom Creek POLREP #16 Bellingham, Washington
005	Stone, V.A.	2000	Whatcom Creek Water Quality in the 1990s and the ecological effects of a gasoline pipeline leak and fire in Bellingham, WA.
006	Co-Trustees	2000	Memorandum of Agreement for the Whatcom Creek Incident
007	Eissinger, A. (Nahkeeta Northwest)	1995	City of Bellingham Wildlife and Habitat Assessment; an Inventory of Existing Conditions and Background Information and Wildlife Habitat Plan
008	Nakano Associates	1995	Whatcom Creek Trail Master Plan
009	City of Bellingham Department of Planning and Community Development	1999	Permit for Whatcom Creek Trail
010	Ashbrook, C. , and D. Doty	2000	Fish and wildlife in-stream mortality assessment following the Olympic Pipeline gasoline spill in Bellingham, Washington on June 10, 1999, Final Report
011	City of Bellingham Parks and Recreation Department	1999	Whatcom Falls Park Closure Maps
012	National Marine Fisheries Service	1999	Chinook Salmon, (<i>Oncorhynchus tshawytscha</i>), Puget Sound ESU Listed Threatened, March 1999
013	State of Washington RDA Committee	1999	RDA Committee public meeting notes- Hearing on Assessment, 12 July, 1999
014	US EPA	1999	Incident Summary Report
015	OPLC	2000	Whatcom Creek Draft Long-Term Restoration Plan and Appendices
016	City of Bellingham	1995	Watershed Master Plan, September, 1995
017	City of Bellingham	1999	Whatcom Creek Waterfront Action Program (WCWAP) Summary (http://www.cob.org/oncd/source/htm/special_proj/wcwap/INDEX.HTM)
018	City of Bellingham	1988	Shoreline Management Master Program Update 1988
019	City of Bellingham Department of Planning and Community Development	1995	1995 Bellingham Comprehensive Plan
020	WDOE	1999	Lake Whatcom Watershed Cooperative Drinking Water Project. Results of 1998 Water, Sediment and Fish Tissue Sampling.

021	Thayer, D.V.	1977	Whatcom Creek Salmon Rearing
022	USGS	2002	Physical Habitat Simulation (PHABSIM) Software
023	City of Bellingham	2002	JRC meeting notes
024	Nooksack Salmon Enhancement Association	1997	Nooksack Salmon Enhancement Projects
025	Stanford, J. and F. Hauer	2002	Mitigating the impacts of Stream and Lake regulation in the Flathead River Catchment, Montana, USA: An ecosystem perspective
026	Sullivan, K., Martin, D., Cardwell, R., Toll, J. and S. Duke.	2000	An analysis of the Effects of Temperature on Salmonids of the Pacific Northwest with Implications for Selecting Temperature Criteria
027	Johnson, J., and J. McGowan	1999	Cemetery Creek Sea-Run Cutthroat Trout Rescue Plan
028	WDOE	2000	Bellingham Bay Pilot Project, Fact Sheet: Bellingham Bay Comprehensive Strategy, Final EIS,
029	WDFW	2001	List of State Species of Concern
030	USFWS	2001	Endangered, Threatened, Proposed and Candidate Species, Critical Habitat and Species of Concern in the Western Portion of Washington State, North Pacific Ecoregion as prepared by the US Fish and Wildlife Service, Western Washington Office.
031	City of Bellingham Parks and Recreation Department	1990	Trail Guide
032	City of Bellingham Department of Public Works	2001	Washington Heritage Registry sites in Bellingham
033	American Fisheries Society	1992	Investigation and valuation of fish kills
034	City of Bellingham	2001	Archival list of OPLC Unified Command Documents
035	Albers, P., and M. Gay	1982	Unweathered and Weathered Aviation Kerosene: Chemical Characterization and Effects of Hatching Success of Duck Eggs
036	Berry, W., and J. Brammer	1977	Toxicity of Water-Soluble Gasoline Fractions to Fourth-Instar Larvae of the Mosquito <i>Aedes aegypti</i> .
037	Brocksen, R., and H. Bailey	1973	Respiratory Response of Juvenile Chinook Salmon and Striped Bass Exposed to Benzene, a Water-soluble Component of Crude Oil
038	Bue, B.G, Sharr, S., and J.E Seeb	1998	Evidence of Damage to Pink Salmon Populations Inhabiting Prince William Sound, Alaska, Two Generations after the Exxon Valdez Spill.
039	Carls, M., Rice, S., and J.E. Hose	1999	Sensitivity of Fish Embryos to Weathered Crude Oil: Part I. Low-level exposure during incubation causes malformations, genetic damage, and mortality in larval Pacific Herring (<i>Clupea pallasii</i>).
040	Carls, M.G, Heintz, R., Moles, A., Rice, S.D., and J.W. Short	2001	Long-Term Biological Damage: What is Known, and How Should That Influence Decisions on Response, Assessment, and Restoration
041	Cline, P., Delfino, J., and P. Rao	1991	Partitioning of Aromatic Constituents into Water from Gasoline and Other Complex Solvent Mixtures
042	CONCAWE	1996	Acute Aquatic Toxicity of Gasolines; Report on CONCAWE Test Program

043	CONCAWE	1992	Gasolines
044	DeGraeve, G., Elder, R., Woods, D., and H. Bergman	1982	Effects of Naphthalene and Benzene on Fathead Minnows and Rainbow Trout
045	Delzer, G., Zogorski, J., Lopes, T., and R. Bosshart	1996	Occurrence of Gasoline Oxygenate MTBE and BTEX Compounds in Urban Stormwater in the United States, 1991-95.
046	Derveer, W., Nadeau, R., and G. Case	1995	A Screening-Level Evaluation of Impacts to a Montana Lotic Macroinvertebrate Community From a Fuel Oil Spill.
047	Devlin, E., Brammer, J., and R. Puyear	1982	Acute Toxicity of Toluene to Three Age Groups of Fathead Minnows (<i>Pimephales promelas</i>)
048	French-Mckay, D.	2001	Development and Application of an Oil Toxicity and Exposure Model, OilToxEx.
049	Galassi, S., Mingazzini, M., Vigano, L., Cesareo, D., and M. Tosato	1987	Approaches to Modeling Toxic Response of Aquatic Organisms to Aromatic Hydrocarbons
050	Graves, N.	1985	A Northern Idaho Gasoline Spill and Cleanup Using Stream Bed Agitation
051	Heintz, R., Short, J., and S. Rice	1999	Sensitivity of Fish Embryos to Weathered Crude Oil: Part II. Increased Mortality of Pink Salmon (<i>Oncorhynchus gorbuscha</i>) embryos incubating downstream from weathered Exxon Valdez crude oil.
052	Heintz, R.A, Rice, S.D., and B. Bue	1996	Field and Laboratory Evidence for Reduced Fitness in Pink Salmon that Incubate in Oiled Gravel.
053	Hodson, P., Dixon, D., and K. Kaiser	1984	Measurement of Median Lethal Dose as a Rapid Indicator of Contaminant Toxicity to Fish
054	Korn, S., Moles, A., and S. Rice	1979	Effects of Temperature on the Median Tolerance Limit of Pink Salmon and Shrimp Exposed to Toluene, Naphthalene, and Cook Inlet Crude
055	Marty, G.D., Heintz, R.A, and D.E. Hinton	1997	Histology and Teratology of Pink Salmon Larvae near the Time of Emergence from Gravel Substrate in the Laboratory
056	Moles, A.	1980	Sensitivity of Parasitized Coho Salmon Fry to Crude Oil, Toluene, and Naphthalene
057	Moles, A., Rice, S., and S. Korn	1979	Sensitivity of Alaskan Freshwater and Anadromous Fishes to Prudhoe Bay Crude Oil and Benzene
058	Morrow, J.	1974	Effects of Crude Oil and Some of its Components on Young Coho and Sockeye Salmon
059	Morrow, J.	1973	Oil-Induced Mortalities in Juvenile Coho and Sockeye Salmon
060	Pickering, Q., Carle, D., Pilli, A., Willingham, T., and J. Lazorchak	1989	Effects of Pollution on Freshwater Organisms
061	Pontasch, K. and M. Brusven	1988	Diversity and Community Comparison Indices: Assessing Macroinvertebrate Recovery Following a Gasoline Spill
062	Pontasch, K. and M. Brusven	1989	Macroinvertebrate and Periphyton Response to Streambed Agitation for Release of Substrate-Trapped Hydrocarbons
063	Pontasch, K., and M. Brusven	1987	Periphyton Response to a Gasoline Spill in Wolf Lodge Creek, Idaho
064	Rice, S.D, D Moles et al.	1984	Effects of Petroleum Hydrocarbons on Alaskan Aquatic Organisms

065	Schultz, D., and L. Tebo	1975	Boone Creek Oil Spill
066	Sharr, S., Moffitt, S.D., and A.K. Craig	1996	Effects of the Exxon Valdez on Pink Salmon Embryos and Preemergent Fry
067	Stein, J.E., Krahn, M.M., Collier, T.K. and J.P. Meador	1998	Oil Spill Response: Assessing Exposure and Effects in Fishery Resources
068	Swartz, R.C. Schults, D., Oxretich, R., Lamberson, J., Cole, F., DeWitt, T., Redmond, M., and S. Ferraro	1995	Σ PAH: A Model to Predict the Toxicity of Polynuclear Aromatic Hydrocarbon Mixtures in Field-Collected Sediments
069	Wakehan, S., Davis, A., and J. Karas	1983	Mesocosm Experiments to Determine the Fate and Persistence of Volatile Organic Compounds in Coastal Seawater
070	Walsh, D., Armstrong, J., Bartley, T., Salman, H., and P. Frank	1977	Residues of Emulsified Xylene in Aquatic Weed Control and their Impact on Rainbow Trout
071	Neff, J.	2000	Appendix B- Development of Petroleum Fraction Specific Toxicity Values for the Protection of Aquatic Receptors
072	Neff, J.	2002	Monocyclic Aromatic Hydrocarbons.
073	AMOCO Oil	1999	Amoco Regular Lead-Free Gasoline-Gasoline Automotive, Material Safety Data Sheet
074	Landis, W.	1999	Consensus, Site Specific Action Levels for BETX, Gasoline and Naphthalene. August 18, 1999 JRC Meeting
075	Huyck, V., and E. Paulson (Eds.)	1997	Petroleum in the Freshwater Environment: An Annotated Bibliography.
076	NOAA	1995	Physical Process Affecting the Movement and Spreading of Oils in Inland Waters.
077	Taylor, E., Steen, A., and D. Fritz	1995	A review of environmental effects from oil spills into inland waters
078	Roni, P., and A. Fayram	2000	Estimating winter salmonid abundance in small western Washington Streams: a comparison of three techniques
079	Geiger, D., Brooke, L., and D. Call	1990	Acute Toxicities of Organic Chemicals to Fathead Minnows (<i>Pimephales promelas</i>).
080	Ball, R.	1948	Recovery of marked fish following a second poisoning of the population in Ford Lake, Michigan
081	NOAA	2000	Habitat Equivalency Analysis: An Overview
082	City of Bellingham	1998	Conservation and Public Easement: Padden Creek Gorge Area 78943
083	City of Bellingham	1998	Conservation and Public Easement: Padden Creek Gorge Area 78944
084	Labay, A.B. and D. Buzan	1998	A Comparison of Fish Kill Counting Procedures on a Small, Narrow Stream
085	Baker, D., and Everhope, L.	1999	Wildlife Surveys for Whatcom Creek Incident, June 12 - 14, 1999.
086	OPLC	1999	Whatcom Creek Sampling and Chemical Analytical Analysis Plan, June 10, 1999
087	R2 Consultants	2000	Whatcom Creek Snorkel Observations
088	GeoEngineers	1999	Site Characterization and Remediation Report, Pipeline Release Areas, Whatcom Creek Incident, Bellingham, Washington, Volume I of II
089	GeoEngineers	1999	Site Characterization and Remediation Report, Pipeline Release Areas, Whatcom Creek Incident, Bellingham,

			Washington, Volume II of II
090	City of Bellingham	1999	Closure Notice for Whatcom Falls Park and Trails
091	French-McKay, D.	2000	Preassessment Modeling of Fates and Marine Injuries Resulting from the June 1999 Gasoline Spill into Whatcom Creek
092	Locke, Gary	1999	Designation of City of Bellingham as a Natural Resource Trustee
093	Internet Information	1999	Compilation of Internet Information from Whatcom County, City of Bellingham, the OPLC, and others
094	Bellingham Herald	1999	Compilation of Newspaper Articles
095	Seattle Post Intelligencer	1999	Compilation of Newspaper Articles
096	Seattle Times	1999	Compilation of Newspaper Articles
097	Oregonian	1999	Compilation of Newspaper Articles
098	Washington State DNR	1999	Whatcom Creek Fire Department of Natural Resources Photo Interpretation of Burn Zone- ArcView Shape Files (Digital Original and brief text description)
099	Pentilla, D.	1999	Observations made around the mouth of Whatcom Creek, Bellingham, June 15, 1999.
100	Manifold, S., Colebrook, B., Baldwin, L. Grace, L., and C. Behee	2000	Whatcom Creek Invasives Survey Report, February 2000 (Digital Original, printed copy of text)
101	WDFW	1999	Emergency Closure Notice
102	WDFW	1999	Extension of Emergency Closure
103	Belt, G., Laughlin, J., and T. Merrill	1992	Design of Forest Riparian Buffer Strips for the Protection of Water Quality: Analysis of Scientific Literature.
104	Waples, R., and C. Do.	1994	Genetic risk associated with supplementation of Pacific salmonids: Captive broodstock programs.
105	Minshall, G., Robinson, C., and D. Lawrence	1997	Postfire responses of Lotic Ecosystems in Yellowstone National Park, U.S.A.
106	Waters, T.F	1995	Sediments in Streams: Sources, Biological Effects, and Control.
107	Everest, F., Beschta, R., Scrivener, J., Koski, K., Sedell, J. and C.J. Sederholm.	1987	Fine Sediment and Salmonid Production: A Paradox. pp 98-142 in Salo, E., and T. Cundy (Eds.) Streamside Management: Forestry and Fisheries Interactions.
108	City of Bellingham Park Department	2000	Comments on Tree Planting Plan Summary Whatcom Falls Park Area, 2/24/00
109	Cantrell and Associates	2000	Tree Planting Plan Summary Whatcom Falls Park Area, 2/17/00
110	Clark, J.	2001	Proposed Park Improvements
111	Helfield, J. and R. Naiman.	2001	Nutrients from salmon carcasses enhance streamside forest growth and long-term salmon production. (Ecology)
112	Michael, Hal	2000	Use of carcasses to enhance stream productivity
113	Michael, Hal	2000	Protocols and Guidelines for Distributing Salmonid Carcasses to Enhance Stream Productivity in Washington State
114	Hyatt, T. and R. Naiman	2001	The Residence Time of Large Woody Debris in the Queets

			River, Washington
115	WDFW	1997	Policy of Washington Department of Fish and Wildlife and Western Washington Treaty Tribes Concerning Wild Salmonids
116	Ball, J., and D. Graper	1993	Planting a Tree with a Tree Moving Machine
117	WDOE	1999	Whatcom Watersheds Pledge Project
118	Inter-Fluve	2001	Salmon Park and Cemetery Creek Enhancement Plan for Fisheries Habitat, Draft Preliminary Design Report, 12/13/01
119	Inter-Fluve	2001	Salmon Park and Cemetery Creek Conceptual Enhancement Plan for Fisheries Habitat, 10% Design Report, 1/01
120	Inter-Fluve	2001	Salmon Park and Cemetery Creek Enhancement Plan for Fisheries Habitat, Draft Preliminary Design Report, 3/22/01
121	Inter-Fluve	2001	Salmon Park and Cemetery Creek Enhancement Plan for Fisheries Habitat, Preliminary Design Report, 4/11/01
122	Inter-Fluve	2001	Salmon Park and Cemetery Creek Enhancement Plan for Fisheries Habitat, Draft Preliminary Design Report, 11/30/01
123	Roni, Phil	2001	Responses of Fishes and Salamanders to Instream Restoration Efforts in Western Oregon and Washington
124	Ronald Jepson and Associates	1998	Binding Site Plan for Haskell Corporation Business Park
125	City of Bellingham	1998	Letter and attachments from Patricia Decker to Al Jansen Regarding planned development for Whatcom Reach Property
126	Inter-Fluve	2001	Wetland Delineation for the Salmon Park and Cemetery Creek; Enhancement Plan for Fisheries Habitat, 5/01
127	Bonneville Power Administration	1990	Analysis of Salmon and Steelhead Supplementation
128	Brown, J.; Smith, J., and J. Kapler (eds.)	2000	Wildland fire in ecosystems: effects of fire on flora
129	Robichaud, P., Beyers, J., and D. Neary	2000	Evaluating the Effectiveness of Postfire Rehabilitation Treatments
130	Spina, A., and D. Tormey	2000	Postfire Sediment Deposition in Geographically Restricted Steelhead Habitat
131	Gresswell, R.	1999	Fire and Aquatic Ecosystems in forested Biomes of North America
132	Rinne, J.	1996	Short-term effects of wildfire on fishes and aquatic macroinvertebrates in the southwestern United States
133	Smith, J. (ed.)	2000	Wildland Fire in Ecosystems: Effects of Fire on Fauna
134	Roper, B., Konnoff, D., Heller, D., and K. Wieman	1998	Durability of Pacific Northwest Instream Structures Following Floods
135	Adams, S., Frissell, C., and B. Rieman	2001	Geography of Invasion in Mountain Streams: Consequences of Headwater Lake Fish Introductions
136	Schmetterling, D., Pierce, R.	1999	Success of Instream Habitat Structures After a 50-Year

			Flood in Gold Creek, Montana.
137	Co-Trustees	2002	Notice of Intent to Conduct Restoration Planning
138	U. S Government	1855	1855 Point Elliott Treaty Area for the Lummi Nation and Nooksack Tribe
139	Helton, D.	2002	Request to State Office of Archaeology and Historic Preservation for Section 106 Review
140	Whitlam, R.	2002	Response to Request for Section 106 Review
141	Jefferson, M.	2002	Letter regarding Tribal Participation
142	Co-Trustees	2002	Draft Restoration Plan and Environmental Assessment for the June 10, 1999 Olympic Pipe Line Gasoline Spill into Whatcom Creek, Bellingham, Washington
143	Elliot, R	2002	Comments on Draft RP/EA
144	Scherrer, W	2002	Comments on Draft RP/EA
145	Robinson, M	2002	Comments on Draft RP/EA
146	Bellingham Herald	2002	Public Notice
147	Seattle Times	2002	Public Notice
148	Seattle Post-Intelligencer	2002	Public Notice
149	City of Bellingham	2002	Whatcom Creek Restoration: An update (videotape)
150	WDOE	2002	Restoring Whatcom, Hanna, and Cemetery Creeks
151	City of Bellingham	2002	Whatcom Creek Restoration Plan Public Presentation. March 2002
152	City of Bellingham	2002	Public Meeting of the Draft Restoration Plan of Whatcom, Hanna, and Cemetery Creek, March 20, 2002 (videotape)

10.3 Summary of the Emergency Restoration Actions

A number of early remediation and emergency restoration activities were implemented and were coordinated with the emergency response and cleanup and oriented at reducing injuries to natural resources or restoring injured resources. Many of these activities have generated restoration benefits to the natural resources and resource services affected by the Incident. The emergency restoration activities that have been completed or are ongoing include:

- **Stream and Soil Remediation**—Agitation of stream sediments to release trapped gasoline. Contaminated soils were removed and treated.
- **Stream Restoration**—Replacement and rearrangement of stream gravel and cobble and introduction of large woody debris to create a stream physiography that is more conducive to fish production.
- **Invasive-Plant Control**—Removal of non-native vegetation and control of burned areas to facilitate re-establishment of a native plant community.
- **Tree Planting**—Thousands of tree seedlings have been planted throughout the burn zone to help re-establish a tree canopy.
- **Soil Erosion and Sedimentation Mitigation**—Areas at high risk to erosion after the fire were closed to pedestrian traffic. Native groundcovers were planted.
- **Valencia Street Bridge Improvements**—The Company rebuilt the Valencia Street Bridge, reconstructed the confluence of Fever Creek and Whatcom Creek to improve fish passage, and built a recreational trail bridge over Fever Creek at its intersection with Whatcom Park trail.

10.4 Calculation of "Discounted Service Acre Years" Created

Table 6: Calculation of "Discounted Service Acre-Years" Created for Salmon Park and Cemetery Creek Projects

A	B	C	D	E	F	G
Year	Percent Services Provided	Affected Area (Project Size in acres)	Service-Acres Gained Per Year (B x C)	Discount Factor (@ 3% per annum)	Present Value of Service-Acres Gained Per Year (D x E)	Cumulative Discounted Service Acre-Years (DSAYs)
2002	0.00	0.9	0.000	1.000	0.000	0.000
2003	0.05	0.9	0.045	0.970	0.044	0.044
2004	0.10	0.9	0.090	0.941	0.085	0.128
2005	0.15	0.9	0.135	0.913	0.123	0.252
2006	0.20	0.9	0.180	0.885	0.159	0.411
2007	0.25	0.9	0.225	0.859	0.193	0.604
2008	0.30	0.9	0.270	0.833	0.225	0.829
2009	0.35	0.9	0.315	0.808	0.255	1.084
2010	0.40	0.9	0.360	0.784	0.282	1.366
2011	0.45	0.9	0.405	0.760	0.308	1.674
2012	0.50	0.9	0.450	0.737	0.332	2.005
2013	0.55	0.9	0.495	0.715	0.354	2.359
2014	0.60	0.9	0.540	0.694	0.375	2.734
2015	0.65	0.9	0.585	0.673	0.394	3.128
2016	0.70	0.9	0.630	0.653	0.411	3.539
2017	0.75	0.9	0.675	0.633	0.427	3.967
2018	0.80	0.9	0.720	0.614	0.442	4.409
2019	0.85	0.9	0.765	0.596	0.456	4.865
2020	0.90	0.9	0.810	0.578	0.468	5.333
2021	0.95	0.9	0.855	0.561	0.479	5.812
2022	1.00	0.9	0.900	0.544	0.489	6.302
2023	1.00	0.9	0.900	0.527	0.475	6.776
2024	1.00	0.9	0.900	0.512	0.460	7.237
2025	1.00	0.9	0.900	0.496	0.447	7.683
2026	1.00	0.9	0.900	0.481	0.433	8.117
2027	1.00	0.9	0.900	0.467	0.420	8.537
2028	1.00	0.9	0.900	0.453	0.408	8.945
2029	1.00	0.9	0.900	0.439	0.395	9.340
2030	1.00	0.9	0.900	0.426	0.384	9.724

2031	1.00	0.9	0.900	0.413	0.372	10.096
2032	1.00	0.9	0.900	0.401	0.361	10.457
2033	1.00	0.9	0.900	0.389	0.350	10.807
2034	1.00	0.9	0.900	0.377	0.340	11.146
2035	1.00	0.9	0.900	0.366	0.329	11.476
2036	1.00	0.9	0.900	0.355	0.320	11.795
2037	1.00	0.9	0.900	0.344	0.310	12.105
2038	1.00	0.9	0.900	0.334	0.301	12.406
2039	1.00	0.9	0.900	0.324	0.292	12.697
2040	1.00	0.9	0.900	0.314	0.283	12.980
2041	1.00	0.9	0.900	0.305	0.274	13.255
2042	1.00	0.9	0.900	0.296	0.266	13.521
2043	1.00	0.9	0.900	0.287	0.258	13.779
2044	1.00	0.9	0.900	0.278	0.250	14.029
2045	1.00	0.9	0.900	0.270	0.243	14.272
2046	1.00	0.9	0.900	0.262	0.236	14.508
2047	1.00	0.9	0.900	0.254	0.229	14.736
2048	1.00	0.9	0.900	0.246	0.222	14.958
2049	1.00	0.9	0.900	0.239	0.215	15.173
2050	1.00	0.9	0.900	0.232	0.209	15.382
2051	1.00	0.9	0.900	0.225	0.202	15.584
2052	1.00	0.9	0.900	0.218	0.196	15.780
2053	1.00	0.9	0.900	0.212	0.190	15.971
2054	1.00	0.9	0.900	0.205	0.185	16.155
2055	1.00	0.9	0.900	0.199	0.179	16.334
2056	1.00	0.9	0.900	0.193	0.174	16.508
2057	1.00	0.9	0.900	0.187	0.169	16.677
2058	1.00	0.9	0.900	0.182	0.163	16.840
2059	1.00	0.9	0.900	0.176	0.159	16.999
2060	1.00	0.9	0.900	0.171	0.154	17.153
2061	1.00	0.9	0.900	0.166	0.149	17.302
2062	1.00	0.9	0.900	0.161	0.145	17.447
2063	1.00	0.9	0.900	0.156	0.140	17.587
2064	1.00	0.9	0.900	0.151	0.136	17.723
2065	1.00	0.9	0.900	0.147	0.132	17.855
2066	1.00	0.9	0.900	0.142	0.128	17.983
2067	1.00	0.9	0.900	0.138	0.124	18.108
2068	1.00	0.9	0.900	0.134	0.121	18.228
2069	1.00	0.9	0.900	0.130	0.117	18.345
2070	1.00	0.9	0.900	0.126	0.113	18.458

2071	1.00	0.9	0.900	0.122	0.110	18.568
2072	1.00	0.9	0.900	0.119	0.107	18.675
2073	1.00	0.9	0.900	0.115	0.104	18.779
2074	1.00	0.9	0.900	0.112	0.100	18.879
2075	1.00	0.9	0.900	0.108	0.097	18.977
2076	1.00	0.9	0.900	0.105	0.094	19.071
2077	1.00	0.9	0.900	0.102	0.092	19.163
2078	1.00	0.9	0.900	0.099	0.089	19.252
2079	1.00	0.9	0.900	0.096	0.086	19.338
2080	1.00	0.9	0.900	0.093	0.084	19.421
2081	1.00	0.9	0.900	0.090	0.081	19.503
2082	1.00	0.9	0.900	0.087	0.079	19.581
2083	1.00	0.9	0.900	0.085	0.076	19.658
2084	1.00	0.9	0.900	0.082	0.074	19.732
2085	1.00	0.9	0.900	0.080	0.072	19.804
2086	1.00	0.9	0.900	0.077	0.070	19.873
2087	1.00	0.9	0.900	0.075	0.068	19.941
2088	1.00	0.9	0.900	0.073	0.066	20.006
2089	1.00	0.9	0.900	0.071	0.064	20.070
2090	1.00	0.9	0.900	0.069	0.062	20.132
2091	1.00	0.9	0.900	0.066	0.060	20.191
2092	1.00	0.9	0.900	0.064	0.058	20.249
2093	1.00	0.9	0.900	0.063	0.056	20.306
2094	1.00	0.9	0.900	0.061	0.055	20.360
2095	1.00	0.9	0.900	0.059	0.053	20.413
2096	1.00	0.9	0.900	0.057	0.051	20.465
2097	1.00	0.9	0.900	0.055	0.050	20.515
2098	1.00	0.9	0.900	0.054	0.048	20.563
2099	1.00	0.9	0.900	0.052	0.047	20.610
2100	1.00	0.9	0.900	0.051	0.045	20.655
2101	1.00	0.9	0.900	0.049	0.044	20.699
2102	1.00	0.9	0.900	0.048	0.043	20.742

10.5 Design Information for Cemetery Creek and Salmon Park Projects

11.0 Figures and Photographs

Image Credits:

Cover, Fig 10-14, 17, 18, 23, 24, 26-29 – Polaris Applied Sciences, Inc.

Figure 2, 3 – US Department of Transportation Office of Pipeline Safety

Figure 1, 30-32, 35-40 – NOAA⁴³

Figure 4-9 – City of Bellingham

Figure 15 – Ashbrook, WDFW

Figure 16 – Davis, WDOE

Figure 19, 20 – Inter-Fluve, Inc.

Figure 21, 22 – Photo courtesy of Walker and Associates, Seattle Washington. Copyright 1999

Figure 25 – Loof, WDFW

Figure 33, 34 – Doty, WDFW

⁴³ Background photograph in Figure 32, 37-40 courtesy of Walker and Associates, Seattle Washington. Copyright 1999

12.0 Finding of No Significant Impact (FONSI)

**Finding of No Significant Impact
under the
National Environmental Policy Act**

Final Restoration Plan and Environmental Assessment
for the
June 10, 1999 Olympic Pipe Line Gasoline Spill
Whatcom Creek, Bellingham, Washington

United States Department of the Interior
U.S. Fish and Wildlife Service
Western Washington Fish and Wildlife Office
Lacey, Washington

Introduction and Proposed Action

The United States Department of the Interior through the U.S. Fish and Wildlife Service is a participating Natural Resource Trustee in the natural resource damage assessment and restoration process for the June 10, 1999 Olympic Pipe Line Gasoline Spill into Whatcom Creek, Bellingham, Washington, and the resulting explosion and fire ("the Incident"). Pursuant to the Oil Pollution Act of 1990 (33 U.S.C. §§ 2701, *et seq.*), it is the Natural Resource Trustee's (Trustees) responsibility to determine the nature and extent of natural resource injuries, select appropriate restoration projects, and implement or oversee restoration. Other participating Trustees include: the National Oceanic and Atmospheric Administration, the State of Washington, the City of Bellingham, the Nooksack Tribe, and the Lummi Nation.

I. Alternative Considered

In compliance with the National Environmental Policy Act, the U.S. Fish and Wildlife Service in concert with the other Natural Resource Trustees, and with the cooperation and input of the Olympic Pipe Line Company (the Responsible Party) developed a Restoration Plan/Environmental Assessment (RP/EA) to compensate the public for injuries to natural resources and ecological services resulting from the Incident. In order to return the injured natural resources and services to their baseline conditions and compensate for interim losses of those resources and services, the Trustees evaluated a total of 34 specific types of restoration alternatives and/or restoration locations which include a No-action/Natural Recovery Alternative, and several ecological, and lost human use restoration alternatives.

The No-action/Natural Recovery Alternative was considered but rejected as the sole alternative due to the varying time scales of recovery for the various injured resources, and the inability of this alternative to compensate for interim losses suffered due to the Incident. The Preferred Alternative selected combines several aspects of both the human use and the ecological alternatives considered and consists of: ~~1) the acquisition of two land parcels (totaling 13.5~~

acres) along Whatcom Creek for future habitat restoration projects, 2) the construction of off-channel fish habitat including pools, wetlands, and rearing areas, and, 3) the funding of long-term monitoring and maintenance of the various restoration projects by the Responsible Party.

II. Effects and Finding of No Significant Impact

The Trustees believe that the Proposed Action and Preferred Alternative will restore trust resources injured during the Incident and provide beneficial cumulative impacts by increasing habitat for fish and wildlife. Impacts such as noise, visual disturbance and stream sedimentation upon fish and wildlife species will be short-term and limited to construction activities of the various restoration projects of the Preferred Alternative. These impacts will be minimized by best management practices and other avoidance and mitigation measures as required by the various regulatory agencies.


On May 17, 2002, the U.S. Fish and Wildlife Service concurred with the U.S. Army Corps of Engineer's determination of "may affect, not likely to adversely affect" for bull trout (*Salvelinus confluentus*) and bald eagle (*Haliaeetus leucocephalus*) in a biological evaluation of the Preferred Alternative as evaluated in accordance with section 7(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

III. Public Review and Comment

The Trustees made the draft RP/EA available to the public for a 30-day comment period, and a public meeting on the proposed restoration actions was held in Bellingham, Washington on March 20, 2002. All comments received during the comment period were considered by the Trustees and addressed in the final RP/EA.

IV. Conclusion and Determination

Based upon an environmental review and evaluation of the final RP/EA of the June 19, 1999 Olympic Pipe Line Gasoline Spill into Whatcom Creek, Bellingham, Washington, it is my determination that the Preferred Alternative of several restoration projects and land acquisition do not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of Section 102 (2)(C) of the National Environmental Policy Act of 1969. Accordingly, the preparation of an environmental impact statement is not required.



Regional Director, Region 1, Fish and Wildlife Service
Authorized Official for U.S. Department of the Interior
Olympic Pipe Line Gasoline Spill/Natural Resource Damage Assessment



Date



UNITED STATES DEPARTMENT OF COMMERCE
Office of the Assistant Secretary for
Oceans and Atmosphere
Washington, D.C. 20230

AUG 27 2002

TO ALL INTERESTED GOVERNMENT AGENCIES AND PUBLIC GROUPS:

Under the National Environmental Policy Act, an Environmental Assessment (EA) has been performed on the following action:

TITLE: Olympic Pipe Line Gasoline Spill

LOCATION: Whatcom Creek, Bellingham, Washington

SUMMARY: The Trustees for the Olympic Pipe Line Gasoline spill have completed an Environmental Assessment (EA) to restore natural resources injured by the release of gasoline and resulting fire in Whatcom Creek, Bellingham, Washington. The EA includes restoration projects for the following five identified categories of natural resources affected by the spill: vegetation; fisheries; water quality; wildlife; and human uses. The following restoration projects have been identified: acceptance of a 9.5-acre property above Woburn Street near the Creek to expand Whatcom Falls Park ("the Park") and compensate for losses to public and ecological services; acceptance of a 4-acre property along the Creek to compensate for losses to public and ecological services and provide land for future habitat restoration projects; construction of park improvements to the Woburn Street property, including restroom and public access features, to compensate the public for lost use of the park; construction of off-channel salmonid habitat at the Salmon Park project near Racine Street to compensate for impacts to fish habitat from the Incident; construction of pools, wetlands, and salmonid rearing habitat near the mouth of Cemetery Creek to compensate for impacts to fish habitats from the Incident; funding by the Olympic Pipe Line Company for long-term monitoring of the Creek and the various restoration projects; and funding by the Olympic Pipe Line Company for maintenance of the restoration projects and parklands injured by the Incident.

RESPONSIBLE OFFICIAL: William T. Hogarth, Ph.D.
Assistant Administrator for Fisheries
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, Maryland 20910
Telephone: 301-713-2239

The public and other interested parties have participated in public meetings during the NRDA RP/EA process. The environmental review process has led us to conclude that these restoration actions will not have a significant effect on the human environment. Consequently, the National Oceanic and Atmospheric Administration submitted the plan for an issuance of a finding of no



significant impact (FONSI) which was approved. Therefore, an environmental impact statement will not be prepared. A copy of the finding of no significant impact including the supporting EA is available upon request to the Responsible Official indicated above. If you have any comments, please send one copy to the Responsible Official and one copy to me at the NOAA Office of Strategic Planning, Room 6121, U.S. Department of Commerce, Washington, D.C. 20230.

Sincerely,



For James P. Burgess, III
NEPA Coordinator

Enclosure

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Restoration Plan and Environmental Assessment for the June 10, 1999 Olympic Pipe Line Gasoline Spill into Whatcom Creek, Bellingham, Washington

The National Oceanic and Atmospheric Administration (NOAA) is the lead federal agency for the National Environmental Policy Act (NEPA) compliance for the Restoration Plan and Environmental Assessment (RP/EA) for the June 10, 1999 Olympic Pipe Line Gasoline Spill into Whatcom Creek, Bellingham, Washington. Other cooperating agencies include the U.S. Department of the Interior through the U.S. Fish and Wildlife Service, the Washington Department of Ecology, the Washington Department of Fish and Wildlife, the Washington Department of Natural Resources, the City of Bellingham, the Nooksack Tribe, and the Lummi Nation (the Trustees). These parties participated in damage assessment and restoration planning activities to address injuries to natural resources and resource services resulting from the spill.

The Trustees (identified above) evaluated several types of restoration alternatives: the no action/natural recovery alternative, ecological restoration alternatives, and lost human use restoration alternatives. Within those alternatives, several restoration projects were evaluated to determine what projects would best meet the goals and objectives of the Trustees. The Trustees concluded that their preferred restoration alternatives would be a mix of both the ecological and the lost human use alternatives. The draft RP/EA was presented to the public and all comments were addressed prior to finalizing the RP/EA. The preferred alternative projects addressed in the RP/EA include:

- Acceptance of a 9.5-acre property above Woburn Street near the Creek to expand Whatcom Falls Park ("the Park") and compensate for losses to public and ecological services
 - Acceptance of a 4-acre property along the Creek to compensate for losses to public and ecological services and provides land for future habitat restoration projects
 - Construction of park improvements to the Woburn Street property, including restroom and public access features, to compensate the public for lost use of the Park
 - Construction of off-channel salmonid habitat at the Salmon Park project near Racine Street to compensate for impacts to fish habitats from the Incident
 - Construction of pools, wetlands, and salmonid rearing habitat near the mouth of Cemetery Creek to compensate for impacts to fish habitats from the Incident
 - Funding by the Olympic Pipe Line Company for long-term monitoring of the Creek and the various restoration projects
 - Funding by the Olympic Pipe Line Company for maintenance of the restoration projects and parklands injured by the Incident
-

DETERMINATION:

Based upon an environmental review and evaluation of the Final Restoration Plan and Environmental Assessment of the June 10, 1999 Olympic Pipe Line Gasoline Spill into Whatcom Creek, Bellingham, Washington, I have determined that the proposed action does not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of Section 102 (2) (c) of the National Environmental Policy Act of 1969, as amended. Accordingly, an environmental impact statement is not required for this project.

William T. Hogarth

Date 8-19-02

William T. Hogarth, Ph.D.
Assistant Administrator for Fisheries
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
U.S. Department of Commerce