

4 June 1992

**SUBJECT:** SUPPLEMENTAL DETERMINATION ON THE SUITABILITY OF THE SURFICIAL DREDGED MATERIAL (I.E., EXCEEDING THE TWO FOOT ALLOWABLE GUIDELINE) TESTED UNDER PSDDA GUIDELINES FOR BELLINGHAM MAINTENANCE DREDGING IN SQUALICUM CREEK WATERWAY FOR DISPOSAL AT EITHER THE BELLINGHAM BAY NONDISPERSIVE OPEN WATER DISPOSAL SITE OR THE ROSARIO STRAIT DISPERSIVE SITE

1. The following summary supplements the 3 June 1991 suitability determination memorandum (SDM) and the 19 February 1992 supplemental SDM for Squalicum Creek Waterway. It reflects new information and additional analyses gathered on sediments in Squalicum Creek Waterway for and reviewed by the PSDDA agencies' (Corps, Departments of Ecology and Natural Resources, and the Environmental Protection Agency). This supplemental determination is based on a careful review of the supplemental analyses required, as well as a review of initial and supplemental sediment characterization results. A determination of suitability has been made for the 179,000 cubic yards of dredged material proposed for maintenance dredging from the Squalicum Creek Waterway navigation channel and adjacent berthing areas. The initial sediment characterization results can be found in the Dredged Material Management Office's 3 June 1991 SDM. Supplemental sampling was conducted 25 - 26 November 1991 by the Corps of Engineers and Port of Bellingham. Analysis results from this supplemental data gathering activity are summarized in the 19 February 1992 SDM. This final determination is made relative to suitability for unconfined open-water disposal (UCOWD) at either the PSDDA Bellingham Bay nondispersive site or the PSDDA Rosario Strait dispersive site.

2. Background. Initial characterization volume estimates for Squalicum Creek Waterway in November 1990 were based on bathymetric survey plots performed during June 1989 and included a full 2 feet of allowable overdepth dredging. Contractors generally do not remove all the allowable overdepth material, which means that characterization volumes used to formulate testing requirements were conservative. An additional bathymetric survey was conducted by the Corps in Squalicum Creek Waterway during June 1991 in preparation for a summer 1991 dredging schedule for sediments suitable for PSDDA disposal, that was subsequently postponed due to concerns expressed at a 25 September 1991 Public Meeting. The data gathered from the 1991 survey was not computer enhanced and plotted until early April 1992. Comparing June 1989 survey data with the June 1991 survey plots along given survey lines showed incremental changes in dredged material depths between the two surveys. In general the plots showed a net increase in dredged material deposits throughout the waterway, although the increases were usually less than two feet. The average deposition rate normally expected to occur in Squalicum Creek Waterway is six inches to one-foot per year. The PSDDA evaluation procedures allows for deposits from riverine runoff and high suspended solids levels of up to two feet in maintenance dredging areas between sediment testing and actual dredging (EPTA, page II-44). In two areas noted in enclosure 1, the net depth of material deposited between the two surveys was greater than the two foot allowable guideline.

3. In order to insure that this overlying material meets the PSDDA disposal guidelines the PSDDA agencies required supplemental analyses to be conducted on six of the archived November 1991 samples as follows. Samples S-8, S-9, S-10, and S-11 were composited for analysis (C-1), and

*Attachment 1*

samples S-12 and S-13 were composited for analysis (C-2). The November 1991 samples were previously collected to assess zinc concentrations in Squalicum Waterway. Subsamples of this sampling effort also verified that metals in the surface sediments were comparable to the initial November 1990 sampling results, i.e., below the PSDDA screening levels, and therefore meet PSDDA disposal guidelines (see February 19, 1992 supplemental SDM). The two composited samples discussed above were analyzed for semivolatile organics, pesticides and PCB's to augment and complete the characterization for PSDDA chemicals of concern for the surface sediments. The testing results for the surface material characterized by November 1991 samples closely paralleled the chemistry documented in the underlying dredged material assessed in 3 June 1991 SDM and 19 February 1992 supplemental SDM.

4. The increased volumes resulted in a decision by the Corps project manager (Mr. Hiram Arden) to reduce the project dredging depth so that only one-foot of allowable overdepth is being specified in the dredging contract (invitation for bid), rather than the full two-foot overdepth allowance within Squalicum Waterway and I&J Creek Waterway. This will effectively reduce the total amount of additional dredging to only 4,000 cubic yards as noted in table below. There will be a net reduction in federal maintenance dredging in I&J Street Waterway of 10,000 cubic yards, and a net increase in federal dredging in Squalicum Creek Waterway of 14,000 cubic yards. Limiting federal dredging to one-foot of overdepth will also allow the dredging period to be completed in advance of the fisheries specified cutoff date for dredging.

PROJECT	FEDERAL - PUBLIC NOTICE (1989 SURVEY) (estimated, cy)	FEDERAL - 1991 SURVEY (estimated, cy)	FEDERAL - DIFFERENCE (cy)	PORT OF BELLINGHAM* (cy)
SQUALICUM W.	132,000	146,000	+14,000	33,000
I&J STREET W.	34,000	24,000	-10,000	35,000
TOTAL VOLUME	166,000	170,000	+4,000	68,000

\* volumes specified in public notice will not be exceeded during dredging.

5. In general, the PSDDA approved sampling and analysis protocols pertaining to these analyses were followed, and quality assurance/quality control guidelines specified by PSDDA were complied with. After reviewing all the data gathered for these characterizations, the PSDDA agencies concluded that these supplemental analyses coupled with previous data pertaining to metals (see 19 February Supplemental SDM) were sufficient and acceptable for regulatory decision-making under the PSDDA program.

6. Analysis of semivolatile organics, pesticides and PCB's indicated that all chemicals analyzed were below PSDDA screening levels for both composited samples. These analyses indicate that the additional surficial material deposited in Squalicum Creek Waterway is suitable for disposal at either the Bellingham Bay disposal site or the Rosario Strait dispersive site.

7. The revised project volume summary above provides revised cumulative volume summaries for each waterway (replacing enclosure 8 from 19 February 1992 SDM) for the federal and nonfederal (Port of Bellingham) portions of the project. It should be noted that there were no changes to nonfederal portions of project, and revised volumes reflect the net volumes expected due to design changes in the project, where less overdepth material will be removed. Based on the above discussion and summary of chemical results for the Bellingham Harbor Maintenance Dredging Characterization for Squalicum Creek Waterway, the PSDDA agencies concluded that approximately 179,000 cubic yards from the Squalicum Creek Waterway (federal: 146,000 cy + nonfederal: 33,000 cy) is suitable for dredging and unconfined open-water disposal at the Bellingham Bay nondispersive site. Testing results summarized previously (February 19, 1992 SDM) indicated that 29,302 cubic yards of material at the head of the Corp's navigation channel (DMMU C-1 and C-2) is unsuitable for dredging and unconfined open-water disposal at either the Bellingham Bay nondispersive site or at the Rosario Strait dispersive site. All the dredged material found suitable under the nondispersive test interpretation guidelines was also suitable for disposal at the Rosario Strait dispersive site except 19,574 cubic yards (DMMU C-12) from the Corp's navigation channel. All the Port's material in Squalicum Creek Waterway was found suitable under the PSDDA nondispersive site guidelines and also passed the more restrictive dispersive site guidelines.

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Concur:

6/4/92

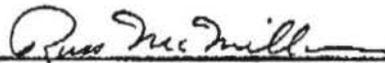
Date



David R. Kendall, Ph.D  
Seattle District Corps of Engineers  
Dredged Material Management Office

6/4/92

Date



Russ McMillan  
Washington State Department of Ecology

June 4, 1992

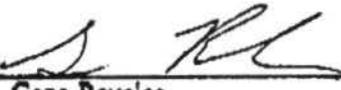
Date



John Malek/Justine Smith  
Environmental Protection Agency  
Region X

6/4/92

Date



Gene Revelas  
Washington State Department of Natural Resources

Enclosures

Copies Furnished:

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