

## **APPENDIX 1**

### **Evaluation under Section 404 (b)(1) of the Clean Water Act**

**EVALUATION UNDER  
SECTION 404(b)(1) CLEAN WATER ACT 40 CFR PART 230  
VALDEZ NAVIGATION IMPROVEMENTS**

**EAST SITE RUBBLEMOUND 320-VESSEL ALTERNATIVE**

**I. Project Description**

The proposed recommended harbor plan (East Site 320-Vessel Plan) would construct an approximately 5.7 hectare harbor at Valdez, Alaska. The harbor would accommodate approximately 320 commercial fishing and recreational vessels. Harbor construction includes a 473-meter-long south breakwater, 240-meter-long east breakwater and a 30-meter-long stub breakwater. The rubblemound breakwaters would require approximately 86,450 cubic meters (m<sup>3</sup>) of rock discharged at the site. The mooring basin and the entrance and maneuvering channels would require 186,400 m<sup>3</sup> of dredging. The footprint of the harbor, including the basin and breakwaters, would be approximately 10 ha. The harbor improvements would benefit local economic development and provide for transient and permanent moorage. The proposed action description and alternatives are contained in the accompanying integrated feasibility report/environmental assessment.

**II. Factual Determinations**

**A. Physical Substrate Determinations**

The beach surface at the harbor site has a fairly flat sandy profile that consists primarily of coarse sand and cobble, scattered boulders, and some silt. At the outer extent of the harbor the profile slopes to deep water. Bedrock next to the shoreline may extend into the subsurface requiring blasting to create the moorage basin.

**B. Water Circulation, Fluctuations, and Salinity Determinations**

Tidal action and swift currents influence water circulation patterns in the project area. Circulation within the proposed harbor would be influenced by the tidal prism, water depth, and flow through the detached breakwaters and the entrance channel. Lower wave energy, increased water depths, and altered current patterns behind the breakwater could result in minor salinity and temperature fluctuations. Since the discharge of the dredged material would occur in open water that is approximately 10 fathoms deep, it would not be expected to have more than a negligible effect on area circulation patterns.

**C. Suspended Particulate/Turbidity Determinations**

An increase in suspended sediment load and turbidity would be expected during and immediately following periods of work. Due to the size and type of sediment to be dredged and discharged, significant plumes would not be expected to occur. Should small plumes occur, they would be localized and short-lived. Based upon an analysis of the forces acting on the disposal of the dredged material as it is dumped below the water

surface, most material would be directly deposited over approximately or 5 hectares on the seabottom. The discharge would purposely cap the decomposing bark debris covering the sea bottom. Fines would be displaced over a larger area. Concentrations would not be expected to approach lethal dosages for aquatic species known to occur in the area.

#### **D. Contaminant Determinations**

The proposed construction project would not be associated with any contaminant materials. Marine sediments along the beach at the harbor site were collected and classified by the U.S. Army Corps of Engineers Geotechnical Branch. Sediment samples were tested and considered suitable for water disposal. There are no known sources of contamination at the site; the material is considered to be in a relatively high current/wave energy area, and sediment is composed predominantly of sand, gravel, and other bottom material with particle sizes larger than silt.

#### **E. Aquatic Ecosystems and Organism Determinations**

The proposed work would destroy or displace organisms at the harbor site (approximately 10 hectares). Organisms would be expected to colonize the harbor area after construction is completed; however, species composition and density would not be expected to mirror pre-construction conditions since substrate type and water depth would be altered. At the disposal site, non-motile and most slow moving organisms (e.g. crab, shrimp, and other invertebrates) could be smothered by the dredged material. However, given the low habitat value of the bark debris, organisms are not abundant. Most groundfish and other highly motile organisms would be expected to avoid the area until turbidity levels returned to near normal conditions. Benthic organisms, crustaceans, groundfish, and other life forms would be expected to colonize the restored bottom habitat. Further discussion of the aquatic resources and anticipated impacts is contained in the environmental assessment (Sections 7 and 8).

#### **F. Proposed Disposal Site Determinations**

The proposed action would comply with applicable water quality standards and would have no appreciable detrimental effects on any of the following:

- Municipal and private water supplies;
- Recreational and commercial fisheries;
- Water-related recreation; or
- Aesthetics.

The dredge and fill operations would have only a temporary effect on the water column. The breakwater would create rock-reef habitat suitable for colonization. The majority of the dredged materials would be discharged at the restoration site at Two Moon Bay. Mitigation measures are: (a) breakwaters would be constructed prior to dredging. The breakwaters with the use of silt curtains would contain as much as possible of the turbid water; and (b) breakwaters would be detached from the shoreline to facilitate near shore migration of fish. Seasonal avoidance windows to protect fish and wildlife would be incorporated in the construction plan.

### **G. Determination of Cumulative and Secondary Effects on the Aquatic Ecosystem**

A minor amount of boat traffic would increase in the Valdez area as a result of harbor construction. Increased vessel activity and incidental release of pollutants such as paints, fuel, grease, oils from boats, and from discarded debris would degrade water quality within the proposed harbor. The degree of degradation would depend upon water exchange behind the breakwater and the proper handling of sewage, refuse, wastes, and other pollutants. A harbor management plan is recommended to include best management practices. A bilge water pump-out facility is planned at the harbor which would benefit the best management practices.

## **III. Findings of Compliance or Non-Compliance with the Restrictions on Discharge**

### **A. Adaptation of the Section 404 (b)(1) Guidelines to this Evaluation**

The proposed project complies with the requirements set forth in the Environmental Protection Agency's Guidelines for Specification of Disposal Sites for Dredged or Fill Material.

### **B. Evaluation of Availability of Practicable Alternatives to the Proposed Discharge Site Which Would Have Less Adverse Impact on the Aquatic Ecosystem**

A number of alternative sites and designs have been rejected as being impracticable and/or not fulfilling the project purpose and need. The alternative discussion is contained in Section 4. The action, as proposed, including the water disposal of the majority of the dredged materials, is the least damaging practicable alternative after taking into consideration cost, existing technology, and logistics in light of the overall project purpose.

### **C. Compliance with Applicable State Water Quality Standards**

The proposed project would not be expected to have an appreciable adverse effect on water supplies, recreation, growth and propagation of fish, shellfish and other aquatic life, or wildlife. It would not be expected to introduce petroleum hydrocarbons, radioactive materials, residues, or other pollutants into the waters of Valdez. A temporary increase in

turbidity would result from construction activities. The project would comply with State water quality standards. Adherence to water quality standards would be monitored.

**D. Compliance with Applicable Toxic Effluent Standards or Prohibition Under Section 307 of the Clean Water Act**

No toxic effluents that would affect water quality parameters are associated with the proposed project. Therefore, the project complies with toxic effluent standards of Section 307 of the Clean Water Act.

**E. Compliance with Endangered Species Act of 1973**

The proposed project would not have an adverse effect on Steller sea lions or whale species that are listed as threatened or endangered or their critical habitat. This determination has been coordinated with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service, agencies responsible for management of protected species.

**F. Evaluation of Extent of Degradation of the Waters of the United States**

There are no municipal or private water supplies in the area that could be negatively affected by the proposed project. Commercial interests would benefit from harbor improvements. There would be no significant adverse impacts to plankton, fish, shellfish, wildlife, and/or special aquatic sites.