



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

CECW-NWD

APR 18 2019

MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)

SUBJECT: Mount Saint Helens (MSH) Long Term Sediment Management Plan Update, Final Limited Reevaluation Report (FLRR) and Supplemental Environmental Impact Statement (SEIS)

1. Purpose. To secure clearance to budget for the subject project based on the FLRR and SEIS. The decision document for the subject project documents the selected plan for construction activities to maintain authorized levels of flood risk reduction. The enclosed report was approved on 26 September 2018, by the U.S. Army Corps of Engineers (Corps) Northwestern Division (NWD) Commander consistent with Engineer Regulation (ER) 1165-2-502 and ER 1105-2-100.

2. Authorizations.

a. The MSH project remains an open construction project that was authorized by Congress under the Supplemental Appropriations Act of August 15, 1985 (Public Law 99-88). Under Public Law 99-88, the Corps was authorized to construct and operate a Sediment Retention Structure (SRS), construct a Fish Collection Facility (FCF), improve a levee system, conduct dredging in both the Cowlitz and Toutle Rivers, and update and implement a long-term sediment management plan through the year 2035, in accordance with the Feasibility Report of the Chief of Engineers dated December 1984.

b. Congress modified the 1985 authorization in Section 339 of the Water Resources Development Act (WRDA) of 2000. The scope of this modification was limited to authorizing the maintenance of flood protection levels specified in the October 1985 decision document. This document provided specific levels of flood protection (described in terms of average exceedance interval, in years) to be maintained for four communities along the Cowlitz River.

3. Project Background.

a. The eruption of MSH in the spring of 1980 caused approximately three billion cubic yards of sediment and debris to deposit in surrounding watersheds, creating a threat of flooding in downstream communities and a threat to the Columbia River Federal Navigation Channel and associated ports. Following the eruption, the Corps implemented several strategies to mitigate the flood risk to downstream communities, as identified in the MSH, Washington, Decision Document, Toutle, Cowlitz and Columbia Rivers (long-term sediment management plan; 1985).

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b. Features of the authorized plan include a SRS, a FCF constructed as mitigation for impacts of the SRS, levee improvements, and dredging.

c. On 26 April 1986, the Department of the Army, the State of Washington, and two Cowlitz County special districts signed a Local Cooperation Agreement (LCA). This LCA, which was based on the MSH 1985 decision document, pertains to all required project work to maintain the authorized flood risk reduction benefits through 2035. The State of Washington, as the non-federal sponsor was (and is) required to provide real estate needs associated with project activities, maintain dredged material placement sites, and operate and maintain mitigation features.

d. The 1985 decision document indicated that additional sediment management actions would be needed sometime after the year 2000, to maintain authorized levels of flood risk reduction. The authors of the 1985 decision document acknowledged the uncertainty inherent in managing the unique sediment problem caused by the eruption and debris avalanche, and recommended that future decision makers evaluate raising the SRS if doing so is more economical than relying on out-year dredging.

e. Since 1998, increased sediment accumulation has been observed in the lower 20 miles of the Cowlitz River. Consequently, there is an increase in the risk of flood damages to the communities along the river. Since 2007, several interim actions to maintain authorized flood reduction benefits have been implemented. These actions include lower Cowlitz dredging, minor levee work, and sediment trapping structures at the SRS and upstream of the SRS in the sediment plain.

f. The FLRR and SEIS update the long-term implementation plan for managing sediment from the MSH debris avalanche, to complete the MSH project through 2035 and maintain the congressionally authorized Cowlitz River capacity and flood risk management for the communities along the lower 20 miles of the Cowlitz River.

g. Lower Columbia River Coho Salmon (LCRCS) and Lower Columbia River Steelhead (LCRS) were listed under the Endangered Species Act (ESA) in 2005 and 2006, respectively. Critical habitat for these species was designated on the Cowlitz River, Toutle River, and associated tributaries.

4. Study Plan and Alternatives. The intent of the FLRR and SEIS is not to reformulate the project but rather to incorporate changes, identify the least-cost approach to complete the project goal and objectives while complying with other federal laws, and evaluate environmental consequences. The scope of the FLRR is to document the changes from the original plan and how best to manage the flood risk to meet authorized levels of flood

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risk reduction through 2035 and meet ESA 2017 Biological Opinion (BiOp) requirements for species listed since the original authorization. The study is compliant with planning guidance ER 1105-2-100.

a. Least-Cost Evaluation Approach. In the WRDA of 2000, Congress directed the Corps to maintain the authorized levels of protection through 2035 for the levees at Longview, Kelso, Lexington, and Castle Rock. The Corps used a least-cost approach to compare the costs related to various measures, given the goal of maintaining the authorized levels of protection.

b. Alternatives. A team composed of the Corps and regional stakeholders developed 16 potential sediment management measures. Twelve measures were screened out on the basis of effectiveness and cost. The remaining four measures (dredging of the Cowlitz River, a single-stage SRS raise, phased raises of the SRS spillway crest, and grade-building structures) were grouped to form three action alternatives carried forward for further evaluation:

(1) Cowlitz River dredging only;

(2) SRS dam raise only; and

(3) Phased-construction (incremental SRS spillway crest raises, grade-building structures, and as-needed dredging).

These alternatives have been determined to meet the overall sediment management objectives and are deemed efficient, effective, complete, and resilient. The Corps determined that the Phased Construction Plan would be the least cost approach to meet the project purpose, and carried this plan forward as the preferred alternative.

c. Pursuant to the requirements of the ESA, the Corps consulted with the National Marine Fisheries Service (NMFS) on the effects of the proposed action. The NMFS determined the proposed Phased Construction Plan was likely to jeopardize the continued existence of threatened LCRCS and LCRS and likely to result in the adverse modification of both species' designated critical habitat. In August 2017, NMFS issued a BiOp. The BiOp included a Reasonable and Prudent Alternative (RPA) that requires the Corps to modify the FCF to improve upstream fish passage and construct up to two new fish release sites to increase production of juvenile salmon.

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d. Selected Plan. The Phased Construction Plan is the selected plan and includes the following phased measures:

- (1) Two incremental SRS spillway crest raises,
- (2) Grade-building structures,
- (3) As-needed dredging in the Cowlitz River, and,

(4) Adaptive management at the mouth of Alder Creek to maintain connectivity with the North Fork Toutle River.

Fish conservation measures necessary to comply with the ESA are also included in the selected plan. These consist of modifying the FCF in partnership with the State of Washington; constructing a new fish release site at Deer Creek; and evaluating and constructing a new fish release site on the North Fork Toutle River upstream from the SRS in concert with the second spillway crest raise if the Corps determines it is technically feasible to do so. This alternative is least cost, adaptable to uncertain sedimentation conditions through 2035, effective in handling extreme events, and minimizes impacts to fish and wildlife in the near term and over time. Annual sediment monitoring is necessary to assess whether the authorized flood risk reduction is being provided and to determine the optimal timing for implementing the phases of the selected plan.

5. Project Costs. The selected plan is the least cost alternative. The project first cost estimate is \$538,368,000 (Fiscal Year (FY) 2019 price level), of which \$178,131,000 has already been expended (from 1985 through the end of FY 2017).

a. The fully funded project cost is \$585,006,000 (FY 2019 price level, with remaining costs inflated to the mid-point of construction). The federal share is \$548,102,000 and the state's share is \$36,904,000. The state will provide all required real estate and fund repairs to the FCF, which will be completed by the Corps in conjunction with other modifications required by the NMFS BiOp. The LCA will be amended to clarify that the Corps may use funds provided by the state to effect repairs to the FCF.

b. Dredging accounts for over half the remaining project costs and is included to respond to unusual sediment deposition events. The events that would require dredging are difficult to predict but do occur. The last event was in 2006 but the timing and volume of future dredging is uncertain. For example, if a large sediment load

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migrated through the system during a single large event, measures such as spillway crest raises or grade-building structures would not address the problem. In this instance, it would be necessary to dredge in the lower Cowlitz. However, the scope of this dredging effort would be much less than the Dredging Only alternative and would only be performed when needed to continue to maintain level of protection for the lower Cowlitz levees.

c. Annual costs for operations and maintenance (O&M) will be allocated in accordance with the 1986 LCA. The Corps annual O&M costs for the SRS are approximately \$408,000. The State of Washington is responsible for O&M of the FCF and fish release sites, at an annual cost of approximately \$408,000.

6. National Environmental Policy Act (NEPA) Compliance. The Corps prepared a Final Supplemental Environmental Impact Statement (FSEIS), which supplements the 1984 EIS and 1985 Decision Document. The FSEIS presented an evaluation of the sediment management alternatives, and the fish conservation measures developed in response to NMFS' Reasonable and Prudent Alternative (RPA) in the 2017 BiOp. The Record of Decision (ROD) represents the culmination of the NEPA process.

7. Stakeholder Input. In support of the development and selection of the recommended updates to the long-term plan, NEPA allowed an opportunity for the public and other agencies to review and comment on the process and plan selection. Input from agencies and the general public was also solicited through the scoping process and public review of the Draft SEIS, Revised Draft SEIS, and FSEIS. All comments and recommendations were reviewed and considered and are documented in the SEIS (Appendix F).

8. Technical and Policy/Legal Review. Technical review has been completed and incorporated. Agency Technical Review was completed on 31 July 2018. Portland District and NWD staff conducted policy and legal review at key milestones during the planning process and all comments have been resolved. The Corps also conducted a Type I Independent External Peer Review, because of the potential for life safety concerns and the total project cost.

9. Recommendation. I have reviewed the MSH Long Term Sediment Management Plan Update, FLRR and SEIS. Based on this review, I find the proposed plan is technically and environmentally sound, justified based on the monetary and non-monetary benefits it provides, and is socially acceptable. The proposed project complies with applicable Corps planning procedures and regulations. Also, the views of interested parties, including federal, state, and local agencies, have been considered.

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Accordingly, I recommend the existing MSH, Washington, Flood Risk Management Project, authorized by Supplemental Appropriations Act of August 15, 1985 and as implemented pursuant to the 1985 decision document, be modified generally as described in the FLRR and evaluated in the FSEIS and ROD as the Recommended Plan, with such modifications thereof as in the discretion of the Commanding General, Headquarters, U.S. Army Corps of Engineers, may be advisable.



JAMES C. DALTON, .P.E.
Director of Civil Works

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