



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
PACIFIC OCEAN DIVISION, U.S. ARMY CORPS OF ENGINEERS
FORT SHAFTER, HAWAII 96858-5440

19 NOV 2012

CEPOD-PDC

MEMORANDUM FOR COMMANDER ALASKA ENGINEER DISTRICT (CEPOA-PM-CW/TINA MCMASTER-GOERING), P.O. BOX 6898, JBER, AK 99506-0898

SUBJECT: Review Plan Approval for the Anchorage Harbor Deepening Project, Anchorage, Alaska, Decision Document.

1. References:

a. Engineering Circular 1165-2-209, Civil Works Review Policy, 31 January 2010, and Change 1, 31 January 2012.

b. Review Plan for the Anchorage Harbor Deepening Project, Anchorage, Alaska, Decision Document, Alaska District, U.S. Army Corps of Engineers.

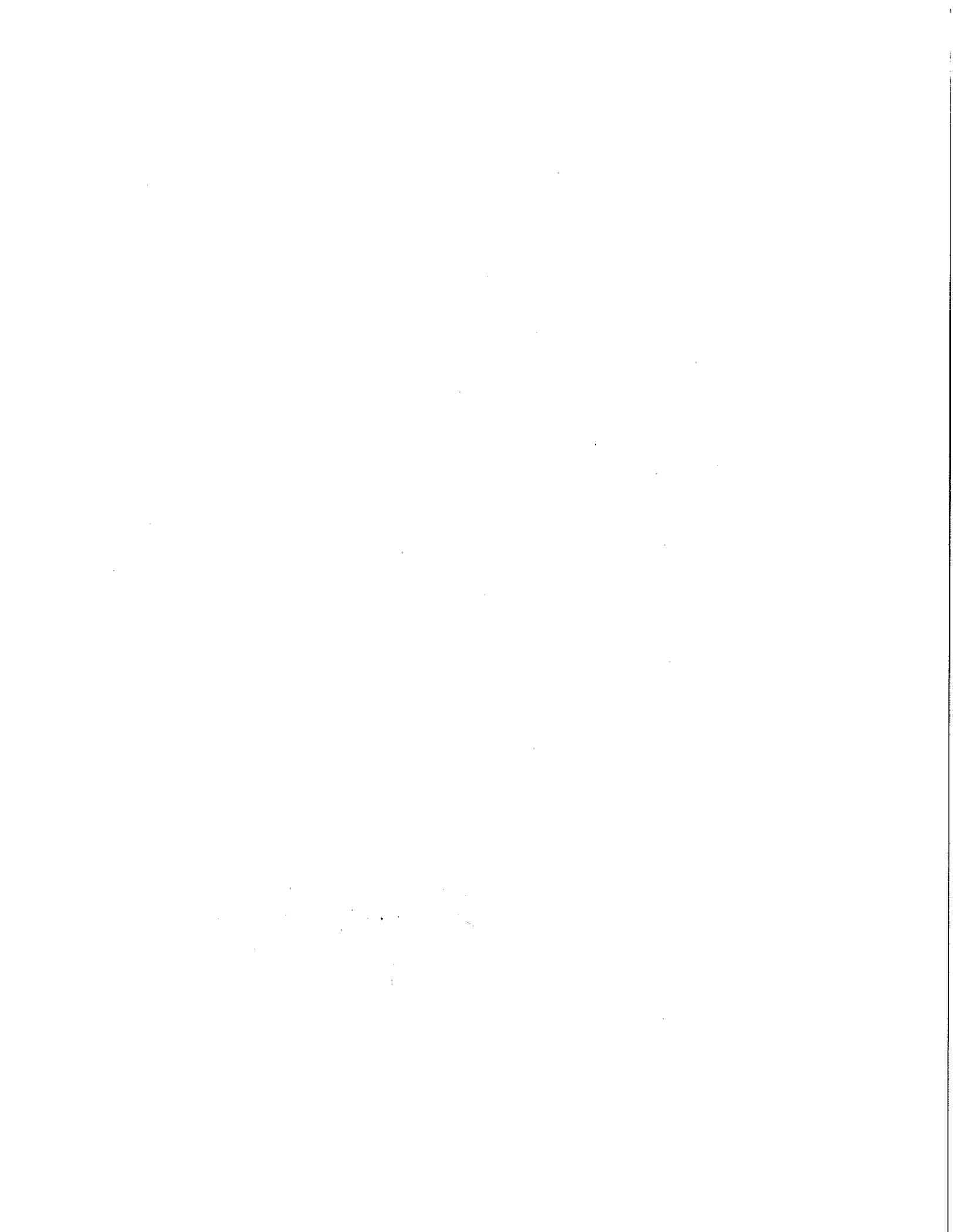
2. IAW reference 1.a., the enclosed Review Plan (reference 1.b.) was coordinated with the Deep Draft Navigation Planning Center of Expertise (DDN-PCX) in the Mobile District of the South Atlantic Division, which is the lead office to execute this Review Plan. For further information, contact the DDN-PCX at 251-694-3804. The Review Plan includes Type I Independent External Peer Review.

3. I approve this Review Plan. It is subject to change as circumstances require, consistent with project development under the Project Management Business Process. Subsequent significant revisions to this Review Plan or its execution will require new written approval from this office.

4. The point of contact for this memorandum is Mr. Russell Iwamura, Senior Economist, Civil Works Integration Division, at 808-835-4625 or email Russell.K.Iwamura@usace.army.mil.

Encl

GREGORY J. GUNTER
Colonel, EN
Acting Commander



REVIEW PLAN

Anchorage, Alaska Navigation Improvement Project

Anchorage Harbor Deepening Project

Alaska District

**MSC Approval Date for Revised Plan: 19 November 2012
Original Review Plan completed 14 December 2007**



**US Army Corps
of Engineers ®**

REVIEW PLAN

Anchorage, Alaska Navigation Improvement Project

Anchorage Harbor Deepening Project

Alaska District

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1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of peer review for the Anchorage Harbor, Alaska, navigation improvement project's Harbor Deepening feature. The Anchorage, Alaska, Federal navigation project for deep draft navigation is composed of two separable elements: *Anchorage Harbor, Alaska*, and *Cook Inlet Navigation Channel, Alaska*. This Review Plan covers only the Anchorage Harbor element.

The *Anchorage Harbor* portion of the project was originally authorized by Section 101 of the 1958 River and Harbor Act (Public Law 85-500, House Document 34, 85th Congress, 1st Session), which provided for annual maintenance dredging of a 2,000-foot baseline adjacent and parallel to the Anchorage dock (dredging of the berthing area was designated in law as a Federal responsibility) to a depth of -35 feet Mean Lower Low Water (MLLW). The project was modified by Section 199 of the 1976 Water Resources Development Act (Public Law 94-587) which extended the Federal dredging responsibility from the 2,000-foot-long area by 1,000 feet to form a 3,000-foot-long maintenance dredging area to over depth dredge depths of -36 and -38 feet MLLW adjacent to the dock. The additional authorization provided by the 2005 Consolidated Appropriations Act (Public Law 108-447) directs the Corps to deepen Anchorage Harbor from its current design depth of -35 feet MLLW to -45 feet MLLW. The Port of Anchorage, a Department of the Municipality of Anchorage, operates the physical facilities also known as the Port of Anchorage and will be the required local sponsor for harbor deepening work. The word "Port" will be used in this document to represent both the legal entity serving as sponsor and the physical facilities which it operates.

The documents, which are covered by this Review Plan, include an implementation document, which has been titled by Office of the Assistant Secretary of Army (Civil Works) (OASA(CW)) a "decision document", along with an Environmental Assessment (EA)/Finding of No Significant Impact (FONSI). This review plan updates and supersedes the previously approved December 2007 review plan. The substantive change in this version is the change to include a Type I Independent External Peer Review (IEPR) as part of the review process. This Review Plan will be updated as needed in the future to cover preparation of the project's Plans and Specifications package and any other pertinent work products.

b. References.

(1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 Jan 2010 and Change 1, 31 Jan 2012

(2) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2011

(3) Engineering Regulation (ER) 11-1-321, Change 1, Value Engineering, 1 Jan 2011

(4) ER 1110-1-12, Quality Management, 21 July 2006, Change 1, 30 Sep 2006, and Change 2, 31 March 2011

(5) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007

(6) ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 Aug 1999

(7) Anchorage Harbor Deepening, Anchorage Alaska, CWIS 010534, Project Management Plan, 12 Dec 2007

(8) CEPOA-QMP-001, Alaska District Quality Management Plan, CEPOA-QMP-001, Jan 2010

(9) CEPOA-7.3-1 Design Quality Management, 21 May 2010

(10) CEPOA-7.3-1-WI-09, Civil Works Review Policy Roll Out Brief, 7 Jun 2010

(11) CEPOA-7.3-4 Independent Technical Review/Design Review, 7 Jun 2010

c. Requirements. This Review Plan, which is a component of the Project Management Plan, was developed in accordance with EC 1165-2-209, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and operation, maintenance, repair, replacement and rehabilitation (OMRR&R). The EC outlines four general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. In addition to these levels of review, decision documents are subject to cost engineering review and certification (per EC 1165-2-209), planning model certification/approval (per EC 1105-2-412), and the Value Management Plan requirements in the PMBP REF 8023G and ER 11-1-321, Change 1.

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The Review Management Organization (RMO) is responsible for managing the overall peer review effort described in this Review Plan. The RMO for decision documents is typically either a Planning Center of Expertise (PCX) or the Risk Management Center (RMC), depending on the primary purpose of the decision document. The RMO for the peer review effort for a deep draft navigation study/project would normally be the Deep Draft Navigation Planning Center of Expertise (DDN-PCX), located in the Mobile District office of the South Atlantic Division of the Corps of Engineers. However, preparation of the draft decision document has taken a number of years. In 2008 arrangements were made between the Alaska District (POA) and Buffalo District (LRB) for LRB to perform the then required Independent Technical Review (ITR) of the documents. Subsequently, the ECs have been revised and the PCXs have become more fully established. Included in their functions is the responsibility for managing ITRs (now called ATRs) and IEPRs for studies/projects in their business line. As part of the PCX development, the Small Boat Harbor Planning Sub-Center of Expertise (SBH-PSCX) was set up organizationally as a sub-unit for management purposes of the DDN-PCX. Partially in respect for the pre-existing agreement between POA and LRB and partially because the SBH-PSCX is

considered a sub-unit of the DDN-PCX (with other delegated responsibilities for review of the Section 107 Small Navigation Project Program when requested by a division), the DDN-PCX considered it appropriate to delegate the RMO responsibilities for the ATR phase of this specific study/project to the SBH-PSCX, including production of an ATR Review Report documenting the ATR. Management of the overall study review, the Review Plan, and the Type I IEPR with the Contract Vehicle Organization (CVO) and the Outside Eligible Organization (OEO) will continue to be the responsibility of the DDN-PCX.

The SBH-PSCX will coordinate with the Cost Engineering Directory of Expertise (DX) to ensure the appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules and contingencies. Approval of the Review Plan is the responsibility of the Pacific Ocean Division (POD) office in Honolulu, Hawaii. POA will post the approved Review Plan on its public website. A copy of the approved Review Plan (and any updates) will be provided for information to the DDN-PCX to keep the PCX apprised of requirements and review schedules.

3. STUDY/PROJECT INFORMATION

a. Decision Document. The harbor deepening feature of the Anchorage, Alaska, Navigation Improvement Project was authorized by the Fiscal Year 2005 Consolidated Appropriations Act (P.L. 108-447), Section 118, as modified by Section 3002 of the 2007 Water Resources Development Act, provided below. Sub-sections dealing with (3) TRANSITIONAL DREDGING and (4) FACILITATING FACILITY MODIFICATION are pertinent to the Harbor Deepening feature of the project modification to the extent they form the without-project condition for this report, but are not discussed in detail herein.

“(a) ANCHORAGE HARBOR

(1) HARBOR DEPTH.--The project for navigation improvements, Cook Inlet, Alaska (Anchorage Harbor, Alaska), authorized by section 101 of the River and Harbor Act of 1958 (72 Stat. 299) and modified by section 199 of the Water Resources Development Act of 1976 (90 Stat. 2944), is further modified to direct the Secretary of the Army to construct a harbor depth of minus 45 feet mean lower low water for a length of 10,860 feet at the modified Port intermodal marine facility at each phase of facility modification as such phases are completed and thereafter as the entire project is completed.

(2) COST-SHARING.--If the Secretary determines that the modified Port will be used by vessels operated by the Department of Defense that have a draft of greater than 35 feet, the modification referred to in paragraph (1) shall be at full federal expense.

(3) TRANSITIONAL DREDGING.—Before completion of the project modification described in paragraph (1), the Secretary may conduct dredging to a depth of at least minus 35 feet mean lower low water in such locations as will allow maintenance of navigation and vessel access to the Port of Anchorage intermodal marine facility during modification of such facility. Such work shall

be carried out by the Secretary as part of the operation and maintenance of such project modification in accordance with section 101 of the River and Harbor Act of 1958.

(4) FACILITATING FACILITY MODIFICATION.—Before establishing the harbor depth of minus 45 feet mean lower low water, the Secretary may undertake dredging in accordance with section 101 of the River and Harbor Act of 1958 within the design footprint of the modified intermodal marine facility referred to in paragraph (1) to facilitate modification. The Secretary may carry out such dredging as part of operation and maintenance of the project modified by paragraph (1).

(5) MAINTENANCE.—Federal maintenance shall continue for the existing project until the modified intermodal facility is completed. Federal maintenance of the modified project shall be in accordance with section 101 of the River and Harbor Act of 1958; except that the project shall be maintained at a depth of minus 45 feet mean lower low water for 10,860 feet referenced to in paragraph (1).

(b) NAVIGATION CHANNEL.—The Secretary shall modify the channel in the existing Cook Inlet Navigation Channel approach to Anchorage Harbor, Alaska, to run the entire length of Fire Island Range and Point Woronzof Range and shall modify the depth of that channel to minus 45 feet mean lower low water. The channel shall be maintained at a depth of minus 45 feet mean lower low water.

(c) HYDRODYNAMIC MODELING.—The Secretary shall carry out hydrodynamic modeling of the Knik Arm to identify causes of, and measures to address, shoaling at the Port, at a total cost of \$3,000,000.

(d) ALTERNATIVES ANALYSIS.—No alternative other than the alternative authorized in this section shall be considered in any analysis of the modified project to be carried out by the Secretary in accordance with this section. “

Based on the guidance discussed in paragraph 3.b. below, the EA/FONSI will be the decision document for this project. The purpose of the document is to finalize design details, provide an estimated project cost for the Corps budgeting process, and provide the information necessary for preparation of a Project Partnership Agreement. The report will be approved at Headquarters, but will not require further Congressional authorization prior to implementation.

b. Study/Project Description. The Municipality of Anchorage is located in south-central Alaska, near the northern end of Cook Inlet, a deep water embayment that extends from the Gulf of Alaska northward for about 195 miles. At Anchorage, Cook Inlet splits into two branches: Turnagain Arm extends about 40 miles to the east and Knik Arm extends north about 20 miles to the mouths of the Matanuska and the Knik Rivers. A natural channel exists all the way from the

Gulf of Alaska through Cook Inlet to Anchorage. The Port of Anchorage (Port) is located on the southeastern shore about 5 miles north of the beginning of Knik Arm.

The single-purpose, Federal navigation project serving the Port of Anchorage is composed of two separable elements: Anchorage Harbor, Alaska, and Cook Inlet Navigation Channel, Alaska. The existing navigation project consists of General Navigation Features (GNF), including the federally maintained channel in Cook Inlet and the Federally maintained harbor and berthing areas, and Local Service Facilities (LSF), including the municipally owned commercial docks and upland facilities. The Cook Inlet Navigation Channel traverses two shoal areas, approximately 6 miles west by southwest of the Port. The controlling depth through the Knik Arm Shoal was -38.5 feet MLLW in the underwater, power cable field area during August 2007.

The city of Anchorage constructed the first dry cargo berth and city dock in 1959. The approach to this dock was dredged to -35 ft. MLLW. During the Good Friday 9.2 earthquake in March 1964, an Army dock was destroyed and the municipal Terminal 1 and fuel docks were damaged. From 1968 through 1977 Terminals 2, 3, and 4 were added to the city dock. The “historic harbor” is the harbor and facilities that existed just prior to the Port’s expansion project, which began in 2006. The historic harbor included 3,000 feet of pile supported dock, which provided four ship berths. The harbor basin and berthing area was authorized for Federal maintenance to -35 ft. MLLW with a dredged area of 85 acres. The historic dredging reached to -39 feet MLLW, which included 2 feet of over depth dredging (construction allowance) and 2 feet of advanced maintenance dredging. Dredging of the vessel berths from the dock face to the -35 ft. MLLW contour was authorized at full Federal expense since 1958.

The Port is being expanded to accommodate more and larger vessels and the materials carried by those vessels. Congress has authorized construction of the Port expansion and has appropriated construction funds through the Maritime Administration (MARAD), an agency of the U.S. Department of Transportation. MARAD prepared and released an environmental assessment (EA) covering the Federal action. The MARAD EA identified the need for the action, described alternative actions, and discussed the affected environment and potential effects of the action on that environment. The MARAD selected alternative provided for expanding the Anchorage marine terminal facilities through a phased process, which included provisions for dredging to support construction and for periodic dredging to maintain project depths. However, the MARAD document was ambiguous regarding a disposal site. MARAD signed a FONSI on March 9, 2005.

The Port and MARAD are enlarging docking, loading/unloading equipment and facilities, working space to handle fuels, freight and other materials, and transportation elements serving the Port. The expanded Port facilities shown in Figure 1 will increase the upland footprint from 120 acres to 255 acres by relocating the dock face parallel to and 400 ft waterward of the existing dock face. The new facility will have a dock face 7,546 ft. long, more than three times the pre-expansion dock length of 2,300 feet. The expanded Port will become operational in phases. Upland facilities are expected to be fully operational by 2021. The expanded facility, which will provide a 468-foot dry barge berth, a 400-foot wet barge berth, a 900-foot cruise and general cargo berth, three 1,000-foot container and general cargo berths (with cranes), and three petroleum, oil, and lubricants (POL) /dry bulk berths (total of 2,536 feet). The expansion also

includes on-dock intermodal rail, new 100-gage cranes, and new facilities for handling POL and dry bulk (primarily cement) products.

The Port expansion is independent and separate from the Corps' deepening project, will be completed prior to any deepening work, and forms the without-project condition for the Corps work. The Port has experienced construction difficulties with the expansion envisioned in 2005 and is reassessing its future plans. For the purposes of proceeding with processing of a harbor deepening report, the review plan is based on the deepening footprint being that identified in the Port's 2005 plan.

Sedimentation within Knik Arm is heavy and a significant contributor requiring annual maintenance removal materials from Anchorage Harbor, which have ranged from annual totals of 200,000 to 2.1 million cubic yards over the period 1989 to 2010. The modified and expanded disposal site, currently in use, was specifically identified in the subsequent Corps EA/FONSI. This document covered historic dredging, transitional project dredging during harbor expansion, future dredging after the harbor deepening feature is completed, and disposal of the dredged materials. The historic dredged material disposal site was a 2,000 foot by 3,000 foot area located 3,000 feet to the west from the historic dock face in a deep water portion of Knik Arm. Over the years that site has been dispersive due to strong local currents moving materials. Annual surveys show no sediment accumulation in the disposal area. The modified dredging area retained the original disposal area's southern boundary and expanded the disposal site by an additional 6,000 feet to the north, resulting in a 2,000 foot by 9,000 foot disposal area. The Corps has issued signed FONSI's on 28 October 2008 and 18 June 2009 covering dredging and disposal of Anchorage Harbor materials.

The ASA(CW) responded to Section 118(a)(2) of the authorizing legislation with a 12 June 2006 memorandum in which he determined that the modified Port would be used by Department of Defense (DOD) vessels with drafts in excess of 35 feet and consequently the harbor deepening project would be conducted at full Federal expense as specified by Congress.

Further Implementation guidance for the project was provided by Headquarters at a vertical team Decision Document scoping meeting on 1 June 2007, as follows:

- The formal Decision Document will be the National Environmental Policy Act (NEPA) Report (EA and FONSI).
- The Federal plan is defined in the authorizing legislation.
- The expanded Port facility will be the existing (without-project) condition.
- No detailed economic analysis will be conducted, rather a general economic discussion of the regional and national importance of the Port will be included in the report to provide sufficient information relating to economic and other types of benefits to inform budget decision makers.
- All environmental issues will be addressed in the project's Environmental Assessment.

- An external Independent Technical Review (now called Agency Technical Review) will be completed in coordination with the Planning Centers of Expertise.
- Report will be sent to Headquarter for approval, but there will be no presentation to the Civil Works Review Board nor will a Chief of Engineers' Report be prepared.

The Alaska District has considered the Port expansion plans in the design of the deepening project feature. Although the legislation authorizes deepening along 10,860 feet of relocated dock face, the current dock design only needs the -45 ft depth along 5,060 feet of dock face. The Port, the project's local sponsor, indicated in a 6 September 2007 letter that the dredged depths and extent provided by the proposed design would meet the needs of the Port for the foreseeable future. Consequently, the Alaska District has reduced the scope of the harbor deepening project to meet the Port's current expansion plans. Since the recommended plan is a smaller plan than that specified in the legislation, Alaska District Office of Counsel reviewed the legislative language and issued a legal opinion that constructing the harbor depths in accordance with the Port's design would be consistent with the intent of the legislation. Since the authorizing legislation specified that no other alternatives were to be considered, technical work focused on confirming the technical feasibility of the deepening project, determining minor project parameters, such as approach angles and dredging methods, developing a detailed project cost estimate (substantially greater than \$45 million), and providing the basis for a Project Partnership Agreement between the Corps and the Port.

c. Factors Affecting the Scope and Level of Review. The preconstruction engineering and design involved in this project is almost identical to that undertaken by the Alaska District to develop the Anchorage Harbor Transitional Dredging measures, performed under authority of Section 118(a)(3) of the project modification legislation, which is currently in the third year of construction. The following items provide information regarding factors that could affect the scope and appropriate level of review and the expertise needed in that review.

- The draft Decision Document has been completed and is currently undergoing ATR. The report presents a total estimated project cost for the construction general harbor deepening of \$59 million (October 2011 price level) over a three-year construction period. During that three-year construction period annual operation & maintenance dredging of the harbor must continue to keep Anchorage Harbor open to shipping and is estimated to cost \$34 million. Since the current plan is to have a single contract funded from both construction general and operation & maintenance accounts, the overall contract price is estimated at about \$94 million. Thus the project cost is over the \$45 million "trigger" for Type I IEPR specified in the legislation.

- Since 1999 maintenance dredging has been accomplished using both a clamshell dredge and a small suction dredge. Annual maintenance over the last couple of decades has ranged from about 200,000 to 2 million cubic yards (CY). Removal of undisturbed, "virgin", sub-surface material is expected to require additional equipment, such as hydraulic excavators and large clamshell dredges. The dredging of virgin material between elevations -35 ft. and -45 ft. MLLW may be challenging due to unknowns involved in the materials to be dredged, due the likely presence of large boulders and other obstructions. The Alaska District is currently involved in the transitional dredging for the Port and is gaining experience in removing virgin materials as part of that work. This experience will enable the Alaska District to better define and scope the provisions of the harbor deepening dredging contract. In addition, the effects of the dredging on the modified Port LSF, particularly the open cell sheet pile (OCSP) bulkhead are of concern. While the liability for the structural soundness of the new OCSP dock facility rests with the Port/MARAD and their design consultants, the Alaska District believes it has a responsibility to not compromise the structural integrity of the Port infrastructure. The

Engineering Research and Design Center (ERDC) Geotechnical Lab provided comments on the Port/MARAD 35% design and the Department of Army permit for the Port expansion required that ERDC conduct review of the 100% design for impacts on the Corps dredging activities.

- The preliminary assessment of where the major project risks are likely to occur determined that the greatest unknown is the rate of sedimentation and the annual dredging volumes in the future. Once the harbor deepening dredging is completed, the expected future O&M dredging will use equipment similar to present. Under the expanded harbor condition (after transitional dredging but before deepening), O&M dredging is expected to range from 520,000 to 1.1 million CY. After the harbor deepening project is completed, the O&M dredging is expected to range from 1.1 to 1.7 million CY. Given the range of the sedimentation forecast and the inability to better forecast sedimentation variations, the historic dredging processes may not always succeed in keeping the Port open to vessel traffic throughout the year.

- The Port has a relatively small economic impact to the Nation when compared to the major coastal and Gulf Ports, but, relatively, it is extremely significant to the entire state of Alaska and National defense. The Port is the major deep-draft, year-round port in southcentral Alaska. The vast majority of the supplies for the majority of state residents northwest of the panhandle and virtually all heavy military equipment and supplies in route to the major military bases pass through the Port. The Port has stated that the current harbor depth limits full utilization of the harbor and dock facilities for commercial and military operations. The Port has also determined a deeper harbor will provide opportunity for greater shipping efficiencies through the use of larger capacity vessels. The Port anticipates improved military deployment response to on-going and future conflicts through more efficient deployment and redeployment of heavy military equipment.

- The project is not justified by life safety concerns. Construction of the project does not likely involve significant threats to human life/safety assurance. The most critical uncertainty regarding the project will be the amount of annual sedimentation, which will need to be removed in a timely manner to prevent the berth shoaling. Since a traditional economic analysis is not being performed for this report, the effect of unusual berth shoaling on project economics can't be identified. Even if after harbor deepening the O&M maintenance is not able every year to maintain the -45 ft. MLLW design elevation, the impact to shipping and the consequent disruptions to the commercial supply "pipeline" for Alaska are not anticipated to be significant in the foreseeable future. With appropriate adjustments in O&M dredging contracts, the -45 ft. design depth can most probably be achieved in the year following an unanticipated extremely high sedimentation year. The Alaska District Chief of Engineering has reviewed the human life/safety assurance aspects of the harbor deepening project and determined that there is not a significant threat to human life posed by construction of the deep-draft navigation project feature.

- The project/study has moderate interagency interest, particularly with regard to any project impacts to Beluga Whales. The Cook Inlet distinct population segment of beluga whales was listed as endangered by the National Marine Fisheries Service (NMFS) in October 2008 and critical habitat was proposed for the whales in 2009 and published in 2011. The habitat designation included an area in upper Cook Inlet excluded from the designation. This area is

roughly triangularly-shaped, with its points at Cairn Point, Point MacKenzie, and Ship Creek. This includes the immediate Port area and most of the expanded disposal site, except for its northwest corner. An addendum to the District's original Biological Assessment, which considers potential impacts to critical habitat, has been reviewed by the National Marine Fisheries Service (NMFS), who concurred with the Corps' determination, that dredging at the Port may affect, but is unlikely to adversely affect Cook Inlet beluga whales.

- The Governor of the State of Alaska has not requested a peer review by independent experts.
- The project/study regarding dredging at the Port has not been highly controversial. In the public's mind, the Port's upland expansion project far overshadows any associated dredging element. The public has had an opportunity to comment on the original Review Plan since it was posted on the Alaska District website in 2007, but no comments on the Review Plan have been received to date. The deepening project is not likely to involve public dispute regarding the size, nature, or effects of the deepening project. Likewise, the project is not likely to involve significant public dispute as to the economic or environmental cost or benefit of the project.
- The project report is not likely to contain influential scientific information or be a highly influential scientific assessment.
- The information in the decision document or proposed project design will not likely propose novel methods for dredging and disposal of dredged materials. It will not involve the use of innovative materials or techniques, present complex challenges for interpretation (except as noted above), contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices.
- The proposed project design, based on inclusion of advance, over depth dredging incorporates a measure that provides an element of redundancy, resiliency, and/or robustness in that the initial dredging is taken to a depth greater than the design depth. This provides some element of "cushion" if actual sedimentation rates are significantly greater than anticipated. The sedimentation must first fill the area between the over depth bottom surface and the design depth before it will impinge on the effectiveness of the project design depth.
- The proposed project needs to schedule and perform both the harbor deepening dredging and the "normal" annual O&M dredging simultaneously during the summer and fall, ice-free dredging season. Both dredging purposes will be accomplished using the same dredging contract(s). Complications arise because construction dredging and O&M dredging use different funding sources and procedures within the Corps of Engineers. The project will need to successfully synchronize the different funding processes.

d. In-Kind Contributions. Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR. There are no in-kind products and/or analyses to be provided by the non-Federal sponsor.

4. DISTRICT QUALITY CONTROL (DQC)

All decision and implementation documents (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). The Alaska District shall manage DQC. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the Alaska District and POD. DQC will be managed by the Alaska District in accordance with Alaska District processes, referenced in Para 1.b., which form an integral element supporting the District's ISO 9001 certification. The Project Delivery Team (PDT) is responsible for the basic quality of the document, including a complete reading of the report to assure overall integrity of the product, technical appendices, and report recommendations before approval by the District Commander. The DQC for this study was done in June 2011.

a. Documentation of DQC. Review comments, evaluations (responses to comments), and response/action taken (for each comment) from the DQC of the decision document were assembled in a "Comments" folder. The DQC Lead prepared a study certification confirming that all the required elements of the report/document were complete, consistent, and technically sufficient to support the findings and recommendations. The folder and certification, along with other pertinent guidance and documents were provided to the ATR team.

b. Products to Undergo DQC. The decision document underwent DQC. The already approved EA/FONSI was attached to the decision document as an appendix. Another appendix contained the project's cost estimate.

c. Required DQC Expertise. The Alaska District DQC process requires that the DQC team be composed of appropriate personnel, including technical chiefs and persons not directly associated with the PDT in the detailed preparation of the document. The DQC team for this study was comprised of experienced staff members including the chiefs of Planning, Environmental, Economics, and Hydraulics & Hydrology at the time the DQC was conducted. The list of DQC reviewers is provided in Attachment 1.

5. AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all decision documents (including supporting data, analyses, environmental compliance documents, etc.). The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published U.S. Army Corps of Engineers (USACE) guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision makers. ATR is managed within USACE by the designated Review Management Organization (RMO) and is conducted by a qualified team from outside POA that is not involved in the day-to-day production of the project/product. ATR teams will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside POD.

a. Products to Undergo ATR. An ATR is currently being conducted on the decision document. The already approved EA/FONSI was attached to the decision document as an appendix as was the project's cost estimate.

b. Required ATR Team Expertise. The SBH-PSCX is managing the ATR of the decision document in accordance with provisions of EC 1165-2-209. The purpose of the ATR is to ensure the work product is consistent with established guidance, procedures, criteria, and policy. Members of the ATR team are from outside the Alaska District, with the ATR Lead from outside POD. Members of the ATR team reflect the expertise of PDT members. Table 1 lists the desired expertise for ATR team members. The ATR team members for this study and a brief description of their credentials are included in Attachment 1.

Table 1. ATR Team Member Expertise Required

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. Typically, the ATR lead will also serve as a reviewer for a specific discipline, such as planning, economics, environmental resources.
Planning	The planning reviewer should be a senior water resources planner with extensive experience in the Corps planning process and be knowledgeable of current Corps policies and guidance. He/she should be familiar with navigation projects, in particular deep draft navigation projects involving dredging and disposal of large amount of bottom materials and sediment.
Economics	The economics reviewer should be experienced in economic evaluation of civil works navigation projects and have a solid understanding of potential benefits associated with the regional development and other social effects accounts.
Environmental Resources	The environmental reviewer should be experienced in coastal ecosystems, the influence of channel deepening and disposal of dredged materials on aquatic plants and species, the NEPA process and analysis procedures.
Hydraulic (Coastal) Engineering	The hydraulic engineering reviewer will be an expert in the field of coastal hydraulics and have a thorough understanding of analyses of winds, waves, currents, hydrodynamic-salinity, dredging methods and equipment, and deep draft ship channel and port facility design. In addition, experience in ship simulation modeling, forecasting future expected sedimentation rates, and the analysis of open-water disposal of dredged materials is required. A registered professional

	engineer is recommended.
Geotechnical Engineering	The geotechnical engineering reviewer shall have experience in the characterization of bottom sediments identified for dredging, and marine equipment involved in dredging and disposal activities. A registered professional engineer is recommended.
Cost Engineering	The cost engineering reviewer will be familiar with cost estimating for deep draft navigation dredging projects using the Microcomputer Aided Cost Engineering System (MCASES) model and preparation of an MII Cost Estimate. Experience with cost and schedule risk analysis is required. The reviewer will be a Certified Cost Technician, Certified Cost Consultant, or Certified Cost Engineer. Coordination with the Cost Engineering DX will be required to obtain DX certification of the cost estimate.
Dredging Specialist	The construction/operations reviewer will be familiar with laws, policies, procedures, and funding of operation and maintenance dredging and disposal of accumulated sediments from existing Corps deep draft navigation projects.
Real Estate	The real estate reviewer will be experienced in Federal civil works real estate law, policy, and guidance, development of Real Estate Plans for civil works studies.

c. Documentation of ATR. DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be limited to those that are required to ensure adequacy of the product. In some situations, especially addressing incomplete or unclear information, comment submitters may seek clarification in order to then assess whether further specific concerns may exist.

The four key parts of a quality review comment will normally include:

- (1) The review concern – identify the product’s information deficiency or incorrect application of policy, guidance, or procedures;
- (2) The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not been properly followed;
- (3) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
- (4) The probable specific action needed to resolve the concern – identify the action(s) that the reporting officer’s must take to resolve the concern.

The ATR documentation in DrChecks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the Alaska District, RMO, POD, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in either ER 1110-1-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution.

At the conclusion of each ATR effort, the ATR Lead will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

- Identify the document(s) reviewed and the purpose of the review;
- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions;
- Identify and summarize each unresolved issue (if any); and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Technical Review certifying that the issues raised by the ATR team have been resolved (or elevated to the vertical team). A Statement of Technical Review should be completed, based on work reviewed to date for the draft report and final report. A sample Statement of Technical Review is included in Attachment 2.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

IEPR may be required for decision under certain circumstances. IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision, as described in EC 1165-2-209, is made as to whether IEPR is appropriate. IEPR panels will consist of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted. There are two types of IEPR:

- **Type I IEPR.** Type I IEPR reviews are managed outside the USACE and are conducted on project studies. Type I IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. Type I IEPR will cover the entire decision document or action and will address all the underlying engineering, economics, and environmental work, not just one aspect of the study. For decision documents where a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance shall also be addressed during the Type I IEPR per EC 1165-2-209.

- **Type II IEPR.** Type II IEPR, or Safety Assurance Review (SAR), are managed outside the USACE and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. Type II IEPR panels will conduct reviews of the design and construction activities prior to initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare.

a. Decision on IEPR. Type I IEPR is conducted for decision documents if there is a vertical team decision (involving the Alaska District, POD, RMO, and HQUSACE members) that the covered subject matter meets certain criteria (described in EC 1165-2-209) where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside the USACE is warranted. Type II IEPR is conducted where existing and potential hazards pose a significant threat to human life. The decision to conduct Type I IEPR, Type II IEPR, both or neither is made based on comparing EC 1165-2-209 criterion to the study, as shown in Table 2.

Table 2. Decision on IEPR

EC 1165-2-209 Criteria	Anchorage Harbor Deepening Decision Document
Is there significant threat/risk to human life?	No. Since the project involved only the dredging and disposal of dredged materials in an existing disposal area, the project will not pose a significant threat/risk to human life.
Is the total project cost more than \$45 million?	Yes. It can be assumed that the ultimate cost associated with a recommended plan is likely to be greater than \$45 million.
Has the Governor of Alaska requested peer review by independent experts?	No. The Governor has not requested a Type I IEPR.
Has the Director of Civil Works (DCW) or the Chief of Engineers determined that the project study is controversial due to significant public	Neither the DCW nor the Chief have made such a determination.

dispute over either size, nature, or effects of the project or the economic or environmental benefits of the project?	
Has the head of a Federal or state agency charged with reviewing the project/study determined that the project is likely to have a significant adverse impact on environmental, cultural, or other resources under the jurisdiction of that agency and requested a Type I IEPR?	No requests from Federal or State agencies have been received requesting a Type I IEPR for this project/study.
Will there be significant public controversy as to size, nature, or effects of the project?	There is not anticipated to be significant public controversy regarding the project.
Will the study be based on information from novel methods, present complex challenges or interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices?	The dredging of "virgin material" from depths greater than 35 feet below MLLW will be challenging as well as the wide range of uncertainty regarding sedimentation rates and subsequent future O&M annual dredging and disposal volumes required to keep the deepened Port operating throughout every year.
Does the study include the preparation of an EIS?	No, an EA/FONSI has been prepared.
Is the project being pursued under the Continuing Authorities Program of the Corps of Engineers?	No, the project has been specifically authorized by Congress.
Is the project expected to have no more than negligible adverse impacts on scarce or unique tribal, cultural, or historic resources?	Yes, the project is expected to have no more than negligible adverse impacts on scarce or unique tribal, cultural, or historic resources.
Is the project expected to have no substantial adverse impacts on fish and wildlife species and their habitat prior to implementation of mitigation measures?	Yes, the project is expected to have no substantial adverse impacts on fish and wildlife species and their habitat prior to implementation of mitigation measures.
Is the project expected to have, before implementation of mitigation measures, no more than a negligible impact on a species listed as endangered or threatened under the Endangered Species Act or the critical habitat of such species designated under such Act?	Yes, the project is expected to have, before implementation of mitigation measures, no more than a negligible impact on a species listed as endangered or threatened under the Endangered Species Act or the critical habitat of such species designated under such Act.
Does the project only involve the rehabilitation or replacement of existing hydropower turbines, lock structures, or flood control gates within the same footprint and for the same purpose as an existing water resources project OR is an activity for which there is ample experience within the USACE and industry to treat the activity as being routine?	No. The project does not involve hydropower, locks, or flood gates and cannot be considered a routine activity.
Is the study/project so limited in scope or	Yes. The project/study is very limited in

<p>impact that it would not significantly benefit from an independent peer review?</p>	<p>scope. Congress in law determined most of the project's scope, design, and dimensions, which normally would be the focus of a Corps report. In addition, Congress prohibited the consideration of any other alternative to the one it specified and determined that planning, design, and construction and operation and maintenance of the deepening project would be performed at full Federal cost</p>
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Based on the comparison in Table 2 of the Anchorage Harbor deepening Decision Document to the criteria in EC 1165-2-209, it was determined that a Type I IEPR will be conducted on the Decision Document, primarily because the expected total project cost will be above \$45 million.

The Deep Draft Navigation Planning Center of Expertise (DDN-PCX) will coordinate the contract with an Outside Eligible Organization (OEO) to manage the Type I IEPR. IEPR is a study/project cost. The total costs for the OEO contract, including the panel member's expenses, are Federal funded. The costs associated with PDT/PCX interaction with the OEO/IEPR team (such as costs for setting up the contract with the OEO and for the PDT/Corps preparing responses) are cost shared expenses. IEPR panel members will be selected and managed by the OEO. To insure no conflict of interest in the panel selection process, the PDT, USACE, and the general public do not nominate Panel candidates. The Type I IEPR panel will review the underlying planning, engineering, economic, and environmental analysis for the project.

Based on the comparison in Table 2 summarizing considerations regarding risk to human life, the Alaska District Chief of Engineering concurred that there were no significant life safety issues associated with the failure of the harbor deepening measure. The risk of non-performance of the project is less than the risk from the existing condition of the project. A Type II IEPR will not be conducted for the Anchorage Harbor Deepening Decision Document.

b. Products to Undergo Type I IEPR. The decision document will require Type I IEPR. The previously approved EA/FONSI will be attached to the decision document as an Appendix.

c. Required Type I IEPR Panel Expertise. The Type I IEPR panel will be comprised of individuals external to the Corps of Engineers chosen by the OEO based on expertise, experience, and/or skills. The expertise on the panel will be similar to those on the ATR team, but more focused, not involving as many disciplines/individuals as the ATR team. The cost estimate and the real estate plan are not expected to undergo Type I IEPR. The panel will likely consist of three reviewers, based on the specific expertise identified in Table 3. The OEO will determine the final selected members of the panel. Once identified, the IEPR Panel members for this study and a brief description of their credentials will be added in Attachment 1.

Table 3. Type I IEPR Panel Member Expertise Required

IEPR Panel Members/Disciplines	Expertise Required
Economics	The Economics Panel Member should be from academia, a public agency, or an Architect-Engineer Consulting Firm with a minimum of 10 years demonstrated experience in economics and plan analysis for deep draft navigation projects. They should be highly knowledgeable in economic evaluation of civil works navigation projects and have a solid understanding of potential benefits associated with the regional development and other social effects accounts.
Environmental	The Environmental Panel Member should be from academia, a public agency, or an Architect-Engineer Consulting Firm with a minimum of 10 years demonstrated experience in coastal ecosystems. They should be highly knowledgeable in the influence of channel deepening and disposal of dredged materials on aquatic plants and species, the NEPA process and analysis procedures, and have expertise in evaluating impacts to endangered species, particularly marine mammals.
Hydraulic (Coastal) Engineering	The Hydraulic Engineering Panel Member should be a registered professional engineer from academia, a public agency, or an Architect-Engineer Consulting Firm with a minimum of 10 years demonstrated experience in the field of coastal hydraulics as it relates to deep draft navigation planning. They must have a thorough understanding of the analyses of winds, waves, currents, hydrodynamic-salinity, dredging methods and equipment, and deep draft ship channel and port facility design. In addition, experience in ship simulation modeling, forecasting future expected sedimentation rates, and the analysis of open-water disposal of dredged materials is required.

d. Documentation of Type I IEPR. The IEPR panel will be selected and managed by an Outside Eligible Organization (OEO) per EC 1165-2-209, Appendix D. DrChecks will be used to document the Panel comments. Panel comments will be compiled by the OEO and should address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. IEPR comments should generally include the same four key parts as described for ATR comments in Section 5.c. above. The OEO will prepare a final Review Report that will accompany the publication of the final decision document and shall:

- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;

- Describe the nature of their review and their findings and conclusions; and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

The final Review Report will be submitted by the OEO no later than 60 days following the close of the public comment period for the draft decision document. USACE shall consider all recommendations contained in the Review Report and prepare a written response for all recommendations adopted or not adopted. The final decision document will summarize the Review Report and USACE response. The Review Report and USACE response will be made available to the public, including through electronic means on the internet.

7. POLICY AND LEGAL COMPLIANCE REVIEW

All decision documents will be reviewed throughout the study process for their compliance with law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. These reviews culminate in determinations that the recommendations in the reports and the supporting analyses and coordination comply with law and policy, and warrant approval or further recommendation to higher authority by the POD Commander. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods and the presentation of findings in decision documents.

8. COST ENGINEERING DIRECTORY OF EXPERTISE (DX) REVIEW AND CERTIFICATION

All decision and implementation documents shall be coordinated with the Cost Engineering Directory of Expertise (DX), located in the Walla Walla District. The DX will assist in determining the expertise needed on the ATR team and Type I IEPR team and in the development of the review charges(s). The DX will also provide Cost Engineering DX certification. The RMO is responsible for coordination with the Cost Engineering DX.

9. MODEL CERTIFICATION AND APPROVAL

a. Planning Models. EC 1105-2-412 mandates the use of certified or approved models for all planning activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. Planning models, for the purposes of the EC, are defined as any models and analytical tools that planners use to define water resources management problems and opportunities, to formulate potential alternatives to address the problems and take advantage of the opportunities, to evaluate potential effects of alternatives and to support decision making. The use of a certified/approved planning model does not constitute technical review of the planning product. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR.

No planning models were used in the development of the decision document.

b. Engineering Models. EC 1105-2-412 does not cover engineering models used in planning. The responsible use of well-known and proven USACE developed and commercial engineering software will continue and the professional practice of documenting the application of the software and modeling results will be followed. As part of the USACE Scientific and Engineering Technology (SET) Initiative, many engineering models have been identified as preferred or acceptable for use on Corps studies and these models should be used whenever appropriate. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR.

Table 4 describes the engineering models used in the development of the decision document:

Table 4. Engineering Model Applications

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status
ADCIRC	The Advanced Circulation Model (ADCIRC), developed by universities in cooperation with ERDC, is a system of computer programs for solving time dependent, free surface circulation and transport problems in two and three dimensions. These programs utilize the finite element method in space allowing the use of highly flexible, unstructured grids. Typical ADCIRC applications include: (i) modeling tides and wind driven circulation, (ii) analysis of hurricane storm surge and flooding, (iii) dredging feasibility and material disposal studies, (iv) larval transport studies, (v) near shore operations.	Coastal CoP Preferred Model
Knik Arm and Port of Anchorage Physical Model	The Coastal Hydraulics Laboratory at ERDC has developed two small-scale physical models to represent the bathymetry of Cook Inlet in a reach of measuring about 19 statute miles adjacent to the Port of Anchorage. The models reproduce the spring tide cycle along with the large-scale gyres created by the prominent headlands. They are used to understand the existing flow regime at the Port and how Port expansion could affect flows where the tidal range varies by as much as 30 feet. Changes in flow magnitudes and patterns caused by Port expansion and the construction sequence could impact shoaling patterns and Port operations. The impact on sedimentation rates is critical to estimate the volumes of sediment needing to be dredged annually in the future. The physical models are also used to improve a numerical flow model that drives the numerical simulation of sedimentation in Cook Inlet.	ERDC constructed physical model

EFDC	The Environmental Fluid Dynamics Code (EFDC) is a state-of-the-art hydrodynamic model that can be used to simulate aquatic systems in one, two, and three dimensions. It has evolved over the past two decades to become one of the most widely used and technically defensible hydrodynamic models in the world. EFDC uses stretched or sigma vertical coordinates and Cartesian or curvilinear, orthogonal horizontal coordinates to represent the physical characteristics of a water body. It solves three-dimensional, vertically hydrostatic, free surface, turbulent averaged equations of motion for a variable-density fluid. Dynamically-coupled transport equations for turbulent kinetic energy, turbulent length scale, salinity and temperature are also solved.	Dredging CoP Allowed model, River Hydraulics CoP Allowed Model
SEDLJ	SEDLJ is a sediment transport model that can represent the dynamic processes of bed erosion/scour, bedload transport, bed sorting, armoring, and deposition. The SEDLJ is a sub-model used as part of the EFDC package.	Dredging CoP Allowed model, River Hydraulics CoP Allowed Model
LTFATE	The Long-term Fate of Dredged Material (LTFATE) model was developed at the U.S. Army Waterways Experiment Station for simulating sand transport from sediment disposal sites. LTFATE was expanded to include fine-grained, cohesive silt and clay transport. It combines local hydrodynamics and the sediment transport model used to determine the long- and short-term stability of dredged material mounds.	Dredging CoP Preferred Model, Envir. Eng. & WQ CoP Allowed Model
Anchorage Harbor Ship Simulation Model	The Anchorage Harbor Ship Simulation will use the ERDC Ship/Tow Simulator, which features two bridges set up for real-time ship maneuvering for evaluating navigation channel designs, modifications, and safety issues. The marine simulator uses a hydrodynamic model to calculate and display ship response to the variety of forces, which can be exerted on a vessel, such as: current, bank effects, wind, waves, rudder angle, propeller revolutions, tug forces, and bow and stern thrusters.	Ship/Tow simulator developed by Kongsberg Maritime Simulation will be operated by Coastal & Hydraulics Laboratory personnel and ship pilots
Microcomputer Aided Cost Engineering System (MCACES) 2 nd Generation (MII)	The MCACES/MII construction cost estimating software, developed by Building Systems Design Inc., is a tool used by cost engineers to develop and prepare all Civil Works cost estimates. Using the features in this system, cost estimates are prepared uniformly allowing cost engineering throughout USACE to function as one virtual cost engineering team.	Planning CoP Allowed Model, Cost Engineering DX Required Model
Crystal Ball	The Crystal Ball software is used to develop a cost and	Cost Engineering

	schedule risk analysis for a project that is used in determining the appropriate cost contingencies to be used in preparing the project cost estimate using the MII software.	DX Required Model
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10. REVIEW SCHEDULES AND COSTS

a. ATR Schedule and Cost. The ATR for this study is being accomplished in accordance with the cost and schedule in the Project Management Plan. As of the approval date of this Review Plan, the ATR is scheduled for completion in the first quarter of FY13. The cost of the ATR team management by the SBH-PSCX is \$57,600. The ATR team member cost is estimated at \$42,400, and the PDT costs to provide information to the ATR team, develop responses to the ATR comments, and revise necessary parts of the report/appendices is \$29,000.

b. Type I IEPR Schedule and Cost. The IEPR for this study will be accomplished in accordance with the cost and schedule in the Project Management Plan. As of the approval date of this Review Plan, the IEPR is scheduled for the first through third quarter of FY 2013. The total estimated cost of the Type I IEPR is \$152,200. This is composed of costs to manage the set up and close out of the contract with a OEO for \$49,100, \$2,100 for the Army Research Office (ARO) or the Institute for Water Resources (IWR) to administer the contract with an OEO, \$70,000 for the OEO to set up the IEPR panel, conduct the review, provide comments, coordinate with the PDT on responses and issue a final IEPR report, and \$31,000 for the District PDT to develop draft responses to panel comments in the IEPR Report.

c. Model Certification/Approval Schedule and Cost. Not applicable.

11. PUBLIC PARTICIPATION

This harbor deepening project involves dredging and disposal of material in marine waters of the United States for the purpose of maintaining commercial shipping activities at the Port. Public interest in this dredging project is anticipated to be minimal. In the public’s mind, the Port expansion project overshadows the Corps deepening project. The MARAD scoping process for their Port expansion project was extensive. The Corps accepted the issues and concerns identified during the MARAD NEPA process and expounded on them where relevant in developing the Corps EA/FONSI. The Corps held its own agency meeting on 14 March, 2008 to review dredging operations and gather additional comments from agencies. The project area falls within the traditional subsistence area of the Dena’ina Athabascan people, although subsistence activities are no longer conducted in the direct vicinity of the Port. Consultation with state and federal resource agencies, including both NMFS and U.S. Fish and Wildlife Service (USFWS), was conducted. The U.S. Coast Guard 17th District was consulted regarding aids to navigation in the revised harbor footprint. Coordination with the Alaska District Regulatory Branch ensured that Section 10 requirements were observed. During hydrographic surveys an artifact was identified in the project area requiring consultation with State Historic Preservation Office (SHPO). In October 2008 the Cook Inlet beluga whale was listed as endangered. Section 7 consultation has been completed with NMFS. The EA on Anchorage Harbor dredging was circulated for public review as required by NEPA.

The District issued a news release on May 9, 2007 informing the public of the harbor deepening project's initial Review Plan being posted to the Alaska District's public webpage and solicited comments. To date no public comments have been received regarding the harbor deepening project's Review Plan. Any public comments received were provided to the ATR and will be provided to the IEPR teams. All future revisions to the Review Plan and any minor updates will be posted to the District webpage.

Comments received during the public comment period for the draft EA/FONSI will be available to the IEPR team as part of their review and will be reviewed, addressed, and incorporated as appropriate into the final draft decision document. Following completion of IEPR review, the review panel comments and Corps responses will be added to the District's public web page following approval of the responses by Headquarters. The original review plan for this study/project was completed in December 2007. It indicated that a Type I IEPR was not appropriate. This version of the Review Plan changes that decision and includes a Type I IEPR.

12. REVIEW PLAN APPROVAL AND UPDATES

The POD Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving the Alaska District, POD, RMO, and HQUSACE members) as to the appropriate scope and level of review for the decision document. Like the PMP, the Review Plan is a living document and may change as the study progresses. The Alaska District is responsible for keeping the Review Plan up to date. Minor changes to the review plan since the last POD Commander approval are documented in Attachment 3. Significant changes to the Review Plan (such as changes to the scope and/or level of review) will be re-approved by the POD Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commander's approval memorandum, will be posted on the Alaska District's webpage. The latest Review Plan will also be provided to the RMO and POD.

13. REVIEW PLAN POINTS OF CONTACT

Public questions and/or comments on this Review Plan can be directed to the following points of contact:

- PDT Plan Formulator (POA) and SBX-PSCX Coordinator (POA), Forest Brooks, (907) 753-2627
- PDT Project Manager (POA), Tina McMaster-Goering, (907) 753-2861
- Division Senior Economist (POD), Russell Iwamura, (808) 835-4625
- DDN-PCX Program Manager (SAM), Johnny Grandison, (251) 694-3804

ATTACHMENT 1: TEAM ROSTERS

Anchorage Harbor Deepening PDT

The Anchorage Harbor Deepening Project Delivery Team is comprised of the following individuals:

Project Manager	Tina McMaster-Goering
Plan Formulator	Forest Brooks
Coastal Engineer	Merlin Peterson
Geotechnical Engineer	John Rajek
Cost Engineer	Al Arruda
Value Engineering Officer	Don Tybus
Environmental Resources	Chris Hoffman
Economist	ResourceEcon (Jim Richardson)
Real Estate Specialist	John Smith

Anchorage Harbor Deepening DQC Team

The Anchorage Harbor Deepening District Quality Control Team is comprised of the following individuals:

DQC Team Coordinator	Forest Brooks	POA
Ch, Plan Formulation	Bruce Sexauer	POA
Ch, Hydraulics & Hydrology	Ken Eisses	POA
Economics	Lorraine Cordova	POA
Ch, Environmental	Mike Salyer	POA
Plan Formulator	Ronnie Barcak	POA
Environmental/Cultural	Mike Salyer	POA
Value Engineering Officer	Don Tybus	POA
Civil Engineer (Operations)	Allen Churchill	POA
Geotechnical Engineer	Marcus Palmer	POA
Real Estate Specialist	Linda Arrington	POA

Anchorage Harbor Deepening ATR Team

The Anchorage Harbor Deepening Agency Technical Review Team is comprised of the following individuals:

SBH-PSCX Coordinator	Forest Brooks	SBH-PSCX, Alaska District
RP Reviewer	Sharon Ishikawa	Honolulu District
ATR Lead/Economist	Jon Brown	Buffalo District
Economist	Roger Haberly	Buffalo District
Environmental	Mike Greer	Buffalo District
Plan Formulation	Phil Berkeley	Buffalo District
Coastal Engineering	Shanon Chader	Buffalo District
Coastal Engineering	Mike Mohr	Buffalo District
Dredging Specialist	Mike Asquith	Buffalo District
Geotechnical	John Kolber	Buffalo District
Real Estate	Jennifer Janik	Buffalo District
Cost Engineering	Paul Polanski	Buffalo District
Cost Engineering	Wally Brasfield	CE DX, Walla Walla District
Cost Engineering	Jim Neubauer	CE DX, Walla Walla District

ATR Review Team Member Credentials.

- **ATR Lead/Economics – Jonathan Brown, Buffalo District – (716) 879-4430.** Jonathan is the Lead Economist and a Regional Technical Specialist in Buffalo District. He has a BA in mathematics and a MA in Economics and graduated from the Planning Associates in 2003 and the Leadership Development Program in 2008. He has worked for the Corps of Engineers for more than 30 years in the Buffalo District, the Alaska District, and the Pacific Ocean Division office. He assists in the evaluation and formulation of regional studies in the Lakes and Rivers Division and other MSCs. He has served as review team leader and performed economic review for numerous navigation, flood damage reduction, coastal storm damage, and recreation studies, along with economic model certification reviews.

- **Economics – Roger Haberly, Buffalo District – (716) 879-4164.** Roger is a Regional Economist in Buffalo District. He has a BA in economics from Canisius College and a MA in Economics from the State University of New York (SUNY) at Buffalo. He has worked for the Corps of Engineers for over 29 years developing economic analyses for small navigation projects, developing surveys for dock owners and charter fishing operators and the full range of associated costs needed to make harbors fully operational. For 5 years he co-lead for commercial navigation an International Joint Commission study that quantified impacts on commercial navigation on Lake Ontario and the St. Lawrence Seaway of re-regulating Lake Ontario flows. He was a major contributor in the development of the computer based economic impact model used in the study.

- **Environmental – Mike Greer, Buffalo District – (716) 879-4229.** Mike is a Regional Technical Specialist for ecosystem restoration and plan formulation with expertise in watershed planning and stream and fisheries restoration. He has a BS in Biology and a MS in Environmental Science from SUNY at Buffalo. He has worked for the Corps of Engineers for 12 years as a project planner for numerous decision documents supporting civil works projects as a subject matter expert on Corps planning, policies, and procedures dealing with ecosystem concerns. He managed the Great Lakes Habitat Initiative, a complex, multi-state, multi-agency collaborative project, and participated in or contributed to numerous decision documents for ecosystem restoration, navigation, flood risk management/coastal storm reduction, and infrastructure projects. He participated in or led more than a dozen ATRs for Corps Districts.

- **Plan Formulation – Philip Berkeley, Buffalo District – (716) 879-4145.** Philip is a biologist in Planning Branch of Buffalo District. He has a BS in biology from Springfield College, Massachusetts, and a MS in biology from SUNY at Buffalo. He has worked for the Corps of Engineers for over 30 years in planning and project evaluation of navigation, flood risk management, and ecosystem restoration studies/projects.

- **Coastal Engineering – Shanon A. Chader, PE, Buffalo District – (716) 879-4188.** Shannon is a Regional Technical Specialist for Coastal Engineering on the Great Lakes in the Buffalo District. He has a BS in Civil Engineering from the SUNY at Buffalo, an ME in

Construction Engineering from the SUNY at Buffalo, and an ME in Ocean Engineering from Texas A&M University. He is a registered professional engineer in New York. He has worked for the Corps of Engineers for 33 years and has experience in design and evaluation of commercial deep draft navigation harbors and channels (structure layout and design, channel sizing and evaluation), wave propagation, littoral transport, small boat harbors, and complex beach (nourishment, offshore breakwaters, artificial headland breakwaters and beaches) and shoreline erosion control (nourishment, revetments, emergency shore protection) projects. He also provides support to District Geologist and senior geotechnical engineers on foundation, rock, and soils studies and analyses.

- **Coastal Engineering – Michael C. Mohr, PE, Buffalo District – (716) 879-4168.** Michael is a Regional Technical Specialist for Coastal Engineering on the Great Lakes for the Buffalo District. He has a BS in Civil Engineering from the SUNY at Buffalo and an MS in Civil Engineering from the University of Connecticut. He is a registered professional engineer in New York. He has worked for the Corps of Engineers for 33 years and has experience in design and evaluation of commercial deep draft navigation harbors and channels, wave propagation, littoral transport, small boat harbors, and complex beach and shoreline projects.

- **Dredging Specialist – Mike Asquith, Buffalo District – (716) 879-4352.** Mike is the Program Manager for the Buffalo District maintenance dredging program performing all functions for the dredging program (initiating, planning, executing, monitoring, and closing multiple dredging projects) from 2002 to present. He also served as a project manager for design and construction of various civil works projects, including confined disposal facilities for Cleveland Harbor and the Presque Isle annual sand nourishment/erosion protection project. He has a BS in Civil Engineering from Rochester Institute of Technology in Rochester, NY. He has worked for the Corps for ten years, with prior employment by URS Corporation (9 years) and Glynn Geotechnical Engineering (6 years) as a civil engineer-project engineer responsible for project design and construction oversight and contract administration.

- **Geotechnical Engineering – Jonathan Kobler, P.E., Buffalo District – (716) 879-4165.** Jonathan is a civil/geotechnical engineer in the Buffalo District. He has a BS and an MS in Civil Engineering from SUNY at Buffalo. He is a registered professional engineer in New York. He has worked for the Corps of Engineers for 30 years in Buffalo District responsible for subsurface explorations, foundation and grouting design, stability analyses, stream bank protection, and navigation dredging and disposal project reports. He has been deployed on emergency operations activities to West Virginia (04), Hurricane Frances-Jeanne (04), Hurricane Ivan (05), Hurricane Katrina (05), Hurricane Rita (05), Hawaiian Dams (06), and New Orleans Hurricane Protection System Armoring (07).

- **Cost Engineering – Paul Polanski, CCC, Buffalo District – (716) 879-4236.** Paul is a cost engineer in the Buffalo District. He has an AAS as a Civil Engineering Technician from Erie Community College, a BS as an Industrial Technician from Buffalo State College, and MS work in Environmental Science from the University of Buffalo. He has 26 years of cost estimating experience and is registered as a Tri-Service Certified Cost Consultant. He has experience in a number of aspects of Corps cost engineering, including MCACES, MII Basic, MII Advanced, Dredge Cost Estimating, HTRW estimating, design/build and construction cost

estimating, estimating and negotiating construction contract modifications, and value engineering.

- **Cost Engineering – Wally Brassfield, P.E., Walla Walla District – (509) 527-7510.** Wally is a Corps re-hired annuitant at the Corps’ Cost Engineering Directory of Expertise located in the Walla Walla District. He has a BS in Civil Engineering from the University of Idaho and is a Corps “Certified Cost Engineer” and an American Society of Professional Estimators’ “Certified Professional Estimator.” He worked for 13 years as a cost estimator for small business heavy construction and specialty contractors and 15 years as the North Pacific Division (NPD) cost engineer responsible for Division review of all cost estimates for five Districts, with a combined NPD annual budget of over a billion dollars for the engineering and construction of military, heavy civil works, dredging, O&M and HTRW projects throughout the region. Since retiring from NPD, he has served as a primary cost estimate reviewer for the USACE Cost Engineering Directory of Expertise for Civil Works and Support for Others (Cost DX) located in Walla Walla District.

- **Cost Engineering – James G. Neubauer, PE, CCE, PM1, Walla Walla District – (509) 527-7332.** Jim is a Senior Cost Engineer and Cost DX ATR Coordinator for the Cost DX. He has a BS in Civil Engineering from the University of Wyoming and is a licensed professional Civil Engineer, a Certified Cost Engineer, and a Certified Level 1 Project Manager. He worked for five years as a construction project engineer for the Wyoming Department of Transportation before coming to the Corps to serve as senior lead cost engineer for the Albuquerque, Europe, and Walla Walla Districts, recognized as USACE Cost Engineer of the Year 2006-2007. He assisted in the development of the current cost engineering ER, was main author of the civil works cost engineering ETL, the current Cost and Schedule Risk Analysis Guidance which incorporates the Crystal Ball Software, the Abbreviated Risk-Based Contingency Model, and the cost engineering ATR Guidance.

- **Real Estate – Jennifer Janik, Detroit District – (716) 879-4113.** Jennifer is a Detroit District Realty Specialist assigned to the Buffalo Real Estate Office. She has an MA of Business Administration from Medaille College in Buffalo. She serves as a PDT member for all Buffalo District projects and as an ATR real estate team member. She manages formulating initial assessments, real estate plans, acquisitions, outgrants, collaborates with local sponsors on their acquisition of necessary Lands, Easements, Rights-of-Way, Relocation and Disposal Areas, and serves on numerous ATR teams as the real estate team member.

Anchorage Harbor Deepening Type I IEPR Team

The Anchorage Harbor Deepening Type I Independent External Peer Review Team is comprised of the following individuals:

DDNPCX Coordinator	Johnny Grandison, Sr.	DDNPCX, Mobile District
CVO Manager	TBD	TBD
OEO Manager	TBD	TBD
Economics	TBD	TBD
Environmental	TBD	TBD
Engineering	TBD	TBD

Anchorage Harbor Deepening Vertical Team

The Anchorage Harbor Deepening Project Vertical Team is composed of the following individuals:

POA, Project Manager	Tina McMaster-Goering
POA, Technical Lead	Forest Brooks
POA, Chief Planning	Bruce Sexauer
POA, Chief Project Management Civil Branch	Steve Boardman
POD, Civil Works Planning Team Leader	Linda Hihara-Endo
POD, Senior Economist	Russell Iwamura
HQ POD RIT, Civil Works Deputy	Sharon Wagner
HQ POD RIT, Civil Works Planner	Andy Miller

ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENT

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the Decision Document for the Anchorage Harbor Deepening element of the Anchorage Harbor, Alaska, Navigation Improvement Project. The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-209. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrCheckssm.

SIGNATURE

Jon Brown
ATR Team Leader
CELRB-PM-PB

Date

SIGNATURE

Tina McMaster-Goering
Project Manager
CEPOA-PM-C

Date

SIGNATURE

Bruce Sexauer
Review Management Office Representative
Small Boat Harbor Navigation Planning Sub-Center of
Expertise
CEPOA-PM-C-PL

Date

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows: Describe the major technical concerns and their resolution.

As noted above, all concerns resulting from the ATR of the project have been fully resolved.

SIGNATURE

David Frenier
Chief, Engineering Division
CEPOA-EN

Date

SIGNATURE

Bruce Sexauer
Chief, Planning Section
CEPOA-PM-C-PL

Date

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number
9 May 2007	Original Review Plan approved as part of AFB Package and posted to Alaska District public website for public review	
TBD	Draft Revised Review Plan – Substantial format and content revisions to coincide with 15 June 11 Review Plan Template from PCX Guild. Single major substantive revision is to require Type I IEPR of Decision Document. Team Rosters were updated.	Current draft dated 22 Oct 2012

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

<u>Term</u>	<u>Definition</u>	<u>Term</u>	<u>Definition</u>
AFB	Alternative Formulation Briefing	NED	National Economic Development
ASA(CW)	Assistant Secretary of the Army for Civil Works	NER	National Ecosystem Restoration
ATR	Agency Technical Review	NEPA	National Environmental Policy Act
CSDR	Coastal Storm Damage Reduction	O&M	Operation and maintenance
CVO	Contract Vehicle Organization	OMB	Office and Management and Budget
DPR	Detailed Project Report	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
DQC	District Quality Control/Quality Assurance	OEO	Outside Eligible Organization
DX	Directory of Expertise	OSE	Other Social Effects
EA	Environmental Assessment	PCX	Planning Center of Expertise
EC	Engineer Circular	PSCX	Planning Sub-Center of Expertise
EIS	Environmental Impact Statement	PDT	Project Delivery Team
EO	Executive Order	PAC	Post Authorization Change
ER	Engineer Regulation	PMP	Project Management Plan
FDR	Flood Damage Reduction	PL	Public Law
FEMA	Federal Emergency Management Agency	QMP	Quality Management Plan
FRM	Flood Risk Management	QA	Quality Assurance
FSM	Feasibility Scoping Meeting	QC	Quality Control
GRR	General Reevaluation Report	RED	Regional Economic Development
Home District/MSD	District or MSD responsible for the preparation of the decision document	RMC	Risk Management Center
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RMO	Review Management Organization
IEPR	Independent External Peer Review	RTS	Regional Technical Specialist
ITR	Independent Technical Review	SAR	Safety Assurance Review
LRR	Limited Reevaluation Report	USACE	U.S. Army Corps of Engineers
MSD	Major Subordinate Command	WRDA	Water Resources Development Act