

Bethel Harbor

Condition of Improvements
30 December 2014
Bethel Harbor, Alaska
(CWIS No. 024100)

Authorization Rivers and Harbors Act, 14 July 1960, under Section 107 (P.L. 86-645) as authorized by the Chief of Engineers on 29 June 1978, provides for a 12 acre small boat harbor and 1,270 foot entrance channel by deepening, widening and straightening a portion of Lousetown Slough.

Table 1

| Existing Project | Length ft. | Width ft. | Depth ft. |
|-------------------------------|-------------------|------------------|------------------|
| Entrance Channel | 1270 | 31 | -4 |
| Maneuvering & Turning Channel | 418 | 94 | -4 |
| Basin (Federal) | 519 | 160 | -4 |

Project Usage This project is the only protected harbor in the Kuskokwim River Delta area and provides beach moorage for about 1,200 small boats with the possibility of a future medium-draft mooring basin.

Progress of Work

| | |
|------|---|
| 1982 | Project is approved as amended by the Office of the Chief of Engineers under Section 107 of the 1960 River and Harbor Act, dated 30 July 1982. |
| 1983 | Construction begins on 21 January 1983 and is completed on 20 March 1983. |
| 1988 | Local interests report that the removal of beach mooring fingers from the basin is complete, and a condition survey is conducted. |
| 1991 | Sampling and testing of harbor sediments is conducted. |
| 1992 | Maintenance dredging of the Federal project is carried out while the harbor is frozen in March 1992 with 15,100 cubic yards removed within the Federal limits. A follow up survey in September 1992 reveals that the project is subject to rapid shoaling from the fine sediment prevalent in the vicinity. |
| 1997 | Federal project is dredged to two feet over project depth; 28,300 cubic yards of material are removed in late winter with land-based equipment and trucked to an upland disposal site. |

Progress of Work

| | |
|------|---|
| 2001 | A condition survey is conducted in July. |
| 2002 | Vertical aerial photography is taken in June. |
| 2004 | A condition survey is completed in August. |
| 2010 | A condition survey was completed in mid October. |
| 2011 | Harbor sediment samples were taken in October and the results were compared to the Toxicity Characteristic Leaching Procedure (TCLP) criteria. Additional samples were collected in September which showed no potential for fuel contamination. USACE Comprehensive Evaluation of Project Datums Compliance report completed and recorded in September. |
| 2012 | Awarded maintenance dredging contract in September to Denali Drilling. |
| 2013 | Annual maintenance dredging removed 17,800 cubic yards from the basin and entrance channel and placed the material in an upland stockpile. A condition survey is completed in late September. |

Table 2 Cost to Date

| Project | Description | Cost \$ |
|---------|------------------------------|------------|
| 024100 | CG Appropriation | 1,514,601 |
| | CG Costs | 1,263,601 |
| | CG Contributed Appropriation | 2,000,000 |
| | CG Contributed Costs | 2,000,000 |
| | O&M Appropriation | 2,978,460 |
| | O&M Costs | 2, 978,460 |

Table 3 Range of Tides in feet

| Tide Station | Mean Range | Diurnal Range | Extreme Range |
|--------------------|------------|---------------|---------------|
| 946 6477 Bethel AK | 2.42 | 3.66 | - |

Controlling Depth A condition survey was conducted in the fall of 2013 which indicated the following controlling depths: -1.7 feet MLLW in the entrance channel near corner 5; -2.3 feet MLLW in the maneuvering and turning channel; and -3.0 feet MLLW in the northeast corner of the basin (Federal).

Table 4 Dredged Quantities and Contract Costs

| Year | Quantity (cubic yards) | Cost \$ |
|-------------|-------------------------------|----------------|
| 2013 | 17,800 | 1,239,500 |

Maintenance Dredging Supplement**A. General**

1. The Federal portion of the Bethel small boat harbor was last dredged in 2013 (a 16-year interval) while the project was frozen. On average, maintenance dredging is required approximately every 10 years.
2. Shoaling is hazardous to navigation and occurs along most of the entrance channel due to the inability of the material to hold a side slope.
3. The dredging period runs from 15 February to 15 April.
4. The last dredging venture employed the use of a D-8 Caterpillar to rip the ice and frozen material which could then be stockpiled and loaded onto trucks for upland disposal.

B. Sampling and Testing

1. Sediment samples were collected from three points within the Bethel SBH in 2011. The sample results were generally within ADEC soil cleanup criteria, but contained 26-56 mg/kg arsenic and 34-48 mg/kg total chromium concentrations that were above ADEC cleanup levels but consistent with previous samples taken from the harbor sediment, and within BLM background studies of Kuskokwim River Sediment.
2. Chemical analysis was conducted using (12) tests as outlined with results below:

Table 5 Chemical Testing

| Method | Chemical analysis | Results |
|----------------------------|---|--|
| Series 6000-7000's TCLP | TCLP (8) RCRA Metals | (1) of (8) detected None detected (ND) or below minimum cleanup levels (1) |
| 8260B TCLP | TCLP Volatile Organic Compounds | ND |
| 8270D TCLP | TCLP Semi-volatile Organic Compounds | ND |
| AK 101 | Gasoline Range Organics | All below cleanup levels (2) |
| AK 102/103 | Diesel Range Organics/ Residual Range Organics | All below cleanup levels (2) |

| Method | Chemical analysis | Results |
|--------------------|-----------------------------------|---|
| 8260B | Volatile Organic Compounds | Methylene chloride 0.041 – 0.06 ppm*, Hexachlorobutadiene ND- 0.15 pp*, all others ND or below cleanup levels (2) |
| 8082 | Polychlorinated Biphenyls | ND |
| 8081 | Pesticides | All below cleanup levels (2) |
| Series 6000-7000's | (8) RCRA Metals | 8) of (8) detected Arsenic 23 – 56 ppm, Chromium 31- 39 ppm, all others below cleanup levels (2) |
| 8270C SIM | Polynuclear Aromatic Hydrocarbons | All below cleanup levels (2) |
| E160.3M | Percent Moisture | 51-56 % |

* Believed to be associated with method blank contamination and were qualified with "B"

(1) Project limits are defined by the Toxicity Characteristic Leaching Procedure (TCLP) criteria

(2) Project limits are defined by ADEC 18 AAC 75 Method 2 Table B1 and B2 Cleanup Levels

C. Disposal

1. The current upland disposal area is a 14-acre site located on City of Bethel land northeast of the harbor basin. Corners have the following geographic coordinates:

Table 6 Disposal Area

| Corner | Latitude (N) | Longitude (W) |
|---------------|---------------------|----------------------|
| A | 60°47'37.937" | 161°43'45.905" |
| B | 60°47'38.875" | 161°43'45.902" |
| C | 60°47'39.491" | 161°43'51.543" |
| D | 60°47'41.903" | 161°43'51.537" |
| E | 60°47'46.829" | 161°43'56.464" |
| F | 60°47'46.820" | 161°43'38.832" |
| G | 60°47'36.736" | 161°43'38.855" |

This area was used to dispose of material from the 1992, 1997, and 2013 maintenance dredging events. The harbor sediment is hauled by truck to the disposal area. A background sample collected from this area in 1991 had a concentration of 26 mg/kg arsenic.

2. The current upland disposal site is both preferred and adequate to meet dredging disposal needs.

D. Environmental Permits and Reports

The Corps prepared an EA in February 2012 for continued maintenance dredging, with a FONSI signed by the Denali Commission. DA Permit POA-2011-896 (expires May 2017) was issued to the City of Bethel. ADFG Fish Habitat Permit FH 10-II-0188 was amended (Amendment I) in March 2012.

Table 7 Environmental Permits

| Agency Name | Date of Issue | Date of Expiration |
|---|----------------------|---------------------------|
| AK Department of Fish and Game | March 23, 2012 | December 31, 2013 |
| AK Department of Environmental Conservation | May 14, 2012 | May 14, 2017 |
| Department of the Army | May 1, 2012 | May 1, 2017 |

Bethel Harbor, Alaska



Oblique of Bethel Harbor, September 2013.



Dredged material is stockpiled for transfer to the upland disposal area, 2013.

Bethel Harbor, Alaska



Maintenance dredging of the basin and channel in the winter of 2013.



Replacement of the South Ramp, February 2014.