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# FINAL
# CONSTRUCTION REPORT
# WARD COVE SEDIMENT REMEDIATION

## Ketchikan, Alaska

Prepared for

**Ketchikan Pulp Company**

Prepared by

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# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ACD | Alaska Commercial Divers |
| AOC | Area of Concern |
| ARAR | Applicable or Relevant and Appropriate Requirements |
| CAB | cellulose acetate butyrate |
| CAL | Consolidated Aggregates, Ltd. |
| CERCLA | Compensation and Liability Act of 1980 |
| CoPC | chemical (or contaminant) of potential concern |
| Corps | U.S. Army Corps of Engineers |
| CQAP | Construction Quality Assurance Plan |
| cy | cubic yards |
| DAR | Design Analysis Report |
| DGPS | differential global positioning system |
| DO | dissolved oxygen |
| DTSR | Detailed Technical Studies Report |
| EPA | U.S. Environmental Protection Agency |
| FCR | field change request |
| Foster Wheeler Environmental | Foster Wheeler Environmental Corporation |
| GFP | Gateway Forest Products |
| HASP | Health and Safety Plan |
| KPC | Ketchikan Pulp Company |
| MHHW | Mean Higher High Water |
| MLLW | Mean Lower Low Water |
| NPL | National Priorities List |
| NTU | nephelometric turbidity unit |
| OU | Operable Unit |
| PAH | polycyclic aromatic hydrocarbon |
| PCDD/F | polychlorinated dibenzo-p-dioxin and polychlorinated dibenzofuran |
| PSDDA | Puget Sound Dredged Disposal Analyses |
| PSV | performance standard verification |
| PSVP | Performance Standard Verification Plan |

# ACRONYMS AND ABBREVIATIONS (continued)

| | |
|---|---|
| PTI | Environmental Services |
| QAO | Quality Assurance Officer |
| QC | Quality Control |
| RAO | remedial action objective |
| RAWP | Remedial Action Work Plan |
| RI/FS | remedial investigation and feasibility study |
| ROD | Record of Decision |
| R/V | Research Vessel |
| SL1 | Seamap Sonarlink |
| TIN | triangulated irregular network |
| WQMP | Water Quality Monitoring Plan |

# CERTIFICATE OF CONSTRUCTION

Ketchikan Pulp Company
Marine Operable Unit
Remedial Action

The following certification is provided pursuant to the Record of Decision, Appendix F Statement of Work for Remedial Design, Remedial Action, and Long- Term Monitoring, Task 5, Subtask 6.

## KETCHIKAN PULP COMPANY – PROJECT COORDINATOR CERTIFICATION

I, Barry Hogarty, Ketchikan Pulp Company Project Coordinator for the remedial work conducted at the Ward Cove Marine Operable Unit, hereby provide the following certification.

To the best of my knowledge the construction phase of the Remedial Action has been completed in accordance with the *Remedial Action Work Plan, Ward Cove Sediment Remediation, October 2000.*

To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission, *Final Construction Report, Ward Cove Sediment Remediation, July 2001* is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Barry J. Hogarty
KPC Project Coordinator

# 1. INTRODUCTION

This Construction Report describes the construction activities conducted to implement the remedial action set forth in the Record of Decision (ROD) (EPA 2000b) for the Marine Operable Unit (OU) of the Ketchikan Pulp Company (KPC) site. KPC is the "Prior Owner" referred to in the U.S. Environmental Protection Agency (EPA) Statement of Work for Remedial Design, Remedial Action, and Long-Term Monitoring, Ketchikan Pulp Company, Marine OU, Ketchikan, Alaska. The current owner of the former pulp mill assets is Gateway Forest Products (GFP). The investigation of the Marine OU of the KPC site and the design and implementation of a cleanup alternative were initiated under a Clean Water Act Consent Decree dated September 1995, between EPA and KPC. The remediation work was completed under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) consent decree between EPA, KPC, and GFP (November 2000).

As specified in the EPA-approved Remedial Action Work Plan (RAWP) dated October 2000, Foster Wheeler Environmental Corporation (Foster Wheeler Environmental) performed the construction and engineering oversight of the remediation activities for the Marine OU in Ward Cove. Remediation activities in Ward Cove included constructing a dike for dewatering dredged material, removing underwater logs and wood debris, dredging sediments to improve navigation, placing a thin-layer sand cap over approximately 27 acres of the Marine OU (actual thin cap over 26.4 acres as per field changes), and disposing of log wood debris and dredged material. Remedial activities were conducted from November 1, 2000, to March 6, 2001. Disposal of dredged material is expected to be completed later in 2001.

This construction report provides historical details of the Ward Cove Sediment Remediation Project and an account of the 2000/2001 remediation and associated activities. The remainder of this report consists of the following sections:

| | |
|---|---|
| Section 2 | Site Description and History |
| Section 3 | Environmental Setting |
| Section 4 | Previous Investigations |
| Section 5 | Remediation Activities |

| | |
|---|---|
| Section 6 | Performance Standard Verification |
| Section 7 | Water Quality Monitoring |
| Section 8 | Effectiveness of Remediation Activities |
| Section 9 | Cost Summary |
| Section 10 | Health and Safety |
| Section 11 | References |

Supporting information and field and laboratory data are provided as appendices.

# 2. SITE DESCRIPTION AND HISTORY

Ward Cove is approximately 1 mile long with a maximum width of approximately 1/2 mile. The shoreline of the cove consists primarily of basalt rock and is relatively steep. More than 2/3 of Ward Cove is deeper than 100 feet. Sediments in the Cove are predominantly subtidal with only a small fraction of the sediments found in the intertidal zone (near the mouth of Ward Creek) (EPA 2000b).

Located on the shoreline of Ward Cove, the KPC mill operated continuously from 1954 until 1997, processing logs into lumber, pulp, and hog fuel. The principal product of the KPC mill was dissolving-grade sulfite pulp. When pulp production began in 1954, effluent from the mill, including spent cooking acid (magnesium bisulfite) and bleaching agent (chlorine caustic), was discharged directly into Ward Cove. After 1971, when federal and state environmental regulations went into effect, effluent was treated in a wastewater treatment plant located at the mill. This treatment resulted in a substantial reduction in the release of spent sulfite liquor, suspended and settleable solids, and oxygen-consuming substances in the cove (EPA 2000b).

The KPC site is divided into two administrative units: the Marine OU and the Uplands OU. The boundary between the two OUs is the mean higher high water (MHHW) line. The response action described in the March 29, 2000, ROD addresses the Marine OU only. The Marine OU consists of approximately 250 acres in Ward Cove.

Numerous environmental studies of Ward Cove have been conducted to evaluate the potential environmental effects associated with the historical discharges from the KPC facility. These studies are described in Section 4. Historical studies focused on water quality impacts and sediment chemistry and toxicity studies. These studies documented a variety of potentially adverse conditions and effects in the water column and sediments in Ward Cove. Spatial variations in sediment characteristics were generally consistent, with elevated levels of chemicals of potential concern (CoPCs) and sediment toxicity found nearest the mill and a cannery that operates on the southern shoreline.

Comprehensive studies of the Marine OU were conducted by KPC in 1996 and 1997, with EPA oversight, to evaluate the extent to which sediments in Ward Cove may pose risks to humans and to the environment and potentially warrant remediation (Exponent 1999).

In 1997, an expanded site investigation (E&E 1998) was performed at the KPC site to provide EPA with adequate information to determine whether the site was eligible for placement on the EPA National Priorities List (NPL). The KPC site was not placed on the NPL. The expanded site investigation data were considered in the ROD; however, because of the inaccuracies of the station locations, the data were not used in delineating the remediation areas.

Extensive investigations were also completed at the Uplands OU. As part of those investigations, the potential for releases of contaminants from the upland site to Ward Cove sediments was investigated. Soil removal actions have also been completed at the site. Based on findings of the environmental investigations for the Marine and Uplands OUs, EPA concluded in the ROD that no further physical actions were necessary to control contaminant releases from the upland site to the Cove (EPA 2000a).

In May 1999, KPC completed a Detailed Technical Studies Report (DTSR) (Exponent 1999) for remediation of contaminated sediments in Ward Cove. The DTSR included a remedial investigation, which documented the nature and extent of sediment contamination, and a feasibility study, which evaluated remedial action alternatives. The DTSR identified an 80-acre area of concern (AOC) where, based on a human health assessment and ecological evaluation, remedial action may be warranted because sediment contamination poses a risk to benthic organisms. Sediments in the AOC are believed to be toxic to benthic biota as a result of *in situ* biodegradation of organic material released by mill operations. No current or potential unacceptable risks to humans are associated with sediment conditions in the Marine OU.

Subsequent to the DTSR, additional remedial design sampling was conducted in Ward Cove in September and October 1999. The results of the design sampling are presented in the Cruise and Data Report (Exponent and Hartman 2000a). Information from remedial design sampling was used to refine the boundaries of the AOC as documented in Exponent and Hartman (2000a). The data from this sampling and the data in the DTSR were used to perform design calculations and computer modeling for a Design Analysis Report (DAR) (Exponent and Hartman 2000b). The DAR was prepared as part of the remedial design phase for implementation of the remedial action set forth in the ROD for the Marine OU (EPA 2000b).

In the ROD, EPA documented its decision for remediation of contaminated surface sediments in the 80-acre AOC. The objective of the cleanup was to reduce toxicity of surface sediments in the top 10 centimeters for the benthic community, and to enhance recolonization of the bottom sediments to support a healthy community of marine mammals (EPA 2000b). The selected remedy included the following elements:

Log Removal—Prior to dredging, removal of sunken logs in the area to be dredged and removal of logs from the bottom surface of the Shallow Water Approach (barge access channel).

Navigation Dredging—Dredging of approximately 21,500 cubic yards (cy) of material from approximately 4 acres of sub-bottom to accommodate reasonably anticipated future navigational needs, and because a cap could not be placed in these areas without constraining current and potential future navigation needs.

Thin-Layer Capping—Placement of a 6- to 12-inch thin layer cap of clean sandy material over the problem sediments. The thin layer cap was estimated in the DAR to be practical for approximately 27 acres.

Mounding—Where thin capping was found not to be practical, mounds of clean material would be placed. The mounding areas represented a minimum of 0.98 acres, with the potential to place mounds on up to 20 acres should the thin capping be found not to be effective.

Natural Recovery—Natural recovery (no construction action) in areas where neither capping or mounding is considered feasible.

Prior to remediation in 2000/2001, no sediment remediation activities had occurred in Ward Cove. Some maintenance dredging operations had been conducted near the main dock and mill log lift operation in accordance with U.S. Army Corps of Engineers (Corps) permits.

# 3. ENVIRONMENTAL SETTING

The Ward Cove Sediment Remediation Project AOC encompasses approximately 80 acres, with approximately 28 acres selected in the DTSR (Exponent 1999) for remediation and the remainder designated as natural recovery areas (Appendix A, Figure A-6). The surrounding upland area adjacent to the project site includes the former sites of KPC and Ketchikan Sawmill, which were located on the north shoreline. GFP's green veneer mill, which is also located on the north shoreline, began operation in January 2001. A cannery operates on the south shoreline near the mouth of Ward Cove.

## 3.1 CURRENT ONSITE ACTIVITIES

GFP is currently producing veneer, wood chips and hog fuel in the upland area adjacent to Ward Cove. Activities in the upland area include log relocation, log dewatering, and log storage. GFP's main dock, which measures approximately 820 feet in length and extends from the near head of the bay along the northwestern shore, provides a berthing area for barges being loaded with wood chips and hog fuel. A smaller floating dock, just north of the fixed main dock, provides access to smaller boats and tugs. Activities in Ward Cove include log raft relocation and log storage.

## 3.2 PHYSICAL CHARACTERISTICS OF WARD COVE

### 3.2.1 Bathymetric and Geophysical Information

Bathymetric and geophysical surveys to characterize the major physical features of Ward Cove were conducted in May 1997 (Exponent 1999). The surveys included measurement of three kinds of information: precision bathymetry (i.e., depth distributions), physical characteristics of surface sediments (i.e., side-scan sonar), and characteristics of subsurface sediments (i.e., subbottom profiling and seismic reflections). In addition, video ground-truthing was performed during the geophysical survey to verify the results of the side-scan sonar and subbottom profiling data.

Depths in the AOC range from -10 feet below mean lower low water (MLLW) at the head of Ward Cove (i.e., the northeast portion of the Cove) to -150 feet below MLLW near the mouth (i.e., the southern portion of the Cove, near the opening to Tongass Narrows).

The side-scan sonar data provided information on the distribution of surface logs on the seafloor. The concentration of surface logs varied from more than 500 per 2.5 acres in the center of the Cove) to fewer than 100 per 2.5 acres (near the mouth of the Cove). The total number of surface logs in Ward Cove was estimated to be approximately 16,000 (Exponent 1999). Evidence from underwater video data indicates that there are multiple layers of logs in the area of highest concentration (i.e., in the center of the Cove). The side-scan sonar data also suggest that there may be numerous partially buried logs in the high concentration areas. The only surficial features, other than logs, are some exposed bedrock at various locations in Ward Cove and a mound located offshore of the cannery. The shoreline of Ward Cove is mostly rocky (i.e., basalt) and relatively steep. Imported shot rock has been placed on portions of the exposed northern shoreline and under the main dock for slope protection.

### 3.2.2 Meteorology

The Ketchikan area has a maritime climate, characterized by relatively mild, wet conditions. The average minimum/maximum January and July temperatures are 29/39°F and 51/65°F, respectively. Ketchikan is one of the wettest locations in the United States, receiving approximately 151 inches of precipitation annually. Actual evapotranspiration is approximately 24 inches per year. Winds from the southeast predominate in the Ketchikan area. This direction results from the presence of low pressure cells to the northwest, which draw air in over the Ketchikan area from the Gulf of Alaska and funnel it through the Tongass Narrows.

### 3.2.3 Surface Water Hydrology

#### 3.2.3.1 Upland Sources of Surface Water

Ward Creek is the primary source of fresh water to Ward Cove. Ward Creek, which drops quickly from the nearby mountains to the head of the Cove, is located at the east end of Ward Cove. Prior to entering the Cove, the creek drains or flows through three small lakes (Lake Perseverance, Connell Lake, and Ward Lake). Discharges from Ward Creek vary widely and respond relatively quickly to the large amount of rainfall that occurs in the region. The lower reach of Ward Creek is tidally influenced. The average flow velocity in the lower portion of the creek is approximately 0.27 feet per second (ft/s). A small stream (Walsh Creek) flows into Ward Cove along its southeast shoreline. An intermittent stream

originates on Dawson Point and discharges into Ward Cove. No perennial streams flow within the boundaries of the pulp mill area.

Stormwater runoff from the pulp mill is another source of surface water to Ward Cove. Runoff from most areas of the pulp mill is collected and treated in oil–water separators prior to discharge to Ward Cove.

#### 3.2.3.2 Tidal Currents in Ward Cove

The two principal influences on hydraulic transport in Ward Cove are the introduction of fresh water near the head of the Cove and the influence of tidal currents. The introduction of fresh water produces a stratified flow, with net outflow from the inner Cove in the surface water and a net inflow to the inner Cove in the bottom water. Modeling of tidal currents indicates the presence of a counterclockwise circulation in the outer Cove, with net inflow near the southern shoreline and net outflow near the northern shoreline (Exponent 1999). As a consequence, surface water throughout in the Cove is expected to move toward the mouth of the Cove along the northern shoreline.

Based on historical data, the tides in Ward Cove range an average of 13.3 feet with a mean tide height of 8.1 feet MLLW. The average MHHW elevation mark in the Cove is 15.7 feet MLLW.

## 3.3 WARD COVE SEDIMENT REMEDIATION PROJECT INVESTIGATION

Field studies performed during the Ward Cove sediment remediation project were conducted in two phases. Field studies for Phase 1 were performed in 1996 and included surface sediment characterization (both chemistry and toxicity) and initial assessment of subsurface sediments (based on historical data). Field studies for Phase 2 were performed in 1997 and included additional characterization of surface sediments (both chemistry and toxicity), chemical characterization of subsurface sediments, specialized toxicity testing, sediment accumulation rate measurements, and bulk characterization of subsurface sediment to support an engineering assessment of disposal options.

As part of Phase 2, subsurface sediment samples (i.e., sediment cores) were collected from 16 stations in Ward Cove for sediment column characterization and from 2 stations for sediment accumulation testing. Characterization of the subsurface sediment samples established the vertical extent of sediment contamination, wood debris, and other distinct

sediment horizons and determined the bulk chemical and physical properties of sediments near the KPC facility. Sediments in Ward Cove can be divided into two primary classifications: a surface horizon of non-native organic-rich material and a subsurface horizon of native clay. The upper organic-rich material ranges in thickness from undetected to greater than 10 feet, with a typical thickness of about 4 feet. The thickness of the upper organic sediment layer decreased near the mouth of the Cove. The upper organic sediment layer generally consists of a watery, black, flocculent material with a strong sulfide odor. The upper organic zone also contains varying amounts of wood debris (e.g., wood chips, bark), with a higher percentage of wood present in cores collected near the KPC docks. It was determined that sulfide, ammonia, and possibly 4-methylphenol were likely the primary causative agents associated with sediment toxicity in the upper organic zone (Exponent 1999). The lower native sediments consist of olive-green to gray silty clays and clayey silts with imbedded roots, shells, and schist fragments. In addition, coarser sandy material was found at the head of Ward Cove near the mouth of Ward Creek.

## 3.4 WARD COVE SEDIMENT REMEDIATION CONSTRUCTION ACTIVITIES

### 3.4.1 Tides

During the duration of the construction activities, estimated tides followed historical averages (see Section 3.2.3.2), with a mean tidal range and height of 12.8 feet and 8.4 feet, respectively. During construction activities, the highest tide (19.4 feet MLLW) and lowest tide (-4.2 feet MLLW) occurred on January 10, 2001, providing a maximum tidal range during the project of 23.6 feet. Estimated tide data accumulated during construction activities are provided in Appendix H-3.

### 3.4.2 Water Quality

Water quality monitoring of all in-water activities associated with construction activities was conducted on a daily basis. A brief summary of the results is found in Section 7, and detailed information on water quality monitoring during construction activities is presented in the *Ketchikan Pulp Company Ward Cove Remediation Project Final Water Quality Monitoring Report* (Foster Wheeler Environmental 2001).

### 3.4.3 Meteorology

Historically, weather conditions during winter months in Ketchikan are typically windy and rainy, with temperatures ranging between 28° and 45°F. During the construction period, temperature and precipitation measured in Ward Cove fell outside the historical range. In contrast, wind speed and direction averages were within historical normal limits. Historical and project climate data are provided in Appendices H1 and H2.

#### 3.4.3.1 Temperature

During construction activities, temperatures of 21° to 49°F extended slightly outside the typical range for winter months in Ketchikan. The minimum and maximum daily temperatures were measured as 21°F on December 15, 2000, and 49°F on November 22, 2000, respectively. Maximum temperature values for each month during construction activities exceeded the normal maximum temperatures. The most dramatic difference was noted in January, when the maximum daily temperature of 49°F exceeded the historical maximum by 9°F. In addition, minimum temperature values for each month except January fell below historical values by 3° to 10°F.

#### 3.4.3.2 Precipitation

During the winter months in Ketchikan, total precipitation generally averages 17 inches in November, 15 inches in December, and 13 inches in January and February. During construction activities, total precipitation in November and January exceeded historical averages by 1 inch and 6 inches, respectively; while in December and February, precipitation totals were 4 inches below typical values. The maximum daily rainfall measured during the project was 4.2 inches on November 22, 2000.

#### 3.4.3.3 Wind Speed and Direction

High winds are common during the winter months in Ketchikan; however, no major construction delays resulted from high winds. Wind speeds averaged between 6 to 7 miles per hour (mph) for each month, with directions predominantly from the south and southwest. On several days, however, sustained wind speeds of more than 40 mph and gusts greater than 60 mph were encountered.

# 4. PREVIOUS INVESTIGATIONS

Environmental studies have been conducted in Ward Cove since 1951. The earliest studies focused on tests performed on the water column, plankton, and benthic macroinvertebrates, with observed environmental effects potentially associated with the KPC facility as early as 1955. The first studies performed on the sediment in Ward Cove were completed in 1974. Affiliation with the KPC mill site and sediment toxicity was confirmed in a study of the spatial distributions of toxicity performed in 1994 and 1995 (ENSR 1995). Table 4-1 provides a summary of the historical investigations conducted in Ward Cove and vicinity.

**Table 4-1.** Summary of Historical Investigations Conducted in Ward Cove and Vicinity

| Date | Summary of Study | Reference |
|---|---|---|
| 1951-1952 | Water column, plankton, and benthic macroinvertebrate data collected to characterize baseline conditions in the Cove | AWPCB (1953) |
| 1955-1957 | Water column data were collected; fish and clam mortality observed | AWPCB (1957) |
| 1965 | Water quality data were collected; low dissolved oxygen (DO) levels were found in near surface ad near-bottom waters | FWPCA (1965) |
| 1968-1969 | Water quality, mussels and benthic macroinvertebrate data were collected; low DO levels and impacts to intertidal mussels and benthic macroinvertebrates were found | FWQA (1970) |
| 1974 | Water quality, sediment chemistry, and polychaete data were collected; low DO levels and improvements in polychaete abundances were found | U.S. EPA (1975) |
| 1988 | Sediment chemistry and toxicity data were collected; high sulfide content and oxygen demand may pose a greater risk to biota than metals | Jones & Stokes and Kinnetic (1989) |
| 1992 | Sediment chemistry, toxicity data, and benthic macroinvertebrate assemblage data were collected; total organic carbon (TOC) concentrations increased near the KPC facility; toxicity test results declined near the KPC facility; benthic macroinvertebrate assemblages in the Cove were consistent with areas with high organic enrichment | EVS (1992) |

**Table 4-1.** Summary of Historical Investigations Conducted in Ward Cove and Vicinity (Continued)

| Date | Summary of Study | Reference |
|---|---|---|
| 1994-1995 | Sediment chemistry and toxicity data were collected; spatial distributions of sediment chemicals, organic material, and sediment toxicity were related to the KPC facility | ENSR (1995b) |
| 1995 | Clams and mussel tissue data were collected; dioxins and furans were analyzed | ENSR (1995a) |
| 1995 | Mussel tissue data and clam bioassay data were collected; dioxins and furans were analyzed | EVS (1996) |
| 1996-1997 | Sediment chemistry and toxicity data and sediment physical characteristic data were collected; sulfide, ammonia, and 4-methylphenol were primary causative agents associated with sediment toxicity; select engineering properties were evaluated to support remedy selection | Exponent (1999) |
| 1997 | An expanded site investigation was performed to provide EPA with information to determine whether the site was eligible for placement on the National Priorities List based on the Hazard Ranking System. | E&E (1998) |
| 1999 | *In situ* shear testing, boring/sediment sampling, and bulk sediment collection for column dewatering testing were performed in Ward Cove to support remedy selection | Exponent and Hartman Consulting Corp. (2000) |

The most extensive investigations pertaining to the sediments in Ward Cove were conducted in 1996 and 1997 (Exponent 1999). Surface and subsurface sediment samples were taken at various locations throughout Ward Cove and at two locations in Moser Bay (as a reference area). The goal of this investigation was to analyze both vertical and horizontal presence and concentrations of CoPCs, and to further determine the relationship between the CoPCs and the KPC mill site. The data from Ward Cove indicated that there was a direct relationship with sulfide, ammonia, and 4-methylphenol and the KPC mill site.

# 5. REMEDIATION ACTIVITIES

## 5.1 OBJECTIVES AND STRATEGY

Major tasks of the remedial construction included the following:

As described in the DTSR (Exponent 1999) and DAR (Exponent and Hartman 2000b), the Ward Cove remedial action objectives (RAOs) are to:

- Reduce the sediment toxicity of surface sediments
- Enhance recolonization of surface sediments to support a healthy marine benthic infaunal community with multiple taxonomic groups.

The scope of the remedial action construction, which includes the following activities, is described in detail in the DAR (Exponent and Hartman 2000b):

- Remove logs and associated debris in areas to be dredged
- Dredge the deep draft berth area, the shallow draft berth area, and the polycyclic aromatic hydrocarbon (PAH) area, with upland disposal of dredged material
- Place a thin-layer cap where achievable
- Place mound material where achievable when thin-layer capping was not achievable.

The following documents and plans were used to define construction elements and performance criteria for construction implementation:

- Design Analysis Report (Exponent and Hartman 2000b)
- Performance Standard Verification Plan (Exponent and Hartman 2000c)
- Construction Plan and Specification (Exponent and Hartman 2000d)
- Construction Quality Assurance Plan (PN&D, Exponent and Hartman 2000)
- Remedial Action Work Plan (Foster Wheeler Environmental 2000)
- Quality Assurance Project Plan (Appendix A of RAWP) (Foster Wheeler Environmental 2000).

As defined in the DTSR and the DAR, no action was to be taken in some areas within the AOC based on one or a combination of the following factors: thick deposits of soft surface sediments, water depths in excess of 120 feet, steep slopes, or a high density of logs. Plan and section view details of the remedial design are shown in the Contract Drawings and further defined by the Contract Plans. Some field modifications to the remedial design were made over the course of remedial construction to accommodate contractor construction methods and schedule, and changes in existing conditions. A summary of the construction activities completed over the course of the Ward Cove Remediation Project is provided in this section, with a chronology of events presented in Section 5.2.

## 5.2 CHRONOLOGY OF EVENTS

Table 5-1 provides a chronological summary of construction activities at Ward Cove.

**Table 5-1.** Ward Cove Remediation Project Construction Chronology

| Primary Activity | Date(s) |
|---|---|
| Mobilization | 10/2 through 11/7/00 |
| Coordination and Construction of Dewatering Site | 10/30 through 11/10/00 |
| Side Scan Survey of Log and Debris Removal Area | 11/2 and 11/14/00 |
| Installation of Tide Gauge near Dock Shack | 11/4 |
| Log, Debris, and Pile Removal | |
| Approach Channel | 11/8, 11/11, 11/14, 11/17, and 11/18/00 |
| D1, D2, D3, and PAH Area | 11/16 through 11/18/00 |
| Grind Logs into Chips | 12/15 through 12/20/00 |
| Offsite Log Chip Disposal | 3/5 through 3/6/01 |
| Deck Removal | 11/12 through 11/13/00 |
| Consent Decree Signed | 11/20/00 |
| EPA Approved Remedial Action Work Plan | 11/21/00 |
| Dredging | |
| Pre-Dredge Hydrographic Surveys of D1, D2, D3 | 11/16 and 11/18/00 |
| PAH Area | 11/13 through 11/15/00 |
| D3 | 11/21 through 12/2/00 |
| D1 | 12/4 through 12/14/00 and 1/1/01 |
| D2 | 12/14 through 1/11/01 |
| High Spot Removal in D1, D2, and D3 | 1/11 through 1/12/01, and 1/16/01 |
| Progress Hydrographic Surveys | 11/24/00 through 1/12/01 |
| Post-Dredge Hydrographic Surveys | 1/10 through 1/13/01 |
| Quality Control—Double End Area Volume Calculations | 1/5/01 through 1/30/01 |

**Table 5-1** Ward Cove Remediation Project Construction Chronology (Continued)

| Primary Activity | Date(s) |
|---|---|
| Existing Sediment Sampling and Characterization | 12/5 through 12/6/00 |
| Christmas/New Years Shutdown | 12/16/00 through 1/3/01 |
| Test Capping | |
| A8 | 1/22 through 1/23/01 |
| B3 | 1/23 through 1/24/01 |
| A7 | 1/24 and 1/26/01 |
| B2 | 1/25/01 |
| A4 | 1/27/01 |
| A6 | 1/31/01 |
| M1 | 1/31/01 |
| Performance Standard Verification Sampling | 1/23 through 2/1/01 |
| Production Capping | |
| PAH | 1/23/01 |
| M1 | 1/31 through 2/1/01 and 2/3/01 |
| A8 | 2/1 through 2/3/01 |
| D2 | 2/3 and 2/13/01 |
| B4 | 2/3 through 2/7/01 |
| D3 | 2/3 through 2/5/01 |
| A7 | 2/5, 2/7, 2/12, and 2/13/01 |
| B2 | 2/5, 2/8, and 2/22/01 |
| B3 | 2/5 |
| A6 | 2/6 and 2/9/01 |
| A5 | 2/14 through 2/16/01 |
| B1 | 2/17 through 2/18/01 |
| A1 | 2/19 through 2/20/01 |
| A2 | 2/20/01 |
| A3 | 2/20 through 2/22 |
| A4 | 2/22 through 2/24/01 |
| Performance Standard Verification Sampling | 2/2 through 2/24/01 |
| Water Quality Monitoring | 11/4/00 through 2/24/01 |
| Daily Reports | 1/1/00 through 3/1/01 |
| Weekly Reports | 11/6/00 through 2/25/01 |
| Weekly Safety Inspections | Weekly |
| Monthly Safety Inspections | Monthly |
| Sediment Dewatering | 11/27/00 through Summer 2001 |
| Demobilization | 2/25 through 3/1/01 |
| Triangulated Irregular Network Calculations for Dredge Volume Removed | 3/7/01 |

## 5.3 DIKE CONSTRUCTION/DEWATERING AREA

To provide adequate capacity for dewatering of dredged material on site, the KPC dewatering and temporary disposal, located adjacent to and east of the mouth of Ward Creek, was cleared of equipment, graded, and retaining dikes were built. Construction of the dewatering area began on October 30, 2000. Approximately 4,000 cy of shot rock fill was delivered to the site from South Coast's Ketchikan quarry and placed to form a retaining dike around the perimeter of the dewatering site. Two temporary breasting piles were driven near the MLLW line adjacent to the dewatering site. Filled barges containing logs and dredged material from the deep and shallow draft berthing areas were moored alongside the breasting piles. A Lima 2400 crane outfitted with an 8-cy Cable Arm rehandling bucket was used for dredged material rehandling into the dewatering area. Dredged material from the Ward Cove Remediation Project were stockpiled in the dewatering area and then transported to the KPC upland landfill on June 3, 2001.

## 5.4 LOG REMOVAL

The first phase of in-water work completed was the removal of logs and associated debris in the shallow draft and deep draft berth areas and the shallow draft access channel. The dredge and attendant plant used to complete the log removal operations was the same equipment used to complete the dredging and capping activities for the Ward Cove project.

The following equipment was mobilized to the site and used to perform all in-water work activities associated with the Ward Cove Remediation Project, including log removal, dredging, and capping.

| | |
|---|---|
| Derrick Barge "Miller 205" | 192 feet x 48 feet x 10 feet |
| | Manitowoc 4000 Crane |
| | 4-point mooring system |
| | Spuds |
| | 6-cy Cable Arm environmental bucket |
| | 8-cy Cable Arm material rehandling bucket |
| | 5-cy clamshell digging bucket |

| | |
|---|---|
| | 4-tine timber tongs |
| | WINOPS Dredge Positioning System |
| Material Barge Sunny Point | Deck Barge with watertight steel fence 180 feet x 50 feet x 12 feet |
| Material Barge KFP-1 | Deck Barge with watertight steel fence 175 feet x 45 feet x 10 feet |
| Tug RV Day | 67-foot long – 1060 HP |
| Tug Buggy | 42-foot long – 350 HP |
| Lima 2400 Crane | Track mounted<br>8-cy Cable Arm rehandling bucket |

The "Miller 205" derrick barge was equipped with a four-tine log grapple for log removal operations. The dredge began with log removal activities at the eastern end of the barge access channel on November 8, 2000, and proceeded in a general northerly direction. Once the shallow draft barge access was completed, log removal continued in areas D1, D2, and D3. The pre-log removal side-scan sonar survey was evaluated and log locations and densities were entered into the WINOPS dredge positioning system for use by operators to locate individual logs or log piles.

## 5.5 DREDGING

Dredging of the PAH area and deep and shallow barge berthing areas was accomplished using the "Miller 205" derrick barge with the Manitowoc 4000 crane, and various buckets, as described in Sections 5.5.1 and 5.5.2. No dredging of the shallow draft approach channel was required.

All dredging was performed between November 13, 2000, and January 16, 2001, and completed prior to the in-water work closure date of March 15, 2001.

### 5.5.1 PAH Area

PAHs are not chemicals of concern for Ward Cove, and the concentrations, constituents, and physical extent of the PAHs have not been quantified (EPA 2000b). The PAH area was located at the northeast corner of the Main Dock. On November 12 and 13, 2000, a fixed

service crane and supporting pilings were removed to provide better access to the PAH area. On November 13, 2000, PAH dredging was initiated. Because of the need to penetrate surface debris, stiffer sediments, and slope protection, PAH dredging was accomplished using a 5-cy heavy digging bucket. Dredged materials from the PAH area, including some pilings, metal debris and wire, organic wood waste, and shot rock slope protection were placed in 15 to 20-cy end-dump trucks located on a deck barge fleeted alongside the dredge. The barge and the trucks were sealed to contain any spillage of the PAH contaminated material. The location of the PAH area was defined by EPA and Foster Wheeler Environmental site personnel, with direction provided to the dredge operator for every grab. In total, 141 cy of material was removed from the PAH area and placed into the trucks. It is not known whether all sources of PAH have been removed from the PAH area. All materials removed from the PAH area were transported by truck to and disposed of at the KPC on-site landfill (ash cell), as approved by EPA. Residual oily water from the PAH dredging was placed in drums and transported to the Alaska Ship and Dry Dock oil/water separation/treatment facility, which is permitted to discharge to the City of Ketchikan sewer system.

### 5.5.2 D1, D2, and D3 Areas

Based on the original dredge plan, the total maximum *in situ* volume of sediment to be removed from the Ward Cove site was approximately 20,500 cy which included required dredging plus 1 foot of overdepth. One foot of overdredge was allowed to account for inaccuracies of the dredging operation.

Dredging was accomplished using the "Miller 205" derrick barge. Both the 6-cy Cable Arm environmental bucket and the 5-cy digging buckets were used. The digging bucket was used in areas where harder digging or debris were encountered. Dredge materials were placed in one of two 1,500-cy sealed material barges and moved to the dewatering site where the dredged material was rehandled into the dewatering site by a Lima 2400 crane located on shore. Dip tanks were fabricated in the barges in anticipation of bucket washing prior to start of each new grab. However, due to the lack of water quality exceedances, the dip tanks were not necessary. The dredged material was dewatered over the spring and summer months and transported to the disposal site.

Dredge positioning was accomplished using the WINOPS dredge positioning and guidance software. The WINOPS system made use of three differential global positioning system

(DGPS) receivers. One receiver, located at the top of the derrick, provided the center positioning of the dredge bucket. Two fixed receivers, one near the starboard center spud and one near the center aft, provided the barge position and heading. The WINOPS software provided a display of the dredge and bucket positions, with the dredge plan displayed on both dredge operator's and deck engineer's monitors, whereby the dredge was moved and positioned over the dredge areas. The dredge advanced into the dredge cut by means of tug assist and was held in place by two spuds located on either side of the barge. Vertical control of dredging was achieved by a marked line system. The WINOPS system included a means of determining vertical bucket position. This system was not used due to inaccuracy and inconsistency. Better vertical control was achieved with the conventional marked line system, whereby the operator viewed line markings on the closing wire and, with adjustment for tides as provided by the automatic tide gauge, could ascertain the depth of the bucket lip in relation to the desired dredge depth.

Periodically and after the DGPS system went offline, the DGPS system onboard the dredge was checked against a point with known coordinates to confirm horizontal control. Similarly, periodic checks of the vertical position of the bucket lip were made to confirm that the operator could accurately control dredging depth.

Bathymetric progress surveys were conducted daily to provide the site construction managers, Quality Assurance Officer (QAO), and dredge operators with data describing recently dredged areas and to ensure that dredge grade had been achieved and that overdredging was being kept to a minimum. These progress surveys were made available to the dredge crew to modify dredging control and, as directed by Foster Wheeler Environmental, to identify and return to high spots that required further dredging.

Once dredging in the PAH area was completed, and pilings in the dredge areas were removed, navigation dredging activities were initiated in area D3 on November 21, 2000. In total, and based on the original project design, approximately 20,500 cy of material was to be excavated from within the navigation dredge areas D1, D2, and D3, including allowable overdredge, unless material such as rock was encountered.

In the -14-foot dredge area (D3 area), the dredge operators used a 6-cy Cable Arm environmental clamshell bucket with horizontal and vertical control provided by the WINOPS dredge positioning and guidance software in an effort to achieve accurate and level dredge cuts. Some logs and harder digging material were encountered. This harder

digging material also consisted of some recently placed shot-rock fill used for the GFP fill project. Because of this change in conditions, a field change request (FCR) was submitted and approved that reduced the length of the D3 area by 20 feet from the north and provided a radius for the north corner of the area. The details of this change are described further in FCR-06 (Appendix B). Some dredging of area D3 beyond the allowable overdredge line occurred because of difficulties with vertical input to WINOPS. Progress surveys also revealed the presence of high spots in a few locations, and the contractor returned to these high spots and dredged to grade. During final high spot dredging, the contractor encountered an undiggable submerged object. Divers, hired by KPC, determined the object was the remains of a 16-pile dolphin, with top elevation at approximately -8 feet MLLW. The divers cut off the underwater pilings to below -14 feet MLLW. One pile, embedded in dense material, was cut at approximately -13.5 feet MLLW.

In all but one area of approximately 10 feet by 40 feet located near the northwest corner of D3, organic material remained on the surface of the dredge area. All of the D3 area received thin capping.

Once area D3 was completed, the dredge was moved to the southern end of area D1, where dredging continued. After completion of area D1, the dredge moved into area D2. Some adjustments to both the D1 and D2 dredge plan were made via FCRs to accommodate changes in conditions. These changes included moving the toe of the dredge slope shoreward to 20 feet from the dock face in area D2 (FCR-11), and to 40 feet in area D1 (FCR-07).

In accordance with FCRs -07, -09, and -10 (Appendix B), area D1 was dredged to -44 feet MLLW (plus 1 foot allowable overdredge) where organic material was encountered, and to -40 feet MLLW (plus 1 foot allowable overdredge) where native sediment or rock (non-organic material) was encountered. Progress surveys revealed the presence of high spots in a few locations, and the contractor returned to these high spots and dredged to grade. Some hardpan and/or rock were encountered and was undiggable in one area located about 1/3 the distance into the area from the north and 110-foot offset from the dock face. Other than this one undiggable high spot, the entire D1 area was dredged to the required grade. Along some of the slope toe and slope itself, shot-rock was encountered up to 2 to 3 feet above grade and was not removed once encountered to prevent slope instability.

In accordance with FCR-11, area D2 was dredged to -37 feet MLLW (plus [illegible] overdredge). Progress surveys revealed the presence of high spots in a few [illegible] the contractor returned to these high spots and dredged to grade. As in area D1, along some of the slope toe and slope itself, shot rock was encountered up to 2 to 3 feet above grade and was not removed. The largest of these high spots, at about elevation 34 feet MLLW, is located approximately 7/8 of the distance into area D2 from the north and 20 feet offset from the dock face. Along the north toe of the IV-4H slope transition between the [illegible] area and the M1 mounding area, some sloughing occurred in the later stages of dredging.

Dredging of areas D1, D2, and D3 was accomplished between November [illegible], and January 16, 2001. In total, dredging of areas D1, D2, and D3 was accomplished [illegible] actual dredge days. Generally, a 10-hour-per-day, 6-day-per-week work schedule was adhered to. Seventeen (17) dredge days were single shift days, and eleven (11) [illegible] were double shift days.

All dredging work in areas D1, D2, and D3 was completed in accordance [illegible] contract plans and specifications and applicable FCRs. The contractor completed final shot-dredge surveys of the dredge areas on January 19, 2001 (Appendix D2). In [illegible] were dredged in Area D1, .81 acres were dredged in Area D2, and 1.25 acres [illegible] in Area D3.

The final dredge pay volumes and total volumes, based on composite [illegible] development (Softdesk) software are presented in Table 5-2.

Table 5-2. Final Dredge Volumes

| | Pay Volume (cy) | Total Volume (cy) |
|---|---|---|
| Area D1 | 3198 | 3520 |
| Area D2 | 3647 | 5894 |
| Area D3 | 1586 | 2443 |
| Subtotal | 8431 | 11[illegible] |
| Total 1/ | 8701 | |

1/ Total pay volume including field changes to dredge area boundaries and depths.

## 5.6 TEST CAPPING/MOUNDING

The largest in-water work activity accomplished as part of the Ward Cove Remediation Project was the thin capping of more than 26 acres of subtidal area in the AOC. Thin capping was accomplished using the "Miller 205" derrick barge with an 8-cy Cable Arm rehandling bucket. EPA-approved capping materials, including both fine-medium clean sand and course sand as defined by the contract documents, was delivered to the site on 10,000-ton deck barges from the Construction Aggregates, Ltd., quarry near Victoria, British Columbia. The capping material was offloaded using an unloader and conveyor system to the sand stockpiling area located on the eastern shoreline of Ward Cove, across from the mill. Material to be placed in the design test areas and acceptance areas was placed on one of two 1,500-cy sealed material deck barges and, when full, transported by tug to be fleeted alongside the derrick barge.

In accordance with the contract plans, capping design tests were conducted prior to production capping to develop a capping placement methodology that would best meet the performance requirement of the Performance Standard Verification Plan (PSVP) (Exponent and Hartman 2000c). The contractor was required to first attempt cap placement with a mechanical dredge equipped with a clamshell bucket. Between January 17 and 22, 2001, the contractor performed system modifications and developed a capping plan to meet the performance standard verification (PSV) requirements of the capping/mounding activities. Nominal 1/3-acre design test areas were delineated in each of the acceptance areas and agreed to by all parties. These approved design test areas were entered into the WINOPS guidance system and a capping pattern developed by the subcontractor that would provide the operator with a plan showing all required individual bucket "swaths." Each bucket discharge would provide for a minimum 6-inch-thick cap over the swath. After the first day's trial capping in the A8 design test area, it was determined that the capping bucket would require modification by welding baffle plates inside the bucket to provide for a consistent grab volume (5.5 cy). It was also determined that the bucket opening chains were not long enough to provide the required force necessary to open the bucket when full of wet capping material. Based on input from the bucket manufacturer, Cable Arm, Inc., the opening chains were lengthened. These modifications served to provide a consistent means of acquiring a uniform volume of approximately 5.5 cy per bucket grab. The WINOPS system was used by the contractor to develop a capping plan that incorporated the operational parameters of 24-foot barge sets, with 6 to 9 bucket swaths per set, and individual cap discharge swaths of 38 feet by 8 feet. The plan, shown on both onboard

WINOPS monitors, provided the operator and deck engineer the precise locations of where the derrick barge was to advance to in order to continue thin capping, adjacent to a completed set, and within the design test/acceptance area.

The above described capping method was tested in design test areas A8, B3, A7, B2, A4, A6, and M1, respectively. As described in Section 6, the thin capping method, which provided 6-inch capping thickness, was successful in meeting the PSVP standard in all areas tested, and allowance was given by the EPA to forego additional design tests and proceed with production capping. No testing of an additional 3-inch cap was necessary, nor was mounding. A 10-cy skip box was fabricated and staged on the derrick barge as the alternative capping method, but also was not required as the original 6-inch thin capping method proved successful.

### 5.6.1 A Areas

A areas were identified as having adequate bearing capacity to support a cap where thin capping was the preferred method of remediation. If the 6-inch thin cap did not prove successful, an additional 3 inches of capping material was to be placed. If with this additional 3 inches the thin cap still did not meet the performance standard, mounding and/or capping by an alternative method would be tested. Design tests over 1/3-acre subareas of acceptance areas A8, A7, A4, and A6 were accomplished using the clamshell bucket thin capping method. This remediation method was found to be successful.

### 5.6.2 B Areas

B areas were identified as having adequate bearing capacity to support a cap, where thin capping was the preferred method of remediation. If the 6-inch thin cap did not prove successful, however, the B areas would not be capped with an additional 3 inches of capping material, nor would mounding or alternative means of capping be tested. B areas that did not pass performance standard verification with the initial 6-inch thin cap would be defined as natural recovery areas. Design tests over 1/3-acre subareas of acceptance areas B3 and B2 were accomplished using the clamshell bucket thin capping method. This remediation method was found to be successful.

### 5.6.3 M Areas

One M area, M1, was defined in the contract documents. The M area was identified as having low bearing capacity and probably not capable of supporting a cap. Mounding was the selected method of remediation. As the thin cap design tests had proven very successful early in the design testing activities, it was decided to try thin capping over the M1 area. This effort was successful.

## 5.7 PRODUCTION CAPPING/MOUNDING

Once design tests in areas A8, B3, A7, B2, A4, A6, and M1 were completed and found to be successful, capping operations shifted into production mode. Thin capping was accomplished over 15 acceptance areas, as described below. Approximately 23,307 cy of thin cap sand material was uniformly distributed over the acceptance areas requiring thin cap material. Of this volume, approximately 1,952 cy was the coarser thin cap material (3-inch minus), which was placed uniformly over acceptance areas D3 and B4 to provide additional scour protection due to anticipated shallow draft vessel usage. Approximately 688 cy of thin cap sand material was placed in error outside the designated capping areas, between D2 and A4, west of B2 and A7. The total volume of thin cap material placed was approximately 23,995 cy.

For all production capping, the "Miller 205" derrick barge was used with the modified 8-cy (5.5 cy) Cable Arm rehandling bucket and WINOPS dredge positioning system. The WINOPS system was used to plan, locate, place, and record the capping discharge location of all buckets over the acceptance area targets.

The derrick barge was moved into an acceptance area by means of tug assist. Once in the acceptance area, the derrick barge advanced into a capping lane and shifted between lanes by means of tug assist or four-point anchor and wire system. To maintain position over a set area, either the two spuds were used in water depths generally not exceeding 50 feet or in deeper waters the four-point anchor and wire system was used. Once the anchor and wire system was optimized for site conditions, the system provided the most efficient means of derrick barge advance. Two forward and two stern anchors were set away from the derrick barge. In general, crossing the two forward wires and the two stern wires provided better anchor forces in response to site currents. The anchor wires precluded the deployment of the bucket beneath the water surface in much of the capping set area. Where the bucket was not encumbered by the anchor wires, it was found that placement of the capping material at

the surface, with a partially saturated bucket load, provided the most efficient and effective means of thin capping. When a set area, generally consisting of six to nine bucket swaths, was completed, the derrick barge was advanced 24 feet to the next set area and positioned using either the anchor and wires or spuds, depending on water depth. Production increased over the course of production capping, as the equipment was optimized and the crew became better experienced. Unusually calm weather also assisted in providing good capping production.

To confirm that all capping areas were thin capped successfully, Foster Wheeler Environmental performed confirmatory performance standard verification sampling in acceptance areas by means of modified 0.1-$m^2$ van Veen shallow grab sampler, diver push cores, and underwater video. Performance standard verification sampling results were forwarded to EPA via the weekly Quality Assurance Inspection Reports, and are described in greater detail in Section 6 of this report. The performance standard verification sampling showed the thin capping to be successful.

### 5.7.1 A Areas

All A areas, including A1, A2, A3, A4, A5, A6, A7, and A8, were successfully thin capped with imported sand cap material. The as-built capping record for all acceptance areas, including A areas, is shown in Appendix A.

### 5.7.2 B Areas

All B areas, including B1, B2, B3, and B4, were successfully thin capped with imported sand cap material. Coarser thin cap material (3-inch minus) was placed uniformly over acceptance area B4 to provide additional scour protection due to anticipated shallow draft vessel usage. The as-built capping record for all acceptance areas, including B areas, is shown in Appendix A.

### 5.7.3 M Areas

One M area, M1, was defined in the contract documents. The M1 area was identified as having low bearing capacity and probably not being capable of supporting a cap. However, as all early thin capping was sampled and confirmed to be successful in areas with slightly more anticipated bearing capacity, thin capping, and not mounding, was performed over the M1 area. This effort was successful.

### 5.7.4 D Areas

Based on review of detailed records of materials encountered when dredging areas D1, D2, and D3, the following areas were thin capped with 6 inches of cap material, according to the contract specifications.

In area D1, most of the slope along the dock face consists of shot rock used in shore construction. There are also two rock pinnacles and scattered boulders that were impenetrable with the digging bucket (Figure 5-1). The remaining surface is composed of a mixture of shale, clay, and hard pan, but no organic material. Minimal organics were left on the surface due to dredging equipment used, but the amount was not enough to warrant thin-capping.

Area D2 was dredged to -37 feet MLLW. Approximately 30,500 feet squared (0.7 acre) of D2 was thin capped (Figure 5-2). The area capped was recorded as consisting of intermittent organics with some rock. The area not capped was recorded as consisting primarily of shot rock and other non-organic material. The 1V: 4H transition slope between the D2 dredge area and the M1 area was not dredged, nor was it capped.

All of the D3 Area received a thin cap. In all but one approximate 10-foot by 40-foot area (0.009 acre) located near the northeast corner of D3, organic material remained on the surface of the dredge area (Figure 5-3). The rock in this corner is believed to be spill-over from GFP construction activities in this area of the site, and was not intended to be capped. However, the subcontractor inadvertently thin capped this corner of the area. Also, as detailed in FCR-13, the GFP log lift maintenance dredging area encroaches onto the northeast corner of area D3 and was thin capped. In total approximately 47,600 sq. ft. (1.07 acres) were thin capped. Only the coarser thin capping material was placed in D3. This capped area includes the dredge slope around the perimeter of the D3 dredge area, as much of the slope was dredged.

### 5.7.5 Summary

In total, approximately 23,307 cy of thin cap material was uniformly distributed over the acceptance areas requiring thin cap material. Of this volume, approximately 1,952 cy was the coarser thin cap material (3-inch minus), which was placed uniformly over acceptance areas D3 and B4 to provide additional scour protection due to anticipated shallow draft vessel usage. A summary of the areas capped is provided in Table 5-3.

Production capping was accomplished in 24 days between February 1, and February 24, 2001. The capping production averaged approximately 875 cy per day, or 45 to 55 cy per hour. As the project progressed and the capping methods and operators were optimized, capping production rates on the order of 80 cy/hr were achieved. Generally, a two shift per day, 9-hour-per-shift, 6-day-per-week work schedule was adhered to. Five production capping days were single shift days, and 19 dredge days were double shift days.

**Table 5-3.** Summary of Thin Capped Areas

| Acceptance Area | Area Thin Capped | |
|---|---|---|
| | Square Feet | Acres |
| A1 | 60,200 | 1.38 |
| A2 | 77,895 | 1.79 |
| A3 | 93,256 | 2.14 |
| A4 | 142,240 | 3.27 |
| A5 | 132,149 | 3.03 |
| A6 | 80,103 | 1.84 |
| A7 | 92,583 | 2.13 |
| A8 | 75,900 | 1.74 |
| B1 | 61,883 | 1.42 |
| B2 | 134,932 | 3.10 |
| B3 | 27,688 | 0.64 |
| B4 | 52,066 | 1.20 |
| D2 | 30,492 | 0.70 |
| D3 | 47,600 | 1.07 |
| M1 | 42,605 | 0.98 |
| **Total** | **1,151,592** | **26.43** |

## 5.8 DISPOSAL OF LOG WOOD DEBRIS

Approximately 680 tons of logs were removed from areas D1, D2, and D3, and the shallow draft barge access area during log removal operations. These logs were stockpiled adjacent to the dewatering site and processed through a trailer-mounted tub grinder into wood chips. On March 5 and 6, 2001, the wood chips were transported and disposed of at the Ketchikan Landfill, as approved by EPA.

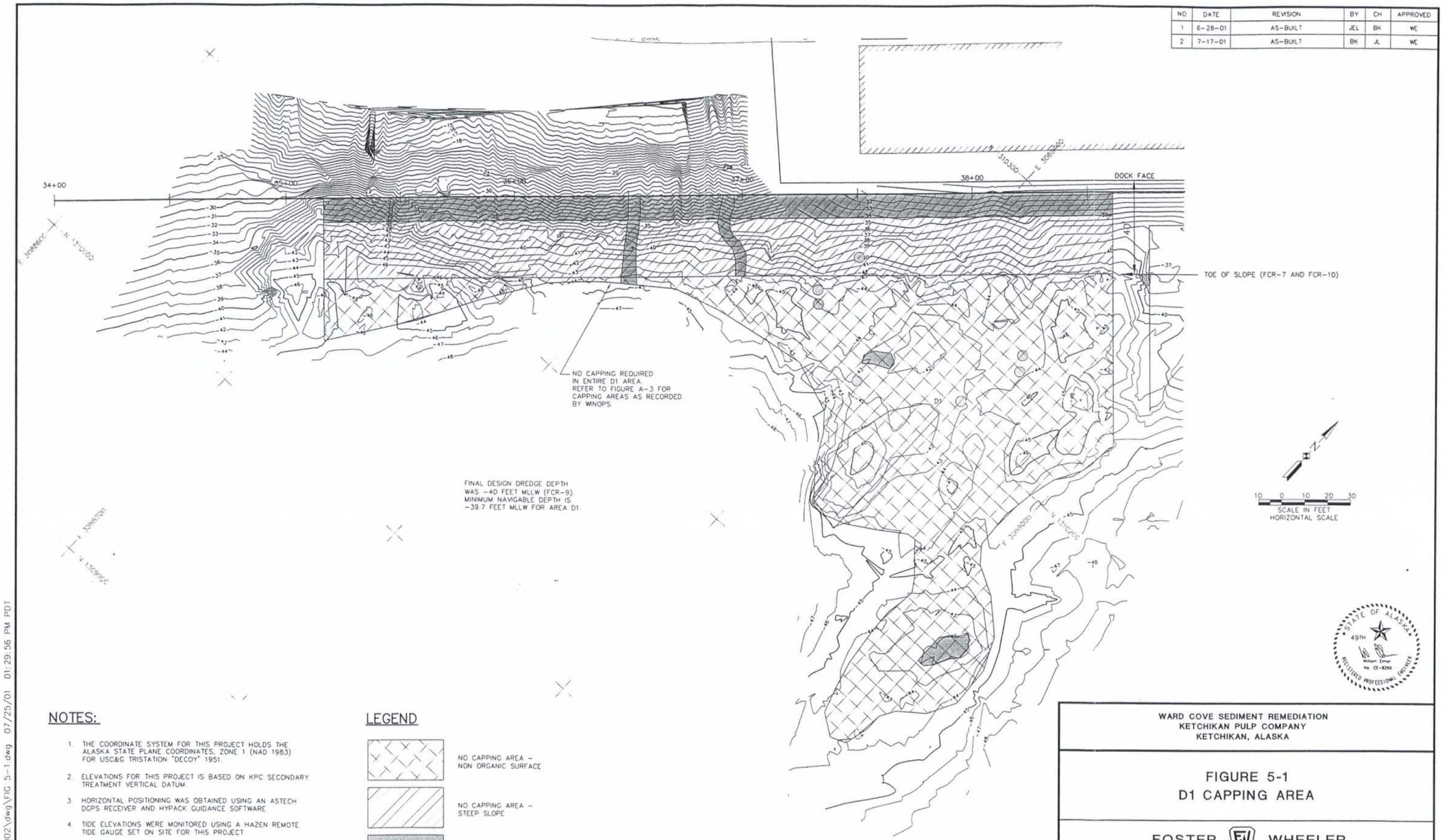
## 5.9 DEWATERING AND DISPOSAL OF DREDGED MATERIAL

Dredged material from the deep and shallow draft berthing were rehandled into the dewatering area using a Lima 2400 crane outfitted with an 8-cy Cable Arm rehandling bucket. The dredged material from the Ward Cove Remediation Project remained stockpiled in the dewatering area until adequate dewatering was achieved. The dredged material was transported to the KPC-L-P upland landfill in spring 2001.

## 5.10 SUMMARY

In total, the Ward Cove Remediation Project completed dredging of a total of 2.79 acres, of which 0.73 acres were dredged in Area D1, 0.81 acres were dredged in Area D2, and 1.25 acres were dredged in Area D3. The project also successfully completed thin capping of 26.43 acres, of which 1.77 acres were first dredged. Including area outside the designated capping acceptance areas, a total of 29.78 acres were thin capped, representing an approximate 14 percent spatial overplacement.

| NO | DATE | REVISION | BY | CH | APPROVED |
|---|---|---|---|---|---|
| 1 | 6-28-01 | AS-BUILT | JEL | BK | WE |
| 2 | 7-17-01 | AS-BUILT | BK | JL | WE |




## NOTES:

1. THE COORDINATE SYSTEM FOR THIS PROJECT HOLDS THE ALASKA STATE PLANE COORDINATES, ZONE 1 (NAD 1983) FOR USC&G TRISTATION "DECOY" 1951.
2. ELEVATIONS FOR THIS PROJECT IS BASED ON KPC SECONDARY TREATMENT VERTICAL DATUM.
3. HORIZONTAL POSITIONING WAS OBTAINED USING AN ASTECH DGPS RECEIVER AND HYPACK GUIDANCE SOFTWARE.
4. TIDE ELEVATIONS WERE MONITORED USING A HAZEN REMOTE TIDE GAUGE SET ON SITE FOR THIS PROJECT.
5. POST-DREDGE SURVEY PERFORMED BY HUGHES & ASSOCIATES, JANUARY 13, 2001.
6. SOUNDINGS WERE TAKEN WITH WITH AN ODOM MARK II DUAL FREQUENCY ECHO SOUNDER AT 200 KHZ AND 28 KHZ.
7. ALL SOUNDINGS WERE REDUCED TO ELEVATIONS AND ARE IN FEET M.L.L.W.

## LEGEND

- NO CAPPING AREA – NON ORGANIC SURFACE
- NO CAPPING AREA – STEEP SLOPE
- NO CAPPING AREA – SHOT ROCK, HARD PAN

DRAWING REDUCED
HALFSIZE

WARD COVE SEDIMENT REMEDIATION
KETCHIKAN PULP COMPANY
KETCHIKAN, ALASKA

FIGURE 5-1
D1 CAPPING AREA

FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

| SCALE: AS NOTED | APPROVED | DATE: 4/19/01 |
|---|---|---|
| DESIGNED: JL | | |
| DRAWN: AEC | | |
| CHECKED: BK | | 1/3 |

I:\projects\h318302\dwg\FIG 5-1.dwg 07/25/01 01:29:56 PM PDT

| NO | DATE | REVISION | BY | CH | APPROVED |
|---|---|---|---|---|---|
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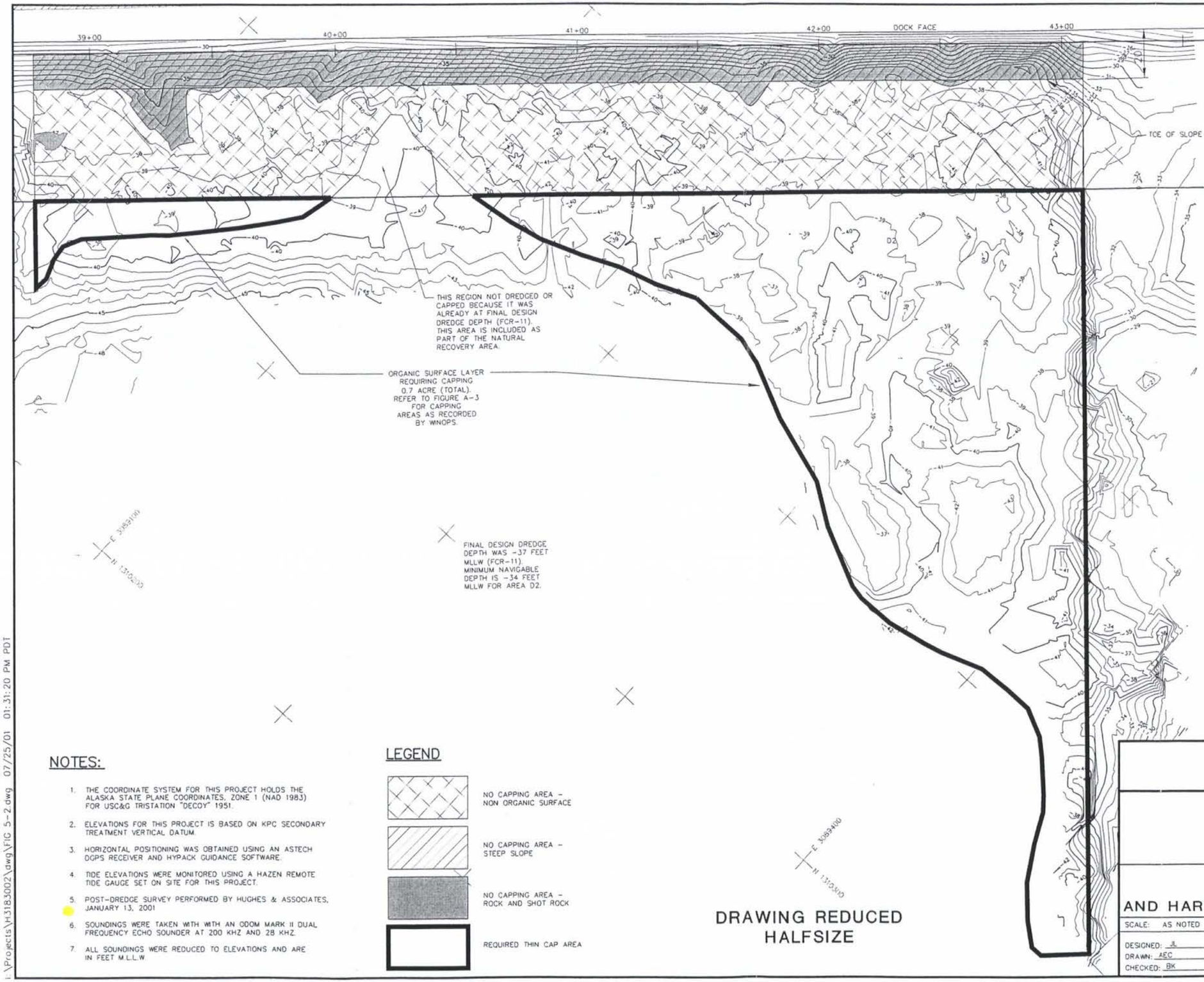
| 2 | 7-17-01 | AS-BUILT | BK | JL | WE |




## NOTES:

1. THE COORDINATE SYSTEM FOR THIS PROJECT HOLDS THE ALASKA STATE PLANE COORDINATES, ZONE 1 (NAD 1983) FOR USC&G TRISTATION "DECOY" 1951.
2. ELEVATIONS FOR THIS PROJECT IS BASED ON KPC SECONDARY TREATMENT VERTICAL DATUM.
3. HORIZONTAL POSITIONING WAS OBTAINED USING AN ASTECH DGPS RECEIVER AND HYPACK GUIDANCE SOFTWARE.
4. TIDE ELEVATIONS WERE MONITORED USING A HAZEN REMOTE TIDE GAUGE SET ON SITE FOR THIS PROJECT.
5. POST-DREDGE SURVEY PERFORMED BY HUGHES & ASSOCIATES, JANUARY 13, 2001
6. SOUNDINGS WERE TAKEN WITH WITH AN ODOM MARK II DUAL FREQUENCY ECHO SOUNDER AT 200 KHZ AND 28 KHZ.
7. ALL SOUNDINGS WERE REDUCED TO ELEVATIONS AND ARE IN FEET M.L.L.W.

## LEGEND

- NO CAPPING AREA - NON ORGANIC SURFACE
- NO CAPPING AREA - STEEP SLOPE
- NO CAPPING AREA - ROCK AND SHOT ROCK
- REQUIRED THIN CAP AREA

DRAWING REDUCED HALFSIZE

WARD COVE SEDIMENT REMEDIATION
KETCHIKAN PULP COMPANY
KETCHIKAN, ALASKA

# FIGURE 5-2
# D2 CAPPING AREA

FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

| SCALE: AS NOTED | APPROVED | DATE: 4/19/01 |
|---|---|---|
| DESIGNED: JL<br>DRAWN: AEC<br>CHECKED: BK | | 2/3 |

i:\Projects\H3183002\dwg\FIG 5-2.dwg 07/25/01 01:31:20 PM PDT

| NO | DATE | REVISION | BY | CH | APPROVED |
|---|---|---|---|---|---|
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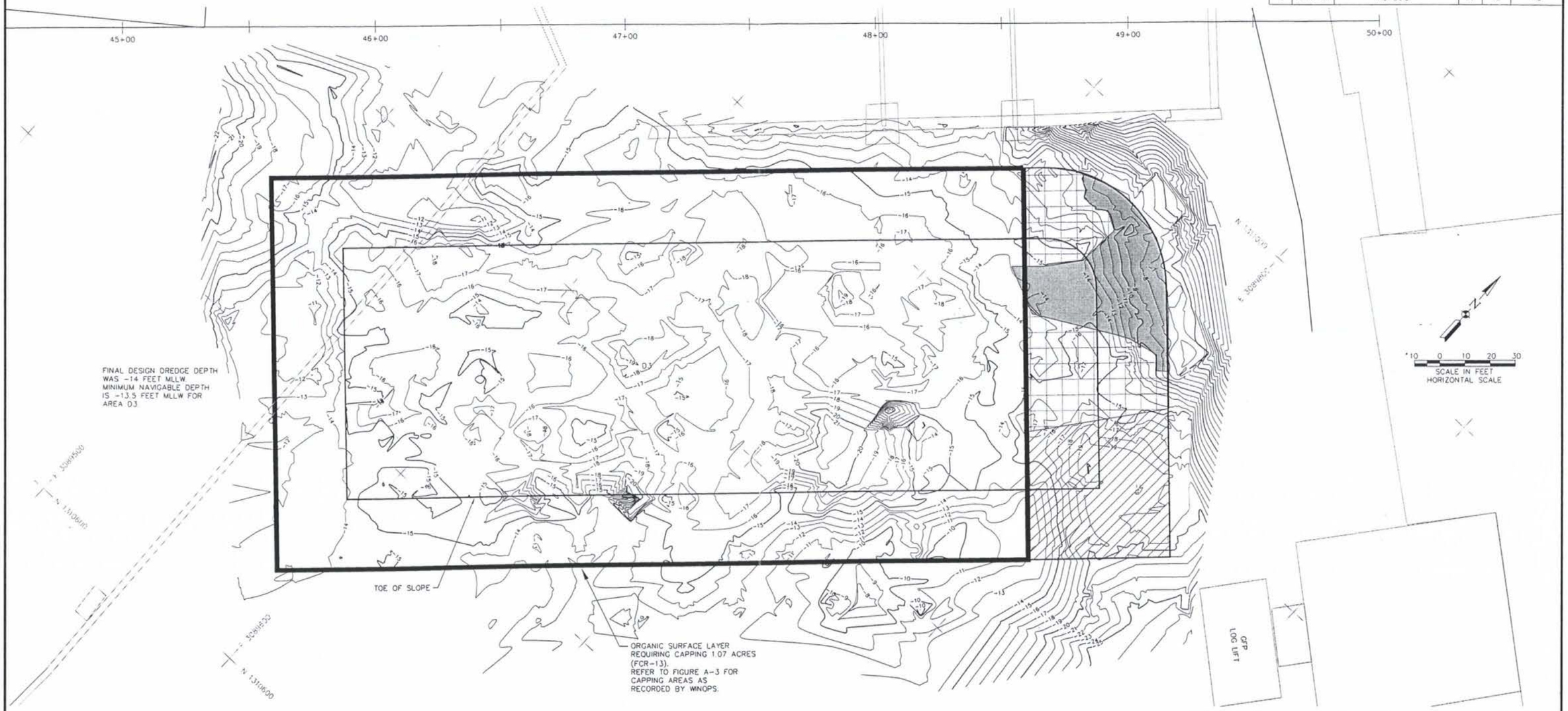
| 2 | 7-17-01 | AS-BUILT | BK | JL | WE |




## NOTES:

1. THE COORDINATE SYSTEM FOR THIS PROJECT HOLDS THE ALASKA STATE PLANE COORDINATES, ZONE 1 (NAD 1983) FOR USC&G TRISTATION "DECOY" 1951.
2. ELEVATIONS FOR THIS PROJECT IS BASED ON KPC SECONDARY TREATMENT VERTICAL DATUM.
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4. TIDE ELEVATIONS WERE MONITORED USING A HAZEN REMOTE TIDE GAUGE SET ON SITE FOR THIS PROJECT.
5. POST-DREDGE SURVEY PERFORMED BY HUGHES & ASSOCIATES, JANUARY 13, 2001
6. SOUNDINGS WERE TAKEN WITH WITH AN ODOM MARK II DUAL FREQUENCY ECHO SOUNDER AT 200 KHZ AND 28 KHZ.
7. ALL SOUNDINGS WERE REDUCED TO ELEVATIONS AND ARE IN FEET M.L.L.W.

## LEGEND

- NO CAPPING AREA - GFP LOG LIFT MAINTENANCE AREA
- NO CAPPING AREA - NON ORGANIC SURFACE
- NO CAPPING AREA - SHOT ROCK, HARD PAN
- REQUIRED THIN CAP AREA

DRAWING REDUCED HALFSIZE

WARD COVE SEDIMENT REMEDIATION
KETCHIKAN PULP COMPANY
KETCHIKAN, ALASKA

# FIGURE 5-3
# D3 CAPPING AREAS

FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

| SCALE: AS NOTED | APPROVED | DATE: 4/19/01 |
|---|---|---|
| DESIGNED: JL | | |
| DRAWN: AEC | | |
| CHECKED: BK | | |

3/3

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# 6. PERFORMANCE STANDARD VERIFICATION

## 6.1 INTRODUCTION

Both method and performance standards were applied to the remedial construction tasks. Method performance standards—quality assurance standards and checks to ensure that remedial construction methods are carried out as planned are described in the Construction Quality Assurance Plan (CQAP) (PN&D, Exponent and Hartman 2000). Performance standards—quality assurance standards and checks to verify that the desired environmental effects have been achieved are described in the PSVP (Exponent and Hartman 2000c). Compliance with applicable or relevant and appropriate requirements (ARARs) for the remedial activities (i.e., Alaska water quality standards) are described in the Water Quality Management Plan (WQMP) (Foster Wheeler Environmental 2000).

The PSVP describes the post-construction remedial action performance standards for sediment conditions and presents the methods to verify that the standards were achieved. Whereas method standards and compliance with ARARs are evaluated using clearly defined best management practices and numerical criteria, respectively, performance standards are evaluated based on progress toward achieving the remedial action objectives (i.e., improving sediment conditions for the recolonization of benthic infauna). Verification of these performance standards is therefore to be carried out by measuring or monitoring environmental conditions following remedial activities, and interpretation of the results of those measurements using a pre-established decision process.

## 6.2 LOG REMOVAL

In portions of the dredging areas (D1, D2, D3) and in most of the barge access channel leading to area D3, logs were removed using timber tongs deployed from the derrick barge. The majority of the logs were removed to within 1 or 2 feet of the dredge design depths of each area (e.g., -14 feet MLLW in the shallow water approach channel). Removal of logs and wood debris before dredging helped minimize underwater hazards and expedite the overall dredging schedule.

The methods used to verify the removal of logs in these areas are discussed below. Details of the results for each area are also provided.

### 6.2.1 Verification Methods—Side-Scan Sonar and Bathymetric Surveys

On November 2, 2000, a pre-log removal side-scan sonar and a separate bathymetric survey was completed for the barge access channel and portions of each dredge area. A Seamap Sonarlink (SL1) integrated the survey vessels Trimble DGPS and echo sounder to a Coda Technologies DA50 side-scan sonar attached to a dual frequency towfish (Edgetech 272-TD). The towfish was deployed from the survey vessel approximately 5 feet below the water surface. Each area was surveyed at speeds of approximately 3 to 5 knots along a predetermined grid at 50-foot spacing intervals. The 50-foot spacing intervals and shallow depth of the towfish resulted in a 200 to 300 percent overlap of adjacent survey lines. Scanning with the towfish was conducted at a frequency of 500 kHz, which seemed to provide good resolution in shallow water. The pre-log removal side scan survey is presented in Figure D1-1 and D1-2 (Appendix D).

Using the results from the side-scan sonar survey, a map was produced that delineated the relative numbers of logs and wood debris in each area. The map was imported into the WINOPS dredge guidance software and used by the crane operator to locate the relatively large number of logs in portions of D3 and the approach channel. The post-log removal side scan survey of the barge access channel is shown in Figure D1-3 (Appendix D). Large numbers of logs were not observed in dredge areas D1 and D2 and consequently minimal log removal was required before dredging in these areas.

Before and after each bathymetric survey (during log removal and dredging, discussed below), an Odom Digibar Sound Velocity probe was used to document the differences in sound velocity through the water column; speed of sound data obtained was used to calibrate the echo sounder. Slight changes in sound velocity are expected with changes in tides and increased rainfall. Before and after pre-dredge and post-dredge quantity surveys, a bar check was also performed. The "bar" used in the test was a large metal plate lowered from the vessel to known depths in the water column. Echo sounder readings were compared to the known depth of the metal plate and any observed differences were used to calibrate the echo sounder.

Daily quality control (QC) measures included horizontal control checks of the DGPS at known locations (e.g., surveyed pilings) and side-scan sonar calibration checks along known features (e.g., pier face with pilings). In general, horizontal control was within ±5 feet, as required in the RAWP.

### 6.2.2 Shallow Water Approach (Barge Access Channel)

Log removal operations began in the barge access channel. As confirmed by comparison of the pre- and post-side scan surveys, logs on the surface of the barge access channel area were removed (Figure D1-3, Appendix D). Barge and timber tong location records covering the areas within the barge access channel were obtained and reviewed. Surface logs and attached debris were removed, placed on a material barge, rehandled into the dewatering area, stockpiled, chipped, and ultimately transported and disposed of at the approved Ketchikan landfill.

### 6.2.3 Dredge Areas

Log removal operations in areas D1, D2, and D3 were accomplished, as confirmed by comparison of the pre and post side scan surveys in these areas. Barge and timber tong location records covering the areas within the barge access channel were obtained and reviewed. Surface logs and attached debris from these areas were removed, placed on material barge, rehandled into the dewatering area, stockpiled, chipped, and ultimately transported to and disposed of at the approved Ketchikan landfill.

## 6.3 DREDGING

Dredging was accomplished in both the deep (D1 and D2) and shallow (D3) draft berth areas as part of the Ward Cove remediation. Dredged material was removed from these areas using either a 6-cy Cable Arm environmental clamshell bucket or a 5-cy digging bucket deployed from a barge-mounted crane. A switch was made from the lighter Cable Arm environmental clamshell bucket to the heavier digging clamshell on November 27, 2000, as logs and other debris were encountered throughout the early stages of dredging. Dredged material was transported by barge to the south side of Ward Cove and offloaded into the dewatering site using the Lima crane located onshore.

The performance standards for dredging address achievement of the design dredge elevations for shallow and deep berth areas (unless material such as rock or dense native sediments is encountered). In the deep draft berth area and deep draft approach channel, the mudline elevations must be at or below the required elevation of -40 feet and -44 feet MLLW, respectively (Foster Wheeler Environmental 2000). In the shallow draft berth area, the mudline elevation must be at or below the required elevation of -14 feet MLLW. The

methods used to verify the design dredge elevations are discussed below. Details of the results for each area are also presented.

### 6.3.1 Verification Methods

Surveys of dredging areas were performed from the survey vessel using an integrated hydrographic surveying system (HYPACK® MAX software) consisting of a dual-frequency echo sounder (Odom Echotrac DF 3200 MK II), Trimble DSMPro sub-meter level accuracy DGPS, and data collector (Dell laptop computer). Pre- and post-dredging bathymetric surveys were used to verify performance standards for dredging. Daily bathymetric surveys and lead-line soundings were used to ensure that excavation depth did not exceed required depth. Each area was surveyed at speeds of approximately 3 to 5 knots along a predetermined grid at nominal 25-foot spacing intervals. All surveys of dredging areas were performed in accordance with Corps Class 1 Hydrographic surveys, as described in EM 1110-2-1003, *Hydrographic Surveying*.

#### 6.3.1.1 Pre-and Post-Dredge Bathymetric Surveys

On November 16 and 18, 2000, a pre-dredge bathymetric survey was performed prior to dredging to determine current and existing site conditions and to provide a basis of payment to the contractor. Pre-dredge survey results are provided in Appendix D.

A post-dredge bathymetric survey was performed after the completion of each dredge area to determine quantities for payment, compliance with the contract plans and FCRs, and to develop as-built drawings. Post-dredge bathymetric surveys of areas D1, D2, and D3 were completed on January 19, 2001, and are provided in Appendix D.

As mentioned previously, a bar check was performed before and after the pre-and post-dredge bathymetry surveys to document sound velocity through the water column and calibrate the echo sounder as needed. In addition, lead-line soundings were made in areas inaccessible to the survey vessel, and as QC checks to portions of the bathymetric surveys.

#### 6.3.1.2 Progress Bathymetric Surveys

An Odom Digibar electronic probe was used to correct for differences in sound at the beginning and after completion of daily progress surveys (more frequently if there was

considerable rain that day). Daily QC measures also included horizontal control checks of the DGPS at known horizontal locations.

### 6.3.2 PAH Area

The PAH area was identified by the presence of a visible sheen on exposed sediments, and removal of sediments from this area was guided by the presence of the sheen. On November 13, 2000, PAH dredging was initiated. Dredged materials from the PAH area, including some pilings, metal debris and wire, organic wood waste, and shot-rock slope protection, were placed in 15 to 20-cy end-dump trucks located on a deck barge fleeted alongside the dredge. The barge and the trucks were sealed to contain any spillage of the PAH material during placement into the trucks. The location of the PAH area was defined by the EPA and Foster Wheeler Environmental, with direction provided to the dredge operator for every grab. In total, 141 cy of material was removed from the PAH area, as measured by the number of bucket grabs made and the estimated volume of each bucket. A pre- and post-dredge survey was also made of the PAH area by lead-line soundings and electronic survey methods.

### 6.3.3 D3 Area

As determined by the progress surveys, some overdredging of the D3 area beyond the allowable overdredge line was performed. Progress surveys also revealed the presence of high spots in a few locations, and the contractor returned to these high spots and attempted to dredge to grade. During final high spot dredging, the contractor encountered an undiggable submerged object. Divers, hired by KPC, found the object to be the remains of a 16-pile dolphin, with top elevation around -8 feet MLLW. The divers cut off the underwater pilings to below -14 feet MLLW. One pile, embedded in dense material, was cut at approximately -13.5 feet MLLW. The controlling depth of the D3 area is, therefore, -13.5 feet MLLW.

In all but one approximate 10-feet by 40-feet area located near the northwest corner of D3, organic material remained on the surface of the dredge area. All of area D3 required thin capping.

In total, 2,443 cy of material was dredged from area D3, with 1,586 cy of those calculated to be pay yards using the composite method.

### 6.3.4 D2 Area

In accordance with FCR-11, area D2 was dredged to -37 feet MLLW (plus 1 foot allowable overdredge). Progress surveys revealed the presence of high spots in a few locations and the contractor returned to these high spots and attempted to dredge to grade. As in area D1, along some of the slope toe and slope itself, shot rock was encountered above grade up to 2 to 3 feet. Shot rock was not removed once encountered. The largest of these high spots, at about elevation -34 feet MLLW, is located about 7/8 of the distance into the D2 area from the north and 30 feet offset from the dock face. The controlling depth for area D2 is, therefore, -34 feet MLLW. Along the north toe of the 1V:4H slope transition between the D2 berth area and the M1 mounding area, some sloughing had occurred in the later stages of dredging. The sloughing encroached approximately 5 to 7 feet into the bow end of the D2 berthing area in some places. The total volume of material represented by this sloughing is approximately 31 cy. The Project Design Engineer determined that the location and small volume of material would not affect navigation.

The majority of the D2 area was dredged to non-organic material, as documented in the field. Approximately 30,500 square feet of D2, consisting of intermittent organics with some rock, was to be thin capped.

### 6.3.5 D1 Area

In accordance with FCRs 07, 09, and 10 (provided in Appendix B), area D1 was dredged to -44 feet MLLW (plus 1 foot allowable overdredge) where organic material was encountered, and to -40 feet MLLW (plus 1 foot allowable overdredge) where native sediment or rock (non-organic material) was encountered. Progress surveys revealed the presence of high spots in a few locations, and the contractor returned to these high spots and attempted to be dredged to grade. The controlling depth for area D1 is -39.7 feet MLLW due to the presence of hardpan and/or rock, which was undiggable in one area located about 1/3 of the distance into the area from the north and 110 feet offset from the dock face. Other than this one undiggable high spot, the entire D1 area was dredged to the required grade. Along some of the slope toe and slope itself, shot rock was encountered above grade up to 2 to 3 feet. Shot rock was not removed once encountered.

All of Area D1 was dredged to non-organic material, as documented by field notes depicting material description, personal conversations with operators and foreman, and verified by

Foster Wheeler Environmental QC staff and the project QAO. Some residual organics were left on the surface, but not enough to warrant capping.

## 6.4 TEST AND PRODUCTION CAPPING

### 6.4.1 Verification Collection Methods

Verification of 40 percent sand (dry weight) in the top 10 centimeters of the sand cap was accomplished by surface sediment grab samples, diver push cores, diver visual and video observations, or a combination of these three methods. All verification activities commenced onboard the Research Vessel (R/V) Invader I, a 38-foot vessel operated by Alaska Commercial Divers (ACD) of Ketchikan, Alaska.

A minimum of 12 verification samples was collected in each test cap and/or each production cap area except when logs and debris prevented the acquisition of a sample. In these areas, both diver video and observation were used to evaluate cap performance. Target sampling locations were generated using HYPACK® MAX hydrographic surveying software that was linked to a Trimble AG122 DGPS onboard the vessel. The computer monitor, showing target locations, was placed in the wheelhouse of the vessel to provide a visual guide for the boat operator during sampling. The vessel position was maintained manually by the boat operator or by use of a bow anchor. Once on station, the operator electronically recorded the position of each verification sample.

As no mounding was necessary, due to the success of thin capping in all capping and mounding acceptance areas, performance verification by side-scan sonar and/or bathymetric surveys of capping/mounding areas was not necessary.

#### 6.4.1.1 Surface Sediment Sampling

Surface sediment samples were collected using a stainless-steel modified 0.1-$m^2$ van Veen grab sampler. The recovered sediment sample was deemed acceptable for use if a layer of water on top of the sediment was present and the sample appeared relatively undisturbed. After the sample was confirmed as undisturbed, the overlying water was carefully siphoned off and the top 10 centimeters of the sample. At this point, the sample was removed with a stainless-steel spoon and placed in a bucket where it was thoroughly homogenized, as determined visually by texture and color.

From the composited sample, an aliquot was placed in a 16-ounce glass jar and stored for potential laboratory confirmation analysis (Method B). In addition, a 100-millileter (mL) aliquot was collected for field wet sieve analysis (Method A). The wet sieve analysis was conducted onboard the vessel. The sample was sieved through a No. 200 sieve, and the resulting wet volume of sand was used to estimate dry weight of sand, based on a correlation developed in the laboratory prior to capping activities. Laboratory confirmation involved analysis of grain size to determine the dry weight of sand in a sample. The field wet sieve analysis and laboratory confirmation analysis procedures are discussed in detail in Appendix E1.

#### 6.4.1.2 Diver Sediment Sampling and Video Observations

In the event that sunken logs and other debris obstructed the bottom and hindered sample collection with the van Veen grab sampler, ACD divers attempted sample collection with pre-cut 1-foot long, 2-inch outside diameter, cellulose-acetate-butyrate (CAB) core tubes. A rubber stopper or plastic cap was placed on the top of the core, creating a vacuum as the sample was removed from the sediment surface. After removing the core, a second cap was placed on the bottom of the core tube and the sample was brought back to the vessel for evaluation. Because of the distinction between cap sand and organic layers, sand thickness in the cores was measured with a ruler.

All diver-coring events were documented with a Deep Sea Power & Light Seacam 2000 underwater video camera, mounted to the diver's helmet. Videotaping also included verbal observations by the diver. In some areas, sunken logs and other debris hindered complete sample collection by both the van Veen grab sampler and diver push cores. In such cases, confirmation of cap performance relied greatly on the videotape and diver observations.

### 6.4.2 Capping Material Verification

The source for all capping materials used at the site was Construction Aggregates, Ltd. (CAL), located in Victoria, British Columbia, Canada. Before approval for use, representative samples were collected from CAL's sand and gravel quarry (referred to herein as the Producer's Pit) and analyzed for the chemical and physical tests listed in Section 2.02 of the Contractor Specifications for Capping and Mounding and the RAWP (Foster Wheeler Environmental 2000). In addition, once each material was mixed by the supplier, but before transport to Ward Cove, representative samples were collected from the

barge and evaluated for grain size distribution. All testing results for cap materials were within the contractor specifications listed in Section 2.03, Contractor Specifications for Capping and Mounding, with modifications presented in FCR-12 (dated 12/28/00). Cap material verification results are discussed below.

#### 6.4.2.1 Initial Verification of Source

On November 21, 2000, samples were collected from two sides of a sand stockpile at the Producer's Pit (designated East and West sides), which represented material proposed for delivery to Ward Cove. The samples were delivered to CANTEST Ltd. of Burnaby, British Columbia, for chemical testing and Thurber Engineering, Ltd. of Victoria, British Columbia, for physical testing. In addition, a 10-gallon sample of the material was delivered to the Foster Wheeler Environmental site office in Ward Cove for additional physical testing (i.e., refinement of performance verification testing of the cap). The Data Usability Summary Report and supporting chemistry data are presented in Appendix F.

The samples were primarily fine to medium sand with fines content (silt and clay) less than 2 percent. The material is considered non-plastic due to the lack of fines. Gravel content was low, at less than 3 percent. Total organic carbon content was reported at 0.16 percent (East Side) and 0.10 percent (West Side) dry weight.

The replicate sand samples were also analyzed for chemical compounds of interest. No organic chemicals were detected in the samples and total arsenic was reported at 1 milligram per kilogram (mg/kg) (West Side) and 2 mg/kg (East Side); these levels are far below the maximum level of 40 mg/kg previously detected in Ward Cove (Exponent 1999). All metals were below detection or below the Puget Sound Dredged Disposal Analysis (PSDDA) Screening Levels (Corps 2000).

Based on the testing results, EPA gave conditional approval of CAL as the source for capping and mounding material at the site (EPA 2000). One of the conditions of approval was an upper limit of 3 percent fine gravel for the sand cap material (refer to FCR-12). However, a slightly more coarse sediment (up to 30 percent fine gravel) was allowed for capping the barge approach channel and the -44-foot deep dredging area (D2).

#### 6.4.2.2 Verification of Cap Material Before Shipment

Gradation specifications were met for all cap material before placement at the Ward Cove site; gravel content was less than 3 percent for fine cap material and 30 percent for coarse cap material. Gradation results are presented in Table 6-1.

Either CAL or their subcontractor, Thurber Engineering Ltd. of Victoria, British Columbia, Canada, conducted grain size analysis. Foster Wheeler Environmental conducted quality control testing and results were in general agreement with the testing results in Table 6-1.

**Table 6-1.** Gradation Results for Material Placed in Ward Cove

| Barge Load (Site Arrival) | Testing Date | Cap Material Mixture | Gross Weight (Tons) | Gravel Content (%) | Fines Content (%) |
|---|---|---|---|---|---|
| January 16-17, 2001 | January 12, 2001 | Fine | 10,130 | 1.7 | 1.2 to 1.5 |
| January 24-25, 2001 | January 23, 2001 | Fine | 9,998 | 1.6 to 1.8 | 0.9 to 1.5 |
| February 2, 2001 | February 2, 2001 | Fine | 7,439 | 1.6 | 0.8 |
| | | Coarse | 2,798 | 28 | 0 |
| February 11-12, 2001 | February 7, 2001 | Fine | 6,730 | 2.1 to 2.4 | 0.6 to 0.8 |

### 6.4.3 Test Capping Results

A 1/3-acre test cap was placed in 7 of the 15 areas requiring a sand cap. Originally, a test cap was planned for all cap areas. However, because of the remarkable success of the first seven test caps, EPA exempted all other areas from test capping. Based on the verification testing results, all test cap areas were considered acceptable, with the mean of collected samples in a given area greater than 40 percent sand by dry weight in the top 10 centimeters of the sediment surface. In addition, no more than 20 percent of the samples had a sand content less than 13 percent. A summary of the test cap verification results for the seven test cap areas is presented in Table 6-2, followed by detailed results for each cap testing area. Field notes and sample location maps are presented in Appendix E2 and E4.

#### 6.4.3.1 A8

Twelve samples were collected in the A8 test cap area with the van Veen grab sampler. Field wet sieve results for all samples collected were above 40 mL of sand by volume, which based on the correlation between wet sieve and grain size analyses, meets the required 40 percent sand.

**Table 6-2.** Summary of Test Capping Results

| Test Cap Area | Date Sampled | Method Used | Method A – Field Wet Sieve Mean Sand Volume (mL) | Method B – Mean Sand Volume (% Dry weight) 1/ |
|---|---|---|---|---|
| A8 | 1/23/01 | van Veen | 97 | 100 |
| B3 | 1/24/01 | van Veen, push cores, video and diver observations | 100 | 100 |
| A7 | 1/26/01 | van Veen, push cores, video and diver observations | 100 | 100 |
| B2 | 1/26/01 | van Veen | 90 | 97 |
| A4 | 1/31/01 | van Veen | 77 | 94 |
| A6 | 2/1/01 | van Veen | 81 | 94 |
| M1 | 2/1/01 | van Veen | 100 | 100 |

1/ The capping was a success if sand content of the surface sediment (0 to 10 cm) was at least 40 percent or greater, and no more than 20 percent of the samples representing the mean had a sand content less that 13 percent.

Laboratory grain size analysis was performed on the samples containing 20 mL and 40 mL of sand by volume to confirm the wet sieve volume to dry weight conversion. The 20-mL sample measured 47 percent sand by dry weight, showing a slight deviation from the predicted value of 67 percent. The 40-mL sample measured 81 percent sand by dry weight, showing agreement with the predicted value of 81 percent sand.

#### 6.4.3.2 B3

Twelve samples were attempted in the B3 test cap area using the van Veen grab sampler, resulting in the collection of only four adequately penetrated and undisturbed samples. The four samples all contained 100 mL of sand (100 percent sand by dry weight conversion) in the top 10 centimeters. A survey by the divers verified that logs and cable covered the majority of this test area. The video documented uniform sand coverage over the logs and debris. Because of the density of logs in this test area, the divers could only collect two push core samples, both of which showed greater than 10 centimeters of sand.

#### 6.4.3.3 A7

Twelve samples were attempted in the A7 test cap area using the van Veen grab sampler, resulting in the collection of only three adequately penetrated and undisturbed samples. The three samples all contained 100 mL of sand (100 percent sand by dry weight conversion) in

the top 10 centimeters. A survey by the divers verified that logs and cable covered approximately 80 to 90 percent of this test area. The video documented uniform sand coverage over the logs and debris. Because of the density of logs in this test area, the diver could only collect two push core samples, both of which showed substantially greater than 10 centimeters of sand.

#### 6.4.3.4 B2

Ten samples were collected in the B2 test cap area with the van Veen grab sampler. Field wet sieve results for all samples collected were above 40 mL of sand by volume, which based on the correlation between wet sieve and grain size analyses, meets the required 40 percent sand.

Laboratory grain size analysis was performed on the samples containing 25 mL and 75 mL of sand by volume to confirm the wet sieve volume to dry weight conversion. The 25-mL sample measured 71 percent sand by dry weight, showing agreement with the predicted value of 72 percent. The 75-mL sample measured 94 percent sand by dry weight, showing agreement with the predicted value of 94 percent sand.

#### 6.4.3.5 A4

Ten samples were collected in the A4 test cap area with the van Veen grab sampler. Field wet sieve results for all samples collected were above 40 mL of sand by volume, which based on the correlation between wet sieve and grain size analyses, meet the required 40 percent sand.

Laboratory grain size analysis was performed on the samples containing 40 mL and 45 mL of sand by volume to confirm the wet sieve volume to dry weight conversion. The 40-mL sample measured 86 percent sand by dry weight, showing agreement with the predicted value of 82 percent. The 45-mL sample measured 83 percent sand by dry weight, showing agreement with the predicted value of 84 percent sand.

#### 6.4.3.6 A6

Ten samples were collected in the A6 test cap area with the van Veen grab sampler. Field wet sieve results for all samples collected were above 40 mL of sand by volume, which based on the correlation between wet sieve and grain size analyses, meets the required 40 percent sand.

Laboratory grain size analysis was performed on the samples containing 40 mL and 50 mL of sand by volume to confirm the wet sieve volume to dry weight conversion. The 40-mL sample measured 84 percent sand by dry weight, showing agreement with the predicted value of 81 percent. The 50-mL sample measured 88 percent sand by dry weight, showing agreement with the predicted value of 86 percent sand.

#### 6.4.3.7 M1

Three samples were collected in the M1 test cap area with the van Veen grab sampler. All samples contained 100 mL of sand (100 percent sand by dry weight conversion) in the top 10 centimeters. This area was not an official test cap area, but verification sampling was performed to document that thin cap placement over the proposed mounding area was possible.

### 6.4.4 Production Capping Results

Performance verification sampling results confirmed that all proposed capping areas were satisfactorily capped with greater than 40 percent by dry weight of sand in the top 10 centimeters of the sediment surface. A summary of the production cap verification results is presented in Table 6-3 followed by detailed results for each capping area. Field notes and sampling location maps are presented in Appendix E3 and E4.

#### 6.4.4.1 M1

Eleven samples were collected in area M1 with the van Veen grab sampler. Field wet sieve results for all samples collected were above 40 mL of sand by volume, which based on the correlation between wet sieve and grain size analyses, meets the required 40 percent sand.

Laboratory grain size analysis was performed on the samples containing 55 mL and 60 mL of sand by volume to confirm the wet sieve volume to dry weight conversion. The 55-mL sample measured 79 percent sand by dry weight, showing a slight deviation from the predicted value of 88 percent. The 60 mL sample measured 73 percent sand by dry weight, showing a deviation from the predicted value of 90 percent sand.

**Table 6-3.** Summary of Production Capping Verification Results

| Acceptance Area[1/] | Date Sampled | Method Used | Method A – Field Wet Sieve Mean Sand Volume (mL) | Method B – Mean Sand Volume (% Dry Weight)[2/] |
|---|---|---|---|---|
| M1 | 2/1,2/2, and 2/4/01 | van Veen | 96 | 99 |
| A8 | 2/2 and 2/4/01 | van Veen | 100 | 100 |
| D3 | 2/5 and 2/6/01 | van Veen, push cores, video and diver observations | 97 | 100 |
| B3 | 2/9/01 | van Veen, push cores, video and diver observations | 96 | 99 |
| B4 | 2/4, 2/6, and 2/9/01 | van Veen, push cores, video and diver observations | 100 | 100 |
| B2 | 2/10/01 | van Veen | 100 | 100 |
| A6 | 2/13/01 | van Veen | 96 | 99 |
| A7 | 2/13 and 2/15/01 | Push cores, video, and diver observations | 100 | 100 |
| D2 | 2/14/01 | van Veen | 90 | 98 |
| A5 | 2/17/01 | van Veen | 100 | 100 |
| B1 | 2/19/01 | van Veen | 100 | 100 |
| A1 | 2/21/01 | van Veen | 92 | 98 |
| A2 | 2/23/01 | van Veen | 100 | 100 |
| A3 | 2/23/01 | van Veen | 99 | 100 |
| A4 | 2/24/01 | van Veen | 94 | 99 |

1/ In chronological order

2/ The capping was a success if sand content of the surface sediment (0 to 10 cm) was at least 40 percent or greater, and no more than 20 percent of the samples representing the mean had a sand content less than 13 percent.

#### 6.4.4.2 A8

Twelve samples were collected in area A8 with the van Veen grab sampler. Field wet sieve results for all samples collected were above 40 mL of sand by volume, which based on the correlation between wet sieve and grain size analyses, meets the required 40 percent sand. Laboratory confirmation analysis was not performed on any samples from this area.

#### 6.4.4.3 B4

Because of the density of logs and debris in area B4, as verified by video and diver observations, sample collection with the van Veen grab sampler was not possible. Twelve samples were collected by the divers using push cores. One of the 12 samples was compromised during transport. The remaining 11 samples contained 100 mL of sand (100 percent by dry weight conversion) in the top 10 centimeters. Laboratory confirmation analysis was not performed on any samples from this area.

#### 6.4.4.4 D3

Two samples were collected in area D3 using the van Veen grab sampler. The presence of cobbles and stones obstructed the closure of the van Veen sampler, thus requiring the collection of eight samples using diver push cores. One of the two samples collected with the van Veen sampler contained 100 mL of sand (100 percent by dry weight conversion) in the top 10 centimeters and the other contained 70 mL (93 percent). All eight diver push cores contained 100 mL (100 percent) of sand in the top 10 centimeters. Laboratory confirmation analysis was not performed on any sample from this area.

#### 6.4.4.5 B3

Because of the excessive debris documented by video in area B3, six instead of 12 samples were collected in this area using diver push cores. These six samples, combined with the six samples collected in the test cap area, provided 12 samples for the whole area, or a sampling frequency of 13 samples per acre (this area is 0.64 acres). Field wet sieve results indicated five samples with 100 mL of sand (100 percent by dry weight conversion) in the top 10 centimeters and one sample with 55 mL (88 percent).

#### 6.4.4.6 B2

Twelve samples were collected in area B2 with the van Veen grab sampler. Field wet sieve results for all samples collected were above 40 mL of sand by volume, which based on the correlation between wet sieve and grain size analyses, meets the required 40 percent sand.

Laboratory grain size analysis was performed on the sample containing 30 mL of sand by volume to confirm the wet sieve volume to dry weight conversion. This sample measured 74 percent sand by dry weight, showing agreement with the predicted value of 75 percent.

#### 6.4.4.7 A6

Ten samples were collected in area A6 with the van Veen grab sampler. Field wet sieve results for all samples collected were above 40 mL of sand by volume, which based on the correlation between wet sieve and grain size analyses, meets the required 40 percent sand.

Laboratory grain size analysis was performed on both samples containing 80 mL of sand by volume to confirm the wet sieve volume to dry weight conversion. The results were 88 percent and 92 percent sand by dry weight, showing a slight deviation from the predicted value of 96 percent.

#### 6.4.4.8 A7

Because of the density of logs and debris in area A7, as verified by video and diver observations, sample collection with the van Veen grab sampler was not possible. Ten samples were collected by the divers using push cores. All 10 samples contained 100 mL of sand (100 percent by dry weight conversion) in the top 10 centimeters. Laboratory confirmation analysis was not performed on any samples from this area.

#### 6.4.4.9 D2

Twelve samples were collected in area D2 with the van Veen grab sampler. Field wet sieve results for all samples collected were above 40 mL of sand by volume, which based on the correlation between wet sieve and grain size analyses, meets the required 40 percent sand.

Laboratory grain size analysis was performed on the samples containing 25 mL, 40 mL, and 84 mL of sand by volume to confirm the wet sieve volume to dry weight conversion. The 25 mL sample measured 68 percent sand by dry weight, showing a slight deviation from the predicted value of 72 percent. The 40-mL sample measured 81 percent sand by dry weight, showing agreement with the predicted value of 81 percent sand. The 84-mL sample measured 95 percent sand by dry weight, showing agreement with the predicted value of 97 percent.

#### 6.4.4.10 A5

Twelve samples were collected in area A5 with the van Veen grab sampler. Field wet sieve results for all samples collected were above 40 mL of sand by volume, which based on the correlation between wet sieve and grain size analyses, meets the required 40 percent sand.

Laboratory grain size analysis was performed on the samples containing 23 mL and 43 mL of sand by volume to confirm the wet sieve volume to dry weight conversion. The 23-mL sample measured 72 percent sand by dry weight, showing agreement with the predicted value of 70 percent. The 43-mL sample measured 93 percent sand by dry weight, showing a slight deviation from the predicted value of 83 percent sand.

#### 6.4.4.11 B1

Twelve samples were collected in area B1 with the van Veen grab sampler. Field wet sieve results for all samples collected were above 40 mL of sand by volume, which based on the correlation between wet sieve and grain size analyses, meets the required 40 percent sand.

Laboratory grain size analysis was performed on the sample containing 39 mL of sand by volume and one of the samples containing 95-mL sand by volume to confirm the wet sieve volume to dry weight conversion. The 39-mL sample measured 80 percent sand by dry weight, showing agreement with the predicted value of 81 percent. The 95-mL sample measured 98 percent sand by dry weight, showing agreement with the predicted value of 99 percent sand.

#### 6.4.4.12 A1

Twelve samples were collected in area A1 with the van Veen grab sampler. Field wet sieve results for all samples collected were above 40 mL of sand by volume, which based on the correlation between wet sieve and grain size analyses, meets the required 40 percent sand.

Laboratory grain size analysis was performed on the samples containing 29 mL and 70 mL of sand by volume to confirm the wet sieve volume to dry weight conversion. The 29-mL sample measured 76 percent sand by dry weight, showing agreement with the predicted value of 75 percent. The 70-mL sample measured 93 percent sand by dry weight, showing agreement with the predicted value of 93 percent sand.

#### 6.4.4.13 A2

Twelve samples were collected in area A2 with the van Veen grab sampler. Field wet sieve results for all samples collected were above 40 mL of sand by volume, which based on the correlation between wet sieve and grain size analyses, meets the required 40 percent sand.

Laboratory grain size analysis was performed on the sample containing 81 mL of sand by volume to confirm the wet sieve volume to dry weight conversion. This sample measured 95 percent sand by dry weight, showing agreement with the predicted value of 96 percent.

#### 6.4.4.14 A3

Twelve samples were collected in area A3 with the van Veen grab sampler. Field wet sieve results for all samples collected were above 40 mL of sand by volume, which based on the correlation between wet sieve and grain size analyses, meets the required 40 percent sand.

Laboratory grain size analysis was performed on the samples containing 52 mL and 55 mL of sand by volume to confirm the wet sieve volume to dry weight conversion. The 52-mL sample measured 87 percent sand by dry weight, showing agreement with the predicted value of 87 percent. The 55-mL sample measured 93 percent sand by dry weight, showing a slight deviation from the predicted value of 88 percent sand.

#### 6.4.4.15 A4

Twelve samples were collected in area A4 with the van Veen grab sampler. Field wet sieve results for all samples collected were above 40 mL of sand by volume, which based on the correlation between wet sieve and grain size analyses, meets the required 40 percent sand.

Laboratory grain size analysis was performed on the samples containing 55 mL and 80 mL of sand by volume to confirm the wet sieve volume to dry weight conversion. The 55-mL sample measured 92 percent sand by dry weight, showing a slight deviation from the predicted value of 88 percent. The 80-mL sample measured 94 percent sand by dry weight, showing agreement with the predicted value of 96 percent sand.

# 7. WATER QUALITY MONITORING

## 7.1 WATER QUALITY MONITORING REQUIREMENTS AND COMPLIANCE CRITERIA

The WQMP for the Ward Cove Sediment Remediation Project (Exponent 2000) established water quality monitoring requirements for all in-water work. This plan was prepared consistent with the substantive requirements of the Clean Water Action Section 404(b)(1). The WQMP required that the following water quality parameters be monitored during construction activities: turbidity, dissolved oxygen (DO), temperature, and salinity. In addition to these parameters, the following data were collected: barometric pressure, specific conductivity, and percent saturation of DO. The WQMP stated that these measurements would be recorded with a Hydrolab monitoring probe and positioning would be recorded with a DGPS. Both requirements were met, as described in detail in the *Ketchikan Pulp Company Ward Cove Remediation Project Final Water Quality Monitoring Report* (Foster Wheeler Environmental 2001). The Water Quality Monitoring Report was prepared in accordance with the requirements set forth in the WQMP.

The WQMP required Foster Wheeler Environmental to conduct monitoring at the boundaries of the short-term variance areas during all remediation activities in Ward Cove. In addition, Foster Wheeler Environmental provided monitoring data to KPC and EPA on a weekly basis, with the exception of an exceedance of a water quality standard (consisting of turbidity greater than 25 nephelometric turbidity units [NTUs]).

In accordance with the Water Quality Certification, allowable turbidity was limited to 25 NTUs at the short-term variance area boundaries (Figures 7-1 and 7-2). These boundaries were a 300-foot radius from the point of log removal, dredging, and barge off-load, and a line extending from Dawson Point to the corner of the cannery pier for capping. It was required that any exceedance of the 25 NTU criterion be reported to EPA. In addition, the WQMP required that any occurrences of DO below 5.0 mg/L be reported to EPA.

## 7.2 LOG REMOVAL

Log removal began on November 8, 2000, in the shallow barge access channel and was completed on November 18, 2000. All logs and debris removed from the cove bottom were loaded onto the Sunny Point container barge and ultimately transferred to the upland dewatering area. Log removal initiated the start of water quality monitoring. Log removal

resulted in one exceedance of the 25 NTU turbidity criterion on November 9, 2000. This exceedance was determined to be a transient event and was reported to the QAO and EPA. The DO concentration fell below 5.0 mg/L twice, on November 11 and November 17, 2000, and were reported to the QAO and EPA. No further action was required.

## 7.3 DREDGING

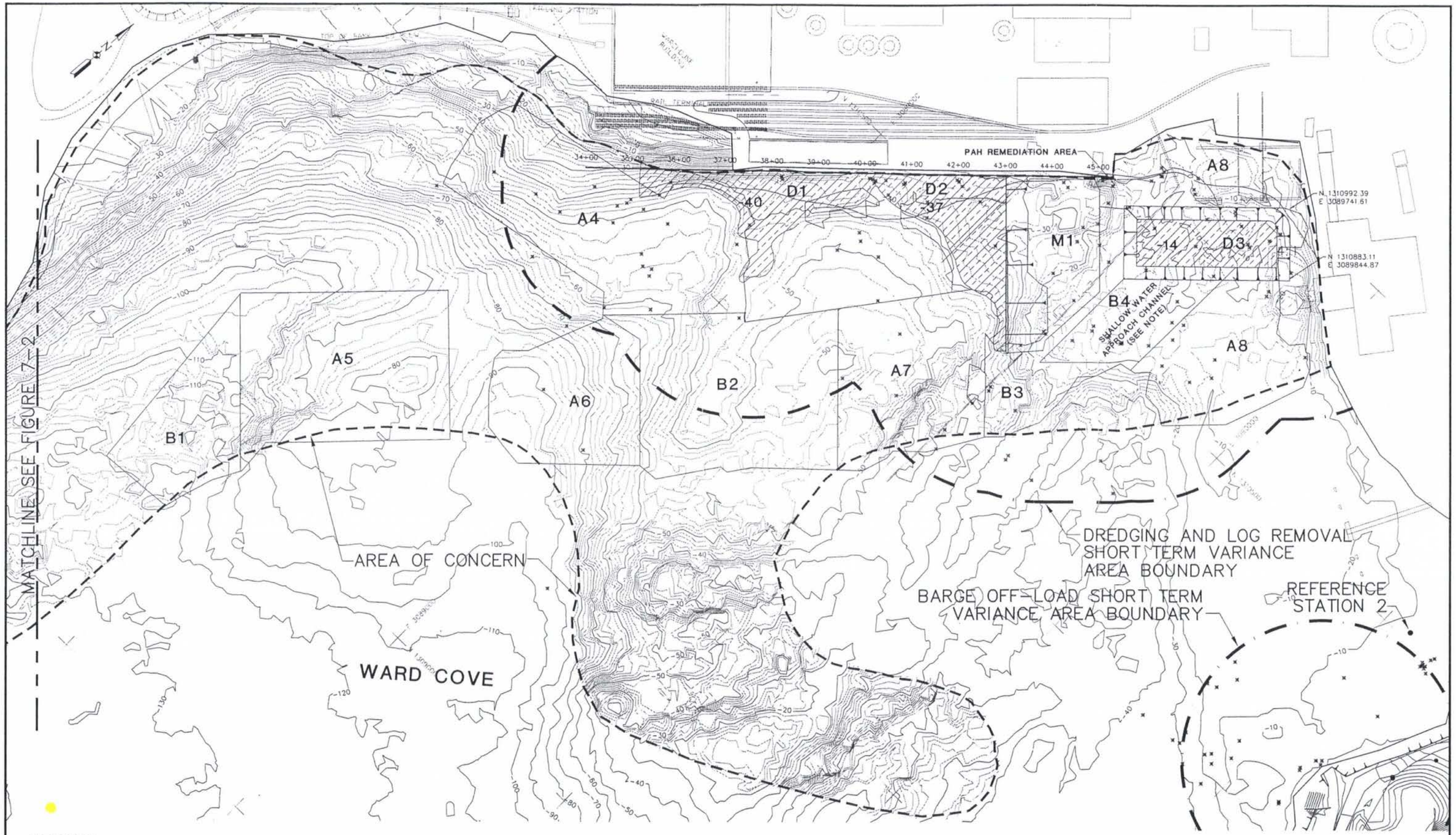
Dredging began on November 13, 2000, in the PAH-area adjacent to the GFP deep draft dock and was completed on January 16, 2001. As rocks, logs, pilings, and other debris were encountered throughout the early stages of dredging, with resulting poor dredging efficiency with the Cable Arm environmental clamshell bucket, the dredge contractor was permitted to use a heavier clamshell bucket for the duration of the dredging activities, beginning November 27, 2000. Dredging resulted in two exceedances of the 25 NTU turbidity criterion on November 28 and December 10, 2000. These exceedances were reported to the QAO and EPA (November 28 exceedance not reported until December 5). The DO concentration fell below 5.0 mg/L once on November 13, 2000. No further action was required.

## 7.4 BARGE OFFLOADING

Barge off-load began on November 18, 2000, with transfer of the logs and debris to the dewatering site and was completed on January 16, 2001, with final cleaning of dredged material from the container barges. This activity caused minimal impact on the turbidity or DO at the short-term variance area boundary, as documented by the results of water quality monitoring. There were no exceedances of the 25 NTU turbidity criterion, and the DO never fell below 5.0 mg/L.

## 7.5 CAPPING

Test capping began in the A8 test cap area on January 22, 2001. Following the overwhelming success of test capping in the first six acceptance areas and a further demonstration of thin capping success in the mounding area (M1), test capping was completed and production capping began on February 2, 2001. All capping was completed on February 24, 2001. The DO concentration fell below 5.0 mg/L on three occasions, February 17, 19, and 20, 2001; all were reported to the QAO. There were no exceedances of the 25 NTU turbidity criterion during capping.




LEGEND

| | | | | | |
|---|---|---|---|---|---|
| A1 | TYPE "A" DESIGN THIN CAP AREA | D1 | DESIGN DREDGE AREA | | DREDGE SLOPE |
| B1 | TYPE "B" DESIGN THIN CAP AREA | M1 | DESIGN THIN CAP AREA | * | WATER QUALITY MONITORING STATIONS |

NOTE

DREDGE AREA OUTLINES ARE DERIVED FROM THE AS-BUILT DRAWINGS. CAP AREA OUTLINES ARE AS-BUILT.

100 50 0 100 200 300
SCALE IN FEET
HORIZONTAL SCALE

ALL DIMENSIONS IN FEET UNLESS OTHERWISE NOTED

FOSTER WHEELER AND HARTMAN CONSULTING CORPORATION

DATE: –
SCALE: AS NOTED
DRAWN: –

FIGURE 7-1
KETCHIKAN PULP COMPANY
WATER QUALITY MONITORING STATIONS

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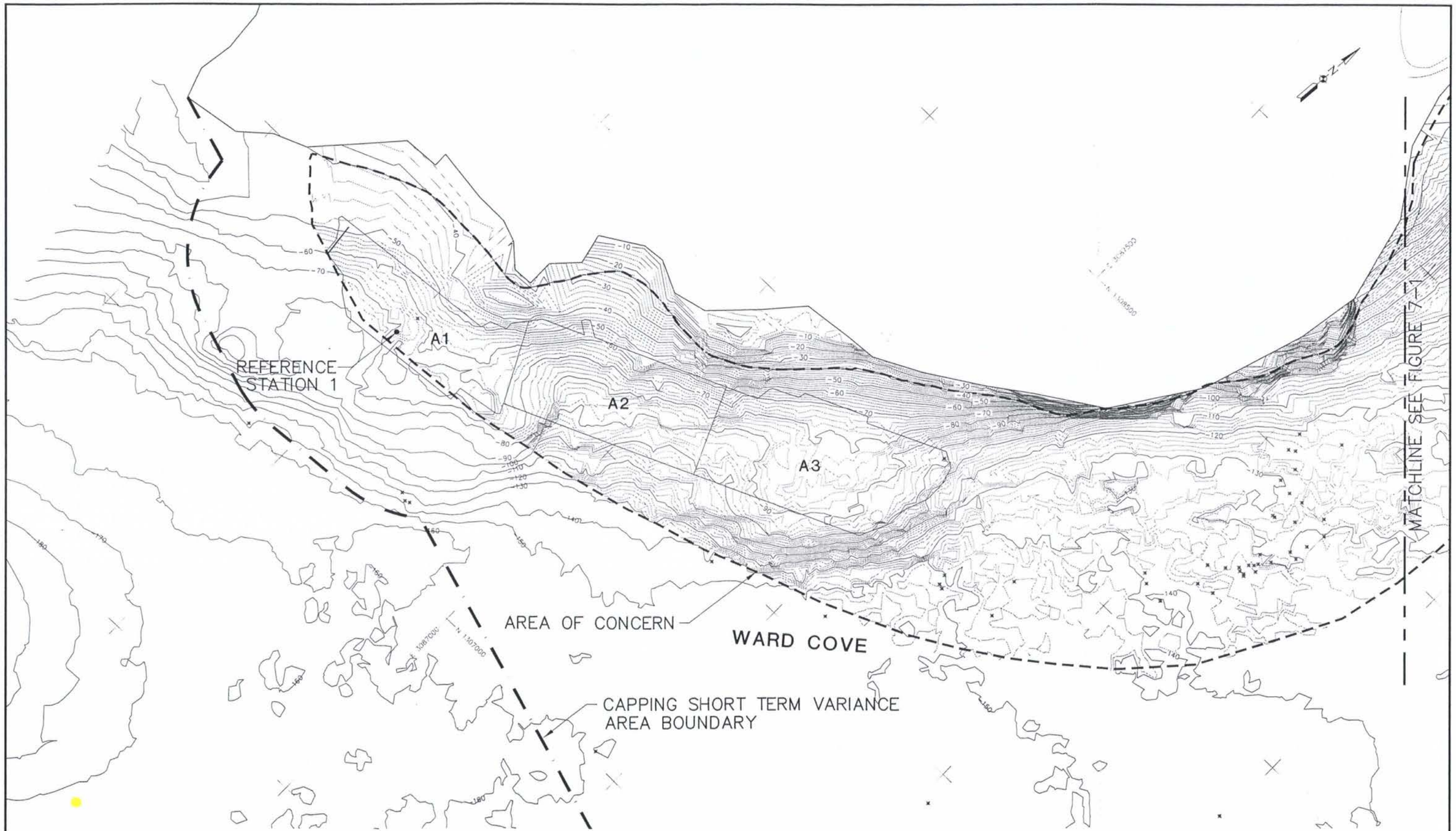


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# 8. EFFECTIVENESS OF REMEDIATION ACTIVITIES

The equipment mobilized to the Marine OU to carry out the Ward Cove Remediation Project was of appropriate size, adequately equipped, and crewed to perform the main project remediation tasks of log removal, dredging, and capping/mounding. A brief account of the operational difficulties encountered and successes achieved under this contract are discussed in this section.

## 8.1 LOG REMOVAL

The log removal activities were conducted in an efficient and effective manner. The pre-log removal side-scan sonar survey of the shallow draft barge access and berthing area (D3), and deep draft berthing areas (D1 and D2), provided an excellent view of the log locations and relative densities and sizes of logs looking from above. The side-scan sonar surveys were limited to showing the large surface logs and debris only. Vertical piles and pile clusters were generally not visible due to the beam angle of the side-scan sonar unit. A log or cluster of logs located on the side-scan sonar survey was identified on a log removal plan, which was input into the WINOPS display. The operator used this information to precisely locate and remove designated logs and log piles. The system worked well according to the dredge operators. The post-log removal side scan survey also showed evidence of a successful system.

## 8.2 DREDGING

As described in more detail in Sections 5 and 6 of this report, the dredging effectiveness in areas D1, D2, and D3, was variable as a result of variable material types, mechanical delays, and operator/crew experience. The Cable Arm environmental clamshell bucket was too light for some of the materials encountered, and "ineffective" due to debris, logs, and shot rock encountered. The heavy digging bucket was the correct tool for the job. Due to a significant amount of debris, rock, and logs in the dredge areas, achieving a "level cut" was not feasible. The digging bucket did not cause exceedances of the water quality standards for the project. The main area of improvement in the dredge operation would be vertical control. The WINOPS system, as installed, did not provide accurate or consistent vertical position of the bucket by means of a line counter located on the drum. By marking the closing line of the clamshell bucket in 1-foot increments, the operator had much better

knowledge of the lip of the bucket's vertical position. The WINOPS system, however, proved to be an effective tool for the dredge and bucket positioning during dredging and return-high spot removal. Despite use of these systems, some overdredging, beyond the allowable overdredge line, was experienced.

Material rehandling of the dredged material from the material barge to the dewatering facility proved effective, and was a clean operation, with very little spillage of material from the barge over water, the shore, and the dike before placement into the dewatering site.

## 8.3 CAPPING

The success in placement of thin cap across all designated A and B areas, the M1 area, and over two acres of the D areas is attributable to a number of aspects of the capping operation. The derrick barge was of appropriate size to move into tight areas along the Marine OU boundary, and supported use of a modified 8-cy bucket that was demonstrated to place capping material well across the range of bottom conditions and depths for the remediation project. The crew, by the time production capping was initiated, was familiar with the dredge operation and positioning. The WINOPS system, again, was a key factor in positioning the dredge and the individual buckets in the next adjacent capping area to ensure that all areas were capped, with minimal overlap, while providing as the most uniform coverage as possible. The imported sand material used for capping also significantly contributing to the success in placement of the thin cap. The capping material was of appropriate physical composition, namely grain size distribution, permitting uniform spreading and placement across the capping acceptance areas, without substantive impacts to water quality.

## 8.4 REMEDIATION EFFECTIVENESS

The effectiveness of the actual remedial activities completed during the project will be assessed by means of implementation of the long-term monitoring plan. Monitoring is scheduled to begin in 200~~3~~4.

# 9. COST SUMMARY

The project construction cost for the Ward Cove Remediation Project is anticipated to total $3,111,000.00, once all final payments have been processed. The total cost of the Ward Cove Remediation Project, beginning with development of the Remedial Design Work Plan, is estimated to have cost $3,964,000.

The estimated cost for the dredging component of the project, including preliminary field investigations and reporting, design and plans development, post construction engineering, procurement, construction management, project management, mobilization/demobilization, engineering/QC and science support, construction of dewatering site, surveys, log removal, PAH dredging, and dredging items was $1,400,780. Based on the *in situ* volume of material dredged, the unit cost of dredging for the Ward Cove Remediation Project was approximately $159 per cy. This cost does not include the cost of disposal of the dredged material.

The estimated cost for the capping component of the project including preliminary field investigations and reporting, design and plans development, post construction engineering, procurement, construction management, project management, mobilization/demobilization, engineering/QC and science support, surveys, and capping items was $2,563,506. Based on the volume of capping material placed, the unit cost of capping for the Ward Cove Remediation Project was $110 per cy.

# 10. HEALTH AND SAFETY

## 10.1 SITE SPECIFIC HEALTH AND SAFETY PLAN

Foster Wheeler Environmental prepared and submitted a Site Specific Health and Safety Plan (HASP) in accordance with the EPA Statement of Work for Remedial Design, Remedial Action, and Long Term Monitoring of contaminated sediments in Ward Cove, Ketchikan, Alaska. The comprehensive HASP incorporated an accident prevention plan, as required by Task 4.A.8 of the EPA Statement of Work, and meets the requirements of 29 CFR 1910 and 1926. The HASP was submitted as Appendix B in the Final Remedial Action Work Plan for Ward Cove Sediment Remediation (Foster Wheeler Environmental 2000).

The HASP provided guidance on chemical and physical hazards and measures of protection, as well as guidance for avoiding exposure on site. In addition, the HASP included emergency procedures, routes to the local hospital in conjunction with a comprehensive list of contact names, and phone numbers for key personnel. All on-site field personnel and visitors were required to attend a site orientation that included presentation of the Site Specific HASP. All major tasks and potential risks was presented and discussed with attendees. All attendees signed an Acknowledgement Form, stating that they understood the contents of the HASP and that all their questions had been answered. Attendees also received a copy of the HASP.

## 10.2 DAILY SAFETY MEETINGS

J. E. McAmis, Inc., remediation subcontractor, held daily briefings prior to each work shift. The daily briefings, conducted by the J. E. McAmis, Inc. superintendent, in conjunction with the Foster Wheeler Environmental Safety Supervisor, included a daily safety meeting. The topics for discussion included the activities to be performed during that day and the associated hazards and levels of protection required to safely complete the work. Daily briefing reports are included in and archived with the daily production reports in the permanent project file.

## 10.3 REPORTABLE INCIDENTS AND NEAR MISSES

J. E. McAmis, Inc. personnel maintained an excellent safety record during the course of the project. All personnel showed interest in safety and the effective use of personal protective equipment, as well as maintaining safe working practices. Only two reportable incidents and no near misses were reported by J.E. McAmis, Inc. The reportable incidents did not result in serious injury or any lost time.

The first incident occurred during replacement of a tag line that was jammed in the re-wind spool. A deck hand was standing on the coiled tag line on the deck when the re-wind activated. The coiled line wrapped around his leg and lifted him off the deck. The incident was preventable and occurred as a result of human error when the deck hand, not noticing where he was standing, stood on the coiled line. The deck hand was treated on site for abrasions to his leg, and he returned to work and finished his shift.

The second incident occurred when a support person stepped from the deck of a boat to a metal ramp onshore and slipped, scraping his shin on the ramp. The incident was preventable and resulted from human error when proper care was not exercised during transfer of personnel from a vessel to a slippery metal ramp. The support person was treated on site for an abrasion and returned to work, completing his shift. Both incidents were topics of discussion during the daily briefings that followed the occurrences.

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Foster Wheeler Environmental Corporation. 2000. Final Remedial Action Work Plan, Ward Cove Sediment Remediation. Prepared for the Ketchikan Pulp Company, Ketchikan, Alaska. October 2000.

Foster Wheeler Environmental. 2001. Ward Cove Sediment Remediation Project, Final Water Quality Monitoring Report. Prepared for Ketchikan Pulp Company, Ketchikan, AK. Foster Wheeler Environmental, Bothell, WA. April 2001.

FWPCA (Federal Water Pollution Control Administration). 1965. Effects of Pulp Mill Wastes on Receiving Waters at Ward Cove, Alaska. Federal Water Pollution Control Administration, Alaska Operations Office, Northwest Region, Anchorage, AK.

FWQA (Federal Water Quality Administration). 1970. Effects of Pulp Mill Wastes on Receiving Waters at Ward Cove, Alaska. Federal Water Quality Administration, Alaska Operations Office, Northwest Region, Anchorage, AK.

Jones & Stokes and Kinnetic. 1989. Ward Cove Water Quality Assessment. Final. EPA Contract No. 68-02-4381. Jones & Stokes Associates, Inc., Bellevue, WA, and Kinnetic Laboratories, Inc., Santa Cruz, CA.

PN&D, Exponent and Hartman. 2000. Ward Cove Sediment Remediation Project, Construction Quality Assurance Plan. Prepared for Ketchikan Pulp Company, Ketchikan, AK. Peratrovich, Nottingham, & Drage Inc., Juneau, AK, Exponent, Bellevue, WA, and Hartman Consulting Corp., Bothell, WA. September 2000.

| NO | DATE | REVISION | BY | CH | APPROVED |
|---|---|---|---|---|---|
| 1 | 8-2-00 | REISSUED FOR CONSTRUCTION | GH | JL | WE |
| 2 | 6-28-01 | AS-BUILT | JEL | BK | WE |

# WARD COVE SEDIMENT REMEDIATION
# KETCHIKAN PULP COMPANY
## KETCHIKAN, ALASKA
# AS-BUILT DRAWINGS

| DWG NO. | TITLE | SHEET NO. |
|---|---|---|
| | | |
| FIGURE A-1 | TITLE SHEET AND DRAWING LIST | 1 OF 7 |
| FIGURE A-2 | VICINITY MAP, SITE LOCATION MAP, LEGEND AND NOTES | 2 OF 7 |
| FIGURE A-3 | AS-BUILT DREDGE AREAS | 3 OF 7 |
| FIGURE A-4 | AS-BUILT THIN CAP AREAS | 4 OF 7 |
| FIGURE A-5 | AS-BUILT THIN CAP AREAS | 5 OF 7 |
| FIGURE A-6 | AS-BUILT SITE PLAN/BATHYMETERY | 6 OF 7 |
| FIGURE A-7 | COMPLETED REMEDIAL ACTION IN WARD COVE | 7 OF 7 |

STATE OF ALASKA 49TH William Elmer No. CE-8266 REGISTERED PROFESSIONAL ENGINEER

DRAWING REDUCED
HALFSIZE

WARD COVE SEDIMENT REMEDIATION
KETCHIKAN PULP COMPANY
KETCHIKAN, ALASKA

FIGURE A-1
TITLE SHEET AND DRAWING LIST

FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

| SCALE: AS NOTED | APPROVED | DATE: 4/19/01 |
|---|---|---|
| DESIGNED: GH<br>DRAWN: AEC<br>CHECKED: JL | WE | 1/7 |

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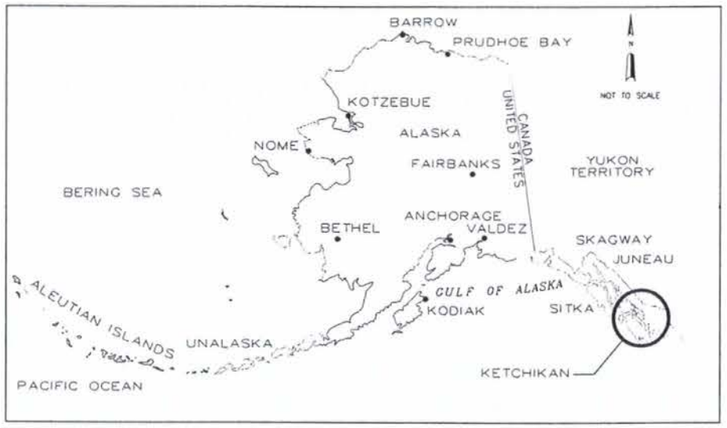
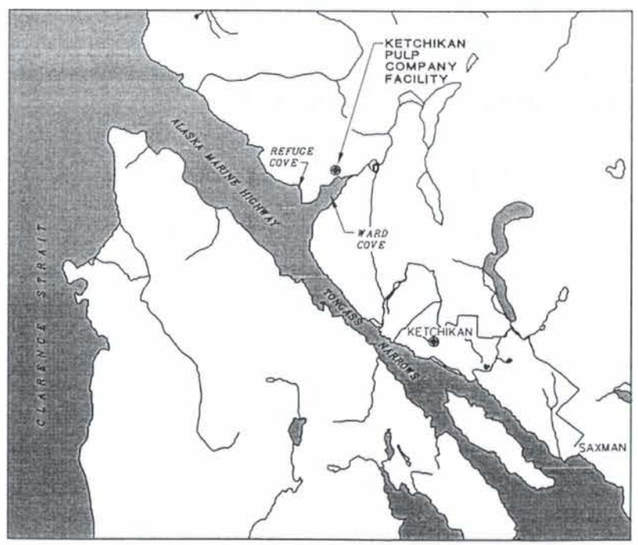
| 1 | 8-2-00 | REISSUED FOR CONSTRUCTION | GH | JL | WE |
| 2 | 6-28-01 | AS-BUILT | JEL | BK | WE |
| 3 | 7-17-01 | AS-BUILT | BK | JL | WE |




## VICINITY MAP




## SITE LOCATION MAP

## NOTES

1. HORIZONTAL DATUM: NORTH AMERICAN DATUM OF 1983 (NAD 83), ALASKA STATE PLANE COORDINATE SYSTEM, ZONE 1, FEET.
2. VERTICAL DATUM: MEAN LOWER LOW WATER (MLLW) AS ESTABLISHED BY NATIONAL OCEAN SERVICE.
3. ALL DIMENSIONS IN FEET UNLESS OTHERWISE NOTED.
4. BATHYMETRIC SURVEY BY DAVID EVANS & ASSOCIATES, MAY 1997, SUPPLEMENTED WITH POST DREDGE SURVEYS OF AREAS D1, D2, AND D3 BY HUGHES & ASSOCIATES JAN. 13, 2001.
5. SHORELINE DIGITIZED FROM 1997 AERIAL ORTHO PHOTO OF WARD COVE.
6. DREDGE TO REQUIRED DEPTH ELEVATIONS AS SHOWN. IF NATIVE ROCK IS ENCOUNTERED DREDGE TO DEPTH ELEVATION OF ROCK.
7. PAH = POLYCYCLIC AROMATIC HYDROCARBONS.

## LEGEND

DIVER SURVEY WITH ZERO PENETRATION LIMIT ALONG TRANSECT

NATIONAL GEODETIC SURVEY BENCHMARKS

AREA OF CONCERN (AOC) (80 ACRES)

SHORELINE

○ 7 (52) 1999 BORING LOCATION AND THICKNESS OF VERY SOFT ORGANIC MATERIAL WITH (EXPLORATION NUMBER)

● 10 (1) 1997 CORE LOCATION AND THICKNESS OF VERY SOFT ORGANIC MATERIAL WITH (CORE STATION NUMBER)

DREDGE SLOPE

2 / 4 0+00

HORIZONTAL CONTROL POINT

DRAWING REDUCED HALFSIZE

STATE OF ALASKA 49TH William Comer No. CE-8266 REGISTERED PROFESSIONAL ENGINEER

WARD COVE SEDIMENT REMEDIATION
KETCHIKAN PULP COMPANY
KETCHIKAN, ALASKA

FIGURE A-2
VICINITY MAP, SITE LOCATION MAP, LEGEND AND NOTES

FOSTER FW WHEELER
AND HARTMAN CONSULTING CORPORATION

| SCALE: AS NOTED | APPROVED | DATE: 4/19/01 |
|---|---|---|
| DESIGNED: GH | | |
| DRAWN: AEC | WE | |
| CHECKED: JL | | |

2/7

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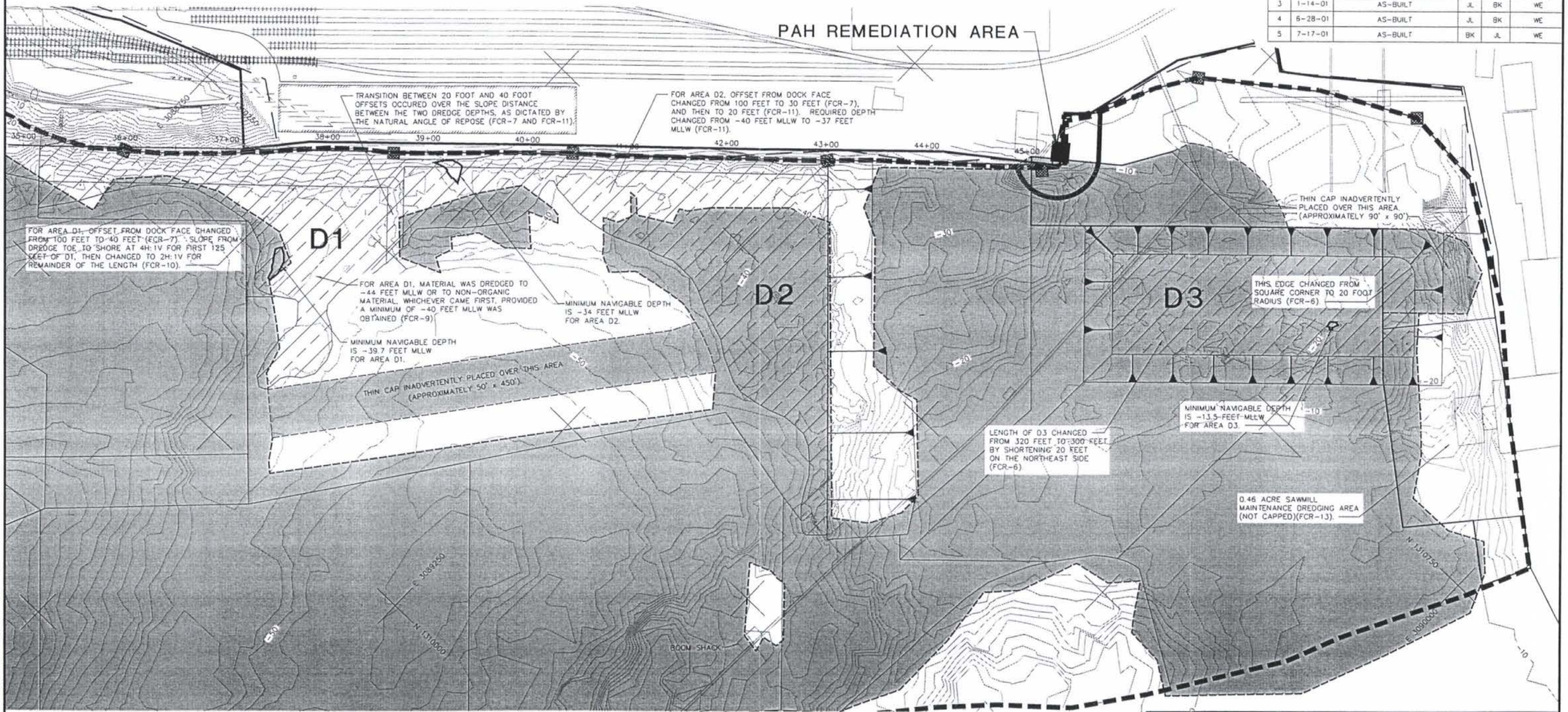
| 2 | 1-3-01 | REVISED PER FCR 9 & 11 | JL | GH | WE |
| 3 | 1-14-01 | AS-BUILT | JL | BK | WE |
| 4 | 6-28-01 | AS-BUILT | JL | BK | WE |
| 5 | 7-17-01 | AS-BUILT | BK | JL | WE |




## NOTES

1. JANUARY 13, 2001 POST DREDGE SURVEY SHOWN IN AREAS D1, D2, AND D3. 1997 (DAVID EVANS AND ASSOCIATES) CONDITION SURVEY SHOWN ELSEWHERE IN WARD COVE.

## LEGEND

- DREDGED AREAS
- THIN CAP AREAS AS RECORDED BY WNOPS
- DREDGE SLOPE
- AREA OF CONCERN

25 0 25 50 75
SCALE IN FEET
HORIZONTAL SCALE

DRAWING REDUCED
HALFSIZE

STATE OF ALASKA 49TH William Ebner No. CE-8268 REGISTERED PROFESSIONAL ENGINEER

WARD COVE SEDIMENT REMEDIATION
KETCHIKAN PULP COMPANY
KETCHIKAN, ALASKA

FIGURE A-3
AS-BUILT
DREDGE AREAS

FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

| SCALE: AS NOTED | APPROVED | DATE: 4/19/01 |
|---|---|---|
| DESIGNED: GH | WE | |
| DRAWN: AEC | | |
| CHECKED: JL | | 3/7 |

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|---|---|---|---|---|---|
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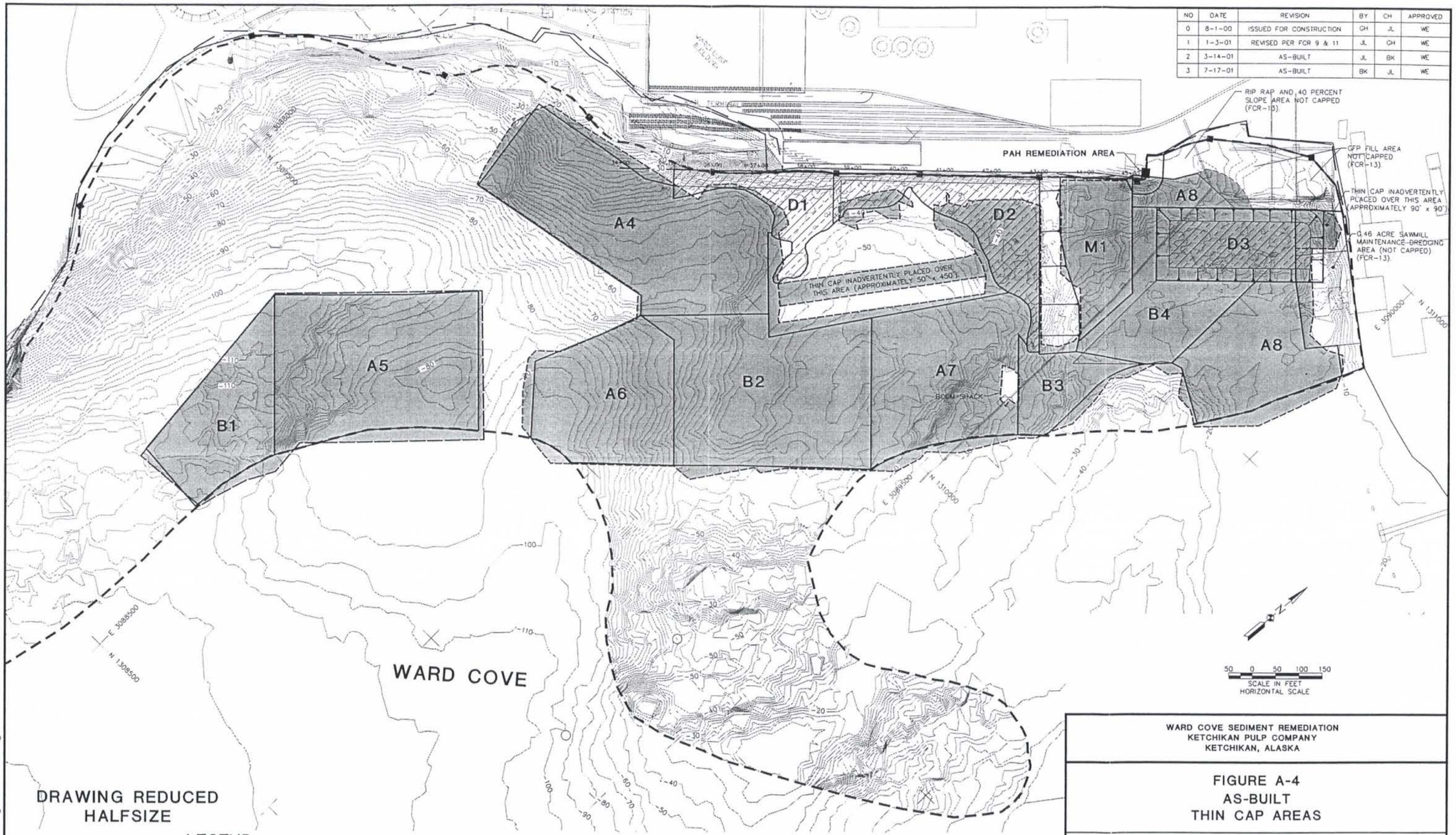
| 1 | 1-3-01 | REVISED PER FCR 9 & 11 | JL | GH | WE |
| 2 | 3-14-01 | AS-BUILT | JL | BK | WE |
| 3 | 7-17-01 | AS-BUILT | BK | JL | WE |




WARD COVE SEDIMENT REMEDIATION
KETCHIKAN PULP COMPANY
KETCHIKAN, ALASKA

FIGURE A-4
AS-BUILT
THIN CAP AREAS

FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

| | | |
|---|---|---|
| SCALE: AS NOTED | APPROVED | DATE: 4/19/01 |
| DESIGNED: GH<br>DRAWN: AEC<br>CHECKED: JL | WE | 4/7 |

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| NO. | DATE | REVISION | BY | CH | APPROVED |
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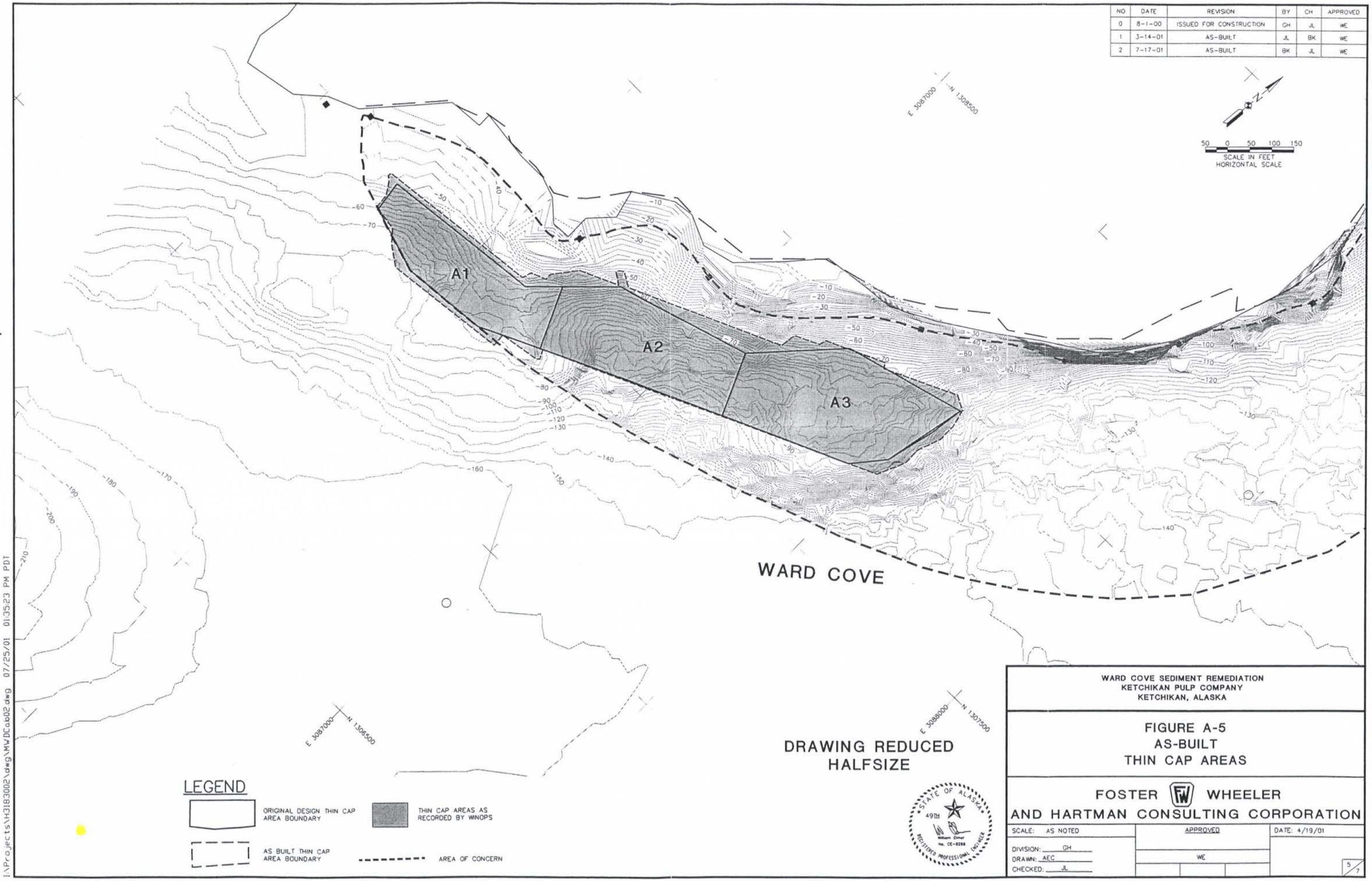
| 0 | 8-1-00 | ISSUED FOR CONSTRUCTION | GH | JL | WE |
| 1 | 3-14-01 | AS-BUILT | JL | BK | WE |
| 2 | 7-17-01 | AS-BUILT | BK | JL | WE |




DRAWING REDUCED
HALFSIZE

WARD COVE SEDIMENT REMEDIATION
KETCHIKAN PULP COMPANY
KETCHIKAN, ALASKA

FIGURE A-5
AS-BUILT
THIN CAP AREAS

FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

| | | |
|---|---|---|
| SCALE: AS NOTED | APPROVED | DATE: 4/19/01 |
| DIVISION: GH<br>DRAWN: AEC<br>CHECKED: JL | WE | 5/7 |

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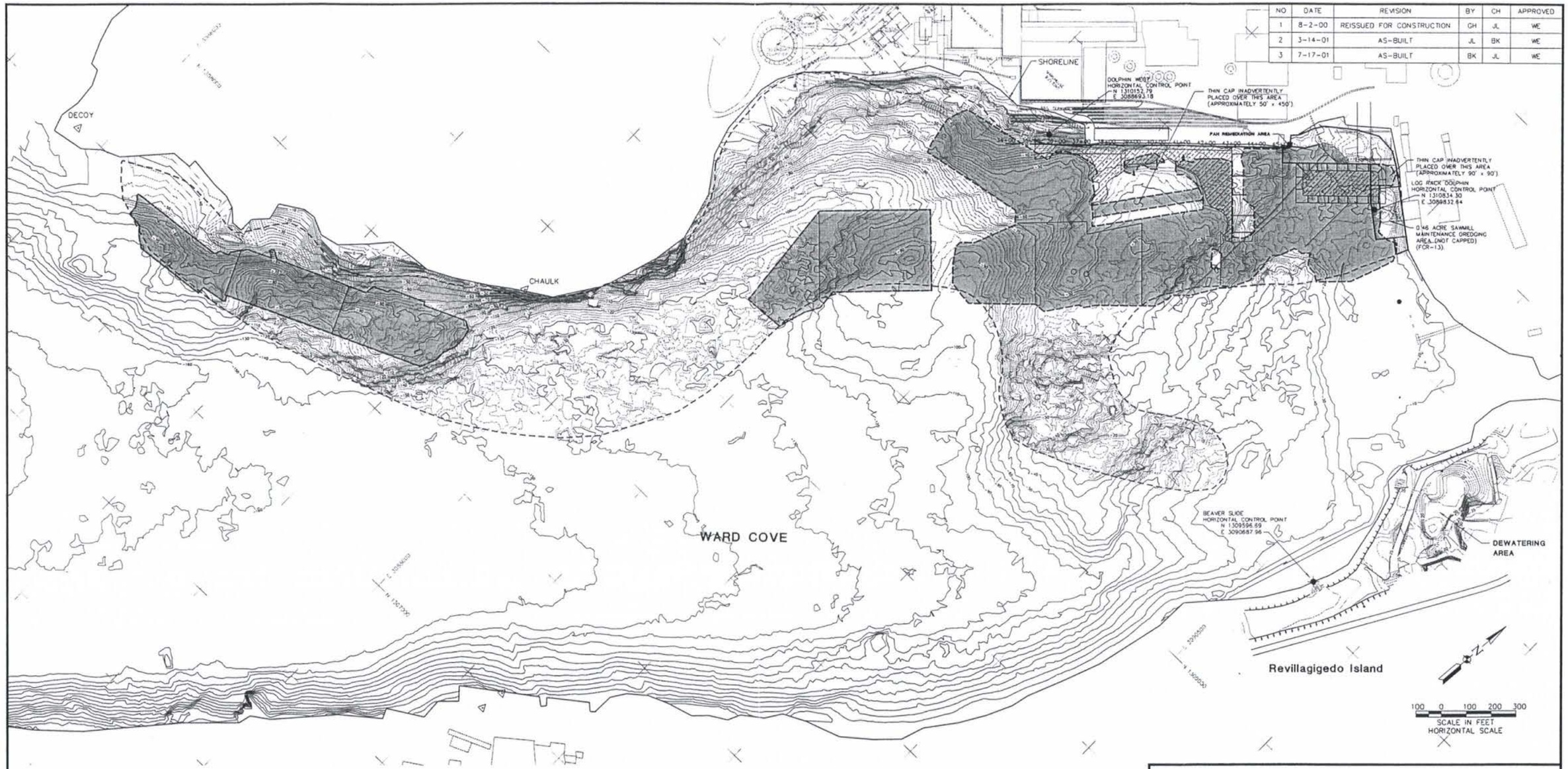
| 1 | 8-2-00 | REISSUED FOR CONSTRUCTION | GH | JL | WE |
| 2 | 3-14-01 | AS-BUILT | JL | BK | WE |
| 3 | 7-17-01 | AS-BUILT | BK | JL | WE |




## LEGEND

- THIN CAP AREAS AS RECORDED BY WINOPS
- AS BUILT THIN CAP AREA BOUNDARY
- DREDGED AREAS
- DREDGE SLOPE
- HORIZONTAL CONTROL POINT
- AREA OF CONCERN

STATE OF ALASKA 49TH William Elmer No. CE-8266 REGISTERED PROFESSIONAL ENGINEER

DRAWING REDUCED HALFSIZE

WARD COVE SEDIMENT REMEDIATION
KETCHIKAN PULP COMPANY
KETCHIKAN, ALASKA

FIGURE A-6
AS-BUILT
SITE PLAN/BATHYMETRY

FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

| SCALE: AS NOTED | APPROVED | DATE: 4/19/01 |
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| DESIGNED: GH<br>DRAWN: AEC<br>CHECKED: JL | WE | 6/7 |

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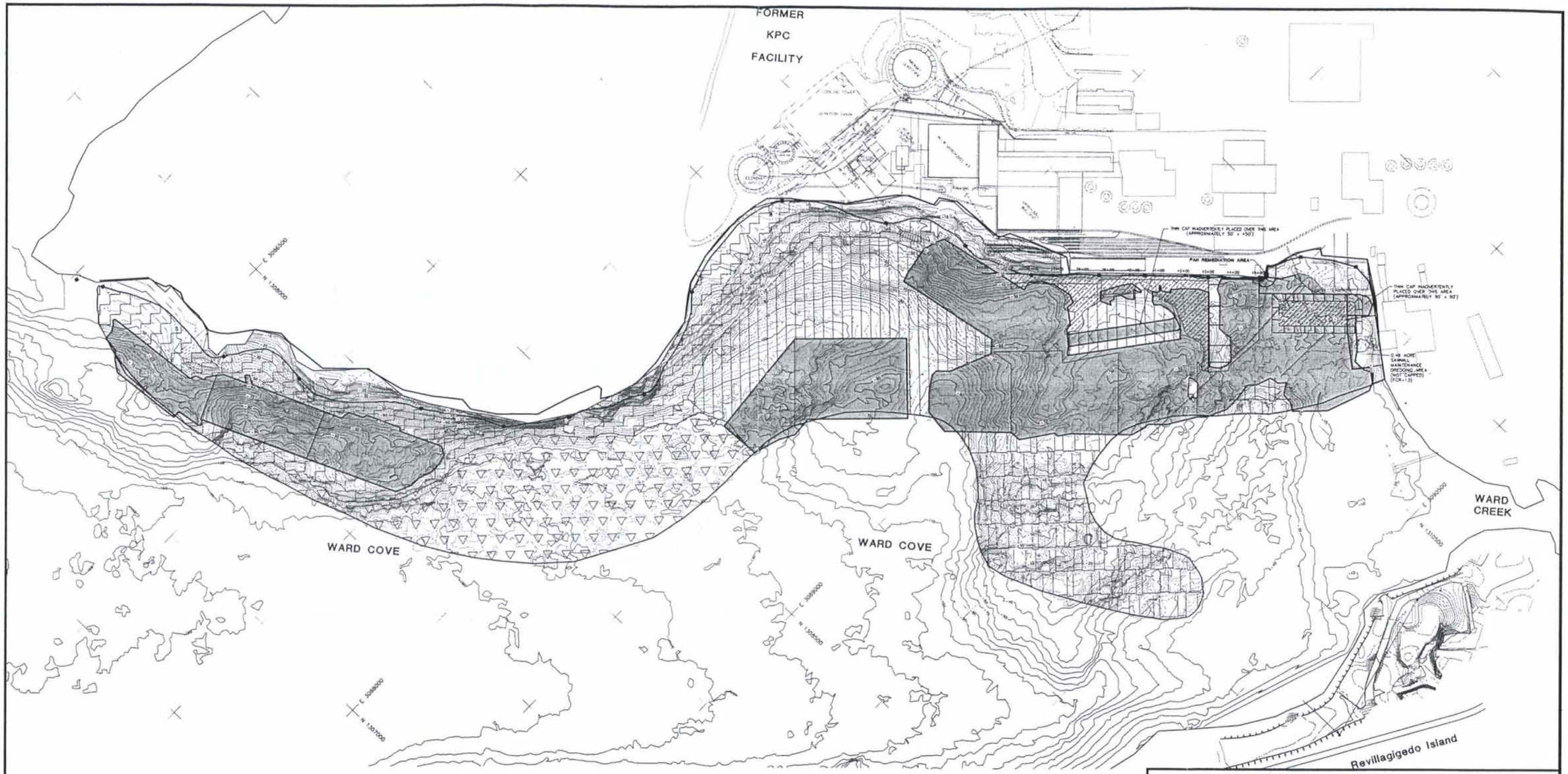


## LEGEND

- THIN CAP AREAS AS RECORDED BY WINOPS
- NATURAL RECOVERY DUE TO SLOPE
- NATURAL RECOVERY DUE TO VERY HIGH LOG DENSITY
- DREDGED AREAS (REFER TO FIGURE A-3 FOR ACTUAL DREDGE AND CAPPING DETAILS)
- NATURAL RECOVERY DUE TO THICK ORGANIC MATERIAL
- NATURAL RECOVERY DUE TO WATER DEPTH

DRAWING REDUCED HALFSIZE

STATE OF ALASKA 49TH William Omer No. CE-8266 REGISTERED PROFESSIONAL ENGINEER

WARD COVE SEDIMENT REMEDIATION
KETCHIKAN PULP COMPANY
KETCHIKAN, ALASKA

FIGURE A-7
COMPLETED REMEDIAL ACTION
IN WARD COVE

FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

| | | |
|---|---|---|
| SCALE: AS NOTED | APPROVED | DATE: 6/29/01 |
| DESIGNED: GH<br>DRAWN: KSK<br>CHECKED: JEL | WE | 7/7 |

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# SPILL CONTINGENCY PLAN

## INTRODUCTION:

The Spill Contingency Plan has been prepared by J. E. McAmis, Inc. for the purpose of establishing procedures to address emergency response procedures for the prevention of, and proactive measures in the event of, an unauthorized release into surface waters (Ward Cove).

All emergency response activities to be conducted by J. E. McAmis, Inc. employees at the Ward Cove Sediment Remediation Project.

Prior to entering the project site, J. E. McAmis, Inc. personnel shall read this plan and be familiar with emergency response procedures required onsite. A copy of this plan shall be available onsite for inspection and review.

The observance of procedures in this plan are mandatory for all J. E. McAmis, Inc. personnel, and all subcontractors.

## CONTACT INFORMATION:

Contractor: J. E. McAmis, Inc.
3125 Southgate Lane
Chico, CA 95928
Phone (530) 891-5061

Project Manager: Craig Chartrand

## POTENTIAL SPILLS:

The potential for a spill exists:
1. While filling bulk tanks;
2. When transferring fuel from bulk tanks into fuel trucks;
3. When transferring fuel from fuel trucks into equipment;
4. While transporting fuel and lubes.

## SPILL PREVENTION:

1. Spills caused by a tank rupture are prevented with the utilization of diked tanks. Tanks are visually inspected for potential ruptures.
2. Spills during filling of bulk tanks are prevented by:

a) The utilization of an "Operations Manual" for the facility. The manual is present at the facility and shall be adhered to by all personnel.
b) Only those personnel fully trained or experienced in fuel transfer shall transfer fuel into bulk tanks.

3. Spills occurring while transferring fuel from bulk tanks into fuel trucks or directly into equipment are prevented by:
   a) Using only qualified and instructed personnel to perform and transfer;
   b) Inspect for leaks and other potential spill areas;
   c) Making maintenance at the facility a priority;
   d) Insuring that personnel shall be present 100 percent of the time a transfer is occurring;
   e) Verifying that prior to transfer compartments in the fuel truck or piece of equipment shall be double-checked to verify their capacity for addition of fuel.
   f) Verifying that automatic shutoff nozzles are utilized at the site.
   g) Verifying that care is taken to leave reserved capacity in the fuel truck to account for expansion.
4. Spills occurring while transferring fuel from a fuel truck into various pieces of equipment are prevented by:
   a) Taking special care to insure that the lay of the fuel hose is safe. Personnel are instructed to prevent kinks and abrasions in the fuel hose, which could potentially become leaks.
   b) Visually inspecting all hose fittings for tightness and serviceability.

5. Spills occurring while transporting fuel and lubes are prevented by:
   a) Double checking that pumps are not engaged while traveling;
   b) Service vehicles are maintained in good operating condition at all times;
   c) Service vehicles shall be operated at speeds that are safe for exiting conditions;
   d) Prior to travel, individual containers of product shall be inspected and secured if necessary.

**SPILL RESPONSE:**

Containment boom and miscellaneous absorbent emergency response supplies will be readily available at all times. Containment boom will encircle a vessel should that vessel become an environmental threat. Absorbent materials used for the cleanup of spills will be properly stored and disposed of.

Additional Measures Include:

1. Notify your superintendent immediately if possible.
2. Make every attempt to stop, and contain the spill.
3. In the event of a major spill, use other methods such as ditches and dikes to prevent spill from spreading to other areas. Extremely critical areas include all waterways either fresh or salt water.
4. If applicable, ~~and if possible,~~ contact the following agencies in the case of an emergency:

a) Coast Guard 24 Hour Emergency Response: (800) 424-8802;
b) Ketchikan Coast Guard Marine Safety Detachment: (907) 225-4496;
c) Ketchikan Coast Guard Base (evenings and weekends) (907) 225-5182;
d) Juneau Coast Guard Marine Safety: (907) 463-2465;
e) Juneau Coast Guard Operations (evenings and weekends) (907) 586-7340;
f) Alaska Department of Environmental Conservation (ADEC): (800) 478-9300.

**NOTIFICATION:**

1. Notification requirements for oil or any other hazardous substance spilled into the water:
   a) For any discharge, the individual reporting the spill (or their supervisor) will immediately notify the National Response Center (NRC) at telephone no. (800) 424-8802, the Foster Wheeler Site Supervisor as listed below, and the KPC Environmental Department as listed below. The individual reporting the spill (or their supervisor) should also contact the ADEC at (907) 225-6200, days, or (800) 478-9300, after hours and weekends and Coast Guard 24 Hour Emergency Response at (800) 424-8802.

   b) In excess of 55 gallons, immediately notify the Foster Wheeler Site Supervisor as listed below, and the KPC Environmental Department as listed below.
   ~~as soon as there is knowledge of a discharge;~~
   ~~Less than 55 gallons but more than .5 pint, within 24 hours of knowledge of a discharge;~~
   ~~c)~~a) ~~Less than .5 pint, within seven (7) days of knowledge of a discharge.~~

2. Notification requirements for oil spill on land:
   a) For any discharge of oil to land ~~I~~in excess of ~~55~~ 10 gallons but less than 55 gallons ~~within five (5) hours of knowledge of a discharge;~~, or in excess of 55 gallons in containment the individual reporting the spill will immediately notify ADEC at (907) 225-6200, days, or (800) 478-9300, after hours and weekends, the Foster Wheeler Site Supervisor, and the KPC Environmental Department as listed below
   ~~b)Less that 55 gallons but greater than ten (10) gallons, within 24 hours or knowledge of a discharge;~~
   ~~c)~~b) Less than ten (10) gallons within seven (7) days of knowledge of a discharge;
   ~~d)~~c) Failure to notify the State of Alaska, Department of Environmental Conservation is a misdemeanor punishable by a fine.

Foster Wheeler Environmental Site Supervisor

| | | |
|---|---|---|
| John Lally | Office | (907) 225-2281 |
| | Cell | (425) 503-0492 |
| Eric Snow | Office | (907) 225-2279 |
| | Cell | (770) 331-4202 |
| Site Office Main Line | | (907) 225-7559 |

KPC's Environmental Department

| | | |
|---|---|---|
| Barry Hogarty | Office | (907) 228-2187 |
| | Cell | (907) 254-2168 |
| | Home | (b) (6) |
| Bob Blankenburg | Office | (907) 228-2200 |
| | Cell | (907) 254-2157 |
| | Home | (b) (6) |
| Phil Benning | Office | (907) 228-2192 |
| | Home | (b) (6) |

## COUNTERMEASURES:

All personnel using the facility have been instructed in the following countermeasures:

1. Verify that spill containment materials are present.
2. Receive training on methods to utilize in the event of a spill
3. Verify that contact names and telephone numbers are available on site.
4. Verify that drip pan is available.

## INSPECTION & RECORDS:

Inspect facility periodically but not less than each time fuel is transferred. Specifically, inspect for leaking values and the presence of required quantities of spill materials.

FOSTER WHEELER ENVIRONMENTAL CORPORATION
WARD COVE REMEDIATION PROJECT

CONTRACT NO. 1

# FIELD CHANGE REQUEST (FCR)

| WORK ORDER NAME | WORK ORDER # | CHANGE REQUEST NO. |
|---|---|---|
| CONSTRUCTION MANAGEMENT | 01 | FCR-03 |
| TO KAREN KEELEY, E.P.A. REGION 10<br>TAMMY PHILLIPS, U.S.A.C.O.E, AK DISTRICT | LOCATION<br>WARD COVE, KETCHIKAN, AK | DATE<br>11/3/00 |

RE: ___ Drawing No. _____ Title _____

___ Spec _____ Title _____

___ Other Water Quality Monitoring Plan Appendix C

**1. DESCRIPTION (Items involved, submit sketch, if applicable):**
Appendix C, Quality Assurance Project Plan for Water Quality Monitoring, of the Water Quality Monitoring plan states that the Hydrolab sensors (oxygen, salinity, turbidity) shall be calibrated prior to use "each day". This exceeds the manufacturer's instructions for calibration "once per month for turbidy". It was agreed at the October 25, 2000 pre-construction meeting that calibration of the hydrolab turbidity sensor should follow the manufacturer's recommendation.

**2. REASON FOR CHANGE**
Unecessary labor and cost item.

**3. RECOMMENDED DISPOSITION (Submit sketch, if applicable):**
Recommend change.

_X_ Minor Change ____ Major Change (Impacts Cost, Schedule or Technical)

3a. Will this change result in a contract cost or time change? ____ YES _X_ NO

3b. Estimate of contract cost or time charge (if any)

| PREPARER (Signature) | DATE | PREPARER'S TITLE | SITE SUPERINTENDENT (Signature) | DATE |
|---|---|---|---|---|
| John Lally | 11/4/00 | Site Supervisor | | |

**4. DISPOSITION**

___ Not approved (give reason).
X_ Considered minor change - approved per Recommended Disposition - Documents will not formally be revised, field to maintain as-built records.
___ Considered major change - KPC approval required via contract modification process.

| 1) FOSTER WHEELER ENVIRONMENTAL DESIGN MANAGER (Signature) (IF ENGINEERING RELATED) | DATE | 2) FOSTER WHEELER ENVIRONMENTAL PROJECT MANAGER (Signature) | DATE |
|---|---|---|---|
| NA | | | 11-7-00 |
| 3) HEALTH AND SAFETY MANAGER (Signature) (IF HEALTH AND SAFETY RELATED)<br>NA<br>____ Comments (attached) ____ No Comments | DATE | 4) QC REVIEWER (Signature)<br>____ Comments (attached) ____ No Comments | DATE |

Construction Project Manager distributes to:

Foster Wheeler Design Manager — Quality Assurance Officer — FCR Preparer — Site Supervisor

Project Controls — Program Health and Safety Manager

REV: 11/3/00

To ensure comparability and representativeness of the data, standard instrumentation will be used for the readings and the instrument will be properly calibrated and maintained.

## Instrument Calibration and Analytical Procedures

The sensors for dissolved oxygen, salinity, and turbidity will be calibrated prior to use each day. Calibration will be completed according to the manufacturer's instructions. Temperature calibration is preset at the factory and does not require additional calibration. Depth calibration is completed by zeroing the instrument at the water surface prior to deployment. Calibration for dissolved oxygen, salinity, and turbidity will be checked at the end of each day of monitoring. If calibration is found to drift, the calibration will be checked and the probe recalibrated more frequently, as required. Recalibration will be completed if the calibration changes by 10 percent.

Hydrolab readings will be taken at the depths and times indicated in the WQMP.

## Internal Quality Control Checks

Internal quality control check will consist of calibration checks at the end of each day of monitoring. No additional QA/QC procedures are applicable to the Hydrolab field monitoring procedures.

Completeness will be calculated by dividing the number of valid measurements (all measurements except rejected data) actually obtained by the number of valid measurements that were planned:

$$\text{Completeness} = \frac{\text{valid data points obtained}}{\text{total data points planned}} \times 100$$

FOSTER WHEELER ENVIRONMENTAL CORPORATION
WARD COVE REMEDIATION PROJECT

CONTRACT NO. 1

# FIELD CHANGE REQUEST
# (FCR)

DEC 04 2000

| WORK ORDER NAME | WORK ORDER # | CHANGE REQUEST NO. |
|---|---|---|
| CONSTRUCTION MANAGEMENT | 01 | FCR-04 |

| TO | LOCATION | DATE |
|---|---|---|
| BARRY HOGARTY, KPC-LP | WARD COVE, KETCHIKAN, AK | 11/17/00 |

RE: ___ Drawing No. _____ Title _____

___ Spec _____ Title _____

✓ Other QAPP — 3.6.2 Precision Bathymetry

**1. DESCRIPTION (Items involved, submit sketch, if applicable):**

In place of the Conductivity, Temperature and Depth (CTD) profiler used to check speed of sound, an Odom Digibar sound velocity probe will be used for speed of sound calibration of the echo sounder, twice daily. Additionally, daily bar checks will be performed.

**2. REASON FOR CHANGE**

The Odom Digibar is a fast and safe method for sound velocity calibration as compared to the traditional bar check. Regardless of sea state or current, the probe is lowered into the water to log sound velocity/depth samples (by time or depth interval) as the probe descends. The Digibar offers speed of sound calibration equivalent to the CTD profiler, according to the Ward Cove Remediation Site Engineer.

**3. RECOMMENDED DISPOSITION (Submit sketch, if applicable):**

Recommend change.

_X_ Minor Change ____ Major Change (Impacts Cost, Schedule or Technical)

3a. Will this change result in a contract cost or time change? ____ YES _X_ NO

3b. Estimate of contract cost or time charge (if any)

| PREPARER (Signature) | DATE | PREPARER'S TITLE | SITE SUPERINTENDENT (Signature) | DATE |
|---|---|---|---|---|
| John Lally | 11/4/00 | Site Supervisor | | |

**4. DISPOSITION**

___ Not approved (give reason).

_X_ Considered minor change - approved per Recommended Disposition - Documents will not formally be revised, field to maintain as-built records.

___ Considered major change - KPC approval required via contract modification process.

| 1) FOSTER WHEELER ENVIRONMENTAL DESIGN MANAGER (Signature) (IF ENGINEERING RELATED) | DATE | 2) FOSTER WHEELER ENVIRONMENTAL PROJECT MANAGER (Signature) | DATE |
|---|---|---|---|
| NA | | | 11/30/00 |
| 3) HEALTH AND SAFETY MANAGER (Signature) (IF HEALTH AND SAFETY RELATED) NA ____ Comments (attached) ____ No Comments | DATE | 4) QC REVIEWER (Signature) ____ Comments (attached) ____ No Comments | DATE 11/21/00 |

Construction Project Manager distributes to:

Foster Wheeler Design Manager — Quality Assurance Officer — FCR Preparer — Site Supervisor

Project Controls — Program Health and Safety Manager

REV: 11/3/00

during either data generation or analysis. The transducer will be affixed to a rigid mast close to the vessel to reduce the effects of cavitation. These set-up procedures will be standardized and used for all surveys.

- A Conductivity, Temperature, and Depth (CTD) profiler will be used to provide accurate temperature and salinity data needed to calculate the average speed of sound through the water column. CTD casts will be performed once or twice per survey day.
- The water depth variation to the dredging is a function of the tide. The tide level will be monitored by an electronic tide gauge. A marked tide board will be secured to a piling or similar structure, visible to the dredge operator, as a backup and confirmation of the electronic gauge.
- The depth recorder, CTD, and tide gauge will be synchronized using a standard time datum. Clock variations of the instrumentation will be recorded in the field log.
- Depth data will be digitized on a paper trace and recorded on diskette to ensure data acquisition.
- The integrated navigational system (HYPACK Hydrographic surveying software) provides a video display that allows the pilot to maintain a consistent vessel heading.

### 3.6.3 Side-Scan Sonar

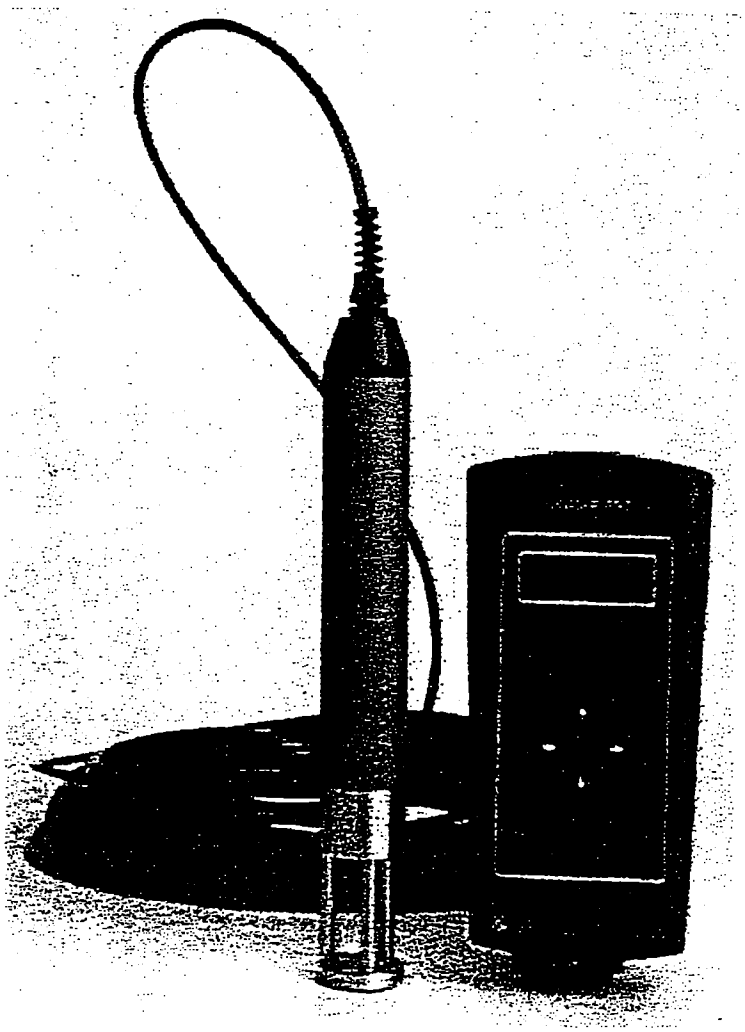
Quality control measures for the side-scan sonar surveys include the following:

- The side-scan sonar equipment will be physically linked to the onboard navigational equipment. This will allow for accurate representation of location and swath width during the survey.
- To verify each channel for proper resolution, a quality control check will be taken at the beginning of each survey day of a known bottom feature at the site (e.g., dock with piles).
- A 500 kHz "fish" will be utilized in shallow water for higher resolution. The higher resolution will be important in determining the difference between sonar albedos of mud versus mound material. The higher density mound material will generate a different sonar signature than the lower density organic muds.
- The boundaries of the mound material profiled with the side-scan sonar will be confirmed by divers and/or video surveys.
- Survey transects will be accomplished with minimal cable layout to reduce the potential of physical damage to the sonar equipment.

Odom
Hydrographic Systems, Inc.

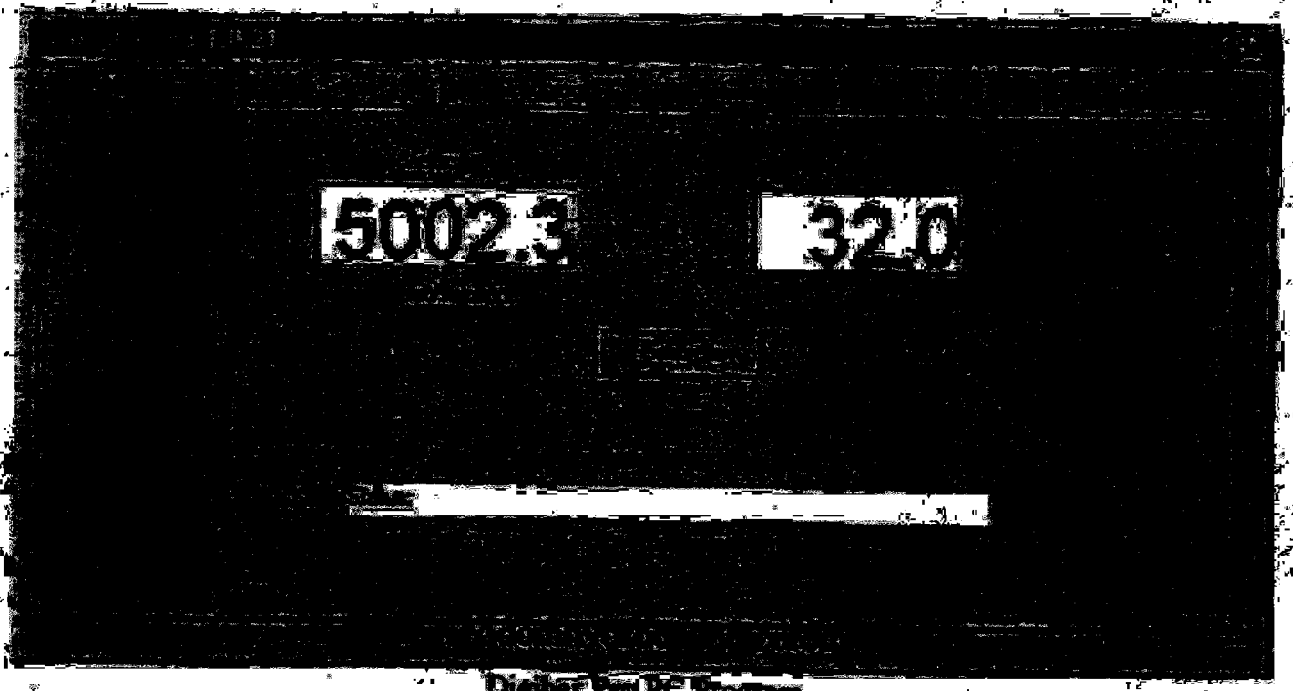
[ Home ] [ Products ] [ File Download ] [ Lease Companies ] [ Papers ] [ Company Profile ]
[ Request Information ]

DIGIBAR PRO is the most cost-effective means of obtaining accurate water column sound velocities. Used primarily to calibrate acoustic systems, DIGIBAR PRO offers a fast and safe method for sound velocity calibration as compared to the traditional "bar-check". Regardless of sea state or current, the probe is simply lowered into the water to log sound velocity / depth samples (by time or depth interval) as the probe descends. The "sing-around" principle of velocity measurement automatically compensates for all influences – including water salinity and temperature.



## Features

- Available as a stand alone probe with a direct PC interface or with Handheld terminal
- Battery operated hand terminal
- RS232 interface from hand terminal or RS485 interface to probe
- Up to 100 m cable (detachable) in 20 m increments
- Stainless Steel Probe
- Splash-proof hand terminal
- Lightweight
- Units in Meters or Feet
- Download a velocity profile for multibeam systems or get an average sound velocity
- PC program available with graphing function and real time connection to probe




Digibar Pro PC Program

*Odom Hydrographic Systems, Inc.*
*8176 G.S.R.I. Rd*
Building B
Baton Rouge, Louisiana, USA 70820

*Phone: (225)769-3061*
*Fax: (225)769-[illegible]*
*Email: [illegible]@odomhydrographic.com*

FOSTER WHEELER ENVIRONMENTAL CORPORATION
# WARD COVE REMEDIATION PROJECT

CONTRACT NO. 1

# FIELD CHANGE REQUEST (FCR)

| WORK ORDER NAME | WORK ORDER # | CHANGE REQUEST NO. |
|---|---|---|
| CONSTRUCTION MANAGEMENT | 01 | FCR-05 |
| **TO** | **LOCATION** | **DATE** |
| BARRY HOGARTY, KPC-LP | WARD COVE, KETCHIKAN, AK | 11/14/00 |

**RE:** ___ Drawing No. _____ Title _____

___ Spec _____ Title _____

___ Other RAWP Dredging Work Plan, PAH Dredging

***1. DESCRIPTION (Items involved, submit sketch, if applicable):***

The use of water tight trucks is a minor change in the J.E. McAmis, Inc. Dredging Work Plan located in Appendix D of the RAWP.

The PAH area will be dredged by a crane mounted on a barge with a clamshell bucket. Up to 150 cy of dredged material will be loaded into watertight end dump trucks situated on barges. Excess material may be placed in a watertight, lined containment area on the barge and rehandled back into the barge. The barges with the loaded watertight dump trucks will be hauled by tug to the Wolf Point barge offloading area, just north of midtown Ketchikan, where they will be driven to the KPC landfill. The solid waste from the PAH remediation will be dumped in the ash cell. Residual oily water from the PAH dredging will be placed in drums, and transported to the Alaska Ship & Dry Dock oil/water separation/treatment facility, which is authorized to discharge to City of Ketchikan sewer system.

***2. REASON FOR CHANGE***

Trucks are more easily transported and readily available than containers. Minimizes rehandling of PAH sediment.

***3. RECOMMENDED DISPOSITION (Submit sketch, if applicable):***

The trucks have been inspected and are water tight. The transport distance from the barge offloading area to the disposal area is short, less than 10 miles. This change is recommended and meets the intent of effectively containing the PAH sediment until disposal.

_x__ Minor Change ____ Major Change (Impacts Cost, Schedule or Technical)

3a. Will this change result in a contract cost or time change? ____ YES __x__ NO

3b. Estimate of contract cost or time charge (if any)

| PREPARER (Signature) | DATE | PREPARER'S TITLE | SITE SUPERINTENDENT (Signature) | DATE |
|---|---|---|---|---|
| John Lally | 11/11/00 | Site Supervisor | | |

***4. DISPOSITION***

___ Not approved (give reason).

X_ Considered minor change - approved per Recommended Disposition - Documents will not formally be revised, field to maintain as-built records.

___ Considered major change - KPC approval required via contract modification process.

| 1) FOSTER WHEELER ENVIRONMENTAL DESIGN MANAGER (Signature) (IF ENGINEERING RELATED) | DATE | 2) FOSTER WHEELER ENVIRONMENTAL PROJECT MANAGER (Signature) | DATE |
|---|---|---|---|
| NA | | | 12/28/00 |
| 3) HEALTH AND SAFETY MANAGER (Signature) (IF HEALTH AND SAFETY RELATED) NA ____ Comments (attached) ____ No Comments | DATE | 4) QC REVIEWER (Signature) ____ Comments (attached) ____ No Comments | DATE |

Construction Project Manager distributes to:

Foster Wheeler Design Manager — Quality Assurance Officer — FCR Preparer — Site Supervisor

Project Controls — Program Health and Safety Manager

REV: 11/3/00

JUL 07 1995

City of Ketchikan
PUBLIC WORKS DEPARTMENT

334 Front Street
Ketchikan, Alaska 99901
Phone 907-228-5672
Fax 907-225-8721

July 5, 1995

Doug Ward
Ty-Matt Inc.
P. O. Box 8158
Ketchikan, AK 99901

RE: **Oil Water Separator Connection to the City Sewer System**

Dear Doug:

You are hereby authorized to discharge the oil water separator (OWS) water fraction into the City sewer system. Billing for the use of the sewer system remains an issue.

I suggest we sample the strength of the OWS discharge for biochemical oxygen demand (BOD) and total suspended solid concentrations. We can do this for your first few uses to determine if the strengths are significant enough to warrant a special user fee. A copy of the City's current special users ordinance is attached for your information. You will probably be assessed a fee based on this ordinance unless we determine a special ordinance is required under the industrial cost recovery section for sanitary sewer user fees.

We will continue at the existing monthly rate of $79.22 until you have a discharge into our sewer system. A charge system can then be based upon strengths and volumes.

In the event you cannot reach me when you have a user for the OWS please contact John Schoening directly for water sampling (225-8750). We look forward to reviewing the other communities industrial user policies which address OWS discharges which you may provide.

Sincerely,

Fred

Fred D. Monrean, P.E.
Public Works Director

xc: John Schoening
Attachment
$Tymatt.OWS/932/mh

Recycled Paper

# Alaska Ship and Drydock, Inc.

3601 Tongass Ave. • PO Box 9470
Ketchikan, AK 99901
(907) 225-7199 fax (907) 247-7200

Invoice No. 3020

## JOB INVOICE

Send To

Account # SMSC02
Name SOUTH COAST INC.
Address 4049 TONGASS AVENUE
City KETCHIKAN ST AK ZIP 99901
Phone 225-6125 FAX

Date of Order 11/21/00
Job Location ALASKA SHIP AND DRYDOCK
Order Taken By MIKE CARNEY
Job Name MACHINE SHOP / SM0502-101
PO Number 23026

**Material Charges**

| Quantity | Description | | Quantity | Unit Price | Amount |
|---|---|---|---|---|---|
| 88 GAL. | DISPOSAL OF OILY WATER | | 88 | 1.00 | $88.00 |
| | | | | Total Material | $88.00 |

**Other Charges**

| Quantity | Description | | Quantity | Unit Price | Amount |
|---|---|---|---|---|---|
| | | | | Total Other | $0.00 |

**Labor**

| | Description | Hours | Rate | Amount |
|---|---|---|---|---|
| 2 | GENERAL LABOR | 2 | 56.00 | $112.00 |
| | | | Total Labor | $112.00 |

RECEIVED
DEC - 4 2000

Date Completed: 11/28/00

Invoice Date: 11/29/00

Terms: PAYMENT DUE UPON RECEIPT

Work Ordered By: ERIC

Comments:
RESALE # 0300

| | |
|---|---|
| Total Materials | $88.00 |
| Total Other | $0.00 |
| Total Labor | $112.00 |
| Tax | [illegible] |
| TOTAL | [illegible] |

Thank You for Using Alaska Ship and Drydock, Inc.

# *South Coast Inc.*

P.O. Box 8620, Ketchikan, Alaska 99901

# Fax

| | | | |
|---|---|---|---|
| **To:** | CRAIG | **From:** | ERIC COLLINS |
| **Company:** | J.E. McAMIS | **Company:** | South Coast Inc. |
| **Fax:** | 247-7534 | **Fax:** | (907) 225-2955 |
| **Phone:** | 225-7534 | **Phone:** | (907) 225-6125 |
| **Date:** | 11/17/00 | **# of Pages** | |

Craig, as of just after lunch the bulk of the PAH material was offloaded. We are on the last load at this time, it will be slow as it is hand work. After we have the last of the material dumped we will decon the trucks and the barge with a water wash. We will put all the oily water from the barge deck in drums and transport it to Alaska Ship & Dry Dock and they will process it there. At this time I do not have an estimate of the volume but will forward that to you when I have the quantity.

FROM : SCI PHONE NO. : 2252955 Dec. 14 2000 12:31AM P4/8

| QTY. | MATERIAL/PARTS | PRICE | AMOUNT |
|---|---|---|---|
| | TOTAL FROM OTHER SIDE → | | |


**ALASKA SHIP & DRY DOCK**
A Division of Ty-Matt, Inc.
P.O. Box 9470
KETCHIKAN, ALASKA 99901
(907) 225-7199 • FAX (907) 247-7170


**INVOICE**
11919

JOB INFORMATION

| ORDER DATE | DATE PROMISED |
|---|---|
| 11-21-00 | 11-21-00 |

WORK AUTHORIZED BY: Charlie [illegible]

JOB/ITEM#: SM0602-101

CONTACT:

PHONE:

ORDER TAKEN BY: mc

VESSEL NAME: Barge KFP (1)

CUSTOMER NAME: South Coast

ADDRESS:

CITY: STATE: ZIP:

DESCRIPTION OF WORK

Oily water

Invoice to be billed
Coming Soon

| LABOR | HOURS | RATE | AMOUNT |
|---|---|---|---|
| | | | |

TOTAL MATERIALS/PARTS

TOTAL LABOR

TERMS

TOTAL LABOR →

DATE COMPLETED

SIGNATURE (I hereby acknowledge the satisfactory completion of the above described work.)

SOLID WASTE FACILITY/LANDFILL
344 FRONT
KETCHIKAN,AK.99901 225-2370

342707 SOUTH COAST INC

| SITE | TICKET | GRID | WEIGHMASTER |
|---|---|---|---|
| 02 | 105540 | 99901 | FRONT |

| DATE IN | DATE OUT | TIME IN | TIME OUT | VEHICLE | ROLL OFF |
|---|---|---|---|---|---|
| 11/20/00 | 11/20/00 | 14:27 | 14:31 | | |

| REFERENCE | ORIGIN |
|---|---|
| | KETCHIKAN, ALASKA |

Scale 1 Gross Wt. 6180 LB
Scale 2 Tare Wt. 5140 LB
Net Weight 1040 LB

Inbound - Charge ticket

| QTY. | UNIT | DESCRIPTION | RATE | EXTENSION | FEE | TOTAL |
|---|---|---|---|---|---|---|
| 0.52 | TON | TARPS,VISQUEEN,REMO | 120.00 | 62.40 | 0.00 | 62.40 |

| NET AMOUNT |
|---|
| 62.40 |
| TENDERED |
| |
| CHANGE |
| |
| CHECK NO. |
| |

*Operating hours are 8am to 4pm Monday through Saturday*
Random waste screening IS practiced here.Know what you have!
Please retain these daily tickets, as monthly statement will
not relect signatures. Call City Hall @225-3111 for copies.

SIGNATURE Eric Collins

# *South Coast Inc.*

P.O. Box 8620, Ketchikan, Alaska 99901

# Fax

| | | | |
|---|---|---|---|
| **To:** | CRAIG | **From:** | ERIC COLLINS |
| **Company:** | J.E. McAMIS | **Company:** | South Coast Inc. |
| **Fax:** | 247-7534 | **Fax:** | (907) 225-2955 |
| **Phone:** | 225-7534 | **Phone:** | (907) 225-6125 |
| **Date:** | 11/22/00 | **# of Pages** | |

Craig, as planed the oily water from the deck of the KFP-1 was delivered to Alaska Ship & Dry Dock. The visqueen liner was taken to the Ketchikan solid waste facility. I have included copy of receipts from both facilities with this fax.

FOSTER WHEELER ENVIRONMENTAL CORPORATION
WARD COVE REMEDIATION PROJECT

CONTRACT NO. 1

# FIELD CHANGE REQUEST
# (FCR)

| WORK ORDER NAME | WORK ORDER # | CHANGE REQUEST NO. |
|---|---|---|
| CONSTRUCTION MANAGEMENT | 01 | FCR-06 |

| TO | LOCATION | DATE |
|---|---|---|
| BARRY HOGARTY, KPC-LP | WARD COVE, KETCHIKAN, AK | 11/27/00 |

**RE:** ___ Drawing No. _____ Title _____

___ Spec _____ Title _____

___ Other Contract Drawings Sheet 4, Sheet 7

***1. DESCRIPTION (Items involved, submit sketch, if applicable):***

Request 20 ft. offset of the shallow draft (-14 ft.) barge berthing area to the southwest, as shown on the attached drawing modifications. Reducing the length by 20 ft. changes the final length from 320 ft. to 300 ft. Contractor will take care in north corner, to maintain 20 ft. radius, so that daylighting of 4:1 slope is attainable.

***2. REASON FOR CHANGE***

Presence of recently placed shot rock fill in the north corner of the shallow draft (-14 ft.) barge berthing area. Shifting of dredge area as proposed is necessary to avoid undermining of the North corner of this fill at the 4H:1V design slope.

***3. RECOMMENDED DISPOSITION (Submit sketch, if applicable):***

The modification is recommended, and has been agreed to by KPC and Gateway Forest Products. The change in not inconsistent with the shallow berth design information provided in the Design Analysis Report (pg. 3-8), which indicated that typical barge dimensions are 200 to 300 ft. in length, with a most common length of 280 ft. The change represents a reasonable anticipated future use for the berthing area.

_x_ Minor Change ____ Major Change (Impacts Cost, Schedule or Technical)

3a. Will this change result in a contract cost or time change? ____ YES _x_ NO

3b. Estimate of contract cost or time charge (if any)

| PREPARER (Signature) | DATE | PREPARER'S TITLE | SITE SUPERINTENDENT (Signature) | DATE |
|---|---|---|---|---|
| [signature] | 11/27/00 | Site Supervisor | | |

***4. DISPOSITION***

___ Not approved (give reason).

X Considered minor change - approved per Recommended Disposition - Documents will not formally be revised, field to maintain as-built records.

___ Considered major change - KPC approval required via contract modification process.

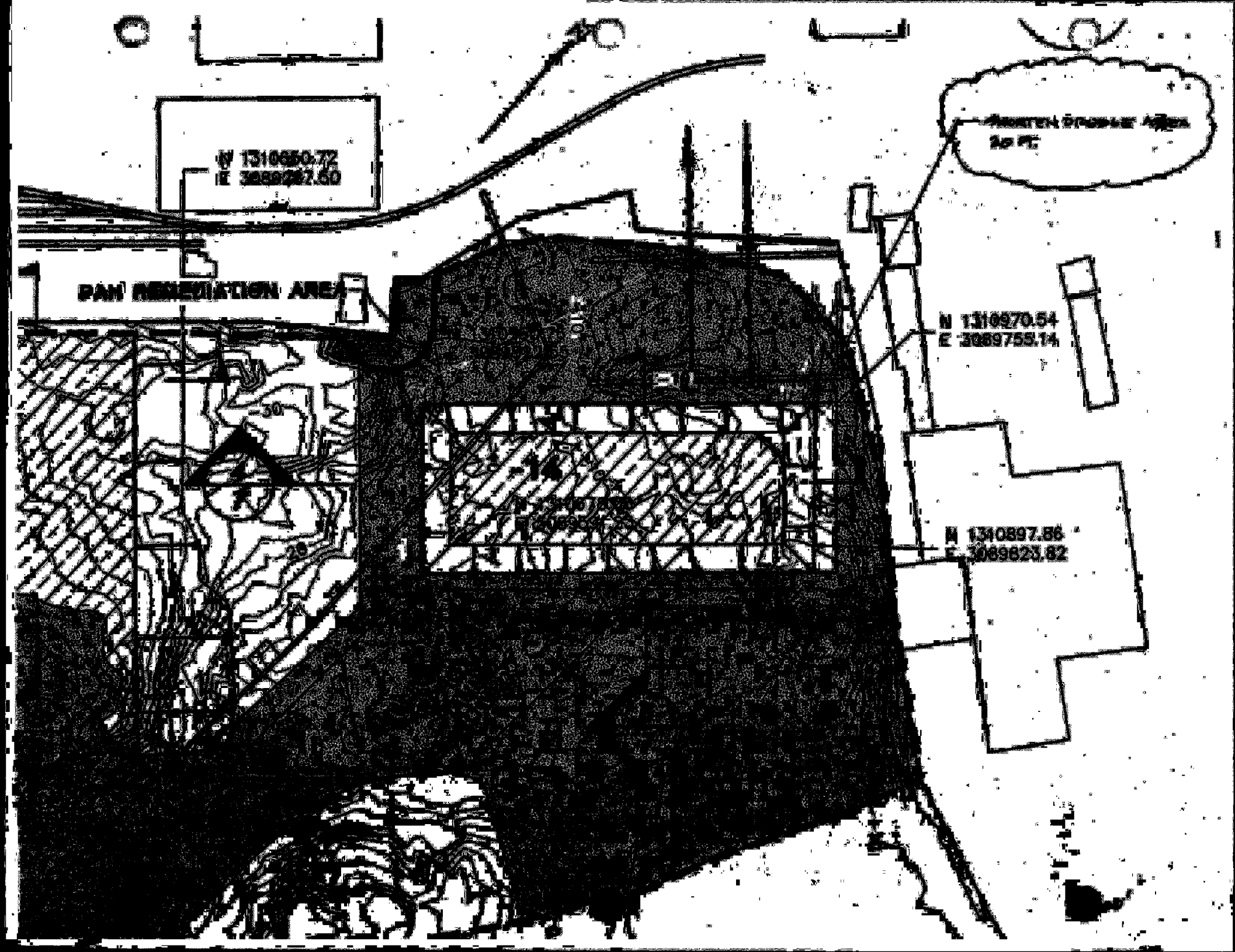
| 1) FOSTER WHEELER ENVIRONMENTAL DESIGN MANAGER (Signature) (IF ENGINEERING RELATED) | DATE | 2) FOSTER WHEELER ENVIRONMENTAL PROJECT MANAGER (Signature) | DATE |
|---|---|---|---|
| [signature] | 12-6-00 | [signature] | 12-6-00 |
| 3) HEALTH AND SAFETY MANAGER (Signature) (IF HEALTH AND SAFETY RELATED) NA ____ Comments (attached) ____ No Comments | DATE | 4) QC REVIEWER (Signature) ____ Comments (attached) ____ No Comments | DATE |

Construction Project Manager distributes to:

Foster Wheeler Design Manager — Quality Assurance Officer — FCR Preparer — Site Supervisor

Project Controls — Program Health and Safety Manager

REV: 11/3/00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E 3089755.14
N 1310897.86
E 3089823.82
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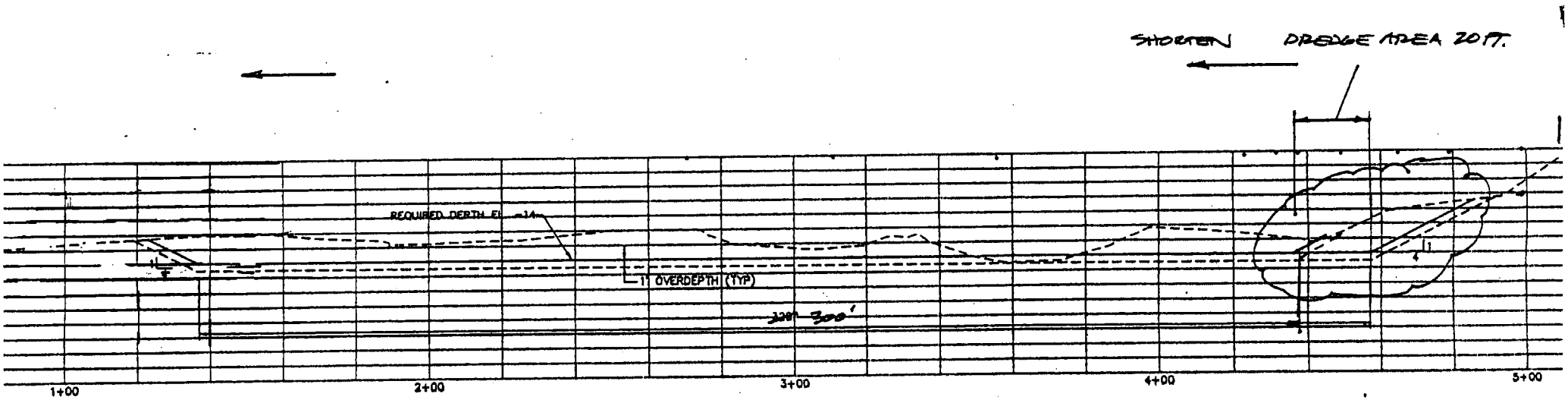
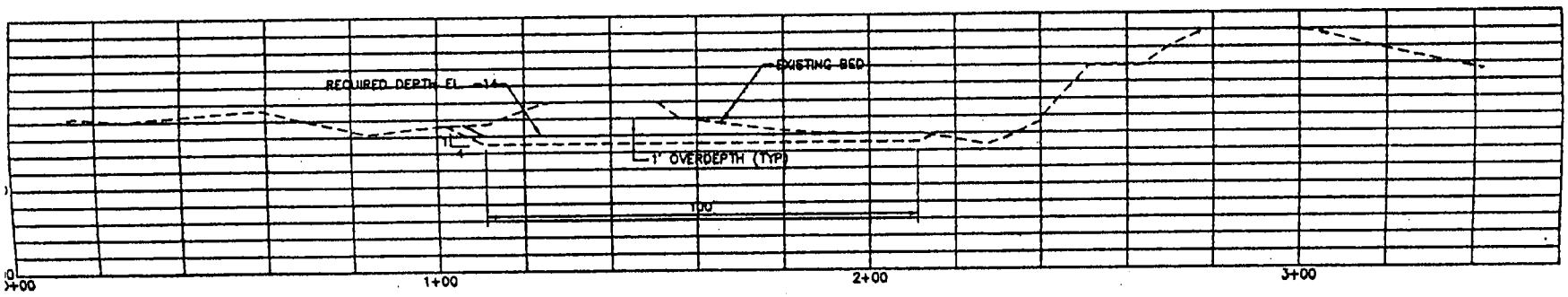
-28




SECTION 4/4




SECTION 5

FOSTER WHEELER ENVIRONMENTAL CORPORATION
WARD COVE REMEDIATION PROJECT

CONTRACT NO. 1

# FIELD CHANGE REQUEST (FCR)

| WORK ORDER NAME | WORK ORDER # | CHANGE REQUEST NO. |
|---|---|---|
| CONSTRUCTION MANAGEMENT | 01 | FCR-07 |
| **TO** BARRY HOGARTY, KPC-LP | **LOCATION** WARD COVE, KETCHIKAN, AK | **DATE** 12/8/00 |

RE: ___ Drawing No. _____ Title _____

___ Spec _____ Title _____

___ Other Contract Drawings Sheet 6

**1. DESCRIPTION (Items involved, submit sketch, if applicable):**

Modify dredge prism as shown on attached copies of Sheet 6, Cross sections 2 and 3. Offset of toe of dredge prism should set 40 ft. from concrete dock face in the – 44ft. area, and 30 ft. from the concrete dock face in the –40 ft. area. The contractor will not dredge into rock at toe or on slope. The contractor will dredge up to, but not beneath the concrete dock, at the 4H:1V design slope. Care will be taken to not contact fender piles. Dredge (bank) material from under the dock which sloughs (flows) into the dredge prism prior to final post-dredge survey will be the responsibility of the contractor to remove. Transition between the two offsets should occur over the slope distance between the two dredge depths, as dictacted by the natural angle of repose of the bottom material.

**2. REASON FOR CHANGE**

As built drawings of the dock facility, fill slope, and substrate (clay, rock) obtained on site recently dictate a required minimum offset of dredge toe, to prevent undermining of the fill slope, in the deep draft dredging areas D1 and D2. Contract Drawing Sheet 6, Cross Sections 2 and 3 will be revised to show offset of dredge toe from the face of the dock @ 30 ft. (-40 ft. area), and 40 ft. (-44 ft. area). These offsets will provide depth for design vessel draft and will protect dock structure integrity.

**3. RECOMMENDED DISPOSITION (Submit sketch, if applicable):**

The modification is recommended, and has been agreed to by KPC and Gateway Forest Products. This modification does not affect the reasonably anticipated future use for the berthing area

___ Minor Change __x_ Major Change (Impacts Cost, Schedule or Technical)

3a. Will this change result in a contract cost or time change? ____ YES __x__ NO

3b. Estimate of contract cost or time charge (if any)

| PREPARER (Signature) | DATE | PREPARER'S TITLE | SITE SUPERINTENDENT (Signature) | DATE |
|---|---|---|---|---|
| John Lally | 11/27/00 | Site Supervisor | | |

**4. DISPOSITION**

___ Not approved (give reason).

___ Considered minor change - approved per Recommended Disposition - Documents will not formally be revised, field to maintain as-built records.

X__ Considered major change - KPC approval required

| 1) FOSTER WHEELER ENVIRONMENTAL DESIGN MANAGER (Signature) (IF ENGINEERING RELATED) | DATE | 2) FOSTER WHEELER ENVIRONMENTAL PROJECT MANAGER (Signature) | DATE |
|---|---|---|---|
| Greg Hartman FOR | 12/8/00 | | 12/12/00 |
| 3) HEALTH AND SAFETY MANAGER (Signature) (IF HEALTH AND SAFETY RELATED) NA ____ Comments (attached) ____ No Comments | DATE | 4) QC REVIEWER (Signature) ____ Comments (attached) ____ No Comments | DATE |

Construction Project Manager distributes to:

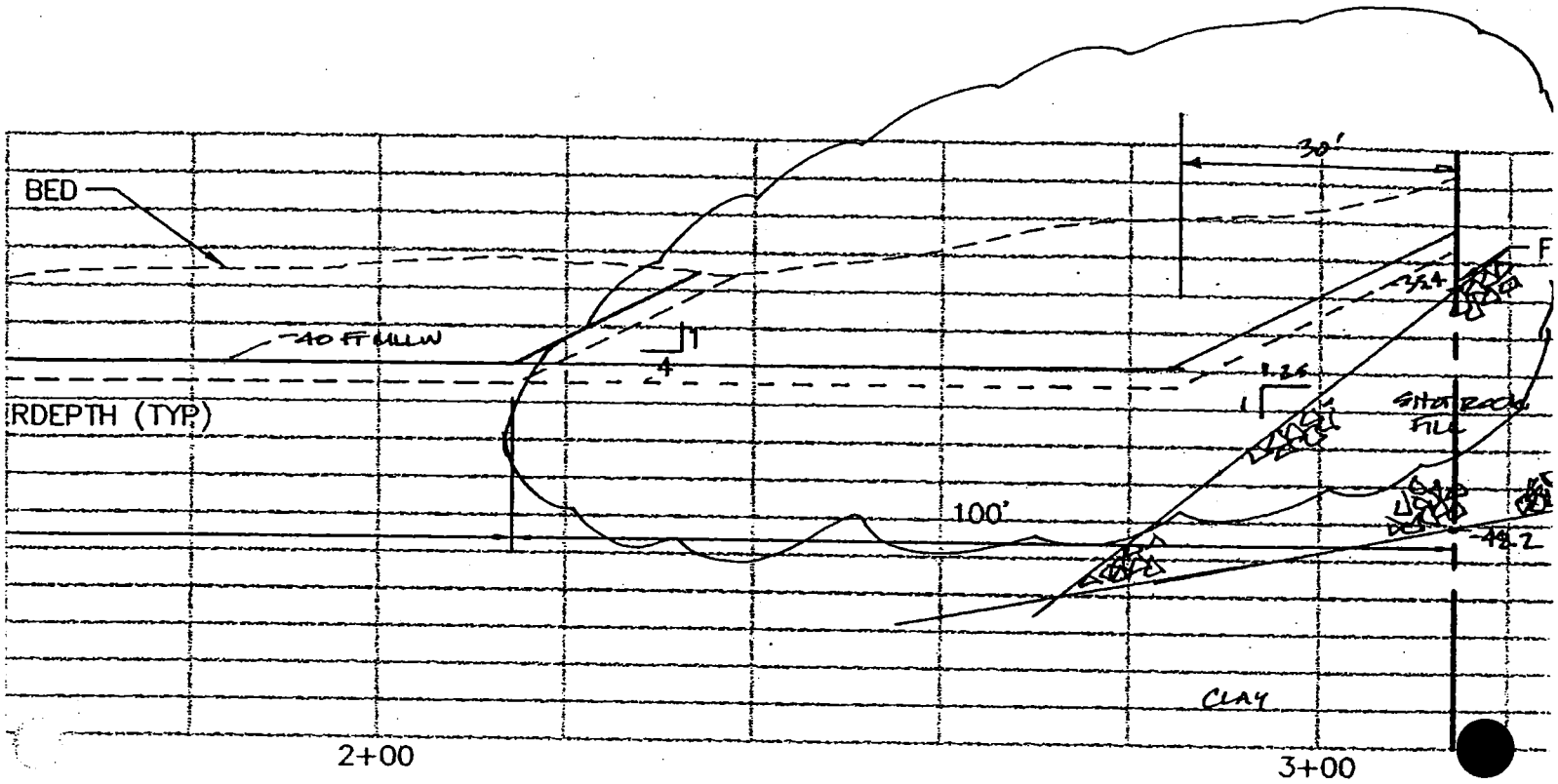
Foster Wheeler Design Manager — Quality Assurance Officer — FCR Preparer — Site Supervisor

Project Controls — Program Health and Safety Manager

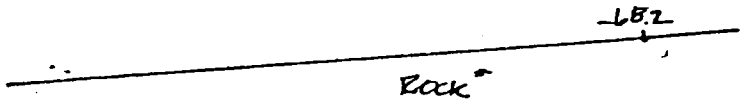
2+00

3+00

## SECTION 2/4



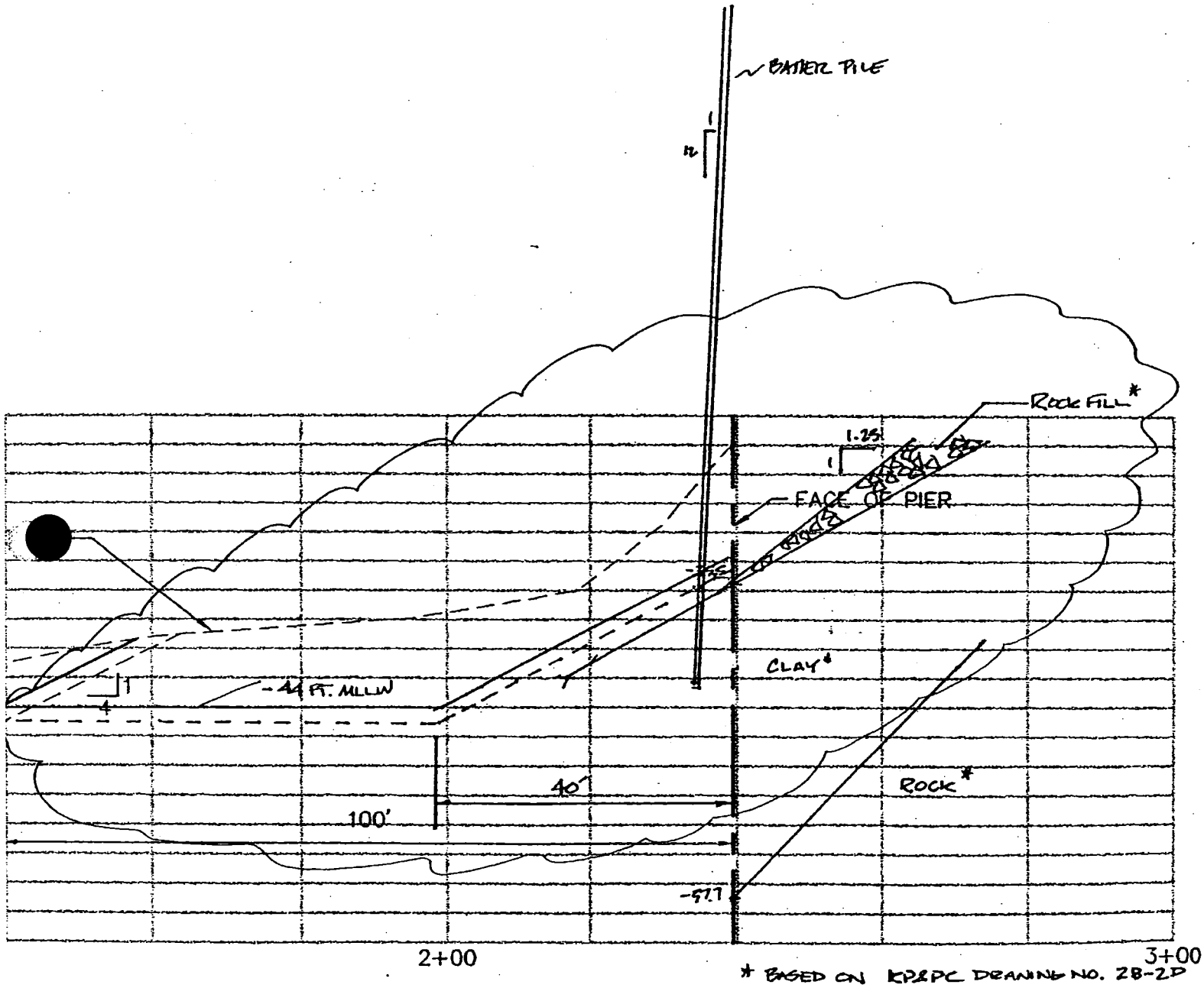

## SECTION 3/4




* BASED ON KPLPC DRAWING NO. 2B-2D DOCK-PILE LOCAT

STATE OF ALASKA
49TH
William Elmer
No. CE-8266
REGISTERED PROFESSIONAL ENGINEER

DRAWING RE




* BASED ON KP&PC DRAWING NO. 28-2D
DOCK - PILE LOCATIONS PLAN 4/8/52
BENT #11

**SECTION 2/4**

JG BED

FOSTER WHEELER ENVIRONMENTAL CORPORATION
WARD COVE REMEDIATION PROJECT

CONTRACT NO. 1

# FIELD CHANGE REQUEST (FCR)

| WORK ORDER NAME | WORK ORDER # | CHANGE REQUEST NO. |
|---|---|---|
| CONSTRUCTION MANAGEMENT | 01 | FCR-08 |
| TO Barry Hogarty, KPC | LOCATION WARD COVE, KETCHIKAN, AK | DATE 12/05/00 |

RE: ___ Drawing No. _____ Title _____

___ Spec _____ Title _____

X Other Project Management Work Plan — Figure 2-1, page 2-2, Project Organization
Remedial Action Work Plan — Figure 9-1, page 9-2, Project Organization
Quality Assurance Project Plan — Figure 2-1, page 2-2, Project Organization

**1. DESCRIPTION (Items involved, submit sketch, if applicable):**
Certain personnel assigned to the site have changed since the PMWP was approved

**2. REASON FOR CHANGE**
Providing the best mix of capabilities to staff the project.

**3. RECOMMENDED DISPOSITION (Submit sketch, if applicable):**
Approval of the revised organization as shown on the attached organization chart.

_X_ Minor Change ____ Major Change (Impacts Cost, Schedule or Technical)

a. Will this change result in a contract cost or time change? ____ YES _X_ NO
b. Estimate of contract cost or time charge (if any)

| PREPARER (Signature) | DATE | PREPARER'S TITLE | SITE SUPERINTENDENT (Signature) | DATE |
|---|---|---|---|---|
| [signature] | 12/5/00 | Project Manager | | |

**4. DISPOSITION**

___ Not approved (give reason).
X_ Considered minor change - approved per Recommended Disposition - Documents will not formally be revised, field to maintain as-built records.
___ Considered major change - KPC approval required via contract modification process.

| 1) FOSTER WHEELER ENVIRONMENTAL DESIGN MANAGER (Signature) (IF ENGINEERING RELATED) | DATE | 2) FOSTER WHEELER ENVIRONMENTAL PROJECT MANAGER (Signature) | DATE |
|---|---|---|---|
| NA | | [signature] | 12-13-00 |
| 3) HEALTH AND SAFETY MANAGER (Signature) (IF HEALTH AND SAFETY RELATED) NA ____ Comments (attached) ____ No Comments | DATE | 4) QC REVIEWER (Signature) ____ Comments (attached) ____ No Comments | DATE |

Construction Project Manager distributes to:

Foster Wheeler Design Manager — Quality Assurance Officer — FCR Preparer — Site Supervisor

Project Controls — Program Health and Safety Manager

REV: 11/3/00

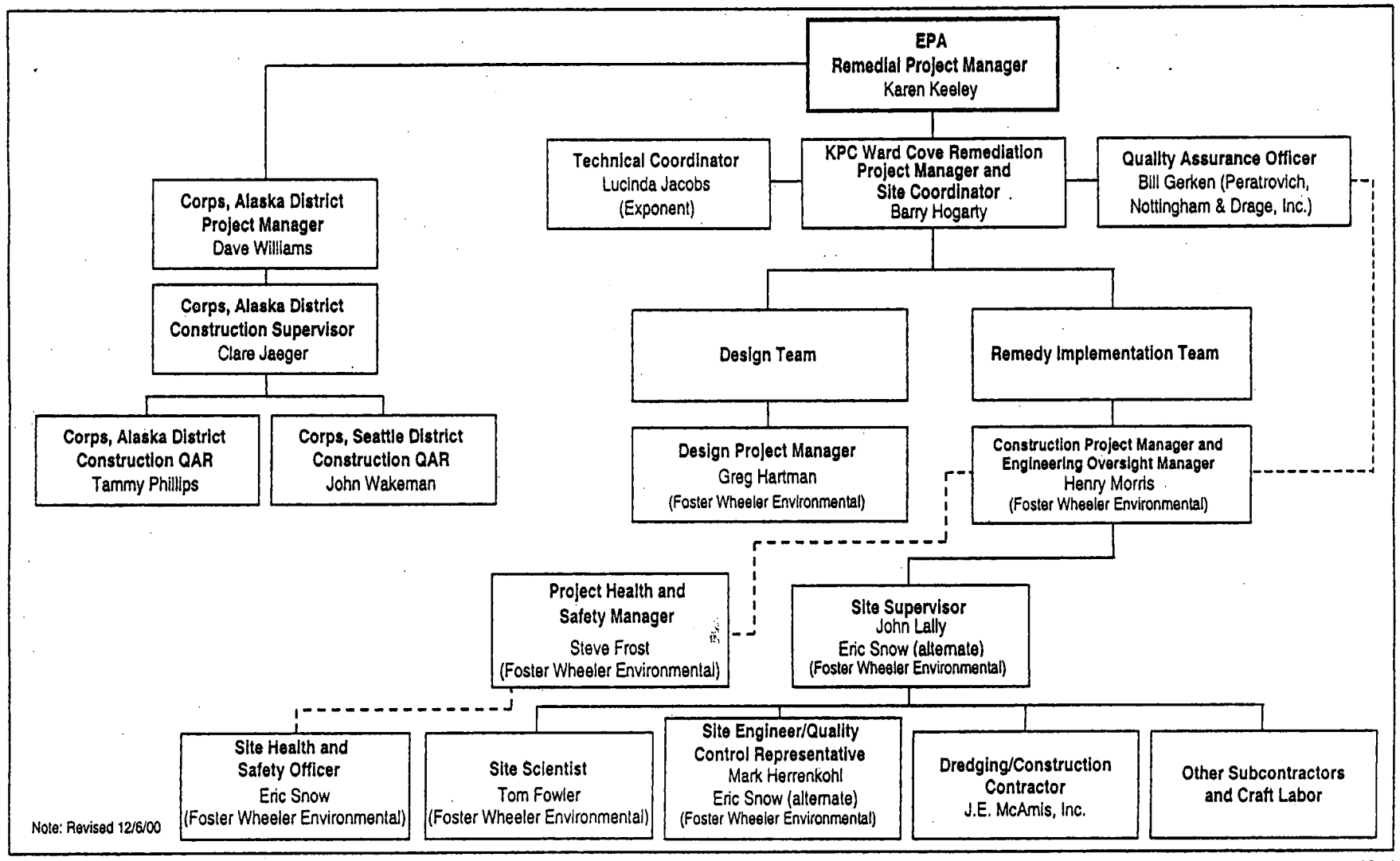



**Figure 2-1.** Project Organization for Remedy Implementation

FOSTER WHEELER ENVIRONMENTAL CORPORATION
WARD COVE REMEDIATION PROJECT

CONTRACT NO. 1

# FIELD CHANGE REQUEST (FCR)

| WORK ORDER NAME | WORK ORDER # | CHANGE REQUEST NO. |
|---|---|---|
| CONSTRUCTION MANAGEMENT | 01 | FCR-09 |
| TO Barry Hogarty, KPC-LP | LOCATION WARD COVE, KETCHIKAN, AK | DATE 12/08/00 |

RE: ___ Drawing No. _____ Title _____

___ Spec _____ Title _____

___ Other

**1. DESCRIPTION (Items involved, submit sketch, if applicable):**
Request that when dense non-organic sediments are encountered in the –44 foot area (D1), dredging be terminated at –40 feet MLLW. Where organic sediment is encountered dredging will continue to –44 feet or non-organic sediment, whichever comes first, provided a minimum depth of –40 feet MLLW is obtained. Organic sediments remaining at or below –44 feet following dredging will be capped per the plans and specifications.

**2. REASON FOR CHANGE**
In reference to the Design Analysis Report (DAR), Section 3, Navigation Channel Design. Section 3.1.1 (pp. 3-3 and 3-4) discusses the different vessels anticipated and proceeds to establish a design vessel with a length of 600 ft, a width of 95 ft, and a loaded draft of 30 ft. Section 3.1.3 (p. 3-6, 4th paragraph) states "The berth area depth will be dredged to –40 ft MLLW (or until bedrock is reached) at the location of the bow of the vessel to provide acceptable depth for underkeel clearance (vessel safety) and to –44 ft MLLW (or until bedrock is reached ) at the location of the stern of the vessel to prevent resuspension of sediment due to propeller scour."

From DAR, Section 4, Propeller Scour Analysis. Section 4.3 (p. 4-4) states "At the main dock, dredging depths of –40 ft MLLW under the bow and –44 ft MLLW under the stern of the deep draft vessel are required. If native sediment or rock is not exposed by the dredging, the –44 ft deep area must be capped with a fine-to-medium sand to ensure no resuspension of bed sediment by propeller wash."

Based on the DAR, Section 3, –40 ft MLLW is acceptable as a navigational depth. This applies to the bow of the ship as well as the stern of the ship when propeller scour is not a factor.

Based on the DAR, Section 4, it is reasonable to conclude that if capping is not required because native sediment or rock is reached during dredging in the –44 ft area then propeller scour is not a concern because there is no cap that can be displaced.

Based on the construction progress to date in the –44 ft area (D1), there is no indication that allowing a –40 ft depth will lead to a patchwork capping of the area. It is expected that any capping that may be required will be away from the dock and further into the cove. The area requiring capping, if any, in the –44 ft area will be located accurately and recorded as dredging proceeds.

**3. RECOMMENDED DISPOSITION (Submit sketch, if applicable):**
The modification is recommended, and has been agreed to by KPC and Gateway. The modification does not affect the reasonable anticipated future use for the deep draft dredge area.

___ Minor Change __X__ Major Change (Impacts Cost, Schedule or Technical)

3a. Will this change result in a contract cost or time change? __X__ YES ____ NO

b. Estimate of contract cost or time charge (if any) The magnitude of change on cost and schedule cannot be estimated at this time.

| PREPARER (Signature) | DATE | PREPARER'S TITLE | SITE SUPERINTENDENT (Signature) | DATE |
|---|---|---|---|---|
| [signature] | 11/4/00 | Site Supervisor | | |

___ Not approved (give reason).
___ Considered minor change - approved per Recommended Disposition - Documents will not formally be revised, field to maintain as-built records.
_X_ Considered major change - KPC approval required ~~via contract modification process~~ KM.

| | | | |
|---|---|---|---|
| 1) FOSTER WHEELER ENVIRONMENTAL DESIGN MANAGER (Signature) (IF ENGINEERING RELATED) G. Harlman | DATE 12·15·00 | 2) FOSTER WHEELER ENVIRONMENTAL PROJECT MANAGER (Signature) KM Morris | DATE 12-15-00 |
| 3) HEALTH AND SAFETY MANAGER (Signature) (IF HEALTH AND SAFETY RELATED) NA ____ Comments (attached) ____ No Comments | DATE | 4) QC REVIEWER (Signature) [illegible] ____ Comments (attached) _X_ No Comments | DATE ~~12·15·00~~ 1-4-00 |

Construction Project Manager distributes to:

Foster Wheeler Design Manager | Quality Assurance Officer | FCR Preparer | Site Supervisor

Project Controls | Program Health and Safety Manager

REV: 11/3/00

FOSTER WHEELER ENVIRONMENTAL CORPORATION
# WARD COVE REMEDIATION PROJECT
CONTRACT NO. 1
# FIELD CHANGE REQUEST
# (FCR)

| WORK ORDER NAME | WORK ORDER # | CHANGE REQUEST NO. |
|---|---|---|
| CONSTRUCTION MANAGEMENT | 01 | FCR-10 |

| TO | LOCATION | DATE |
|---|---|---|
| Barry Hogarty, KPC-L_P | KPC MILL SITE, KETCHIKAN, AK | 11/3/00 |

RE: ___ Drawing No. _____ Title _____

___ Spec _____ Title _____

___ Other

**1. DESCRIPTION (Items involved, submit sketch, if applicable):**
Request to change the slope of the D-1 dredge area along the shoreward side from a 4:1 slope to a 2:1 slope. This change will be for the full length of the shoreward slope.

**2. REASON FOR CHANGE**
The existing shot rock slope is at 2:1 or steeper and a 4:1 slope would severly undermine the existing slope and lead to slope failure.

**3. RECOMMENDED DISPOSITION (Submit sketch, if applicable):**
This modification is recommended, and has been agreed to by KPC and Gateway. This modification will not affect the anticipated future use for the deep draft area. Sketch attached.

_X_ Minor Change ____ Major Change (Impacts Cost, Schedule or Technical)

3a. Will this change result in a contract cost or time change? ____ YES _X_ NO

3b. Estimate of contract cost or time charge (if any)

| PREPARER (Signature) | DATE | PREPARER'S TITLE | SITE SUPERINTENDENT (Signature) | DATE |
|---|---|---|---|---|
| [signature] | 12/12/00 | Site Supervisor | | |

**4. DISPOSITION**

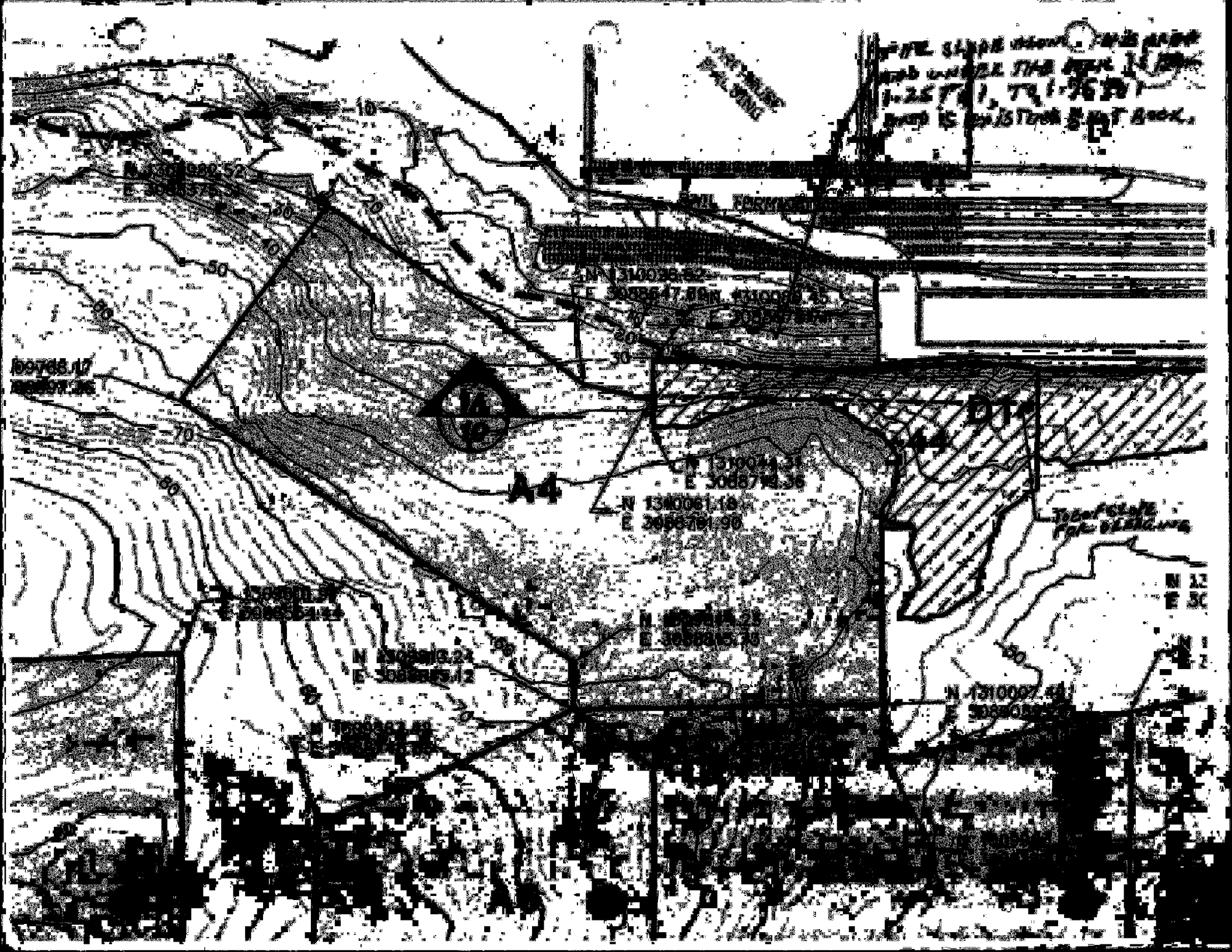
___ Not approved (give reason).
X_ Considered minor change - approved per Recommended Disposition - Documents will not formally be revised, field to maintain as-built records.
___ Considered major change - KPC approval required via contract modification process.

| 1) FOSTER WHEELER ENVIRONMENTAL DESIGN MANAGER (Signature) (IF ENGINEERING RELATED) | DATE | 2) FOSTER WHEELER ENVIRONMENTAL PROJECT MANAGER (Signature) | DATE |
|---|---|---|---|
| [signature] | 12-15-00 | [signature] | 12-15-00 |
| 3) HEALTH AND SAFETY MANAGER (Signature) (IF HEALTH AND SAFETY RELATED) NA ____ Comments (attached) ____ No Comments | DATE | 4) QC REVIEWER (Signature) [signature] ____ Comments (attached) ____ No Comments | DATE |

Construction Project Manager distributes to:

| | | | |
|---|---|---|---|
| Foster Wheeler Design Manager | Contracts Manager | QC Manager | FCR Preparer |
| Integrated Project Team Manager | Site Superintendent | Project Controls Supervisor | Program Health and Safety Manager |

REV: 3-13-96



A4
D1
N 1310061.18
E 3088791.90
N 1310044.31
E 3088719.36
N 1310007.48

FOSTER WHEELER ENVIRONMENTAL CORPORATION
WARD COVE REMEDIATION PROJECT

CONTRACT NO. 1

# FIELD CHANGE REQUEST (FCR)

| WORK ORDER NAME | WORK ORDER # | CHANGE REQUEST NO. |
|---|---|---|
| CONSTRUCTION MANAGEMENT | 01 | FCR-11 |

| TO | LOCATION | DATE |
|---|---|---|
| BARRY HOGARTY, KPC-LP | WARD COVE, KETCHIKAN, AK | 12/26/00 |

RE: ___ Drawing No. Sheets 5, 6, 10 _____ Title Dredge Section 1, Dredge Sections 2&3, Thin Cap Section 1A _____

___ Spec _____ Title _____

___ Other _____ Sheet _____

1. ***DESCRIPTION (Items involved, submit sketch, if applicable)***: Area involved is the deep draft dredging area, D2, –40 feet required dredging depth. Request to change required dredging depth to –37 feet MLLW.

2. ***REASON FOR CHANGE.*** Please reference Design Analysis Report (DAR), Section 3, Navigation Channel Design. Section 3.1.3 of the DAR provides the following criteria "An acceptable ratio for a hard, rocky substrate is considered 1.2 or greater. The design vessel draft is 30 feet. The extreme low water at Ward Cove is identified as –4.3 feet MLLW. A berth depth of –40 fee MLLW will provide a water depth of 35.8 and a depth/draft ratio of 1.2The DAR also provides "The depth/draft ratio for a sand or soft mud bottom should be 1.1 or greater. Based on dredging already conducted in the –44 foot (D1) area, it appears that at –37 to –38 feet MLLW and above soft organic sediment or sand/fine grain bed sediment exists in the deep draft areas. Additionally, hard material at –38 ft MLLW has been encountered in the D1 area along the dock face, and can be expected in the D2 area, thereby limiting the useable depth of the D2 area. As such, the 1.2 depth/draft ratio, a conservative value, is recommended to be changed to 1.1. With a 1.1 depth/draft ratio, and extreme low water at –4.3 feet MLLW, for the design vessel a minimum water depth of 37.3 feet will be provided at all times. Due to the inaccuracies of the dredging process tending towards overdredging, and with consideration that extreme low tide occurs less than 1% of the time, a revised design depth of –37 feet MLLW + 1 ft. of allowable overdepth dredging is requested in area D2. This design berthing depth is supported by the old Corps of Engineers design standard, which for the site would be 2 feet under keel, or –36.3 feet MLLW, at extreme low tide.

   A further reason to dredge no deeper than –37 feet MLLW in D2, is based on Foster Wheeler's evaluation of recently obtained as-built drawings of the facilty dock.The dock structure appears to be constructed for a 36 feet MLLW dredging depth. Additional dredging depth can impact the existing slope stability along the dock face. In raising the dredge elevation to –37 feet MLLW, however, the toe of the dredge slope can and is recommended to be moved closer to the dock face, from 30 feet (by FCR-07) to 20 feet, without risking undermining of the slope armoring.

   The D2 area will not experience propwash as the D1 (–44 ft). area may experience, due to the berthing arrangement selected for the site. The surface area where organic sediment is still exposed after dredging will be capped.

3. ***RECOMMENDED DISPOSITION (Submit sketch, if applicable):***The dredging depth in area D2 is recommended to be raised to –37 feet MLLW required depth + 1 foot allowable overdepth, and thin capped where organic sediment exists on the surface after dredging. This will meet the navigation requirements prescribed in the DAR, and the remediation objectives. The modification has been agreed to by KPC and Gateway Forest Products.

___ Minor Change  _x_ Major Change (Impacts Cost, Schedule or Technical)

3a. Will this change result in a contract cost or time change? ____ YES  __x__ NO

3b. Estimate of contract cost or time charge (if any)

| PREPARER (Signature) | DATE | PREPARER'S TITLE | SITE SUPERINTENDENT (Signature) | DATE |
|---|---|---|---|---|
| Greg Hartman / John Lally | 12/11/00 | Design Manager | | 12/26/00 |

## 4. DISPOSITION

___ Not approved (give reason).
___ Considered minor change - approved per Recommended Disposition - Documents will not formally be revised, field to maintain as-built records.
X_ Considered major change - KPC approval required.

| | | | |
|---|---|---|---|
| 1) FOSTER WHEELER ENVIRONMENTAL DESIGN MANAGER (Signature) (IF ENGINEERING RELATED)<br>Greg Hartman | DATE<br>12/11/00 | 2) FOSTER WHEELER ENVIRONMENTAL PROJECT MANAGER (Signature)<br>FOR HENRY MORRIS | DATE<br>1/5/01 |
| 3) HEALTH AND SAFETY MANAGER (Signature) (IF HEALTH AND SAFETY RELATED)<br>NA<br>____ Comments (attached) ____ No Comments | DATE | 4) QC REVIEWER (Signature)<br>____ Comments (attached) ____ No Comments | DATE |

Construction Project Manager distributes to:

Foster Wheeler Design Manager
Project Controls
Quality Assurance Officer
Program Health and Safety Manager
FCR Preparer
Site Supervisor

REV: 11/3/00

FOSTER WHEELER ENVIRONMENTAL CORPORATION
WARD COVE REMEDIATION PROJECT

CONTRACT NO. 1

# FIELD CHANGE REQUEST (FCR)

| WORK ORDER NAME | WORK ORDER # | CHANGE REQUEST NO. |
|---|---|---|
| CONSTRUCTION MANAGEMENT | 01 | FCR-01 |

| TO | LOCATION | DATE |
|---|---|---|
| KAREN KEELEY, E.P.A. REGION 10<br>TAMMY PHILLIPS, U.S.A.C.O.E, AK DISTRICT | WARD COVE, KETCHIKAN, AK | 11/3/00 |

RE: ___ Drawing No. _____ Title _____

___ Spec Section 02482, 02483 — Title Dredging and Disposal, 3.06 / Capping / Mounding 02483

___ Other

**1. DESCRIPTION (Items involved, submit sketch, if applicable):**

Change spec sections to formalize agreement made between FWENC and McAmis. FWENC, not McAmis, will be responsible for performing side scan sonar for all thin capping activities. McAmis will provide his survey vessel so that FWENC staff can perform side scan sonar during thin capping and all project water quality monitoring, in as much as it will not affect log removal, dredging and capping/mounding QC operations.

**2. REASON FOR CHANGE**

Requirement was changed during subcontract bidding process.

**3. RECOMMENDED DISPOSITION (Submit sketch, if applicable):**

Recommend change. See attached specifications modifications, based on discussions between McAmis and FWENC.

___ Minor Change ___X___ Major Change (Impacts Cost, Schedule or Technical)

Will this change result in a contract cost or time change? ___X___ YES ___ NO

3b. Estimate of contract cost or time charge (if any)

| PREPARER (Signature) | DATE | PREPARER'S TITLE | SITE SUPERINTENDENT (Signature) | DATE |
|---|---|---|---|---|
| | 11/4/00 | Site Supervisor | | |

**4. DISPOSITION**

___ Not approved (give reason).

___ Considered minor change - approved per Recommended Disposition - Documents will not formally be revised, field to maintain as-built records.

___X Considered major change - KPC approval required via contract modification process.

| 1) FOSTER WHEELER ENVIRONMENTAL DESIGN MANAGER (Signature) (IF ENGINEERING RELATED) | DATE | 2) FOSTER WHEELER ENVIRONMENTAL CONSTRUCTION PROJECT MANAGER (Signature) | DATE |
|---|---|---|---|
| NA | | | 11-7-00 |
| 3) HEALTH AND SAFETY MANAGER (Signature) (IF HEALTH AND SAFETY RELATED)<br>NA<br>____ Comments (attached) ____ No Comments | DATE | 4) QC REVIEWER (Signature)<br>____ Comments (attached) ____ No Comments | DATE |

Construction Project Manager distributes to:

Foster Wheeler Design Manager — Quality Assurance Officer — FCR Preparer — Site Supervisor

Project Controls — Program Health and Safety Manager

REV: 11/3/00

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location shown on the drawings using hopper or flat deck barges with sideboards.

Barges shall not be filled to overflowing. Barges shall have tight seals and sideboards and if they exhibit more than minor leakage they will be repaired or replaced.

Barges shall be loaded and moved to the storage/stockpile for unloading. Loaded barges shall not be stored or staged and shall be unloaded immediately after loading so as to minimize release of water. The Contractor shall submit with his dredge plan his proposed method for offloading the barges.

## 3.06 WATER QUALITY MONITORING

Foster Wheeler Environmental will monitor the Contractor's dredging and disposal activities for compliance with the water quality requirements of the Section 401 Water Quality Certification permit and other substantive requirements. Compliance monitoring will be conducted by Foster Wheeler Environmental at the compliance boundaries established for the point of dredging and the barge berthing area. The Contractor will make available to Foster Wheeler Environmental it's survey vessel for the purposes of performing water quality monitoring, at no additional expense to Owner. Water Quality monitoring will be conducted ~~in accordance with the Water Quality Monitoring Requirements defined in the Final RAWP. Foster Wheeler Environmental is preparing a Water Quality Monitoring Plan as part of the Remedial Action Workplans~~ so as not to impact the Contractor operations.

If water quality exceedances at the compliance boundaries are noted, the Contractor will be required to adjust or modify its operations until compliance is achieved. Modifications that may be required include, but are not limited to reducing hoist line speed while raising the bucket through the water column, replacing or repairing bucket seals, installation of silt curtains, and the like.

## 3.07 SALVAGED MATERIAL

Anchors, chains, straps, wire rope and other articles brought to the surface during the course of the dredging operations shall be separated out from the dredge material and delivered to an onsite location to be identified by the Contractor, and approved by the EPA and Foster Wheeler Environmental. The Contractor will then dispose of this salvaged material. Removal and delivery of the salvaged material to the designated onsite location will be considered incidental to the dredging work and included in the unit prices therefore.

## 3.08 HAZARDOUS MATERIAL

With the exception of the material removed from the PAH Remediation Area, the Owner does not expect hazardous material to be within the dredging area. If such material is encountered, the Contractor shall immediately notify Foster Wheeler Environmental to

location so that the capping/mounding operator, inspectors, sampling crew, and side scan sonar surveyors can observe and thereby control their position, and determine the water level at all times.

B. Reporting Requirements

The Contractor shall prepare and maintain a daily report of operations and furnish a copy to Foster Wheeler Environmental on the day after the date of the report. Information to be included as a minimum in the report will be the date, period covered by the report, equipment used, description of activity as identified by acceptance area, area depths, quantity of sediments placed in capping or mounding that day and to date, depth of placement, downtime and delays to the operation, safety, and other relevant comments concerning the conduct of the operation. The report shall include the results of all inspections, surveys and monitoring activities and shall be signed by the Contractor's Superintendent or Quality Control manager.

## 3.03 SIDE SCAN SONAR SURVEYS

A. Acceptance Surveys

~~The Contractor~~Foster Wheeler Environmental shall ~~provide completion surveys~~ perform side scan sonar surveys for approval of acceptance area mounding. Interval between each trackline generally will approach 25%. ~~The survey data and field interpretation will be made available to Foster Wheeler Environmental as soon as the survey plots are completed~~. The Contractor will make available to Foster Wheeler it's survey vessel for the purposes of completing progress and acceptance surveys, at no additional expense to Owner. Side scan sonar surveys will be timed so as not to impact the Contractor operations. Foster Wheeler Environmental may direct the Contractor to adjust its mounding procedure to assure compliance with the Performance Standard Verification Plan at no additional expense to Owner.

B. Notification of Acceptance Area Completion

When the Contractor determines that capping or mounding in any acceptance area or areas is completed, the Contractor will notify Foster Wheeler Environmental and request that a post-placement sampling or side scan sonar survey for the completed area(s) be conducted

## 3.05 CONDUCT OF CAPPING/MOUNDING

FOSTER WHEELER ENVIRONMENTAL CORPORATION
WARD COVE REMEDIATION PROJECT
CONTRACT NO. 1

# FIELD CHANGE REQUEST
# (FCR)

Rec'd KPC
DEC 04 2000
Environmental

| WORK ORDER NAME | WORK ORDER # | CHANGE REQUEST NO. |
|---|---|---|
| CONSTRUCTION MANAGEMENT | 01 | FCR-02 |
| **TO** | **LOCATION** | **DATE** |
| BARRY HOGARTY, KPC-LP | WARD COVE, KETCHIKAN, AK | 11/10/00 |

**RE:**
___ Drawing No. _____ Title _____
___ Spec Section _____ Title _____
✓ Other RAWP — Contractor Spill Contingency Plan, Notifications

**1. *DESCRIPTION (Items involved, submit sketch, if applicable)*:**
The Contractor's Spill Contingency Plan is modified as shown on attached.

**2. *REASON FOR CHANGE***
KPC notification procedures for oil and hazardous substances take precedence over Contractor's Spill Contingency Plan. As requested by KPC Environmental Department.k

**3. *RECOMMENDED DISPOSITION (Submit sketch, if applicable):***
Recommend change. Change attached.
_X_ Minor Change ____ Major Change (Impacts Cost, Schedule or Technical)

3a. Will this change result in a contract cost or time change? ____ YES _X_ NO
3b. Estimate of contract cost or time charge (if any)

| PREPARER (Signature) | DATE | PREPARER'S TITLE | SITE SUPERINTENDENT (Signature) | DATE |
|---|---|---|---|---|
| | 11/10/00 | Site Supervisor | | |

**4. *DISPOSITION***

___ Not approved (give reason).
X Considered minor change - approved per Recommended Disposition - Documents will not formally be revised, field to maintain as-built records.
___ Considered major change - KPC approval required via contract modification process.

| 1) FOSTER WHEELER ENVIRONMENTAL DESIGN MANAGER (Signature) (IF ENGINEERING RELATED) | DATE | 2) FOSTER WHEELER ENVIRONMENTAL PROJECT MANAGER (Signature) | DATE |
|---|---|---|---|
| | | | 11-30-00 |
| 3) HEALTH AND SAFETY MANAGER (Signature) (IF HEALTH AND SAFETY RELATED) ____ Comments (attached) ____ No Comments | DATE | 4) QC REVIEWER (Signature) ____ Comments (attached) ____ No Comments | DATE |

Construction Project Manager distributes to:

Foster Wheeler Design Manager — Quality Assurance Officer — FCR Preparer — Site Supervisor
Project Controls — Program Health and Safety Manager

REV: 11/3/00

FOSTER WHEELER ENVIRONMENTAL CORPORATION

# WARD COVE REMEDIATION PROJECT

CONTRACT NO. 1

# FIELD CHANGE REQUEST (FCR)

| WORK ORDER NAME | WORK ORDER # | CHANGE REQUEST NO. |
|---|---|---|
| CONSTRUCTION MANAGEMENT | 01 | FCR-12 |
| TO Barry Hogarty | LOCATION WARD COVE, KETCHIKAN, AK | DATE 12/28/00 |

RE: ___ Drawing No. _____ Title _____

___ Spec Section 02486 2. 03 _____ Title Capping and Mounding, Sand Cap Material _____

___ Other

***1. DESCRIPTION (Items involved, submit sketch, if applicable)***: Change the maximum particle size for the sand cap material from 100% by weight passing the U.S. No. 4 Sieve (boundary between fine gravel and coarse sand with mesh of 0.2-inch or 4.75 mm in size) to a minimum of 97% by weight to pass the U.S. No. 4 Sieve. Each barge load of material must be sampled and tested for grain size when loaded at Construction Aggregates, Ltd (CAL). If more than 3% fine gravel is retained on the U.S. No. 4 Sieve, EPA, KPC, and CAL will be immediately notified in writing by Foster Wheeler.

Fine gravel detected during performance testing of the cap is considered acceptable material and will count towards meeting the 40% minimum sand content requirement.

***2. REASON FOR CHANGE:*** Test results for the proposed sand capping material from the CAL quarry in Victoria, BC show that the material contains 2% to 3% by weight fine gravel (particles that pass the 3/8-inch sieve (9.5 mm) and are retained on the U.S. No. 4 Sieve. The addition of fine gravel does not conform to the requirements for grading as presented in the Specifications (Section 2.03C). The addition of gravel equates to approximately 2.1% of the capping material by volume. It is assumed that the fine gravel will sink into the organic sediment and additional material may be required to replace the fine gravel that is assumed to sink. Our equipment and operator capability for cap placement of a precise volume is dependent on our ability to measure volume delivered by the barge load. This is measured by weight of the sand, which is the barge draft before and after cap placement. This is relatively accurate, but does have error due to small wave chop, and interpreting between one-foot draft markings on the sides of the barge. As an example, a 2.1% error in actual volume measurement is approximately equal to a 2-inch variation in draft measurements for an 8 foot draft barge. It is recommended that, with the relative accuracy of cap material measured for placement by the barge load versus the relative potential loss of cap volume due to oversize sediment, we should proceed with the same test volume placement of cap as already specified in the contract document. We would still need to meet the 40% requirement for acceptance.

Fine gravel that does not sink into the organic sediment but is supported within the upper 10 cm is considered beneficial to the benthic community. This was concluded during discussions with EPA and USACE project representatives.

***3. RECOMMENDED DISPOSITION (Submit sketch, if applicable):*** Approve and implement the change.

___ Minor Change  __X__ Major Change (Impacts Cost, Schedule or Technical)

3a. Will this change result in a contract cost or time change? __X__ YES ____ NO

3b. Estimate of contract cost or time change (if any) $450 per acre in additional material plus $230 per acre to place the additional material

| PREPARER (Signature) | DATE | PREPARER'S TITLE | SITE SUPERINTENDENT (Signature) | DATE |
|---|---|---|---|---|
| Mark Herrenkohl | 12/28/00 | Site Engineer | John Lally | 12/28/00 |

***4. DISPOSITION***

___ Not approved (give reason).

___ Considered minor change - approved per Recommended Disposition - Documents will not formally be revised, field to maintain as-built records.

__X Considered major change - KPC approval required.

| | | | |
|---|---|---|---|
| 1) FOSTER WHEELER ENVIRONMENTAL DESIGN MANAGER (Signature) (IF ENGINEERING RELATED) Greg Hartman FOR | DATE 12/28/00 | 2) FOSTER WHEELER ENVIRONMENTAL PROJECT MANAGER (Signature) | DATE 1/5/01 |
| 3) HEALTH AND SAFETY MANAGER (Signature) (IF HEALTH AND SAFETY RELATED) NA ____ Comments (attached) ____ No Comments | DATE | 4) QC REVIEWER (Signature) ____ Comments (attached) ____ No Comments | DATE |

Construction Project Manager distributes to:

Foster Wheeler Design Manager | Quality Assurance Officer | FCR Preparer | Site Supervisor

Project Controls | Program Health and Safety Manager

REV: 11/3/00

*FOSTER WHEELER ENVIRONMENTAL CORPORATION*

# WARD COVE REMEDIATION PROJECT

CONTRACT NO. 1

# FIELD CHANGE REQUEST (FCR)

| WORK ORDER NAME | WORK ORDER # | CHANGE REQUEST NO. |
|---|---|---|
| CONSTRUCTION MANAGEMENT | 01 | FCR-13 |
| TO Barry Hogarty | LOCATION WARD COVE, KETCHIKAN, AK | DATE 01/27/01 |

RE: ___ Drawing No. Sheet 8 _____ Title Thin Cap Plan _____

___ Spec _____ Title _____

___ Other

**1. *DESCRIPTION (Items involved, submit sketch, if applicable):*** Modify extent of acceptance area A8 thin cap area as shown on attached drawing modifications.

**2. *REASON FOR CHANGE:*** The A8 area is proposed to be changed to exclude the following areas:

Rip rap shoreline. According to the DAR, Appendix D, *Technical Memorandum on Area of Concern*, pg. 2, 1st paragraph, "The AOC is defined however, as areas where sediment may have adverse ecological impact, and the rock areas should not be part of the AOC. Therefore, the AOC should exclude the areas along the shoreline where rock is present on the surface." Much of the north and west shoreline of acceptance area A8, both subtidal and intertidal slopes, have rip rap (rock) on approximately a 40 percent (2.5H:1V) slope or greater, from the top of slope down to roughly –10 ft. MLLW. By the DAR, these areas are not part of the AOC, and should not be capped.

Gateway Forest Products (GFP) log lift. So as not to impact future GFP log lift and maintenance dredging operations, a 100 ft. x 200 ft. (.46 acre) area centered on the GFP log lift, has been delineated to not receive capping material.

GFP Fill. The approximate extent of the GFP Phase 1 fill, which is near completion, according to GFP, is shown on the attached drawing. A Phase 2 fill is planned by GFP, with permit application currently being prepared, that would bring the fill out to the Phase 2 line, also shown of the drawing. It is proposed that this area not receive capping material as it would be covered by future fill. Much of this Phase 2 fill area has also been determined to already consist of a surface layer of rock, steeper that 40 percent, and have facilities in the area such as dolphins, floating dock, and caissons, that would preclude capping, or make capping placement difficult.

The total area proposed to be excluded from the current A8 acceptance area is approximately 2.0 acres.

A composite area representing the areas described above has been delineated and shown on the attached drawing. Also, the PAH area has been remediated and delineated (18 ft. x 20 ft. box) on the attached drawing. The original extent of the PAH area (curved boundary), is now suggested to be part of the A8 capping area, minus the remediated PAH area.

**3. *RECOMMENDED DISPOSITION (Submit sketch, if applicable):*** Recommend to approve and implement the change. The modification has been agreed to by KPC and Gateway Forest Products.

___ Minor Change __X__ Major Change (Impacts Cost, Schedule or Technical)

3a. Will this change result in a contract cost or time change? __X__ YES ____ NO

3b. Estimate of contract cost or time charge (if any) 2-3 days to cap proposed no capping area, plus material costs.

| PREPARER (Signature) | DATE | PREPARER'S TITLE | SITE SUPERINTENDENT (Signature) | DATE |
|---|---|---|---|---|
| [signature] | 1/29/01 | Site Supervisor | | |

**4. *DISPOSITION***

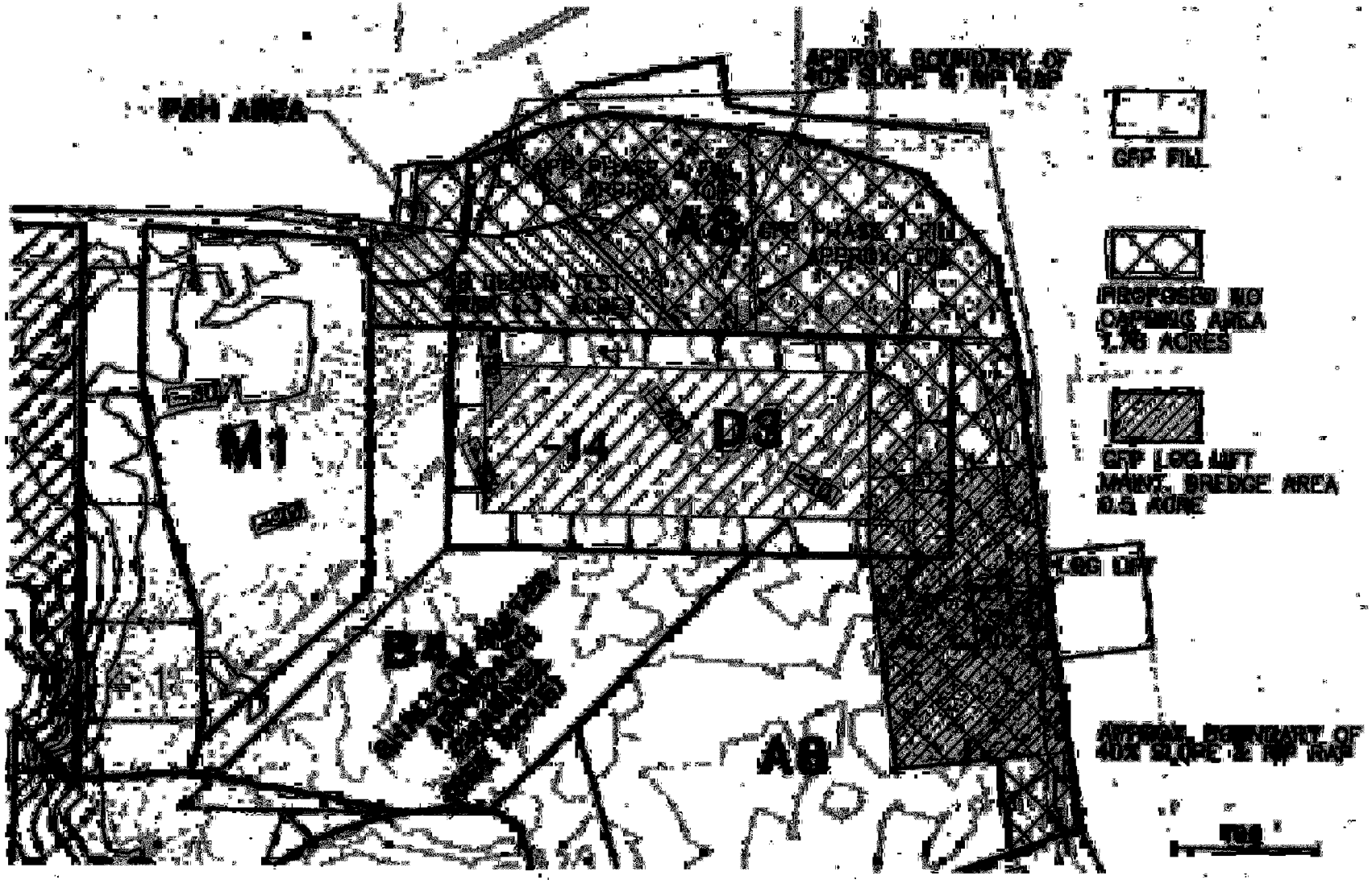
___ Not approved (give reason).
___ Considered minor change - approved per Recommended Disposition - Documents will not formally be revised, field to maintain as-built records.
___X Considered major change - KPC approval required.

| | | | |
|---|---|---|---|
| 1) FOSTER WHEELER ENVIRONMENTAL DESIGN MANAGER (Signature) (IF ENGINEERING RELATED) Greg Hartman Gregory L Hartman | DATE 2/6/01 | 2) FOSTER WHEELER ENVIRONMENTAL PROJECT MANAGER (Signature) | DATE |
| 3) HEALTH AND SAFETY MANAGER (Signature) (IF HEALTH AND SAFETY RELATED) NA ____ Comments (attached) ____ No Comments | DATE | 4) QC REVIEWER (Signature) ____ Comments (attached) ____ No Comments | DATE |

Construction Project Manager distributes to:

Foster Wheeler Design Manager
Quality Assurance Officer
FCR Preparer
Site Supervisor
Project Controls
Program Health and Safety Manager

REV: 11/3/00


PAH AREA
APPROX. BOUNDARY OF 40% SLOPE & RIP RAP
GFP FILL
PROPOSED NO CAPPING AREA 7.75 ACRES
GFP LOG LIFT MAINT. DREDGE AREA 0.5 ACRE
LOG LIFT
M1
D3
A8
APPROX. BOUNDARY OF 40% SLOPE & RIP RAP

FOSTER WHEELER ENVIRONMENTAL CORPORATION
WARD COVE REMEDIATION PROJECT
CONTRACT NO. 1

# FIELD CHANGE REQUEST (FCR)

| WORK ORDER NAME | WORK ORDER # | CHANGE REQUEST NO. |
|---|---|---|
| CONSTRUCTION MANAGEMENT | 01 | FCR-14 |
| TO Barry Hogarty | LOCATION WARD COVE, KETCHIKAN, AK | DATE 02/01/01 |

RE: ___ Drawing No. _____ Title _____

___ Spec 02483 Para 2.03D
Spec 01025 _____
___ Other

Title Capping and Mounding_____
Measurement & Payment_____

**1. DESCRIPTION (Items involved, submit sketch, if applicable):**
Place coarser capping material in both B4 and D3 areas.

Capping design tests in either B4 and D3 areas is not foreseen. However, van veen and/or video sampling will be performed as soon as reasonable after some material is placed in the first of either of these areas, to ensure that the capping method and material will meet performance standards. Confirmation sampling, at 12 stations in both D3 and B4 areas will be performed in accordance with the Contract Plans.

**2. REASON FOR CHANGE:**
Para 2.03D of Specification Section 02483 provides that coarser capping material (3-inch minus) will be used on the shallow draft berthing area (-14 ft. dredge area) D3. Specification Section 01025 Bid Items 8 & 11 provide for thin capping the shallow draft approach channel, Area B4, with the regular sand. Coarser capping material with some gravel is now recommended in Area B4 to prevent scour and re-suspension of organics when tugs move barges in and out of the shallow draft berthing area. Recommend that both D3 and B4 areas receive coarser capping material. B4 capping area delineation remains as shown in contract drawings. D3 capping area delineation is described in January 31, 2001 letter to EPA, "Capping of Dredged Areas".

The modification has been agreed to by KPC and Gateway Forest Products.

**3. RECOMMENDED DISPOSITION (Submit sketch, if applicable):**
Modify Para 2.03D of Specification Section 02483 and to add the coarser capping material to Area B4, the shallow draft approach channel. The modification has been agreed to by KPC and Gateway Forest Products.

_X_ Minor Change ____ Major Change (Impacts Cost, Schedule or Technical)

3a. Will this change result in a contract cost or time change? ____ YES _X_ NO

3b. Estimate of contract cost or time charge (if any)

| PREPARER (Signature) | DATE | PREPARER'S TITLE | SITE SUPERINTENDENT (Signature) | DATE |
|---|---|---|---|---|
| John Lally | 02/01/01 | Site Supervisor | | |

**4. DISPOSITION**

___ Not approved (give reason).
___ Considered minor change - approved per Recommended Disposition - Documents will not formally be revised, field to maintain as-built records.
___ Considered major change - KPC approval required via contract modification process.

| 1) FOSTER WHEELER ENVIRONMENTAL DESIGN MANAGER (Signature) (ENGINEERING RELATED) | DATE | 2) FOSTER WHEELER ENVIRONMENTAL PROJECT MANAGER (Signature) | DATE |
|---|---|---|---|
| Greg Hartman | 2-8-01 | B. E. [illegible] | 2/9/01 |
| 3) HEALTH AND SAFETY MANAGER (Signature) (IF HEALTH AND SAFETY RELATED) NA ____ Comments (attached) ____ No Comments | DATE | 4) QC REVIEWER (Signature) ____ Comments (attached) ____ No Comments | DATE |

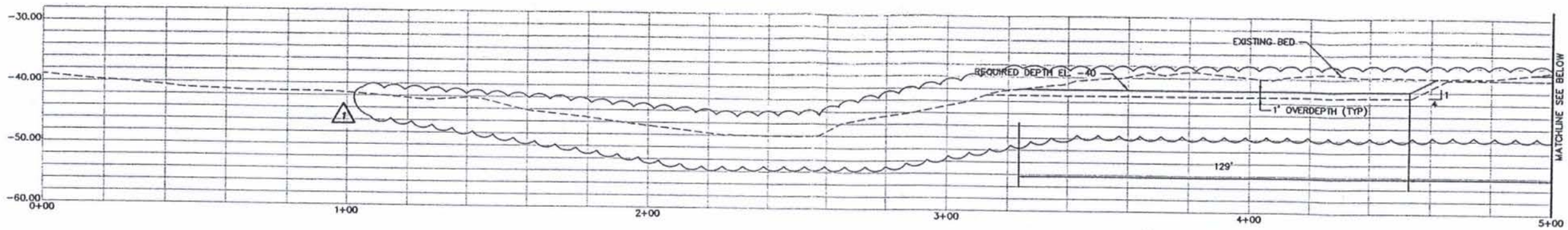
D:\AAA\KETCHIKAN\FCRS\FCR 14 COURSER CAP IN D3+B4.DOC

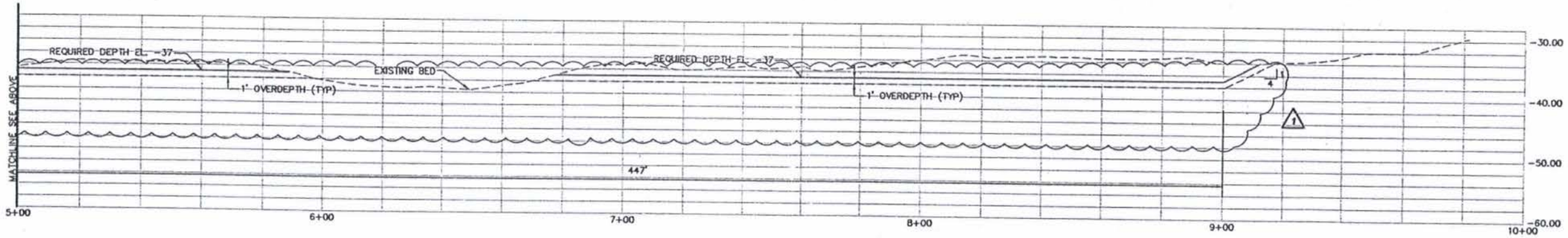
Construction Project Manager distributes to:

| | | | |
|---|---|---|---|
| Foster Wheeler Design Manager | Quality Assurance Officer | FCR Preparer | Site Supervisor |
| Project Controls | Program Health and Safety Manager | | |

REV: 11/3/00

| NO | DATE | REVISION | BY | CH | APPROVED |
|---|---|---|---|---|---|
| 0 | 8-1-00 | ISSUED FOR CONSTRUCTION | | | |
| 1 | 12-29-00 | REVISED PER FCR 9, 10 & 11 | KK | JL | GH |




SECTION 1/4

STATE OF ALASKA
49TH
REGISTERED PROFESSIONAL ENGINEER
No. CE-6266

DRAWING REDUCED HALFSIZE

20 10 0 20 40 60
HORIZONTAL SCALE

10 5 0 10 20 30
VERTICAL SCALE

WARD COVE SEDIMENT REMEDIATION
KETCHIKAN PULP COMPANY
KETCHIKAN, ALASKA

DREDGE SECTION, 1

FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

| SCALE: AS NOTED | APPROVED | DATE: 5/9/00 |
|---|---|---|
| DIVISION: | | |
| DRAWN: AEC | | |
| CHECKED: | | |

5/14

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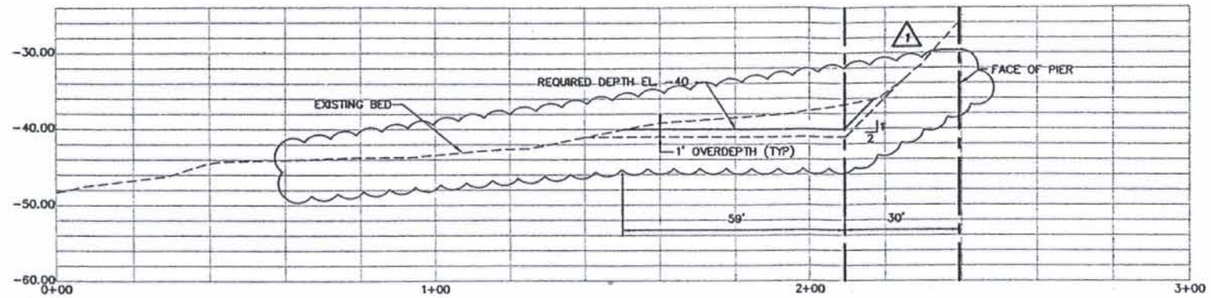
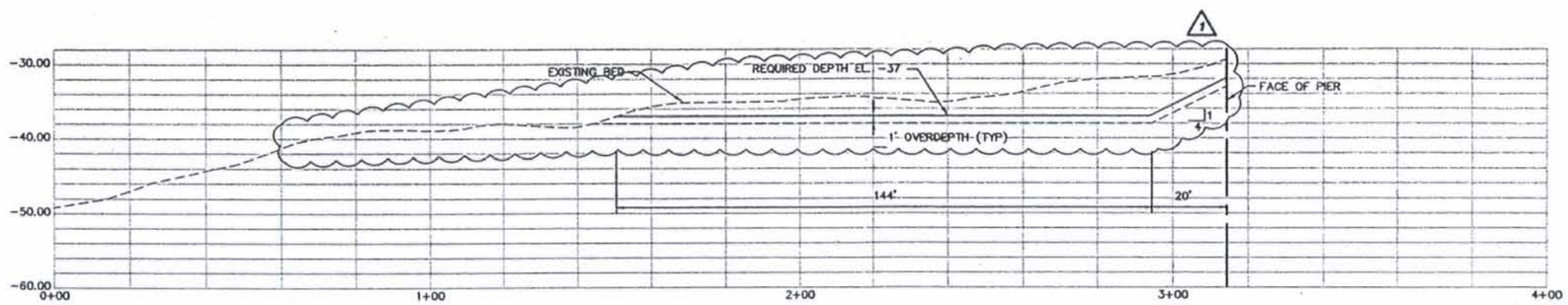
PLOT/UPDATE: JAN 09 2001 15:18:53

| NO | DATE | REVISION | BY | CH | APPROVED |
|---|---|---|---|---|---|
| 0 | 8-1-00 | ISSUED FOR CONSTRUCTION | | | |
| 1 | 12-29-00 | REVISED PER FCR 9, 10 & 11 | KK | JL | GH |




SECTION 2/4




SECTION 3/4

STATE OF ALASKA
49TH
REGISTERED PROFESSIONAL ENGINEER
No. CE-6266

DRAWING REDUCED
HALFSIZE

20 10 0 20 40 60
HORIZONTAL SCALE

10 5 0 10 20 30
VERTICAL SCALE

WARD COVE SEDIMENT REMEDIATION
KETCHIKAN PULP COMPANY
KETCHIKAN, ALASKA

DREDGE SECTION, 2 & 3

FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

| SCALE: AS NOTED | APPROVED | DATE: 5/9/00 |
|---|---|---|
| DIVISION: | | |
| DRAWN: AEC | | |
| CHECKED: | | 6/14 |

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PLOT/UPDATE: JAN 09 2001 15:18:53

# C1: WEEKLY QUALITY CONTROL REPORTS

# QUALITY ASSURANCE WEEKLY INSPECTION SUMMARY REPORT

| | | |
|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 1 |
| | **Period of Work:** 11/1/2000 – 11/5/2000 | |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Visitors:** None | |

**Summary of Construction Activities:**

- Site mobilization and equipment preparation/modification. Derrick barge and 2 material barges being prepared for work at South Coast's yard.
- Construction of dewatering containment berm began; berm construction should be complete by 11/8/00.
- Completed side-scan survey of log removal areas. Log removal scheduled to begin on 11/7/00.
- Drove two breasting pile at offloading site for dewatering area.
- Electronic tide gauge and new tide staff installed.

Photographs Were Taken.

**Summary of QA/QC Activities:**

- Pre-construction, quality control, and job safety meeting held on 11/1/00, KPC, GFP, FWENC, McAmis, and PN&D representatives in attendance.
- Equipment systems and safety inspection of derrick barge and material barges conducted at South Coast yard. South Coast, McCamis, FWENC, and PN&D personnel present.
- Safety inspection of crane at offloading/dewatering site and survey vessel conducted by FWENC.
- Composite samples of material being used to construct dewatering area berm were collected from South Coast borrow site. Samples will be analyzed for total arsenic by North Creek Analytical using EPA method SW6020. Results should be available by 11/7/00.
- Water quality measurements taken at two potential reference stations and background station for log removal operations. Results were within requirements stated in WQMP. Instrument calibrated for turbidity, DO, and salinity before measurements were taken.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

Horizontal positioning system check on McAmis survey vessel indicated up to 8 feet from true position. This is outside of spec. and will be corrected prior to any survey work.

**Recommended Action Items To Achieve Consent Decree:**

None noted for this week

**List of Attachments:**

- Water quality report for log removal background station.

**BY:** William J. Gerken, P.E.

## QUALITY ASSURANCE WEEKLY INSPECTION SUMMARY REPORT

| | | |
|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02<br>**Period of Work:** 11/6/2000 – 11/12/2000 | **Report No.:** 2 |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Visitors:** None | |

**Summary of Construction Activities:**

- Site mobilization and equipment preparation/modification.
- Majority of construction for dewatering containment berm area completed.
- Completed log removal in majority of access channel area.
- Removed deck over PAH dredge area.
- Visited potential sand source at Whipple Creek. Work on-going to determine if source is viable and to perform necessary testing.
- Contractor working to insure that necessary permits, approvals, and documentation are in place for PAH stockpiling and disposal.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Status and scheduling meeting on 11/6. Project safety orientation meeting held 11/7. Weekly quality control and scheduling meeting held 11/8. FWENC conducted weekly safety inspection on 11/11.
- Monitoring for $H_2S$ conducted on material barge on 11/11, all detected levels below 1ppm.
- Water quality measurements for log removal operations taken as outlined in WQMP. Hydrolab calibrated for turbidity, DO, and salinity as required. Criteria for turbidity were exceeded briefly *(spike)* at the ebb tide and 1 hr prior to end of operations, at the 2 foot depth reading on 11/9. Follow-up and or continuous monitoring at these locations indicated that the turbidity rapidly dropped well below WQMP criteria. No visible plume or turbidity at time of exceedence, no plume detected with fathometer. On 11/11 criteria for DO fell slightly below 5mg/L for a short period of time *(≈1min)* and then came back up above 5mg/L near bottom during flood tide monitoring. QAO present, event considered transient, EPA not notified. See attached weekly water quality report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- Notified Karen Keeley *(left phone message)* and Justine Barton, with EPA Region 10, regarding turbidity spike on 11/9.

**Recommended Action Items To Achieve Consent Decree:**

None noted for this week

**List of Attachments:**

- Weekly Water Quality Report.

**BY:** William J. Gerken, P.E.

# QUALITY ASSURANCE WEEKLY INSPECTION SUMMARY REPORT

| | | |
|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02<br>**Period of Work:** 11/13/2000 – 11/19/2000 | **Report No.:** 3 |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Visitors:** Karen Keeley with EPA Region 10<br>Tammy Phillips with USACE Alaska District | |

**Summary of Construction Activities:**

- Completed construction and survey of dewatering area containment berm.
- Completed log removal operations.
- Began log-offloading operations at dewatering site.
- Completed pile removal.
- Completed pre-dredge survey in D1, D2, and D3. Equipment methods and calibration of equipment appeared satisfactory.
- Work on-going to determine sand source and perform necessary testing.
- Completed work in PAH area, dredged an approximate 15'x20' area. Approximately 140 cubic yards of material removed and placed in sealed trucks or sealed containment on deck barge. Material appeared to be mostly sawdust, wood and other debris towards the surface and shot rock as depth of dredging increased. One old creosote pile was removed. Increased sheen noted during dredging, some areas worse than others. Karen Keeley with EPA observed operations. Absorbent boom and sea curtain was in place around work area, they effectively contained the surface sheen. Material was disposed of at KPC landfill.

Photographs Were Taken.

**Summary of QA/QC Activities:**

- Weekly quality control and scheduling meeting held 11/8. FWENC conducted weekly safety inspection on 11/11.
- Water quality measurements for log removal operations, log off-loading, and PAH dredging taken. Hydrolab calibrated for turbidity, DO, and salinity as required. Criteria for turbidity was not exceeded. On 11/15 DO measured at 4.8mg/l near bottom in PAH area during break in work. This was not a WQMP required measurement. EPA and Corps informed of reading. On 11/17 DO measured at 3.5mg/l near bottom within 60 feet off GFP log lift. Phone message left with EPA informing them of situation. See attached weekly water quality report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- Notified EPA of DO readings below 5.0mg/l *(see above)*.

**Recommended Action Items To Achieve Consent Decree:**

- None noted for this week

**List of Attachments:**

- Weekly Water Quality Report.

**BY:** William J. Gerken, P.E.

## QUALITY ASSURANCE WEEKLY INSPECTION SUMMARY REPORT

| | | |
|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02<br>**Period of Work:** 11/20/2000 – 11/26/2000 | **Report No.:** 4 |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Visitors:** None | |

**Summary of Construction Activities:**

- Completed log off-loading and sorting operations.
- Consent decree signed by judge on 11/20/2000.
- Dredging began in –14' area on 11/21/2000.

NOTE: Review of pre-dredge survey data revealed that it may not be feasible to dredge a 4:1 slope in the North corner of –14' area. At least one cluster of timber piles broken off at elevation –12' ± was encountered in the –14' work area. Work is currently underway to determine position of toe of dredging in D1 and D2 areas in front of dock. Toe must be positioned so dredging can not undermine or destabilize original shot rock fill under dock. Resolution to these issues and any necessary design changes should be complete early next week.

**Summary of QA/QC Activities:**

- Weekly quality control and scheduling meeting held 11/22.
- Water quality measurements for log off-loading operations, and dredging taken. Hydrolab calibrated for DO, and salinity as required. Criteria for turbidity and DO was not exceeded. See attached weekly water quality report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- Some minor problems with dredging vertical control and timely production of progress surveys at start of dredging. Problems resolved.

**Recommended Action Items To Achieve Consent Decree:**

- None noted for this week

**List of Attachments:**

- Weekly Water Quality Report.

**BY:** William J. Gerken, P.E.

## QUALITY ASSURANCE WEEKLY INSPECTION SUMMARY REPORT

| | | |
|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02<br>**Period of Work:** 11/27/2000 – 12/03/2000 | **Report No.:** 5 |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Visitors:** None | |

**Summary of Construction Activities:**

- Continue dredging in –14' area. Contractor indicated he felt area was complete Saturday afternoon, performed post-dredge survey Saturday night. Results of survey should be available first thing Monday morning; determination will be made at that time on completeness of work in area.
  Based on progress surveys performed throughout work in –14' area, contractor overdredged in portions of area. WinOps vertical positioning has not worked properly since start of dredging, contractor is controlling depth of dredging at this time with marks on bucket cable, this method is working well. Additional buried/partially buried logs encountered in portions of area.
- It was determined that it was not be feasible to dredge a 4:1 slope in the North corner of the –14' area due to fill placed by GFP. North toe of dredge prism shifted 20' to the South.
- A number of what appears to be timber piles broken off at elevation –12'± was encountered in the –14' work area. Diver will conduct underwater video survey of piles when dredging work ceases in area. Depending on what is found, diver will cut pile(s) off or dredge will try to remove them.
- Position of toe of dredging was set at 40' and 30' from dock face in areas D1 and D2 respectively. Toe positioned so dredging would not undermine or destabilize original shot rock fill under dock.
- Offloading operations in dewatering area going smoothly

**Summary of QA/QC Activities:**

- Weekly quality control and scheduling meeting held 11/29.
- Water quality measurements for dredging and off-loading operations taken. Hydrolab calibrated for DO, and salinity as required. Criteria for turbidity and DO was not exceeded. As of 11/29/00 water quality is only monitored twice per day as per WQMP. 11/30/00 there is no monitoring event 1 hour prior to start of barge offloading due to contractor off-loading earlier than anticipated, contractor will attempt to keep FWENC better informed in the future so this situation does occur again. On 12/01/00 no dredging performed during ebb tide. See attached weekly water quality report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- Ongoing problem with dredging vertical control, problem resolved by going to marks on bucket cable for control of dredge depth.

**Recommended Action Items To Achieve Consent Decree:**

- Improved WinOps vertical control, and ability to display bottom contours on operators screen. These items are not necessary to achieve a successful project, but they will make dredging easier.

**List of Attachments:**

- Weekly Water Quality Report.

**BY:** William J. Gerken, P.E.

# QUALITY ASSURANCE WEEKLY INSPECTION SUMMARY REPORT

| | | |
|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02<br>**Period of Work:** 12/04/2000 – 12/10/2000 | **Report No.:** 6 |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Visitors:** Tammy Phillips USACE<br>Karen Keeley EPA Region 10<br>Lucinda Jacobs Exponent. | |

**Summary of Construction Activities:** Contractor started dredging in –44' area (D1), began work at Southwest end of area. Material is primarily non-organic and too dense *(hard)* to dig effectively with environmental bucket. Contractor switched to digging bucket on 12/4. Material remained primarily non-organic throughout the week, as dredging progressed some shot rock, a few large rocks, some logs, and an oxygen tank were encountered. On 12/9 and 12/10 contractor encountered what appeared to be bed rock in a small area, minimum depth of rock encountered thus far in dredge prism is approximately –38'. It was determined that it was not feasible to dredge a 4:1 slope shoreward at the southwest end of the area, a 4:1 slope would seriously undermine the existing slope. Contractor directed on 12/5 to dredge slope at 2:1 *(FCR #10 in process)*. Contractor directed on 12/6 to dredge to –40' in D1 unless organic material is encountered. If organic material is encountered contractor will dredge to –44' or until he reaches non-organic material below –40', whichever comes first *(FCR #9 in process)*. Ongoing discussion on decreasing dredge depth in D2 to –36' + 1' payable overdepth *(FCR #11 in process)*.

Still waiting on pay volume calculations in –14' area from contractor, contractor estimated 2,454 total cubic yards of material removed. Independent volume calculations of pay quantities in –14' area by FWENC indicate **1,343 cubic yards**. Independent volume calculations of pay quantities in –14' area by PN&D indicate **1,358 cubic yards**, very good agreement between FWENC & PN&D pay yardage calculations. FWENC calculations show 2,609 total cubic yards removed from area, which equates to 1,266 cubic yards of over dredging. Calculations of overdredge by PN&D indicate 753 cubic yards of overdredging, this equates to 2,111 total cubic yards removed. Based on survey cross-sections, calculation of overdredge yardage is highly subjective.

Divers cut off 3-steel and 2-timber piles, and pulled over 5-logs in the –14' (D3) dredge area which were extending above grade.

Offloading operations in dewatering area going smoothly.

Physical testing results from potential cap material source at Whipple Creek indicate fines content is to high to meet spec. Information received and decision made by FWENC on 12/6 not to use or give further consideration to Whipple Creek Source. Still waiting on final chemistry results for B.C. source.

FWENC collected samples of existing bottom material from 5 locations in cove. Material will be analyzed in lab on site and used in conjunction wit B.C. sand for development of Field Performance Verification Method.

**Summary of QA/QC Activities:** Weekly quality control and scheduling meeting held 12/06.

FWENC weekly safety inspection on 12/8. Water quality measurements for dredging and off-loading operations taken. Hydrolab calibrated for DO, and salinity as required. No dredging during ebb tide monitoring on 12/8, dredging ceased due to breakdown, monitoring done after notification of breakdown. Any day where only one monitoring event is shown for barge off-loading is shown indicates that off-loading operations did not continue into opposite phase of tide cycle.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:** Informed by FWENC of a turbidity exceedence on 1/28 which was not discovered until a data review the evening of 12/5. Exceedence was in a surface sample dredging station, mid depth and bottom exhibited no exceedence *(turbidity 0.6 – 5.1 NTU)*. Informed EPA and USACE of oversight. Discussed with FWENC that this can not happen again, all data must be closely monitored in the field, any exceedence must be reported immediately and handled as outlined in the WQMP.

12/10 turbidity exceedence during dredging ebb tide monitoring. The first monitoring event indicated an exceedence at both the near surface and near bottom locations, but values fluctuated greatly in both locations. Follow up monitoring at the same approximate location 10 minutes latter showed no exceedence at the near surface or mid depth location, but a fairly stable exceedence at the near bottom location. This station was down current of the dredge and fairly close to shore. Additional monitoring was immediately done 100' farther from shore while remaining 300' down current of the dredge. This location exhibited no exceedence, the highest reading being 14.1 NTU's near bottom. We are currently experiencing large tidal variations and thus stronger than usual ebb currents. The dredge was digging non-organic sediments in D1. Just prior to the monitoring event the pump-off hose used to pump excess water from the barge into the dewatering area was knocked loose, this discharged some highly turbid water retained in the hose into the surface water. In addition the observation was made that the operator lost a partial bucket of material back into the water column just prior to the monitoring event. EPA notified of exceedence and conditions. No operational changes made at the time, will continue monitoring, if additional exceedences are documented, further investigation and possibly operational changes will be implemented

**Recommended Action Items To Achieve Consent Decree:** None Noted.

**List of Attachments:** Weekly Water Quality Report.

**BY:** William J. Gerken, P.E.

# QUALITY ASSURANCE WEEKLY INSPECTION SUMMARY REPORT

| | | |
|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 7 |
| | **Period of Work:** 12/11/2000 – 12/17/2000 | |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Visitors:** None | |

**Summary of Construction Activities:**

- Completed dredging in –44' area (D1). Majority of area was primarily non-organic material, portion of area farthest from dock still had some remaining organics at –44' depth and will need to be capped.
  Post dredge survey of area not completed prior to Christmas break due to boat needing repair.
- Contractor began dredging in northeastern portion of –40' area (D2). Material in this part of D2 is organic with logs and debris. Discontinued dredging operations for holiday break at 11:20 am on 12/15.
- Offloading operations in dewatering area going smoothly.
- Tested tub-grinder.
- QAO off site 12/12, 13, and 14 for HAZWOPER training class

**Summary of QA/QC Activities:**

- Weekly quality control and scheduling meeting held 12/13.
- Water quality measurements for dredging and off-loading operations taken. Hydrolab calibrated for DO, and salinity as required. Criteria for turbidity and DO was not exceeded.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted.

**Recommended Action Items To Achieve Consent Decree:**

- None Noted

**List of Attachments:**

- Weekly Water Quality Report.

**BY:** William J. Gerken, P.E.

# QUALITY ASSURANCE WEEKLY INSPECTION SUMMARY REPORT

| | | |
|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02<br>**Period of Work:** 01/04/2001 – 01/07/2001 | **Report No.:** 8 |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Visitors:** None | |

**Summary of Construction Activities:**

- Contractor back on site working on 01/04/01. Contractor began double shifts on 01/05/01
- Contractor continued dredging in D2. Dredge depth in this area has been adjusted to -37' + 1' of overdepth as per FCR 11. Material currently being dredged is organic with some logs and debris, and an occasional rock.
- Closing line on bucket broke morning of 01/07/01 and damaged GPS receiver, dredge down remainder of the day for repairs.
- Conducted post-dredge survey in D1. Initial pre-survey bar-check and initial post-survey bar-check did not agree, so area was re-surveyed. Pre and post bar-checks on second survey checked out fine. Review of survey indicated contractor will need to return to clean up some areas and verify that other areas left above -44' are dense non-organic sediments. Requested that contractor provide contours of area for review prior to dredging.
- Conducted progress surveys in D2.
- Conducted additional post-dredge survey of D3, contractor wanted to determine if any high spots were eliminated due to piles and logs removed by divers.
- Offloading operations in dewatering area going smoothly. Working material in dewatering area with dozer, pushing material towards water discharge.
- Sand for capping operations is currently scheduled to arrive on site 01/15/01.
- Contractor continuing to work with FWENC to develop acceptable method of tracking sand placement during capping.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging and off-loading operations taken. Hydrolab calibrated for turbidity, DO, and conductivity as required. Criteria for turbidity and DO was not exceeded.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted.

**Recommended Action Items To Achieve Consent Decree:**

- None Noted

**List of Attachments:**

- Weekly Water Quality Report.

**BY:** William J. Gerken, P.E.

## QUALITY ASSURANCE WEEKLY INSPECTION SUMMARY REPORT

| | | |
|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02<br>**Period of Work:** 01/08/2001 – 01/14/2001 | **Report No.:** 9 |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Visitors:** None | |

**Summary of Construction Activities:**

- Contractor tentatively completed dredging on 01/12.
- Conducted post-dredge survey in D1, D2, and D3 on 01/13, results should be processed and presented on 01/15. Some discrepancy between fathometer soundings and leadline soundings on slope along face of dock. Contractor working on identifying and rectifying problem. This problem will need to be resolved prior to acceptance of the area and pay volume calculations.
- Offloading operations in dewatering area went smoothly.
- Sand for capping operations is currently scheduled to arrive on site 01/16/01.
- Conveyor system for sand loading/off-loading began arriving on 01/13. Contractor began setting system up at stockpile site.
- Data validation and usability report being revised and completed, should be done and submitted by end of day on 01/16.
- Contractor continuing to work with FWENC on layout and development of acceptable method of tracking sand placement during capping.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging and off-loading operations taken. Hydrolab calibrated for DO, and conductivity as required. Criteria for turbidity and DO was not exceeded.
- Weekly project QC, progress, and scheduling meeting held on 01/10.
- FWENC, McAmis, and QAO held meeting to discuss survey and dredging documentation necessary for acceptance of dredge work.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted.

**Recommended Action Items To Achieve Consent Decree:**

- Final data validation and usability report, scheduled completion 01/16.
- Final test capping layout and documentation plan, meeting to discuss on 01/15.
- Final dredge surveys and documentation, scheduled for initial review on 01/15.

**List of Attachments:**

- Weekly Water Quality Report.

**BY:** William J. Gerken, P.E.

# QUALITY ASSURANCE WEEKLY INSPECTION SUMMARY REPORT

| | | |
|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02<br>**Period of Work:** 01/15/2001 – 01/21/2001 | **Report No.:** 10 |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Visitors:** Greg Hartman, Bob Hopman, and Bill Elmer with FWENC. John Wakeman with USACE. | |

**Summary of Construction Activities:**

- Contractor returned to D1 and D3 and dredged high spots indicated in initial post-dredge surveys.
- Conducted final post-dredge survey in D1, D2, and D3 on 01/16. Review of results on 01/19 indicated areas had been dredged to the satisfaction of FWENC and the QAO. Any areas left above grade were due to rock, undigable material, piling, or shot rock slope material along face of dock. FWENC Site Supervisor will provide a letter indicating completion of dredging with a brief summary of areas left above grade, and determination of controlling depth in each area. FWENC will also provide an additional map indicating those areas with remaining organics that need to be capped.
- Divers checked undigable high spot in D3, found remains of a 16-pile dolphin. Highest point/pile was at approximately -8.0' MLLW. Divers cut off pile on 01/18. One pile embedded in dense material could only be cut down to -13.5', this is the controlling depth in D3.
- Completed off loading operations at dewatering area. Contractor pulled two previously driven temporary pile from berthing location and re-drove them at berthing location for sand off-loading. Pile will be removed at end of offloading operations.
- Data validation and usability report for cap material completed.
- Sand for capping operations arrived on 01/16/01 and was offloaded at the stockpile area. Gradation test results confirmed material was within specifications
- Contractor cleaned material Barges Prior to loading with sand. Bucket(s) were modified for cap material placement. Skip box brought from yard and placed on derrick barge.
- On 01/20 contractor performed practice capping sweeps over barge in preparation for cap placement. Material was not always leaving bucket in a nice even swath, but it was not unacceptable. Operator had to open bucket wider at end of swing to get material to fall out. Will need to work in the water to see how bucket and material will actually perform. Capping operations scheduled to begin On 01/22.
- Contractor continued to work with FWENC and has just about completed development of an acceptable method of tracking and documenting sand placement during capping.
- Contractor assisted GFP in raising sunken log bronc on 01/15. During operations a brake diaphragm ruptured, dredge was down for repairs for a half day.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging, off-loading, and 24 to 48 hours prior to capping operations taken. Hydrolab calibrated for DO, and conductivity as required. Criteria for turbidity and DO was not exceeded.
- Weekly project QC, progress, and scheduling meeting held on 01/17.
- FWENC, McAmis, and QAO held meeting to discuss post-dredge surveys and dredging documentation.

FWENC and QAO conducted initial inspection of sand off-loading operations.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

None Noted.

**Recommended Action Items To Achieve Consent Decree:**

- Final notification of dredging completion with explanation of remaining high spots and determination of controlling depth in each area.
- Final test capping layout and documentation plan.

**List of Attachments:**

Weekly Water Quality Report.

**BY:** William J. Gerken, P.E.

# QUALITY ASSURANCE WEEKLY INSPECTION SUMMARY REPORT

| | | |
|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02<br>**Period of Work:** 01/22/2001 – 01/28/2001 | **Report No.:** 11 |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Visitors:** John Wakeman with USACE. | |

**Summary of Construction Activities:**

- Contractor completed capping in test areas A8, A7, A4, B3, and B2. Contractor completed capping in PAH area. Experienced problems at start on 01/22, initially attempted placing material below surface with modified re-handling bucket, bucket would not consistently open under water. Decision made and direction given to contractor to release sand from slightly above water surface for the remainder of the day, this placement method appeared to work adequately. Bucket was modified to allow effective placement below water. Contractor went from spuds to anchors on 01/24 because water was to deep to use spuds. Contractor had varying degrees of difficulty throughout remainder of week effectively placing anchors and positioning barge. Modifications made to anchor and placement system are improving the situation. On 01/25 the decision was made and direction given to contractor that where anchor cables are not in the way material may be released from just below water surface, where anchor cables are in the way material may be placed from just above the surface. Contractor anticipates going to double shifts starting on 01/29.
- The contractor placed the following amounts of sand in each test area: A8 – 300 cy, B3 – 332 cy, B2 – 344 cy, A7 – 407 cy, and A4 – 385 cy.
- After some minor problems on first day WinOps recording and tracking system is functioning adequately.
- Verification testing by FWENC completed in test areas A8, B2, and B3, partially completed in test area A7.

  12 grab samples were successfully recovered in test area A8 on 01/23. 7 samples were 100%sand in top 10 cm, 2 samples were 95% sand by volume, 1 sample was 75% by volume, 1 sample was 40% by volume, and the last sample was 20% by volume this sample was taken very close to the edge of the test area. Capping in this area was determined to be very successful.

  4 grab samples were successfully recovered in test area B3; remaining attempts to obtain grab samples were unsuccessful due to the sampler encountering logs on the bottom. 4 samples collected were 100%sand in top 10 cm. Conducted a dive survey of southeastern portion B3 test area to confirm capping results for remainder of area. Diver collected 2 core samples, which were 100% sand. Diver video of area indicated a high density of logs and cable. Visually, sand cover appeared good and continuous. Overlying sand was even present on logs and cable. Diver checked sand cover between logs at a large number of locations and found 3 to 8 inches of overlying sand with little or no organics in the sand cap. Based on grab samples and diver survey, test capping in B3 was determined to be very successful.

  10 grab samples were successfully recovered in test area B2, 8 samples were 100% sand, and the remaining two were 75% and 25% sand by volume. Based on grab samples, test capping in B2 was determined to be very successful.

  3 samples were successfully collected in test area A7, remaining attempts to obtain grab samples were unsuccessful due to log obstructions, all three collected samples were 100% sand. Diver survey of A7 will be conducted to verify capping success in remainder of area.
- Second load of sand for capping operations arrived on 01/24/ and was offloaded at the stockpile area. Gradation test results confirmed material was within specifications

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO, and conductivity as required. Criteria for turbidity and DO was not exceeded.
- Weekly project QC, progress, and scheduling meeting held on 01/24.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted.

**Recommended Action Items To Achieve Consent Decree:**

- None noted at this time.

**List of Attachments:**

Weekly Water Quality Report.

**BY:** William J. Gerken, P.E.

# QUALITY ASSURANCE WEEKLY INSPECTION SUMMARY REPORT

| | | |
|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02<br>**Period of Work:** 01/29/2001 – 02/04/2001 | **Report No.:** 12 |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Visitors:** | |

**Summary of Construction Activities:**

- Contractor began double shifts on 01/31. No capping operations on 01/29 and 01/30 due to both anchor winches being down for repair.
- Contractor completed test capping in areas A6.
- Based on success of test capping operations thus far it was determined *(with concurrence from EPA and USACE)* that test capping of remaining areas was not necessary and the contractor could proceed with production capping in all areas. This direction was given to the contractor on 01/31.
- Contractor completed capping area A8.
- Contractor completed capping area M1. This area was originally designated as a mounding area but based on the success of test capping operations it was determined *(with concurrence from EPA and USACE)* that the area should be capped.
- Contractor began capping in delineated area of D2.
- Contractor completed majority of capping in B4 and D3 with coarse material. Application method changed slightly for coarse-grained material. Coarse-grained material slides out of bucket very quickly under water making it difficult for operator too effectively place material evenly throughout swing. For course grained material only, contractor was directed to release material just above surface, this allows operator to better monitor even placement. Contractor began capping outside the designated area in D3 (modified by FCR 13); FWENC notified contractor of error shortly after start of operations and capping continued in proper area.
- Contractor is paying increased attention to the amount of material being placed in an effort to insure he is not placing excess material.
- WinOps recording and tracking system is functioning adequately.
- Verification testing by FWENC completed in test areas A4, A6, and A7. Area A7 required verification by divers using video and core samples due to a large amount of logs and debris in the area. See attached sampling reports, drawing, and FWENC memo for details.
- Verification sampling for production capping conducted by FWENC in areas M1, A8, and B4. Area B4 required verification by divers using core samples due to inability of grab sampler to function effectively in coarse cap material. See attached sampling reports, drawing, and FWENC memo for details.
- Third load of sand for capping operations arrived on 02/02 and was offloaded at the stockpile area. Barge contained 7,439 tons of fine grained cap material and 2,798 tons of coarse-grained material. Gradation test results confirmed material was within specifications

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO, and conductivity as required. Criteria for turbidity and DO was not exceeded.
- Weekly project QC, progress, and scheduling meeting held on 01/31.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted.

**Recommended Action Items To Achieve Consent Decree:**

- None noted at this time.

**List of Attachments:**

Weekly Water Quality Report, Sand Cap Verification Results, AutoCad drawing of sample locations, FWENC Memo on Sand Cap Verification Results.

**BY:** William J. Gerken, P.E.

## QUALITY ASSURANCE WEEKLY INSPECTION SUMMARY REPORT

| | | |
|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02<br>**Period of Work:** 02/05/2001 – 02/11/2001 | **Report No.:** 13 |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Visitors:** Tammy Phillips with USACE | |

**Summary of Construction Activities:**

- Contractor continued double shifts throughout week. No capping operations on Saturday 02/10 due to scheduled repair of anchor winches. Contractor did not work on Sunday 02/11. Capping operations down for approximately 5 hours on 02/08 to repair computer communications cable.
- 10,893 cubic yards of cap material placed to date. Capping operations approximately 47% complete.
- Contractor completed production capping in areas A6, B3, B4, and D3 *(A6, A8, B3, B4, D3, and M1 now complete)*. Contractor completed the majority of capping in areas A7 and B2.
- WinOps recording and tracking system is functioning adequately.
- No capping necessary in D1, entire area was dredged to native material. Remaining capping in D2 will be done closer to the end of operations or at a time when the contractor needs to work in shallower water on spuds due to weather or anchor winch problems.
- Verification sampling for production capping completed by FWENC in areas B2, B3, B4, and D3. Capping found to be very successful in all areas completed to date. See attached sampling reports, and drawing for details.
- Fourth load of sand for capping operations arrived on 02/10 and was offloaded at the stockpile area. Barge contained approximately 7,000 tons of fine grained cap material for this project and some additional sand to be used by subcontractor on another project.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO, and conductivity as required. Criteria for turbidity and DO was not exceeded.
- Weekly project QC, progress, and scheduling meeting held on 02/07.
- Verification sampling of cap placement, see above and attachments.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted.

**Recommended Action Items To Achieve Consent Decree:**

- None noted at this time.

**List of Attachments:**

Weekly Water Quality Report, Sand Cap Verification Results, AutoCad drawing of sample locations.

**BY:** William J. Gerken, P.E.

# QUALITY ASSURANCE WEEKLY INSPECTION SUMMARY REPORT

| | | |
|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02<br>**Period of Work:** 02/12/2001 – 02/18/2001 | **Report No.:** 14 |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Visitors:** Tammy Phillips with USACE | |

**Summary of Construction Activities:**

- Contractor worked single shift on 02/15, 16, 17, and 18 because sand barges could only be loaded once a day due to tides.
- Throughout week operations have been slowed and/or contractor has had to divert equipment and manpower in order to work around GFP obstructions, or aid GFP in moving obstructions.
- 16,605 cubic yards of cap material placed to date. Capping operations approximately 69% complete.
- Contractor completed production capping in areas A5, A7, B1, and D2 *(A5, A6 A7, A8, B1, B3, B4, D2, D3, and M1 now complete. B2 is 97% complete)*.
- On 02/13 contractor mistakenly placed approximately 688 cy outside designated capping areas in an area between A4 and D2 to the west of areas B2 and A7. This was solely a contractor error, KPC will not be responsible for payment for material, or placement costs associated with this error.
- WinOps recording and tracking system is functioning adequately.
- Contractor hauled (trucked) 2176 tons of additional sand from stockpile area, which it had delivered on last barge for use on other projects. It was the contractor's responsibility/obligation to provide accurate and satisfactory documentation on tons of sand removed and thus tons of sand on sight for capping operations. KPC is not responsible for any costs associated with weighing and/or documenting the sand removed from the sight.
- Verification sampling for production capping completed by FWENC in areas A5, A6, A7, and D2. Capping found to be very successful in all areas completed to date. See attached sampling reports, and drawing for details.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO, and conductivity as required. Criteria for turbidity were not exceeded. On 02/17 DO at mid depth (70') and bottom (140') was below 5 mg/l. EPA was notified. Exceedence did not appear to be due to operations. See attached report.
- Weekly project QC, progress, and scheduling meeting held on 02/14.
- Verification sampling of cap placement, see above and attachments.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted.

**Recommended Action Items To Achieve Consent Decree:**

- None noted at this time.

**List of Attachments:**

Weekly Water Quality Report, Sand Cap Verification Results, AutoCad drawing of sample locations.

**BY:** William J. Gerken, P.E. WJG

## QUALITY ASSURANCE WEEKLY INSPECTION SUMMARY REPORT

| | | |
|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02<br>**Period of Work:** 02/19/2001 – 02/25/2001 | **Report No.:** 15 (Final Report) |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Visitors:** | |

**Summary of Construction Activities:**

- ALL IN-WATER WORK COMPLETED.
- 23,996 total cubic yards of cap material placed. 688 cubic yards placed outside designated cap area. **23,308 payable cubic yards of cap material placed.**
- During early part of week contractor has had to divert equipment and manpower in order to work around GFP obstructions, or aid GFP in moving obstructions.
- Contractor completed production capping in areas A1, A2, A3, A4, and B2. Placed 7,391 cubic yards this week.
- WinOps recording and tracking system is functioning adequately.
- Verification sampling for production capping completed by FWENC in areas A1, A2, A3, A4, and B2; this completed all verification sampling. Capping found to be very successful in all areas. See attached sampling reports, and drawing for details.
- Pre-Final site walkthroughs conducted with McAmis, South Coast, GFP, KPC, and FWENC personnel to insure that demobilization of site and site clean-up would be satisfactory for all parties and to insure that no outstanding issues would be missed.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO, and conductivity as required. Criteria for turbidity were not exceeded. On 02/19 and 2/20 DO at bottom (90' to 120') was slightly below 5 mg/l (4.45 mg/l to 4.97 mg/l). Exceedences did not appear to be due to operations. See attached report.
- Weekly project QC, progress, and scheduling meeting held on 02/21.
- Verification sampling of cap placement, see above and attachments.
- Pre-Final site walkthrough and inspection.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted.

**Recommended Action Items To Achieve Consent Decree:**

- None noted at this time.

**List of Attachments:**

- Weekly Water Quality Report, Sand Cap Verification Results, AutoCad drawing of sample locations.

**BY:** William J. Gerken, P.E. _____

# C2: NOVEMBER DAILY PRODUCTION AND QUALITY CONTROL REPORTS

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00420.02 | **Report No.:** 1 | **Date :** 11/01/2000 |
| | **Day:** Wednesday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 5-FWENC, 3-McAmis<br>**Manual Labor:** 2-McAmis<br>**Remarks:** Hydrographic Surveyor Terry Sullivan included in manual Labor. | | |

**Major Equipment Working on Site:** No major equipment working on site. Lima crane on site at dewatering area.

**Visitors:** None

**Weather:** Moderate to heavy rains all day, light wind, temperature 40°F -45°F.

**Summary of Construction Activities:**

- Site Mobilization and equipment preparation/modification ongoing.
- Upland site survey work on going. Survey and staking of dewatering site completed. Identifying horizontal and vertical control points in Ward Cove. Construction of dewatering containment scheduled to start Thursday 11/2/00.
- Survey vessel at South Coast yard being set-up and prepared for work. Survey work scheduled to begin on Thursday 11/2/00.
- Informed by EPA Reg 10 that driving 2 piles at dewatering site for barge tie-up is authorized by Corps Nationwide Permit 3.

For additional information an detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Pre-Construction Meeting and Job Safety Meeting Held, KPC, GFP, FWENC, McAmis, and PN&D representatives in attendance.
- Hydrolab was calibrated for pH, DO, conductivity, and turbidity.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

None Noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 11/1/00

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>KPC Pulp Mill, Ketchikan, AK | Report No. 1 |

| | |
|---|---|
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **Superintendent:**<br>John Lally |
| **AM Weather:**<br>Rain, breezy, temp 40 F | **PM Weather:**<br>Rain, breezy, temp 45 F |

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Site Mobilization / Coordination, Dewatering site & offices | FWENC | 1 | Site Supervisor | 10 |
| Site Pre-Construction Meeting @ Admin Building | FWENC | 1 | Site Engineer | 10 |
| Equipment modifications underway @ South Coast yard | FWENC | 1 | Scientist/SHSO | 9 |
| | FWENC | 1 | Project Manager | 8 |
| | FWENC | 1 | Project HSO | 8 |
| | | | | |
| | McAmis | 1 | President | 9 |
| | McAmis | 1 | Project/QC Mngr | 9 |
| | McAmis | 1 | Asst QC Managen | 9 |
| | McAmis | 1 | Surveyor | 9 |

| | | | |
|---|---|---|---|
| Was a job safety meeting held this date? | Yes: X<br>No: | Total work hours on on site this date: | 81.0 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | Yes:<br>No: X | Cumulative work hours from previous report: | 162.0 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | Yes:<br>No: X | | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | Yes:<br>No: X | Cumulative work hours since start of work: | 243.0 |

**List safety actions taken today/safety inspections conducted:**

Safety meeting between FWENC SHSO, project HSO, Gateway HSO, and McAmis HSO to discuss overall project safety and FWENC site health & safety plan. Additions to the plan were also discussed.

**Remarks:**

0700 FWENC Construction Mgmt & McAmis on site
0730 Conference Call w/ EPA regarding resolution of piling repair of existing dewatering site bulkhead
0800 Site Pre-Construction Meeting
1100 Calibration of Hydrolab sensors
1200 Informed by EPA Reg 10, driving of 2 piles for dewatering site is authorized under ACOE Nationwide Permit 3
1500 Identification of horizontal and vertical control points in Ward Cove
1730 McAmis site personnel off site
1900 FWENC site personnel off site

Mark Herrenkohl — Site Engineer

11/2/00 — Date

# CONTRACTOR QUALITY CONTROL REPORT



11/1/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>KPC Pulp Mill, Ketchikan, AK | Report No.<br>1 |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Mark J. Herrenkohl |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | Y | Pre-Construction weekly meeting held from 0800-0930, attending were KPC, Gateway, Foster Wheeler McAmis and PND project representatives. Agenda included discussions on project description, roles and responsibilities, site activities scheduled, communications, and site health & safety. |
| The submittals have been approved | Y | |
| Materials comply with approved submittals | Y | This was the first weekly meeting of the project. |
| Materials are stored properly | Y | Hydrolab was properly calibrated for pH, DO, conductivity, and turbidity. |
| Preliminary work was done correctly | Y | |
| Testing plan has been approved | Y | |
| Work method and schedule discussed | Y | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | | |

Dewatering Site Construction

Staking and surveying completed

Side Scan Surveys

Delay in delivery of side scan survey equipment. Equipment is scheduled to arrive Thurs, at which time it will be installed and calibrated

Hydrographic Surveys

Survey vessel is at South Coast yard, with hydrographic survey equipment installed.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:**

On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Mark J. Herrenkohl — 11/1/00

Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

Bill Gerken

KPC Quality Assurance Representative — Date

## QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00420.02 | **Report No.:** 2 | **Date :** 11/02/2000 |
| | **Day:** Thursday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 5-FWENC, 2-McAmis<br>**Manual Labor:** 2-McAmis<br>**Remarks:** Hydrographic Surveyor Terry Sullivan included in manual Labor. | | |

**Major Equipment Working on Site:** South Coast dump trucks and bulldozer working at dewatering area. Lima crane on site at dewatering area.

**Visitors:** None

**Weather:** Moderate to heavy rains all day, light to moderate wind, temperature 50°F.

**Summary of Construction Activities:**

- Site Mobilization and equipment preparation/modification ongoing.
- Upland site survey work on going. Surveying project horizontal and vertical control points.
- Construction by South Coast of dewatering containment berm began at 7am. Construction began at gate and is progressing North along the East side of dewatering area. No arsenic analysis provided for dike material, required information not available from South Coast. FWENC will sample material and send out for total arsenic analysis.
- Completed side-scan survey of log removal areas. System check and methods observed by Bill Gerken (PN&D) and Mark Herrenkohl (FWENK), no problems noted. Still setting up system for pre-dredge hydrographic survey.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Equipment systems and safety inspection of derrick barge and material barges conducted at South Coast yard. South Coast, McAmis, FWENC, and PN&D personnel present.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

None Noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 11/2/00

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>KPC Pulp Mill, Ketchikan, AK | **Report No.** 2 |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** John Lally

**AM Weather:** Rain, breezy, temp 50 F

**PM Weather:** Rain, breezy, temp 50 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Site Mobilization / Coordination, Dewatering site & offices | FWENC | 1 | Site Supervisor | 10 |
| Construction begins on dike for dewatering area | FWENC | 1 | Site Engineer | 10 |
| Equipment modifications underway @ South Coast yard | FWENC | 1 | Scientist/SHSO | 10 |
| Side-Scan Survey of Log Removal area | FWENC | 1 | Project Manager | 8 |
| | FWENC | 1 | Project HSO | 8 |
| | | | | |
| | McAmis | 1 | Project/QC Mngr | 10 |
| | McAmis | 1 | Asst QC Manager | 10 |
| | McAmis | 2 | Surveyor | 10 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | Yes: X-Note1<br>No: | | Total work hours on on site this date: | 76.0 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | Yes:<br>No: X | | Cumulative work hours from previous report: | 243.0 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | Yes:<br>No: X | | | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | Yes:<br>No: X | | Cumulative work hours since start of work: | 319.0 |

**List safety actions taken today/safety inspections conducted:**

FWENC SHSO, Project HSM, and McAmis HSO performed safety inspection of derrick barge and (2) material barges
Reviewed H&S, and equipment punch list for McAmis and South Coast

**Remarks:**

0700 FWENC Construction Mgmt & McAmis on site
0700 McAmis surveys horizontal and vertical control points for project
0700 McAmis begins construction of dike for dewatering area with imported material
0900 Conduct Equipment safety inspection of derrick barge and (2) material barges at South Coast yard
0900 Conduct equipment / systems check of derrick barge and (2) material barges at South Coast yard
1000 Review safety / equipment punchlists with McAmis / South Coast
1100 Side-Scan Survey of logging area begins
1800 McAmis and FWENC site personnel off site

Note 1 - Equipment safety inspections of derrick barge and two material barges

Mark J. Herrenkohl

Mark Herrenkohl — 11/2/00

Site Engineer — Date

# CONTRACTOR QUALITY CONTROL REPORT



11/2/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>KPC Pulp Mill, Ketchikan, AK | Report No.<br>2 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Mark J. Herrenkohl | |

## Preparatory Phase

Y - Yes, N - No, N/A

| | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | Y | Equipment safety inspection of derrick barge and two material barges. Inspection conducted by SHSO and PHSO. |
| The submittals have been approved | Y | Equipment/ systems inspection of derrick barge and two material barges. Inspection conducted by FWENC Site Supervisor / KPC QA Representative |
| Materials comply with approved submittals | Y | Calibration of side-scan survey and quality control check of horizontal control location. |
| Materials are stored properly | Y | |
| Preliminary work was done correctly | Y | |
| Testing plan has been approved | Y | |
| Work method and schedule discussed | Y | |

## Initial Phase

Y - Yes, N - No, N/A

| | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | Y | Begin construction of dike in dewatering area. |
| Sample has been Prepared/Approved | * | Side-Scan Survey of log removal area |
| Workmanship is satisfactory | Y | * Sample of dike material collected and will be analyzed for Total arsenic. |
| Test results are acceptable | * | |
| Work is in compliance with the contract | Y | |

## Follow Up Phase

Y - Yes, N - No, N/A

| | | Definable Features of Work and Work Location |
|---|---|---|
| Work complies with contract as approved in initial phase | | * See end of each definable feature of work to see if work complies with contract as approved in initial phase. |

Dewatering Site Construction

Imported crushed rock material delivered to site for dike construction.

Side Scan Surveys

Survey vessel McAmis completes side scan system setup and calibration. Surveyors James Glaisier and Terry Sullivan performs pre-log removal survey of D1, D2, D3 and barge access channel. System calibration varified by Mark Herrenkohl (FWENC) and Bill Gerken (PN&D)

Hydrographic Surveys

Systems setup

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:**

On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Mark J. Herrenkohl MJH 11/2/00

Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

No Remarks No Exceptions

Bill Gerken 11/5/00

KPC QAO — Date

## QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 3 | **Date :** 11/03/2000 |
| | **Day:** Friday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 2-McAmis<br>**Manual Labor:** 2-McAmis<br>**Remarks:** Hydrographic Surveyor Terry Sullivan included in manual Labor. | | |

**Major Equipment Working on Site:** South Coast dump trucks and bulldozer working at dewatering area. Lima crane on site at dewatering area.

**Visitors:** None

**Weather:** cloudy, light wind, temperature 45°F -55°.

**Summary of Construction Activities:**

- Site Mobilization and equipment preparation/modification ongoing.
- Upland site survey work on going. Surveying project horizontal and vertical control points.
- Construction by South Coast of dewatering containment berm ongoing.
- Side-scan survey results were reviewed and discussed with FWENC, McAmis, KPC, and PN&D personnel.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Composite samples of material being used to construct dewatering area berm were collected from South Coast borrow site. Samples will analyzed for total arsenic by North Creek Analytical using EPA method SW6020. Results should be available by 11/7/00.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

None Noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 11/3/00

| | | |
|---|---|---|
| **Contract No. 1** | **Title & Location:** Ward Cove Remediation Project | Report No. |
| **Work Order No. 1** | KPC Pulp Mill, Ketchikan, AK | 3 |

| | |
|---|---|
| **Contractor:** Foster Wheeler Environmental Corporation | **Superintendent:** John Lally |
| **AM Weather:** P.cloudy, temp 45 F | **PM Weather:** P. sunny, temp 50-55 F |

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Site Mobilization / Coordination, Dewatering site & offices | FWENC | 1 | Site Supervisor | 10 |
| Construction continues on dike for dewatering area | FWENC | 1 | Site Engineer | 10 |
| Equipment modifications underway @ South Coast yard | FWENC | 1 | Scientist/SHSO | 10 |
| Composite sample of dike material collected from South Coast borrow site | | | | |
| Composite samples delivered to North Creek Analytical in Bothell, WA. Samples will be analyzed for total arsenic by EPA Method SW 6020. | McAmis | 1 | Project/QC Mngr | 10 |
| | McAmis | 1 | Asst QC Manager | 10 |
| | McAmis | 2 | Surveyor | 10 |
| Side-scan survey results for log removal were discussed | | | | |
| Lymon Burke arrives and begins setup of WINOPS system on dredge. | | | | |

| | | | |
|---|---|---|---|
| Was a job safety meeting held this date? | Yes: / No: X | Total work hours on on site this date: | 60.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | Yes: / No: X | Cumulative work hours from previous report: | 319.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | Yes: / No: X | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | Yes: / No: X | Cumulative work hours since start of work: | 379.0 |

**List safety actions taken today/safety inspections conducted:**

FWENC conducted safety check on FWENC rental vehicles.

FWENC SHSO met with subcontracting personnel to discuss means and location of Monday's Site Specific Health and Safety orientation.

**Remarks:**

0700 FWENC Construction Mgmt & McAmis on site
0700 McAmis continues work on dike construction
0900 Composite samples collected from South Coast borrow site. Material is being used to construct dike.
1400 Side-Scan sonar survey results on log removal was discussed with site team
1800 McAmis and FWENC site personnel off site

Mark J. Herrenkohl

Mark Herrenkohl — 11/3/00

Site Engineer — Date

# CONTRACTOR QUALITY CONTROL REPORT



11/3/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>KPC Pulp Mill, Ketchikan, AK | Report No.<br>3 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Mark J. Herrenkohl | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | Y | Composite samples were collected from South Coast borrow site. Samples were delivered to North Creek Analytical in Bothell, WA for analysis of total arsenic. Sample will be prepared by grounding the rocks to a fine powder and material less than 250 um will be analyzed for total arsenic by EPA method SW 6020. A field duplicate sample will be analyzed as well. Results should be available next Tuesday.<br>Samples analyzed 110300001 and 110300002. Field duplicate 110300003 was archived for possible future analysis. |
| Sample has been Prepared/Approved | Y | |
| Workmanship is satisfactory | Y | |
| Test results are acceptable | N/A | |
| Work is in compliance with the contract | Y | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Dewatering Site Construction

Dike construction continues with possible completion by Monday.

Side Scan Surveys

Side Scan Survey results were presented by Terry Sullivan and discussed with FWENC team in McAmis site office.

Hydrographic Surveys

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:**

On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Mark J. Herrenkohl 11/3/00

Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

No Remarks or Exceptions

Bill Gerken 11/6/00

KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 4 | **Date :** 11/04/2000 |
| | **Day:** Saturday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 2-McAmis<br>**Manual Labor:** 5-McAmis<br>**Remarks:** | | |

**Major Equipment Working on Site:** South Coast dump trucks and bulldozer working at dewatering area. Lima crane on site at dewatering area.

**Visitors:** None

**Weather:** cloudy, light wind, temperature 45°F -50°.

**Summary of Construction Activities:**

- Site Mobilization and equipment preparation/modification ongoing.
- Upland site survey work on going. Surveying project horizontal and vertical control points.
- Construction by South Coast of dewatering containment berm ongoing.
- Began installation of electronic tide gauge near Shack on Main Dock.
- Drove two breasting pile at offloading/dewatering site.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements taken at two potential reference stations and one future background station. Results were within requirements stated in WQMP. Instrument calibrated for DO and salinity before measurements were taken. Reports Attached
- Safety inspection of crane at dewatering site and survey vessel conducted by FWENC.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- Horizontal positioning system check on McAmis survey vessel indicated up to 8 feet from true position. This is outside of spec. and will be corrected prior to any survey work.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 11/4/00

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>KPC Pulp Mill, Ketchikan, AK | Report No. 4 |

| | |
|---|---|
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **Superintendent:**<br>John Lally |
| **AM Weather:**<br>P.sunny, temp 45 F, no rain today | **PM Weather:**<br>P. sunny, temp 50 F, no rain today |

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Site Mobilization / Coordination, Dewatering site & offices | FWENC | 1 | Site Supervisor | 10 |
| Construction continues on dike for dewatering area | FWENC | 1 | Site Engineer | 10 |
| Equipment modifications underway @ South Coast yard | FWENC | 1 | Scientist/SHSO | 10 |
| Continue installation of WINOPS system on crane. | | | | |
| Drove two breasting piles at dewatering area. | | | | |
| Hydrolab survey of potential reference locations | | | | |
| in Ward Cove. | McAmis | 1 | Project/QC Mngr | 10 |
| Installation of tide gauge near dock shack. | McAmis | 1 | Asst QC Manager | 10 |
| | McAmis | 2 | Surveyor | 20 |
| | McAmis | 3 | Operators | 24 |

| | | | |
|---|---|---|---|
| Was a job safety meeting held this date? | Yes: / No: X | Total work hours on on site this date: | 94.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | Yes: / No: X | Cumulative work hours from previous report: | 399.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | Yes: / No: X | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | Yes: / No: X | Cumulative work hours since start of work: | 493.0 |

**List safety actions taken today/safety inspections conducted:**

FWENC conducted safety check on the off-loading crane.
FWENC conducted safety check on the McAmis survey vessel.

**Remarks:**

0700 FWENC Construction Mgmt & McAmis on site
0900 McAmis continues work on dike construction
0900 McAmis driving piles for breasting area
1100 Water quality monitoring of potential reference stations
1500 McAmis installs tide board and gauge near dock shack
1800 McAmis and FWENC site personnel off site

Mark Herrenkohl — 11/4/00

Site Engineer — Date

# CONTRACTOR QUALITY CONTROL REPORT



11/4/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>KPC Pulp Mill, Ketchikan, AK | Report No.<br>4 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Mark J. Herrenkohl | |

## Preparatory Phase

| Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | Y | Scheduling meeting with McAmis and South Coast regarding log removal. |
| The submittals have been approved | Y | Water quality measurements were made at potential reference stations in Ward Cove. Hydrolab was calibrated for DO and salinity before the start of survey. Measurements were within QC requirements stated in WQMP. |
| Materials comply with approved submittals | N/A | |
| Materials are stored properly | N/A | |
| Preliminary work was done correctly | N/A | |
| Testing plan has been approved | N/A | |
| Work method and schedule discussed | Y | |

## Initial Phase

| Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |

## Follow Up Phase

| Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Dewatering Site Construction

Dike construction appears to be on alignment. Materials are well graded from 18-inch to fines.

Side Scan Surveys

Hydrographic Surveys

Horizontal control check of DGPS on McAmis vessel. Error in overall postion was calculated at approximately 8 feet which is slightly above goal in specs.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:**

On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Mark J. Herrenkohl — 11/4/00

Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

No Remarks or Exceptions

Bill Gerken

KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 97454.02 | **Report No.:** 5 | **Date :** 11/05/2000 |
| | **Day:** Sunday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC Engineer** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 2-FWENC, 2-McAmis<br>**Manual Labor:** 4-McAmis<br>**Remarks:** | | |

**Major Equipment Working on Site:** Lima Crane, Survey Boat, Pile Driving Rig, D-7 Dozer.

**Visitors:** None

**Weather:** cloudy, light rain, temperature 40°F -45°F.

**Summary of Construction Activities:**

- Site Mobilization and equipment preparation/modification ongoing.
- Continuing work on mooring area at dewatering site, constructing access ramp.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

BY: William J. Gerken, P.E. 11/6/00

# CONTRACTOR PRODUCTION REPORT



Date: 11/5/00

| | | |
|---|---|---|
| **Contract No. 1** | **Title & Location:** | Ward Cove Remediation Project |
| **Work Order No. 1** | | Ward Cove, Ketchikan, AK |

Report No. 5

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** John Lally

**AM Weather:** Cloudy with light rain, temp 40 F

**PM Weather:** Cloudy with light rain, temp 45 F

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Site Mobilization / Coordination, Dewatering site & offices | FWENC | 1 | Site Supervisor | 7 |
| | FWENC | 1 | Site Scientist/HSC | 7 |
| Equipment modifications underway @ South Coast yard | | | | |
| Continue installation of WINOPS system on crane. | | | | |
| Continue working on breasting area at dewatering site | | | | |
| | | | | |
| Complete installation of tide gauge on pier face. | McAmis | 1 | Project/QC Mngr | 8 |
| | McAmis | 1 | Asst QC Manager | 8 |
| | McAmis | 2 | Surveyor | 16 |
| | McAmis | 2 | Operators | 16 |

| | | | |
|---|---|---|---|
| Was a job safety meeting held this date? | Yes: / No: X | Total work hours on on site this date: | 62.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | Yes: / No: X | Cumulative work hours from previous report: | 493.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | Yes: / No: X | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | Yes: / No: X | Cumulative work hours since start of work: | 555.0 |

**List safety actions taken today/safety inspections conducted:**

**Remarks:**

0800 FWENC Construction Mgmt & McAmis on site, McAmis working on derrick barge at South Coast yard
0900 McAmis working on offloading area, access ramp
1700 McAmis personnel off site
2100 FWENC Const. Mgmt off site

Mark Herrenkohl FOR 11/5/00

Site Engineer — Date

# CONTRACTOR QUALITY CONTROL REPORT



11/5/00

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Ketchikan, AK | **Report No.**<br>5 |
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **CQC Representative:**<br>Mark J. Herrenkohl | |

| **Preparatory Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location:** |
|---|---|---|
| The plans and specs have been reviewed | Y | Scheduling meeting with McAmis regarding log removal |
| The submittals have been approved | Y | |
| Materials comply with approved submittals | N/A | |
| Materials are stored properly | N/A | |
| Preliminary work was done correctly | N/A | |
| Testing plan has been approved | N/A | |
| Work method and schedule discussed | Y | |

| **Initial Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location** |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |

| **Follow Up Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location**<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | | |

Dewatering Site Construction

Construction of offloading area, access ramp

Side Scan Surveys

Hydrographic Surveys

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:**

On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Mark J. Herrenkohl — 11/5/00

**Authorized Site QC Representative** — **Date**

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

No Remarks or Exceptions

Bill Gerken — 11/6/00

**KPC QAO** — **Date**

## QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 97454.02 | **Report No.:** 6 | **Date :** 11/06/2000 |
| | **Day:** Monday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 2-McAmis<br>**Manual Labor:** 5-McAmis<br>**Remarks:** | | |

**Major Equipment Working on Site:** Lima Crane, Survey Boat, D-7 Dozer, Excavator , Pile Driving Rig *(left site today)*

**Visitors:** None

**Weather:** cloudy, light rain, temperature 40°F -45°F.

**Summary of Construction Activities:**

- Site Mobilization and equipment preparation/modification ongoing.
- Continuing work on dewatering area containment berm.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Background water quality measurements for log removal operations taken at flood and ebb tides. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.
- Status and schedule meeting with McAmis.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

None Noted.

**BY:** William J. Gerken, P.E. 11/7/00

# CONTRACTOR PRODUCTION REPORT



Date: 11/6/00

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| | | **Report No.** 6 |

| | |
|---|---|
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **Superintendent:**<br>John Lally |
| **AM Weather:**<br>Cloudy with drizzle, temp 40 F | **PM Weather:**<br>Light rain, temp 45 F |

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Site Mobilization / Coordination, Dewatering site & offices | FWENC | 1 | Site Supervisor | 10 |
| Construction continues on dike for dewatering area | FWENC | 1 | Site Engineer | 10 |
| Equipment modifications underway @ South Coast yard | FWENC | 1 | Scientist/SHSO | 10 |
| Continue installation of WINOPS system on crane. | | | | |
| Hydrolab survey of background station in log removal area. Preparation for beginning of log removal. | | | | |
| | McAmis | 1 | Project/QC Mngr | 10 |
| | McAmis | 1 | Asst QC Manager | 10 |
| | McAmis | 2 | Surveyor | 20 |
| | McAmis | 3 | Operators | 24 |

| | | | |
|---|---|---|---|
| Was a job safety meeting held this date? | Yes: / No: X | Total work hours on on site this date: | 94.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | Yes: / No: X | Cumulative work hours from previous report: | 555.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | Yes: / No: X | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | Yes: / No: X | Cumulative work hours since start of work: | 649.0 |

**List safety actions taken today/safety inspections conducted:**

FWENC conducted follow-up safety check of derrick crane on barge.

FWENC conducted follow-up safety check on derrick and material barges. All punch list items were in compliance.

**Remarks:**

0700 FWENC Construction Mgmt & McAmis on site
0700 McAmis continues work on dike construction
1100 McAmis completed work on offloading area at dewatering site, pile driving rig moves offsite.
1200 Water quality monitoring of background station in approach channel during ebb tide.
1630 Water quality monitoring of background station in approach channel during flood tide.
1630 Status meeting with McAmis regarding punch list dated November 4, 2000.
1900 McAmis and FWENC site personnel off site

Mark Herrenkohl — 11/6/00

Site Engineer — Date

# CONTRACTOR QUALITY CONTROL REPORT



11/6/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>6 |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Mark J. Herrenkohl |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | Y | Scheduling meeting with McAmis and South Coast regarding log removal. |
| The submittals have been approved | Y | Water quality measurements were made at background station in approach channel during ebb and flooding tides. |
| Materials comply with approved submittals | N/A | Hydrolab was calibrated for DO and salinity before the start of survey. |
| Materials are stored properly | N/A | Calibration measurements were within QC requirements stated in WQMP.<br>Criterion for turbidity was not exceeded. |
| Preliminary work was done correctly | Y | Status meeting with McAmis to discuss punch list dated November 4, 2000. |
| Testing plan has been approved | Y | |
| Work method and schedule discussed | Y | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | | |

Dewatering Site Construction

Pile driving barge moved offsite at 1100.

Log Removal in Dredge Areas

Side Scan Surveys

Hydrographic Surveys

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:**

On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Mark J. Herrenkohl 11/7 11/6/00

Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

No Remarks or Exceptions

Bill Gerken 11/7/00

KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 7 | **Date :** 11/07/2000 |
| | **Day:** Tuesday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 2-McAmis<br>**Manual Labor:** 5-McAmis<br>**Remarks:** | | |

**Major Equipment Working on Site:** Lima Crane, Survey Boat, D-7 Dozer, Excavator, Derrick Barge, Material *(deck)* Barge, 2 TugBoats.

**Visitors:** None

**Weather:** Partly cloudy, 40°F -45°F.

**Summary of Construction Activities:**

- Site Mobilization and equipment preparation/modification ongoing.
- Continuing work on dewatering area, weir installed.
- Moved derrick barge and one material barge to site. Positioned equipment and did log removal test for about 30 min. to make sure all equipment was functioning properly. Log removal will begin first thing tomorrow morning 11/08.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Background water quality measurement for log removal operations taken in entrance channel at an ebb tide. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.
- Project Safety Orientation Meeting held, South Coast, McAmis, FWENC, KPC, and PN&D personnel present.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

None Noted.

**BY:** William J. Gerken, P.E. 11/9/00

# CONTRACTOR PRODUCTION REPORT



Date: 11/7/00

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.** 7 |

| | |
|---|---|
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **Superintendent:**<br>John Lally |
| **AM Weather:**<br>P. sunny, temp 40 F | **PM Weather:**<br>P. cloudy 45 F |

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Site Mobilization | FWENC | 1 | Site Supervisor | 12 |
| Construction continues on dewatering area | FWENC | 1 | Site Engineer | 12 |
| Equipment modifications underway @ South Coast yard | FWENC | 1 | Scientist/SHSO | 12 |
| Continue installation of WINOPS system on crane. | FWENC | 1 | Scientist/Engineer | 12 |
| Hydrolab survey of background station in log removal area. Preparation for beginning of log removal. | | | | |
| Weir installed in dewatering area. | McAmis | 1 | Project/QC Mngr | 12 |
| Derrick and material barges moved onsite with preparation to begin log removal ops 1st thing Wed. | McAmis | 1 | Asst QC Manager | 12 |
| | McAmis | 2 | Surveyor | 24 |
| | McAmis | 3 | Operators | 24 |

| | | | |
|---|---|---|---|
| Was a job safety meeting held this date? | Yes: X<br>No: | Total work hours on on site this date: | 120.0 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | Yes:<br>No: X | Cumulative work hours from previous report: | 649.0 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | Yes:<br>No: X | | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | Yes:<br>No: X | Cumulative work hours since start of work: | 769.0 |

**List safety actions taken today/safety inspections conducted:**

FWENC conducted a site safety orientation with McAmis and FWENC field personnel attending. KPC project managers were also present.

**Remarks:**

0600 FWENC Construction Mgmt & McAmis on site
0700 Material barge arrives onsite
1300 Derrick barge arrives onsite

1430 Water quality monitoring of background station in approach channel during ebb tide.

1900 McAmis and FWENC site personnel off site

Mark Herrenkohl — 11/7/00

Site Engineer — Date

# CONTRACTOR QUALITY CONTROL REPORT



11/7/00

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.**<br>7 |

| | |
|---|---|
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **CQC Representative:**<br>Mark J. Herrenkohl |

| **Preparatory Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location:** |
|---|---|---|
| The plans and specs have been reviewed | Y | **Project:**<br>Site Safety Orientation meeting with McAmis and FWENC site personnel attending. KPC project managers were also present.<br>**Log Removal:**<br>Water quality measurements were made at background station in approach channel during ebb tide.<br>Hydrolab was calibrated for DO before the start of survey.<br>Calibration measurements were within QC requirements stated in WQMP.<br>Criterion for turbidity was not exceeded. |
| The submittals have been approved | Y | |
| Materials comply with approved submittals | N/A | |
| Materials are stored properly | N/A | |
| Preliminary work was done correctly | Y | |
| Testing plan has been approved | Y | |
| Work method and schedule discussed | Y | |

| **Initial Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location** |
|---|---|---|
| Preliminary work was done correctly | Y | **Log Removal:**<br>Derrick and material barges moved onsite. FWENC verified WINOPS and positioning equipment are working on crane and conex office aboard derrick barge. Log removal begins in earnest Wednesday morning. |
| Sample has been Prepared/Approved | N/A | |
| Workmanship is satisfactory | Y | |
| Test results are acceptable | Y | |
| Work is in compliance with the contract | Y | |

| **Follow Up Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location**<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Dewatering Site Construction

Weir construction complete and inspected by FWENC.

Log Removal in Dredge Areas

Dredging

Capping/Mounding

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:**

On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Mark J. Herrenkohl MJH 11/7/00

Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

No Remarks or Exceptions

Bill Gerken 11/9/00

KPC QAO — Date

## QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 8 | **Date :** 11/08/2000 |
| | **Day:** Wednesday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 2-McAmis<br>**Manual Labor:** 5-McAmis<br>**Remarks:** | | |

**Major Equipment Working on Site:** Lima Crane, Survey Boat, D-7 Dozer, Excavator, Derrick Barge, Material *(deck)* Barge, 2 Tugboats.

**Visitors:** None

**Weather:** Partly cloudy, 40°F -45°F.

**Summary of Construction Activities:**

- Began log removal in Southeast portion of access channel. Removed 150 – 200 tons of logs, debris, and bark. Equipment appeared to be operating well; contractor appears to be achieving very thorough coverage of area.
- Made visit to potential capping material source at "Whipple Creek", South Coast, FWENC, KPC, and PN&D personnel present. Some permit and storm water control issues will need to be resolved prior to utilizing the source. Will also need approval on anticipated gradation, and possible additional analysis for any chemicals or metals of concern. Hard to make a determination of acceptability and quantity of material available from what was inspected at site.
- Work underway to insure that all necessary permits, approvals, and documentation are in place for PAH material stockpiling and eventual disposal through asphalt plant.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for log removal operations taken four times during day as outlined in WQMP. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.
- Weekly quality control and scheduling meeting held, McAmis, FWENC, KPC, and PN&D personnel present.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

None Noted.

**BY:** William J. Gerken, P.E. 11/9/00

# CONTRACTOR PRODUCTION REPORT



Date: 11/8/00

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.**<br>8 |

| | |
|---|---|
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **Superintendent:**<br>John Lally |
| **AM Weather:**<br>P. sunny, temp 35 F | **PM Weather:**<br>Sunny 40 F |

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Log removal begins SE corner of barge access channel<br>Approx. 150 tons of logs, wood waste & debris removed<br>Hydrolab survey conducted at required 4 times per day | FWENC | 1 | Site Supervisor | 12 |
| | FWENC | 1 | Site Engineer | 12 |
| | FWENC | 1 | Scientist/SHSO | 12 |
| | FWENC | 1 | Scientist/Engineer | 12 |
| | | | | |
| | | | | |
| | McAmis | 1 | Project/QC Mngr | 12 |
| | McAmis | 1 | Asst QC Manager | 12 |
| | McAmis | 2 | Surveyor | 24 |
| | McAmis | 4 | Operators | 48 |
| | McAmis | 4 | Deck hands | 48 |
| | | | | |
| | | | | |
| | | | | |

| | | | |
|---|---|---|---|
| Was a job safety meeting held this date? | Yes: X<br>No: | Total work hours on on site this date: | 192.0 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | Yes:<br>No: X | Cumulative work hours from previous report: | 753.0 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | Yes:<br>No: X | | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | Yes:<br>No: X | Cumulative work hours since start of work: | 945.0 |

**List safety actions taken today/safety inspections conducted:**

Daily Safety Meeting at 0650

**Remarks:**

0600 FWENC Construction Mgmt & McAmis onsite
0800 Weekly Quality Control Meeting onsite
0915 Meeting at South Coast to obtain asphalt plant permits, stockpiling, disposal plan.
1500 Visit "Whipple Creek" source to view potential capping material source
1900 FWENC Construction Mgmt & McAmis offsite

Mark Herrenkohl FER 11/8/00

Site Engineer Date

# CONTRACTOR QUALITY CONTROL REPORT



11/8/00

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.**<br>8 |

| | |
|---|---|
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **CQC Representative:**<br>Mark J. Herrenkohl |

| **Preparatory Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location:** |
|---|---|---|
| The plans and specs have been reviewed | Y | **Project:**<br>Weekly scheduling meeting attended by McAmis, FWENC and KPC project representatives |
| The submittals have been approved | N/A | |
| Materials comply with approved submittals | N/A | |
| Materials are stored properly | N/A | |
| Preliminary work was done correctly | N/A | |
| Testing plan has been approved | N/A | |
| Work method and schedule discussed | Y | |

| **Initial Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location** |
|---|---|---|
| Preliminary work was done correctly | Y | **Log Removal:**<br>Dredge positioning system was verified by FWENC personnel. |
| Sample has been Prepared/Approved | N/A | Water quality measurements were made at required four times over the day of operations. |
| Workmanship is satisfactory | Y | Hydrolab was calibrated for DO before the start of survey.<br>Calibration measurements were within QC requirements stated in WQMP. |
| Test results are acceptable | Y | Criterion for turbidity was not exceeded.<br>Oxygen was above 5 mg/L at all survey times and depths. |
| Work is in compliance with the contract | Y | |

| **Follow Up Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location**<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | | |

Dewatering Site Construction

Log Removal in Dredge Areas

Dredging

Capping/Mounding

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:**

On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Mark J. Herrenkohl — For — 11/8/00

Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

No remarks or exceptions

Bill Gerken — 11/9/00

KPC QAO — Date

## QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 9 | **Date :** 11/09/2000 |
| | **Day:** Thursday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 3-McAmis<br>**Manual Labor:** 6-McAmis<br>**Remarks:** | | |

**Major Equipment Working on Site:** Lima Crane, Survey Boat, D-7 Dozer, Excavator, Derrick Barge, Material *(deck)* Barge, 2 Tugboats, Crew Boat.

**Visitors:** None

**Weather:** Sunny, 35°F -40°F.

**Summary of Construction Activities:**

- Log removal continuous in access channel. Removed 150 – 200 tons of logs, debris, and bark. Contractor appears to be achieving thorough coverage of area, working in area of highest log density in approach channel.
- Work on-going to insure that all necessary permits, approvals, and documentation are in place for PAH material stockpiling and eventual disposal through asphalt plant.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for log removal operations taken four times during day as outlined in WQMP. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity were exceeded briefly *(spike)* at the ebb tide and 1 hr prior to end of operations, at the 2 foot depth reading. Follow-up and or continuous monitoring at these locations indicated that the turbidity rapidly dropped well below WQMP criteria. No visible plume or turbidity at time of excedence, no plume detected with fathometer. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

Notified Karen Keeley *(left phone message)* and Justine Barton, with EPA Region 10, regarding turbidity spike.

**BY:** William J. Gerken, P.E. 11/10/00

# CONTRACTOR PRODUCTION REPORT



Date: 11/9/00

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.** 9 |

| | |
|---|---|
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **Superintendent:**<br>John Lally |
| **AM Weather:**<br>Sunny, temp 35 F | **PM Weather:**<br>Sunny, temp 45 F |

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Site Coordination, log removal area & offices | FWENC | 1 | Site Supervisor | 6 |
| Log removal continues in approach channel | FWENC | 1 | Site Engineer | 10 |
| | FWENC | 1 | Scientist/SHSO | 10 |
| Hydrolab survey at required 4 times per day | FWENC | 1 | Scientist/Engineer | 10 |
| | | | | |
| | | | | |
| | McAmis | 1 | Project/QC Mngr | 11.5 |
| | McAmis | 1 | Asst QC Manager | 11.5 |
| | McAmis | 1 | Proj. Coordinator | 8 |
| | McAmis | 1 | Foreman | 10 |
| | McAmis | 0 | Surveyor | 0 |
| | McAmis | 2 | Operator/Captain | 20 |
| | McAmis | 3 | Deck Hand | 30 |
| | | | | |

| | | | |
|---|---|---|---|
| Was a job safety meeting held this date? | Yes: X<br>No: | Total work hours on on site this date: | 127.0 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | Yes:<br>No: X | Cumulative work hours from previous report: | 913.0 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | Yes:<br>No: X | | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | Yes:<br>No: X | Cumulative work hours since start of work: | 1,040.0 |

**List safety actions taken today/safety inspections conducted:**

Tailgate safety meeting at 0700

**Remarks:**

0600 FWENC Construction Mgmt & McAmis onsite

1900 FWENC Construction Mgmt & McAmis offsite

Mark Herrenkohl For...

Mark Herrenkohl — 11/9/00

Site Engineer — Date

# CONTRACTOR QUALITY CONTROL REPORT



11/9/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>9 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Mark J. Herrenkohl | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Dewatering Site Construction

Log Removal in Dredge Areas

Water quality measurements were made at required four times over the day of operations (results attached).

Hydrolab was calibrated for DO before the start of survey.

Calibration measurements were within QC requirements stated in WQMP.

Criterion for turbidity was exceeded at the ebbing tide period and 1 hour prior to ending operations for the day, 2 feet below water surface.

The exceedance was for a few minutes, then the value for turbidity dropped well below the criterion. The QAO was contacted.

FWENC personnel reoccupied the station after approximately 10 minutes had passed and turbidity values were well below criterion.

Oxygen was above 5 mg/L at all survey times and depths.

Horizontal control check was conducted aboard the survey vessel at the PILE location. Vessel was within 5 feet of actual position.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:**

On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Mark J. Herrenkohl MJH 11/9/00

Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

No Remarks or Exceptions

Bill Gerken 11/10/00

KPC QAO — Date

## QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 10 | **Date :** 11/10/2000 |
| | **Day:** Friday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 3-McAmis<br>**Manual Labor:** 7-McAmis<br>**Remarks:** | | |

**Major Equipment Working on Site:** Lima Crane, D-7 Dozer, Excavator, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Tugboat "RV Day", Tugboat "The Buggy" Crew Boat.

**Visitors:** None

**Weather:** Sunny, 40°F -45°F.

**Summary of Construction Activities:**

- Log removal continuous in access channel. Estimated 500 - 550 tons of logs, debris, and bark on barge at end of day. Contractor still appears to be achieving thorough coverage of area. Contractor directed to place all material brought up in grapple, not just logs, cable, or other sizeable debris, onto barge.
- Completed dewatering area containment berm.
- Work on-going to insure that all necessary permits, approvals, and documentation are in place for PAH material stockpiling and eventual disposal through asphalt plant.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for log removal operations taken four times during day as outlined in WQMP. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

None Noted

**BY:** William J. Gerken, P.E. WJG 11/11/00

# CONTRACTOR PRODUCTION REPORT



Date: 11/10/00

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 10 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Sunny,28 F

**PM Weather:** Clouding over, 39 F

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue log removal in Barge Access Channel | FWENC | 1 | Site Supervisor | 11.5 |
| | FWENC | 1 | Site Engineer | 10 |
| | FWENC | 1 | Scientist/SHSO | 11.5 |
| Complete construction of containment dike at material dewatering area | FWENC | 1 | Scientist/Engineer | 11.5 |
| | McAmis | 1 | Project/QC Mngr | 11.5 |
| | McAmis | 1 | Asst QC Manager | 11 |
| Conduct Hydrolab Water Quality Monitoring in accordance with WQMP | McAmis | 1 | Proj. Coordinator | 10 |
| | McAmis | 0 | Surveyor | 0 |
| | McAmis | 1 | Foreman | 10 |
| | McAmis | 4 | Operator/Captain | 40 |
| | McAmis | 2 | Deck Hand | 20 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 147.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 1,040.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 1,187.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

61 LOADS OF ROCK PROCESS DIKE MATERIAL

MATERIAL REMOVED TODAY:

APPROXIMATELY 500 TONS OF LOGS, BARK, AND DEBRIS REMOVED FROM APPROACH CHANNEL TO DATE (SINCE 11/7/00). FUTURE CONTRACTOR PRODUCTION REPORTS WILL ESTIMATE QUANTITIES REMOVED EACH DAY.

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | LIMA CRANE | 0 | | |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 10 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | | | | |
| "RV DAY" TUG | 10 | | | | |
| "THE BUGGY" SMALL TUG | 10 | | | | |
| "SALTY" CREW BOAT | 10 | | | | |

**REMARKS:**

Eric Snow
Superintendent

11/10/00
Date

# CONTRACTOR QUALITY CONTROL REPORT



11/10/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>10 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Mark J. Herrenkohl | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | PAH Dredging - Review plans and specifications for Dredge planning. |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Log Removal -

Contractor continued log removal operations in Barge Access Channel. Used WINOPS system successfully in removing high density and single logs.

Water quality measurements were made at required four times over the day of operations (results attached).

Hydrolab was calibrated for DO before the start of survey.

Calibration measurements were within QC requirements stated in WQMP.

Turbidity was below 25 NTU and Dissolved Oxygen was above 5 mg/L at all survey times and depths.

Horizontal control check was conducted aboard the survey vessel at the PILE location. Vessel was within 5 feet of actual surveyed position

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:**

On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — Authorized Site QC Representative — Date: 11/10/00

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

No Remarks or Exceptions

Bill Gerken — KPC QAO — Date: 11/12/00

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 11 | **Date :** 11/11/2000 |
| | **Day:** Saturday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 3-McAmis<br>**Manual Labor:** 6-McAmis<br>**Remarks:** | | |

**Major Equipment Working on Site:** Lima Crane, D-7 Dozer, Excavator, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Tugboat "RV Day", Tugboat "The Buggy" Crew Boat.

**Visitors:** None

**Weather:** Sunny, 40°F -45°F.

**Summary of Construction Activities:**

- Completed log removal in access channel. Estimated 550 - 600 tons of logs, debris, and bark on barge at end of day. Contractor appeared to achieve thorough coverage of area.
- Ran 6 preliminary hydrographic survey lines through –14' dredge area. Based on information gathered it appears that only 1/3 of the area will require dredging. Dredge cut did not exceed 3' throughout most of this area. This information will be confirmed with official pre-dredge surveys early next week. Discussions initiated regarding need for log removal in areas that do not need to be dredged. Do logs need to be removed for effective capping?
- Work on-going to insure that all necessary permits, approvals, and documentation are in place for PAH material stockpiling and eventual disposal through asphalt plant.
- CO levels on survey boat detected between 40 and 80 ppm, operator will try to ventilate cabin better and mount a CO monitor.
- FWENC conducted weekly safety inspection.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for log removal operations taken four times during day as outlined in WQMP. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity not exceeded. Criteria for DO fell slightly below 5mg/L for a short period of time *(≈1min)* and then came back up above 5mg/L near bottom during flood tide monitoring. QAO on present, event considered transient, EPA not notified. See attached reports.
- Monitoring for $H_2S$ conducted on material barge, all detected levels below 1ppm.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

DO criteria temporarily exceeded *(see above)*, no action taken.

**BY:** William J. Gerken, P.E. 11/13/00

# CONTRACTOR PRODUCTION REPORT



Date: 11/11/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 11 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Overcast, 39 F

**PM Weather:** Overcast, drizzle, 44 F

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Complete log removal in Barge Access Channel<br><br>Conduct Hydrolab Water Quality Monitoring in accordance with WQMP | FWENC | 1 | Site Supervisor | 11.5 |
| | FWENC | 1 | Site Engineer | 11.5 |
| | FWENC | 1 | Scientist/SHSO | 11.5 |
| | FWENC | 0 | Scientist/Engineer | 0 |
| | McAmis | 1 | Project/QC Mngr | 11.5 |
| | McAmis | 1 | Asst QC Manager | 11.5 |
| | McAmis | 1 | Proj. Coordinator | 10 |
| | McAmis | 0 | Surveyor | 0 |
| | McAmis | 1 | Foreman | 10.5 |
| | McAmis | 3 | Operator/Captain | 31.5 |
| | McAmis | 2 | Deck Hand | 21 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 130.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | ~~913.0~~ 1187 BR |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | ~~1043.5~~ 1317.5 BR |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700

FW ESS (E. Snow) conducts weekly inspection of offices, lab, and barges. Monitoring for H2S conducted at Derrick Barge and Material Barge. No levels above 1 ppm detected.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

APPROXIMATELY 75 TONS OF LOGS AND DEBRIS

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | LIMA CRANE | 0 | | |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | KFP 1 FLAT DECK BARGE | B | | |
| "RV DAY" TUG | 10 | | | | |
| "THE BUGGY" SMALL TUG | 10 | | | | |
| "SALTY" CREW BOAT | 10 | | | | |

**REMARKS:**

While monitoring for H2S, detected concentrations of CO aboard McAmis Survey Vessel between 40 and 80 ppm. Operator will modify cabin for greater ventilation and mount a CO monitor.

Eric Snow — Superintendent

11/11/00 — Date

# CONTRACTOR QUALITY CONTROL REPORT



11/11/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>11 |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | Shallow Berthing Area Dredging - Check current depths of area to be dredged to -14 ft (MLLW) by making six passes conducting hydrographic survey.<br>Initial scan indicates no more than three feet to be dredged. |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Log Removal

Contractor continues log removal in Barge Access Channel. WINOPS system for targeting large logs or log piles continues to be successful.

Water quality measurements were made at required four times over the day of operations (results attached).

Hydrolab was calibrated for DO before the start of survey.

Calibration measurements were within QC requirements stated in WQMP.

Turbidity measurements at all survey times and depths were below 25 NTU.

Dissolved Oxygen concentration fell below 5 mg/L at the Station 1 Near Bottom during the flood tide monitoring event. QAO was present.

Horizontal control check was conducted aboard the survey vessel at the PILE location. Vessel was within 5 feet of actual position.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 11/11/00

Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

No Remarks or Exceptions

Bill Gerken — 11/13/00

KPC QAO — Date

## QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 12 | **Date :** 11/12/2000 |
| | **Day:** Sunday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 3-McAmis<br>**Manual Labor:** 6-McAmis<br>**Remarks:** | | |

**Major Equipment Working on Site:** Lima Crane, D-7 Dozer, Excavator, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Tugboat "RV Day", Tugboat "The Buggy" Crew Boat.

**Visitors:** None

**Weather:** Drizzle to Rain, 40°F -45°F.

**Summary of Construction Activities:**

- Removed Decking over PAH dredge area. Some sheen observed when piles were disturbed. Deployed absorbent boom and sea curtain around work area.
- On-going turbid discharge from GFP fill area in NW corner of cove extended past the dock shack during heavy ebb tide.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements not taken today because no work was performed which disturbed bottom sediments.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

None Noted

**BY:** William J. Gerken, P.E. 11/13/00

# CONTRACTOR PRODUCTION REPORT



Date: 11/12/00

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 12 | | |

**Contractor:**
Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:**
Overcast, rain off and on 40 F

**PM Weather:**
Overcast, drizzle, 48 F

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Remove decking from three steel piles at dock shack in preparation for PAH Dredging | FWENC | 1 | Site Supervisor | 11 |
| | FWENC | 1 | Site Engineer | 8 |
| | FWENC | 1 | Scientist/SHSO | 11 |
| | FWENC | 0 | Scientist/Engineer | 0 |
| Deploy absorbent boom around anticipated PAH Dredge area | McAmis | 1 | Project/QC Mngr | 11 |
| | McAmis | 1 | Asst QC Manager | 11 |
| Deploy shore to shore containment boom around PAH Dredge area and "Miller 205" Derrick Barge | McAmis | 1 | Proj. Coordinator | 10 |
| | McAmis | 0 | Surveyor | 0 |
| | McAmis | 1 | Foreman | 10 |
| | McAmis | 2 | Operator/Captain | 20 |
| **Note: Cumulative work hours from previous report on 11/11/00 should have been 1187, bringing Cumulative work hours since start of work on 11/11/00 to 1317.5.** | McAmis | 3 | Deck Hand | 30 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 122.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 1,317.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 1,439.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700

FW ESS inspected trailer dumps and 10-wheel trucks to receive PAH dredge material on 11/13/00. All seals appeared intact.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

NO REMOVAL CONDUCTED TODAY

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 0 | LIMA CRANE | 0 | | |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | "KFP 1" FLAT DECK BARGE | 0 | | |
| "RV DAY" TUG | 10 | | | | |
| "THE BUGGY" SMALL TUG | 10 | | | | |
| "SALTY" CREW BOAT | 10 | | | | |

**REMARKS:**

Petroleum sheen observed when steel piles disturbed during deck removal. Anticipate further sheen during pile removal and subsequent PAH dredging. Booms and absorbent pads deployed with additional on hand for contingency.

Eric Snow 11/12/00

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT



11/12/00

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.**<br>12 |

| | |
|---|---|
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **CQC Representative:**<br>Thomas A. Fowler |

| **Preparatory Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location:** |
|---|---|---|
| The plans and specs have been reviewed | | PAH Dredging - Contractor removes decking in accordance with plans. Petroleum sheen noted and contained. |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| **Initial Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location** |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |

| **Follow Up Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location**<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | No Water Quality Monitoring performed today because no intrusive work performed.<br>QC and QAO noted turbid discharge from Gateway Forest Products fill area at northwest corner of Ward Cove. This turbid discharge extended past the dock shack during ebb tide. Photographs taken to document turbidity. Edge of fill area will likely be an "Outside Influence Reference Station" for future work during rain events. |

| **Rework Items Identified Today (Not Corrected By Close of Business)** | **Rework Items Corrected Today from Rework List** |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler [signature] 11/12/00

**Authorized Site QC Representative** **Date**

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

No remarks or exceptions

Bill Gerken [signature] 11/14/00

**KPC QAO** **Date**

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 13 | **Date :** 11/13/2000 |
| | **Day:** Monday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 3-McAmis<br>**Manual Labor:** 8-McAmis<br>**Remarks:** | | |

**Major Equipment Working on Site:** Lima Crane, D-7 Dozer, Excavator, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1" with 5 dump trucks on board, Tugboat "RV Day", Tugboat "The Buggy" Crew Boat.

**Visitors:** Karen Keeley with EPA Region 10

**Weather:** Partly Cloudy, 35°F -45°F.

**Summary of Construction Activities:**

- Removed 3 steel deck support pile in PAH dredge area, some sheen observed when piles were pulled. Removed 4 dredge buckets of material from PAH area in afternoon. Material was placed in sealed trucks on deck barge. Material appeared to be mostly saw dust and wood debris and contained a number of logs. Increased sheen noted during dredging. Due to number of logs, position of containment booms, and time of day, operations were discontinued. Will continue PAH dredging first thing in the morning 11/14. Absorbent boom and sea curtain was in place around work area, they effectively contained the surface sheen.
- Pulled light pile *(including attached batter pile)* from work area. Offloaded all pile and deck from PAH area onto GFP dock.

For additional information and detail see attached contractor reports.

Photographs Were Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for 24-48 hrs prior to log offloading operations taken at barge berthing site. Water quality measurements for 24-48 hrs prior to PAH dredging operations taken in PAH area based on PAH dredging scheduled to begin on 11/14. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted

**BY:** William J. Gerken, P.E. WJG 11/14

# CONTRACTOR PRODUCTION REPORT



Date: 11/13/00

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| **Report No.** 13 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Partly cloudy, 38 F

**PM Weather:** Clear, 48 F

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| | FWENC | 1 | Site Supervisor | 12 |
| Remove three steel piles at dock shack in preparation for PAH Dredging | FWENC | 1 | Site Engineer | 12 |
| | FWENC | 1 | Scientist/SHSO | 12 |
| | FWENC | 0 | Scientist/Engineer | 0 |
| Remove light pole and batter pole from Barge Access Channel | McAmis | 1 | Project/QC Mngr | 12 |
| | McAmis | 1 | Asst QC Manager | 10 |
| Commence PAH Dredging adjacent to dock shack | McAmis | 1 | Proj. Coordinator | 10 |
| | McAmis | 2 | Surveyor | 20 |
| Conduct Water Quality Monitoring for 24 hour period before PAH Dredging | McAmis | 1 | Foreman | 10 |
| | McAmis | 3 | Operator/Captain | 30 |
| | McAmis | 2 | Deck Hand | 20 |
| Conduct Water Quality Monitoring for 24-48 hour period before Barge Off-Load | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 148.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 1,439.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 1,587.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Four piles and steel decking off-loaded to GFP dock

Approximately 11 cy removed from PAH Dredge area

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | LIMA CRANE | 0 | | |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | "KFP 1" FLAT DECK BARGE | 10 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 10 | | |
| "THE BUGGY" SMALL TUG | 10 | | | | |
| "SALTY" CREW BOAT | 10 | | | | |

**REMARKS:**

USEPA and Louisiana Pacific representatives on site to observe PAH Dredging.

Sheen observed during pile removal and dredging. Sheen contained with floating containment boom deployed on 11/12/00.

Eric Snow — Superintendent

11/13/00 — Date

# CONTRACTOR QUALITY CONTROL REPORT



11/13/00

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.**<br>13 |
| **Contractor:**<br>Foster Wheeler Environmental Corporation | | **CQC Representative:**<br>Thomas A. Fowler |

| **Preparatory Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location:** |
|---|---|---|
| The plans and specs have been reviewed | | Log Removal - Conducted Water Quality Monitoring in 24-48 hour window prior to barge off-loading at dewatering area. Took readings adjacent to barge berthing pile during flood and ebb tides. Turbidity readings below 25 NTUs at all depths. Dissolved Oxygen above 5 mg/L at all depths. |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| **Initial Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location** |
|---|---|---|
| Preliminary work was done correctly | | PAH Dredging - Contractor removes piles in accordance with plans. Petroleum sheen noted and contained. Commenced PAH dredging adjacent to dock at suggestion of USEPA. Petroleum sheen noted and contained. Further PAH dredging on 11/14/00 to be conducted more methodically. Water Quality Background Monitoring for PAH Dredging conducted at 0730 in anticipation of starting dredging on 11/14/00. Schedule acceleration at suggestion of USEPA resulted in background monitoring conducted approximately seven hours prior to commencing work. However, all data is still usable as background data. Turbidity below 25 NTU at all stations and depths. Dissolved Oxygen above 5 mg/L at all stations and depths. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |

| **Follow Up Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location**<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 11/13/00

Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

No Remarks or Exceptions

Bill Gerken — 11/14

KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 14 | **Date :** 11/14/2000 |
| | **Day:** Tuesday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>QA/QC 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 4-McAmis<br>**Manual Labor:** 8-McAmis<br>**Remarks:** | | |

**Major Equipment Working on Site:** Lima Crane, D-7 Dozer, Excavator, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1" with 5 dump trucks on board, Tugboat "RV Day", Tugboat "The Buggy" Crew Boat.

**Visitors:** Karen Keeley with EPA Region 10

**Weather:** Partly Cloudy, 40°F -45°F.

**Summary of Construction Activities:**

- Continue dredging in PAH area, methodically dredged an approximate 15'x20' area *(see attached contractor notes and sketch)*. Switched to log tongs and performed log removal in area for approximately 1.5 hours in the morning, then went back to dredging. Dredging was far more effective after log removal. Dredge cut depth at end of day ranged from 2' to 7'. Approximately 80 total cubic yards of material removed from PAH area and placed in sealed trucks on deck barge. Material appeared to be mostly saw dust, wood and other debris, and logs. Increased sheen noted during dredging, some areas worse than others *(see attached contractor notes and sketch)*. Operations were discontinued at 1:10pm after all trucks on barge were full. No apparent source was found. Karen Keeley with EPA made determination to remove another 70 cy. of material. Will continue PAH dredging tomorrow 11/15, as soon as containment for the material on the barge is set up. Absorbent boom and sea curtain was in place around work area, they effectively contained the surface sheen. Material disposal still not finalized, material dredged thus far is probably not suitable for asphalt plant
- Continued log removal in access channel following PAH dredging.
- Conducted side-scan survey of access channel, results showed logs were substantially removed except for the NW corner of the channel. Conducted additional side-scan survey of –14' area, results showed better resolution and identified fewer logs than previous survey.
- Preliminary hydrographic survey performed in –14' area, results confirmed previous work, approximately 1/3 of area will actually require dredging. Official pre-dredge survey will be conducted following log removal.

For additional information and detail see attached contractor reports.

Photographs Were Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for PAH dredging and log removal operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted

**BY:** William J. Gerken, P.E. 11/16

# CONTRACTOR PRODUCTION REPORT



Date: 11/14/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 14 | | |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Partly cloudy, 38 F | PM Weather:<br>Partly cloudy to overcast , 45 F |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| | FWENC | 1 | Site Supervisor | 14.5 |
| Continue PAH Dredging - Dredge in 16 distinct cut areas within | FWENC | 1 | Site Engineer | 12 |
| approximate 15' x 15' area (see sheet attached to McAmis daily report). | FWENC | 1 | Scientist/SHSO | 12 |
| Depth of cuts range from 2' to 7'. | FWENC | 0 | Scientist/Engineer | 0 |
| | McAmis | 1 | Project/QC Mgr | 14.5 |
| Continue Log Removal in Barge Access Channel in PM. | McAmis | 1 | Asst QC Manager | 12 |
| | McAmis | 1 | Proj. Coordinator | 10 |
| Complete side scan sonar survey of Barge Access Channel | McAmis | 2 | Surveyor | 20 |
| | McAmis | 1 | Foreman | 10 |
| Conduct pre-dredge survey of "-14" Shallow Berthing Area and Log Removal | McAmis | 2 | Operator/Captain | 20 |
| | McAmis | 3 | Deck Hand | 30 |
| Conduct Water Quality Monitoring for PAH Dredging in accordance with WQMP | McAmis | 1 | President | 10 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 165.0 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 1,587.5 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 1,752.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700

Note that observers of PAH Dredging were too close to operation. Future observation will be from second tier of dock shack deck.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

PAH Dredge Material removed to date approximately 81 cubic yards. All trucks on "KFP 1" full.

Approximately 50 tons of logs and bark/debris loaded onto "Sunny Point."

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | LIMA CRANE | 0 | | |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | "KFP 1" FLAT DECK BARGE | 10 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | | | | |
| "SALTY" CREW BOAT | 10 | | | | |

REMARKS:

USEPA, USACE, and Louisiana Pacific representatives on site to observe PAH Dredging.

Sheen observed during dredging. Sheen contained with floating containment boom deployed on 11/12/00.

Eric Snow — 11/14/00

Superintendent — Date

# CONTRACTOR QUALITY CONTROL REPORT



11/14/00

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.**<br>14 |
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **CQC Representative:**<br>Thomas A. Fowler | |

| **Preparatory Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location:** |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| **Initial Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location** |
|---|---|---|
| Preliminary work was done correctly | | Pre-Construction Survey - Contractor completed two surveys of work areas.<br>1. Side scan sonar survey to investigate log removal in Barge Access Channel and Barge Berthing Area - indicated majority of logs removed from Barge Access Channel, but several remain before completion. Targeted areas for log removal in Barge Berthing Area.<br>2. Pre-dredge survey of -14' Barge Berthing Area - indicated areas requiring dredging to attain -14' MLLW depth. ← Unofficial - Not for payment TAF |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |

| **Follow Up Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location**<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | PAH Dredging - Contractor continues removal in accordance with plans and specificiations under general direction of USEPA. Grid within USEPA designated 15' x 15' area established by contractor to maintain greater control over dredge position and depth. |

Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.

Log Removal - Side scan sonar of log removal area in Barge Access Channel completed. Sonar documents that majority of logs removed, but furth removal necessary prior to receiving acceptance on this area.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — Authorized Site QC Representative — Date: 11/14/00

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

No remarks or exceptions

Bill Gerken — KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 15 | **Date :** 11/15/2000 |
| | **Day:** Wednesday | **Shift:** Day | **Hours:** 7am – 5pm |

| | |
|---|---|
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 3-McAmis<br>**Manual Labor:** 7-McAmis<br>**Remarks:** |

**Major Equipment Working on Site:** Lima Crane, D-7 Dozer, Excavator, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1" with 5 dump trucks on board, Tugboat "RV Day", Tugboat "The Buggy" Crew Boat.

**Visitors:** Karen Keeley with EPA Region 10, Tammy Phillips with USACE Alaska District

**Weather:** Partly Cloudy, 40°F -45°F.

**Summary of Construction Activities:**

- Completed dredging in PAH area, dredged in approximate 15'x20' area *(see attached contractor notes and sketch)* as directed by EPA representative. Approximately 56 cubic yards of material removed from PAH area today, and placed in sealed trucks on deck barge. Approximately 136 to 138 total cubic yards of material removed. Material appeared to be mostly saw dust, wood and other debris towards the surface and rock as depth of dredging increased. One old creosote pile removed. Increased sheen noted during dredging, some areas worse than others *(see attached contractor notes and sketch)*. Operations were discontinued at 2:30pm. Karen Keeley with EPA made determination to return to area at low tide and attempt to remove remains of one more old pile. Returned to area at 8:30pm. Remains of pile could not be located. Absorbent boom and sea curtain was in place around work area, they effectively contained the surface sheen. Material disposal is not finalized, but it may be able to go to KPC landfill, decision will be finalized tomorrow.

For additional information and detail see attached contractor reports.

Photographs Were Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for PAH dredging and pre log offloading operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity not exceeded. DO measured at 4.8mg/l near bottom in PAH area during break in work. This was not a WQMP required measurement. EPA and Corps informed of reading. See attached reports.
- Weekly quality control and scheduling meeting held, McAmis, FWENC, KPC, and PN&D personnel present *(minutes attached)*.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted

**BY:** William J. Gerken, P.E. 11/17/00

# CONTRACTOR PRODUCTION REPORT



Date: 11/15/00

| | | |
|---|---|---|
| **Contract No.** 1<br>**Work Order No.** 1 | **Title & Location:** | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| **Report No.** 15 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:**

**PM Weather:**

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Complete PAH Dredging - Remove permitted quantity of 150 cubic yards over last two day's work. Attempted to find buried pile at low tide at request of USEPA on night shift. Could not locate.<br><br>Conduct Water Quality Monitoring for PAH Dredging in accordance with WQMP | FWENC | 1 | Site Supervisor | 15 |
| | FWENC | 1 | Site Engineer | 15 |
| | FWENC | 1 | Scientist/SHSO | 12 |
| | FWENC | 0 | Scientist/Engineer | 0 |
| | McAmis | 1 | Project/QC Mngr | 15 |
| | McAmis | 1 | Asst QC Manager | 11 |
| | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| | McAmis | 1 | Surveyor | 11 |
| | McAmis | 1 | Foreman | 10 |
| | McAmis | 2 | Operator/Captain | 20 |
| | McAmis | 3 | Deck Hand | 30 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 149.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 1,752.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 1,901.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

PAH Dredge Material - approximately 60 cubic yards
150 cubic yard permitted limit met

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | LIMA CRANE | 0 | | |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | "KFP 1" FLAT DECK BARGE | 10 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | | | | |
| "SALTY" CREW BOAT | 10 | | | | |

**REMARKS:**

USEPA, USACE, and Louisiana Pacific representatives on site to observe PAH Dredging.
Sheen observed during dredging. Most noticable when working around remains of former piling. Stopped dredging at 1445 and returned at 2030 to remove remains of piling during low tide (-1.8 MLLW). Sheen contained with floating containment boom deployed on 11/12/00.
Received notification from ADEC and KPC that PAH Dredge Material could be disposed of at KPC Landfill's ash cell.

Eric Snow — 11/15/00

Superintendent — Date

# CONTRACTOR QUALITY CONTROL REPORT



11/15/00

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.**<br>**15** |

| | |
|---|---|
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **CQC Representative:**<br>Thomas A. Fowler |

| **Preparatory Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location:** |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| **Initial Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location** |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |

| **Follow Up Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location**<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | PAH Dredging - Contractor completes removal in accordance with plans and specifications under general direction of USEPA.<br>Conducted Water Quality Monitoring in accordance with WQMP - |

Turbidity below 25 NTU at all stations and depths.

Dissolved Oxygen above 5 mg/L at all stations and depths except Ebb tide monitoring station at dock shack deck (inside dredge area) at near bottom depth. At this station and depth, DO concentration ranged between 4.84 and 4.86 mg/L. See attached report for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Weekly QC Meeting held with KPC, FW, USACE, and McAmis personnel attending. Minutes attached.

Tom Fowler — 11/15/00

Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

No remarks or exceptions

Bill Gerken — 11/17/00

KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 16 | **Date :** 11/16/2000 |
| | **Day:** Thursday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 3-McAmis<br>**Manual Labor:** 8-McAmis<br>**Remarks:** | | |

**Major Equipment Working on Site:** Lima Crane, D-7 Dozer, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1" with 5 dump trucks on board, Tugboat "RV Day", Tugboat "The Buggy" Crew Boat.

**Visitors:** Tammy Phillips with USACE Alaska District

**Weather:** Overcast, Rain & Drizzle, Morning Fog 40°F – 45°F.

**Summary of Construction Activities:**

- Contractor removing logs in D1 and D2.
- Began pre-dredge survey in D1 and D2, surveyed 125' strip in front of GFP dock. Derrick barge and incoming chip barge prevented completion of survey. Equipment methods and calibration of equipment appeared satisfactory.
- Minor incident reported on derrick barge. Operator struck by bucket tag line cable. See attached report.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for log removal operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted

**BY:** William J. Gerken, P.E. 11/17

# CONTRACTOR PRODUCTION REPORT



Date: 11/16/00

| | | | |
|---|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No. 16 |
| Contractor:<br>Foster Wheeler Environmental Corporation | | Superintendent: Eric Snow | |
| AM Weather:<br>Overcast, fog, drizzle, 40 F | | PM Weather:<br>Overcast, rain, 40 F | |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue Log Removal - Worked on dredge and thin cap areas D1 and D2 adjacent to GFP deep draft dock targeting specific logs with WINOPS positioning software. | FWENC | 1 | Site Supervisor | 10 |
| | FWENC | 1 | Site Engineer | 11 |
| | FWENC | 1 | Scientist/SHSO | 11 |
| | FWENC | 0 | Scientist/Engineer | 0 |
| | McAmis | 1 | Project/QC Mngr | 10.5 |
| Commence Pre-Dredge Hydrographic Survey | McAmis | 1 | Asst QC Manager | 10 |
| | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| Conduct Water Quality Monitoring for Log Removal in accordance with WQMP | McAmis | 2 | Surveyor | 18 |
| | McAmis | 1 | Foreman | 10 |
| | McAmis | 2 | Operator/Captain | 20 |
| | McAmis | 3 | Deck Hand | 30 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 138.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 1,901.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 2,040.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700

Minor incident on Miller 205 Derrick Barge involving operator being struck by tag line cable on spring-loaded recoil. See attached report from South Coast, Inc. FW performed incident investigation; report and investigation results to be submitted on 11/17/00.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

50 - 60 TONS LOGS AND DEBRIS

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | LIMA CRANE | 0 | | |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | "KFP 1" FLAT DECK BARGE | 10 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | | | | |
| "SALTY" CREW BOAT | 10 | | | | |

REMARKS:

Eric Snow 11/16/00

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT



11/16/00

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.**<br>16 |

| | |
|---|---|
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **CQC Representative:**<br>Thomas A. Fowler |

| **Preparatory Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location:** |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| **Initial Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location** |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |

| **Follow Up Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location**<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Log Removal - Contractor continues log removal in dredge and thin cap areas D1 and D2 using the WINOPS positioning software effectively to locate and target logs from side-scan sonar survey results. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.

Checked horizontal control on DGPS of survey vessel. These checks are being made daily and documented in log book, but will be documented on QC Report weekly. Check at survey location: LOG RACK DOLPHIN. Actual surveyed position is: 3089832.6 E 13108343.3 N. DGPS reading of position is: 3089832.9 E 1310833.9 N. Using the distance formula, this corresponds to error in the DGPS of 0.5 feet which is well within the acceptable error of 5.9 feet (1.8 m) specified in the Water Quality Monitoring Plan.

Dredging - Contractor commences pre-dredge survey near deep draft dock. No results presented yet.

| **Rework Items Identified Today (Not Corrected By Close of Business)** | **Rework Items Corrected Today from Rework List** |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 11/16/00
**Authorized Site QC Representative** — **Date**

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

No remarks or exceptions

Bill Gerken — 11/17
**KPC QAO** — **Date**

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 17 | **Date :** 11/17/2000 |
| | **Day:** Friday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 3-McAmis<br>**Manual Labor:** 8-McAmis<br>**Remarks:** | | |

**Major Equipment Working on Site:** Lima Crane, D-7 Dozer, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1" with 5 dump trucks on board, Tugboat "RV Day", Tugboat "The Buggy" Crew Boat.

**Visitors:** None

**Weather:** Overcast, Rain, Breezy 40°F – 45°F.

**Summary of Construction Activities:**

- Contractor removing logs in D1, D2, D3, and access channel.
- Contractor replacing chip in tide gauge so it will read and process correctly the extreme lows at site.
- Performed lead line survey of PAH dredging area from dock. Appears that up to 9' feet of material was removed in certain locations, average cut was probably around 7'. See attached sketch. Contractor will perform hydrographic survey of area.

FWENC incident report for incident on 11/16/00 attached.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for log removal operations and background for log offloading taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity not exceeded. DO measured at 3.5mg/l near bottom within 60 feet off GFP log lift. Phone message left with EPA informing them of situation. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 11/17/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 17 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Rain, breezy, 40 F

**PM Weather:** Mostly cloudy, 45 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue Log Removal - Dredge and thin cap areas D1 and D2 adjacent to GFP deep draft dock, shallow barge access channel, and shallow berthing area targeting specific logs with WINOPS positioning software. | FWENC | 1 | Site Supervisor | 11 |
| | FWENC | 1 | Site Engineer | 11 |
| | FWENC | 1 | Scientist/SHSO | 11 |
| | FWENC | 0 | Scientist/Engineer | 0 |
| | McAmis | 1 | Project/QC Mngr | 11 |
| | McAmis | 1 | Asst QC Manager | 10.5 |
| | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| Conduct Water Quality Monitoring for Log Removal in accordance with WQMP and monitor for background at Barge Off-Load area. | McAmis | 1 | Surveyor | 10.5 |
| | McAmis | 1 | Foreman | 10 |
| | McAmis | 2 | Operator/Captain | 20 |
| | McAmis | 3 | Deck Hand | 30 |
| | McAmis | 1 | Safety Manager | 2 |

| | | | |
|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: 135.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: 2,040.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: 2,175.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700, Discuss incident on 11/16 and solutions for locking the tag line cable.
FW incident report and investigation attached.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

Backup HYPACK survey software and Trimble DGPS for Water Quality Monitoring and Performance Standard Verification Sampling.

MATERIAL REMOVED TODAY:

50 - 75 TONS LOGS AND DEBRIS

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 10 | | |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | | | | |
| "SALTY" CREW BOAT | 10 | | | | |

**REMARKS:**

Eric Snow
Superintendent

11/17/00
Date

# CONTRACTOR QUALITY CONTROL REPORT



11/17/00

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.**<br>17 |
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **CQC Representative:**<br>Thomas A. Fowler | |

| **Preparatory Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location:** |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| **Initial Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location** |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |

| **Follow Up Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location**<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Log Removal - Contractor continues log removal in dredge and thin cap areas D1 and D2, shallow barge access channel, and shallow berthing area using theWINOPS positioning software effectively to locate and target logs from side-scan sonar survey results. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths except near bottom depth at monitoring station during flood tide.
Concentrations ranged from 3.51 mg/L to 3.55 mg/L. See attached WQMR for further information.

PAH Dredging - Took lead line measurements of depths from dock shack dock to generate cross section of area removed. See sketch attached to this report. Contractor will perform a post-dredge hydrographic survey to confirm final cut depths in dredge area.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Contractor replacing processing chip in Hazen tide gauge so it will function properly at the range of tides found in Ward Cove.

Tom Fowler — 11/17/00
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

No Remarks No Exceptions

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 18 | **Date :** 11/18/2000 |
| | **Day:** Saturday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 3-McAmis<br>**Manual Labor:** 8-McAmis<br>**Remarks:** | | |

**Major Equipment Working on Site:** Lima Crane, D-7 Dozer, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy" Crew Boat. 5 Dump Trucks used for PAH material *(unloaded and cleaned today)*

**Visitors:** None

**Weather:** Overcast, Rain, Breezy 40°F – 45°F.

**Summary of Construction Activities:**

- Completed log removal operations.
- Completed pile removal operations.
- Completed pre-dredge survey in D1, D2, and D3. Equipment methods and calibration of equipment appeared satisfactory.
- Hauled PAH material to KPC landfill.
- Began log-offloading operations at dewatering site.

For additional information and detail see attached contractor reports.

Photographs Were Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for log removal operations and log-offloading taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.
- FWENC weekly safety inspection conducted.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted

**BY:** William J. Gerken, P.E. 11/19/00

# CONTRACTOR PRODUCTION REPORT



Date: 11/18/00

Contract No. 1
Work Order No. 1

Title & Location: Ward Cove Remediation Project, Ward Cove, Alaska

Report No. 18

Contractor: Foster Wheeler Environmental Corporation

Superintendent: Eric Snow

AM Weather: Light rain, 43 F

PM Weather: Partly cloudy, 48 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Complete Log Removal - Shallow barge access channel and shallow berthing area. | FWENC | 1 | Site Supervisor | 11 |
| | FWENC | 1 | Site Engineer | 11 |
| | FWENC | 1 | Scientist/SHSO | 11 |
| | FWENC | 0 | Scientist/Engineer | 0 |
| Complete Pre-Dredge Hydrographic Survey. | McAmis | 1 | Project/QC Mngr | 11 |
| | McAmis | 1 | Asst QC Manager | 9.5 |
| Complete Pile Removal | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| | McAmis | 1 | Surveyor | 10 |
| Commence Barge Off-Load | McAmis | 1 | Foreman | 9 |
| | McAmis | 3 | Operator/Captain | 23 |
| Conduct Water Quality Monitoring for Log Removal and Barge Off-Load in accordance with WQMP. | McAmis | 3 | Deck Hand | 28 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 131.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 2,175.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 2,306.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700.
FW ESS conducts weekly safety inspection of work areas.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 0 | | |
| "MILLER 205" DERRICK BARGE | 9 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 9 | LIMA CRANE | 4 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 9 | | | | |
| "SALTY" CREW BOAT | 9 | | | | |

REMARKS:

Eric Snow
Superintendent

11/18/00
Date

# CONTRACTOR QUALITY CONTROL REPORT



11/18/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>18 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Log Removal - Contractor completes log removal in shallow barge access channel and shallow berthing area. Post log removal side-scan sonar survey required before work completion accepted. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

Dredging - Contractor continues pre-dredge survey near deep draft dock. No results presented yet.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

E. Snow checked vertical control on tide gauge and verified that control point used for setting tide gauge satisfies accuracy requirements of this project. See attached memorandum for details.

Tom Fowler — 11/18/00
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

No Remarks No Exceptions

Bill Gerken — 11/21/00
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 19 | **Date :** 11/20/2000 |
| | **Day:** Monday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 3-McAmis<br>**Manual Labor:** 5-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy" Crew Boat.

**Visitors:** None

**Weather:** Overcast, Rain, Breezy 40°F – 45°F.

**Summary of Construction Activities:**

- Reviewed preliminary pre-dredge survey data. No volumes calculated yet and some additional work needs to done to clean up contour lines, but basic information is sufficient to continue forward
- Continued log-offloading operations at dewatering site.
- Consent decree signed by judge late in afternoon. Dredging will begin tomorrow following receipt of approval letter from EPA.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for log-offloading operations and 24 hours prior to start of dredging taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted

**BY:** William J. Gerken, P.E. 11/21

# CONTRACTOR PRODUCTION REPORT



Date: 11/20/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 19 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Partly cloudy, 43 F

**PM Weather:** Light rain, overcast, 48 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue Barge Off-Load | FWENC | 1 | Site Supervisor | 11 |
| | FWENC | 1 | Site Engineer | 11 |
| | FWENC | 1 | Scientist/SHSO | 11 |
| Process data from pre-dredge hydrographic survey and conduct routine equipment maintenance | FWENC | 0 | Scientist/Engineer | 0 |
| | McAmis | 1 | Project/QC Mngr | 12.5 |
| | McAmis | 1 | Asst QC Manager | 12.5 |
| Conduct Water Quality Monitoring for Barge Off-Load in accordance with WQMP | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| | McAmis | 1 | Surveyor | 10 |
| | McAmis | 1 | Foreman | 4 |
| **Note:** FWENC does not consider this day a stand-by day as stated on the contractor's Daily Construction Quality Control Report (attached) | McAmis | 2 | Operator/Captain | 9 |
| | McAmis | 1 | Deck Hand | 4 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 93.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 2,306.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 2,399.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

"Invader 1" Dive Boat arrives on site from Alaska Commercial Divers for assistance in water quality monitoring.

MATERIAL REMOVED TODAY:

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 0 | "KFP 1" FLAT DECK BARGE | 0 | | |
| "MILLER 205" DERRICK BARGE | 0 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 8 | LIMA CRANE | 8 | | |
| "RV DAY" TUG | 8 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 8 | "INVADER 1" DIVE BOAT | 5 | | |
| "SALTY" CREW BOAT | 0 | | | | |

**REMARKS:**

Consent Decree between KPC and USEPA signed by judge after 1600 today. Dredging can proceed after receipt of letter approving Remedial Action Work Plan from USEPA expected Tuesday (11/21) morning. John Lally tells McAmis Project Manager to be ready to dredge at 1200 hrs on 11/21.

Eric Snow FEPER — 11/20/00

Superintendent — Date

# CONTRACTOR QUALITY CONTROL REPORT



11/20/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>19 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Barge Off-Load - Complete over 85% of removal; only minor cleanup required tomorrow; dropped one log in water to be retrieved at a later date. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

T. Fowler and J. Lally worked on setting up Invader 1 with DGPS and HYPACK for use as an alternate monitoring/sampling vessel.

Tom Fowler — 11/20/00
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

No Remarks
No Exceptions

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 20 | **Date :** 11/21/2000 |
| | **Day:** Tuesday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 3-McAmis<br>**Manual Labor:** 9-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy" Crew Boat.

**Visitors:** None

**Weather:** Overcast, Rain, Breezy 45°F – 50°F.

**Summary of Construction Activities:**

- Completed log-offloading operations. Contractor calculated 596 tons of logs and debris removed.
- Received letter from EPA approving Remedial Action Work Plan.
- Began dredging in –14' area. Pre-dredge survey data was approved, but no volumes calculated and/or presented prior to start of dredging.
- FWENC setting up alternate boat to use for water quality monitoring when necessary.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted

**BY:** William J. Gerken, P.E. 11/21

# CONTRACTOR PRODUCTION REPORT



Date: 11/21/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |

Report No. 20

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Overcast, drizzle, 45 F | PM Weather:<br>Steady rain, overcast, 48 F |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| | FWENC | 1 | Site Supervisor | 10 |
| Commence dredging in Shallow Barge Berthing Area (-14 MLLW) | FWENC | 1 | Site Engineer | 10 |
| | FWENC | 1 | Scientist/SHSO | 10 |
| Clean up Sunny Point barge prior to use in receiving dredge material | FWENC | 0 | Scientist/Engineer | 0 |
| | McAmis | 1 | Project/QC Mngr | 11 |
| Commence separating logs from debris and stockpiling logs | McAmis | 1 | Asst QC Manager | 10.5 |
| | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| Conduct Water Quality Monitoring for Dredging in accordance with WQMP | McAmis | 1 | Surveyor | 10 |
| | McAmis | 1 | Foreman | 8 |
| | McAmis | 4 | Operator/Captain | 30 |
| | McAmis | 3 | Deck Hand | 26 |
| | Note: Contractor corrected hours worked for 11/20 (see attached). Cumulative work hours on this report are correct. | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 133.5 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 2,419.5 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 2,553.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700.

| EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB: | MATERIAL REMOVED TODAY: |
|---|---|
| KOMATSU 450 LOADER FOR LOG/DEBRIS SEPARATION IN STOCKPILE AREA | CONTRACTOR CALCULATED TOTAL LOGS AND DEBRIS REMOVED FROM SUNNY POINT BARGE WERE 596.12 TONS |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 0 | "KFP 1" FLAT DECK BARGE | 5 | | |
| "MILLER 205" DERRICK BARGE | 5 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 5 | LIMA CRANE | 5 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT | 5 | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 7 | | |

**REMARKS:**

Received letter from USEPA documenting approval of Remedial Action Work Plan and giving notice to proceed.

Note: FWENC does not consider any portion of this day or 11/20/00 a stand-by day as stated on the contractor's Daily Construction Quality Control Report (attached), because the Contractor was not prepared to provide progress surveys as required in Section 02482 Paragraph 3.03 of the project specifications, nor has the contractor established satisfactory vertical control of the dredging operation as of end of day 11/21/00.

for

Eric Snow — 11/21/00

Superintendent — Date

# CONTRACTOR QUALITY CONTROL REPORT



11/21/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>20 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

**Preparatory Phase**
Y - Yes, N - No, N/A

| | |
|---|---|
| The plans and specs have been reviewed | |
| The submittals have been approved | |
| Materials comply with approved submittals | |
| Materials are stored properly | |
| Preliminary work was done correctly | |
| Testing plan has been approved | |
| Work method and schedule discussed | |

Definable Features of Work and Work Location:

**Initial Phase**
Y - Yes, N - No, N/A

| | |
|---|---|
| Preliminary work was done correctly | |
| Sample has been Prepared/Approved | |
| Workmanship is satisfactory | |
| Test results are acceptable | |
| Work is in compliance with the contract | |
| | |

Definable Features of Work and Work Location

Dredging - Contractor commences dredging in NE corner of Shallow Barge Berthing Area with environmental dredge bucket.

Checked horizontal control of new DGPS unit on Invader 1 at DOLPHIN-WEST reference station. Brief calculations shown below. DGPS requires adjustment to improve accuracy, i.e. not within 5.9 ft (1.8 m) tolerance range except in one instance.

| Station ID | Easting | Northing | Distance to DOLPHIN-WEST |
|---|---|---|---|
| DOLPHIN-WEST | 3088693.18 | 1310152.79 | 0.00 |
| 15:27:28 | 3088702.63 | 1310157.41 | 10.52 |
| 15:27:45 | 3088701.72 | 1310142.94 | 13.04 |
| 15:28:16 | 3088701.81 | 1310156.22 | 9.29 |
| 15:28:50 | 3088696.72 | 1310157.17 | 5.63 |

**Follow Up Phase**
Y - Yes, N - No, N/A

| | |
|---|---|
| Work complies with contract as approved in initial phase | Y |

Definable Features of Work and Work Location
* See end of each definable feature of work to see if work complies with contract as approved in initial phase.

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
After dredging started, took vessel around 300 ft perimeter from derrick barge and sought out any visible silt plume. Could not locate visually or acousitcally so set up directly south of derrick barge.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

T. Fowler and J. Lally completed setup of Invader 1 with DGPS and HYPACK for use as an alternate monitoring/sampling vessel.

Tom Fowler — 11/21/00
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

No Remarks or Exceptions

Bill Gerken — 11/21
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 21 | **Date :** 11/22/2000 |
| | **Day:** Wednesday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 2-FWENC, 3-McAmis<br>**Manual Labor:** 9-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy" Crew Boat.

**Visitors:** None

**Weather:** Heavy Rain, Windy 45°F – 50°F.

**Summary of Construction Activities:**

- Continued dredging in –14' area. Dredging operations discontinued at noon due to lack of vertical control on dredge and inability to provide progress surveys because survey boat is down for repairs. Problems should be resolved by 11/24, operations will resume once these control measures are in place.
- Separating logs from debris in dewatering area, and stockpiling logs.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.
- Weekly progress, scheduling, and QC meeting held. Minutes Attached.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted

**BY:** William J. Gerken, P.E. WJG 11/24

# CONTRACTOR PRODUCTION REPORT



Date: 11/22/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 21 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Steady rain, wind, 45 F

**PM Weather:** Heavy rain, wind, 48 F

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue dredging in Shallow Barge Berthing Area (-14 MLLW) | FWENC | 1 | Site Supervisor | 11 |
| | FWENC | 1 | Site Engineer | 11 |
| | FWENC | 0 | Scientist/SHSO | 0 |
| Continue separating logs from debris and stockpiling logs | FWENC | 0 | Scientist/Engineer | 0 |
| | McAmis | 1 | Project/QC Mngr | 11 |
| Conduct Water Quality Monitoring for Dredging in accordance with WQMP | McAmis | 1 | Asst QC Manager | 11 |
| | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| | McAmis | 1 | Surveyor | 10 |
| | McAmis | 1 | Foreman | 10 |
| | McAmis | 4 | Operator/Captain | 34 |
| | McAmis | 3 | Deck Hand | 26 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 134.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 2,553.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 2,687.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

HITACHI LOG SHOVEL

MATERIAL REMOVED TODAY:

No estimate of dredged material today due to lack of progress survey.

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 0 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 8 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 8 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 8 | "INVADER 1" DIVE BOAT | 4 | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 8 | | |

**REMARKS:**

QC Meeting held at 0800 with KPC, GFP, FW, and McAmis personnel. Meeting minutes attached.

Dredging shut down at 1200 hours due to lack of survey boat, dredging vertical control, and ability to provide progress surveys. Will start up dredging on 11/24 provided these controls are established.

Eric Snow For 11/22/00

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT



11/22/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>21 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | Checked horizontal control of new DGPS unit on Invader 1 at LOG RACK DOLPHIN reference station. Brief calculations shown below. DGPS requires adjustment to improve accuracy, i.e. not within 5.9 ft (1.8 m). |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Station ID | Easting | Northing | Distance to DOLPHIN-WEST |
|---|---|---|---|
| LOG RACK DOLPHIN | 3089832.64 | 1310834.3 | 0.00 |
| 7:59:51 | 3089835.14 | 1310824.96 | 9.67 |
| 8:00:03 | 3089834 | 1310826.38 | 8.04 |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues until 1200 because vertical control on dredge bucket not established and daily progress hydrographic surveys not yet conducted. No further dredging until these problems are resolved. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

QC Meeting held with KPC, GFP, FW, and McAmis personnel. Minutes attached.

Tom Fowler — 11/22/00
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

No remarks or exceptions

Bill Gerken — 11/22
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 22 | **Date :** 11/24/2000 |
| | **Day:** Friday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>QA/QC 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 2-FWENC, 3-McAmis<br>**Manual Labor:** 9-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy" Crew Boat.

**Visitors:** None

**Weather:** Heavy Rain, Windy 45°F – 50°F.

**Summary of Construction Activities:**

- Pumped excess water off material barge into dewatering area.
- Continued dredging in –14' area at approximately 2:00pm. Electronic positioning system appeared to be functioning properly for both vertical and horizontal control.
- Pre-dredge volumes for –14' area presented by contractor, requested some additional information and clarification before approving quantity.
- Contractor conducted first progress survey and presented data. Reviewed data and requested that some changes be made in presentation.

NOTE: Review of pre-dredge survey data revealed that it may not be feasible to dredge a 4:1 slope in the North corner of –14' area. FWENC is reviewing situation. Work is currently underway to determine position of toe of dredging in D1 and D2 areas in front of dock. Toe must be positioned so dredging can not undermine or destabilize original shot rock fill under dock. Potential sloughing of dredge material from under the dock also needs to be addressed. Resolution to these issues should be reached early next week.

- Completed separating logs from debris in dewatering area, and stockpiling logs.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted

BY: William J. Gerken, P.E. 11/25

# CONTRACTOR PRODUCTION REPORT



Date: 11/24/00

Report No. 22

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Steady rain, wind, 40 F | PM Weather:<br>Steady rain, wind, brief partial clearing, 45 F |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| | FWENC | 1 | Site Supervisor | 11 |
| Continue dredging in Shallow Barge Berthing Area (-14 MLLW) | FWENC | 1 | Site Engineer | 11 |
| | FWENC | 0 | Scientist/SHSO | 0 |
| Continue sorting logs, bark, and debris in upland dewatering area | FWENC | 0 | Scientist/Engineer | 0 |
| | McAmis | 1 | Project/QC Mngr | 11 |
| Pump excess water from Miller 205 container barge into dewatering area | McAmis | 1 | Asst QC Manager | 10 |
| | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| | McAmis | 1 | Surveyor | 10 |
| Conduct Water Quality Monitoring for Dredging in accordance with WQMP | McAmis | 1 | Foreman | 10 |
| | McAmis | 4 | Operator/Captain | 36 |
| | McAmis | 3 | Deck Hand | 30 |
| | | | | |
| | | | | |

| | | | |
|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: 137.0 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: 2,687.0 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: 2,824.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700.

| EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB: | MATERIAL REMOVED TODAY: |
|---|---|
| | |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 8 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT | 2 | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 8 | | |

**REMARKS:**

Contractor completed first progress survey to FW for review and demonstrated that vertical control on dredge bucket was functioning, allowing dredging to commence at approximately 1400 hours.

Eric Snow For 11/24/00

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT



11/24/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>22 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor submits first progress survey to FW for review at 1300. Also demonstrates that vertical control using WINOPS system on dredge bucket is functioning. Commenced dredging at approximately 1400 and ceased at approximately 1615. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

FW reviewed survey data and presentation with McAmis personnel.

Tom Fowler — Authorized Site QC Representative — Date: 11/24/00

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

No Remarks or Exceptions

Bill Gerken — KPC QAO — Date: 11/25

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 23 | **Date :** 11/25/2000 |
| | **Day:** Saturday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>QA/QC 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 2-FWENC, 3-McAmis<br>**Manual Labor:** 7-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:** None

**Weather:** Rainy, Breezy 45°F – 50°F.

**Summary of Construction Activities:**

- Continued dredging in –14' area.
- Contractor conducted progress survey and presented data. Some over-dredging noted, contractor will be watching vertical control more closely.

NOTE: 2 clusters of broken off pileing *(tops at approximately –12')* encountered in –14' dredge area. Piling will need to be removed or cut off at or below elevation –14'.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted

BY: William J. Gerken, P.E. WJG 11/27

# CONTRACTOR PRODUCTION REPORT



Date: 11/25/00

Contract No. 1
Work Order No. 1

Title & Location: Ward Cove Remediation Project, Ward Cove, Alaska

Report No. 23

Contractor: Foster Wheeler Environmental Corporation

Superintendent: Eric Snow

AM Weather: Mostly cloudy, some rain, breeze, 45 F

PM Weather: Cloudy, intermittent rain, 48 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue dredging in Shallow Barge Berthing Area (-14 MLLW) | FWENC | 1 | Site Supervisor | 11 |
| | FWENC | 1 | Site Engineer | 11 |
| | FWENC | 0 | Scientist/SHSO | 0 |
| Conduct hydrographic progress survey in Shallow Barge Berthing Area | FWENC | 0 | Scientist/Enginee | 0 |
| | McAmis | 1 | Project/QC Mngr | 10 |
| Conduct Water Quality Monitoring for Dredging in accordance with WQMP | McAmis | 1 | Asst QC Manager | 10 |
| | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| | McAmis | 1 | Surveyor | 10 |
| | McAmis | 1 | Foreman | 10 |
| | McAmis | 2 | Operator/Captain | 17 |
| | McAmis | 3 | Deck Hand | 22 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 109.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 2,824.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 2,933.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Estimated 811 ton (1000 cy) dredge material

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY:

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 8.5 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 8.5 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 8.5 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 8.5 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 8.5 | "INVADER 1" DIVE BOAT | 4 | | |
| "SALTY" CREW BOAT | 8.5 | KOMATSU 450 LOADER | 0 | | |

REMARKS:

Alerted by contractor (C. Chartrand) that "two clusters" of piling were encountered in -14' dredge area. John Lally gave instruction to move onto new cut to continue dredging with environmental bucket. On Monday, FWENCE will contact EPA and Greg Hartman to get concurrence on switching to digging bucket for piling and any stiffer material removal -14' dredge area.

Eric Snow
Superintendent

11/25/00
Date

# CONTRACTOR QUALITY CONTROL REPORT



11/25/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No. 23 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Checked horizontal control of new DGPS unit on Invader 1 at BEAVER and DOLPHIN WEST reference stations after modifying DGPS parameters. Brief calculations shown below. DGPS now operating within required tolerance of 5.9 ft (1.8 m). Horizontal control checks will be ongoing daily events. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Station ID | Easting | Northing | Distance to Station Coordinates |
|---|---|---|---|
| BEAVER | 3090687.96 | 1309596.69 | 0.00 |
| 8:38:18 | 3090689.27 | 1309599.44 | 3.05 |
| 8:40:39 | 3090689.47 | 1309599.25 | 2.97 |
| DOLPHIN WEST | 3088693.18 | 1310152.79 | 0.00 |
| 8:49:09 | 3088696.17 | 1310148.34 | 5.36 |
| 8:49:44 | 3088696.83 | 1310149.65 | 4.81 |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations and timely submission of progress surveys. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 11/25/00
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

No Remarks No Exceptions

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 24 | **Date :** 11/27/2000 |
| | **Day:** Monday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 3-McAmis<br>**Manual Labor:** 8-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:** None

**Weather:** Rainy, Breezy 45°F – 50°F.

**Summary of Construction Activities:**

- Continued dredging in –14' area.
- Contractor conducted progress survey and presented data. Still noting some minor overdredging, contractor is continuing to work on not overdredging.
- Off-loaded first partially full barge of dredge material into de-watering area.
- Meeting with GFP, KPC, FWENC and McAmis personnel in morning to discuss the fact that northern portion of -14' area can not be dredged as planed due to encroachment of fill placed by GFP in area. Decision made to shift –14' area 20' to the south. Also made GFP aware of the new toe offset distances from the dock in D1 and D2. FCR's for both these issues will be issued by FWENC within the next few days.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging and off-loading operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted

**BY:** William J. Gerken, P.E. 11/28

# CONTRACTOR PRODUCTION REPORT



Date: 11/27/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |

Report No. 24

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Mostly cloudy, some rain, breeze, 45 F

**PM Weather:** Cloudy, intermittent rain, 48 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue dredging in Shallow Barge Berthing Area (-14 MLLW) | FWENC | 1 | Site Supervisor | 11 |
| | FWENC | 1 | Site Engineer | 8 |
| | FWENC | 1 | Scientist/SHSO | 8 |
| Commence off-load of first partial barge of dredged material into dewatering area | FWENC | 1 | Scientist/Engineer | 11 |
| | McAmis | 1 | Project/QC Mngr | 11 |
| | McAmis | 1 | Asst QC Manager | 10.5 |
| Conduct hydrographic progress survey in Shallow Barge Berthing Area | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| | McAmis | 1 | Surveyor | 10 |
| Conduct Water Quality Monitoring for Dredging in accordance with WQMP | McAmis | 1 | Foreman | 10 |
| | McAmis | 3 | Operator/Captain | 28 |
| | McAmis | 3 | Deck Hand | 30 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 145.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 2,933.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 3,078.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700.
Weekly ESS inspection conducted by E. Snow.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Approximately 634.46 ton dredge material transferred to disposal area. Estimates of material removed in the future will only be of material transferred from barges into dewatering area.

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 8 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 0 | | |

**REMARKS:** J. Lally discusses supplementing daily reports from McAmis with more production oriented details such as cubic yardage, delays, and identification of dredge position.

Progress survey for work completed on 11/25/00 indicates minor over-digging in several areas within the Shallow Barge Berthing Area.

Eric Snow — Superintendent

11/27/00 — Date

# CONTRACTOR QUALITY CONTROL REPORT



11/27/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>24 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | Checked horizontal control of DGPS unit on Invader 1 at DOLPHIN WEST reference station. Brief calculations shown below. Distance to station coordinates acceptable. |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Station ID | Easting | Northing | Distance to Station Coordinates |
|---|---|---|---|
| DOLPHIN WEST | 3088693.18 | 1310152.79 | 0.00 |
| 8:16:09 | 3088694.19 | 1310148.40 | 4.50 |
| 8:20:41 | 3088694.15 | 1310148.06 | 4.83 |
| 8:21:51 | 3088695.22 | 1310148.40 | 4.84 |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations and timely submission of progress surveys. Minor over-digging occuring within Shallow Barge Berthing Area. Noted by conctractor and will be rectified on 11/28/00. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 11/27/00
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

No Remarks No Exceptions

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 25 | **Date :** 11/28/2000 |
| | **Day:** Tuesday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 3-McAmis<br>**Manual Labor:** 9-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:** None

**Weather:** Rainy, Breezy 45°F – 50°F.

**Summary of Construction Activities:**

- Continued dredging in –14' area. Contractor has damaged vent/water discharge screens on top of environmental bucket, he believes this damage occurred from setting the bucket down on top of broken off piles encountered in area.
- Diver will conduct underwater video survey of piles when dredging work ceases in area.
- Contractor conducted progress survey and presented data. Still noting some overdredging, contractor is continuing to work on not overdredging.
- Working on FCR's for changes in dredge prism in D1,D2, & D3.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted

**BY:** William J. Gerken, P.E. 11/30

# CONTRACTOR PRODUCTION REPORT



Date: 11/28/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 25 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Clear, 33 F

**PM Weather:** Clear to Partly Cloudy, 41 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue dredging in Shallow Barge Berthing Area (-14 MLLW) | FWENC | 1 | Site Supervisor | 10 |
| | FWENC | 1 | Site Engineer | 11 |
| Conduct hydrographic progress survey in Shallow Barge Berthing Area | FWENC | 1 | Scientist/SHSO | 11 |
| | FWENC | 1 | Scientist/Engineer | 11 |
| Conduct Water Quality Monitoring for Dredging in accordance with WQMP | McAmis | 1 | Project/QC Mngr | 11 |
| | McAmis | 1 | Asst QC Manager | 11 |
| | McAmis | 1 | Equip. Proj. Mgr. | 5 |
| | McAmis | 1 | Surveyor | 10 |
| | McAmis | 1 | Foreman | 10 |
| | McAmis | 2 | Operator/Captain | 20 |
| | McAmis | 5 | Deck Hand | 38 |

| | | | |
|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: 148.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: 3,078.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: 3,226.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 0 | | |

**REMARKS:**

Contractor encountered several piles in Shallow Barge Berthing Area which damaged environmental dredge bucket screen and prevented dredging to proper grades. FW contacted diving subcontractor (Alaska Commercial Divers) to conduct underwater video survey when dredging ceases in Shallow Barge Berthing Area. This work will be conducted by ACD under direct contract with KPC. Future work related to Performance Standard Verification will be conducted under contract with FW.

Eric Snow — 11/28/00

Superintendent — Date

# CONTRACTOR QUALITY CONTROL REPORT



11/28/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>25 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | Checked horizontal control of DGPS unit on Invader 1 at LOG RACK DOLPHIN reference station. Brief calculations shown below. Distance to station coordinates acceptable. |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Station ID | Easting | Northing | Distance to Station Coordinates |
|---|---|---|---|
| LOG RACK DOLPHIN | 3089832.64 | 1310834.3 | 0.00 |
| 7:16:26 | 3089834.24 | 1310832.36 | 2.51 |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations and timely submission of progress surveys.<br><br>Conducted Water Quality Monitoring in accordance with WQMP - |

Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — Authorized Site QC Representative — Date: 11/28/00

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

No Remarks No Exceptions

Bill Gerken — KPC QAO — Date: 11/30

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 26 | **Date :** 11/29/2000 |
| | **Day:** Wednesday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 3-McAmis<br>**Manual Labor:** 8-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:** None

**Weather:** Cloudy 40°F – 45°F.

**Summary of Construction Activities:**

- Continued dredging in –14' area. Contractor continues to overdredge in area, problems ongoing with WinOps electronic depth indications, contractor will begin using paint marks on cable to verify depths. Surveyor has still not been able to provide operator with dredging contours on WinOps screen; operator is digging off of survey spot elevations displayed on screen. Contractor is encountering some subsurface logs; this could account for a small portion of the recent overdredging.
- Offloaded barge into dewatering area.
- Contractor conducted progress survey and presented data. Still noting overdredging, contractor is continuing to work on not overdredging. Surveyor is continuing work on pre-dredge volume calculations for adjusted dredge prisms.
- Continuing working on FCR's for changes in dredge prism in D1, D2, & D3. Decision made to move only the north toe of the –14' dredge prism 20' south, the south toe could not be moved south because GFP log boom and building is blocking a portion of the work area. –14' area will now be 300' long instead of the originally designed 320', this size is still sufficient for GFP anticipated future uses.

For additional information and detail see attached contractor reports.

Photographs Were Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging and off-loading operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.
- Weekly progress, scheduling, and QC meeting held. Minutes Attached.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted

**BY:** William J. Gerken, P.E. 11/30

# CONTRACTOR PRODUCTION REPORT



Date: 11/29/00

Report No. 26

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Cloudy, 44 F | PM Weather:<br>Partly cloudy, 40 F |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| | FWENC | 1 | Supevisor / SHSO | 11 |
| Continue dredging in Shallow Barge Berthing Area (-14 MLLW) | FWENC | 1 | Site Engineer | 11 |
| | FWENC | 0 | Scientist/SHSO | 0 |
| Conduct hydrographic progress survey in Shallow Barge Berthing Area | FWENC | 1 | Scientist/Engineer | 10 |
| | McAmis | 1 | Project / QC Mgr | 12 |
| Off load barge into dewatering area | McAmis | 1 | Asst QC Manager | 11 |
| | McAmis | 1 | Equip. Proj. Mgr. | 5 |
| Conduct Water Quality Monitoring for Dredging in accordance with WQMP | McAmis | 1 | Surveyor | 10 |
| | McAmis | 1 | Foreman | 10 |
| | McAmis | 3 | Operator/Captain | 27 |
| | McAmis | 3 | Deck Hand | 30 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 137.0 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 3,226.5 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 3,363.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700.

| EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB: | MATERIAL REMOVED TODAY: |
|---|---|
| | |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 7 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 1 | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 0 | | |

REMARKS:

QC Meeting held with FW, KPC, GFP, and McAmis representatives. Meeting minutes attached.

Eric Snow — Superintendent

11/29/00 — Date

# CONTRACTOR QUALITY CONTROL REPORT



11/29/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>26 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | Checked horizontal control of DGPS unit on Invader 1 at BEAVER reference station. Brief calculations shown below. Distance to station coordinates acceptable. Future documentation of horizontal control checks on Invader 1 will be weekly. |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Station ID | Easting | Northing | Distance to Station Coordinates |
|---|---|---|---|
| BEAVER | 3090687.96 | 1309596.69 | 0.00 |
| 15:36:49 | 3090689.96 | 1309593.3 | 3.94 |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations and timely submission of progress surveys.<br><br>Conducted Water Quality Monitoring in accordance with WQMP - |

Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

QC Meeting held with FW, KPC, GFP, and McAmis personnel.

Tom Fowler — Authorized Site QC Representative — Date: 11/29/00

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

No Remarks or Exceptions

Bill Gerken — KPC QAO — Date: 11/30

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 27 | **Date :** 11/30/2000 |
| | **Day:** Thursday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 3-McAmis<br>**Manual Labor:** 8-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat.

**Visitors:** None

**Weather:** Cloudy 40°F – 45°F.

**Summary of Construction Activities:**

- Continued dredging in –14' area. Contractor using paint marks on cable to verify depths.
- Offloaded barge into dewatering area.
- Contractor conducted progress survey. Still noting some overdredging, contractor is continuing to work on not overdredging.
- Continuing working on FCR's for changes in dredge prism in D1, D2, & D3.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging and off-loading operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted

**BY:** William J. Gerken, P.E. 12/1

# CONTRACTOR PRODUCTION REPORT



Date: 11/30/00

| | | | |
|---|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No. 27 |
| Contractor:<br>Foster Wheeler Environmental Corporation | | Superintendent: Eric Snow | |
| AM Weather:<br>Cloudy, 44 F | | PM Weather:<br>Partly cloudy, 40 F | |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| | FWENC | 1 | Supevisor / SHSO | 11 |
| Continue dredging in Shallow Barge Berthing Area (-14 MLLW) | FWENC | 1 | Site Engineer | 11 |
| | FWENC | 0 | Scientist/SHSO | 0 |
| Conduct hydrographic progress survey in Shallow Barge Berthing Area | FWENC | 1 | Scientist/Engineer | 11 |
| | McAmis | 1 | Project / QC Mgr | 11 |
| Move material in dewatering area with bulldozer toward weir | McAmis | 1 | Asst QC Manager | 10.5 |
| | McAmis | 1 | Equip. Proj. Mgr. | 2 |
| Conduct Water Quality Monitoring for Dredging in accordance with WQMP | McAmis | 1 | Surveyor | 10 |
| | McAmis | 1 | Foreman | 2 |
| | McAmis | 3 | Operator/Captain | 38 |
| | McAmis | 3 | Deck Hand | 30 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 136.5 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 3,363.5 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 3,500.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 8 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 0 | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 0 | | |

**REMARKS:**

Contractor attempting to improve dredge positioning with WINOPS system, particularly with depth control. At this juncture, they are using lead-line measurements to verify bucket depth and dredge depths.

Eric Snow 11/30/00

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT



11/30/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>27 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations and timely submission of progress surveys.<br>Contractor continues moving dredged material from one end of dewatering area to the other. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 11/30/00
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken 12/1
KPC QAO — Date

# C3: DECEMBER DAILY PRODUCTION AND QUALITY CONTROL REPORTS

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 28 | **Date :** 12/01/2000 |
| | **Day:** Friday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 2-McAmis<br>**Manual Labor:** 8-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:** None

**Weather:** Rain, High Winds 40°F – 45°F.

**Summary of Construction Activities:**

- Continued dredging in –14' area, difficult to work in latter portion of afternoon due to high winds, shut down opperations early.
- Offloaded barge into dewatering area.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging and off-loading operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted

**BY:** William J. Gerken, P.E. 12/2

# CONTRACTOR PRODUCTION REPORT



Date: 12/1/00

Contract No. 1
Work Order No. 1

Title & Location: Ward Cove Remediation Project, Ward Cove, Alaska

Report No. 28

Contractor: Foster Wheeler Environmental Corporation

Superintendent: Eric Snow

AM Weather: Rain, wind, 44 F

PM Weather: Rain, wind with strong gusts, 42 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue dredging in Shallow Barge Berthing Area (-14 MLLW) | FWENC | 1 | Supevisor / SHSO | 10 |
| | FWENC | 1 | Site Engineer | 10 |
| | FWENC | 0 | Scientist/SHSO | 0 |
| Off-load barge of sediment into dewatering area | FWENC | 1 | Scientist/Engineer | 11 |
| | McAmis | 1 | Project / QC Mgr | 11.5 |
| Conduct Water Quality Monitoring for Dredging and Barge Off-Load in accordance with WQMP | McAmis | 1 | Asst QC Manager | 11 |
| | McAmis | 0 | Equip. Proj. Mgr. | 0 |
| | McAmis | 1 | Surveyor | 10 |
| | McAmis | 1 | Foreman | 5 |
| | McAmis | 3 | Operator/Captain | 23 |
| | McAmis | 3 | Deck Hand | 29 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 120.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 3,500.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 3,620.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700.

Slip / fall incident occurred with "Invader 1" dive boat during Water Quality Monitoring. Incident report attached.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 11 | "KFP 1" FLAT DECK BARGE | 9 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 9 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 9 | LIMA CRANE | 4 | | |
| "RV DAY" TUG | 9 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 9 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 9 | KOMATSU 450 LOADER | 0 | | |

REMARKS:

Weather conditions, i.e. high winds and waves, precluded contractor's daily progress survey.

Eric Snow
Superintendent

12/1/00
Date

# CONTRACTOR QUALITY CONTROL REPORT



12/1/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>28 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

**Preparatory Phase**

Y - Yes, N - No, N/A

| | |
|---|---|
| The plans and specs have been reviewed | |
| The submittals have been approved | |
| Materials comply with approved submittals | |
| Materials are stored properly | |
| Preliminary work was done correctly | |
| Testing plan has been approved | |
| Work method and schedule discussed | |

Definable Features of Work and Work Location:

**Initial Phase**

Y - Yes, N - No, N/A

| | |
|---|---|
| Preliminary work was done correctly | |
| Sample has been Prepared/Approved | |
| Workmanship is satisfactory | |
| Test results are acceptable | |
| Work is in compliance with the contract | |
| | |

Definable Features of Work and Work Location

Dredging - Checked horizontal control on LOG RACK DOLPHIN piling for WINOPS system on Derrick Barge. Brief calculations below. Adjustments are necessary to confirm that WINOPS is positioning correctly.

| Station ID | Easting (ft) | Northing (ft) | Distance to Station |
|---|---|---|---|
| LOG RACK DOLPHIN | 3089832.65 | 1310834.3 | 0.00 |
| WINOPS POSITION | 3089846 | 1310838 | 13.85 |

Water Quality Monitoring - Checked horizontal control on Invader 1. Brief calculations below. All OK.

| Station ID | Easting (ft) | Northing (ft) | Distance to Station |
|---|---|---|---|
| BEAVER | 3090687.96 | 1309596.69 | 0.00 |
| 7:44:15 | 3090688.79 | 1309596.96 | 0.87 |

**Follow Up Phase**

Y - Yes, N - No, N/A

| | |
|---|---|
| Work complies with contract as approved in initial phase | Y |

Definable Features of Work and Work Location

* See end of each definable feature of work to see if work complies with contract as approved in initial phase.

Dredging - Contractor continues dredging operations and timely submission of progress surveys.

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — Authorized Site QC Representative — Date 12/1/00

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken — KPC QAO — Date 12/2

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 29 | **Date :** 12/02/2000 |
| | **Day:** Saturday | **Shift:** Day | **Hours:** 7am – 5pm |

| | |
|---|---|
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, ~~2~~ 3-McAmis<br>**Manual Labor:** ~~8~~ 7-McAmis<br>**Remarks:** |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, ~~Dive Boat "Invader 1"~~.

**Visitors:** None

**Weather:** Cloudy, Light Rain, Windy, 40°F – 45°F.

**Summary of Construction Activities:**

- Contractor indicated he felt -14' area was complete in afternoon, performed post-dredge survey in evening. Results of survey should be available first thing Monday morning; determination will be made at that time on completeness of work in area.

  Based on progress surveys performed throughout work in -14' area, contractor overdredged significantly in portions of area. Overredging is probably due to a number of factors. WinOps vertical positioning has not worked properly since start of dredging, contractor is now and has been for the last few days controlling depth of dredging with marks on bucket cable, this method is working well. Additional buried/partially buried logs were encountered in portions of the area; contractor feels that removing these accounted for some overdredging.
- Contractor prepared to start dredging in -44' area.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging and off-loading operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.
- FWENC conducted monthly safety inspection.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted

**BY:** William J. Gerken, P.E. 12/5

# CONTRACTOR PRODUCTION REPORT



Date: 12/2/00

Report No. 29

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** ~~Rain, wind~~, 44 F LIGHT RAIN, LIGHT WIND.

**PM Weather:** LIGHT RAIN, LIGHT WIND, 42° C. ~~Rain, wind with strong gusts, 42 F~~

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Complete dredging in Shallow Barge Berthing Area (-14 MLLW) pending final post-dredge survey results | FWENC | 1 | Supevisor / SHSO | 10 |
| | FWENC | 1 | Site Engineer | 10 |
| | FWENC | 0 | Scientist/SHSO | 0 |
| | FWENC | 1 | Scientist/Engineer | 10 |
| Conduct progress hydrographic survey | McAmis | 1 | Project / QC Mgr | 10.5 |
| | McAmis | 1 | Asst QC Manager | 10.5 |
| Conduct Water Quality Monitoring for Dredging in accordance with WQMP | McAmis | 1 | Equip. Proj. Mgr. | 4 |
| | McAmis | 1 | Surveyor | 10 |
| | McAmis | 1 | Foreman | 9 |
| | McAmis | 2 | Operator/Captain | 18 |
| | McAmis | 3 | Deck Hand | 28 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 120.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 3,620.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 3,740.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED:

Tailgate safety meeting at 0700.
ESS Conducts monthly safety inspection.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 9 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 9 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 9 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 9 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 9 | "INVADER 1" DIVE BOAT (TRIPS) | 0 | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 0 | | |

**REMARKS:**

Eric Snow
Superintendent

12/2/00
Date

# CONTRACTOR QUALITY CONTROL REPORT



12/2/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>29 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations and timely submission of progress surveys. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 12/2/00
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken — 12/5
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 30 | **Date :** 12/04/2000 |
| | **Day:** Monday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 3-McAmis<br>**Manual Labor:** 7-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:** Tammy Phillips USACE

**Weather:** Cloudy, Light Rain, Windy, 40°F – 45°F.

**Summary of Construction Activities:**

- Contractor started dredging in –44' area (D1), began work at Southwest end of area. Material does not appear to be high in organics, and was too dense *(hard)* to dig effectively with environmental bucket. Contractor switched to digging bucket. Question being investigated as to weather non-organic sediments need to be dredged below –40'. Preliminary survey data and site observation indicates that it will probably not be feasible to dredge a 4:1 slope shoreward in this area. A 4:1 slope would seriously undermine existing slope. Further investigation and a decision on necessary slope adjustment should be complete by tomorrow.
- Contractor performed progress survey in –44' area.
- Contractor post-dredge survey calculations indicated approximately 2454 total cubic yards removed from –14' area, they have not calculated the pay quantity removed yet. I will perform independent volume calculations of both pay and total quantities. My initial estimate is approximately 1400 pay yards. Have not seen contractor calculations of yardage in D1 and D2 yet. Some concern over potential volume over-run and capacity at dumpsite and consolidation of material.
- Conference call between FWENC and McAmis personnel to discuss production, control, and potential volume issues.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted

**BY:** William J. Gerken, P.E. 12/5

# CONTRACTOR PRODUCTION REPORT



Date: 12/4/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 30 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Overcast, calm, 46 F

**PM Weather:** Overcast, light rain, 45 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| | FWENC | 1 | Supevisor / SHSO | 11 |
| Commence dredging in Deep Draft Dock (-44 MLLW) area. | FWENC | 1 | Site Engineer | 11 |
| | FWENC | 1 | Scientist | 8 |
| Conduct progress hydrographic survey | FWENC | 1 | Scientist/Engineer | 11 |
| | McAmis | 1 | Project / QC Mgr | 11.5 |
| Conduct Water Quality Monitoring for Dredging in accordance with WQMP | McAmis | 1 | Asst QC Manager | 11.5 |
| | McAmis | 1 | Equip. Proj. Mgr. | 5 |
| | McAmis | 1 | Surveyor | 10 |
| Conduct video survey of pilings/logs in Shallow Barge Berthing Area | McAmis | 1 | Foreman | 10 |
| | McAmis | 2 | Operator/Captain | 20 |
| | McAmis | 3 | Deck Hand | 30 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 139.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 3,740.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 3,879.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Contractor estimates 2454 cubic yards of material removed from Shallow Barge Berthing Area based on pre and post dredge surveys. This total includes some overdredging.

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 11 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 0 | | |

**REMARKS:**

Alaska Commercial Divers conducting video survey under direct contract with KPC, but under technical direction of Foster Wheeler. Monitoring events conducted under contract with Foster Wheeler.

Eric Snow 12/4/00

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT



12/4/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>30 |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations and timely submission of progress surveys. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 12/4/00
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken — 12/5
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 31 | **Date :** 12/05/2000 |
| | **Day:** Tuesday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 3-McAmis<br>**Manual Labor:** 7-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:** Tammy Phillips USACE

**Weather:** Cloudy, Light Rain, 40°F – 45°F.

**Summary of Construction Activities:**

- Contractor continued dredging in –44' area (D1) at Southwest end of area, estimated 500 cy removed. Material continues to be non-organic in nature, and too dense *(hard)* to dig effectively with the environmental bucket. Based on survey data and site observation it was determined that a 4:1 slope shoreward in this area is not feasible. A 4:1 slope would seriously undermine existing slope. Contractor directed in afternoon to dredge slope at 2:1. Question still being investigated as to weather non-organic sediments need to be dredged below -40'.
- Contractor performed progress survey in –44' area.
- Independent volume calculations of pay quantities in –14' area by FWENC indicate 1,343 cubic yards. Independent volume calculations of pay quantities in –14' area by PN&D indicate 1,358 cubic yards, very good agreement between FWENC & PN&D calculations. FWENC calculations show 2,609 total cubic yards removed from area, which equates to 1,266 cubic yards of over dredging. Calculations of overdredge by PN&D not complete yet. I have not received pay quantity calculations for –14' area from contractor yet. Have not seen official contractor calculations of yardage in D1 and D2 yet. Some concern over potential volume over-run and capacity at dumpsite and consolidation of material.
- FWENC collected samples of existing bottom material from 5 locations in cove. Material will be analyzed in lab on site and used for preparation of exemplars for capping work.
- Divers video survey in –14' area showed 3 steel pile stubs, and 5 or more timber pile stubs or logs that will need to be removed. Diver attempted to cut off steel pile today but could not due to poor visibility because of stirred up bottom sediments and weather.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None Noted

**BY:** William J. Gerken, P.E. 12/6

# CONTRACTOR PRODUCTION REPORT



Date: 12/5/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 31 | | |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Overcast, calm, 46 F | PM Weather:<br>Overcast, light rain, 45 F |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| | FWENC | 1 | Supevisor / SHSO | 11 |
| Continue dredging in Deep Draft Dock (-44 MLLW) area. | FWENC | 1 | Site Engineer | 11 |
| | FWENC | 1 | Scientist | 11 |
| Conduct progress hydrographic survey | FWENC | 1 | Scientist/Engineer | 11 |
| | McAmis | 1 | Project / QC Mgr | 11 |
| Conduct Water Quality Monitoring for Dredging in accordance with WQMP | McAmis | 1 | Asst QC Manager | 9 |
| | McAmis | 1 | Equip. Proj. Mgr. | 5 |
| | McAmis | 1 | Surveyor | 10 |
| Attempt to cut and remove steel and wood pilings from Shallow Barge Berthing Area - cannot due to weather. | McAmis | 1 | Foreman | 10 |
| | McAmis | 2 | Operator/Captain | 20 |
| | McAmis | 3 | Deck Hand | 30 |
| Collect sediment samples from capping areas with Invader 1 for grain size analysis and preparation of exemplar sediment samples | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 139.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 3,879.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 4,018.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Contractor estimates 500 C.Y. today.

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 9 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 1 see cost page | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 0 | | |

REMARKS:

Eric Snow 12/5/00

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT



12/5/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>31 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | Capping and Mounding - Collected multiple samples of existing sediment from areas to be capped. Samples will be processed in laboratory over the next week for background information and use as exemplars. |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations and timely submission of progress surveys. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 12/5/00
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken — 12/6
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 32 | **Date :** 12/06/2000 |
| | **Day:** Wednesday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 3-McAmis<br>**Manual Labor:** 8-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat.

**Visitors:** Tammy Phillips USACE, Karen Keeley EPA Region 10, Lucinda Jacobs Exponent.

**Weather:** Cloudy, 45°F.

**Summary of Construction Activities:**

- Contractor continued dredging in –44' area (D1) at Southwest end of area, estimated 600 cy removed. Material continues to be non-organic in nature, and too dense *(hard)* to dig effectively with the environmental bucket. Contractor directed in morning to dredge to –40' unless organic material is encountered. If organic material is encountered contractor will dredge to –44' or until he reaches non-organic material below –40', whichever comes first. FCR's regarding dredge slope and depth changes in –44' area are in progress. Ongoing discussion on the possibility of decreasing dredge depth to –36' + 1' payable overdepth.
- Off-loaded barge into dewatering area.
- Contractor performed progress survey in –44' area. Some over dredging noted, but this is due to contractor mistakenly box-cutting the toe, and work done prior to changing dredge slope to 2:1. Overall the ability of the contractor to limit overdredging appears to have improved.
- Divers working in –14' area cutting off pile.
- Whipple Creek physical testing results indicate fines content is to high to meet spec. Decision made by FWENC not to use or give further consideration to Whipple Creek Source.

For additional information and detail see attached contractor reports.

Photographs Were Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging and off-loading operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.
- Weekly progress, scheduling, and QC meeting held.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

Informed by FWENC of a turbidity exceedence on 1/28/00 which was not discovered until a data review the evening of 12/5/00. Exceedence was in a surface sample dredging station, mid depth and bottom exhibited no exceedence *(turbidity 0.6 – 5.1 NTU)*. Informed EPA and USACE of oversight. Discussed with FWENC that this can not happen again, all data must be closely monitored in the field, any exceedence must be reported immediately and handled as outlined in the WQMP.

**BY:** William J. Gerken, P.E. 12/6

# CONTRACTOR PRODUCTION REPORT



Date: 12/6/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No. 32 |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Overcast to clearing, calm, 44 F | PM Weather:<br>Mostly cloudy, calm, 47 F |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue dredging in Deep Draft Dock (-44 MLLW) area. | FWENC | 1 | Supervisor / SHSO | 12 |
| | FWENC | 1 | Site Engineer | 11 |
| Conduct progress hydrographic survey | FWENC | 1 | Scientist | 11 |
| | FWENC | 1 | Scientist/Engineer | 11 |
| Off-load barge into dewatering area | McAmis | 1 | Project / QC Mgr | 11 |
| | McAmis | 1 | Asst QC Manager | 9 |
| Conduct Water Quality Monitoring for Dredging and barge off-load in accordance with WQMP | McAmis | 1 | Equip. Proj. Mgr. | 3 |
| | McAmis | 1 | Surveyor | 10 |
| | McAmis | 1 | Foreman | 10 |
| Cut and remove steel pilings from Shallow Barge Berthing Area | McAmis | 3 | Operator/Captain | 26 |
| | McAmis | 3 | Deck Hand | 30 |
| Process sediment samples collected on 12/5/00 in laboratory | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 144.0 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 4,018.5 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 4,162.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700.

| EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB: | MATERIAL REMOVED TODAY: |
|---|---|
| | Contractor estimates 600 CY |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 6 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 0 | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 0 | | |

**REMARKS:**

Invader 1 Dive Boat on site on behalf of KPC to cut pilings in Shallow Barge Berthing Area, but under technical direction of Foster Wheeler.

USACE and USEPA representatives on site today.

Eric Snow — 12/6/00

Superintendent — Date

# CONTRACTOR QUALITY CONTROL REPORT



12/6/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>32 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations and timely submission of progress surveys. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler informed Bill Gerken (QAO) of water quality exceedence on 11/28/00 which was not discovered until data review yesterday (12/5/00). Informed him that this would not happen again, i.e. all data will be closely reviewed on the boat so that no exceedences are missed, should they occur. B. Gerken notifies USEPA and USACE representatives of this oversight.

Tom Fowler — Authorized Site QC Representative — Date 12/6/00

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken — KPC QAO — Date 12/7

## QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 33 | **Date :** 12/07/2000 |
| | **Day:** Thursday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 2-McAmis<br>**Manual Labor:** 8-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:** Tammy Phillips USACE.

**Weather:** Cloudy, 35° - 40°F.

**Summary of Construction Activities:**

- Contractor continued dredging in –44' area (D1) at Southwest end of area. Material continues to be non-organic in nature and too dense *(hard)* to dig effectively with the environmental bucket, some shot and large rocks and a couple logs encountered. Ongoing discussion on the possibility of decreasing dredge depth to -36' + 1' payable overdepth.
- Off-loaded barge into dewatering area.
- Contractor performed progress survey in –44' area. Ability of the contractor to limit overdredging still appears to have improved.
- Divers working in –14' area cutting off pile, cut 2 steel pile and 3 logs.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging and off-loading operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted

**BY:** William J. Gerken, P.E. 12/8

# CONTRACTOR PRODUCTION REPORT



Date: 12/7/00

Contract No. 1
Work Order No. 1

Title & Location: Ward Cove Remediation Project, Ward Cove, Alaska

Report No. 33

Contractor: Foster Wheeler Environmental Corporation

Superintendent: Eric Snow

AM Weather: Overcast to clearing, calm, 35 F

PM Weather: Mostly cloudy, calm, 42 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue dredging in Deep Draft Dock (-44 MLLW) area - encountering mixture of rock, and fine grained sand. Area dredged is prism between stations 35+90 and 37+40. | FWENC | 1 | Supervisor / SHSO | 12 |
| | FWENC | 1 | Site Engineer | 11 |
| | FWENC | 1 | Scientist | 11 |
| Conduct progress hydrographic survey | FWENC | 1 | Scientist/Engineer | 11 |
| Off-load Sunny Point barge and pump water into dewatering area | McAmis | 1 | Project / QC Mgr | 10.5 |
| | McAmis | 1 | Asst QC Manager | 9 |
| Conduct Water Quality Monitoring for dredging and barge off-load in accordance with WQMP | McAmis | 0 | Equip. Proj. Mgr. | 0 |
| | McAmis | 1 | Surveyor | 10 |
| | McAmis | 1 | Foreman | 10 |
| Cut and remove 2 steel pilings and 3 submerged/impaled logs from Shallow Barge Berthing Area | McAmis | 3 | Operator/Captain | 27 |
| | McAmis | 3 | Deck Hand | 30 |
| | | | | |
| Process sediment samples collected on 12/5/00 in laboratory for PSVP setup | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 141.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 4,162.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 4,304.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Contractor gets barge draft tables for both material barges (Sunny Point and KFP 1). Daily tonnage calculated on attached sheets. Total tonnage off-loaded to date is estimated at 2541.07 tons.

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 9 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 7 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 1 | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 0 | | |

REMARKS:

Invader 1 Dive Boat on site on behalf of KPC to cut pilings in Shallow Barge Berthing Area, but under technical direction of Foster Wheeler. Invader 1 also assists McAmis in removing rope sucked into McAmis survey vessel jet in AM.

USACE representative on site today.

Eric Snow — Superintendent

12/7/00 — Date

# CONTRACTOR QUALITY CONTROL REPORT

 | 12/7/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>33 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations and timely submission of progress surveys. Contractor feels that greater control is being gained with WINOPS system as material is easier to dig and operator gains familiarity. Progress surveys corroborate this assertion. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 12/7/00
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 34 | **Date :** 12/08/2000 |
| | **Day:** Friday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>QA/QC 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 2-McAmis<br>**Manual Labor:** 7-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat.

**Visitors:** Tammy Phillips USACE.

**Weather:** Clear, Calm, 35° - 40°F.

**Summary of Construction Activities:**

- Contractor continued dredging in –44' area (D1). Material continues to be primarily non-organic in nature and too dense *(hard)* to dig effectively with the environmental bucket, more shot and large rock being encountered along with the occasional log. Dredge removed one intact oxygen bottle. Dredging discontinued at 1:00 PM due to problems with tagline take-up.
- Draft FCR's *(9 & 10)* on changes in –44' area digging were circulated for review. Ongoing discussion on the possibility of decreasing dredge depth to –36' + 1' payable overdepth.
- Contractor performed progress survey in –44' area.
- Divers working in –14' area and shallow barge access channel cutting off and locating pile, cut 2 timber pile in shallow barge access channel.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.
- FWENC conducted weekly safety inspection.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted

BY: William J. Gerken, P.E. 12/9

# CONTRACTOR PRODUCTION REPORT



Date: 12/8/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 34 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Clear, calm, 35 F

**PM Weather:** Clear, 40 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue dredging in Deep Draft Dock (-44 MLLW) area - encountering mixture of rock, and fine grained sand. Area dredged is prism between stations 37+40 and 37+65. Dredging stopped at approx. 1300 hours because of tag line breakdown. | FWENC | 1 | Supervisor / SHSO | 10 |
| | FWENC | 1 | Site Engineer | 10 |
| | FWENC | 1 | Scientist | 10 |
| | FWENC | 1 | Scientist/Engineer | 10 |
| | McAmis | 1 | Project / QC Mgr | 10.5 |
| Conduct progress hydrographic survey | McAmis | 1 | Asst QC Manager | 9 |
| | McAmis | 0 | Equip. Proj. Mgr. | 0 |
| Conduct Water Quality Monitoring for dredging in accordance with WQMP | McAmis | 1 | Surveyor | 10 |
| | McAmis | 1 | Foreman | 10 |
| Cut and remove 2 wood pilings from Shallow Barge Access Channel and mark clusters of logs or pilings in Shallow Barge Berthing Area. | McAmis | 2 | Operator/Captain | 20 |
| | McAmis | 3 | Deck Hand | 30 |
| | | | | |
| Process sediment samples collected on 12/5/00 in laboratory for PSVP setup | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 129.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 4,304.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 4,433.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700.

FW ESS and USACE conduct safety inspection of Derrick Barge and work areas. Informed by Tammy Phillips (USACE) that the off-load crane (Lima) operator said his machine was tilting with a full bucket. Will investigate situation on 12/9/00.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material tons

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 9 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 6 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 0 | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 0 | | |

**REMARKS:**

Invader 1 Dive Boat on site on behalf of KPC to cut pilings in Shallow Barge Berthing Area, but under technical direction of Foster Wheeler.

Dredge removed one intact oxygen cylinder with cap on near Station 37+60.

USACE representative on site today.

Eric Snow 12/8/00

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT



12/8/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>34 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations and timely submission of progress surveys.<br><br>Conducted Water Quality Monitoring in accordance with WQMP - |

Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
Turbidity elevated at ebb tide monitoring station, but no exceedence. See attached WQMR for further information.

Cutting Piles - Checked locations and depths of three steel pilings cut on 12/6 and 12/7. One was cut at -16' MLLW and other two were cut at -17' MLLW. Other piles or impaled logs investigated were at or below 14' MLLW within dredge prism. Marked one 2.5' diameter wood piling just outside of dredge area in location of former light pole between boom shack and dock. Elevation iss approximately -9' MLLW. Identified and cut two wood piles in Shallow Barge Access Channel which were identified by Charlie Teal. Original elevation was approximately -6' MLLW and cut at -12' MLLW.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 12/8/00
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken — 12/9
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 35 | **Date :** 12/09/2000 |
| | **Day:** Saturday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 2-McAmis<br>**Manual Labor:** 8-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:**

**Weather:** Clear, Calm, 30° - 40°F.

**Summary of Construction Activities:**

- Contractor continued dredging in –44' area (D1). Material continues to be primarily non-organic in nature and too dense *(hard)* to dig effectively with the environmental bucket, more shot and large rock being encountered along with the occasional log. Encountered a spot that was either bedrock or a very large rock, estimated depth between –38' and –39'.
- Off-loaded barge into dewatering area.
- Contractor performed progress survey in –44' area.
- Divers identified a number of vertical logs or pile outside the –14' dredge area, but shallow enough to possible pose a navigational threat in the future.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging and off-loading operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.
- FWENC ESS investigated concerns over Lima crane stability at de-watering site. Determined problem only existed when operator tested reach limits of crane and boomed out to 30°, operator will not boom out this far during operations.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted

**BY:** William J. Gerken, P.E. 12/11

# CONTRACTOR PRODUCTION REPORT



Date: 12/9/00

| | | | |
|---|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No. 35 |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Clear, calm, 28 F | PM Weather:<br>Clear, 40 F |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue dredging in Deep Draft Dock (-44 MLLW) area - encountering mixture of rock, and fine grained sand. Occasional logs encountered. Area dredged is prism between stations 37+65 to 38+00. | FWENC | 1 | Supervisor / SHSO | 11 |
| | FWENC | 1 | Site Engineer | 11 |
| | FWENC | 0 | Scientist | 0 |
| | FWENC | 1 | Scientist/Engineer | 11 |
| Off-load KFP-1 barge | McAmis | 1 | Project / QC Mgr | 10.5 |
| | McAmis | 1 | Asst QC Manager | 10.5 |
| Conduct progress hydrographic survey | McAmis | 0 | Equip. Proj. Mgr. | 0 |
| | McAmis | 1 | Surveyor | 10 |
| Conduct WQM for dredging and barge off-load in accordance with WQMP | McAmis | 1 | Foreman | 10 |
| | McAmis | 3 | Operator/Captain | 28 |
| Remove buoy markers from logs/pilings noted on 12/8/00. | McAmis | 3 | Deck Hand | 30 |
| | | | | |
| Process sediment samples collected on 12/5/00 in laboratory for PSVP | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 132.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 4,433.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 4,565.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700.

FW ESS investigates Lima crane (located at barge off-load point) and stability. Determines that tilting occurred only when operator testing boom angle limits of crane and lowered boom to approximately 30 degrees before tilting.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material 516.77 tons

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 8 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 1 | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 0 | | |

**REMARKS:**

Invader 1 on-site on behalf of KPC to remove buoys from logs and pilings identified previously during week; under technical direction of Foster Wheeler. During buoy removal, they discover a minimum of seven nearly vertical logs in vicinity of former light pole along log boom walkway. They are roughly in line with the two existing light poles, which indicates they are outside of the dredge prism. They are, however, at an elevation of 0' MLLW or greater which could pose a threat to small vessels navigating that area.

Eric Snow — 12/9/00

Superintendent — Date

# CONTRACTOR QUALITY CONTROL REPORT



12/9/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>35 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations and timely submission of progress surveys.<br><br>Conducted Water Quality Monitoring in accordance with WQMP - |

Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
Turbidity elevated at ebb tide monitoring station, but no exceedence. See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 12/9/00
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken — 12/11
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 36 | **Date :** 12/10/2000 |
| | **Day:** Sunday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 2-McAmis<br>**Manual Labor:** 9-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:**

**Weather:** Clear, Calm, 25° - 30°F.

**Summary of Construction Activities:**

- Contractor continued dredging in –44' area (D1). Material continues to be primarily non-organic in nature and too dense *(hard)* to dig effectively with the environmental bucket, continue to encounter some shot and large rock along with the occasional log. Encountered what appeared to be more bedrock.
- Off-loaded barge into dewatering area.
- Contractor performed progress survey in –44' area.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging and off-loading operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Turbidity exceedence during dredging ebb tide monitoring

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- Turbidity exceedence during dredging ebb tide monitoring. The first monitoring event indicated an exceedence at both the near surface and near bottom locations, but values fluctuated greatly in both locations. Follow up monitoring at the same approximate location 10 minutes latter showed no exceedence at the near surface or mid depth location, but a fairly stable exceedence at the near bottom location. This station was down current of the dredge and fairly close to shore. Additional monitoring was immediately done 100' farther from shore while remaining 300' down current of the dredge. This location exhibited no exceedence, the highest reading being 14.1 NTU's near bottom. We are currently experiencing large tidal variations and thus stronger than usual ebb currents. The dredge was digging non-organic sediments in D1. Just prior to the monitoring event the pump-off hose used to pump excess water from the barge into the dewatering area was knocked loose, this discharged some highly turbid water retained in the hose into the surface water. In addition the observation was made that the operator lost a partial bucket of material back into the water column just prior to the monitoring event. EPA notified of exceedence and conditions. No operational changes made at the time, will continue monitoring, if additional exceedences are documented, further investigation and possibly operational changes will be implemented

**BY:** William J. Gerken, P.E. 12/11

# CONTRACTOR PRODUCTION REPORT



Date: 12/10/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 36 | | |

| | |
|---|---|
| Contractor:<br>oster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Clear, calm, 24 F | PM Weather:<br>Clear, 30 F |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue dredging in Deep Draft Dock (-44 MLLW) area - encountering mixture of rock, and fine grained sand. Occasional logs encountered. Area dredged is prism between stations 38+00 and 38+35. Area approximately 75' wide. | FWENC | 1 | Supervisor / SHSO | 11 |
| | FWENC | 1 | Site Engineer | 11 |
| | FWENC | 0 | Scientist | 0 |
| | FWENC | 1 | Scientist/Engineer | 11 |
| | McAmis | 1 | Project / QC Mgr | 10.5 |
| Off-load Sunny Point barge | McAmis | 1 | Asst QC Manager | 10.5 |
| | McAmis | 0 | Equip. Proj. Mgr. | 0 |
| Conduct progress hydrographic survey | McAmis | 1 | Surveyor | 10 |
| | McAmis | 1 | Foreman | 10 |
| Conduct WQM for dredging and barge off-load in accordance with WQMP | McAmis | 4 | Operator/Captain | 32 |
| | McAmis | 3 | Deck Hand | 30 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 136.0 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 4,565.5 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 4,701.5 |

'ST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

ailgate safety meeting at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material 534.52 tons

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 5 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 7 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 0 | | |

REMARKS:

Eric Snow 12/10/00

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT



12/10/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>36 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations and timely submission of progress surveys. Commenced monitoring production on derrick barge. During production only (does not include times of barge movement), found that average cycle time on dredge was: 1.5 minutes. Typical bucket removed was between 1/4 and 1/2 full, i.e. 1 to 2 cubic yards per bucket. From this, we can infer that the average production rate was 1 cubic yard per minute. Note that this can not be extrapolated to an entire day because, as noted above, barge travel time and other typical delays were not incorporated into production. Further production monitoring will take into account a full range of dredge activities and thus establish typical daily production rates. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths until PM ebb tide monitoring for dredging. Had a verified exceedence at the near bottom depth monitoring. Relocated and re-monitored twice, finding one condtinued exceedence, one not exceeding.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Notified QAO of exceedence while conducting monitoring on boat. Continued contact until issue resolved and QAO and EPA satisfied with monitoring effort. Returned and completed report for 12/11/00 AM.

Tom Fowler — 12/10/00
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 37 | **Date :** 12/11/2000 |
| | **Day:** Monday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC Engineer** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 2-McAmis<br>**Manual Labor:** 10-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:**

**Weather:** Clear, Calm, 20° - 30°F.

**Summary of Construction Activities:**

- Contractor continued dredging in –44' area (D1). Material continues to be primarily non-organic in nature and too dense *(hard)* to dig effectively with the environmental bucket, continue to encounter some shot and large rock along with the occasional log.
- Off-loaded barge into dewatering area.
- Contractor performed progress survey in –44' area.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging and off-loading operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. WJG

# CONTRACTOR PRODUCTION REPORT



Date: 12/11/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No. 37 |
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow | |
| AM Weather:<br>Clear, calm, 20 F | PM Weather:<br>Clear, calm, 28 F | |

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue dredging in Deep Draft Dock (-44 MLLW) area - encountering mixture of rock, and fine grained sand. Occasional logs encountered. Area dredged is prism between stations 38+35 and 38+75. Area approximately 75' wide. | FWENC | 1 | Supervisor / SHSO | 11 |
| | FWENC | 1 | Site Engineer | 11 |
| | FWENC | 0 | Scientist | 0 |
| | FWENC | 1 | Scientist/Engineer | 11 |
| | McAmis | 1 | Project / QC Mgr | 11 |
| Off-load KFP-1 barge in 3 to 4 hours. | McAmis | 1 | Asst QC Manager | 11 |
| | McAmis | 0 | Equip. Proj. Mgr. | 0 |
| Conduct progress hydrographic survey | McAmis | 2 | Surveyor | 20 |
| | McAmis | 1 | Foreman | 10 |
| Conduct WQM for dredging and barge off-load in accordance with WQMP | McAmis | 4 | Operator/Captain | 32 |
| | McAmis | 3 | Deck Hand | 30 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 147.0 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 4,701.5 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 4,848.5 |

SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material 570.53 tons

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 2 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 8 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 2 | | |

**REMARKS:**

Eric Snow 12/11/00

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT



12/11/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>37 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations and timely submission of progress surveys. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.
Monitored at two stations in AM to check on area of exceedence from 12/10/00. Neither station exceeded the turbidity limit, but the near bottom monitoring during flood tide exhibited elevated turbidity. PM/ebb tide monitoring also did not exceed turbidity limits.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 12/11/00
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska. | **Project No.:** 00240.02 | **Report No.:** 38 | **Date :** 12/12/2000 |
| | **Day:** Tuesday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 3-McAmis<br>**Manual Labor:** 9-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:**

**Weather:** Clear, Calm, 20° - 30°F.

**Summary of Construction Activities:**

- Contractor continued dredging in –44' area (D1). Material continues to be primarily non-organic in nature and too dense *(hard)* to dig effectively with the environmental bucket, continue to encounter some shot and large rock along with the occasional log.
- Off-loaded barge into dewatering area.
- Contractor performed progress survey in –44' area.
- QAO off-site entire day for HAZWOPER training.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging and off-loading operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 12/12/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 38 | | |

ntractor:
ster Wheeler Environmental Corporation

Superintendent: Eric Snow

AM Weather: Clear, calm, 20 F

PM Weather: Clear, calm, 30 F

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue dredging in Deep Draft Dock (-44 MLLW) area - encountering mixture of rock, and fine grained sand. Occasional logs encountered. Area dredged is prism between stations 37+30 and 37+90 and narrow area along face of dock. | FWENC | 1 | Supervisor / SHSO | 11 |
| | FWENC | 1 | Site Engineer | 11 |
| | FWENC | 0 | Scientist | 0 |
| | FWENC | 1 | Scientist/Engineer | 11 |
| | McAmis | 1 | Project / QC Mgr | 10.5 |
| Off-load Sunny Point barge in 3 to 4 hours | McAmis | 1 | Asst QC Manager | 10.5 |
| | McAmis | 1 | Equip. Proj. Mgr. | 5 |
| Conduct WQM for dredging and barge off-load in accordance with WQMP | McAmis | 2 | Surveyor | 18 |
| | McAmis | 1 | Foreman | 10 |
| | McAmis | 3 | Operator/Captain | 28 |
| | McAmis | 3 | Deck Hand | 30 |
| | | | | |
| | | | | |

| | | | |
|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: 145.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: 4,848.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: 4,993.5 |

ST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

ailgate safety meeting at 0700. FW ESS (E. Snow) and KPC (P. McElroy) inspected oxygen cylinder on KFP-1 barge, took photographs, and instructed McAmis to place the cylinder on the dock next to the logs at day's end. E. Snow and P. McElroy researching requirements for proper handling and disposal.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material 581.46 tons

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 8 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 0 | | |

REMARKS:

Eric Snow 12/12/00
Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT



12/12/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>38 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations and timely submission of progress surveys. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 12/12/00
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 39 | **Date :** 12/13/2000 |
| | **Day:** Wednesday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>QA/QC 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 3-McAmis<br>**Manual Labor:** 9-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:**

**Weather:** Clear, Calm, 20° - 30°F.

**Summary of Construction Activities:**

- Contractor continued dredging in –44' area (D1). Material continues to be primarily non-organic in nature and too dense *(hard)* to dig effectively with the environmental bucket.
- No survey performed in –44' area, boat down for repairs through x-mas break. FWENC conducted lead-line check survey in –14' area.
- QAO off-site entire day for HAZWOPER training.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

BY: William J. Gerken, P.E. _____

# CONTRACTOR PRODUCTION REPORT



Date: 12/13/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 39 | | |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Clear, calm, 20 F | PM Weather:<br>Clear, calm, 30 F |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue dredging in Deep Draft Dock (-44 MLLW) area - encountering mixture of rock, and fine grained sand. Occasional logs encountered. Area dredged is prism between stations 37+95 and 38+60 and offset approximately 75' - 130' from dock face. | FWENC | 1 | Supervisor / SHSO | 12 |
| | FWENC | 1 | Site Engineer | 11 |
| | FWENC | 0 | Scientist | 0 |
| | FWENC | 1 | Scientist/Engineer | 11 |
| | McAmis | 1 | Project / QC Mgr | 10.5 |
| Conduct WQM for dredging and barge off-load in accordance with WQMP | McAmis | 1 | Asst QC Manager | 10.5 |
| | McAmis | 1 | Equip. Proj. Mgr. | 5 |
| Transfer pilings from small barge to dewatering area. | McAmis | 2 | Surveyor | 18 |
| | McAmis | 1 | Foreman | 10 |
| | McAmis | 3 | Operator/Captain | 22 |
| | McAmis | 3 | Deck Hand | 30 |

| | | | |
|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: 140.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: 4,848.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: 4,988.5 |

ST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

ailgate safety meeting at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material 0 tons

No off-load conducted on this date.

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 2 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 3 | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 0 | | |

**REMARKS:**

Contractor attempted to complete hydrographic survey in afternoon. Survey vessel engine failed. Vessel to be repaired over holiday shutdown period.

QC Meeting held. Meeting minutes attached.

Eric Snow 12/13/00

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT



12/13/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>39 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

**Preparatory Phase**
Y - Yes, N - No, N/A

Definable Features of Work and Work Location:

| | |
|---|---|
| The plans and specs have been reviewed | |
| The submittals have been approved | |
| Materials comply with approved submittals | |
| Materials are stored properly | |
| Preliminary work was done correctly | |
| Testing plan has been approved | |
| Work method and schedule discussed | |

**Initial Phase**
Y - Yes, N - No, N/A

Definable Features of Work and Work Location

| | |
|---|---|
| Preliminary work was done correctly | |
| Sample has been Prepared/Approved | |
| Workmanship is satisfactory | |
| Test results are acceptable | |
| Work is in compliance with the contract | |
| | |

Checked horizontal control on DGPS aboard Invader 1. Brief calculations below. Positioning acceptable.

| Station ID | Easting (ft) | Northing (ft) | Distance from Station to Beaver (ft) |
|---|---|---|---|
| Beaver | 3090687.96 | 1309596.69 | 0.00 |
| 15:15:20 | 3090688.17 | 1309591.42 | 2.31 |

**Follow Up Phase**
Y - Yes, N - No, N/A

Definable Features of Work and Work Location
* See end of each definable feature of work to see if work complies with contract as approved in initial phase.

| | |
|---|---|
| Work complies with contract as approved in initial phase | Y |

Dredging - Contractor continues dredging operations. No survey submitted on this date.
FW conducted lead line survey of Shallow Barge Berthing Area (-14' MLLW) as a QA check on post-dredge hydrographic survey. Surveyed five transects (compared to sixteen by surveyor) and took 7 readings per transect, yielding a total of 35 readings in the Shallow Barge Berthing Area. Of these 35 readings, only four disagreed with the hydrographic survey by more than 2 feet. See attached sheet with tabulated data for futher details.

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

QC Meeting conducted. Minutes attached.

Tom Fowler — 12/13/00
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 40 | **Date :** 12/14/2000 |
| | **Day:** Thursday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>QA/QC 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 3-McAmis<br>**Manual Labor:** 11-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:**

**Weather:** Clear, Light Breeze, 20° - 30°F.

**Summary of Construction Activities:**

- Contractor Completed dredging in –44' area (D1), began dredging in northeastern portion of –40' area (D2). Material in this part of D2 is organic with logs and debris.
- Off-loaded barge into dewatering area.
- Tested Tub-grinder.
- QAO off-site entire day for HAZWOPER training.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging and off-loading operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 12/14/00

Contract No. 1
Work Order No. 1

Title & Location: Ward Cove Remediation Project, Ward Cove, Alaska

Report No. 40

ntractor: ster Wheeler Environmental Corporation

Superintendent: Eric Snow

AM Weather: Clear, light breeze, 20 F

PM Weather: Clear, light breeze, 30 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Complete dredging in Deep Draft Dock (-44 MLLW) area and commence dredging in Deep Draft Dock (-40 MLLW) area. Material encountered consists of more organic material as progress made northeastward. Started -40' area at portion furthest from dock face. | FWENC | 1 | Supervisor / SHSO | 11 |
| | FWENC | 1 | Site Engineer | 11 |
| | FWENC | 0 | Scientist | 0 |
| | FWENC | 1 | Scientist/Engineer | 12 |
| | McAmis | 1 | Project / QC Mgr | 10.5 |
| Conduct WQM for dredging and barge off-load in accordance with WQMP | McAmis | 1 | Asst QC Manager | 10 |
| | McAmis | 1 | Equip. Proj. Mgr. | 5 |
| Off-load KFP-1 barge into dewatering area. | McAmis | 2 | Surveyor | 18 |
| | McAmis | 1 | Foreman | 10 |
| Grind logs into chips adjacent to dewatering area. Cut logs into 6' lengths. | McAmis | 5 | Operator/Captain | 41 |
| | McAmis | 3 | Deck Hand | 30 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 158.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 4,988.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 5,147.0 |

ST SAFETY ACTIONS TAKEN TODAY; SAFETY INSPECTIONS CONDUCTED

ilgate safety meeting at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material 697.47 tons

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY:

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 0 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 7 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 7 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 0 | | |

REMARKS:

Eric Snow
Superintendent

12/14/00
Date

# CONTRACTOR QUALITY CONTROL REPORT



12/14/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>40 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| reparatory Phase<br>- Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations. No survey submitted on this date. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — Authorized Site QC Representative — Date: 12/14/00

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken — KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 41 | **Date :** 12/15/2000 |
| | **Day:** Friday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, __-McAmis<br>**Manual Labor:** ___-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:**

**Weather:** Clear, Calm, 20° - 30°F.

**Summary of Construction Activities:**

- Contractor continued dredging in northeastern portion of –40' area (D2). Material in this part of D2 is organic with logs and debris. Discontinued dredging operations for holiday break at 11:20 am.
- Off-loaded barge into dewatering area.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging and off-loading operations taken. Hydrolab calibrated for DO and salinity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

BY: William J. Gerken, P.E. _____

# CONTRACTOR PRODUCTION REPORT



Date: 12/15/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 41 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Partly cloudy, 18 F

**PM Weather:** Partly cloudy, 25 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue dredging in Deep Draft Dock (-40 MLLW) area. | FWENC | 1 | Supervisor / SHSO | 11 |
| | FWENC | 1 | Site Engineer | 11 |
| Off-load Sunny Point barge into dewatering area. | FWENC | 0 | Scientist | 0 |
| | FWENC | 1 | Scientist/Engineer | 12 |
| Grind logs into chips adjacent to dewatering area. | McAmis | 1 | Project / QC Mgr | 6 |
| | McAmis | 1 | Asst QC Manager | 6 |
| Conduct WQM for dredging and barge off-load in accordance with WQMP | McAmis | 1 | Equip. Proj. Mgr. | 5 |
| | McAmis | 2 | Surveyor | 13 |
| | McAmis | 1 | Foreman | 10 |
| | McAmis | 5 | Operator/Captain | 35 |
| | McAmis | 2 | Deck Hand | 20.5 |
| | | | | |
| | | | | |

| | | | |
|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: 129.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: 5,147.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: 5,276.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700.
Conduct weekly ESS inspection.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material 593.6 tons

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 0 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 5 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 5 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 0 | | |

**REMARKS:**

Eric Snow — Superintendent

12/15/00 — Date

# CONTRACTOR QUALITY CONTROL REPORT



12/15/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>41 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Checked horizontal control on DGPS aboard Invader 1. Brief calculations below. Positioning acceptable. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Station ID | Easting (ft) | Northing (ft) | Distance from Station to Dolphin (ft) |
|---|---|---|---|
| DOLPHIN WEST | 3088693.18 | 1310152.79 | 0.00 |
| 8:25:38 | 3088694.76 | 1310149.15 | 2.48 |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations. No survey submitted on this date. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 12/15/00
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

No Remarks No Exceptions

Bill Gerken
KPC QAO — Date

# CONTRACTOR PRODUCTION REPORT



Date: 12/20/00

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 42 | | |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Weather not recorded | PM Weather:<br>Weather not recorded |

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Grind logs into chips adjacent to dewatering area.<br><br>Install 4" PVC piping to facilitate pumping water from material barges into dewatering area. | FWENC | 0 | Supervisor / SHSO | 0 |
| | FWENC | 0 | Site Engineer | 0 |
| | FWENC | 0 | Scientist | 0 |
| | FWENC | 0 | Scientist/Engineer | 0 |
| | McAmis | 0 | Project / QC Mgr | 0 |
| | McAmis | 0 | Asst QC Manager | 0 |
| | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| | McAmis | 0 | Surveyor | 0 |
| | McAmis | 0 | Foreman | 0 |
| | McAmis | 3 | Operator/Captain | 48 |
| | McAmis | 2 | Deck Hand | 11 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 67.0 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 5,276.5 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 5,343.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material 0 tons

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 0 | "KFP 1" FLAT DECK BARGE | 0 | HITACHI LOG SHOVEL | 16 |
| "MILLER 205" DERRICK BARGE | 0 | D7 BULLDOZER | 0 | GFP LOG CHIPPER | 16 |
| "SUNNY POINT" FLAT DECK BARGE | 0 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 0 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 0 | "INVADER 1" DIVE BOAT (TRIPS) | 0 | | |
| "SALTY" CREW BOAT | 0 | KOMATSU 450 LOADER | 16 | | |

**REMARKS:**

This report covers two days of chipping and dewatering improvements. No quality control report is attached because no contractor QC was conducted during these days.

Eric Snow — Superintendent

12/20/00 — Date

# C4: JANUARY DAILY PRODUCTION AND QUALITY CONTROL REPORTS

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 43 | **Date :** 01/04/2001 |
| | **Day:** Thursday | **Shift:** Day | **Hours:** 7am – 5pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 3-McAmis<br>**Manual Labor:** 11-McAmis<br>**Remarks:** | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:**

**Weather:** Overcast, Light Rain, Light Breeze, 40° - 45°F.

**Summary of Construction Activities:**

- First day back on site following Christmass break.
- Contractor continued dredging in D2. Dredge depth in this area has been adjusted to -37' + 1' of overdepth as per FCR 11. Material currently being dredged is organic with some logs and debris, and an occasional rock.
- Working material in dewatering area with dozer, pushing material towards water discharge.
- Conducted post-dredge survey in D1. Initial pre-survey bar-check and initial post-survey bar-check did not agree, so area was re-surveyed. Pre and post bar-checks on second survey checked out fine.
- Contractor will begin double shifts tomorrow.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging operations taken. Hydrolab calibrated for Turbidity, DO, and conductivity prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 1/4/01

Report No. 43

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: | Eric Snow |
| AM Weather:<br>Overcast, 45 F | PM Weather: | Overcast, light rain, breeze, 45 F |

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue dredging in Deep Draft Dock (-40 MLLW) area. | FWENC | 1 | Supervisor | 8 |
| | FWENC | 0 | Site Engineer | 0 |
| Move material in dewatering area toward water discharge. | FWENC | 1 | Scientist / SHSO | 11 |
| | FWENC | 1 | Scientist/Engineer | 11 |
| Conduct post-dredging hydrographic survey of -40' MLLW deep draft dock area. | McAmis | 1 | Project / QC Mgr. | 10.5 |
| | McAmis | 1 | Asst QC Manager | 10 |
| | McAmis | 1 | Equip. Proj. Mgr. | 5 |
| Conduct WQM for dredging in accordance with WQMP | McAmis | 2 | Surveyor | 20 |
| | McAmis | 2 | Foreman | 19 |
| | McAmis | 3 | Operator/Captain | 23 |
| | McAmis | 4 | Deck Hand | 38.5 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 156.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 5,343.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 5,499.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meeting at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material 0 tons

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 9.5 | "KFP 1" FLAT DECK BARGE | 9.5 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 9.5 | D7 BULLDOZER | 4 | | |
| "SUNNY POINT" FLAT DECK BARGE | 9.5 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 9.5 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 9.5 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 9.5 | KOMATSU 450 LOADER | 0 | | |

**REMARKS:**

Double-shifting will start tomorrow with first shift from 0700 - 1600 and second from 1700 - 0200.

Eric Snow 1/4/01

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT



1/4/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>43 |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Meterials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Checked horizontal control on DGPS aboard Invader 1. Brief calculations below. Positioning acceptable. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Station ID | Easting (ft) | Northing (ft) | Distance from Station to Dolphin (ft) |
|---|---|---|---|
| DOLPHIN WEST | 3088693.18 | 1310152.79 | 0.00 |
| 8:25:38 | 3088694.99 | 1310150.28 | 2.41 |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations. Contractor conducts Post-Dredge survey of -44' MLLW area. Bar check following first round of surveying not acceptable, so contractor re-surveyed. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — Authorized Site QC Representative — Date: 1/4/01

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken — KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 44 | **Date :** 01/05/2001 |
| | **Day:** Friday | **Shift:** Double | **Hours:** 7am – 1am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 3-McAmis<br>**Manual Labor:** 14-McAmis<br>**Remarks:** Double Shift | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:**

**Weather:** Overcast, Light Rain, Light Breeze, 40° - 45°F.

**Summary of Construction Activities:**

- First day of double shifts.
- Contractor continued dredging in D2. Material continues to be primarily organic with some logs and debris. Dredge down for repair from 0930 to 1100.
- Off loaded two material barges into dewatering area.
- Conducted progress survey in D2.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging and offloading operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 1/5/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 44 | | |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Light rain, breeze, 45 F | PM Weather:<br>Overcast, breeze, 45 |

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue dredging in Deep Draft Dock (-40 MLLW) area. | FWENC | 1 | Supervisor | 11 |
| Dredging outside portion of -40 area between stations 43+00 and 41+00 | FWENC | 0 | Site Engineer | 0 |
| and offsets 100 to 200 feet. | FWENC | 1 | Scientist / SHSO | 11 |
| Dredging shut down from 0930 - 1100 to replace pin on digging bucket. | FWENC | 1 | Scientist/Engineer | 11 |
| | McAmis | 1 | Project / QC Mgr | 12.5 |
| Off-load Sunny Point and KFP-1 barges. | McAmis | 1 | Asst QC Manager | 9 |
| | McAmis | 1 | Equip. Proj. Mgr. | 5 |
| Conduct progress hydrographic survey of -40' MLLW deep draft dock area | McAmis | 2 | Surveyor | 20 |
| | McAmis | 2 | Foreman | 24 |
| Conduct WQM for dredging and barge off-load in accordance with WQMP | McAmis | 5 | Operator/Captain | 48.5 |
| | McAmis | 5 | Deck Hand | 47 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 199.0 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 5,499.5 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 5,698.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meetings at 0700 and 1600.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material 1155.27 tons

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 18 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 10 | | |
| "RV DAY" TUG | 18 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 18 | KOMATSU 450 LOADER | 0 | | |

**REMARKS:**

Double shift work starts today.

E. Snow and T. Fowler working first shift; J. Lally working second shift.

Eric Snow 1/5/01

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT



1/5/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>44 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Checked horizontal control on DGPS aboard Invader 1. Brief calculations below. Positioning acceptable. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Station ID | Easting (ft) | Northing (ft) | Distance from Station to Dolphin (ft) |
|---|---|---|---|
| BEAVER | 3090687.96 | 1309596.69 | 0.00 |
| 7:48:22 | 3090692.38 | 1309597.18 | 4.36 |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations and progress hydrographic survey of dredged area. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — Authorized Site QC Representative — Date: 1/5/01

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken — KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 45 | **Date :** 01/06/2001 |
| | **Day:** Friday | **Shift:** Double | **Hours:** 7am – 1am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 3-McAmis<br>**Manual Labor:** 13-McAmis<br>**Remarks:** Double Shift | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:**

**Weather:** Rain, Light Breeze, 40° - 45°F.

**Summary of Construction Activities:**

- Contractor continued dredging in D2. Material continues to be primarily organic with some logs and debris. Dredge down for repair from 0930 to 1100.
- Off loaded two material barges into dewatering area.
- Conducted progress survey in D2.
- Conducted additional post-dredge survey of D3, contractor wanted to determine if any high spots were eliminated due to piles and logs removed by divers.
- Reviewed post-dredge survey of D1. Contractor will need to return to clean up some areas and verify that other areas left above –44' are dense non-organic sediments. Requested that contractor provide contours of area for review prior to dredging.
- Sand for capping opperations is currently scheduled to arrive on site on 01/15/01.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging and offloading operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 1/6/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |

Report No. 45

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Light rain, breeze, 42 F

**PM Weather:** Steady rain, breeze, 46 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue dredging in Deep Draft Dock (-40 MLLW) area. | FWENC | 1 | Supervisor | 11 |
| Dredging outside portion of -40 area between stations 41+50 and 42+50. | FWENC | 0 | Site Engineer | 0 |
| | FWENC | 1 | Scientist / SHSO | 11 |
| Off-load Sunny Point and KFP-1 barges. | FWENC | 1 | Scientist/Engineer | 11 |
| | McAmis | 1 | Project / QC Mgr | 10.5 |
| Conduct progress hydrographic survey of -40' MLLW deep draft dock area | McAmis | 1 | Asst QC Manager | 9.5 |
| | McAmis | 1 | Equip. Proj. Mgr. | 5 |
| Conduct WQM for dredging and barge off-load in accordance with WQMP | McAmis | 2 | Surveyor | 20 |
| | McAmis | 2 | Foreman | 19 |
| Conduct re-survey of -14 MLLW area. | McAmis | 5 | Operator/Captain | 48.5 |
| | McAmis | 4 | Deck Hand | 37 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 182.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 5,698.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 5,881.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meetings at 0700 and 1600.

FW ESS (E. Snow) conducts initial site orientation for new employees.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material 835.59 tons

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 18 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 11 | | |
| "RV DAY" TUG | 18 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 18 | KOMATSU 450 LOADER | 0 | | |

**REMARKS:**

Eric Snow — Superintendent

1/6/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT

 | 1/6/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>45 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Checked horizontal control on DGPS aboard Invader 1. Brief calculations below. Positioning acceptable. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Station ID | Easting (ft) | Northing (ft) | Distance from Station to Dolphin (ft) |
|---|---|---|---|
| DOLPHIN WEST | 3088693.18 | 1310152.79 | 0.00 |
| 8:21:03 | 3088693.3 | 1310151.39 | 1.19 |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations and progress hydrographic survey of dredged area. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 1/6/01
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 46 | **Date :** 01/07/2001 |
| | **Day:** Friday | **Shift:** Day | **Hours:** 7am – 4am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 2-McAmis<br>**Manual Labor:** 8-McAmis<br>**Remarks:** Single Shift due to breakdown | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:**

**Weather:** Overcast, Light Rain, Light Breeze, 45° - 50°F.

**Summary of Construction Activities:**

- Only dredged for a few minutes in D2, shut down for remainder of day due to breakdown. Cable broke and damaged GPS receiver and severed co-axe cable to receiver.
- Contractor moved GFP chip barge out of dredge area.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- No water quality monitoring today due to breakdown resulting in no in-water work

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 1/7/01

Report No. 46

**Contract No.** 1
**Work Order No.** 1

**Title & Location:** Ward Cove Remediation Project, Ward Cove, Alaska

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Mostly clear, warm, 48 F

**PM Weather:** Overcast, wind, light rain, 46 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Set up to dredge along dock face (-40' MLLW). Work stops when closing line on dredge bucket breaks, in turn breaking DGPS antenna on derrick boom tip. | FWENC | 1 | Supervisor | 6 |
| | FWENC | 0 | Site Engineer | 0 |
| | FWENC | 1 | Scientist / SHSO | 11 |
| | FWENC | 1 | Scientist/Engineer | 11 |
| Move GFP chip barge away from work area to mooring in center of Ward Cove. | McAmis | 1 | Project / QC Mgr | 11 |
| | McAmis | 1 | Asst QC Manager | 3 |
| | McAmis | 0 | Equip. Proj. Mgr. | 0 |
| | McAmis | 2 | Surveyor | 18 |
| | McAmis | 1 | Foreman | 6 |
| | McAmis | 3 | Operator/Captain | 23 |
| | McAmis | 2 | Deck Hand | 15 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 104.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 5,881.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 5,985.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety meetings at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material 0 tons

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 8 | "KFP 1" FLAT DECK BARGE | 8 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 8 | D7 BULLDOZER | 8 | | |
| "SUNNY POINT" FLAT DECK BARGE | 8 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 8 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 8 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 8 | KOMATSU 450 LOADER | 0 | | |

**REMARKS:**

First delay in morning created by moving GFP chip barge away from dredge area. Second delay caused by broken closing line on dredge followed by discovery of broken DGPS antenna on top of derrick boom. Contractor replaced antenna on boom tip with another from the barge, but discovered that severed cable rendered WINOPS non-functioning. New antenna and cable are being shipped to site for permanent replacement.

Eric Snow
Superintendent

1/7/01
Date

# CONTRACTOR QUALITY CONTROL REPORT



1/7/01

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.**<br>46 |
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **CQC Representative:**<br>Thomas A. Fowler | |

| **Preparatory Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location:** |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| **Initial Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location** |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| **Follow Up Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location**<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

No WQM conducted because no intrusive in-water work conducted on this date.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 1/7/01

Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

Done

Bill Gerken

KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 47 | **Date :** 01/08/2001 |
| | **Day:** Monday | **Shift:** Double | **Hours:** 7am – 4am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 2-McAmis<br>**Manual Labor:** 12-McAmis<br>**Remarks:** Double Shift | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:**

**Weather:** Overcast, Calm, 40° - 45°F.

**Summary of Construction Activities:**

- Contractor completed repairs of GPS system on dredge, checked horizontal positioning, and continued dredging in D2 at approximately 3:30 PM.
- No progress survey performed because GPS antenna from survey boat is being used on dredge.
- Contractor is continuing work on developing a tracking and documentation system for capping operations that meets contract requirements.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. _____

# CONTRACTOR PRODUCTION REPORT



Date: 1/8/01

Report No. 47

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Overcast, calm, 44 F | PM Weather:<br>Overcast, calm 42 F |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Repaired DGPS unit on derrick barge at 1500. Conducted horizontal control on bucket position and resumed dredging in Deep Draft Dock (-40' MLLW) area during night shift.<br><br>Conduct WQM for dredging in accordance with WQMP. | FWENC | 1 | Supervisor | 11 |
| | FWENC | 0 | Site Engineer | 0 |
| | FWENC | 1 | Scientist / SHSO | 11 |
| | FWENC | 2 | Scientist/Engineer | 22 |
| | McAmis | 1 | Project / QC Mgr | 11.5 |
| | McAmis | 1 | Asst QC Manager | 10.5 |
| | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| | McAmis | 2 | Surveyor | 16 |
| | McAmis | 1 | Foreman | 12 |
| | McAmis | 4 | Operator/Captain | 37.5 |
| | McAmis | 5 | Deck Hand | 37 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☐ YES | ☑ NO | Total work hours on on site this date: | 178.5 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 5,985.0 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 6,163.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material 0 tons

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 18 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 1 | | |
| "SALTY" CREW BOAT | 18 | KOMATSU 450 LOADER | 0 | | |

REMARKS:

Eric Snow 1/8/01

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT

 1/8/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>47 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

**Preparatory Phase**
Y - Yes, N - No, N/A

| | |
|---|---|
| The plans and specs have been reviewed | |
| The submittals have been approved | |
| Materials comply with approved submittals | |
| Materials are stored properly | |
| Preliminary work was done correctly | |
| Testing plan has been approved | |
| Work method and schedule discussed | |

**Definable Features of Work and Work Location:**

Capping and Mounding - Contractor has been working on producing a data format from WINOPS dredge positioning software which shows areas of sand cap placement.

**Initial Phase**
Y - Yes, N - No, N/A

| | |
|---|---|
| Preliminary work was done correctly | |
| Sample has been Prepared/Approved | |
| Workmanship is satisfactory | |
| Test results are acceptable | |
| Work is in compliance with the contract | |
| | |

**Definable Features of Work and Work Location**

Checked horizontal control on DGPS aboard Invader 1. Brief calculations below. Positioning acceptable.

| Station ID | Easting (ft) | Northing (ft) | Distance from Station to Dolphin (ft) |
|---|---|---|---|
| DOLPHIN WEST | 3088693.18 | 1310152.79 | 0.00 |
| 16:16:02 | 3088696.93 | 1310149.1 | 4.21 |

Checked horizontal control of derrick boom on WINOPS at DOLPHIN WEST location. Brief calculations below. Positioning is acceptable.

| Station ID | Easting (ft) | Northing (ft) | Distance from Station to Dolphin (ft) |
|---|---|---|---|
| DOLPHIN WEST | 3088693.18 | 1310152.79 | 0.00 |
| Control Check | 3088695 | 1310146 | 3.18 |

**Follow Up Phase**
Y - Yes, N - No, N/A

| | |
|---|---|
| Work complies with contract as approved in initial phase | Y |

**Definable Features of Work and Work Location**
* See end of each definable feature of work to see if work complies with contract as approved in initial phase.

Dredging - Contractor continues dredging operations along deep draft dock. No survey conducted on this date because antenna being borrowed by dredge barge.

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 1/8/01
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

None

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 48 | **Date :** 01/09/2001 |
| | **Day:** Tuesday | **Shift:** Double | **Hours:** 7am – 4am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 2-McAmis<br>**Manual Labor:** 14-McAmis<br>**Remarks:** Double Shift | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:**

**Weather:** Overcast, Light Rain, Calm, 40° - 45°F.

**Summary of Construction Activities:**

- Contractor continued dredging in D2. Material is primarily organic, some rock and an occasional log. Dredge was down for about 3 hours due to GPS signal problems, cleaned and dried the co-axe cable connection on the boom to rectify problem.
- Following review of previous progress surveys the contractor is taking additional measures to insure that no high spots are missed while dredging, improve documentation, and try to increase production.
- Preliminary estimates of anticipated final total dredge volumes, by FWENC indicate approximately 12,500 cubic yards. QAO will also do an estimate.
- Off-loaded one barge into dewatering area.
- No progress survey performed because GPS antenna from survey boat is being used on dredge.
- Sand barge is now scheduled to arrive on site on 01/16.
- Contractor is continuing work on developing a tracking and documentation system for capping operations that meets contract requirements.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging and barge off-loading taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. _____

# CONTRACTOR PRODUCTION REPORT



Date: 1/9/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No. 48 |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Overcast, light rain, 42 F | PM Weather:<br>Overcast, light rain 46 F |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue dredging at deep draft dock (-40' MLLW) area from Stations 39+60 to 41+65 approximately 40' wide.<br><br>Conduct WQM for dredging and barge off-load in accordance with WQMP. | FWENC | 1 | Supervisor | 11 |
| | FWENC | 0 | Site Engineer | 0 |
| | FWENC | 1 | Scientist / SHSO | 11 |
| | FWENC | 2 | Scientist/Engineer | 22 |
| | McAmis | 1 | Project / QC Mgr | 10.5 |
| | McAmis | 1 | Asst QC Manager | 9.5 |
| | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| | McAmis | 2 | Surveyor | 18 |
| | McAmis | 2 | Foreman | 17 |
| | McAmis | 5 | Operator/Captain | 43 |
| | McAmis | 5 | Deck Hand | 46 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☐ YES | ☑ NO | Total work hours on on site this date: | 196.0 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 6,163.5 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 6,359.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefings at 0700 and 1600.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material 909.95 tons

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 15 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 6 | | |
| "RV DAY" TUG | 18 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 3 | | |
| "SALTY" CREW BOAT | 18 | KOMATSU 450 LOADER | 0 | | |

REMARKS:

Delay of approximatley 3 hours on dredge due to intermittent GPS signal on WINOPS system.

Eric Snow — Superintendent

1/9/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



1/9/01

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.**<br>48 |
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **CQC Representative:**<br>Thomas A. Fowler | |

| **Preparatory Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location:** |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| **Initial Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location** |
|---|---|---|
| Preliminary work was done correctly | | Checked horizontal control on DGPS aboard Invader 1. Brief calculations below. Positioning acceptable. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Station ID | Easting (ft) | Northing (ft) | Distance from Station to Dolphin (ft) |
|---|---|---|---|
| BEAVER | 3090687.96 | 1309596.69 | 0.00 |
| 9:24:09 | 3090690.49 | 1309598.57 | 2.13 |

| **Follow Up Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location**<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations along deep draft dock. No survey conducted on this date because antenna being borrowed by dredge barge. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| **Rework Items Identified Today (Not Corrected By Close of Business)** | **Rework Items Corrected Today from Rework List** |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 1/9/01
**Authorized Site QC Representative** — **Date**

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

None

Bill Gerken
**KPC QAO** — **Date**

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 49 | **Date :** 01/10/2001 |
| | **Day:** Wednesday | **Shift:** Double | **Hours:** 7am – 4am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 2-McAmis<br>**Manual Labor:** 14-McAmis<br>**Remarks:** Double Shift | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:**

**Weather:** Overcast, Light Rain and Snow, Calm, 30° - 35°F.

**Summary of Construction Activities:**

- Contractor continued dredging in D2. Material continues to be primarily organic. Contractor estimates completion of dredging, including clean-up by late on 01/13 or 01/14.
- Contractor performed progress survey of D2.
- Preliminary estimates of anticipated final total dredge volumes, by QAO indicate approximately 12,200 cubic yards.
- Off-loaded one barge into dewatering area.
- Contractor is continuing work on developing a tracking and documentation system for capping operations that meets contract requirements.
- Data validation and usability report being revised and completed.
- Weekly project QC, progress, and scheduling meeting held. See attached minutes.
- FWENC tested modified Van Veen sampler for use in very soft bottom sediments. Tests went very well, modified sampler should perform acceptably for required work.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging and barge off-loading taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 1/10/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No. 49 |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Light rain and snow, cold, 32 F

**PM Weather:** Early rain and snow, clouds lifting, 32 F

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue dredging at deep draft dock (-40' MLLW) area. | FWENC | 1 | Supervisor | 11.5 |
| | FWENC | 0 | Site Engineer | 0 |
| Conduct hydrographic survey of -40' MLLW area in morning and late afternoon. | FWENC | 1 | Scientist / SHSO | 11 |
| | FWENC | 2 | Scientist/Engineer | 22 |
| | McAmis | 1 | Project / QC Mgr | 11 |
| Off-load KFP-1 barge into dewatering area. | McAmis | 1 | Asst QC Manager | 9.5 |
| | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| Conduct WQM for dredging and barge off-load in accordance with WQMP. | McAmis | 2 | Surveyor | 23 |
| | McAmis | 2 | Foreman | 18 |
| Conduct test run of sampling with modified van Veen sampler in deep water areas with high water content sediment. | McAmis | 5 | Operator/Captain | 44.5 |
| | McAmis | 5 | Deck Hand | 46 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☐ YES | ☑ NO | Total work hours on on site this date: | 204.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 6,359.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 6,563.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefings at 0700 and 1600.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material 530.49 tons

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 18 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 7.5 | | |
| "RV DAY" TUG | 18 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 4 | | |
| "SALTY" CREW BOAT | 18 | KOMATSU 450 LOADER | 0 | | |

**REMARKS:**

Eric Snow — Superintendent

1/10/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



1/10/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>49 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

**Preparatory Phase**
Y - Yes, N - No, N/A

| | |
|---|---|
| The plans and specs have been reviewed | |
| The submittals have been approved | |
| Materials comply with approved submittals | |
| Materials are stored properly | |
| Preliminary work was done correctly | |
| Testing plan has been approved | |
| Work method and schedule discussed | |

**Definable Features of Work and Work Location:**

Capping and Mounding - FW and Alaska Commercial Divers set up modified van Veen sampler and collected sediment samples with aid of video camera and digital photography. System with "wings" on van Veen sampler appears to work and documented by video/photographs. Photos sent to USEPA, USACE, and other interested parties.

**Initial Phase**
Y - Yes, N - No, N/A

| | |
|---|---|
| Preliminary work was done correctly | |
| Sample has been Prepared/Approved | |
| Workmanship is satisfactory | |
| Test results are acceptable | |
| Work is in compliance with the contract | |
| | |

**Definable Features of Work and Work Location**

Checked horizontal control on DGPS aboard Invader 1. Brief calculations below. Positioning acceptable.

| Station ID | Easting (ft) | Northing (ft) | Distance from Station to Dolphin (ft) |
|---|---|---|---|
| LOG RACK DOLPHIN | 3089832.64 | 1310834.3 | 0.00 |
| 10:19:51 | 3089835.59 | 1310836.87 | 2.48 |

**Follow Up Phase**
Y - Yes, N - No, N/A

| | |
|---|---|
| Work complies with contract as approved in initial phase | Y |

**Definable Features of Work and Work Location**
* See end of each definable feature of work to see if work complies with contract as approved in initial phase.

Dredging - Contractor continues dredging operations along deep draft dock.

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

QC Meeting held today; minutes attached.

Tom Fowler — 1/10/01
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

None

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 50 | **Date :** 01/11/2001 |
| | **Day:** Thursday | **Shift:** Double | **Hours:** 7am – 4am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 2-McAmis<br>**Manual Labor:** 13-McAmis<br>**Remarks:** Double Shift | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:**

**Weather:** Overcast, Light Rain and Snow, Calm, 30° - 35°F.

**Summary of Construction Activities:**

- Contractor continued dredging in D2 including clean-up of high spots indicated by progress surveys. Second shift began clean-up of high spots in D1.
- Contractor performed progress surveys.
- Off-loaded one barge into dewatering area.
- FWENC provided memo to McAmis field superintendent outlining survey documentation necessary for acceptance of dredge work. Copy attached.
- Contractor is continuing work on developing layout for capping operations that meets contract requirements.
- Data validation and usability report being revised and completed.
- FWENC determined extent of log rafts currently covering capping areas A1, A2, A3. GFP will be given a minimum of 2 days notice when these rafts need to be moved.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging and barge off-loading taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

BY: William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 1/11/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 50 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Clear and cold, icy, 28 F

**PM Weather:** Clear and cold, 30 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue dredging at deep draft dock (-40' MLLW) area and targeting high points in -40' MLLW and -44' MLLW areas. | FWENC | 1 | Supervisor | 11 |
| | FWENC | 0 | Site Engineer | 0 |
| | FWENC | 1 | Scientist / SHSO | 11 |
| Conduct hydrographic survey. | FWENC | 2 | Scientist/Engineer | 22 |
| | McAmis | 1 | Project / QC Mgr | 11 |
| Off-load Sunny Point barge into dewatering area. | McAmis | 1 | Asst QC Manager | 9.5 |
| | McAmis | 1 | Equip. Proj. Mgr. | 5 |
| Conduct WQM for dredging and barge off-load in accordance with WQMP. | McAmis | 2 | Surveyor | 18 |
| | McAmis | 2 | Foreman | 21 |
| | McAmis | 5 | Operator/Captain | 43 |
| | McAmis | 4 | Deck Hand | 37 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☐ YES | ☑ NO | Total work hours on on site this date: | 188.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 6,563.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 6,752.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefings at 0700 and 1600.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material 439.5 tons

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY: INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 16 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 6 | | |
| "RV DAY" TUG | 18 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 3 | | |
| "SALTY" CREW BOAT | 18 | KOMATSU 450 LOADER | 0 | | |

**REMARKS:**

Contractor attributes 2 hour delay to intermittent GPS signal on derrick barge.

Eric Snow — Superintendent

1/11/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT

 | 1/11/01

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.**<br>50 |
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **CQC Representative:**<br>Thomas A. Fowler | |

| **Preparatory Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location:** |
|---|---|---|
| The plans and specs have been reviewed | | Capping and Mounding - FW and Alaska Commercial Divers go to A1/A2/A3 cap area at mouth of cove and collect coordinates of log raft perimeter. Determine that log raft currently covers approximately 90% of planned cap areas. Per meeting from 1/10/01, will need to give Bill Zastrow (GFP) two days notice to move. |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| **Initial Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location** |
|---|---|---|
| Preliminary work was done correctly | | Checked horizontal control on DGPS aboard Invader 1. Brief calculations below. Positioning acceptable. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Station ID | Easting (ft) | Northing (ft) | Distance from Station to Dolphin (ft) |
|---|---|---|---|
| DOLPHIN WEST | 3088693.18 | 1310152.79 | 0.00 |
| 10:28:45 | 3088696.53 | 1310152.82 | 3.35 |

| **Follow Up Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location**<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations along deep draft dock and conducting hydrographic progress surveys. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 1/11/01
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

None

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 51 | **Date :** 01/12/2001 |
| | **Day:** Friday | **Shift:** Double | **Hours:** 7am – 4am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 2-McAmis<br>**Manual Labor:** 13-McAmis<br>**Remarks:** Double Shift | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:**

**Weather:** Overcast, Light Rain and Snow, Calm, 30° - 35°F.

**Summary of Construction Activities:**

- Contractor continued clean-up of high spots indicated by progress surveys in D1, D2, and D3. Second shift completed clean-up about 10:00PM.
- Contractor performed progress surveys. Post dredge surveys of all areas scheduled for tomorrow.
- Off-loaded partial barge into dewatering area, could not complete offloading due to tide.
- FWENC, McAmis, and QAO had meeting to discuss survey documentation necessary for acceptance of dredge work.
- Contractor is continuing work on developing layout for capping operations that meets contract requirements.
- Data validation and usability report being revised and completed.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging and barge off-loading taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 1/12/01

Report No. 51

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Clear and cold, icy, 28 F

**PM Weather:** Overcast, minor precipitation, 32 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue dredging high spots in -40' MLLW, -44' MLLW, and -14' MLLW areas. Completed dredging on second shift. | FWENC | 1 | Supervisor | 11 |
| | FWENC | 0 | Site Engineer | 0 |
| | FWENC | 1 | Scientist / SHSO | 11 |
| Conduct hydrographic survey. | FWENC | 2 | Scientist/Engineer | 22 |
| | McAmis | 1 | Project / QC Mgr | 11 |
| Off-load Sunny Point barge into dewatering area (note: barge off-load not completed, so no final weight of material removed available). | McAmis | 1 | Asst QC Manager | 9.5 |
| | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| | McAmis | 2 | Surveyor | 18 |
| Conduct WQM for dredging and barge off-load in accordance with WQMP. | McAmis | 2 | Foreman | 18 |
| | McAmis | 5 | Operator/Captain | 44 |
| | McAmis | 4 | Deck Hand | 37 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☐ YES | ☑ NO | Total work hours on on site this date: | 189.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 6,752.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work | 6,941.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefings at 0700 and 1600.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material 0 tons

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY: INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 18 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 7 | | |
| "RV DAY" TUG | 18 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 3 | | |
| "SALTY" CREW BOAT | 18 | KOMATSU 450 LOADER | 0 | | |

**REMARKS:**

Eric Snow FER — 1/12/01

Superintendent — Date

# CONTRACTOR QUALITY CONTROL REPORT

 1/12/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>51 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Checked horizontal control on DGPS aboard Invader 1. Brief calculations below. Positioning acceptable. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Station ID | | Easting (ft) | Northing (ft) | Distance from Station to Dolphin (ft) |
|---|---|---|---|---|
| Beaver | | 3090687.96 | 1309598.69 | 0.00 |
| | 11:07:44 | 3090690.74 | 1309598.83 | 2.36 |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor continues dredging operations along deep draft dock and in shallow barge berthing ~~and condu~~ area and conducts hydrographic surveys. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 1/12/01
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 52 | **Date :** 01/13/2001 |
| | **Day:** Saturday | **Shift:** Double | **Hours:** 7am – 4pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 3-McAmis<br>**Manual Labor:** 10-McAmis<br>**Remarks:** Single Shift | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:**

**Weather:** Overcast, Light Rain and Snow, Calm, 30° - 35°F.

**Summary of Construction Activities:**

- Contractor performed post-dredge-surveys of all areas.
- Contractor off-loaded barge into dewatering area.
- Contractor cleaning deck barge for use in capping operations.
- Contractor began setting up conveyor system at sand stockpile area.
- Contractor is continuing work on developing layout for capping operations that meets contract requirements.
- FWENC attempted video survey in D1 and D2, visibility was very poor near bottom, no usable results obtained.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for barge off-loading taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 1/13/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No. 52 |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Overcast, drizzle, 34 F | PM Weather:<br>Overcast, calm, 38 F |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Conduct hydrographic surveys of all three dredging areas. | FWENC | 1 | Supervisor | 11 |
| | FWENC | 0 | Site Engineer | 0 |
| Off-load Sunny Point barge into dewatering area. | FWENC | 1 | Scientist / SHSO | 11 |
| | FWENC | 2 | Scientist/Engineer | 20 |
| Conduct WQM for barge off-load in accordance with WQMP. | McAmis | 1 | Project / QC Mgr | 11 |
| | McAmis | 1 | Asst QC Manager | 6 |
| Commence setting up conveyor system for sand off-load near beaver slide. | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| | McAmis | 2 | Surveyor | 20 |
| | McAmis | 1 | Foreman | 8 |
| | McAmis | 4 | Operator/Captain | 31 |
| | McAmis | 3 | Deck Hand | 23 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☐ YES | ☑ NO | Total work hours on on site this date: | 151.0 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 6,941.5 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 7,092.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material 0 tons

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 8 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 1 | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 0 | | |

REMARKS:

Eric Snow 1/13/01

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT



1/13/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>52 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | Capping and Mounding - Contractor starts set-up of conveyor for sand off-load. |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor conducts hydrographic surveys of all dredge areas.<br><br>FW conducts sampling and video-camera survey of deep draft dock dredge areas (both D1 and D2). Visibility in water is extremely poor and does not yield quality of pictures from original sampling effort. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — Authorized Site QC Representative — Date: 1/13/01

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken — KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 53 | **Date :** 01/14/2001 |
| | **Day:** Saturday | **Shift:** Double | **Hours:** 7am – 4pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 2-FWENC, 2-McAmis<br>**Manual Labor:** 9-McAmis<br>**Remarks:** Single Shift | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:**

**Weather:** Overcast, Light Rain and Snow, Calm, 30° - 35°F.

**Summary of Construction Activities:**

- Contractor performed lead line soundings in area along face of dock in D1 and D2. Processing hydrographic survey data.
- Contractor cleaning deck barge for use in capping operations.
- Contractor setting up conveyor system at sand stockpile area.
- Contractor is continuing work on developing layout for capping operations that meets contract requirements.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. WJG

# CONTRACTOR PRODUCTION REPORT



Date: 1/14/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |

Report No. 53

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Low overcast clouds, calm, 30 | PM Weather:<br>Low overcast clouds, calm, 35 |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Process hydrographic surveys of all areas. | FWENC | 1 | Supervisor | 4 |
| | FWENC | 0 | Site Engineer | 0 |
| Continue setting up conveyor system for sand off-load near beaver slide. | FWENC | 1 | Scientist / SHSO | 4 |
| | FWENC | 0 | Scientist/Engineer | 0 |
| | McAmis | 1 | Project / QC Mgr | 9 |
| Clean Sunny Point barge. | McAmis | 0 | Asst QC Manager | 0 |
| | McAmis | 1 | Equip. Proj. Mgr. | 9 |
| | McAmis | 2 | Surveyor | 20 |
| | McAmis | 0 | Foreman | 0 |
| | McAmis | 3 | Operator/Captain | 25 |
| | McAmis | 4 | Deck Hand | 34 |
| | | | and Mechanics | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☐ YES | ☑ NO | Total work hours on on site this date: | 105.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 7,092.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 7,197.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700. Foster Wheeler weekly ESS inspection.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material 0 tons

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 9 | "KFP 1" FLAT DECK BARGE | 9 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 9 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 9 | LIMA CRANE | 7 | | |
| "RV DAY" TUG | 9 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 9 | "INVADER 1" DIVE BOAT (TRIPS) | 0 | | |
| "SALTY" CREW BOAT | 9 | KOMATSU 450 LOADER | 0 | | |

REMARKS:

Scaled down crew size because this day is a Sunday.

Eric Snow 1/14/01

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT



1/14/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>53 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | Capping and Mounding - Contractor continues set-up of conveyor for sand off-load and cleaning material barge for use in holding sand. |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor conducts hydrographic surveys of all dredge areas. Surveys to be augmented by lead line soundings taken by surveyor (J. Hughes) and QAO (B. Gerken) along deep draft dock face. |

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 1/14/01

Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken

KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 54 | **Date :** 01/15/2001 |
| | **Day:** Monday | **Shift:** Day | **Hours:** 7am – 4pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 5-FWENC, 3-McAmis<br>**Manual Labor:** 10-McAmis<br>**Remarks:** Single Shift | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:**

**Weather:** Overcast, Light Rain Calm, 35° - 40°F.

**Summary of Construction Activities:**

- Contractor assisted GFP in raising sunken log bronc, ruptured brake diaphragm during operations, dredge down for repairs.
- Review of post-dredge surveys reveals clean-up work in D1 and D3.
- Divers checked undiggable high spot in D3, found remains of 10+ pile dolphin. Highest point/pile at approximately -8.0' MLLW.
- Contractor finished cleaning deck barge for use in capping operations.
- Contractor setting up conveyor system at sand stockpile area.
- Contractor is continuing work on developing layout for capping operations that meets contract requirements.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Post-dredge survey review.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 1/15/01

Contract No. 1
Work Order No. 1

Title & Location: Ward Cove Remediation Project, Ward Cove, Alaska

Report No. 54

Contractor: Foster Wheeler Environmental Corporation

Superintendent: Eric Snow

AM Weather: Overcast, intermittent rain, 35 F

PM Weather: Overcast, intermittent rain, 40 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Complete processing hydrographic surveys of deep draft dock areas. Surveys reveal one high spot approximately 75' long. | FWENC | 1 | Supervisor | 11 |
| | FWENC | 1 | Site Engineer | 10 |
| | FWENC | 1 | Scientist / SHSO | 11 |
| Continue setting up conveyor system for BC sand off-load. | FWENC | 2 | Scientist/Engineer | 22 |
| | McAmis | 1 | Project / QC Mgr | 11 |
| Alaska Commercial Divers dive at high spot in shallow barge berthing area. Diver survey reveals wooden dolphin piling consisting of at least 10 vertical piles which range from elevations of -7.6' MLLW to mudline of -15.6' MLLW. All information relayed to KPC Project Manager. | McAmis | 1 | Asst QC Manager | 11 |
| | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| | McAmis | 2 | Surveyor | 15 |
| | McAmis | 1 | Foreman | 9 |
| | McAmis | 3 | Operator/Captain | 28 |
| | McAmis | 4 | Deck Hand | 37 |
| | | | and Mechanics | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☐ YES | ☑ NO | Total work hours on on site this date: | 175.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 7,197.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 7,372.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material 500.35 tons

This tonnage represents the second-to-last barge of dredged material. Final dredged tonnage will be received when KFP-1 barge is off-loaded and cleaned.

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 9 | "KFP 1" FLAT DECK BARGE | 9 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 9 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 9 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 9 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 9 | "INVADER 1" DIVE BOAT (TRIPS) | 0 | | |
| "SALTY" CREW BOAT | 9 | KOMATSU 450 LOADER | 0 | | |

REMARKS:

Contractor estimates they assisted GFP for 4 hours in retrieving sunken log bronc tugboat.

Derrick barge crane down due to rupture in diaphragm on the braking system while lifting the log bronc onto the dock. Parts were ordered and will be delivered via Gold Streak on 1/1/6/01.

Eric Snow — Superintendent

1/15/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



1/15/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>54 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | Capping and Mounding - Contractor continues set-up of conveyor for sand off-load and cleaning material barge for use in holding sand. |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor completes hydrographic surveys of all dredge areas. Survey of deep draft dock indicate one high spot approximately 75' long and 1' high. |

No Water Quality Monitoring conducted because there was no intrusive in-water work conducted today.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 1/15/01

Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken

KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 55 | **Date :** 01/16/2001 |
| | **Day:** Tuesday | **Shift:** Day | **Hours:** 7am – 4pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 5-FWENC, 3-McAmis<br>**Manual Labor:** 11-McAmis<br>**Remarks:** Single Shift | | |

**Major Equipment on Site:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:**

**Weather:** Overcast, Rain, Calm, 40° - 45°F.

**Summary of Construction Activities:**

- Contractor returned to D1 and D3, and completed dredging high spots shown in last survey.
- Contractor performed post-dredge survey of areas cleaned today.
- Contractor offloaded one barge into dewatering area.
- Contractor began offloading sand into stockpile area. Gradation test results confirmed material was within specifications.
- Contractor is continuing work on developing layout for capping operations that meets contract requirements.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for dredging, barge off-loading, and pre-capping taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached reports.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. WJG

# CONTRACTOR PRODUCTION REPORT



Date: 1/16/01

Report No. 55

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Overcast, rain, 40 F | PM Weather:<br>Overcast, rain, 44 F |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Complete dredging of high spots in deep draft dock and shallow barge berthing areas. | FWENC | 1 | Supervisor | 11 |
| | FWENC | 1 | Site Engineer | 11 |
| | FWENC | 1 | Scientist / SHSO | 11 |
| Commence off-load of British Columbia sand onto staging area near beaver slide. | FWENC | 2 | Scientist/Engineer | 22 |
| | McAmis | 1 | Project / QC Mgr | 11.5 |
| | McAmis | 1 | Asst QC Manager | 11.5 |
| Off-load KFP-1 barge into dewatering area. | McAmis | 1 | Equip. Proj. Mgr. | 12 |
| | McAmis | 2 | Surveyor | 18 |
| Re-survey dredged areas to supplement last post-dredge survey. | McAmis | 1 | Foreman | 9 |
| | McAmis | 6 | Operator/Captain | 68 |
| Conduct WQM for dredging, barge off-load, and background for capping in accordance with WQMP. | McAmis | 2 | Deck Hand | 24 |
| | | | and Mechanics | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 209.0 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 7,372.5 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 7,581.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL REMOVED TODAY:

Dredged Material 843.9 tons

This tonnage represents the last barge of dredged material.
Final dredged tonnage is 12,247.08 tons.

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 11 | "KFP 1" FLAT DECK BARGE | 12 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 12 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 12 | LIMA CRANE | 8 | | |
| "RV DAY" TUG | 12 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 12 | "INVADER 1" DIVE BOAT (TRIPS) | 4 | | |
| "SALTY" CREW BOAT | 12 | KOMATSU 450 LOADER | 0 | | |

REMARKS:

Derrick crane diaphragm repaired and continues operation.

Eric Snow 1/16/01

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT



1/16/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>55 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | X | Capping and Mounding - Contractor commences off-load of British Columbia sand. Gradation test results received and confirm that material is within specification. |
| Sample has been Prepared/Approved | X | |
| Workmanship is satisfactory | | Checked horizontal control on DGPS aboard Invader 1. Brief calculations below. Positioning acceptable. |
| Test results are acceptable | X | |
| Work is in compliance with the contract | | |
| | | |

| Station ID | Easting (ft) | Northing (ft) | Distance from Station to Dolphin (ft) |
|---|---|---|---|
| DOLPHIN WEST | 3088693.18 | 1310152.79 | 0.00 |
| 10:20:54 | 3088698.64 | 1310154.14 | 3.26 |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Dredging - Contractor completes dredging and re-surveys. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — Authorized Site QC Representative — Date: 1/16/01

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken — KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 56 | **Date :** 01/17/2001 |
| | **Day:** Wednesday | **Shift:** Day | **Hours:** 7am – 4pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 5-FWENC, 3-McAmis<br>**Manual Labor:** 12-McAmis<br>**Remarks:** Single Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:** Greg Hartman, Bob Hopman, and Bill Elmer with FWENC. John Wakeman with USACE.

**Weather:** Overcast, Rain, Calm, 40° - 45°F.

**Summary of Construction Activities:**

- Contractor completed offloading sand into stockpile area.
- Contractor cleaned deck barge "KFP-1" prior to placing sand on it.
- Contractor is continuing work on developing layout for capping operations that meets contract requirements.
- Weekly project QC, progress, and scheduling meeting held. See attached minutes.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Weekly project QC, progress, and scheduling meeting held. See attached minutes.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 1/17/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 56 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Overcast, rain, 40 F

**PM Weather:** Overcast, rain, 45 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Complete off-load of British Columbia sand onto staging area near beaver slide. | FWENC | 1 | Supervisor | 11 |
| | FWENC | 1 | Site Engineer | 11 |
| | FWENC | 1 | Scientist / SHSO | 11 |
| Clean KFP-1 barge prior to loading with sand. | FWENC | 2 | Scientist/Engineer | 22 |
| | McAmis | 1 | Project / QC Mgr | 11 |
| Continue WINOPS setup for capping phase of project. | McAmis | 1 | Asst QC Manager | 10 |
| | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| | McAmis | 2 | Surveyor | 20 |
| | McAmis | 1 | Foreman | 9 |
| | McAmis | 6 | Operator/Captain | 55 |
| | McAmis | 3 | Deck Hand | 27 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 197.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 7,581.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 7,778.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

10,000 tons British Columbia Sand

MATERIAL REMOVED TODAY:

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 9 | "KFP 1" FLAT DECK BARGE | 9 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 9 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 9 | LIMA CRANE | 8 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 9 | "INVADER 1" DIVE BOAT (TRIPS) | 0 | | |
| "SALTY" CREW BOAT | 9 | KOMATSU 450 LOADER | 0 | | |

**REMARKS:**

Weekly meeting held. Minutes attached.

New personnel on site: Greg Hartman, Bob Hopman, and Bill Elmer from Foster Wheeler and John Wakeman from USACE.

Eric Snow 1/17/01

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT



1/17/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>56 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping and Mounding - Contractor completes off-load of British Columbia sand. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

QC Meeting held today. Minutes attached.

Tom Fowler — 1/17/01

Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken

KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 57 | **Date :** 01/18/2001 |
| | **Day:** Thursday | **Shift:** Day | **Hours:** 7am – 4pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 5-FWENC, 3-McAmis<br>**Manual Labor:** 6-McAmis<br>**Remarks:** Contractor Worked Half Day | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:** Greg Hartman, Bob Hopman, and Bill Elmer with FWENC. John Wakeman with USACE.

**Weather:** Overcast, 35° - 40°F.

**Summary of Construction Activities:**

- Contractor setting up bucket(s) for capping operation. Contractor will conduct tests over barge prior to placing sand.
- Contractor is continuing work on developing layout for capping operations that meets contract requirements.
- Divers on site cutting off submerged pile in D3.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for 24-48 hours prior to capping taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. WJG

# CONTRACTOR PRODUCTION REPORT



Date: 1/18/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |

Report No. 57

| | |
|---|---|
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **Superintendent:** Eric Snow |
| **AM Weather:**<br>Overcast, high clouds, 38 F | **PM Weather:**<br>Overcast, wind, rain, 40 F |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue setting up buckets for capping operation. | FWENC | 1 | Supervisor | 11 |
| | FWENC | 1 | Site Engineer | 11 |
| Continue setting up WINOPS positioning software for capping operation. | FWENC | 1 | Scientist / SHSO | 11 |
| | FWENC | 2 | Scientist/Engineer | 20 |
| Alaska Commercial Divers on site cutting 10+ piling dolphin at mudline inside D3 dredge area (-14' MLLW). Cut a total of 16 pieces of wood and leave with GFP for ultimate disposal. | McAmis | 1 | Project / QC Mgr | 11 |
| | McAmis | 1 | Asst QC Manager | 9 |
| | McAmis | 1 | Equip. Proj. Mgr. | 6 |
| | McAmis | 1 | Surveyor | 9 |
| Conduct WQM for capping and mounding (background) in accordance with WQMP. | McAmis | 0 | Foreman | 0 |
| | McAmis | 2 | Operator/Captain | 12 |
| | McAmis | 3 | Deck Hand | 18 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 118.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 7,778.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 7,896.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

Dredging is complete, therefore no further dredge material is slated to be removed from the project. This section of the report will be used to document quantities of capping material placed each day.

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 9 | "KFP 1" FLAT DECK BARGE | 9 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 9 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 9 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 9 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 9 | "INVADER 1" DIVE BOAT (TRIPS) | 0 | | |
| "SALTY" CREW BOAT | 9 | KOMATSU 450 LOADER | 0 | | |

**REMARKS:**

Crew worked half-day today on derrick barge setup and left in PM to attend funeral for a co-worker.

Eric Snow — Superintendent

1/18/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



1/18/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>57 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Piling cutting - Checked elevations of all wooden pilings cut by Alaska Commercial Divers. One at -13.5' MLLW; all others at -14' MLLW or below. Total of 16 cut and removed from bottom. |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — Authorized Site QC Representative — Date: 1/18/01

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken — KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 58 | **Date :** 01/19/2001 |
| | **Day:** Friday | **Shift:** Day | **Hours:** 7am – 4pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 5-FWENC, 3-McAmis<br>**Manual Labor:** 6-McAmis<br>**Remarks:** Single Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:** Greg Hartman, and Bob Hopman, with FWENC. John Wakeman with USACE.

**Weather:** Cloudy, rain, moderate wind, 40° - 45°F.

**Summary of Construction Activities:**

- Contractor setting up bucket(s) for capping operation.
- Contractor is continuing work on developing layout for capping operations that meets contract requirements.
- Reviewed final post dredge survey information. QAO and FWENC representatives satisfied that dredge areas are acceptable. FWENC Site Supervisor will provide a letter indicating completion of dredging. FWENC will provide additional map indicating those areas with remaining organics that need to be capped.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Post dredge survey review.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. WJG

# CONTRACTOR PRODUCTION REPORT



Date: 1/19/01

Contract No. 1
Work Order No. 1

Title & Location: Ward Cove Remediation Project, Ward Cove, Alaska

Report No. 58

Contractor:
Foster Wheeler Environmental Corporation

Superintendent: Eric Snow

AM Weather:
Cloudy, rain, breeze, 42 F

PM Weather:
Cloudy, rain, breeze, 46 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue setting up buckets for capping operation. | FWENC | 1 | Supervisor | 11 |
| | FWENC | 1 | Site Engineer | 11 |
| Continue setting up WINOPS positioning software for capping operation. | FWENC | 1 | Scientist / SHSO | 11 |
| | FWENC | 2 | Scientist/Engineer | 22 |
| Present final stamped Post-Dredge surveys of D1, D2, and D3 areas to KPC and USACE. | McAmis | 1 | Project / QC Mgr | 11 |
| | McAmis | 1 | Asst QC Manager | 10 |
| | McAmis | 1 | Equip. Proj. Mgr. | 9 |
| | McAmis | 1 | Surveyor | 10 |
| | McAmis | 0 | Foreman | 0 |
| | McAmis | 2 | Operator/Captain | 20 |
| | McAmis | 3 | Deck Hand | 30 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 145.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 7,896.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 8,041.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 0 | C.Y. |
| Mounding Material | 0 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY: INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 0 | | |
| "SALTY" CREW BOAT | 10 | KOMATSU 450 LOADER | 0 | | |

REMARKS:

Contractor feels strides are being made on use of re-handling bucket and functions of WINOPS system.

Eric Snow — Superintendent

1/19/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



1/19/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>58 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

No significant QC activities on this date.

Tom Fowler — Authorized Site QC Representative — Date: 1/19/01

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken — KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 59 | **Date :** 01/20/2001 |
| | **Day:** Saturday | **Shift:** Day | **Hours:** 7am – 4pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 5-FWENC, 3-McAmis<br>**Manual Labor:** 8-McAmis<br>**Remarks:** Single Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1".

**Visitors:** Greg Hartman, and Bob Hopman, with FWENC. John Wakeman with USACE.

**Weather:** Cloudy, rain, moderate wind, 40° - 45°F.

**Summary of Construction Activities:**

- Contractor completed modifications to bucket(s). Skip box on board derrick barge.
- Contractor performed practice sweeps over barge in preparation for cap placement. Material was not leaving bucket in a nice even swath, but it was not to bad. Operator had to open bucket wider at end of swing to get material to fall out. Will need to work in the water to see how bucket and material will actually perform.
- Contractor is making final adjustments to WinOps software for tracking of sand placement.

❖ 01/21/2001 QAO off site most of day, no report for this day. Contractor had small crew on site, they pulled two previously driven temporary pile from berthing location at dewatering site and re-drove them at berthing location for sand off-loading. Pile will be removed at end of offloading operations.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for 24-48 hours prior to capping taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. _____

# CONTRACTOR PRODUCTION REPORT



Date: 1/20/01

| | | |
|---|---|---|
| Contract No: 1<br>Work Order No: 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |

Report No: 59

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Cloudy, rain, breeze, 42 F | PM Weather:<br>Cloudy, rain, breeze, 46 F |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Perform practice capping excercises above water onto material barge in preparation for capping. | FWENC | 1 | Supervisor | 10 |
| | FWENC | 1 | Site Engineer | 10 |
| | FWENC | 1 | Scientist / SHSO | 10 |
| Continue welding/modifying material handling buckets. | FWENC | 2 | Scientist/Engineer | 20 |
| | McAmis | 1 | Project / QC Mgr | 9.5 |
| Continue setting up WINOPS positioning software for capping operation. | McAmis | 1 | Asst QC Manager | 9 |
| | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| Conduct WQM for background for capping in accordance with WQMP. | McAmis | 1 | Surveyor | 9 |
| | McAmis | 0 | Foreman | 0 |
| | McAmis | 3 | Operator/Captain | 24 |
| | McAmis | 4 | Deck Hand | 30 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 139.5 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 8,041.5 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 8,181.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED:

Conduct tailgate safety briefing at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 0 | C.Y. |
| Mounding Material | 0 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY: INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 9 | "KFP 1" FLAT DECK BARGE | 9 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 9 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 9 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 9 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 9 | "INVADER 1" DIVE BOAT (TRIPS) | 0 | | |
| "SALTY" CREW BOAT | 9 | KOMATSU 450 LOADER | 0 | | |

REMARKS:

Eric Snow 1/20/01

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT

 1/20/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>59 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | Y | Capping and Mounding - Contractor provides demonstration of WINOPS cap placement plan made by McAmis to John Lally (FWENC), Barry Hogarty (KPC), John Wakeman (USACE), Bill Gerken (QAO), and Mark Herrenkohl (FWENC). WINOPS vessel positioning, bucket discharge plan, and data logging capabilities demonstrated. Capping bucket demonstrated on material barge. McAmis capping system appears to be ready, with exception of start/stop discharge location. Will program hotkey by Sunday according to McAmis and have system ready for inspection first thing Monday AM. |
| The submittals have been approved | Y | |
| Materials comply with approved submittals | Y | |
| Materials are stored properly | Y | |
| Preliminary work was done correctly | Y | |
| Testing plan has been approved | Y | |
| Work method and schedule discussed | Y | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler 1/20/01

Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken

KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 60 | **Date :** 01/22/2001 |
| | **Day:** Monday | **Shift:** Day | **Hours:** 7am – 4pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 5-FWENC, 3-McAmis<br>**Manual Labor:** 7-McAmis<br>**Remarks:** Single Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:** John Wakeman with USACE.

**Weather:** Cloudy, rain, windy, 40° - 45°F.

**Summary of Construction Activities:**

- Contractor began test capping in area A8. Initially attempted placing material below surface with modified re-handling bucket, bucket would not consistently open under water. Decision made and direction given to contractor to release sand from slightly above water surface for the remainder of the day. This placement method appeared to be working adequately, although occasional bucket opening problems were still experienced. Contractor will make one or more modifications to the bucket this evening so they can release material below water tomorrow. Contractor placed an estimated 220 cy of sand over approximately .25 acres, this value slightly exceeds the nominal 6" of average coverage. Some minor problems with WinOps recording and tracking system, but over all it functioned adequately, problems will be fixed by tomorrow.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. _____

# CONTRACTOR PRODUCTION REPORT



Date: 1/22/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 60 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Overcast, rain, wind, 40 F

**PM Weather:** Overcast, rain, high wind, 44 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Commence test capping in A8 test cap area (includes former PAH dredging area) | FWENC | 1 | Supervisor | 12 |
| | FWENC | 1 | Site Engineer | 12 |
| | FWENC | 1 | Scientist / SHSO | 12 |
| Modify material handling bucket for capping in accordance with manufacturer's suggestions to facilitate opening beneath water surface. | FWENC | 2 | Scientist/Engineer | 24 |
| | McAmis | 1 | Project / QC Mgr | 11 |
| | McAmis | 1 | Asst QC Manager | 12 |
| Conduct WQM for capping in accordance with WQMP. | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| | McAmis | 1 | Surveyor | 12 |
| | McAmis | 1 | Foreman | 10 |
| | McAmis | 2 | Operator/Captain | 20 |
| | McAmis | 3 | Deck Hand | 30 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 163.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 8,181.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 8,344.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 220 | C.Y. |
| Mounding Material | 0 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 0 | | |
| "SALTY" CREW BOAT | 0 | KOMATSU 450 LOADER | 0 | | |

**REMARKS:**

Eric Snow — Superintendent

1/22/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



1/22/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>60 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor commences capping after demonstrating that WINOPS system is effective.<br>Initial capping with handling bucket suggests that bucket should be re-tooled to open properly under water.<br>Majority of capping conducted on this day is from above water surface. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | Checked horizontal control on DGPS aboard Invader 1. Brief calculations below. Positioning acceptable. |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Station ID | Easting (ft) | Northing (ft) | Distance from Station to Dolphin (ft) |
|---|---|---|---|
| DOLPHIN WEST | 3088693.18 | 1310152.79 | 0.00 |
| 9:56:48 | 3088695.93 | 1310155.05 | 2.30 |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — Authorized Site QC Representative — Date: 1/22/01

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken — KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 61 | **Date :** 01/23/2001 |
| | **Day:** Tuesday | **Shift:** Day | **Hours:** 7am – 4pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 5-FWENC, 3-McAmis<br>**Manual Labor:** 5-McAmis<br>**Remarks:** Single Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:** John Wakeman with USACE.

**Weather:** Cloudy, rain, windy, 40° - 45°F.

**Summary of Construction Activities:**

- Contractor completed test capping in area A8, completed capping the PAH area, and began test capping in area B3. Modifications made to bucket last night allowed for effective placement of material below water surface. Contractor placed an estimated 82 cy of sand in the remainder of the A8 test area for an approximate total of 300 cy over 1/3 of an acre, this value slightly exceeds the nominal 6" of average coverage. The contractor placed approximately 261 cy in the B3 test area, area is approximately 75% complete WinOps recording and tracking system, appears to be functioning adequately.
- Completed verification sampling in A8 test area. 12 grab samples were successfully recovered, 7 samples were 100%sand in top 10 cm, 2 samples were 95% sand by volume, 1 sample was 75% by volume, 1 sample was 40% by volume, and the last sample was 20% by volume this sample was taken very close to the edge of the test area. Capping in this area was determined to be ver successful.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 1/23/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 61 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Overcast, rain, wind, 40 F

**PM Weather:** Overcast, rain, high wind, 44 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue test capping in A8 test cap area (includes former PAH dredging area) and B3 test cap area. Approximately 82.5 CY placed in remainder of A8 area, 88 CY in PAH dredge area, and 261.25 CY in B3 area. | FWENC | 1 | Supervisor | 11 |
| | FWENC | 1 | Site Engineer | 11 |
| | FWENC | 1 | Scientist / SHSO | 11 |
| | FWENC | 2 | Scientist/Engineer | 22 |
| Commence Performance Standard Verification (PSV) sampling of test cap area A8. | McAmis | 1 | Project / QC Mgr | 11 |
| | McAmis | 1 | Asst QC Manager | 11 |
| | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| Conduct WQM for capping in accordance with WQMP. | McAmis | 1 | Surveyor | 11 |
| | McAmis | 0 | Foreman | 0 |
| | McAmis | 2 | Operator/Captain | 20 |
| | McAmis | 3 | Deck Hand | 30 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 148.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 8,344.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 8,492.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 431.75 | C.Y. |
| Mounding Material | 0 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 0 | | |
| "SALTY" CREW BOAT | 0 | KOMATSU 450 LOADER | 0 | | |

REMARKS:

Eric Snow — Superintendent

1/23/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



1/23/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>61 |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | Y | Capping - Contractor continues test capping. FWENC commences sediment sampling with van Veen grab sampler. All samples had no less than 20 mL of sand with majority of samples consisting of 95-100% sand. Initial sampling indicates that capping is successful over the A8 area. |
| Sample has been Prepared/Approved | Y | |
| Workmanship is satisfactory | Y | Checked horizontal control on DGPS aboard Invader 1. Brief calculations below. Positioning acceptable. |
| Test results are acceptable | Y | |
| Work is in compliance with the contract | Y | |
| | | |

| Station ID | Easting (ft) | Northing (ft) | Distance from Station to Dolphin (ft) |
|---|---|---|---|
| DOLPHIN WEST | 3088693.18 | 1310152.79 | 0.00 |
| 10:36:11 | 3088695.34 | 1310153.59 | 1.97 |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Information contained in the daily reports is increasing in quantity. The order of the reports and attachments is:

1. Foster Wheeler Contractor Production Report
2. Foster Wheeler Quality Control Report
3. Water Quality Monitoring Report
4. Performance Standard Verification Sample Figure
5. Performance Standard Verification Data
6. J.E. McAmis Construction Quality Control Report (hard copy only)
7. J.E. McAmis Field Notes and WINOPS Output Page (hard copy only)

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — Authorized Site QC Representative — Date: 1/23/01

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken — KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 62 | **Date :** 01/24/2001 |
| | **Day:** Wednesday | **Shift:** Day | **Hours:** 7am – 4pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 5-FWENC, 3-McAmis<br>**Manual Labor:** 7-McAmis<br>**Remarks:** Single Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:** John Wakeman with USACE.

**Weather:** Cloudy, Light rain, 40° - 45°F.

**Summary of Construction Activities:**

- Contractor completed test capping in area B3, placed an estimated 71 cy of sand in the remainder of the B3 test area for an approximate total of 332 cy. Began test capping in area A7, placed an estimated 50 cy of sand. Contractor having difficulty effectively placing anchors and positioning dredge for work in deeper water. Jim Campbell with McAmis on sight to help improve anchoring system. WinOps recording and tracking system appears to be functioning adequately.
- Began verification sampling in B3 test area. 4 grab samples were successfully recovered; remaining attempts to obtain grab samples were unsuccessful due to the sampler encountering hard objects on bottom, assumed to be logs at this time. 4 samples collected were 100%sand in top 10. Divers will be utilized tomorrow to determine bottom conditions and obtain additional samples.
- Second barge of sand arrived and contractor began off-loading.
- Weekly project QC, progress, and scheduling meeting held. See attached minutes.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. _____

# CONTRACTOR PRODUCTION REPORT



Date: 1/24/01

Contract No. 1
Work Order No. 1

Title & Location: Ward Cove Remediation Project, Ward Cove, Alaska

Report No. 62

Contractor: Foster Wheeler Environmental Corporation

Superintendent: Eric Snow

AM Weather: Overcast, some light rain, calm, 42 F

PM Weather: Overcast, some light rain, calm, 48 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Complete test cap in B3 area with placement of 71.5 CY of sand. | FWENC | 1 | Supervisor | 12 |
| | FWENC | 1 | Site Engineer | 12 |
| Commence test capping in A7 area with placement of 49.5 CY of sand. | FWENC | 1 | Scientist / SHSO | 12 |
| | FWENC | 2 | Scientist/Engineer | 24 |
| Receive sand barge from Victoria, British Columbia and commence off-load of 10,000 tons of sand. | McAmis | 1 | Project / QC Mgr | 11 |
| | McAmis | 1 | Asst QC Manager | 11.5 |
| | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| Continue PSV sampling in B3 test cap area. | McAmis | 1 | Surveyor | 11.5 |
| | McAmis | 0 | Foreman | 0 |
| Conduct WQM for capping in accordance with WQMP. | McAmis | 5 | Operator/Captain | 50 |
| | McAmis | 2 | Deck Hand | 20 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 174.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 8,492.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 8,666.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

10,000 tons British Columbia Sand

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 121 | C.Y. |
| Mounding Material | 0 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 10 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 0 | | |
| "SALTY" CREW BOAT | 0 | 980 LOADERS | 20 | | |

REMARKS:

Contractor acknowledges difficulty with using anchors while capping in terms of achieving and maintaining appropriate positioning and attempted resolution by getting input from a more experienced marine superintendent.

Eric Snow
Superintendent

1/24/01
Date

# CONTRACTOR QUALITY CONTROL REPORT



1/24/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>62 |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor continues test capping. FWENC commences sediment sampling with van Veen grab sampler in B3 test area. First four samples collected in B3 with van Veen consisted of 100% sand with some thin veneers of organics. Subsequent sampling attempts failed repeatedly at multiple stations. Remaining samples will be collected by divers on 1/25/01. Results and drawings will be included in daily report for 1/25/01 when all samples are collected and information gathered. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor. I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Weekly meeting held today. No minutes attached.

Tom Fowler — 1/24/01
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 63 | **Date :** 01/25/2001 |
| | **Day:** Thursday | **Shift:** Day | **Hours:** 7am – 4pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 5-FWENC, 3-McAmis<br>**Manual Labor:** 10-McAmis<br>**Remarks:** Single Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:** John Wakeman with USACE.

**Weather:** Cloudy, 40° - 45°F.

**Summary of Construction Activities:**

- Contractor completed test capping in test area B2, placed approximately 344 cy of sand. Contractor will continue test capping in area A7 tomorrow. Contractor continues to have difficulty effectively placing anchors and positioning dredge for work in deeper water. Contractor is working on modifications to anchor and anchor placement system. WinOps recording and tracking system appears to be functioning adequately.
- Decision made and direction given to contractor that where anchor cables are not in the way material may be released from just below water surface, where anchor cables are in the way material may be placed from just above the surface.
- FWENC conducted a dive survey of southeastern portion B3 test area to confirm capping results, and provide additional information. Diver collected 2 core samples, which were 100% sand. Diver video of area indicated a high density of logs and cable. Visually, sand cover appeared good and continuous. Overlying sand was even present on logs and cable. Diver checked sand cover between logs at a large number of locations and found 3 to 8 inches of overlying sand with little or no organics in the sand cap. Based on grab samples from 01/24 and diver survey, test capping in B3 was determined to be successful.
- Contractor completed off-loading sand barge.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. _____

# CONTRACTOR PRODUCTION REPORT



Date: 1/25/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 63 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Overcast, dry, 42 F

**PM Weather:** Overcast, calm, dry, 46 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue test capping in B2 test area. | FWENC | 1 | Supervisor | 12 |
| | FWENC | 1 | Site Engineer | 12 |
| Complete off-load of British Columbia sand. | FWENC | 1 | Scientist / SHSO | 12 |
| | FWENC | 2 | Scientist/Engineer | 24 |
| Conduct diver survey of B3 test cap area to verify adequate sand placement. | McAmis | 1 | Project / QC Mgr | 13 |
| | McAmis | 1 | Asst QC Manager | 11 |
| | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| Conduct WQM for capping in accordance with WQMP. | McAmis | 1 | Surveyor | 11 |
| | McAmis | 0 | Foreman | 0 |
| | McAmis | 5 | Operator/Captain | 48 |
| | McAmis | 4 | Deck Hand | 32 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 185.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 8,666.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work | 8,851.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 343.75 | C.Y. |
| Mounding Material | 0 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 18 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 4 | | |
| "SALTY" CREW BOAT | 0 | 980 LOADERS | 20 | | |

**REMARKS:**

Contractor receives direction from Foster Wheeler to commence placing sand from just below water surfact (saturated bucket) and just above water surface over anchor lines. Contractor is also modifying anchor lines to facilitate dredge positioning in deeper waters.

Eric Snow — Superintendent

1/25/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



1/25/01

| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>63 |
|---|---|---|

| Contractor: | CQC Representative: |
|---|---|
| Foster Wheeler Environmental Corporation | Thomas A. Fowler |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor continues test capping. FWENC conducts diver survey with Alaska Commercial Divers in B3 test area. Video survey confirms that placement of 3"-8" of sand throughout area was achieved. Also confirmed that this area has a high density of logs and cable. Diver collected two core samples consisting of 100% sand. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 1/25/01
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 64 | **Date :** 01/26/2001 |
| | **Day:** Friday | **Shift:** Day | **Hours:** 7am – 4pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 5-FWENC, 3-McAmis<br>**Manual Labor:** 6-McAmis<br>**Remarks:** Single Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:**

**Weather:** Cloudy, 40° - 45°F.

**Summary of Construction Activities:**

- Contractor completed test capping in test area A7, placed approximately 357 cy of sand for a total of 407 cy placed in area. Contractor is continues working on modifications to anchor and anchor placement system. WinOps recording and tracking system appears to be functioning adequately.
- FWENC collected verification samples in test areas B2 and A7. 10 samples were collected in B2 test area, 8 samples were 100% sand, the remaining two were 75% and 25% sand by volume. Only 3 samples were able to be collected in test area A7 due to log obstructions, all three collected samples were 100% sand. Diver survey of A7 will be conducted to verify capping success.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. WJG

# CONTRACTOR PRODUCTION REPORT



Date: 1/26/01

Contract No. 1
Work Order No. 1

Title & Location: Ward Cove Remediation Project, Ward Cove, Alaska

Report No. 64

Contractor: Foster Wheeler Environmental Corporation

Superintendent: Eric Snow

AM Weather: Overcast, occasional drizzle, 42 F

PM Weather: Overcast, 46 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue test capping in A7 test area. | FWENC | 1 | Supervisor | 12 |
| | FWENC | 1 | Site Engineer | 12 |
| Install penant anchor lines and buoys to bow anchors of Miller 205 barge. | FWENC | 1 | Scientist / SHSO | 12 |
| | FWENC | 2 | Scientist/Engineer | 24 |
| Conduct PSV sampling of B2 and A7 test cap areas in accordance with PSVP. | McAmis | 1 | Project / QC Mgr | 11 |
| | McAmis | 1 | Asst QC Manager | 3 |
| | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| Conduct WQM for capping in accordance with WQMP. | McAmis | 0 | Surveyor | 0 |
| | McAmis | 0 | Foreman | 0 |
| | McAmis | 2 | Operator/Captain | 20 |
| | McAmis | 4 | Deck Hand | 40 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 142.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 8,851.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 8,993.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 357.5 | C.Y. |
| Mounding Material | 0 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 18 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 4 | | |
| "SALTY" CREW BOAT | 0 | 980 LOADERS | 0 | | |

REMARKS:

Eric Snow — Superintendent

1/26/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



1/26/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>64 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor continues test capping. FWENC conducts PSV sampling in B2 and A7 test areas. Collected 10 samples from B2 area. Eight of the ten samples had 100% sand content. Other two samples had 25 mL and 75 mL sand per 100 mL of sample. These two samples will be dried and sieved in the laboratory for confirmation. Collected only three samples in A7 area due to obstruction by logs. Will conduct a diver survey of this area at next opportunity. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — Authorized Site QC Representative — Date: 1/26/01

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken — KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 65 | **Date :** 01/27/2001 |
| | **Day:** Saturday | **Shift:** Day | **Hours:** 7am – 4pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 2-McAmis<br>**Manual Labor:** 6-McAmis<br>**Remarks:** Single Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:**

**Weather:** Rain, Strong Winds. 35° - 40°F.

**Summary of Construction Activities:**

- Contractor completed test capping in test area A4, placed approximately 385 cy of sand in area. Contractor continues working on modifications to anchor and anchor placement system. WinOps recording and tracking system appears to be functioning adequately.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. _____

# CONTRACTOR PRODUCTION REPORT



Date: 1/27/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 65 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Rain and wind, 38 F

**PM Weather:** Hard rain and strong winds (50 mph gusts), 38 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue test capping in A4 test area. | FWENC | 1 | Supervisor | 10 |
| | FWENC | 1 | Site Engineer | 10 |
| Conduct WQM for capping in accordance with WQMP. | FWENC | 0 | Scientist / SHSO | 0 |
| | FWENC | 3 | Scientist/Engineer | 28 |
| | McAmis | 1 | Project / QC Mgr | 10 |
| | McAmis | 0 | Asst QC Manager | 0 |
| | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| | McAmis | 0 | Surveyor | 0 |
| | McAmis | 0 | Foreman | 0 |
| | McAmis | 2 | Operator/Captain | 19 |
| | McAmis | 4 | Deck Hand | 38 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 123.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 8,993.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 9,116.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 385 | C.Y. |
| Mounding Material | 0 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 9.5 | "KFP 1" FLAT DECK BARGE | 9.5 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 9.5 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 9.5 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 9.5 | PILE VIBRATOR | 0 | | |
| "THE BUGGY" SMALL TUG | 9.5 | "INVADER 1" DIVE BOAT (TRIPS) | 4 | | |
| "SALTY" CREW BOAT | 9.5 | 980 LOADERS | 0 | | |

REMARKS:

Eric Snow FOR — 1/27/01

Superintendent — Date

# CONTRACTOR QUALITY CONTROL REPORT

 1/27/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>65 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor continues test capping. Called off diving in A7 test area because of foul weather. Will conduct diving if weather has improved on Monday, 1/29/01. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List: |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — Authorized Site QC Representative — Date: 1/27/01

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken — KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 66 | **Date :** 01/29/2001 |
| | **Day:** Monday | **Shift:** Day | **Hours:** 7am – 4pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 4-McAmis<br>**Manual Labor:** 8-McAmis<br>**Remarks:** Single Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:**

**Weather:** Rain & Sleet, Breezy. 30° - 35°F.

**Summary of Construction Activities:**

- No capping today due to both anchor winches being down for repair.
- Contractor loaded barge "Sunny Point" with sand.
- FWENC conducted a dive survey of A7 test area to confirm capping results, and provide additional information. Diver collected 2 core samples, which were 100% sand in top 10 cm. Diver video of area indicated a high density of logs and cable. Visually, sand cover appeared good and continuous. Overlying sand was even present on logs and cable. Based on grab samples from 01/26 and diver survey, test capping in A7 was determined to be successful.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 1/29/01

Contract No. 1
Work Order No. 1

Title & Location: Ward Cove Remediation Project, Ward Cove, Alaska

Report No. 66

Contractor: Foster Wheeler Environmental Corporation

Superintendent: Eric Snow

AM Weather: Clear, cool, frost, 33 F

PM Weather: Wintry mix of precipitation, breeze, 33 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Re-set and repair anchor/winch system on Miller 205 barge. | FWENC | 1 | Supervisor | 10 |
| | FWENC | 0 | Site Engineer | 0 |
| Load Sunny Point barge with stockpiled sand in preparation for capping. | FWENC | 0 | Scientist / SHSO | 0 |
| | FWENC | 3 | Scientist/Engineer | 30 |
| Conduct diver survey and sampling of A7 test cap area for Performance Standard Verification. | McAmis | 1 | Project / QC Mgr | 11 |
| | McAmis | 2 | Asst QC Manager | 4 |
| | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| Conduct WQM for capping in accordance with WQMP. | McAmis | 0 | Surveyor | 0 |
| | McAmis | 0 | Foreman | 0 |
| | McAmis | 4 | Operator/Captain | 25 |
| | McAmis | 4 | Deck Hand | 33 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 121.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 9,112.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 9,233.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 0 | C.Y. |
| Mounding Material | 0 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 0 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 10 | SAND CONVEYOR | 4 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 10 | 980 LOADERS | 4 | | |

REMARKS:

Contractor's mechanical delays resulted in two unnecessary trips to Ward Cove by Invader 1 support vessel.

Eric Snow
Superintendent

1/29/01
Date

# CONTRACTOR QUALITY CONTROL REPORT



1/29/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>66 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

**Preparatory Phase**

Y - Yes, N - No, N/A

| | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

**Initial Phase**

Y - Yes, N - No, N/A

| | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor attempts to continue test capping in A6 area, but is prevented from doing so because of several malfunctions in the anchoring system. Contractor spends entire day rectifying problems. |
| Sample has been Prepared/Approved | | Alaska Commercial Divers conduct diver survey and collect core samples from A7 test cap area. Core sample #1 contains approximately 9 inches of sand on top of 2 inches of organic matter with a clear boundary between the two. Core sample #2 contains approximately 8 inches of sand on top of two inches of organic matter with a clear boundary between the two. Sample locations are on attached drawing and data has been re-tabulated to include the core samples. |
| Workmanship is satisfactory | | Videotape is available at Foster Wheeler office trailer for review at any time. |
| Test results are acceptable | | Additional data from B2 test cap area will be added after laboratory analysis confirms dry weight sand content results. |
| Work is in compliance with the contract | | |
| | | See below for Invader 1 DGPS horizontal control check. |

**Follow Up Phase**

Y - Yes, N - No, N/A

Definable Features of Work and Work Location

* See end of each definable feature of work to see if work complies with contract as approved in initial phase.

| | | |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | Checked horizontal control on DGPS aboard Invader 1. Brief calculations below. Positioning acceptable. |

| Station ID | Easting (ft) | Northing (ft) | Distance from Station to Dolphin (ft) |
|---|---|---|---|
| Dolphin West | 3088693.18 | 1310152.79 | 0.00 |
| 12:34:46 | 3088691.46 | 1310152.06 | 1.92 |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Note: WQM not required today because no in-water work was conducted, but Foster Wheeler conducted two monitoring events in anticipation of capping.

Tom Fowler — 1/29/01

Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken

KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 67 | **Date :** 01/30/2001 |
| | **Day:** Tuesday | **Shift:** Day | **Hours:** 7am – 4pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 2-McAmis<br>**Manual Labor:** 4-McAmis<br>**Remarks:** Single Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:**

**Weather:** Rain, Strong Winds. 35° - 40°F.

**Summary of Construction Activities:**

- No capping today due to both anchor winches being down for repair.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 1/30/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |

Report No. 67

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Clear, cool, frost, 26 F

**PM Weather:** Rain, sleet, and snow, 30 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue repairing deck winches and performing maintenance on Miller barge. | FWENC | 1 | Supervisor | 10 |
| | FWENC | 0 | Site Engineer | 0 |
| | FWENC | 0 | Scientist / SHSO | 0 |
| | FWENC | 3 | Scientist/Engineer | 28 |
| | McAmis | 1 | Project / QC Mgr | 10 |
| | McAmis | 0 | Asst QC Manager | 0 |
| | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| | McAmis | 0 | Surveyor | 0 |
| | McAmis | 0 | Foreman | 0 |
| | McAmis | 2 | Operator/Captain | 16 |
| | McAmis | 2 | Deck Hand | 18 |
| | | | and Mechanic | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 92.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 9,233.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 9,325.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED:

Conduct tailgate safety briefing at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 0 | C.Y. |
| Mounding Material | 0 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 0 | "KFP 1" FLAT DECK BARGE | 0 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 0 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 0 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 0 | SAND CONVEYOR | 0 | | |
| "THE BUGGY" SMALL TUG | 0 | "INVADER 1" DIVE BOAT (TRIPS) | 1 | | |
| "SALTY" CREW BOAT | 0 | 980 LOADERS | 0 | | |

**REMARKS:**

Contractor's mechanical delays resulted in one unnecessary trip~~s~~ to Ward Cove by Invader 1.

Eric Snow — Superintendent

1/30/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT

 | 1/30/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>67 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor continues repairs to anchor system.<br>Foster Wheeler verified the dry weight sand contents of two samples collected from test cap area B2 in laboratory today. Sample B2TC8 exhibited a dry weight sand content of 94.3, while sample B2TC10 exhibited a dry weight sand content of 71.34. The predicted dry weight sand contents based on the original calibration between wet volume and dry weight were 94 and 72 respectively. These results continue to confirm that the original calibration and curve fit were accurate.<br>See attached table for final data on B2 test cap area. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Note: WQM not required today because no in-water work was conducted.

Tom Fowler — 1/30/01

Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken

KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 68 | **Date :** 01/31/2001 |
| | **Day:** Wednesday | **Shift:** Double | **Hours:** 7am – 4pm |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 3-McAmis<br>**Manual Labor:** 11-McAmis<br>**Remarks:** Double Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:**

**Weather:** Heavy Rain, Strong Winds. 40° - 45°F.

**Summary of Construction Activities:**

- Contractor began double shifts today.
- Contractor completed test capping in test area A6, placed approximately 267 cy of sand in area. Contractor continues working on repairs and modifications to anchor and anchor placement system. WinOps recording and tracking system appears to be functioning adequately.
- Based on success of capping operations thus far it was determined *(with concurrence from EPA and USACE)* that test capping of remaining areas was not necessary and the contractor could proceed with production capping in all areas.
- Contractor began production capping in area M1, placed approximately 305 cy. This area was originally designated as a mounding area but based on the success of capping operations thus far it was determined *(with concurrence from EPA and USACE)* that the area should be capped. Verification samples will be gathered by FWENC tomorrow.
- Next barge of sand scheduled to arrive on Fri. 02/01. This barge will contain 2,500 to 3,000 tons of coarser capping material for placement in area D3, and possibly area B4. Placement of coarser material in B4 is not required but sand was previously ordered so material should be used in B4 to prevent potential scour and re-suspension of organics by tugs. Issue will be addressed in forthcoming FCR.
- FWENC collected verification samples in test areas A4. 10 samples were collected in A4 test area, 5 samples were 100% sand by volume in the top 10 cm, the remaining five samples ranged from 40% to 80% sand by volume. 4 of the 5 samples not exhibiting 100% sand content were gathered close to the test area boundaries. Based on sampling results, capping in test area A4 was considered very successful.
- Weekly project QC, progress, and scheduling meeting held.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. WJG

# CONTRACTOR PRODUCTION REPORT



Date: 1/31/01

Report No. 68

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |

| | |
|---|---|
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **Superintendent:** Eric Snow |
| **AM Weather:**<br>Heavy rain, 40 F | **PM Weather:**<br>Heavy rain and hard wind, 42 F |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Complete test capping at A6 test cap area (placed 48.5 buckets or 266.75 CY in this area). | FWENC | 1 | Supervisor | 12 |
| | FWENC | 0 | Site Engineer | 0 |
| | FWENC | 0 | Scientist / SHSO | 0 |
| Commence thin capping in M1 former mounding area (placed 55.5 buckets or 305.25 CY in this area). | FWENC | 3 | Scientist/Engineer | 36 |
| | McAmis | 1 | Project / QC Mgr | 11 |
| | McAmis | 1 | Asst QC Manager | 9 |
| Conduct Peformance Standard Verification Sampling at A4 test cap area in accordance with PSVP. | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| | McAmis | 0 | Surveyor | 0 |
| | McAmis | 1 | Foreman | 9 |
| Conduct WQM for capping in accordance with WQMP. | McAmis | 4 | Operator/Captain | 36 |
| | McAmis | 6 | Deck Hand | 55 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 178.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 9,325.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 9,503.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700 and 1600.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 572 | C.Y. |
| Mounding Material | 0 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 18 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 18 | SAND CONVEYOR | 0 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 1 | | |
| "SALTY" CREW BOAT | 18 | 980 LOADERS | 0 | | |

**REMARKS:**

Contractor commenced double shift work on this date.

Conference call held with Foster Wheeler and McAmis personnel to discuss project schedule. Further assessments to be made as production capping begins.

Eric Snow
Superintendent

1/31/01
Date

# CONTRACTOR QUALITY CONTROL REPORT



1/31/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>68 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor continues test capping and commences production capping.<br>Foster Wheeler continues sampling test cap area in A4.<br>Volumes of sand in 100 mL samples range from 40 mL to 100 mL. All samples passed field sieve test and two were confirmed in the laboratory. Samples A4TC5 and A4TC7 contained 82.83% and 85.66% sand by dry weight, respectively. This data has been incorporated into the curve fit. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business): | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 1/31/01
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken
KPC QAO — Date

# C5: FEBRUARY DAILY PRODUCTION AND QUALITY CONTROL REPORTS

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 69 | **Date :** 02/01/2001 |
| | **Day:** Thursday | **Shift:** Double | **Hours:** 7am – 1am |

| | |
|---|---|
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>QA/QC 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 3-McAmis<br>**Manual Labor:** 11-McAmis<br>**Remarks:** Double Shift |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu 450 Loader, Hitachi Log Shovel, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:**

**Weather:** Light Rain, Breezy. 40° - 45°F.

**Summary of Construction Activities:**

- Contractor continues double shifts. First full day of production capping. Placed approximately 866 cy of material between two shifts.
- Contractor continued production capping in area M1, placed approximately 335 cy of material. Had to work with GFP to swing boom shack out of way during operations. Contractor will need to return to a portion of area up close to dock by existing GFP loading cranes and place material closer to dock and cranes.
- Contractor began production capping in area A8 during night shift, placed approximately 531 cy of material.
- Next barge of sand still scheduled to arrive on Fri. 02/01. Gradation analysis for both sand types was determined to be acceptable.
- FWENC collected verification samples in test areas A6. 10 samples were collected in A6 test area, 6 samples were 100% sand by volume in the top 10 cm, the remaining 4 samples ranged from 40% to 70% sand by volume. The 4 samples not exhibiting 100% sand content were gathered close to the test area boundaries. Samples continue to typically exhibit a fairly well defined boundary between sand cap and underlying organics. Based on sampling results, capping in test area A6 was considered very successful.
  FWENC collected 3 verification samples in area M1; all 3 samples were 100% sand in top 10 cm. Remaining verification samples will be gathered when area is complete and the barge has moved out of the way.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. WJG

# CONTRACTOR PRODUCTION REPORT



Date: 2/1/01

Contract No. 1
Work Order No. 1

Title & Location: Ward Cove Remediation Project, Ward Cove, Alaska

Report No. 69

Contractor: Foster Wheeler Environmental Corporation

Superintendent: Eric Snow

AM Weather: Overcast, 40 F

PM Weather: Overcast, some light rain, 42 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue thin capping in former mounding area M1 (placed 61 buckets or 335.5 CY in this area). Portion of M1 against GFP dock still requires completion. | FWENC | 1 | Supervisor | 12 |
| | FWENC | 0 | Site Engineer | 0 |
| | FWENC | 0 | Scientist / SHSO | 0 |
| | FWENC | 3 | Scientist/Engineer | 36 |
| Commence thin capping in A8 area during night shift (placed 96.5 buckets or 530.75 CY in this area). | McAmis | 1 | Project / QC Mgr | 11 |
| | McAmis | 1 | Asst QC Manager | 9 |
| | McAmis | 1 | Equip. Proj. Mgr. | 9 |
| Total volume placed for this, the first production capping day is 866.25 CY. | McAmis | 0 | Surveyor | 0 |
| | McAmis | 1 | Foreman | 9 |
| Conduct Peformance Standard Verification Sampling at A6 test cap area and M1 total production capping area in accordance with PSVP. | McAmis | 4 | Operator/Captain | 36 |
| | McAmis | 6 | Deck Hand | 54 |
| Conduct WQM for production capping in accordance with WQMP. | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 176.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 9,503.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 9,679.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700 and 1600.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 866.25 | C.Y. |
| Mounding Material | 0 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 18 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 18 | SAND CONVEYOR | 0 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 1 | | |
| "SALTY" CREW BOAT | 18 | 980 LOADERS | 0 | | |

REMARKS: Production is increasing as work moves away from obstacles in inner portion of Ward Cove

Eric Snow
Superintendent

2/1/01
Date

# CONTRACTOR QUALITY CONTROL REPORT



2/1/01

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.**<br>69 |
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **CQC Representative:**<br>Thomas A. Fowler | |

| **Preparatory Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location:** |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| **Initial Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location** |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor continues production capping in M1 and A8 areas.<br>Foster Wheeler completes sampling test cap area in A6.<br>Volumes of sand in 100 mL samples range from 40 mL to 100 mL. All samples passed field sieve test and two were confirmed in the laboratory. Samples A6TC2 and A4TC7 contained 83.77% and 88.07% sand by dry weight, respectively. This data has been incorporated into the correlation between sand volumes and dry weight sand contents.<br>Foster Wheeler commences sampling in accessible portions of M1 cap area.<br>All three samples collected from M1 on this date contained 100% sand, therefore none were sieved.<br>See attached maps and tables for details.<br>Foster Wheeler reviewed gradation results (see attached) from additional thin capping material and coarse capping material (a.k.a. 3" minus material) from Construction Aggregates. All results are acceptable.<br>An independent grain size analysis for the coarse cap material will be performed on-site. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| **Follow Up Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location**<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 2/1/01
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

None

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 70 | **Date :** 02/02/2001 |
| | **Day:** Friday | **Shift:** Double | **Hours:** 7am – 1am |

| | |
|---|---|
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 3-McAmis<br>**Manual Labor:** 14-McAmis<br>**Remarks:** Double Shift |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:**

**Weather:** Rain, 40° - 45°F.

**Summary of Construction Activities:**

- Contractor continued production capping in area A8, placed approximately 701 cy of material, small corner remaining at end of day to complete area.
- Contractor began production capping in area A8 during night shift, placed approximately 531 cy of material. Due to timing of low tides night shift quit placing cap material early and switched over to load sand barges to insure day shift would not run out of material during the day.
- For the last few days the contractor has been paying increased attention to the amount of material being placed in an effort to insure he is not placing excess material.
- Sand barge arrived in morning, 7,439 tons fine-grained material and 2,798 tons coarse grained material, began offloading operations. Coarse material was loaded directly onto deck barge "Sunny Point".
- FWENC collected verification samples in area A8. 6 samples were collected , all samples were 100% sand by volume in the top 10 cm. Remaining verification samples will be gathered when area is complete and the barge is out of the way.

  FWENC collected 5 more verification samples in area M1; all 5 samples were 100% sand in top 10 cm. Remaining verification samples will be gathered when area is complete and the barge has moved out of the way.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.
- FWENC received verbal approval from EPA that WQM need only be conducted twice a day throught remainder of production capping unless exceedences are noted.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 2/2/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 70 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Overcast, rain, 42 F

**PM Weather:** Overcast, rain, clearing late, 45 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue thin capping in A8 area during both shifts (placed 127.5 buckets or 701.25 CY in this area). One corner of A8 still requires completion. | FWENC | 1 | Supervisor | 12 |
| | FWENC | 0 | Site Engineer | 0 |
| | FWENC | 0 | Scientist / SHSO | 0 |
| Unload thin cap sand and coarse (3" minus) sand via conveyor system onto shore stockpile area. | FWENC | 3 | Scientist/Engineer | 36 |
| | McAmis | 1 | Project / QC Mgr | 11 |
| | McAmis | 1 | Asst QC Manager | 6.5 |
| Transfer coarse (3" minus) sand directly to Sunny Point barge. | McAmis | 1 | Equip. Proj. Mgr. | 9 |
| | McAmis | 0 | Surveyor | 0 |
| Conduct Performance Standard Verification Sampling at A8 and M1 areas. | McAmis | 0 | Foreman | 0 |
| | McAmis | 8 | Operator/Captain | 82 |
| Conduct WQM for production capping in accordance with WQMP. | McAmis | 6 | Deck Hand | 52 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 208.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 9,679.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 9,887.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700 and 1600.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

7,439 tons thin cap sand
2,798 tons coarse cap (3" minus) sand

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 701.25 | C.Y. |
| Mounding Material | 0 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 18 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 18 | SAND CONVEYOR | 12 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 1 | | |
| "SALTY" CREW BOAT | 18 | 980 LOADERS | 40 | | |

**REMARKS:**

Eric Snow — Superintendent

2/2/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



2/2/01

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.**<br>70 |
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **CQC Representative:**<br>Thomas A. Fowler | |

| **Preparatory Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location:** |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| **Initial Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location** |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor continues production capping and Foster Wheeler continues sampling in M1 and A8 areas. All five samples collected from M1 area and six samples collected from A8 area contained 100% sand, therefore no laboratory confirmation is required.<br>See attached drawings and tables for further information. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| **Follow Up Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location**<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Foster Wheeler received verbal notification from USEPA Aquatic Resources Unit (Justine Barton) that WQM need only be conducted two times a day during production capping, with the exception of any exceedences.

Tom Fowler — 2/2/01
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

None

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 71 | **Date :** 02/03/2001 |
| | **Day:** Saturday | **Shift:** Double | **Hours:** 7am – 1am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 5-FWENC, 3-McAmis<br>**Manual Labor:** 12-McAmis<br>**Remarks:** Double Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:**

**Weather:** Overcast-Clear, 40° - 45°F.

**Summary of Construction Activities:**

- Contractor placed approximately 897 total cubic yards of cap material today.
- Contractor completed production capping in area A8, placed approximately 66 cy of material.
- Contractor completed production capping in area M1, placed approximately 157 cy of material.
- Contractor began production capping in area D2, placed approximately 300 cy of material.
- Contractor began production capping in area B4 with coarse material, placed approximately 308 cy of material.
- Contractor began production capping in area D3 with coarse material, placed approximately 66 cy of material. Contractor began capping outside the designated (modified by FCR 13), FWENC notified contractor of error shortly after start of operations and capping continued in proper area.
- Contractor completed offloading sand barge.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

BY: William J. Gerken, P.E. _____

# CONTRACTOR PRODUCTION REPORT



Date: 2/3/01

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| **Report No.** 71 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Overcast, 42 F

**PM Weather:** Clearing, calm, 48 F

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Complete thin capping in A8 area during day shift (placed 12 buckets or 66 CY in this area). | FWENC | 1 | Supervisor | 12 |
| Complete thin capping in M1 area during day shift (placed 28.5 buckets or 156.75 CY in this area). | FWENC | 0 | Site Engineer | 0 |
| Commence thin capping in D2 area (placed 54.5 buckets or 299.75 CY in this area | FWENC | 1 | Scientist / SHSO | 2 |
| Commence thin capping with coarse cap sand in B4 test area (placed 56 buckets or 308 CY in this area). | FWENC | 3 | Scientist/Engineer | 36 |
| Commence thin capping with coarse cap sand in D3 area (placed 12 buckets or 66 CY in this area). | McAmis | 1 | Project / QC Mgr | 10.5 |
| | McAmis | 1 | Asst QC Manager | 9 |
| Conduct WQM for capping in accordance with WQMP. | McAmis | 1 | Equip. Proj. Mgr. | 9 |
| | McAmis | 0 | Surveyor | 0 |
| | McAmis | 0 | Foreman | 0 |
| | McAmis | 6 | Operator/Captain | 56 |
| | McAmis | 6 | Deck Hand | 54 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 188.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 9,887.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 10,076.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700 and 1600.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 522.5 | C.Y. |
| Coarse cap sand | 374 | C.Y. |
| Thin cap sand to date | 4521 | C.Y. |
| Coarse cap sand to date | 374 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 18 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 18 | SAND CONVEYOR | 10 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 18 | 980 LOADERS | 20 | | |

**REMARKS:**

Note that initial placement of coarse cap sand at D3 was actually started outside the proposed capping area. Contractor was notified and will adjust their capping plan accordingly.

Eric Snow — Superintendent

2/3/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



2/3/01

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.**<br>71 |

| | |
|---|---|
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **CQC Representative:**<br>Thomas A. Fowler |

| **Preparatory Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location:** |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| **Initial Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location** |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor continues production capping in A8, M1, D2, B4, and D3 areas. Foster Wheeler does not conduct sediment sampling. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| **Follow Up Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location**<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| **Rework Items Identified Today (Not Corrected By Close of Business)** | **Rework Items Corrected Today from Rework List** |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 2/3/01
**Authorized Site QC Representative** — **Date**

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

None

Bill Gerken
**KPC QAO** — **Date**

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 72 | **Date :** 02/04/2001 |
| | **Day:** Sunday | **Shift:** Double | **Hours:** 7am – 1am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 5-FWENC, 3-McAmis<br>**Manual Labor:** 13-McAmis<br>**Remarks:** Double Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:**

**Weather:** Clear, 35° - 45°F.

**Summary of Construction Activities:**

- Contractor placed approximately 1012 total cubic yards of cap material today.
- Contractor continued production capping in area D3, placed approximately 556 cy of material.
- Contractor continued production capping in area B4 with coarse material, placed approximately 457 cy of material.
- Application method changed slightly for coarse-grained material. Coarse-grained material appears to slide out of bucket very quickly under water making it difficult for operator to effectively place material evenly throughout swing. For course grained material contractor was directed to release material just above surface, this allows operator to better monitor even placement.
- Barge down for approximately 2.5 hrs during day for repairs (brake diaphragm in crane and spud wire).
- FWENC collected 3 remaining verification samples in area M1; all samples were 100% sand in the top 10 cm. Production Capping in M1 verified and considered highly successful.
  FWENC collected 6 remaining verification samples in area A8; all samples were 100% sand in the top 10 cm. Production Capping in A8 verified and considered highly successful.
- FWENC conducted dive survey in area B4, collected three core samples that were all 100% sand in the top 10 cm. Visibility was poor at the time of the survey so no video of bottom was obtained.
- FWENC performed independent grain size analysis of coarse-grained material; results confirmed those provided by supplier and verify that material meets specifications.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. _____

# CONTRACTOR PRODUCTION REPORT



Date: 2/4/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 72 | | |
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: | Eric Snow |
| AM Weather:<br>Mostly sunny, 36 F | PM Weather:<br>Mostly sunny, 45 F | |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue thin capping with coarse cap sand in D3 area (placed 101 buckets or 555.5 CY in this area). | FWENC | 1 | Supervisor | 12 |
| | FWENC | 0 | Site Engineer | 0 |
| | FWENC | 1 | Scientist / SHSO | 12 |
| Continue thin capping with coarse cap sand in B4 area (placed 83 buckets or 456.5 CY in this area). | FWENC | 3 | Scientist/Engineer | 36 |
| | McAmis | 1 | Project / QC Mgr | 10.5 |
| | McAmis | 1 | Asst QC Manager | 9 |
| Conduct Performance Standard Verification sampling in M1, B4, and A8 areas in accordance with PSVP. | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| | McAmis | 0 | Surveyor | 0 |
| | McAmis | 0 | Foreman | 0 |
| Conduct WQM for capping in accordance with WQMP. | McAmis | 6 | Operator/Captain | 44 |
| | McAmis | 7 | Deck Hand | 63 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 194.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 10,082.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 10,276.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700 and 1600.
ESS WEEKLY INSPECTION.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 0 | C.Y. |
| Coarse cap sand | 1012 | C.Y. |
| Thin cap sand to date | 4521 | C.Y. |
| Coarse cap sand to date | 1386 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 15.5 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 18 | SAND CONVEYOR | 4 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 18 | 980 LOADERS | 8 | | |

**REMARKS:**

Derrick barge was down 2.5 hours during mid-day due to mechanical delays during repair of brake diaphragm and spud wire.

Eric Snow
Superintendent

2/4/01
Date

# CONTRACTOR QUALITY CONTROL REPORT



2/4/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>72 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor continues production capping in B4 and D3 areas. Foster Wheeler collects samples with van Veen sampler from M1 area and A8 area, completing sampling in both locations. All samples passed. See attached maps and tables for details.<br>Foster Wheeler and Alaska Commercial Divers conduct diver survey and collect three core samples from B4 test area. Visibility was extremely poor, so there are no video results. All cores contained 100% sand and gravel material a minimum of 6" thick. Production capping will continue in this area and further sampling will be conducted when complete.<br><br>Foster Wheeler peforms independent grain size analysis of coarse cap material (3" minus). Results corroborate Construction Aggregates' results and verify that the material meets the specification. See attached spreadsheet for details. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — Authorized Site QC Representative — Date: 2/4/01

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken — KPC QAO — Date

## QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 73 | **Date :** 02/05/2001 |
| | **Day:** Monday | **Shift:** Double | **Hours:** 7am – 1am |

| | |
|---|---|
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 5-FWENC, 3-McAmis<br>**Manual Labor:** 12-McAmis<br>**Remarks:** Double Shift |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:** Tammy Phillips with USACE

**Weather:** Overcast to Clear, 30° - 40°F.

**Summary of Construction Activities:**

- Contractor placed approximately 1084 total cubic yards of cap material today.
- Contractor continued production capping in areas D3 and B4, placed approximately 303 cy of coarse material.
- Contractor continued production capping in areas A7, B2, and B3, placed approximately 781 cy of material.
- FWENC collected 2 verification samples in area D3 with the grab sampler; both samples were 100% sand in the top 10 cm. Collection of grab samples in this area is difficult due to the gravel present in the coarse cap material, remaining verification in this area will be done with divers and push cores.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

BY: William J. Gerken, P.E. WJG

# CONTRACTOR PRODUCTION REPORT



Date: 2/5/01

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| **Report No.** 72 | | |
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **Superintendent:** | Eric Snow |
| **AM Weather:**<br>Overcast to clearing later, 38 F | **PM Weather:**<br>Clear, cold, 32 F | |

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue thin capping with coarse cap sand in D3 and B4 areas (placed 302.5 CY in these areas). | FWENC | 1 | Supervisor | 12 |
| | FWENC | 0 | Site Engineer | 0 |
| | FWENC | 1 | Scientist / SHSO | 12 |
| Continue thin capping with fine grained cap sand in B3, B2 and A7 areas (placed 781 CY in these areas). | FWENC | 3 | Scientist/Engineer | 36 |
| | McAmis | 1 | Project / QC Mgr | 10.5 |
| | McAmis | 1 | Asst QC Manager | 9 |
| Conduct Performance Standard Verification sampling in D3 area in accordance with PSVP. | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| | McAmis | 0 | Surveyor | 0 |
| | McAmis | 0 | Foreman | 0 |
| Conduct WQM for capping in accordance with WQMP. | McAmis | 4 | Operator/Captain | 36 |
| | McAmis | 8 | Deck Hand | 72 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 195.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 10,276.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 10,472.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700 and 1600.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 781 | C.Y. |
| Coarse cap sand | 302.5 | C.Y. |
| Thin cap sand to date | 5302 | C.Y. |
| Coarse cap sand to date | 1688.5 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 18 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 18 | SAND CONVEYOR | 0 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 3 | | |
| "SALTY" CREW BOAT | 18 | 980 LOADERS | 0 | | |

**REMARKS:**

Eric Snow — 2/5/01

Superintendent — Date

# CONTRACTOR QUALITY CONTROL REPORT



2/5/01

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.**<br>73 |
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **CQC Representative:**<br>Thomas A. Fowler | |

| **Preparatory Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location:** |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| **Initial Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location** |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor continues production capping in B4, D3, B3, B2, and A7 areas. Foster Wheeler collects two samples with van Veen sampler from D3 area. Tabulated results will be included when sampling in this area is complete. Note that sampling with the van Veen was encumbered by the coarse material (cobbles and stones) present in the coarse capping sand. Further sampling in areas capped with coarse material will be by diver push cores. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| **Follow Up Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location**<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| **Rework Items Identified Today (Not Corrected By Close of Business)** | **Rework Items Corrected Today from Rework List** |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 2/5/01
**Authorized Site QC Representative** — **Date**

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

None

Bill Gerken
**KPC QAO** — **Date**

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 74 | **Date :** 02/06/2001 |
| | **Day:** Tuesday | **Shift:** Double | **Hours:** 7am – 1am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 5-FWENC, 3-McAmis<br>**Manual Labor:** 14-McAmis<br>**Remarks:** Double Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:** Tammy Phillips with USACE

**Weather:** Clear, 25° - 35°F.

**Summary of Construction Activities:**

- Contractor placed approximately 738 total cubic yards of cap material today.
- Contractor continued production capping in area B4, placed approximately 60 cy of coarse material.
- Contractor continued production capping in areas B2, and A6, placed approximately 678 cy of material.
- FWENC conducted verification sampling in D3 and B4 using divers and push cores as well as video. 8 additional samples collected in D3, all samples were 100% sand in top 10 cm. Verification complete in area D3 capping found to be very successful. 6 additional samples collected in B4, all samples were 100% sand in top 10 cm. One sample remaining in B4 to complete verification.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. WJG

# CONTRACTOR PRODUCTION REPORT



Date: 2/6/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No. 74 |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Cold, clear, and calm, 27 F | PM Weather:<br>Clear, cold, 32 F |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue thin capping with coarse cap sand in B4 area (placed 60.5 CY in this area). | FWENC | 1 | Supervisor | 12 |
| | FWENC | 0 | Site Engineer | 0 |
| | FWENC | 1 | Scientist / SHSO | 12 |
| Continue thin capping with fine grained cap sand in B2 and A6 area (placed 589.875 CY in B2 and 88 CY in A6 for a total of 677.875 CY). | FWENC | 3 | Scientist/Engineer | 36 |
| | McAmis | 1 | Project / QC Mgr | 10.5 |
| | McAmis | 1 | Asst QC Manager | 9.5 |
| Conduct Performance Standard Verification sampling in D3 and B4 areas by diver push cores in accordance with PSVP. | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| | McAmis | 0 | Surveyor | 0 |
| | McAmis | 0 | Foreman | 0 |
| Conduct WQM for capping in accordance with WQMP. | McAmis | 6 | Operator/Captain | 56 |
| | McAmis | 8 | Deck Hand | 73 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 217.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 10,472.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 10,689.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED:

Conduct tailgate safety briefing at 0700 and 1600.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 677.875 | C.Y. |
| Coarse cap sand | 60.5 | C.Y. |
| Thin cap sand to date | 5979.875 | C.Y. |
| Coarse cap sand to date | 1749 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 18 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 18 | SAND CONVEYOR | 10 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 3 | | |
| "SALTY" CREW BOAT | 18 | 980 LOADERS | 20 | | |

REMARKS: Note: J.E. McAmis did not break out the small area of A6 capped during capping of B2 in their daily QC report. The total volume of material placed does not change.

Eric Snow — Superintendent

2/6/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



2/6/01

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.**<br>74 |
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **CQC Representative:**<br>Thomas A. Fowler | |

| **Preparatory Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location:** |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| **Initial Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location** |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor continues production capping in B4 and B2 areas. Foster Wheeler collects diver core samples from D3 and B4 areas with Alaska Commercial Divers. Eight samples collected from D3 all contain 100% sand. Six cores from B4 all contain 100% sand. One core sample remains to be taken from northern "finger" of B4 once capping is complete in that area. |
| Sample has been Prepared/Approved | | See attached figures and tables for details. |
| Workmanship is satisfactory | | |
| Test results are acceptable | | Checked DGPS positioning on Invader 1. Brief calculations provided below. Positioning acceptable. |
| Work is in compliance with the contract | | |
| | | |

| Station ID | Easting (ft) | Northing (ft) | Distance to Station (ft) |
|---|---|---|---|
| DOLPHIN WEST | 3088693.18 | 1310152.79 | 0.00 |
| 8:18:22 | 3088694.82 | 1310148.08 | 2.72 |

| **Follow Up Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location**<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — Authorized Site QC Representative — Date: 2/6/01

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

None

Bill Gerken — KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 75 | **Date :** 02/07/2001 |
| | **Day:** Wednesday | **Shift:** Double | **Hours:** 7am – 1am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 3-McAmis<br>**Manual Labor:** 14-McAmis<br>**Remarks:** Double Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:** Tammy Phillips with USACE

**Weather:** Overcast, Light snow and sleet, 30° - 35°F.

**Summary of Construction Activities:**

- Contractor placed approximately 1078 total cubic yards of cap material today.
- Contractor completed production capping in area B4, placed approximately 203 cy of coarse material.
- Contractor continued production capping in areas B2, and A7, placed approximately 875 cy of material.
- Weekly project QC, progress, and scheduling meeting held.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. WJG

# CONTRACTOR PRODUCTION REPORT



Date: 2/7/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No. 75 |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Cold, calm, overcast, snow, 28 F | PM Weather:<br>Overcast, some drizzle/slush, 30 F |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Complete thin capping with coarse cap sand in B4 area (placed 203.5 CY in this area). | FWENC | 1 | Supervisor | 12 |
| | FWENC | 0 | Site Engineer | 0 |
| | FWENC | 1 | Scientist / SHSO | 12 |
| Continue thin capping with fine grained cap sand in B2 and A7 areas (placed a 577.5 CY in B2 and 297 in A7 for a total of 874.5 CY). | FWENC | 2 | Scientist/Engineer | 22 |
| | McAmis | 1 | Project / QC Mgr | 10.5 |
| | McAmis | 1 | Asst QC Manager | 9 |
| Conduct WQM for capping in accordance with WQMP. | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| | McAmis | 0 | Surveyor | 0 |
| | McAmis | 0 | Foreman | 0 |
| | McAmis | 6 | Operator/Captain | 56 |
| | McAmis | 8 | Deck Hand | 72 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 203.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 10,689.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 10,892.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700 and 1600.
SITE SPECIFIC SAFETY ORIENTATION FOR 4 NEW PEOPLE

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 874.5 | C.Y. |
| Coarse cap sand | 203.5 | C.Y. |
| Thin cap sand to date | 6854.375 | C.Y. |
| Coarse cap sand to date | 1952.5 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 18 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 18 | SAND CONVEYOR | 20 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 18 | 980 LOADERS | 40 | | |

REMARKS: Weekly meeting held on this date.

Eric Snow — 2/7/01
Superintendent — Date

# CONTRACTOR QUALITY CONTROL REPORT

 2/7/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>75 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor continues production capping in B4, B2, and A7 areas. Foster Wheeler collects no performance verification samples on this date. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Weekly meeting held on this date.

Tom Fowler — 2/7/01
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 76 | **Date :** 02/08/2001 |
| | **Day:** Thursday | **Shift:** Double | **Hours:** 7am – 1am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 3-McAmis<br>**Manual Labor:** 14-McAmis<br>**Remarks:** Double Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:** Tammy Phillips with USACE

**Weather:** Overcast, 30° - 35°F.

**Summary of Construction Activities:**

- Contractor continued production capping in area B2, placed approximately 907 cy of material. Crane down for approximately 5 hours during night shift due to communications cable being severed between computer and crane.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. _____

# CONTRACTOR PRODUCTION REPORT



Date: 2/8/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 76 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Overcast, 30 F

**PM Weather:** Overcast, 35 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue thin capping in B2 area (placed 907.5 CY in this area). | FWENC | 1 | Supervisor | 12 |
| | FWENC | 0 | Site Engineer | 0 |
| Conduct WQM for capping in accordance with WQMP. | FWENC | 1 | Scientist / SHSO | 12 |
| | FWENC | 2 | Scientist/Engineer | 22 |
| | McAmis | 1 | Project / QC Mgr | 11 |
| | McAmis | 1 | Asst QC Manager | 9.5 |
| | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| | McAmis | 0 | Surveyor | 0 |
| | McAmis | 0 | Foreman | 0 |
| | McAmis | 5 | Operator/Captain | 44 |
| | McAmis | 9 | Deck Hand | 81.5 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 202.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 10,892.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 11,094.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700 and 1600.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 907.5 | C.Y. |
| Coarse cap sand | 0 | C.Y. |
| Thin cap sand to date | 7761.875 | C.Y. |
| Coarse cap sand to date | 1952.5 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY: INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 13 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 18 | SAND CONVEYOR | 8 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 18 | 980 LOADERS | 8 | | |

**REMARKS:** Contractor is delayed for approximately 5 hours during night shift after severing communications cable between computer and derrick crane.

Eric Snow — Superintendent

2/8/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



2/8/01

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.**<br>76 |
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **CQC Representative:**<br>Thomas A. Fowler | |

| **Preparatory Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location:** |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| **Initial Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location** |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor continues production capping in B2 area. Foster Wheeler collects no performance verification samples on this date. Sampling will resume tomorrow. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| **Follow Up Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location**<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| **Rework Items Identified Today (Not Corrected By Close of Business)** | **Rework Items Corrected Today from Rework List** |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 2/8/01
**Authorized Site QC Representative** — **Date**

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

None

Bill Gerken
**KPC QAO** — **Date**

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 77 | **Date :** 02/09/2001 |
| | **Day:** Friday | **Shift:** Double | **Hours:** 7am – 1am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 3-McAmis<br>**Manual Labor:** 11-McAmis<br>**Remarks:** Double Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:**

**Weather:** Overcast, Some Light Snow, 30° - 35°F.

**Summary of Construction Activities:**

- Contractor completed production capping in area A6, placed approximately 1178 cy of material.
- FWENC conducted verification sampling in B3 and B4 using divers and push cores as well as video. 1 sample collected in B4 which was 100% sand in top 10 cm. Verification complete in area B4 capping found to be very successful. 6 samples collected in B3, 5 samples were 100% sand in top 10 cm, 6th sample was 55% sand. Verification complete in area B3 capping found to be very successful.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. WJG

# CONTRACTOR PRODUCTION REPORT



Date: 2/9/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 77 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Overcast, 30 F

**PM Weather:** Overcast to clearing, some snow early, 30 F

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue and complete thin capping in A6 area (placed 1178.375 CY in this area). | FWENC | 1 | Supervisor | 12 |
| | FWENC | 0 | Site Engineer | 0 |
| | FWENC | 1 | Scientist / SHSO | 12 |
| Conduct diver survey and collect Performance Standard Verification samples from B4 and B3 areas. | FWENC | 2 | Scientist/Engineer | 24 |
| | McAmis | 1 | Project / QC Mgr | 10.5 |
| | McAmis | 1 | Asst QC Manager | 11.5 |
| Conduct WQM for capping in accordance with WQMP. | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| | McAmis | 0 | Surveyor | 0 |
| | McAmis | 0 | Foreman | 0 |
| | McAmis | 4 | Operator/Captain | 38.5 |
| | McAmis | 7 | Deck Hand | 67.5 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 186.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 10,892.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 11,078.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Conduct tailgate safety briefing at 0700 and 1600.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 1178.375 | C.Y. |
| Coarse cap sand | 0 | C.Y. |
| Thin cap sand to date | 8940.25 | C.Y. |
| Coarse cap sand to date | 1952.5 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 19 | "KFP 1" FLAT DECK BARGE | 19 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 19 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 19 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 19 | SAND CONVEYOR | 0 | | |
| "THE BUGGY" SMALL TUG | 19 | "INVADER 1" DIVE BOAT (TRIPS) | 3 | | |
| "SALTY" CREW BOAT | 19 | 980 LOADERS | 0 | | |

**REMARKS:**

Eric Snow — Superintendent

2/9/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



2/9/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>77 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor continues production capping in A6 area. Foster Wheeler and Alaska Commercial Divers collect performance standard verification samples from B4 and B3 areas with core tubes. Diver survey indicates uniform coverage in both areas and high log/debris density in B3 area. One sample collected from B4 area consists of 100% sand and gravel. This completes capping and verification in the B4 area. Five of six samples collected in B3 area consists of 100% sand, sixth sample consists of 55 mL of sand per 100 mL of sample. This sample was sieved because it was mixed during transit from the bottom to the boat. This completes capping and verification in the B3 area. See attached maps and tables for further details. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 2/9/01
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 78 | **Date :** 02/10/2001 |
| | **Day:** Saturday | **Shift:** Day | **Hours:** 7am – 1am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 3-FWENC, 2-McAmis<br>**Manual Labor:** 7-McAmis<br>**Remarks:** Single Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:**

**Weather:** Overcast, Some Light Snow, 30° - 35°F.

**Summary of Construction Activities:**

- No in water work today, contractor performing scheduled repairs to deck winches.
- Contractor unloading fourth (last) sand barge, approximately 7000 tons of material.
- FWENC conducted verification sampling in area B2 using divers and push cores as well as video. 12 samples collected, 11 samples were 100% sand in top 10 cm, 12th sample was 30% sand. Verification complete in area B2 capping found to be very successful.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- No water quality monitoring due to no in water work.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. WJG

# CONTRACTOR PRODUCTION REPORT



Date: 2/10/01

Contract No. 1
Work Order No. 1

Title & Location: Ward Cove Remediation Project, Ward Cove, Alaska

Report No. 78

Contractor: Foster Wheeler Environmental Corporation

Superintendent: Eric Snow

AM Weather: ~~Overcast, 30 F~~ Clear, calm, 30°F

PM Weather: Clear, breeze, 38°F ~~Overcast to clearing, some snow early, 30 F~~

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Commence unload of fourth barge-load of British Columbia sand. | FWENC | 1 | Supervisor / SHSO | 10 |
| | FWENC | 0 | Site Engineer | 0 |
| Conduct Performance Standard Verification Sampling in B2 area. | FWENC | 0 | Scientist / SHSO | 0 |
| | FWENC | 2 | Scientist/Engineer | 14 |
| Repair deck winches on Miller 205 barge. | McAmis | 1 | Project / QC Mgr | 4.5 |
| | McAmis | 0 | Asst QC Manager | 0 |
| | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| | McAmis | 0 | Surveyor | 0 |
| | McAmis | 0 | Foreman | 0 |
| | McAmis | 7 | Operator/Captain | 60 |
| | McAmis | 0 | Deck Hand | 0 |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 96.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 11,078.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 11,175.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

FW ESS conducts weekly inspection of work areas.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

Approximately 7,000 ton fine grained thin cap sand

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 0 | C.Y. |
| Coarse cap sand | 0 | C.Y. |
| Thin cap sand to date | 8940.25 | C.Y. |
| Coarse cap sand to date | 1952.5 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 0 | "KFP 1" FLAT DECK BARGE | 0 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 0 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 0 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 10 | SAND CONVEYOR | 20 | | |
| "THE BUGGY" SMALL TUG | 0 | "INVADER 1" DIVE BOAT (TRIPS) | 1 | | |
| "SALTY" CREW BOAT | 0 | 980 LOADERS | 40 | | |

REMARKS:

Eric Snow — Superintendent

2/10/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



2/10/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>78 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor unloads sand and repairs derrick barge deck winches. Foster Wheeler collects performance verification samples from B2 area. Attempted to sample the A6 area, but the derrick barge was anchored above this cap area.<br>Eleven of the twelve samples collected consisted of 100% sand. Twelfth sample contained 30 mL of sand per 100mL of wet sample (volumetric) and was confirmed to contain 73.5% sand (dry weight) in the laboratory. See attached maps and tables for further details.<br><br>Foster Wheeler collected a representative sample of the last barge load of BC sand. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

No Water Quality Monitoring conducted today because no in-water work was conducted.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 2/10/01

Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken

KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 79 | **Date :** 02/12/2001 |
| | **Day:** Monday | **Shift:** Double | **Hours:** 7am – 1am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 3-McAmis<br>**Manual Labor:** 14-McAmis<br>**Remarks:** Double Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:**

**Weather:** Overcast, 25° - 35°F.

**Summary of Construction Activities:**

- Contractor continued production capping in area A7. Placed approximately 853 cy of material. Operations are slowed and placement is prohibited in one area due to GFP race and boom shacks, which were not replaced in original location.
- Contractor completed unloading fourth (last) sand barge. Weigh tickets for all 4 sand barges attached.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 2/12/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 79 | | |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Cloudy, calm, 26 F | PM Weather:<br>Cloudy, calm, 32 F |

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue thin capping in A7 area. Placed a total of 852.5 CY in this area. | FWENC | 1 | Supervisor / SHSO | 12 |
| | FWENC | 0 | Scientist / SHSO | 0 |
| Completed off-loading final barge of sand from British Columbia on 2/11/01. | FWENC | 3 | Scientist/Engineer | 36 |
| | McAmis | 1 | Project / QC Mgr | 11 |
| Conduct Water Quality Monitoring for capping in accordance with WQMP. | McAmis | 1 | Asst QC Manager | 9.5 |
| | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| | McAmis | 5 | Operator/Captain | 46 |
| | McAmis | 9 | Deck Hand | 81.5 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 206.0 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 11,175.0 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 11,381.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety briefings at 0700 and 1600.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 852.5 | C.Y. |
| Coarse cap sand | 0 | C.Y. |
| Thin cap sand to date | 9792.75 | C.Y. |
| Coarse cap sand to date | 1952.5 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 18 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 18 | SAND CONVEYOR | 10 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 0 | | |
| "SALTY" CREW BOAT | 18 | 980 LOADERS | 10 | | |

REMARKS:

Eric Snow — Superintendent

2/12/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



2/12/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>79 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor continues thin capping in A7 area. Placement is prohibited by boom shacks and race which have been replaced. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Contractor provides weight tickets for four barges bringing sand from Construction Aggregates in Victoria, British Columbia. See attached sheets for details.

Tom Fowler — 2/12/01
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 80 | **Date :** 02/13/2001 |
| | **Day:** Tuesday | **Shift:** Double | **Hours:** 7am – 1am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 3-McAmis<br>**Manual Labor:** 13-McAmis<br>**Remarks:** Double Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:**

**Weather:** Overcast, Rain 30° - 35°F.

**Summary of Construction Activities:**

- Contractor continued production capping in area A7. Placed approximately 132 cy of material. Operations continue to be slowed and placement is prohibited in one area due to GFP race and boom shacks.
- Contractor completed production capping in area D2. Placed approximately 296 cy of material.
- Contractor mistakenly placed approximately 688 cy outside designated capping areas in an area between A4 and D2 to the west of areas B2 and A7. This was solely a contractor error, KPC will not be responsible for payment for material, or placement costs associated with this material.
- Contractor began hauling (trucking) additional sand from stockpile area, which it had delivered on last barge for use on other projects. Contractor was not weighing trucks to accurately track tons of sand they were hauling. FWENC brought this to the attention of the contractor and KPC. It is the contractor's responsibility/obligation to provide accurate and satisfactory documentation on tons of sand removed and thus tons of sand on sight for capping operations. KPC is not responsible for any costs associated with weighing and/or documenting the sand removed from the sight.
- FWENC verified gradation of capping sand on fourth barge.
- FWENC conducted verification sampling in area A6 using the van veen sampler. 10 samples were collected, 8 samples were 100% sand in top 10 cm, 2 sample were approximately 80% sand. Verification complete in area A6 capping found to be very successful.
- FWENC conducted verification sampling in area A7 using divers and push cores as well as video. 3 samples were collected; all samples were 100% sand in top 10 cm. Verification sampling in area A7 will be completed after the barge has left the area.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. WJG

# CONTRACTOR PRODUCTION REPORT



Date: 2/13/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 80 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Overcast, rain, 34

**PM Weather:** Overcast, rain, 34

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue thin capping in A7 and D2 areas. Placed a total of 132 CY in A7 and 295.625 CY in D2. | FWENC | 1 | Supervisor / SHSO | 12 |
| | FWENC | 0 | Scientist / SHSO | 0 |
| | FWENC | 3 | Scientist/Engineer | 36 |
| Conducted Performance Standard Verification sampling in A6 and partially in A7. | McAmis | 1 | Project / QC Mgr | 10.5 |
| | McAmis | 1 | Asst QC Manager | 9.5 |
| | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| Conduct Water Quality Monitoring for capping in accordance with WQMP. | McAmis | 5 | Operator/Captain | 44 |
| | McAmis | 8 | Deck Hand | 72.5 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 194.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 11,381.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 11,575.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety briefings at 0700 and 1600.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 427.625 | C.Y. |
| Coarse cap sand | 0 | C.Y. |
| Thin cap sand to date | 10220.375 | C.Y. |
| Coarse cap sand to date | 1952.5 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 18 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 18 | SAND CONVEYOR | 8 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 3 | | |
| "SALTY" CREW BOAT | 18 | 980 LOADERS | 8 | | |

**REMARKS:** Contractor mistakenly placed approximately 687.5 CY in area between A7 and D2 cap areas. This quantity was not included on the contractor's production report.

Upcoming days will be single shift due to low tide fluctuations and inability to load sand barges.

Contrary to the comment on McAmis' daily production report, there is no confusion on FWENC's or KP's part regarding the sand in excess of capping requirements. No agreement was made other than South Coast could fill the remaining capacity of the barge with sand for their own use. No additional costs will be considered. Payment for capping sand is based on material delivered to the site. It is South Coast's responsibility to provide accurate documentation acceptable to FWENC for verification of sand quantities removed from the site.

Eric Snow — 2/13/01

Superintendent — Date

# CONTRACTOR QUALITY CONTROL REPORT



2/13/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>80 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor continues thin capping in A7 and D2 areas. Placement is still prohibited by race. Day shift placed approximately 726 CY in the wrong area.<br>Foster Wheeler collected ten samples with van Veen sampler from A6 cap area. Eight of the ten samples contained 100% sand by volume. The remaining two samples contained approximately 80% sand by volume. Foster Wheeler and Alaska Commercial Divers collected three samples from the A7 cap area with push cores. All three samples contained 100% sand in the upper 10 cm. Further sampling to be conducted in A7 at a later date.<br><br>Foster Wheeler reviews results of gradation tests performed by Construction Aggregates Limited for final barge load of fine grained sand capping material. Material conforms with specification. Foster Wheeler also performs QA check using #4, #8, and #200 sieves. Results of QA check and Construction Aggregates results corroborate. See attached letter from Construction Aggregates and spreadsheet compiled by Foster Wheeler. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Tom Fowler — 2/13/01
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 81 | **Date :** 02/14/2001 |
| | **Day:** Wednesday | **Shift:** Double | **Hours:** 7am – 1am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 3-McAmis<br>**Manual Labor:** 13-McAmis<br>**Remarks:** Double Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:**

**Weather:** Overcast, Light Rain 30° - 35°F.

**Summary of Construction Activities:**

- Contractor moved to area A5 and continued production capping. Placed approximately 1073 cy of material.
- Contractor will only work one shift next two days because sand barges can only be loaded once a day due to tides.
- Contractor hauling (trucking) additional sand from stockpile area, which it had delivered on last barge for use on other projects. Contractor now weighing a portion of trucks to determine average tons of sand they are hauling per load. FWENC personnel are counting trucks to verify amount of material hauled.
- Weekly project QC, progress, and scheduling meeting held.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. _____

# CONTRACTOR PRODUCTION REPORT



Date: 2/14/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 81 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Cloudy, slight rain, 34

**PM Weather:** Clear, calm, 30

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue thin capping in A5 area. Placed a total of 1072.5 CY. | FWENC | 1 | Supervisor / SHSO | 12 |
| | FWENC | 0 | Scientist / SHSO | 0 |
| Conduct Water Quality Monitoring for capping in accordance with WQMP. | FWENC | 3 | Scientist/Engineer | 36 |
| | McAmis | 1 | Project / QC Mgr | 10 |
| | McAmis | 1 | Asst QC Manager | 9.5 |
| | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| | McAmis | 5 | Operator/Captain | 44.5 |
| | McAmis | 8 | Deck Hand | 72.5 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 194.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 11,575.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 11,770.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety briefings at 0700 and 1600.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 1072.5 | C.Y. |
| Coarse cap sand | 0 | C.Y. |
| Thin cap sand to date | 11292.875 | C.Y. |
| Coarse cap sand to date | 1952.5 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 18 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 18 | SAND CONVEYOR | 8 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 18 | 980 LOADERS | 8 | | |

**REMARKS:** The contractor noted that seven additional buckets (38.5 CY) should have been included in the total volume placed for 2/13/01. This information was included in the Foster Wheeler daily for that day.

Eric Snow 2/14/01

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT



2/14/01

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.**<br>**81** |
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **CQC Representative:**<br>Thomas A. Fowler | |

| **Preparatory Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location:** |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| **Initial Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location** |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor continues thin capping in A5. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| **Follow Up Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location**<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Bernadette Kenworthy B.R. Kenworthy 2/14/01
Authorized Site QC Representative Date

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

None

Bill Gerken
KPC QAO Date

## QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 82 | **Date :** 02/15/2001 |
| | **Day:** Thursday | **Shift:** Single | **Hours:** 7am – 1am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 3-McAmis<br>**Manual Labor:** 6-McAmis<br>**Remarks:** Single Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:**

**Weather:** Clear, 30° - 40°F.

**Summary of Construction Activities:**

- Contractor worked one shift because sand barges can only be loaded once a day due to tides.
- Contractor continued production capping in area A5, placed approximately 751 cy of material.
- Contractor had to again utilize his manpower and equipment to help GFP remove obstructions from work area. Contractor has indicated that he will no longer dedicate time and equipment, to work, which should be done by GFP, without compensation.
- FWENC completed verification sampling in area A7 using divers and push cores as well as video. 7 samples collected, all samples were 100% sand in top 10 cm. Small area under boom shack that contractor felt may not have received coverage was indeed covered adequately, diver swam area under boomshack and collected a verification sample from this area as well as video, area had a large amount of logs and debris. Verification complete in area A7 capping found to be very successful.
- FWENC completed verification sampling in area D2 using van veen sampler. 12 samples collected, 5 samples were 100% sand in top 10 cm, 4 samples were between 80% and 95% by volume, 1 sample at 60%, 1 sample at 40%, and one sample at 25% which was collected slightly outside the cap area boundary. Verification complete in area D2 capping found to be very successful.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 2/15/01

Report No. 82

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Clear, calm, 30 | PM Weather:<br>Clear, calm, 40 |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue thin capping in A5 area. Placed a total of 750.75 CY. | FWENC | 1 | Supervisor / SHSO | 12 |
| | FWENC | 0 | Scientist / SHSO | 0 |
| Conduct PSV Sampling in A7 and D2 areas. | FWENC | 3 | Scientist/Engineer | 36 |
| | McAmis | 1 | Project / QC Mgr | 10.5 |
| Conduct Water Quality Monitoring for capping in accordance with WQMP. | McAmis | 1 | Asst QC Manager | 0 |
| | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| | McAmis | 3 | Operator/Captain | 26.5 |
| | McAmis | 3 | Deck Hand | 27 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 122.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 11,770.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 11,892.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety briefings at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 750.75 | C.Y. |
| Coarse cap sand | 0 | C.Y. |
| Thin cap sand to date | 12043.625 | C.Y. |
| Coarse cap sand to date | 1952.5 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 9 | "KFP 1" FLAT DECK BARGE | 9 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 9 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 9 | LIMA CRANE | 9 | | |
| "RV DAY" TUG | 9 | SAND CONVEYOR | 8 | | |
| "THE BUGGY" SMALL TUG | 9 | "INVADER 1" DIVE BOAT (TRIPS) | 4 | | |
| "SALTY" CREW BOAT | 9 | 980 LOADERS | 8 | | |

REMARKS: Contractor only works day shift because a low tide during the night prohibits sand barge loading. Contractor moves log rafts, lifts anchors, and performs the needed tasks to free work area of obstructions. These activities were initially agreed to be performed by GFP and are utilizing workers and equipment needed by the contractor to continue their capping activities.

Eric Snow 2/15/01

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT



2/15/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>82 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Thomas A. Fowler | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor continues thin capping in A5. |
| Sample has been Prepared/Approved | | Foster Wheeler finishes PSV sampling in A7 using push cores collected by divers. Eight cores consisted of 20-30 cm of sand. Two others contained between 15-20 cm of sand. One of the samples was collected under the boom shack and race. This sample contained 27 cm of sand. The diver documented with video even sand coverage on the ground, logs, and cable under the shack. All diving activities for this area were videotaped. |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | Foster Wheeler starts and completes PSV sampling in D2. Twelve samples were collected with the following results: 5 of 100% sand by volume, 1 of 95%, 1 of 84%, 1 of 82%, 1 of 80%, 1 of 60%, 1 of 40%, and 1 of 25% All samples pass with percentages greater than 10% by volume (40% by weight). Lab confirmation of 20% of these samples is underway. See attached maps and tables for further details of sampling is A7 and D2. |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Bernadette Kenworthy B.R. Kenworthy — 2/15/01
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 83 | **Date :** 02/16/2001 |
| | **Day:** Friday | **Shift:** Single | **Hours:** 7am – 1am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 3-McAmis<br>**Manual Labor:** 7-McAmis<br>**Remarks:** Single Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Offloading Barge and Conveyor System.

**Visitors:**

**Weather:** Clear, 25° - 30°F.

**Summary of Construction Activities:**

- Contractor worked one shift because sand barges can only be loaded once a day due to tides.
- Contractor finished production capping in area A5, placed approximately 795 cy of material.
- Contractor had to again utilize his manpower and equipment to help GFP move log rafts, lift anchors, and establish boundaries. Contractor feels this work is extra and outside the scope of his contract.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. _____

# CONTRACTOR PRODUCTION REPORT



Date: 2/16/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 83 | | |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Clear, calm, 22 | PM Weather:<br>Clear, calm, 29 |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Finish thin capping in A5 area. Placed a total of 794.75 CY. | FWENC | 1 | Supervisor / SHSO | 12 |
| | FWENC | 0 | Scientist / SHSO | 0 |
| Assist GFP in moving log rafts and establishing boundaries. | FWENC | 3 | Scientist/Engineer | 36 |
| | McAmis | 1 | Project / QC Mgr | 10 |
| Conduct Water Quality Monitoring for capping in accordance with WQMP. | McAmis | 1 | Asst QC Manager | 9.5 |
| | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| | McAmis | 3 | Operator/Captain | 26.5 |
| | McAmis | 4 | Deck Hand | 36.5 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 140.5 |
| Were there any lost time accidents this date?<br>(If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 11,892.0 |
| Was trenching/scaffolding/HV electrical/high work done this date?<br>(If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment?<br>(If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 12,032.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety briefings at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 794.75 | C.Y. |
| Coarse cap sand | 0 | C.Y. |
| Thin cap sand to date | 12838.375 | C.Y. |
| Coarse cap sand to date | 1952.5 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 9 | "KFP 1" FLAT DECK BARGE | 9 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 9 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 9 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 9 | SAND CONVEYOR | 8 | | |
| "THE BUGGY" SMALL TUG | 9 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 9 | 980 LOADERS | 8 | | |

**REMARKS:** Contractor only works day shift because a low tide during the night prohibits sand barge loading. Contractor moves log rafts, lifts anchors, and performs the needed tasks to free work area of obstructions. The survey boat and the contractor project manager and quality control officer spend two hours at this task. "The Buggy" small tug provides three hours of extra work.

Eric Snow — Superintendent

2/16/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



2/16/01

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.**<br>**83** |
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **CQC Representative:**<br>Bernadette R. Kenworthy | |

| **Preparatory Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location:** |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| **Initial Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location** |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor finishes thin capping in A5. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| **Follow Up Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location**<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| **Rework Items Identified Today (Not Corrected By Close of Business)** | **Rework Items Corrected Today from Rework List** |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Bernadette Kenworthy B.R. Kenworthy — 2/16/01
**Authorized Site QC Representative** — **Date**

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

None

Bill Gerken
**KPC QAO** — **Date**

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 84 | **Date :** 02/17/2001 |
| | **Day:** Saturday | **Shift:** Single | **Hours:** 7am – 1am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 2-McAmis<br>**Manual Labor:** 6-McAmis<br>**Remarks:** Single Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Conveyor System.

**Visitors:**

**Weather:** Clear, 25° - 30°F.

**Summary of Construction Activities:**

- Contractor worked one shift because sand barges can only be loaded once a day due to tides.
- Contractor began production capping in area B1, placed approximately 601 cy of material.
- FWENC completed verification sampling in area A5 using van veen sampler. 12 samples collected, 10 samples were 100% sand in top 10 cm, 1 sample was 43% by volume, and 1 sample was 23% by volume. Samples, which were not 100%, were collected close to or slightly outside the cap area boundary. Verification complete in area A5 capping found to be very successful.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity not exceeded, DO at mid depth (70') and bottom (140') was below 5 mg/l. EPA was notified. Exceedence does not appear to be due to operations. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 2/17/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 84 | | |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Clear, calm, 29 | PM Weather:<br>Clear, calm, 40 |

**Work Performed Today**

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Begin thin capping in B1 area. Placed a total of 600.875 CY. | FWENC | 1 | Supervisor / SHSO | 12 |
| | FWENC | 0 | Scientist / SHSO | 0 |
| Conduct PSV Sampling in A5. | FWENC | 3 | Scientist/Engineer | 36 |
| | McAmis | 1 | Project / QC Mgr | 9.5 |
| Conduct Water Quality Monitoring for capping in accordance with WQMP. | McAmis | 0 | Asst QC Manager | 0 |
| | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| | McAmis | 2 | Operator/Captain | 19 |
| | McAmis | 4 | Deck Hand | 35.5 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 120.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 12,032.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 12,152.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety briefings at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 600.875 | C.Y. |
| Coarse cap sand | 0 | C.Y. |
| Thin cap sand to date | 13439.25 | C.Y. |
| Coarse cap sand to date | 1952.5 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 9 | "KFP 1" FLAT DECK BARGE | 9 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 9 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 9 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 9 | SAND CONVEYOR | 8 | | |
| "THE BUGGY" SMALL TUG | 9 | "INVADER 1" DIVE BOAT (TRIPS) | 3 | | |
| "SALTY" CREW BOAT | 9 | 980 LOADERS | 8 | | |

**REMARKS:** Contractor only works day shift because a low tide during the night prohibits sand barge loading.

Dissolved oxygen concentrations at 70 ft. and 141 ft. measure below 5 mg/L (minimum of 3.93 mg/L at 141 ft.) during both WQ events. QAO and FW Superintendent notified.

Eric Snow — Superintendent

2/17/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



2/17/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>84 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Bernadette R. Kenworthy | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor begins capping in B1. |
| Sample has been Prepared/Approved | | FW starts and completes sampling in A5 area using the van Veen grab sampler. Twelve samples were collected. Ten samples consisted of 100% sand by volume, one of 23%, and one of 44%. The two samples which contained organics were collected near the A5 boundary. Lab confirmation samples will be conducted on the 23% and 43% samples. See attached table and map for additional information on sampling in this area. |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
DO above 5 mg/L at the surface and below 5 mg/L at 70 ft. and 141 ft. during both WQ events.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Bernadette Kenworthy B.R. Kenworthy 2/17/01
Authorized Site QC Representative Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken
KPC QAO Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 85 | **Date :** 02/18/2001 |
| | **Day:** Sunday | **Shift:** Single | **Hours:** 7am – 1am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 2-McAmis<br>**Manual Labor:** 7-McAmis<br>**Remarks:** Single Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Conveyor System.

**Visitors:**

**Weather:** Clear, 25° - 30°F.

**Summary of Construction Activities:**

- Contractor worked one shift because sand barges can only be loaded once a day due to tides.
- Contractor completed production capping in area B1, placed approximately 525 cy of material.
- Contractor reported that South Coast removed 2176 tons of sand from site. Documentation attached.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. Only one monitoring event today because there was no in water work during heavy ebb tide. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. _____

# CONTRACTOR PRODUCTION REPORT



Date: 2/18/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |

Report No. 85

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Clear, calm, 38 | PM Weather:<br>Clear, calm, 45 |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Finish thin capping in B1 area and small area in the bottom corner of A5. Placed a total of 525.25 CY. | FWENC | 1 | Supervisor / SHSO | 7 |
| | FWENC | 0 | Scientist / SHSO | 0 |
| | FWENC | 3 | Scientist/Engineer | 21 |
| Conduct Water Quality Monitoring for capping in accordance with WQMP. | McAmis | 1 | Project / QC Mgr | 9 |
| | McAmis | 1 | Asst QC Manager | 8 |
| | McAmis | 0 | Equip. Proj. Mgr. | 0 |
| | McAmis | 3 | Operator/Captain | 31 |
| | McAmis | 4 | Deck Hand | 21 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 97.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 12,152.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 12,249.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety briefings at 0700.
ESS MONTHLY INSPECTION

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 525.25 | C.Y. |
| Coarse cap sand | 0 | C.Y. |
| Thin cap sand to date | 13964.5 | C.Y. |
| Coarse cap sand to date | 1952.5 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 7 | "KFP 1" FLAT DECK BARGE | 7 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 7 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 7 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 9 | SAND CONVEYOR | 5 | | |
| "THE BUGGY" SMALL TUG | 9 | "INVADER 1" DIVE BOAT (TRIPS) | 1 | | |
| "SALTY" CREW BOAT | 7 | 980 LOADERS | 5 | | |

REMARKS: Contractor only works day shift because a low tide during the night prohibits sand barge loading.

Contractor reports that on 2/13/01 and 2/14/01, 170 loads of sand were removed from the site and delivered to SCI at an average of 12.8 tons/load and 1.28 tons/CY. The total removed equals 2176 tons or 1700 CY. See attached for the breakdown per day and per truck.

FW conducts one WQ event today because operations occurred during ebb tide only.

Eric Snow — Superintendent

2/18/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



2/18/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>85 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Bernadette R. Kenworthy | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor finishes thin capping in B1 and a small area in the bottom corner of A5. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Bernadette Kenworthy — 2/18/01
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 86 | **Date :** 02/19/2001 |
| | **Day:** Sunday | **Shift:** Double | **Hours:** 7am – 1am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 2-McAmis<br>**Manual Labor:** 7-McAmis<br>**Remarks:** Double Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Conveyor System.

**Visitors:** Karen Keeley with EPA

**Weather:** Clear, 35° - 45°F.

**Summary of Construction Activities:**

- Contractor began production capping in area A1, placed approximately 950 cy of material.
- Contractor reported devoting 1 hour of equipment time (Tugs RV Day and Buggy) with associated manpower to assisting GFP in attempting to move anchors and chain in outer capping areas. Loss of tugboats during this time effected capping operations.
- FWENC completed verification sampling in area B1 using van veen sampler. 12 samples collected, 9 samples were 100% sand in top 10 cm, 2 samples were 95% by volume, and 1 sample was 39% by volume. 39% sample was collected close to the cap area boundary. Verification complete in area B1, capping found to be very successful.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity not exceeded. DO below 5 mg/l at bottom for both ebb and flood tide monitoring events. Exceedence does not appear to be due to operations. EPA representative on site notified. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. _____

# CONTRACTOR PRODUCTION REPORT



Date: 2/19/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 86 | | |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent: Eric Snow |
| AM Weather:<br>Clear w/high clouds, calm, 34 | PM Weather:<br>Overcast, calm, 44 |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Begin thin capping in A1 area. Placed a total of 950.125 CY. | FWENC | 1 | Supervisor / SHSO | 12 |
| | FWENC | 0 | Scientist / SHSO | 0 |
| Assist GFP with anchor and chain movement. | FWENC | 3 | Scientist/Engineer | 36 |
| | McAmis | 1 | Project / QC Mgr | 10.5 |
| Conduct PSV Sampling in B1. | McAmis | 1 | Asst QC Manager | 9.5 |
| | McAmis | 1 | Equip. Proj. Mgr. | 8 |
| Conduct Water Quality Monitoring for capping in accordance with WQMP. | McAmis | 5 | Operator/Captain | 44.5 |
| | McAmis | 8 | Deck Hand | 72.5 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 193.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 12,249.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 12,442.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety briefings at 0700 and 1600.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 950.125 | C.Y. |
| Coarse cap sand | 0 | C.Y. |
| Thin cap sand to date | 14914.625 | C.Y. |
| Coarse cap sand to date | 1952.5 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 18 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 18 | SAND CONVEYOR | 8 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 3 | | |
| "SALTY" CREW BOAT | 18 | 980 LOADERS | 8 | | |

REMARKS: Contractor assists GFP in moving chain and anchors. Contractor equipment utilized for one hour during this task (1 of the 18 hours noted above).

Dissolved oxygen concentrations 2 ft. from the bottom (114 ft. at ebb and 88 ft. at flood) during both WQ events measure below 5 mg/L (minimum of 4.67 mg/L at 114 ft.). QAO and FW Superintendent notified.

Eric Snow — Superintendent

2/19/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



2/19/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>86 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Bernadette R. Kenworthy | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor begins thin capping in A1.<br><br>FW starts and completes sampling in B1 area using the van Veen grab sampler. Twelve samples collected. Nine samples consisted of 100% sand by volume, two of 95%, and one of 39%. Lab confirmation will be conducted on the 39% sample. See attached table and map for additional information on sampling in this area. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at surface and mid-depths and below 5 mg/L 2 ft. from the bottom during both WQ events.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Bernadette Kenworthy B. R. Kenworthy 2/19/01
Authorized Site QC Representative Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken
KPC QAO Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 87 | **Date :** 02/20/2001 |
| | **Day:** Tuesday | **Shift:** Double | **Hours:** 7am – 1am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 2-McAmis<br>**Manual Labor:** 14-McAmis<br>**Remarks:** Double Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Conveyor System.

**Visitors:**

**Weather:** Clear, 35° - 40°F.

**Summary of Construction Activities:**

- Contractor completed production capping in areas A1 and A2, began production capping in area A3, placed approximately 1925 cy of material.
- FWENC coordinated with GFP, McAmis, and Alaska Commercial Divers to move GFP stiff leg log mooring system which may interfere with anchor placement in A3. Divers determined that anchor line(s) on stiff leg could not be buoyed and cut for safety reasons. Alaska Commercial Divers freed and pushed a portion of stiff leg towards shore (out of work area) and tied it off.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity not exceeded. DO below 5 mg/l at bottom for both ebb and flood tide monitoring events. Exceedence does not appear to be due to operations. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 2/20/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 87 | | |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | Superintendent:<br>Eric Snow |
| AM Weather:<br>Clear with high clouds, 38 | PM Weather:<br>Clear, calm, 35 |

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Finish capping A1 and A2 areas and begin A3. | FWENC | 1 | Supervisor / SHSO | 12 |
| Placed 1925 CY. | FWENC | 0 | Scientist / SHSO | 0 |
| | FWENC | 3 | Scientist/Engineer | 36 |
| Assist GFP with movement of stiff leg out of A3. | McAmis | 1 | Project / QC Mgr | 10.5 |
| | McAmis | 1 | Asst QC Manager | 9.5 |
| Conduct Water Quality Monitoring for capping in accordance with WQMP. | McAmis | 1 | Equip. Proj. Mgr. | 9 |
| | McAmis | 6 | Operator/Captain | 48.5 |
| | McAmis | 8 | Deck Hand | 72.5 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 198.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 12,442.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 12,640.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety briefings at 0700 and 1600.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 1925 | C.Y. |
| Coarse cap sand | 0 | C.Y. |
| Thin cap sand to date | 16839.625 | C.Y. |
| Coarse cap sand to date | 1952.5 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 18 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 18 | SAND CONVEYOR | 12 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 18 | 980 LOADERS | 12 | | |

REMARKS: Alaska Commercial Divers investigates the possibility of cutting a shackel or chain to free the stiff leg that is impeding the anchoring of the derrick barge in A3. Tension on the chain hinders cutting due to the danger involved. As a result, Invader 1 pushes the stiff leg toward shore where it is now tied off out of the way of capping operations.

Brad Miller (deck hand) quits and leaves the derrick barge at 1700 hrs. John Ingalls (tug captian) replaces Danny Gilbert at 1900 hrs, and D. Gilbert moves to replace B. Miller as deck hand.

Dissolved oxygen concentrations 2 ft. from the bottom (100 ft. at ebb and 120 ft. at flood) during both WQ events measure below 5 mg/L (minimum of 4.~~2~~5 mg/L at 120 ft.). QAO and FW Superintendent notified.

4

BRX

Eric Snow 2/20/01

Superintendent Date

# CONTRACTOR QUALITY CONTROL REPORT



2/20/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>87 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Bernadette R. Kenworthy | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor finishes A1 and A2 and begins A3. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at surface and mid-depths and below 5 mg/L 2 ft. from the bottom during both WQ events.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Bernadette Kenworthy B.R. Kenworthy 2/20/01
Authorized Site QC Representative Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken
KPC QAO Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 88 | **Date :** 02/21/2001 |
| | **Day:** Wednesday | **Shift:** Double | **Hours:** 7am – 1am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 2-McAmis<br>**Manual Labor:** 13-McAmis<br>**Remarks:** Double Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Conveyor System.

**Visitors:**

**Weather:** Clear, 30° - 35°F.

**Summary of Construction Activities:**

- Contractor continued production capping in area A3, placed approximately 991 cy of material. No capping during day shift due to problems with GPS positioning system. Day shift quit I hour early.
- FWENC completed verification sampling in area A1 using van veen sampler. 12 samples collected, 6 samples were 100% sand in top 10 cm, 1 sample was 85% by volume, 1 sample was 84% by volume, 1 sample was 81% by volume, 1 sample was 71% by volume, 1 sample was 70% by volume, and 1 sample was 29% by volume. Verification complete in area A1, capping found to be very successful.
- Weekly project QC, progress, and scheduling meeting held.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 2/21/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 88 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Clear, calm, 28

**PM Weather:** Clear, calm, 35

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue thin capping A3 area. Placed a total of 991.375 CY. | FWENC | 1 | Supervisor / SHSO | 12 |
| | FWENC | 0 | Scientist / SHSO | 0 |
| Conduct PSV Sampling in A1. | FWENC | 3 | Scientist/Engineer | 36 |
| | McAmis | 1 | Project / QC Mgr | 10.5 |
| Conduct Water Quality Monitoring for capping in accordance with WQMP. | McAmis | 1 | Asst QC Manager | 9.5 |
| | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| | McAmis | 5 | Operator/Captain | 42.5 |
| | McAmis | 8 | Deck Hand | 68.5 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 189.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 12,640.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 12,829.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety briefings at 0700 and 1600.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 991.375 | C.Y. |
| Coarse cap sand | 0 | C.Y. |
| Thin cap sand to date | 17831 | C.Y. |
| Coarse cap sand to date | 1952.5 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 17 | "KFP 1" FLAT DECK BARGE | 17 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 17 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 17 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 17 | SAND CONVEYOR | 8 | | |
| "THE BUGGY" SMALL TUG | 17 | "INVADER 1" DIVE BOAT (TRIPS) | 3 | | |
| "SALTY" CREW BOAT | 17 | 980 LOADERS | 8 | | |

**REMARKS:** Zero production during day shift due to malfunctioning GPS receiver on main line. Called manufacturer in Austin, TX. GPS now functioning properly. Day shift leaves one hour early due to this malfunction.

Eric Snow
Superintendent

2/21/01
Date

# CONTRACTOR QUALITY CONTROL REPORT



2/21/01

| | | |
|---|---|---|
| **Contract No. 1**<br>**Work Order No. 1** | **Title & Location:** Ward Cove Remediation Project<br>Ward Cove, Alaska | **Report No.**<br>88 |

| | |
|---|---|
| **Contractor:**<br>Foster Wheeler Environmental Corporation | **CQC Representative:**<br>Bernadette R. Kenworthy |

| **Preparatory Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location:** |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| **Initial Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location** |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor continues thin capping in ~~A1~~ A3 (BRK) |
| Sample has been Prepared/Approved | | FW starts and completes sampling in A1 area using the van Veen grab sampler. Twelve samples collected. Six samples consisted of 100% sand by volume, one of 85%, one of 84%, one of 81%, one of 71%, one of 70%, and one of 29%. Lab confirmation analysis will be conducted on the 70% and 29% samples. See attached map and table for more information on sampling in this area. |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| **Follow Up Phase**<br>Y - Yes, N - No, N/A | | **Definable Features of Work and Work Location**<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Bernadette Kenworthy B.R. Kenworthy 2/21/01
Authorized Site QC Representative Date

## KPC QUALITY ASSURANCE REPORT

**Quality Assurance Representative's remarks and/or exceptions to this report:**

None

Bill Gerken
KPC QAO Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 89 | **Date :** 02/22/2001 |
| | **Day:** Thursday | **Shift:** Double | **Hours:** 7am – 1am |

| | |
|---|---|
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 3-McAmis<br>**Manual Labor:** 14-McAmis<br>**Remarks:** Double Shift |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Conveyor System.

**Visitors:**

**Weather:** Overcast, 35° - 40°F.

**Summary of Construction Activities:**

- Contractor completed production capping in areas A3 and B2, began production capping in area A4, placed approximately 1125 cy of material.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E.

# CONTRACTOR PRODUCTION REPORT



Date: 2/22/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 89 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Overcast, foggy, 34

**PM Weather:** Overcast, slight precipitation, 38

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Finish thin capping A3 and B2 areas. Begin thin capping A4 area. Placed 1124.75 CY. | FWENC | 1 | Supervisor / SHSO | 12 |
| | FWENC | 0 | Scientist / SHSO | 0 |
| | FWENC | 3 | Scientist/Engineer | 36 |
| Conduct Water Quality Monitoring for capping in accordance with WQMP. | McAmis | 1 | Project / QC Mgr | 10.5 |
| | McAmis | 1 | Asst QC Manager | 9 |
| | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| | McAmis | 6 | Operator/Captain | 46 |
| | McAmis | 8 | Deck Hand | 72 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 195.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 12,829.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 13,025.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety briefings at 0700 and 1600.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 1124.75 | C.Y. |
| Coarse cap sand | 0 | C.Y. |
| Thin cap sand to date | 18955.75 | C.Y. |
| Coarse cap sand to date | 1952.5 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 18 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 18 | SAND CONVEYOR | 9 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 2 | | |
| "SALTY" CREW BOAT | 18 | 980 LOADERS | 9 | | |

**REMARKS:**

Eric Snow — Superintendent

2/22/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



2/22/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>89 |

| | |
|---|---|
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Bernadette R. Kenworthy |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor finishes thin capping in A3 and B2 and begins in A4. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Bernadette Kenworthy B.R. Kenworthy 2/22/01
Authorized Site QC Representative Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

Bill Gerken
KPC QAO Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 90 | **Date :** 02/23/2001 |
| | **Day:** Friday | **Shift:** Double | **Hours:** 7am – 1am |
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally | | |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 3-McAmis<br>**Manual Labor:** 15-McAmis<br>**Remarks:** Double Shift | | |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Conveyor System.

**Visitors:**

**Weather:** Clear, 30° - 35°F.

**Summary of Construction Activities:**

- Contractor continued production capping in area A4, placed approximately 1662 cy of material.
- FWENC completed verification sampling in area A2 using van veen sampler. 12 samples collected, 11 samples were 100% sand in top 10 cm, remaining sample was 81% by volume. Verification complete in area A2, capping found to be very successful.
- FWENC completed verification sampling in area A3 using van veen sampler. 12 samples collected, 9 samples were 100% sand in top 10 cm, 1 sample was 91% by volume, 1 sample was 55% by volume, and 1 sample was 52% by volume. Verification complete in area A3, capping found to be very successful.
- Pre-Final Site walkthrough conducted with Eric Snow, John Lally *(FWENC)*, Barry Hogarty *(KPC)*, Craig Chartrand *(McAmis)*, Eric Collins *(South Coast)*, and myself.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. WJG

# CONTRACTOR PRODUCTION REPORT



Date: 2/23/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 90 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Clear, calm, 29

**PM Weather:** Clear, calm, 34

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Continue thin capping in A4. Placed 1662.375 CY. | FWENC | 1 | Supervisor / SHSO | 12 |
| | FWENC | 0 | Scientist / SHSO | 0 |
| Conduct PSVP sampling in A2 and A3 areas. | FWENC | 3 | Scientist/Engineer | 36 |
| | McAmis | 1 | Project / QC Mgr | 10.5 |
| Conduct Water Quality Monitoring for capping in accordance with WQMP. | McAmis | 1 | Asst QC Manager | 9.5 |
| | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| | McAmis | 7 | Operator/Captain | 55 |
| | McAmis | 8 | Deck Hand | 71.5 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 204.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 13,025.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 13,229.5 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety briefings at 0700 and 1600.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 1662.375 | C.Y. |
| Coarse cap sand | 0 | C.Y. |
| Thin cap sand to date | 20618.125 | C.Y. |
| Coarse cap sand to date | 1952.5 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 18 | "KFP 1" FLAT DECK BARGE | 18 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 18 | D7 BULLDOZER | 0 | | |
| "SUNNY POINT" FLAT DECK BARGE | 18 | LIMA CRANE | 0 | | |
| "RV DAY" TUG | 18 | SAND CONVEYOR | 12 | | |
| "THE BUGGY" SMALL TUG | 18 | "INVADER 1" DIVE BOAT (TRIPS) | 3 | | |
| "SALTY" CREW BOAT | 18 | 980 LOADERS | 12 | | |

**REMARKS:**

Eric Snow — Superintendent

2/23/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



2/23/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>90 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Bernadette R. Kenworthy | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor continues thin capping in A4.<br><br>FW starts and completes PSV Sampling in A2 and A3. Twelve samples were collected in each area. In A2, eleven samples consisted of 100% sand by volume and one of 81%. In A3, nine consisted of 100% sand by volume, one of 52%, one of 55%, and one of 91%. Lab confirmation analyses will be conducted. See attached tables and maps for additional details on sampling in these two areas. |
| Sample has been Prepared/Approved | | |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Bernadette Kenworthy B.R. Kenworthy — 2/23/01
Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken
KPC QAO — Date

# QUALITY ASSURANCE DAILY INSPECTION REPORT

| | | | |
|---|---|---|---|
| **Project:** Ward Cove Sediment Remediation Project<br>Marine OU, Ketchikan, Alaska | **Project No.:** 00240.02 | **Report No.:** 91 | **Date :** 02/24/2001 |
| | **Day:** Saturday | **Shift:** Single | **Hours:** 7am – 4pm |

| | |
|---|---|
| **Consultant:** Peratrovich, Nottingham & Drage, Inc.<br>**QA/QC** 3220 Hospital Drive, Suite 200<br>Juneau, Alaska 99801<br>**Quality Assurance Officer:** William J. Gerken P.E. | **Supervising Contractor:** Foster Wheeler Environmental Corp.<br>**Engineer** 12100 NE 195th Street, Suite 200<br>Bothell, Washington 98011<br>**Site Supervisor:** John Lally |
| **Construction Contractor:** J.E. McAmis, Inc<br>3125 South Gate Lane<br>Chico, California 95928<br>**Project Manager:** Craig Chartand | **Non-Manual Personnel:** 4-FWENC, 2-McAmis<br>**Manual Labor:** 9-McAmis<br>**Remarks:** Day Shift |

**Major Equipment:** Lima Crane, D-7 Dozer, Komatsu Loader, 2 Cat Loaders, Hitachi Track Hoe, Survey Boat, Derrick Barge "Miller 205", Material *(deck)* Barge "Sunny Point", Material *(deck)* Barge "KFP 1", Tugboat "RV Day", Tugboat "The Buggy", Crew Boat, Dive Boat "Invader 1", Conveyor System.

**Visitors:**

**Weather:** Overcast, 25° - 30°F.

**Summary of Construction Activities:**

- Contractor completed production capping in area A4, placed approximately 737 cy of material. THIS COMPLETES CAPPING OPPERATIONS.
- FWENC completed verification sampling in area A4 using van veen sampler. 13 samples collected, 9 samples were 100% sand in top 10 cm, 1 sample was 96% by volume, 1 sample was 90% by volume, 1 sample was 80% by volume, and 1 sample was 55% by volume. Verification complete in area A4, capping found to be very successful. THIS COMPLETES ALL VERIFICATION SAMPLING, CAPPING IN ALL AREAS FOUND TO BE VERY SUCCESSFUL.

❖ ALL IN-WATER WORK IS COMPLETE.

For additional information and detail see attached contractor reports.

Photographs Were Not Taken.

**Summary of QA/QC Activities:**

- Water quality measurements for capping operations taken. Hydrolab calibrated for DO prior to taking measurements. Criteria for turbidity and DO not exceeded. See attached report.

**Non-Conformance/Out of Spec. Conditions and Actions Taken:**

- None noted.

**BY:** William J. Gerken, P.E. _____

# CONTRACTOR PRODUCTION REPORT



Date: 2/24/01

Contract No. 1
Work Order No. 1

Title & Location: Ward Cove Remediation Project
Ward Cove, Alaska

Report No. 91

Contractor:
Foster Wheeler Environmental Corporation

Superintendent: Eric Snow

AM Weather:
Cold, calm, overcast, 24

PM Weather:
Cold, calm, overcast, 28

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Finish thin capping in A4. Placed 737 CY. | FWENC | 1 | Supervisor / SHSO | 12 |
| | FWENC | 0 | Scientist / SHSO | 0 |
| Conduct PSVP sampling in A4 area. | FWENC | 3 | Scientist/Engineer | 36 |
| | McAmis | 1 | Project / QC Mgr | 11.5 |
| Conduct Water Quality Monitoring for capping in accordance with WQMP. | McAmis | 0 | Asst QC Manager | 0 |
| | McAmis | 1 | Equip. Proj. Mgr. | 10 |
| | McAmis | 4 | Operator/Captain | 36.5 |
| | McAmis | 5 | Deck Hand | 43.5 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 149.5 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 13,229.5 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 13,379.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety briefings at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 737 | C.Y. |
| Coarse cap sand | 0 | C.Y. |
| Thin cap sand to date | 21355.125 | C.Y. |
| Coarse cap sand to date | 1952.5 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 10 | "KFP 1" FLAT DECK BARGE | 10 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 10 | D7 BULLDOZER | 0 | EXCAVATOR | 8 |
| "SUNNY POINT" FLAT DECK BARGE | 10 | LIMA CRANE | 10 | | |
| "RV DAY" TUG | 10 | SAND CONVEYOR | 8 | | |
| "THE BUGGY" SMALL TUG | 10 | "INVADER 1" DIVE BOAT (TRIPS) | 3 | | |
| "SALTY" CREW BOAT | 10 | 980 LOADERS | 8 | | |

REMARKS: All in-water work completed today.

Eric Snow
Superintendent

2/24/01
Date

# CONTRACTOR QUALITY CONTROL REPORT

 2/24/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>91 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Bernadette R. Kenworthy | |

| Preparatory Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

| Initial Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Capping - Contractor fnishes thin capping in A4. |
| Sample has been Prepared/Approved | | FW starts and completes PSV sampling in A4. Thirteen samples were collected. Nine samples consisted of 100% sand by volume, one of 96%, one of 90%, one of 80%, and one of 55%. Lab confirmation will be performed. See attached table and map for additional details on sampling in this area. |
| Workmanship is satisfactory | | |
| Test results are acceptable | | |
| Work is in compliance with the contract | | |
| | | |

| Follow Up Phase<br>Y - Yes, N - No, N/A | | Definable Features of Work and Work Location<br>* See end of each definable feature of work to see if work complies with contract as approved in initial phase. |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | |

Conducted Water Quality Monitoring in accordance with WQMP -
Turbidity below 25 NTU at all stations and depths.
Dissolved Oxygen above 5 mg/L at all stations and depths.
See attached WQMR for further information.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

Bernadette Kenworthy B.R. Kenworthy 2/24/01
Authorized Site QC Representative Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

None

Bill Gerken
KPC QAO Date

# CONTRACTOR PRODUCTION REPORT



Date: 2/26 - 3/2/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: | Ward Cove Remediation Project<br>Ward Cove, Alaska |
| Report No. 92 | | |

**Contractor:** Foster Wheeler Environmental Corporation

**Superintendent:** Eric Snow

**AM Weather:** Cloudy, rain, 38

**PM Weather:** Cloudy, rain, 38

## Work Performed Today

| Work Location & Description | Employer | Number | Trade | Hours |
|---|---|---|---|---|
| Demobilization and cleanup activities during entire week. | FWENC | 1 | Supervisor / SHSO | 48 |
| | FWENC | 0 | Scientist / SHSO | 0 |
| Final Punch List submitted on Feb. 28, 01. | FWENC | 3 | Scientist/Engineer | 120 |
| | McAmis | 1 | Project / QC Mgr | 40 |
| Unloaded remaining sand (300-400 CY) from barges into stock pile area. | McAmis | 1 | Asst QC Manager | 20 |
| | McAmis | 1 | Equip. Proj. Mgr. | 40 |
| FWENC and Contractor demobilized office space. | McAmis | 4 | Operator/Captain | 144 |
| | McAmis | 0 | Deck Hand | 0 |

| | | | | |
|---|---|---|---|---|
| Was a job safety meeting held this date? | ☑ YES | ☐ NO | Total work hours on on site this date: | 412.0 |
| Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) | ☐ YES | ☑ NO | Cumulative work hours from previous report: | 13,379.0 |
| Was trenching/scaffolding/HV electrical/high work done this date? (If yes, attach statement or checklist showing inspection performed.) | ☐ YES | ☑ NO | | |
| Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) | ☐ YES | ☑ NO | Cumulative work hours since start of work: | 13,379.0 |

LIST SAFETY ACTIONS TAKEN TODAY, SAFETY INSPECTIONS CONDUCTED

Tailgate safety briefings at 0700.

EQUIPMENT / MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB:

MATERIAL PLACED TODAY:

| | | |
|---|---|---|
| Thin cap sand | 0 | C.Y. |
| Coarse cap sand | 0 | C.Y. |
| Thin cap sand to date | 21355.125 | C.Y. |
| Coarse cap sand to date | 1952.5 | C.Y. |

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INCLUDE NUMBER OF HOURS USED TODAY.

| DESCRIPTION | HOURS | DESCRIPTION | HOURS | DESCRIPTION | HOURS |
|---|---|---|---|---|---|
| SURVEY VESSEL | 36 | "KFP 1" FLAT DECK BARGE | 36 | HITACHI LOG SHOVEL | 0 |
| "MILLER 205" DERRICK BARGE | 36 | D7 BULLDOZER | 0 | EXCAVATOR | 18 |
| "SUNNY POINT" FLAT DECK BARGE | 36 | LIMA CRANE | 0 | GRADER | 9 |
| "RV DAY" TUG | 36 | SAND CONVEYOR | 0 | | |
| "THE BUGGY" SMALL TUG | 36 | "INVADER 1" DIVE BOAT (TRIPS) | 0 | | |
| "SALTY" CREW BOAT | 36 | 980 LOADERS | 18 | | |

REMARKS:

The tub grinder which belongs to KPC-LP was moved to the parking area.

The Lima crane remains on site and will be removed by barge on high tide in mid-March.

Final site walk through conducted on 2/28 with FWENC, McAmis, GFP, KPC-LP. Punchlist items are complete to satisfaction of KPC-LP and GFP, with the exception of final berm grading at sand stockpile area and log chip disposal (to be completed 3/5/01) as well as the Lima crane removal.

Eric Snow — Superintendent

2/26 - 3/2/01 — Date

# CONTRACTOR QUALITY CONTROL REPORT



2/26 - 3/2/01

| | | |
|---|---|---|
| Contract No. 1<br>Work Order No. 1 | Title & Location: Ward Cove Remediation Project<br>Ward Cove, Alaska | Report No.<br>92 |
| Contractor:<br>Foster Wheeler Environmental Corporation | CQC Representative:<br>Bernadette R. Kenworthy | |

## Preparatory Phase

| Y - Yes, N - No, N/A | | Definable Features of Work and Work Location: |
|---|---|---|
| The plans and specs have been reviewed | | |
| The submittals have been approved | | |
| Materials comply with approved submittals | | |
| Materials are stored properly | | |
| Preliminary work was done correctly | | |
| Testing plan has been approved | | |
| Work method and schedule discussed | | |

## Initial Phase

| Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Preliminary work was done correctly | | Demobilized and cleaned all equipment except the LIMA Crane which is awaiting a high enough tide for removal. |
| Sample has been Prepared/Approved | | Log chip disposal awaiting good weather and the road to be opened to the Ketchikan Landfill. |
| Workmanship is satisfactory | | Removed breasting piles from dewatering/barge off-load area. |
| Test results are acceptable | | Graded sand and stock pile area. |
| Work is in compliance with the contract | | Removed debris from GFP parking lot. |
| | | Demobilized office spaces. |

## Follow Up Phase

| Y - Yes, N - No, N/A | | Definable Features of Work and Work Location |
|---|---|---|
| Work complies with contract as approved in initial phase | Y | * See end of each definable feature of work to see if work complies with contract as approved in initial phase. |

No Water Quality Monitoring during this week as all in-water work requiring monitoring was completed as of 2/24/01.

| Rework Items Identified Today (Not Corrected By Close of Business) | Rework Items Corrected Today from Rework List |
|---|---|
| N/A | N/A |

**Remarks:** On behalf of the contractor, I certify that this report is complete and correct, and equipment and material used and work performed during this reporting period is in compliance with delivery order drawings and specifications to the best of my knowledge except as noted in this report.

B.R. Kenworthy

Bernadette Kenworthy — 2/26 - 3/2/01

Authorized Site QC Representative — Date

## KPC QUALITY ASSURANCE REPORT

Quality Assurance Representative's remarks and/or exceptions to this report:

NOT REQUESTED FOR DEMOBILIZATION ACTIVITIES.

Bill Gerken

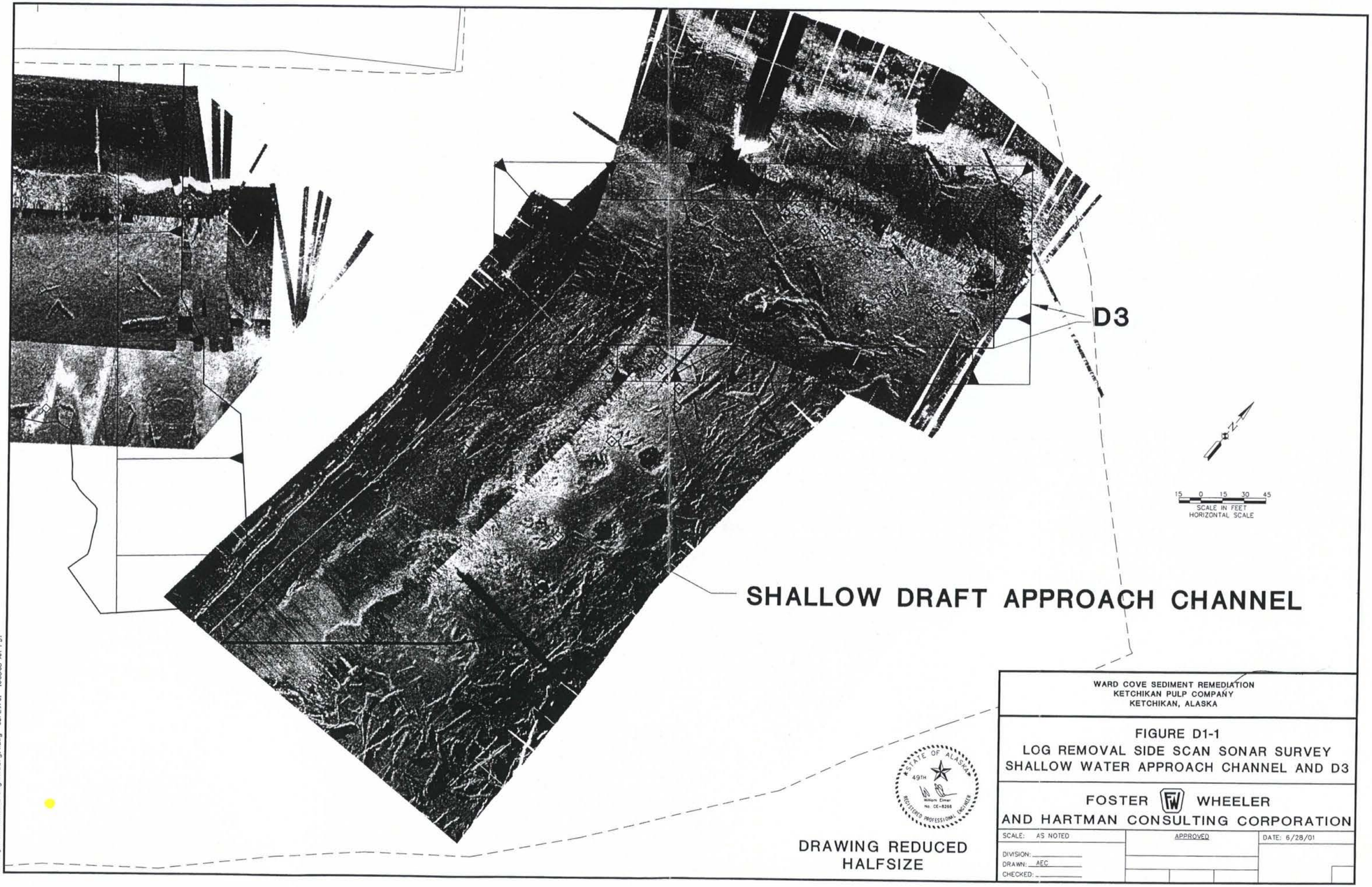
KPC QAO — Date

[redacted]

# D1: LOG REMOVAL SIDE SCAN SONAR SURVEYS

## FIGURE D1-1: LOG REMOVAL SIDE SCAN SONAR SURVEY SHALLOW WATER APPROACH CHANNEL AND D3

## FIGURE D1-2: LOG REMOVAL SIDE SCAN SONAR SURVEY D1 AND D2




WARD COVE SEDIMENT REMEDIATION
KETCHIKAN PULP COMPANY
KETCHIKAN, ALASKA

FIGURE D1-1
LOG REMOVAL SIDE SCAN SONAR SURVEY
SHALLOW WATER APPROACH CHANNEL AND D3

FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

| | | |
|---|---|---|
| SCALE: AS NOTED | APPROVED | DATE: 6/28/01 |
| DIVISION: | | |
| DRAWN: AEC | | |
| CHECKED: | | |

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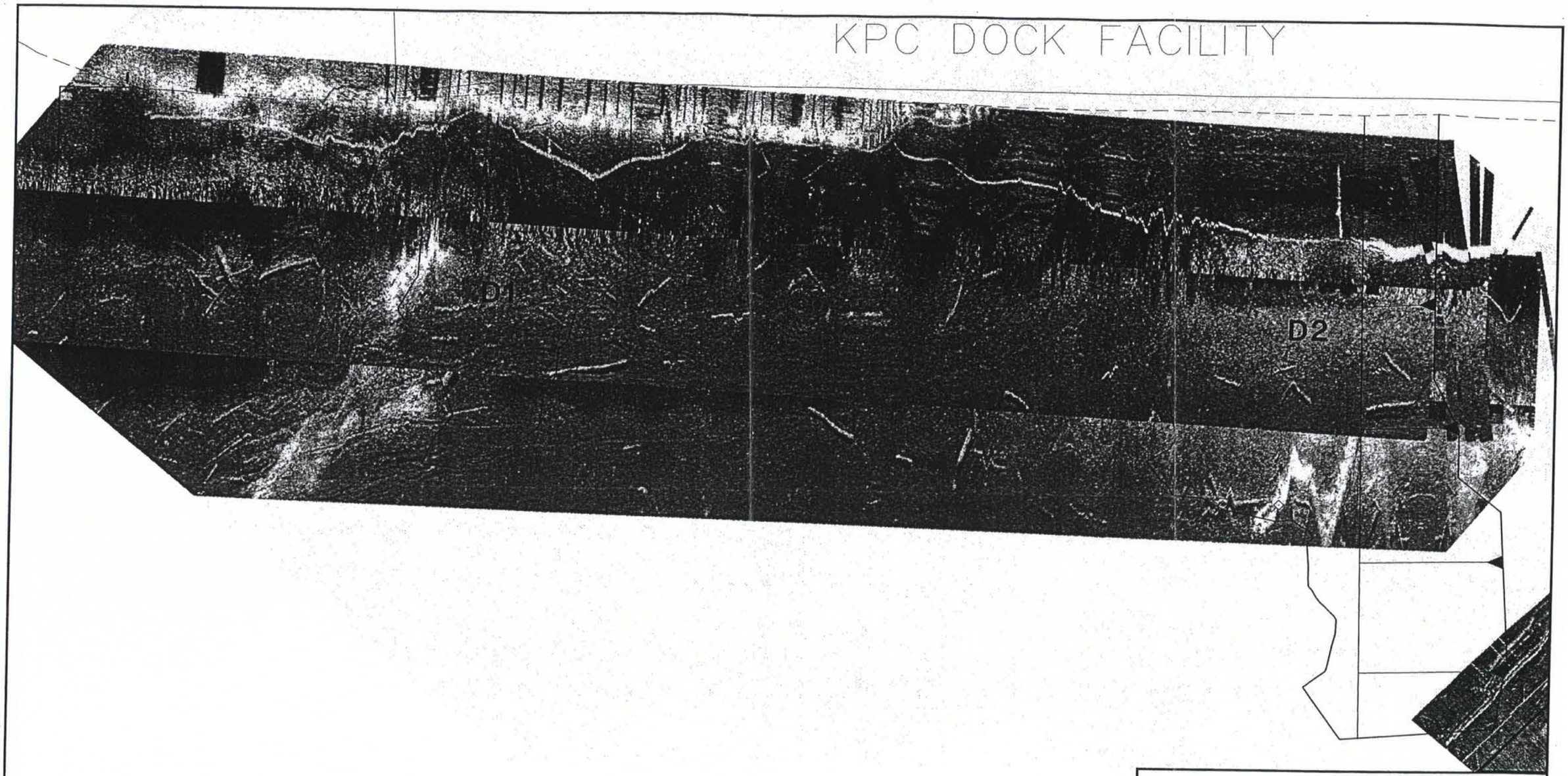


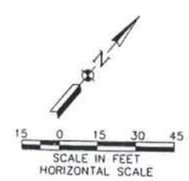


DRAWING REDUCED
HALFSIZE

WARD COVE SEDIMENT REMEDIATION
KETCHIKAN PULP COMPANY
KETCHIKAN, ALASKA

FIGURE D1-2
LOG REMOVAL SIDE SCAN SONAR SURVEY
D1 AND D2

FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

| | | |
|---|---|---|
| SCALE: AS NOTED | APPROVED | DATE: 6/28/01 |
| DIVISION: | | |
| DRAWN: AEC | | |
| CHECKED: | | |

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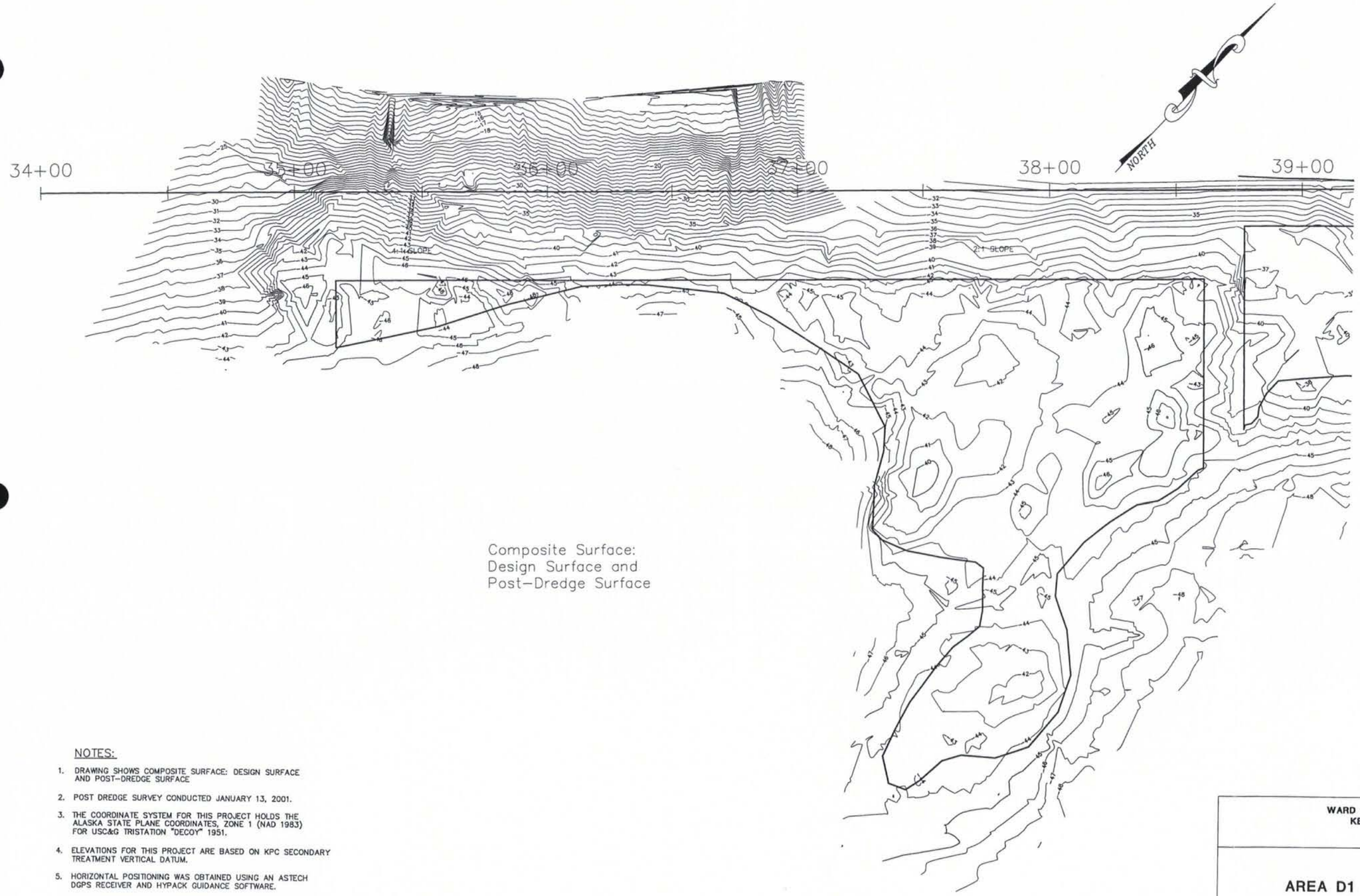
# D1: LOG REMOVAL SIDE SCAN SONAR SURVEYS

## FIGURE D1-1: LOG REMOVAL SIDE SCAN SONAR SURVEY SHALLOW WATER APPROACH CHANNEL AND D3

## FIGURE D1-2: LOG REMOVAL SIDE SCAN SONAR SURVEY D1 AND D2

# D2: POST DREDGE SURVEYS

**FIGURE D2-1:** AREA D1 POST DREDGE SURVEY CONTOURS
**FIGURE D2-2:** AREA D1 POST DREDGE SURVEY CROSS SECTIONS
**FIGURE D2-3:** AREA D2 POST DREDGE SURVEY CONTOURS
**FIGURE D2-4:** AREA D2 POST DREDGE SURVEY CROSS SECTIONS
**FIGURE D2-5:** AREA D3 POST DREDGE SURVEY CONTOURS
**FIGURE D2-6:** AREA D3 POST DREDGE SURVEY CROSS SECTIONS




NOTES:

1. DRAWING SHOWS COMPOSITE SURFACE: DESIGN SURFACE AND POST-DREDGE SURFACE
2. POST DREDGE SURVEY CONDUCTED JANUARY 13, 2001.
3. THE COORDINATE SYSTEM FOR THIS PROJECT HOLDS THE ALASKA STATE PLANE COORDINATES, ZONE 1 (NAD 1983) FOR USC&G TRISTATION "DECOY" 1951.
4. ELEVATIONS FOR THIS PROJECT ARE BASED ON KPC SECONDARY TREATMENT VERTICAL DATUM.
5. HORIZONTAL POSITIONING WAS OBTAINED USING AN ASTECH DGPS RECEIVER AND HYPACK GUIDANCE SOFTWARE.
6. TIDE ELEVATIONS WERE MONITORED USING A HAZEN REMOTE TIDE GAUGE SET ON SITE FOR THIS PROJECT.
7. SOUNDINGS WERE TAKEN WITH AN ODEM MARK II DUAL FREQUENCY ECHO SOUNDER AT 200 KHZ AND 28 KHZ.
8. ALL SOUNDINGS WERE REDUCED TO ELEVATIONS AND ARE IN FEET M.L.L.W.

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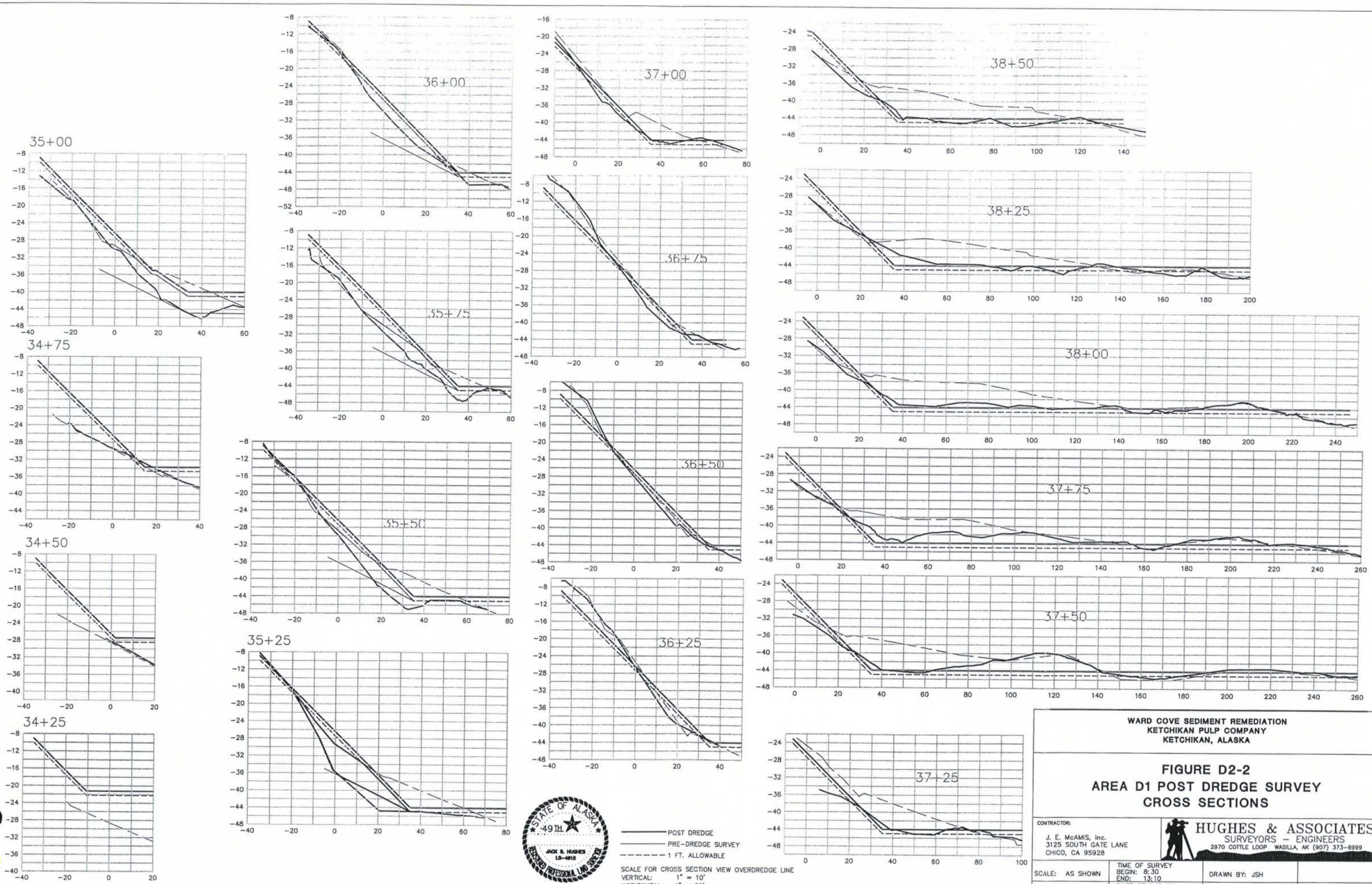
WARD COVE SEDIMENT REMEDIATION
KETCHIKAN PULP COMPANY
KETCHIKAN, ALASKA

**FIGURE D2-1**
**AREA D1 POST DREDGE SURVEY CONTOURS**

CONTRACTOR:
J. E. McAMIS, Inc.
3125 SOUTH GATE LANE
CHICO, CA 95928

HUGHES & ASSOCIATES
SURVEYORS – ENGINEERS
2970 COTTLE LOOP WASILLA, AK (907) 373-6999

| | | | |
|---|---|---|---|
| SCALE: 1" = 20' | TIME OF SURVEY BEGIN: 8:30 END: 13:10 | DRAWN BY: JSH | |
| DATE: 1/17/01 | DATE OF SURVEY 1/13/01 | CHK'D BY: | SHEET 1/2 |




WARD COVE SEDIMENT REMEDIATION
KETCHIKAN PULP COMPANY
KETCHIKAN, ALASKA

# FIGURE D2-2
# AREA D1 POST DREDGE SURVEY CROSS SECTIONS

CONTRACTOR:
J. E. McAMIS, Inc.
3125 SOUTH GATE LANE
CHICO, CA 95928

HUGHES & ASSOCIATES
SURVEYORS — ENGINEERS
2970 COTTLE LOOP WASILLA, AK (907) 373-6999

| | | | |
|---|---|---|---|
| SCALE: AS SHOWN | TIME OF SURVEY BEGIN: 8:30 END: 13:10 | DRAWN BY: JSH | |
| DATE: 1/17/01 | DATE OF SURVEY 1/13/01 | CHK'D BY: | SHEET 2/2 |

NOTES:

1. DRAWING SHOWS COMPOSITE SURFACE: DESIGN SURFACE AND POST-DREDGE SURFACE
2. POST DREDGE SURVEY CONDUCTED JANUARY 13, 2001.
3. THE COORDINATE SYSTEM FOR THIS PROJECT HOLDS THE ALASKA STATE PLANE COORDINATES, ZONE 1 (NAD 1983) FOR USC&G TRISTATION "DECOY" 1951.
4. ELEVATIONS FOR THIS PROJECT ARE BASED ON KPC SECONDARY TREATMENT VERTICAL DATUM.
5. HORIZONTAL POSITIONING WAS OBTAINED USING AN ASTECH DGPS RECEIVER AND HYPACK GUIDANCE SOFTWARE.
6. TIDE ELEVATIONS WERE MONITORED USING A HAZEN REMOTE TIDE GAUGE SET ON SITE FOR THIS PROJECT.
7. SOUNDINGS WERE TAKEN WITH AN ODEM MARK II DUAL FREQUENCY ECHO SOUNDER AT 200 KHZ AND 28 KHZ.
8. ALL SOUNDINGS WERE REDUCED TO ELEVATIONS AND ARE IN FEET M.L.L.W.

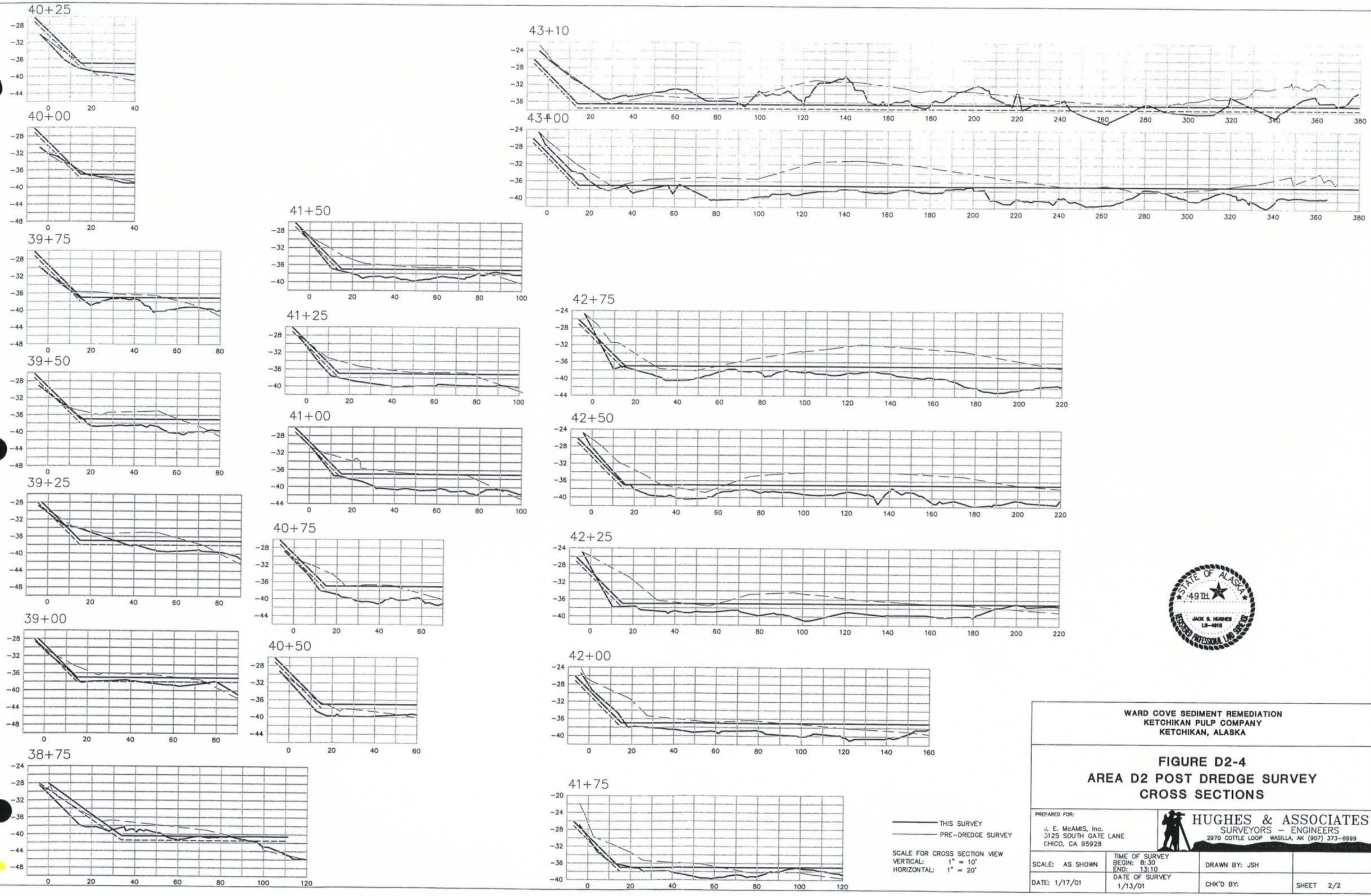
WARD COVE SEDIMENT REMEDIATION
KETCHIKAN PULP COMPANY
KETCHIKAN, ALASKA

# FIGURE D2-3
# AREA D2 POST DREDGE SURVEY CONTOURS

CONTRACTOR:
J. E. McAMIS, Inc.
3125 SOUTH GATE LANE
CHICO, CA 95928

HUGHES & ASSOCIATES
SURVEYORS – ENGINEERS
2970 COTTLE LOOP WASILLA, AK (907) 373-6999

| | | | |
|---|---|---|---|
| SCALE: 1" = 20' | TIME OF SURVEY BEGIN: 8:30 END: 13:10 | DRAWN BY: JSH | |
| DATE: 1/17/01 | DATE OF SURVEY 1/13/01 | CHK'D BY: | SHEET 1/2 |



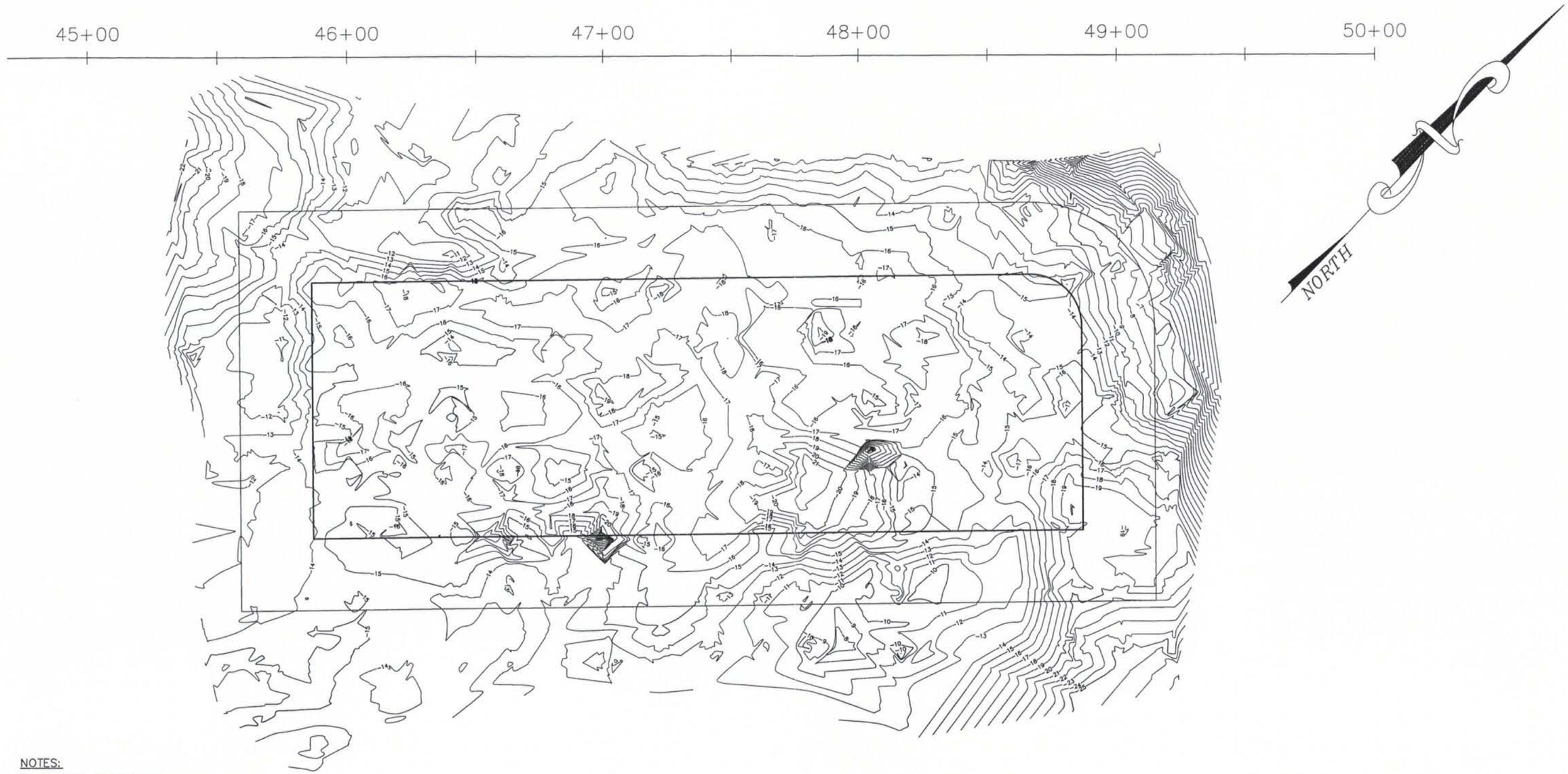

WARD COVE SEDIMENT REMEDIATION
KETCHIKAN PULP COMPANY
KETCHIKAN, ALASKA

## FIGURE D2-4
## AREA D2 POST DREDGE SURVEY
## CROSS SECTIONS

PREPARED FOR:
J. E. McAMIS, Inc.
3125 SOUTH GATE LANE
CHICO, CA 95928

HUGHES & ASSOCIATES
SURVEYORS – ENGINEERS
2970 COTTLE LOOP WASILLA, AK (907) 373-6999

| | | | |
|---|---|---|---|
| SCALE: AS SHOWN | TIME OF SURVEY BEGIN: 8:30 END: 13:10 | DRAWN BY: JSH | |
| DATE: 1/17/01 | DATE OF SURVEY 1/13/01 | CHK'D BY: | SHEET 2/2 |




NOTES:

1. DRAWING SHOWS COMPOSITE SURFACE: DESIGN SURFACE AND POST-DREDGE SURFACE
2. POST DREDGE SURVEY CONDUCTED JANUARY 13, 2001.
3. THE COORDINATE SYSTEM FOR THIS PROJECT HOLDS THE ALASKA STATE PLANE COORDINATES, ZONE 1 (NAD 1983) FOR USC&G TRISTATION "DECOY" 1951.
4. ELEVATIONS FOR THIS PROJECT ARE BASED ON KPC SECONDARY TREATMENT VERTICAL DATUM.
5. HORIZONTAL POSITIONING WAS OBTAINED USING AN ASTECH DGPS RECEIVER AND HYPACK GUIDANCE SOFTWARE.
6. TIDE ELEVATIONS WERE MONITORED USING A HAZEN REMOTE TIDE GAUGE SET ON SITE FOR THIS PROJECT.
7. SOUNDINGS WERE TAKEN WITH AN ODEM MARK II DUAL FREQUENCY ECHO SOUNDER AT 200 KHZ AND 28 KHZ.
8. ALL SOUNDINGS WERE REDUCED TO ELEVATIONS AND ARE IN FEET M.L.L.W.

**WARD COVE SEDIMENT REMEDIATION**
**KETCHIKAN PULP COMPANY**
**KETCHIKAN, ALASKA**

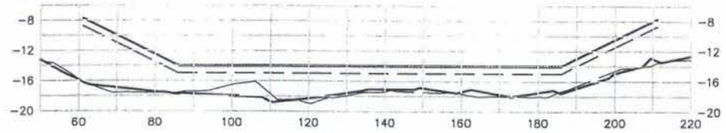
## FIGURE D2-5
## AREA D3 POST DREDGE SURVEY CONTOURS

CONTRACTOR:
J. E. McAMIS, Inc.
3125 SOUTH GATE LANE
CHICO, CA 95928

HUGHES & ASSOCIATES
SURVEYORS – ENGINEERS
2970 COTTLE LOOP WASILLA, AK (907) 373-6999

| | | | |
|---|---|---|---|
| SCALE: 1" = 20' | TIME OF SURVEY BEGIN: 14:47 END: 15:51 | DRAWN BY: JSH | |
| 1/17/01 | DATE OF SURVEY 1/13/01 | CHK'D BY: | SHEET 1/2 |

47+50



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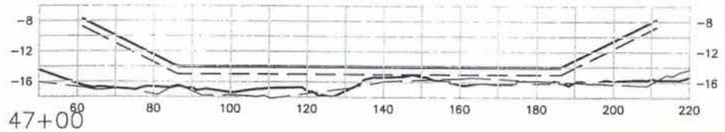

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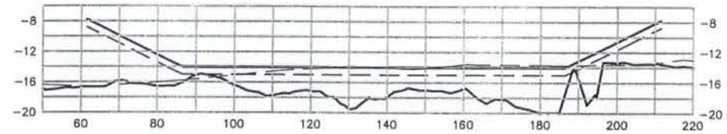
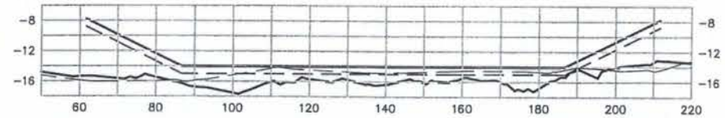
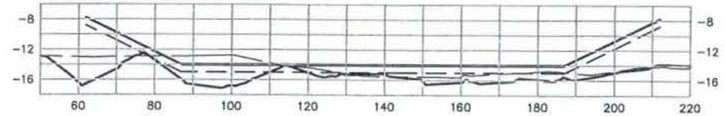


46+75



46+50



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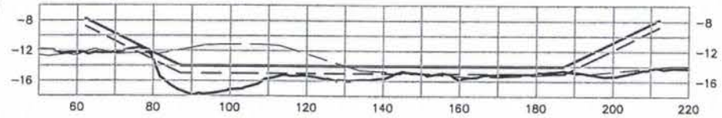

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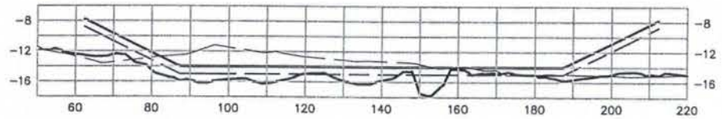

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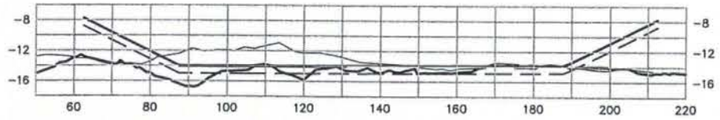

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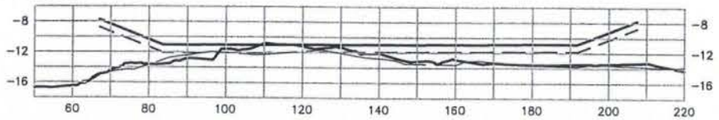

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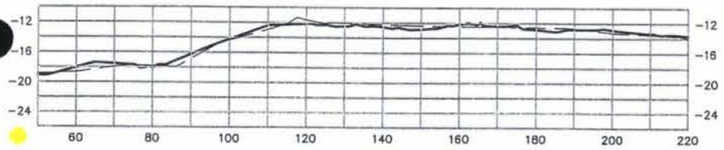

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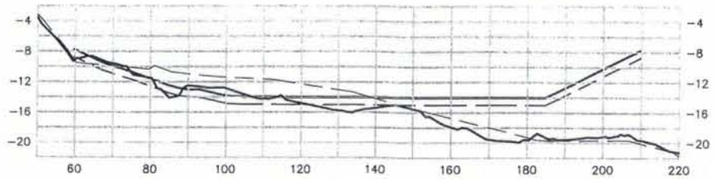

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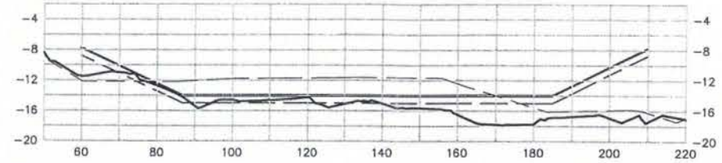

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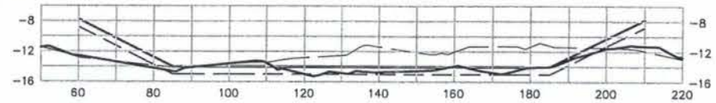

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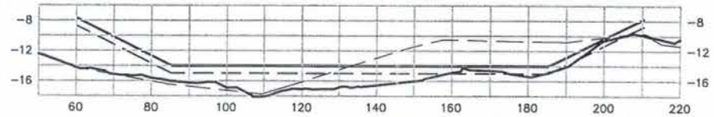

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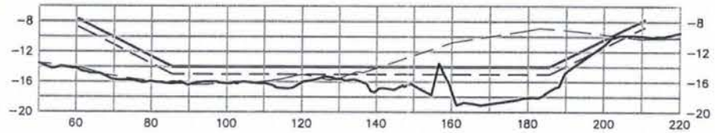

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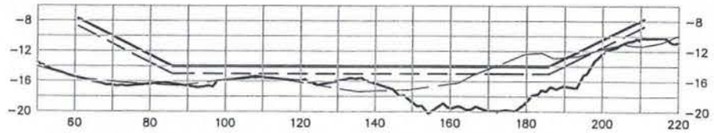

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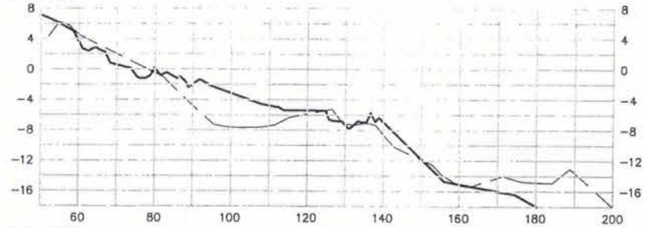

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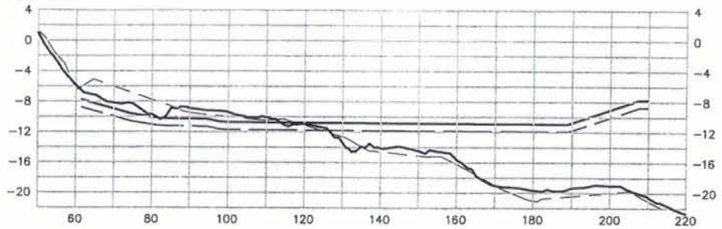


THIS SURVEY
PRE-DREDGE SURVEY

SCALE FOR CROSS SECTION VIEW
VERTICAL: 1" = 10'
HORIZONTAL: 1" = 20'

STATE OF ALASKA 49TH JACK S. HUGHES LS-4015 REGISTERED PROFESSIONAL LAND SURVEYOR

**WARD COVE SEDIMENT REMEDIATION**
**KETCHIKAN PULP COMPANY**
**KETCHIKAN, ALASKA**

## FIGURE D2-6
## AREA D3 POST DREDGE SURVEY
## CROSS SECTIONS

CONTRACTOR:
C. E. McAMIS, Inc.
3125 SOUTH GATE LANE
CHICO, CA 95928

HUGHES & ASSOCIATES
SURVEYORS – ENGINEERS
2970 COTTLE LOOP WASILLA, AK (907) 373-6999

| | | | |
|---|---|---|---|
| SCALE: AS SHOWN | TIME OF SURVEY BEGIN: 14:47 END: 15:51 | DRAWN BY: JSH | |
| 1/17/01 | DATE OF SURVEY 1/13/01 | CHK'D BY: | SHEET 2/2 |

# APPENDIX E

# PERFORMANCE VERIFICATION SAMPLING FIELD AND LABORATORY DATA

**E1: PERFORMANCE VERIFICATION FIELD AND LABORATORY METHODS**
**E2: TEST CAPPING DATA**
**E3: PRODUCTION CAPPING DATA**
**E4: SAMPLING LOCATIONS**
**E5: WINOPS OUTPUT**

# E1: PERFORMANCE VERIFICATION FIELD AND LABORATORY METHODS

**TABLE E1-1:** COMPARISON OF METHODS A AND B
**FIGURE E1-1:** EXPONENTIAL CURVE FIT FOR WET SIEVE SAND VOLUME VERSUS PERCENT SAND (DRY WEIGHT)

# PERFORMANCE VERIFICATION FIELD AND LAB METHODS

## Field Wet Sieve Procedure (Method A)

- Twelve samples were collected from a 1/3-acre test cap area using the modified 0.1-$m^2$ van Veen grab sampler.
- For each grab sample, the upper 10 cm of sediment was collected and composited for grain size analysis. Visible chunks of bark and wood debris were removed.
- An archive sediment sample was collected and stored in a 16-ounce jar and maintained in custody for possible future confirmation testing at the KPC/GFP laboratory.
- A 100-mL sample of wet sediment was placed in a 100-mL beaker, with 5 mL volumetric gradations.
- The 100 mL of wet sediment was washed through nested No. 4 and No. 200 sieves with seawater. The No. 4 sieve was used only if visible bark and wood chips were present that could interfere with the analysis. Conditioned sediments were noted in the field notes. The No. 200 sieve separates fines from larger particles.
- Sand remaining on the sieve was transferred back to the beaker, without drying.
- The volume of sand in the beaker was recorded in mL.

The field wet sieve method gives a volume representation of the sand content in the upper 10 cm of sediment at each station. However, the performance criteria of 40 percent was on a dry weight basis; thus, it was necessary to develop a formula for converting wet weight to dry weight values. In accordance with the PSVP, a comparison was made between field wet sieve sand content to a grain size analysis after combustion on a dry weight basis. The grain size analysis procedure is described below.

## Laboratory Grain Size Analysis (Method B)

- A small amount of wet sediment (10-20 grams) without excess water was weighed in a clean, pre-weighed aluminum pan and dried at 100°C. This was done to determine the dry weight of the sediment.
- Another 50-100 grams of wet sediment was weighed in a clean, pre-weighed 100 mL crucible.
- The latter sediment was then washed into a No. 200 sieve with tap water.
- The materials retained on the sieve were then placed back into the crucible and dried at approximately 100°C.
- The crucible was then placed in the muffle furnace at approximately 500°C to burn off the organic fraction.
- The remaining combusted sand was weighed and compared to the starting quantity of sediment on a dry weight basis (adjusted for total solids).

- The acceptable limits for Method B were an instrument precision of scale +/- 0.05 g and method precision of duplicate results ±20 percent.

**Basis of Field Wet Sieve (Method A) Procedure**

The use of Method A was approved by EPA on December 19, 2000, as a suitable screening method for determining sand content of samples in the field. The following text describes the basis of this method.

The PSVP offers several alternate approaches that may be used to accurately and reliably determine the sand content of the top 10 cm of sediment after capping. It states a performance measure of acceptance on page A-4: (italic emphases have been added)

*"The wet sieving and the column settling methods may both be calibrated against the true sand content of the exemplar sediments. The sand content measured by these methods is to be plotted, and regressed, against the true sand content (as determined following combustion of the exemplar sediment). Transformation of the results of either or both methods should be carried out if necessary. A calibration will be considered acceptable if both of the following criteria are met:*

- *The regression is significant.*
- *The lower prediction interval for the true sand content in a single sample is no more than 10 percent, absolute; that is for an acceptance criterion of 40 percent, the lower prediction limit is no lower than 30 percent."*

*"If the wet sieving method meets these calibration criteria, then the wet sieving method may be used for field measurements of sand content, and there is no need to develop the column settling method."* (Pages A4, A-5).

To develop the basis for the field wet sieve method, sediment collected in Ward Cove on December 5, 2000, was combined with a range of different quantities of the sand capping material from Construction Aggregates, Ltd., in British Columbia. Ten duplicate analyses of the wet sieve method and laboratory grain size method (dry weight) were completed (Table E1-1).

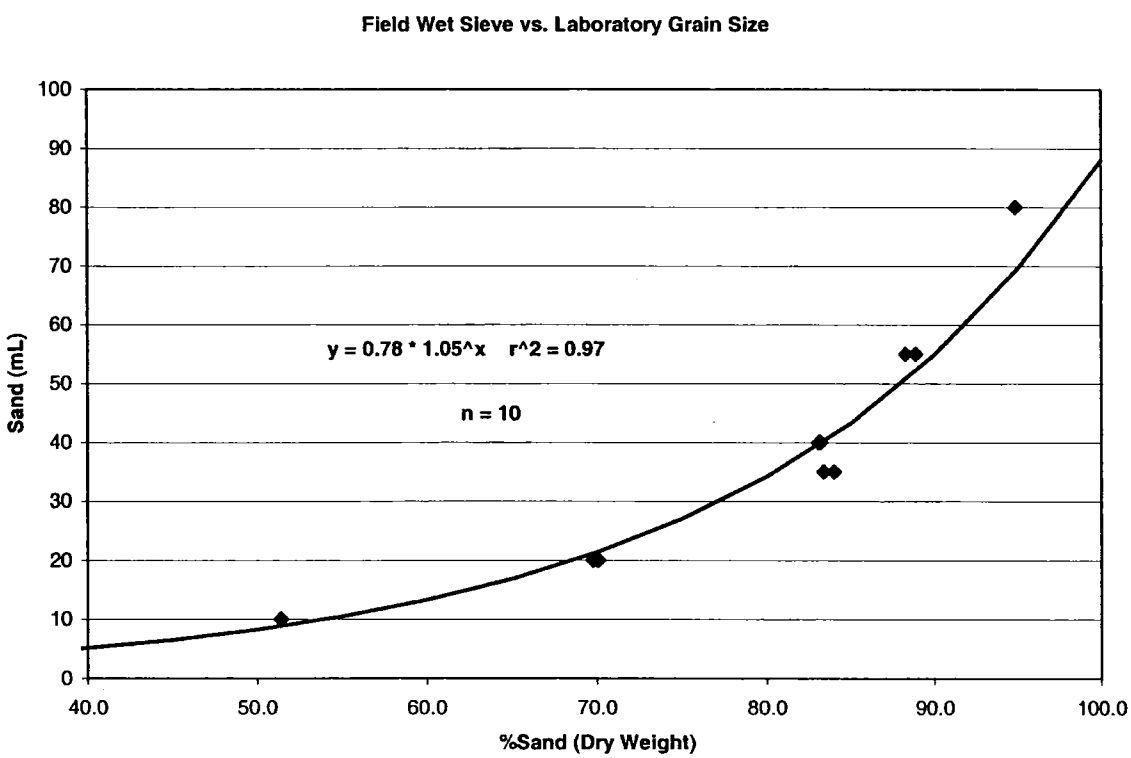
An exponential curve, shown in Figure E1-1, was fit to the data. The correlation was significant ($r^2 = 0.97$, $F_{observed}$ 256.3 versus $F_{critical}$ 4.74 ). The lowest amount of sand measured in this test was >40 percent, the decision criteria for capping effectiveness. The results suggest that 10 mL or more of sand detected in the wet sieve method will adequately represent 50 percent sand in the sediment.

This method was used in the field during both design testing and confirmation testing of the cap. In addition, two samples were selected from each area (representing 20 percent of samples analyzed in the field) for confirmation grain size analysis in the KPC/GFP laboratory (unless all samples from the area showed 100 percent sand by the field wet sieve method). Each duplication was added to our present comparison, strengthening the power of the correlation.

**Table E1-1.** Comparison of Methods A and B

| Test Sample | Wet Sieve Sand Volume | Percent Sand (dry weight) |
|---|---|---|
| | ML | % |
| 1 | 80 | 94.9 |
| 2 | 55 | 88.3 |
| 3 | 55 | 88.9 |
| 4 | 40 | 83.1 |
| 5 | 40 | 83.2 |
| 6 | 35 | 84.0 |
| 7 | 35 | 83.4 |
| 8 | 20 | 70.1 |
| 9 | 20 | 69.8 |
| 10 | 10 | 51.4 |

**Figure E1-1.** Exponential Curve Fit for Wet Sieve Sand Volume versus Percent Sand (dry weight)



# E2: TEST CAPPING DATA

**TABLE E2-1:** PERFORMANCE VERIFICATION RESULTS FOR A4 TEST CAP
**TABLE E2-2:** PERFORMANCE VERIFICATION RESULTS FOR A6 TEST CAP
**TABLE E2-3:** PERFORMANCE VERIFICATION RESULTS FOR A7 TEST CAP
**TABLE E2-4:** PERFORMANCE VERIFICATION RESULTS FOR A8 TEST CAP
**TABLE E2-5:** PERFORMANCE VERIFICATION RESULTS FOR B2 TEST CAP
**TABLE E2-6:** PERFORMANCE VERIFICATION RESULTS FOR B3 TEST CAP
**TABLE E2-7:** PERFORMANCE VERIFICATION RESULTS FOR M1 TEST CAP

TABLE E2-1. PERFORMANCE VERIFICATION RESULTS FOR A4 TEST CAP

**Test Cap Area:** A4
**Date:** 1/31/01
**Samplers:** T.F., P.G.
**Field Sampling Method:** van Veen w/weights

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| A4TC1 | 16:43:39 | 3088967.92 | 1309993.07 | Not Recorded | 100 | 101 | | 16 cm penetration; all sand, fine and coarse material |
| A4TC2 | 16:54:11 | 3088957.74 | 1309950.6 | Not Recorded | 100 | 101 | | 13 cm penetration, all sand, small lens of organic material near jaws of van Veen |
| A4TC6 | 18:07:36 | 3088862.48 | 1309877.18 | Not Recorded | 100 | 101 | | 12 cm penetration; all sand |
| A4TC9 | 18:50:37 | 3088954.05 | 1309925.64 | 67 | 100 | 101 | | 11 cm penetration; all sand |
| A4TC10 | 18:58:37 | 3089004.06 | 1309985.58 | Not Recorded | 100 | 101 | | 10 cm penetration; all sand |
| A4TC4 | 17:40:53 | 3088830.4 | 1309860.51 | Not Recorded | 80 | 96 | | 16 cm penetration; 8-9 cm of sand on top of organics |
| A4TC8 | 18:35:44 | 3088932.42 | 1309963.27 | Not Recorded | 60 | 90 | | 17 cm penetration; slight overpenetration, will keep because surface is undisturbed |
| A4TC3 | 17:14:45 | 3088891.4 | 1309925.88 | Not Recorded | 45 | 84 | | 17 cm penetration; slight overpenetration in middle, 3-4 cm of sand in middle with remainder organics |
| A4TC5 | 17:59:54 | 3088881.86 | 1309851.74 | 67 | 45 | 84 | 82.83 | 15 cm penetration; not much sand, slight washing from bottom, will keep because top is undisturbed |
| A4TC7 | 18:22:45 | 3088998.98 | 1310020.45 | Not Recorded | 40 | 82 | 85.66 | 13 cm penetration; some organics, 6-7 cm sand |
| | | | | | | | | |
| | | | | | | | | |
| | | | | **Mean** | **77** | **94** | **84.245** | |
| | | | | | **Greater than 40%?** | **YES** | **OK** | |
| | | | | | **How many less than 13%?** | **0** | **0** | |
| | | | | | **Coefficient of Variation (σ/μ)** | | **NOT NEEDED** | |
| | | | | | **Pass or Fail?** | | **PASS!!!** | |

Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

Additional Notes:
Noted while sieving sample A4TC7 that tapping the beaker on the table promoted further settling of sand and thus a more accurate volume measurement. This was not done with samples A4TC3-TC5, so volumes could be slightly inflated.
The 'Sand Estimate' column of this worksheet was updated to incorporate the modified curve fit after B2 sample processing in the laboratory.

TABLE E2-2. PERFORMANCE VERIFICATION RESULTS FOR A6 TEST CAP

Test Cap Area: A6
Date: 2/1/01
Samplers: T.F., P.G., K.K.
Field Sampling Method: van Veen w/weights

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| A6TC3 | 9:26:30 | 3088824.75 | 1309705.46 | 86 | 100 | 100 | | 15 cm, all sand, some organics below 10 cm deep |
| A6TC4 | 10:01:00 | 3088872.98 | 1309781.7 | 74 | 100 | 100 | | 14.5 cm, all sand |
| A6TC5 | 10:08:32 | 3088858.23 | 1309752.28 | 76 | 100 | 100 | | 11 cm, all sand, slight mound in middle |
| A6TC6 | 10:15:57 | 3088847.24 | 1309747.51 | 82 | 100 | 100 | | 15 cm, slight mound in middle |
| A6TC8 | 10:41:38 | 3088846.93 | 1309793.54 | 68 | 100 | 100 | | 14 cm, highly undisturbed |
| A6TC10 | 12:12:53 | 3088856.49 | 1309708.44 | 82 | 100 | 100 | | 13.5 cm, very even [undisturbed] sample, all sand |
| A6TC9 | 11:49:23 | 3088887.15 | 1309809.92 | 73 | 70 | 93 | | 15 cm, one corner overpenetrated, some organics at 7-8 cm |
| A6TC7 | 10:26:46 | 3088837.61 | 1309661.23 | 89 | 50 | 86 | 88.07 | 17 cm, minor overpenetration in middle, 4-5 cm sand on organics |
| A6TC1 | 8:19:48 | 3088791.9 | 1309671.18 | 90 | 45 | 84 | | 17 cm, slight over penetration in middle, 3 cm sand then organics |
| A6TC2 | 9:07:01 | 3088823.75 | 1309728.66 | 86 | 40 | 81 | 83.77 | 14.5 cm, fine grained sand, wood debris present |
| A6TC11 | 8:53:47 | 3088917.4 | 1309777.91 | 76 | | | | 16 cm, mostly sand, about 3-4 cm organics, just outside test cap area, did not sieve |
| | | | | | | | | |
| | | | | **Mean** | **80.5** | **94** | **85.92** | |
| | | | | | **Greater than 40%?** | **YES** | **OK** | |
| | | | | | **How many less than 13%?** | **0** | **0** | |
| | | | | | **Coefficient of Variation (σ/μ)** | | **NOT NEEDED** | |
| | | | | | **Pass or Fail?** | | **PASS!!!** | |

Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

Additional Notes:
The 'Sand Estimate' column of this worksheet has been updated to reflect the most recent laboratory data being incorporated into the volume vs. dry weight sand content correlation.

TABLE E2-3. PERFORMANCE VERIFICATION RESULTS FOR A7 TEST CAP

Test Cap Area: A7
Date: 1/26/01
Samplers: M.H., T.F.
Field Sampling Method: van Veen w/weights

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| A7TC1 | 17:45:41 | 3089424.44 | 1310034.38 | 58 | 100 | 100 | | 10.5 cm penetration. All sand. |
| A7TC2 | 17:58:45 | 3089453.4 | 1310074.64 | 65 | 100 | 100 | | 11 cm penetration. All sand. |
| A7TC3 | 18:31:00 | 3089442.37 | 1310037.46 | 52 | 100 | 100 | | 13.5 cm penetration. Some bark on top. All sand. Some worms in the sand. |
| A7TC4 | | | | | | | | Unable to penetrate. Area most likely covered by logs. Similar outcome as the B3 test cap area. |
| A7TC5 | | | | | | | | Unable to penetrate. Area most likely covered by logs. Similar outcome as the B3 test cap area. |
| A7TC6 | | | | | | | | Unable to penetrate. Area most likely covered by logs. Similar outcome as the B3 test cap area. |
| A7TC7 | | | | | | | | Unable to penetrate. Area most likely covered by logs. Similar outcome as the B3 test cap area. |
| A7TC8 | | | | | | | | Unable to penetrate. Area most likely covered by logs. Similar outcome as the B3 test cap area. |
| A7TC9 | | | | | | | | Unable to penetrate. Area most likely covered by logs. Similar outcome as the B3 test cap area. |
| A7TC10 | | | | | | | | Unable to penetrate. Area most likely covered by logs. Similar outcome as the B3 test cap area. |
| A7TC11 | | | | | | | | Unable to penetrate. Area most likely covered by logs. Similar outcome as the B3 test cap area. |
| A7TC12 | | | | | | | | Unable to penetrate. Area most likely covered by logs. Similar outcome as the B3 test cap area. |
| | | | | Mean | 100 | 100 | NOT NEEDED | |
| | | | | Greater than 40%? | | YES | NOT NEEDED | |
| | | | | How many less than 13%? | | 0 | NOT NEEDED | |
| | | | | Coefficient of Variation (σ/μ) | | | NOT NEEDED | |
| | | | | Pass or Fail? | | | PASS!!! | |

Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

Additional Notes:
B. Zwick performed confirmation diving in area A7 on Monday, January 30, 01. He noted approximately 80-90% coverage by wood debris and cables. Videotape was obtained of the area showing good sand coverage. Two diver cores were collected, each with substantially >10 cm of sand.

**TABLE E2-4. PERFORMANCE VERIFICATION RESULTS FOR A8 TEST CAP**

**Test Cap Area:** A8 (The very first design test!!)
**Date:** 1/23/01
**Samplers:** B.K., T.F., M.H.
**Field Sampling Method:** van Veen w/weights

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| A8TC1 | 12:55:20 | 3089523.34 | 1310851.37 | 28.3 | 100 | 100 | | 11 cm penetration. Looks like a beach, no mud! Finer stuff on top. Some water drainage. |
| A8TC2 | 13:19:47 | 3089535.94 | 1310850.52 | 26.1 | 100 | 100 | | 13 cm penetration. Nice overlying water, very beach-like. No mud, no fines. |
| A8TC3 | 13:33:46 | 3089571.32 | 1310852.33 | 29 | 100 | 100 | | 15 cm penetration in middle. Encountered mud pocket 9-11 cm below the surface. |
| A8TC4 | 13:46:10 | 3089457.67 | 1310783.79 | 29 | 100 | 100 | | 13 cm penetration. No visible fines. |
| A8TC6 | 14:10:28 | 3089485.07 | 1310803.36 | 24 | 100 | 100 | | 12 cm penetration. Some drainage. Very little organics. |
| A8TC7 | 14:30:42 | 3089517.68 | 1310831.03 | 23 | 100 | 100 | | 10.5 cm penetration. Some leakage, but acceptable. All sand. |
| A8TC12 | 16:07:32 | 3089420.71 | 1310765.63 | 26 | 100 | 100 | | 13 cm penetration. Two living polychaetes observed. All sand. |
| A8TC5 | 13:55:22 | 3089471.62 | 1310773.98 | 26 | 95 | 99 | | 15 cm penetration. Living polychaete. Organics found at 13-14 cm below surface. |
| A8TC9 | 14:58:59 | 3089499.14 | 1310842.26 | 19 | 95 | 99 | | 13 cm penetration. No organics. Good sample. |
| A8TC10 | 15:22:23 | 3089510.71 | 1310800.07 | 19 | 75 | 94 | | 14 cm penetration. Hit organics at 7-10 cm below surface. |
| A8TC11 | 15:40:51 | 3089450.36 | 1310732.93 | 34 | 40 | 81 | 81.00 | 14 cm penetration. Some disturbance. Slightly angled. 4-6 cm of sand over organics. |
| A8TC8 | 14:46:54 | 3089550.34 | 1310819.48 | 43 | 20 | 67 | 47.00 | 14 cm penetration. Large pieces of bark and wood debris. Lots of sand. Sample mounded in the middle. Organics on the outer edges beginning 2 cm below surface. This sample was collected on the edge of this test cap area. |
| | | | | **Mean** | **96.5** | **99.5** | **NOT NEEDED** | |
| | | | | **Greater than 40%?** | | **YES** | **NOT NEEDED** | |
| | | | | **How many less than 13%?** | | **0** | **NOT NEEDED** | |
| | | | | **Coefficient of Variation ($\sigma/\mu$)** | | | **NOT NEEDED** | |
| | | | | **Pass or Fail?** | | | **PASS!!!** | |

Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

Additional Notes:
None

**TABLE E2-5. PERFORMANCE VERIFICATION RESULTS FOR B2 TEST CAP**

**Test Cap Area:** B2
**Date:** 1/26/01
**Samplers:** M.H., T.F.
**Field Sampling Method:** van Veen w/weights

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| B2TC1 | 14:54:02 | 3089358.79 | 1309898.66 | 65 | 100 | 100 | | 13 cm penetration. All sand. Slightly mounded in middle. |
| B2TC2 | 15:13:06 | 3089298.26 | 1309816.55 | 69 | 100 | 100 | | 12 cm penetration. All sand. Slightly mounded in middle. |
| B2TC3 | 15:38:57 | 3089402.59 | 1309915.35 | 70 | 100 | 100 | | 1st try got debris. 15 cm penetration. A small lens of organics. |
| B2TC4 | 15:46:05 | 3089365.24 | 1309926.58 | 68 | 100 | 100 | | 16 cm penetration. Slight mounding in middle. 2-3 cm of organics on edges. |
| B2TC5 | 16:02:47 | 3089375.36 | 1309943.87 | 66 | 100 | 100 | | 14 cm penetration. All sand. |
| B2TC6 | 16:21:47 | 3089342.21 | 1309848.3 | 60 | 100 | 100 | | 12.5 cm penetration. All sand. Sample slightly disturbed due to wash. Some organics on bottom. |
| B2TC7 | 16:29:28 | 3089295.94 | 1309862.06 | 61 | 100 | 100 | | 16 cm penetration. Slight overpenetration in middle, but there was overlying water. 3 cm of organics on the bottom. |
| B2TC9 | 16:50:29 | 3089305.05 | 1309840.59 | 77 | 100 | 100 | | 13.5 cm penetration. All sand except bottom 1-2 cm on edges which has organics. |
| B2TC8 | 16:40:48 | 3089308.49 | 1309881.54 | 73 | 75 | 94 | 94.30 | 14.5 cm penetration. Slight overpenetration in middle. Some debris. Approximately 8 cm of sand with organics below. |
| B2TC10 | 16:58:57 | 3089259.56 | 1309848.59 | 75 | 25 | 72 | 71.34 | 15 cm penetration. Slight overpenetration on one side. 5-6 cm of sand then organics below. |
| | | | | | | | | |
| | | | | | | | | |
| | | | | **Mean** | **90** | **96.9** | **82.82** | |
| | | | | | **Greater than 40%?** | **YES** | **OK** | |
| | | | | | **How many less than 13%?** | **0** | **0** | |
| | | | | | **Coefficient of Variation (σ/μ)** | | **NOT NEEDED** | |
| | | | | | **Pass or Fail?** | | **PASS!!!** | |

Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

Additional Notes:
All samples in this area lacked coarse sand.
The van Veen sampler is approximately 8 ft. from DGPS antenna.

**TABLE E2-6. PERFORMANCE VERIFICATION RESULTS FOR B3 TEST CAP**

**Test Cap Area:** B3
**Date:** 1/24/01
**Samplers:** B.K., T.F., M.H.
**Field Sampling Method:** van Veen w/weights

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| B3TC1 | 14:41:46 | 3089537.76 | 1310282.01 | 51 | 100 | 100 | | 13.5 cm penetration. All sand, no organics, took 3 times to penetrate. |
| B3TC2 | 14:50:55 | 3089523.25 | 1310307.63 | 51 | 100 | 100 | | 14 cm penetration, "Skin, if you will, of organics on top"....Mark Herrenkohl, all sand with a little bit of organics on the edges. |
| B3TC3 | 15:00:25 | 3089552.72 | 1310326.43 | 43 | 100 | 100 | | 12.5 cm penetration, all sand!!! |
| B3TC4 | 15:25:49 | 3089539.07 | 1310352.9 | 38 | 100 | 100 | | 13 cm penetration. All sand, took 3 times to penetrate. |
| B3TC5 | | | | | | | | Unable to penetrate |
| B3TC6 | | | | | | | | Unable to penetrate |
| B3TC7 | | | | | | | | Unable to penetrate |
| B3TC8 | | | | | | | | Unable to penetrate |
| B3TC9 | | | | | | | | Unable to penetrate |
| B3TC10 | | | | | | | | Unable to penetrate |
| B3TC11 | | | | | | | | Unable to penetrate |
| B3TC12 | | | | | | | | Unable to penetrate |
| | | | | **Mean** | **100** | **100** | **NOT NEEDED** | |
| | | | | **Greater than 40%?** | | **YES** | **NOT NEEDED** | |
| | | | | **How many less than 13%?** | | **0** | **NOT NEEDED** | |
| | | | | **Coefficient of Variation (σ/μ)** | | | **NOT NEEDED** | |
| | | | | **Pass or Fail?** | | | **PASS!!!** | |

Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

Additional Notes:
Adam Krausamn (Alaska Commercial Divers) dove down to free the Invader 1 anchor. While freeing the anchor, he videotaped many logs and cables which explains our inability to penetrate.
A. Krausman dove on 1/25/01 to verify that the majority of the B3 test cap area was covered by logs. He confirmed the presence of logs and cable over the area. This diving event was videotaped.
In addition, he documented the presence of a uniform cap by noting sand coverage on logs and by taking two diver cores. These two cores show greater than 10 cm of sand.
Lab verification was not conducted because all samples taken contained 100% sand in the top 10 cm.

TABLE E2-7. PERFORMANCE VERIFICATION RESULTS FOR M1 TEST CAP

Test Cap Area: M1
Date: 2/1/01
Samplers: P.G., J.L., K.K.
Field Sampling Method: van Veen w/weights

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| M1TC1 | 13:11:05 | 3089506.92 | 1310523.6 | 19 | 100 | 100 | | 13.5 cm penetration, all sand |
| M1TC2 | 13:36:50 | 3089396.34 | 1310605.47 | 31 | 100 | 100 | | 13 cm penetration, all sand |
| M1TC3 | 13:45:43 | 3089442.21 | 1310540.94 | 27 | 100 | 100 | | 12 cm penetration, all sand |
| | | | | | | | | |
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| | | | | | | | | |
| | | | | Mean | 100 | 100 | NOT NEEDED | |
| | | | | Greater than 40%? | | YES | NOT NEEDED | |
| | | | | How many less than 13%? | | 0 | NOT NEEDED | |
| | | | | Coefficient of Variation (σ/μ) | | | NOT NEEDED | |
| | | | | Pass or Fail? | | | PASS!!! | |

Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

Additional Notes:
This area was not an official test cap area, but verification sampling was performed to document that sand placement over the proposed mounding area was adequate. None of the first three samples require laboratory verification because they are all 100% sand.

# E3: PRODUCTION CAPPING DATA

TABLE E3-1: PERFORMANCE VERIFICATION RESULTS FOR A1
TABLE E3-2: PERFORMANCE VERIFICATION RESULTS FOR A2
TABLE E3-3: PERFORMANCE VERIFICATION RESULTS FOR A3
TABLE E3-4: PERFORMANCE VERIFICATION RESULTS FOR A4
TABLE E3-5: PERFORMANCE VERIFICATION RESULTS FOR A5
TABLE E3-6: PERFORMANCE VERIFICATION RESULTS FOR A6
TABLE E3-7: PERFORMANCE VERIFICATION RESULTS FOR A7
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TABLE E3-9: PERFORMANCE VERIFICATION RESULTS FOR B1
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TABLE E3-11: PERFORMANCE VERIFICATION RESULTS FOR B3
TABLE E3-12: PERFORMANCE VERIFICATION RESULTS FOR B4
TABLE E3-13: PERFORMANCE VERIFICATION RESULTS FOR M1
TABLE E3-14: PERFORMANCE VERIFICATION RESULTS FOR D2
TABLE E3-15: PERFORMANCE VERIFICATION RESULTS FOR D3

TABLE E3-1. PERFORMANCE VERIFICATION RESULTS FOR A1

**Acceptance Area:** A1
**Date:** 2/21/01
**Samplers:** B.K., E.S.
**Field Sampling Method:** van Veen w/weights

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| A1PC2 | 14:49:19 | 3086364.75 | 1307458.06 | 64 | 100 | 100 | | 17 cm penetration, all sand |
| A1PC6 | 15:22:49 | 3086333.01 | 1307414.06 | 71 | 100 | 100 | | 16 cm penetration, all sand |
| A1PC9 | 15:52:39 | 3086639.74 | 1307464.79 | 63 | 100 | 100 | | 16 cm penetration, all sand |
| A1PC10 | 16:01:28 | 3086632.09 | 1307392.1 | 62 | 100 | 100 | | 16 cm penetration, all sand, washout on one side |
| A1PC11 | 16:12:44 | 3086556.01 | 1307421.15 | 58 | 100 | 100 | | 19 cm penetration, all sand |
| A1PC12 | 16:18:57 | 3086707.47 | 1307422.97 | 57 | 100 | 100 | | 19 cm penetration, all sand |
| A1PC7 | 15:32:20 | 3086406.33 | 1307361.82 | 80 | 85 | 97 | | 17 cm penetration, some organics and small pieces of bark |
| A1PC5 | 15:10:24 | 3086312.89 | 1307441.61 | 56 | 84 | 97 | | 16 cm penetration, small amount of organics |
| A1PC8 | 15:43:06 | 3086411.87 | 1307420.84 | 71 | 81 | 96 | | 19 cm penetration, some organics, washout on one side, small chunks of bark |
| A1PC3 | 14:55:19 | 3086423.76 | 1307461.33 | 64 | 71 | 93 | | 17 cm penetration, small amount of visible organics, small pieces of bark |
| A1PC4 | 15:01:54 | 3086350.23 | 1307379.41 | 52 | 70 | 93 | 92.50 | 17 cm penetration, some visible organics |
| A1PC1 | 14:39:54 | 3086292.95 | 1307419.78 | 61 | 29 | 75 | 75.96 | 20 cm penetration, visible organics, lots of small pieces of bark |
| | | | | **Mean** | **92** | **98** | **NOT NEEDED** | |
| | | | | **Greater than 40%?** | | **YES** | **NOT NEEDED** | |
| | | | | **How many less than 13%?** | | **0** | **NOT NEEDED** | |
| | | | | **Coefficient of Variation (σ/μ)** | | | **NOT NEEDED** | |
| | | | | **Pass or Fail?** | | | **PASS!!!** | |

Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

Additional Notes:
None

TABLE E3-2. PERFORMANCE VERIFICATION RESULTS FOR A2

**Acceptance Area:** A2
**Date:** 2/23/01
**Samplers:** B.K., T.F.
**Field Sampling Method:** van Veen w/weights

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| A2PC1 | 14:23:38 | 3087027.62 | 1307645.34 | 95 | 100 | 100 | | 16.5 cm penetration, all sand |
| A2PC2 | 14:32:33 | 3087008.17 | 1307575.26 | 99 | 100 | 100 | | 17 cm penetration, all sand |
| A2PC3 | 15:13:02 | 3086762.12 | 1307558.28 | 87 | 100 | 100 | | 16 cm penetration, all sand |
| A2PC4 | 15:24:04 | 3086871.32 | 1307526.47 | 79 | 100 | 100 | | 15.5 cm penetration, all sand |
| A2PC6 | 15:35:58 | 3086822.58 | 1307608.78 | 100 | 100 | 100 | | 16 cm penetration, all sand |
| A2PC7 | 15:36:14 | 3086885.86 | 1307635.08 | 97 | 100 | 100 | | 15 cm penetration, all sand |
| A2PC8 | 15:52:09 | 3087080.03 | 1307679.46 | 101 | 100 | 100 | | 15 cm penetration, all sand |
| A2PC9 | 15:57:00 | 3087000.74 | 1307671.77 | 85 | 100 | 100 | | 17 cm penetration, all sand, lens (thin film) of organics on top |
| A2PC10 | 16:06:05 | 3087111.13 | 1307634.9 | 109 | 100 | 100 | | 16 cm penetration, all sand |
| A2PC11 | 16:24:23 | 3086922.14 | 1307597.2 | 88 | 100 | 100 | | 16 cm penetration, all sand |
| A2PC12 | 16:30:11 | 3086944.54 | 1307551.95 | 98 | 100 | 100 | | 16 cm penetration, all sand |
| A2PC5 | 15:31:23 | 3086758.85 | 1307493.69 | 95 | 81 | 96 | 94.5 | 13.5 cm penetration, some organics |
| | | | | **Mean** | **100** | **100** | **NOT NEEDED** | |
| | | | | **Greater than 40%?** | | **YES** | **NOT NEEDED** | |
| | | | | **How many less than 13%?** | | **0** | **NOT NEEDED** | |
| | | | | **Coefficient of Variation (σ/μ)** | | | **NOT NEEDED** | |
| | | | | **Pass or Fail?** | | | **PASS!!!** | |

Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

Additional Notes:
None

TABLE E3-3. PERFORMANCE VERIFICATION RESULTS FOR A3

Acceptance Area: A3
Date: 2/23/01
Samplers: B.K., T.F.
Field Sampling Method: van Veen w/weights

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| A3PC1 | 10:53:49 | 3087483.76 | 1307795.99 | 104 | 100 | 100 | | 19 cm penetration, all sand, one chunk of 3" bark |
| A3PC2 | 11:16:29 | 3087446.95 | 1307898.52 | 93 | 100 | 100 | | 17 cm penetration, all sand |
| A3PC4 | 11:45:31 | 3087335.95 | 1307714.95 | 104 | 100 | 100 | | 17 cm penetration, all sand |
| A3PC5 | 11:53:56 | 3087258.32 | 1307801.85 | 99 | 100 | 100 | | 16.5 cm penetration, all sand |
| A3PC6 | 12:02:10 | 3087290.81 | 1307866.05 | 92 | 100 | 100 | | 19 cm penetration, all sand |
| A3PC7 | 12:16:43 | 3087222.67 | 1307734.01 | 106 | 100 | 100 | | 17 cm penetration, all sand |
| A3PC9 | 13:39:53 | 3087391.65 | 1307832.92 | 99 | 100 | 100 | | 19 cm penetration, all sand |
| A3PC10 | 13:46:24 | 3087388.1 | 1307778.83 | 99 | 100 | 100 | | 16 cm penetration, all sand in top 10 cm, clear division between organics and sand below 10 cm |
| A3PC12 | 14:10:04 | 3087254.29 | 1307686.98 | 97 | 100 | 100 | | 14.5 cm penetration, all sand, bark present but no other organics |
| A3PC3 | 11:33:05 | 3087465.52 | 1307770.05 | 104 | 91 | 98 | | 17 cm penetration, small pocket of organics, washout on one side |
| A3PC8 | 12:30:31 | 3087177.7 | 1307646.68 | 113 | 55 | 88 | 92.68 | 17 cm penetration, visible organics |
| A3PC11 | 13:59:40 | 3087399.83 | 1307934.97 | 99 | 52 | 87 | 88.64 | 15 - 17 cm penetration, visible organics |
| | | | | **Mean** | **99.1** | **100** | **NOT NEEDED** | |
| | | | | **Greater than 40%?** | | **YES** | **NOT NEEDED** | |
| | | | | **How many less than 13%?** | | **0** | **NOT NEEDED** | |
| | | | | **Coefficient of Variation (σ/μ)** | | | **NOT NEEDED** | |
| | | | | **Pass or Fail?** | | | **PASS!!!** | |

Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

Additional Notes:
None

TABLE E3-4. PERFORMANCE VERIFICATION RESULTS FOR A4

**Acceptance Area:** A4
**Date:** 2/24/01
**Samplers:** B.K., T.F.
**Field Sampling Method:** van Veen w/weights

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| A4PC3 | 15:09:17 | 3088556.61 | 1309938.19 | 45 | 100 | 100 | | 10 cm, all sand |
| A4PC4 | 15:17:33 | 3088587.35 | 1309957.98 | 40 | 100 | 100 | | 12 cm, all sand |
| A4PC5 | 15:26:44 | 3088676.36 | 1309879.31 | 62 | 100 | 100 | | 16 cm, all sand |
| A4PC7 | 15:44:18 | 3088773.11 | 1310010.67 | 59 | 100 | 100 | | 17 cm, all sand |
| A4PC9 | 15:58:38 | 3088929.26 | 1310088.59 | 58 | 100 | 100 | | 16 cm, visible organics at bottom |
| A4PC10 | 16:05:41 | 3088536.75 | 1309844.67 | 56 | 100 | 100 | | 16 cm, all sand |
| A4PC11 | 16:11:40 | 3088816.13 | 1309940.73 | 62 | 100 | 100 | | 15 cm, all sand |
| A4PC12 | 16:22:24 | 3088918.12 | 1309977.63 | 65 | 100 | 100 | | 15 cm, all sand |
| A4PC13 | 16:34:29 | 3088870.37 | 1310039.34 | 62 | 100 | 100 | | 14 cm, all sand, some coarse sand on top |
| A4PC2 | 15:01:33 | 3088450.22 | 1309976.67 | 39 | 96 | 99 | | 14 cm, small layer of organics at 10 cm |
| A4PC6 | 15:34:12 | 3088578.78 | 1309863.98 | 60 | 90 | 98 | | 17 cm, organics on one side below 6 cm but all sand on other |
| A4PC1 | 14:50:42 | 3088380.38 | 1309833.68 | 68 | 80 | 96 | 94.29 | 16 cm, visible organics at 8 cm, sample just barely out of cap area |
| A4PC8 | 15:50:18 | 3088821.5 | 1310139.5 | 62 | 55 | 88 | 91.80 | 17 cm, visible organics, washout on one side, other side undisturbed |
| | | | | **Mean** | **93.92** | **99** | **NOT NEEDED** | |
| | | | | **Greater than 40%?** | | **YES** | **NOT NEEDED** | |
| | | | | **How many less than 13%?** | | **0** | **NOT NEEDED** | |
| | | | | **Coefficient of Variation (σ/μ)** | | | **NOT NEEDED** | |
| | | | | **Pass or Fail?** | | | **PASS!!!** | |

Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

Additional Notes:
None

**TABLE E3-5. PERFORMANCE VERIFICATION RESULTS FOR A5**

**Acceptance Area:** A5
**Date:** 2/17/01
**Samplers:** B.K., D.H.
**Field Sampling Method:** van Veen w/weights

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| A5PC1 | 11:07:58 | 3088559.49 | 1309287.1 | 90 | 100 | 100 | | 14 cm penetration, all sand |
| A5PC2 | 11:22:51 | 3088582.15 | 1309367.42 | 90 | 100 | 100 | | 15 cm penetration, all sand |
| A5PC3 | 11:29:35 | 3088564.96 | 1309386.35 | 88 | 100 | 100 | | 14 cm penetration, all sand |
| A5PC4 | 11:39:21 | 3088526.06 | 1309481.09 | 93 | 100 | 100 | | 16 cm penetration, all sand |
| A5PC5 | 12:02:41 | 3088587.46 | 1309497.64 | 98 | 100 | 100 | | 14 cm penetration, all sand |
| A5PC6 | 12:11:53 | 3088649.1 | 1309469.23 | 86 | 100 | 100 | | 16 cm penetration, all sand |
| A5PC7 | 12:19:22 | 3088666.02 | 1309401.38 | 82 | 100 | 100 | | 16 cm penetration, all sand |
| A5PC8 | 12:29:06 | 3088485.95 | 1309478.14 | 90 | 100 | 100 | | 16 cm penetration, organics below 14 cm |
| A5PC11 | 13:47:14 | 3088403.23 | 1309334.82 | 93 | 100 | 100 | | 15 cm penetration, all sand |
| A5PC12 | 14:04:32 | 3088468.14 | 1309207.72 | 98 | 100 | 100 | | 10.5 cm penetration, all sand |
| A5PC9 | 13:00:52 | 3088515.11 | 1309137.06 | 92 | 43 | 83 | 93.14 | 14 cm penetration, organics below 4 cm, lots of wood fibers and bark, sample location near A5 boundary |
| A5PC10 | 13:13:36 | 3088498.84 | 1309073.79 | 106 | 23 | 70 | 72.34 | 12 cm penetration, organics below 2 cm, 1-2 in. chunks of bark on bottom, sample location near A5 boundary |
| | | | | **Mean** | **100** | **100** | **NOT NEEDED** | |
| | | | | **Greater than 40%?** | | **YES** | **NOT NEEDED** | |
| | | | | **How many less than 13%?** | | **0** | **NOT NEEDED** | |
| | | | | **Coefficient of Variation (σ/μ)** | | | **NOT NEEDED** | |
| | | | | **Pass or Fail?** | | | **PASS!!!** | |

Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

Additional Notes:
None

**TABLE E3-6. PERFORMANCE VERIFICATION RESULTS FOR A6**

**Acceptance Area: A6**
**Date: 2/13/01**
**Samplers: B.K., D.H.**
**Field Sampling Method: van Veen w/weights**

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| A6PC1 | 8:35:21 | 3088935.37 | 1309773.46 | 70 | 100 | 100 | | 13 cm, all sand, some washout on one side |
| A6PC2 | 10:01:47 | 3088981.41 | 1309600.56 | 78 | 100 | 100 | | 16 cm, all sand |
| A6PC3 | 10:11:23 | 3089035.72 | 1309666.92 | 69 | 100 | 100 | | 15 cm, all sand |
| A6PC4 | 10:20:08 | 3088997.42 | 1309719.36 | 52 | 100 | 100 | | 12 cm, all sand, small washout on one side, sample collected on other |
| A6PC7 | 11:11:08 | 3088959.36 | 1309640.55 | Not recorded | 100 | 100 | | 13 cm, all sand |
| A6PC8 | 11:53:28 | 3088876.08 | 1309631.7 | 85 | 100 | 100 | | 13 cm, all sand, some organics below 10 cm |
| A6PC9 | 12:01:50 | 3088825.79 | 1309585.18 | 92 | 100 | 100 | | 14 cm, all sand |
| A6PC10 | 12:20:08 | 3088966.83 | 1309557.08 | 82 | 100 | 100 | | 15 cm, all sand |
| A6PC5 | 10:38:04 | 3088867.63 | 1309506.39 | 94 | 80 | 96 | 91.55 | 14 cm, some organics, piece of bark, spilled small amount of sample while sieving |
| A6PC6 | 10:57:15 | 3089076.76 | 1309594.27 | 67 | 80 | 96 | 88.43 | 14 cm, some organics |
| | | | | | | | | |
| | | | | | | | | |
| | | | | **Mean** | **96** | **99** | **89.99** | |
| | | | | | **Greater than 40%?** | **YES** | **OK** | |
| | | | | | **How many less than 13%?** | **0** | **0** | |
| | | | | | | **Coefficient of Variation (σ/μ)** | **NOT NEEDED** | |
| | | | | | | **Pass or Fail?** | **PASS!!!** | |

Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

Additional Notes:
None

TABLE E3-7. PERFORMANCE VERIFICATION RESULTS FOR A7

**Acceptance Area:** A7
**Date:** 2/13/2001 (1, 3, & 5); 2/15/01 (all others)
**Samplers:** B.K., D.H., B.Z.
**Field Sampling Method:** Diver Cores

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| A7PC1 | 13:37:48 | 3089392.23 | 1310373.46 | Not recorded | 100 | 100 | | Even sand coverage, 16 cm sand on top of 5 cm organics |
| A7PC3 | 13:41:00 | 3089386.2 | 1310317.14 | Not recorded | 100 | 100 | | 19 cm sand on top of 5 cm organics |
| A7PC5 | 13:45:34 | 3089317.8 | 1310258.8 | Not recorded | 100 | 100 | | good even coverage, some scattered logs, 23+ cm sand, no organics |
| A7PC2 | 12:16:39 | 3089507.05 | 1310256.8 | 52 | 100 | 100 | | sample collected under boom shack, lots of logs and cables, all covered with sand, 27 cm sand |
| A7PC4 | 12:20:01 | 3089455.75 | 1310217.57 | 52 | 100 | 100 | | 30 cm sand |
| A7PC10 | 12:22:26 | 3089433.62 | 1310183.37 | 55 | 100 | 100 | | 30 cm sand |
| A7PC7 | 12:26:28 | 3089358.18 | 1310203.49 | 56 | 100 | 100 | | 20 cm sand |
| A7PC9 | 12:28:29 | 3089372.26 | 1310120 | 58 | 100 | 100 | | 15 cm sand |
| A7PC6 | 12:31:30 | 3089265.64 | 1310143.14 | 54 | 100 | 100 | | 30 cm sand |
| A7PC8 | 12:34:05 | 3089261.62 | 1310182.37 | 54 | 100 | 100 | | 30 cm sand |
| | | | | | | | | |
| | | | | | | | | |
| | | | | **Mean** | **100** | **100** | **NOT NEEDED** | |
| | | | | | **Greater than 40%?** | **YES** | **NOT NEEDED** | |
| | | | | | **How many less than 13%?** | **0** | **NOT NEEDED** | |
| | | | | | | **Coefficient of Variation (σ/μ)** | **NOT NEEDED** | |
| | | | | | | **Pass or Fail?** | **PASS!!!** | |

Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

Additional Notes:
A7 contains many logs and cables making samples difficult with the van Veen sampler. Divers recorded their activities in this area with video.
Measurements in the samples notes column indicate the depth of sand in the core tube.

TABLE E3-8. PERFORMANCE VERIFICATION RESULTS FOR A8

Acceptance Area: A8
Date: 2/2/2001, 2/4/2001
Samplers: P.G., K.K.
Field Sampling Method: van Veen w/weights

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| A8PC1 | 16:23:54 | 3089875.25 | 1310687.21 | 17 | 100 | 100 | | 10 cm, all sand |
| A8PC2 | 16:50:02 | 3089752.35 | 1310684.37 | 20 | 100 | 100 | | 12 cm, all sand |
| A8PC3 | 17:12:58 | 3089840.25 | 1310769.22 | 20 | 100 | 100 | | 11 cm, all sand |
| A8PC4 | 17:22:49 | 3089821.24 | 1310829.4 | 18 | 100 | 100 | | 12 cm, all sand |
| A8PC5 | 17:30:17 | 3089904.6 | 1310743.82 | 17 | 100 | 100 | | 16 cm, all sand |
| A8PC6 | 17:37:21 | 3089861.31 | 1310819.2 | 22 | 100 | 100 | | 11 cm, all sand |
| A8PC7 | 8:50:39 | 3089851.8 | 1310682.43 | 20 | 100 | 100 | | 12 cm, all sand, 2/4 |
| A8PC8 | 9:02:16 | 3089880.92 | 1310573.77 | 18 | 100 | 100 | | 12 cm, all sand, 2/4 |
| A8PC9 | 9:08:54 | 3089826.05 | 1310514.69 | 36 | 100 | 100 | | 11 cm, all sand, 2/4 |
| A8PC10 | 9:17:59 | 3089763.95 | 1310571.57 | 26 | 100 | 100 | | 17 cm, all sand, 2/4 |
| A8PC11 | 15:15:55 | 3089935.14 | 1310726.94 | 11 | 100 | 100 | | 11 cm, all sand, 2/4 |
| A8PC12 | 15:30:32 | 3089827.85 | 1310640.29 | 18 | 100 | 100 | | 17 cm, all sand, 2/4 |
| | | | | **Mean** | **100** | **100** | **NOT NEEDED** | |
| | | | | **Greater than 40%?** | | **YES** | **NOT NEEDED** | |
| | | | | **How many less than 13%?** | | **0** | **NOT NEEDED** | |
| | | | | **Coefficient of Variation ($\sigma/\mu$)** | | | **NOT NEEDED** | |
| | | | | **Pass or Fail?** | | | **PASS!!!** | |

Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

Additional Notes:
None of these samples were verified in the laboratory because they all contained 100% sand.

TABLE E3-9. PERFORMANCE VERIFICATION RESULTS FOR B1

**Acceptance Area:** B1
**Date:** 2/19/01
**Samplers:** B.K., D.H.
**Field Sampling Method:** van Veen w/weights

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| B1PC1 | 12:36:50 | 3088274.29 | 1309208.24 | 118 | 100 | 100 | | 16 cm penetration, mounded in center, 2 1-2" rocks in sample, skin of visible organics |
| B1PC2 | 13:03:48 | 3088345.49 | 1309133.33 | 124 | 100 | 100 | | 13 cm penetration on one side, 10 cm on the other, sample taken from 13 cm side, all sand |
| B1PC3 | 13:24:48 | 3088398.78 | 1309061.14 | 122 | 100 | 100 | | 16 cm penetration, all sand |
| B1PC4 | 13:33:59 | 3088298.7 | 1309092.94 | 122 | 100 | 100 | | 16 cm, all sand to 10 cm, some organics lining the bottom |
| B1PC5 | 13:58:16 | 3088296.54 | 1309173.44 | 117 | 100 | 100 | | 13 cm penetration, all sand |
| B1PC6 | 14:29:32 | 3088286.09 | 1309138.2 | 115 | 100 | 100 | | 11 cm penetration, some washout in center, all sand |
| B1PC7 | 14:36:51 | 3088291.7 | 1309022.08 | 117 | 100 | 100 | | 14 cm penetration, some washout in center, all sand |
| B1PC9 | 15:04:20 | 3088317.3 | 1308890.91 | 117 | 100 | 100 | | 16 cm penetration, all sand to 12 cm, organics below |
| B1PC10 | 15:18:32 | 3088331.93 | 1308972.01 | 122 | 100 | 100 | | 16 cm penetration, all sand to 14 cm, organics below |
| B1PC11 | 15:26:02 | 3088430.32 | 1308961.2 | 121 | 95 | 99 | | 15 cm penetration, some visible organics |
| B1PC12 | 15:42:11 | 3088382.92 | 1308880.59 | 120 | 95 | 99 | 98.02 | 15 cm penetration, some visible organics |
| B1PC8 | 14:48:42 | 3088288.8 | 1308951.74 | 114 | 39 | 81 | 80.45 | 15 cm penetration, lots of stringy bark, organics visible, sample taken near boundary |
| | | | | **Mean** | **99.5** | **100** | **NOT NEEDED** | |
| | | | | **Greater than 40%?** | | **YES** | **NOT NEEDED** | |
| | | | | **How many less than 13%?** | | **0** | **NOT NEEDED** | |
| | | | | **Coefficient of Variation (σ/μ)** | | | **NOT NEEDED** | |
| | | | | **Pass or Fail?** | | | **PASS!!!** | |

Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

Additional Notes:
None

TABLE E3-10. PERFORMANCE VERIFICATION RESULTS FOR B2

**Acceptance Area:** B2
**Date:** 2/10/01
**Samplers:** P.G., E.S.
**Field Sampling Method:** van Veen w/weights

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| B2PC1 | 8:08:45 | 3089061.33 | 1309875.68 | 44 | 100 | 100 | | 12 cm, all sand |
| B2PC2 | 8:16:19 | 3089075.99 | 1309750.89 | 48 | 100 | 100 | | 12 cm, all sand |
| B2PC3 | 8:22:39 | 3089116.53 | 1309691.77 | 50 | 100 | 100 | | 12 cm, all sand |
| B2PC4 | 8:27:54 | 3089002.87 | 1309805.28 | 60 | 100 | 100 | | 14 cm, all sand |
| B2PC6 | 8:41:37 | 3088958.04 | 1309865.21 | 61 | 100 | 100 | | 13 cm, all sand |
| B2PC7 | 8:48:17 | 3089281.13 | 1309946.17 | 50 | 100 | 100 | | 12 cm, all sand |
| B2PC8 | 9:01:34 | 3089153.26 | 1309873.75 | 53 | 100 | 100 | | 13 cm, all sand |
| B2PC9 | 9:22:32 | 3089251.25 | 1309998.72 | 53 | 100 | 100 | | 13 cm, all sand |
| B2PC10 | 9:32:08 | 3089219.22 | 1309766 | 61 | 100 | 100 | | 13 cm, all sand |
| B2PC11 | 9:39:47 | 3089180.84 | 1309957.36 | 55 | 100 | 100 | | 12 cm, all sand |
| B2PC12 | 9:45:01 | 3089236.59 | 1310042.83 | 53 | 100 | 100 | | 12 cm, all sand |
| B2PC5 | 8:34:59 | 3089047.29 | 1309936.27 | 53 | 30 | 75 | 73.5 | 16 cm, sieving required, 3-5 cm sand on top of organics, clear boundary between the two |
| | | | | **Mean** | **100** | **100** | **NOT NEEDED** | |
| | | | | **Greater than 40%?** | | **YES** | **NOT NEEDED** | |
| | | | | **How many less than 13%?** | | **0** | **NOT NEEDED** | |
| | | | | **Coefficient of Variation (σ/μ)** | | | **NOT NEEDED** | |
| | | | | **Pass or Fail?** | | | **PASS!!!** | |

Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

Additional Notes:
Sample B2PC5 was verified in the laboratory by measuring dry weight sand content and showed that the correlation formula between wet volume and dry weight is still good.

TABLE E3-11. PERFORMANCE VERIFICATION RESULTS FOR B3

**Acceptance Area:** B3
**Date:** 1/24/2001, 1/25/2001, 2/9/2001
**Samplers:** B.K., T.F., M.H., A.K., T.S.
**Field Sampling Method:** van Veen w/weights
Diver Cores

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| B3TC1 | 14:41:46 | 3089537.76 | 1310282.01 | 51 | 100 | 100 | | All sand, no organics, took 3 times to penetrate, 13.5 cm penetration. |
| B3TC2 | 14:50:55 | 3089523.25 | 1310307.63 | 51 | 100 | 100 | | "Skin, if you will, of organics"....Mark Herrenkohl 14 cm penetration, all sand with a little bit of organics on the edges. |
| B3TC3 | 15:00:25 | 3089552.72 | 1310326.43 | 43 | 100 | 100 | | 12.5 cm penetration, all sand!!! |
| B3TC4 | 15:25:49 | 3089539.07 | 1310352.9 | 38 | 100 | 100 | | All sand, took 3 times to penetrate, 13 cm penetration. |
| B3TC5 (Diver Core) | 1/25/01 | No coordinates obtained for this sample | | NA | 100 | 100 | | Sample collected by diver |
| B3TC6 (Diver Core) | 1/25/01 | No coordinates obtained for this sample | | NA | 100 | 100 | | Sample collected by diver |
| B3PC12 (Diver Core) | 15:52:38 | 3089624.12 | 1310405.04 | NA | 100 | 100 | | Sample collected by diver, slightly softer sand |
| B3PC8 (Diver Core) | 16:01:56 | 3089563.75 | 1310362.32 | NA | 100 | 100 | | Sample collected by diver |
| B3PC11 (Diver Core) | 16:07:42 | 3089605.32 | 1310337.83 | NA | 100 | 100 | | Sample collected by diver, 5-6 inches sand |
| B3PC10 (Diver Core) | 16:23:06 | 3089595.07 | 1310328.15 | NA | 100 | 100 | | Sample collected by diver, 6-7 inches sand |
| B3PC7 (Diver Core) | 16:35:36 | 3089587.1 | 1310289.99 | NA | 100 | 100 | | Sample collected by diver, all sand |
| B3PC9 (Diver Core) | 15:43:10 | 3089650.32 | 1310421.56 | NA | 55 | 88 | | Sample collected by diver, required sieving because sample was mixed in transit |
| | | | | **Mean** | **100** | **100** | **NOT NEEDED** | |
| | | | | **Greater than 40%?** | | **YES** | **NOT NEEDED** | |
| | | | | **How many less than 13%?** | | **0** | **NOT NEEDED** | |
| | | | | **Coefficient of Variation (σ/μ)** | | | **NOT NEEDED** | |
| | | | | **Pass or Fail?** | | | **PASS!!!** | |

Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

Additional Notes:
Adam Krausamn (Alaska Commercial Divers) dove down to free the Invader 1 anchor. While freeing the anchor, he videotaped many logs and cables which explains our inability to penetrate.
A. Krausman dove on 1/25/01 to verify that the majority of the B3 test cap area was covered by logs. He confirmed the presence of logs and cable over the area. This diving event was videotaped.
In addition, he documented the presence of a uniform cap by noting sand coverage on logs and by taking two diver cores. These two cores show greater than 10 cm of sand.
Samples B3PC7 through B3PC12 were collected by Tim Scanlon (Alaska Commercial Divers) using core tubes. He also confirmed the presence of many logs and cable over the entire area with particular density along the eastern border of B3. This finding is logical because it borders a portion of the Area of Concern that was eliminated during the design process because of the extreme density of logs and debris. As the attached map indicates, this area was not sampled, but sand converage was verified with video.
Only six samples were collected on 2/9/01, as agreed upon between the Foster Wheeler Field Engineer (Tom Fowler) and the QAO (Bill Gerken) because of the small area and excessive debris. The total B3 cap covers an area of 0.63 acres. Approximately 0.33 acres of this total area were capped during the test capping phase and the remaining 0.30 acres were capped during production capping. Collection of 12 samples over this entire area yields a sampling frequency of 19 samples/acre. The combination of successful samples and videotape adequately document the success of capping in this area.

TABLE E3-12. PERFORMANCE VERIFICATION RESULTS FOR B4

**Acceptance Area:** B4
**Date:** 2/4/2001, 2/6/2001, 2/9/2001
**Samplers:** P.G., K.K., ACD
**Field Sampling Method:** van Veen w/weights
Diver Core Samples

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| B4PC1 (Diver Core 1) | 14:06:15 | 3089696.52 | 1310697.29 | NA | 100 | 100 | | Sample contained all sand and gravel |
| B4PC2 (Diver Core 2) | 14:07:45 | 3089697.91 | 1310683.38 | NA | 100 | 100 | | Sample contained all sand and gravel |
| B4PC3 (Diver Core 3) | 14:07:52 | 3089700.69 | 1310638.89 | NA | 100 | 100 | | Sample contained all sand and gravel |
| B4PC9 (Diver Core 4) | 11:45:34 | 3089706.22 | 1310533.55 | NA | 100 | 100 | | 17.5 cm |
| B4PC8 (Diver Core 5) | 11:49:53 | 3089706.22 | 1310599.41 | NA | 100 | 100 | | 12.7 cm |
| B4PC7 (Diver Core 6) | 11:55:14 | 3089596.76 | 1310465.03 | NA | 100 | 100 | | 22.8 cm |
| B4PC6 (Diver Core 7) | 11:58:00 | 3089643.92 | 1310530 | NA | 100 | 100 | | 19 cm, many rocks on bottom |
| B4PC5 (Diver Core 8) | 12:02:40 | 3089592.31 | 1310527.33 | NA | 100 | 100 | | 22.8 cm |
| B4PC10 (Diver Core 9) | 12:08:35 | 3089645.7 | 1310659.03 | NA | 100 | 100 | | 10 cm+ sample collected in jar |
| B4PC11 (Diver Core 10) | 12:09:30 | 3089599.43 | 1310621.66 | NA | 100 | 100 | | 10 cm+ sample collected in jar |
| B4PC12 (Diver Core 11) | 15:06:50 | 3089515.81 | 1310680.07 | NA | 100 | 100 | | Sample consists of all sand, collected from final area capped within B4 area |
| | | | | | | | | |
| | | | | **Mean** | **100** | **100** | **NOT NEEDED** | |
| | | | | | **Greater than 40%?** | **YES** | **NOT NEEDED** | |
| | | | | | **How many less than 13%?** | **0** | **NOT NEEDED** | |
| | | | | | | **Coefficient of Variation (σ/μ)** | **NOT NEEDED** | |
| | | | | | | **Pass or Fail?** | **PASS!!!** | |

Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

Additional Notes:
Did not sieve the diver core samples as they contained 100% sand and gravel.
Samples B4PC9 through B4PC11 were collected on 2/6/01 and the thicknesses recorded are those of sand in the core tubes.
Sample tube B4PC4 was lost.
Sample B4PC12 was collected on 2/9/01 by diver core.

TABLE E3-13. PERFORMANCE VERIFICATION RESULTS FOR M1

Acceptance Area: M1
Date: 2/1/2001, 2/2/2001, 2/4/2001
Samplers: P.G., K.K., J.L.
Field Sampling Method: van Veen w/weights

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| M1PC10 | 14:55:23 | 3089320.29 | 1310643.05 | 29 | 100 | 100 | | 13 cm, very small layer of organics above the cap, otherwise all sand, 2/4 |
| M1PC4 | 14:25:54 | 3089439.1 | 1310664.37 | 24 | 100 | 100 | | 15 cm, all sand, 2/2. |
| M1PC5 | 14:40:40 | 3089499.61 | 1310560.85 | 16 | 100 | 100 | | 10 cm, all sand, 2/2 |
| M1PC6 | 14:46:28 | 3089534.35 | 1310538.5 | 16 | 100 | 100 | | 12 cm, all sand, 2/2 |
| M1PC7 | 15:06:33 | 3089488.24 | 1310635.46 | 25 | 100 | 100 | | 10 cm, all sand, 2/2 |
| M1PC8 | 15:20:10 | 3089506.78 | 1310527.17 | 17 | 100 | 100 | | 12.5 cm all sand, 2/2 |
| M1TC1 | 13:11:05 | 3089506.92 | 1310523.6 | 19 | 100 | 100 | | 13.5 cm penetration, all sand, 2/1 |
| M1TC2 | 13:36:50 | 3089396.34 | 1310605.47 | 31 | 100 | 100 | | 13 cm penetration, all sand, 2/1 |
| M1TC3 | 13:45:43 | 3089442.21 | 1310540.94 | 27 | 100 | 100 | | 12 cm penetration, all sand, 2/1 |
| M1PC9 | 14:32:56 | 3089391.33 | 1310684.44 | 28 | 60 | 90 | 73.14 | 13 cm, sieving required, 2/4 |
| M1PC11 | 14:47:13 | 3089332.82 | 1310665.38 | 30 | 55 | 88 | 78.84 | 13 cm, very small layer of organics above the cap, otherwise all sand, 2/4 |
| | | | | | | | | |
| | | | | Mean | 96 | 99 | 73.14 | |
| | | | | Greater than 40%? | | YES | OK | |
| | | | | How many less than 13%? | | 0 | 0 | |
| | | | | Coefficient of Variation (σ/μ) | | | NOT NEEDED | |
| | | | | Pass or Fail? | | | PASS!!! | |

Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

Additional Notes:
None

TABLE E3-14. PERFORMANCE VERIFICATION RESULTS FOR D2

**Acceptance Area:** D2
**Date:** 2/15/01
**Samplers:** B.K., D.H.
**Field Sampling Method:** van Veen w/weights

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| D2PC3 | 9:53:38 | 3089294.83 | 1310526.27 | 42 | 100 | 100 | | 15 cm penetration, sand to 11 cm, organics mixed below |
| D2PC4 | 10:04:33 | 3089266.62 | 1310487.73 | 42 | 100 | 100 | | 14 cm penetration, slight washout on one side, took sample from the other side |
| D2PC7 | 10:33:30 | 3089358.24 | 1310480.57 | 42 | 100 | 100 | | 15 cm penetration, all sand |
| D2PC9 | 13:14:02 | 3089209.16 | 1310457.34 | 39 | 100 | 100 | | 15 cm penetration, all sand |
| D2PC11 | 13:36:03 | 3089246.88 | 1310486.23 | 39 | 100 | 100 | | 16 cm penetration, all sand |
| D2PC8 | 11:04:48 | 3089507.99 | 1310347.96 | 40 | 95 | 99 | | 14 cm penetration, wood debris (small pieces of bark) |
| D2PC6 | 10:24:34 | 3089387.6 | 1310453.1 | 41 | 84 | 97 | 94.84 | 15 cm penetration, some organics |
| D2PC5 | 10:15:51 | 3089350.13 | 1310428.32 | 41 | 82 | 96 | | 15 cm penetration, some visible organics |
| D2PC2 | 9:41:12 | 3089291.73 | 1310457.93 | 42 | 80 | 96 | | 13 cm penetration, some organics |
| D2PC12 | 13:46:42 | 3089287.32 | 1310513.03 | 40 | 60 | 90 | | 15 cm penetration, visible organics |
| D2PC10 | 13:29:14 | 3089220.87 | 1310506.28 | 39 | 40 | 81 | 81.04 | 15 cm penetration, visible organics |
| D2PC1 | 9:28:05 | 3089050.52 | 1310319.36 | 43 | 25 | 72 | 67.87 | 1 cm overlying water, slight overpenetration in middle, visible organics, sample taken on D2 boundary |
| | | | | **Mean** | **90.1** | **98** | **94.84** | |
| | | | | **Greater than 40%?** | | **YES** | **OK** | |
| | | | | **How many less than 13%?** | | **0** | **0** | |
| | | | | **Coefficient of Variation (σ/μ)** | | | **NOT NEEDED** | |
| | | | | **Pass or Fail?** | | | **PASS!!!** | |

Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

Additional Notes:
None

TABLE E3-15. PERFORMANCE VERIFICATION RESULTS FOR D3

Acceptance Area: D3
Date: 2/5/2001, 2/6/2001
Samplers: P.G., K.K., B.Z.
Field Sampling Method: van Veen w/weights
Diver Cores

| Sample Number / ID | Sample Time | Easting | Northing | Sample Depth (ft., uncorrected) | Volume of Sand (mL) | Dry Weight Sand Estimate (%) | Actual Dry Weight Sand Content (%) | Sample Notes |
|---|---|---|---|---|---|---|---|---|
| D3PC1 | 9:49:57 | 3089735.71 | 1310834.91 | 26 | 100 | 100 | | 10 cm, all sand |
| D3PC2 | 10:02:28 | 3089759.6 | 1310802.99 | 28 | 70 | 93 | | 11 cm, organics present, sieving required |
| D3PC10 | 10:10:38 | 3089677.59 | 1310884.21 | NA | 100 | 100 | | 25 cm, some rocks on bottom, 2/6 |
| D3PC8 | 10:13:44 | 3089719.86 | 1310841.94 | NA | 100 | 100 | | 20 cm, 2/6 |
| D3PC5 | 10:15:29 | 3089631.63 | 1310841.1 | NA | 100 | 100 | | 19 cm, 2/6 |
| D3PC7 | 10:18:54 | 3089683.57 | 1310798.73 | NA | 100 | 100 | | 20 cm, 2/6 |
| D3PC4 | 10:22:56 | 3089618.08 | 1310826.27 | NA | 100 | 100 | | 20 cm, rocks on bottom, 2/6 |
| D3PC3 | 10:26:14 | 3089657.94 | 1310786.4 | NA | 100 | 100 | | 19 cm, 2/6 |
| D3PC9 | 10:33:42 | 3089571.8 | 1310717.34 | NA | 100 | 100 | | 16.5 cm, rocks on bottom, 2/6 |
| D3PC6 | 10:34:36 | 3089568.95 | 1310782.84 | NA | 100 | 100 | | 20 cm, 2/6 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | Mean | 97 | 100 | NOT NEEDED | |
| | | | | Greater than 40%? | | YES | NOT NEEDED | |
| | | | | How many less than 13%? | | 0 | NOT NEEDED | |
| | | | | Coefficient of Variation (σ/μ) | | | NOT NEEDED | |
| | | | | Pass or Fail? | | | PASS!!! | |

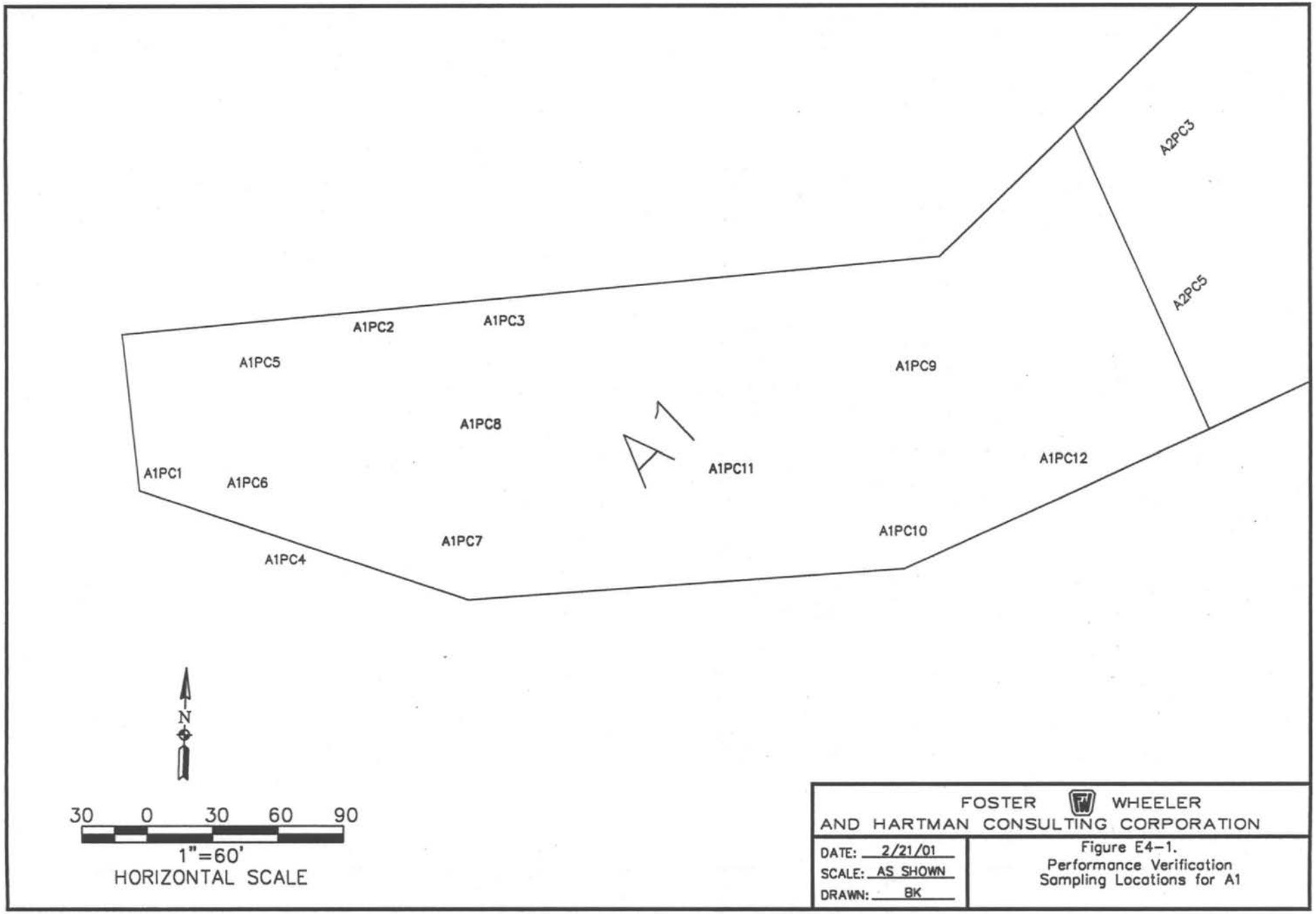
Notes:
- Volume of Sand is measured on boat after wet sieving
- Dry Weight Sand Estimate is derived using the exponential function established during method calibration
- Actual Dry Weight Sand Content is measured in the laboratory by grain size analysis
- Because 80% coverage was established to be an attainable level of coverage, the calculations at the bottom of table only include the ten samples with the highest sand content (per the PSVP).

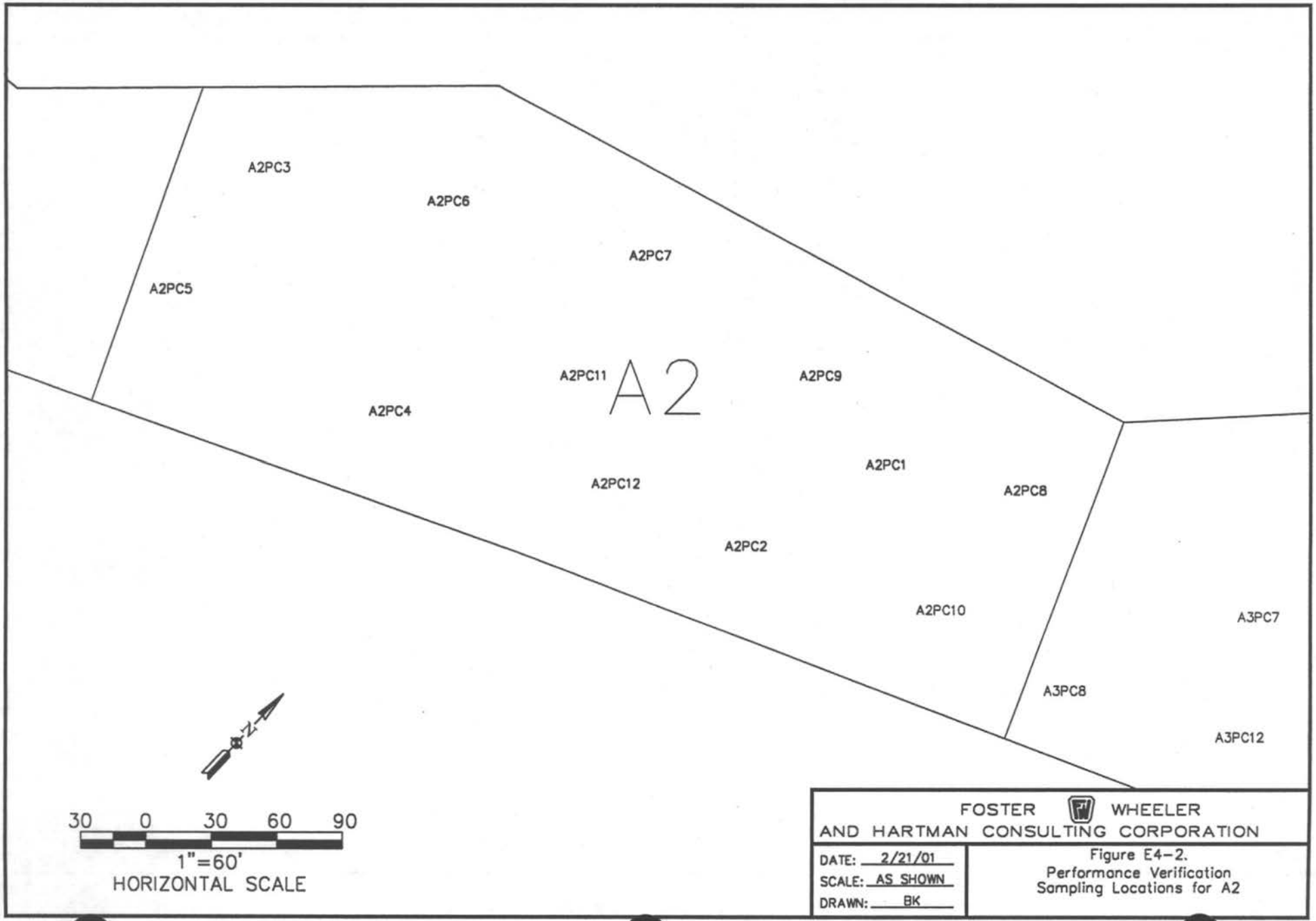
Note to user: You must put the two samples which are "thrown out" of the statistical analysis at the bottom of the table in order for the formulas in the table to work correctly.

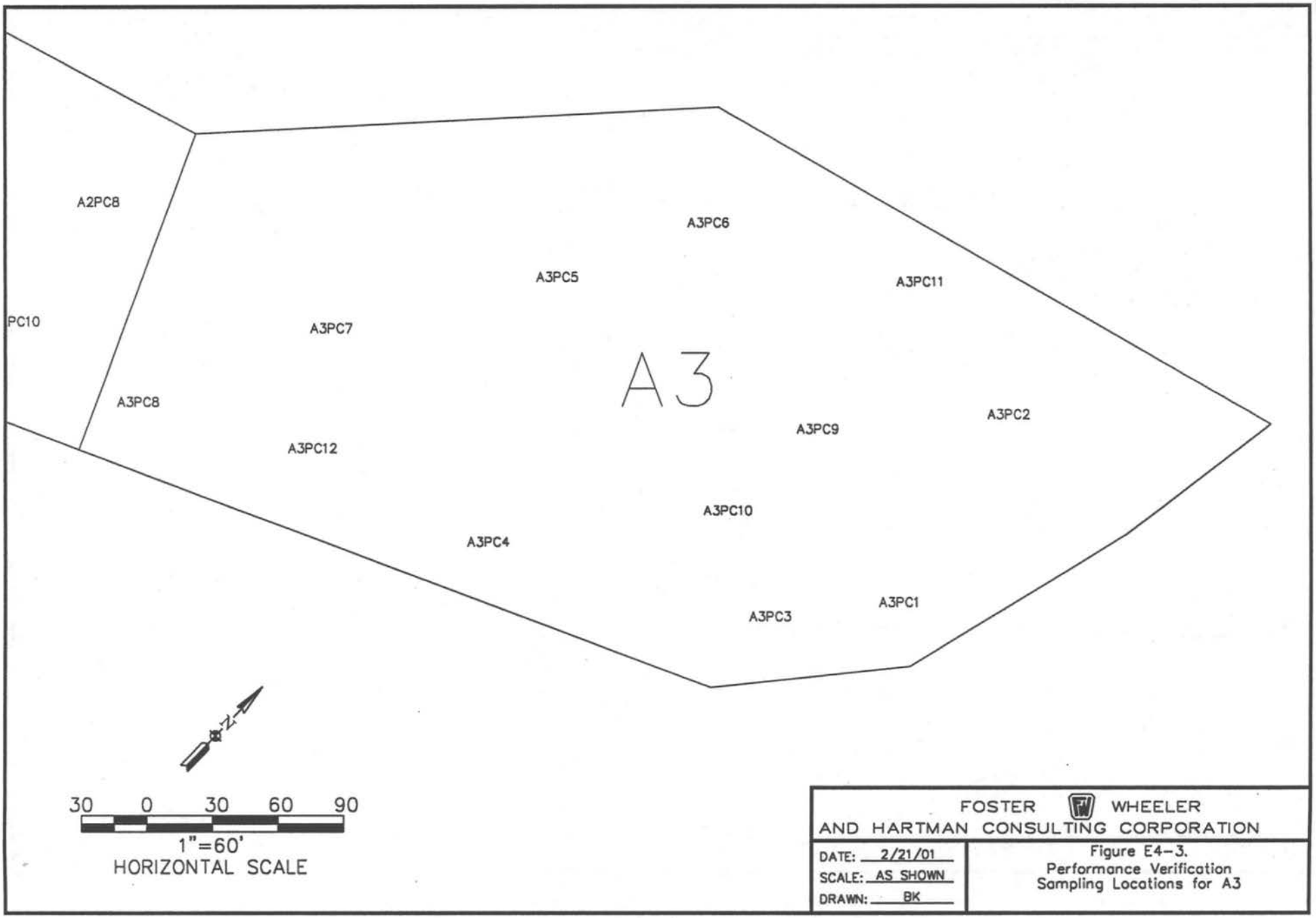
Additional Notes:
Measurements in the sample notes from samples D3PC10 through D3PC6 are thicknesses of sand recorded from core tubes.

# E4: SAMPLING LOCATIONS

**FIGURE E4-1:** PERFORMANCE VERIFICATION SAMPLING LOCATIONS FOR A1
**FIGURE E4-2:** PERFORMANCE VERIFICATION SAMPLING LOCATIONS FOR A2
**FIGURE E4-3:** PERFORMANCE VERIFICATION SAMPLING LOCATIONS FOR A3
**FIGURE E4-4:** PERFORMANCE VERIFICATION SAMPLING LOCATIONS FOR A4
**FIGURE E4-5:** PERFORMANCE VERIFICATION SAMPLING LOCATIONS FOR A5
**FIGURE E4-6:** PERFORMANCE VERIFICATION SAMPLING LOCATIONS FOR A6
**FIGURE E4-7:** PERFORMANCE VERIFICATION SAMPLING LOCATIONS FOR A7
**FIGURE E4-8:** PERFORMANCE VERIFICATION SAMPLING LOCATIONS FOR A8 TEST CAP
**FIGURE E4-9:** PERFORMANCE VERIFICATION SAMPLING LOCATIONS FOR A8
**FIGURE E4-10:** PERFORMANCE VERIFICATION SAMPLING LOCATIONS FOR B1
**FIGURE E4-11:** PERFORMANCE VERIFICATION SAMPLING LOCATIONS FOR B2
**FIGURE E4-12:** PERFORMANCE VERIFICATION SAMPLING LOCATIONS FOR B3
**FIGURE E4-13:** PERFORMANCE VERIFICATION SAMPLING LOCATIONS FOR B4
**FIGURE E4-14:** PERFORMANCE VERIFICATION SAMPLING LOCATIONS FOR M1
**FIGURE E4-15:** PERFORMANCE VERIFICATION SAMPLING LOCATIONS FOR D2
**FIGURE E4-16:** PERFORMANCE VERIFICATION SAMPLING LOCATIONS FOR D3


A2PC3
A2PC5
A1PC2
A1PC3
A1PC5
A1PC9
A1PC8
A1
A1PC11
A1PC12
A1PC1
A1PC6
A1PC7
A1PC10
A1PC4
N
30 0 30 60 90
1"=60'
HORIZONTAL SCALE
FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION
DATE: 2/21/01
SCALE: AS SHOWN
DRAWN: BK
Figure E4-1.
Performance Verification
Sampling Locations for A1

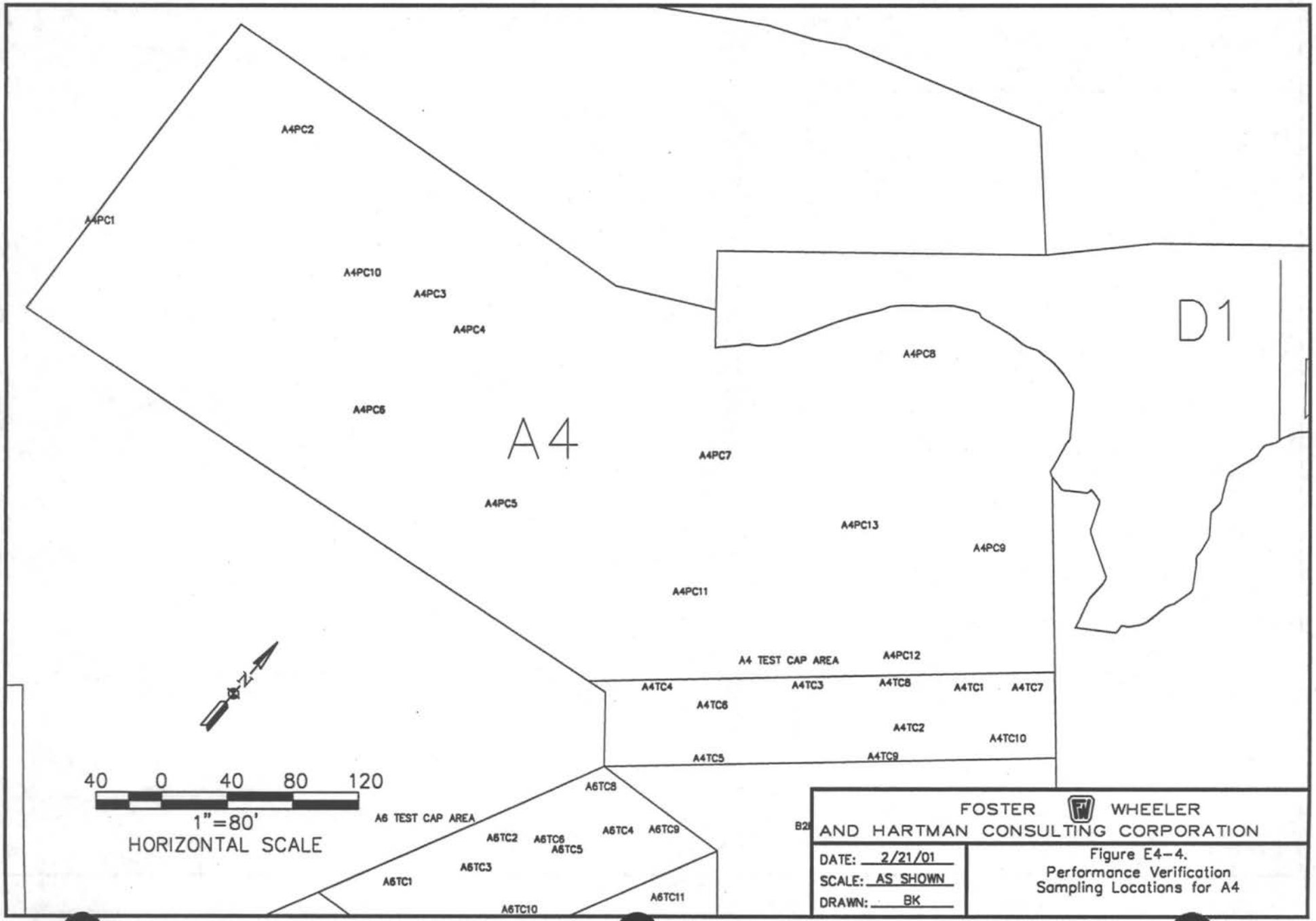

A2PC3
A2PC6
A2PC7
A2PC5
A2PC11
A2
A2PC9
A2PC4
A2PC1
A2PC12
A2PC8
A2PC2
A2PC10
A3PC7
A3PC8
A3PC12
N
30 0 30 60 90
1"=60'
HORIZONTAL SCALE
FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION
DATE: 2/21/01
SCALE: AS SHOWN
DRAWN: BK
Figure E4-2.
Performance Verification
Sampling Locations for A2

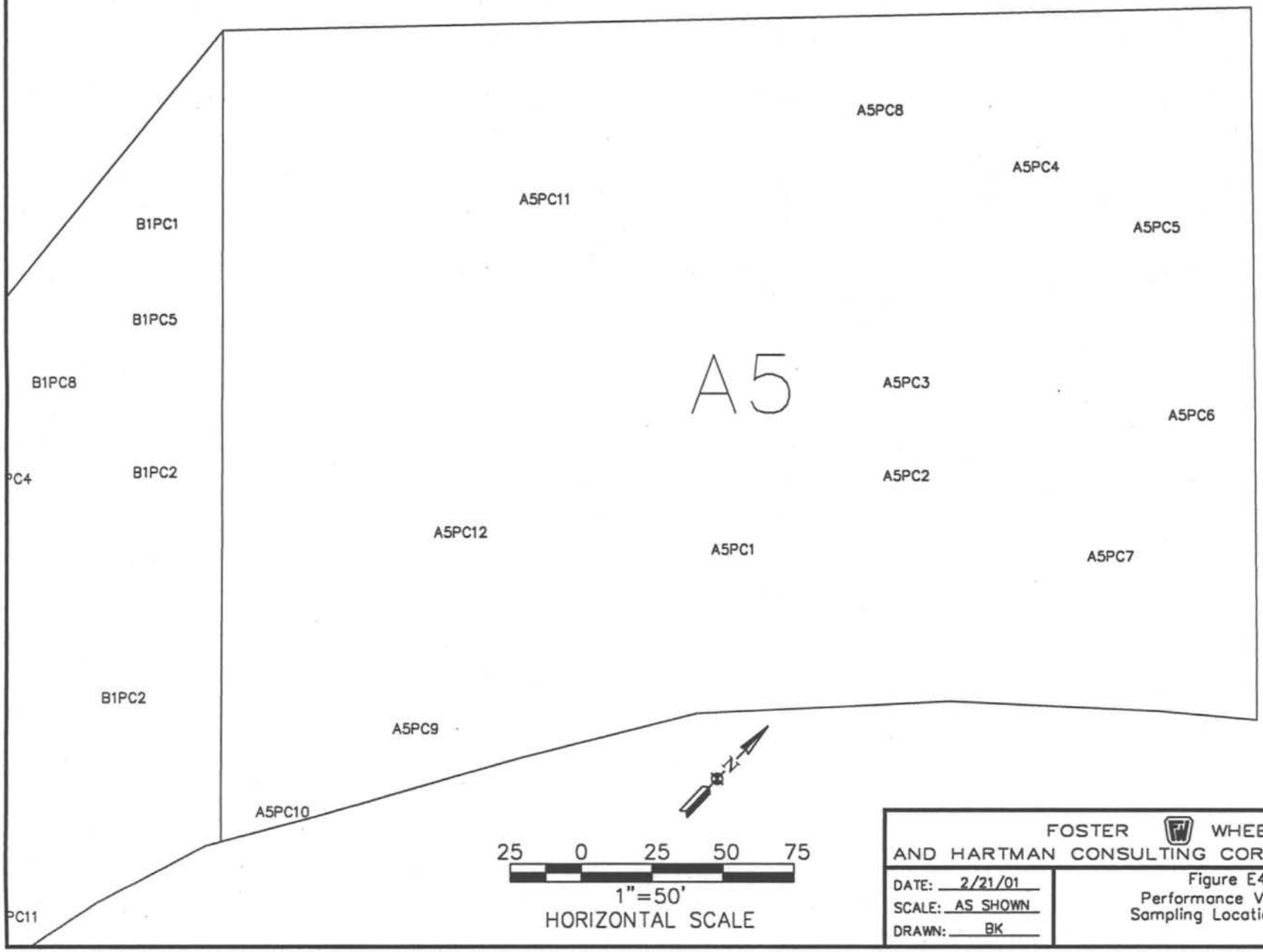



FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

DATE: 2/21/01
SCALE: AS SHOWN
DRAWN: BK

Figure E4-3.
Performance Verification
Sampling Locations for A3

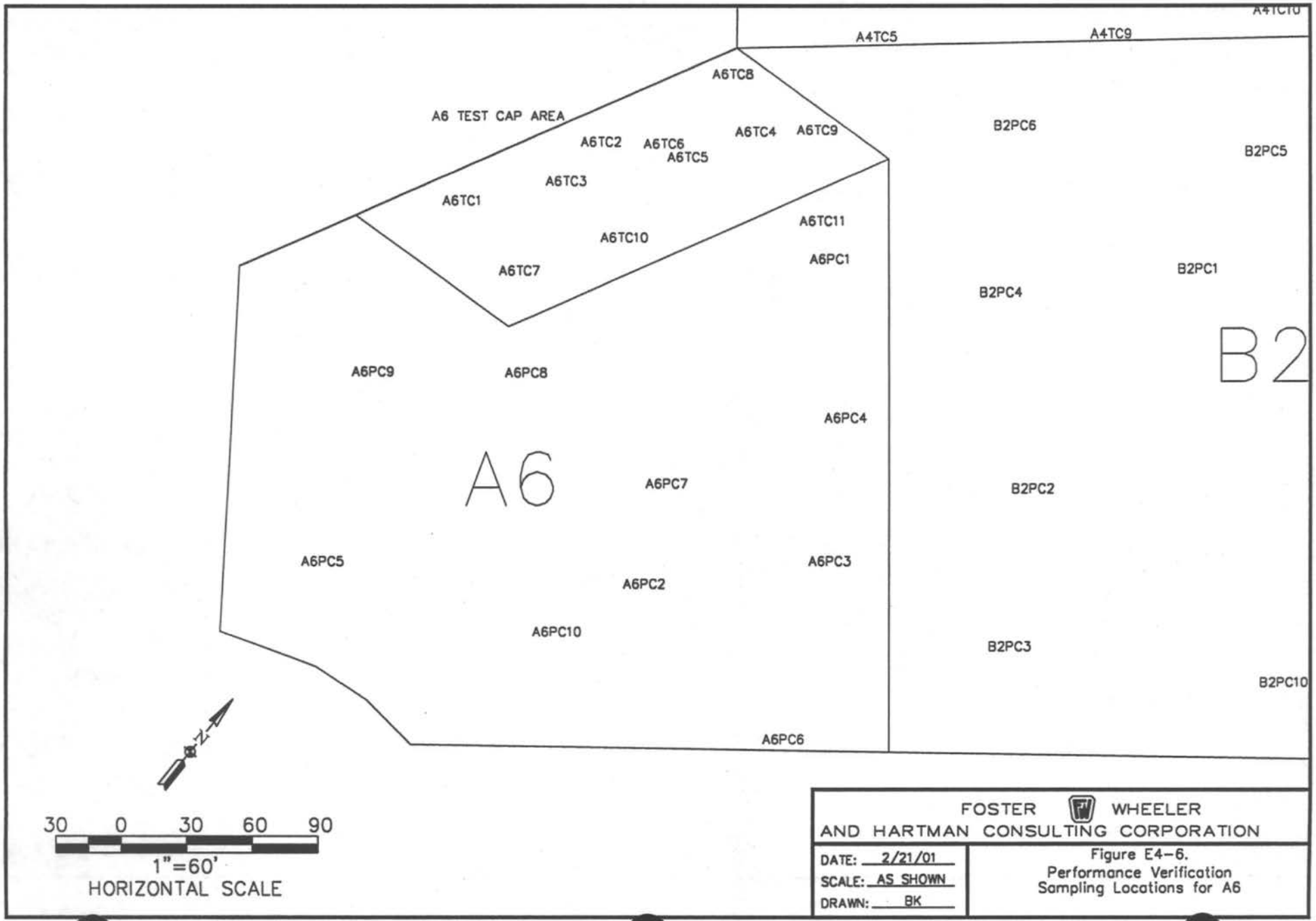

A4PC2
A4PC1
A4PC10
A4PC3
A4PC4
A4PC6
A4
A4PC7
A4PC5
A4PC8
D1
A4PC13
A4PC9
A4PC11
A4 TEST CAP AREA
A4PC12
A4TC4
A4TC3
A4TC8
A4TC1
A4TC7
A4TC6
A4TC2
A4TC10
A4TC5
A4TC9
N
40 0 40 80 120
1"=80'
HORIZONTAL SCALE
A6TC8
A6 TEST CAP AREA
A6TC2
A6TC6
A6TC5
A6TC4
A6TC9
A6TC3
A6TC1
A6TC10
A6TC11
FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION
DATE: 2/21/01
SCALE: AS SHOWN
DRAWN: BK
Figure E4-4.
Performance Verification
Sampling Locations for A4




FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

DATE: 2/21/01
SCALE: AS SHOWN
DRAWN: BK

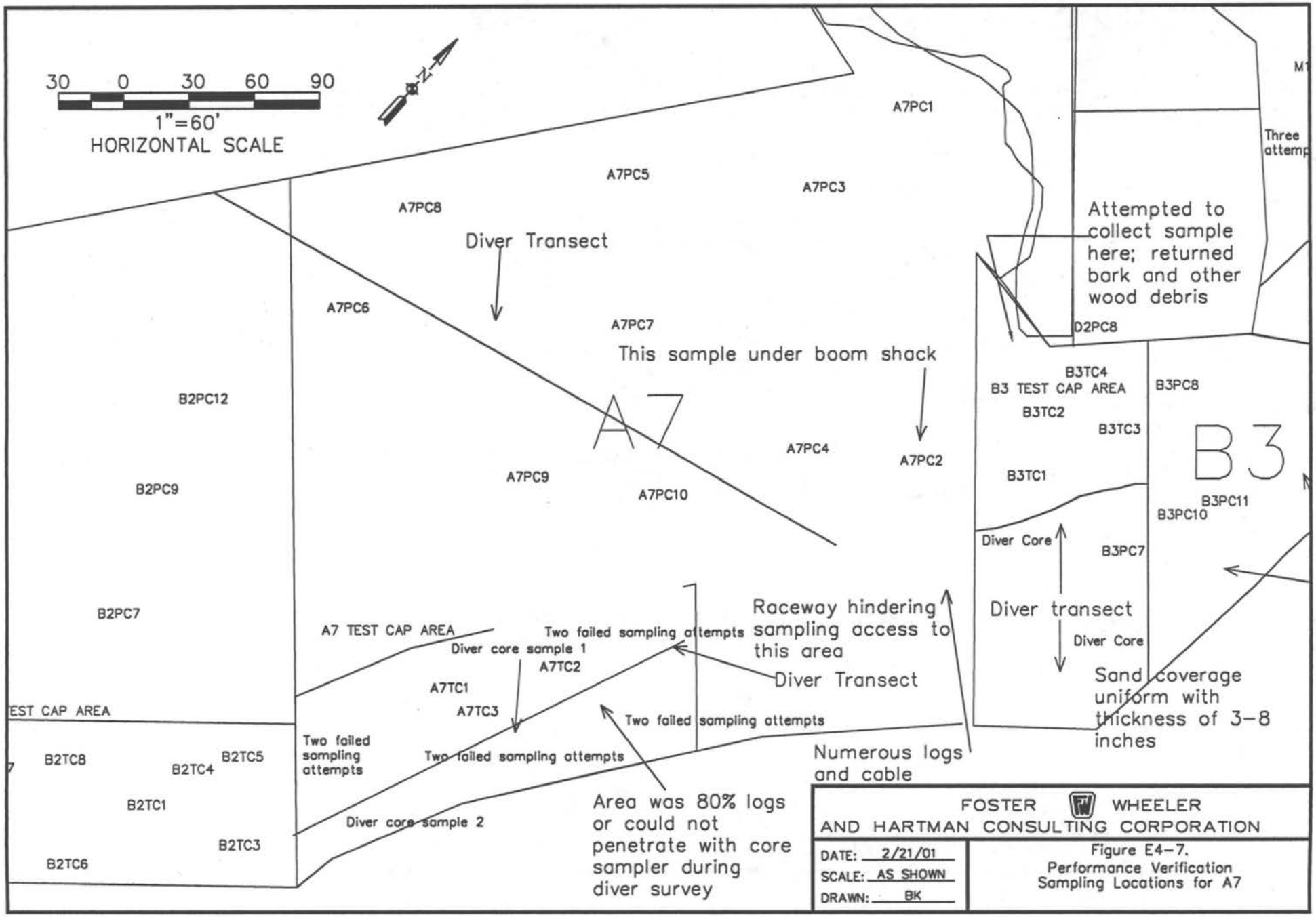
Figure E4-5.
Performance Verification
Sampling Locations for A5




FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

DATE: 2/21/01
SCALE: AS SHOWN
DRAWN: BK

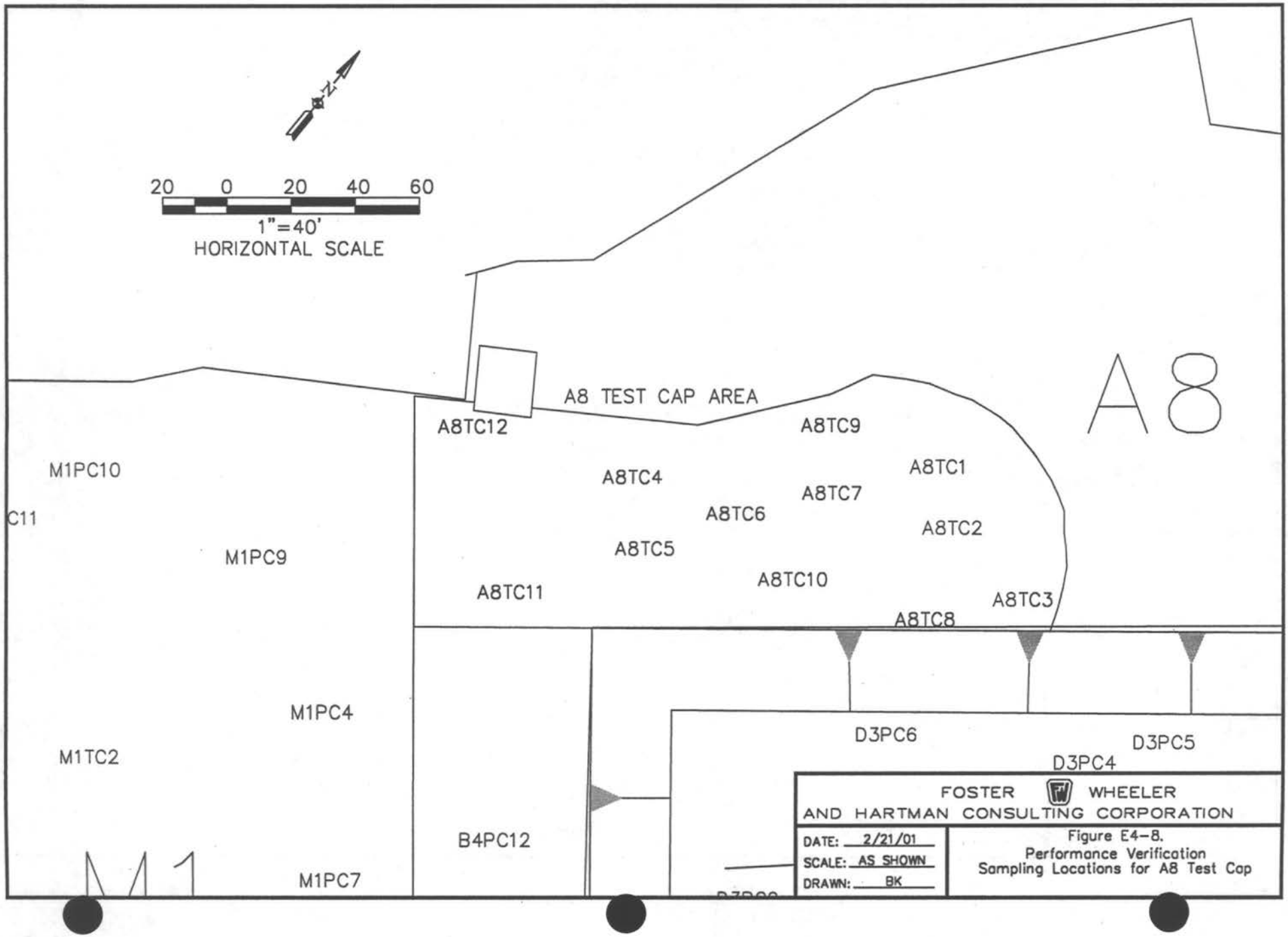
Figure E4-6.
Performance Verification
Sampling Locations for A6

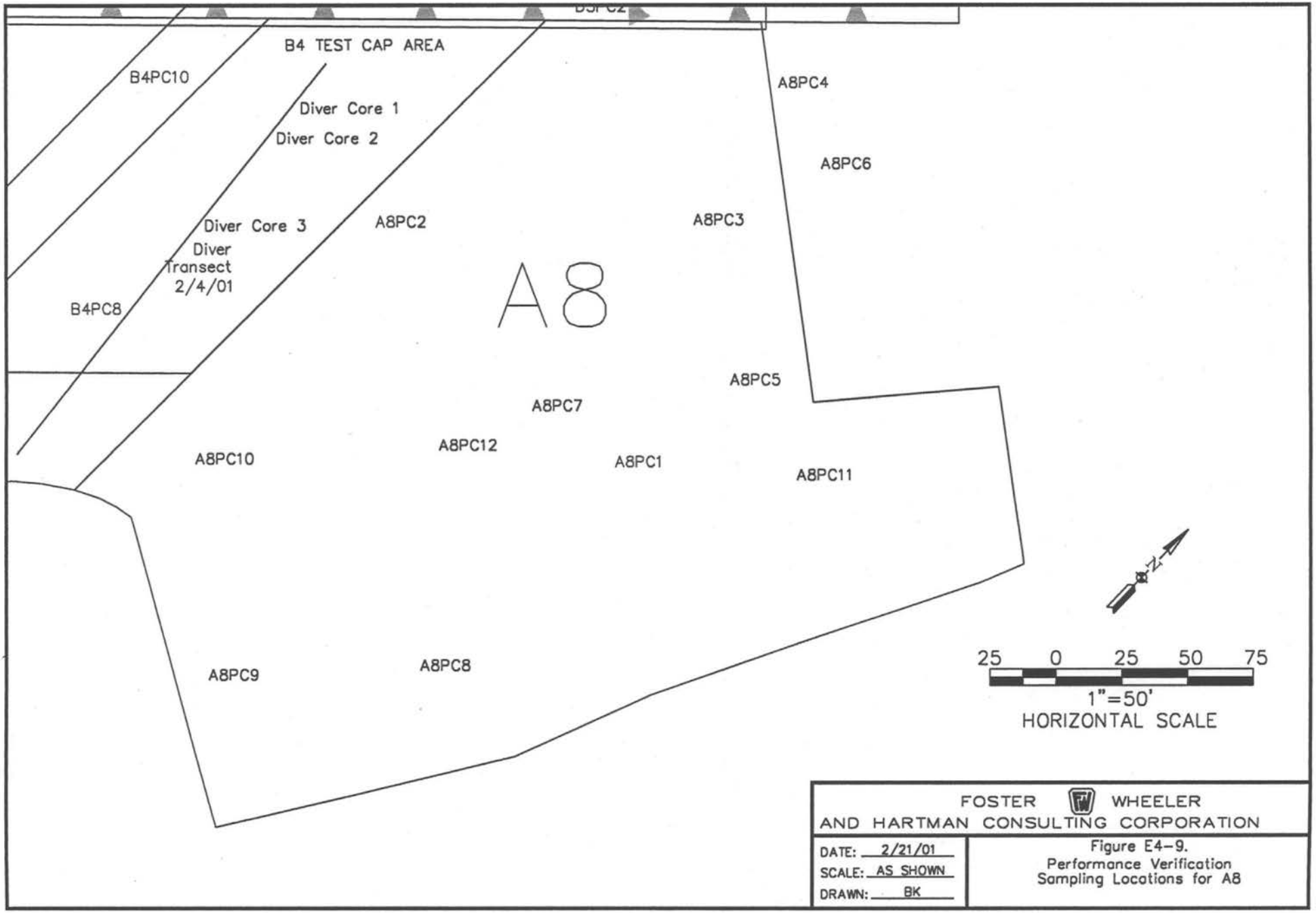


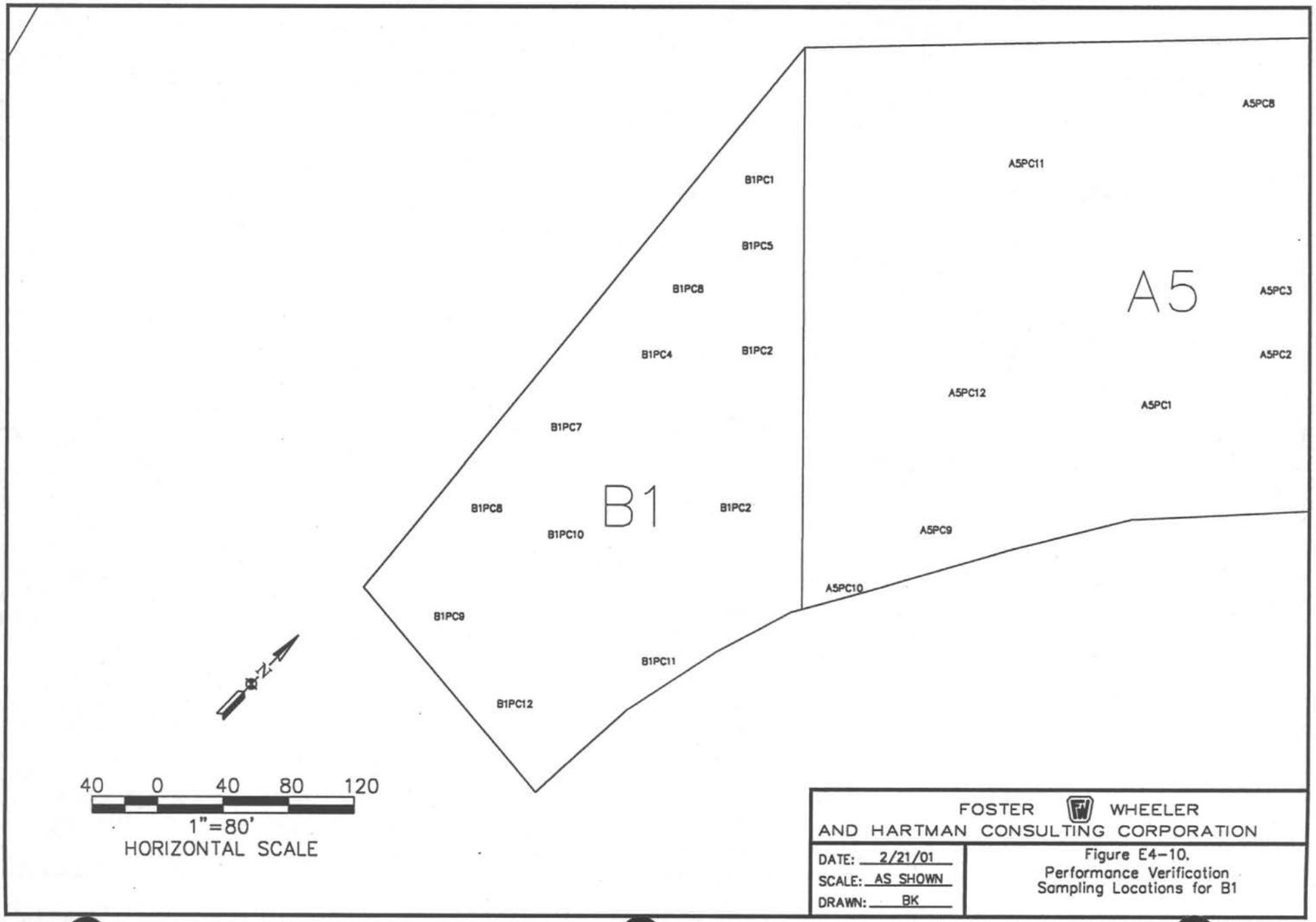

FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

DATE: 2/21/01
SCALE: AS SHOWN
DRAWN: BK

Figure E4-7.
Performance Verification
Sampling Locations for A7


20 0 20 40 60
1"=40'
HORIZONTAL SCALE
A8 TEST CAP AREA
A8
A8TC12
A8TC9
A8TC1
A8TC4
A8TC7
A8TC6
A8TC2
A8TC5
A8TC10
A8TC11
A8TC3
A8TC8
M1PC10
C11
M1PC9
M1PC4
M1TC2
M1
M1PC7
B4PC12
D3PC6
D3PC5
D3PC4
FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION
DATE: 2/21/01
SCALE: AS SHOWN
DRAWN: BK
Figure E4-8.
Performance Verification
Sampling Locations for A8 Test Cap

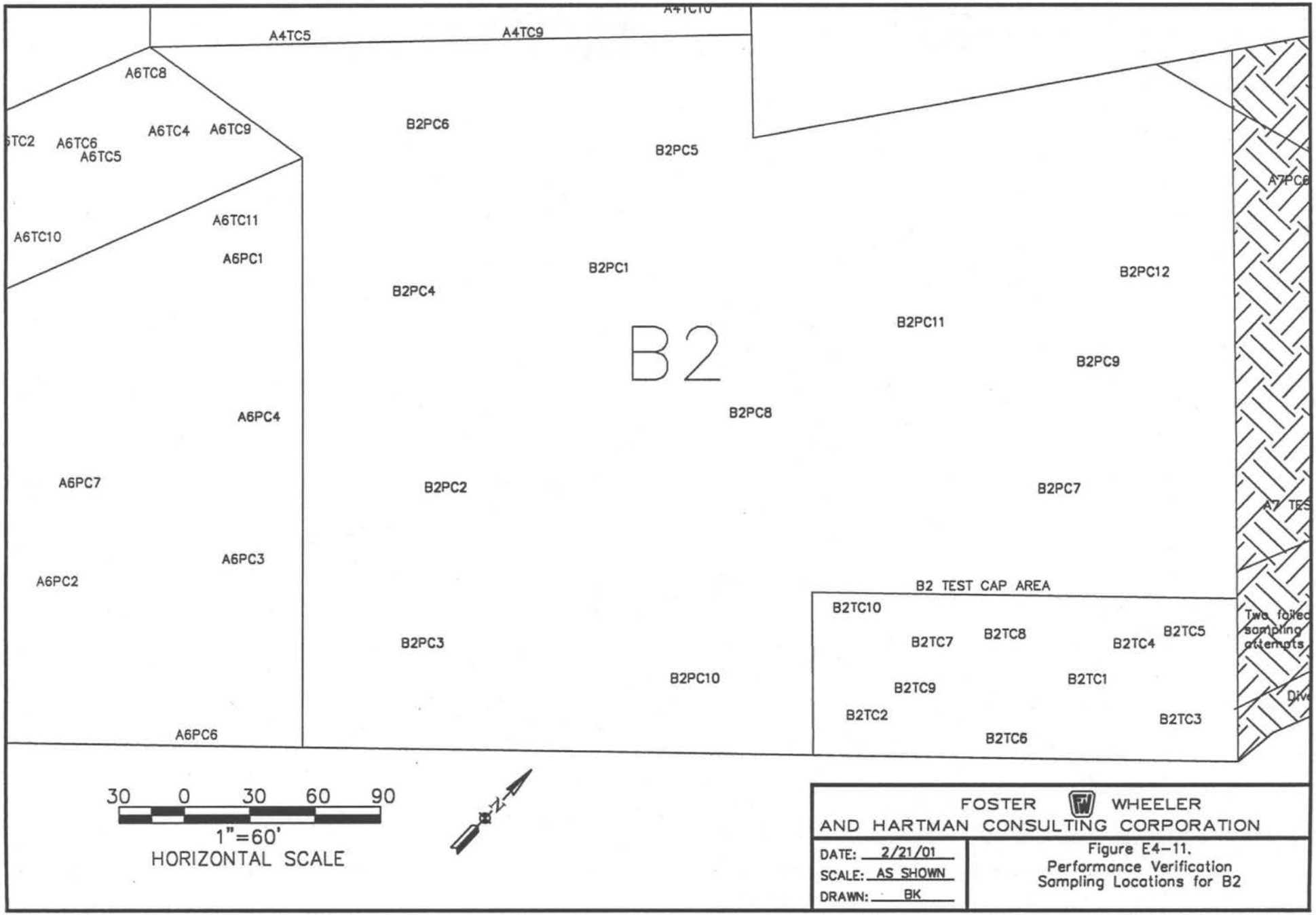

B4 TEST CAP AREA
B4PC10
Diver Core 1
Diver Core 2
Diver Core 3
Diver Transect 2/4/01
B4PC8
A8PC2
A8PC3
A8PC4
A8PC6
A8
A8PC5
A8PC7
A8PC12
A8PC1
A8PC10
A8PC11
A8PC9
A8PC8
N
25 0 25 50 75
1"=50'
HORIZONTAL SCALE
FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION
DATE: 2/21/01
SCALE: AS SHOWN
DRAWN: BK
Figure E4-9.
Performance Verification
Sampling Locations for A8




FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

DATE: 2/21/01
SCALE: AS SHOWN
DRAWN: BK

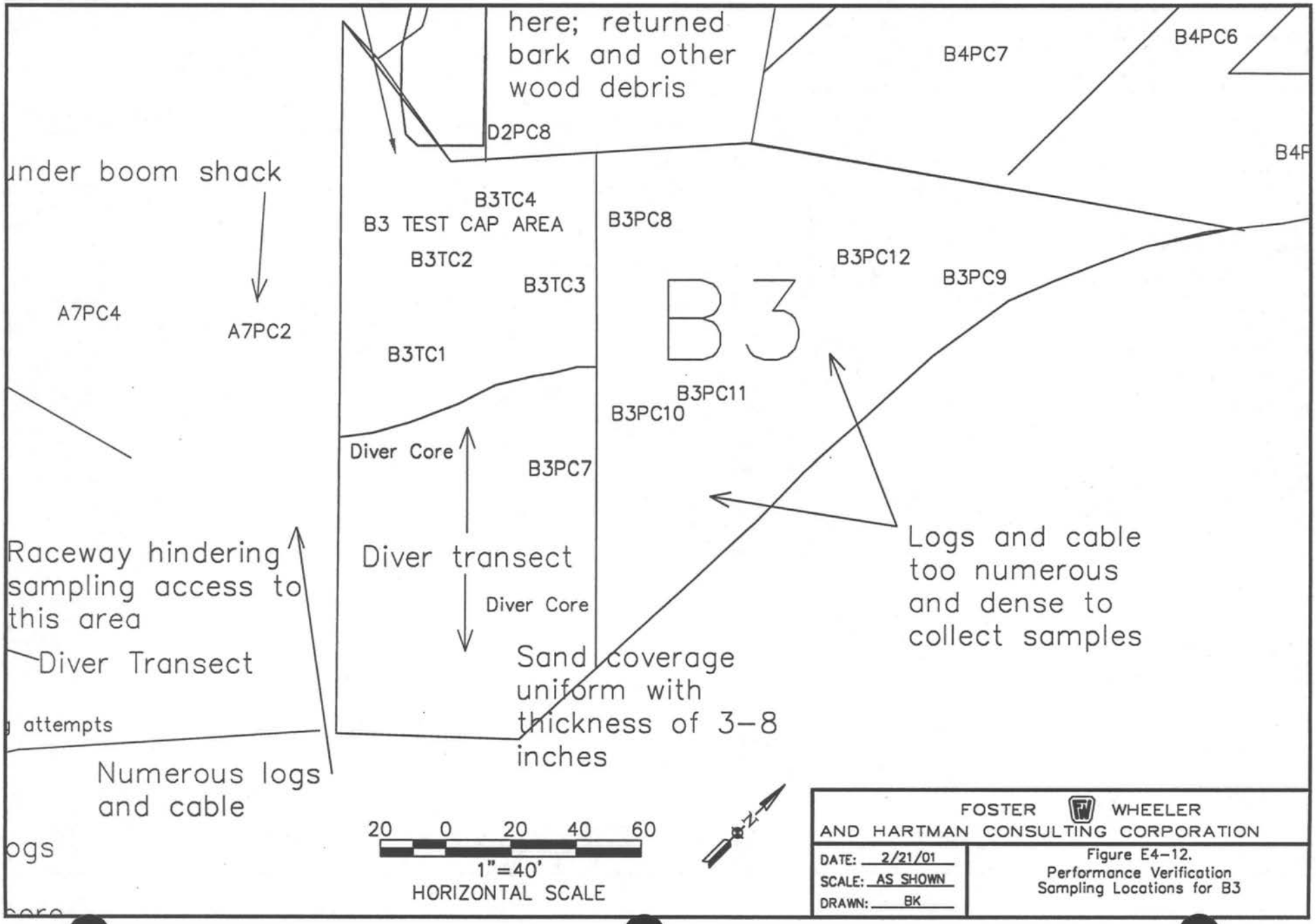
Figure E4-10.
Performance Verification
Sampling Locations for B1

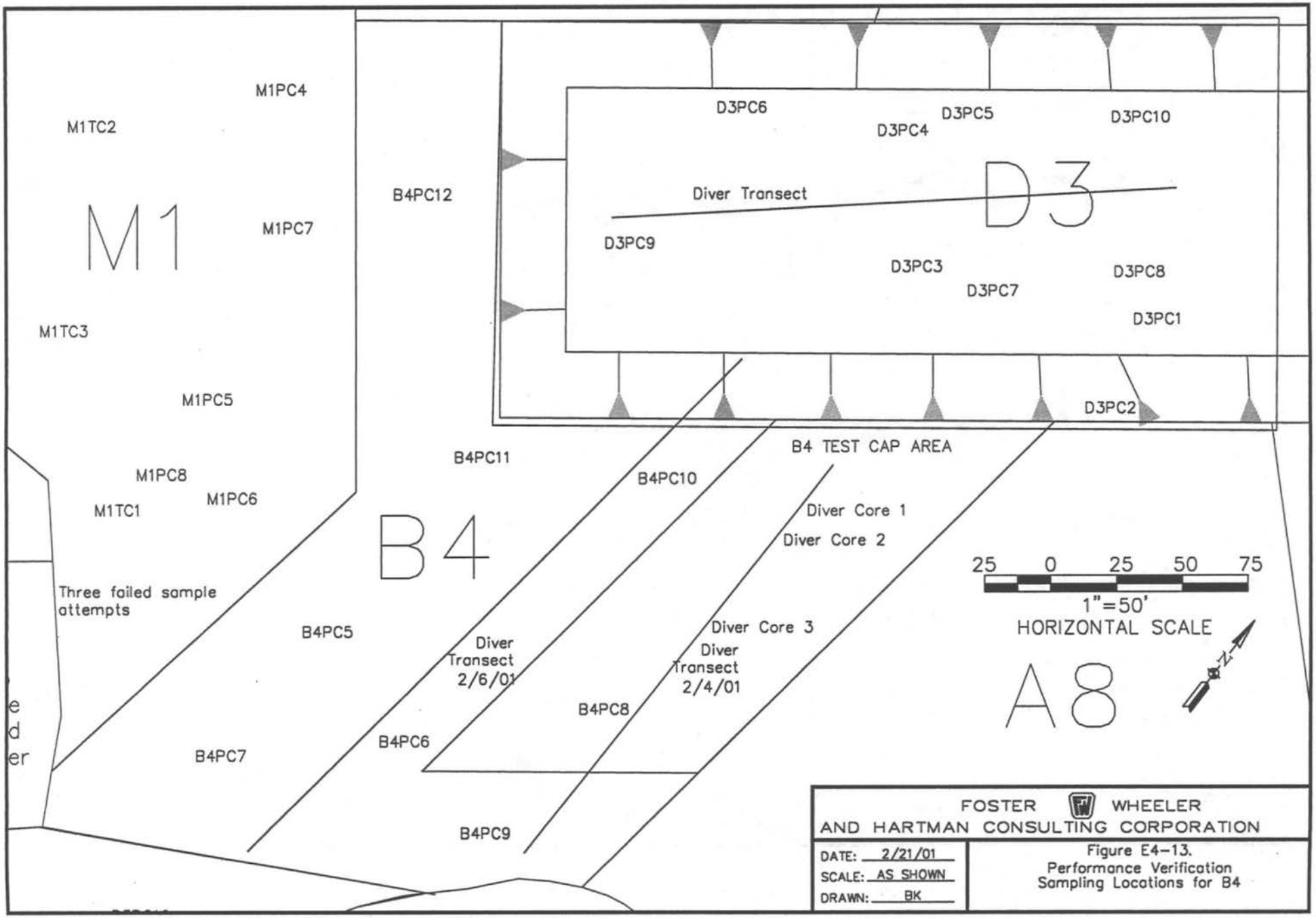


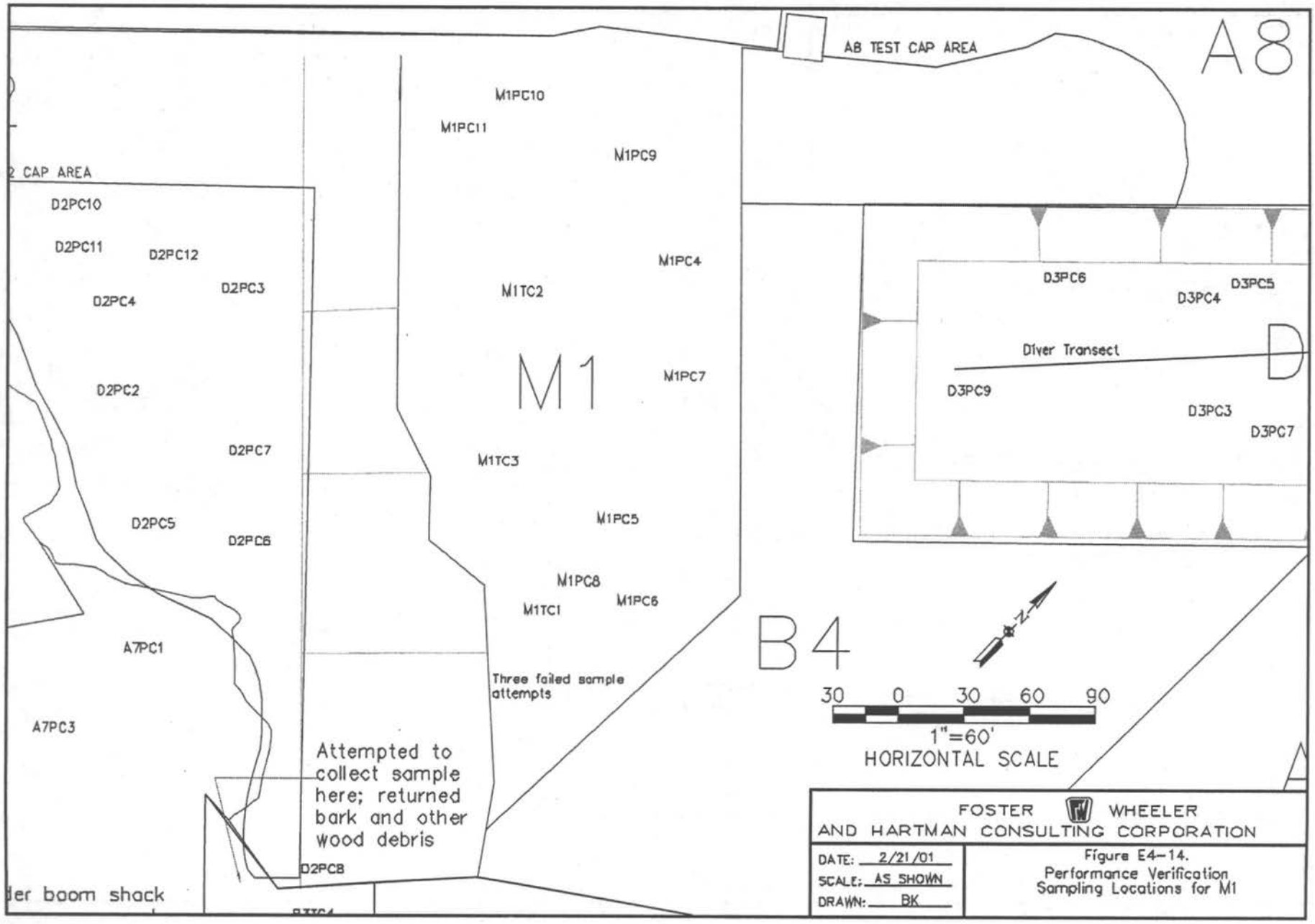

FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

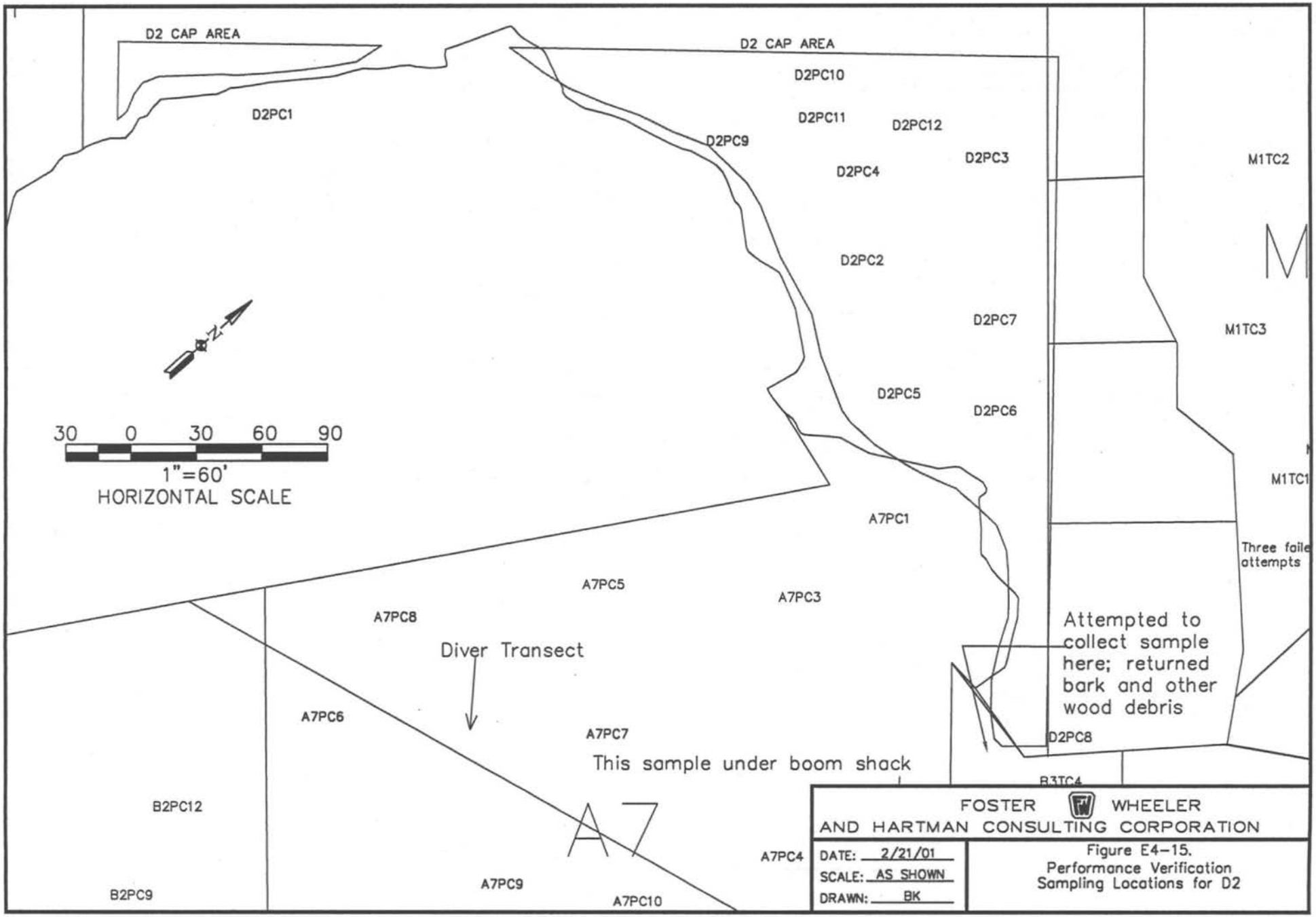
DATE: 2/21/01
SCALE: AS SHOWN
DRAWN: BK

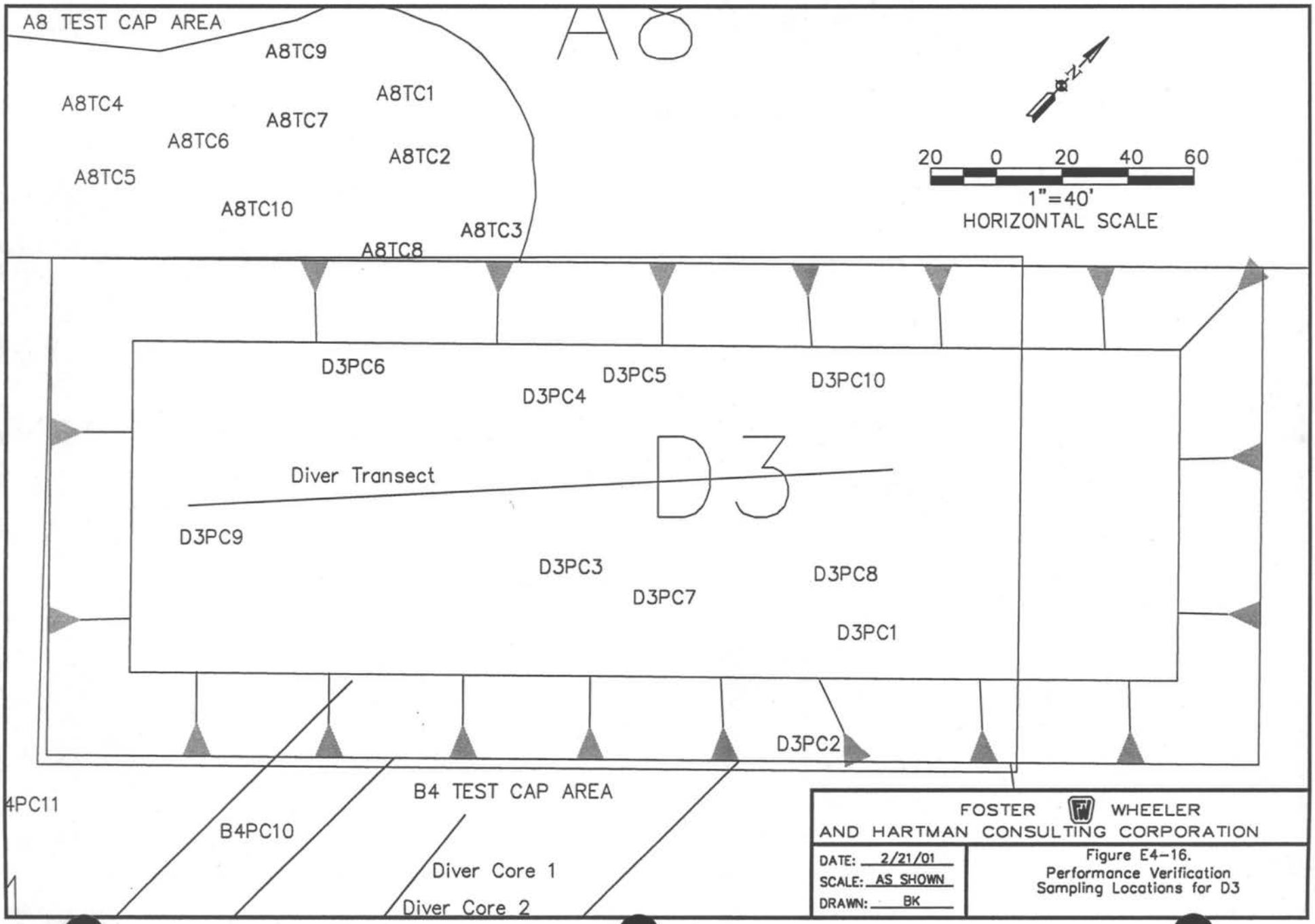
Figure E4-11.
Performance Verification
Sampling Locations for B2


here; returned bark and other wood debris
B4PC7
B4PC6
D2PC8
under boom shack
B3TC4
B3 TEST CAP AREA
B3PC8
B3TC2
B3PC12
B3TC3
B3PC9
A7PC4
A7PC2
B3
B3TC1
B3PC11
B3PC10
Diver Core
B3PC7
Raceway hindering sampling access to this area
Diver transect
Diver Core
Logs and cable too numerous and dense to collect samples
Diver Transect
Sand coverage uniform with thickness of 3-8 inches
attempts
Numerous logs and cable
20 0 20 40 60
1"=40'
HORIZONTAL SCALE
N
FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION
DATE: 2/21/01
SCALE: AS SHOWN
DRAWN: BK
Figure E4-12.
Performance Verification
Sampling Locations for B3


M1PC4
M1TC2
M1
M1PC7
M1TC3
M1PC5
M1PC8
M1PC6
M1TC1
Three failed sample attempts
B4PC12
B4PC11
B4
B4PC5
B4PC7
B4PC6
B4PC9
B4PC10
B4PC8
Diver Transect 2/6/01
Diver Transect 2/4/01
D3PC6
D3PC4
D3PC5
D3PC10
Diver Transect
D3
D3PC9
D3PC3
D3PC7
D3PC8
D3PC1
D3PC2
B4 TEST CAP AREA
Diver Core 1
Diver Core 2
Diver Core 3
25 0 25 50 75
1"=50'
HORIZONTAL SCALE
A8
FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION
DATE: 2/21/01
SCALE: AS SHOWN
DRAWN: BK
Figure E4-13.
Performance Verification
Sampling Locations for B4


A8
AB TEST CAP AREA
M1PC10
M1PC11
M1PC9
M1PC4
M1TC2
M1
M1PC7
M1TC3
M1PC5
M1PC8
M1TC1
M1PC6
Three failed sample attempts
2 CAP AREA
D2PC10
D2PC11
D2PC12
D2PC3
D2PC4
D2PC2
D2PC7
D2PC5
D2PC6
A7PC1
A7PC3
Attempted to collect sample here; returned bark and other wood debris
D2PC8
der boom shack
D3PC6
D3PC5
D3PC4
Diver Transect
D
D3PC9
D3PC3
D3PC7
B4
A
N
30 0 30 60 90
1"=60'
HORIZONTAL SCALE
FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION
DATE: 2/21/01
SCALE: AS SHOWN
DRAWN: BK
Figure E4-14.
Performance Verification
Sampling Locations for M1


D2 CAP AREA
D2 CAP AREA
D2PC10
D2PC1
D2PC11
D2PC12
D2PC9
D2PC3
D2PC4
M1TC2
D2PC2
D2PC7
M1TC3
D2PC5
D2PC6
30 0 30 60 90
1"=60'
HORIZONTAL SCALE
M1TC1
A7PC1
Three faile attempts
A7PC5
A7PC3
A7PC8
Attempted to collect sample here; returned bark and other wood debris
Diver Transect
A7PC6
A7PC7
D2PC8
This sample under boom shack
B3TC4
B2PC12
A7PC4
B2PC9
A7PC9
A7PC10
FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION
DATE: 2/21/01
SCALE: AS SHOWN
DRAWN: BK
Figure E4-15.
Performance Verification
Sampling Locations for D2



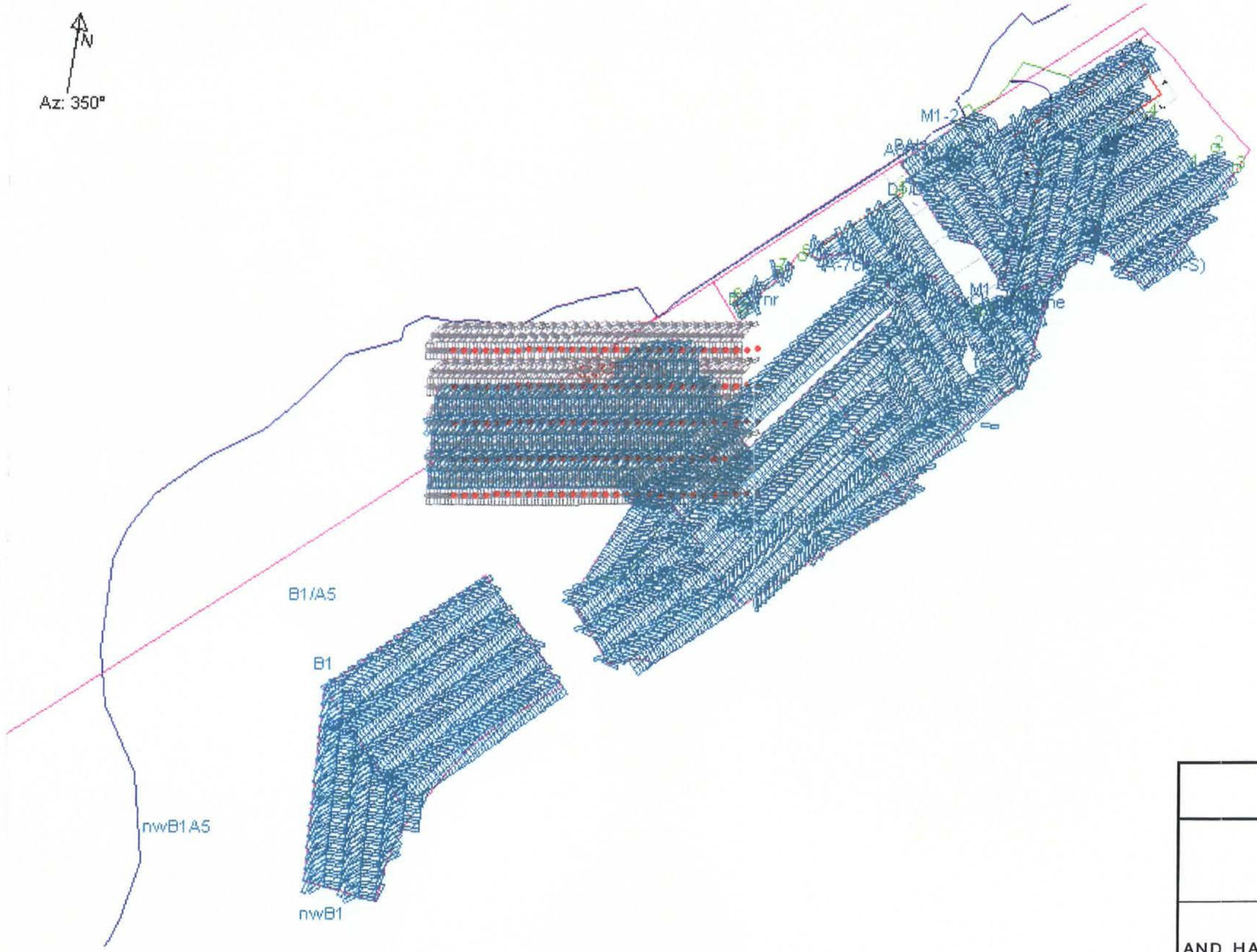

FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

DATE: 2/21/01
SCALE: AS SHOWN
DRAWN: BK

Figure E4-16.
Performance Verification
Sampling Locations for D3

# E5: WINOPS OUTPUT

**FIGURE E5-1: WINOPS CAPPING RECORD NORTH COVE**
**FIGURE E5-2: WINOPS CAPPING RECORD SOUTH COVE**

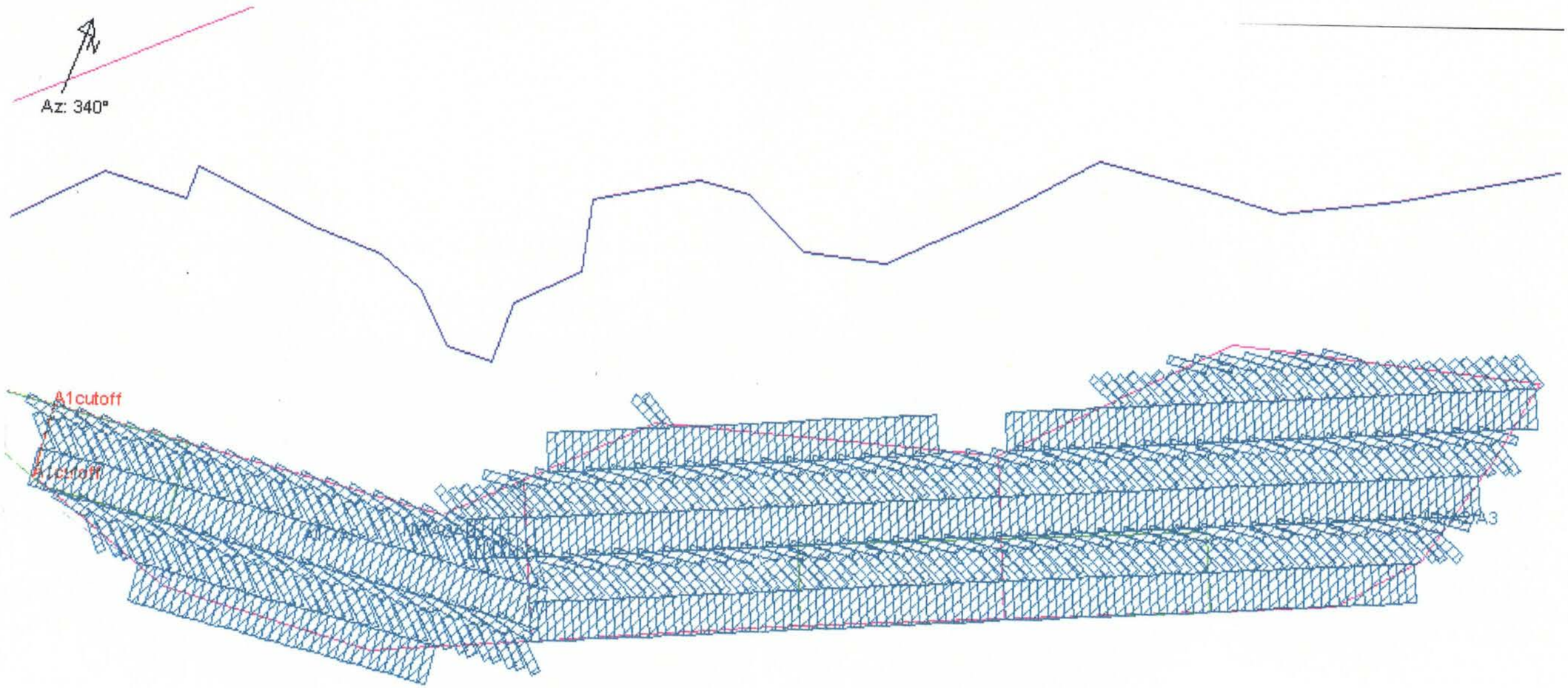



WARD COVE SEDIMENT REMEDIATION
KETCHIKAN PULP COMPANY
KETCHIKAN, ALASKA

FIGURE E5-1
WINOPS CAPPING RECORD
NORTH COVE

FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

| SCALE: AS NOTED | APPROVED | DATE: 4/4/01 |
|---|---|---|
| DIVISION: | | |
| DRAWN: | | |
| CHECKED: | | |




WARD COVE SEDIMENT REMEDIATION
KETCHIKAN PULP COMPANY
KETCHIKAN, ALASKA

FIGURE E5-2
WINOPS CAPPING RECORD
SOUTH COVE

FOSTER WHEELER
AND HARTMAN CONSULTING CORPORATION

| SCALE: AS NOTED | APPROVED | DATE: 4/4/01 |
|---|---|---|
| DIVISION: | | |
| DRAWN: | | |
| CHECKED: | | |

I:\Projects\K0183002\dataln\4-3-01\PostBACPreDID2SSS.dwg 04/04/2001 03:15:51 PM PDT

# APPENDIX F

# IMPORTED MATERIAL SOURCES/DATA

**SOUTH COAST INC.**
P.O. Box 8620
KETCHIKAN, ALASKA 99901

**(907) 225-6125**

# LETTER OF TRANSMITTAL

| DATE | JOB NO. |
|---|---|
| ATTENTION | |
| RE: | |

Mr. John McAmis

J. E. McAmis, Inc.

3125 Southgate Lane

Chico, California 95928

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐ _____

| COPIES | DATE | NO. | DESCRIPTION |
|---|---|---|---|
| | | | CONSTRUCTION AGGREGATES |
| | | | |
| | | | SAND MATERIAL TEST RESULTS |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints

☐ For review and comment ☐ _____

☐ FOR BIDS DUE _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS THE CHEMICAL / ORGANIC TEST RESULTS FOR THIS SOURCE SHOULD BE COMPLETE BY FRIDAY OF THIS WEEK

RECEIVED 12-1-00 2.6.2

COPY TO Craig Chartrand, ~~Foster Wheeler~~ JE McAmis
John Lally, Foster-Wheeler

SIGNED: [signature]

*If enclosures are not as noted, kindly notify us at once.*

THURBER ENGINEERING LTD.

Suite 210, 4475 Viewmont Avenue
VICTORIA, B.C. V8Z 6L8
Phone: [250] 727-2201
Fax: [250] 727-3710

# FAX TRANSMISSION

| | | | |
|---|---|---|---|
| TO: | Dal McLean | DATE: | November 29, 2000 |
| COMPANY: | Construction Aggregates | FAX #: | (250) 478-5311 |
| FROM: | Rod Smith | FILE #: | 19-717-20 |
| REF: | Aggregate Testing | # PAGES: | 3 + \ (Including this page) |
| | | Original Sent? | NO |

Dal:

On November 21, we obtained two individual samples from your stockpile (east side and west side) to be tested as per our telephone conversation of November 18, 2000.

Both samples were analysed for grain size distribution as per Item 4, Section E (Testing, Reporting and Certification). Grain size results are attached.

The east side sample was selected to do the remaining testing on; following are the results:

| | | |
|---|---|---|
| Item 1; Specific Gravity | Bulk Specific Gravity | 2.690 |
| | Apparent Specific Gravity | 2.801 |
| | Absorption | 1.48 |

| | |
|---|---|
| Item 2: Maximum Unit Weight | 1785 kg/cu.m |
| Item 3: Minimum Unit Weight | 1630 kg/cu.m. |
| Item 5: Atterberg Limits | Non-plastic fines |
| Item 7: Modified Proctor | 1840 kg/cu.m @ 14.3% Moisture Content |

All testing was done to the designated testing procedure; Item 1 was tested using ASTM specification C-128 (this item number did not specifically identify which procedure to use).

The environmental testing should be completed by November 30, 2000.

Please call me if you have any questions or require anything further.

Regards
Rod Smith

D:\WpDoc\FAX\FAX.285.wpd

# SIEVE ANALYSIS REPORT

TO: Mr. Dal McLean

FILE NUMBER : 19-717-20
REPORT DATE : Nov. 28, 2000

CLIENT: CONSTRUCTION AGGREGATES LTD.
3457 Metchosin Road
Victoria, BC
V9C 2B1

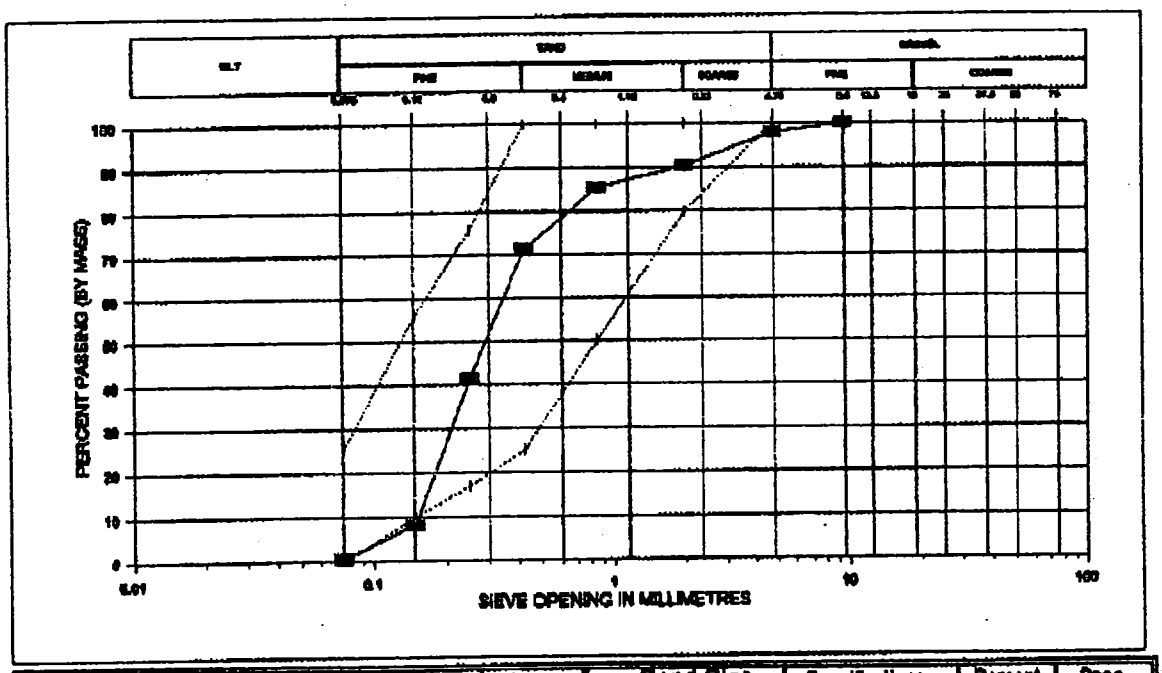
PROJECT : WARD COVE - STOCKPILE TESTING

SAMPLE: Grab
SOURCE: Stockpile - East Side
TEST METHOD: ASTM C-136 & C-117

DATE SAMPLED: Nov. 21, 2000
DATE RECEIVED: Nov. 22, 2000
DATE TESTED: Nov. 24, 2000

REMARKS:

| GRAVEL | SAND | FINES |
|---|---|---|
| 2.0% | 97.5% | 0.4% |




| Gravel Size | | Specifications | | Percent | Spec. | Sand Size | | Specifications | | Percent | Spec. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Inches | mm | Upper | Lower | Passing | Check | Inches | mm | Upper | Lower | Passing | Check |
| 3 | 75 | | | | | No. 4 | 4.75 | 100 | 100 | 98 | Out of Spec |
| 2 | 50 | | | | | No. 10 | 2 | 100 | 80 | 90 | O.K. |
| 1 1/2 | 37.5 | | | | | No. 20 | 0.85 | | | 86 | |
| 1 | 25 | | | | | No. 40 | 0.425 | 100 | 25 | 71 | O.K. |
| 3/4 | 19 | | | | | No. 60 | 0.25 | | | 41 | |
| 1/2 | 12.5 | | | | | No. 100 | 0.15 | | | 8 | |
| 3/8 | 9.5 | | | 100 | | No. 200 | 0.075 | 25 | 0 | 0.4 | O.K. |

# SIEVE ANALYSIS REPORT

TO: Mr. Dal McLean

FILE NUMBER : 19-717-20
REPORT DATE : Nov. 28, 2000

CLIENT: CONSTRUCTION AGGREGATES LTD.
3457 Metchosin Road
Victoria, BC
V9C 2B1

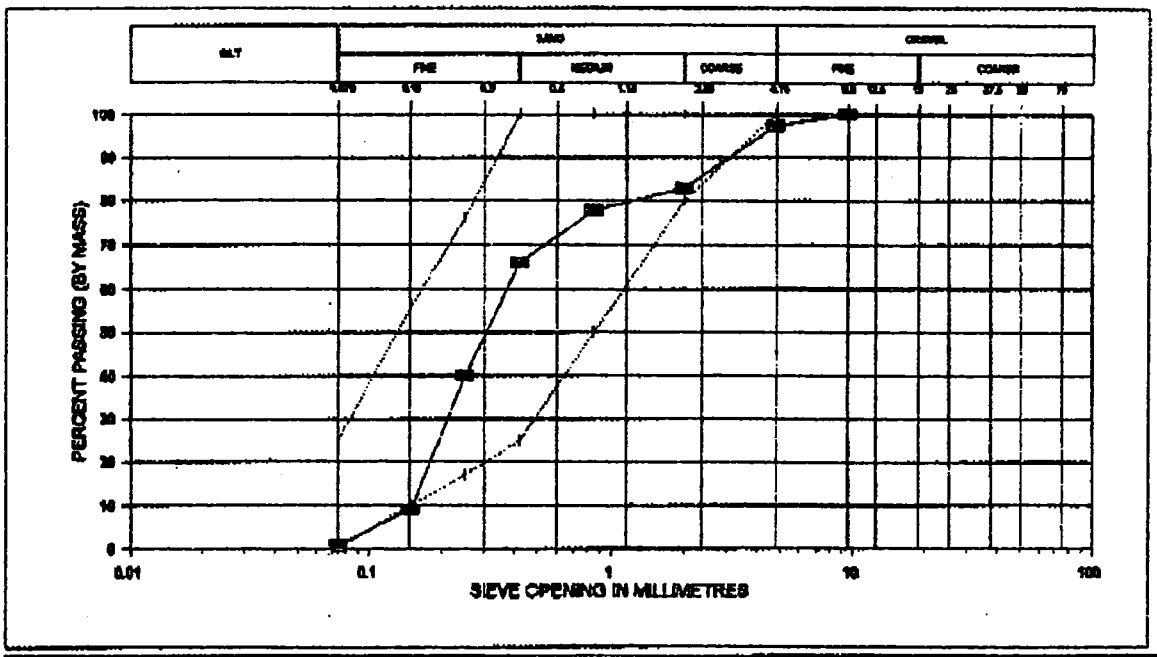
PROJECT : WARD COVE - STOCKPILE TESTING

SAMPLE: Grab
SOURCE: Stockpile - West Side
TEST METHOD: ASTM C-136 & C-117

DATE SAMPLED: Nov. 21, 2000
DATE RECEIVED: Nov. 22, 2000
DATE TESTED: Nov. 24, 2000

REMARKS:

| GRAVEL | SAND | FINES |
|---|---|---|
| 2.7% | 96.6% | 0.7% |




| Gravel Size | | Specifications | | Percent | Spec. |
|---|---|---|---|---|---|
| Inches | mm | Upper | Lower | Passing | Check |
| 3 | 75 | | | | |
| 2 | 50 | | | | |
| 1 1/2 | 37.5 | | | | |
| 1 | 25 | | | | |
| 3/4 | 19 | | | | |
| 1/2 | 12.5 | | | | |
| 3/8 | 9.5 | | | 100 | |

| Sand Size | | Specifications | | Percent | Spec. |
|---|---|---|---|---|---|
| Inches | mm | Upper | Lower | Passing | Check |
| No. 4 | 4.75 | 100 | 100 | 97 | Out of Spec |
| No. 10 | 2 | 100 | 80 | 83 | O.K. |
| No. 20 | 0.85 | | | 78 | |
| No. 40 | 0.425 | 100 | 25 | 66 | O.K. |
| No. 60 | 0.25 | | | 40 | |
| No. 100 | 0.15 | | | 9 | |
| No. 200 | 0.075 | 25 | 0 | 0.7 | O.K. |

# LABORATORY COMPACTION

TO: Mr. Dal McLean

FILE NUMBER: 19-717-20
REPORT DATE: Nov. 28, 2000
P.O.#: NA
CC.

CLIENT: CONSTRUCTION AGGREGATES LTD.
3457 Metchosin Road
Victoria, BC
V9C 2B1

PROJECT: WARD COVE - STOCKPILE TESTING

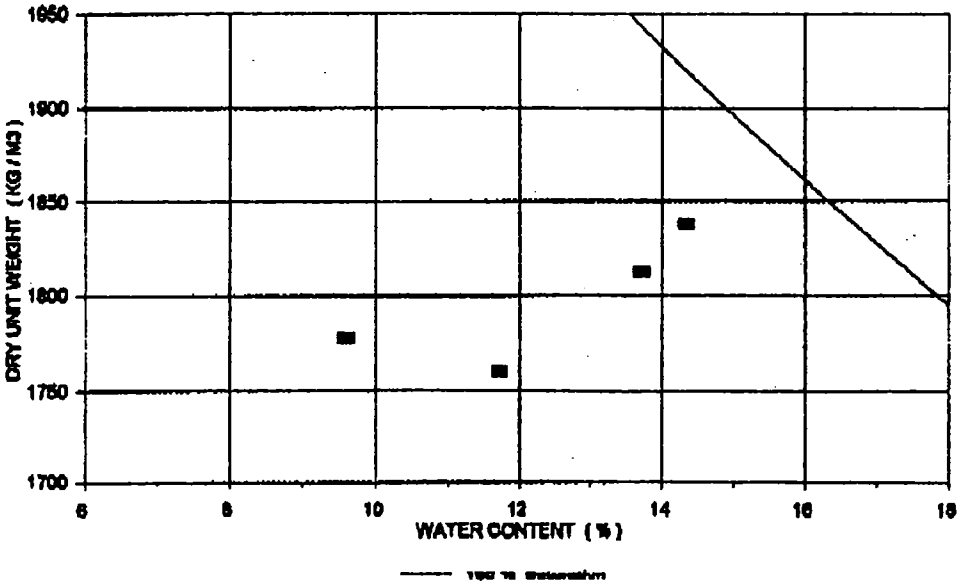
---

NUMBER: MDT00-1 SOURCE OF MATERIAL: Stockpile - East side
MATERIAL DESCRIPTION: Medium - Fine SAND
DATE SAMPLED: Nov. 21, 2000 BY: TJB
DATE RECEIVED: Nov. 22, 2000 BY: BRE
DATE TESTED: Nov. 24, 2000 BY: AGW
TEST METHOD: ASTM D 1557 - Procedure A
AS RECEIVED MOISTURE CONTENT: 4.2 %
ASSUMED SPECIFIC GRAVITY OF MATERIAL: 2.65
PERCENT OVERSIZE MATERIAL * : NA %

MODIFIED MAXIMUM DRY UNIT WEIGHT * : 1840 kg / m3
MODIFIED OPTIMUM WATER CONTENT * : 14.3 %

* ASTM D4718: Unit Weight and Water Content corrected for Oversize Particles.

REMARKS: Bleeding at 14.3 % water content.




100 % Saturation curve is based on Assumed Specific Gravity of Material

☐ THURBER ENGINEERING LTD.
☐ THURBER ENVIRONMENTAL CONSULTANTS LTD.
☐ THURBER CONSULTANTS LTD.

Suite 210, 4475 Viewmont Avenue
VICTORIA, B.C. V8Z 6L8
Phone: (250) 727-2201
Fax: (250) 727-3710
email: thurber@pinc.com

THURBER

# FAX TRANSMISSION RECORD

TO: Eric Collins
DATE: Nov 29/00
COMPANY:
FAX No.: 1 (907) (225-2955)

FROM: Rob Smith
FILE No.: 19-717-20
REFERENCE: C.A. Agreements
TOTAL PAGES SENT: 5 (INCLUDING THIS PAGE)

☐ FAX ONLY ☐ ORIGINAL SENT

FEB/97

2.6.2
K10/WCR-001041

J.E. McAMIS
INDUSTRIES

J.E. McAMIS, INC.
Heavy Construction & Marine Contractors
3125 Southgate Lane • Chico, CA 95928
(530) 891-5061
FAX (530) 891-0904

December 19, 2000

Foster Wheeler Environmental Corporation
Attn: Eric Snow
12100 NE 195th Street, Suite 200
Bothell, WA 98011

RE: WARD COVE SEDIMENT REMEDIATION PROJECT
CONTRACT NO. 029129
**CAPPING AND MOUNDING – SITE VISIT**

Dear Mr. Snow:

Enclosed, please find the letter from our sand supplier South Coast Inc. regarding the contractors' site visit to the designated sand source for the above referenced project. If you have any questions or feel that this does not fulfill the requirement please contact me at 530-891-5061.

Respectfully,

J. E. McAMIS, INC.

Kimberly Thorpe

Kimberly Thorpe
Contract Administrator

KT

# *South Coast Inc.*

P.O. Box 8620, Ketchikan, Alaska 99901

# Fax

| | | | |
|---|---|---|---|
| **To:** | KIM THORPE | **From:** | ERIC COLLINS |
| **Company:** | J.E. McAMIS, INC. | **Company:** | South Coast Inc. |
| **Fax:** | 530-891-0904 | **Fax:** | (907) 225-2955 |
| **Phone:** | 530-891-5061 | **Phone:** | (907) 225-6125 |
| **Date:** | 12/14/00 | **# of Pages** | |

Kim, this fax is to certify that South Coast Inc. has inspected the Construction Aggregates sand source at 3497 Metchosin Road Victoria, B.C. In September of this year Captain Michael Anthony visited the loading dock and stockpile area and confirmed suitability of the loading system for loading SCI barges and sand material as likely to meet project specifications insofar as a visual inspection can confirm. It is my understanding section 2.02 D Inspection of Source if fulfilled by this visit.

CAL

Construction Aggregates Ltd.
3497 Metchosin Road
Victoria, B.C.
V9C 2B1
Telephone (250) 478-8311

To: Eric Collin – South Coast Inc.

From: Del McLean

Re: Barge Measurements for the Western Carrier on January 12, 2001 – Scow Shipment – #38931.

Eric: Some of the things we talked about.

1. Please see attached barge sheet for your first Scow Shipment.

2. Please note the conversion factor of 1.10231 to convert metric tonnes to U.S. tons.

3. Please review attached letter to Foster Wheeler.

4. Cap Material – 3000 yds – Is equivalent to approximately 4000 tons.

P.O. BOX 2300
VANCOUVER, B.C. V6B 3W6
TELEPHONE (604) 261-2211

TICKET NO. 1,813

DEPOT NO. 31

SHIPPING DATE

| YR | MO | DAY |
|---|---|---|
| 2001 | 1 | 12 |

ORDERED BY: E.C. TAKEN BY: R.G.

CUSTOMER: South Coast Inc.
KETCHIKAN ALASKA

SOURCE: Producers Pit
VICTORIA

TUG
Western Mariner

SCOW
Western Carrier

| PRODUCT CODE | DESCRIPTION OF MATERIAL | SHORT TONS SHIPPED |
|---|---|---|
| 212 | WASHED FILL SAND | 10,130 |
| 969 | ENVIRO COMPLIANCE FEE | |
| | | |
| | TOTAL | 10,130 |

1.10231
CONVERSION

Telephone 604-261-6225

| DEPOT |
|---|
| 31 |

| TIME | SHIPPING DATE YR. | MO. | DAY |
|---|---|---|---|
| 7:00 AM | 01 | 01 | 12 |

SOLD TO: SOUTH COAST

SHIP TO: KETCHIKAN, ALASKA

| CUSTOMER ACCOUNT NUMBER | ORDERED BY | ORDER TAKEN BY | TUG | SCOW | CUST. ORDER NO. |
|---|---|---|---|---|---|
| | E. C. | L-6 | WESTERN MARINER | WESTERN CARRIER | |

## MATERIAL ORDER

| TONNES ORDERED | PRODUCT CODE | DESCRIPTION OF MATERIAL | COMM. CODE | TONNES SHIPPED | UNIT PRICE | AMOUNT |
|---|---|---|---|---|---|---|
| 9100+ | 212 | FILL SAND | | ~~355-9190~~ 350-9237 | 9190 | |
| | | TORPEDO | | | | |
| | | STONE | | | | |
| | | ROAD BASE | | | | |
| | | CRUSHED | | | | |
| | | | | | | |
| | | | | | | |
| | | TOTAL ▶ | | | 9190 | |
| | | OCEAN TOWING | | | | |
| | | | | | | |

## LOAD CALCULATION

SCOW (1, 2, 3, 4)

| | FREEBOARD LIGHT (MILLIMETRES) | 1 FREEBOARD LOADED (MILLIMETRES) | 2 FREEBOARD LOADED (MILLIMETRES) | 3 FREEBOARD LIGHT (MILLIMETRES) | 4 FREEBOARD LOADED (MILLIMETRES) |
|---|---|---|---|---|---|
| CORNER 1 | 17.1 | 2.7 | | | |
| CORNER 2 | 17.1 | 2.7 | | | |
| CORNER 3 | 16.1 | 1.8 | | | |
| CORNER 4 | 16.1 | 1.8 | | | |
| TOTAL | | | | | |
| AVERAGE (1/4) | | | | | |
| TONNES | | | | | |
| LESS: LIGHT LOAD | | | | | |
| NET TONNES | | | | | |

COMMENTS:

SHIPPING DEPOT

January 16, 2001

Foster Wheeler Environmental Corporation
C/O Ward Cove Sediment Remediation Project
Ketchikan Pulp Corporation
Ketchikan, Alaska

Attn: John Lally and Mark Herrenkohl - 1-907-247-7559(fax)

**Re: Gradation Results from the Ward Cove Barge Loaded on January 12, 2001.**

Please review the attached Fill Sand gradation results.

Test # 1. This sample was taken by Robert Bada from the stock-pile area designated to the Ward Cove Job at the 3500 ton point and that was at 9:15 a.m. The test results were calculated by Mr. Robert Bada, Quality Control Technician, Producers Pit in the afternoon of January 12, 2001.

Test #2. This sample was taken by Robert Bada from the stock-pile area designated to the Ward Cove Job at the 7500 ton point and that was at 11:00 a.m. The test results were calculated by Mr. Robert Bada, Quality Control Technician, Producers Pit in the afternoon of January 12, 2001.

Please note: In the future the samples could be taken on the barge and by the scow loader.

If you have any questions on Construction Aggregates Ltd. testing procedures or if you would like to see any changes please give us a call.

Sincerely Yours,

Del McLean
Sales Representative

**Ticket ID:** 1,806
**Printed On:** 01/15/2001


| | | | |
|---|---|---|---|
| | | Disp/Pit/Carrier Port ID: | Producers Pit |
| Ticket Date: | 01/12/2001 | | |
| Off Load Date | 01/15/2001 | | |
| Tug: | BURRARD TOWING. | Ordered by: | E.C. |
| Barge | Western Carrier | Taken by: | R.G. |

| | | | |
|---|---|---|---|
| Customer # : | 141219 | Quote # : | 31219 |
| Customer: | South Coast Inc. | | |
| Source: | Producers | Destination: | Ward Cove - Ketchikan |

| Product # | Product Name | Rate Type | Quantity | Minimum |
|---|---|---|---|---|
| 212 | WASHED FILL SAND | Rate Per Tonne | 9,190.00 | |
| 969 | ENVIRO COMPLIANCE FEE | Rate Per Tonne | 9,190.00 | |
| | | | 9,190.00 | |
| Grand Total For Ticket 1,806 | | | 9,190.00 | |

CAL

Construction Aggregates Ltd.
3497 Metchosin Road
Victoria, B.C.
V9C 2B1
Telephone (250) 478-8311

January 16, 2001

Foster Wheeler Environmental Corporation
C/O Ward Cove Sediment Remediation Project
Ketchikan Pulp Corporation
Ketchikan, Alaska

Attn: John Lally and Mark Herrenkohl - 1-907-247-7559(fax)

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Test #2. This sample was taken by Robert Bada from the stock-pile area designated to the Ward Cove Job at the 7500 ton point and that was at 11:00 a.m. The test results were calculated by Mr. Robert Bada, Quality Control Technician, Producers Pit in the afternoon of January 12, 2001.

Please note: In the future the samples could be taken on the barge and by the scow loader.

If you have any questions on Construction Aggregates Ltd. testing procedures or if you would like to see any changes please give us a call.

Sincerely Yours,

Del McLean
Sales Representative

*A Lehigh Company*

# OCEAN CONSTRUCTION SUPPLIES LIMITED

Shipment

SIEVE ANALYSIS

DATE Jan 12 '01

MATERIAL Fill sand

SAMPLED FROM gate B area plus 275 area

REMARKS 1st half
$H_2O$ = 5.8%

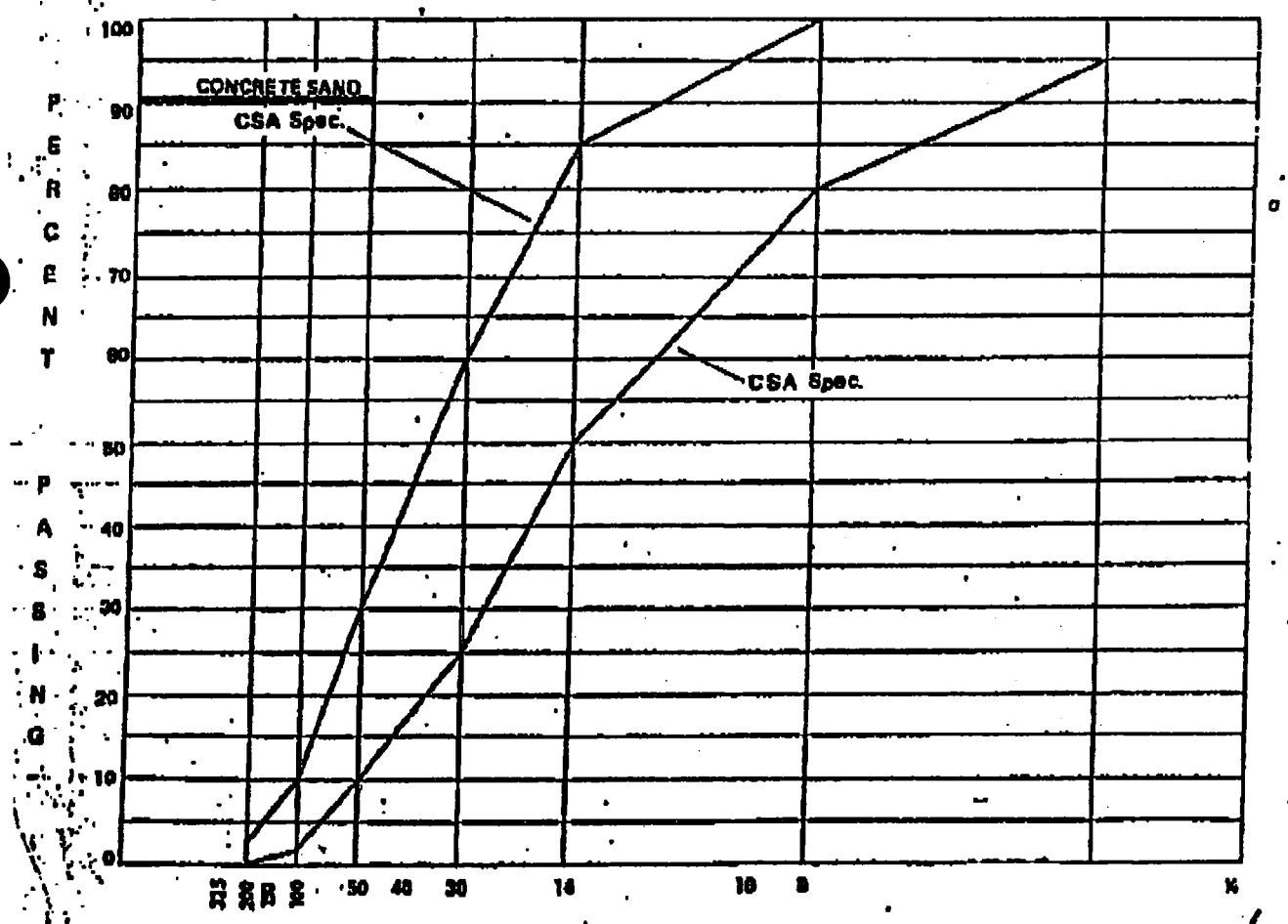
| SIEVE NUMBER | | CUMULATIVE GRAMS | CUMULATIVE % RETAINED | % PASSING |
|---|---|---|---|---|
| 3/8" | | | | |
| | ¼" | 1 | .2 | 99.8 |
| No. 4 | | 9 | 1.7 | 98.3 |
| No. 8 | .2500 | 59 | 11.4 | 88.6 |
| No. 16 | .1250 | 127 | 24.6 | 75.4 |
| No. 30 | .600 | 189 | 36.6 | 63.4 |
| No. 50 | .315 | 324 | 62.8 | 37.2 |
| No. 100 | .160 | 480 | 93.0 | 7.0 |
| No. 200 | .080 | 510 | 98.8 | 1.2 |
| PAN | = .080 | 516 | 100.0 | – |

TEST 1

546 Wet

F.M. 2.303 Metric

ORGANIC




SIGNED

# OCEAN CONSTRUCTION SUPPLIES LIMITED

No. _____

Shipment

DATE Jan 12'01

SIEVE ANALYSIS

MATERIAL Fill Sand

SAMPLED FROM gate 8 area plus 275 area

REMARKS 2nd half

H2O = 5.6 %

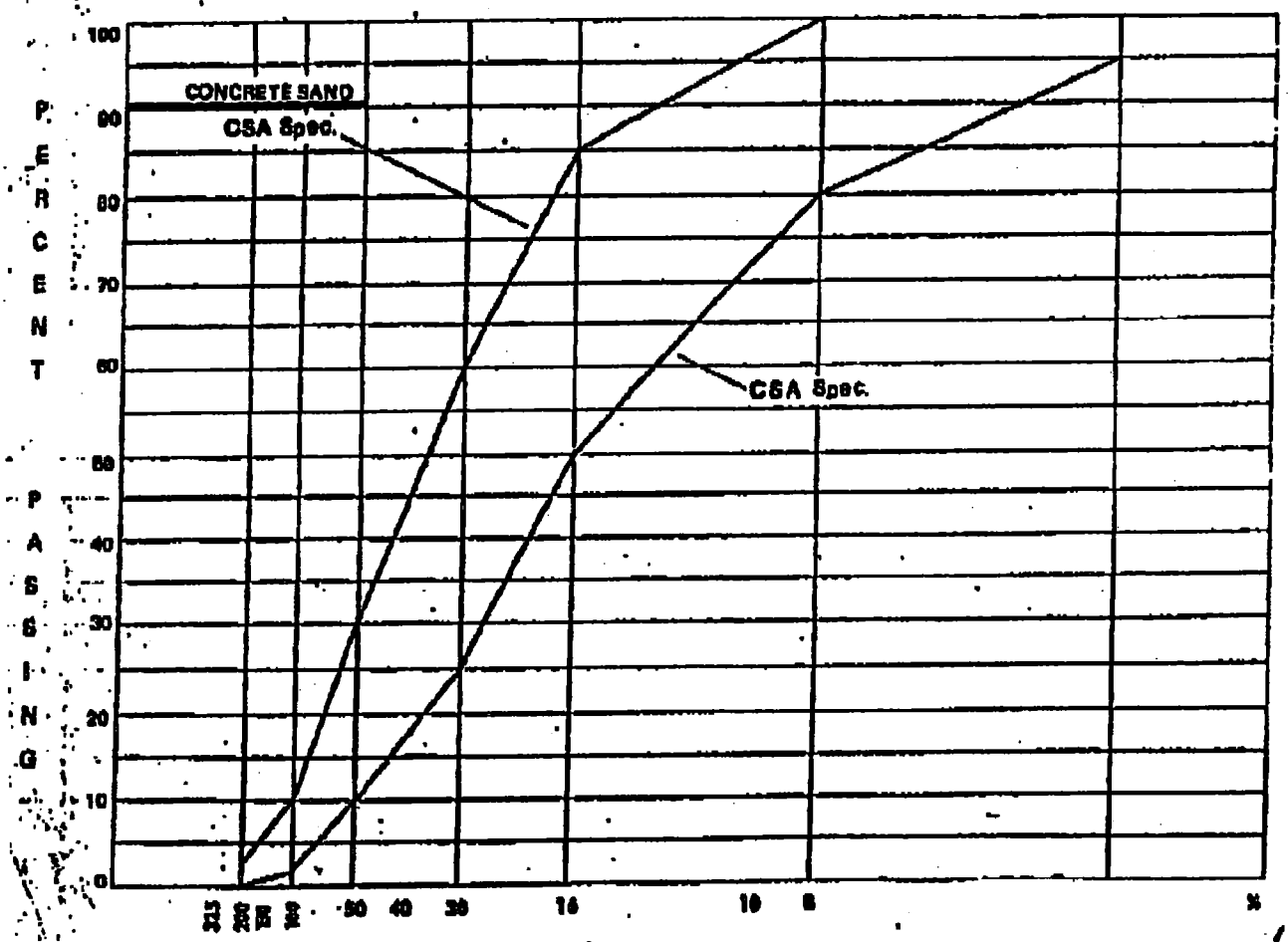
| SIEVE NUMBER | | CUMULATIVE GRAMS | CUMULATIVE % RETAINED | % PASSING |
|---|---|---|---|---|
| 3/8" | | | | |
| 1/4" | | 1 | .2 | 99.8 |
| No. 4 | | 9 | 1.7 | 98.3 |
| No. 8 | .2500 | 87 | 16.7 | 83.3 |
| No. 16 | .1250 | 146 | 28.0 | 72.0 |
| No. 30 | .0590 | 210 | 40.2 | 59.8 |
| No. 50 | .0315 | 320 | 61.3 | 38.7 |
| No. 100 | .0160 | 475 | 91.0 | 9.0 |
| No. 200 | .0080 | 514 | 98.5 | 1.5 |
| PAN | -.0080 | 522 | 100.0 | — |

TEST #2

551 Wet

F.M. 2.391 metric

ORGANIC _____




SIGNED

CAL

Construction Aggregates Ltd.
3497 Metchosin Road
Victoria, B.C.
V9C 2B1
Telephone (250) 478-8311

January 16, 2001

To: John Lally and Mark Herrenkohl – Foster Wheeler
1-907-247-7559

From: Del McLean – Construction Aggregates Ltd.

**Re: Gradation Results from the Barge Loading on January 12, 2001.**

Please review the attached Fill Sand gradation results. The samples were taken from the barge and the results were calculated by Mr. Robert Bada, Quality Control Technician, Producers Pit.

I understand the barge arrived at 5:00 a.m. this morning.

# OCEAN CONSTRUCTION SUPPLIES LIMITED

No. _____

Shipment

DATE Jan 12'01

SIEVE ANALYSIS

MATERIAL Fill Sand

SAMPLED FROM gate 8 area plus 275 area

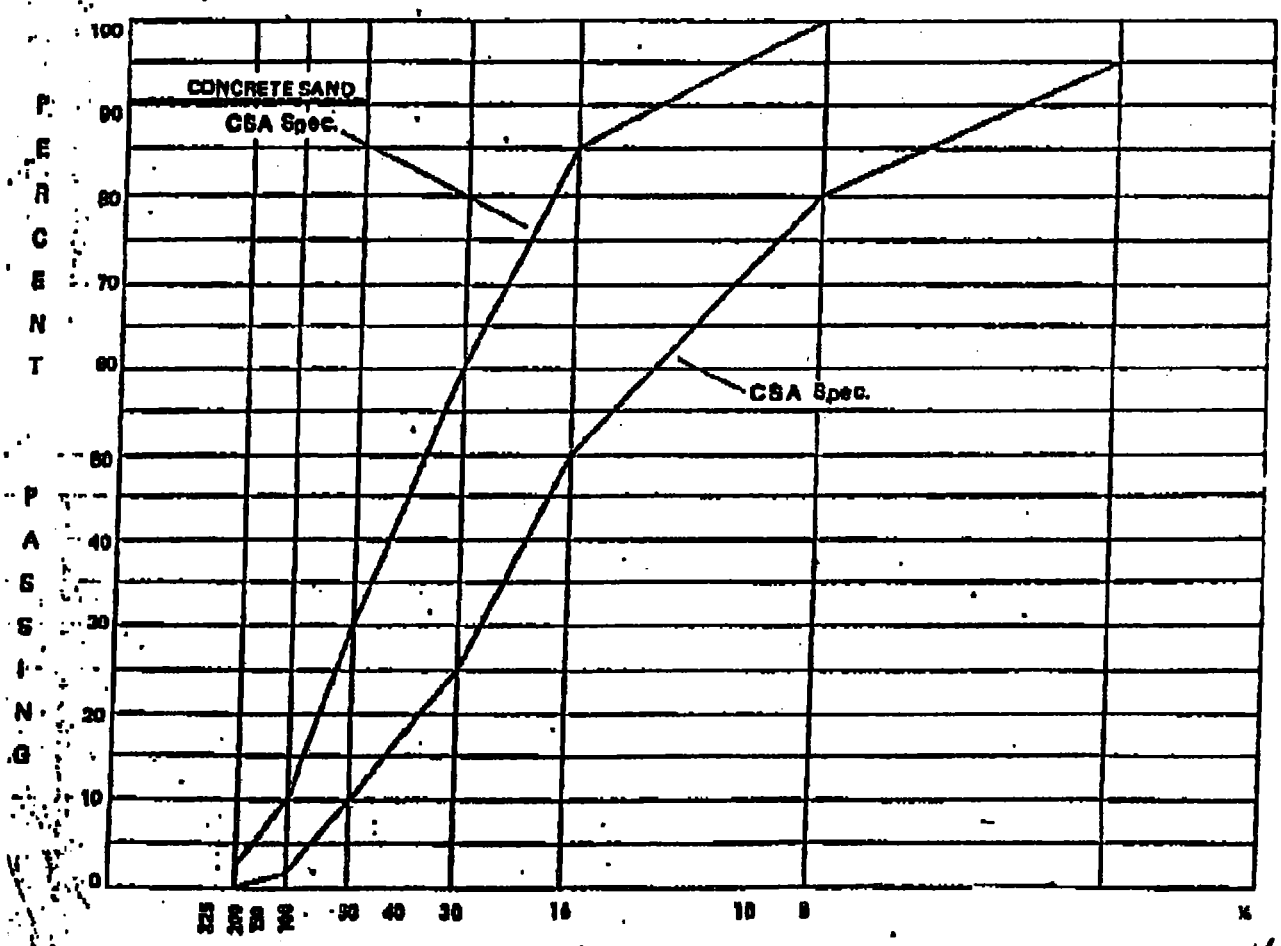
REMARKS 2nd half
$H_2O$ = 5.6 %

| SIEVE NUMBER | | CUMULATIVE GRAMS | CUMULATIVE % RETAINED | % PASSING |
|---|---|---|---|---|
| 3/8" | | | | |
| | ¼" | 1 | .2 | 99.8 |
| No. 4 | | 9 | 1.7 | 98.3 |
| No. 8 | .2500 | 87 | 16.7 | 83.3 |
| No. 16 | .1250 | 146 | 28.0 | 72.0 |
| No. 30 | .0630 | 210 | 40.2 | 59.8 |
| No. 50 | .315 | 320 | 61.3 | 38.7 |
| No. 100 | .160 | 475 | 91.0 | 9.0 |
| No. 200 | .080 | 514 | 98.5 | 1.5 |
| PAN | - .080 | 522 | 100.0 | - |

551 Wet

F.M. 2.39 / metric

ORGANIC _____




SIGNED

# OCEAN CONSTRUCTION SUPPLIES LIMITED

No. _____

Shipment

SIEVE ANALYSIS

DATE Jan 12 '01

MATERIAL Fill sand

SAMPLED FROM gate 8 area plus 275 area

REMARKS 1st half

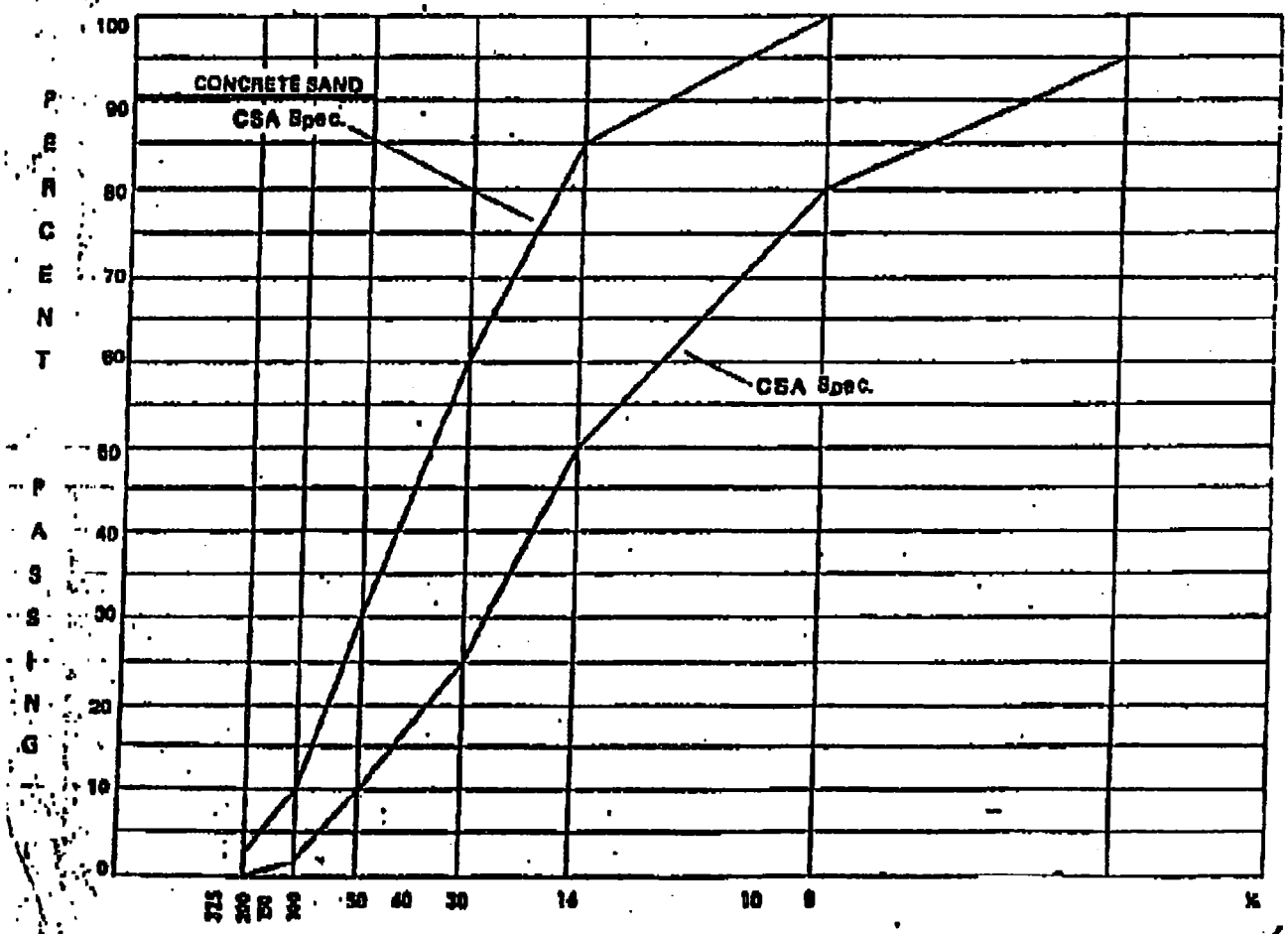
$H_2O$ = 5.8%

| SIEVE NUMBER | CUMULATIVE GRAMS | CUMULATIVE % RETAINED | % PASSING |
|---|---|---|---|
| 3/8" | | | |
| ¼" | 1 | .2 | 99.8 |
| No. 4 | 9 | 1.7 | 98.3 |
| No. 8 .2500 | 59 | 11.4 | 88.6 |
| No. 16 .1250 | 127 | 24.6 | 75.4 |
| No. 30 .630 | 189 | 36.6 | 63.4 |
| No. 50 .315 | 324 | 62.8 | 37.2 |
| No. 100 .160 | 480 | 93.0 | 7.0 |
| No. 200 .080 | 510 | 98.8 | 1.2 |
| PAN - .080 | 516 | 100.0 | — |

546 Wet

F.M. 2.303 Metric

ORGANIC _____




SIGNED

**Construction Aggregates Ltd.**
*3497 Metchosin Road*
*Victoria, B.C.*
*V9C 2B1*
*Telephone (250) 478-8311*

December 15, 2000

Mark Herrenkohl
c/o Foster Wheeler Environmental Ltd.
321-Summerland Road
Bellingham, Washington
98226

**Re: Washed Fill Sand Gradation's**

Dear Mark,

Please review the summary sheets for Construction Aggregates Ltd's Fill Sand. These test results represent 4 months of fill sand production at Producer's Pit. In conversation with our production foreman and our quality control technician, the test results for Ward Cove's fill sand won't be any different from what you see on the summary sheets.

The average percentage of material passing the #4 or 5mm sieve in that 4 month period is 98.03%. In only one sample, in that same period, did we have more than 5% passing the #4 or 5mm sieve.

In conclusion Construction Aggregate Ltd. is confident the washed Fill Sand coming from Producer's Pit, Colwood B.C., over the next year, will fall within the tolerances outlined on the Fill Sand summary sheet between Aug. 24, 2000 and Dec. 13, 2000.

If you have any questions please give us a call.

Sincerely Yours,

Del McLean
Sales Representative
Construction Aggregates Ltd.

*A Lehigh Company*

## Producers Operation

**FILL SAND:** METRIC SCREEN SIZES

| DATE 2000 | LOC. | TESTED BY | REMARKS | % M/C | PERCENT PASSING 6.30 | 5.00 | 2.50 | 1.25 | 0.630 | 0.315 | 0.160 | 0.080 | F. M. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aug.24 | YARD STOCK | RJBada | | 7.2 | – | – | 86.7 | 67.0 | 50.6 | 28.4 | 7.9 | 1.3 | 2594 |
| Aug.30 | YARD STOCK | RJBada | | NA | 99.4 | 96.8 | 86.0 | 73.1 | 58.1 | 39.1 | 12.7 | 1.9 | 2348 |
| SEPT 7 | YARD STOCK | RJBada | | 6.4 | 98.6 | 93.0 | 83.9 | 79.4 | 74.6 | 57.1 | 15.7 | 1.9 | 1977 |
| SEPT 11 | YARD STOCK | RJBada | | 6.1 | 99.7 | 99.0 | 87.5 | 81.8 | 72.0 | 64.8 | 19.8 | 3.0 | 1704 |
| SEPT 13 | YARD STOCK | RJBada | | 6.6 | 100.0 | 98.6 | 88.2 | 78.4 | 69.4 | 48.0 | 13.9 | 2.4 | 2035 |
| SEPT 19 | YARD STOCK | RJBada | | 10.4 | 100.0 | 97.9 | 82.5 | 71.7 | 62.9 | 46.5 | 12.5 | 1.7 | 2260 |
| SEPT 21 | YARD STOCK | RJBada | | 5.2 | 100.0 | 98.5 | 87.0 | 72.3 | 58.9 | 35.6 | 8.6 | 1.1 | 2391 |
| SEPT 26 | YARD STOCK | RJBada | | 5.5 | 100.0 | 98.9 | 85.9 | 73.2 | 59.3 | 36.7 | 8.4 | 1.1 | 2376 |
| SEPT 28 | YARD STOCK | RJBada | | 4.8 | 99.8 | 97.9 | 81.8 | 63.0 | 47.9 | 28.3 | 7.4 | 1.2 | 2739 |
| SEPT'00 | $\bar{x}$ 7 | RJBada | COMPOSITE | 6.4 | 99.7 | 97.7 | 85.3 | 74.3 | 64.3 | 45.3 | 12.3 | 1.8 | 2211 |
| OCT 3 | YARD STOCK | RJBada | | 7.3 | 100.0 | 99.2 | 84.3 | 69.5 | 55.0 | 36.5 | 10.0 | 1.8 | 2455 |
| OCT 5 | YARD STOCK | RJBada | | 7.0 | 99.8 | 98.8 | 81.5 | 66.2 | 51.9 | 28.6 | 8.5 | 1.2 | 2647 |
| OCT 10 | YARD STOCK | RJBada | | 5.4 | 99.8 | 97.5 | 80.2 | 75.3 | 71.3 | 53.9 | 13.3 | 2.1 | 2087 |
| OCT 12 | YARD STOCK | RJBada | | 6.3 | 99.8 | 98.2 | 84.5 | 80.6 | 75.8 | 55.0 | 12.3 | 2.0 | 1938 |
| OCT 17 | YARD STOCK | RJBada | | 7.5 | 99.8 | 98.4 | 87.8 | 83.3 | 77.0 | 55.4 | 12.6 | 2.0 | 1857 |
| OCT 20 | YARD STOCK | RJBada | | 7.5 | 99.8 | 98.9 | 90.0 | 84.5 | 76.4 | 54.9 | 11.3 | 1.9 | 1842 |
| OCT 23 | YARD STOCK | RJBada | | 3.8 | 99.8 | 97.9 | 88.1 | 81.6 | 73.9 | 54.4 | 13.0 | 1.9 | 1913 |
| OCT 26 | YARD STOCK | RJBada | | 9.3 | 99.8 | 99.2 | 93.3 | 90.7 | 85.1 | 58.6 | 13.1 | 1.8 | 1602 |
| OCT 30 | YARD STOCK | RJBada | | 4.8 | 100.0 | 98.5 | 86.9 | 80.2 | 72.3 | 51.4 | 12.0 | 1.5 | 1987 |
| OCT'00 | $\bar{x}$ 9 | RJBada | COMPOSITE | 6.5 | 99.8 | 98.5 | 86.3 | 79.1 | 71.0 | 49.9 | 11.8 | 1.8 | 2036 |
| NOV 2 | YARD STOCK | RJBada | | 8.3 | 99.8 | 97.0 | 79.7 | 73.8 | 72.4 | 60.6 | 16.8 | 1.6 | 1999 |
| NOV 7 | YARD STOCK | RJBada | | 6.3 | 99.8 | 97.6 | 87.0 | 81.7 | 75.5 | 52.3 | 11.4 | 1.4 | 1947 |
| NOV 9 | YARD STOCK | RJBada | | 6.0 | 99.8 | 98.1 | 88.4 | 79.8 | 75.0 | 53.4 | 10.2 | 1.5 | 1953 |
| NOV 14 | YARD STOCK | RJBada | | 6.6 | 99.8 | 98.6 | 93.6 | 79.5 | 61.8 | 32.4 | 9.3 | 1.9 | 2200 |
| NOV 16 | YARD STOCK | RJBada | | 4.6 | 100.0 | 98.3 | 87.4 | 78.7 | 69.7 | 45.4 | 10.3 | 1.3 | 2102 |
| NOV 20 | YARD STOCK | RJBada | | 6.0 | 99.8 | 98.1 | 90.4 | 87.3 | 81.7 | 50.9 | 8.4 | 1.0 | 1834 |
| NOV 23 | YARD STOCK | RJBada | | 6.2 | 99.8 | 98.8 | 91.5 | 88.4 | 80.9 | 49.5 | 8.7 | 1.4 | 1824 |
| NOV 28 | YARD STOCK | RJBada | | 5.3 | 99.8 | 96.6 | 83.6 | 79.1 | 72.5 | 45.8 | 8.3 | .9 | 2143 |
| NOV'00 | $\bar{x}$ | RJBada | COMPOSITE | 6.2 | 99.8 | 97.9 | 87.7 | 81.1 | 73.7 | 49.4 | 10.4 | 1.4 | 2000 |
| DEC 4 | YARD STOCK | RJBada | | 3.9 | 99.6 | 96.1 | 83.8 | 79.4 | 72.1 | 45.7 | 7.7 | 1.0 | 2156 |
| DEC 7 | YARD STOCK | RJBada | | 5.0 | 99.8 | 97.7 | 89.6 | 85.1 | 76.1 | 44.0 | 6.8 | 1.0 | 2009 |

ATTN: MARK HERRENKOHL

RE: 4 MONTHS OF TEST RESULTS

WASHED FINE SAND

Gen: Del Michael

## Producers Operation

**FILL SAND:** METRIC SCREEN SIZES

| DATE 2000 | LOC. | TESTED BY | REMARKS | % M/C | PERCENT PASSING 6.30 | 5.00 | 2.50 | 1.25 | 0.630 | 0.315 | 0.160 | 0.080 | F. M. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC 11 | YARD STOCK | RJBada | | 4.3 | 99.8 | 197.2 | 86.4 | 80.9 | 72.6 | 44.4 | 7.2 | .9 | 21 |
| DEC 13 | YARD STOCK | RJBada | | 9.5 | 100.0 | 96.8 | 90.1 | 86.7 | 77.1 | 48.6 | 9.7 | 1.5 | 1910 |
| | | RJBada | | | | | | | | | | | |
| | | RJBada | | | | | | | | | | | |
| | | RJBada | | | | | | | | | | | |
| | | RJBada | | | | | | | | | | | |
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| | | RJBada | | | | | | | | | | | |
| | | RJBada | | | | | | | | | | | |
| | | RJBada | | | | | | | | | | | |
| | | RJBada | | | | | | | | | | | |

CAL

Construction Aggregates Ltd.
3497 Metchosin Road
Victoria, B.C.
V9C 2B1
Telephone (250) 478-8311

January 25, 2001

Foster Wheeler Environmental Corporation
C/O Ward Cove Sediment Remediation Project
Ketchikan Pulp Corporation
Ketchikan, Alaska

Attn: John Lally and Mark Herrenkohl - 1-907-247-7559(fax)

**Re: Gradation Results from the Ward Cove Barge Loaded on January 20, 2001.**

Please review the attached Fill Sand gradation results.

Test # 1. This sample was taken by Keith Aldridge from the scow designated to the Ward Cove Job at the 3500 ton point and that was at 2:15 p.m. The test results were calculated by Mr. Brian Empey, Quality Control Technician, Thurber Engineering Ltd. in the afternoon of January 23, 2001.

Test #2. This sample was taken by Keith Aldridge from the scow designated to the Ward Cove Job at the 7500 ton point and that was at 4:00 p.m. The test results were calculated by Mr. Brian Empey, Quality Control Technician, Thurber Engineering in the afternoon of January 23, 2001.

Please note: These samples were taken on the barge and by the scow loader.

If you have any questions on Construction Aggregates Ltd. testing procedures or if you would like to see any changes please give us a call.

Sincerely Yours,

Del McLean
Sales Representative

**THURBER ENGINEERING LTD.**

Suite 910, 4475 Viewmont Ave.
VICTORIA, B.C. V8Z 6L8
Phone (604) 727-2201
Fax (604) 727-3710

THURBER

# SIEVE ANALYSIS REPORT

TO: Mr. Del McLean

FILE NUMBER : 19-717-20
REPORT DATE : Jan. 23, 2001

CLIENT: CONSTRUCTION AGGREGATES LTD.
3457 Metchosin Road
Victoria, BC
V9C 2B1

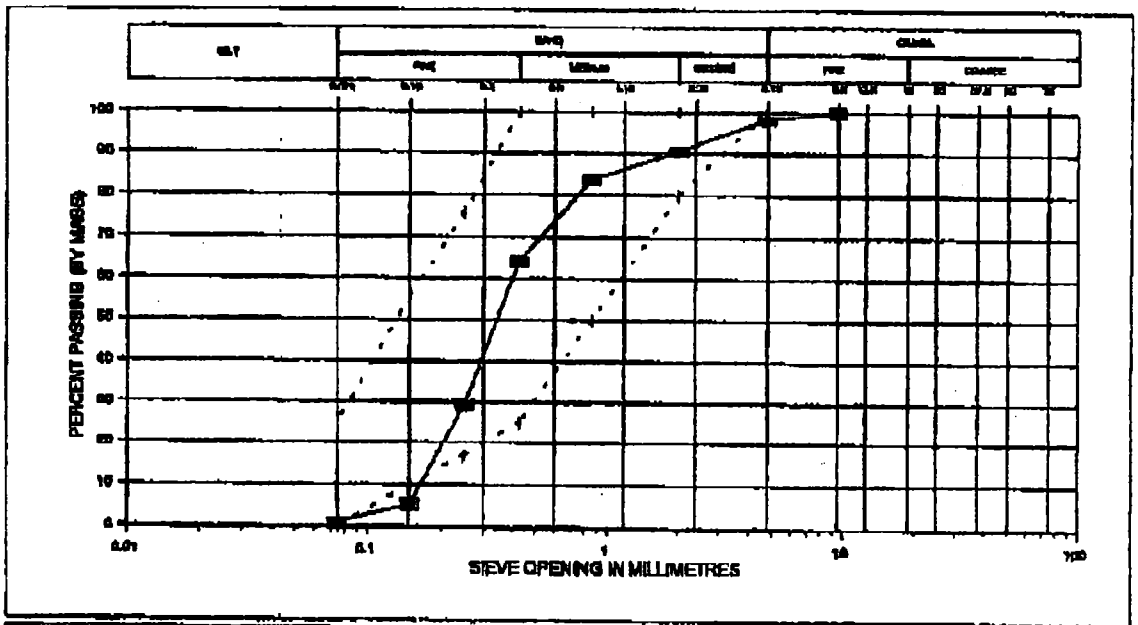
PROJECT : WARD COVE

SAMPLE: Grab Sample # 1
SOURCE: Barge # 2
TEST METHOD: ASTM C-136 & C-117

DATE SAMPLED: Jan. 19, 2001
DATE RECEIVED: Jan. 22, 2001
DATE TESTED: Jan. 23, 2001

REMARKS:

| GRAVEL | SAND | FINES |
|---|---|---|
| 1.6% | 97.5% | 0.9% |




| Gravel Size | | Specifications | | Percent | Spec. |
|---|---|---|---|---|---|
| Inches | mm | Upper | Lower | Passing | Check |
| 3 | 75 | | | | |
| 2 | 50 | | | | |
| 1 1/2 | 37.5 | | | | |
| 1 | 25 | | | | |
| 3/4 | 19 | | | | |
| 1/2 | 12.5 | | | | |
| 3/8 | 9.5 | | | 100 | |

| Sand Size | | Specifications | | Percent | Spec. |
|---|---|---|---|---|---|
| Inches | mm | Upper | Lower | Passing | Check |
| No. 4 | 4.75 | 100 | 100 | 98 | Out of Spec |
| No. 10 | 2 | 100 | 80 | 80 | O.K. |
| No. 20 | 0.85 | | | 84 | |
| No. 40 | 0.425 | 100 | 25 | 64 | O.K. |
| No. 60 | 0.25 | | | 29 | |
| No. 100 | 0.15 | | | 5 | |
| No. 200 | 0.075 | 25 | 0 | 0.9 | O.K. |

**THURBER ENGINEERING LTD.**

Suite 210, 4475 Viewmont Ave.
VICTORIA, B.C. V8Z 6L8
Phone (604) 727-2201
Fax (604) 727-3710

THURBER

# SIEVE ANALYSIS REPORT

TO: Mr. Dal McLean

FILE NUMBER : 19-717-20
REPORT DATE : Jan. 23, 2001

CLIENT: CONSTRUCTION AGGREGATES LTD.
3457 Metchosin Road
Victoria, BC
V9C 2B1

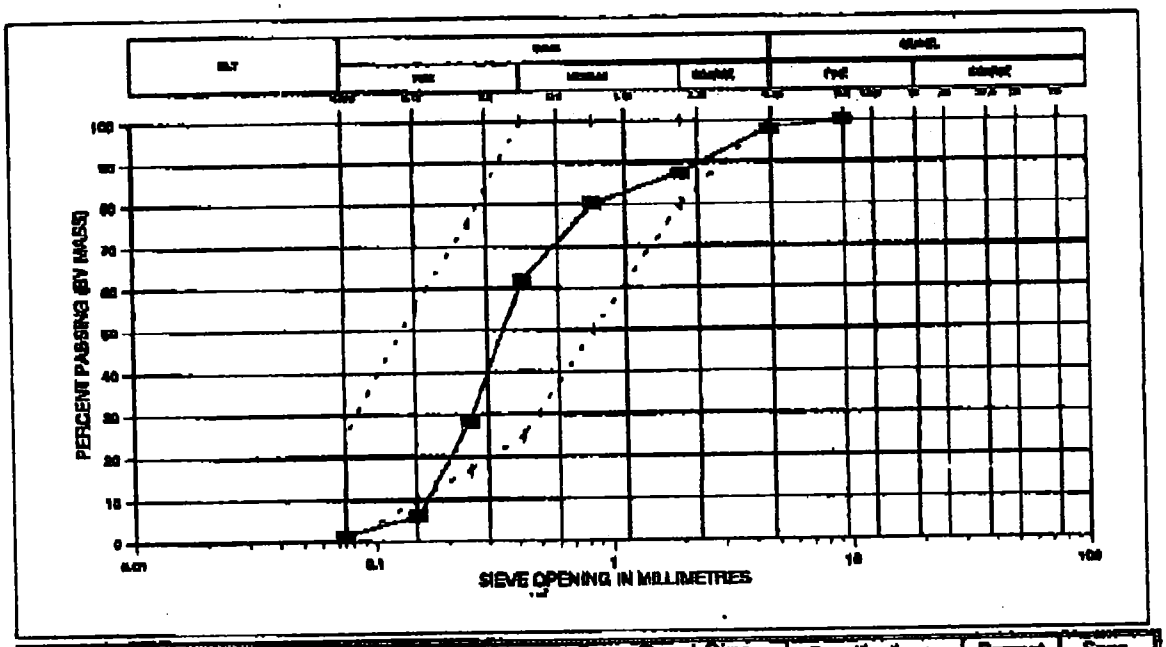
PROJECT : WARD COVE

SAMPLE: Grab Sample # 2
SOURCE: Barge # 2
TEST METHOD: ASTM C-136 & C-117

DATE SAMPLED: Jan 19, 2001
DATE RECEIVED: Jan. 22, 2001
DATE TESTED: Jan. 23, 2001

REMARKS:

| GRAVEL | SAND | FINES |
|---|---|---|
| 1.8% | 96.7% | 1.5% |




| Gravel Size | | Specifications | | Percent Passing | Spec. Check |
|---|---|---|---|---|---|
| Inches | mm | Upper | Lower | | |
| 3 | 75 | | | | |
| 2 | 50 | | | | |
| 1 1/2 | 37.5 | | | | |
| 1 | 25 | | | | |
| 3/4 | 19 | | | | |
| 1/2 | 12.5 | | | | |
| 3/8 | 9.5 | | | 100 | |

| Sand Size | | Specifications | | Percent Passing | Spec. Check |
|---|---|---|---|---|---|
| Inches | mm | Upper | Lower | | |
| No. 4 | 4.75 | 100 | 100 | 98 | Out of Spec |
| No. 10 | 2 | 100 | 80 | 87 | O.K. |
| No. 20 | 0.85 | | | 80 | |
| No. 40 | 0.425 | 100 | 25 | 62 | O.K. |
| No. 60 | 0.25 | | | 28 | |
| No. 100 | 0.15 | | | 6 | |
| No. 200 | 0.075 | 25 | 0 | 1.5 | O.K. |

**CONSTRUCTION AGGREGATES LTD.**
**P.O. BOX 2300**
**VANCOUVER, B.C. V6B 3W6**
**TELEPHONE (604) 261-2211**

TICKET NO. 1,813

DEPOT NO. 31

SHIPPING DATE

| YR | MO | DAY |
|---|---|---|
| 2001 | 1 | 12 |

ORDERED BY: E.C. TAKEN BY: R.G.

CUSTOMER: South Coast Inc.
KETCHIKAN ALASKA

SOURCE: Producers Pit
VICTORIA

TUG
Western Mariner

SCOW
Western Carrier

| PRODUCT CODE | DESCRIPTION OF MATERIAL | SHORT TONS SHIPPED |
|---|---|---|
| 212 | WASHED FILL SAND | 10,130 |
| 869 | ENVIRO COMPLIANCE FEE | |
| | | |
| | TOTAL | 10,130 |

Per contract requirements: 1.45 tons equals 1 cubic yard.
10,130 tons divided by 1.45 equals 6,986.21 cubic yards.

1.10231
CONVERSION

**Ticket ID:** 1,806
**Printed On:** 01/15/2001
Page # 1 Of 1

| | | | |
|---|---|---|---|
| Ticket Date: | 01/12/2001 | Dist/Pit/Carrier Port ID: | Producers Pit |
| Off Load Date | 01/15/2001 | | |
| Tug: | BURIARD TOWING. | Ordered by: | R.C. |
| Barge | Western Carrier | Taken by: | R.G. |

| | | | |
|---|---|---|---|
| Customer # : | 141219 | Quote # : | 51219 |
| Customer: | South Coast Inc. | | |
| Source: | Producers | Destination: | Ward Cove - Ketchikan |

| Product # | Product Name | Rate Type | Quantity | Minimum |
|---|---|---|---|---|
| 211 | WASHED FILL SAND | Rate Per Tonne | 9,190.00 | |
| 969 | ENVIRO COMPLIANCE FEE | Rate Per Tonne | 9,190.00 | |
| | | | 9,190.00 | |
| Grand Total For Ticket 1,806 | | | 9,190.00 | |

CAL

Construction Aggregates Ltd.
P.O. Box 8500
Vancouver, B.C. V6B 3W6
Telephone 604-261-6225

NO. 38931

DEPOT 31

| TIME | SHIPPING DATE YR. | MO. | DAY |
|---|---|---|---|
| 7:00 AM | 01 | 01 | 12 |

SOLD TO: SOUTH COAST

SHIP TO: KETCHIKAN, ALASKA

| CUSTOMER ACCOUNT NUMBER | ORDERED BY | ORDER TAKEN BY | TUG | SCOW | CUST. ORDER NO |
|---|---|---|---|---|---|
| | E. C. | L-6 | WESTERN MARINER | WESTERN CARRIER | |

MATERIAL ORDER

| TONNES ORDERED | PRODUCT CODE | DESCRIPTION OF MATERIAL | COMM. CODE | TONNES SHIPPED | UNIT PRICE | AMOUNT |
|---|---|---|---|---|---|---|
| 9100+ | 212 | FILL SAND | | 9190 9237 | 9190 | |
| | | TORPEDO | | | | |
| | | STONE | | | | |
| | | ROAD BASE | | | | |
| | | CRUSHED | | | | |
| | | | | | | |
| | | | | | | |
| | | TOTAL ▶ | | | 9190 | |
| | | OCEAN TOWING | | | | |
| | | | | | | |

LOAD CALCULATION

| SCOW | FREEBOARD LIGHT (MILLIMETRES) | 1 FREEBOARD LOADED (MILLIMETRES) | 2 FREEBOARD LOADED (MILLIMETRES) | 3 FREEBOARD LIGHT (MILLIMETRES) | 4 FREEBOARD LOADED (MILLIMETRES) |
|---|---|---|---|---|---|
| CORNER 1 | 17.1 | 2.7 | | | |
| CORNER 2 | 17.1 | 2.7 | | | |
| CORNER 3 | 16.1 | 1.8 | | | |
| CORNER 4 | 16.1 | 1.8 | | | |
| TOTAL | | | | | |
| AVERAGE (1M) | | | | | |
| TONNES | | | | | |
| LESS: LIGHT LOAD | | | | | |
| NET TONNES | | | | | |

COMMENTS:

SHIPPING DEPOT

CAL

Construction Aggregates Ltd.
8487 Mulchinsk Road
Victoria, B.C.
V8C 2S1
Telephone (250) 478-8311

January 16, 2001

To: Eric Collin – South Coast Inc.
1-907-225-2955

From: Del McLean – Construction Aggregates Ltd.

**Re: Gradation Results from the Barge Loading on January 12, 2001.**

Please review the attached Fill Sand gradation results. The samples were taken from the barge and the results were calculated by Mr. Robert Bada, Quality Control Technician, Producers Pit.

I understand the barge arrived at 5:00 a.m. this morning.

January 16, 2001

Foster Wheeler Environmental Corporation
C/O Ward Cove Sediment Remediation Project
Ketchikan Pulp Corporation
Ketchikan, Alaska

Attn: John Lally and Mark Herrenkohl - 1-907-247-7559(fax)

**Re: Gradation Results from the Ward Cove Barge Loaded on January 12, 2001.**

Please review the attached Fill Sand gradation results.

Test # 1. This sample was taken by Robert Bada from the stock-pile area designated to the Ward Cove Job at the 3500 ton point and that was at 9:15 a.m. The test results were calculated by Mr. Robert Bada, Quality Control Technician, Producers Pit in the afternoon of January 12, 2001.

Test #2. This sample was taken by Robert Bada from the stock-pile area designated to the Ward Cove Job at the 7500 ton point and that was at 11:00 a.m. The test results were calculated by Mr. Robert Bada, Quality Control Technician, Producers Pit in the afternoon of January 12, 2001.

Please note: In the future the samples could be taken on the barge and by the scow loader.

If you have any questions on Construction Aggregates Ltd. testing procedures or if you would like to see any changes please give us a call.

Sincerely Yours,

Del McLean
Sales Representative

# BILL OF LADING

| | |
|---|---|
| SHIPPER/EXPORTER<br>CONSTRUCTION AGGREGATES LTD.<br>P.O. BOX 2300<br>VANCOUVER, B.C. V6B 3W5 | DOCUMENT NO.<br>BILL OF LADING No. 1<br>EXPORT REFERENCES |
| CONSIGNEE<br>SOUTH COAST INC.<br>KETCHIKAN, ALASKA | FORWARDING AGENT - REFERENCES<br>POINT AND COUNTRY OF ORIGIN<br>VICTORIA, B.C., CANADA |
| NOTIFY PARTY<br>SAME AS CONSIGNEE | DOMESTIC ROUTING/EXPORT INSTRUCTIONS |
| PIER<br>CONSTRUCTION AGGREGATES LTD., PIER | |
| VESSEL<br>WESTERN CARRIER<br>PORT OF LOADING<br>VICTORIA, B.C. | ONWARD INLAND ROUTING |
| PORT OF DISCHARGE<br>KETCHIKAN, AK<br>FOR TRANSHIPMENT TO | |

PARTICULARS FURNISHED BY SHIPPER

| MARKS AND NUMBERS | NO. OF PKGS. | DESCRIPTION OF PACKAGES AND GOODS | GROSS WEIGHT | MEASUREMENT |
|---|---|---|---|---|
| N/M N/N | BULK | WASHED FILL SAND, in bulk<br>10,130 short tons | 9,190 M/tons | |

| Freight Rating and Charges | | |
|---|---|---|
| AS ARRANGED | | |
| @ | | |
| @ | | |
| @ | | |
| @ | | |
| @ | | |
| REPAID FREIGHT CHARGES | | |
| HANDLING | | |
| CHARGES | | |

In accepting this Bill of Lading the Shipper expressly accepts and agrees to all its terms, conditions and exceptions, whether printed, stamped or written, or otherwise incorporated, either on the front or on the back.

IN WITNESS WHEREOF the Carrier or his Agents have signed for the Master THREE (3) Bills of Lading, all of this tenor and date. One Bill of Lading duly endorsed to be given up in exchange for the goods or for a delivery order for same upon which the others shall stand void.

Dated at VICTORIA, B.C., CANADA JAN. 12, 2001.

THE CARRIER OR HIS AGENTS FOR THE MASTER
WESTERN TOWBOAT COMPANY
By N. B. Anderson

B/L No.

# OCEAN CONSTRUCTION SUPPLIES LIMITED

Shipment

SIEVE ANALYSIS

DATE Jan 12 '01

MATERIAL Fill Sand

SAMPLED FROM gate 8 area plus 275 area

REMARKS 2nd half

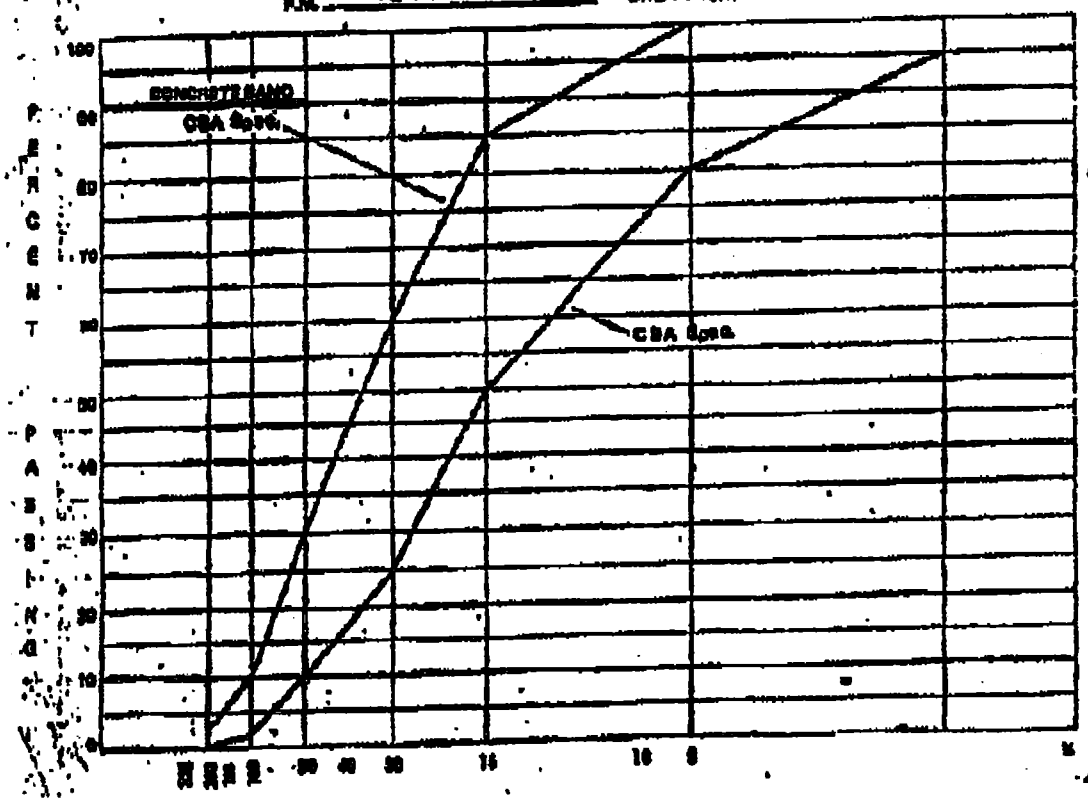
H2O = 5.6 %

| SIEVE NUMBER | CUMULATIVE GRAMS | CUMULATIVE % RETAINED | % PASSING |
|---|---|---|---|
| 3/8" | | | |
| 5" | 1 | .2 | 99.8 |
| No. 4 | 9 | 1.7 | 98.3 |
| No. 8 .2500 | 87 | 16.7 | 83.3 |
| No. 16 .1850 | 146 | 28.0 | 72.0 |
| No. 30 .600 | 210 | 40.2 | 59.8 |
| No. 50 .315 | 320 | 61.3 | 38.7 |
| No. 100 .150 | 475 | 91.0 | 9.0 |
| No. 200 .080 | 514 | 98.5 | 1.5 |
| PAN .080 | 522 | 100.0 | — |

561 Wet

F.M. 2.391 metric

ORGANIC



# OCEAN CONSTRUCTION SUPPLIES LIMITED

No. _____

Shipment

SIEVE ANALYSIS

DATE Jan 12 '01

MATERIAL Fill sand

SAMPLED FROM gate 8 area plus 275 area

REMARKS 1st half

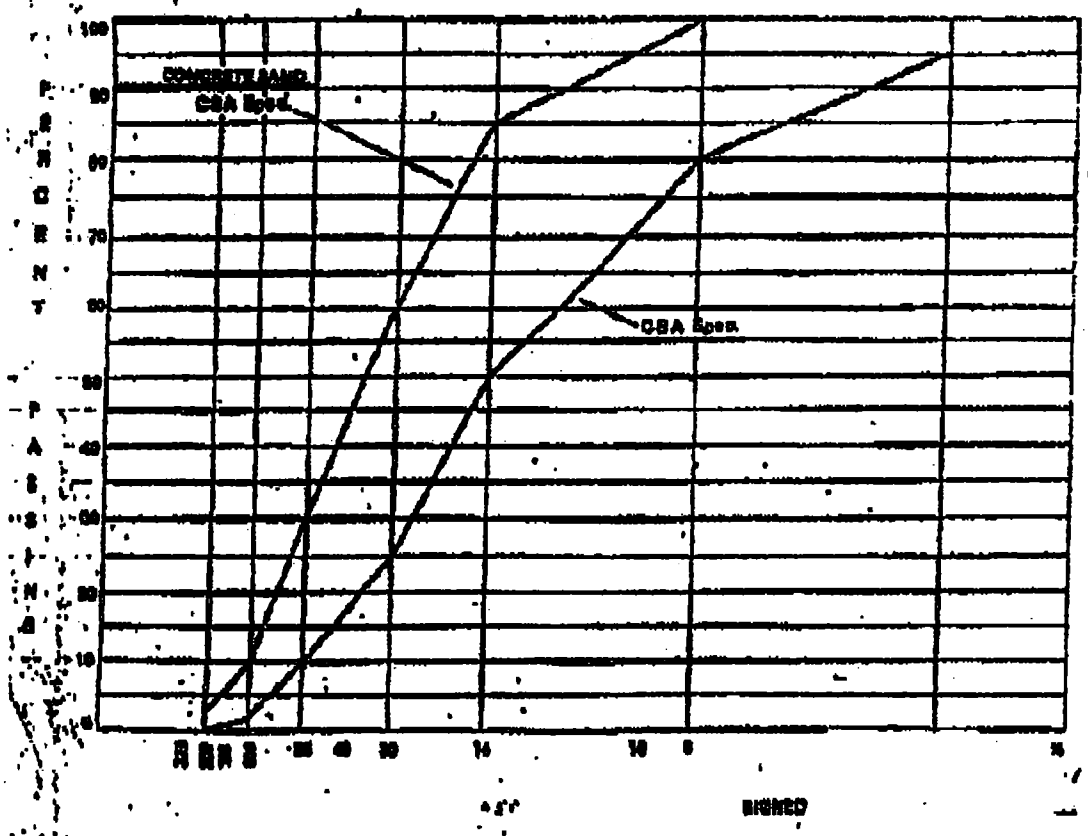
H2O = 5.8%

| SIEVE NUMBER | CUMULATIVE GRAMS | CUMULATIVE % RETAINED | % PASSING |
|---|---|---|---|
| 3/8" | | | |
| 1/4" | 1 | .2 | 99.8 |
| No. 4 | 9 | 1.7 | 98.3 |
| No. 8 .2500 | 59 | 11.9 | 89.6 |
| No. 16 .1250 | 127 | 24.8 | 75.4 |
| No. 30 .600 | 189 | 36.6 | 62.4 |
| No. 50 .315 | 324 | 62.8 | 32.2 |
| No. 100 .160 | 480 | 93.0 | 7.0 |
| No. 200 .080 | 520 | 98.8 | 1.2 |
| PAN .080 | 526 | 100.0 | — |

546 Wet

F.M. 2.303 Metric

ORGANIC _____



CONSTRUCTION AGGREGATES
LTD.
P.O. BOX 2300
VANCOUVER, B.C. V6B 3W8
TELEPHONE (604) 281-2211

TICKET NO. 1,838

DEPOT NO. 21

SHIPPING DATE

| YR | MO | DAY |
|---|---|---|
| 2001 | 1 | 30 |

ORDERED BY: E.C. TAKEN BY: R.G.

CUSTOMER: South Coast Inc.
KETCHIKAN ALASKA

SOURCE: Producers Pit
VICTORIA

TUG
Ocean Mariner

SCOW
Western Carrier

| PRODUCT CODE | DESCRIPTION OF MATERIAL | SHORT TONS SHIPPED |
|---|---|---|
| 212 | WASHED FILL SAND | 9,946 |
| 969 | ENVIRO COMPLIANCE FEE | |
| | | |
| | TOTAL | 9,946 |

Per contract requirements: 1.45 ton equals 1 cubic yard.
9,946 tons divided by 1.45 equals 6,895.31 cubic yards.

**Ticket ID:** 1,832
**Printed On:** 01/22/2001
**Page#** 1 Of 1

| | | | |
|---|---|---|---|
| Ticket Date: | 01/20/2001 | Dist/Pit/Carrier Port ID: | Producers Pit |
| Off Load Date | 01/22/2001 | | |
| Tug: | Ocean Mariner | Ordered by: | E.C. |
| Barge | Western Carrier | Taken by: | R.G. |

| | | | |
|---|---|---|---|
| Customer # : | 141219 | Quote # : | 31219 |
| Customer: | South Coast Inc. | | |
| Source: | Producers | Destination: | Ward Cove - Ketchikan |

| Product # | Product Name | Rate Type | Quantity | Minimum |
|---|---|---|---|---|
| 212 | WASHED FILL SAND | Rate Per Tonne | 9,023.00 | |
| 969 | ENVIRO COMPLIANCE FEE | Rate Per Tonne | 9,023.00 | |
| | | | 9,023.00 | |
| Grand Total Per Ticket 1,832 | | | 9,023.00 | |

FROM : J.E.McAMIS, INC. PHONE NO. : 530 891 0904 JAN. 25 2001 11:41AM P13

JAN.22.2001 1:01PM

CAL

Construction Aggregates Ltd.
P.O. Box 2200
Vancouver, B.C. V6B 3W6
Telephone 604-261-6894

SHIPMENT

NO. 38936

DEPOT 31

| TIME | SHIPPING DATE YR. | MO. | DAY |
|---|---|---|---|
| | 01 | 01 | 20 |

SOLD TO: SOUTH COAST

SHIP TO: KETCHIKAN, ALASKA

| CUSTOMER ACCOUNT NUMBER | ORDERED BY | ORDER TAKEN BY | TIME | SCOW | CUST. ORDER NO. |
|---|---|---|---|---|---|
| | E.C. | R.G. | OCEAN MARINE | WESTERN CARRIER | |

MATERIAL ORDER

| TONNES ORDERED | PRODUCT CODE | DESCRIPTION OF MATERIAL | SCALE CODE | TONNES SHIPPED | UNIT PRICE | AMOUNT |
|---|---|---|---|---|---|---|
| 9100+ | 212 | FILL SAND | | 363-7023 360-9088 | 9023 | |
| | | TORPEDO | | | | |
| | | STONE | | | | |
| | | ROAD BASE | | | | |
| | | CRUSHED | | | | |
| | 969 | ENVIRO | | | 9023 | |
| | | | | | | |
| | | TOTAL ▶ | | | 9023 | |
| | | OCEAN TOWING | | | | |
| | | | | | | |

LOAD CALCULATION

| SCOW | 1 FREEBOARD LIGHT (MILLIMETRES) | 1 FREEBOARD LOADED (MILLIMETRES) | 2 FREEBOARD LOADED (MILLIMETRES) | 3 FREEBOARD LIGHT (MILLIMETRES) | 4 FREEBOARD LOADED (MILLIMETRES) |
|---|---|---|---|---|---|
| CORNER 1 | 170 | | | | |
| CORNER 2 | 172 | | | | |
| CORNER 3 | [illegible] | | | | |
| CORNER 4 | [illegible] | | | | |
| TOTAL | | | | | |
| AVERAGE (1/4) | | | | | |
| TONNES | | | | | |
| LESS: LIGHT LOAD | | | | | |
| NET TONNES | | | | | |

COMMENTS:

SHIPPING DEPOT

CAL

Construction Aggregates Ltd.
3497 Metchosin Road
Victoria, B.C.
V9C 2B1
Telephone (250) 478-8311

February 8, 2001

RECEIVED
FEB 08 2001

Foster Wheeler Environmental Corporation
C/O Ward Cove Sediment Remediation Project
Ketchikan Pulp Corporation
Ketchikan, Alaska

Attn: John Lally and Mark Herrenkohl - 1-907-247-7559(fax)

**Re: Gradation Results from the Ward Cove Barge Loaded on February 6, 2001**
Please review the attached Fill Sand gradation results.

Test # 1. This sample was taken by Keith Aldridge from a belt cut designated to the Ward Cove Job at the 2500 ton point and that was at 11:15 a.m. The test results were calculated by Mr. Robert Bada, Quality Control Technician, Construction Aggregates Ltd. in the afternoon of February 7, 2001.

Test #2. This sample was taken by Keith Aldridge from a belt cut designated to the Ward Cove Job at the 5000 ton point and that was at 2:00 p.m. The test results were calculated by Mr. Robert Bada, Quality Control Technician, Construction Aggregates Ltd. in the afternoon of February 7, 2001.

If you have any questions on Construction Aggregates Ltd. testing procedures or if you would like to see any changes please give us a call.

Sincerely Yours,

Del McLean

Del McLean
Sales Representative

Shipment

SIEVE ANALYSIS

DATE Feb 6 '01

MATERIAL Fill Sand

SAMPLED FROM Barge to: S. Coast Inc

REMARKS 1st half

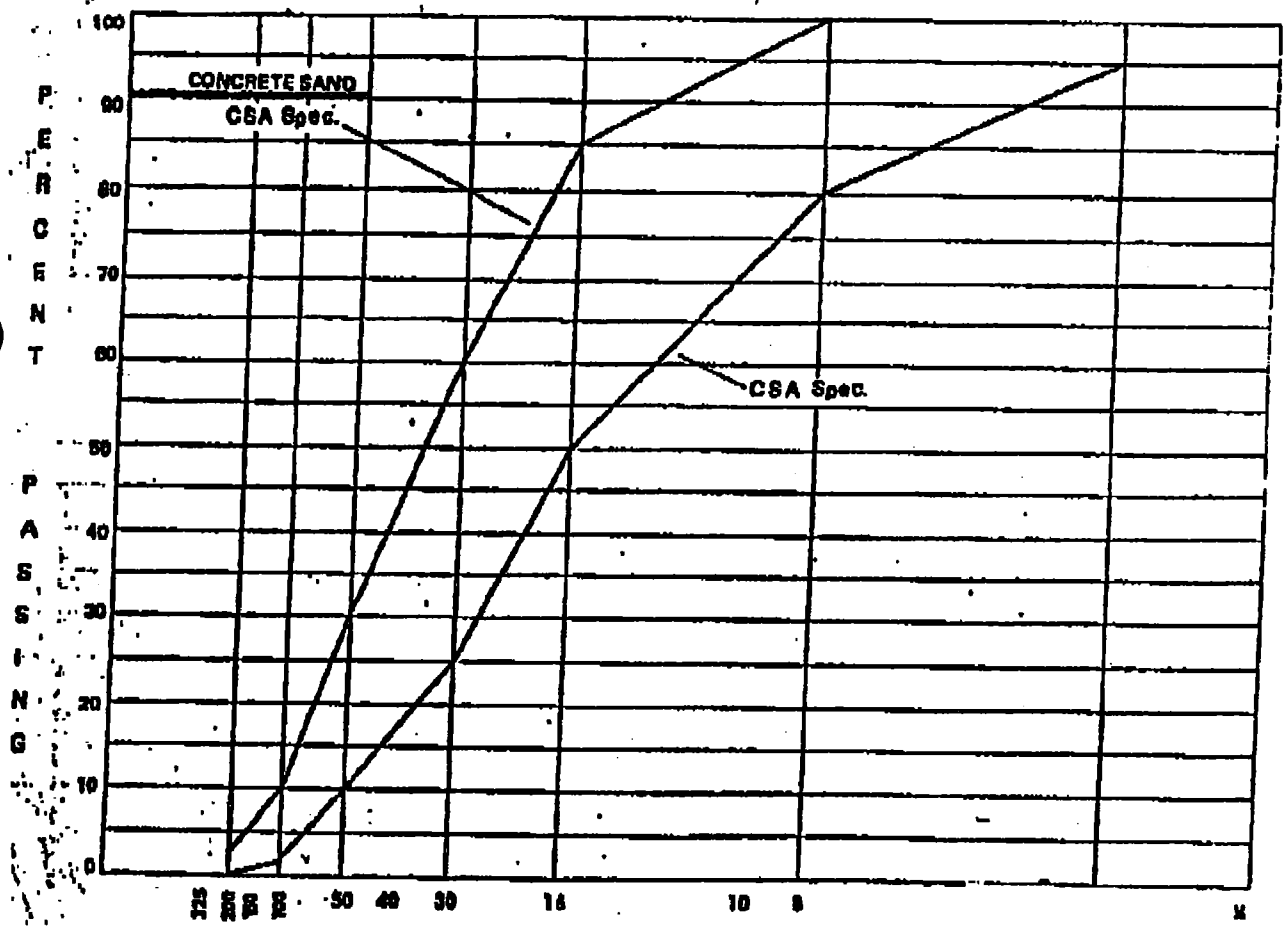
H2O = 6.9%

| SIEVE NUMBER | | CUMULATIVE GRAMS | CUMULATIVE % RETAINED | % PASSING |
|---|---|---|---|---|
| 3/8" | | | | |
| ¼" | | 1 | .2 | 99.8 |
| No. 4 | | 12 | 2.4 | 97.6 |
| No. 8 | .2500 | 54 | 10.7 | 89.3 |
| No. 16 | .1250 | 93 | 18.4 | 81.6 |
| No. 30 | .0630 | 160 | 31.6 | 68.4 |
| No. 50 | .315 | 330 | 65.2 | 34.8 |
| No. 100 | .160 | 480 | 94.9 | 5.1 |
| No. 200 | .080 | 503 | 99.4 | .6 |
| PAN | - .080 | 506 | 100.0 | — |

541 wet

F.M. 2.234 metric

ORGANIC




SIGNED

Shipment

SIEVE ANALYSIS

DATE Feb 6 '01

MATERIAL Fill Sand

SAMPLED FROM Barge G S. Coast Inc

REMARKS 2nd half

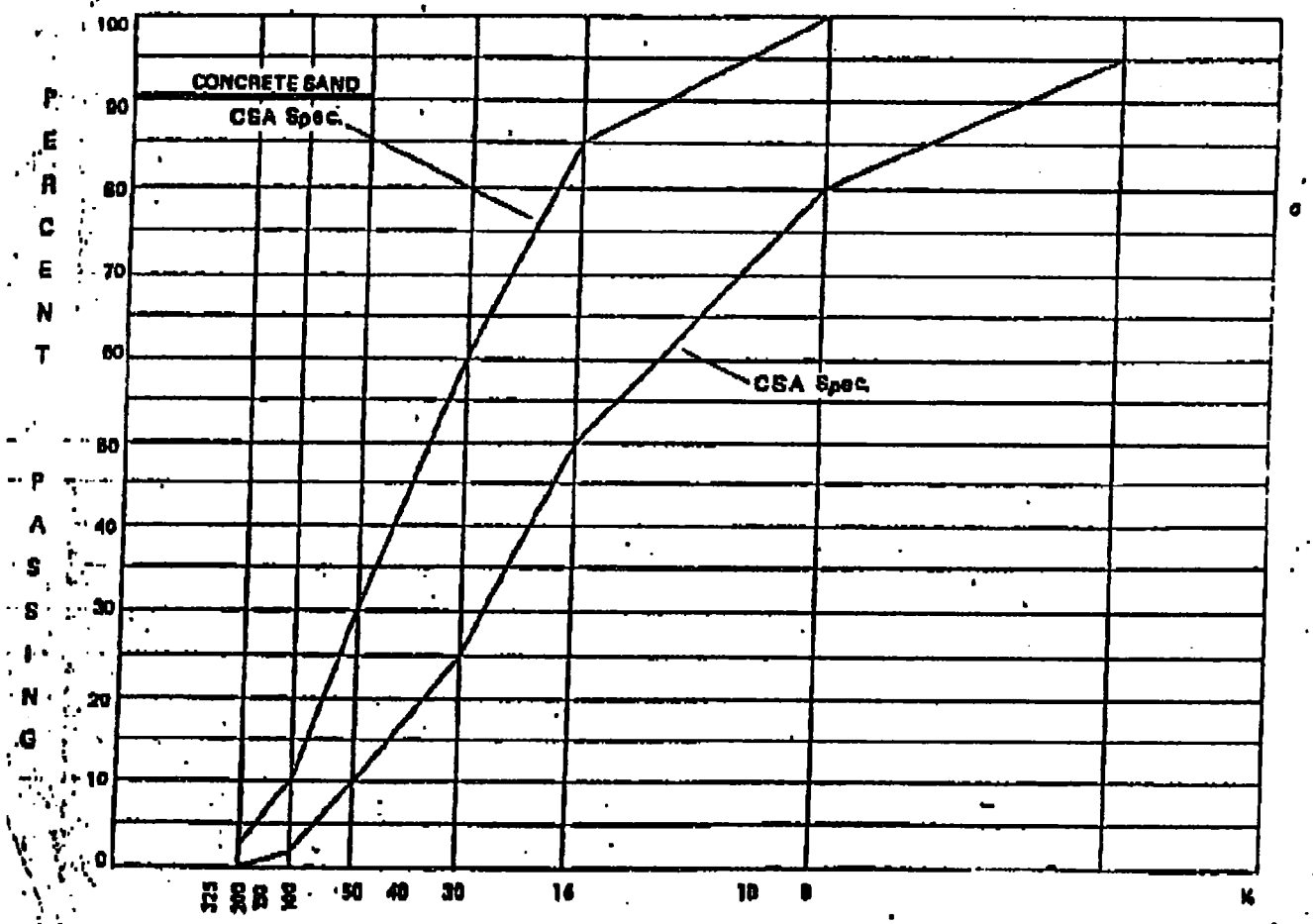
H2O = 5.5%

| SIEVE NUMBER | | CUMULATIVE GRAMS | CUMULATIVE % RETAINED | % PASSING |
|---|---|---|---|---|
| 3/8" | | | | |
| | K" | 0 | .0 | 100.0 |
| No. 4 | | 11 | 2.1 | 97.9 |
| No. 8 | .2500 | 73 | 13.9 | 86.1 |
| No. 16 | .1250 | 122 | 23.3 | 76.7 |
| No. 30 | .0590 | 193 | 36.8 | 63.2 |
| No. 50 | .0315 | 337 | 64.3 | 35.7 |
| No. 100 | .0160 | 494 | 94.3 | 5.7 |
| No. 200 | .0080 | 520 | 99.2 | .8 |
| PAN | - .0080 | 524 | 100.0 | - |

559 Wet

F.M. 2.347 Metric

ORGANIC




SIGNED

FOSTER WHEELER ENVIRONMENTAL CORPORATION

January 18, 2001
KPC/WCR-011003
File Index 2.7.3

Karen Keeley
Project Manager
EPA Region 10
1200 Sixth Avenue
Seattle, Washington 98101

**SUBJECT:** **Data Usability Summary Report – Evaluation of Replicate Sand Sample Results, Construction Aggregates, Ltd., Victoria, British Columbia**

Ref: Ward Cove Sediment Remediation Project Remedy Implementation, Ketchikan Pulp Company, Ketchikan, AK

Dear Karen:

This letter presents our evaluation of the analytical data for sand samples collected at Construction Aggregates, Ltd. (CAL) located in Victoria, British Columbia, and the use of such data in the above referenced project. A partial data validation was completed by Exponent of Lake Oswego, Oregon, and their report is attached for reference and your review. Since the receipt of Exponent's memorandum on January 15, 2001, additional quality control data have been received from the laboratory (i.e., procedural blank data for pesticides/PCBs, volatile organics, mercury, thallium, and TOC analyses) which completes all requirements of a partial data validation described in the Quality Assurance Project Plan (QAPP; FWENC, 2000).

No organic chemicals were detected in the samples and total arsenic was reported at 1 mg/kg and 2 mg/kg; these levels are far below the maximum level of 40 mg/kg previously detected in Ward Cove. All metals were below detection and/or below the Puget Sound Dredged Disposal Analysis (PSDDA) Screening Levels (USACE et al., 2000). Some data were qualified as discussed below.

***Based on the results of Exponent's data validation and our subsequent review, these data are considered usable for the Ward Cove Sediment Remediation Project.***

KETCHIKAN OFFICE, P.O. BOX 979, WARD COVE, ALASKA 99928
TEL: 907-225-7559 FAX: 907-247-7559

The laboratory is compiling a full laboratory data package (includes all raw data, chromatograms and calculation sheets) which will be kept on file at the Foster Wheeler Environmental site office, in Ketchikan, Alaska for future review, if necessary.

Sample Identification and Laboratory Instruction

Two replicate samples, designated East Side and West Side, were collected from sand stockpiles at the CAL quarry by Thurber Environmental of Victoria, British Columbia, under contract to CAL, on November 21, 2000. Samples were collected from two sides of the sand stockpile (for more details refer to letter dated December 11, 2000 to Karen Keeley). Thurber Environmental delivered the samples to CANTEST, Ltd. of Burnaby, British Columbia later the same day with instructions for analysis and turnaround time of results. There was miscommunication between Foster Wheeler project personnel and its Contractor which resulted in the laboratory receiving Section 02483 of the Contract Specifications but not the QAPP. Consequently, quality control procedures were not completely followed per the QAPP (see below and attached Exponent data validation summary). In the future, the laboratory will be given the QAPP for review and discussion with Foster Wheeler personnel before chemical analysis of samples commences.

Deviations from the QAPP

In general, the laboratory followed the analytical method and quality control procedures outlined in the Contract Specifications and the QAPP. Deviations from the QAPP are listed below.

- No laboratory duplicates (e.g., matrix spike/matrix spike duplicates) were analyzed for pesticides/PCBs or volatile organic compounds. The QAPP requires a matrix spike/matrix spike duplicate (MS/MSD) pair for every 20 samples submitted for analysis (5%) or one per batch, whichever more frequent.

- SVOCs were extracted 3 days after the recommended holding time of 14 days.

- The QAPP is contradictory on the method proposed for the analysis of pesticides and PCBs. In the text and method tables, it mentions EPA Method SW 8080, an older, less used method. This method is also stated in the Contractor Specifications. However, in Table 9-1 of the QAPP it states EPA Method SW 8082. EPA Methods SW 8081 (chlorinated pesticides) and SW 8082 (PCBs) are the preferred methods for these analyses. For future analytical work, an addendum to the QAPP will be provided to the laboratory that changes Method 8080 to Method 8081/8082.

Qualified Data

The following data were qualified as estimates based on the results of the data validation (refer to attachment).

| Sample Location | Analysis | Compound | Qualified Result | Description |
|---|---|---|---|---|
| East Side | Metals | Barium | 23 J | Blank Contamination |
| | | Copper | 26 J | Blank Contamination |
| | SVOCs | All | UJ | Outside Spike Control Limit; Holding Time Exceedance |
| West Side | Metals | Barium | 23 J | Blank Contamination |
| | | Copper | 27 J | Blank Contamination |
| | SVOCs | All | UJ | Outside Spike Control Limit; Holding Time Exceedance |

No other qualifications of the data were deemed necessary. If you have any questions or concerns, please contact me at (907) 228-2280.

Sincerely,

Mark J. Herrenkohl
Site Engineer

Attachment: Exponent Technical Memorandum presenting the quality assurance review of analytical data, January 15, 2001

cc: Barry Hogarty, Ketchikan Pulp Company
Andrew Maloy, Louisiana Pacific Corporation
John Wakeman, U.S. Army Corps of Engineers, Seattle District
Tammy Phillips, U.S. Army Corps of Engineers, Alaska District
Bill Gerken, Peratovich, Nottingham & Drage
Henry Morris, Foster Wheeler Environmental Corporation
Greg Hartman, Foster Wheeler Environmental Corporation
Site File

## REFERENCES


Exponent. 2001. Technical Memorandum: Organics, Metals, and Conventionals Data for Sediment Samples from the Ward Cove Remediation Site. Prepared for Ketchikan Pulp Company, Ketchikan, Alaska. Prepared by Exponent of Lake Oswego, Oregon. January 15, 2001.

FWENC. 2000. Quality Assurance Project Plan, Ward Cove Sediment Remediation Project, Ketchikan, Alaska. Prepared for Ketchikan Pulp Company, Ketchikan, Alaska. Prepared by Foster Wheeler Environmental Corporation, Bothell, Washington. October 2000.

Keeley. 2000. Letter. Recommendation to Use Victoria, British Columbia Sand Source. Ward Cove Sediment Remediation Project Remedy Implementation, Ketchikan, Pulp Company, Ketchikan, Alaska. Prepared by Mark Herrenkohl, representing Foster Wheeler Environmental of Bothell, Washington. Prepared for Karen Keeley, Project Manager for EPA Region 10, Seattle, Washington. December 11, 2000.

Exponent
4000 Kruse Way Place,
Building 2, Suite 285
Lake Oswego, Oregon 97035

Technical Memorandum
January 15, 2001

# Organics, Metals, and Conventionals Data for Sediment Samples from the Ward Cove Remediation Site

## Introduction

This quality assurance review discusses the results from the analyses for organochlorine pesticides and polychlorinated biphenyls (PCBs), project-specific volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs), priority pollutant metals, and conventional parameters (moisture, pH, and total organic carbon [TOC]) in solid samples. Two sediment samples, designated East Side and West Side, were collected on November 21, 2000. The samples were received by the laboratory on November 21, 2000. A modified EPA Level III data validation review was completed, which included evaluating the summaries of sample results and laboratory quality control results provided by the laboratory as an analytical report. Data assessment procedures were based on U.S. Environmental Protection Agency (EPA) national functional guidelines for evaluating organic and inorganic analyses (U.S. EPA 1994a,b) in conjunction with the quality control limits developed by the laboratory. Holding times were assessed using the referenced analytical methods (U.S. EPA 1983, 1997, 1999). Data qualifiers were assigned as necessary during the quality assurance review in accordance with U.S. EPA (1994a,b) and quality control requirements stated in the methods utilized. All analyses were performed by Cantest Ltd. of Burnaby, British Columbia. The following laboratory deliverables, where available or applicable, were reviewed during the data validation:

- Chain-of-custody documentation to verify completeness of data
- Data summary sheets to verify analytical results generated
- Initial calibration and continuing calibration verification results for metals analysis, initial calibration results for VOCs, and continuing calibration results for PCBs to assess instrument performance
- Blanks associated with each sample analysis to check for laboratory contamination.

The following items were missing for purposes of completing an EPA Level III data validation:

- Procedure blank results associated with organochlorine pesticide, PCB, VOC, mercury, thallium, and conventionals analysis
- Instrument-specific quality control procedure results for metals analysis

- Duplicate results for moisture and pH analysis to assess precision.

## Summary of Qualified Data

A total of 44 analytical results for organochlorine pesticides, 10 analytical results for PCBs, 78 analytical results for VOCs, 134 analytical results for SVOCs, 56 analytical results for metals, and 8 analytical results for conventional parameters were reported by the laboratory for the two sediment samples. Of the 330 analytical results, none was rejected and 138 were qualified during this partial data validation review. See Appendix A.

## Sample Delivery Groups

The sediment samples were analyzed for organic compounds, metals, and conventional parameters in one sample delivery group (SDG). In addition, analysis of a standard reference material (SRM 2711, Montana Soil) is documented in the analytical report. The data reviewed consisted of a facsimile of analytical and quality control summaries originally reported to Thurber Environmental Consultants Ltd. by Cantest on November 29, 2000. Subsequent facsimiles and e-mails were provided to supply additional quality control results. In addition, comments were considered made by John Wakeman of the U.S. Army Corps of Engineers, Seattle District, in a memo dated December 29, 2000.

## Data Quality Assessment

The results for quality control procedures employed for the analysis of field samples are discussed below, including holding times, methodology, and analytical accuracy (bias and precision). Data quality was assessed in terms of the referenced analytical methods, EPA requirements, and the data quality objectives (DQOs) specified in the quality assurance project plan (QAPP). DQOs for analytical accuracy were not established in the QAPP (Table 9.1). Analytical accuracy was assessed using laboratory-established control limits.

## Holding Times and Sample Preservation

Holding times were assessed using the referenced analytical methods. Calculation of holding time was based on the date sampled and the Cantest sample ID number applied to each sample analysis. Technical holding time constraints were met, with the following exception. The EPA holding time for SVOC analysis for solid samples is 14 days from date of collection to date of extraction and 40 days from date of extraction to date of analysis. The samples were extracted by Cantest 17 days after sample collection, which is 3 days past the recommended holding time. Data were not qualified based solely on this holding time exceedance because the samples were appropriately preserved

(refrigerated at 4°C) from sample collection and the holding time exceedance was not determined to have significant impact on the quality of the data.

## Analytical Methods

The analyses for organics, metals, and conventional parameters were completed based on procedures specified in the following table:

| Constituent | Method |
|---|---|
| Organochlorine pesticides | SW-846 Method 8080[a] |
| PCBs | SW-846 Method 8080[a] |
| VOCs | SW-846 Method 8260B[a] |
| SVOCs | SW-846 Method 8270C[a] |
| Total metals | SW-846 Series Methods 6000/7000[a] and laboratory SOPs |
| Percent moisture | Laboratory SOP |
| pH | Laboratory SOP |
| TOC | Laboratory SOP |

[a] U.S. EPA 1997.

All analytical methods used by the laboratory for organics, metals, and conventional parameters were consistent with those denoted in the QAPP, with the following exception. Laboratory analysis of organochlorine pesticides and PCBs were completed using SW-846 EPA method 8080. The QAPP denotes two methods for this analysis, SW-846 EPA Method 8080 and SW-846 EPA Method 8082. The methods are equivalent in nature, with Method 8082 being the most current for this analysis.

## Initial and Continuing Calibration

Initial and continuing calibration information was supplied for some analyses with the original laboratory facsimile and through subsequent e-mails and facsimiles. The following observations were made:

- Initial calibration information was supplied for organochlorine pesticide analysis. Documentation of continuing calibration verification results were not provided and no action was taken based on the initial calibration results.
- Initial and continuing calibration quantitation reports were supplied for VOC analysis. CCV recoveries for all target analytes were within 90–110 percent.

- Initial and continuing calibration verification recoveries were reported for metals. All recoveries were within the laboratory control limits.

## Blank Analyses

Blank results were not supplied for organochlorine pesticide, PCB, or conventional analyses. Trip blanks for VOCs and field blank results were not reported or documented on the chain of custody (COC) as having been collected. Laboratory blank results and procedural blank results were reported for SVOC and metals analyses, respectively. Target analytes were not detected in any blank associated with a particular analyte above the applicable method detection limit (MDL), with the following exception. Preparation blanks associated with the metals analyses exhibited detectable levels (in mg/L) of barium and copper. Since the results for the preparation blanks indicate possible baseline fluctuation in the instrument or some low-level laboratory contamination, the four detected results for barium and copper in the two sediment samples were qualified as estimated (*J* qualifier applied to results shown in Appendix A).

## Accuracy

The accuracy of the analytical results is evaluated in the following sections in terms of analytical bias (e.g., surrogate compound, spike recoveries) and precision (e.g., duplicate sample analyses). Not all quality control analyses are required for all referenced analyses.

## Surrogate Compound Recoveries

Surrogate analyses are not required for organochlorine pesticide analyses by EPA Method 8080. Surrogate recoveries were reported by the laboratory for surrogate compounds added to all samples analyzed for PCBs, VOCs, and SVOCs. Surrogates are not applicable to metals or conventional parameter analyses. All recoveries for the VOC and SVOC surrogates were within the laboratory control limits. Laboratory control limits for surrogate recoveries were not supplied for the PCB analyses. The recoveries for surrogates associated with PCB analysis were within 85–115 percent, which was considered acceptable during validation.

## Spike Recoveries

The analytical report provided batch laboratory fortified blank spike results for PCBs, VOCs, SVOCs, and metals. The recoveries reported by the laboratory for spike analyses met the laboratory's reported criteria for acceptable performance for PCBs, VOCs, and metals for solid matrix samples. The laboratory has not established control limits for SVOC spike recoveries. EPA recommends 70–130 percent as interim acceptance criteria



Ex

for recoveries of spiked analytes (U.S. EPA 1997). For the SVOC spike analysis, two out of three phenolic and two out of six base-neutral spike recoveries were below 50 percent. Because two spike recoveries from either SVOC fraction (acidic or base-neutral) were below the lower control limits, undetected sample results for that fraction were qualified as estimated (*J* qualifier applied to results shown in Appendix A). All SVOC results for the two sediment samples were qualifed as estimated based on these spike recovery results.

## Precision

The results reported by the laboratory for laboratory duplicate analyses (SVOCs, metals, and TOC) met the laboratory's criteria for acceptable performance. No laboratory control spike or matrix spike duplicates were analyzed for organochlorine pesticides, PCBs, or VOCs. No action was taken in validation based solely on duplicate analysis results.

## References

U.S. EPA. 1994a. Laboratory data validation: functional guidelines for evaluating organics analysis. Prepared by U.S. Environmental Protection Agency Work Group for the U.S. Environmental Protection Agency, Hazardous Site Evaluation Division, Washington, DC.

U.S. EPA. 1994b. Laboratory data validation: functional guidelines for evaluating inorganics analysis. Prepared by U.S. Environmental Protection Agency Work Group for the U.S. Environmental Protection Agency, Hazardous Site Evaluation Division, Washington, DC.

U.S. EPA. 1997. Test methods for evaluating solid waste—physical/chemical methods, SW-846. Version 2.0 CD-ROM. U.S. Environmental Protection Agency, Washington, DC.

## Appendix A

Client: Thurber Environmental Consultants Ltd.
Download Date: 12/29/00
Project Name:
Project Number: 19-717-20
Samples received: 11/22/00

**TABLE: Results of SOIL Analyses**

| Sample ID | | E. Side | W. Side | Lab Blank | E. Side duplicate | BNA Spike |
|---|---|---|---|---|---|---|
| CANTEST ID | | 12050516 | 12050518 | 12050600 | 12050601 | 12050602 |
| Date Sampled | | 11/21/00 | 11/21/00 | 11/21/00 | 11/21/00 | 11/21/00 |
| Parameter | Units | | | | | |
| **Conventional Parameters** | | | | | | |
| Moisture | % | 2.5 | 1.2 | - | - | - |
| **Acid Extractables** | | | | | | |
| Phenol | ug/g | < 0.07 J | < 0.07 J | < 0.07 | < 0.07 | 49% |
| 2-Chlorophenol | ug/g | < 0.07J | < 0.07J | < 0.07 | < 0.07 | 49% |
| 2-Methylphenol | ug/g | < 0.2 J | < 0.2 J | < 0.2 | < 0.2 | - |
| 4-Methylphenol | ug/g | < 0.3 J | < 0.3 J | < 0.3 | < 0.3 | - |
| 2-Nitrophenol | ug/g | < 0.2 J | < 0.2 J | < 0.2 | < 0.2 | - |
| 2,4-Dimethylphenol | ug/g | < 0.2 J | < 0.2 J | < 0.2 | < 0.2 | - |
| 2,4-Dichlorophenol | ug/g | < 0.07 J | < 0.07 J | < 0.07 | < 0.07 | - |
| 4-Chloro-3-methylphenol | ug/g | < 0.1 J | < 0.1 J | < 0.1 | < 0.1 | 79% |
| 2,4,6-Trichlorophenol | ug/g | < 0.1 J | < 0.1 J | < 0.1 | < 0.1 | - |
| 2,4,5-Trichlorophenol | ug/g | < 0.07 J | < 0.07 J | < 0.07 | < 0.07 | - |
| 2,4-Dinitrophenol | ug/g | < 1 J | < 1 J | < 1 | < 1 | - |
| 4-Nitrophenol | ug/g | < 0.2 J | < 0.2 J | < 0.2 | < 0.2 | - |
| 4,6-Dinitro-2-methylphenol | ug/g | < 1 J | < 1 J | < 1 | < 1 | - |
| Pentachlorophenol | ug/g | < 0.2 J | < 0.2 J | < 0.2 | < 0.2 | - |
| **Base-Neutral Extractables** | | | | | | |
| Aniline | ug/g | < 1 J | < 1 J | < 1 | < 1 | - |
| Bis(2-chloroethyl)ether | ug/g | < 0.06 J | < 0.06 J | < 0.06 | < 0.06 | - |
| 1,3-Dichlorobenzene | ug/g | < 0.09 J | < 0.09 J | < 0.09 | < 0.09 | - |
| 1,4-Dichlorobenzene | ug/g | < 0.09 J | < 0.09 J | < 0.09 | < 0.09 | 47% |
| 1,2-Dichlorobenzene | ug/g | < 0.08 J | < 0.08 J | < 0.08 | < 0.08 | - |
| Benzyl Alcohol | ug/g | < 0.3 J | < 0.3 J | < 0.3 | < 0.3 | - |
| Bis(2-chloroisopropyl)ether | ug/g | < 0.05 J | < 0.05 J | < 0.05 | < 0.05 | - |
| Hexachloroethane | ug/g | < 0.05 J | < 0.05 J | < 0.05 | < 0.05 | - |
| N-nitroso-di-n-propylamine | ug/g | < 0.8 J | < 0.8 J | < 0.8 | < 0.8 | 49% |
| Nitrobenzene | ug/g | < 0.09 J | < 0.09 J | < 0.09 | < 0.09 | - |
| Isophorone | ug/g | < 0.1 J | < 0.1 J | < 0.1 | < 0.1 | - |
| Bis(2-chloroethoxy)methane | ug/g | < 0.06 J | < 0.06 J | < 0.06 | < 0.06 | - |
| 1,2,4-Trichlorobenzene | ug/g | < 0.05 J | < 0.05 J | < 0.05 | < 0.05 | 72% |
| Naphthalene | ug/g | < 0.06 J | < 0.06 J | < 0.06 | < 0.06 | - |
| 4-Chloroaniline | ug/g | < 0.5 J | < 0.5 J | < 0.5 | < 0.5 | - |
| Hexachlorobutadiene | ug/g | < 0.2 J | < 0.2 J | < 0.2 | < 0.2 | - |
| 2-Methylnaphthalene | ug/g | < 0.3 J | < 0.3 J | < 0.3 | < 0.3 | - |
| Hexachlorocyclopentadiene | ug/g | < 1 J | < 1 J | < 1 | < 1 | - |
| 2-Chloronaphthalene | ug/g | < 0.07 J | < 0.07 J | < 0.07 | < 0.07 | - |
| 2-Nitroaniline | ug/g | < 0.4 J | < 0.4 J | < 0.4 | < 0.4 | - |
| Acenaphthylene | ug/g | < 0.07 J | < 0.07 J | < 0.07 | < 0.07 | - |
| Dimethylphthalate | ug/g | < 0.06 J | < 0.06 J | < 0.06 | < 0.06 | - |

## Appendix A

Client: Thurber Environmental Consultants Ltd.
Download Date: 12/29/00
Project Name:
Project Number: 19-717-20
Samples received: 11/22/00

**TABLE: Results of SOIL Analyses**

| Sample ID | | E. Side | W. Side | Lab Blank | E. Side duplicate | BNA Spike |
|---|---|---|---|---|---|---|
| CANTEST ID | | 12050516 | 12050518 | 12050600 | 12050601 | 12050602 |
| Date Sampled | | 11/21/00 | 11/21/00 | 11/21/00 | 11/21/00 | 11/21/00 |
| Parameter | Units | | | | | |
| 2,6-Dinitrotoluene | ug/g | < 0.2 J | < 0.2 J | < 0.2 | < 0.2 | - |
| 3-Nitroaniline | ug/g | < 0.3 J | < 0.3 J | < 0.3 | < 0.3 | - |
| Acenaphthene | ug/g | < 0.04 J | < 0.04 J | < 0.04 | < 0.04 | 80% |
| Dibenzofuran | ug/g | < 0.2 J | < 0.2 J | < 0.2 | < 0.2 | - |
| 2,4-Dinitrotoluene | ug/g | < 0.07 J | < 0.07 J | < 0.07 | < 0.07 | 75% |
| Fluorene | ug/g | < 0.04 J | < 0.04 J | < 0.04 | < 0.04 | - |
| Diethylphthalate | ug/g | < 0.03 J | < 0.03 J | < 0.03 | < 0.03 | - |
| 4-Chlorophenyl phenyl ether | ug/g | < 0.04 J | < 0.04 J | < 0.04 | < 0.04 | - |
| 4-Nitroaniline | ug/g | < 0.4 J | < 0.4 J | < 0.4 | < 0.4 | - |
| N-nitrosodiphenylamine | ug/g | < 0.03 J | < 0.03 J | < 0.03 | < 0.03 | - |
| Azobenzene | ug/g | < 0.06 J | < 0.06 J | < 0.06 | < 0.06 | - |
| 4-Bromophenyl-phenylether | ug/g | < 0.03 J | < 0.03 J | < 0.03 | < 0.03 | - |
| Hexachlorobenzene | ug/g | < 0.04 J | < 0.04 J | < 0.04 | < 0.04 | - |
| Phenanthrene | ug/g | < 0.03 J | < 0.03 J | < 0.03 | < 0.03 | - |
| Anthracene | ug/g | < 0.02 J | < 0.02 J | < 0.02 | < 0.02 | - |
| Di-n-butylphthalate | ug/g | < 3 J | < 3 J | < 3 | < 3 | - |
| Fluoranthene | ug/g | < 0.03 J | < 0.03 J | < 0.03 | < 0.03 | - |
| Acridine | ug/g | < 0.03 J | < 0.03 J | < 0.03 | < 0.03 | - |
| Pyrene | ug/g | < 0.02 J | < 0.02 J | < 0.02 | < 0.02 | 102% |
| Butylbenzylphthalate | ug/g | < 0.9 J | < 0.9 J | < 0.9 | < 0.9 | - |
| Benzo(a)anthracene | ug/g | < 0.03 J | < 0.03 J | < 0.03 | < 0.03 | - |
| Chrysene | ug/g | < 0.04 J | < 0.04 J | < 0.04 | < 0.04 | - |
| 3,3'-Dichlorobenzidine | ug/g | < 0.3 J | < 0.3 J | < 0.3 | < 0.3 | - |
| Bis(2-ethylhexyl)phthalate | ug/g | < 0.8 J | < 0.8 J | < 0.8 | < 0.8 | - |
| Di-n-octylphthalate | ug/g | < 0.08 J | < 0.08 J | < 0.08 | < 0.08 | - |
| Benzo(b)fluoranthene | ug/g | < 0.06 J | < 0.06 J | < 0.06 | < 0.06 | - |
| Benzo(k)fluoranthene | ug/g | < 0.05 J | < 0.05 J | < 0.05 | < 0.05 | - |
| Benzo(a)pyrene | ug/g | < 0.05 J | < 0.05 J | < 0.05 | < 0.05 | - |
| Indeno(123-cd)pyrene | ug/g | < 0.05 J | < 0.05 J | < 0.05 | < 0.05 | - |
| Dibenzo(a,h)anthracene | ug/g | < 0.03 J | < 0.03 J | < 0.03 | < 0.03 | - |
| Benzo(ghi)perylene | ug/g | < 0.05 J | < 0.05 J | < 0.05 | < 0.05 | - |

## Appendix A

| | |
|---|---|
| Client: | Thurber Environmental Consultants Ltd. |
| Download Date: | 12/29/00 |
| Project Name: | |
| Project Number: | 19-717-20 |
| Samples received: | 11/22/00 |

**TABLE: Results of SOIL Analyses**

| Sample ID | | E.Side | W.Side |
|---|---|---|---|
| CANTEST ID | | 11220113 | 11220114 |
| Date Sampled | | 11/21/00 | 11/21/00 |
| Parameter | Units | | |
| **Conventional Parameters** | | | |
| Moisture | % | 4.7 | 3.4 |
| Total Organic Carbon C | % dry wt. | 0.16 | 0.1 |
| pH | pH units | 7.1 | 7.3 |
| **Volatile Organic Compounds** | | | |
| Benzene | ug/g | < 0.01 | < 0.01 |
| Bromodichloromethane | ug/g | < 0.01 | < 0.01 |
| Bromoform | ug/g | < 0.01 | < 0.01 |
| Bromomethane | ug/g | < 0.04 | < 0.04 |
| 2-Butanone | ug/g | < 0.5 | < 0.5 |
| Carbon Tetrachloride | ug/g | < 0.01 | < 0.01 |
| Chlorobenzene | ug/g | < 0.01 | < 0.01 |
| Chloroethane | ug/g | < 0.02 | < 0.02 |
| Chloroform | ug/g | < 0.01 | < 0.01 |
| Chloromethane | ug/g | < 0.04 | < 0.04 |
| Dibromochloromethane | ug/g | < 0.01 | < 0.01 |
| 1,2-Dibromoethane | ug/g | < 0.01 | < 0.01 |
| Dibromomethane | ug/g | < 0.01 | < 0.01 |
| 1,2-Dichlorobenzene | ug/g | < 0.01 | < 0.01 |
| 1,3-Dichlorobenzene | ug/g | < 0.01 | < 0.01 |
| 1,4-Dichlorobenzene | ug/g | < 0.01 | < 0.01 |
| Dichlorodifluoromethane | ug/g | < 0.02 | < 0.02 |
| 1,1-Dichloroethane | ug/g | < 0.01 | < 0.01 |
| 1,2-Dichloroethane | ug/g | < 0.02 | < 0.02 |
| 1,1-Dichloroethene | ug/g | < 0.01 | < 0.01 |
| cis-1,2-Dichloroethene | ug/g | < 0.01 | < 0.01 |
| trans-1,2-Dichloroethene | ug/g | < 0.01 | < 0.01 |
| 1,2-Dichloropropane | ug/g | < 0.01 | < 0.01 |
| cis-1,3-Dichloropropene | ug/g | < 0.01 | < 0.01 |
| trans-1,3-Dichloropropene | ug/g | < 0.01 | < 0.01 |
| Ethylbenzene | ug/g | < 0.01 | < 0.01 |
| 2-Hexanone | ug/g | < 0.5 | < 0.5 |
| 4-Methyl-2-pentanone | ug/g | < 0.2 | < 0.2 |
| Methylene Chloride | ug/g | < 0.3 | < 0.3 |
| Styrene | ug/g | < 0.01 | < 0.01 |
| 1,1,2,2-Tetrachloroethane | ug/g | < 0.01 | < 0.01 |
| Tetrachloroethene | ug/g | < 0.01 | < 0.01 |
| Toluene | ug/g | < 0.01 | < 0.01 |
| 1,1,1-Trichloroethane | ug/g | < 0.01 | < 0.01 |
| 1,1,2-Trichloroethane | ug/g | < 0.01 | < 0.01 |

## Appendix A

| | |
|---|---|
| Client: | Thurber Environmental Consultants Ltd. |
| Download Date: | 12/29/00 |
| Project Name: | |
| Project Number: | 19-717-20 |
| Samples received: | 11/22/00 |

**TABLE: Results of SOIL Analyses**

| Sample ID | | E.Side | W.Side |
|---|---|---|---|
| CANTEST ID | | 11220113 | 11220114 |
| Date Sampled | | 11/21/00 | 11/21/00 |
| Parameter | Units | | |
| Trichloroethene | ug/g | < 0.01 | < 0.01 |
| Trichlorofluoromethane | ug/g | < 0.01 | < 0.01 |
| Vinyl Chloride | ug/g | < 0.02 | < 0.02 |
| Xylenes | ug/g | < 0.01 | < 0.01 |
| **Polychlorinated Biphenyls** | | | |
| Arochlor 1242 | ug/g | < 0.03 | < 0.03 |
| Arochlor 1248 | ug/g | < 0.03 | < 0.03 |
| Arochlor 1254 | ug/g | < 0.03 | < 0.03 |
| Arochlor 1260 | ug/g | < 0.03 | < 0.03 |
| Total PCB | ug/g | < 0.03 | < 0.03 |
| **Metals Analysis** | | | |
| Antimony Sb | ug/g | < 10 | < 10 |
| Arsenic As | ug/g | 2 | 1 |
| Barium Ba | ug/g | 23 J | 23 J |
| Beryllium Be | ug/g | < 1 | < 1 |
| Cadmium Cd | ug/g | < 0.2 | < 0.2 |
| Chromium Cr | ug/g | 23 | 25 |
| Cobalt Co | ug/g | 9 | 9 |
| Copper Cu | ug/g | 26 J | 27 J |
| Lead Pb | ug/g | < 30 | < 30 |
| Mercury Hg | ug/g | 0.013 | 0.021 |
| Molybdenum Mo | ug/g | < 4 | < 4 |
| Nickel Ni | ug/g | 14 | 15 |
| Selenium Se | ug/g | < 0.2 | < 0.2 |
| Silver Ag | ug/g | < 2 | < 2 |
| Thallium Tl | ug/g | < 0.1 | < 0.1 |
| Tin Sn | ug/g | < 5 | < 5 |
| Vanadium V | ug/g | 41 | 41 |
| Zinc Zn | ug/g | 25 | 24 |
| Aluminum Al | ug/g | 8870 | 8650 |
| Boron B | ug/g | 3 | 3 |
| Calcium Ca | ug/g | 4130 | 4060 |
| Iron Fe | ug/g | 18000 | 17600 |
| Magnesium Mg | ug/g | 5410 | 5300 |
| Manganese Mn | ug/g | 271 | 246 |
| Phosphorus PO4 | ug/g | 1000 | 1020 |
| Sodium Na | ug/g | 135 | 134 |
| Strontium Sr | ug/g | 15 | 14 |
| Titanium Ti | ug/g | 462 | 533 |

## Appendix A

| | |
|---|---|
| Client: | Thurber Environmental Consultants Ltd. |
| Download Date: | 12/29/00 |
| Project Name: | |
| Project Number: | 19-717-20 |
| Samples received: | 11/22/00 |

**TABLE: Results of SOIL Analyses**

| Sample ID | | E.Side | W.Side |
|---|---|---|---|
| CANTEST ID | | 11220113 | 11220114 |
| Date Sampled | | 11/21/00 | 11/21/00 |
| Parameter | Units | | |
| **Organochlorine Pesticides** | | | |
| Aldrin | ug/g | < 0.001 | < 0.001 |
| alpha-BHC | ug/g | < 0.001 | < 0.001 |
| beta-BHC | ug/g | < 0.001 | < 0.001 |
| delta-BHC | ug/g | < 0.001 | < 0.001 |
| gamma-BHC (Lindane) | ug/g | < 0.001 | < 0.001 |
| alpha-Chlordane | ug/g | < 0.005 | < 0.005 |
| gamma-Chlordane | ug/g | < 0.005 | < 0.005 |
| p,p-DDD | ug/g | < 0.005 | < 0.005 |
| o,p-DDE | ug/g | < 0.003 | < 0.003 |
| p,p-DDE | ug/g | < 0.003 | < 0.003 |
| o,p-DDT | ug/g | < 0.003 | < 0.003 |
| p,p-DDT | ug/g | < 0.003 | < 0.003 |
| Dieldrin | ug/g | < 0.003 | < 0.003 |
| Endosulfan I | ug/g | < 0.01 | < 0.01 |
| Endosulfan II | ug/g | < 0.01 | < 0.01 |
| Endosulfan Sulphate | ug/g | < 0.01 | < 0.01 |
| Endrin | ug/g | < 0.01 | < 0.01 |
| Endrin Aldehyde | ug/g | < 0.01 | < 0.01 |
| Heptachlor | ug/g | < 0.001 | < 0.001 |
| Heptachlor Expoxide | ug/g | < 0.001 | < 0.001 |
| Methoxychlor | ug/g | < 0.01 | < 0.01 |
| Toxaphene | ug/g | < 0.3 | < 0.3 |

**Ketchikan Pulp Company**

Post Office Box 6600
Ketchikan, Alaska 99901
U.S.A.

March 1, 2001

Via Fax at 247-0272
and Mail

Mr. Bob Sivertsen
Solid Waste Facility, Public Works Department
City of Ketchikan
1103 Nordstrom Dr.
Ketchikan, AK 99901

Dear Mr. Sivertsen:

Re: Disposal of Hogged Logs Pulled from Ward Cove

Ketchikan Pulp Company (KPC) requests permission to dispose of 500 to 600 cubic yards of wood material at the City of Ketchikan Solid Waste Facility. Logs were pulled from the bottom of Ward Cove during the sediment remediation project, which began in November, 2000, and was recently completed. The logs were ground into small pieces using a tub grinder. This material is a non-hazardous waste, based on past analytical work done on logs pulled from Ward Cove.

This material is the same type of material as was disposed of at your facility in April, 1998, after KPC performed a pilot study on log removal.

Although this material is benign, KPC requests that it be disposed in the landfill, rather than being used in composting operations, due to probable regulatory and community opposition. KPC has already gained approval from EPA to dispose of the material in a permitted landfill.

If you have any questions, please contact me at (907) 228-2187.

Sincerely,

Barry J. Hogarty
Environmental Manager

RJB:jlm

Attachments

cc: Karen Keeley, EPA
R. J. Blankenburg

South Coast Inc.

Fax (907) 225-2955
Phone (907) 228-6820
Post Office Box 8620
4049 Tongass Avenue
Ketchikan, Alaska 99901

# FAX MESSAGE

DATE: 4/4/01

PLEASE HAND DELIVER THE FOLLOWING MESSAGE TO:

NAME: John

FROM: Eric Collins

Total Number of Pages (Including Cover Page): 3

John, 2 page report from the Ketchikan land fill for the wood chip fill material trucked on March 5th, In regards to the Lima Crane Allyn Hayes gave the OK to leave it in the Cove. he is to busy to put it to print but you are welcome to give him a call. Allyn has check the box John it will be OK.

Regards
Eric

Date 03/05/01
Time 04:10:21 PM

CITY OF KETCHIKAN, ALASKA



# Material Analysis Report by Material

For the period 03/05/2001 - 03/05/2001
Detailed Report for sites 02 - 02

Accounts 342707 - 342707 Customer Types - z Materials - ZZZZZZZZZZ Material Types - z

| Date | Material | Type | Customer | Type | Tickets |
|---|---|---|---|---|---|
| 03/05/01 | FILL C | T | 342707 | | 02-113362 |
| 03/05/01 | FILL C | T | 342707 | | 02-113364 |
| 03/05/01 | FILL C | T | 342707 | | 02-113366 |
| 03/05/01 | FILL C | T | 342707 | | 02-113372 |
| 03/05/01 | FILL C | T | 342707 | | 02-113373 |
| 03/05/01 | FILL C | T | 342707 | | 02-113375 |
| 03/05/01 | FILL C | T | 342707 | | 02-113376 |
| 03/05/01 | FILL C | T | 342707 | | 02-113378 |
| 03/05/01 | FILL C | T | 342707 | | 02-113381 |
| 03/05/01 | FILL C | T | 342707 | | 02-113384 |
| 03/05/01 | FILL C | T | 342707 | | 02-113385 |
| 03/05/01 | FILL C | T | 342707 | | 02-113386 |
| 03/05/01 | FILL C | T | 342707 | | 02-113389 |
| 03/05/01 | FILL C | T | 342707 | | 02-113391 |
| 03/05/01 | FILL C | T | 342707 | | 02-113394 |
| 03/05/01 | FILL C | T | 342707 | | 02-113399 |
| 03/05/01 | FILL C | T | 342707 | | 02-113400 |
| 03/05/01 | FILL C | T | 342707 | | 02-113401 |
| 03/05/01 | FILL C | T | 342707 | | 02-113402 |
| 03/05/01 | FILL C | T | 342707 | | 02-113404 |
| 03/05/01 | FILL C | T | 342707 | | 02-113409 |
| 03/05/01 | FILL C | T | 342707 | | 02-113415 |
| 03/05/01 | FILL C | T | 342707 | | 02-113416 |
| 03/05/01 | FILL C | T | 342707 | | 02-113417 |
| | Total | | | | 59 |
| | Average | | | | |
| | Report Total | | | | 61 |
| | Report Average | | | | |

Date 03/05/01
Time 04:10:21 PM

CITY OF KETCHIKAN, ALASKA

Page 1

# Material Analysis Report by Material

For the period 03/05/2001 - 03/05/2001
Detailed Report for sites 02 - 02
Accounts 342707 - 342707 Customer Types - z Materials - ZZZZZZZZZZ Material Types - z

| Date | Material | Type | Customer | Type | Tickets | Count | Est. vol. | Act. Vol. | Est. Wt. | Actual Wt. | Charge |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 03/05/01 | CONST C | T | 342707 | | 02-113261 | | | | | | |
| 03/05/01 | CONST C | T | 342707 | | 02-113337 | | | | | | |
| | Total | | | | 2 | | | | | | |
| | Average | | | | | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113262 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113263 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113264 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113266 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113267 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113272 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113273 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113275 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113276 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113279 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113288 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113289 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113290 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113291 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113292 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113293 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113303 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113305 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113309 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113311 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113313 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113314 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113321 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113322 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113327 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113331 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113333 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113341 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113342 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113346 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113350 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113352 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113359 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113360 | | | | | | |
| 03/05/01 | FILL C | T | 342707 | | 02-113361 | | | | | | |

# H1: KETCHIKAN HISTORICAL CLIMATE DATA

**FIGURE H1-1: MONTHLY CLIMATE SUMMARY FROM 9/1/1949 TO 7/31/2000**

**FIGURE H2-2: MONTHLY TOTAL PRECIPITATION (INCHES) FROM 9/1/1949 TO 3/2/2001**

**FIGURE H2-3: MONTHLY AVERAGE TEMPERATURE (F) FROM 9/1/1949 TO 3/2/2001**

**FIGURE H2-4: MONTHLY AVERAGE MAXIMUM TEMPERATURE (F) FROM 9/1/1949 TO 3/2/2001**

**FIGURE H2-5: MONTHLY AVERAGE MINIMUM TEMPERATURE (F) FROM 9/1/1949 TO 3/2/2001**

**FIGURE H1-1. MONTHLY CLIMATE SUMMARY FROM 9/1/1949 TO 7/31/2000**

**DATA OBTAINED FROM WESTERN REGION CLIMATE CENTER**
**KETCHIKAN, ALASKA (WEATHER STATION 504590)**

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Max. Temperature (F) | 38.8 | 42.2 | 44.5 | 50.3 | 56.7 | 61.6 | 65.3 | 65.4 | 60.4 | 52 | 44.9 | 40.8 | 51.9 |
| Average Min. Temperature (F) | 27.9 | 31.4 | 32.5 | 36.2 | 41.5 | 47.1 | 51 | 51.6 | 47.2 | 40.9 | 34.6 | 31.1 | 39.4 |
| Average Total Precipitation (in.) | 12.76 | 13.02 | 10.74 | 11.29 | 9.24 | 7.38 | 7.12 | 10.55 | 13.73 | 22.43 | 16.92 | 15.47 | 150.67 |
| Average Total SnowFall (in.) | 13.3 | 8.9 | 3.4 | 0.3 | 0.1 | 0 | 0 | 0 | 0 | 0.1 | 2.3 | 8.6 | 36.9 |
| Average Snow Depth (in.) | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

Percent of possible observations for period of record.
Max. Temp.: 87.3% Min. Temp.: 87.3% Precipitation: 87.6% Snowfall: 66.9% Snow Depth: 61.8%
Check Station Metadata or Metadata graphics for more detail about data completeness.

# H2: CLIMATE DATA FROM KPC DURING PROJECT

**FIGURE H2-2. MONTHLY TOTAL PRECIPITATION (INCHES) FROM 9/1/1949 TO 3/2/2001**

**DATA OBTAINED FROM WESTERN REGION CLIMATE CENTER**
**KETCHIKAN, ALASKA (WEATHER STATION 504590)**

File last updated on Mar 2, 2001
*** Note *** Provisional Data *** After Year/Month 200009
a = 1 day missing, b = 2 days missing, c = 3 days, ..etc..,
z = 26 or more days missing, A = Accumulations present
Long-term means based on columns; thus, the monthly row may not
sum (or average) to the long-term annual value.
MAXIMUM ALLOWABLE NUMBER OF MISSING DAYS : 5
Individual Months not used for annual or monthly statistics if more than 5 days are missing.
Individual Years not used for annual statistics if any month in that year has more than 5 days missing.

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1949 | 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 28.1 | 22.5 | g 21.4 | a 6.56 | 56.04 |
| 1950 | 1.65 | 16.6 | 10.2 | 15.4 | 9.96 | c 3.51 | 17 | 16.7 | 20.6 | 15.3 | 12.7 | 14.3 | f 139.5 |
| 1951 | 15 | 12.3 | 17.2 | 12.4 | 7.28 | 12.9 | 5.82 | 7.86 | 7.65 | 17.7 | 12.9 | 13.5 | 142.5 |
| 1952 | 10.4 | g 11.9 | a 13.3 | 18.3 | 7.78 | 9.56 | 8.47 | 12.4 | 22.5 | 18.1 | 13.5 | 13.6 | 149.3 |
| 1953 | 10.3 | 22.1 | 19 | 13.5 | 12.7 | 3.7 | 8.82 | 7.73 | 19 | c 26.5 | d 21.4 | 24.2 | 189 |
| 1954 | 11.1 | 25.6 | 6.05 | 11.3 | 5.15 | i 8.52 | 7.01 | 0.9 | 11 | 27.3 | 20.2 | 25.6 | 154.6 |
| 1955 | 19.3 | 13.5 | 8.85 | e 12 | 11.9 | c 9.18 | 2.68 | 20.8 | 12.7 | 26.8 | 12.3 | 4.94 | 155 |
| 1956 | 5.34 | 10.3 | 10.9 | 14 | 13.8 | 11.6 | 4.62 | 25.3 | 6.56 | 21.2 | c 22.8 | 23.2 | 169.5 |
| 1957 | 2.92 | 8.38 | 7.96 | 11.5 | 7.46 | 6.99 | 8 | 7.75 | 8.62 | 14.8 | 22 | 16.5 | 123 |
| 1958 | 20 | 9.66 | 3.94 | 13.1 | 13.2 | 0.99 | 4.43 | 20.8 | 13.7 | 31.5 | 16.3 | 15.3 | 162.8 |
| 1959 | 10.8 | 10.7 | 20.1 | 9.7 | 6.92 | 6 | 9.88 | 11.7 | 13.6 | 25.8 | 22.8 | 30.6 | 178.6 |
| 1960 | 15.2 | 0 | z 9.01 | b 15.7 | 7.22 | 7.97 | 15.3 | 6.48 | 12.5 | 35.6 | 14.9 | 20.9 | 160.7 |
| 1961 | 15.1 | 19.8 | 11.4 | 11.6 | 6.55 | 7.87 | 4.92 | a 17.1 | 10.4 | 34.6 | 16.7 | 18.5 | 174.6 |
| 1962 | 31.3 | 1.11 | 12 | 17.3 | 4.43 | 10.8 | 4.53 | 9 | 16.6 | 18.9 | 20.2 | 23.5 | 169.6 |
| 1963 | 15.8 | 21 | 6.34 | 10.9 | 6.83 | 13.1 | 6.69 | 0.95 | 27 | 27 | 15.6 | 18.4 | 169.6 |
| 1964 | 16.7 | d 18.2 | 9.78 | 9.65 | 6.56 | 5.37 | 11 | 19.5 | 11.2 | 31.1 | 16.7 | 9.53 | 165.3 |
| 1965 | 18.5 | 20.2 | 4.85 | 9.19 | 5.92 | b 5.63 | 2.39 | 5.51 | 1.77 | 26.5 | 10.8 | 16.1 | 127.3 |
| 1966 | 17.6 | 12.1 | 21.7 | 4.63 | 21 | 5.46 | 3.8 | 11.2 | 19.5 | 22.7 | 10.1 | 14.4 | 164.3 |
| 1967 | 13.7 | 23.7 | 2.75 | 4.51 | 11.4 | 5.32 | 17.6 | 21.3 | 22 | 23.3 | 9.21 | 16.5 | 171.3 |
| 1968 | 17.1 | 11.6 | 14.5 | 22.5 | 3.45 | 4.14 | 7.42 | 13.2 | 21.5 | 30.6 | 23.1 | 6.66 | 175.7 |
| 1969 | 4.94 | 5.48 | 5.37 | 18 | 5.6 | 5.92 | 13.3 | 13.2 | 5.73 | 13.1 | 43 | 22.2 | 155.7 |
| 1970 | 16 | 13.1 | 13 | 16.9 | 14.5 | 11.8 | 11.2 | 15.8 | 21.6 | 23.6 | 2.8 | 11.3 | 171.5 |
| 1971 | 8.29 | 16.4 | 14 | 14.1 | 6.41 | 6.8 | 0.93 | 13 | 9.91 | 23.9 | 20.9 | 9.67 | a 144.4 |
| 1972 | 12.6 | 15.9 | 18.5 | 16.3 | 8.45 | 8.1 | 8.09 | 18.6 | 9.29 | 24.2 | 11.4 | 12.4 | 163.8 |

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1973 | 16.3 | 11.3 | 14.8 | 7.99 | 16.6 | 9.2 | 11.7 | 8.29 | 23.1 | 21.4 | 6.24 | 16.8 | 163.7 |
| 1974 | 9.36 | 19.1 | 3.94 | 11.4 | 15.7 | 10.2 | 5.04 | 5.97 | 8.14 | 42.4 | 27.7 | 24 | 182.9 |
| 1975 | 17.1 | 9.55 | 10.1 | 8.61 | 8.43 | 8.01 | 10.9 | 7.94 | 10.5 | 12.8 | 13.5 | 22.3 | 139.6 |
| 1976 | 21.6 | 8.94 | 15 | 14.7 | 15.1 | 5.41 | 11.4 | 14.9 | 14.9 | 16.3 | 15.6 | 21.4 | 175.1 |
| 1977 | 9.86 | 22.1 | 12.2 | 11.6 | 4.84 | 11.4 | 7.74 | 4.3 | 8.46 | 30.3 | 15.1 | 6.95 | 144.9 |
| 1978 | 5.7 | 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 29.6 | 14.3 | 9.7 | 59.29 |
| 1979 | 7.27 | 7.09 | 6.96 | 2.03 | 13 | 9.3 | 5.22 | 1.56 | 15.9 | 15.8 | 8.56 | b 19.4 | 112 |
| 1980 | 5.29 | 11.6 | 13 | 22.2 | 8.14 | 1.78 | 0 | z 8.46 | 0 | z 23.4 | 23.1 | 13.4 | 130.3 |
| 1981 | 6.81 | 0 | z 15.8 | 14.1 | 0 | z 9.35 | 4.8 | 11.7 | 21.8 | 14.4 | 21.8 | 7.65 | 128.2 |
| 1982 | 3.75 | b 0 | z 0 | z 13 | b 0 | z 0 | z 0 | z 0 | z 8.59 | 21.3 | 0 | z 0 | z 46.69 |
| 1983 | 16.7 | 9.27 | 2.97 | 5.48 | 7.62 | a 8 | a 11.7 | a 16.4 | 10.9 | 20.6 | 0 | z 0 | z 109.6 |
| 1984 | 19.8 | 15.6 | a 13.7 | 6.43 | 9.99 | 14.3 | 8.3 | 11.3 | 9.72 | 15 | 11.5 | c 10.1 | c 145.7 |
| 1985 | 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 2.18 | 11.6 | 0 | z 0 | z 0 | z 0 | z 13.77 |
| 1986 | 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 11 | 38.7 | a 16.6 | 12.8 | 78.98 |
| 1987 | 17.9 | 12.4 | 0 | z 14.5 | 11.6 | 11.6 | 1.52 | 4.78 | 22.3 | 16.1 | 31.7 | 13.7 | a 158 |
| 1988 | 0 | z 0 | z 0 | z 11.2 | 9.4 | 9.68 | 12.4 | 10.1 | 12.3 | 21.4 | 25 | 10.5 | 121.9 |
| 1989 | 21.6 | 0.82 | 4.73 | 2.73 | 3.08 | 2.7 | 2.3 | 1.3 | 6.49 | 19.1 | 14.8 | 19.5 | 99.2 |
| 1990 | 9.47 | 9.49 | 9.18 | 8.11 | 3.59 | 6.84 | 3.81 | 4.25 | b 6.49 | 14.1 | 9.64 | 16.6 | 101.5 |
| 1991 | 12.3 | 18.6 | 7.52 | 6.05 | 10.5 | 3.8 | 8.46 | 11.8 | 5.97 | 13.3 | 19.8 | 24.7 | 142.7 |
| 1992 | 17 | 7.66 | 6.93 | 9.14 | 8.99 | 2.42 | a 3.05 | 4.17 | 23.3 | 10.4 | 16.5 | 5.76 | 115.2 |
| 1993 | 12.3 | 21.8 | 5.49 | 2.9 | 7.06 | 2.22 | 5.26 | 2.77 | 2.83 | 14.8 | 14.8 | 13.5 | a 105.7 |
| 1994 | 11 | 4.77 | 9.74 | 5.4 | 10.2 | 6.2 | 3.42 | 2.61 | 18.2 | 18.2 | 11 | 8.49 | 109.2 |
| 1995 | 2.79 | 6.05 | 7.14 | 4.26 | 2.52 | 3.44 | 4.13 | 5.1 | 4.47 | 20 | b 13.1 | 15.4 | 88.45 |
| 1996 | 5.1 | 7.21 | 7.6 | 8.75 | 2.68 | 8.45 | 0.36 | 13 | 13.7 | 20 | 8.88 | 4.63 | v 95.75 |
| 1997 | 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 |
| 1998 | 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 |
| 1999 | 0 | z 0 | z 0 | z 0 | z 19.7 | 9.56 | 6.12 | 16.1 | 20.1 | 24.9 | 25.4 | 14.4 | 136.3 |
| 2000 | 13.4 | 11 | 23.8 | 15 | 8.42 | 3.96 | 14 | 13.7 | 17.3 | 15.3 | 24.5 | 12 | 172.6 |
| 2001 | 18.6 | 9.65 | 0.2 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 0 | z 28.2 |

Period of Record Statistics

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 12.9 | 12.9 | 10.7 | 11.3 | 9.22 | 7.31 | 7.28 | 10.6 | 13.8 | 22.3 | 17.1 | 15.4 | 149.2 |
| S.D. | 6.23 | 6.05 | 5.25 | 4.95 | 4.38 | 3.31 | 4.31 | 6.12 | 6.66 | 7.27 | 7.15 | 6.16 | 27.77 |
| SKEW | 0.23 | 0.2 | 0.57 | 0.09 | 0.73 | 0.05 | 0.56 | 0.29 | 0.28 | 0.68 | 1 | 0.31 | -0.67 |
| MAX | 31.3 | 25.6 | 23.8 | 22.5 | 21 | 14.3 | 17.6 | 25.3 | 28.1 | 42.4 | 43 | 30.6 | 189 |
| MIN | 1.65 | 0.82 | 2.75 | 2.03 | 2.52 | 0.99 | 0.36 | 0.9 | 1.77 | 10.4 | 2.8 | 4.94 | 88.45 |
| NO YRS | 45 | 42 | 42 | 45 | 43 | 45 | 45 | 46 | 47 | 48 | 47 | 45 | 34 |

**FIGURE H2-3. MONTHLY AVERAGE TEMPERATURE (F) FROM 9/1/1949 TO 3/2/2001**

**DATA OBTAINED FROM WESTERN REGION CLIMATE CENTER**
**KETCHIKAN, ALASKA (WEATHER STATION 504590)**

File last updated on Mar 2, 2001
*** Note *** Provisional Data *** After Year/Month 200009
a = 1 day missing, b = 2 days missing, c = 3 days, ..etc..,
z = 26 or more days missing, A = Accumulations present
Long-term means based on columns; thus, the monthly row may not
sum (or average) to the long-term annual value.
MAXIMUM ALLOWABLE NUMBER OF MISSING DAYS : 5
Individual Months not used for annual or monthly statistics if more than 5 days are missing.
Individual Years not used for annual statistics if any month in that year has more than 5 days missing.

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1949 | — z | — z | — z | — z | — z | — z | — z | — z | 56.4 | 46.7 | g 47.3 | a 31.9 | 45.2 |
| 1950 | 20.7 | 37.3 | 40.1 | 42.2 | 47.1 | c 58.5 | 56.8 | 59 | 55.6 | 45.8 | 35 | 38.8 | f 45.3 |
| 1951 | 32.7 | 34.8 | 33.7 | 43.1 | 49 | 56.5 | 60.7 | 60.2 | 55.5 | 45.3 | 40.7 | 33.3 | 45.4 |
| 1952 | 28.3 | h 36.5 | a 37.4 | 41.4 | 49.2 | 52.5 | 59.5 | 58.9 | 53.5 | 51 | 42.2 | 39 | 47.4 |
| 1953 | 29.5 | 39.3 | 39.2 | 44.8 | 52.2 | 56.4 | 59.9 | 59.1 | 54.1 | c 48.7 | d 41.1 | 39.2 | 46.9 |
| 1954 | 30.6 | 35 | 38 | 38.5 | 51.1 | h 52.7 | 55.3 | 61.1 | 56.5 | 47.5 | 46.8 | 37.4 | 45.4 |
| 1955 | 38.9 | 36.7 | 35.1 | e 42 | 46.6 | c 52.9 | 56.8 | 55 | 52.9 | 45.3 | 32.3 | 29.2 | 43.6 |
| 1956 | 34.6 | 32.9 | 37 | 44.5 | 51 | 52.7 | 58.8 | 57.8 | 52.9 | 43.8 | c 40.4 | 36.5 | 45.2 |
| 1957 | 30.2 | 33.7 | 39.7 | 43.1 | 51.6 | 54.6 | 56.9 | 60.6 | 58.3 | 47.7 | 43 | 37.2 | 46.4 |
| 1958 | 41.8 | 40 | 40.7 | 47 | 52.8 | 62.2 | 63.8 | 58.4 | 53.2 | 47.2 | 38.5 | 39.6 | 48.8 |
| 1959 | 33.8 | 36.1 | 38.7 | 44 | 50.4 | 55.6 | 58.9 | 57.2 | 53.9 | 48.1 | 40.2 | 40.3 | 46.4 |
| 1960 | 37.2 | — z | 39.6 | b 45.5 | 50.1 | 51.1 | 56.5 | 58.1 | 53.4 | 48.7 | 41.6 | 40.7 | 47.5 |
| 1961 | 39.9 | 38.4 | 40.8 | 44.4 | 51 | 54.8 | 61.1 | 61.3 | 54.2 | 46.4 | 38.6 | 35.8 | 47.2 |
| 1962 | 37.6 | 36.8 | 36.2 | 43.1 | 48 | 52.7 | 59.2 | 58.7 | 54.2 | 48.2 | 44.5 | 38.9 | 46.5 |
| 1963 | 35.9 | 43.5 | 39.6 | 44.2 | 51 | 52.6 | 58.8 | 61.7 | 56.7 | 47.6 | 36 | 39.1 | 47.2 |
| 1964 | 35.5 | d 40.1 | 37.2 | 41.1 | 47 | 55.5 | 55.7 | 54.9 | 52.6 | 45.9 | 38.3 | 26.6 | 44.2 |
| 1965 | 32.6 | 36.7 | 39.9 | 43.2 | 46.2 | 51.9 | 58.9 | 59.6 | 56.6 | 48 | 38.9 | 35.9 | 45.7 |
| 1966 | 30.6 | 37.7 | 39.9 | 43.1 | 46.7 | 53.9 | 60.9 | 57.2 | 53.4 | 44.9 | 38.7 | 38.8 | 45.5 |
| 1967 | 36.1 | 38.9 | 35.3 | 43.3 | 49.2 | 58.9 | 57.3 | 60.9 | 55.6 | 47.7 | 40.8 | 36.4 | 46.7 |
| 1968 | 32.5 | 38.5 | 41.9 | 41 | 52.6 | 54.5 | 59.2 | 58 | 52.6 | 46.6 | 42.4 | 31.3 | 45.9 |
| 1969 | 21.7 | 35.9 | 39.2 | 43.8 | 51.9 | 60 | 55.5 | 54.7 | 54.4 | 48.6 | 43.5 | 41.9 | 45.9 |
| 1970 | 33.2 | 42.8 | 42 | 42.5 | 46.6 | 54.5 | 55.6 | 56.5 | 50.5 | 46.1 | 38.2 | 32.1 | 45 |
| 1971 | 28.8 | 36 | 35.3 | 39.8 | 44.7 | 50.7 | 59.9 | 57.9 | 52 | 43.2 | 38.8 | 29.1 | a 43 |
| 1972 | 25 | 32.5 | 37.3 | 37.9 | 48 | 52.7 | 58.5 | 57.6 | 51.6 | 45.2 | 41 | 33.9 | 43.4 |

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1973 | 33 | 36.5 | 39.7 | 45 | 47.4 | 50.2 | 53.9 | 54.5 | 52.2 | 42.9 | 30.5 | 36.1 | 43.5 |
| 1974 | 28 | 36.3 | 35.4 | 45.2 | 46.9 | 50.4 | 55.4 | 59.8 | 57.6 | 46.1 | 40.5 | 40.7 | 45.2 |
| 1975 | 33.3 | 30 | 36.6 | 43.1 | 48.5 | 52.7 | 57.3 | 56.7 | 54.2 | 45.2 | 36.2 | 35.2 | 44.1 |
| 1976 | 35.5 | 33.2 | 35.5 | 42.9 | a 46.4 | 53.6 | 56.4 | 57.6 | 53.9 | 45.3 | 41.4 | 37.6 | 44.9 |
| 1977 | 35.8 | 42 | 38.6 | 43.8 | 50 | 54.2 | 58 | 63.6 | 53.3 | 45.4 | 34.2 | 27.8 | 45.5 |
| 1978 | 31.1 | — | z — | z — | z — | z — | z — | z — | z — | z 47.6 | 38.2 | 33.5 | 37.6 |
| 1979 | 29.9 | a 30.2 | a 40.1 | 43.9 | 47.5 | 52.5 | i 59.2 | 61.6 | a 55.4 | a 49 | a 41.8 | f 36.4 | a 45.3 |
| 1980 | 29.9 | b 38.5 | 37.6 | c 43.5 | 50.2 | b 57.6 | a — | z 58.2 | a — | z 48.9 | a 43.7 | 33.2 | a 44.1 |
| 1981 | 43.7 | — | z 41.2 | k 44 | u — | z 53 | b 60.1 | a 60.3 | a 53.3 | c 46 | 42.9 | a 35 | c 49.3 |
| 1982 | 26.5 | b — | z — | z 39.7 | b — | z — | z — | z — | z 54.1 | c 45.5 | a — | z — | z 41.4 |
| 1983 | 38.3 | 41.3 | 40.6 | a 45.4 | 49.7 | a 54.5 | c 57.2 | c 56.6 | a 51 | 45.9 | — | z — | z 48 |
| 1984 | 38.7 | 38.9 | b 42.5 | 43 | 47.2 | b 52.3 | 55.9 | 57.2 | 52.4 | 45 | 36.4 | 31 | 45 |
| 1985 | — | z — | z — | z — | z — | z — | z 58.7 | 56.4 | — | z — | z — | z — | z 57.6 |
| 1986 | — | z — | z — | z — | z — | z — | z — | z — | z 53.1 | 49.5 | b 38.7 | a 39.5 | 45.2 |
| 1987 | 37.9 | b 40.4 | a — | z 43.3 | 49 | a 53.4 | 59.7 | 60.2 | 53.5 | 47.6 | 42.5 | 38.3 | a 47.8 |
| 1988 | — | z — | z — | z 43.3 | 49 | 53.3 | 55.9 | 58.2 | 52.3 | 48.2 | 41.9 | 35.9 | 48.7 |
| 1989 | 33.6 | b 31.5 | 36.4 | 44.5 | 49.7 | 56 | 58.8 | 59.2 | 55 | 45.6 | 39.9 | 42.1 | 46 |
| 1990 | 34.3 | 32.2 | 40.1 | a 45.3 | 50.9 | 54.8 | 60.2 | 59.9 | 53.7 | 43.3 | 34.6 | 31.7 | 45.1 |
| 1991 | 29.6 | 39.8 | 35.6 | 43.1 | 48.6 | 54.4 | 56.3 | 57.8 | 53 | 42.7 | 42.4 | 40.1 | 45.3 |
| 1992 | 39.9 | 38.5 | 40.2 | 43.1 | 48.9 | 55.7 | 58.4 | 58.2 | 49 | 43.6 | 41.7 | 32.5 | 45.8 |
| 1993 | 32.1 | 38.7 | 38.1 | 44.6 | 53.5 | 55.7 | 60.1 | 61.1 | 55.4 | 49.2 | 40.4 | 40.7 | 47.5 |
| 1994 | 40.2 | 30.3 | 41.3 | 46.9 | 50.5 | 56.2 | 60 | 62.4 | 54.3 | 47.2 | 37.6 | 35.4 | 46.9 |
| 1995 | 37.2 | 37 | 38.5 | 46.7 | 52 | 56 | 59.6 | 56.2 | 57.4 | 46.6 | 39.2 | 36 | 46.9 |
| 1996 | 27.1 | 36.8 | 38.7 | 43.4 | 47.8 | 53 | 57.3 | 57 | 50.6 | 45.3 | a 36.3 | 37.3 | v 44.8 |
| 1997 | — | z — | z — | z — | z — | z — | z — | z — | z — | z — | z — | z — | z 9999 |
| 1998 | — | z — | z — | z — | z — | z — | z — | z — | z — | z — | z — | z — | z 9999 |
| 1999 | — | z — | z — | z — | z 44.6 | 52.4 | 56.5 | 57.1 | 50.4 | 45.7 | 40.4 | 37.9 | 48.1 |
| 2000 | 31.1 | 35.3 | 39.5 | 42 | 47.3 | 54.5 | 57.9 | 57.4 | 52.8 | 45.9 | 41.6 | 35.6 | 45.1 |
| 2001 | 40 | 34.7 | 39 | z — | z — | z — | z — | z — | z — | z — | z — | z — | z 37.4 |

Period of Record Statistics

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 33.5 | 36.7 | 38.5 | 43.3 | 49 | 54.4 | 58.2 | 58.5 | 53.8 | 46.5 | 39.8 | 35.9 | 45.6 |
| S.D. | 5.07 | 3.34 | 2.17 | 1.96 | 2.19 | 2.49 | 1.98 | 2.09 | 1.99 | 1.88 | 3.41 | 3.84 | 1.29 |
| SKEW | -0.35 | -0.2 | -0.26 | -0.65 | 0.04 | 0.9 | 0.2 | 0.19 | 0.08 | 0 | -0.39 | -0.52 | -0.08 |
| MAX | 43.7 | 43.5 | 42.5 | 47 | 53.5 | 62.2 | 63.8 | 63.6 | 58.3 | 51 | 47.3 | 42.1 | 48.8 |
| MIN | 20.7 | 30 | 33.7 | 37.9 | 44.6 | 50.2 | 53.9 | 54.5 | 49 | 42.7 | 30.5 | 26.6 | 43 |
| NO YRS | 45 | 42 | 41 | 44 | 43 | 44 | 45 | 46 | 47 | 48 | 46 | 45 | 33 |

**FIGURE H2-4. MONTHLY AVERAGE MAXIMUM TEMPERATURE (F) FROM 9/1/1949 TO 3/2/2001**

**DATA OBTAINED FROM WESTERN REGION CLIMATE CENTER**
**KETCHIKAN, ALASKA (WEATHER STATION 504590)**

File last updated on Mar 2, 2001
*** Note *** Provisional Data *** After Year/Month 200009
a = 1 day missing, b = 2 days missing, c = 3 days, ..etc..,
z = 26 or more days missing, A = Accumulations present
Long-term means based on columns; thus, the monthly row may not
sum (or average) to the long-term annual value.
MAXIMUM ALLOWABLE NUMBER OF MISSING DAYS : 5
Individual Months not used for annual or monthly statistics if more than 5 days are missing.
Individual Years not used for annual statistics if any month in that year has more than 5 days missing.

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1949 | — z | — z | — z | — z | — z | — z | — z | — z | 63.3 | 51.5 | g 52.7 | a 37 | 51 |
| 1950 | 28.9 | 41.6 | 47.7 | 49.1 | 53.4 | c 68.3 | 64.3 | 67.3 | 63.3 | 52.7 | 40.6 | 43.6 | f 52.5 |
| 1951 | 38.4 | 40.8 | 39.9 | 50.4 | 55.5 | 64.2 | 68.3 | 67.4 | 62.3 | 50.8 | 45.5 | 37.2 | 51.7 |
| 1952 | 33.4 | h 40.9 | a 42.7 | 45.9 | 57.6 | 58.9 | 67.8 | 65.7 | 59.8 | 55.7 | 46 | 43 | 53.1 |
| 1953 | 34.3 | 43.4 | 43.5 | 52.3 | 58.9 | 63.2 | 66.4 | 66.8 | 61.4 | c 54.9 | d 46.7 | 43.8 | 53 |
| 1954 | 35.4 | 40 | 44.3 | 45.4 | 58.7 | h 58.5 | 61.1 | 68.3 | 63.7 | 52.5 | 50.6 | 41.8 | 51.1 |
| 1955 | 42.9 | 40.8 | 40.6 | e 49.8 | 53.4 | c 60.7 | 64.8 | 59.7 | 59.5 | 50 | 38.1 | 34.1 | 49.5 |
| 1956 | 39.9 | 39 | 43.8 | 52.7 | 60.4 | 59.8 | 66.9 | 64 | 62 | 49.3 | c 45.6 | 41.6 | 52.1 |
| 1957 | 36.8 | 38.9 | 46.7 | 50.1 | 59.6 | 61 | 63.9 | 69.1 | 65.1 | 54.9 | 48.2 | 41.4 | 53 |
| 1958 | 47.4 | 46 | 48.3 | 56.1 | 60.6 | 71.6 | 72.7 | 63.8 | 59.4 | 52.4 | 42.3 | 43.8 | 55.4 |
| 1959 | 37.9 | 42.7 | 43.9 | 51.7 | 58.6 | 62.6 | 65.6 | 64.5 | 60.6 | 53.7 | 45.7 | 46 | 52.8 |
| 1960 | 42.1 | — z | 45.7 | b 52.7 | 57.4 | 55.6 | 62 | 64.7 | 59.5 | 53.8 | 45.7 | 44.9 | 53.1 |
| 1961 | 45.9 | 43.1 | 46.4 | 50.8 | 58.3 | 60.8 | 70 | 68.7 | 62.6 | 52.1 | 43.8 | 39.9 | 53.5 |
| 1962 | 42.5 | 43.5 | 42.8 | 49 | 56.2 | 59.1 | 67.1 | 65.6 | 60.2 | 54.2 | 49.8 | 44.6 | 52.9 |
| 1963 | 41.7 | 49.7 | 46.5 | 53 | 61.2 | 60 | 66.7 | 70.9 | 62.7 | 53.9 | 42.3 | 45.2 | 54.5 |
| 1964 | 40.9 | d 46 | 43.4 | 48.4 | 56.1 | 65.4 | 62.9 | 63.4 | 62.1 | 53 | 44.5 | 33.6 | 51.7 |
| 1965 | 39.1 | 41.9 | 48 | 52.3 | 55.5 | 61.9 | 67.4 | 69.5 | 65.5 | 53.8 | 45.8 | 42 | 53.5 |
| 1966 | 38 | 44.6 | 46.9 | 52.1 | 55.4 | 62.3 | 70.7 | 64.5 | 60.3 | 51.6 | 44.9 | 44.3 | 53 |
| 1967 | 42.5 | 44.2 | 42.4 | 53.8 | 59.5 | 69.8 | 64.3 | 69.5 | 62.2 | 54.2 | 46.5 | 41.3 | 54.2 |
| 1968 | 38.4 | 46 | 48.6 | 48.6 | 63.4 | 63.6 | 67.9 | 66.5 | 59 | 53.1 | 48.8 | 37.5 | 53.5 |
| 1969 | 31.2 | 43 | 46.2 | 50.6 | 62.4 | 69.8 | 61.2 | 60.7 | 59.8 | 57 | 50 | 48.3 | 53.3 |
| 1970 | 40.2 | 49.5 | 49 | 50.5 | 54 | 63.6 | 63.8 | 63.8 | 57 | 51.8 | 45.7 | 37.3 | 52.2 |
| 1971 | 34.6 | 42 | 40.3 | 45.8 | 52.5 | 58.1 | 68.2 | 63.4 | 58.9 | 49.6 | 44.2 | 35.8 | a 49.5 |
| 1972 | 32.2 | 37.9 | 43.5 | 45 | 57.8 | 61.7 | 68 | 65.5 | 60.1 | 52.1 | 47 | 40 | 50.9 |

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1973 | 39.4 | 43 | 45.3 | 51.4 | 55.7 | 59 | 62.4 | 63.2 | 61.3 | 49.3 | 38.3 | 42.1 | 50.9 |
| 1974 | 34.4 | 41.1 | 42.3 | 51.3 | 54.4 | 57 | 63 | 67.6 | 64.8 | 50.8 | 44.8 | 45.4 | 51.4 |
| 1975 | 38 | 36.1 | 42 | 50 | 56.6 | 59.9 | 63.5 | 64.5 | 61.3 | 52.1 | 41.5 | 39.9 | 50.5 |
| 1976 | 39.9 | 38.2 | 41.3 | 51.4 | a 52.9 | 62.6 | 64.5 | 66.2 | 61.8 | 53.5 | 48 | 42.9 | 52 |
| 1977 | 40.2 | 47.8 | 45.1 | 52.4 | 60.7 | 62.4 | 67 | 75.5 | 63.2 | 51.7 | 40 | 33.3 | 53.3 |
| 1978 | 38.6 | — | z — | z — | z — | z — | z — | z — | z — | z 51.7 | 42.5 | 38 | 42.7 |
| 1979 | 35.7 | a 35.7 | a 45.7 | 51 | 52.6 | 58.6 | f 65.1 | 69 | a 59.9 | a 53.7 | a 47.6 | a 41.1 | a 50.7 |
| 1980 | 35.1 | b 44.2 | 42.5 | b 49.3 | 57.5 | a 65.2 | a — | z 64.1 | a — | z 53.6 | a 47.8 | 38.2 | a 49.8 |
| 1981 | 47.9 | — | z 46.8 | k 49.1 | u — | z 59 | a 66.4 | a 66.2 | a 57.9 | b 51 | 47.8 | a 39.4 | b 54.5 |
| 1982 | 31.7 | b — | z — | z 45.9 | b — | z — | z — | z — | z 59.4 | b 49.8 | — | z — | z 46.7 |
| 1983 | 43.1 | 45.7 | 47.1 | 52 | 56.2 | a 61 | b 63.5 | a 61.3 | 56.2 | 50.1 | — | z — | z 53.6 |
| 1984 | 42.4 | 42.4 | a 46.7 | 49 | 53.4 | 57.6 | 60.4 | 62.6 | 58.6 | 50.4 | 40.3 | 36 | 50 |
| 1985 | — | z — | z — | z — | z — | z — | z 65.9 | 61.7 | — | z — | z — | z — | z 63.8 |
| 1986 | — | z — | z — | z — | z — | z — | z — | z — | z 60.8 | 54.1 | a 43.2 | 43.2 | 50.3 |
| 1987 | 42.1 | 44.7 | a — | z 48.2 | 54 | 58.1 | 66 | 67.1 | 58.3 | 52.4 | 47.2 | 42.9 | a 52.8 |
| 1988 | — | z — | z — | z 49.3 | 55.2 | 59.6 | 61 | 62.9 | 57 | 52.5 | 45.6 | 40.1 | 53.7 |
| 1989 | 38 | b 37.1 | 42.7 | 53 | 56.4 | 63.8 | 65 | 64.4 | 60.9 | 50.6 | 44.2 | 45.2 | 51.8 |
| 1990 | 38.1 | 36.8 | 45.2 | a 51.4 | 56.9 | 61 | 67.9 | 65.9 | 59.4 | 48.2 | 39.5 | 36.6 | 50.6 |
| 1991 | 35.7 | 44.3 | 41.2 | 48.9 | 54.8 | 60.1 | 61.7 | 62.4 | 57.7 | 48.2 | 45.9 | 43.8 | 50.4 |
| 1992 | 43.5 | 43.6 | 45.5 | 49.5 | 55.2 | 62.2 | 63.8 | 64.2 | 54.7 | 49.2 | 46.1 | 37 | 51.2 |
| 1993 | 37.1 | 44.3 | 44.8 | 50.8 | 60.1 | 62.7 | 66.6 | 67.6 | 61.3 | 53.4 | 45.1 | 44.3 | 53.2 |
| 1994 | 43.3 | 34.2 | 45.5 | 52.5 | 56.4 | 60.8 | 65.3 | 68.5 | 58.9 | 51.8 | 41.8 | 39.1 | 51.5 |
| 1995 | 42 | 41.4 | 43.5 | 53.4 | 59.3 | 62.2 | 64.6 | 61.8 | 63.5 | 50.4 | 43 | 39.7 | 52.1 |
| 1996 | 32.1 | 41.2 | 44.7 | 49.1 | 55.3 | 57.7 | 62.9 | 61.6 | 55.8 | 49.5 | a 40.6 | 40.7 | v 50 |
| 1997 | — | z — | z — | z — | z — | z — | z — | z — | z — | z — | z — | z — | z 9999 |
| 1998 | — | z — | z — | z — | z — | z — | z — | z — | z — | z — | z — | z — | z 9999 |
| 1999 | — | z — | z — | z — | z 50 | 57.8 | 63.5 | 63.2 | 56.4 | 50.3 | 44.1 | 41.3 | 53.3 |
| 2000 | 36.1 | 41.2 | 44.8 | 48.6 | 55.3 | 62.2 | 63.8 | 63.6 | 59.2 | 51.1 | 45.6 | 40.1 | 51 |
| 2001 | 43.3 | 40.1 | 42 | z — | z — | z — | z — | z — | z — | z — | z — | z — | z 41.7 |

Period of Record Statistics

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 38.9 | 42.1 | 44.5 | 50.3 | 56.7 | 61.7 | 65.2 | 65.4 | 60.4 | 52 | 44.9 | 40.8 | 52.1 |
| S.D. | 4.29 | 3.51 | 2.36 | 2.4 | 2.91 | 3.47 | 2.69 | 3.05 | 2.5 | 1.99 | 3.23 | 3.56 | 1.44 |
| SKEW | -0.14 | -0.08 | -0.07 | -0.33 | 0.23 | 1 | 0.43 | 0.74 | -0.08 | 0.13 | -0.1 | -0.22 | 0.04 |
| MAX | 47.9 | 49.7 | 49 | 56.1 | 63.4 | 71.6 | 72.7 | 75.5 | 65.5 | 57 | 52.7 | 48.3 | 55.4 |
| MIN | 28.9 | 34.2 | 39.9 | 45 | 50 | 55.6 | 60.4 | 59.7 | 54.7 | 48.2 | 38.1 | 33.3 | 49.5 |
| NO YRS | 45 | 42 | 41 | 44 | 43 | 44 | 45 | 46 | 47 | 48 | 47 | 45 | 33 |

**FIGURE H2-5. MONTHLY AVERAGE MINIMUM TEMPERATURE (F) FROM 9/1/1949 TO 3/2/2001**

**DATA OBTAINED FROM WESTERN REGION CLIMATE CENTER**
**KETCHIKAN, ALASKA (WEATHER STATION 504590)**

File last updated on Mar 2, 2001
*** Note *** Provisional Data *** After Year/Month 200009
a = 1 day missing, b = 2 days missing, c = 3 days, ..etc..,
z = 26 or more days missing, A = Accumulations present
Long-term means based on columns; thus, the monthly row may not
sum (or average) to the long-term annual value.
MAXIMUM ALLOWABLE NUMBER OF MISSING DAYS : 5
Individual Months not used for annual or monthly statistics if more than 5 days are missing.
Individual Years not used for annual statistics if any month in that year has more than 5 days missing.

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1949 | — z | — z | — z | — z | — z | — z | — z | — z | 49.6 | 42 | g 41.9 | a 26.8 | 39.5 |
| 1950 | 12.6 | 32.9 | 32.5 | 35.4 | 40.7 | c 48.6 | 49.3 | 50.7 | 47.9 | 38.9 | 29.3 | 33.9 | f 38.1 |
| 1951 | 27 | 28.8 | 27.5 | 35.7 | 42.5 | 48.7 | 53.1 | 53 | 48.6 | 39.8 | 35.8 | 29.3 | 39.2 |
| 1952 | 23.2 | h 32.1 | a 32 | 36.9 | 40.8 | 46.1 | 51.1 | 52.2 | 47.3 | 46.4 | 38.4 | 34.9 | 41.7 |
| 1953 | 24.7 | 35.1 | 34.9 | 37.2 | 45.5 | 49.6 | 53.4 | 51.3 | 46.7 | c 42.4 | d 35.5 | 34.6 | 40.9 |
| 1954 | 25.8 | 29.9 | 31.6 | 31.5 | 43.4 | h 46.8 | 49.5 | 53.8 | 49.2 | 42.6 | 43 | 32.9 | 39.7 |
| 1955 | 35 | 32.6 | 29.7 | e 34.2 | 39.8 | c 45 | 48.8 | 50.2 | 46.4 | 40.6 | 26.5 | 24.2 | 37.8 |
| 1956 | 29.2 | 26.7 | 30.2 | 36.2 | 41.6 | 45.7 | 50.8 | 51.6 | 43.8 | 38.3 | c 35.1 | 31.5 | 38.4 |
| 1957 | 23.5 | 28.5 | 32.7 | 36 | 43.6 | 48.1 | 49.9 | 52 | 51.4 | 40.5 | 37.8 | 32.9 | 39.7 |
| 1958 | 36.2 | 34 | 33.1 | 37.9 | 44.9 | 52.8 | 54.9 | 53 | 46.9 | 41.9 | 34.7 | 35.4 | 42.1 |
| 1959 | 29.7 | 29.5 | 33.5 | 36.2 | 42.2 | 48.6 | 52.2 | 50 | 47.2 | 42.4 | 34.6 | 34.7 | 40.1 |
| 1960 | 32.3 | — z | 33.5 | b 38.2 | 42.7 | 46.6 | 50.9 | 51.5 | 47.2 | 43.6 | 37.5 | 36.5 | 41.9 |
| 1961 | 33.8 | 33.8 | 35.3 | 37.9 | 43.7 | 48.8 | 52.1 | 53.9 | 45.9 | 40.8 | 33.5 | 31.7 | 40.9 |
| 1962 | 32.7 | 30 | 29.6 | 37.1 | 39.8 | 46.3 | 51.2 | 51.8 | 48.2 | 42.3 | 39.1 | 33.3 | 40.1 |
| 1963 | 30.1 | 37.3 | 32.6 | 35.4 | 40.7 | 45.1 | 50.9 | 52.6 | 50.6 | 41.2 | 29.7 | 32.9 | 39.9 |
| 1964 | 30 | d 34.1 | 30.9 | 33.8 | 37.9 | 45.5 | 48.5 | 46.3 | 43.2 | 38.7 | 32.1 | 19.6 | 36.7 |
| 1965 | 26.1 | 31.6 | 31.9 | 34.1 | 36.9 | 41.9 | 50.5 | 49.7 | 47.6 | 42.1 | 31.9 | 29.9 | 37.8 |
| 1966 | 23.2 | 30.8 | 32.9 | 34.1 | 38.1 | 45.5 | 51.1 | 49.9 | 46.4 | 38.3 | 32.6 | 33.2 | 38 |
| 1967 | 29.8 | 33.5 | 28.3 | 32.9 | 38.9 | 48 | 50.2 | 52.2 | 49 | 41.2 | 35.1 | 31.6 | 39.2 |
| 1968 | 26.5 | 30.9 | 35.2 | 33.5 | 41.8 | 45.4 | 50.4 | 49.5 | 46.2 | 40.1 | 35.9 | 25.1 | 38.4 |
| 1969 | 12.3 | 28.8 | 32.1 | 36.9 | 41.5 | 50.2 | 49.7 | 48.8 | 49 | 40.2 | 37 | 35.5 | 38.5 |
| 1970 | 26.2 | 36.2 | 34.9 | 34.5 | 39.1 | 45.4 | 47.4 | 49.1 | 43.9 | 40.4 | 30.8 | 26.8 | 37.9 |
| 1971 | 23 | 30 | 30.2 | 33.7 | 36.9 | 43.2 | 51.5 | 52.3 | 45 | 36.7 | 33.4 | 22.4 | a 36.5 |
| 1972 | 17.8 | 27.1 | 31.2 | 30.7 | 38.3 | 43.7 | 48.9 | 49.6 | 43.1 | 38.4 | 34.9 | 27.7 | 36 |

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1973 | 26.7 | 30 | 34.1 | 38.5 | 39 | 41.4 | 45.4 | 45.8 | 43 | 36.5 | 22.7 | 30 | 36.1 |
| 1974 | 21.5 | 31.5 | 28.5 | 39.1 | 39.4 | 43.8 | 47.8 | 51.9 | 50.4 | 41.5 | 36.2 | 36.1 | 39 |
| 1975 | 28.5 | 23.8 | 31.3 | 36.1 | 40.5 | 45.4 | 51.1 | 49 | 47.1 | 38.2 | 31 | 30.4 | 37.7 |
| 1976 | 31 | 28.1 | 29.7 | 34.3 | a 39.8 | 44.5 | 48.2 | 49 | 46 | 37 | 34.8 | 32.3 | 37.9 |
| 1977 | 31.4 | 36.1 | 32.1 | 35.1 | 39.3 | 46 | 49 | 51.6 | 43.3 | 39.1 | 28.3 | 22.3 | 37.8 |
| 1978 | 23.5 | — | z — | z — | z — | z — | z — | z — | z 43.6 | 33.8 | 28.9 | 32.5 | |
| 1979 | 24.1 | a 24.7 | a 34.6 | 36.7 | 42.5 | 47.5 | h 53.3 | 54.1 | a 50.8 | a 44.3 | a 36.7 | f 31.8 | a 39.7 |
| 1980 | 24.7 | b 32.8 | 32.7 | c 37.6 | 43.7 | a 50 | a — | z 52.3 | a — | z 44.2 | a 39.5 | 28.2 | a 38.6 |
| 1981 | 39.5 | — | z 36.6 | 36.8 | — | z 46.5 | a 53.9 | a 54.4 | a 48.8 | b 41 | 37.9 | a 30.8 | b 42.6 |
| 1982 | 21.2 | b — | z — | z 33.4 | b — | z — | z — | z — | z 49 | c 41.1 | a — | z — | z 36.2 |
| 1983 | 33.6 | 36.9 | 34 | a 38.7 | 43.3 | a 48.1 | c 50.8 | c 51.9 | a 45.8 | 41.6 | — | z — | z 42.5 |
| 1984 | 34.9 | 35.4 | b 38.4 | 37 | 41.4 | b 47 | 51.3 | 51.8 | 46.2 | 39.6 | 32.5 | 26 | 40.1 |
| 1985 | — | z — | z — | z — | z — | z — | z 51.4 | 51.1 | — | z — | z — | z — | z 51.3 |
| 1986 | — | z — | z — | z — | z — | z — | z — | z — | z 45.4 | 45 | b 33.9 | a 35.7 | 40 |
| 1987 | 33.9 | b 36.3 | — | z 38.3 | 43.9 | a 48.6 | 53.3 | 53.2 | 48.8 | 42.8 | 37.9 | 33.6 | a 42.8 |
| 1988 | — | z — | z — | z 37.3 | 42.8 | 47.1 | 50.7 | 53.5 | 47.5 | 43.8 | 38.1 | 31.8 | 43.6 |
| 1989 | 29.2 | 25.9 | 30.2 | 36 | 43 | 48.1 | 52.6 | 54 | 49 | 40.6 | 35.5 | 39 | 40.3 |
| 1990 | 30.4 | 27.5 | 35 | a 39.1 | 44.8 | 48.7 | 52.6 | 54 | 48 | 38.3 | 29.6 | 26.8 | 39.6 |
| 1991 | 23.5 | 35.4 | 30 | 37.2 | 42.5 | 48.6 | 50.9 | 53.1 | 48.3 | 37.2 | 38.9 | 36.3 | 40.2 |
| 1992 | 36.3 | 33.5 | 35 | 36.6 | 42.5 | 49.2 | 53.1 | 52.3 | 43.3 | 38 | 37.3 | 28 | 40.4 |
| 1993 | 27.1 | 33 | 31.4 | 38.4 | 46.8 | 48.6 | 53.6 | 54.7 | 49.5 | 44.9 | 35.6 | 37.2 | 41.7 |
| 1994 | 37.2 | 26.3 | 37.1 | 41.4 | 44.6 | 51.5 | 54.7 | 56.3 | 49.7 | 42.5 | 33.4 | 31.8 | 42.2 |
| 1995 | 32.4 | 32.5 | 33.5 | 39.9 | 44.7 | 49.7 | 54.5 | 50.7 | 51.2 | 42.8 | 35.4 | 32.4 | 41.7 |
| 1996 | 22.1 | 32.3 | 32.7 | 37.7 | 40.3 | 48.2 | 51.7 | 52.5 | 45.4 | 41 | a 31.9 | 33.9 | v 39.6 |
| 1997 | — | z — | z — | z — | z — | z — | z — | z — | z — | z — | z — | z — | z 9999 |
| 1998 | — | z — | z — | z — | z — | z — | z — | z — | z — | z — | z — | z — | z 9999 |
| 1999 | — | z — | z — | z — | z 39.2 | 46.9 | 49.6 | 51 | 44.3 | 41.2 | 36.8 | 34.6 | 42.9 |
| 2000 | 26.1 | 29.3 | 34.2 | 35.5 | 39.3 | 46.8 | 52 | 51.2 | 46.3 | 40.7 | 37.6 | 31.2 | 39.2 |
| 2001 | 36.8 | 29.3 | 36 | z — | z — | z — | z — | z — | z — | z — | z — | z — | z 33.1 |

Period of Record Statistics

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 28.1 | 31.3 | 32.6 | 36.2 | 41.4 | 47.1 | 51.1 | 51.6 | 47.2 | 40.9 | 34.7 | 31.1 | 39.2 |
| S.D. | 6.05 | 3.45 | 2.43 | 2.2 | 2.42 | 2.38 | 2.05 | 2.09 | 2.32 | 2.33 | 3.88 | 4.3 | 1.69 |
| SKEW | -0.49 | -0.19 | 0.1 | -0.28 | 0.07 | -0.16 | -0.29 | -0.54 | -0.17 | 0.08 | -0.61 | -0.63 | -0.03 |
| MAX | 39.5 | 37.3 | 38.4 | 41.4 | 46.8 | 52.8 | 54.9 | 56.3 | 51.4 | 46.4 | 43 | 39 | 42.2 |
| MIN | 12.3 | 23.8 | 27.5 | 30.7 | 36.9 | 41.4 | 45.4 | 45.8 | 43 | 36.5 | 22.7 | 19.6 | 36 |
| NO YRS | 45 | 42 | 42 | 45 | 43 | 44 | 45 | 46 | 47 | 48 | 46 | 45 | 33 |

# H3: ESTIMATED TIDE DATA DURING PROJECT

# CLIMATE DATA FOR WARD COVE FROM KPC WEATHER STATION (10/1/00 - 2/28/01)

| DATE | TEMPERATURE (C) | PRECIPIATION (in.) | WIND SPEED (mph) | WIND DIRECTION (deg N) |
|---|---|---|---|---|
| 10/1/00 | 6.45 | 0.10 | 3.44 | 144.17 |
| 10/2/00 | 5.49 | 0.09 | 3.70 | 119.38 |
| 10/3/00 | 6.40 | 0.22 | 5.19 | 84.00 |
| 10/4/00 | 7.79 | 0.06 | 3.40 | 90.21 |
| 10/5/00 | 9.83 | 0.10 | 4.25 | 130.04 |
| 10/6/00 | 12.72 | 0.65 | 9.40 | 131.50 |
| 10/7/00 | 10.35 | 1.40 | 10.00 | 136.88 |
| 10/8/00 | 8.24 | 0.16 | 5.98 | 93.63 |
| 10/9/00 | 8.10 | 0.10 | 3.27 | 120.96 |
| 10/10/00 | 7.68 | 0.10 | 4.82 | 132.04 |
| 10/11/00 | 8.93 | 0.41 | 5.59 | 98.50 |
| 10/12/00 | 10.98 | 0.98 | 6.19 | 152.29 |
| 10/13/00 | 8.83 | 0.01 | 3.40 | 121.54 |
| 10/14/00 | 8.08 | 1.38 | 10.86 | 121.21 |
| 10/15/00 | 8.01 | 1.67 | 6.94 | 121.83 |
| 10/16/00 | 7.49 | 0.21 | 6.22 | 86.54 |
| 10/17/00 | 8.23 | 0.04 | 3.80 | 98.79 |
| 10/18/00 | 8.47 | 0.09 | 6.67 | 179.50 |
| 10/19/00 | 7.34 | 0.39 | 14.63 | 79.92 |
| 10/20/00 | 7.18 | 0.03 | 7.88 | 198.33 |
| 10/21/00 | 6.36 | 0.76 | 9.20 | 102.29 |
| 10/22/00 | 10.15 | 0.86 | 7.58 | 179.71 |
| 10/23/00 | 8.63 | 0.17 | 4.38 | 129.54 |
| 10/24/00 | 5.51 | 0.01 | 2.75 | 128.92 |
| 10/25/00 | 4.59 | 0.00 | 3.16 | 129.63 |
| 10/26/00 | 5.04 | 0.08 | 5.71 | 82.88 |
| 10/27/00 | 8.82 | 0.65 | 15.36 | 64.38 |
| 10/28/00 | 1.60 | 0.12 | 2.11 | 13.13 |
| 10/29/00 | 3.39 | 0.00 | 3.62 | 107.75 |
| 10/30/00 | 5.41 | 0.84 | 9.38 | 95.21 |
| 10/31/00 | 6.36 | 0.06 | 6.06 | 143.17 |
| 11/1/00 | 5.93 | 0.58 | 10.14 | 74.67 |
| 11/2/00 | 9.37 | 0.89 | 9.25 | 137.71 |
| 11/3/00 | 9.07 | 0.07 | 5.17 | 209.50 |
| 11/4/00 | 5.91 | 0.00 | 3.37 | 169.13 |
| 11/5/00 | 5.62 | 0.22 | 7.01 | 77.67 |
| 11/6/00 | 6.28 | 0.66 | 7.38 | 83.71 |
| 11/7/00 | 5.21 | 0.05 | 4.40 | 75.13 |
| 11/8/00 | 4.42 | 0.00 | 4.47 | 153.75 |
| 11/9/00 | 1.62 | 0.00 | 3.40 | 88.58 |
| 11/10/00 | 0.93 | 0.00 | 2.98 | 72.75 |
| 11/11/00 | 4.34 | 0.31 | 7.25 | 70.33 |
| 11/12/00 | 5.15 | 1.41 | 8.18 | 93.29 |
| 11/13/00 | 3.87 | 0.01 | 4.92 | 76.04 |
| 11/14/00 | 2.26 | 0.00 | 4.65 | 67.79 |
| 11/15/00 | 4.06 | 0.00 | 3.86 | 77.29 |
| 11/16/00 | 5.46 | 0.64 | 7.67 | 88.33 |
| 11/17/00 | 4.81 | 0.99 | 5.90 | 122.88 |
| 11/18/00 | 0.17 | 0.00 | 1.09 | 28.21 |

| DATE | TEMPERATURE (C) | PRECIPIATION (in.) | WIND SPEED (mph) | WIND DIRECTION (deg N) |
|---|---|---|---|---|
| 11/19/00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11/20/00 | 7.17 | 0.02 | 7.53 | 86.04 |
| 11/21/00 | 9.07 | 1.76 | 7.25 | 137.38 |
| 11/22/00 | 8.25 | 4.18 | 13.49 | 111.75 |
| 11/23/00 | 7.12 | 0.42 | 9.85 | 162.88 |
| 11/24/00 | 6.29 | 1.73 | 10.93 | 116.46 |
| 11/25/00 | 5.97 | 0.53 | 6.37 | 154.21 |
| 11/26/00 | 4.22 | 0.82 | 7.17 | 96.29 |
| 11/27/00 | 3.11 | 0.20 | 4.39 | 71.88 |
| 11/28/00 | 1.78 | 0.00 | 7.94 | 58.13 |
| 11/29/00 | 5.68 | 0.02 | 13.83 | 67.71 |
| 11/30/00 | 5.00 | 1.53 | 13.51 | 76.42 |
| 12/1/00 | 7.66 | 1.84 | 17.70 | 136.96 |
| 12/2/00 | 5.94 | 0.30 | 5.12 | 141.29 |
| 12/3/00 | 3.80 | 0.00 | 4.36 | 66.71 |
| 12/4/00 | 3.23 | 0.42 | 7.85 | 83.04 |
| 12/5/00 | 6.94 | 0.59 | 10.46 | 145.96 |
| 12/6/00 | 4.24 | 0.26 | 2.12 | 152.13 |
| 12/7/00 | 1.64 | 0.00 | 2.01 | 103.33 |
| 12/8/00 | 0.92 | 0.09 | 4.04 | 128.33 |
| 12/9/00 | -2.08 | 0.00 | 4.32 | 61.25 |
| 12/10/00 | -2.68 | 0.00 | 5.26 | 63.63 |
| 12/11/00 | -1.48 | 0.00 | 2.59 | 75.42 |
| 12/12/00 | -2.53 | 0.00 | 2.98 | 57.25 |
| 12/13/00 | -3.14 | 0.00 | 5.39 | 59.50 |
| 12/14/00 | -5.14 | 0.00 | 9.19 | 45.54 |
| 12/15/00 | -5.93 | 0.04 | 8.03 | 71.13 |
| 12/16/00 | -1.09 | 0.24 | 10.38 | 107.46 |
| 12/17/00 | 2.01 | 0.47 | 7.85 | 76.67 |
| 12/18/00 | 2.30 | 1.39 | 7.33 | 147.25 |
| 12/19/00 | 0.44 | 0.00 | 3.66 | 89.00 |
| 12/20/00 | 0.24 | 0.00 | 3.99 | 74.46 |
| 12/21/00 | -2.21 | 0.00 | 2.66 | 63.58 |
| 12/22/00 | 0.14 | 0.00 | 2.00 | 78.79 |
| 12/23/00 | 1.50 | 0.07 | 4.68 | 91.92 |
| 12/24/00 | 4.78 | 0.5 | 11.98 | 76.54 |
| 12/25/00 | 5.11 | 1.13 | 8.10 | 69.75 |
| 12/26/00 | 3.91 | 1.04 | 6.11 | 100.71 |
| 12/27/00 | 3.90 | 0.03 | 6.13 | 81.08 |
| 12/28/00 | 3.62 | 0.10 | 6.58 | 97.83 |
| 12/29/00 | 6.54 | 0.41 | 9.06 | 93.96 |
| 12/30/00 | 7.45 | 1.60 | 7.76 | 112.58 |
| 12/31/00 | 5.26 | 0.09 | 5.23 | 98.46 |
| 1/1/01 | 7.20 | 0.76 | 11.18 | 142.75 |
| 1/2/01 | 8.85 | 2.47 | 13.24 | 142.52 |
| 1/3/01 | 6.70 | 1.02 | 12.63 | 177.75 |
| 1/4/01 | 5.49 | 1.24 | 11.45 | 103.24 |
| 1/5/01 | 6.74 | 1.22 | 10.27 | 169.87 |
| 1/6/01 | 4.19 | 0.07 | 6.40 | 112.11 |
| 1/7/01 | 7.85 | 0.08 | 9.86 | 125.58 |
| 1/8/01 | 5.31 | 0.02 | 7.21 | 144.86 |
| 1/9/01 | 3.66 | 0.00 | 4.30 | 146.06 |
| 1/10/01 | 1.03 | 0.01 | 2.49 | 167.49 |
| 1/11/01 | -1.24 | 0.01 | 3.78 | 61.93 |

| DATE | TEMPERATURE (C) | PRECIPIATION (in.) | WIND SPEED (mph) | WIND DIRECTION (deg N) |
|---|---|---|---|---|
| 1/12/01 | -0.38 | 0.00 | 4.88 | 68.05 |
| 1/13/01 | 1.42 | 0.14 | 4.31 | 75.29 |
| 1/14/01 | 0.42 | 0.00 | 1.70 | 23.33 |
| 1/15/01 | 2.06 | 0.38 | 4.89 | 43.85 |
| 1/16/01 | 4.53 | 0.97 | 8.21 | 82.30 |
| 1/17/01 | 5.57 | 1.09 | 9.28 | 91.62 |
| 1/18/01 | 5.82 | 1.31 | 8.13 | 100.67 |
| 1/19/01 | 4.21 | 0.51 | 7.25 | 92.70 |
| 1/20/01 | 5.42 | 0.53 | 15.21 | 109.56 |
| 1/21/01 | 6.20 | 0.94 | 9.49 | 128.28 |
| 1/22/01 | 6.73 | 0.24 | 11.15 | 107.01 |
| 1/23/01 | 5.53 | 0.57 | 4.97 | 113.25 |
| 1/24/01 | 5.65 | 0.04 | 2.30 | 126.69 |
| 1/25/01 | 4.75 | 0.15 | 1.74 | 168.24 |
| 1/26/01 | 3.08 | 0.00 | 5.01 | 62.96 |
| 1/27/01 | 4.98 | 3.04 | 12.80 | 140.83 |
| 1/28/01 | 2.23 | 0.11 | 2.20 | 118.60 |
| 1/29/01 | 0.92 | 0.28 | 4.31 | 111.05 |
| 1/30/01 | 1.19 | 0.24 | 6.72 | 117.49 |
| 1/31/01 | 6.64 | 2.43 | 14.10 | 152.56 |
| 2/1/01 | 5.76 | 1.13 | 10.51 | 86.60 |
| 2/2/01 | 5.97 | 1.64 | 12.65 | 123.30 |
| 2/3/01 | 3.70 | 0.00 | 5.77 | 163.46 |
| 2/4/01 | 0.80 | 0.00 | 4.13 | 149.65 |
| 2/5/01 | 0.05 | 0.00 | 4.05 | 68.11 |
| 2/6/01 | -0.92 | 0.00 | 3.45 | 100.01 |
| 2/7/01 | 0.59 | 0.03 | 6.40 | 96.18 |
| 2/8/01 | 1.72 | 0.09 | 7.23 | 69.62 |
| 2/9/01 | 0.70 | 0.10 | 5.18 | 91.14 |
| 2/10/01 | -0.56 | 0.00 | 4.18 | 148.80 |
| 2/11/01 | -2.55 | 0.00 | 3.52 | 86.56 |
| 2/12/01 | -0.59 | 0.00 | 2.88 | 61.78 |
| 2/13/01 | 2.82 | 0.41 | 6.78 | 132.50 |
| 2/14/01 | 1.72 | 0.01 | 5.62 | 128.24 |
| 2/15/01 | 0.02 | 0.00 | 4.30 | 59.76 |
| 2/16/01 | -1.43 | 0.00 | 3.58 | 92.27 |
| 2/17/01 | -0.71 | 0.00 | 2.83 | 98.34 |
| 2/18/01 | 0.73 | 0.00 | 3.40 | 97.03 |
| 2/19/01 | 2.03 | 0.00 | 3.12 | 113.75 |
| 2/20/01 | 0.85 | 0.00 | 2.60 | 103.68 |
| 2/21/01 | 1.06 | 0.00 | 2.78 | 112.69 |
| 2/22/01 | 1.68 | 0.04 | 2.36 | 100.54 |
| 2/23/01 | 0.14 | 0.00 | 3.83 | 110.11 |
| 2/24/01 | -1.21 | 0.04 | 4.84 | 81.11 |
| 2/25/01 | 0.97 | 0.11 | 5.66 | 70.65 |
| 2/26/01 | 4.35 | 1.27 | 7.57 | 89.78 |
| 2/27/01 | 4.43 | 2.73 | 12.75 | 136.22 |
| 2/28/01 | 2.66 | 1.26 | 6.17 | 144.16 |

| DATE | TEMPERATURE (C) | PRECIPIATION (in.) | WIND SPEED (mph) | WIND DIRECTION (deg N) |
|---|---|---|---|---|
| NOVEMBER | | | | |
| MAX | 9.37 | 4.18 | 13.83 | 209.50 |
| MIN | 0.00 | 0.00 | 0.00 | 0.00 |
| AVERAGE | 4.94 | 0.57 | 6.78 | 96.86 |
| TOTAL | | 17.04 | | |
| DECEMBER | | | | |
| MAX | 7.66 | 1.84 | 17.70 | 152.13 |
| MIN | -5.93 | 0.00 | 2.00 | 45.54 |
| AVERAGE | 1.78 | 0.34 | 6.29 | 91.98 |
| TOTAL | | 10.61 | | |
| JANUARY | | | | |
| MAX | 8.85 | 3.04 | 15.21 | 177.75 |
| MIN | -1.24 | 0.00 | 1.70 | 23.33 |
| AVERAGE | 4.28 | 0.64 | 7.47 | 113.82 |
| TOTAL | | 19.87 | | |
| FEBRUARY | | | | |
| MAX | 5.97 | 2.73 | 12.75 | 163.46 |
| MIN | -2.55 | 0.00 | 2.36 | 59.76 |
| AVERAGE | 1.24 | 0.32 | 5.29 | 104.14 |
| TOTAL | | 8.86 | | |

**ESTIMATED TIDES - WARD COVE**
**DATA FROM TIDES & CURRENTS VERSION 2.5b**

| Date | Time | Value (ft. from MLLW) | Time | Value (ft. from MLLW) | Time | Value (ft. from MLLW) | Time | Value (ft. from MLLW) |
|---|---|---|---|---|---|---|---|---|
| 11/1/00 | 3:39a | 13.3 | 9:13a | 4.9 | 3:10p | 14.5 | 9:51p | 1.5 |
| 11/2/00 | 4:30a | 12.4 | 10:01a | 5.9 | 3:56p | 13.4 | 10:43p | 2.5 |
| 11/3/00 | 5:33a | 11.9 | 11:04a | 6.6 | 4:55p | 12.5 | 11:48p | 3.3 |
| 11/4/00 | 6:47a | 11.8 | 12:27p | 6.8 | 6:11p | 11.9 | | |
| 11/5/00 | 1:00a | 3.6 | 7:55a | 12.3 | 1:48p | 6.1 | 7:33p | 11.9 |
| 11/6/00 | 2:06a | 3.4 | 8:48a | 13.1 | 2:50p | 5 | 8:42p | 12.5 |
| 11/7/00 | 2:59a | 3 | 9:30a | 14.1 | 3:38p | 3.5 | 9:37p | 13.4 |
| 11/8/00 | 3:44a | 2.5 | 10:06a | 15.2 | 4:20p | 1.9 | 10:24p | 14.3 |
| 11/9/00 | 4:23a | 2 | 10:40a | 16.3 | 4:58p | 0.4 | 11:07p | 15.2 |
| 11/10/00 | 5:02a | 1.7 | 11:14a | 17.3 | 5:36p | -1 | 11:48p | 15.9 |
| 11/11/00 | 5:39a | 1.5 | 11:49a | 18 | 6:15p | -2.1 | | |
| 11/12/00 | 12:30a | 16.3 | 6:18a | 1.5 | 12:25p | 18.5 | 6:55p | -2.7 |
| 11/13/00 | 1:13a | 16.3 | 6:58a | 1.9 | 1:04p | 18.5 | 7:38p | -2.9 |
| 11/14/00 | 1:58a | 16.1 | 7:40a | 2.4 | 1:45p | 18.2 | 8:24p | -2.5 |
| 11/15/00 | 2:47a | 15.5 | 8:27a | 3.2 | 2:32p | 17.4 | 9:14p | -1.8 |
| 11/16/00 | 3:41a | 14.9 | 9:20a | 4.1 | 3:24p | 16.3 | 10:10p | -0.7 |
| 11/17/00 | 4:42a | 14.3 | 10:24a | 4.8 | 4:28p | 15.1 | 11:13p | 0.4 |
| 11/18/00 | 5:51a | 14 | 11:43a | 5.2 | 5:44p | 14.1 | | |
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| 11/20/00 | 1:35a | 1.7 | 8:08a | 14.9 | 2:27p | 3.6 | 8:28p | 13.7 |
| 11/21/00 | 2:39a | 1.9 | 9:04a | 15.8 | 3:28p | 2.2 | 9:35p | 14.3 |
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| 11/24/00 | 5:04a | 2.1 | 11:13a | 17.7 | 5:43p | -1.1 | | |
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| 12/3/00 | 5:45a | 12.7 | 11:34a | 6.3 | 5:15p | 12.3 | 11:51p | 3.3 |
| 12/4/00 | 6:44a | 12.9 | 12:48p | 5.9 | 6:29p | 11.8 | | |
| 12/5/00 | 12:53a | 3.7 | 7:40a | 13.5 | 1:58p | 4.9 | 7:46p | 11.9 |
| 12/6/00 | 1:54a | 3.8 | 8:30a | 14.3 | 2:56p | 3.5 | 8:55p | 12.5 |
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| 12/9/00 | 4:27a | 3 | 10:39a | 17.5 | 5:14p | -1.4 | 11:31p | 15.3 |
| 12/10/00 | 5:12a | 2.6 | 11:21a | 18.4 | 5:57p | -2.6 | | |
| 12/11/00 | 12:17a | 16 | 5:57a | 2.4 | 12:04p | 19 | 6:41p | -3.4 |
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| 12/18/00 | 6:25a | 15.2 | 12:44p | 4 | 6:44p | 13.2 | | |
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| 12/25/00 | 12:32a | 14.8 | 6:04a | 3.8 | 12:05p | 17.1 | 6:41p | -1.2 |
| 12/26/00 | 1:08a | 14.9 | 6:41a | 3.8 | 12:39p | 17 | 7:15p | -1.1 |
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| 12/29/00 | 2:53a | 14.5 | 8:30a | 4.4 | 2:23p | 15.6 | 8:56p | 0.2 |
| 12/30/00 | 3:29a | 14.2 | 9:10a | 4.7 | 3:00p | 14.8 | 9:32p | 0.9 |
| 12/31/00 | 4:07a | 14 | 9:55a | 5 | 3:42p | 13.9 | 10:11p | 1.8 |
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| 1/2/01 | 5:36a | 13.6 | 11:50a | 5.1 | 5:34p | 12 | 11:47p | 3.7 |
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| 1/18/01 | 1:17a | 4.3 | 7:43a | 15 | 2:38p | 2.5 | 8:56p | 11.8 |
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| 1/21/01 | 4:24a | 5 | 10:29a | 15.7 | 5:16p | 0.2 | 11:43p | 13.5 |
| 1/22/01 | 5:10a | 4.6 | 11:11a | 16.1 | 5:53p | -0.4 | | |
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| Date | Time | Value (ft. from MLLW) | Time | Value (ft. from MLLW) | Time | Value (ft. from MLLW) | Time | Value (ft. from MLLW) |
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| 1/31/01 | 4:39a | 14.4 | 11:02a | 3.5 | 4:55p | 12.3 | 10:55p | 3.5 |
| 2/1/01 | 5:26a | 14.3 | 12:07p | 3.4 | 6:05p | 11.4 | 11:53p | 4.6 |
| 2/2/01 | 6:25a | 14.3 | 1:22p | 2.8 | 7:33p | 11.1 | | |
| 2/3/01 | 1:07a | 5.3 | 7:35a | 14.6 | 2:37p | 1.7 | 9:00p | 11.7 |
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| 2/5/01 | 3:39a | 4.7 | 9:50a | 16.5 | 4:39p | -1.4 | 11:05p | 14.3 |
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| 2/7/01 | 5:33a | 2.4 | 11:40a | 18.7 | 6:15p | -3.8 | | |
| 2/8/01 | 12:37a | 16.7 | 6:22a | 1.3 | 12:29p | 19.3 | 6:59p | -4.1 |
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| 2/13/01 | 4:09a | 16.6 | 10:27a | 1.4 | 4:35p | 14 | 10:34p | 2 |
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| 2/18/01 | 3:09a | 5.9 | 9:16a | 13.9 | 4:12p | 1.6 | 10:44p | 12.3 |
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| 2/21/01 | 5:34a | 3.8 | 11:35a | 15.7 | 6:06p | -0.4 | | |
| 2/22/01 | 12:29a | 14.6 | 6:09a | 3 | 12:10p | 16.2 | 6:36p | -0.8 |
| 2/23/01 | 12:58a | 15.1 | 6:42a | 2.3 | 12:43p | 16.4 | 7:05p | -0.9 |
| 2/24/01 | 1:25a | 15.5 | 7:15a | 1.8 | 1:15p | 16.3 | 7:33p | -0.7 |

# APPENDIX I: PROJECT PHOTOS

Figure I-1. Former Ketchikan Pulp Company Pulp Mill Site.
Figure I-2. Aerial View of Ward Cove from the West.
Figure I-3. Aerial View of Ward Cove from the East.
Figure I-4. Log Removal Containment Barge.
Figure I-5. Removal of Logs from Containment Barge to Stockpile Area.
Figure I-6. Log Chipper with Chip Pile in Background.
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Figure I-14. Sand and Derrick Barges.
Figure I-15. Bucket Reaching for Sand on Barge.
Figure I-16. Bucket Grabbing Sand from Sand Barge.
Figure I-17. Bucket Releasing Sand Cap Material.
Figure I-18. van Veen Containing Undisturbed Sediment Cap Sample.
Figure I-19. Field Wet Sieve Analysis of Sand Cap.
Figure I-20. Divers Preparing for Collection of Sand Cap Cores.
Figure I-21. Diver Core Sand Cap Samples.
Figure I-22. Deploying the Hydrolab.

Figure I-1. Former Ketchikan Pulp Company Pulp Mill Site.

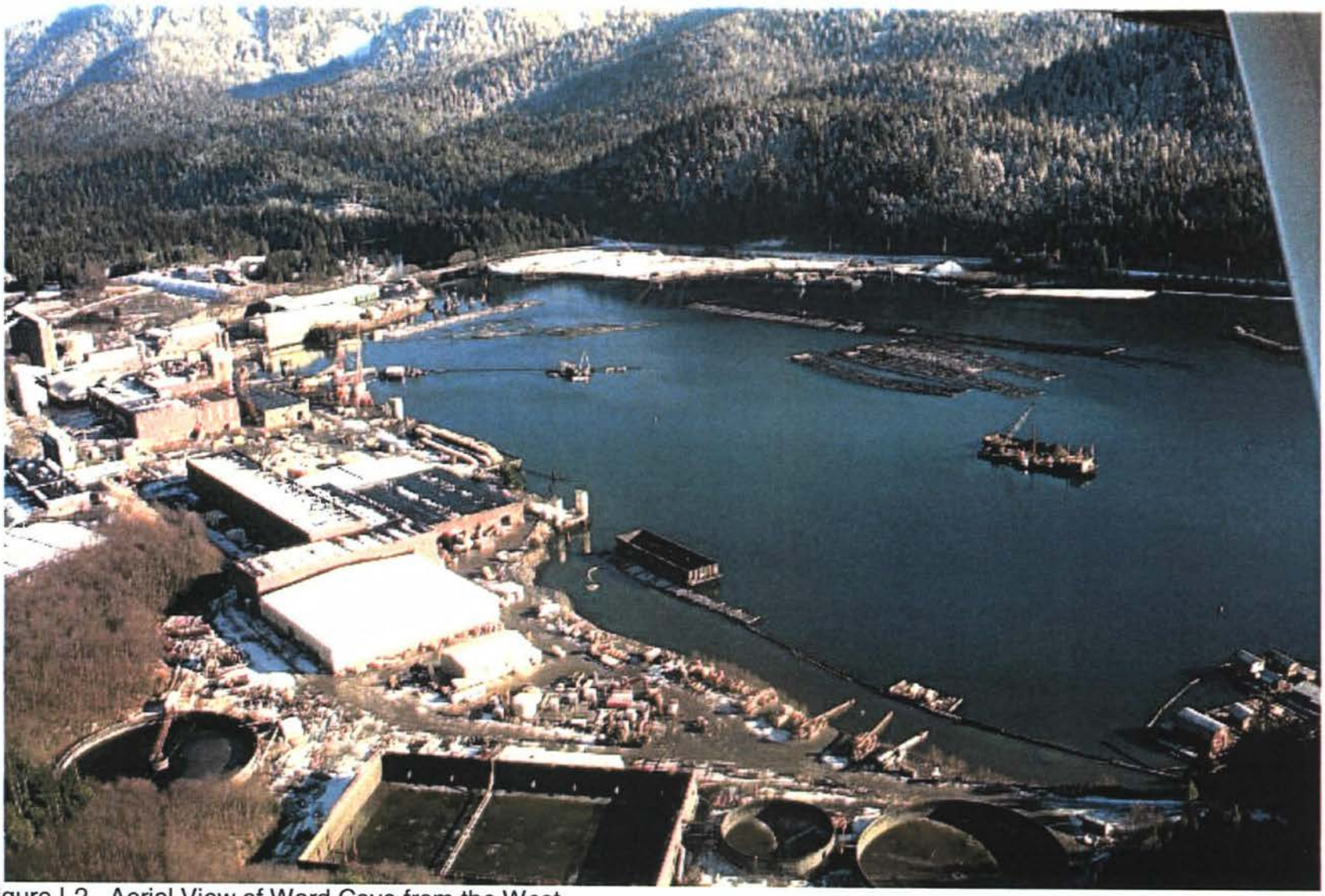

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Figure I-12. Placement of Dredge Material into Dewatering Area.

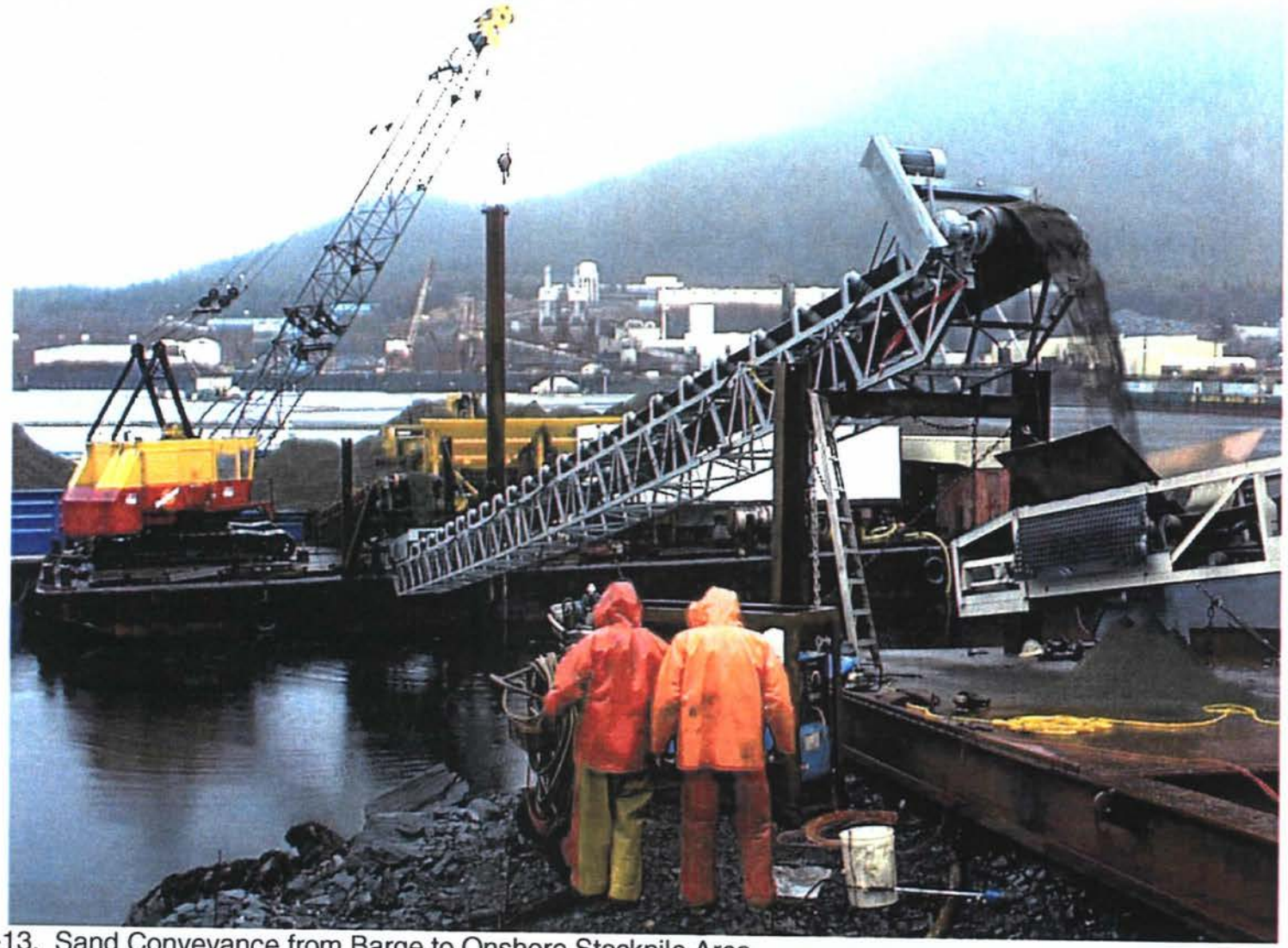

Figure I-13. Sand Conveyance from Barge to Onshore Stockpile Area.

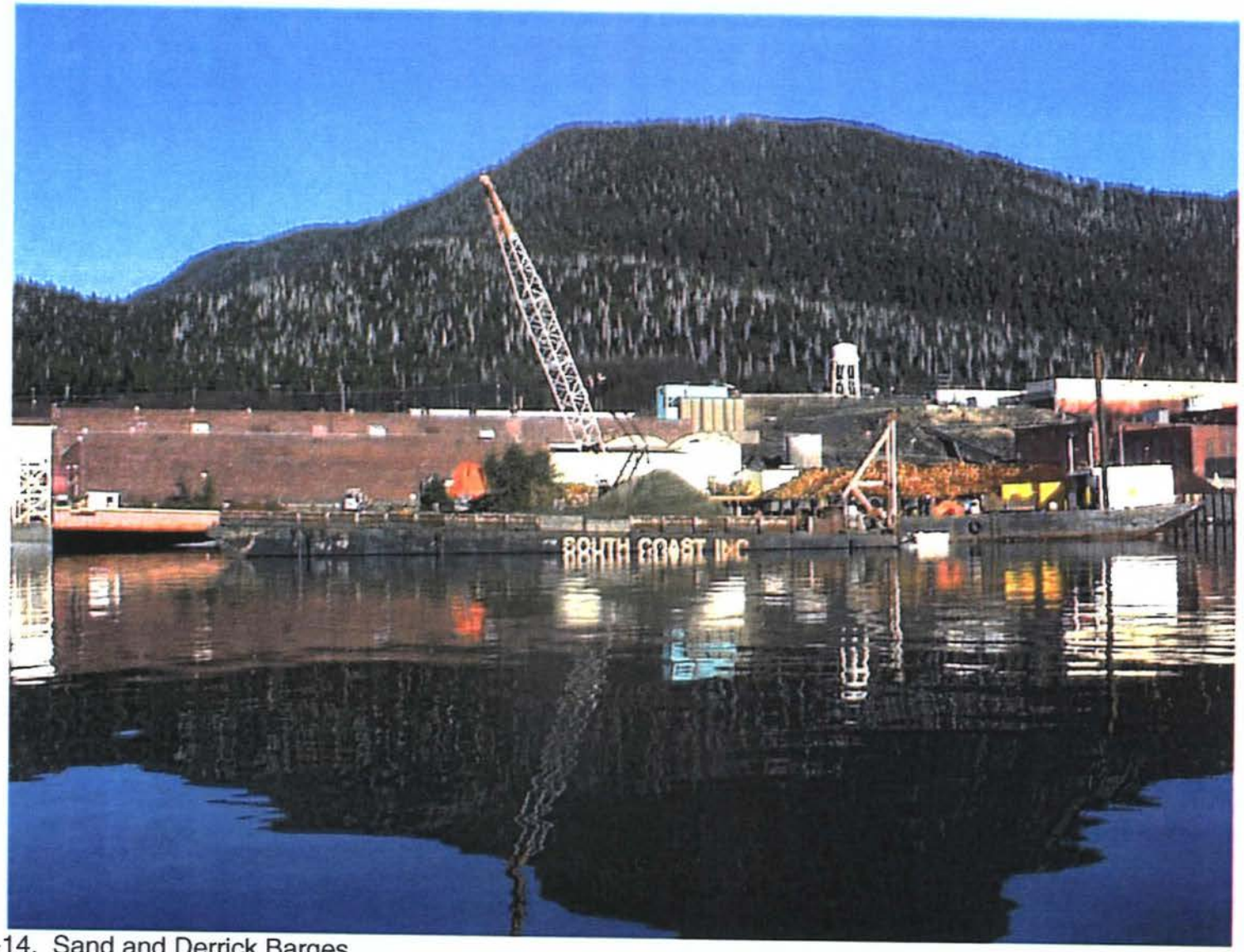


Figure I-14. Sand and Derrick Barges.

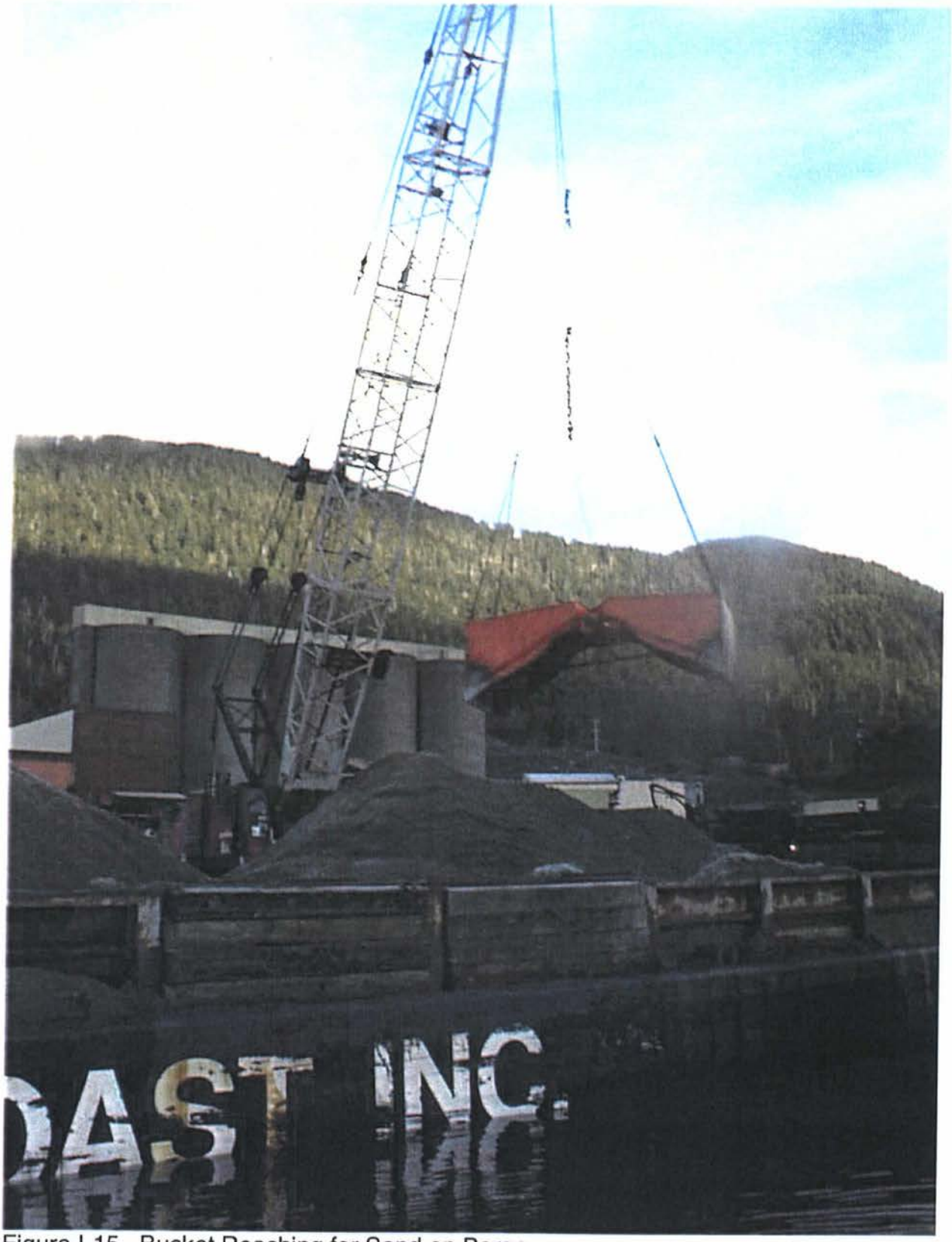


Figure I-15. Bucket Reaching for Sand on Barge.

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Figure I-17. Bucket Releasing Sand Cap Material.

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Figure I-19. Field Wet Sieve Analysis of Sand Cap.

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Figure I-21. Diver Core Sand Cap Samples.

Figure I-22. Deploying the Hydrolab.

FOSTER WHEELER ENVIRONMENTAL CORPORATION

April 4, 2001
KPC/WCR-011022
File Index 2.7.3

Karen Keeley
Project Manager
EPA Region 10
Mail Stop 111
1200 Sixth Avenue
Seattle, Washington 98101

**SUBJECT: Final Inspection / Meeting Letter**

Ref: Ward Cove Sediment Remediation Project Remedy Implementation, Ketchikan Pulp Company, Ketchikan, AK

Dear Karen:

With the completion of the in-water work February 24, 2001, Foster Wheeler assembled a completion punchlist and distributed it to the contractor, to ensure that the site is returned to its pre-construction condition prior to completion of demobilization. A site walkthrough was completed on Saturday, February 24, 2001 with representatives from Foster Wheeler, KPC, McAmis and South Coast to develop the punchlist. A subsequent meeting and site walk was performed with Gateway Forest Products (GFP) representatives, whereby the punchlist items were agreed to as follows;

- Removal of tub grinder from dewatering site. The tub grinder will be transported off site to another KPC facility.
- Eighteen (18) creosote pilings, twelve of which were removed from the Ward Cove marine operable unit, will be left on site and recycled by GFP as upland facilities.
- Metal debris removal. Metals debris separated out from the log removal and dredging operations located on the top of bank of the dewatering site will be transported to the Ketchikan landfill for disposal. Boom chain recovered from the remediation activities will be recycled (reused) by GFP.

KETCHIKAN OFFICE, P.O. BOX 979, WARD COVE, ALASKA 99928
TEL: 907-225-7559 FAX: 907-247-7559

- Once the metal debris and tub grinder has been transported offsite, McAmis / South Coast will construct barriers across the three road accessways into the dewatering site, by using the creosote piles discussed above.

- Log (chip) disposal. The ultimate destination of the logs (chips) is still undetermined at this point. McAmis / South Coast are currently in discussions with the Ketchikan Landfill to determine if the log chips are acceptable for disposal there. The logs (chips) will ultimately be disposed of at a permitted solid waste facility.

- Approximately 550 – 600 cy of excess imported sand, distributed amongst the two material barges and the sand stockpiling area, remains from the capping operations, and will be stockpiled on the south end of the sand stockpile area for use by GFP.

- A temporary metal dock used by McAmis/South Coast was used to support the conveyor system used in sand loading/unloading, and will be returned to it's original location near the south end of the sand stockpile area by McAmis/South Coast.

- Four (4) oil-water separators that have been covered or partially covered by the sand stockpiling operations will be returned to their pre-existing condition, by McAmis/South Coast. A ring of rocks will be constructed around each of the oil-water separators to prevent clogging by residual sand on site.

- Two (2) temporary breasting piles used first for dredged material offloading, then for sand loading/offloading, will be removed by McAmis/South Coast.

- Any residual sand located near the top of the shoreward slope of the sand stockpiling area, will be graded to drain water towards the center of the sand stockpiling area. The gap in the small sand berm located at the top of slope will be filled and graded such that the cross section is consistent and rainwater will drain towards the center of the stockpile area and not towards the cove.

- The metal walkway, steel piles and I-beams currently located behind the Lima crane on the top of bank will be removed by McAmis/South Coast to an offsite location.

- The Lima crane will be moved offsite, by barge, on a significant high tide the first or second week in March, 2001.

- Any litter, supplies, equipment, fluid containers or other debris generated by or associated with the project will be removed and disposed of at an approved disposal facility by McAmis/South Coast.

- McAmis will submit all outstanding data to Foster Wheeler prior to completion of demobilization activities. As per the contract documents, these data include but are not limited to pre-survey of the dewatering site, prior to dredged material placement, barge displacement records, copies of field notes and log books, and dredge/capping production records.

All of the above punchlist items have been completed by McAmis/South Coast, and the project is fully demobilized. The Lima Crane remains on site, however, it is demobilized for the Ward Cove Remediation Project, as it will be used for a future work activity by GFP. This was agreed to by GFP on April 4, 2001.

Please let me know if you have any questions or comments on this letter. I can be reached at (425) 482-7762. Thank you.

Sincerely,

John Lally
Site Supervisor

cc: Barry Hogarty, Ketchikan Pulp Company
Bill Gerken, Peratovich, Nottingham & Drage
Bruce Mills, Foster Wheeler Environmental Corporation
Eric Snow, Foster Wheeler Environmental Corporation
Craig Chartrand, J.E. McAmis Inc.
Allyn Hayes, Gateway Forest Products
File

February 28, 2001
KPC/WCR-011021
File Index 2.7.3

Karen Keeley
Project Manager
EPA Region 10
Mail Stop 111
1200 Sixth Avenue
Seattle, Washington 98101

**SUBJECT: Completion Punchlist**

Ref: Ward Cove Sediment Remediation Project Remedy Implementation, Ketchikan Pulp Company, Ketchikan, AK

Dear Karen:

Pursuant to our pre-final inspection meeting / conference call with you, Barry Hogarty (KPC-LP) and myself in attendance, I have prepared this pre-final inspection meeting letter for your review.

With the completion of the in-water work February 24, 2001, Foster Wheeler has assembled a completion punchlist distributed to the contractor, to ensure that the site is returned to its pre-construction condition prior to completion of demobilization. A site walkthrough was completed on Saturday, February 24, 2001 with representatives from Foster Wheeler, KPC-LP, McAmis and South Coast to develop the punchlist. A subsequent meeting and site walk was performed with Gateway Forest Products (GFP) representatives, whereby the punchlist items were agreed to.

- Removal of tub grinder from dewatering site. The tub grinder will be transported off site to another KPC-LP facility.

- Eighteen (18) creosote pilings, twelve (12) of which were removed from the Ward Cove marine operable unit, will be left on site and recycled by GFP as upland facilities.

- Metal debris removal. Metals debris separated out from the log removal and dredging operations located on the top of bank of the dewatering site will be transported to the

Ketchikan landfill for disposal. Boom chain recovered from the remediation activities will be recycled (reused) by GFP.

- Once the metal debris and tub grinder has been transported offsite, McAmis / South Coast will construct barriers across the three road accessways into the dewatering site, by using the creosote piles discussed above.

- Log (chip) disposal. The ultimate destination of the logs (chips) is still undetermined at this point. McAmis / South Coast are currently in discussions with the Ketchikan Landfill to determine if the log chips are acceptable for disposal there. The logs (chips) will ultimately be disposed of at a permitted solid waste facility.

- Approximately 550 – 600 cy of excess imported sand, distributed amongst the two material barges and the sand stockpiling area, remains from the capping operations, and will be stockpiled on the south end of the sand stockpile area for use by GFP.

- A temporary metal dock used by McAmis/South Coast was used to support the conveyor system used in sand loading/unloading, and will be returned to it's original location near the south end of the sand stockpile area by McAmis/South Coast.

- Four (4) oil-water separators that have been covered or partially covered by the sand stockpiling operations will be returned to their pre-existing condition, by McAmis/South Coast. A ring of rocks will be constructed around each of the oil-water separators to prevent clogging by residual sand on site.

- Two (2) temporary breasting piles used first for dredged material offloading, then for sand loading/offloading, will be removed by McAmis/South Coast.

- Any residual sand located near the top of the shoreward slope of the sand stockpiling area, will be graded to drain water towards the center of the sand stockpiling area. The gap in the small sand berm located at the top of slope will be filled and graded such that the cross section is consistent and rainwater will drain towards the center of the stockpile area and not towards the cove.

- The metal walkway, steel piles and I-beams currently located behind the Lima crane on the top of bank will be removed by McAmis/South Coast to an offsite location.

- The Lima crane will be moved offsite, by barge, on a significant high tide the first or second week in March, 2001.

- Any litter, supplies, equipment, fluid containers or other debris generated by or associated with the project will be removed and disposed of at an approved disposal facility by McAmis/South Coast.

- McAmis will submit all outstanding data to Foster Wheeler prior to completion of demobilization activities. As per the contract documents, these data include but are

not limited to pre-survey of the dewatering site, prior to dredged material placement, barge displacement records, copies of field notes and log books, and dredge/capping production records.

McAmis, South Coast, GFP, and KPC-LP / Foster Wheeler has agreed to this punchlist. The punchlist items will be completed by McAmis/South Coast by Friday, March 2, 2001.

Sincerely,

John Lally
Site Supervisor

cc: Barry Hogarty, Ketchikan Pulp Company
Bill Gerken, Peratovich, Nottingham & Drage
Bruce Mills, Foster Wheeler Environmental Corporation
Henry Morris, Foster Wheeler Environmental Corporation
Eric Snow, Foster Wheeler Environmental Corporation
Craig Chartrand, J.E. McAmis Inc.
Allyn Hayes, Gateway Forest Products
Site File

February 27, 2001
KPC/WCR-011020
File Index 2.7.3

Karen Keeley
Project Manager
EPA Region 10
Mail Stop 111
1200 Sixth Avenue
Seattle, Washington 98101

**SUBJECT: Notification of Completion of In-Water Work**

Ref: Ward Cove Sediment Remediation Project Remedy Implementation, Ketchikan Pulp Company, Ketchikan, AK

Dear Karen:

This letter is to notify you that all in-water work has been completed in accordance with project Contract Plans and Specifications and applicable Field Change Requests. The Contractor completed final placement of cap material in acceptance area A4 at approximately 1600 hrs Alaska Standard Time, on February 24, 2001.

The in-water remedial action construction involved the completion of log removal, PAH removal, and dredging as described in earlier correspondence with EPA. The final in-water work element involved the placement of a thin cap over fifteen (15) acceptance areas. In total, approximately 23,307 cubic yards (cy) of thin cap material was uniformly distributed over the acceptance areas requiring thin cap material. Of this volume, approximately 1,952 cy was the coarser thin cap material (3-inch minus), which was placed uniformly over acceptance areas D3 and B4, to provide additional scour protection due to anticipated shallow draft vessel usage. The contractor, McAmis / South Coast, employed the derrick barge "Miller 205" to perform all in-water remediation work. For the thin capping activities, the derrick barge used a modified 8 cy Cable Arm re-handling bucket and WINOPS dredge positioning system. The WINOPS system was used to plan, locate, place and record the capping discharge location of all buckets over the acceptance area targets. Foster Wheeler performed confirmatory performance verification (PSV) sampling in acceptance areas, by means of van Veen shallow box core, diver push cores, and underwater video, to confirm that all capping areas were thin capped successfully. PSV sampling results have been forwarded to EPA via the weekly

Quality Assurance Inspection Report, and show the capping work to be very successful. The Construction Report, a draft of which will be submitted by April 23, 2001, will summarize all performance verification results.

The total areas thin capped are summarized as follows:

| Acceptance Area | Area Thin Capped | |
|---|---|---|
| | sq. ft. | Acres |
| A1 | 60200 | 1.38 |
| A2 | 77895 | 1.79 |
| A3 | 93256 | 2.14 |
| A4 | 142240 | 3.27 |
| A5 | 132149 | 3.03 |
| A6 | 80103 | 1.84 |
| A7 | 92583 | 2.13 |
| A8 | 75900 | 1.74 |
| B1 | 61883 | 1.42 |
| B2 | 134932 | 3.10 |
| B3 | 27688 | 0.64 |
| B4 | 41876 | 0.96 |
| D2 | 63822 | 0.70 |
| D3 | 47600 | 1.07 |
| M1 | 42605 | 0.98 |
| Total | 1174732 | 26.18 |

Water quality monitoring was completed throughout the in-water remediation in conformance with the Contract Documents. Over the course of the entire project (approximately 4 months of in-water work), there were only two (2) exceedances of the turbidity standard of 25 NTU. Dissolved oxygen was also always measured during water quality monitoring events, and only a few exceedances (below 5 mg/L) were recorded. These few exceedances were recorded at deeper depths, and appeared not to be the result of in-water remediation operations. No spills occurred as a result of the in-water remediation work, and no fish kills or distressed fish were observed. All water quality monitoring results have been presented in the Weekly Quality Assurance Inspection Reports.

A completion punchlist has been assembled and distributed to the contractor, to ensure that the site is returned to its pre-construction condition prior to completion of demobilization. A site walk was completed on Saturday, February 24, 2001 with representatives from Foster Wheeler, KPC-LP, McAmis and South Coast to develop the punchlist. A subsequent meeting and site walk was performed with Gateway Forest Products representatives, whereby the punchlist items were agreed to. The punchlist items will be completed by Friday, March 2, 2001.

Sincerely,

John Lally
Site Supervisor

cc: Barry Hogarty, Ketchikan Pulp Company
John Wakeman, U.S. Army Corps of Engineers, Seattle District
Tammy Phillips, U.S. Army Corps of Engineers, Alaska District
Bill Gerken, Peratovich, Nottingham & Drage
Bruce Mills, Foster Wheeler Environmental Corporation
Henry Morris, Foster Wheeler Environmental Corporation
Greg Hartman, Foster Wheeler Environmental Corporation
Craig Chartrand, J.E. McAmis Industries
Site File