

**DIVISION OF SPILL PREVENTION AND RESPONSE
CONTAMINATED SITES REMEDIATION PROGRAM**

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Mr. Gary Paxton
City Administrator
City and Borough of Sitka
100 Lincoln Street
Sitka, AK 99835

February 14, 2001

RE: Sawmill Cove Baseline Environmental Monitoring Report Approval

Dear Mr. Paxton:

The Alaska Department of Environmental Conservation (DEC) has completed its review of the baseline monitoring report entitled *Silver Bay Baseline Environmental Monitoring*, prepared by EVS Environment Consultants. DEC, the City and Borough of Sitka (CBS), and EVS worked together to finalize the draft report in January and February 2001.

Background

The Remedial Action Objective (RAO) presented in the April 1999 *Alaska Pulp Corporation Mill Site Record of Decision* (ROD) is to “reduce ecologically significant adverse effects to populations of bottom-dwelling life from hazardous substances, including wood waste degradation chemicals, to acceptable levels.” The performance measure for this RAO is “the observable succession of benthic species (living both on and in the sediments) that will result in balanced, stable communities as assessed by measures of abundance and diversity at various locations over time.”

When Alaska Pulp Corporation (APC) transferred the mill site property to CBS ownership in April 1999, CBS assumed responsibility for long-term monitoring to document the ecological recovery of Sawmill Cove. The terms and conditions of the ROD required APC to design a broad monitoring approach that would then be used to guide the development of detailed sampling plans. This approach, developed by APC’s contractor, was completed with substantive DEC and CBS input (*Long-Term Benthic Monitoring Program and Bioaccumulation Survey*, Foster Wheeler Environmental, July 1999). The approach is an “adaptive management” strategy that provides flexibility to re-evaluate goals and modify monitoring activities to reflect changing site conditions and needs.

In December 1999, DEC staff participated on a review committee to assist CBS with the selection of a baseline monitoring contractor. Four firms submitted proposals based on the approved adaptive management monitoring approach. A two-tiered sampling plan submitted by EVS Environment Consultants (EVS) was selected. Tier 1, consisting of underwater towed video and sediment profile imaging (SPI) was conducted in April 2000. Tier 2 sampling for benthic community analyses and sediment chemistry was conducted in August 2000. The Tier 2 plan was developed based on the results of Tier 1 sampling.

Findings

The EVS baseline monitoring report concludes that while the Area of Concern (AOC) defined in the ROD still shows impacts due to organic enrichment, natural recovery is occurring. In fact, the first two RAO milestones have been met: more than 75% of the AOC is inhabited by decomposers, primary producers, and primary consumers. EVS analysis shows that approximately 16% of the AOC has fully recovered and achieved the final management milestone, 22% of the AOC is in transition to the final recovery stage, and 62% is still considered impaired.

Recommendations and Discussion

EVS presents three options for the next monitoring event, scheduled for 2010. These options range from a higher cost approach following the same basic program as the baseline effort, to a less costly approach that relies entirely on photo documentation. Section 5.2 of the EVS report recommends a sampling strategy applicable to all three options. The options are as follows:

1. Continue with the full suite of evaluation tools outlined in the 1999 DEC-approved monitoring approach, including underwater video, SPI, sediment chemistry, and benthic community surveys.
2. Collect and archive benthic community grab samples for later analyses depending on SPI and underwater video results.
3. Rely only on SPI and underwater video.

Option 3 is discussed in detail in the following paragraphs because it is the most significant “adaptive management” change to the approved monitoring strategy.

EVS has shown that SPI and an underwater video camera are capable of documenting the recovery of the seafloor ecological community at Sawmill Cove. In fact, the EVS baseline monitoring effort documented that benthic grab sample results show a more advanced recovery status than one would infer from the SPI images alone. In other words, SPI appeared to be a slightly more conservative yardstick of benthic community recovery, taking into account the sediment “habitat quality” (depth of redox potential discontinuity, presence of methane) as well as apparent infaunal successional stage.

SPI is not a new, untested technology. It was developed almost two decades ago as a rapid reconnaissance tool for characterizing physical, chemical, and biological seafloor processes. It has been used in numerous seafloor community surveys throughout the United States, Pacific Rim, and Europe (Rhoads and Germano, 1982, 1986, 1990; Revelas et al. 1987; Valente et al. 1992). Further, SPI data have been shown to be as effective as traditional data in delineating the spatial effect of pollution-impacted benthos (Grizzle and Penniman, 1991).¹

The U.S. Army Corps of Engineers, New England Division, has adopted a re-colonization monitoring approach for its dredge disposal sites that relies solely on SPI. After repeatedly monitoring re-colonization of dredged material disposal sites using benthic grab samples and traditional benthic community analyses, the program evolved to the point where grab samples for traditional community analyses was abandoned altogether. It was, however, reserved as a backup. If anomalous re-colonization patterns were detected with SPI, then grab samples could be taken for complete analysis of benthic community structure and sediment chemistry.

Conclusions

Section 2.3 of Foster Wheeler’s *Long-Term Benthic Monitoring Program and Bioaccumulation Survey* report states that “site monitoring will follow an adaptive management strategy that will provide flexibility to periodically re-evaluate goals and modify monitoring activities to reflect changing site conditions and needs.” DEC agrees that each of these options falls within the framework of the approved adaptive management approach. It is important to note that if option 3 is selected by CBS during planning for the 2010 monitoring event, anomalous results may require re-mobilization to collect grab samples for sediment chemistry and benthic community analyses.

DEC further recognizes that each of these options may be re-evaluated in 2010 due to possible

¹ Complete citations may be found in the report *Silver Bay Baseline Monitoring*, EVS Environment Consultants, March 2001.

improvements to monitoring technologies. An entirely new alternative may be proposed at that time as long as it meets the intent of the adaptive management strategy.

The 2010 monitoring event must also include a bioaccumulation survey to evaluate the potential change in dioxin/furan concentrations that may occur, over time, in the tissues of various target species. Details are described in Section 3.4.3 of Foster Wheeler's *Long-Term Benthic Monitoring Program and Bioaccumulation Survey* report (July 1999).

It has been a pleasure working with CBS on this project.

Sincerely,

Ron Klein
Section Manager
Technical Services and Remediation

cc: Mark Buggins, CBS
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Mr. Gary Paxton

March 15, 2001
