Alaska Department of Environmental Conservation
Division of Spill Prevention and Response
Contaminated Sites Program

Sawmill Cove Industrial Park – 2004
Photo courtesy City and Borough of Sitka

Five-Year Review Report
Alaska Pulp Corporation Sitka Mill Site
March 2005

Introduction

The Alaska Department of Environmental Conservation (DEC) Contaminated Sites Program conducted a five-year review of the Alaska Pulp Corporation (APC) Sitka mill site. The purpose of the five-year review was to determine whether the selected remedy is protective of human health and the environment. The trigger action for this review was the completion of the Record of Decision (ROD) in April 1999. At that time, it was assumed that hazardous substances may remain at the site above risk-based cleanup levels that allow for unrestricted use and unlimited exposure.

The remedy for the site included bioremediation of petroleum-contaminated soils, disposal of non-hazardous drain system sediments and ash containing dioxin at a permitted local solid waste disposal facility, land use restrictions, and ecological natural recovery of the Sawmill Cove seafloor community.

The mill site remedy is considered protective of human health and the environment. The Sawmill Cove ecological remedy is progressing as expected; comprehensive sampling in 2000 showed natural recovery is occurring.

Several issues raised by community members during this 5-year review included concern that the commercial/industrial land restriction in some instances has limited proposed uses of the Sawmill Cove Industrial Park, site of the former pulp mill. The adequacy of uplands sampling during the 1996-1997 remedial investigation and the protectiveness of the Sawmill Cove natural recovery remedy were questioned. One community member recommended better communication between DEC, the public, and the City and Borough of Sitka (CBS). The high cost of Sawmill Cove monitoring and the current limitations on discharges from the primary wastewater outfall were also identified as issues.

Site Chronology

Date	Event
1959	Mill begins operation
1971	Primary treatment system installed for process wastewater
1978	Secondary treatment system installed
1989	Anaerobic treatment system installed
1990	Ash experimentally slurried with mill wastewater for three months
1990	EPA assesses potential risks from discharges of mill waste to Silver Bay
Fall 1993	Mill ceases operation
1994-1995	EPA conducts Superfund screening assessments
Fall 1995	State assumes project oversight. APC agrees to conduct an RI/FS in a Commitment Agreement signed with DEC
Fall 1995	Foster Wheeler selected by APC to conduct RI/FS
1997	Petroleum-contaminated soils excavated and treated on-site
April 1998	Mill OU Remedial Investigation Report completed
June 1998	Mill OU and Bay OU Ecological Risk Assessment Reports completed
July 1998	Bay OU Remedial Investigation Report completed
February 1999	Bay OU Feasibility Study Report completed
February 1999	Human Health Risk Assessment Report completed
February 1999	DEC releases Proposed Plan
March 1999	EPA accepts DEC's proposed remedy
April 1999	APC transfers mill property to the City and Borough of Sitka
April 1999	DEC releases Record of Decision
Summer 1999	Long-term monitoring plan completed
Summer 2000	First long-term monitoring event completed

Background

Location and Setting

The former APC pulp mill site is located on the north and west shores of Sawmill Cove, approximately 5 miles east of Sitka, in southeast Alaska. Steep slopes border the 38-acre

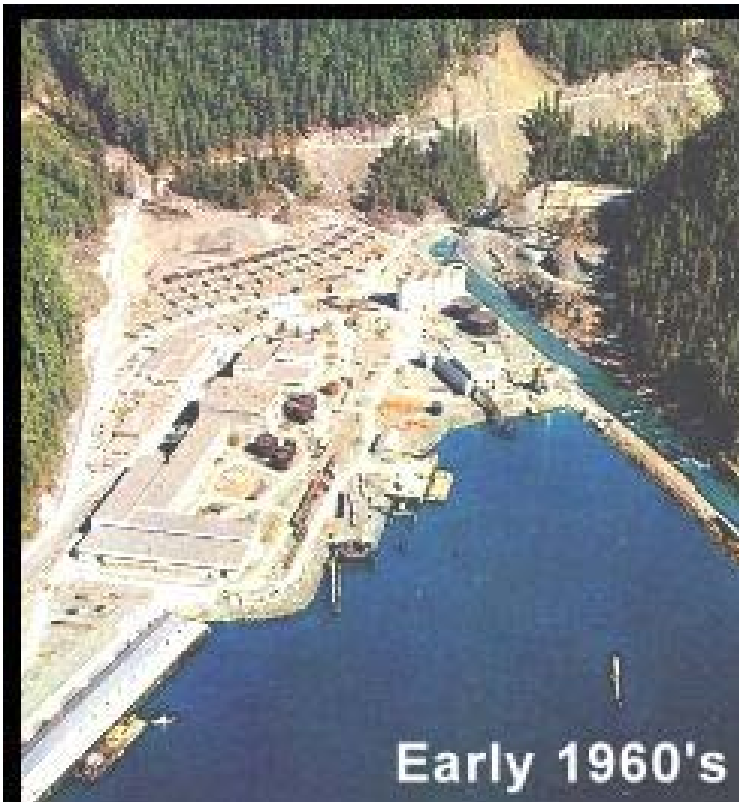
site to the west, north, and east. Slopes reach 300 to 600 feet to the west and east. To the north, slopes reach 2,500 feet. Sawmill Creek borders the northeastern portion of the mill site and drains into Sawmill Cove.

The mill was constructed on fill material from the surrounding hillsides. The fill material consisted of bedrock broken into pieces and minor amounts of glacial drift and volcanic ash. Finer materials were used on the surface to facilitate grading. The majority of the surface was asphalt or concrete, except for the 5.8-acre open area between the plant buildings and Sawmill Cove. The surface elevation of the former mill site is approximately 15 to 19 feet above mean sea level.

Sitka is dominated by maritime climatic influences with frequent and heavy precipitation. APC had an on-site meteorological tower to measure wind speed and direction, and temperature. Winter winds are mostly from the north and shift to southerly winds in the summer. Monthly average wind speeds range from approximately 3 to 6 mph.

Silver Bay is a classic fjord that empties into Sitka Sound via Eastern Channel on the western coast of Baranof Island. The Bay is approximately 6.8 miles long and varies in width from 0.4 to 0.9 miles. It is approximately 400 feet deep at the mouth, decreasing to about 150 feet near the head of the bay. The surface area of the bay is approximately 4.2 square miles, with roughly 30 miles of shoreline (EPA, 1975). The shoreline of the bay is narrow, steep, and rocky with slopes typically exceeding 50 degrees. The nearshore environment of Silver Bay consists of bedrock covered with sediments. Much of the intertidal area is very steep and rocky, which is typical of a fjord environment. In a few coves the slope is less steep, allowing for the deposition of finer-grained materials. Sands and silts have also accumulated.

Freshwater from Sawmill Creek enters Sawmill Cove and mixes with the underlying marine water to form a shallow, warmer, and brackish surface layer. The difference in density of the surface water inside and outside of Silver Bay is greatest when freshwater runoff is greatest. As surface water moves out of Silver Bay, it is replaced with low-velocity subsurface flows that move into Silver Bay and upward to replace the surface waters near the coast.



Site History

Construction began in 1957 and the mill started pulp production in 1959. The mill employed 450 Sitkans at full capacity, producing wood fiber used primarily in the

production of rayon fabrics and later used in paper manufacturing. Production wastes included wood waste, ash, general debris, stack emissions, and high volumes of pulp process wastewater.

The first pollution control measures were implemented in the early 1970s. In 1971 a primary clarifier was installed for process wastewater. In 1972 APC applied for a state permit under Air Quality Control regulations.

In the mid-1970s, a secondary treatment plant was constructed to reduce biochemical oxygen demand to meet EPA Consent Decree requirements. Electrostatic precipitators and scrubbers were installed on the chemical recovery boilers, used to recover magnesium oxide and sulfur dioxide used for pulp production.

Biochemical oxygen demand was further reduced in the mid-1980s when an anaerobic treatment system was constructed for process wastewater. Electrostatic precipitators and power boiler modifications further reduced air emissions.

Contaminant studies began in 1990 when EPA, in cooperation with the U.S. Fish and Wildlife Service and DEC, conducted a reconnaissance survey for organic and inorganic compounds in the Sitka area, including the mill site and adjacent Sawmill Cove.

Under contract with EPA and following mill closure in the fall of 1993, Ecology and Environment conducted an expanded site inspection in 1994. Ecology and Environment conducted an integrated removal assessment in 1995, again under contract with EPA.

The State of Alaska assumed oversight of the investigation and cleanup from EPA in the fall of 1995. A Commitment Agreement signed by APC and DEC required APC to investigate and remediate any and all constituents of concern present at the site in concentrations above levels that have been determined to be a threat to human health and the environment. DEC was appointed as the lead oversight agency. A number of other state, federal, and tribal organizations participated as members of the Site Investigation and Remediation Team.

Site ownership has changed since APC began operation in 1959. When APC originally received title to the land, the United States Government held the right to take some of the land back if the company stopped producing wood products on the site. This was known as a "reversionary interest." However, APC gained full ownership of the site in 1998 with the passage of the Hood Bay Land Exchange Act.

Foster Wheeler Environmental, under contract with APC, completed all Commitment Agreement work between 1996 and mid-1999. DEC and APC signed the Record of Decision in April 1999.

In 1999, the City and Borough of Sitka entered into a property transfer agreement with APC to take ownership of the site and the adjacent tidelands and submerged lands owned

by APC. The City and Borough of Sitka now operates the site as the Sawmill Cove Industrial Park.

Remedial Actions

Based on the findings of the risk assessments and completion of expedited remedial actions, DEC determined that only ecological risks associated with the seafloor (benthic) ecological community in Sawmill Cove warranted further attention. The following Remedial Action Objective (RAO) was developed to address the natural recovery of the Sawmill Cove benthic community.

- Reduce the ecologically significant adverse effects to populations of bottom dwelling life in Sawmill Cove from hazardous substances, including wood waste degradation chemicals, to acceptable levels.

The performance measure developed for this RAO was the observable succession of benthic species living both on and in the sediments that will result in a balanced, stable community as evaluated by measures of abundance and diversity at various locations over time.

Due to the uncertainties associated with the duration of recovery, DEC developed management milestones to evaluate the predicted ecological succession in Sawmill Cove. A 40-year recovery goal is based on DEC's determination that the length of recovery should be proportional to the scope of ecological risks and impacts. Although locally significant, the compromised benthic community in western Sawmill Cove does not appear to be causing serious impacts to the rest of Silver Bay.

Remedy Selection

The major components of the remedy selected by the ROD include:

- excavation and on-site bioremediation of petroleum-contaminated soils from various subareas and storm drains at the Developed Mill Site;
- disposal of non-hazardous waste storm drain sediment and ash containing dioxins at a permitted solid waste disposal facility;
- natural recovery and periodic monitoring of the Sawmill Cove benthic community;
- limits on activities in the most heavily impacted areas of Sawmill Cove to ensure that recovery proceeds with minimal further disturbances; and
- a property restriction allowing only industrial/commercial use.

Remedy Implementation

A number of early cleanup actions occurred at the mill site during the course of the remedial investigation. Studies indicated several contaminated areas that could be immediately cleaned up rather than waiting to develop a full

1997 remedial investigation soil sampling

scale feasibility study to explore a range of remedial alternatives. Petroleum contamination levels from various areas of the mill site and in sediment from the storm drain system exceeded DEC petroleum cleanup levels. APC excavated the contaminated soils and sediment. Soil and sediment were stockpiled on the concrete floor of the old wood waste room. The stockpiles were constructed to allow natural soil bacteria to reduce contaminant concentrations below DEC cleanup levels, a process known as bioremediation.

Sediment excavated from one area of the storm drain system contained dioxins and furans as well as petroleum products. This sediment was not placed in the bioremediation stockpiles for treatment. Instead, it was taken to the lined and monitored Sitka Municipal Landfill. Disposal at the landfill is considered protective of human health and the environment.

Risks to human health were evaluated based on an industrial/commercial land use. A deed restriction was placed on all Mill and Bay OU properties limiting future use to industrial/commercial activities until such time as it is demonstrated to DEC's satisfaction that other uses will not present an unacceptable risk.

Initial monitoring of the Sawmill Cove benthic community to determine if natural recovery was occurring as anticipated occurred in 2000. Sixteen percent of the original Area of Concern met the final recovery milestones. The next monitoring event is scheduled for 2010.

Remedy Operation and Maintenance

There are no O&M issues. No modifications have been made to the remedy to date.

Current Site Status

The Sawmill Cove Industrial Park is operated by CBS. The park was created to spur the development of new jobs. The facility is managed by a Board of Directors and an executive director.

The City received from the federal government nearly $10 million in grants. Those funds were used to construct utility systems including water, sewer, and electrical service.

The majority of mill structures were demolished in 1999. A 32,000 square foot office/research laboratory building, 39,000 square foot split-level manufacturing building, 75,000 square foot warehouse/manufacturing/processing building, and deep-water docks remain from the pulp mill operation. Fortress of the Bear and the City recycling center are located in former open clarifier and aeration tanks located across the road from the main park site.

The park is divided into 14 parcels totaling nearly 60 acres. Current tenants include:

- True Alaska Bottling – Produces bottled water under their brand and co-packs for others
- Omega Sea – Produces pet fish food using fresh Alaska salmon
- The Boat Company – Operators of high end excursions throughout Southeast Alaska and Costa Rica
- Quest Imports – Exporter of raw bulk water to markets around the world
- Fortress of the Bear – Facilitates the humane acquisition of nuisance bears, to provide an educational experience for the public
- Theobroma Chocolate Co.
- City Recycling Center
- Baranof Frozen Foods – Provides value-added fish processing

Review Process

Administrative Components

The review included the following components:

Community Involvement - Five community members were interviewed, four of which were actively involved with the pulp mill investigation and cleanup. The following questions were asked.

1. What concerns do you have regarding the former APC mill site or the selected remedy for Sawmill Cove?

2. What events, incidents or activities at the site concern either you or your organization?

3. What is your overall impression of the remedial actions performed at the former mill site and their operation and maintenance?

4. How have you been informed about the activities at the former mill site and progress made in the last five years?

5. What impact has the presence of the former mill site had on the community?

6. Do you have any comments, suggestions or recommendations regarding the site's long-term management? If so, what types of future problems

An interview summary is presented below.

Jonathan Krebs, Sawmill Cove Industrial Park Executive Director, indicated the site is too tightly constrained for some uses. Examples include the need for a resident caretaker, and a fish processor that would like to establish seasonal employee housing. Mr. Krebs also noted that existing docks need upgrading, and that the park needs many more tenants to be financially viable.

Florian Sever, Foundation for the Protection of the Common People, Inc. expressed concern that toxins that may still be present under the paved site roadways. Immediately prior to the 1990 EPA/DEC multi-media inspection, APC paved over many acres of the mill site. Mr. Sever does not believe these areas were ever adequately sampled for toxins. Specifically, Mr. Sever noted that fly ash and leachate from the fly ash bagging operation escaped on the mill site, and that toxic sludge was left behind in all of the wastewater treatment tanks. Mr. Sever does not think the cleanup was entirely objective, and that the overriding goal of getting the site back into some sort of commercial use was the main concern. Mr. Sever believes that the management of the property and the clouded circumstances surrounding the transfer of title has caused a great deal of unrest and dissention; however, he acknowledges that the physical use of the site since the mill closed has largely been positive. Mr. Sever would like to see mandatory testing for dioxins, metals, and other toxins in any future site excavations.

Don Muller, a member of the Citizens Advisory Committee during the mill cleanup, has always been skeptical that economic concerns were given a greater priority over human health and the environment during the mill cleanup. He expressed concerned that DEC, the City, and the people will forget the restrictions that exist on the site and proceed to use the site for purposes which might result in harm to public health. He would also like to make sure that CBS and others follow certain steps to ensure that restrictions are followed. Mr. Muller pointed out that twice during the past five years, site actions nearly occurred without DEC notification and approval. It was not until the issues were brought up by the public that notification occurred. Mr. Muller would like to see better communication between DEC, CBS, and the public, and requested a second 5-year review.

Page Else, Sitka Conservation Society, expressed concerned about the adequacy of the bioassay and bioaccumulation studies, and pointed out that organisms recolonizing the site could be impacted. She further stated that the dock needs to be reconstructed, which could result in sediment disturbance. According to Ms. Else, the project failed in a critical decision when it was decided not to dredge the area closest to shore. Ms. Else further stated that this is the only zone not showing signs of recolonization, and it could be impacted and release toxic gases during shoreline reconstruction. This could result in significant costs to the City in the future. Finally, Ms Else stated that the edges of the contamination in Sawmill Cove were never delineated, and that Herring Cove was not fully addressed.

Ms. Else stated that because the site was not cleaned up to residential levels, a day care center cannot be allowed, which could be important to future industries.

Ms. Else stated that bears should not be allowed in the clarifying tanks (Fortress of the Bear) without investigating whether dioxins or other contaminants could be ingested. Ms. Else stated that Sitkans would like to see the site more fully utilized. However, she expressed concerns that development must proceed in a holistic manner in order to avoid

problems such as increased traffic and the introduction of invasive species by ships disposing of ballast water.

Mark Buggins, City and Borough of Sitka, pointed out that the current end-of-pipe discharge location cannot take advantage of the seafood general permit due to the impaired water body listing. Due to the impaired waterbody status, even dilute processing water would need to be diverted through the domestic waste water treatment plant under current regulatory requirements. Mr. Buggins suggested that individual discharge permits could possibly be issued to allow finely screened process water to be discharged temporarily through the existing outfall. A new outfall beyond the impaired waterbody boundaries is tentatively scheduled to be constructed in the future.

Mr. Buggins also expressed concern that the Sawmill Cove Industrial Park needs to become financially self sufficient, and that the current land use restrictions may impair future development. He recommended that the residential exposure risk scenario be run to allow for full time caretakers and seasonal workers.

Finally, Mr. Buggins suggested that the long term benthic recovery monitoring requirements could possibly be modified to some degree in order to reduce costs.

Document Review - The following documents were referenced in preparing this report.

- Record of Decision (DEC, 1999)
- Current Situation/Site Conceptual Model Report (Foster Wheeler, 1996)
- Final Mill OU Ecological Risk Assessment Report (Foster Wheeler, 1998)
- Final Mill OU Remedial Investigation Report (Foster Wheeler, 1998)
- Final Bay OU Remedial Investigation Report (Foster Wheeler, 1998)
- Final Bay OU Ecological Risk Assessment Report (1998)
- Fate and Effects of Wood Waste in the Marine Environment (1998)
- Final Bay OU Feasibility Study Report (1999)
- Final Human Health Risk Assessment Report (1999)
- Management Plan for the Sawmill Cove Property (1999)
- Silver Bay Baseline Environmental Monitoring (2001)

Data Review - The remedy includes a monitoring program to track the natural recovery of the Sawmill Cove benthic community. Baseline sampling, conducted in 2000, consisted of an underwater video survey, sediment profile imaging, sediment chemistry analyses, and benthic community analyses.

While the Sawmill Cove Area of Concern (AOC) is still showing impacts due to organic enrichment (the widespread occurrence of sulfur-reducing bacterial mats, high sediment oxygen demand, high total organic carbon values, presence of methane at depth), natural recovery is occurring as anticipated. The first two remedial action recovery milestones have already been achieved: 81 percent of the site is covered with decomposers (sulfur-reducing bacterial colonies) (**Milestone 1)**, and primary consumers (Stage I polychaetes) were present at all but two grab stations and in sufficient densities at 33 (89 percent) of

the grab stations sampled (**Milestone 2**). Approximately 16 percent of the AOC has fully recovered and achieved the final management milestone, and 22 percent of the AOC is in transition to the final recovery stage with notable abundances of deposit-feeding taxa. Sixty-two percent of the AOC is still considered impaired in regard to benthic community status.

Technical Assessment

Is the remedy functioning as intended by the decision document?
Natural Recovery and Long-Term Monitoring, the remedy applicable to Sawmill Cove, appears to be functioning as intended. Recovery appears to be ahead of schedule, although the department recognizes natural attenuation is not a straightforward, linear process.

Institutional controls have ensured that no round-the-clock residency has occurred.

Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy selection still valid?
Some of the uplands human health exposure assumptions may no longer be valid with the re-development of the site into the Sawmill Cove Industrial Park.

Marine unit remedial action objectives have not changed. However, the next Sawmill Cove monitoring event, scheduled for 2010, will include seafood tissue sampling to determine if human health and ecological exposure assumptions have changed as the Sawmill Cove benthic community recovers. This component was incorporated into the monitoring program when it was developed in 1999 because concern was expressed by some community members that a larger, more diverse benthic community could result in increased food chain bioaccumulation.

Has any other information come to light that could call into question the protectiveness of the remedy?
New information is available regarding the appropriateness of the commercial/industrial land use restriction. Details are discussed later in this report.

Issues and Recommendations Identified by the 5-Year Review
Several issues were raised during the community member interviews. These are discussed below

1. Issue – Not all mill site areas were adequately sampled during the remedial investigation.

Discussion – DEC acknowledges that not all areas on the primary mill site were sampled. First, a small portion of the site consisting of access roads was paved in the late 1980s. These paved areas were not sampled. Second, based on site history and previous sampling activities, the remedial investigation focused on those locations known or suspected to be affected by past activities. This approach is conservative and is expected to yield worst-case concentrations.

The analytical data indicated that dioxin contamination was from three main historical release mechanisms: aerial deposition from stack emissions, incidental releases during ash handling, and ashcrete deposits. Metals contamination was from four main release mechanisms: aerial deposition from stack emissions, incidental releases during ash handling, ashcrete deposits, and releases from sand blasting and painting operations.

Removal actions conducted at the various fuel and solvent contaminated areas (mill yard sumps and drains, heavy duty shop, paint shop, wood room) significantly reduced the potential for human exposure and ongoing contaminant migration.

The April 1999 *Management Plan for the Sawmill Cove Property* (Management Plan) was reviewed to determine current sampling requirements. The Management Plan states that "if contaminated soils or other media that require special handling are encountered during construction activities, CBS or its tenants or contractors working on the Property will promptly notify the CBS Public Works Director. In addition, if contaminated soil or hazardous substances are encountered, CBS will notify DEC." Furthermore, "the Public Works Director or designee will require the testing and proper treatment or disposal in accordance with applicable law…" and "DEC will process any approvals necessary for addressing existing contamination…" During the last five years the mill site was extensively excavated for the installation of new utilities. No signs of additional contamination were found.

Recommendations and Follow-Up Actions – Petroleum is the only contaminant that can easily be recognized if encountered. However, the sampling events conducted during the remedial investigation identified areas of dioxin/furan-, heavy metal-, and polycyclic aromatic hydrocarbon contamination. Moreover, risks have now been shown to be within acceptable levels for unrestricted land use, as discussed later in this report. Mandatory sampling at every excavation may not be necessary but should be considered on a site-specific basis.

DEC has reviewed the Management Plan requirements with CBS staff to ensure that all reporting requirements are met and that sampling occurs under appropriate circumstances.

The need for soil sampling in the clarifier tanks is unnecessary. The aeration tank and secondary clarifier tanks were washed cleaned during the mill shut-down. The recycling center and Fortress of the Bear are located in these tanks. Residual solids, mostly wood waste fibers, remained in the primary clarifier following shut-down. A low area in the center of the clarifier is now a pond. Vegetation is growing along the perimeter of this pond.

2. Issue – Communications between the public, DEC and CBS could be improved.

Discussion - The communication requirements prescribed in the Management Plan were reviewed. The Management Plan states that DEC will be notified only if contaminated soil or hazardous substances are encountered. The Public Works Director or designee,

who may be a qualified contractor, shall serve as the project manager for managing the material or taking any remedial actions. The Public Works Director or designee will require the testing and proper treatment or disposal in accordance with applicable law and DEC regulations or guidance on the management of contaminated soils or other contaminated media. The Public Works Director or designee shall promptly report the actions to be taken to DEC as required by applicable law. DEC will process any approvals for addressing existing contamination as part of the implementation of the ROD.

Recommendations and Follow-Up Actions – Reporting protocols have been reviewed with CBS staff. No substantive changes appear warranted at this time. In order to better inform the public of upcoming construction activities, CBS will begin providing information on significant construction projects and site improvements on the Sawmill Cove Industrial Park web site.

3. Issue - Current land use restrictions limit future development.

Discussion - Restrictive covenants currently limit property use to commercial or industrial purposes. The property cannot be used for human habitation, schooling of children, hospital care, child care, or any purpose necessitating round-the-clock residency. The State of Alaska, Department of Law has the authority to remove this restriction if contaminant levels meet residential standards established by DEC.

CBS is seeking greater land use flexibility in order to increase the number of tenants using the Sawmill Cove Industrial Park. Exponent, a scientific consulting firm retained by CBS, recently evaluated risks under a residential exposure scenario (versus a commercial-industrial) using data from the 1999 human health risk assessment. Risks were determined to be within the risk ranges acceptable for the protection of human health and the environment in accordance with 18 AAC 75. The risk assessment conclusions, as well as the re-evaluation conducted by Exponent, were based on conservative exposure assumptions; actual risks are likely to be considerably lower.

Recommendations and Follow-up Actions – A 14-day public comment period on the proposed land use modification, issued by DEC and CBS in response to Exponent's findings, ended in mid-February 2005. No substantive objections were raised and DEC has recommended to the Department of Law that the present land use restriction be lifted.

4. Issue – The Sawmill Cove and Herring Cove investigation and cleanup were inadequate and future construction activities could release toxic gases.

Discussion - The need for and appropriateness of nearshore sediment cleanup in Sawmill Cove was studied at length during the development of the ecological risk assessment and feasibility study. Benthic community recovery in Sawmill Cove appears to be exceeding management goals, as documented by baseline sampling conducted in 2000.

Contaminants in Herring Cove were documented to be below levels of concern according to data collected during the remedial investigation. A 1998 Foster Wheeler technical paper, *Fate and Effects of Wood Waste in the Marine Environment,* discussed the possibility of toxic gas releases. The probability of this occurring appears low. Moreover, invasive in-water construction is limited to a narrow navigation corridor where pulp residue deposition was documented to be minimal.

Water and sediment samples were collected from Herring Cove during the remedial investigation. No contaminants were found at concentrations of potential concern. Bark and woody debris residues were addressed in a September 1999 Total Maximum Daily Load Determination issued by DEC under section 303(d) of the Clean Water Act.

Recommendations and Follow-up Actions – No additional actions are necessary.

5. Issue – Sawmill Cove monitoring costs are high.

Discussion - 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." The 2001 *Silver Bay Baseline Environmental Monitoring* report presented three options for the 2010 monitoring event. 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. 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, sediment profile imaging (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.

Recommendations and Follow-up Actions – DEC agrees that ways to reduce monitoring costs should be closely evaluated. Each of the options above falls within the framework of the approved adaptive management approach and should be considered by CBS and DEC.

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

View from outfall 001 across the AOC and toward the location of the future submerged outfall

6. Issue - Wastewater discharges from outfall 001 are restricted.

Discussion - With the exception of relatively clean industrial water from between the utility and former pulp docks, the AOC is presumed not to be suitable for wastewater outfalls for the foreseeable future (e.g. 20+ year timeframe). Existing stormwater and treated sanitary discharges may continue from outfall 001. As may be required when applications are submitted, DEC may permit the use of standard modeling to confirm that proposed discharges and activities will not resuspend contaminated sediments or discharge pollutants that will set back the natural recovery process.

DEC's Water Division issued a Total Maximum Daily Load (TMDL) for residues discharged to Sawmill Cove. The only present discharge source permitted in Silver Bay is a small sewage treatment plant. This facility, operating under state and federal permits, is authorized to discharge a small amount of suspended solids. These suspended solids are not considered to be residues that could accumulate on the bottom. Therefore, no specific allocation is established for this facility under either the residues TMDL or toxic substances TMDL.

The City has secured funding and has nearly completed design studies to relocate the park's main wastewater outfall to a submarine discharge point beyond the Sawmill Cove impaired water body boundary. While current discharges are innocuous and do not contribute to additional organic residue loading in the cove, the new outfall will increase the City's future lease options.

Recommendations and Follow-Up Actions – No additional actions are required.

Next Review

As a result of comments received from community members during this 5-year review, DEC will conduct a follow-up review in conjunction with the planned 2010 Sawmill Cove monitoring.