ALASKA PULP CORP

Rowan Bay Herring Cove

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DEPARTMENT OF
ENVIRONMENTAL CONSERVATION

ENSR

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September 26, 1994

Mr. Earl Hubbard
State of Alaska
Department of Environmental Conservation
Division of Environmental Quality
410 Willoughby Avenue, Suite 105
Juneau, AK 99801-1795

Re: Proposed Water Quality Limited-Segment [303(d)] List for the State of Alaska, Comments on Silver Bay (Sitka, AK); Herring Cove (Sitka, AK); and Rowan Bay (Kuiu Island, AK)

Dear Mr. Hubbard:

On behalf of Alaska Pulp Corporation, ENSR Consulting and Engineering is submitting comments on the proposed inclusion of the above referenced water bodies on the 1994 impaired water body listing [(303(d)] for the State of Alaska. We have reviewed both the historical and new data regarding water quality in these water bodies and find that ADEC's preliminary decision to list these water bodies on the 1994 impaired water body list is based on outdated information. Our comments are presented below in accordance with the instructions prepared by the Alaska Department of Environmental Conservation (ADEC). Each water body has been addressed separately. Appendices to this letter are as follows:

- Appendix A: Dissolved Oxygen Data Graphs/Raw Data Sets
- Appendix B: ETI Dioxin and Furan Study Data and Sampling Locations
- Appendix C: Divers' Notes and Transect Sketches for Herring Cove
- Appendix D: Memorandum Documenting EPA RCRA Cleanup Activities and Changes in Site Conditions at Rowan Bay

SILVER BAY

Background Information

Silver Bay, which is located near Sitka, Alaska, is part of a larger saltwater body known as Sitka Sound. The bay encompasses three smaller water bodies known as Sawmill Cove, Herring Cove, and Bear Cove. Silver Bay is fed by Sawmill Creek (the Medvetcha River) and the Vodapad River. The ADEC identification number for Silver Bay is 10203-601.

Silver Bay is located approximately 3.5 miles southeast of Sitka, Alaska, and is not situated within a national or state park, monument, refuge, preserve, or similar area. The bay is approximately 6.8 miles long and varies in width from about 0.4 mile to 0.9 mile, covering an area of about 4.2 square miles. Depth of the bay ranges from 45 meters to 120 meters.

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Type and Severity of Pollutants

Documentation in the ADEC files for Silver Bay indicates that non-compliance with water quality standards for minimum dissolved oxygen concentrations and the presence of wood pulp processing waste (sludge) on the floor of the bay constitute the critical factors leading to inclusion of the bay on the 1992 and the draft 1994 303(d) impaired water body listings. Historically, both of these factors have been linked to effluent discharge by the Alaska Pulp Corporation (APC) pulp mill located in Sawmill Cove on Silver Bay. After the 1992 303(d) impaired water body listing was developed, effluent discharge from the mill ceased, and new data were collected which support removal of Silver Bay from the 303(d) listing. These data are discussed in the sections below, along with the data originally considered by ADEC in the 303(d) listing nomination process.

Dissolved Oxygen

Studies conducted prior to October of 1993, when the APC pulp mill stopped discharging effluent, show that the dissolved oxygen concentrations in Silver Bay were generally between 4 and 8 milligrams per liter (mg/l) with the lower concentrations detected at depths between 10 and 60 meters below the water surface (USDOI 1966).[1]

In February of 1994, ENSR conducted a study of dissolved oxygen (DO) concentrations in Silver Bay. The study was conducted using 15 sampling stations located near the APC outfall (Figure 1). At each of the 15 sampling stations DO was measured over the depth of the water column using a Solomat model 803PS Water Quality Sonde to measure pH, temperature, salinity, depth, turbidity and DO. The initial DO measurement was taken just below the water surface and additional measurements were taken at 10- to 20-foot intervals to a depth approximately 1 foot above the surface of the bottom sediments. A summary of the DO data is presented in Table 1. The ENSR study found DO concentrations ranging from 9.96 mg/l to 16.58 mg/l. These values are well above the 6 mg/l water quality standard which is applicable to Silver Bay. The data for DO concentrations, pH, and temperature were plotted against depth for each data station to evaluate the effects of these other parameters on the DO concentrations in the water. Typically the concentration of dissolved oxygen declined with increasing water temperature which is the expected relationship between these parameters. The DO graphs for each sampling station are included in Appendix A, along with the raw data for the study. Because DO concentrations tend to be lower during the summer months, data from an American Fisheries Society study were used to plot a curve of DO vs. temperature in order to predict the expected summertime values for dissolved oxygen in Silver Bay (Colt 1984).[2] The curve (Figure 2)

[1] U.S. Department of the Interior. 1966.

[2] Colt, J. Computation of Dissolved Oxygen, "Concentrations in Water as Functions of Temperature, Salinity, and Pressure," American Fisheries Society Special Publication 14, Bethisda, MD, 1984.

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shows that at an approximate maximum summertime water temperature of 16°C, it is reasonable to expect that dissolved oxygen concentrations will typically remain above the 6 mg/l standard.

Based upon the new data and the fact that the effluent discharge from the APC pulp mill has been terminated, the data used to originally place the water body on the 303(d) impaired water body listing are no longer valid. The new data are representative of existing conditions and demonstrate that the waters of the Bay are in compliance with the water quality standard for dissolved oxygen. Since the cove appears to have recovered and now meets the conditions for dissolved oxygen, and no additional discharge is occurring from APC, added controls are not necessary. The cove should not be placed on the 1994 303(d) list based on dissolved oxygen concentrations.

Sludge

Historical pulp mill operations resulted in deposits of organic material in the vicinity of the APC outfall and the log storage area in Herring Cove. ADEC indicates that a second criterion for placing Silver Bay on the impaired water body list is bottom sludge. Sludge from digested wood waste has occasionally surfaced as a result of gases formed during biodegradation. ADEC files indicate that the State believes that intermittent release of floating sludge material constitutes a violation of the water quality standard for floating debris.

The information included in the ADEC file does not support a 303(d) listing for Silver Bay due to sludge for several reasons. First, the area of sludge deposition on bottom sediments is small. There has been no demonstration that this small area has impaired the designated uses of the water body. Silver Bay is large relative to the area where sludge accumulation has occurred. The bay still maintains a healthy and productive biological community that has not been demonstrated to be impaired in spite of the presence of sludge near the former APC outfall. The termination of the discharge and the documented improvement in water quality (e.g., higher dissolved oxygen and blue-green color) will further ensure that the biological community in Silver Bay remains healthy.

Second, EPA conducted a screening study in 1991 of multi-media risks associated with APC discharges. The EPA study evaluated human health risk associated with exposure to soil, sediment, sludge, water, and consumption of marine organisms. Although EPA's study report stated that the methods they used included "extremely conservative assumptions... [which] do not reflect actual exposure which may occur," EPA concluded:

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> "Very low concentrations of dioxins and furans were found in the Sitka area. At these low concentrations, using worst case exposure assumptions, the likelihood of health effects occurring is also very low."[3]

Third, although EPA studies document that the designated uses associated with human exposure (e.g., recreation and consumption of marine organisms) are not impaired in Silver Bay, present day risks are even lower than historical risks. A recent study of dioxins and furans present in soil, sediment, sludge, water, and marine organisms in Silver Bay conducted by Environmental Toxicology International (ETI)[4] demonstrated that the levels of these compounds have declined. Media used for the evaluation included soil, sediment, sludge, water, mussels, crabs, and fish from the Sawmill Cove and Herring Cove areas of Silver Bay. Soil, sediment, and water samples used for the analysis were composites of five individual samples. Marine animal tissue samples were composites from three individual animals taken at the same location. Sludge samples were composites from 15 samples taken near the former outfall for APC. The results of the earlier EPA studies are compared to the 1994 ETI study in Tables 2, 3, and 4. Sampling locations and analytical reports are presented in Appendix B.

The findings that dioxin and furan concentrations have declined are consistent with EPA findings that "dioxin levels being discharged have been and continue to be reduced, thus the concentrations in the environment should be diminishing over time."[5]

Fourth, a microtox analysis conducted by the U.S. Fish and Wildlife Department - Northern Alaska Ecological Services in 1990[6] was inconclusive with respect to the potential toxicity of water and sediment samples collected from Sawmill Cove (Silver Bay) and Herring Cove. The bioluminescent bacteria used for the study generally showed a slight increase in light production after exposure to the samples. Acute toxicity of a sample usually results in a decrease in light production. The increase was attributed to stimulation caused by sub-toxic effects of the samples; however, it could also have been caused by a growth factor present in the effluent from the APC outfall or some other unidentified factor of the study. One sample of floating debris assumed to be associated with activities at APC showed extreme

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[3] USEPA. 1991. Final Report, Environmental Evaluation of Pollutants in Sitka, Alaska.

[4] Environmental Toxicology International. 1994. Unpublished Data.

[5] USEPA. 1991. Final Report, Environmental Evaluation of Pollutants in Sitka, Alaska.

[6] U.S. Fish and Wildlife. 1990. An Analysis of Water and Sludge Samples from Four Coves Near Sitka, Alaska, Using Microtox Bioassey Technique.

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toxicity. However, when a split of the sample was reanalyzed in a different laboratory, no toxicity was observed.

In conclusion, the existing information does not indicate that the sludge bed in Silver Bay poses a threat to human or marine life or that it impairs the beneficial use of the water body. The microtox study conducted was inconclusive, and although one floating debris sample was found to be toxic, the analytical results could not be reproduced using a split of the sample. Historical and recent dioxin and furan studies have also demonstrated that the sludge in Silver Bay and Herring Cove does not present any substantial risk to human or aquatic life and that it does not impair beneficial uses of these water bodies.

HERRING COVE

Background Information

Herring Cove is a small water body contained in Silver Bay located near Sitka, Alaska. It was formerly used by the APC pulp mill for log storage. Herring Cove is located approximately 3.5 miles southeast of Sitka, Alaska and is not situated within a national or state park, monument, refuge, preserve, or similar area. The ADEC identification number for this water body is 10203-603.

Type and Severity of Pollutant

Herring Cove was listed on the 1992 305(b) list of potentially impaired water bodies and has been nominated for the 1994 303(d) impaired water body listing. The listing nomination is based upon failure to meet state water quality standards for color and the presence of "sludge."

Color

The ADEC file for this water body indicates that color within the cove is in excess of the state water quality standards. Presumed violations of the water quality standard for color were based upon physical observations of the cove by U.S. Fish and Wildlife personnel.

APC no longer uses Herring Cove for log storage. The logs have been removed, upland storage areas have been emptied, and the shoreline area has been reclaimed by planting grass and other vegetation. Furthermore, APC no longer discharges treated effluent into Silver Bay. Since the log storage and pulp mill discharge ended, the coloration in the water at Herring Cove has disappeared. Recent observations by Rick Della of ENSR as well as other visitors to the site indicate that the water in cove has returned to the natural color. The observations and information used as a basis to nominate the cove for the 1994 303(d)

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impaired water body list based upon color do not appear to be valid. Recent observations support the conclusion that the waters of Herring Cove are not in violation of the state water quality standards for color. The cove should not be listed on the 1994 303(d) impaired water body list based on color.

Sludge/Organic Matter

The ADEC file for Herring Cove indicates that sludge in the cove causes exceedances of the state standard for floating debris and impairs the beneficial use of the water body. A 1974 USDA study indicated that "high leachate concentration and low dissolved oxygen are probably permanent conditions in Herring Cove."[7] A review of available data indicates that there is no pulp mill sludge in Herring Cove. Divers laying transect lines for APC in 1991 recorded in their field notes that there were several sunken logs present in the cove and that one area had a layer of bark-like material approximately 6 inches thick. The size of the area covered by bark is small compared with the size of the cove and there do not appear to be significant amounts of debris in the Cove. A copy of the divers' notes and a sketch of the transects laid out by the divers are presented in Appendix C.

There is no conclusive evidence that organic matter in Herring Cove presents a danger to human health or aquatic life. No impairment of the beneficial uses of the water body has been demonstrated. The cove is no longer used for log storage and discharge of effluent from APC has ceased. The organic material deposited during APC operations is limited and will decline over time due to natural bio-degradation. No impairment of beneficial use of the water body has been observed. Herring Cove should not be nominated to the 303(d) impaired water body listing based upon the available information regarding sludge.

ROWAN BAY

Background

Rowan Bay is located along the western coastline of Kuiu Island in southeast Alaska. The bay covers an area of approximately 3.4 square miles and has been the site of an APC timber camp since 1974. The ADEC identification number for the water body is 10202-602.

[7] USDA Technical Report PNW-22, GPO 990-246. 1974.

Type and Severity of Pollutants

ADEC has nominated Rowan Bay for placement on the 303(d) impaired water body listing for 1994 based upon the presence of petroleum-impacted sediments and solids and debris present in the waters of the bay.

Petroleum Impacted Sediments

In 1993, APC entered into a consent decree with the EPA in order to accomplish cleanup of an auto salvage area at the Rowan Bay timber camp. During the consent decree process several areas of petroleum impacted soil or sediment were identified which required cleanup. Corrective actions have been taken in all of the petroleum-impacted areas identified by the EPA and a groundwater monitoring program has been conducted over the past year to demonstrate that no detectable petroleum is present in groundwater which may migrate to Rowan Bay. The cleanup program is complete and the final cleanup report is in progress. Appendix D contains a memorandum on Rowan Bay prepared by Mr. Tom Hanna of Southeast Management Services. Mr. Hanna has directed the Rowan Bay cleanup activities under the EPA consent decree and has made regular observations of conditions at the logging camp. The information presently available in the ADEC file for this water body is outdated and no longer valid.

The memorandum includes a detailed description of cleanup activities, as well as analytical data confirming that cleanup of petroleum impacted soil/sediment has been successfully completed.

Solids and Debris

Wood debris, sediment, and solids have been deposited in Rowan Bay as the result of activities in areas used for log transfer operations. ADEC files indicate that the debris is impacting marine life (shellfish) in the bay. As part of a RCRA cleanup completed at the Rowan Bay timber camp, log handling practices have been significantly modified to reduce the impact to the bay. In addition, the drainage system on-site was modified to reduce the amount of sediment entering the bay via stormwater runoff. The final modifications to the drainage system were completed during the last 6 months and have not been inspected by ADEC personnel. At the time of the last ADEC visit to the site, the improvements were incomplete and it was not possible to assess potential benefits. The changes in handling practices and the drainage system at the Rowan Bay timber camp have significantly improved conditions in the bay. Sediment plumes are no longer observed entering the bay during periods of rainfall. In addition, logging operations at the camp have ceased. Reductions in the amount of wood debris accumulating on the bottom sediments in the bay should allow a gradual decrease in organic matter as biodegradation takes place.

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Appendix D contains copies of the storm drainage plans for the Rowan Bay timber camp, both before and after improvements were made. This appendix also contains a description of improved log handling practices which were implemented prior to shut down of the camp.

ADEC should review the results of the RCRA cleanup program at Rowan Bay prior to nominating the water body for inclusion on the 1994 impaired water body listing. Wood debris, sediment, and solids are no longer entering Rowan Bay and the waters of the bay are not in violation of water quality standards. Rowan Bay should not be placed on the 1994 303(d) listing based upon the presence of wood debris, sediments, or solids. There is a substantial amount of data which invalidates older studies performed at the site.

Conclusion

It is our opinion after reviewing available data on Silver Bay, Herring Cove, and Rowan Bay that most of the data used in the original listing nominations were either inconclusive or have become invalid due to new studies and observations. We believe that new data should be obtained and reviewed by ADEC prior to placing these water bodies on the 303(d) impaired water body listing.

Per my discussion 2 weeks ago with Mr. Doug Redmond of ADEC, we request that ADEC allow submittal of additional information which supports the comments presented in this letter. ENSR will submit additional information as it becomes available.

If you have any questions regarding this submittal, please do not hesitate to contact us at (206) 881-7700.

Sincerely yours,

David A Hamm for Rick Della

Rick Della
Senior Program Manager

RD/ (0089-015/L-HUBB)

Enclosures

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