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**Kennecott**

September 24, 1993

Mr. James Hansen  
Department of Natural Resources  
875 South 4th Ave.  
Park Falls, WI 54552

RE: Flambeau Mining Company - September/October 1993 Acute Toxicity Test Battery

Dear Mr. Hansen:

Flambeau Mining Company (Flambeau) conducted the September/October 1993 acute toxicity test battery for the discharge from Outfall 001. Two of three test species passed the bioassay test. The *Ceriodaphnia dubia* at 50% effluent produced a 100% survival rate and at 100% effluent produced a 35% survival rate. The potential cause of the positive toxicity result has been identified and corrected.

The following is a discussion of what had happened, how it was corrected and what has been done to assure that the same problem is not repeated.

#### HISTORICAL PERSPECTIVE

Flambeau's wastewater treatment plant (WTP) initiated discharge on March 15, 1993. Since the initiation of discharge, Flambeau has submitted the results of three chronic test batteries and four acute test batteries. The results of all of these tests have shown the discharge from Outfall 001 to have no evidence of toxicity as per Flambeau's WPDES permit. On June 16 & 17, 1993 the Department had also collected samples of discharge from Outfall 001 as part of a routine inspection. The Wisconsin State Laboratory of Hygiene stated "The results of toxicity tests indicated that the effluent samples collected in June (1993) from the Flambeau Mine is not toxic."

Analyses by Flambeau's independent lab, Enviroscan, have shown Outfall 001 to be below Flambeau's WPDES permit limits for all parameters verifying the lack of toxicity indicated by the chronic and acute toxicity tests. This analytical data is submitted monthly to the Department on Discharge Monitor Reports.

#### NOTIFICATION OF RESULTS

On September 21, 1993 Flambeau was verbally notified by Integrated Paper Services of the positive toxicity results of the acute toxicity test battery performed on samples collected on

September 13, 1993 and September 15, 1993 from Outfall 001. The acute test battery was initiated on September 15, 1993 and completed on September 19, 1993. The acute test results are presented in the table below.

<u>Organism</u>	<u>Test Solution</u>	<u>Mean % Survival</u>
<u>Pimephales promelas</u>	Control	100
	Flambeau River	100
	50% Effluent	100
	100% Effluent	100
<u>Daphnia magna</u>	Control	100
	Flambeau River	85
	50% Effluent	94
	100% Effluent	84
<u>Ceriodaphnia dubia</u>	Control	100
	Flambeau River	100
	50% Effluent	100
	100% Effluent	35

#### INVESTIGATION OF POTENTIAL CAUSE

Upon receiving verbal notification of these acute toxicity results which are inconsistent with past toxicity test batteries, Flambeau immediately reviewed the analytical and operational data for the sample dates of September 13 & 15, 1993. Analytical data showed the WTP to be operating as usual with efficient treatment and metals removal. A review of the WTP operators' log showed that on September 13, 1993 valves associated with the dilute polymer feed to the sulfide treatment had become stuck in the open position allowing an increased flow of dilute polymer at this point. During the routine walk through inspection of the WTP, the operator had discovered the malfunctioning valve. He immediately corrected the situation and, thereby, reduced the flow of dilute polymer. During the operator's previous inspection the valve was operating properly. Based upon these observations, the potential maximum time that the valve may have been stuck open was three hours.

#### CORRECTIVE ACTIONS

To prevent the recurrence of overfeeding dilute polymer at the point of sulfide treatment, Flambeau has changed the feed line to a smaller diameter line to restrict the maximum flow and eliminate the potential for future high flows. Flambeau WTP operators will continue to inspect this polymer feedpoint on their routine walk through inspections.

#### CONCLUSION

Flambeau does not feel that any environmental harm was caused from the discharges from Outfall 001 during the period between September 13, 1993 through September 15, 1993 or at any other time. The following is a summary of facts that lead us to this conclusion.

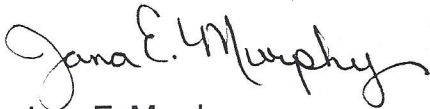
- 1) Past data has demonstrated that under all past operating conditions, the discharges from the Flambeau's operations have been in complete compliance with the chemical specific effluent limits as well as the whole effluent bioassay criteria.
- 2) The discharge which potentially created the failure lasted only 3 hours at most.
- 3) Flambeau's discharge from Outfall 001 for this period averaged 750 gpm. The minimum river flow during this time was 359,000 gpm. This provides a dilution factor for an instream waste concentration of 0.2%. As you can see by the test results reported in this letter, a 50% dilution produced a 100% survival rate for the Ceriodaphnia dubia.
- 4) Both the Pimephales promelas and the Daphnia magna easily passed the bioassay test.

Flambeau's WPDES permit, Part I, E. (2)(c)1. states that "Two composite samples of treated final effluent shall be collected during two separate, normal 24-hour operating periods as specified in Ch. NR 218.04(11) (Wis. Adm. Code)." Flambeau contends that the acute toxicity test battery initiated on September 15, 1993 should be invalidated because this permit requirement was not met. The samples collected on September 13, 1993 were not collected during a ". . . normal 24-hour operating period. . .", but rather during a brief period of mechanical malfunction.

Flambeau will be conducting an acute toxicity test battery the week of September 27, 1993. This test battery will meet the Flambeau's WPDES permit requirement that acute toxicity test batteries be conducted once each subsequent two calendar month interval.

If you should have any questions or comments, please contact me at 715-532-6690 Ext. 717.

Sincerely,  
FLAMBEAU MINING COMPANY



Jana E. Murphy  
Supervisor of Environmental Affairs

cc: Larry Mercado, Flambeau  
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