

020433

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January 28, 1988

Mr. R.A. Steers,
Yukon Territory Water Board,
Suite 200 - 4114 Fourth Avenue,
Whitehorse, Yukon,
Y1A 4N7

Dear Mr. Steers:

Please find enclosed the sample data for December, 1987, and the results from bioassays taken at X5 and X13.

Ammonia at X5 remains high. The December mean was 1.36 mg/l (Standard Deviation = 0.36 mg/l). Ammonia exceeded limits in four of the five sample periods. The 1987 NH₃ mean at X5 was 0.93 mg/l (Std. Dev. = 0.29 mg/l).

The mean Total cyanide concentration at X5 was 0.12 mg/l (Std. Dev. = 0.03 mg/l). and exceeded limits. Samples from each of the five sampling periods also exceeded limits. The mean W.A.D. (Weak Acid Dissociable) cyanide concentration at X5 was 0.05 mg/l (Std. Dev. = 0.01 mg/l). Cyanide sampling, analysis, and control methods are currently being investigated.

The mean copper concentration at X5 was within limits; however, one sample (December 15, 1987) exceeded limits.

Even with the high ammonia and cyanide levels at X5, the bioassay results for both X5 and X13 indicate non-toxic discharge.

All other analyses appear to fall with normal ranges.

Yours truly,



Robert McLenehan
Environmental Engineer

CURRAGH RESOURCES

2-41-100-077-87011

96-h STATIC LC50 BIOASSAY RESULTS OF
X5

SAMPLE TAKEN: UNKNOWN SAMPLE pH 7.8
 SAMPLE RECEIVED: Dec 18, 1987 SAMPLE D.O. 8.4 mg/l
 TEST STARTED: Dec 19, 1987 SAMPLE CONDUCTANCE 650 umho/cm

THE 96-h LC50 FOR THIS SAMPLE WAS >100 %v/v

	INIT pH	FINAL pH	INIT DO mg/l	FINAL DO mg/l	TEST CONC %v/v	PERCENT SURVIVAL			
						24h	48h	72h	96h
SAMPLE	8.0	8.3	10.0	9.8	100.0	100	100	80	70
CONTROL	6.1	6.5	10.0	9.8		100	100	100	100

TEST CONDITIONS

Bioassays conducted according to STANDARD METHODS FOR THE
 EXAMINATION OF WATER AND WASTE WATER, 15th edition, 1980
 APHA - AWWA - WPCF.

Number of test fish 10 Test temperature (C) 15.0
 Test volume (liters) 10.0 Test solution pH not adjusted

TEST FISH

Juvenile Rainbow Trout (*Salmo gairdneri*)
 Acclimated to temperature 15.0 +/- 1 C.
 Weight 0.49 +/- 0.1 g Length 3.8 +/- 0.3 cm

Duplicate reference toxicant (sodium pentachlorophenate)
 bioassays were conducted in order to test the tolerance of
 the fish stock. These tests gave 96-h LC50 values of
 88.3 ug/l (83.7, 92.7) and 86.7 ug/l (80.0, 100.0)

DILUTION WATER (Vancouver dechlorinated tap water)

Alkalinity (mg CaCO₃/l) 3.0
 EDTA hardness (mg CaCO₃/l) 5.0
 Total suspended solids (mg/l) <1.0
 Residual chlorine (mg/l) 0.002
 Conductance (umho/cm) 15

Other parameters available on request.

96-h LC50 is the 96-h lethal concentration for 50% mortality.
 Synonyms are TLm96 and 96-h TL50 (median tolerance limit). The
 95% confidence limits are in parentheses. Values were calculated
 by computer following C.E. Stephens "Methods for Calculating
 an LC50" (ASTM STP 634, 1977).

ANALYST



B.C. RESEARCH

CURRAGH RESOURCES

2-41-100-077-87012

96-h STATIC LC50 BIOASSAY RESULTS OF
X 13

SAMPLE TAKEN: UNKNOWN SAMPLE pH 7.4
 SAMPLE RECEIVED: Dec 18, 1987 SAMPLE D.O. 5.7 mg/l
 TEST STARTED: Dec 19, 1987 SAMPLE CONDUCTANCE 1700 umho/cm

THE 96-h LC50 FOR THIS SAMPLE WAS >100 %v/v

	INIT pH	FINAL pH	INIT DO mg/l	FINAL DO mg/l	TEST CONC %v/v	PERCENT SURVIVAL			
						24h	48h	72h	96h
SAMPLE	7.9	8.2	9.6	9.6	100.0	100	100	100	100
CONTROL	6.1	6.5	10.0	9.8		100	100	100	100

TEST CONDITIONS

Bioassays conducted according to STANDARD METHODS FOR THE
 EXAMINATION OF WATER AND WASTE WATER, 15th edition, 1980
 APHA - AWWA - WPCF.

Number of test fish 10 Test temperature (C) 15.0
 Test volume (liters) 10.0 Test solution pH not adjusted

TEST FISH

Juvenile Rainbow Trout (*Salmo gairdneri*)
 Acclimated to temperature 15.0 +/- 1 C.
 Weight 0.50 +/- 0.10 g Length 4.0 +/- 0.3 cm

Duplicate reference toxicant (sodium pentachlorophenate)
 bioassays were conducted in order to test the tolerance of
 the fish stock. These tests gave 96-h LC50 values of
 107.5 ug/l (90, 120) and 91.2 ug/l (80, 120)

DILUTION WATER (Vancouver dechlorinated tap water)

Alkalinity (mg CaCO3/l) 3.0
 EDTA hardness (mg CaCO3/l) 5.0
 Total suspended solids (mg/l) <1.0
 Residual chlorine (mg/l) 0.002
 Conductance (umho/cm) 15

Other parameters available on request.

96-h LC50 is the 96-h lethal concentration for 50% mortality.
 Synonyms are TLm96 and 96-h TL50 (median tolerance limit). The
 95% confidence limits are in parentheses. Values were calculated
 by computer following C.E. Stephens "Methods for Calculating
 an LC50" (ASTM STP 634, 1977).

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