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30 April, 1981

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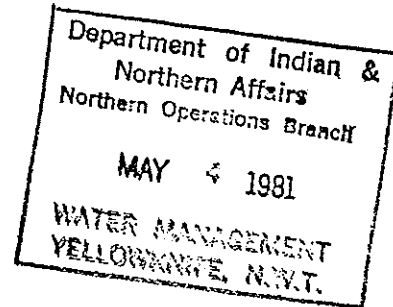
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Water Resources Division
Department of Indian &
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P. O. Box 1500
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X1A 2R3

Attention: Mr. A. J. Cullen
Regional Manager,
Water Resources Division

Dear Sirs:

Cadillac Explorations Limited
Prairie Creek, N. W. T.

Further to our meeting of March 25th with the Technical Committee of the N. W. T. Water Board and subsequent conversation of April 23rd with Mr. L. Cooper, we are pleased to submit, on behalf of Cadillac Explorations Limited, a summary of aquatic studies undertaken on the Prairie Creek Project since the submission of the Environmental Evaluation in October, 1980 and an outline of work proposed to complete the aquatic programme during the Spring of 1981.

The aquatic programme was prepared by Mr. L. W. Dwernychuk, Ph.D. of Beak Consultants Ltd. and can be reviewed with Mr. Dwernychuk at your convenience.

Yours very truly,

KER, PRIESTMAN & ASSOCIATES LTD.

N. I. Guild, P. Eng.
Manager, Water Resources & Mining
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cc: L. C. Morrisroe, Cadillac Explorations
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1.0 WORK COMPLETED

Winter Aquatics Survey

Winter aquatics surveys were undertaken during 13-27 March 1981, both in the vicinity of the minesite and in watercourses along the winter road corridor. Sampling involved the drilling of auger holes through the ice cover on watercourses found to contain fish during the 1980 studies. The amount of flowing water, ice cover, and water quality characteristics were recorded. The systems sampled and the results of the survey are contained in the following table.

Winter, Physical Data from Watercourses Associated with the Cadillac Mines Development

Waterbody	Sampling Location	Air Temp (°C)	Water Temp (°C)	Ice Thickness (cm)	Water Depth (cm)	D.O. (ppm)
Prairie Creek	M-6	3.0	0.0	open	30	14.4
Prairie Creek	M-5	2.0	0.0	open	30	13.2
Prairie Creek	M-1	0.0	0.0	open	15-30	12.8
Grainger River (riffle)	½ km downstream of road crossing	-3.0	0.0	50	10	10.0
Grainger River (pool)	½ km downstream of road crossing	-3.0	0.0	70	8	10.0
Grainger River Tributary	at road crossing	1.0	-	25	-	-
Grainger River Tributary	upstream of road crossing	1.0	-	35 (bottom)	-	-
Lake in Grainger Pass		-4.0	1.5	68	200	1.0 (top) 0.75 (bottom)



2.0 PROPOSED WORK

2.1 Benthic Invertebrates

The benthic program proposed for spring 1981 has the objective of examining both the winter road and the minesite systems. Studies on the winter road in 1980 indicated the Tetcela River, Grainger River, and an Unnamed tributary (Station R3) have fisheries potential. These areas would be studied in spring 1981. On the Grainger River a station would be situated upstream (Station R7-U) and downstream (Station R7-D) of the road crossing. On the Tetcela River, two locations would again be examined in 1981 upstream and downstream of the confluence of the unnamed tributary with the Tetcela (Stations R4-U and R4-D and R5-U and R5-D). The unnamed tributary has only a single sampling point (Station R3).

Along Prairie Creek and near the minesite, a total of eight sampling stations are proposed; those examined in 1980 (i.e. M1, M2, M3, M4 and M5) with the addition of Station M1A (located upstream of the airstrip below the confluence of the large tributary with Prairie Creek), Station M5A (located approximately one-half the distance between the minesite and the Prairie Creek-Nahanni River confluence), and Station M6 (located approximately 1 km upstream of the Prairie-Nahanni confluence).

A maximum of eight sample replicates will be collected from each station. This replicate figure would, on the average, compensate for some of the observed variability and enable a more accurate assessment of environmental conditions.

2.2 Fisheries Surveys

Spring surveys will concentrate on arctic grayling spawning and migration. Those watercourses found to contain grayling juveniles in 1980 will be examined for spawning adults. Work on the road route will be concentrated on the Grainger River, Tetcela River (2 locations) and a Sundog Creek Tributary (Site

APPENDIX 1: Life History Data for Fall Spawning Fish Collected in Prairie Creek, N.W.T., 1981.

Station Date	Species	Gear	Fork Length (mm)	Weight (g)	Age		Sex	Maturity	Eggs		Gonad		
					Scale	Otolith			Size (mm)	Number	Weight (g)	Width (mm)	
PC-3 24/09/81	RMWF	Q	340	411.4	7		F	4*	2.7	-	-	-	
	RMWF	Q	235	152.5	5		M	8	-	-	10.4	22	
	RMWF	Q	246	190.9	5		F	3	2.9	2100	31.6	22	
	RMWF	Q	247	193.1	5		F	3	2.8	3400	39.4	34	
	RMWF	Q	242	174.8	4		F	4	2.4	950	18.4	12	
	RMWF	Q	223	132.7	5		M	9	-	-	5.0	10	
	RMWF	Q	266	180.0	5		M	8	-	-	9.8	18	
	RMWF	Q	262	193.1	5		M	8	-	-	15.5	25	
	RMWF	Q	243	153.3	4		M	9	-	-	8.3	12	
	RMWF	Q	277	247.2	4		F	3	2.4	3390	41.2	30	
	RMWF	Q	310	307.6	5		F	3	2.8	5630	73.1	36	
	RMWF	Q	236	122.8	4		M	8	-	-	9.1	21	
	RMWF	Q	240	172.2	5		M	8	-	-	11.5	19	
	RMWF	Q	224	156.1	4		F	4	2.1	1090	16.9	16	
	PC-3 25/09/81	RMWF	Q	232	148.8	6		F	3	2.4	1380	10.6	14
RMWF		Q	240	149.6	5		F	3	2.0	1340	12.4	20	
RMWF		Q	256	160.1	5		M	7	-	-	9.0	22	
RMWF		Q	234	141.7	5		M	7	-	-	7.5	13	
RMWF		Q	250	149.4	5		M	8	-	-	11.7	20	
RMWF		Q	213	107.7	5		F	3	2.3	1070	11.5	15	
RMWF		Q	236	157.6	5		F	3	2.8	1430	16.0	23	
RMWF		Q	278	192.0	5		M	8	-	-	8.8	16	
RMWF		Q	214	129.9	4		F	3	2.5	1090	13.3	20	
RMWF		Q	216	125.8	4		F	1	-	-	-	-	
RMWF		Q	269	199.9	4		M	8	-	-	10.9	18	
RMWF		Q	232	130.4	4		F	3	2.2	1080	12.1	17	
RMWF		Q	245	169.3	R		M	8	-	-	10.9	18	
RMWF		Q	260	185.5	R		M	8	-	-	6.4	18	
RMWF		Q	234	143.3	5		M	8	-	-	6.4	21	
RMWF		Q	225	117.3	5		F	1	-	-	-	3	
RMWF		Q	233	152.2	5		F	3	2.2	1150	5.4	13	
RMWF		Q	247	179.2	6		F	3	3.0	1330	18.3	26	
RMWF		Q	228	129.8	5		M	8	-	-	7.6	18	
RMWF		Q	257	185.6	5		F	3	2.2	1900	.7	25	
RMWF		Q	301	281.9	7		F	3	2.6	3250	44.3	30	
RMWF		Q	236	132.4	5		F	3	1.7	1420	7.0	17	
RMWF		Q	269	186.9	5		F	3	1.3	2370	34.0	23	
BT		Q	287	255.3	6		M	8	-	-	8.5	20	
BT		Q	291	290.6									
PC-3 26/09/81		RMWF	Q	260	178.4	4		F	4	1.5	-	6.6	8
		RMWF	Q	219	107.5	4		M	8	-	-	3.6	17
		RMWF	Q	244	132.3	5		M	8	-	-	5.6	11
		RMWF	Q	255	171.2	5		F	3	2.0	1730	16.7	15
		RMWF	Q	269	209.2	5		M	8	-	-	18.3	28
	RMWF	Q	233	140.4	4		M	8	-	-	4.7	24	
	RMWF	Q	255	182.2	4		M	8	-	-	13.6	22	
	RMWF	Q	286	282.5	R		F	3	2.5	3640	51.2	36	
	RMWF	Q	266	194.2	4		F	4	2.2	1990	32.8	27	
	RMWF	Q	262	210.5	5		F	3	2.3	2090	32.1	25	
	RMWF	Q	294	294.2	5		F	3	2.2	3270	55.4	32	
	RMWF	Q	273	205.3	5		M	9	-	-	11.2	18	
	RMWF	Q	228	119.6	4		M	8	-	-	5.0	10	
	RMWF	Q	248	177.6	5		F	4	2.4	-	19.5	18	
	BT	Q	241	134.3	6		M	7	-	-	-	1	
	PC-4 24/09/81	RMWF	Q	285	253.9	5		M	8	-	-	27.2	26
		BT	Q	286	252.9	-		M	6	-	-	-	-
BT		Q	348	427.7	-		M	7	-	-	1.0	0.5	
BT		Q	326	345.2	-		M	7	-	-	1.2	0.7	
PC-4 25/09/81	RMWF	Q	227	118.2	4		M	8	-	-	4.5	16	
	BT	Q	357	439.1	-		M	-	-	-	1.0	4	
	BT	Q	316	373.4	-		F	-	0.8	-	3.2	10	
	BT	ES	325	341.1	-		F	-	1.0	-	5.4	14	
	BT	ES	334	435.4	-		F	-	1.0	-	7.8	16	

* partially spawned females.