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February 3, 1989
File: 1-058-08.01

Archer, Cathro & Associates (1981) Limited
1016 - 510 West Hastings Street
Vancouver, British Columbia
V6B 1L8

Attention: Mr. Al Archer
Principal

Dear Mr. Archer;

RE: MOUNT NANSEN PROJECT - REVISED DRAFT OF ENVIRONMENTAL SUMMARY REPORT

Enclosed is our revised draft report "Environmental Summary for the Mount Nansen Gold Project". The revision has incorporated the comments given to us by Doug Eaton and the report now parallels the other reports in being more specific to the development of the Brown-McDade Zone.

It is evident that additional environmental study and an impact assessment report would likely be required by the Regional Environmental Review Committee for the project. We have outlined the possible study requirements in the report.

Please call me or Chris Schmidt with your comments on the revised draft report.

Yours truly,

NORECOL ENVIRONMENTAL CONSULTANTS LTD.

RAHawes

Robert A. Hawes, Ph.D.
President

CHS/dsw

Enclosure

cc: Doug Eaton
Colin Dyson
Thornton Donaldson

DRAFT

ENVIRONMENTAL SUMMARY
FOR THE MOUNT NANSEN GOLD PROJECT

Prepared for:

Chevron Minerals Ltd.
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and

B.Y.G. Natural Resources Inc.
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Prepared by:

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January 1989

SUMMARY

Environmental studies of the Mount Nansen Project have been carried out by Norecol Environmental Consultants Ltd. since October, 1985. Field studies have included water quality sampling, hydrology, stream sediment sampling, collection of rock samples for acid-base accounting tests, and reconnaissance for wildlife. These field studies have been complemented by a compilation and review of available information for the project area and discussions with Chevron Minerals Ltd., B.Y.G. Natural Resources Inc., Archer Cathro and Associates (1981) Limited and other consultants to the project. An initial program of liaison with the Government of the Yukon and the public with respect to project planning and approvals was initiated in 1988.

This report provides a summary of environmental information for the project area and identifies sensitivities to development of the Brown-McDade Zone.

The information collected to date indicates that the primary sensitivities associated with mine site development would center on water quality and acid generation potential. Initial development of the Brown-McDade Zone by open pit mining and the initial tailings impoundment are not expected to result in significant impacts on aquatic resources or terrestrial resources. There are no winter concentrations of wildlife in the area and no highly sensitive species or habitats in the area that would be affected.

Further studies are recommended in conjunction with detailed project design, specifically to confirm acid generation assessment, hydrogeology and hydrology. Data from these studies would provide input to detailed engineering design; the preparation of waste management, water management and reclamation plans; and provide confirmation for impact assessment.

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1.0 INTRODUCTION

1.1 Background

Chevron Minerals Ltd. and B.Y.G. Natural Resources Inc. (Chevron and B.Y.G., respectively) are investigating the potential of the Mount Nansen Gold Project in the Yukon Territory (Figure 1). The project area is located approximately 190 km northwest of Whitehorse at 62°03'N and 137°07'W (NTS 115I/3W). The property is accessed by a gravel road from Carmacks, located 50 km to the east.

The claims area covers 5299 ha (13 095 acres) and consists of 30 mineral leases and 257 mineral claims. B.Y.G. owns the property. Chevron has an option to acquire a 62% interest but B.Y.G. has entered into a sub-option agreement whereby it can earn 50% of Chevron's interest. If all options are exercised, B.Y.G. will hold a 69% interest and Chevron 31%.

The four main vein systems occurring on the property are the Huestis, Webber, Brown-McDade and Flex zones (Figure 2). Exploration was first carried out in 1946 - 1947 by Leitch Gold Mines Ltd., Heustis Syndicate and Conwest Exploration Ltd. Mt. Nansen Mines Ltd. carried out further work in 1962 - 1964. Recent exploration has been carried out by Chevron/B.Y.G. during 1985 - 1988.

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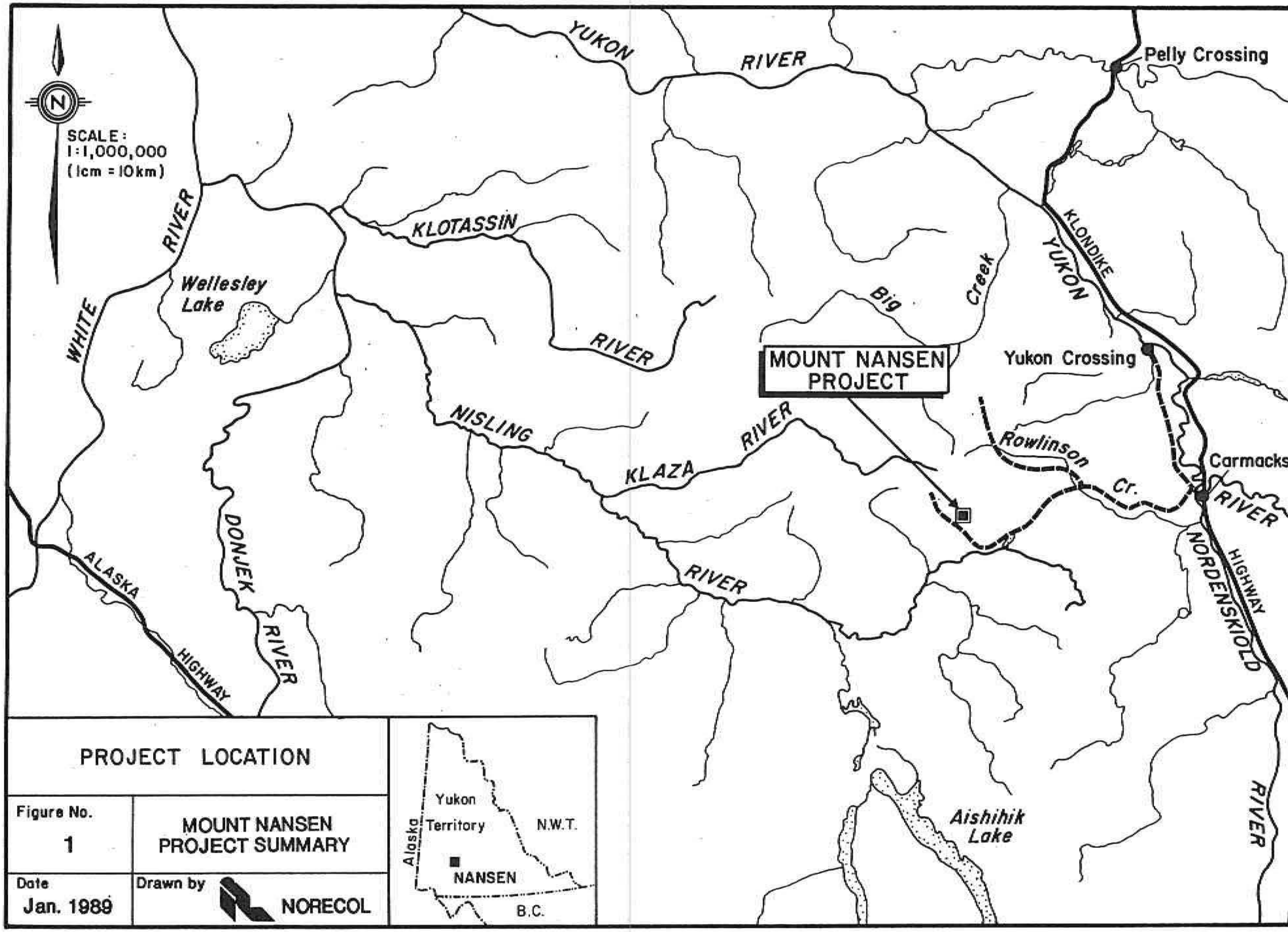


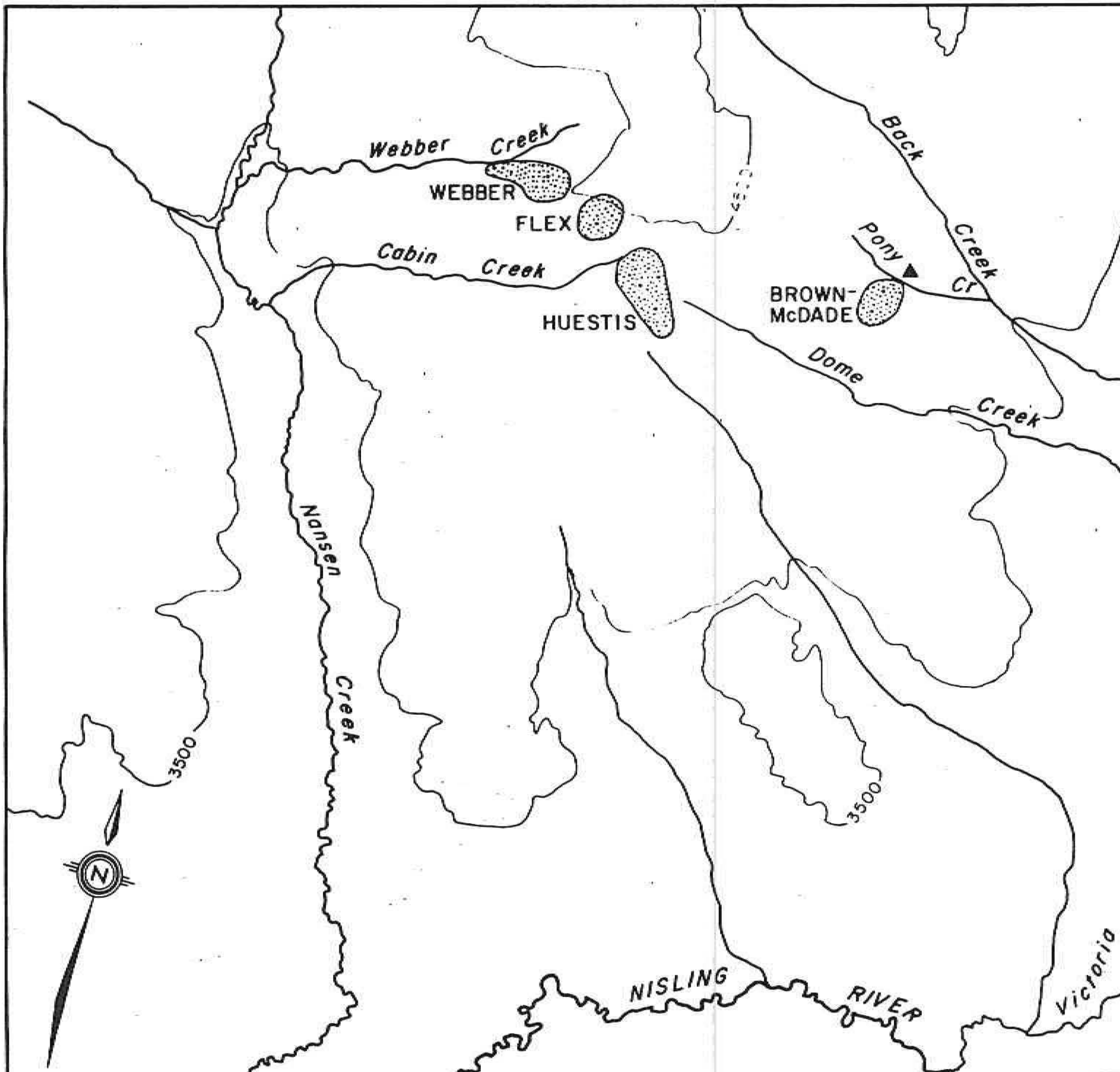
PROJECT LOCATION

Figure No. 1

MOUNT NANSEN PROJECT SUMMARY

Date Jan. 1989

Drawn by NORECOL



STUDY AREA DRAINAGES AND ORE ZONES

Figure no. 2

MOUNT NANSEN PROJECT SUMMARY

Date Jan.1989

Drawn by NORECOL

Underground development was carried out by Leitch Gold Mines Ltd. in 1946 - 1947 and Mt. Nansen Mines Ltd. in 1965 - 1968. During 1967 - 1968, the mine produced 16 330 t, with milling on-site. The mill had a capacity of 270 t per day and there were three separate tailings structures on Dome Creek. The mine subsequently closed but was re-opened in 1975 by Mt. Nansen Mines Ltd., running until 1976. During this second operation, 7435 t of ore were mined and milled. The mine was closed due to poor recovery of gold caused by the refractory nature of sulphide ores and the lack of a cyanidation circuit to treat the oxide ores.

1.2 Current Exploration And Plans For Development

Recent exploration has outlined strongly oxidized, open pit mineable reserves at the Brown-McDade and Flex zones and generally unoxidized, underground reserves at the Brown-McDade, Flex, Webber and Huestis zones. Several other zones have yielded significant intersections but have not yet been explored sufficiently to determine potential. Initial production would be oxidized, open pit mineable material from the Brown-McDade Zone, with later mill feed probably coming from a Flex Zone open pit, then from underground workings on various zones. The geology and mineral inventory of the project area and an economic assessment of open pit mining of the Brown-McDade Zone are described in Archer, Cathro and Associates (1981) Limited report (Archer Cathro 1989).

Exploration work by Chevron and B.Y.G. up to the end of the 1988 season has included some 8002 m of diamond drilling in 126 holes, with 82 holes delineating near surface mineralization at the Brown-McDade Zone, and the remainder testing selected targets at other zones. Holes in the Brown-McDade Zone were drilled at approximately 20 m intervals on lines spaced 33.3 m apart.

Melis Engineering Ltd. supervised cyanide amenability tests on samples from the Brown-McDade Zone which indicate the open pit mineable material should average 86% gold recovery in 24 hours using a grind of 70% minus 74 (Melis Engineering Ltd. 1989).

Klohn Leonoff Ltd. has investigated three potential tailings pond sites and prepared cost estimates for the two most favourable sites. Information on surficial materials and preliminary design is provided in the Klohn Leonoff (1988) report.

Reserves of 577 414 ts have been identified, with an average grade of 11.78 g Au/t and 197 g Ag/t. Open pit reserves comprise 187 212 ts from the Brown-McDade and Flex zones. Underground reserves comprise 390 202 t from the Brown-McDade, Huestis, Webber and Flex zones. Average thickness varies from zone to zone, with open pit around 10 m and underground around 2 m.

Proposed development would begin with open pit mining and then proceed to underground mining. The existing mill facilities and buildings would be used and modified to permit cyanide vat leaching. A network of exploration roads provides good access to most of the property. The exploration camp is located adjacent to the Brown-McDade adit on upper Pony Creek but a permanent camp would be constructed adjacent to the mill facilities.

Access to the property is along a 60 km gravel road from Carmacks. For project development, some upgrading of the road may be required, along with improvements to stream crossings. An airstrip is located along Victoria Creek, but has not been maintained regularly.

Preliminary environmental studies, including collection of baseline data, have been undertaken by Norecol Environmental Consultants Ltd. (Norecol) since the fall of 1985. These have been summarized in two reports (Norecol 1985; 1987). Additional on-site data have been collected by Archer Cathro and Associates, who have been responsible for overall coordination of activities on the project. Government agencies have also been collecting data for the site, since the previous mining operation.

Initial discussions have been held with government agencies to inform them of the proposed development and to identify environmental work requirements and permitting and approval requirements. These meetings have been coordinated with the Regional Environmental Review Committee (RERC) and have included Fisheries and Oceans Canada, the Northern Affairs Program of Indian and Northern Affairs Canada, Economic Development, the Yukon Water Board and the Yukon Conservation Society.

1.3 Objectives

The objective of this summary report is to compile and briefly review the environmental information collected to-date, focussing on data collected by Norecol for the project since 1985. In addition, other environmental information obtained from government agencies has been reviewed and referenced. The information presented covers the entire Mount Nansen Project area. This report does not comprise an impact assessment for the proposed development, but rather identifies environmental sensitivities to development and provides recommendations for environmental studies for detailed project design and impact assessment purposes.

2.0 ENVIRONMENTAL STUDIES

A brief review of the environmental data collected by Norecol is given in this section. Data collected by government agencies and others is referenced, as appropriate, but has not been reproduced in this present report.

2.1 Environmental Setting

The Mount Nansen claims are located in the Dawson Range at elevations ranging between 945 m and 1525 m. The area is drained by the Nisling River, which empties into the Yukon River via the Donjek and White rivers (Figure 1). Drainage from the property flows into two moderate sized tributaries of the Nisling River, Nansen Creek to the west and Victoria Creek to the east (Figure 2). Back and Dome creeks are tributaries of Victoria Creek which drain the east side of the property, while Webber and Cabin creeks are tributaries of Nansen Creek which drain the west side of the property (Figure 2).

The property lies in the Dawson Range Ecosystem with vegetation characteristics described by Oswald and Senyk (1977). Open stands of black spruce and white spruce occur in the valley and lower slopes along Victoria Creek and Nansen Creek; black spruce is predominant on wetter sites. Other scattered trees include aspen, balsam poplar and paper birch. The upper slopes and ridges are largely devoid of trees.

Birch and willow shrubs form extensive cover from valley bottom to above treeline. Labradar tea, mossess and lichens are dominant in the understory.

Preliminary geotechnical and permafrost information was gathered in the project area by Klohn Leonoff Consulting Engineers (1985) in September, 1985. In general, the ridge tops and steeper hillsides have either no tree cover and bedrock outcropping or there is a cover of 1 to 3 metres of weathered rock over intact bedrock. Extensive deposits of grey-brown sand occur in the valley bottoms and in the benchland near Dome Creek. Permafrost is evident at shallow depths (about 0.4 m) where the rock has an organic or moss cover, but where cover has been removed the permafrost layer occurs at greater depths (about 5.0 m). The permafrost layer in this region is 30 to 60 metres thick. Mean annual temperature at the site is approximately $-3^{o}C$.

2.2 Status of Environmental Studies

Some environmental information was collected in relation to the earlier mining activity in the area. The Environmental Protection Service (1979) examined water chemistry and biological conditions in the Victoria Creek watershed in 1976 and 1977. EPS found that the creek receiving mine decant water had reduced bottom fauna, but there was little impact on the bottom fauna and fish populations in Victoria Creek.

During 1982, EPS conducted leaching experiments on tailings from the Mount Nansen mine to determine oxidation potential (Davidge 1984). It was found that the tailings remained alkaline, did not oxidize appreciably, and leaching bacteria were prevented from becoming established due to acid consuming properties of the tailings.

Water quality monitoring was carried out by the Water Resources Division, Northern Affairs Program (Indian and Northern Affairs Canada) and some of these data have been reviewed. Their sampling is done to monitor operational mines or active exploration areas and their data for 1986, 1987 and 1988 are available from the Whitehorse Office.

Environmental Protection instituted a sampling program in the Mount Nansen project area in 1988. Samples of water quality were taken at 12 sites along with stream flow of most of these sites in July and August 1988. Benthic invertebrate sampling was also carried out in August, 1988.

Norecol's environmental studies were initiated in 1985 and consisted of seasonal sampling of water quality of a network of sites. Initial acid-base accounting and reconnaissance level wildlife studies were also carried out. A detailed program of hydrologic studies was initiated in June 1988 but only limited data were collected to September 1988.

A synopsis of the status of environmental studies for the project to the end of 1988 is given in Table 1. Additional study items which may be required to provide

TABLE 1

SYNOPSIS OF ENVIRONMENTAL STUDIES FOR THE MOUNT NANSEN PROJECT

COMPONENT	DATE OF STUDIES	WORK COMPLETED	STATUS/WORK REMAINING
Water Quality	September 21, 1976 August 31, 1977	Sampling network of 5 stations by Environmental Protection Service (3 sampled in 1976, 5 in 1977).	
	August 27, 1986	Limited sampling by Water Resources Service, Northern Affairs Program.	
	July 11-14, 1988 August 22-24, 1988	Additional sampling was carried out by Environmental Protection at 12 sites.	
	October 11, 1985 March 4, 1986 June 9, 1986 September 4, 1986 July 4, 1987 August 28, 1987 May 27, 1988	Total of 11 surface water sample sites plus 1 adit water site were established and sampled by Norecol on a seasonal basis.	Adequate level of sampling has been completed to form the basis for impact assessment and project permitting.
Stream Sediment	September 4, 1986	Samples collected at 10 surface water sample sites by Norecol.	Sufficient samples have been collected for assessment of project impacts.
	August 22-24, 1988	Sediment samples were collected by Environmental Protection at most of their 12 sample sites (data will not be available until late in 1988).	

TABLE 1 (continued)

SYNOPSIS OF ENVIRONMENTAL STUDIES FOR THE MOUNT NANSEN PROJECT

COMPONENT	DATE OF STUDIES	WORK COMPLETED	STATUS/WORK REMAINING
Hydrology/Climate	May 25-27, 1988	Established continuous flow recorder and did flow measurements on Victoria Creek. (Instrument was a Stevens A-71 recorder provided by Water Resources, DIAND). A V-notch weir was installed on Dome Creek below the main road. Staff gauge on Victoria Creek was monitored by camp staff. Precipitation and temperature were also measured at camp on an on-going basis.	A-71 recorder should be reinstalled in spring 1989 (after break-up) and at least 3 discharge measurements should be taken to provide a complete record during the open water season. Staff gauge records on Victoria Creek should be monitored twice weekly during open water; daily during storm events. Daily records of precipitation and temperature should be continued when camp is open. Complete records from A-71 recorder should be processed and estimated flows calculated in conjunction with the Water Resources Division. Regional hydrology and climate analysis may be required for detailed engineering design.
	July 11-14, 1988 August 22-24, 1988	Environmental Protection also did flow measurements at most surface water sites.	
	September 21, 1988	Flows on Victoria Creek and Dome Creek were measured and recorder was serviced. Recorder had been operating intermittently, with some significant gaps in the record.	

TABLE 1 (continued)

SYNOPSIS OF ENVIRONMENTAL STUDIES FOR THE MOUNT NANSEN PROJECT

COMPONENT	DATE OF STUDIES	WORK COMPLETED	STATUS/WORK REMAINING
Hydrology/Climate	September 29, 1988	Flow recorder removed by the Water Resources Division, Northern Affairs Program	
Hydrogeological	-	-	A hydrogeological program should be carried out in conjunction with detailed engineering design. This will provide data for water quality impact assessment and tailings impoundment design.
Benthic Invertebrates	September 21, 1976 August 31, 1977	Limited sampling carried out by Environmental Protection Service using a Surber sampler (1 site in 1976, 3 sites in 1977).	
	August 22-24, 1988	Artificial substrates were placed at 9 of the 12 Environmental Protection stream sample sites in July and removed in late August, 1988. Analysis will not be completed until early 1989.	Sampling and analysis by Environmental Protection will be adequate for impact assessment purposes.
Fisheries	August 31, 1977	Sampling at two sites was carried out by the Environmental Protection Service; limited analysis of fish tissues for metals was conducted.	

TABLE 1 (continued)

SYNOPSIS OF ENVIRONMENTAL STUDIES FOR THE MOUNT NANSEN PROJECT

COMPONENT	DATE OF STUDIES	WORK COMPLETED	STATUS/WORK REMAINING
		Data compilation and review have been undertaken by Norecol, including discussions with Fisheries and Oceans staff. Field reconnaissance were done during various water quality samplings.	Site investigation of main project streams is required in summer to document presence, distribution and relative abundance of fish; plus description and classification of aquatic habitat.
Acid-base Accounting	1984	Environmental Protection Service did test on Mount Nansen tailings; tests indicated acid consumption.	Preliminary tests indicate that the Brown-McDade Zone should not be an acid producer; the Heustis zone is a potential acid producer. Further test work is advised on all zones to be mined and on simulated tailings material to confirm results.
	October 11, 1985	Eight samples collected by Norecol from Brown-McDade, Heustis and Webber zones. Analysis completed on ore and rock.	
Wildlife	March 4, 1988	Aerial survey flown by Norecol - small numbers (3) of wintering moose seen in project area. Observations have also been recorded during the course of other environmental work and by camp staff.	Additional information from government sources is recommended, plus continuation of recording of wildlife by camp staff. Detailed ground work is not considered necessary for the scope of the project.
Soils/Surficial/ Vegetation	-	-	Site reconnaissance and mapping of surficial materials, and description of soil types for project design, reclamation planning and materials handling.

TABLE 1 (concluded)

SYNOPSIS OF ENVIRONMENTAL STUDIES FOR THE
MOUNT NANSEN PROJECT

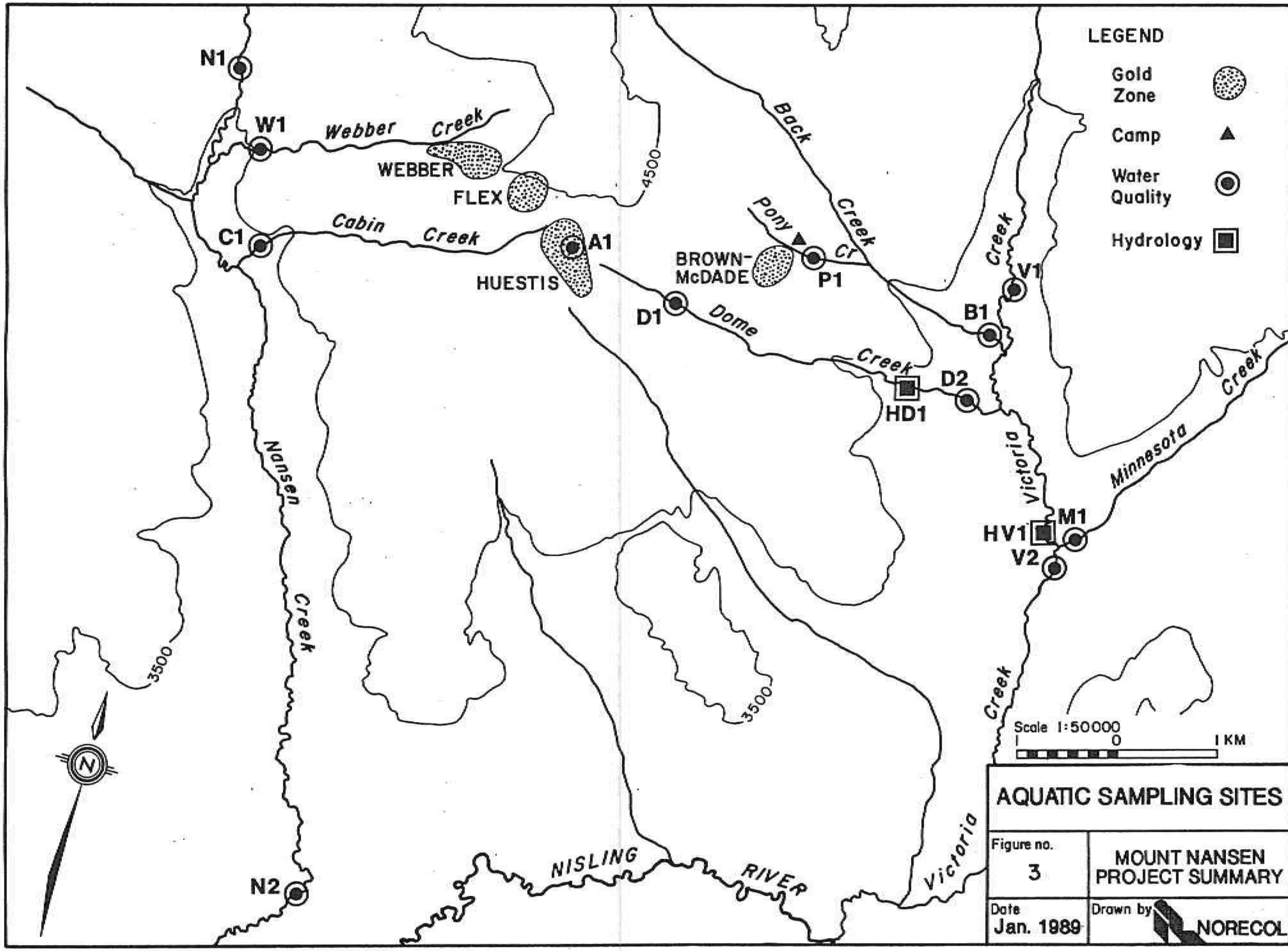
COMPONENT	DATE OF STUDIES	WORK COMPLETED	STATUS/WORK REMAINING
Land Status/ Resource Use/ Heritage	-	-	Data collection from available government and public sources. Assessment with respect to traditional use of area by native people.
Government, Liaison, Public Involvement	March, 1988	Program was initiated in March 1988 - met with RERC, Northern Affairs, Water Resources, Fisheries and Oceans, Economic Development, Yukon Water Board, and Yukon Conservation Society. Project information package was submitted in March 1988.	Follow up required with respect to project approvals and permitting through the RERC and the Yukon Water Board.

input to detailed engineering design and impact assessment are also given in the table.

2.3 Water Quality

Water quality sampling was carried out by Norecol in the Mount Nansen Project area on October 11, 1985; March 4, June 9 and September 4, 1986; July 4 and August 28, 1987; and on May 27, 1988. Water quality sites are shown in Figure 3 and are described as follows:

A1	-	Lower Huestis Adit.
N1	-	Nansen Creek, 1.0 km upstream of Webber Creek.
N2	-	Nansen Creek, 1.2 km from mouth.
W1	-	Webber Creek, 0.6 km from mouth (drains Webber Zone).
C1	-	Cabin Creek, 0.3 km from mouth (drains Huestis Zone).
V1	-	Victoria Creek, 0.8 km upstream of Back Creek.
V2	-	Victoria Creek, approximately 5 km from mouth.
M1	-	Minnesota Creek, 0.1 km from mouth.
B1	-	Back Creek, 0.2 km from mouth.
P1	-	Pony Creek, tributary to Back Creek, 0.6 km from mouth (drains Brown-McDade Zone).
D1	-	Dome Creek, 3.5 km from mouth (drains Huestis Zone and old mill and tailings area).
D2	-	Dome Creek, 0.4 km from mouth.



LEGEND
Gold Zone
Camp
Water Quality
Hydrology
N1
W1
Webber Creek
WEBBER
FLEX
4500
C1
Cabin Creek
A1
HUESTIS
Back Creek
Pony Cr
BROWN-McDADE
P1
D1
Dome Creek
HD1
D2
B1
V1
Creek
Victoria Creek
Minnesota Creek
HV1
M1
V2
Nansen Creek
3500
3500
N
N2
NISLING RIVER
Victoria
Scale 1:50000
1 0 1 KM
AQUATIC SAMPLING SITES
Figure no.
3
MOUNT NANSEN PROJECT SUMMARY
Date
Jan. 1989
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Analytical parameters and laboratory detection limits are given in Table 2. Analytical results are given in Appendix I. On March 4, 1986 water was collected only from Webber Creek (W1) due to ice conditions and lack of water at the other sites; most sites were covered with 1 to 2 m of ice which was continuous to the creek bottom. Webber Creek (W1) was sampled where groundwater recharge had softened the ice.

Analytical results of the water samples collected by Norecol indicate that the surface water in the Mount Nansen Project area is generally soft to moderately soft and moderately alkaline. However, water from the lower Huestis adit (A1) is hard, very alkaline, highly conductive, and high in total solids. Dome Creek receives water from the lower Huestis adit, and as a result, exhibits similar hard, alkaline conditions. In fact, the upstream site on Dome Creek (D1), which also receives decant from a tailings impoundment, sometimes had higher conductivity, hardness and total solids than Site A1.

Elevated levels of suspended solids occur in certain streams in the area, particularly during periods of peak runoff. Concentrations of suspended solids in excess of 100 mg/L were found during high flows in Nansen Creek (N1) in June 1986 and in Dome (D1), Nansen (N1), and Victoria (V2) creeks in July 1987. Levels greater than 300 mg/L were found in Victoria (V2) and Webber (W1) creeks in September 1986. The highest levels of suspended solids were found in Back Creek (B1), where Norecol recorded 1418 mg/L in June 1986 and 965 mg/L in September 1986. Even higher concent-

TABLE 2

NORECOL WATER QUALITY PARAMETERS FOR THE MOUNT NANSEN PROJECT

Characteristics	Detection Limits
Temperature	field
pH	0.1
Total Solids	1 mg/L
Suspended Solids	1 mg/L
Turbidity	0.1 NTU
Specific conductivity	1 umhos/cm
EDTA Hardness	1 mg/L
Total Alkalinity	1 mg/L
Sulphate	1 mg/L
Nitrate	5 ug/L as N
Nitrite	2 ug/L as N
Ammonia	5 ug/L as N
Total Phosphorus	3 ug/L as P
Total Cyanide	1 ug/L
Total Mercury	0.05 ug/L
<u>Total and dissolved metals</u>	
Aluminum*	10 ug/L
Arsenic	1 ug/L
Barium	5 ug/L
Cadmium	0.2 ug/L
Copper	0.5 ug/L
Iron	5 ug/L
Lead	1 ug/L
Silver	0.2 ug/L
Zinc	0.5 ug/L

* May 1988 samples only

rations, sometimes exceeding 10 000 mg/L, were measured by Environmental Protection in 1988. The source of these extreme sediment loads is an operating placer mine upstream on Back Creek. The high sediment levels in Nansen and Victoria creeks may also reflect the historical placer activity on these streams.

Levels of nutrients are highly variable in study area streams. In most samples, nitrate concentrations were less than 0.06 mg N/L, and ammonia levels were below 0.02 mg N/L. However, levels of both substances in excess of 0.1 mg N/L were sometimes found in upper Dome Creek (D1), Back Creek (B1), Pony Creek (P1) and the lower Huestis adit (A1). Nitrate concentrations exceeded 0.3 mg N/L in the adit on two occasions. A maximum ammonia concentration of 0.342 mg N/L was measured in upper Dome Creek. Nitrate concentrations generally were below the detection limit (0.002 mg N/L).

Total phosphorus concentrations varied from undetectable to a few milligrams of phosphorus per litre. The highest total phosphorus concentrations (0.113 to 2.18 mg P/L) were measured in Back Creek (B1), the maximum level being recorded on June 1986. The elevated phosphorus levels in Back Creek are probably associated with sediments from placer mining. The effect of the phosphorus loading to Victoria Creek from the Back Creek drainage was evident during the summer of 1986 at the lower Victoria Creek sampling location. Phosphorus concentrations above 0.3 mg P/L were recorded occasionally in Dome Creek (D1), Minnesota Creek (M1), Nansen Creek (N1, N2) and Webber Creek (W1), and usually were associated with increased levels of suspended solids.

Pony Creek was used for drinking water during the exploration program, and Minnesota Creek has been considered as a possible future water supply. Therefore, the water quality results for Pony Creek (P1) and Minnesota Creek (M1) have been compared to recommended drinking water guidelines in Table 3. Since the recommended metal levels in Table 3 are based on total concentrations, the total metal values presented in Appendix I are used as the source for comparison. These results indicate that Pony Creek had elevated cadmium levels in October 1985 and August 1987. Arsenic also exceeded the drinking water guideline in August 1987. Both Pony Creek and Minnesota Creek had consistently elevated iron levels on all three occasions. These values ranged from 0.81 to 3.52 mg/L for Pony Creek, and from 0.54 to 1.33 mg/L for Minnesota Creek. The recommended level of 0.3 mg/L for iron is established for aesthetic reasons (staining) and is not a health consideration.

In order to assess the potential water quality effects on aquatic biota in the Mount Nansen area, the water quality results at all sites are compared to guidelines recommended for protection of aquatic life (Table 3). As with the drinking water guidelines, these guidelines are based on total metal concentrations, therefore, the total metal values appearing in Appendix I were used for comparison.

TABLE 3

WATER QUALITY GUIDELINES

PARAMETER	DRINKING WATER	AQUATIC LIFE[a]	COMMENTS
Aluminum	-	0.1 mg/L	ph $\geq$ 6.5; [Ca^{2+}] $\geq$ 4.0 mg/L; DOC $\geq$ 2.0 mg/L
Arsenic	0.05 mg/L	0.05 mg/L	
Barium	1.0 mg/L		
Cadmium	0.005 mg/L	0.2 ug/L	Hardness 0-60 mg/L ($CaCO_3$)
		0.8 ug/L	Hardness 50-120 mg/L ($CaCO_3$)
		1.3 ug/L	Hardness 120-180 mg/L ($CaCO_3$)
		1.8 ug/L	Hardness >180 mg/L ($CaCO_3$)
Chromium	0.05 mg/L	0.2 mg/L	To protect fish
		2.0 ug/L	To protect aquatic life, including zooplankton and phytoplankton
Copper	<1.0 mg/L[b]	2 ug/L	Hardness 0-60 mg/L ($CaCO_3$)
		2 ug/L	Hardness 60-120 mg/L ($CaCO_3$)
		3 ug/L	Hardness 120-180 mg/L ($CaCO_3$)
		4 ug/L	Hardness >180 mg/L ($CaCO_3$)
Cyanide	0.2 mg/L	5.0 ug/L	Free cyanide as CN
Iron	<0.3 mg/L[b]	0.3 mg/L	

continued . . .

TABLE 3 (continued)

WATER QUALITY GUIDELINES

PARAMETER	DRINKING WATER	AQUATIC LIFE	COMMENTS
Lead	0.05 mg/L	1 ug/L	Hardness 0-60 mg/L ($CaCO_3$)
		2 ug/L	Hardness 60-120 mg/L ($CaCO_3$)
		4 ug/L	Hardness 120-180 mg/L ($CaCO_3$)
		7 ug/L	Hardness >180 mg/L ($CaCO_3$)
Manganese	<0.05 mg/L[b]		
Mercury	0.001 mg/L	0.1 ug/L	
Nickel		25 ug/L	Hardness 0-60 mg/L ($CaCO_3$)
		65 ug/L	Hardness 60-120 mg/L ($CaCO_3$)
		110 ug/L	Hardness 120-180 mg/L ($CaCO_3$)
		150 ug/L	Harndess >180 mg/L ($CaCO_3$)
Nitrogen Ammonia (total)		2.2 mg N/L	pH 6.5; temperature $10^{\circ}C$
		1.37 mg N/L	pH 8.0; temperature $1^{\circ}C$
Nitrite	1.0 mg/L	0.06 mg/L	
Nitrate	10 mg/L		. Concentrtions that stimulate profilic weed growth should be avoided.

continued . . .

TABLE 3 (concluded)

WATER QUALITY GUIDELINES

PARAMETER	DRINKING WATER	AQUATIC LIFE[a]	COMMENTS
pH	6.5 - 8.5[b]	6.5 - 9.0	
Selenium	0.01 mg/L	1 ug/L	
Silver		0.1 ug/L	
Zinc	<5.0 mg/L[b]	0.03 mg/L	
Total Suspended solids		Increase of 10 mg/L	Background suspended solids ≤100 mg/L
		Increase of 10% back-ground	Background suspended solids >100 mg/L

Sources: Drinking Water: Health and Welfare Canada 1987
Aquatic Life: Canadian Council of Resource and Environment Ministers 1987;

[a] Maximum acceptable level unless otherwise stated; guidelines refer to total metals.
[b] Aesthetic objective

DOC = Dissolved Organic Carbon

Table 4 shows the range of values that exceeded the Canadian Council of Resource and Environment Ministers (1987) guidelines at each site. Pony Creek (P1), which drains the Brown - McDade Zone, had the highest value of cadmium (0.020 mg/L) and copper (0.34 mg/L) of all sites, and was very high in zinc (up to 1.44 mg/L). Back Creek (B1) had the highest values of total arsenic (0.168 mg/L) and iron (45.5 mg/L) of all sites. The elevated levels of metals in Back Creek are related to the severe disturbance of the stream by placer mining operations, both upstream and in the immediate vicinity of the water sampling site. Back Creek also receives water from Pony Creek which has high levels of heavy metals.

The other area of concern is the Dome Creek drainage, which drains the Huestis Zone. The sample from the lower Huestis adit (A1) had high levels of cadmium (0.0070 mg/L) and zinc (1.36 mg/L). The nearest downstream site on Dome Creek (D1) had the highest zinc value (2.47 mg/L) of all sites and was very high in iron (maximum 11.8 mg/L). All streams had high concentrations of total iron, with values ranging to 45.5 mg/L.

The previous discussion identified areas of environmental concern from a water quality perspective, but it should be noted that the effect of a given concentration of any metal on aquatic biota is difficult to predict. The effects can vary, depending on numerous water quality characteristics such as pH, temperature, alkalinity, conductivity, suspended solids, chelating qualities and the form of the metal (ionic being more available biologically).

TABLE 4

RANGE OF VALUES ABOVE RECOMMENDED LEVELS FOR WATER QUALITY CHARACTERISTICS EXCEEDING GUIDELINES[b]
FOR THE PROTECTION OF AQUATIC ORGANISMS IN THE MOUNT NANSEN PROJECT AREA[a]

SITE	TOTAL Ag (mg/L)	TOTAL As (mg/L)	TOTAL Cd (mg/L)	TOTAL Cu (mg/L)	TOTAL IRON (mg/L)	TOTAL Pb (mg/L)	TOTAL ZINC (mg/L)
A1	0.0002 (2)	0.050 - 0.094 (3)	0.0049 - 0.0070 (4)	0.0053 - 0.0064 (2)	0.62 - 2.89 (5)		0.01 - 1.36 (5)
B1	0.0004 - 0.0028 (2)	0.056 - 0.42 (3)	0.0004 - 0.0046 (5)	0.0063 - 0.080 (6)	1.80 - 45.5 (6)	0.0035 - 0.08 (5)	0.07 - 0.27 (3)
C1				0.0022 - 0.0023 (2)	0.37 - 0.80 (4)		
D1	0.0003 (1)	0.061 - 0.072 (2)	0.0021 - 0.0050 (2)	0.0042 - 0.030 (2)	0.96 - 11.8 (6)		0.19 - 2.47 (5)
D2					0.34 - 1.37 (4)		
M1				0.0025 - 0.0034 (5)	0.54 - 1.33 (5)		
N1			0.0003 - 0.0010 (4)	0.0083 - 0.020 (5)	0.64 - 3.02 (5)	0.005 (1)	
N2	0.0003 (1)		0.0003 - 0.0008 (3)	0.0058 - 0.040 (5)	0.54 - 10.5 (5)	0.004 - 0.009 (2)	0.06 (1)
P1	0.0002 - 0.0003 (2)	0.095 (1)	0.0004 - 0.020 (6)	0.0027 - 0.34 (6)	0.81 - 3.52 (8)		0.14 - 1.44 (5)
V1			0.0003 (1)	0.0025 - 0.016 (3)	0.33 - 2.99 (5)	0.003 (1)	
V2			0.0003 - 0.0010 (3)	0.0228 - 0.018 (5)	0.77 - 4.74 (6)	0.003 (1)	
W1	0.0005 (1)		0.0006 (1)	0.0021 - 0.010 (2)	1.18 - 6.16 (4)		

[a] Recommended levels for protection of aquatic life (Canadian Council of Resource and Environment Ministers 1987)

Silver	0.0001 mg/L
Total Arsenic	0.05 mg/L
Total Cadmium	0.0002 mg/L at hardness <60 mg $CaCO_3$/L to 0.0018 mg/L at hardness >180 mg $CaCO_3$/L
Total Copper	0.002 mg/L at hardness <60 mg $CaCO_3$/L to 0.004 mg/L at hardness >180 mg $CaCO_3$/L
Total Iron	0.3 mg/L
Total Lead	0.001 mg/L at hardness < 60 mg $CaCO_3$/L to 0.007 mg/L at hardness >180 mg $CaCO_3$/L
Total Zinc	0.03 mg/L

[b] Values in parentheses represent number of samples exceeding guidelines

2.4 Stream Sediment

Stream sediments were collected at water quality sites in the Mount Nansen area on September 4, 1986. The analytical results of these samples are shown in Table 5.

The Pony Creek (P1) sediment samples contained the highest levels of metals relative to the other sites. With the exception of iron, mercury and silver, the Pony Creek sediment metals concentrations were all at least 10 times greater than those at the other sites; lead and arsenic reached levels of over 100 times those of the other sites. The high metal levels at Site P1 are attributed to the Brown - McDade adit and material from eroding banks near the adit.

Sediment metals concentrations are higher in the Victoria Creek drainage than in the Nansen Creek drainage. The area of highest metal enrichment is likely from the Brown - McDade zone and the Back Creek placer mining area.

Stream sediment samples were also collected during August, 1988 by Environmental Protection. Laboratory analyses of these samples have not been completed as of January 1989.

2.5 Climate and Hydrology

Climate data collected at the Mt. Nansen exploration camp during 1985, 1986 and 1988 (generally end of May to September) consisted of daily temperature (maximum,

TABLE 5

TOTAL METAL CONCENTRATIONS IN SEDIMENT SAMPLES FROM THE MOUNT NANSEN PROJECT

SAMPLE[a]	TOTAL METALS: (ug/g DRY WEIGHT)							
	Cu	Zn	Pb	Cd	As	Fe	Ag	Hg
B1	11.5	59.4	14.9	<1.25	22.1	19223	<1.25	<0.05
C1	5.46	39.0	<2.5	<1.24	10.7	33009	<1.24	<0.05
D1	5.46	43.4	3.47	<1.24	12.2	9927	<1.24	<0.05
D2	5.93	47.4	8.90	<1.23	25.2	12112	<1.23	<0.05
N1	26.0	51.5	18.1	<1.22	21.1	14216	<1.22	<0.05
N2	14.9	41.6	9.13	<1.20	13.0	10333	<1.20	<0.05
P1	456	702	1268	11.8	2093	49994	8.13	0.122
V1	13.6	42.2	6.33	<1.17	9.60	13138	<1.17	<0.05
V2	21.1	91.9	21.8	<1.22	50.4	18384	<1.22	<0.05
W1	5.59	28.7	3.89	<1.21	14.2	17015	<1.21	<0.05

[a] Sites shown on Figure 3

minimum) and precipitation. Long term climate data for temperature and precipitation are available for Carmacks, 45 km to the east (Station No. 2100300). More details on climate, particularly precipitation, are provided in Klohn Leonoff's (1988) report.

A hydrology program for the project was initiated in late May 1988. A continuous water level recorder (Stevens A-71) was installed by Norecol on Victoria Creek above Minnesota Creek (Figure 3) on May 24, 1988. The recorder was provided on loan by the Water Resources Division, Northern Affairs Program, for use during the 1988 season. The site was gauged on three occasions in 1988: May 26, June 23 and September 22. (Table 6). Staff gauge readings were taken by Mt. Nansen exploration camp personnel on a regular basis. Problems arose with the water level recorder around June 23 and it stopped recording shortly after that date. The station was inspected on September 21 and again operated until September 29 when the recorder was removed by Water Resources Division staff. Data for the flow recorder station have not been analyzed to date.

A 90^{o} V-notch weir was installed on Dome Creek on May 26, 1988 (Figure 3) and measurements were taken by Norecol and exploration camp staff. These measurements were used to calculate estimated discharge for Dome Creek (Table 6).

Spot measurements were also done by Environmental Protection at 12 water sample sites on July 13 and August 24, 1988.

TABLE 6

MOUNT NANSEN PROJECT AREA
1988 HYDROLOGY DATA

SITE	DATE (1988)	STAFF GAUGE LEVEL (m)	DISCHARGE (m^3/s)	($L/S/Km^2$)
Victoria Creek above Minnesota Creek[a]	May 26	0.495	0.976	11.9
	June 23	0.33	0.211	2.57
	September 22	0.35	0.277	3.38
Dome Creek[b]	May 26	0.172[c]	0.0169	3.48
	May 27	0.165	0.0153	3.15
	May 29	0.230	0.0350	7.20
	June 2	0.210	0.0279	5.74
	June 12	0.166	0.0155	3.19
	July 4	0.271	0.0528	10.9
	August 4	0.311	0.0744	15.3
	September 22	0.155	0.0131	2.70

a 82 km^2 drainage area
b 4.86 km^2 drainage area
c 90° V-notch weir

Although the data record is incomplete, some data were obtained for Dome Creek during peak rainfall events during July and August 1988. The project area received above average rainfall during July of 1988 (Steele pers. comm.) and this is reflected in the high discharges given for July and August in Table 6. During the period July 1 - 25, 1988, the Carmacks area received 85.4 mm of rain whereas the mean for July is approximately 45 cm.

The Mt. Nansen area would also have received about twice the mean total rainfall during this period. Much of the southwest and central Yukon received significant precipitation during July and August of 1988.

2.6 Acid Generation

Eight rock samples were collected on October 11, 1985 to conduct acid-base accounting tests. This test is a preliminary evaluation of potential of these materials to generate acid. The source of this rock, type of material, and assay analysis results are shown in Table 7.

These initial test results indicate that the Brown-McDade Zone is not likely to be an acid producer. One sample of marginal ore (No. 7) had a slight acid generation potential but the majority of the ore would have a net neutralization potential. The blending of ore is not likely to produce acid generating tailings. Waste rock may be used for construction purposes and the net neutralization

TABLE 7

ACID NEUTRALIZATION POTENTIALS OF ORE, WASTE ROCK AND TAILINGS FROM THE MOUNT NANSEN PROJECT

				ACID AND BASE TONS $CaCO_3$ EQUIVALENT/1000 TONS		
SAMPLE NUMBER	SOURCE	MATERIAL	PERCENT SULFUR	ACID GENERATION POTENTIAL	ACID CONSUMING POTENTIAL ($CaCO_3$ equivalent)	NET ACID GENERATION POTENTIAL (Acid-Base)
1	Huestis Zone (upper adit)	Ore	7.56	236.9	38.10	198.80
2	Huestis Zone	Ore	16.90	529.4	3.50	525.90
3	Webber Zone	Wall Rock	0.11	3.3	8.68	-5.38
4	Webber Zone	Wall Rock (with pyrite)	0.84	25.8	57.60	-31.80
5	Brown-McDade Zone	Marginal Ore	0.38	11.8	20.70	-8.90
6	Brown-McDade Zone	Wall Rock	0.09	2.6	19.80	-17.20
7	Brown-McDade Zone (hanging wall)	Marginal Ore	0.46	14.3	6.20	8.10
8	Huestis Zone (lower adit)	Tailings	4.53	141.8	30.20	111.60

potential should not cause a problem with its use, however, confirmatory test work for this zone is recommended.

Results indicate that ore and tailings from the Huestis Zone (Samples 1, 2 and 8) have considerable acid generation potential. Further testing of acid generation potential of ore and waste rock and tailings from the Heustis zone will be necessary prior to development of that zone.

Previous studies showed that the tailings from the abandoned Mount Nansen mine had the ability to consume acid, had little or no oxidation potential, and remained alkaline (Davidge 1984). These tests were carried out using different procedures compared to those used for the present analyses. The tailing material has been shown to have potential for reprocessing, and if used, may require some further analysis for acid generation potential.

2.7 Fisheries

Fisheries information for the area is extremely limited. Arctic grayling (*Thymallus arcticus*) and sculpins (*Cottus* sp.) have been captured in Victoria Creek (Environmental Protection Service 1979). These may be the only species occurring in Nansen and Victoria creeks, but both streams have moderate fish habitat capability and could support other fish species.

The Nisling River appears to have moderate fisheries capability, but little is known of the fisheries resources in the vicinity of the Mount Nansen area. Radio tagging studies have been conducted by Fisheries and Oceans which have tracked chum and chinook salmon approximately 30 km and 80 km, respectively, up the Nisling River from its confluence with the Donjek River (Etherton, pers. comm.). It is unlikely that chum salmon would migrate upstream as far as the project area, but chinook salmon could reach the area providing that there are no fish barriers.

Nansen and Victoria creeks have no sport fishing potential, but the Nisling River may offer angling opportunities.

2.8 Wildlife

The property generally has low to moderate capability for wildlife. Moose occur throughout the area in low numbers in summer and fall, favouring the valley bottoms and riparian edges of streams. Caribou occur in the general area and occasionally move through the property. A bull caribou was observed on an open ridge between Victoria and Back creeks on June 9, 1986 and occasional sightings are made by exploration crews on and near the property.

In terms of wildlife populations during the winter periods, it appears that a few moose utilize the lower elevations, in particular the floodplain and lower slopes along Victoria Creek, for at least part of the winter. Several sightings were made in March, 1986

(Appendix II), including one moose near the confluence of Back and Victoria creeks and a cow moose and yearling further downstream in the wide Victoria Creek valley south of the airstrip. Scattered moose tracks were also observed along the floodplain of Victoria Creek. The low snow depth and availability of browse, primarily willows, offer limited winter range for low densities of moose. The only other ungulate that could occur on the property in winter would be caribou which may occasionally move through the area.

Other large mammals which may occur in low numbers include black bear and wolf. The area appears to have generally low productivity for furbearers. Very little sign of furbearers was observed during field visits, including helicopter flights and reconnaissance during March, 1986.

A general note of interest is that the Yukon Game Branch has transplanted bison to the Nisling River area, approximately 10 to 15 km downstream (southwest) of the Mount Nansen property. Large pens were constructed for the bison and hay was moved in to provide winter feed. The bison were brought in by road from Carmacks in the late winter of 1986. This herd is sufficiently removed from the Mount Nansen project area that it would not be affected by project development.

3.0 POTENTIAL ENVIRONMENTAL ISSUES

Potential environmental issues related to the development of the Mount Nansen Project were discussed in Norecol's 1987 overview report (Norecol 1987). The items identified in that report remain as the most probable areas of concern and are summarized below.

- The initial development of the Brown-McDade Zone is not likely to result in an acid generation problem, however, this requires confirmation. The Heustis Zone has a potential for acid generation and this aspect will require further examination as planning proceeds for development. Materials handling and reclamation will likely be the key to mitigation if acid generation is determined to be probable.

- The location of mine site facilities should be examined from an environmental perspective. Most important will be the location of waste rock piles, ore stockpiles and tailings impoundments and the use of waste rock as construction material.

- Appropriate water management plans should be developed for the project to protect surface water and groundwater quality. The hydrologic regime requires assessment to determine the potential effects of mine drainage, acid generation potential, the cyanidation system, tailings disposal and effluent water quality.

- Fisheries is not expected to be a significant concern if the area is not accessible to salmon, but this requires confirmation.

The above points can be addressed in a phased approach, starting with the initial development of the Brown-McDade Zone, and can be incorporated into the detailed design work for the project.

4.0 RECOMMENDATIONS FOR FURTHER STUDY

The baseline environmental data collected by Norecol, Archer Cathro and Associates and government agencies (Environmental Protection; Water Resources Division) is sufficient to provide data upon which to assess project development impacts and to provide input to project engineering design for most aspects. Aspects such as water quality, stream sediment and wildlife do not require further field data collection.

Those aspects that are recommended for further study are outline below. These studies should be phased with the development schedule, with initial work to address the Brown McDade Zone, mill operation and tailings disposal, and longer term work on the Flex and Heustis zones and other zones, as these come into development.

4.1 Hydrology

The on-site hydrology monitoring program should be re-instituted in the spring of 1989 when the exploration camp is operational. A program of stream flow measurements and staff gauge monitoring is recommended to provide on-site data for project design and impact assessment. Regional hydrologic and climate data analysis has been used for preliminary engineering design, but this requires confirmation for detailed design of water management structures, tailings design and mill water supply.

4.2 Hydrogeology

A hydrogeology program would provide data on groundwater movement, quantity and quality. This should include information from existing adits and drill holes plus installation of piezometers in the tailings impoundment sites and downslope of open pit sites. Water depth should be recorded and samples for water quality analysis should be collected on two occasions. Such data are important for environmental impact prediction and detailed engineering design.

4.3 Acid Generation Assessment

Further acid-base accounting tests are recommended for representative samples of ore, waste rock, hanging wall rock and tailings (bench scale) samples of the Brown-McDade Zone. The initial test work on these samples is not adequate for impact assessment purposes. The results of these additional tests will give an indication of the degree of potential acid generation, if any. If evident, this should be followed up with kinetic tests to determine rate of acid production. This information needs to be incorporated into the mine plan, so that appropriate materials handling, water management and waste management plans can be developed.

Additional test work will also be required for the other zones to be developed, particularly the Heustis Zone, as initial tests have indicated that it has significant acid generation potential.

4.4 Fisheries

There is presently limited information on fisheries of the area. The presence and distribution of fish in Victoria Creek, Nansen Creek and their larger tributaries should be documented through a field study.

4.5 Terrestrial/Reclamation

A surficial geology field investigation and mapping is recommended to provide information for project design and reclamation planning. This would provide background data for short and long term reclamation planning and for materials handling procedures.

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APPENDIX I

WATER QUALITY DATA FOR THE MOUNT NANSEN PROJECT AREA

(Tables 1 to 7)

(Samples collected by Norecol Environmental Consultants Ltd. and Laboratory analysis by B.C. Research Corporation)

TABLE 1

ANALYTICAL RESULTS FOR WATER SAMPLES FROM MOUNT NANSEN PROJECT

Sampling Date: October 11, 1985

ANALYTICAL PARAMETER	SITE A1	SITE B1	SITE C1	SITE D1	SITE D2	SITE M1	SITE N1	SITE N2	SITE P1	SITE V1	SITE V2	SITE W1
Temperature (°C)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
pH	7.3	7.3	7.2	7.3	7.0	6.9	7.5	7.8	7.5	7.7	7.5	7.1
Alkalinity (mg$CaCO_3$/L)	192	67	28	236	58	22	50	55	89	69	61	43
Turbidity (NTU)	6	48	4.5	30	3.7	2.5	5.5	5.5	5.2	0.8	9	5.8
Conductance (μmhos/cm)	660	150	67	1200	350	51	126	136	264	140	125	150
Total Solids (mg/L)	782	248	112	1435	370	96	144	144	269	120	154	170
Suspended Solids (mg/L)	1	57	<1	14	<1	<1	7	4	1	2	16	<1
EDTA-Hardness (mg$CaCO_3$/L)	535	94	39	963	212	24	72	77	162	83	69	83
Sulfate (mg/L)	334	31	15	694	156	<1	29	25	82	11	17	44
Ammonia (mgN/L)	0.063	0.053	0.011	0.342	0.010	0.006	0.006	<0.005	0.081	<0.005	<0.005	0.005
Nitrate (mgN/L)	0.092	0.021	0.013	0.117	0.015	0.030	0.035	0.023	0.037	0.044	0.037	0.011
Nitrite (mgN/L)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Total Phosphorus (mgP/L)	0.026	0.113	0.008	0.077	0.017	0.006	0.014	0.014	0.017	0.008	0.024	0.008
Total Cyanide (mg/L)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<u>TOTAL METALS</u>: (mg/L)												
Ag	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
As	0.062	0.024	0.004	0.072	0.019	<0.001	0.002	0.002	0.016	<0.001	0.004	0.005
Ba	0.023	0.12	0.041	0.072	0.046	0.048	0.056	0.042	0.050	0.067	0.071	0.033
Cd	0.0070	0.0004	<0.0002	0.0021	<0.0002	<0.0002	<0.0002	<0.0002	0.0089	<0.0002	<0.0002	<0.0002
Cu	0.0022	0.0063	0.0019	0.0031	0.0014	0.0028	0.0083	0.0077	0.19	0.0015	0.0028	0.0011
Fe	0.85	4.14	0.78	8.8	1.04	0.83	0.64	0.54	1.42	0.12	0.77	1.18
Hg (μg/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Pb	<0.001	0.0035	<0.001	0.0017	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zn	1.19	0.0093	0.0009	0.65	0.013	0.0015	0.0030	0.0022	0.95	0.0010	0.0026	0.0010
<u>DISSOLVED METALS</u>: (mg/L)												
Ag	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
As	0.005	0.006	0.003	0.007	0.012	<0.001	<0.001	0.001	0.012	<0.001	0.001	0.004
Ba	0.020	0.12	0.040	0.058	0.044	0.046	0.041	0.040	0.050	0.059	0.069	0.030
Cd	0.0054	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0071	<0.0002	<0.0002	<0.0002
Cu	0.0012	0.0046	0.0019	0.0025	0.0013	0.0026	0.0075	0.0075	0.11	0.0015	0.0025	0.0010
Fe	0.036	0.51	0.48	0.033	0.56	0.46	0.22	0.14	0.81	0.10	0.09	0.52
Pb	<0.001	<0.001	<0.001	<0.0011	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zn	1.10	0.0042	0.0010	0.39	*–	*–	*–	*–	0.77	0.0010	0.0022	*–

*Samples stored and analysed at a later date. All dissolved values were equal to or less than totals indicated.

(0318d)

TABLE 2

ANALYTICAL RESULTS FOR WATER SAMPLES FROM MOUNT NANSEN PROJECT

Sampling Date: March 4, 1986

ANALYTICAL PARAMETER	SITE W1
Temperature (°C)	0.0
pH	6.8
Alkalinity (mgCaCO$_3$/L)	80
Turbidity (NTU)	0.65
Conductance (µmhos/cm)	183
Total Solids (mg/L)	181
Suspended Solids (mg/L)	<1
EDTA-Hardness (mgCaCO$_3$/L)	123
Sulfate (mg/L)	50
Ammonia (mgN/L)	0.039
Nitrate (mgN/L)	0.007
Nitrite (mgN/L)	<0.002
Total Phosphorus (mgP/L)	<0.003
Total Cyanide (mg/L)	<0.001
TOTAL METALS: (mg/L)	
Ag	<0.0005
As	<0.001
Ba	0.057
Cd	<0.0002
Cu	0.0006
Fe	0.09
Hg (µg/L)	<0.05
Pb	<0.001
Zn	0.0046
DISSOLVED METALS: (mg/L)	
Ag	<0.0005
As	<0.001
Ba	0.055
Cd	<0.0002
Cu	0.0006
Fe	0.037
Pb	<0.001
Zn	0.0010

(0318d)

TABLE 3

ANALYTICAL RESULTS FOR WATER SAMPLES FROM MOUNT NANSEN PROJECT

Sampling Date: June 9, 1986

ANALYTICAL PARAMETER	SITE A1	SITE B1	SITE C1	SITE D1	SITE D2	SITE M1	SITE N1	SITE N2	SITE P1	SITE V1	SITE V2	SITE W1
Temperature (°C)	1.0	5.0	5.0	3.0	4.0	3.0	5.0	7.0	4.0	3.5	3.0	3.0
pH	7.4	7.3	7.6	7.5	7.3	7.3	7.6	7.7	7.5	7.7	7.8	7.4
Alkalinity (mg$CaCO_3$/L)	172	26	21	128	40	19	24	28	30	44	41	37
Turbidity (NTU)	3.6	150	1.2	6.2	0.5	1.0	29	23	3.0	2.0	11	0.8
Conductance (μmhos/cm)	805	105	69	940	410	42	74	82	103	87	88	115
Total Solids (mg/L)	825	1563	175	1044	424	116	242	198	169	150	171	152
Suspended Solids (mg/L)	3	1418	5	6	<1	<1	108	50	5	14	42	1
EDTA-Hardness (mg$CaCO_3$/L)	547	35	29	641	234	20	36	41	55	49	48	59
Sulfate (mg/L)	368	19	11	496	187	<1	14	14	23	7	9	22
Ammonia (mgN/L)	0.026	0.043	<0.005	0.230	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrate (mgN/L)	0.336	0.096	0.027	0.223	0.010	0.058	0.064	0.030	0.054	0.070	0.078	0.022
Nitrite (mgN/L)	0.005	<0.002	<0.002	0.009	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Total Phosphorus (mgP/L)	<0.003	2.18	<0.003	<0.003	<0.003	<0.003	0.176	0.076	<0.003	<0.003	0.040	<0.003
Total Cyanide (mg/L)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<u>TOTAL METALS</u>: (mg/L)												
Ag	0.0002	0.0028	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002
As	0.049	0.168	<0.001	0.021	0.012	<0.001	0.006	0.004	0.015	<0.001	0.005	0.001
Ba	0.017	0.18	0.031	0.027	0.038	0.038	0.053	0.038	0.031	0.032	0.034	0.030
Cd	0.0061	0.0025	<0.0002	0.0050	<0.0002	<0.0002	0.0004	0.0003	0.0017	<0.0002	<0.0002	<0.0002
Cu	0.0064	0.08	0.0019	0.0042	0.0018	0.0025	0.019	0.015	0.034	0.0025	0.0038	0.0021
Fe	0.64	45.5	0.37	1.04	0.24	0.81	2.73	1.96	0.81	0.33	1.12	0.24
Hg (μg/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Pb	0.0013	0.08	<0.001	0.0019	<0.001	<0.001	0.0011	<0.001	<0.001	<0.001	<0.001	<0.001
Zn	1.36	0.27	0.0019	2.47	0.04	0.0040	0.018	0.012	0.14	0.0018	0.0018	0.0015
<u>DISSOLVED METALS</u>: (mg/L)												
Ag	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
As	0.005	0.037	<0.001	0.018	0.009	<0.001	0.003	0.002	0.011	<0.001	0.002	<0.001
Ba	0.016	0.095	0.023	0.026	0.038	0.036	0.025	0.019	0.029	0.028	0.030	0.026
Cd	0.0058	0.0006	<0.0002	0.0041	<0.0002	<0.0002	<0.0002	<0.0002	0.0015	<0.0002	<0.0002	<0.0002
Cu	0.0061	0.0057	0.0017	0.0027	0.0018	0.0024	0.0068	0.0073	0.031	0.0020	0.0023	0.0015
Fe	0.45	6.85	0.34	0.37	0.16	0.74	0.79	0.71	0.67	0.09	0.35	0.16
Pb	<0.001	0.0025	<0.001	0.0017	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zn	1.34	0.014	0.0011	2.37	0.04	0.0037	0.0041	0.0040	0.13	0.0015	0.0018	0.0015

(0318d)

TABLE 4

ANALYTICAL RESULTS FOR WATER SAMPLES FROM MOUNT NANSEN PROJECT

Sampling Date: September 4, 1986

ANALYTICAL PARAMETER	SITE A1	SITE B1	SITE C1	SITE D1	SITE D2	SITE M1	SITE N1	SITE N2	SITE P1	SITE V1	SITE V2	SITE W1
Temperature (°C)	2.0	8.0	7.0	6.5	7.5	6.0	10.0	8.0	8.0	9.0	8.5	8.5
Dissolved Oxygen (mg/L)	-	11.2	10.9	7.4	8.3	10.7	8.4	10.9	-	9.7	9.7	9.4
pH:												
Field	6.8	7.7	7.7	7.5	7.5	7.1	7.8	8.2	7.7	7.8	7.8	7.7
Laboratory	7.7	7.8	7.6	7.6	7.6	7.3	7.7	8.0	7.8	8.0	8.0	7.6
Alkalinity ($mgCaCO_3/L$)	208	47	24	85	46	18	39	43	31	60	52	49
Turbidity (NTU)	10	110	2.5	6.8	1.5	3.5	6.9	4.3	16	4.2	40	46
Conductance (μmhos/cm)	900	135	65	330	230	39	110	106	89	115	115	156
Total Solids (mg/L)	850	1167	179	362	219	115	134	117	128	101	567	485
Suspended Solids (mg/L)	9	965	2	32	3	9	15	6	23	8	322	363
EDTA-Hardness ($mgCaCO_3/L$)	601	69	32	194	118	22	54	56	46	62	61	80
Sulfate (mg/L)	420	40	10	126	130	<1	21	18	18	9	16	38
Ammonia (mgN/L)	0.078	0.119	0.008	0.104	0.014	0.005	0.009	0.009	0.065	0.008	0.020	0.024
Nitrate (mgN/L)	0.220	0.057	0.010	0.066	0.006	0.005	0.020	<0.005	0.048	0.019	0.022	0.006
Nitrite (mgN/L)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Total Phosphorus (mgP/L)	0.059	0.693	0.091	0.054	0.059	0.043	0.038	0.041	0.084	0.024	0.223	0.374
Total Cyanide (mg/L)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<u>TOTAL METALS</u>: (mg/L)												
Ag	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
As	0.050	0.056	0.004	0.010	0.026	0.001	0.002	0.002	0.011	<0.001	0.024	0.021
Ba	0.011	0.15	0.021	0.031	0.018	0.038	0.026	0.020	0.051	0.044	0.10	0.09
Cd	0.0051	0.0026	<0.0002	0.0005	0.0003	0.0002	0.0003	0.0002	0.0004	<0.0002	0.0010	0.0006
Cu	0.0023	0.027	0.0022	0.0021	0.0025	0.0034	0.0083	0.0058	0.0027	0.0027	0.013	0.010
Fe	0.62	17.7	0.80	1.95	1.37	0.94	1.01	0.57	1.70	0.43	4.74	6.16
Hg (μg/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Pb	<0.001	0.018	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004
Zn	1.33	-	-	-	-	-	-	-	-	-	-	-
<u>DISSOLVED METALS</u>: (mg/L)												
Ag	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
As	0.013	0.006	0.003	0.005	0.008	<0.001	<0.001	0.002	0.006	<0.001	0.001	0.001
Ba	0.011	0.036	0.014	0.025	0.013	0.025	0.021	0.016	0.040	0.038	0.023	0.033
Cd	0.0051	0.0002	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	0.0002	0.0003
Cu	0.0008	0.0065	0.0022	0.0014	0.0025	-	0.0054	0.0046	-	0.0026	0.0066	0.0027
Fe	0.23	0.47	0.51	0.93	0.39	0.41	0.46	0.26	0.77	0.18	0.24	0.26
Pb	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zn	1.31	-	-	-	-	-	-	-	-	-	-	-

(0318d)

TABLE 5

ANALYTICAL RESULTS FOR WATER SAMPLES FROM MOUNT NANSEN PROJECT

SAMPLING DATE: JULY 4, 1987

ANALYTICAL PARAMETER	SITE A1	SITE B1	SITE C1	SITE D1	SITE D2	SITE M1	SITE N1	SITE N2	SITE P1	SITE V1	SITE V2	SITE W1
Temperature (°C)	1.5	11.0	5.5	7.0	8.0	5.5	5.5	9.5	8.0	6.0	7.5	7.0
Dissolved Oxygen (mg/L)	–	–	–	–	–	–	–	–	–	–	–	–
pH	7.5	7.6	7.1	7.3	7.3	7.0	7.1	7.3	7.3	7.4	7.4	7.5
Alkalinity (mg $CaCO_3$/L)	182	58	29	104	72	20	25	36	72	41	41	52
Turbidity (NTU)	11	50	3.2	40	4.6	1.6	25	33	10	37	49	2.8
Conductance (μmhos/cm)	910	190	97	670	480	45	82	110	240	94	95	160
Total Solids (mg/L)	798	392	95	1684	384	80	222	155	198	183	201	156
Suspended Solids (mg/L)	6	135	<1	145	2	<1	124	59	<1	88	105	<1
EDTA Hardness (mg $CaCO_3$/L)	570	88	43	376	251	23	36	51	46	46	47	73
Sulfate (mg/L)	401	47	20	271	194	1	16	21	60	8	10	30
Ammonia (mg N/L)	0.127	0.083	<0.005	0.123	0.009	<0.005	0.011	0.018	0.039	0.013	0.017	0.013
Nitrate (mg N/L)	0.300	0.137	0.024	0.019	0.026	0.019	0.057	0.051	0.051	0.053	0.052	0.028
Nitrite (mg N/L)	<0.002	0.005	<0.002	0.005	<0.002	<0.002	<0.002	<0.002	0.004	<0.002	<0.002	0.004
Total Phosphorus (mg P/L)	0.070	0.370	0.040	0.815	0.050	0.048	0.195	0.183	0.057	0.215	0.235	0.030
Total Cyanide (mg/L)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TOTAL METALS: (mg/L)												
Ag	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
As	0.094	0.034	0.005	0.061	0.042	<0.001	0.012	0.010	0.039	0.002	0.004	0.009
Ba	0.023	0.29	0.039	0.21	0.055	0.047	0.079	0.063	0.063	0.089	0.10	0.043
Cd	0.0049	0.0022	<0.0002	0.0012	<0.0002	<0.0002	0.0010	0.0005	0.0021	0.0003	0.0004	<0.0002
Cu	0.0053	0.017	0.0019	0.030	0.0018	0.0035	0.020	0.021	0.013	0.016	0.018	0.0013
Fe	2.89	7.4	0.71	11.8	1.41	0.54	3.02	3.01	1.89	2.99	3.79	1.09
Hg (μg/L)	<0.05	<0.05	–	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Pb	<0.001	0.011	<0.001	0.007	<0.001	<0.001	0.005	0.004	<0.001	0.003	0.003	<0.001
Zn	1.01	0.07	0.0006	0.24	0.014	0.0017	0.03	0.03	0.13	0.012	0.015	0.0011
DISSOLVED METALS: (mg/L)												
Ag	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
As	0.008	0.009	0.004	0.004	0.024	<0.001	0.002	0.002	0.032	<0.001	<0.001	0.006
Ba	0.023	0.077	0.032	0.072	0.041	0.040	0.026	0.024	0.057	0.038	0.039	0.035
Cd	0.0044	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0013	<0.0002	<0.0002	<0.0002
Cu	0.0013	0.0029	0.0018	0.0013	0.0017	0.0029	0.0068	0.0061	0.0096	0.0050	0.0045	0.0011
Fe	0.15	0.85	0.52	0.66	0.66	0.38	0.54	0.34	1.09	0.38	0.30	0.74
Pb	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zn	0.83	0.0051	0.0006	0.0063	0.0095	0.0017	0.0026	0.0017	0.11	0.0014	0.0010	0.0010

TABLE 6

ANALYTICAL RESULTS FOR WATER SAMPLES FROM MOUNT NANSEN PROJECT

SAMPLING DATE: AUGUST 28, 1987

ANALYTICAL PARAMETER	SITE A1	SITE B1	SITE C1	SITE D1	SITE D2	SITE M1	SITE N1	SITE N2	SITE P1	SITE V1	SITE V2	SITE W1
Temperature (°C)	3.5	6.0	5.0	6.0	6.0	4.5	6.5	7.5	6.0	6.0	6.0	5.5
Dissolved Oxygen (mg/L)	–	–	–	–	–	–	–	–	–	–	–	–
pH	7.3	7.5	7.1	7.8	7.5	7.1	7.3	7.4	7.2	7.6	7.5	7.3
Alkalinity (mg $CaCO_3$/L)	80	42	20	184	57	19	33	39	47	50	49	50
Turbidity (NTU)	3.0	220	3.8	6.7	1.0	2.0	15	110	17	3.8	25	4.8
Conductance (µmhos/cm)	400	165	66	1300	360	47	116	125	290	111	120	168
Total Solids (mg/L)	299	508	91	1138	289	104	145	283	272	100	139	144
Suspended Solids (mg/L)	2	242	<1	2	<1	21	21	79	9	10	25	<1
EDTA Hardness (mg $CaCO_3$/L)	206	79	30	817	183	26	52	57	147	54	59	81
Sulfate (mg/L)	144	38	9	657	132	3	24	26	102	9	14	36
Ammonia (mg N/L)	0.119	0.123	<0.005	0.193	0.006	0.012	0.011	0.009	0.123	0.011	0.013	<0.005
Nitrate (mg N/L)	0.026	0.090	0.008	0.081	<0.005	<0.005	0.028	0.020	0.180	0.025	0.026	0.009
Nitrite (mg N/L)	<0.002	<0.002	<0.002	0.008	<0.002	<0.002	<0.002	<0.002	<0.002	0.011	<0.002	<0.002
Total Phosphorus (mg P/L)	0.017	0.900	0.020	0.053	0.020	0.333	0.187	0.310	0.065	0.020	0.078	0.010
Total Cyanide (mg/L)	–	–	–	–	–	–	–	–	–	–	–	–
TOTAL METALS: (mg/L)												
Ag	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	0.0002	<0.0002	<0.0002	<0.0002
As	0.016	0.42	0.004	0.014	0.018	0.002	0.005	0.015	0.095	<0.001	0.016	0.009
Ba	0.028	0.18	0.031	0.039	0.035	0.077	0.059	0.11	0.057	0.046	0.061	0.039
Cd	0.0016	0.0046	<0.0002	0.0013	<0.0002	<0.0002	0.0003	0.0008	0.020	<0.0002	0.0003	<0.0002
Cu	0.0017	0.05	0.0023	0.0026	0.0019	0.0035	0.012	0.04	0.34	0.0042	0.0055	0.0013
Fe	1.36	21.1	0.60	0.96	0.34	1.33	1.96	10.5	3.52	0.47	2.00	1.14
Hg (µg/L)	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Pb	<0.001	0.016	0.001	<0.001	<0.001	<0.001	<0.001	0.009	0.002	<0.001	0.001	<0.001
Zn	0.18	0.11	0.0006	0.48	0.011	0.0026	0.014	0.06	1.44	0.0055	0.0080	0.0013
DISSOLVED METALS: (mg/L)												
Ag	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
As	0.011	0.10	0.003	0.006	0.015	0.001	0.002	0.006	0.013	<0.001	0.003	0.006
Ba	0.028	0.065	0.023	0.027	0.024	0.045	0.031	0.032	0.055	0.042	0.045	0.036
Cd	0.0014	0.0006	<0.0002	0.013	<0.0002	<0.0002	<0.0002	<0.0002	0.015	<0.0002	<0.0002	<0.0002
Cu	0.0016	0.011	0.0021	0.0015	0.0018	0.0035	0.0044	0.0071	0.08	0.0022	0.0021	0.0010
Fe	0.96	4.51	0.39	0.10	0.24	0.23	0.28	0.66	0.33	0.11	0.18	0.58
Pb	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zn	0.18	0.020	0.006	0.41	0.011	0.0022	0.0022	0.0053	0.98	<0.0005	0.0007	0.0008

TABLE 7
ANALYTICAL RESULTS FOR WATER SAMPLES FROM MOUNT NANSEN PROJECT
SAMPLING DATE: MAY 27, 1988

ANALYTICAL PARAMETER	SITE B1	SITE D1	SITE D2	SITE P1	SITE V1	SITE V2
Temperature (°C)						
pH	7.3	7.6	7.3	7.1	7.3	7.4
Alkalinity (mg $CaCO_3$/L)	25	112	42	37	36	37
Turbidity (NTU)	16	7.0	6.5	8.0	10	14
Conductance (µmhos/cm)	90	690	350	180	78	85
Total Solids (mg/L)	169	589	289	173	115	112
Suspended Solids (mg/L)	86	7	<1	18	40	39
EDTA-Hardness (mg $CaCO_3$/L)	43	391	174	86	40	41
Sulfate (mg/L)	24	252	154	54	7	11
Ammonia (mg N/L)	0.017	0.230	<0.005	0.040	<0.005	<0.005
Nitrate (mg N/L)	0.035	0.062	0.005	0.086	0.033	0.046
Nitrite (mg N/L)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Total Phosphorus (mg P/L)	0.220	0.050	0.013	0.063	0.063	0.077
Total Cyanide (mg/L)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TOTAL METALS: (mg/L)						
Ag	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Al	1.22	0.050	0.019	0.36	0.77	0.81
As	0.008	0.039	0.011	0.013	0.001	0.002
Ba	0.07	0.028	0.032	0.060	0.050	0.050
Cd	0.0004	0.0007	<0.0002	0.0034	<0.0002	<0.0002
Cu	0.0066	0.0033	0.0016	0.034	<0.0005	<0.0005
Fe	1.80	1.04	0.22	1.25	0.74	0.96
Hg (µg/L)	<0.05	<0.05	<0.05	0.13	<0.05	<0.05
Pb	<0.001	0.002	<0.001	<0.001	<0.001	<0.001
Zn	0.0061	0.19	0.0044	0.22	<0.0005	0.0029
DISSOLVED METALS: (mg/L)						
Ag	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Al	0.11	<0.01	0.019	0.13	0.28	0.09
As	0.003	0.008	0.008	0.009	<0.001	0.001
Ba	0.037	0.024	0.031	0.047	0.035	0.034
Cd	<0.0002	0.0005	<0.0002	0.0030	<0.0002	<0.0002
Cu	0.0034	0.0015	0.0016	0.027	<0.0005	<0.0005
Fe	0.38	0.40	0.18	0.83	0.31	0.17
Pb	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zn	0.0022	0.16	0.0044	<0.0005	<0.0005	<0.0005

APPENDIX II

WILDLIFE AERIAL SURVEY REPORT
MOUNT NANSEN PROJECT
March 4, 1986

Time of Survey:	During water sampling conducted between 0900 and 1500 hours.	
Helicopter:	Bell 206B Jet Ranger, Trans North Air, Carmacks	
Observers:	C. Schmidt	(Norecol) left front
	Mike Phillips	(Archer Cathro) left rear
	Bill	(Archer Cathro) right rear
Weather:	Cloud:	100%
	Wind:	light, strong on ridges
	Temperature:	$-15^{o}C$
	Visibility:	excellent
Area Surveyed:	Mount Nansen Property, along major creeks - Victoria, Back, Dome, Webber, Nansen; immediate exploration area.	
Observations:	Moose:	3
	Tracks - occasional moose along Victoria Creek flood plain.	