BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

NANISIVIK MINE, A DIVISION OF CANZINCO LTD.

INSTRUMENT INSTALLATION AND CONTINGENCY PLAN

NANISIVIK MINE, NUNAVUT

FINAL

PROJECT NO.: 0255-009-10
DATE: NOVEMBER 2004

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Project No. 0255-009-10
Date: November 17, 2004

Mr. Bob Carreau
Corporate Manager, Environmental Affairs
Breakwater Resources Limited
Suite 950, 95 Wellington Street West
Toronto, ON
M5J 2N7

Re: Instrument Installation and Contingency Plan

Dear Bob:

Please find attached 4 copies of our above referenced report dated November 17, 2004. Thank you for your comments on earlier draft versions.

Should you have any questions or comments, please do not hesitate to contact me at the number listed above.

Yours truly,
BGC Engineering Inc.
per:

Geoff Claypool, P.Eng. (AB)
Geological Engineer

encl. Final Report, Tables, Figures
GKC/sf

INTERNAL	
PC	LP
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LIMITATIONS OF REPORT

This report was prepared by BGC Engineering Inc. (BGC) for the account of CanZinco Ltd. The material in it reflects the judgement of BGC staff in light of the information available to BGC at the time of report preparation. Any use which a Third Party makes of this report, or any reliance on decisions to be based on it are the responsibility of such Third Parties. BGC Engineering Inc. accepts no responsibility for damages, if any, suffered by any Third Party as a result of decisions made or actions based on this report.

As a mutual protection to our client, the public, and ourselves, all reports and drawings are submitted for the confidential information of our client for a specific project and authorization for use and / or publication of data, statements, conclusions or abstracts from or regarding our reports and drawings is reserved pending our written approval.

1.0 INTRODUCTION

The Final Closure and Reclamation Plan (FCRP) for the Nanisivik Mine was submitted to the Nunavut Water Board (NWB) by CanZinco Ltd. (CanZinco) in March 2004. Approval of the plan was conveyed by the Board in a letter to CanZinco dated July 6, 2004. The Letter of Approval also outlined several terms and conditions which must be adhered to as part of the closure process. Item 9, point iv.) of the Letter of Approval states the following:

> *The Licensee shall submit to the NWB for approval by October 31, 2004, an instrument installation and contingency plan which includes, but is not limited to a discussion on the following issues: Installation, equipment availability; damage/ malfunction of instrumentation; plans for replacement and consideration for duplicate instrumentation at critical locations.*

As such, this report has been prepared to satisfy this condition of the Letter of Approval.

2.0 INSTRUMENTATION

Several types of instruments have been installed at various locations around the Nanisivik Mine site. Table 1 summarizes the instruments that are currently operational around the mine site while Figures 1 and 2 illustrate the location of these instruments.

The following sections provide some commentary on the types of instrumentation present at Nanisivik Mine.

Thermistor Strings

A thermistor string is a cable that consists of a number of thermistor nodes. A thermistor comprises a thermally sensitive resistor that is calibrated for temperature. The cable reads resistance (ohms), which can then be converted to a temperature. Typically, thermistor beads are accurate within +/- 0.2°C.

The thermistor strings that are installed at Nanisivik were fabricated by M-Squared Instruments of Cochrane, AB. Each thermistor is type YSI44007 with a MS3106A20-29P termination. The accuracy of the thermistors, as noted by the manufacturer, is +/- 0.2°C. Each cable was ice-bath calibrated by the manufacturer prior to shipment to site.

Thermocouple Strings

Thermocouple strings are similar to thermistor strings in that numerous nodes are installed on one line. The thermocouple bead is formed by the junction of two dissimilar metals. Connection of the read out box to the thermocouple wire generates a voltage that, when compared to a reference voltage, can indicate the ground temperature at the location of the node. There are several types of thermocouple wire available and accuracy ranges from +/-0.5°C to +/-1.0°C, depending on wire type.

The thermocouples that are installed at Nanisivik were fabricated as needed on site. The thermocouples were constructed using type EXPP-T-20 (copper–nickel extension type) thermocouple wire produced by Omega Industries. The accuracy of this type of thermocouple wire is documented by the manufacturer to be +/-1°C.

Vibrating Wire Piezometers

A vibrating wire piezometer consists of a metallic diaphragm that measures pore water pressures at that point. The diaphragm has a tensioned wire across it and pore pressure changes across the diaphragm alter the tension in the wire. The read out box provides a means of exciting the wire and reading the resultant frequency of the wire. This type of instrument provides ease of use in cold temperatures and long piezometer leads can be used.

The vibrating wire piezometers that were installed at Nanisivik were fabricated by RST Instruments of Coquitlam, BC. Each instrument is a VW2100-type vibrating wire piezometer. Each instrument was calibrated by the manufacturer prior to shipment. The stated accuracy for these instruments is +/- 0.1% of the full scale reading. The instruments are monitored using the portable readout unit (VW2102), also manufactured by RST.

Frost Gauges

Frost gauges consist of a transparent plastic tube filled with methylene blue solution, which is blue when thawed and colourless when frozen. The plastic tube is removed from a casing in the ground and the depth to colour change is easily and accurately noted. Frost gauges have been successfully used for accurately monitoring the depth of thaw depth, including the West Twin Dike and the Test Covers in the Test Cell Area for a time period in excess of 10 years.

Monitoring Wells/ Standpipe Piezometers

Monitoring wells/ standpipe piezometers are installed by threading several pieces of slotted and riser (non-slotted) pipe together and installing the pipe into the borehole through the drill string. Pore water enters the monitoring well through the slotted portion of the pipe. The boreholes are backfilled using a combination of tailings cuttings and silica sand at selected intervals. The top 1.5 m of each borehole is backfilled with bentonite chips to prevent direct infiltration of surface water into the borehole. In some instances, heat trace wire is installed down the centre of the pipe to provide monitoring capability throughout the year.

The installation can be used to measure pore pressures by measuring the static water level in the pipe. It may also be used to collect a pore water sample for subsequent water quality analysis. It should be noted that five monitoring wells have been installed in the Surface Cell since 2002. Two of the monitoring wells had heat trace installed but the heat trace malfunctioned and the instruments are no longer capable of providing static water level measurements or pore water samples. The other three monitoring wells were preliminary installations that had no heat trace installed and have subsequently been completely filled with ice. As a result, no pore water samples can currently be recovered from the Surface Cell talik. It is currently planned that four monitoring wells (two in the Surface Cell and two in the Test Cell) will be installed in 2005. Pore pressures are still monitored using the vibrating wire piezometers discussed previously.

3.0 MONITORING AND INSTALLATION PROGRAM

The Nanisivik Mine Reclamation and Closure Monitoring Plan (Gartner Lee Limited [GLL] 2004)[1] was submitted to the NWB for review and approval in February 2004. The plan outlined the monitoring requirements throughout the Reclamation and Closure Periods for the following main components:

- Water quality monitoring.
- Geothermal monitoring.
- Confirmatory sampling of soils.
- Physical stability of earth structures.

The focus of this current report is on the geothermal monitoring and piezometric monitoring associated with talik freeze-back, which involves monitoring of existing and proposed new instrumentation during the Reclamation and Closure Periods.

[1] Gartner Lee Limited 2004. Nanisivik Mine Reclamation and Closure Monitoring Plan. Submitted to CanZinco Ltd. February 2004.

As outlined in GLL (2004)[1], the objectives of the Geothermal Monitoring Program include the following:

- Fulfill the requirements of the Water License;
- Fulfill the general objectives of the Reclamation Performance Monitoring Plan by collecting location-specific information to monitor the success of location specific reclamation measures;
- Fulfill the objectives of the location-specific closure plans; and
- Carry forward existing monitoring locations that meet the current needs such that trends spanning the mine-closure milestone can be assessed.

To accomplish these objectives, a total of 75 instruments (43 existing and 32 proposed) will be monitored throughout the 2-year active Reclamation Period and the 5-year Closure Period. As stated in GLL (2004)[1], the monitoring schedule will be reduced (in size and frequency) through the Closure Period in anticipation of monitoring results that confirm the effectiveness of reclamation measures.

Five types of monitoring instruments will be used; thermistors; thermocouples; frost gauges; vibrating wire piezometers and monitoring wells. The following points summarize the monitoring objectives of the various instrument types:

- Thermistor and thermocouple strings:
    - Freezeback of the taliks in the Surface Cell and Test Cell;
    - Freezeback of landfill material; and,
    - Freezeback of waste rock placed in open pits.
- Frost Gauges:
    - Depth of active layer thaw in various reclamation covers (tailings, waste rock, landfill)
- Vibrating Wire Piezometers:
    - Pore pressures generated by freezeback of Surface Cell and Test Cell taliks.
        - Provide insight into potential dike stability issues.
- Monitoring Wells:
    - Provide assessment of pore pressures by measuring static water level in pipe;
    - Provide pore water sample for subsequent water quality assessment.

The list of current and proposed new instruments to be monitored during the Reclamation and Closure Periods is summarized in Table 2. The location of these instruments is illustrated on Figures 3 and 4. It should be noted that not all of the instruments shown in Table 1 will be monitored during the Reclamation and Closure Periods. Some of these instruments provide erratic, inconsistent data or are located in areas where no talik exists. As such, monitoring of these instruments is not considered necessary. Some instruments provide data collected from similar locations and similar depths. These instruments are considered redundant and are not currently included in the Reclamation or Closure Period monitoring programs.

As the mine closure work is currently in the Reclamation Period, the existing instruments are currently being monitored as per the Reclamation Period monitoring frequency stated in Table 2. Since construction of the reclamation covers has begun but has not yet been completed, none of the proposed new instruments have been installed as of yet. It is currently anticipated that the construction of the reclamation covers will be completed in 2005. As such, it is anticipated that the proposed new instruments will be installed during the summer and fall of 2005. During the instrument installation program of 2005, additional "contingency" boreholes will be drilled to provide an easy means of instrument replacement. Further discussion regarding contingency boreholes is provided in Section 4.2.

4.0 CONTINGENCY PLAN

Monitoring instrumentation is subject to failure due to a variety of reasons. If instrumentation is rendered inoperative, monitoring data will no longer be available from that particular location. Without the monitoring data, an accurate assessment of the reclamation measures cannot be undertaken. If the data is regarded as critical to assessing the effectiveness of reclamation measures, the instrument may need to be replaced. As such, it is necessary to formulate a contingency plan to repair or replace instruments which become inoperative. The following sections outline the contingency plan for assessing if an instrument needs to be replaced and how critical, inoperative instruments will be replaced.

4.1 Inoperative Instruments

Monitoring instruments may be rendered inoperative due to the following circumstances:

- extreme climatic conditions that the instruments are subjected to;
- damage from animals;
- damage due to construction equipment during the Reclamation Period;
- instrument drift; or
- manufacturing defects.

The process by which monitoring data is collected, reviewed and functionality of the instrument is assessed is illustrated on Figure 5. The current monitoring system involves collection of the data from the instrument by field personnel, a mine employee. The data is then forwarded to BGC for review by the Project Engineer. A determination on the functionality of each instrument can be made by two means:

- visual observations of the instrument by field personnel monitoring the instrument; or
- review of the data by the Project Engineer.

It should be noted that the probability of overall failure of these instruments is low, given that the instrument is properly constructed and installed. Some instruments around the mine site have been functioning for over 10 years, providing reliable and accurate geothermal monitoring data.

4.2 Replacement of Instruments

4.2.1 General

In such a case where the instrument becomes inoperative, a decision will be made by the Project Engineer as to the importance of the individual instrument. If the instrument is considered to be non-critical, replacement may not be necessary. Instruments may be considered to be non-critical if they indicate the majority of the borehole profile has frozen back or another instrument exists nearby which may provide similar data. If the instrument is considered critical to assessing the effectiveness of reclamation works or stability of earth structures, the instrument will be replaced.

It should be noted that, in some instances, it may not be as important to monitor interim behaviour as it is to assess conditions at the end of the Closure Period. For example, if a thermistor in the centre of the Surface Cell were to become inoperative, it may not be necessary to replace the instrument immediately. However, the instrument may be needed to assess the progression of the freezing front at the end of the Closure Period. As such, the instrument would be replaced, but replacement would not necessarily be immediately required.

Replacement of instrumentation, may occur by three means:

- Adding an existing instrument, previously considered redundant, to the monitoring schedule;
- Placing a new instrument in an adjacent "contingency" borehole; or
- Drilling a new borehole and installing a new instrument.

4.2.2 Monitoring an Existing Instrument

As stated in Section 3.0, not all of the instruments on site will be monitored throughout both the Reclamation and Closure Periods. As such, additional existing instruments may be added to the monitoring program to replace an instrument that become inoperative. Instructions to add existing instruments to the monitoring program will be provided by the Project Engineer. The instrument will be included in the following monitoring event, which will be undertaken quarterly during the Closure Period.

4.2.3 Contingency Boreholes

As discussed in Section 3.0, a number of "contingency" boreholes will be drilled during the 2005 instrumentation installation program. These contingency boreholes will contain a PVC pipe and a heat trace wire. The heat trace wire will provide instrument installation capabilities should the PVC pipe become infilled with ice or frost. It should be noted that these boreholes are considered cost saving contingencies as opposed to critical instrument contingencies. They will be installed at the owner's discretion. Currently, contingency boreholes are being considered for

placement next to three of the new vibrating wire installations and five of the new thermistor installations. To clarify, no instrumentation will be installed in the contingency boreholes during the 2005 instrument installation program. Replacement instruments would be installed in the contingency boreholes during the following monitoring event, which will be undertaken quarterly during the Closure Period.

4.2.4 Drilling New Boreholes

If the heat trace in the contingency borehole should malfunction, or an instrument is required in a location that no contingency borehole is available, instrument replacement will require a new borehole to be drilled. During the Closure Period, it is not anticipated that any drilling equipment will remain on site. As such a drill would have to be mobilized to site. The potential sources of a drill may include:

- a southern location (i.e. Iqualuit);
- Arctic Bay, if available; or,
- a nearby exploration camp, if available.

Due to the remoteness of the site, mobilization of a drill to site may not occur immediately upon realization that an instrument has become inoperative. Replacement of an instrument by means of drilling will occur under two instances:

- Replacement may occur as soon as possible if a drill is available locally in Arctic Bay or nearby exploration camp; or,
- Replacement may occur during a potential follow up drill campaign in 2008, after the Comprehensive Performance Review in 2007.

Therefore, it is anticipated that replacement of instruments by means of drilling a new borehole, if required, will occur no later than the summer of 2008.

4.2.5 Monitoring Continuity Assurance

It should be noted that the number of instruments installed at each location will ensure that some instrumentation will remain operational during the entire Reclamation and Closure Periods. If an instrument becomes inoperative for some portion of the Reclamation or Closure Periods before it can be replaced, data can be retrieved from one or more of the nearby instruments. The number of instruments ensure sufficient monitoring data will be collected during the Reclamation and Closure Periods such that an accurate assessment of the reclamation measures can be undertaken.

5.0 CLOSURE

This report provides an instrumentation installation and contingency plan for monitoring instruments at various locations at Nanisivik Mine. Proactive plans for instrumentation at this remote site have been provided.

We trust the above meets your present requirements. Thank you for allowing BGC to be of service to Nanisivik Mine. If you have any questions or require additional details, please contact the undersigned.

BGC Engineering Inc.
Per:

Geoff Claypool, P.Eng. (AB)
Geological Engineer

REGISTERED PROFESSIONAL ENGINEER
J. W. CASSIE
LICENSEE
NWT

James W. Cassie, M.Sc., P.Eng.
Specialist Geotechnical Engineer

PERMIT TO PRACTICE
BGC ENGINEERING INC.
Signature
Date 04-NOV-17
PERMIT NUMBER: P 285
The Association of Professional Engineers, Geologists and Geophysicists of the Northwest Territories

TABLES

Table 1: Operational Instruments Nanisivik Mine

Instrument Label	Instrument Type	Location	Approximate Surface Elevation (m)
TC1	T/C	Dike Face	376
TC2	T/C	Dike Face	376
TC12	T/C	Dike Face	376
TC13A	T/C	Dike Face	376
TC14	T/C	Dike Face	376
TC15	T/C	Dike Face	376
TC15A	T/C	Dike Face	377
TC16	T/C	Dike Face	376
TC17	T/C	Dike Face	376
TC17A	T/C	Dike Face	376
TC18	T/C	Dike Face	376
TC28	T/C	Dike Face	384
TC29	T/C	Dike Face	385
TC31	T/C	Dike Face	378
TC32	T/C	Dike Face	382
TC33	T/C	Dike Face	386
TC34	T/C	Dike Face	385
TC35	T/C	Dike Crest	387.5
BGC02-03	TM	SC	387
BGC02-08	T/C	Dike Toe	373
BGC02-10	T/C	Dike Toe	373
BGC02-11	T/C	SC	387
BGC02-12	T/C	SC	387
BGC02-13	T/C	SC	387
BGC03-03	T/C	SC	387
BGC03-07	TM	SC	387
BGC03-09	TM	SC	387
BGC03-10	TM	SC	387
BGC03-11	TM	SC	387
BGC03-12	VW	SC	387
BGC03-13	TM	SC	387
BGC03-14	VW	SC	387
BGC03-15	TM	SC	387
BGC03-18	T/C	Dike Toe	374
BGC03-19	TM	Dike Toe	374
BGC03-20	TM	SC	387
BGC03-21	TM	SC	387
BGC03-31	VW	SC	387
BGC03-32	VW	SC	387
BGC03-33	TM	Dike Crest	388
BGC03-34	TM	Dike Crest	388
BGC03-35	VW	SC	387
BGC03-36	T/C	SC	388
BGC03-37	TM	SC	387
BGC03-38	T/C	SC	387
BGC03-39	T/C	SC	387
TC36	T/C	Test Cell Dike	373.5
BGC02-09	TM	Test Cell Dike	375
BGC03-22	TM	Test Cell Dike	375
BGC02-14	T/C	Landfill	325
BGC03-30	T/C	West Adit Area	291
BGC03-29	T/C	East Open Pit	304
T/C 7	T/C	Area 14	462
T/C 8	T/C	Area 14	462

SC - Surface Cell
T/C - Thermocouple
TM - Thermistor
VW - Vibrating Wire Piezometers

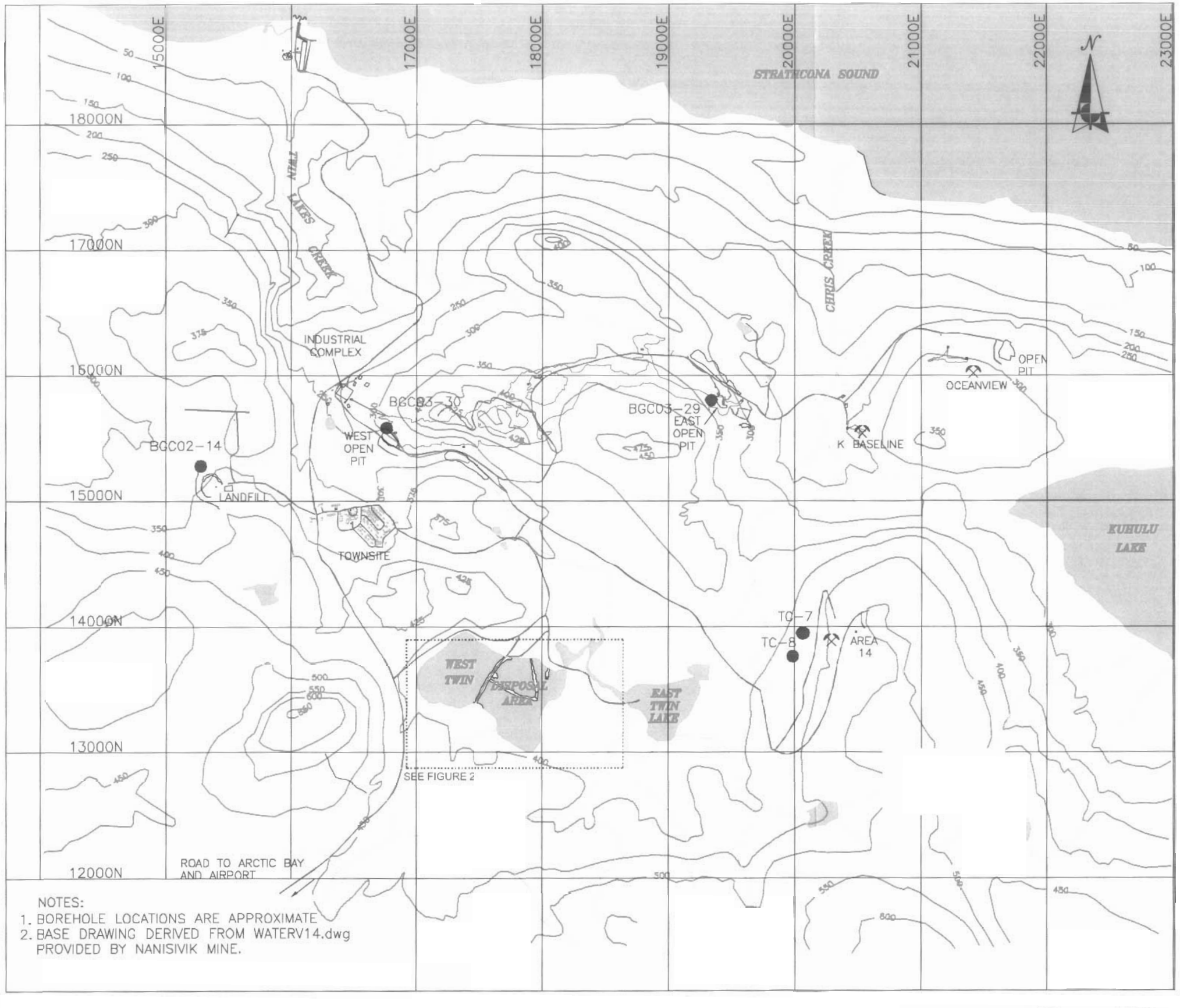
Table 2: Reclamation and Closure Period Instrumentation Monitoring

LOCATION	INSTRUMENT	TYPE	MONITORING FREQUENCY	
			RECLAMATION PERIOD	CLOSURE PERIOD
WEST TWIN DIKE	TC2	THERMOCOUPLES	MONTHLY	
	TC12		MONTHLY	QUARTERLY
	TC13A		MONTHLY	QUARTERLY
	TC14		MONTHLY	
	TC15		MONTHLY	
	TC15A		MONTHLY	
	TC16		MONTHLY	
	TC17		MONTHLY	
	TC17A		MONTHLY	
	TC18		MONTHLY	
	TC28		MONTHLY	
	TC31		MONTHLY	QUARTERLY
	TC32		MONTHLY	QUARTERLY
	TC33		MONTHLY	QUARTERLY
	BGC03-15	THERMISTORS	MONTHLY	QUARTERLY
	BGC03-33		MONTHLY	QUARTERLY
	BGC03-34		MONTHLY	
	NEW VW PIEZO	VIBRATING WIRE PIEZOS	MONTHLY	QUARTERLY
SURFACE CELL	BGC03-36	THERMOCOUPLES	MONTHLY	
	BGC02-03	THERMISTORS	MONTHLY	QUARTERLY
	BGC03-07		MONTHLY	
	BGC03-09		MONTHLY	QUARTERLY
	BGC03-10		MONTHLY	QUARTERLY
	BGC03-11		MONTHLY	
	BGC03-13		MONTHLY	QUARTERLY
	BGC03-20		MONTHLY	
	BGC03-21		MONTHLY	
	BGC03-37		MONTHLY	QUARTERLY
	NEW THERMISTOR		MONTHLY	QUARTERLY
	NEW THERMISTOR		MONTHLY	QUARTERLY
	NEW THERMISTOR		MONTHLY	
	NEW FROST GAUGE	FROST GAUGES	BI-WEEKLY (JUN-SEP)	BI-WEEKLY (JUN-SEP)
	NEW FROST GAUGE		BI-WEEKLY (JUN-SEP)	BI-WEEKLY (JUN-SEP)
	NEW FROST GAUGE		BI-WEEKLY (JUN-SEP)	BI-WEEKLY (JUN-SEP)
	NEW FROST GAUGE		BI-WEEKLY (JUN-SEP)	BI-WEEKLY (JUN-SEP)
	NEW FROST GAUGE		BI-WEEKLY (JUN-SEP)	BI-WEEKLY (JUN-SEP)
	NEW FROST GAUGE		BI-WEEKLY (JUN-SEP)	BI-WEEKLY (JUN-SEP)
	BGC03-12	VIBRATING WIRE PIEZOS	MONTHLY	QUARTERLY
	BGC03-14		MONTHLY	QUARTERLY
	BGC03-31		MONTHLY	QUARTERLY
	BGC03-32		MONTHLY	QUARTERLY
	BGC03-35		MONTHLY	QUARTERLY
	NEW VW PIEZO		MONTHLY	QUARTERLY
	NEW VW PIEZO		MONTHLY	QUARTERLY
	NEW VW PIEZO		MONTHLY	QUARTERLY
	NEW VW PIEZO		MONTHLY	QUARTERLY
	NEW MONITORING WELL	MONITORING WELLS	TWICE PER SUMMER	ONCE PER SUMMER
	NEW MONITORING WELL		TWICE PER SUMMER	ONCE PER SUMMER

Table 2: Reclamation and Closure Period Instrumentation Monitoring Cont.

LOCATION	INSTRUMENT	TYPE	MONITORING FREQUENCY	
			RECLAMATION PERIOD	CLOSURE PERIOD
TOE OF WT DIKE	BGC03-18	THERMOCOUPLES	MONTHLY	
	BGC02-10		MONTHLY	
	BGC03-19	THERMISTORS	MONTHLY	
	NEW THERMISTOR		MONTHLY	QUARTERLY
TEST CELL AREA	TC4	THERMOCOUPLE	MONTHLY	
	NEW THERMISTOR	THERMISTORS	MONTHLY	QUARTERLY
	NEW THERMISTOR		MONTHLY	QUARTERLY
	NEW FROST GAUGE	FROST GAUGES	BI-WEEKLY (JUN-SEP)	BI-WEEKLY (JUN-SEP)
	NEW FROST GAUGE		BI-WEEKLY (JUN-SEP)	BI-WEEKLY (JUN-SEP)
	NEW VW PIEZO	VIBRATING WIRE PIEZOS	MONTHLY	QUARTERLY
	NEW VW PIEZO		MONTHLY	QUARTERLY
	NEW VW PIEZO		MONTHLY	QUARTERLY
	NEW VW PIEZO		MONTHLY	QUARTERLY
	NEW MONITORING WELL	MONITORING WELLS	TWICE PER SUMMER	ONCE PER SUMMER
	NEW MONITORING WELL		TWICE PER SUMMER	ONCE PER SUMMER
TEST CELL DIKE AND TOE OF DIKE	BGC02-09	THERMISTORS	MONTHLY	
	BGC03-22		MONTHLY	
	NEW THERMISTOR		MONTHLY	QUARTERLY
	NEW THERMISTOR		MONTHLY	QUARTERLY
	NEW VW PIEZO	VIBRATING WIRE PIEZOS	MONTHLY	QUARTERLY
	NEW FROST GAUGE	FROST GAUGES	BI-WEEKLY (JUN-SEP)	BI-WEEKLY (JUN-SEP)
	NEW FROST GAUGE		BI-WEEKLY (JUN-SEP)	BI-WEEKLY (JUN-SEP)
LANDFILL	BGC02-14	THERMOCOUPLE	MONTHLY	QUARTERLY
	NEW THERMISTOR	THERMISTORS	MONTHLY	QUARTERLY
	NEW THERMISTOR		MONTHLY	QUARTERLY
	NEW FROST GAUGE	FROST GAUGES	BI-WEEKLY (JUN-SEP)	BI-WEEKLY (JUN-SEP)
	NEW FROST GAUGE		BI-WEEKLY (JUN-SEP)	BI-WEEKLY (JUN-SEP)
WEST ADIT AREA	BGC03-30	THERMOCOUPLE	MONTHLY	QUARTERLY
	NEW THERMISTOR	THERMISTORS	MONTHLY	QUARTERLY
	NEW FROST GAUGE	FROST GAUGES	BI-WEEKLY (JUN-SEP)	BI-WEEKLY (JUN-SEP)
	NEW FROST GAUGE		BI-WEEKLY (JUN-SEP)	BI-WEEKLY (JUN-SEP)
EAST OPEN PIT	BGC03-29	THERMOCOUPLE	MONTHLY	QUARTERLY
	NEW THERMISTOR	THERMISTORS	MONTHLY	QUARTERLY
	NEW FROST GAUGE	FROST GAUGES	BI-WEEKLY (JUN-SEP)	BI-WEEKLY (JUN-SEP)
AREA 14	TC 7	THERMOCOUPLE	MONTHLY	QUARTERLY
	TC 8	THERMOCOUPLE	MONTHLY	QUARTERLY
	NEW FROST GAUGE	FROST GAUGES	BI-WEEKLY (JUN-SEP)	BI-WEEKLY (JUN-SEP)

FIGURES



NOTES:
1. BOREHOLE LOCATIONS ARE APPROXIMATE.
2. BASE DRAWING DERIVED FROM WATERV14.dwg PROVIDED BY NANISIVIK MINE.

CLIENT: NANISIVIK MINE, A DIVISION OF CANZINCO LTD.

LEGEND

- ROAD
- GROUND CONTOUR (50 m INTERVAL)
- CREEKS, DRAINAGE, STREAMS, SHORELINE
- EXISTING INSTRUMENT INSTALLATIONS

REV.	DATE	REVISION NOTES	DRAWN	CHECKED	APPROVED

SCALE:	AS SHOWN
DATE:	OCT 2004
DRAWN:	CJT
DESIGNED:	GKC
CHECKED:	JWC
APPROVED:	JWC

PROJECT
INSTRUMENT INSTALLATION AND CONTINGENCY PLAN

TITLE
NANISIVIK MINE
GEOTECHNICAL INSTRUMENT LOCATIONS

PROJECT No.	DWG No.	REV.
0255-009-10	FIGURE 1	0

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY
Calgary, AB Phone: (403) 250 5185

0255-009-10 002 FIGURE_1.dwg

NOTES:
1. RESERVOIR AND TEST CELL BATHYMETRY DERIVED FROM DRAWING New Final Bath V14.dwg SUPPLIED BY NANISIVIK MINE.
2. SURFACE CELL, WEST TWIN OUTLET AND PROPOSED SPILLWAY AREA TOPOGRAPHY DERIVED FROM SURVEY CONDUCTED BY SUB-ARCTIC SURVEYS LTD. SEPTEMBER, 2003.
3. BOREHOLE LOCATIONS ARE APPROXIMATE.
4. TOPOGRAPHY OF THIS AREA WAS DERIVED BY BGC USING ADDITIONAL DATA SUPPLIED BY NANISIVIK MINE.

CLIENT: NANISIVIK MINE
DIVISION OF CANZINCO LTD.

LEGEND

- 2002/2003 GEOTECHNICAL INSTRUMENTATION (SEE TABLE #1 FOR INSTRUMENTATION DETAILS)
- ORIGINAL LAKE OUTLINE (APPROXIMATE)
- SYMBOL DENOTES THERMOCOUPLE LOCATION
- SYMBOL DENOTES FROST GAUGE LOCATION

REV.	DATE	REVISION NOTES	DRAWN	CHECKED	APPROVED

SCALE:	AS SHOWN
DATE:	OCT 2004
DRAWN:	CJT
DESIGNED:	GKC
CHECKED:	JWC
APPROVED:	JWC

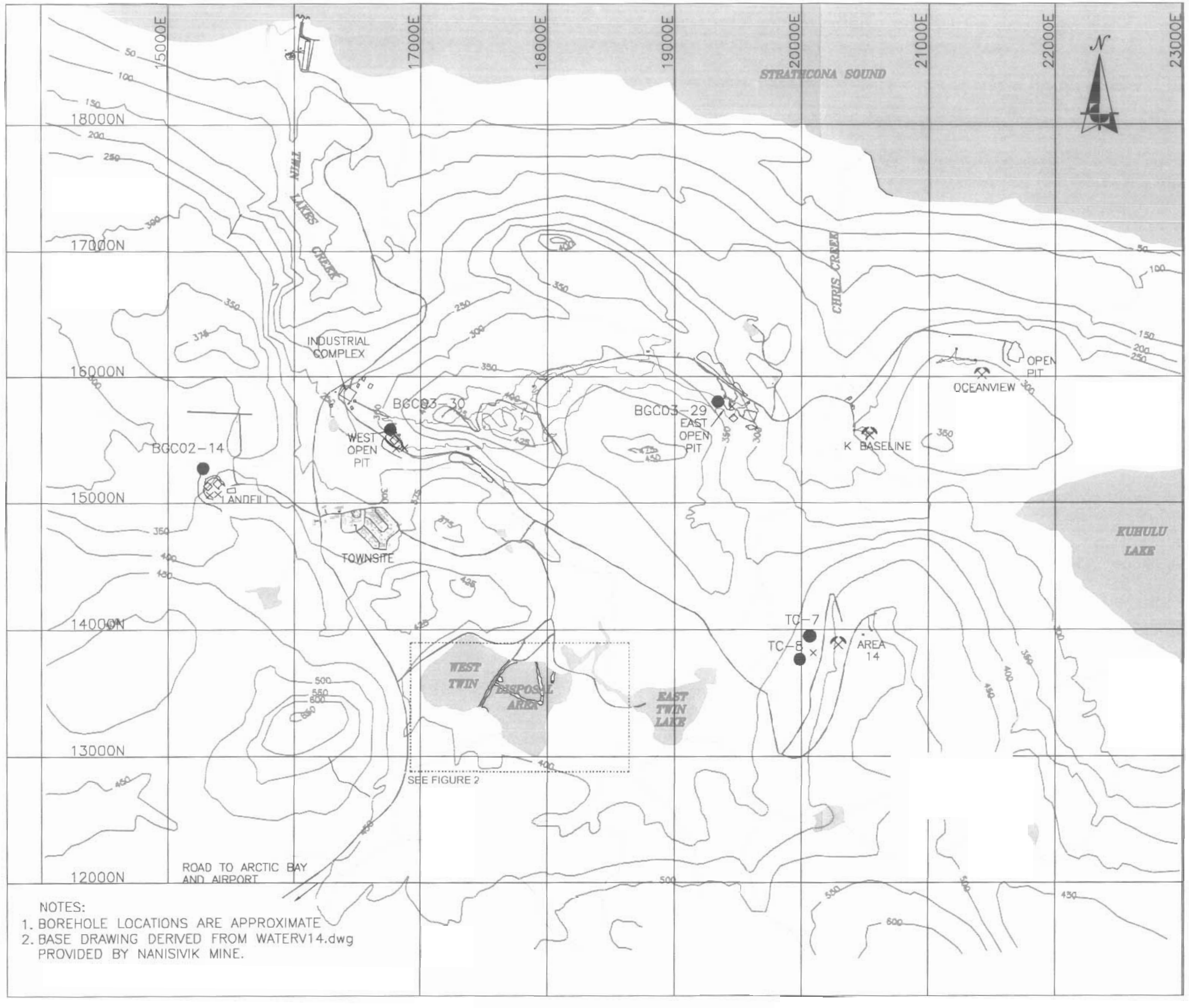
PROJECT: INSTRUMENT INSTALLATION AND CONTINGENCY PLAN

TITLE: WEST TWIN DISPOSAL AREA
GEOTECHNICAL INSTRUMENT LOCATIONS

PROJECT No.	DWG	REV.
0255-009-10	FIGURE 2	0

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY
Calgary, AB Phone: (403) 250 5185

0255-009-10 003 FIGURE_2.dwg



NOTES:
1. BOREHOLE LOCATIONS ARE APPROXIMATE.
2. BASE DRAWING DERIVED FROM WATERV14.dwg PROVIDED BY NANISIVIK MINE.

CLIENT: NANISIVIK MINE, A DIVISION OF CANZINCO LTD.

LEGEND

- ROAD
- GROUND CONTOUR (50 m INTERVAL)
- CREEKS, DRAINAGE, STREAMS, SHORELINE
- EXISTING INSTRUMENT INSTALLATIONS
- PROPOSED THERMISTOR
- PROPOSED FROST GAUGE

REV.	DATE	REVISION NOTES	DRAWN	CHECKED	APPROVED

SCALE:	AS SHOWN
DATE:	OCT 2004
DRAWN:	CJT
DESIGNED:	GKC
CHECKED:	JWC
APPROVED:	JWC

PROJECT
INSTRUMENT INSTALLATION AND CONTINGENCY PLAN

TITLE
RECLAMATION AND CLOSURE PERIOD
GEOTECHNICAL MONITORING INSTRUMENTATION
NANISIVIK MINE

PROJECT No.	DWG No.	REV.
0255-009-10	FIGURE 3	0

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0255-009-10 004 FIGURE_3.dwg

CLIENT: NANISIVIK MINE
DIVISION OF CANZINCO LTD.

LEGEND

- EXISTING THERMOCOUPLE
- EXISTING THERMISTOR
- EXISTING VIBRATING WIRE PIEZOMETER
- PROPOSED THERMISTOR
- PROPOSED VIBRATING WIRE PIEZOMETER
- PROPOSED MONITORING WELL
- PROPOSED FROST GAUGE
- EXISTING CONTOUR – MAJOR
- EXISTING CONTOUR – MINOR
- PROPOSED SHALE COVER CONTOUR – MAJOR
- PROPOSED SHALE COVER CONTOUR – MINOR
- BATHYMETRIC CONTOURS

NOTE:
1. DRAWING DERIVED FROM FIGURE 3 IN NANISIVIK MINE RECLAMATION AND CLOSURE MONITORING PLAN REPORT.

REV.	DATE	REVISION NOTES	DRAWN	CHECKED	APPROVED

SCALE:	AS SHOWN
DATE:	OCT 2004
DRAWN:	CJT
DESIGNED:	GKC
CHECKED:	JWC
APPROVED:	JWC

PROJECT: INSTRUMENT INSTALLATION AND CONTINGENCY PLAN

TITLE: RECLAMATION AND CLOSURE PERIOD
GEOTECHNICAL MONITORING INSTRUMENTATION
WEST TWIN DISPOSAL AREA

PROJECT No.	DWG No.	REV.
0255–009–10	FIGURE 4	0

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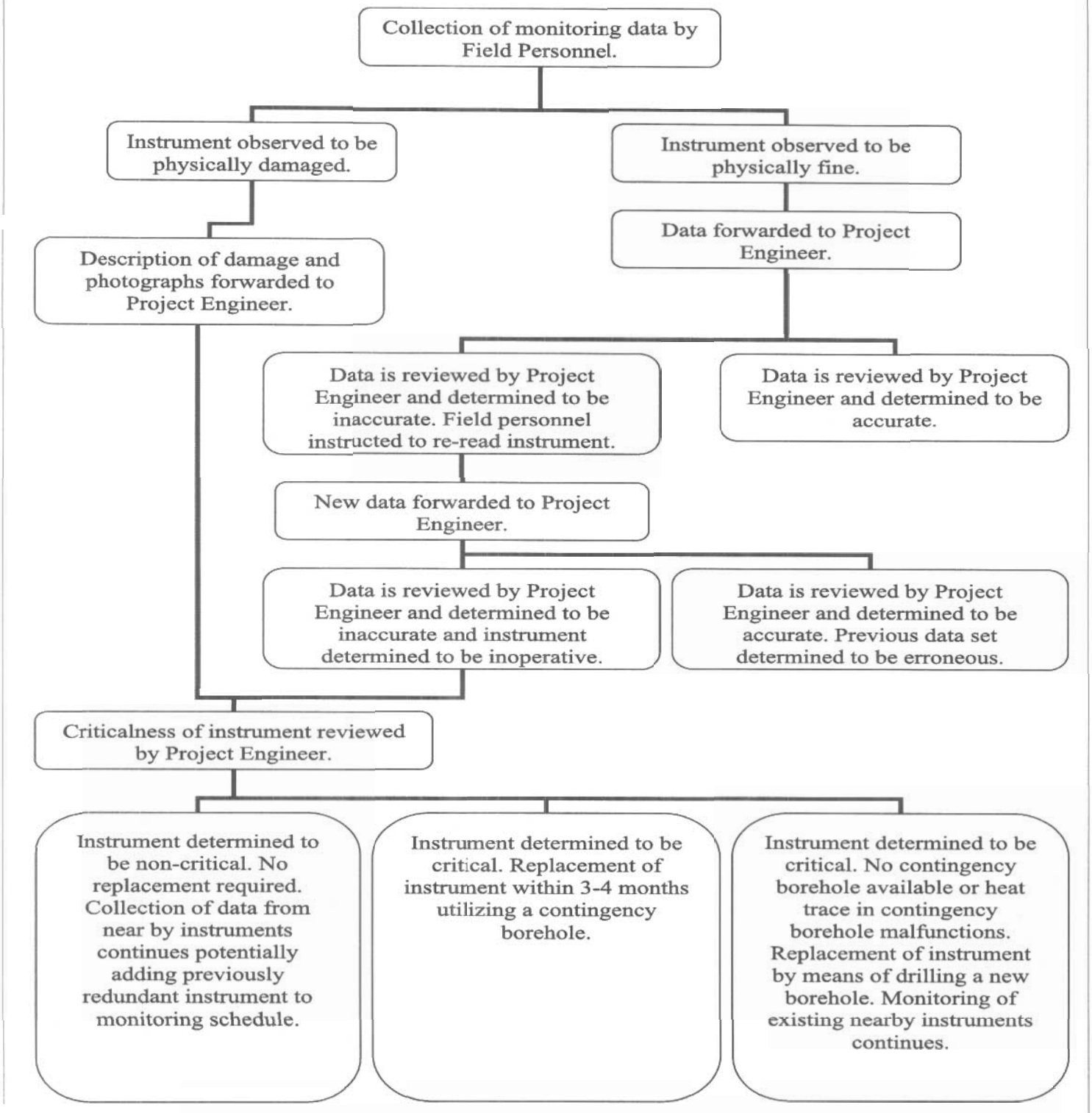
0255-009-10 001 FIGURE_4.dwg



SCALE:	As Shown	DESIGNED:	GKC
DATE:	NOVEMBER 2004	CHECKED:	GKC
DRAWN:	SLF	APPROVED:	GKC

CLIENT: **NANISIVIK MINE, A DIVISION OF CANZINCO LTD.**

BGC Engineering Inc.
AN APPLIED EARTH SCIENCES COMPANY
Calgary, Alberta. Phone: (403) 250-5185

PROJECT: **INSTRUMENTATION INSTALLATION AND CONTINGENCY PLAN**

TITLE: **INOPERATIVE INSTRUMENT REPLACEMENT DECISION - TREE**

PROJECT No.	DWG. No.	REV.
0255-009-10	FIGURE 5	0