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NORMAN WELLS PIPELINE MONITORING SITES GROUND TEMPERATURE DATA FILE: 1987

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NOVEMBER, 1988

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ABSTRACT

The Permafrost Research Section of the Geological Survey of Canada, Department of Energy, Mines and Resources, cooperates with the Department of Indian and Northern Affairs and Interprovincial Pipe Line Ltd. (IPL), in a long term ground thermal regime monitoring program along the Norman Wells to Zama pipeline. The program is designed to examine the effects of the construction and operation of the Norman Wells pipeline on permafrost and terrain conditions and to evaluate the approaches used to minimize terrain disturbance. The program focuses on thirteen main monitoring sites representing a cross section of the terrain conditions encountered by the buried, "ambient" temperature, oil pipeline as it traverses the discontinuous permafrost zone. These monitoring sites established during the construction period are instrumented with multithermistor cables to measure pipe temperatures and ground temperatures both on and off the right-of-way. Since pipeline operation began in April 1985, additional cables have been installed to instrument 1) five thaw settlement sites drilled by IPL in 1986, 2) additional boreholes drilled at existing government monitoring locations, and 3) deep (>90 m) boreholes drilled for climate change studies along the pipeline corridor. This report is a collection of the data gathered in 1987 from all cables at the government monitoring sites (in total over 145 cables). Data are presented both graphically and in tabular form.

RESUME

Le Ministère d'Énergie, Mines et Ressources, en collaboration avec le Ministère des Affaires Indiennes et du Nord et la compagnie Interprovincial Pipe Line Ltd. (IPL), a entrepris un programme de surveillance continue du régime thermique des sols le long de l'oléoduc Norman Wells. Le programme examine les effects thermiques de la construction et du fonctionnement de l'oléoduc et évalue les méthodes utiliseés pour minimiser les perturbations du terrain. L'étude se concentre sur 13 emplacements, situés le long du droit de passage et représentant les différents conditions de terrain traversé par l'oléoduc enterré, tout au long de son trajet à travers la zone de pergélisol discontinu. Les stations de mesure sont équippées de câbles à thermistances multiples, pour mesurer les températures du sol ainsi que la température de la surface extérieure de l'oléoduc. Depuis l'ouverture de l'oléoduc en avril 1985, quelques câbles supplémentaires ont été installés pour équipper de nouveaux trous de forage percés soit par IPL à des sites d'affaisement ou par le gouvernement pour une étude à long terme du pergélisol et des changements climatiques. Ce rapport présente les données de température recueillies par cette étude en 1987 à tous les emplacements du gouvernement fédéral (un total de plus de 145 câbles à thermistances). Les données sont présentées sous formes de tableaux et de graphiques.

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1. INTRODUCTION

The Norman Wells pipeline, the first fully buried oil pipeline in permafrost terrain, traverses the discontinuous permafrost zone of Northwestern Canada in a more or less north-south section. The 324 mm diameter pipeline, buried throughout its entire length at an average depth of 1 m, is owned by Interprovincial Pipe Line (NW) Ltd (IPL) and carries oil from Esso Resources' Norman Wells, N.W.T. oilfield expansion project south 870 km to Zama, northwestern Alberta (Figure 1). The pipeline provides Canadians with a unique opportunity to assess the impact of construction and operation of an "ambient" temperature pipeline on the ground thermal and moisture regimes, and on the stability and recovery of disturbed northern discontinuous permafrost lands. The experience gained will be useful in the design and environmental protection of future northern pipelines.

The federal department of Indian and Northern Affairs (INAC) signed an Environmental Agreement with IPL in 1982, emphasizing the principle of minimum practicable environmental and land use disturbance, and establishing cooperation in monitoring and evaluating impact management. INAC, in consultation with Energy, Mines and Resources (EMR), established a permafrost and terrain monitoring program to assess permafrost conditions, terrain stability and mitigative measures used along the alignment. This cooperative program developed in 1983 with IPL was reviewed by

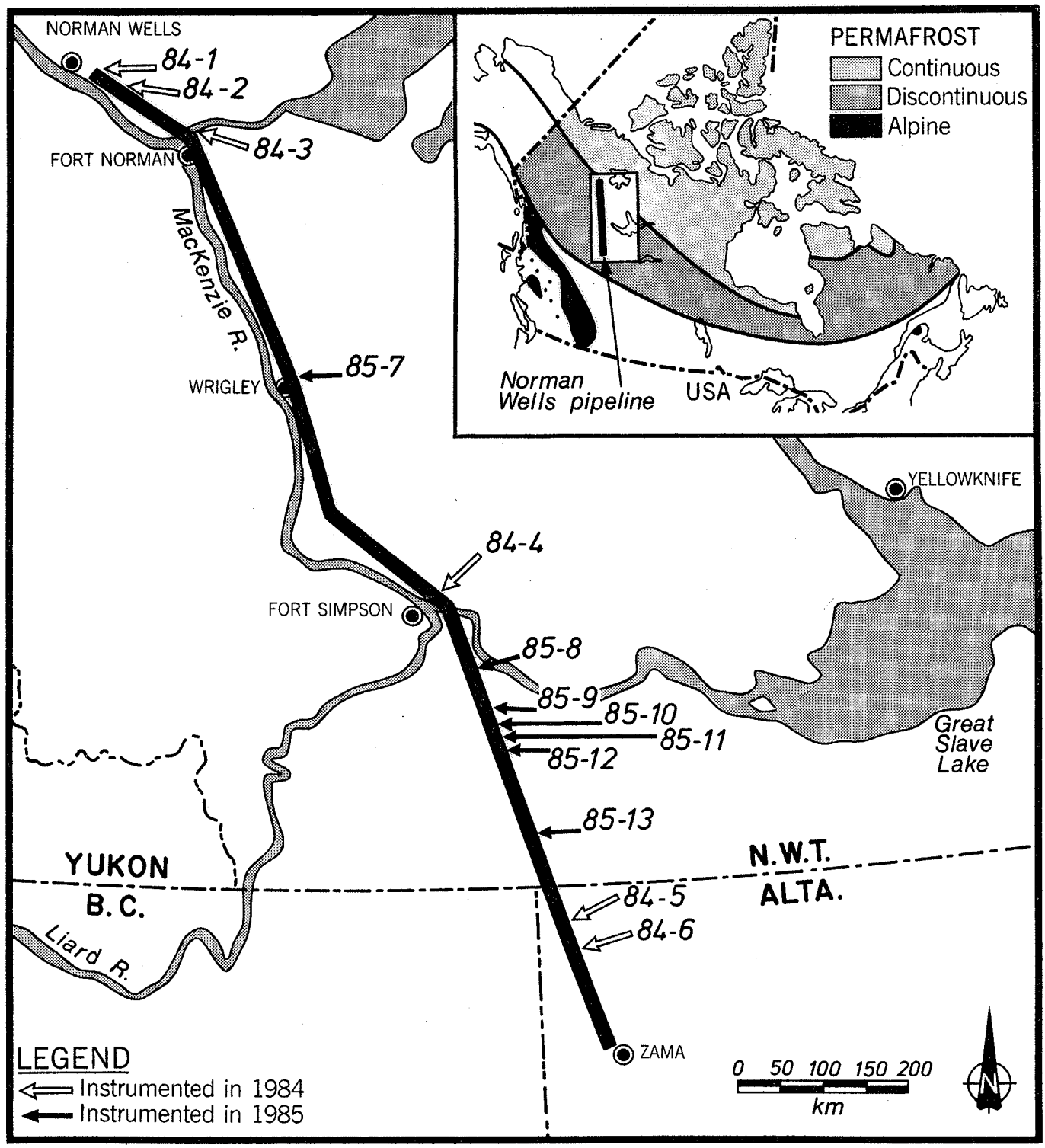

Figure 1. Location of principal EMR/INAC ground thermal monitoring sites along the Norman Wells pipeline.

National Energy Board representatives. It is also part of an overall research and monitoring program on the Norman Wells project under the Norman Wells Research and Monitoring Working Group, coordinated by Environment Canada.

The Permafrost Research Section of the Geological Survey of EMR cooperates in this research and monitoring program and has undertaken geophysical and thermal studies of the short and long term modifications to the alignment area at thirteen main monitoring sites along the route (Figure 1). The sites were selected to include an insulated slope, areas of thaw sensitive terrain and of strong material contrast, and to provide a representation of the soil, permafrost and ground ice conditions throughout the discontinuous permafrost zone. An IPL geotechnical monitoring program includes the instrumentation of 17 wood chip insulated slopes with temperature cables and piezometres, as well as instrumentation or surveys at 4 frost heave sites and surveys at 25 thaw settlement sites (IPL, 1984; IPL, 1986). An IPL operations monitoring program includes weekly, or more frequent, line patrols by helicopter.

The government monitoring program also involves three additional projects. The first, undertaken in cooperation with the Land Resources Research Centre of Agriculture Canada, focuses on soil thermal studies of the top 1.5 m and supplements near-surface permafrost and active layer data. The second, undertaken in

cooperation with the Institute for Research in Construction of the National Research Council of Canada involves an evaluation of wood chip insulation on selected thaw sensitive slopes. The third, undertaken in cooperation with the Engineering Geology and Geomorphic Processes Section of the Geological Survey of Canada, involves observations of terrain performance, in particular surface stability and surface erosion, along the entire right-of-way. Data collected as part of these three projects is housed with the respective agencies, and is not discussed or presented in this compilation.

The temperature data collected by the EMR/INAC project supplement the existing ground thermal data base available in the area (Judge, 1973 and 1975; Taylor et al., 1982; Geotech, 1984) and also increase the number of locations in northern terrains with long term observations on permafrost stability and permafrost response to climatic change and natural or man-induced disturbances.

This report presents tables and plots of the ground temperature data collected in 1987 at the EMR/INAC monitoring sites. Data collected during the first three years of monitoring (1984, 1985 and 1986) are tabulated in earlier open file reports (Burgess, 1986 and 1987). A brief discussion of the Norman Wells pipeline and a description of the ground temperature monitoring program and instrumentation precede the data presentation.

2. THE NORMAN WELLS PIPELINE

The detailed design and construction concepts implemented for the Norman Wells pipeline to minimize terrain disturbance and to assure pipe integrity under potential problem conditions such as thaw settlement, frost heave and slope instability are discussed by Nixon, Stuchly and Pick (1984). A brief summary follows. Right-of-way (ROW) clearance, generally 25 m, and pipe laying were generally undertaken in the winter to minimize disturbance. No permanent workpad was planned or utilized. Whenever practical the pipeline was located in previously cleared alignments, e.g. seismic lines or former telephone lines. Arctic and conventional wheel ditchers were used for trenching, except in bouldery material where caterpillars and backhoes had to be used. Ditch width with the wheel ditchers was approximately 100 cm.

A small diameter pipe, uninsulated except at a few sag bends, was selected to limit energy exchange with the environment. Pipe wall thickness was increased to provide for additional structural strength required to withstand anticipated differential settlements. Before delivery to IPL at the Norman Wells Pump Station, the oil is cooled to near $0^{o}C$ but thereafter undergoes no further refrigeration. Additional pump stations are located near Wrigley (km 336) and near Fort Simpson (km 585). Oil began to fill the line in March 1985 and the National Energy Board granted leave to open on April 17, 1985. Design flow is approximately 4800 cubic

meters per day. All disturbed areas in mineral soils were fertilized and reseeded. Sandbags were piled to form the major type of diversion berm for surface erosion and drainage control (Wishart and Fooks, 1985) and wood chips were used to insulate 54 sensitive permafrost slopes (McRoberts et al., 1985).

It was anticipated (Nixon et al., 1984) for these design and construction features that the pipeline itself, being of low energy input, would not cause "significant" thawing of underlying permafrost; the clearing and construction activities, in changing surface thermal conditions, would however cause slow thawing of permafrost at many locations. Based on field observations, continuous geophysical surveys along the entire route, an extensive borehole data bank (over 3500 boreholes), ground regime thermal modelling and thaw settlement analyses and calculations, maximum anticipated thaw depths beneath the ROW in a 25 year operation period were established at 6 m. These studies also established design differential thaw settlements, i.e. differential thaw settlement that could occur over a short distance across a transition in terrain conditions, at up to 0.8 m in mineral soil and up to 1.2 m in organic soil deposits.

3. EMR/INAC GROUND TEMPERATURE MONITORING

3.1 Principal Monitoring Sites

Site Selection

The monitoring program focuses on 13 principal sites selected in 1983 to allow some evaluation and quantification of the thermal and environmental effects of a small, buried, uninsulated pipeline in warm and discontinuous permafrost. The site selection process, undertaken in conjunction with the pipeline company and its consultants, involved an examination of 1) the surficial geology, 2) the lithological and ice log data from geotechnical boreholes along the alignment, 3) available ground thermal data, both from geotechnical boreholes along the route and other wells along the Mackenzie Valley (Judge, 1973) and 4) geophysical surveys to map permafrost conditions (Hardy Associates, 1982). The sites, eleven in the Northwest Territories and two in northwestern Alberta, include areas of thaw sensitive terrain or of strong material contrast(e.g. frozen/unfrozen interfaces), and two slopes (one of which is insulated with wood chips). They also provide a representation of the soil, permafrost and ground ice conditions throughout the discontinuous permafrost zone. Brief site descriptions are given in Table 1. Two of the sites are joint sites, with IPL instrumented wood chip slopes and government instrumentation on level terrain. Boreholes for temperature instrumentation were established at the sites using track-mounted

TABLE 1. SITE DESCRIPTIONS

#	NAME	KM	DESCRIPTION (at time of establishment)
84-1	Pump Station 1	0.02	Ice-rich silty clay; widespread permafrost
84-2	Canyon Creek		(previously cleared CNT line)
	A	19.0	Level location, frozen till with low ice content in widespread permafrost
	B	19.3	East-facing slope in widespread permafrost with a 1 m insulating woodchip cover
	C	19.6	West-facing slope in widespread permafrost with erosion control berms
84-3	Great Bear River		(Joint IPL site)
	A	79.2	Stratigraphically complex ice-rich alluvial terrace deposits in widespread permafrost; cliff-base
	B	79.4	Cliff-top lacustrine deposits with veneer of aeolian deposits
85-7	Table Mountain		(Joint IPL site)
	A	271.2	Ice-rich lacustrine plain(old seismic line)
	B	272.0	Helipad clearing at bend on top of north facing slope, ice-rich lacustrine plain
	C	272.3	New clearing on ice-rich lacustrine plain
84-4	Trail River		(pipeline previously traversed frozen ground)
	A	478.0	Unfrozen saturated sands and silts in dune hollow
	B	478.1	Dry sands and silts in dune crest
85-8	Manner's Creek		(rapidly changing permafrost conditions)
	A	557.8	Thin peat with thick (10 m) permafrost
	B	558.2	Thick(2.7 m) peat with thin(4 m) permafrost
	C	558.3	Thin peat (1 m) with thin (1 m) permafrost
85-9	Pump Station 3		(pipe previously traversed frozen section)
		583.3	Unfrozen granular soils
85-10	Mackenzie Highway South		
	A	588.3	Transition from a helipad clearing in unfrozen terrain to
	B	588.7	Thin (3 m) permafrost with 2 m peat cover
85-11	Moraine South	597.4	Thin (<4 m) permafrost in helipad clearing
85-12	Jean Marie Creek		
	A	608.6	Thin unfrozen peat plateau
	B	608.7	Thick ice-rich peat plateau; 4 m permafrost
85-13	Redknife Hills		
	A	682.2	Frozen (6 m) terrain surrounding large fen
	B	682.4	Frozen (6 m) terrain at fen border
	C	682.6	Unfrozen terrain in fen
84-5	Petitot River North		
	A	783.0	Ice-rich peat (3.5 m); (15-18 m) permafrost
	B	783.3	Very thick icy peat (7 m); 12 m permafrost
84-6	Petitot River South		
		819.5	Thick (5 m) ice-rich peat; 7 m permafrost

drill equipment provided by IPL during the winter pipe laying activities which were spread over the consecutive winters of 1984 and 1985. At most (12) sites a thermistor string is placed around the pipe and 4 instrumented boreholes are located across the ROW along lines called thermal fences.

Six sites were established in 1984 and seven in 1985. Borehole stratigraphic logs, visual ice logs and preliminary geotechnical data were collected as part of the contracted drilling program and are compiled in two contract reports (Hardy Associates, 1984; 1985). Core and chip samples were retained from the drilling for thermal and electrical properties measurements. An additional large diameter access hole was drilled to 20 m on the ROW and cased with 76 mm PVC for long term geophysical logging; at the 1985 sites this hole was continuously cored.

Thermal Fence Layout

Twelve of the 13 main monitoring sites have from one to three instrumented cross-sections; in total there are 23 thermal fences. Where more than one thermal fence is located at a site, fences are designated A, B, and C in a north to south sequence. At each fence five temperature sensors, located on the outside of the pipe and installed by IPL prior to trench backfilling, provide an approximate reference value for the pipe induced thermal disturbance. Two 5 m cables are located close to the pipe to examine the immediate effect on soil temperature of pipeline

trenching, installation and operation. These two short cables are positioned in one of two possible configurations, either on each side of the ditch (17 fences) or at an increasing distance from the ditch on the travel side of the ROW (6 fences). Two 20 m cables, one on the ROW and the other off-ROW, investigate the deeper thermal characteristics and enable a comparison of the thermal regime of the disturbed ROW and the surrounding terrain. Disturbance to surface conditions off-ROW was generally kept to a minimum, with no or varying tree canopy removal, while allowing snow-access of a track-mounted drill. The thirteenth site, at Redknife Hills, consists of three cables (A,B,C) on the ROW spaced 200 m in a line paralleling the pipe.

3.2 Additional Sites and Thermal Instrumentation

1986

In March 1986 a drilling program was undertaken at the Table Mountain (85-7) monitoring site to establish new off-ROW reference holes at each of the three thermal fences. The purpose of the new drillholes was to achieve less off-ROW disturbance than had occurred during the 1985 drilling. The holes were backfilled with silicone oil and instrumented with 20 m cables. The new hole at 85-7A was deepened to 93 m to provide a reference for long term climate change monitoring in this area of the Mackenzie Valley; an additional temperature cable was installed to bottomhole.

In the summer of 1986, IPL installed two additional thermistor strings in the trench at six of the monitoring fences (2C, 3B, 7C, 4A, 8A, 9). These cables, one directly above the pipe and the other at the trench wall, were positioned to help better define the energy input from the pipe and disturbed trench.

In the fall of 1986, drillholes at five IPL thaw settlement monitoring sites were prepared for instrumentation with EMR/INAC temperature cables (IPL, 1986). Two of these sites overlap with existing EMR/INAC monitoring sites (85-7B, 85-12B). The details on the location of these sites, the number of holes drilled, total depth drilled, date of cable installation are listed in Table 2 (source: Hardy BBT Ltd, 1987).

1987

In March 1987, a deep drilling program was undertaken at two locations in the Norman Wells area in order to examine the ground temperature profiles for evidence of climate change. The holes were also established as reference sites for long term study of climate change and ground temperature relationsips. The first site was located at valley level (elevation 120 m) in the vicinity of the Canyon Creek 84-2A monitoring site (km 19.0), while the second was situated about 300 m above the valley floor on top of Kee Scarp (elevation 365 m), about 5 km north of Norman Wells. Two holes were drilled at each site, one to 45 m and one to 130 m, and instrumented with multithermistor cables (see Hardy BBT Ltd., 1988

TABLE 2: Cable Installations at IPL Thaw Settlement Sites

Thaw Settlement Site (KP)	Site Name	Thermistor String	Depth Drilled(m)	Cable Installation
95.1	IPL-PSS6	84-4B-T2	7.0	86.10.08
135.1	IPL-PSS10	HA-128 HA-127	10.3 10.4	86.10.11 86.10.13
271.9	Table Mtn. (85-7B)	HA-132 HA-129	10.2 10.0	86.10.16 86.10.16
469.7	Trail River IPL-PSS24	HA-130 HA-131	10.6 10.5	86.10.29 86.10.29
608.6	Jean Marie Creek (85-12B)	HA-133 HA-134	6.8 7.4	87.05.24 87.05.24

TABLE 3: CABLE INSTALLATION AT 1987 DEEP CLIMATE HOLES

Site	Borehole	Depth (m)	Cable	Installation Date	Depth Interval
Kee Scarp	1C	45	HT137	87.03.26	1 - 45
	1B	130	HT139	87.09.18	50 - 100
	1B	130	HT152	87.09.14	105 - 128
84-2A	2A	45	HT140	87.03.21	1 - 45
	2	130	HT138	87.09.14	50 - 100
	2	130	HT153	87.09.14	105 - 128

for a report on the drilling program). Details on these cables and their date of installation are shown in Table 3.

3.3 Temperature Instrumentation and Accuracy

Methods of temperature measurement by the Permafrost Research Section in shallow northern boreholes have been discussed in detail by Judge (1973). For long term monitoring programs the installation of multisensor temperature cables is favoured, in order to ensure a permanent or semi-permanent installation, to simplify site visits (i.e. not necessary to carry portable logging system) and to permit continuity of observations despite caving-in or freezing of borehole between logging trips. The temperature sensor used in these cables is the thermistor, a semiconductor device whose electrical resistance has an inverse non-linear relationship with temperature. The thermistor is versatile, reliable and simple to use.

Three types of thermistors were used in the fabrication of the temperature cables for the Norman Wells monitoring program: 1) YSI44033 sensors, the most frequently used sensors, were placed in all borehole cables in the N.W.T. and all pipe sensors installed in 1985, 2) YSI44032 sensors were used in all the Alberta boreholes (new cables with 44033 sensors were placed in all boreholes at 5B in October 1986 in order to install an automatic data logger) and one pipe settlement site (km 95.1), and 3) Atkins sensors were used for all 1984 pipe sensors and 1986 IPL ditch thermistor strings.

The shorter cables contain ten thermistor sensors spaced every 50 cm; the longer cables contain eleven, spaced every metre near the surface and then every 2 m or 3 m, at depth.

The thermistors are calibrated by the manufacturers to an accuracy of 0.1 K. Two field measurement systems are in use, 1) a simple digital hand-held multimeter system and 2) a portable data acquisition system (DAS) developed by A-Cubed Inc. with facilities for data storage on cassette tape and hardcopy printout. The resolution of both these systems enables relative changes of better than 0.01 K to be determined for a sensor. The measurement systems are used interchangeably, depending on personnel and time of year. A field comparison of the two systems with the standard EMR high precision temperature measurement bridge (described in detail in Judge, 1973) revealed agreement generally to within 0.01 K.

In contrast to former shallow cable installations during the 1970's (for the Mackenzie Valley monitoring of the Environmental-Social Program, Northern Pipelines (Judge, 1973)), where the borehole was backfilled around the temperature cable at installation immediately after drilling completion, the Norman Wells pipeline boreholes were lined with PVC casing. The small diameter PVC tubes (25-38 mm) were filled with an environmentally-safe, medium viscosity and non-freezing silicone fluid prior to cable placement. This system allowed for ease in temperature cable installation, which could then occur after the drilling operation without problems of caving-

in or freezeback of an open hole. In addition the possibilities of cable stress and sensor failure due to freezing, thawing or heaving of the surrounding soils were avoided. The possibility of leaky cables, where capacitive effects during sensor measurements present problems for automatic data acquisition systems and lengthen the hand-held multimeter measurement time, was also reduced. Furthermore the PVC tubes facilitate future cable removal, replacement or re-use, and re-measurement of sensor position relative to a changing ground surface.

Temperature cable installation occurred throughout the summer of 1984 for the winter 1984 sites, and at or near the time of drilling for the 1985 sites. The time of installation of cables at deep climate holes and IPL thaw settlement sites is given in Table 2 and Table 3. The depth positioning of each cable was relative to the ground surface at the time of cable installation. Thus, although the sensor spacing along the cable remains constant with time, the absolute depth of the sensors with respect to the surface level at a particular point in time may change as this surface is subjected to heave or settlement. Surveys have been conducted generally annually to record vertical movements in the ground surface to an accuracy of 10 cm over a 20 m x 20 m grid at most thermal fences. Settlements observed at the monitoring sites to September 1987 (or to September 1986 if no survey done in 1987) are summarized in Table 4. Cable positions relative to existing ground surface will be remeasured periodically during the monitoring program.

TABLE 4: SURFACE SETTLEMENT RECORDED AT STUDY SITES

Fence (cm) ROW	Observation Period	Range of Settlement* Trench Area	ROW Area
84-1	20/6/84 - 29/8/87	>10 - <70	0 - <70
84-2A	21/8/84 - 17/9/86	10 - 30	0 - 20
84-2B	22/8/84 - 28/8/87	0 - <40	0 - <60
84-2C	22/8/84 - 17/9/86	0 - 20	0 - 30
84-3A	22/8/84 - 22/8/87	>0 - <60	>0 - <60
84-3B	22/8/84 - 22/8/87	0 - <20	0 - <40
85-7A	26/5/85 - 27/8/87	0 - <90	0 - 40
85-7B	26/5/85 - 27/8/87	0 - 80	0 - <60
85-7C	26/5/85 - 27/8/87	>10 - <70	>0 - <40
84-4A	24/8/84 - 15/9/86	0 - 50	0 - 20
84-4B	24/8/84 - 15/9/86	0 - 30	0 - 30
85-8A	25/5/85 - 26/8/87	0 - <50	0 - <30
85-8B	25/5/85 - 26/8/87	0 - <90	0 - <90
85-8C	25/5/85 - 26/8/87	0 - <120	0 - <100
85-9	24/5/85 - 13/9/86	0 - 20	0 - 10
85-10A	23/5/85 - 25/8/87	0 - <40	0 - <40
85-10B	23/5/85 - 25/8/87	>10 - <130	0 - 40
85-11	23/5/85 - 14/9/86	backfilled winter 86	0 - 20
85-12A	22/5/85 - 25/8/87	0 - <100	0 - <50
85-12B	22/5/85 - 25/8/87	0 - <150	0 - <50
84-5A	26/8/84 - 19/8/87	0 - <60	0 - <30
84-5B	25/8/84 - 19/8/87	0 - <50	0 - <20
84-6	25/8/84 - 19/8/87	0 - <60	0 - <30

* The range of settlement (cm) determined from the surface elevation surveys is defined by the minimum and maximum amount observed for each of two areas:

1) Trench Area: includes trench and a few meters on either side of the pipe centerline
2) ROW Area: the remainder of the surveyed ROW excluding the trench area.

A few replacement cables have been required when, for example several sensors have failed within a string, or 44032 sensors have been replaced with 44033 for compatibility with loggers. Comments on these changes are included in the data listings.

3.4 Frequency of Data Collection

Temperature data collection through to December 1987 was generally undertaken on a basis of monthly field trips at priority and readily accessible sites near Norman Wells and Fort Simpson. Winter readings have been primarily undertaken by INAC field staff at Norman Wells and Fort Simpson, while EMR or INAC researchers have been responsible for the May to October visits (Table 5). The continuation of this frequency of readings will depend on data requirements and on the level of funding to the program in future years, since access primarily requires relatively expensive helicopter travel. Remote sites, i.e. distant from either Norman Wells or Fort Simpson, have not always been regularly read in the winter; these sites are Table Mountain, Redknife Hills, and Petitot River North and South. Special effort will be made to ensure long term readings at deep holes selected for climate change monitoring.

In October 1985, fences A and B at Table Mountain were equipped with automatic data loggers (SeaData model 1250B) to allow for more continuous data gathering. Fences A at Canyon Creek and A at Great Bear were also equipped with Sea Data loggers, to increase the

TABLE 5: SCHEDULE OF FIELD TRIPS AND OBSERVERS - 1987

DATE	OBSERVERS[1]	COMMENTS[2]
Jan. 15, 16	P.Rivard, L.Schmidt	Northern data (INAC)
Jan. 16, 20, 21	B. Hoover, D. Trudeau	Southern data (INAC)
Feb. 4-9	J. Pilon, A. Judge	All sites (EMR)
Mar. 9-15	K. MacInnes, A. McRobert	All sites (INAC)
April 15, 16	L. Schmidt, P. Rivard, D. Elliott	Northern data (INAC)
April 9, 13	D. Trudeau	Southern data (INAC)
May 22-27	M. Burgess, A. Wilkinson	All sites (EMR)
June 15-21	H. Baker, K. MacInnes	All sites (NRC,INAC)
July 9-13	K. MacInnes, A. McRobert D. Trudeau	All sites (INAC)
Aug. 14-20	C. Tarnocai, K. MacInnes	All sites (Ag. Can., INAC)
Sept. 14-21	D. Harry, K. MacInnes	All sites (EMR,INAC)
Oct. 1-7	M. Burgess, V. Allen	All sites (EMR)
Nov. 12, 13	D. Elliott, L. Schmidt	Northern data (INAC)
Nov. 12, 13	D. Trudeau, A. Boyer P. Boyle	Southern data (INAC)
Dec. 14-16	D. Elliott	Northern data (INAC)
Dec. 15, 16, 18	D. Trudeau, A. Boyer	Southern data (INAC)

1. Observers include staff from Indian and northern Affairs Canada (INAC) Region and Districts, Energy, Mines and Resources (EMR), Agriculture Canada (Ag. Can.), and National Research Council (NRC).

2. Northern data refers to sites from km. 0 to 79. Southern data here refers to sites from Km. 270 to 608. All sites refer to sites from Km 0 to 819.

number of measurements. More frequent measurements were of interest at Canyon Creek A to compliment the automated micrometeorological data collected by the Atmospheric Environment Service of Environment Canada at their station installed in the winter of 1985 (Granberg, 1985). At Great Bear A, where thaw settlement and development of hummocky terrain were active on the ROW, a more detailed monitoring of the ground thermal regime in the ice-rich surficial material was desired. In October 1986 a fifth SeaData logger was installed at fence 84-5B Petitot River North to ensure a continuous annual record in one of the remote peat plateau sites of northern Alberta. This logger was found to be defective in May 1987 and was replaced in October 1987. A sixth logger was installed at fence 85-7C Table Mountain in October 1987.

The frequency of measurement for the data loggers is currently set to 3 readings per day. These loggers are connected to the EMR/INAC ground temperature cables but not to the pipe temperature sensors. Logger tape and battery changes are scheduled twice a year. Select logs are added to the data files of monthly manual readings, following tape removal and data reduction; hence the apparent lack of data listings at some of these sites for the latter part of 1987.

3.5 Associated Data

In naturally hummocky off-ROW terrain, the single off-ROW temperature cable does not necessarily provide a representation of the near-surface thermal regime and active layer conditions. An "active layer probe", consisting of a 2 m long stainless steel rod with a thermistor embedded in its tip, is therefore also used to probe the active layer. This probing may also be repeated on a continuous transect across the ROW, in the fall at or near the time of maximum active layer development at the selected fences.

Time domain reflectometry (TDR) surveys compliment the thermal observations and provide filed data on soil moisture conditions and electrical properties to depths of 2 m at 3 locations across the thermal fence: next to the pipeline, in the centre of the ROW and off-ROW. These geophysical surveys, discussed by A-Cubed Inc. (1985a) and Pilon, Annan and Davis (1985), have to date been conducted twice a year. An analysis of field data collected through to the fall of 1987 is presented in Patterson (1988).

Permanent snow depth markers have been located at most fences. Other measurements of snow depths and densities along the thermal fences are also made in late winter. A photographic record, and observations on ground cover and vegetation cover, geomorphic processes, standing or flowing water conditions, drainage or erosion problems, presence of tension cracks, wildlife use,

maintenance and remedial measures, complete the field data collection.

Laboratory investigations of the physical, thermal, and electrical properties of the frozen core samples retained from the borehole drilling program complete the data record. Results of these laboratory measurements are reported in Patterson et al. (1987), Patterson and Riseborough (1988), and A-Cubed (1985b and 1987).

4. GROUND TEMPERATURE DATA BASE

The EMR/INAC Norman Wells pipeline thermal data base is currently maintained by the Permafrost Research Section, Terrain Sciences Division, Geological Survey Canada, Energy, Mines and Resouces. Compilations of data are published annually as open file reports. Two previous reports have been released (Burgess, 1986 and 1987).

4.1 Listings

A complete listing of 1987 borehole temperature readings for each cable at each thermal fence site is presented in Appendix A. The sensor depths listed in the tables and kept on permanent record in the files, are those at the time of cable installation.

The data are grouped by monitoring site and presented in site order along the pipeline route (Norman Wells = kilometrepost 0). Data

listings for the climate cables at Kee Scarp follow those of closest monitoring site, 84-1; while those for the Canyon Creek climate cables are listed with site 84-2A. Data listings from cables at IPL thaw settlement sites are included at the end of Appendix A.

The data tables include, when available, additional information on 1) latitude, longitude, elevation (m), 2) the distance of the borehole from the pipeline centre line and the location (off versus on ROW), 3) the lithology and ice content, 4) the number and type of thermistors in the cable, and 5) the installation of automatic data loggers. Some inaccurracies were noted in these comments and they were reviewed and updated for this 1987 listing. Where there are discrepancies with comments from previous listings those listed here shall supercede.

Measurements of the pipe thermistor sensors taken in 1987 are listed separately in Appendix B; the 1984 sites are listed first, followed by the 1985. The positioning of these sensors on the pipe is shown in Figure 2; three on the side and one on both the top and bottom. Users of this data should note that the depths listed in all data tables were determined from the initial burial depth of the pipe and are not necessarily the current depths, especially in subsided or eroded trench conditions or thaw sensitive terrain. The relative position of the sensors on the pipe, however, remains fixed.

Appendix C lists the 1987 readings taken on the ditch thermistor strings installed by IPL in late summer of 1986 at select fences.

4.2 Plots

Graphical presentation of the 1987 temperature data is also included. Appendix D contains plots of the temperature envelopes versus depth (minimum and maximum temperature recorded during 1987) for each EMR/INAC ground temperature cable. Plots for cables at IPL thaw settlement sites and IPL ditch thermistor strings are included at the end of Appendix D. Appendix E contains temperature versus time plots for each pipe thermistor installation; the 1984 sites are followed by the 1985 sites.

5. COMMENTS

This report consists solely of a presentation of the 1987 ground and pipe temperature data file at the government monitoring sites. Several reports and papers dealing with an analysis and discussion of the observations at the EMR/INAC sites have also been published. These include Burgess (1988), Burgess et al. (1986a), Burgess and Harry (in prep.), Riseborough et al. (1988), and annual reports to the Norman Wells Pipeline Research and Monitoring Working Group (see Environment Canada (in press) for 1987 annual summary report).

6. ACKNOWLEDGEMENTS

The efforts and dedication of Kaye MacInnes (INAC) as researcher, organizer and coordinator of this program require special mention. Many organizations have helped to make the overall thermal monitoring project possible. IPL has provided much support and cooperation, and in particular contributed the drilling of the boreholes for all cables in the N.W.T., as well as the staff for installation of the pipe thermistors and varied assistance for subsequent field work. The design of the EMR/INAC ground thermal monitoring program is principally due to the efforts of Kaye MacInnes (Land Resources, INAC, Yellowknife), Alan Judge and Jean Pilon (both with GSC, EMR). Many individuals within INAC, EMR, and IPL have provided cooperation, support and assistance in the organization and implementation of the project and in the data collection and analyses.

7. FUNDING

The research and monitoring program is primarily funded by the Northern Affairs Program of INAC, including contributions from the Northern Oil and Gas Action Program (NOGAP). Additional funding or other assistance has been received from EMR's former Earth Physics Branch, the Geological Survey of Canada (Terrain Sciences Division), the Federal Panel on Energy Research and Development, IPL (NW) Ltd., and the N.W.T. Regional Surveyor's Office.

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APPENDIX A

GROUND TEMPERATURE CABLES DATA LISTINGS

SITE 84-1: NORMAN WELLS PUMP STATION- T1

****

65 DEGREES 17.2 MINUTES NORTH
126 DEGREES 53.1 MINUTES WEST

65 DEGRES 17.2 MINUTES NORD
126 DEGRES 53.1 MINUTES OUEST

ELEVATION 61 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 8	DATE 87 3 9	DATE 87 4 15	DATE 87 5 21	DATE 87 6 15	DATE 87 6 21	DATE 87 7 13	DATE 87 8 15	DATE 87 9 18	DATE 87 10 1	DATE 87 11 13
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-4.02	-5.46	-6.29	-2.69	2.28	8.80	13.35	14.55	9.83	6.02	3.95	-.94
1.0	-.91	-1.72	-2.52	-1.98	-.15	.12	1.05	5.61	4.24	2.46	1.36	-.10
1.5	-.15	-.17	-.54	-1.27	-.57	-.47	-.43	-.15	1.00	.66	.39	-.11
2.0	-.26	-.28	-.29	-.86	-.75	-.65	-.63	-.53	-.32	-.22	-.21	-.18
2.5	-.45	-.45	-.48	-.71	-.83	-.78	-.77	-.71	-.58	-.48	-.46	-.40
3.0	-.58	-.57	-.56	-.68	-.84	-.83	-.83	-.79	-.70	-.61	-.59	-.53
3.5	-.73	-.72	-.70	-.73	-.90	-.91	-.90	-.88	-.82	-.75	-.74	-.67
4.0	-.89	-.88	-.85	-.85	-.97	-1.00	-1.00	-.99	-.96	-.90	-.89	-.83
4.5	-1.00	-.99	-.96	-.94	-1.02	-1.06	-1.06	-1.06	-1.04	-.99	-.98	-.93
5.0	-1.01	-1.00	-.97	-.94	-.98	-1.02	-1.02	-1.03	-1.02	-.98	-.97	-.92

	DATE 87 12 16
Z(M)	T(C)
.5	-3.97
1.0	-.16
1.5	-.10
2.0	-.19
2.5	-.39
3.0	-.50
3.5	-.63
4.0	-.79
4.5	-.90
5.0	-.90

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE.
FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES.
ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 0.0. EMR-84-1.
-WELL SPUDDED 84 3 4

NW-ZAMA PIPELINE KM 0.0. EMR-84-1.
-DEMARRAGE DU PUITS LE 84 3 4

LACUSTRINE PLAIN: ICE-RICH SILTY CLAY IN WIDESPREAD PERMAFROST.
TREES CLEARED TO 26.5 M IN WINTER 82/83.
CABLE ON R.O.W. 1.5 M W OF PIPELINE,
IN 25 MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED COMMON).

SITE 84-1: NORMAN WELLS PUMP STATION- T2

****

65 DEGREES 17.2 MINUTES NORTH
126 DEGREES 53.1 MINUTES WEST

65 DEGRES 17.2 MINUTES NORD
126 DEGRES 53.1 MINUTES OUEST

ELEVATION 61 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 8	DATE 87 3 9	DATE 87 4 15	DATE 87 5 21	DATE 87 6 15	DATE 87 6 21	DATE 87 7 13	DATE 87 8 15	DATE 87 9 18	DATE 87 10 1	DATE 87 11 13
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-2.24	-3.32	-4.57	-2.86	-.13	.46	1.35	5.24	5.53	3.56	2.22	-.10
1.0	-.08	-.13	-.81	-1.73	-.40	-.34	-.33	-.22	1.88	1.53	1.12	-.03
1.5	-.15	-.18	-.20	-1.20	-.66	-.57	-.56	-.47	-.20	-.06	-.03	-.06
2.0	-.32	-.34	-.34	-.86	-.79	-.71	-.70	-.63	-.47	-.36	-.33	-.26
2.5	-.47		-.47	-.70	-.83	-.78	-.77	-.73	-.62	-.52	-.50	-.43
3.0	-.71	-.71	-.69	-.79	-.96	-.95	-.94	-.91	-.83	-.75	-.73	-.67
3.5	-.76	-.75	-.73	-.75	-.90	-.91	-.91	-.89	-.85	-.78	-.76	-.70
4.0	-.91	-.90	-.87	-.86	-.96	-1.00	-1.00	-.99	-.97	-.91	-.90	-.84
4.5	-1.07	-1.06	-1.03	-1.01	-1.07	-1.10	-1.11	-1.11	-1.10	-1.06	-1.04	-.99
5.0	-1.12	-1.10	-1.08	-1.04	-1.08	-1.11	-1.12	-1.12	-1.11	-1.08	-1.07	-1.03

	DATE 87 12 16
Z(M)	T(C)
.5	-.61
1.0	-.02
1.5	-.05
2.0	-.23
2.5	-.39
3.0	-.63
3.5	-.67
4.0	-.81
4.5	-.96
5.0	-1.00

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 0.0. EMR-84-1.
-WELL SPUDDED 84 3 4

NW-ZAMA PIPELINE KM 0.0. EMR-84-1.
-DEMARRAGE DU PUITS LE 84 3 4

LACUSTRINE PLAIN: ICE-RICH SILTY CLAY IN WIDESPREAD PERMAFROST.
TREES CLEARED TO 26.5 M IN WINTER 82/83.
CABLE ON R.O.W. 2.5 M W OF PIPELINE, IN 25 MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED COMMON).

SITE 84-1: NORMAN WELLS PUMP STATION- T3

****

65 DEGREES 17.2 MINUTES NORTH
126 DEGREES 53.1 MINUTES WEST

65 DEGRES 17.2 MINUTES NORD
126 DEGRES 53.1 MINUTES OUEST

ELEVATION 61 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 8	DATE 87 3 9	DATE 87 4 15	DATE 87 5 21	DATE 87 6 15	DATE 87 6 21	DATE 87 7 13	DATE 87 8 15	DATE 87 9 18	DATE 87 10 1	DATE 87 11 13
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-2.86	-3.99	-4.70	-2.79	-.56	-.15	.15	3.58	4.42	2.98	1.79	-.25
2.0	-.57	-1.21	-1.86	-1.74	-1.06	-.86	-.82	-.68	-.45	-.31	-.27	-.37
3.0	-.68	-.67	-.69	-1.09	-1.12	-1.02	-1.00	-.93	-.82	-.71	-.68	-.60
4.0	-.90	-.90	-.87	-.94	-1.10	-1.09	-1.08	-1.05	-1.00	-.92	-.90	-.84
5.0	-1.09	-1.08	-1.05	-1.03	-1.12	-1.15	-1.15	-1.14	-1.11	-1.07	-1.05	-1.00
6.0	-1.25	-1.23	-1.20	-1.17	-1.18	-1.21	-1.21	-1.21	-1.20	-1.17	-1.16	-1.13
7.0	-1.52	-1.50	-1.47	-1.44	-1.42	-1.43	-1.43	-1.43	-1.43	-1.41	-1.40	-1.37
8.0	-1.65	-1.64	-1.61	-1.58	-1.56	-1.55	-1.55	-1.54	-1.54	-1.52	-1.52	-1.49
9.0	-1.78	-1.77	-1.74	-1.71	-1.68	-1.68	-1.67	-1.66	-1.65	-1.63	-1.63	-1.61
10.4	-1.89	-1.88	-1.85	-1.82	-1.80	-1.80	-1.79	-1.78	-1.77	-1.75	-1.74	-1.72

	DATE 87 12 16
Z(M)	T(C)
1.0	-5.74
2.0	-2.00
3.0	-.57
4.0	-.80
5.0	-.97
6.0	-1.10
7.0	-1.35
8.0	-1.47
9.0	-1.60
10.4	-1.71

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 0.0. EMR-84-1.
-WELL SPUDDED 84 3 4

NW-ZAMA PIPELINE KM 0.0. EMR-84-1.
-DEMARRAGE DU PUITS LE 84 3 4

LACUSTRINE PLAIN: ICE-RICH SILTY CLAY IN WIDESPREAD PERMAFROST.
TREES CLEARED TO 26.5 M IN WINTER 82/83.
CABLE ON R.O.W. 5.8 M W OF PIPELINE, IN 38 MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED COMMON).

SITE 84-1: NORMAN WELLS PUMP STATION- T4

****

65 DEGREES 17.2 MINUTES NORTH
126 DEGREES 53.1 MINUTES WEST

65 DEGRES 17.2 MINUTES NORD
126 DEGRES 53.1 MINUTES OUEST

ELEVATION 61 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 8	DATE 87 3 9	DATE 87 4 15	DATE 87 5 21	DATE 87 6 15	DATE 87 6 21	DATE 87 7 13	DATE 87 8 15	DATE 87 9 18	DATE 87 10 1	DATE 87 11 13
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-3.57	-6.02	-6.02	-4.64	-.97	-.53	-.44	-.06	.22	.22	.05	-1.08
2.0	-2.01	-3.13	-4.29	-3.86	-1.88	-1.41	-1.33	-1.06	-.83	-.68	-.65	-.59
3.0	-1.20	-1.68	-2.51	-3.04	-2.27	-1.84	-1.77	-1.53	-1.30	-.88	-1.07	-.95
4.0	-1.17	-1.38	-1.81	-2.38	-2.28	-2.00	-1.94	-1.74	-1.55	-1.38	-1.33	-1.19
5.0	-1.34	-1.39	-1.59	-1.99	-2.19	-2.06	-2.02	-1.89	-1.73	-1.59		-1.41
6.0	-1.49	-1.48	-1.54	-1.75	-1.99	-2.00	-1.98	-1.92	-1.82	-1.72	-1.68	-1.57
7.0	-1.59	-1.56	-1.56	-1.64	-1.80	-1.87	-1.87	-1.85	-1.81	-1.74	-1.72	-1.63
8.0	-1.73	-1.71	-1.68	-1.69	-1.78	-1.83	-1.84	-1.86	-1.85	-1.81	-1.80	-1.74
9.0	-1.83	-1.82	-1.79	-1.77	-1.80	-1.83	-1.84	-1.86	-1.87	-1.85	-1.85	-1.81
11.0	-1.86	-1.85	-1.84	-1.81	-1.80	-1.81	-1.81	-1.81	-1.82	-1.82	-1.82	-1.80
13.6	-1.88	-1.87	-1.90	-1.84	-1.84		-1.82		-1.84	-1.82	-1.82	-1.81

	DATE 87 12 16
Z(M)	T(C)
1.0	-2.06
2.0	-1.56
3.0	-.90
4.0	-1.13
5.0	-1.35
6.0	-1.50
7.0	-1.58
8.0	-1.71
9.0	-1.79
11.0	-1.80
13.6	-1.81

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 0.0. EMR-84-1.
-WELL SPUDDED 84 3 4

NW-ZAMA PIPELINE KM 0.0. EMR-84-1.
-DEMARRAGE DU PUITS LE 84 3 4

LACUSTRINE PLAIN: ICE-RICH SILTY CLAY IN WIDESPREAD PERMAFROST.
TREES CLEARED TO 26.5 M IN WINTER 82/83.
CABLE OFF R.O.W. 24.1 M W OF PIPELINE, IN 38 MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED COMMON).

SITE 84-1: NORMAN WELLS PUMP STATION- T5

****

65 DEGREES 17.2 MINUTES NORTH
126 DEGREES 53.1 MINUTES WEST

65 DEGRES 17.2 MINUTES NORD
126 DEGRES 53.1 MINUTES OUEST

ELEVATION 61 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 8	DATE 87 3 9	DATE 87 4 15	DATE 87 5 21	DATE 87 6 15	DATE 87 6 21	DATE 87 7 13	DATE 87 8 15	DATE 87 9 18	DATE 87 10 1	DATE 87 11 13
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-.22	-.85	-2.81	-2.87	-.61	-.40	-.36	.02	.93	.68	.35	-.03
2.0	-.44	-.45	-.96	-1.90	-1.09	-.89	-.85	-.73	-.60	-.49	-.47	-.40
3.0	-.73	-.72	-.76	-1.29	-1.23	-1.09	-1.07	-.98	-.89	-.80	-.78	-.70
4.0	-.96	-.94	-.91	-1.07	-1.23	-1.17	-1.16	-1.10	-1.05	-.99	-.98	-.91
6.0	-1.37	-1.37	-1.34	-1.31	-1.35	-1.38	-1.38	-1.37	-1.36	-1.33	-1.32	-1.28
8.0	-1.71	-1.70	-1.67	-1.64	-1.62	-1.62	-1.61	-1.60	-1.60	-1.59	-1.58	-1.54
10.0	-1.91	-1.90	-1.88	-1.85	-1.83	-1.82	-1.82	-1.80	-1.79	-1.77	-1.77	
12.0	-2.01	-2.01	-1.99	-1.97	-1.95	-1.94	-1.94	-1.92	-1.92	-1.90	-1.90	-1.87
15.0	-2.08	-2.07	-2.05	-2.03	-2.02	-2.01	-2.01	-2.00	-1.99	-1.98	-1.97	-1.95
18.0	-1.99	-1.99	-1.97	-1.96	-1.95	-1.95	-1.95	-1.94	-1.93	-1.86	-1.91	-1.90
19.6	-1.95	-1.95	-1.99	-1.93	-1.92	-1.92	-1.92	-1.91	-1.91	-1.90	-1.89	-1.88

	DATE 87 12 16
Z(M)	T(C)
1.0	-.15
2.0	-.39
3.0	-.68
4.0	-.88
6.0	-1.26
8.0	-1.55
10.0	-1.75
12.0	-1.87
15.0	-1.96
18.0	-1.90
19.6	-1.88

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 0.0. EMR-84-1.
-WELL SPUDDED 84 3 14

NW-ZAMA PIPELINE KM 0.0. EMR-84-1.
-DEMARRAGE DU PUITS LE 84 3 14

LACUSTRINE PLAIN: ICE-RICH SILTY CLAY IN WIDESPREAD PERMAFROST.
TREES CLEARED TO 26.5 M IN WINTER 82/83.
CABLE ON R.O.W. 7.3 M W OF PIPELINE, IN 25 MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED COMMON).

KEE SCARP - HT137

****

65 DEGREES 18.6 MINUTES NORTH
126 DEGREES 43.8 MINUTES WEST

65 DEGRES 18.6 MINUTES NORD
126 DEGRES 43.8 MINUTES OUEST

ELEVATION 365 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 6 16 T(C)	DATE 87 9 11 T(C)	DATE 87 9 18 T(C)	DATE 87 9 21 T(C)	DATE 87 10 2 T(C)	DATE 87 11 13 T(C)	DATE 87 12 15 T(C)
1.0	.84	7.19	6.26	6.14	5.12	1.10	.07
2.5	-.08	4.68	4.70	4.65	4.46	2.56	1.44
5.0	.37	2.04	2.21	2.27	2.47	2.49	2.03
10.0	.76	.65	.68	.69	.75	1.01	1.15
15.0	.79	.71	.70	.70	.69	.70	.73
20.0	.63	.62	.62	.62	.61	.61	.60
25.0	.52	.52	.52	.52	.52	.52	.52
30.0	.39	.38	.38	.38	.38	.39	.38
35.0	.46	.38	.45	.45	.45	.45	.45
40.0	.39	.45	.38	.38	.38	.38	.38
45.0	.46		.46	.45	.46	.45	.46

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

-DRILLING FOR 1 DAYS
-TOTAL DEPTH 46 METRES

-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 46 METRES

CLIMATE HOLE DRILLED IN MARCH 1987
ON TOP OF KEE SCARP RIDGE.
6.3 KM NE OF NORMAN WELLS.
11 SENSORS YSI44033 (PAIRED).

KEE SCARP - HT139

****

65 DEGREES 18.6 MINUTES NORTH
126 DEGREES 43.8 MINUTES WEST

65 DEGRES 18.6 MINUTES NORD
126 DEGRES 43.8 MINUTES OUEST

ELEVATION 365 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 9 21 T(C)	DATE 87 10 2 T(C)	DATE 87 11 13 T(C)	DATE 87 12 15 T(C)
50.0	.43	.42	.43	.48
55.0	.38	.38	.38	.38
60.0	.48	.47	.47	.47
65.0	.45	.45	.45	.45
70.0	.49	.49	.49	.49
75.0	.57	.57	.58	.57
80.0	.66	.66	.66	.66
85.0	.76	.76	.76	.76
90.0	.75	.74	.75	.74
95.0	.82	.82	.82	.82
100.0	.86	.86	.86	.86

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

CLIMATE HOLE DRILLED IN MARCH 1987
ON TOP OF KEE SCARP RIDGE.
6.3 KM NE OF NORMAN WELLS.
11 SENSORS YSI44033 (PAIRED).

KEE SCARP - HT152

****

65 DEGREES 18.6 MINUTES NORTH
126 DEGREES 43.8 MINUTES WEST

65 DEGRES 18.6 MINUTES NORD
126 DEGRES 43.8 MINUTES OUEST

ELEVATION 365 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 9 21	DATE 87 10 2	DATE 87 11 13	DATE 87 12 15
Z(M)	T(C)	T(C)	T(C)	T(C)
105.0	1.06	1.05	1.06	1.05
110.0	1.10	1.10	1.11	1.10
115.0	1.25	1.25	1.26	1.26
120.0	1.33	1.33	1.33	1.33
125.0	1.51	1.51	1.52	1.52
128.0	1.58	1.58	1.59	1.58

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

CLIMATE HOLE DRILLED IN MARCH 1987
ON TOP OF KEE SCARP RIDGE.
6.3 KM NE OF NORMAN WELLS.
6 SENSORS YSI44033 (PAIRED).

SITE 84-2A: CANYON CREEK NORTH A - T1

****

65 DEGREES 14.0 MINUTES NORTH
126 DEGREES 31.2 MINUTES WEST

65 DEGRES 14.0 MINUTES NORD
126 DEGRES 31.2 MINUTES OUEST

ELEVATION 123 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 1 16 T(C)	DATE 87 2 8 T(C)	DATE 87 3 14 T(C)	DATE 87 4 16 T(C)	DATE 87 5 8 T(C)	DATE 87 5 27 T(C)	DATE 87 6 16 T(C)	DATE 87 8 15 T(C)	DATE 87 9 18 T(C)	DATE 87 10 2 T(C)
.5	-1.80	-2.48	-3.60	-2.06	-.49	-.11	4.14	7.46	4.44	2.79
1.0	-.82	-1.33	-2.36	-1.66	-.65	-.39	.56	5.33	3.51	2.27
1.5	-.08	-.24	-1.15	-1.12	-.61	-.42	-.22	3.28	2.50	1.76
2.0	-.10	-.11	-.17	-.52	-.48	-.41	-.34	1.37	1.41	1.06
2.5	-.14	-.15	-.17	-.21	-.34	-.36	-.37	-.17	.36	.34
3.0	-.17	-.17	-.17	-.18	-.22	-.26	-.29	-.23	-.15	-.06
3.5	-.28	-.28	-.27	-.27	-.28	-.29	-.32	-.32	-.27	-.11
4.0	-.34	-.32	-.31	-.29	-.29	-.33	-.32	-.33	-.30	-.14
4.5	-.42	-.41	-.39	-.39	-.38	-.40	-.41	-.42	-.40	-.22
5.0	-.56	-.55	-.54	-.54	-.54	-.55	-.54	-.57	-.57	-.41

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 19.0. EMR-84-2A.
-WELL SPUDDED 84 3 7

NW-ZAMA PIPELINE KM 19.0. EMR-84-2A.
-DEMARRAGE DU PUITS LE 84 3 7

MORAINIC PLAIN:FROZEN TILL WITH LOW ICE
PARTLY CLEARED IN 60'S FOR CNT LINE.
CLEARED TO 25.1 M IN WINTER 82/83.
CABLE ON R.O.W. 2 M W OF PIPELINE IN
25 MM OIL-FILLED PVC TUBE.
10 SENSOR YSI 44033 (PAIRED).
SEA DATA LOGGER INSTALLED 03/85.

NEW SEA DATA LOGGER INSTALLED-16/10/85.

SITE 84-2A: CANYON CREEK NORTH A - T2

****

65 DEGREES 14.0 MINUTES NORTH
126 DEGREES 31.2 MINUTES WEST

65 DEGRES 14.0 MINUTES NORD
126 DEGRES 31.2 MINUTES OUEST

ELEVATION 123 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 8	DATE 87 3 14	DATE 87 4 16	DATE 87 5 8	DATE 87 5 27	DATE 87 6 16	DATE 87 8 15	DATE 87 9 18	DATE 87 10 2
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-2.22	-2.98	-4.37	-2.30	-.35	1.26	4.36	7.53	4.50	2.98
1.0	-1.16	-1.65	-2.79	-1.89	-.62	-.31	1.45	5.69	3.77	2.50
1.5	-.65	-.69	-1.72	-1.49	-.72	-.49	-.26	3.77	2.83	1.98
2.0	-.12	-.14	-.55	-.92	-.63	-.50	-.38	1.81	1.75	1.33
2.5	-.11	-.12	-.15	-.32	-.45	-.42	-.39	-.04	.66	.57
3.0	-.24	-.24	-.25	-.27	-.39	-.41	-.42	-.29	-.17	-.12
3.5	-.32	-.32	-.31	-.31	-.35	-.37	-.41	-.37	-.30	-.27
4.0	-.39	-.38	-.38	-.38	-.38	-.38	-.41	-.42	-.37	-.35
4.5	-.48	-.46	-.45	-.44	-.44	-.44	-.45	-.47	-.45	-.43
5.0	-.54	-.52	-.51	-.49	-.49	-.48	-.49	-.50	-.49	-.48

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 19.0. EMR-84-2A.
-WELL SPUDDED 84 3 7

NW-ZAMA PIPELINE KM 19.0. EMR-84-2A.
-DEMARRAGE DU PUITS LE 84 3 7

MORAINIC PLAIN:FROZEN TILL WITH LOW ICE
PARTLY CLEARED IN 60'S FOR CNT LINE.
CLEARED TO 25.1 M IN WINTER 82/83.
CABLE ON R.O.W. 3 M W OF PIPELINE IN
25 MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).
NEW SEA DATA LOGGER INSTALLED-16/10/85.

SITE 84-2A: CANYON CREEK NORTH A - T3

****

65 DEGREES 14.0 MINUTES NORTH
126 DEGREES 31.2 MINUTES WEST

65 DEGRES 14.0 MINUTES NORD
126 DEGRES 31.2 MINUTES OUEST

ELEVATION 123 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 8	DATE 87 3 14	DATE 87 4 16	DATE 87 5 8	DATE 87 5 27	DATE 87 6 16	DATE 87 8 15	DATE 87 9 18	DATE 87 10 2
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-.18	-.49	-1.76	-2.69	-.85	-.54	-.29	3.35	2.72	1.98
2.0	-.19	-.21	-.22	-1.79	-.79	-.70	-.60	-.21	.48	.48
3.0	-.39	-.38	-.38	-.62	-.56	-.62	-.63	-.51	-.42	-.37
4.0	-.54	-.52	-.51	-.39	-.52	-.55	-.59	-.56	-.51	-.49
6.0	-.76	-.73	-.72	-.48	-.68	-.66	-.66	-.67	-.66	-.65
8.0	-.89	-.88	-.86	-.69	-.82	-.81	-.80	-.79	-.78	-.77
10.0	-.88	-.88	-.86	-.83	-.83	-.83	-.83	-.81	-.80	-.79
12.0	-.82	-.82	-.81	-.85	-.79	-.77	-.77	-.76	-.75	-.74
15.0	-.76	-.76	-.76	-.81	-.75	-.73	-.74	-.73	-.73	-.72
18.0	-.62	-.62	-.62	-.75	-.62	-.59	-.60	-.60	-.59	-.59
19.6	-.56	-.56	-.56	-.62	-.56	-.55	-.55	-.55	-.55	-.54

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 19.0. EMR-84-2A.
-WELL SPUDDED 84 3 7

NW-ZAMA PIPELINE KM 19.0. EMR-84-2A.
-DEMARRAGE DU PUITS LE 84 3 7

MORAINIC PLAIN:FROZEN TILL WITH LOW ICE
PARTLY CLEARED IN 60'S FOR CNT LINE
CLEARED TO 25.1 M IN WINTER 82/83
CABLE ON R.O.W 6 M W OF PIPELINE IN
25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).
NEW SEA DATA LOGGER INSTALLED-16/10/85.

SITE 84-2A: CANYON CREEK NORTH A - T4

****

65 DEGREES 14.0 MINUTES NORTH
126 DEGREES 31.2 MINUTES WEST

65 DEGRES 14.0 MINUTES NORD
126 DEGRES 31.2 MINUTES OUEST

ELEVATION 123 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 8	DATE 87 3 14	DATE 87 5 27	DATE 87 6 16	DATE 87 7 13	DATE 87 8 15	DATE 87 9 18	DATE 87 10 2
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-1.30	-2.78	-1.03	-.67	.04	1.21	.74	.30
2.0	-.35	-1.56	-1.34	-1.06	-.71	-.45	-.33	-.30
3.0	-.49	-.84	-1.42	-1.22	-1.01	-.80	-.67	-.64
4.0	-.63	-.69	-1.30	-1.14	-1.06	-.88	-.76	-.79
6.0	-.76	-.75	-1.16	-1.15	-1.10	-1.01	-.93	-.91
8.0	-.80	-.78	-1.00	-1.04	-1.04	-1.00	-.95	-.94
10.0	-.84	-.82	-.91	-.97	-.99	-.99	-.96	-.95
12.0	-.80	-.78	-.81	-.85	-.88	-.90	-.89	-.88
15.0	-.87	-.86	-.84	-.87	-.89	-.92	-.92	-.92
18.0			-.86	-.86	-.86	-.88	-.89	-.89
19.6	-.79	-.80	-.77	-.78	-.78	-.79	-.79	-.79

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 19.0. EMR-84-2A.
-WELL SPUDDED 84 3 8

NW-ZAMA PIPELINE KM 19.0. EMR-84-2A.
-DEMARRAGE DU PUITS LE 84 3 8

MORAINIC PLAIN:FROZEN TILL WITH LOW ICE.
PARTLY CLEARED IN 60'S FOR CNT LINE.
CLEARED TO 25.1 M IN WINTER 82/83.
CABLE OFF R.O.W 20 M W OF PIPELINE IN 38MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED)

SITE 84-2A CANYON CREEK NORTH A - HT140

****

65 DEGREES 14.0 MINUTES NORTH
126 DEGREES 31.2 MINUTES WEST

65 DEGRES 14.0 MINUTES NORD
126 DEGRES 31.2 MINUTES OUEST

ELEVATION 123 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 5 27	DATE 87 6 16	DATE 87 7 13	DATE 87 8 15	DATE 87 9 18	DATE 87 10 2	DATE 87 11 12	DATE 87 12 14
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-.65	-.46	-.04	.61	.52	.22	-.02	-.03
2.5	-.93	-.78	-.62	-.51	-.42	-.39	-.34	-.30
5.0	-.55	-.59	-.60	-.59	-.57	-.56	-.54	-.51
10.0	-.45	-.47	-.47	-.49	-.50	-.50	-.51	-.51
15.0	-.23	-.24	-.24	-.24	-.24	-.25	-.25	-.24
20.0	-.28	-.29	-.29	-.29	-.29	-.29	-.30	-.29
25.0	.05	.04	.03	.04	.04	.03	.02	.03
30.0	.12	.10	.11	.10	.10	.10	.10	.11
35.0	.32	.31	.32	.31	.31	.31	.31	.32
40.0	.50	.50	.50	.49	.50	.50	.49	.51
45.0	.72	.71	.72	.71	.71	.71	.71	.72

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW - ZAMA PIPELINE KM 19.0. EMR-84-2A.
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 46 METRES

NW - ZAMA PIPELINE KM 19.0. EMR-84-2A.
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 46 METRES

CLIMATE HOLE OFF ROW SOUTH OF THERMAL FENCE.
DRILLED IN MARCH 1987.
11 SENSORS YSI44033 (PAIRED).

SITE 84-2A CANYON CREEK NORTH A - HT138

****

65 DEGREES 14.1 MINUTES NORTH
126 DEGREES 31.3 MINUTES WEST

65 DEGRES 14.1 MINUTES NORD
126 DEGRES 31.3 MINUTES OUEST

ELEVATION 123 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 9 18 T(C)	DATE 87 10 2 T(C)	DATE 87 11 12 T(C)	DATE 87 12 14 T(C)
50.0	.98	.99	1.01	1.01
55.0	1.30	1.32	1.31	1.34
60.0	1.47	1.47	1.48	1.44
65.0	1.71	1.71	1.73	1.69
70.0	1.94	1.96	1.95	1.93
75.0	2.25	2.25	2.25	2.25
80.0	2.51	2.51	2.51	2.51
85.0	2.78	2.79	2.78	2.81
90.0	2.95	2.93	2.94	2.94
95.0	3.09	3.08	3.11	3.11
100.0	3.31	3.31	3.33	3.34

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 19.0. EMR-84-2A.

NW-ZAMA PIPELINE KM 19.0. EMR-84-2A.

CLIMATE HOLE OFF ROW SOUTH OF THERMAL FENCE.
DRILLED IN MARCH 1987.
11 SENSORS YSI44033 (PAIRED).

SITE 84-2A CANYON CREEK NORTH A - HT153

****

65 DEGREES 14.1 MINUTES NORTH
126 DEGREES 31.3 MINUTES WEST

65 DEGRES 14.1 MINUTES NORD
126 DEGRES 31.3 MINUTES OUEST

ELEVATION 123 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 9 18 T(C)	DATE 87 10 2 T(C)	DATE 87 11 12 T(C)
105.0	3.66	3.52	3.56
110.0	3.94	3.94	3.94
115.0	4.16	4.17	4.16
120.0	4.34	4.34	4.34
125.0	4.67	4.68	4.68
128.0	4.83	4.84	4.84

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 19.0. EMR-84-2A.

NW-ZAMA PIPELINE KM 19.0. EMR-84-2A.

CLIMATE HOLE OFF ROW SOUTH OF THERMAL FENCE.
DRILLED IN MARCH 1987.
6 SENSORS YSI44033 (PAIRED).

SITE 84-2B: CANYON CREEK NORTH B - T1

****

65 DEGREES 14.0 MINUTES NORTH
126 DEGREES 31.1 MINUTES WEST

65 DEGRES 14.0 MINUTES NORD
126 DEGRES 31.1 MINUTES OUEST

ELEVATION 110 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 1 16 T(C)	DATE 87 2 8 T(C)	DATE 87 4 16 T(C)	DATE 87 5 27 T(C)	DATE 87 6 16 T(C)	DATE 87 7 13 T(C)	DATE 87 8 15 T(C)	DATE 87 9 18 T(C)	DATE 87 10 2 T(C)	DATE 87 11 12 T(C)	DATE 87 12 14 T(C)
.5	-2.87	-4.00	-2.33	-.08	-.06	1.08	2.52	1.89	1.14	-.49	-1.30
1.0	-.15	-.22	-.76	-.30	-.27	-.24	-.22	-.20	-.19	-.18	-.17
1.5	-.17	-.18	-.42	-.37	-.32	-.29	-.25	-.22	-.22	-.20	-.19
2.0	-.15	-.16	-.24	-.35	-.29	-.27	-.20	-.15	-.17	-.15	-.15
2.5	-.17	-.18	-.25	-.35	-.34	-.31	-.24	-.19	-.17	-.16	-.15
3.0	-.29	-.29	-.33	-.42	-.40	-.37	-.32	-.27	-.28	-.52	-.25
3.5	-.61	-.64	-.78								
4.0	-.73	-.74	-.80								
4.5	-.68	-.68	-.65	-.66	-.67	-.66	-.66	-.64	-.64	-.63	-.61
5.0	-.80	-.79	-.78	-.79	-.80	-.80	-.81	-.82	-.82	-.83	-.82

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 19.3. EMR-84-2B
-WELL SPUDDED 84 3 11

NW-ZAMA PIPELINE KM 19.3. EMR-84-2B
-DEMARRAGE DU PUITS LE 84 3 11

STEEP EAST-FACING ICE-RICH SLOPE WITH WOODCHIP COVER. CNT CLEARING IN 60'S. HAND CLEARED TO 21.4 M IN WINTER 84. CABLE ON R.O.W. 1 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE. 10 SENSOR YSI44033 (PAIRED).

SITE 84-2B: CANYON CREEK NORTH B - T2

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65 DEGREES 14.0 MINUTES NORTH
126 DEGREES 31.1 MINUTES WEST

65 DEGRES 14.0 MINUTES NORD
126 DEGRES 31.1 MINUTES OUEST

ELEVATION 110 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 8	DATE 87 4 16	DATE 87 5 27	DATE 87 6 16	DATE 87 7 13	DATE 87 8 15	DATE 87 9 18	DATE 87 10 2	DATE 87 11 12	DATE 87 12 14
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-.84	-1.89	-1.57	-.09	-.11	-.03	.25	.35	.22	-.10	-.13
1.0	-.17	-.18	-.63	-.35	-.32	-.30	-.28	-.26	-.26	-.25	-.23
1.5	-.24	-.24	-.37	-.41	-.38	-.35	-.34	-.32	-.31	-.29	-.28
2.0	-.30	-.30	-.31	-.42	-.42	-.40	-.38	-.36	-.35	-.34	-.31
2.5	-.32	-.32	-.31	-.38	-.40	-.39	-.37	-.35	-.34	-.32	-.30
3.0	-.49	-.48	-.46	-.51	-.53	-.53	-.52	-.50	-.49	-.47	-.45
3.5	-.54	-.53	-.51	-.54	-.55	-.55	-.55	-.53	-.52	-.50	-.49
4.0	-.60	-.59	-.56	-.57	-.58	-.58	-.57	-.56	-.56	-.55	-.53
4.5	-.76	-.75	-.72	-.72	-.73	-.72	-.73	-.71	-.71	-.83	-.68
5.0	-.89	-.88	-.85	-.84	-.83	-.83	-.83	-.82	-.83	-.82	-.80

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 19.3. EMR-84-2B
-WELL SPUDDED 84 3 11

NW-ZAMA PIPELINE KM 19.3. EMR-84-2B
-DEMARRAGE DU PUITS LE 84 3 11

STEEP EAST-FACING ICE-RICH SLOPE WITH WOODCHIP COVER. CNT CLEARING IN 60'S. HAND CLEARED TO 21.4 M IN WINTER 84. CABLE ON R.O.W. 2 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE. 10 SENSOR YSI44033 (PAIRED).

SITE 84-2B: CANYON CREEK NORTH B - T3

****

65 DEGREES 14.0 MINUTES NORTH
126 DEGREES 31.1 MINUTES WEST

65 DEGRES 14.0 MINUTES NORD
126 DEGRES 31.1 MINUTES OUEST

ELEVATION 110 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 8	DATE 87 3 14	DATE 87 5 27	DATE 87 6 16	DATE 87 7 13	DATE 87 8 15	DATE 87 9 18	DATE 87 10 2	DATE 87 11 12	DATE 87 12 14
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-.21	-.33	-.49	-.42	-.37	-.34	-.32	-.32	-.30	-.27
2.0	-.40	-.40	-.58	-.56	-.52	-.57	-.48	-.48	-.46	-.43
3.0	-.65	-.65	-.68	-.69	-.69	-.69	-.68		-.67	-.65
4.0	-.75	-.75	-.73	-.74	-.74	-.75	-.74	-.78	-.73	-.71
6.0	-.95	-.94	-.91	-.90	-.90	-.90	-.90	-.91	-.90	-.88
8.0	-1.03	-1.02	-.99	-.98	-.97	-.97	-.97	-.97	-.97	-.95
10.0	-1.07	-1.07	-1.04	-1.03	-1.02	-1.01	-1.01		-1.01	-1.00
12.0	-1.10	-1.10	-1.08	-1.08	-1.07	-1.07	-1.06	-1.07	-1.06	-1.05
15.0	-1.05	-1.06	-1.04	-1.04	-1.03	-1.03	-1.03	-1.03	-1.03	-1.02
18.0	-.85	-.86	-.84	-.84	-.84	-.84	-.84	-.85	-.85	-.84
20.5	-.83	-.84	-.82	-.82	-.82	-.82	-.82	-.82	-.83	-.82

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 19.3. EMR-84-2B
-WELL SPUDDED 84 3 11

NW-ZAMA PIPELINE KM 19.3. EMR-84-2B
-DEMARRAGE DU PUITS LE 84 3 11

STEEP EAST-FACING ICE-RICH SLOPE WITH WOODCHIP COVER. CNT CLEARING IN 60'S. HAND CLEARED TO 21.4 M IN WINTER 84. CABLE ON R.O.W 4.3 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).

SITE 84-2B: CANYON CREEK NORTH B - T4

****

65 DEGREES 14.0 MINUTES NORTH
126 DEGREES 31.1 MINUTES WEST

65 DEGRES 14.0 MINUTES NORD
126 DEGRES 31.1 MINUTES OUEST

ELEVATION 110 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 8	DATE 87 3 14	DATE 87 5 27	DATE 87 6 16	DATE 87 7 13	DATE 87 8 15	DATE 87 9 18	DATE 87 10 2	DATE 87 11 12	DATE 87 12 14
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-4.77	-6.55	-2.42	-1.63	-.77	-.13	.06	-.03	-.14	-.49
2.0	-2.91	-4.52	-3.44	-2.70	-2.02	-1.42	-1.05	-.97	-.78	-.70
3.0	-1.99	-2.95	-3.54	-3.06	-2.55	-2.08	-1.71	-1.62	-1.34	-1.20
4.0	-1.71	-2.09	-3.04	-2.91	-2.65	-2.36	-2.08	-1.99	-1.74	-1.59
6.0	-1.84	-1.78	-2.13	-2.23	-2.26	-2.23	-2.14	-2.25	-1.96	-1.87
8.0	-1.78	-1.74	-1.76	-1.81	-1.85	-1.90	-1.90	-1.90	-1.86	-1.82
10.0	-1.71	-1.69	-1.65	-1.66	-1.67	-1.70	-1.72	-1.73	-1.72	-1.71
12.0	-1.58	-1.57	-1.53	-1.54	-1.53	-1.55	-1.55	-1.56	-1.56	-1.56
15.0	-1.39	-1.39	-1.38	-1.38	-1.37	-1.37	-1.37	-1.37	-1.38	-1.37
18.0	-1.11	-1.11	-1.11	-1.11	-1.11	-1.11	-1.11	-1.11	-1.11	-1.10
20.6	-.91	-.91	-.91	-.91	-.91	-.91	-.91	-.89	-.90	-.91

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 19.3. EMR-84-2B
-WELL SPUDDED 84 3 12

NW-ZAMA PIPELINE KM 19.3. EMR-84-2B
-DEMARRAGE DU PUITS LE 84 3 12

STEEP EAST-FACING ICE-RICH SLOPE WITH WOODCHIP COVER. CNT CLEARING IN 60'S. HAND CLEARED TO 21.4 M IN WINTER 84. CABLE OFF R.O.W. 23.3 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE. 11 SENSOR YSI44033 (PAIRED).

SITE 84-2C: CANYON CREEK SOUTH C - T1

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65 DEGREES 13.6 MINUTES NORTH
126 DEGREES 30.5 MINUTES WEST

65 DEGRES 13.6 MINUTES NORD
126 DEGRES 30.5 MINUTES OUEST

ELEVATION 119 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 1 16 T(C)	DATE 87 2 8 T(C)	DATE 87 3 14 T(C)	DATE 87 4 16 T(C)	DATE 87 5 26 T(C)	DATE 87 6 16 T(C)	DATE 87 7 13 T(C)	DATE 87 8 15 T(C)	DATE 87 9 18 T(C)	DATE 87 10 2 T(C)	DATE 87 11 12 T(C)	DATE 87 12 14 T(C)
.5	-2.41	-3.16	-5.14	-3.59	-.34	5.44	10.55	9.28	5.86	3.77	.27	-.14
1.0	-1.28	-1.83	-3.52	-3.00	-.72	1.69	6.75	7.72	5.59	3.98	.62	.08
1.5	-.21	-.57	-1.74	-2.12	-.85	-.52	2.98	5.66	5.01	4.00	1.02	.28
2.0	-.07	-.14	-.29	-.97	-.69	-.53	-.16	3.34	4.10	3.62	1.35	.50
2.5	0.00	-.10	-.13	-.15	-.34	-.34	-.29	1.10	2.92	2.84	1.42	.59
3.0	.10	.01	-.03	-.05	-.05	-.05	-.07	-.02	1.88	2.01	1.30	.63
3.5	.07	-.01	-.04	-.06	-.04	-.05	-.06	-.05	1.09	1.26	.97	.50
4.0	.01	-.05	-.07	-.09	-.07	-.08	-.07	-.08	.49	.63	.54	.31
4.5	.01	-.02	-.02	-.03	-.01	-.03	-.03	-.02	.07	.15	.26	.17
5.0	-.16	-.16	-.16	-.17	-.16	-.17	-.18	-.18	-.18	-.18	-.15	-.13

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 19.6. EMR-84-2C
-WELL SPUDDED 84 3 8

NW-ZAMA PIPELINE KM 19.6. EMR-84-2C
-DEMARRAGE DU PUITS LE 84 3 8

STEEP WEST-FACING ICE-RICH SLOPE WITH EROSION CONTROL BERM UPSLOPE OF THERMAL INSTRUMENTATION. CNT LINE CLEARING IN 60'S. HELIPAD DOWNSLOPE CLEARED IN 70'S HAND CLEARED TO 21.7M IN JAN. 84. CABLE ON R.O.W. 1 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE. 10 SENSOR YSI44033 (PAIRED).

SITE 84-2C: CANYON CREEK SOUTH C - T2

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65 DEGREES 13.6 MINUTES NORTH
126 DEGREES 30.5 MINUTES WEST

65 DEGRES 13.6 MINUTES NORD
126 DEGRES 30.5 MINUTES OUEST

ELEVATION 119 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 8	DATE 87 3 14	DATE 87 4 16	DATE 87 5 26	DATE 87 6 16	DATE 87 7 13	DATE 87 8 15	DATE 87 9 18	DATE 87 10 2	DATE 87 11 12	DATE 87 12 14
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-2.89	-3.65	-5.76	-3.87	1.59	7.06	12.79	10.73	6.41	4.37	.29	-.72
1.0	-1.68	-2.33	-4.18	-3.33	-.36	3.11	8.62	9.21	6.53	4.63	.70	.07
1.5	-.63	-1.12	-2.60	-2.67	-.84	-.24	5.15	7.58	6.16	4.79	1.85	.24
2.0	-.04	-.07	-.76	-1.54	-.81	-.54	1.01	5.14	5.31	4.54	1.52	.54
2.5	-.01	-.09	-.13	-.39	-.55	-.47	-.32		3.96	3.70	1.65	.65
3.0	.07	-.02	-.07	-.08	-.12	-.17	-.18	.46	2.70	2.74	1.57	.71
3.5	.05	-.10	-.09	-.10	-.09	-.10	-.11	-.09	1.54	1.71	1.22	.58
4.0	0.00	-.08	-.11	-.12	-.11	-.12	-.12	-.12	.82	.99	.83	.41
4.5	-.04	-.08	-.12	-.13	-.12	-.13	-.13	-.12	.20	.33	.40	.19
5.0	-.18	-.19	-.19	-.19	-.18	-.17	-.20	-.19	-.19	-.21	-.17	-.15

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 19.6. EMR-84-2C
-WELL SPUDDED 84 3 8

NW-ZAMA PIPELINE KM 19.6. EMR-84-2C
-DEMARRAGE DU PUITS LE 84 3 8

STEEP WEST-FACING ICE-RICH SLOPE WITH EROSION CONTROL BERM UPSLOPE OF THERMAL INSTRUMENTATION. CNT LINE CLEARING IN 60'S. HELIPAD DOWNSLOPE CLEARED IN 70'S HAND CLEARED TO 21.7M IN JAN. 84.
CABLE ON R.O.W. 2 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 84-2C: CANYON CREEK SOUTH C - T3

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65 DEGREES 13.6 MINUTES NORTH
126 DEGREES 30.5 MINUTES WEST

65 DEGRES 13.6 MINUTES NORD
126 DEGRES 30.5 MINUTES OUEST

ELEVATION 119 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 8	DATE 87 3 14	DATE 87 4 16	DATE 87 5 26	DATE 87 6 16	DATE 87 7 13	DATE 87 8 15	DATE 87 9 18	DATE 87 10 2	DATE 87 11 12	DATE 87 12 14
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-1.73	-2.25	-3.91	-3.17	-.51	3.90	8.76	9.23	6.86	5.07	.75	-.10
2.0	-.06	-.12	-.69	-1.40	-.81	-.50	1.48	5.31	5.58	4.87	1.65	.46
3.0	.08	.02	-.01	-.02	-.05	-.11	-.13	.81	2.86	2.89	1.64	.68
4.0	-.12	-.16	-.17	-.17	-.17	-.18	-.19	-.22	.68	.85	.66	.24
6.0	-.31	-.32	-.31	-.32	-.31	-.31	-.32	-.33	-.32	-.33	-.30	-.29
8.0	-.49	-.49	-.48	-.48	-.47	-.48	-.47	-.48	-.48	-.48	-.47	-.47
10.0	-.75	-.75	-.75	-.75	-.74	-.75	-.74	-.74	-.74	-.74	-.74	-.74
12.0	-.88	-.88	-.88	-.88	-.86	-.87	-.86	-.86	-.86	-.86	-.85	-.85
15.0	-1.11	-1.11	-1.12	-1.14	-1.14	-1.14	-1.17	-1.17	-1.20	-1.24	-1.29	-1.33
18.0	-1.01	-1.00	-.99	-1.00	-.99	-.98	-.99	-.99	-1.00	-1.01	-1.00	-1.01
19.4	-1.07	-1.08	-.92	-1.09	-1.08	-1.08	-1.10	-1.09	-1.10	-1.13	-1.14	-1.14

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 19.6. EMR-84-2C.
-WELL SPUDDED 84 3 9

NW-ZAMA PIPELINE KM 19.6. EMR-84-2C.
-DEMARRAGE DU PUITS LE 84 3 9

STEEP WEST-FACING ICE-RICH SLOPE WITH EROSION CONTROL BERM UPSLOPE OF THERMAL INSTRUMENTATION. CNT LINE CLEARING IN 60'S. HELIPAD DOWNSLOPE CLEARED IN 70'S HAND CLEARED TO 21.7M IN JAN. 84.
CABLE ON R.O.W. 4.5 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).

SITE 84-2C: CANYON CREEK SOUTH C - T4

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65 DEGREES 13.6 MINUTES NORTH
126 DEGREES 30.5 MINUTES WEST

65 DEGRES 13.6 MINUTES NORD
126 DEGRES 30.5 MINUTES OUEST

ELEVATION 119 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 8	DATE 87 3 14	DATE 87 4 16	DATE 87 5 26	DATE 87 6 16	DATE 87 7 13	DATE 87 8 15	DATE 87 9 18	DATE 87 10 2	DATE 87 11 12	DATE 87 12 14
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-1.21	-2.77	-4.50	-4.19	-1.20	-.74	.29	1.27	.76	.34	-.07	-.09
2.0	-.38	-.93	-2.62	-3.19	-1.80	-1.38	-.97	-.61	-.43	-.39	-.33	-.30
3.0	-.70	-.75		-2.09	-1.93	-1.66	-1.40	-1.13	-.95	-.91	-.79	-.72
4.0	-.92	-.90	-1.01	-1.38	-1.66	-1.60	-1.47	-1.32	-1.19	-1.14	-1.04	-.97
6.0	-1.07	-1.05	-1.02	-1.04	-1.15	-1.22	-1.25	-1.25	-1.21	-1.20	-1.14	-1.10
8.0	-1.15	-1.15	-1.13	-1.11	-1.11	-1.14	-1.16	-1.19	-1.19	-1.19	-1.19	-1.16
10.0	-1.13	-1.12	-1.12	-1.10	-1.09	-1.09	-1.09	-1.10	-1.11	-1.11	-1.11	-1.11
12.0	-1.11	-1.10	-1.10	-1.09	-1.08	-1.08	-1.08	-1.08	-1.08	-1.07	-1.08	-1.08
15.0	-1.09	-1.09	-1.09	-1.08	-1.07	-1.08	-1.07	-1.07	-1.07	-1.07	-1.07	-1.06
18.0	-1.04	-1.04	-1.04	-1.03	-1.02	-1.03	-1.03	-1.02	-1.02	-1.02	-1.02	-1.02
20.0	-.96	-.97	-.96	-.95	-.95	-.93	-.94	-.93	-.93	-.93	-.93	-.93

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 19.6. EMR-84 2C
-WELL SPUDDED 84 3 9

NW-ZAMA PIPELINE KM 19.6. EMR-84 2C
-DEMARRAGE DU PUITS LE 84 3 9

STEEP WEST-FACING ICE-RICH SLOPE WITH EROSION CONTROL BERM UPSLOPE OF THERMAL INSTRUMENTATION. CNT LINE CLEARING IN 60'S. HELIPAD DOWNSLOPE CLEARED IN 70'S HAND CLEARED TO 21.7M IN JAN. 84.
CABLE OFF R.O.W.18 M E OF PIPELINE IN 38MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED)

SITE 84-3A: GREAT BEAR RIVER A - T1

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64 DEGREES 54.4 MINUTES NORTH
125 DEGREES 34.3 MINUTES WEST

64 DEGRES 54.4 MINUTES NORD
125 DEGRES 34.3 MINUTES OUEST

ELEVATION 70 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 15	DATE 87 2 8	DATE 87 3 10	DATE 87 4 16	DATE 87 5 26	DATE 87 6 16	DATE 87 7 12	DATE 87 8 15	DATE 87 9 17	DATE 87 10 2
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.50	-3.95	-6.25	-9.21	-3.85	.26	2.06	10.27			
1.00	-.15	-1.75	-4.62	-3.17	-.81	-.44	-.27	1.24	1.24	.75
1.50	-.35	-.35	-2.50	-2.76	-1.14	-.80	-.69	-.39	-.28	-.26
2.00	-.58	-.56	-1.45	-2.12	-1.32	-1.03	-.98	-.66	-.55	-.51
2.50	-.69	-.63	-.96	-1.40	-1.35	-1.12	-1.06	-.78	-.66	-.69
3.00	-.81	-.76	-.89	-1.49	-1.37	-1.18	-1.15	-.89	-.77	-.73
3.50	-.93	-.88	-.81	-1.12	-1.37	-1.25	-1.26	-1.00	-.89	-.85
4.00	-1.13	-1.03	-1.02	-.76	-1.46	-1.38	-1.42	-1.18	-1.08	-1.05
4.70	-1.16	-1.13	-1.08	-1.23	-1.33	-1.31	-1.36	-1.16	-1.07	-1.04

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 79.2. EMR-84-3A
-WELL SPUDDED 84 3 21

NW-ZAMA PIPELINE KM 79.2. EMR-84-3A
-DEMARRAGE DU PUITS LE 84 3 21

STRATIGRAPHICALLY COMPLEX,ICE-RICH ALLUVIAL DEPOSITS. MAJOR NORTH-FACING SLOPE.
CLEARED TO 43.6M IN JAN. 84.
CABLE ON R.O.W. 1.5 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
9 SENSOR YSI44033 (PAIRED).
SEA DATA LOGGER INSTALLED-11/10/85.

SITE 84-3A: GREAT BEAR RIVER A - T2

****

64 DEGREES 54.4 MINUTES NORTH
125 DEGREES 34.3 MINUTES WEST

64 DEGRES 54.4 MINUTES NORD
125 DEGRES 34.3 MINUTES OUEST

ELEVATION 70 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 1 15 T(C)	DATE 87 2 8 T(C)	DATE 87 3 10 T(C)	DATE 87 4 16 T(C)	DATE 87 5 26 T(C)	DATE 87 6 16 T(C)	DATE 87 7 12 T(C)	DATE 87 8 15 T(C)	DATE 87 9 17 T(C)	DATE 87 10 2 T(C)
.50	-2.07	-4.60	-7.68	-4.28	-.56	-.13	1.08	2.37	1.97	1.23
1.00	-.29	-1.10	-3.83	-3.41	-1.07	-.65	-.58	-.29	-.18	-.15
1.50	-.51	-.55	-2.30	-2.82	-1.32	-.96	-.86	-.57	-.46	-.43
2.00	-.66	-.65	-1.43	-2.25	-1.43	-1.13	-1.03	-.76	-.64	-.60
2.50	-.79	-.76	-1.12	-1.89	-1.45	-1.21	-1.15	-.87	-.75	-.72
3.00	-.82	-.79	-.95	-1.56	-1.39	-1.21	-1.15	-.92	-.80	-.76
3.50	-1.05	-1.00	-1.05	-1.49	-1.47	-1.34	-1.32	-1.10	-.99	-.96
4.00	-1.13	-1.10	-1.09	-1.37	-1.45	-1.37	-1.36	-1.18	-1.08	-1.04
4.70	-1.30	-1.26	-1.23	-1.36	-1.44	-1.41	-1.46	-1.28	-1.19	-1.16

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE.
FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES.
ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 79.2. EMR-84-3A
-WELL SPUDDED 84 3 21

NW-ZAMA PIPELINE KM 79.2. EMR-84-3A
-DEMARRAGE DU PUITS LE 84 3 21

STRATIGRAPHICALLY COMPLEX. ICE-RICH ALLUVIAL DEPOSITS. MAJOR NORTH-FACING SLOPE.
CLEARED TO 43.6M IN JAN. 84.
CABLE ON R.O.W. 2.5 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
9 SENSOR YSI44033 (PAIRED).
SEA DATA LOGGER INSTALLED-11/10/85.

SITE 84-3A: GREAT BEAR RIVER A - T3

****

64 DEGREES 54.4 MINUTES NORTH
125 DEGREES 34.3 MINUTES WEST

64 DEGRES 54.4 MINUTES NORD
125 DEGRES 34.3 MINUTES OUEST

ELEVATION 70 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 1 15 T(C)	DATE 87 2 8 T(C)	DATE 87 3 10 T(C)	DATE 87 4 16 T(C)	DATE 87 5 26 T(C)	DATE 87 6 16 T(C)	DATE 87 7 12 T(C)	DATE 87 8 15 T(C)	DATE 87 9 17 T(C)	DATE 87 10 2 T(C)
1.0	-.35	-.90	-3.61	-3.44	-.99	-.61	-.42	.66	.74	.54
2.0	-.61	-.59	-1.30	-2.32	-1.41	-.10	-1.00	-.68	-.66	-.52
3.0	-.92	-.89	-1.02	-1.76	-1.59	-1.37	-1.29	-1.02	-.98	-.84
4.0	-1.13	-1.09	-1.09	-1.45	-1.55	-1.44	-1.42	-1.19	-1.16	-1.03
6.0	-1.50	-1.47	-1.42	-1.45	-1.52	-1.54	-1.60	-1.46	-1.47	-1.35
8.0	-1.75	-1.70	-1.66	-1.62	-1.55	-1.57	-1.69	-1.57	-1.63	-1.52
10.0	-1.95	-1.90	-1.87	-1.82	-1.72	-1.71	-1.80	-1.71	-1.78	-1.69
12.0	-2.05	-2.03	-1.99	-1.95	-1.85	-1.82	-1.90	-1.81	-1.89	-1.80
15.0	-2.12	-2.10	-2.07	-2.06	-1.94	-1.92	-2.00	-1.90	-1.97	-1.88
18.0	-2.12	-2.12	-2.10	-2.07	-1.99	-1.97	-2.05	-1.95	-2.02	-1.94
22.1	-2.07	-2.07	-2.06	-2.05	-1.96	-1.95	-2.03	-1.94	-2.02	-1.92

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 79.2. EMR-84-3A
-WELL SPUDDED 84 3 17

NW-ZAMA PIPELINE KM 79.2. EMR-84-3A
-DEMARRAGE DU PUITS LE 84 3 17

STRATIGRAPHICALLY COMPLEX. ICE-RICH ALLUVIAL DEPOSITS. MAJOR NORTH-FACING SLOPE.
CLEARED TO 43.6M IN JAN. 84.
CABLE ON R.O.W. 4.8 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).
SEA DATA LOGGER INSTALLED-11/10/85.

SITE 84-3A: GREAT BEAR RIVER A - T4

****

64 DEGREES 54.4 MINUTES NORTH
125 DEGREES 34.3 MINUTES WEST

64 DEGRES 54.4 MINUTES NORD
125 DEGRES 34.3 MINUTES OUEST

ELEVATION 70 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 15	DATE 87 2 8	DATE 87 3 10	DATE 87 4 16	DATE 87 5 26	DATE 87 6 16	DATE 87 7 12	DATE 87 8 15	DATE 87 9 17	DATE 87 10 2
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-4.92	-6.22	-6.45	-5.54	-1.57	-1.13	-.86	-.54	-.52	-.43
1.0	-4.22	-5.34	-5.64	-5.20	-2.20	-1.67	-1.35	-.98	-.89	-.78
1.5	-3.37	-4.44	-4.81	-4.87	-2.77	-2.18	-1.82	-1.40	-1.27	-1.13
2.0	-2.73	-3.88	-4.15	-4.46	-3.06	-2.47	-2.10	-1.66	-1.49	-1.35
2.5	-2.40	-3.18	-3.67	-4.15	-3.25	-2.70	-2.33	-1.89	-1.70	-1.57
3.0	-2.19	-2.69	-3.33	-3.86	-3.33	-2.86	-2.52	-2.08	-1.89	-1.75
4.0	-1.92	-2.25	-2.72	-3.22	-3.15	-2.85	-2.61	-2.20	-2.03	-1.88
5.0	-2.03	-2.20	-2.52	-2.94	-3.07	-2.93	-2.78	-2.45	-2.30	-2.17
6.0	-1.83	-1.90	-2.09	-2.40	-2.60	-2.58	-2.52	-2.27	-2.15	-2.02
7.0	-2.12	-2.15	-2.25	-2.46	-2.64	-2.67	-2.69	-2.50	-2.43	-2.31
8.0	-2.13	-2.12	-2.17	-2.35	-2.50	-2.55	-2.61	-2.46	-2.40	-2.31

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 79.2. EMR-84-3A
-WELL SPUDDED 84 3 18

NW-ZAMA PIPELINE KM 79.2. EMR-84-3A
-DEMARRAGE DU PUITS LE 84 3 18

STATIGRAPHICALLY COMPLEX. ICE-RICH ALLUVIAL DEPOSITS. MAJOR NORTH-FACING SLOPE.
CLEARED TO 46.3M IN JAN. 84.
CABLE OFF R.O.W. 22.5 M W OF PIPELINE IN 38MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED)
SEA DATA LOGGER INSTALLED - 11/10/85.

SITE 84-3B: GREAT BEAR RIVER B - T1

****

64 DEGREES 54.4 MINUTES NORTH
125 DEGREES 34.5 MINUTES WEST

64 DEGRES 54.4 MINUTES NORD
125 DEGRES 34.5 MINUTES OUEST

ELEVATION 93 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 1 15 T(C)	DATE 87 2 8 T(C)	DATE 87 3 10 T(C)	DATE 87 4 16 T(C)	DATE 87 5 26 T(C)	DATE 87 6 16 T(C)	DATE 87 7 12 T(C)	DATE 87 8 15 T(C)	DATE 87 10 2 T(C)	DATE 87 11 12 T(C)	DATE 87 12 14 T(C)
.5	-2.73	-4.23	-5.73	-1.84	2.48	6.12	10.16	8.36	2.76	-1.21	-2.84
1.0	-.25	-.59	-1.55	-.33	-.19	.21	4.08	5.59	2.04	-.03	-.06
1.5	-.19	-.20	-.21	-.28	-.28	-.30	-.25	2.53	1.02	-.30	-.35
2.0	-.39	-.43	-.50								
2.5	-.20	-.21	-.20	-.21	-.22	-.23	-.23	-.20	-.15	-.14	-.13
3.0	-.33	-.34	-.29	-.33	-.34	-.31	-.36	-.30	-.31	-.28	-.27
3.5	-.45	-.46	-.45	-.48	-.49	-.50	-.53	-.50	-.49	-.47	-.46
4.0											
5.0	-.88	-.87	-.84	-.85	-.85	-.85	-.87	-.86	-.86	-.84	-.81
6.3	-1.06	-1.05	-1.03	-1.02	-.99	-1.07	-.98	-.99	-.99	-.97	-.95

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 79.4. EMR-84-3B
-WELL SPUDDED 84 3 21

NW-ZAMA PIPELINE KM 79.4. EMR-84-3B
-DEMARRAGE DU PUITS LE 84 3 21

ICE-RICH LACUSTRINE DEPOSITS OVERLAIN BY VENEER OF AEOLIAN DEPOSITS. CLIFF TOP. HAND CLEARED TO 16.3M IN JAN. 84. CABLE ON R.O.W. 2 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 84-3B: GREAT BEAR RIVER B - T2

****

64 DEGREES 54.4 MINUTES NORTH
125 DEGREES 24.5 MINUTES WEST

64 DEGRES 54.4 MINUTES NORD
125 DEGRES 24.5 MINUTES OUEST

ELEVATION 93 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 15	DATE 87 2 8	DATE 87 3 10	DATE 87 4 16	DATE 87 5 26	DATE 87 6 16	DATE 87 7 12	DATE 87 8 15	DATE 87 9 17	DATE 87 10 2	DATE 87 11 12	DATE 87 12 14
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-3.40	-4.99	-7.04	-2.35	3.45	6.72	9.98	8.40	4.41	2.71	-1.47	-3.74
1.0	-.51	-1.01	-1.86	-1.06	-.21	.85	4.19	5.61	3.20	1.96	-.11	-.18
1.5	-.08	-.09	-.10	-.31	-.18	-.15	-.02	2.91	1.96	1.27	-.05	-.08
2.0	-.10	-.10	-.11	-.11	-.12	-.13	-.12	.30	.60	.43	-.09	-.09
2.5	-.23	-.24	-.23	-.23	-.25	-.27	-.27	-.24	-.19	-.18	-.16	-.16
3.0	-.32	-.32	-.30	-.31	-.35	-.36	-.36	-.33	-.30	-.29	-.26	-.25
3.5	-.42	-.41	-.41	-.40	-.41	-.47	-.46	-.44	-.39	-.38	-.35	-.33
4.0	-.51	-.50	-.49	-.48	-.51	-.54	-.53	-.51	-.47	-.46	-.43	-.41
5.0	-.71	-.69	-.67	-.65	-.67	-.69	-.69	-.68	-.65	-.64	-.61	-.59
6.3	-1.06	-1.03	-1.00	-.97	-.95	-.96	-.96	-.96	-.95	-.94	-.92	-.90

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 79.4. EMR-84-3B
-WELL SPUDDED 84 3 21

NW-ZAMA PIPELINE KM 79.4. EMR-84-3B
-DEMARRAGE DU PUITS LE 84 3 21

ICE-RICH LACUSTRINE DEPOSITS OVERLAIN BY VENEER OF AEOLIAN DEPOSITS. CLIFF TOP. HAND CLEARED TO 16.3M IN JAN. 84. CABLE ON R.O.W. 3 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 84-3B: GREAT BEAR RIVER B - T3

****

64 DEGREES 54.4 MINUTES NORTH
125 DEGREES 34.5 MINUTES WEST

64 DEGRES 54.4 MINUTES NORD
125 DEGRES 34.5 MINUTES OUEST

ELEVATION 93 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 15	DATE 87 2 8	DATE 87 3 10	DATE 87 4 16	DATE 87 5 26	DATE 87 6 16	DATE 87 7 12	DATE 87 8 15	DATE 87 9 17	DATE 87 10 2	DATE 87 11 12	DATE 87 12 14
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-.16	-.45	-1.19	-1.24	-.09	-.10	2.92	4.35	2.56	1.56	-.05	-.03
2.0	-.09	-.11	-.11	-.12	-.23	-.23	-.20	-.15	-.05	-.03	-.07	
3.0	-.32	-.33	-.33	-.35	-.52	-.52	-.46	-.40	-.33	-.31	-.29	-.25
4.0	-.55	-.54	-.53	-.54	-.66	-.69	-.66	-.60		-.52		-.45
6.0												
8.0	-1.48	-1.46	-1.43	-1.55	-1.37	-1.37	-1.37	-1.37	-1.36	-1.35	-1.34	-1.30
10.0	-1.65	-1.65	-1.63	-1.60	-1.58	-1.57	-1.56	-1.55	-1.54	-1.53	-1.53	-1.50
12.0	-1.69	-1.69	-1.68	-1.67	-1.68	-1.65	-1.64	-1.63	-1.62	-1.61	-1.60	-1.58
15.0	-1.72	-1.69	-1.69	-1.68	-1.67	-1.67	-1.66	-1.66		-1.65	-1.65	-1.63
18.0	-1.69	-1.68	-1.68	-1.68	-1.66	-1.68	-1.67	-1.67	-1.67	-1.67	-1.67	-1.65
21.4	-1.57	-1.57	-1.57	-1.57		-1.56	-1.56	-1.56	-1.56	-1.56	-1.56	-1.54

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 79.4. EMR-84-3B
-WELL SPUDDED 84 3 19

NW-ZAMA PIPELINE KM 79.4. EMR-84-3B
-DEMARRAGE DU PUITS LE 84 3 19

ICE-RICH LACUSTRINE DEPOSITS OVERLAIN BY VENEER OF AEOLIAN DEPOSITS. CLIFF TOP. HAND CLEARED TO 16.3M IN JAN. 84. CABLE ON R.O.W. 5 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).

SITE 84-3B: GREAT BEAR RIVER B - T4

****

64 DEGREES 54.4 MINUTES NORTH
125 DEGREES 34.5 MINUTES WEST

64 DEGRES 54.4 MINUTES NORD
125 DEGRES 34.5 MINUTES OUEST

ELEVATION 93 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 15	DATE 87 2 8	DATE 87 3 10	DATE 87 4 16	DATE 87 5 26	DATE 87 6 16	DATE 87 7 12	DATE 87 8 15	DATE 87 9 17	DATE 87 10 2	DATE 87 11 12	DATE 87 12 14
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-3.68	-4.71	-5.68	-5.56	-1.90	-1.32	-.73	-.44	-.34	-.32	-.27	-.50
2.0	-2.82	-3.62	-4.61	-5.00	-2.65	-1.97	-1.38	-.99	-.79	-.74	-.63	-.58
3.0	-2.28	-2.94	-3.84	-4.45	-3.13	-2.46	-1.91	-1.46	-1.22	-1.14	-.98	-.90
4.0	-1.88	-2.40	-3.13	-3.81	-3.30	-2.75	-2.26	-1.83	-1.56	-1.47	-1.26	-1.17
6.0	-1.81	-1.90	-2.12	-2.51	-2.81	-2.75	-2.59	-2.36	-2.17	-2.09	-1.90	-1.78
8.0	-1.97	-1.94	-1.95	-2.04	-2.21	-2.29	-2.32	-2.28	-2.21	-2.17	-2.06	-1.98
10.0	-2.00	-1.98	-1.93	-1.93	-1.96	-1.98	-2.03	-2.05	-2.07	-2.08	-2.04	-2.00
12.0	-1.89	-1.89	-1.88	-1.86	-1.84	-1.85	-1.86	-1.87	-1.89	-1.89	-1.90	-1.89
15.0	-1.76	-1.76	-1.77	-1.76	-1.75	-1.76	-1.76	-1.76	-1.76	-1.76	-1.77	-1.76
18.0	-1.53	-1.54	-1.54	-1.54	-1.53	-1.54	-1.54	-1.54	-1.54	-1.54	-1.54	-1.53
20.9	-1.46	-1.47	-1.47	-1.47	-1.46	-1.47	-1.47	-1.47	-1.47	-1.47	-1.48	-1.47

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 79.4. EMR-84-3B
-WELL SPUDDED 84 3 19

NW-ZAMA PIPELINE KM 79.4. EMR-84-3B
-DEMARRAGE DU PUITS LE 84 3 19

ICE-RICH LACUSTRINE DEPOSITS OVERLAIN BY VENEER OF AEOLIAN DEPOSITS. CLIFF TOP. HAND CLEARED TO 16.3M IN JAN. 84. CABLE OFF R.O.W. 23 M W OF PIPELINE IN 25 MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).

SITE 85-7A: TABLE MOUNTAIN A - CABLE T1

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63 DEGREES 36.9 MINUTES NORTH
123 DEGREES 38.8 MINUTES WEST

63 DEGRES 36.9 MINUTES NORD
123 DEGRES 38.8 MINUTES OUEST

ELEVATION 255 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 1 16 T(C)	DATE 87 2 7 T(C)	DATE 87 3 10 T(C)	DATE 87 4 13 T(C)	DATE 87 5 22 T(C)	DATE 87 6 17 T(C)	DATE 87 7 12 T(C)	DATE 87 8 16 T(C)	DATE 87 9 15 T(C)	DATE 87 10 6 T(C)
.5	-7.83	-11.80	-12.10	-5.64	15.94	26.96	23.60	30.11	5.18	4.97
1.0	-2.29	-3.44	-4.28	-1.66	.69	3.30	4.03	4.71	4.16	1.75
1.5	-.24	-1.02	-1.53	-.71	-.32	-.10	.30	1.70	1.56	.92
2.0	-.11	-.11	-.12	-.29	-.40	-.25	-.22	-.15	-.01	-.08
2.5	-.35	-.34	-.31	-.32	-.45	-.36	-.36	-.34	-.29	-.38
3.0	-.42	-.41	-.41	-.39	-.51	-.41	-.41	-.41	-.39	-.50
3.5	-.54	-.52	-.51	-.51	-.63	-.51	-.51	-.52	-.51	-.64
4.0	-.56	-.55	-.54	-.52	-.55	-.52	-.52	-.52	-.51	-.54
4.5	-.71	-.71	-.69	-.68	-.71	-.68	-.68	-.68	-.66	-.69
5.0	-.69	-.69	-.68	-.68	-.71	-.66	-.66	-.66	-.66	-.69

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 271.2. EMR-85-7A
-WELL SPUDDED 85 2 18

NW-ZAMA PIPELINE KM 271.2. EMR-85-7A
-DEMARRAGE DU PUITS LE 85 2 18

ICE-RICH LACUSTRINE PLAIN WITH THICK PERMAFROST (>20M). PREVIOUSLY CLEARED 6-12M WIDE. CABLE ON R.O.W. 2.2 M W OF PIPELINE IN 25MM OIL-FILLED PVC TBE.
10 SENSOR YSI44033 (PAIRED).
SEA DATA LOGGER INSTALLED - OCT. 12/85

SITE 85-7A: TABLE MOUNTAIN A - CABLE T2

****

63 DEGREES 36.9 MINUTES NORTH
123 DEGREES 38.8 MINUTES WEST

63 DEGRES 36.9 MINUTES NORD
123 DEGRES 38.8 MINUTES OUEST

ELEVATION 255 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 7	DATE 87 3 10	DATE 87 4 13	DATE 87 5 22	DATE 87 6 17	DATE 87 7 12	DATE 87 8 16	DATE 87 9 15	DATE 87 10 6
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-2.94	-2.49	-3.11	-1.47	.96	3.58	6.87	9.12	4.13	1.14
1.0	0.00	-.02	-.27	-.51	0.00	1.79	2.32	1.63	2.32	1.04
1.5	-.19	-.19	-.19	-.21	-.24	-.25	-.24	-.18	-.14	-.13
2.0	-.24	-.24	-.22	-.21	-.25	-.24	-.24	-.22	-.21	-.22
2.5	-.41	-.39	-.38	-.38	-.40	-.38	-.38	-.38	-.38	-.37
3.0	-.51	-.51	-.49	-.48	-.48	-.46	-.46	-.46	-.46	-.47
3.5	-.63	-.62	-.61	-.59	-.61	-.59	-.59	-.58	-.58	-.59
4.0	-.61	-.59		-.56	-.58	-.56	-.56	-.55	-.55	-.56
4.5	-.63	-.63	-.62	-.61	-.62	-.61	-.61	-.61	-.61	-.60
5.0	-.69	-.69	-.68	-.68	-.68	-.66	-.66	-.66	-.66	-.66

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 271.2. EMR-85-7A
-WELL SPUDDED 85 2 24

NW-ZAMA PIPELINE KM 271.2. EMR-85-7A
-DEMARRAGE DU PUITS LE 85 2 24

ICE-RICH LACUSTRINE PLAIN WITH THICK PERMAFROST (>20M). PREVIOUSLY CLEARED 6-12M WIDE. CABLE ON R.O.W. 1.5 M E OF PIPELINE IN 25 MM OIL-FILLED PVC TUBE. 10 SENSOR YSI44033 (PAIRED). SEA DATA LOGGER INSTALLED - OCT. 12/85

SITE 85-7A: TABLE MOUNTAIN A - CABLE T3

****

63 DEGREES 36.9 MINUTES NORTH
123 DEGREES 38.8 MINUTES WEST

63 DEGRES 36.9 MINUTES NORD
123 DEGRES 38.8 MINUTES OUEST

ELEVATION 255 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 7	DATE 87 3 10	DATE 87 4 13	DATE 87 5 22	DATE 87 6 17	DATE 87 7 12	DATE 87 8 16	DATE 87 9 15	DATE 87 10 6
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-.12	-.14	-.38	-.55	-.10	-.12	1.29	1.22	1.63	.18
2.0	-.45	-.44	-.41	-.38	-.30	-.36	-.31			-.26
3.0	-.65	-.63	-.62	-.59	-.50	-.58	-.56			-.40
4.0	-.76	-.73	-.72	-.68	-.57	-.59	-.56			-.65
6.0	-.73	-.73	-.72	-.72	-.60	-.69	-.69	-.56	-.59	-.57
8.0	-.79	-.79	-.78	-.78	-.75	-.76	-.76			-.66
10.0	-.78	-.78	-.78	-.76	-.66	-.76	-.76	-.73	-.61	-.70
12.0	-.82	-.82		-.81	-.80	-.81	-.81	-.79	-.76	-.74
14.0	-.76	-.76	-.82	-.75	-.75	-.75	-.75			-.73
17.0	-.71	-.71	-.76	-.69	-.55	-.69	-.69	-.69	-.68	-.60
20.0	-.72	-.72	-.69	-.71		-.63	-.63	-.66		-.55

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 271.2. EMR-85-7A
-WELL SPUDDED 85 2 27

NW-ZAMA PIPELINE KM 271.2. EMR-85-7A
-DEMARRAGE DU PUITS LE 85 2 27

ICE-RICH LACUSTRINE PLAIN WITH THICK PERMAFROST (>20M). PREVIOUSLY CLEARED 6-12M WIDE. CABLE ON R.O.W. 6.5 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).
SEA DATA LOGGER INSTALLED OCT 12/85

SITE 85-7A: TABLE MOUNTAIN A - CABLE T4

****

63 DEGREES 36.9 MINUTES NORTH
123 DEGREES 38.8 MINUTES WEST

63 DEGRES 36.9 MINUTES NORD
123 DEGRES 38.8 MINUTES OUEST

ELEVATION 255 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 7	DATE 87 3 10	DATE 87 4 13	DATE 87 5 22	DATE 87 6 17	DATE 87 7 12	DATE 87 8 16	DATE 87 9 15	DATE 87 10 6
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-.38	-.41	-1.37	-1.50	-.67	-.51	-.44	-.35	-.15	-.09
2.0	-.55	-.54	-.55	-.81	-.81	-.68	-.68	-.61	-.58	-.60
3.0	-.68	-.66	-.65	-.65	-.71	-.69	-.69	-.68	-.68	-.67
4.0										
6.0	-.89	-.89	-.88	-.86	-.86	-.85	-.80	-.86	-.86	-.84
8.0	-.92	-.92	-.90	-.90	-.92	-.89	-.89	-.89	-.90	-.91
10.0	-.95	-.95	-.93	-.93	-.93	-.93	-.93	-.93	-.95	-.92
12.0	-.85	-.85	-.85	-.85	-.86	-.83	-.85	-.85	-.86	-.85
14.0	-.85	-.85	-.83	-.83	-.86	-.82	-.82	-.82	-.83	
17.0	-.78	-.78	-.78	-.78		-.78	-.78	-.78	-.79	-.79
20.0	-.71	-.71	-.71	-.71		-.71	-.71	-.71	-.72	-.69

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 271.2. EMR-85-7A
-WELL SPUDDED 85 2 27

NW-ZAMA PIPELINE KM 271.2. EMR-85-7A
-DEMARRAGE DU PUITS LE 85 2 27

ICE-RICH LACUSTRINE PLAIN WITH THICK PERMAFROST (>20M). PREVIOUSLY CLEARED 6-12M WIDE. CABLE OFF R.O.W. 14.5 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE
11 SENSOR YSI44033 (PAIRED).
SEA DATA LOGGER INSTALLED OCT. 12/85

SITE 85-7A: TABLE MTN A - HA108

****

63 DEGREES 36.9 MINUTES NORTH
123 DEGREES 38.8 MINUTES WEST

63 DEGRES 36.9 MINUTES NORD
123 DEGRES 38.8 MINUTES OUEST

ELEVATION 255 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 7	DATE 87 3 10	DATE 87 4 13	DATE 87 5 22	DATE 87 6 17	DATE 87 7 12	DATE 87 8 16	DATE 87 9 15	DATE 87 10 3	DATE 87 11 13	DATE 87 12 18
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-.26	-.30	-.61	-.93	-.64	-.54	-.47	-.38	-.32	-.18	-.24	-.23
2.0	-.57	-.58	-.55	-.61	-.70	-.67	-.66	-.61	-.57	-.57	-.52	-.44
4.0	-.91		-.92	-.86	-.87	-.88	-.88	-.88	-.87	-.87	-.84	-.82
6.0	-.98	-.99	-.97	-.96	-.95	-.94	-.95	-.93	-.93	-.95	-.94	-.86
8.0	-.99	-1.01	-1.00	-.98	-.99	-.98	-.98	-.97	-.97	-.97	-.96	-.85
10.0	-.86	-.88		-.86	-.87	-.87	-.87	-.86	-.86	-.86	-.85	-.79
12.0	-.89	-.91		-.90	-.90	-.91	-.90	-.94	-.90	-.90	-.92	
14.0	-.83	-.84			-.83	-.83	-.84		-.83	-.84	-.85	
16.0	-.74	-.76		-.78	-.75	-.76	-.76	-.75	-.76	-.76	-.75	-.76
18.0	-.62	-.64		-.63	-.63	-.64	-.63	-.64	-.63	-.64	-.63	-.61
20.0	-.55	-.56			-.56	-.55	-.56			-.57		

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 271.2
-WELL SPUDDED 86 3 1

NW-ZAMA PIPELINE KM 271.2
-DEMARRAGE DU PUITS LE 86 3 1

NEW OFF-ROW DEEP HOLE, WEST SIDE.
44033 PAIRED CABLE.

SITE 85-7A: TABLE MTN - HA111

****

63 DEGREES 36.9 MINUTES NORTH
123 DEGREES 38.8 MINUTES WEST

63 DEGRES 36.9 MINUTES NORD
123 DEGRES 38.8 MINUTES OUEST

ELEVATION 255 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 7	DATE 87 3 10	DATE 87 4 13	DATE 87 5 22	DATE 87 6 17	DATE 87 7 12	DATE 87 8 16	DATE 87 9 15	DATE 87 10 3	DATE 87 11 13	DATE 87 12 18
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
20.0	-.79	-.81	-.77	-.81	-.81	-.77	-.77	-.77	-.77	-.80	-.79	-.78
28.0	-.53	-.55	-.53	-.54	-.54	-.54	-.53	-.54	-.54		-.53	-.53
36.0	-.19	-.21	-.20	-.21	-.21	-.20	-.21	-.20	-.20	-.22	-.19	-.19
44.0	.13	.12	.10	.13	.13	.12	.13	.12	.13	.09	.14	.14
52.0	.50	.49	.49	.49	.49	.49	.49	.49	.49	.50	.51	.52
60.0	.88	.87	.87	.87	.87	.87	.87	.87	.87	.87	.88	.89
68.0	1.13	1.11	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.02	1.12	
76.0	1.39	1.39	1.39	1.39	1.40	1.39	1.40	1.38	1.38	1.39	1.40	1.40
84.0	1.71	1.69	1.69	1.69	1.69	1.69	1.69	1.68	1.69		1.71	1.71
92.0	1.79	1.77	1.83	1.78	1.77	1.85	1.77	1.85	1.85	1.75	1.77	1.77
100.0	2.19	2.18	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.18	2.20	2.20

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 271.2

NW-ZAMA PIPELINE KM 271.2

NEW OFF-ROW DEEP CLIMATE HOLE, WEST SIDE.
44033 PAIRED CABLE. PVC INSTALLED
TO 93 M.

SITE 85-7B: TABLE MOUNTAIN B - CABLE T1

****

63 DEGREES 36.6 MINUTES NORTH
123 DEGREES 38.1 MINUTES WEST

63 DEGRES 36.6 MINUTES NORD
123 DEGRES 38.1 MINUTES OUEST

ELEVATION 265 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 1 16 T(C)	DATE 87 2 7 T(C)	DATE 87 3 10 T(C)	DATE 87 4 13 T(C)	DATE 87 5 22 T(C)	DATE 87 6 17 T(C)	DATE 87 7 14 T(C)	DATE 87 8 16 T(C)	DATE 87 9 15 T(C)	DATE 87 10 6 T(C)
.5	-8.21	-6.61	-4.92	-2.33	13.17	14.85	16.15	5.09	5.05	3.57
1.0	-3.22	-2.63	-2.66	-1.69	-.32	1.66	6.04	5.87	3.92	1.70
1.5	-.49	-.72	-1.02	-.98	-.46	-.38	-.11	1.67	2.01	1.07
2.0	-.21	-.22	-.22	-.28	-.36	-.38	-.31	-.29	-.04	.07
2.5	-.34	-.34	-.34	-.34	-.36	-.38	-.39	-.38	-.32	-.25
3.0	-.49	-.49	-.46	-.46	-.44	-.46	-.48	-.46	-.45	-.43
3.5	-.61	-.59	-.58	-.56	-.52	-.55	-.54	-.54	-.54	-.52
4.0	-.79	-.78	-.76	-.73	-.70	-.72	-.71	-.71	-.71	-.68
4.5	-.83	-.83	-.82	-.79	-.77	-.76	-.76	-.75	-.75	-.74
5.0	-.88	-.86	-.85	-.83	-.80	-.81	-.79	-.79	-.78	-.78

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 272.0. EMR-85-7B
-WELL SPUDDED 85 2 17

NW-ZAMA PIPELINE KM 272.0. EMR-85-7B
-DEMARRAGE DU PUITS LE 85 2 17

THICK PERMAFROST, ICE-RICH (>20M).
PREVIOUSLY HELIPAD CLEARING.
CABLE ON R.O.W. 2.1 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).
SEA DATA LOGGER INSTALLED OCT. 8/85

SITE 85-7B: TABLE MOUNTAIN B - CABLE T2

****

63 DEGREES 36.6 MINUTES NORTH
123 DEGREES 38.1 MINUTES WEST

63 DEGRES 36.6 MINUTES NORD
123 DEGRES 38.1 MINUTES OUEST

ELEVATION 265 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 1 16 T(C)	DATE 87 2 7 T(C)	DATE 87 3 10 T(C)	DATE 87 4 13 T(C)	DATE 87 5 22 T(C)	DATE 87 6 17 T(C)	DATE 87 7 14 T(C)	DATE 87 8 16 T(C)	DATE 87 9 15 T(C)	DATE 87 10 6 T(C)
.5	-5.91	-6.62	-5.35	-2.00	.77	5.90	11.74	8.51	5.84	2.32
1.0	-2.07	-2.39	-2.09	-1.35	-.32	-.10	4.30	6.38	5.29	3.14
1.5	-.11	-.17	-.42	-.55	-.27	-.21	-.01	3.86	3.76	2.63
2.0	-.12	-.14	-.14	-.17	-.18	-.19	-.15	1.62	2.17	1.76
2.5	-.04	-.05	-.07	-.07	-.07	-.10	-.10	-.07	.67	.87
3.0	-.35	-.34	-.34	-.34	-.31	-.34	-.34	-.34	-.32	-.24
3.5	-.44	-.42	-.41	-.39	-.38	-.38	-.38	-.38	-.38	-.37
4.0	-.61	-.59	-.58	-.56	-.54	-.55	-.55	-.54	-.54	-.53
4.5	-.63	-.62	-.61	-.59	-.58	-.58	-.58	-.56	-.56	-.57
5.0	-.75	-.73	-.72	-.72	-.70	-.69	-.69	-.69	-.68	-.69

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-Z@MA PIPELINE KM 272.0. EMR-85-7B
-WELL SPUDDED 85 2 17

NW-Z@MA PIPELINE KM 272.0. EMR-85-7B
-DEMARRAGE DU PUITS LE 85 2 17

THICK PERMAFROST, ICE-RICH (>20M).
PREVIOUSLY HELIPAD CLEARING.
CABLE ON R.O.W. 1.4 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).
SEA DATA LOGGER INSTALLED OCT. 8/85.

SITE 85-7B: TABLE MOUNTAIN B - CABLE T3

****

63 DEGREES 36.6 MINUTES NORTH
123 DEGREES 38.1 MINUTES WEST

63 DEGRES 36.6 MINUTES NORD
123 DEGRES 38.1 MINUTES OUEST

ELEVATION 265 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 7	DATE 87 3 10	DATE 87 4 13	DATE 87 5 22	DATE 87 6 17	DATE 87 7 14	DATE 87 8 16	DATE 87 9 15	DATE 87 10 6
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-2.02	-2.29	-3.09	-1.70	.57	2.72	8.80	8.47	4.48	1.86
2.0	-.11	-.12	-.14	-.19	-.17	-.22	-.22	.71	1.09	.77
3.0	-.41	-.39	-.38	-.38	.10	-.42	-.42	-.42	-.41	-.38
4.0	-.61	-.59	-.58	-.56	-.54	-.55	-.56	-.58	-.56	-.55
6.0	-.86	-.86	-.85	-.85	-.81	-.83	-.83	-.83	-.83	-.81
8.0	-.96	-.96	-.96	-.95	-.89	-.95	-.95	-.95	-.95	-.92
10.0	-1.06	-1.06	-1.06	-1.06	-1.02	-1.05	-1.05	-1.05	-1.05	-1.02
12.0	-1.16	-1.16	-1.16	-1.15	-1.12	-1.15	-1.15	-1.15	-1.15	-1.13
14.0	-1.13	-1.13	-1.13	-1.13	-1.09	-1.12	-1.12	-1.12	-1.12	-1.09
17.0	-1.19	-1.19	-1.19	-1.18	-1.15	-1.18	-1.18	-1.18	-1.18	-1.15
20.0	-1.05	-1.05	-1.05	-1.05		-1.03	-1.03	-1.03	-1.05	-1.04

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 272.0. EMR-85-7B
-WELL SPUDDED 85 2 17

NW-ZAMA PIPELINE KM 272.0. EMR-85-7B
-DEMARRAGE DU PUITS LE 85 2 17

THICK PERMAFROST, ICE-RICH (>20M).
PREVIOUSLY HELIPAD CLEARING.
CABLE ON R.O.W. 9 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).
SEA DATA LOGGER INSTALLED OCT. 8/85.

SITE 85-7B: TABLE MOUNTAIN B - CABLE T4

****

63 DEGREES 36.6 MINUTES NORTH
123 DEGREES 38.1 MINUTES WEST

63 DEGRES 36.6 MINUTES NORD
123 DEGRES 38.1 MINUTES OUEST

ELEVATION 265 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 1 16 T(C)	DATE 87 2 7 T(C)	DATE 87 3 10 T(C)	DATE 87 4 13 T(C)	DATE 87 5 22 T(C)	DATE 87 6 17 T(C)	DATE 87 7 14 T(C)	DATE 87 8 16 T(C)	DATE 87 9 15 T(C)	DATE 87 10 6 T(C)
1.0	-1.45	-2.20	-3.21	-2.81	-.67	-.28	.19	1.62	1.38	.50
2.0	-.56	-.56	-.99	-1.77	-1.30	-1.12	-.99	-.82	-.72	-.64
3.0	-.92	-.90	-.92	-1.16	-1.33	-1.32	-1.26	-1.18	-1.12	-1.04
4.0	-1.05	-1.03	-1.02	-1.05	-1.16	-1.23	-1.23	-1.20	-1.18	-1.14
6.0	-1.26	-1.25	-1.25	-1.23	-1.19	-1.24	-1.26	-1.29	-1.29	-1.26
8.0	-1.33	-1.33	-1.32	-1.32	-1.28	-1.30	-1.30	-1.30	-1.32	-1.30
10.0	-1.32	-1.30	-1.30	-1.30	-1.28	-1.29	-1.29	-1.29	-1.29	-1.28
12.0	-1.39	-1.39	-1.39	-1.39	-1.34	-1.37	-1.37	-1.37	-1.37	-1.34
14.0	-1.33	-1.33	-1.33	-1.33	-1.29	-1.32	-1.32	-1.32	-1.32	-1.29
17.0	-1.27	-1.27	-1.27	-1.27		-1.26	-1.26	-1.26	-1.26	-1.24
20.0	-1.25	-1.25	-1.25	-1.23		-1.23	-1.23	-1.23	-1.23	-1.21

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 272.0. EMR-85-7B
-WELL SPUDDED 85 2 17

NW-ZAMA PIPELINE KM 272.0. EMR-85-7B
-DEMARRAGE DU PUITS LE 85 2 17

THICK PERMAFROST, ICE-RICH (>20M).
PREVIOUSLY HELIPAD CLEARING.
CABLE OFF R.O.W. 20.8 M E OF PIPELINE
IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).
SEA DATA LOGGER INSTALLED OCT. 8/85.

SITE 85-7B: TABLE MTN - HA110

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63 DEGREES 36.6 MINUTES NORTH
123 DEGREES 38.1 MINUTES WEST

63 DEGRES 36.6 MINUTES NORD
123 DEGRES 38.1 MINUTES OUEST

ELEVATION 265 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 7	DATE 87 3 10	DATE 87 5 22	DATE 87 6 17	DATE 87 7 12	DATE 87 8 16	DATE 87 9 15	DATE 87 10 3	DATE 87 11 13	DATE 87 12 18
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-2.40	-3.21	-3.80	-1.14	-.78	-.48	-.25	-.16	-.14	-1.05	-1.08
2.0	-.79	-.98	-1.62	-1.67	-1.37	-1.20	-.99	-.87	-.81	-.73	-.69
4.0	-1.04	-1.10	-1.09	-1.39	-1.39	-1.36	-1.30	-1.25	-1.22	-1.15	-1.10
6.0	-1.31	-1.30	-1.27	-1.27	-1.30	-1.32	-1.34	-1.34	-1.33	-1.31	-1.28
8.0	-1.32	-1.33	-1.31	-1.28	-1.28	-1.29	-1.31	-1.32	-1.32	-1.32	-1.32
10.0	-1.29	-1.29	-1.28	-1.26	-1.25	-1.25	-1.26	-1.27	-1.26	-1.27	-1.27
12.0	-1.24	-1.24	-1.24	-1.23	-1.22	-1.22	-1.23	-1.23	-1.23	-1.23	-1.24
14.0	-1.32	-1.31	-1.31	-1.30	-1.29	-1.30	-1.31	-1.31	-1.30	-1.32	-1.31
16.0	-1.20	-1.18	-1.17	-1.17	-1.16	-1.17	-1.17	-1.17	-1.17	-1.17	-1.17
18.0	-1.22	-1.19	-1.19	-1.18	-1.17	-1.18	-1.18	-1.18	-1.18	-1.19	-1.18
20.0	-1.18	-1.18	-1.17	-1.17	-1.16	-1.17	-1.17	-1.17	-1.17	-1.17	-1.18

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 272.0
-WELL SPUDDED 86 3 10

NW-ZAMA PIPELINE KM 272.0
-DEMARRAGE DU PUITS LE 86 3 10

NEW OFF-ROW HOLE, WEST SIDE.
44033 PAIRED CABLE.

SITE 85-7B: TABLE MOUNTAIN - HA129

****

63 DEGREES 36.6 MINUTES NORTH
123 DEGREES 38.1 MINUTES WEST

63 DEGRES 36.6 MINUTES NORD
123 DEGRES 38.1 MINUTES OUEST

ELEVATION 265 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 3 10	DATE 87 4 13	DATE 87 5 22	DATE 87 6 17	DATE 87 7 12	DATE 87 8 16	DATE 87 9 15	DATE 87 10 3	DATE 87 11 13	DATE 87 12 18
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-2.52	-1.56	-.30	1.01	7.43	6.90	4.70	2.73	-1.06	-2.28
1.0	-.66	-.76	-.40	-.25	.05	3.29	2.86	1.70	-.05	-.20
2.0	-.41	-.44	-.52	-.50	-.51	-.40	-.28	-.19	-.15	-.16
3.0	-.77	-.74	-.73	-.71	-.74	-.72	-.70	-.68	-.61	-.59
4.0	-1.00	-.96	-.93	-.90	-.91	-.91	-.89	-.88	-.85	-.83
5.0	-1.15	-1.12	-1.08	-1.05	-1.06	-1.04	-1.03	-1.02	-1.00	-.98
6.0	-1.26	-1.23	-1.20	-1.17	-1.17	-1.15	-1.14	-1.13	-1.11	-1.10
7.0	-1.38	-1.36	-1.32	-1.30	-1.30	-1.29	-1.27	-1.26	-1.25	-1.23
8.0	-1.42	-1.41	-1.37	-1.31	-1.36	-1.34	-1.33	-1.32	-1.31	-1.29
9.0	-1.35	-1.34	-1.32	-1.30	-1.30	-1.29	-1.28	-1.27	-1.26	-1.25
10.0		-1.44	-1.41	-1.40	-1.40	-1.40	-1.39	-1.38	-1.38	-1.36

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 272.0. EMR-86-HA129
-WELL SPUDDED 86 10 16

NW-ZAMA PIPELINE KM 272.0. EMR-86-HA129
-DEMARRAGE DU PUITS LE 86 10 16

CABLE IS LOCATED 20M SOUTH OF FENCE, 1.2M W OF PIPELINE.
GROUND FROZEN BELOW 1.0M.
38MM PVC PIPE INFILLED WITH SILICONE.
SILT OVERLYING CLAY
11 SENSOR YSI44033 (PAIRED).

SITE 85-7B: TABLE MOUNTAIN - HA132

****

63 DEGREES 36.6 MINUTES NORTH
123 DEGREES 38.1 MINUTES WEST

63 DEGRES 36.6 MINUTES NORD
123 DEGRES 38.1 MINUTES OUEST

ELEVATION 265 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 3 10 T(C)	DATE 87 4 13 T(C)	DATE 87 5 22 T(C)	DATE 87 6 17 T(C)	DATE 87 7 12 T(C)	DATE 87 8 16 T(C)	DATE 87 9 15 T(C)	DATE 87 10 3 T(C)	DATE 87 11 13 T(C)	DATE 87 12 18 T(C)
.5	-2.60	-1.51	2.15	3.19	7.21	7.37	6.01	4.07	-1.50	-3.12
1.0	-.78	-.63	-.20	-.10	1.19	6.34	5.42	3.80	.43	-.77
2.0	-.08	-.09	-.08	-.07	-.08	2.43	2.78	2.46	.81	.18
3.0	-.10	-.12	-.11	-.11	-.14	-.01	.64	.74	.32	.04
4.0	-.33	-.33	-.32	-.32	-.34	-.34	-.32	-.30	-.27	-.25
5.0	-.33	-.44	-.42	-.42	-.43	-.43	-.43	-.43	-.42	-.40
6.0	-.60	-.60	-.58	-.57	-.58	-.58	-.58	-.58	-.58	-.57
7.0	-.82	-.82	-.81	-.80	-.81	-.81	-.81	-.81	-.81	-.80
8.0	-.79	-.79	-.77	-.77	-.78	-.78	-.78	-.77	-.78	-.77
9.0	-.85	-.85	-.84	-.84	-.85	-.85	-.84	-.84	-.84	-.84
10.0		-.92	-.89	-.89	-.90	-.90	-.90	-.89	-.90	-.89

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 272.0. EMR-86-HA132
-WELL SPUDDED 86 10 16

NW-ZAMA PIPELINE KM 272.0. EMR-86-HA132
-DEMARRAGE DU PUITS LE 86 10 16

CABLE IS LOCATED 5M NORTH OF FENCE
1.2M E OF PIPELINE.
GROUND UNFROZEN TO 4.0M.
38MM PVC PIPE INFILLED WITH SILICONE.
50MM SILT OVERLYING CLAY
11 SENSOR YSI44033 (PAIRED).

SITE 85-7C: TABLE MOUNTAIN C - CABLE T1

****

63 DEGREES 36.4 MINUTES NORTH
123 DEGREES 38.0 MINUTES WEST

63 DEGRES 36.4 MINUTES NORD
123 DEGRES 38.0 MINUTES OUEST

ELEVATION 259 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 1 16 T(C)	DATE 87 2 7 T(C)	DATE 87 3 10 T(C)	DATE 87 4 13 T(C)	DATE 87 5 22 T(C)	DATE 87 6 17 T(C)	DATE 87 7 12 T(C)	DATE 87 8 17 T(C)	DATE 87 9 15 T(C)	DATE 87 10 3 T(C)
.5	-5.95	-5.98	-4.79	-2.66	2.74	6.42	11.89	8.48	5.00	3.96
1.0	-1.23	-1.86	-2.29	-1.99	-.57	-.24	1.22	4.20	3.61	2.40
1.5	-.14	-.23	-.97	-1.47	-.80	-.63	-.37	1.19	1.67	1.25
2.0	-.30	-.31	-.46	-.98	-.86	-.75	-.65	-.37	-.10	.01
2.5	-.58	-.57	-.57	-.78	-.88	-.85	-.80	-.67	-.56	-.49
3.0	-.79	-.77	-.75	-.80	-.91	-.92	-.90	-.83	-.76	-.72
3.5	-.90	-.87	-.84	-.83	-.89	-.91	-.91	-.86	-.82	-.80
4.0	-.96	-.94	-.88	-.88	-.89	-.89	-.91	-.86	-.84	-.85
4.5	-1.15	-1.13	-1.09	-1.07	-1.04	-1.05	-1.06	-1.04	-1.03	-1.01
5.0	-1.17	-1.15	-1.10	-1.07	-1.05	-1.03	-1.05	-1.02	-1.00	-1.01

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 272.3. EMR-85-7C
-WELL SPUDDED 85 2 25

NW-ZAMA PIPELINE KM 272.3. EMR-85-7C
-DEMARRAGE DU PUITS LE 85 2 25

THICK PERMAFROST (>20M). ICE-RICH LACUSTRINE PLAIN.
CABLE ON R.O.W. 2.1 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
3 PVC CAPS SWITCHED TO 7B.
10 SENSOR YSI44033 (PAIRED).

SITE 85-7C: TABLE MOUNTAIN C - CABLE T2

****

63 DEGREES 36.4 MINUTES NORTH
123 DEGREES 38.0 MINUTES WEST

63 DEGRES 36.4 MINUTES NORD
123 DEGRES 38.0 MINUTES OUEST

ELEVATION 259 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 1 16 T(C)	DATE 87 2 7 T(C)	DATE 87 3 10 T(C)	DATE 87 4 13 T(C)	DATE 87 5 22 T(C)	DATE 87 6 17 T(C)	DATE 87 7 12 T(C)	DATE 87 8 17 T(C)	DATE 87 9 15 T(C)	DATE 87 10 3 T(C)
.5	-6.83	-4.95	-3.87	-2.19	-.02	5.38	9.55	7.74	4.84	3.26
1.0	-2.80	-2.25	-1.94	-1.57	-.49	-.19	1.87	4.73	3.78	2.14
1.5	-.09	-.23	-.73	-1.00	-.57	-.45	-.11	1.86	1.97	1.30
2.0	-.22	-.24	-.36	-.65	-.63	-.57	-.48	-.23	.04	.17
2.5	-.54	-.54	-.56	-.64	-.73	-.73	-.69	-.60	-.51	-.46
3.0	-.70	-.69	-.66	-.67	-.73	-.75	-.73	-.70	-.66	-.62
3.5	-.87	-.86	-.82	-.81	-.82	-.84	-.84	-.83	-.80	-.78
4.0	-1.02	-1.00	-.96	-.94	-.92	-.93	-.83	-.93	-.91	-.90
4.5	-1.10									
5.0	-1.14	-1.13	-1.10	-1.08	-1.04	-1.03	-1.03	-1.02	-1.01	-1.01

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 272.3. EMR-85-7C
-WELL SPUDDED 85 2 25

NW-ZAMA PIPELINE KM 272.3. EMR-85-7C
-DEMARRAGE DU PUITS LE 85 2 25

THICK PERMAFROST (>20M). ICE-RICH LACUSTRINE PLAIN.
CABLE ON R.O.W. 1.25 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 85-7C: TABLE MOUNTAIN C - CABLE T3

****

63 DEGREES 36.4 MINUTES NORTH
123 DEGREES 38.0 MINUTES WEST

63 DEGRES 36.4 MINUTES NORD
123 DEGRES 38.0 MINUTES OUEST

ELEVATION 259 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 7	DATE 87 3 10	DATE 87 4 13	DATE 87 5 22	DATE 87 6 17	DATE 87 7 12	DATE 87 8 17	DATE 87 9 15	DATE 87 10 3
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-5.04	-4.67	-4.62	-3.51	-.76	-.41	.03	1.75	1.51	.75
2.0	-.60	-1.02	-1.91	-2.40	-1.40	-1.10	-.88	-.63	-.50	-.43
3.0	-.81	-.82	-1.03	-1.47	-1.42	-1.27	-1.14	-1.00	-.90	-.84
4.0	-1.06	-1.03	-1.02	-1.14	-1.28	-1.27	-1.22	-1.15	-1.09	-1.04
6.0	-1.29	-1.28	-1.24	-1.23	-1.21	-1.24	-1.24	-1.24	-1.22	-1.21
8.0	-1.31	-1.30	-1.28	-1.27	-1.24	-1.24	-1.23	-1.23	-1.23	-1.21
10.0	-1.22	-1.22	-1.20	-1.20	-1.18	-1.18	-1.17	-1.17	-1.16	-1.16
12.0	-1.14	-1.13	-1.12	-1.12	-1.10	-1.11	-1.10	-1.10	-1.09	-1.09
14.0	-1.11	-1.11	-1.10	-1.11	-1.09	-1.10	-1.09	-1.09	-1.09	-1.09
17.0	-.97	-.97	-.97	-.97	-.96	-.97	-.96	-.97	-.97	-.96
20.0	-.88	-.88	-.88	-.89	-.87	-.88	-.87	-.88	-.87	-.88

TEMPERATURE RESULTS ARE OBTAINED
FROM A MULTITHERMISTOR CABLE.
FURTHER TEMPERATURE LOGS
ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN
CABLE A THERMISTORS MULTIPLES.
ON PREVOIT ENTREPRENDRE D'AUTRES
SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 272.3. EMR-85-7C
-WELL SPUDDED 85 2 27

NW-ZAMA PIPELINE KM 272.3. EMR-85-7C
-DEMARRAGE DU PUITS LE 85 2 27

THICK PERMAFROST (>20M). ICE-RICH
LACUSTRINE PLAIN.
CABLE ON R.O.W. 7 M E OF PIPELINE IN
25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).

SITE 85-7C: TABLE MOUNTAIN C - CABLE T4

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63 DEGREES 36.4 MINUTES NORTH
123 DEGREES 38.0 MINUTES WEST

63 DEGRES 36.4 MINUTES NORD
123 DEGRES 38.0 MINUTES OUEST

ELEVATION 259 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 7	DATE 87 3 10	DATE 87 5 22	DATE 87 6 17	DATE 87 7 12	DATE 87 8 17	DATE 87 9 15	DATE 87 10 3
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0		-3.19	-3.84	-1.16	-.82	.35	-.02	-.05	-.05
2.0		-1.19	-2.01	-1.65	-1.33	-1.11	-.90	-.78	-.72
3.0		-1.01	-1.26	-1.69	-1.53	-1.41	-1.26	-1.18	-1.12
4.0		-1.10	-1.11	-1.45	-1.43	-1.39	-1.32	-1.28	-1.24
6.0		-1.17	-1.14	-1.15	-1.19	-1.16	-1.22	-1.22	-1.21
8.0		-1.22	-1.21	-1.18	-1.19	-1.19	-1.21	-1.21	-1.21
10.0		-1.20	-1.20	-1.18	-1.18	-1.16	-1.18	-1.18	-1.18
12.0		-1.21	-1.21	-1.20	-1.20	-1.19	-1.20	-1.20	-1.19
14.0	-1.05	-1.10	-1.09	-1.08	-1.09	-1.07	-1.09	-1.08	-1.08
17.0	-.98	-.98	-.98	-.96	-.97	-.83	-.97	-.97	-.97
20.0	-.93	-.92	-.92	-.92	-.92	-1.02	-.92	-.92	-.92

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 272.3. EMR-85-7C
-WELL SPUDDED 85 2 27

NW-ZAMA PIPELINE KM 272.3. EMR-85-7C
-DEMARRAGE DU PUITS LE 85 2 27

THICK PERMAFROST (>20M). ICE-RICH LACUSTRINE PLAIN.
CABLE OFF R.O.W. 19.5 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).

SITE 85-7C: TABLE MTN - HA109

****

63 DEGREES 36.4 MINUTES NORTH
123 DEGREES 38.0 MINUTES WEST

63 DEGRES 36.4 MINUTES NORD
123 DEGRES 38.0 MINUTES OUEST

ELEVATION 259 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 7	DATE 87 3 10	DATE 87 4 13	DATE 87 5 22	DATE 87 6 17	DATE 87 7 12	DATE 87 8 17	DATE 87 9 15	DATE 87 10 3	DATE 87 11 13	DATE 87 12 18
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-.88	-.78	-.83	-.81	-.52	-.47	-.40	-.33	-.26	-.22	-.64	-.26
2.0	-.83	-.64	-.63	-.47	-.47	-.47	-.45	-.45	-.43	-.41	-.48	-.41
4.0	-.79	-.78	-.76	-.75	-.72	-.71	-.70	-.70	-.69	-.69	-.68	-.67
6.0	-.97	-.96	-.95	-.95	-.92	-.92	-.91	-.91	-.90	-.89	-.89	-.88
8.0	-.98	-.98	-.96	-.96	-.94	-.94	-.93	-.93	-.92	-.92	-.91	-.91
10.0	-1.07	-1.06	-1.05	-1.05	-1.04	-1.04	-1.03	-1.03	-1.03	-1.02	-1.02	-1.02
12.0	-.95	-.95	-.95	-.95	-.93	-.94	-.93	-.93	-.93	-.93	-.93	-.93
14.0	-.95	-.95	-.95	-.96	-.95	-.94	-.93	-.94	-.94	-.94	-.94	-.95
16.0	-.91	-.91	-.90	-.91	-.89	-.90	-.89	-.90	-.90	-.90	-.90	-.90
18.0	-.80	-.80	-.80	-.81	-.79	-.80	-.79	-.80	-.80	-.80	-.80	-.81
20.0		-.82	-.82	-.82	-.81	-.82	-.81	-.82	-.82	-.82	-.82	-.83

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 272.3
-WELL SPUDDED 86 3 11

NW-ZAMA PIPELINE KM 272.3
-DEMARRAGE DU PUITS LE 86 3 11

NEW OFF-ROW HOLE, WEST SIDE.
44033 PAIRED CABLE.

SITE 84-4A: TRAIL RIVER A - CABLE T1 (NEW)

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62 DEGREES 5.1 MINUTES NORTH
121 DEGREES 59.3 MINUTES WEST

62 DEGRES 5.1 MINUTES NORD
121 DEGRES 59.3 MINUTES OUEST

ELEVATION 153 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 4	DATE 87 3 11	DATE 87 4 13	DATE 87 5 25	DATE 87 6 18	DATE 87 7 11	DATE 87 8 17	DATE 87 9 15	DATE 87 10 3	DATE 87 11 13	DATE 87 12 18
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	.66	.46	.25	-.06	.09	.09	1.23	6.44	6.58	5.84	3.01	1.49
2.0	1.55	1.28	.96	.60	.65	.61	.73	3.76	4.68	4.73	3.42	2.30
3.0	2.13	1.85	1.49	1.12	1.12	1.08	1.07	2.17	3.06	3.38	3.27	2.66
4.0	2.28	2.04	1.72	1.38	1.38	1.32	1.31	1.58	2.18	2.55	2.87	2.63
6.0	2.12	1.99	1.73		1.46	1.43	1.41	1.32		1.68	2.01	2.07
8.0	2.08	2.04	2.01	1.63	1.86	1.82	1.79		1.67	1.75	1.88	1.99
10.0	2.06	2.07	2.09	1.89	2.07	2.05	2.04	1.99	1.97	1.96	1.96	1.99
12.0	2.13	2.13	2.15	2.00	2.17	2.17	2.18	2.16	2.14	2.14	2.12	2.12
15.0	2.27	2.26	2.26	2.13	2.28	2.28	2.29	2.28	2.28	2.28	2.28	2.28
18.0	2.50	2.50	2.50	2.38	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51
20.0		2.51	2.51	2.40	2.52	2.52	2.52	2.51	2.51	2.52	2.51	2.51

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 478.0. EMR-84-4A
-WELL SPUDDED 84 2 29

NW-ZAMA PIPELINE KM 478.0. EMR-84-4A
-DEMARRAGE DU PUITS LE 84 2 29

DUNE HOLLOW. UNFROZEN SATURATED SANDS AND SILTS WITH HIGH WATER TABLE.
CLEARED TO 24.1M IN WINTER 82/83.
BLADED. HOLLOWS SAND FILLED.
CABLE ON R.O.W. 4.5 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).
CABLE TO FULL DEPTH IN HOLE.

SITE 84-4A: TRAIL RIVER A - CABLE T2

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62 DEGREES 5.1 MINUTES NORTH
121 DEGREES 59.3 MINUTES WEST

62 DEGRES 5.1 MINUTES NORD
121 DEGRES 59.3 MINUTES OUEST

ELEVATION 153 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 4	DATE 87 3 11	DATE 87 5 25	DATE 87 6 18	DATE 87 7 11	DATE 87 8 17	DATE 87 9 15	DATE 87 10 3	DATE 87 11 13	DATE 87 12 18
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	.58	.42	.24	.09	.11	-.02	2.16	3.13	3.27	1.93	.92
2.0	1.38	1.18	.92	.61	.56	.50	1.20	2.02	2.41	2.15	1.51
3.0	2.05	1.85	1.58	1.11	1.04	.95	1.06	1.51	1.75	2.05	1.90
4.0	2.47	2.30	2.01	1.49	1.40	1.30	1.24	1.41	1.58	2.04	2.20
6.0	2.50	2.43	2.23	1.81	1.72	1.64	1.53	1.52	1.57	1.79	2.17
8.0	2.14	2.19	2.20	2.07	2.02	1.96	1.86	1.81	1.79	1.81	1.91
10.0	2.02	2.04	2.10	2.13	2.13	2.10	2.06	2.03	2.01	1.98	1.98
12.0	2.01	2.02	2.04	2.10	2.11	2.11	2.10	2.10	2.09	2.07	2.06
15.0	2.19	2.19	2.19	2.20	2.22		2.22	2.22	2.22	2.23	2.22
18.0	2.41	2.41	2.40	2.41	2.43	2.42	2.41	2.42	2.42	2.42	2.42
20.0		2.55	2.54	2.55	2.55	2.55	2.55	2.55	2.54	2.55	2.55

TEMPERATURE RESULTS ARE OBTAINED
FROM A MULTITHERMISTOR CABLE.
FURTHER TEMPERATURE LOGS
ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN
CABLE A THERMISTORS MULTIPLES.
ON PREVOIT ENTREPRENDRE D'AUTRES
SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 478.0. EMR-84-4A
-WELL SPUDDED 84 2 29

NW-ZAMA PIPELINE KM 478.0. EMR-84-4A
-DEMARRAGE DU PUITS LE 84 2 29

DUNE HOLLOW. UNFROZEN SATURATED SANDS
AND SILTS WITH HIGH WATER TABLE.
CLEARED TO 24.1M IN WINTER 82/83.
BLADED. HOLLOWS SAND FILLED.
CABLE OFF R.O.W. 20.5 M W OF PIPELINE
IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED)

SITE 84-4A: TRAIL RIVER A - CABLE T3

****

62 DEGREES 5.1 MINUTES NORTH
121 DEGREES 59.3 MINUTES WEST

62 DEGRES 5.1 MINUTES NORD
121 DEGRES 59.3 MINUTES OUEST

ELEVATION 153 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 4	DATE 87 3 11	DATE 87 4 13	DATE 87 5 25	DATE 87 6 18	DATE 87 7 11	DATE 87 8 17	DATE 87 9 15	DATE 87 10 3	DATE 87 11 13	DATE 87 12 18
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-.02	-.28	-.75	-.82	-.10	.07	3.12	8.24	7.44	5.31	1.70	.64
1.0	.42	.27	.09	-.23	0.00	0.00	.94	6.76	6.47	5.32	2.30	1.13
1.5	.86	.67	.43	.13	.26	.24	.65	5.09	5.44	5.01	2.77	1.61
2.0	1.32	1.07	.78	.48	.82	.51	.68	3.78	4.57	4.54	3.07	2.02
2.5	1.73	1.39	1.14	.82	.84	.80	.84	2.83	3.79	3.99	3.22	2.36
3.0	2.01	1.73	1.39	1.08	1.08		1.03	1.90	3.09	3.42	3.18	2.55
3.5	2.17	1.91	1.58	1.28	1.27	1.22	1.20	1.74	2.60	3.00	3.10	2.64
4.0	2.21	1.97	1.67	1.38	1.37	1.32	1.30	1.56	2.30	2.69	2.94	2.61
4.5	2.18	1.97	1.70	1.45	1.43	1.39	1.36	1.49	2.07	2.43	2.72	2.50
5.0	2.21	2.03	1.80	1.58	1.56	1.52	1.49	1.56	2.01	2.30	2.60	2.46

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 478.0. EMR-84-4A
-WELL SPUDDED 84 3 1

NW-ZAMA PIPELINE KM 478.0. EMR-84-4A
-DEMARRAGE DU PUITS LE 84 3 1

DUNE HOLLOW. UNFROZEN SATURATED SANDS AND SILTS WITH HIGH WATER TABLE. CLEARED TO 24.1M IN WINTER 82/83 BLADED. HOLLOWS SAND-FILLED. CABLE ON R.O.W. 1.0 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE. 11 SENSOR YSI44033 (PAIRED).

SITE 84-4A: TRAIL RIVER A - CABLE T4

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62 DEGREES 5.1 MINUTES NORTH
121 DEGREES 59.3 MINUTES WEST

62 DEGRES 5.1 MINUTES NORD
121 DEGRES 59.3 MINUTES OUEST

ELEVATION 153 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 4	DATE 87 3 11	DATE 87 4 13	DATE 87 5 25	DATE 87 6 18	DATE 87 7 11	DATE 87 8 17	DATE 87 9 15	DATE 87 10 3	DATE 87 11 13	DATE 87 12 18
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-1.09	-1.53	-1.36	-.61	-.08	.82	2.30	7.61	7.58	5.65	1.89	.41
1.0	.19	.07	-.04	.02	-.08	-.08	-.07	6.17	6.72	5.82	2.65	1.11
1.5	.68	.49	.30	.39	.17	.15	.14	4.81	5.87	5.60	3.12	1.07
2.0	1.28	1.04	.77	.76	.57	.55	.53	3.62	5.06	5.14	3.51	2.21
2.5	1.53		.93	.84	.68	.65	.62	2.51	4.03	4.31	3.41	2.35
3.0	1.90	1.61	1.28	1.26	1.00	.96	.93	2.03	3.39	3.81	3.39	2.58
3.5	2.07	1.78	1.46	1.38	1.18	1.14	1.11	1.75	2.87	3.27	3.22	2.63
4.0	2.08	1.83	1.53	1.47	1.27	1.23	1.19	1.64	2.57	2.93	3.00	2.54
4.5	2.10	1.88	1.62	1.58	1.40	1.36	1.32	1.65	2.37	2.70	2.80	2.46
5.0	2.08	1.91	1.70	1.67	1.51	1.47	1.44	1.69	2.23	2.52	2.61	2.36

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 478.0. EMR-84-4A
-WELL SPUDDED 84 3 1

NW-ZAMA PIPELINE KM 478.0. EMR-84-4A
-DEMARRAGE DU PUITS LE 84 3 1

DUNE HOLLOW. UNFROZEN SATURATED SANDS AND SILTS WITH HIGH WATER TABLE. CLEARED TO 24.1M IN WINTER 82/83 BLADED. HOLLOWS SAND-FILLED. CABLE ON R.O.W. 2.3 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE. 11 SENSOR YSI44033 (PAIRED).

SITE 84-4B: TRAIL RIVER B - T1 (NEW)

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62 DEGREES 5.2 MINUTES NORTH
121 DEGREES 59.3 MINUTES WEST

62 DEGRES 5.2 MINUTES NORD
121 DEGRES 59.3 MINUTES OUEST

ELEVATION 165 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 4	DATE 87 3 11	DATE 87 4 13	DATE 87 5 25	DATE 87 6 18	DATE 87 7 11	DATE 87 8 17	DATE 87 9 15	DATE 87 10 3	DATE 87 11 13	DATE 87 12 18
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-2.10	-3.20	-3.57	-2.91	.53	6.40	10.44	11.41	9.78	6.94	2.13	.70
3.0	2.54	2.10	1.51	.81	.86	.76	1.22	3.40	4.53	4.82	4.32	3.36
5.0	2.80	2.68	2.42	1.85	1.91	1.78	1.66	1.70	1.97	2.20	2.63	2.75
7.0		2.35	2.31	1.92	2.07	1.99	1.90	1.79	1.80	1.84	2.04	2.21

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 478.1. EMR-84-4B
-WELL SPUDDED 84 3 1

NW-ZAMA PIPELINE KM 478.1. EMR-84-4B
-DEMARRAGE DU PUITS LE 84 3 1

DUNE CREST. UNFROZEN DRY SANDS AND SILTS WITH LOW WATER TABLE.
CLEARED TO 24.5 M IN WINTER 82/83.
BLADED AND DUNE CREST LOWERED ¬1 M.
CABLE ON R.O.W. 5 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).
ONLY 4 SENSORS AS OF FEB.85 WITH NEW DEPTHS OF APPROX. 1,4,7&9 M.

SITE 84-4B: TRAIL RIVER B - CABLE T2

****

62 DEGREES 5.2 MINUTES NORTH
121 DEGREES 59.3 MINUTES WEST

62 DEGRES 5.2 MINUTES NORD
121 DEGRES 59.3 MINUTES OUEST

ELEVATION 165 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 4	DATE 87 3 11	DATE 87 4 13	DATE 87 5 25	DATE 87 6 18	DATE 87 7 11	DATE 87 8 17	DATE 87 9 15	DATE 87 10 3	DATE 87 11 13	DATE 87 12 18
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-4.39	-3.97	-3.60	-2.38	3.01	7.38	9.96	10.59	8.77	5.86	1.17	-.09
1.0	-1.32	-1.33	-1.72	-1.45	2.89	3.69	6.58	8.79	8.02	6.05	2.14	.88
1.5	.28	.21	-.22	-.63	-.02	1.53	4.80	7.68	7.51	6.40	3.08	1.68
2.0	.99	.74	.32	-.10	.11	.60	3.66	6.67	7.03	6.44	3.74	2.23
2.5	1.63	1.21	.80	.32	.67	.46	2.81	5.69		4.94	4.26	2.82
3.0	2.12	1.75	1.21	.68	.97	.57	2.14	4.73	5.81	5.79	4.47	3.17
3.5	2.55	2.18	1.60	1.04	1.19	.82	1.77	3.95	5.09	5.30	4.54	3.47
4.0	2.82	2.45	1.87	1.32	1.33	1.05	1.52	3.30	4.41	4.73	4.41	3.57
4.5	2.93	2.60	2.06	1.51	1.64	1.19	1.36	2.69	3.69	4.02	4.06	3.48
5.5	3.14	2.84	2.34	1.82		1.49	1.51	2.42	3.28	3.66	3.90	3.54

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 478.1. EMR-84-4B
-WELL SPUDDED 84 3 1

NW-ZAMA PIPELINE KM 478.1. EMR-84-4B
-DEMARRAGE DU PUITS LE 84 3 1

DUNE CREST. UNFROZEN DRY SANDS AND SILTS WITH LOW WATER TABLE.
CLEARED TO 24.5 M IN WINTER 82/83.
BLADED AND DUNE CREST LOWERED ¬ 1 M.
CABLE ON R.O.W. 1.5 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44032 (PAIRED).

SITE 84-4B: TRAIL RIVER B - CABLE T3

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62 DEGREES 5.2 MINUTES NORTH
121 DEGREES 59.3 MINUTES WEST

62 DEGRES 5.2 MINUTES NORD
121 DEGRES 59.3 MINUTES OUEST

ELEVATION 165 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 1 16 T(C)	DATE 87 2 4 T(C)	DATE 87 3 11 T(C)	DATE 87 4 13 T(C)	DATE 87 5 25 T(C)	DATE 87 6 18 T(C)	DATE 87 7 11 T(C)	DATE 87 8 17 T(C)	DATE 87 9 15 T(C)	DATE 87 10 3 T(C)	DATE 87 11 13 T(C)	DATE 87 12 18 T(C)
.5		-7.76	-6.61	-3.82	8.42	13.92	16.93	13.34	9.32	6.61	.18	-2.60
1.0	-3.53	-4.57	-4.47	-3.04	2.89	9.21	12.72	12.25	10.10	6.87	1.40	.28
1.5		-2.16	-2.80	-2.35	-.07	5.71	9.61	10.84	9.25	7.17	2.37	.99
2.0	.50	.11	-.78	-1.13	.03	2.84	7.07	9.43	8.81	7.44	3.43	1.87
2.5	1.14	.70	.23	-.20	.06	1.12	5.10	7.96	8.01	7.27	4.06	2.45
3.0	1.77	1.32	.75	.24	.38	.62	3.74	6.67	7.25	6.92	4.55	2.99
3.5	2.20	1.74	1.12	.56	.58	.55	2.61	5.36	6.31	6.29	4.72	3.31
4.0		2.17	1.54	.93	.89	.77		4.48	5.57	5.75	4.80	3.60
4.5	2.95	2.51	1.88	1.26	1.16	1.01	1.73	3.75	4.85	5.16	4.70	3.76
5.5	3.19	2.84	2.29	1.68	1.54	1.38	1.49	2.67	3.60	4.00	4.15	3.67

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 478.1. EMR-84-4B
-WELL SPUDDED 84 3 1

NW-ZAMA PIPELINE KM 478.1. EMR-84-4B
-DEMARRAGE DU PUITS LE 84 3 1

DUNE CREST. UNFROZEN DRY SANDS AND SILTS WITH LOW WATER TABLE.
CLEARED TO 24.5 M IN WINTER 82/83.
BLADED AND DUNE CREST LOWERED ¬ 1 M.
CABLE ON R.O.W. 1 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 84-4B: TRAIL RIVER B - T4 & HT136

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62 DEGREES 5.2 MINUTES NORTH
121 DEGREES 59.3 MINUTES WEST

62 DEGRES 5.2 MINUTES NORD
121 DEGRES 59.3 MINUTES OUEST

ELEVATION 165 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 4	DATE 87 3 11	DATE 87 4 13	DATE 87 5 25	DATE 87 6 18	DATE 87 7 11	DATE 87 8 17	DATE 87 9 15	DATE 87 10 3	DATE 87 11 13	DATE 87 12 18
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-3.50	-5.15	-6.51	-3.85	-.10	2.35	4.99	7.56	7.32	5.83	1.53	-.63
2.0	-1.54	-1.95	-3.29	-3.60	-2.27	-.02	.35	4.05	5.24	5.22	3.11	1.49
3.0						.06	.05	1.68	3.46	3.97	3.36	2.20
4.0						.55	.50	.86	2.24	2.86	3.19	2.62
6.0	2.31	2.05	1.83	1.57	1.21	1.17	1.07	.97	1.24	1.56	2.19	2.34
8.0						1.56	1.46	1.33	1.30	1.36	1.64	1.87
10.0	1.60	1.64	1.68	1.74	1.62	1.65	1.59	1.51	1.46	1.44	1.48	1.57
12.0	1.49	1.52	1.57	1.70	1.64	1.67	1.65	1.61	1.58	1.57	1.54	1.54
15.0	1.26	1.27	1.31	1.44	1.37	1.64	1.64	1.63	1.62	1.61	1.59	1.57
18.0	1.57	1.56	1.58	1.68	1.59	1.77	1.76	1.77	1.77	1.76	1.75	1.75
20.0		1.64		1.72	1.61	1.80	1.80	1.80	1.80	1.80	1.80	1.80

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 478.1. EMR-84-4B
-WELL SPUDDED 84 3 1

NW-ZAMA PIPELINE KM 478.1. EMR-84-4B
-DEMARRAGE DU PUITS LE 84 3 1

DUNE CREST. UNFROZEN DRY SANDS AND SILTS WITH LOW WATER TABLE. CLEARED TO 24.5M IN WINTER 82/83. BLADED, AND DUNE CREST LOWERED ¬ 1 M. CABLE AT EDGE OF R.O.W. 15.5 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE. T4 CABLE REPLACED BY HT136 IN MAY 87. 11 SENSOR YSI44033 (PAIRED).

SITE 85-8A: MANNERS CREEK A - CABLE T1

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61 DEGREES 36.4 MINUTES NORTH
121 DEGREES 5.6 MINUTES WEST

61 DEGRES 36.4 MINUTES NORD
121 DEGRES 5.6 MINUTES OUEST

ELEVATION 191 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 20	DATE 87 2 4	DATE 87 3 11	DATE 87 4 7	DATE 87 5 25	DATE 87 6 18	DATE 87 7 9	DATE 87 8 19	DATE 87 9 17	DATE 87 10 5	DATE 87 11 12	DATE 87 12 15
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-1.13	-1.71	-1.46	-.74	-.02	.52	1.26	3.96	4.02	2.82	.56	-.02
1.0	-.06	-.08	-.30	-.26	-.08	-.04	-.06	2.45	2.91	2.21	.68	.18
1.5	-.06	-.06	-.06	-.06	-.05	-.04	-.04	1.28	1.76	1.49	.54	.17
2.0	-.01	-.01	-.01	-.01	-.01	0.00	-.01	.33	.69	.70	.31	.13
2.5	-.09	-.11	-.07	-.07	-.08	-.07	-.07	-.06	-.05	-.08	-.02	-.03
3.0	.02	-.16	-.15	-.15	-.14	-.13	-.14	-.14	-.13	-.14	-.12	-.12
3.5	.02	-.21	-.20	-.20	-.19	-.18	-.18	-.18	-.18	-.18	-.18	-.18
4.0	-.35	-.34	-.33	-.32	-.31	-.30	-.30	-.30	-.30	-.30	-.30	-.29
4.5	-.32	-.31	-.30	-.29	-.28	-.27	-.27	-.27	-.27	-.27	-.27	-.26
5.0	-.34	-.33	-.32	-.32	-.30	-.30	-.30	-.30	-.29	-.29	-.29	-.29

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE.
FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES.
ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 557.8. EMR-85-8A
-WELL SPUDDED 85 2 22

NW-ZAMA PIPELINE KM 557.8. EMR-85-8A
-DEMARRAGE DU PUITS LE 85 2 22

THIN PEAT WITH THICK (10M) PERMAFROST.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. 1.0 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 85-8A: MANNERS CREEK A - CABLE T2

****

61 DEGREES 36.4 MINUTES NORTH
121 DEGREES 5.6 MINUTES WEST

61 DEGRES 36.4 MINUTES NORD
121 DEGRES 5.6 MINUTES OUEST

ELEVATION 191 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 20	DATE 87 2 4	DATE 87 3 11	DATE 87 4 7	DATE 87 5 25	DATE 87 6 18	DATE 87 7 9	DATE 87 7 19	DATE 87 9 17	DATE 87 10 5	DATE 87 11 12	DATE 87 12 15
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-1.86	-2.23	-2.09	-1.15	1.25	2.67	3.69	6.61	5.58	3.70	.60	-.14
1.0	-.26	-.44	-.60	-.43	-.04	0.00	.54	4.82	4.47	3.26	.98	.28
1.5	-.09	-.10	-.09	-.12	-.12	-.09	-.03	3.40	3.28	2.57	.90	.29
2.0	-.09	-.11	-.09	-.10	-.10	-.09	.12	1.86	1.93	1.63	.62	.18
2.5	-.09	-.09	-.08	-.09	-.09	-.08	-.08	.32	.55	.56	.24	.03
3.0	-.10	-.09	-.09	-.09	-.09	-.07	-.08	-.08	-.06	-.07	-.05	-.06
3.5	-.16	-.16	-.14	-.16	-.14	-.13	-.13	-.12	-.12	-.13	-.11	-.15
4.0	-.21	-.20	-.20	-.20	-.18	-.17	-.18	-.18	-.17	-.16	-.17	-.20
4.5	-.30	-.29	-.28	-.29	-.27	-.26	-.26	-.26	-.26	-.26	-.26	-.29
5.0	-.34	-.32	-.31	-.31	-.30	-.29	-.29	-.29	-.28	-.29	-.28	-.31

TEMPERATURE RESULTS ARE OBTAINED
FROM A MULTITHERMISTOR CABLE.
FURTHER TEMPERATURE LOGS
ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN
CABLE A THERMISTORS MULTIPLES.
ON PREVOIT ENTREPRENDRE D'AUTRES
SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-Z@MA PIPELINE KM 557.8. EMR-85-8A
-WELL SPUDDED 85 2 22

NW-Z@MA PIPELINE KM 557.8. EMR-85-8A
-DEMARRAGE DU PUITS LE 85 2 22

THIN PEAT WITH THICK(10M) PERMAFROST.
NO PREVIOUS CLEARING.
CABLE ON R.O.W 1.6 M E OF PIPELINE IN
25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 85-8A: MANNERS CREEK A - CABLE T3

****

61 DEGREES 36.4 MINUTES NORTH
121 DEGREES 5.6 MINUTES WEST

61 DEGRES 36.4 MINUTES NORD
121 DEGRES 5.6 MINUTES OUEST

ELEVATION 191 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 1 20 T(C)	DATE 87 2 4 T(C)	DATE 87 3 11 T(C)	DATE 87 4 7 T(C)	DATE 87 5 25 T(C)	DATE 87 6 18 T(C)	DATE 87 7 9 T(C)	DATE 87 8 19 T(C)	DATE 87 9 17 T(C)	DATE 87 10 5 T(C)	DATE 87 11 12 T(C)	DATE 87 12 15 T(C)
1.0	-.43	-1.04	-1.12	-.79	-.09	.02	-.08	.65	.89	.45	-.07	-.13
2.0	-.12	-.11	-.10	-.21	-.15	-.09	-.13	-.12	-.12	-.12	-.12	-.14
3.0	-.20	-.20	-.18	-.20	-.21	-.17	-.19	-.19	-.19	-.19	-.18	-.20
4.0	-.40	-.38	-.37	-.37	-.36	-.34	-.36	-.35	-.35	-.36	-.35	-.37
6.0	-.43	-.38	-.37	-.37			-.35	-.35	-.35	-.35	-.35	-.36
8.0	-.32	-.32	-.31	-.31	-.30	-.30	-.30	-.30	-.30	-.30	-.30	-.32
10.0	-.27	-.27	-.26	-.27	-.26	-.26	-.26	-.26	-.27	-.27	-.27	-.29
12.0	-.12	-.11	-.11	-.11	-.11	-.15	-.11	-.11	-.11	-.12	-.11	-.13
14.0	-.01	0.00	.01	0.00	.01		.01	0.00	0.00	0.00	0.00	-.02
17.0	.35	.36	.36	.37	.36	.37	.39	.37	.37	.35	.36	.35
20.0	.60	.61	.61	.60	.61		.60	.60	.60	.60	.60	.58

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 557.8. EMR-85-8A
-WELL SPUDDED 85 3 6

NW-ZAMA PIPELINE KM 557.8. EMR-85-8A
-DEMARRAGE DU PUITS LE 85 3 6

THIN PEAT WITH THICK (10M) PERMAFROST.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. 9.7 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).

SITE 85-8A: MANNERS CREEK A - CABLE T4

****

61 DEGREES 36.4 MINUTES NORTH
121 DEGREES 5.6 MINUTES WEST

61 DEGRES 36.4 MINUTES NORD
121 DEGRES 5.6 MINUTES OUEST

ELEVATION 191 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 20	DATE 87 2 4	DATE 87 3 11	DATE 87 4 7	DATE 87 5 25	DATE 87 6 18	DATE 87 7 9	DATE 87 8 19	DATE 87 9 17	DATE 87 10 5	DATE 87 11 12	DATE 87 12 15
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-.88	-1.99	-2.00	-1.16	-.16	-.11	-.12	-.09	-.07	-.07	-.24	-1.13
2.0	-.26	-.26	-.54	-.83	-.41	-.33	-.32	-.29	-.27	-.27	-.25	-.27
3.0	-.30	-.29	-.34	-.55	-.44	-.37	-.36	-.33	-.31	-.31	-.29	-.30
4.0	-.32	-.31	-.31	-.38	-.41	-.37	-.37	-.34	-.33	-.33	-.32	-.32
6.0	-.32	-.32	-.31	-.30	-.30	-.30	-.30	-.30	-.30	-.31	-.30	-.31
8.0	-.29	-.29	-.28	-.28	-.27	-.27	-.27	-.28	-.28	-.28	-.29	-.35
10.0	-.17	-.17	-.16	-.16	-.16	-.15	-.16	-.16	-.16	-.17	-.17	-.19
12.0	-.02	-.02	-.01	-.02	-.01	0.00	-.01	-.01	-.02	-.02	-.02	-.05
14.0	.11	.12	.12	.13	.13	.14	.13	.13	.13	.12	.13	.10
17.0	.45	.45	.45	.45	.46	.47	.46	.45	.45	.45	.44	.44
20.0	.75	.76	.76	.76	.77	.78	.76	.76	.76	.76	.75	.75

TEMPERATURE RESULTS ARE OBTAINED
FROM A MULTITHERMISTOR CABLE.
FURTHER TEMPERATURE LOGS
ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN
CABLE A THERMISTORS MULTIPLES.
ON PREVOIT ENTREPRENDRE D'AUTRES
SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 557.8. EMR-85-8A
-WELL SPUDDED 85 3 3

NW-ZAMA PIPELINE KM 557.8. EMR-85-8A
-DEMARRAGE DU PUITS LE 85 3 3

THIN PEAT WITH THICK (10M) PERMAFROST.
NO PREVIOUS CLEARING.
CABLE OFF R.O.W. 22.4 M W OF PIPELINE
IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).

SITE 85-8B: MANNERS CREEK B - CABLE T1

****

61 DEGREES 36.2 MINUTES NORTH
121 DEGREES 5.4 MINUTES WEST

61 DEGRES 36.2 MINUTES NORD
121 DEGRES 5.4 MINUTES OUEST

ELEVATION 190 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 20	DATE 87 2 4	DATE 87 3 11	DATE 87 4 7	DATE 87 5 24	DATE 87 6 18	DATE 87 7 9	DATE 87 8 19	DATE 87 9 17	DATE 87 10 5	DATE 87 11 12	DATE 87 12 15
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-.29	-.71	-1.28	-.92	-.24	-.18	-.16	-.10	-.08	-.09	-.11	-.13
1.0	-.13	-.12	-.18	-.31	-.19	-.15	-.15	-.14	-.13	-.12	-.11	-.11
1.4	-.23	-.23	-.23	-.23	-.25	-.24	-.24	-.24	-.23	-.23	-.22	-.22
2.0	-.12	-.12	-.11	-.10	-.10	-.09	-.10	-.10	-.10	-.10	-.09	-.10
2.5	-.14	-.15	-.14		-.14	-.13	-.14	-.13	-.13	-.14	-.14	-.14
3.0	-.06	-.06	-.06	-.05	-.05	-.04	-.05	-.05	-.05	-.05	-.05	-.05
3.5	-.10	-.10	-.09		-.09	-.08	-.09	-.09	-.09	-.10	-.09	-.09
4.0	-.07	-.07	-.06	-.07	-.05	-.05	-.06	-.06	-.06	-.07	-.06	-.06
4.5	-.06	-.06	-.05	-.06	-.05	-.05	-.06	-.06	-.06	-.06	-.06	-.06
5.0	.03	.03	.02	.03	.03	.04	.03	.03	.03	.03	.03	.03

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 558.2. EMR-85-8B
-WELL SPUDDED 85 2 22

NW-ZAMA PIPELINE KM 558.2. EMR-85-8B
-DEMARRAGE DU PUITS LE 85 2 22

THICK PEAT WITH THIN (4M) PERMAFROST.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. 1.6 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 85-8B: MANNERS CREEK B - CABLE T2

****

61 DEGREES 36.2 MINUTES NORTH
121 DEGREES 5.4 MINUTES WEST

61 DEGRES 36.2 MINUTES NORD
121 DEGRES 5.4 MINUTES OUEST

ELEVATION 190 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 20	DATE 87 2 4	DATE 87 3 11	DATE 87 4 7	DATE 87 5 24	DATE 87 6 18	DATE 87 7 9	DATE 87 8 19	DATE 87 9 17	DATE 87 10 5	DATE 87 11 12	DATE 87 12 15
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-1.62	-2.59	-2.16	-1.04	-.10	.35	1.48	2.24	1.99	1.13	-.94	-.95
1.0	-.13	-.46	-.29	-.29	-.10	-.08	-.07	-.07	-.05	-.06	-.06	-.07
1.5	-.09	-.10	-.10	-.10	-.09	-.07	.09	.47	.59	.55	.26	.09
2.0	-.09	-.10	-.09	-.10	-.10	-.09	-.07	.26	.44	.43	.21	.07
2.5	-.07	-.07	-.06	-.06	-.06	-.05	-.05	-.05	-.04	-.05	-.04	-.04
3.0	-.17	-.16	-.16	-.16	-.15	-.15	-.15	-.15	-.15	-.16	-.15	-.15
3.5	-.11	-.11	-.11	-.11	-.10	-.10	-.10	-.10	-.10	-.11	-.10	-.10
4.0	-.14	-.14	-.13	-.13	-.12	-.12	-.12	-.13	-.13	-.14	-.13	-.13
4.5	-.03	-.03	-.03	-.03	-.03	-.02	-.02	-.03	-.03	-.04	-.04	-.03
5.0	-.05	-.04	-.04	-.04	-.03	-.03	-.03	-.04	-.04	-.04	-.04	-.04

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 558.2. EMR-85-8B
-WELL SPUDDED 85 2 22

NW-ZAMA PIPELINE KM 558.2. EMR-85-8B
-DEMARRAGE DU PUITS LE 85 2 22

THICK PEAT WITH THIN (4M) PERMAFROST.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. .95 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 85-8B: MANNERS CREEK B - CABLE T3

****

61 DEGREES 36.2 MINUTES NORTH
121 DEGREES 5.4 MINUTES WEST

61 DEGRES 36.2 MINUTES NORD
121 DEGRES 5.4 MINUTES OUEST

ELEVATION 190 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 20	DATE 87 2 4	DATE 87 3 11	DATE 87 4 7	DATE 87 5 24	DATE 87 6 18	DATE 87 7 9	DATE 87 8 19	DATE 87 9 17	DATE 87 10 5	DATE 87 11 12	DATE 87 12 15
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-.51	-2.16	-.80	-.50	-.26	-.18	-.21	-.14	-.10	-.11	-.19	-.59
2.0	-.21	-.21	-.20	-.21	-.19	-.17	-.22	-.21	-.21	-.21	-.21	-.21
3.0	-.10	-.10	-.10	-.10	-.09	-.07	-.09	-.10	-.10	-.10	-.10	-.10
4.0	-.01	-.01	0.00	0.00	.01	.02	.01	0.00	0.00	0.00	0.00	-.01
6.0	.11	.11	.12	.11	.12	.13	.12	.12	.11	.11	.11	.11
8.0	.25	.25	.26	.26	.26	.28		.26	.26	.25	.26	.25
10.0	.48	.47	.48	.48	.49	.50	.48	.48	.48	.48	.48	.48
12.0	.63	.63	.63	.63	.64	.65	.64	.63	.63	.63	.63	.63
14.0	.79	.79	.80	.80	.80	.81	.80	.88	.84	.79	.79	.79
17.0	1.12	1.12	1.12	1.12	1.13	1.14	1.13	1.12	1.12	1.12	1.12	1.12
20.0	1.45	1.45	1.46	1.45	1.17	1.47	1.46	1.45	1.45	1.45	1.45	1.44

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 558.2. EMR-85-8B
-WELL SPUDDED 85 3 6

NW-ZAMA PIPELINE KM 558.2. EMR-85-8B
-DEMARRAGE DU PUITS LE 85 3 6

THICK PEAT WITH THIN (4M) PERMAFROST.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. 7.5 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).

SITE 85-8B: MANNERS CREEK B - CABLE T4

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61 DEGREES 36.2 MINUTES NORTH
121 DEGREES 5.4 MINUTES WEST

61 DEGRES 36.2 MINUTES NORD
121 DEGRES 5.4 MINUTES OUEST

ELEVATION 190 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 20	DATE 87 2 4	DATE 87 3 11	DATE 87 4 7	DATE 87 5 24	DATE 87 6 18	DATE 87 7 9	DATE 87 8 19	DATE 87 9 17	DATE 87 10 5	DATE 87 11 12	DATE 87 12 15
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-1.80	-3.39	-1.67	-.55	-.20	-.08	-.06	.27	.37	.40	-2.34	-2.99
2.0	-.48	-1.51	-.49	-.22		-.10	-.12	-.12	-.12	-.12	-.49	-1.11
3.0	-.17	-.82	-.24	-.13	-.10	-.06	-.07	-.09	-.09	-.09	-.09	-.46
4.0	-.05	-.06	-.06	-.04	-.02	0.00	-.01	-.02	-.01	-.01	-.01	-.01
6.0	.12	.12	.12	.12	.13	.14	.13	.13	.12	.12	.12	.13
8.0	.28	.28	.28	.28	.28	.30	.29	.28	.28	.28	.28	.28
10.0	.52	.52	.52	.52	.53	.54	.52	.52	.52	.51	.52	.52
12.0	.69	.69	.69	.69	.70	.71	.70	.69	.69	.68	.68	.69
14.0	.86	.86	.87	.86	.87	.88	.87		.86	.86	.86	.86
17.0	1.11	1.11	1.11		1.12	1.13	1.12		1.11	1.11	1.11	1.11
20.0	1.42	1.42	1.45	1.42	1.43	1.45	1.44		1.44	1.42	1.43	1.42

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 558.2. EMR-85-8B
-WELL SPUDDED 85 3 5

NW-ZAMA PIPELINE KM 558.2. EMR-85-8B
-DEMARRAGE DU PUITS LE 85 3 5

THICK PEAT WITH THIN (4M) PERMAFROST.
NO PREVIOUS CLEARING.
CABLE OFF R.O.W. 19 M E OF PIPELINE IN 38MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).

SITE 85-8C: MANNERS CREEK C - CABLE T1

****

61 DEGREES 36.1 MINUTES NORTH
121 DEGREES 5.3 MINUTES WEST

61 DEGRES 36.1 MINUTES NORD
121 DEGRES 5.3 MINUTES OUEST

ELEVATION 190 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 20	DATE 87 2 6	DATE 87 3 11	DATE 87 4 7	DATE 87 5 24	DATE 87 6 18	DATE 87 7 9	DATE 87 8 19	DATE 87 9 17	DATE 87 10 5	DATE 87 11 12	DATE 87 12 15
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-1.49	-3.53	-2.70	-1.30	-.18	.89	2.02	2.60	2.10	1.38	-.38	-1.01
1.0	-.28	-.50	-.76	-.63	-.31	-.27	-.25	-.23	-.21	-.21	-.20	-.18
1.5	-.17	-.18	-.18	-.22	-.18	-.17	-.17	-.16	-.16	-.15	-.15	-.13
2.0	-.26	-.25	-.24	-.24	-.23	-.23	-.22	-.23	-.22	-.22	-.22	-.20
2.5	-.20	-.20	-.19	-.18	-.17	-.17	-.17	-.17	-.16	-.16	-.16	
3.0	-.19	-.19	-.18	-.18	-.18	-.16	-.17	-.17	-.17	-.17	-.16	-.16
3.5	-.03	-.04	-.03	-.03	-.02	-.02	-.02	-.02	-.02	-.03	-.02	-.01
4.0	-.07	-.07	-.07	-.07	-.06	-.06	-.06	-.07	-.07	-.07	-.07	-.06
4.5	-.03	-.04	-.03	-.03	-.03	-.02	-.03	-.03	-.03	-.03	-.03	-.02
5.0	.05	.05	.05	.05	-.06	.05	.05	.05	.05	.04	.05	.06

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 558.3. EMR-85-8C
-WELL SPUDDED 85 2 22

NW-ZAMA PIPELINE KM 558.3. EMR-85-8C
-DEMARRAGE DU PUITS LE 85 2 22

THIN PEAT WITH THIN (4M) PERMAFROST.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. 1.2 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 85-8C: MANNERS CREEK C - CABLE T2

****

61 DEGREES 36.1 MINUTES NORTH
121 DEGREES 5.3 MINUTES WEST

61 DEGRES 36.1 MINUTES NORD
121 DEGRES 5.3 MINUTES OUEST

ELEVATION 190 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 20	DATE 87 2 6	DATE 87 3 11	DATE 87 4 7	DATE 87 5 24	DATE 87 6 18	DATE 87 7 9	DATE 87 8 19	DATE 87 9 17	DATE 87 10 5	DATE 87 11 12	DATE 87 12 15
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-2.35	-3.86	-2.21	-.92	1.55	5.63	8.38	8.02	4.16	3.26	-1.29	-2.72
1.0	-.18	-1.09	-.27	-.30	-.18	-.09	-.05	3.07	3.07	2.02	.26	-.30
1.5	0.00	.01	.02	-.10	.02	.04	.03	1.21	1.57	1.26	.40	.18
2.0	-.02	-.02	-.02	-.02	-.01	.01	-.01	.05	.25	.32	.17	.09
2.5	-.09	-.10	-.09	-.08	-.08	-.06	-.08	-.06		-.08	-.06	-.13
3.0	-.14	-.15	-.14	-.14	-.13	-.12	-.13	-.06	-.13	-.13	-.12	-.02
3.5	-.04	-.05	-.03	-.04	-.03	-.02	-.03	-.01	-.03	-.03	-.03	-.09
4.0	-.10	-.11	-.06	-.11	-.11	-.08	-.09	-.01	-.03	-.11	-.09	.02
4.5	.01	0.00	.01	0.00	0.00	.02	.01	.04	.02	.01	.02	.13
5.0	.09	.11	.12	.11	.13	.13	.13	.15	.13	.13	.14	.13

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 558.3. EMR-85-8C
-WELL SPUDDED 85 2 22

NW-ZAMA PIPELINE KM 558.3. EMR-85-8C
-DEMARRAGE DU PUITS LE 85 2 22

THIN PEAT WITH THIN (4M) PERMAFROST.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. 1.45 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 85-8C: MANNERS CREEK C - CABLE T3

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61 DEGREES 36.1 MINUTES NORTH
121 DEGREES 5.3 MINUTES WEST

61 DEGRES 36.1 MINUTES NORD
121 DEGRES 5.3 MINUTES OUEST

ELEVATION 190 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 20	DATE 87 2 6	DATE 87 3 11	DATE 87 4 7	DATE 87 5 24	DATE 87 6 18	DATE 87 7 9	DATE 87 8 19	DATE 87 9 17	DATE 87 10 5	DATE 87 11 12	DATE 87 12 15
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-.18	-1.25	-.36	-.22	-.14	-.08	-.09	-.06	.05	.06	-.05	-.16
2.0	-.14	-.14	-.13	-.13	-.12	-.10	-.11	-.12	-.12	-.12	-.12	-.11
3.0	-.16	-.16	-.15	-.16	-.14	-.13	-.14	-.15	-.15	-.15	-.15	-.15
4.0	-.10	-.10	-.10	-.10	-.09	-.08	-.08	-.10	-.10	-.10	-.10	-.11
6.0	.09	.06	.09		.10	.10	.09	.09	.09	.09	.09	.09
8.0	.32	.31	.32	.29	.32	.33	.33	.32	.32	.32	.32	.31
10.0	.59	.58	.59	.59	.60	.60	.60	.59	.59	.58	.59	.59
12.0	.75	.74	.75	.74	.75	.76	.76	.75	.75	.74	.75	.74
14.0	.96	.96	.96	.96	.97	.97	.97	.96	.96	.96	.96	.96
17.0	1.32	1.32	1.32	1.32	1.33	1.33	1.33	1.32	1.32	1.32	1.32	
20.0	1.67	1.68	1.68	1.67	1.68	1.69	1.70	1.67	1.67	1.67	1.67	1.67

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 558.3. EMR-85-8C
-WELL SPUDDED 85 3 6

NW-ZAMA PIPELINE KM 558.3. EMR-85-8C
-DEMARRAGE DU PUITS LE 85 3 6

THIN PEAT WITH THIN (4M) PERMAFROST.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. 8.55 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).

SITE 85-8C: MANNERS CREEK C - CABLE T4

****

61 DEGREES 36.1 MINUTES NORTH
121 DEGREES 5.3 MINUTES WEST

61 DEGRES 36.1 MINUTES NORD
121 DEGRES 5.3 MINUTES OUEST

ELEVATION 190 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 20	DATE 87 2 6	DATE 87 3 11	DATE 87 4 7	DATE 87 5 24	DATE 87 6 18	DATE 87 7 9	DATE 87 8 19	DATE 87 9 17	DATE 87 10 5	DATE 87 11 12	DATE 87 12 15
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-.20	-.60	-.23	-.17	-.15	-.13	-.12	-.13	-.12	-.12	-.11	-.22
2.0	-.25	-.26	-.23	-.24	-.24	-.23	-.23	-.23	-.23	-.25	-.25	-.24
3.0	-.17	-.17	-.16	-.16	-.16	-.15	-.15	-.15	-.15	-.17	-.16	-.15
4.0	-.05	-.06	-.05	-.06	-.05	-.05	-.05	-.05	-.05	-.06	-.06	-.06
6.0		.08	.11		.09	.10	.12	.11	.11	.08	.09	.10
8.0	.23	.22	.24	.23	.23	.24	.24	.25	.25	.22	.23	.24
10.0	.41	.40	.41	.41	.41	.41	.41	.41	.41	.40	.40	.41
12.0	.64	.63	.65	.64	.63	.65	.65	.65	.65	.63	.63	.63
14.0	.82	.81	.83	.82	.81	.82	.82	.82	.82	.80	.80	.80
17.0	1.26	1.25	1.27	1.26	1.26	1.27	1.27	1.27	1.27	1.25	1.26	1.26
20.0	1.48	1.48	1.49	1.48	1.48	1.49	1.49	1.49	1.49	1.47	1.47	1.47

TEMPERATURE RESULTS ARE OBTAINED
FROM A MULTITHERMISTOR CABLE.
FURTHER TEMPERATURE LOGS
ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN
CABLE A THERMISTORS MULTIPLES.
ON PREVOIT ENTREPRENDRE D'AUTRES
SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 558.3. EMR-85-8C
-WELL SPUDDED 85 3 6

NW-ZAMA PIPELINE KM 558.3. EMR-85-8C
-DEMARRAGE DU PUITS LE 85 3 6

THIN PEAT WITH THIN (4M) PERMAFROST.
NO PREVIOUS CLEARING.
CABLE OFF R.O.W. 20 M E OF PIPELINE IN
25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).

SITE 85-9: PUMP STATION 3 - T1

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61 DEGREES 23.7 MINUTES NORTH
120 DEGREES 54.0 MINUTES WEST

61 DEGRES 23.7 MINUTES NORD
120 DEGRES 54.0 MINUTES OUEST

ELEVATION 223 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 21	DATE 87 2 6	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 18	DATE 87 7 9	DATE 87 8 19	DATE 87 9 16	DATE 87 10 5	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-5.41	-5.49	-6.29	-2.63	1.28	7.07	11.08	9.39	7.98	5.14	-1.63	-5.06
1.0	-2.02	-2.85	-3.17	-1.13	.19	2.64	7.45	9.23	8.06	6.09	.55	-1.89
1.5	-.05	-.50	-1.17	-.73	-.20	-.12	4.97	8.14	7.49	6.20	2.66	1.06
2.0	.73	.44	.03	-.19	-.06	-.02	3.26	7.05	6.83	6.08	3.38	2.03
2.5	1.23	.93	.48	.24	.19	.21	2.00	5.81	6.04	5.73		2.46
3.0	1.64	1.36	.88	.61	.47	.45	1.39	4.80	5.38	5.34	4.00	2.81
3.5	1.96	1.68	1.21	.92	.70	.66	1.09	3.87	4.70	4.83	4.05	3.03
4.0	2.21	1.95	1.49	1.20	.93	.86	1.03	3.16	4.08	4.33	3.96	3.16
4.5	2.44	2.20	1.76	1.47	1.18	1.09	1.13	2.69	3.60	3.93	3.86	3.26
5.0	2.60	2.37	1.97	1.69	1.38	1.28	1.26	2.34	3.19	3.54	3.68	3.27

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 593.3. EMR-85-9
-WELL SPUDDED 85 2 25

NW-ZAMA PIPELINE KM 593.3. EMR-85-9
-DEMARRAGE DU PUITS LE 85 2 25

FROST-FREE GRANULAR SOILS.
PIPE PREVIOUSLY TRAVERSED LONG STRETCH OF FROZEN GROUND.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. 2.2 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 85-9: PUMP STATION 3 - T2

****

61 DEGREES 23.7 MINUTES NORTH
120 DEGREES 54.0 MINUTES WEST

61 DEGRES 23.7 MINUTES NORD
120 DEGRES 54.0 MINUTES OUEST

ELEVATION 223 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 21	DATE 87 2 6	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 18	DATE 87 7 9	DATE 87 8 19	DATE 87 9 16	DATE 87 10 5	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-11.70	-11.10	-10.20	-3.45	21.10	28.63	35.73	22.45	10.90	6.61	-6.00	-8.35
1.0	-2.86	-3.69	-3.66	-1.47	2.64	8.08	11.01	9.86	8.09	5.40	.21	-.94
1.5	-.38	-1.08	-1.13	-.99	-.12	4.12	8.13	9.33	8.17	6.25	2.10	1.13
2.0	.46	.19	-.19	-.27	-.07	1.69	5.82	8.11	7.54	6.26	2.96	1.80
2.5	.73	.46	.08	-.14	-.16	.41	3.59	6.44	6.26	5.52	3.01	1.77
3.0	1.50	1.22	.81	.57	.46	.65	2.77	5.80	6.07	5.78	3.97	2.75
3.5	1.91	1.64	1.19	.72	.74	.77	2.05	4.83	5.41	5.39	4.19	3.08
4.0	2.21	1.94	1.48	1.20	.95	.91	1.62	3.96	4.74	4.87	4.19	3.26
4.5	2.47	2.20	1.75	1.46	1.18	1.09	1.43	3.25	4.11	4.36	4.09	3.36
5.0	2.66	2.41	1.97	1.69	1.38	1.28	1.42	2.81	3.65	3.96	3.95	3.42

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE.
FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES.
ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 593.3. EMR-85-9
-WELL SPUDDED 85 2 25

NW-ZAMA PIPELINE KM 593.3. EMR-85-9
-DEMARRAGE DU PUITS LE 85 2 25

FROST-FREE GRANULAR SOILS.
PIPE PREVIOUSLY TRAVERSED LONG STRETCH OF FROZEN GROUND.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. 1.9 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 85-9: PUMP STATION 3 - T3

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61 DEGREES 23.7 MINUTES NORTH
120 DEGREES 54.0 MINUTES WEST

61 DEGRES 23.7 MINUTES NORD
120 DEGRES 54.0 MINUTES OUEST

ELEVATION 223 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 21	DATE 87 2 6	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 18	DATE 87 7 9	DATE 87 8 19	DATE 87 9 16	DATE 87 10 5	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	.59	.45	.20	.06	.09	2.30	6.32	8.60	7.93	6.81	3.43	2.05
2.0	1.71	1.47	1.12	.88	.70	1.15	3.39	6.23	6.44	6.18	4.45	3.10
3.0	2.38	2.10	1.67	1.37	1.12	1.17	2.08	4.31	5.02	5.15	4.50	3.53
4.0	2.83	2.58	2.17	1.89	1.56	1.49	1.76	3.12	3.90	4.18	1.10	3.66
6.0	2.89	2.74	2.48	2.28	2.01	1.88	1.83	2.13	2.55	2.81	3.18	3.21
8.0	2.63	2.60	2.54	2.42	2.26	2.18	2.12	2.10	2.21	2.30	2.56	2.73
10.0	2.23	2.26	2.29	2.27	2.22	2.18	1.96	2.08	2.08	2.09	2.20	2.33
12.0	1.81	1.91	1.96	1.98	2.01	2.00	1.99	1.94	1.93	1.92	1.94	1.99
14.0	2.02	2.04	2.09	2.11	2.16	2.17	2.17	2.16	2.15	2.14	2.14	
17.0	2.18	2.18	2.19	2.19	2.22	2.23	2.23	2.24	2.25	2.25	2.25	2.25
20.0	2.45	2.46	2.46	2.48	2.46	2.47	2.47	2.46	2.47	2.47	2.47	2.47

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 593.3. EMR-85-9
-WELL SPUDDED 85 2 25

NW-ZAMA PIPELINE KM 593.3. EMR-85-9
-DEMARRAGE DU PUITS LE 85 2 25

FROST-FREE GRANULAR SOILS.
PIPE PREVIOUSLY TRAVERSED LONG STRETCH OF FROZEN GROUND.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. 6 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).

SITE 85-9: PUMP STATION 3 - T4

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61 DEGREES 23.7 MINUTES NORTH
120 DEGREES 54.0 MINUTES WEST

61 DEGRES 23.7 MINUTES NORD
120 DEGRES 54.0 MINUTES OUEST

ELEVATION 223 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 21	DATE 87 2 6	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 18	DATE 87 7 9	DATE 87 8 19	DATE 87 9 16	DATE 87 10 5	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-.35	-.51	-.61	-.33	-.08	4.92	6.22	7.36	6.94	5.99	2.36	-.22
2.0	1.20	1.01	.62	.37	.35	2.18	3.60	5.28	5.44	5.22	3.63	2.32
3.0	1.86	1.64	1.26	.99	.83	1.26	2.21	3.66	4.21	4.35	3.78	2.88
4.0	2.18	1.98	1.63	1.38	1.15	1.17	1.61	2.58	3.19	3.44	3.46	2.99
6.0	2.31	2.20	2.01	1.85	1.63	1.53	1.52	1.75	2.06	2.28	2.60	2.99
8.0	2.12	2.42	2.07	2.00	1.87	1.81	1.76	1.73	1.81	1.90	2.11	2.26
10.0	1.93	1.96	2.00	1.99	1.96	1.93	1.91	1.85	1.84	1.85	1.93	2.34
12.0	1.84	1.87	1.92	1.94	1.96	1.96	1.96	1.91	1.90	1.89	1.90	1.93
14.0	1.88	1.89	1.93	1.95	1.98	1.99	2.00	1.98	1.97	1.97	1.96	1.97
17.0	2.08	2.07	2.08	2.08	2.10	2.11	2.12	2.11	2.12	2.12	2.12	2.09
20.0	2.26	2.26	2.26		2.26	2.26	2.27	2.26	2.26	2.25	2.26	

TEMPERATURE RESULTS ARE OBTAINED
FROM A MULTITHERMISTOR CABLE.
FURTHER TEMPERATURE LOGS
ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN
CABLE A THERMISTORS MULTIPLES.
ON PREVOIT ENTREPRENDRE D'AUTRES
SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 593.3. EMR-85-9
-WELL SPUDDED 85 2 25

NW-ZAMA PIPELINE KM 593.3. EMR-85-9
-DEMARRAGE DU PUITS LE 85 2 25

FROST-FREE GRANULAR SOILS.
PIPE PREVIOUSLY TRAVERSED LONG STRETCH
OF FROZEN GROUND.
NO PREVIOUS CLEARING.
CABLE OFF R.O.W 18.6 M E OF PIPELINE IN
25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).

SITE 85-10A: MACKENZIE HWY S - T1

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61 DEGREES 21.6 MINUTES NORTH
120 DEGREES 52.2 MINUTES WEST

61 DEGRES 21.6 MINUTES NORD
120 DEGRES 52.2 MINUTES OUEST

ELEVATION 244 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 6	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 19	DATE 87 9 16	DATE 87 10 5	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	.32	.10	0.00	.05	.22	1.81	7.80	7.32	6.11	3.05	.15
1.0	.94	.65	.48	.42	.67	1.90	6.73	6.70	6.07	3.77	2.63
1.5	1.44	1.08	.86	.76	.93	1.75	5.56	5.98	5.79	4.18	3.11
2.0	1.63	1.24	1.01	.85	.91	1.48	4.40	5.14	5.20	4.16	3.20
2.5	1.91	1.51	1.26	1.08	1.05	1.40	3.59	4.51	4.72	4.15	3.36
3.0	2.11	1.71	1.45	1.26	1.19	1.40	3.07	4.02	4.29	4.06	3.44
3.5	2.23	1.84	1.58	1.38	1.28	1.40	2.60	3.49	3.83	3.85	3.40
4.0	2.20	1.84	1.59	1.37	1.27	1.32	2.16	2.96	3.31	3.51	3.22
4.5	2.21	1.90	1.65	1.43	1.32	1.32	1.90	2.57	2.90	3.21	3.07
5.0	2.34	2.08	1.85	1.64	1.54	1.52	1.90	2.45	2.74	3.12	3.19

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 588.3. EMR-85-10A
-WELL SPUDDED 85 2 27

NW-ZAMA PIPELINE KM 588.3. EMR-85-10A
-DEMARRAGE DU PUITS LE 85 2 27

THIN PEAT OVER UNFROZEN TILL AND SHALLOW BEDROCK. HELIPAD CLEARING.
CABLE ON R.O.W. 2 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 85-10A: MACKENZIE HWY S - T2

****

61 DEGREES 21.6 MINUTES NORTH
120 DEGREES 52.2 MINUTES WEST

61 DEGRES 21.6 MINUTES NORD
120 DEGRES 52.2 MINUTES OUEST

ELEVATION 244 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 6	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 19	DATE 87 9 16	DATE 87 10 5	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-4.05	-2.57	-.96	1.54	8.01	14.38	9.70	8.31	3.92	-1.15	-3.19
1.0	-.29	-.20	-.18	-.08	1.91	6.92	9.05	8.09	6.28	2.77	1.86
1.5	.78	.74	.28	.40	1.76	5.22	8.28	7.78	6.59	3.73	2.69
2.0	1.40	1.14	1.01	.72	1.56	3.77	7.03	6.98	6.39	4.22	3.13
2.5	1.78	1.45	1.28	1.03	1.41	2.76	5.79	6.14	5.95	4.43	3.41
3.0	2.01	1.62	1.42	1.20	1.30	2.11	4.66	5.31	5.37	4.40	3.50
3.5	1.85	1.51	1.19	.92	.87	1.36	3.48	4.26	4.27	3.63	2.92
4.0	2.20	1.81	1.57	1.34	1.19	1.52	3.11	3.95	4.22	3.94	3.41
4.5	2.24	1.87	1.63	1.39	1.25	1.41	2.56	3.37	3.67	3.68	3.32
5.0	2.42	2.07	1.84	1.61	1.49	1.53	2.33	3.04	3.37	3.53	3.34

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 588.3. EMR-85-10A
-WELL SPUDDED 85 2 27

NW-ZAMA PIPELINE KM 588.3. EMR-85-10A
-DEMARRAGE DU PUITS LE 85 2 27

THIN PEAT OVER UNFROZEN TILL AND SHALLOW BEDROCK. HELIPAD CLEARING. CABLE ON R.O.W. 1.5 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE. 10 SENSOR YSI44033 (PAIRED).

SITE 85-10A: MACKENZIE HWY S - T3

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61 DEGREES 21.6 MINUTES NORTH
120 DEGREES 52.2 MINUTES WEST

61 DEGRES 21.6 MINUTES NORD
120 DEGRES 52.2 MINUTES OUEST

ELEVATION 244 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 6	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 19	DATE 87 9 16	DATE 87 10 5	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-1.83	-1.01		.09	3.78	7.41	8.46	7.67	5.54	1.00	-1.47
2.0	1.08	.76	.63	.50	1.20	4.10	6.41	6.31	5.79	3.71	2.55
3.0	1.69	1.30	1.10	.89	.96	2.24	4.35	4.95	4.89	3.98	3.04
4.0	1.78	1.45	1.18	.90	.85	1.28	2.78	3.60	3.62	3.39	2.78
6.0	2.26	2.02	1.82	1.62	1.52	1.49	1.90	2.36	2.60	2.89	2.86
8.0	2.10	1.99	1.88	1.72	1.64	1.58	1.63	1.83	1.98	2.26	2.41
10.0	1.93	1.92	1.88	1.80	1.75	1.70	1.66	1.73	1.77	1.94	2.08
12.0	1.67	1.70	1.71	1.69	1.67	1.64	1.60	1.59	1.60	1.67	1.77
14.0	1.63	1.68	1.71	1.72	1.73	1.72	1.69	1.68	1.67	1.70	1.75
17.0	1.60	1.63	1.66	1.69	1.70	1.70	1.70	1.71	1.70	1.70	1.74
20.0	1.66	1.66	1.54	1.70	1.72	1.72	1.72	1.73	1.73	1.73	1.75

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 588.3. EMR-85-10A
-WELL SPUDDED 85 2 27

NW-ZAMA PIPELINE KM 588.3. EMR-85-10A
-DEMARRAGE DU PUITS LE 85 2 27

THIN PEAT OVER UNFROZEN TILL AND SHALLOW BEDROCK. HELIPAD CLEARING.
CABLE ON R.O.W. 6 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).
PVC CASING SHORTENED.

SITE 85-10A: MACKENZIE HWY S - T4

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61 DEGREES 21.6 MINUTES NORTH
120 DEGREES 52.2 MINUTES WEST

61 DEGRES 21.6 MINUTES NORD
120 DEGRES 52.2 MINUTES OUEST

ELEVATION 244 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 6	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 19	DATE 87 9 16	DATE 87 10 5	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	.66	.42	.29	.25	.25	.57	2.43	3.06	3.16	2.33	1.52
2.0	.93	.83	.50	.33	.27	.29	1.40	2.04	2.07	1.96	1.43
3.0	1.40	1.18	.95	.88	.82	.79	1.21	1.74	2.04	2.32	2.05
4.0	1.53	1.35	1.22	1.07	1.01	.95	1.10	1.44	1.67	2.04	1.98
6.0	1.62	1.54	1.47	1.36	1.29	1.24	1.22	1.32	1.42	1.70	1.82
8.0	1.56	1.54	1.51	1.45	1.40	1.37	1.31	1.32	1.36	1.50	1.63
10.0	1.54	1.57	1.57	1.56	1.53	1.51	1.47	1.45	1.46	1.51	1.59
12.0	1.41	1.45	1.47	1.48	1.49	1.47	1.45	1.44	1.43	1.43	1.48
14.0	1.49	1.52	1.55	1.57	1.58	1.58	1.57	1.56	1.56	1.55	1.57
17.0	1.54	1.56	1.57	1.60	1.60	1.61	1.61	1.61	1.61	1.60	1.62
20.0	1.64	1.64	1.65	1.66	1.67	1.68	1.68	1.68	1.68	1.68	1.69

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 588.3. EMR-85-10A
-WELL SPUDDED 85 2 27

NW-ZAMA PIPELINE KM 588.3. EMR-85-10A
-DEMARRAGE DU PUITS LE 85 2 27

THIN PEAT OVER UNFROZEN TILL AND SHALLOW BEDROCK. HELIPAD CLEARING. CABLE OFF R.O.W. 19 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE. 11 SENSOR YSI44033 (PAIRED).

SITE 85-10B: MACKENZIE HWY S. B - T1

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61 DEGREES 21.3 MINUTES NORTH
120 DEGREES 52.0 MINUTES WEST

61 DEGRES 21.3 MINUTES NORD
120 DEGRES 52.0 MINUTES OUEST

ELEVATION 244 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 6	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 19	DATE 87 9 16	DATE 87 10 5	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-3.61	-2.33	-.74	1.68	4.74	13.52	9.79	8.16	3.92	-1.78	-.43
1.0	-.23	-.17	-.06	.02	1.47	5.60	8.69	7.71	5.76	1.47	-.37
1.5	.70	.53	.46	.47	.58	1.95	5.45	5.57	5.15	3.11	1.90
2.0	.83	.65	.57	.55	.55	.76	2.84	3.42	3.45	2.70	1.72
2.5	.89	.75	.66	.61	.59	.67	1.47	1.97	2.14	2.05	1.51
3.0	.83	.77	.64	.57	.54	.59	1.18	1.61	1.69	1.75	1.51
3.5	.90	.81	.73	.66	.63	.65	.99	1.34	1.47	1.60	1.33
4.0	.87	.77	.72	.65	.63	.63	.81	1.07	1.20	1.36	1.12
4.5	.72	.64	.58	.53	.51	.50	.61	.82	.95	1.12	1.16
5.0	.82	.76	.71	.66	.64	.62	.69	.85	.95	1.12	

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 588.7. EMR-85-10B
-WELL SPUDDED 85 2 27

NW-ZAMA PIPELINE KM 588.7. EMR-85-10B
-DEMARRAGE DU PUITS LE 85 2 27

VERY THIN PERMAFROST (FROZEN PEAT)
OVER UNFROZEN TILL.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. 1.7 M E OF PIPELINE IN
25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 85-10B: MACKENZIE HWY S. B - T2

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61 DEGREES 21.3 MINUTES NORTH
120 DEGREES 52.0 MINUTES WEST

61 DEGRES 21.3 MINUTES NORD
120 DEGRES 52.0 MINUTES OUEST

ELEVATION 244 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 6	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 19	DATE 87 9 16	DATE 87 10 5	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-5.04	-2.83	-.92	.73	2.66	11.01	9.47	8.12	4.18	2.88	-5.10
1.0	-.84	-.28	.01	.29	1.53	4.04	8.33	7.80	5.88	1.46	-1.13
1.5	.77	.69	.69	.71	1.01	2.11	5.35	5.61	5.32	3.39	1.88
2.0	1.14	.97	.86	.86	.92	1.34	3.07	3.69	3.78	3.11	2.29
2.5	1.06	.91	.81	.78	.76	.87	1.63	2.16	2.34	2.31	1.92
3.0	.89	.76	.66	.63	.61	.66	1.15	1.60	1.79	1.88	1.63
3.5	.97	.85	.76	.73	.70	.72	1.04	1.40	1.58	1.73	1.59
4.0	.87	.78	.68	.66	.64	.64	.84	1.11	1.25	1.45	1.38
4.5	.81	.73	.66	.63	.61	.60	.72	.92	1.06	1.24	1.23
5.0	.78	.71	.65	.62	.60	.58	.65	.81	.92	1.10	1.12

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE.
FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES.
ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 588.7. EMR-85-10B
-WELL SPUDDED 85 2 27

NW-ZAMA PIPELINE KM 588.7. EMR-85-10B
-DEMARRAGE DU PUITS LE 85 2 27

VERY THIN PERMAFROST (FROZEN PEAT)
OVER UNFROZEN TILL.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. 1.0 M W OF PIPELINE IN
25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 85-10B: MACKENZIE HWY S. B - T3

****

61 DEGREES 21.3 MINUTES NORTH
120 DEGREES 52.0 MINUTES WEST

61 DEGRES 21.3 MINUTES NORD
120 DEGRES 52.0 MINUTES OUEST

ELEVATION 244 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 6	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 19	DATE 87 9 16	DATE 87 10 5	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-5.42	-3.61	-1.32	10.82	11.38	19.22	8.46	9.98	.77	-3.03	-4.92
1.0	-2.35	-.98	-.42	-.02	.77	2.46	5.10	4.75	2.37	-.49	-2.50
1.5	-.04	-.03	-.16	.01	.02	.01	.12	.50	1.17	.44	-1.45
2.0	-.03	-.02	-.28	-.18	-.19	-.20	0.00	.15	.21	.10	-.15
2.5	.17	.17	.03	.16	.16	.16	.24	.38	.49	.55	.45
3.5	.41	.40	.28	.40	.40	.39	.41	.49	.55	.65	.63
4.5	.50	.51	.39	.49	.49	.49	.49	.54	.57	.66	.68
5.5	.54	.55	.45	.54	.54	.54	.54	.56	.56	.63	.67
6.5	.49	.52	.41	.48	.49	.49	.50	.50	.47	.52	.57
8.5	.44	.56	.35	.40	.39	.40	.50	.48	.34	.34	.35
10.5	.72	.73	.65	.74	.74	.74	.73	.73	.72	.73	.74

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 588.7. EMR-85-10B
-WELL SPUDDED 85 3 9

NW-ZAMA PIPELINE KM 588.7. EMR-85-10B
-DEMARRAGE DU PUITS LE 85 3 9

VERY THIN PERMAFROST (FROZEN PEAT)
OVER UNFROZEN TILL.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. 6.8 M W OF PIPELINE IN
25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).
PVC TUBE SHORTENED.

SITE 85-10B: MACKENZIE HWY S. B - T4

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61 DEGREES 21.3 MINUTES NORTH
120 DEGREES 52.0 MINUTES WEST

61 DEGRES 21.3 MINUTES NORD
120 DEGRES 52.0 MINUTES OUEST

ELEVATION 244 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 6	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 19	DATE 87 9 16	DATE 87 10 5	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-2.77	-2.58	-1.52	.92	4.05	5.48	4.62	3.21	1.59	-1.16	-2.54
1.0	-1.39	-.59	-.86	-.23	-.16	-.16	-.10	-.07	-.08	-.12	-1.12
1.5	-.10	-.09	-.44	-.11	-.07	-.09	-.08	-.07	-.08	-.07	-.11
2.0	-.05	-.03	-.32	-.05	-.03	-.03	-.03	-.03	-.05	-.06	-.05
2.5	.01	.02	-.24	.02	.03	.02	.02	.02	0.00	0.00	0.00
3.5	.16	.18	-.08	.15	.15	.14	.15	.15	.13	.14	.14
4.5	.34	.34	.11	.32	.33	.32	.31	.31	.30	.31	.32
5.5	.41	.40	.19	.40	.40	.38	.37	.37	.37	.38	.39
6.5	.44	.45	.25	.44	.44	.44	.42	.42	.40	.41	.43
8.5	.58	.60	.43	.60	.61	.61	.59	.59	.57	.59	.57
10.5	.71	.70	.53	.72	.72	.72	.70	.70	.70	.69	.69

TEMPERATURE RESULTS ARE OBTAINED
FROM A MULTITHERMISTOR CABLE.
FURTHER TEMPERATURE LOGS
ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN
CABLE A THERMISTORS MULTIPLES.
ON PREVOIT ENTREPRENDRE D'AUTRES
SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 588.7. EMR-85-10B
-WELL SPUDDED 85 3 9

NW-ZAMA PIPELINE KM 588.7. EMR-85-10B
-DEMARRAGE DU PUITS LE 85 3 9

VERY THIN PERMAFROST (FROZEN PEAT)
OVER UNFROZEN TILL.
NO PREVIOUS CLEARING.
CABLE OFF R.O.W. 17.3 M W OF PIPELINE
IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).

SITE 85-11: MORAINE SOUTH - CABLE T1

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61 DEGREES 16.9 MINUTES NORTH
120 DEGREES 48.4 MINUTES WEST

61 DEGRES 16.9 MINUTES NORD
120 DEGRES 48.4 MINUTES OUEST

ELEVATION 251 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 21	DATE 87 2 6	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 19	DATE 87 9 16	DATE 87 10 5	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-3.23	-4.45	-2.77	-.96	4.85	10.27	13.03	9.49	7.96	4.33	-1.87	-5.26
1.0	-.69	-1.66	-.70	-.26	-.09	.13	5.65	8.98	8.09	6.56	1.57	-1.54
1.5	.42	.09	.13	.10	.08	.76	3.54	7.64	7.32	6.37	3.18	1.01
2.0	.73	.59	.43	.39	.32	.92	2.51	6.44	6.51	6.04	3.66	2.26
2.5	.77	.65	.47	.42	.35	.70	1.65	4.95	5.42	5.30	3.70	2.46
3.0	.65	.55	.44	.25	.13	.25	.80	3.36	4.02	3.96	2.76	1.29
3.5	.89	.80	.65	.58	.52	.59	.95	2.86	3.73	3.96	3.50	2.62
4.0	.81	.74	.60	.54	.46	.49	.71	2.08	2.95	3.26	3.12	2.49
4.5	.85	.80	.68	.63	.55	.55	.67	1.63	2.42	2.74	2.86	2.45
5.0	.80	.77	.68	.63	.57	.55	.61	1.26	1.95	2.28	2.55	2.31

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 597.4. EMR-85-11
-WELL SPUDDED 85 2 26

NW-ZAMA PIPELINE KM 597.4. EMR-85-11
-DEMARRAGE DU PUITS LE 85 2 26

THIN PERMAFROST (4M).
PREVIOUS HELIPAD CLEARING.
CABLE ON R.O.W. 1.5 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).
OLD HELIPAD ON EAST SIDE OF FENCE.

SITE 85-11: MORAINE SOUTH - CABLE T2

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61 DEGREES 16.9 MINUTES NORTH
120 DEGREES 48.4 MINUTES WEST

61 DEGRES 16.9 MINUTES NORD
120 DEGRES 48.4 MINUTES OUEST

ELEVATION 251 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 21	DATE 87 2 6	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 19	DATE 87 9 16	DATE 87 10 5	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-1.99	-2.04	-1.33	-.90	.80	6.13	9.12	8.79	8.04	5.07	-.04	-2.06
1.0	.08	.07	-.05	-.31	-.03	2.44	5.39	7.95	7.78	6.61	2.15	.26
1.5	.81	.61	.39	.16	.28	1.68	3.58	6.59	6.87	6.28	3.29	2.27
2.0	1.16	.97	.70	.48	.51	1.38	2.64	5.42	5.99	5.83	3.72	2.62
2.5	1.27	1.08	.79	.56	.56	.97	1.76	4.03	4.87	5.02	3.76	2.71
3.0	1.31	1.13	.83	.60	.58	.76	1.28	3.05	3.99	4.29	3.60	2.69
3.5	1.42	1.25	.96	.73	.68	.73	1.04	2.34	3.28	3.66	3.43	2.72
4.0	1.44	1.29	1.01	.80	.71		.89	1.80	2.66	3.07	3.15	2.64
4.5	1.47	1.33	1.08	.90	.79	.75	.83	1.47	2.20	2.59	2.86	2.54
5.0	1.44	1.31	1.10	.93	.81	.76	.79	1.23	1.82	2.17	2.55	2.38

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 597.4. EMR-85-11
-WELL SPUDDED 85 2 26

NW-ZAMA PIPELINE KM 597.4. EMR-85-11
-DEMARRAGE DU PUITS LE 85 2 26

THIN PERMAFROST (4M).
PREVIOUS HELIPAD CLEARING
CABLE ON R.O.W. .75 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 85-11: MORAINE SOUTH - CABLE T3

****

61 DEGREES 16.9 MINUTES NORTH
120 DEGREES 48.4 MINUTES WEST

61 DEGRES 16.9 MINUTES NORD
120 DEGRES 48.4 MINUTES OUEST

ELEVATION 251 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 21	DATE 87 2 6	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 19	DATE 87 9 16	DATE 87 10 5	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-3.81	-5.38	-3.20	-1.70	10.37	12.05	23.16	6.90	9.61	1.65	-3.25	-9.92
1.0	-1.41	-2.24	-1.07	-.64	-.11	.52	2.12	6.64	6.34	4.64	-.01	-2.04
1.5	.27	-.16	-.03	-.68	-.02	0.00	-.01	5.20	5.71	5.02	1.82	.30
2.0	.32	.53	.29	-.18	.12	.12	.13	3.92	4.83	4.63	2.75	1.64
3.0	1.40	1.22	.85	.38	-.07	.42	.43	2.15	3.38	3.69	3.08	2.22
4.0	1.99	1.73	1.32	.88	.83	.75	.71	1.44	2.47	2.87	2.96	2.45
5.0	2.15	1.94	1.62	1.18	1.02	.93	.88	1.20	1.84	2.13	2.51	2.33
6.0	2.16	2.02	1.70	1.36	1.24	1.11	1.06	1.10	1.45	1.72	2.13	2.16
8.0	1.83	1.80	1.66	1.43	1.37	1.30	1.22	1.14	1.20	1.29	1.55	1.72
10.0	1.35	1.38	1.37	1.24	1.27	1.22	1.17	1.10	1.08	1.10	1.19	1.31
12.0	1.10	1.15	1.19	1.12	1.20	1.20	1.18	1.13	1.11	1.10	1.12	1.17

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 597.4. EMR-85-11
-WELL SPUDDED 85 3 8

NW-ZAMA PIPELINE KM 597.4. EMR-85-11
-DEMARRAGE DU PUITS LE 85 3 8

THIN PERMAFROST (4M).
PREVIOUS HELIPAD CLEARING.
CABLE ON R.O.W. 7.1 M W OF PIPELINE IN 25MM OIL-FILED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).

SITE 85-11: MORAINE SOUTH - CABLE T4

****

61 DEGREES 16.9 MINUTES NORTH
120 DEGREES 48.4 MINUTES WEST

61 DEGRES 16.9 MINUTES NORD
120 DEGRES 48.4 MINUTES OUEST

ELEVATION 251 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 21	DATE 87 2 6	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 19	DATE 87 9 16	DATE 87 10 5	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-3.33	-3.76	-2.86	-1.68	4.60	7.76	13.30	5.96	6.36	1.47	-2.31	-2.77
1.0	-1.29	-1.34	-1.01	-1.05	-.26	.11	1.70	3.79	3.24	2.19	-.11	-1.06
1.5	-.09	-.11	-.11	-.58	-.14	-.10	-.12	1.65	1.94	1.45	.21	.03
2.0	-.13	-.13	-.33	-.53	-.13	-.10	-.11	.44	.95	.90	.26	.11
3.0	-.03	-.02	-.02	-.40	-.02	-.01	-.02	.08	.33	.46	.36	.26
4.0	.18	.18	.15	-.20	.13	.14	.13	.15	.28	.38	.43	.38
5.0	.41	.41	.40	.06	.35	.36	.34	.35	.42	.46	.55	.55
6.0	.43	.43	.41		.38	.39	.37	.36	.38	.41	.49	.53
8.0	.52	.55	.54	.25	.54	.55	.54	.51	.51	.52	.55	.59
10.0	.69	.71	.72	.46	.74	.75	.74	.73	.73	.73	.73	.76
12.0	.85	.87		.64	.92	.94	.92	.92	.92	.92	.92	.92

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 597.4. EMR-85-11
-WELL SPUDDED 85 3 8

NW-ZAMA PIPELINE KM 597.4. EMR-85-11
-DEMARRAGE DU PUITS LE 85 3 8

THIN PERMAFROST (4M).
PREVIOUS HELIPAD CLEARING.
CABLE OFF R.O.W. 22.9 M W OF PIPELINE
IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).

SITE 85-12A: JEAN MARIE CR A - T1

****

61 DEGREES 11.6 MINUTES NORTH
120 DEGREES 42.2 MINUTES WEST

61 DEGRES 11.6 MINUTES NORD
120 DEGRES 42.2 MINUTES OUEST

ELEVATION 298 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 21	DATE 87 2 5	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 18	DATE 87 9 16	DATE 87 10 4	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-5.09	-3.89	-1.22	10.44	15.86	23.15	12.99	6.71	5.42	-5.13	-5.67
1.0	-.83	-.46	-.28	-.09	5.35	9.98	10.92	9.29	7.51	-.42	-.92
1.5	.49	.31	.13	.21	3.12	7.17	9.28	8.56	7.12	2.70	1.32
2.0	1.08	.88	.49	.54	2.04	5.09	7.68	7.45	6.69	3.76	2.41
2.5	1.34	1.18	.71	.65	1.42	3.44	6.01	6.26	5.93	4.03	2.74
3.0	1.60	1.11	.88	.76	1.18	2.52	4.85	5.39	5.32	4.07	2.94
3.5	1.66	1.46	.93	.76	.98	1.87	3.85	4.57	4.65	3.92	2.96
4.0	1.61	1.42	.90	.70	.80	1.35	2.94	3.74	3.92	3.58	2.82
4.5	1.86	1.69	1.18	.97	1.00	1.33	2.57	3.35	3.59	3.54	2.98
5.0	1.85	1.70	1.23	1.01	.99	1.18	2.15	2.87	3.13	3.26	2.87

TEMPERATURE RESULTS ARE OBTAINED
FROM A MULTITHERMISTOR CABLE.
FURTHER TEMPERATURE LOGS
ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN
CABLE A THERMISTORS MULTIPLES.
ON PREVOIT ENTREPRENDRE D'AUTRES
SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 608.6. EMR-85-12A
-WELL SPUDDED 85 2 26

NW-ZAMA PIPELINE KM 608.6. EMR-85-12A
-DEMARRAGE DU PUITS LE 85 2 26

THIN, UNFROZEN PEAT PLATEAU.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. 1.3 M E OF PIPELINE IN
25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 85-12A: JEAN MARIE CR A - T2

****

61 DEGREES 11.6 MINUTES NORTH
120 DEGREES 42.2 MINUTES WEST

61 DEGRES 11.6 MINUTES NORD
120 DEGRES 42.2 MINUTES OUEST

ELEVATION 298 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 21	DATE 87 2 5	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 18	DATE 87 9 16	DATE 87 10 4	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-3.44	-2.27	-2.31	-.92	5.23	11.95	13.68	11.57	7.38	5.47	-3.10	-6.60
1.0	-.43	-.05	-.18	-.23	2.12	6.37	8.64	9.65	8.43	3.41	1.32	-.98
1.5	1.14	.95	.67	.44	1.28	3.80	6.18	8.25	7.77	6.76	3.61	1.46
2.0	1.46	1.25	.90	.59	.89	2.28	4.20	6.59	6.61	6.16	4.02	2.78
2.5	1.75	1.52	1.15	.80	.91	1.63	3.05	5.35	5.75	5.61	4.21	3.07
3.0	1.96	1.64	1.26	.89	.91	1.27	2.26	4.28	4.92	4.97	4.12	3.13
3.5	1.96	1.76	1.39	1.02	.99	1.15	1.80	3.49	4.25	4.41	3.97	3.18
4.0	1.98	1.78	1.43	1.01	1.01		1.45	2.79	3.56	3.80	3.68	3.08
4.5	1.99	1.81	1.49	1.16	1.06	1.05	1.28	2.32	3.05	3.33	3.43	2.98
5.0	2.01	1.85	1.55	1.26	1.15	1.10	1.24	2.04	2.70	2.98	3.20	2.91

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 608.6. EMR-85-12A
-WELL SPUDDED 85 2 26

NW-ZAMA PIPELINE KM 608.6. EMR-85-12A
-DEMARRAGE DU PUITS LE 85 2 26

THIN, UNFROZEN PEAT PLATEAU.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. .8 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 85-12A: JEAN MARIE CR A - T3A

****

61 DEGREES 11.6 MINUTES NORTH
120 DEGREES 42.2 MINUTES WEST

61 DEGRES 11.6 MINUTES NORD
120 DEGRES 42.2 MINUTES OUEST

ELEVATION 298 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 21	DATE 87 2 5	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 18	DATE 87 9 16	DATE 87 10 4	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-.83	-1.54	-.47	-.18	1.36	2.59	4.59	7.42	6.86	5.74	.12	.69
2.0	.71	.46	.91	1.08	1.13	1.18	2.19	4.59	5.12	5.11	2.71	1.24
3.0	1.83	1.56	1.53	1.57	1.38	1.33	1.71	3.30	4.05	4.25	3.39	2.37
4.0	2.18	2.04	1.75	1.63	1.40	1.32	1.41	2.29	2.96		3.66	2.78
5.0	2.27	2.14	1.95	1.81	1.60	1.50	1.48	1.90	2.38	2.62	3.74	2.87
6.0	2.22	2.17	2.03	1.93	1.76	1.67	1.63	1.77	2.06	2.25	3.44	2.65
8.0	1.83	1.83	1.80	1.77	1.67	1.62	1.63	1.55	1.64	1.72	2.97	2.38
10.0	1.63	1.65	1.67	1.69	1.65	1.62	1.59	1.55	1.56	1.59	2.44	1.80
12.0	1.54	1.56	1.61	1.64	1.63	1.63	1.62	1.58	1.57	1.57	1.98	1.67
14.0	1.49	1.51	1.54	1.58	1.60	1.60	1.60	1.58	1.58	1.57	1.65	1.61
16.4	1.49	1.49	1.51	1.54	1.55	1.57	1.57	1.56	1.56	1.56		1.56

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 608.5. EMR-85-12A
-WELL SPUDDED 85 3 7

NW-ZAMA PIPELINE KM 608.5. EMR-85-12A
-DEMARRAGE DU PUITS LE 85 3 7

THIN,UNFROZEN PEAT PLATEAU.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. 5.9 M W OF PIPELINE IN 38MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).

SITE 85-12A: JEAN MARIE CR A - T4

****

61 DEGREES 11.6 MINUTES NORTH
120 DEGREES 42.2 MINUTES WEST

61 DEGRES 11.6 MINUTES NORD
120 DEGRES 42.2 MINUTES OUEST

ELEVATION 298 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 21	DATE 87 2 5	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 18	DATE 87 9 16	DATE 87 10 4	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-2.67	-2.36	-2.27	-.95	.67	2.04	6.83	7.69	5.28	3.73	-2.05	-3.80
1.0	-1.29	-1.32	-1.59	-.50	-.11	-.07	-.02	3.67	3.62	2.72	-.71	-1.76
1.5	-.99	-1.28	-.63	-.17	-.04	.01	.05	2.44	2.66	2.32	-.01	-1.13
2.0	-.52	-.74	-.23	.09	.17	.17	.18	1.65	2.02	1.96	.37	-.65
3.0	.20	.19	.24	.13	.12	.10	.08	.53	.92	1.02		.35
4.0	.60	.55	.47	.37	.37	.35	.33	.45	.71	.84	.92	.80
5.0	.77	.74	.67	.58	.58	.55	.53	.55	.68	.77	.91	.89
6.0	.79	.78	.73	.65	.65	.64	.61	.59	.65	.70	.82	.85
8.0	.81	.81	.81	.75	.78	.77	.75	.73	.73	.73	.79	.83
10.0	.81	.81	.81	.79	.83	.83	.82	.80	.79	.79	.81	.84
12.0	.87	.88	.91	.87	.91	.93	.92	.92	.91	.88	.89	.89

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 608.6. EMR-85-12A
-WELL SPUDDED 85 3 8

NW-ZAMA PIPELINE KM 608.6. EMR-85-12A
-DEMARRAGE DU PUITS LE 85 3 8

THIN, UNFROZEN PEAT PLATEAU.
NO PREVIOUS CLEARING.
CABLE OFF R.O.W. 17.9 M W OF PIPELINE
IN 38MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).

SITE 85-12A: JEAN MARIE CR A - T3

****

61 DEGREES 11.6 MINUTES NORTH
120 DEGREES 42.2 MINUTES WEST

61 DEGRES 11.6 MINUTES NORD
120 DEGRES 42.2 MINUTES OUEST

ELEVATION 298 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 18	DATE 87 9 16	DATE 87 10 4	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	1.22	7.75	11.33	10.23	7.43	5.60	2.83	-1.67
1.0	.63	3.46	5.84	8.27	7.53	6.27	2.12	1.41
1.5	.33	1.72	4.29	6.97	6.70	6.00	3.53	2.14
2.0	.50	1.13	2.98	5.55	5.73	5.48	3.38	2.49
2.5	.66		2.04	4.26	4.78	4.79	2.93	2.72
3.0	.85	.82	1.24	2.67	3.43	3.67	2.57	2.78
4.0	1.00	.95	1.04	1.84	2.48	2.77	1.94	2.66
5.0	1.08	.99	.97	1.36	1.83	2.10	1.70	2.36
6.0	1.17	1.09	1.03	1.17	1.45	1.64	1.62	2.06
7.0	1.22	1.16	1.10	1.12	1.26	1.38	1.82	1.77

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 608.6. EMR-85-12A
-WELL SPUDDED 85 7 3

NW-ZAMA PIPELINE KM 608.6. EMR-85-12A
-DEMARRAGE DU PUITS LE 85 7 3

THIN, UNFROZEN PEAT PLATEAU.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. 6.9M W OF PIPELINE (IN LINE WITH "FENCE") IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 85-12B: JEAN MARIE CR B - CABLE T1

****

61 DEGREES 11.4 MINUTES NORTH
120 DEGREES 42.2 MINUTES WEST

61 DEGRES 11.4 MINUTES NORD
120 DEGRES 42.2 MINUTES OUEST

ELEVATION 300 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 21	DATE 87 2 5	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 18	DATE 87 9 16	DATE 87 10 4	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-4.88	-4.62	-5.43	-1.66	3.07	7.83	6.59	8.84	5.48	4.15	-1.29	-9.44
1.0	-.73	-1.22	-2.13	-.83	-.10	-.05	-.04	2.45	2.78	2.32	-.47	-2.89
1.5	-.05	-.08	-.32	-.30	-.10	-.06	-.06	.01	.44	.61	.35	-.62
2.0	-.12	-.11	-.13	-.20	-.16	-.13	-.12	-.11	-.10	-.10	-.08	-.06
2.5	-.19	-.18	-.16	-.18	-.20	-.19	-.18	-.17	-.16	-.16	-.15	-.14
3.0	-.23	-.22	-.21	-.20	-.23	-.22	-.22	-.22	-.21	-.21	-.21	-.19
3.5	-.18	-.16	-.14	-.14	-.15	-.14	-.14	-.13	-.12	-.14	-.13	-.12
4.0											-.20	
4.5	-.23	-.21	-.21	-.20	-.20	-.19	-.19	-.19	-.19	-.19	-.19	-.18
5.0	-.15	-.14	-.15	-.13	-.12	-.12	-.12	-.12	-.12	-.12	-.12	-.11

TEMPERATURE RESULTS ARE OBTAINED
FROM A MULTITHERMISTOR CABLE.
FURTHER TEMPERATURE LOGS
ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN
CABLE A THERMISTORS MULTIPLES.
ON PREVOIT ENTREPRENDRE D'AUTRES
SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 608.7. EMR-85-12B
-WELL SPUDDED 85 2 26

NW-ZAMA PIPELINE KM 608.7. EMR-85-12B
-DEMARRAGE DU PUITS LE 85 2 26

THICK ICE-RICH PEAT PLATEAU.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. 1.5 M E OF PIPELINE IN
25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 85-12B: JEAN MARIE CR B - CABLE T2

****

61 DEGREES 11.4 MINUTES NORTH
120 DEGREES 42.2 MINUTES WEST

61 DEGRES 11.4 MINUTES NORD
120 DEGRES 42.2 MINUTES OUEST

ELEVATION 300 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 1 21 T(C)	DATE 87 2 5 T(C)	DATE 87 3 12 T(C)	DATE 87 4 9 T(C)	DATE 87 5 24 T(C)	DATE 87 6 19 T(C)	DATE 87 7 10 T(C)	DATE 87 8 18 T(C)	DATE 87 9 16 T(C)	DATE 87 10 4 T(C)	DATE 87 11 12 T(C)	DATE 87 12 16 T(C)
.5	-6.22	-6.58	-6.62	-2.54	10.92	16.23	22.05	10.85	5.42	3.62	-6.80	
1.0	-1.71	-1.86	-2.51	-1.10	-.08	-.02	.76	3.01	3.26	2.34	-1.63	-4.43
1.5	-.15	-.16	-.29	-.28	-.11	-.08	-.08	.56	.68	.71	.26	-1.28
2.0	-.12	-.12	-.13	-.22	-.16	-.13	-.13	-.11	-.10	-.10	-.05	-.07
2.5	-.20	-.19	-.20	-.27	-.25	-.22	-.22	-.20	-.20	-.19	-.18	-.16
3.0	-.24	-.23	-.23	-.26	-.28	-.26	-.25	-.24	-.24	-.23	-.22	-.21
3.5	-.20	-.20	-.19	-.19	-.22	-.21	-.21	-.20	-.19	-.19	-.19	-.17
4.0	-.23	-.22	-.21	-.21	-.22	-.21	-.21	-.21	-.21	-.21	-.21	-.19
4.5	-.15	-.14	-.14	-.13	-.14	-.13	-.13	-.14	-.13	-.13	-.13	-.12
5.0	-.15	-.14	-.14	-.14	-.14	-.13	-.13	-.14	-.14	-.13	-.14	-.13

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 608.7. EMR-85-12B
-WELL SPUDDED 85 2 26

NW-ZAMA PIPELINE KM 608.7. EMR-85-12B
-DEMARRAGE DU PUITS LE 85 2 26

THICK ICE-RICH PEAT PLATEAU.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. .8 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 85-12B: JEAN MARIE CR B - CABLE T3

****

61 DEGREES 11.4 MINUTES NORTH
120 DEGREES 42.2 MINUTES WEST

61 DEGRES 11.4 MINUTES NORD
120 DEGRES 42.2 MINUTES OUEST

ELEVATION 300 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 21	DATE 87 2 5	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 18	DATE 87 9 16	DATE 87 10 4	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
0.0	-13.10	-10.90	-7.40	2.57	24.66	28.51	30.26	12.77	5.75	4.34	-8.71	-8.02
1.0	-.45	-2.66	-4.15	2.27	-.72	-.42	-.30	-.10	-.05	-.05		-.05
2.0	-.17	-.41	-1.62	-1.91	-.81	-.53	-.40	-.27	-.21	-.21	-.19	-.16
3.0	-.21	-.29	-.50	-.86	-.61	-.46	-.39	-.31	-.27	-.26	-.24	
4.0	-.20	-.20	-.19	-.24	-.34	-.30	-.29	-.26	-.24	-.24	-.23	-.21
6.0	.03	.02	.02	.02	.03	.03	.02	.02	.02	.02	.02	.02
8.0	.19	.18	.18	.18	.19	.20	.19	.18	.18	.18	.17	.18
10.0	.26	.24	.32	.24	.23	.24	.22	.28	.27	.13	.11	.09
12.5	.48	.48	.47	.47	.48	.49	.48	.48	.48	.47	.47	.48
17.2	.77	.78	.77	.77	.78	.79	.78	.77	.77	.77		.77

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 608.7. EMR-85-12B
-WELL SPUDDED 85 3 7

NW-ZAMA PIPELINE KM 608.7. EMR-85-12B
-DEMARRAGE DU PUITS LE 85 3 7

THICK ICE-RICH PEAT PLATEAU.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. 5.9 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44033 (PAIRED).

SITE 85-12B: JEAN MARIE CR B - CABLE T4

****

61 DEGREES 11.4 MINUTES NORTH
120 DEGREES 42.2 MINUTES WEST

61 DEGRES 11.4 MINUTES NORD
120 DEGRES 42.2 MINUTES OUEST

ELEVATION 300 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 1 21 T(C)	DATE 87 2 5 T(C)	DATE 87 3 12 T(C)	DATE 87 4 9 T(C)	DATE 87 5 24 T(C)	DATE 87 6 19 T(C)	DATE 87 7 10 T(C)	DATE 87 8 18 T(C)	DATE 87 9 16 T(C)	DATE 87 10 4 T(C)	DATE 87 11 12 T(C)	DATE 87 12 16 T(C)
.5	-4.38	-5.05	-5.73	-1.53	3.14	7.09	9.47	7.80	4.23	3.14	-2.09	-3.40
1.0	-1.21	-1.86	-2.33	-1.50	-.26	-.19	-.15	-.05	.03	.02	-.42	-1.30
1.5	-1.06	-1.28	-.86	-.72	-.28	-.23	-.20	-.18	-.16	-.16	-.15	-.15
2.0	-.10	-.10	-.25	-.38	-.19	-.16	-.13	-.11	-.10	-.12	-.10	-.09
2.5	-.12	-.13	-.12	-.19	-.16	-.15	-.14	-.13	-.12	-.26	-.12	-.11
3.5	-.06	-.06	-.06	-.06	-.05	-.05	-.05	-.06	-.06	-.06	-.06	-.06
4.5	.05	.06	.06	.06	.07	.07	.06	.06	.06	.06	.06	.06
5.5	.18	.19	.19	.19	.20	.20	.20	.19	.19	.19	.18	.19
6.5	.20	.21	.20	.20	.21	.22	.21	.21	.21	.20	.20	.21
8.0	.42	.43	.43	.43	.43	.44	.43	.43	.43	.43	.43	.43
9.7	.43	.44	.44	.44	.45	.46	.46	.44	.44	.44	.44	.44

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 608.7. EMR-85-12B
-WELL SPUDDED 85 3 7

NW-ZAMA PIPELINE KM 608.7. EMR-85-12B
-DEMARRAGE DU PUITS LE 85 3 7

THICK ICE-RICH PEAT PLATEAU.
NO PREVIOUS CLEARING.
CABLE OFF R.O.W. 17.9 M W OF PIPELINE
25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033 (PAIRED).

SITE 85-12B JEAN MARIE CREEK B - HA133

****

61 DEGREES 11.4 MINUTES NORTH
120 DEGREES 42.2 MINUTES WEST

61 DEGRES 11.4 MINUTES NORD
120 DEGRES 42.2 MINUTES OUEST

ELEVATION 300 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 6 19 T(C)	DATE 87 7 10 T(C)	DATE 87 8 18 T(C)	DATE 87 9 16 T(C)	DATE 87 10 4 T(C)
0.0	27.25	36.31	14.11	6.60	5.15
.2	5.54	12.13	10.84	7.56	5.84
.7	2.42	4.30	7.75	7.00	5.76
1.2	.42	1.90	5.32	5.49	5.17
1.7	.46	1.30	4.20	4.72	4.64
2.2	.54	1.00	3.27	4.00	4.09
2.7	.64	.89	2.60	3.40	3.58
3.7	.61	.66	1.58	2.30	2.55
4.7	.67	.66	1.14	1.68	1.93
5.7	.73	.69	.85	1.17	1.36

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 608.7. EMR-85-12B.
-WELL SPUDDED 87 5 24

NW-ZAMA PIPELINE KM 608.7. EMR-85-12B.
-DEMARRAGE DU PUITS LE 87 5 24

CABLE IS IN UNFROZEN FEN JUST NORTH OF PEAT PLATEAU.
10 SENSORS YSI44033 (PAIRED).

SITE 85-12B JEAN MARIE CREEK B - HA134

****

61 DEGREES 11.4 MINUTES NORTH
120 DEGREES 42.2 MINUTES WEST

61 DEGRES 11.4 MINUTES NORD
120 DEGRES 42.2 MINUTES OUEST

ELEVATION 300 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	T(C) DATE 87 6 19	T(C) DATE 87 7 10	T(C) DATE 87 8 18	T(C) DATE 87 9 16	T(C) DATE 87 10 4
.5	-.03	2.21	3.56	3.19	2.74
1.0	-.20	-.07	-.02	0.00	.01
1.5	-.21	-.21	-.16	-.14	-.13
2.0	-.21	-.21	-.14	-.11	-.10
2.5	-.26	-.20	-.17	-.15	-.14
3.5	-.15	-.26	-.25	-.24	-.24
4.5	-.06	-.16	-.16	-.16	-.16
5.5	.05	-.07	-.08	-.08	-.09
6.5	.08	.04	.03	.03	.02
7.4		.07	.06	.06	.06

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 608.7. EMR-85-12B.
-WELL SPUDDED 87 5 24

NW-ZAMA PIPELINE KM 608.7. EMR-85-12B.
-DEMARRAGE DU PUITS LE 87 5 24

HA134 IS ON EDGE OF PEAT PLATEAU ONLY
2M NORTH OF FENCE.
10 SENSORS YSI44033 (PAIRED).

SITE 85-13: REDKNIFE HILLS - A

****

60 DEGREES 34.1 MINUTES NORTH
120 DEGREES 17.2 MINUTES WEST

60 DEGRES 34.1 MINUTES NORD
120 DEGRES 17.2 MINUTES OUEST

ELEVATION 634 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 5	DATE 87 3 12	DATE 87 5 23	DATE 87 6 19	DATE 87 7 10	DATE 87 8 18	DATE 87 9 16	DATE 87 10 4
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	-.50	-1.25	-.21	-.18	.01	1.01	1.02	.63
2.0	-.18	-.18	-.18	-.17	-.16	-.17	-.16	-.16
3.0	-.13	-.12	-.12	-.11	-.11	-.12	-.12	-.12
4.0	-.05	-.04	-.03	-.02	-.03	-.03	-.03	-.05
6.0	-.02	-.02	-.02	-.03	-.02	-.02	-.02	-.02
8.0	.06	.07	.07	.09	.08	.08	.08	.06
10.0	.22	.22	.23	.23	.23	.23	.23	.22
12.0	.29	.30	.31		.32	.32	.32	.29
14.0	.35	.35	.36	.37	.37	.37	.37	.35
17.0	.57	.57	.57	.58	.57	.57	.57	.57
20.0	.69	.70	.70	.71	.70	.69	.69	.69

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 682.2. EMR-85-13A
-WELL SPUDDED 85 3 4

NW-ZAMA PIPELINE KM 682.2. EMR-85-13A
-DEMARRAGE DU PUITS LE 85 3 4

THIN FROZEN TERRAIN SURROUNDING FEN.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. 3 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033

SITE 85-13: REDKNIFE HILLS - B

****

60 DEGREES 34.0 MINUTES NORTH
120 DEGREES 17.1 MINUTES WEST

60 DEGRES 34.0 MINUTES NORD
120 DEGRES 17.1 MINUTES OUEST

ELEVATION 634 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 5	DATE 87 3 12	DATE 87 5 23	DATE 87 6 19	DATE 87 7 10	DATE 87 8 18	DATE 87 9 16	DATE 87 10 4
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-2.45	-3.45	3.93	8.82	11.14	10.50	6.31	5.37
1.0	-.51	-.90	.01	.32	1.02	4.22	4.35	3.42
1.5	-.07	-.09		-.04	-.06	.88	1.50	1.29
2.0	-.14	-.13	-.14	-.12	-.13	-.12	-.06	.09
2.5	-.21	-.19	-.19	-.17	-.18	-.17	-.16	-.17
3.5	-.12	-.11	-.11	-.09	-.10	-.09	-.09	-.10
4.5	-.09	-.08	-.08	-.07	-.08	-.07	-.07	-.07
5.5	-.16	-.15	-.15	-.13	-.14	-.14	-.13	-.15
6.5	-.05	-.05	.11	-.03	-.04	-.04	-.04	-.04
8.5	.15	.15	.15	.17	.16	.16	.16	.17
10.5	.31	.32	.31	.33	.33	.32	.32	.33

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 682.4. EMR-85-13B
-WELL SPUDDED 85 3 4

NW-ZAMA PIPELINE KM 682.4. EMR-85-13B
-DEMARRAGE DU PUITS LE 85 3 4

FROZEN TERRAIN AROUND FEN.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. 4 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44033

SITE 85-13: REDKNIFE HILLS - C

****

60 DEGREES 33.9 MINUTES NORTH
120 DEGREES 17.0 MINUTES WEST

60 DEGRES 33.9 MINUTES NORD
120 DEGRES 17.0 MINUTES OUEST

ELEVATION 634 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 2 5 T(C)	DATE 87 3 12 T(C)	DATE 87 5 23 T(C)	DATE 87 6 19 T(C)	DATE 87 7 10 T(C)	DATE 87 8 18 T(C)	DATE 87 9 16 T(C)	DATE 87 10 4 T(C)
.50	-1.50	-2.27	3.14	6.48	10.53	9.83	6.41	4.58
1.00	-.10	-1.34	-.07	-.03	9.07	7.21	6.79	5.50
1.50	.54	-.38	.50	.54	1.19	5.25	5.80	5.48
2.00	.97	-.12	1.14	1.13	1.33	3.63	4.52	4.66
2.50	1.91	.39	1.53	1.53	1.58	2.60	3.37	3.65
3.00	2.29	1.49	2.02	2.00	1.99	2.39	2.88	3.12
3.50	2.38	1.90	2.20	2.17	2.13	2.33	2.68	2.89
4.00	2.51	2.24	2.25	2.21	2.18	2.29	2.56	2.74
4.50	2.55	2.24	2.38	2.35	2.31	2.37	2.56	2.71

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 682.6. EMR-85-13C
-WELL SPUDDED 85 3 4

NW-ZAMA PIPELINE KM 682.6. EMR-85-13C
-DEMARRAGE DU PUITS LE 85 3 4

FENCE IS LOCATED INSIDE FEN.
NO PREVIOUS CLEARING.
CABLE ON R.O.W. 4 M E OF PIPELINE IN 38MM OIL-FILLED PVC TUBE.
9 SENSOR YSI44033

SITE 84-5A: PETITOT RIVER NORTH A - T1

****

59 DEGREES 45.0 MINUTES NORTH
119 DEGREES 30.0 MINUTES WEST

59 DEGRES 45.0 MINUTES NORD
119 DEGRES 30.0 MINUTES OUEST

ELEVATION 552 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 2 5 T(C)	DATE 87 3 12 T(C)	DATE 87 5 23 T(C)	DATE 87 6 19 T(C)	DATE 87 7 10 T(C)	DATE 87 8 18 T(C)	DATE 87 9 16 T(C)	DATE 87 10 4 T(C)
.5	-1.99	-3.24	12.45	19.80	22.44	19.51	7.00	4.30
1.0	-.09	-.39	.04	.26	2.32	5.87	4.66	3.35
1.5	-.10	-.10	-.09	-.08	-.08	.02	.49	.45
2.0	-.10	-.11	-.09	-.09	-.09	-.09	-.09	-.09
2.5	-.11	-.11	-.10	-.10	-.10	-.10	-.10	-.10
3.0	-.18	-.18	-.17	-.16	-.16	-.17	-.17	-.16
3.5	-.13	-.14	-.13	-.12	-.12	-.13	-.13	-.12
4.0	-.19	-.19	-.18	-.17	-.17	-.18	-.17	-.18
4.5	-.15	-.15	-.15	-.14	-.14	-.15	-.10	-.14
5.2	-.21	-.22	-.21	-.20	-.20	-.21	-.21	-.21

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 783.0. EMR-84-5A
-WELL SPUDDED 84 3 18

NW-ZAMA PIPELINE KM 783.0. EMR-84-5A
-DEMARRAGE DU PUITS LE 84 3 18

ICE-RICH PEAT 3.5 M THICK.
MACHINE-CLEARED TO 25.0M IN WINTER 82/83.
CABLE ON R.O.W. 1.3 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44032 (PAIRED).

SITE 84-5A: PETITOT RIVER NORTH A - T2

****

59 DEGREES 45.0 MINUTES NORTH
119 DEGREES 30.0 MINUTES WEST

59 DEGRES 45.0 MINUTES NORD
119 DEGRES 30.0 MINUTES OUEST

ELEVATION 552 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 2 5 T(C)	DATE 87 3 12 T(C)	DATE 87 5 23 T(C)	DATE 87 6 19 T(C)	DATE 87 7 10 T(C)	DATE 87 8 18 T(C)	DATE 87 9 16 T(C)	DATE 87 10 4 T(C)
.5	-.02	-.03	0.00	.06	-.01	1.26	1.86	1.39
1.0	.08	.07	.08	.10	.08	.08	.12	.18
1.5	-.02	-.03	-.02	-.01	-.02	-.03	-.01	.01
2.0	-.04	-.05	-.04	-.03	-.04	-.05	-.05	-.04
2.5	-.09	-.09	-.09	-.07	-.09	-.09	-.09	-.10
3.0	-.14	-.15	-.14	-.13	-.14	-.14	-.14	-.14
3.5	-.15	-.15	-.15	-.14	-.15	-.15	-.15	-.15
4.0	-.13	-.13	-.12	-.11	-.13	-.13	-.13	-.13
4.5	-.11	-.11	-.11	-.10	-.11	-.12	-.12	-.11
5.6		-.10	-.10	-.09	-.10		-.10	

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 783.0. EMR-84-5A
-WELL SPUDDED 84 3 18

NW-ZAMA PIPELINE KM 783.0. EMR-84-5A
-DEMARRAGE DU PUITS LE 84 3 18

ICE-RICH PEAT 3.5M THICK.
MACHINE-CLEARED TO 25M IN WINTER 82/83.
CABLE ON R.O.W. 2.3 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44032 (PAIRED).

SITE 84-5A: PETITOT RIVER NORTH A - T3

****

59 DEGREES 45.0 MINUTES NORTH
119 DEGREES 30.0 MINUTES WEST

59 DEGRES 45.0 MINUTES NORD
119 DEGRES 30.0 MINUTES OUEST

ELEVATION 552 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 2 5 T(C)	DATE 87 3 12 T(C)	DATE 87 5 23 T(C)	DATE 87 6 19 T(C)	DATE 87 7 10 T(C)	DATE 87 8 18 T(C)	DATE 87 9 16 T(C)	DATE 87 10 4 T(C)
1.0	0.00	-.01	0.00	.05		4.52	4.05	2.58
2.0	-.01	-.01	0.00	0.00	0.00	0.00	0.00	0.00
3.0	-.06	-.07	-.06	-.05	-.06	-.06	-.06	-.06
4.0	-.06	-.07	-.06	-.05	-.06	-.07	-.06	-.06
6.0	-.21	-.21	-.20	-.19	-.20	-.21	-.21	-.21
8.0	-.14	-.15	-.14	-.14	-.15	-.15	-.10	-.15
10.0	-.17	-.18	-.17	-.16	-.17	-.19	-.20	-.18
12.0	-.10	-.10	-.10	-.09	-.10	-.10	-.10	-.10
15.0	-.08	-.07	-.07	-.07	-.08	-.08	-.10	-.08
18.0	.03	.08	.03	.06	.06	.08	.10	.03
20.6				.13	.12		.10	

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 783.0. EMR-84-5A
-WELL SPUDDED 84 3 18

NW-ZAMA PIPELINE KM 783.0. EMR-84-5A
-DEMARRAGE DU PUITS LE 84 3 18

ICE-RICH PEAT 3.5 M THICK.
MACHIND-CLEARED TO 25M IN WINTER 82/83.
CABLE ON R.O.W. 4.6 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44032 (PAIRED).

SITE 84-5A: PETITOT RIVER NORTH A - T4

****

59 DEGREES 45.0 MINUTES NORTH
119 DEGREES 30.0 MINUTES WEST

59 DEGRES 45.0 MINUTES NORD
119 DEGRES 30.0 MINUTES OUEST

ELEVATION 552 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 5	DATE 87 3 12	DATE 87 5 23	DATE 87 6 19	DATE 87 7 10	DATE 87 8 18	DATE 87 9 16	DATE 87 10 4
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.0	0.00	-.01	.01	.01	.26	1.63	1.63	1.04
2.0	-.16	-.16	-.15	-.15	-.15	-.15	-.15	-.15
3.0	-.20	-.19	-.18	-.18	-.19	-.18	-.18	-.18
4.0	-.20	-.19	-.19	-.18	-.19	-.19	-.18	-.18
6.0	-.22	-.22	-.22	-.19	-.22	-.22	-.22	-.22
8.0	-.18	-.18	-.18	-.17	-.18	-.18	-.18	-.18
10.0	-.14	-.15	-.14	-.14	-.15	-.15	-.10	-.15
12.0	-.12	-.12	-.12	-.12	-.12	-.12	-.12	-.12
15.0	-.04	-.03	-.04	-.04	-.04	-.04	-.04	-.04
18.0	0.00	0.00	0.00	-.01	0.00	0.00	0.00	0.00
20.6	.11	.14	.11	.12	.11	.11	.13	.10

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 783.0. EMR-84-5A
-WELL SPUDDED 84 3 18

NW-ZAMA PIPELINE KM 783.0. EMR-84-5A
-DEMARRAGE DU PUITS LE 84 3 18

ICE-RICH PEAT 3.5 M THICK.
MACHINE-CLEARED TO 25M IN WINTER 82/83.
CABLE OFF R.O.W. 21.6 M W OF PIPELINE
IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44032 (PAIRED).

SITE 84-5B: PETITOT RIVER NORTH B - T1(NEW)

****

59 DEGREES 45.0 MINUTES NORTH
119 DEGREES 30.0 MINUTES WEST

59 DEGRES 45.0 MINUTES NORD
119 DEGRES 30.0 MINUTES OUEST

ELEVATION 552 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 2 5 T(C)	DATE 87 5 23 T(C)	DATE 87 6 19 T(C)	DATE 87 8 18 T(C)	DATE 87 10 4 T(C)
.5	-1.02	1.42	4.27	7.70	3.67
1.0	-.05	-.03	-.03	2.66	1.89
1.5	-.10	-.09	-.09	-.09	-.08
2.0	-.10	-.09	-.09	-.09	-.09
2.5	-.20	-.18	-.19	-.19	-.19
3.0	-.13	-.14	-.15	-.15	-.15
3.5	-.16	-.17	-.17	-.17	-.17
4.0	-.16	-.17	-.17	-.18	-.18
4.5	-.20	-.22	-.22	-.23	-.23
5.0	-.20	-.21	-.22	-.23	-.23
5.5	-.19	-.18	-.19	-.03	-.15

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 783.2. EMR-84-5B
-WELL SPUDDED 84 3 18

NW-ZAMA PIPELINE KM 783.2. EMR-84-5B
-DEMARRAGE DU PUITS LE 84 3 18

VERY THICK ICY PEAT (7M).
MACHINE CLEARED TO 26M IN WINTER 82/83
CABLE ON R.O.W. 1.3M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.'
NEW CABLE INSTALLED IN OCTOBER/86.
11 SENSOR YSI44033 (PAIRED)

SITE 84-5B: PETITOT RIVER NORTH B - T2(NEW)

****

59 DEGREES 45.0 MINUTES NORTH
119 DEGREES 30.0 MINUTES WEST

59 DEGRES 45.0 MINUTES NORD
119 DEGRES 30.0 MINUTES OUEST

ELEVATION 552 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 2 5 T(C)	DATE 87 5 23 T(C)	DATE 87 6 19 T(C)	DATE 87 8 18 T(C)	DATE 87 10 4 T(C)
.5	-.23	.08	.85	7.50	3.99
1.0	-.01	-.01	0.00	4.03	2.54
1.5	-.05	-.05	-.05	1.09	.85
2.0	-.04	-.04	-.04	-.04	-.03
2.5	-.09	-.08	-.08	-.08	-.08
3.0	-.11	-.11	-.10	-.11	-.11
3.5	-.17	-.18	-.17	-.18	-.18
4.0	-.18	-.18	-.18	-.18	-.18
4.5	-.20	-.21	-.20	-.21	-.21
5.0	-.18	-.18	-.18	-.18	-.18
5.7	-.16	-.17	-.16	-.17	-.17

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 783.2. EMR-84-5B
-WELL SPUDDED 84 3 17

NW-ZAMA PIPELINE KM 783.2. EMR-84-5B
-DEMARRAGE DU PUITS LE 84 3 17

VERY THICK ICY PEAT (7M).
MACHINE CLEARED TO 26M IN WINTER 82/83
CABLE ON R.O.W. 2.3M W OF PIPELINE IN
25MM OIL-FILLED PVC TUBE.
NEW CABLE INSTALLED IN OCTOBER 1986.
11 SENSOR YSI44033 (PAIRED)

SITE 84-5B: PETITOT RIVER NORTH B -T3(NEW)

****

59 DEGREES 45.0 MINUTES NORTH
119 DEGREES 30.0 MINUTES WEST

59 DEGRES 45.0 MINUTES NORD
119 DEGRES 30.0 MINUTES OUEST

ELEVATION 552 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 2 5 T(C)	DATE 87 5 23 T(C)	DATE 87 6 19 T(C)	DATE 87 8 18 T(C)	DATE 87 9 16 T(C)	DATE 87 10 4 T(C)
1.0	-.04	0.00	.11	2.04	1.95	1.20
2.0	-.16	-.16	-.15	-.15	-.15	-.15
3.0	-.21	-.20	-.20	-.20	-.20	-.19
4.0	-.20	-.20	-.19	-.19	-.19	-.19
6.0	-.25	-.23	-.22	-.23	-.22	-.22
8.0	-.15	-.15	-.15	-.15	-.15	-.15
10.0	-.05	-.05	-.05	-.05	-.05	-.05
12.0	.03	.03	.03	.03	.03	.03
15.0	.12	.12	.13	.12	.12	.12
18.0	.22	.22	.22	.22	.22	.22
20.5	.32	.31	.32	.32	.32	.32

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 783.2. EMR-84-5B
-WELL SPUDDED 84 3 16

NW-ZAMA PIPELINE KM 783.2. EMR-84-5B
-DEMARRAGE DU PUITS LE 84 3 16

VERY THICK ICY PDAT (7M).
MACHINE CLEARED TO 26M IN WINTER 82/83.
CABLE ON R.O.W. 5.8M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
NEW CABLE INSTALLED IN OCTOBER 1986.
11 SENSOR YSI44033 (PAIRED).

SITE 84-5B: PETITOT RIVER NORTH B - T4(NEW)

****

59 DEGREES 45.0 MINUTES NORTH
119 DEGREES 30.0 MINUTES WEST

59 DEGRES 45.0 MINUTES NORD
119 DEGRES 30.0 MINUTES OUEST

ELEVATION 552 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 2 5 T(C)	DATE 87 5 23 T(C)	DATE 87 6 19 T(C)	DATE 87 8 18 T(C)	DATE 87 9 16 T(C)	DATE 87 10 4 T(C)
1.0	-.23	-.12	-.13	.04	.17	.10
2.0	-.01	-.09	-.09	-.10	-.09	-.09
3.0	-.26	-.24	-.24	-.24	-.24	-.24
4.0	-.30	-.29	-.29	-.29	-.29	-.29
6.0	-.10	-.05	-.05	-.06	-.06	-.05
8.0	-.10	-.10	-.10	-.10	-.10	-.10
10.0	-.15	-.15	-.15	-.16	-.16	-.15
12.0	.05	.03	.12	.03	.03	.03
15.0	.05	.05	.05	.04	.04	.05
18.0	.15	.16	.16	.15	.15	.15
20.5	.26	.26	.26	.25	.25	.25

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 783.2. EMR-84-5B
-WELL SPUDDED 84 3 17

NW-ZAMA PIPELINE KM 783.2. EMR-84-5B
-DEMARRAGE DU PUITS LE 84 3 17

VERY THICK ICY PEAT (7M(.
MACHINE CLEARED TO 26M IN WINTER 82/83.
CABLE OFF R.O.W. 20.8M W OF PIPELINE IN 38MM OIL-FILLED PVC TUBE.
NEW CABLE INSTALLED IN OCTOBER 1986.
11 SENSOR YSI44033 (PAIRED).

SITE 84-6: PETITOT RIVER SOUTH - T1

****

59 DEGREES 27.0 MINUTES NORTH
119 DEGREES 15.0 MINUTES WEST

59 DEGRES 27.0 MINUTES NORD
119 DEGRES 15.0 MINUTES OUEST

ELEVATION 575 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 2 5 T(C)	DATE 87 3 12 T(C)	DATE 87 5 23 T(C)	DATE 87 6 19 T(C)	DATE 87 7 10 T(C)	DATE 87 8 18 T(C)	DATE 87 9 16 T(C)	DATE 87 10 4 T(C)
.5	-.17	-.58	.06	.49	1.63	3.75	3.13	2.27
1.0	-.07	-.09	-.06	-.04	-.06	-.05	-.01	.01
1.5	-.04	-.04	-.03	-.03	-.02	-.01	0.00	0.00
2.0	-.09	-.09	-.08	-.07	-.07	-.08	-.08	-.07
2.5	-.20	-.19	-.18	-.18	-.18	-.18	-.18	-.18
3.0	-.19	-.19	-.18	-.18	-.17	-.18	-.18	-.18
3.5	-.20	-.20	-.19	-.19	-.19	-.19	-.19	-.19
4.0	-.07	-.07	-.07	-.06	-.07	-.07	-.07	-.07
4.5	-.09	-.08	-.08	-.08	-.07	-.08	-.08	-.09
5.5	-.10	-.10	-.10	-.09	-.10	-.10	-.10	-.10

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 819.5 EMR-84-6
-WELL SPUDDED 84 3 21

NW-ZAMA PIPELINE KM 819.5 EMR-84-6
-DEMARRAGE DU PUITS LE 84 3 21

THICK AND VERY ICE-RICH PEAT (5M).
MACHINE CLEARED TO 25M IN WINTER 82/83.
CABLE ON R.O.W. 1.2 M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44032 (PAIRED).

SITE 84-6: PETITOT RIVER SOUTH - T2

****

59 DEGREES 27.0 MINUTES NORTH
119 DEGREES 15.0 MINUTES WEST

59 DEGRES 27.0 MINUTES NORD
119 DEGRES 15.0 MINUTES OUEST

ELEVATION 575 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 2 5 T(C)	DATE 87 3 12 T(C)	DATE 87 5 23 T(C)	DATE 87 6 19 T(C)	DATE 87 7 10 T(C)	DATE 87 8 18 T(C)	DATE 87 9 16 T(C)	DATE 87 10 4 T(C)
.5	-1.38	-3.34	.02	1.35	2.99	4.39	3.20	2.43
1.0	-.07	-.56	-.08	-.04	-.06	-.05	-.04	-.03
1.5	-.11	-.13	-.16	-.13	-.13	-.12	-.12	-.11
2.0	-.13	-.12	-.14	-.12	-.12	-.12	-.11	-.11
2.5	-.14	-.14	-.14	-.13	-.13	-.13	-.13	-.12
3.0	-.26		-.25	-.24	-.25	-.25	-.24	-.24
3.5	-.15	-.15	-.13	-.12	-.13	-.13	-.13	-.13
4.0	-.20	-.20	-.19	-.18		-.19	-.19	-.19
4.5	-.22	-.21	-.21	-.20	-.21	-.21	-.21	-.21
5.4	-.09	-.09	-.08	-.07	-.08	-.08	-.08	-.08

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 819.5 EMR-84-6
-WELL SPUDDED 84 3 19

NW-ZAMA PIPELINE KM 819.5 EMR-84-6
-DEMARRAGE DU PUITS LE 84 3 19

THICK AND VERY ICE-RICH PEAT (5M).
MACHINE CLEARED TO 25M IN WINTER 82/83.
CABLE ON R.O.W. 2 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
10 SENSOR YSI44032 (PAIRED).

SITE 84-6: PETITOT RIVER SOUTH - T3

****

59 DEGREES 27.0 MINUTES NORTH
119 DEGREES 15.0 MINUTES WEST

59 DEGRES 27.0 MINUTES NORD
119 DEGRES 15.0 MINUTES OUEST

ELEVATION 575 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 2 5 T(C)	DATE 87 3 12 T(C)	DATE 87 5 23 T(C)	DATE 87 6 19 T(C)	DATE 87 7 10 T(C)	DATE 87 8 18 T(C)	DATE 87 9 16 T(C)	DATE 87 10 4 T(C)
1.0	-.19	-.70	-.09	0.00	.19	-.10	-.09	-.09
2.0	-.12	-.11	-.10	-.07	-.10	-.19	-.18	-.18
3.0	-.20	-.20	-.18	-.17	-.19	-.17	-.17	-.16
4.0	-.18	-.18	-.17	-.15	-.17	-.07	-.07	-.07
6.0	-.07	-.08	-.07	-.05	-.07	-.08	-.08	-.08
8.0	-.08	-.08	-.07	-.07	-.08	.01	.01	.02
10.0	.02	.01	.02	.03	.01	.09	.09	.09
12.0	.10	.09	.10	.11	.10	.29	.29	.29
15.0	.30	.30	.30	.31	.29	.46	.46	.46
18.0	.46	.46	.46	.47	.46	.59	.59	.59

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 819.5 EMR-84-6
-WELL SPUDDED 84 3 19

NW-ZAMA PIPELINE KM 819.5 EMR-84-6
-DEMARRAGE DU PUITS LE 84 3 19

THICK AND VERY ICE-RICH PEAT (5M).
MACHINE CLEARED TO 25M IN WINTER 82/83.
CABLE ON R.O.W. 4 M W OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44032 (PAIRAD).

SITE 84-6: PETITOT RIVER SOUTH - T4

****

59 DEGREES 27.0 MINUTES NORTH
119 DEGREES 15.0 MINUTES WEST

59 DEGRES 27.0 MINUTES NORD
119 DEGRES 15.0 MINUTES OUEST

ELEVATION 575 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 2 5 T(C)	DATE 87 3 12 T(C)	DATE 87 5 23 T(C)	DATE 87 6 19 T(C)	DATE 87 7 10 T(C)	DATE 87 8 18 T(C)	DATE 87 9 16 T(C)	DATE 87 10 4 T(C)
1.0	-.21	0.00	.01	.03	0.00	.02	.04	.04
2.0	-.09	-.09	-.08	-.07	-.09	-.09	-.08	-.09
3.0	-.15	-.16	-.15	-.13	-.15	-.15	-.15	-.15
4.0	-.11	-.12	-.11	-.10	-.12	-.12	-.12	-.11
6.0	-.01	-.02	-.02	0.00	-.02	-.02	-.02	-.02
8.0	.06	.05	.06	.07	.05	.05	.05	.05
10.0	.10	.10	.10	.11	.09	.10	.10	.10
12.0	.24	.23	.24	.25	.23	.23	.23	.23
15.0	.50	.49	.49	.50	.49	.49	.49	.49
18.0	.55	.54	.54	.55	.53	.54	.54	.54
20.7	.67	.69	.67	.67	.66	.66	.66	.66

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 819.5 EMR-84-6
-WELL SPUDDED 84 3 19

NW-ZAMA PIPELINE KM 819.5 EMR-84-6
-DEMARRAGE DU PUITS LE 84 3 19

THICK AND VERY ICE-RICH PEAT (5M).
MACHINE-CLEARED TO 25M IN WINTER 82/83.
CABLE OFF R.O.W. 20 M W OF PIPELINE IN 38MM OIL-FILLED PVC TUBE.
11 SENSOR YSI44032 (PAIRED).

SITE 84-6: PETITOT RIVER SOUTH - T5(NEW)

****

59 DEGREES 27.0 MINUTES NORTH
119 DEGREES 15.0 MINUTES WEST

59 DEGRES 27.0 MINUTES NORD
119 DEGRES 15.0 MINUTES OUEST

ELEVATION 575 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 2 5 T(C)	DATE 87 10 4 T(C)
1.0	.89	6.92
3.0	2.01	2.54
5.0	1.64	1.60
7.0	1.52	1.53
9.4	1.37	1.30

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 819.4 EMR-84-6
-WELL SPUDDED 84 3 20

NW-ZAMA PIPELINE KM 819.4 EMR-84-6
-DEMARRAGE DU PUITS LE 84 3 20

THICK AND VERY ICE-RICH PEAT (5M).
LACHINE-CLEARED TO 25M IN WINTER 82/83.
CABLE ON R.O.W. 3M E OF PIPELINE IN 25MM OIL-FILLED PVC TUBE.
NEW CABLE INSTALLED 10/86 (OLD 12A-T3 CABLE).
5 SENSOR YSI44033 (PAIRED).

SITE KM 95.1(OLD 4B-T2)

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0 DEGREES 0.0 MINUTES NORTH
0 DEGREES 0.0 MINUTES WEST

0 DEGRES 0.0 MINUTES NORD
0 DEGRES 0.0 MINUTES OUEST

ELEVATION 110 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 3 10 T(C)	DATE 87 5 25 T(C)	DATE 87 6 16 T(C)	DATE 87 7 12 T(C)	DATE 87 8 16 T(C)	DATE 87 9 14 T(C)	DATE 87 10 2 T(C)
.5	-1.51	.04	.23	3.04	4.61	3.49	2.35
1.0	-.17	-.02	-.02	0.00	2.98	2.61	1.63
1.5	-.07	-.06	-.07	-.06	.50	.92	.66
2.0	-.07	-.08	-.08	-.07	-.07	-.03	.05
2.5	-.21	-.20	-.19	-.20	-.19	-.15	-.18
3.0	-.23	-.22	-.22	-.22	-.22	-.21	-.21
3.5	-.41	-.40	-.40	-.39	-.39	-.38	-.20
4.0	-.40	-.38	-.38	-.37	-.37	-.36	-.36
4.5	-.51	-.49	-.49	-.48	-.48	-.48	-.19
5.5	-.48	-.41	.10	-.37	.19	-.34	-.47

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 95.2
-WELL SPUDDED 86 10 8

NW-ZAMA PIPELINE KM 95.2
-DEMARRAGE DU PUITS LE 86 10 8

THERMOKARST POND TO SOUTH OF NEW CABLE, ON EAST SIDE OF R.O.W. ENCOMPASSING TRENCH.
GROUND FROZEN BELOW 1.5M.
38MM P.V.C. PIPE INFILLED WITH SILICONE.
THERMISTOR STRING 84-4B-T2 INSTALLED.
CABLE LOCATED 1.5M W OF PIPELINE.
10 SENSOR YSI44032 (PAIRED).

SITE KM 135 - CABLE HA127

****

0 DEGREES 0.0 MINUTES NORTH
0 DEGREES 0.0 MINUTES WEST

0 DEGRES 0.0 MINUTES NORD
0 DEGRES 0.0 MINUTES OUEST

ELEVATION 130 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 3 10 T(C)	DATE 87 5 25 T(C)	DATE 87 6 17 T(C)	DATE 87 7 12 T(C)	DATE 87 8 16 T(C)	DATE 87 9 14 T(C)	DATE 87 10 2 T(C)
.5	-1.35	-.02	.87	4.30	5.15	3.67	2.52
1.0	-.27	-.09	-.09	.49	2.27	2.02	1.19
2.0	-.30	-.32	-.35	-.36	-.33	-.31	-.28
3.0	-.50	-.49	-.50	-.50	-.49	-.48	-.48
4.0	-.58	-.57	-.57	-.57	-.56	-.55	-.57
5.0	-.68	-.65	-.66	-.66	-.64	-.64	-.63
6.0	-.73	-.71	-.71	-.71	-.70	-.69	-.68
7.0	-.80	-.78	-.79	-.78	-.77	-.76	-.76
8.0	-.91	-.88	-.76	-.88	-.86	-.85	-.85
9.0		-.82	-.81	-.80	-.79	-.79	-.79
10.0	-.85	-.74	-.83	-.83	-.82	-.81	-.80

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 135.1 EMR-86-135KM
-WELL SPUDDED 86 10 13

NW-ZAMA PIPELINE KM 135.1 EMR-86-135KM
-DEMARRAGE DU PUITS LE 86 10 13

UNFROZEN POCKET, NEGATIVE ROACH,
APPROX. 30 M BETWEEN CABLES.
GROUND FROZEN BELOW 1.5M.
38MM PVC PIPE INFILLED WITH SILICONE.
CABLE LOCATED 1.4M E OF PIPELINE.
11 SENSOR YSI44033 (PAIRED).

SITE KM 135 - CABLE HA128

****

0 DEGREES 0.0 MINUTES NORTH
0 DEGREES 0.0 MINUTES WEST

0 DEGRES 0.0 MINUTES NORD
0 DEGRES 0.0 MINUTES OUEST

ELEVATION 130 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 3 10	DATE 87 5 25	DATE 87 6 17	DATE 87 7 12	DATE 87 8 16	DATE 87 9 14	DATE 87 10 2
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-1.08	1.81	0.00	3.37	5.95	5.13	3.89
1.0	-.16	-.09	-.08	1.85	4.55	4.22	3.54
2.0	.06	0.00	-.01	.44	2.29	2.68	2.56
3.0	.10	.02	.01	.09	.93	1.39	1.47
4.0	.10	.03	.01	.02	.27	.52	.50
5.0	-.05	-.07	-.09	-.09	-.09	-.03	.03
6.0	-.02	-.03	-.07	-.07	-.07	-.07	-.06
7.0	-.19	-.19	-.23	-.23	-.23	-.23	-.23
8.0	-.12	-.13	-.15	-.15	-.15	-.15	-.15
9.0	-.15	-.14	-.16	-.16	-.16	-.16	-.15
10.0	-.18	-.18	-.20	-.20	-.20	-.20	-.19

TEMPERATURE RESULTS ARE OBTAINED
FROM A MULTITHERMISTOR CABLE.
FURTHER TEMPERATURE LOGS
ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN
CABLE A THERMISTORS MULTIPLES.
ON PREVOIT ENTREPRENDRE D'AUTRES
SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 135.1 EMR-86-135KM
-WELL SPUDDED 86 10 11

NW-ZAMA PIPELINE KM 135.1 EMR-86-135KM
-DEMARRAGE DU PUITS LE 86 10 11

UNFROZEN POCKET, NEGATIVE ROACH,
APPROX. 30 M BETWEEN CABLES.
GROUND UNFROZEN TO 6.5M.
38MM PVC PIPE INFILLED WITH SILICONE.
CABLE LOCATED 1.3M E OF PIPELINE.
11 SENSOR YSI44033 (PAIRED).

SITE KM 470.0 - HA131

****

0 DEGREES 0.0 MINUTES NORTH
0 DEGREES 0.0 MINUTES WEST

0 DEGRES 0.0 MINUTES NORD
0 DEGRES 0.0 MINUTES OUEST

ELEVATION 255 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 6	DATE 87 3 11	DATE 87 5 25	DATE 87 6 18	DATE 87 7 11	DATE 87 8 17	DATE 87 9 15	DATE 87 10 3	DATE 87 11 13
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-1.71	-1.28	-.14	-.02	.98	6.68	6.26	4.36	.33
1.0	.16	.05	-.01	.01	-.01	4.78	5.08	4.18	1.75
2.0	.72	.47	.23	.21	.17	2.32	3.36	3.46	2.33
3.0	1.13	.83	.47	.41	.36	1.08	2.10	2.44	2.25
4.0	1.41	1.13	.71	.64	.57	.68	1.19	1.48	1.81
5.0	1.45	1.25	.86	.79	.72	.67	.83	.99	1.34
6.0	1.34	1.21	.94	.87	.81	.73	.75	.80	1.02
7.0	1.12	1.06	.91	.86	.81	.74	.71	.72	.82
8.0	1.01	1.01	.96	.93	.89	.84	.81	.80	.82
9.0	.88	.90	.90	.89	.87	.84	.82	.80	.80
10.0	.83	.85	.89	.89	.88	.86	.85	.84	.82

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 470.0. EMR-86-HA131
-WELL SPUDDED 86 10 29

NW-ZAMA PIPELINE KM 470.0. EMR-86-HA131
-DEMARRAGE DU PUITS LE 86 10 29

GROUND UNFROZEN TO 10 M.
CABLE LOCATED 1.5 M W OF PIPELINE.
38 MM PVC PIPE INFILLED WITH SILICONE.
11 SENSOR YSI44033 (PAIRED).

SITE KM 470.0 - HA130

****

0 DEGREES 0.0 MINUTES NORTH
0 DEGREES 0.0 MINUTES WEST

0 DEGRES 0.0 MINUTES NORD
0 DEGRES 0.0 MINUTES OUEST

ELEVATION 255 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 6	DATE 87 3 11	DATE 87 5 25	DATE 87 6 18	DATE 87 7 11	DATE 87 8 17	DATE 87 9 15	DATE 87 10 3	DATE 87 11 13	DATE 87 12 8
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.5	-4.14	-2.53	-.05	2.33	4.76	6.97	5.50	3.61	-1.16	-3.06
1.0	-1.06	-.66	-.15	-.15	-.07	3.75	3.49	2.30	.30	-.41
2.0	-.05	-.09	-.06	-.06	-.06	.16	.84	.82	.21	.03
3.0	-.20	-.19	-.19	-.19	-.19	-.19	-.18	-.17	-.15	-.12
4.0	-.20	-.20	-.19	-.19	-.19	-.19	-.18	-.18	-.18	-.17
5.0	-.26	-.27	-.26	-.26	-.26	-.25	-.26	-.26	-.26	-.25
6.0	-.19	-.19	-.19	-.19	-.20	-.19	-.19	-.19	-.20	-.19
7.0	.03	.02	.05	.04	.04	.06	.04	.03	.04	.04
8.0	.15	.14	.17	.16	.16	.17	.16	.15	.16	.22
9.0	.27	.25	.29	.28	.28	.29	.28	.27	.28	.27
10.0	.40	.38	.40	.40	.40	.41	.40	.39	.39	.38

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 470.0. EMR-86-HA130
-WELL SPUDDED 86 10 29

NW-ZAMA PIPELINE KM 470.0. EMR-86-HA130
-DEMARRAGE DU PUITS LE 86 10 29

GROUND FROZEN BELOW 1.8 M.
CABLE LOCATED 1.2 M W OF PIPELINE.
38 MM PVC PIPE INFILLED WITH SILICONE.
11 SENSOR YSI44033 (PAIRED).

APPENDIX B

PIPE TEMPERATURE SENSORS DATA LISTINGS

NORMAN WELLS PUMP STATION - PT1-1

****

65 DEGREES 17.2 MINUTES NORTH
126 DEGREES 53.1 MINUTES WEST

65 DEGRES 17.2 MINUTES NORD
126 DEGRES 53.1 MINUTES OUEST

ELEVATION 61 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 8	DATE 87 3 9	DATE 87 4 15	DATE 87 5 21	DATE 87 6 15	DATE 87 7 13	DATE 87 8 15	DATE 87 8 15	DATE 87 9 18	DATE 87 10 1	DATE 87 11 13	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.90	-.17	-.97	-.91	-1.36	-.31	-.05	6.86	.39	.43	-.83	-1.25	-2.53	
1.05	-.13	-.96	-.97	-1.51	-.51	-.18	4.19	-.02	-.01	-1.01	-1.29	-2.30	
1.20	-.05	-.77	-.70	-1.32	-.47	-.24	2.83	-.08	-.08	-1.09	-1.05	-2.30	
1.05	-.11	-.98	-.90	-1.40	-.35	-.03	6.97	.30	.33	-.83	-.99	-2.16	
1.05	-.01	-1.12	-.94	-1.54	-.26	.21	10.09	.58	.62	-.55		-2.15	

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

KMO.02. EMR-84-1. PIPE THERMISTORS.
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KMO.02. EMR-84-1. PIPE THERMISTORS.
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER: 0.90 M
5 ATKINS SENSORS
SENSOR POSITIONS UNCERTAIN AS OF OCT. 84.
JULY 87 - PIPE CONDITIONS UNSTABLE. PRESSURE DECREASING. CHILLER CHANGE

CANYON CREEK NORTH A - PT1-3

****

65 DEGREES 14.0 MINUTES NORTH
126 DEGREES 31.2 MINUTES WEST

65 DEGRES 14.0 MINUTES NORD
126 DEGRES 31.2 MINUTES OUEST

ELEVATION 123 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE
EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 8	DATE 87 3 14	DATE 87 4 16	DATE 87 5 27	DATE 87 6 16	DATE 87 7 13	DATE 87 8 15	DATE 87 9 18	DATE 87 10 2	DATE 87 11 12	DATE 87 12 14
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.95	-.26	-.55	-1.42	-1.51	.36	.65	2.62	2.99	1.56	.84	-.02	-.19
1.10	-.16	-.42	-1.27	-1.43	.07	.35	2.31	2.87	1.52	.84	0.00	-.12
1.25	-.13	-.37	-1.18	-1.38	.03	.20	2.14	2.76	1.48	.83	0.00	-.11
1.10	-.21	-.48	-1.33	-1.47	.05	.30	2.34	2.90	1.54	.84	-.01	-.16
1.10	-.20	-.47	-1.27	-1.47	.04	.38	2.36	2.89	1.53	.83	-.03	-.14

TEMPERATURE RESULTS ARE OBTAINED
FROM A MULTITHERMISTOR CABLE.
FURTHER TEMPERATURE LOGS
ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN
CABLE A THERMISTORS MULTIPLES.
ON PREVOIT ENTREPRENDRE D'AUTRES
SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 18.97. EMR-84-2A. PIPE THERMISTORS.
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 18.97. EMR-84-2A. PIPE THERMISTORS.
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER 0.95 M.
5 ATKINS SENSORS.

CANYON CREEK NORTH B - PT1-4

****

65 DEGREES 14.0 MINUTES NORTH
126 DEGREES 31.1 MINUTES WEST

65 DEGRES 14.0 MINUTES NORD
126 DEGRES 31.1 MINUTES OUEST

ELEVATION 110 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 8	DATE 87 3 14	DATE 87 4 16	DATE 87 5 27	DATE 87 6 16	DATE 87 7 13	DATE 87 8 15	DATE 87 9 18	DATE 87 10 2	DATE 87 11 12	DATE 87 12 14
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
1.00	-.06	-.30	-1.08	-1.29	.49	1.14	3.50	2.73	1.39	.80	.12	.04
1.15	-.07	-.30	-1.07	-1.29	.29	.62	2.64	2.81	1.38	.81	.10	0.00
1.30	-.05	-.28	-1.05	-1.27	.55	.65	2.18	2.77	1.49	.76	.08	0.00
1.15	-.09	-.31	-1.09	-1.29	.08	.48	2.63	3.11	1.48	1.06	.28	.17
1.15	-.05	-.27	-1.04	-1.25	-.18	.20	2.05	3.06	1.61	.72	.05	-.03

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 19.27. EMR-84-2B. PIPE THERMISTORS.
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 19.27. EMR-84-2B. PIPE THERMISTORS.
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER 1.0 M.
5 ATKINS SENSORS.

CANYON CREEK SOUTH C - PT1-5

****

65 DEGREES 13.6 MINUTES NORTH
126 DEGREES 30.5 MINUTES WEST

65 DEGRES 13.6 MINUTES NORD
126 DEGRES 30.5 MINUTES OUEST

ELEVATION 119 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 8	DATE 87 3 14	DATE 87 4 16	DATE 87 5 26	DATE 87 6 16	DATE 87 7 13	DATE 87 8 15	DATE 87 9 18	DATE 87 10 2	DATE 87 11 12	DATE 87 12 14
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.95	-.17	-.70	-1.68	-1.65	.19	.65	2.84	3.29	1.80	1.02	.03	-.09
1.10	-.31	-.54	-1.47	-1.57	-.02	.64	2.53	3.14	1.76	1.04	.06	-.08
1.25	-.15	-.41	-1.26	-1.46	-.15	.42	2.21	2.99	1.74	1.06	.10	-.05
1.10	-.21	-.50	-1.44	-1.57	-.03	.35	2.52	3.23	1.88	1.15	.11	-.04
1.10	-.29	-.59	-1.53	-1.61	-.07	.65	2.55	3.12	1.73	1.00	.03	-.10

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 19.55. EMR-84-2C. PIPE THERMISTORS.
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 19.55. EMR-84-2C. PIPE THERMISTORS.
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER 0.95 M.
5 ATKINS SENSORS.

GREAT BEAR RIVER A - EMR11

****

64 DEGREES 54.4 MINUTES NORTH
125 DEGREES 34.3 MINUTES WEST

64 DEGRES 54.4 MINUTES NORD
125 DEGRES 34.3 MINUTES OUEST

ELEVATION 70 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 15	DATE 87 2 8	DATE 87 3 10	DATE 87 4 16	DATE 87 5 26	DATE 87 6 16	DATE 87 7 12	DATE 87 8 15	DATE 87 9 17	DATE 87 10 2	DATE 87 11 12	DATE 87 12 14
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.90	-.31	-.57	-1.31	-1.10	-.02	1.70	5.17	5.79	4.05	2.81	.45	.05
1.05	-.25	-.53	-1.25	-1.13	-.08	.84	4.68	5.53	3.91	2.70	.44	.14
1.20	-.06	-.20	-.88	-1.03	-.12	.09	4.13	5.17	3.69	2.59	.42	.14
1.05	-.10	-.31	-1.04	-1.06	-.08	.69	4.59	5.46	3.86	2.70	.43	.16
1.05	-.13	-.39	-1.10	-1.05	-.02	.77	4.60	5.53	3.93	2.78	.51	.22

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 79.2 EMR-84-3A. PIPE THERMISTORS.
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 79.2 EMR-84-3A. PIPE THERMISTORS.
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER: 0.90 M.
5 ATKINS SENSORS.

GREAT BEAR RIVER B - PT1-10

****

64 DEGREES 54.4 MINUTES NORTH
125 DEGREES 34.5 MINUTES WEST

64 DEGRES 54.4 MINUTES NORD
125 DEGRES 34.5 MINUTES OUEST

ELEVATION 93 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 15	DATE 87 2 8	DATE 87 3 10	DATE 87 4 16	DATE 87 5 26	DATE 87 6 16	DATE 87 7 12	DATE 87 8 15	DATE 87 9 17	DATE 87 10 2	DATE 87 11 12	DATE 87 12 14
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.85												
1.00	-.11	-.39	-1.25	-.99	.06	1.20	4.70	5.58	3.94	2.59	.54	.15
1.10	.05	-.06	-.68	-.89	-.10	.12	4.01	5.13	3.68	2.32	.50	.26
1.00	-.01	-.20	-.93	-.98	-.04	.15	4.17	5.24	3.78	2.38	.51	.25
1.00	-.05	-.25	-.97	-.90	.01	.94	4.57	5.47	3.86	2.47	.50	.20

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 79.4 EMR-84-3B. PIPE THERMISTORS.
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 79.4 EMR-84-3B. PIPE THERMISTORS.
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER: 0.85 M.
5 ATKINS SENSORS.

TRAIL RIVER A - EMR1

****

62 DEGREES 5.1 MINUTES NORTH
121 DEGREES 59.3 MINUTES WEST

62 DEGRES 5.1 MINUTES NORD
121 DEGRES 59.3 MINUTES OUEST

ELEVATION 153 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 1 16 T(C)	DATE 87 2 4 T(C)	DATE 87 3 11 T(C)	DATE 87 4 13 T(C)	DATE 87 5 25 T(C)	DATE 87 6 18 T(C)	DATE 87 7 11 T(C)	DATE 87 8 17 T(C)	DATE 87 9 15 T(C)	DATE 87 10 3 T(C)	DATE 87 11 13 T(C)	DATE 87 12 18 T(C)
.90	-.33	-.67	-.52	-.34	.02	.49	2.20	6.26	5.83	4.17	1.28	.61
1.05	-.15	-.39	-.38	-.13	-.01	.26	1.98	6.19	5.80	4.17	1.31	.63
1.20	-.06	-.12	-.27	-.09	-.04	.03	1.62	6.11	5.77	4.24	1.40	.67
1.05	-.04	-.17	-.29	-.04	.02	.16	1.85	6.24	5.87	4.29	1.43	.70
1.05	-.15	-.37	-.38	-.13	-.03	.21	1.93	6.17	5.77	4.15	1.29	.61

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 478.0. EMR-84-4A
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 478.0. EMR-84-4A
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER 0.90 M.
5 ATKINS SENSORS.

TRAIL RIVER B - PT1-9

****

62 DEGREES 5.2 MINUTES NORTH
121 DEGREES 59.3 MINUTES WEST

62 DEGRES 5.2 MINUTES NORD
121 DEGRES 59.3 MINUTES OUEST

ELEVATION 165 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 4	DATE 87 3 11	DATE 87 4 13	DATE 87 5 25	DATE 87 6 18	DATE 87 7 11	DATE 87 8 17	DATE 87 9 15	DATE 87 10 3	DATE 87 11 13	DATE 87 12 18
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.90	-.25	-.68	-.50	-.34	.03	.66	2.45	6.40	5.93	4.28	1.77	.68
1.05	-.24	-.37	-.41	-.13	.07	.52	2.47	6.42	5.97	4.36	1.90	.76
1.20	-.07	-.15	-.28	-.09	.02	.28	2.23	6.25	5.85	4.31	1.90	.77
1.05	-.02	-.25	-.30	-.04	.08	.45	2.40	6.39	5.95	4.36	1.93	.78
1.05	0.00	-.46	-.41	-.13	.03	.42	2.34	6.33	5.89	4.29	1.85	.71

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 478.8. EMR-84-4B. PIPE THERMISTORS.
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 478.8. EMR-84-4B. PIPE THERMISTORS.
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER: 0.90 M.
5 ATKINS SENSORS.

PETITOT RIVER NORTH A - EMR4

****

59 DEGREES 45.0 MINUTES NORTH
119 DEGREES 30.0 MINUTES WEST

59 DEGRES 45.0 MINUTES NORD
119 DEGRES 30.0 MINUTES OUEST

ELEVATION 552 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 5	DATE 87 3 12	DATE 87 5 23	DATE 87 6 19	DATE 87 7 10	DATE 87 8 18	DATE 87 9 16	DATE 87 10 4
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.77	.39	.41	.09	2.79	4.66	6.50	5.86	4.81
.92	.38	.40	.09	2.68	4.27	5.46	5.68	4.74
1.07	.20	.19	-.11	2.54	4.32	5.74	5.53	4.53
.92	.40	.38	.10	2.75	4.54	6.03	5.76	4.74
.92	.32	.29	.03	2.66	4.48	5.95	5.56	4.67

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 783.0. EMR-84-5A. PIPE THERMISTORS.
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 783.0. EMR-84-5A. PIPE THERMISTORS.
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER: 0.77 M.
5 ATKINS SENSORS.

PETITOT RIVER NORTH B - EMR5

****

0 DEGREES 0.0 MINUTES NORTH
0 DEGREES 0.0 MINUTES WEST

0 DEGRES 0.0 MINUTES NORD
0 DEGRES 0.0 MINUTES OUEST

ELEVATION 0 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 5	DATE 87 3 12	DATE 87 5 23	DATE 87 6 19	DATE 87 7 10	DATE 87 8 18	DATE 87 9 16	DATE 87 10 4
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.85	.35	.28	.37	2.64	4.49	5.61	5.50	4.69
1.00	.43	.37	.37	2.67	4.45	5.45	5.50	4.77
1.10	.44	.38	.32	2.61	4.34	5.26	5.50	4.80
1.00	.22	.16	.12	2.38	4.11	5.17	5.30	4.55
1.00	.34	.28	.32	2.62	4.45	5.51	5.78	4.74

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 783.3. EMR-84-5B. PIPE THERMISTORS.
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 783.3. EMR-84-5B. PIPE THERMISTORS.
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER: 0.85 M.
5 ATKINS SENSORS.

PETITOT RIVER SOUTH - EMR6

****

59 DEGREES 27.0 MINUTES NORTH
119 DEGREES 15.0 MINUTES WEST

59 DEGRES 27.0 MINUTES NORD
119 DEGRES 15.0 MINUTES OUEST

ELEVATION 575 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 5	DATE 87 3 12	DATE 87 5 23	DATE 87 6 19	DATE 87 7 10	DATE 87 8 18	DATE 87 9 16	DATE 87 10 4
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.80	.40	.28	.02	2.54	4.36	5.51	5.35	4.55
.95	.46	.36	.09	2.53	4.16	5.09	5.12	4.50
1.10	.30	.24	-.04	2.36	3.73	4.21	5.08	4.33
.95	.38	.28	.04	2.39	3.99	4.99	4.99	4.39
.95	.47	.37	.11	2.44	4.01	4.91	5.24	4.40

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 819.5. EMR-84-6. PIPE THERMISTORS.
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 819.5. EMR-84-6. PIPE THERMISTORS.
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER 0.80 M.
5 ATKINS SENSORS.

TABLE MOUNTAIN A - 85-EPT 1

****

63 DEGREES 36.9 MINUTES NORTH
123 DEGREES 38.8 MINUTES WEST

63 DEGRES 36.9 MINUTES NORD
123 DEGRES 38.8 MINUTES OUEST

ELEVATION 255 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 7	DATE 87 3 10	DATE 87 4 13	DATE 87 5 22	DATE 87 6 17	DATE 87 7 12	DATE 87 8 16	DATE 87 9 15	DATE 87 10 3	DATE 87 11 13	DATE 87 12 18
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.90	-.05	-.11	-.15	-.34	-.19	-.07	.87	3.73	3.32	2.18	.38	.12
1.05	-.10	-.36	-.33	-.44	-.19	.65	1.31	3.97	3.44	2.23	.39	.11
1.20	-.05	-.11	-.12	-.29	-.18	-.11	.61	3.47	3.15	2.09	.39	.12
1.05	-.07	-.13	-.13	-.27	-.20	-.14	.65	3.61	3.24	2.13	.39	.10
1.05	-.06	-.10	-.14	-.33	-.18	-.09	.71	3.64	3.27	2.15	.39	.12

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 271.2. EMR-85-7A. PIPE THERMISTORS.
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 271.2. EMR-85-7A. PIPE THERMISTORS.
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER: 0.90 M
5 YSI44033 THERMISTORS.

TABLE MOUNTAIN B - 85-EPT 3

****

63 DEGREES 36.6 MINUTES NORTH
123 DEGREES 38.1 MINUTES WEST

63 DEGRES 36.6 MINUTES NORD
123 DEGRES 38.1 MINUTES OUEST

ELEVATION 265 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 7	DATE 87 3 10	DATE 87 4 13	DATE 87 5 22	DATE 87 6 20	DATE 87 7 12	DATE 87 8 16	DATE 87 8 17	DATE 87 9 15	DATE 87 10 3	DATE 87 11 13
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.90	-.17	-.34	-.46	-.51	-.08	.36	1.17	3.92	3.90	3.43	2.24	.38
1.05	-.09	-.19	-.24	-.38	-.07	.08	.88	3.73	3.71	3.31	2.18	.40
1.20	-.07	-.14	-.16	-.33	-.10	-.08	.64	3.57	3.57	3.22	2.14	.40
1.05	-.06	-.13	-.20	-.37	-.07	-.05	.79	3.73	3.71	3.32	2.20	.41
1.05	-.10	-.20	-.26	-.38	-.06	.20	.99	3.80	3.78	3.35	2.21	.41

	DATE 87 12 18
Z(M)	T(C)
.90	.10
1.05	.12
1.20	.12
1.05	.13
1.05	.13

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 272.0. EMR-85-7B. PIPE THERMISTORS.
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 272.0. EMR-85-7B. PIPE THERMISTORS.
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER: 0.90 M
YSI 44033 THERMISTORS.

TABLE MOUNTAIN C - 85-EPT 2

****

63 DEGREES 36.4 MINUTES NORTH
123 DEGREES 38.0 MINUTES WEST

63 DEGRES 36.4 MINUTES NORD
123 DEGRES 38.0 MINUTES OUEST

ELEVATION 259 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 7	DATE 87 3 10	DATE 87 4 13	DATE 87 5 22	DATE 87 6 17	DATE 87 7 12	DATE 87 8 17	DATE 87 9 15	DATE 87 10 3	DATE 87 11 13	DATE 87 12 18
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.90	-.35	-.44	-.49	-.52	-.02	.54	1.44	4.09	4.55	2.31	.40	.11
1.05	-.27	-.41	-.49	-.59	-.30		.84	3.71	4.36	2.13	.34	.04
1.20	-.10	-.15	-.22	-.43	-.33	-.17	.56	3.49	4.24	2.07	.37	.09
1.05	-.14	-.27	-.34	-.46	0.00	.05		3.79	4.49	2.20	.43	.14
1.05	-.18	-.32	-.41	-.52	-.29	.02		3.73	4.39	2.15	.38	.10

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 272.3. EMR-85-7C. PIPE THERMISTORS.
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 272.3. EMR-85-7C. PIPE THERMISTORS.
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER: 0.90 M
5 YSI44033 THERMISTORS.

MANNERS CREEK A - 85 EPT8

****

61 DEGREES 36.4 MINUTES NORTH
121 DEGREES 5.6 MINUTES WEST

61 DEGRES 36.4 MINUTES NORD
121 DEGRES 5.6 MINUTES OUEST

ELEVATION 191 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 20	DATE 87 2 4	DATE 87 3 11	DATE 87 4 7	DATE 87 5 25	DATE 87 6 18	DATE 87 7 9	DATE 87 8 19	DATE 87 9 17	DATE 87 10 5	DATE 87 11 12	DATE 87 12 15
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.90	.08	-.10	-.14	-.21	-.13	1.01	3.71	5.22	6.23	5.02	2.17	1.17
1.05	.11	-.03	-.07	-.11	-.06	1.07	3.66	4.94	6.17	4.99	2.21	1.22
1.20	0.00	-.10	-.11	-.16	-.10	1.01	3.52	4.37	5.86	4.74	2.07	1.12
1.05	.02	-.09	-.12	-.16	-.12	1.03	3.61	4.64	6.04	4.88	2.13	1.15
1.05	.03	-.10	-.15	-.20	-.15	.92	3.55	4.93	6.10	4.92	2.13	1.14

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 557.8. EMR,85-8A
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 557.8. EMR,85-8A
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER 0.90 M.
5 YSI44033 THERMISTORS.

MANNERS CREEK B - 85 EPT7

****

61 DEGREES 36.2 MINUTES NORTH
121 DEGREES 5.4 MINUTES WEST

61 DEGRES 36.2 MINUTES NORD
121 DEGRES 5.4 MINUTES OUEST

ELEVATION 190 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE
EN FONCTION DE LA PROFONDEUR

	DATE 87 1 20	DATE 87 2 4	DATE 87 3 11	DATE 87 4 7	DATE 87 5 24	DATE 87 6 18	DATE 87 7 9	DATE 87 8 19	DATE 87 9 17	DATE 87 10 5	DATE 87 11 12	DATE 87 12 15
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.90	.07	-.09	-.11	-.18	-.15	.99	3.53	3.46	5.86	4.70	1.99	1.02
1.05	.15	.02	-.01	-.08	-.05	1.10	3.72	3.70	6.12	4.93	2.17	1.20
.20	.05	-.03	-.05	-.12	-.08	1.03	3.57	3.48	5.87	4.78	2.10	1.14
1.05	.10	-.03	-.06	-.14	-.10	1.07	3.68	3.66	6.04	4.86	2.13	1.15
1.05	.14	.01	-.01	-.08	-.03	1.11	3.72	3.73	6.14	4.96	2.20	1.20

TEMPERATURE RESULTS ARE OBTAINED
FROM A MULTITHERMISTOR CABLE.
FURTHER TEMPERATURE LOGS
ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN
CABLE A THERMISTORS MULTIPLES.
ON PREVOIT ENTREPRENDRE D'AUTRES
SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 558.2. EMR-85-8B. PIPE THERMISTORS.
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 558.2. EMR-85-8B. PIPE THERMISTORS.
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER 0.90 M
5 YSI44033 THERMISTORS.

MANNERS CREEK C - 85 EPT12

****

61 DEGREES 36.1 MINUTES NORTH
121 DEGREES 5.3 MINUTES WEST

61 DEGRES 36.1 MINUTES NORD
121 DEGRES 5.3 MINUTES OUEST

ELEVATION 190 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 20	DATE 87 2 6	DATE 87 4 7	DATE 87 5 24	DATE 87 6 18	DATE 87 7 9	DATE 87 8 19	DATE 87 9 17	DATE 87 10 5	DATE 87 11 12	DATE 87 12 15
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.90	.16	-.07	-.12	-.07	.99	3.73	5.89	6.26	5.05	2.17	1.23
1.05	0.00	-.11	-.10	-.09	.69	2.57	3.81	4.94	4.05	1.73	.94
1.20	-.06	-.11	-.10	-.10	.18	1.09	2.71	3.04	2.51	1.00	.50
1.05	.06	-.01	0.00	.01	.51	1.84	2.98	3.54	2.95	1.30	.72
1.05	.17	-.05	-.07	-.02	1.08	3.65	5.38	6.16	5.00	2.20	1.25

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 558.3. EMR-85-8C. PIPE THERMISTORS.
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 558.3. EMR-85-8C. PIPE THERMISTORS.
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER: 0.90 M.
5 YSI44033 THERMISTORS.

PUMP STATION 3 - 85 EPT9

****

61 DEGREES 23.7 MINUTES NORTH
120 DEGREES 54.0 MINUTES WEST

61 DEGRES 23.7 MINUTES NORD
120 DEGRES 54.0 MINUTES OUEST

ELEVATION 223 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 21	DATE 87 2 6	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 18	DATE 87 7 9	DATE 87 8 19	DATE 87 9 16	DATE 87 10 5	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.90	.13	-.14	-.79	-.42	-.13	1.34	4.29	7.73	4.79	5.22	2.30	1.31
1.05	.29	.15	-.05	-.11	-.05	1.06	4.08	7.41	4.87	5.29	2.46	1.44
1.20	.29	.14	.02	-.06	-.08	1.10	3.93	7.14		5.25	2.46	1.43
1.05	.28	.14	0.00	-.08	-.05	1.24	4.13	7.48	5.21	5.27	2.43	1.41
1.05	.25	.11	-.02	-.10	-.10	1.04	3.99	7.32	5.33	5.21	2.40	1.38

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 593.3. EMR-85-9. PIPE THERMISTORS.
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 593.3. EMR-85-9. PIPE THERMISTORS.
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER: 0.90 M.
5 YSI44033 THERMISTORS.

MACKENZIE HIGHWAY SOUTH A - 85 EPT4

****

61 DEGREES 21.6 MINUTES NORTH
120 DEGREES 52.2 MINUTES WEST

61 DEGRES 21.6 MINUTES NORD
120 DEGRES 52.2 MINUTES OUEST

ELEVATION 244 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 21	DATE 87 2 6	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 19	DATE 87 9 16	DATE 87 10 5	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.95	2.29	2.26	2.00	2.12	.30	4.41	6.76	7.40		3.78	-.43	-2.28
1.10	2.44	2.40	2.08	2.19	.38	4.26	6.65	8.54	2.85	7.78	4.85	3.85
1.25	2.46	2.40	2.11	2.23	.53	4.23	6.53	8.26	2.89	4.13	7.25	3.95
1.10	2.55	2.52	2.23	2.36	.59	4.45	6.86	8.75	3.05	7.98	4.95	3.71
1.10	2.47	2.44	2.15	2.27	.49	4.31	6.71	8.59	2.95	7.88	4.99	3.96

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 588.3. EMR-85-10A
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 588.3. EMR-85-10A
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER: 0.95 M.
5 YSI44033 THERMISTORS.

MACKENZIE HIGHWAY SOUTH B - 85 EPT5

****

61 DEGREES 21.3 MINUTES NORTH
120 DEGREES 52.0 MINUTES WEST

61 DEGRES 21.3 MINUTES NORD
120 DEGRES 52.0 MINUTES OUEST

ELEVATION 244 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 21	DATE 87 2 6	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 19	DATE 87 9 16	DATE 87 10 5	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.95	2.46	2.43	2.12	2.07	1.42	4.39	6.94	9.06	3.93	7.77	4.71	3.64
1.10	2.44	2.40	2.10	2.13	1.22	4.23	6.69	8.66	3.80	7.79	4.82	3.77
1.25	2.51	2.49	2.19	2.28	1.06	4.28	6.64	8.29	3.77	7.89	5.01	3.98
1.10	2.46	2.44	2.44	2.24	1.02	4.24	6.61	8.22	3.77	7.86	4.96	3.92
1.10	2.47	2.44	2.44	2.26	1.01	4.27	6.68	8.34	3.99	7.85	4.95	3.91

TEMPERATURE RESULTS ARE OBTAINED
FROM A MULTITHERMISTOR CABLE.
FURTHER TEMPERATURE LOGS
ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN
CABLE A THERMISTORS MULTIPLES.
ON PREVOIT ENTREPRENDRE D'AUTRES
SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 588.7. EMR-85-10B. PIPE THERMISTORS.
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 588.7. EMR-85-10B. PIPE THERMISTORS.
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER: 0.95 M.
5 YSI44033 THERMISTORS.

MORAINE SOUTH - 85 EPT11

****

61 DEGREES 16.9 MINUTES NORTH
120 DEGREES 48.4 MINUTES WEST

61 DEGRES 16.9 MINUTES NORD
120 DEGRES 48.4 MINUTES OUEST

ELEVATION 251 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 21	DATE 87 2 6	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 19	DATE 87 9 16	DATE 87 10 5	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.95	1.74	1.53	1.31	.97	1.10	4.39	6.78	8.88	4.71	7.41	4.19	3.25
1.10	1.86	1.66	1.45	1.21	.82	4.15	6.26	8.35	4.40	7.21	3.95	2.86
1.25												
1.10	1.86	1.67	1.45	1.33	.72	4.07	6.21	8.26	4.42	7.18	4.06	3.06
1.10	1.80	1.61	1.38	1.32	.80	4.07	6.19	8.31	4.57	7.35	4.25	3.28

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 597.4. EMR-85-11. PIPE THERMISTORS.
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 597.4. EMR-85-11. PIPE THERMISTORS.
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER: 0.95 M.
5 YSI44033 THERMISTORS.

JEAN MARIE CREEK A - 85 EPT6

****

61 DEGREES 11.6 MINUTES NORTH
120 DEGREES 42.2 MINUTES WEST

61 DEGRES 11.6 MINUTES NORD
120 DEGRES 42.2 MINUTES OUEST

ELEVATION 298 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 21	DATE 87 2 5	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 18	DATE 87 9 16	DATE 87 10 4	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.95	1.30	1.01	.92	1.14	3.22	4.68	7.25	9.14	8.08	7.01	3.68	2.80
1.10	1.38	1.09	.98	1.12	2.26	4.09	6.36	8.62	8.05	7.00	3.80	2.90
1.25	1.45	1.17	1.04	1.09	1.80	3.97	5.91	8.28	8.02	6.99	3.87	2.96
1.10	1.39	1.10	.99		2.39	4.21	6.51	8.69	8.06	7.00	3.79	2.89
1.10	1.40	1.11	.99		2.04	4.05	6.26	8.51	8.00	6.92	3.75	2.83

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 608.6. EMR-85-12A. PIPE THERMISTORS.
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 608.6. EMR-85-12A. PIPE THERMISTORS.
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER: 0.95 M.
5 YSI344033 THERMISTORS.

JEAN MARIE CREEK B - 85 EPT10

****

61 DEGREES 11.4 MINUTES NORTH
120 DEGREES 42.2 MINUTES WEST

61 DEGRES 11.4 MINUTES NORD
120 DEGRES 42.2 MINUTES OUEST

ELEVATION 300 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 21	DATE 87 2 5	DATE 87 3 12	DATE 87 4 9	DATE 87 5 24	DATE 87 6 19	DATE 87 7 10	DATE 87 8 18	DATE 87 9 16	DATE 87 10 4	DATE 87 11 12	DATE 87 12 16
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.95	1.44	1.15	1.05	.79	3.26	4.40	6.31	7.54	7.70	6.77	3.70	2.87
1.10	1.41	1.12	1.03	.90	2.26	4.17	5.86	7.74	7.91	6.87	3.77	2.90
1.25	1.37	1.09	1.00	.97	1.77	4.03	5.50	7.00	7.67	6.67	3.65	2.83
1.10	1.43	1.15	1.04	.95	2.32	4.20	6.06	7.99	8.00	6.96	3.81	2.94
1.10	1.38	1.10	1.02	.95	2.25	4.15	5.98	7.81	7.91	6.87	3.76	2.89

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

KM 608.7. EMR-85-12B. PIPE THERMISTORS.
-DRILLING FOR 1 DAYS
-TOTAL DEPTH 0 METRES

KM 608.7. EMR-85-12B. PIPE THERMISTORS.
-FORAGE PENDANT 1 JOURS
-PROFONDEUR TOTALE 0 METRES

DEPTH OF COVER: 0.95 M.
5 YSI44033 THERMISTORS.

APPENDIX C

DITCH THERMISTOR STRINGS DATA LISTINGS

SITE 84-2C: CANYON CREEK SOUTH C - DT113A

****

65 DEGREES 13.6 MINUTES NORTH
126 DEGREES 30.5 MINUTES WEST

65 DEGRES 13.6 MINUTES NORD
126 DEGRES 30.5 MINUTES OUEST

ELEVATION 119 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 8	DATE 87 4 16	DATE 87 5 26	DATE 87 6 16	DATE 87 7 13	DATE 87 8 15	DATE 87 9 18	DATE 87 10 2	DATE 87 11 12	DATE 87 12 14
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.08	-6.5	-7.5	-4.6	22.0	8.5	20.7	11.4	7.3	3.6	-4.3	-7.7
.33	-3.9	-4.5	-3.8	6.8	7.5	13.6	10.7	5.5	3.5	-.8	-3.3
.58											
.83	-2.4	-2.9	-3.3	4.8	4.5	8.3	7.2	4.2	2.4	-.3	-1.4

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 19.55. EMR-84-2C
-WELL SPUDDED 0 0 0

NW-ZAMA PIPELINE KM 19.55. EMR-84-2C
-DEMARRAGE DU PUITS LE 0 0 0

WOODEN DOWEL DIRECTLY ABOVE PIPE.
DITCH THERMISTOR IS LOCATED 1.5M NORTH OF THERMAL FENCE EMR-84-2C.
SURFACE CONDITIONS - DRY GRAVEL
MOUND - NO VEGETATION
4 SENSOR ATKINS.

SITE 84-2C: CANYON CREEK SOUTH C - DT113B

****

65 DEGREES 13.6 MINUTES NORTH
126 DEGREES 30.5 MINUTES WEST

65 DEGRES 13.6 MINUTES NORD
126 DEGRES 30.5 MINUTES OUEST

ELEVATION 119 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 8	DATE 87 4 16	DATE 87 5 26	DATE 87 6 16	DATE 87 7 13	DATE 87 8 15	DATE 87 9 18	DATE 87 10 2	DATE 87 11 12	DATE 87 12 14
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.16	-4.3	-5.0	-3.8	11.1	8.2	14.9	10.5	4.4	3.4	-.7	-4.1
.36		-3.9	-3.6	6.9	7.8	13.2	10.3	5.3	3.5	-.4	-2.3
.56	-2.8	-3.4	-3.4	5.6	6.3		9.1	5.1	3.2	-.1	-1.5
.76	-2.2	-2.8	-3.1	3.9	5.2	9.4	8.1	4.8	3.0	0.0	-.8
.96		-2.2	-2.7	1.8	4.3	7.6	7.1	4.3	2.8	0.0	-.2

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 19.55. EMR-84-2C
-WELL SPUDDED 0 0 0

NW-ZAMA PIPELINE KM 19.55. EMR-84-2C
-DEMARRAGE DU PUITS LE 0 0 0

WOODEN DOWEL IN TRENCH WALL.
DITCH THERMISTOR IS LOCATED 1.5M NORTH OF THERMAL FENCE EMR-84-2C.
SURFACE CONDITIONS - DRY GRAVEL MOUND - NO VEGETATION.
5 SENSOR ATKINS.

SITE 84-3B: GREAT BEAR RIVER B - DT117A

****

64 DEGREES 54.4 MINUTES NORTH
125 DEGREES 34.5 MINUTES WEST

64 DEGRES 54.4 MINUTES NORD
125 DEGRES 34.5 MINUTES OUEST

ELEVATION 93 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 8	DATE 87 4 16	DATE 87 5 26	DATE 87 6 16	DATE 87 7 12	DATE 87 8 15	DATE 87 9 17	DATE 87 10 2	DATE 87 11 12	DATE 87 12 14
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.12	-4.6	-2.1	5.5	7.8	13.8	8.3	5.5	3.9	-.3	-1.5
.37	-3.5	-1.9	-.1	4.9	8.7	7.4	4.5	2.9	-.6	-.5

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 79.40. EMR-84-3B
-WELL SPUDDED 0 0 0

NW-ZAMA PIPELINE KM 79.40. EMR-84-3B
-DEMARRAGE DU PUITS LE 0 0 0

WOODEN DOWEL DIRECTLY ABOVE PIPE.
DITCH THERMISTOR IS LOCATED 9.6M
SOUTH OF THERMAL FENCE EMR-84-3B
SURFACE CONDITIONS - LEVEL,VERY MOIST,
SILTY SAND - GOOD GRASS COVER.
2 SENSOR ATKINS.

SITE 84-3B: GREAT BEAR RIVER B - DT117B

****

64 DEGREES 54.4 MINUTES NORTH
125 DEGREES 34.5 MINUTES WEST

64 DEGRES 54.4 MINUTES NORD
125 DEGRES 34.5 MINUTES OUEST

ELEVATION 93 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 8	DATE 87 4 16	DATE 87 5 26	DATE 87 6 16	DATE 87 7 12	DATE 87 8 15	DATE 87 9 17	DATE 87 10 2	DATE 87 11 12	DATE 87 12 14
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.29	-3.9	-2.0	1.2	6.0	9.6	7.4	4.4	3.0	0.0	-1.2
.49	-2.9	-1.8	-.2	4.1	7.1	6.5	4.5	2.6	.1	-.3
.69	-1.6	-1.3	-.2	1.8	4.6	5.5	3.7	2.4	.2	0.0
.89	-.7	-1.0	-.2	-.1	3.3	4.6	3.2	2.1	.2	0.0
1.09	-.2	-.8	-.3	-.2	1.3	3.4	2.5	1.7	.1	0.0

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 79.40. EMR-84-3B
-WELL SPUDDED 0 0 0

NW-ZAMA PIPELINE KM 79.40. EMR-84-3B
-DEMARRAGE DU PUITS LE 0 0 0

WOODEN DOWEL IN TRENCH WALL.
DITCH THERMISTOR IS LOCATED 9.6M SOUTH OF THERMAL FENCE ENR-84-3B.
SURFACE CONDITIONS - LEVEL,VERY MOIST, SILTY SAND - GOOD GRASS COVER.
5 SENSOR ATKINS.

SITE 85-7C: TABLE MOUNTAIN C - DT114A

****

63 DEGREES 36.4 MINUTES NORTH
123 DEGREES 38.0 MINUTES WEST

63 DEGRES 36.4 MINUTES NORD
123 DEGRES 38.0 MINUTES OUEST

ELEVATION 259 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 7	DATE 87 4 13	DATE 87 5 22	DATE 87 6 17	DATE 87 7 12	DATE 87 8 17	DATE 87 9 15	DATE 87 11 13	DATE 87 12 18
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.19	-3.1	-3.2	-2.0	4.4	4.8		19.7	4.9	-.2	-1.1
.34	-1.5	-1.9	-1.5	-.2	1.0	8.6	7.7	4.7	.1	-.1
.49	-2.2	-2.6	-1.7	2.1	3.1	9.8	9.5	5.0	0.0	-.2
.64	-.7	-1.3	-1.3	-.3	.1	6.3	6.8	4.1	.1	-.1

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 272.3. EMR-85-7C
-WELL SPUDDED 0 0 0

NW-ZAMA PIPELINE KM 272.3. EMR-85-7C
-DEMARRAGE DU PUITS LE 0 0 0

WOODEN DOWEL DIRECTLY ABOVE PIPE.
DITCH THERMISTOR IS LOCATED 26M NORTH OF THERMAL FENCE EMR-85-7C.
SURFACE CONDITIONS - MINOR SUNKEN DITCH WITH GENTLY FLOWING WATER.
4 SENSOR ATKINS.

SITE 85-7C: TABLE MOUNTAIN C - DT114B

****

63 DEGREES 36.4 MINUTES NORTH
123 DEGREES 38.0 MINUTES WEST

63 DEGRES 36.4 MINUTES NORD
123 DEGRES 38.0 MINUTES OUEST

ELEVATION 259 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 16	DATE 87 2 7	DATE 87 4 13	DATE 87 5 22	DATE 87 6 17	DATE 87 7 12	DATE 87 8 17	DATE 87 9 15	DATE 87 11 13	DATE 87 12 18
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.22	-3.0	-3.1	-1.9	2.3	2.6	11.6	8.7	5.0	-.2	-1.3
.42	-1.8	-2.2	-1.7	-.3	1.1	9.4	8.4	5.0	0.0	-.2
.62	-.6	-1.3	-1.4	-.4	-.2	5.9	6.7	4.4	0.0	1.1
.82	-.2	-.4	-1.0	-.4	-.3	2.7	5.0	3.6	0.0	-.1
1.02	0.0	-.1	-.6	-.4	-.3	.2	3.8	3.0	.2	0.0

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 272.3. EMR-85-7C
-WELL SPUDDED 0 0 0

NW-ZAMA PIPELINE KM 272.3. EMR-85-7C
-DEMARRAGE DU PUITS LE 0 0 0

WOODEN DOWEL IN TRENCH WALL.
DITCH THERMISTOR IS LOCATED 26M NORTH OF THERMAL FENCE EMR-85-7C.
SURFACE CONDITIONS - MINOR SUNKEN DITCH WITH GENTLY FLOWING WATER.
5 SENSOR ATKINS.

SITE 84-4A: TRAIL RIVER A - DT118A

****

62 DEGREES 5.1 MINUTES NORTH
121 DEGREES 59.3 MINUTES WEST

62 DEGRES 5.1 MINUTES NORD
121 DEGRES 59.3 MINUTES OUEST

ELEVATION 153 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 4	DATE 87 4 13	DATE 87 5 25	DATE 87 6 18	DATE 87 7 11	DATE 87 8 17	DATE 87 9 15	DATE 87 10 3	DATE 87 11 13	DATE 87 12 18
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.11	-6.6	-1.6	5.8	8.1	10.3	10.8	7.6	4.8	0.0	-3.3
.36	-4.5	-1.4	1.5	5.6	7.6	8.8	7.3	4.8	.6	-1.0
.61	-2.8	-.9	0.0	3.1	5.2	8.0	6.9	4.6	1.1	.1

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 478.0. EMR-84-4A
-WELL SPUDDED 0 0 0

NW-ZAMA PIPELINE KM 478.0. EMR-84-4A
-DEMARRAGE DU PUITS LE 0 0 0

WOODEN DOWEL DIRECTLY ABOVE PIPE.
DITCH THERMISTOR IS LOCATED 4.1M SOUTH OF THERMAL FENCE EMR-84-4A.
SURFACE CONDITIONS - MINOR SUNKEN DITCH DRY SAND - GOOD GRASS COVER.
4 SENSOR ATKINS.

SITE 84-4A: TRAIL RIVER A - DT118B

****

62 DEGREES 5.1 MINUTES NORTH
121 DEGREES 59.3 MINUTES WEST

62 DEGRES 5.1 MINUTES NORD
121 DEGRES 59.3 MINUTES OUEST

ELEVATION 153 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 2 4	DATE 87 4 13	DATE 87 5 25	DATE 87 6 18	DATE 87 7 11	DATE 87 8 17	DATE 87 9 15	DATE 87 10 3	DATE 87 11 13	DATE 87 12 18
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.15	-6.2	-1.6	4.5	8.1	10.3	9.8	6.9	4.8	.1	-2.6
.35	-4.4	-1.4	1.2	5.6	7.6	9.0	7.4	4.8	.6	-.7
.55	-3.1	-1.0	-.1	3.4	5.3	8.3	7.3	4.8	1.0	.1
.75	-1.8	-.7	-.1	1.5	3.3	7.5	6.9	4.7	1.3	.4
.95	-.6	-.3	-.1	.1	1.8	6.8	6.4	4.7	1.6	.6

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 478.0. EMR-84-4A
-WELL SPUDDED 0 0 0

NW-ZAMA PIPELINE KM 478.0. EMR-84-4A
-DEMARRAGE DU PUITS LE 0 0 0

WOODEN DOWEL IN TRENCH WALL.
DITCH THERMISTOR IS LOCATED 4.1M SOUTH OF THERMAL FENCE EMR-84-4A.
SURFACE CONDITIONS - MINOR SUNKEN DITCH
DRY SAND - GOOD GRASS COVER.
5 SENSOR ATKINS.

SITE 85-8A: MANNERS CREEK A - DT115A

****

61 DEGREES 36.4 MINUTES NORTH
121 DEGREES 5.6 MINUTES WEST

61 DEGRES 36.4 MINUTES NORD
121 DEGRES 5.6 MINUTES OUEST

ELEVATION 191 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 20	DATE 87 2 4	DATE 87 4 7	DATE 87 5 25	DATE 87 6 18	DATE 87 7 9	DATE 87 8 19	DATE 87 9 17	DATE 87 10 5	DATE 87 11 12	DATE 87 12 15
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.36	-1.3	-2.0	-.9	-.1	1.8	4.5	6.2	5.6	3.8	.8	-.3
.51	-.7	-1.2	-.7	-.2	.8	3.6	5.9	5.5	4.0	1.2	.1
.66	-.3	-.7	-.5	-.1	-.1	2.4	5.6	5.6	4.2	1.5	.5
.81											

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 557.8. EMR-85-8A
-WELL SPUDDED 0 0 0

NW-ZAMA PIPELINE KM 557.8. EMR-85-8A
-DEMARRAGE DU PUITS LE 0 0 0

WOODEN DOWEL DIRECTLY ABOVE PIPE.
DITCH THERMISTOR IS LOCATED 10.4M NORTH OF THERMAL FENCE EMR-85-8A
SURFACE CONDITIONS - ORGANICS WITH SILTY SAND - VERY MOIST TO WET - MUCH TALL GRASS.
4 SENSOR ATKINS.
AUG 87: INSTALLED TL-100 LOGGER NEARBY.

SITE 85-8A: MANNERS CREEK A - DT115B

****

61 DEGREES 36.4 MINUTES NORTH
121 DEGREES 5.6 MINUTES WEST

61 DEGRES 36.4 MINUTES NORD
121 DEGRES 5.6 MINUTES OUEST

ELEVATION 191 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

	DATE 87 1 20	DATE 87 2 4	DATE 87 4 7	DATE 87 5 25	DATE 87 6 18	DATE 87 7 9	DATE 87 8 19	DATE 87 9 17	DATE 87 10 5	DATE 87 11 12	DATE 87 12 15
Z(M)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)	T(C)
.37	-1.2	-1.9	-.9	.1	1.9	3.2	5.7	5.2	3.5	.7	-.2
.57	-.6	-1.0	-.6	-.1	0.0	1.2	4.7	4.8	3.4	1.0	.2
.77	-.1	-.2	-.4	-.1	-.1	-.1	4.4	4.5	3.4	1.2	.4
.97	-.1	-.1	-.2	-.2	-.1	.2	3.1	4.3	3.4	1.3	.5
1.17	-.1	-.1	-.1	-.1	-.1	1.0	3.1	4.2	3.3	1.4	.6

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 557.8. EMR-85-8A
-WELL SPUDDED 0 0 0

NW-ZAMA PIPELINE KM 557.8. EMR-85-8A
-DEMARRAGE DU PUITS LE 0 0 0

WOODEN DOWEL IN TRENCH WALL.
DITCH THERMISTOR IS LOCATED 10.4M NORTH OF THERMAL FENCE EMR-85-8A.
SURFACE CONDITIONS - ORGANICS WITH SILTY SAND - VERY MOIST TO WET - MUCH TALL GRASS.
5 SENSOR ATKINS.
AUG 87: INSTALLED TL-100 LOGGER NEARBY.

SITE 85-9: PUMP STATION 3 - DT116A

****

61 DEGREES 23.7 MINUTES NORTH
120 DEGREES 54.0 MINUTES WEST

61 DEGRES 23.7 MINUTES NORD
120 DEGRES 54.0 MINUTES OUEST

ELEVATION 223 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 1 21 T(C)	DATE 87 2 6 T(C)	DATE 87 4 9 T(C)	DATE 87 5 24 T(C)	DATE 87 6 18 T(C)	DATE 87 7 9 T(C)	DATE 87 9 16 T(C)	DATE 87 10 5 T(C)
0.00	-1.3	-2.2	-.8	7.3	13.8	16.0	8.2	4.6
.15	-.9	-1.6	-.6	4.6	8.7	12.3	7.2	5.2
.30	-.7	-1.2	-.6	2.3	7.3	10.2	6.9	5.4
.45	-.4	-.9	-.4	0.0	6.0	9.0	6.9	5.4

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 593.3. EMR-85-9
-WELL SPUDDED 0 0 0

NW-ZAMA PIPELINE KM 593.3. EMR-85-9
-DEMARRAGE DU PUITS LE 0 0 0

WOODEN DOWEL DIRECTLY ABOVE PIPE.
DITCH THERMISTOR IS LOCATED 1.8M NORTH OF THERMAL FENCE EMR-85-9.
SURFACE CONDITIONS - DRY,SILTY,SAND - GOOD TALL GRASS COVER.
REPOSITIONNED SEPT 28/87.
NEW DEPTHS: .25,.40,.55,.70
4 SENSOR ATKINS.

SITE 85-9: PUMP STATION 3 - DT116B

****

61 DEGREES 23.7 MINUTES NORTH
120 DEGREES 54.0 MINUTES WEST

61 DEGRES 23.7 MINUTES NORD
120 DEGRES 54.0 MINUTES OUEST

ELEVATION 223 METRES

SUMMARY OF DEPTH-TEMPERATURE LOGS

DIAGRAPHIES DONNANT LA TEMPERATURE EN FONCTION DE LA PROFONDEUR

Z(M)	DATE 87 1 21 T(C)	DATE 87 2 6 T(C)	DATE 87 4 9 T(C)	DATE 87 5 24 T(C)	DATE 87 6 18 T(C)	DATE 87 7 9 T(C)	DATE 87 9 16 T(C)	DATE 87 10 5 T(C)
.35	-.9	-1.4	-.7	2.6	6.9	16.0	6.6	4.8
.55	-.5	-.9	-.5	-.2	5.2	8.4	6.5	5.4
.75	-.1	-.2	-.4	-.2	3.5	7.0	6.4	5.6
.95	.2	0.0	-.2	-.1	2.6	6.0	6.3	5.7
1.15	.4	.3	0.0	0.0	1.8	5.2	6.1	5.8

TEMPERATURE RESULTS ARE OBTAINED FROM A MULTITHERMISTOR CABLE. FURTHER TEMPERATURE LOGS ARE EXPECTED FOR THIS HOLE.

TEMPERATURES OBTENUES A PARTIR D'UN CABLE A THERMISTORS MULTIPLES. ON PREVOIT ENTREPRENDRE D'AUTRES SONDAGES DE LA TEMPERATURE DE CE PUITS.

NW-ZAMA PIPELINE KM 593.3. EMR-85-9
-WELL SPUDDED 0 0 0

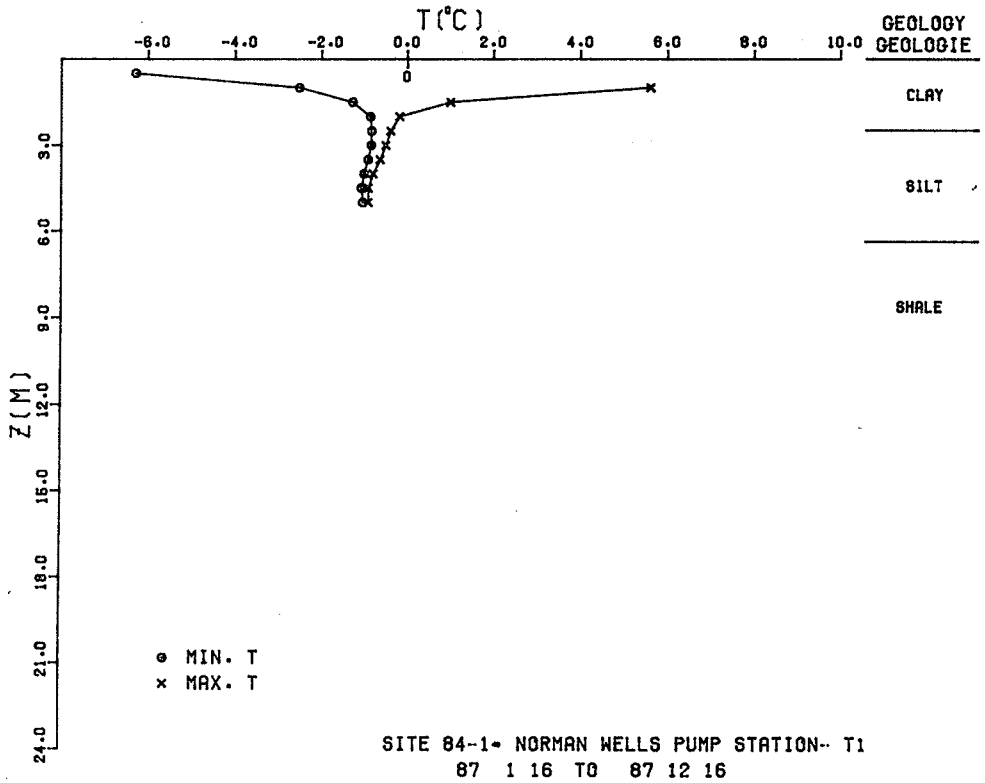
NW-ZAMA PIPELINE KM 593.3. EMR-85-9
-DEMARRAGE DU PUITS LE 0 0 0

WOODEN DOWEL IN TRENCH WALL
DITCH THERMISTOR IS LOCATED 1.8M NORTH OF THERMAL FENCE EMR-85-9.
SURFACE CONDITIONS - DRY,SILTY,SAND - GOOD TALL GRASS COVER.
REPOSITIONNED SEPT 28/87.
NEW DEPTHS: .26,.41,.56,.71,.86
5 SENSOR ATKINS.

APPENDIX D

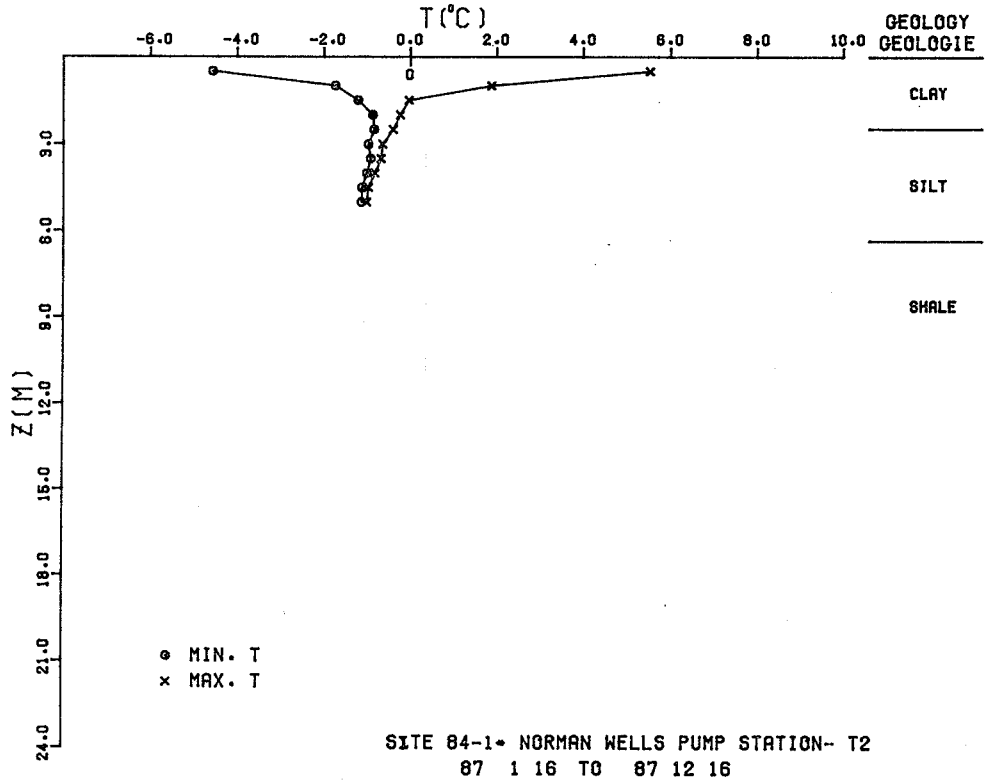
GROUND TEMPERATURE ENVELOPES

65° 17.2' N 126° 53.1' W/O



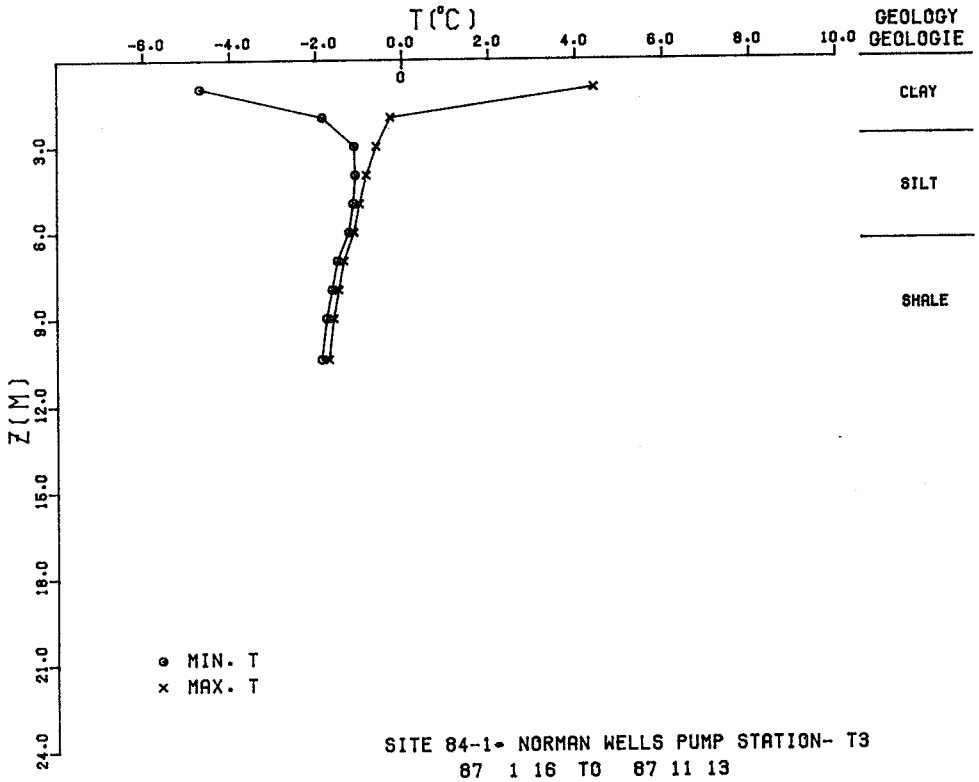
SITE 84-1• NORMAN WELLS PUMP STATION-- T1
87 1 16 TO 87 12 16

65° 17.2' N 126° 53.1' W/O



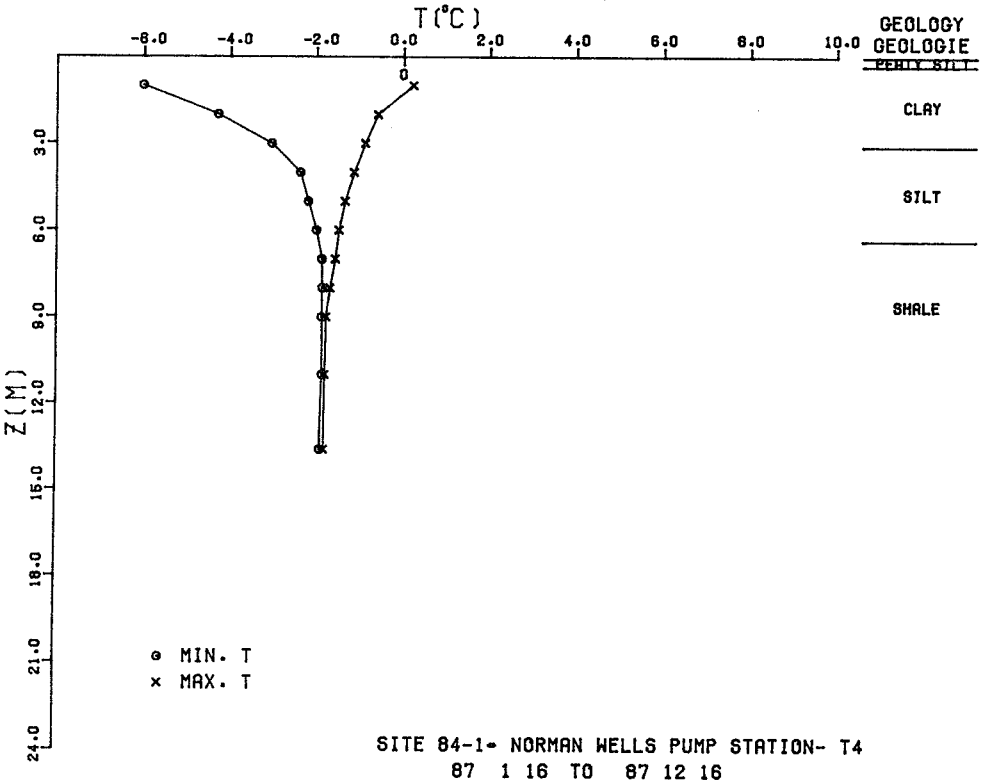
SITE 84-1• NORMAN WELLS PUMP STATION-- T2
87 1 16 TO 87 12 16

65° 17.2' N 126° 53.1' W/O



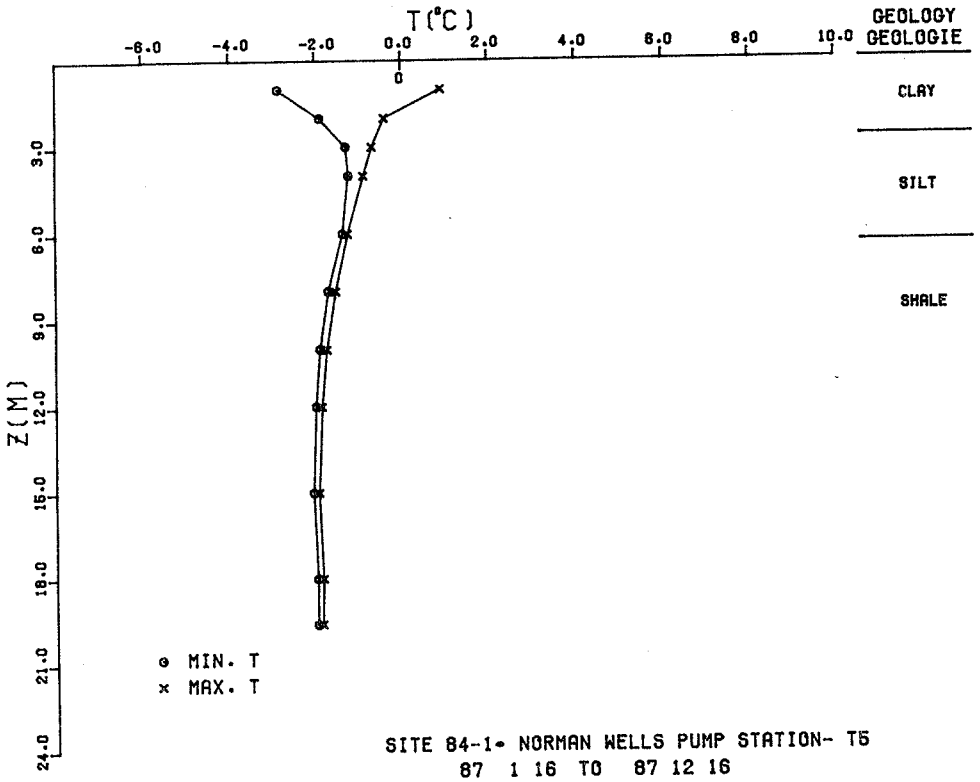
SITE 84-1- NORMAN WELLS PUMP STATION- T3
87 1 16 TO 87 11 13

65° 17.2' N 126° 53.1' W/O



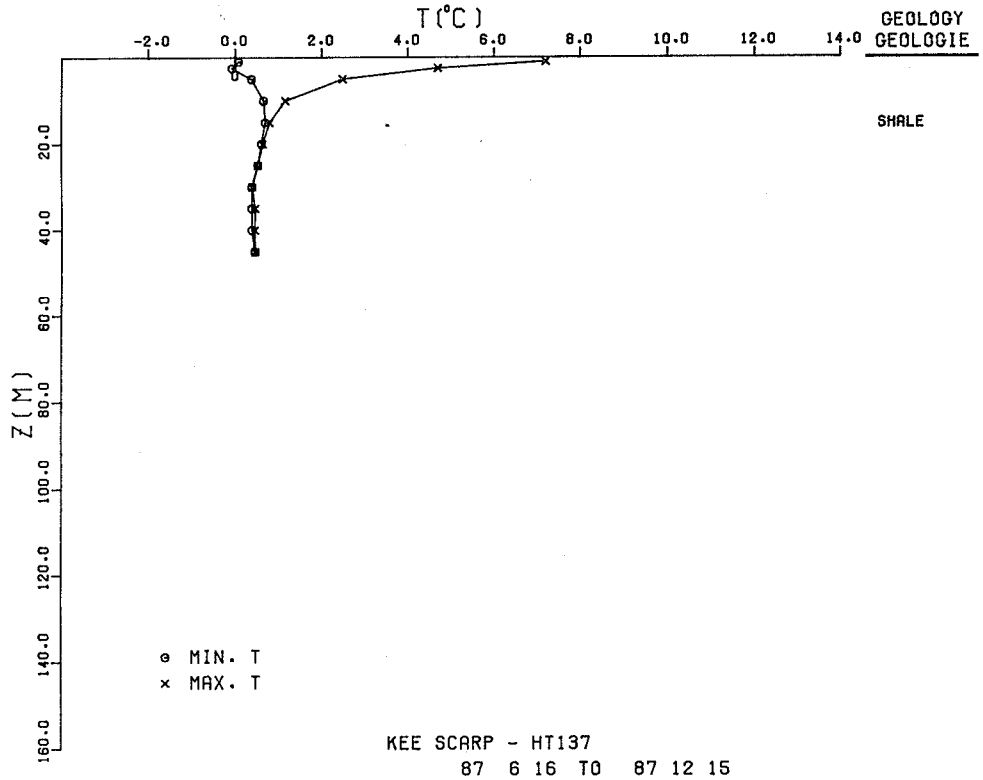
SITE 84-1- NORMAN WELLS PUMP STATION- T4
87 1 16 TO 87 12 16

65° 17.2' N 128° 59.1' W/O



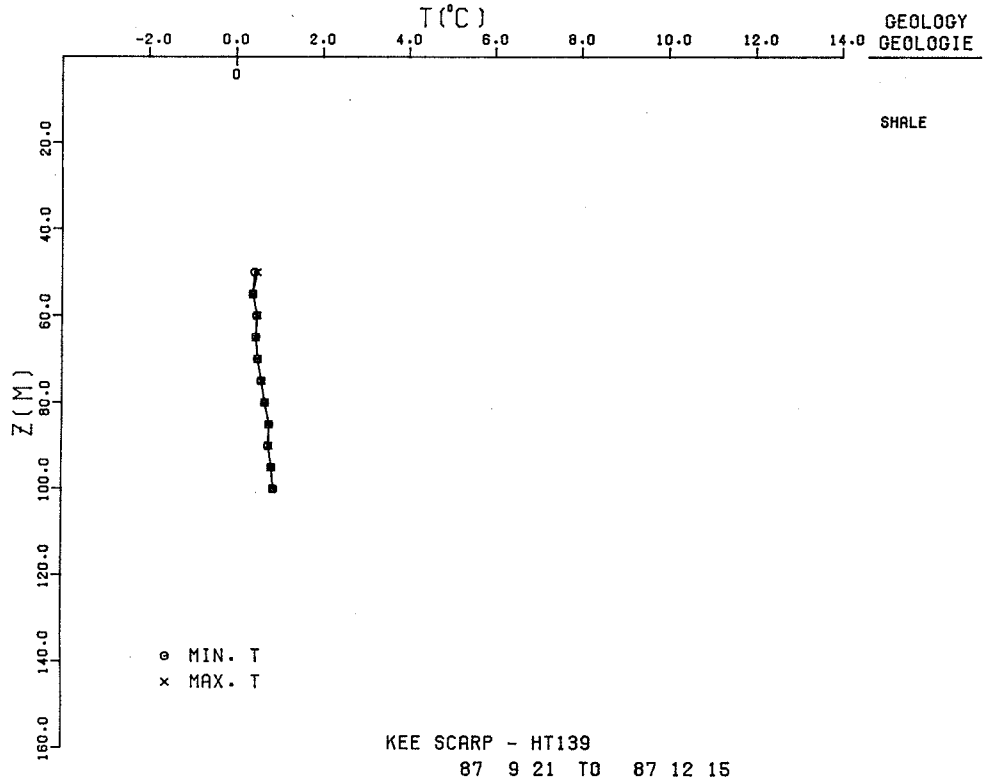
SITE 84-1• NORMAN WELLS PUMP STATION- T5
87 1 16 TO 87 12 16

65° 18.6' N 126° 43.8' W/O



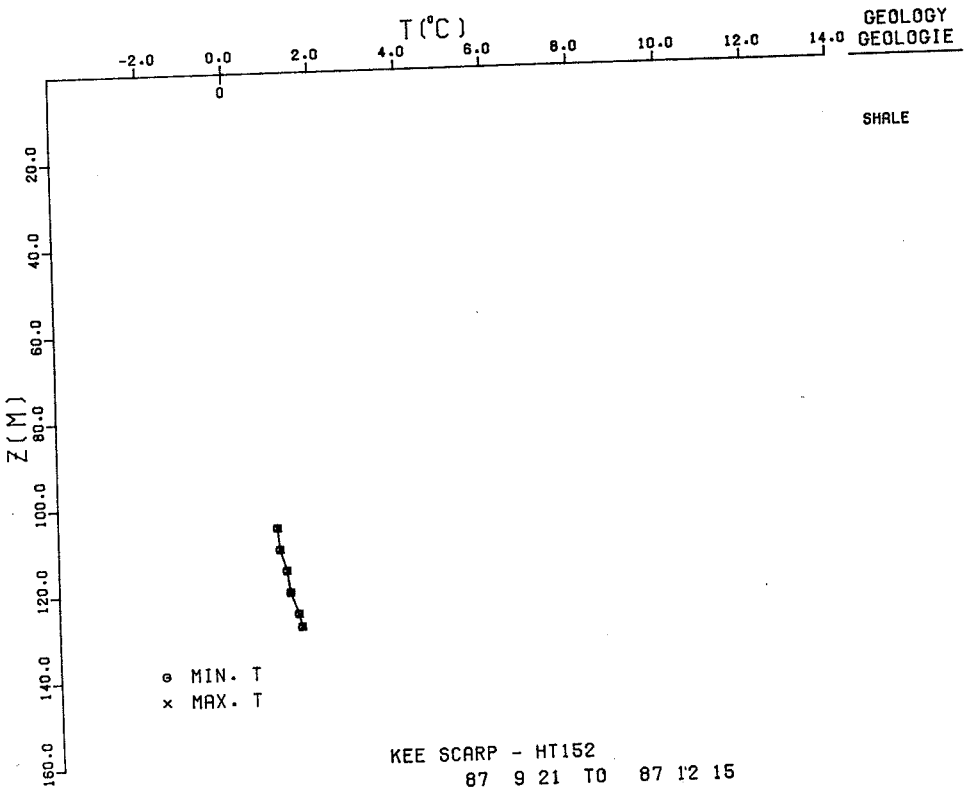
KEE SCARP - HT137
87 6 16 TO 87 12 15

65° 18.6' N 126° 43.8' W/O



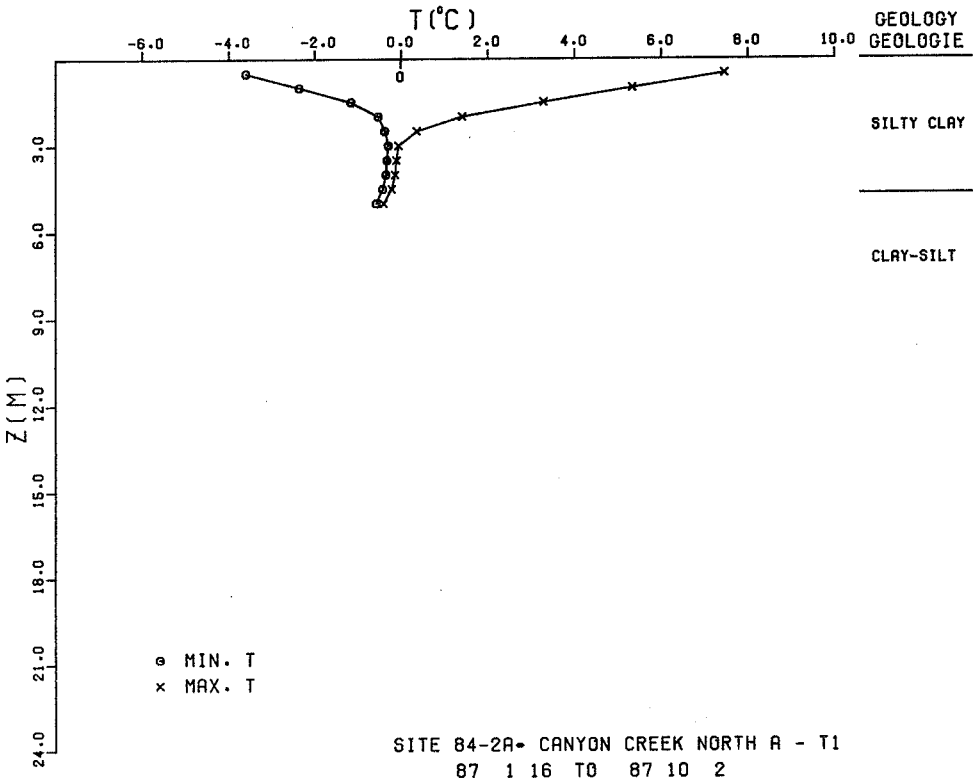
KEE SCARP - HT139
87 9 21 TO 87 12 15

65° 18.6' N 126° 43.8' W/O



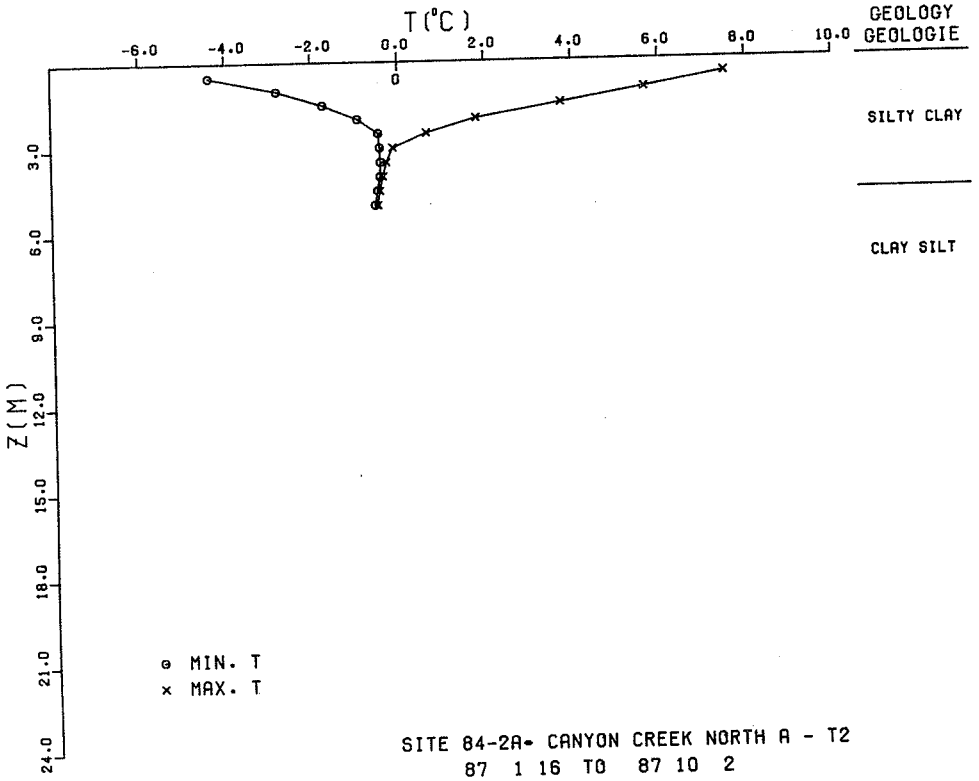
KEE SCARP - HT152
87 9 21 TO 87 12 15

65° 14.0' N 126° 31.2' W/0



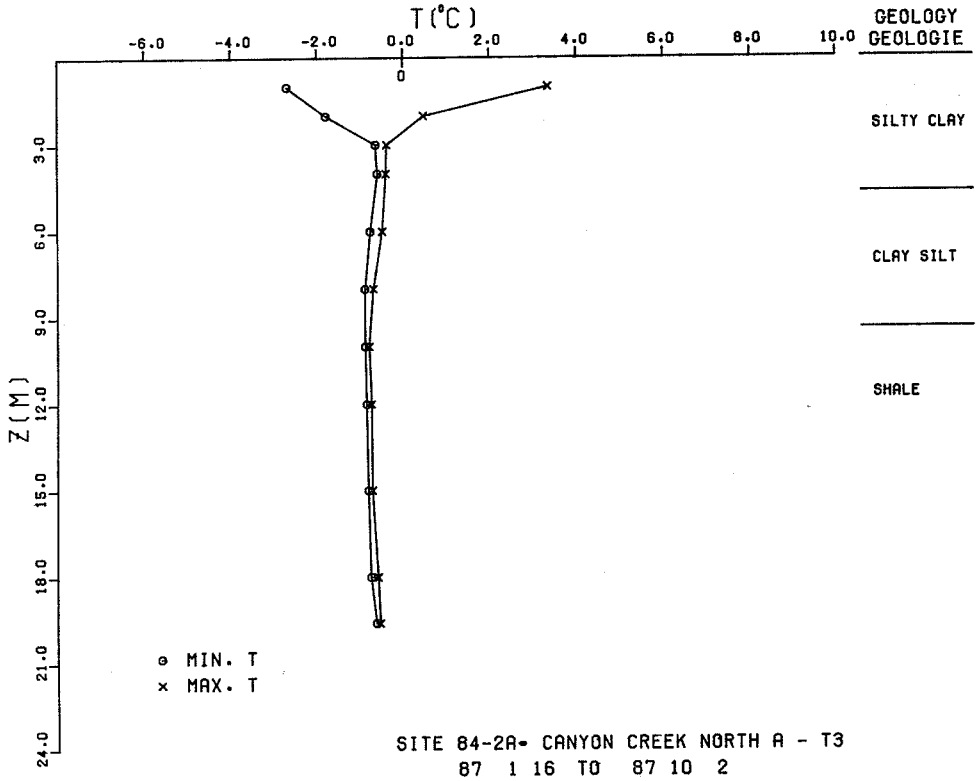
SITE 84-2A• CANYON CREEK NORTH A - T1
87 1 16 TO 87 10 2

65° 14.0' N 126° 31.2' W/0



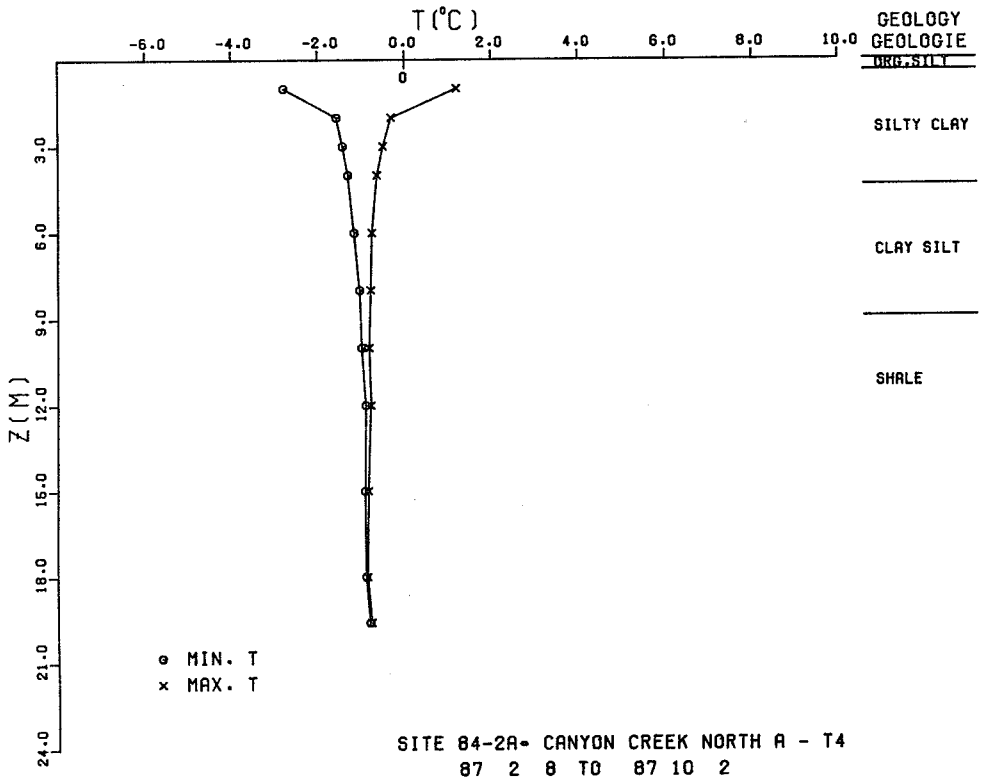
SITE 84-2A• CANYON CREEK NORTH A - T2
87 1 16 TO 87 10 2

65° 14.0' N 126° 31.2' W/O



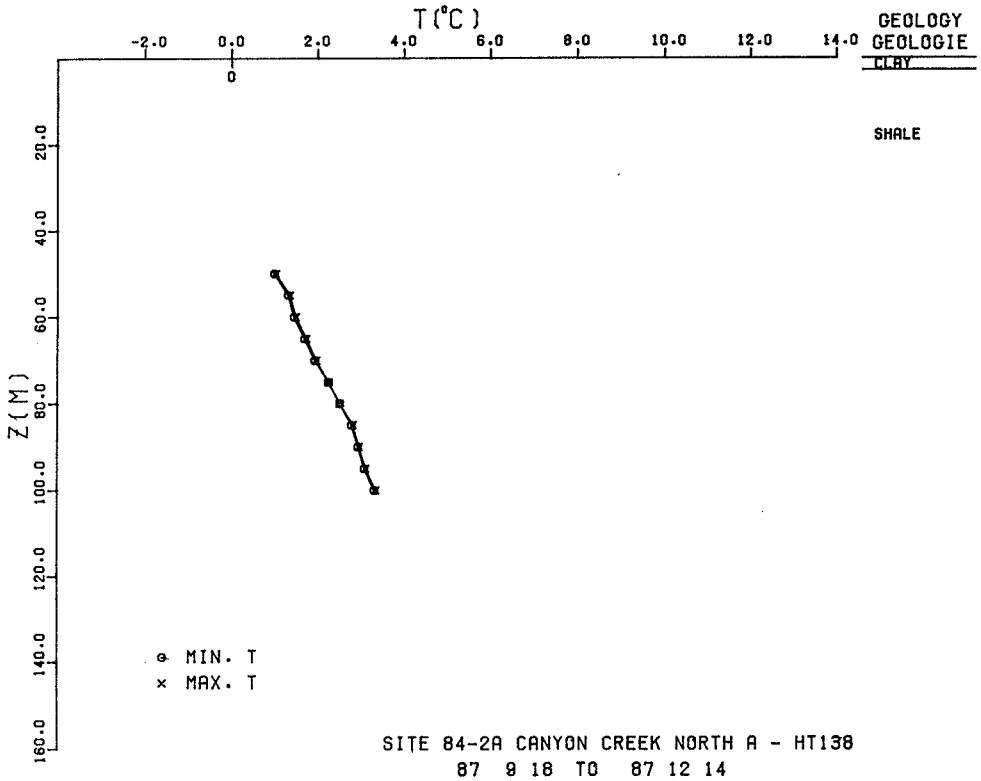
SITE 84-2A- CANYON CREEK NORTH A - T3
87 1 16 TO 87 10 2

65° 14.0' N 126° 31.2' W/O



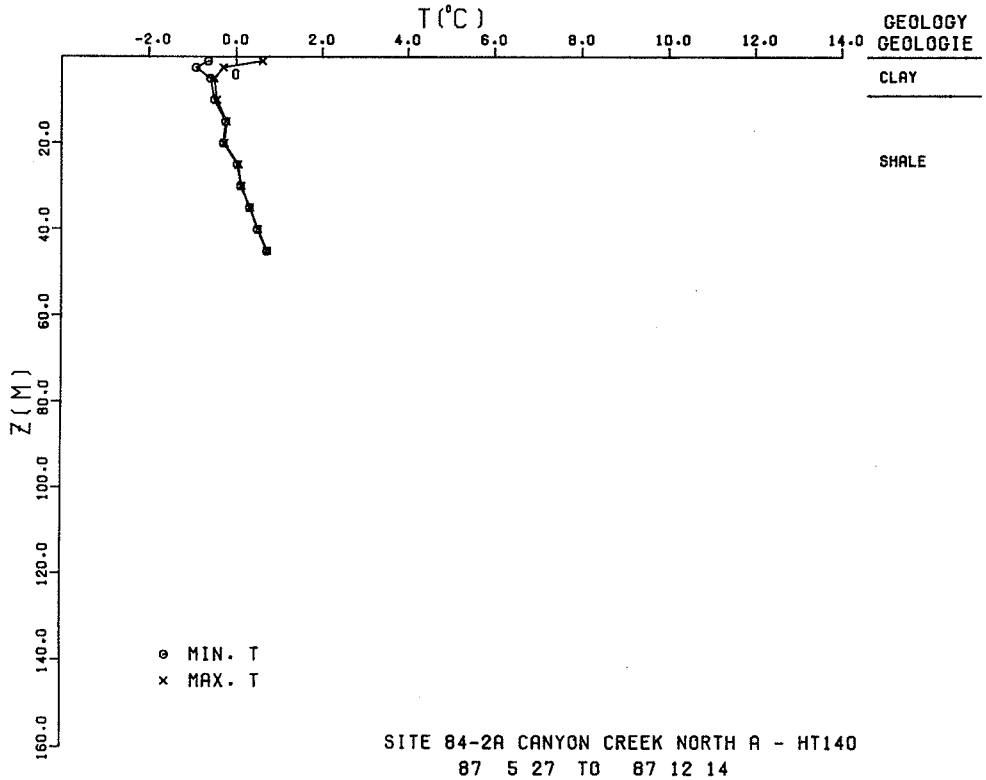
SITE 84-2A- CANYON CREEK NORTH A - T4
87 2 8 TO 87 10 2

65° 14.1' N 126° 31.3' W/O



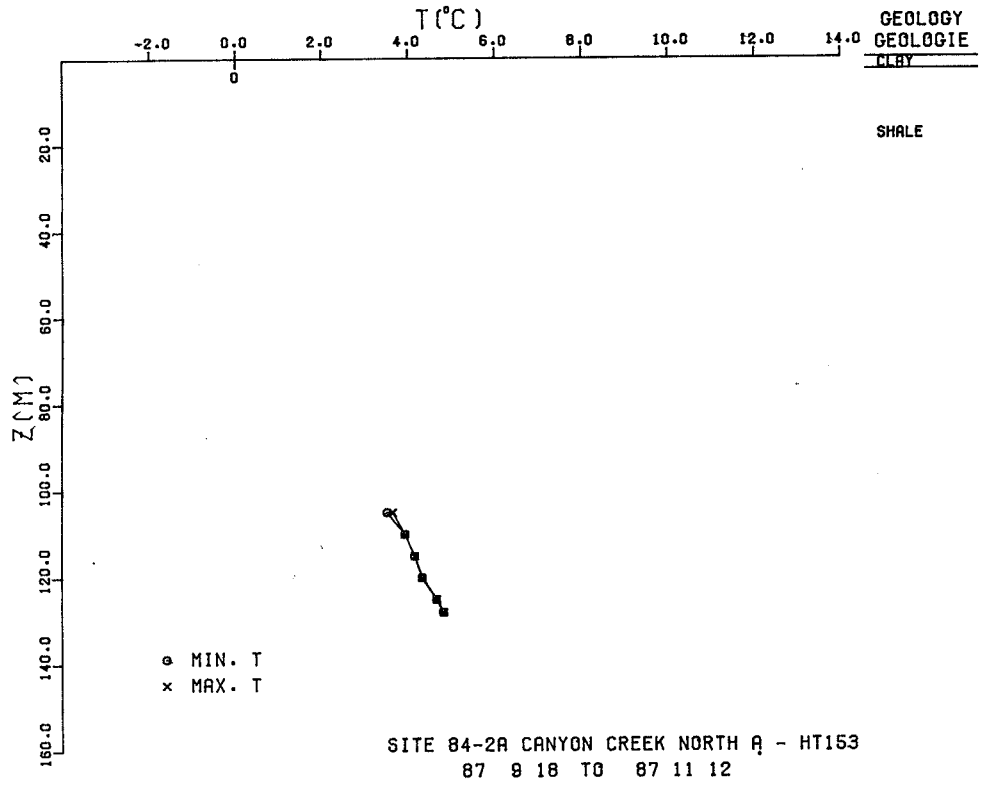
SITE 84-2A CANYON CREEK NORTH A - HT138
87 9 18 TO 87 12 14

65° 14.0' N 126° 31.2' W/O



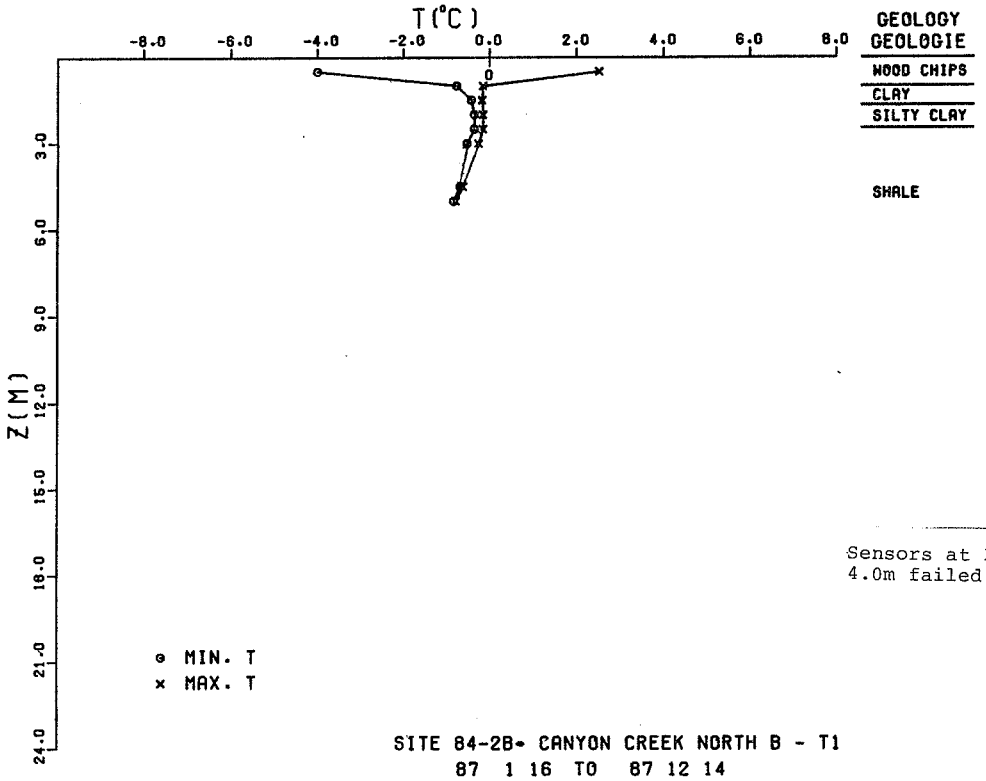
SITE 84-2A CANYON CREEK NORTH A - HT140
87 5 27 TO 87 12 14

65° 14.1' N 126° 31.3' W/0



SITE 84-2A CANYON CREEK NORTH A - HT153
87 9 18 TO 87 11 12

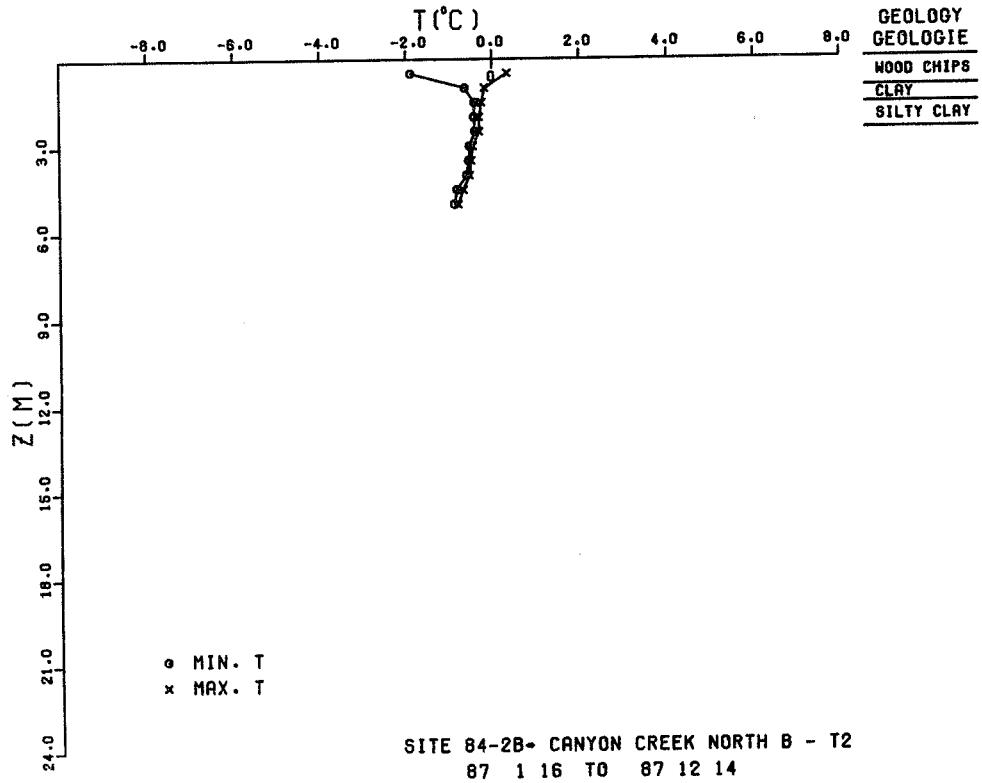
65° 14.0' N 126° 31.1' W/O



Sensors at 3.5m and
4.0m failed in 1987.

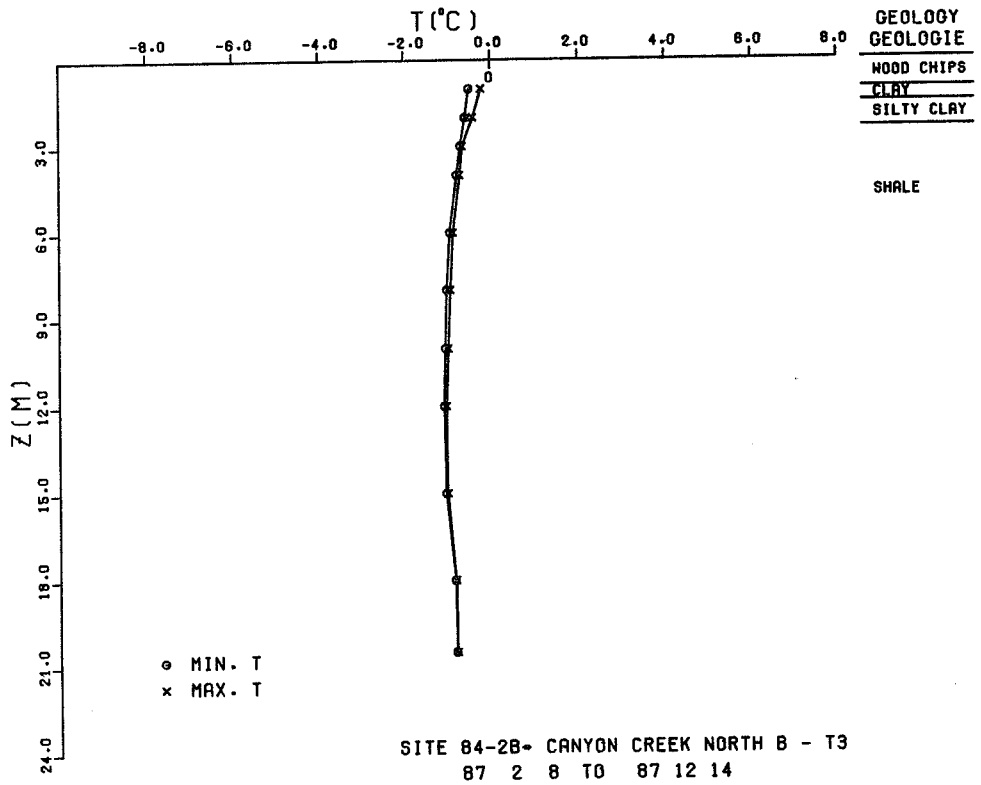
SITE 84-2B• CANYON CREEK NORTH B - T1
87 1 16 TO 87 12 14

65° 14.0' N 126° 31.1' W/O



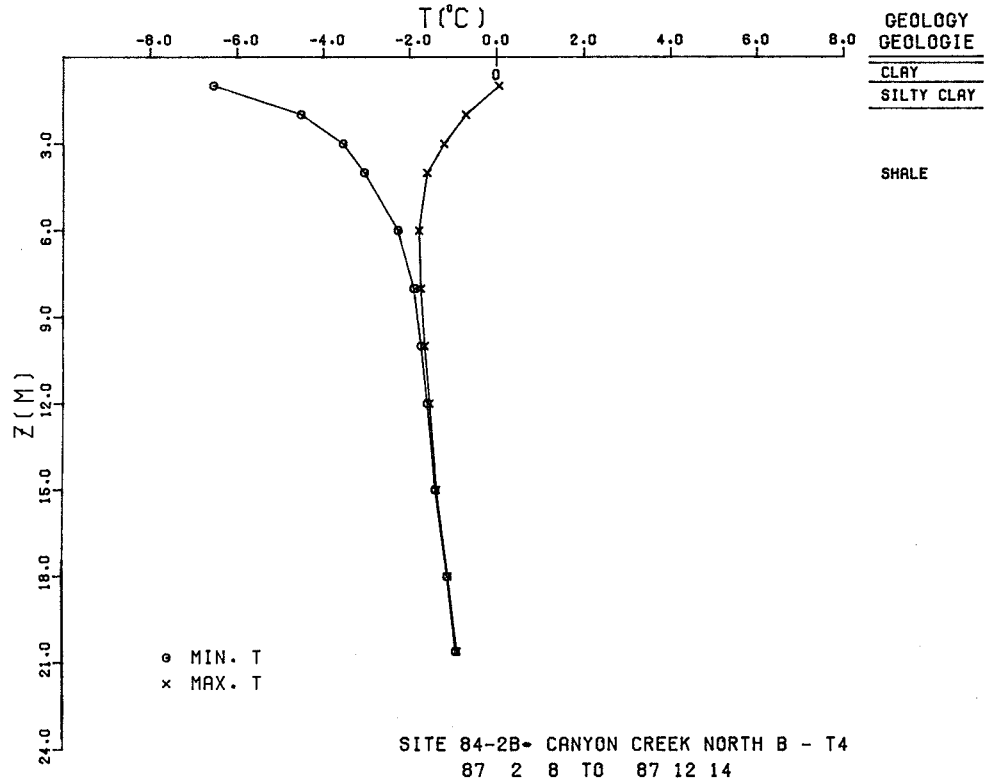
SITE 84-2B• CANYON CREEK NORTH B - T2
87 1 16 TO 87 12 14

65° 14.0' N 126° 31.1' W/0



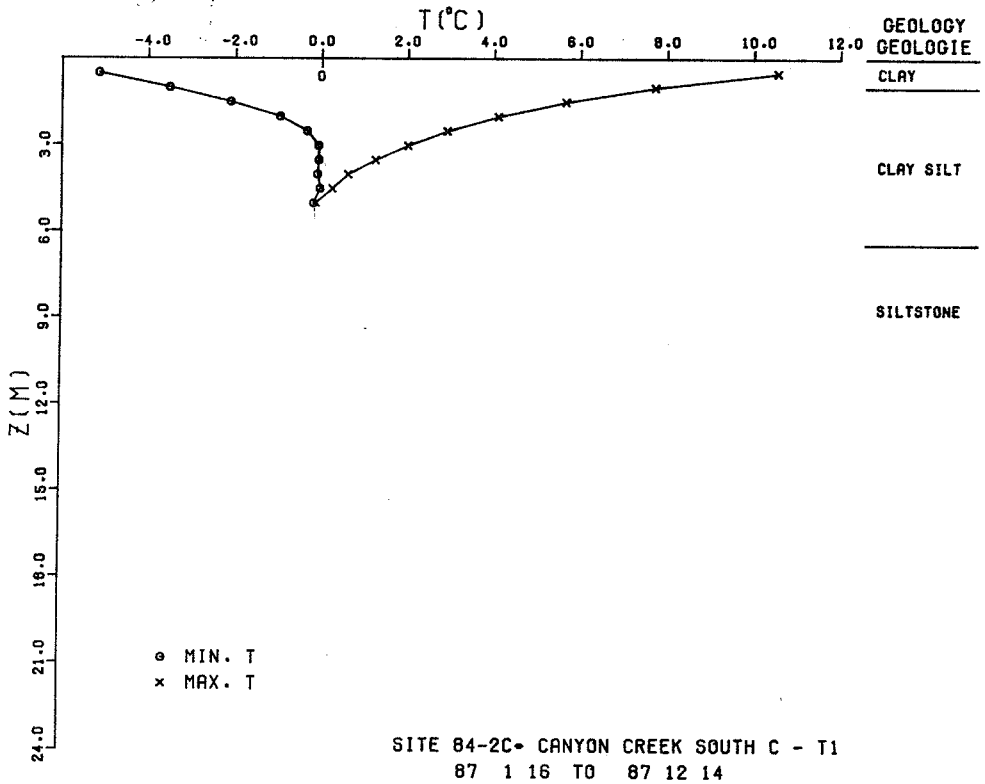
SITE 84-2B- CANYON CREEK NORTH B - T3
87 2 8 TO 87 12 14

65° 14.0' N 126° 31.1' W/0



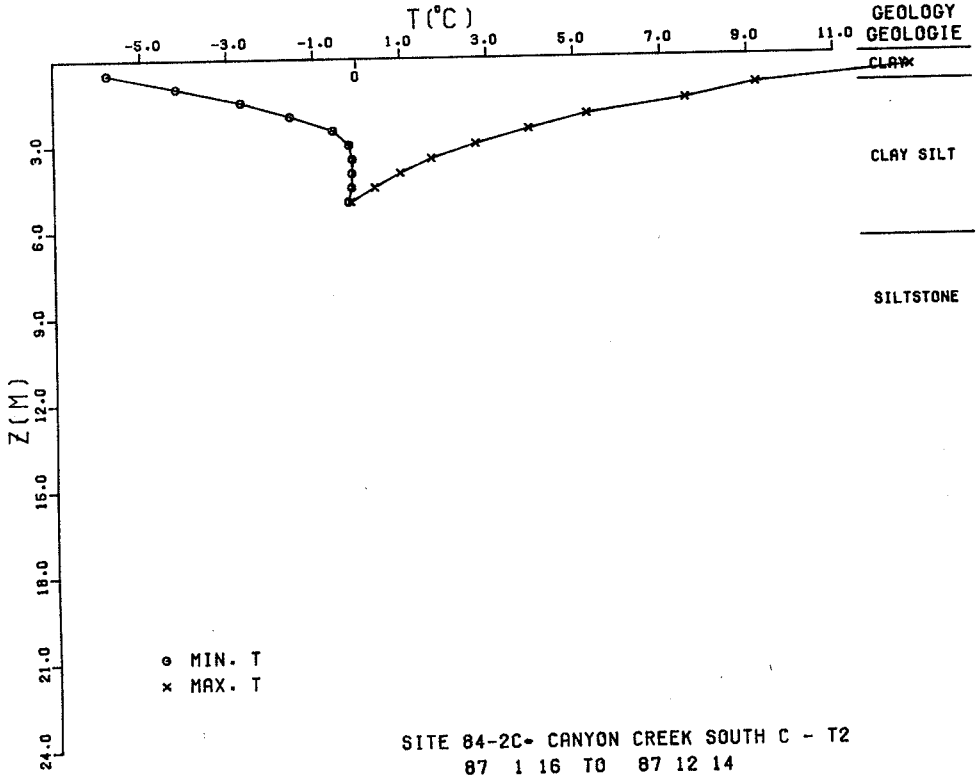
SITE 84-2B- CANYON CREEK NORTH B - T4
87 2 8 TO 87 12 14

65° 13.6' N 126° 30.5' W/O



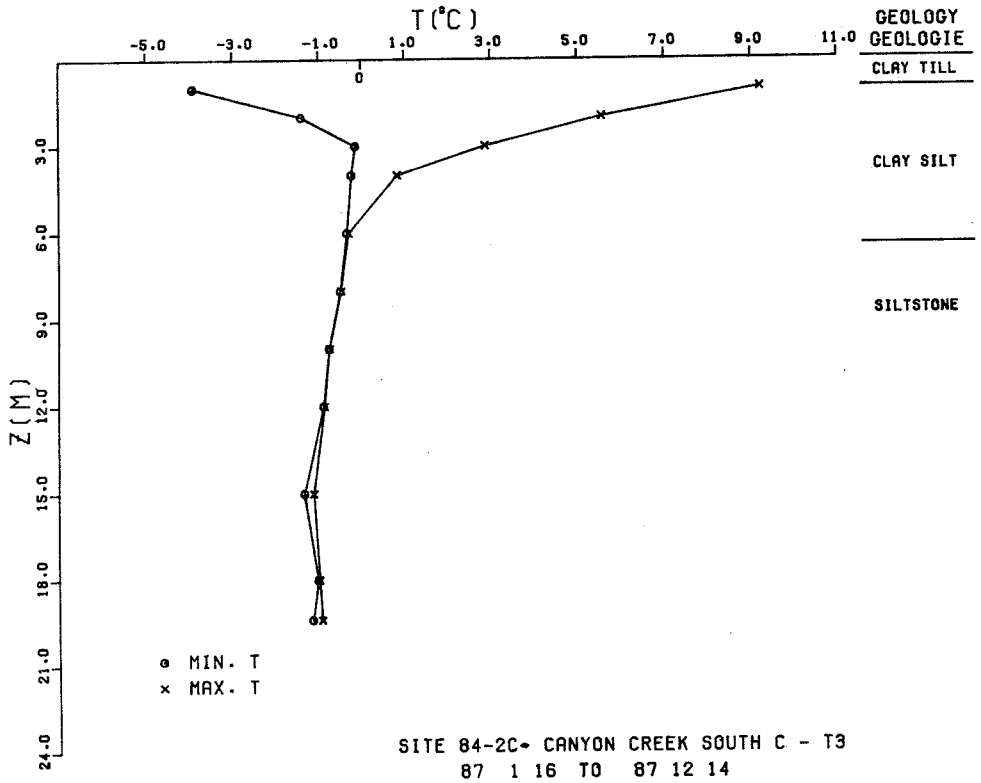
SITE 84-2C- CANYON CREEK SOUTH C - T1
87 1 16 TO 87 12 14

65° 13.6' N 126° 30.5' W/O



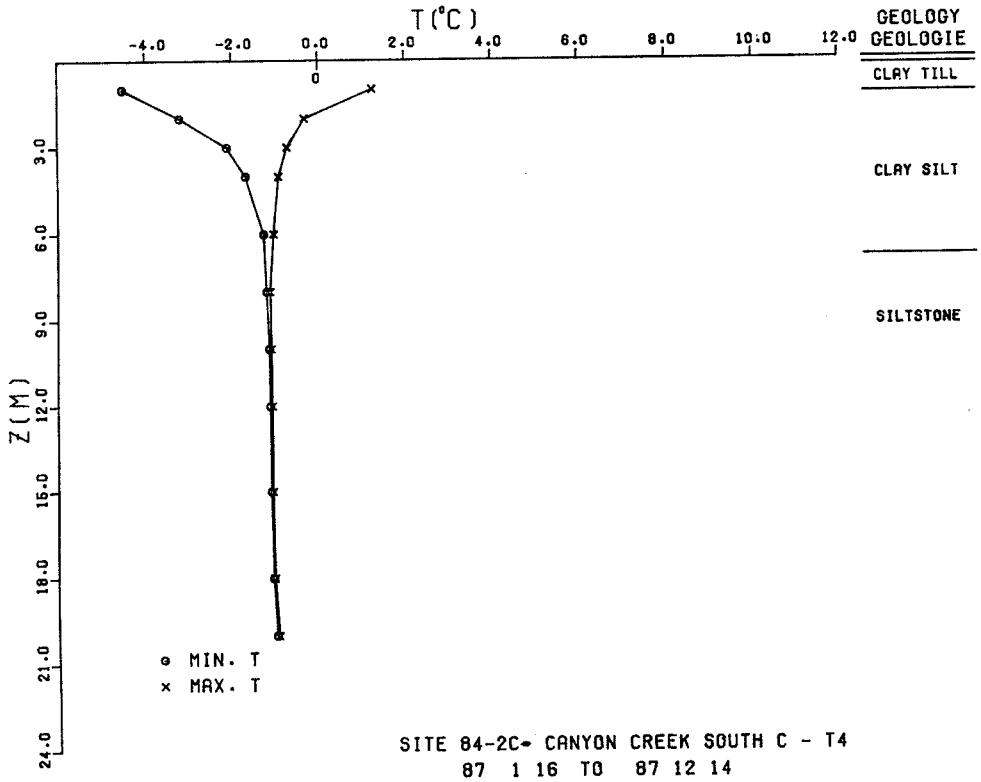
SITE 84-2C- CANYON CREEK SOUTH C - T2
87 1 16 TO 87 12 14

65° 13.6' N 126° 30.5' W/0



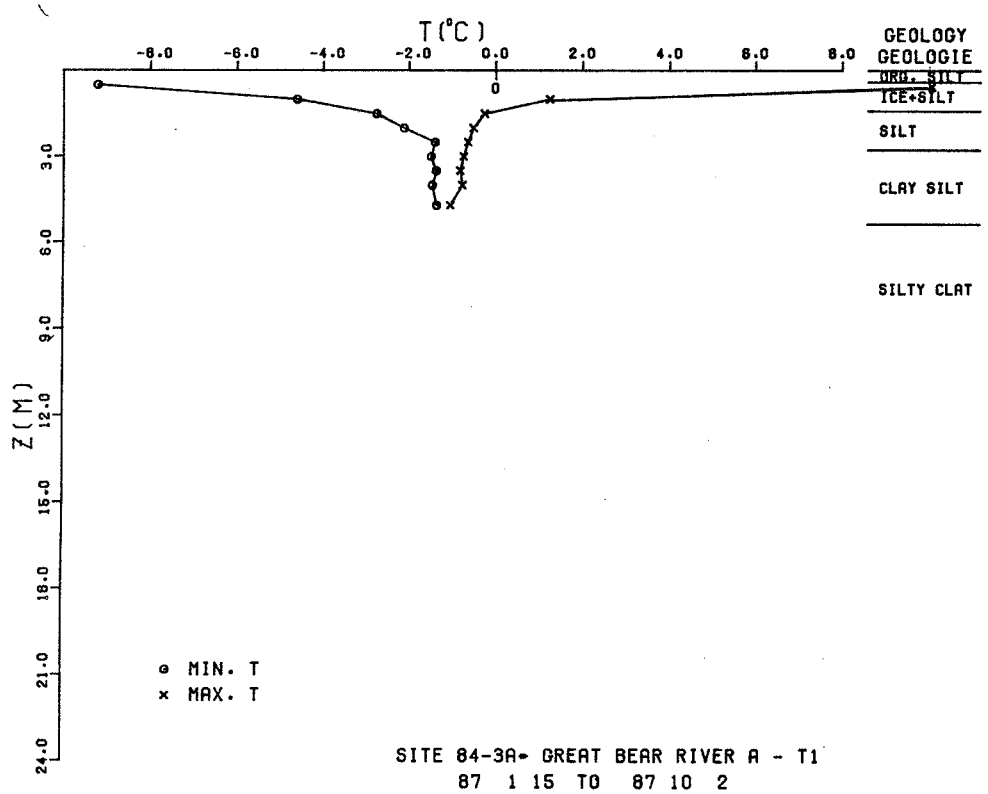
SITE 84-2C• CANYON CREEK SOUTH C - T3
87 1 16 TO 87 12 14

65° 13.6' N 126° 30.5' W/0



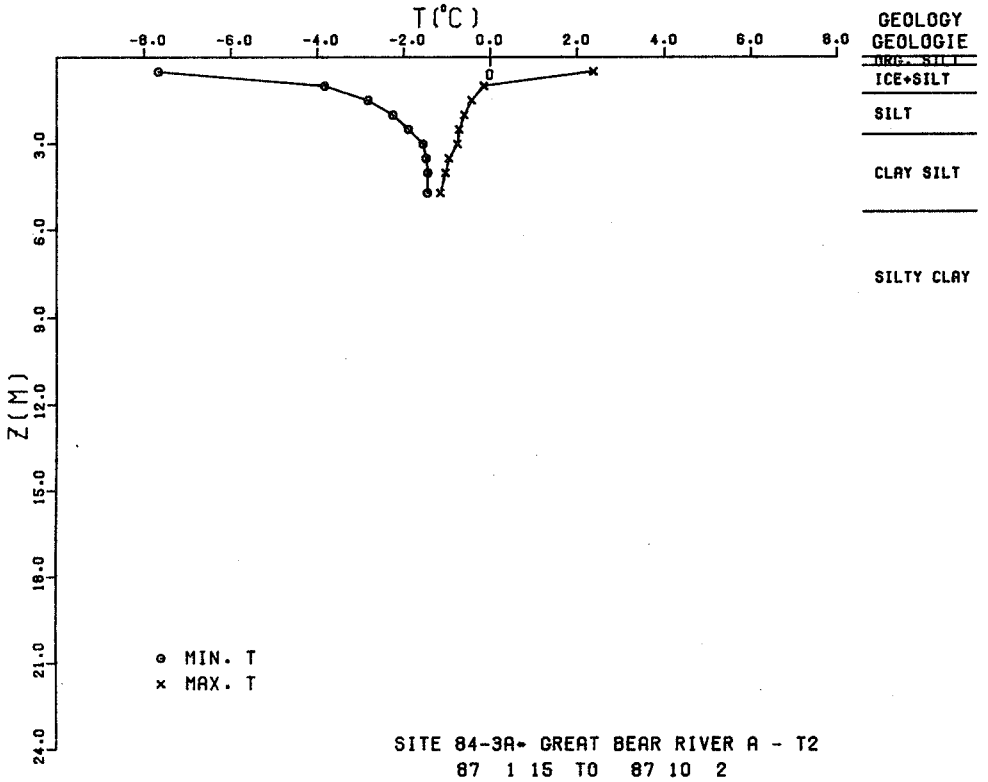
SITE 84-2C• CANYON CREEK SOUTH C - T4
87 1 16 TO 87 12 14

64° 54.4' N 125° 34.3' W/0



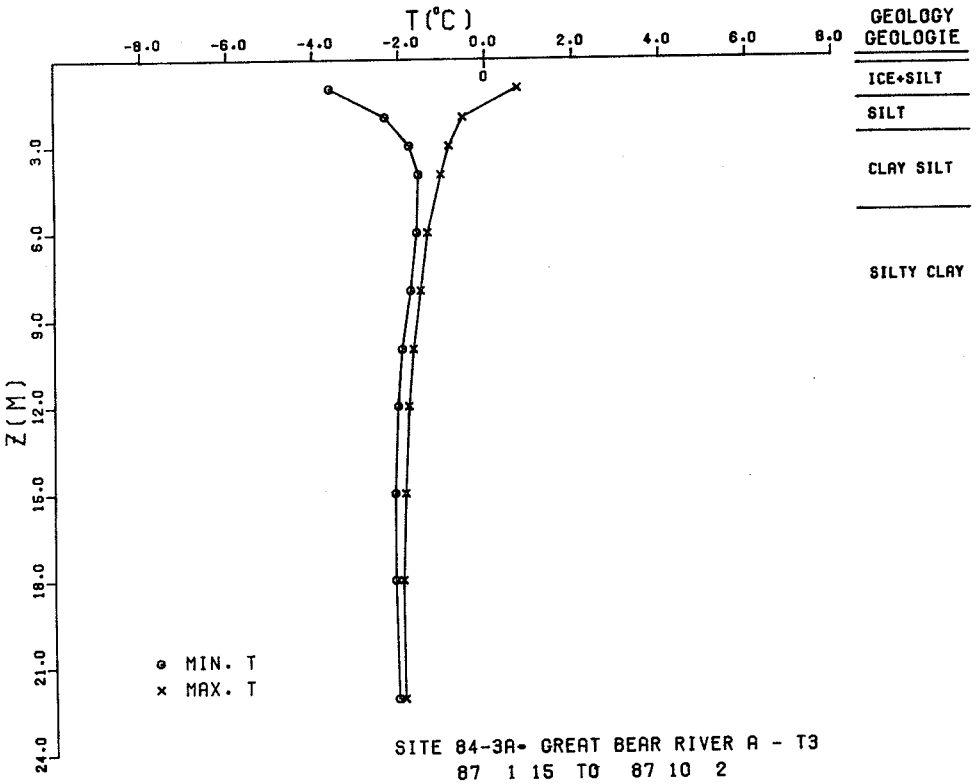
SITE 84-3A+ GREAT BEAR RIVER A - T1
87 1 15 T0 87 10 2

64° 54.4' N 125° 34.3' W/0



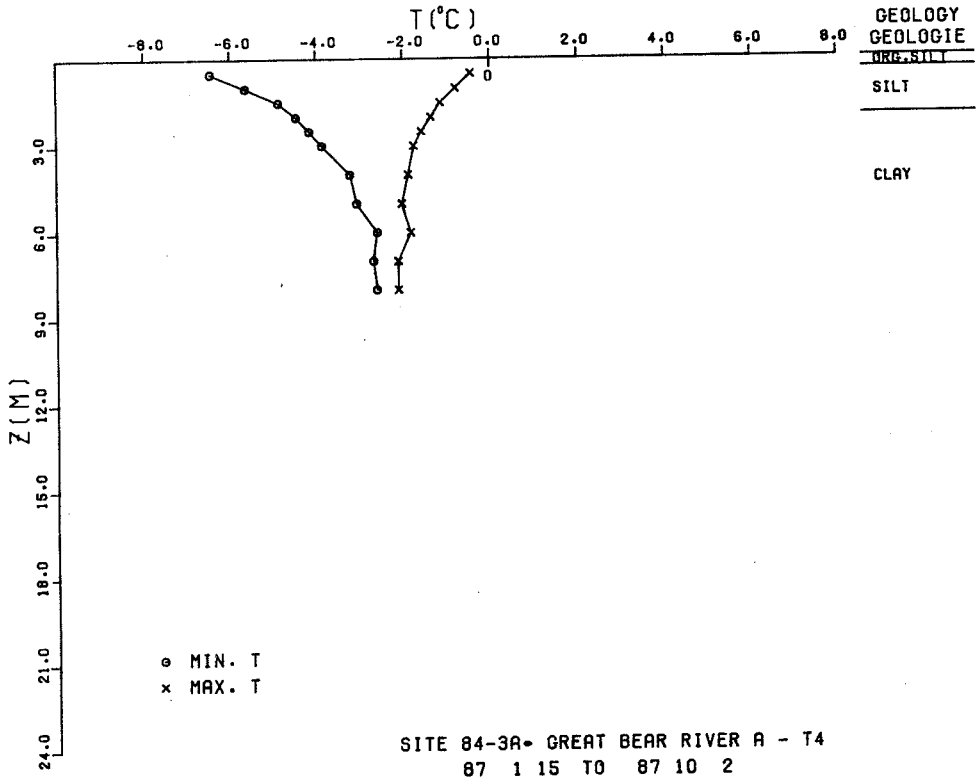
SITE 84-3A+ GREAT BEAR RIVER A - T2
87 1 15 T0 87 10 2

64° 54.4' N 125° 34.3' W/O



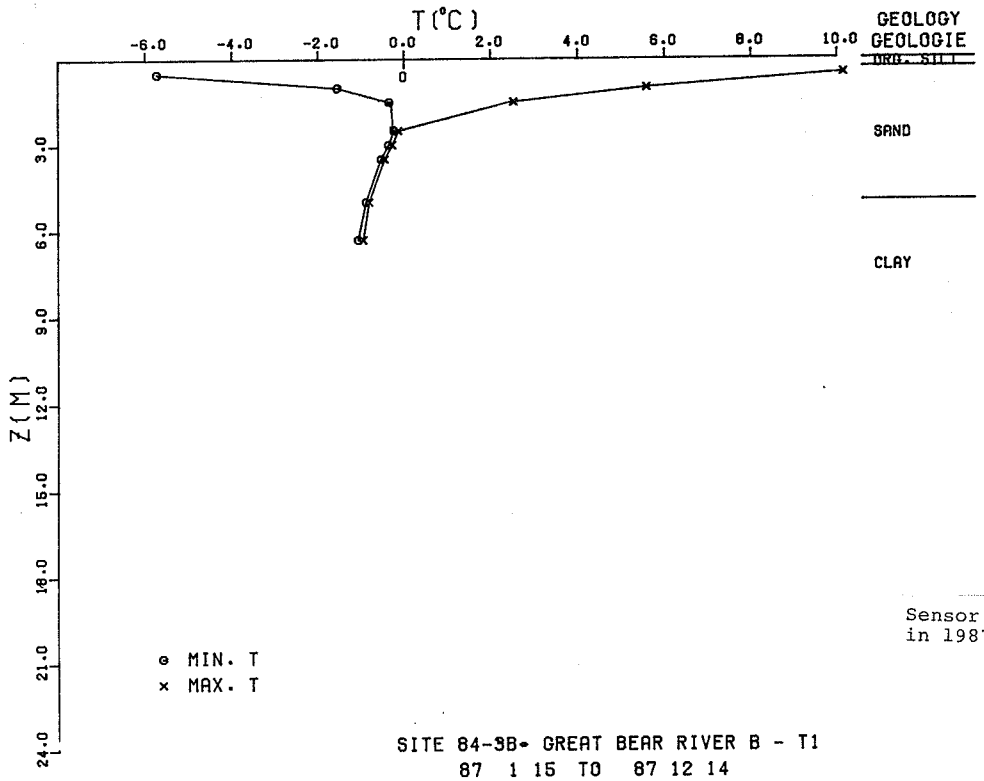
SITE 84-3A• GREAT BEAR RIVER A - T3
87 1 15 TO 87 10 2

64° 54.4' N 125° 34.3' W/O



SITE 84-3A• GREAT BEAR RIVER A - T4
87 1 15 TO 87 10 2

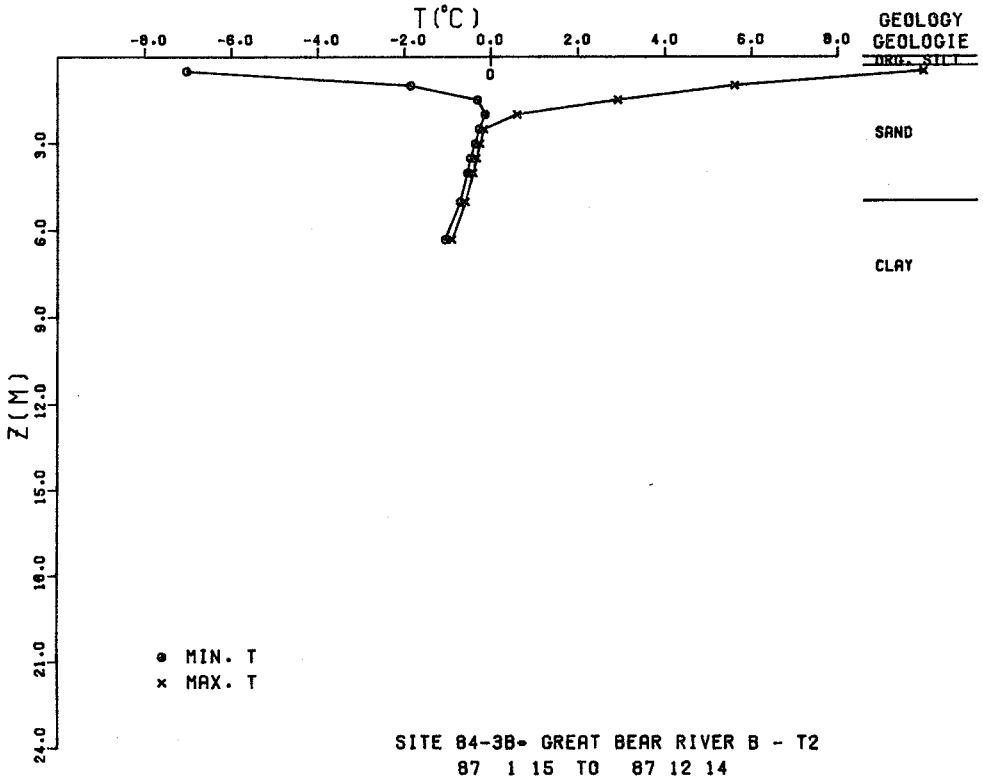
64° 54.4' N 125° 34.5' W/O



Sensor at 2m failed in 1987.

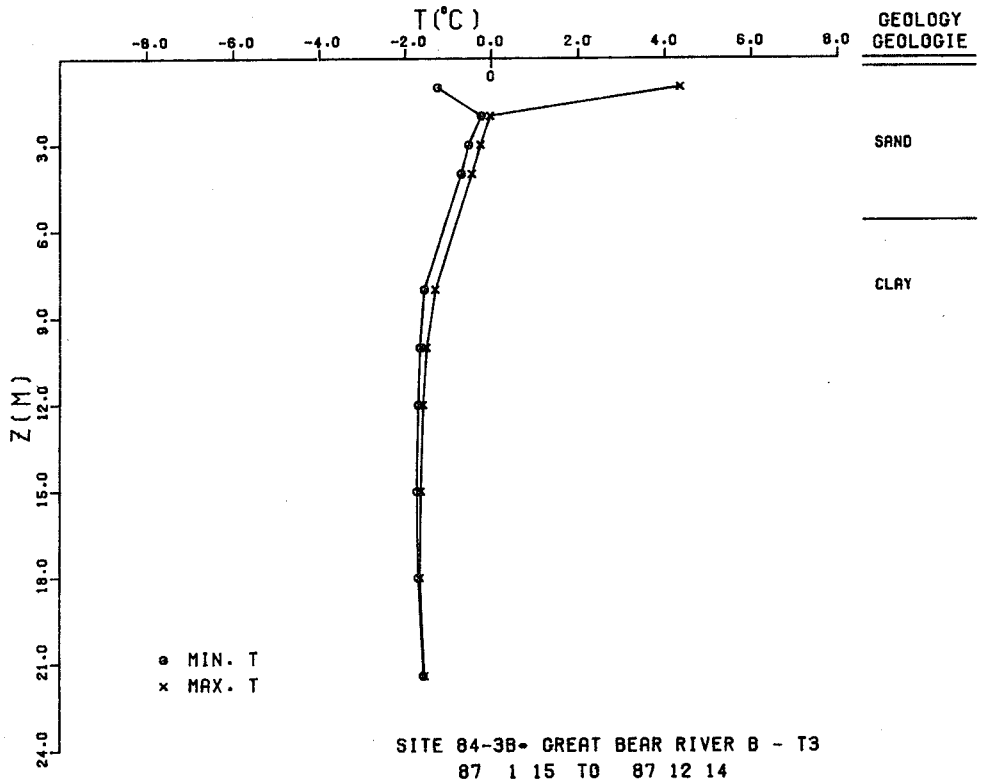
SITE 84-3B- GREAT BEAR RIVER B - T1
87 1 15 TO 87 12 14

64° 54.4' N 125° 34.5' W/O



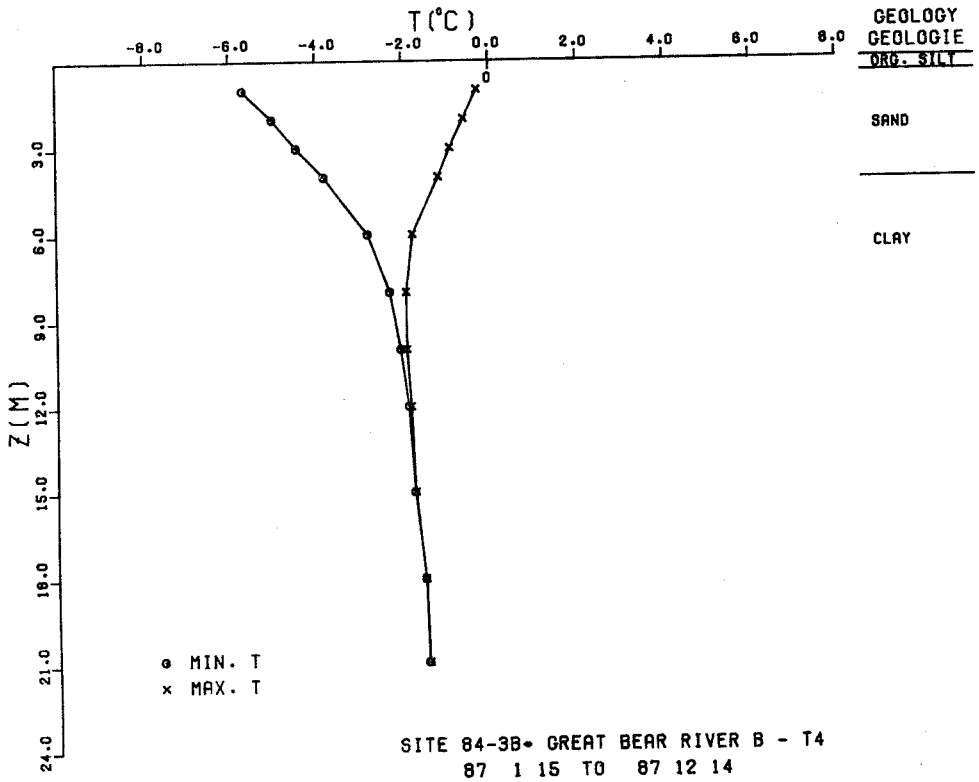
SITE 84-3B- GREAT BEAR RIVER B - T2
87 1 15 TO 87 12 14

64° 54.4' N 125° 34.5' W/O



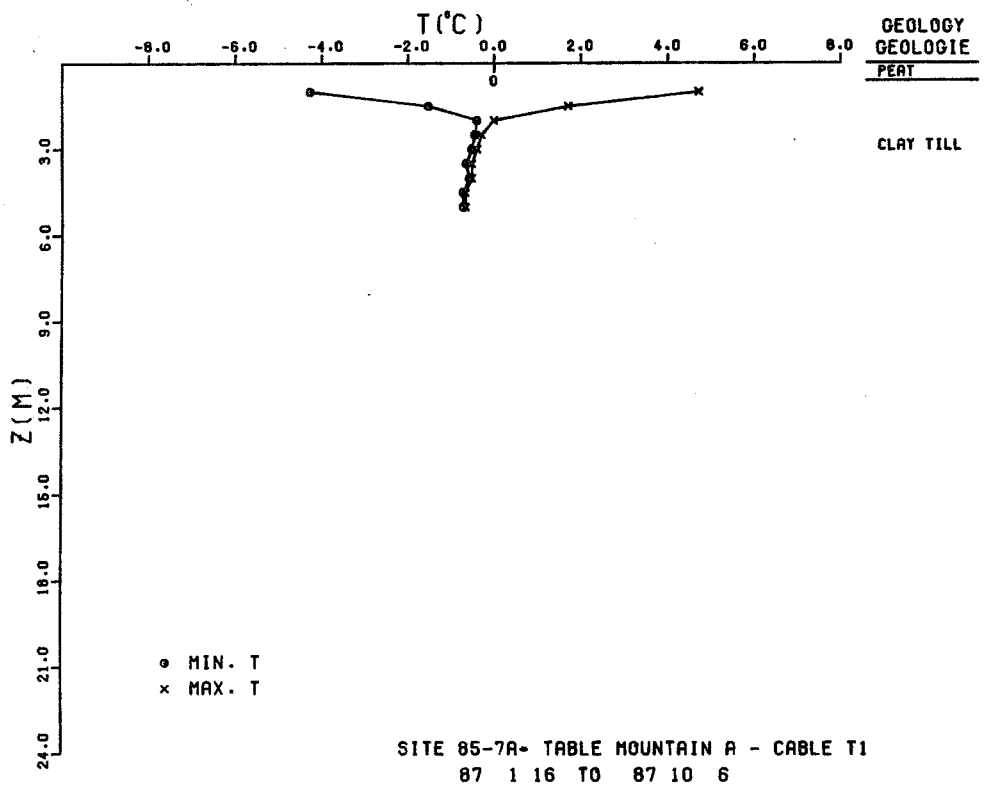
SITE 84-38• GREAT BEAR RIVER B - T3
87 1 15 TO 87 12 14

64° 54.4' N 125° 34.5' W/O



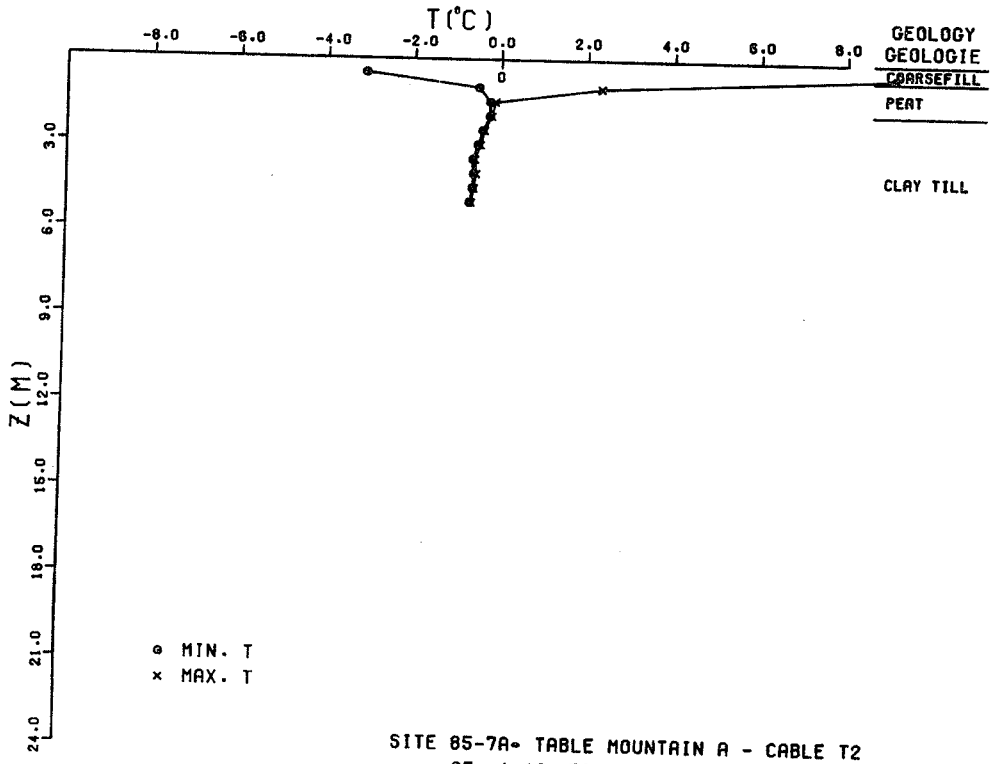
SITE 84-38• GREAT BEAR RIVER B - T4
87 1 15 TO 87 12 14

63° 36.9' N 123° 38.8' W/O



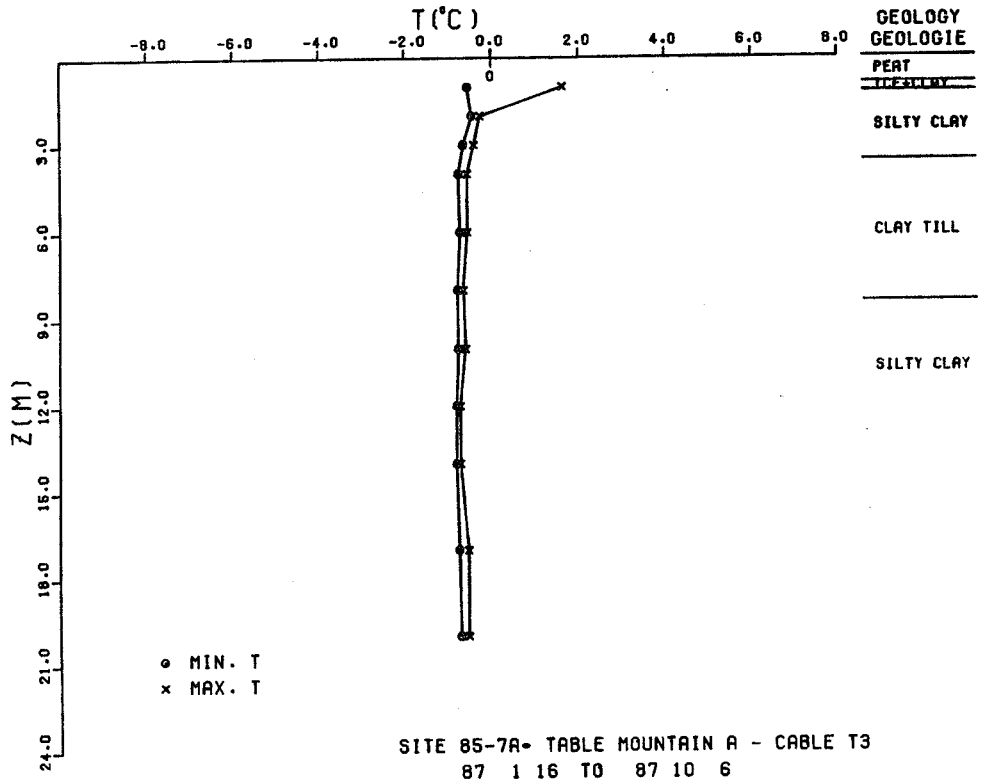
SITE 85-7A- TABLE MOUNTAIN A - CABLE T1
87 1 16 TO 87 10 6

63° 36.9' N 123° 38.8' W/O



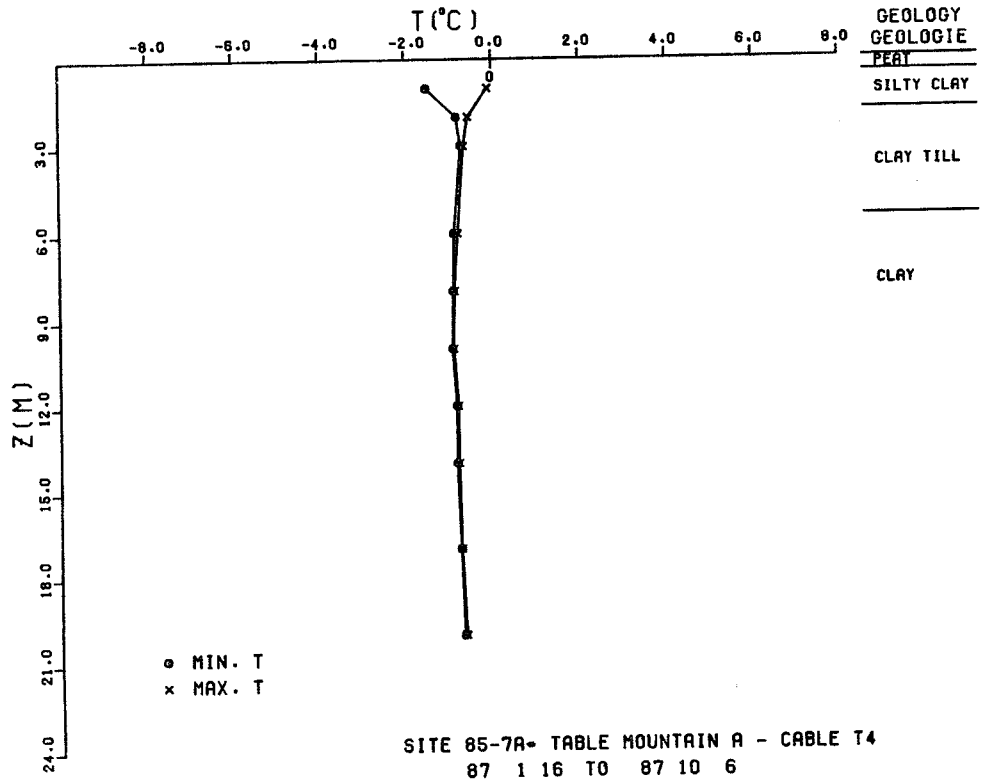
SITE 85-7A- TABLE MOUNTAIN A - CABLE T2
87 1 16 TO 87 10 6

63° 36.9' N 123° 38.8' W/O



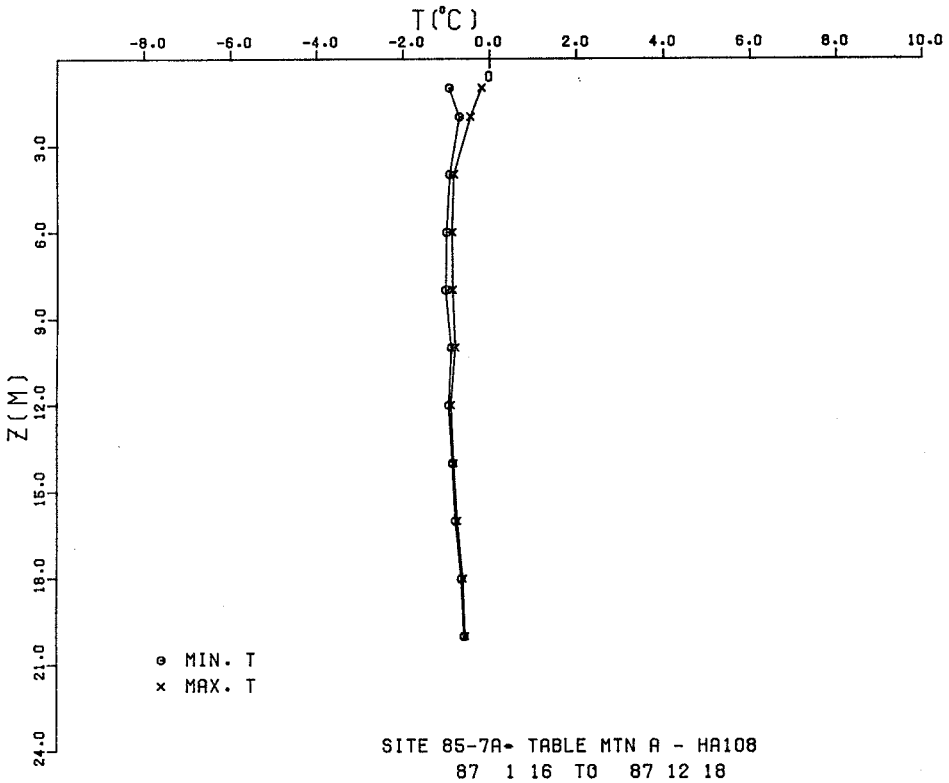
SITE 85-7A- TABLE MOUNTAIN A - CABLE T3
87 1 16 TO 87 10 6

63° 36.9' N 123° 38.8' W/O



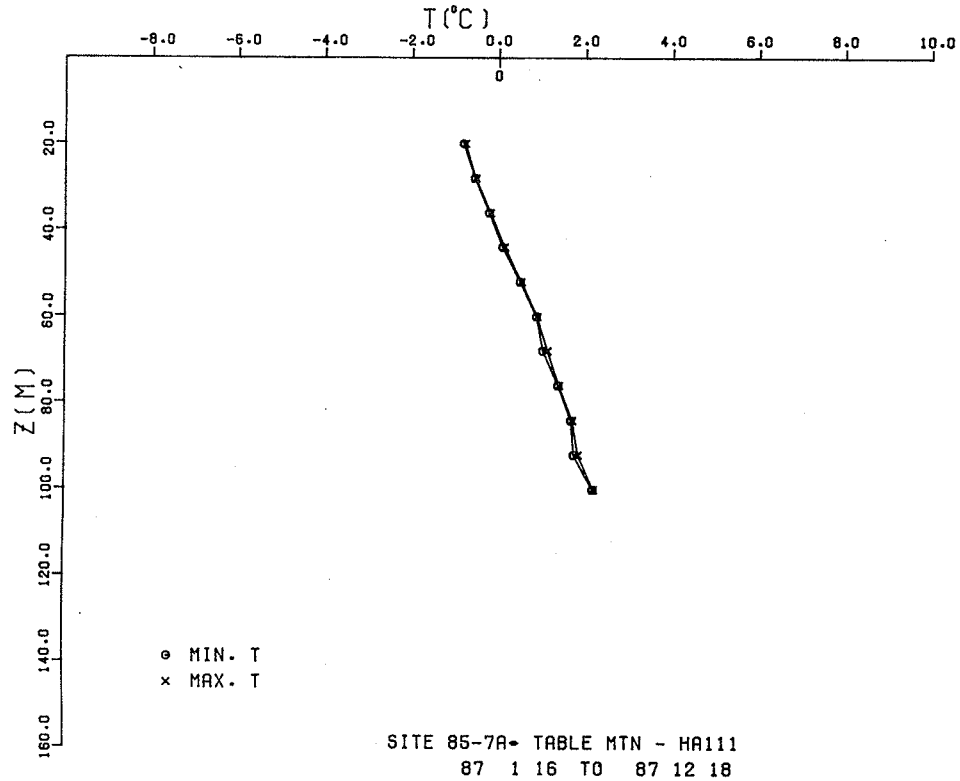
SITE 85-7A- TABLE MOUNTAIN A - CABLE T4
87 1 16 TO 87 10 6

63° 36.9' N 123° 38.8' W/O



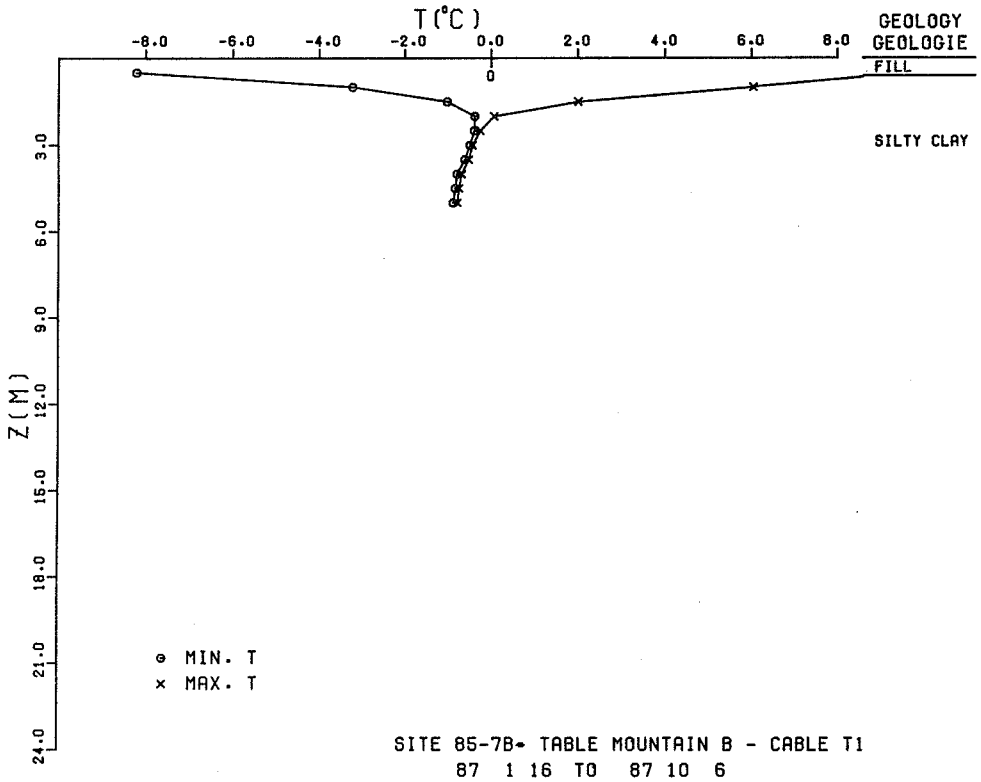
SITE 85-7A• TABLE MTN A - HA108
87 1 16 TO 87 12 18

63° 36.9' N 123° 38.8' W/O



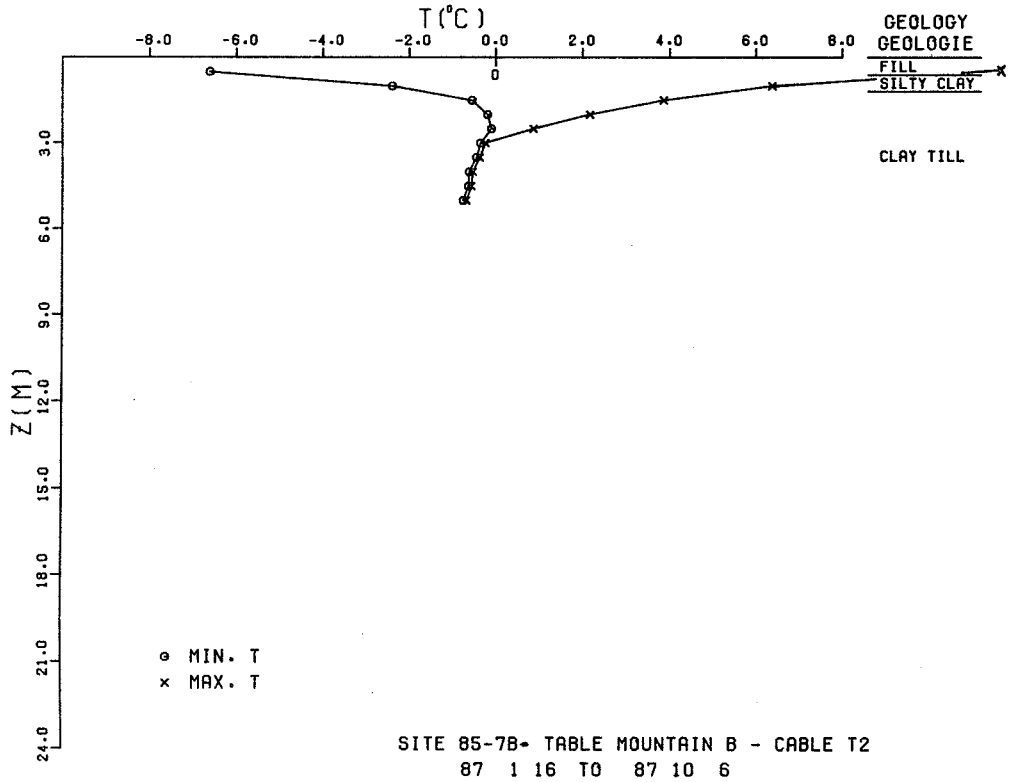
SITE 85-7A• TABLE MTN - HA111
87 1 16 TO 87 12 18

63° 36.6' N 123° 38.1' W/O



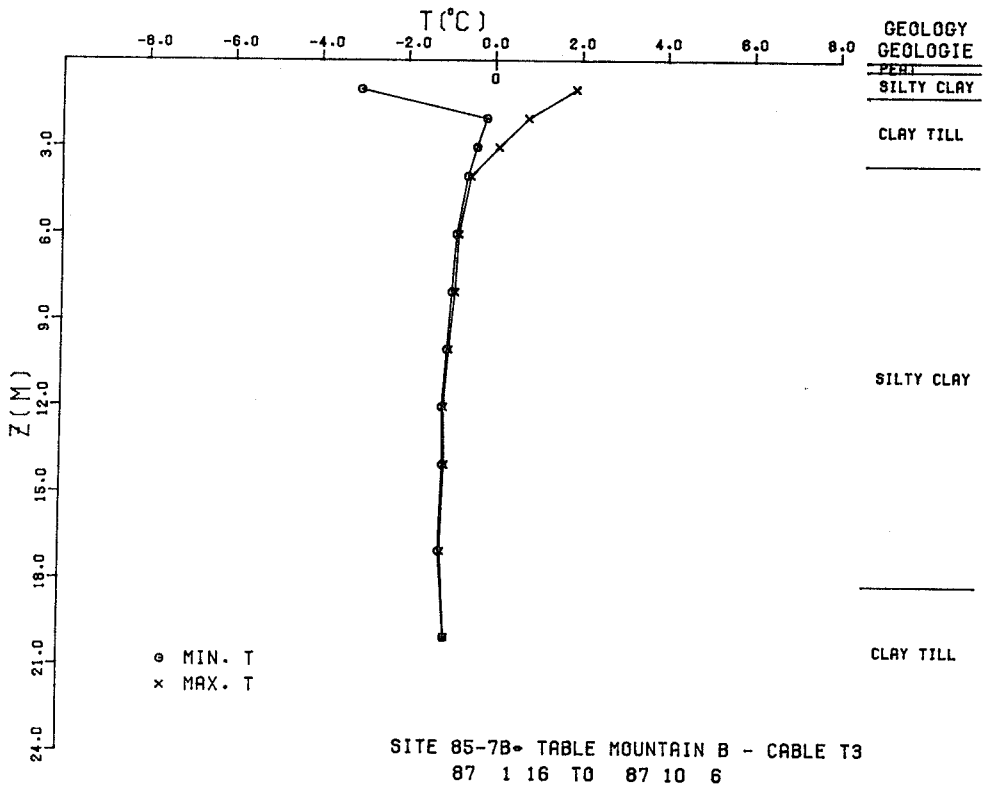
SITE 85-7B- TABLE MOUNTAIN B - CABLE T1
87 1 16 TO 87 10 6

63° 36.6' N 123° 38.1' W/O



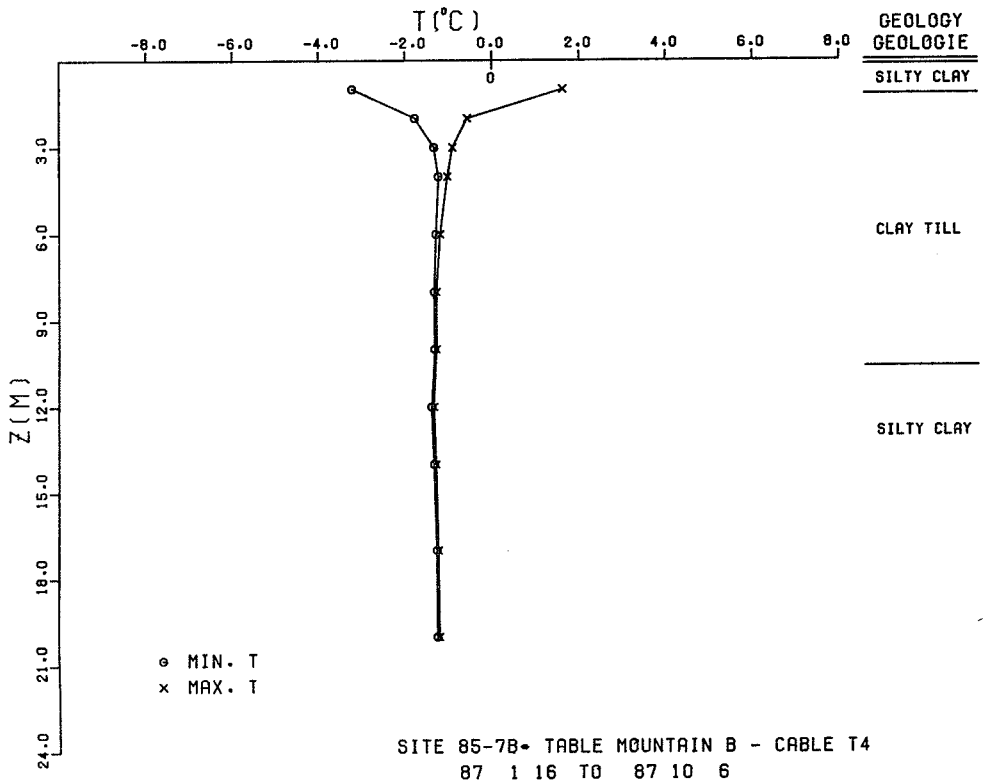
SITE 85-7B- TABLE MOUNTAIN B - CABLE T2
87 1 16 TO 87 10 6

63° 36.6' N 123° 38.1' W/O



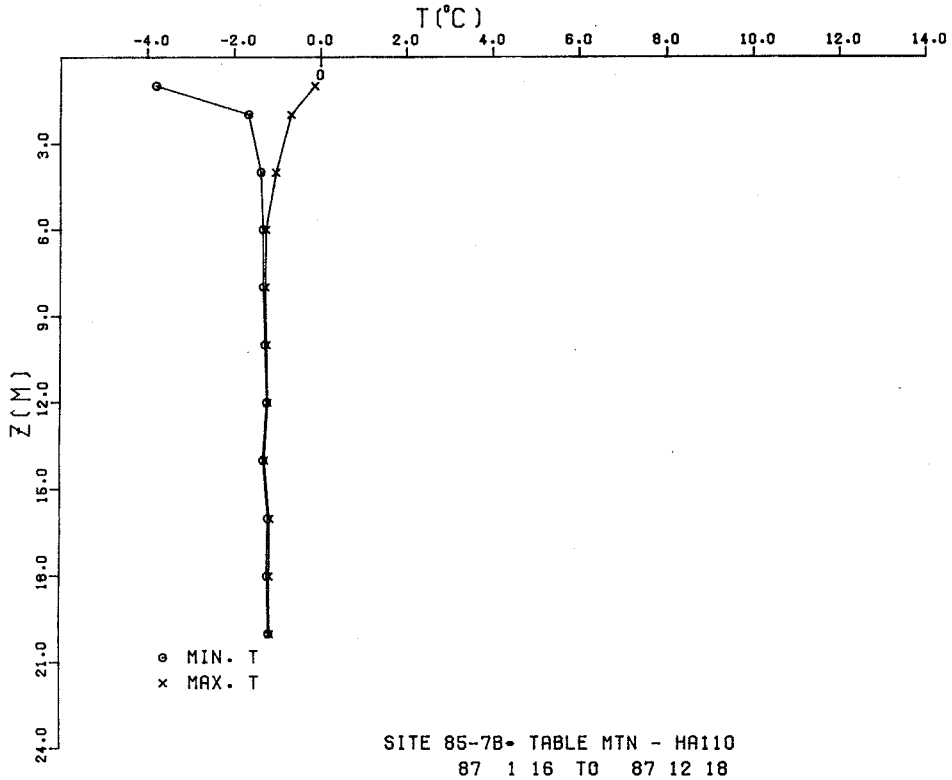
SITE 85-7B• TABLE MOUNTAIN B - CABLE T3
87 1 16 TO 87 10 6

63° 36.6' N 123° 38.1' W/O



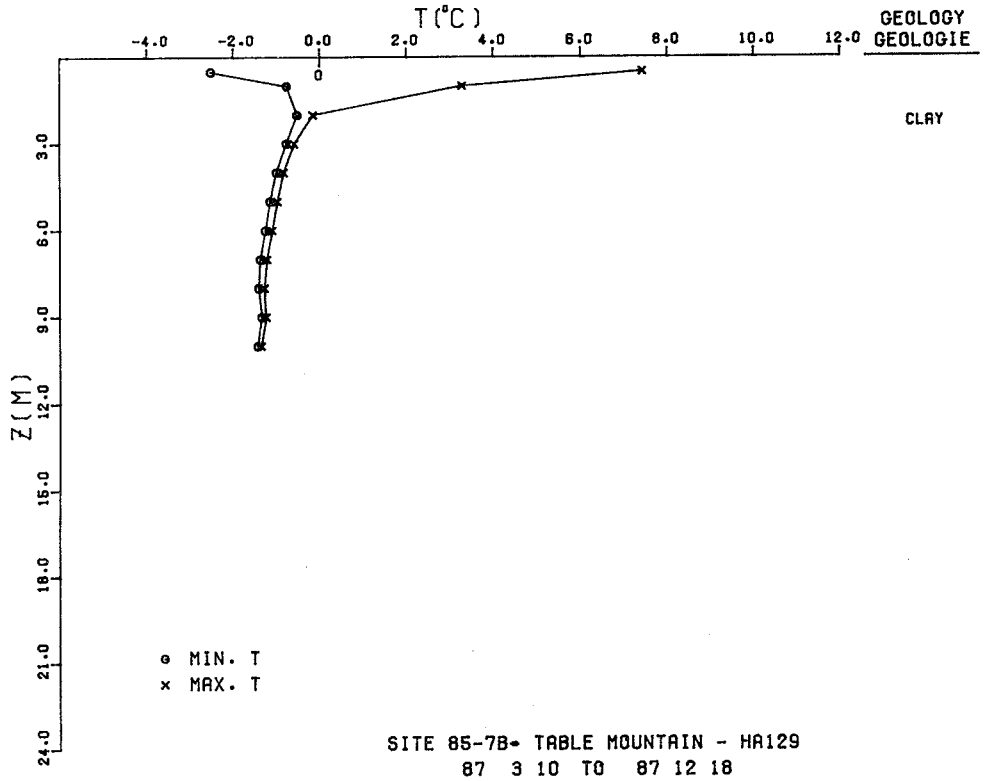
SITE 85-7B• TABLE MOUNTAIN B - CABLE T4
87 1 16 TO 87 10 6

63° 36.6' N 123° 38.1' W/O



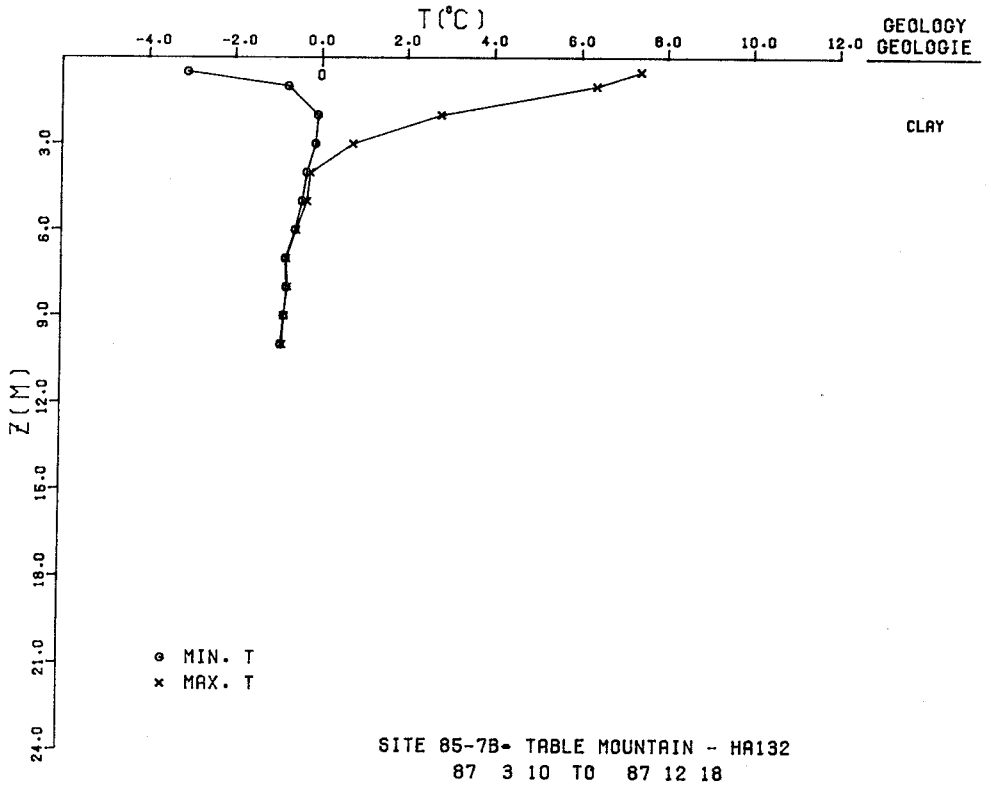
SITE 85-7B• TABLE MTN - HA110
87 1 16 TO 87 12 18

63° 36.6' N 123° 38.1' W/O



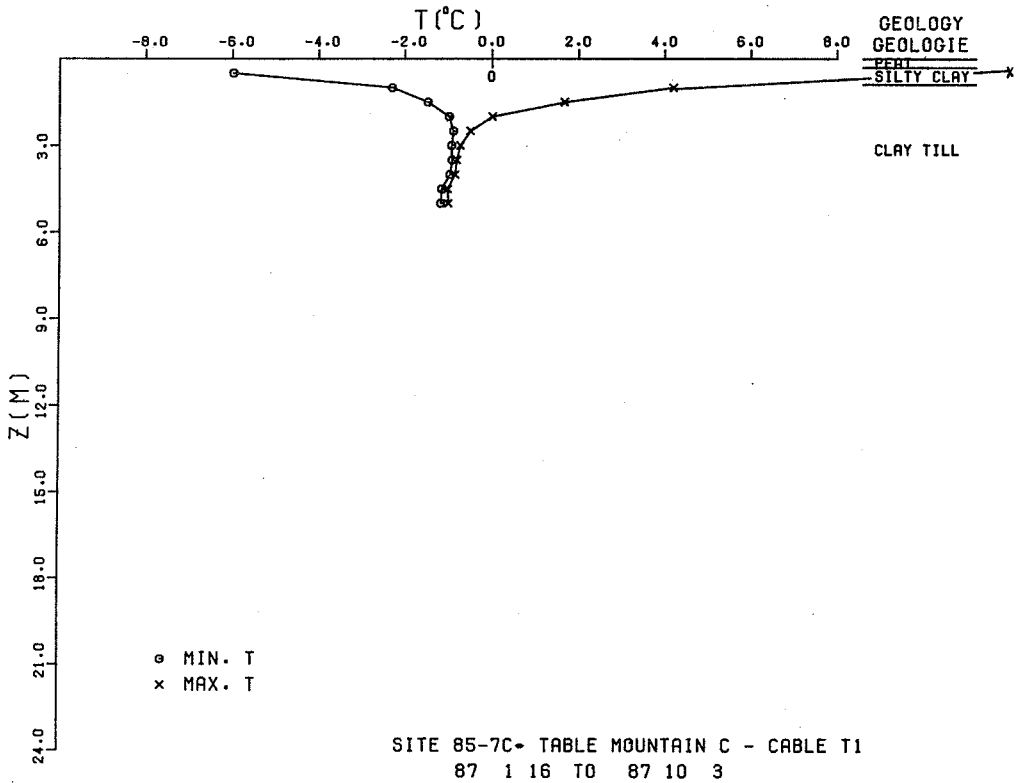
SITE 85-7B• TABLE MOUNTAIN - HA129
87 3 10 TO 87 12 18

63° 36.6' N 123° 38.1' W/O



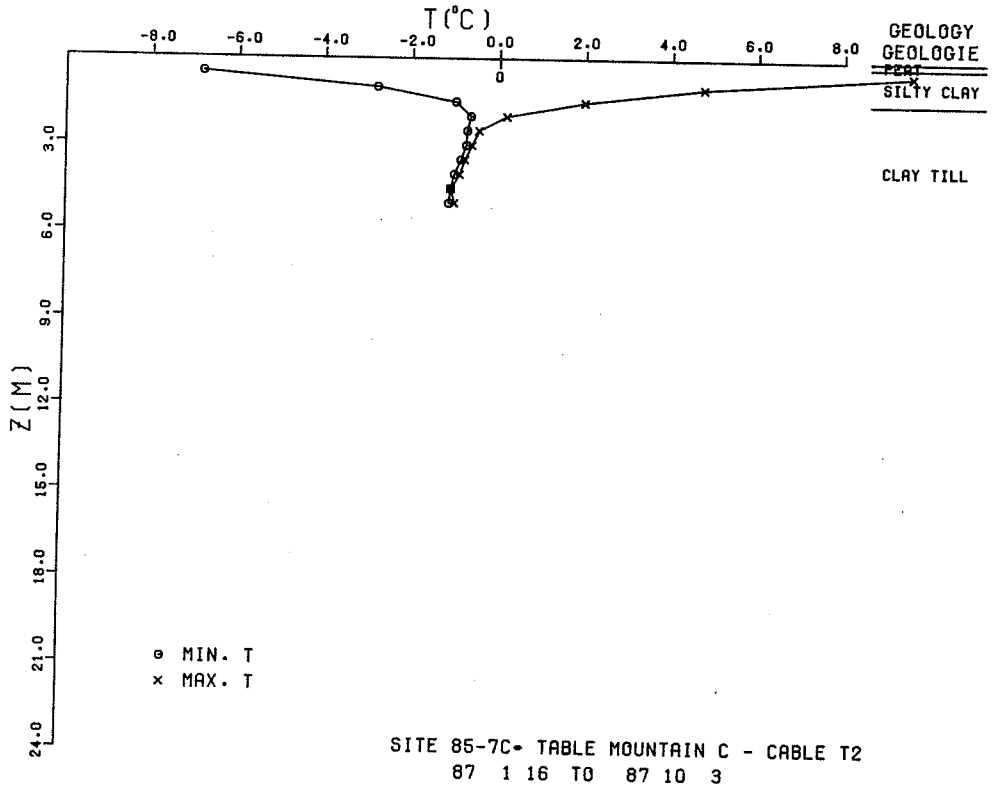
SITE 85-7B- TABLE MOUNTAIN - HA132
87 3 10 TO 87 12 18

63° 36.4' N 123° 38.0' W/O



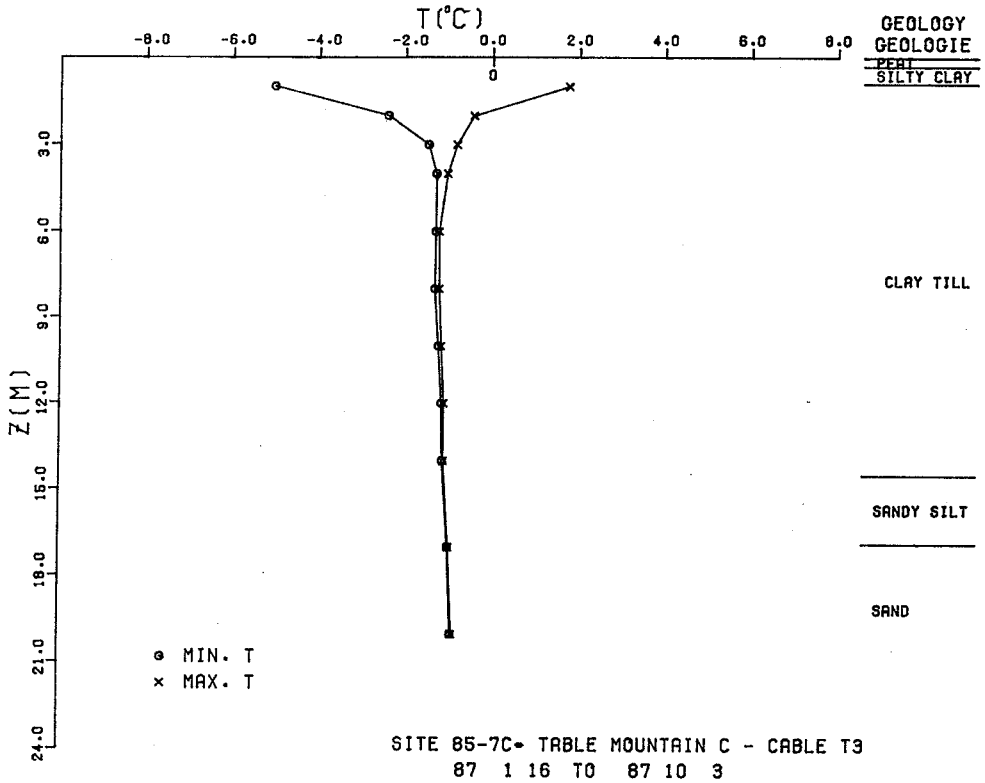
SITE 85-7C- TABLE MOUNTAIN C - CABLE T1
87 1 16 TO 87 10 3

63° 36.4' N 123° 38.0' W/O



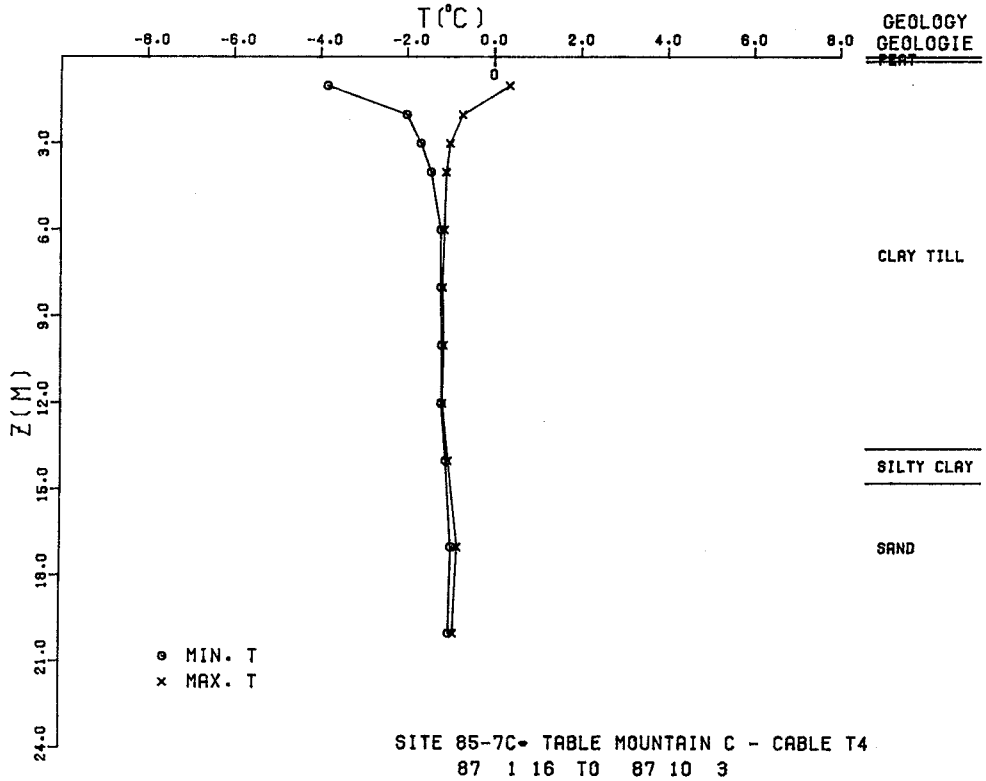
SITE 85-7C- TABLE MOUNTAIN C - CABLE T2
87 1 16 TO 87 10 3

63° 36.4' N 123° 38.0' W/O



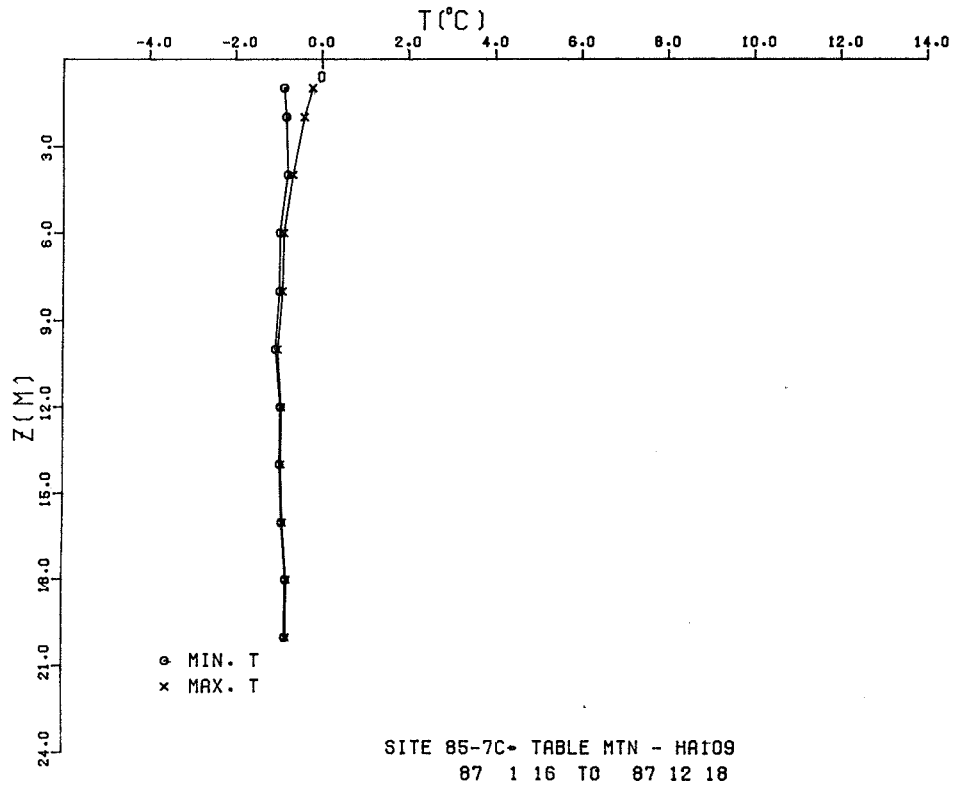
SITE 85-7C• TABLE MOUNTAIN C - CABLE T3
87 1 16 TO 87 10 3

63° 36.4' N 123° 38.0' W/O



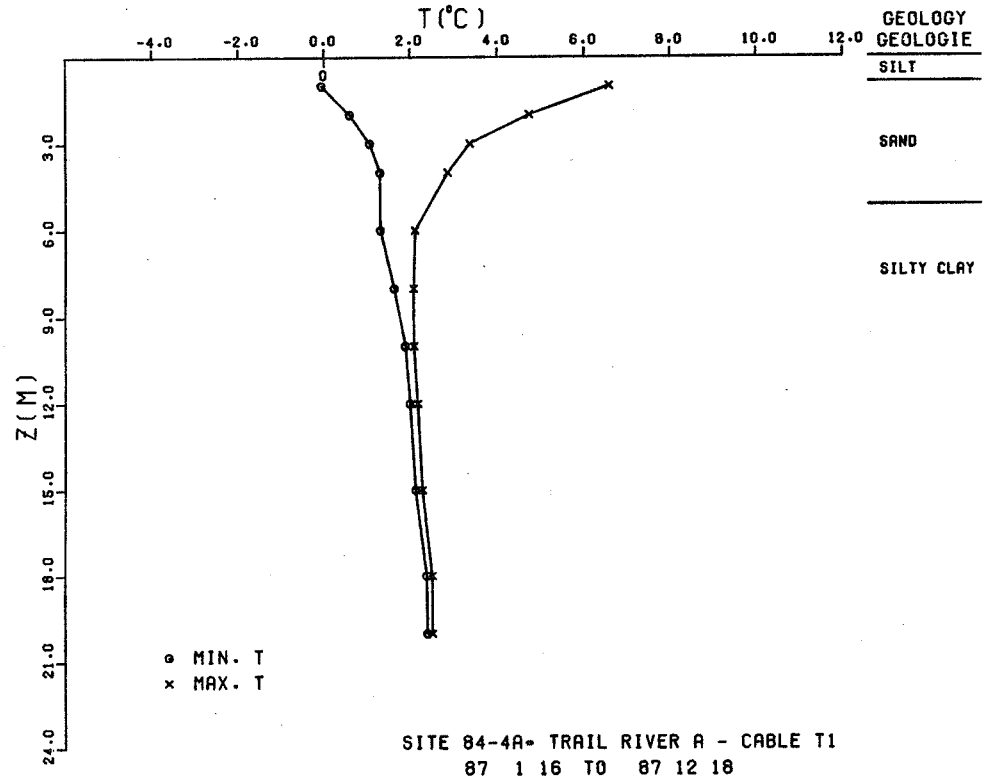
SITE 85-7C• TABLE MOUNTAIN C - CABLE T4
87 1 16 TO 87 10 3

63° 36.4' N 123° 38.0' W/0



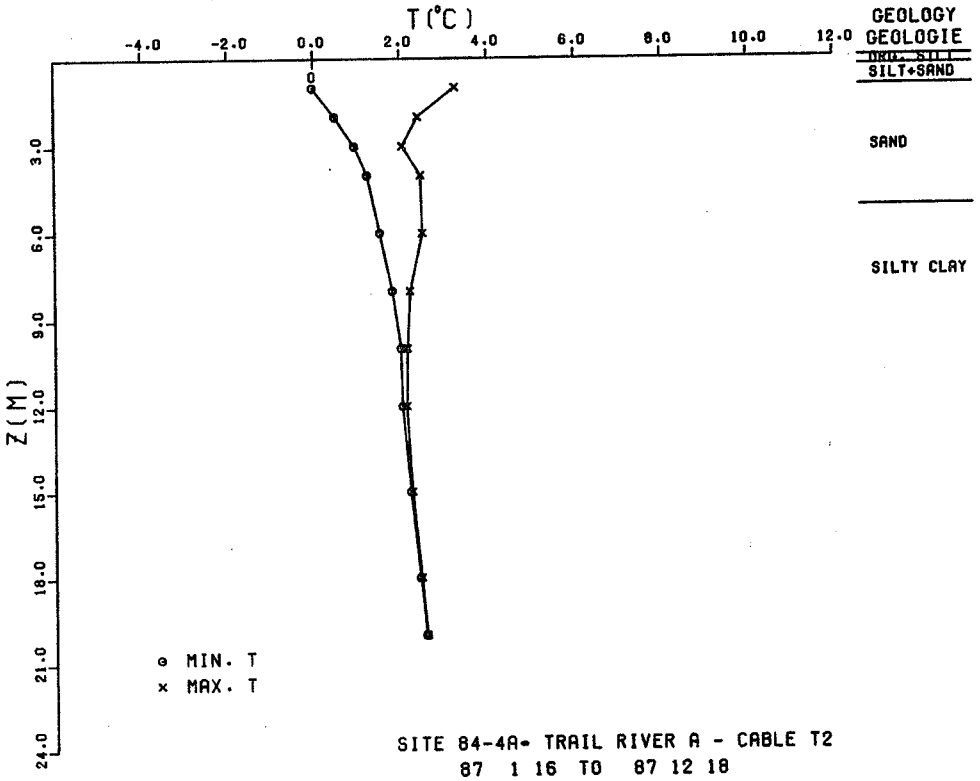
SITE 85-7C- TABLE MTN - HA109
87 1 16 TO 87 12 18

62° 5.1' N 121° 59.3' W/O



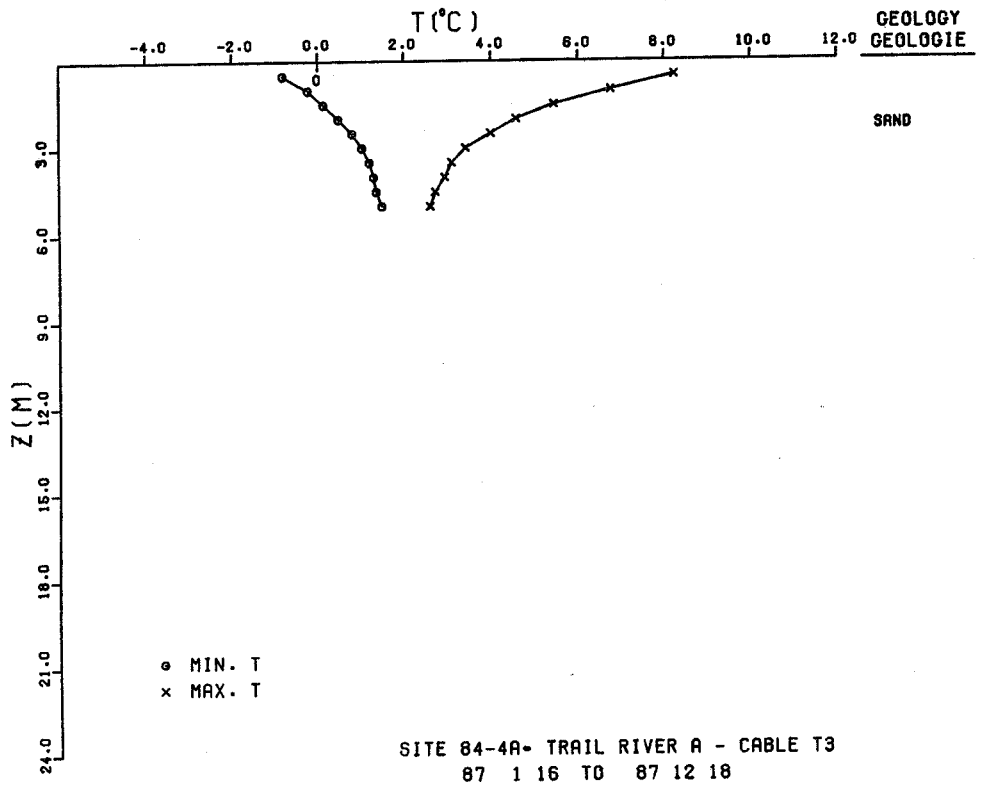
SITE 84-4A- TRAIL RIVER A - CABLE T1
87 1 16 TO 87 12 18

62° 5.1' N 121° 59.3' W/O



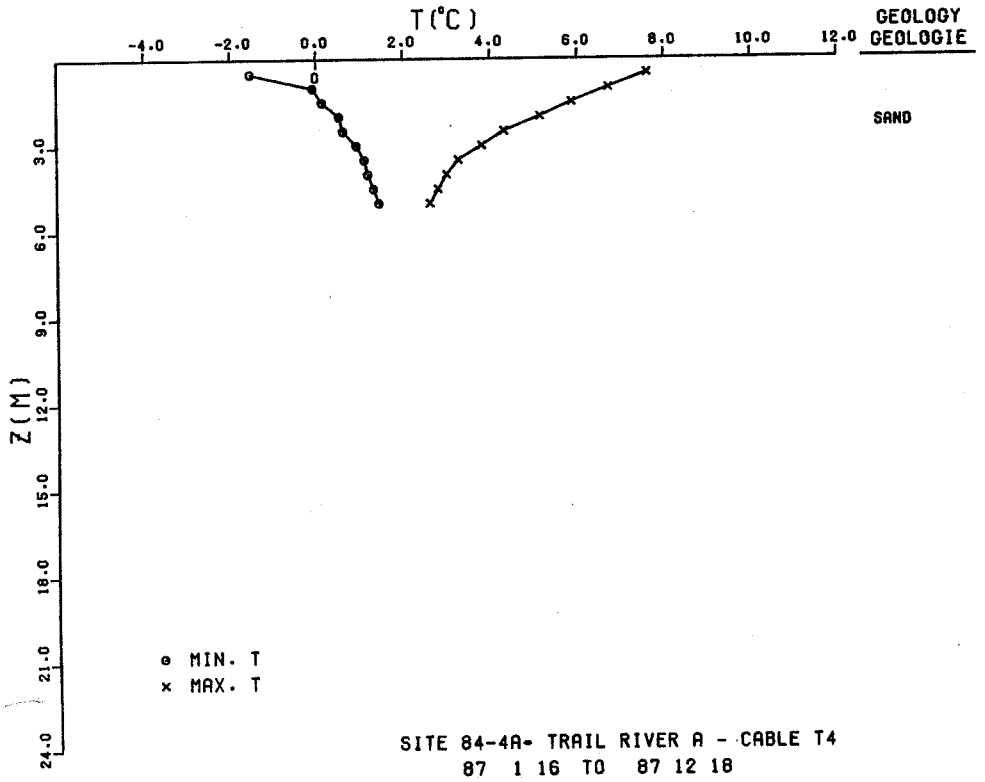
SITE 84-4A- TRAIL RIVER A - CABLE T2
87 1 16 TO 87 12 18

62° 5.1' N 121° 59.3' W/O



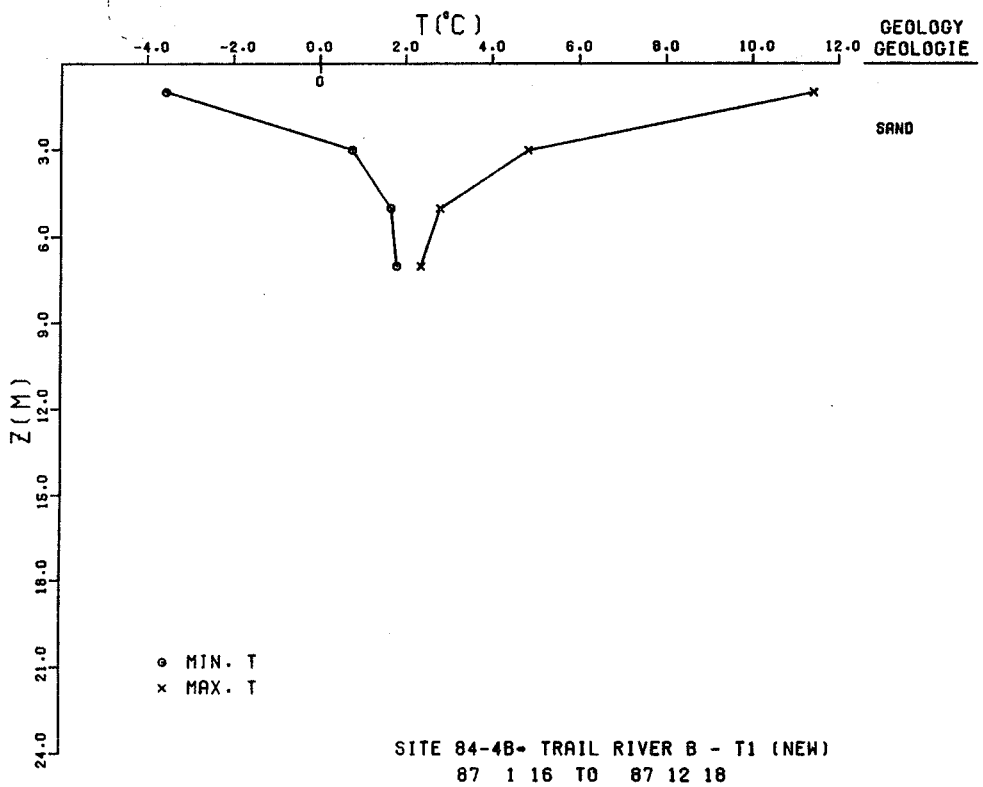
SITE 84-4A- TRAIL RIVER A - CABLE T3
87 1 16 TO 87 12 18

62° 5.1' N 121° 59.3' W/O



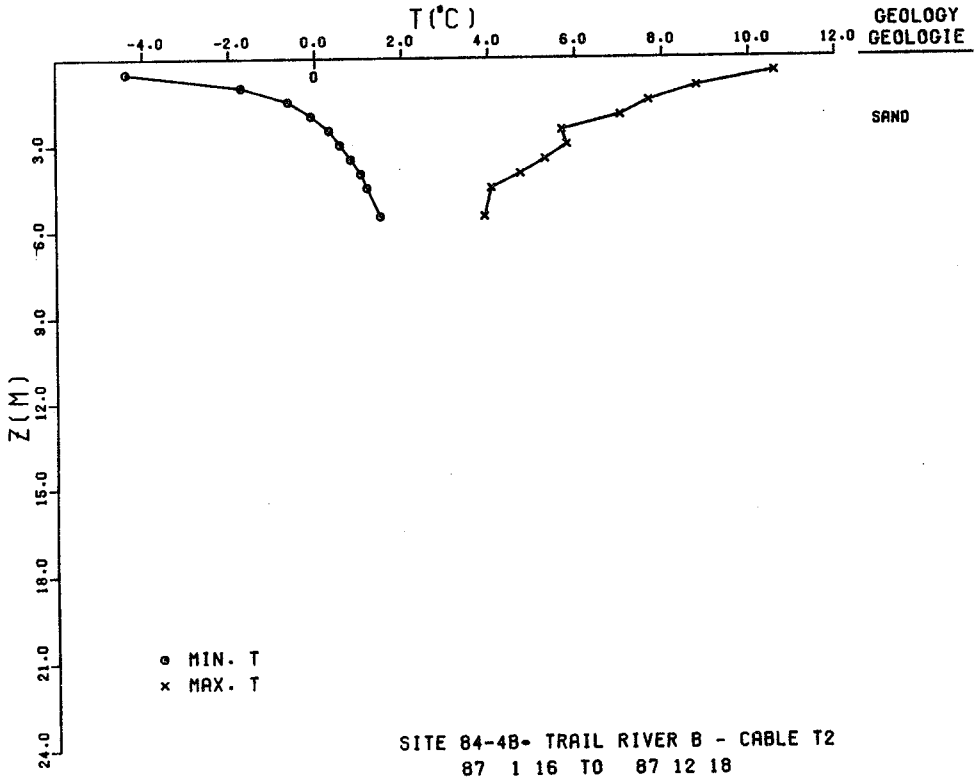
SITE 84-4A- TRAIL RIVER A - CABLE T4
87 1 16 TO 87 12 18

62° 5.2' N 121° 59.3' W/O



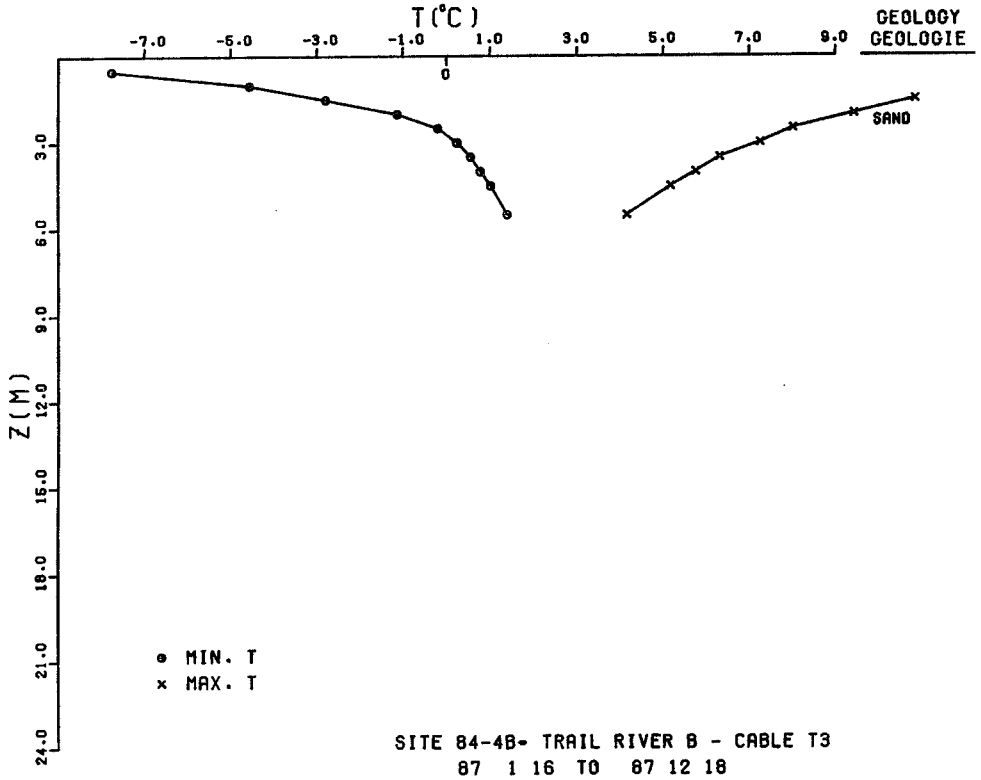
SITE 84-4B• TRAIL RIVER B - T1 (NEW)
87 1 16 TO 87 12 18

62° 5.2' N 121° 59.3' W/O



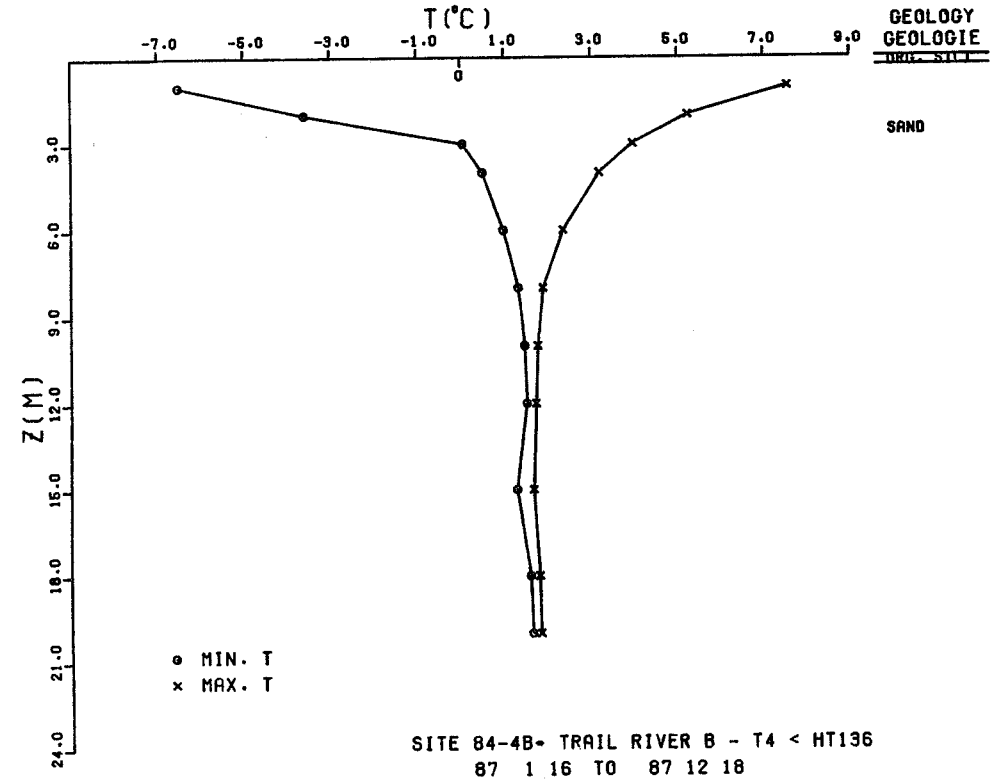
SITE 84-4B• TRAIL RIVER B - CABLE T2
87 1 16 TO 87 12 18

62° 5.2' N 121° 59.3' W/O



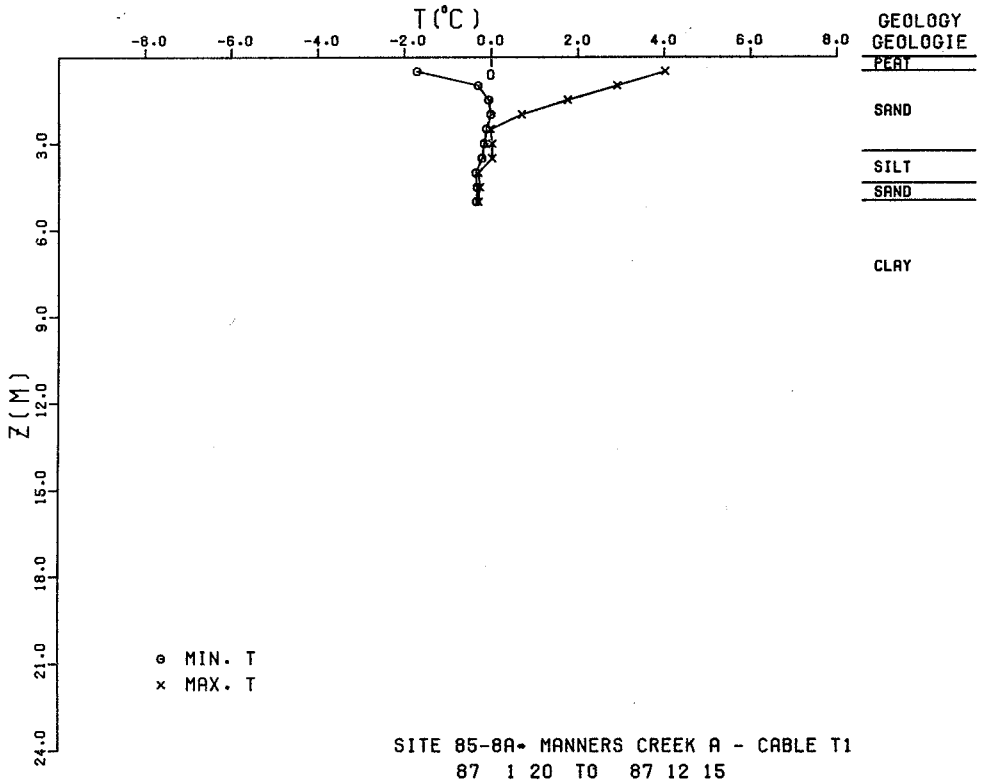
SITE 84-4B- TRAIL RIVER B - CABLE T3
87 1 16 TO 87 12 18

62° 5.2' N 121° 59.3' W/O



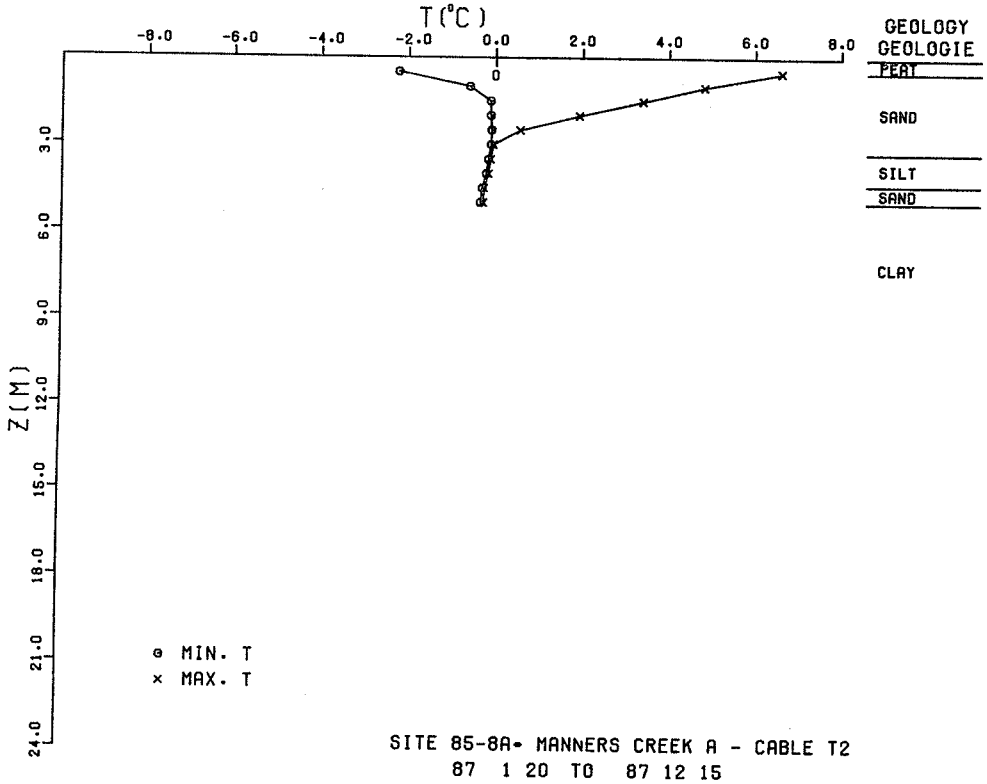
SITE 84-4B- TRAIL RIVER B - T4 < HT136
87 1 16 TO 87 12 18

61° 36.4' N 121° 5.6' W/O



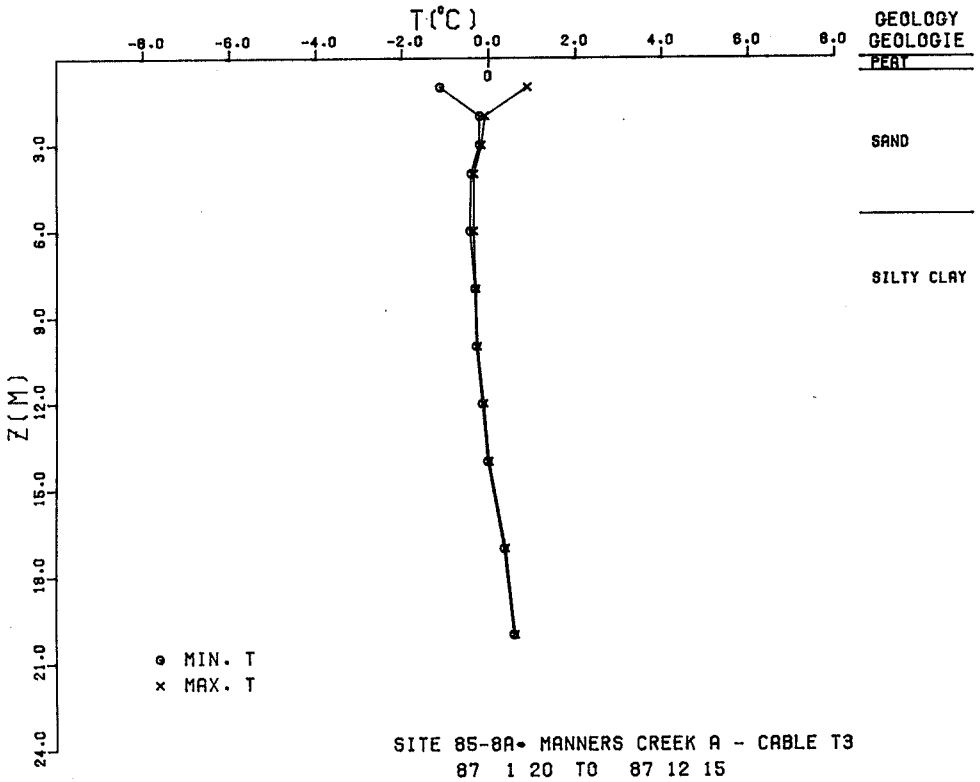
SITE 85-8A• MANNERS CREEK A - CABLE T1
87 1 20 TO 87 12 15

61° 36.4' N 121° 5.6' W/O



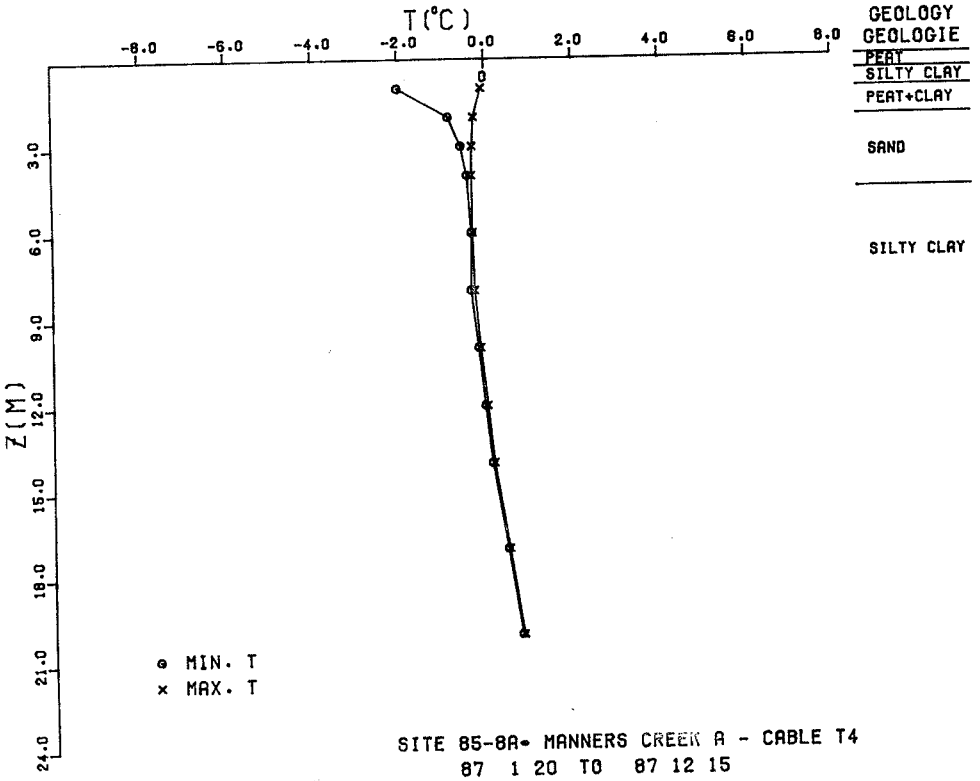
SITE 85-8A• MANNERS CREEK A - CABLE T2
87 1 20 TO 87 12 15

61° 36.4' N 121° 5.6' W/O



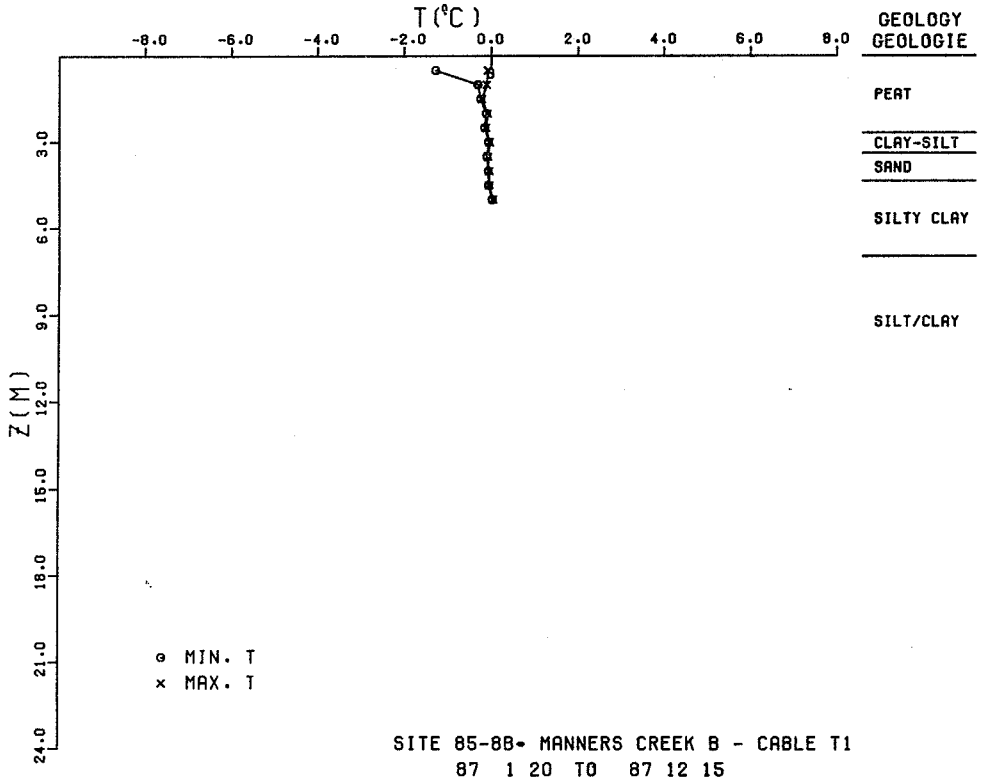
SITE 85-8A• MANNERS CREEK A - CABLE T3
87 1 20 TO 87 12 15

61° 36.4' N 121° 5.6' W/O



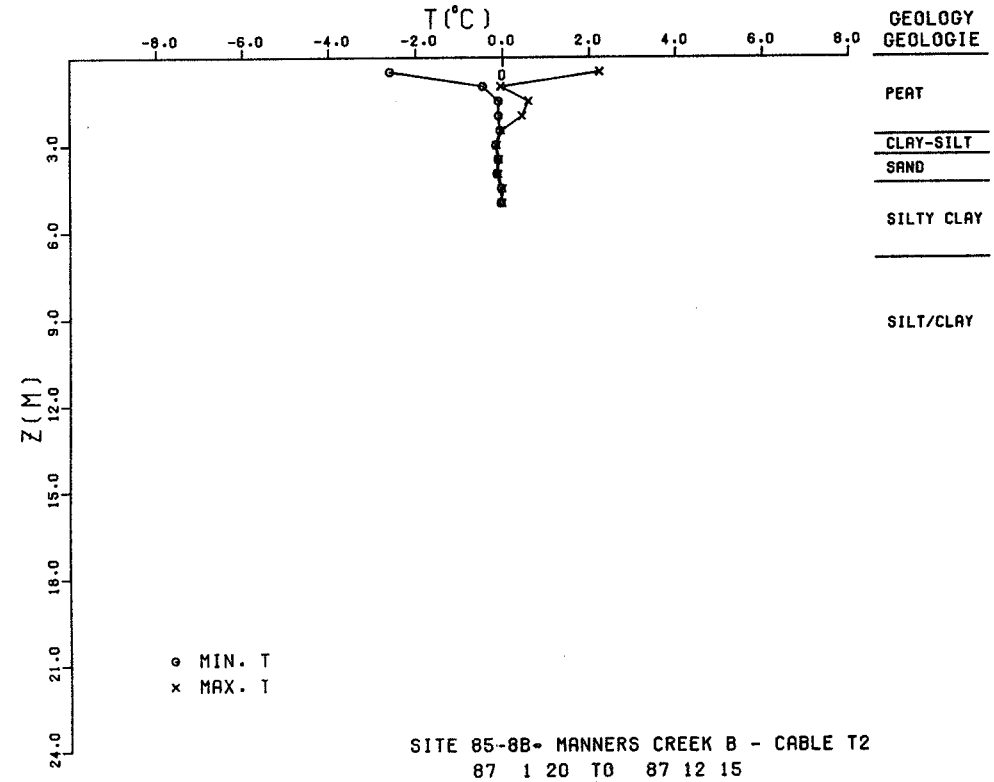
SITE 85-8A• MANNERS CREEK A - CABLE T4
87 1 20 TO 87 12 15

61° 36.2' N 121° 5.4' W/O



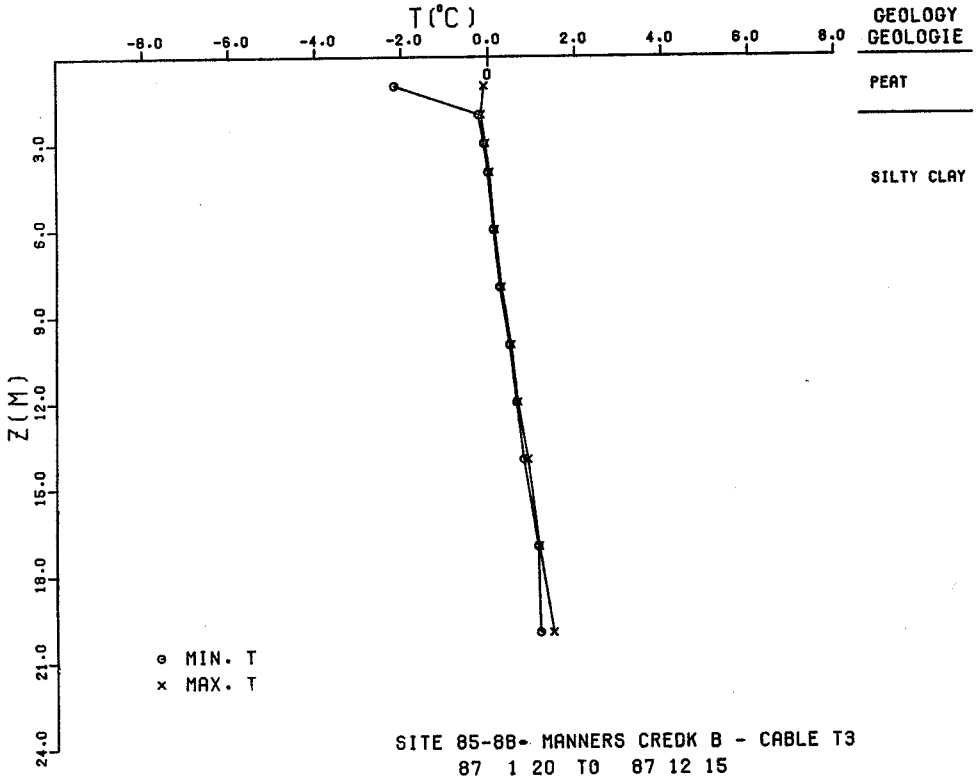
SITE 85-8B- MANNERS CREEK B - CABLE T1
87 1 20 TO 87 12 15

61° 36.2' N 121° 5.4' W/O



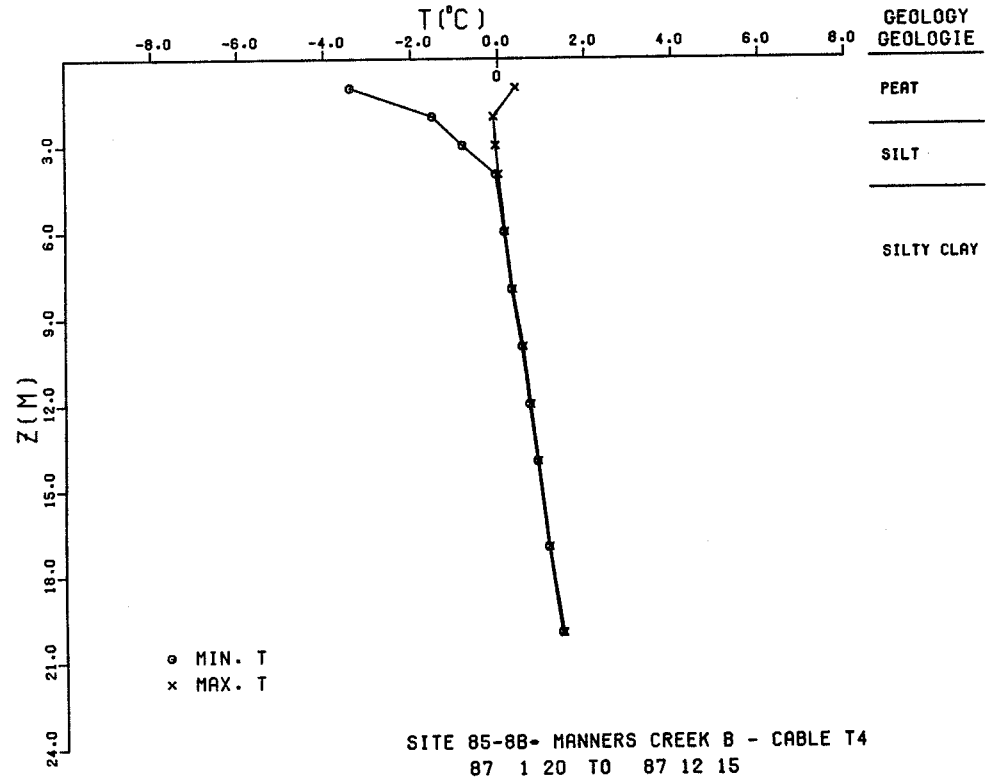
SITE 85-8B- MANNERS CREEK B - CABLE T2
87 1 20 TO 87 12 15

61° 36.2' N 121° 5.4' W/O



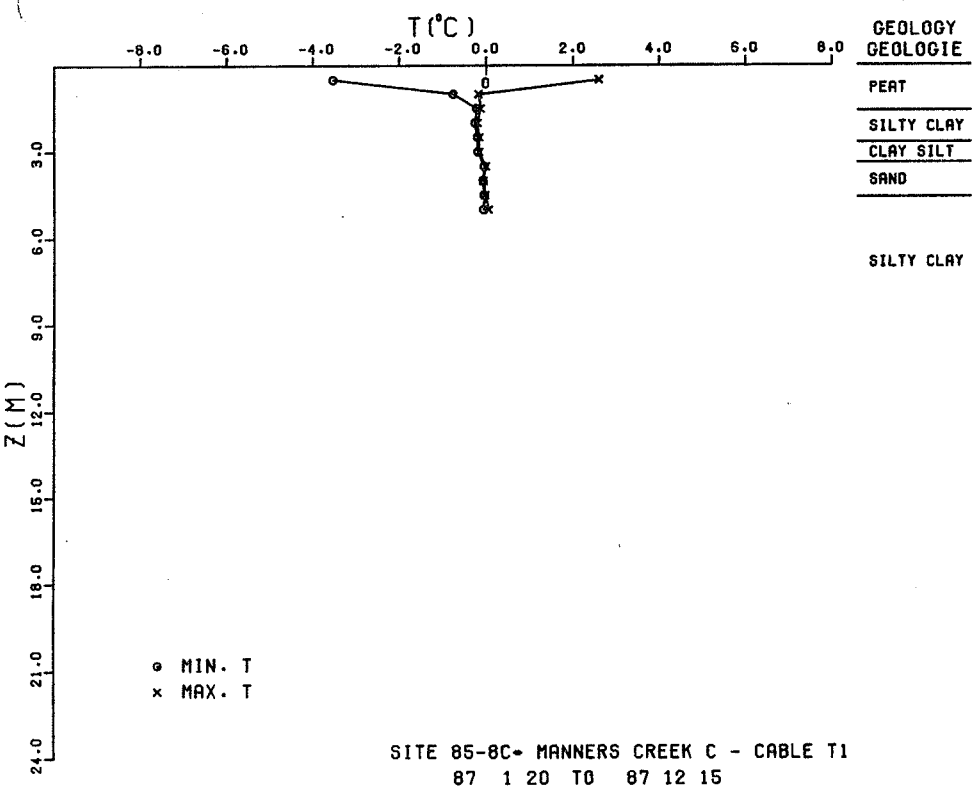
SITE 85-8B- MANNERS CREDK B - CABLE T3
87 1 20 TO 87 12 15

61° 36.2' N 121° 5.4' W/O



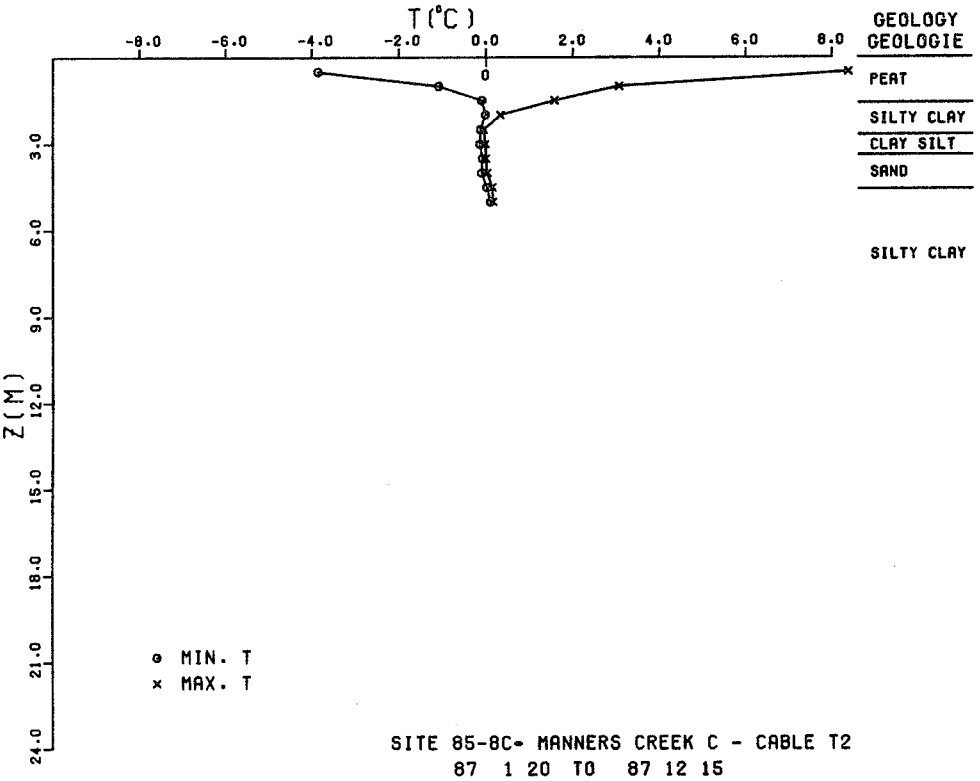
SITE 85-8B- MANNERS CREEK B - CABLE T4
87 1 20 TO 87 12 15

61° 36.1' N 121° 5.3' W/O



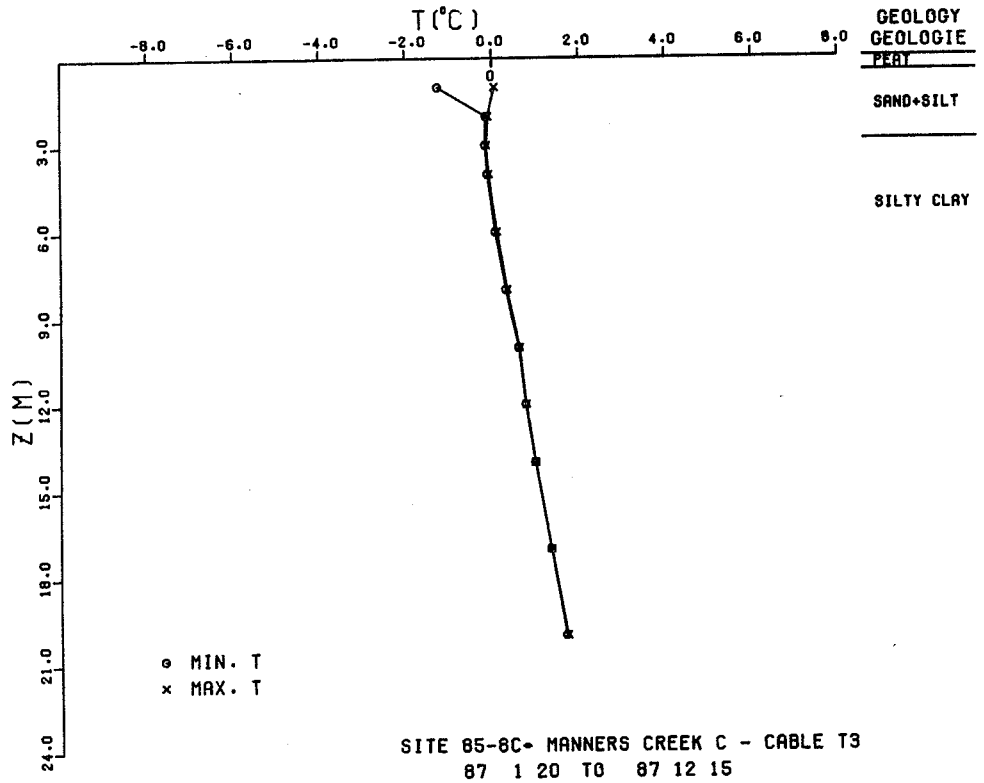
SITE 85-8C- MANNERS CREEK C - CABLE T1
87 1 20 TO 87 12 15

61° 36.1' N 121° 5.3' W/O



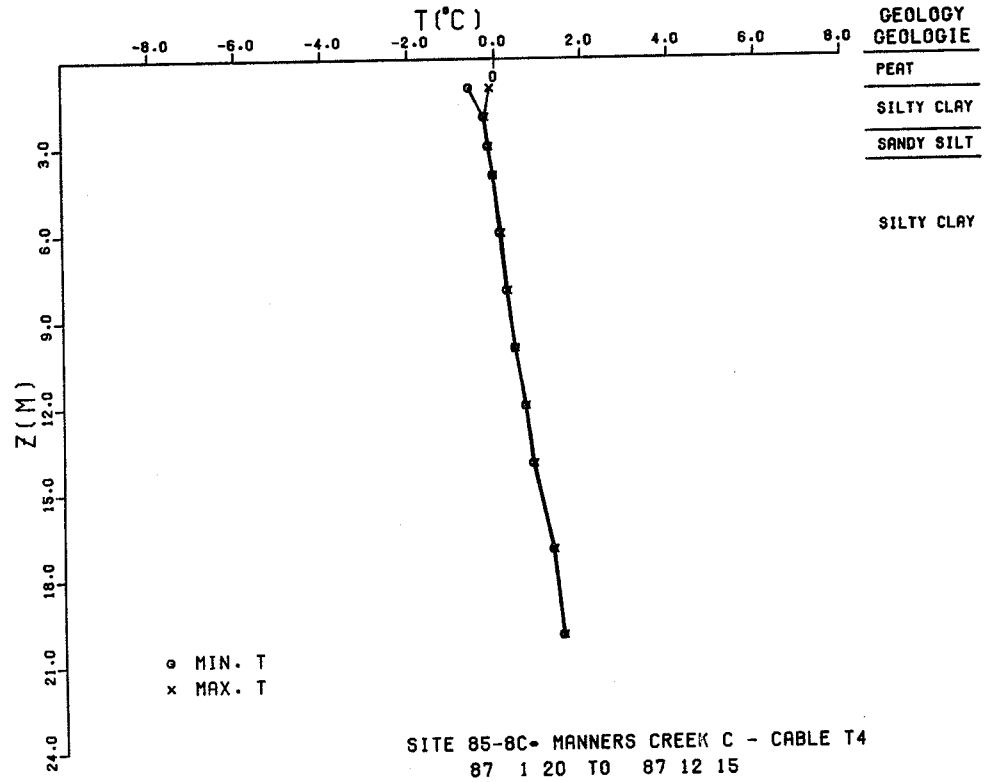
SITE 85-8C- MANNERS CREEK C - CABLE T2
87 1 20 TO 87 12 15

61° 36.1' N 121° 5.3' W/O



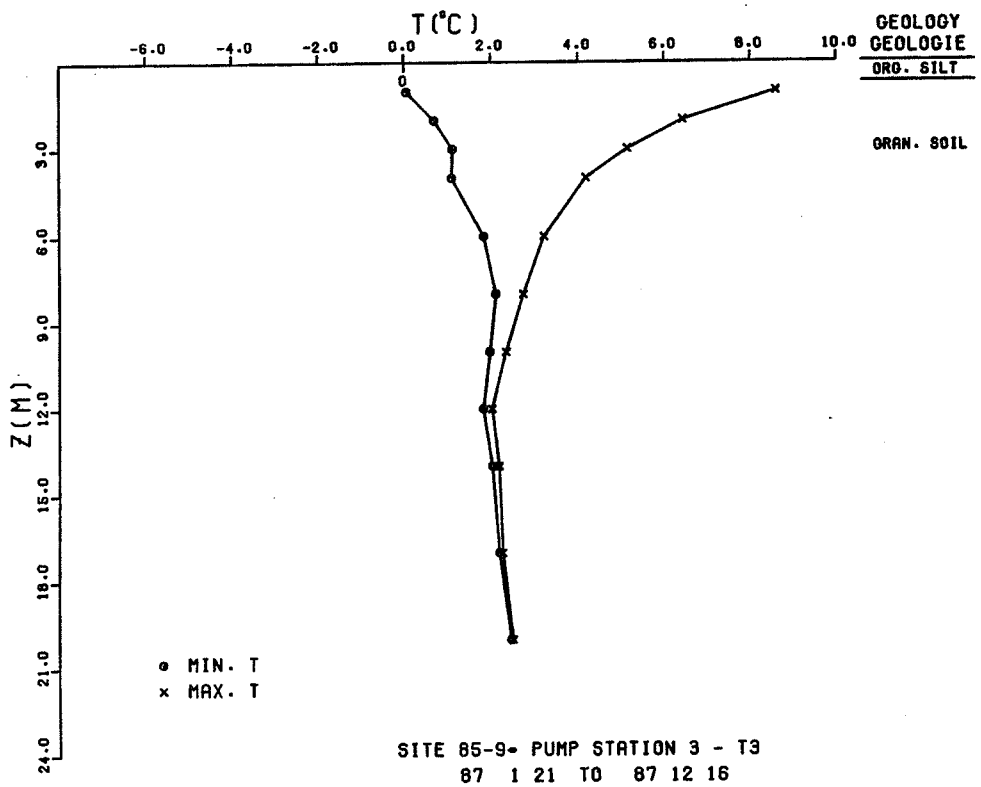
SITE 85-8C• MANNERS CREEK C - CABLE T3
87 1 20 TO 87 12 15

61° 36.1' N 121° 5.3' W/O



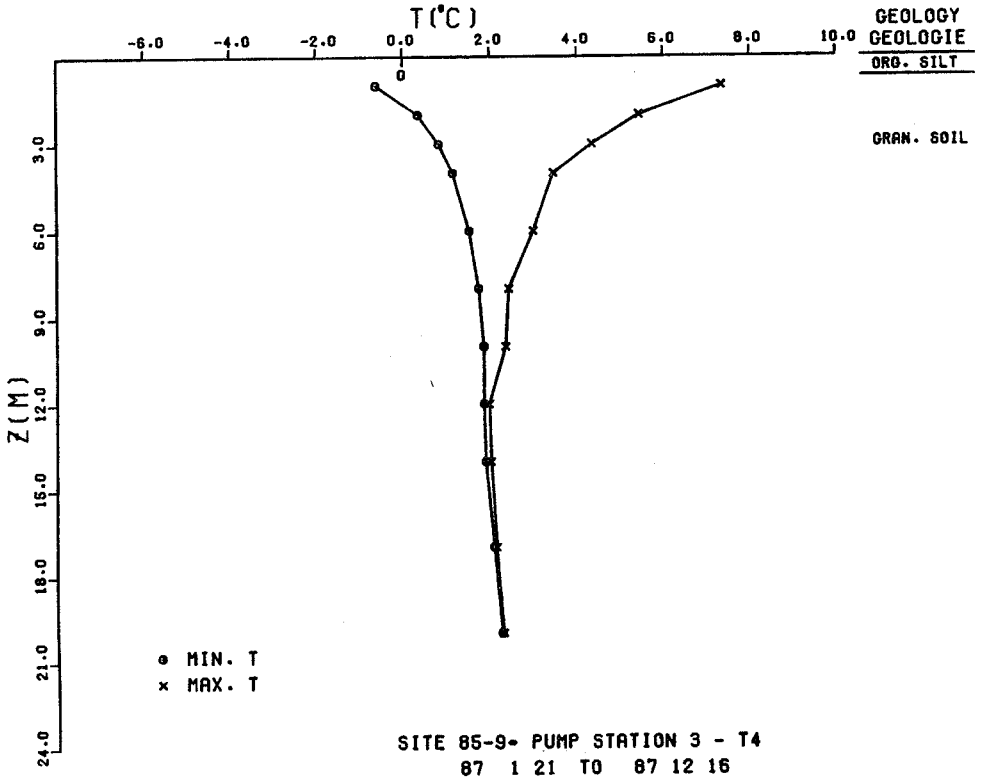
SITE 85-8C• MANNERS CREEK C - CABLE T4
87 1 20 TO 87 12 15

61° 29.7' N 120° 54.0' W/O



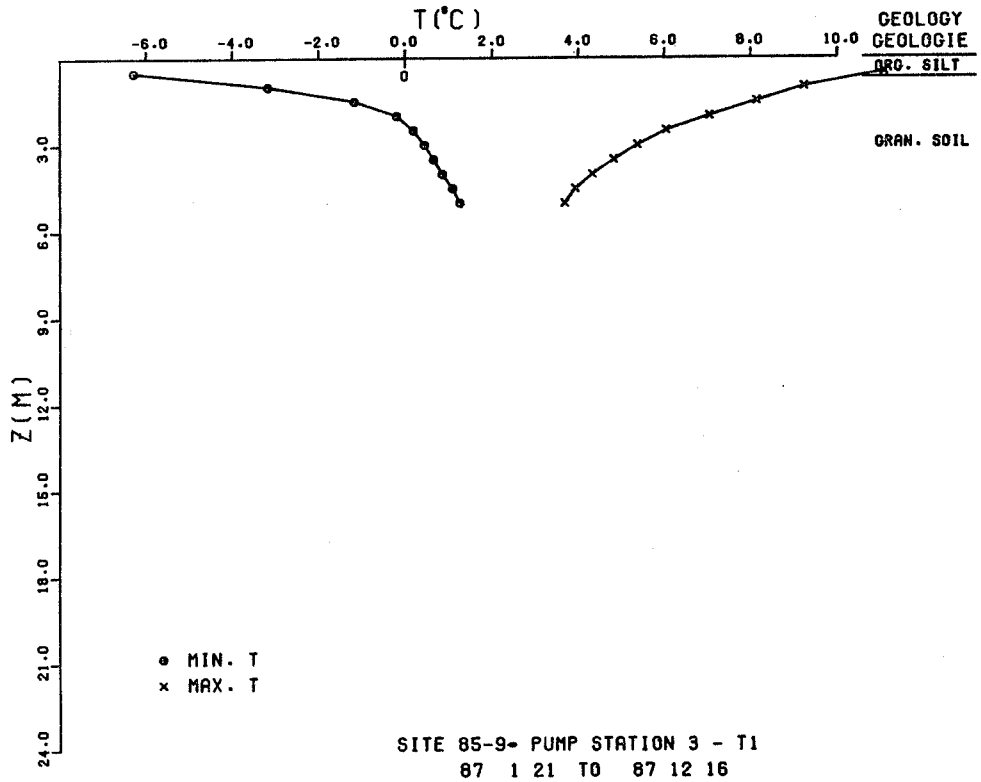
SITE 85-9• PUMP STATION 3 - T3
87 1 21 TO 87 12 16

61° 23.7' N 120° 54.0' W/O



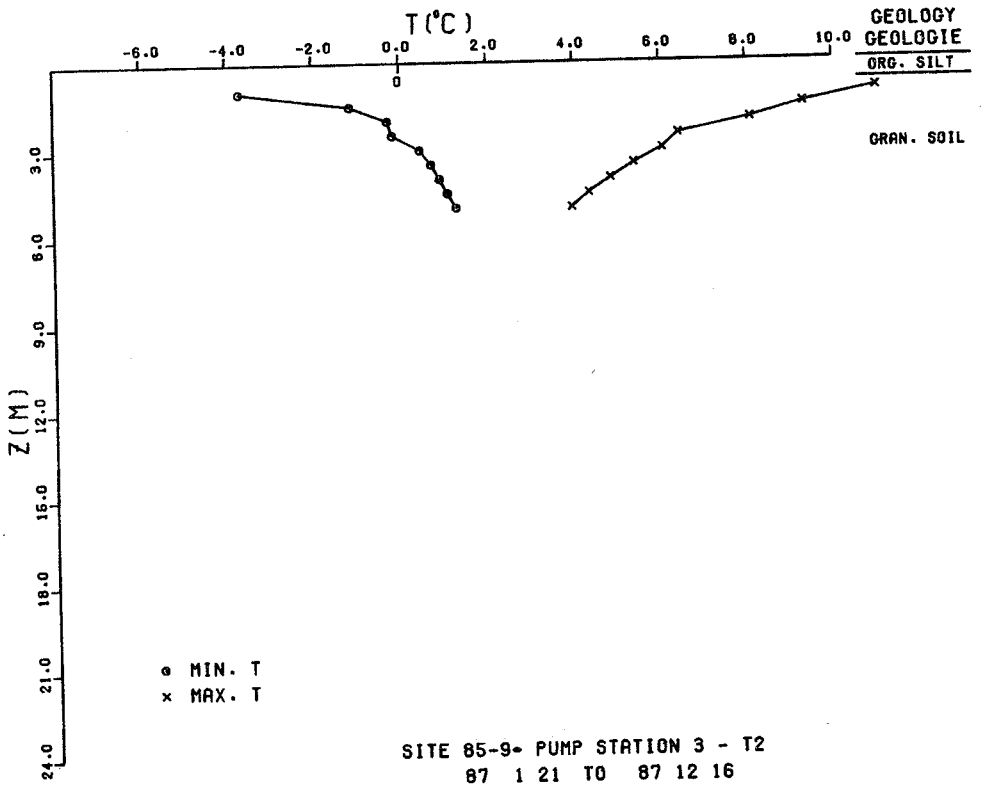
SITE 85-9• PUMP STATION 3 - T4
87 1 21 TO 87 12 16

61° 23.7' N 120° 54.0' W/O



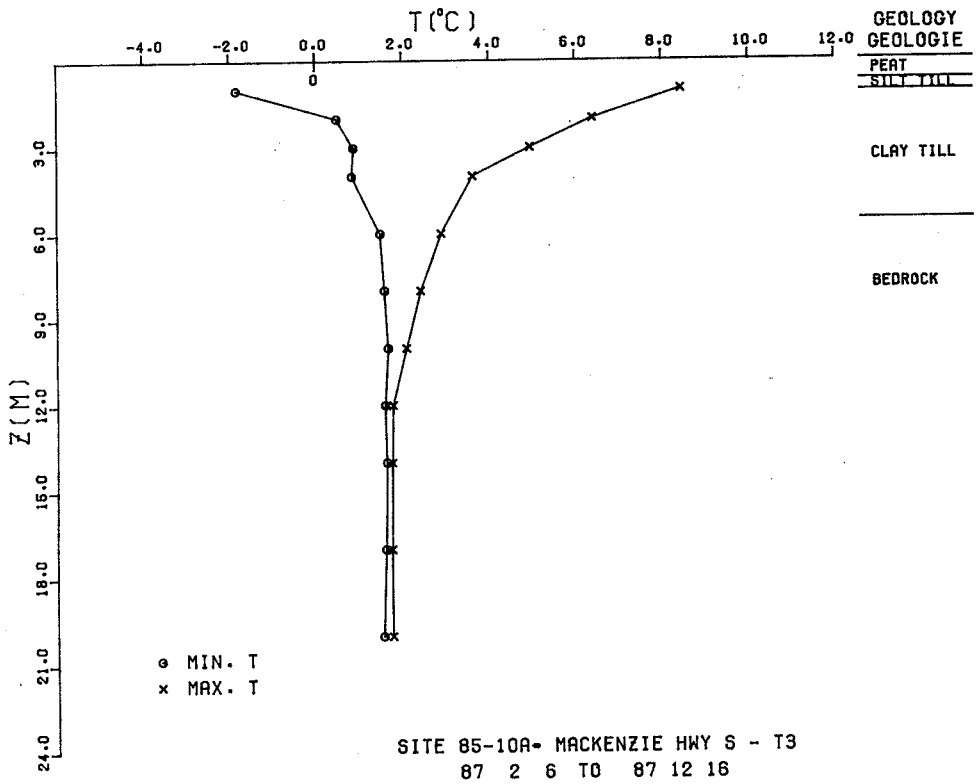
SITE 85-9- PUMP STATION 3 - T1
87 1 21 TO 87 12 16

61° 23.7' N 120° 54.0' W/O



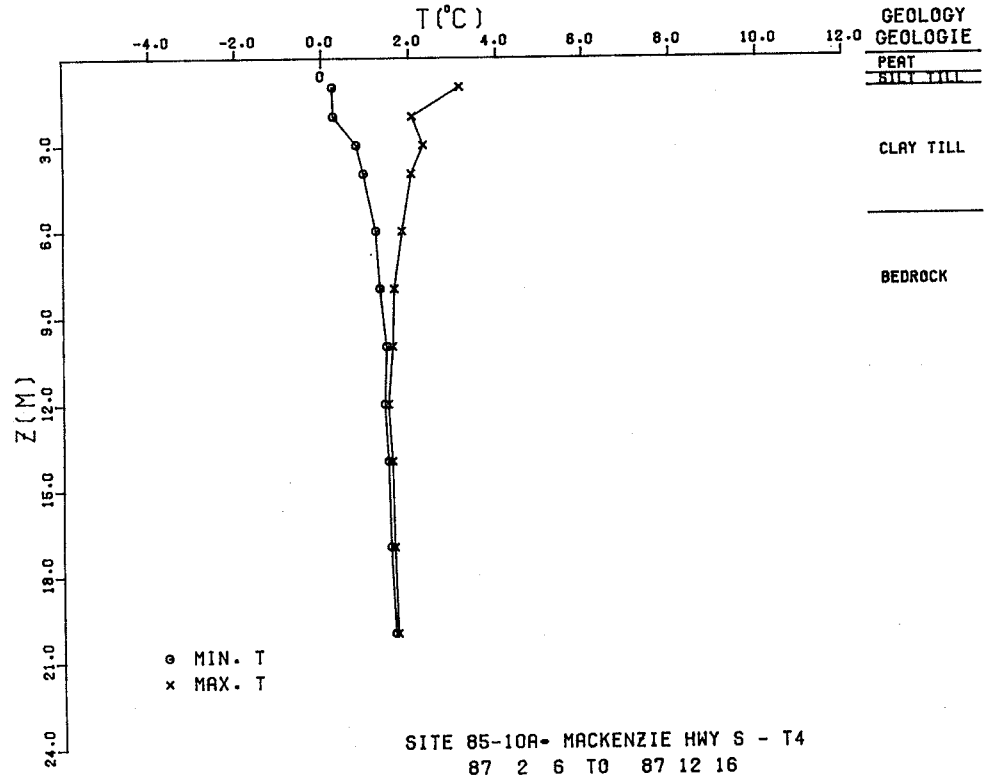
SITE 85-9- PUMP STATION 3 - T2
87 1 21 TO 87 12 16

61° 21.6' N 120° 52.2' W/O



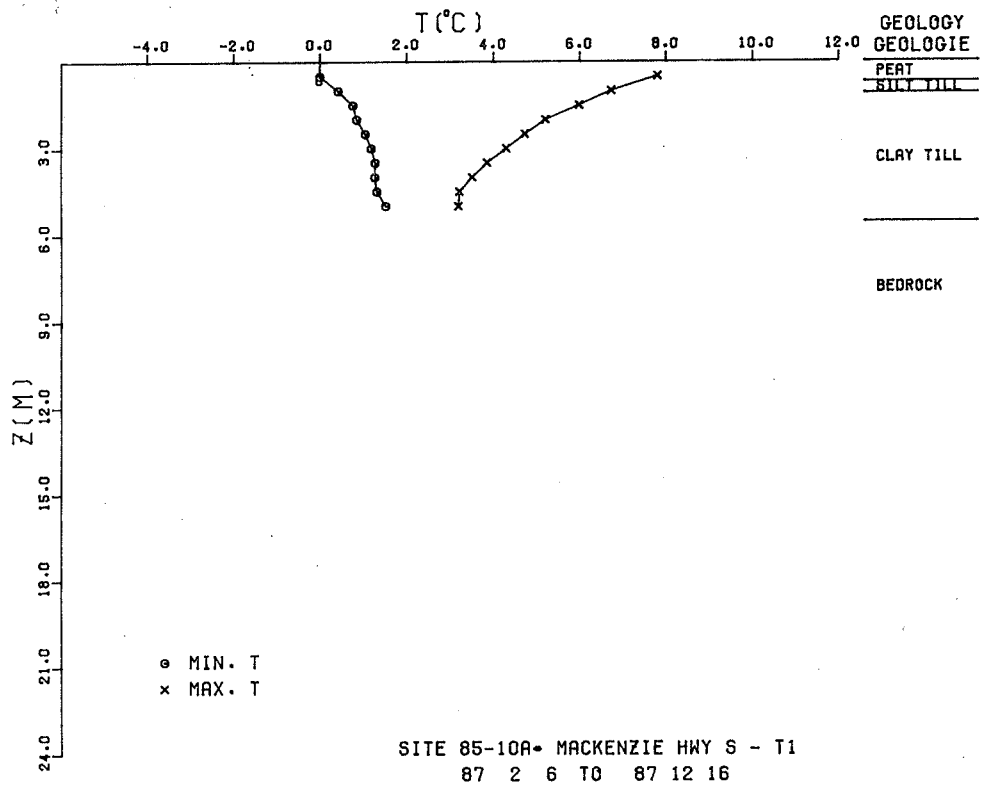
SITE 85-10A- MACKENZIE HWY S - T3
87 2 6 TO 87 12 16

61° 21.6' N 120° 52.2' W/O



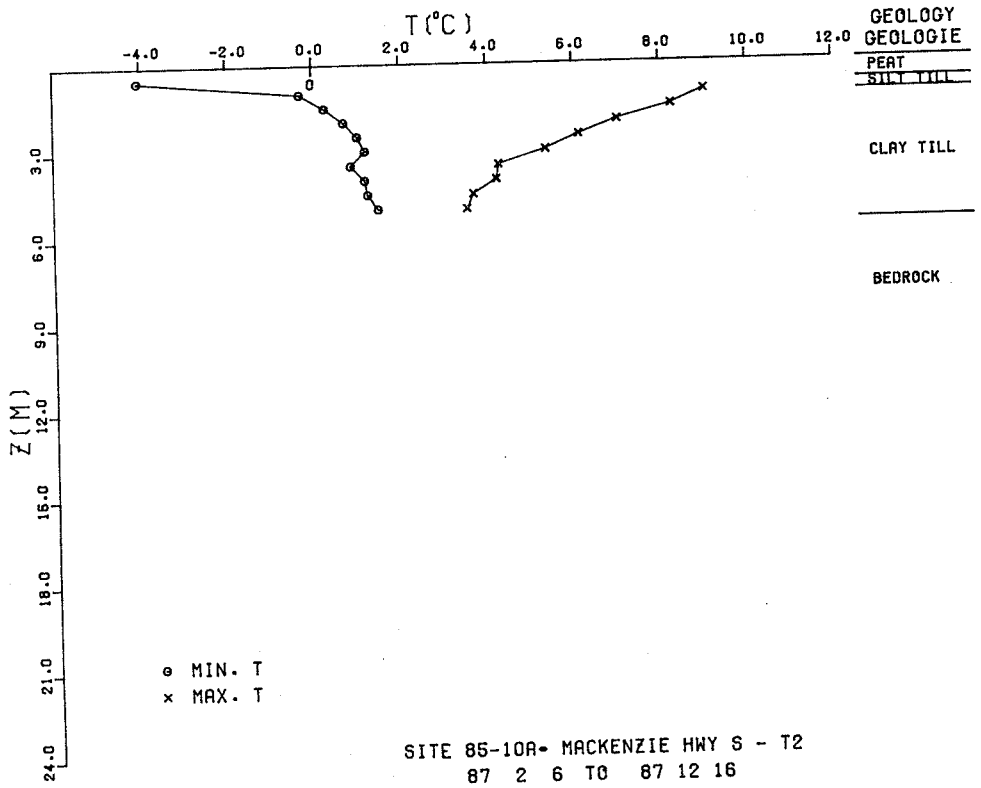
SITE 85-10A- MACKENZIE HWY S - T4
87 2 6 TO 87 12 16

61° 21.6' N 120° 52.2' W/O



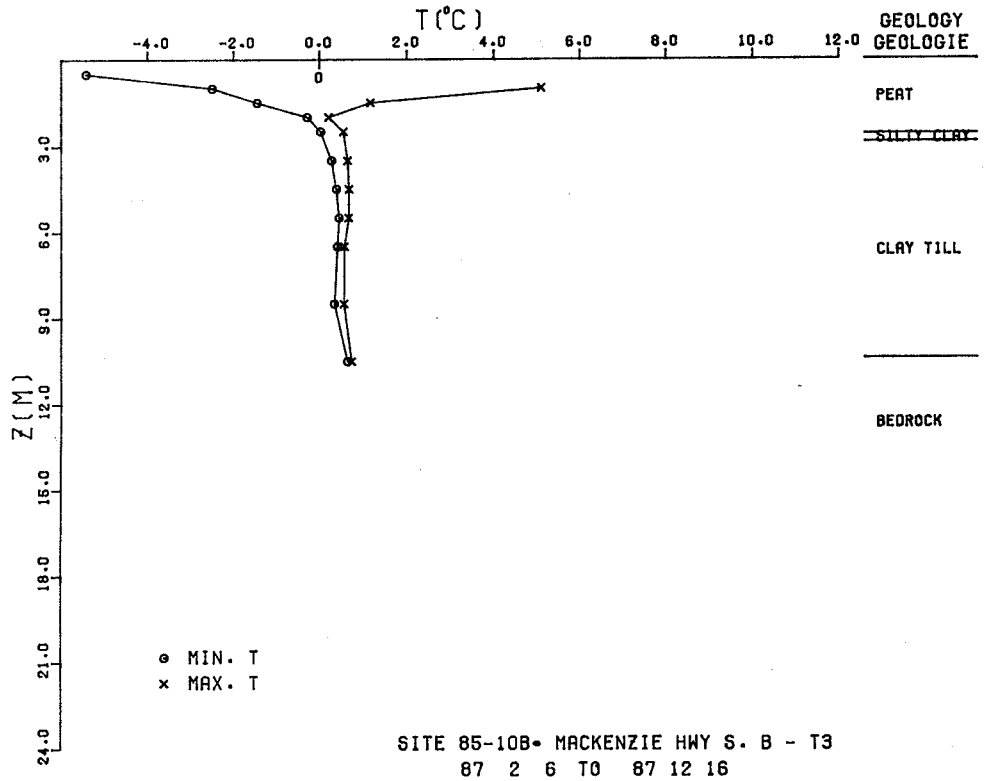
SITE 85-10A• MACKENZIE HWY S - T1
87 2 6 TO 87 12 16

61° 21.6' N 120° 52.2' W/O



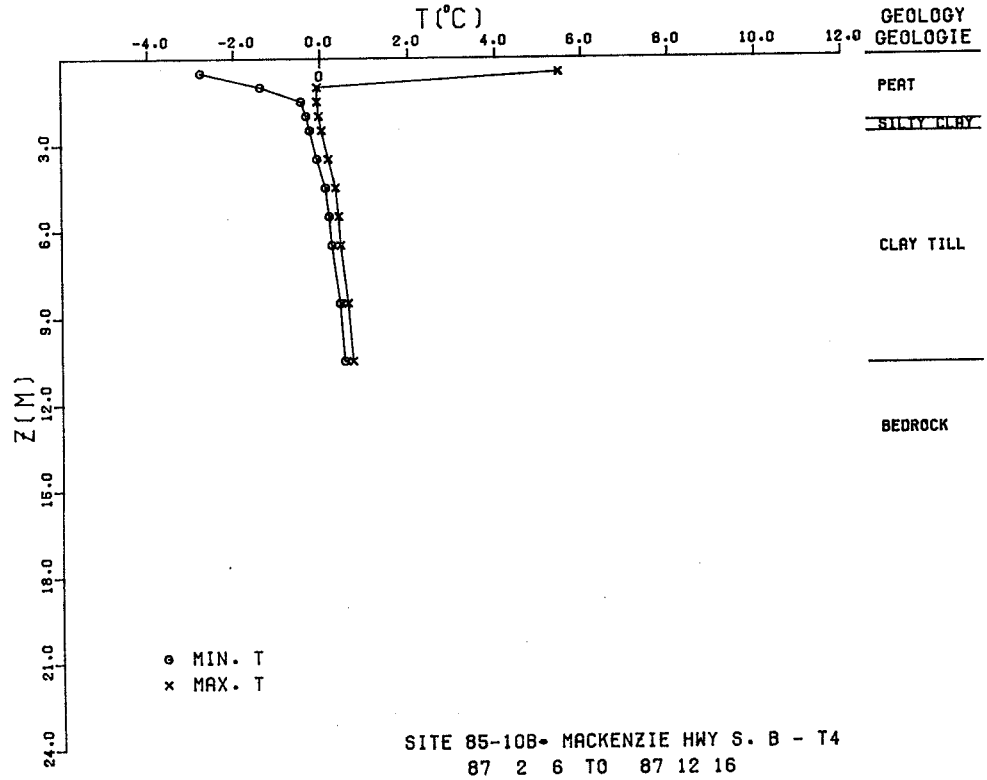
SITE 85-10A• MACKENZIE HWY S - T2
87 2 6 TO 87 12 16

61° 21.3' N 120° 52.0' W/0



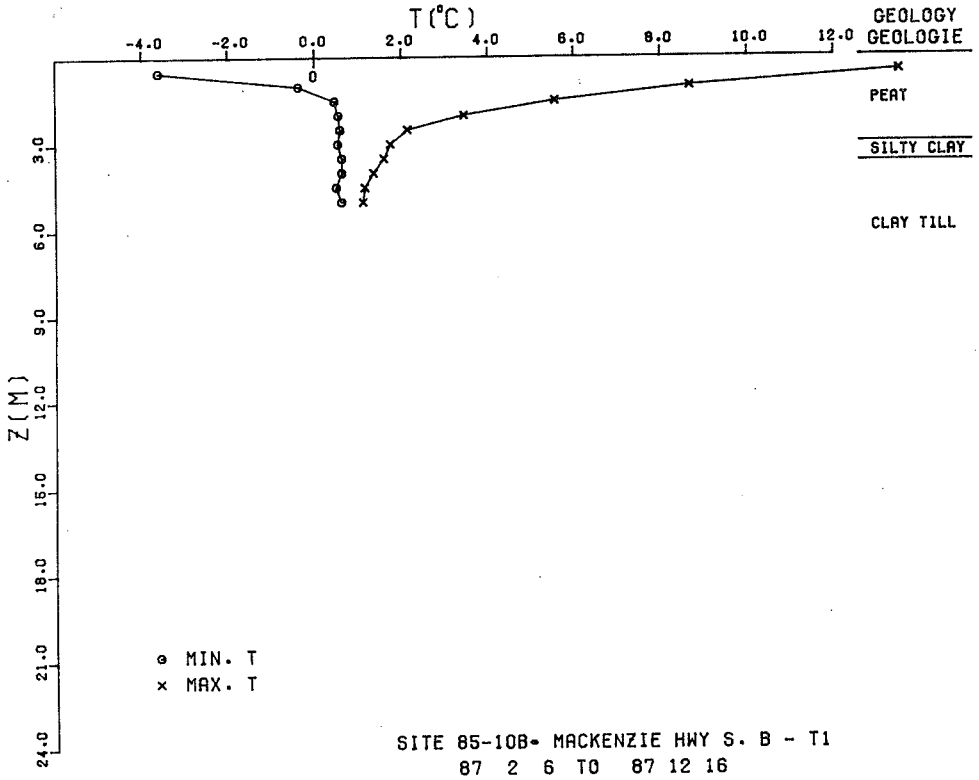
SITE 85-10B• MACKENZIE HWY S. B - T3
87 2 6 T0 87 12 16

61° 21.3' N 120° 52.0' W/0



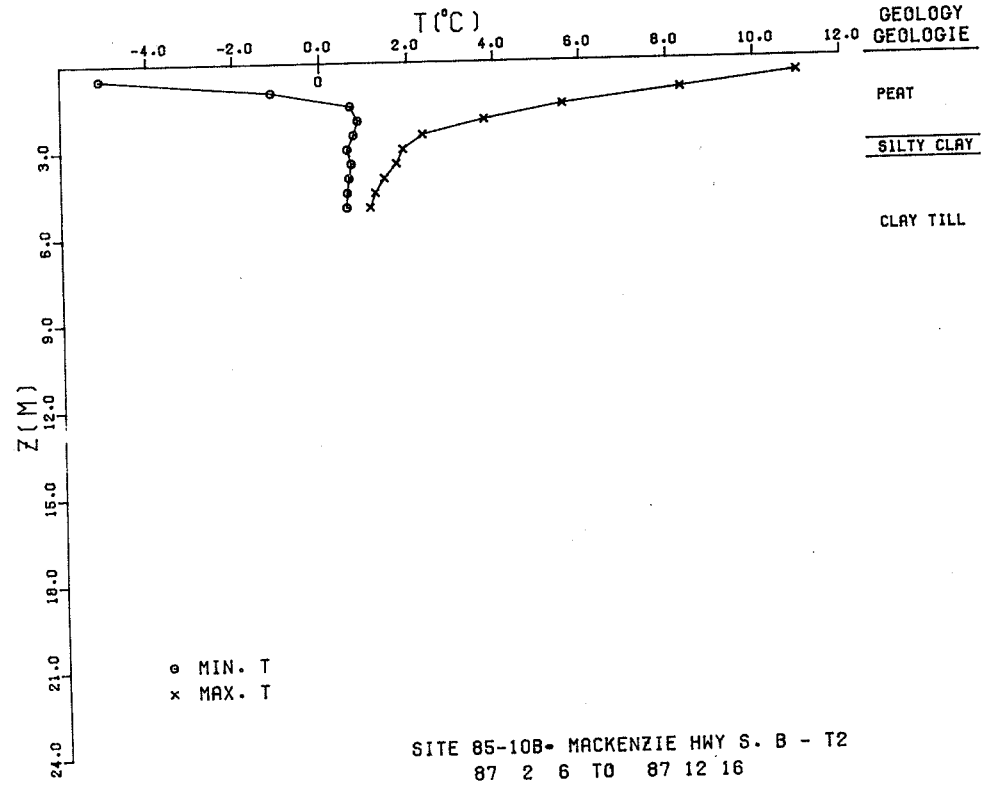
SITE 85-10B• MACKENZIE HWY S. B - T4
87 2 6 T0 87 12 16

61° 21.3' N 120° 52.0' W/O



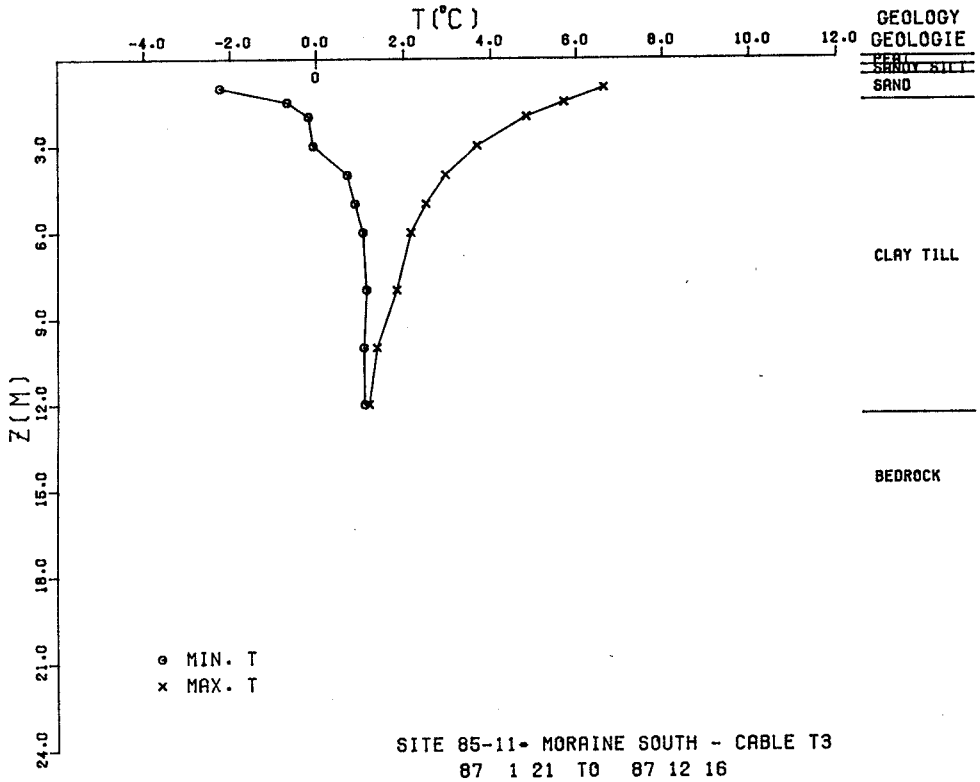
SITE 85-10B- MACKENZIE HWY S. B - T1
87 2 6 TO 87 12 16

61° 21.3' N 120° 52.0' W/O



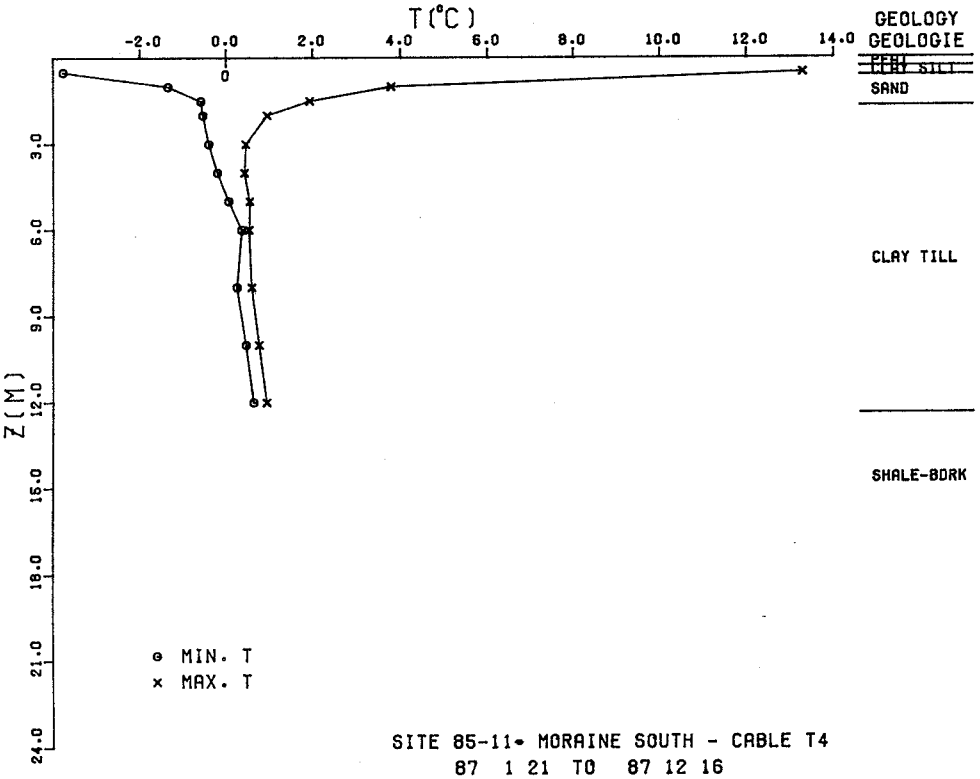
SITE 85-10B- MACKENZIE HWY S. B - T2
87 2 6 TO 87 12 16

61° 16.9' N 120° 48.4' W/O



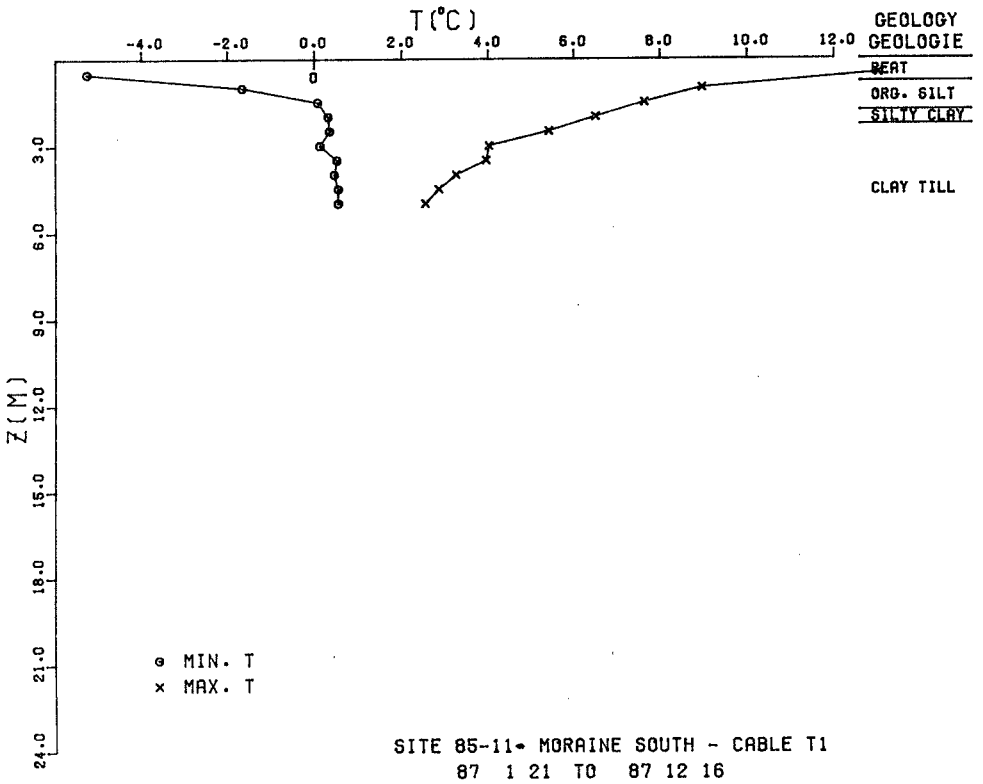
SITE 85-11• MORAINE SOUTH - CABLE T3
87 1 21 TO 87 12 16

61° 16.9' N 120° 48.4' W/O



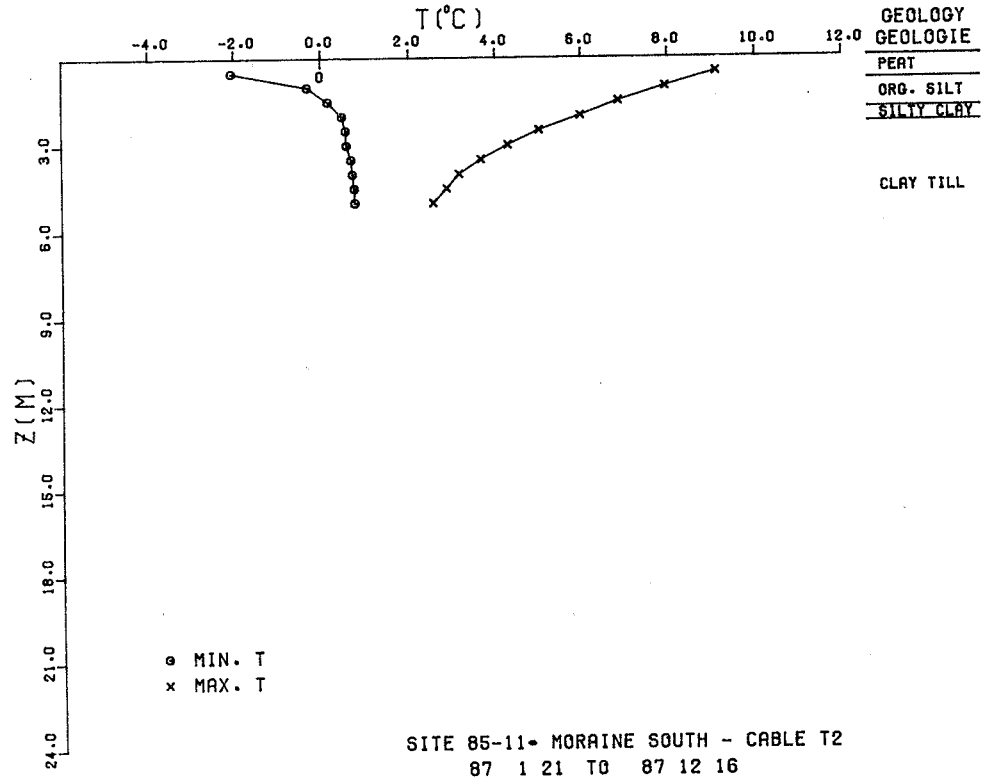
SITE 85-11• MORAINE SOUTH - CABLE T4
87 1 21 TO 87 12 16

61° 16.9' N 120° 48.4' W/O



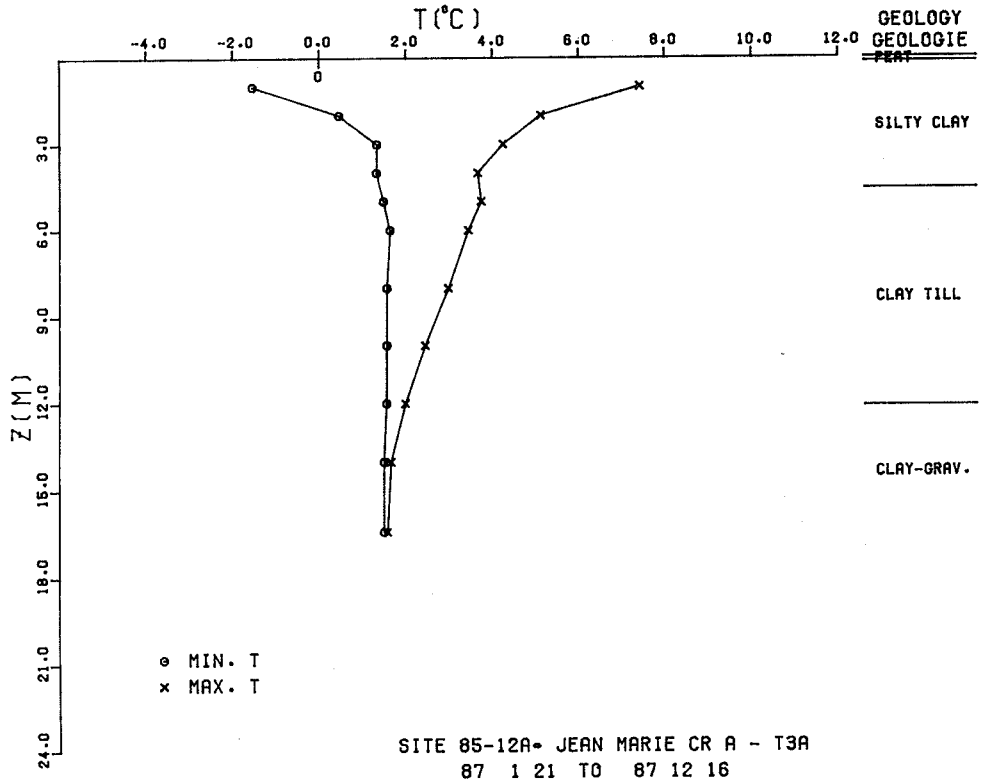
SITE 85-11• MORAINE SOUTH - CABLE T1
87 1 21 TO 87 12 16

61° 16.9' N 120° 48.4' W/O



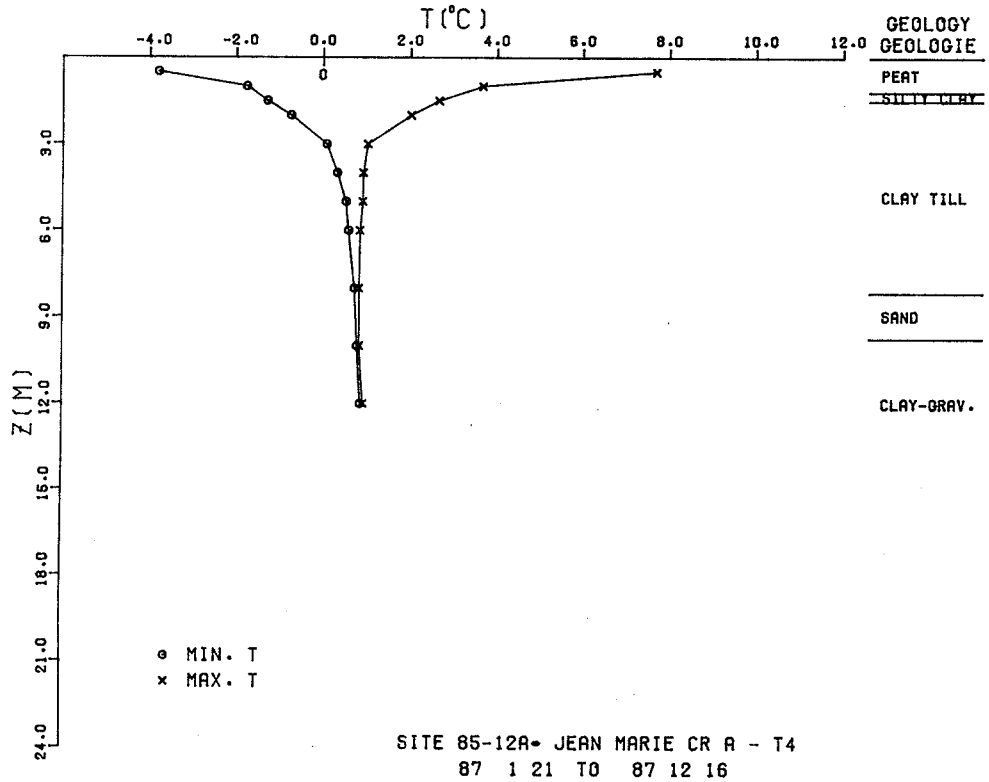
SITE 85-11• MORAINE SOUTH - CABLE T2
87 1 21 TO 87 12 16

61° 11.6' N 120° 42.2' W/O



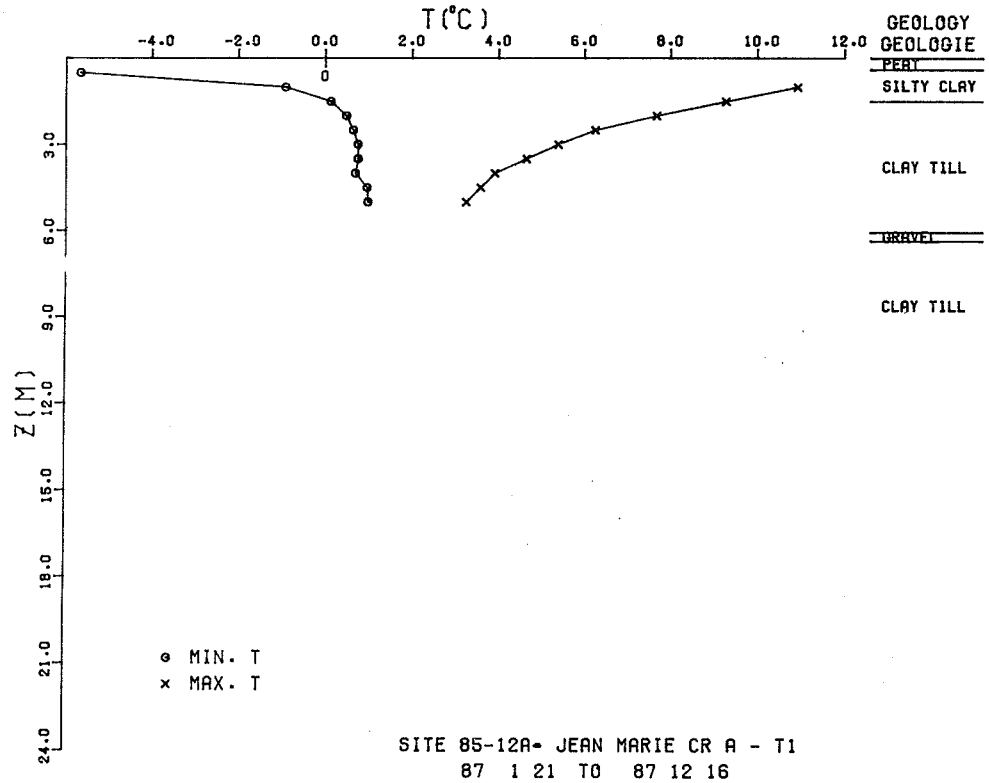
SITE 85-12A• JEAN MARIE CR A - T3A
87 1 21 TO 87 12 16

61° 11.6' N 120° 42.2' W/O



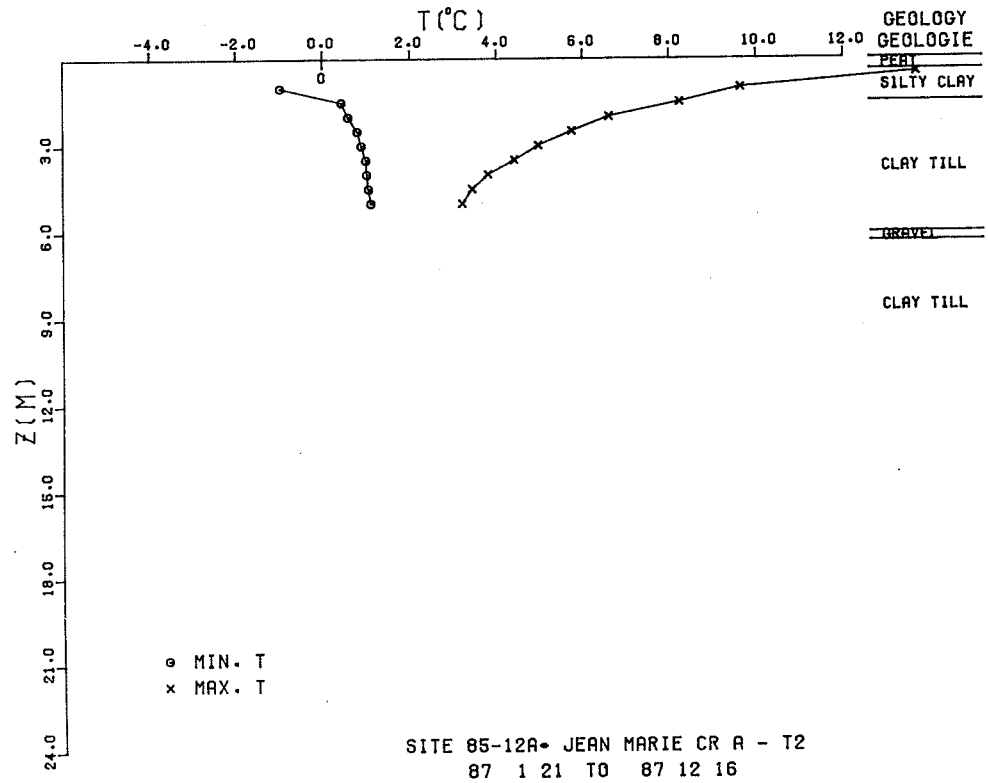
SITE 85-12A• JEAN MARIE CR A - T4
87 1 21 TO 87 12 16

61° 11.6' N 120° 42.2' W/O



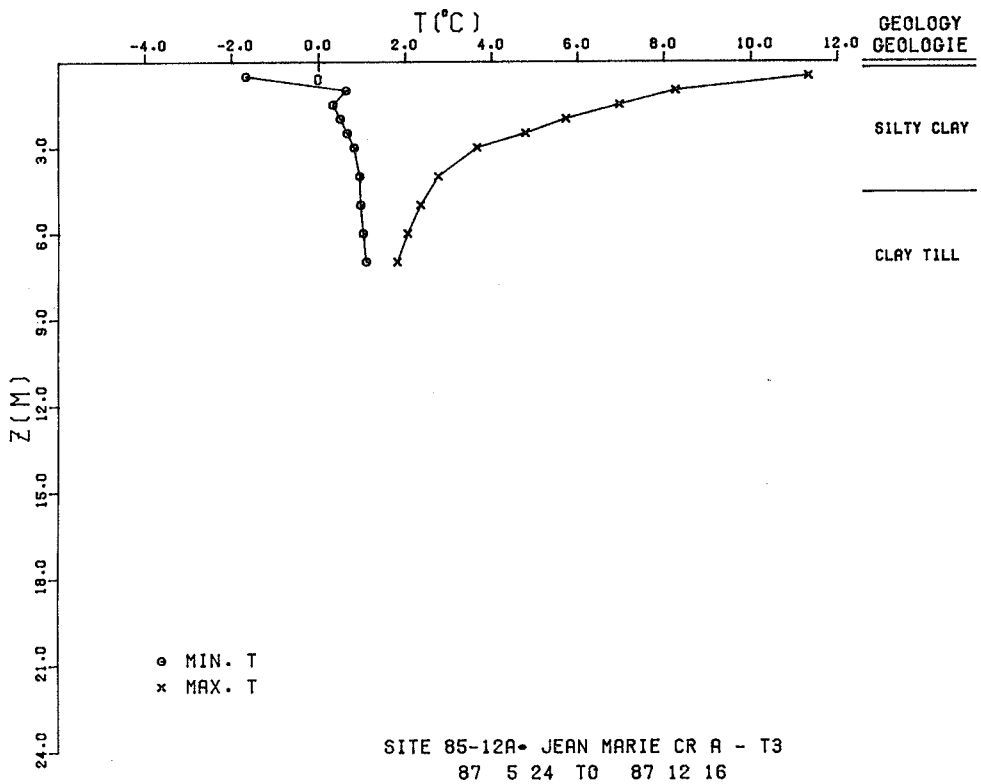
SITE 85-12A- JEAN MARIE CR A - T1
87 1 21 TO 87 12 16

61° 11.6' N 120° 42.2' W/O



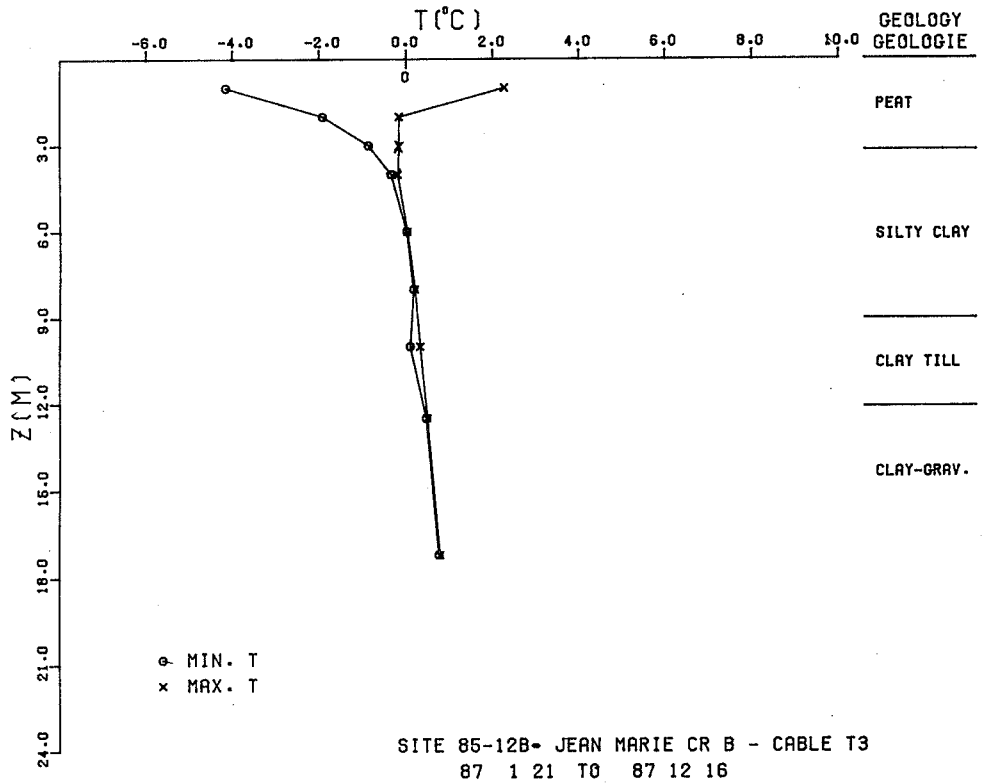
SITE 85-12A- JEAN MARIE CR A - T2
87 1 21 TO 87 12 16

61° 11.6' N 120° 42.2' W/O



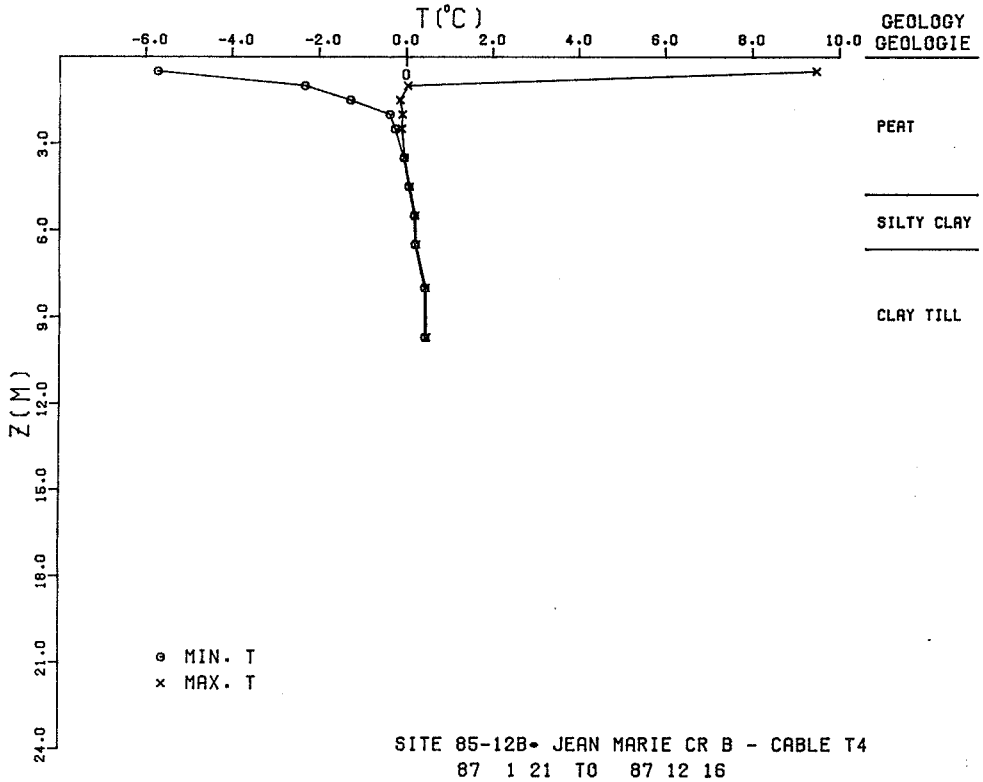
SITE 85-12A• JEAN MARIE CR A - T3
87 5 24 TO 87 12 16

61° 11.4' N 120° 42.2' W/O



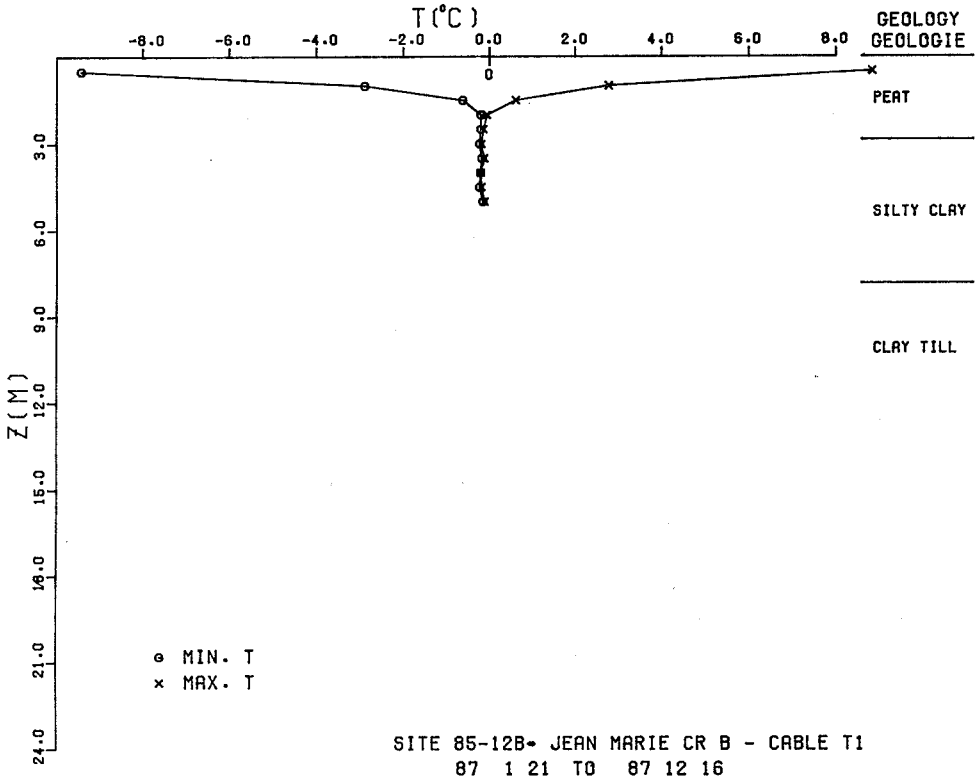
SITE 85-12B• JEAN MARIE CR B - CABLE T3
87 1 21 TO 87 12 16

61° 11.4' N 120° 42.2' W/O



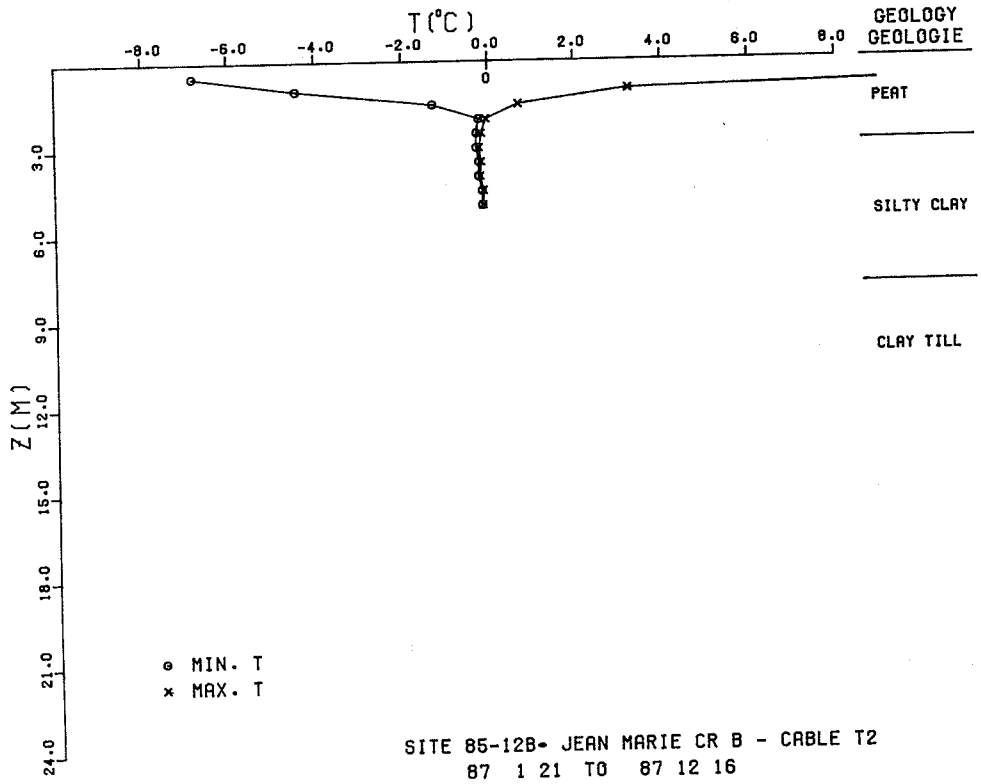
SITE 85-12B• JEAN MARIE CR B - CABLE T4
87 1 21 TO 87 12 16

61° 11.4' N 120° 42.2' W/0



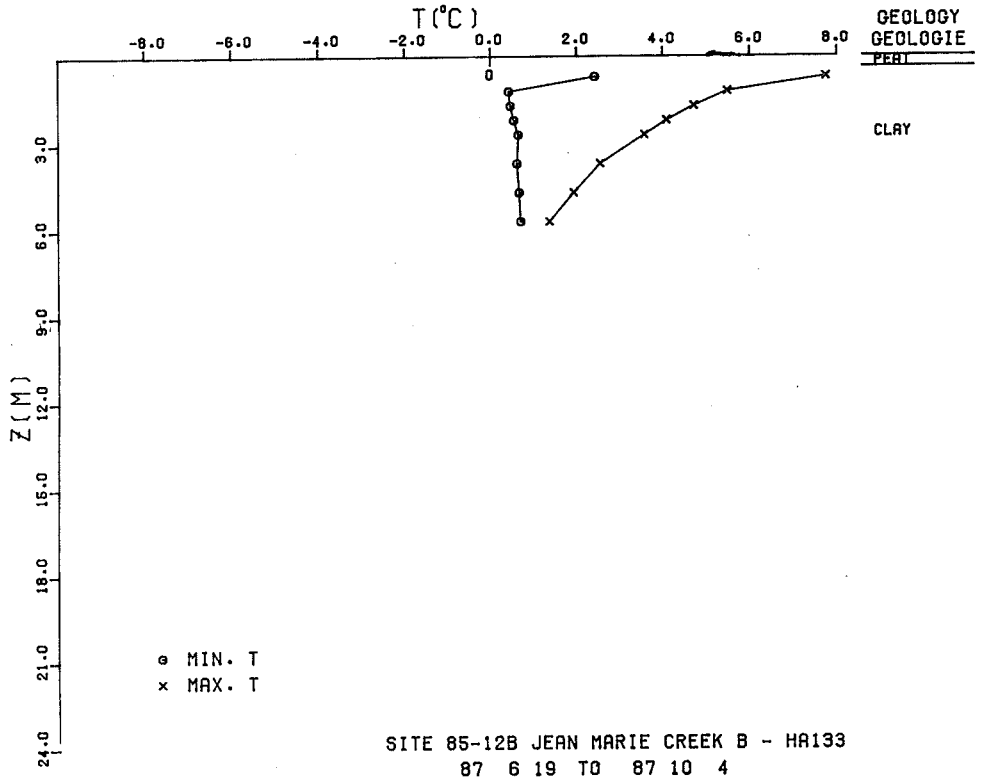
SITE 85-12B• JEAN MARIE CR B - CABLE T1
87 1 21 TO 87 12 16

61° 11.4' N 120° 42.2' W/0



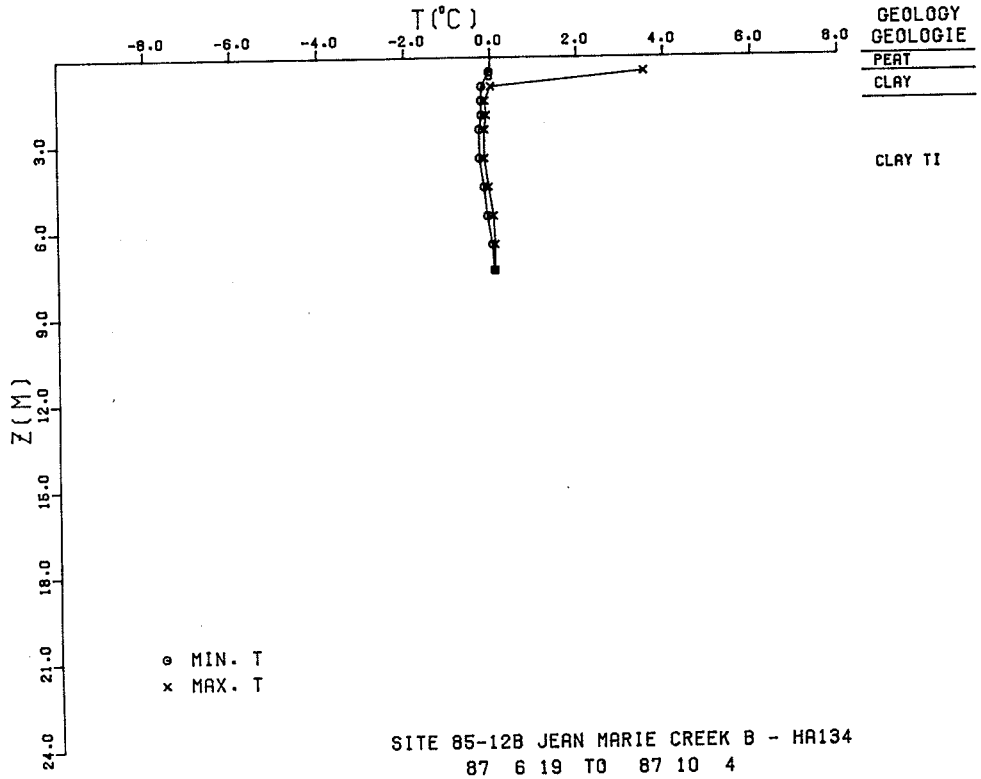
SITE 85-12B• JEAN MARIE CR B - CABLE T2
87 1 21 TO 87 12 16

61° 11.4' N 120° 42.2' W/O



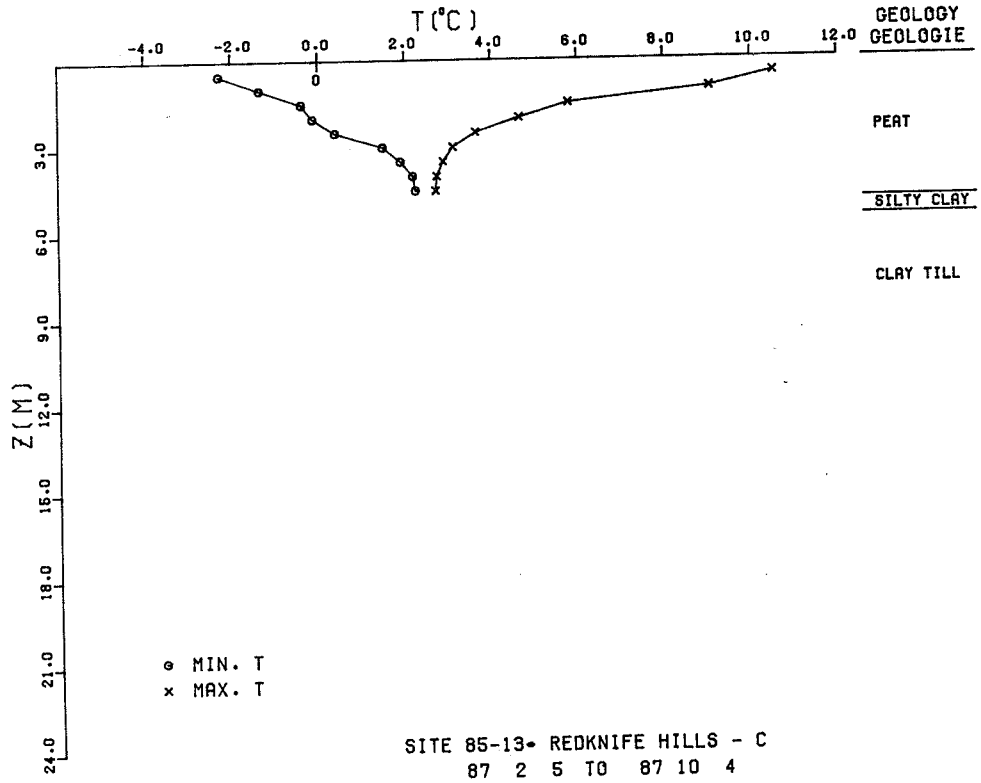
SITE 85-12B JEAN MARIE CREEK B - HA133
87 6 19 TO 87 10 4

61° 11.4' N 120° 42.2' W/O



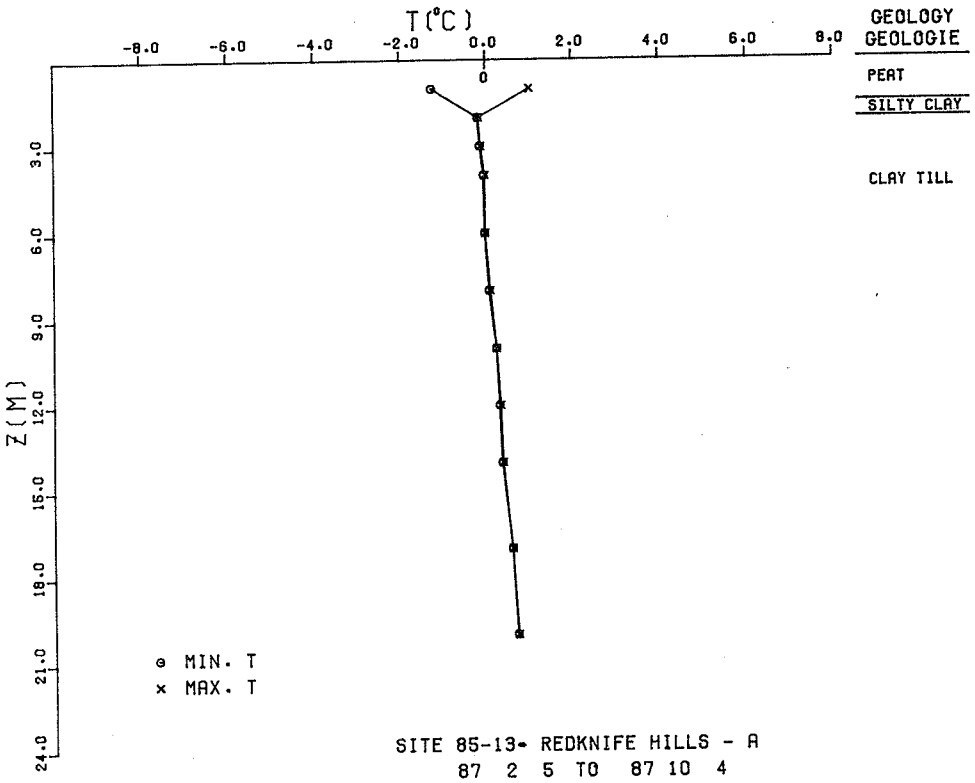
SITE 85-12B JEAN MARIE CREEK B - HA134
87 6 19 TO 87 10 4

60° 33.9' N 120° 17.0' W/O



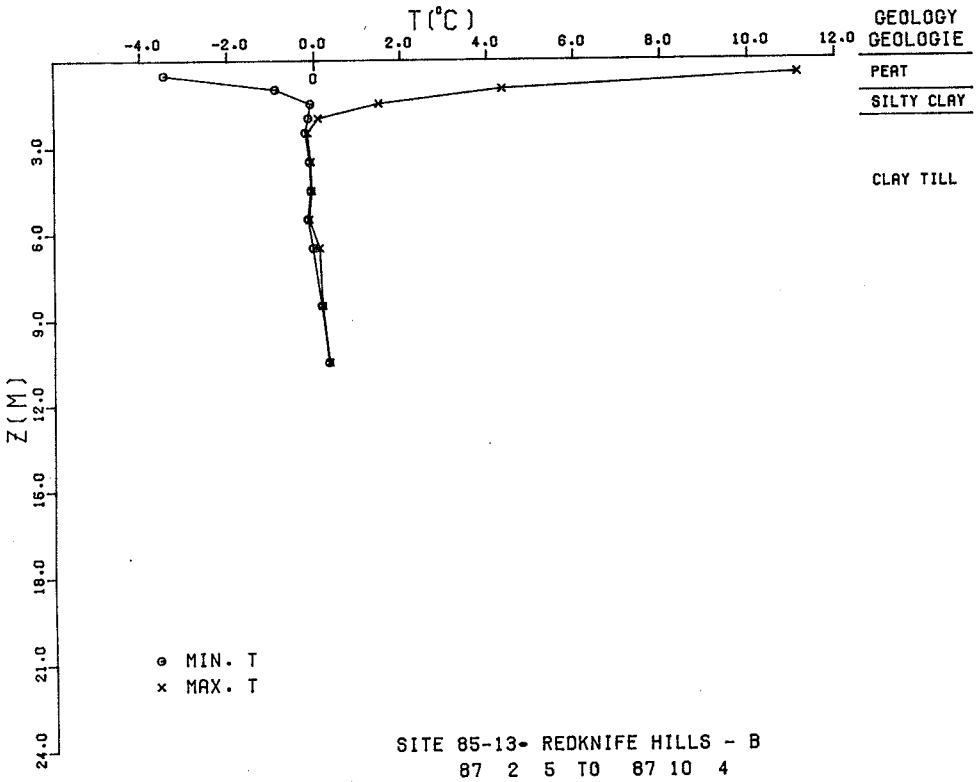
SITE 85-13• REDKNIFE HILLS - C
87 2 5 TO 87 10 4

60° 34.1' N 120° 17.2' W/O



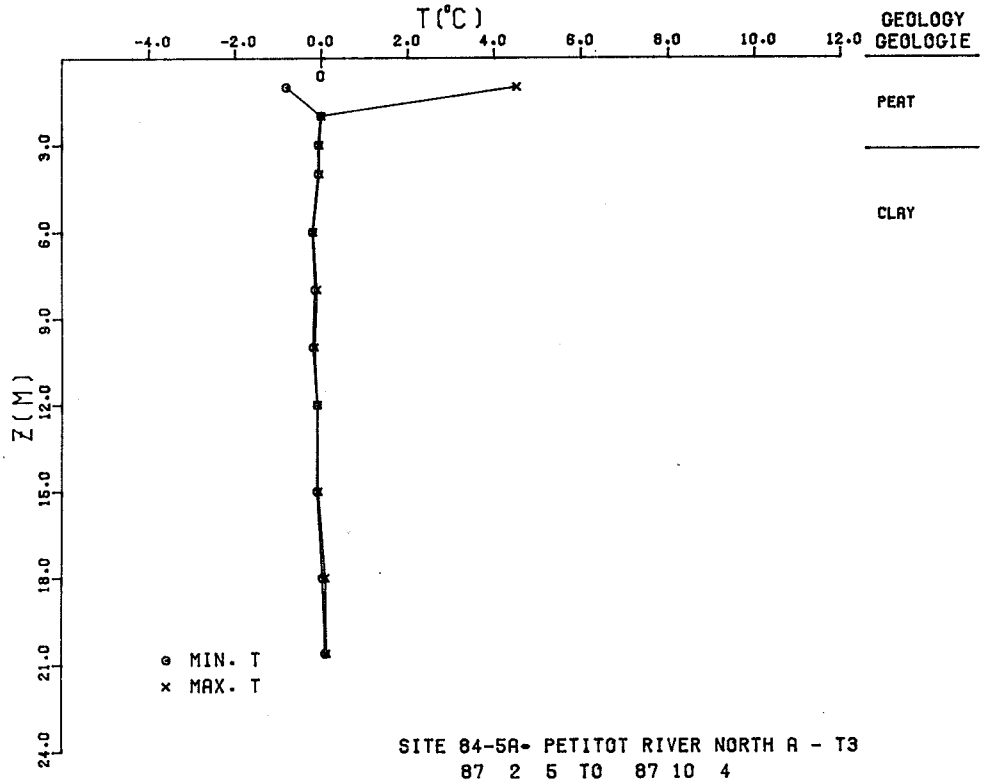
SITE 85-13- REDKNIFE HILLS - A
87 2 5 TO 87 10 4

60° 34.0' N 120° 17.1' W/O



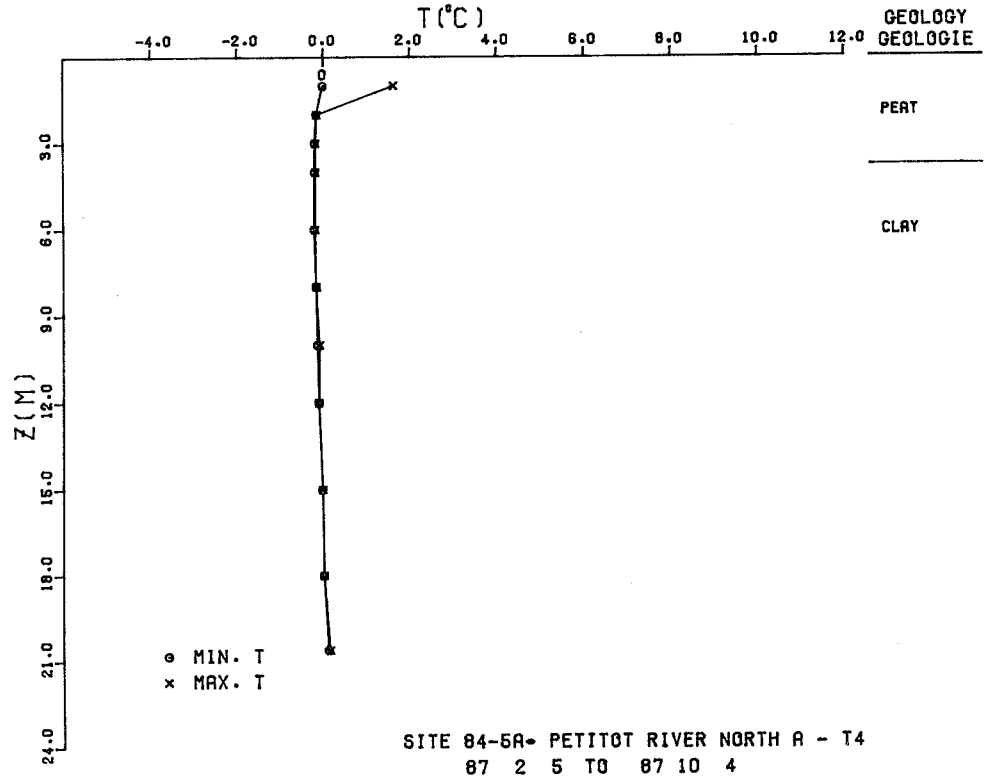
SITE 85-13- REDKNIFE HILLS - B
87 2 5 TO 87 10 4

59° 45.0' N 119° 30.0' W/0



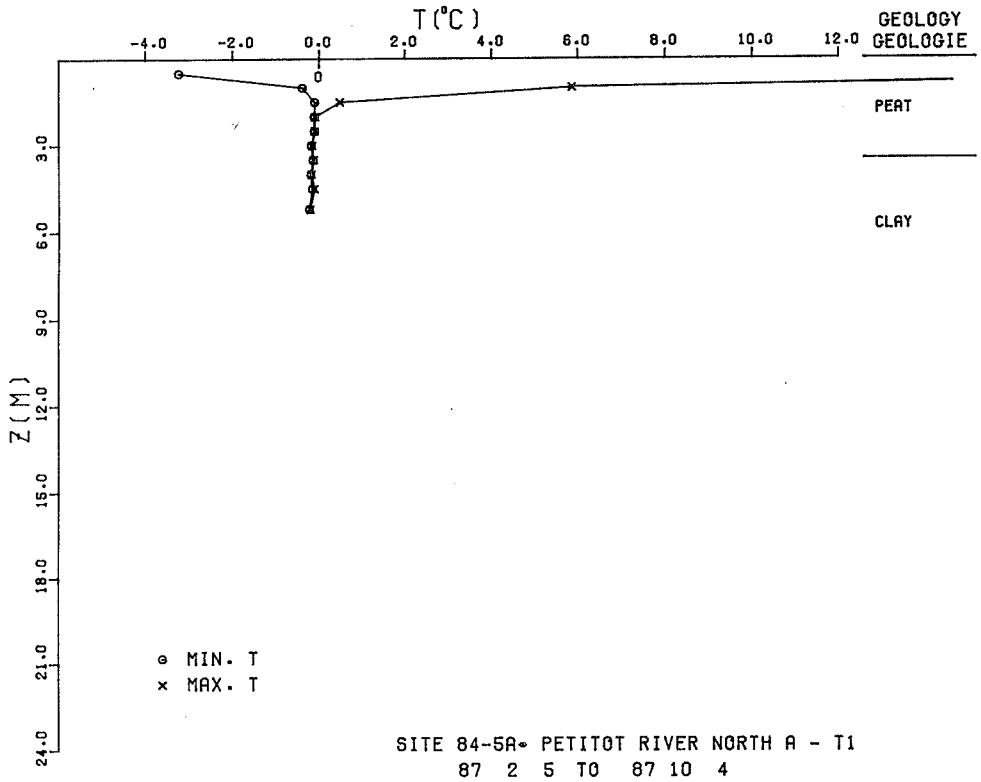
SITE 84-5A- PETITOT RIVER NORTH A - T3
87 2 5 TO 87 10 4

59° 45.0' N 119° 30.0' W/0



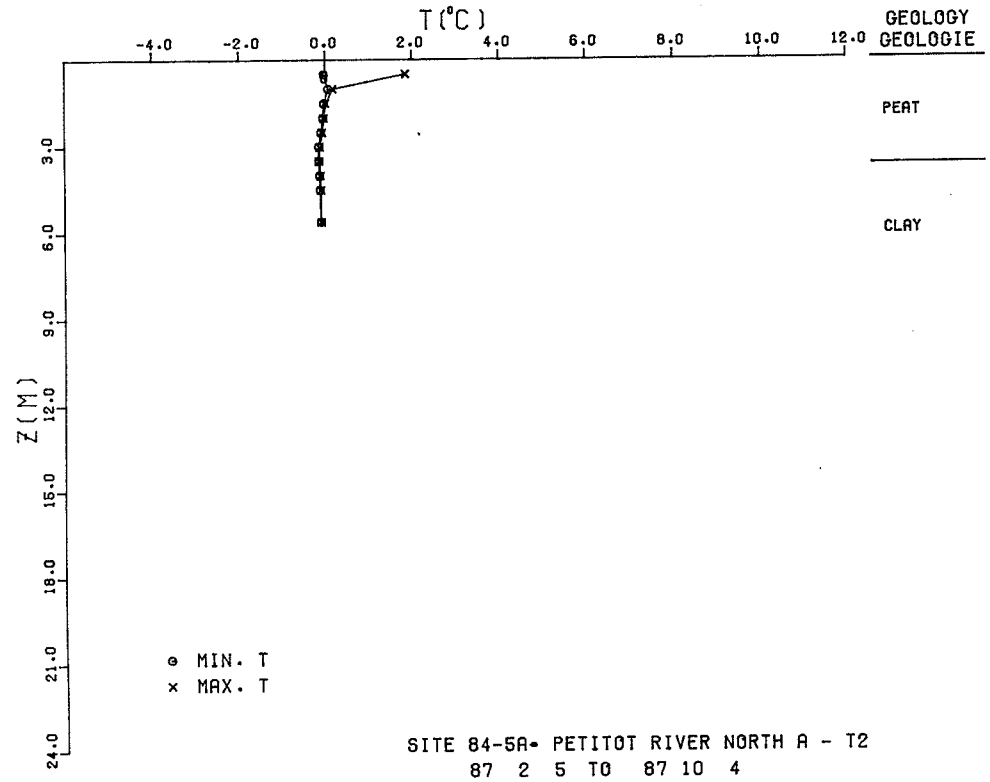
SITE 84-5A- PETITOT RIVER NORTH A - T4
87 2 5 TO 87 10 4

59° 45.0' N 119° 30.0' W/0



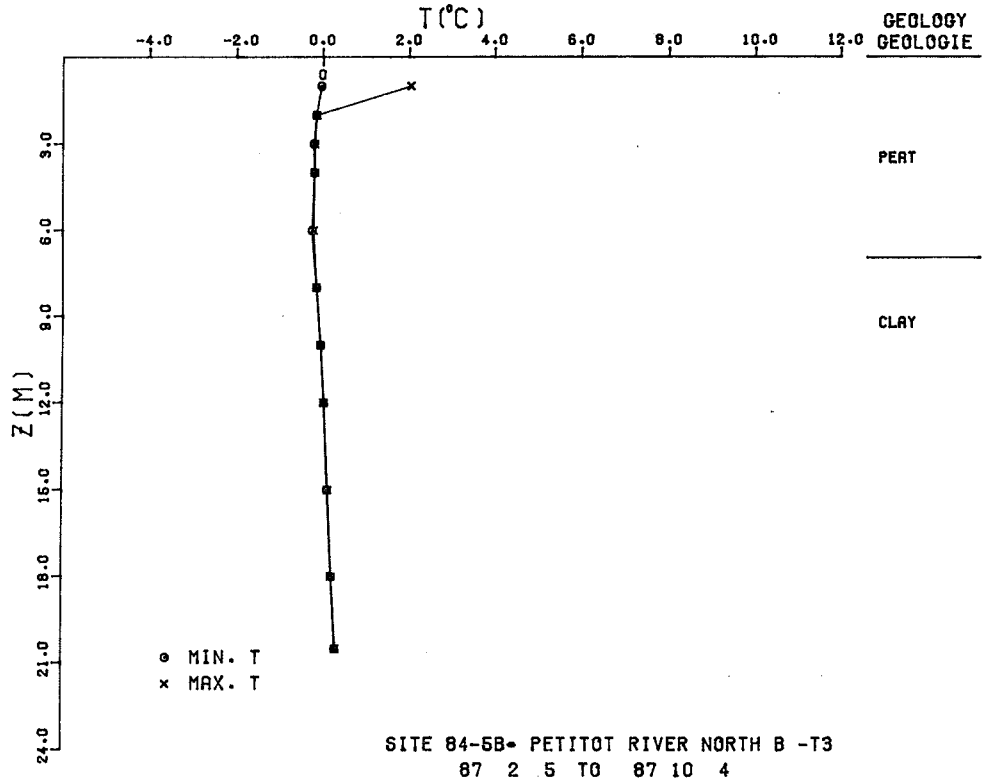
SITE 84-5A• PETITOT RIVER NORTH A - T1
87 2 5 TO 87 10 4

59° 45.0' N 119° 30.0' W/0



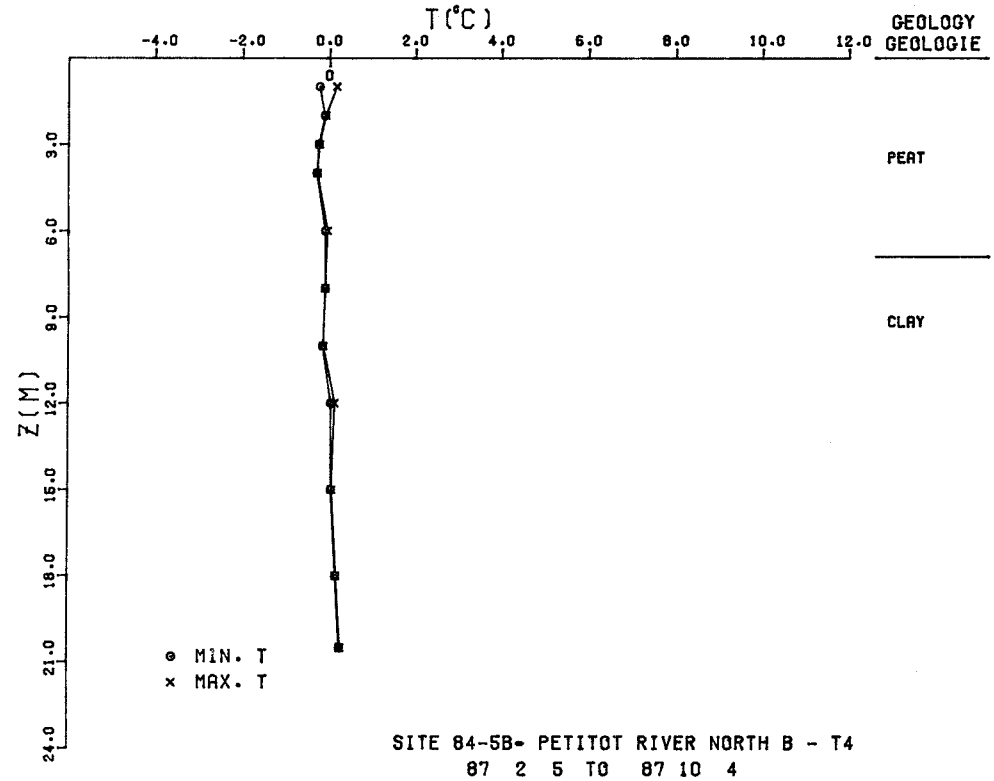
SITE 84-5A• PETITOT RIVER NORTH A - T2
87 2 5 TO 87 10 4

59° 45.0' N 119° 30.0' W/0



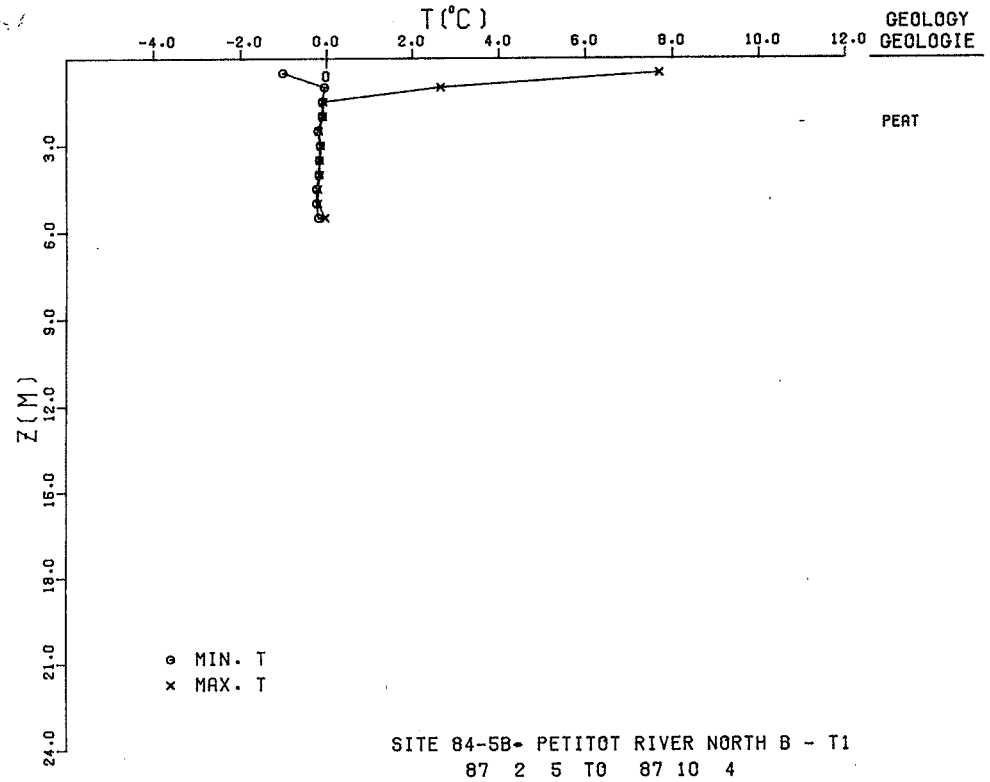
SITE 84-5B- PETITOT RIVER NORTH B -T3
87 2 5 TO 87 10 4

59° 45.0' N 119° 30.0' W/0



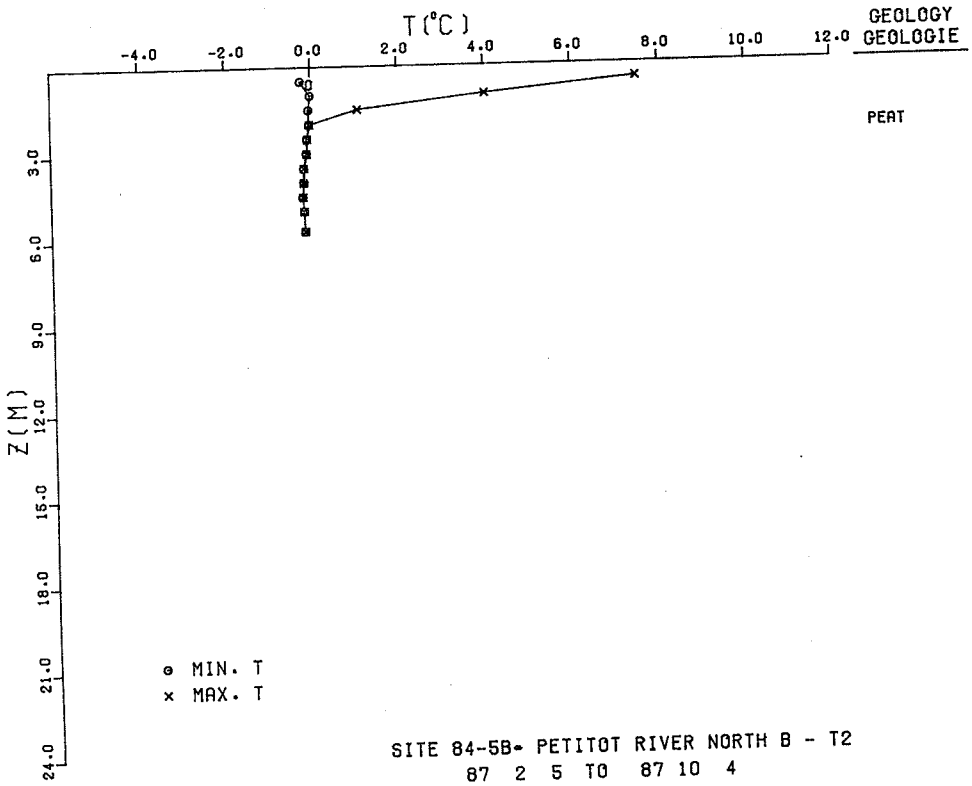
SITE 84-5B- PETITOT RIVER NORTH B - T4
87 2 5 TO 87 10 4

59° 45.0' N 119° 30.0' W/O



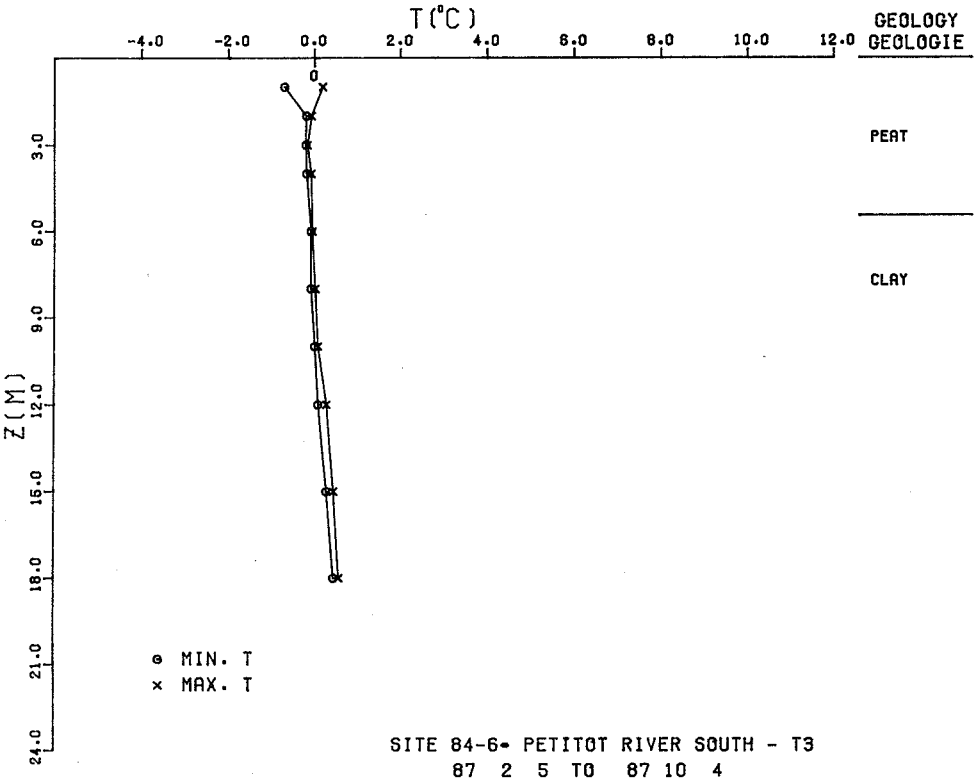
SITE 84-5B- PETITOT RIVER NORTH B - T1
87 2 5 TO 87 10 4

59° 45.0' N 119° 30.0' W/O



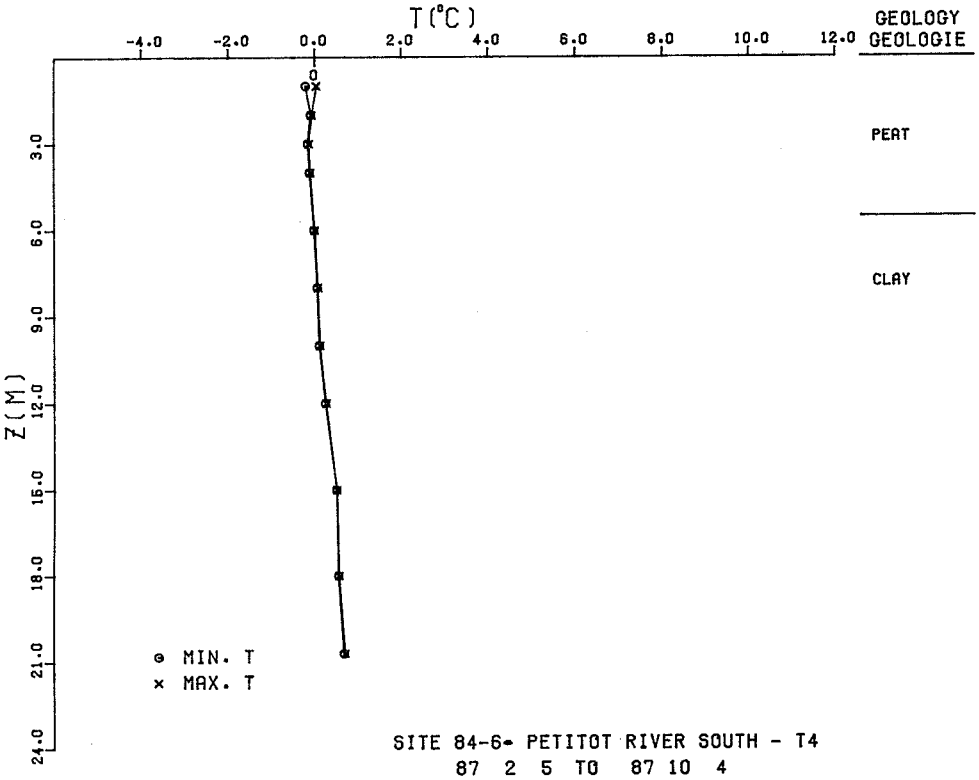
SITE 84-5B- PETITOT RIVER NORTH B - T2
87 2 5 TO 87 10 4

59° 27.0' N 119° 15.0' W/0



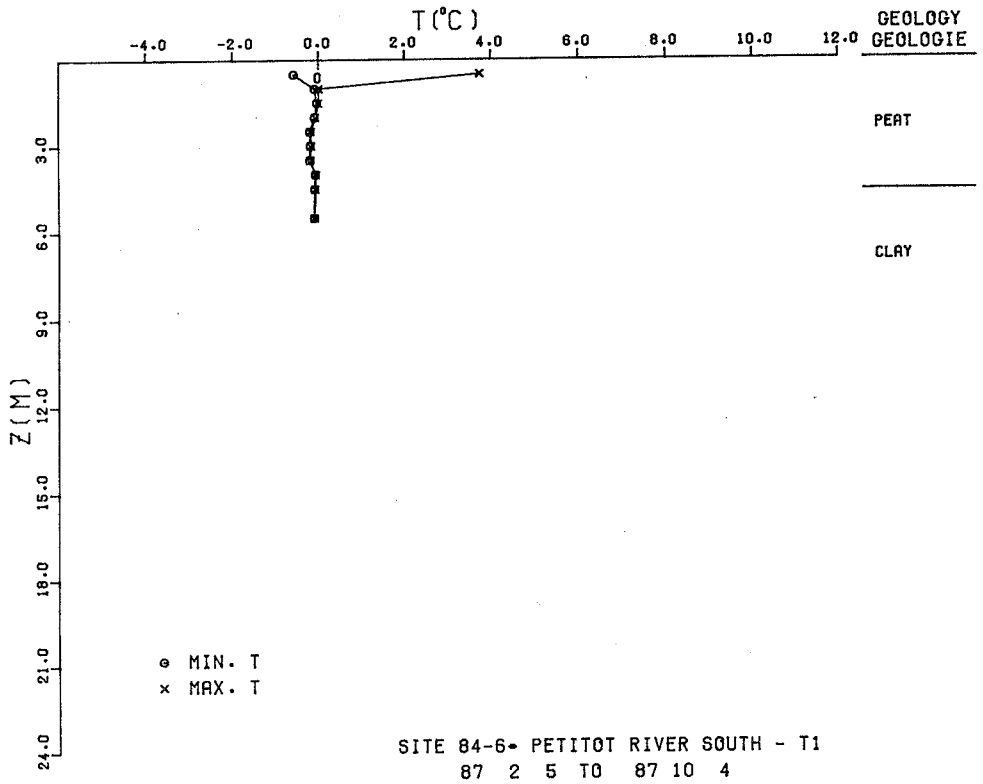
SITE 84-6• PETITOT RIVER SOUTH - T3
87 2 5 TO 87 10 4

59° 27.0' N 119° 15.0' W/0



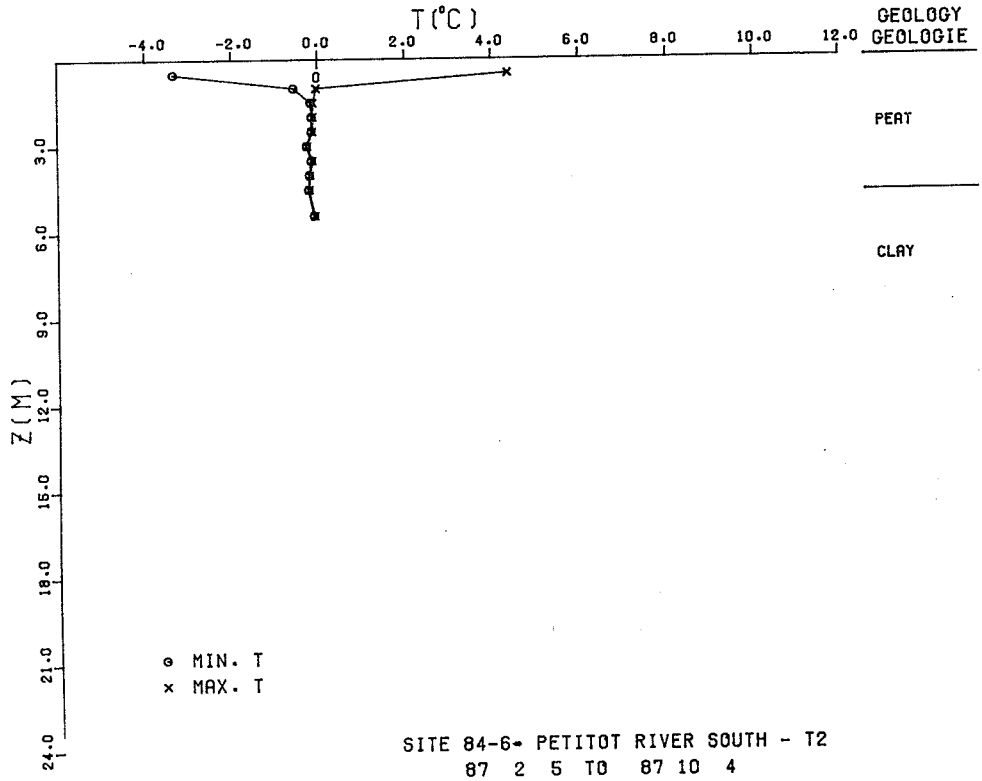
SITE 84-6• PETITOT RIVER SOUTH - T4
87 2 5 TO 87 10 4

59° 27.0' N 119° 15.0' W/0



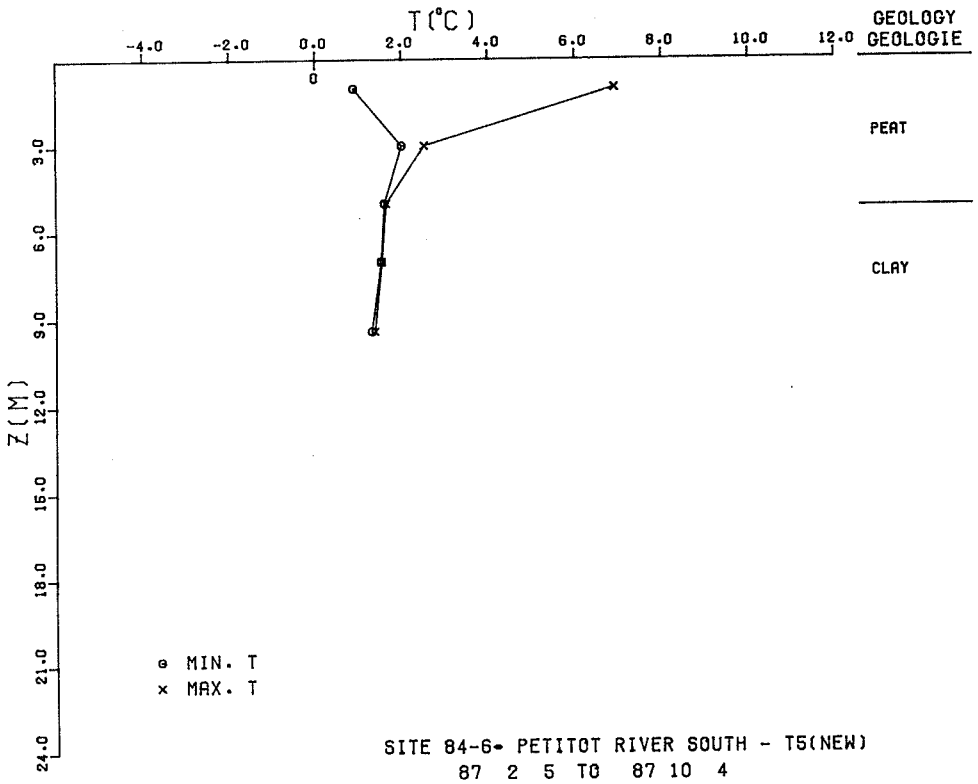
SITE 84-6- PETITOT RIVER SOUTH - T1
87 2 5 TO 87 10 4

59° 27.0' N 119° 15.0' W/0

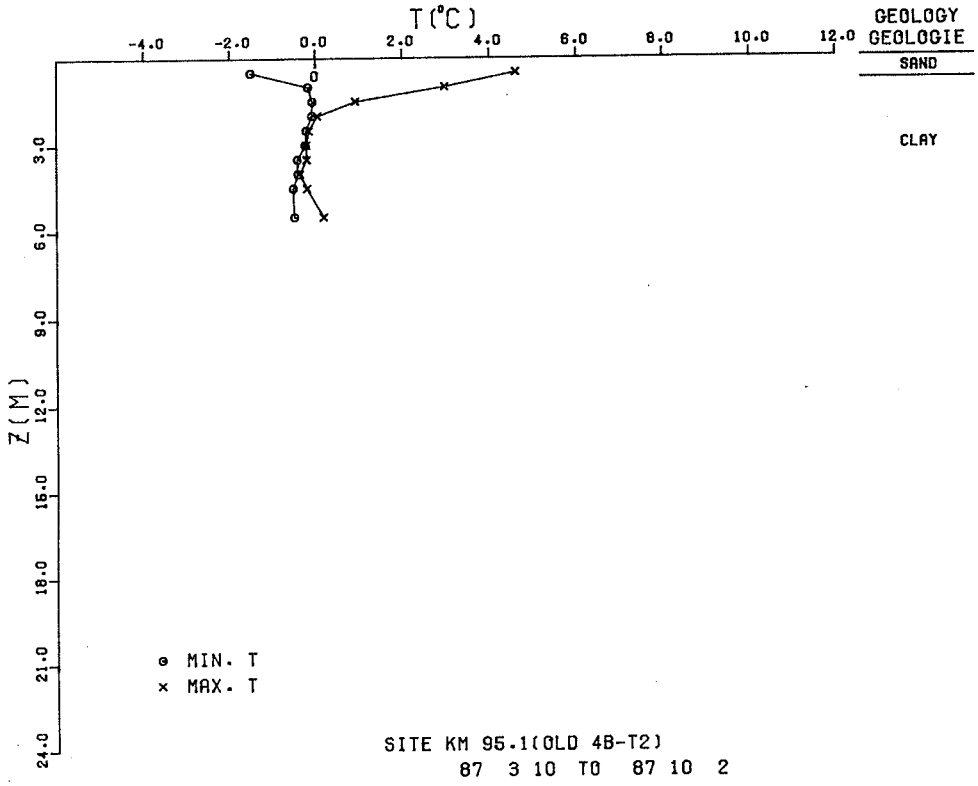


SITE 84-6- PETITOT RIVER SOUTH - T2
87 2 5 TO 87 10 4

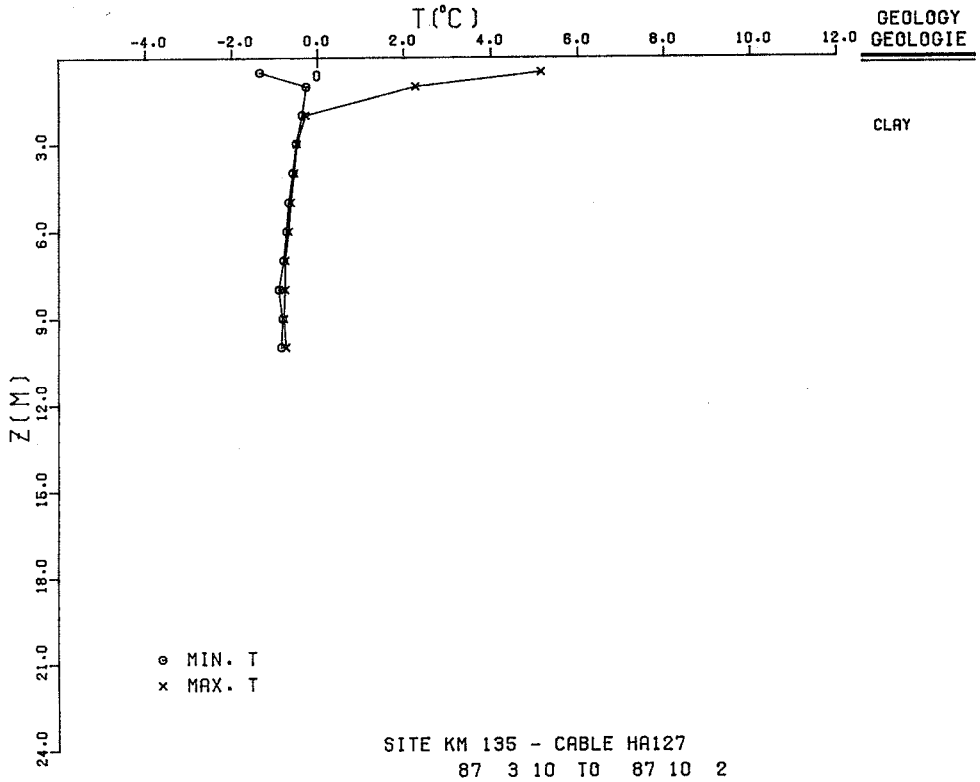
59° 27.0' N 119° 15.0' W/0



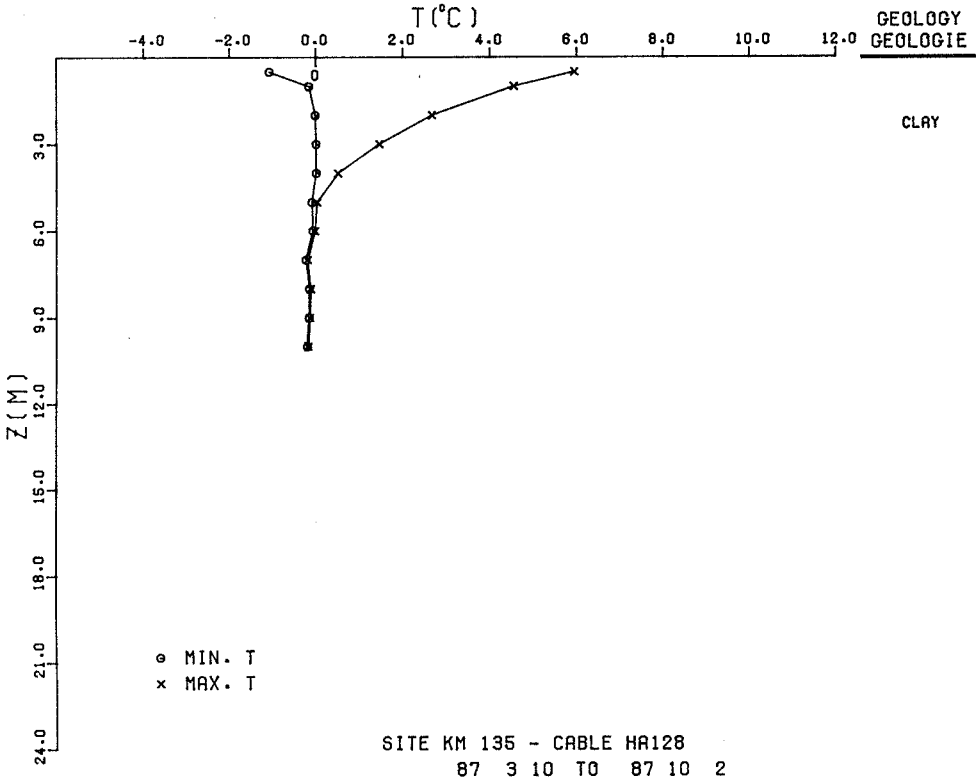
SITE 84-6• PETITOT RIVER SOUTH - T5(NEW)
87 2 5 TO 87 10 4



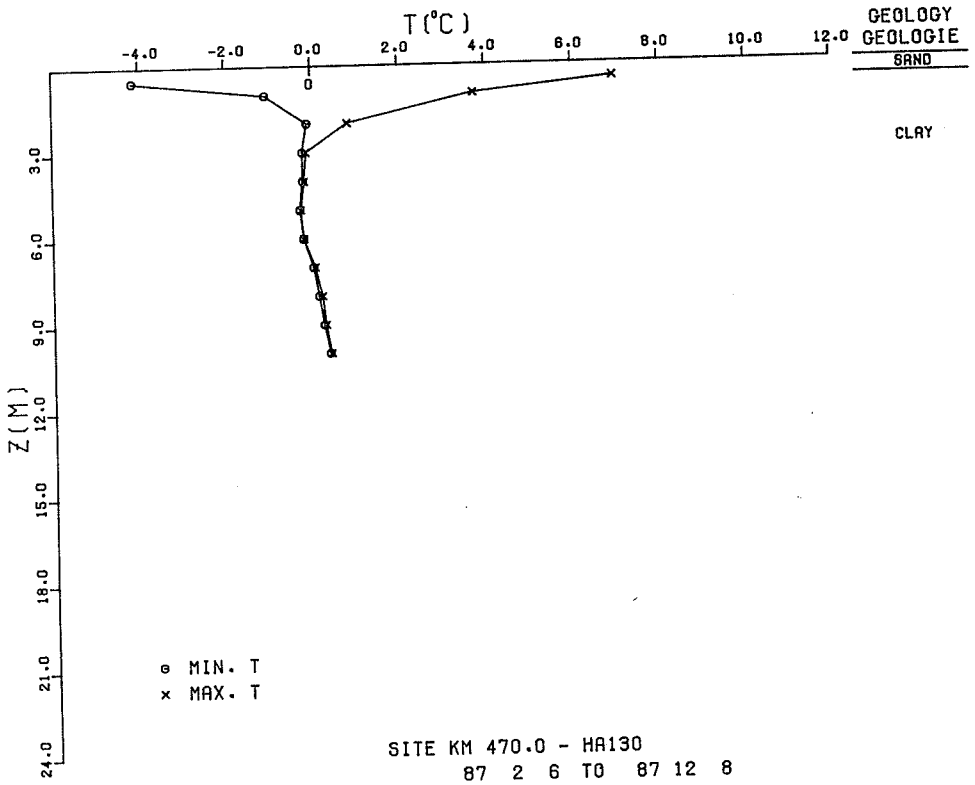
SITE KM 95.1(OLD 4B-T2)
87 3 10 TO 87 10 2



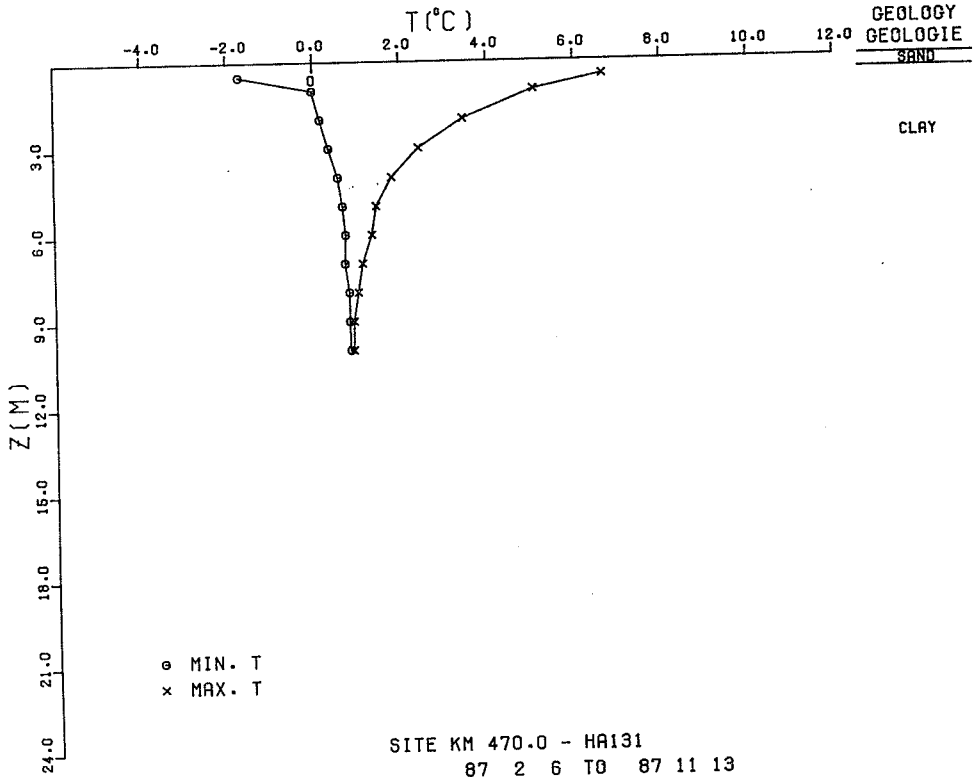
SITE KM 135 - CABLE HA127
87 3 10 TO 87 10 2



SITE KM 135 - CABLE HA128
87 3 10 TO 87 10 2

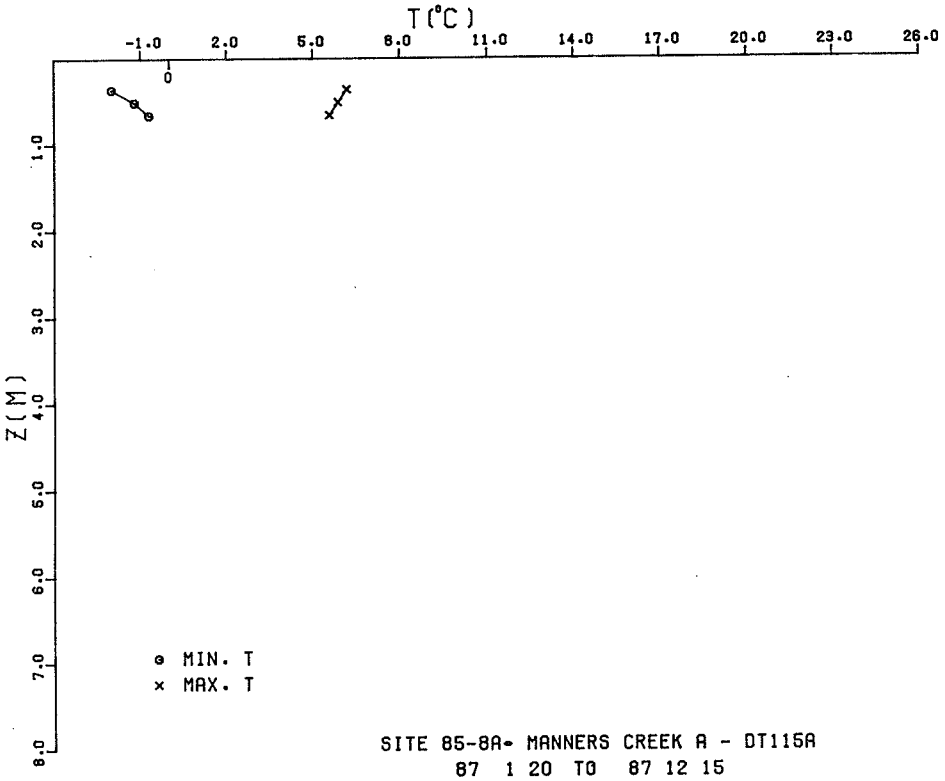


SITE KM 470.0 - HA130
87 2 6 TO 87 12 8



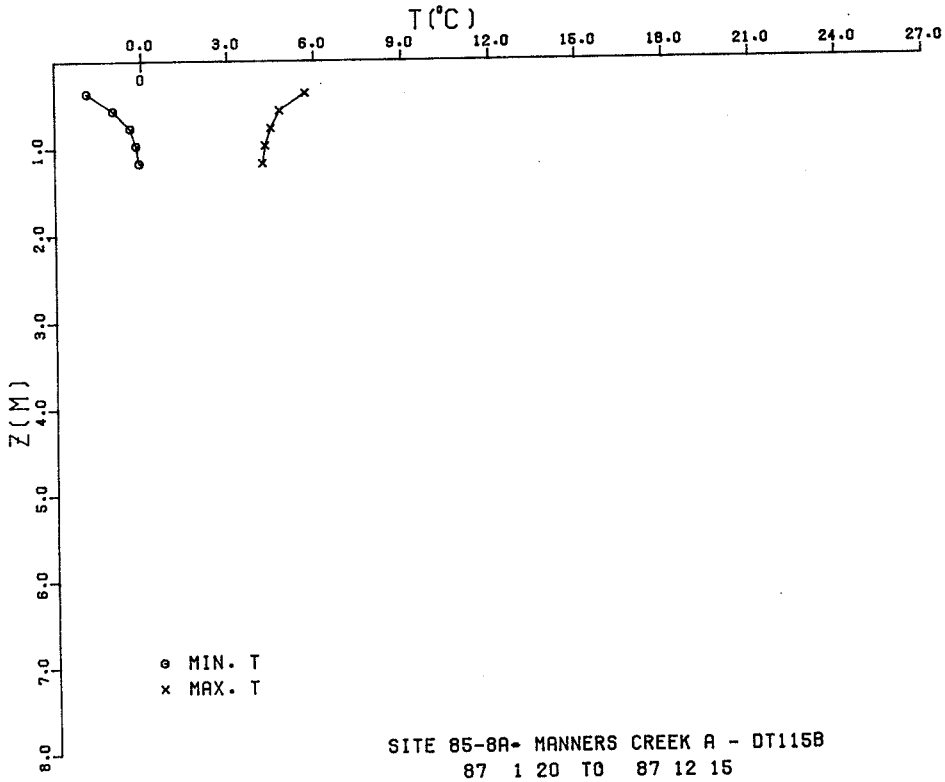
SITE KM 470.0 - HA131
87 2 6 TO 87 11 13

61° 36.4' N 121° 5.6' W/0



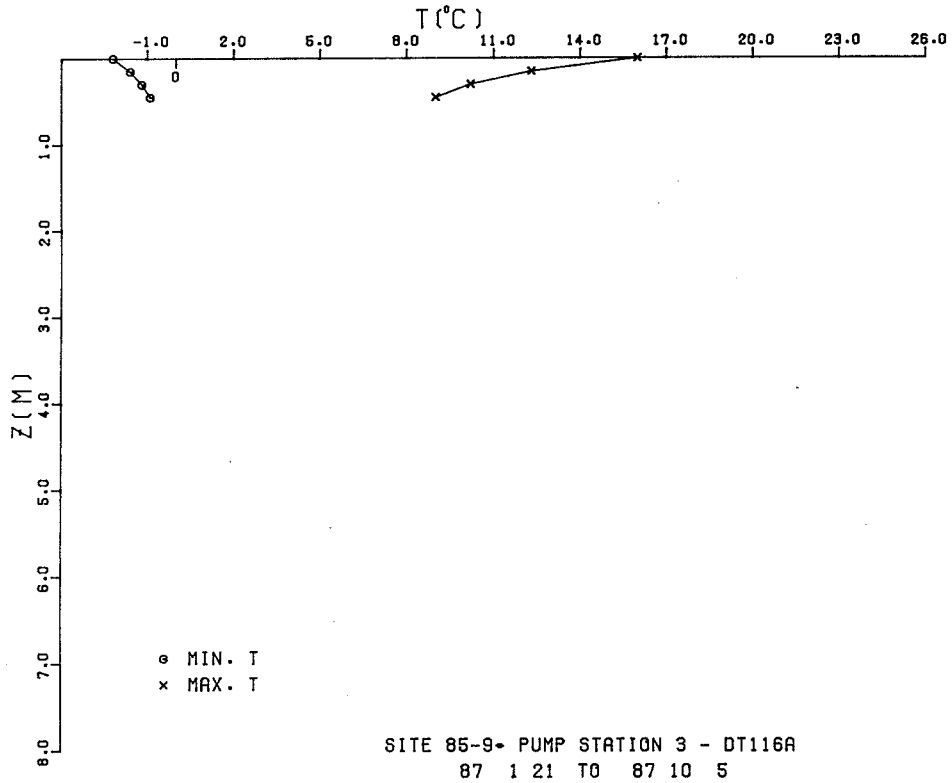
SITE 85-8A- MANNERS CREEK A - DT115A
87 1 20 TO 87 12 15

61° 36.4' N 121° 5.6' W/0



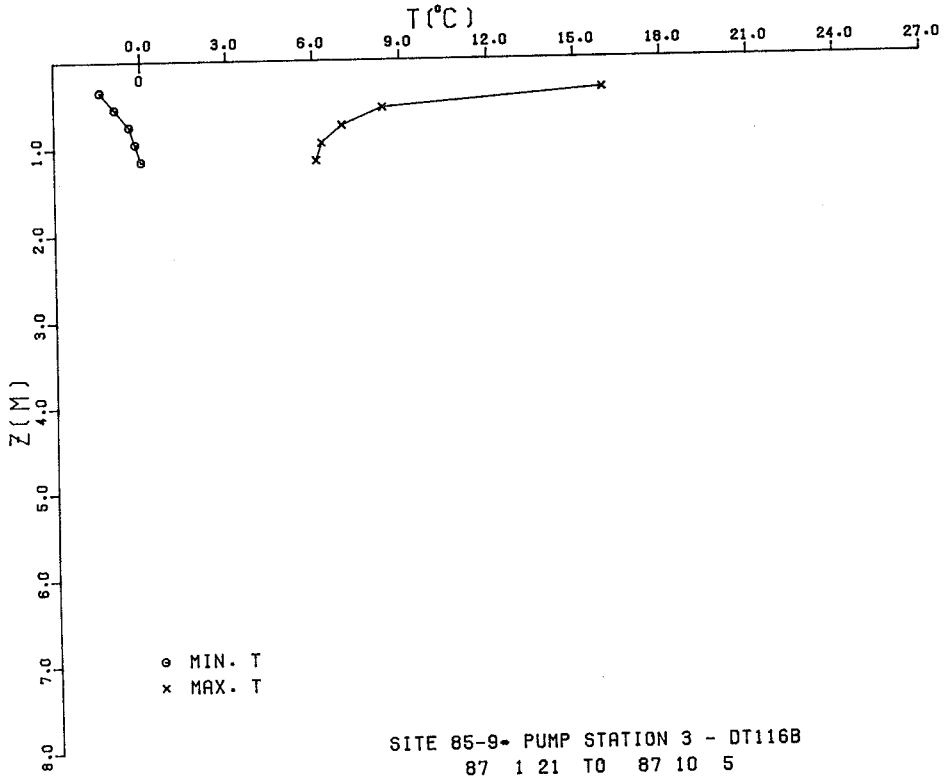
SITE 85-8A- MANNERS CREEK A - DT115B
87 1 20 TO 87 12 15

61° 23.7' N 120° 54.0' W/O



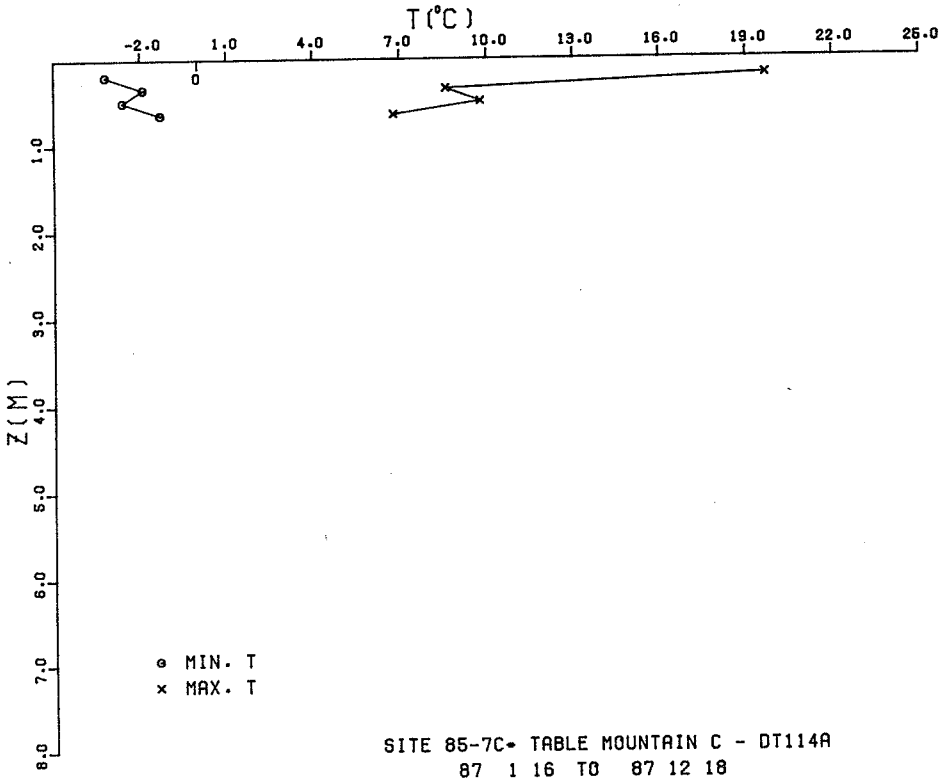
SITE 85-9• PUMP STATION 3 - DT116A
87 1 21 TO 87 10 5

61° 23.7' N 120° 54.0' W/O



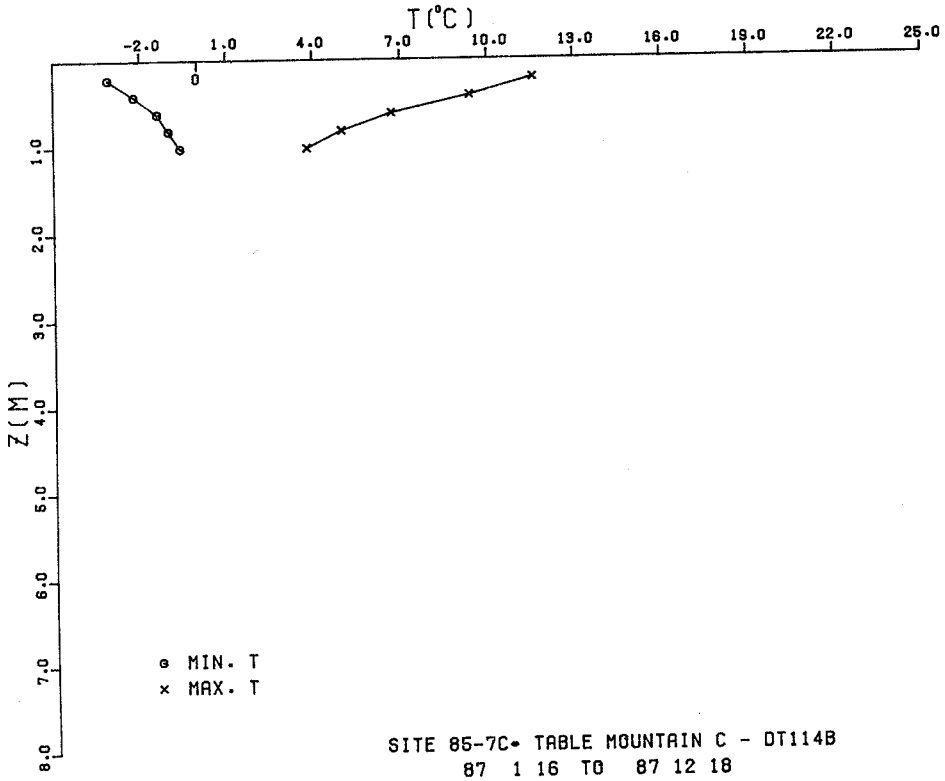
SITE 85-9• PUMP STATION 3 - DT116B
87 1 21 TO 87 10 5

63° 36.4' N 123° 38.0' W/O



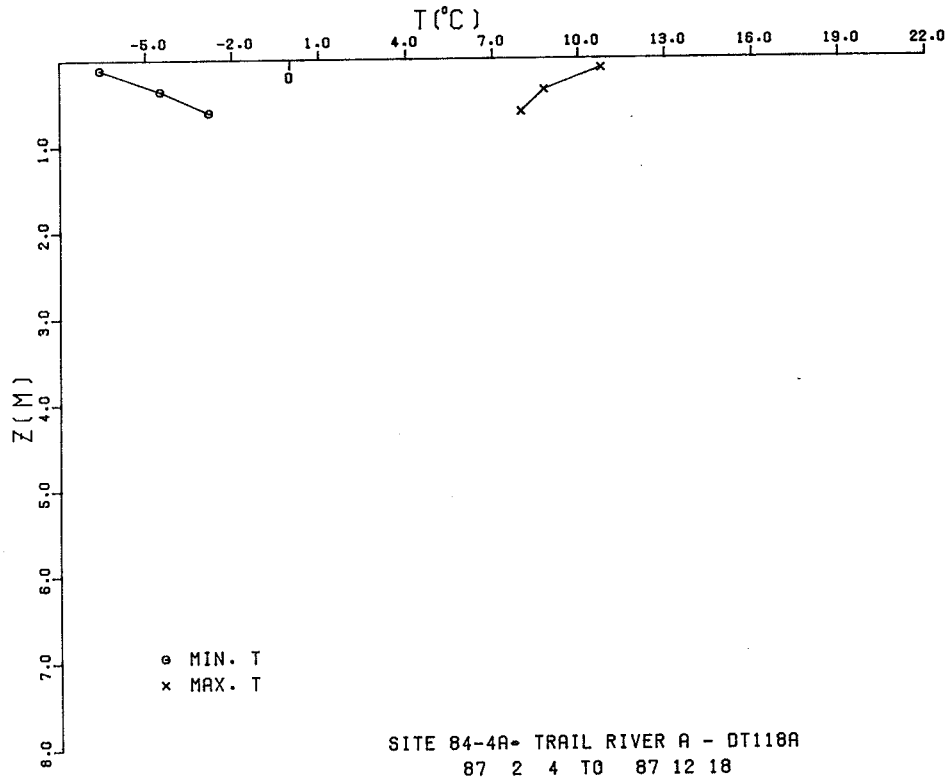
SITE 85-7C• TABLE MOUNTAIN C - DT114A
87 1 16 TO 87 12 18

63° 36.4' N 123° 38.0' W/O



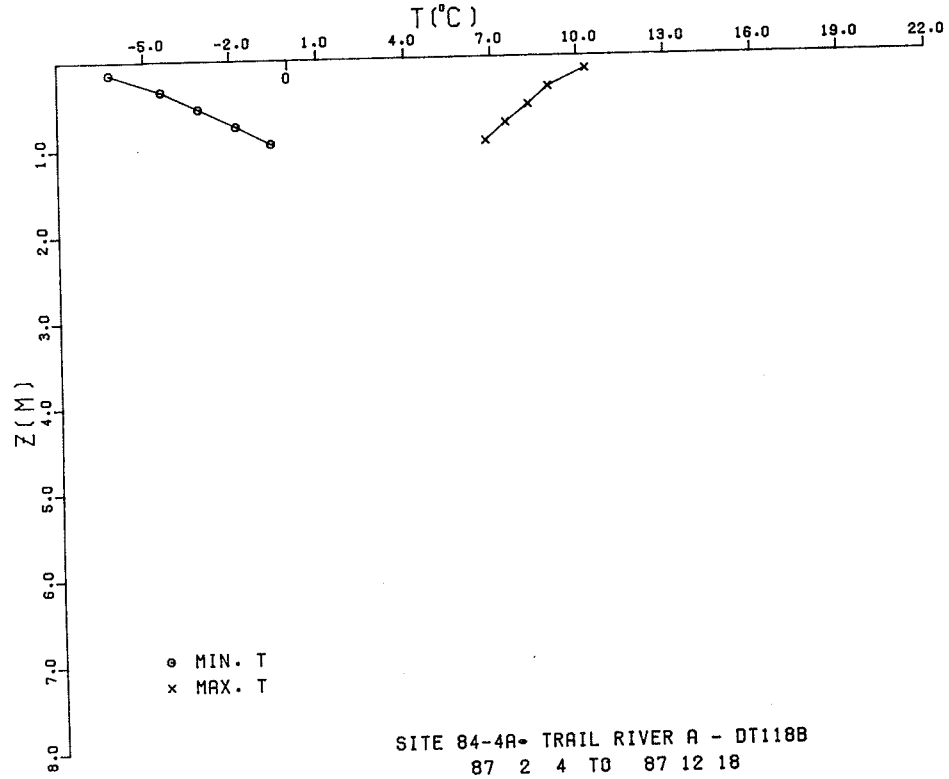
SITE 85-7C• TABLE MOUNTAIN C - DT114B
87 1 16 TO 87 12 18

62° 5.1' N 121° 59.3' W/O



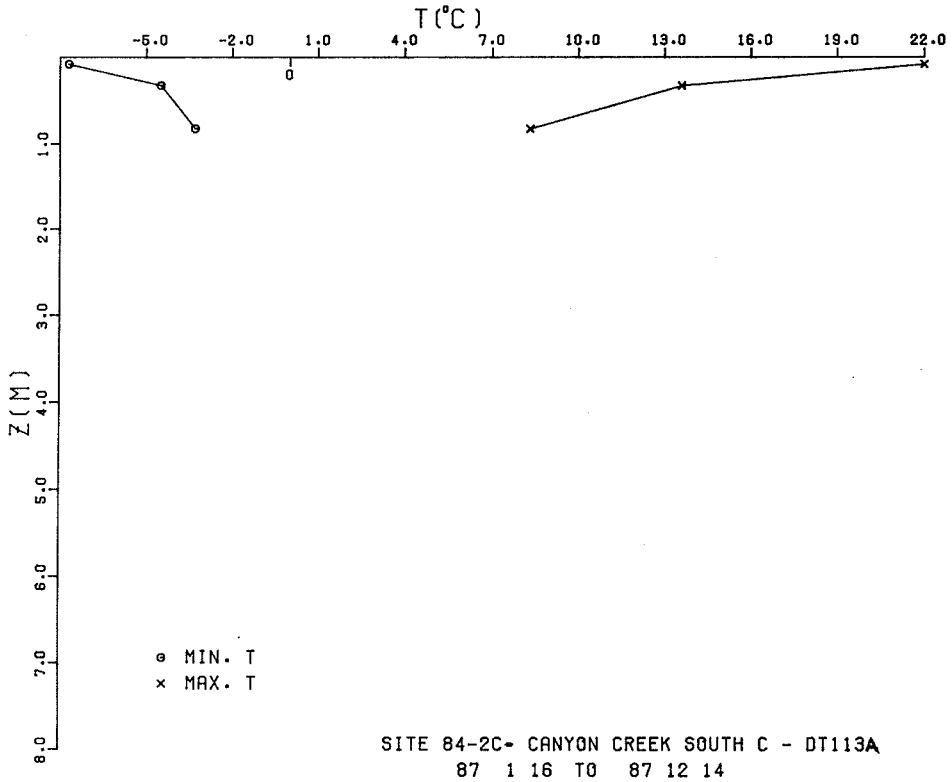
SITE 84-4A• TRAIL RIVER A - DT118A
87 2 4 TO 87 12 18

62° 5.1' N 121° 59.3' W/O



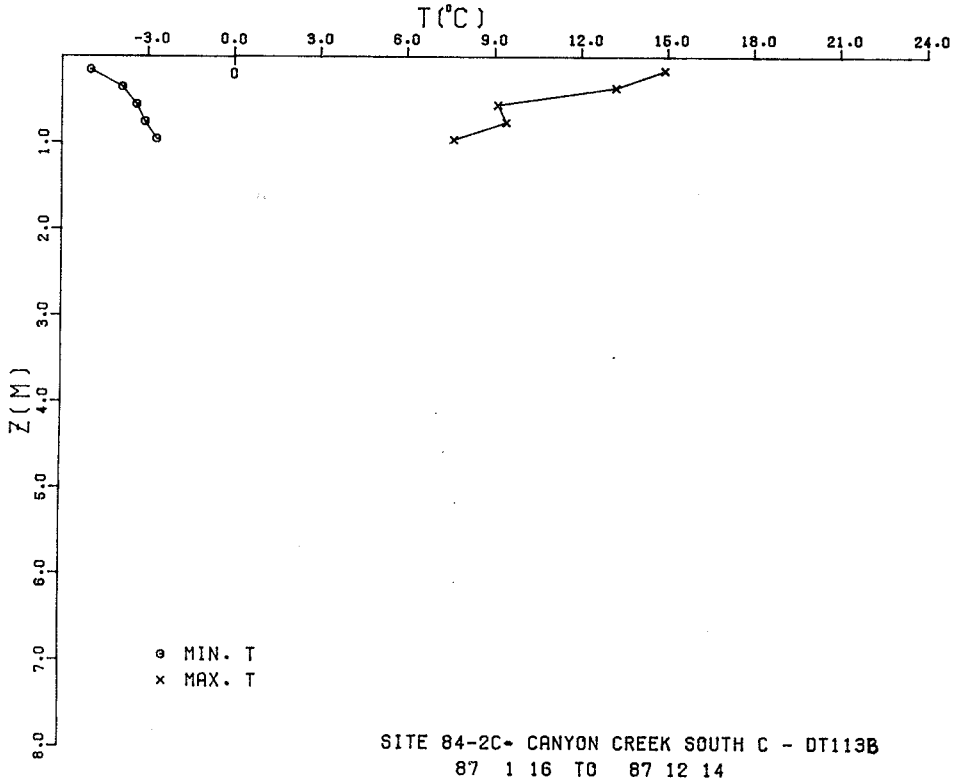
SITE 84-4A• TRAIL RIVER A - DT118B
87 2 4 TO 87 12 18

65° 13.6' N 126° 30.5' W/0



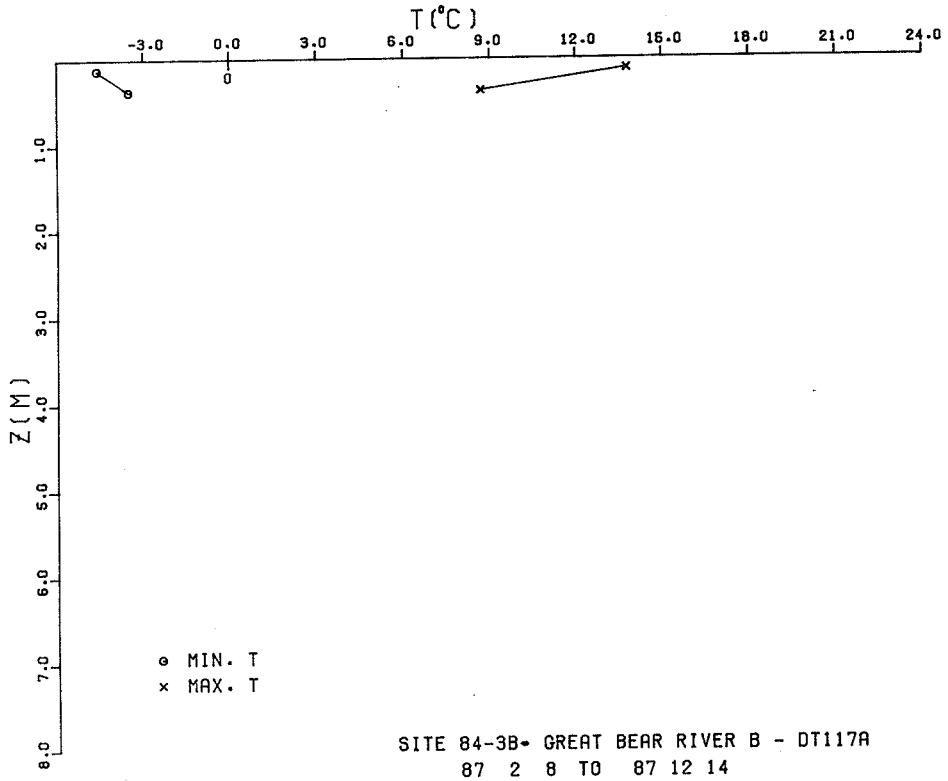
SITE 84-2C- CANYON CREEK SOUTH C - DT113A
87 1 16 TO 87 12 14

65° 13.6' N 126° 30.5' W/0



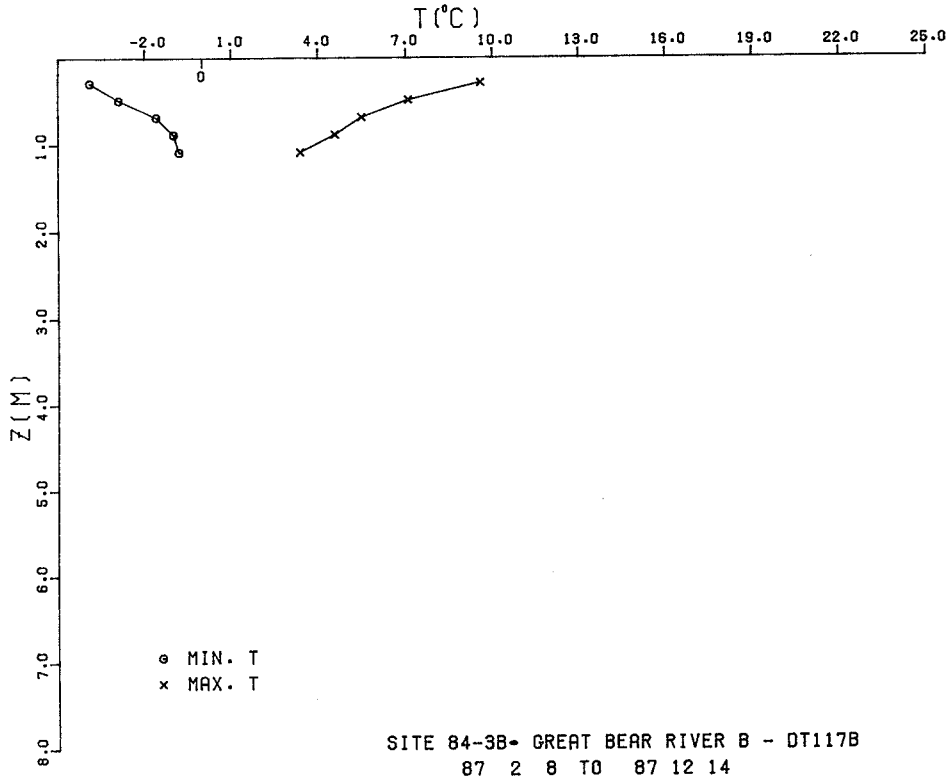
SITE 84-2C- CANYON CREEK SOUTH C - DT113B
87 1 16 TO 87 12 14

64° 54.4' N 125° 34.5' W/O



SITE 84-3B- GREAT BEAR RIVER B - DT117A
87 2 8 TO 87 12 14

64° 54.4' N 125° 34.5' W/O



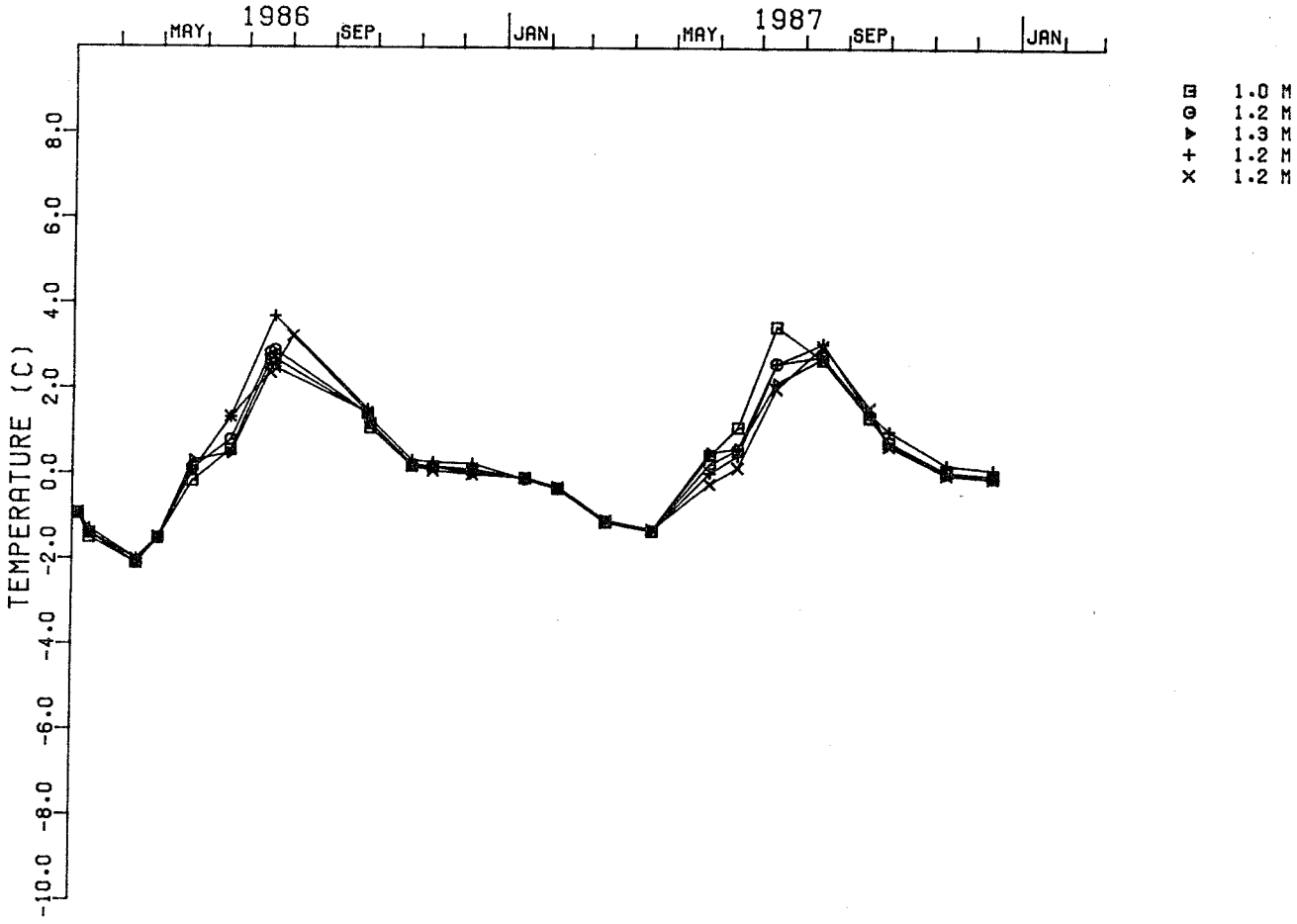
SITE 84-3B- GREAT BEAR RIVER B - DT117B
87 2 8 TO 87 12 14

APPENDIX E

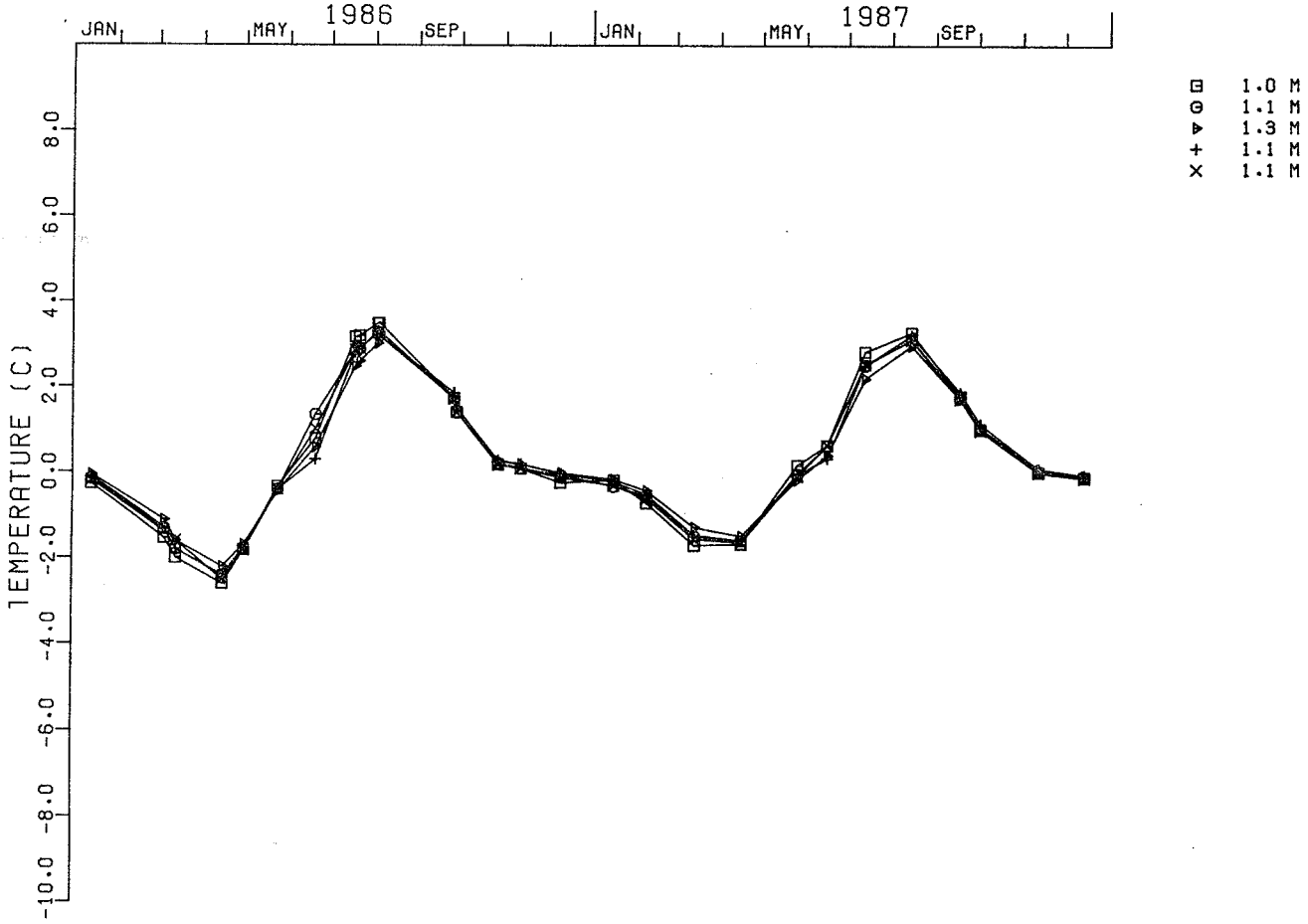
PLOTS OF TEMPERATURE VS. TIME - PIPE SENSORS

Site Number	Site Name	Pipe Sensor Identification Label
84-1	Norman Wells Pump Station	PT1-1
84-2A	Canyon Creek North A	PT1-3
84-2B	Canyon Creek North B	PT1-4
84-2C	Canyon Creek South C	PT1-5
84-3A	Great Bear River A	EMR11
84-3B	Great Bear River B	PT1-10
84-4A	Trail River A	EMR1
84-4B	Trail River B	PT1-9
84-5A	Petitot River North A	EMR4
84-5B	Petitot River North B	EMR5
84-6	Petitot River South	EMR6
85-7A	Table Mountain A	85-EPT 1
85-7B	Table Mountain B	85-EPT 3
85-7C	Table Mountain C	85-EPT 2
85-8A	Manners Creek A	85-EPT 8
85-8B	Manners Creek B	85-EPT 7
85-8C	Manners Creek C	85-EPT 12
85-9	Pump Station 3	85-EPT 9
85-10A	Mackenzie Highway South A	85-EPT 4
85-10B	Mackenzie Highway South B	85-EPT 5
85-11	Moraine South	85-EPT 11
85-12A	Jean Marie Creek A	85-EPT 6
85-12B	Jean Marie Creek B	85-EPT 10

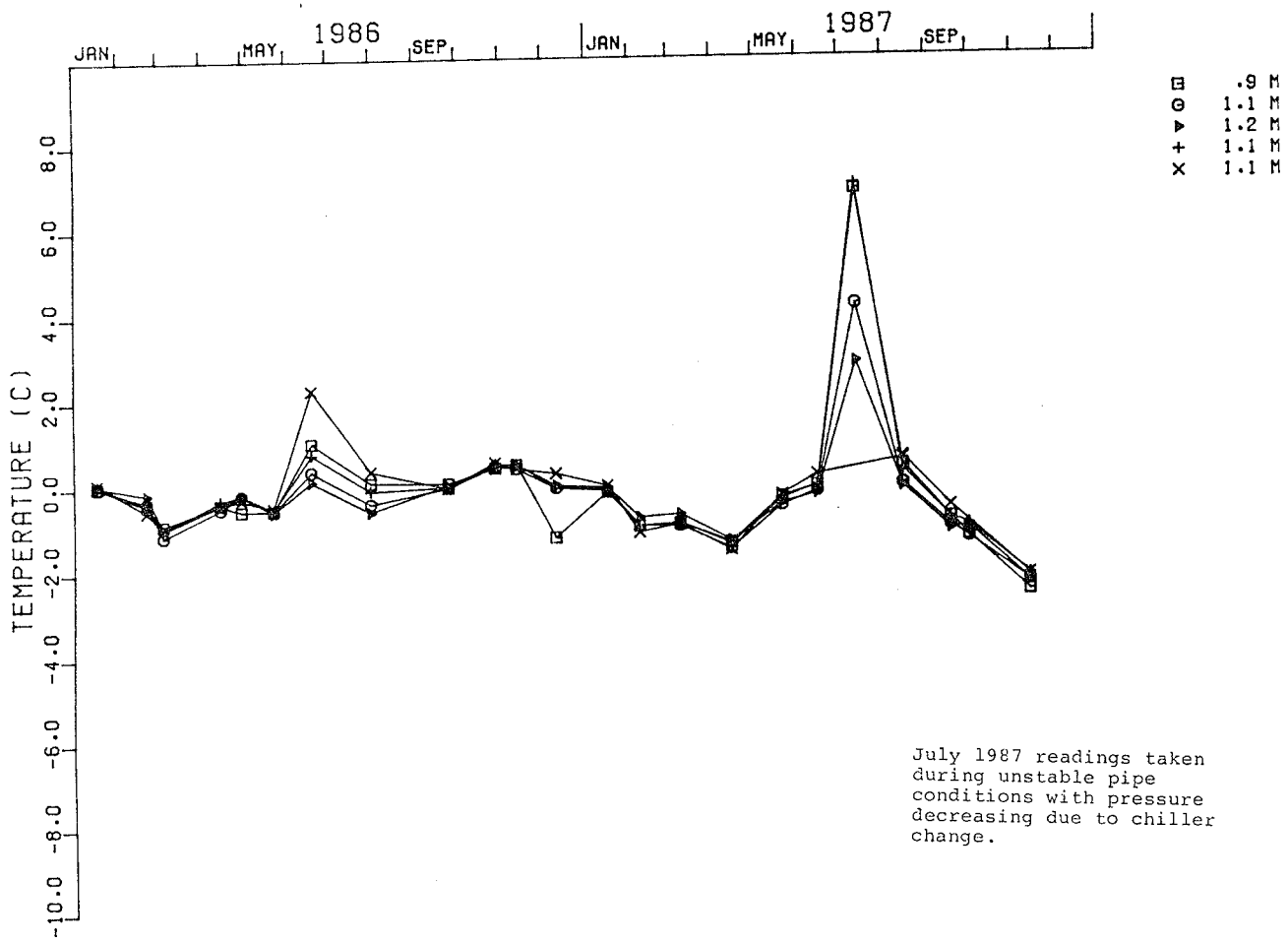
CANYON CREEK NORTH B - PT1-4



CANYON CREEK SOUTH C - PT1-5

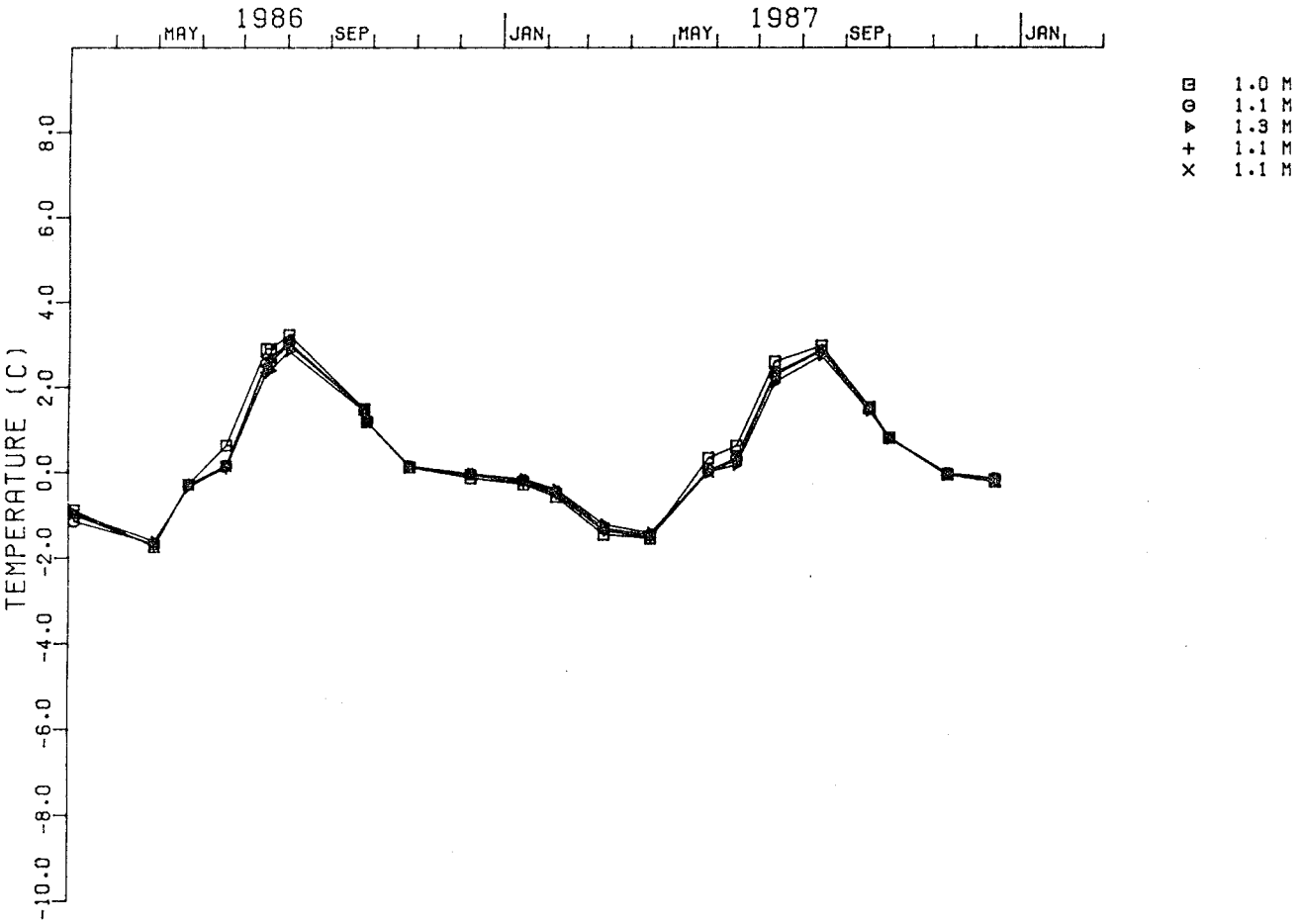


NORMAN WELLS PUMP STATION - PT1-1

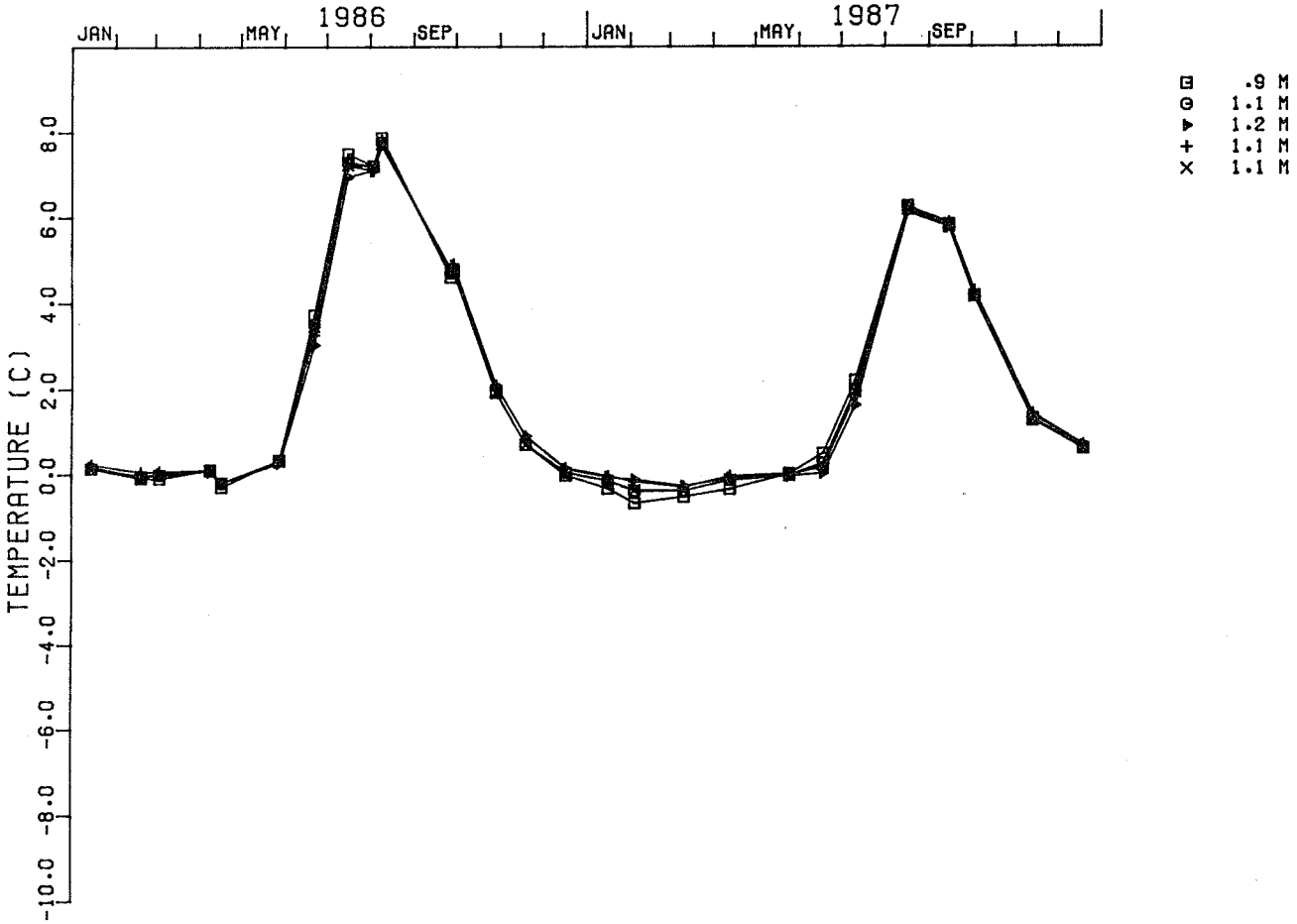


July 1987 readings taken during unstable pipe conditions with pressure decreasing due to chiller change.

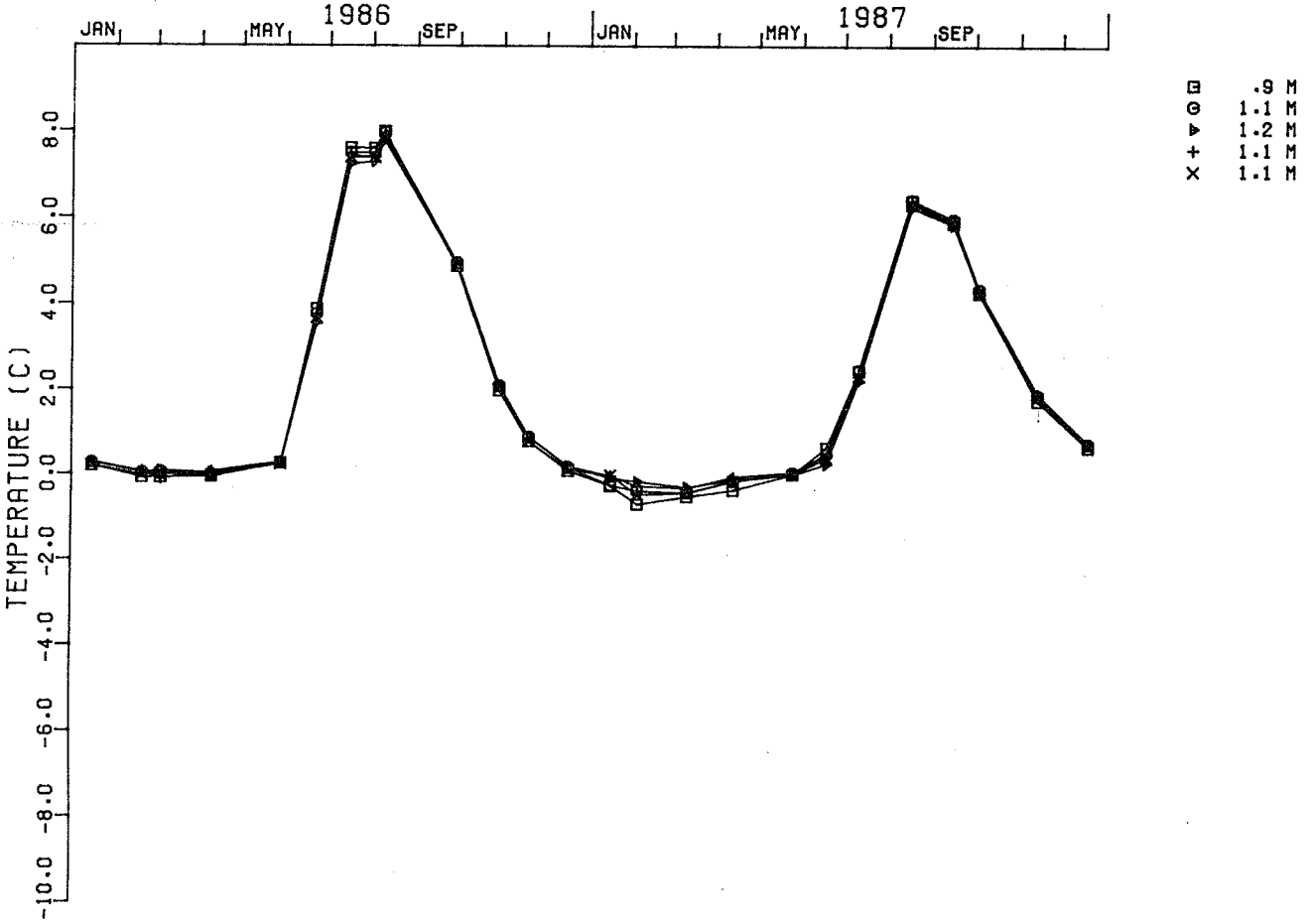
CANYON CREEK NORTH A - PT1-3



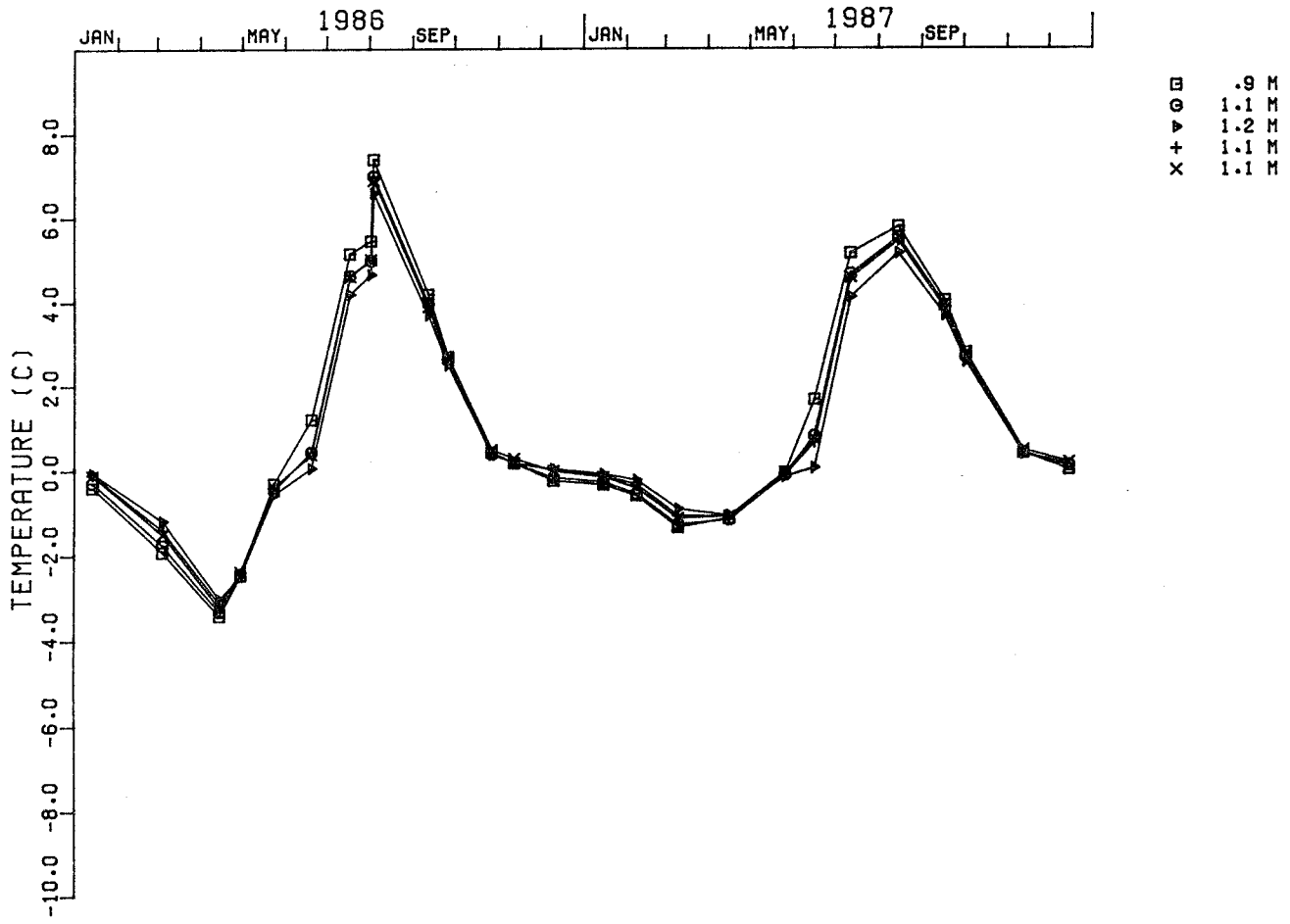
TRAIL RIVER A - EMR1



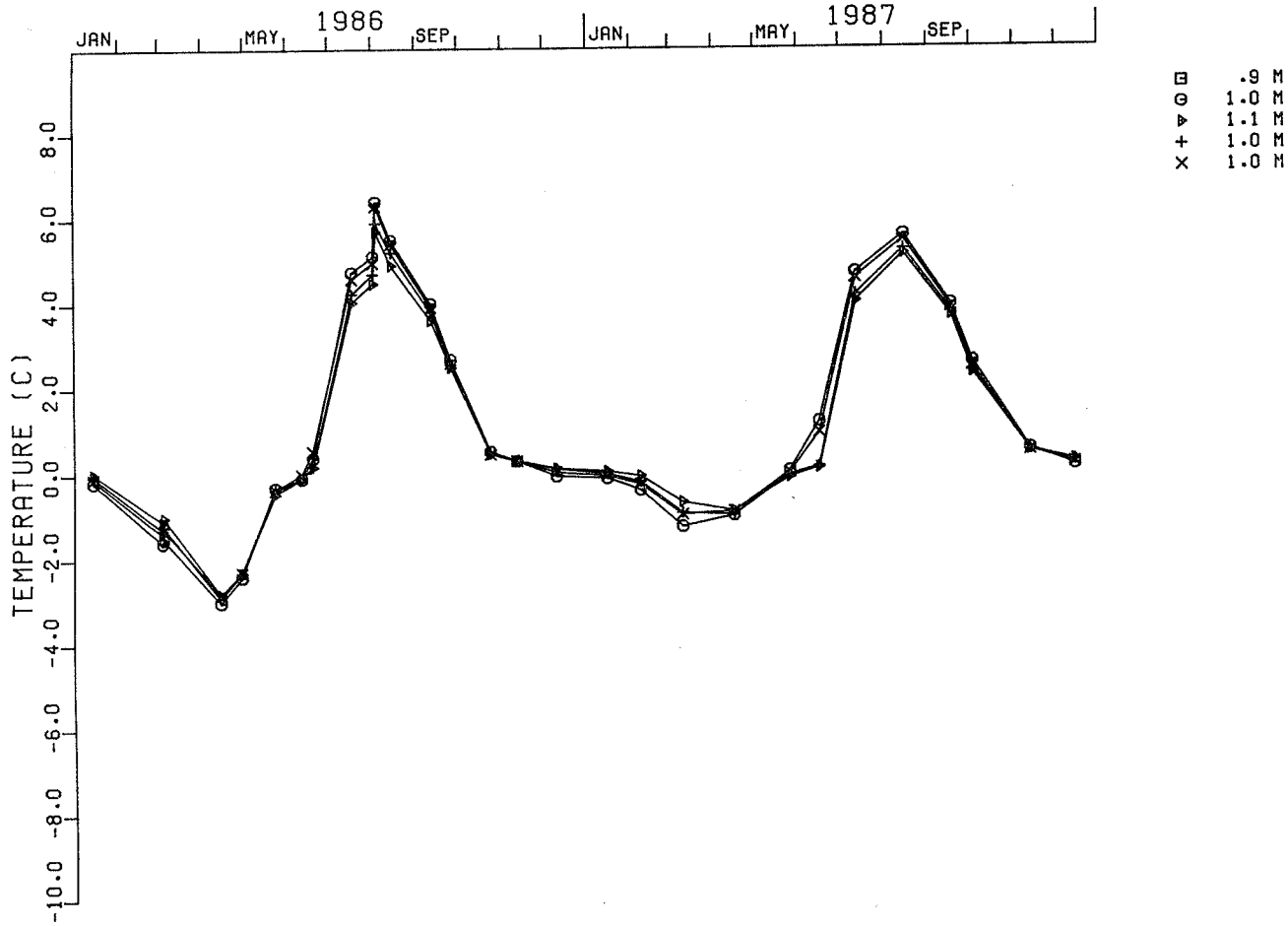
TRAIL RIVER B - PT1-9



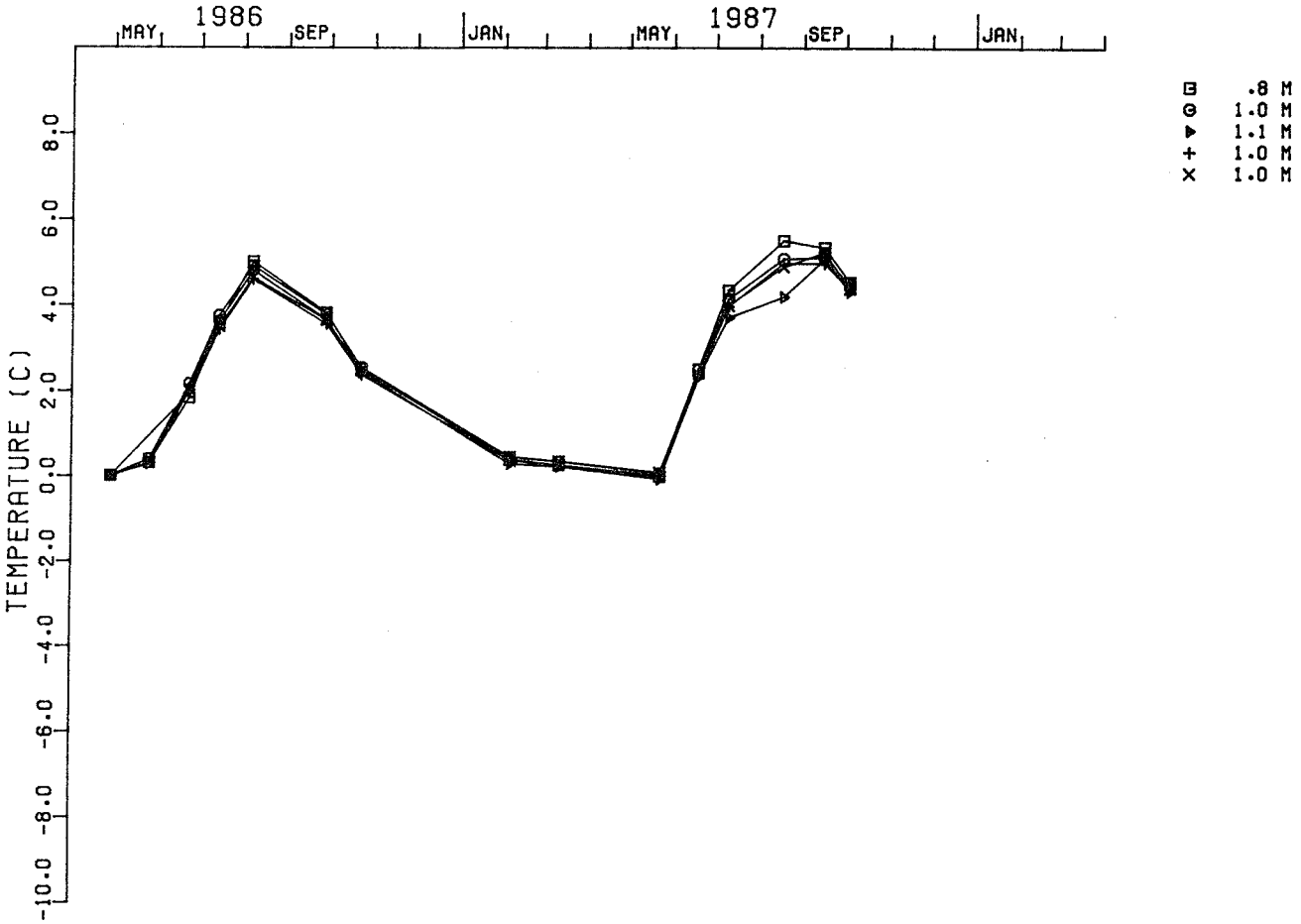
GREAT BEAR RIVER A - EMR11



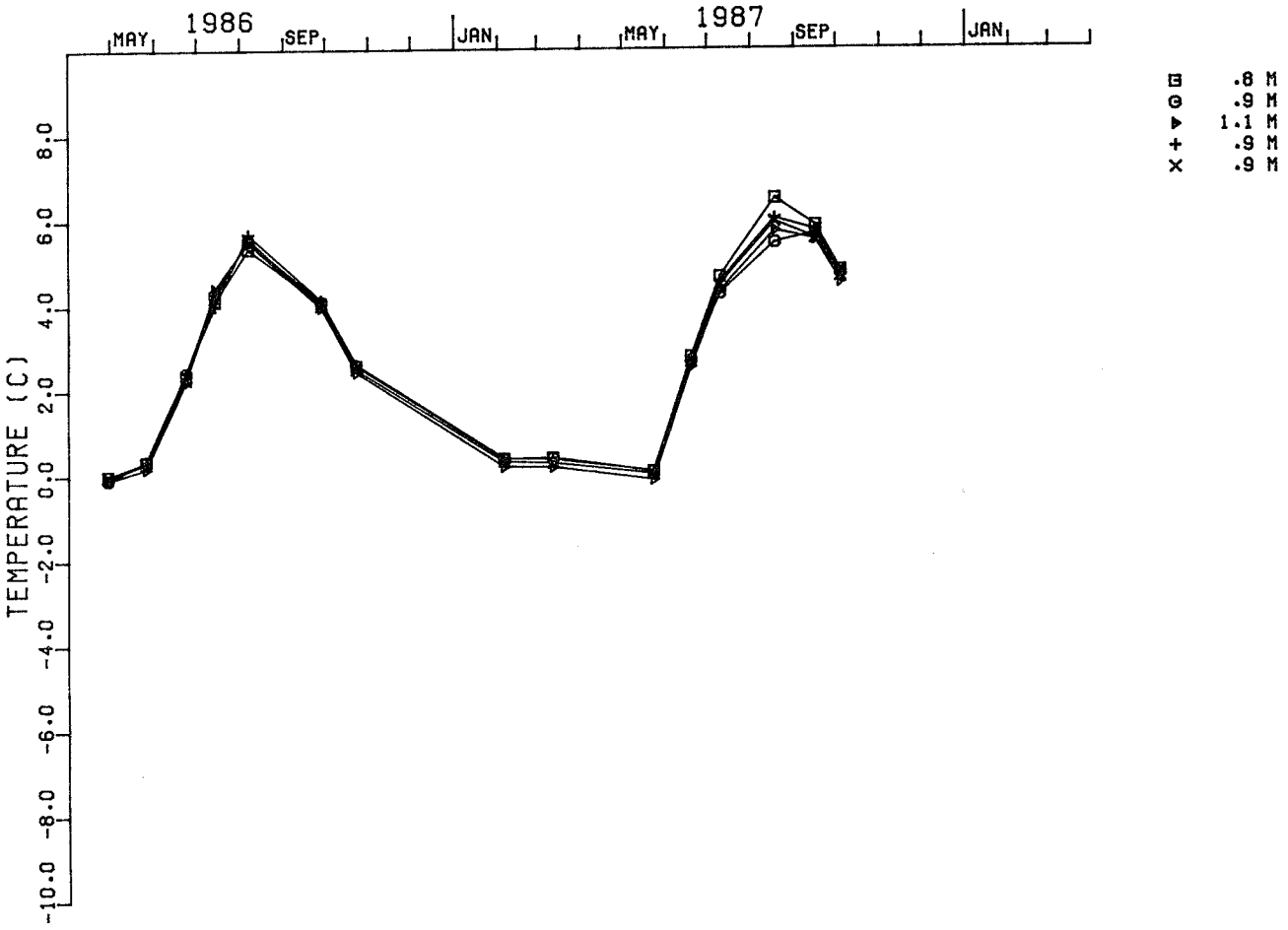
GREAT BEAR RIVER B - PT1-10



PETITOT RIVER SOUTH - EMR6



PETITOT RIVER NORTH A - EMR4



PETITOT RIVER NORTH B - EMR5

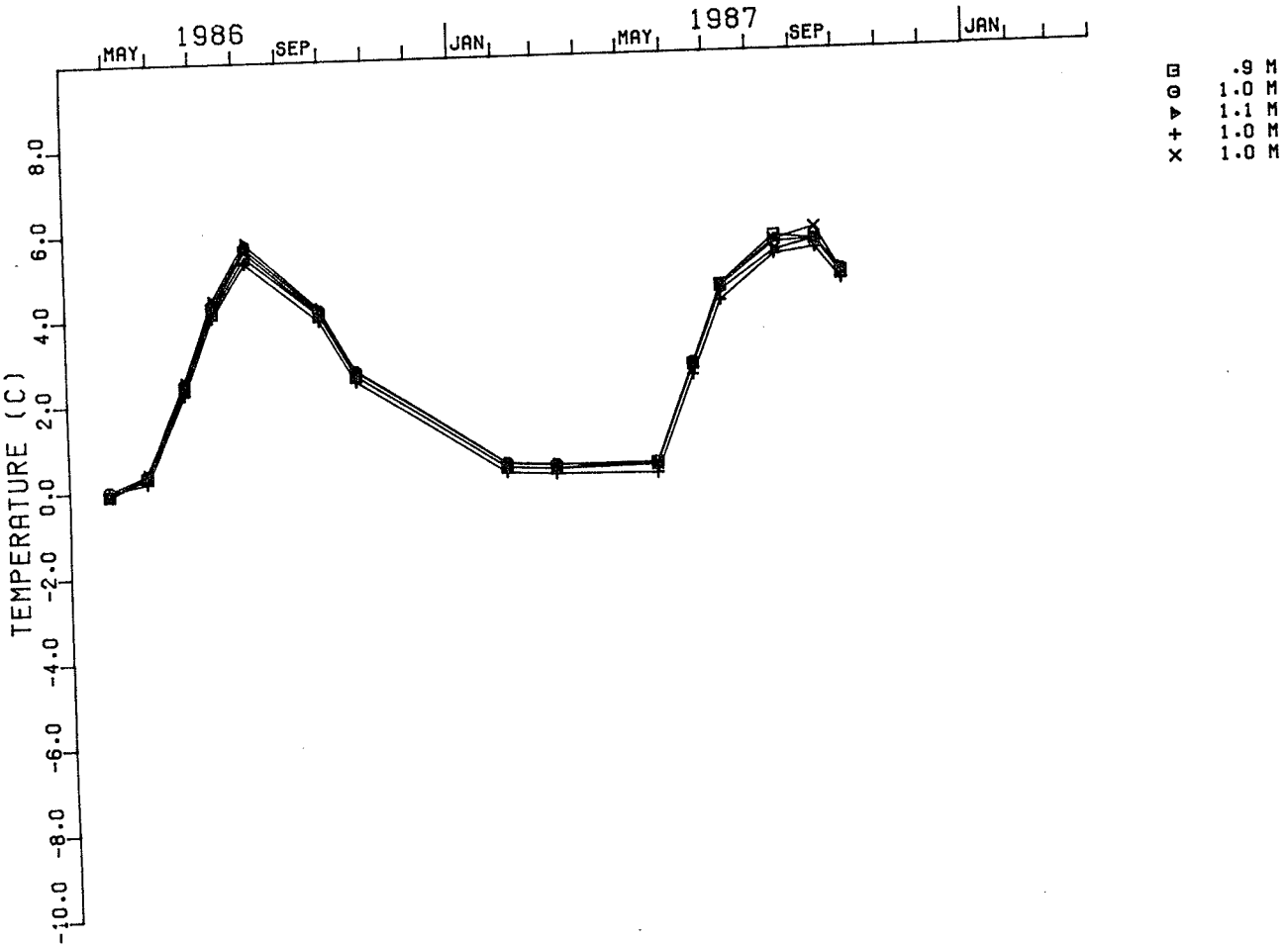
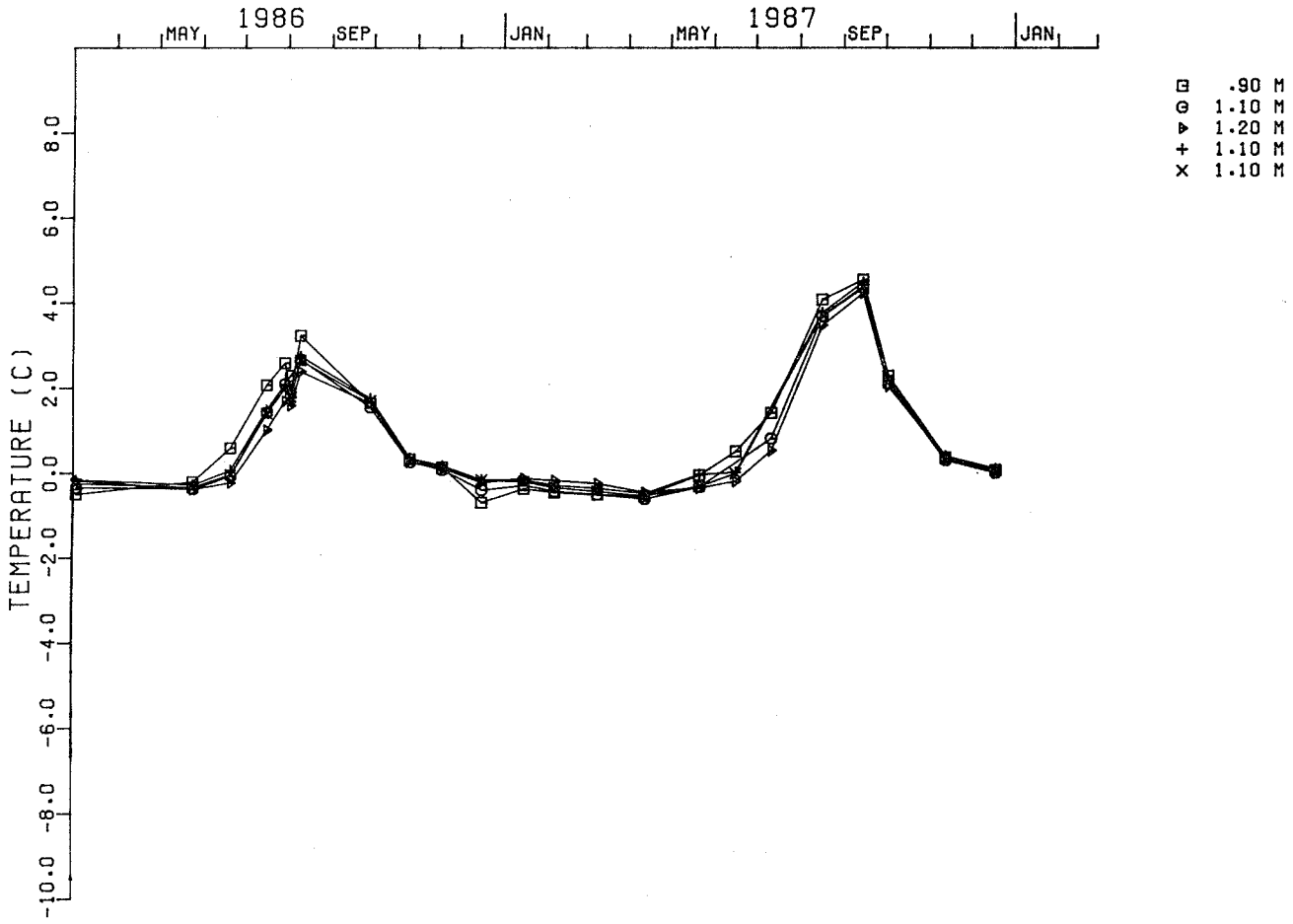


TABLE MOUNTAIN C - 85-EPT 2



MANNERS CREEK A - 85 EPT8

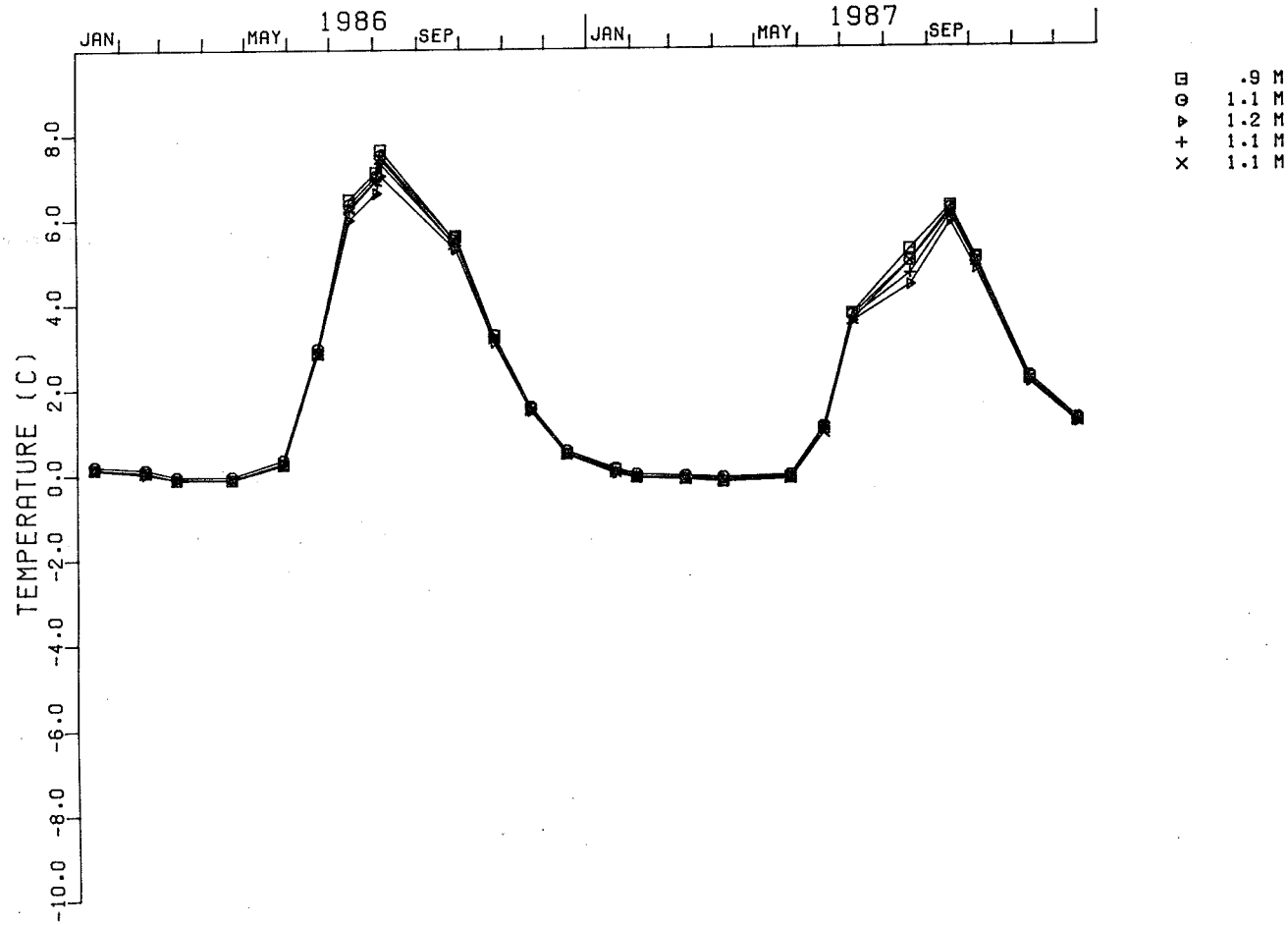


TABLE MOUNTAIN A - 85-EPT 1

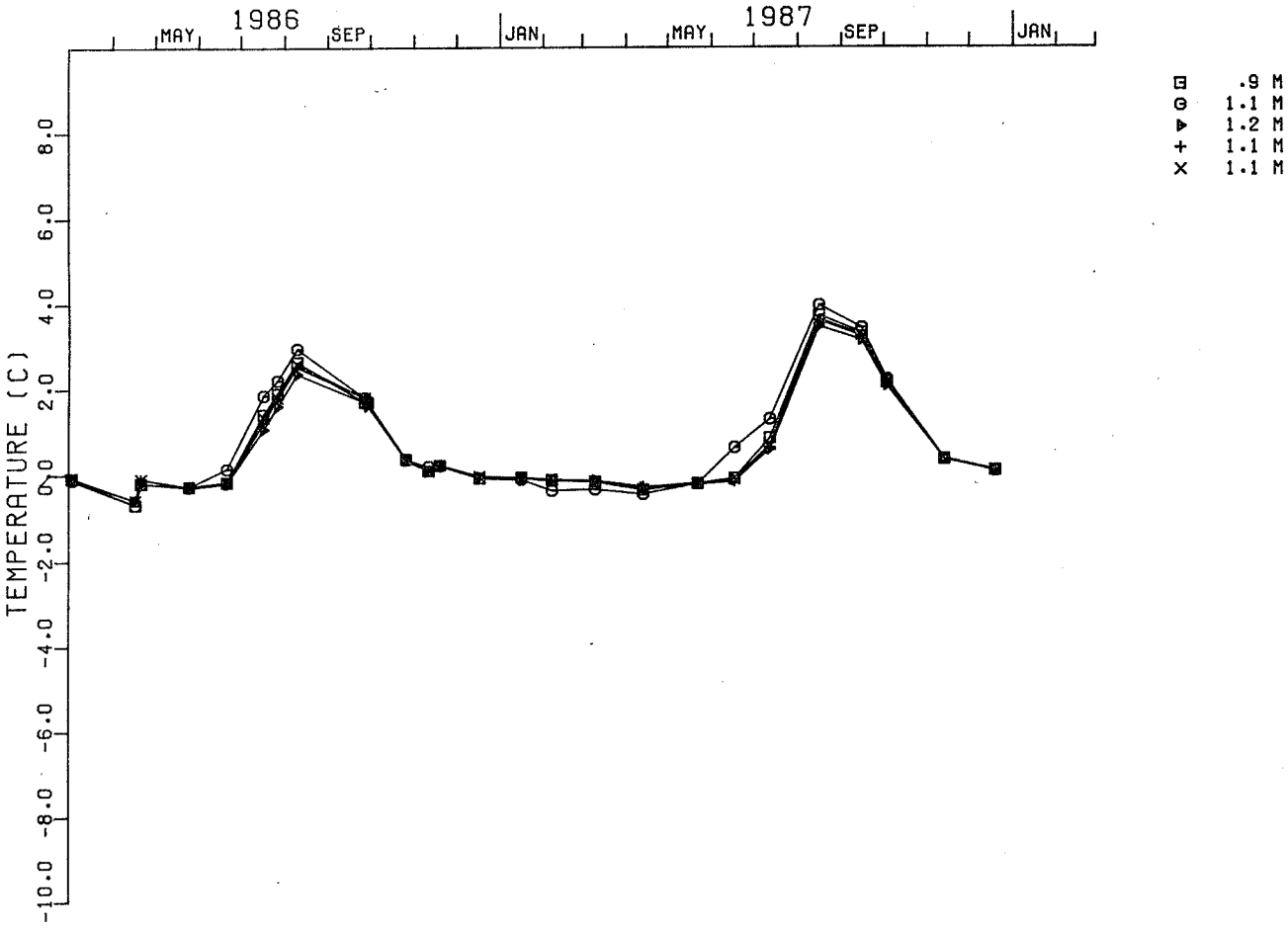
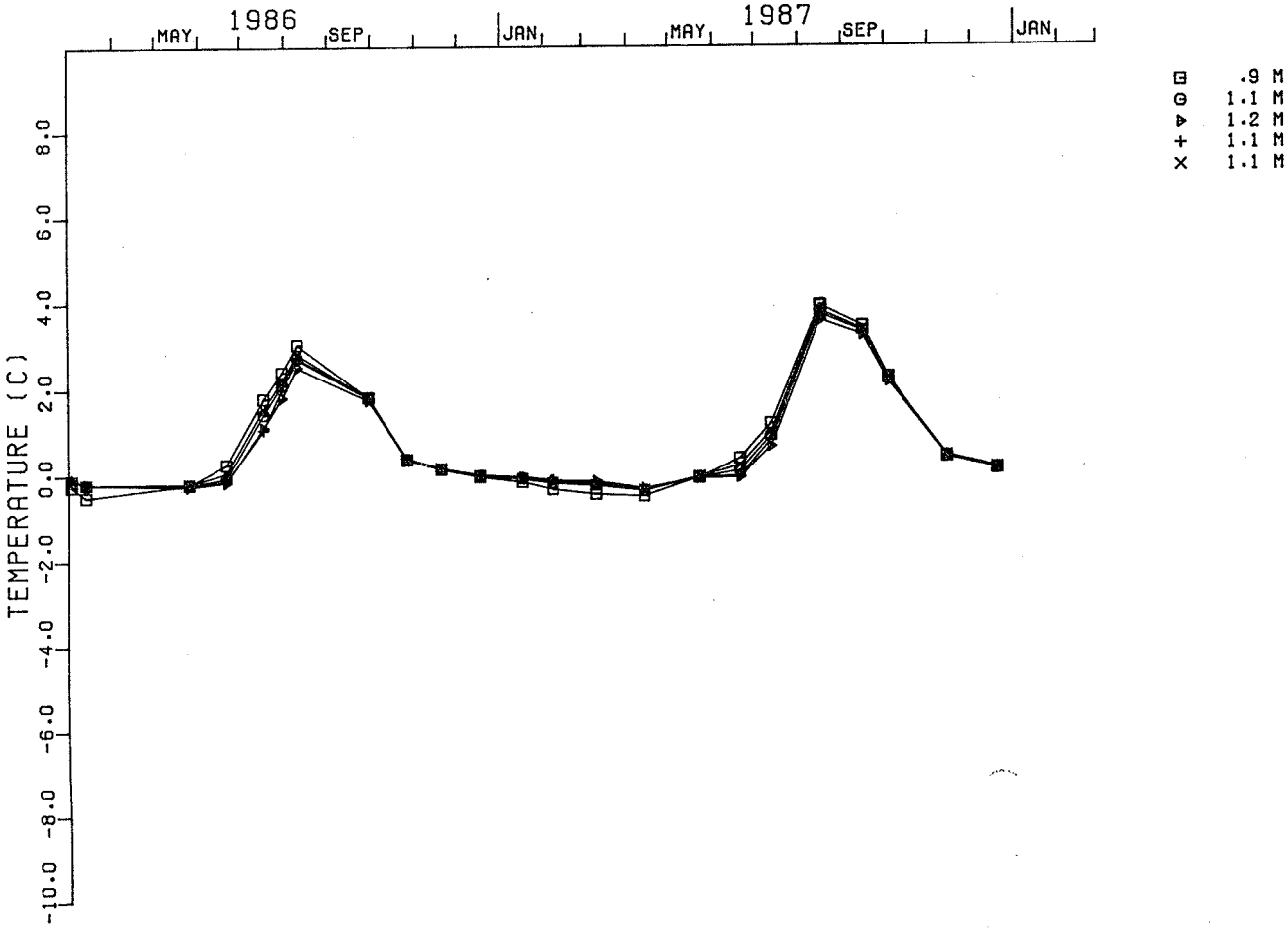
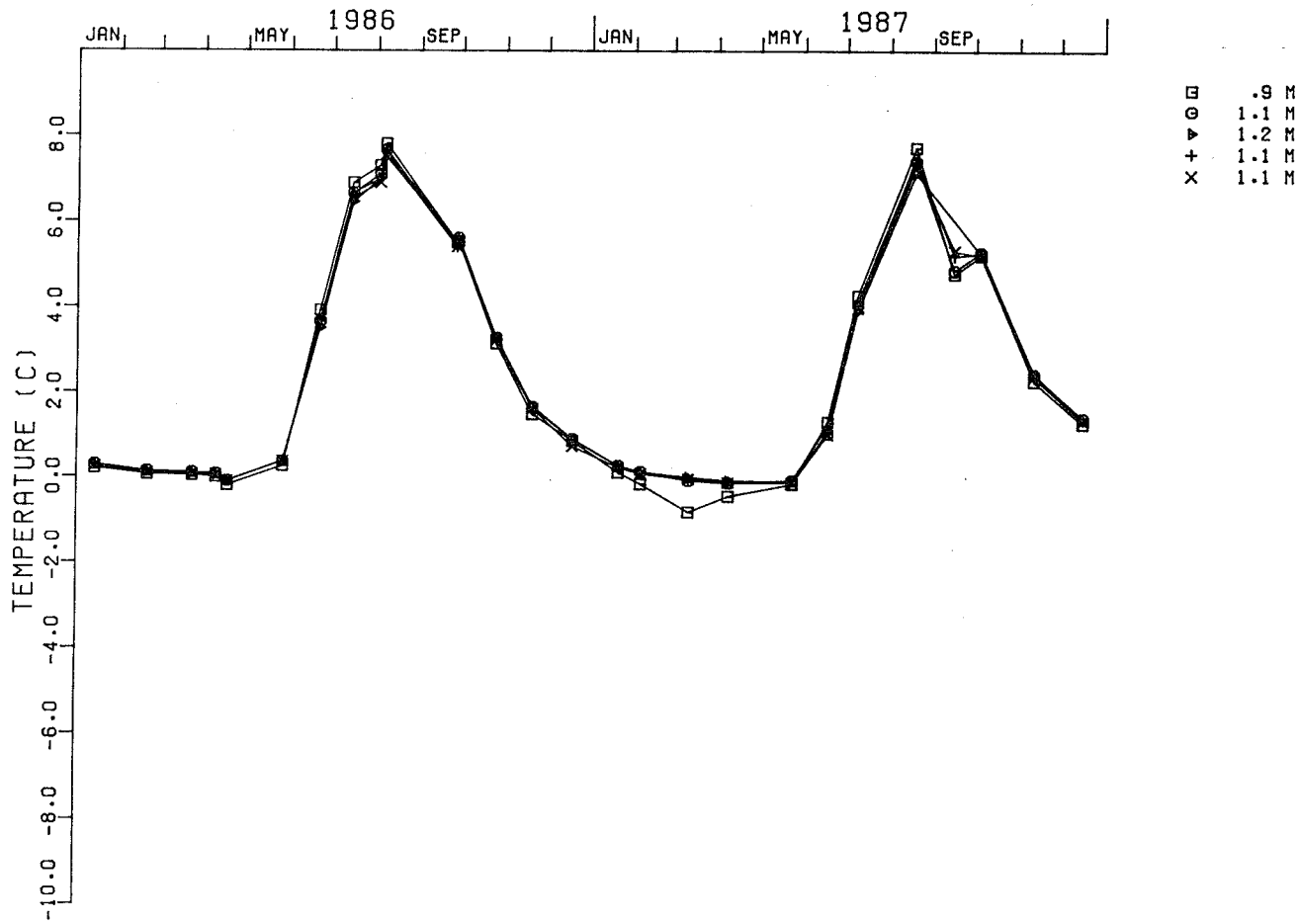


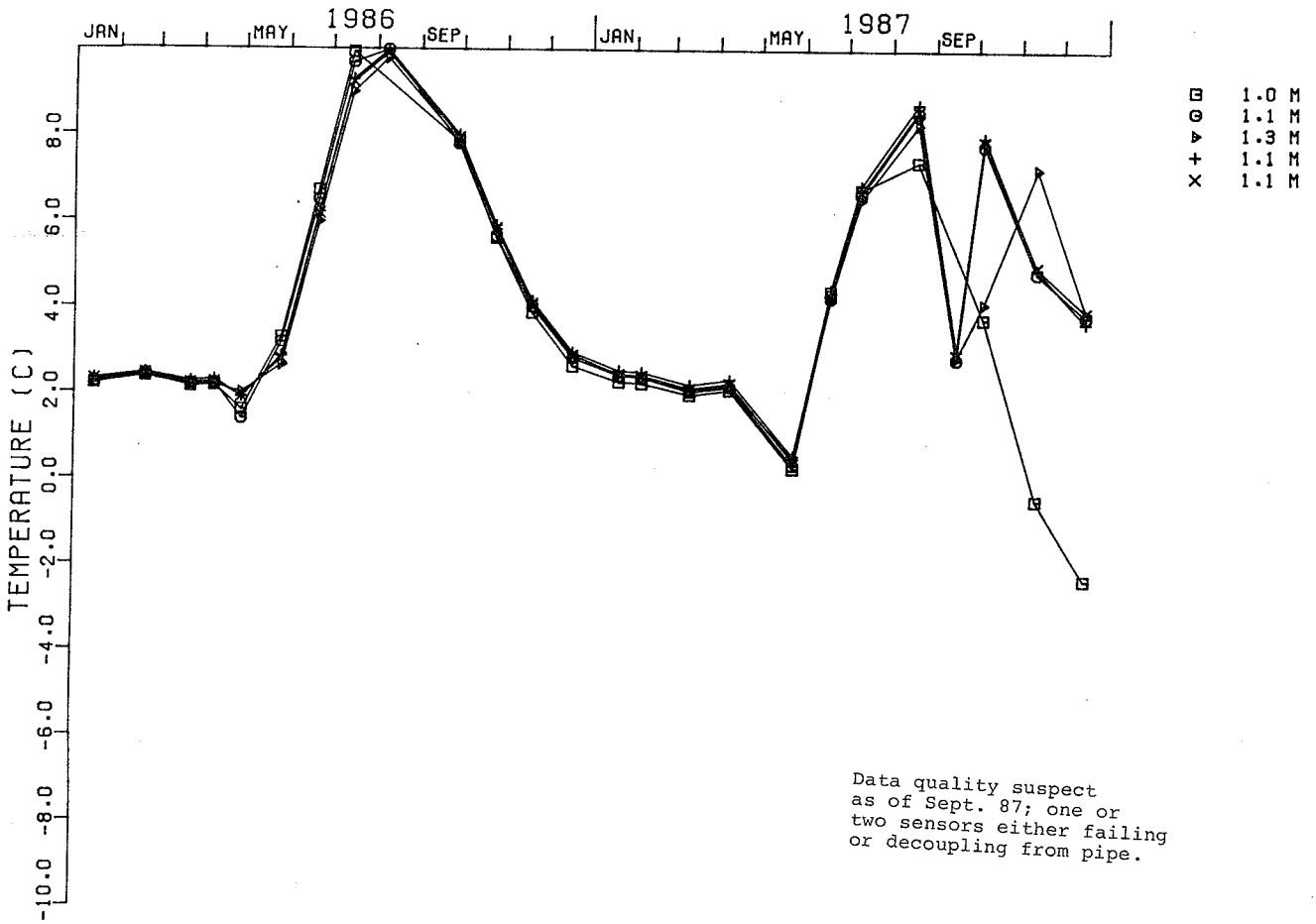
TABLE MOUNTAIN B - 85-EPT 3



PUMP STATION 3 - 85 EPT9

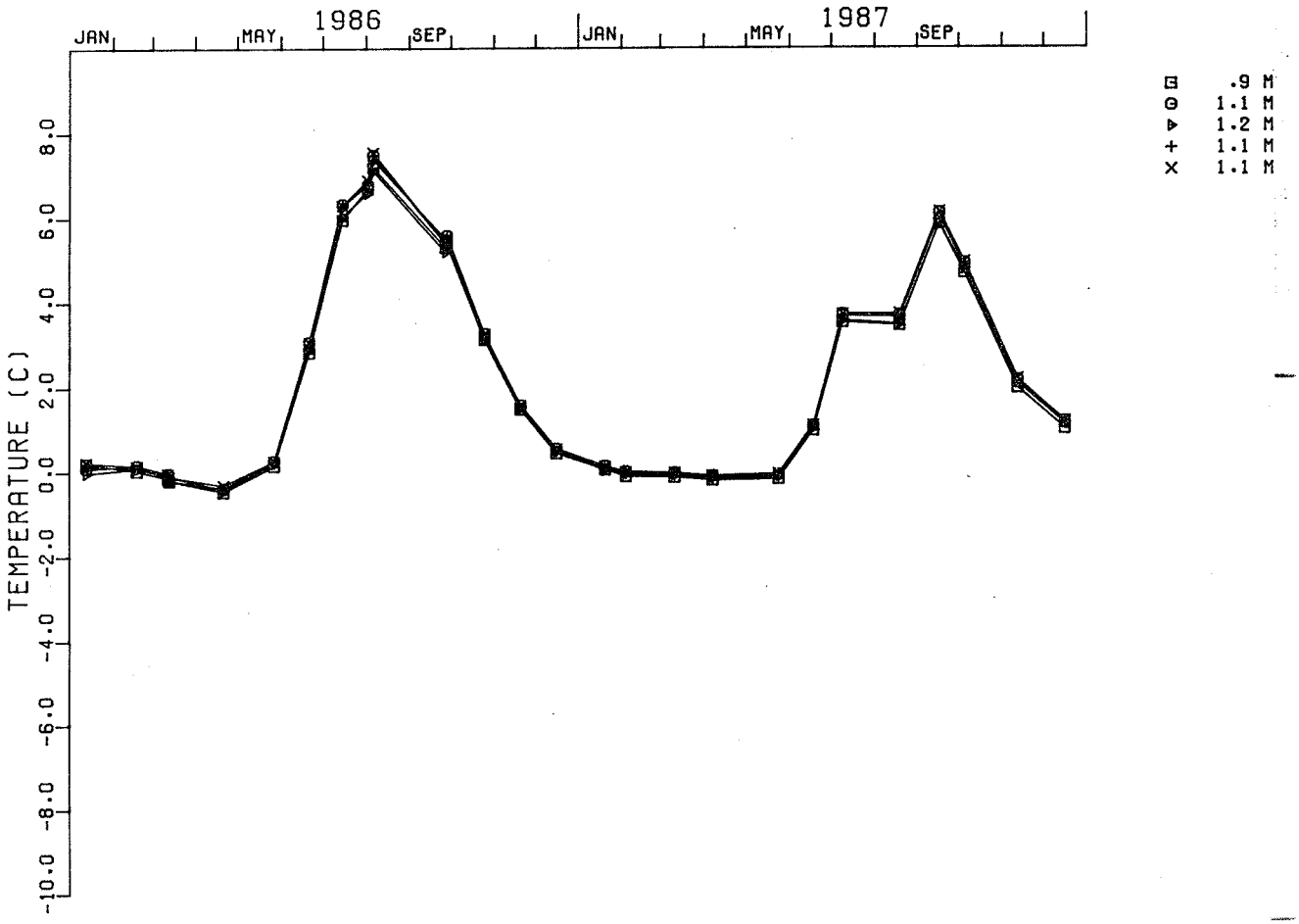


MACKENZIE HIGHWAY SOUTH A - 85 EPT4

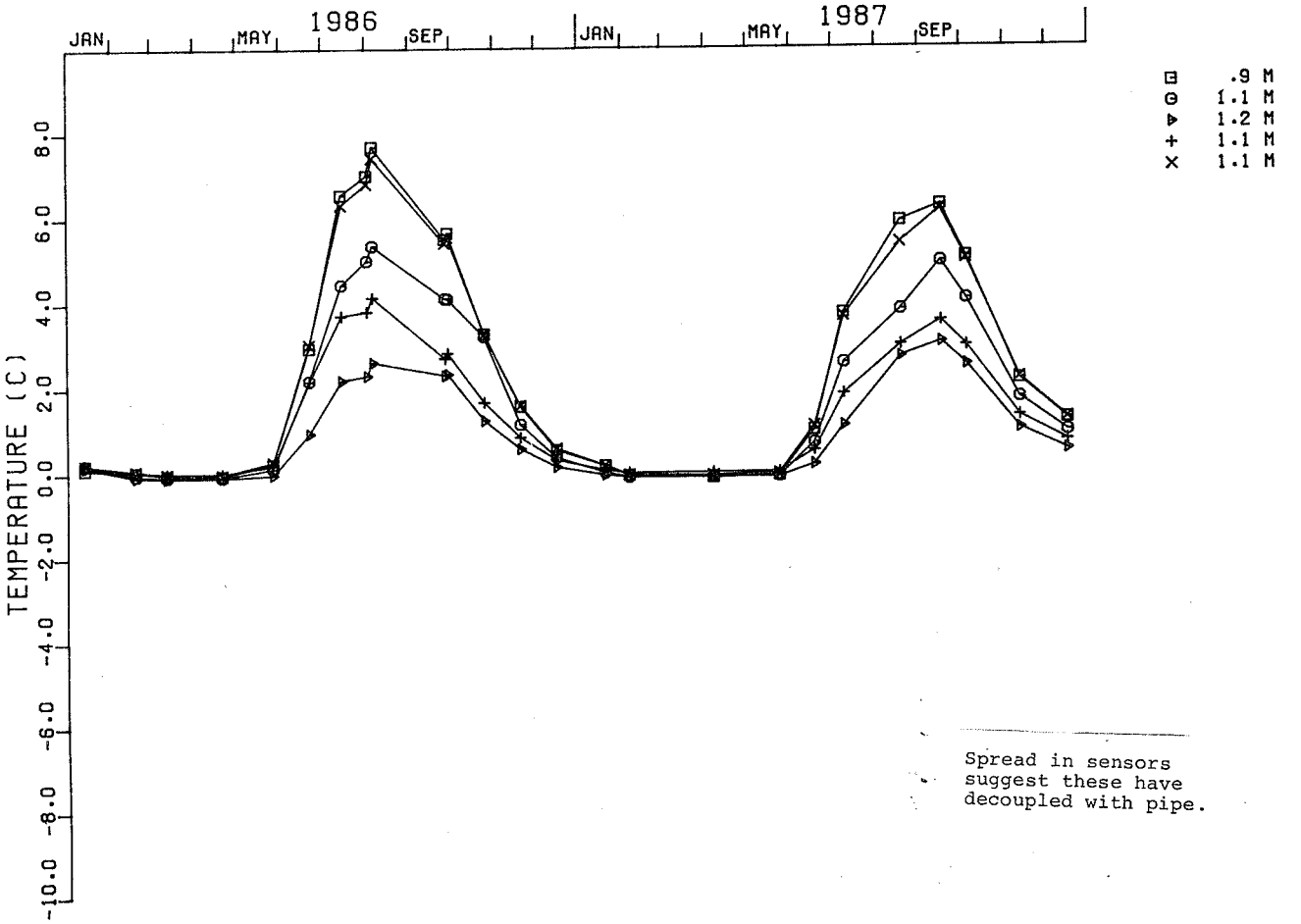


Data quality suspect as of Sept. 87; one or two sensors either failing or decoupling from pipe.

MANNERS CREEK B - 85 EPT7

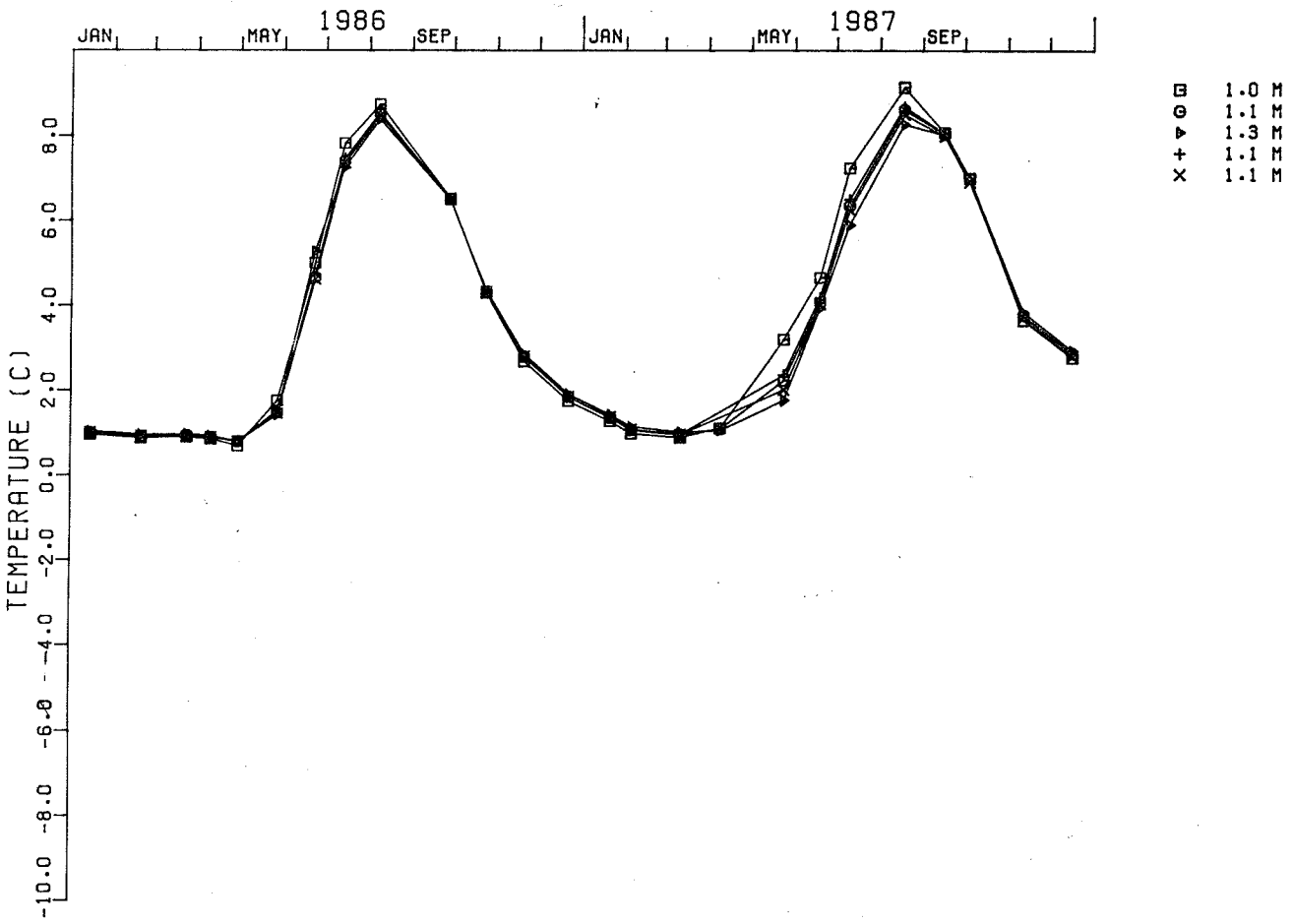


MANNERS CREEK C - 85 EPT12

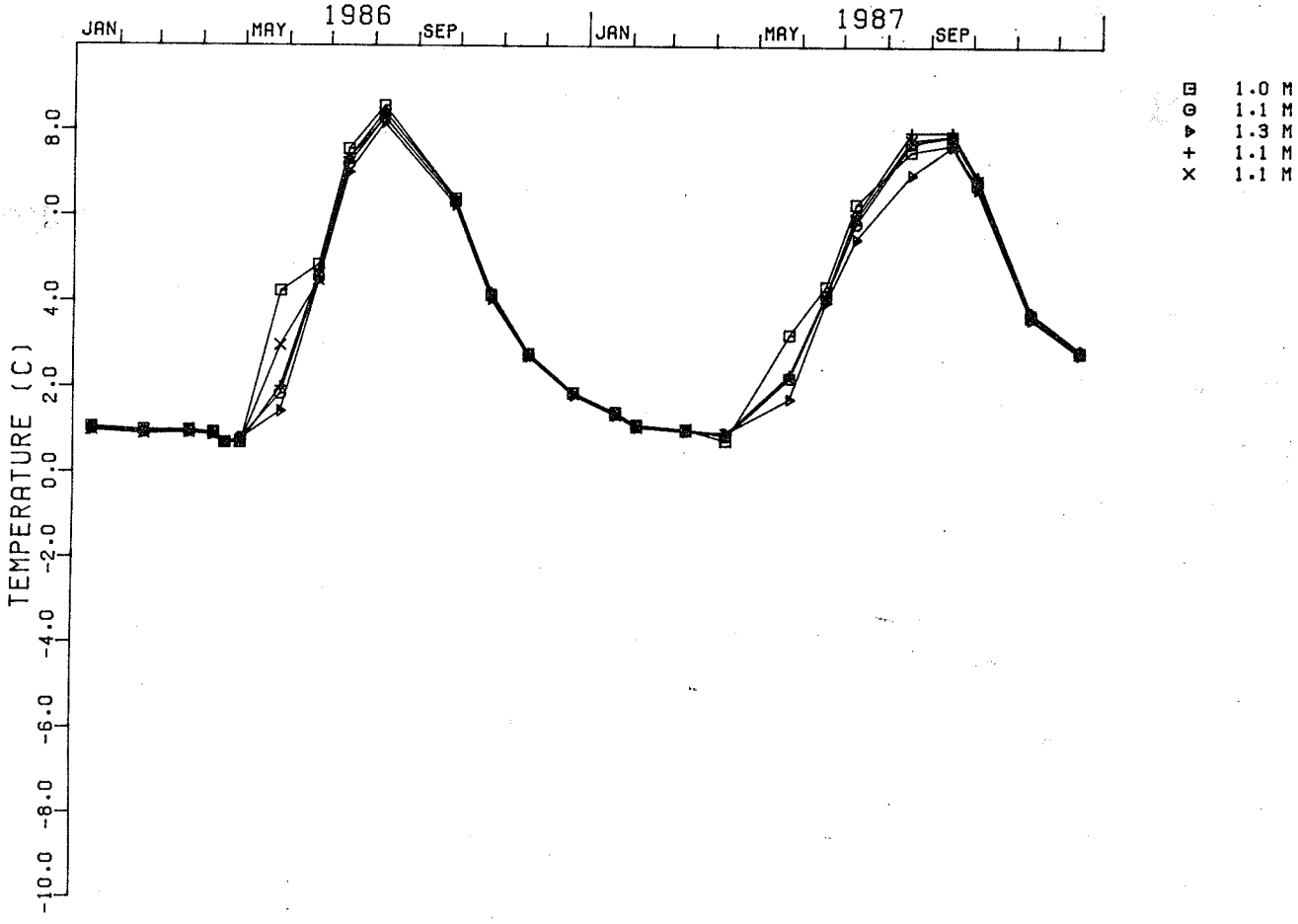


Spread in sensors suggest these have decoupled with pipe.

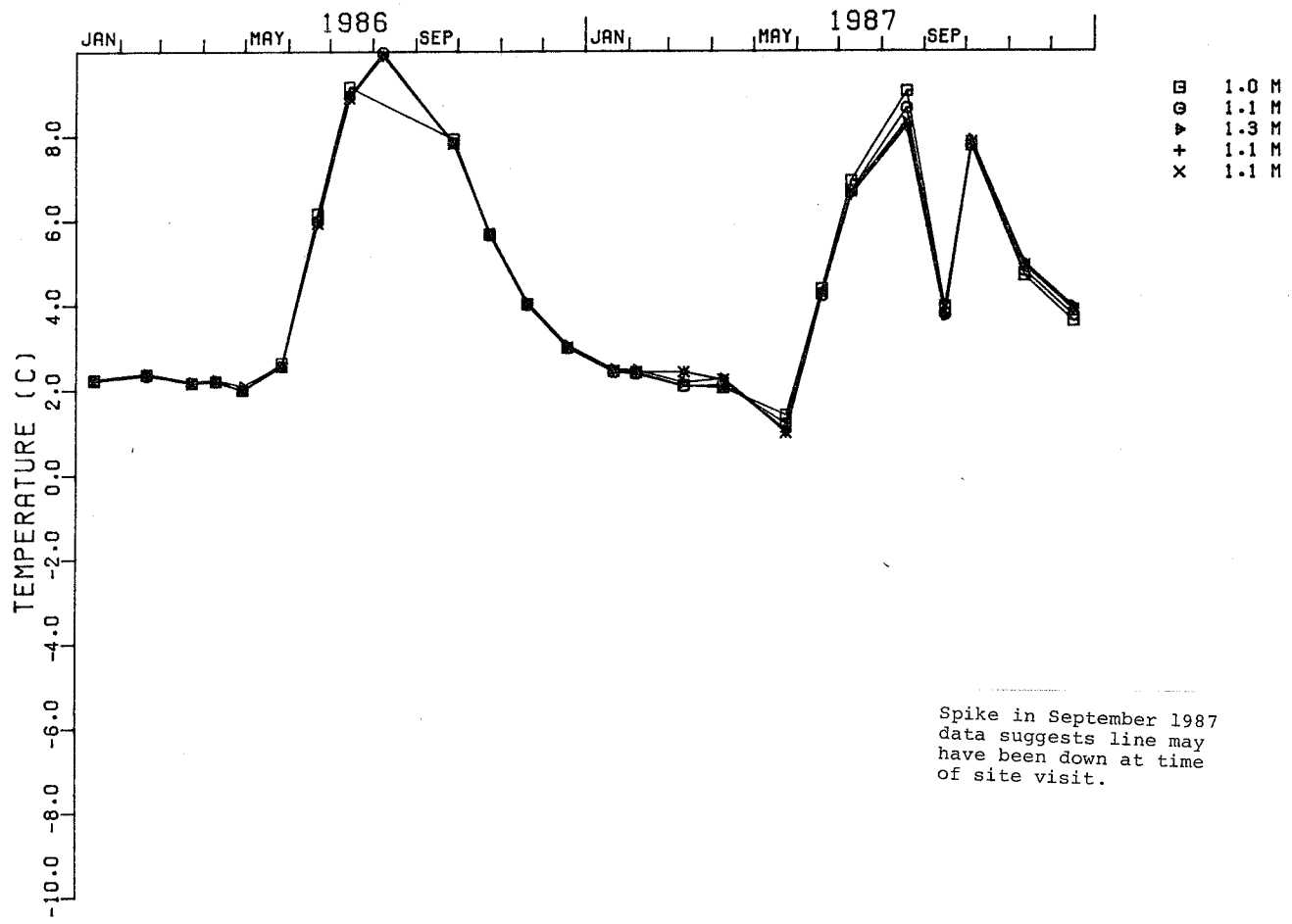
JEAN MARIE CREEK A - 85 EPT6



JEAN MARIE CREEK B - 85 EPT10

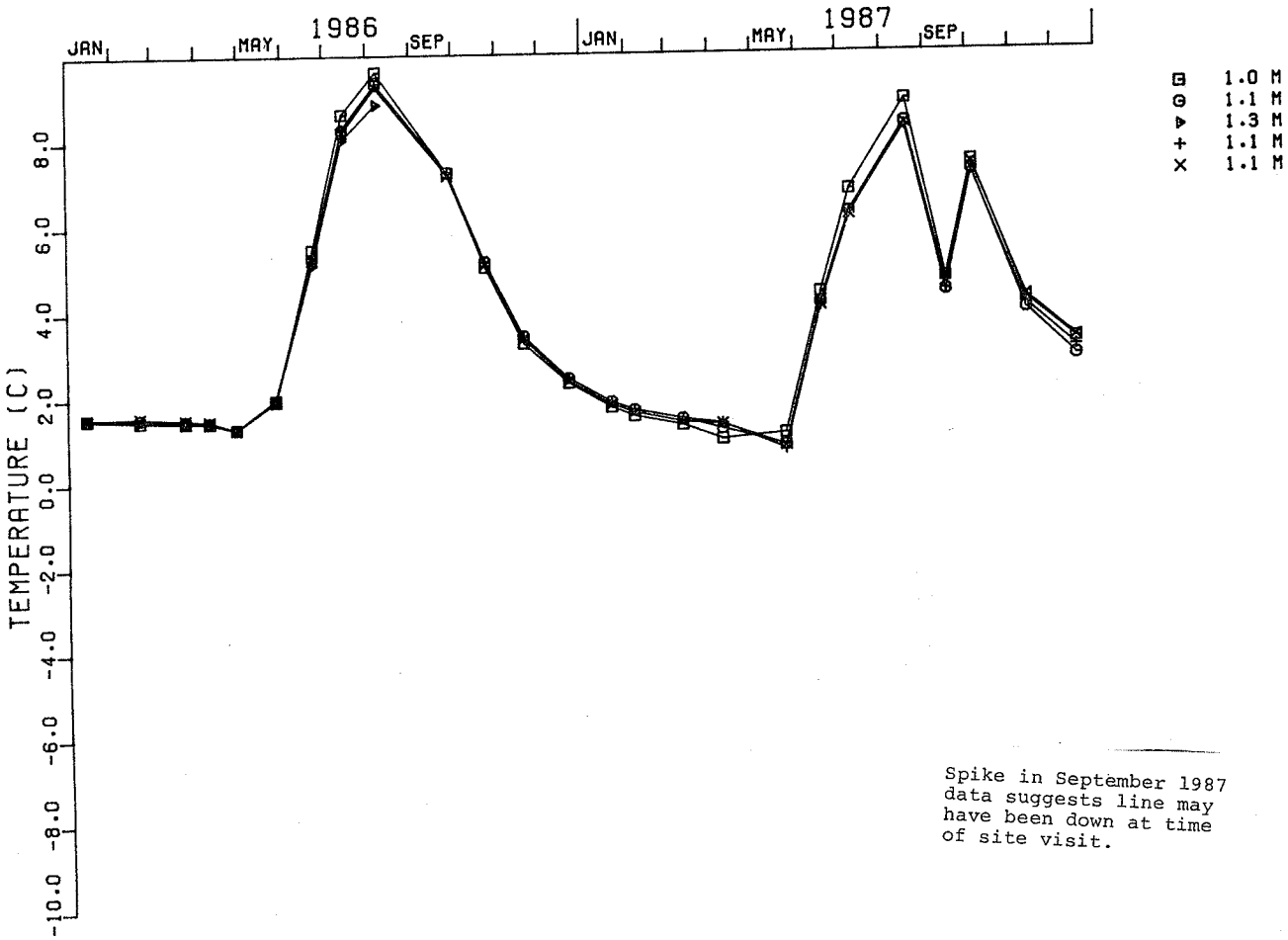


MACKENZIE HIGHWAY SOUTH B - 85 EPT5



Spike in September 1987 data suggests line may have been down at time of site visit.

MORAINE SOUTH - 85 EPT11



Spike in September 1987 data suggests line may have been down at time of site visit.