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GEOTHERMAL GRADIENTS IN GRANITE BATHOLITHS OF NEW BRUNSWICK

John A. Leslie and Associates Ltd. Consultant Geologists Bedford, Nova Scotia

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Department of Energy, Mines & Resources Canada Earth Physics Branch Division of Gravity, Geothermics and Geodynamics

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Abstract

Data pertinent to the assessment of the geothermal energy resources of the Atlantic Provinces have been compiled and collected. Warm water in sedimentary basins and hot dry rock within Palaeozoic intrusives are considered as potential geothermal resources and, therefore, constituted the principal study areas.

The study has delineated areas with perhaps some low-grade geothermal energy potential or, at least, some areas which require further consideration. Continuing investigations are recommended so that the potential of these areas may be fully evaluated.

Résumé

L'auteur a reassemblé et groupé des données pertinentes pour l'évaluation des ressources en énergie géothermique. L'eau chaude des bassins sédimentaires et la roche sèche chaude des intrusions du Paléozoique sont considérées comme des ressources possibles en énergie géothermique et, de ce fait, elles ont été les principaux d'objets d'étude.

L'étude a permis de délimiter des régions qui ont peut-être un potentiel en énergie géothermique basse température ou, du moins, certaines zones qui exigent un examen plus poussé. L'auteur recommende de poursuivre les travaux, de manière à évaluer pleinement le potentiel énergétique de ces régions.

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INTRODUCTION

A 768.3-metre diamond drill project was undertaken in December 1982 to obtain temperature and rock property data from the St. George and Pokiok granite batholiths in New Brunswick. The project was a continuation of the assessment of the low-grade geothermal potential of the Atlantic Provinces initiated in 1981. The drill hole to investigate the St. George batholith is located near the community of Welsford; the one to investigate the Pokiok batholith is located near the town of McAdam (Figure 1).

The project was undertaken for the Division of
Gravity, Geothermics and Geodynamics, Earth Physics
Branch, Energy, Mines and Resources Canada. Scientific
direction was provided by Dr. M. J. Drury, Division of
Gravity, Geothermics and Geodynamics. Contract management
was provided by Mr. E. K. Fresque, P. Eng., Supply and
Services Canada. Field management was performed by
John A. Leslie & Associated Limited, geologists, Bedford,
Nova Scotia, under contract number OSQ82-00134. Diamond



Figure 1
Drill Hole Locations

drilling services were provided by Hop-Mun Drilling
Incorporated, Salisbury, New Brunswick, under contract
number OGR82-00444.

Although both sedimentary basins and hot-dry rock environments were considered in earlier studies, this project involved only the latter. Hot-dry rocks within Paleozoic intrusives are the targets. They are young crystalline rocks such as granite. Higher than normal thermal gradients within these rocks may result from thermal anomalies caused by above background quantities of the radiogenic elements uranium, thorium and potassium. As the necessary reservoirs are generally lacking in crystalline rock, they may be created by hydrofracturing. The water to be heated is then introduced into the system. Experiments in this technique are being undertaken by the Los Alamos Scientific Laboratory, New Mexico, while field investigations are being undertaken in the Cornwall district, England.

ACKNOWLEDGEMENTS

The cooperation and assistance provided by personnel of Georgia-Pacific Corporation and the New Brunswick

departments of Natural Resources and Transport are gratefully acknowledged.

GEOLOGY OF INVESTIGATION SITES

The St. George and Pokiok batholiths intrude

sedimentary and volcanic rocks of the Fredericton Trough.

Each are comprised of a number of intrusive phases. The

particular phases involved in this investigation were

the Mount Douglas granite (McCutcheon, 1981) of the

St. George complex and the Hawkshaw granite (McCutcheon

et al, 1981) of the Pokiok complex.

The Mount Douglas intrusive, at the investigation site, may be described as a pink, megacrystic, equigranular granite. It is comprised of approximately 35 per cent quartz, 30 per cent pink potassic feldspar, 25 per cent plagioclase feldspar and 10 per cent biotite with accessory zircon and apatite. Alteration is evident throughout the drilled section with over 70 per cent of the section judged highly altered. The products of this alteration include sericitized potassic feldspar, kaolinized plagioclase feldspar and chloritized biotite.

A Rb/Sr total-rock age for this intrusive of 348 - 8 Ma places it near the Devonian-Carboniferous boundary (L. R. Fyffe, pers. comm., 1983).

The portion of the Hawkshaw intrusive investigated is a grey, medium grained granite. It contains approximately 35 per cent quartz, 35 per cent potassic feldspar, 15 per cent plagioclase feldspar and 15 per cent biotite. Accessory minerals include pyrite and zircon. Some alteration is evidenced by sericitization of the feldspars and chloritization of biotite. Phenocrysts of both feldspars are common. Zoning of the plagioclase feldspars is often accentuated by biotite inclusions. McCutcheon et al (1981) suggest 390 Ma as the age of crystallization of the Pokiok batholith. The older Rb/Sr total-rock age of 431 - 9 Ma is interpreted to result from the mixing of crustal and mantle strontium.

THE 1982 DRILLING PROJECT

The 1982 drilling project comprised three phases:

pre-drilling, drilling and post drilling. These phases

are discussed in detail below.

Pre-Drilling Phase

The pre-drilling phase concerned site selection, obtaining all necessary permissions and site visits with potential bidders for the drilling contract.

Site Selection

The drill sites were chosen on the basis of collected and compiled heat generation data. The sources of this data included Chandra (1980) Hassan (1982) and John A.

Leslie & Associates Limited (1982). The latter included data compiled and collected under Supply and Services

Canada, contract number OSQ81-00077 and published as Earth Physics Branch Open File Report No. 82-8.

The specific sites had to be accessible both in terms of transportation and surface and mineral rights ownership. Some primary sites were inaccessible, particularly for the Mount Douglas granite. However, those selected were thought suitable to meet the objectives of the project.

Permissions

Once drill sites were selected, entry permission of the surface rights owners was obtained. The McAdam drill hole is located on lands owned by Georgia-Pacific
Corporation. The Welsford site is located within the
right-of-way of a secondary road administered by the
New Brunswick Department of Transport.

Discussions were held with both the Forestry and Mines branches of the New Brunswick Department of Natural Resources with regard to what the project entailed, what permits may be necessary and to obtain all necessary permissions. To avoid possible legal complications and inconveniences caused by mineral exploration activity, the mineral rights were obtained for the immediate area of the drill sites. The investigation was then carried out under the provisions of the New Brunswick Mining Act. The acquired rights will be permitted to expire once all required data have been collected.

Site Visits

On November 9, 1982, five potential bidders for the drilling contract were shown the proposed sites. The drill contract was awarded on November 26, 1982. Drill

equipment was moved to the Pokiok site on November 30, 1982, and drilling commenced on December 1, 1982.

Drilling Phase

General

A total of 768.3 metres of BQ wireline diamond drilling was accomplished, 397.0 metres at McAdam and 371.3 metres at Welsford. Both holes collared in bedrock and were drilled at angles of minus 90 degrees. NW casing was emplaced to depths below severe surface weathering. Caps were placed on the casing to prevent articles from being thrown in the holes and causing blockages.

Appendix I contains the drill contractor's shift reports which indicate drilling rates, problems, etc.

Drilling was carried out on a 24-hour basis as that is the most cost efficient procedure, particularly in sub-zero weather. Excellent drilling conditions resulted in 100 per cent core recovery at McAdam.

Although some problems were created by altered and broken rock at Welsford, core recovery at that site

was generally good. Both holes remained open to their respective bottoms at the time of the last temperature log.

A site geologist checked the daily drilling progress and performed various site tasks such as lithologic logging, sampling and labelling core boxes. Lithologic logs are contained in Appendix II.

Bottomhole Temperatures

Temperatures were recorded at the bottom of each hole as drilling progressed (Appendix III). Readings were taken with temperature bridge Model number BGT-1 employing a single thermistor probe. Attempts were made to record these temperatures at the same time each day. The exact time usually depended on the completion of the particular drill run nearest to the time agreed to by the drill contractor and site-geologist. Although some instability of the readings is evident, they would have provided very useful data in the event the holes were completely lost at any time due to incompetent rock.

Post-Drilling Phase

The post-drilling activities included temperature logging, lithologic logging, radiometric and ultraviolet light logging, sampling, core storage and site inspection.

Temperature Logging

Four temperature logs were run on each hole. The time intervals were as close to zero, 24 and 72 hours and five months after cessation of drilling as field conditions would permit. Readings were taken utilizing temperature bridge Model BGT-1 employing a single thermistor probe. The station interval was five metres with the exception of the first log of the McAdam hole for which the interval averaged three metres. Field conditions necessitated the substitution of cable graduations and five-metre intervals for the depth counter employed for the three-metre interval. The collected temperatures and supporting data are tabled in Appendix IV.

Lithologic Logging

Brief lithologic logs describing major changes in rock type were undertaken by the site-geologist. As indicated earlier, these are contained in Appendix II.

Radiometric and Ultra-Violet Light Logging

All core was logged radiometrically with a Geometrics spectrometer, Model GR-310. Although differing degrees of alteration showed slight variation in total count, no obviously anomalous zones were detected. General comments on the total count radiometrics accompany the lithologic logs in Appendix II. Ultra-violet light logging was carried out using lamp Model MSL-48 manufactured by Ultra-Violet Products Incorporated. Some fluorescence was observed over a narrow section of the McAdam hole (see also lithologic log).

Core Sampling

Two adjacent core samples were collected at tenmetre intervals over the entire length of the core for
heat generation determinations and thermal conductivity
measurements. Samples for heat generation determinations

were taken of split core over a length of 20 centimetres.

Pertinent data on these samples are outlined in appendices

V and VI. Full and intact core samples, 15 centimetres

long, were collected for thermal conductivity measure—

ments. Although the results of these measurements were

not available at the completion of the remaining phases

of this investigation, pertinent data on these samples

are outlined in appendices VII and VIII.

Surface Sampling

Samples of all surface outcrop near the drill sites were collected for heat generation determinations.

(figures 2 and 3). The pertinent data on these samples are included in appendices V and VI.

Core Storage

All core boxes have been properly labelled and are stored at the New Brunswick Natural Resources core storage facility in Fredericton, New Brunswick.

Site Inspection

The two drill sites were inspected subsequent to the removal of the drilling equipment. Little ground

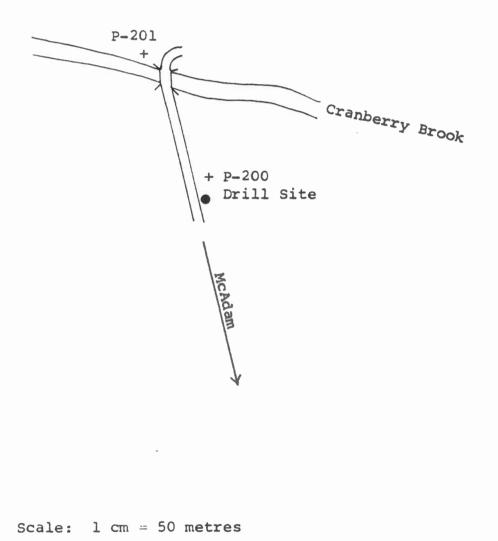
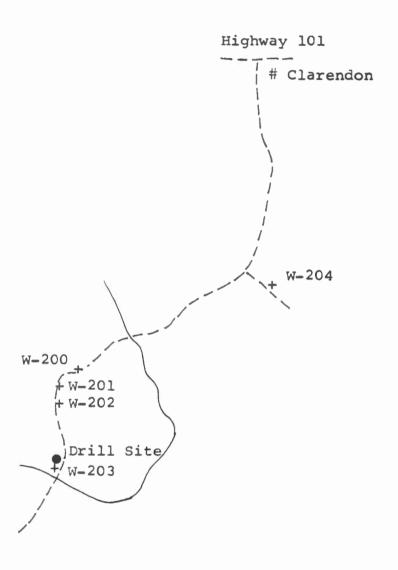


Figure 2
Surface Samples - McAdam



Scale - 1 : 25,000

Figure 3
Surface Samples - Welsford

disturbance was evident. Both sites were left in as close to their pre-drilling condition as possible.

CONCLUSIONS AND RECOMMENDATIONS

The collected temperature data indicate a thermal gradient of about 18 degrees centigrade per kilometre for both the McAdam and Welsford areas. Although the resulting gradients were quite constant, all logs except those five months after cessation of drilling indicated a slight decrease in temperature. The five-month logs indicated temperature increases of as much as one degree. This apparent increase may be due to instrumentation as a different temperature bridge was employed for those particular logs. A ten or twelve-month temperature log may be useful in establishing either the presence or absence of such a trend.

The lack of significant gradients is attributed,
particularly at the Welsford site, to the altered nature of
the country rock accompanied by leaching of the radiogenic
elements. The validity of this observation can only be
substantiated when chemical analyses of the cores are
available for heat generation determinations.

Although the results were somewhat disappointing, one of the main objectives of the project was achieved. The thermal and rock property data obtained aided in assessing the low-grade geothermal potential of the sites. Unfortunately, neither the McAdam or Welsford site has any obvious potential. This does not, however, preclude the possibility of favorable sites elsewhere within the investigated geologic environments, particularly within the Mount Douglas granite. It should be noted that the approach taken was necessarily akin to "wildcatting" in petroleum exploration.

Further exploration of the Mount Douglas granite is recommended. A minimum of three 400-metre drill holes are thought necessary to more fully evaluate the low-grade geothermal energy potential of the intrusive. However, prior surface examinations should be undertaken in an attempt to differentiate between surface and hydrothermal alteration and to avoid highly altered rock from which the radiogenic elements may have been leached.

John A. Leslie, P. Eng., for
John A. Leslie & Associates Limited

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APPENDIX I DRILL SHIFT REPORTS



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CENTONET	En	TROPART	- 01	HEN		1011.			1				_
		LABOUR					DESCR	IPTION	V OF V	NOBK			
RUNNERS	0	FRO	м То	TOT. HRS			020011			HOURS			\neg
RUNNERS	1 1 2	~1	5	16			_	\			~		\neg
	mu	1		1 4				10	PLSA AC	NNER	ELPER	OTHER	
				-	WOR	K DETAIL			100	(FA)	L.A	14	
HLI DL DC	0			-		LING OVER	BBUBDI	F N	1	1	1		~
HELPERS	A ch	18	5	73		LING BEDF				-17	2/	2	\dashv
7	July 1			1		NG (DEPTH		-)	-	-		\dashv
				+		MING (FRO		0)	-	-		\dashv
OTHER				-		ERLINE (LE			,				
								FT.	_				\neg
						UP OR TEAL							
				-		ING (DISTA		7777			_		\neg
		EQUIPMENT				GING	3-1						
DRILL RIG	(HOURS)		1.	T	TEST								
TRACTOR					-	ITING ORD	ERS		-				\neg
	CK MILEAGE		OR HOURS			AYS (SPECI							
1/2 TON TR			2.100110			AIRS (SPECI							\neg
CAR						ER (SPECIF							
CHAIN SAW	DAYS		OR HOURS		31,11								
BOAT	, DA 13				MOR	ILIZATION				1	_		\dashv
MOTOR			C100	127.2									
OTHER													\neg
31.1611													_
REMARKS:											2.75.45.4		
	71 /	/					- 1	4 1					
	111111					\ onfor	1 1	2					
7	CLI	ENT'S REPRESEN				RU	NNER/	FOREM	AN				



4

LOGAN DRILLING LIMITED

CONTRAC	T			LOCATION	Vic	Ode		DATE	4	0 9		2	19	82
HOLE SIZ	E 30	Э_н	OLE	NO		DRILL	TYPE	38		_SHIFT	<u>d</u>	-0.	1	
		DIAMO	A GNC	RTICLES					FOO	TAGER	EPORT			
TYPE	NUMBER	OVERBUR	RDEN	BEDROCK	LEFT II	NHOLE			100		CASIN	G	DRIL	LING
							DEPTH E	ND SHIP	т				43	4
							DEPTH ST	ARTSH	HFT				50	26
							CASED OF	RORILL	.ED	_		\rightarrow	- 5	6
							CORE RE	COVER	ED.				16	-8
		OTHER S	UPPLII	ES USED			MATERIA	L		FROM		то	FEE	ET
TRICON	E BITS		СНО	PPING BITS			OVERBUR	RDEN						
AUGER	HEADS		AUG	GER TEETH			BEDROCK	:						
BENTON	NITE		ADI	DITIVES										
CEMENT	Г								CAS	SING - I	NHOLE		-	
CORE BO	OXES						LENGTH	AW	BW	NQ	NW	HW	ОТІ	HER
SHELBY	TUBES						2 FT.	5 -75-						
SAMPLE	JARS						5 FT.							
PENETR	ATION CONE	S					10 FT.	10000000						
OTHER	(SPECIFY)								-					-
							1	C	ASING	- LEFT	IN HOL	E		
ITEMS LEF	T IN HOLE (SE	PECIFY)					LENGTH	AW	BW	Na	NW	HW	OTI	HER
							2 FT.		-	1			1	
		TESTING A	AND LO	OGGING			5 FT.						1	
CLINOMET	ER	TROPAR			HER		10 FT.							
											-		1	
		LABOU	ıR					DESCR	IPTION	V OF V	WORK			
RUNNERS	0		FROI	и То	TOT. HRS						HOURS			
1	0 100	,	8	8	12			-	\				0	
(-4									10	PUSA AC	INNER	ELPER	OTHER	
						WOR	K DETAIL			13	L'A	64	1.3	, /
HELPERS							LING OVE	RBURDI	EN					
	Post		X	1	12		LING BEDF				1	2	13	
							NG (DEPTH)				
						-	MING (FRO		0)				
OTHER			-				ERLINE (LE)				
					1		ENT (AT		FT.)				
							UP OR TEA	R DOWN						
						MOV	ING (DISTA	NCE)						
		EQUIPM	ENT			WED	GING							
DRILL RIG	(HOURS)				1		ING							
TRACTOR				1		AWA	ITING ORD	ERS					0	
	CK MILEAGE			OR HOURS		DEL	AYS (SPECI	FY)						
1/2 TON TR							AIRS (SPECI							
CAR							ER (SPECIF							
CHAIN SAW	V DAYS			OR HOURS		3,,,,								
BOAT	7 07.10					МОВ	ILIZATION							
MOTOR									1 500					
OTHER											V 10.00			
3								-						
REMARKS:	sus	on	FS	1 the	toul	0	Per	U.	00	lo	tu	in	0	
								10.07						
	17.11							1						
ÿ	1/1/11	í				1	-/	V	0	×				
1	MAN	ENT'S REPE	DECEN	TATIVE		1		BII	NNER	FOREM	IAN			



CONTRAC	эт то			LOCATIO	IN MAC	ade	an	DATE _	2	00	a	2		1	9 82
HOLE SIZ	E 130	н	IOLE	10/_		DRILL	TYPE	38		SH	IFT	2	il	1	
		DIAM	OND A	RTICLES			T		FO	OTAG	E RE	EPORT			
TYPE	NUMBER	OVERBU		BEDROCK	LEFTI	NHOLE						CASING	3	DRIL	LING
							DEPTH EN	ND SHIF	т						92.
							DEPTH ST							-	24
							CASED OF				2 11			7	-01
							CORE RE	COVERE	D					6	0
-		OTHERS	UPPLI	SUSED			MATERIA	L		FR	OM		то	FE	ET
TRICON	EBITS		СНС	PPING BITS	3		OVERBUR	RDEN	1						
AUGER	HEADS	10000	AUG	GER TEETH			BEDROCK								
BENTON	NITE		ADI	DITIVES											
CEMENT	Г								CA	ASING	- IN	HOLE		•	
CORE BO	OXES						LENGTH	AW	BW	N	Q	NW	HW	ОТ	HER
SHELBY	TUBES						2 FT.								
SAMPLE	JARS						5 FT.					-			
PENETR	ATION CONES	S					10 FT.								20 1000
OTHER	(SPECIFY)							С	ASIN	G - LE	FT	IN HOL	.ε		
ITEMS LEF	T IN HOLE (SP	ECIFY)					LENGTH	AW	BW	IN	a	NW	HW	ОТ	HER
							2 FT.								
		TESTING .	AND LO	OGGING			5 FT.								
CLINOMET	ER	TROPAL	RI	0.	THER		10 FT.							1	
		LABOU	JR		5 4 7 4 5 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	000000000000000000000000000000000000000		DESCR	IPTIC	O NC	F W	VORK			
RUNNERS	0		FROM	и то	TOT. HRS			_				IOURS			
m.	Lands		8	X	12					2	20	NNER	ELPER	0,	
										SALSA		W.	(AFA	OTHE	•
						WOR	K DETAIL			1		73	7,	\rightarrow	
HELPERS	1					DRIL	LING OVE	RBURDE	EN					,	
()	Frut.		X	1	12	DRIL	LING BEDF	ROCK				16	4	,	
							NG (DEPTH)			-	-	
							MING (FRO		0)		_	-		
OTHER							ERLINE (LE	NGTH)		_	-	-	
					-		ENT (AT			T.)			-	-	
			-				UP OR TEAL			-		+	-		
		5011151	ACAIT				ING (DISTA	(NCE)		+		-			
		EQUIPA	MENI				TING		<u> </u>					-	
DRILL RIG						1	ITING ORD	ERS	-						
TRACTOR (DR HOUSE		-	AYS (SPECI								
	CK MILEAGE			OR HOURS			AIRS (SPECI			-		6	6		
1/2 TON TR	OCK .					-	ER (SPECIF					- 0	- 0		
CHAIN SAW	DAVS.			OR HOURS		311		- /							
BOAT	DATS			211 1100110		МОВ	ILIZATION								
MOTOR															
OTHER															
-					,				-						
REMARKS:	10	es d	1	Zum	in the	001	1.2.	5		-			-		
		74	11	1											
		-		245 55		1.75		- 1147-4014							
			107 H		1000 1000 (1000 1001		-22								
1	1 . 12						-	7							
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DAILY REPORT

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CONTRAC	СТ		L	OCATIO	Me	Rola		DATE.	_	معار	<u>z</u>	3	19	8 2
HOLE SIZ	E_B	<u>a</u>	HOLE NO			DRILL	TYPE	78		SHIF	- d	an		
		DIAM	MOND ART	ICLES					FOO	TAGER	EPORT			
TYPE	NUMBER	OVERBL		EDROCK	LEFT	NHOLE				1	CASING		DRILL	ING
					1000		DEPTH E	ND SHIE	T	-	0,0,110		Dille	
							DEPTH ST					-	U	9>
							CASED OF			_		-	7	_
		-					CORE REG			-		-		-
		OTHER	SUPPLIES	USED			MATERIA			FROM		то	FEE	т
TRICON	E BITS			ING BITS			OVERBUR				+-		-	
AUGER				RTEETH			BEDROCK		77				 	
BENTON			ADDIT			water man satisfaction			-		_			
CEMENT									CAS	ING - H	HOLE			
CORE B	OXES						LENGTH	AW	BW	NQ	NW	HW	ОТН	IER
SHELBY	TUBES						2 FT.							
SAMPLE	JARS		10000				5 FT.			1				
PENETR	ATION CONES	S	11-2-11-5				10 FT.			1				
OTHER	(SPECIFY)									1				
							C	ASING	· LEFT	IN HOL	E			
ITEMS LEF	T IN HOLE (SP	ECIFY)					LENGTH	AW	BW	NQ	NW	HW	ОТН	IER
						2 FT.								
		TESTING	AND LOG	GING			5 FT.			1	Un 194			
CLINOMET	ER	TROPA	RI	ОТ	HER		10 FT.							80
													-	
		LABO	UR					DESCR	IPTION	OF	WORK			
RUNNERS			FROM	то	TOT. HRS						HOURS			
	mita		2	8	12				1 0	7	INNER	1	0,	
			600 (000) 0.00	Charles No.					1	OVSR. P.	WE	ELPER	OTHER	
						WOR	K DETAIL				7.3	13	7,	
HELPERS	2	9				DRIL	LING OVER	RBURD	EN					
A	Sula		8	8	12	DRIL	LING BEDF	ROCK						
				7000		CASI	NG (DEPTH)			_	
						REA	MING (FRO	M T	0)		_		
OTHER						WAT	ERLINE (LE	NGTH)	_	_		
						CEM	ENT (AT		FT.)		-	_	
						SET	UP OR TEAL	R DOWN	N .					
						MOV	ING (DISTA	NCE)					-	
		EQUIP	MENT			WED	GING							
DRILL RIG	(HOURS)					TEST	ING					_		
TRACTOR	(HOURS)						ITING ORD							
5 TON TRU	CK MILEAGE		OR	HOURS			AYS (SPECIF			-	-			
1/2 TON TR	IUCK						AIRS (SPECI			-	12	2/		
CAR						ОТН	ER (SPECIF	Υ)				-	1	
CHAIN SAW	DAYS		OR	HOURS									-	
BOAT						мов	ILIZATION							-
MOTOR												-		
OTHER														
05144546	-	٠.	X		60			.0	100	X	1	10		-
REMARKS:	1-1	cp 1	03	200	ala.		repo	un	4	1	9	10	4	
						3450							V	
	14.0%=2													
	111 -					1		1						
. A	U mi					(Chil.	1.8	\searrow					
XI	CLIS				RU	NNERY	FOREM	AN						
. /	CLIC	3 DEL	RESENTA											



CONTRAC	т			LOCATION	May C	da	· ·	DATE_	1	سنندل				9 € ≥
HOLE SIZ	E BC	2нс	LEN	10		DRILL	TYPE	38		_SHIFT		ne	Zi	-
		DIAMOI	ND A	RTICLES					FOO	TAGE R	EPORT		13. 1 30. 1	
TYPE	NUMBER	OVERBURE	DEN	BEDROCK	LEFTI	HOLE					CASING	G	DRIL	LING
							DEPTH EN	ND SHIF	Т				6	32
							DEPTH ST	ART SH	HFT				4	85
							CASED OF	RORILL	ED			-	1	1
						-	CORE REC					_	/	40
		OTHER SU	PPI II	SUSED			MATERIA			FROM		TO	EE	ET
TRICON	E DITS	011721100		PPING BITS			OVERBUR		-	7 110111	-		+	
							BEDROCK		-		_			
AUGER				GER TEETH			BEDROCK		-				-	
BENTON		F 193	AUL	DITIVES						SING - II	4 401 5	-	1	
CEMENT							LENGTH	AW	BW	NQ	NW	HW	Tor	HER
CORE BO							2 FT.	~44	DAA	140	1444	H	- 01	HEN
SHELBY							5 FT.		-		-		-	
SAMPLE									-	-			-	
	ATION CONE	S					10 FT.						1	
OTHER	(SPECIFY)							С	ASING	G-LEFT	IN HO	_E		
ITEMS LEF	T IN HOLE (SE	PECIFY)					LENGTH	AW	BW	NQ	NW	HW	ОТ	HER
							2 FT.		8					
		TESTING A	ND LO	OGGING			5 FT.		5 = 1					
CLINOMET	ER	TROPARI		ОТ	HER		10 FT.							
													-	
		LABOUR	3					DESCR	IPTIO	N OF	WORK			
RUNNERS	0		FROI	и То	TOT. HRS						HOURS			
RUNNERS	-Final	∞	5	8	11			_		2		/	0.	
	-			-					/	SAVSA PO	INNER	ELPER	OTHE	$\cdot \cdot \cdot$
						WOR	K DETAIL		`	13	L'A	100	1	"
HELPERS	0						LING OVER	RAUADI	E N					
();	X IV	1	8	4	1/2		LING BEDF					2/	7	
7	June		0	-	1		NG (DEPTH)	-			
							MING (FRO		0)		_	- 1	
OTHER							ERLINE (LE			,			_	
OTHER			-		-				FT			-		
							ENT (AT UP OR TEAI			-/-				
									•	_		-	-	
							ING (DISTA	(IVCE)		_		_	-	
		EQUIPME	:NI				GING					-		
DRILL RIG	(HOURS)		-			TEST						-+		
TRACTOR	(HOURS)						ITING ORD			-	-	-		
5 TON TRU	CK MILEAGE			OR HOURS			AYS (SPECI				-	-		
1/2 TON TR	IUCK						AIRS (SPECI							
CAR						ОТН	ER (SPECIF	Υ)				_	-	
CHAIN SAW	V DAYS		(OR HOURS							-			
BOAT						МОВ	ILIZATION				_		-	
MOTOR														
OTHER														
REMARKS:														
	rescued												77.7	
			05/10/10											
	4		- 80000											
	1/11	,				1	-		2					
Y	- sta					(- the	elt"	X					
7	CII	ENT'S REPRI	ESEN	TATIVE			- 1		NNER	FOREN	AN			



	DAILY REPO	<u>RT</u> 27
CONTRACT	LOCATION DE Cerlo	DATE DEC 4 19 82
HOLE SIZE _	RO HOLE NO DRILL	TYPE 3 & SHIFT day
	DIAMOND ARTICLES	FOOTAGE REPORT

			1,000000		FOOT	AGE R	EPORT	1000			
TYPE	NUMBER	OVERBURDEN	BEDROCK	LEFT IN HOLE	D			100000	CASING	3	DRILLING
					DEPTH EN	ND SHIF	т				779
					DEPTH ST	ART SH	HFT				632
					CASED OF	RDRILL	_ED				1119
					CORE REC	COVER	ED				171
		OTHER SUPPLIE	SUSED		MATERIA	L		FROM		то	FEET
TRICON	E BITS	СНС	PPING BITS		OVERBUR	RDEN					
AUGER	HEADS	AUG	GER TEETH		BEDROCK						
BENTO	NITE	ADE	DITIVES								
CEMEN	Т						CAS	ING - IN	HOLE		
COREB	OXES				LENGTH	AW	BW	NQ	NW	HW	OTHER
SHELBY	TUBES			san e	2 FT.						
SAMPLE	JARS		100000000000000000000000000000000000000		5 FT.						
PENET	RATION CONE	s			10 FT.						
OTHER	(SPECIFY)										,
						C	ASING	· LEFT	IN HOL	.E	
EMS LEF	T IN HOLE (SI	PECIFY)			LENGTH	AW	8W	NQ	NW	HW	OTHER
					2 FT.						
		TESTING AND LO	OGGING		5 FT.	lega,	il pereson e				
LINOMET	EB	TROPARI	ОТН	ER	10 FT.	1					

LABO	DUR			DESCRIPTION OF WORK									
RUNNERS	FROM	то	TOT. HRS										
7 M	2	2	12	20	41 40	0,							
				WORK DETAIL									
				WORK DETAIL	1.4	7							
HELPERS A	-			DRILLING OVERBURDEN									
(1)	1	5	1/2	DRILLING BEDROCK	/2	/2							
2	-			CASING (DEPTH)									
				REAMING (FROM TO)									
OTHER		500000		WATERLINE (LENGTH)									
				CEMENT (AT FT.)									
				SET UP OR TEAR DOWN									
				MOVING (DISTANCE)									
EQUIF	PMENT			WEDGING		4							
DRILL RIG (HOURS)				TESTING									
TRACTOR (HOURS)				AWAITING ORDERS									
5 TON TRUCK MILEAGE	OR	HOURS		DELAYS (SPECIFY)	200								
1/2 TON TRUCK				REPAIRS (SPECIFY)									
CAR				OTHER (SPECIFY)									
CHAIN SAW DAYS	OR	HOURS											
BOAT				MOBILIZATION									
MOTOR			In teacher										
OTHER													

REMARKS:	
11 1 -	
Hexue	RUNNERTPOREMAN

DESIGNATIONS: WHITE: LOGAN DRILLING LTD.; CANARY: CLIENT'S REPRESENTATIVE; PINK: RETAIN BY FOREMAN



CONTRAC	тт		_ LOCATION	Ma	Ede	ha	DATE _	1)ce	. 5	/_	19	83
HOLE SIZE	E <u>86</u>	HOLE	NO	,	DRILL	TYPE	7.E		SHIFT		20	1	
		DIAMOND	ARTICLES					FOO	TAGER	EPORT			
TYPE	NUMBER	OVERBURDEN	BEDROCK	LEFT II	NHOLE					CASING	G	DRILL	ING
						DEPTH E	ND SHIF	Т				8	22
						DEPTH ST						7	70
						CASED OF			_		-		7
						CORE RE					-	$\overline{}$	4
		OTHER SUPPL	IES LISED			MATERIA			FROM		то	555	-
TRICON	S DITC		- detail			OVERBUR		- 10	PHOM	_	10	FEE	
TRICON			OPPING BITS					-					
AUGER			JGER TEETH			BEDROCK		-				-	
BENTON		AL	DITIVES						01110				
CEMENT						LENGTH	A 144	1	SING - II		1	071	
COREBO						LENGTH	AW	BW	NQ	NW	HW	OTH	EH
SHELBY						2 FT.			-	1000 100	-		
SAMPLE					11	5 FT.				-			
	ATION CONE	S				10 FT.							
OTHER ((SPECIFY)						С	ASING	G-LEFT	IN HOL	.E		
ITEMS LEFT	T IN HOLE (SF	PECIFY)				LENGTH	AW	BW	NQ	NW	HW	ОТН	ER
					00000	2 FT.							
		TESTING AND	OGGING	Made		5 FT.							
CLINOMETE	ER	TROPARI	ОТ	HER		10 FT.	100.1						
		LABOUR					DESCR	IPTIO	N OF	WORK			
RUNNERS	0	FRO	то то	TOT. HRS						HOURS			
-20	1.1.0	× 8		17			_					~	
	- Alle		-0	1				10	SP SP P	INNEA	ELPER	OTHER	
					WOR	K DETAIL			103	EA	EA	(A	
							2011805	- 61	1		1	1	
HELPERS	0		F	13		LING OVER		= 1/4	-		1	5	
10	fred	<u>\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ </u>	9	12		LING BEDF			. -		2/	4	
						NG (DEPTH		_)	_	-		
				L	REA	MING (FRO	M T	0)	-	-	-	
OTHER				1	WAT	ERLINE (LE	NGTH)		-		- 1
					CEM	ENT (AT		FT	.).				
				1	SET	UP OR TEAL	R DOWN	<u> </u>					-
					MOV	ING (DISTA	NCE)						
		EQUIPMENT			WED	GING							
DRILL RIG	(HOURS)		100		TEST	ring					-		
TRACTOR (HOURS)	100			AWA	ITING ORD	ERS						15
5 TON TRU	CK MILEAGE		OR HOURS	SCHOOL STATE	DEL	AYS (SPECI	FY)						
1/2 TON TR	UCK			.000.0	REP	AIRS (SPECI	FY)						
CAR					ОТН	ER (SPECIF	Y)					20	
CHAIN SAW	DAYS		OR HOURS										
BOAT					МОВ	ILIZATION							
MOTOR													
OTHER					62.0								
OTHER													
DEMARKS.													
REMARKS:													
					20 1000	10000							
,					1								
1.4/	Min					1-	1		1				
14/	(1)	ENT'S DEPOSES	JTATIVE			-	RIII	NNER	FOREM	AN			
1 1	CLII	ENT'S REPRESE	VIMILA				70	ET.		- 7.1			

CONTRAC	т			LOC	CATION	2196	dan		DATE	1	oe	<u>ر</u>	5			19 82		
HOLE SIZ	E	н	OLE N	10	/		DRILL	TYPE	38	יק	_SHI	FT.	a	٥	4			
		DIAM	OND A	RTICI	LES			Γ		FOO	TAGE	RE	PORT					
TYPE	NUMBER	OVERBUI				LEFTI	N HOLE						ASING	-	DB	LLING		
1112	NOMBER	0 1211001	10214		- I O O I			DEBTHE	UD CHIE	. +	-	-	ASTING		12	42		
								DEPTH END SHIFT							/ 6	6-		
SU 72		1			978			DEPTH START SHIFT							845			
					- 29			CASED OR DRILLED							150			
								CORE REC	COVER	ED					(
		OTHERS	UPPLIE	S US	ED			MATERIA	L		FAC	M		то	F	EET		
TRICON	EBITS		СНС	PPIN	G BITS			OVERBUR	RDEN									
AUGER	HEADS		AUG	SER T	FEETH			BEDROCK						707				
BENTON	IITE		ADC	VITIC	ES	2 (2001) 122 10												
CEMENT		-31 105-11						35 357		CA	SING	- IN	HOLE					
CORE BO	OXES		5765					LENGTH	AW	BW	N	2	NW	н	v (THER		
SHELBY	TUBES						2/20 81 222	2 FT.	100	10 1100								
SAMPLE	JARS							5 FT.										
PENETR	ATION CONES	S						10 FT.										
OTHER	SPECIFY)														1			
`				C	ASING	- LE	FT II	и ног	.E									
ITEMS LEFT	T IN HOLE (SP		LENGTH	AW	BW	N	2	NW	н	v c	THER							
								2 FT.										
TESTING AND LOGGING								5 FT.										
CLINOMETER TROPARI OTHER								10 FT.			1	1			T			
CENTOWET	-11	11101 A	-		011			10.11.					-					
		1 4 5 0 1	10						DESCR	IRTIO	1 05	10//	OBK					
	2	LABOU		. 1	T.O.	TOT. HRS		-	DESCA	IFTIOI	4 Or							
RUNNERS			FROM	v	TO	12			_		1		DURS	_				
	m o		- 8	-	0	, –	1			/ 0	AL.	301	,\^	EL	\ °>			
				-				K DETAIL			PUSA	/	NEA	ELDE	Ork	EA /		
	_							K DETAIL	2011201	- N	1		1	\rightarrow				
HELPERS	1		8		8	12		LING OVER		EIN	-		+.	2	12			
9	any				0	, ,		LING BEDF			+		+/	4	' 2	1		
				-			CASING (DEPTH)											
							REAMING (FROM TO)											
OTHER							WAT	ERLINE (LE	NGTH)		+					
				-				ENT (AT			-		+	-				
							SET	UP OR TEAT	R DOWN	N .	_		_					
							MOV	ING (DISTA	NCE)		_			-				
	335000	EQUIPN	MENT				WED	GING			_			_				
DRILL RIG	(HOURS)						TEST	ING										
TRACTOR	HOURS)					-00	AWA	ITING ORD	ERS									
5 TON TRU	CK MILEAGE		(RHO	DURS		DEL	AYS (SPECI	FY)									
1/2 TON TR	UCK						REP	AIRS (SPECI	FY)									
CAR						150	отн	ER (SPECIF	Y)									
CHAIN SAW	DAYS		(RHO	OURS													
BOAT							MOB	ILIZATION	10000				V-200 PF-17					
MOTOR								11.000										
OTHER									0.00									
OTHER												_						
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REMARKS:				24														
									-)	-	_						
- //	11						1	1	5/	/								
Allardes								(Sub										
y	CLU	ENT'S REP	RESENT	TATI	VE		RUNNER/FOREMAN											
		NT'S RE	NT'S REPRESENTATIVE; PINK: RETAIN BY FOREMAN															



DAILY REPORT

30

CONTRACT _				LOCA	TION	21/00	ldan		DATE .		De	2_	١		_19 £
HOLE SIZE _	0	2_	HOLE N	10		/	DRILL	TYPE	38		_SHIFT	_	24	t	,
		DIA	MOND AF	RTICLE	S					FOO	TAGE R	EPORT			
TYPE N	UMBER	OVERBU	URDEN	BEDR	оск	LEFT IN	HOLE					CASIN	G	DF	RILLING
								DEPTH E	ND SHIP	Υ			1126		
								DEPTH ST	ART SH	HFT			1042		
		**********			ii è			CASED OF	RDRILL	.ED					6
								CORE RE	COVER	ED					07
		OTHER	SUPPLIE	SUSE)			MATERIA	L		FROM		то		FEET
TRICONE BI	TS		СНО	PPING	BITS			OVERBUR	RDEN						
AUGER HEA	DS		AUG	SER TE	ЕТН			BEDROCK	<						
BENTONITE			ADC	ITIVES	3										
CEMENT						2.12				CA	SING - II	N HOLE			
CORE BOXES	S							LENGTH	AW	BW	NQ	NW	Н	N	OTHER
SHELBY TUE	BES							2 FT.			_				
SAMPLE JAR								5 FT.					_	-	
PENETRATIO		3						10 FT.					1	-	
OTHER (SPE						12.00				1					
0111211 (01 2									c	ASING	- LEFT	IN HO	LE		
ITEMS LEFT IN	HOLE (SP	ECIFY)						LENGTH	AW	BW	NQ	NW	н	w T	OTHER
								2 FT.			110	1.444	1	-	0111211
TESTING AND LOGGING								5 FT.				-		_	
CLINOMETER											-		 	+-	
CLINOMETER		TROPA	317.1	1	0111	Ç.N		10 FT.	-					CHI.	
		LABO	OLL B				Call Call		DESCR	IPTIO	N OF	MORK			
DUNNERS		LABO	FROM	4	го	TOT. HRS			DESCR	11 1101		HOURS			
RUNNERS	0	5001	0	P-S		12			_						_
7	0000	700	-	10	-	/				10	SP AC	INNER	ELPE	/ °	HER
				_			MOR	V DETAIL			10,4	(FA)	1	4	CA /
	2							K DETAIL	201120	ENI	1		1		1
HELPERS	1		5	1		15		LING OVE		EIN		-	2	15	
7 80	N N		0		-	12					_	+	<u> </u>	, <	-
				-				NG (DEPTH)	-	\dashv		+
								MING (FRO		0)	_			-
OTHER								ERLINE (LE	NGTH)				-
			2 22 2	-			CEMENT (AT FT.) SET UP OR TEAR DOWN								+
			-	-						V					-
								ING (DISTA	INCE			+			
		EQUIP	MENT					GING					_		
DRILL RIG (HO	URS)			_			TEST					-	-		-
TRACTOR (HOL	JRS)	0	100		1			ITING ORD				-	-		-
5 TON TRUCK				RHOU	RS			AYS (SPECI				-	-	-	-
1/2 TON TRUCK	ζ							AIRS (SPECI			_	-	-		-
CAR				-			отн	ER (SPECIF	Υ)		_	-	-		-
CHAIN SAW DA	AYS			RHOU	RS							_	\rightarrow		
BOAT							MOR	ILIZATION							-
MOTOR															
OTHER															
															· · · · · ·
REMARKS:														22	T 10. T 10.
														<u> </u>	
	-													10 (0.1)	0
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11	Mil						-	· · · ·			\				
The state of the		ENT'S SE	DDCCC	CATIVE			,	-	BII	NNFP	FOREN	AN			
		ENT'S RE				A B V . C	NIT'S OF	DOECENTA				-	ENA	N.	
DESIGNATIONS	S: WHITE	: LOGAN	DRILLI	NG LT	D.; CAN	ARY: CLIE	NT'S RE	PRESENTA	TIVE; PI	NK: R	EIAIN	YFOR	EMA	N	



					DAILY	REPO	RT						31			
										\overline{a}						
CONTRAC	ст		L	OCATIO	MileC	lda	414	DATE_	1	يا و	و (19	43		
HOLE SIZ	E 3 5		HOLE NO			DRILL	TYPE	38		SHIFT		La	ny			
		DIAM	MOND ART	ICLES		FOOTAGE REPO						ORT				
TYPE	NUMBER		JADEN E		LEFTIN	HOLE		1-15-1-1			CASING		DRILLI	NG		
							DEPTH E	ND SHIF	T				-	22		
							DEPTH ST						1/3			
							CASED OF			-		-		2 2		
							CORE RE			_		-	7	6		
		OTHER	SUPPLIES	USED			MATERIA			FROM		то	FEET	-		
TRICON	E BITS			ING BITS			OVERBUE	RDEN								
AUGER				R TEETH			BEDROCK									
BENTON			ADDIT													
CEMENT	Г								CAS	ING - IN	HOLE					
CORE B	OXES						LENGTH	AW	BW	NQ	NW	HW	отн	ER		
SHELBY	TUBES						2 FT.									
SAMPLE	JARS						5 FT.									
PENETR	ATION CONES						10 FT.									
OTHER	(SPECIFY)											,				
						- 000		С	ASING	LEFT	IN HOL	E				
ITEMS LEF	T IN HOLE (SP	ECIFY)				100000000000000000000000000000000000000	LENGTH	AW	BW	NQ	NW	HW	отн	R		
					929 393		2 FT.		i da terrore			90 H700	1			
		TESTING	AND LOG	GING			5 FT.		20077 66		- 55		5.0000000000000000000000000000000000000			
CLINOMET	ER	TROPA	ARI	ОТ	HER		10 FT.		60 - 30 3000 - 80			-571.0				
	(-)	LABO	DUR					DESCR	PTION	OF V	VORK					
RUNNERS	5//	_	FROM	IO	TOT. HRS											
(4	Such	2	4	To	12			`	2	1 20	NNER	IPER	OTHER			
			-						/	LSA PL	WE	(AFA	TEA	\		
						WOR	K DETAIL			7	73	7,		\rightarrow		
HELPERS	2					DRIL	LING OVE	RBURDE	N			\perp				
2	Mul	X	d.	1	12	DRIL	LING BEDF	ROCK			1	2/	2			
						CASI	NG (DEPTH									
						REA	MING (FRO	M T	0							
OTHER				,		WAT	ERLINE (LE	NGTH				_				
							ENT (AT	<u> </u>	FT,	1		-				
122						SET	UP OR TEA	R DOWN								
						MOV	ING (DISTA	NCE)				_				
		EQUIP		WED	GING											
DRILL RIG	(HOURS)					TEST	ring									
TRACTOR	(HOURS)					AWAITING ORDERS						_				
5 JON TRU	CK MILEAGE		OR	HOURS		DEL	AYS (SPECI	FY)				-				
1/2 TON TR	RUCK					REPAIRS (SPECIFY)						-				
CAR						OTHER (SPECIFY)						_				
CHAIN SAV	V DAYS		OR	HOURS												
BOAT					MOB	ILIZATION										
МОТОЯ	10000									-						
OTHER	7.00 500															

REMARKS:	
7,7,	
Alestice	Charlin
CLIENT'S REPRESENTATIVE	RUNNER/POREMAN

DESIGNATIONS: WHITE: LOGAN DRILLING LTD.; CANARY: CLIENT'S REPRESENTATIVE; PINK: RETAIN BY FOREMAN

CONTRACT		L	OCATIO	ON MCC	ada	<u> </u>	DATE	_)a	و (<u> </u>	19	8 5
HOLE SIZE BQ	Н	OLE NO			DRILL	TYPE 3	8		SHIFT		m	to	
	DIAMO	OND ART	ICLES					FOO	TAGE R	EPORT			
TYPE NUMBER	OVERBUR	RDEN	BEDROC	K LEFT I	NHOLE					CASING	3	DRILLI	NG
						DEPTH E	ND SHIF	T				27	0
						DEPTH ST	ARTS	HIFT				127	- 2
						CASED OF	RORILI	LED					0
						CORE RE	COVER	ED				-	4
	OTHER S	UPPLIES	USED			MATERIA	L		FROM		то	FEET	
TRICONE BITS		СНОРГ	ING BIT	S		OVERBUR	RDEN						
AUGER HEADS		AUGE	RTEETH	Н		BEDROCK	:						
BENTONITE		ADDIT	TIVES										
CEMENT								CA	SING - II	HOLE			
CORE BOXES						LENGTH	AW	BW	NQ	NW	HW	OTHE	R
SHELBY TUBES						2 FT.							
SAMPLE JARS						5 FT.							
PENETRATION CONES						10 FT.							
OTHER (SPECIFY)										-			
							C	ASIN	G - LEFT	IN HOL	Ε.		
ITEMS LEFT IN HOLE (SPE	CIFY)					LENGTH	AW	BW	NQ	NW	HW	OTHE	R
						2 FT.							
1		5 FT.											
CLINOMETER		10 FT.											
					0.0								
	LABOU	IR					DESCR	IPTIC	N OF	WORK			
RUNNERS		FROM	ТО	TOT. HRS	1		-			HOURS			
M Sunta		8	8	1					Sp. 90	INNER	ELAEA	OTHER	
									SP SP P	NE	(AFD)	TEA	\
					WOR	K DETAIL			1	7.7	7,		_
HELPERS (DRIL	LING OVE	RBURD	EN_			4		
January.		8	8	12	DRIL	LING BEDF	ROCK			10	2 1	0	
					CASI	NG (DEPTH)		_		_
	1 1000000				REA	MING (FRO	M T	0)				
OTHER					WAT	ERLINE (LE	NGTH)	_	_		
						ENT (AT			Γ.)			_	
						UP OR TEA		V		-			
						ING (DISTA	(NCE)				\rightarrow		
	EQUIPM	IENT	1			GING		100		_			
DRILL RIG (HOURS)					TEST					+-			
TRACTOR (HOURS)			1		-	ITING ORD				-			
5 TON TRUCK MILEAGE		OR	HOURS		-	AYS (SPECI				1	6	3	
1/2 TON TRUCK					-	AIRS (SPEC				+			
CAR					ОТН	ER (SPECIF	Υ)			-		-	
CHAIN SAW DAYS		OR	HOURS							_			1
BOAT					МОВ	ILIZATION				_			
MOTOR					-								
OTHER			,	,			77.						
DEMARKS. ATT	N E	1	1/	whi	4	rul	1	1	hor	11	1-	oh.	
REMARKS:	4 pc			-5 / \lambda							0-2	٠. ५	
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CLUE	NT'S REPF	DESENTA	TIVE		-		RI	INNE	RIFOREN	IAN .			
DESIGNATIONS: WHITE				CANARY: CLI	ENT'S RE	PRESENTA		_			EMAN		

DAILY REPORT

CONTRACT	L(OCATIO	V-166	Cilia	41	DATE .	L	200	7	,	19 🙎
HOLE SIZE BU										La	7
DIA	MOND ARTI	ICLES			100000000000000000000000000000000000000		FOC	TAGE R	EPORT		(
	SURDEN B		TLEFTI	NHOLE				71202 1	CASIN		DRILLING
			wante		DEPTH E	ND SHIE	- τ		CASHA		1382
			-		DEPTH ST			-			
			+		CASEDO						1270
					CORE RE						23
OTHE	R SUPPLIES L	JSED			MATERIA			FROM		TO	FEET
TRICONE BITS	СНОРР	ING BITS			OVERBUR				_		
AUGER HEADS	AUGER	RTEETH			BEDROCK						
BENTONITE	ADDIT	IVES									
CEMENT		SK IUSSAMUS					CA	SING - II	HOLE		
CORE BOXES					LENGTH	AW	BW	NQ	NW	HW	OTHER
SHELBY TUBES					2 FT.						
SAMPLE JARS					5 FT.				12.39		
PENETRATION CONES					10 FT.				THE TRACE	1,00000	
OTHER (SPECIFY)											
100						C	ASIN	G - LEFT	IN HO	-E	
ITEMS LEFT IN HOLE (SPECIFY)					LENGTH	AW	вw	NQ	NW	HW	OTHER
					2 FT.						
TESTIN	G AND LOGO	SING			5 FT.				5.20		
CLINOMETER TROP	PARI	OT	HER		10 FT.						
										6.57	
LAE	OUR		,			DESCR	IPTIO	N OF	NORK		
RUNNERS	FROM	ТО	TOT. HRS			-			HOURS		
a Lust	8	5	9			`	\ .	So Po	INNER	ELPER	OTHER
								SPLSA PO	NE	(AFA	TEA
				WOR	K DETAIL			\ -	7.	7	\
HELPERS				DRIL	LING OVER	RBURDI	EN				
A) Luis	8	5	7	DRIL	LING BEDF	ROCK				3	7
				CASI	NG (DEPTH)			
				REAM	MING (FRO	M T	0)			
OTHER				WATI	ERLINE (LE	NGTH)			
	-				NT (AT		FT	.)		-	
					JP OR TEAR		١				
					ING (DISTA	NCE)			-		
	PMENT				GING				_	_	
DRILL RIG (HOURS)				TEST							
TRACTOR (HOURS)					ITING ORD				-		
5,TON TRUCK MILEAGE	ORI	HOURS			YS (SPECIE	-			-	6	_
1/2 TON TRUCK					IRS (SPECI			-		9 (9
CAH		101100		ОТН	ER (SPECIF	т }			-		
CHAIN SAW DAYS	OR	HOURS		1405	11 (7) 7 1 0 1						
BOAT				MOB	LIZATION				-		
MOTOR										-	100000000000000000000000000000000000000
OTHER			7						5		,
BEMARKS.		, /.		-	_ /						
REMARKS:	un of	1/0	· Long	0/	- 20	Ta	1	0 6	n		-
		There is	NAME OF TRANSPORT				-				
2											
1111						1)				
1XA late						sel.	wh	2			
, Marie	EPRESENTAT	P11/5				BII	NINER	FOREM	ΔN		

DESIGNATIONS: WHITE: LOGAN DRILLING LTD.; CANARY: CLIENT'S REPRESENTATIVE; PINK: RETAIN BY FOREMAN



CONTRAC	т			LOCATION	11/10	ilde	En	DATE		-64	2	<u> </u>	19 <u>& Z</u>
	00	2		,				28					14
HOLE SIZ	E	н	OLE NO	0		DRILL	TYPE	0		SHIFT		PUC	m
		DIAMO	OND AR	TICLES					FOOT	AGER	FPORT		
TYPE	NUMBER			BEDROCK	LEFTI	MOLE					CASING		DRILLING
1112	NOMBEN	0 4 2 11 8 01	10214				DEPTH EN	ND SHIE		-	2731140		DITTEETING
		00000					DEPTH ST			-			
							CASED OF			-			
							CORE REG						
		OTHERS	UPPLIES	SUSED			MATERIA			FROM	T	TO	FEET
TRICON	F BITS	01112110		PPING BITS			OVERBUE						
AUGER				ER TEETH			BEDROCK						
BENTON				TIVES									
CEMENT		1 11/	11 5	- 1 cad	1.1/4	. /	r-Ki		CAS	ING - IN	HOLE		
CORE BO		1 11/1	1	7 /	,	The Party of the P	LENGTH	AW	BW	NQ	NW	HW	OTHER
SHELBY	TUBES	12 11	40		1111	7	23 FT.						
SAMPLE	JARS /	B 41	CI/	2	Z.		SFT.					-	
PENETR	ATION CONES	3			1		10 FT.						
OTHER	(SPECIFY)												
							5700 Sec	C	ASING	· LEFT	IN HOL	E	
ITEMS LEFT	T IN HOLE (SP	ECIFY)		202000.2000			LENGTH	AW	8W	NQ	NW	HW	OTHER
							2 FT.						
		TESTING A	AND LO	GGING		Networks I	5 FT.						
CLINOMETI	ER	TROPAR	31	ОТ	HER		10 FT.	Acres as					
		LABOL	J.R					DESCR	IPTION	OF V	VORK		
RUNNERS	1		FROM	ТО	TOT. HRS						OURS		
On	Luce				C.				2	190	4	/	02
									/ "	VSA PL	NNEA	ELPER	OTHER
7244						WOR	K DETAIL			\ <u>`</u>	1.3	13	1.
HELPERS	7					DRIL	LING OVE	RBURD	EN				
Wish	me				8	DRIL	LING BEDF	ROCK					
		-				CASI	NG (DEPTH	1)			
					2000 10	REA	MING (FRO	M T	0				
OTHER						WAT	ERLINE (LE	NGTH)		_	
						CEM	ENT (AT		FT.)	-		,
						SET	UP OR TEA	R DOWN	4		8	- 8	
						MOV	ING (DISTA	(NCE)		-	-	-	
		EQUIPM	MENT				GING						
DRILL RIG	(HOURS)						ING			-	-	_	
TRACTOR	HOURS)		-				ITING ORD			<u> </u>		-	
5 TON TRU	CK MILEAGE		0	H HOURS			AYS (SPECI			-	_	-	
1/2 TON TR	UCK						AIRS (SPEC			-	-	-	
CAR						ОТН	ER (SPECIF	Y)			-	-	
CHAIN SAW	DAYS		0	RHOURS						-		-	
BOAT						МОВ	ILIZATION	11 100					
MOTOR													
OTHER													
		- 7											
REMARKS:	m	Lux	.10	-do.									
10001										Vie 9			
	·) ,			2000				-	-				
	4/	1					1	11-					
1	1461							re	20				
1	NY VI		0.5051:-	A 711/15				,	INNERA	FOREM	AN		
/	CLIE	ENT'S REPI	HESENT	ATIVE				nu	ININE M/I	MUEIN	714		

CONTRAC	СТ			LOC	CATION	Mel	ida	w_	DATE_	7	Rec	1	?	19 🔏
HOLE SIZ	E	30 H	OLE	NO. ∠	/		DRILL	TYPE	3	F	SHIF	T_C	la	4
		DIAMO	OND A	RTICI	LES					FO	OTAGE F	REPORT		
TYPE	NUMBER	OVERBUR	-		ROCK	LEFT II	NHOLE					CASIN	-	DRILLING
				-				DEPTH EI	ND SHIF	Т		0.0114	-	Difficulto
	1,000	-						DEPTH ST			_			
				=7.69250			200 11 15	CASED OF					-	
								CORE RE	COVERE	D				
		OTHERS	UPPLII	ES US	€D.			MATERIA	L		FROM		то	FEET
TRICON	E BITS				G BITS			OVERBUR	RDEN					
AUGER	HEADS		AU	GER 1	TEETH	N.		BEDROCK	ζ.					
BENTON	NITE		ADI	DITIV	ES	7							277 22-	
CEMENT	Г							2000		C,	ASING - I	NHOLE		
CORE BO	OXES							LENGTH	AW	BW	NQ	NW	HW	OTHER
SHELBY	TUBES							2 FT.						
SAMPLE	JARS							5 FT.						
PENETR	ATION CONE	s						10 FT.						
OTHER	(SPECIFY)									ACIN	G - LEFT	· IN HO	-	*
ITEMO LEE	T IN HOLE (SF	BECIEVI										1		1 051155
ITEMS LEF	T IN HOLE (SI	ECIT 17			-			LENGTH	AW	BW	NQ	NW	HW	OTHER
		TESTING	ANDI	0001	NC			2 FT.				+	-	
0		TESTING		UGGII	1	1150		5 FT.			-	-		-
CLINOMET	EH	TROPAR	41		1 01	HER		10 FT.						
		LABOL	JR					0000000	DESCR	IPTIC	ON OF	WORK		
RUNNERS	1		FRO	м	то	TOT, HRS						HOURS		
124	mix		8		8	12				\	2 3	UNNER	100	0,
	1									1	SAUSA	1/1	ELPER	OTHER
m	Lines		8		8	12	WOR	K DETAIL			1,	1.4	1.4	/,/
HELPERS	0	es constitution					DRIL	LING OVE	RBURDE	N				
(4)	tus	X	8		8	12	DRIL	LING BEDE	POCK					
1	1						CASI	NG (DEPTH)			
7	Luck	100,000	8		8	12	REA	MING (FRO	M T	0)			
OTHER							WAT	ERLINE (LE	NGTH)			
				10795			CEM	ENT (AT		F	T.)			11
							SET	UP OR TEAL	R DOWN					
							MOV	ING (DISTA	NCE)					
		EQUIPM	ENT				WED	GING						
DRILL RIG	(HOURS)						TEST	ING						
TRACTOR ((HOURS)						AWA	ITING ORD	ERS					
5 TON TRU	CK MILEAGE		(OR HC	DURS		DEL	AYS (SPECII	FY)					
1/2 TON TR	IUCK						REPA	AIRS (SPECI	FY)					
CAR							отн	ER (SPECIF	Υ)					
CHAIN SAW	DAYS		(ORHO	OURS								_	
BOAT							MOB	ILIZATION						
MOTOR														
OTHER														
REMARKS:	m	ove	5	D	2	Vars	il.							
														524 0 0.000
,	7, 1										192 1			
K	1111	1					(Las	X				
7	1 ACCUM	ENT'S REPE	PESENI	TATI	/F				BU	NNFF	RIFOREN	IAN		



CONTRAC	т т			LOCATION	1600	Mo	<u>-l</u> 1	DATE.	<u> </u>	برور			1	82
	0	<u> </u>			-			0	?		1			
HOLE SIZ	E_ <i>\(\begin{align*}(\begin{align*}(0,0) & \\ \\ \\ \\ \\ \\ \end{align*}\)</i>	<u>у</u> н	OLE NO) .	<u></u>	DRILL	TYPE	<u>ر</u> د	Ĺ	SHIFT	0	an	1	
			OND AR		Listria				F001		EPORT			
TYPE	NUMBER	OVERBUR	RDEN	BEDROCK	LEFTIN	HOLE					CASING		DRIL	
							DEPTH EN				20			6
							DEPTH ST				0		2	6
							CASED OF					/ 0	11	
							COREREC	COVER	ED			12	6	
		OTHERS	UPPLIES	USED			MATERIA			FROM		TO	FE	ET
TRICON	E BITS		СНОР	PING BITS			OVERBUR	RDEN						
AUGER	HEADS		AUG	ER TEETH			BEDROCK							
BENTON	IITE		ADDI	TIVES										
CEMENT									CAS	ING - II	HOLE			
CORE BO	DXES	1.00	27	come			LENGTH	AW	BW	NQ	NW	HW	ОТ	HER
SHELBY	TUBES		J				2 FT.			2007.200				
SAMPLE	JARS						5 FT.							
PENETR	ATION CONE	S					10 FT.		1					
OTHER	(SPECIFY)	****												
				1, 4				C	ASING	- LEFT	IN HOL	Ε		
ITEMS LEFT	T IN HOLE (SP	PECIFY)					LENGTH	AW	вw	NQ	NW	HW	ОТ	HER
							2 FT.							- Of 1
		TESTING A	AND LO	GGING			5 FT.							
CLINOMET	ER	TROPAF	31	ОТ	HER		10 FT.							
		LABOL	JR .					DESCR	IPTION	OF I	WORK			
RUNNERS			FROM		TOT, HRS			-			HOURS			
20	Luch		8	8	12				2	1 9	INNER	ELPER	OTHE	
	0		693						/	VSA PO	WE	(AEV	A.E.	/
-m	the	8	8	1/2	2	WOR	K DETAIL			\ ·		\rightarrow		
HELPERS	/					DRIL	LING OVE	RBURD	EN		-		2	
(2)	Show	12	S	18	12	DRIL	LING BEDF	ROCK			8	3 8		
	2					CASI	NG (DEPTH	100000	0-91-1-00-2)				
	Lun	4	5	12	4	REA	MING (FRO	м т	0)				
отныя						WAT	ERLINE (LE	NGTH)				
						CEM	ENT (AT		FT.)	1	_	_	
						SET	UP OR TEA	R DOWN	N .	1 200	15	- 1		
						MOV	ING (DISTA	NCE)			,			
		EQUIPM	IENT	202001	170m maddet	WED	GING							
DRILL RIG	(HOURS)					TEST	ring							
TRACTOR	HOURS)	5394		PORTOCOURS OF		AWA	ITING ORD	ERS						
5 TON TRU	CK MILEAGE	11 10-11	01	RHOURS		DEL	AYS (SPEC)	FY)						
1/2 TON TR	UCK					REP	AIRS (SPECI	FY)	100		-		_	
CAR					(10) (5) (4)	отн	ER (SPECIF	Υ)			1	2	2	
CHAIN SAW	DAYS	10 % A	01	RHOURS					10.00					
BOAT						мов	ILIZATION							
MOTOR				1000							3.12		1100	
OTHER														1,000,000
		,	,			,								
REMARKS:	12 6	u pe	ch	invi		Lu	×1 .						6300	green and
				1	, /			1000		124				100
)										1000			
	111	,												
	71.1	1				- 21								
1.8	0/ /stie						1 60	A'						
7	CLI	ENT'S REPE	RESENT	ATIVE				RU	NNER/	FOREM	IAN			
DESIGNATI				G LTD.; CA	NARY: CLIE	NT'S RE	PRESENTA	TIVE; P	INK: RE	TAIN	Y FOR	EMAN		



42

LOGAN DRILLING LIMITED

DAILY REPORT

					_											
CONTRAC	т			LOCAT	ION L	1000	al		DATE.		<u>ي ر</u>	20		2	1	9 42
HOLE SIZE	Ba	н	OLEN	10	2		DRILL	TYPE	78		SI	HIFT		ne	L	
·		DIAM	OND A	RTICLES		10 10 10				E0	OTAG	25.00	EPORT			
TVAC	NUMBER			BEDRO	· ·	LEFT IN	HOLE				OTAC				0011	1.110
TYPE	NUMBER	OVERBU	RDEN	BEDNO		LEFI	VHOLE	0.5055		-		-	CASING	-	-	LING
		-			-			DEPTH E								926
								DEPTH ST							17	6
								CASED OF						_	1	50
								CORE RE		ED						
		OTHERS				-		MATERIA			FF	ROM		то	FE	ET
TRICON	E BITS			PPING BI				OVERBUR		-			-		-	
AUGER				SER TEET	.н			BEDROCK	<u> </u>	-					-	
BENTON	IITE		ADI	DITIVES												
CEMENT										T			HOLE			
CORE BO	OXES							LENGTH	AW	BV	V	NQ	NW	HW	07	THER
SHELBY	TUBES							2 FT.		-						
SAMPLE	JARS							5 FT.								
PENETR	ATION CONES	S						10 FT.								
OTHER (SPECIFY)															
									, C	ASIN	IG - L	EFT	IN HOL	E		
ITEMS LEFT	T IN HOLE (SP	PECIFY)						LENGTH	AW	BV	V 1	NO	NW	HW	01	THER
								2 FT.								
		TESTING	AND LO	OGGING				5 FT.			_					
CLINOMETE	ER	TROPA	RI		OTHE	R		10 FT.								
		LABO	UR						DESCR	IPTIC	ON C	OF V	VORK			
RUNNERS	-0		FROM	M TO	Т	OT. HRS			<				OURS		_	
m	W.	1	8	1		15					Sol	30	NNEA	ELPER	OTHE	
											Sols	0	NE	(AFA	14	2
							WOR	K DETAIL			_		13	1.3	\rightarrow	
HELPERS	0						DRIL	LING OVE	RBURD	EN						
\mathcal{O}	Los	120000000000000000000000000000000000000	8	8		12	DRIL	LING BEDF	ROCK				1	4/	2_	
		1925					CASI	NG (DEPTH	1)					
				77450			REA	MING (FRO	M T	0)					
OTHER	2 30 30		H3H173	5395		-	WAT	ERLINE (LE	ENGTH)					
							CEM	ENT (AT		F	T.)					
		1000					SET	UP OR TEA	R DOWN	١						
							MOV	ING (DISTA	NCE)							
		EQUIPA	MENT			1000	WED	GING				-				
DRILL RIG	(HOURS)						TEST	ING	Name of the last			3 6 m				
TRACTOR (HOURS)					-	AWA	ITING ORD	ERS			-				
5 TON TRU	CK MILEAGE		(OR HOUR	S		DEL	AYS (SPECI	FY)		0.00				1000	[64]
1/2 TON TR	UCK						REP	AIRS (SPECI	IFY)		-0 64		1 10			
CAR							отн	ER (SPECIF	Y)							CALL CONTROL OF STATE
CHAIN SAW	DAYS		(OR HOUR	S											
BOAT							мов	ILIZATION								
MOTOR																
OTHER					200											
OTTICK!							^									
REMARKS:							1)	,	1		-			
TEMPINS.			_			1	/	1	0	-	1	p				
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	11	1								1	-					
1.0	link.							(1	1	u	18	X			
12	MAXX	ENERG 0-5	0.50511	T . Till / F				-	91	NNE	B/FO	REM	AN		7-4	

DESIGNATIONS: WHITE: LOGAN DRILLING LTD.; CANARY: CLIENT'S REPRESENTATIVE; PINK: RETAIN BY FOREMAN

					DAILI	11210				\sim				
CONTRAC	CT			LOCATIO	<u>ulului</u>	al		DATE.	K	ه (e /	<u>D</u>	19	£5
HOLE SIZ	EBB	ا	HOLE N	0		DRILL	TYPE ==	8	·	SHIF	т <u> Ф</u>	Die,		
		DIAN	IOND AF	RTICLES					FO	OTAGE	REPORT			
TYPE	NUMBER	OVERBL		BEDROCK	LEFT IN	N HOLE				-	CASING		DRII	LING
1117	HOMBEH	OVENDO		BEBLIOOK		111022	DERTHE	10 61116	-	-	CASTIN		W/G	
					_		DEPTH EN							
							DEPTH ST						24	6
		-					CASED OF					- ;	1	5
							CORE REC		ED				_	
		OTHER	SUPPLIE	SUSED			MATERIA			FRO	И	то	FE	ET
TRICON	E BITS		СНО	PPING BITS			OVERBUR	RDEN	-				-	200
AUGER	HEADS		AUG	ER TEETH			BEDROCK							
BENTON	NITE		ADD	ITIVES										
CEMENT	Γ								CA	ASING -	IN HOLE			
CORE B	OXES						LENGTH	AW	BW	NQ	NW	HW	ОТ	HER
SHELBY	TUBES						2 FT.							
SAMPLE	JARS						5 FT.							
PENETR	ATION CONES	S					10 FT.							
OTHER	(SPECIFY)													
								,c	ASIN	G - LEF	T IN HOI	-E		
ITEMS LEF	T IN HOLE (SP	ECIFY)			Mary Comment		LENGTH	AW	BW	NO	NW	HW	ОТ	HER
							2 FT.		-					
		TESTING	AND LO	GGING			5 FT.							
CLINOMET	ER	TROPA	RI	ОТ	HER		10 FT.							
		LABO	UR					DESCR	IPTIC	N OF	WORK			
RUNNERS	0		FROM	1 TO	TOT. HRS			<	-		HOURS			
	14	2	8	8	1/2					SPLSA	PUNNER	ELPER	OTHE	
										SP	WE	(AFA	"E	1
						WOR	K DETAIL				77	7,	1	
HELPERS	0					DRIL	LING OVER	RBURD	EN					
- in	Vian	49	_	3	14	DRIL	LING BEDF	ROCK			_/	2/	2	
						CASI	NG (DEPTH)				
20	Same and					REAL	MING (FRO	м т	0)				
OTHER			1000000			WAT	ERLINE (LE	NGTH)				
		10000			5	CEMI	ENT (AT		F	г.)				
						SET	UP OR TEAR	ROOWN	1					
						MOV	ING (DISTA	NCE)						
		EQUIP	MENT			WED	GING							
DRILL RIG	(HOURS)					TEST	ING							
TRACTOR ((HOURS)					AWA	ITING ORD	ERS						
	CK MILEAGE		0	RHOURS	•		AYS (SPECIF					16.0		
1/2 TON TR						REPA	AIRS (SPECI	FY)						
CAR						отн	ER (SPECIF	Y)					100	
CHAIN SAW	DAYS		0	RHOURS										
BOAT						МОВ	ILIZATION							
MOTOR								3 (S)						
OTHER										49400	200	15.000		
REMARKS:	2 - 2 - 2 - 2													
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1/1	mil						(,	11					
VI	120		<u> </u>				-	1		1	3			
	CLIE	ENT'S REP	RESENT	ATIVE				HU	MINE	RIFORE	WAN			200



		OAI.		DEDOI) T						39	•
			DAILY				6					
CONTRACT	L	OCATIO	1 VUI	ne		DATE_	X	20	<u>_</u>	10	<u></u> 1	9 <u>8 2</u>
HOLE SIZE	HOLE NO	_ 2		DRILL	TYPE	38		SHIFT		ni	ti	
	DIAMOND ART	ICLES					FOOT	AGE R	EPORT			
TYPE NUMBER OV	ERBURDEN B	EDROCK	LEFTIN	HOLE					CASING	3	DRIL	LING
					DEPTH E	ND SHIF	Т	200			6	28
					DEPTH ST	ART SH	HFT				46	21
					CASED OF						11	7
					CORE RE		D				1 4	
	HER SUPPLIES				OVERBUR		-	FROM	-	то	FE	ET
TRICONE BITS		HNG BITS			BEDROCK							
BENTONITE	ADDIT			-	DEDNOCE	99	-					
CEMENT	70011	1425					CAS	ING - IN	HOLE		1	
CORE BOXES					LENGTH	AW	BW	NQ	NW	HW	01	HER
SHELBY TUBES		50- 15-0-0			2 FT.							
SAMPLE JARS					5 FT.	20 20 20 20		-				
PENETRATION CONES					10 FT.							
OTHER (SPECIFY)						С	ASING	- LEFT	IN HOL	.E		
ITEMS LEFT IN HOLE (SPECI	FY)				LENGTH	AW	вw	NQ	NW	HW	01	HER
					2 FT.							
TES	TING AND LOG	GING			5 FT.							
CLINOMETER T	ROPARI	OT	HER		10 FT.							
								The Control				
	LABOUR	1	T-07 1100			DESCR	IPTION				-	
RUNNERS	FROM	8	/ Z			_			HOURS	_		
1 M Dury		0	1/6				100	VSA. AC	NNEA	ELPER	OTHE	
				WORK	CDETAIL			13	LA)	EA	1.	9
HELPERS /					LING OVE	RBURDE	EN.					
1 Luck	6	8	12	DRIL	LING BED	ROCK			1	2]	12	
/				CASIN	NG (DEPTH)				
				REAM	ING (FRO	м т	0)				
OTHER				WATE	RLINE (LE	NGTH)				
					NT (AT		FT.)	-	-		
					POR TEA				-	-	-	
			1		NG (DISTA	NCE)		-	-	-		
	QUIPMENT	1		WEDO				-	7.000			
DRILL RIG (HOURS)				TEST	TING ORD	EBS	V22 - 1 - 1 - 1			_		
TRACTOR (HOURS)	08	HOURS	1		YS (SPECI			1 10.0	_	_		
5,TON TRUCK MILEAGE	- On	.100113			IRS (SPEC							
CAR					R (SPECIF							
CHAIN SAW DAYS	OR	HOURS										40 0
BOAT			201	МОВІ	LIZATION							
MOTOR												
OTHER					15 545							
REMARKS:												
11		20.00	10000									19
. ////					,	/)					
Hilphi				(1	tu	MA					
	S REPRESENTA						NNER/					
DESIGNATIONS: WHITE: LO	GAN DRILLING	LTD.; CA	NARY: CLIE	NT'S REP	RESENTA	TIVE; PI	NK: RE	TAINE	YFOR	EMAN		

CONTRAC	т		_ LOCA	TION _	Wie	nal		DATE_	2	le	e/	//	19	9 £ 2
HOLE SIZ	E BC	HOLE	NO	2		DRILL	TYPE	38		_SHIFT	de	<u> </u>		
	-	DIAMOND	ARTICLE						500	TAGE R	ERORT			
TYPE	NUMBER	OVERBURDEN			LEFT I	HOLE			F00	TAGE H		_		
TYPE	NOMBER	OVERBURDER	BEDF	TOCK	LEFIII	HOLE	200 10 10 1000				CASING	3	DRIL	LING
							DEPTH EN						4	/ 7
			-				DEPTH ST						4 5	8 -
			ļ				CASED OF	PORILL	.ED				11	11
							CORE REC	COVERE	D			/		6
		OTHER SUPPL	IES USE	D			MATERIA	L		FROM		то	FE	ET
TRICON	E BITS	CI	OPPING	BITS			OVERBUR	RDEN						
AUGER	HEADS	A	JGER TE	ETH			BEDROCK							
BENTON	IITE	A	DITIVE	S										
CEMENT									CAS	SING - H	NHOLE			
CORE BO	OXES						LENGTH	AW	BW	NQ	NW	HW	OT	HER
SHELBY	TUBES	io minus man					2 FT.			1				
SAMPLE	JARS						5 FT.							
PENETR	ATION CONE	S					10 FT.			a lance of				
OTHER	(SPECIFY)								ASING	- LEFT	IN HOL	E		
ITEMS SE	T IN HOLE (SP	PECIEVI					LENGTH		BW	1			T ==	uee -
TIENS LEF	I IIV HOLE (SP	EGIFTI					LENGTH	AW	BW	NQ	NW	HW	01	HER
							2 FT.							0.00
		TESTING AND	LOGGING				5 FT.						-	
CLINOMET	ER	TROPARI		OTHE	R		10 FT.							
		LABOUR		1	100			DESCR	IPTION	OF				
RUNNERS	0	FR		TO T	OT. HRS			_			HOURS		_	
	me &	- 8		-	12				10	OLSA P	INNER	ELPER	OTHE	
										SA	VED	PEA	A.	9
						WOR	K DETAIL			\	\	\	-	
HELPERS	6'					DRIL	LING OVER	RBURDE	N		-	_	, -9	
	Theres	5	ل		1 cm	DRIL	LING BEDF	ROCK			_/	2/	-	
						CASI	NG (DEPTH)				
						REA	MING (FRO	M T	0)				
OTHER						WAT	ERLINE (LE	NGTH)				
						CEM	ENT (AT		FT.)		-		
						SET	UP OR TEAR	R DOWN						
						MOV	ING (DISTA	NCE)						
		EQUIPMENT	10.50			WED	GING							
DRILL RIG	(HOURS)	125.00				TEST	ING							
TRACTOR (HOURS)	later lend				AWA	ITING ORD	ERS						
5 TON TRU	CK MILEAGE		OR HOL	JRS		DEL	AYS (SPECIF	FY)						
1/2 TON TR	UCK	200.000				REPA	AIRS (SPECI	FY)	0.1 0.70					
CAR					S. Proposition of	отн	ER (SPECIF	Υ)						
CHAIN SAW	DAYS		OR HOL	JRS										
BOAT						МОВ	ILIZATION							
MOTOR														
OTHER										12.00				
OTHER														
REMARKS:													100	
TILIVIAN NO:														

	7,					72		_						
	1111							1		1			-	
14	IN i	1				1	CAR	1-1	ul	17				
1	CLI	ENT'S REPRESE	NTATIVE	=		1		RUI	NNER/	FOREN	IAN			



1				JUAN	DRIL	LIN) LITT	1151						
					DAILY	REPO	RT							41
\smile														
CONTRAC	т т		L	OCATION	Wir	ned .		DATE	(5	7	ed	11	1_1	82
	0	1		7	•		TYPE	-	0					
HOLE SIZI	E_ <u>B</u>	<u>Д</u> Н	OLE NO			DRILL	TYPE	5		_SHIF		uc	ß ,	
		DIAMO	OND ART	ICLES					FOO	TAGE	EPORT			
TYPE	NUMBER	OVERBUR		BEDROCK	LEFTIN	HOLE				12051	CASING		DBIL	LING
					-		DEPTH EN	ND SHIF	т	-	0710111		85	
							DEPTH ST						99	7
							CASED OF	DRILL	.ED				1	1
							CORE REC	OVER	D				0	/
		OTHERS	UPPLIES	USED			MATERIA	L ·		FROM		то	FE	ET
TRICON	E BITS		СНОР	PING BITS			OVERBUR	DEN						
AUGER	HEADS		AUGE	RTEETH			BEDROCK							
BENTON			ADDI1	TIVES										
CEMENT									1	SING - I	1	1		1907
CORE BO			-				LENGTH	AW	8W	NQ	NW	HW	ОТ	HER
SHELBY							2 FT.			_	-		-	
SAMPLE	ATION CONE						10 FT.			+	 			
	SPECIFY)	9					1011.						1	
								С	ASING	3 - LEFT	IN HOI	.E		
ITEMS LEFT	IN HOLE (SF	PECIFY)					LENGTH	AW	BW	NQ	NW	HW	ОТ	HER
							2 FT.							
		TESTING A	AND LOG	GING			5 FT.							
CLINOMETE	R	TROPAR	31	ОТН	ER	22122	10 FT.							
		LABOL	JR	1				DESCR	IPTIO	N OF	WORK			
RUNNERS	-1-		FROM	TO	17 HRS			_			HOURS			
M	Sunt	*	4	8	1				/ 4	SPLA	4	10	07%.	
	***************************************					14100	v 0574			SPVSA A	UNNER	ELPER	OTHE	9
UE 1 05.66	0						LING OVER	BURD		1	1	1	1	
HELPERS	1 ×	1	C	1	12		LING BEDF		-14		17		5	
7 "	Trux		9	0	,		NG (DEPTH)				
-							MING (FROM		0)				
OTHER							ERLINE (LE)				
						СЕМ	ENT (AT		FT	.)				
***************************************						SET	UP OR TEAR	NOO F	1					
						MOV	ING (DISTA	NCE)				-		
		EQUIPM	IENT	,		WED	GING							
DRILL RIG	(HOURS)					TEST					-	-		
TRACTOR (ITING ORD				11111111	-		
	CK MILEAGE		OR	HOURS			AYS (SPECIF			-	_			
1/2 TON TR	UCK						ER (SPECIF				-	-		
CAR	DAYS		0.8	HOURS		OTH	EN (SPECIF	17			+			
CHAIN SAW	DAYS		Un	HOUNS		MOB	ILIZATION				-			
MOTOR														
OTHER														
REMARKS:							(Fac)	200000		Files was				10
						1-1/1-1		200.00	wa.e					
	5795 T 9555													
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10%	au					7	- 17	20	-6	2_				
1 /	CLI	ENT'S REPE	RESENTA	TIVE			<u> </u>	RU	NNER	/FOREM	IAN			

DESIGNATIONS: WHITE: LOGAN DRILLING LTD.; CANARY: CLIENT'S REPRESENTATIVE; PINK: RETAIN BY FOREMAN



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CONTRAC	T		_ L(OCATIO	N Lil N	nac		DATE.	1	e	1	2	1	9
HOLE SIZ	E 13	AHOLE	NO.	_2		DRILL	TYPE	30	٢	SHIF	T de	any		
		DIAMOND	ARTI	CLES					FOOT	AGEF	REPORT			
TYPE	NUMBER	OVERBURDEN	8	EDROCK	LEFT II	NHOLE					CASING	3	DRIL	LING
							DEPTH EN	ND SHIF	т		1.000		9.	20
							DEPTH ST	ARTSH	HET				1	-(-
			+				CASED OF	RORILI	.ED			-		- (-
							CORE RE	COVER	ED				6	, 3
	5000	OTHER SUPPL	IES	JSED			MATERIA	L		FROM		то	FE	EET
TRICON	E BITS	C	HOPPI	ING BITS			OVERBUR	RDEN						
AUGER	HEADS	Α	UGEF	RTEETH			BEDROCK	:						
BENTON	IITE	A	TIGO	IVES										
CEMENT									Υ	ING - I	NHOLE	1	_	
COREBO							LENGTH	AW	BW	NQ	NW	HW	01	THER
SHELBY							2 FT.					1,270,7	-	
SAMPLE			-				5 FT.		-		-		-	
	ATION CONE	S					10 FT.		13	L				
OTHER	(SPECIFY)							C	ASING	- LEFT	IN HOL	_E		
ITEMS LEF	T IN HOLE (SE	PECIFY)					LENGTH	AW	8W	NQ	NW	HW	01	THER
							2 FT.							
Access to		TESTING AND	LOGG	BING			5 FT.							
CLINOMET	ER	TROPARI		ОТ	HER		10 FT.							
		LABOUR			1	-		DESCR	IPTION					
RUNNERS	1)	FR	ОМ	TO	TOT. HRS.			_			HOURS			
(×	()	5		6	110				20	VSA S	CN	E	OTHE	
						WOF	K DETAIL			Qb /	UNNER	ELDEA	/	4
HELDERS	2					DRII	LING OVE	RBURD	EN					
5):	Part	d		6	111	DRII	LING BEDF	ROCK			1/	01	0	
700	200 1	Dente at a 2.55				CAS	NG (DEPTH)				
					100000000000000000000000000000000000000	REA	MING (FRO	M T	0					
OTHER						WAT	ERLINE (LE	NGTH)		_		
					100000	CEM	ENT (AT		FT.)	_	-		
							UP OR TEA		4	-		\rightarrow		
					1		ING (DISTA	(NCE)				-		
		EQUIPMENT					GING		700	-	-	-4-		
DRILL RIG	(HOURS)				-	17070	FING			_	_	-		
TRACTOR							AYE ISBECT		500					
	CK MILEAGE		OR	HOURS			AYS (SPECI			+	-	_		
1/2 TON TR	IUCK						AIRS (SPECIE			-	-	-		
CAR			0.0	HOURS		011	ER (SPECIF	1)	11-21-2					
CHAIN SAV	V DAYS		OR	HOURS		MOE	ILIZATION			+-				
MOTOR					2007	11100	TELEATION			<u> </u>				
OTHER														
OTHER								Physics .						
REMARKS:														
							1000000	A. Carrier	De Saco					
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LOGAN DRILLING LIMITED

DAILY REPORT

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DESIGNATIONS: WHITE: LOGAN DRILLING LTD.; CANARY: CLIENT'S REPRESENTATIVE; PINK; RETAIN BY FOREMAN



DAILY REPORT

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LOGAN DRILLING LIMITED DAILY REPORT LOCATION CONTRACT ___ DRILL TYPE DIAMOND ARTICLES FOOTAGE REPORT TYPE NUMBER OVERBURDEN BEDROCK LEFT IN HOLE CASING DRILLING DEPTH END SHIFT DEPTH START SHIFT CASED OR DRILLED CORE RECOVERED MATERIAL OTHER SUPPLIES USED FROM TO FEET OVERBURDEN TRICONE BITS CHOPPING BITS AUGER HEADS AUGER TEETH BEDROCK BENTONITE ADDITIVES CASING - IN HOLE CEMENT LENGTH AW NQ NW OTHER CORE BOXES 2 FT. SHELBY TUBES 5 FT. SAMPLE JARS 10 FT. PENETRATION CONES OTHER (SPECIFY) CASING - LEFT IN HOLE ITEMS LEFT IN HOLE (SPECIFY) LENGTH AW 8W NQ NW OTHER 2 FT. TESTING AND LOGGING 5 FT. 10 FT. TROPARI OTHER CLINOMETER

LAB	OUR		20	DESCRIPTION OF WORK						
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M Lux		4	8	WORK DETAIL						
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11	f	4	18	DRILLING BEDROCK &						
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				REAMING (FROM TO)						
OTHER				WATERLINE (LENGTH)						
				CEMENT (AT FT.)						
				SET UP OR TEAR DOWN						
				MOVING (DISTANCE)						
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DRILL RIG (HOURS)				TESTING						
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5 TON TRUCK MILEAGE	OR	HOURS		DELAYS (SPECIFY)						
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CLIENT'S REPRESENTATIVE	RUNNER/FÖREMAN

DESIGNATIONS: WHITE: LOGAN DRILLING LTD.; CANARY: CLIENT'S REPRESENTATIVE; PINK: RETAIN BY FOREMAN



DAILY REPORT

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CONTRAC	тт			LOCATION	Win	al		DATE_	1) <u>o e</u>	16	2	19	8 2
HOLE SIZ	E Ba	но	LE N	0. 2		DRILL	TYPE	5		_SHIFT		da	4	
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SAMPLE	JARS						5 FT.							
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OTHER	(SPECIFY)									1			,	
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ITEMS LEF	T IN HOLE (SP	ECIFY)					LENGTH	AW	BW	NQ	NW	HW	OTHE	R
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APPENDIX II

LITHOLOGIC LOGS

LITHOLOGIC LOG

Hole No.: McAdam 1, EPB No. 319 Location: McAdam, N. B.

Latitude: 45°40.7' Longitude: 67°18.8'

Drilled by: Hop-Mun Drilling Drill Type: Longyear 38

Started: December 1, 1982 Completed: December 8, 1982

Dip: Vertical Final Depth: 397.0 metres

Logged by: G. Reid

0 - 1.5: NW CASING (Left in hole)

0 - 3.0: BW CASING (Left in hole, capped)

0 - 397.0: GRANITE

Medium to coarse grained, grey, biotite granite containing approximately 15 per cent biotite, 35 per cent quartz and 50 per cent potassic and plagioclase feldspar. Locally, porphyritic with phenocrysts of both feldspars. Biotite inclusions in plagioclase phenocrysts accentuate zoning. Potassic feldspar rimming plagioclase common. Local fracturing accompanied by alteration of the feldspars. Scattered biotite-rich xenoliths. Minor disseminated pyrite.

- 33.2: minor muscovite and pyrite along fractures.
- 47.3: xenoliths.
- 47.0 49.4: biotite altered to chlorite.
- 62.8 65.5: xenoliths.
- 88.4: xenoliths.
- 92.7: altered feldspar.
- 97.9 108.5: biotite-rich, altered feldspar.
- 129.3: broken core, sandy.
- 135.1 225.9: biotite inclusions in plagioclase.

146.6 - 147.6: quartz-feldspar veins up to 2.5 cm wide with minor pyrite.

149.4 - 155.5: strongly porphyritic.

160.7: xenoliths.

163.1: 5 cm quartz-feldspar vein.

169.2: disseminated pyrite.

189.3: xenoliths.

190.2 - 192.4: quartz-feldspar veins with altered feldspar.

200.9: narrow pyrite stringer.

218.0 - 222.3: fractured with clay minerals developed along fractures.

228.4 - 228.6: fine grained, buff colored dike.

235.7 - 245.1: scattered quartz-feldspar veins 3 to 5 cm wide.

243.9 - 249.4: numerous plagioclase phenocrysts.

247.8: xenolith.

257.3 and 265.5: narrow pyrite stringers.

267.4 - 268.0 and 271.0 - 274.7: fractures with reddish altered feldspar and biotite altered to chlorite.

276.5 - 281.4: minor disseminated pyrite.

283.2: xenolith.

288.7: quartz-feldspar-muscovite vein.

304.6 and 318.9: xenoliths.

321.6 and 327.4: minor pyrite.

323.8: 3 cm quartz-feldspar vein.

331.1 - 397.0: scattered fractures with altered feldspar and minor pyrite.

397.0 END OF HOLE

Core recovery - 100 per cent

Radiometry Measurements - the total count varied from 9 to 34 counts per second, averaging about 20 counts per second, with no obvious variation between rock types and phases.

Fluorescence - associated with fracture in fine grained dike rock from 228.4 to 228.6.

LITHOLOGIC LOG

Hole No: Welsford 1, EPB No. 320 Location: Welsford, N. B.

Latitude: 45°26.3' Longitude: 66°26.4'

Drilled by: Hop-Mun Drilling Drill Type: Longyear 38

Started: December 9, 1982 Completed: December 15, 1982

Dip: Vertical Final Depth: 371.3 metres

Logged by: G. Reid

0 - 6.1: BW CASING (Left in hole, capped)

0 - 226.5: ALTERED GRANITE

Generally coarse grained, reddish granite containing approximately 35 per cent quartz, 30 per cent pink potassic feldspar, 25 per cent plagioclase feldspar and less than 10 per cent mafics, mostly biotite. The plagioclase feldspar is strongly kaolinized and the biotite is altered to chlorite. Fracturing is present with accompanying more intense alteration; with broken and rubbly core resulting. Minor secondary muscovite and disseminated pyrite.

- 45.4 46.0: slightly brecciated.
- 46.0 46.6: medium grained phase with gradational margins.
- 50.9: potassic feldspar rimming plagioclase.
- 93.9 94.8: medium grained phase.
- 116.5 123.5 and 134.8 155.8: development of chlorite and muscovite.
- 179.9 184.4: fine grained reddish granite dike with hematitic stained fractures.
- 185.0 226.5: scattered hematite-rich veinlets with associated muscovite.
- 221.6: 20 cm wide fine grained dike.
- 223.2 223.5: hematite-rich zone.
- 223.5 226.5: silicified zone cut by narrow, vuggy quartz veins.

LITHOLOGIC LOG - WELSFORD 1 (cont'd.)

226.5 - 293.0 GRANITE

Generally coarse grained, reddish granite; the unaltered equivalent of the above section. Local silicified zones and narrow quartz veining with minor hematite.

230.5: grains of fluorite. 255.8 - 257.3: medium grained. 282.6 - 285.1: slightly altered.

293.0 - 320.1 ALTERED GRANITE

As from 0 - 226.5. Silicification and hematitic staining throughout. Locally slight brecciation.

320.1 - 355.2 GRANITE

As from 226.5 - 293.0. Some fracturing with hematitic staining.

342.4: plagioclase rimmed by potassic feldspar.
343.3: 10 cm wide fine grained zone.
350.6 - 352.1: scattered narrow quartz-feldspar veins with narrow, fine grained margins.

355.2 - 367.7 ALTERED GRANITE

As from 0 - 226.5 and 293.0 - 321.1. Plagioclase rimmed by potassic feldspar. Hematitic stained fractures with adjacent feldspar more intensely altered.

367.7 - 371.3 GRANITE

As in above sections 226.5 - 293.0 and 320.1 - 355.2.

LITHOLOGIC LOG - WELSFORD 1 (cont'd.)

371.3 END OF HOLE

Core Recovery - nearly 100 per cent, although often broken in the altered sections.

varied from 13 to 41 counts per second, averaging about 22 counts per second. Values of the altered phases were 2 to 4 counts per second less than those of the unaltered phases. Higher values, averaging 25 to 30 counts per second, were associated with hematitic stained fractures near bottom of hole.

Fluorescence - none observed.

APPENDIX III

Bottom Hole Temperatures

McAdam 1, EPB No. 319

	De	ate		Time (p.m.)	Depth (m)	Temp.	Remarks
E	ecember	1,	1982	3:45	13.0	6.184	Drift noted in
E	ecember	2,	1982	2:39	113.0	11.298	all readings.
Ε	ecember	3,	1982	2:30	145.0	7.923	
D	ecember	4,	1982	3:26	218.0	10.342	
E	ecember	5,	1982	3:30	299.0	12.697	
D	ecember	6,	1982	2:33	360.0	14.357	
	ecember	7,	1982	3:30	396.0	14.426	

Welsford 1, EPB No. 320

Da	ate		Time (p.m.)	Depth(m)	Temp.	Remarks
December	10,	1982	2:45	110.0	8.498	
December	11,	1982	3:00	235.0	16.016	
December	12,	1982	2:10	275.0	14.522	
December	13,	1982				Drill down, hole inaccessible
December	14,	1982	3:05	309.0	13,366	
December	15,	1982	2:15	339.0	16.311	
December	16,	1982	2:30	370.0	11.620	Drill down for 11 hours - stable.

APPENDIX IV

TEMPERATURE LOGS

Hole: McAdam 1, EPB No. 319 Location: McAdam, N. B.

Latitude: 45°40.7' 10-Hour Log - December 8, 1982

Longitude: 67°18.8' Thermistor No. 5326

Total Depth: 397.0m Logged Depth: 395.5m

Vertical Depth (m)	Cable Resist.(ohms)	Corrected Resist.(ohms)	Temp. (°C)	Lithology/Remarks
0.0 3.0 6.2 9.5 12.6	274	13,044 12,072 12,022 12,258 12,376	4.812 6.575 6.668 6.224 6.006	Log began about 10 hours after removal of drill rods.
15.7 18.8 21.8	275	12,420 12,376 12,367	5.925 6.006 6.025	Hole collared in bedrock.
24.9 27.9		12,268	6.206 6.255	Water at 0.0m. 0 - 397.0m: medium to
31.0 34.2 37.6 40.6	275	12,169 12,135 12,073 12,049	6.390 6.491 6.590 6.617	coarse grained, grey biotite granite with feldspar phenocrysts.
43.7 46.8 49.8		12,049 12,009 11,975 11,958	6.693 6.757 6.691	<pre>0 - 1.5m: NW Casing. 0 - 3.0m: BW Casing.</pre>
52.8 55.9 59.0		11,904 11,888 11,850	6.898 6.924 6.999	
62.1 65.3 68.5 71.6 74.7 77.8 80.8 83.9 87.0 90.0	276	11,816 11,783 11,746 11,730 11,704 11,684 11,687 11,649 11,616 11,589	7.065 7.129 7.201 7.232 7.283 7.326 7.317 7.391 7.457 7.510	

Hole: McAdam 1 (Cont'd.) Location:

10-Hour Log

Latitude:

Longitude: Thermistor No.

Total Depth: Logged Depth:

Vertical Depth (m)	Cable Resist.(ohms)	Corrected Resist.(ohms)	Temp.(OC)	Lithology/Remarks
93.4 96.8 100.4 103.1 105.7 108.7 111.8 114.8 117.9 120.9	277	11,570 11,547 11,519 11,488 11,479 11,455 11,438 11,398 11,384 11,354	7.548 7.594 7.649 7.711 7.729 7.778 7.812 7.892 7.921 7.982	
124.0 127.0 130.1 133.3 136.5 139.6 142.7 145.8 148.9 151.9	278	11,320 11,315 11,291 11,258 11,243 11,216 11,190 11,182 11,158 11,133	8.051 8.061 8.110 8.177 8.208 8.264 8.317 8.334 8.383 8.436	
155.0 158.1 161.1 164.1 167.1 170.1 173.2 176.4 179.6 182.6	278	11,123 11,108 11,085 11,047 11,030 10,994 10,980 10,947 10,919	8.477 8.485 8.535 8.614 8.650 8.726 8.755 8.825 8.884 8.944	

Hole: McAdam 1 (Cont'd.) Location:

10-Hour Log

Latitude:

Longitude:

Thermistor No.

Total Depth: Logged Depth:

185.5 277 10,870 8.989 188.5 10,844 9.041 191.5 10,825 9.085 195.0 10,792 9.165 198.3 10,760 9.225 201.6 10,707 9.340 205.8 10,670 9.420 211.0 10,619 9,531 214.5 10,607 9.558 218.0 10,528 9.731 221.5 276 10,473 9.853 224.8 10,393 10.032 228.1 10,338 10.156 231.7 10,337 10.158 235.3 10,392 10.034 238.8 10,377 10.068 243.3 10,330 10.174 248.4 10,279 10.289 251.4 10,244 10.369 254.5 10,217 10.431
191.5 10,825 9.085 195.0 10,792 9.165 198.3 10,760 9.225 201.6 10,707 9.340 205.8 10,670 9.420 211.0 10,619 9,531 214.5 10,607 9.558 218.0 10,528 9.731 221.5 276 10,473 9.853 224.8 10,393 10.032 228.1 10,338 10.156 231.7 10,337 10.158 235.3 10,392 10.034 238.8 10,377 10.068 243.3 10,330 10.174 248.4 10,279 10.289 251.4 10,244 10.369
195.0 10,792 9.165 198.3 10,760 9.225 201.6 10,707 9.340 205.8 10,670 9.420 211.0 10,619 9,531 214.5 10,607 9.558 218.0 10,528 9.731 221.5 276 10,473 9.853 224.8 10,393 10.032 228.1 10,338 10.156 231.7 10,337 10.158 235.3 10,392 10.034 238.8 10,377 10.068 243.3 10,330 10.174 248.4 10,279 10.289 251.4 10,244 10.369
198.3 10,760 9.225 201.6 10,707 9.340 205.8 10,670 9.420 211.0 10,619 9,531 214.5 10,607 9.558 218.0 10,528 9.731 221.5 276 10,473 9.853 224.8 10,393 10.032 228.1 10,338 10.156 231.7 10,337 10.158 235.3 10,392 10.034 238.8 10,377 10.068 243.3 10,330 10.174 248.4 10,279 10.289 251.4 10,244 10.369
201.6 10,707 9.340 205.8 10,670 9.420 211.0 10,619 9,531 214.5 10,607 9.558 218.0 10,528 9.731 221.5 276 10,473 9.853 224.8 10,393 10.032 228.1 10,338 10.156 231.7 10,337 10.158 235.3 10,392 10.034 238.8 10,377 10.068 243.3 10,330 10.174 248.4 10,279 10.289 251.4 10,244 10.369
205.8 10,670 9.420 211.0 10,619 9,531 214.5 10,607 9.558 218.0 10,528 9.731 221.5 276 10,473 9.853 224.8 10,393 10.032 228.1 10,338 10.156 231.7 10,337 10.158 235.3 10,392 10.034 238.8 10,377 10.068 243.3 10,330 10.174 248.4 10,279 10.289 251.4 10,244 10.369
211.0 10,619 9,531 214.5 10,607 9.558 218.0 10,528 9.731 221.5 276 10,473 9.853 224.8 10,393 10.032 228.1 10,338 10.156 231.7 10,337 10.158 235.3 10,392 10.034 238.8 10,377 10.068 243.3 10,330 10.174 248.4 10,279 10.289 251.4 10,244 10.369
214.5 10,607 9.558 218.0 10,528 9.731 221.5 276 10,473 9.853 224.8 10,393 10.032 228.1 10,338 10.156 231.7 10,337 10.158 235.3 10,392 10.034 238.8 10,377 10.068 243.3 10,330 10.174 248.4 10,279 10.289 251.4 10,244 10.369
218.0 10,528 9.731 221.5 276 10,473 9.853 224.8 10,393 10.032 228.1 10,338 10.156 231.7 10,337 10.158 235.3 10,392 10.034 238.8 10,377 10.068 243.3 10,330 10.174 248.4 10,279 10.289 251.4 10,244 10.369
221.5 276 10,473 9.853 224.8 10,393 10.032 228.1 10,338 10.156 231.7 10,337 10.158 235.3 10,392 10.034 238.8 10,377 10.068 243.3 10,330 10.174 248.4 10,279 10.289 251.4 10,244 10.369
224.8 10,393 10.032 228.1 10,338 10.156 231.7 10,337 10.158 235.3 10,392 10.034 238.8 10,377 10.068 243.3 10,330 10.174 248.4 10,279 10.289 251.4 10,244 10.369
228.1 10,338 10.156 231.7 10,337 10.158 235.3 10,392 10.034 238.8 10,377 10.068 243.3 10,330 10.174 248.4 10,279 10.289 251.4 10,244 10.369
231.7 10,337 10.158 235.3 10,392 10.034 238.8 10,377 10.068 243.3 10,330 10.174 248.4 10,279 10.289 251.4 10,244 10.369
235.3 10,392 10.034 238.8 10,377 10.068 243.3 10,330 10.174 248.4 10,279 10.289 251.4 10,244 10.369
238.8 10,377 10.068 243.3 10,330 10.174 248.4 10,279 10.289 251.4 10,244 10.369
243.3 10,330 10.174 248.4 10,279 10.289 251.4 10,244 10.369
248.4 10,279 10.289 251.4 10,244 10.369
251.4 10,244 10.369
•
254.5 10,217 10.431
257.5 275 10,180 10.516
260.6 10,143 10.601
263.8 10,100 10.700
267.0 10,076 10.756
270.2 10,030 10.863
273.4 9,998 10.939
276.7 10,057 10.800
280.0 10,033 10.856
283.3 10,005 10.921
286.6 9,978 10.984

Hole: McAdam 1 (Cont'd.) Location:

10-Hour Log

Latitude:

Longitude:

Thermistor No.

Total Depth:

Logged Depth:

Vertical Depth (m)	Cable Resist.(ohms)	Corrected Resist.(ohms)	Temp. (°C)	Lithology/Remarks
289.9 292.9 295.9 298.8 301.9 305.1 308.3 311.4 314.5	275	9,945 9,918 9,888 9,860 9,830 9,802 9,779 9,748 9,726	11.061 11.125 11.196 11.263 11.334 11.401 11.456 11.531 11.585	
317.7 320.9	275	9,699	11.649	
323.9 326.9 329.9 333.2 336.4		9,651 9,627 9,607 9,577 9,550	11.767 11.825 11.874 11.948 12.014	
339.7 342.9 346.1 349.3		9,526 9,507 9,482 9,458	12.074 12.121 12.186 12.243	
352.3 355.4 358.4 361.5 364.6 368.8 371.0 374.1 377.2	275	9,436 9,409 9,391 9,374 9,361 9,343 9,327 9,318 9,312	12.298 12.365 12.411 12.453 12.487 12.532 12.572 12.595 12.608	
380.3		9,308	12.620	

Hole: McAdam 1 (Cont'd.) Location:

10-Hour Log

Latitude:

Longitude:

Thermistor No.

Total Depth:

Logged Depth:

Vertical Depth (m)	Cable Resist.(ohms)	Corrected Resist.(ohms)	Temp. (°C)	Lithology/Remarks
383.4 386.4 389.5 392.5 395.5	275	9,315 9,335 9,340 9,350 9,380	12.603 12.552 12.539 12.514 12.433	End of log.

Hole: McAdam 1, EPB No. 319 Location: McAdam, N. B.

Latitude: 45°40.7' 34-Hour Log - December 9, 1982.

Longitude: 67°18.8' Thermistor No. 5326

Total Depth: 397.0m Logged Depth: 395.0m

	6.3.3			
Vertical	Cable	Corrected	m 1901	Titheleman / Demander
Depth (In)	Resist. (Onms)	Resist. (Ohms)	Temp. (°C)	Lithology/Remarks
0.0	268	12,956	4.965	Log began about 34
5.0		12,124	6.856	hours after removal
10.0		12,266	6.210	of drill rods.
15.0		12,752	5.325	
20.0		12,528	5.728	Hole collared in
25.0		12,456	5.892	bedrock.
30.0		12,412	5.940	
35.0		12,252	6.235	Water at 0.0m.
40.0		12,206	6.321	
45.0		12,170	6.389	0 - 397.0m: medium
				to coarse grained,
50.0	268	12,106	6.509	grey biotite granite
55.0		12,015	6.683	with feldspar
60.0		12,023	6.667	phenocrysts.
65.0		11,936	6.835	
70.0		11,888	6.926	0 - 1.5m: NW Casing.
75.0		11,832	7.034	
80.0		11,805	7.086	0 - 3.0m: BW Casing.
85.0		11,791	7.113	
90.0		11,745	7.214	
95.9		11,707	7.277	
100 0	0.60			
100.0	268	11,656	7.377	
105.0		11,610	7.468	
110.0		11,564	7.540	
115.0		11,521	7.645	
120.0		11,490	7.707	
125.0		11,447	7.794	
130.0		11,398	7.892	
135.0		11,364	7.961	
140.0		11,313	8.065	
145.0		11,280	8.130	

Hole: McAdam 1 (Cont'd.) Location:

34-Hour Log

Latitude:

Longitude:

Thermistor No.

Total Depth:

Logged Depth:

Vertical Depth (m)	Cable Resist.(ohms)	Corrected Resist.(ohms)	Temp.(°C)	Lithology/Remarks
150.0 155.0 160.0 165.0 170.0 175.0 180.0 185.0 190.0	268	11,241 11,192 11,149 11,110 11,063 11,109 11,995 11,949 10,908 10,863	8.212 8.313 8.402 8.483 8.581 8.278 8.724 8.821 8,908 9.004	
200.0 205.0 210.0 215.0 220.0 225.0 230.0 235.0 240.0 245.0	269	10,827 10,774 10,728 10,606 10,573 10,487 10,377 10,448 10,435 10,377	9.081 9.195 9.293 9.560 9.632 9.823 10.068 9.909 9.938 10.067	
250.0 255.0 260.0 265.0 270.0 275.0 280.0 285.0 290.0	270	10,323 10,286 10,240 10,164 10,135 10,107 10,112 10,070 10,030 9,981	10.190 10.274 10.378 10.553 10.619 10.784 10.675 10.770 10.863 10.971	

Hole: McAdam 1, (Cont'd.) Location: 34-Hour Log

Latitude:

Longitude:

Thermistor No.

Total Depth:

Logged Depth:

Vertical Depth (m)	Cable Resist.(ohms)	Corrected Resist.(ohms)	Temp. (°C)	Lithology/Remarks
300.0	272	9,941	11.071	
305.0		9,888	11.196	
310.0		9,852	11.282	
315.0		9,810	11.382	
320.0		9,773	11.471	
325.0		9,734	11.564	•
330.0		9,700	11.647	
335.0		9,646	11.779	
340.0		9,622	11.837	
345.0		9,583	11.933	
350.0	273	9,551	12.012	
355.0		9,510	12.113	
360.0		9,483	12.180	
365.0		9,456	12.261	
370.0		9,427	12,320	
375.0		9,401	12.386	
380.0		9,387	12.421	
385.0		9,388	12.418	
390.0		9,384	12.428	
395.0		9,389	12.414	End of log.

Hole: McAdam 1, EPB No.319 Location: McAdam, N. B.

Latitude: 45°40.7' 82-Hour Log - December 11,1982

Longitude: 67°18.8' Thermistor No. 5326

Total Depth: 397.0m Logged Depth: 395.0m

Vertical Depth (m)	Cable Resist.(ohms)	Corrected Resist.(ohms)	Temp.(°C)	Lithology/Remarks
5.0 10.0 15.0 20.0	262	12,013 12,159 12,482 12,597	6.686 6.410 5.811 5.604	Log began about 82 hours after removal of drill rods.
25.0 30.0 35.0		12,535 12,535 12,389	5.715 5.715 5.982	Hole collared in bedrock.
40.0 45.0	264	12,324 12,308	6.102 6.132 6.265	Water at 0.0m. 0 - 397.0m: medium to coarse grained, grey
50.0 55.0 60.0 65.0	204	12,156 12,124 12,056	6.416 6.475 6.605	biotite granite with feldspar phenocrysts.
70.0 75.0 80.0		11,995 11,961 11,919	6.720 6.785 6.866	0 - 1.5m: NW Casing. 0 - 3.0m: BW Casing.
85.0 95.0	266	11,853 11,823 11,762	6.993 7.051 7.170	
105.0 110.0 115.0	200	11,716 11,675 11,642	7.260 7.340 7.405	
120.0 125.0 130.0 135.0 140.0		11,586 11,542 11,501 11,457 11,411	7.516 7.603 7.685 7.774 7.866	
145.0		11,369	7.951	

Hole: McAdam 1 (Cont'd.) Location:

82-Hour Log

Latitude:

Longitude: Thermistor No.

Total Depth: Logged Depth:

Vertical Depth (m)	Cable Resist.(ohms)	Corrected Resist.(ohms)	Temp. (°C)	Lithology/Remarks
150.0	269	11,313	8.065	
155.0		11,278	8.136	
160.0		11,222	8.252	
165.0		11,175	8.348	
170.0		11,118	8.466	
175.0		11,087	8.531	
180.0		11,060	8.587	
185.0		11,014	8.684	
190.0		10,969	8.779	
195.0		10,926	8.869	
200.0	271	10,867	8.995	
205.0		10,840	9.053	
210.0		10,777	9.188	
215.0		10,719	9.313	
220.0		10,643	9.477	
225.0		10,579	9.619	
230.0		10,428	9.954	
235.0		10,528	9.731	
240.0		10,510	9.771	
245.0		10,473	9.853	
250.0	273	10,410	9.994	
255.0		10,375	10.073	
260.0		10,316	10.206	
265.0		10,277	10.294	
270.0		10,221	10.422	
275.0		10,216	10.433	
280.0		10,195	10.482	
285.0		10,156	10.571	
290.0		10,111	10.674	
295.0		10,075	10.757	

Hole: McAdam 1 (Cont'd.) Location: 82-Hour Log

Latitude:

Longitude:

Thermistor No.

Total Depth:

Logged Depth:

Vertical Depth (m)	Cable Resist.(ohms)	Corrected Resist.(ohms)	Temp. (°C)	Lithology/Remarks
300.0	274	10,022	10.880	
305.0		9,985	10.967	
310.0		9,941	11.071	
315.0		9,922	11.115	
320.0		9,865	11.251	
325.0		9,830	11.334	•
330.0		9,786	11.440	
335.0		9,755	11.514	
340.0		9,710	11.623	
345.0		9,682	11.691	
350.0	276	9,641	11.791	
355.0		9,606	11.873	
360.0		9,570	11.965	
365.0		9,543	12.031	
370.0		9,507	12.121	
375.0		9,483	12.180	
380.0		9,454	12.252	
385.0		9,440	12.288	
390.0		9,418	12.343	
395.0		9,401	12.386	End of log.

Hole: McAdam 1, EPB No. 319 Location: McAdam, N. B.

Latitude: 45°40.7' 5-Month Log - May 3, 1983

Longitude: 67°18.8' Thermistor No. 5326

Total Depth: 397.0m Logged Depth: 395.0m

0.0 288 12,129 6.466 5.0 13,297 6.153 10.0 12,329 6.093	Log run about 5 months after cessa- tion of drilling Hole collared in
15.0 11,986 6.736	Hole collared in
20.0 11,980 6.749 25.0 12,052 5.620 30.0 12,048 5.612	bedrock
35.0 12,019 6.675 40.0 11,981 6.747 45.0 11,931 6.843	Water 0.0m 0 - 397.0m: medium
50.0 287 11,884 6.933 55.0 11,840 7.018 60.0 11,784 7.127 65.0 11,741 7.211	to coarse grained, grey biotite granite with feldspar phenocrysts
70.0 11,693 7.305 75.0 11,643 7.403 80.0 11,599 7.490 85.0 11,555 7.578 90.0 11,511 7.665	0 - 1.5m: NW Casing 0 - 3.0m: BW Casing
95.0 11,466 7.756 100.0 287 11,425 7.838 105.0 11,381 7.927 110.0 11,328 8.034 115.0 11,281 8.130 120.0 11,232 8.231 125.0 11,189 8.319 130.0 11,138 8.425 135.0 11,088 8.529 140.0 11,046 8.616	

Hole: McAdam 1 (cont'd.) Location:

5-Month Log

Latitude:

Longitude:

Thermistor No.

Total Depth:

Vertical Depth (m)	Cable Resist.(ohms)	Corrected Resist.(ohms)	Temp.(°C)	Lithology/Remarks
150.0 155.0 160.0 165.0 170.0	287	10,949 10,897 10,848 10,786 10,743	8.821 8.931 9.035 9.165 9.261 9.363	
180.0 185.0 190.0 195.0		10,696 10,654 10,610 10,559 10,520	9.455 9.455 9.551 9.663 9.749	
200.0 205.0 210.0 215.0 220.0 225.0 230.0 235.0 240.0 245.0	286	10,465 10,423 10,379 10,335 10,285 10,235 10,185 10,137 10,102 10,062	9.871 9.965 10.063 10.163 10.276 10.389 10.503 10.615 10.695 10.858	
250.0 255.0 260.0 265.0 270.0 275.0 280.0 285.0 290.0	286	10,017 9,977 9,932 9,891 9,854 9,832 9,784 9,744 9,701 9,659	10.894 10.985 11.092 11.189 11.277 11.329 11.444 11.540 11.645 11.722	

Hole: McAdam 1 (cont'd.) Location:

5-Month Log

Latitude:

Longitude:

Thermistor No.

Total Depth:

Vertical	Cable	Corrected		
Depth (m)	Resist. (ohms)	Resist. (ohms)	Temp. (OC)	Lithology/Remarks
300.0	286	9,614	11.856	
305.0		9,573	11.958	
310.0		9,533	12.057	
315.0		9,490	12.163	
320.0		9,448	12.268	
325.0		9,412	12.358	
330.0		9,370	12.463	
335.0		9,332	12.560	
340.0		9,287	12.673	
345.0		9,250	12.768	
350.0	286	9,208	12.876	
355.0		9,171	12.971	
360.0		9,128	13.083	
365.0		9,087	13.191	
370.0		9,050	13.287	
375.0		0,021	13.363	
380.0		8,977	13.480	
385.0		8,937	13.586	
390.0		8,895	13.698	
395.0		8,864	13.781	End of log

Hole: Welsford 1, EPB No. 320 Location: Welsford, N. B.

Latitude: 45°26.3' 0-Hour Log - December 17, 1982

Longitude: 66°26.4' Thermistor No. 5326

Vertical Depth (m)	Cable Resist.(ohms)	Corrected Resist.(ohms)	Temp.(°C)	Lithology/Remarks
0.0 5.0 10.0	275	13,805 12,361 12,336	3.535 6.034 6.080	Log began immediately after removal of rods.
15.0		12,364	6.028	Hole collared in
20.0		12,437	5.895	bedrock.
25.0		12,497	5.785	
30.0		12,537	5.676	0 - 6.lm: BW Casing.
35.0		12,595	5.607	
40.0		12,537	5.712	0 - 371.3m: coarse
45.0		12,479	5.817	grained reddish granite
FO 0	274	12 402	. 050	with repeating altered
50.0	274	12,402	5.958	and unaltered phases.
55.0		12,331	6.089	
60.0 65.0		12,259 12,199	6.223 6.335	
70.0		12,138	6.449	
75.0		12,091	6.538	
80.0		12,039	6.637	
85.0		11,980	6.749	
90.0		11,926	6.843	
95.0		11,865	6.969	
100.0	274	11,803	7.090	
105.0		11,708	7.275	
110.0		11,670	7.350	
115.0		11,634	7.421	
120.0		11,574	7.540	
125.0		11,476	7.735	
130.0		11,331	8.028	
135.0		11,372	7.945	
140.0		11,329	8.032	
145.0		11,282	8.128	

Hole: Welsford 1 (Cont'd.) Location:

0-Hour Log

Latitude:

Longitude: Thermistor No.

Total Depth: Logged Depth:

				*
Vertical	Cable	Corrected		
Depth (m)	Resist. (ohms)	Resist. (ohms)	Temp. (°C)	Lithology/Remarks
150.0	274	11,224	8.248	
155.0		11,179	8.340	
160.0		11,139	8.423	
165.0		11,101	8.502	
170.0		11,075	8.556	
175.0		11,027	8.656	
180.0		10,974	8.768	
185.0		10,954	8.811	
190.0		10,921	8.880	
195.0		10,887	8.952	
200.0	274	10,842	9.049	
205.0		10,800	9.139	
210.0		10,764	9.216	
215.0		10,718	9.315	
220.0		10,672	9.416	
225.0		10,637	9.492	
230.0		10,589	9.597	
235.0		10,563	9.654	
240.0		10,521	9.747	
245.0		10,487	9.823	
250.0	274	10,446	9.914	
255.0		10,412	9.990	
260.0		10,373	10.077	
265.0		10,332	10.169	
270.0		10,289	10.267	
275.0		10,253	10.349	
280.0		10,207	10.451	
285.0		10,176	10.525	
290.0		10,136	10.617	
295.0		10,087	10.730	

Hole: Welsford 1 (Cont'd.) 0-Hour Log Location:

Latitude:

Thermistor No. Longitude:

Total Depth: Logged Depth:

Vertical Depth (m)	Cable Resist.(ohms)	Corrected Resist.(ohms)	Temp. (°C)	Lithology/Remarks
300.0	275	10,036	10.848	
305.0		9,994	10.946	
310.0		9,954	11.040	
315.0		9,920	11.120	
320.0		9,883	11.208	
325.0		9,853	11.280	
330.0		9,839	11.312	
335.0		9,815	11.370	
340.0		9,801	11.404	
345.0		9,781	11.452	
350.0	275	9,758	11.507	
355.0		9,744	11.540	
360.0		9,730	11.575	
365.0		9,737	11.557	
370.0		9,766	11.488	End of log.

Hole: Welsford 1, EPB No. 320 Location: Welsford, N. B.

Latitude: 45°26.3' 24-Hour Log - December 12, 1982

Longitude: 66°26.4' Thermistor No. 5326

Vertical	Cable	Corrected		
Depth (m)	Resist. (ohms)	Resist.(ohms)	Temp. (°C)	Lithology/Remarks
	050	15 000		
0.0	259	15,037	1.628	Log began 24 hours
5.0		12,175	6.380	after removal of
10.0		12,212	6.310	drill rods.
15.0		12,208	6.318	
20.0		12,276	6.192	Hole collared in
25.0		12,324	6.101	bedrock.
30.0		12,371	6.015	
35.0		12,464	5.844	0 - 6.lm: BW Casing.
40.0		12,445	5.880	
45.0		12,420	5.925	0 - 371.3m: coarse
				grained reddish granite
50.0	262	12,364	6.028	with repeating altered
55.0		12,306	6.136	and unaltered phases.
60.0		12,257	6.227	
65.0		12,198	6.342	
70.0		12,151	6.425	
75.0		12,101	6.519	
80.0		12,046	6.624	
85.0		12,015	6.683	
90.0		11,950	6.721	
95.0		11,900	6.902	
		•		
100.0	263	11,847	7.005	
105.0		11,757	7.180	
110.0		11,722	7.248	
115.0		11,679	7.332	
120.0		11,633	7.423	
125.0		11,529	7.629	
130.0		11,402	7.884	
135.0		11,437	7.814	
140.0		11,395	7.898	
145.0		11,352	7.986	

Hole: Welsford 1 (Cont'd.) Location:

24-Hour Log

Latitude:

Longitude: Thermistor No.

Total Depth: Logged Depth:

Vertical Depth (m)	Cable Resist.(ohms)	Corrected Resist.(ohms)	Temp. (°C)	Lithology/Remarks
150.0	265	11,298	8.096	
155.0		11,243	8.208	
160.0		11,209	8.278	
165.0		11,171	8.357	
170.0		11,139	8.423	
175.0		11,096	8.512	
180.0		11,046	8.616	
185.0		11,018	8.675	
190.0		10,987	8.740	
195.0		10,944	8.832	
200.0	267	10,910	8.904	
205.0		10,863	9.004	
210.0		10,828	9.078	
215.0		10,789	9.162	
220.0		10,745	9.257	
225.0		10,700	9.355	
230.0		10,662	9.438	
235.0		10,626	9.516	
240.0		10,589	9.597	
245.0		10,549	9.685	
250.0	270	10,520	9.549	
255.0		10,477	9.845	
260.0		10,446	9.914	
265.0		10,403	10.009	
270.0		10,363	10.099	
275.0		10,323	10.167	
280.0		10,289	10.267	
285.0		10,247	10.363	
290.0		10,218	10.429	
295.0		10,168	10.544	

Hole: Welsford 1 (Cont'd.) Location: 24-Hour Log

Latitude:

Longitude:

Thermistor No.

Total Depth:

Vertical Depth (m)	Cable Resist.(ohms)	Corrected Resist.(ohms)	Temp. (°C)	Lithology/Remarks
300.0 305.0 310.0 315.0 320.0 325.0 330.0 335.0 340.0	272	10,124 10,084 10,042 10,005 9,971 9,940 9,923 9,894 9,877 9,849	10.645 10.736 10.833 10.921 11.001 11.073 11.113 11.182 11.223 11.289	
350.0 355.0 360.0 365.0 370.0	274	9,849 9,827 9,802 9,778 9,770 9,773	11.344 11.402 11.458 11.478 11.470	End of log.

Hole: Welsford 1, EPB No. 320 Location: Welsford, N. B.

Latitude: 45°26.3' 72-Hour Log - December 20, 1982

Longitude: 66°26.4' Thermistor No. 5326

Vertical	Cable	Corrected		
Depth (m)	Resist. (ohms)	Resist.(ohms)	Temp. (°C)	Lithology/Remarks
0.0	271	14,994	1.691	Log began 72 hours
5.0		12,077	6.565	after removal of
10.0		12,055	6.607	drill rods.
15.0		12,119	6.485	
20.0		12,191	6.350	Hole collared in
25.0		12,262	6.217	bedrock.
30.0		12,302	6.143	20015
35.0		12,400	5,962	0 - 6.lm: BW Casing.
40.0		12,394	5.972	
45.0		12,384	5.991	0 - 371.3m: coarse
				grained reddish granite
50.0	270	12,352	6.050	with repeating altered
55.0		12,306	6.136	and unaltered phases.
60.0		12,262	6.217	P. C.
65.0		12,214	6.306	
70.0		12,168	6.393	
75.0		12,127	6.470	
80.0		12,087	6.546	
85.0		12,037	6.641	
90.0		11,995	6.720	
95.0		11,950	6.806	
300 0	0.53			
100.0	271	11,895	6.912	
105.0		11,826	7.046	
110.0		11,788	7.119	
115.0		11,752	7.191	
120.0		11,689	7.313	
125.0		11,605	7.478	
130.0		11,502	7.683	
135.0		11,523	7.641	
140.0		11,484	7.719	
145.0		11,437	7.814	

Hole: Welsford 1 (Cont'd,) Location:

72-Hour log

Latitude:

Longitude:

Thermistor No.

Total Depth:

Vertical Depth (m)	Cable Resist.(ohms)	Corrected Resist.(ohms)	Temp.(°C)	Lithology/Remarks
150.0 155.0 160.0 165.0 170.0 175.0 180.0 185.0 190.0	272	11,391 11,346 11,303 11,264 11,230 11,188 11,141 11,111 11,070 11,036	7.907 7.998 8.086 8.165 8.235 8.321 8.419 8.481 8.567 8.637	
200.0 205.0 210.0 215.0 220.0 225.0 230.0 235.0 240.0 245.0	273	10,993 10,953 10,911 10,868 10,830 10,784 10,742 10,705 10,667 10,629	8.738 8.813 8.902 8.991 9.071 9,173 9,264 9.344 9.427 9.509	
250.0 255.0 260.0 265.0 270.0 275.0 280.0 285.0 290.0	274	10,597 10,557 10,520 10,482 10,441 10,403 10,364 10,328 10,290 10,247	9.580 9.668 9.749 9.834 9.925 10.009 10.097 10.178 10.265 10.363	

Hole: Welsford 1 (Cont'd.) Location: 72-Hour log

Latitude:

Longitude:

Thermistor No.

Total Depth:

Vertical Depth (m)	Cable Resist.(ohms)	Corrected Resist.(ohms)	Temp.(°C)	Lithology/Remarks
300.0 305.0	274	10,202	10.465	
310.0 315.0 320.0		10,126 10,102 10,053	10.640	
325.0 330.0		10,033	10.812 10.881 10.940	
335.0 340.0		9,965 9,936	11.014	
345.0	275	9,905	11.156	
350.0 355.0 360.0 365.0	275	9,875 9,847 9,816 9,795	11.227 11.294 11.368 11.418	
370.0		9,783	11.446	End of log

Hole: Welsford 1, EPB No. 320 Location: Welsford, N. B.

Latitude: 45°26.3' 5-Month Log - May 4, 1983

Longitude: 66°26.4° Thermistor No. 5326

Vertical	Cable	Corrected		
			Temp. (°C)	Lithology/Remarks
0.0	294	12,112	6.497	Log run about 5
5.0		12,260	6.221	months after
10.0		12,405	5.953	cessation of
15.0		12,082	6.557	drilling
20.0		11,939	6.827	-
25.0		11,894	6.914	Hole collared in
30.0		11,872	6.952	bedrock
35.0		11,863	6.973	
40.0		11,853	6.993	0 - 6.lm: BW casing
45.0		11,792	7.111	
				0 - 371.3m: coarse
50.0	294	11,774	7.146	grained reddest
55.0		11,745	7.203	granite with repeat-
60.0		11,734	7.224	ing altered and un-
65.0		11,706	7.278	altered phases
70.0		11,686	7.319	
75.0		11,652	7.385	
80.0		11,627	7.435	
85.0		11,591	7.506	
90.0		11,564	7.560	
95.0		11,506	7.671	
100.0	294	11,493	7.701	
105.0		11,449	7.790	
110.0		11,417	7.854	
115.0		11,375	7.939	
120.0		11,341	8.008	
125.0		11,299	8.094	
130.0		11,261	8.171	-
135.0		11,218	8.260	
140.0		11,177	8.344	
145.0		11,134	8.434	

Hole: Welsford 1 (cont'd.) Location: 5-month Log

Latitude:

Longitude:

Thermistor No.

Total Depth:

Vertical Depth (m)	Cable Resist.(ohms)	Corrected Resist.(ohms)	Temp. (°C)	Lithology/Remarks
150.0	293	11,096	8.513	
155.0		11,056	8.595	
160.0		11,017	8.677	
165.0		10,974	8.769	
170.0		10,932	8.857	
175.0		10,872	8.985	
180.0		10,852	9.027	
185.0		10,811	9.115	
190.0		10,769	9.205	
195.0		10,729	9.291	
200.0	293	10,692	9.372	
205.0		10,644	9.476	
210.0		10,604	9.565	
215.0		10,559	9.663	
220.0		10,519	9.751	
225.0		10,468	9.864	
230.0		10,437	9.934	
235.0		10,385	10.050	
240.0		10,346	10.138	
245.0		10,308	10.223	
250.0	293	10,268	10.315	
255.0		10,222	10.419	
260.0		10,188	10.498	-
265.0		10,141	10.605	
270.0		10,104	10.690	
275.0		10,062	10.788	
280.0		10,020	10.885	
285.0		9,978	10.984	
290.0		9,940	11.085	
295.0		9,898	11.173	

Hole: Welsford 1 (cont'd.) Location:
5-Month Log

Latitude:

Longitude: Thermistor No.

Total Depth: Logged Depth:

Vertical Depth (m)	Cable Resist.(ohms)	Corrected Resist.(ohms)	Temp.(°C)	Lithology/Remarks
300.0	292	9,858	11.268	
305.0		9,818	11.363	
310.0		9,774	11.468	
315.0		9,733	11.567	
320.0		9,697	11.654	
325.0		9,652	11.764	
330.0		9,617	11.852	
335.0		9,575	11.953	
340.0		9,541	12.036	
345.0		9,497	12.145	
350.0	291	9,463	12.230	
355.0		9,425	12.325	
360.0		9,383	12.431	
365.0		9,344	12.529	
370.0		9,309	12.617	

APPENDIX V
Samples for Heat Generation Determinations - McAdam

Surface Samples

Sample No.	Location		
P-200 P-201	30 metres north of drill site 175 metres north-northwest of		
	drill site		

Split Core Samples

Sample No.	Depth (m)	Sample No.	Depth (m)
P-100	10.13	P-120	210.25
P-101	20.27	P=120 P=121	220.24
P-101	30.20	P=121 P=122	230.20
P-103	39.99	P-123	240.38
P-104	50.20	P-124	250.20
P-105	60.20	P-125	260.20
P-106	70.20	P-126	270.00
P-107	80.20	P-127	280.30
P-108	90.27	P-128	290.20
P-109	100.20	P-129	300.40
P-110	110.18	P-130	310.25
P-111	120.23	P-131	320.26
P-112	130.30	P-132	330.26
P-113	140.26	P-133	340.22
P-114	150.24	P-134	350.15
P-115	160.17	P-135	360.26
P-116	170.17	P-136	370.20
P-117	180.22	P-137	380.25
P-118	190.29	P-138	390.35
P-119	200.15		

APPENDIX VI

Samples for Heat Generation Determinations - Welsford

Surface Samples

Sample No.	Location
W-200	1,050 metres north of drill site
W-201	750 metres north of drill site
W-202	600 metres north of drill site
W-203	25 metres south of drill site
W-204	1,900 metres northeast of drill site

Split Core Samples

Sample No.	Depth (m)	Sample No.	Depth (m)
W-100	10.66	W-120	209.95
W-101	21.27	W-121	220.26
W = 102	30.55	W-122	230.20
W-103	40.20	W-123	240.17
W-104	50.63	W-124	250.20
W-105	60.24	W-125	260.10
W-106	70.20	W-126	270.45
W-107	81.96	W-127	280.37
W-108	90.35	W-128	290.07
W-109	100.46	W-129	299.63
W-110	110.23	W-130	310.37
W-111	120.72	W-131	320.35
W-112	130.20	W-132	330.05
W-113	141.23	W-133	339.58
W-114	150.20	W = 134	350.02
W-115	160.22	W-135	360.16
W-116	170.37	W-136	369.92
W-117	181.55		
W-118	191.41		
W-119	200.20		

APPENDIX VII

Core Samples for Thermal Conductivity Measurements - McAdam

Sample No.	Depth (m)	Sample No.	Depth (m)
P-1	9.85	P-21	209.98
P-2	20.00	P-22	219.97
P-3	29.92	P-23	229.93
P-4	39.72	P-24	239.91
P-5	49.92	P-25	249.93
P-6	59.92	P-26	259.93
P-7	69.92	P-27	269.73
P-8	79.92	P-28	280.03
P-9	90.00	P-29	289.92
P-10	99.92	P-30	300.13
P-11	109.91	P-31	309.88
P-12	119.96	P-32	319.89
P-13	130.02	P-33	329.89
P-14	139.99	P-34	339.95
P-15	149.96	P=35	349.88
P-16	159.90	P-36	359.99
P-17	169.90	P-37	369.93
P-18	179.96	P - 38	379.98
P-19	190.00	P-39	390.08
P-20	199.88		

APPENDIX VIII

Core Samples for Thermal Conductivity Measurements - Welsford

Sample No.	Depth (m)	Sample No.	Depth (m)
W-1	10.39	W-21	209.68
W-2	21.00	W-22	219.99
W-3	30.28	W-23	229.93
W-4	39.93	W-24	239.90
W-5	50.36	W-25	249.93
W-6	59.97	W-26	259.83
W-7	69.93	W-27	270.18
W-8	81.69	W-28	280.10
W-9	90.08	W-29	289.80
W-10	100.19	W-30	299.36
W-11	109.96	W-31	310.10
W-12	120.45	W-32	320.08
W-13	129.93	W-33	329.78
W-14	140.96	W-34	330.31
W-15	149.93	W - 35	349.85
W-16	159.75	W-36	359.89
W-17	169.90	W-37	369,65
W-18	181.28		
W-19	191.14		
W-20	199.93		