GM 34029

ERNEST K. LEHMANN & ASSOCIATES, INC.
GEOLOGISTS

PROJECT Mistassini Lake
AREA D (sheet 32 I/5)
DRILL HOLE NO. LM 74 D-1
DATE COLLARED 7/16/74 COMPLETED 7/20/74
COLLAR ELEVATION + 1232.0'
TOTAL DEPTH 587.0'
INCLINATION vert. DIRECTION —

PROPERTY
LOCATION 50° 16' 27" N x 73° 51' 32" W
CONTRACTOR/DRILLER Bradley Bros.
LOGGED BY V. Jindrich

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
0		QUATERNARY		Overburden: sand (esker) deposits					
83'	+ 1149.0'			Black graphitic shale, pyritized. Dip 1-3°.			86' NW casing left in hole 90' BW casing left in hole	94	Box 1
100								97	Box 2
								99	Box 3
149'		LOWER ALBANEL FM.		Dolomite, med. gray, fine-grained, silty at places.				99	Box 4
162'				Black graphitic shale, pyritized.					
169'				Dolomite (dolomitic limestone), light gray, fine-med. grained, with abundant dark gray crenulated laminations (algal mats?)				99	Box 5
189'				Shaly dolomite, dk gray, med. grained. Loc. grades into black shale. Light gray & dark crenulated laminations at places (algal mats?). Blebs & stringers of pyrite; scattered bands (1/2" - 1") of quartz-carbonate associated w/ pyrite xls. Dip 2°-4°.				98	Box 6
200								99	Box 7
								100	Box 8

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PROJECT Mistassini Lake
AREA
DRILL HOLE NO. LM 74 D-1
PROPERTY
DATE COLLARED COMPLETED
LOCATION
COLLAR ELEVATION
TOTAL DEPTH
CONTRACTOR/DRILLER
INCLINATION DIRECTION
LOGGED BY

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
								100	Box 8
				Gradational contact with:					
247.5'				BlK graphitic shale w/ abundant pyritization increasing toward base.				100	Box 9
267'									
				Dolomite, med. gray, med - fine grained. Loc. sandy to silty; grades down into dolomitic limestone, lt gray, fine-grained, w/scattered dark laminae. Bird's-eye structures at the very base.			99	Box 10
								99	Box 11
300								99	Box 12
								100	Box 13
								100	Box 14
								100	Box 15
								100	Box 16
400								100	Box 17
								99	Box 18
430'									
435'	+797'			Black graphitic shale, pyritized. Dip 1-2°				99	Box 19
				Alternating ① gray coarse sandy dolomite (rounded sorted SiO_2 grains), ② flat-pebble conglomerate (rounded clasts of shaly dolomite up to ½" in lt-gray dolomite matrix) and ③ brecciated algal dolomite. Locally incipient (cont'd)					

LOWER ALBANEL FM.

	Cu %	Zn %
LM74A-245	.006	.002
-246	.014	.005
-247	.006	.003
-248	.011	.007
-249	.006	.003
-250	.007	.002
-251	.004	.003
-252	.007	.003
-253	.001	.002

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PROJECT Mistassini Lake
AREA
DRILL HOLE NO. LM 74 D-1
PROPERTY
DATE COLLARED COMPLETED
LOCATION
COLLAR ELEVATION
TOTAL DEPTH
CONTRACTOR/DRILLER
INCLINATION DIRECTION
LOGGED BY

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
				(from above) club-shaped algal forms in growth position. Bedding very irregular, undulatory - grades into mottled texture. Scattered pyrite xls throughout. Few bands ½" - 1" of quartz - carbonate.				100	Box 20
482.0	+749.5'	LOWER ALBANEL FM.		Black graphitic shale					
482.5'				Dolomite, algal stromatolitic, med. gray, med. grained. Brecciated & mottled, loc. sandy (med. SiO_2 grains). Irreg veinlets & masses of crystalline carbonate				100	Box 21
493'				Dolomite, algal stromatolitic. Distinctly club-shaped forms up to 10" dominate the section. Few beds of algal breccia. Local erosion surfaces. Strong pyritization at places. Algal breccia mottled w/ dk gray shaly dolomite with contorted sandy laminae predominates at base.				100	Box 22
519.5'				Gneiss-granite, lt gray, m. g'd, steeply dipping. Fresh, massive.					
522.5'				Mottled dolomite, gray (algal ?) sandy dolomite, & granite. Bands of quartz - carbonate (6") w. pyrite & bleb of chalcopyrite ½" at 526'. Geode-type mottling w/ concentric layering common.			Chalcopyrite, ½", at 526'	100	Box 23
528'	+704'			Garnet - granodiorite gneiss, medium-grained, greenish-gray, steeply dipping. Fresh, massive. Coarse pyrite xl's at places. Few layers of granite, pink-gray, coarse - grained.				100	Box 24
		SUPERIOR PROVINCE						99	Box 25
							LM-MS-7, mag. suscept. sample at 578.0' Density = 2.81 g/cc. M.S. = 510 $\times 10^{-6}$ cgs units	100	Box 26
587'	+645'			Bottom					
600									

SHEET 3 OF 3 DRILL HOLE NO. LM 74 D-1 FIG. NO. 24

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ERNEST K. LEHMANN & ASSOCIATES, INC.
GEOLOGISTS

PROJECT Mistassini Lake
AREA D (sheet 32 I/5)
DRILL HOLE NO. LM 74 D-2
PROPERTY
DATE COLLARED 6/24/74 COMPLETED 7/10/74
LOCATION 50° 29' 17" N x 73° 53' 23" W
COLLAR ELEVATION +1231.0'
TOTAL DEPTH 2099'
CONTRACTOR/DRILLER Bradley Bros.
INCLINATION vert. DIRECTION —
LOGGED BY V. Jindrich.
Acid tests: 100' (2°) 1400 (4°) 700' (3°) 2000 (7°)

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
0				Overburden					
18.5'	+1182.5'			Interbedded: ① Blk graphitic shale, pyritized ② gray-dk gray shaly dolomite } 75% ③ med. gray, fine-grained dolomite to sandy dolomite (grades locally to dolomitic limestone) } 25%			48' NW casing left →	97	Box 1
				Bedding parallel; individual beds range from laminae to 2" thick. Dolomitic beds commonly cross-bedded. Frequent erosional surfaces on shale-dolomite contacts. Few brecciated layers (intraf'm. conglomerate) up to 1' thick. Abundant layers of quartz-carbonate ½" - 5" within blk shale. Some contain brecciated, fractured shale clasts. Dip 1° - 3°, but varies locally up to 18°. Quartz-carbonate at 77.2' (4" thick) contains minute specks of pyrite & chalcopyrite.			minute specks of pyrite & chalcopyrite at 77.2'	98	Box 2
100				Contact w/ beds below is gradational.			Acid test at 100': 88° from horiz. →	98	Box 3
								98	Box 4
								97	Box 5
								99	Box 6
185'				Dolomite, med. gray, fine-grained. Loc. grades into beds (1'-3') of sandy dolomite & shaly dolomite. Bedding dominantly parallel; cross-bedding common. Some erosion surfaces. Scattered nests, stringers, & veinlets of pyrite throughout the section. This section continues to 840'. Contact w/ beds below is gradational.				100	Box 7
								100	Box 8
200								99	Box 9
								100	Box 10

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GEOLOGISTS

PROJECT Mistassini Lake
AREA D
DRILL HOLE NO. LM 74 D-2
PROPERTY _____ DATE COLLARED _____ COMPLETED _____
LOCATION _____ COLLAR ELEVATION _____
_____ TOTAL DEPTH _____
CONTRACTOR/DRILLER _____ INCLINATION _____ DIRECTION _____
LOGGED BY _____

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
								99	Box 10
								100	Box 11
								100	Box 12
								99	Box 13
300	+ 931'	LOWER ALBANEL FM.						99	Box 14
								98	Box 15
								98	Box 16
								100	Box 17
								99	Box 18
400								99	Box 19
								100	Box 20
								100	Box 21

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GEOLOGISTS

PROJECT Mistassini Lake
AREA D
DRILL HOLE NO. LM 74 D-2

PROPERTY _____ DATE COLLARED _____ COMPLETED _____
LOCATION _____ COLLAR ELEVATION _____
_____ TOTAL DEPTH _____
CONTRACTOR/DRILLER _____ INCLINATION _____ DIRECTION _____
LOGGED BY _____

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
500		LOWER ALBANEL FM.						100	Box 22
								100	Box 23
								100	Box 24
								100	Box 25
								98	Box 26
								98	Box 27
600	+631'							99	Box 28
								100	Box 29
								98	Box 30
								99	Box 31
								99	Box 32
								99	Box 33

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PROJECT Mistassini Lake
AREA D
DRILL HOLE NO. LM 74 D-2
PROPERTY _____ DATE COLLARED _____ COMPLETED _____
LOCATION _____ COLLAR ELEVATION _____
_____ TOTAL DEPTH _____
CONTRACTOR/DRILLER _____ INCLINATION _____ DIRECTION _____
LOGGED BY _____

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
700							Acid test at 700': 87° from horizontal →	99	Box 33
								100	Box 34
								100	Box 35
								100	Box 36
								100	Box 37
								99	Box 38
800		LOWER ALBANEL FM.						100	Box 39
								98	Box 40
	↓ +391'							99	Box 41
				Interbedded: ① gray dolomite, med.-fine-grained, loc. silty to sandy. At places, grades into dolomitic limestone. (Est. 50%) ② Dk gray dolomite to shaly dolomite, loc. silty. (Est. 50%) Sharp & gradational contacts between individual types. Cross-bedding common; loc. flaser bedding. Sparse pyritic disseminations, nests or stringers. Few erosional surfaces, some disrupted & convolute bedding. Scattered veinlets of quartz-carbonate, swelling to 1' at 1543' (contains few tiny specks of ZnS) and to ½" at 1475'. This section continues to 1689.5'. Gradational contact w/ section below.				99	Box 42
								100	Box 43
900								99	Box 44

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PROJECT Mistassini Lake
AREA D
DRILL HOLE NO. LM 74 D-2

PROPERTY _____ DATE COLLARED _____ COMPLETED _____
LOCATION _____ COLLAR ELEVATION _____
_____ TOTAL DEPTH _____
CONTRACTOR/DRILLER _____ INCLINATION _____ DIRECTION _____
LOGGED BY _____

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
								100	Box 45
								100	Box 46
								100	Box 47
								100	Box 48
1000	+231'							100	Box 49
		LOWER ALBANEL FM.						98	Box 50
								99	Box 51
								98	Box 52
								100	Box 53
1100								99	Box 54
								99	Box 55
								99	Box 56

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PROJECT Mistassini Lake
AREA D
DRILL HOLE NO. LM 74 D-2

PROPERTY _____ DATE COLLARED _____ COMPLETED _____
LOCATION _____ COLLAR ELEVATION _____
_____ TOTAL DEPTH _____
CONTRACTOR/DRILLER _____ INCLINATION _____ DIRECTION _____
LOGGED BY _____

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DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
								99	Box 56
								99	Box 57
								99	Box 58
1200								99	Box 59
	SEA LEVEL							99	Box 60
								100	Box 61
		LOWER ALBANEL FM.						100	Box 62
								100	Box 63
1300								99	Box 64
								100	Box 65
								99	Box 66
								99	Box 67

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PROJECT Mistassini Lake
AREA D
DRILL HOLE NO. LM 74 D-2
PROPERTY _____ DATE COLLARED _____ COMPLETED _____
LOCATION _____ COLLAR ELEVATION _____
_____ TOTAL DEPTH _____
CONTRACTOR/DRILLER _____ INCLINATION _____ DIRECTION _____
LOGGED BY _____

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
								99	Box 68
1400							Acid test at 1400': 86° from horizontal →		
								98	Box 69
								99	Box 70
								100	Box 71
								99	Box 72
		FM.						98	Box 73
1500		LOWER ALBANEL						100	Box 74
								100	Box 75
	-312'		Z				few specks ZnS at 1543'	100	Box 76
								98	Box 77
								100	Box 78
1600								99	Box 79

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PROJECT Mistassini Lake
AREA D
DRILL HOLE NO. LM 74 D-2
PROPERTY
LOCATION
DATE COLLARED COMPLETED
COLLAR ELEVATION
TOTAL DEPTH
CONTRACTOR/DRILLER
INCLINATION DIRECTION
LOGGED BY

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
								99	Box 79
								100	Box 80
								100	Box 81
								100	Box 82
1689.5'	+458.5'	LOWER ALBANEL FM.		Blk graphitic shale, pyritized. Thin layers & veinlets of quartz-carbonate. Dip 1°-6°				99	Box 83
1700								99	Box 84
								99	Box 85
1741'				Alternating blk graphitic shale, shaly dolomite (dk gray) and dolomite, gray; thin bands of disseminated pyrite.				98	Box 86
								98	Box 87
1774'				Blk graphitic shale, pyritized. Dip 1°-3°. Gradational contacts at top & base.					
1785'				Dolomite, fine-grained, loc. silty, banded gray & dk gray. Thin pyrite bands.				99	Box 88
1800								100	Box 89
1823'				Shaly dolomite, dk. gray, and graphitic shale, black. Gradational contacts at top & base. Thin bands of disseminated pyrite.				100	Box 90
1838'				Dolomite (see below)					

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PROJECT Mistassini Lake
AREA D
DRILL HOLE NO. LM 74 D-2
PROPERTY
DATE COLLARED COMPLETED
LOCATION
COLLAR ELEVATION
TOTAL DEPTH
CONTRACTOR/DRILLER
INCLINATION DIRECTION
LOGGED BY

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
				Dolomite, med. & fine-grained, gray & dark gray banded.				98	Box 91
1856'				Blk graphitic shale, loc. pyritized. Dip 1°-3°.				98	Box 92
1879'				Dolomitic limestone, lt gray, fine to med. grained. Grades down into gray to dk gray dolomitic limestone to dolomite, fine-grained. Scattered thin bands of sandy dolomite (sorted, rounded medium grains of quartz). Blebs & nests of pyrite, fine-grained, toward base.				99	Box 93
1900								98	Box 94
		LOWER ALBANEL FM.						99	Box 96
								99	Box 97
								99	Box 98
2000							Acid test at 2000': inclination 83° from horiz.		
								100	Box 99
2014'				Blk graphitic shale, pyritized					
2029.8'	-798.8'			Alternating dolomite, gray, & shaly dolomite, dark gray. Scattered thin bands (1"-4") of sandy dolomite (rounded, sorted quartz grains). Some algal clasts at the base. Grades into:				99	Box 100
2045'				Dolomite, algal stromatolitic. Distinct club-shaped forms up to 6". Scattered layers (1"-5") of dolomite & sandy dolomite, lt gray, fine grained, terminated by erosion surfaces. Few thin bands of chert, lt. gray. At places, algal heads broken, displaced. ZnS; FeS_2 (see remarks)			several specks of ZnS 1-2 mm at 2045' (Minute specks xls & veinlets FeS_2 scattered throughout the section) Speck (1 x 2 mm) of galena? bornite? at 2053' & 2054.5'	99	Box 101
								100	Box 102

	Cu%	Zn%
LM74-A-254	.002	.002
-255	.006	.003
-256	.015	.074
-257	.011	.021
-258	.007	.009
-259	.009	.028
-260	.007	.016
-261	.007	.015
-262	.014	.028
-263	.008	.159
-264	.028	.077
-265	.006	.032
-266	.022	.034
-267	.007	.021
-268	.008	.018
-269	.008	.023
-270	.007	.015
-271	.007	.009
-272	.001	.025
-273	.002	.033

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PROJECT Mistassini Lake
AREA D
DRILL HOLE NO. LM 74 D-2
PROPERTY _____ DATE COLLARED _____ COMPLETED _____
LOCATION _____ COLLAR ELEVATION _____
_____ TOTAL DEPTH _____
CONTRACTOR/DRILLER _____ INCLINATION _____ DIRECTION _____
LOGGED BY _____

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
2074.5'		L. A.B.							
		SUPERIOR PROVINCE		Granite - lt. gray & pink, fine-med. grained. Fresh, unweathered, massive. Sharp contact w/ overlying dolomite.			LM-MS-8, magnetic suscept. sample, at 2082'	100	Box 102
							Density = 2.63 g/cc	100	Box 103
2099'							M.S. = < 20 $\times 10^{-6}$ cgs units		
2100				Bottom					
2200									
2300									

SHEET 10 OF 10 DRILL HOLE NO. LM 74 D-2 FIG. NO. 25

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ERNEST K. LEHMANN & ASSOCIATES, INC.
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PROJECT Mistassini Lake
AREA F (sheet 32 I/13)
DRILL HOLE NO. LM 74 F-1
DATE COLLARED 3/28/74 COMPLETED 4/4/74
COLLAR ELEVATION + 1229.0'
TOTAL DEPTH 701'
INCLINATION vert. DIRECTION —
(acid test 701')

PROPERTY
LOCATION 50°48' 59" N, 73°49' 51" W
CONTRACTOR/DRILLER Bradley Bros.
LOGGED BY V. Jindrich

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
				Ice & water			(plug, 50') BQ →	2	
10'	+1219'	WATER					no casing left.		
				Dolomite, med & dk gray, fine to v fine xln, thinly banded & laminated. Lamination often irregular, wavy & crenulated. Varying dips of laminations from flat to steeply dipping. Most of the dolomite appears to be algal stromatolitic (LLH). Scattered zone of brecciation or detached bands & lamination. Brecciated parts (up to 1') display clasts of blocky laminated stromatolitic material imbedded in qz-carbonate matrix. Also scattered stringy vugs filled w/ quartz-carbonate. (Some appear to be bird's-eye structures.)			Recoveries in %. Core boxes noted in size col.	99	Box 1
								100	Box 2
							BQ plug, 50' + 2 bags cement →	99	Box 3
								100	Box 4
						◆	LMPS-18, polished section at 81'		
90'				GRADATIONAL CONTACT				100	Box 5
		LOWER ALBANEL FM.		Dolomite, med gray, fine - v. fine xln. Contains few thin bands of dk gray to black dolomite in upper part. Dolomite is mostly massive. Only several beds of detached bedding & brecciation.				97	Box 6
100								98	Box 7
								98	Box 8
								98	Box 9
								99	Box 10
200									
202'				Dolomite, med gray-dk gray, fine & med xln, thinly banded & laminated. Laminae are crenulated, irregular, w/ varying dips (domed). Most of the lamination is algal stromatolite (LLH) displaying grain-rich to grain-poor lamination. Characteristic are disrupted & detached laminae, or thin beds, ranging				99	Box 11
				(continued below)				99	Box 12

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PROJECT Mistassini Lake
AREA F
DRILL HOLE NO. LM 74 F-1
PROPERTY _____ DATE COLLARED _____ COMPLETED _____
LOCATION _____ COLLAR ELEVATION _____
_____ TOTAL DEPTH _____
CONTRACTOR/DRILLER _____ INCLINATION _____ DIRECTION _____
LOGGED BY _____

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
				(from above)			BQ 2		
				to algal breccia (flat-pebble conglomerate). Some detached beds appear to be dessication features. Common are irregular stringy vugs, open or filled w/ quartz & dolomite xls & hydrocarbons.				99	Box 12
				Toward base, increase of dk gray shade (some algal mat laminations are very dark gray to black), and crystal size. Some thinly bedded dolomite twd. base displays "salt & pepper" color pattern (recrystallized oolite, pellet mud ?)				99	Box 13
								98	Box 14
								100	Box 15
300	+929'							99	Box 16
								99	Box 17
								99	Box 18
							◆ LMPS-19, polished section at 353'		
								100	Box 19
								98	Box 20
400							◆ LMPS-20, polished section at 397'		
								98	Box 21
								98	Box 22
								100	Box 23

LOWER ALBANEL FM.

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GEOLOGISTS

PROJECT Mistassini Lake
AREA F
DRILL HOLE NO. LM 74 F-1
PROPERTY _____ DATE COLLARED _____ COMPLETED _____
LOCATION _____ COLLAR ELEVATION _____
_____ TOTAL DEPTH _____
CONTRACTOR/DRILLER _____ INCLINATION _____ DIRECTION _____
LOGGED BY _____

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
							BQ 2		
								98	BOX 24
								99	BOX 25
500									
								98	BOX 26
	+703'								
526'				GRADATIONAL CONTACT					
				Interbedded: ① dolomitic to graphitic dolomite, dk gray, fine xln. (slightly silty at places) ② graphitic shale, black, silty at places. Pyrite nodules & thin bands on bedding planes. ③ dolomite, med. gray, med xln (salt-&-pepper color texture). This section develops gradually from the above section by disappearance of brecciation, algal mat laminations, & lack of open vug filling. Contacts dominantly gradational; cross-bedding at places (distinct). Dip 2°-5°. Few scattered beds of intraformational breccia within the graphitic shale.				99	BOX 27
		LOWER ALBANEL FM.						100	BOX 28
								99	BOX 29
								99	BOX 30
600									
								99	BOX 31
								98	BOX 32
								99	BOX 33
								99	BOX 34
								99	BOX 35

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GEOLOGISTS

PROJECT Mistassini Lake
AREA F
DRILL HOLE NO. LM 74 F-1

PROPERTY _____ DATE COLLARED _____ COMPLETED _____
LOCATION _____ COLLAR ELEVATION _____
_____ TOTAL DEPTH _____
CONTRACTOR/DRILLER _____ INCLINATION _____ DIRECTION _____
LOGGED BY _____

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
							BQ		
	+528'	L. ALBANEL				◆	LMTS-10, thin section (694')	99	Box 35
700						◆	LMTS-9, thin section at 699'		
701±				Bottom				100	Box 36
							Acid test at 701': 90°		

SHEET 4 OF 4 DRILL HOLE NO. LM 74 F-1 FIG. NO. 26

ERNEST K. LEHMANN & ASSOCIATES, INC.
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PROJECT Mistassini Lake
AREA F (sheet 32 I/13)
DRILL HOLE NO. LM 74 F-2
DATE COLLARED 4/9/74 COMPLETED 4/13/74
COLLAR ELEVATION + 1229.0'
TOTAL DEPTH 462'
INCLINATION vert. DIRECTION —
(no tests)

PROPERTY
LOCATION 50° 47' 22" N, 73° 52' 24" W
CONTRACTOR/DRILLER Bradley Bros.
LOGGED BY V. Jindrich

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DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
		WATER		Water			(plug, 285') Recoveries in %. Core boxes noted in size col.		
	+ 1132'								
97'									
100		OVERBURDEN		Overburden: gravel with boulders & silty sand.					HW NQ
									BQ
200							104' BW casing left		

SHEET 1 OF 3 DRILL HOLE NO. LM 74 F-2 FIG. NO. 27

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PROJECT Mistassini Lake
AREA F
DRILL HOLE NO. LM 74 F-2
PROPERTY _____ DATE COLLARED _____ COMPLETED _____
LOCATION _____ COLLAR ELEVATION _____
_____ TOTAL DEPTH _____
CONTRACTOR/DRILLER _____ INCLINATION _____ DIRECTION _____
LOGGED BY _____

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
	+925'	OVERBURDEN							
254'				Black graphitic shale (no core recov.)					
265'				Black graphitic shale w/ few thin bands of med. gray dolomite				99	BOX 1
285.5'				Dolomite, med.-dk gray, finely xln, laminated & thinly bedded. Few pyrite streaks & nodules.			BQ plug 285' + 2 sacks cement	98	BOX 2
300								99	BOX 3
321'				Black graphitic shale w/ thin bands & nodules of pyrite.					
328'		LOWER ALBANEL FM.		Dolomite, med – lt gy, fine xln, laminated (dip 2°-5°). Some laminations probably algal mats. Toward base, some brecciation, detached thin beds, cracks filled w/carbonate (dessication features. Ab'dt pyrite streaks twd base.				98	BOX 4
343'				Blk graphitic shale w/ several bands (up to 2') of laminated dk gray dolomite, fine grained. Lamination distinctly algal stromatolitic (LLH type) displaying crenulation, doming (2 cm. in diam.), irregular lamination. Pyrite streaks common. Dip in blk shale = 5°.	LM74A-274 .001 .003 -275 .003 .008 -276 .014 .032 -277 .031 .057 -278 .011 .008 -279 .007 .003 -280 .013 .011 -281 .016 .066 -282 .019 .038 -283 .020 .003 -284 .014 .007 -285 .014 .005 -286 .002 .006 -287 .003 .103 -288 .001 .004 -289 .014 .007 -290 .017 .027 -291 .019 .043 -292 .014 .017 -293 .014 .009 -294 .009 .008 -295 .002 .002 -296 .005 .003 -297 .028 .005 -298 .013 .032 -299 .014 .004 -300 .014 .002 -301 .004 .028 -302 .005 .002		99	BOX 5
367.5'				Dolomite, med – lt. gray, v. fine xln, massive. Several bands of lithoclast conglomerate w/ rounded clasts of dolomite up to 4 mm. Strong mottling twd base, w/ irregular lobate vugs filled w/ concentrically aligned quartz-carbonate.			◆ LMTS-13, thin section at 1379'	100	BOX 6
387'	+838.5'			Blk graphitic shale w/ pyrite stringers & nodules (particularly at top & base).	LM74A-303 .002 .001 -304 .007 .011 -305 .005 .027 -306 .013 .875 -307 .005 .001 -308 .010 .001 -309 .005 .002			98	BOX 7
390.5'				Int'bd dol; med-lt gy, fine xln, & sandy dol to med-g'd dol't c ss (qz grains well sorted & rounded. Most of dol appears to be of algal origin (mats), loc. brecciated to form lithoclast congl. Sandy bands few mm-5 cm thick, as irreg. wavy beds. Scattered irreg. vugs w/ qz-carbonate fill.					
400							Zns trace at 408'	99	BOX 8
				Algal stromatolitic dol. w/ distinct club-shaped heads (SH-V type) from few cm. to 20 cm. Algal head horizons alternate w/ thin irreg bands of sandy dol, zones of mottled dol., & brecciated beds. This section contains the best club-shaped heads, constituting 70-80% of the section. Erosional contacts. Loc. clasts of dk shaly dolomite. Scattered irreg. elongated vugs w/ quartz-carbonate fill. Trace of ZnS at 408'. Mottling strong near bottom.				99	BOX 9
435	+794'	SUPERIOR PROVINCE		Granitic gneiss, med-lt gray, fine xln, steeply dipping, w/ dk gy oval blebs, decr. twd base. Core cut by a 1' wide steeply dipping layer of pink coarse granite at 445'.			◆ LMTS-11, thin section at 445' ◆ LMTS-12, thin section at 454'	99	BOX 10

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PROJECT Mistassini Lake
AREA F
DRILL HOLE NO. LM 74 F-2
PROPERTY _____ DATE COLLARED _____ COMPLETED _____
LOCATION _____ COLLAR ELEVATION _____
_____ TOTAL DEPTH _____
CONTRACTOR/DRILLER _____ INCLINATION _____ DIRECTION _____
LOGGED BY _____

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
460.5' 462'–	+ 767		Bottom	see above Lt gray, med. g'd aplitic granite, w/ v little biotite. Strongly fractured.				98	

SHEET 3 OF 3 DRILL HOLE NO. LM 74 F-2 FIG. NO. 27

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PROJECT Mistassini Lake
AREA F sheet (32 I/13)
DRILL HOLE NO. LM 74 F-3
DATE COLLARED 4/14/74 COMPLETED 4/17/74
COLLAR ELEVATION +1229'
TOTAL DEPTH 225'
INCLINATION vert. (no test) DIRECTION —

PROPERTY
LOCATION 50° 47' 28" N, 73° 53' 31" W
CONTRACTOR/DRILLER Bradley Bros.
LOGGED BY V. Jindrich

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
				Water			(plug 200') Recoveries in %. Core boxes noted in size col.		HW
32'				Overburden			22' BW casing left 76' NW casing left		NQ
152'	+1174'	L. ALBANEL FM.		Algal dolomite, med gy fine g'd. Several distinct algal heads at top. Mottling twd base. Scattered small carbonate-filled vugs at base.				.8	Box 1
155'				Greenish-gray granite (epidote, chlorite), disjointed, filled w/ gray silicified dolomite. Regolith ?			Shattered core.		
164'				Gray aplitic granite and greenish-gray, epidotized granitic gneiss. Abundant, irregularly horizontal & steeply dipping veinlets of silicified carbonate. Horizons up to 10' of shattered, brecciated granite, mottled w/ dark silicified dolomite. Abundant sericitization, chloritization. Mylonite? Some pyrite impregnations at places.				98	Box 2
								99	Box 3
200		SUPERIOR PROVINCE					BQ plug 200' w/ 2 bags cement.	99	Box 4
225'				Bottom				98	Box 5

SHEET 1 OF 1 DRILL HOLE NO. LM-74-F-3 FIG. NO. 28

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PROJECT Mistassini Lake
AREA J (sheet 32 P/3)
DRILL HOLE NO. LM 74 J-1
DATE COLLARED 1/21/74 COMPLETED 2/11/74
COLLAR ELEVATION +1229'
TOTAL DEPTH 1868'
INCLINATION vert. DIRECTION —
(acid tests {400' 1000' 1560')

PROPERTY
LOCATION 51° 06' 47" N, 73° 26' 30" W
CONTRACTOR/DRILLER Bradley Bros.
LOGGED BY V. Jindrich

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
	+1229'	WATER		Water			(hole plugged at 675')		
100	+1119'	QUATERNARY - OVERBURDEN		Unsorted gravel & boulders (to 5' diam) - glacial till; topped by 25' silty mud. Boulders = dolomite, gneisses, intrusives.			18' NW casing left; NQ		
200							(276' BW casing - see below)		

SHEET 1 OF 9 DRILL HOLE NO. LM 74 J-1 FIG. NO. 29

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PROJECT Mistassini Lake
AREA J
DRILL HOLE NO. LM 74 J-1
PROPERTY _____ DATE COLLARED _____ COMPLETED _____
LOCATION _____ COLLAR ELEVATION _____
_____ TOTAL DEPTH _____
CONTRACTOR/DRILLER _____ INCLINATION _____ DIRECTION _____
LOGGED BY _____

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
		QUATERNARY OVERBURDEN							NQ
							BQ bit to bottom →		NQ / BQ
300									
	+862'								
367'				Dolomite, med. gray, fine to v. fine xln. Bedding (indicated by color rather than texture change) thin to laminated, parallel. Local gradual transition into argillaceous dolomite beds, dark gray, up to 1½' thick. Dip 10-12°. Few paper-thin laminae of dk gray shale, pyritized.				100	Box 1
								101	
							276' BW casing left in hole →	100	Box 2
								100	
							Acid test, 400': 84° →	100	
400								100	Box 3
407'-408'				Brecciated zone. Bedding disrupted, dislocated. Angular clasts of fine xln dolomite (several mm to 2 cm.). Space between clasts filled w/ calcite at ratio 10:1.				100	
		LOWER ALBANEL FM.		Dolomite as above. Breccia 1" thick at 441'. Dolomite intraclasts angular, few mm to 2 cm suspended in dk gray shaly matrix. Suspected cross-bedding at 434', 448', 451'. Scattered joints at 45°.				100	Box 4
								100	
								100	Box 5
								100	

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PROJECT Mistassini Lake
AREA J
DRILL HOLE NO. LM 74 J-1
PROPERTY
DATE COLLARED COMPLETED
LOCATION
COLLAR ELEVATION
TOTAL DEPTH
CONTRACTOR/DRILLER
INCLINATION DIRECTION
LOGGED BY

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
463.5 464.5				Dolomitic shale, dk. gray				100	BQ
				Dolomite, fine xln, med. gray; bedding parallel, thin to laminated. Loc. cross-bedding? flaser bedding? Scattered laminae of dk gray shaly dolomite. Dip 12°. At places, 70° joint planes.				100	Box 6
								100	Box 7
490				Dolomite, med. gray, fine xln, & argillaceous (silty?) dolomite, v fine xln, dk gray, interbedded. Bedding thin, parallel, dip 5-9°. Contacts sharp and gradual. Dolomite = about 60-70 volume %. Individual beds of argillaceous dolomite, from paper-thin laminae up to 1' thick. Suspected cross-lamination in dolomite beds.				100	
500				Fault planes 75° (at 509' & 522') w/ about 2" displacement, healed w/ paper-thin calcite.				100	Box 8
				Gradual contact w/ underlying unit.				100	
								100	
								97	Box 9
									Box 10
		FM. LOWER ALBANEL						96	
								98	Box 11
									Box 12
600	+629							96	
								96	Box 13
									Box 14
								96	
									Box 15
								96	
								97	Box 16
							BQ plug, 675' w/ 2 bags cement →		
								96	Box 17

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PROJECT Mistassini Lake
AREA J
DRILL HOLE NO. LM 74 J-1
PROPERTY _____ DATE COLLARED _____ COMPLETED _____
LOCATION _____ COLLAR ELEVATION _____
_____ TOTAL DEPTH _____
CONTRACTOR/DRILLER _____ INCLINATION _____ DIRECTION _____
LOGGED BY _____

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
									BQ
									Box 17
700									
								96	Box 18
								96	Box 19
	+484'								
745				Interbedded: ① dolomite, med. gray, fine-v. fine xln. (90%) ② shaly dolomite, dk. gray, v. fine xln (silty at places) (10%) Bedding dominantly parallel (dip 3°-6°). Common cross-stratification, cut & fill, slump structures. Graded bedding at places. Shaly dolomite in beds < ½' thick.				95	Box 20
								96	Box 21
								97	Box 22
800									
								97	Box 23
								98	Box 24
								97	Box 25
								96	Box 26
								97	Box 27
900									
								97	Box 28

LOWER ALBANEL FM.

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PROJECT Mistassini Lake
AREA J
DRILL HOLE NO. LM 74 J-1
PROPERTY _____ DATE COLLARED _____ COMPLETED _____
LOCATION _____ COLLAR ELEVATION _____
_____ TOTAL DEPTH _____
CONTRACTOR/DRILLER _____ INCLINATION _____ DIRECTION _____
LOGGED BY _____

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
								97	BQ Box 29
								96	Box 30
								96	Box 31
								97	Box 32
1000	+221'						Acid test, 1000' : = 90°		
1008		LOWER ALBANEL FM.		Interbedded : ① dolomite to shaly dolomite, med. gray, v. fine xln (80%). ② dolomitic shale, silty to sandy, dk gray (20%) Thin to massive, parallel (dip 2°-5°) bedding; individual beds of dolomitic shale up to ½' thick. Frequent cross-bedding, cut & fill, slump structures; graded bedding at places. Scattered beds w/ disrupted bedding & intraformational breccia to 1' thick. A few beds up to 1½' thick of coarsely xln quartz-carbonate (dolomite) beds containing angular clasts of shale or dolomite. Quartz developed in hexagonal xls up to 5 cm. Speck of ZnS (2 mm) in quartz carbonate at 1156'. Transitional contact w/ underlying sequence.				96	Box 33
								95	Box 34
								96	Box 35
			Z				Speck of ZnS in quartz-carbonate bed at 1056'.		
								96	Box 36
								99	Box 37
1100								99	Box 38
								99	Box 39
1141				GRADATIONAL CONTACT Interbedded dolomitic shale & shaly dolomite; see description below.				97	Box 40

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PROJECT Mistassini Lake
AREA J
DRILL HOLE NO. LM 74 J-1
PROPERTY
DATE COLLARED COMPLETED
LOCATION
COLLAR ELEVATION
TOTAL DEPTH
CONTRACTOR/DRILLER
INCLINATION DIRECTION
LOGGED BY

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
				(from above:) Interbedded: ① dolomitic shale, dark gray, silty (70%) ② shaly dolomite, med. gray, v.fine xline, probably silty at places. (30%) Individual types alternate in thin beds (several mm to 1 foot). Much of the banding due to color rather than texture change. Bedding parallel (dip 2°-5°). Color contacts sharp & gradational. Common cross-bedding & cut and fill; convolute bedding at places. At places, thin beds (1 cm.) of anthracite, associated w/ xln calcite.				BQ Box 40
								97	Box 41
1200								96	Box 42
								96	Box 43
	SEA LEVEL							95	Box 44
								96	Box 45
		LOWER ALBANEL FM.						97	Box 46
								97	Box 47
1300								97	Box 48
								99	Box 49
	-106.5							97	
1335.5				Graphitic shale, black, thinly bedded & laminated. Loc. pyrite impregnations, clouds or bands along bedding planes. Thin calcite & SiO_2 veins scattered throughout the section. Gradual contact w/ underlying unit.				99	Box 50
								100	
								98	Box 51
								99	
								96	

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PROJECT Mistassini Lake
AREA J
DRILL HOLE NO. LM 74 J-1
PROPERTY
LOCATION
DATE COLLARED COMPLETED
COLLAR ELEVATION
TOTAL DEPTH
CONTRACTOR/DRILLER
INCLINATION DIRECTION
LOGGED BY

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES Cu %	ANALYSES Zn %	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
									97	BQ Box 52
									97	
								◆ 1397', Fluo-X Spec Analysis: Cu 0.013 %, Zn 0.010 %, Fe 3.3, Ni 0.015, Rb 0.022, Ba 0.16, Sr 0.017, Ti 0.083, Zr 0.022, Mn 0.034, Y 0.004 (small 2" split blk sh)	94	Box 53
1400									97	
									97	Box 54
								◆ 1432', Fluo-X Spec Analysis: Cu 0.11 %, Zn 0.82, Cd 0.010, Pb 0.029, Fe 9.1, Ni 0.034, Rb 0.019, Ba 0.47, Sr 0.022, Ti 0.10, Zr 0.023, Va 0.043, Cr 0.001, Mn 0.063 (small 1½" sample of blk sh w/ py-qz-carbonate veinlet)	100	
1463				Shaly dolomite, fine-grained, dk. gray; scattered parallel bands of dolomite, med. gray, fine-med. grained. Strong pyritization on bedding planes at places.					98	Box 55
1486.5		LOWER ALBANEL FM.		Graphitic shale, black, thin-bd'd to laminated. Scattered nests of FeS_2, pyrite clouds, dissem.				◆ 1488' : Fluo-X-Spec Analysis. Cu 0.046 %, Zn 0.18, Pb 0.011, Fe 3.0, Ni 0.014, Rb 0.023, Ba 0.41, Sr 0.013, Ti 0.25, Zr 0.020, Cb 0.005, Mn 0.022, Y 0.006 (small split sample, blk sh w/ pyrite)	98	Box 56
1493				Dolomite to shaly dolomite, med. gray, fine grained. Becoming less shaly toward base. Lt gray & gray banding in lower half. Thin bedding, dip 2°-5°. Pyritic impregnation & clouds occur toward base w/ some disrupted bedding & partial brecciation.					99	Box 57
1500									94	Box 58
									97	
					LM 74 A-121	<.01	<.01	1520'		
					-122	<.01	.01			
					-123	<.01	<.01			
1523				Graphitic shale, black, thin-bedded (dip 2°-5°) scattered 1 cm. bands of gray dolomite. Disseminated pyrite; also in bands & clouds.	-124	.01	.02		95	Box 59
					-125	.02	.03			
					-126	.01	.02			
					-127	.01	.01			
					-128	.02	<.01			
					-129	.01	.05			
					-130	.02	.01			
1532.5				Dolomite, med. gray, fine xln at top, coarse xln at base. Brecciation (mottling) at base due to burrowing? Calcite veins & vugs, pyrite specks & impreg. at base.	-131	.02	.03		100	
					-132	.02	.01			
					-133	.01	<.01			
					-134	<.01	<.01			
					-135	<.01	.01			
					-136	<.01	<.01			
1538					-137	<.01	.01			
					-138	<.01	.02			
					-139	.02	.01			
					-140	.02	.01			
					-141	.02	.02			
				Graphitic shale, black; thin parallel bedding (dip 2°-5°). Dissem. pyrite on bd'g planes or forming irreg. nests increasingly twd base.	-142	.02	.02		98	Box 60
					-143	.02	.03			
					-144	.02	.03			
					-145	.02	.05			
					-146	.02	.02			
					-147	.02	.01			
					-148	.02	.01			
					-149	.01	.01			
					-150	.01	<.01			
					-151	.01	.01			
					-152	.01	.01			
					-153	.02	.01			
					-154	.02	.01			
					-155	.01	.01			
					-156	.01	.01			
1556				Dolomite, med. gray, med. - coarse xln (probably algal). Silty, w/ sand size qz grains at places. Ab'dt dk gray shaly specks (1 to 3 mm) loc. concentrated in bands. Apparent algal material (brecciated heads) twd base. Strong brecciation, concentrated in irreg. bands. Ab'dt calcite fill (veins, vugs) & pyritization in clouds, x'ls, veinlets. Loc. mottling (burrows?)	-157	<.01	.01	Acid test, 1560': 84°	96	
			Z		-158	<.01	.16			
					-159	<.01	.01	-1558', cluster of ZnS (7 x 2 cm)		
					-160	<.01	<.01			
					-161	<.01	<.01			
					-162	<.01	<.01			
					-163	<.01	.01			
			Z		-164	<.01	.14			
					-165	<.01	<.01	-1563.5', cluster of ZnS (2 x 2 cm)		
					-166	<.01	<.01			
					-167	<.01	<.01			
					-168	<.01	<.01			
					-169	<.01	<.01			
					-170	<.01	.01			
1573					-171	<.01	<.01		100	Box 61
					-172	<.01	<.01			
1573.5				Graphitic sh- blk, pyritized	-173	.01	.01			
					-174	.01	.01			
					-175	<.01	.01			
					-176	<.01	<.01			
					-177	<.01	<.01			
					-178	<.01	<.01			
					-179	<.01	<.01			
					-180	<.01	<.01			
					-181	<.01	<.01			
					-182	<.01	<.01			
					-183	<.01	<.01			
					-184	<.01	<.01			
					-185	<.01	<.01			
					-186	<.01	<.01			
					-187	<.01	<.01			
					-188	<.01	<.01			
					-189	<.01	<.01			
					-190	<.01	<.01			
					-191	<.01	<.01			
					-192	<.01	<.01			
					-193	<.01	<.01			
					-194	<.01	<.01			
					-195	<.01	<.01			
					-196	<.01	<.01			
					-197	<.01	<.01			
					-198	<.01	<.01			
					-199	<.01	<.01			
1600				Algal dolomite, fine-med. xln, med. gray. Distinct club-shaped algal stromatolites becoming more prominent twd base (heads up to 30 cm. high) Algal heads commonly brecciated, displaced to form clasts. Interspace between heads contains dk gy shale debris floating in lt gray dolomite matrix (coarse xln.). Ab'dt irreg. vugs (1-3 cm) filled w/ calcite & SiO_2. Frequent bands of brecciated material (algal heads; shale in calcite matrix) twd base. Stylolites common. Loc. pyrite dissem. in clouds, bands, or (CONTINUED BELOW)	-200	<.01	<.01		96	Box 62
					-201	.01	<.01			
					-202	<.01	<.01			
					-203	<.01	<.01			
					-204	<.01	<.01			
					-205	<.01	<.01			
					-206	<.01	<.01			
					-207	<.01	<.01			
					-208	<.01	<.01			
					-209	<.01	<.01			
					-210	<.01	<.01		97	Box 63

SHEET 7 OF 9 DRILL HOLE NO. LM 74 J-1 FIG. NO. 29

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PROJECT Mistassini Lake
AREA J
DRILL HOLE NO. LM 74 J-1
PROPERTY
DATE COLLARED COMPLETED
LOCATION
COLLAR ELEVATION
TOTAL DEPTH
CONTRACTOR/DRILLER
INCLINATION DIRECTION
LOGGED BY

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES Cu %	ANALYSES Zn %	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
		LOWER ALBANEL FM.		(FROM ABOVE) cubic xls. Sharp contact w/ underlying granite: no weathering zone	LM 74A-211	<.01	<.01			BQ
					-212	<.01	<.01			
					-213	.01	<.01			
					-214	<.01	<.01			
					-215	<.01	<.01			
					-216	<.01	<.01			
					-217	.01	.01			
					-218	<.01	<.01			
					-219	<.01	<.01			
					-220	<.01	<.01		98	Box 63
					-221	.01	.01			
					-222	<.01	<.01			
					-223	<.01	<.01			
					-224	<.01	<.01			
					-225	<.01	<.01			
					-226	<.01	<.01	◆ LMPS-13, polished section (1625')		
					-227	<.01	<.01			
					-228	<.01	<.01			
					-229	<.01	<.01			
					-230	<.01	<.01			Box 64
					-231	<.01	<.01			
					-232	<.01	<.01			
					-233	<.01	<.01			
					-234	<.01	.01	◆ LMPS-14, polished section (1634')		
					-235	<.01	<.01			
					-236	<.01	<.01			
					-237	<.01	.01			
					-238	<.01	.01			
					-239	<.01	.01			
					-240	<.01	<.01			
					-241	.01	.01	◆ LMTS-1 at 1641'; thin section identified as granite.	98	Box 65
					-242	<.01	<.01			
					-243	.01	.01			
					-244	<.01	<.01			
1639	414'			Granite, sl. biotitic, coarse g'd, greenish-(plagioclase ?) gray						
1641				Algal dol., med gy, f-g'd. Loc. brecciation, apparent algal heads. Con't. few granite pebbles, 3" x 1 cm.						
1643								1644'		
				Granite, greenish-gray, coarse-grained.				◆ LM-MS-2, at 1654.5' - magnetic susceptibility sample. - density = 2.64 g/cc - vol. M.S. < 20 x 10^{-6} cgs	97	Box 66
										Box 67
1695				Granitic gneiss, biotitic, med. grained. Contains aplitic bands. Steeply dipping.					98	
1700									97	Box 68
									100	
									103	Box 69
									98	
									99	Box 70
									100	
									100	
									92	Box 71
		SUPERIOR PROVINCE							94	
1773				Granite, coarse-grained, pink. Contains streaks of med. grained granite variety.					97	Box 72
									94	
1800				Mixed rocks: - biotite gneiss/coarse-grained - hornblende gneiss, med. grained - granite, coarse-grained, pink.					not noted	Box 73
										Box 74
								◆ LM-MS-1 at 1839': Magnetic susceptibility sample. - density, g/cc = 2.67 - vol. M.S. = <20 x 10^{-6} cgs		

SHEET 8 OF 9 DRILL HOLE NO. LM 74 J-1 FIG. NO. 29

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GEOLOGISTS

PROJECT Mistassini Lake
AREA J
DRILL HOLE NO. LM 74 J-1
PROPERTY
DATE COLLARED COMPLETED
LOCATION
COLLAR ELEVATION
TOTAL DEPTH
CONTRACTOR/DRILLER
INCLINATION DIRECTION
LOGGED BY

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
1858	-639'	SUPERIOR PROVINCE		Granite, coarse-grained, w/ pink plagioclase. Contains calcite, SiO_2, pyrite veins.				not noted	BQ Box 75 Box 76
1868				BOTTOM					
1900									
2000									

SHEET 9 OF 9 DRILL HOLE NO. LM 74 J-1 FIG. NO. 29

GM 34029

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GEOLOGISTS

PROJECT Mistassini Lake
AREA J (sheet 32 P/3)
DRILL HOLE NO. LM 74 J-2

PROPERTY
LOCATION 51° 07' 19" N, 73° 27' 15" W
CONTRACTOR/DRILLER Bradley Bros.
LOGGED BY V. Jindrich

DATE COLLARED 2/17/74 COMPLETED 3/6/74
COLLAR ELEVATION + 1229.0'
TOTAL DEPTH 1309.5'
INCLINATION vert. DIRECTION —
(incl. tests at 675', 1309')

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
1.5	+1229			Ice			(hole plugged at 420')		
				Water					
110	+1119'	WATER							NQ
		QUATERNARY — OVERBURDEN		Overburden: glacial till (gravel & boulders)			30' NW casing left in hole		
200							120' BW casing left in hole		

SHEET 1 OF 6 DRILL HOLE NO. LM 74 J-2 FIG. NO. 30

GM 37029

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GEOLOGISTS

PROJECT Mistassini Lake
AREA J
DRILL HOLE NO. LM 74 J-2
PROPERTY _____ DATE COLLARED _____ COMPLETED _____
LOCATION _____ COLLAR ELEVATION _____
TOTAL DEPTH _____
CONTRACTOR/DRILLER _____ INCLINATION _____ DIRECTION _____
LOGGED BY _____

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
									NQ
	+957'	QUATERNARY - OVERBURDEN					Recoveries in % Core boxes noted in size col.		
272'							BQ bit to bottom		NQ / BQ
		LOWER ALBANEL FM.		Interbedded: ① shaly dolomite to dolomitic sh. dk gray to black. Loc. sandy to silty (loc. beds of shaly med.-grained sandstone) 40-50% ② Dolomite, med. gray, fine-med. xln. Rare beds of dol'tc limestone. Contacts gradational & sharp. Bedding planes parallel. Individual shaly dolomite beds from laminae up to 3' thick. Abundant cross-bedding, scour & fill. Loc. disrupted bedding.				98	Box 1
								98	Box 2
300								100	Box 3
								100	Box 4
								98	Box 5
								98	Box 6
								99	Box 7
400				Dolomite to dolomitic limestone (loc. beds of limestone), med. gray, fine-med. xln. Scattered beds of shaly dolomite (silty). Banding largely due to change in color (different shades of gray) rather than to change in lithology or texture. Bedding parallel, dip 2°-5°. Common cross-bedding, gradational bedding, scour & fill. Loc. disrupted bedding, or intraformational breccia (≤ 1' thick) Rare pyritization. Gradual contact w/ section below.			BQ plug at 420', w/ 2 bags cement	100	Box 8
								100	Box 9
								98	Box 10

SHEET 2 OF 6 DRILL HOLE NO. LM 74 J-2 FIG. NO. 30

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GEOLOGISTS

PROJECT Mistassini Lake
AREA J
DRILL HOLE NO. LM 74 J-2
PROPERTY _____ DATE COLLARED _____ COMPLETED _____
LOCATION _____ COLLAR ELEVATION _____
_____ TOTAL DEPTH _____
CONTRACTOR/DRILLER _____ INCLINATION _____ DIRECTION _____
LOGGED BY _____

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
							BQ bit →		
								100	Box 11
								100	Box 12
500									
								98	Box 13
								99	Box 14
								99	Box 15
								99	Box 16
								98	Box 17
								99	Box 18
								100	Box 19
								99	Box 20
								99	Box 21
								99	Box 22
	+629'			LOWER ALBANEL FM.					
600									

Pajari inclin. test, 675': 84°, at bearing 317° →

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GEOLOGISTS

PROJECT Mistassini Lake
AREA J
DRILL HOLE NO. LM 74 J-2
PROPERTY _____ DATE COLLARED _____ COMPLETED _____
LOCATION _____ COLLAR ELEVATION _____
_____ TOTAL DEPTH _____
CONTRACTOR/DRILLER _____ INCLINATION _____ DIRECTION _____
LOGGED BY _____

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
							BQ bit		Box 22
700				Interbedded: ① Dolomitic limestone (loc. limestone), med gray to gray, fine-grained, loc. silty to sandy (carbonaceous sandstone, med grained.) ② shaly dolomite, med.-dk. gray, fine grained. Limestone (dolomitic) forms 60-80% of section. Bedding parallel, contacts dominantly gradational. Common cross-bedding, disrupted bedding, slump, scour & fill. Scattered beds of breccia, e.g. at 722.5'-724.5' quartz-carbonate w/ thin beds (loc. disrupted) of shaly dolomite; scattered clouds of pyrite (disseminations) & thin bands (to 2") of quartz carbonate.				99	Box 23
								98	Box 24
								99	Box 25
								99	Box 26
								100	Box 27
800		LOWER ALBANEL FM.						99	Box 28
823	+406'			Interbedded: ① shaly dolomite, dk gray, finely xln. Forms 70-80% of section. ② dolomite (dolomitic limestone) med gray, fine-med. xln. Loc. grades into sandy dolomite to dolomitic med. grained sandstone. Bedding parallel; contacts sharp & gradational. Individual beds of the dolomite as laminae up to beds ≤ 1' thick. Some gradational bedding, cross-bedding, scour & fill. Local beds (to 1/2') of breccia formed by subrounded clasts of med. gray dolomite in shaly-dolomitic matrix. At 837' a bed (1' thick) of quartz-carbonate w/ brecciated clasts of shaly dolomite. Pyritization scarce. Dip 2°-4°.				99	Box 29
								99	Box 30
								98	Box 31
								99	Box 32
900								99	Box 33

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PROJECT Mistassini Lake
AREA J
DRILL HOLE NO. LM 74 J-2
PROPERTY
DATE COLLARED COMPLETED
LOCATION
COLLAR ELEVATION
TOTAL DEPTH
CONTRACTOR/DRILLER
INCLINATION DIRECTION
LOGGED BY

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
							BQ bit		
								99	Box 34
								99	Box 35
								100	Box 36
989				Shaly dolomite (dolomitic shale), dk. gray, finely xln, w/ scattered thin bands of dolomite, med. gray. This grades down into graphitic shale, thinly bedded, black (silty). Scattered clouds of disseminated pyrite or thin pyrite bands along bedding planes. Dip 3°-5°. Gradational basal contact.				99	Box 37
1000								99	Box 38
		LOWER ALBANEL FM.						99	Box 39
								98	Box 40
								99	Box 41
								99	Box 42
1100								100	Box 43
1115				GRADATIONAL CONTACT Banded & laminated: ① argillaceous dolomite, dk gray, fine xln ② dolomite, fine xln, med. gray. ③ limestone, med gray, fine xln. (forms laminations.) Gradual contacts at top and base. Dip 5°-8°. Scattered pyrite clouds, disseminations.				99	Box 44
1142		~187'		Graphitic shale, black, pyritized. Dip 3°-5°. Gradual contact, top and base.				98	Box 45
1149				Dolomite (see below)					

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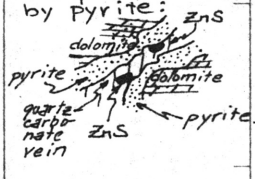
GEOLOGISTS

PROJECT Mistassini Lake
AREA J
DRILL HOLE NO. LM 74 J-2
PROPERTY
LOCATION
DATE COLLARED COMPLETED
COLLAR ELEVATION
TOTAL DEPTH
CONTRACTOR/DRILLER
INCLINATION DIRECTION
LOGGED BY

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES Cu %	ANALYSES Zn %	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
		LOWER ALBANEL FM.		(from above) Dolomite to argillaceous dolomite, dark gray, fine xln. Grades into dolomite, med gy, med xln, brecciated & mottled at places. Disrupted bedding. Cracks filled w/ pyrite & quartz-carbonate. Dip in gen. 10° or less.				BQ bit	101	BOX 45
									98	BOX 46
					LM74-A-1	.01	<.01	1172'	100	
					-2	<.01	<.01			
					-3	<.01	<.01			
					-4	<.01	<.01			
					-5	<.01	<.01			
					-6	<.01	<.01			
					-7	<.01	.01			
					-8	<.01	.01		100	
1181					-9	<.01	.01			
				Graphitic shale, blk, loc. silty. Grades into argillaceous dol. dk gy, at places. Banded structures. Pyrite on bedding planes. Dip 15-20°.	-10	.01	.01			
					-11	.02	.01			
					-12	.01	.01			
					-13	.01	.01			
					-14	.01	.01			
					-15	.02	.02		99	BOX 47
					-16	.02	.01			
					-17	.02	.01			
1190					-18	.01	<.01			
			Z	Brecciated dolomite, same lithology as below shale, but no chert. Abdt pyrite, few specks of ZnS 2-3 mm.	-19	.01	.01			
					-20	.01	.01			
1193.5					-21	<.01	.01			
					-22	.01	.07			
					-23	.02	.03			
					-24	.02	.01			
					-25	.02	.02			
					-26	.02	.10			
					-27	.02	.02			
					-28	.02	.01			
1200					-29	.01	.02			
				Graphitic shale, blk. Silty & dolomitic at places. Bands or laminae of dissem. pyrite on bedding planes. Dip 18-25°. Increase of pyritization twd. base.	-30	.02	.02			
					-31	.02	.01			
					-32	.02	.01			
					-33	.02	.03			
					-34	.01	.01			
					-35	.02	.02			
					-36	.01	.01			
					-37	.02	.02			
					-38	.02	.01			
					-39	.01	.01			
					-40	.02	.02			
					-41	.02	.15			
					-42	.02	.11			
					-43	.02	.01			
					-44	.02	.04			
					-45	.01	.09			
					-46	.01	.06			
					-47	<.01	.03			
					-48	.01	.01			
					-49	<.01	<.01			
					-50	.01	1.76			
					-51	.01	.01			
					-52	.01	<.01			
					-53	.01	.02			
					-54	<.01	<.01			
					-55	.01	<.01			
					-56	.01	<.01			
					-57	<.01	<.01			
					-58	.01	<.01			
					-59	.01	<.01			
					-60	.01	<.01			
					-61	.01	<.01			
					-62	<.01	<.01			
					-63	<.01	<.01	1235'		
1215	+14'								102	BOX 48
1224.5	SEA LEVEL		Z	Dolomite, med gray, fine-med xln. Abdt brecciation & disrupted bedding (mottling). Broken algal heads, chips of black argill. dol. Complex structures. Bands of gy to blk chert (to 15 cm.). Vugs filled w/ quartz carbonate. Abdt pyritization decr. twd base.				specks of ZnS, (1-5 mm); cluster of ZnS (5x3 cm.) at 1221.'	99	
				Algal dolomite, med. gray, fine xln. Columnar algal heads in vertical position prominent at base; scattered disrupted heads oval in shape. Intercolumnar material is med. gy dol., fine xln., largely massive. Generally less brecciation, algal heads, mottling & porosity than in hole J-1. Vugs filled w/ quartz (opal) carbonate sparse. Some pyritization (veins, clusters, clouds, dissem.) toward top. Few specks of ZnS (1-3 mm) assoc. w/ pyrite. Loc. bands of sandy dol. (up to 10 cm.) w/ rounded med. grained quartz.				few specks ZnS w/ pyrite	99	BOX 49
									100	
									98	BOX 50
									100	
									100	
1264.5									100	BOX 51
	-44'			Dolomite, med gy, coarse xln (dolorudite ?) grades loc. into med. xln variety. Some brecciation, disrupted clasts (algal heads ?) & mottling. Scattered bands & veins of qz-carbonate. Some pyrite nests or clouds.					99	
1273									99	
		SUPERIOR PROVINCE		Granite, med. gray & lt gray, med to v. coarse xln. Grades into aplitic & biotitic variety (greenish gray plagioclase), gneissic granite. Top of granite is weathered, w/ abundant carbonate veinlets (regolith ?)					100	BOX 52
									100	
1300								Acid incl. test, 1309' : 83°	100	BOX 53
1309.5'				Bottom				◆ LMMS-5; magnetic susceptibility sample at 1308.6' - density = 2.70 g/cc - vol. mag sus. = 0 x 10^{-6} cgs		



SHEET 6 OF 6 DRILL HOLE NO. LM 74 J-2 FIG. NO. 30

GM 34029

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GEOLOGISTS

PROJECT Mistassini Lake
AREA J (sheet 32 P/3)
DRILL HOLE NO. LM 74 J-3
PROPERTY
DATE COLLARED 3/13/74 COMPLETED 3/17/74
LOCATION 51°05'00" N, 73°23'41" W
COLLAR ELEVATION +1235'
TOTAL DEPTH 701'
CONTRACTOR/DRILLER Bradley Bros.
INCLINATION vert. DIRECTION —
(acid test, 701')
LOGGED BY V. Jindrich

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
		OVERBURDEN		Overburden: sands & gravel (lake shore beach deposits?)			(no plugs) BQ bit to bottom; 8' BW casing left; Recoveries in %. Core boxes noted in size col.	5'	
	+1217'							100	Box 1
18'				Dolomitic micrite, med. gray, massive				98	Box 2
44'				GRADATIONAL CONTACT.					
				Dolomitic micrite & dolomite, med. gray, v. fine - fine xln. Local banding & crude crenulated laminations; scattered irregular vugs filled w/ coarse xln quartz, dolomite & blebs of hydrocarbon. Dolomitic micrite contains scattered blocky elongated chips (angular) of laminated dolomite (stromatolite mats) incr. in abundance twd. base. Loc. concentrations of stromatolite mats form beds of algal breccia.				99	Box 3
								99	Box 4
100								98	Box 5
		LOWER ALBANEL FM.						98	Box 6
122.5'				GRADATIONAL CONTACT					
				Dolomite, med gray, fine xln grading loc. into dolomitic micrite and dk gray shaly dolomite. The dolomite is thinly banded & laminated (characteristic crenulated lamination on a mm scale; grain-rich-grain-poor laminations.)				99	Box 7
				Banded to laminated dolomite grades into blocky breccia (clasts of laminated dolomite from few mm to 10 cm.), dominant type of the section. Clasts to dolomite matrix ratio extremely variable. Dip of lamination variable; from subhorizontal up to vertical. Laminae locally disrupted & overturned. Some disrupted laminations suspected to be mudcracks.				97	Box 8
				Strongly brecciated sections contain abundant stringy and irregular vugs healed w/ xln quartz - dolomite - hydrocarbons. Cavities only partly filled, and open-space vugs, are common. Breccia grades loc. into strongly mottled zones involving algal mats.				100	Box 9
				No mineralization other than localized pyrite disseminations, confined to quartz-carbonate-filled cracks and vugs.			LMPS-5, polished section (187.5'); LMPS-6, polished section (188')	98	Box 10
200								98	Box 11
								98	Box 12

SHEET 1 OF 4 DRILL HOLE NO. LM 74 J-3 FIG. NO. 31

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GEOLOGISTS

PROJECT Mistassini Lake
AREA J
DRILL HOLE NO. LM 74 J-3
PROPERTY _____ DATE COLLARED _____ COMPLETED _____
LOCATION _____ COLLAR ELEVATION _____
_____ TOTAL DEPTH _____
CONTRACTOR/DRILLER _____ INCLINATION _____ DIRECTION _____
LOGGED BY _____

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
							BQ bit		Box 12
							LMPS-7, polished section (243')	99	Box 13
								99	Box 14
								98	Box 15
300								99	Box 16
								99	Box 17
							LMPS-8, polished section (340.5')		
							LMPS-9, polished section (343')	100	Box 18
								100	Box 19
							LMPS-10, polished section (373')		
							LMPS-11, polished section (377')		
								97	Box 20
398'–400	+837'	LOWER ALBANEL FM.		GRADATIONAL CONTACT Thinly banded to laminated dolomite, med gray, fine xln. grading to dol'tc micrite. Disrupted bedding & breccia-tion gradually de-crease toward base, along w/ lamination, that becomes in-distinct. Vugs & cavities filled w/ quartz-carbonate-hydrocarbon are sparse.				99	Box 21
								99	Box 22
								98	Box 23

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GEOLOGISTS

PROJECT Mistassini Lake
AREA J
DRILL HOLE NO. LM 74 J-3
PROPERTY
DATE COLLARED COMPLETED
LOCATION
COLLAR ELEVATION
TOTAL DEPTH
CONTRACTOR/DRILLER
INCLINATION DIRECTION
LOGGED BY

DEPTH	ELEVATION	UNIT	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
						BQ		
						LMPS-12, polished section (477')	99	Box 24
							99	Box 25
500							97	Box 26
519'			GRADATIONAL CONTACT					
			Interbedded: ① dolomite, med. gray, fine xln ② shaly dolomite, dk gy, v. fine xln (loc. slightly sandy.) ③ graphitic shale, black w/ scattered quartz-carbonate bands (1-3 cm) & pyrite nodules Local bands (up to 1' thick) of intraformational conglomerate (sorted clasts, subrounded, 0.5-1 cm.) of shaly dolomite in dolomite matrix. Common cross-bedding, some cut-and-fill. Dip 2-5°. Proportion of graphitic shale increases from 10% at top to about 30-40% at base.			99	Box 27
							98	Box 28
		LOWER ALBANEL FM.					100	Box 29
							99	Box 30
600							99	Box 31
							98	Box 32
							99	Box 33
660'	+575'		GRADATIONAL CONTACT					
			Black graphitic shale, silty, w/ scattered beds of dk gray dolomite, silty. Few bands of quartz-carbonate, up to 3 cm. thick. Pyrite nodules & laminae of disseminated pyrite.				99	Box 34
680'			Shaly dolomite, dk gray, finely xln. Scattered beds (< 1') of blk graphitic shale.				99	Box 35

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GEOLOGISTS

PROJECT Mistassini Lake
AREA J
DRILL HOLE NO. LM 74 J-3

PROPERTY _____
LOCATION _____
_____
CONTRACTOR/DRILLER _____
LOGGED BY _____

DATE COLLARED _____ COMPLETED _____
COLLAR ELEVATION _____
TOTAL DEPTH _____
INCLINATION _____ DIRECTION _____

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
	+534'	L. ALBANEL					BQ 2	99	Box 35
700							Acid test, 701': 90°		
701'				Bottom				99	Box 36

SHEET 4 OF 4 DRILL HOLE NO. LM 74 J-3 FIG. NO. 31

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GEOLOGISTS

PROJECT Mistassini Lake
AREA K (sheet 32 P/6)
DRILL HOLE NO. LM 74 K-1.
DATE COLLARED 3/26/74 COMPLETED 4/3/74
COLLAR ELEVATION +1233' (estimate)
TOTAL DEPTH 157'
INCLINATION vert. DIRECTION —

PROPERTY
LOCATION 51°23'23" N, 73°00'32" W
CONTRACTOR/DRILLER Bradley Bros.
LOGGED BY V. Jindrich

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
		OVERBURDEN		Overburden			54' HW casing left →		HQ
							80' NW casing left. →		HQ / NQ
100							108' BW casing left. →		BQ
157'	+1076'			Hole abandoned					
200									

SHEET 1 OF 1 DRILL HOLE NO. LM 74 K-1 FIG. NO. 32

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GEOLOGISTS

PROJECT Mistassini Lake
AREA K (sheet 32 P/6)
DRILL HOLE NO. LM 74 K-2 A
PROPERTY
DATE COLLARED 4/9/74 COMPLETED 4/12/74
LOCATION 51°21'11" N, 73°06'23" W COLLAR ELEVATION +1233' (estimate)
TOTAL DEPTH 104'
CONTRACTOR/DRILLER Bradley Bros. INCLINATION vert. DIRECTION —
LOGGED BY V. Jindrich

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
		OVERBURDEN		Overburden			30' HW casing left		HQ / NQ
100	+1129'								
104'									
200									

SHEET 1 OF 1 DRILL HOLE NO. LM 74 K-2 A FIG. NO. 33

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ERNEST K. LEHMANN & ASSOCIATES, INC.
GEOLOGISTS

PROJECT Mistassini Lake
AREA K (sheet 32 P/6)
DRILL HOLE NO. LM 74 K-2 B
PROPERTY
DATE COLLARED 4/12/74 COMPLETED 4/15/74
LOCATION 51° 21' 11" N, 73° 06' 23" W
COLLAR ELEVATION +1233' (estimate)
TOTAL DEPTH 65'
CONTRACTOR/DRILLER Bradley Bros.
INCLINATION vert. DIRECTION —
LOGGED BY V. Jindrich

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
		Overburden		Overburden			10' NW casing left 20' HW casing left		HQ NQ
65'	+1168'								
100									
200									

SHEET 1 OF 1 DRILL HOLE NO. LM 74 K-2 B FIG. NO. 34

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GEOLOGISTS

PROJECT Mistassini Lake
AREA M (sheet 32 P/7)
DRILL HOLE NO. LM 74 M-1
PROPERTY
LOCATION 51°23' 14" N, 72° 49' 14" W
DATE COLLARED 1/26/74 COMPLETED 2/5/74
COLLAR ELEVATION +1259.5'
TOTAL DEPTH 1424.5'
CONTRACTOR/DRILLER Bradley Bros.
INCLINATION vert. DIRECTION —
LOGGED BY V. Jindrich

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
1'		WATER		Water			(no plug) (no inclination tests)		HW
		QUATERNARY - OVERBURDEN		Overburden: glacial till (unsorted gravel & assorted boulders)			20' HW casing left in hole		
							54' NW casing left in hole		NW
88'	+1171.5'	LOWER ALBANEL FM.		Dolomite, med. - dk gray, v fine - fine xln; bedding parallel, planar (indicated by color rather than change in texture). Dip 0°-2°. Cross-bedding at 132'. Scattered thin beds (up to 1 cm.) of dk gray shaly dolomite. Loc. specks of pyrite, forming a vein 2 cm. at 148'.			BQ to bottom. Core boxes are noted in size column. Recoveries given in %.	100	BQ
100								100	Box 1
								99	Box 2
								100	
								100	Box 3
								99	
				X pyrite vein				101	Box 4
								100	
								101	Box 5
								100	
								101	Box 6
200								98	
205'				Dolomite, med. - dk. gray, v fine to med xln. Besides planar bedding (0°-2°), this sequence displays distinct cross-bedding, graded bedding (fining upward), cut and fill, & slump structures (convolute bedding). Scattered beds of dk gy shaly (silty) dolomite up to 1 ft. (221'-222'). (SEE BELOW)				100	
								100	Box 7

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GEOLOGISTS

PROJECT Mistassini Lake
AREA M
DRILL HOLE NO. LM 74 M-1

PROPERTY _____ DATE COLLARED _____ COMPLETED _____
LOCATION _____ COLLAR ELEVATION _____
_____ TOTAL DEPTH _____
CONTRACTOR/DRILLER _____ INCLINATION _____ DIRECTION _____
LOGGED BY _____

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
				(FROM ABOVE) Disseminated pyrite common. Loc. joints at 70°-80° (some at 90°) healed by paper-thin SiO_2.			BQ bit	100	Box 8
								100	
								99	Box 9
								100	
								100	Box 10
								99	
								98	Box 11 —
300								100	
								97	Box 11 +
								98	Box 12 —
								100	Box 12 +
								98	Box 13
								99	Box 14
								98	Box 15
								98	Box 16
								97	Box 17

LOWER ALBANEL FM.

+882.5'

376'–377': Breccia: clasts of dolomite, med gray, fine xln (1mm — 2 cm) suspended in matrix of lt gray dolomite, fine xln; clasts/matrix 3:1

(same as above the breccia)

300

400

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PROJECT Mistassini Lake
AREA M
DRILL HOLE NO. LM 74 M-1.

PROPERTY
LOCATION
CONTRACTOR/DRILLER
LOGGED BY

DATE COLLARED ____ COMPLETED ____
COLLAR ELEVATION
TOTAL DEPTH
INCLINATION ____ DIRECTION ____

CM 34029

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
							BQ		Box 17
								100	Box 18
490'				GRADATIONAL CONTACT				99	Box 19
500				Interbedded: ① dolomite, med. gray, fine-med xln (60%) ② shaly dolomite (silty to sandy), dk gray, fine xln (40%) Bedding dominantly thin, parallel. (Shaly dolomite in beds from paper-thin laminae to 4' thick.) Contacts sharp & gradational. Dip 2°-6°. Common cross-bedding, cut & fill, some convolute bedding and graded bedding. Disseminated pyrite in irregular nests at places.				99	
								99	Box 20
								100	
								98	Box 21
								100	
								98	Box 22
								99	
		LOWER ALBANEL FM.						98	Box 23
	+659.5'							101	
								100	Box 24
600								98	
								99	Box 25
								100	
								100	Box 26
								98	
								98	
							Water seam at 647'	99	Box 27
								100	
								100	Box 28
673'				GRADATIONAL CONTACT				100	
				Interbedded: ① dolomite, med. gray, fine-med xln. At places sandy, ranging to dd'tc med-fine sand (sorted & rounded quartz grains) 80-90% (CONTINUED BELOW)				99	Box 29

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GEOLOGISTS

PROJECT Mistassini Lake
AREA M
DRILL HOLE NO. LM 74 M-1
PROPERTY
DATE COLLARED COMPLETED
LOCATION
COLLAR ELEVATION
TOTAL DEPTH
CONTRACTOR/DRILLER
INCLINATION DIRECTION
LOGGED BY

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
				(FROM ABOVE) ② shaly dolomite, dk gray, fine xln (silty at places). 10-20% Bedding dominantly parallel, thin, dip 2°-6°. Common cross-bedding and graded bedding (dolomitic sand forms lenses or occurs at base of grade unit, in sharp contact w/ shaly dolomite below) Disseminated pyrite or specks at places.			BQ		
700								100	Box 29
								99	Box 30
								98	
								99	Box 31
								99	
								98	Box 32
								100	
						◆	LMTS-6; thin section at 755'	100	Box 33
								100	
								100	Box 34
	+459.5'			LOWER ALBANEL FM.				100	
800								99	Box 35
								99	
						◆	LMTS-5; thin section at 821'	99	Box 36
								99	
								100	Box 37
								100	
								99	Box 38
								99	
								100	Box 39
								100	
898'				GRADATIONAL CONTACT					
900				Interbedded: ① dolomite, med. gray, finely xln. Slightly sandy at places. 60% ② shaly dolomite, dk gray (silty), fine xln. 40% Bedding thin, parallel (dip 2°-7°). Individual types alternate in beds < ½' thick. Common cross- (SEE BELOW)				101	Box 40
								100	

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PROJECT Mistassini Lake
AREA M
DRILL HOLE NO. LM 74 M-1
PROPERTY
LOCATION
DATE COLLARED COMPLETED
COLLAR ELEVATION
TOTAL DEPTH
CONTRACTOR/DRILLER
INCLINATION DIRECTION
LOGGED BY

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
				(FROM ABOVE) bedding, cut & fill, some slump features. Loc. brecciated beds to 2' thick; dk gray shaly dolomitic clasts 2 x 5 cm in gray dolomite matrix. Disseminated pyrite, or nests 1 x 3 cm at places.			BQ	100	Box 41
								99	
								100	Box 42
								100	
							Water seam at 966'	99	Box 43
								100	
								98	Box 44
	+2595							100	
1000								99	Box 45
								99	
								100	Box 46
								98	
								98	Box 47
								99	
								98	Box 48
								99	
								101	Box 49
								100	
								98	Box 50
1100								98	
								99	Box 51
								99	
								100	Box 52

LOWER ALBANEL FM.

DRILL HOLE NO. LM 74 M-1 FIG. NO. 35

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PROJECT Mistassini Lake
AREA M
DRILL HOLE NO. LM 74 M-1

PROPERTY
LOCATION
CONTRACTOR/DRILLER
LOGGED BY

DATE COLLARED COMPLETED
COLLAR ELEVATION
TOTAL DEPTH
INCLINATION DIRECTION

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES Cu %	ANALYSES Zn %	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
	+975'							BQ	100	Box 52
1162				Dolomitic, graphitic shale, black, thin-bedded to laminated. Silty at places? Abundant disseminated pyrite along bedding planes, or forming irregular blebs or veins. Top & base of shale are dk gray, grading into neighboring units by decrease of organic (graphitic) substance. Paper-thin veinlets of calcite & dolomite across bedding planes.					100	Box 53
									100	
									99	Box 54
1200									98	
									98	Box 55
									99	
									98	Box 56
									98	
									100	Box 57
1242				Shaly dolomite, dk gray, thin bedded. Grades twd base, into dolomite, med. gray, fine xln. Some cut & fill structures, irregular-wavy lamination.					100	
	SEA LEVEL	LOWER ALBANEL FM.							99	
1265				Graphitic shale, blk, thin-bd.; pyrite bands.	LM74A64	.01	<.01	1265'	100	Box 58
1267.5				Shaly dolomite, dk gray	-65	.01	<.01			
1269.5				Graphitic shale, blk, thin bd. Pyrite bands.	-66	.01	<.01			
1272				Dolomite, med. gray, fine-med. xln. Scattered laminae of dolomitic shale, dk gray. At base, lenticular vugs filled w/ dolomite & calcite & pyrite (algal dolomite?)	-67	<.01	<.01		100	
					-68	.01	.01			
					-69	.02	.01			
					-70	.01	.02			
					-71	<.01	<.01			
					-72	.01	<.01			
					-73	.01	<.01			
					-74	.01	<.01			
					-75	.01	.01			
					-76	<.01	<.01			
					-77	<.01	<.01			
					-78	.01	<.01			
					-79	<.01	<.01			
					-80	<.01	<.01			
					-81	<.01	.01		100	Box 59
					-82	<.01	.01			
					-83	<.01	<.01			
					-84	<.01	<.01			
					-85	<.01	<.01			
					-86	<.01	<.01			
					-87	<.01	.01			
					-88	<.01	<.01			
					-89	<.01	<.01			
					-90	<.01	<.01			
					-91	<.01	<.01		98	
					-92	<.01	<.01			
					-93	.01	<.01			
					-94	<.01	.03			
					-95	.01	.08			
1298.2					-96	<.01	.02			
					-97	.02	.12			
1300				Graphitic shale, black	-98	.01	<.01			
1300.2				Dolomite as above	-99	.02	.01			
1302.5	-50.5'			Graphitic shale, blk, thin-bedded. Pyrite in thin bands, clusters, xls.	-100	<.01	.01			
					-101	.01	.01			
					-102	.01	<.01		100	Box 60
					-103	.02	<.01			
1310					-104	.01	<.01			
					-105	.01	<.01			
					-106	.01	.01			
					-107	.01	<.01			
					-108	.02	.01			
				Interbedded: dolomite, med gy, fine xln, & conglomerate/breccia (rounded & angular clasts of dk gy shaly dol in dol'tc matrix.) Irreg vugs w/ xln calcite & dol. Loc. disrupted bd'g (algal?)	-109	<.01	.04		99	
					-110	<.01	<.01			
					-111	<.01	<.01			
					-112	<.01	<.01			
					-113	<.01	<.01			
					-114	<.01	<.01			
					-115	<.01	<.01			
					-116	<.01	<.01			
					-117	<.01	<.01			
					-118	<.01	<.01			
					-119	<.01	<.01		94	Box 61
1321.5					-120	<.01	<.01	1322'		
				Algal dolomite, med gy, f-g'd. Distinct algal heads (2x3 cm to 25 x 3 cm.) columnar & oval in outline. Some heads disrupted, dislocated. Matrix doloruditic, coarse xln w/ larger clasts (to 2 cm.) of dk gy shaly dol. Ab'dt irreg., lenticular vugs w/ coarse xln carbonate & quartz (chalcedony?) V. little disseminated pyrite,				Polished sections: LMPS-15 (1323')		
								LMPS-16 (1325')	115	Box 61
								LMPS-17 (1327')		
1340									99	Box 62
				Dolomite (dolorudite?) med. gray, med.—coarse xln, massive. Intense mottling (brecciation) at places, w/ clasts 2-3 cm. of lt'er gray dol., fine xln (algal dol?). Ab'dt vugs filled w/ carbonate & quartz (as above) decrease in abundance toward base.					98	
								LMTS-4; thin section at 1357'	100	Box 63
									102	
				Dolomite (dolorudite), med. gy. w/ dk gy spots, coarse xln, massive. Recognizable clasts of shaly dolomite 1-3 mm, rounded & sorted. Some brecciation at places, w/ clasts (SEE BELOW)				algal stromatolitic dolomite	94	Box 64
1372										

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PROJECT Mistassini Lake

AREA M

DRILL HOLE NO. LM 74 M-1

PROPERTY _____ DATE COLLARED _____ COMPLETED _____

LOCATION _____ COLLAR ELEVATION _____

_____ TOTAL DEPTH _____

CONTRACTOR/DRILLER _____ INCLINATION _____ DIRECTION _____

LOGGED BY _____

DEPTH	ELEVATION	UNIT	GRAPHIC LOG	DESCRIPTION	SAMPLE NO.	ANALYSES	REMARKS	DRILL REC. RECOV.	DRILL REC. SIZE
1387	-127.5'	LOWER ALBANEL		(FROM ABOVE) (up to 3 cm.) of lt gray dolomite, fine grained. Scattered vugs, as above. Gradual transition to below:			BQ Algal stromatolitic dolomite LMTS-3; thin section at 1386'	100	Box 64
				Greenish gray rock, med. - coarse xln: meta-andesite				100	
1400		SUPERIOR PROVINCE						100	Box 65
							LMMS-6, magnetic susceptibility sample at 1423': -density = 2.94 g/cc -vol mag sus = 0×10^{-6} cgs	101	
1424.5				Bottom			LMTS-2; thin section at 1424.	100	Box 66
								100	
1500									
1600									

SHEET 7 OF 7 DRILL HOLE NO. LM 74 M-1 FIG. NO. 35