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TECHNICAL REPORT ON THE 1981 OVERBURDEN DRILLING PROJECT CONDUCTED ON THE UTAH - ROSARIO JOINT-VENTURE PROPERTY

LOCATED

IN MAHAFFY AND REID TOWNSHIPS

IN THE

PORCUPINE MINING DIVISION, ONTARIO

By: W.S. Mitchell
April, 1981
Toronto,
Ontario.

INTRODUCTION:

In January of 1980, Utah Mines Ltd., Rosario Resources Canada Limited and Aquitaine Company of Canada Limited, signed a joint-venture agreement to explore a block of 122 mining claims in Mahaffy, and Reid townships. In the first year of this agreement Utah Mines Ltd. carried out extensive ground geophysical surveys on the property and followed up by drill testing six anomalous geophysical responses.

As part of this on-going joint-venture program of exploration, Heath and Sherwood Drilling, under contract to Utah Mines Ltd. completed a program of overburden sampling by reverse circulation drilling methods on the property in March of 1981. A total of 23 reverse circulation holes were drilled on the joint-venture property during this program of overburden exploration. Utah geologists sampled and logged the glacial lithologies intersected in each of the 23 holes drilled. This technical report describes the results of the overburden drill program.

LOCATION AND ACCESS

The joint-venture property covers an area of 1975 hectares which straddles the Reid-Mahaffy township line and is located just west of the Mattagami River, approximately 65 Km northwest of Timmins, Ontario. (Figure I)

The area is accessible by helicopter from Timmins. In winter the property is accessible on snowmobile by crossing the Mattagami River at a point just south of the Ontario Hydro Power Dam which is normally accessible by road from Timmins. In summer, access by boat along the Mattagami River is also feasible.

Alternative winter access is by winter road from Kamiskotia northwards through Loveland and Thorburn townships. At a point just south of the Geary - Thorburn township line this winter road heads east to the Reid - Mahaffy township line from which access was gained to the overburden drill traverse line.

PROPERTY

The joint-venture property comprises 122 contiguous claims held by Rosario Resources Limited in Reid and Mahaffy townships in the Porcupine Mining Division of Ontario. (Figure 2)

Overburden drilling was performed on the following claims:

(SEE NEXT PAGE)

CLAIM NO.	OVERBURDEN HOLE NO.
P501596	UR81-01
P499586	UR81-02
P499587	UR81-03, UR81-04
P499588	UR81-05
P499589	UR81-06, UR81-07, UR81-07A
	UR81-07B
P499590	UR81-08
P499605	UR81-09, UR81-10
P499604	UR81-11
P499603	UR81-12
P499602	UR81-13, UR81-14
P506827	UR81-15
P506828	UR81-16
P506829	UR81-17, UR81-18
P499658	UR81-19
P499655	UR81-20
P501588	UR81-21

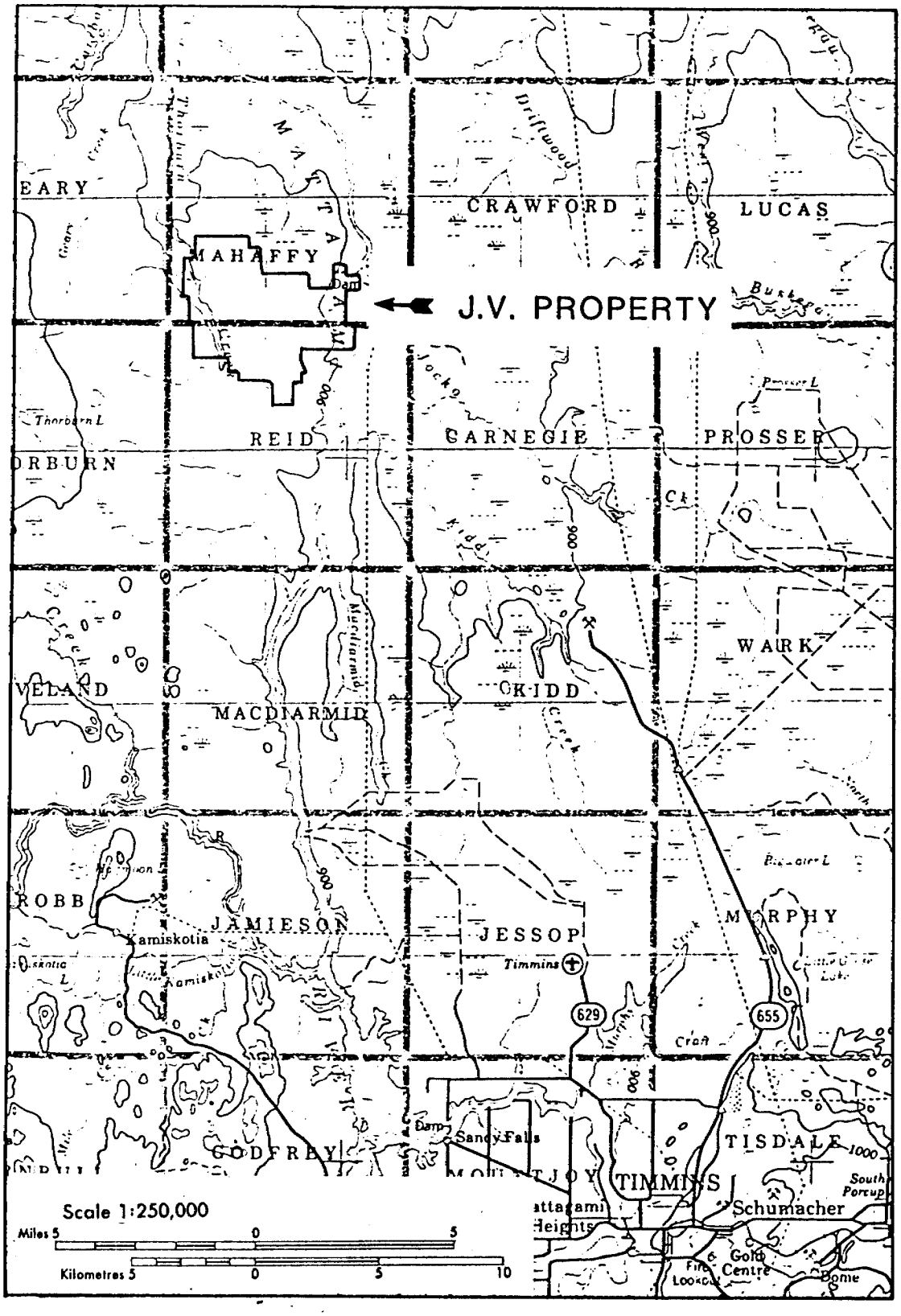

Figure 1

Location of Rosario-Utah Joint Venture Property

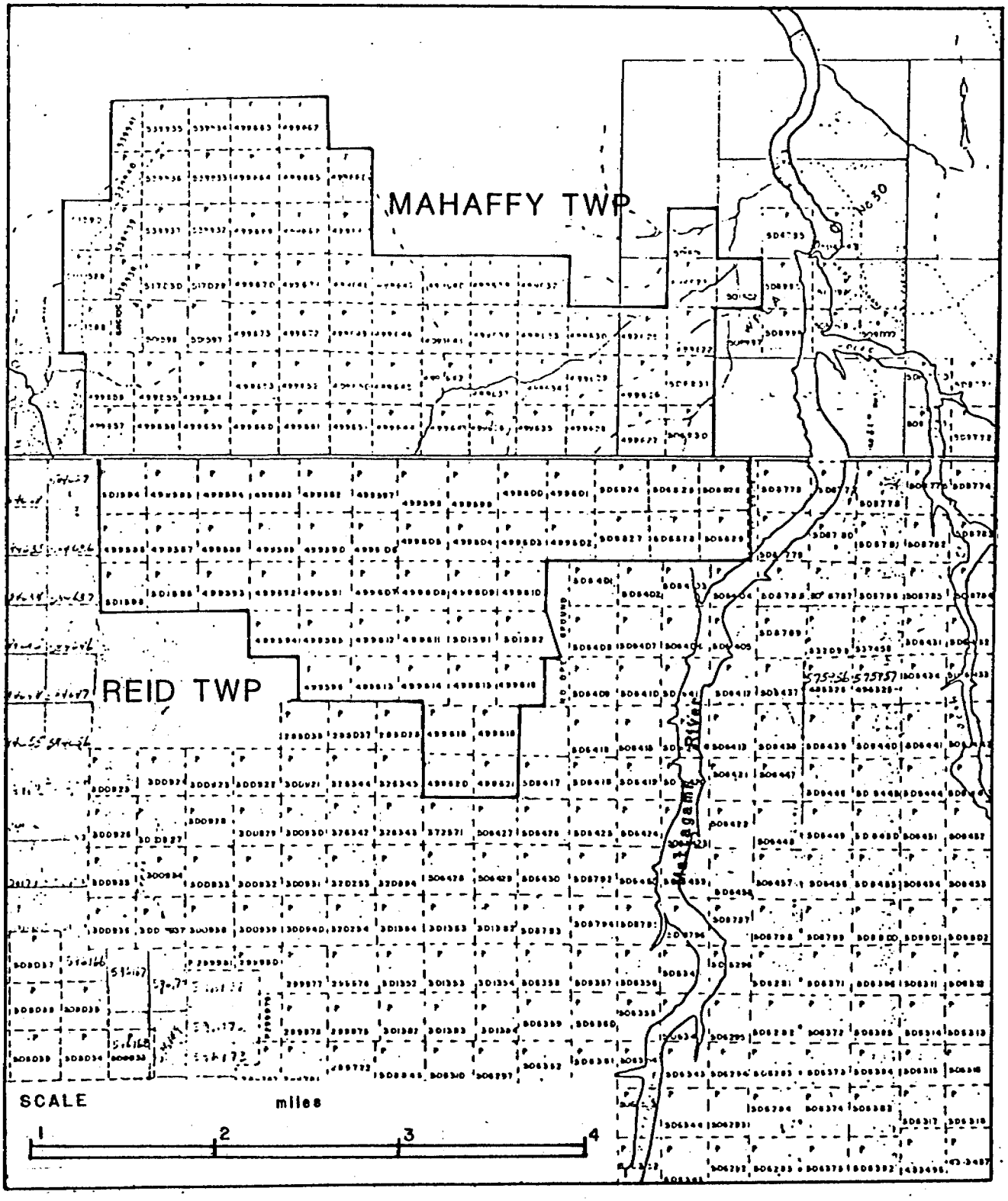

FIGURE 2 ROSARIO-UTAH CLAIMS

DESCRIPTION OF GEOLOGY

The whole property is covered by extensive glacial overburden and there is no known outcrop within the area. On the basis of limited drill information it appears that the property is underlain mainly by a sequence of mafic to felsic metavolcanic rocks with interbedded metasediments. Based on interpolations between drill hole information and ground magnetic surveys it appears that there are several diabase dykes which trend north-northwest across the property.

PREVIOUS WORK

A considerable amount of previous work in the area of the joint-venture, Reid - Mahaffy claim group was completed after 1964, following the discovery in Kidd township of the Kidd Creek Mine. Records in the assessment files show that in 1964 Keevil, Black River and Jacobies worked in the area and eight diamond drill holes are recorded. In 1965, Barrington ran JEM and magnetics over the area and in the same year United Porcupine drilled four holes along the Reid - Mahaffy township line.

Conwest completed vertical loop electromagnetic and magnetic surveys in 1966 and drilled two diamond bore holes. In 1972, Caltor conducted ground magnetic and electromagnetic surveys and drilled four diamond holes. In 1973, DEEPEX Syndicate ran Turam, magnetics and gravity and drilled two holes in the northwestern part of the property. Following an airborne INPUT survey, the results of which are not on assessment file, Phelps-Dodge in 1965, conducted Ronka HEM, magnetics and drilled one hole.

PREVIOUS WORK(Continued)

Rosario Resources Canada Limited, claimed much of this area in 1977, and since then have conducted a variety of ground geophysical surveys over the property and have drilled a total of eight diamond drill holes. Following the signing of a joint-venture agreement for exploration of the property, Utah Mines Ltd. in early 1980, conducted extensive ground geophysical surveys on the property and followed up by drilling six diamond drill holes in the winter of 1980. Subsequently IP surveys were conducted by Utah in several areas of the property which, based on extrapolations of drill hole lithologies, appear to be underlain by volcanic rocks considered to be favourable for the formation of volcanogenic massive sulphides.

PRESENT SURVEY

Information obtained from diamond holes previously drilled on the property indicates that glacial overburden ranging from several tens of feet to depths in excess of 200' covers the property.

Deep overburden, especially if conductive layers of clay are present has been a major problem facing explorationists in this area. However glacial till sampling has recently become a commonly utilized exploration method in areas of heavy overburden cover. The concept behind this method of exploration is that any subcropping mineral deposit is likely to have been glacially eroded with the possible formation of dispersal trains within the glacial overburden down-ice from any subcropping mineralization.

As a means of sampling the glacial overburden in the area of the

PRESENT SURVEY (Continued)

joint-venture property, a program of reverse circulation drilling was undertaken in March, 1981. Under contract to Utah Mines Ltd., Heath and Sherwood Drilling completed a total of 23 reverse circulation holes on the property. Utah geologists logged the glacial stratigraphy intersected in each hole and sampled all tills and gravels intersected during the drilling. Twenty of the reverse circulation holes were drilled along a traverse running approximately east-west and south of all known geological and geophysical targets on the property. In general overburden holes were drilled 1,000' apart except for holes UR80-7A and 7B, which were located close to hole UR80-7 to test the stratigraphic continuity of Pleistocene lithologies over short distances.

Three additional overburden holes were sunk on the western section of the property north of the Reid - Mahaffy township line, near Thorburn Creek.

OVERBURDEN DRILLING METHODS AND PROCEDURE

Overburden drilling described in this report was completed by Heath and Sherwood Drilling using the reverse circulation method. The Heath and Sherwood drill, sampling system, air compressor and all necessary hydraulics are conveniently mounted in an Nodwell tractor. This set-up greatly facilitates moves between holes and allows for relatively fast rate of drilling even if there are numerous successive moves.

The actual drill utilized is a hydraulic driven Acker with a ten foot chuck feed. Dual tube drill rods, ten feet in length and an approximate diameter of 3" are used in the reverse circulation method of drilling. When drilling is in progress water and compressed air are pumped down the space between

OVERBURDEN DRILLING METHODS AND PROCEDURE (Continued)

the inner and the outer tubes. Carbide tipped tricone drill bits allow the drill fluid and sampled material to return through the centre of the bit and up through the inner tube. The returned sample is fed through a cyclone before dropping through a ten mesh screen to be collected in large sampling buckets on the sampling table.

A geologist and assistant are required for logging and sampling the returned material. The geologist continuously logs the returns including the plus ten mesh material. Returns which pass through the plus ten mesh are collected in large plastic buckets. Most of the sample settles to the foot of the bucket except for some silt fines and clay size material which remains in suspension and overflows into a large settling tank. The geologist's helper bags samples and if necessary, assists the geologist in logging procedures.

Returns are sampled over suitable intervals or between definite litholigic boundaries within the Pleistocene succession. As the samples are subsequently to be used for geochemical analysis, great care must be taken to avoid contamination. This involves using clean drill rods and ensuring that drill rods, bits, couplings, etc. do not contain appreciable amounts of any element that will subsequently be analyzed in the sample. Care must also be taken to make sure that rod grease and other greases used in swivels etc. are free of any possible metallic contaminantes. The effects of contamination in overburden samples obtained by this method of drilling are described by Proudfoot et al, 1975. However we can now recognize most of the possible sources of contamination and for the most part this problem can be avoided.

OVERBURDEN DRILLING METHODS AND PROCEDURE (Continued)

The overburden drilling method is now proving to be a viable prospecting tool in areas of deep glacial overburden and especially within the Abitibi Claybelt. Several new finds of mineralization in bedrock deeply buried by glacial till can be directly attributed to this method of geochemical till prospecting. One well documented discovery using overburden drilling as a till prospecting method is the Currie Deposit located in the Currie-Bowman Area, southwest of Matheson, Ontario (Thompson, 1979).

RESULTS OF OVERBURDEN DRILL PROGRAM

Twenty overburden holes were drilled on a traverse which extends approximately east to west across the southern portion of the joint-venture property (Map I, inset).

The pleistocene lithologies recorded in each of these drill holes are fully described in the accompanying drill logs. In general the bedrock along the traverse is overlain by outwash sands and gravels of variable thickness. The sands and gravels are interbedded and characteristically stratified. Even in the distrubed sample returned at the drill, there is ample evidence of repetitive intervals of graded beds. Within this sequence of sands and gravels there are numerous pebble layers. Pebbles vary considerably in roundness and sphericity but are commonly subrounded to subangular with moderate sphericity. A wide variety of different rock types are present in the pebble layers, the most common pebbles being those of intermediate to mafic volcanic rocks. Pebbles of granite, gabbro, limestone and a variety of metasediments are also quite common. The accompanying series of drill logs provide a concise description of the relative percentages of pebble types encountered in each hole.

RESULTS OF OVERBURDEN DRILL PROGRAM (Continued)

Cobbles of various rock types as indicated in the drill logs were also present in significant amounts within this outwash sequence.

There is almost no development of basal or lodgement till along this traverse line as the bedrock is directly overlain by outwash sands and gravels except in areas penetrated by the following holes - UR81-7, UR81-7A, and UR81-17. Even in these holes only a limited thickness of basal or lodgement till was recorded. Basal till intersected in hole UR81-17 is only of very limited lateral extent and appears to continue only as interbeds within the outwash sands and gravels of hole #18. At the western extremity of the traverse, a lens of glacial till was also logged within the outwash gravels in holes UR81-1 & 2.

Overlying the outwash sediments and tills is the ubiquitous blanket of varved clays, silty clays and silts. These are of course lake bottom sedimentary deposits of glacial lake Barlow-Ojibway, which existed in the recessional phase of the Wisconsin glaciation. The clays are grey in colour except in areas near the present land surface where some oxidation has taken place.

In holes UR81-03 to 05 inclusive a gritty clay layer which was initially logged as glacial till more likely represents an influx of gritty outwash material into the lake during a period of high runoff.

Along the traverse, the thickness of lake bottom clays varies from a minimum of 32' to a maximum of 112'.

RESULTS OF OVERBURDEN DRILL PROGRAM (Continued)

Eighteen of the twenty holes drilled along the traverse line reached and penetrated several feet into bedrock. The bedrock return from this type of drill is in the form of small rock cuttings. A binocular microscope is essential for making field identification of the cuttings and for more rigorous identification, thin section mounts in epoxy can be made. Whole rock analysis are also useful.

Field descriptions of the bedrock types intersected by each of the drill holes that penetrated bedrock along the traverse are also included in the drill logs. The cross section on map no. 1, also shows the bedrock geology as identified by the geologist logging the returns. This reverse circulation drilling of bedrock has extended our knowledge of the geology underlying the property. Our earlier information from a series of diamond drill holes had indicated that the property was underlain mainly by mafic to felsic metavolcanic rocks and metasediments intruded in places by diabase. Using the additional information on bedrock obtained from our reverse circulation holes, we are now better able to define geological boundaries within the property.

Three other overburden holes (UT81-19 to 21) were drilled on the property south of known weak geophysical anomalies. Holes UT81-19 and 20 intersected bedrock at 22 and 26.5' depths respectively. In hole 19 a pebbly clay till with minor organic material and pyrite was intersected between 15' and 22' drill depth. In hole 20, a till was intersected from 8 to 26.5' depth. This till contained a variety of different pebbles and gritty clay balls. Hole #UR81-21 intersected 57' of lake bottom clays and outwash gravels before penetrating bedrock.

RESULTS OF OVERBURDEN DRILL PROGRAM (Continued)

Bedrock in hole #19 is a sericitized fine grained felsic volcanic with minor quartz veining. In hole 20 the bedrock is a cherty rhyolite tuff which is sericitized and contains minor epidote and trace pyrite. In hole 21 bedrock is a fine grained to aphanitic epidote rich mafic to intermediate volcanic. A carbonate vein approximately one foot thick was intersected while drilling bedrock.

CONCLUSIONS

This overburden drill program has yielded significant data on the nature of the overburden in the area of the joint-venture property. We have determined that there was either very little development of true glacial till in this specific area or that any till deposited was subsequently eroded by glacial streams or rivers which deposited the outwash gravels. The disappointing lack of till development in this area has of course curtailed the use of till geochemistry as an effective exploration tool in this survey.

However significant new knowledge on the nature of the bedrock underlying the property has been obtained and we have been able to collect sufficient bedrock samples for complete whole rock and geochemical analysis.

Per W.S. Mitchell

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Eastern Canada

2.3763

WSM/ca

REFERENCES

Proudfoot, D.A., Skinner, R.G., and Shilts, W.W., 1975 Contamination in Overburden Samples Obtained by the Rotary, Dual-Tube Drilling Technique, Geological Survey of Canada, OPEN FILE 277.

Thompson, I.S. 1979, Till Prospecting for Sulphide Ores in the Abitibi Clay Belt of Ontario. CIM Bulletin Vol. 72 No. 807, p.p. 65 - 72. July, 1979.

UTAH MINES LIMITED

DATE 1 MAR 81 HOLE No. UR81-09 GEOLOGIST P. LEGEIN DRILLER A. STROJ

HOLE LOCATION ROSARIO JV RIED MAHAFFY TWP ONT.

BIT No. B53898 FOOTAGE ON BIT 0-173 FT.

HOURS MOVE MOBILIZATION HOURS DRILL 13:30 HRS OTHER TRAVEL TIME 1:00

TRACTOR TIME 21:30 HRS

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
			0-112 GREY SILTY CLAY
			- OCCASSIONAL SILTY RICH LAYERS
			- VARVED IN PLACES
10			
20			
30			
40			
50			
60			
70			
80			
			85' ORGANIC HORIZON? WOOD CHIP IN SILT & FG SAND LAYER.
90			92' GREY FG SAND LAYER.
100			

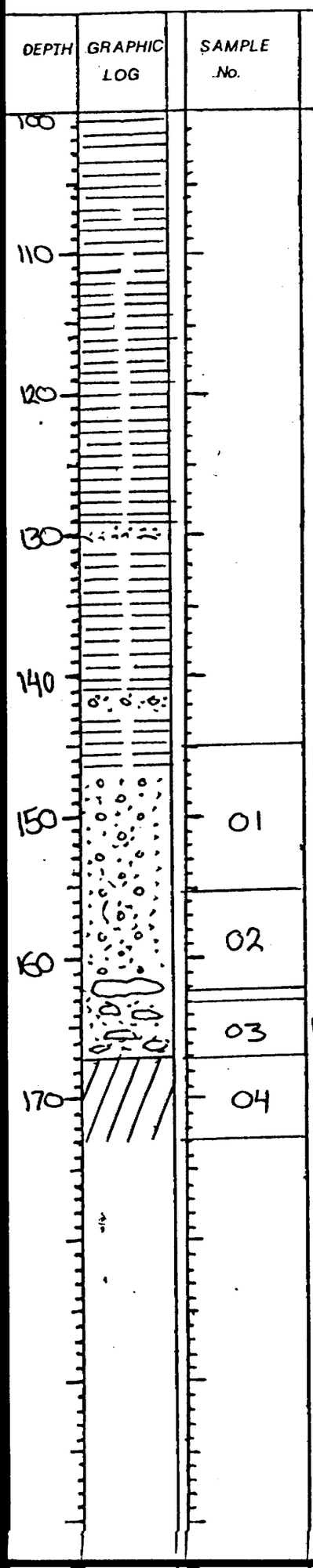
UTAH MINES LIMITED

DATE 1-2 MAR 81 HOLE No. UR 81-09 GEOLOGIST _____ DRILLER _____

HOLE LOCATION _____

BIT No. _____ FOOTAGE ON BIT _____

HOURS MOVE _____ HOURS DRILL _____ OTHER _____



DESCRIPTIVE LOG

0 - 112 GREY SILTY CLAY

100 - 112 - ALTERNATING LAYERS OF SILT, SILT + PEBBLES & CLAY.

112 - 146 GREY SILT

- WITH OCCASIONAL GRANULES AND SMALL PEBBLE GRAVEL LAYERS.
- BEDDED IN PLACES WITH FG SAND LAYERS.
- WOOD CHIPS IN SEVERAL LAYERS.

130 - F-MG GREY SAND LAYER

142 - SMALL PEBBLE GRAVEL BED 0.5' THICK

146 - 163 - PEBBLE GRAVEL

30% LST
30% GRANITE & GABBRO
40% VOLCS (MAFIC)
WITH M-CG GREY SAND MATRIX
POORLY SORTED/BROKEN PEBBLES
UPTO 1/4", 0.5' THICK SAND BEDS
162' 2' RHYOLITE BOULDER.

163 - 167 - COBBLE & BLDR GRAVEL

60-70% MAFIC VOLC
30-40% GRAN & LST.
POORLY SORTED & F-CG SAND
SOME SILT. NO CLAY BALLS
Py CUBES AND Py in MAFIC VOLC NOTED.

167 - 173 - MG DIABASE.

50% GREENISH PLAG (ANGO)
50% MAFIC (AUGITE?)

UTAH MINES LIMITED

DATE MARCH 9, 81 HOLE No. UR-81-10 GEOLOGIST McIVOR DRILLER STROJNY

HOLE LOCATION UTAH-ROSARIO JOINT VENTURE - REID & MAHAFFY TWN'S

BIT No. B62192 FOOTAGE ON BIT 0'-204'

HOURS MOVE 1.30-3.00 PM, March 8 HOURS DRILL 6.5 hours OTHER

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
0'			0'-5' ORGANICS
			5'-55' GRITTY CLAY (MINOR SAND PRESENT)
			- soft, grey, gritty clay, occasionally varved,
10'			- contains a few subrng to subrd. rafted pebbles to 1/8" & pred. Pal. lmst
			- @ 34', thin 2" bed of gravel & pebbles to 1/4" of Pal. lmst & maf. volc.
20'			- clay gradually becomes less gritty towards 55'.
			55'-72' CLAY
			- clean, gray soft clay
30'			72'-78' SILT RICH CLAY
			- light grayish brown, very "sticky" silt rich clay
			78'-86' CLAY
			- hard, clean, bluish gray clay
40'			86'-118' SILT & CLAY INTERBEDS
			- predominantly light brown, vfg silt, & numerous thin sticky brown & hard blue clay interbeds
50'			- a few clay interbeds contain a few small, well rounded pebbles (rafted) of various lithologies.
			- silt gradually becomes coarser grained towards 118', where it becomes fg sand
60'			118'-203' SAND & GRAVEL (INTERBEDDED - STRATIFIED)
			- thinly bedded, interbedded sand and gravel,
70'			- sand predominant, ranging in grain size from fine to coarse
			- gravel beds are pebbles & cobbles of varying lithologies (details below)
80'			- from 118'-135', pebbles to 1/4" subrounded to sub ang., of int-maf volc. - 50% qz, qz qn, & qtz-bio qn - 20% Pal lmst (often fossiliferous) - 15% - minor gabbro, felsic volcanic
90'			- from 135'-155', pebbles are sub rd to sub ang, to 1/4", & int-maf. volc - 40% qz, qz qn, qtz bio qn & garnetiferous qn - 20% lmst - 10% - minor gabbro, metased, jasper (cont. thi)
100'			

UTAH MINES LIMITED

DATE MARCH 9, 81 HOLE No. GR-81-10 GEOLOGIST _____ DRILLER _____

HOLE LOCATION _____

BIT No. _____ FOOTAGE ON BIT _____

HOURS MOVE _____ HOURS DRILL _____ OTHER _____

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
100'			- from 155'-165', pebbles & cobbles of - int-mat volc, occ. schistose, ± tr. Py - 50% - gr., gr.gn., qtz-bio gn, garnet gn - 30% - limestone (often fossiliferous) - 10% - minor fel. volc, gabbro, chert - @ 158', 6" qtz-bio gn. cobble
110'			- from 165'-175', sub rd to sub ang. pebbles of 20% lmst (fossiliferous) 20% gr & gr gn. 40% int-mat volc 10% gabbro - minor fel. volc, jasper.
120'			
130'		01	- from 175'-195', pebbles & cobbles of int-mat volc - 40% Fel lmst - 20% gr, gr gn, qtz-bio gn - 30% gabbro 5%
140'			- from 195'-203', pebbles and cobbles become 50% int-mat volc 20% gr, gr gn, qtz-bio gn, garnetiferous gn. 10% limestone 10% felsic volcanics - @ 201', 4" gabbro cobble @ 202', 6" garnetiferous gneiss cobble
150'		02	
160'		03	203'-209' BEDROCK - weakly sericitized, cherty rhyolite! (bit failure @ 209')
		04	
170'		05	
180'		06	
190'		07	
200'		08	

UTAH MINES LIMITED

DATE MARCH 9.81 HOLE No. UR-81-10 GEOLOGIST _____ DRILLER _____

HOLE LOCATION _____

BIT No. _____ FOOTAGE ON BIT _____

HOURS MOVE _____ HOURS DRILL _____ OTHER _____

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
200		08	
		09	

UTAH MINES LIMITED

DATE MAR 81 HOLE No. UR81 - 11 GEOLOGIST K. BAXTER DRILLER A. STROT
HOLE LOCATION UTAH ROSARIO JV RIED MAHAFFY TWP. ONT
BIT No. B62 193 FOOTAGE ON BIT 0 - 105 Ft.
HOURS MOVE 0:30 HRS. HOURS DRILL 3:00 HRS. OTHER TRACTOR TIME - 3:00 HRS.

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
			0 - 5 Ft. ORGANIC.
			5 - 94 Ft. SOFT GREY CLAY
10			
20			- 20 Ft. minor pebbles. for 2 - 4 Ft.
30			- 35 Ft. minor pebbles.
40			
50			
60			
70			
80			
90			- 84 Ft. 6" of pebbles well rounded. - 88 Ft. small pebbles in silt matrix. - 93 Ft. Fine grain sand to silt and a few pebbles.
		01 ↓	94 - 114 Ft. PEBBLE GRAVEL - med. to coarse grain sand - 1/3 LST 1/3 Vol 1/3 GRANITIC - 97 Ft. WOOD CHIPS. - well rounded pebbles.
100			

UTAH MINES LIMITED

DATE [redacted] MAR 81 HOLE No. UR81 - 11 GEOLOGIST _____ DRILLER _____

HOLE LOCATION _____

BIT No. B62 193 FOOTAGE ON BIT 105 - 155 Ft.

HOURS MOVE _____ HOURS DRILL 4:30 HRS. OTHER TRACTOR TIME - 4:30 HRS.

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
		↓ 01	- largest clast size = ¼" diam. - 106' - major organic horzn. - 110' - Lst cobble. & then quartze-Biotite gniess - 113' wood chips
110		02	
		03	114 - 118' CLAY TILL - 70% flattend gritty disks of hard grey clay. 30% pebbles and fine grain sand to silt. Minor wood chips. - 116-117' sand matrix - 117-118' CLAY Pebble till 70% pebbles. 30% clay disks. then mostly clay & major organic - clay has lustre. Possibly Marcasite.
		04	
120		05	
		06	
130			118' - 149' PEBBLE GRAVEL - med. to coarse grain sand. - bedded gravel. - 120' coarse grain sand few peb 1Ft. thick. (coral) - 123' minor organics. - 125' very minor 10% gritty clay disks. - 128' major organic horizon. - Muscovite rich clasts → lustre. possible pyrite. - 136' metamorphosed granitics jasper. - 138' Mafic cobble. then peb gravel 60% Mafic. - 140' Intermed. cobble. some Altered and med to coarse sand. - 141-143' Granitic, Intermed and Mafic cobbles. - 144 ferruginous Sandstone cobble then sericite schist and Intermed cobble. Some garnets. - 146' large pebbles. ¾" diam. 75% Mafics. 30% Muscovite schist. Much alteration.
140		07	
		08	
150		09	
			149 - 155' FELSIC VOL. BEDROCK. - sericitized fine grain aphanitic. END OF HOLE AT 155'
160			

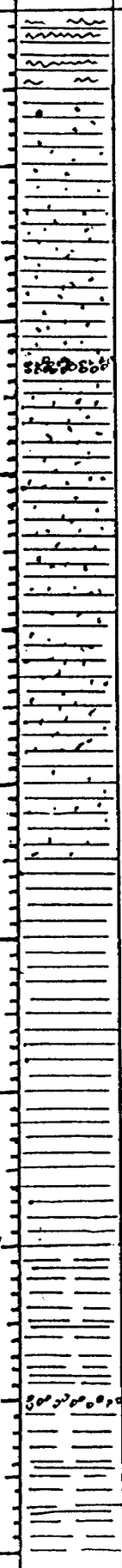
UTAH MINES LIMITED

DATE MARCH 10, 81 HOLE No. UR-81-12 GEOLOGIST McIVOR DRILLER STRONY

HOLE LOCATION UTAH - ROSARIO JOINT VENTURE - REID-MAHAFFY TOWNSHIPS

BIT No. B61000 FOOTAGE ON BIT 0'-140'

HOURS MOVE 0:30 HOURS DRILL 5.5 hours OTHER

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
0'			0'-80' CLAY - from 0'-5', is brown oxidized gritty clay & abundant organic material - from 5'-55', is soft, grey, very gritty clay (minor sand present) & occassional small (to 1/4") sub ang to sub rd. rafted pebbles of various lithologies (Rud Intst predominant) - @ 23', 2" gravel interbed, & pebbles to 1/8" of Imst, int-mat volc & gran. - clay often varved. - from 55'-80', clean, soft, gray clay. 80'-100' SILT & thin clay interbeds - very fine grained, light brown silt, & numerous thin interbeds of hard, bluish gray clay - some clay interbeds contain a few small rafted pebbles of various lithologies - @ 90', 2" gravel interbed, & small well rounded pebbles to 1/8" of Imst, mat volc, gr & gr gn. - minor organics present throughout silt. 100'-102' TILL - fg sand and silt matrix & small gray clay lumps as 30% of tlo material, and small sub-rounded to sub-ang. pebbles to 1/4" of 40% int-mat. volcanics, 30% gr, gr gn, qtz-bio gn, 10% limestone, minor jasper, gabbro, & lt. volc. - some armoured clasts present. 102'-135' STRATIFIED, INTERBEDDED SAND & GRAVEL - predominantly sand, ranging in grain size from fine to coarse, with numerous, thin, graded gravel interbeds of varying lithologies as detailed below: - from 102'-115', pebbles to 1/4", well rd to sub-ang, of int-mat volc - 30%, gr, gr gn, qtz bio gn, garnetiferous gn - 40%, limestone (often fossiliferous) - 20% - minor red sandstone, gabbro @ 112', 6" garnetiferous gn cobble
10'			
20'			
30'			
40'			
50'			
60'			
70'			
80'			
90'			
100'			

cont.

UTAH MINES LIMITED

DATE MARCH 10, 81 HOLE No. UR-81-12 GEOLOGIST _____ DRILLER _____

HOLE LOCATION _____

BIT No. _____ FOOTAGE ON BIT _____

HOURS MOVE _____ HOURS DRILL _____ OTHER _____

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
100'		01	• from 115'-125' gravel-pebbles ranging in size from 1/8"-1/2" of 30% int-maf volc, 15% inst (often fossiliferous) 20% qr, qr qn, qtz-bio qn, garnetiferous q 10% felsic volcanics 5% gabbro - minor jasper, sandstone - gravel beds are graded from small to large pebbles
110'		02	
		03	• from 125'-135', pebbles & cobbles of int-maf volc - 30% qr, qr qn, garnetiferous qn - 30% limestone - 15% - some gabbro, sandstone, jasper, fel-volc. - abundant organics in sand
120'			
130'		04	135'-140' BEDROCK - weakly sericitized, light greenish white, tuffaceous appearing rhydite.
140'		05	

UTAH MINES LIMITED

DATE 11 MAR 81 HOLE No. UR81-13 GEOLOGIST K. BAXTER DRILLER A. STROM
HOLE LOCATION UTAH ROSARIO JV RIED MAHAFFY TWP ONT.
BIT No. B 61000 FOOTAGE ON BIT 155 - 247 Ft.
HOURS MOVE 1:00 HRS. HOURS DRILL 4:00 HRS. OTHER TRACTOR TIME
5:00 HRS. REPLACED SUB ATTACHMENT AT END OF HOLE.

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
			0-6 Ft. ORGANIC.
			6-59 Ft. GREY CLAY -6-7 Ft. Hard grey lumpy clay (no grit). -7-8 Ft. Soft grey clay with a little grit. -8-12 Ft. OXYDIZED CLAY lumpy & hard some grit. grading back to soft grey clay
60		01	59-~~75~~ 72 Ft. PEBBLE GRAVEL -bedded with med. grain sand -62-64' Mafic and Intermed. cobbles. -angular pebbles, 1/3 Vol. 1/3 LST 1/3 GRANITIC -Max. clast size. 1/2" diam. -very minor pyrite. -69'-60% Mafic well rounded pebbles. coarse sand then Felsic cobble. -71' Gritty clay balls for 6" & Mafic rich pebbles or cobbl
70		02	
		03	72-87 Ft. COBBLE GRAVEL -72 Ft. FELSIC Vol. Bldr. 1Ft. -73 Ft. 90% Mafic cobbles. -74 Ft. Marcasite schist. -75 Ft. Oxydized. Felsic Bldr 1F -76 Ft. Granitic cobble. -79 Ft. Intermed. Vol. cobble. Marcasite schist. med to coarse sand. -83-85 Ft. Intermed to mafic cobble. or bldr. then granite cobble. -86 Ft. Felsic Vol. Bldr then altered Vol. cobbles.
80		04	
90		05	87-92 Ft. FELSIC VOL. BEDROCK. -altered & some oxydized
100			

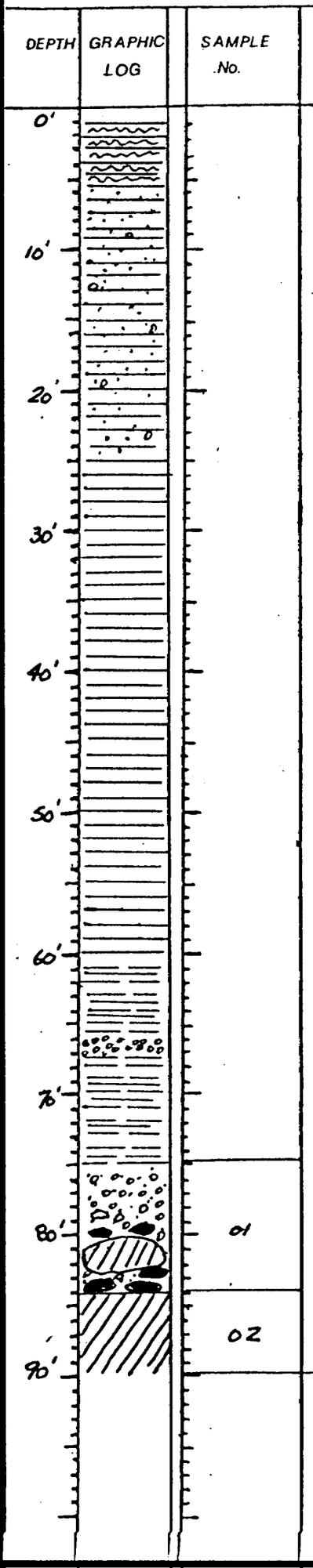
UTAH MINES LIMITED

DATE MARCH 11, 81 HOLE No. UR-81-14 GEOLOGIST McIVOR DRILLER STRATNY

HOLE LOCATION UTAH - ROSARIO JOINT VENTURE - REID-MAHAFFY TOWNSHIP'S

BIT No. B60996 FOOTAGE ON BIT 0'-90'

HOURS MOVE 0:15 HOURS DRILL 4.5 hours OTHER



DESCRIPTIVE LOG

0'-60' CLAY
- from 0'-5', soft brown oxidized clay ± abundant organics
- from 5'-25', soft, gritty (minor sand present) gray clay, ± a few small sub rd-sub ang rafted pebbles to 1/4" and of various lithologies (rhyolite & int-mat volc predominant)
- occasional varved
- from 25'-60', becomes clean, soft gray clay.

60'-75' SILT (± thin clay interbeds)
- predominantly vfg. light brown silt ± numerous thin soft grey & harder blueish gray clay interbeds.
- clay interbeds often contain small rafted pebbles of various lithologies
- from 66'-66.5', thin gravel interbed, ± small well rd to sub-ang pebbles to 1/4" of
  int-mat volc - 40%
  qtz, qtz gneiss, qtz-bio gn - 30%
  limestone (often fossiliferous) - 20%

75'-84' SAND & GRAVEL
- predominantly m.g. sand ± pebbles and cobbles, well rd to sub-ang, to 1/2", of
  int-mat. volc - 50%
  qtz, qtz gn, qtz-bio gn, - 25%
  limestone (often fossiliferous) - 10%
  gabbro - 5%
  felsic volcanic - 5%
  - minor jasper, sandstone, metased
  - matic volc. are often sub. chl
  - felsic volc often v. strongly sericitized
  - @ 79', 6" chl. and. cobble
  - from 80'-84', becomes primarily cobble cuttings of int & mat volc.
  - from 81'-83', large andesite blk
  - from 83'-84', dacite and andesite cobble cuttings.

84-90' BEDROCK
- light grayish green rhyodacite ± tr. Py & chl. frac. fill.

UTAH MINES LIMITED

DATE 18 MAR 81 HOLE No. UR81 - 15 GEOLOGIST K. BAXTER DRILLER A. STROI

HOLE LOCATION UTAH ROSARIO JV. RIED MAHAFFY TWP. ONT

BIT No. B 60996 FOOTAGE ON BIT 90 - 180 Ft.

HOURS MOVE 0:30 HRS. HOURS DRILL 5:00 HRS. OTHER TRACTOR TIME 5:00 HRS.

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
		01	0-6 Ft. ORGANICS
			6-8 Ft. GREY CLAY - 6 to 7 Ft ~~Possible Ablation till~~ organic → coral and wood chips with minor clay. - 7 to 8 Ft. Possible ABLATION TILL — 70% CLAY 30% WOOD CHIPS. soft grey partly gritty clay balls and fine grain sand.
10			
20			8-56 Ft. GREY CLAY -8-13 Ft. hard grey clay large lumps, no grit. -13-56 Ft. soft grey clay -14 minor organic.(?)
30			
40			
50			
		02	56 - 85 Ft. GRAVEL - mostly cobble gravel but some well rounded pebbles. 70% Mafic Vol. 30% LST, GRANITICS & schist. - med. to coarse grain sand - much alteration. - 69 to 75 Ft. numerous pyrite cubes - 73 Ft. organic horizon. - 74 Ft. Altered Felsic to Intermediate, Vol. Bldr (1Ft) and a LST cobble. very little sand and no peb. here. - 77 Ft. oxydized & altered Felsic cobble. - 77.5 Ft. Pyrite cubes. & Mafic Vol. Bldr.? (1Ft). - 78 Altered Felsic Vol. Bldr or large cobble. - 82 Ft. Pyrite. - 84 Intermed. to Mafic Bldr.
60			
		03	
70			
		04	
		05	
80			
		06	
90			85 - 90 Ft. BEDROCK - Intermed. to Felsic Vol. - fine grain aphanitic.
			END OF HOLE AT 90 Ft.
100			

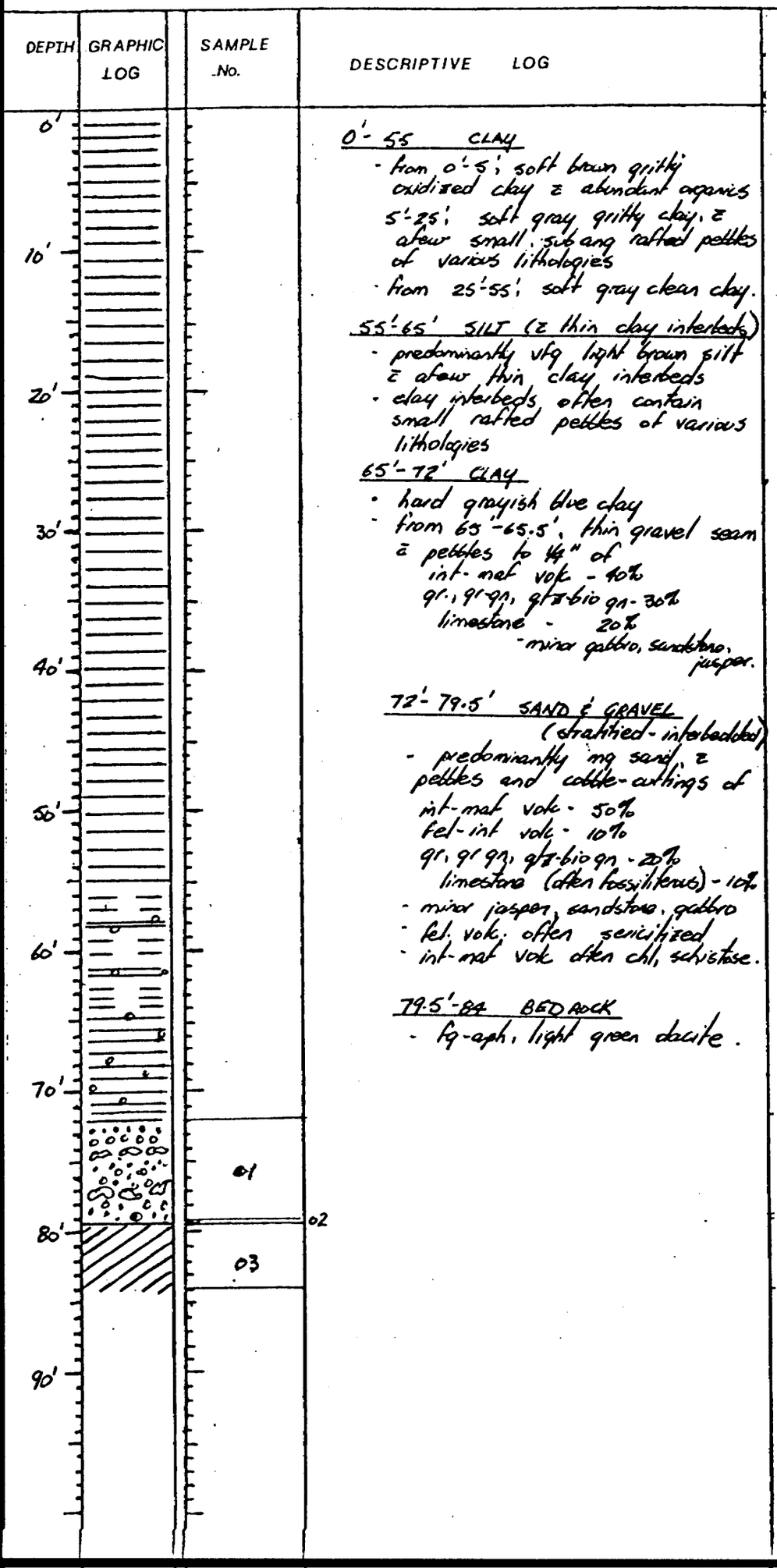
UTAH MINES LIMITED

DATE MARCH 12, 81 HOLE No. UR-81-16 GEOLOGIST McIVOR DRILLER STROJNY

HOLE LOCATION UTAH-ROSARIO JOINT VENTURE REID-MAHAFFY TOWNSHIP'S

BIT No. B60996 FOOTAGE ON BIT 180'-264'

HOURS MOVE 0:15 HOURS DRILL 3.5 hours OTHER TRACTOR TIME-3.5 HRS.



DESCRIPTIVE LOG

0'-55 CLAY
- from 0'-5'; soft brown gritty oxidized clay ± abundant organics
- 5'-25'; soft gray gritty clay, ± afew small; sub ang rafted pebbles of various lithologies
- from 25'-55'; soft gray clean clay.

55'-65' SILT (± thin clay interbeds)
- predominantly vfg light brown silt ± afew thin clay interbeds
- clay interbeds often contain small rafted pebbles of various lithologies

65'-72' CLAY
- hard grayish blue clay
- from 65'-65.5', thin gravel seam ± pebbles to ¼" of
  - int-mat volc - 40%
  - qr., qr qn, qtz-bio qn - 30%
  - limestone - 20%
  - minor gabbro, sandstone, jasper.

72'-79.5' SAND & GRAVEL (stratified-interbedded)
- predominantly mg sand, ± pebbles and cobble-cuttings of
  - int-mat volc - 50%
  - fel-int volc - 10%
  - qr, qr qn, qtz-bio qn - 20%
  - limestone (often fossiliferous) - 10%
- minor jasper, sandstone, gabbro
- fel. volc; often sericitized
- int-mat volc often chl, schistose.

79.5'-84 BEDROCK
- fg-aph, light green dacite.

UTAH MINES LIMITED

DATE 13 MAR 81 HOLE No. UR81-17 GEOLOGIST K. BAXTER DRILLER A. STRO

HOLE LOCATION UTAH ROSARIO TV. RIED MAHAFFY TWP. OL

BIT No. B 60999 FOOTAGE ON BIT 0-109 Ft.

HOURS MOVE 0:30 HRS. HOURS DRILL 6:00 HRS. OTHER TRACTOR TIME 6:00 HRS.

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
10			0-17 Ft. HARD OXYDIZED CLAY 17-32 Ft. SOFT GREY CLAY. 32-75 Ft PEBBLE and Cobble GRAVEL (BEDDED) - med. grain sand - 70% Mafic Vol. fine grain Aph 20% Granitic 10% LST. - 44 to 45' cobbles mostly granitic and Mafic Vol. - 45 to 46' Angular granitic and Mafic Pebbles. <10% well rounded LST peb. ½'. Then Mafic cobble. - 46-1 1% Epidote. with Felsic & Mafic cobbles. - 48' Pyrite - 52' organic horizon & 60% gritty clay balls for 3" - 54' organic horizon. - 48 to 56 fine to med grain sand. - 56' med to coarse grain sand. well rounded & angular pebbles & clasts. ⅓ Granitics ⅓ Vol. ⅓ LST. interbedded with peb. cobble gravel of 70% Mafic - 61' altered Felsic cobble. - 62' pyrite. - 63' wood chips & med. to fine grain sand. - largest pebble. clast ½" diam - 70' 10% organics + some biotite schist. - 72-74' Major Organic horizon. - 74-75' chloritized Mafic Vol. Bldr.
20			
30			
40		01	
50		02	
60		03	
70		04	
80		05	75-85 Ft. CLAY TILL (BEDDED) - 2" clay & peb. till then 100% soft grey gritty clay balls. - 76' 30% well rounded peb. largest clast ¾" diam. for 3" then 100% clay till again - 77' 5% very small peb fragments. - 80' 3" of peb. gravel - 81' cobbles (Mafic) & minor med grain sand.
90		06	
100		07 ↓	85-103 Ft. PEBBLE TILL - gritty grey clay balls & armoured clasts some cobbles very minor silt. - 92' 6" cobble - 94-95' Mafic Bldr 6"

UTAH MINES LIMITED

DATE 12-13 MAR 81 HOLE No. UR81-17 GEOLOGIST _____ DRILLER _____

HOLE LOCATION _____

BIT No. _____ FOOTAGE ON BIT _____

HOURS MOVE _____ HOURS DRILL _____ OTHER _____

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
		07	-96' Intermed. to Mafic Bldr partially gniessic. to 99'
		08	-99' 3" of till then gravel 80% Mafic cobble gravel
110			103 - 109 Ft. BEDROCK -Mafic Vol. a schistose.
120			

UTAH MINES LIMITED

DATE 13 MAR 81 HOLE No. UR81-18 GEOLOGIST P. LEGEIN DRILLER A. STROJ

HOLE LOCATION UTAH ROSARIO JV REID MAHAFFY TWP ONT.

BIT No. B 60999 FOOTAGE ON BIT 109-234'

HOURS MOVE HOURS DRILL OTHER

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
			0-10 BROWN SETY CLAY
10			10-64 GREY SLTY CLAY
20			
30			
40			
50			
60			64-84 GRAVEL
			30% LST 30% MAFIC VOLC FELSIC
			30% GRAN + GAB.
			M-CG SAND MATRIX.
70		01	SUB ANG - SUB ROUNDED PEBBLES
			76' GRAN COBBLE. 3" THICK
80		02	82' AMPHIBOLITE COBBLE.
			84-87' CLAY TILL
		03	60-90% GRITTY CLAY BALLS.
			20% MAFIC VOLC, 20% LST 10% GRAN
90		04	87-98 GRAVEL
			M-CG SAND MATRIX.
			40% FELSIC VOLC, 40% MAFIC VOLC
		05	20% GRAN + LST.
			COBBLE BED AND 89-90'
100		06	98-103 TILL
			10-20% CLAY BALLS 50% MAFIC

UTAH MINES LIMITED

DATE 15MAR82 HOLE No. UBB-18 GEOLOGIST P.LEGEIN DRILLER

HOLE LOCATION

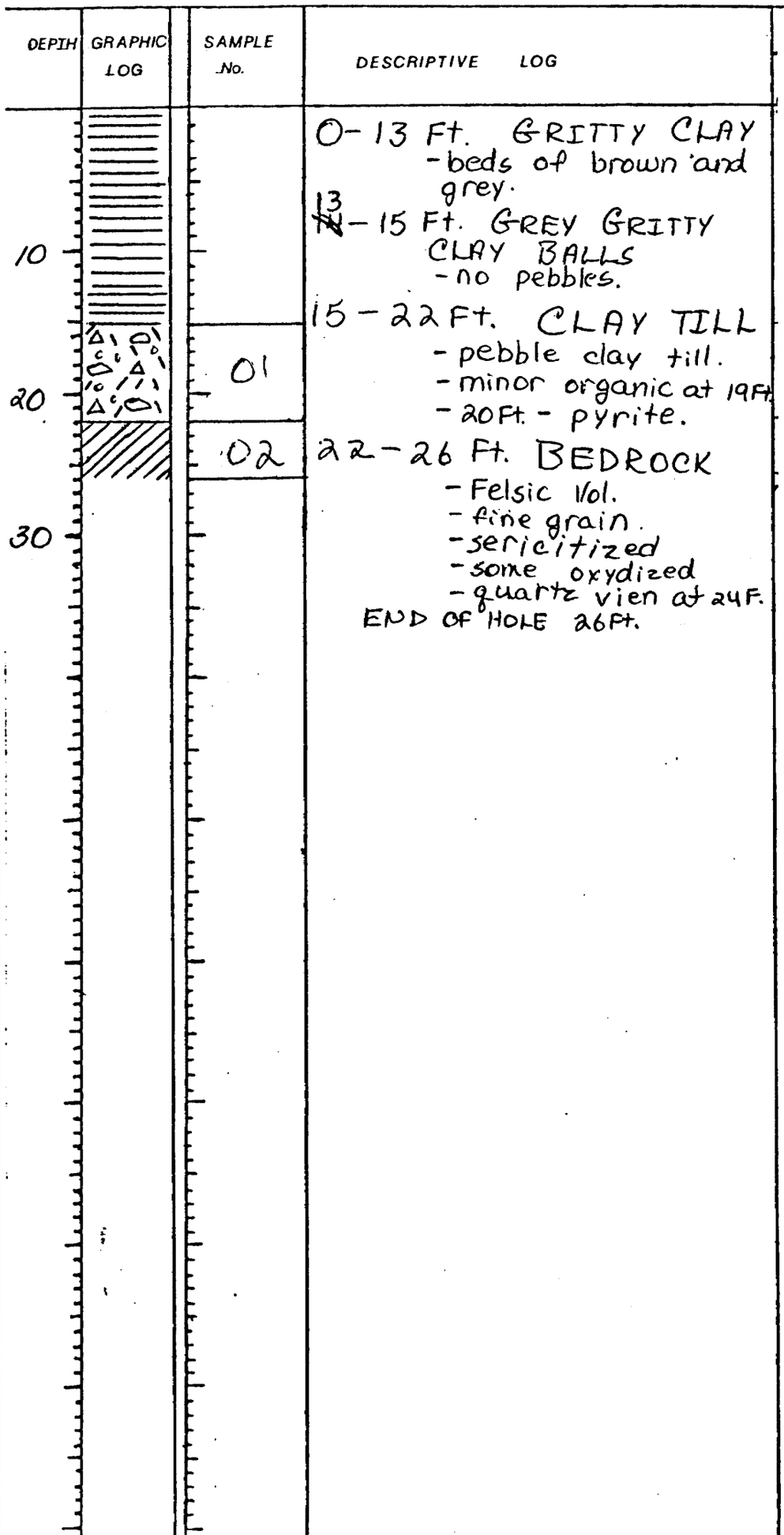
BIT No. FOOTAGE ON BIT

HOURS MOVE HOURS DRILL OTHER

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
		06	98-103 TILL
			103-120 GRAVEL
			25% LST, 25% GRN 25% MAFIC
			25% GRN + GAB.
110		07	m-cg SAND MATRIX.
			107' COBBLE BED
			111-115 SAND BED
		08	115-120 - SANDY GRAVEL
120			120-125 MAFIC VOLC BRBRX.
		09	CHLORITE SCHIST SOFT
			BRN WEATHERING.

UTAH MINES LIMITED

DATE 8 MAR 81 HOLE No. UR81-19 GEOLOGIST K. BAXTER DRILLER A. STROI
HOLE LOCATION UTAH ROSARIO TV REID MAHAFFY TWP
BIT No. B62191 FOOTAGE ON BIT 32-58 Ft.
HOURS MOVE 0:15 HRS. HOURS DRILL 2:00 HRS. OTHER TRACTOR TIME 2:0



UTAH MINES LIMITED

DATE MARCH 8, 81 HOLE No. UR-81-20 GEOLOGIST McIVOR DRILLER STROINY

HOLE LOCATION ROSARIO JOINT VENTURE - REID & MAHAFFEY TOWNSHIPS

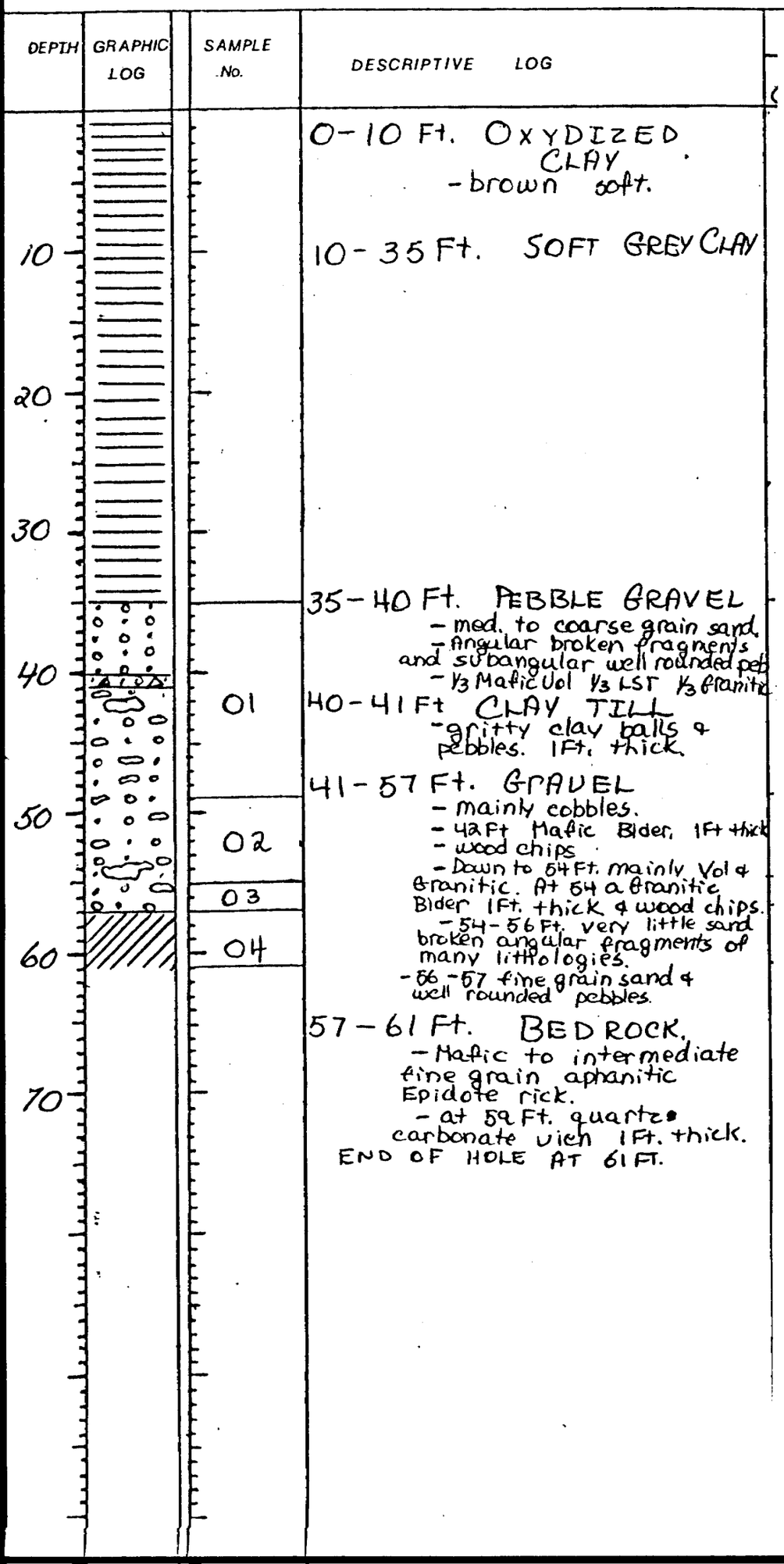
BIT No. B6291 FOOTAGE ON BIT 0'-32'

HOURS MOVE 1 hour HOURS DRILL 3 hours OTHER

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
0			0'-8' CLAY - from 0'-5', little return, minor amounts of oxidized brown clay & organics. - from 6'-8', gritty, soft brownish gray clay
10'		01	
		02	8'-26.5' TILL - predominantly clay rich - from 8'-10', is 90% small gritty clay lumps, & afew small, sub-round limestone, & matic volc. pebbles - minor mg sand matrix present throughout till
20'		03	- from 10'-13', pebbles become 60% of +10 material, and are sub round to sub angular, to ¼" in size, & 30% Rel. Inst 40% int-mat volc. 20% grgn., gr.gn. & qtz-bio gn., & minor gabbro, oolitic jasper.
		04	
30'		05	- from 13'-26.5', small gritty clay lumps 80% of +10 material, & small (to ⅛") sub round pebbles of Inst, int-mat volc., gr.gn, qtz-bio gn, gabbro & jasper. - @ 19', 4" matic volcanic cobble @ 19.5', small Inst cobble @ 23.5', to 25.5', large qtz-bio-garnet gneiss boulder. @ 26', 6" andesite cobble - from 26'-26.5', pebbles became 50% int-mat volc., 20% Inst 20% gr & grgn, 5% fel. volc.
			26.5'-32' BEDROCK clasty rhyolite tuff, & minor epidote and moderate to strong sericite alteration - contains trace amounts of disk fg mineralization & dk gray speculanite? @ 30', 6" regolith zone, & severe oxidation & minor clay present.

UTAH MINES LIMITED

DATE 7 MAR 81 HOLE No. UR81-21 GEOLOGIST K. BAXTER DRILLER A. STRAT
HOLE LOCATION UTAH ROSARIO JV RIED MAHAFFY TWP ONT
BIT No. B62194 FOOTAGE ON BIT 0-61 Ft
HOURS MOVE 0:30 HRS. HOURS DRILL 5:30 HRS. OTHER TRACTOR TIME-
5:30 HRS.



DESCRIPTIVE LOG

0-10 Ft. OXYDIZED CLAY
- brown soft.

10-35 Ft. SOFT GREY CLAY

35-40 Ft. PEBBLE GRAVEL
- med. to coarse grain sand.
- Angular broken fragments and subangular well rounded peb
- 1/3 Mafic Vol 1/3 LST 1/3 Granitic

40-41 Ft CLAY TILL
- gritty clay balls & pebbles. 1Ft. thick.

41-57 Ft. GRAVEL
- mainly cobbles.
- 42 Ft Mafic Bider, 1Ft thick
- wood chips
- Down to 54 Ft. mainly Vol & Granitic. At 54 a Granitic Bider 1Ft. thick & wood chips.
- 54-56 Ft. very little sand broken angular fragments of many litthologies.
- 56-57 fine grain sand & well rounded pebbles.

57-61 Ft. BEDROCK.
- Mafic to intermediate fine grain aphanitic Epidote rick.
- at 59 Ft. quartz carbonate vich 1Ft. thick.

END OF HOLE AT 61 FT.

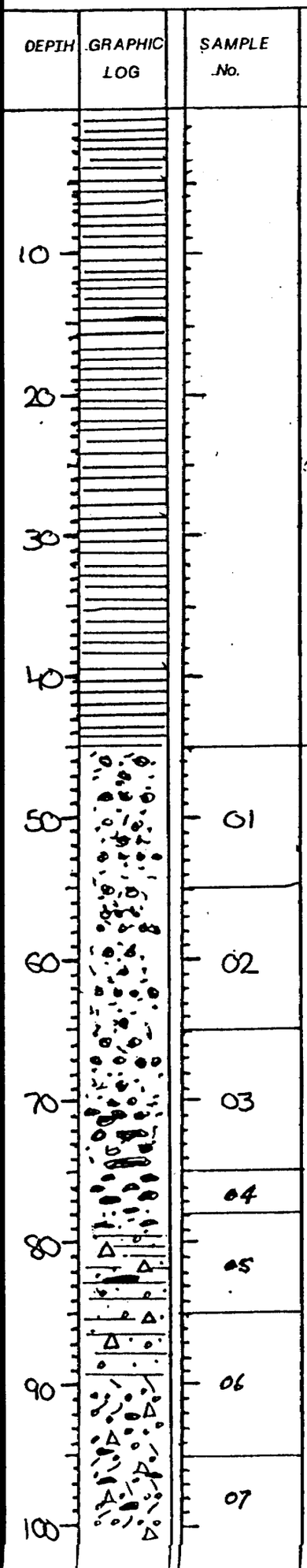
UTAH MINES LIMITED

DATE MAR 81 HOLE No. UR 81-01 GEOLOGIST P.LEGEIN DRILLER A.STROJNY

HOLE LOCATION UTAH-ROSARIO JV RIED MAHAFFY TWP. ONT.

BIT No. B62195 FOOTAGE ON BIT 0 - 104'

HOURS MOVE HOURS DRILL OTHER



DESCRIPTIVE LOG

0-11 BROWN GRITTY GLAY.

11-25 GREY GRITTY CLAY

25-45 SOFT GREY CLAY.

45-78 BEDDED PEBBLE GRAVEL
GRADED BEDS 1-2 FT THICK
30% LMST 30% MAFIC VOLC
40% GRANITE + GABBRO + GNEISS
PEBBLE UP TO ½ AND
BROKEN COBBLE FRAGMENTS
PEBBLE SUBANG TO ROUNDED
M-CS GREY SAND MATRIX

73-74 COBBLE GRAVEL

74 GRANITE BLDR 0.5 FT THICK

75'-78' COBBLE GRAVEL
25% LMST, 20% GRANITE
55% MAFIC VOLCANICS
- SAND MATRIX

78-103 ~~78'-88'~~ 104' CLAY TILL
- 90% clay balls, 10% pebbles, silt & sand
- pebbles are 70% mafic volc.
10% int-felsic volc
10% lmst
10% granite,
minor gabbro
@ 78.5' 4" mafic volc. cobble
@ 83' 4" felsic volc. cobble

UTAH MINES LIMITED

DATE MARCH HOLE No. UR 81-01 GEOLOGIST P. LEGEIN DRILLER

HOLE LOCATION

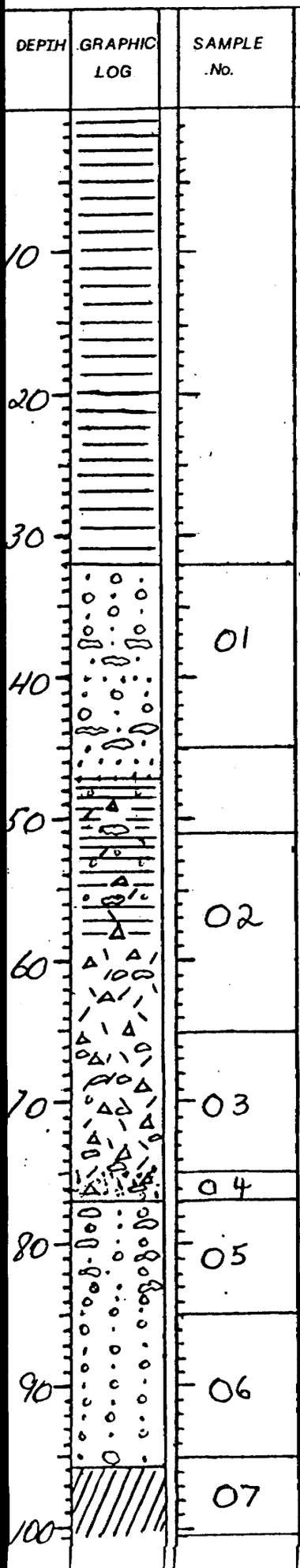
BIT No. FOOTAGE ON BIT

HOURS MOVE HOURS DRILL OTHER

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
100		07	89 & 99' GRAVEL BEDS
		08	103-104 GRAVEL
			LARGE COBBLES, FRAGS UPTO 1 INCH LONG.
110			20% LST 30% MAF VOLCS 30% GR 20% GAB.
			LITTLE SAND MATRIX.
			104 HOLE ABONDONED BROKEN TRICONE.

UTAH MINES LIMITED

DATE 5 MAR 81 HOLE No. UR81-02 GEOLOGIST K. BAXTER DRILLER A. STROK
HOLE LOCATION UTAH ROSARIO JV RIED MAHAFFY TWP.
BIT No. B62190 FOOTAGE ON BIT 68 - 169
HOURS MOVE HOURS DRILL 5:30 HRS OTHER TRACTOR TIME - 5:30 HRS.



DESCRIPTIVE LOG

0-10Ft. OXYDIZED CLAY
- brown and gritty..

10-19 Ft. GRITTY GREY CLAY.

19-32 Ft. SOFT GREY CLAY

32-47Ft. GRAVEL
- med. to coarse grain sand.
- some large pebbles.
- many gobbles.
- Graded bedding repeating sequence 2Ft. thick
- 1/3 LST 1/3 Mafic Vol 1/3 GRANITIC. (Gabbro)

47-77 Ft. CLAY TILL
- 47-51' clay balls.
- 51'-52' a large cobble.
- 52'-77' sandy clay till with a few pebbles. A clay pebble till
- 90% gritty clay balls 10% silt & sand. minor peb.
- most of pebbles mafic vol
- 56' a 4" cobble.
- 75'-77' sandy till with little clay.

77-83 Ft. COBBLE GRAVEL
- 60% mafic 40% Granitic + LST.
- 80 Ft. Mafic Vol. Bldr. 2 to 3 Ft. thick

83-95 Ft. PEBBLE GRAVEL.
- angular broken fragments
- many lithologies.
- a little. sand.
- 1/3 Vol. 1/3 Granitic 1/3 LST.
- 85 Ft. - clay till 1/2' thick

95-101 Ft. BEDROCK.
- Intermediate. Felsic
- massive fine grain aphanitic LT - DK grey.

101 Ft END of HOLE.

UTAH MINES LIMITED

DATE 5 MAR 81 HOLE No. UR 81-03 GEOLOGIST P. LEGAN DRILLER A. STRUN

HOLE LOCATION UTAH-ROSARIO JV RIEN MAHAFFY TWP ONT.

BIT No. B 62190 FOOTAGE ON BIT 0 - 68.

HOURS MOVE HOURS DRILL 4:00 HRS OTHER TRAVEL TIME 1:00

SERVISE & MAINTENANCE 0:30 HRS / TRACTOR TIME 5:30 HRS

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
			0-14 GREY SILTY CLAY.
10			
			14-22 GRITTY GREY CLAY OR CLAY TILL 95% CLAY, 5% SILT SAND & PEBB CLAY NOT IN GRITTY BALLS 17'- 0.5' THICK MAFIC GNEIS COBBLE.
20		01	
			22-33 ~~PEBBLE GRAVEL~~ GREY CLAY
30			
			33-60 BEDDED PEBBLE GRAVEL 30% LST, 30% MAFIC VOLC 40% GRANITE GABBRO & GNEISS SUBANGULAR - ROUNDED PEBBLES 40-44 SAND BED (Repetitive intervals of MG SAND GRADING DOWN TO COBBLE GRAVEL IE GRADED BEDDING.
40		02	
			49-52 SAND BED
50		03	52-53 CLAY BED
			55-60 2' THICK GRADED BED MG SAND TOP PEBBLE GRAVEL BOT
		04	
60			60-68 INT VOLC BEDROCK MASSIVE, FG-APH SLTY SCHISTOSE W. CHLORITE & SERICITE.
		05	
70			

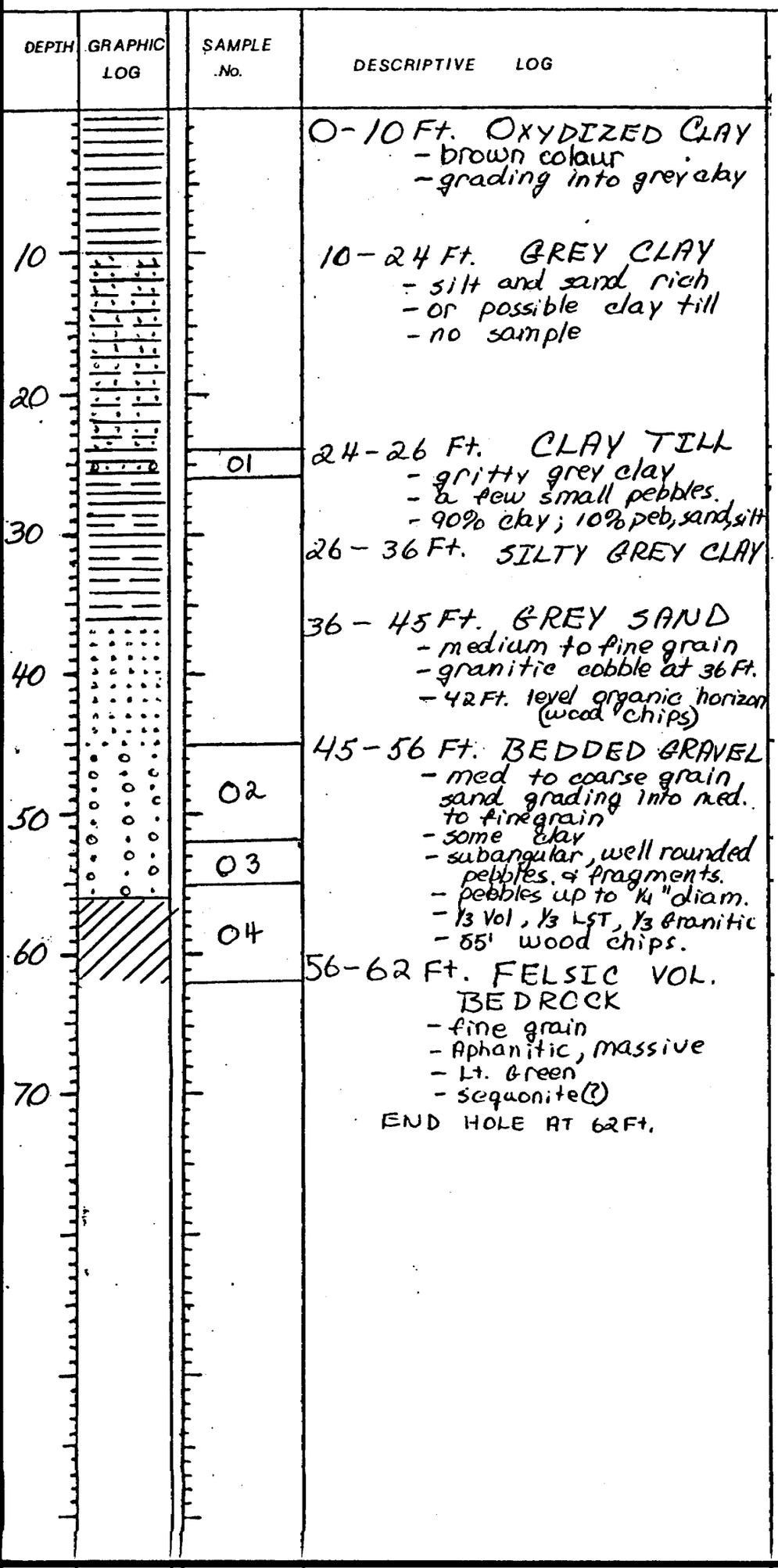
UTAH MINES LIMITED

DATE 5 MAR 81 HOLE No. UR81-04 GEOLOGIST K. BAYER DRILLER A. STROJN

HOLE LOCATION ROSARIO JV RIED MAHAFFY TWP.

BIT No. B58396 FOOTAGE ON BIT 185 - 247 Ft.

HOURS MOVE HOURS DRILL 4:00 HRS. OTHER TRACTOR TIME 4:00



0 - 10 Ft. OXYDIZED CLAY
- brown colour
- grading into grey clay

10 - 24 Ft. GREY CLAY
- silt and sand rich
- or possible clay till
- no sample

24 - 26 Ft. CLAY TILL
- gritty grey clay
- a few small pebbles.
- 90% clay; 10% peb, sand, silt

26 - 36 Ft. SILTY GREY CLAY

36 - 45 Ft. GREY SAND
- medium to fine grain
- granitic cobble at 36 Ft.
- 42 Ft. level organic horizon (wood chips)

45 - 56 Ft. BEDDED GRAVEL
- med to coarse grain sand grading into med. to fine grain
- some clay
- subangular, well rounded pebbles & fragments.
- pebbles up to ¼" diam.
- ⅓ Vol, ⅓ LST, ⅓ Granitic
- 55' wood chips.

56 - 62 Ft. FELSIC VOL. BEDROCK
- fine grain
- Aphanitic, massive
- Lt. Green
- sequonite(?)

END HOLE AT 62 Ft.

UTAH MINES LIMITED

DATE 4-5MAR81 HOLE No. UR81-05 GEOLOGIST P.LEGEIN DRILLER A STROJNY

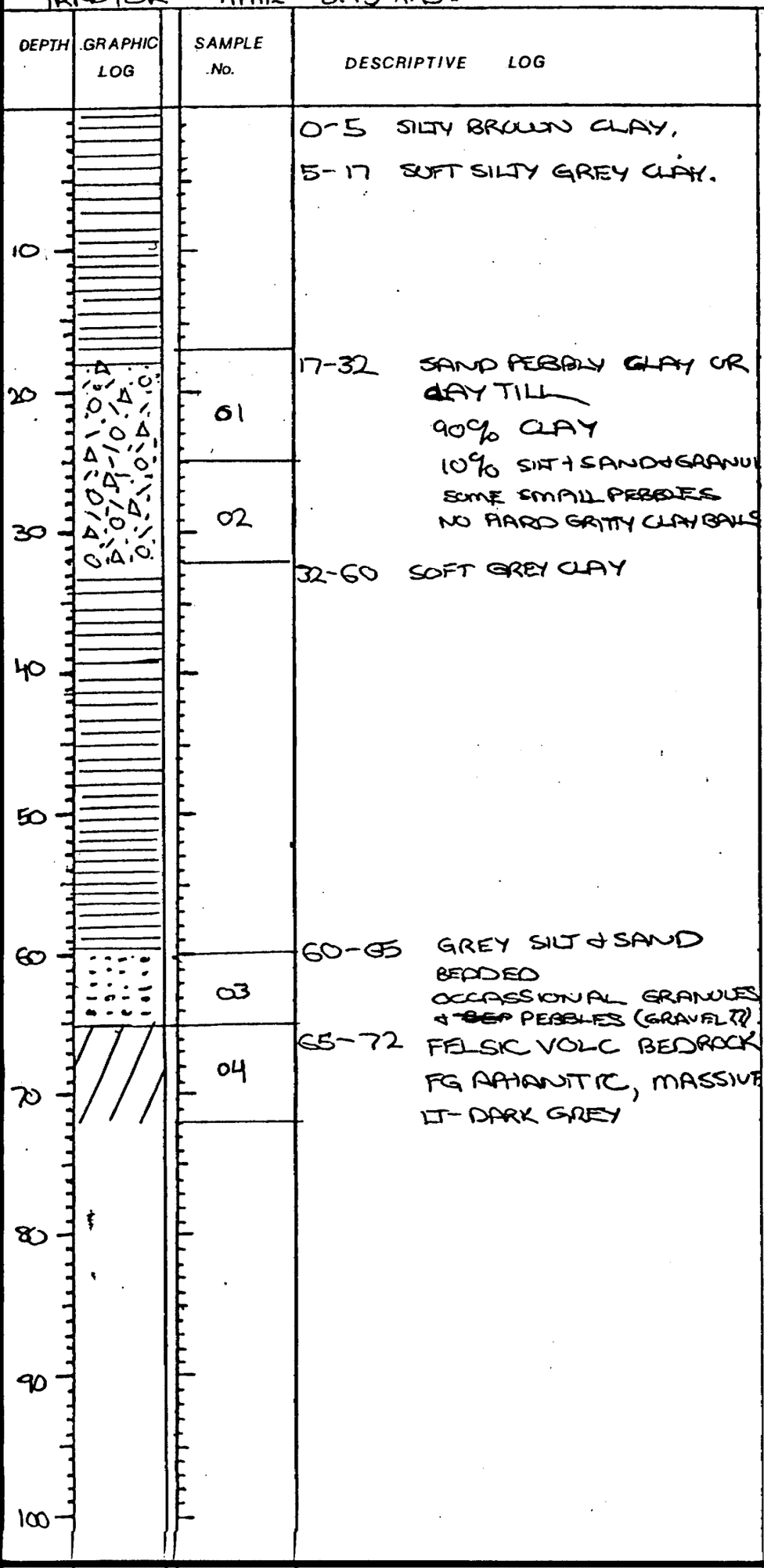
HOLE LOCATION UTAH-ROSARIO JV RIED MAMAFFY TOWP ONT.

BIT No. B58396 FOOTAGE ON BIT 113-185.

HOURS MOVE HOURS DRILL 6:00 HRS OTHER 3/4 TRAVEL TIME 1:00 HR

STAND BY. 0:30 HRS / BREAK DOWN 0:45 HRS (REPLACED BROKEN CHUCK ROD)

TRACTOR TIME 8:15 HRS.



45MAR'01 UR81-05 P.LEGEN A[illegible]ROTNY

UTAH-ROSARIO JV RIED MAHAFFY TOWP ONT.

B58396 , 113-185

6:00 HRS F TRAVEL-TIME 100HR

UTAH MINES LIMITED

DATE 3-4 MAR 81 HOLE No. UR 81-06 GEOLOGIST K. BAXTER DRILLER A. STROJN

HOLE LOCATION ROSARIO JV RIED MAHAFFY TWP.

BIT No. B58396 FOOTAGE ON BIT 0 - 133 Ft.

HOURS MOVE HOURS DRILL 6:00 HRS OTHER 0:30 HRS TRAVEL

TIME / STAND BY TIME 1:00 HR / TRACTOR TIME 7:30 HRS.

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
			0 - 91 Ft. GREY SILTY CLAY
10			- 14 Ft. clay with some small pebbles for 1 foot.
20			
30			- 35 Ft. grey sandy clay with some silt and small pebbles possible till 1 Foot thick.
40			
50			
60			
70			- 74 Ft. organic horizon and pebbles with a fine sand to silt matrix. 1 Ft. thick.
80			
90			91 - 96 Ft. GREY SILT - some small pebbles
			96 - 103 MEDIUM GRAIN SAND - 96-97 a few small well rounded pebbles and organic horizon - 97 granules and small pebbles
100			

UTAH MINES LIMITED

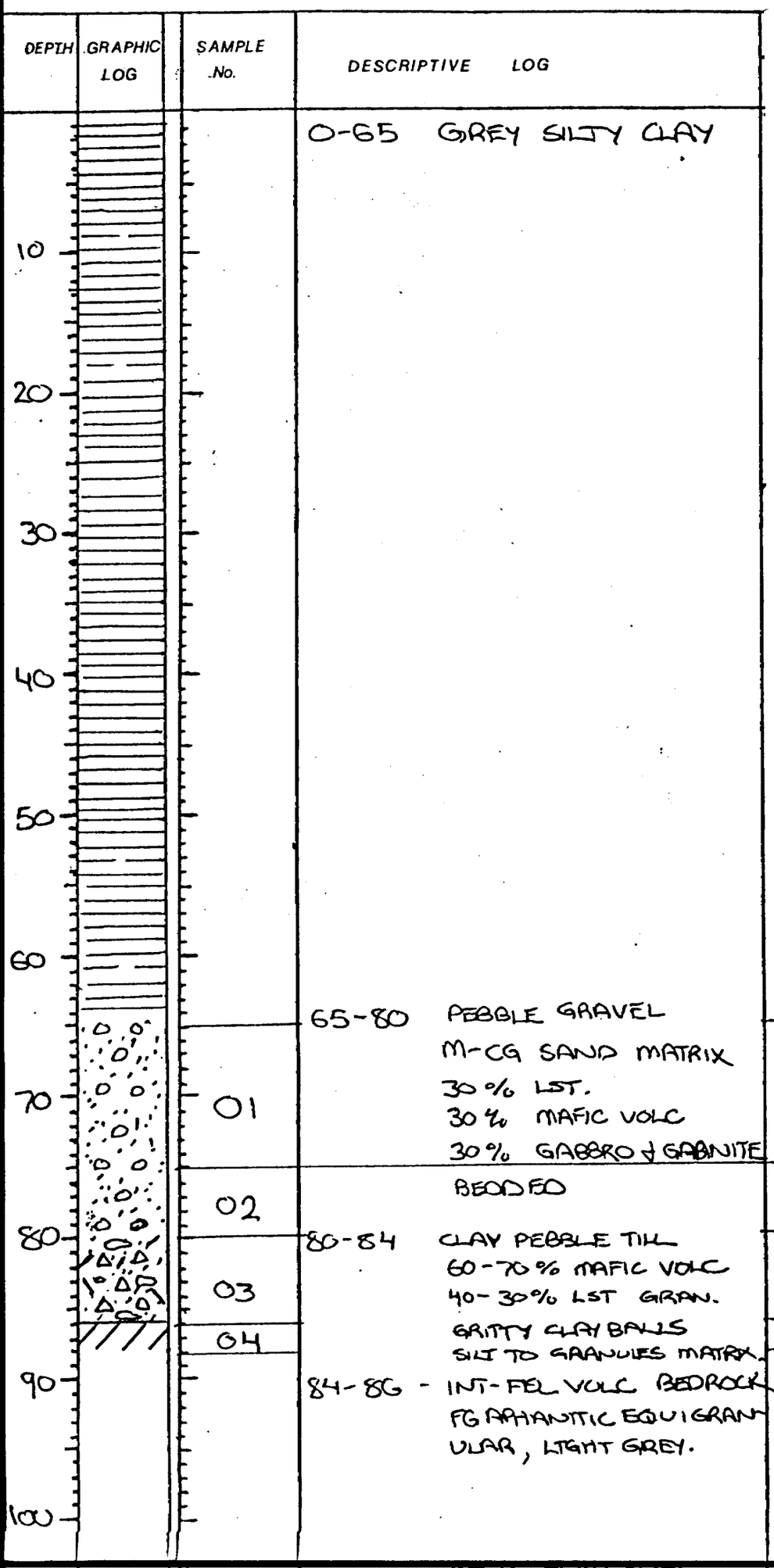
DATE 3 MAR 81 HOLE No. UR 81-07 GEOLOGIST P. LEGEIN DRILLER A STROJN

HOLE LOCATION ROSARIO JV RIED MAHAFFY TWP.

BIT No. B58397 FOOTAGE ON BIT 159-245

HOURS MOVE 0.30 HRS HOURS DRILL 3:00 HRS OTHER TRAVEL TIME —

TRACTOR TIME 3:30 HRS.



0-65 GREY SILTY CLAY

65-80 PEBBLE GRAVEL
M-CG SAND MATRIX
30% LST.
30% MAFIC VOLC
30% GABBRO & GRANITE

BEDDED

80-84 CLAY PEBBLE TILL
60-70% MAFIC VOLC
40-30% LST GRAN.
GRITTY CLAY BALLS
SILT TO GRANULES MATRIX.

84-86 - INT-FEL VOLC BEDROCK
FG APHANITIC EQUIGRANULAR, LIGHT GREY.

UTAH MINES LIMITED

DATE 3-4 MAR 81 HOLE No. UR81-06 GEOLOGIST _____ DRILLER _____

HOLE LOCATION _____

BIT No. _____ FOOTAGE ON BIT _____

HOURS MOVE _____ HOURS DRILL _____ OTHER _____

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
			103 - 107 Ft. PEBBLE GRAVEL - small pebbles up to 105 ft. - Fine to med. grain sand matrix - peb. well rounded some bedding. - 1/3 GRANITIC 1/3 Volcanic 1/3 Limestone
		01	
110		02	
		03	107 - 112 MAFIC to INTERMEDIATE VOL. BED ROCK
			112 - 113 FELSIC VOL BED ROCK - Fine grain - Aphanitic - dark green.
			113 - end of hole.

UTAH MINES LIMITED

DATE 14 MAR 81 HOLE No. UR81-07A GEOLOGIST K. BAXTER DRILLER A. STROJ

HOLE LOCATION UTAH ROSARIO IV REID MAHAFFY TWP. ONT.

BIT No. B 60991 FOOTAGE ON BIT 0-100 Ft.

HOURS MOVE HOURS DRILL 2:30 HRS. OTHER TRACTOR TIME-

2:30 HRS, 2:00 HRS. STAND BY, 1:00 HR. BREAK DOWN.

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
			0-5 Ft. ORGANICS
			5-79 Ft. GREY CLAY
			-5-14' Hard grey clay lumps 100% very minor grit. Partially oxydized.
			-14-35' soft grey clay, gritty
			-35-79' soft grey clay, no grit no lumps.
			-69-72' very minor (1%) grit silt, and small peb for 6".
			79-86 Ft. BEDDED GRAVEL
			-1/3 Vol. 1/3 Granitic 1/3 LST.
			-well rounded to angular clasts
			-med. to fine grain sand.
			-mafic cobble.
			86-93 Ft. CLAY TILL
			-Hard gritty clay balls 95% small peb & frag 5%
			-88' quartz. frags.
			-some of clay balls flattened (disks)
			-89-92' 40% pebs.
			-91-92 small gravel bed.
			-92-93 Peb clay till.
			93-94 Ft. Pebble GRAVEL.
			94-100 Ft. BEDROCK.
			-Felsic Vol. fine grain Aph.
			END HOLE 100'.

10 20 30 40 50 60 70 80 90 100

01 02 03

UTAH MINES LIMITED

DATE 14 MARCH HOLE No. UR81-07B GEOLOGIST P. LEGEIN DRILLER A. STROJ

HOLE LOCATION 50 FEET EAST OF UR81-07

BIT No. B65 (B6091) FOOTAGE ON BIT 100-175

HOURS MOVE HOURS DRILL 1:45 HRS OTHER 1:00 TRAVEL

10:00 HRS BREAKDOWN (BROKEN SHAFT ON AIR COMPRESSOR)

12:45 TRACTOR TIME

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
			0-10 NO RETURN.
			10-12 BROWN SILTY CLAY.
			12-67 GREY SILT CLAY.
10			
20			
30			
40			
50			
60			
			67-75 GRAVEL. 30% LST, 30% GRANITES 40% MAFIC VOLC. PEBBLE SUB ANG-SUBRNDED CG SAND MATRIX. 70- WOOD CHIP IN GRAVEL 75- COBBLE BED
70		01	
			75- COMPRESSOR SHAFT BROKE. ABONDONED HOLE DUE TO LACK OF REPLACEMENT COMPRESSOR.
80			

UTAH MINES LIMITED

DATE 23 MAR 81 HOLE No. UR 81-08 GEOLOGIST K. BAXTER DRILLER A. STROT

HOLE LOCATION ROSARIO IV RIED MAHAFFY TWP ONT.

BIT No. B58397 FOOTAGE ON BIT 0 - 159 Ft.

HOURS MOVE 0:30 HRS. HOURS DRILL 6:30 HRS. OTHER BREAKDOWN 0:30

TRAVEL TIME 1:00 HRS., TRACTOR TIME 8:00 HRS.

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG
			0-5 OXIDIZED CLAY - brown tinge
			5-105 GREY SILTY CLAY
10			
20			
30			
40			
50			
60			
70			
80			
90			
100			

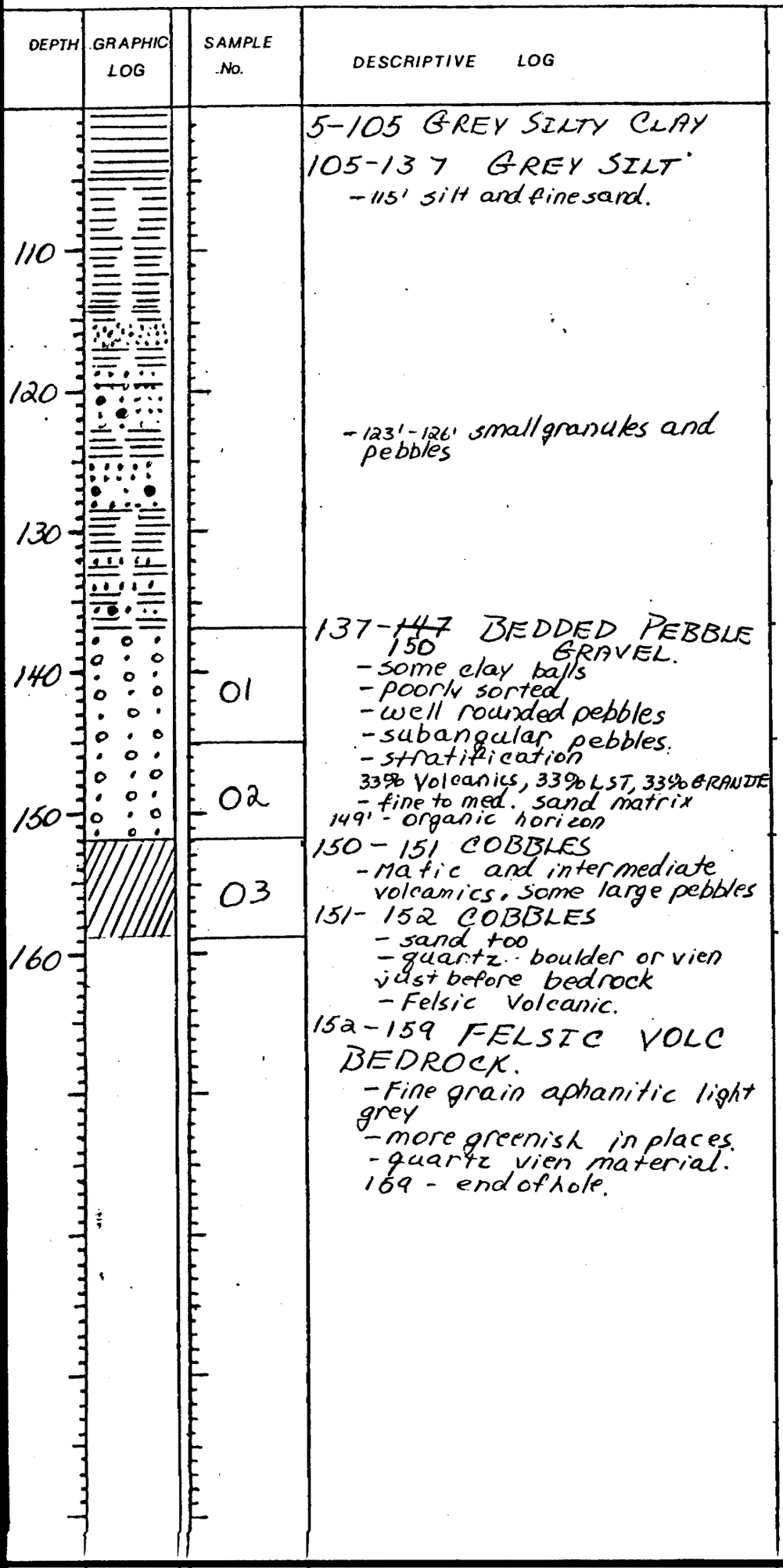
UTAH MINES LIMITED

DATE 23MAR81 HOLE No. UR81-08 GEOLOGIST _____ DRILLER _____

HOLE LOCATION _____

BIT No. _____ FOOTAGE ON BIT _____

HOURS MOVE _____ HOURS DRILL _____ OTHER _____



DESCRIPTIVE LOG

5-105 GREY SILTY CLAY

105-137 GREY SILT
- 115' silt and fine sand.
- 123'-126' small granules and pebbles

137-~~147~~ 150 BEDDED PEBBLE GRAVEL.
- some clay balls
- poorly sorted
- well rounded pebbles
- subangular pebbles.
- stratification
33% Volcanics, 33% LST, 33% GRANITE
- fine to med. sand matrix
149' - organic horizon

150 - 151 COBBLES
- Matic and intermediate volcanics, some large pebbles

151 - 152 COBBLES
- sand too
- quartz boulder or vien just before bedrock
- Felsic Volcanic.

152-159 FELSIC VOLC BEDROCK.
- Fine grain aphanitic light grey
- more greenish in places.
- quartz vien material.

169 - end of hole.

MAHAFFY TWP. - M.540

THORBURN TWP. - M.601

CARNEGIE TWP. - M.441

MACDIARMID TWP. - M. 294

5M. 4M. 3M. 2M. WP I M 2.763E

23M. 22M. 21M. 20M 19M

1M. 2M. 3M. 4M. 5M.

48°42'42"

81°35'50"

Thorburn Creek

Mattagami River

Pluto Creek

Transmission Line

HEPC

60' R/W

NO OPEN GROUND

THE TOWNSHIP OF

REID

DISTRICT OF
COCHRANE

PORCUPINE
MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

PATENTED LAND	(P)
CROWN LAND SALE	C.S.
LEASES	(L)
LOCATED LAND	Loc.
LICENSE OF OCCUPATION	L.O.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
ROADS	
IMPROVED ROADS	
KING'S HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	
CANCELLED	C.
PATENTED FOR S.R.O.	

NOTES

400' surface rights reservation along the shores of all lakes and rivers.

Subdivision of this twp. into lots and concessions annulled Aug. 19, 1953.

Flooding rights for areas along Mattagami River are reserved to Ontario Hydro. L.O.7085

2.3929

PLAN NO. M.575

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

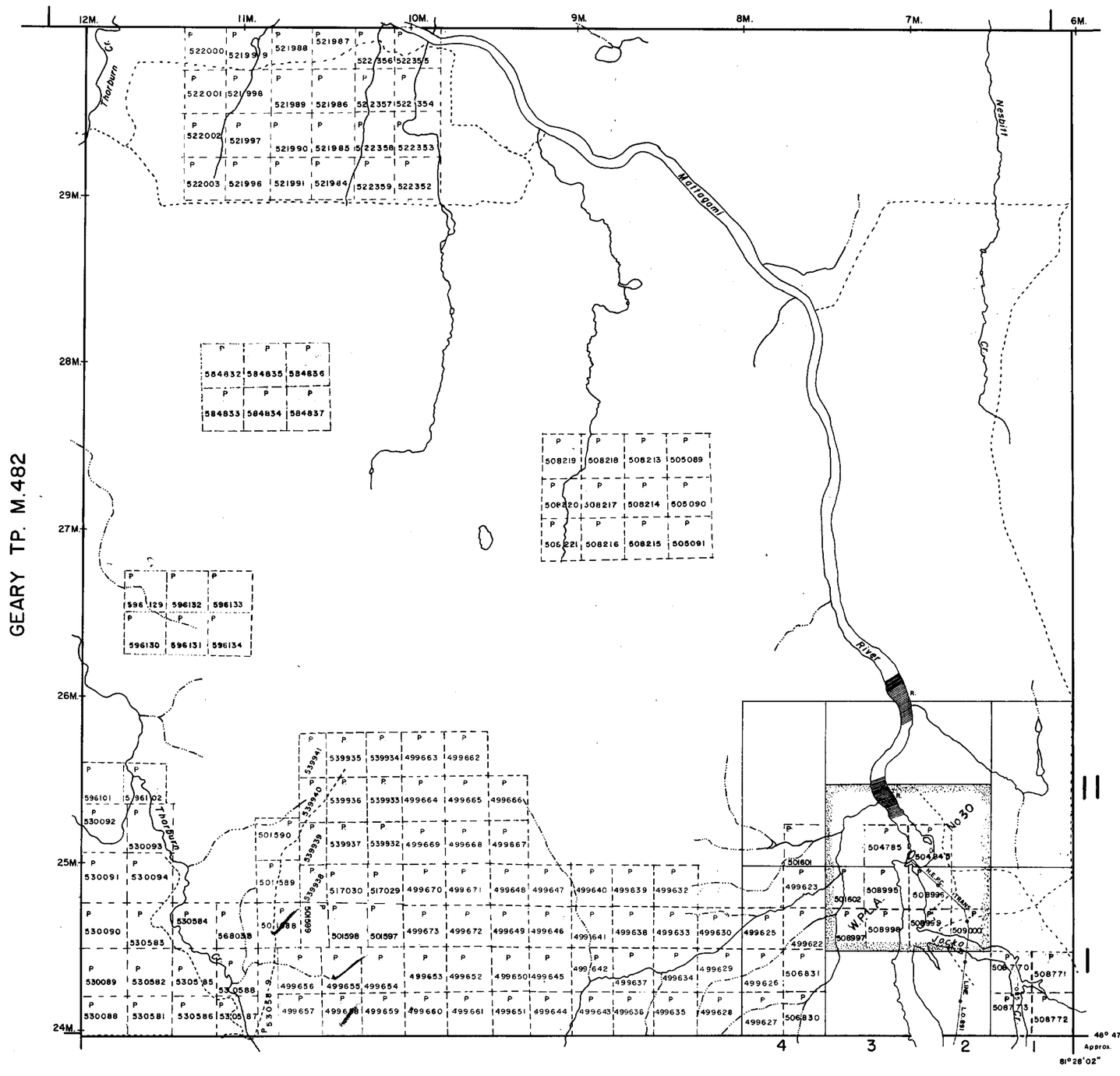
NOTES

400' surface rights reservation along the shores of all lakes and rivers.

Subdivision of this township into lots and consessions is partially annalled July 2,63.

L.O. 7085 - Flooding Rights in lots 1,2 and 3, Con. I to H.E.P.C.

AUBIN TP. M.407



LEGEND

- HIGHWAY AND ROUTE No.
- OTHER ROADS
- TRAILS
- SURVEYED LINES:
  - TOWNSHIPS, BASE LINES, ETC.
  - LOTS, MINING CLAIMS, PARCELS, ETC.
- UNSURVEYED LINES:
  - LOT LINES
  - PARCEL BOUNDARY
  - MINING CLAIMS ETC.
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON-PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" SURFACE RIGHTS ONLY	◒
" MINING RIGHTS ONLY	◒
LEASE, SURFACE & MINING RIGHTS	■
" SURFACE RIGHTS ONLY	◪
" MINING RIGHTS ONLY	◪
LICENCE OF OCCUPATION	▼
CROWN LAND SALE	C.S.
ORDER-IN-COUNCIL	OC
RESERVATION	®
CANCELLED	⊗
SAND & GRAVEL	®

SCALE : 1 INCH = 40 CHAINS

FEET 0 500 1000 2000 4000 6000 8000

METRES 0 200 400 600 800 1 KM 2 KM

ACRES	HECTARES
40	16

TOWNSHIP

MAHAFFY

DISTRICT 2.3929

COCHRANE

MINING DIVISION

PORCUPINE

Ministry of Natural Resources

Ontario Surveys and Mapping Branch

Date MAY 3, 1973

Whitney Block
Queen's Park, Toronto

Plan No. M.540

MAHAFFY TOWNSHIP

REID TOWNSHIP

Thorburn Creek

Mattagami River

539941 539935 539934 499663 499662

539940 539936 539933 499664 499665 499666

501590 539939 539937 539932 499669 499668 499667

501589 539938 517030 517029 499670 499671 499648 499647 499640 499639 499632

501588 501599 501598 501597 499673 499672 499649 499646 499641 499638 499633 499630 499625 499622

501601 501603 501602

UR-81-21

UR-80-3

UR-80-2 UR-80-6 UR-81-20

UR-80-5

499656 599655 499654 499653 499652 499650 499645 499642 499637 499634 499629 499626

UR-80-4

UR-81-19

499657 499658 499659 499660 499661 499651 499644 499643 499636 499635 499628 499627

UR-80-1

501594 499585 499584 499583 499582 499597 499598 499599 499600 499601 506824 506825 506826

06 07 08 09 10 11 12

05

499586 499587 499588 499589 499590 499605 499606 499604 499603 499602 506827 506828 506829

04

03

13 14 15 16 17 18

02

UR-81-01

501596 501595 499593 499592 499591 499607 499608 499609 499610

499594 499595 499612 499611 501591 501592

501593 499596 499613 499614 499615 499616

499619 499618

499620 499621

N

Diamond Drill Holes

Overburden Drill Traverse
With Overburden Drill Holes

42A13SE0072 2.3929 REID

220

UTAH MINES LIMITED
EXPLORATION DEPARTMENT
TORONTO ONTARIO CANADA

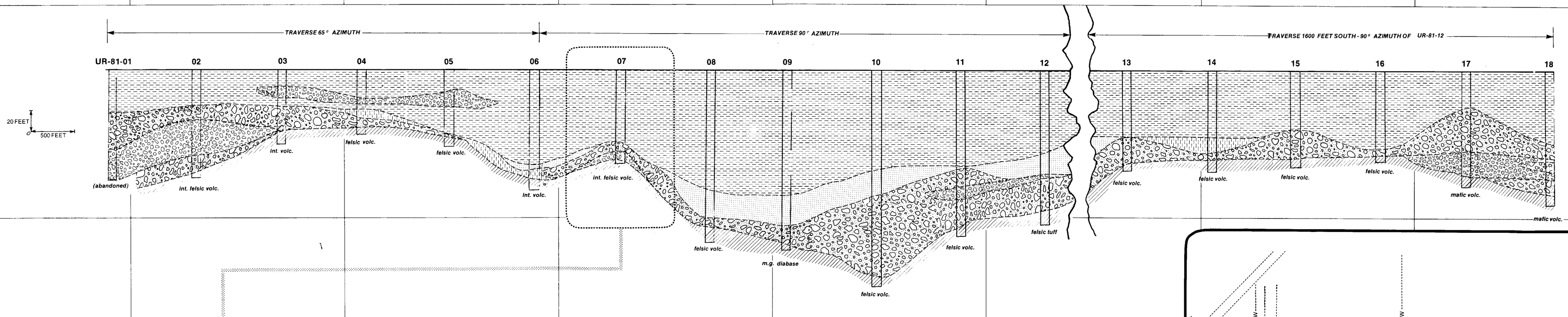
UTAH-ROSARIO JOINT VENTURE

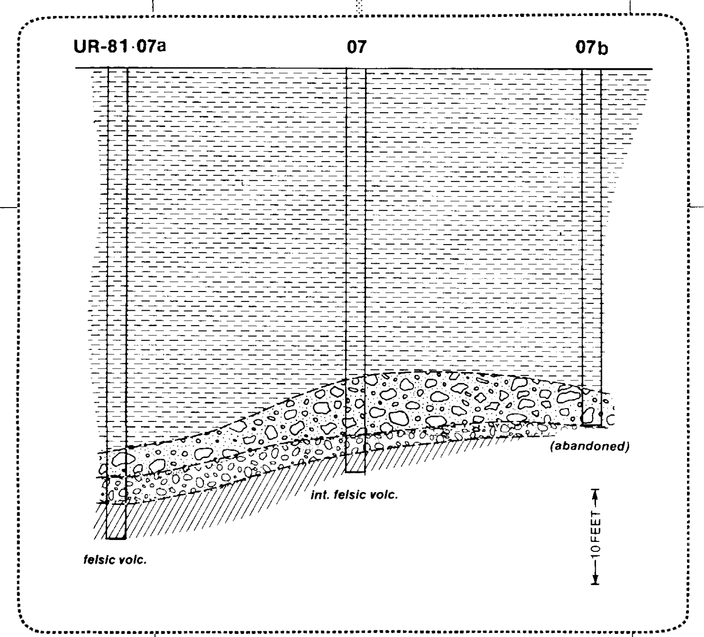
LOCATION OF OVERBURDEN DRILL HOLES

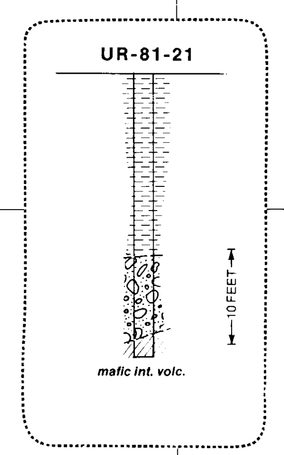
W.S. Mahlell

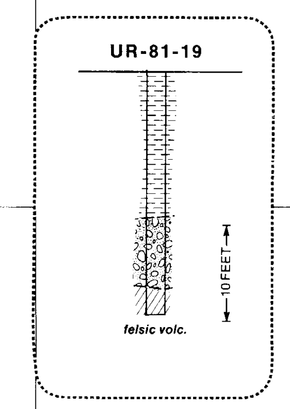
DATE	DRAWN	CHECKED	REVISED	N.T.S.	FILE	MAP
6:6:81						OF

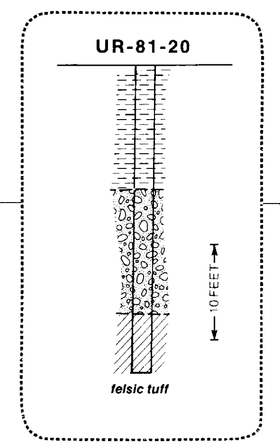
0 200 400 800 1200 1600
FEET

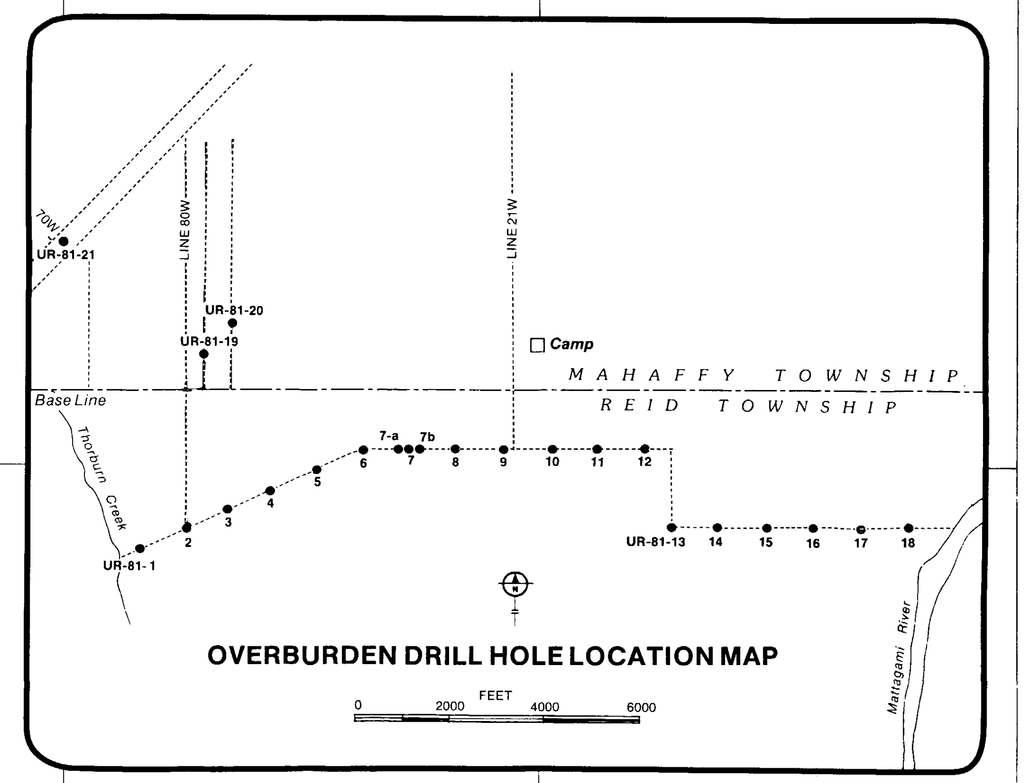












Legend

- CLAY
- SAND
- SILT
- GRAVEL
- TILL
- BEDROCK

UTAH MINES LIMITED
EXPLORATION DEPARTMENT
TORONTO ONTARIO CANADA

UTAH-ROSARIO JOINT VENTURE

OVERBURDEN DRILLING 1981

SECTION

DATE	DRAWN	CHECKED	REVISED	N.T.S.	FILE	MAP
6-6-81						OF

230