PR-East Mt. Gething 82G/A

1982 REPORT OF EXPLORATION ACTIVITIES ON THE EAST MOUNT GETHING PROPERTY

Coal Licence Nos. 3506 to 3524

Located in
Peace River Land District and Liard Mining Division

National Topographic System
Designation 94 B/1 West

Centered on Lat. 56°02'N; Long. 122°20'W

Report By D.N. Duncan of
Utah Mines Ltd.

Field Work Performed Between
June 3, 1982 and August 6, 1982

Report Submitted December, 1982

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ABSTRACT

Utah Mines. Ltd. became owner and operator of the East Mount Gething Property on April 23, 1971 under an agreement with Trend Exploration Ltd. The property has since undergone extensive exploration in the belief that it has the potential to become a metallurgical and/or thermal coal producer..

The exploration program for the 1982 field season was formulated for the property based on the results of previous exploration programs. The 1982 program was designed to complete the geological mapping of the property and, by rotary drilling,, to provide additional data on the thickness and extent of the Milligan, Louise and. Riverside seams. During the program. 766.87 metres of rotary drilling were completed in four holes and extensive, detailed geological mapping was performed on the property.

Exploration work completed during the 1982 field season added significantly to the understanding of. the property geology. Surface geological mapping is now complete, with an accurate delineation of the Gething Formation-Cadcmin Formation contact. The rotary drilling. program *was* not. as successful, due to equipment and hole stability problems, as the Riverside seam was penetrated in only one hole (EMG-RDH-82-9). However, the interception of the Louise and Milligan seams in drill holes RDH-82-7 and RDH-82-10 has added considerable, information on the seams' structural character and improved inter-drillhole correlation.

LOCATION AND ACCESS

The East Mount Gething Property is. located in. the 'Northeast 'Coal Block" of British Columbia, lying within the. Liard Mining Division and the Peace River Land District. The property is centred on 56°02'N latitude; 122°20'W longitude and lies within the area covered by the National Topographic System designation 94 B/1 West. The property is largely confined by Williston Lake on the north and east, Mount Gething on the west. and Gaylard Creek on the south. Toe southeast corner of. the property lies approximately two 'kilometres west from the W.A.C. Bennett Dam. The town of. Hudson's Hope is located approximately 24 kilometres northeast. from the southeast corner of the property and a small part of the property lies within the Hudson's Hope District Municipality (see figure 2, page 4). The town of Chetwynd is located approximately, 59 kilometres southeast from the property. and the city of Vancouver lies approximately 775 kilometres' south from the property (see figure 1, page 3 and figure 2, page 4).

Access to the property is gained via paved road from Hudson's' Hope to 'the W.A.C. Bennett Dam and the Utah Mines Limited road from the dam. Alternate access' to the property is provided by the Canfof Limited Johnston Creek-Track Creek Road which. intersects Highway 29 nineteen kilometres south from Hudson's Hope. Canfor Limited logging roads and Utah Mines Limited drill roads provide additional access to portions of. the property (see figure 3, page 5). Away from these roads, access.. to the property is possible by helicopter, boat (along Williston Lake) or on foot.

PROPERTY AND TITLE

The East Mount Gething Property comprises 19 contiguous coal licences numbered 3506 to 3524 inclusive. These licences. encompass 5,509 hectares. The property adjoins the South Mount Gething and Bri Properties on the southern boundary. The remainder of the property boundary adjoins land where the. coal rights are held by the Crown or have been assigned: to B.C. Hydro (see figure 4, page 6).

Utah Mines Ltd. became the owner and operator of the East Mount Gething Coal Licences under an. agreement with Trend Exploration Ltd. dated the 16th of April, 1971. Transfer of ownership was effected by Order in Council Number 1389 on April 23, 1971.

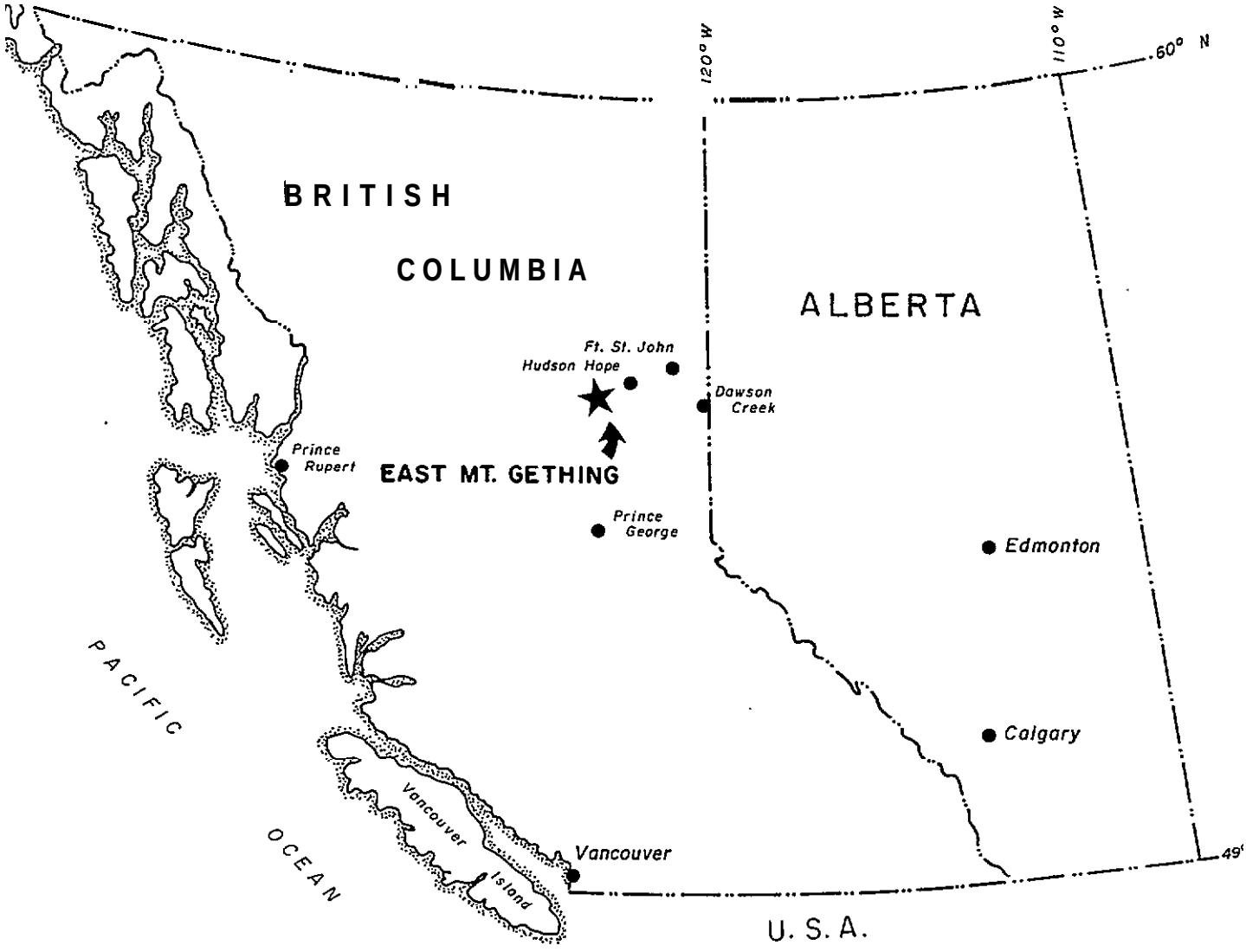


FIGURE – 1

UTAH MINES LTD.

EAST MT. GETHING

LOCATION MAP

0 100 200 300 400

SCALE IN MILES

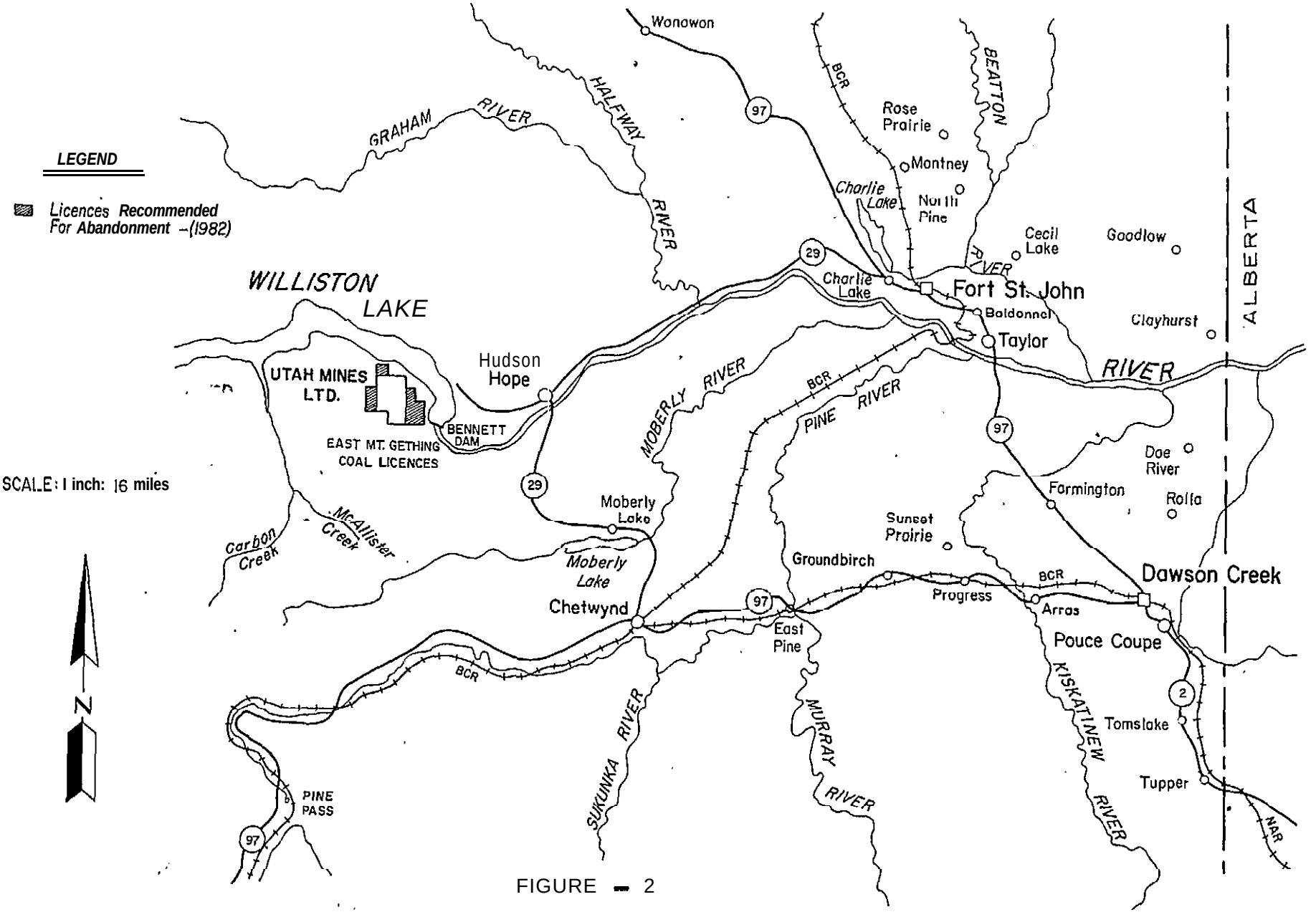


FIGURE - 2

REGIONAL MAP

EAST MT. GETHING COAL LICENCES

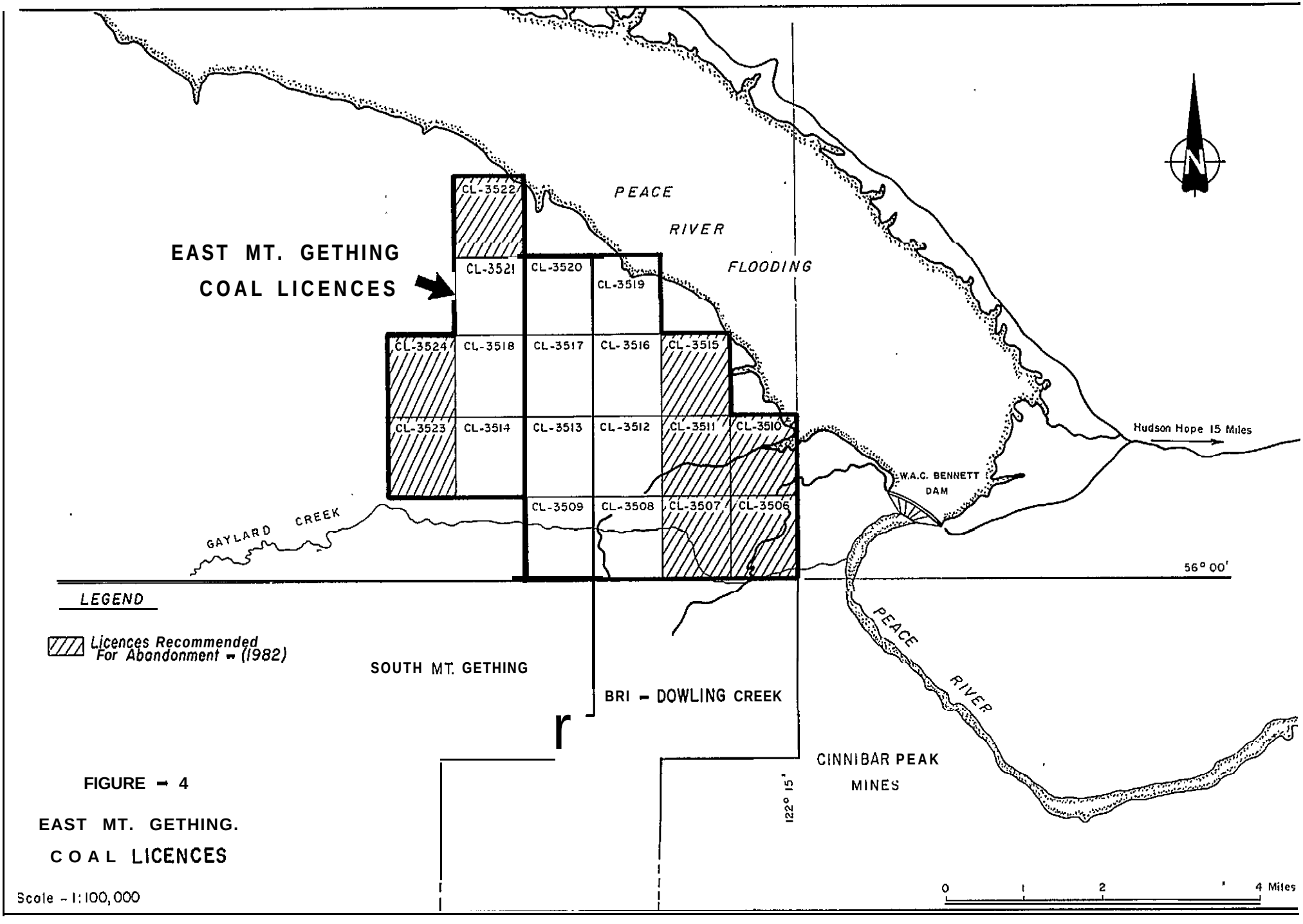


FIGURE - 4

EAST MT. GETHING.
COAL LICENCES

Scale - 1:100,000

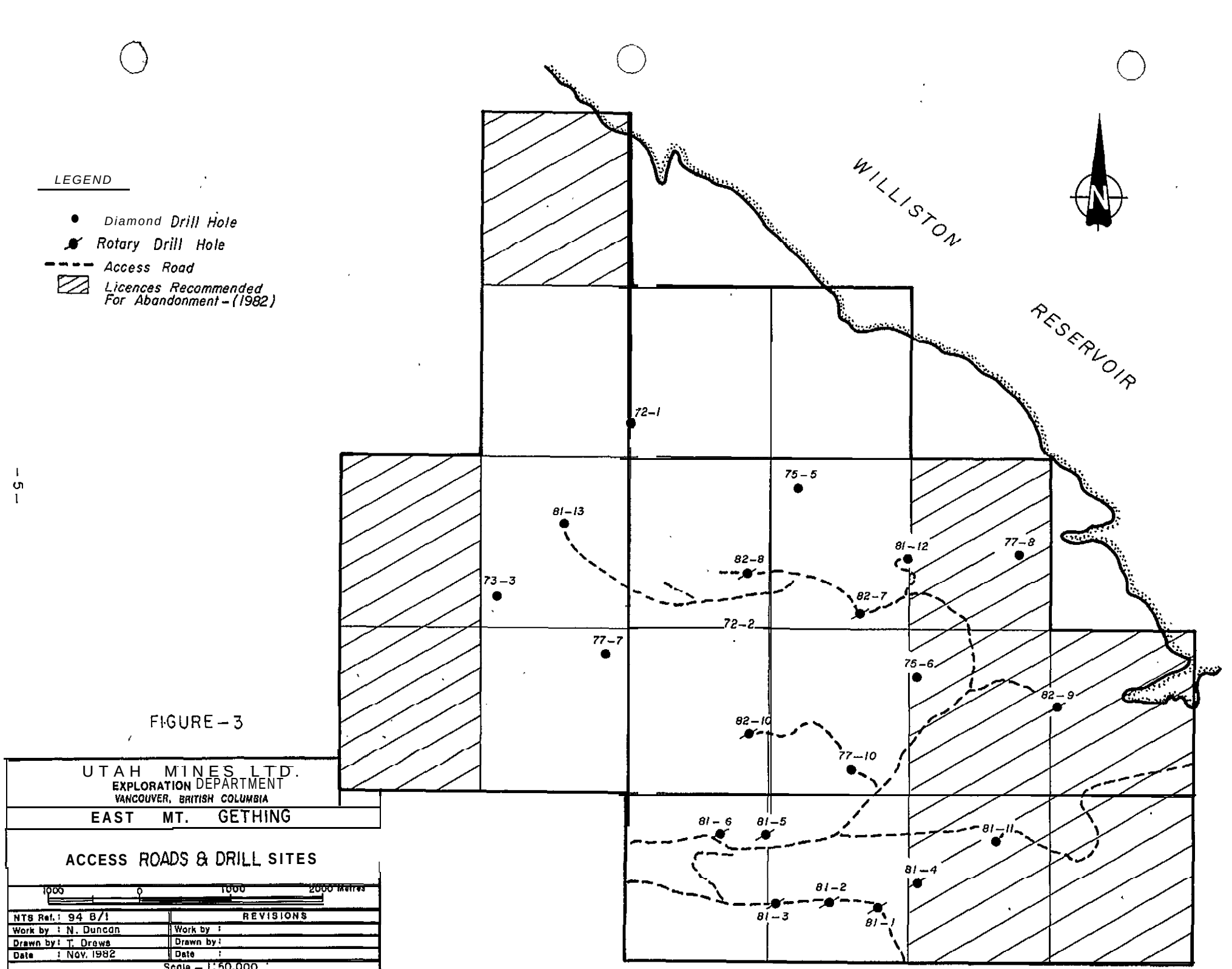


FIGURE - 3

UTAH MINES LTD.
EXPLORATION DEPARTMENT
VANCOUVER, BRITISH COLUMBIA

EAST MT. GETHING

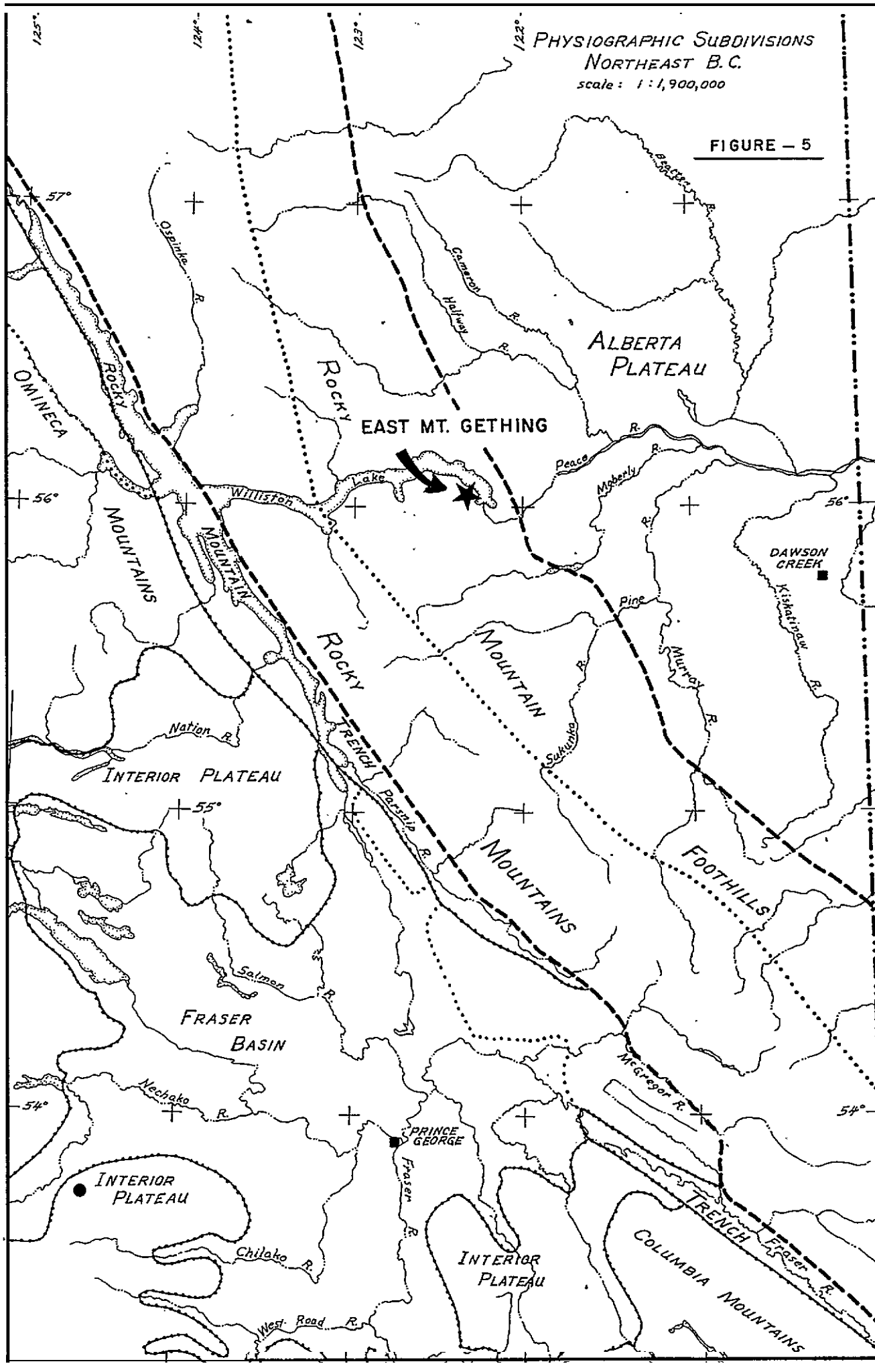
ACCESS ROADS & DRILL SITES

NTS Ref. : 94 B/1	REVISIONS
Work by : N. Duncan	Work by :
Drawn by : T. Drews	Drawn by :
Date : Nov. 1982	Date :
Scale - 1:50,000	

PHYSIOGRAPHY

The East -Mount Gething Property is situated in the outer (eastern) belt of the Rocky Mountain Foothills (see figure 5, page 8) The western margin of the Foothills belt is considered to be the easternmost major fault which thrusts Paleozoic strata. over Mesozoic strata. The eastern margin is a series of en echelon thrust faults which separate the folded and faulted strata of the Foothills from the gently dipping to flat lying strata of the Alberta Plateau (Holland; 1976). Within this belt, major fold axes and thrust faults trend in a northerly to northwesterly direction, with thrust faults dipping to the west or southwest. Structural deformation is considerable near the western margin of the Foothills and diminishes in extent and complexity toward the eastern -margin. Bedrock structure and lithology are commonly reflected by the topography.

The property is -underlain by a broad, south plunging syncline. This structural feature is reflected, to a certain extent, in the topography-. of the: property. Topographic relief in the immediate vicinity of the property. is moderate. The lowest elevations,. found in creek valleys, are in the order of. 600 metres above sea level; while Mount Gething - the highest- mountain in the area - has an elevation of approximately 1,800 metres above sea level at its peak. The property itself is largely situated on the eastern flank of Mount Gething. Creek valleys range in form from the steepsided, deeply incised canyon of Table creek to the broader valley of Gaylard Creek; Hilltops and ridge crests are broad and generally rounded.


PHYSIOGRAPHIC SUBDIVISIONS
NORTHEAST B.C.
scale : 1 : 1,900,000
FIGURE – 5
125°
124°
123°
122°
57°
56°
55°
54°
EAST MT. GETHING
ALBERTA PLATEAU
ROCKY MOUNTAIN TRENCH
OMINECA MOUNTAINS
ROCKY MOUNTAINS
MOUNTAIN FOOTHILLS
INTERIOR PLATEAU
FRASER BASIN
COLUMBIA MOUNTAINS
TRENCH
Ospika R.
Cameron R.
Halfway R.
Peace R.
Maberly R.
Williston Lake
Nation R.
Parsnip R.
Sukunka R.
Pine R.
Murray R.
Kiskatinaw R.
Salmon R.
Nechako R.
Chilako R.
West Road R.
Fraser R.
McGregor R.
DAWSON CREEK
PRINCE GEORGE

EXPLORATION OF THE EAST MOUNT GETHING PROPERTY

PREVIOUS EXPLORATION

Coal has been known to exist in the Peace River area since 1792, when Sir Alexander MacKenzie reported a "bituminous substance which resembles coal" in the Peace River Canyon. Exploration programs designed to investigate the coal potential of the East Mount Cething Property area began in 1970 by Trend Exploration Limited.

During the summer of 1970, Trend Exploration Ltd. conducted a geological- mapping program in the Fast Mount Cething. area. This exploration led to the licencing of the 24. coal leases which presently constitute the East Mount Cething Property..

Since its -acquisition of. the property in 1971, Utah Mines Ltd. has conducted five separate programs on the East Mount Cething Property (not including the 1982 field season). These programs were conducted in the summers of 1972, 1973, 1975, 197.7 and 1981. The purpose of the exploration. was to provide geological and analytical data with which to advance the understanding and evaluation of the property; Geological, mapping and diamond and rotary drilling were undertaken in order to, fulfill those objectives. In total," 3,508 metres of diamond drilling and 811 metres of rotary drilling were completed during the five programs.

All data and logs derived from previous exploration of the property are on file with the Ministry of Energy, Mines and Petroleum Resources and also in Utah Mines Ltd. company files.

1982 EXPLORATION PROGRAM

The 1982 exploration program for the East Mount Cething Property was designed to provide further information, on the extent, quality and continuity of coal seams on the property. Exploration. activities commenced on June 3, 1982 and were concluded on August 6, 1982. The program had two- main objectives, to examine, the. extent of the Riverside, Milligan and Louise seams as defined by previous exploration and to complete the geological mapping of the property.

The mapping program was conducted intermittently from June 3, 1982 to August 6, 1982. The tipping was done on 1:5,000 scale maps augmented with 1:30,000 scale air photographs. Field crews were led by D.N. Duncan and K. Foellmer, who were, assisted by S. Ridley, H. Gale, M. Syens, M. Vaskovic and P. Cassar-Torreggianni. After a short period of familiarization Sue Ridley also led field crews. Logging and exploration roads provided Sane access to the property, but a small inflatable boat (a Canova) was required to investigate the more inaccessible. areas along Williston Lake. The mapping enhanced the understanding of the stratigraphy and structure of the property. All information obtained. in. the mapping program is plotted on the geological property map in the map pocket of this report.

All slashing for road and drill site construction. was done by Mr. K. Sheen and Mr. B. Penman who were hired as employees. A Caterpillar D7G tractor and Caterpillar 518 Skidder were used in the construction of drill sites and roads. This equipment was supplied by Peace Dozing Ltd., the contractor for the job. In total, 2,000 metres of road approximately 10 metres in width was constructed. for *access* to the rotary drill sites. Culverts were installed, where needed, to provide road drainage and free flow of small streams.. Two road accessible rotary drill sites, each measuring approximately 20 metres by 20 metres, were slashed and cleared. The other two -rotary drill holes were located on prexisting roads with no extra clearing required. Road and drill site maintenance were carried out on an as needed basis.

All- personnel were accommodated in Hudson's Hope at Utah Mines Ltd. house trailers or local motels.

Reclamation of disturbed ground was performed upon completion of the exploration program. Roads and rotary drill sites were cleaned up and recontoured. All trees leaning over the roads were felled-, bucked and buried. The rotary drill sites and access roads were sown with *a* grass seed mixture reccommended by. the Reclamation Branch of the British Columbia Ministry of Energy, -Mines and, Petroleum Resources for forested areas of the "Northeast Coal Block". All culverts were removed and water. bars were constructed on all steep road grades. In some -places special ditches and channels were excavated *to* provide adequate drainage and, *to* minimize erosion.

Construction equipment, a Caterpillar D7G tractor and Caterpillar 518 skidder, required throughout. the exploration program was provided by Peace Dozing Ltd. One or more 4-wheel drive pick-up trucks were used to transport personnel, fuel and supplies. A l-ton, 4-wheel drive flat deck truck with a crane was used *to* haul heavier loads and *to* transport the downhole logging equipment.

Rotary drilling was contracted to Green Acres Drilling Ltd. of Edmonton, Alberta. A Fahling Model CF-15 air hammer, truck mounted rotary drill was supplied hy the contractor. An attendant water truck Was also supplied with the drill. The rotary drill rig commenced operations on .the property on June. 7, 1982 and finished on the 26th of that month. A total of 766.87 metres of rotary drilling were completed in four drill. holes (see figure 3, page 5). The rotary chips were logged by S. Ridley, M. Syens, H. Gale, M. Vaskovic and P. Cassar-Torreggiani of Utah Mines Ltd. (descriptive lithologic logs. are in the map pocket of this report). Mechanical logs consisting of combined gamma, gamma-gamma density and caliper were run in three holes All mechanical logging; was done by Utah- Mines Ltd. personnel using a Comprobe Inc. digitized logger employing electric hoisting and a combination down hole tool (mechanical logs are included in the map pocket).. Rotary drill hole EMG 82-8 was abandoned in overburden and was not mechanically logged.

Rotary drill holes 82-9 and 82-10 were sealed with cement in accordance with the -instructions of the Chief Inspector of Mines. Rotary drill hole 82-8 was not sealed. as it was abandoned in overburden. Drill hole 82-7 was left unsealed for ground water testing; the District Inspector of Mines. was notified and approved this testing.

GEOLGGY - GENERAL AND LOCAL

The East Mount Gething Property is underlain by folded and faulted sediments of the Upper Jurassic *to* Lower Cretaceous Minnes Group and the Lower Cretaceous,, Bullhead Group. (see Table I., page 13). The Minnes Group consists of Monteith, Beattie Peaks, Monach and Bickford Formations. Unconformably overlying these rocks are sediments of the. Cadcmin and Gething Formations which comprise the Bullhead Group.

Of the four formations which comprise the Minnes Group, only the Beattie Peaks Formation is- exposed on the property. This formation outcrops in the southwest corner of Coal Licence Number 3523 (see geology map in map pocket). The Beattie Peaks. Formation consists of recessive, thinly interbedded siltstone, fine grained sandstone, mudstone and rare -coals . Worm tracks and burrows are common.

The Monach and Bickford Formations which overlie the. Beattie Peaks Formation are not present in the East Mount Gething Property area: These units were bevelled off by the pre-Cadomin regional erosional uriconformity. Stott (1966) states that:

> "In the vicinity of Peace River. Canyon, the Cadcmin is in contact with strata low in the Beattie Peaks Formation!'.

The contact between the Upper Jurassic to Lower Cretaceous Minnes Group and the overlying conglomeratic sediments of the Cadomin Formation is an abrupt, regional erosional unconformity (Stott; 1968, page 14) . This unconformity is present. in the Peace River. area, extending to the north, south and east along. the. Rocky Mountain Foothills and into. the Alberta Plateau. The total amount of sediments removed and the exact time interval involved in this erosional event are not known and may vary from area to area in the region.

The Lower Cretaceous Bullhead Group- which overlies the Minnes Group is described by Stott (1968, page 7):

> "The basal succession of Lower Cretaceous coal-bearing sediments and massive conglomerates is included in the Bullhead Group....the sequence. records widespread f luvial conditions that developed after initial deposition of conglomeratic sediments.."

NOMENCLATURE OF FORMATIONS IN THE EAST MT. GETHING PROPERTY AREA

TABLE -1

	Muller 1961		Stott 1968 Pine River Foothills		(used in this report) Stott 1968 Upper Peace River		Flynn 1976	
Cretaceous	Dunvegon Fm.		Dunvegon Fm.		Dunvegon Fm.			
Lower Cretaceous	Fort St. John Group	Cruiser Fm.	Fort St. John Group	Cruiser Fm.	Fort St. John Group	Cruiser Fm.	Fort St. John Group	Hosler Fm. & Younger
		Goodrich Fm.		Goodrich Fm.		Goodrich Fm.		
		Hosler Fm.		Hosler Fm.		Hosler Fm.		
		Commotion Fm.		Commotion Fm. Boulder Creek Member				Commotion Fm. Boulder Creek Member
				Commotion Fm. Hulcross Member				Commotion Fm. Hulcross Member
				Commotion Fm.		Gates Fm.		Commotion Fm. Gotes Member
		Moosebor Fm.		Moosebor Fm.		Moosebor Fm.		Moosebor Fm.
	Bullhead Group	Gething Fm.	Bullhead Group	Gething Fm.	Bullhead Group	Gething Fm.	Bullhead Group	Gething Fm.
		Monach Fm.						
		Beottie Peaks Fm.		Codomin Fm.		Codomin Fm.		Codomin Fm.
		Montieth Fm.						
Cretaceous & Jurassic	Fernie Group		Minnes Group		Minnes Group		Minnes Group	
Jurassic			Fernie Group		Fernie Group			

In the property area, the Cadomin Formation consists of a sequence of interbedded sandstones and conglomerates. The sandstone units are typically coarse grained, massive to coarsely cross-bedded, and. weather light red-brown to grey in colour. The sandstones contain abundant quartz , chert, and volcanic rock fragments with minor feldspar grains,. giving them a salt and pepper appearance on fresh surfaces. The sandstone beds range from less than one metre to over seven metres in thickness. The conglomerate units contain well rounded pebbles and cobbles of chert 'with minor quartz and volcanic rock fragments. These conglomerates range from pebble bands to massive units greater than. two metres in thickness. The Cadomin Formation was mapped in several areas,. generally on the western side of the property (see the geology map in the map pocket).

The environment of deposition. for the Cadomin Formation is' considered to have been .a Piedmont alluvial plain (Stott; 1968, page 108). The presence of abundant conglomerate in the formation in the property area indicates that the area was relatively close to the source area of the formation.

The contact between the Cadomin and Cething Form&ions is not clearly defined in the property area. McLearn and Kindle (1950,. page 65) noted that the contact may not occur at the same stratigraphic horizon from area to area. Irish (1970, page 68) noted that, to the northeast of the East Mount Gething Property:

> "In Peace 'River Canyon, coarse sandstones of the Cadomin Formation grade laterally into interbedded coal, sandstones and shale of the Cething Formation, and therefore' the formations are in part lateral equivalents."

This indicates that the contact between the two formations is transitional, not abrupt.' Stott (1963, page 3) noted that the Cadomin and Gething Formations are actually "facies of one depositional sequence". Thus, there is a lateral and a vertical transition- from the Cadomin Formation to the Gething Formation. The contact between the two formations is placed at the top of the uppermost thick, coarse grained sandstone bed of the Cadomin Formation.

The character of the Cething Formation sediments underlying the property is typical, as described by Irish (1979, page 69), a sequence of:

> "Interbedded, grey-and buff-weathering, medium-to fine grained, grey to dark brown sandstone, grey to black shales, dark siltstones and coal seams":

These sediments represent deposition in an aggrading flood plain environment. Some of the fine grained sandstones may represent bar finger and levee deposits, and others may represent flood plain splay deposits (Stott, 1968, page 111). Sedimentary features attributable to these types of deposits are present in drill core and in outcrop on the East Mount Cething Property. Stott (1968, page 111) lists some of the features found in sandstones in the, Cething Formation; well sorted nature but often containing considerable matrix, festoon cross-beds, silts and clays represent deposition from water in areas practically devoid of current on the flood plain proper. These silts and clays accumulated between the river channels and the swamp and forest areas. The swamp and forest areas are the source of the present- coals and are thought to be of several differing occurrences. Stott (1968, page 112) suggests that some may have originated in abandoned river channels, same paralleling major river channels and some on deltas.

Work by Stott (1969, page 40). indicated a total thickness of 550 metres for the Gething Formation in the area. Diamond drilling, rotary drilling and geological mapping on the East Mount Cething Property, however; indicate that approximately 610 metres of Cething Formation section is present on the property. Since the top of the Cething Formation is not present on the property, the formation must be greater than 610 metres thick. Correlation with data from the Bri-Dowling Creek and South Mount Cething Properties to the south. indicates an actual thickness of approximately 670 metres (2200 feet) for the Cething Formation.

STRUCTURE - GENERAL AND LOCAL

The East Mount Gething Property is located within the Foothills Structural Belt. This belt is underlain by folded and thrust faulted Mesozoic strata (Irish; 1968). The general trend of structures in the region is northwesterly, with most of the thrust faults dipping in a southwesterly direction. Where sediments are thick, the dominant form of deformation is folding.

The property is underlain by Gething Formation and older sediments which have been folded into a broad, south-plunging syncline. This syncline has a generally north trending axis, which lies approximately along the eastern boundary of the property (see geology map in tip pocket). The majority of the property lies on the generally east to southeast dipping, western limb of, the syncline.

The central portion of the property is underlain by relatively flat lying Gething Formation sediments. There is little evidence of faulting in this area, with dips varying from 0° to 20° and strikes ranging fran north to east (see geology map in map pocket). This central region is flanked by anticlines to the east and west (see figures 6, 7, and 8 in map pocket). These assymetric anticlines are probably the result of thrust faulting at depth. Irish (1968, page 24) states that; in the propeity area, most thrust faults:

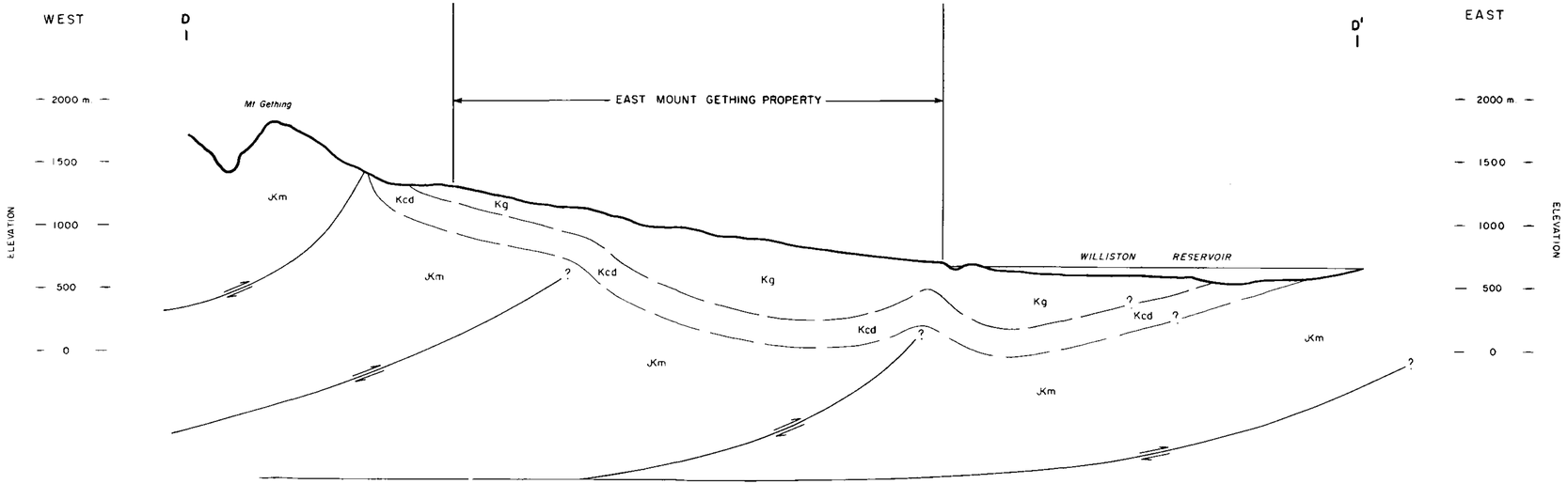
> ". . . .have resulted from the breaking of tightly compressed anticlines and begin and/or terminate in compressed, assymetrical anticlines...."

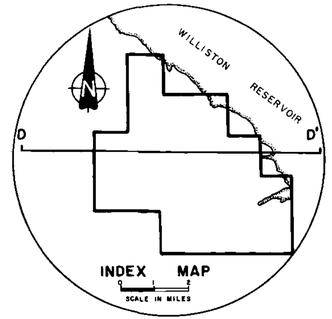
The presence of these two anticlines is indicated by diamond and rotary drill hole information and geologic&mapping.

The stratum contour maps (in the map pocket) for the Riverside, Louise and Milligan seams show the effects of the folds on these seams.. The seams are broken into mineable blocks by the folding, with wide areas of unmineable coal caused by the steepening of dips on the limbs of the folds.

Structural geology for the East Mount Gething Property is shown on the 1:10,000 scale geological map and on the 1:10,000 scale cross sections (in the map pocket). The cross sections and geological map portray the present interpretation of the structural geology of the sediments underlying the property. The information to produce the map and cross sections was obtained. from geological field mapping and diamond drill hole data.

A 1:50,000 scale cross section showing the' structural form and stratigraphic relationships of the property. and surrounding area is shown on the following page (figure 9). It is postulated that the thrust faults which underlie. the anticlines on the property are splays from a major thrust. fault which underlies the property. at' depth. This major thrust could be the thrust fault which comes to surface on Portage Mountain to the' east, but 'there is too little data. in the intervening -area to be certain.





LEGEND

Kg — Gething Formation

Kcd — Cadomin Formation

Jm — Minnes Group (Undifferentiated)

2 X Vertical Exaggeration

FIGURE – 9

UTAH MINES LTD.
EXPLORATION DEPARTMENT
Vancouver British Columbia

EAST MOUNT GETHING

CROSS SECTION
STRUCTURAL STYLE
LOOKING NORTH

Work by : N. Duncan	Date : Feb 1982	NTS Ref. 94 B/1
Drawn by : T. Drews	Revised : Nov 1982	Scale – 1:50,000

1000 500 0 1000 2000

COAL GEOLOGY

The Gething Formation section penetrated in diamond and rotary drill holes on the East Mount &thing Property contains over 80 coal seam. These seams range up to 3.80 metres (including splits) in thickness. Stott (1969, page '8) states that for coal seams of the Gething Formation in the Peace River area:

> "Current work shows that considerable variation occurs within each individual seam, that thickness may change rapidly, and that both coal seams and -sandstone units are lenticuiar and have limited' extent."

This makes the correlation of, coal seams a complex problem involving the evaluation of physical, chemical and geophysical data. The wide distribution of drill holes on the property makes correlation even more difficult. The Gething Formation-Cadomin Formation contact provides a datum for the correlation of the seams and seam nomenclature. is based. upon this datum (see Table II, page 20). This contact, however, varies in its exact location in the stratigraphic column (see Geology. section of this report). Thus,' care must be taken when using the contact as a datum as the interburden between. a seam and the contact may vary across the property. The coal., seam correlations shown in figure -25 (in map' pocket) represent the most accurate description possible given the data available.

Only three of the seams penetrated in' drilling on the property:' are of sufficient thickness and lateral continuity to be of economic interest. These seams are the Milligan seam, the Louise seam and the Riverside seam. Proximate analyses and dry mineral-matter free data for these seams are shown-in Tables III; IV and V on pages 21, 27 and 32. Analytical Data on all coal samples taken-since 1972 are bound' in Appendix I of this report. Panel diagrams with the Milligan, Louise and Riverside seam drill intercepts are shown in Figures 22, 23 and, 24 (in map. pocket) -respectively.

THE MILLIGAN SEAM

The Milligan seam. is a medium volatile bituminous coal (Table II-I, page 21). The seam ranges in thickness fratr0.70 metres to 1.30 metres (net coal thickness) with an average thickness of 0.96 metres . Figure 13, page 22, shows the net seam thickness isopachs for the Milligan seam. -The maximum seam development is in the area around drill hole 77-10. There is a general decrease in thickness away from this area.

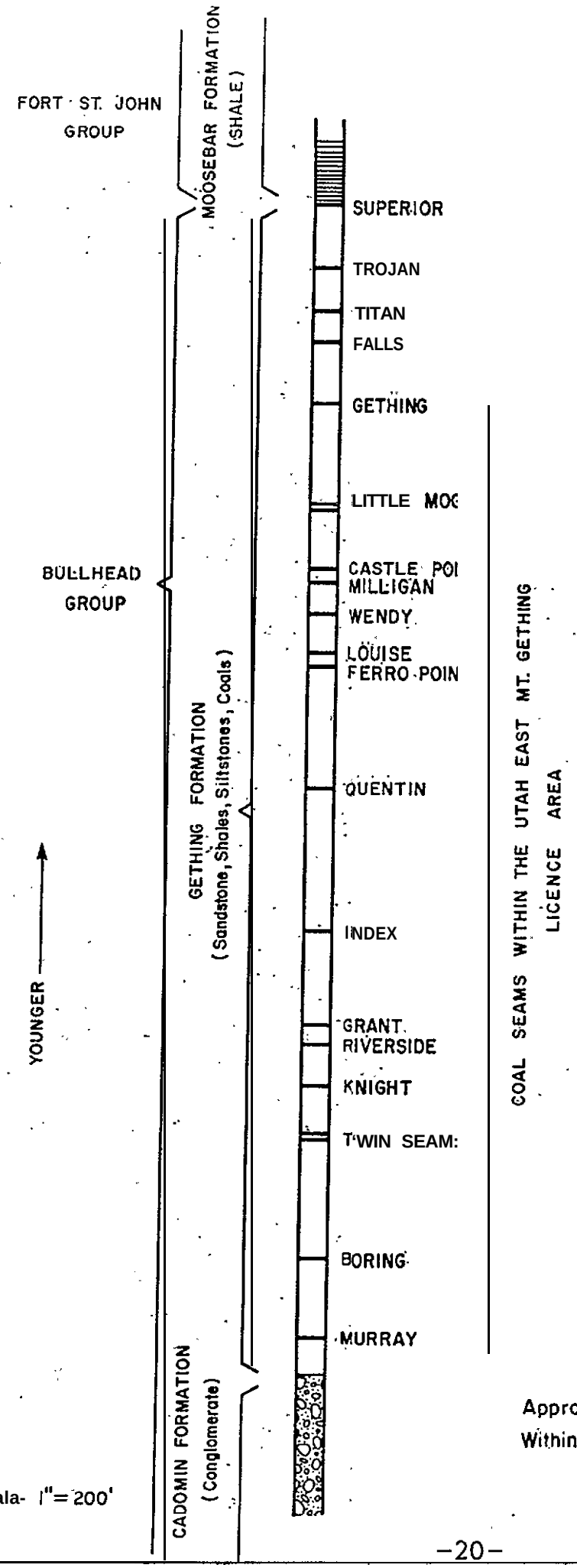


TABLE – II

Approximate Location Of Cool Seoms Within The Lower Cretaceous Gething Fm. Peace River Canyon, N.E. B.C.

TABLE-III

MILLIGAN COAL SEAM

AIR DRIED

D.D.H	SAMPLE #	H_2O	Ash.	S	V.M.	F.C.	BTU	FSI
72-1	1	1.60'	16.79	0.99	22.12'	59.49	12,167	1 1/2
72-2	4	1.93	11.96	0.80	20.19	65.92	12,930	2
75-5	3	2.08	5.91	0.79	23.11	68.90	12,433	1 1/2
75-6	5	1.89	5.27	0.76	20.54	72.30	14,021	1 1/2
Average		1.88	9.98	Or84	21.49	66.65	12,888	1 1/2

MINERAL - MATTER FREE

D.D.H.	SAMPLE #	V.M.	F.C.	B.T.U.
			74.44	
72-l	1	'25.56	77.67	14,901
72-2	4	22.33	,,.o,	14,877
75-5	3	24.50	75.50	13,300
75-6	5	21.54	78.46	14,893
Average		23.48	76.52	14,493

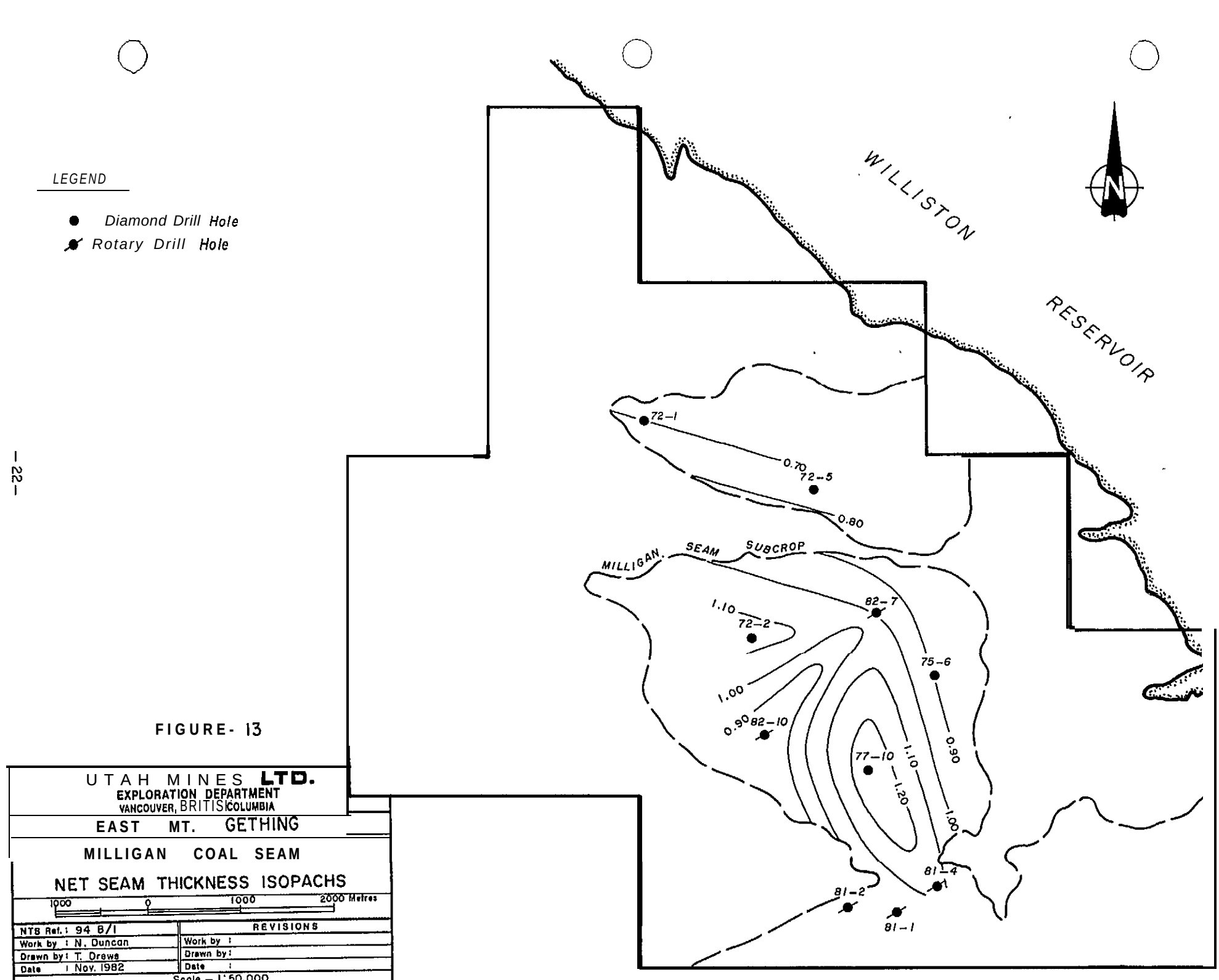


FIGURE- 13

UTAH MINES LTD.
EXPLORATION DEPARTMENT
VANCOUVER, BRITISH COLUMBIA

EAST MT. GETHING

MILLIGAN COAL SEAM

NET SEAM THICKNESS ISOPACHS

1000 0 1000 2000 Metres

NTS Ref. : 94 B/1	REVISIONS
Work by : N. Duncan	Work by :
Drawn by : T. Drews	Drawn by :
Date : Nov. 1982	Date :

Scale – 1:50,000

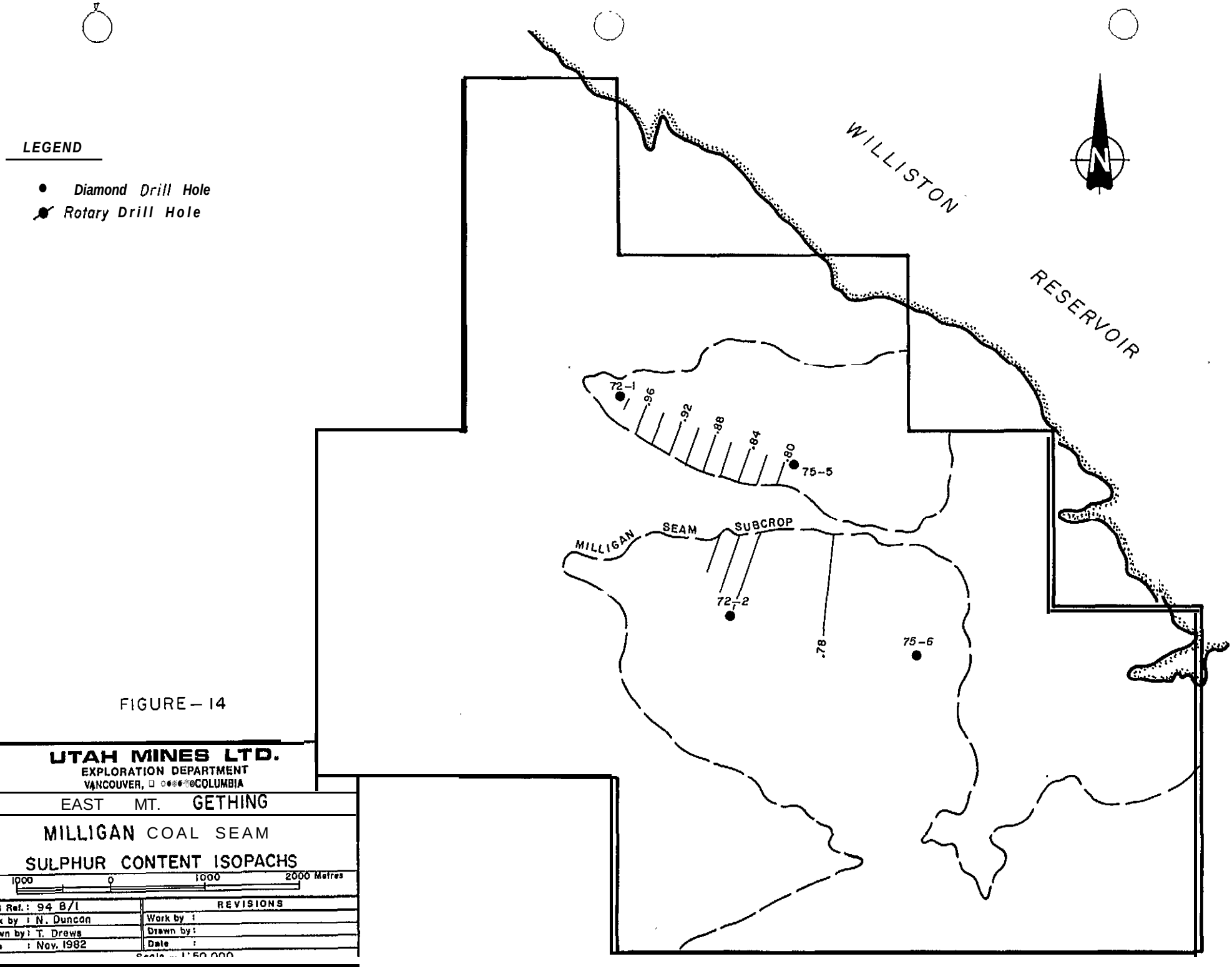

LEGEND
Diamond Drill Hole
Rotary Drill Hole
WILLISTON
RESERVOIR
N
72-1
.96
.92
.88
.84
.80
75-5
MILLIGAN SEAM SUBCROP
72-2
.78
75-6
UTAH MINES LTD.
EXPLORATION DEPARTMENT
VANCOUVER, BRITISH COLUMBIA
EAST MT. GETHING
MILLIGAN COAL SEAM
SULPHUR CONTENT ISOPACHS
1000 0 1000 2000 Metres
NTS Ref.: 94 B/1
Work by : N. Duncan
Drawn by: T. Drews
Date : Nov. 1982
REVISIONS
Work by :
Drawn by:
Date :
Scale = 1:50,000

FIGURE – 14

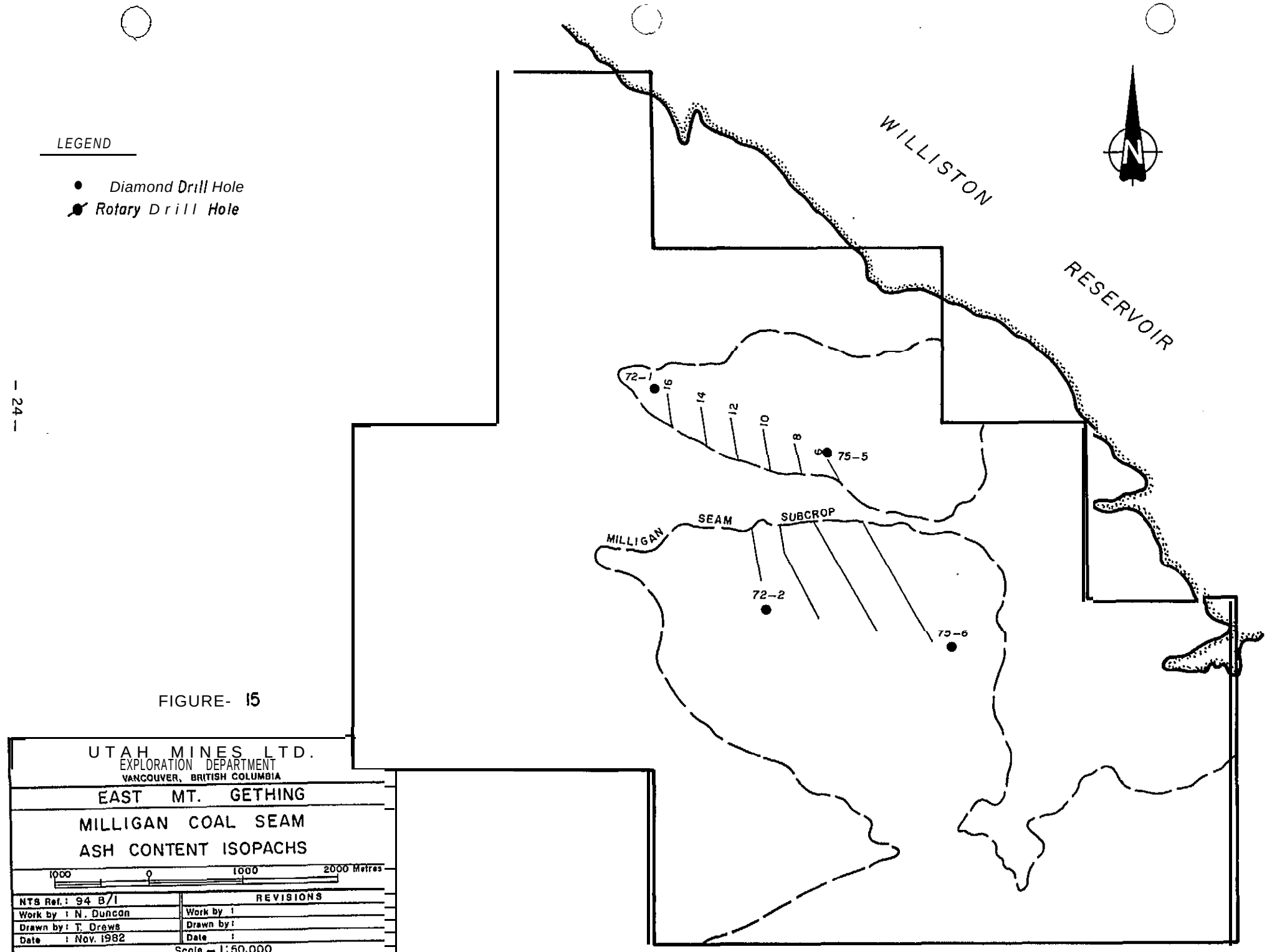


FIGURE- 15

UTAH MINES LTD.
EXPLORATION DEPARTMENT
VANCOUVER, BRITISH COLUMBIA

EAST MT. GETHING
MILLIGAN COAL SEAM
ASH CONTENT ISOPACHS

1000 0 1000 2000 Metres

NTS Ref. : 94 B/1	REVISIONS
Work by : N. Duncan	Work by :
Drawn by : T. Drews	Drawn by :
Date : Nov. 1982	Date :

Scale – 1:50,000

The Free Swelling Indices, (F.S.I.) for the Milligan seam (Table III; ibid.) vary from 1 1/2 to 2 with an average value of 1 1/2. The seam is poorly agglomerating to non-agglomerating and has little or no potential as a metallurgical grade coal.

The calorific values for the seam (moist mineral-matter free) range from 13,300 B.T.U./lb. to 14,901 B.T.U./lb. and average 14,493 B.T.U./lb (Table III, ibid.). These values indicate that. the seam has potential. as a thermal grade coal. The. sulphur content of the seam varies. from 0.76% to 0.99% (Table III, ibid.) with an average value of 0.84%. The sulphur content isopach map (Figure 14, page 23) shows that the sulphur content is lowest in drill hole 75-6. The sulphur content increases gradually toward drill hole 72-1.

The ash content of the Milligan seam (Table III, ibid.) ranges. from 5.27% to 16.79% and averages 9.98%. The distribution of ash content for the seam is shown in the ash content isopach map (Figure 15, page 24). The 'ash content. of the seam is lowest in the vicinity of drill holes 75-5 and 75-6. The 'seam has a high ash content' in the vicinity of drill holes 72-1 and 72-2. The ash isdpach map shows a trend very similar to the trend observed in sulphur values.

An examination of the data for the Milligan se& indicates the following:

1.) The seam is of little potential as a metallurgical grade coal.

2.) The seam has potential as *a* thermal grade coal, but relatively high ash values would'necessitate washing the coal.

3.) Seam thickness and quality information indicate that the seam is of highest- quality in the vicinity of drill holes, 72-2, 75-6 and 77-10.

4.) Overburden thickness' (both bedrock and glacial) make potentially strip mineable areas very limited in extent.. Thus;' underground, mining techniques would have to be used. in the extraction of this seam.

5.) Seam thickness,. sulphur content. and ash content isopach, maps show the swamp., geometry 'at the time of seam deposition and also relate to the depositional environment.-

THE LOUISE SEAM

The Louise seam is. a medium to high volatile bituminous coal (Table IV, -page 27). The seam ranges in thickness from 0.40 metres to 1.65 metres, with an average thickness of 0.97 metres (net coal thickness). The net seam thickness isopach map (Figure 16, page 28) shows a thinning trend away from drill hole 72-l. The seam thins to 0.75 metres at drill hole 82-7 and then thickens toward drill holes 82-10 and 77-10 (see Figure 16, page 28). The seam thickness then decreases toward drill hole 81-4, where it is 0.40 metres thick.

The Free Swelling Indices for the Louise seam vary from 1 1/2 to 4, with an average value of 2 1/2 (Table IV, ibid.). The seam is poorly agglomerating and is not suitable as, a metallurgical coal except, possibly, in a blend with other metallurgical coals.

The calorific values for the Louise seam range from 13,835 B.T.U./lb to 15,026 B.T.U./lb (Moist Mineral-Matter Free) and average 14,660 B.T.U./lb (see Table IV, ibid.). These high calorific values indicate that the, seam has strong potential as a thermal grade coal. The sulphur content of the seam is low, ranging from 0.54% to 0.84% and averages 0.68% (see. Table IV, ibid.). These values have been used in the compilation of a sulphur content isopach map (Figure 17, page 29). This map shows that the lowest sulphur concentrations are found in the areas around drill holes 72-2, 75-5 and 75-6 and that the general form of the distribution is bi-lobate. This form is postulated to represent roughly, the shape of the coal swamp at the time of deposition of the coal seam. Higher sulphur values are thought to represent a closer proximity to brackish or marine conditions.

The ash content of the Louise seam ranges from 5.31% to 29.43% with an average value of 18.46% (see Table, IV, ibid.). These values. are high and indicate that relatively large amounts of non-organic material were introduced into the swamp at. the time of deposition. The distribution of ash content shown in Figure 18, page 30 shows that the lowest ash values are situated in the area of drill hole 77-10. High ash content values lie along a trend between drill holes 72-1, 72-2 and 75-6. The generally high ash values would necessitate washing of the coal prior to shipment of a saleable product.

An examination of all the available data for. the Louise coal seam indicates the following:

1.) The seam is not saleable as a metallurgical coal except in a blend with other, higher grade metallurgical coals.

TABLEIV

LOUISE COAL SEAM

AIR DRIED

D.D.H	SAMPLE #	H_2O	Ash	S	V.M.	F.C.	BTU	FSI.
72-1	4	1.69	25.74	0.75	12.81	49.76	10,634	2
72-2	5	1.67	29.43	0.54	21.36	47.54	9,997	2
75-5	4	1.75	13.65	0.62	23.60	61.00	12,683	1 1/2
75-6	6	1.12	25.27	0.58	31.13	42.48	10,044	1 1/2
77-10	3	1.19	5.31	0.73	26.59	66.91	14,140	4
81-11	3+4	1.57	15.31	0.84	26.72	56.40	12,130	3 1/2
81-12	15+16	1.89	14.50	0.70	21.52	62.08	12,508	1 1/2
Average		1.55	18.46	0.68	~24.82	55.17	11,734	2 l/i

MINERAL - MATTER FREE

D.D.H.	SAMPLE #	V.M.	F.C.	B.T.U.
72-l	4	29.17	70.83	14,761
72-2	5	28.36	71.64	14,679
75-5.	4	26.77	73.23	14,899
75-6	6	40.52	59.48	13,835
77-10	3	27.92	72.08	15,026
81-11	3+4	30.90	69.10	14,563
81-12	15+16	24.47	75.53	14,857
Average		29.73	70.27	14,660

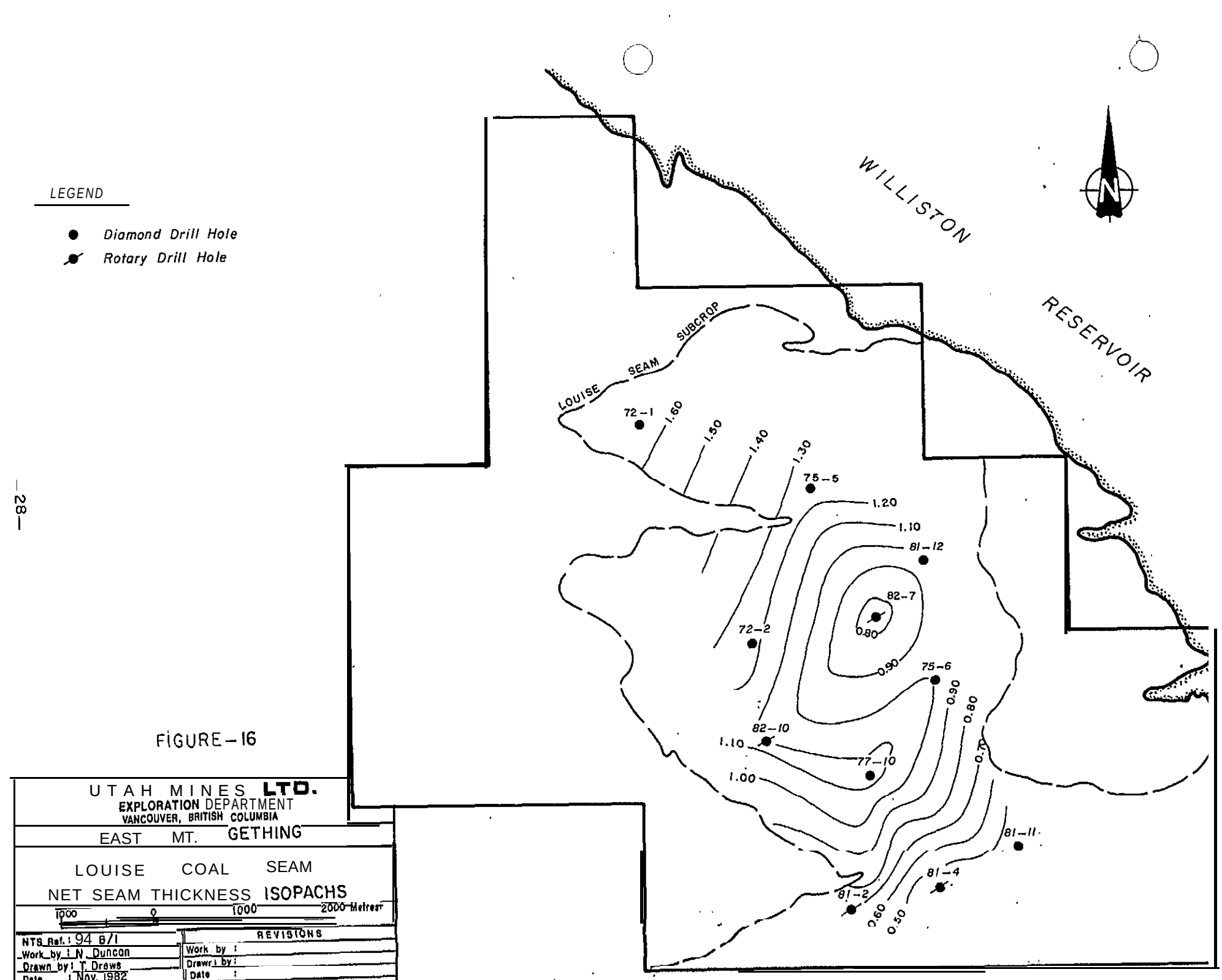


FIGURE-16

UTAH MINES LTD.
EXPLORATION DEPARTMENT
VANCOUVER, BRITISH COLUMBIA

EAST MT. GETHING

LOUISE COAL SEAM

NET SEAM THICKNESS ISOPACHS

1000 0 1000 2000 Metres

NTS Ref. : 94 B/1	REVISIONS
Work by : N. Duncan	Work by :
Drawn by : T. Drews	Drawn by :
Date : 1 Nov. 1982	Date :

Scale - 1:50,000

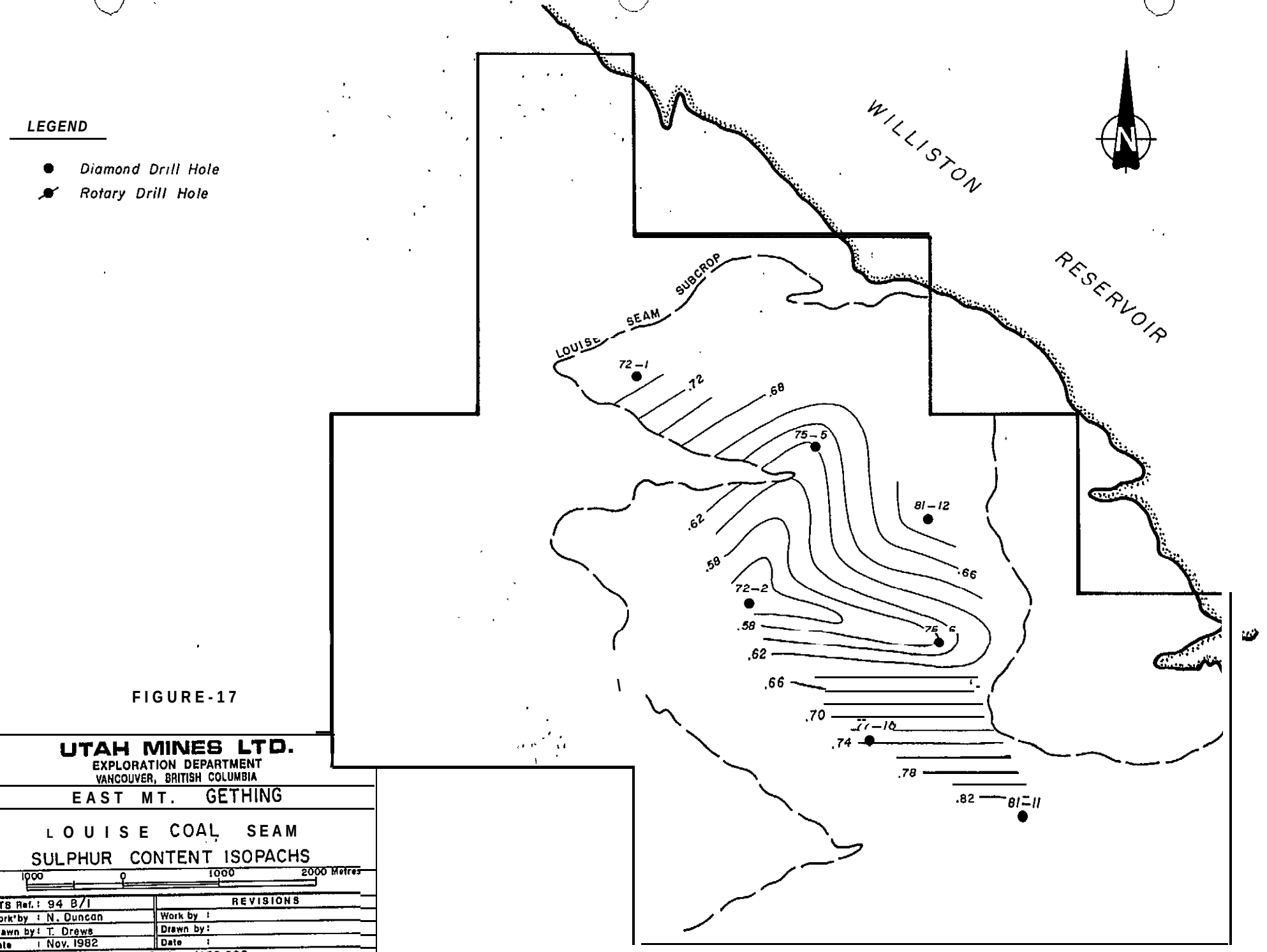


FIGURE-17

UTAH MINES LTD.
EXPLORATION DEPARTMENT
VANCOUVER, BRITISH COLUMBIA

EAST MT. GETHING

LOUISE COAL SEAM

SULPHUR CONTENT ISOPACHS

1000 0 1000 2000 Metres

NTS Ref.: 94 B/1	REVISIONS
Work by : N. Duncan	Work by :
Drawn by : T. Drewe	Drawn by :
Date : Nov. 1982	Date :

Scale – 1:50,000

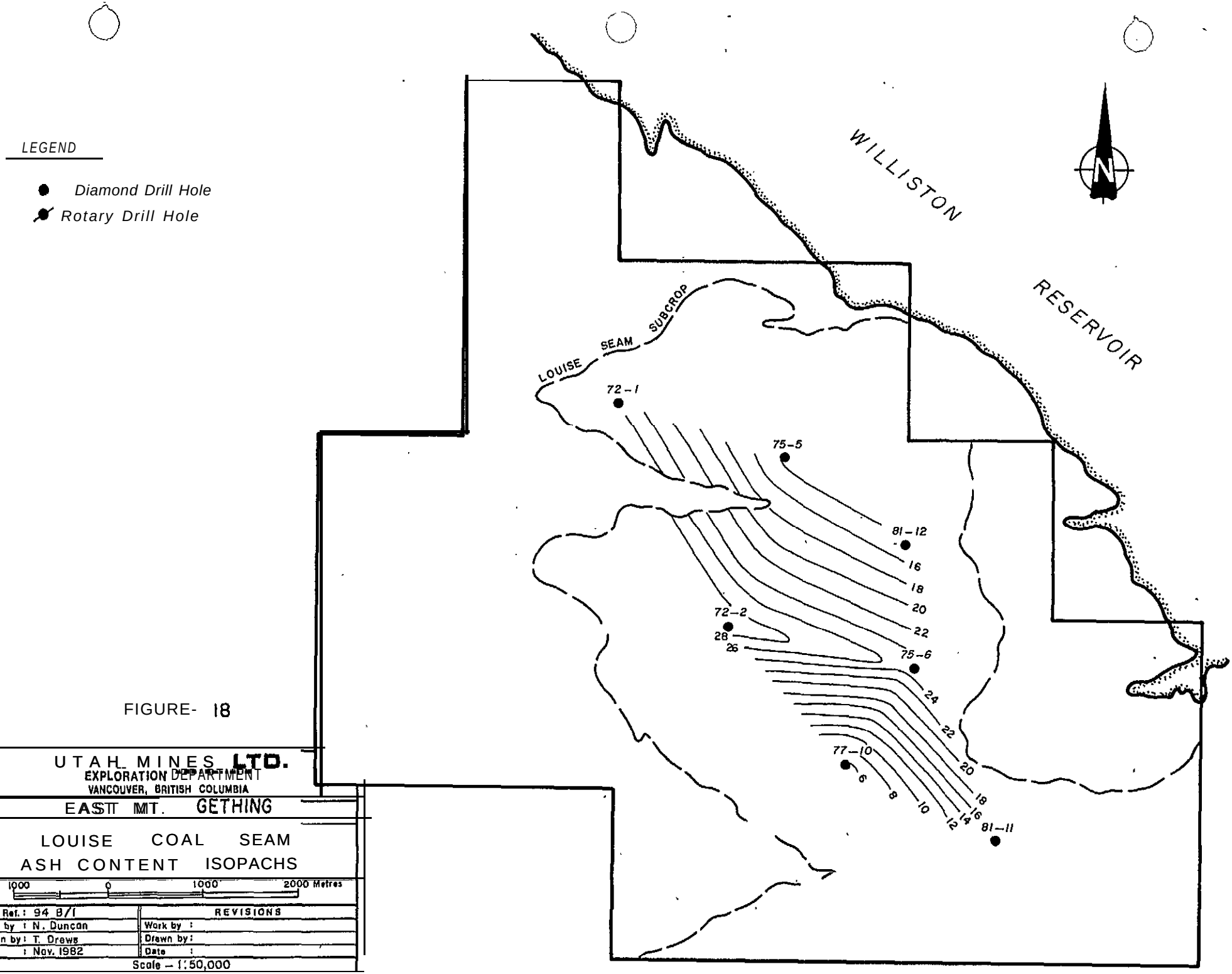


FIGURE- 18

UTAH MINES LTD.
EXPLORATION DEPARTMENT
VANCOUVER, BRITISH COLUMBIA

EAST MT. GETHING

LOUISE COAL SEAM
ASH CONTENT ISOPACHS

NTS Ref.: 94 B/1	REVISIONS
Work by : N. Duncan	Work by :
Drawn by: T. Drews	Drawn by:
Date : Nov. 1982	Date :

Scale – 1:50,000

2.) The seam has 'potential as. a 'thermal grade coal with high calorific values and' low sulphur content, but high ash values would necessitate the washing of the coal.

3.) Seam thickness. and proximate 'analyses- data indicate that the seam is of highest quality in the areas around drill holes 77-10 and 75-5.

4.) The thickness of rock and glacial deposits above the seam make underground mining the only feasible method for the extraction of the seam.

THE RIVERSIDE SEAM

The Riverside seam is a medium to low volatile bituminous coal (see Table V, page 32). The seam ranges from 0.70 metres to 3.15. metres in thickness,- with an average thickness of 1.78 metres [net coal thickness). Figure 19, page 33 shows" the, net seam thickness isopachs for the Riverside seam. This isopach map shows that the seam is best developed in the area of drill holes 72-2, 73-3 and 81-13. the thicknessdecreases toward drill holes 81-12 and 82-9.

The kee Swelling Indices for the Riverside seam range from 1 to 5 with an average value of 2 (see Table V, ibid.). . . This indicates that the seam has limited potential as a metallurgical. grade coal, except. in a blend with other metallurgical grade coals. The calorific values for the seam (Moist Mineral-Matter Free) range from 14, 858 B.T.U./lb to 15,507 B.T.U./lb with an average value of 15,202 B.T.U./lb (see, Table V, ibid.). These high calorific values indicate -that the seam has potential value as a thermalgrade coal.

The sulphur content of the 'Riverside seam varies from 0.36% to 0.80% and. averages 0.56% (see Table V, ibid.). The sulphur content. isopach map (Figure 20, page 34) shows the' trend in sulphur content for the seam. The isopach map shows that the lowest sulphur values' are located in the 'area of drill" hole 77-7 and that sulphur content increases generally to the northeast of this hole; Drill hole 81-12 has the highest sulphur content (0.80%) which is thought to indicate a closer proximity to brackish or marine conditions. The evenness of the gradient is caused in part'by the low number 'of -sample points (five) 'and their wide'spacing.

The ash content of the Riverside seam (see Table V, ibid.) ranges from 6.70% to 29.28% with an average value. of 16.02%. Figure, 21, page 35 shows the ash content distribution for the Riverside seam in the property area; The ash content is lowest in the vicinity of driil holes 77-7 and 81-12 and increases away from the low ash axis

TABLE V

RIVERSIDE COAL SEAM

A I R DRIED

D.D.H	SAMPLE #	H_2O	Ash	S	V.M.	F.C.	BTU	FSI
73-3	2+3	1.46	9.59	0.46	21.40	67.55	13,668.	2
77-7	4,5,6+7	1.54.	6.72	0.36	20.30	71.43	13,916	1
77-10	12	0.85	29.28	0.58	17.11	52.76	10,583	1
81-12	31+32	1.09	6.70	0.80	21.68	70.53	14,227	5
81-13	36	2.38	27.79	0.60	la.22	54.61	10,861	1 1/2
Average		1.24	16.02.	0.56	19.74'.	63.38	12,651	2

MINERAL - MATTER FREE

D.D.H.	SAMPLE #	V.M.	F.C.	B.T.U.
73-3	2+3	23.26	76.74	15,265
77-7'	4,5,6+7	21.56	78.37	15,018
77-10	12	21.63	77.18	15,507
81-12	31+32	22.82	[illegible]	15,363
81-13	36	22.69	77.31	14,858
Average		22.39	77.61	15,202

0

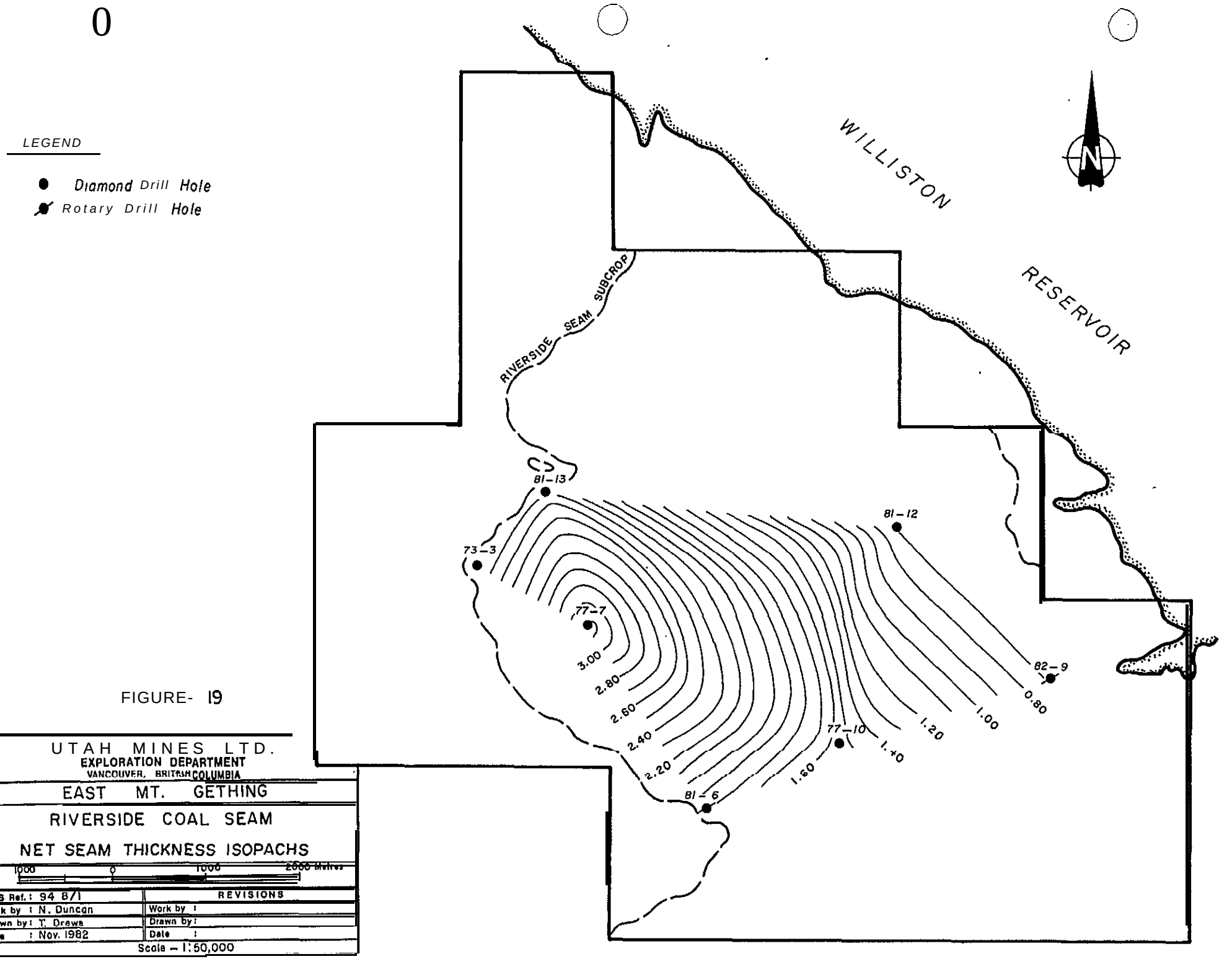


FIGURE- 19

UTAH MINES LTD.
EXPLORATION DEPARTMENT
VANCOUVER, BRITISH COLUMBIA

EAST MT. GETHING

RIVERSIDE COAL SEAM

NET SEAM THICKNESS ISOPACHS

1000 0 1000 2000 Metres

NTS Ref.: 94 B/1	REVISIONS
Work by : N. Duncan	Work by :
Drawn by: T. Drews	Drawn by:
Date : Nov. 1982	Date :

Scale – 1:50,000

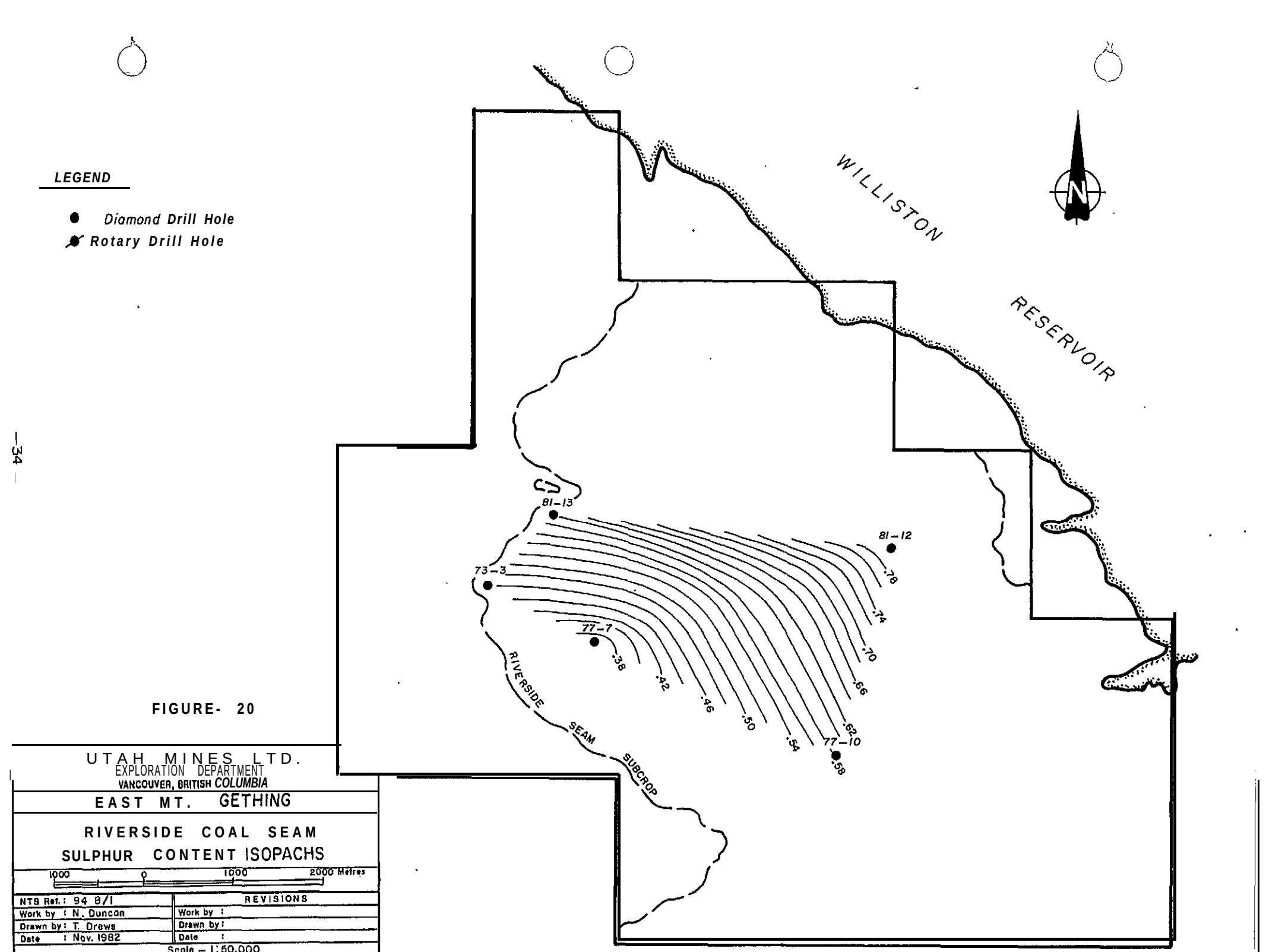


FIGURE- 20

UTAH MINES LTD.
EXPLORATION DEPARTMENT
VANCOUVER, BRITISH COLUMBIA

EAST MT. GETHING

RIVERSIDE COAL SEAM
SULPHUR CONTENT ISOPACHS

1000 0 1000 2000 Metres

NTS Ref.: 94 B/1	REVISIONS
Work by : N. Duncan	Work by :
Drawn by : T. Drews	Drawn by :
Date : Nov. 1982	Date :

Scale – 1:50,000

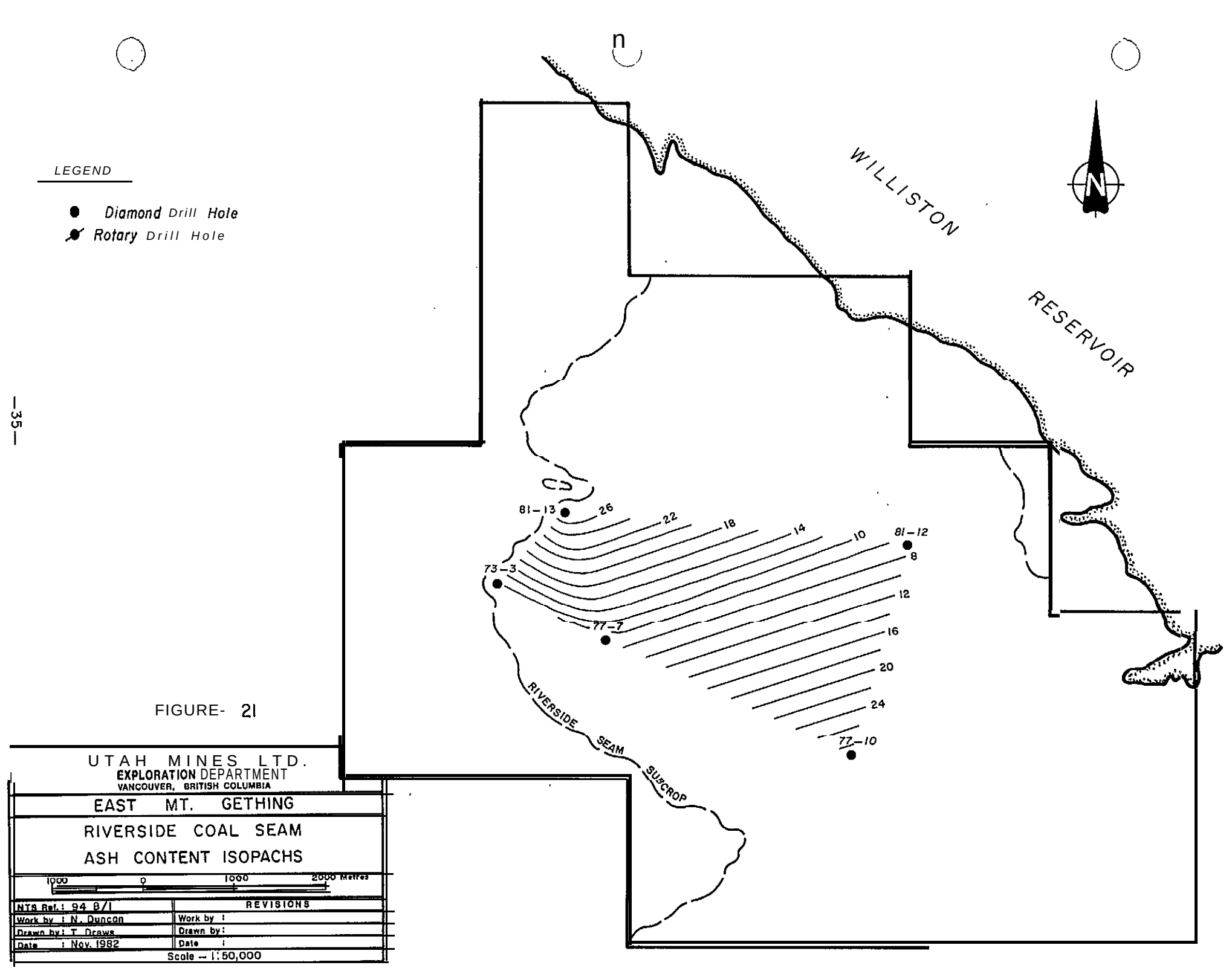


FIGURE- 21

UTAH MINES LTD.
EXPLORATION DEPARTMENT
VANCOUVER, BRITISH COLUMBIA

EAST MT. GETHING
RIVERSIDE COAL SEAM
ASH CONTENT ISOPACHS

1000 0 1000 2000 Metres

NTS Ref.: 94 B/1	REVISIONS
Work by : N. Duncan	Work by :
Drawn by: T. Drawe	Drawn by:
Date : Nov. 1982	Date :

Scale — 1:50,000

between these two holes. The trends observed in ash content distribution are suggestive of a coal swamp. with crevass -splaying on the northwest and southeast boundaries; The ash contents of the seam indicate that washing would be needed for the seam. While ash content is low for the samples.. from drill. holes 77-7, 73-3 and 81-12, there are a number of splits, in the seam which were not included in the samples. These splits would be included with the coal if it were mined and would greatly increase the ash content.

An examination of the data available for the Riverside seam indicates that :

1.) A mined product would not likely be saleable as a metallurgical coal except as a blend with other, higher grade metallurgical coals.

2.) The seam has potential as a thermal grade coal owing to its high calorific values and low sulphur content, but high ash contents and numerous splits would introduce, a high dilution factor upon mining and would necessitate washing the coal.

3.) The seam is thickest and of highest quality in the vicinity of drill hole 73-3.

4.) The potentially strip mineable resetdes are low for this seam due to deep overburden and thick rock strata above the seam, making underground mining the only feasible method for large. scale extraction of the seam.

CONCLUSIONS AND RECOMMENDATIONS

Utah Mines Ltd. acquired the Past Mount Gething Property on. April 23, 1971. Since that time,. the property has undergone a significant exploration in the belief that it has the potential *to* become a metallurgical and/or thermal coal producer.' Exploration 'to date has consisted of diamond drilling, rotary drilling and geological mapping.

Previous exploration programs, undertaken in the years 1972, 1973, 1975, 1977 and 1981; provided a good data base for the 1982 program. The 1982 program. was designed to provide further information on the continuity and thickness of Riverside, Louise and Milligan *coal* seams and to refine the existing model-of the 'property geology. Poor performance by the rotary drill prevented the intersection of the Riverside seam in drill holes 81-7, 81-8 (lost in overburden) and 81-10.

As a result of mapping and drilling activities undertaken during the 1982 exploration program, several conclusions can be made:

1.) The 'anticlinal structure first observed in 1981 in the eastern portion of the property (Licences 3506, 3507, 3510,. 3511 and. 3515) has been more accurately delineated (see geology map in map pocket).

2.) The structure and thicknesses of the Riverside,. Louise and Milligan coal seams have been more accurately defined, with more reliable correlation between drill holes as a result of closer spaded drilling.

3.) The northernmost coal licence (C.L. #3522) is lower in the section than previously believed, precluding the presence' of economically viable coal seams.

4.j Coal licences 3523 and 3524 are underlain by sediments lower in the stratigraphic column than the Riverside seam and have little 'potential for other economically viable seams.

5.). The' Riverside. seam is the most economically interesting seam on the property, with the greatest thickness (average 1.78 metres net thickness) and extent, covering approximately 3,700 hectares.

6.) Rotary drilling for deep seams (greater than 150 metres depth) is not efficient. Abundant groundwater (artesian in places) and hole stability problems make diamond drilling preferable at greater depths. Also, locations With thick overburden require either a diamond drill or an air hammer rotary drill with a-casing driver.

It is recommended that eight coal licences be dropped from the property. These licences; 3506, 3507, 3510, 3511, 3515, 3522, 3523 and 3524; are underlain. by sediments which are either too disturbed structurally or contain thin, discontinuous seams. Therefore, the potential for mineable coal reserves on these eight licences is minimal. Future drilling activities. should be directed toward intersecting the Riverside coal seam, which has the greatest economic potential. It is: recommended that four further diamond drill holes be completed. on the property to intersect the -Riverside seam. These holes should be drilled in the following areas:

1.) one hole to the northwest of DDH 75-5
2.) one hole. to the southwest of RDH 82-10
3.) one hole in the vicinity of DDH. 72-2
4.) one-hole to the west of DDH 81-13

Drill holes iii these. locations should penetrate the Riverside seam and provide data sufficient to determine the economic viability of the seam and; therefore, of the property as a whole.

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APPENDIX I

ANALYTICAL DATA FOR 1972, 1973, 1975, 1977 AND 1981 DIAMOND DRILL HOLES

P/C

CARBON CREEK - EAST MT. GETHING

HEAD ANALYSES.

Hole: EMC 72-1
Location: 3450 FL. WL x 850 NL of Section
Elevation: 3450 Ft. (est.)
Licence No. CL'1665

Sample No.	Footage	No. Of Feet	Lab. Assay FSI	Natural Basis — Navajo Mine Assay % H20	% Ash	% S	% VM	% FC	Btu	Dry Basis — Navajo Mine Assay % Ash	% S	% VM	% FC	Btu
1	49.2-51.1 *	G.M. 1.9	1 1/2	1.60.	16.79	.99	22.12	59.49	12167	17.08	1.01	22.50	60.52	12377
2	124.1-126.1	? 2.0	2 1/2	1.88	14.47	.98	23.00	60.65	12656	14.75	1.00	23.44	61.81	12848
3	168.6-170.3	? 1.7	2 1/2	1.78	12.72	1.03	26.12	58.39	12522	13.96	1.05	26.59	59.45	12749
4	175.3-181.0	L. 5.7	2	1.69	25.74	.75	22.81	49.76	10634	26.18	.76	23.20	50.62	10817
5	191.4-192.4	? 1.0	2	1.21	26.27	.75	22.98	49.54	10935	26.59	.76	23.26	50.15	11069
6	203.8-204.8	F.P. 1.0	2	7.12	1.57	.80	21.81	74.50	14570	1.60	.82	22.23	76.11	14886
7	285.3-286.6	? 1.3	2	1.66	7.36	1.03	25.54	65.44	13799	7.48	1.05	25.97	66.54	14032
8	303.0-304.0	? 1.0	8 1/2	1.55	13.54	1.14	77.02	57.89	12667	13.75	1.16	27.45	58.80	12866

CARBON CREEK - EAST MT. GETHING

HEAD ANALYSES

Hole: EMG 72-2
Location: 1250 Ft. ELX 1200 Ft. SL of Section
Elevation: 3450 Ft.
Licence No. CL 1671

Sample NO.	Metres Footage	*	No. Of Feet	Lab.. Assay FSI	Nat&l Basis — Navajo Mine Assay % H_2O	% Ash	% S	% VM	% FC	Btu	Dry Basis — Navajo Mine Assay % Ash	% S	% VM	% FC	Btu
1	29.8-30.2 97.7- 99.0	?	1.3	6 1/2	1.81	211.67	2.89	6 3	60.89	13036	11.89.	2.94	20.10	62.01	1327(
2	37.3- 37.6 122.5-123.5	?	1.0	4 1/2	1.85	lb.77	.91	25.41	61.97	13217	10.97	.93	25.89	63.14	1340(
3	227.4-229.8	L.M.	2.4	2	3.15	13.37	1.12	26.40	58.08	12328	13.66	1.14	26.98	59.36	1259'
4	378.4-382.2	G.M.	3.8	2	1.93	11.96	.80	20.19	65.92	12930	12.20	.82	20.59	67.22	1318(
5	503.3-508.5	L.	5.2	2	1.67	29.43	.54	21.36	47.54	9997	29.93	.55	21.72	48.35	1016'
6	513.5-514.5	?	'1.0	3	1.33	'15.98	1.22	31.52	'51.12	11458	16.20	1.24	31.96	51.84	1161(
7	537.0-538.0	F.P.	1.0	2	'1.93	5.40	.94	22.05	70.62	14083	5.51	.96	22.48	72.01	1436(
8	632.4-633.5	?	1.1	4	1.48	17.62	1.02	23.21	57.69	'121.42	li.88	1.04	23.56	58.56	1232(
9	676.1-677.9	?	1.8	9	1.21	11.56	2.37'	26.33'	60.90	13237	11.70	2.40	26.65	61.65	1346(

EAST MOUNT GETHING

HEAD ANALYSIS

ROLE: EMG 73-3
LOCATION: 300 FWL X 2,650 FSL of C.L. 1670
ELEVATION: 4,040 feet
LICENCE NO.: C.L. 1670

					Natural Basis						Dry Basis				
					Navajo Mine Assay						Navajo Mine Assay				
Sample No.	Footage	No.	Lab, of Feet	Assay FSI	%H2O	% Ash	%S	%VM	%FC	Btu	% Ash	%S	%VM	%FC	Btu
1	20.0-20.4 65.6-66.8	?	1.2	2	1.68	5.38	0.79	22.26	70.68	14035	5.47	0.80	22.64	71.89	14275
2	119.9-121.5	?	1.6	2	1.48	9.42	0.48	20.80	68.30	13504	9.56	0.49	21.11	69.33	13707
3	122.6-129.0*	G	6.4	2	1.46	9.63	0.46	21.55	67.36	13710	9.77	0.47	21.87	68.36	13913
4	195.6-198.1	R	2.5	2	1.31	9.05	0.65	22.59	67.35	13608	9.17	0.66	22.89	67.49 94	13789
5	288.0-290.0	?	2.0	2	1.25	16.23	0.66	19.36	63.16	12541	16.44	0.67	19.61	63.95	12700
6	438.7-440.1	?	1.4	3	1.25	5.24	0.70	22.21	71.30	14278	5.31	0.71	22.49	72.20	14459
7	500.9L563.i	?	2.3	4	1.24	10.18	0.68	21.04	67.54	13415	10.31	0.69	21.30	68.39	13583
8	515.5-517.6	?	2.1	2½	1.42	4.38	0.67	21.43	72.77	14475	4.44	0.68	21.74	73.82	14681
9	609.5-612.0	?	2.5	2	1.37	14.23	0.66	18.87	65.53	13046	14.43	0.67	19.13	66.44	13227
10	X7.9-619.9	?	2.0	2½	1.38	6.48	0.71	20.36	71.78	14116	6.57	0.72	20.64	72.79	14314
11	664.4-666,0	?	1.6	3	1.31	7.16	0.69	18.76	72.77	13968	7.26	0.70	19.01	73.73	14153
12	703.1-706.0	M	2.9	2	1.41	17.79	0.63	18.07	62.73	12280	18.04	0.64	18.33	63.63	12456

EAST MOUNT GE' 'NG COAL

Head Analysis

Hole 75-4

Sample No.	Depth	No. Of Feet	Grams Received	Air Dry Basis						Moisture Free Basis				
				% H_2O	% Ash	% S	% VM	% FC	Btu	FSI	% Ash	% S	% VM	% FC	Btu
1	164.1'-166.0'	1.9	1278	0.96	21.87	0.63	20.56	56.61	11777.	4 1/2	'22.08	0.64	20.76	57.16	11891
2	214.0'-216.7'	2.7	388	0.92	8.50	0.77	27.02	63.56	13893	8 1/2	8.58	0.78	27.27	64.15	14022
3	231.5'-232.7'	1.2	1165	1.26	6.99	0.81	23.66	68.09	14019	5 1/2	7.08	0.82	23.96	'68.96	14198
					Hole 75-6										
1	55.8'- 60.9'	5.1	3779	1.85	5.77'	0.76	25.06	67.32	13902	1 1/2	5.88	0.77	25.53	68.59	14164
2	101.2'-103.3'	2.1	737'	1.70	4.07	b.83	24.70	69.53	14442	1 1/2	4.14	0.84	25.13	70.73	14692
3	222.6'-224.8'	2.2	1972	1.83	11.81	0.98	27.39.	58.97.	13024	1	12.03	1.00	27.90	60.07	13267'
4	268.7'-271.0'	2.3	957	1.07	6.65	1.05	29.17	63.11	13944	1	6.72	1.06	29.49	'63.79	1.4095
5	365.5'-368.6'	3.1	2376	1.89	5.27	0.76	20.54	72.30	14021	1 1/2	5.37	0.77	20.94	73.69	14291
6	473.9'-477.0'	3.1	2731	1.12,	25.27	0.58	31.13	42.48	10044	1 1/2	25.56	0.59	31.48	42.96	10158
7	488.0'-489.3'	1.3	-1035	1.51	3.90	0.81	20.28	74.31	14404	1	3.96	0.82.	20.59	75.45	14625
8	510.8'-512.1'	1.3	860	1.34	1.85	0.86	20.67	76.14	14650	I'	1.88	0.87	20.95	77.17	14849
					Hole 75-5										
1	189.5'-192.6'	3.1	2031	2.15	3.69	0.91	24.23	69.93	14093	1	3.77	0.93	24.76	'71.47	14403
2	308.0'-310.6'	2.6	2645	1.59	13.82	0.91	22.93	61.66	12630	1 1/2	14.04	0.92	23.30	62.66	12834
3	336.6'-338.6'	2.0	229'7'	'2.08	5.91	0.79	23.11	68.90	12433	1 1/2	6.04	0.81	23.60	70.36	12697
4	461.9'-466.6'	4.7	4545	1.75	13.65,	0.62	23.60	61.00	12683	1 1/2	13.89	0.63	24.02	62.09	12909
5	902.7'-905.0'	2.3	2019	1.21	'7.37	0.85	26.76	64.66	13996	3	7.46	0.86	27 no	65.45	14167

COAL - EAST MT. GETHING

Hole 77-7

Head Analysis

ample No.	Depth	No. Of Feet	Air Dry Basis							Moisture Free Basis				
			% H_2O	% Ash	% S	% VM	% FC	Btu	FSI	% Ash	% S	% VM	% FC	Btu
1	226.0-228.5	2.5	1.47.	'9.73	0.93	'20.81	67.99	13350.	1	9.88	0.94	21.12	69.00	13549
2	544.6-546.4	'1.8	1.07	8.53	0.72	20.63	69.77	13672	1	8.62	0.73	20.85	70.53	13820
3	636.8-640.5	3.7	1.27	16.27	0.53	19.33	63.13	12457	1 1/2	16.48	0.54	19.58	63.94	12617
4	682.1-685.5	3.4	1.49	5.75	'0.38	21.32	71.44	14112	1 1/2	5.84	0.39	21.64	72.52	14325
5	689.0-690.2	1.2	1.52	8.49	0.41	20.53	69.46	13625	1	8.62	0.42	20.85	70.53	13835
6	690.2-692.0	1.8	1.50	9.43'	0.29	18.27	70.80	13446	1/2	9.57	0.29	18.55	71.88	i3651
7	692.0-693.7	1.7	1.72	4.54	0.38	2.0.26	73.48	14227	1/2	4.62	0.39	20.61	74.77	14476
8	941.1-942.0	0.9	1.16	9.64	0.50	18.31	i0.89	13570	1	9.75	0.51	18.53	71.72	13729
9	973.2-974.6	1.4	1.29	7.26	0.96	21.93	69.52	13960	7	7.35	0.97	22.22	70.43	14142

COAL - EAST MT. GETHING

Hole 7 7 - a

Head Analysis

Sample -No.	Depth	No. Of Feet	Air Dry Basis. % H_2O	% Ash	% S	% VM	% FC	Btu	FSI	Moisture Free Basis % Ash'	% S	% VM	% FC	Btu
1	174.1-176.1	2.0	1.66	14.77	0.50	17.36.	66.21	12546	0	15.02	0.51	17.65	67.33	12758
2	248.4-250.4	2.0	1.15	9.29	0.56	22.25	67.31	13498	3	9.40	0.57	22.51	68.09	13655
3	254.0-256.6	2.0	1.23	7.58	0.47	19.51	71.68	13869	1	7.68	0.48	19.75'	72.57	14042
4	335.9-337.4	1.5	1.28	13.00	0.57	19.84	65.88	12985	1	13.17	0.58	20.10	66.73	13153
4A	491.0-493.0	2.0	-1.08	10.26	0.54	20.25	68.41	13648	6	10.37	0.55	20.47	69.16'	13797
5	506.8-507.9	1.1	1.23	1.40	0.62	19.98	77.39	14863	1	1.42	0.63	20.23	78.35	15048
6	510.1-512.0	1.9	1.18	5.96'	0.54	19.48	73.38	14127	1	6.03	0.55	19.71	74.26	14296
7	518.6-520.8	2.2	1.06	9.80	0.53	19.34	69.80	13548	1	9.90	0.54	19.55	70.55	13693
a	581.9-583.9	2.0,	1.05	4.41	0.55	19.28	75.26	14418	3	-4.46.	0.56	19.48	'76.06'	14571
9	748.4-749.4	1.0	0.84	9.15	0.56	18.49	71.52	13765	1'	9.23	0.56	18.65	72.12	13882
10	766.0-768.0	2.0	0.94	14.15	0.51	17.37	67.54	12893.	1	14.28	0.51	17.54	68.18	13015
11	842.4-843.4	1.0	0.90	2.75	0.52	19.28	77.07	14809	1	2.77	0.52	19.46	77.77	14943

COAL - EAST MT. GETHING

Hole 77-9

Head Analysis

Sample No.	Depth	No. Of Feet	Air Dry Basis							Moisture Free Basis				
			% H_2O	% Ash	% S	% VM	% FC	Btu	FSI	% Ash	% S	% VM	% FC	Btu
1	266.3-267.1	1.0	1.25	10.13	0.99	20.55	68.0~7	13372	1	10.26	1.00	20.81	68.93	13541
2	320.1-321.9	1.8	0.96	'44.00	0.52	15.43	39.61	8244'.	1	44.43	0.53	15.58	39.99	8324
3	463.3-465.4	2.1	1.22	12.49	'0.62	18.20	68.09	13011	1	12.64	0.63	18.43	68.93	13172

COAL - EAST MT. GETHING

Hole 77-10

Head Analysis

Sample No.	Depth Of	No.	Air Dry Basis							Moisture Free Basis				
			% H_2O	% Ash	% S	% VM	% FC	Btu	FSI	% Ash	% S	% VM	% FC	Btu
1	387.2-388.7	1.5	1.49	1.5-l	0.99	22.53	14.41	14701	1	1.59	1.00	22.87	75.54	1492:
2	436.0-	2.5	1.60	2.45	0.68	21.76	74.19	145i.0	1	2.49	0.69	22.11	75.40	1474(
3	437.9-	2.9.	1.19	5.31	0.73	26.59	66.91	14140	4	5.37	0.74	26.91	67.72	14311
4	450.5-452.0	1.5'	1.24	9.79	0.67	23.35	65.62	13186	1	9.91	0.68	23.64	66.45	13352
5	475.8-177.0	1.2	1.27	4.29	1.08	21.01	73.43	14316	1	4.35	1.09	ii.28	74.37	14500
6	573.8-575.2	i.4	0.98	6.53	1.03	23.90	68.59	13984	4 1/2	6.59	1.04	24.14'	69.27	14122
7	619.3-	2.8	1.00	29.84	3.19	2.0.64	48.52	10163	5	30.14	3.22	20.85	49.01	10266
8	621.9-	3.2	1.11	28.04	2.19	21.26	49.59	10536	7 1/2	28.35	'2.21	21.50	50.15	10654
9'	643.6-645.6	2.0	1.12	4.44.	1.18	23.84	70.60	14201'	4	4.49.	1.19	24.11	71.40	14362
10	937.5-	3.6-	1.12	5.74'	d.64	18.26	74.88	14231	1	5.81	0.65	18.46	75.73	14392
11	938.9-	3.8	1.01	12.55	0.62	19.51		13182	1	12.68	0.63	19.71	67.61	13316
12	1108.3-1110.3	2.0	0.85	29.28	0.5%	17.11	52.76	10583	1	29.53	0.58	17.26	53.21	10674
13	1179.9-1182.1	2.2	0.97	6.82	0.64	19.67	72.54	14116	1	6.89	0.65	19.86	73.25	142'54
14'	1312.9-1315.9	3.0	0.89	5.78	0.67	19.53	73.80	14329	1	5.83	0.68	19.71	74.46	14458

EAST MOUNT GETHING COAL
DRILL HOLE 81-11
HEAD ANALYSIS

	AIR DRY BASIS							MOISTURE FREE BASIS				
PRODUCT	% H2O	% ASH	% S	% VM	% FC	BTU	FSI	% ASH	% S	% VM	% FC	BTU
SAMPLE #1	2.17	3.65	0.99	21.16	73.02	14303	1½	3.73	1.01	21.63	74.64	14620
SAMPLE #2	1.79	29.50	1.09	22.66	46.05	10174	6½	30.04	1.11	23.07	46.89	10359
SAMPLE #3	1.39	13.17	0.91	25.73	59.71	12801	6½	13.36	0.92	26.09	60.55	12981
SAMPLE #4	1.62	15.97	0.82	27.02,	55.39	11925	2½	16.23	0.83	27.46	56.31,	12121
SAMPLE #5	1.70	-7.86	0.90	19.08	71.36	13747	1½	8.00	0.92	19.41	72.59	13985
SAMPLE #6	1.13	28.75	1.04	23.10	47.02	10543	7	29.08	1.05	23.36	47.56	10663
SAMPLE #7	0.87	22.09	1.12	24.27	52.77	11742	7½	22.28	1.13	24.48.	53.24	11845
SAMPLE #8	0.78	62.51	1.02	13.58	23.13	5323	1	63.00	1.03	13.69	23.31	5365
SAMPLE #9	1.14	21.41	0.79	22.98	54.47	11426	5	21.66	0.80	23.24	55.10	11558
SAMPLE #10	0.90	10.39	1.83	27.97,	60.74	13663	8	10.48	1.85	28.22	61.30	13787
SAMPLE #11	1.07	57.23	1.28	15.16	26.54	5761	3	57.85	1.29	15.32	26.83	5823
SAMPLE #12	0.94	21.60	3.60	24.67	52.79	11392	49	21.80	3.63	24.90	53.30	11500

EAST MOUNT GEITHING COAL
DRILL HOLE 81-12
HEAD ANALYSIS

	AIR DRY BASIS							MOISTURE FREE BASIS				
PRODUCT	% H2O	% ASH	% S	% VM	% FC	M U	F S I	% ASH	% S	% VM	% FC	BTU
SAMPLE #13	6.19	17.94	1.30	25.38	50.49	10553	0	19.12.	1.39	27.05	53.83	11249
SAMPLE #14	2.51	6.56	0.84	21.04	69.89	13738	1½	6.73	0.86	21.58'	71.69	14092
SAMPLE #15	'2.03	11.52	0.75	24.91	61.54	12762	1½	11.76.	0.77	25.43	62.81	13026
SAMPLE #16	1.80	16.51	0.67	19.24	62.45	12337	1½	16.81	0.68	19.59	63.60	12563
SAMPLE #17	1.88	lb.17	0.79	22.13	65.82	132'36	2	10.36	0.81	22.55	67.09	13490
SAMPLE #18	1.95	5.77	0.90	18.79	'73.49	14068	2	5.88	0.92	19.16	74.96	14348
SAMPLE #19	1.20	20.22	0.76	23.62'	54.96	11579	2½	20.47	'0.77	23.91	55.62	11720
SAMPLE #20	1.28	15.31	2.46	23.26	60.15	12658	7	15.51	2.49:	23.56	60.93	12822
SAMPLE #21	i.57	15.67	i.53	24.04	58.72	12679	8	15.92	1.55	24.42	59.66	12881
SAMPLE #22	1.50	7.87	1.52	23.14	67.49	13851	6½	7.99	1.54	23.49	68.52	14062
SAMPLE #23	1.28	11.51	0.92	24.91	62.30	12802	3½	11.66	0.93	25.2.3	63.11	'12.968
SAMPLE #24	1.23	6.67	0.83	19.88	72.22	14139	2½	6.75	0.84	20.13	73.12	14315,

EAST MOUNT GEIHING COAL
DRILL HOLE 81-12
HEAD ANALYSIS

	AIR DRY BASIS							MOISTURE FREE BASIS				
PRODUCT	% H2O	%A&	% S	%vM	% FC	BTU	FSI	% ASH	% S	% VM	% FC	BTU
SAMPLE #25	1.20	12.06	1.03	25.39	61.35	13394	8'	12.21	1.04	25.70	62.09	13557
SAMPLE #26	1.09	7.79	0.71	18.62	72.50	14076	1½	7.88	0.72	18.83	73.29	14231
SAMPLE #27	1.06	12.87	0.76	19.a2	66.25	13150	3½	13.01	0.77	20.03	66.96	13291
SAMPLE #28	1.00	23.41	1.49	19.47	56.12	9986	3½	23.65	1.51	19.67	56.68	10087
SAMPLE #29	1.12	5.59	0.75	20.32	72.97	14329	1½	5.65	0.76	20.55	73.80	14491
SAMPLE #30	1.07	11.50	0.80	20.12	67.31	13436	3½	11.62	0.81.	20.34	68.04	11581
SAMPLE #31	1.14	4.17	0.69	la.95	75.74	14553	1½	4.22	0.70	19.17	76.61	14721
SAMPLE #32	1.05	8.63	0.88	23.76	66.56.	15'973	8	a.72	0.89	24.01	67.27	14121
SAMPLE #33	1.00	6.64	0.72	20.22	72.14	14249	1	6.71	0.73	20.42	72.87	14393

EAST MOUNT GEIHING COAL
DRILL HOLE 81-13
HEAD ANALYSIS

	AIR DRY BASIS							MOISTURE FREE BASIS				
PRODUCT	% H2O	% ASH	% S	% VM	% FC	BTU	FSI	% ASH	% S	% VM	% FC	BTU
SAMPLE #34	1.70	17.88	0.54	17.66	62.76	12041	1	18.19	0.55	17.97	63.84	12249
SAMPLE #36	2.38	24.79	0.60	18.22	54.61	10861	1½	25.39	0.61	18.66	55.95	11126
SAMPLE #37	1.73	9.36	0.60	21.92	66.99	13603	4	9.52	0.61	22.31	68.17	13842
SAMPLE #38	1.37	10.35	0.73	20.86	67.42	13341	2	10.49	0.74	21.15	68.36	13526
SAMPLE #39	1.67	6.24	0.90	21.55	70.54	14168	2½	6.35	0.92	21.92	71.73	14409
SAMPLE #40	1.19	21.44	0.78	22.14	55.23	11384	6½	21.70	0.79	22.41	55.89	11521
SAMPLE #41	1.55	4.73	0.78	20.15	73.57	14355	2½	4.80	0.79	20.47	74.73	14581
SAMPLE #42	1.33	29.18	0.54	15.02	54.47	10480	0	29.57	0.55	15.22	55.21	10621
SAMPLE #44	1.07	13.12	0.67	19.64	66.17	13063	2½	13.26	0.68	19.85	66.89	13204
SAMPLE #45	1.26	13.11	0.94	21.98	63.65	13044	6½	13.28	0.95	22.26	64.46	13210
SAMPLE #46	1.00	20.30	0.60	16.72	61.98	1.1997	1	20.51	0.61	16.89	62.60	12118
SAMPLE #47	1.94	7.47	0.83	21.52	69.07	13916	5	7.62	0.85	21.95	70.43	14191
SAMPLE #48	1.45	6.44	0.79	21.05	71.06	14063	4	6.53	0.80	21.36	72.11	14270

SUNNYVALE MINERALS LABORATORY

EAST MOUNT GETHING COAL

HEAD ANALYSIS

HOLE EMG-CC-81-11

SULFUR FORMS

	AIR DRY BASIS				MOISTURE FREE BASIS			
PRODUCT	SULFATE SULFUR AS % S	PYRITIC SULFUR	ORGANIC SULFUR	TOTAL	SULFATE SULFUR AS % S	PYRITIC SULFUR	ORGANIC SULFUR	TOTAL
SAMPLE #10	<0.01	1.58	0.25	1.83	<0.01	1.59	0.26	1.85

HOLE EMG-CC-81-13

SULFUR FORMS

	AIR DRY BASIS				MOISTURE FREE BASIS			
PRODUCT	SULFATE SULFUR AS % S	PYRITIC SULFUR	ORGANIC SULFUR	TOTAL	SULFATE SULFUR AS % S	PYRITIC SULFUR	ORGANIC SULFUR	TOTAL
SAMPLE #34	<0.01	0.03	0.51	0.54	<0.01	0.03	0.52	0.55
SAMPLE #36	0.02	0.15	0.43	0.60	0.02	0.15	0.44	0.61
SAMPLE #38	~0.01	0.01	0.72	0.73	<0.01	0.01	0.73	0.74

SUNNYVALE MINERALS LABORATORY

EAST MOUNT GETHING COAL

HOLE FMG-CC-11

SAMPLE-#10

HEAD ANALYSIS

MINERAL ANALYSIS OF ASH PERCENT WEIGHT IGNITED FASTS

Silica, SiO2	43.40
Alumina, Al2O3	26.20
Titania, TiO2	0.89
Ferric oxide, Fe2O3	7.68
Lime, CaO	7.3'
Magnesia, MgO	0.83
Potassium oxide, K2O	1.49
Sodium oxide, Na2O	1.89
Sulfur trioxide, SO3	2.74
Phos. pentoxide, P2O5	7.09
Undetermined	5.48
Total	100.00

ALKALIES AS Na2O, DRY COAL BASIS = 0.30

SILICA VALUE = 80.04

BASE: ACID RATIO = 0.70

FOULING INDEX = 0.38

SLAGGING INDEX = 0.37

SUNNYVALE MINERALS LABORATORY

EAST MOUNT GETHING COAL

HOLE EMG-CC-81-11

SAMPLE-#10

HEAD ANALYSIS

ULTIMATE ANALYSIS

	AIR DRY BASIS	MOISTURE FREE BASIS
% MOISTURE	0.90	--
% CARBON	75.12	75.80
% HYDROGEN	4.78	4.82
% NITROGEN	1.35	1.36
% CHLORINE	0.13	0.13
% SULFUR	1.83	1.85
% ASH	10.39	10.48
% OXYGEN (DIFF.)	5.50	5.56
TOTAL	100.00	100.00

FUSION TEMP. OF ASS

	Oxidizing	Reducing
Initial Deformation	2175	2130
Softening (H=W)	2650	2380
Softening (H=1/2 W)	2665	2460
Fluid	>2770	2705

% EQUILIBRIUM MOISTURE = 1.14

HARDGROVE GRINDABILITY INDEX = 74

SUNNYVALE MINERALS LABORATORY

EAST MOUNT GETHING COAL

HOLE EMC-CC-13

SAMPLE-#34

HEAD ANALYSIS

MINERAL ANALYSIS OF ASH	PERCENT WEIGHT IGNITED BASIS
Silica, SiO2	68.30
Alumina, Al2O3	23.70
Titania, TiO2	1.09
Ferric oxide, Fe2O3	0.67
Lime, CaO	0.49
Magnesia, MgO	0.39
Potassium oxide, K2O	1.72
Sodium oxide, Na2O	0.48
Sulfur trioxide, SO3	0.30
Phos. pentoxide, P2O5	1.77
Undetermined	1.09
Total	100.00

ALKALIES AS Na2O, DRY COAL BASIS = 0.20

SILICA VALUE = 97.78

BASE: ACID RATIO = 0.04

FOULING INDEX = 0.02

SLAGGING INDEX = 0.02

SUNNYVALE MINERALS LABORATORY

EAST MOUNT GETHING COAL

POLE EMC-CC-81-13

SAMPLE-#34

HEAD ANALYSIS

ULTIMATE ANALYSIS

	AIR DRY BASIS	MOISTURE FREE BASIS
% MOISTURE	1.70	--
% CARBON	70.86	72.09
% HYDROGEN	3.77	3.84
% NITROGEN	0.96	0.98
% CHLORINE	0.04	0.04
% SULFUR	0.54	0.55
% ASH	17.88	18.19
% OXYGEN (DIFF.)	4.25	4.31
TOTAL	100.00	100.00

FUSION TEMP. OF ASH

	Oxidizing	Reducing
Initial deformation	2710	2690
Softening (H=W)	>2770	>2770
Softening (H=1/2 W)	>2770	>2770
Fluid	>2770	>2770

% EQUILIBRIUM MOISTURE = 2.12

HARDGROVE GRINDABILITY INDEX = 61

SUNNYVALE MINERALS LABORATORY

EAST MOUNT GETHING COAL

HOLE EMG-CC-13

SAMPLE-#36

HEAD ANALYSIS

MINERAL ANALYSIS OF ASH PERCENT WEIGHT IGNITED BASIS

Silica, SiO2.	64.20
Alumina,Al2O3	21.00
Titania,TiO2	0.82
Ferric oxide,Fe2O3	5.07
Lime,CaO	0.93
Magnesia,MgO	1.23
Potassium oxide,K2O	2.90
Sodium oxide,Na2O	0.44
Sulfur trioxide,SO3	0.07
Phos. pentoxide,P2O5	1.65
Undetermined	0.79
Total	100.00

ALKALIES AS Na2O,DRY COAL BASIS = 0.60

SILICA VALUE = 89.88

BASE: ACID RATIO = 0.12

FOULING INDEX = 0.05

SLAGGING INDEX = 0.07

SUNNYVALE MINERALS LABORATORY

EAST MOUNT GEITHING COAL

HOLE EMG-CC-13

SAMPLE-#36

HEAD ANALYSIS

ULTIMATE ANALYSIS

	AIR DRY BASIS	MOISTURE FREE BASIS
% MOISTURE	2.38	
% CARBON	63.65	65.20
% HYDROGEN	3.67	3.76
% NITROGEN	0.87	0.89
% CHLORINE	0.07	0.07
% SULFUR	0.60	0.61
% ASH	24.79	25.39
% OXYGEN (DIFF.)	3.97	4.08
TOTAL	100.00	100.00

FUSION TEMP. OF ASH

	Oxidizing	Reducing
Initial deformation	2550	2530
Softening (H=W)	>2770	>2770
Softening (H=1/2 W)	>2770	>2770
Fluid	>2770	>2770

% EQUILIBRIUM MOISTURE = 2.72

HARDGROVE GRINDABILITY INDEX = 66

SUNNYVALE MINERALS LABORATORY

EAST MOUNT GETHING COAL

HOLE EKG-CC-13

SAMPLE-#38

HEAD ANALYSIS

MINERAL ANALYSIS OF ASH PERCENT WEIGHT IGNITED BASIS

Silica, Si02	63.70'
Alumina,Al2O3	29.40
Titania,TiO2	1.30
Ferric oxide,Fe2O3	0.60
Lime,CaO	0.58
Magnesia,MgO	0.14
Potassium oxide,K2O	0.59
Sodium oxide,Na2O	0.29
Sulfur trioxide,SO3	0.53
Phos. pentoxide,P2O5	2.54
Undetermined	0.33
Total	100.00

ALKALIES AS Na2O,DRY COAL BASIS = 0.07

SILICA VALUE = 97.97.

BASE: ACID RATIO = 0.02

FOULING INDEX = 0.01

SLAGGING INDEX = 0.02

SUNNYVALE MINERALS LABORATORY

EAST MOUNT GETHING COAL

HOLE EMG-CC-13

SAMPLE-#38

HEAD ANALYSIS

ULTIMATE ANALYSIS

	AIR DRY BASIS	MOISTURE FREE BASIS
% MOISTURE	1.37	—
% CARBON	77.86	78.94
% HYDROGEN	4.46	4.52
% NITROGEN	0.99	1.00
% CHLORINE	0.10	0.10
% SULFUR	0.73	0.74
% ASH	10.35	10.49
% OXYGEN (DIFF.)	4.14	4.21
TOTAL	100.00	100.00

FUSION TEMP. OF ASH

	Oxidizing	Reducing
Initial deformation	> 2770	> 2770
Softening (H=W)	> 2700	> 2770
Softening (H=1/2 W)	> 2770	> 2770
Fluid	> 2770	> 2770

% EQUILIBRIUM MOISTURE = 1.98

HARDGROVE GRINDABILITY INDEX = 54

APPENDIX II

COST STATEMENT

Note: 'Represents a consolidation of the costs included in the Application to Extend- Term 'of Licence for the East Mount Gething Property.

ON PROPERTY COSTS

1.)	Operators Fees, Salaries arid Wages: (Professional and Technical)	$ 22,921.85
2.)	Contractors and Consultants:	
	Green Acres Drilling Ltd (Rotary Drilling).	$ 40,881.80
	Peace Dosing Ltd. (Road Construction)	$ 10;965.00
	Ken Sheen and Brian Penman (Road Construction)	$ 1,965.50
3.)	Downhole Probe Logging: (Using Comprobé Inc. Digitized Logging Unit)	$ 5,000.00
4.)	Accommodation, Food, etc.:	$ 2,917.65
5.)	Transportation Costs: (4-wheel drive vehicle rental for crew and equipment transport plus fuel costs).	$ 3,340.20
6.)	Equipment and Supplies:	$ 8,995.78
7.)	Reclamation Supplies: (Grass Seed Mixture)	$ *163.10*
	TOTAL ON PROPERTY COSTS	$ 97,150.88

OFF PROPERTY COSTS

1.)	Technical and' Feasibility Studies	$ 12,250.50
2.)	Supplies and Services	$ 4,495.12
	TOTAL OFF PROPERTY COSTS	$ 16,745.62
	TOTAL PROJECT COSTS	$113,896.50

APPENDIX III

STATEMENT OF QUALIFICATIONS

I, Donald Norman Duncan, of 107 Sapper- Street, New Westminster, British Columbia, do hereby certify that;

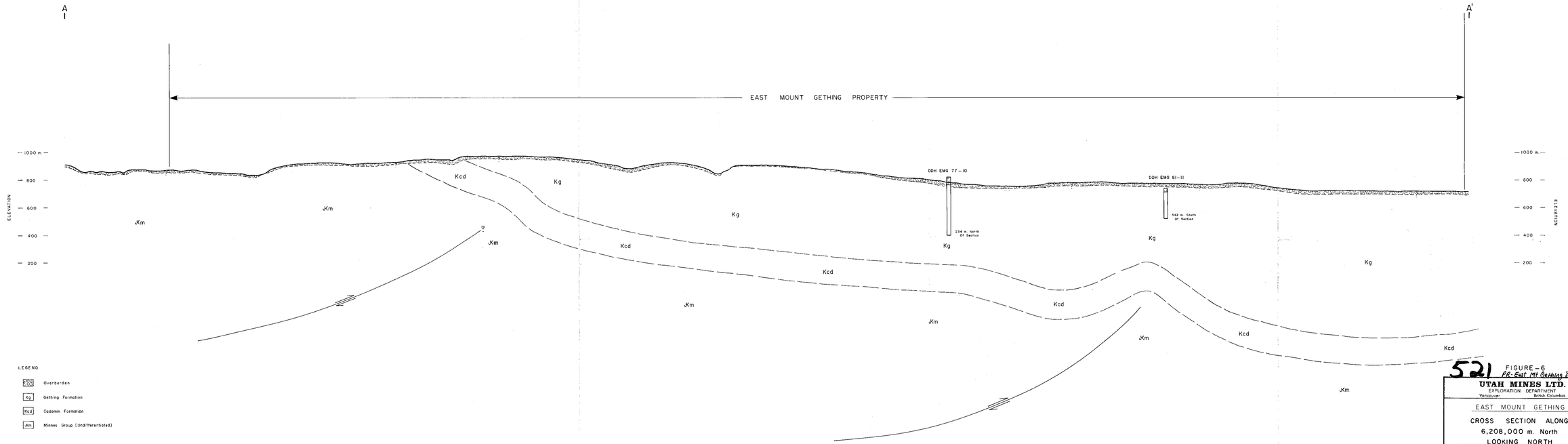
I am a graduate ,of the University of British Columbia, with a Bachelor of Science degree in Geology, 1977.

Since graduation I have-been engaged in Mineral and Coal exploration for Utah Mines Ltd. in Alaska, Alberta, British Columbia and the Yukon Territories.

I am a member of the Canadian Institute of, Mining and Metallurgy.

Vancouver, B.C.
December 7, 1982

D.N. Duncan
Geologist



521 FIGURE – 6
PR-East Mt Gething 23(3)A

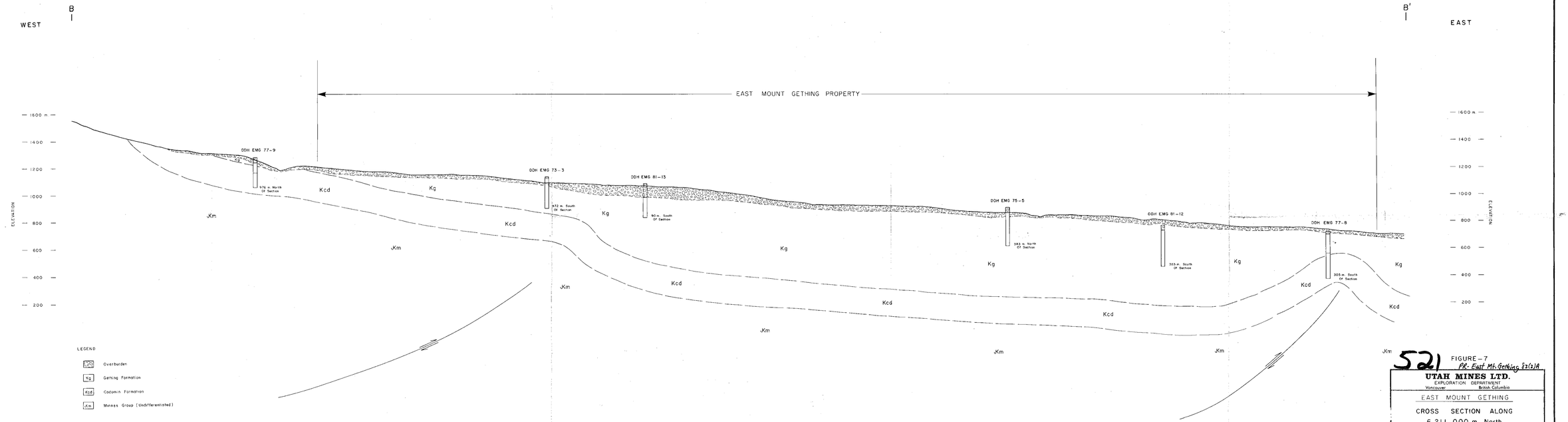
UTAH MINES LTD.
EXPLORATION DEPARTMENT
Vancouver British Columbia

EAST MOUNT GETHING
CROSS SECTION ALONG
6,208,000 m. North
LOOKING NORTH

Work by : N. Duncan	Date : Feb. 1982	NTS Ref. 94 B/1
Drawn by : T. Drews	Revised : Nov. 1982	Scale – 1:10,000

0 100 200 300 400 500 Metres
Imperial Scale Decimal Scale

No Vertical Exaggeration



521

FIGURE – 7
PR: East Mt. Gething 82(2)A

UTAH MINES LTD.
EXPLORATION DEPARTMENT
Vancouver British Columbia

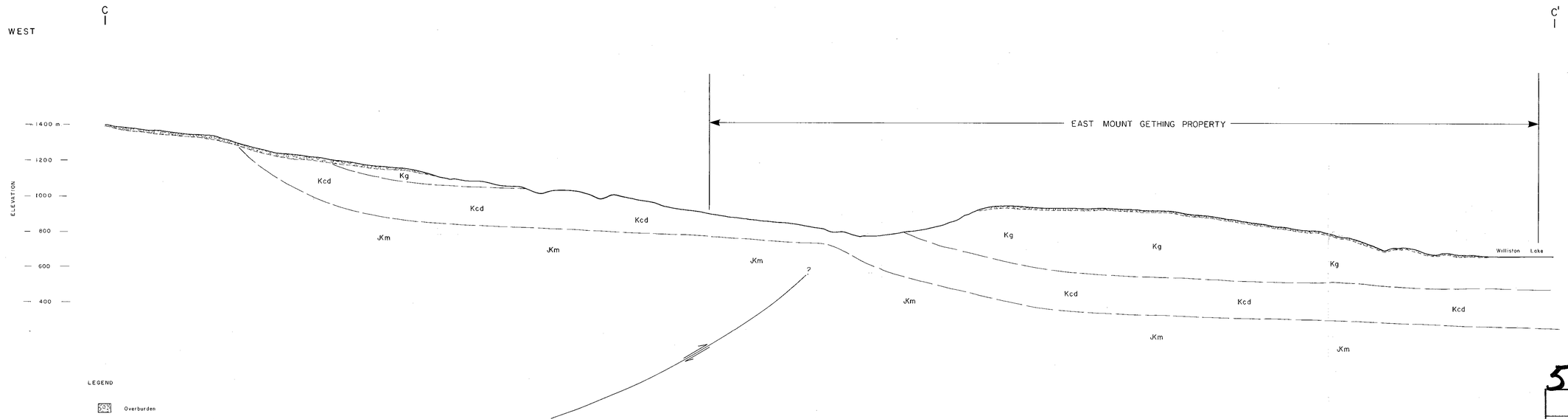
EAST MOUNT GETHING

CROSS SECTION ALONG
6,211,000 m. North
LOOKING NORTH

Work by : N. Duncan	Date : Feb. 1982	NTS Ref. 94 G/1
Drawn by : F. Straws.	Revised : Nov. 1987	Scale – 1:10,000

0 100 200 300 400 500 Metres

No Vertical Exaggeration



LEGEND

- Overburden
- Kg — Gething Formation
- Kcd — Cadomin Formation
- Jkm — Minnes Group (Undifferentiated)

521

FIGURE – 8

RE-EAST MT. GETHING 82(2)A

UTAH MINES LTD.
EXPLORATION DEPARTMENT
Vancouver British Columbia

EAST MOUNT GETHING

CROSS SECTION ALONG
6,213,000 m. North
LOOKING NORTH

Work by: N Duncan	Date Feb. 1982	NTS Ref. 94 B/1
Drawn by: T Drews	Revised: Nov. 1982	Scale – 1:10,000

0 100 200 300 400 500 Metres
Estimated Surveyed

No Vertical Exaggeration

535,500 E | 536,500 E | 537,500 E | 538,500 E | 539,500 E | 540,500 E | 541,500 E | 542,500 E | 543,500 E | 544,500 E | 545,500 E | 546,500 E

6,215,000 N | 6,214,000 N | 6,213,000 N | 6,212,000 N | 6,211,000 N | 6,210,000 N | 6,209,000 N | 6,208,000 N | 6,207,000 N | 6,206,000 N

EMG 75-4
EMG 77-9
EMG 72-1
EMG 75-5
EMG 81-13
EMG 81-12
EMG 77-8
EMG 82-8
MILLIGAN SEAM SUBCROP
EMG 73-3
EMG 82-7
EMG 72-2
EMG 77-7
EMG 75-6
EMG 82-9
EMG 82-10
EMG 77-10
EMG 81-6
EMG 81-5
EMG 81-11
EMG 81-4
EMG 81-3
EMG 81-2
EMG 81-1

LEGEND

— — APPROXIMATE SEAM SUBCROP

····· INFERRED SEAM SUBCROP

Note: Stratum Contours In Metres

521

FIGURE – 10

92-East Mt. Gething 82(2)A

UTAH MINES LTD.
EXPLORATION DEPARTMENT
Vancouver British Columbia

EAST MT. GETHING
MILLIGAN SEAM
Structure At Base Of Seam

Work by: N. Duncan	Date: Nov. 1982	NTS Ref. 94 B/1
Drawn by: T. Drews	Revised:	Scale – 1:10,000

SCALE

521

FIGURE – II

AR-East Mt. Gething 82(2)A

UTAH MINES LTD.
EXPLORATION DEPARTMENT
Vancouver British Columbia

EAST MT. GETHING

LOUISE SEAM
Structure At Base Of Seam

Work by: N Duncan	Date: Nov. 1982
NTS Ref. 94 B/1	Drawn by: T. Drews
Revised:	Scale — 1:10,000

200 0 100 200 300 400 500 600 Metres
SCALE

LEGEND

— — APPROXIMATE SEAM SUBCROP

.... INFERRED SEAM SUBCROP

Note: Stratum Contours In Metres

535,500 E | 536,500 E | 537,500 E | 538,500 E | 539,500 E | 540,500 E | 541,500 E | 542,500 E | 543,500 E | 544,500 E | 545,500 E | 546,500 E

6,215,000 N | 6,214,000 N | 6,213,000 N | 6,212,000 N | 6,211,000 N | 6,210,000 N | 6,209,000 N | 6,208,000 N | 6,207,000 N | 6,206,000 N

EMG 75-4 | EMG 77-9 | EMG 72-1 | EMG 75-5 | EMG 77-8 | EMG 81-13 | EMG 81-12 | EMG 82-8 | EMG 73-3 | EMG 82-7 | EMG 72-2 | EMG 77-7 | EMG 75-6 | EMG 82-9 | EMG 82-10 | EMG 77-10 | EMG 81-6 | EMG 81-5 | EMG 81-11 | EMG 81-4 | EMG 81-3 | EMG 81-2 | EMG 81-1

RIVERSIDE SEAM SUBCROP

LEGEND

— — APPROXIMATE SEAM SUBCROP

····· INFERRED SEAM SUBCROP

Note: Stratum Contours In Metres

521

FIGURE – 12

AR-East Mt Gething 87-(2)-A

UTAH MINES LTD.
EXPLORATION DEPARTMENT
Vancouver British Columbia

EAST MT. GETHING

RIVERSIDE SEAM
Structure At Base Of Seam

Work by : N. Duncan	Date : Nov. 1982	NTS Ref. 94 B/1
Drawn by : T. Drews	Revised :	Scale – 1:10,000

SCALE 200 0 100 200 300 400 500 600 Metres

535,500 E | 536,500 E | 537,500 E | 538,500 E | 539,500 E | 540,500 E | 541,500 E | 542,500 E | 543,500 E | 544,500 E | 545,500 E | 546,500 E

6,215,000 N | 6,214,000 N | 6,213,000 N | 6,212,000 N | 6,211,000 N | 6,210,000 N | 6,209,000 N | 6,208,000 N | 6,207,000 N | 6,206,000 N

EMG 75-4

EMG 77-9

EMG 72-1
2.70

EMG 75-5
0.10
0.65

EMG 81-13

EMG 81-12

EMG 77-8

EMG 73-3

MILLIGAN SEAM SUBCROP

EMG 82-8

EMG 82-7
1.00

EMG 72-2
1.15

EMG 77-7

EMG 75-6
0.90

EMG 82-9

EMG 82-10
0.40
0.40

EMG 77-10
1.30

EMG 81-6

EMG 81-5

EMG 81-11

EMG 81-4
0.60
0.45
0.10

EMG 81-3

EMG 81-2
0.25
0.45
0.15

EMG 81-1
0.40
0.65
0.10

LEGEND

APPROXIMATE SEAM SUBCROP

INFERRED SEAM SUBCROP

Note: Seam Thickness In Metres

521

FIGURE – 22

PR-East Mt Gething 82(2)A

UTAH MINES LTD.
EXPLORATION DEPARTMENT
Vancouver British Columbia

EAST MT. GETHING

MILLIGAN SEAM

Panel Section

Work by : N. Duncan	Date : Nov. 1982	NTS Ref. 94 B/1
Drawn by : T. Drews	Revised :	Scale — 1:10,000

200 0 100 200 300 400 500 600 Metres
SCALE

535,500 E
536,500 E
537,500 E
538,500 E
539,500 E
540,500 E
541,500 E
542,500 E
543,500 E
544,500 E
545,500 E
546,500 E

6,215,000 N
6,214,000 N
6,213,000 N
6,212,000 N
6,211,000 N
6,210,000 N
6,209,000 N
6,208,000 N
6,207,000 N
6,206,000 N

EMG 75-4
EMG 77-9
EMG 72-1
1.65
EMG 75-5
0.45
0.40
0.40
EMG 81-13
EMG 82-6
EMG 81-12
0.55
0.60
0.10
EMG 77-8
LOUISE SEAM SUBCROP
EMG 73-3
EMG 82-7
0.10
0.15
0.80
EMG 72-2
0.35
0.40
0.50
EMG 77-7
EMG 75-6
0.20
0.80
EMG 82-9
EMG 82-10
0.65
0.45
EMG 77-10
0.25
0.70
0.20
EMG 81-6
EMG 81-5
EMG 81-11
0.20
0.23
EMG 81-4
0.50
0.70
EMG 81-3
EMG 81-2
0.45
0.30
EMG 81-1

521
FIGURE – 23
Pl. East Mt. Gething 82(2)n

UTAH MINES LTD.
EXPLORATION DEPARTMENT
Vancouver British Columbia

EAST MT. GETHING

LOUISE SEAM
Panel Section

Work by : N Duncan	Date : Nov. 1982	NTS Ref. 94 B/1
Drawn by : T. Drews	Revised :	Scale – 1:10,000

200 Links 0 100 200 300 400 500 600 Metres
SCALE

LEGEND

APPROXIMATE SEAM SUBCROP
INFERRED SEAM SUBCROP

Note: Seam Thickness In Metres

535,500 E | 536,500 E | 537,500 E | 538,500 E | 539,500 E | 540,500 E | 541,500 E | 542,500 E | 543,500 E | 544,500 E | 545,500 E | 546,500 E

6,215,000 N | 6,214,000 N | 6,213,000 N | 6,212,000 N | 6,211,000 N | 6,210,000 N | 6,209,000 N | 6,208,000 N | 6,207,000 N | 6,206,000 N

EMG 75-4

EMG 77-9

EMG 72-1

EMG 75-5

EMG 81-13
0.10
0.15
0.70
0.10
0.35
0.30
0.50
0.40

EMG 81-12
0.60
0.20

EMG 77-8

EMG 82-8

EMG 73-3
0.30
0.35
0.25
1.40

EMG 82-7

EMG 72-2

EMG 77-7
0.30
1.15
1.70

EMG 75-6

EMG 82-9
0.40
0.30

EMG 82-10

EMG 77-10
0.30
1.00
0.25

EMG 81-6
0.40
0.20
0.10
0.40
0.50
0.20

EMG 81-5

EMG 81-11

EMG 81-4

EMG 81-3

EMG 81-2

EMG 81-1

SEAM SUBCROP RIVERSIDE

LEGEND

— — APPROXIMATE SEAM SUBCROP

····· INFERRED SEAM SUBCROP

Note: Coal Seam Thickness In Metres

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FIGURE – 24

Pr. East Mt. Gething 82/2/A

UTAH MINES LTD.
EXPLORATION DEPARTMENT
Vancouver British Columbia

EAST MT. GETHING

RIVERSIDE SEAM
Panel Section

Work by : N. Duncan	Date : Nov. 1982	NTS Ref. 94 B/1
Drawn by : T. Drews	Revised :	Scale – 1:10,000

SCALE

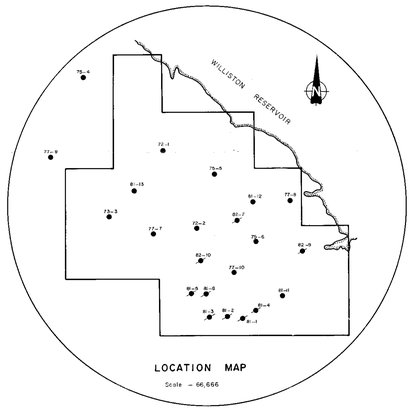
VERTICAL SCALE

0 m.
50
100
150
200
250
300
350
400
450
500
550
600
650
700
750
800

DDH 72-1
DDH 72-2
DDH 73-3
DDH 75-4
DDH 75-5
DDH 75-6
DDH 77-7
DDH 77-8
DDH 77-9
DDH 77-10
DDH 81-11
DDH 81-12
DDH 81-13
RDH 81-1
RDH 81-2
RDH 81-3
RDH 81-4
RDH 81-5
RDH 81-6
RDH 82-7
RDH 82-9
RDH 82-10

MILLIGAN
LOUISE
RIVERSIDE

(Uncorrected For Dip)



LOCATION MAP
Scale - 66,666

521 FIGURE – 25
Re East Mt. Gething 82/2/9

UTAH MINES LTD.
EXPLORATION DEPARTMENT
VANCOUVER BRITISH COLUMBIA

EAST MOUNT GETHING

TENTATIVE COAL SEAM CORRELATION

Work by N. Duncan	Date Nov. 1982	NTS Ref. 94 B/1
Drawn by T. Drews	Revised:	Vertical Scale – 1:1000

LEGEND

Kg	Gething Formation		Bedding Attitude
Kcd	Cadomin Formation		Diamond Drill Hole
Jkm	Minnes Group (undifferentiated)		Rotary Drill Hole
	Contact		Outcrop
	Fold Axis		Road

521

FIGURE — 26

Re-Base MT Gething 82(2)A

UTAH MINES LTD.
EXPLORATION DEPARTMENT
Vancouver British Columbia

EAST MT. GETHING

BEDROCK GEOLOGY AND DRILL HOLE LOCATIONS

Work by : N. Duncan	Date : Feb. 1982	NTS Ref. 94 B/1
Drawn by : T. Drews	Revised : Dec. 1982	Scale — 1:10,000

200 100 0 400 200 0 400 800 1200 1600 Metres

PR-East Mt. Gething 82(3)A

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WELL COMPLETION REPORT

East Mount Gething Prospect

Hole No. R.D.H.-82-7

Location: 6,210,015 m N x 543,090 m E

Gr.Elev.: 849 metres

Province British Columbia

Surface Owner Crown Option No. CL 3516

Spudded June 7, 1982 Completed June 17, 1982

Depth: 302.06 m Air to 302.06 m Water (Mud) to

Hole Size: 13.34 cm (5 1/4") Hits: Surface 18.73 cm (7 3/8")

Main Hole 13.02 cm (5 1/8")

Cored: (Yes) (No); intervals, (wireline, convention)

Core Head: ( ), I.D. , O.D. , Mfgr.

Logs Run: E-Log ( ), Gamma Ray (x), Other Density, Caliper

Mfgr. Comprobe Inc.

Logging Co. -

Chemicals:

Lost Circulation 'at depth(s) - ; Regained (Yes) (No)

Noticeable Water Invasion: (No) (Yes); Intervals 44.2 m to 45.7 m

Noticeable Gas Invasion: (No) (Yes); Intervals

Casing: Depth 6.4 m ; Diameter 14.13 cm Recovered (Yes) (No)

Plugged: (Yes) (No); if no, explain Left open for groundwater testing

If hole plugged by other than contractor, give name and address

Invoice Number for above

Contractor: Name & Address Green Acres Drilling Ltd., Sherwood Park, Alberta

Samples and Core Description by: M. Vaskovic, M. Syens, P. Torreggiani

Report Prepared by: D.N. Duncan Date

Comments: Drilled to 580 feet (170.8 metres) then moved to next hole on June 10, moved back onto 82-7 on June 14 and deepened to 991 feet (302.06 metres).

LITHOLOGIC DESCRIPTION

HOLE RDH 82-7 DATE June 17/82 From 301.75m To 303.28m

PROJECT EAST MOUNT GETHING By PC-T/MV

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
continued						siltstone - gray; very fine grained sandstone; minor COAL
301.75	302.06					very fine grained sandstone - light gray; minor COAL
						siltstone - dark gray
						END OF HOLE
						T.D. = 302.06 metres

LITHOLOGIC DESCRIPTION

HOLE RDH 82-7 DATE June 17/82. From 289.56m To 301.75m

PROJECT EAST MOUNT GETHING . By PC-T/MV

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
(continued)						fine grained sandstone - salt & pepper
						Siltstone - muddy, finely laminated
289.56	291.08					fine grained sandstone - salt & pepper
						Siltstone - muddy, dark gray, finely laminated
						very fine grained sandstone - red;
						sandstone - salt & pepper
						fine grained sandstone - salt & pepper
						small amounts of very fine grained sandstone
						red-gray at around 290.78m
291.08	292.61					very fine grained sandstone - salt & pepper
						siltstone and some mudstone
						mudstone and COAL at 291.05m
292.61	294.13					very fine grained sandstone - dark gray;
						siltstone and minor COAL
						fine grained sandstone - salt and pepper
						fine grained sandstone; some mudstone - light
						brown, minor coal
						very fine grained sandstone - salt and pepper
294.13	295.66					very fine grained sandstone - salt & pepper
						small amounts of mudstone
						silty mudstone - light gray
						muddy siltstone - minor oxidation
						very fine grained sandstone - salt & pepper
295.66	297.18					very fine grained sandstone; some siltstone
						very fine grained to fine grained sandstone -
						salt & pepper; some siltstone - medium gray
297.18	298.70					very fine grained sandstone-dark gray;
						silty mudstone
						297.94m to 298.37m - COAL, well cleated,
						mudstone
						minor COAL; mudstone - dark gray
						silty mudstone - dark gray
298.70	300.23					Siltstone - dark gray
						mudstone - light gray to brown
						299.16 to 299.47m - COAL; Siltstone - muddy,
						light brown
						silty mudstone - oxidized; minor coal;
						siltstone - dark gray
						299.92m - mudstone - light brown with
						some COAL; Siltstone - dark gray
						mudstone - light brown, laminated
300.23	301.75					Mudstone - light gray, minor COAL
						300.53m to 300.69m - COAL; silty mudstone -
						light brown
						Siltstone - muddy, dark gray, minor COAL
						301.29 COAL, less than 15cm

LITHOLOGIC DESCRIPTION

HOLE RDH-82-7 DATE June 16/82 From 274.32 m To 289.56. m

PROJECT EAST MT. GETHING By SLR/PC-T

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
274.32 m	275.54 m					siltstone - light gray; mudstone and minor
						very fine grained sandstone - gray; transition
						to siltstone - dark gray
						siltstone and mudstone - carbonaceous;
						minor coal
275.54	275.84					very fine grained sandstone - dark gray;
						mudstone - light gray
275.84	277.37					fine grained sandstone - salt & pepper; siltston
						- laminated, light gray-brown; minor coal
						mudstone - light gray-brown; siltstone - dark gr
277.37	278.89					siltstone - orange-brown; very fine grained
						sandstone - light gray
						very fine grained sandstone - salt & pepper
						fine grained to medium grained sandstone -
						salt & pepper, laminated; trace of coal
278.89	280.42					very fine grained sandstone - salt & pepper,
						high quartz content; siltstone - brown-gray;
						fine grained sandstone - red-gray
		June 17, 1982 PC-T/MV				
		280.42 to 286.51 m logged by				
		rotary drill crew				
280.42	281.94					fine grained sandstone
						mudstone; sandstone - salt & pepper
281.94	283.46					282.21 m - coal, < 5 cm thick; mudstone and
						carbonaceous debris
283.46	284.99					mudstone; sandstone - salt & pepper
						284.59 m - carbonaceous debris
284.99	286.51					284.59 to 285.02 m - coal
						fine grained sandstone
						285.75 m - coal
						very fine grained sandstone
						286.36 m - coal, < 15 cm
286.51	288.04					siltstone - dark gray; mudstone; minor amounts
						of coal
						287.12 m - coal
						very fine grained sandstone; small amounts of
						siltstone and mudstone
						288.01 m - minor coal
						very fine grained sandstone
288.04	289.56					very fine grained sandstone; siltstone and
						some mudstone
						very fine grained sandstone - salt & pepper
						siltstone - medium gray; mudstone - light gray-
						brown
						fine grained sandstone - iron stained

LITHOLOGIC DESCRIPTION

HOLE RDH-82-7 DATE June 16/82 From 259.08 m To 274.32 m

PROJECT EAST MT. GETHING . By SLR/PC-T

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
259.08 m	260.60 m					fine grained to medium grained sandstone - salt & pepper
260.60	262.13					fine grained to medium grained sandstone - salt & pepper
						fine grained sandstone - medium gray
262.13	263.65					mudstone - dark gray
						262.28 m - coal
						fine grained sandstone - salt & pepper;
						siltstone - dark gray
263.65	265.18					fine grained sandstone - salt & pepper
						mudstone - dark gray-brown; coal at
						265.48 m to 265.94 m
						fine grained sandstone - salt & pepper;
						siltstone and carbonaceous debris
						fine grained sandstone
265.18	266.70					very fine grained sandstone; mudstone -
						carbonaceous - dark gray; minor coal
						267.61 - coal and carbonaceous mudstone
						very fine grained sandstone, siltstone, and
						mudstone mixed
266.70	268.22					fine grained sandstone - salt & pepper;
						transition to medium grained sandstone;
						minor coal
268.22	269.75					very fine grained sandstone - dark gray; siltsto
						- dark gray; transition to fine grained sandstone
						- salt & pepper
269.75	271.27					269.75 m - coal - black, cleated, less than 30 c
						thick; mixed with carbonaceous mudstone
						very fine grained sandstone - dark gray; inter-
						bedded with siltstone - dark gray; minor coal
						very fine grained sandstone - salt & pepper
						siltstone - dark gray, carbonaceous
						270.66 m - coal, with dary gray mudstone; very
						fine grained sandstone - carbonaceous
271.27	272.80					very fine grained sandstone - salt & pepper;
						trace of coal; interbedded with mudstone -
						dark gray
						mudstone and siltstone - laminated
272.80	274.32					mudstone - silty, dark gray, carbonaceous; very
						fine grained sandstone - medium gray
						mudstone, siltstone, and minor coal;
						mudstone - dark gray; siltstone - light gray;
						transition to very fine grained sandstone -
						medium gray to salt & pepper

LITHOLOGIC DESCRIPTION

HOL RDH-82-7 DATE June 16/82 From 246.89 m To 259.08 m

PROJECT EAST MT. GETHING By SLR/PC-T

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
(continued)						siltstone - medium gray; some mudstone; minor coal fragments
246.89 m	248.41 m					siltstone - medium gray; with interbeds of very fine grained sandstone - light gray, and mudstone - dark gray; trace of coal
						very fine grained sandstone - medium gray
248.41	249.94					very fine grained sandstone - dark gray; siltstone - dark gray
						siltstone - dark gray with trace of coal
						very fine grained sandstone - laminated, interbedded with siltstone and mudstone
						fine grained sandstone - salt & pepper
						249.94 m - carbonaceous mudstone with dirty coal
249.94	251.46					mudstone - dark gray - brown; siltstone - gray-brown; mudstone content decreases downward
						very fine grained sandstone - medium gray
251.46	252.98					siltstone - medium gray, with interbedded mudstone - dark gray.
						very fine grained sandstone - salt & pepper
						interbedded with mudstone and siltstone
						very fine grained sandstone - dark gray,
						siltstone - laminated, iron oxidized, orange-brown
252.98	254.51					siltstone - medium gray; very fine grained sandstone - light gray; iron staining and laminations in siltstone
						252.98 m to 253.14 m - coal, silty mudstone interbeds
254.51	256.03					254.51 m - coal, trace
						siltstone - muddy, dark gray-brown
						fine grained sandstone - salt & pepper and light gray
						mudstone - dark brown-gray
						coal - black, cleated, with 15 cm carbonaceous mudstone
256.03	257.56					fine grained sandstone - salt & pepper and dark gray; mudstone and minor coal - black
						fine grained sandstone - salt & pepper, coarsens downwards
						256.95 m - trace of coal; siltstone and mudstone - laminated
257.56	259.08					fine grained sandstone - gray-brown, laminated
						257.86 m - trace of coal
						fine grained sandstone - salt & pepper, coarsens downwards

LITHOLOGIC DESCRIPTION

HOLE RDH-82-7 DATE June 16/82 From 233.48 m To 246.89 m

PROJECT EAST MT. GETHING By SLR/PC-T

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
233.48 m	233.72 m					sandstone - fine grained
233.72	235.00					mudstone
235.00	235.76					sandstone - fine grained
235.76	236.22					sandstone - salt & pepper
236.22	236.52					siltstone
236.52	237.74					mudstone - silty, dark gray, minor oxidation;
						with medium grained sandstone - salt & pepper
						237.74 m - trace of coal
237.74	239.27					mudstone - silty; with very fine grained
						sandstone - brown-gray, laminated
						siltstone, mudstone mixed - dark gray, increasing
						grain size with depth to very fine grained
						sandstone - dark gray
239.27	240.79					very fine grained sandstone - light gray to salt
						pepper, interbedded with silty mudstone -
						dark gray
						fine grained sandstone - salt & pepper
						240.49 - mudstone with a trace of coal,
						transition to fine grained sandstone -
						salt & pepper, at 240.79 m
240.79	242.32					fine grained sandstone - salt & pepper,
						interbedded with mudstone - dark gray; sandstone
						and mudstone are oxidized orange-brown; sandstone
						becomes more medium grained with depth, mudstone
						not present after 242.32 m
						fine grained sandstone - salt & pepper; with
						laminated mudstone - dark gray
242.32	243.84					fine grained sandstone - medium gray to salt &
						pepper; laminated mudstone
						siltstone - dark gray; mudstone - carbonaceous,
						black at 242.93 m
						very fine grained sandstone with mudstone -
						dark to medium gray
243.84	245.36					243.84 m - mudstone - carbonaceous with dirty
						coal - soft, about 4 cm thick
						very fine grained sandstone interbedded with
						mudstone and coal; mudstone - dark gray; coal -
						black, hard, not well cleated; transition to
						siltstone and very fine grained sandstone
						244.91 m - extensive coal - cleated, hard
245.36	246.89					very fine grained sandstone - salt & pepper,
						homogenous, parallel laminations, iron staining
						245.97 m - coal - hard, cleated, black, high
						vitrain content, mixed with fine grained
						sandstone

LITHOLOGIC DESCRIPTION

HOLE **RDH-82-7** DATE **June 15/82** From 221.89 m To 233.48 m

PROJECT **EAST MT. GETHING** By KF/MS

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
(continued)						siltstone - dark gray; minor very fine
						grained sandstone - dark gray; minor
						mudstone - light gray; very minor coal
221.89	222.50					fine grained sandstone - medium brown to
						dark gray; with coal and minor pyrite
						on coal; minor siltstone - iron stain;
						minor medium grained sandstone -
						salt & pepper
222.50	224.94					siltstone - medium dark gray, minor carbonaceous
						debris
						muddy siltstone - medium dark gray
224.94	225.55					very fine grained sandstone - medium gray;
						fine grained sandstone - salt & pepper;
						minor mudstone - iron stained; very fine
						grained sandstone - medium gray; very
						minor calcite
						siltstone - medium gray, slightly muddy
225.55	227.08					muddy siltstone and sandstone mixed;
						muddy siltstone - dark gray; sandstone -
						very fine grained, salt & pepper to
						medium gray
						very fine grained sandstone - salt & pepper
						to light medium gray
227.08	228.60					siltstone, mudstone, sandstone mixed; siltstone -
						medium dark gray; mudstone - dark gray;
						sandstone - medium gray to salt & pepper, very
						fine grained; minor carbonaceous debris
						silty mudstone - medium dark gray with
						minor siltstone - slightly carbonaceous
						muddy siltstone, sandstone mixed; siltstone -
						muddy, medium dark gray; sandstone -
						fine grained, salt & pepper
						very fine grained to fine grained sandstone -
						salt & pepper to medium light gray
		June 16, 1982 - SLR/PC-T				
						228.60 to 231.65 m interval missing
						231.65 to 236.52 m interval logged
						by rotary drill crew
231.65	232.41					mudstone
232.41	232.68					carbonaceous, coal trace
232.68	233.11					siltstone
233.11	233.48					sandstone - salt & pepper

LITHOLOGIC DESCRIPTION

HOLE RDH-82-7 OATE June 15/82 From 216.41 m To 221.89 m

PROJECT EAST MT. GETHING By KF/MS

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
(continued)						minor mudstone - soft, light gray; very minor iron stain
						fine grained sandstone - salt & pepper
						fine grained to medium grained sandstone - salt & pepper, laminated, iron stain; minor iron stained mudstone
216.41	217.93					fine grained to medium grained sandstone - dark gray, laminated; minor mudstone - very soft
						fine grained sandstone - dark gray; medium grained sandstone - salt & pepper; minor siltstone - laminated
						very fine grained sandstone - dark gray; mudstone - dark gray; siltstone - carbonaceous
						very fine grained sandstone - gray; fine grained sandstone - salt & pepper; siltstone - carbonaceous
						217.78 m - very minor coal
217.93	219.46					very fine grained sandstone - dark gray; siltstone and minor mudstone
						very fine grained sandstone - dark gray; minor siltstone; minor fine grained sandstone - salt & pepper
						fine grained sandstone - dark gray; medium grained sandstone - salt & pepper; minor siltstone - laminated; very minor mudstone
						very fine grained to fine grained sandstone - dark gray; minor siltstone and very minor coal @ 219 m
						very fine grained to fine grained sandstone - dark gray; minor siltstone - dark gray
219.46	220.98					very fine grained sandstone - light gray; fine grained sandstone - dark gray; minor siltstone
						very fine grained sandstone - dark gray; minor siltstone - dark gray; minor mudstone - very soft
						very fine grained sandstone - dark gray; siltstone - dark gray; minor mudstone
						siltstone - dark gray; minor mudstone - medium brown; minor very fine grained sandstone - dark gray; minor coal at 220.98 m
220.98	221.89					siltstone - dark gray; very fine grained sandstone - dark gray; minor siltstone - medium brown, well indurated; very minor coal and very minor mudstone

LITHOLOGIC DESCRIPTION

HOLE RDH-82-7 DATE June 15/82 From 210.31.m To 216.41 m
PROJECT EAST'MT. GETHING By KF/MS

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
(continued)						medium grained sandstone - salt & pepper;
						minor medium brown mudstone; minor
						siltstone - dark gray, well indurated
						medium grained sandstone - salt & pepper;
						minor mudstone - medium brown;
						minor siltstone - dark gray and reddish-
						brown, laminated
						medium grained sandstone - salt & pepper;
						very minor siltstone and mudstone -
						medium brown
210.31	211.84					medium grained sandstone - salt & pepper;
						very minor siltstone
						medium grained sandstone - salt & pepper;
						fine grained sandstone - dark gray;
						siltstone - dark gray
						very fine grained sandstone - dark gray;
						siltstone - carbonaceous
						siltstone - carbonaceous; very fine
						grained sandstone - dark gray
						211.53 m - very minor coal 10 cm;
						siltstone - carbonaceous
						siltstone - carbonaceous with minor mudstone
						siltstone and minor mudstone
211.84	213.36					muddy siltstone - medium gray, minor coal,
						mud content decreases downwards
						sandstone and siltstone mixed; fine grained
						to medium grained sandstone - salt & pepper;
						siltstone - medium dark gray; increasing
						siltyness downwards
213.36	214.88					mudstone, sandstone, siltstone mixed;
						mudstone - dark gray; sandstone - medium
						grained, salt & pepper; siltstone - medium
						gray-brown; increasing siltyness and
						decreasing muddiness towards bottom
						siltstone - medium dark gray; minor light gray
						mudstone; minor fine grained sandstone -
						salt & pepper
						214.58 m - siltstone - medium dark gray;
						minor coal; minor mudstone - light gray mudstone
214.88	216.41					siltstone - medium dark gray; minor fine
						grained sandstone - salt & pepper, minor coal
						very fine grained sandstone - light medium
						gray; fine grained sandstone - salt & pepper

LITHOLOGIC DESCRIPTION

HOLE RDH 82-7 DATE June 15/82. From 193.55m To 198.12m

PROJECT EAST MOUNT GETHING By K. Foellmer, M. Syens

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
(continued)						Sandstone, Siltstone, Mudstone mixed; sandstone - very fine grained to fine grained, salt and pepper to medium light gray; siltstone - medium dark gray with iron stain; mudstone - dark gray sandy siltstone - medium dark gray; minor fine grained sandstone - salt & pepper; iron stain, coarsens downwards
						very fine grained to fine grained sandstone; very fine grained sandstone - medium dark gray, iron stain; fine grained sandstone - salt & pepper; minor mudstone - dark gray
193.55	195.07					medium grained sandstone - salt & pepper minor iron stain
						medium grained sandstone - salt & pepper to dark gray; minor fine grained sandstone - dark gray
						medium grained sandstone - salt & pepper to medium gray; minor amounts of muddy siltstone, some iron stain
						fine grained to medium grained sandstone - salt & pepper to medium gray; increasing amounts of muddy siltstone
						medium grained sandstone - salt & pepper with muddy siltstone - dark gray and medium brown; small amounts of mudstone
195.07	196.60					medium grained sandstone - salt & pepper
						fine grained sandstone - dark grey; siltstone and mudstone - carbonaceous minor COAL
						Siltstone - well indurated, dark gray to medium brown; mudstone and minor amounts of medium grained sandstone salt & pepper; minor amounts of COAL
						Siltstone - laminated; fine grained sandstone - dark gray; minor amounts of medium grained sandstone - salt & pepper and dark gray; some iron stain
						Siltstone - dark gray; fine grained sandstone - salt & pepper and dark gray; some iron stain
196.60	198.12					Siltstone - dark gray with very fine grained sandstone - dark gray; minor amounts of mudstone
						Siltstone - muddy and dark gray

LITHOLOGIC DESCRIPTION

HOLE RDM-82-7 DATE June 15/82 From 198.12 m To 210.31 m
PROJECT EAST MT. GETHING By KF/MS

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
(continued)						siltstone with very fine grained sandstone - dark gray; minor mudstone - medium gray siltstone with very fine grained sandstone - dark gray, carbonaceous, minor mudstone
198.12	199.64					siltstone - dark gray, slightly muddy, minor iron stain, increasing muddiness downwards
						silty mudstone - dark gray; minor medium gray siltstone
199.64	201.17					siltstone - medium dark gray, slightly muddy, slightly carbonaceous, very minor iron stain
201.17	202.69					siltstone - medium dark gray, slightly muddy
						silty mudstone - dark gray; minor mudstone at 202.08 m
						siltstone - medium dark gray, slightly muddy, possible coal streak
202.69	204.22					muddy siltstone - medium dark gray
						siltstone, mudstone, sandstone intermixed; mudstone - dark gray; siltstone - medium dark gray, minor iron stain; fine grained sandstone - salt & pepper
						medium grained sandstone - salt & pepper, very minor siltstone - medium gray
204.22	205.74					sandstone and siltstone mixed; medium grained sandstone - salt & pepper; siltstone - medium gray, iron stain, minor dark gray mudstone
						medium grained sandstone, salt & pepper, very minor medium dark gray siltstone
205.74	207.26					medium grained sandstone - salt & pepper, very minor iron stained siltstone
						sandstone and siltstone mixed; medium grained sandstone, salt & pepper; siltstone - medium gray with minor iron stain
						medium grained sandstone - salt & pepper; very minor silty mudstone
207.26	208.79					medium grained sandstone - salt & pepper; minor silty mudstone
						medium grained sandstone - salt & pepper; very minor muddy siltstone, very minor coal
						medium grained sandstone - salt & pepper; minor mudstone; minor muddy siltstone
208.79	210.31					medium grained sandstone - salt & pepper; minor medium dark brown mudstone; minor dark gray siltstone

LITHOLOGIC DESCRIPTION

HOLE RDH 82-7 DATE June 15/82. From 187.45m To 193.55m

PROJECT EAST MOUNT GETHING By K. Foellmer, M. Syens

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
(continued)						fine grained sandstone - medium dark to dark gray with some salt & pepper, small amounts of COAL
						fine grained sandstone - salt & pepper, coarsens downward, very minor amounts of COAL (coal starts to thin out)
187.45	188.98					fine grained sandstone - salt & pepper, with minor amounts of siltstone and very minor amounts of coal
						muddy siltstone with minor amounts of very fine grained sandstone - dark gray, minor amounts of mudstone
						fine grained to medium grained sandstone - salt & pepper and dark gray, mixed with siltstoone, coarsens downwards
						fine grained sandstone - laminated, dark gray,
						medium grained sandstone - salt & pepper
						medium grained sandstone - salt & pepper with siltstone - medium brown - gray
188.98	190.50					Siltstone - medium gray, iron stain, minor carbonaceous mudstone, minor fine grained sandstone
						muddy siltstone to mudstone - dark gray - brown laminated, minor fine grained sandstone - salt & pepper; carbonaceous debris
						siltstone, mudstone, fine grained sandstone mixed; siltstone - medium gray; mudstone - dark gray; sandstone - fine grained, salt & pepper, iron stain, laminated
190.50	192.02					Siltstone - medium gray, minor iron stain, very fine grained to fine grained sandstone - salt & pepper to light medium gray, iron stain on fine grained sandstone, grain size increasing downwards
						Siltstone - medium dark grey, minor fine grained sandstone, very minor iron stain
192.02	193.55					very fine grained sandstone to fine grained sandstone, very fine grained sandstone - medium gray; fine grained sandstone salt & pepper; minor siltstone with iron stain
						fine grained to medium grained - salt & pepper, well indurated, very minor iron stained siltstone

LITHOLOGIC DESCRIPTION

HOLE RDH 82-9 DATE June 15/82. From 179.83m To 187.45m

PROJECT EAST MOUNT GETHING By K. Foellmer, M. Syens

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
continued:						Sandstone and Siltstone mixed; sandstone - fine grained, salt & pepper to light gray; Siltstone - dark gray, laminated, increasing sandstone downwards, minor iron stain, minor calcite
179.83	181.36					fine grained sandstone - salt & pepper to dark gray
						fine grained sandstone - salt & pepper mixed with siltstone - medium brown gray
						fine grained sandstone - gray to dark gray, minor amounts of muddy siltstone
						fine grained sandstone - gray to salt & pepper
181.36	182.88					fine grained sandstone - salt and pepper, minor amounts of siltstone - dark gray
						fine grained sandstone - salt & pepper, mixed with fine grained sandstone - dark gray
						fine grained sandstone - salt & pepper, mixed with siltstone and minor amounts of mudstone - dark gray
182.88	184.40					fine grained sandstone - salt & pepper, with very fine grained sandstone - dark gray
						fine grained sandstone - laminated, to very fine grained sandstone - dark gray
						fine grained snadstone - dark gray to salt and pepper fine grained sandstone
						fine grained sandstone - salt & pepper; very fine grained sandstone - salt & pepper; very fine grained sandstone - dark gray, laminated, with minor amounts of muddy siltstone
						183.79m to 184.10m - COAL - about 30. cm mixed with carbonaceous siltstone and mudstone
184.40	185.93					Siltstone with fine grained sandstone, dark gray, carbonaceous with COAL
						184.40m to 184.71m
						very fine grained sandstone - carbonaceous with minor coal
						Siltstone - dark gray, carbonaceous with minor coal
						mudstone - carbonaceous with minor coal
						very fine grained sandstone - dark gray
185.93	187.45					Siltstone with mudstone and very fine grained sandstone - dark grey, carbonaceous
						very fine grained sandstone - dark gray - brown mixed with siltstone, minor iron staining
						fine grained sandstone - dark grey

L I T H O L O G I C DESCRIPTION

HOLE RDH-82-7 DATE June 9, 82 From 167 m To 179.83m

PRO&CT. 'EAST MT. GETHING By MSV/MS

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
167 m	168 m					very fine grained sandstone dark grey
						siltstone
168	169					fine grained sandstone salt & pepper -
						iron staining carbonaceous siltstone dark grey
169	170					fine grained sandstone dark grey
						very fine grained sandstone - finely laminated
170	171					very fine grained sandstone dark grey
						iron staining fine grained sandstone
						siltstone dark grey
171	172					very fine grained sandstone dark grey
						well indurated, muddy siltstone also well
						indurated - dark grey
172	173					siltstone - dark grey - well indurated
	June 15	1982,	return			to hole, gap in log of 2 metres
175.26	176.78					fine grained to medium grained sandstone
						salt & pepper
						fine grained sandstone - salt & pepper, mixed
						with siltstone - medium brown-gray, iron
						stained
176.78	178.30					medium grained sandstone - salt & pepper
						medium grained sandstone - salt & pepper
						fine grained to medium grained sandstone -
						salt & pepper, mixed with siltstone -
						orange-brown, minor carbonaceous debris,
						iron stain, minor mudstone, minor
						calcite crystals
						siltstone - medium orange-brown, minor
						mudstone - dark grey, minor sandstone -
						salt & pepper, medium grained
						siltstone - medium brown-grey, laminated,
						iron stain
						medium grained sandstone - salt & pepper,
						laminated, 177.70 m, minor siltstone, iron
						stained, sandstone becomes fine
						grained downwards
178.30	179.83					mudstone - dark grey, iron stained, minor
						siltstone
						mudstone - dark grey, minor coal
						178.46 m - coal - black, about 15.24 cm
						178.61 m - siltstone and sandstone mixed
						sandstone - very fine grained, orange-
						brown; siltstone - grey-brown; minor
						mudstone; siltstone increasing downwards
						179.22 m - very fine grained to fine grained
						sandstone, salt & pepper, minor coal

LITHOLOGIC DESCRIPTION

HOLE RDH-82-7 DATE June 9, 82 From 132 m To 167 nl

PROJECT EAST MT. GETHING By MSV/MS

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
132 m	133 m					fine grained sandstone salt & pepper,
						very fine grained sandstone, siltstone
133	134					siltstone dark grey, mudstone
134	135					silty mudstone, minimal amounts of coal
135	136					fine grained sandstone salt & pepper, siltstone
136	137					fine grained sandstone salt & pepper
137	138					very fine grained sandstone dark grey
						siltstone
138	139					siltstone dark grey, very fine grained sandstone
						medium grained sandstone salt & pepper
139	140					siltstone dark grey muddy siltstone
140	141					siltstone
141	142					very fine grained sandstone, medium grained sand-
						stone, siltstone, mudstone light brown
142	143					medium grained sandstone salt & pepper
						fine grained sandstone
						mudstone light brown
143	144					medium grained sandstone salt & pepper
						fine grained sandstone, very fine grained sandston
144	145					fine grained sandstone
						very fine grained sandstone dark grey
145	146					fine grained sandstone, medium grained sandstone
146	147					medium grained sandstone dark grey
147	148					medium grained sandstone
						fine grained sandstone dark grey
148	149					fine grained sandstone, siltstone
149	150					fine grained sandstone, very fine grained sandston
150	151					fine grained sandstone dark grey
						medium grained sandstone
151	152					siltstone, very fine grained sandstone
						fine grained sandstone dark grey
152	153					fine grained sandstone, very fine grained sandston
153	154					very fine grained sandstone dark grey
154	155					very fine grained sandstone finely laminated
*						N.B. (switched to rods shorter by 5 ft.)
155	156					fine grained sandstone dark grey
156	157					fine grained sandstone dark grey
157	158					fine grained sandstone dark grey
158	159					silty sandstone dark grey
159	160					siltstone
160	161					very fine grained sandstone, fine grained sandstone
161	162					fine grained sandstone, very fine grained sandstone
162	163					siltstone - carbonaceous dark grey
163	164					siltstone - carbonaceous
164	165					very fine grained sandstone' dark grey
165	166					siltstone
166	167					very fine grained sandstone dark grey'

LITHOLOGIC DESCRIPTION

HOLE RDH-82-7 DATE June 8, 82 From 100 m To 132 m

PROJECT EAST MT. GETHING By SLR/PC-T

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
100 m	101 m					very fine grained sandstone salt & pepper
101	102					very fine grained sandstone dark grey
102	103					very fine grained sandstone
103	104					siltstone very dark brown
104	105					very fine grained sandstone carbonaceous
						minimal coal
105	106					very fine grained sandstone carbonaceous
						minimal amounts of coal & siltstone
106	107					very fine grained sandstone, siltstone, minimal coa
107	108					very fine grained sandstone, siltstone carbonaceous
						minimal amounts of coal
108	109					very fine grained sandstone
109	110					siltstone - dark grey carbonaceous, coal
110	111					very fine grained sandstone, siltstone carbonaceou
111	112					very fine grained sandstone dark grey - siltstone
112	113					coal (10-15 cm) carbonaceous siltstone
						fine grained sandstone
113	114					fine grained sandstone salt & pepper
						medium grained sandstone
114	115					medium grained sandstone salt & pepper
						very fine grained sandstone
115	116					very fine grained sandstone dark grey
116	117					siltstone, very fine grained sandstone
						coal (25-30 cm) mudstone
117	118					siltstone, minimal amount of coal
						fine grained sandstone. salt & pepper
118	119					very fine grained sandstone, fine grained sandston
119	120					very fine grained sandstone salt & pepper
120	121					very fine grained sandstone, minimal amt. of coal
121	122					fine grained sandstone dark grey some oxidation
						medium grained sandstone salt & pepper
122	123					medium grained sandstone salt & pepper
						quartz vein @ 122.5 m
123	124					medium grained sandstone salt&pepper laminations
124	125					medium grained sandstone, fine grained sandstone
						salt & pepper, very fine grained sandstone
						siltstone grey/dark grey
125	126					siltstone, mudstone medium grey
126	127					siltstone, mudstone, minimal amount of coal
						very fine grained sandstone dark grey
127	128					very fine grained sandstone
128	129					siltstone, very fine grained sandstone
129	130					fine grained sandstone salt&pepper oxidation
130	131					ine grained sandstone, medium grained sandstone
						salt & pepper with oxidation
131	132					fine @rained sandstone,' medium grained sandstone'
						laminated salt & pepper

LITHOLOGIC DESCRIPTION

HOLE RDH-82-7 DATE June 8, 82 From 71 m To 100 m

PROJECT EAST MT. GETHING By SLR/PC-T

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
71 m	72 m					siltstone carbonaceous, very fine grained sandstone
72	73					very fine grained sandstone dark grey
						laminated siltstone
73	74					siltstone, fine grained sandstone dark grey
						fine grained sandstone salt and pepper
74	75					fine grained sandstone dark grey
75	76					medium grained sandstone dark grey salt & pepper
						very fine grained sandstone dark grey laminated
76	77					very fine grained sandstone dark grey
						fine grained sandstone salt and pepper
						medium grained sandstone :coarsening downwards
77	78					fine grained sandstone laminated grey-salt&peppe
						very fine grained sandstone dark grey carbonaceous
						mudstone and coal @ 78 m
78	79					very fine grained sandstone, fine grained sandston
						- sandstone grey & laminated
79	80					fine grained sandstone grey laminated salt&pepper
						very fine grained sandstone dark grey
80	81					very fine grained sandstone dark grey
81	82					very fine grained sandstone dark grey laminated
82	83					siltstone, mudstone carbonaceous
83	84					carbonaceous siltstone, very fine grained sand-
						stone coal @ 84 m
84	85					very fine grained sandstone grey - siltstone
85	86					very fine grained sandstone grey - salt & pepper
						medium grained sandstone oxidation
86	87					medium grained sandstone salt and pepper
						siltstone dark grey
87	88					fine grained sandstone dark grey
						salt & pepper sandstone
88	89					very fine grained sandstone salt & pepper
89	90					very fine grained sandstone carbonaceous
90	91					coal @ 90m very fine grained sandstone
91	92					very fine grained sandstone dark grey
						fine grained sandstone medium grey
92	93					very fine grained sandstone dark grey
						fine grained sandstone dark grey
93	94					very fine grained sandstone siltstone dark grey
94	95					siltstone, fine grained sandstone salt & pepper
95	96					fine grained sandstone dark grey
96	97					fine grained sandstone, medium grained sandstone
						sandstone grey - salt & pepper
						very fine grained sandstone
97	98					very fine grained sandstone, siltstone dark grey
						mudstone carbonaceous minor coal seam @ 98 m
98	99					very fine grained sandstone, siltstone dark grey
99	100					very fine grained sandstone salt & pepper

LITHOLOGIC DESCRIPTION

HOLE RDH-82-7 DATE June 7; 82 From 35 m To 71 m

PROJECT EAST MT.' GETHING' By DND/SLR/MSV/MS/PC-T/HMG

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
35 m	36 m					fine grained sandstone, salt and pepper
						large grained sandstone coarse dark grey
36 m	37 m					siltstone dark grey - fine grained sandstone
37	38					very fine grained sandstone dark grey
38	39					muddy siltstone with coal bands
39	40					pyritic very fine grained sandstone
40	41					very fine grained sandstone, siltstone dark
41	42					siltstone, laminated
42	43					siltstone medium grey
43	44					siltstone
						siltstone micaceous, laminated
44	45					siltstone, sandstone
45	46					siltstone, sandstone salt and pepper
						mudstone dark grey
46	47					siltstone, fine grained sandstone
47	48					siltstone, fine grained sandstone
48	49					very fine grained sandstone laminated
49	50					very fine grained sandstone and siltstone
50	51					very fine grained sandstone
51	52					very fine grained sandstone, fine grained sand-
						stone
52	53					fine grained standstone silty sandstone
53	54					siltstone
54	55					fine grained sandstone, very fine grained sand-
						stone
55	56					mudstone, medium grey to dark grey
56	57					siltstone
57	58					siltstone, sandstone
58	59					fine grained sandstone salt and pepper
59	60					very fine grained sandstone dark grey
						medium grained sandstone salt and pepper
60	61					fine grained sandstone grey
						medium grained sandstone salt and pepper
61	62					medium grained sandstone salt and pepper
						oxidation remnants
62	63					very fine grained sandstone, siltstone, mudstone
						- interbedded
63	64					mudstone, carbonaceous, minor coal
64	65					mudstone, carbonaceous dark grey
65	66					mudstone, siltstone carbonaceous
66	67					very fine grained sand, siltstone dark grey
67	68					medium grained sandstone, fine grained sandstone
						sandstone salt and pepper
68	69					medium grained sandstone salt and pepper
69	70					medium grained sandstone minor oxidation
						sandstone salt and pepper
70	71					mudstone carbonaceous, coal siltstone

LITHOLOGIC DESCRIPTION

HOLE RDH-82-7 DATE June 7, 82 From 0 m To 35 m

PROJECT EAST MT. GETHING By DND/MSV/HMG/SLR/PC-T/MRS

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
0 m	5 m					Overburden
5 m	6 m					Coal (probably in Overburden)
6	7					Bedrock - coarse grained sandstone-finely laminate
						siltstone medium grey
7	8					siltstone, mudstone medium grey
8	9					siltstone medium grey
9	10					mudstone, carbonaceous
10	11					mudstone, siltstone
11	12					mudstone grey/brown
12	13					mudstone dark grey
13	14					mudstone dark grey
						fine grained sandstone, siltstone light grey
14	15					fine grained sandstone finely laminated
15	16					mudstone, carbonaceous
						sandstone, interbedded
16	17					fine grained sandstone
						siltstone, mudstone
17	18					siltstone, mudstone interbedded
						sandy-siltstone, fine grained sandstone
18	19					fine grained sandstone, siltstone, mudstone
19	20					fine grained sandstone
20	21					medium grained sandstone, fine grained sandstone
						medium grained sandstone
21	22					medium grained sandstone salt and pepper
22	23					medium grained sandstone with carbonaceous debris
						oxidized sandstone, quartz grains
						silty sandstone
23	24					siltstone, silty mudstone dark grey
24	25					black carbonaceous mudstone
						coal (end of run)
25	26					coal, siltstone clinker
26	27					fine grained sandstone
27	28					medium grained sandstone, orange, salt and pepper
						fine grained sandstone carbonaceous grey
28	29					very fine grained sandstone muddy siltstone
29	30					siltstone
						mudstone; dark carbonaceous
30	31					dark carbonaceous mudstone, carbonaceous fine
						grained sandstone
						plant debris, coal
31	32					fine grained sandstone salt and pepper
32	33					fine grained sandstone salt and pepper
33	34					fine grained sandstone salt and pepper
						siltstone grey
34	35					fine-medium grained sandstone salt and pepper
						siltstone (muddy) interbedded

LITHOLOGIC DESCRIPTION

HOLE RDH 82-10 DATE June 20/82. From 0m To 19.81m

PROJECT EAST MOUNT GETHING By M. Svens and H. Gale

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
0m	1.50m					Overburden
1.50m	2.10m					Overburden
2.10	3.10					Fine grained sandstone - Dark grey
						Siltstone - dark gray with minor mudstone
3.10	4.57					Coal at 3.2m, Seam thickness is 5.1cm;
						fine grained sandstone - dark grey, carbonaceous
						plant debris with minor siltstone
4.57	6.10					Fine grained sandstone - dark grey, carbonaceous
						salt and pepper and iron stain
						Siltstone - dark grey with pebbles
						(conglomerate ?)
6.10	7.62					Fine grained sandstone - dark grey, laminated
						with minor quartz veining
						Siltstone with pebbles, iron stain
7.62	9.14					Fine grained sandstone - dark grey,
						laminated with minor medium grained sandstone-
						medium brown siltstone - dark grey, iron stain
						and carbonaceous mudstone
9.14	10.67					Siltstone - Carbonaceous, minor mudstone
10.67	12.19					Coal at 11.3m, seam thickness is 0.5m with
						mudstone
						Mudstone - carbonaceous, dark grey with some
						brown
						Siltstone - dark grey, carbonaceous
						very fine - fine grained sandstone - dark grey
12.19	13.72					Fine grained sandstone - dark grey
						minor siltstone
13.72	15.24					Fine grained sandstone - dark grey
						with minor siltstone and iron stain
15.24	16.76					Fine grained sandstone - dark grey
						siltstone - dark grey, carbonaceous with
						minor mudstone
						Coal at 16.46m seam thickness
						0.3m
16.76	18.29					Mudstone with siltstone - dark grey
						fine grained sandstone - dark grey
						with siltstone - dark grey and minor COAL
18.29	19.81					Fine grained sandstone - laminated with
						siltstone - dark grey, iron stain
						Mudstone - dark grey, laminations
						minor very fine - fine grained sandstone
						dark grey

PR-East Mt Gething 82(3)A

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WELL COMPLETION REPORT

East Mount Gething Prospect

Hole No. R.D.H.-82-10

Location: 6,208,605 m N x 541,770 m E

Gr. Elev.: 984 metres

Province British Columbia

Surface Owner Crown Option No. CL 3513

Spudded June 20, 1982 Completed June 23, 1982

Depth: 237.74 metres Air to 237.74 m Water (Mud) to

Hole Size: 13.34 cm (5 1/4 ") Bits: Surface 18.73 cm (7 3/8")

Main Hole 13.02 cm (5 1/8")

Cored: (Yes) (No); intervals (wireline, convention)

Core Head: ( ), I.D. , O.D. , Mfgr.

Logs Run: E-Log ( ), Gamma Ray (X), Other Density, Caliper

Mfgr. Comprobe Inc.

Logging Co.

Chemicals:

Lost Circulation at depth(s) ; Regained (Yes) (No)

Noticeable Water Invasion: (No) (Yes); Intervals

Noticeable Gas Invasion: (No) (Yes); Intervals

Casing: Depth 2.13 m ; Diameter 14.13 cm Recovered (Yes) (No)

Plugged: (Yes) (No); if no, explain

If hole plugged by other than contractor, give name and address

Invoice Number for above

Contractor: Name & Address Green Acres Drilling Ltd., Sherwood Park, Alberta

Samples and Core Description by: M. Syens, M. Vaskovic

Report Prepared by: D.N. Duncan Date July 4, 1982

Comments:

LITHOLOGIC DESCRIPTION

HOLE RDH 82-10 DATE June 20/82. From 19.81m To 36.58m

PROJECT East Mount Gething By M. Syens and H. Gale

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
19.81	21.34					Siltstone - dark gray with very fine grained sandstone - dark grey and minor mudstone
21.34	22.86					Siltstone - dark grey with minor mudstone - dark grey
						Mudstone - dark grey with some brown
						Minor siltstone - dark grey
22.86	24.38					Siltstone - dark grey with minor mudstone - dark grey
						Mudstone - dark grey or brown with minor siltstone
24.38	25.91					Very fine grained sandstone - dark grey with siltstone - dark grey and minor mudstone
25.91	27.43					Siltstone - dark grey with mudstone dark grey
						COAL at 26.5m, seam thickness is 0.15m
27.43	28.96					Very fine grained sandstone with minor siltstone and coal
28.96	30.50					Mudstone with very fine grained sandstone - dark gray, some siltstone dark grey
						very fine - fine grained sandstone - dark grey, coarsening downwards with possible minor quartz vein
30.50	32.00					Excessive water at 30.50 m
						Mudstone; dark-medium grey siltstone - dark grey
						very fine - fine grained sandstone - dark grey, coarsening downward siltstone with minor very fine - fine grained sandstone and minor coal
32.00	33.53					Very fine - fine grained sandstone - some salt and pepper with minor siltstone - dark grey, iron stain
33.53	35.05					Fine - medium grained sandstone - salt and pepper with minor siltstone
						fine - medium grained sandstone with plant debris
35.05	36.58					Fine grained sandstone - dark grey with minor iron stain
						COAL at 36m, seam thickness is .5m
						Mudstone - dark grey, carbonaceous

LITHOLOGIC DESCRIPTION

HOLE RDH 82-10 DATE June 20/82 From 36.58m To 59.44m
PROJECT East Mount Gething By M. Syens, H. Gale

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
36.58	38.10					Mudstone - dark grey, carbonaceous with siltstone - dark grey. siltstone - dark grey with minor very fine grained sandstone - dark grey
38.10	39.62					Fine - medium grained sandstone - dark grey, some salt and pepper and minor siltstone
39.62	41.15					Fine - medium grained sandstone - dark grey with siltstone - dark grey
41.15	42.67					Fine grained sandstone - dark grey
						COAL at 42.52m seam thickness 0.08m
						fine grained sandstone - dark grey
42.67	44.20					Fine grained sandstone - dark grey
						siltstone - dark grey, minor coal
						fine - medium grained sandstone
						dark grey, some laminations, salt and pepper in spots
44.20	45.72					Fine grained sandstone - dark grey
						minor siltstone - dark grey
						very minor coal (possible seam ?)
45.72	47.24					Fine grained sandstone - salt and pepper
						minor siltstone - dark grey, laminations
47.24	48.77					Fine - medium grained sandstone - dark grey,
						some salt and pepper
						minor siltstone - dark grey
48.77	50.29					Fine - medium grained sandstone, salt and pepper,
						minor siltstone - dark grey
50.29	51.82					Fine - medium grained sandstone - dark grey
						with minor siltstone
51.82	53.34					Fine - medium grained sandstone -
						dark grey, iron staining, some laminations
						minor siltstone
53.34	54.86					Fine - medium grained sandstone - dark
						grey with some laminations
54.86	56.40					Very fine - fine grained sandstone - dark
						grey with siltstone - dark grey some medium
						grained sandstone - salt and pepper
56.40	57.91					Siltstone with very fine grained sandstone -
						dark grey, possible quartz vein
57.91	59.44					Siltstone - dark grey with very fine - fine
						grained sandstone - dark to medium grey, plant
						debris, iron stain

LITHOLOGIC DESCRIPTION

HOLE RDH 82-10 DATE June 20, 1982 From 59.44 m To 74.68m

PROJECT East Mount Gething By M. Syens and H. Gale

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
59.44	61.00					Fine to medium grained sandstone - dark grey, some mudstone siltstone - dark grey
61.00	62.50					very fine to fine grained sandstone with minor siltstone - dark grey Fine grained sandstone - dark grey with minor very fine grained sandstone - dark grey
62.50	64.00					Very fine to fine grained sandstone - dark grey, some iron stain and salt and pepper, minor siltstone - dark gray
64.00	65.53					Fine to medium grained sandstone dark grey sandstone (medium grained), plant debris
65.53	67.06					Fine grained sandstone - dark grey, minor iron stain fine to medium grained sandstone, salt and pepper
67.06	68.58					Fine to medium grained sandstone - salt and pepper appears to coarsen downward then very fine grained sandstone - dark grey with minor siltstone - dark grey
68.58	70.10					Siltstone - dark grey with minor mudstone Mudstone with siltstone - dark grey minor very fine grained sandstone dark grey (?)
70.10	71.63					Siltstone - dark grey with mudstone and minor very fine grained sandstone
71.63	73.15					Siltstone - dark gray, carbonaceous with mudstone - dark grey COAL at 71.8m, thickness unknown fine to medium grained sandstone, salt and pepper, minor siltstone - dark grey
73.15	74.68					Very fine to fine grained sandstone - dark gray, some medium grained sandstone - salt and pepper in the middle of the section, minor siltstone

LITHOLOGIC DESCRIPTION

HOLE RDH 82-10 DATE June 20/82 From 74.68m To 89.92m

PROJECT East Mount Gething By H. Gale and M. Syens

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
74.68	76.20					Siltstone - dark grey, carbonaceous, mudstone with minor coal
						mudstone - dark grey with siltstone dark grey
76.20	77.72					Siltstone - dark grey, carbonaceous with mudstone - carbonaceous minor coal, possible seam
77.72	79.25					Siltstone - carbonaceous, with minor medium grained sandstone, salt and pepper, some very fine to fine grained sandstone - dark gray,
79.25	80.77					Fine to medium grained sandstone - salt and pepper with minor siltstone carbonaceous minor coal (could be wash from above)
80.77	82.30					Siltstone - carbonaceous with minor mudstone and coal
82.30	83.82					Mudstone - dark grey, carbonaceous with siltstone - dark grey, carbonaceous, minor coal siltstone - dark grey, carbonaceous with mudstone - dark grey, well indurated with minor fine grained sandstone - salt and pepper
83.82	85.34					Very fine to fine grained sandstone - Dark grey and medium grained sandstone - salt and pepper
85.34	86.86					Fine grained sandstone - salt and pepper to dark gray fine grained sandstone very fine grained sandstone - dark grey
86.86	88.39					Very fine grained sandstone - dark grey siltstone - dark grey minor coal at 88.0 m, seam thickness estimated to be .3m.
88.39	89.92					Siltstone - dark grey with very fine grained sandstone - dark grey, changes to fine to medium grained sandstone - salt and pepper minor carbonaceous mudstone mixed in section

LITHOLOGIC DESCRIPTION

HOLE RDH 82-10 DATE June 21/82 From 89.92m To 102.11m

PROJECT East Mount Gethinc By H. Gale and M. Syens

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
89.92	91.44					Siltstone - dark grey and very fine to fine grained sandstone - dark gray plus fine grained sandstone - dark grey mixed
91.44	92.96					Very fine grained sandstone - dark gray Siltstone - dark grey, carbonaceous fine to medium grained sandstone - salt and pepper
92.96	94.49					Very fine grained sandstone - dark grey witb fine grained sandstone - salt and pepper siltstone - dark grey - COAL at 93m; seam thickness is .5m, hard and cleated
94.49	96.00					Very fine grained sandstone - dark gray and fine grained sandstone - salt and pepper mixed together becoming fine grained sandstone - medium grey
96.00	97.54					Very fine grained sandstone - medium grey and some fine grained sandstone - salt and pepper siltstone - dark grey, carbonaceous, minor COAL
97.54	99.06					Fine grained, sandstone - medium grey, some salt and pepper medium grained sandstone - salt and pepper
99.06	100.58					Medium grained sandstone - salt and pepper siltstone - dark gray, carbonaceous, becoming very fine grain sandstone - dark grey coarsening to fine grained sandstone - medium grey to light grey medium grained sandstone - salt and pepper mixed with fine grained sandstone - medium grey
100.58	102.11					Fine grained sandstone - medium grey and salt and pepper (minor) siltstone - dark grey and very fine grained sandstone - dark grey, laminations

LITHOLOGIC DESCRIPTION

HOLE RDH 82-10 DATE June 21/82. From 102.11m To 120.40m

PROJECT EAST MOUNT GETHING By S. Ridley and Paul C-T

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
102.11	103.63					Fine grained sandstone - medium grey, siltstone - dark grey, very fine grained sandstone and minor coal
103.63	105.16					Very fine grained sandstone - medium to dark grey fine grained sandstone - light grey
105.16	106.70					Very fine grained sandstone - medium to light grey and some light grey sandstone
106.70	108.20					Fine to medium grained sandstone - medium grey and some medium grained sandstone - salt and pepper
108.20	109.80					Very fine to fine grained sandstone - dark grey and some salt and pepper
109.80	111.25					Very fine to fine grained sandstone - dark grey; interbedded with siltstone - dark grey and carbonaceous debris
111.25	112.78					Fine to medium grained sandstone - light to medium grey
112.78	114.30					Very fine to fine grained sandstone - dark grey also medium grained sandstone - salt and pepper
114.30	115.82					Very fine to fine grained sandstone - medium grey and medium grained sandstone - salt and pepper siltstone - medium grey
115.82	117.30					Siltstone - dark grey and very fine grained sandstone - dark grey
117.30	120.40					Siltstone - dark grey, carbonaceous COAL at 117.5m, seam thickness is 5.5m, COAL is cleated, small fragments sandy siltstone COAL at 118m with carbonaceous mudstone and siltstone. Gross thickness is 1.5m, net thickness is 0.75m

LITHOLOGIC DESCRIPTION

HOLE RDH 82-10 DATE June 21,1982. From 120.40m To 147.98m

PROJECT EAST MOUNT GETHING By S. Ridley and Paul C-T

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
120.40	121.92					Siltstone - dark grey to brown with minor sandstone - dark grey, very fine grained
121.92	123.44					Sandstone - medium grey, very fine grained and siltstone - dark grey, carbonaceous, minor COAL at 122.31m, black, dirty, poorly cleated
123.44	124.97					Sandstone - dark grey, fine grained, siltstone dark grey to black, sandy, mudstone - black, carbonaceous, with minor coal bands from 124.75 m to 125.05m
124.97	126.49					Siltstone - dark grey to brown, muddy, Sandstone - medium to light grey, fine to medium grained with minor coaly streaks
126.49	128.02					Sandstone - fine grained, light grey to salt and pepper, grading down to a fine to medium grained salt and pepper sandstone
128.02	129.54					Sandstone - fine grained, medium grey, with minor interbedded dark grey, sandy Siltstone, minor coal streaks.
129.54	129.84					Siltstone - dark grey, minor coal streaks
129.84	131.05					Sandstone - light grey, fine grained, salt and pepper at 131.15m
131.05	135.59					Sandstone - medium to light grey, salt and pepper toward base, fine to very fine grained
135.59	137.16					Sandstone - light grey, fine grained with Siltstone - dark grey, minor Coal bands, black, dirty, poorly cleated
137.16	138.68					Sandstone - medium grey, sandy, with sandsone - medium grey, fine to medium grained, interbedded with medium grey siltstone
138.68	140.21					Sandstone - dark grey, very fine grained with interbeds of dark grey Siltstone
140.21	147.98					Sandstone - coarsening down from very fine grained to medium grained, then fining to very fine grained at base, dark grey to salt and pepper, finer portions tend to be darker, coarser portions are salt and pepper

LITHOLOGIC DESCRIPTION

HOLE RDH 82-10 DATE June 21,1982 From 147.98 To 184.40m

PROJECT EAST MOUNT GETHING By S. Ridley and Paul C-T

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
147.98	148.74					COAL - 0.76m thick - black, bright, minor Siltstone partings
148.74	149.35					Siltstone - carbonaceous, dark grey,
149.35	153.92					Sandstone - very fine to medium grained, coarsening down, medium grey to salt and pepper
153.92	155.45					Sandstone - very fine to fine grained, medium grey with interbedded muddy Siltstone, medium grey
155.45	158.50					Sandstone - medium grey to salt and pepper, fine to medium grained
158.50	160.02					Sandstone - fine to medium grained, light to medium grey with interbeds of medium grey muddy, Siltstone containing minor pyrite (arsenopyrite ?).
160.02	161.54					Sandstone - salt and pepper, very fine grained
161.54	167.64					Sandstone - light grey and medium grey to salt and pepper, fine to medium grained, interbedded with Siltstone - medium to dark grey, minor coal streaks minor pyrite at base
167.64	169.16					Sandstone - light to medium grey, fine to medium grained, minor coal streaks
169.16	170.69					Sandstone - light grey, fine grained interbedded with Siltstone - dark grey to black, carbonaceous
170.69	175.26					Siltstone - medium to dark grey, minor coal at base
175.26	178.00					Sandstone - very fine to fine grained, light to dark grey, pyrite on slickenside surface at base, minor dark grey siltstone laminae at top
178.00	178.61					Siltstone - dark grey, minor coal at base
178.61	178.95					COAL - 0.34m - black
178.95	179.83					Mudstone - black, carbonaceous, interbedded with Siltstone - dark grey, minor very fine grained Sandstone laminae
179.83	181.36					Siltstone - dark grey, carbonaceous, interbedded with mudstone - black, carbonaceous, minor coal
181.36	184.40					Sandstone - medium to dark grey, very fine grained, interbedded with Siltstone - dark grey, minor coal

LITHOLOGIC DESCRIPTION

HOLE RDH 82-10 DATE June 22/82. From 184.40 To 225.55

PROJECT EAST MOUNT GETHING By M. Vaskovic and M. Syens

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
184.40	185.93					Sandstone - very fine to fine grained, medium grey to salt and pepper
185.93	188.98					Sandstone - very fine to fine grained, dark grey to salt and pepper, interbedded with Siltstone - dark grey
188.98	190.50					Mudstone - dark grey
190.50	193.55					Sandstone - very fine to medium grained, coarsening down, dark grey to salt and pepper; interbedded with Siltstone - dark grey
193.55	198.12					Sandstone - fine grained, medium to dark grey, minor dark grey very fine grained Sandstone and medium grained salt and pepper Sandstone interbeds; very minor coal at 194.77 m and 195.99m.
198.12	204.22					Sandstone - very fine to fine grained medium to dark grey, minor dark grey Siltstone laminae, very minor coal at top and at base
204.22	208.79					Sandstone - very fine to fine grained, medium to dark grey, minor dark grey sandy Siltstone interbeds, very minor coal at base, Siltstone at top of section is slightly oxidized.
208.79	210.31					Sandstone - fine grained, medium to dark grey and salt and pepper, minor coal, very fine grained at base
210.31	214.88					Sandstone - fine grained, medium grey to salt and pepper, minor very fine grained to fine grained silty Sandstone, medium to dark grey
214.88	215.19					Sandstone - dark grey, very fine grained, minor coal chips
215.19	215.95					Coal - 0.76 metres - black, very little recovery
215.95	216.41					Sandstone - medium to dark grey, very fine to fine grained, very minor coal chips, minor pyrite
216.41	222.50					Sandstone - medium grey to dark grey, very fine to fine grained, silty, minor laminations, very minor coal.
222.50	225.55					Sandstone - fine grained, salt and pepper, minor medium grained Sandstone, quartz rich, medium grey, minor very fine grained, dark grey Sandstone.

LITHOLOGIC DESCRIPTION

HOLE RDH 82-10 DATE June 22/82. From 225.55m To 236.22m

PROJECT EAST MOUNT GETHING By M. Vaskovic and M. Syens

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
225.55	229.21					Sandstone - very fine to fine grained, medium to dark grey, minor coal chips at 227.38 metres.
229.21	236.22					Sandstone - fine grained, medium to dark grey, minor salt and pepper at base, minor very fine grained, dark grey silty Sandstone beds, minor coal chips at 230.12 metres, minor dark grey, pyritic Siltstone at 233.78 metres.
						END OF HOLE
						T.D. = 236.22 metres

PR- East Mt. Gething 82(3)A

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WELL COMPLETION REPORT

East Mount Gething Prospect

Hole No. R.D.H.-82-9

Location: 6,209,045 m N x 545,267 m E

Gr. Elev.: 733 metres

Province British Columbia

Surface Owner Crown Option No. 3510 CL

Spudded June 18, 1982 Completed June 19, 1982

Depth: 176.78 metres Air to 176.78 m Water (Mud) to

Hole Size: 13.34 cm (5 1/4 ") Bits: Surface 18.73 cm (7 3/8")

Main Hole 13.02 cm (5 1/8")

Cored: (Yes) (No); intervals (wireline, convention)

Core Head: ( ), I.D. , O.D. , Mfgr.

Logs Run: E-Log ( ), Gamma Ray (X), Other Density, Caliper

Mfgr. Comprobe Inc.

Logging Co.

Chemicals:

Lost Circulation at depth(s) ; Regained (Yes) (No)

Noticeable Water Invasion: (No) (Yes); Intervals

Noticeable Gas Invasion: (No) (Yes); Intervals

Casing: Depth 6.10 m ; Diameter 14.13 cm Recovered (Yes) (No)

Plugged: (Yes) (No); if no, explain

If hole plugged by other than contractor, give name and address

Invoice Number for above

Contractor: Name & Address Green Acres Drilling Ltd., Sherwood Park, Alberta

Samples and Core Description by: H. Gale, P. Torreggianni, M. Syens, M. Vaskovic

Report Prepared by: D.N. Duncan Date July 4, 1982

Comments:

LITHOLOGIC DESCRIPTION

HOLE RDH 82-9 DATE June 17, 1982. From 0m To 28.96m

PROJECT EAST MOUNT GETHING By H. Gale and M. Syens

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
0m	1.52m					Overburden
1.52	3.05m					Overburden
3.05m	4.57m					Overburden
4.57m	6.10m					Overburden
6.10m	7.62m					Sandstone fine to medium grained, dark to medium grey, laminations, minor plant debris minor amounts of salt and pepper - sandstone iron stained, Siltstone muddy dark grey minor amounts mudstone
7.62	9.14					Sandstone, very fine grained dark grey, Siltstone muddy dark grey
9.14	10.67					Siltstone & Sandstone very fine grained dark grey well indurated, siltstone muddy dark grey
10.67	12.19					Siltstone muddy dark grey
12.19	13.72					Sandstone very fine grained dark grey coal at 13.41m seam depth approximately 1.21m, moving to a muddy siltstone
13.72	15.24					Siltstone carbonaceous
15.24	16.76					Coal at 16.61m approximately .47m in depth, carbonaceous siltstone
16.76	18.29					Siltstone muddy sandstone very fine grained, minor amounts of coal Sandstone fine grained, dark grey, siltstone with minor amounts of coal. Sandstone fine grained salt and pepper, iron stained
18.29	19.81					Sandstone, fine grained salt and pepper, iron stained, minor amounts of coal sandstone fine to medium grained, laminated with iron staining
19.81	21.34					Sandstone fine grained to very fine grained salt and pepper, dark grey laminated minor amounts of mudstone and siltstone dark grey and minor amounts of coal
21.34	22.86					Siltstone dark grey, sandstone very fine grained dark grey, minor amounts of salt and pepper sandstone, silty mudstone dark grey; well indurated
22.86	24.38					Silty mudstone and minor amounts of fine grained dark grey salt and pepper sandstone
24.38	25.91					Sandstone to medium grained dark grey, salt and
25.91	27.43					pepper Sandstone Siltstone, muddy, Sandstone very fine to fine grained, minor amounts of siltstone, dark grey, and minor amounts of caol
27.43	28.96					Sandstone, fine to medium grained, dark grey some laminations, very minor amounts of coal

LITHOLOGIC DESCRIPTION

HOLE RDH 82-9 DATE June 17,1982 From 28.96 To 48.77

PROJECT EAST MOUNT GETHING By H. Gale and M. Syens

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
28.96	30.48					Sandstone dark grey some laminations, minor amounts of mudstone, sandstone fine to medium grained dark grey, some salt and pepper Sandstone
30.48	32.00					Sandstone very fine to fine grained, dark grey, very minor amounts of coal
32.00	33.53					Siltstone, carbonaceous muddy, plant debris, some iron staining, very minor amounts of coal
33.53	35.05					Sandstone very fine to fine grained dark grey, some laminations, sandstone very fine grained with carbonaceous debris, smaller amount of fine grained light grey sandstone
35.05	36.58					Sandstone fine grained light grey, minor amounts of coal, Siltstone with some salt and pepper sandstone possible chert fragments, sandstone very fine grained dark grey
36.58	38.1					Sandstone very fine grained dark grey, with some siltstone and very minor amounts of coal
38.1	39.62					Siltstone dark grey, iron staining, sandstone fine grained dark grey, minor amounts of salt and pepper sandstone, minor amounts of coal.
39.62	41.15					Sandstone fine grained dark grey, small amounts of salt and pepper sandstone, very minor coal
41.15	42.67					Sandstone fine grained dark to medium grey well indurated Sandstone fine to medium grained, some salt and pepper sandstone, minor amounts of coal
42.67	44.20					Sandstone fine to medium grained dark grey to salt and pepper minor amounts of Siltstone Sandstone medium grained salt and pepper with some fine grained dark grey Sandstone. grain size of sandstones tending to increase downwards.
44.20	45.72					Sandstone very fine grained dark grey, Siltstone dark grey well indurated
45.72	47.24					Siltstone dark grey well indurated, small amounts of mudstone, minor amounts of very fine grained medium to dark grey Sandstone
47.24	48.77					Siltstone dark grey and minor amounts of coal Sandstone very fine grained medium to light grey, Minor amounts of dark grey siltstone

LITHOLOGIC DESCRIPTION

HOLE RDH 82-9 DATE June 17/82. From 48.77 To 71.63

PROJECT EAST MOUNT GETHING By H. Gale and M. Syens

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
48.77	50.29					Sandstone very fine grained medium grey with some fine grained salt and pepper sandstone Minor amounts of carbonaceous siltstone dark grey some small amounts of coal
50.29	51.81					Sandstone very fine grained, dark grey with minor amounts of siltstone, dark grey, and mudstone
51.81	53.34					Sandstone very fine to fine grained dark grey Siltstone dark grey, laminated
53.34	54.86					Sandstone very fine to fine grained dark grey siltstone dark grey laminated.
54.86	56.39					Sandstone very fine to fine grained medium grey with minor amounts of Siltstone medium grey
56.39	57.91					Sandstone fine grained salt and pepper, sandstone very fine grained dark grey, Siltstone dark grey well indurated with minor amounts of coal
57.91	59.44					Sandstone very fine grained medium grey to dark grey salt and pepper with minor siltstone dark grey well indurated
59.44	60.96					Sandstone very fine grained medium grey with some very fine grained salt and pepper sandstone medium grey and minor amounts of siltstone dark grey
60.96	62.48					Siltstone, dark grey well indurated with Sandstone very fine to fine grained, dark grey
62.48	64.60					Sandstone very fine grained dark grey with some fine grained salt and pepper sandstone and minor amounts of sandstone
64.60	65.53					Sanstone very fine grained salt and pepper dark grey with minor amounts of siltstone
65.53	67.06					Sandstone very fine to fine grained dark grey Siltstone dark grey carbonaceous
67.06	68.58					Sandstone very fine to fine grained dark grey, Siltstone dark grey, carbonaceous with minor amounts of coal
68.58	70.10					Siltstone dark grey, carbonaceous, sandstone fine grained dark grey with minor amounts of coal
70.10	71.63					Sandstone fine grained salt and pepper, siltstone dark grey, small amounts, sandstone coarsening downwards.

LITHOLOGIC DESCRIPTION

HOLE RDH 82-9 DATE June 17, 1982 From 71.63m To 105.16m

PROJECT EAST MOUNT GETHING By H. Gale and M. Svens

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
71.63	73.15					Sandstone fine grained salt and pepper coarsening downwards, minor siltstone dark grey with some very minor coal
73.15	74.68					Siltstone muddy dark grey carbonaceous with minor amounts of mudstone
74.68	76.20					Siltstone dark grey, carbonaceous showing some laminations
76.20	77.72					Siltstone dark grey, Sandstone fine grained dark grey
77.72	79.25					Siltstone dark grey, Sandstone, fine to very fine grained, dark grey with some salt and pepper sandstone, dark grey very minor amounts of coal
79.25	80.77					Sandstone fine grained, salt and pepper dark grey, siltstone dark grey
80.77	82.30					Sandstone very fine grained to medium grained salt and pepper, dark grey with minor amounts of siltstone dark grey
82.30	83.82					Sandstone very fine grained dark grey with minor amount of siltstone dark grey
83.82	85.34					Sandstone very fine grained dark grey with laminations
85.34	86.87					Sandstone very fine grained dark grey
86.87	88.39					Sandstone very fine grained dark grey, Sandstone very fine grained salt and pepper dark grey
88.89	89.92					Sandstone fine grained salt and pepper, coarsening downwards, some very fine grained sand stone dark grey.
89.92	91.44					Sandstone fine grained salt and pepper, Siltstone dark grey with minor coal
91.44	92.90					Sandstone fine to medium grained. Siltstone muddy dark grey, minor coal
92.90	94.49					Siltstone muddy dark grey, sandstone very fine grained medium grey
94.49	96.01					Siltstone medium to dark grey
96.01	97.54					COAL at 95.40m to 96.01m, siltstone dark grey
97.54	99.06					Siltstone dark grey, COAL, Coal content becoming minor
99.06	100.58					Sandstone very fine grained medium to light grey, salt and pepper
100.58	102.11					COAL at 100.28m to 100.58, sandstone very fine grained medium grey minor amounts of siltstone and coal
102.11	103.63					Sandstone very fine grained dark grey
103.63	105.16					Sandstone very fine grained dark grey; siltstone Sandstone fine grained - salt & pepper 104.55m - COAL, less than 30 cm. thick

LITHOLOGIC DESCRIPTION

HOLE RDH 82-9 DATE June 17,1982. From 105.16m To 138.68m

PROJECT EAST MOUNT GETHING By MV/PC-T

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
(continued)						Siltstone - dark gray
105.16	106.68					Very fine grained sandstone - salt and pepper
						Siltstone - light gray
						fine grained to medium grained sandstone - salt and pepper
106.68	108.20					Medium grained sandstone - salt & pepper
108.20	109.73					medium grained sandstone - salt and pepper
						fine grained sandstone - medium gray
109.73	111.25					fine grained sandstone - medium gray
						very fine grained sandstone - salt and pepper
111.25	112.78					very fine grained Sandstone - salt and pepper
						fine grained sandstone - medium gray
112.78	114.30					Fine grained to medium grained sandstone - dark gray; coarsens to medium grained sandstone - salt and pepper
						very fine grained sandstone - dark gray; trace of COAL
114.30	115.82					fine grained to medium grained sandstone salt and pepper
						fine grained sandstone - medium gray
115.82	117.35					fine grained sandstone - medium gray
						very fine grained sandstone - salt and pepper
117.35	118.87					very fine grained sandstone - salt and pepper
118.87	120.40					fine grained and mostly medium grained sandstone - salt and pepper
						siltstone - dark gray
						fine grained sandstone - medium gray
120.40	121.92					fine grained sandstone - light gray
121.92	123.44					fine grained sandstone - light and dark gray; minor COAL
123.44	124.97					fine grained sandstone - dark gray; minor COAL
124.97	126.49					fine grained sandstone - medium gray
126.49	128.02					fine grained sandstone - medium gray
128.02	129.54					Siltstone - dark gray; some very fine grained sandstone - medium gray
129.54	131.06					fine grained sandstone - medium gray
131.06	132.59					fine grained to medium grained sandstone - salt and pepper
132.59	134.11					medium grained sandstone - salt and pepper
						fine grained sandstone - salt and pepper
134.11	135.64					fine grained to medium grained sandstone- salt and pepper; some quartz grains
135.64	137.16					fine grained to medium grained sandstone - salt and pepper; quartz grains present
137.16	138.68					fine grained sandstone - medium gray; small amounts of siltstone and COAL

LITHOLOGIC DESCRIPTION

HOLE RDH 82-9 DATE June 17, 1982. From 138.68m To 176.78m

PROJECT EAST MOUNT GETHING By MV/PC-T

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
138.68	140.21					Sandstone fine grained medium grey
140.21	141.73					Sandstone very fine grained medium grey
141.73	143.26					Sandstone very fine grained
						medium grey with minor amounts
						of COAL
143.26	144.78					Sandstone very fine grained salt and pepper
144.78	146.30					Sandstone very fine grained medium grey
146.30	147.83					Sandstone fine grained medium grey
147.83	149.35					Sandstone medium grained, medium grey
149.35	150.88					Sandstone fine grained salt and pepper
150.88	152.40					Sandstone fine grained medium grey
152.40	153.92					Siltstone carbonaceous, COAL from 152.55 to
						153.92 approximately
153.92	155.43					Sandstone fine grained medium grey
155.43	172.21					Sandstone fine grained medium grey
172.21	173.74					Sandstone very fine grained salt and pepper
172.74	175.26					Sandstone fine grained medium to light grey,
						Sandstone very fine grained
						dark grey
175.26	176.78					Sandstone very fine grained dark grey
						END OF HOLE
						T.D. = 176.78 metres

PR-East Mt Gething 82(3)A

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WELL COMPLETION REPORT

East Mount Gething Prospect

Hole No. R.D.H.-82-8

Location: 6,210,485 m N x 541,895 m E

Gr. Elev.: 911 metres

Province British Columbia

Surface Owner Crown Option No. 3517

Spudded June 11, 1982 Completed June 14, 1982

Depth: 50.29 metres Air to _____ Water (Mud) to 50.29 m

Hole Size: 19.05 cm (7 1/2 ") Bits: Surface 18.73 cm (7 3/8")

Main Hole _____ ( )

Cored: (Yes) (No); intervals _____ (wireline, convention)

Core Head: ( ), I.D. _____, O.D. _____, Mfgr. _____

Logs Run: E-Log ( ), Gamma Ray ( ), Other _____

Mfgr. _____

Logging Co. _____

Chemicals: _____

Lost Circulation at depth(s) _____; Regained (Yes) (No)

Noticeable Water Invasion: (No) (Yes); Intervals _____

Noticeable Gas Invasion: (No) (Yes); Intervals _____

Casing: Depth 40.23 metres; Diameter 14.13 cm (ID) Recovered (Yes) (No)

Plugged: (Yes) (No); if no, explain Abandoned in overburden.

If hole plugged by other than contractor, give name and address

Invoice Number for above _____

Contractor: Name & Address Green Acres Drilling Ltd., Sherwood Park, Alberta

Samples and Core Description by: M. Syens, P. Torreggianni, M. Vaskovic

Report Prepared by: D.N. Duncan Date July 4, 1982

Comments: Hole abandoned in overburden after 3 1/2 days of drilling - could not get casing past 40.23 metres. The drive chain on the top drive broke in an attempt to put more casing downhole.

LITHOLOGIC DESCRIPTION

HOLE RDH-82-8 DATE June 11,1982. From 0m To 50.29m

PROJECT EAST MOUNT GETHING By M. Vaskovic and H. Gale

FROM	TO	Dip °	Coal Thickness	Sample Number	% Recovery	DESCRIPTION
0	50.29					Overburden - sand, gravel and boulders
						did not penetrate bedrock
						25.91 metres of casing
						left in hole at bottom
						END OF HOLE
						T.D. = 50.29 metres

521 PR-East Mt. Gething 82(3)A 82-7

Widco* WELL LOG

COMPANY: Utah Mines Ltd.
WELL: EMG-RDH-82-7
LOCATION: 543,090ME x 6,210,015 MN

COMPANY	Utah Mines Ltd.
AREA	East Mount Gething
WELL	RDH-82-7
COUNTY	
STATE	B.C.
COORDINATES:	543,090 M E
N	6,210,015m
S	
ELEVATION:	849 M
D.F.	
K.B.	
G.L.	

	Run No. 1	Run No. 2	MUD	Run No. 1	Run No. 2
Date	June 17, 1982		Nature		
First Reading	298.9m		Density		
Last Reading	0m		Viscosity	@ °F	@ °F
Footage Logged	298.9m		Resistivity	@ °F	@ °F
Bottom (Driller)	302.06m		Res. @ BHT	@ °F	@ °F
Casing (From Log)	5.8m		pH		
Casing (Driller)	6.10m		Circ. Temp.		
Casing Size	18.73cm		B.H. Temp.		
Bit Size:	13.02cm				
Bit Size:					
			Logged by	D.N. Duncan	
			Witnessed by	H. Gale	

REMARKS

* Reg. U.S. Pat. Off.

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GAMMA CALIPER DENSITY

521 PR-East Mt Gething 82(3)A 82-9

Widco* WELL LOG

COMPANY	Utah Mines Ltd.
AREA	East Mount Gething
WELL	RDH-82-9
COUNTY	
STATE	B.C.
COORDINATES	545,267 mE
N	6,209,045m
S	
ELEVATION:	733m
D.F.	
K.B.	
G.L.	
COMPANY	Utah Mines Ltd.
WELL	RDH-82-9
LOCATION	545,267mE x 6,209,045m

	Run No. 1	Run No. 2	MUD	Run No. 1	Run No. 2
Date	June 26, 1982		Nature		
First Reading	174.1m		Density		
Last Reading	0m		Viscosity	@ °F	@ °F
Footage Logged	174.1m		Resistivity	@ °F	@ °F
Bottom (Driller)	176.78m		Res. @ BHT	@ °F	@ °F
Casing (From Log)	4.7m		pH		
Casing (Driller)	4. m		Circ. Temp.		
Casing Size	18.73cm		B.H. Temp.		
Bit Size:	13.02cm				
Bit Size:					
			Logged by	H. Gale	
			Witnessed by	D.N. Duncan	

REMARKS

* Reg. U.S. Pat. Off.

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GAMMA CALIPER DENSITY

521 Pr. East Mt. Gething 82(3)A 82-10

Widco* WELL LOG

COMPANY	Utah Mines Ltd.
WELL	EMG-RDH-82-10
LOCATION	541,770 ME x 6,208,605 MN

COMPANY	Utah Mines Ltd.	COORDINATES:	541,770 ME
AREA	East Mount Gething	N	6,208,605m
WELL	RDH-82-10	S	
COUNTY	STATE B.C.	ELEVATION:	984 m
		D.F.	
		K.B.	
		G.L.	

	Run No. 1	Run No. 2	MUD	Run No. 1	Run No. 2
Date	June 23, 1982.		Nature		
First Reading	235.5m		Density		
Last Reading	0m		Viscosity	@ °F	@ °F
Footage Logged	235.5m		Resistivity	@ °F	@ °F
Bottom (Driller)	237.74m		Res. @ BHT	@ °F	@ °F
Casing (From Log)	3.7m		pH		
Casing (Driller)	4.57m		Circ. Temp.		
Casing Size	18.73cm		B.H. Temp.		
Bit Size:	13.02cm				
Bit Size:					
			Logged by	H. Gale	
			Witnessed by	D.N. Duncan	

REMARKS

* Reg. U.S. Pat. Off.

FO-139

GAMMA CALIPER DENSITY