ESSO
COAL DIVISION

ESSO RESOURCES CANADA LTD. (E.R.C.L.)

B.C. RECONNAISSANCE REPORT

PHASE I : HAT CREEK/MERRITT/SILKAMEEN
(NICOLA AND PRINCETON AREAS)
92H, 92I

PHASE II : BOWRON TREND
93B, 93G

PHASE III: FRASER RIVER TREND
93G, 93H, 93I

1982 PROGRAM

H.E. HOPKINS

COPY 1 = COMPLETE

802

BRITISH COLUMBIA

BITUMINOUS RECONNAISSANCE PROGRAM

SUMMER - 1982

BY: HAROLD E. HOPKINS

MEMORANDUM

85 09 25

TO: Jim Allan

FROM: Brenda Wright

SUBJECT: NECHAKO RECONNAISSANCE SAMPLE
GUESS CREEK SAMPLES

Please perform mean reflectance on the enclosed samples:

Guess Creek	Sta #1	Sample 1
	Sta #1	Sample 2
	Sta #1	Sample 3
Ashton Mullen	Sample #1	(Carb. mdst.)
Nechako	N001	

The first four samples were taken from middle Jurassic Hazelton Group sediments northeast of Smithers, B.C. The Guess Creek samples were found in close association with intrusive igneous rocks, so I would expect them to be upranked. We do not know much about the Ashton Mullen sample area - it all looked marine except for this one spot.

The Nechako sample is from an outcrop which was visited last year by John Dunn. It was analyzed as being a high-rank anthracite (Mean Refl 5.64%) by yourself last year (File 2647-Letter No. 45139). This is the only coal occurrence found in a series of coarse clastics with interlayered igneous rocks. We would like to double check the rank on this sample.

In addition, we would like to have proximate analysis, calorific value and total sulphur run on each sample. The charge code for this work is A1-YA04.

Deadline - October 31

Thank you.

Brenda.

BMW:jlb
0027k:55
xc: J. Horgan
File 93F/7
File 93L/15

ACKNOWLEDGMENTS

The following report is based upon the field approach of the writer with supervision by A. Peach.

R. Berg and the writer were assisted in the field by L. Goldberg and D. Howard. The advice of A. Peach and the assistance of R. Berg were both greatly appreciated while generating the text.

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B.C. RECONNAISSANCE

INTRODUCTION

The province of British Columbia contains a number of distinct coal basins, most of which have been known for over a century, with most of the data being collected between 30 and 70 years ago. Except for the northeast and southeast coal blocks, all the coal basins seem isolated and unrelated. The lack of a geological trend, unlike the Foothills trend, coupled with a deficiency of up-to-date data, has discouraged a systematic search for undiscovered coal resources on a regional scale.

The procedure for the past summer's reconnaissance was two-fold. First, general depositional models which honoured all available data had to be generated. These models were then applied to particular areas of interest to designate viable targets which could be investigated in the field. The methodology used to design the 1982 reconnaissance program is shown in Figure 1.

The areas investigated were chosen because of the number of known coal occurrences in the vicinity (Figure 2). The abundant infrastructure would increase economical potential in the event coal was found by providing markets and transportation. Finally, the abundance of access roads and living facilities helped maintain a reasonably low operations budget.

No previously unmapped coal was found, however, the program did succeed in revealing several sedimentary sequences where Eocene volcanics existed. These finds greatly increase the validity of the untested depositional models derived for this reconnaissance program. The program was also a success in that it essentially eliminated approximately 55,000 km^2 of British Columbia from being economically coal bearing, and drew attention to one area where moderate coal potential exists.

METI LOGY

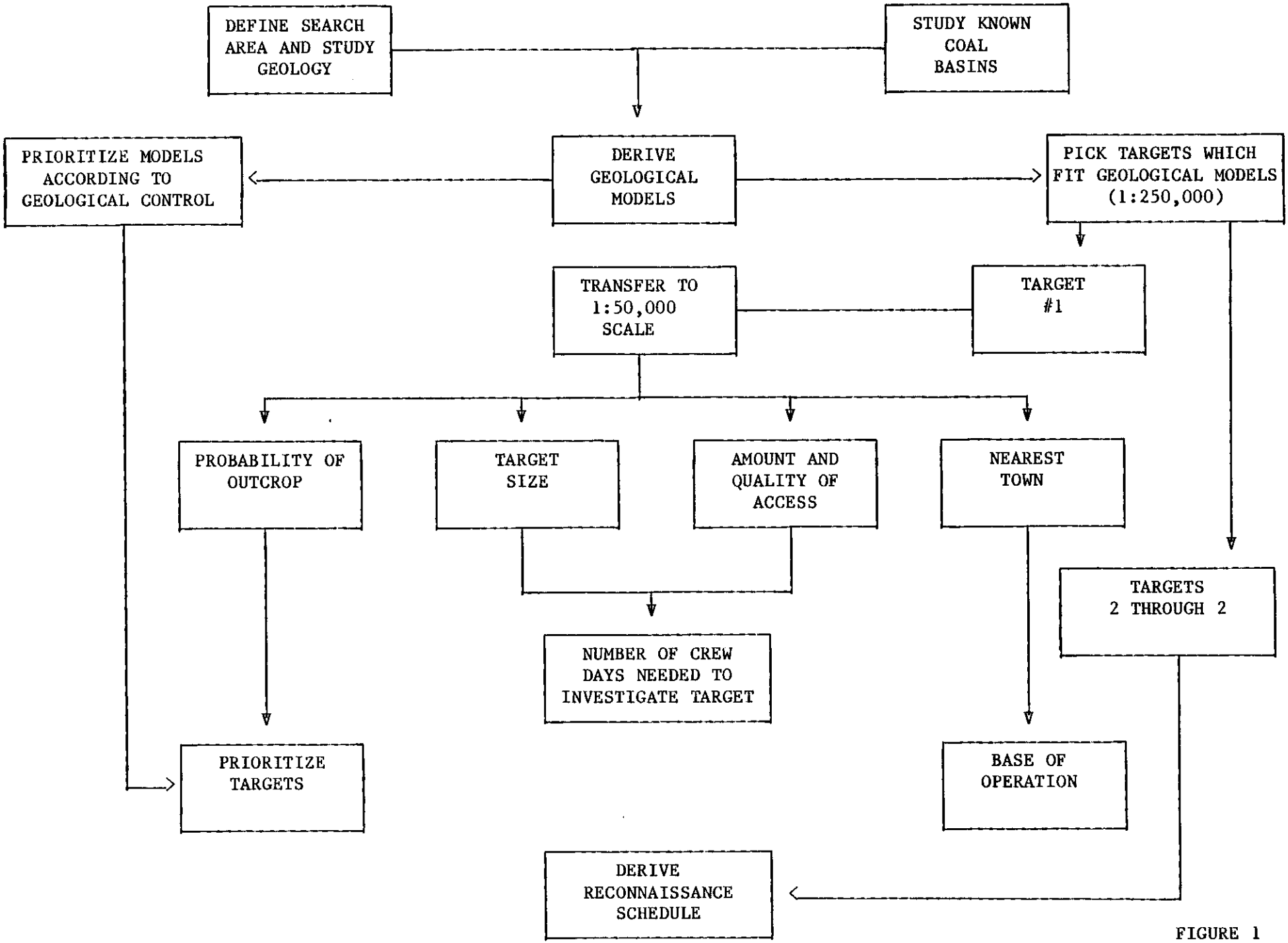


FIGURE 1

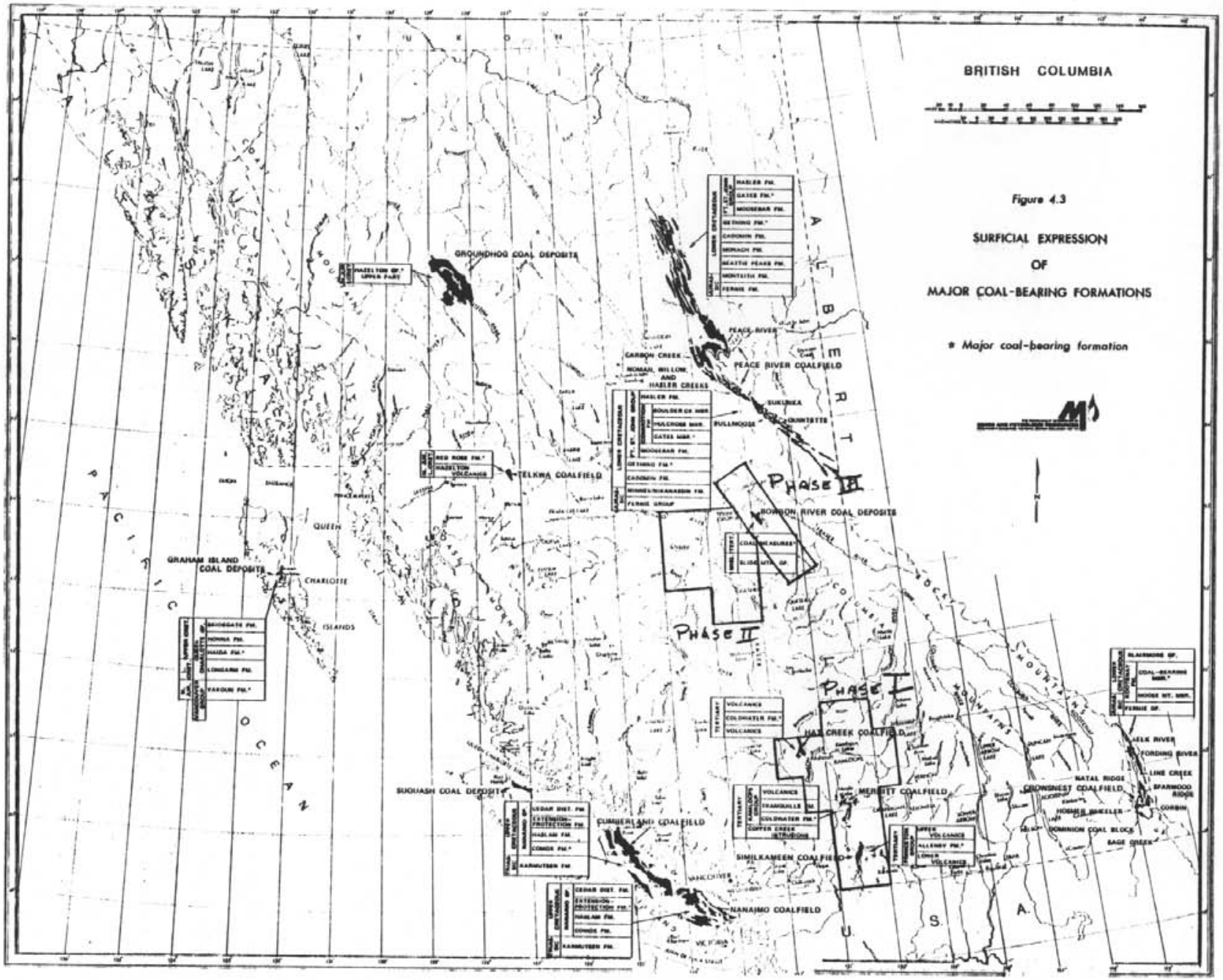

BRITISH COLUMBIA
Figure 4.3
SURFICIAL EXPRESSION
OF
MAJOR COAL-BEARING FORMATIONS
* Major coal-bearing formation
GROUNDHOG COAL DEPOSITS
PEACE RIVER COALFIELD
CARBON CREEK
NOMAH, WILLOW, AND HASLER CREEKS
TELKWA COALFIELD
BOWRON RIVER COAL DEPOSITS
PHASE III
PHASE II
PHASE I
GRAHAM ISLAND COAL DEPOSITS
QUEEN CHARLOTTE ISLANDS
SUQUASH COAL DEPOSITS
CUMBERLAND COALFIELD
NANAIMO COALFIELD
HAT CREEK COALFIELD
MERRITT COALFIELD
SIMILKAMEEN COALFIELD
CROWSNEST COALFIELD
DOMINION COAL BLOCKS
PACIFIC OCEAN
U.S.A.

FIGURE 2

PHASE I

LOCATION

The Phase I targets are located in south-central British Columbia west of the Okanagan Valley with the towns of Kamloops, Merritt and Princeton forming a central north-south axis through the search area. Map sheets 92H-W 1/2 and 92I cover this first reconnaissance phase.

REGIONAL GEOLOGY

The Phase I area, on a regional scale, is bounded on the east by the Omineca Crystalline Belt and on the west by the Coastal Intrusions. The prevalent rock units in the area include the Upper Triassic Nicola Group which is a low to medium grade metamorphic complex, the Jurassic granitic Coast Intrusions and the Miocene (or older) basic to midrange volcanics called the Kamloops Group in the north, and the Princeton Group in the south. For a more complete geological breakdown see Table 1 which compares the geological units of the three G.S.C. geology maps which cover the Phase I area.

The coal measures include the Princeton Group, the Tranquille Beds of the Kamloops Group and the Coldwater Beds. These units were dated by the G.S.C. as Miocene or older with the Coldwater Beds lower in the section (Rice, 1944; Cockfield, 1943; Duffel and McTaggart, 1947). Later palynogical studies set the age of these beds at Middle Eocene (Graham and Long, 1979). The relative ages of these sequences are still highly contested, however a discussion of this nature is too academic for the purpose of this report. It is sufficient to state that the Princeton and Tranquille Beds are roughly equivalent in age and occur with associated volcanics, while the Coldwater Beds are slightly older and have no related volcanic rocks, with the exception of the Hat Creek deposit.

The structural geology includes mild deformation which has resulted in folding and minor faulting within the coal measures. A majority of this faulting appears to have origins related to sediment settling and volcanism (Plate 1 - Tulameen Test Pit).

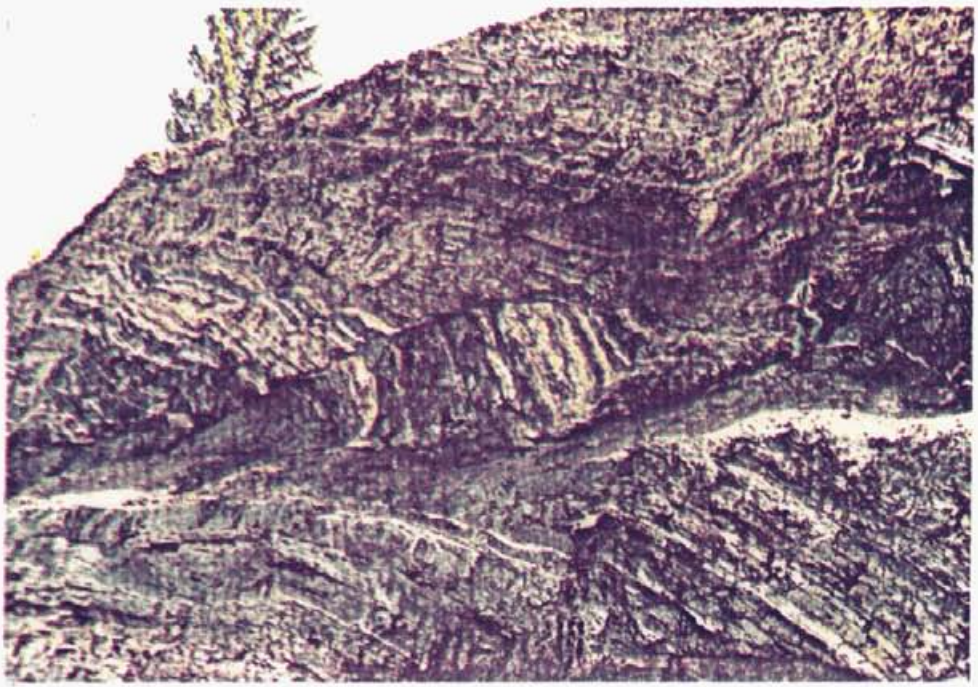


Plate 1 - Tulameen Test Pit showing characteristic faulting style found in Phase 1 area.

PHASE I – REGIONAL GEOLOGY OF THE PRINCETON, NICOLA & ASHCROFT AREAS

ERA	PERIOD OR EPOCH	GROUP OR FORMATION	GROUP OR FORMATION	GROUP OR FORMATION	LITHOLOGY
CENOZOIC	MIOCENE OR YOUNGER		Unnamed	Unnamed	Valley basalt
			Unnamed		Plateau basalt
	MIOCENE OR OLDER	Kamloops Gp.	Kamloops Gp.	Princeton Gp.	Varicolored, andesite, basalt
			Kamloops Gp. (Tranquille Beds)	Princeton Gp.	Shale, sandstone, conglomerate, coal
	MIOCENE OR OLDER	Coldwater Beds	Coldwater Beds		Sandstone, shale, conglomerate, coal
	EOCENE	Unnamed			Conglomerate, breccia, arkose, shale
	CRET. OR TERT.		Copper Creek Intrusion	Otter Intrusions	Granite, granodiorite
	CRET. OR TERT.		Unnamed		Andesite, basalt, agglomerate, breccia, tuff
	CRET. OR TERT.	Unnamed			Conglomerate, sandstone, shale
MESOZOIC	L. CRET.	Kingsvale Gp.	Kingsvale Gp.	Kingsvale Gp.	
	L. CRET.	Unnamed			Granodiorite
	L. CRET.	Spences Bridge Fm.	Spences Bridge Gp.	Spences Bridge Fm.	Hard, reddish andesite, basalt
	L. CRET.	Jackass Mtn. Fm.			Greywacke, argillite, arkose, conglomerate
	L. CRET.	Lillooet Gp.			Argillite, quartzite, conglomerate, tuffaceous sandstone
	L. CRET.	Brew Gp.			Argillite, quartzite, conglomerate
	JUR(?), CRET.			Dewdney Ck. Gp.	Tuff volcanic breccia, grit, argillite
	L. JURASSIC			Copper Mtn. Intrusions	Syengabbro, augite diorite, pegmatite
	M.TO L. JURASSIC	Unnamed			Shale, congolomerate, sandstone
	JURASSIC JURASSIC	Guichon Creek	Coast Intrusions	Coast Intrusions Unnamed	Granite, granodiorite, diorite, gabbro Peridotite, pyroxenite, gabbro
	TRIASSIC	Nicola Gp.	Nicola Gp.	Nicola Gp.	Basalt, andesite, limestone, quartzite, argillite, greywacke
PALEOZOIC	TRIASSIC PERMIAN	Unnamed			Phyllite, quartzite, greenstone, argillite, slate, schist
		Unnamed	? ? ?		Schist & gneiss
	CARBONIFEROUS AND PERMIAN	Cache Creek Gp.	Cache Creek Gp.		Argillite, greenstone, limestone, quartzite conglomerate, schist
			? ? ?	? ? ? ? ?	
	CARBONIFEROUS OR YOUNGER			Bradshaw Independence Shoemaker Old Tom Formations	Argillite, andesite, limestone, schist, gneiss
				Hozameen Gp.	Chert, andesite, limestone
		(Fr: Duffel and McTaggart, 1945–46)	(Fr: Cockfield, 1948)	(Fr: Rice, 1939, 1941, 1944)	

TABLE 1

SEDIMENTARY MODELS

The varying character of the coal deposits in this area made it necessary to derive a number of models.

Model A - Eocene Sediment Influx into Topographic Lows

This model was derived using the Merritt and Quilchena deposits as basic models and best explains the origin of the Coldwater Beds (Figure 3).

The rising of the Coastal Intrusions during Jurassic time caused differential upward pressure on the overlying Triassic strata resulting in its metamorphism and deformation into topographic highs and lows. Erosion would enhance any resulting basins due to the relative hardness of the granitic intrusions as compared to the metamorphosed sediments. Hence, by the Eocene Epoch, the paleotopography became highly irregular and the influx of water created a large inland sea stretching from the international boarder directly north to Kamloops and 30 kilometres beyond. An irregular coastline reflected the irregular topography and with slight changes in sea level, fresh lakes could become lagoons and bays could become basins and vice-versa. Therefore, any period of coal accumulation would be marked by a series of small isolated basins and their related tributaries.

This is the basic model used to explain Eocene deposition for Phase I, with the exception of Hat Creek. It is also assumed to be the initial stage necessary for the development of the following depositional models:

B - Penecontemporaneous Sedimentation and Volcanism

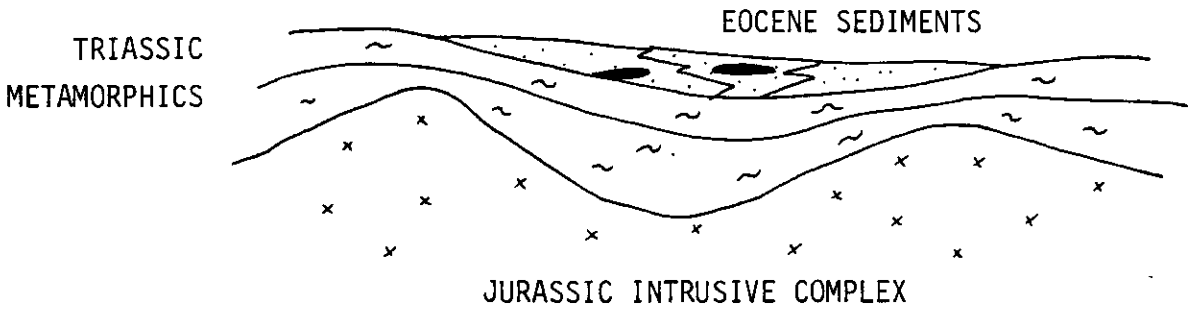
The Tulameen, Princeton, Kamloops Tranquille Beds and Chu Chua occurrences either overlay or are overlain by Eocene volcanics and can be simply represented by three models:

Model 1 - predepositional volcanism
Model 2 - post-depositional volcanism
Model 3 - a combination of the two former models with resulting sediments sandwiched between two stages of volcanism (Figure 4).

PHASE I - BASINAL DEVELOPMENT MODELS

A - EOCENE SEDIMENT INFLUX INTO
TOPOGRAPHIC LOWS

(1) COAL SWAMP DEVELOPMENT



(2) BASINAL ENHANCEMENT
DUE TO DIFFERENTIAL
EROSION

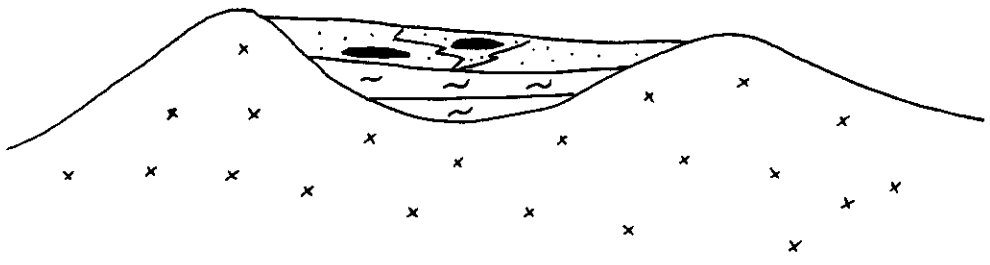
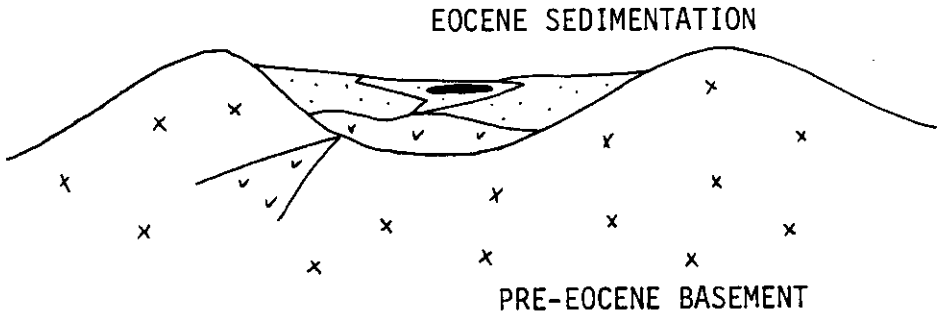


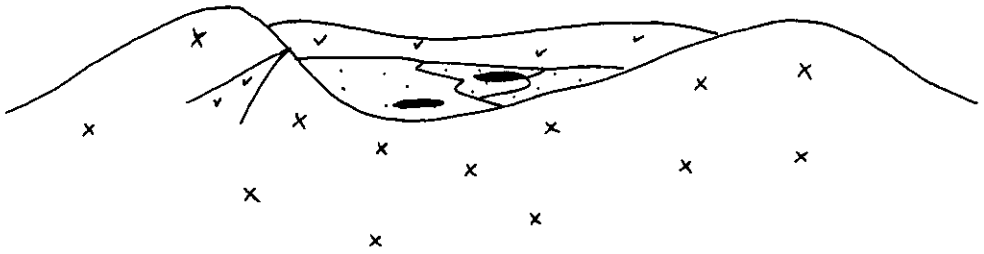
FIGURE 3

B - PENECONTEMPORANEOUS SEDIMENTATION
AND VOLCANISM

(1) UNDERLYING EOCENE VOLCANICS



(2) OVERLYING EOCENE VOLCANICS



(3) ALTERNATING PHASES OF VOLCANISM & SEDIMENTATION

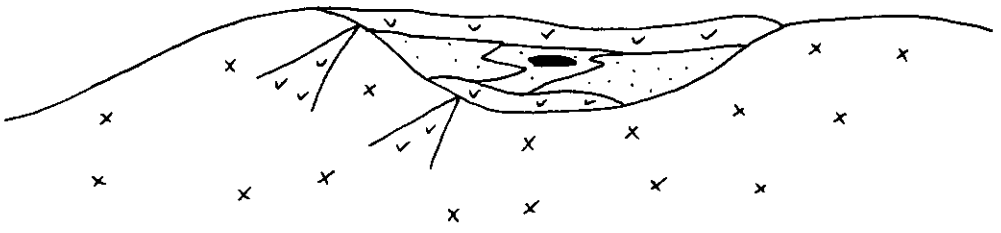


FIGURE 4

C - Post Eocene Volcanism

Both Tulameen and the Princeton coal beds are overlain by Miocene midrange volcanics. This suggests that other Eocene sedimentary sequences could be capped by younger Miocene volcanics (Figure 5).

RECONNAISSANCE APPROACH

The basic objectives of Phase I were two-fold. The program was designed to first define Eocene sedimentary sequences and then to concentrate on finding coal in those sequences. A number of different target types were required to cover all possible aspects of the numerous sedimentary models.

First priority targets included all G.S.C. map units which contained any proportion of Eocene sedimentary rock such as the Princeton Group sediments or Coldwater Beds which rest on basement rock (Figure 3). Interbedded volcanics and sediments of the Princeton and Kamloops Groups were also regarded as top priority and investigated (Figure 4 (3)).

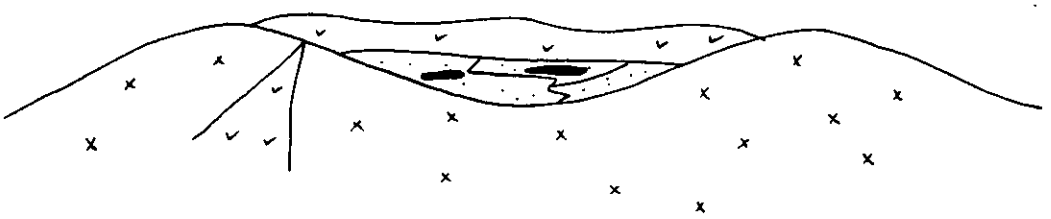
Areas mapped as Eocene volcanics of the Kamloops and Princeton Groups were classified as second priority targets. These areas were investigated in the event that possible inliers of unmapped sediment existed under Eocene cap rock (Figure 4 (2)) with stream cuts being the primary area of traverse concentration. Misidentification of sediments and volcanics by the G.S.C. was also considered possible because a major portion of the Hat Creek Deposit was initially mapped as Eocene volcanics.

Mapped areas of Miocene volcanics were classified as third priority targets as this type of occurrence recognized the possibility of discovering unmapped Eocene sediments as inliars under younger cap rock (Figure 5).

The lowest priority targets in Phase I were topographic lows in rocks presently considered basement rock. These were highly speculative in nature, being chosen wholely on elevations corresponding to previously known coal occurrences.

C - POST-EOCENE CAPPING

MIOCENE VOLCANICS OVERLYING
EOCENE COAL MEASURES



PRE-EOCENE BASEMENT

FIGURE 5

The target areas in Phase I were relatively small and well distributed over approximately 23,400 km^2. This fact, coupled with the lack of close proximity to bases, made helicopter coverage both impractical and cost prohibitive. The excellent road access, however, enabled us to double our prefield estimated coverage of the area. Initially, road mapping yielded substantial outcrop, after which stream and cliff traverses completed target coverage.

Palyonology samples were collected whenever Cenozoic sedimentary rock was encountered in the field. Also, photographs of appropriate outcrops were taken whenever possible.

No difficulties were encountered while investigating targets around Princeton or Kamloops and all target assessments were well corroborated by sufficient data. Lack of surface outcrop around Merritt made it impossible to assess some target areas in this vicinity to the same confidence level as the other two localities.

RESULTS

The area around Princeton is dominated by mountainous topography with little or no Pleistocene cover. Road and stream cuts, on the whole, exposed numerous outcrops. Geography of the Merritt area consists of low rolling hills covered with a thick veneer of glacial material, and as a result, outcrop was scarce. The Kamloops area, though dominated by rolling hills like Merritt, did yield moderate to good outcrop exposure.

Table II shows the target areas which yielded sedimentary outcrop, along with the target type which prompted investigation. The only target group in which undiscovered sedimentary rock was exposed, were the Eocene volcanics on basement rock. These sedimentary sequences appeared as inliers sandwiched between volcanic stages. These findings heavily support the validity of penecontemporaneous volcanism and sedimentation mentioned earlier (Figure 4). Since the purpose of Phase I was to locate undiscovered coal, it was thought by concentrating on previously unmapped sedimentary sequences, the odds of achieving success would be at an

optimum. It was for this reason that all areas mapped by the G.S.C. as Eocene volcanics within the Phase I boundary, were investigated. At the end of Phase I, when time permitted, the search area was expanded to cover the east half of NTS map 82L and the south half of 92P.

TABLE II
SEDIMENTARY OCCURRENCES BASED ON MODEL TYPE

Priority	Model	Targets Yielding Sedimentary Rock
1	1) Eocene sediments on basement rock	50, Chu Chua, 53
1	2) Eocene volcanics and sediments interbedded on basement rock	1, 2, 27, 21
1	3) Eocene sediments under Eocene or younger volcanic (cap) rock	6, 30
2	4) Eocene volcanics on basement rock (possible misidentification or inliers of sediment)	10, 42, 11, Monte Ck., Spence's Bridge
3	5) Miocene volcanics on basement	None
4	6) Topographic lows in rocks presently considered basement rock	None

Of the Eocene sedimentary sequences investigated, approximately 80% were conglomerate, 15% medium grained sandstone and 5% siltstone. No mudstone or shale was discovered. The conglomerate was poorly to moderately consolidated and consisted of an immature coarse grained matrix with well rounded cobble sized clasts. Three of these conglomerate outcrops (Appendix I, Target 1; O/C R0001; Target 11; O/C R0025; Target 30; O/C R0048) contained carbonaceous logs six inches to one foot in diameter and one to three feet in length. Palynology results (S.J. Pocock, Appendix II) reveal that this organic material, best described as Eocene flora, was deposited as organic debris buried in a high energy stream environment. Often found associated with the conglomerate, was a medium grained lithic sandstone which was poorly sorted and sub-angular in nature.

The upper contacts of the sedimentary sequences were found in Targets 11 and 42. In both cases the sequences were capped by andesitic volcanics.

In Target 11 (Appendix I; O/C H0011), the sedimentary sequence was composed of interbedded siltstone and sandstone, while in Target 42 (Appendix I; O/C R0040), the upper contact sequence was massive conglomerate with a few sandstone interbeds. This would indicate variable basin maturity at the time of the second pulse of volcanism, or minor differences in the ages of the capping pulse of volcanism.

Radiometric dating places all the samples which can be dated, within an age between the lower part of Middle Eocene (46.8 my) and the upper range of Lower Eocene (50 my). S.J. Pocock (1982) best summarized the palynological results:

> Environmentally, the sequence is of terrestrial to fresh-water origin, including fresh water stream and swamp deposits and, possibly, soil horizons. It appears possible that, in the area in Tertiary time, there was significant topography and that delta systems drained relatively small cachement areas into lakes and swamps, in much the same manner that we observe at the present. The floras indicate that the climate may have been a little warmer than at present, but that is was no warmer than temperate. A suggested tentative correlation chart is attached...(Table III).

CONCLUSIONS AND RECOMMENDATIONS

The lithologies encountered in Phase I, considering the high percentage of conglomerate, indicate a high energy environment of deposition which would be less than ideal for coal-swamp development. This prognosis was supported by the palynological studies conducted by S.J. Pocock (1982).

Since the completion of the field portion of the program, a study of selected water hole logs covering the area was undertaken. This study neither revealed any new sedimentary sequences or confirmed the presence of new sequences found during the field season. The application of water well logs is, unfortunately, restricted to overburden information and is not recommended for future studies of this nature.

Zonation of the Eocene Sediments of the Princeton Group and Radiometric age determinations

Palynological Zones	Preparations in Authors Collection	
	Bromley #1	R0025A R0025B
	Parr Railroad Locality	R0025C
		?R0024
		H00116
	Lamont Creek Coal	H0013 H0014
PRINCETON BLACK COAL	Princeton Coal	
Collins Gulch Bentonite 46.8 my.		
	Vermilion Bluffs	H0004
Princeton Ash 48 - 50 my.		H0006 H0007
Tranquille dolerite 49 + 2 my.		
	Asp Creek	
		?R0039P ?R0040P
Tranquille Ash 48 - 50 my.	Tranquille locality	
		R0004B
Princeton Biotite Rhyolite 50 my.		

TABLE III

(From: S.J. Pocock, 1982)

The coal potential of the Phase I area is poor to non-existent and through the indepth nature of the Phase I program, this area can be eliminated as having any future coal development potential, allowing field efforts to be concentrated in other areas of the province.

A final recommendation would include airphoto and landsat studies of the area along trend and north of Hat Creek on the premise of finding a "fault induced low" target type.

PHASE II

LOCATION

The area under investigation during Phase II is covered by N.T.S. map sheets 93B and 93G. The specific area of interest encompassed the Fraser River Valley and its tributaries from 60 kilometres south of Quesnel, north to Prince George. Vehicle access included Highway 2 and numerous gravel roads which connect the local, rural communities.

REGIONAL GEOLOGY

The rock units which underlie the Phase II area are a complex of metasedimentary, igneous including extrusive and intrusive, and sedimentary rocks. The metasedimentary units include the Cambrian Cariboo Group, the Permian Cache Creek Group and a Jurassic argillite. The intrusive units include a Triassic peridotite and the Jurassic Topley Intrusions. The extrusive rock units include the Jurassic Hazelton Group, Paleocene basic volcanics, Eocene acidic volcanics, Oligocene midrange volcanics and Miocene basic volcanics. Some of the above Tertiary volcanics appear to be subaerially extruded, while others displayed subaqueous pillows. The sedimentary units found within the area form part of the Fraser River Formation consisting of conglomerate, sandstone, shale, claystone and coal. The Table of Formations for the area north of Quesnel (Table 4) dates the coal-bearing unit as Miocene (Tipper, 1960), while the Table of Formations south of Quesnel (Table 5) dates the same formation as Eocene and/or Oligocene (Tipper, 1959).

Structural geology includes at least two stages of normal faulting, one set trending north-northeast and one set trending east-northeast. These two fault sets are concentrated and often intersect along the Fraser River Valley. The coal-bearing unit also appears to be concentrated along the Fraser River and its tributaries and may be related to the faulting features.

PHASE II - REGIONAL GEOLOGY NORTH OF QUESNEL, B.C.

ERA	PERIOD OR EPOCH		GROUP OR FORMATION	LITHOLOGY
CENOZOIC	QUARTERNARY	PLEISTOCENE AND RECENT		Till, gravel, sand, clay, silt
	TERTIARY	MIOCENE AND/OR LATER	Endako Group	Basalt, andesite, related tuff and breccia
		MIOCENE(?)		Conglomerate, sandstone, mudstone, lignite and diatomite
		PALEOCENE (?) TO OLIGOCENE		Andesite, basalt, breccia, tuff with minor sediments
				Rhyolite, dacite, trachyte, tuff and breccia with minor sediments
				Andesite, basalt, breccia, tuff, minor rhyolite
MESOZOIC	MIDDLE JURASSIC		Hazelton Group	Andesite, basalt, related pyroclastics, chert pebble conglomerate, argillite, greywacke
	LOWER JURASSIC AND (?) LATER		Topley Intrusives	Grandiorite, diorite, biotite granite, monzonite, gabbro
	UPPER TRIASSIC (?) AND LOWER JURASSIC (?)			Argillite, greywacke, andesite, basalt with related tuffs and breccias, conglomerate, shale, limestone
	TRIASSIC			Serpentinized peridotite, serpentinite
PALEOZOIC	PERMIAN AND EARLIER (?)		Cache Creek Group	Ribbon chert, argillite, volcanics, limestone
	MISSISSIPPIAN (?)		Slide Mountain Group	Chert, argillite, basalt, pyroclastic diabase
	CAMBRIAN		Cariboo Group	Micaceous quartzite, phyllite, argillite, with minor limestone

TABLE 4
(From: Tipper, 1960)

PHASE II - REGIONAL GEOLOGY SOUTH OF QUESNEL, B.C.

ERA	PERIOD OR EPOCH		GROUP OR FORMATION	LITHOLOGY
CENOZOIC	QUATERNARY	RECENT		Basalt, basalt breccia, volcanic ash
		PLEISTOCENE AND RECENT		Till, gravel, sand, clay and silt
	TERTIARY	MIOCENE AND (?) PLIOCENE		Basalt, andesite, related tuff and breccia, minor conglomerate, greywacke, shale, diatomite
		EOCENE AND/OR OLIGOCENE		Basalt, andesite, related tuff and breccia, minor conglomerate, sandstone, shale
			Fraser River Formation (?)	Conglomerate, sandstone, greywacke, shale, lignite, minor breccia, tuff and basalt
		PALEOCENE AND/OR EOCENE		Rhyolite, dacite, trachyte, related tuff and breccia, andesite, basalt, minor sediments
MESOZOIC	JURASSIC OR CRETACEOUS			Conglomerate, greywacke, argillite
	MIDDLE JURASSIC		Hazelton Group (In Part)	Andesite, basalt, related tuff and breccia, conglomerate, greywacke, shale
	Not known to be in contact			
PALEOZOIC	PERMIAN AND (?) EARLIER		Cache Creek Group	Chert, argillite, limestone, greenstone, minor greywacke and conglomerate

TABLE 5
(From: Tipper, 1959)

DEPOSITIONAL MODEL

The majority of the scattered occurrences of coal-bearing sediments previously mapped along the Fraser River are covered in part by Quaternary sediments. The presence of coal measures coupled with the concentration of faults, indicated a fault controlled, basinal development model (Figure 6). This theory suggests that graben type structures in the basement rock formed low relief areas in which sediments accumulated. It is also possible that faulting occurred in these lows during and/or after deposition, thus allowing additional sediment accumulation and preservation of the formation.

The sedimentary coal-bearing units north and south of Quesnel are concluded to be the same unit and appear continuous from the Cottonwood River to Alexandria. This unit appears to represent the Miocene/Eocene drainage system of an ancestral Fraser River (Tipper, 1960).

RECONNAISSANCE APPROACH

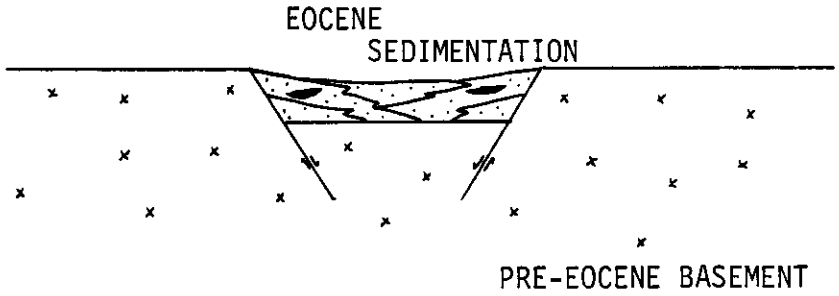
The first priority of this portion of the program was to investigate areas underlain by coal measures previously mapped by the G.S.C. An area immediately east of Quesnel has remained unmapped by the G.S.C. but because of its proximity to a known coal-bearing sedimentary unit, this area became an important target. Other target areas became apparent through detailed aerial reconnaissance for the location of sedimentary outcrop not previously reported.

In the initial stages of the program in the Phase II area a helicopter was used to determine access, gauge outcrop possibilities and to spot previously unmapped outcrop. Highway, all-weather roads and dirt roads were then used to gain access to the target areas. These areas were then investigated on foot. An effort was also made to contact the inhabitants of the area regarding coal outcrop locations.

Near the end of Phase II a brief investigation was made on the coal potential of the volcanic/sedimentary unit stratigraphically overlying the coal measures.

PHASE II - FAULT INDUCED BASIN: GRABEN TYPE

(1) SIMPLE
SINGLE STAGE



(2) COMPLEX
MULTIPLE STAGE

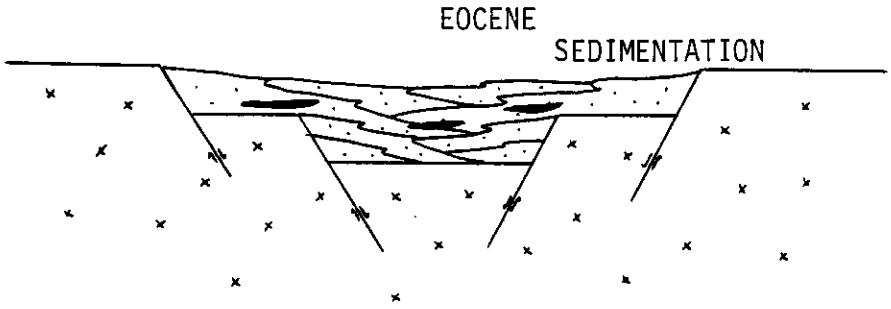


FIGURE 6

Due to the fact that all the rock in the Fraser River Formation is very poorly consolidated, it is often indistinguishable from Pleistocene or Recent river gravels. The clay content of the coal-bearing formation is very high, therefore, these lithologies are very water absorbant.

This high moisture content caused constant active slumping and sliding. This active slumping made river traverses both difficult and dangerous. At the time of exploration, the Fraser River and its tributaries were at flood level. This combination of active slumping and high water covered or obscured many known outcrops.

RESULTS

The geography of the area is dominated by gently rolling hills underlain by a thick veneer of glacial material. Bedrock is poorly exposed in the areas mapped by the G.S.C. as the Fraser River Formation. Outcrop is only exposed along the Fraser River and a few of its tributaries.

The sandstone is fine to medium grained and poorly sorted. The clasts of the conglomerate are pebble sized, well rounded and composed of quartz, metamorphic and volcanic material. The claystone is light brown or greyish to white and very water absorbant. The Fraser Valley also exposed outcrops of diatomaceous earth. All of the above lithologies are very poorly consolidated and exhibit very few bedding planes.

Coal outcrop was spotted in Target 59, on the east bank of the Fraser River, near the old Alexandria Ferry crossing and on Australian Creek. These outcrops are noted in the 1972 open file report by Master Explorations (T.N. Yoon). Coal float was also located in Target 75a around Moose Heights, north of Quesnel. Both of these occurrences have been known for some time and the one at Moose Heights was mined by local inhabitants in the early 1920's for household heating fuel (personal communication from local inhabitants).

CONCLUSIONS AND RECOMMENDATIONS

The Phase II area should not be dismissed as a potential coal area because the presence of known coal outcrops shows there could be undiscovered coal resources in the area. The task of finding and delineating any coal in the area is complicated by the scarcity of surface evidence, lack of apparent bedding planes and very limited knowledge of the structure and stratigraphy of the coal measures. The unconsolidated nature of the Tertiary sediments implies a low grade of coal quality and this is supported by core analysis done by Master Explorations Ltd. (T.N. Yoon, 1972) which ranks it as lignite/subbituminous "C".

The volcanic unit with associated sediments stratigraphically above the coal measures was thought to have moderate coal potential. Upon investigation it was found that the sediments in this unit made up approximately 2% to 5% of the total unit. The sediments were very immature, discontinuous clastic pods and had been baked by the dominating volcanics. The coal potential of this unit is essentially nil.

Coal potential in the Fraser River Formation is moderate to good, but due to the lack of surface evidence and lack of G.S.C. interest in the area, a drill program would be the only feasible approach to assessing this potential. Recommended work to plan such a program would include mapping the Fraser River by river boat when the Fraser is at low water, a search of the B.C. Archives to locate old coal adits in the area and investigation of B.C. government gravity surveys to try and pinpoint the area underlain by coal. Water well logs of the area have already been obtained and are essentially useless.

PHASE III

LOCATION

Phase III coverage was concentrated along the Bowron River Coalfield trend, the Willow River and structural trends along the Fraser River (Rocky Mountain Trench). The area was covered by N.T.S. map sheets 93G-E 1/2, 93H-W 1/2 and 93I.

REGIONAL GEOLOGY

On a regional scale, the search area is bounded to the south by the Purcell Arc, to the west by the Rocky Mountains and to the east by the Phase II reconnaissance area. Table 6 shows the geological formations of the area with the upper Cretaceous/Paleocene Bowron River sediments being the coal-bearing unit.

SEDIMENTARY MODELS

Three models exist as an explanation of the coal occurrence at Bowron River:

Model A - Faulting and Subsequent Deposition

A graben formed between Mississippian and Paleocene time creating a regional low and allowing a depositional basin for coal to form (Figure 7). This is the presently accepted model held by various authors. The following two equally valid theories were proposed for reconnaissance this summer.

Model B - Penecontemporaneous Faulting and Deposition

A graben type fault forming a basin could have occurred contemporaneously to Tertiary sediment accumulation and subsidence. With the proper genetic conditions and subsidence accumulation ratios, areas of coal swamp build-up could have occurred (Figure 8).

PHASE III - REGIONAL GEOLOGY OF THE BOWRON RIVER AREA

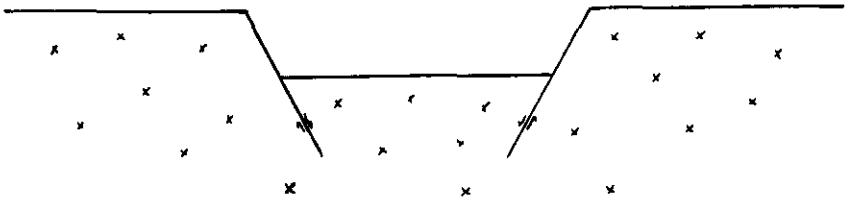
ERA	PERIOD OR EPOCH	GROUP OR FORMATION		LITHOLOGY
CENOZOIC	QUARTERNARY: PLEISTOCENE AND RECENT			Alluvium and glacial deposits; gravel, sand, silt, till
CENOZOIC / MESOZOIC	TERTIARY: PALEOCENE OR UPPER CRETACEOUS CRETACEOUS			Bowron River coal beds: conglomerate, breccia, sandstone, shale, coal
MESOZOIC	TRIASSIC? (UPPER TRIASSIC?)			Phyllite, argillite, minor limestone and quartzite
PALEOZOIC	MISSISSIPPIAN(?) OR YOUNGER			Serpentinite
PALEOZOIC	MISSISSIPPIAN	SLIDE MTN. GP.	Antler Formation	Pillow basalt, breccia, tuff, minor diorite and gabbro; chert, argillite, lithic sandstone
PALEOZOIC	MISSISSIPPIAN	SLIDE MTN. GP.	Guyet Formation	Conglomerate, argillite, lithic sandstone minor basalt; includes Greenberry limestone, member of crinoidal limestone at or near top of formation
PALEOZOIC	DEVONIAN	Black Stuart Formation		Basalt, chert, chert breccia and dolomite breccia, upper unit siliceous or cherty argillite and phyllite, chert, sandy limestone, sandstone
PALEOZOIC	LOWER AND UPPER CAMBRIAN	CARIBOU GP.	Dome Creek Formation	Shale, siltstone, limestone, argillite, phyllite
PALEOZOIC	LOWER CAMBRIAN	CARIBOU GP.	Mural Formation	Limestone, shale, phyllite, minor siltstone and sandstone
PALEOZOIC	LOWER CAMBRIAN AND/OR HADRYNIAN	CARIBOU GP.	Midas Formation	Shale, siltstone, phyllite, minor sandstone
PALEOZOIC	LOWER CAMBRIAN AND/OR HADRYNIAN	CARIBOU GP.	Yanks Peak Formation	Quartzite, siltstone, granule and pebble conglomerate
PROTEROZOIC	HADRYNIAN	CARIBOU GP.	Yankee Bell Formation	Shale, siltstone, limestone, sandstone, phyllite
PROTEROZOIC	HADRYNIAN	CARIBOU GP.	Cunningham Formation	Limestone, dolostone, shale, phyllite
PROTEROZOIC	HADRYNIAN	CARIBOU GP.	Issac Formation	Phyllite, argillite, schist and shale, minor siltstone, feldspathic sandstone and conglomerate, limestone
PROTEROZOIC	HADRYNIAN	Kaza Group (includes Snowshoe) Formation)		Feldspathic sandstone and granule conglomerate, locally schistose and micaceous, argillite, phyllite, schist, minor conglomerate, limestone and marble

TABLE 6
(From: Campbell, Mounjoy & Young, 1972)

PHASE III - BOWRON RIVER COAL FIELD MODELS

A - FAULTING & SUBSEQUENT DEPOSITION

(1) PREDEPOSITIONAL PHASE



(2) DEPOSITIONAL PHASE

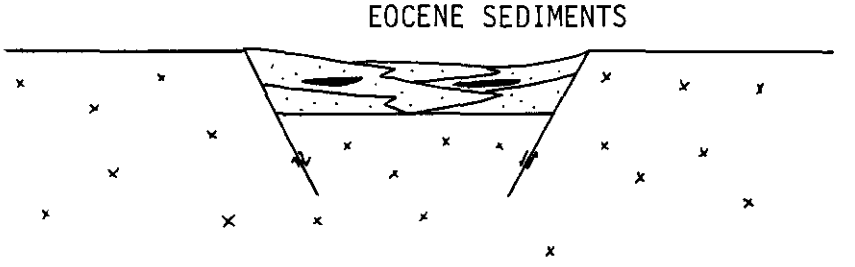
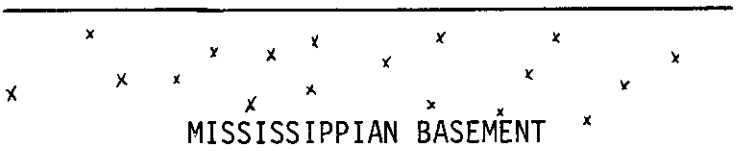


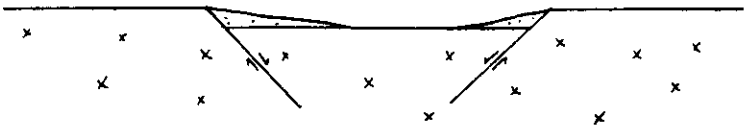
FIGURE 7

B - PENECONTEMPORANEOUS
FAULTING & DEPOSITION

(1)



(2) 1st STAGE: DOWNFAULTING
& SEDIMENTATION



(3) 2nd STAGE: CONTINUED DOWNFAULTING
& INCREASED SEDIMENTATION

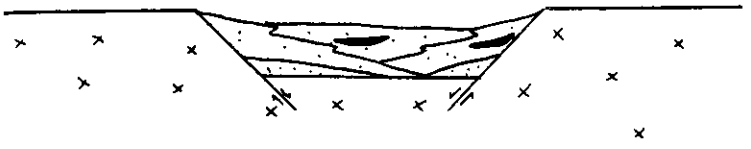


FIGURE 8

Model C - Widespread Deposition and Post-Depositional Downfaulting

It is also possible that a Tertiary sedimentary basin occurred through the central B.C. region with coal deposition occurring in a widespread fashion where proper physiological and depositional conditions were found. Local areas of post-depositional downfaulting related to post-Eocene tectonic activity have preserved isolated remnant basins from erosion (Figure 9).

RECONNAISSANCE APPROACH

During the initial stage of Phase III, considerable time was spent flying the Bowron River and Willow River trends. This helicopter coverage provided outcrop locations which were later investigated by foot traverse. A large percentage of time was spent investigating the Bowron River and its tributaries.

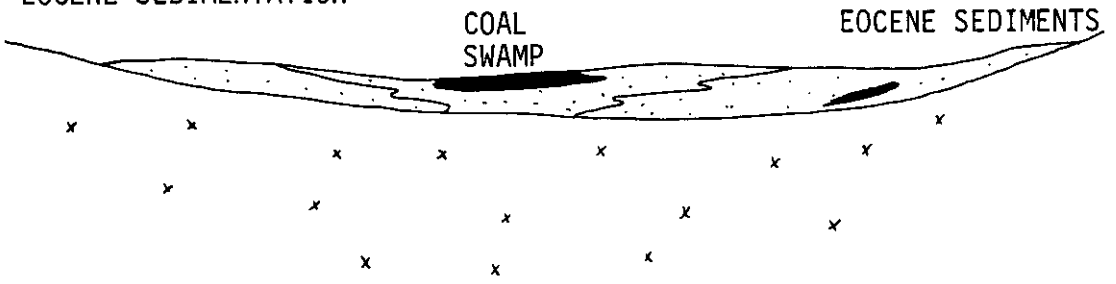
RESULTS

In the area north of Bowron River Coalfield, the topography is extremely flat and is covered with a thick veneer of glacial and alluvial material. The area directly south of the coalfield is more rugged with numerous outcrops exposed along the river and especially along the logging road which runs parallel to the Bowron. All outcrop south of the coalfield, upon investigation, turned out to be the metasedimentary unit of the sedimentary-volcanic Slide Mountain Group, Antler Formation.

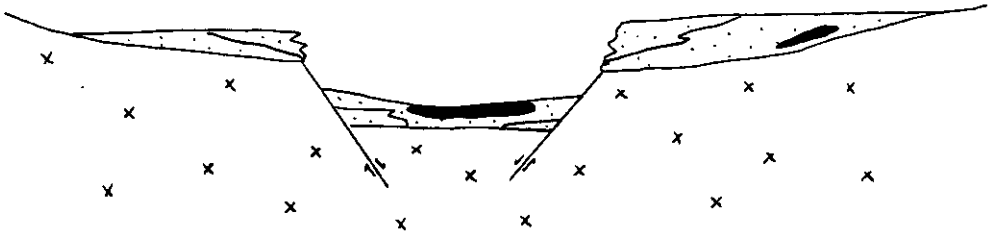
A study of the coal unit revealed that all three models could be considered valid in light of the existing geological configuration. Because of the apparent faulting and rather steep bedding orientation, it is likely that a post-depositional structural event occurred to help support Model C. On the other hand, the highly variable stratigraphic section observed could indicate a highly fluctuating environment due either to pulses of subsidence and sedimentation or a rapidly changing depositional environment possibly typical of an unstable sedimentary basin. This would concur with Model B. A combination of the two is apt to be more likely though, with Model B occurring in a small degree as a part of a widespread depositional basin, followed by the preservation features of Model C.

C - WIDESPREAD DEPOSITION &
POST-DEPOSITIONAL DOWNFAULTING

(1) EOCENE SEDIMENTATION



(2) POST EOCENE
DOWNFAULTING



(3) EROSIONAL PHASE -
PRESENT

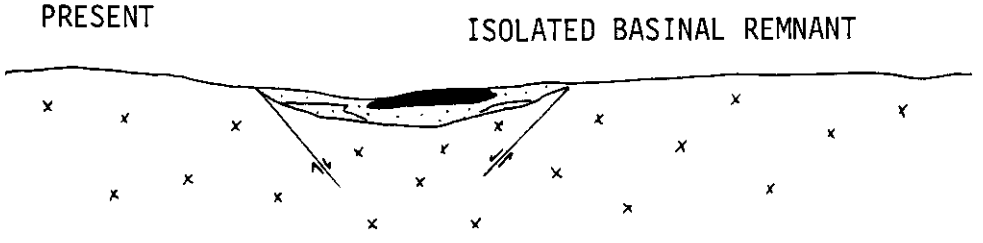


FIGURE 9

CONCLUSIONS AND RECOMMENDATIONS

The coal potential of the Phase III area is essentially nil, with the exception of the Bowron River Coalfield. A study of available government gravity surveys and Landsat coverage should be conducted to fully assess the potential north of the Bowron River Coalfield.

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TARGET SUMMARIES - PHASE 1

APPENDIX I a)

TARGET CRITERIA CODE

1 - Eocene sediments on basement rock

2 - Eocene volcanics and sediments interbedded on basement rock

3 - Eocene sediments under Eocene or younger volcanic cap rock.

4 - Eocene volcanics on basement rock (possible misidentification of inliers of sediment)

5 - Miocene volcanics on basement (possible windows of sediments.)

6 - Topographic lows in rocks presently considered basement rocks, i.e. Jurassic or Triassic volcanics or intrusives that may contain isolated basins.

TARGET SUMMARIES - PHASE 1 -

JUNE 2 - JUNE 28/82

* Denotes target not covered

TARGET # & MAP	TARGET MODEL (TYPE)	DESCRIPTION OF GEOLOGY
1 (92H/7)	2	The sediment encountered included a basal conglomerate, containing volcanic clasts, and some diatomaceous clay, carbonaceous wood fragments, overlain by medium grained sandstones. 030°/30°SE Flanking volcanics were andesites and basalts (Fig H0007 - sandstone o/c on Sunday Creek, H0008 - tuffaceous sandstone, H0015-16 - sandstone outcrop on Hiway 3.)
2 (92H/1)	3	Angular cobble conglomerate sandwiched by andesitic volcanics with no finer grained sediments found. (Fig H0017 - conglomerate on Crater Mountain)
3* (92H/8)	3	Priority 2 - small.
4 (92H/8)	3	Three rock units were mapped and included the Upper Triassic Nicola Group containing limestone, argillite and volcanics; Eocene basaltic volcanics of the Princeton Group and a very unconsolidated sandstone outcrop, possibly Pleistocene.
5* (92H/1)	3	Priority 4 - small, not easily accessable.
6 (92I/2)	2	Outcrop in area was scarce, and revealed only resistant volcanics & conglomerates containing intrusive & volcanic clasts.
7,8,9* (92H/8)	4	Priority 3 - small

TARGET NUMBER	TARGET MODEL (TYPE)	DESCRIPTION OF GEOLOGY
10 (92H/7)	4	PORPHOBITIC VOLCANICS WITH COMPOSITIONS RANGING FROM BASALT TO DACITE WITH ONLY ONE SEDIMENTARY OUTCROP OF CONGLOMERATE OCCURRING FACIALLY ASSOCIATED WITH VOLCANICS & PROBABLY 013°/81°W BEING A DEBRIS FLOW RELATED TO VOLCANISM.
12* (92H/16)	4	Priority 4 - not easily accessable.
13 (92H/15)	5	Priority 4 - no related sediments.
11 (92H/2)	4	Nicola Group volcanics and sediments bounded the target and contained mostly basaltic volcanics; argillite. Various sedimentary outcrops were located, one being siltstone (045°/24°SE) capped by andesitic volcanics; another a very fossiliferous unit including sandstones, claystone & siltstone with some beds containing carbonaceous twigs. (PHOTOS H0011 - andesite overlying sandstones & siltstones, H0012 - sandstone with clay matrix, H0013 - sandstone with clay matrix)
14, 15, 16 (92H/10)	5	Rhyolites, andesites & basalts were the only rock types encountered.
17, 19, 20, 22 *	6	Priority 4.
18, 21, 23	6	Intrusives of granite and granodiorite composition.

TARGET NUMBER	TARGET MODEL (TYPE)	DESCRIPTION OF GEOLOGY
24 (92H/16)	6	Target in the Nicola Group with the only outcrop being basalts. Priority 4
25* (92H/16)	6	
26 (92H/10)	6	Nicola Group metasediments and overburden.
27 (92I/15)	2	Small outlier of "hoodoo" forming conglomerate of the Kamloops Group Tranquille Beds. Conglomerate contains angular-unbrounded volcanic pebbles and cobbles.
28,56 (92I/14-15)	2	Layered volcanic flows.
29 (92I/15)	4	Large outcrop of basalt on hill top.
30 (92I/15)	1	Target contained two well consolidated outcrops of sandstone and limestone and an extensive roadside cut of Eocene sediments. This outcrop consisted of interbedded conglomerate and sandstone with organic horizons & coalified plant fragments. (155°/15°S)
31 (92I/10 92I/15)	1	Eocene sediments were located and consisted of conglomerate, sandstone and siltstones underlying a basaltic volcanic cap; otherwise no new sedimentary locales were observed. (010°/25°W)

TARGET # & MAP	TARGET CRITERIA	DESCRIPTION OF GEOLOGY
32 (92I/16)	4	Andesitic-basaltic volcanics with no related sediments.
33 (92I/9)	6	Exposure very good and only rocks of the Cache Creek Group were observed.
34 (92I/9-10)	2	Tertiary volcanics, flow breccia and conglomerate were located as mapped
35 (92I/9-10)	6	Triassic basic volcanics and chloritic schists of the Nicola Group.
36 (92I/8-9)	6	Area covered by target includes units mapped as Cache Creek Gp, Nicola Gp and Coast Intrusions though no outcrop was seen due to extensive overburden.
37 (92I/8)	4	No outcrop seen due to glacial overburden.
38. (92I 8-9)	4	Rhyolitic and basaltic volcanics observed.
39		? Where is the target?
40 & 41 (92I/8-9)	2	Outcrop seen was mostly Tertiary volcanics consisting of basalts, andesites, Rhyolite, flow breccias and debris flows. One outcrop of sandstone is capped by a basalt flow that baked the sediments to hard cornfels and silica rich fluids which created geodes and agates in the outcrop.

TARGET # & MAP	TARGET CRITERIA	DESCRIPTION OF GEOLOGY
42 (92I/10)	4	Most of the outcrop encountered was volcanic with one large occurrence of very poorly sorted conglomerate which capped Mt. Savona. It contained very large boulders (2m x 1m) of basalt and several interbeds of horizontally bedded sandstone.
43 (92I/7)	6	Located isolated outcrop of Coldwater Beds of the Eocene Kamloops Group which consisted of conglomerate with a sandstone matrix. Surrounding area was checked but only Nicola Group volcanics were found.
44. (92I/7)	6	Nicola Group volcanics and overburden.
45* (92I/7-8)	6	Priority 4
46 (92I/8)	6	Heavily covered with overburden.
47* (92I/1-8)	6	Priority 4.
48* (92I/1)	6	Priority 4
49* (92I/1)	4	Priority 4

TARGET # & MAP	TARGET CRITERIA	DESCRIPTION OF GEOLOGY
50. (92I/2)	1	Basaltic lavas predominated outcrop with the one occurrance of sediment being conglomerate.
51 (92I/8)	6	Only Eocene volcanics and Triassic metasediments encountered.
52* (92I/13)	4	Priority 4 - Very remote
53 (92I/13)	1	No outcrop except oxidized glacial outwash
54* (92I/13)	4	Priority 4 - Access difficult.
55* (92I/13)	4	Priority 4 - No access.
56. (SEE # 26)		
57 (92I/11)	4	One outcrop observed consisted of fine grained to coarse bioturbated clastics flow with many conglomerate/sandstone interbeds (058°/20°SE)
SPENCES BRIDGE (92I/6)	1	Located one small outcrop of medium grained sandstone containg coal plant fragments.
CHU CHUA (92P/8)	1	Conglomerate outcrops were seen but access to the Chu Chua coal occurrances was prohibited by the presence of a reservation.

PALYNOLOGY SAMPLE LIST:
B.C. RECON - PHASE 2

SAMPLE #	TARGET #	DATE D m y	EASTING	NORTHING	SAMPLE DESCRIPTION	SEND
R0001 a	10	1/6/82	675900	5457700	Volcaniclastic with	
b	10	1/6/82	675900	5457700	woody material	
R0002	10	1/6/82	680500	5480900	Carby stringers in coarse grained sandstone.	✓
R0014	10	2/6/82	676200	5461900	Conglomerate matrix	
R0024 a	11	3/6/82	682600	5450150	Conglomerate matrix	
b	11	3/6/82	682600	5450150	sandstone	✓
R0025 a	11	3/6/82	684800	5449900	sandstone & carby wood	✓
b	11	3/6/82	684800	5449900	sandstone	
c	11	3/6/82	684800	5449900	sandstone & carby wood	
R0027	11	3/6/82	686500	5450950	Conglomerate matrix	
R0018	11	3/6/82	679000	5451200	argillite - Nicola Gp.	
R0031	4	4/6/82	709800	5479100	sand - Pleistocene	
R0039	42	11/6/82	653250	5613000	siltstone	
R0040	42	11/6/82	653800	5616800	sandstone.	✓
R0043	Spences Bridge	13/6/82	557970	6179500	sandstone.	✓
R0044	31	15/6/82	673150	5623500	sandstone.	✓
R0045	30	16/6/82	652500	5637250	shale - J. or K?	
R0046	31	16/6/82	648280	5644450	Conglomerate matrix	
R0047	30	16/6/82	647300	5647600	sandstone	
R0048	30	16/6/82	647850	5643150	sandstone & shale.	✓
R0049	30	17/6/82	647500	5643100	sandstone & shale - K?	
R0051	27	17/6/82	642450	5640600	conglomerate matrix	
R0052	~28	17/6/82	641750	5646300	conglomerate matrix	
R0054	57	23/6/82	634900	5620500	tuffaceous sandstone	
R0055	57	23/6/82	635300	5620450	sandstone	
R0056 a	Monte	24/6/82	301300	5614600	sandstone	✓
b	Creek	24/6/82	298900	5601600	sandstone & conglomerate matrix	

PALYNOLOGY SAMPLE LIST:
B.C. RECON. - PHASE I

SAMPLE #	TARGET #	DATE d m y	EASTING	NORTHING	SAMPLE DESCRIPTION	SEND
R0057	42	26/6/82	654300	5519800	Sandstone - Nicola Gp?	
R0058	Red Point	26/6/82	665706	5525700	sandstone & siltstone	✓
R0059	"	26/6/82	665306	5529300	Sandstone & siltstone	
H0004a	1	1/6/82	675900	5457650	Conglomerate matrix	
b	1	1/6/82	675900	5457650	sandstone	
H0005	1	2/6/82	677400	5459500	Conglomerate matrix	
H0006	1	2/6/82	677600	5459600	sandstone	
H0007	1	2/6/82	676750	5458950	sandstone	
H0008	1	2/6/82	677650	5459550	sandstone	
H0010a	1	2/6/82	679300	5458250	Conglomerate matrix	
b	1	2/6/82	679300	5458250	diatomaceous clay	
H0011 a	"	3/6/82	681500	5448000	sandstone & siltstone	
b	"	3/6/82	681500	5448006	siltstone	
H0012	"	3/6/82	681500	5448000	Sandstone	
H0013	"	3/6/82	681850	5445850	Sandstone	
H0014	"	3/6/82	682150	5445450	sandstone	
H0015	1	3/6/82	678200	5453250	sandstone	
H0017	2	4/6/82	716606	5453350	Conglomerate matrix	
H0019	"	6/6/82	699700	5447600	Conglomerate matrix	

SAMPLES FOR ANALYSIS PHASE 1

#	LOCATION	REASON	ROCK TYPE
R0002	TARGET 10 PRINCETON	EXACT AGE OF SEDS.	SST
R0024b	TARGET 11 PLACER MTN	"	SST
R0040	TARGET 42 MT SAVONA	AGE OF IBS OF SST IN CONGL.	SST
R0025a	TARGET 11 PLACER MTN	AGE OF SEDS IN MAPPED VOL. UNIT.	SST,

SAMPLES FOR ANALYSIS PHASE I RB

#	LOCATION	REASON	ROCK TYPE
R0048	TARGET 30 CRISS CK.	- UNCONSOLIDATED & RESEMBLES EOCENE SEDS FOUND IN AREA - MAPPED AS CRETACEOUS.	- SST & SHALE
R0044	TARGET 31	- SST - PLEIST.?	- SST
R0043	SPENCES BRIDGE	- SED IN VOLC. TARGET	- SST
R0056	MONTE CREEK	- SEDS IN VOLC. TARGET MAPPED AS TO INCLUDE SEDS.	- SST
R0058	RED POINT	- EXACT AGE OF TRANQUILLE BEDS ON NORTH SHORE OF KAMLOOPS LK.	SST - siltstone

TARGET # 1

I

i) Dates Worked -- 2hrs. June 1 (H.H & R.B.), June 2 (H.H.), 2hrs June 3 (H.H.)

ii) Outcrop #'s -- H0004 - H00010, H0015, H0016

iii) Sediment Sample #'s -- H0004a,b, H0005 - H0008, H0010a,b, H0015

iv) Map Sheet -- 92H/2, 92H/7

v) Photos --

II

i) Traverse Description:

June 1 - Hwy 3 south to o.c.# H0004 & R0001

June 2 - 1/2 down Sunday Creek from Hwy 3
- road traverse parrallel to Sunday Cr.

June 3 - drove north from tip of Manning Park along Hwy #3.

ii) Rock Types Encountered: Along Hwy 3 the sediment to the north is a coarse matrix rounded cobble conglomerate associated with green andesitic source rock containing sandstone with occassional corby wood fragments ranging from 3-40cm in length. Proceeding south the cobble conglomerate passes into a mature subrounded to rounded medium grained massive sandstone higher in the section. Bedding reddings are rare due to the massive, recessive nature of the sediment. Sunday Creek was dominated by conglomerate and one outcrop of diatomaceous clay overlying the conglomerate Lower half of the Creek though was exclusively andesite.

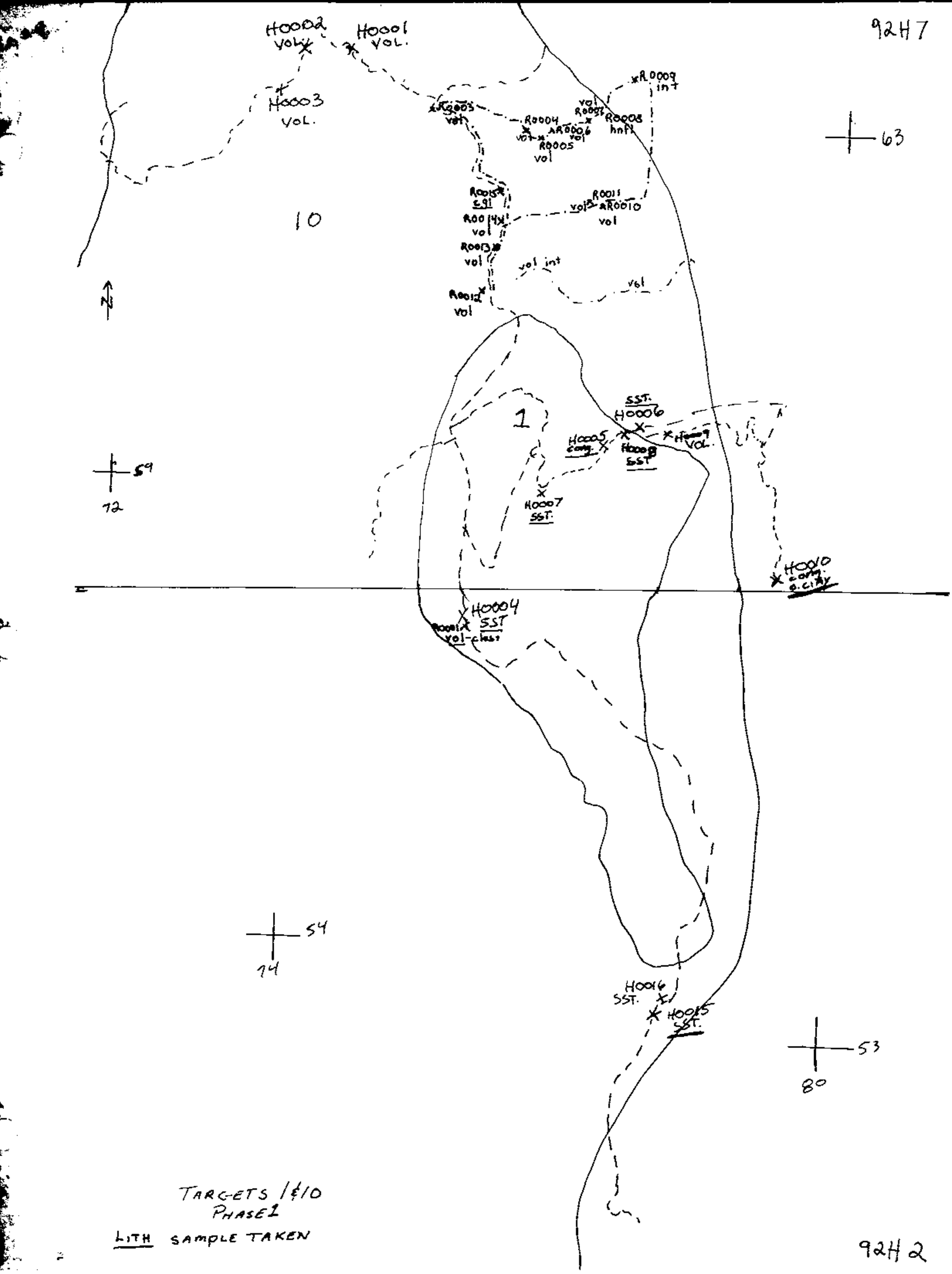
TARGET #

iii) Description of Outcrop/Topography:

Outcrop occurs mostly along road cuts and along streams where topography is the steepest

III Target Summary

The sediments fall within the GSC mapped boundaries and perhaps correlate with those found in area II. Later erosion by the Similkameen has isolated the occurrances.



92H7
H0002 VOL.
H0001 VOL.
H0003 VOL.
R0004
R0005 vol
R0008 hnfl
R0009 int
R0011
R0010 vol
10
vol int
vol
R0012 vol
N
63
1
SST. H0006
H0005 cong.
H0008 SST
H0009 VOL.
H0007 SST.
59
72
H0010
H0004 SST
R0001 vol-clast
54
74
H0016 SST.
H0015 SST.
53
80
TARGETS 1&10
PHASE 1
LITH SAMPLE TAKEN
92H2

TARGET # 2

I

i) Dates Worked -- 2hrs 4/6/82, (H.H)

ii) Outcrop #'s -- H0017-18

iii) Sediment Sample #'s -- H0017

iv) Map Sheet -- 92H/1

v) Photos --

II

i) Traverse Description: Road traverse up cart trail on the side of Crater Mtn.

ii) Rock Types Encountered: The lower third of the road cut into andesitic volcanics, the middle through an Eocene cobble conglomerate with angular clasts of 2-20 cm in a lithic matrix, and the upper third revealed volcanics

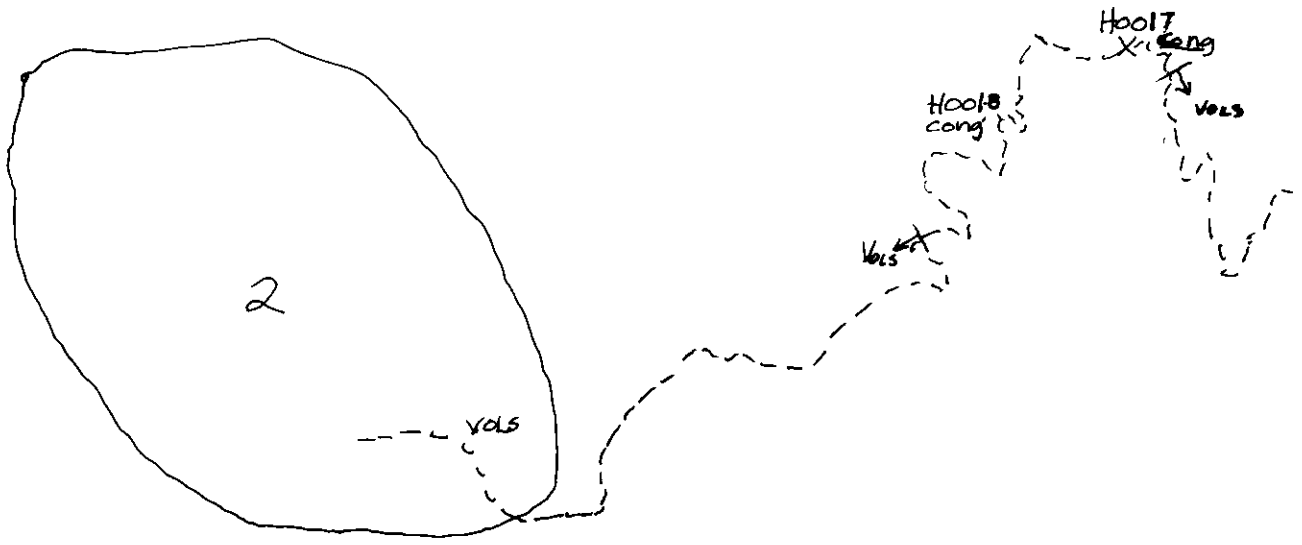
TARGET #

---

iii) Description of Outcrop/Topography: Pleistocene sediment resembled Eocene except it was not as well consolidated. Road cuts rock types up section.

III Target Summary Coverage sufficient

58
16



99
12

92H1

TARGET # 4

I

i) Dates Worked -- 1 crew day, 4/6/82 (R.B.)

ii) Outcrop #'s -- R0031

iii) Sediment Sample #'s -- R0031

iv) Map Sheet -- 92H/8

v) Photos --

II

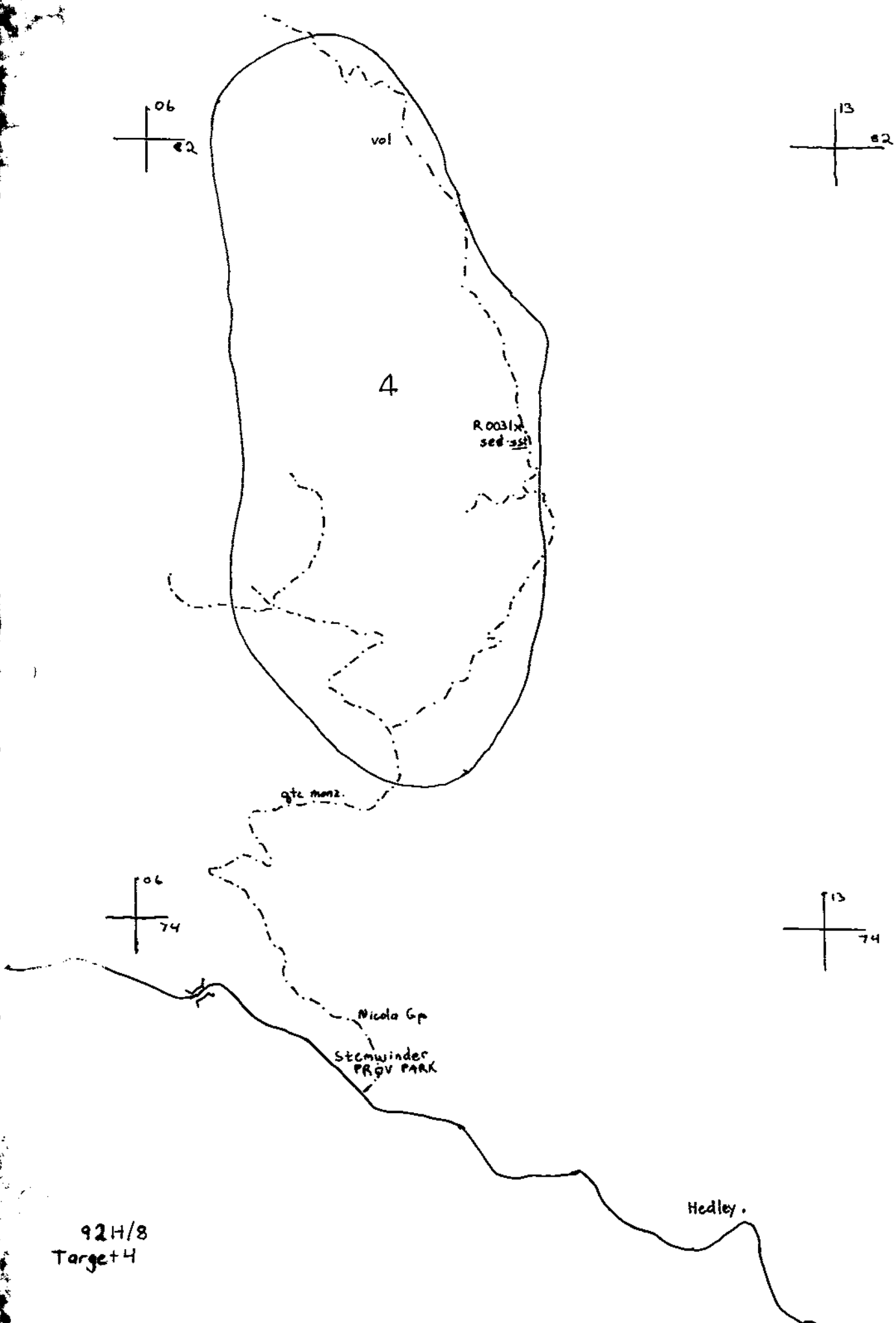
i) Traverse Description: Road traverse up logging road 3/10 km east of Stemwinder Provincial Park, south to McNulty Cr. Stream traverse 1/2 mile upstream on small tributary.

ii) Rock Types Encountered: These included volcanics, argillites and limestones of the Nicola Gp; quartz monzanite and granite of the Coast Intrusions, Eocene volcanics and Pleistone sandstone.

TARGET #

iii) Description of Outcrop/Topography: Outcrop was rarely found on road cuts but on hillsides. Topography was very steep but upon reaching the target it became gentler.

III Target Summary Area was heavily covered by till and no outcrops of interest were found. Eocene sediments mapped by the GSC were not located but it is a possibility that the sandstone found is unconsolidated Eocene sediment resembling Pleistocene. Possibility of coal occurring is slim.



92H/8
Target+4

TARGET # 6

I

i) Dates Worked -- 1 crew day 9/6/82, 2hrs 10/6/82 (R.B.)

ii) Outcrop #'s -- R0032-35

iii) Sediment Sample #'s -- NIL

iv) Map Sheet -- 92H/15, 92I/2

v) Photos --

II

i) Traverse Description: Area was easily reached off Hwy 5 south from Merrit. All was covered by road except 2km on foot due to road blockage.

ii) Rock Types Encountered: Included volcanics, volcaniclastics, and very coarse conglomerate of Eocene age. Drift was very thick.

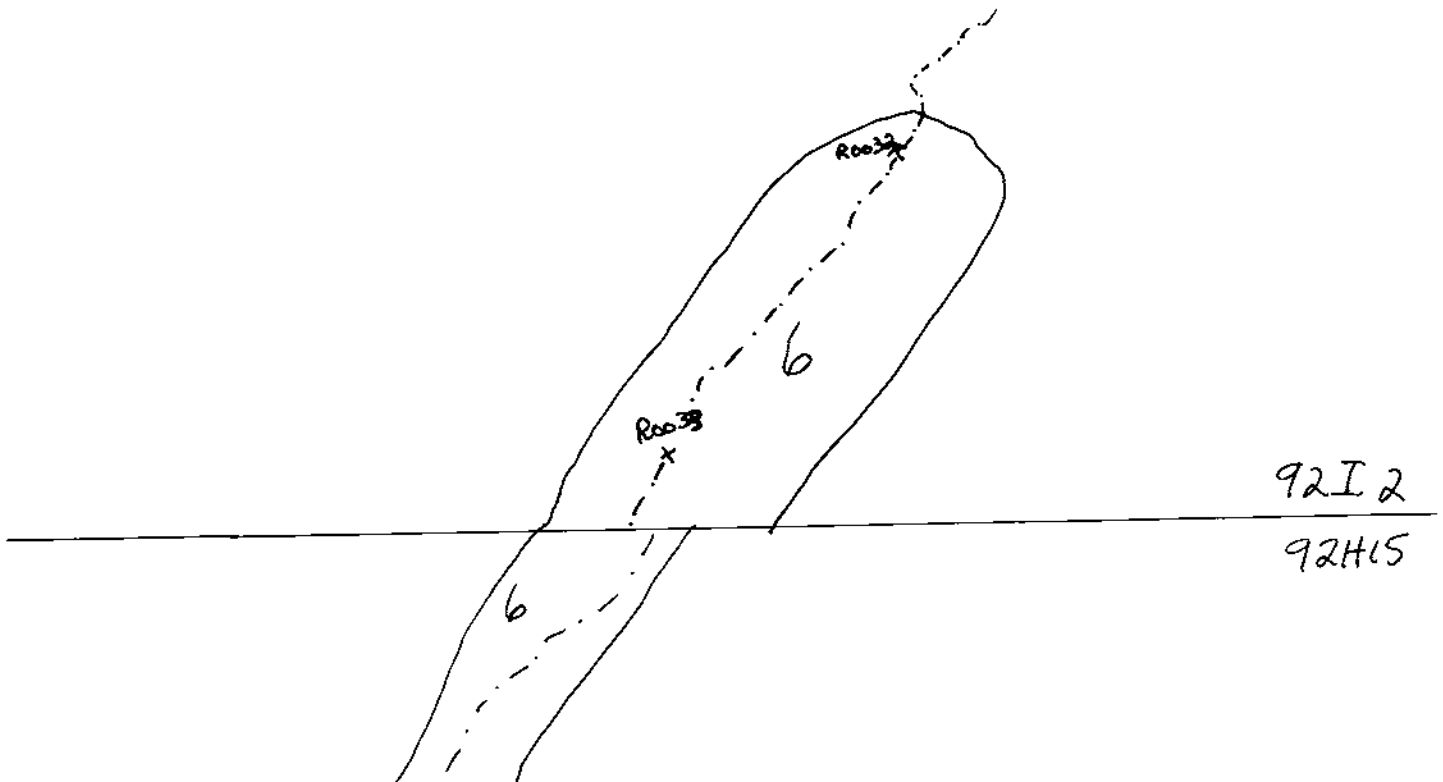
TARGET #

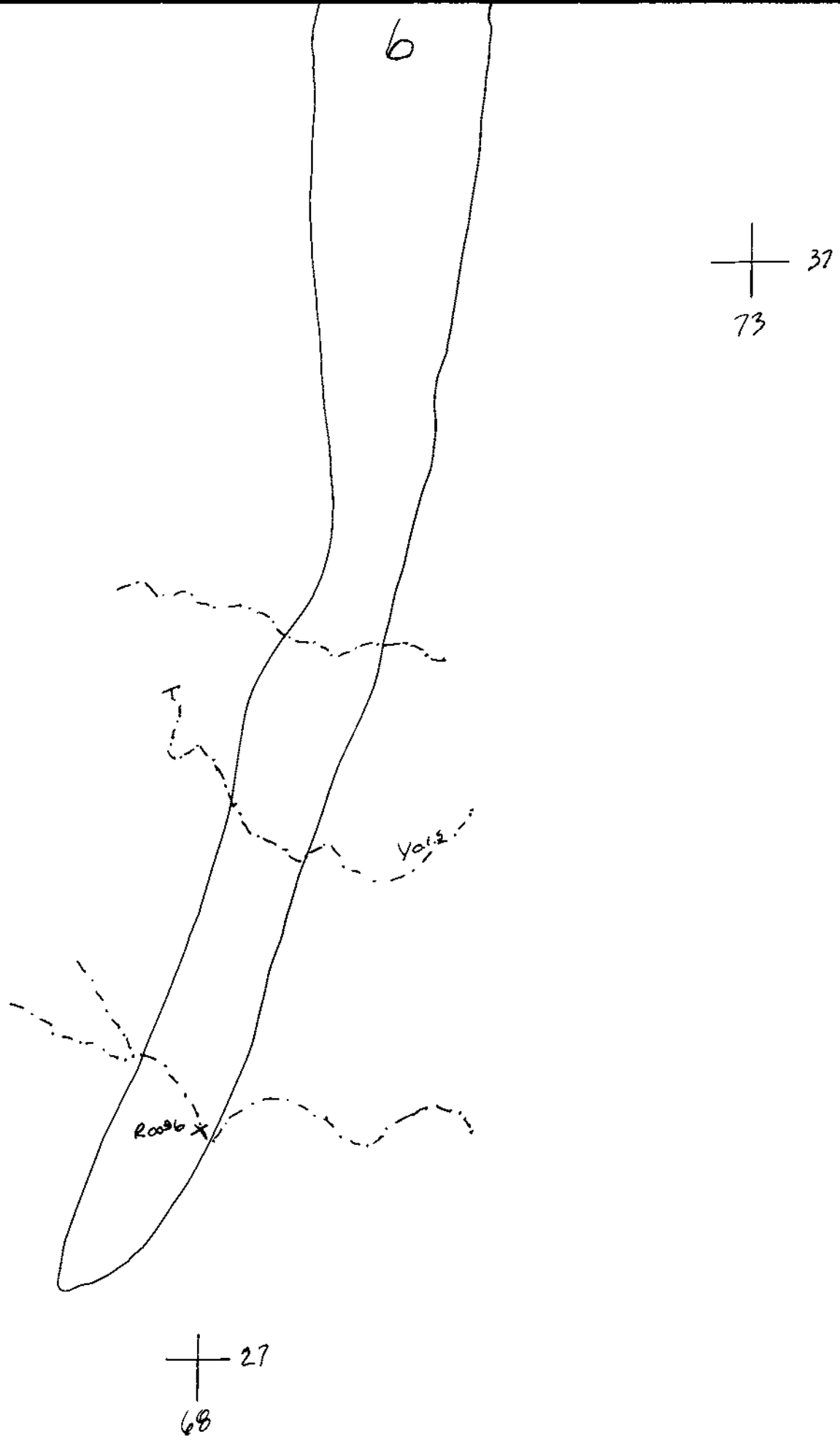
iii) Description of Outcrop/Topography: Topography was very gentle and therefore outcrop was scarce and, when found usually on hillsides or roadcuts, was small.

III Target Summary Coverage of the area was extensive and the only sediment found was conglomerate.

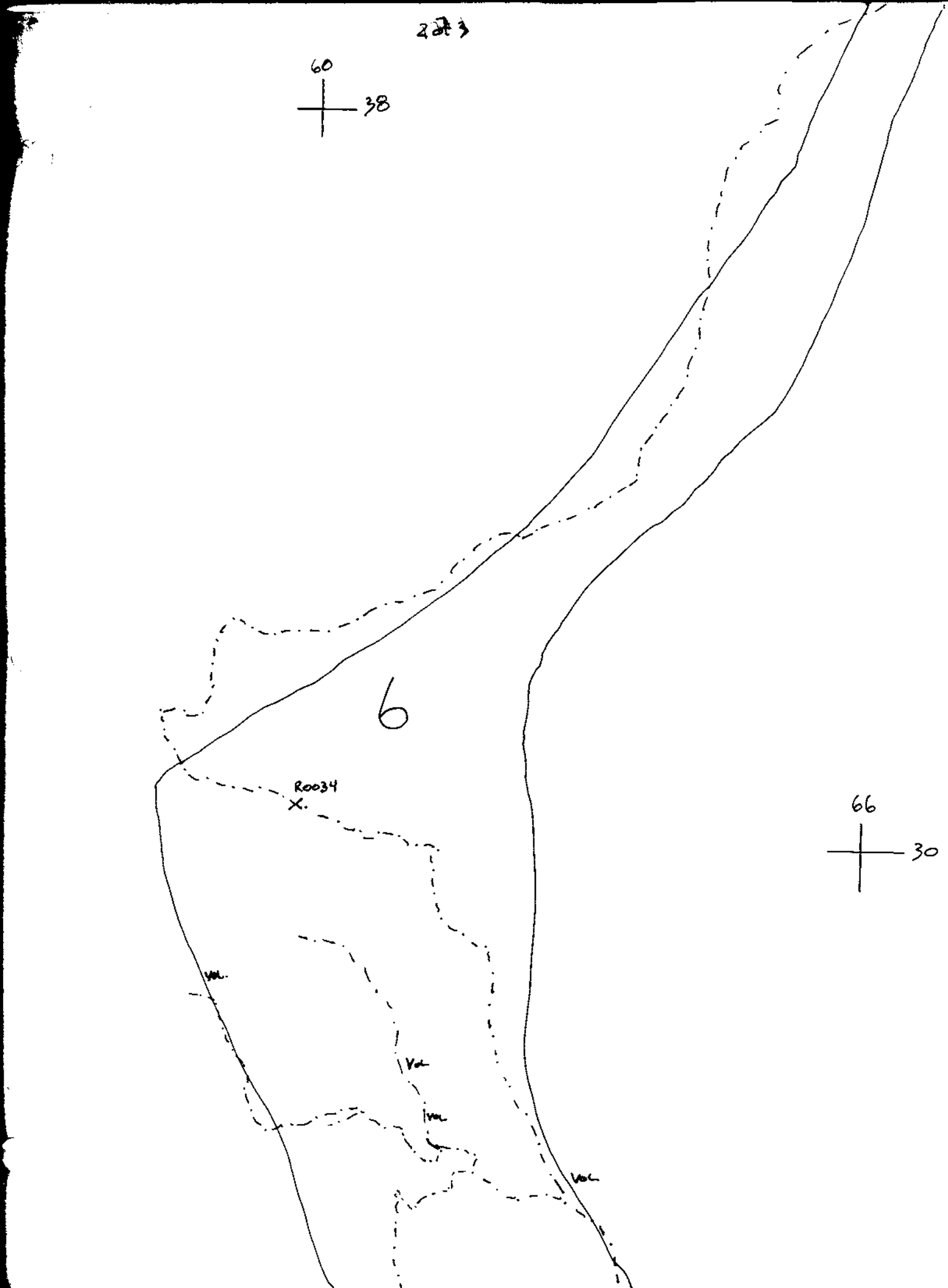
47
64

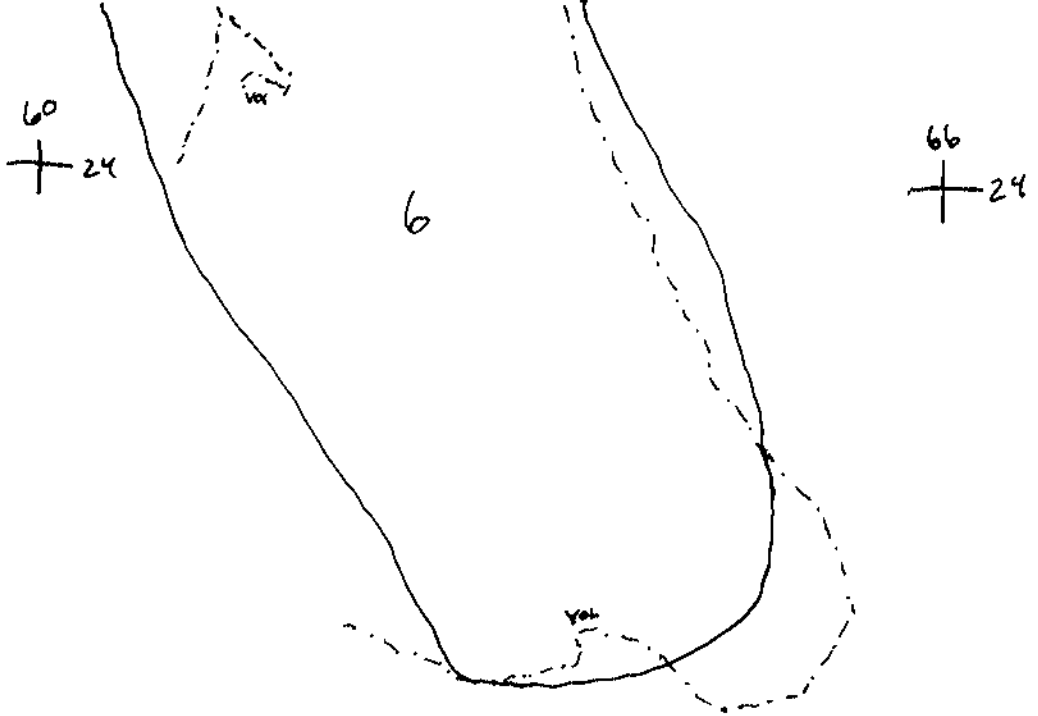
46
72





92H15


60
38
6
R0034
66
30
Vol.
Vol.
Vol.
Vol.



92H 15

TARGET # 10

I

i) Dates Worked -- 1 crew day, 2/6/82 (R.B)

ii) Outcrop #'s -- R0001, R0003-15, H0001-3

iii) Sediment Sample #'s -- R0015

iv) Map Sheet -- 92H/7

v) Photos --

II

i) Traverse Description: Stream traverse of Friday and Saturday Creeks with some x-country hiking.

ii) Rock Types Encountered: Most outcrop encountered was volcanic ranging from basalt to dacite usually porphoritic. The one sediment showing was sandwiched between volcanics. Granite and granodiorites of the Copper Creek Intrusion were also seen.

TARGET #

---

iii) Description of Outcrop/Topography: The outcrop is usually small, badly weathered and moss covered along the steams. Float, in most cases, reflected the surrounding rock type. The topography was normal, becoming steeper towards the Simil Kameln.

III Target Summary The area was originally mapped as Eocene volcanics but one sediment showing was found, this being a conglomerate with rounded clasts of various compositions. A tuff, interpreted as being waterlain was found at outcrop R0013. Coal and other ressessive sediments are not likely to be found in surface outcrop as exposure is generally poor.

(For traverse location see mylar with Target # 1)

TARGET # 11

I

i) Dates Worked -- 1 crew day, 3/6/82 (R.B.)

ii) Outcrop #'s -- R0016-30

iii) Sediment Sample #'s -- R0014, R0024a&b, R0025a,b&c, R0027, R0018.

iv) Map Sheet -- 92H/7

v) Photos -- NIL

II

i) Traverse Description: Road traverse up Placer Cr. logging road access from Hwy 3 south of Princeton.

ii) Rock Types Encountered: Nicola Gp. volcanics and argillites outside the target and Eocene volcanics and sediments in target boundaries.

TARGET #

iii) Description of Outcrop/Topography: All outcrop consisted of road cut exposure and was easily located. Topography was mountainous but not steep. Some overburden but was not excessive.

III Target Summary Eocene sediment outcrop included conglomerates (very badly weathered and gossany) along with very recessive sandstones and siltstones such as at R0025. Due to the recessive nature of these sediments new outcrop probably could only be located if new roads were cut.

TARGET # 11

I

i) Dates Worked -- 2 crewdays; 3/6/82, 6/6/82. (H.H.)

ii) Outcrop #'s -- H0011-14, H0019.

iii) Sediment Sample #'s -- H0011a & b, H0012, H0013, H0014, H0019.

iv) Map Sheet -- 92H/1, 92H/2

v) Photos -- NIL

II

i) Traverse Description: Logging roads on west side of target. good but poor on east side.

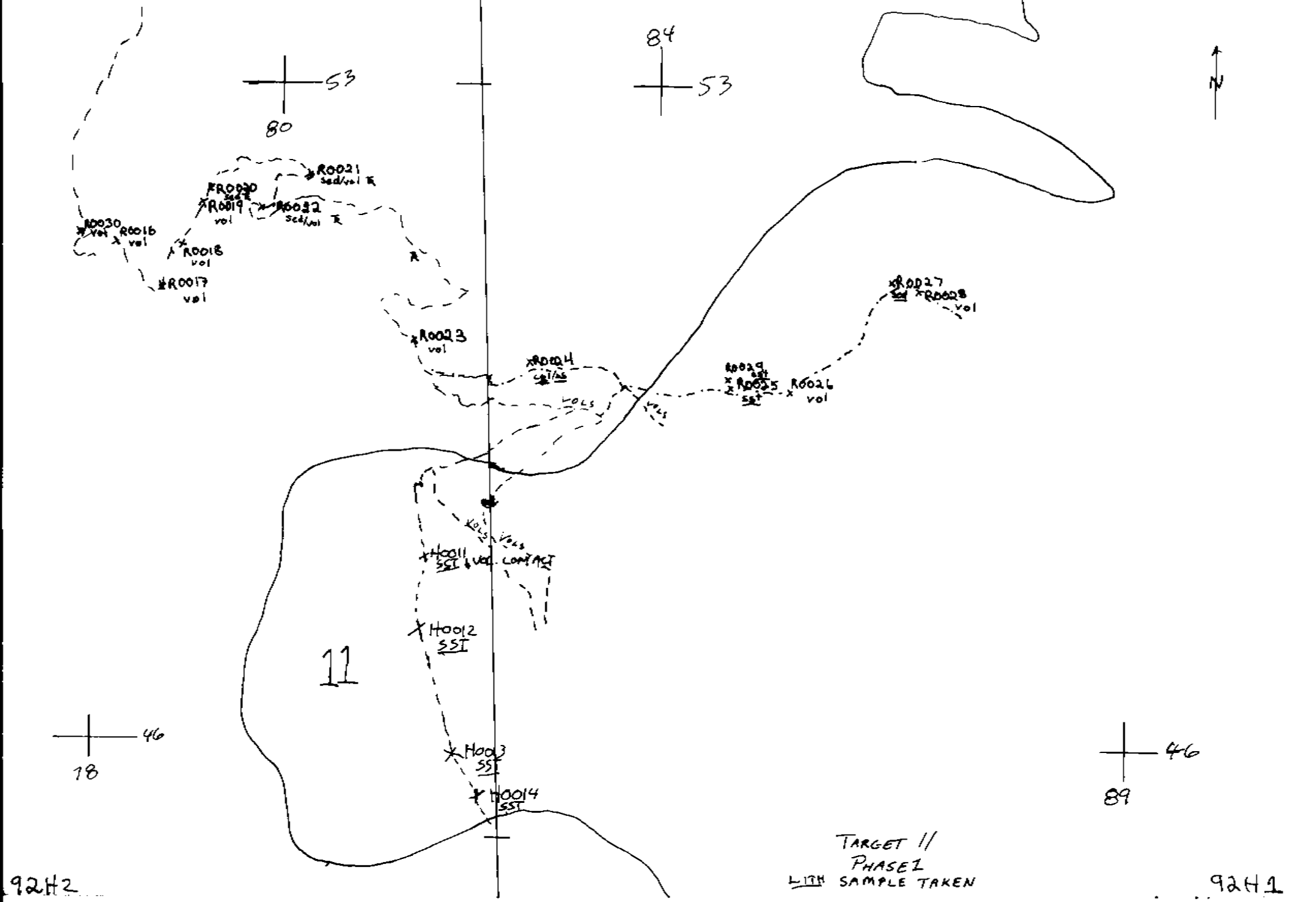
ii) Rock Types Encountered: On the west side Eocene volcanics and the upper contact of a sedimentary unit & volcanic cap were encountered. This consisted of sandstone and siltstone topped by a rhyolitic volcanic flow.

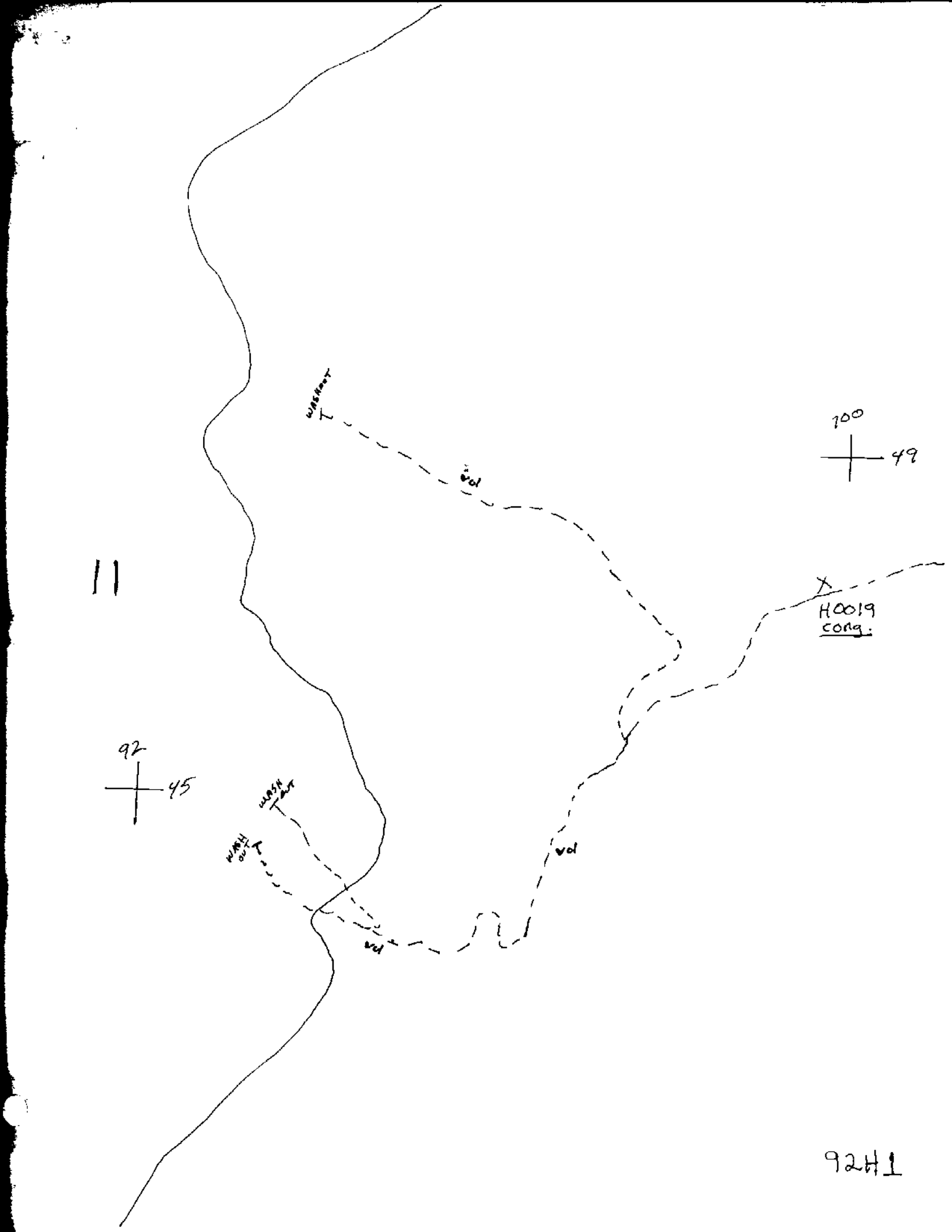
TARGET #

---

iii) Description of Outcrop/Topography:

III Target Summary The sediments found in target 1 and this target may have once been one continuous unit sandwiched by the volcanics of 10 and 11. Present exposures are a result of glaciation and erosion.


84
53
80
53
N
R0021
sed/vol R
R0020
sed R
R0019
vol
R0022
sed/vol R
R0030
vol
R0016
vol
R0018
vol
R0017
vol
R0023
vol
R0024
sed/ss
R0027
sed
R0028
vol
R0029
sed
R0025
ss
R0026
vol
HOLS
HOLS
HOLS
HOLS
H0011
SSI
VOL. CONTACT
H0012
SSI
11
H0013
SSI
H0014
SSI
46
18
46
89
TARGET 11
PHASE 1
LITH SAMPLE TAKEN
92H2
92H1


11
92
45
100
49
H0019
cong.
92H1

TARGET # 14, 15, 24

I

i) Dates Worked -- 1 crew day, 9/6/82; (H.H.)

ii) Outcrop #'s -- NIL

iii) Sediment Sample #'s -- NIL

iv) Map Sheet -- 14 & 15 - 92H/15; 24 - 92H/16

v) Photos -- NIL

II

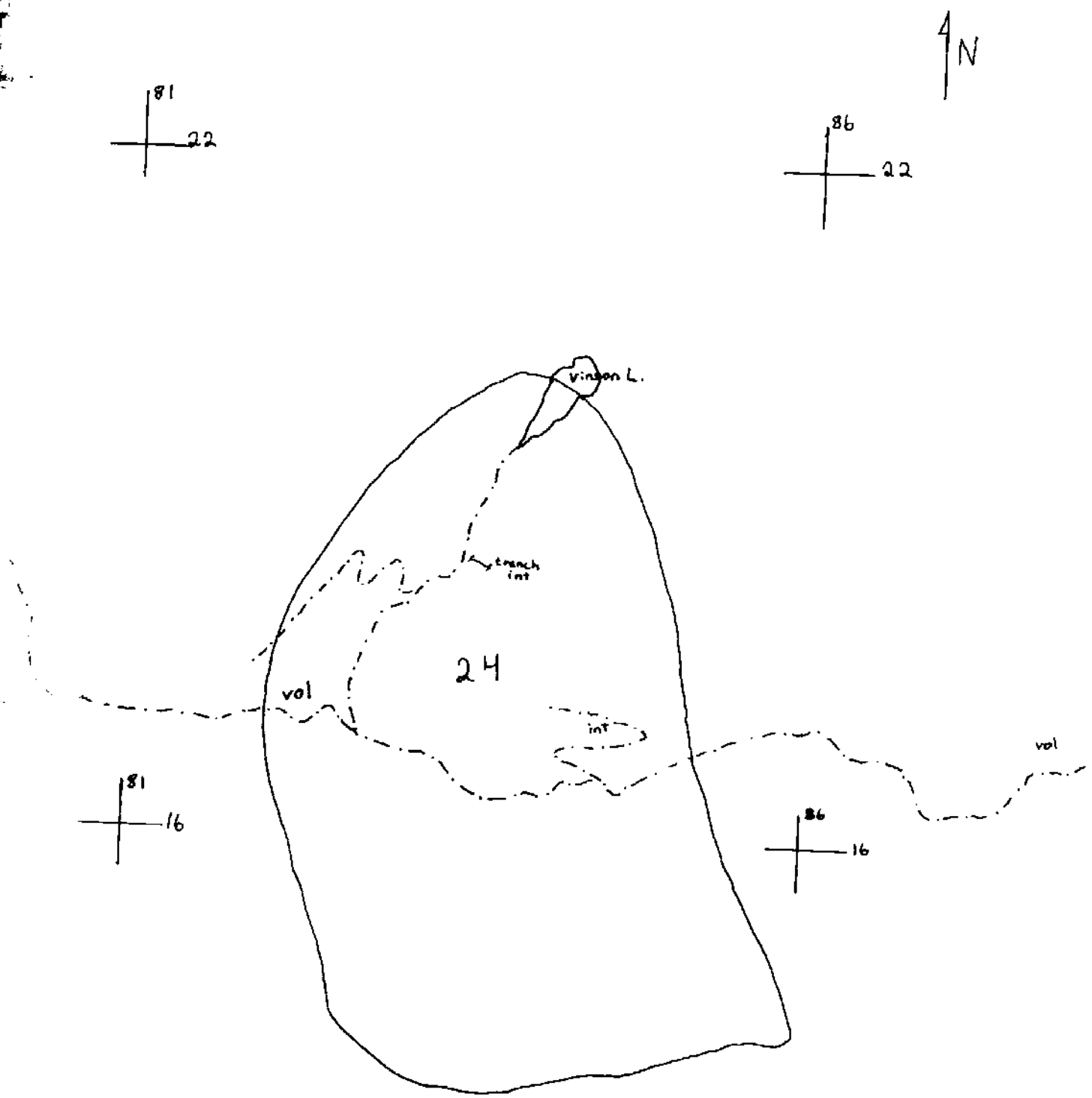
i) Traverse Description: Road traverses were done on loose surface dry weather roads through all three targets. Access was excellent on target 24 with numerous logging roads branching off the main gravel road. Road coverage of target 15 was adequate but that of 14 poor. Target 25 west of 14 was inaccessable by road due to overgrowth.

ii) Rock Types Encountered: ~~K~~: Nicola Gp : basalts
~~Je~~: Coast Intrusions : diorite
IK : Kingsvale Gp : volcanic breccia
Miocene: Princeton Gp : andesite, basalt.

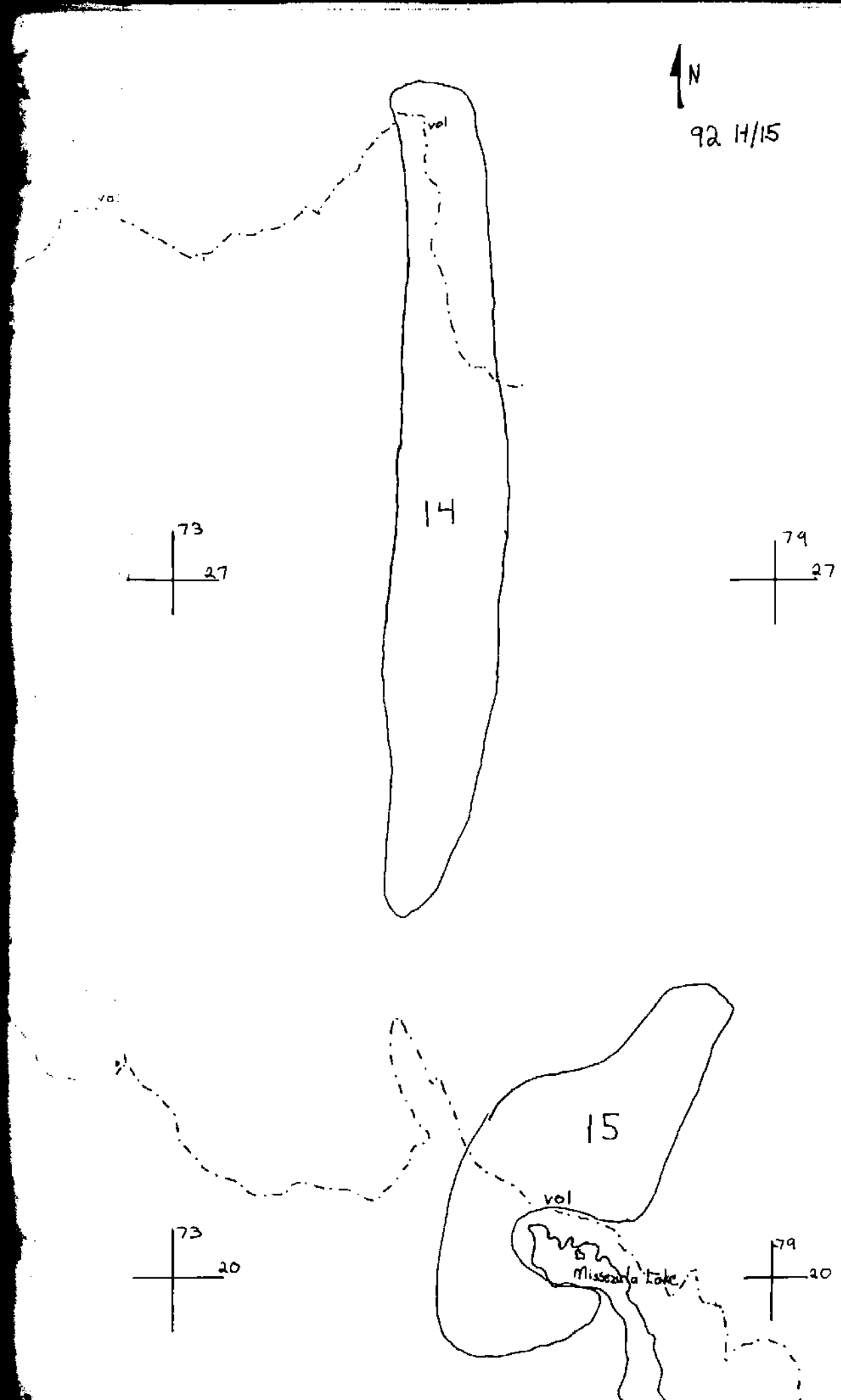
TARGET # 14, 15, 24

iii) Description of Outcrop/Topography: Outcrop consisted mostly of roadcuts, but also occurred along hillsides. Trenches dug on target 24 exposed basic volcanic rocks. Exposure on all targets was poor due to a heavy cover of drift. Topo was hilly.

III Target Summary Since no Eocene sediments were found in this area, prospect for coal are poor.



92 H/16


N
92 H/15
vol
vol
14
73
27
79
27
15
vol
73
20
Missezula Lake
79
20

TARGET # 16

I

i) Dates Worked -- 1/2 crewday 4/6/82 (H.H.)

ii) Outcrop #'s -- NIL

iii) Sediment Sample #'s -- NIL

iv) Map Sheet -- 92H/7

v) Photos -- NIL

II

i) Traverse Description: Road traverses along various roads in the area.

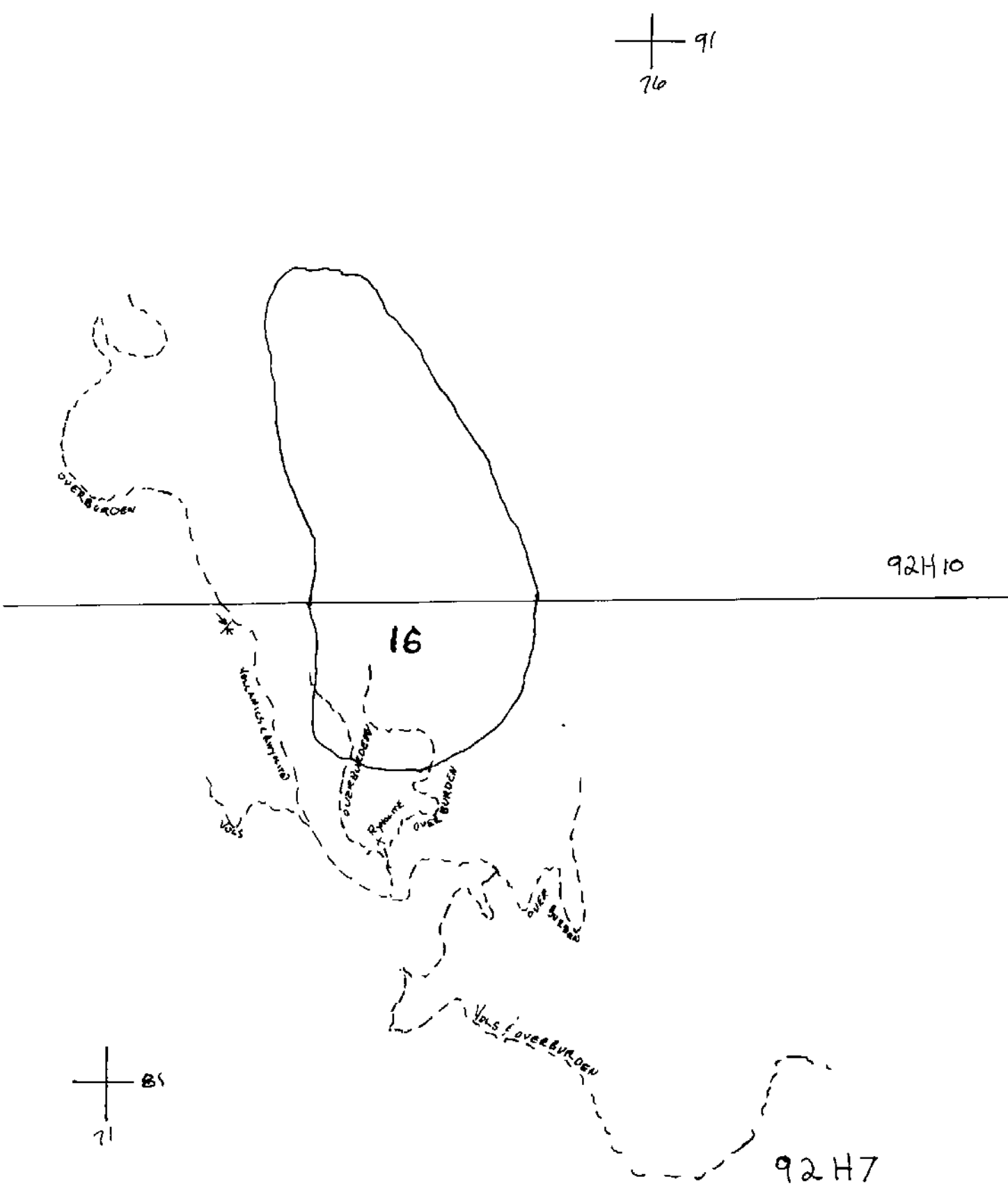
ii) Rock Types Encountered: All rock types seen were volcanics including rhyolite, andesite and basalt. Overburden was very thick on the upper roads.

TARGET #

---

iii) Description of Outcrop/Topography:

III Target Summary No further work needed as no sediments were located.


91
76
92H10
16
OVERBURDEN
OVERBURDEN
OVERBURDEN
OVERBURDEN
81
71
92H7

TARGET # 18, 21, 23

I

i) Dates Worked -- 1 crew day, 5/6/82, (R.B)

ii) Outcrop #'s -- NIL

iii) Sediment Sample #'s -- NIL

iv) Map Sheet -- 92H/9, 92H/16

v) Photos -- NIL

II

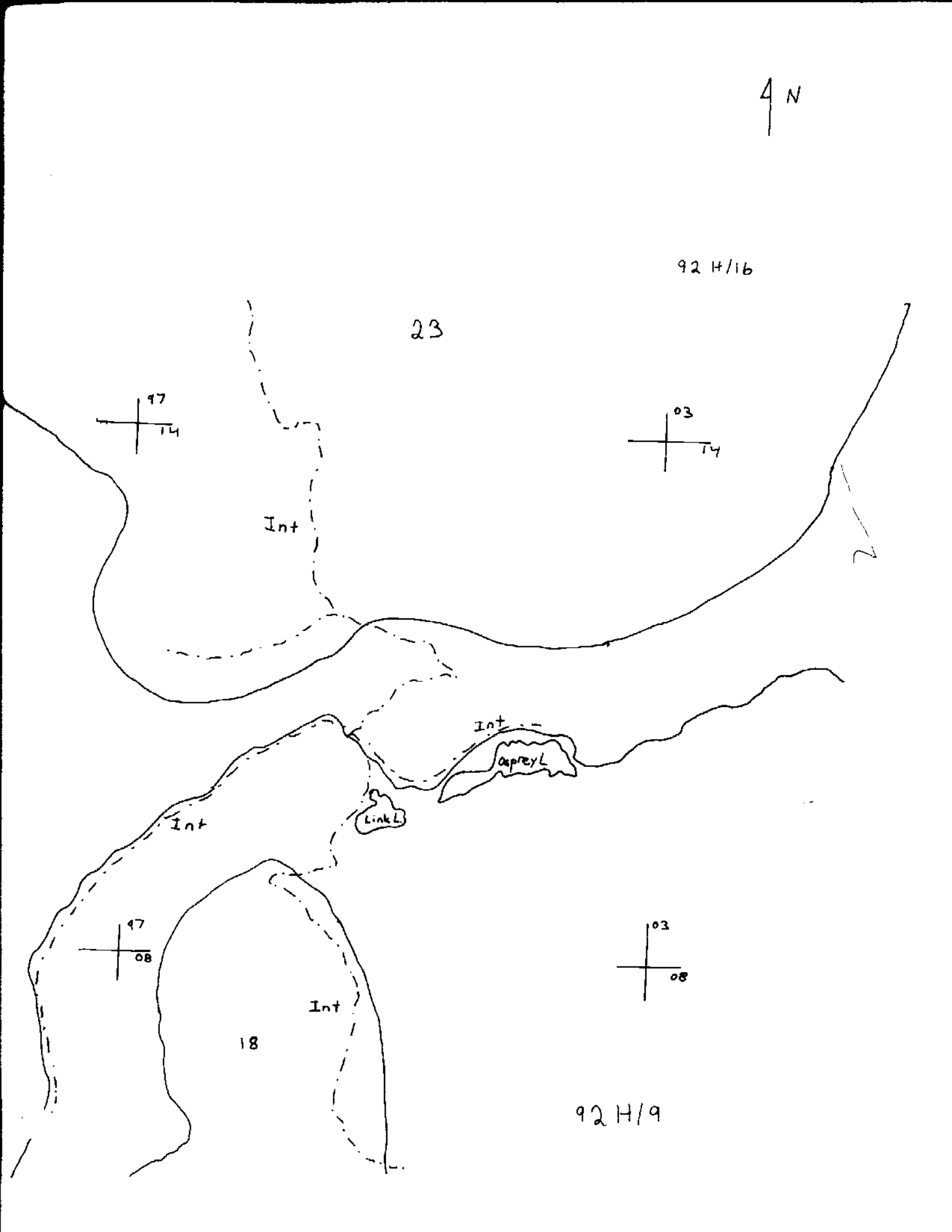
i) Traverse Description: Road traverse with access from Princeton on Hwy 5 to the Teepee Lakes corner (secondary road to Summerland) From this road logging trails and cart tracks were taken.

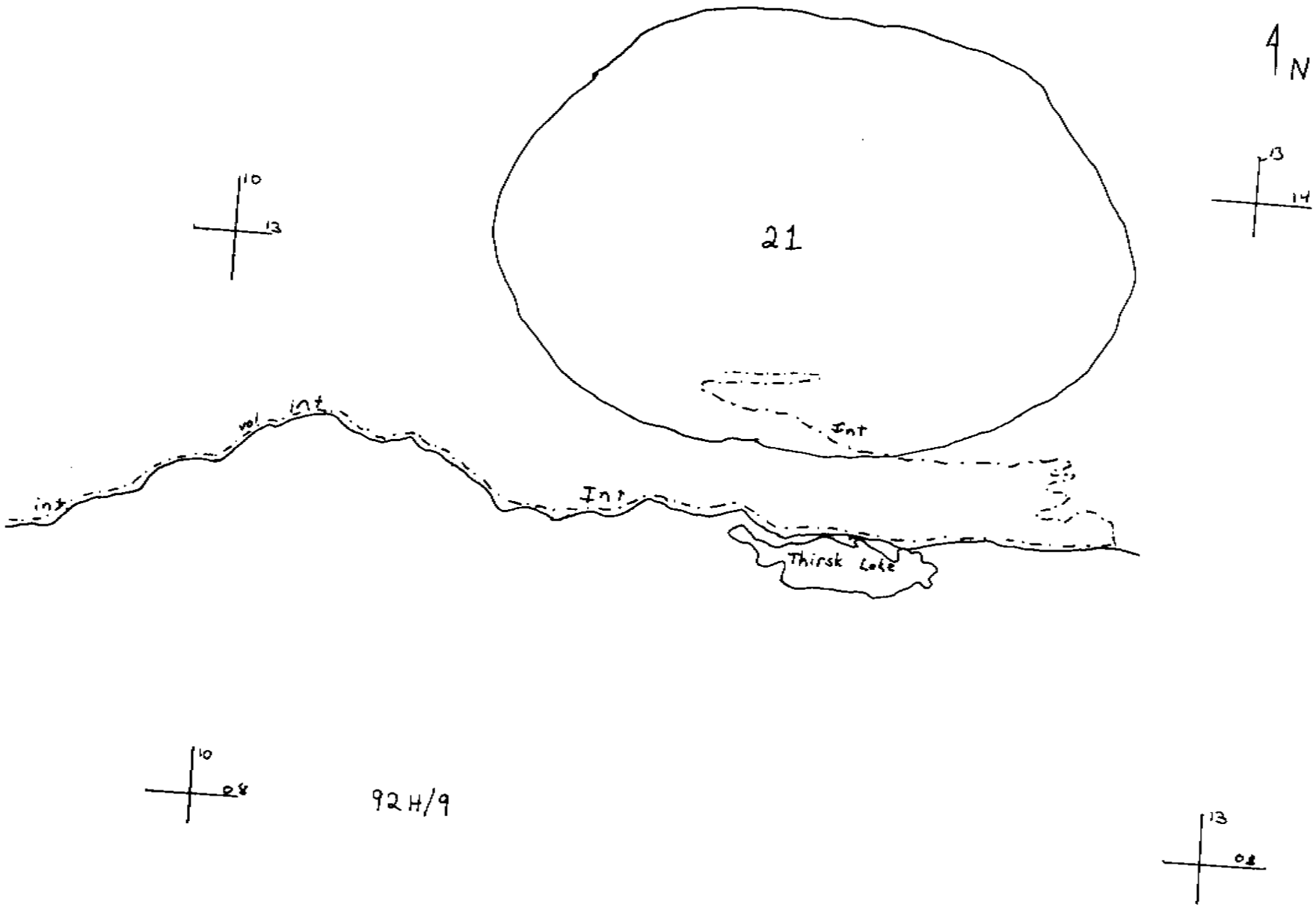
ii) Rock Types Encountered: Only granite - some quite spectacular containing large phenocrysts of K-spar.

TARGET # 18, 21, 23

iii) Description of Outcrop/Topography: Exposure was very good along the road cuts. The topography was very hilly & quite steep in places.

III Target Summary Mapped by the GSC as intrusive & this was what was found. No sediments except Pleistocene drift were found.


N
92 H/16
23
97
14
03
14
Int
Int
Osprey L.
Link L.
Int
97
08
03
08
Int
18
92 H/9


N
10
13
21
13
14
int
vol
int
int
int
Thirsk Lake
10
28
92 H/9
13
08

TARGET # 26

I

i) Dates Worked -- 1 crew day, 5/6/82 (H.H.)

ii) Outcrop #'s -- NIL

iii) Sediment Sample #'s -- NIL

iv) Map Sheet -- 92H/10

v) Photos -- NIL

II

i) Traverse Description: Access by rough logging roads.

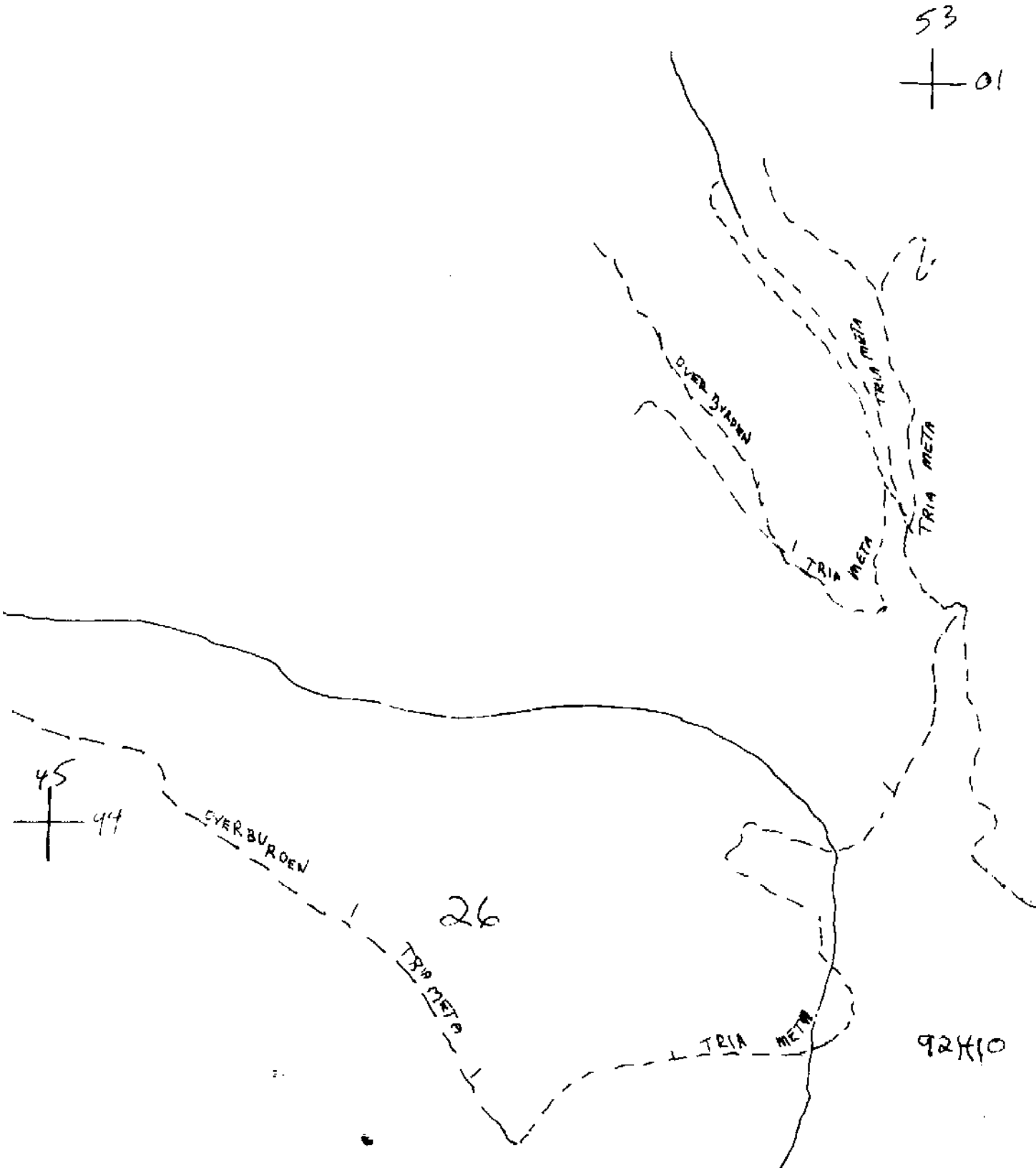
ii) Rock Types Encountered: All Triassic metasediments covered by a great deal of overburden.

III

TARGET # 26

iii) Description of Outcrop/Topography:

III Target Summary No further work needed as no sediments of interest were located.


53
01
OVERBURDEN
TRIA META
TRIA META
TRIA META
45
44
OVERBURDEN
26
TRIA META
TRIA META
92H10

38
20

LAYERED VOLCANICS

30
37

92 I 14
SE

50°45'
120°00'

TARGET # 27

I

i) Dates Worked -- 2hrs 16/6/82 (R.B.)

ii) Outcrop #'s -- R0053

iii) Sediment Sample #'s -- NIL

iv) Map Sheet -- 92 I/15

v) Photos -- NIL

II

i) Traverse Description: Access all by road, through middle of target.

ii) Rock Types Encountered: Large hoodoos were spotted made of pseudo-consolidated conglomerate

TARGET # 27

iii) Description of Outcrop/Topography: Outcrop of hoodoos occurred in valley of the Deadman River and in small occurrances by the side of the road.

III Target Summary Exposure was all conglomerate surrounded by volcanics so limited possibility of coal.

TARGET # 28

I

i) Dates Worked -- 2 hrs 16/6/82 (R.B)

ii) Outcrop #'s -- NIL

iii) Sediment Sample #'s -- NIL

iv) Map Sheet -- 92I/15

v) Photos -- NIL

II

i) Traverse Description: Access by road.

ii) Rock Types Encountered: All rocks were Eocene basaltic volcanics.

TARGET #

iii) Description of Outcrop/Topography: Volcanic outcrop was located on the side of a steep hill. Road cuts were scarce due to heavy overburden.

III Target Summary Target covered and no related Eocene sediments were found.

TARGET # 30

I

i) Dates Worked -- 1 crew day 16/6/82, 1/2 crew day 17/6/82 (R.B.)

ii) Outcrop #'s -- R0045, R0047-49

iii) Sediment Sample #'s -- R0045, R0047-49

iv) Map Sheet -- 92I/15

v) Photos --

II

i) Traverse Description: All target access by road.

ii) Rock Types Encountered: All sediments though some are of questionable Cretaceous age.

TARGET # 30

iii) Description of Outcrop/Topography: Exposure ranges from good to poor and is all found on road cuts. The topography is mountainous with deep, steep sided valleys.

III Target Summary Criss Creek could be traversed but it is doubtful if any other seds would be located. Any other interesting outcrops thought to be Eocene in age such as ROCK 7 & 48 would probably be topographically high.


R0052
CONGL.
SANDST. R0047
R0046 CONGL.
R0049
SANDST.
R0046
SS +
CONGL.
vols
27
R0053
CONGL.
vol
R0050
CONGL.
28
30
R0045 SHALE + LMST
53°
quartzite
vols
rhyolite
31
vol
vol
28
vol
clas.
92 I/15
802
802

TARGET # 31

I

i) Dates Worked -- 1 crew day 15/6/82, 1 crew day 18/6/82 (R.B.)

ii) Outcrop #'s -- R0044, R0046

iii) Sediment Sample #'s -- R0046

iv) Map Sheet -- 92I/10, 92I/15

v) Photos -- NIL

II

i) Traverse Description: Road access on the Tranquille Creek road and its related roads very good. Access for the Watching Creek stream traverse through the Batchelor Hills Rd.

ii) Rock Types Encountered: Volcanics were the dominant lithology with only two outcrops of related sedimentary rocks located.

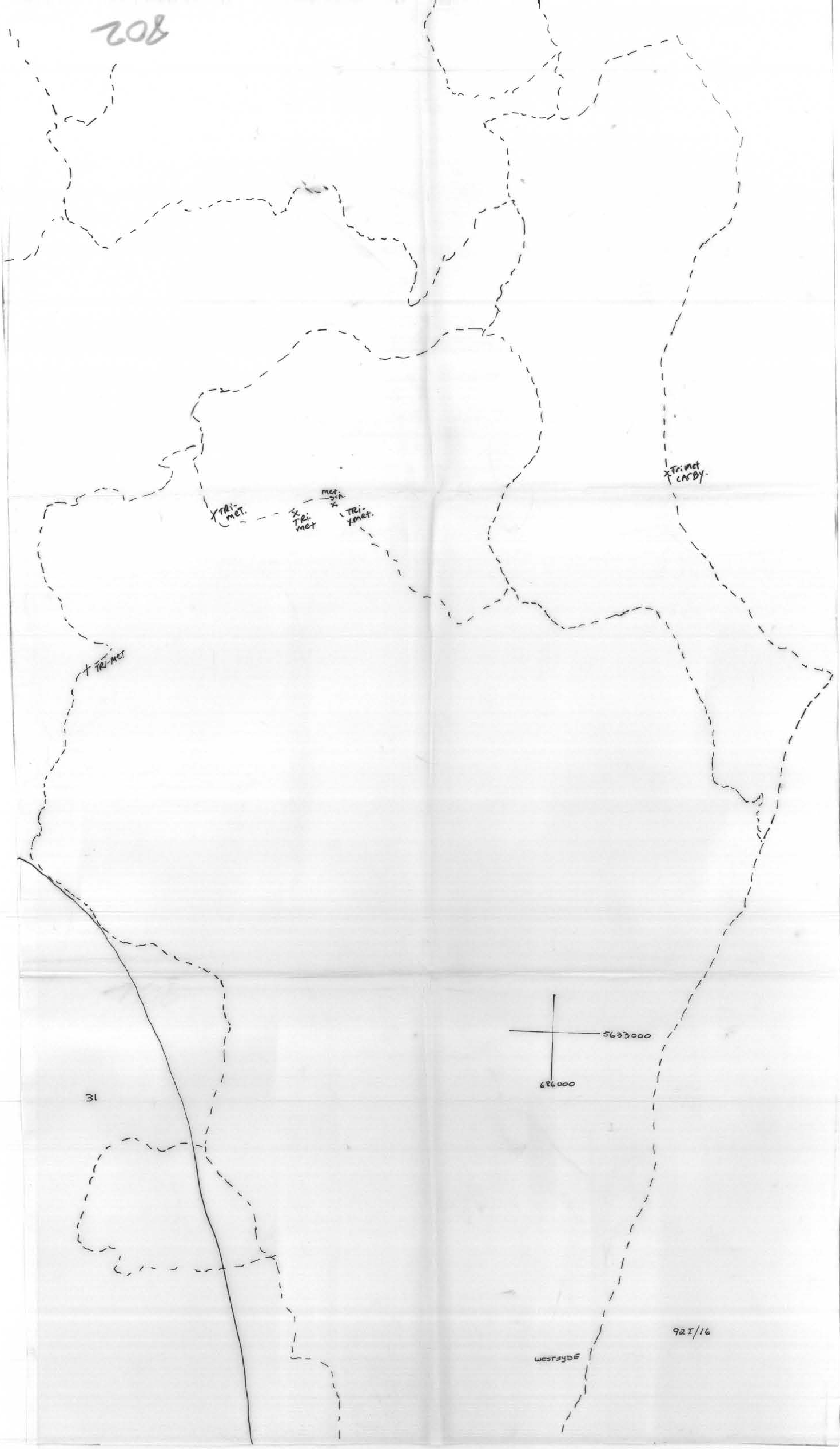
III

TARGET # 31

iii) Description of Outcrop/Topography: The topography ranges from steep to flat and outcrop exposure from good to poor respectively.

III Target Summary Area is ascertained of being volcanic with most of the outcrop seen in the stream valleys. Some work could be done towards the north on the ajoining map sheet.

See map with target 30 for traverse locations.


TRI-MET
TRI-met.
TRI-met
met. sta.
TRI-met.
Trimet CARBY.
5633000
686000
31
92I/16
WESTSYDE

TARGET # 32 & 33

I

i) Dates Worked -- 1 crew day 19/6/82 (R.B.)

ii) Outcrop #'s -- NIL

iii) Sediment Sample #'s -- NIL

iv) Map Sheet -- 92I/16-32 ; 92I/9-33.

v) Photos -- NIL

II

i) Traverse Description: Access by road covered most of 32 but parts of target 33 were inaccessable due to Can. Indian Reservation.

ii) Rock Types Encountered: Rock outcrop consisted of Cache Creek lsp. argillites, volcanics and limestones. Scattered outcrops of Eocene volcanics were seen on Target 32.

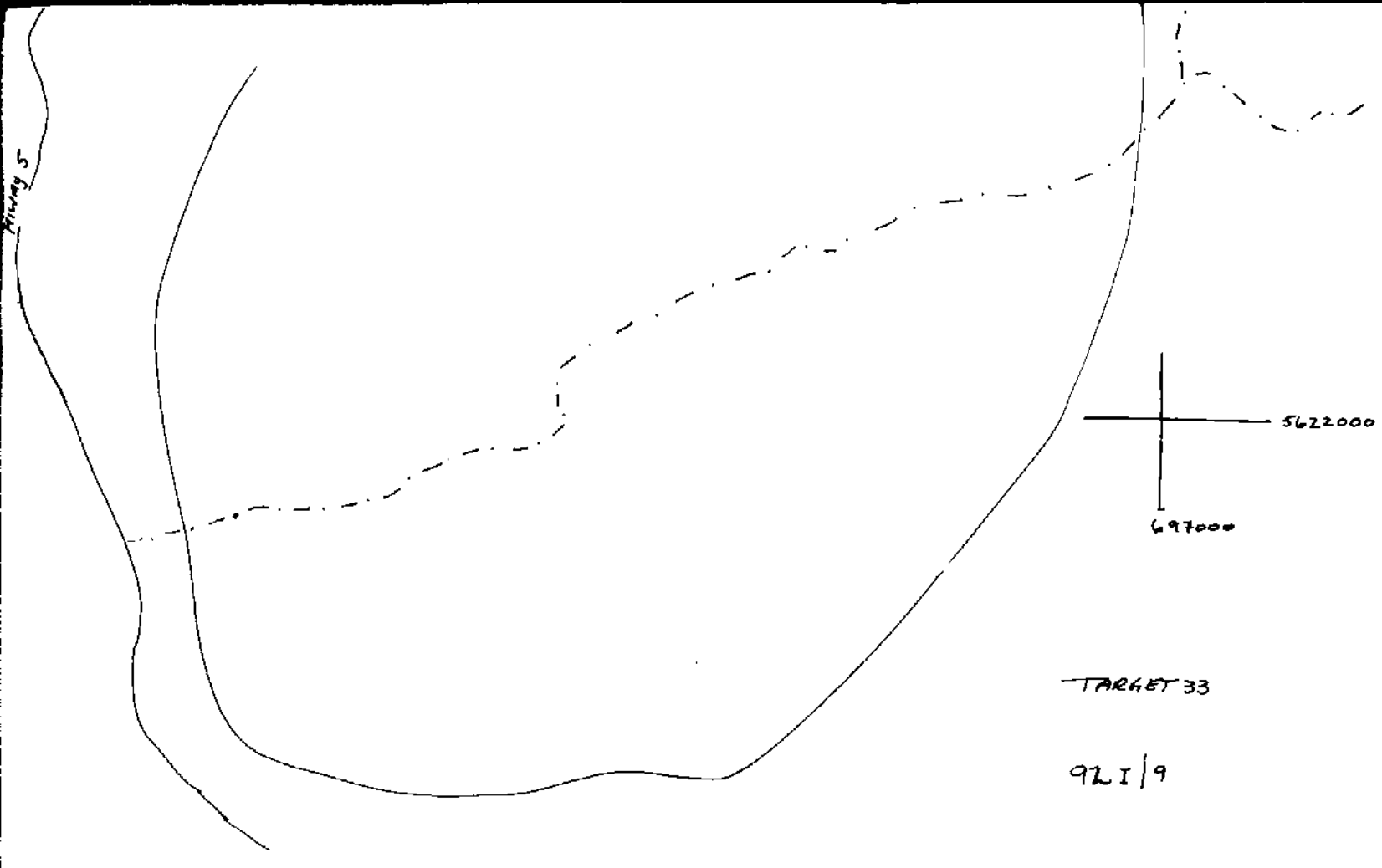
TARGET #

---

iii) Description of Outcrop/Topography: Topography of the land is gentle hilly land with good exposure on hillsides.

III Target Summary No sediments of Eocene age were found related to volcanics in target 32, nor in the topographicly low target 33.

92 I/16



TARGET 33

92 I/9

TARGET # 34 & 35

I

i) Dates Worked -- 1/2 crew day (L.G.)

ii) Outcrop #'s -- NIL

iii) Sediment Sample #'s -- NIL

iv) Map Sheet -- 92I/9, 92I/10

v) Photos -- NIL

II

i) Traverse Description: Access was hampered by "controlled authorized personnel" roads surrounding the mine. Away from the mine, access was very good on the hiway and on secondary gravel roads.

ii) Rock Types Encountered: Target 34 - Tertiary volcanics, flow breccia & conglomerate. Eocene sediments were not seen as access was blocked by the mine and city development.

Target 35 - Triassic basic volcanics and chloritic schist in float.

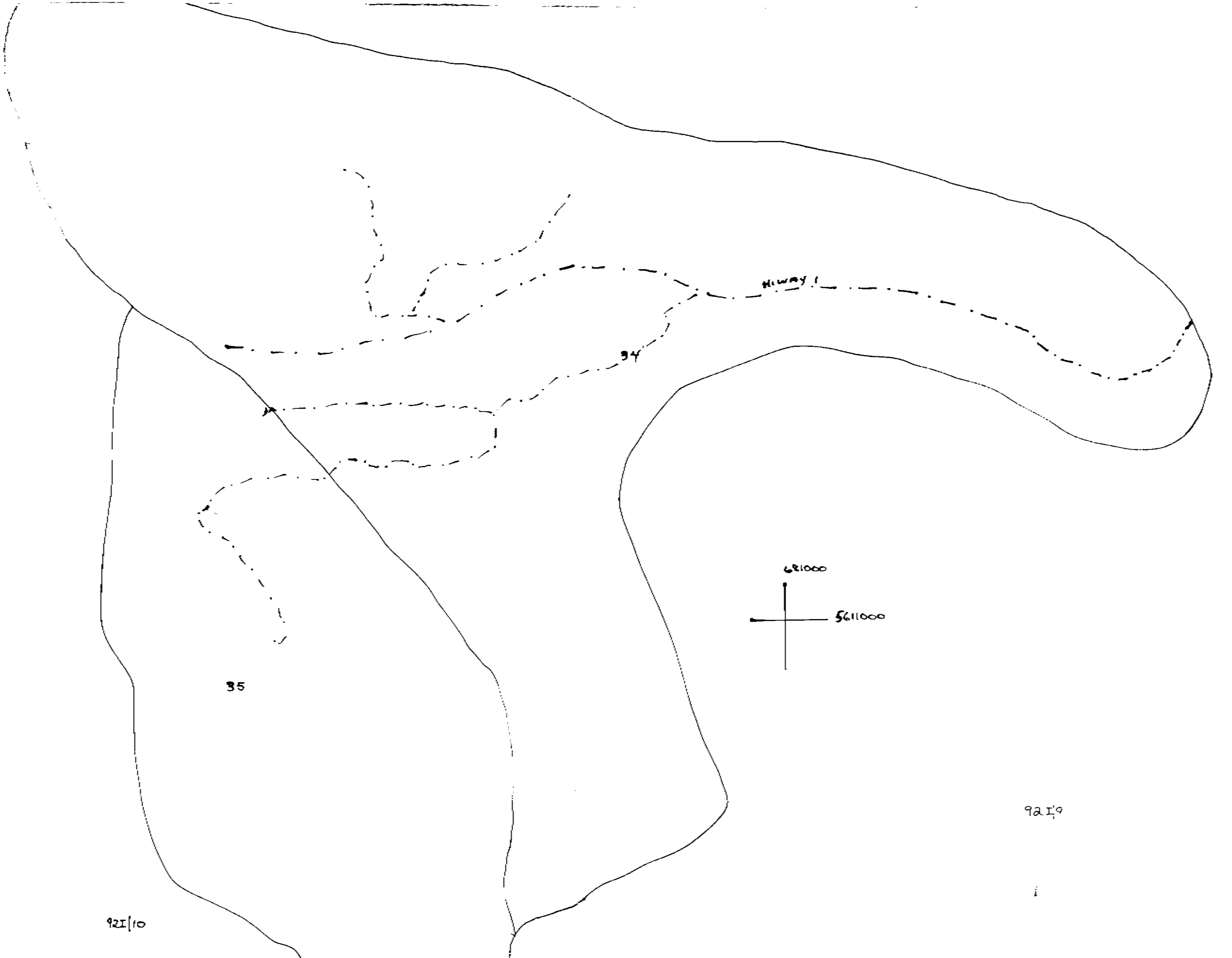
TARGET #

---

iii) Description of Outcrop/Topography: Exposure was adequate along hiway and poor to moderate on the gravel roads. Topography was gentle and rolling

---

III Target Summary Permission should be obtained to travel on unauthorized roads to sample and date Tertiary sediments



HIWAY 1
34
35
621000
5611000
92I/9
92I/10

TARGET #

I

i) Dates Worked -- 1 crew day 11/6/82

ii) Outcrop #'s -- NIL

iii) Sediment Sample #'s -- NIL

iv) Map Sheet -- 92I/8

v) Photos -- NIL

II

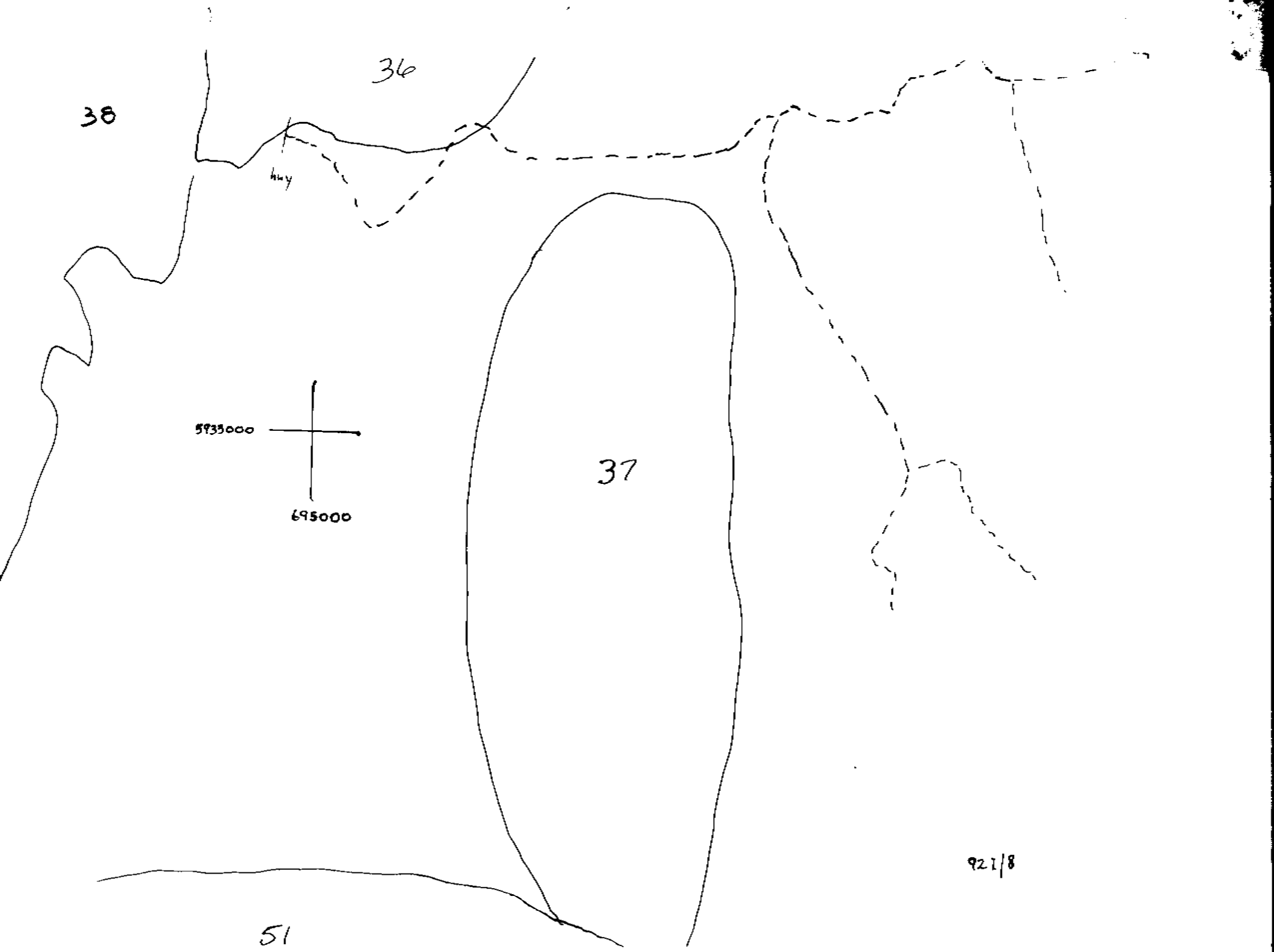
i) Traverse Description: Access good to targets by range roads

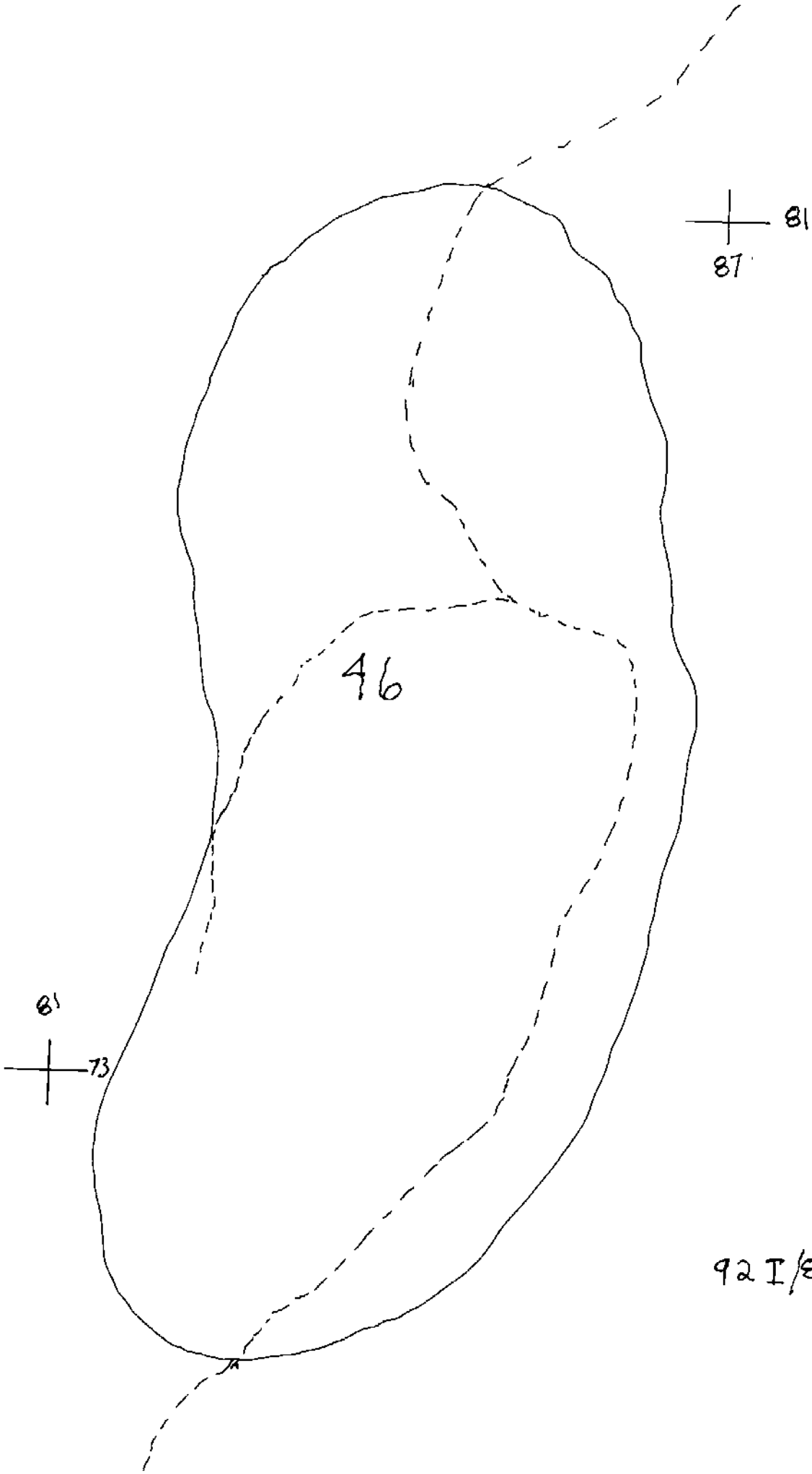
ii) Rock Types Encountered: Overburden only

TARGET #

iii) Description of Outcrop/Topography: Gentle hilly sage brush plains.

III Target Summary No outcrop so no chance of exposure of sediments.


36
38
Hwy
5935000
695000
37
51
921/8


81
87
46
81
73
92 I/8

TARGET # 38

I

i) Dates Worked -- 1/2 crew day 10/6/82 (H.H.)

ii) Outcrop #'s -- NIL

iii) Sediment Sample #'s -- NIL

iv) Map Sheet -- 92 I/8

v) Photos -- NIL

II

i) Traverse Description: Access quite good using range roads

ii) Rock Types Encountered: Volcanics - Eocene basalts and andesites found on periphery cutting up section through volcanics.

TARGET # 38

iii) Description of Outcrop/Topography: Flat, plateau top revealing no outcrop.

III Target Summary No chance for exposure of potential Eocene sediments.

38

5590000

665000

51

92I/8

TARGET # 40, 41 and Monte Hills

I

i) Dates Worked -- (Monte Hills) 1 crew day 24/6/82 (R.B), (Target 40) 1 crewday 25/6/82 (R.B) 1 crewday 23/6/82 (Target 41)

ii) Outcrop #'s -- R0056 a & b

iii) Sediment Sample #'s -- R0056 a & b

iv) Map Sheet -- 92I/8, 92I/9, 82L/NW, 82L/SW

v) Photos --

II

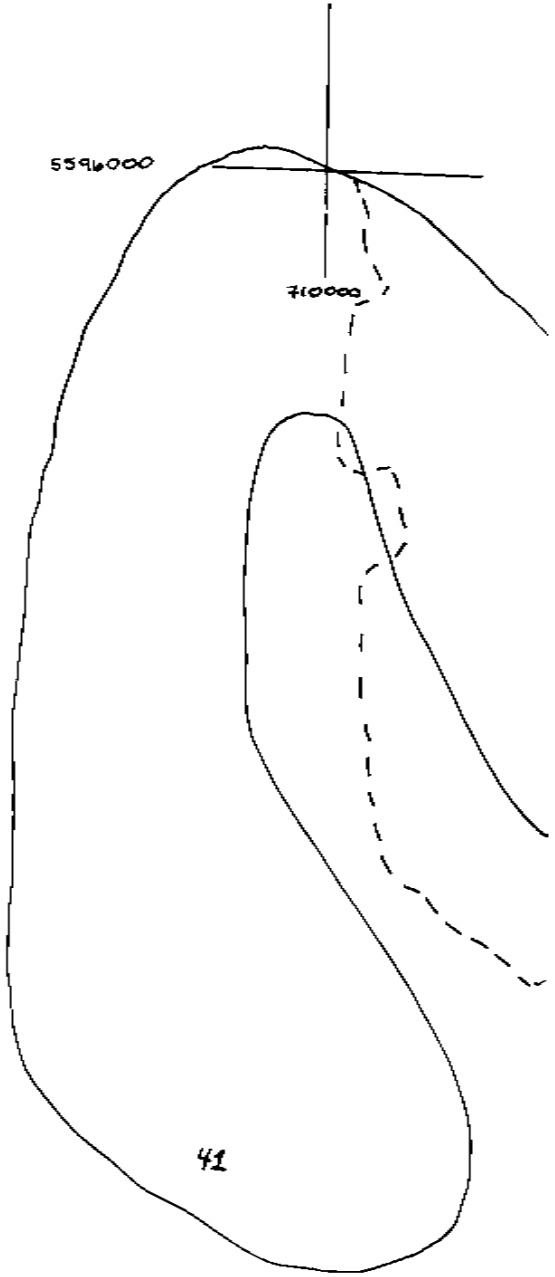
i) Traverse Description: Only the south half of target 40 and the west of target 41 were accessable. Access through the Monte Hills region was good using various logging roads & right of ways.

ii) Rock Types Encountered: Rocks seen were mostly Tertiary volcanics consisting of basalt, andesite, rhyolite, flow breccia and debris flow with a biotite rich granite seen on Monte Hill. The two sedimentary outcrops consisted of conglomerate and sandstone.

TARGET #

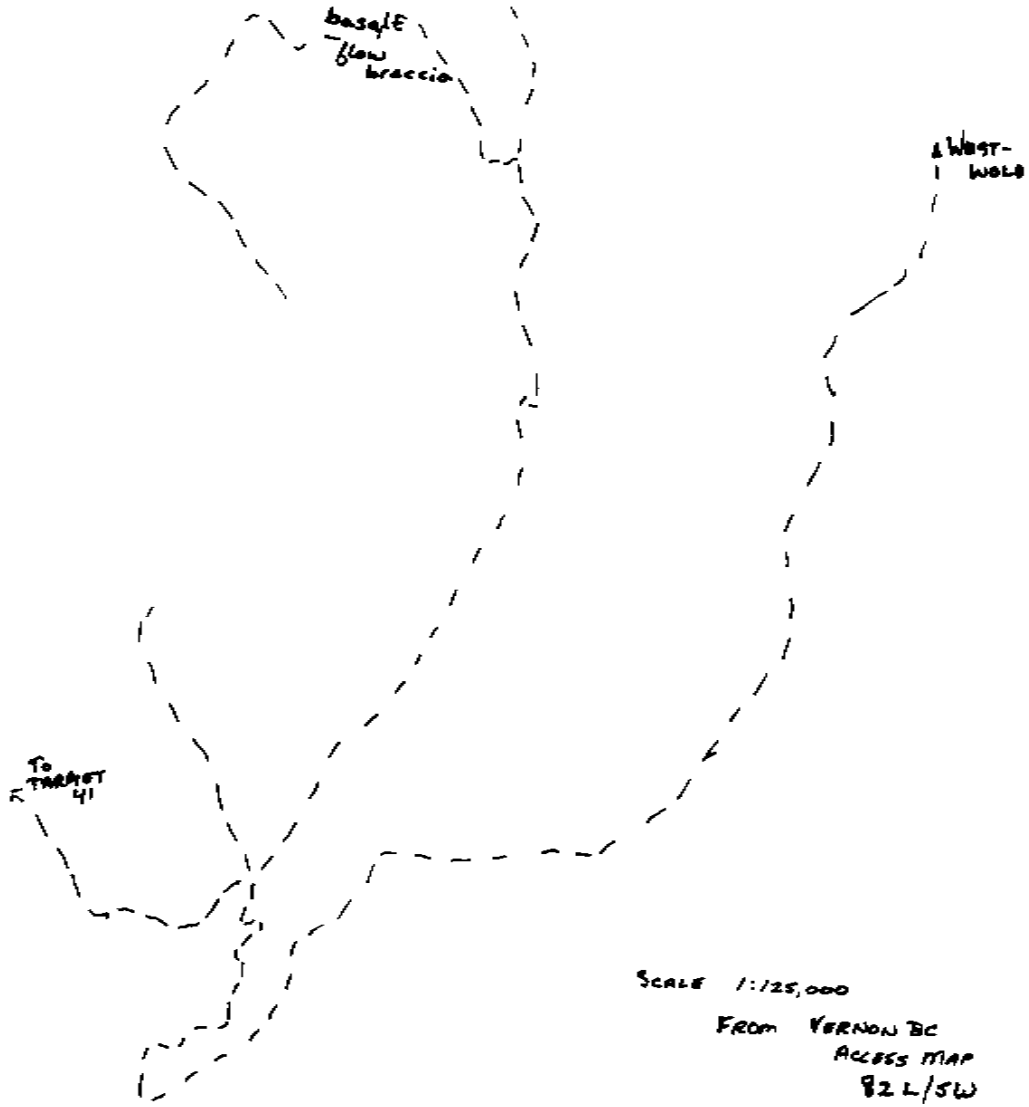
iii) Description of Outcrop/Topography: The topography was very hilly with outcrop being seen in road cuts and hillsides with the amount of exposure varying from area to area.

III Target Summary Tertiary sediments were very local in extent. Their deposition was likely related to nearby volcanic activity, rather than to any clastic sedimentary environment eg being the tuffaceous sandstone below a volcanic cap at outcrop R0056b. Because of this, any significant coal thickness would be unlikely.



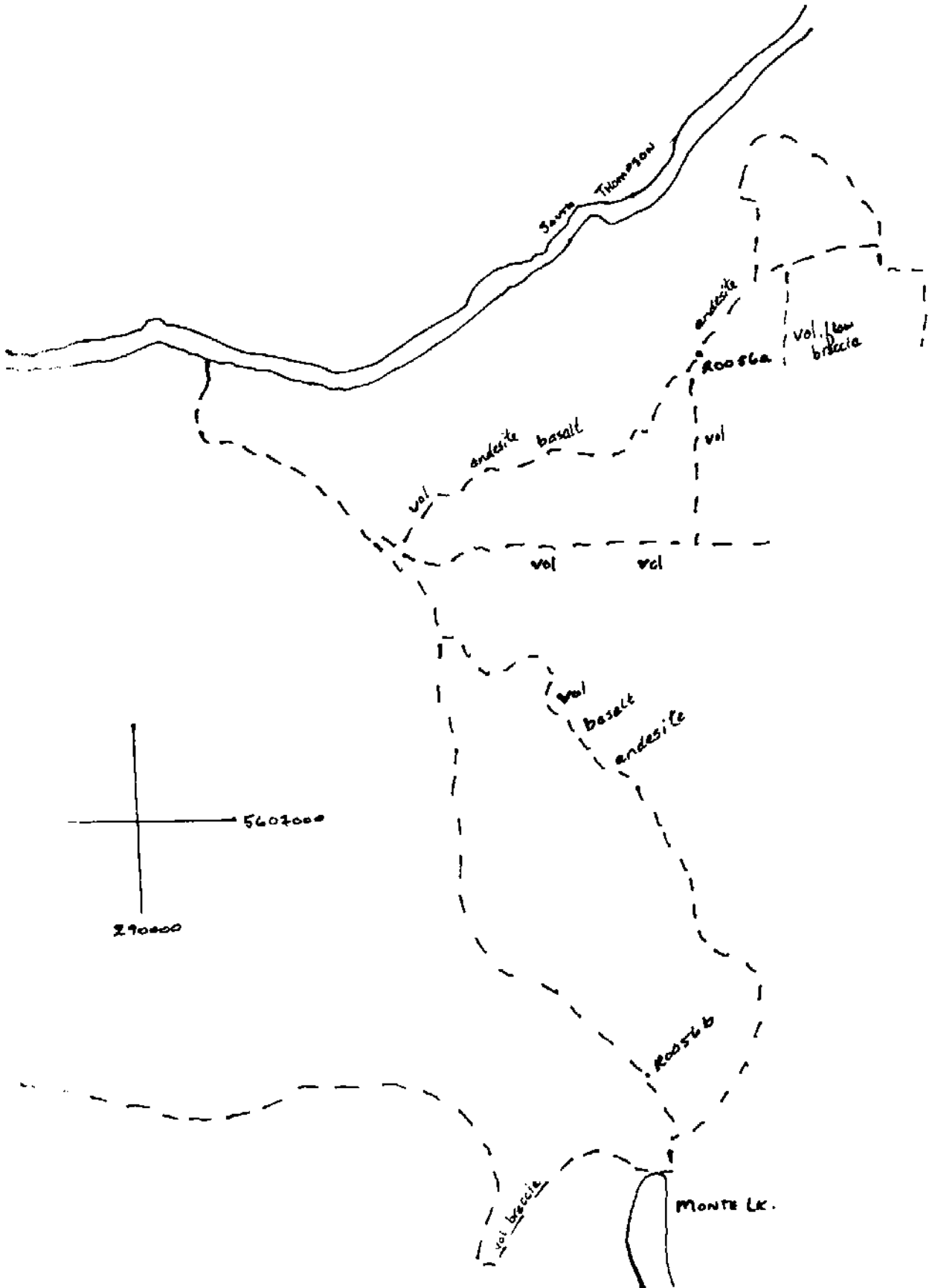
SCALE: 1:100,000

FROM - MERRIT BC
ACCESS MAP
92I/SE



SCALE 1:125,000

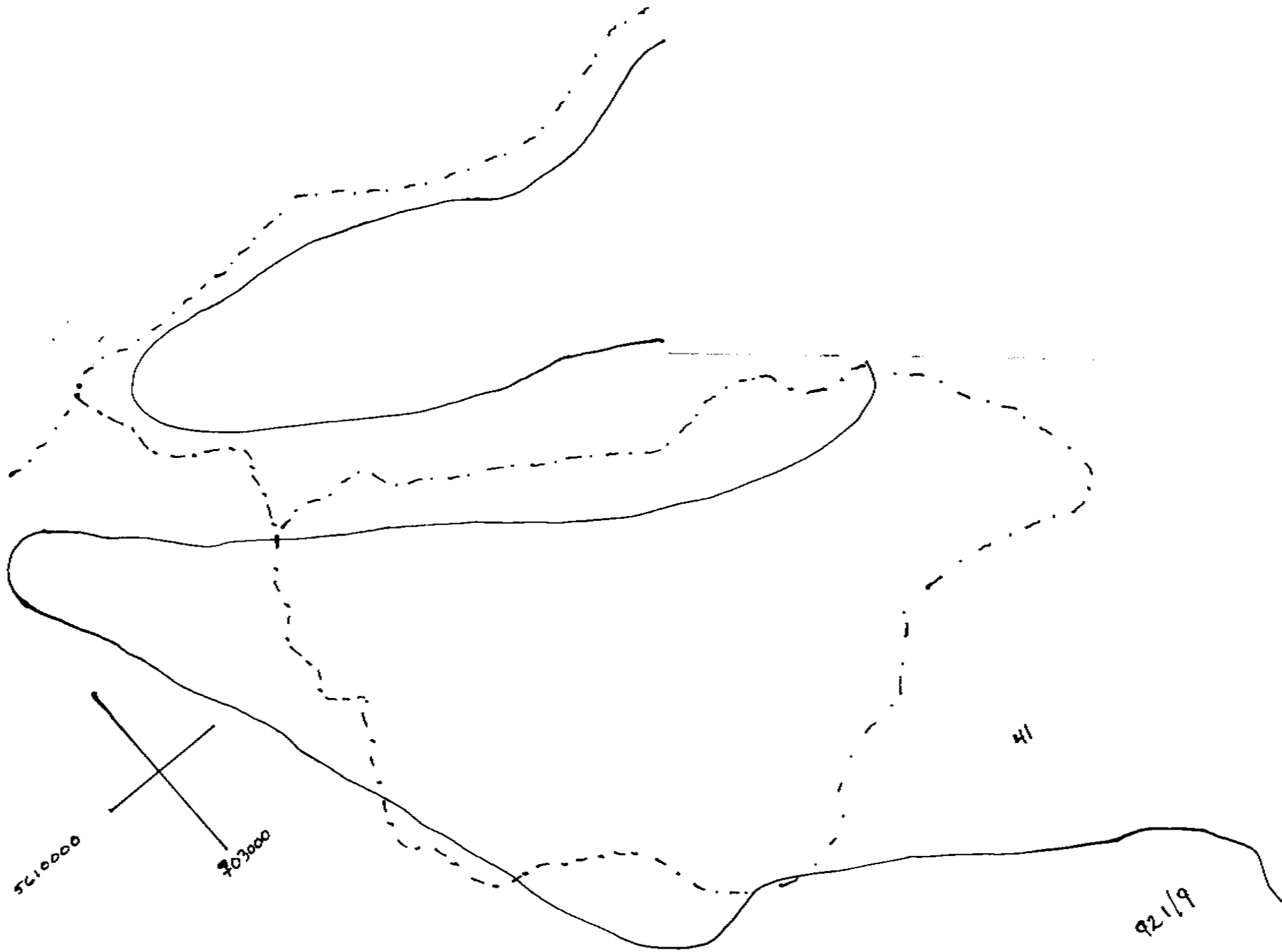
FROM VERNON BC
ACCESS MAP
82L/SW



From: SHUSWAP LK ACCESS MAP
82 L/NW

Scale 1:100,000

MONTE LK


5610000
703000
41
9219

TARGET # 42 & 43

I

i) Dates Worked -- 1 crew day 12/6/82 (H.H.); 2 crew days 11-12/6/82 (RB); 1/2 crew day 26/6/82 (R.B)

ii) Outcrop #'s -- R0038-42

iii) Sediment Sample #'s -- R0039, R0040

iv) Map Sheet -- 92 I/10

v) Photos --

II

i) Traverse Description: Access from Merritt to Logan Lake and from there on gravel roads. Target 43 could not be explored adequately because of private property but hwy cuts exposed volcanics of the Nicola Grp. Foot traverse was also done down Mt Savona on 26/6/82.

ii) Rock Types Encountered: Target 43 was mapped as Nicola Group with one small area of Eocene sedimentary. This was found to be a conglomerate and is outcrop R0038.

Target 42 mapped as Eocene volcanics though Mt Savona was found to be capped by a conglomerate with sandstone interbeds.

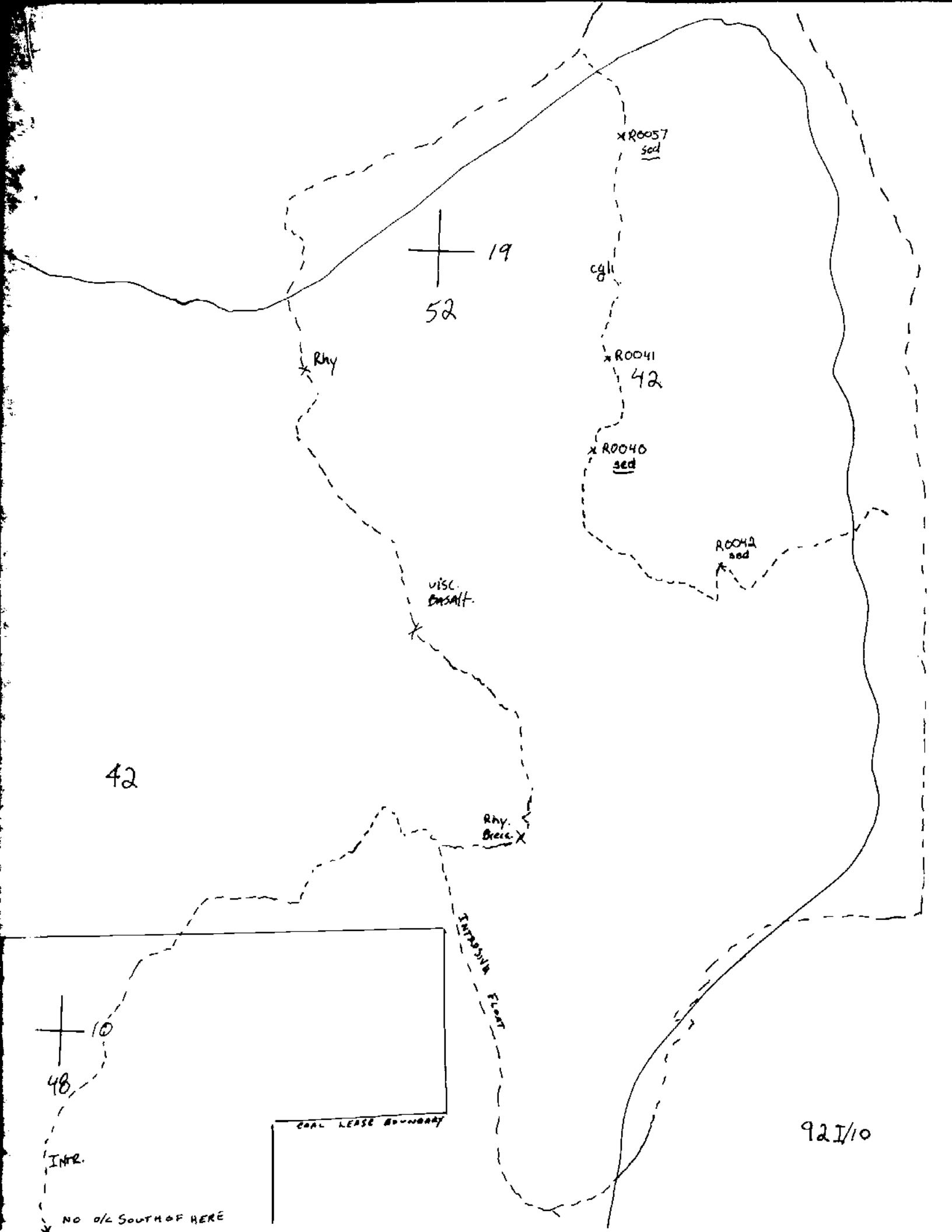
TARGET #

iii) Description of Outcrop/Topography: The topography was generally gentle, flat country & outcrop was rather scarce. At higher elevations (eg. Mt. Savona) though outcrop was revealed in road cuts and gully's abundant.

III Target Summary Little else can be done on the target as it is so flat - interesting point is the conglomerate and medium grained sandstones found at the top of Mt Savona - the highest point in the target. Perhaps this sediment was more widespread and thicker but removed by erosion.

Coal Lease Coal lease in the target is situated on flat range land. The area enclosed by the lease exhibits little outcrop though the pipeline that runs thru property exposed blocks of basic intrusives (gabbro). On the east side of the property rhyolitic breccia and vesicular basalt was observed - is probably the lowermost section of the Eocene volcanics. The property is probably not coal bearing due to 1) the flat nature of the land with intrusives being the only rock type 2) the area is at least 500' lower topographically than the sedimentary sequence observed on Mt. Savona. It is possible → con't.

that there is a possibility that some structural feature has dropped the area (but no volcanics were observed) and collected sediments, or that perhaps it could be an erosional outlier of sedo (though absence of topography makes this unlikely.) Recommendation is to check waterhole logs.


R0057
sed
19
52
cgl
R0041
42
Rhy
R0040
sed
R0042
sed
visc.
basalt
42
Rhy.
Brecc.
INTRUSIVE FLOAT
10
48
COAL LEASE BOUNDARY
INTR.
NO o/c SOUTH OF HERE
92I/10

TARGET # 44

I

i) Dates Worked -- 1 crew day 13/6/82 (H.H.)

ii) Outcrop #'s -- NIL

iii) Sediment Sample #'s -- NIL

iv) Map Sheet -- 92 I/7

v) Photos -- NIL

II

i) Traverse Description: Access - moderate coverage from Logan Lake.

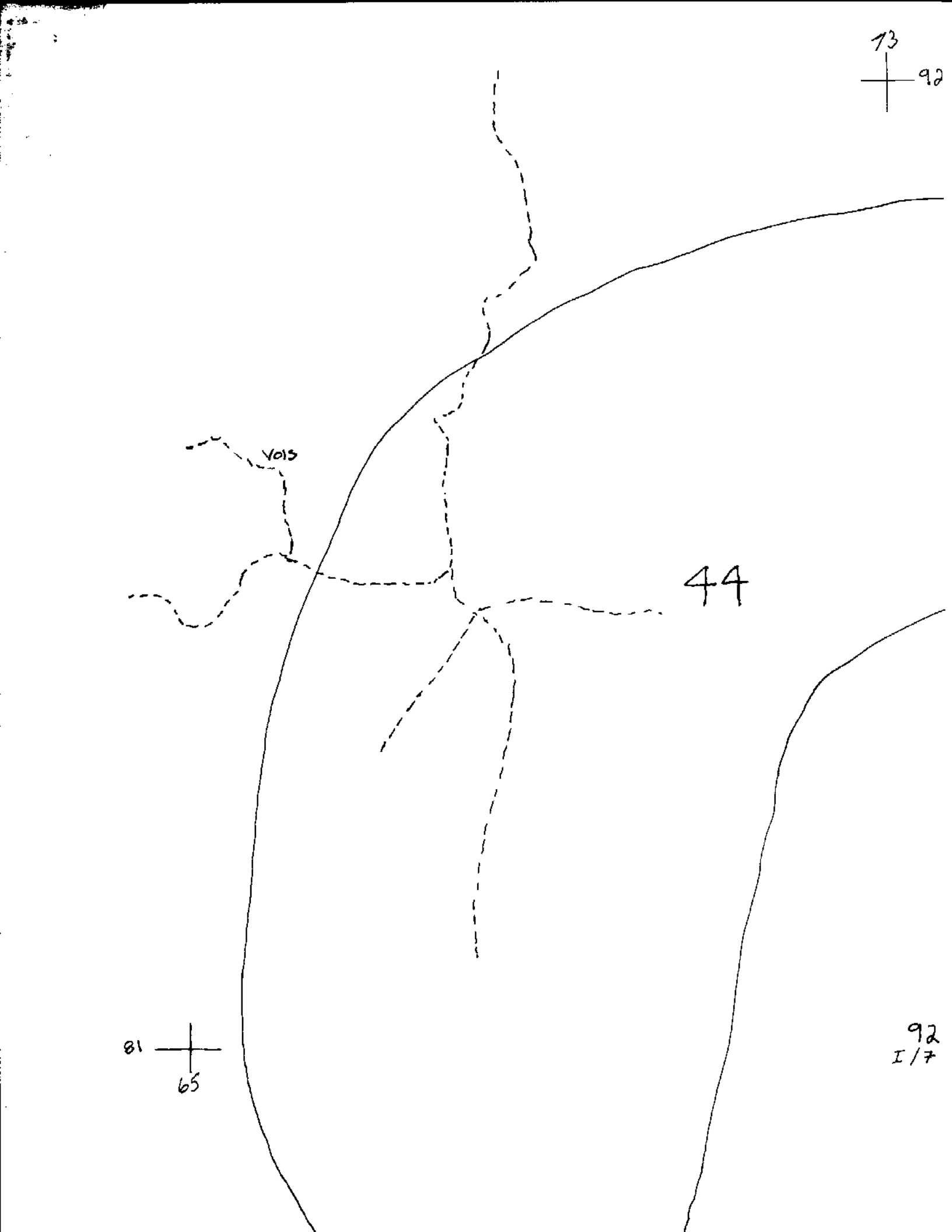
ii) Rock Types Encountered: Only one outcrop of volcanic rocks were found, rest was all covered by overburden.

TARGET #

---

iii) Description of Outcrop/Topography: Topography was flat & muddy and outcrop very bare.

III Target Summary Outcrop not visable on this flat land.


13
92
VOIS
44
81
65
92
I/7

TARGET # 50

I

i) Dates Worked -- 1/2 crew day, 10/6/82 (RB)

ii) Outcrop #'s -- R0037

iii) Sediment Sample #'s -- NIL

iv) Map Sheet -- 92 I/2

v) Photos -- NIL

II

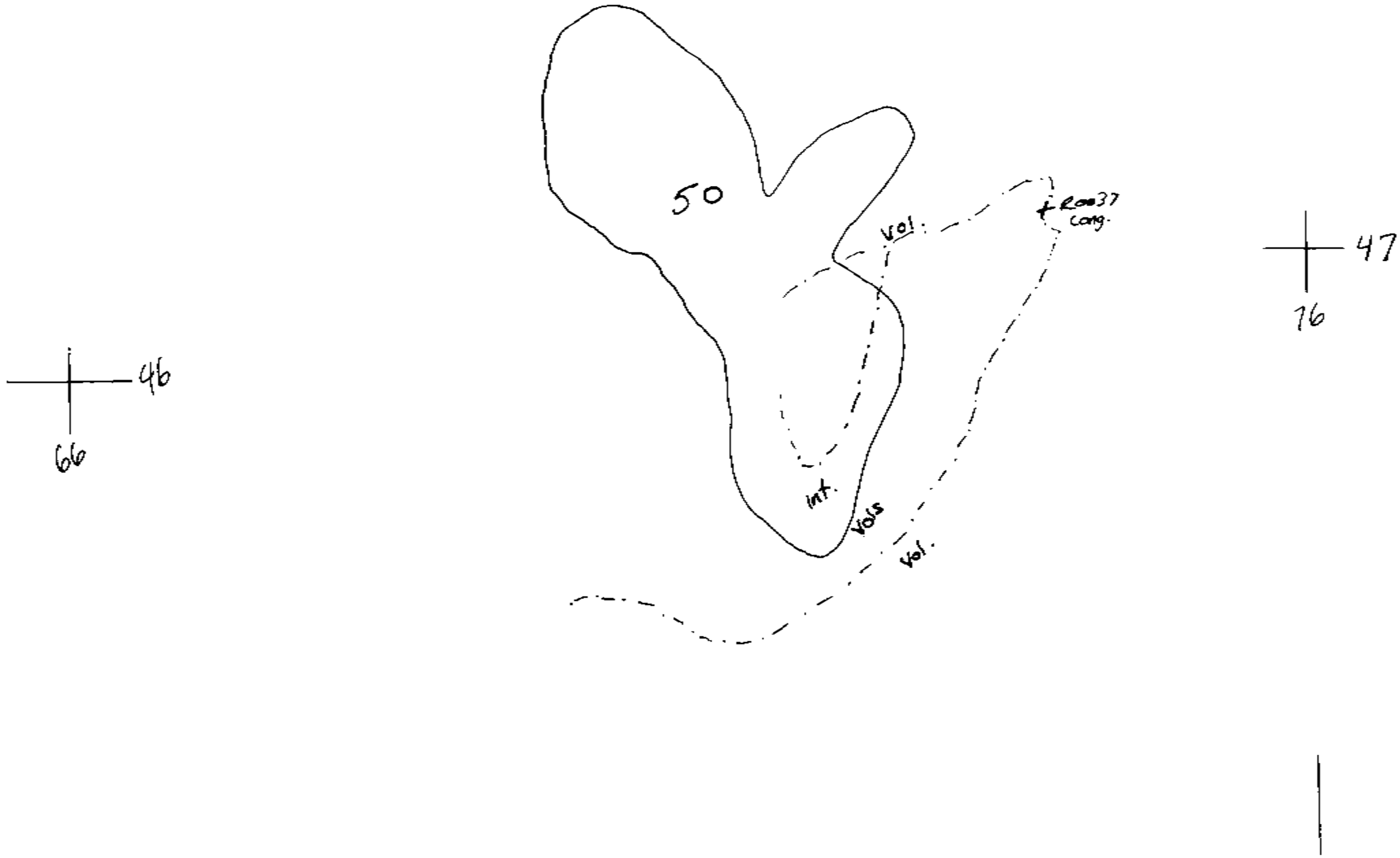
i) Traverse Description: Road traverse with access to the area from hwy # 5 south of Merritt.

ii) Rock Types Encountered: Basalt, granodiorite and conglomerate

TARGET # 50

iii) Description of Outcrop/Topography: Topography was rolling, hilly land with the volcanics found on hillsides, the intrusive on the top of a hill and the conglomerate in road cut

III Target Summary The only sediments found were conglomerate and since outcrop is so poor, possibility of finding successive sediments is remote.



92I2

TARGET # 51

I

i) Dates Worked -- 1/2 crew day 10/6/82

ii) Outcrop #'s -- NIL

iii) Sediment Sample #'s -- NIL

iv) Map Sheet --92I/8

v) Photos -- NIL

II

i) Traverse Description: Road traverse with reasonable access from Merritt

ii) Rock Types Encountered: These included Eocene andesites and rhyolites near the Kiway, and became Triassic metasediments further inland.

TARGET #

iii) Description of Outcrop/Topography: Outcrop was poor due to heavy overburden.

III Target Summary Outcrop poor therefore slim chance of finding easily scattered sediments

For traverse location
See target 38

TARGET # 52, 53, 54, & 55

I

i) Dates Worked -- 1 crew day, 26/6/82, (A.P.)

ii) Outcrop #'s -- NIL

iii) Sediment Sample #'s -- NIL

iv) Map Sheet -- 92 I/13

v) Photos -- NIL

II

i) Traverse Description:

#52 - Too remote - no access

#53 - Access was moderate - 1 road crossed the target area

#54 - Access blocked and over grown.

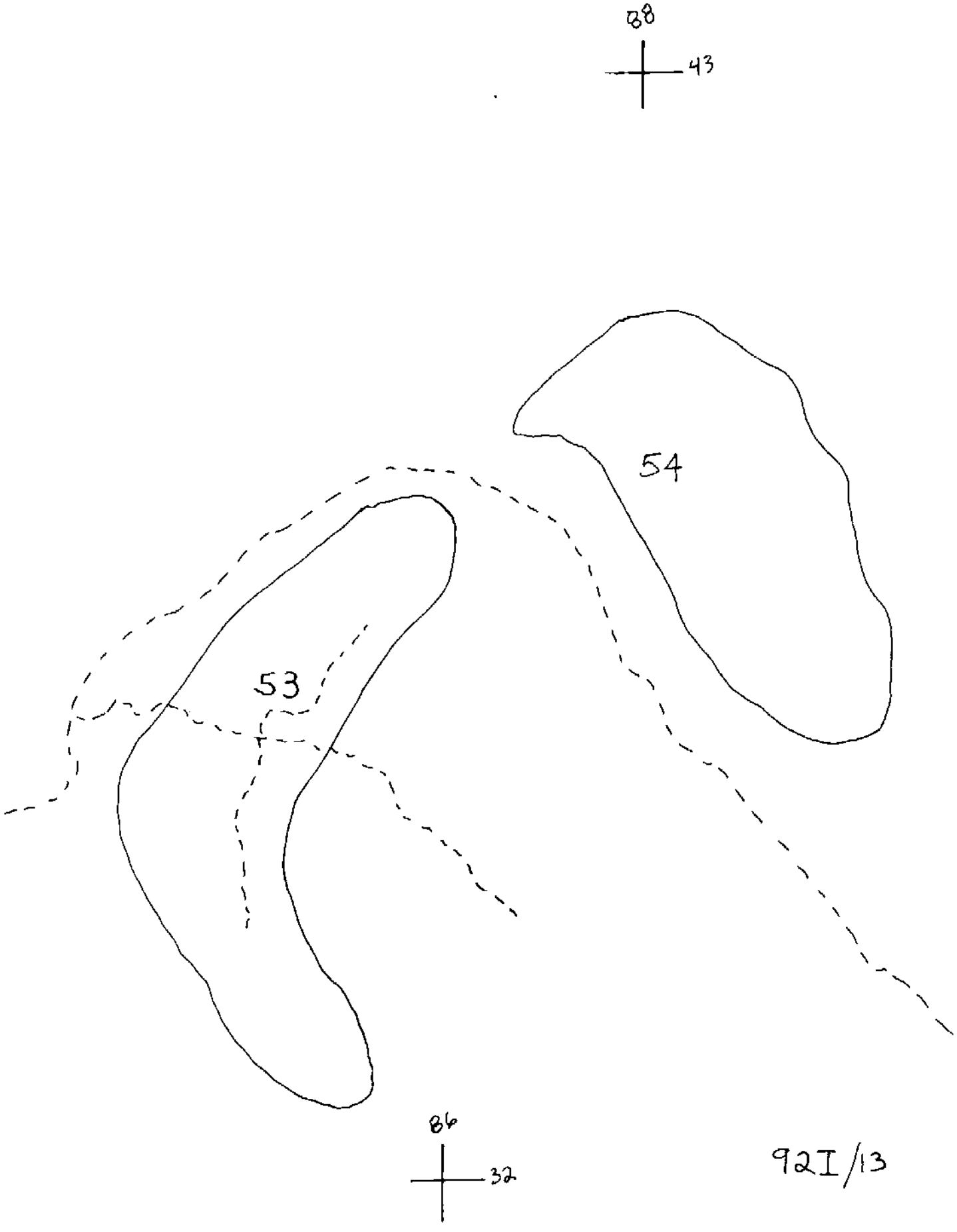
#55 - No access.

ii) Rock Types Encountered: No outcrop of Eocene sediments were observed though there was a great deal of subrounded pebble conglomerate float. This was quite red as was the sandy silt glacial material which was exposed everywhere.

TARGET #

iii) Description of Outcrop/Topography: Outcrop, besides Pleistocene was very scarce.

III Target Summary No further work is warranted since there is an unlikely possibility of coal due to type and oxidized nature of the sediment float.


88
43
54
53
86
32
92I/13

TARGET # 57

I

i) Dates Worked -- ½ crew day 23/6/82 (EB), 1 crew day 24/6/82 (AP)

ii) Outcrop #'s -- R0054, R0055.

iii) Sediment Sample #'s -- R0054

iv) Map Sheet -- 92 I/11

v) Photos -- NIL

II

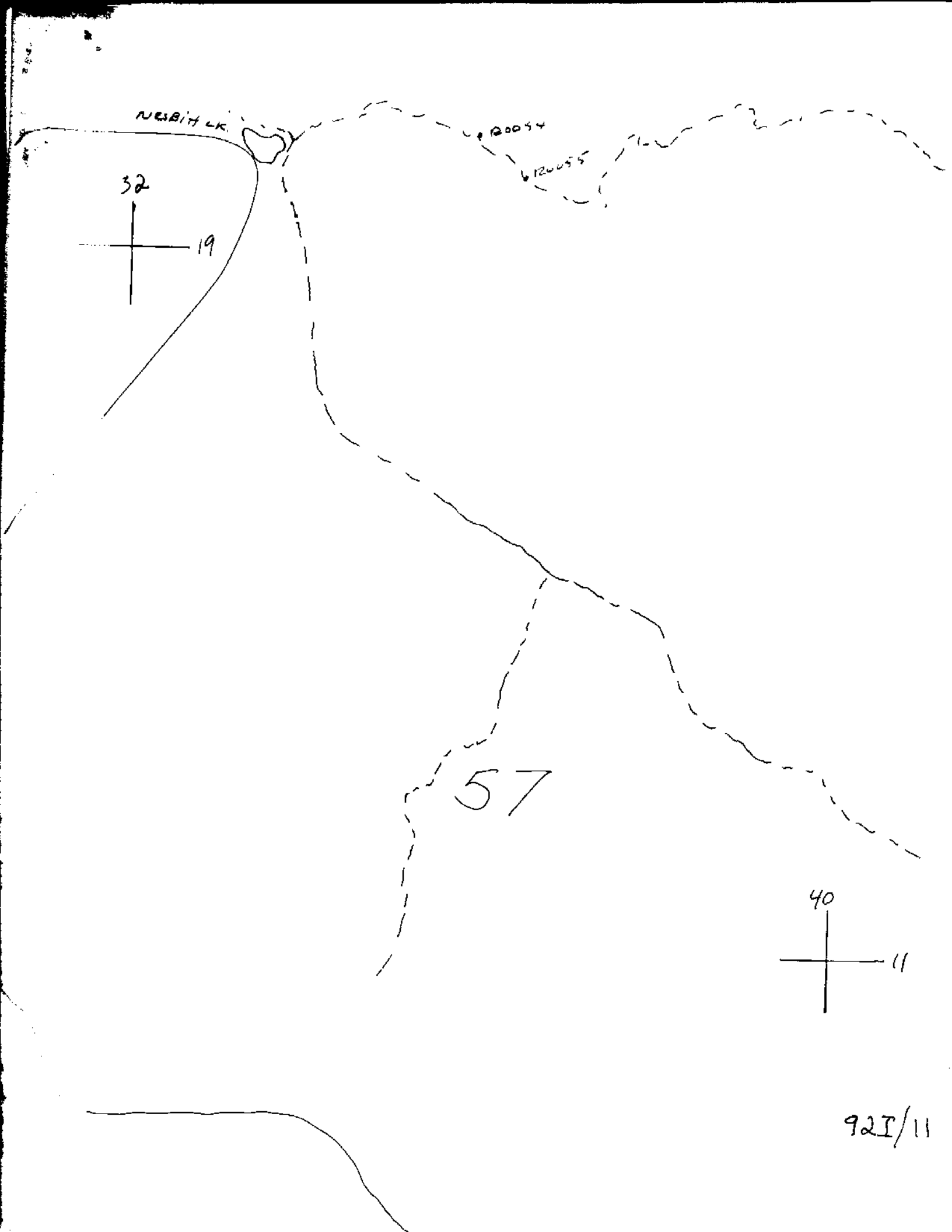
i) Traverse Description: Target accessed off Hwy #1 through Ashcroft then using secondary gravel roads.

ii) Rock Types Encountered: Outcrop consisted only of volcaniclastics and conglomerates. One fossil location was found. This was a fish fossil preserved in a finely laminated Silica marl.

TARGET #

iii) Description of Outcrop/Topography: Outcrop was very scarce, due to the gentle nature of the topography, and only occurred as road cuts

III Target Summary Only one sedimentary outcrop was found and due to the flat character of the land and recessive nature of Eocene sediments, possibility of coal outcrops is rare.



92I/11

TARGET # Coldwater Beds South of Spences Bridge

I

i) Dates Worked -- 1 crew day 13/6/82, (RB)

ii) Outcrop #'s -- R0043

iii) Sediment Sample #'s -- R0043

iv) Map Sheet -- 92I/6

v) Photos -- NIL

II

i) Traverse Description: Access to target by gravel road from Hwy #1 SW. of Spences Bridge.

ii) Rock Types Encountered: Except for the one sandstone outcrop of possible Eocene age, all rock encounted was volcanic, such as basalt, volcaniclastic debris and welded tuff.

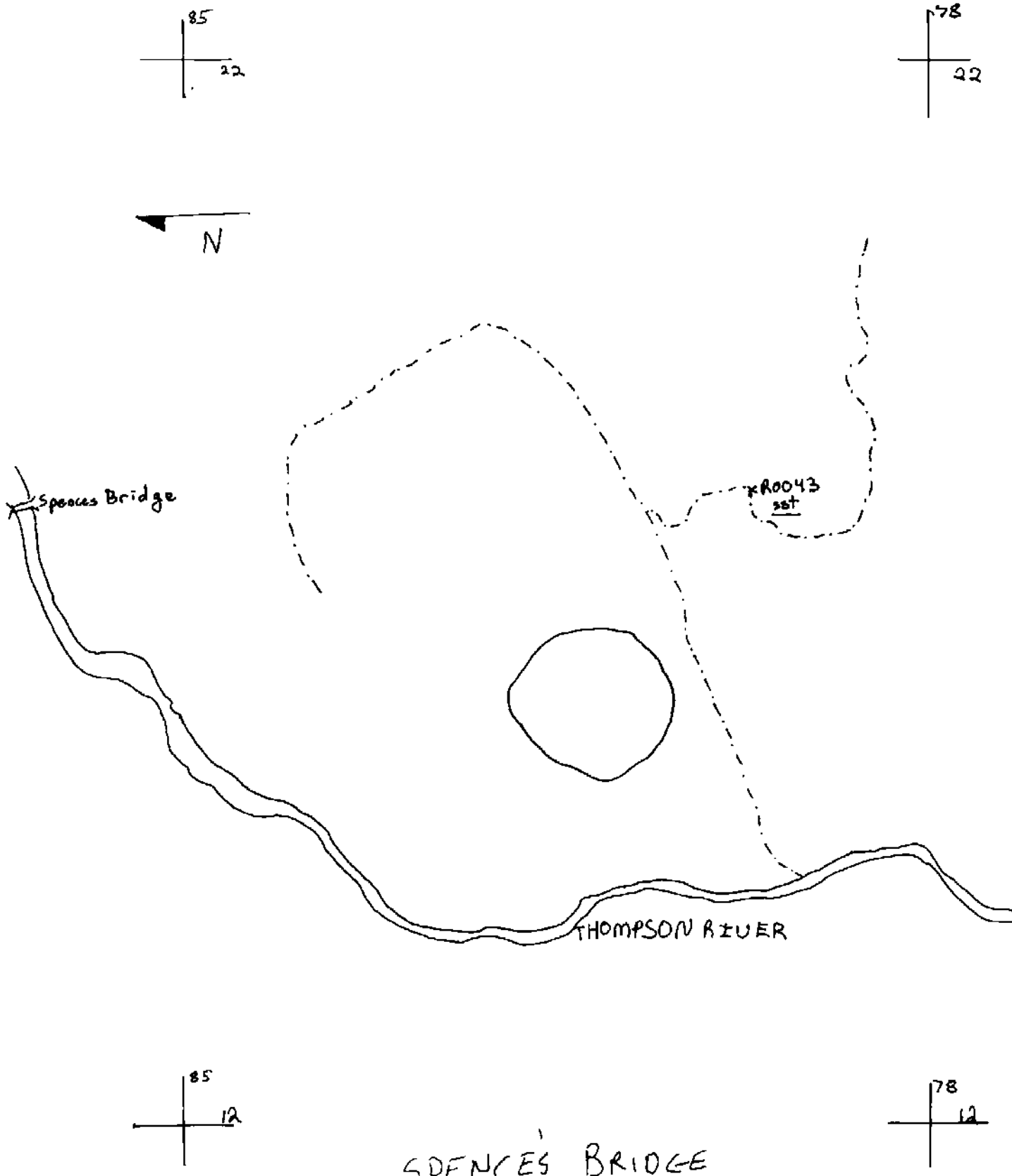
TARGET # Coldwater Beds South of Spences Bridge.

---

iii) Description of Outcrop/Topography: Topography was very steep and the outcrop was found on hillsides except for the sandstone which was found in a road cut. Most outcrop was glacial overburden.

III Target Summary Though coal was reported in the area only sandstone was found

92-I/6



SPENCES BRIDGE

TARGET # CHU CHUA # CRISS CREEK

I

i) Dates Worked -- 1 crewday, 23/6/82 (H.H)

ii) Outcrop #'s -- H0022

iii) Sediment Sample #'s -- H0022

iv) Map Sheet -- a) 92 P/8 b) 92 P/2

v) Photos -- NIL

II

i) Traverse Description: a) Access to Sedimentary occurrences was good except that an Indian Reservation prohibited viewing of the coal.

b) A traverse was also completed along Criss Creek Rd.

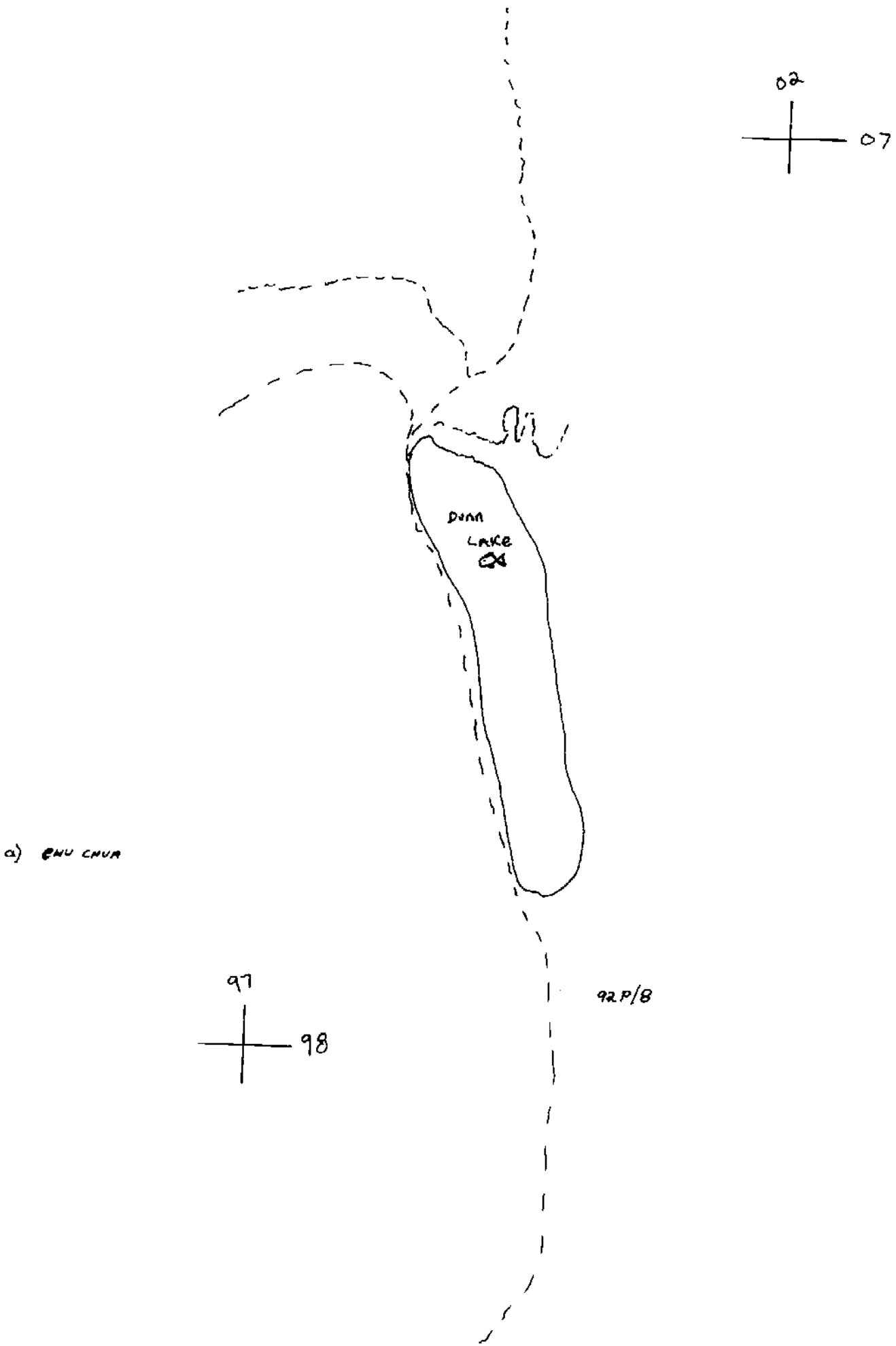
ii) Rock Types Encountered: a) Conglomerate

b) Basalt

TARGET #

iii) Description of Outcrop/Topography:

III Target Summary


02
07
DUNN
LAKE
a) ENU CHUA
97
98
92 P/8

TL33551

70

52

Basalt.

56

61

92 A/2

802

TARGET # RED POINT

I

i) Dates Worked -- 1/2 crew day 26/6/82 (RB)

ii) Outcrop #'s -- R0058, R0059

iii) Sediment Sample #'s -- R0058, R0059

iv) Map Sheet -- 92 I/15

v) Photos -- NIL

II

i) Traverse Description: Traverse along side of Kamloops lake on new road branching off of the Tranquille Cr. Rd.

ii) Rock Types Encountered: Basaltic volcanics overlying very massive Eocene sediments.

TARGET #

iii) Description of Outcrop/Topography: Terraine consists of gentle rolling hills with the volcanics exposed mostly on the hillsides and the sediments in road cut.

III Target Summary These sediments are the Tranquille beds and consist of sandstone, siltstone & shale capped by the basaltic flows & it is quite probable that they continue under this cap.

Red Point Target

71
28

92 I/15

XRD059
sed
XRD058
sed

vol

vol

KAMLOOPS LAKE

66
19

92 I/10

TARGET # EOCENE VOLCANICS SOUTH OF MERRIT

I

i) Dates Worked -- 2hrs 10/6/82 (R.B)

ii) Outcrop #'s -- NIL

iii) Sediment Sample #'s -- NIL

iv) Map Sheet -- 92I/2

v) Photos -- NIL

II

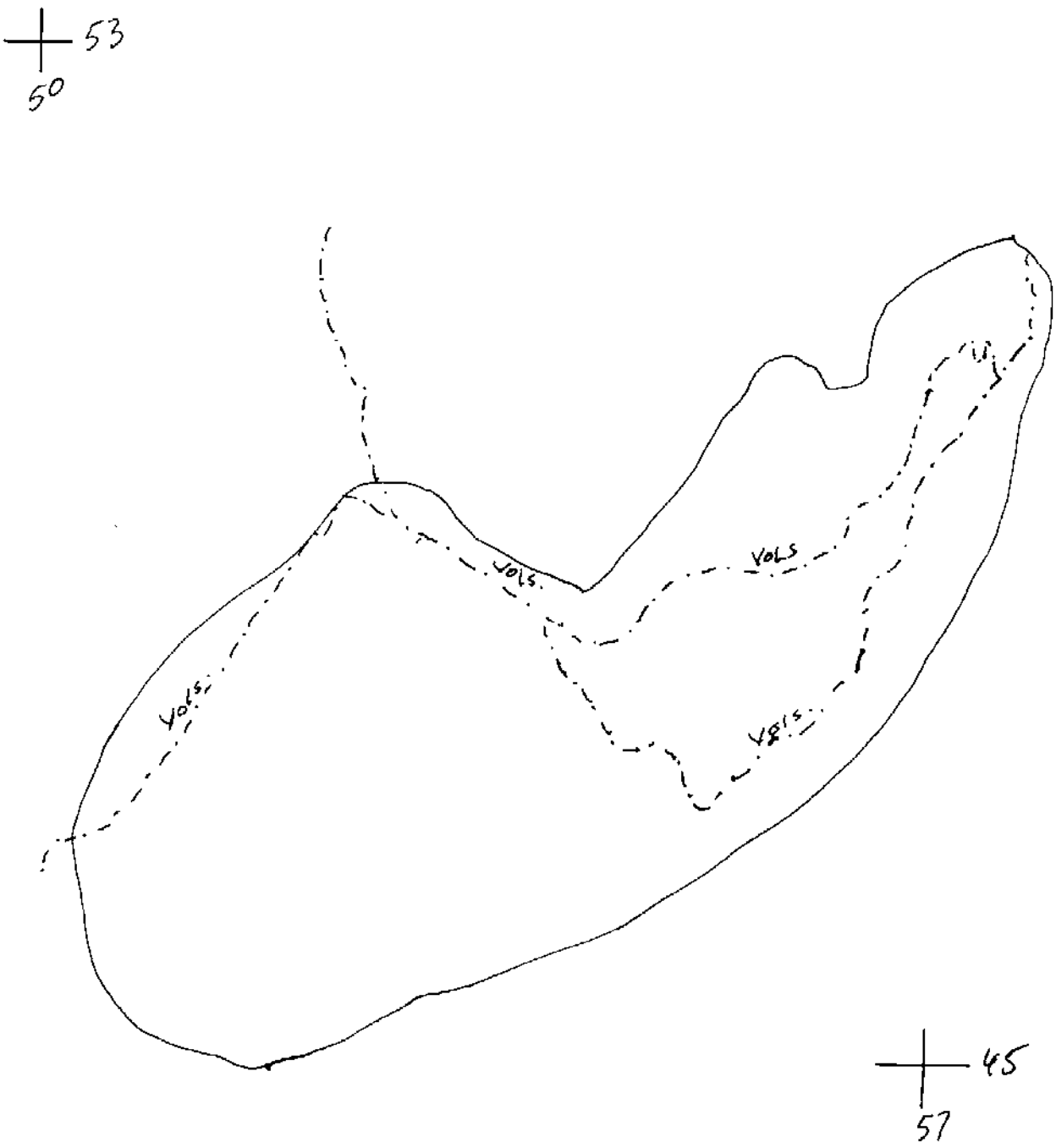
i) Traverse Description: Good gravel road access south from Merrit.

ii) Rock Types Encountered: All rock types were volcanics basalts and andesites and Pleistocene sediments.

TARGET # EOCENE VOLCANICS SOUTH OF MERRIT.

iii) Description of Outcrop/Topography: The country was gently rolling with volcanics outcropping on the hillsides.

III Target Summary Very close to merrit coal field though no seams are found.



92I2

Province of British Columbia

Ministry of Environment

Water Management Branch
Parliament Buildings
Victoria
British Columbia
V8V 1X5

YOUR FILE

OUR FILE 0183613-C

May 7, 1982

Mr. David Howard
Esso Minerals Canada
Coal Department
237 4th Avenue
S.W. Calgary, Alberta

RM.675

Dear Sir:

Further to your telephone enquiry of April 30, 1982, please find enclosed the following:

Index of Well Location Maps, Sheets 1 and 2

Kamloops District Water Well Location Maps, Sheets 21 and 68

If we can be of further assistance please contact our office in Victoria at 387-1115.

Yours truly,

J.C. Foweraker, Head
Groundwater Section
Water Management Branch
387-1115

Per: F. Chwojka

Encl.

DATA DISTRIBUTION SERVICES
MAY 13 1982
ACTION Howard
ORIG
COPY

Province of British Columbia

Ministry of Environment

Water Management Branch
Parliament Buildings
Victoria
British Columbia
V8V 1X5

YOUR FILE

OUR FILE 0183613-C

September 10, 1982

Esso Minerals
Coal Department
Room 675
237 - 4th Avenue S.W.
Calgary, Alberta
T2P 0H6

Attention: Hal Hopkins

Dear Mr. Hopkins:

In response to your telephone request of September 7, enclosed please find well location maps you requested. Unfortunately, we have been unable to locate two of the maps you wanted, Kamloops Sheets 27 and 28. I have made a note of this, and when and if the maps are found, I will send you copies of them.

I am also enclosing an invoice for copying charges of this material.

If we can be of further assistance, do not hesitate to contact this office at 387-1115.

Yours truly,

J.C. Foweraker, Head
Groundwater Section
Water Management Branch

Per: Barbara Travers

Encl.

INVOICE NO. 51

GROUNDWATER
HYDROLOGY SECTION
WATER MANAGEMENT BRANCH
MINISTRY OF ENVIRONMENT
LEGISLATIVE BUILDINGS
VICTORIA, B.C.
V8V 1X5

TO: Esso Minerals
Coal Department
Room 675
237 - 4th Avenue S.W.
Calgary, Alberta
T2P 0H6

Attention: Hal Hopkins

REFERENCE: Your letter/ phone call of September 7, 1982 wherein you requested well location maps as follows: Lillooett L.D. maps #52 & #53, Yale L.D. maps #3 & #6, Kamloops maps (#27 & #28 - missing - no charge), #30, #60, #65, 66, 67, 68, 69, 79, 80, & #100 and index of well location maps for east central and west central B.C. (3 maps)

17 well location maps @ $1.00/ea.	$ ...$17.00.....
	$ .....
	$ .....
	$ .....
	$ .....
	$ .....

TOTAL $ ....17.00.....

PLEASE PAY THE ABOVE AMOUNT

DATE: September 10, 1982

FILE: 0183613-C

MAKE CHEQUE PAYABLE TO THE MINISTER OF FINANCE, PROVINCE OF BRITISH COLUMBIA, AND RETURN WITH THIS STATEMENT TO THE GROUNDWATER OFFICE, HYDROLOGY SECTION, WATER MANAGEMENT BRANCH, MINISTRY OF ENVIRONMENT, LEGISLATIVE BUILDINGS, VICTORIA, B.C., V8V 1X5

Province of British Columbia

Ministry of Environment

Water Management Branch
Parliament Buildings
Victoria
British Columbia
V8V 1X5

YOUR FILE

OUR FILE 0183613-C

October 22, 1982

Ms. Roberta Berg
Coal Department
Esso Minerals Canada
Esso Plaza
237 Fourth Avenue Southwest
Calgary, Alberta
T2P 0H6

Dear Ms. Berg:

In response to your letter of October 14, enclosed please find all the well logs and most of the well location maps you requested. The reason why some of the maps have not been sent is that they have no wells plotted on them and hence it would appear they would not be of any value to you.

By the way, in a previous request (September 7, 1982) by Hal Hopkins of your office he asked for Kamloops map sheets 27 and 28, and he was informed at that time that they were missing and would be sent at a later date when found. I was not aware at that time that these maps had been removed from our system because they had no wells plotted on them. I would appreciate it if you could tell him this.

I am also enclosing an invoice for the copying cost of the maps.

If you require further groundwater information, do not hesitate to contact this office in Victoria at 387-1115.

Yours truly,

J.C. Foweraker, Head
Groundwater Section
Water Management Branch

Per: Barbara Travers

Encl.

INVOICE NO. 54

GROUNDWATER
HYDROLOGY SECTION
WATER MANAGEMENT BRANCH
MINISTRY OF ENVIRONMENT
LEGISLATIVE BUILDINGS
VICTORIA, B.C.
V8V 1X5

TO: Ms. Roberta Berg
Coal Department
Esso Minerals Canada
237 Fourth Avenue Southwest
Calgary, Alberta
T2P 0H6

REFERENCE: Your letter/ ~~phone call~~ of October 14, 1982 wherein you requested copies of well location maps in the Lillooet, Cassiar, Coast Range 5, Coast Range 4 and Kamloops Districts

13 well location maps @ $1.00 each	$ ...13.00.....
	$ .....
	$ .....
	$ .....
	$ .....
	$ .....

TOTAL $ ...13.00.....

PLEASE PAY THE ABOVE AMOUNT

DATE: October 22, 1982

FILE: 0183613-C

MAKE CHEQUE PAYABLE TO THE MINISTER OF FINANCE, PROVINCE OF BRITISH COLUMBIA, AND RETURN WITH THIS STATEMENT TO THE GROUNDWATER OFFICE, HYDROLOGY SECTION, WATER MANAGEMENT BRANCH, MINISTRY OF ENVIRONMENT, LEGISLATIVE BUILDINGS, VICTORIA, B.C., V8V 1X5

Princeton - Ashcroft

Phase I Targets M.S. 92H-92I

Priority 1

TARGET	MAP SHEET	GEOLOGIC REASONING	SIZE	EXPOSURE PROBABILITY	CREW ALLOTTED DAYS	ACCESS	DIST	BASE OF OPERATIONS
1	92H/2/7	EOSEDS ON EOVOLS	4 x 1½mi					PR
3	92H/2/8	EOSEDS UNDER EOVOLS ON TRIAMETA &JUR. INTR.	3½ x 1½mi					PR
4	92H/2/8	EOSEDS UNDER EOVOLS ON TRIAMETA & JUR. INTR.	4 x 1½mi					PR
6(a)	92H/2/15	EOSEDS UNDER EOVOLS ON TRIAMETA & JUR. INTR.	7 x 1½mi					
6(b)	92H/2/15	EOSEDS UNDER EOVOLS ON TRIAMETA & JUR. INTR.	17½ x ½mi					
27	92I/15	EOSEDS IN EOVOLS	2½ x ½mi	mod	1	good		
28	92I/14/15	EOSEDS IN EOVOLS	big		1			
30	92I/15	CRET?/TERT? SEDS ON TRIMET	12 x 2mi	good	3	good		
31	92I/15	POSSIBLE EOSEDS	big		5	good		
34	92I/9/10	EOSEDS IN EOVOLS	8 x 2mi	mod-good	2	good		
41		EOSEDS IN EOVOLS	10 x 4mi	mod-good	2	good		
53	92I/13	EOSEDS ON JUR. INTR.	3 x 1		2			
56	92I/14	EOVOL	big		3			

Princeton - Ashcroft

Phase I Targets M.S. 92H-92I

Priority 2

TARGET	MAP SHEET	GEOLOGIC REASONING	SIZE	EXPOSURE PROBABILITY	CREW ALLOTTED DAYS	ACCESS	DIST	BASE OF OPERATIONS
2	92H/1	EOSEDS IN EOVOLS	2 x 1½mi					
10	92H/2/7	EOVOLS ON JUR. INTR.	6 x 13mi					
38	92I/8/9	EOVOLS BETWEEN JUR. INTR.	8 x 4mi	poor-mod	2	mod		
43	92I/7/10	TOPO LOW IN TRIMET/EOSEDS	4 x 4mi	mod	1	mod		
50	92I/2	EOSED ON TRIMET	2 x ½		1			

Princeton - Ashcroft

Phase I - Targets M.S. 92H-92I

Priority 3

TARGET	MAP SHEET	GEOLOGIC REASONING	SIZE	EXPOSURE PROBABILITY	CREW ALLOTTED DAYS	ACCESS	DIST	BASE OF OPERATIONS
5	92H/1	EOSEDS UNDER EOVOLS	4 x ½mi					
7	92H/8	EOVOLS ON JUR. INTR & TRIMETS	3 x 2mi					
8	92H/8	EOVOLS ON JUR. INTR & TRIMETS	3 x 2mi					
9	92H/8	EOVOLS ON JUR. INTR & TRIMETS	2 x 1mi					
11	92H/1,2, & 8	EOVOLS ON JUR. INTR & TRIMETS	5 x 12mi					
12	92H/16	EOVOLS ON JUR. INTR & TRIMETS	7 x 3mi					
32	92I/16	TOPO LOW IN CARBON META	6 x 4mi		1	good		
36	92I/9	TOPO LOW TRIMET BETWEEN CR	3 x 3mi	good	1	good		
42	92I/10	EOVOL ON TRIMET & JUR. INT	big	poor-mod	1	poor-mod		
51	92I/8	TOPO LOW ON TRIMET	4 x 2mi		1			
52	92I/13	EOVOLS ON CRET VOLS	5 x 3mi		1			

Princeton - Ashcroft

Phase I Targets M.S. 92H-92I

Priority 4

TARGETS	MAP SHEET	GEOLOGIC REASONING	SIZE	EXPOSURE PROBABILITY	CREW ALLOTTED DAYS	ACCESS	DIST	OPERATIONS
13	92H/15	MIO VOL CAP ON TRI	3 x 1½mi					
14	92H/15	MIO VOL CAP ON TRI	5½ x ½mi					
15	92H/15	MIO VOL CAP ON TRI	2½ x 3/4mi					
16	92H/10	MIO VOL CAP ON TRI	3 x 1½					
17	92H/8/9	TOPO LOW IN JUR. INTR & TRIMET						
18	92H/9	TOPO LOW IN JUR. INTR & TRIMET						
19	92H/9	TOPO LOW IN JUR. INTR & TRIMET						
20	92H/9	TOPO LOW IN JUR. INTR & TRIMET						
21	92H/9/16	TOPO LOW IN JUR. INTR & TRIMET						
22	92H/7	TOPO LOW IN JUR. INTR & TRIMET						
23	92H/9/16	TOPO LOW IN JUR. INTR & TRIMET						
24	92H/16	TOPO LOW IN JUR. INTR & TRIMET						
25	92H/16	TOPO LOW IN JUR. INTR & TRIMET						
26	92H/10	TOPO LOW IN JUR. INTR & TRIMET						
29	92I/15	EOVOL ON TRIMET	2 x 1mi	mod to good	1	good		
35	92I/9/10	TOPO LOW IN TRIMET	4 x 2½mi	mod to good	2	good		

Priority 4

TARGETS	MAP SHEET	GEOLOGIC REASONING	SIZE	EXPOSURE PROBABILITY	CREW ALLOTTED DAYS	ACCESS	BASE OF OPERATIONS
37	92I/8/9	EOVOL ON JUR. INT	4 x 2mi	mod	1	mod	
40	92I/8	EOVOL ON JUR. INT	12 x 2mi	poor	2	poor	
44	92I/7	TOPO LOW ON TRIMET NEXT TO BSMT. HIGH	10 x 2½	poor	½		
45	92I/7,8,9,10	TOPO LOW ON TRIMET NEXT TO BSMT. HIGH	3 x 2½	mod	1	good	
46	92I/8	TOPO LOW ON TRIMET NEXT TO BSMT. HIGH	6 x 2	mod	1	good	
47	92I/1,8	TOPO LOW ON TRIMET NEXT TO BSMT. HIGH	3 x 3	mod	1	good	
54	92I/13	EOVOL ON CRET VOL	3 x 1		½		
55	92I/13	EOVOL ON PERM CST.	4 x 2		½		
57	92I/11	EOVOL	big		1		

DWR - Dry Weather Road!
Princeton

TARGET		EXPOSURE POSSIBILITY	TIME (D)
1 -	Good Access By Hwy 3 & / D.W. Road Sunday Ck 5K ½ DAY IF PICKED Up A TTHE END OF THE DAY EXPOSURE Possibilty OF Road Cuts Along Hwy 3 & D.W. Road.	V. GOOD	½
2 -	Poor Access (cart track) Right on Top of Crater Mtn.	Mod to S. Poor to N.	½ ??
3 -	V. Poor Access Hwy 2K AWAY 2500' LOWER, D.W. Road ½ DAY TRAV. AWAY	Mod.	
4 -	Moderate Access on South End. Two unnamed streams.	Mod to Good	1
5 -	INSIDE A PROV. PARK	N/A	N/A
6 -	V. Good Access. Possibilty of spotting o/c from Road & Road Cuts; might use numerous cart tracks.	Mod.	~6+8 D.
7 -	Good Access D.W.R Best to ⊙ Peak to catch 5	Mod	1 D
8	AC/DC cks.		
8 -	Mod. Access. 2 Good, 1 AC/DC. stream	Mod.	1 Day
9.	Mod. Acces. No streams But Good Cliff Exposures on West Side	Mod	1 Day.
10.	Upper Friday Ck. Access Good. South Access Poor 1 Good Ck Cut Copper Ck (Park Boundary)	Good Good. May Be / Road P.U.	1 Day 1 Day H 1 Day / 15 mod days.

2000' = 700'

11	- Access Poor. 1 DWR THRU Middle - Road Trav. The Rest No Access.	Mod Good	1 Day. + 2 Days.
12.	Access Good To Nort Mod To South	mod	2 Day
13	Access Good	Mod to Good	1 Day
14	Access Good	Poor to Mod	1 Day
15	" "	Mod to Good	1 Day
16.	Access "	Good	2 1/2 Days
17.	Poor Access	Good	1 Day
18.	Poor - Two Good Trav Just off the Outline then Access not Bad.	Good ~~Mod~~	2 1/2 D. ~~2 D.~~
19.	Mod. - Two Good Trav	Mod.	2 D.
20.	Poor to Mod. - 1 Good Ck trav.	Good	1 D
21	Access Mod - 1 Good Ck	Mod	1 D
22	Access Mod -	Good	2 D
23	Access Good	Mod	4 D.
24	Access Good	Good	2 D
25	Access Mod.	Mod.	2 D.
26	Access Good	Good	3 D

39 Man Day = 20 Days. 24 Days.

Target	Km to:	Kamloops Princeton/Merritt	Access Road surface
1	~ 30	Pr.	Hwy
2	~ 80Km	Pr.	62Km Hwy/20-25 Cart track
3	~ 30	Pr.	25Km Hwy/6Km Cart track.
4	~ 35	Pr.	26 Km Hwy/8Km dry weather
5	Within	Cathedral Provincial	Park.
6	~ 20Km	Mer.	13Km Hwy to North end of target then ~ 30Km All weather/dry weather through target
7	~ 20Km	Pr.	15Km Hwy/6Km loose All weath/dry weath
8	~ 30Km	Pr	~ 10Km from Target #7 Access
9	~ 25Km	Pr.	15Km Hwy/9Km loose dry/2-5Km Cart track
10	~ 25Km	Pr	25Km Hwy
11	~ 50Km	Pr.	40Km Hwy/10Km All weather/dry weather
12	~ 60Km	Merr.	25Km Hwy/35Km Gravel/dry weather
13	~ 25Km	Mer.	20Km hwy/7Km Cart track
14	~ 35Km	Mer.	30Km hwy 6Km All weather
15	~ 43 Km.	Mer.	38Km Hwy/5Km All weather
16	~ 10Km	Pr.	6Km Loose All weath/dry weath/2Km cart track

Target	Km	to Princeton Merritt	Access Road Surface
17	~ 20 Km	Pr.	15Km grav All weath / 6Km CART track
18	~ 40Km	Pr.	40Km grav All weath / 2Km dry weath
19	~ 25Km	Pr.	10Km Hwy / 10 Km grav / 5Km cart tk.
20	~ 35Km	Pr.	30Km grav All weath / 6 Km CART tk.
21	~ 50Km	Pr	48Km grav All weath / 2Km CART tk.
22	~ 30Km	Pr.	20 grav All weath / 10Km dry weath.
23	~ 40Km	Pr.	40Km grav All weath / 3Km dry weath.
24	~ 53Km	Mer	38Km Hwy / 15 Km dry weath
25	~ 45Km	Mer.	30Km Hwy / 15Km dry weath
26	~ 40Km	Pr.	40Km gravel All weather.
27	~ 65Km	KAM.	54Km Hwy / 10Km All weather grav
28	~ 65Km	KAM	54Km Hwy / 10Km All weather grav
29	~ 74Km	KAM	54Km Hwy / 20Km grav All weather
30	~ 60Km	KAM	46Km Hwy / 15 Km grav All weather
31	~ 1 Km	KAM	Hwy
32	~ 22Km	KAM	22Km Hwy
33	within INDIAN Reservation.		

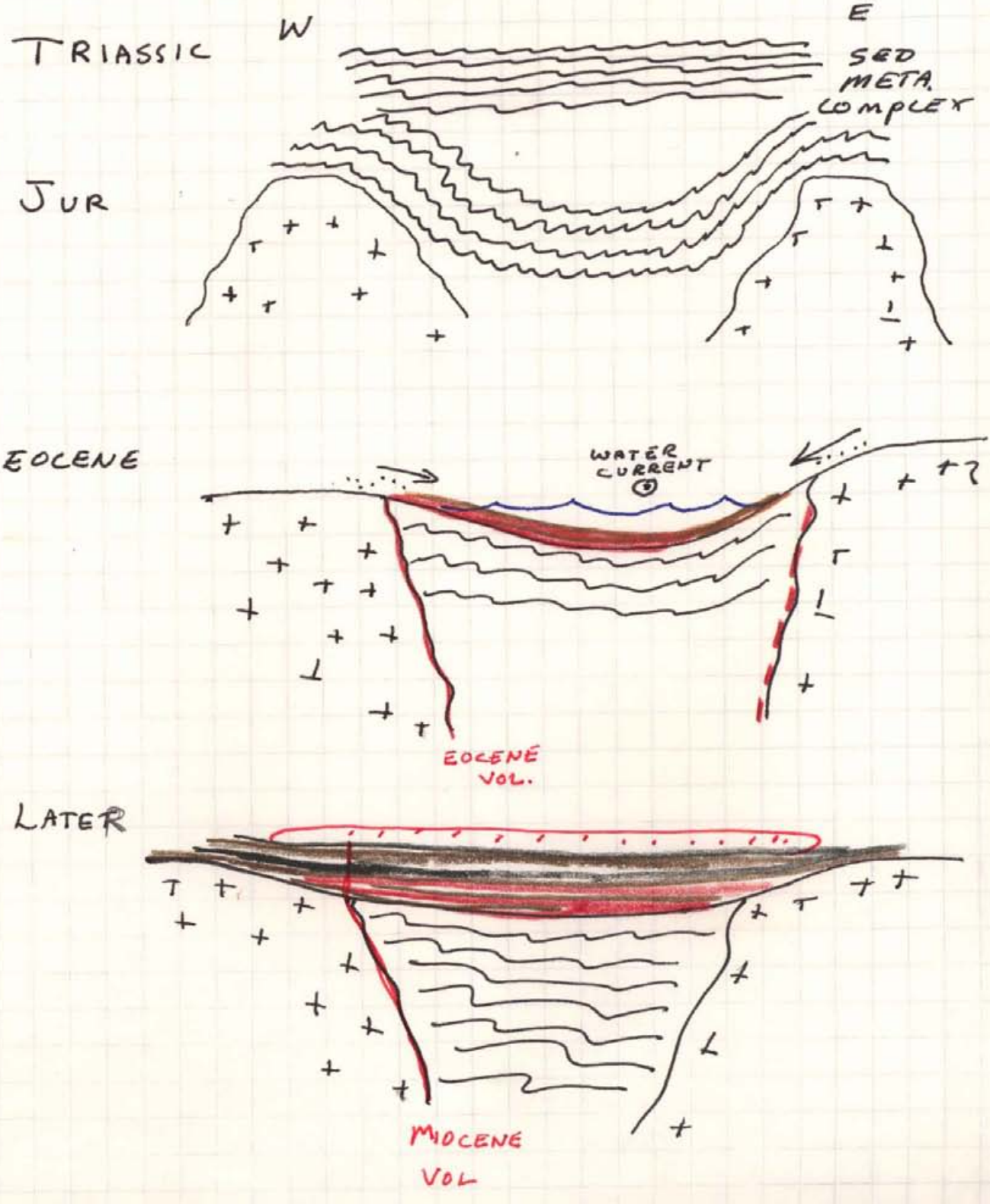
Target	Km to	Kamloops Princeton/Merritt	Access Road Surface
34	~ 2 Km	KAM	Hwy
35	~ 14 Km	KAM	12 Km Hwy / 2 Km dry weather
36	~ 17 Km	KAM	Hwy
37	~ 28 Km	KAM	23 Km Hwy / 5 Km dry weather
38	~ 14 Km	KAM	Hwy
39			
40	~ 56 Km	KAM	20 Km Hwy / 33 Km All weath / 3 Km Karth
41	~ 23 Km	KAM	20 Km Hwy / 3 Km All weather
42	~ 45 Km.	KAM	35 Km Hwy / 10 Km All weath
43	~ 36 Km	Mer	36 Km Hwy
44	~ 40 Km	KAM	35 Km Hwy / 5 Km Carth.
45	~ 25 Km	KAM	25 Km Hwy
46	~ 35 Km	Mer.	35 Km Hwy
47	~ 45 Km	mer	35 Km Hwy / 10 Km All weather
48	~ 45 Km	mer	35 Km Hwy / 10 Km All weather
49	~ 47 Km	mer	35 Km Hwy / 10 Km All weath / 2 Km dry
50	~ 15 Km	Mer.	12 Km Hwy / 3 Km dry weather gets you ~ 1 Km from target access 35 Km Hwy
51	~ 35 Km	KAM	

Target	Approx Km to →	Kamloops / Princeton / Merritt	Access Road Surface
52	~ 125 Km	KAM	115 Km Hwy / 10 Km All weather
53	~ 107 Km	KAM.	105 Km Hwy / 2 Km CAT tck.
54	~ 105 Km	KAM.	105 Km Hwy / .5 Km off Hwy
55	~ 95 Km	KAM.	85 Km Hwy / 10 Km CAT tck.
56	~ 50 Km	KAM	50 Km Hwy
57	~ 60 Km	KAM	58 Km Hwy / 2 Km All weather.
58	~ 25 Km	mer.	25 Km Hwy

HEH
APRIL 26/82

GENERAL MODEL

PRINCETON ~~NICOLA~~ M.S.



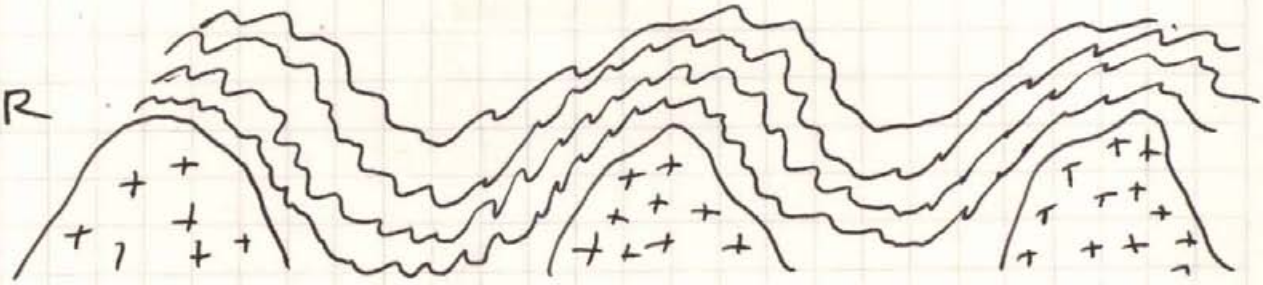
HEH
APRIL 28/82

NICOLA M.S.
GENERAL MILE

W E

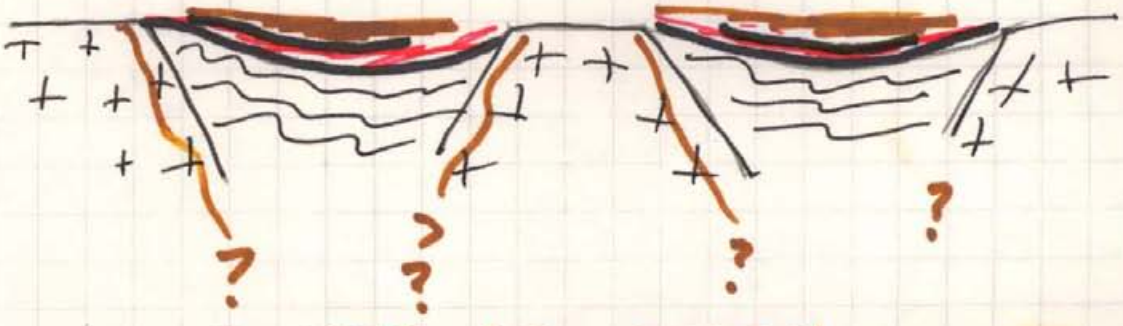
TRI

JUR



EOCENE

LATER



DYKES LOCATION
- I DON'T KNOW

PRIORITY
#1 #3
#2 #4

COPY

D. H. CORY
1 OF 2

PRINCETON 1/2 OF M.S. 92H
GEO MAP 888A

TARGET	MODEL PRIORITY 1 2 3 4	ACCESS	CREEK CUTS	M 92H	REASON.
1 DAY 1	✓	GOOD	P. ROAD CUTS	7/2	EOCENE SEDS ON EOCENE VOL 4mi x 1½ 5K ½ DAY
½-1 DAY 2	✓			1	Eo SEDS IN Eo VOLS ON PALEOZOIC BSMT 2mi x 1½ mi
½-1 DAY 3	✓			8	Eo SEDS UNDER Eo VOLS ON TRIA META & JUR. INT 3½ x 1½ mi
1 DAY 4	✓			8	AS ABOVE 4mi x 1½ mi
1 DAY 5	✓	IN PROV.	PARK	1	Eo SEDS UNDER Eo VOLS ON TRI MET & JUR INT. ½ mi x 4mi
6 DAYS 6	✓			15	Eo SEDS/SOME VOL ON MOSTLY TRI MET SOME JUR INT & CRET VOL. a) 7mi x 1½ mi b) 17½ mi x ½ mi
7	✓			8	Eo VOL ON JUR INTR. TRI MET 3mi x 2mi
20 DAYS 8	✓			8	Eo VOL ON " " & TRI MET 3mi x 2mi
9	✓			8	Eo VOL ON " " " & 2mi x 1mi SOUTH MOST ¼ IN PROV. PARK
2 DAYS 10	MAYBE ✓			2/7	Eo VOL ON " " " " 6mi x 13mi
* 1 DAY 11	✓			1 2/8	" " " " " " " 5mi x 12mi
2 DAYS 12	✓			16	" " " " " " " 7mi x 3mi
(3) 1 DAY 13	✓			15	M,O VOL COP ON TRI 1½ mi x 3mi
1 DAY 14	✓			15	" " " " " ½ mi x 5½ mi
4 1 DAY 15	✓			15	" " " " " ¾ mi x 2½ mi
16	✓			10	" " " " " 3mi x 1½ mi

#1 - 10 DAYS
#2 - 10 DAYS
#3 - 6 DAYS
#4 - 17 DAYS

43 CREW DAYS
2½ CALENDER DAYS

PRINCETON 1/2 OF M.S. 92H 2 OF 2
GEO MAP 888A

TARGET	1 2 3 4	ACCESS	CK CUTS	MAP	REASON
2 DAYS 17	✓			8/9	TOPO LOW IN JUR INT & TRI MET
2 DAYS 18	✓			9	" " " " "
2 DAYS 19 ?	✓			9	" " " " " & TRI MET
1 DAY 20 ?	✓			9	" " " " " " "
1 DAY 21	✓			9/16	" " " " "
2 DAY 22	✓	Day w/ Road Across N. Boundary	Gran Ck Fork Arrastra Ck	7	" " " TRI MET 13K T or 10K 1 DAY
2 DAY 23	✓			9/16	" " " JUR INT.
2 DAY 24	✓			16	" " " TRI MET
2 DAY 25	✓			16	" " " " "
2 DAY 26	✓			10	" " " " " & JUR. MET
~~27~~	~~✓~~				

PRIORITY
1 3
2 4

COPY

TUESDAY APRIL 28/82

NICOLA 1/2 OF M.S. 92-I

1 OF 2

GEO MAP 886A

TARGET		1, 2, 3, 4	ACCESS	CK CUTS	MAP	REASON
1 DAY	27	✓			15	EO SEDS IN EO VOL. 1/2 MI X 2 1/2 MI
1 DAY	56 & 28 ON ASHCROFT	✓ ✓			14/15	POSSIBLE EO SEDS IN EO VOL BIG!
1 DAY	29?	✓			15	EO VOL ON TRI MET 1 MI X 2 MI.
3 DAYS	30	✓			15	CRET?/TERT? SEDS ON TRI MET 12 X 2 MI
5 DAYS	31	✓			15	POSSIBLE EO SEDS BIG!
1 DAY	32	✓			16	TOPO LOW IN. CARBON META 4 X 6 MI
	~~33~~	✓			8E/16	" " " "
2 DAYS	34	✓			9E/10	EO SEDS IN EO VOL 8 X 2 MI.
~ DAYS	35	✓			9E/10	TOPO LOW IN TRI MET ~4 X 2 1/2 MI
1 DAY	36	✓			9	TOPO LOW TRI MET SANDWICHED BETWEEN GR 3 X 3 MI
1 DAY	37	✓			8E/9	
2 DAYS	38	✓			9E/8	EO VOL SANDWICHED BETWEEN JUR IN. 8 MI X 4 MI
	~~39~~	✓			8	EO VOL ON JUR INT. 4 X 2 MI
?	40	✓			8E/WEST	" " " " " 12 X 2 MI
2 DAYS	41	✓			9E/8	EO SEDS IN EO VOL * ~10 X 4 MI
1 DAY	42	✓			10	EO VO ON TRI MET & JUR INT. BIG
DAY	*43	✓			10E/7	TOPO LOW IN TRI MET/EO SED SHOWING 4 X 4 MI
1/2	44	✓			7	TOPO LOW ON TRI MET, NEXT TO BSMT HI 10 X 2 1/2 MI

#1 - 14 DAYS #3 4 DAYS
#2 - 4 DAYS #4 9 DAYS
CREW 31-DAYS

= 15 1/2 CALENDER DAYS

HEH
APRIL
28 82

NICOLA 1/2 OF M.S. 92-I 2 OF 2

GEO MAP 886A

TARGET	1, 2, 3, 4	ACCESS	CK CUTS	MAP	REASON
IDAY 45		✓		9,10, 7,8,	TOPO LOW IN TRIMET OFF JUR INT. HIGH 3×1½ mi
IDAY 46		✓		8	" " " " " " " " " " " " 6×2 mi
IDAY ~~IR~~ ~~47~~		✓		1, 8	" " " " " " & CARB MET OF JUR INT. 3×3 m
IR ~~48~~		✓		9	" " IN CARB MET OF JUR INT. 3×3 mi.
IR ~~49~~		✓		1	EO VOL ON CARB MET & JUR INT. 1×5 mi
IDAY 50	✓			2	EO SED ON TR. MET 2×½ mi
IDAY 51		✓		8	TOPO LOW ON TRIMET 4×2 mi

PRIORITY
1 3
2 4

COPY

ASHCROFT M.S.

MAY 4/82
#EH

TARGET	1	1	1	1010 A ACCESS	CK CUTS.	REASONS.
1 DAY 52		✓				EO VOLS. ON CRET VOL. 3 x 5 mi
2 DAYS 53		✓				E. SEDS. ON JUR INT. 1 x 3 mi
½ DAY 54		✓				EO VOL. ON CRET VOL. 1 x 3 mi
55		✓				EO VOL ON PERM LST 2 x 4 mi
3 DAY SEE LB 56		✓				EO VOL — V. BIG.
1 DAY 57		✓				EO VOL — V. BIG.
~~58~~		????				SED — ~~4 mi x 5 mi~~

#1	5 DAYS
#2	0
#3	1 DAY
#4	3 DAYS

CREW DAYS = 9 DAYS

CALENDER DAYS = 4½ DAYS.
↓
5

Palao Sample Record Sheet

RB

SAMPLE #		TARGET	DATE D	M	Y	UTM EAST	UTM NORTH	DESCRIPTION	CHECK IF SENT
R0001 [redacted]	a	10	1	6	82	675900	5457700	Paleo - volcanoclastic which has incorporated this	No
✓ R000[redacted]1	b	10	1	6	82	"	"	Paleo carby (wood - coal?) material	11/06/82 No
✓ R0002		10	1	6	82	650500	5480900	Paleo - thin stringers in very cg sst carby	✓
✓ R00[redacted]14		10	2	6	82	676200	5461900	Paleo - matrix of congl.	✓ No
✓ R0024	a	"	3	6	82	682600	5450150	Paleo - matrix of congl.	✓ No
✓ R0024	b	"	3	6	82	"	"	Paleo - sst	✓ yes
✓ R0025	a	"	3	6	82	684800	5449900	Paleo - sst & coaly wood frags	✓ Yes
✓ R0025	b	"	3	6	82	"	"	Paleo - sst	✓ No
✓ R0025	c	"	3	6	82	"	"	Paleo coaly wood frags + sst + ~~outside of congl~~ some vol containing coaly frags.	✓ No
✓ R0027		"	3	6	82	686500	5450950	Paleo - matrix of congl	✓ No
R0018		"	3	6	82	679000	5451200	Paleo - argillite - Nicola?	NO
R0031		4	4	6	82	~~7~~09800	5479100	Paleo - very unconsolidated sand Pleistocene?	NO
✓ R0039		42	11	6	82	653250	5613000	Paleo - siltstone	✓
✓ R0040		42	11	6	82	653800	5616800	Paleo - sandstone	✓
R0045		30	16	6	82	652500	5637250	Paleo - shale - Cret or Jur?	No
R0046		31	16	6	82	648280	5644950	Paleo - congl matrix	NO
R0047		30	16	6	82	647300	5647600	Paleo - sst	No
R0048		30	16	6	82	647850	5643150	Paleo - sst & shaley	Yes.
R0049		30	17	6	82	647500	5643100	Paleo - sst & shale - Cret? Prob.	No
R0051		27	17	6	82	642450	5640600	Paleo - conglo matrix	No
R0052		Near → close to #28	17	6	82	641750	5646300	Paleo - " "	No
R0043		Spences Bridge	13	6	82	557970	6179500	Paleo - sst.	Yes
R0044		31	15	6	82	673150	5623500	Paleo - sst.	Yes.
R0054		57	23	6	82	634900	5620500	Paleo - tuffaceous sst	No
R0055		57	23	6	82	635300	5620450	Paleo - SST	No
R0056	a	Mount Creek	24	6	82	301300	5614600	Paleo - sst.	Yes
	b	"		"		298900	5601600	Paleo - SST + CONGLO MAT.	No
R0057		42	26	6	82	654300	5519800	Paleo - SST - NICOLA? PROBABLE FLOAT	No.
R0058		Red Point	26	6	82	665700	5525700	Paleo - SILTSTONE + SST	Yes
R0059		"	26	6	82	665300	5526300	Paleo - SILTSTONE + SST	No

SAMPLE FOR PALEO.

SAMPLE # (OUT CROP #)		TARGET	DATE (D M Y)	UTM EAST	UTM NORTH	DISCRIPTION	CHECK IF SENT
H0004	a	1	06/01/82	675900	5457650	CONG MATRIX (top)	11/06/82
H0004	b	1	06/01/82	675900	5457650	SST (bottom)	✓
H0005		1	06/02/82	677400	5459500	CONG MATRIX	✓
H0006		1	06/02/82	677600	5459600	SST	✓
H0007		1	06/02/82	676750	5458950	SST	✓
H0008		1	06/02/82	677650	5459550	SST ???	✓
H0010	a	1	06/02/82	679300	5458250	CONG MATRIX (bottom)	✓
H0010	b	1	06/02/82	679300	5458250	DIATOMATIOUS CLAY (top)	✓
H0011	a	11	06/03/82	681500	5448000	SST. SH. (bottom)	✓
H0011	b	11	06/03/82	681500	5448000	silt. (top)	✓
H0012		11	06/03/82	681500	5447150	SST	✓
H0013		11	06/03/82	681850	5448850	SST	✓
H0014		11	06/03/82	682150	5445450	SST	✓
H0015		~~10~~ 1	06/03/82	678200	5453250	SST	✓
H0017		2	06/04/82	716600	5453350	CONG MTRX.	✓
H0019		11	06/06/82	699700	5447600	CONG MATRIX	✓

B.C. RECON 1982

PHOTOGRAPHER - HEH

ROLL	FRAME	TARGET	O.C. #	DATE	UTM EAST	UTM NORTH	DISCRIPTION
1	17	1	H0004	JUNE 1, 82	675900	5457650	CONG TUFF CONTACT ON HWY 3
	18	1	"	"	"	"	" " " "
	19	1	"	"	"	"	COBBLEY (SP) TUFF-SST " " "
	20	1	"	"	"	"	EXTENT OF TUFF-SST " " "
	21	1	H0005	JUNE 2/82	677400	5459500	CONG. SAME AS 0004, BUT ON SUNDAY CK.
	24	1	H0010	" "	679300	5458250	DIA CLAY & CONG. CONTACT ON SUNDAY CK RD JUST WEST OF SIMILKAMEEN R.
2	4	11	H0019	JUNE 6/82	699700	5447600	CONG CLIFF CLOSE
	5	11	"	"	"	"	" " FROM ROAD

B.C Recon 82

Photographer — D.H.

Roll	Frm.	Target.	O.C. #	Date d/m/y	E UTM	N UTM	descript.
1	8	1	H0007	06/02/82	676750	5458950	SST ofc Sunday Crk (RA)
1	9	1	H0008	06/02/82	677650	5459550	SST ? (tuff) ofc Sunday Crk (RD)
1	14	11	H0011	06/03/82	681500	5448000	SST/Slt. Placer Ck. rd.
1	15	11	" "	"	"	"	
1	16	11	" "	"	"	"	Vol / siltst. contact baked margin
1	17	11	" "	"	"	"	
1	18	11	H0012	06/03/82	681500	5447150	SST. Placer Ck rd.
1	19	11	H0013	06/03/82	681850	5445850	SST. Placer Ck. rd.
1	20	101	H0015	06/03/82	678200	5453250	SST. Hwy 3.
1	21	101	H0016	06/03/82	678300	5453450	SST Hwy 3
1	2	22	H0017	06/04/82	716600	5453350	cong. at Cix Crt. m/N
1	2	25	H0018	06/04/82	717450	5453800	" "

Photograph Record Sheet -Bt Recon L.G.

ROLL	FRM	Target	o/c	DATE d m y	UTM EAST	UTM NORTH	DESCRIPTION
1	L1	10	R0001	31 05 82			corby-wood in o/c of volcanoclastic
	L2	"	"	"			"
	L3	"	"	"			photo of R0001 o/c - volcanoclastic
	L4	"	"	"			attempt to show contact // R001 and
	L5	hotel	behind hot.	"	68050	548090	trough X-bed. H0004 (cgl)

2

Photograph Record Sheet — Bt Recon - R.B

ROLL	FRM	TARGET	O/C	DATE D,M,Y	UTM EAST	UTM NORTH	DESCRIPTION
2	16	6	R0034	09 06 82	654800	5530500	CONGLOMERATE
3	7	30	R0045	16 0682	647850	5643150	CONGLO OUTCROP - OVERVIEW
3	8	30	"	"	"	"	ORGANIC BED IN BIT SST
3	10	"	"	"	"	"	LOG IN CONGLO MATRIX
3	19	MONTE	R0056	24 06 82	295900	5601600	SEDS OVER VOL. CAP
3	20	CREEK	6	"	"	"	"

JUNE 3/82 HH

TARGET # 1

BASE OF OPPERATION. - PRINCTION.
MAP SHEETS - 92 H/2, 92 H/7
DATES WORKED - 2HRS - 2CREWS JUNE 1 (H.H. & R.B.)
- 1CREW DAY JUNE 2 (H.H)
- 2HRS - 1CREW JUNE 3 (H.H.)
NUMBER OF O.C. - H0004 TO H0010, H0015, H0016
" OF SEDS - ALL
" PALEO SAMPLES - H0004a,b, H0005 THRU H0008, H0010 a, b, H0015
" OF PHOTOS - 10

DISCRIPTION OF TRAVERSES.
- JUNE 1,82 H.H. & R.B. DROVE Hwy 3 SOUTH TO O.C.'S " H0004 & R0001
- JUNE 2,82 H.H. & D.H. WALKED FROM Hwy 3 EAST TO ~ 1/2 WAY DOWN SUNDAY CK.
- JUNE 2,82 H.H. & D.H. DROVE DOWN RD WHICH RUNS N/E TO CK
- JUNE 3,82 H.H & D.H DROVE NORTH FROM TIP OF MANNING PROV. PARK ALONG HWY 3

DISCRIPTION OF ROCK ENCOUNTERED
- ALONG HWY 3 THE SED. TO THE NORTH IS A COASE MATRIX ROUNDED COBBLE CONG ASSOCIATED WITH GREEN ANDSITIC SOURCE RK LITH SST WITH RARE TO OCCASSIONAL CARBY WOOD FRAGS RANGING FROM 3cm TO 40cm IN LENGH. AS YOU DRIVE SOUTH YOU ENCOUNTER ~~SEGMENTS OF~~ O/C WHICH ARE UP SECTION. AS YOU GO UP SECTION THE COBBLE CONG DISAPPEARS & THE SST BECOMES MUCH MORE MATURE. ROUNDED TO SUB ROUNDED MEDIUM GRAIN MASSIVE SST. / SOME GRANULAR TO COARSE SST. STRIKES & DIPS ARE RARE BECAUSE OF THE MASSIVE NATURE & RECESSIVE NATURE OF THE SEDIMENT.
- O.C. ENCOUNTERED ALONG SUNDAY CK & ROAD. WAS PREDOMINATELY LOWER SECTION CONG. & WAS DOWN BY THE SIMILKAMEEN WE FOUND ONE O/C OF DIATOM CLAY ON CONG.
- THE LOWER 1/2 OF SUNDAY CK WAS ALL VOLCANIC. ANDESITE

TARGET #1

DISCRIPTION OF O.C/TOPOGRAPHY & OVERBURDEN

- O.C. OCCURRED ALONG CK CUTS & ROAD CUTS I.E. THE LIKELYHOOD OF FREE STANDING O/C IS VERY MINUTE.
- TERRIAN FROM HWY 3 TO SIMILKAMEEN IS STEEP AND ROUGH WALKING DUE TO DEADFALL.
- THE OVERBURDEN VENURE APPEARS THIN EXCEPT THE UPSTREAM ON THE CKS WHICH HAVE CONCENTRATED TILL THICKNESSES.

DISCRIPTION OF ACCESS.

- ACCESS IS QUITE GOOD WITH HWY 3, THE ROADS DOWN TO THE SIMILKAMEEN ARE QUITE DRIVEABLE. SOME AREAS MAY GET SLOPPY WITH SUBSTANTIAL RAIN.

COMMENT ON THE EXTENT OF SEDS.

I BELIEVE THE SEDS FALL WITHIN THE GSC MAPPED AREA. I THINK THESE SEDS WILL BE DIRECTLY CORRELATED / THOSE IN AREA II & SIMILKAMEEN LATER ERODED THRU THUS DISCONNECTING THEM.

I THINK A TRAVERSE DOWN SATURDAY CK COULD YEILD SEDS BUT PROBABLY NOT COAL!

1 OF 1 JUNE 4/82
HEH.

TARGET #2

BASE OF OPERATION - PRINCETON
MAPS SHEETS - 92H/1
DATE WORKED - EARLY AFTERNOON JUNE 4 (H.H. & R.B.)
NUMBER OF O/C - H0017 & H0018
" OF SEDS - " "
" PALEOSAMPLES - H0017
" PHOTOS - 2

DISCRIPTION OF TRAVERSE
- DROVE UP THE CART TRAIL (IT WAS A STEEP ROAD / GOOD EXPOSURE).

DISCRIPTION OF ROCK ENEOUNTERED
- THE LOWER THIRD WAS ALL ANDESITE VOL.
- THE MIDDLE PORTION YEILDED CONG. EOCENE O.C. - COBBLE 2cm TO 20cm / ANGULAR LITHIC MATRIX
- THE UPPER PORTION WAS ALL VOLCANIC.

DISCRIPTION OF O/C / TOPO / OVERBURDEN.
- ROAD CUTS O/C CUT THRU (UP SECTION)
- LOWER DOWN THE ROAD THE PLIESTOCENE SEDS LOOKED ALOT LIKE THE EOCENE CONG. EXCEPT IT WAS NOT CONSOLIDATED.

COVERAGE IS SUFFICENT

BASE: PRINCETON

June 4th L. Goldberg

Summary - Target area #4

I i DATES WORKED: 1 crew day by R. Berg and L. Goldberg

ii Outrops : Number 31
iii Sediment Shows o/c #31 tertiary ss (pleistocene ?)
iv Samples : Poleo sample 0031
v Map Sheet - 92 H/8

II i traverse description; Road traverse up logging road 3/10 km east of Stemwinder Prov. Park, South to McNulty Creek. Stream recon. also done.

ii Rock type - Nicola Group, Volcanics, Argillite, limestone
- Coast Intrusions; Granit, Quartz Monzonite
- Eocene - Unconsolidated sandstone (pleistocene) Volconics (basalts)

iii Description of Outcrop - Outcrops were rarely found on roadcuts. Most outcrops were on hillsides with talus.

III Area was heavily covered by till, and no outcrops of interest were seen. Eocene sediments mapped by the GSC were not found. Possibility for coal occurence is very slim.

TARGET #6

JUNE 10/82
R. BERG

I DATES WORKED - JUNE 9 & 2 HRS ON JUNE 10
OUTCROPS - R0032 - 35
SEDIMENT SHOWS - 33 - 35 - CONGLOMERATES
SEDIMENT SAMPLES - NONE
MAP SHEETS 92H/15 & 92H/2
PHOTOS - CONGLOMERATE O/C AT R0034

II TRAVERSE DESCRIPTION - AREA WAS EASILY REACHED OFF HIWAY #5 SOUTH FROM MERRIT - MOST WAS DONE BY ROAD BUT 2 KM WAS ON FOOT DUE TO ROAD BLOCKAGE.

ROCK TYPES - VOLCANICS, VOLCANICLASTICS AND VERY COARSE CONGLOMERATES CONSIDERED TO BE OF EOCENE AGE. TILL WAS VERY ABUNDANT

DESCRIPTIONS OF O/C - TOPO - TOPOGRAPHY WAS CONSIDERED GENTE AND THEREFORE O/C WAS SCARCE AND, WHEN FOUND, QUITE SMALL IN EXTENT.

III COVERAGE OF THE AREA WAS QUITE EXTENSIVE BUT ONLY CONGLOMERATE WAS FOUND.

BASE: PRINCETON

TARGET AREA 10 - SUMMARY JUNE 3/82

RL BERG

I ; DATES WORKED - 1 CREW DAY JUNE 2 BY L. GOLD-BERG & R. BERG, ALSO 1 CREW DAY →

ii OUTCROPS - NUMBERS 1, 3 - 15 ALSO HEH 1 - 3 [redacted].

iii SEDIMENT SHOWS - ONE SED. SHOW - OUTCROP #15

iv SAMPLES - R0015 - PALEO. FROM MATRIX OF CONGLOMERATE OF OUTCROP #15

√ MAP SHEET - 92H/7

II ; TRAVERSE DESCRIPTION - STREAM TRAVERSE PLUS SOME XCOUNTRY HIKING →

ii ROCK TYPES - MOST TYPES ENCOUNTERED WERE VOLCANIC RANGING FROM BASALT TO DACITE USUALLY PORPHORITIC - ALSO ENCOUNTERED WAS THE COPPER CREEK INTRUSION. - THE ONE SEDIMENT SHOW WAS SANDWICHED BETWEEN VOLCANIC ROCKS.

iii DESCRIPTION OF OUTCROP / TOPO - OUTCROP IS USUALLY SMALL, BADLY WEATHERED & MOSS COVERED. - FLOAT, IN MOST CASES REFECTS SURROUNDING ROCK TYPE. TOPO NORMAL - STEEPER TOWARDS THE SIMILKAMEEN

III THE AREA WAS ORIGINALLY MAPPED AS EOCENE VOLCANICS AND THIS WAS WHAT WAS FOUND EXCEPT FOR ONE CONGLOMERATE SPACIALLY ASSOCIATED WITH VOLCANICS. THIS CONGLOMERATE HAD LARGE ROUNDED CLASTS OF VARYING COMPOSITIONS AND SIZES AT OUTCROP #15. A TUFF, INTERPRETED AS BEING WATER LAIN, WAS FOUND AT OUTCROP #13. COAL & OTHER SEDIMENTS ARE NOT LIKELY TO BE FOUND IN SURFACE OUTCROP AS EXPOSURE IS GENERALLY POOR. TRAVERSES OF SATURDAY CREEK, AREAS WEST OF HIWAY 3, AND THE SOUTHERN AREA (WHERE ACCESS IS AVAILABLE) MAY TURN UP MORE SEDIMENTS. ESPECIALLY SATURDAY CREEK WHICH IS VERY CLOSE TO TARGET AREA #1.

BASE : PRINCETON

SUMMARY - TARGET AREA #11

JUNE 3/82
R C BERG

I i DATES WORKED - 1 CREW DAY, JUNE 3 BY RBERG & L. GOLDBERG.

ii OUTCROPS - NUMBERS 16 - 30

iii SEDIMENT SHOWS - 20 - 22 NICOLA GROUP SEDS
24 - 25, 27, 29 EOCENE SEDS.

iv SAMPLES - PALEO SAMPLES INCLUDE R0014, 24a & b, 25 a, b & c, 27, 18.

v MAP SHEET - 92H/7

II i TRAVERSE DESCRIPTION - ROAD TRAVERSE UP PLACER CREEK LOGGING ROAD - ACCESS OFF HWAY #3

ii ROCK TYPES - NICOLA GROUP - VOLCANICS, ARGILLITES
- EOCENE VOLCANICS AND SEDIMENTS

iii DESCRIPTION OF OUTCROP - ALL OUTCROP CONSISTED OF ROAD CUT EXPOSURE AND WAS EASILY LOCATED

III EOCENE SEDIMENT OUTCROP INCLUDED CONGLOMERATES (SOME VERY BADLY WEATHERED AND GOSSENY). OUTCROP #25 WAS VERY RECESSIVE AND INCLUDED A FINE GRAINED SANDSTONE WHICH HAD INCORPORATED COALY WOODY FRAGMENTS. ONE VERY HARD QUARTZITE WAS FOUND AND IS OF QUESTIONABLE EOCENE AGE. MORE OUTCROP OF EOCENE SEDS IS LIKELY IF NEW ROAD CUTS ARE MADE BUT DUE TO ITS RECESSIVE NATURE, IT PROBABLY COULD NOT BE LOCATED ANY OTHER WAY.

TARGET #11 — 1 OF — JUNE 6/82 H.H.

DATES WORKED - 2 CREW DAYS BY H.H. & D.H. JUNE 3, 6
O/C NUMBER - H0011 to H0014 & H0019
SED SHOWS - ALL
SAMPLES - H0011a, b; 12, 13, 14, 19
MAP SHEETS - 92H/1 & 2

TRAVERSE - DROVE DOWN LOGGING ROADS ON THE WEST SIDE OF TARGET 11. THE ROADS WERE EXCELLENT (ON JUNE 3/82)

ROCK O.C./TOPO ACCESS COMMENT ON SEDS - JUNE 6 WE APPROACHED TARGET 11 FROM THE KEROMEOS SIDE, MOST OF THE ACCESS IN THE AREA PROPER WERE WASHOUT 6 to 10 KM OFF THE ASHNOLA ROAD

COAL

WITH ROCK ENCOUNTERED - ON THE WEST EOCENE VOLS + THE UPPER CONTACT OF A SEDIMENTARY ENCOUNTERED. IT CONSISTED OF SST & SILT ST TOPPED BY A RHYOLITIC VOLCANIC FLOW.

I BELIEVE THAT 1 & SEDS IN 11 WERE ONCE ONE UNIT SANDWICHED BY VOLCANICS IN 11 & 10. IT WAS LATER BISECTED BY THE SIMILKAMEEN R.

SUMMARY - TARGETS 14, 15 + 24 (PHASE I) - LYNN GOLDBERG

JUNE 9/82

I (i) DATES WORKED: 1 crew day by H.H and L.G.; June 9, 1782.

(ii) No outcrops mapped since no sediments were found. No samples taken.

(iii) MAP SHEETS: targets 14 + 15 are on 92/H15; target 24 is on 92 H/16

(iv) No photos were taken.

II TRAVERSE DESCRIPTION

- Road traverses were done on loose surface dry weather roads through all three targets. Access was excellent on target 24, with numerous logging roads branching off the main gravel road. Road coverage of target 15 was adequate but that of 14 was poor. Target 25, west of #14 was inaccessable by road due to overgrowth.
- Outcrops consisted mostly of roadcuts, but also occured along hillsides. Trenches dug on target #24 exposed basic volcanic rocks. Exposure on all targets was poor due to a heavy cover of drift. Topography was hilly.
- ROCK TYPES - TR NICOLA GP. basalts
  - Jk COAST INTRUSIONS - diorite.
  - K KINGSVALE GP. - volcanic breccia.
  - Mio PRINCETON GP - andesite, basalt,

III - Since no sediment was found in this area, prospects for coal occurences are poor.

TARGET 16

1 OF

DONE JUNE 4
WRITTEN JUNES

DATE WORED - AFTERNOON OF JUNE 4/82 (H. H & D. H)
NUMBER OF CREW DAY - 1/2 CREW DAY
OF O/C - NO O/C
SED SHOWS - NO SED.
OF SAMPLES - NO SAMPLE
OF PHOTOS - NONE.

- ROAD TRAVERSES ALONG VARIOUS ROADS IN AREA
- ALL ROCK ENCOUNTERED WERE VOLCANICS (RHY, AND & BASALT.
- THE UPPER ROADS YEILDEN NOTHING BUT OVERBURDEN.
- NO FURTHER WORK IN THIS AREA IS NEEDED.
- THE ROADS WERE EXCELENT

TARGET #26

DATE: JUNE 5/82

DATE WORKED - JUNE 5/82 (H.H.)
NUMBER OF CREW DAY - 1 CREW DAY
OF O/C - NONE
OF SEDS - NONE
OF SAMPLES - NONE
OF PHOTOS - NONE

- DROVE ALL ROADS ACCESS WHICH WERE DRIVABLE
- TRIASSIC METASEDS WITH A HEAVY VENEER OF OVERBURDEN.
- 100% LOGGING AREA SO ALOT OF BAD ROADS.

NO FURTHER WORK NEEDED.

Summary - AREAS 23, 21 & 18

JUNE 5/82
RL BERG

I DATES WORKED - JUNE 5, ONE CREW DAY BY L GOLDBERG & R. BERG
OUTCROP - NO SEDS ∴ NO OUTCROP #'s
SEDIMENT SHOWS - NONE
SEDIMENT SAMPLES - NONE
MAP SHEETS - 92H 9 & 16.

II TRAVERSE DESCRIPTION - ROAD TRAVERSE - ACCESS FROM PRINCETON ON HIWAY 5 TO THE TEPEE LAKES CORNER (SECONDARY ROAD TO SUMMERLAND.) FROM THIS ROAD, LOGGING TRAILS & CART TRACKS WERE TAKEN.
ROCK TYPES - ONLY GRANITES - SOME QUITE SPECTACULAR CONTAINING LARGE PHENOCRYSTS OF K-SPAR
DESCRIPTION OF OUTCROP - EXPOSURE QUITE GOOD ALONG ROAD CUTS.

III MAPPED BY THE GSC AS INTRUSIVES & THIS WAS WHAT WAS FOUND. NO SEDIMENTS EXCEPT PLEISTOCENE, WERE SEEN.

TARGET 30

JUNE 20/82
R. BERG

I DATES WORKED - JUNE 16 BY L GOLDBERG & R BERG.
17 - 1/2 DAY

OUTCROP - R0045 - SHALE & LMST
↳ R0045 - PALEO
R0047 - CONGLOMERATE & SS
R0048 - SS R0048 - PALEO. ↳ R0047 - PALEO
R0049 - SS & SHALE R0049 - PALEO

MAP SHEET - 92I/15

PHOTOS - RLB ROLL 3 FRAME 8 - OUTCROP VIEW
9 - ORGANIC LAYER
10 - LOG IN SS & CONGL MATRIX.

II TRAVERSE DESCRIPTION - ACCESS ALL BY ROAD.

ROCK TYPE - SEDS - SOME OF QUESTIONABLE CRETACEOUS AGE,

O/C - TOPO - EXPOSURE RANGES FROM GOOD TO POOR & IS FOUND BY ROAD CUTS.
TOPO IS QUITE HILLY WITH DEEP - STEEP VALLEYS

III AREA TO SOUTH COULD BE COVERED AS IT WAS NOT LOOKED AT. SMALL VOLCANIC UNIT TO THE WEST (ie Target 28) OF #30 WAS LOOKED AT & DISCOVERED TO BE VOLCANIC.

17-JUNE
THIS DAY A TARGET 27 WAS ALSO LOOKED AT & WAS O/C # R0053 - HOODOOS OF EOCENE SEDS.
O/C # R0051 PLOTTED IN TARGET 28 BUT IS OF SAME ROCK TYPE AS 53 AND A PALEO SAMPLE TAKEN. R0051 - P.

TARGET 31

JUNE 20/82
R. BERG

I DATES WORKED - JUNE 15 - ROAD TRAVERSE BY L GOLDBERG & R BERG UP THE TRANQUILLE CREEK ROAD.
JUNE 18 - STREAM TRAVERSE BY SAME DOWN WATCHINA CREEK

OUTCROPS - R0044 - SS AND CONGLOMERATE - TRANQUILLE REDS.
R0046 - CONGLOMERATE R0046 - PALEO

MAP - 92I/10 & 92I/15.

II TRAVERSE DESCRIPTION - ACCESS VERY GOOD UP THE TRANQUILLE CREEK ROAD. WATCHING CREEK ACCESSED TROUGH THE BATCHELOR HILLS ROAD.

ROCK TYPES - TARGET 31 MAPPED AS EOCENE VOLCANICS VOLCANICS & AGGLOMERATES WERE THE ROCK TYPES DOMINATELY FOUND. A SMALL O/C OF TRANQUILLE BED SEDS WAS FOUND AND ANOTHER CONGLOMERTE CLOSE TO THE CRETACEOUS TARGET #30, AND 15 OF QUESTIONABLE AGE.

TOPO / OIC - TOPOGRAPHY RANGES FROM STEEP TO FLAT & THE O/C EXPOSURE FROM GOOD TO POOR RESPECTIVELY.

III AREA SEEMS TO BE MOSTLY VOLCANIC - MOST O/C WAS SEEN ON STREAM TRAVERSE & WAS ALL VOLCANIC IN ORIGIN. MORE WORK COULD BE DONE TOWARDS THE NORTH IN THE ADJOINING MAP SHEET.

SEE LARGE MAP OF 92I/15 FOR TRAVERSE LOCATIONS

TARGETS 32 & 33

JUNE 20/82
R. BERG

I DATES WORKED - JUNE 19 BY R. BERG & L. GOLDBERG.

OUTCROP - NO SEDIMENTARY EOCENE ROCKS FOUND.

MAP SHEET - 32 - 92I/16
33 - 92I/9

II TRAVERSE DESCRIPTION - ACCESS BY ROAD COVERING MOST OF 32. PARTS OF TARGET 33 INACCESSABLE DUE TO INDIAN RESERVATION.

ROCK TYPES - ROCKS ENCOUNTERED IN BOTH TARGETS WERE PALEOZOIC OF THE CACHE CREEK GROUP.

O/C - TOPO - GENTLE HILLY LAND WITH GOOD EXPOUSURE ON HILLSIDES.

III NO SEDS OF POSSIBLE EOCENE AGE WERE FOUND.

TARGET Summary, #34, 35

I DATES WORKED: 1/2 crew day by D.H. and L.G.
No outcrops, no sed. shows, no samples, no photos
MAP SHEETS: 92I/9; 92I/10

II TRAVERSE DESC. - Access was hampered by "no unauthorized personnel" roads surrounding the mine. Away from the mine, access was very good on the trans Canada, and on 2ry gravel roads.
- Exposure was adequate along highway, and poor to moderate along gravel roads. Topography was gentle and rolling.

ROCK TYPES - TARGET 34 - Tertiary volcanics; flow breccia + conglomerate
- eocene seds were not seen as access was blocked by the mine, and city development.

TARGET 35 - Triassic basic volcanics, also chloritic schist in float.

III Permission should be obtained to travel on unauthorized roads in order to sample and date tertiary sediments mapped by the GSC. The sampling would take less than 1/4 crew day, since the target is so close to Kamloops.

SUBJECT: TARGETS 46, 36, 37,

PAGE: 01

DATE:

NO PHOTOS, O/C#, SAMPLE.
DAYS WORKED - 1 CREW DAY WHICH
DATE JUNE 11/82

WIDE OPEN SAGE BRUSH PLAINS / SOME
FORESTED AREAS AROUND 37

ENCOUNTERED NOTHING BUT OVERBURDEN
NO O/C SEEN.
ACCESS GOOD - MAINLY RANGE ROADS.

#40.

TARGET #41 AND MONTE HILLS

SUMMARY -

Lynn Goldberg.

I

DATES WORKED: 2 crew days H.H + R.B on June 24;
L.G + R.B on June 25

SEDI SHOWS : R0056 a & b

SAMPLES : R0056 a & b

MAP SHEETS: 92I/8 ; 92I/9

PHOTOS : ROLL #2 R19 ; R20 of o/c R0056.b

II

ACCESS : Access on target #41 was very poor. Only the west half of the target area was covered. Throughout the Monte Hills region access was excellent via well kept logging roads and powerline trails.

ROCK TYPES : Rocks seen were mostly Tertiary volcanics consisting of basalts, andesites, rhyolite, flow breccia, and debris flow. A biotite granite was mapped on "Monte Hill".
R0056 outcrops, consisted of Tertiary conglomerate, and sandstone.

TOPOGRAPHY : Quite Hilly. Outcrop was seen along roadcuts and on hillsides.

III Tertiary sediments were very local in extent. Their deposition was likely related to nearby volcanic activity, rather than to any clastic sedimentary environment. The possibility of significant coal occurance is therefore low.

TARGETS 42 & 43

JUNE 20/82
R. BERG

I DATES WORKED - JUNE 11 AND JUNE 12
BY L. GOLDBERG, A. PEACH & R. BERG ON THE 11TH & GOLDBERG & BERG ON THE 12TH.

OUTCROP & NUMBERS - R0038 - CONGLOMERATE } TARGET 43
39 - SILTSTONE
40 - SANDSTONE } 42
41 - CONGLOMERATE
42 - SILTSTONE

SEDIMENT SAMPLES - PALEO 39 - SILTSTONE
" 40 - SANDSTONE

MAP SHEET - 92I/10

PHOTOS - RLB ROLL 2 FRAME 34 - SANDSTONE OF R0034
35 - VOLC CAP ON 55.

II TRAVERSE DESCRIPTION - ACCESS FROM MERRIT TO LOGAN LAKE AND ON GRAVEL ROADS TO BOTH TARGETS. TARGET 43 COULD NOT BE EXPLORED BY BACKROADS DUE TO PRIVATE PROPERTY BUT HIWAY O/C WAS FOUND.; ↳ ALL VOLC.

ROCK TYPES - TARGET 43 MAPPED AS NICOLA GROUP WITH ONE SMALL AREA OF COLDWATER SEDS - THIS WAS FOUND & IS O/C R0038 - THE REST OF THE OUTCROP FOUND WAS VOLCANIC
TARGET 42 MAPPED AS EOCENE VOLS THOUGH MT SAVONA WAS FOUND TO BE CAPPED BY A CONGLOMERATE WITH SANDSTONE INTERBEDS.

DESCRIPTION OF O/C - TOPO - OUTCROP WAS SCARCE & SMALL WHEN FOUND (EXCEPTION MT SAVONA.)

4. TOPOGRAPHY WAS GENTLE & FLAT AROUND TUNKWA LAKE.

III TARGET 4/2 COULD USE MORE INVESTIGATION PERHAPS A TRAVERSE DOWN MT SAVONA TO SEE IF ANY SEDS LIE FURTHER DOWN THE MTN. BUT DUE TO THE POOR EXPOSURE AROUND THE REST OF THE AREA LITTLE WOULD BE GAINED BY OTHER TRAVERSES.

Mt SAVONA: TRAVERSE DOWNHILL ON THE 26th JUNE - VESICULAR BASALTS SEEN + 1 SST O/C. SAMPLE R0057.

SNEAK LOOK ON COAL LEASE S.W. OF KAMLOOPS IN TARGET 42

H.E.H.
2/3 CREW DAY
NO SAMPLES
NO PHOTOS

DATE : JUNE 12, 82. BASED OUT OF ~~MERRIT~~

Topo: THE COAL LEASE?(OWNER?) IS SITUATED ON ~~GRAZ~~ RANGE LAND & MOOSE PASTURE. THE AREA ENCLOSED BY COAL LEASE APPEARS TO EXHIBIT LITTLE OR ~~NO~~ O/C (~~PROBABLY THE LATER~~). THE PIPELINE THAT RUNS THRU PROPERTY EXPOSED BLOCKS OF BSMT RK. THE BLOCKS WERE ALL A VERY BASIC INTRUSIVE, PROBABLY GABBRO, ON THE EAST SIDE OUT OF PROPERTY WE SAW SOME RYHOLITIC BRECCIA AND VISICULAR BASALT ~~OF~~ WHICH I ASSUME ARE THE LOWER MOST SECTION OF THE EOCENE VOLCANIC. I FEEL THIS PROPERTY IS A BUST FOR TWO REASONS

1) I FEEL THE INTRUSIVE IS THE ONLY UNIT UNDERLYING THIS AREA (BECAUSE OF RELIEF)
2) THIS AREA IS AT LEAST 500' TOPO LOWER THAN THE BASE? OF THE SEDIMENTARY ROCK (CONG.) OBSERVED ON MT. SAVONA.

HOWEVER THERE IS A POSSIBILITY THAT SOME STRUCTURAL FEATURE HAS DROPPED THIS AREA BUT I DOUBT IT BECAUSE NO VOLCANIC WAS OBSERVED ON PROPERTY. THE ONLY TYPE OF COAL OCCURRANCE WHICH COULD EXIST IS A OUTLYER IN THE INTRUSIVE, BUT THE ABSENCE OF RELIEF MAKES THIS HIGHLY UNLIKELY. RECOMMENDATION — CHECK WATERHOLE LOGS IN THIS AREA.

OR

TARGET 44

DATE WORKED : JUNE 13/82 - ONE CREW H.H. & D.H. WORKED OUT OF MERRIT.

ACCESS MODERATE OUT OF LOGAN LK
TOPOGRAPHY FLAT & MUDDY
ESSENTIALLY NO O/C
HEAVILY FORESTED.

ONLY ONE O/C OF VOLS FOUND
MOSTLY HEAVY OVERBURDEN.

NO - PHOTOS, SAMPLES OR O/C #

TARGET # 50

JUNE 10/82
R. BERG

I DATES WORKED - JUNE 10/82
OUTCROPS - R0037
SEDIMENT SHOWS - R0037 - CONGLOMERATE
SEDIMENT SAMPLES - NONE
MAP SHEET - 92I/2
PHOTOS - NONE

II TRAVERSE DESCRIPTION - ROAD TRAVERSE WITH ACCESS TO THE AREA FROM HIWAY # 5, SOUTH OF MERRIT.

ROCK TYPES - VOLCANICS, GRANODIORITE, CONGLOMERATE.
DESCRIPTIONS OF O/C, TOPO - TOPOGRAPHY WAS ROLLING, HILLY LAND WITH THE VOLCANICS GENERALLY FOUND ON HILLSIDES & THE CONGLOMERATES IN ROAD CUT.

III THE ONLY SEDS FOUND WERE CONGLOMERATES & SINCE O/C IS SO POOR, POSSIBILITY OF FINDING RESSISIVE SEDS IS REMOTE.

SUBJECT PAGE OF DATE BY

TARGET 38

BASE OF OP: MERRIT B.C.
DATE : JUNE 10/81
NUMBER OF CREW DAYS: 1/2 DAY HH & L.G. & A.D.

ACCESS QUITE GOOD - RANGE ROADS.
NO O/C ON TOP OF PLATEAU.
VOLCANIC - EOCENE BASALT & ANDESITE FOUND ON PERIPHERY CUTTING UP SECTION THRU VOLCANIC

NO PHOTOS, O/C#, SAMPLES.

TARGET 51

BASE OF OP.: MERRIT B.C.
DATE : JUNE 10/81
NUMBER OF CREW DAYS: 1/2 DAY AS ABOVE

ACCESS: REASONIBLE
O/C: APPROXIMATELY 5% / HEAVY OVERBURDEN.
ROCK ENCOUNTERED WERE EOCENE RHYOLITE & ANDESITE NEAR HWY, THEN TRIASSIC META SEDIMENT AS WE DROVE INLAND.

NO PHOTOS, O/C#, SAMPLES.

TARGET AREAS 52, 53, 54 & 55

DATE: JUNE 26
CREW DAYS 1 A.R. & D.H.
O/C : 0
SED SHOWS : 0
PALEO SAMPLES : 0

#52 - TOO REMOTE (G.S.C. MAPPED AS MIOCENE VOLCANICS)
#55 - NO ACCESS
#54 - ACCESS BLOCKED & OVERGROWN

#53 - ACCESS WAS MODERATE. 1 ROAD CROSSED THE TARGET AREA. NO OUTCROP EXPOSURES.

GEOLOGY: NO OUTCROP OF EOCENE SEDIMENTS WERE OBSERVED. ABUNDANT CONGLOMERATE FLOAT (PEBBLE CONG) Subrounded. Red in color. SANDY SILT GLACIAL MATERIAL REDDISH IN COLOR WAS EXPOSED EVERYWHERE.

UNLIKELY POSSIBILITY OF COAL DUE TO TYPE OF CONG AND COLOR OF SEDIMENT FLOAT (OXIDIZED)

NO FURTHER WORK WARRANTED.

TARGET 57

I DATES : JUNE 23/82 BY LG & RB, JUNE 24 BY LG, DH, & AP.
OUTCROP : R0054 - Conglomerate & SSt interbeds
R0055 - tuff and debris flows.
SAMPLES : R0054 - SSt
MAP : 92I/11

II ACCESS - OFF HWAY #1 TO ASHCROFT BY GRAVEL ROAD.
ROCK TYPES - OUTCROP SEEN ONLY IN ROAD CUTS & CONSISTED OF VOLCANICLASTICS & CONGLOMERATE
TOPO - O/C - O/C SCARCE & TOPO VERY FLAT

III ONE SEDIMENTARY O/C WAS FOUND IN AREA MAPPED AS VOLCANICS ONLY.

COLDWATER BEDS SOUTH OF SPENCES BRIDGE — JUNE 13/82 — R. BERG

I DATES WORKED - JUNE 13/82 - 1 CREW DAY BY L. GOLDBERG & R. BERG.

OUTCROP - ONE SED O/C R004/3 - SANDSTONE - PALEO SAMPLE TAKEN R004/3-P.

MAP SHEET - 92I/6 - SPENCES BRIDGE.

II TRAVERSE DESCRIPTION - BY ROAD - ACCESS FROM HIWAY #1 S.W. OF SPENCES BRIDGE.

TOPO / O/C - TOPO WAS VERY STEEP & OUTCROP WAS MOSTLY FOUND ON HILLSIDES.

ROCK TYPES - MOSTLY VOLCANICS AND VOLCANOCLASTICS - 1 O/C OF WELDED TUFF. ONE O/C OF MEDIUM GRAINED SANDSTONE.

III THOUGH COAL WAS REPORTED IN THE AREA IN ONE VERY SMALL LOCATION, IT WAS NOT FOUND. SURROUNDING AREA WAS SEARCHED, HOWEVER, AND ONLY VOLCANICS WERE FOUND.

CHU CHUA

DATE WORKED : JUNE 23
CREW DAYS : ½ DAY H.H., A.P. & D.H.
No# OF O/C : NONE HOOZZ
No# OF SAMPLE: " " COAL
N# OF PHOTOS : NONE.

ACCESS TO THE SMALL PODS OF EOCENE SEDS WAS EXCELLENT, HOWEVER THE PRESENCE OF THE INDIAN RESERVE PROHIBITED US FROM VEINING THE COAL SHOWING. ALL OUR EFFORTS RESULTED IN FINDING ONE O/C SHOWING ON THE RAIL LINE UNDER THE TOWN (? SIC) OF CHU CHUA.

WATER HOLE LOGS & OPEN FILE REPORTS MIGHT BE SOME HELP IN THIS AREA.

RED POINT

JUNE 27/82
R. BERG

I DATES WORKED - 1/2 DAY - JUNE 26 BY RBERG & L. GOLDBERG.

OUTCROP - VOLCANICS SURROUNDING EOCENE SEDS O/C R0058 & R0059 BOTH SEDS

SAMPLES - R0058 - SILTSTONE + SST
R0059 - "

MAP - 92I/15

II ACCESS - TRAVERSE BY ROAD FROM TRANQUILLE CREEK RD.

ROCK TYPES - VOLCANICS MOSTLY - SED O/C ARE VERY RESSESSIVE & ONLY SEEN IN ROAD CUT

O/C - TOPO - VOLCANICS EXPOSED ON HILL SIDES - TERRAINE GENTLE ROLLING HILLS.

III SEDS MAPPED IN AREA WHERE FOUND - NO COAL SEEN - SEDS SEEN IN LOW TOPO AREAS AND IT IS PROBABLE THAT THEY EXTEND UNDER THE OVERLYING VOLS.

EOCENE VOL. TARGET SOUTH OF MERRIT

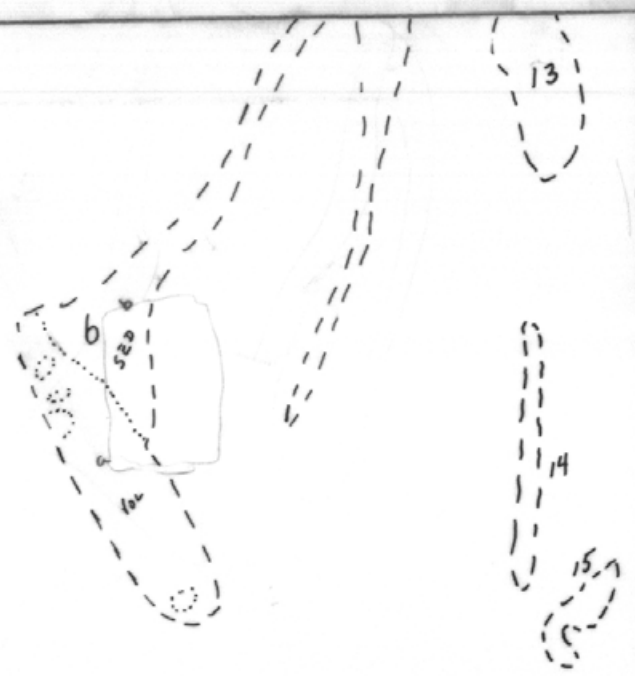
JUNE 13/82
R. BERG

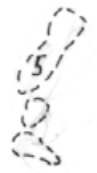
I DATES WORKED - THURSDAY, JUNE 10/82 BY R. BERG & D. HOWARD.
OUTCROP - NO STATIONS TAKEN
MAP SHEET - 92 I/2 - MERRIT

II TRAVERSE - ~2 hrs ON ROAD - ACCESS FROM MERRIT
ROCK TYPES - ALL VOLCANIC EXCEPT PLEISTOCENE SEDS.
DESCRIPTION OF OC & TOPO - TOPO WAS HILLY & OUTCROP OF VOLS FOUND ON HILLSIDES.

III NO SEDS WERE FOUND IN OUTCROP THOUGH BY PROXIMITY TO MERRIT COAL FIELD SOME MAY BE FOUND - THOUGH - ON THE OTHER HAND, THE AREA PROBABLY HAS BEEN EXTENSIVELY SEARCHED FOR COAL DEPOSITS.

5000'





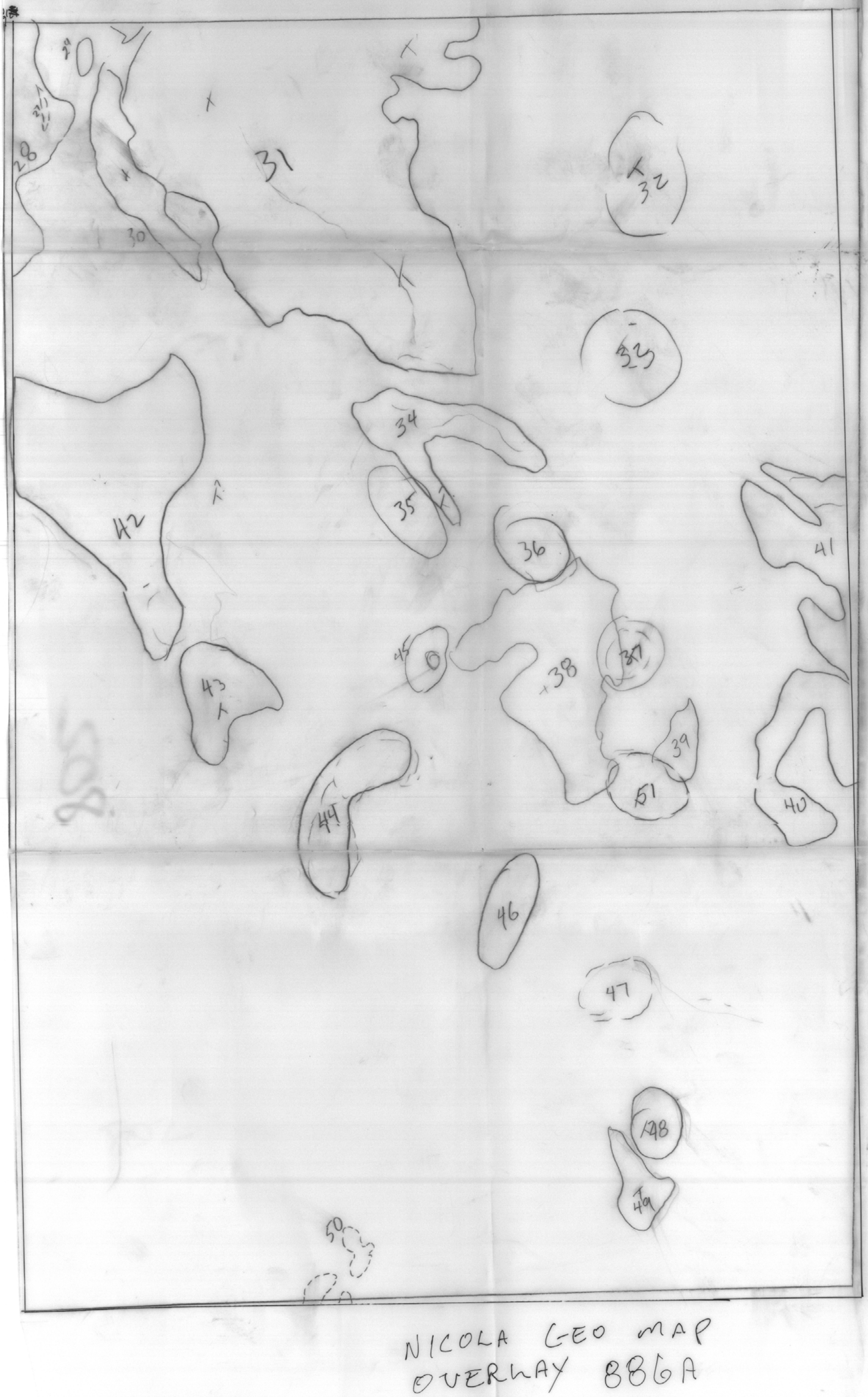
4900
12000'

30'

PRINCETON GEOMAP OVERLAY 888A

802

802



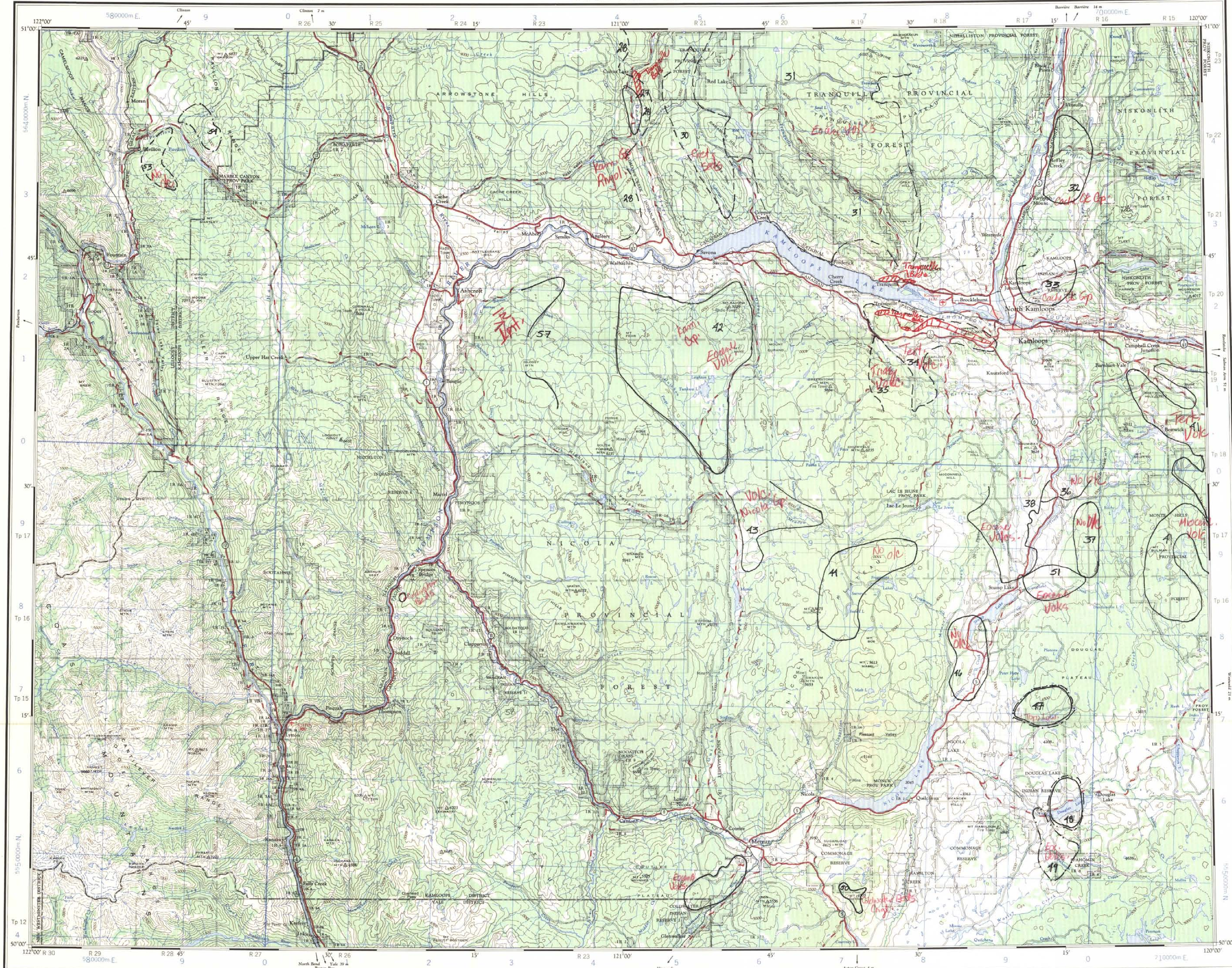
NICOLA GEO MAP
OVERLAY 886A

92-I   1:250,000

CANADA

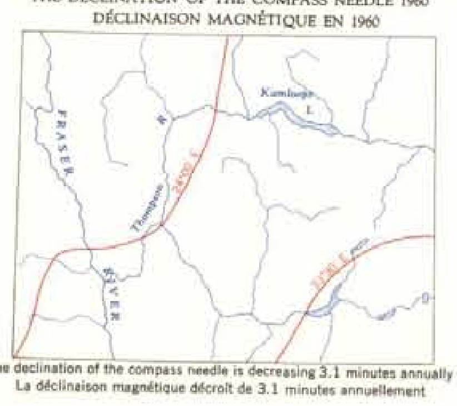
EDITION 2   92-I

Military users, refer to this map as: / Référence de cette carte pour usage militaire: SERIES A502 SÉRIE / MAP 92-I CARTE / EDITION 2 MCE ÉDITION



1982 Reconnaissance
Target Covered
Target Not Covered Sufficiently
Target Not Covered At All

THE DECLINATION OF THE COMPASS NEEDLE 1960
DÉCLINAISON MAGNÉTIQUE EN 1960



The declination of the compass needle is decreasing 3.1 minutes annually
La déclinaison magnétique décroît de 3.1 minutes annuellement

Compiled by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF MINES AND TECHNICAL SURVEYS, 1960 from large scale maps. Printed 1962.

Copies may be obtained from the Canada Map Office, Department of Energy, Mines and Resources, Ottawa, or your nearest map dealer.

Road / Route
hard surface, all weather ... pavée, toute saison ... more than 2 lanes / plus de 2 voies; 2 lanes / 2 voies; less than 2 lanes / moins de 2 voies
loose surface, all weather ... de gravier, toute saison ... 2 lanes or more / 2 voies ou plus; less than 2 lanes / moins de 2 voies; dry weather / période sèche
wagon, cart track ... chemin de terre ... trail or portage ... sentier ou portage
Railway, normal gauge ... Chemin de fer, écartement normal ... station / gare; multiple track / voies multiples; flagstop / arrêt; single track / voie unique; (abandoned) / (abandonné)
Depression contours ... Courbes de cuvette ... 2000
Spot elevation, in feet ... Repère de nivellement en pieds ... 2550
Power transmission line ... Ligne de transport d'énergie

Transverse Mercator Projection
North American Datum 1927
Contour Interval 500 feet
Elevations in feet above Mean Sea Level

ASHCROFT

BRITISH COLUMBIA

WEST OF SIXTH MERIDIAN - OUEST DU SIXIÈME MÉRIDIEN

Scale 1:250,000 Échelle

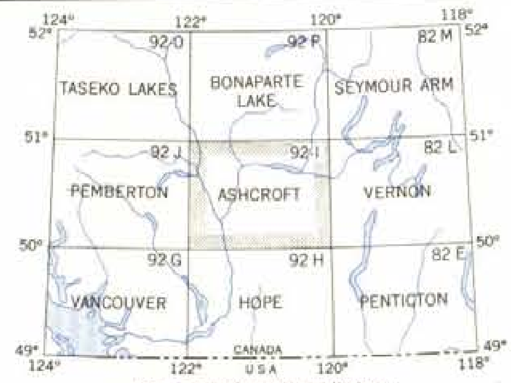
Miles 5 0 5 10 15 20 Miles
Kilometres 5 0 5 10 15 20 25 30 Kilomètres

Projection Transverse de Mercator
Réseau géodésique nord-américain unifié (1927)
Équidistance des courbes: 500 pieds
Élévations en pieds au-dessus du niveau moyen de la mer

Compilée par la DIRECTION DES LEVÉS ET DE LA CARTOGRAPHIE, MINISTÈRE DES MINES ET DES RELEVÉS TECHNIQUES, en 1960, d'après les cartes à large échelle. Imprimée en 1962.

Ces cartes sont en vente au Bureau des Cartes du Canada, ministère de l'Énergie, des Mines et des Ressources, Ottawa, ou chez le vendeur le plus près.

Town ... Ville
Village or Settlement ... Village ou hameau
Post office ... Bureau de poste
Church ... Église
School ... École
Boundary monument ... Borne frontière
Horizontal control point ... Point géodésique
Stream intermittent or dry ... Cours d'eau intermittent ou à sec
Intermittent lake ... Lac intermittent
Rapids; falls ... Rapides; chutes
Marsh or swamp ... Marais ou marécage
Lighthouse ... Phare
Airport ... Aéroport
Seaplane base ... Base d'hydravions



Index to adjoining sheets of National Topographic System
Tableau d'assemblage du Système de Référence Cartographique National

802

ASHCROFT
92-I
EDITION 2

92 H 1:250,000 **CANADA** EDITION 2 92 H

Refer to this map as: 92 H EDITION 2 MCE SERIES A 502

HOPE
BRITISH COLUMBIA

802

Produced, 1966, by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF ENERGY, MINES AND RESOURCES. Printed 1970.

Magnetic declination 1968 varies from 22°36' easterly at centre of west edge to 22°18' easterly at centre of east edge. Mean annual change 2.9' westerly.

Établie en 1966, par la DIRECTION DES LEVÉS ET DE LA CARTOGRAPHIE, MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES. Imprimée en 1970.

La déclinaison magnétique pour 1968 varie de 22°36' Est au centre de la limite Ouest à 22°18' Est au centre de la limite Est. Variation moyenne annuelle 2.9' Ouest.

Scale 1:250,000 Échelle

Miles 5 0 5 10 15 20 Milles

Kilometres 5 0 5 10 15 20 25 30 Kilomètres

CONTOUR INTERVAL 500 FEET
Elevations in Feet above Mean Sea Level
North American Datum 1927
Transverse Mercator Projection

ÉQUIDISTANCE DES COURBES 500 PIEDS
Élévations en pieds au-dessus du niveau moyen de la mer
Système de référence géodésique nord-américain 1927
Projection transverse de Mercator

Copies may be obtained from the Map Distribution Office, Department of Energy, Mines and Resources, Ottawa.

Ces cartes sont en vente au Bureau de distribution des cartes, ministère de l'Énergie, des Mines et des Ressources, Ottawa.

Roads:

	dual highway	more than 2 lanes
hard surface, all weather	2 lanes	less than 2 lanes
loose or stabilized surface, all weather	2 lanes or more	less than 2 lanes
loose surface, dry weather		
cart track		
trail or portage		

FOR COMPLETE REFERENCE SEE REVERSE SIDE

Routes:

	2 chaussées séparées	plus de 2 voies
pavée, toute saison	2 voies	moins de 2 voies
pavée, toute saison	2 voies ou plus	moins de 2 voies
gravier aggloméré, toute saison		
de gravier, période sèche		
de terre		
sentier ou portage		

POUR UNE LISTE COMPLÈTE DES SIGNES, VOIR AU VERSO

RELIABILITY DIAGRAM - CROQUIS D'EXACTITUDE

A - Large scale mapping, photogrammetric, 1951 and 1959-63.

A - Cartographie à grande échelle, photogrammétrie, 1951 et 1959-63.

8 Target Covered 1982 Reconnaissance

(4) Target Not Covered Sufficiently

(16) Target Not Covered At All

TEN THOUSAND METRE UNIVERSAL TRANSVERSE MERCATOR GRID ZONE 10

GRID ZONE DESIGNATION	100,000 M. SQUARE IDENTIFICATION
10 U	EL FL GL EK FK GK

EXAMPLE OF METHOD USED TO GIVE A REFERENCE TO NEAREST 1000 METRES

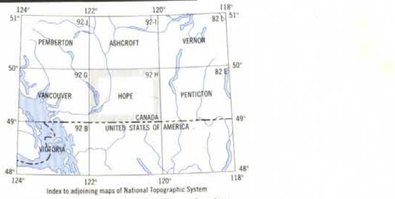
THE FOLLOWING GRID REFERENCE IS A SAMPLE ONLY AND DOES NOT REFER TO A POINT ON THIS MAP

REFERENCE POINT	ROCKS (as above)
SQUARE: Read letters of 100,000 m. square	NU
EASTING: Read number on grid line immediately to left of point. Estimate tenths of a square from this line eastward to point.	5 4
NORTHING: Read number on grid line immediately below point. Estimate tenths of a square from this line northward to point.	54 04
EXAMPLE MILITARY GRID REFERENCE	NU5404
If reporting beyond 18° in any direction, prefix Grid Zone Designation as:	15VNU5404

CONVERSION SCALE FOR ELEVATIONS

Metres 300 250 200 150 100 50 0

Feet 1000 800 700 600 500 400 300 200 100 0



Index to adjoining maps of National Topographic System
Tableau d'assemblage du Système national de référence cartographique

HOPE
92 H
EDITION 2

SOUTH EASTERN
BRITISH COLUMBIA

Scale – 1 : 600 000
(1 cm = 6km)

10 0 10 20 30 40 50 60 70 kilometres

REFERENCE

Municipality – City
" – District
" – Village or Town
Post Office
Community or Locality
Government Agent
Boundary – International
" – Interprovincial
Roads – Hard Surface
" – Main
" – Secondary
" – Rough (may be private, closed or unusable)
Trail
" – Seismic
Distance in kilometres
Ferry (Auto) and route
Railway and Station
Airport
Seaplane Landing
Park
Park – Under 65 hectares
" – With Campground
Hospital
Glacier
Customs Port of Entry
Historic Monument

Compiled and drawn by Map Production Division, Surveys and Mapping Branch,
British Columbia Lands Service, Department of Environment, Victoria, B.C.

Universal Transverse Mercator Projection

Third Edition Revised 1976

LITHOGRAPHED IN CANADA BY K.M. MACDONALD, QUEEN'S PRINTER, VICTORIA, BRITISH COLUMBIA

Note: The maps shown on the above index may be obtained, with or without the Land Forms overprint, from the Map Production Division, Surveys and Mapping Branch, British Columbia Lands Service, Department of Environment, Victoria, B.C.

Phase 1

RC RECON TARGETS (phase 1)

MAP NO 1E L

208

CANADA
DEPARTMENT
OF
MINES AND TECHNICAL SURVEYS

GEOLOGICAL SURVEY OF CANADA

GEOLOGICAL SERIES

SHEET 92 I (West Half)

LEGEND

CENOZOIC

TERTIARY
MIOCENE OR EARLIER
KAMLOOPS GROUP (23,24)

24 — *Basalt, andesite, and rhyolite; associated tuffs and breccias*

23 — *COLDWATER BEDS (?): sandstone, shale, and conglomerate; coal*

EOCENE

22 — *Conglomerate, breccia, arkose, and shale; basaltic lava and breccia (relations to Kamloops group unknown)*

CRETACEOUS OR TERTIARY

21 — *Conglomerate, sandstone, and shale*

MESOZOIC

CRETACEOUS
LOWER CRETACEOUS
KINGSVALE GROUP

19, 20

19. *Arkose, conglomerate, shale, and greywacke*
20. *Basalt and andesite; agglomerate, tuff, and breccia*

18 — SPENCES BRIDGE GROUP
Andesite, dacite, basalt, and rhyolite; tuff, breccia, and agglomerate; conglomerate, sandstone, greywacke, and arkose

JACKASS MOUNTAIN GROUP

15, 16, 17

15. *DIVISION A: greywacke, argillite, and siltstone; arkose and conglomerate*
16. *DIVISION B: conglomerate, greywacke, and argillite*
17. *DIVISION C: greywacke, argillite, conglomerate; arkose*

14 — LILLOOET GROUP
Argillite, volcanic conglomerate, and tuffaceous sandstone

13 — BREW GROUP
Argillite, quartzite, and conglomerate

JURASSIC
MIDDLE AND UPPER JURASSIC

12 — *Shale, conglomerate, and sandstone*

TRIASSIC
UPPER TRIASSIC
NICOLA GROUP

11 — *Basalt and andesite; tuff and agglomerate; limestone, quartzite, argillite, greywacke, and arkose*

TRIASSIC OR EARLIER

8-10

8. *Phyllite, quartzite, limestone; greenstone; schist*
9. *Argillite, slate, phyllite, quartzite, greywacke, chert, limestone; greenstone; schist*
10. *Phyllite, argillite, conglomerate, greywacke. May be in part of late Mesozoic age*

7 — *Schist and gneiss*

PALÆOZOIC

PERMIAN AND(?) EARLIER
CACHE CREEK GROUP

5, 6

5. *Greenstone; chert, argillite, minor limestone and quartzite; chlorite and quartz-mica schist*
6. *MARBLE CANYON FORMATION: limestone*

INTRUSIVE ROCKS

CRETACEOUS OR LATER
LOWER CRETACEOUS OR LATER

4 — *Quartz diorite, albite syenite*

CRETACEOUS
LOWER CRETACEOUS

3 — *Granodiorite*

JURASSIC OR CRETACEOUS
LOWER CRETACEOUS OR EARLIER

2 — *MOUNT LYTTON BATHOLITH: granodiorite, quartz diorite, and diorite*

JURASSIC
LOWER JURASSIC

1 — *GUICHON CREEK BATHOLITH: granite, granodiorite, quartz diorite, diorite*

COAST INTRUSIONS

JURASSIC (?)

A — *Hornblende diorite and related rocks*

B — *Serpentinized ultra basic rocks*

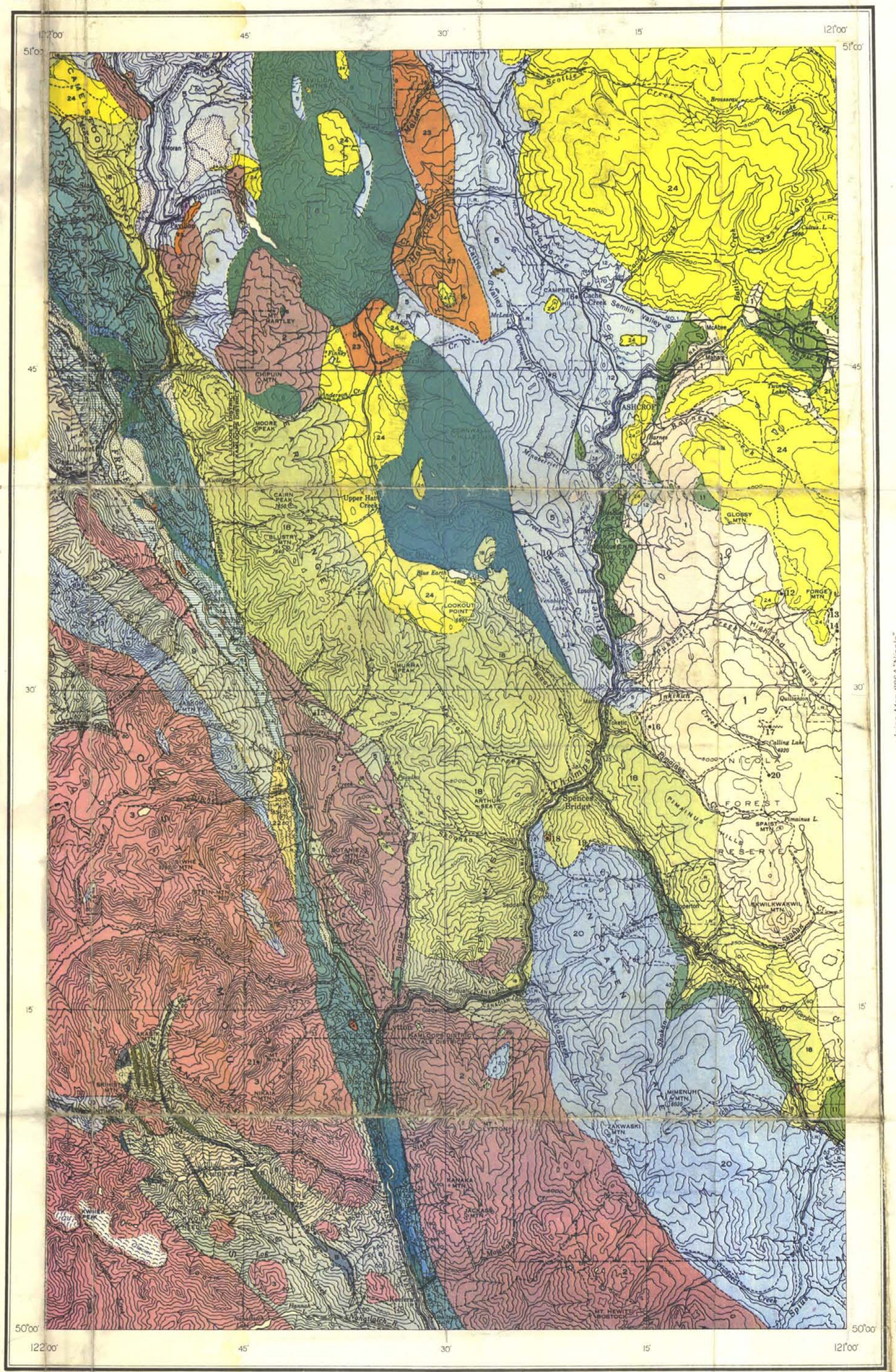
Heavily drift-covered area
Bedding (horizontal, inclined, vertical, overturned)
Schistosity (inclined, vertical)
Foliation (inclined, vertical)
Glacial striæ (direction of ice-movement known, direction unknown)
Fault
Fossil locality ..... ⊕
Mining property ..... 23•

INDEX TO MINING PROPERTIES

1 Big Slide (Grange) mine (Gold, silver, copper)
2 Scottie Creek deposits (Chromium)
3 Ferguson Creek deposits (Chromium)
4 Maggie mine (Copper, silver, lead, zinc)
5 Hat Creek coal (Coal)
6 Cache Creek occurrence (Chromium)
7 Fairview group (Zinc)
8 Cornwall Creek (Chrome Pit) occurrence (Chromium)
9 Coronation group (Silver, lead, zinc)
10 Basque epsomite deposits (Magnesium sulphate)
11 Martel mine (Gold, molybdenum)
12 Glossy group (Copper)
13 Transvaal group (Copper)
14 Highland group (Copper)
15 Victory claim (Copper)
16 Toketic deposit (Iron)
17 O.K. mine (Chataway group) (Copper)
18 Spences Bridge coal (Coal)
19 Soap Lake deposit (Sodium Carbonate)
20 Kathleen claim (Copper)
21 Lytton Gold prospect (Gold)
22 Clarke prospect (Antimony)
23 Green Gold Jade claims (Vesuvianite)
24 Glacier group (Gold, silver)
25 Paystreak group (Silver)
26 Serpentine and Summit groups (Gold)

Geology by S.Duffell and K.C.McTaggart, 1945-46, and K.C.McTaggart, 1947

Cartography by the Geological Mapping Division, 1951



Published, 195[illegible]. Photographic reproduction, 1981

Joins Map 737A, "Hope"

MAP 1010A

ASHCROFT

KAMLOOPS, LILLOOET AND YALE DISTRICTS
BRITISH COLUMBIA

Scale: One Inch to Four Miles = 1/253 440

Miles
4 3 2 1 0 4 8 12

Approximate magnetic declination, 24°15' East

Copies of this map may be obtained from the Director, Geological Survey of Canada, Ottawa

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INDEX MAP

DESCRIPTIVE NOTES

West of Fraser River, the map-area occupies part of the Coast Mountains of British Columbia, and the high ridges southeast of Lytton mark the northern extremity of the Cascade Mountains. Elsewhere the area forms part of the Interior Plateau, and its vegetation and climate are largely characteristic of the 'dry belt' of this region.

The Cache Creek group (5, 6) constitutes a thick succession of mainly chert argillite, altered volcanic rocks, and crystalline limestone, much of which is deformed and largely altered to talc, chlorite, and sericite schists. The distinctive crystalline limestone of Marble Canyon and Pavilion Mountains is mapped separately as the Marble Canyon formation (6).

Lenses and patches of metamorphosed rocks (7) within the Coast intrusions consist in part of chlorite, hornblende, and quartz-mica schists, and in part of granitic gneiss. Some parts of the large area of these rocks on Scarped Mountains are identifiable as Cache Creek (5), but other lenses may include strata of Mesozoic age.

Unfossiliferous, metamorphosed rock groups of uncertain identity (8-10), west of Fraser River, probably comprise strata of both Palæozoic and Mesozoic age. One group of mainly micaceous and graphitic phyllite (8) is probably of late Palæozoic age, but may include younger formations. Another varied assemblage of sedimentary and volcanic rocks (9), at least 7,500 and probably 10,000 feet thick, is probably in part Cache Creek. Still another group, comprising many thousands of feet of grey to black phyllite, grey argillite, conglomerate, and greywacke (10), extends southeast into Hope map-area, where it appears to include rocks of the Upper Jurassic (?) or Lower Cretaceous Ladner group. It also affords points of resemblance with the Lower Cretaceous Brew group (13).

Nicola group rocks (11) consist mainly of medium-grained, basaltic and andesitic lavas, largely altered to greenstones, greenish grey tuff, and agglomerate. Argillite, chert, greywacke, and limestone, associated with volcanic rocks near Basque, have yielded marine fossils of Upper Triassic age. The group has been metamorphosed by the Guichon Creek batholith (1) and occurs as small roof pendants within, or as relatively small bodies along, the border of the batholith.

Conglomerates, shales, and sandstones of Jurassic age (12) occupy a narrow synclinal belt near Ashcroft. The sandstones, commonly arkosic, and the conglomerates are greenish grey. The black shales, commonly carbonaceous, have yielded ammonites of Middle and Upper Jurassic age. East of Basque, conglomerate at the base of the succession rests unconformably on granitic rocks (1).

The Brew group (13) consists mainly of banded argillite, impure quartzite, and boulder conglomerate, and contains marine fossils of early Lower Cretaceous age.

The Lillooet group (14) and the Jackass Mountain group (15-17) form a belt of folded and deformed Lower Cretaceous sedimentary rocks along Fraser River, and are in faulted contact with all adjacent rock groups.

The Spences Bridge group (18), consisting of about 5,000 feet of varicoloured volcanic rocks, mainly lavas, and minor continental sediments, has yielded fossil plant remains of mid-Lower Cretaceous age. The lavas are generally much decomposed, and are commonly traversed by thin stringers of pink and white calcite. The group is gently folded, much of it lying horizontally or nearly so.

Sedimentary rocks (19) and volcanic rocks (20) of the Kingsvale group unconformably overlie the Spences Bridge group along Nicola River. The light-coloured sedimentary strata at the base of the group reach a thickness of 800 to 1,000 feet on Shakan Creek, but may be missing elsewhere. Fossil plant remains collected from them are of late Lower Cretaceous age. Small areas of sedimentary rocks on Botanie Creek and Fraser River near Stein River were mapped with the Kingsvale group on the basis of fossil evidence. The volcanic rocks, which constitute the bulk of the group, are largely of andesitic and basaltic composition and flows are commonly amygdaloidal.

Evidence obtained in Nicola map-area to the east suggests that certain local accumulations of conglomerate and sandstone (21) may be either of Cretaceous or Tertiary age. The conglomerate contains boulders and pebbles of Cache Creek and Nicola group rocks as well as of granite.

A succession of sedimentary and volcanic rocks (22) 4,500 feet thick has yielded fossil leaves of Eocene age. Coarse conglomerates in the exposed sections contain easily recognized boulders of Lower Cretaceous rocks (13-17). These Eocene strata form one of the many fault blocks along Fraser River, and the steep dips and close folds are mainly the result of fault movements.

Most of the Kamloops group consists of volcanic rocks (24), but with them are included several small areas of Tertiary sedimentary beds (23), which at upper Hat Creek and south of Spences Bridge are coal bearing. The sedimentary strata are probably the equivalent of the Coldwater beds of the adjoining Nicola map-area. The volcanic rocks exhibit a wide range of colours; they are mainly dark, dense, fine-grained basalts, but include thick beds of agglomerate, minor breccia, and tuff. Thin beds of argillaceous material yielded poorly preserved leaves of Tertiary age.

All of the map-area was covered by ice during Pleistocene time except perhaps some of the higher peaks of the Coast Mountains. Pleistocene and Recent drift mantles most of the plateau region. White silt deposits are prominent along Thompson River east of Spences Bridge. Alluvial fans, and ice-contact and glacial outwash deposits are common, and the major valleys are lined with marginal terraces of sand, gravel, and clay.

Batholithic rocks of the Coast intrusions consist mainly of granite, granodiorite, quartz-diorite, and diorite. The Guichon Creek batholith (1) intrudes Upper Triassic rocks (11) and is overlain by Middle and Upper Jurassic rocks (12). The Mount Lytton batholith (2) is overlain by lavas of the Spences Bridge and Kingsvale groups (18-20) and may be of early Lower Cretaceous age, but is probably more nearly contemporaneous with the Guichon Creek mass. The widespread granodiorite (3) of the Coast Mountains is believed to be of mid-Lower Cretaceous age.

Elongate bodies of ultrabasic rocks (B), with which are associated bodies of hornblende diorite and related rocks (A), are exposed in the Coast Mountains. The rocks of the main serpentine belt in the southwest corner of the map-area are, apparently, about in line with those of the serpentine belt to the southeast in Hope map-area, and are probably of Cretaceous age. Small undifferentiated bodies of serpentine associated with Cache Creek rocks along Bonaparte River carry significant chromite deposits.

Several minor intrusions (4) cut rocks of the Fraser River Lower Cretaceous belt (14-17).

The belt of Lower Cretaceous rocks along Fraser River may be regarded as a series of fault blocks or slices involved in a major zone of faulting along which rocks to the west have been relatively elevated. From the south border of the map-area to Cinquefoil Creek the Cretaceous rocks appear to occupy a graben. Farther north, rocks to the west of the Cretaceous belt appear to be elevated, and those to the east relatively depressed, with respect to the Lower Cretaceous rocks.

Albitization and, to a lesser extent, prehnitization are features of many of the rocks in and adjacent to the Fraser River Cretaceous belt. The abundant albite of some of the intrusive rocks is a product of metasomatism, a process that is believed also to have affected the older bedded rocks (14) of the Cretaceous belt; the albite of the younger formations is probably of detrital origin.

The map-area contains a variety of metallic and industrial mineral deposits, several of which have been productive. Placer gold has been mined on all major streams, but only in small amount since early years of the present century. Stibnite is found in irregular quartz veinlets along a fault zone in granodiorite near the headwaters of Stein River. Plutonic rocks of the Guichon Creek batholith are host to copper deposits near Highland Valley, and contain hematite deposits in shear zones near Toketic. The copper minerals occur in veins and shattered zones associated with tourmaline and hematite, and the wall-rocks are commonly highly sericitized. The greatest production came from the O.K. mine, which during the period of its activity mined and concentrated 10,000 tons of ore containing 3.6 per cent copper. The Maggie mine on Bonaparte River was prospected underground as a copper deposit. Fifty tons of selected ore yielded 2 ounces of silver a ton, 8 per cent copper, and low assays in lead and zinc. Chromite occurs in ultrabasic rocks along Bonaparte River, the principal discoveries having been made on Scottie Creek and the creek south of it. Gold and silver have been reported from quartz veins in the schist, argillites, and batholithic rocks in the southwest corner of the map-area. The Big Slide (Grange) mine has produced gold, copper, and silver from narrow quartz veins in diorite. Considerable exploration work has been done at the Martel property on narrow lenticular quartz veins in Cache Creek rocks that contain molybdenum and gold. Narrow quartz veins carrying sphalerite, galena, and chalcopyrite occur in Triassic rocks east of Ashcroft.

Coal has been mined with limited success from the deposit at upper Hat Creek. Occurrences of gypsum, jade, vesuvianite, magnesium sulphate, and sodium carbonate have been recorded, and some magnesium sulphate has been produced from the deposit at Basque. Much of the Marble Canyon formation is composed of very pure limestone.

Joins Map 886A, "Nicola"

Printed by the Surveys and Mapping Branch. Published 1982

REFERENCE

Main highway with route number ..... NO. 3
Other roads
Trail
Church ..... ⊥
Post Office ..... P.O.
Land District boundary
Forest Reserve boundary
Indian Reserve boundary
Intermittent stream
Glacier
Contours (interval 500 feet) 4000
Contours (position approximate) 3000
Height in feet above mean sea-level 6030

Base-map compiled by the Bureau of Geology and Topography from surveys and from information supplied by the Department of Lands and Forests, British Columbia.

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 1 82	HEH	H0004	Roll 1 17&18

MAP	AERIAL PHOTO	SAMPLE(S)
92H/7		CONG H0004 PALO SST H0004B

LONGITUDE	LATITUDE	ELEVATION
E 675900	N 5457650	1235

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	CONG	GY 5/1	M	1.5	L	COB	R	P	YES	IRREGULAR CONTACT

COMMENTS: COBBLE 4 TO 10 CM DIA MED. SST MATRIX RAKE CARBONACEOUS MOD. RESISTANT FOSSIL

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3	SST	M	GY 5/1	~2 m	L	M	R	P	?	XBEDDING

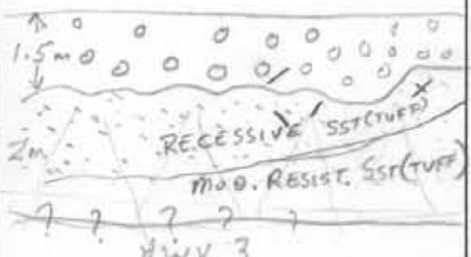
COMMENTS: ANDESITIC CLASTS V. RECESSIVE

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

LOOKING WEST



COAL DETAIL

802

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 1	R. Berg	R001	L1; L2 L3, L4

MAP	AERIAL PHOTO	SAMPLE(S)
14/2 Manning Park	—	R001 - Paleo a & b

LONGITUDE EASTINGS	LATITUDE NORTHINGS	ELEVATION
67590	545770	1270

GEOLOGY

UNIT 1	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
	VC	10YR 6/2	5GY 7/2	2.5 m	AND ASH	ASH – COBBLE	[illegible]	P	[illegible]	[illegible]

COMMENTS: - volcaniclastic which has incorporated cobbles of andesite and twigs of wood which looks baked + coaly
- tuff - waterlaid / hence cobbles

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

see L-3 photo

also L-4 showing contact with cgl which is adjacent

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
06/02/82	HEH	H0005	
MAP	AERIAL PHOTO	SAMPLE(S) CONA MARIA PALO	
9247			
~~LONGITUDE~~ E	~~LATITUDE~~ N		ELEVATION
677400	5459500		1021

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	CONG	5GY 5/1		H	LITH	COB	R	P	?	

COMMENTS: COBBLES 5"-15cm
MUCH THE SAME AS H0001

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS: PHOTO TAKEN ON AMBER LIGHT

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 2/80	HEAH	10006	—

MAP	AERIAL PHOTO	SAMPLE(S)
92H/7		SST CHUNK →

~~LONGITUDE~~ E	~~LATITUDE~~	ELEVATION
677600	5459600	983

GEOLOGY

UNIT 1	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
	SST	[illegible]		5m	LITH	m	A	P	—	—

COMMENTS: "BADLY FRAC. MOD. RECESSIVE AND. & RH. CLASTS

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	BEDDING MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE	FOLDS ORIENT	FOLDS PLUNGE	JOINTS	INTRUSIVES TYPE	INTRUSIVES RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

(1)

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 2/82	HEH	HOOO7	B.W R-1 8

MAP	AERIAL PHOTO	SAMPLE(S)
92 H/7		FALLS ST.

LONGITUDE E	LATITUDE N	ELEVATION
676750	5458950	1082

GEOLOGY

UNIT 1	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
	SST	10YR 6/2		5	LITH	M	R	M	YES	-

COMMENTS: RARE CARBY WOOD FRAGS MOD. RECESSIVE

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

SEE BACK OF PAGE

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.
	0:155 F.20		

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

2

100m EAST OF H0027

15 5m of SST OVERLAIN BY
4m of V. COBBLY SST
DIPPING ~N 25°
V. RECCESSIVE

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 2	HEHEDH	H0008	D.# R-1 9

MAP	AERIAL PHOTO	SAMPLE(S)
92H/7		SST ?? PALEO

~~LONGITUDE~~ G	~~LATITUDE~~ N	ELEVATION
677650	5459550	1021

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SST	10YR 6/2		1.5m	LITH		A	V.P.		

COMMENTS: ? ABUNDANT A COBBLES 7cm TO 25cm TUFF CALL. WELL RESISTANT

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 2/82	HEH	H0009	NO

MAP	AERIAL PHOTO	SAMPLE(S)
92H/7		NO

LONGITUDE E	LATITUDE	ELEVATION
678100	5459600	1014

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	VOL	10YR 6/2		1m	AND					

COMMENTS: SILICEOUS TUFF BELOW SEDS

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS	JOINTS	INTRUSIVES
TYPE ORIENT PLUNGE		TYPE RELATION

OUTCROP SKETCH

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 2/82	WH & D.H	H0010	ROLL 164 24

MAP	AERIAL PHOTO	SAMPLE(S)
92H/7		DIATOMITE SAMPLE CONG MATRIX A

~~LONGITUDE~~ E	~~LATITUDE~~ N	ELEVATION
679300	5458250	968

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1		10YR	8/2	1/2	DIA	CLAY		W	1	

COMMENTS: DIATOMACEOUS CLAY THATS WHAT IT IS.

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

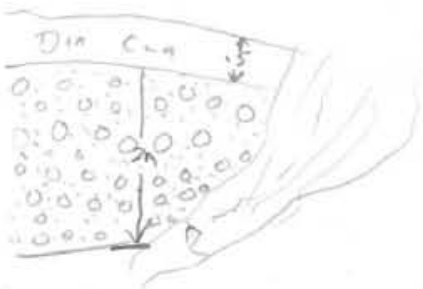
UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3	CONG	10YR	5/2	2	LITH	COBB	R	P		

COMMENTS: MATRIX SUPPORTED

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS		JOINTS	INTRUSIVES	
TYPE	ORIENT PLUNGE		TYPE	RELATION

OUTCROP SKETCH



COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 3/82	HEH/D.H	H0015	D.H. ROLL 1 20

MAP	AERIAL PHOTO	SAMPLE(S)
92H/2		SST

LONGITUDE	LATITUDE	ELEVATION
678200	5453250	1097

GEOLOGY

UNIT 1	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
	SST	10YR6/2		4m	LITH	M	R	W	—	—

COMMENTS: APPEARS TO BE LIKE SST NEAR TOP OF SECTION

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	BEDDING MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 3/82	HH & D.H	H0016	P. H. Roll 1 21

MAP	AERIAL PHOTO	SAMPLE(S)
92 H1		No

LONGITUDE	LATITUDE	ELEVATION
678300	5453450	1097

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SST			9m	LITH	C	r	m	–	—

COMMENTS: C-G. / PEBBLES MASSIVE BEDDING

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

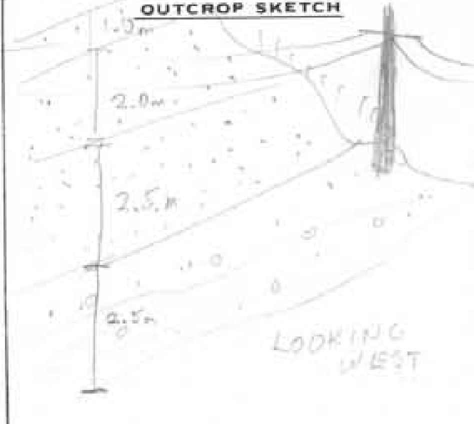
UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE		BEDDING MEAN	FAULTS TYPE ORIENT DISP.
	11/20	39	2 good readings	

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH



COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 4/82	HHEDH.	H0017	22

MAP	AERIAL PHOTO	SAMPLE(S)
92H/1		CONG MATRIX

LONGITUDE E	LATITUDE N	ELEVATION
716600	5453350	1311

GEOLOGY

UNIT 1	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
	CONG	5GY 8/1		1m	L	CGB	A	P	—	—

COMMENTS: V. IMMATURE CLOSE TO RECESSIVE SOURCE (LOW IN SECTION?)

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

560.4

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 4/82	HH & DH	H0018	DH ROLL 25

MAP	AERIAL PHOTO	SAMPLE(S)
92H/1		—

~~LONGITUDE~~ E	~~LATITUDE~~ N	ELEVATION
717450	5453800	1097

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	CONG	504					a			

COMMENTS: SAME AS H0017

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

COAL DETAIL

TARGET #4

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 4/82	RB - LG	B0031	—

MAP	AERIAL PHOTO	SAMPLE(S)
92H/8	-	P - sand

LONGITUDE EASTING	LATITUDE NORTHING	ELEVATION
609800	5477910	1350 ft

GEOLOGY

UNIT 1	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
	SED	N6	10YR 5/6	2M	SAND	m	lg	lg	-	-

COMMENTS: PLEISTOCENE? NOT CONSOLIDATED - OLD SAND DUNE

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

47.3

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 8	R BERG	R0032	-

MAP	AERIAL PHOTO	SAMPLE(S)
92I/2	-	-

LONGITUDE E	LATITUDE N	ELEVATION
664350	5543650	3500'

GEOLOGY

UNIT 1	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
	Vol	5R 6/2	5R 4/2	<1m	Vol.cl.	var.	A	VC	-	MASSIVE

COMMENTS: VOLCANICLASTIC -

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

49.9

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 8	RBERG	R0033	—

MAP	AERIAL PHOTO	SAMPLE(S)
92I2	—	—

LONGITUDE E	LATITUDE N	ELEVATION
667900	5541600	3750'

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	CONG	5R4/2	5R7/2	1m	lith	g-b	rnp		—	MASSIVE

COMMENTS: Agglomerate - Conglomerate? APPEARS SEDIMENTARY

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

68.9

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 8	K BERG	R0034	-

MAP	AERIAL PHOTO	SAMPLE(S)
92 H/15	-	-

LONGITUDE E	LATITUDE N	ELEVATION
659 800	55 30500	3500'

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SED	5E 5/4	10B 7/2	1m	CONG	VC - B	Var	P	-	bedding [illegible]

COMMENTS: SED. CONGLOMERATE VC - angular B - WC. INCORP. ALL TYPES OF CLASTS.

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	BEDDING MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

PICTURE 16 - ROLL 2

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 8	R BERG	R0035	-

MAP	AERIAL PHOTO	SAMPLE(S)
92I/7	-	-

~~LONGITUDE~~ E	~~LATITUDE~~ N	ELEVATION
662400	5521900	3600'

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SED	10G 3/4	10R 4/2	<1 m	CONG	Var	VW	P	-	-

COMMENTS: INCORPORATES vc - b — rounded ALL TYPES OF CLASTS — angular FROM GRANITE - ANDESITE

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	BEDDING MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

COAL DETAIL

6

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 10	RBERG	R0036	—
MAP	**AERIAL PHOTO**	**SAMPLE(S)**	
92H15	—	—	
LONGITUDE W	**LATITUDE N**	**ELEVATION**	
667950	5529900	4000'	

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SED	5Y6 4/4	5Y6 7/6	1m	CONG	var.	W	P	-	-

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 #2/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 1/82	HEH	H0001	

MAP	AERIAL PHOTO	SAMPLE(S)
92 H/7		

LONGITUDE E	LATITUDE N	ELEVATION
674450	5463750	1341

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	VOL	5YR 2/1	5YR 6/1		HBT TO AND					

COMMENTS: ANDESITE TO RYO.

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 1/82		H0002	

MAP	AERIAL PHOTO	SAMPLE(S)
92H/7		

LONGITUDE	LATITUDE	ELEVATION
E 673900	N 5463750	1463

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	VOL	5YR 8/1	5YR 6/1		RHY					

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.
FOLDS TYPE ORIENT PLUNGE	JOINTS		INTRUSIVES TYPE RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 82	H 17	40003	

MAP	AERIAL PHOTO	SAMPLE(S)
92 H/7		

LONGITUDE E	LATITUDE N	ELEVATION
673700	5463300	1463

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	VOL	"	10YR 4/2		AND.					

COMMENTS:

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 2	R. Berg	R0003	/

MAP	AERIAL PHOTO	SAMPLE(S)
92 H/7	/	/

~~LONGITUDE~~ EAST	~~LATITUDE~~ NORTH	ELEVATION
67540	546310	1160m

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	And	5B4/1	5B3/1	.5m						

COMMENTS: porphyritic andesite. mafic phenocrysts.

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 2	R. Berg	R0004	/

MAP	AERIAL PHOTO	SAMPLE(S)
92 H/7	/	/

LONGITUDE EAST	LATITUDE NORTH	ELEVATION
67640	546290	1075 m

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
* #3	vol	5YR 3/4	10YR 6/2	? m						

COMMENTS:
intermediate f.gr volcanics (ductile) - felsic phenocrysts

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
* #1	VC	5Y5/2	variable	4m			var	p		chaotic

COMMENTS:
- possibly volcanic debris flow - clasts vary in comp from volc to grnite to shaley stuff.

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 2	R. Berg	R0005	/

MAP	AERIAL PHOTO	SAMPLE(S)
92 H/7	/	/

LONGITUDE EAST	LATITUDE NORTH	ELEVATION
67660	546290	1040 m

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	Vol	5YR2/1	N3	1.5m	bas.	f gr				

COMMENTS:
- fine gr. basalt - plag phenocrysts @ 1%

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 2nd	R. Berg	R0006	/

MAP	AERIAL PHOTO	SAMPLE(S)
92 H/7	/	/

LONGITUDE E	LATITUDE N	ELEVATION
67670	5462 80	1635 m

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	Volc	5YR 3/2	10YR 4/6	1.5m		f.gr				

COMMENTS:
-Andesitic, f.gr - hbld + plag phenocrysts

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	BEDDING NO. TAKEN MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 2	R. Berg	R0007	/

MAP	AERIAL PHOTO	SAMPLE(S)
92 H/7		/

LONGITUDE E	LATITUDE N	ELEVATION
677710	5546310	1100m

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	Vol	10YR 4/2	5B5/2	<1m		f.				

COMMENTS: greenstone - slight sheen
andesitic - slightly altered to chlorite/biotite - hornfels?

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 2nd	R. Berg	R0008	—
MAP	AERIAL PHOTO	SAMPLE(S)	
LONGITUDE E	LATITUDE N	ELEVATION	
677720	5463320	975m	

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	hnfl	10YR8/1	N3	2m						

COMMENTS: - very crumbly - blocky weathering, Rusty
- elevation (minor?)
- possibly close to intrusive contact.

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:
Log 100m downstream = f.gr. mafic intrusive

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 2	R Berg	R0009	
MAP	AERIAL PHOTO	SAMPLE(S)	
92 H/7			

LONGITUDE E	LATITUDE N	ELEVATION
67760	546350	3100-3050

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	int									

COMMENTS: Gabbros, Syenites, Pegmatites, chlorite schist, porphyry Cu (chrysocolla, Malachite, Azurite)

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 2	R. Berg	R0010	/
MAP	**AERIAL PHOTO**	**SAMPLE(S)**	
92 H/7	/	/	
LONGITUDE E	**LATITUDE N**	**ELEVATION**	
677730	5546220	1130	

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	Vol	5YR 5/6	5B 7/1	<1m		f				

COMMENTS: -rusty weathering
-andesitic-dacitic / large hbld phenocrysts

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:
-further up f gr basalt

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	BEDDING NO. TAKEN MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP ~~SKETCH~~ COMMENTS

- gossemy / Mn stains : pyrolucite
  2ºY zeolites
- shear zones
- possibly selvages of pillow lava?

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 2	R. Berg	R0011	/

MAP	AERIAL PHOTO	SAMPLE(S)
92 H/7		

LONGITUDE E	LATITUDE N	ELEVATION
677720	5466220	1250m

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	b/a	10YR 8/2	5GY 4/1	2 m		f				

COMMENTS: -basalt/Mn stain to andesite / Haphanart

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 2	R Berg	R0012	

MAP	AERIAL PHOTO	SAMPLE(S)
92 H/7		

LONGITUDE E	LATITUDE N	ELEVATION
67600	546120	1265m

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	vol	5YR 7/2	5YR 4/1	8m		f-vf				

COMMENTS: - andesite overlain by a massive more felsic volcanic, both porphyritic

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 2	R. Berg	R0013	/
MAP	**AERIAL PHOTO**	**SAMPLE(S)**	
92 H/7	/	/	
LONGITUDE E	**LATITUDE N**	**ELEVATION**	
67610	54660	1270	

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	Vol	10YR 8/2	varies	3.5m		m				

COMMENTS: - dacite overlain by water-lain ash showing laminations + gravity slumping. Ash overlain by tuff (mafic)

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 83/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 2	RB .	R0018	

MAP	AERIAL PHOTO	SAMPLE(S)
92H/7	–	–

LONGITUDE E	LATITUDE N	ELEVATION
67620	546190	1285

GEOLOGY

UNIT 1	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
	Vol	5Y4/1	5GY4/1	3 m		fg				

COMMENTS: AND · overlain by tuff c̄ mafic phenos in matrix · same rough bedding in and 055/45 S

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN: RANGE	BEDDING NO. TAKEN: MEAN	FAULTS: TYPE ORIENT DISP.

FOLDS: TYPE	FOLDS: ORIENT	FOLDS: PLUNGE	JOINTS	INTRUSIVES: TYPE	INTRUSIVES: RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 2		R06.4	
MAP	**AERIAL PHOTO**	**SAMPLE(S)**	
92 H/7	-	P0015 - MATRIX OF CONGLO	
LONGITUDE E	**LATITUDE N**	**ELEVATION**	
67620	546225	1255	

GEOLOGY

UNIT 1	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
	SED.	Var.		3m	cong.	var	var	-		-

COMMENTS: SANDWICHED B/T VOLCANICS

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS		JOINTS	INTRUSIVES
TYPE	ORIENT PLUNGE		TYPE RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

301.3

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 3/82	H&DH	HOO11	14,15,16

MAP	AERIAL PHOTO	SAMPLE(S)
92H/2		Bottom Sand, Silt; Top: Silt 6

LONGITUDE E	LATITUDE N	ELEVATION
681500	5448000	1311

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	VOL			3m						

COMMENTS: ANDESITE ON WITH COOKED MARGIN

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
	SILT	N4		2m		

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3	SST			1.5m	LITH	F-M	r	W	nil	THINLY LAM

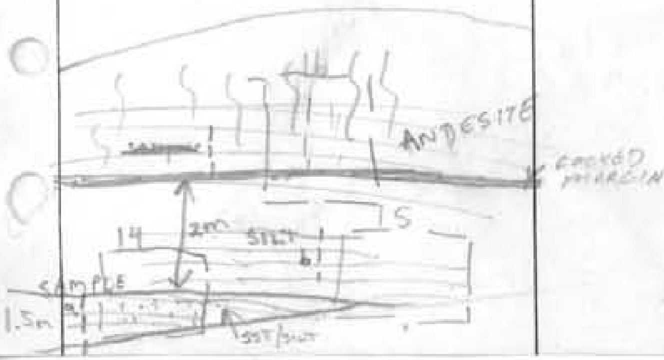
COMMENTS: N5 N8 2cm BEDDS

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	MEAN	FAULTS TYPE ORIENT DISP.
	0025 20°		

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

LOOKING S.W.



COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

300.4

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 3/82	HEH	H0012	DH Roll 1B

MAP	AERIAL PHOTO	SAMPLE(S)
92.H/2		SST

~~LONGITUDE~~ E	~~LATITUDE~~ N	ELEVATION
681500	5447150	1341

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SST	5Y 7/2	10YR [illegible]	1.5m	L	ML	R	W		[illegible]

COMMENTS: Clay matrix, mod. recessive

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY

BEDDING NO. TAKEN RANGE	BEDDING MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM 99.0

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 3/82	HEHER, H.	H0013	D. HEALY 19

MAP	AERIAL PHOTO	SAMPLE(S)
92 H/2		SST

LONGITUDE	LATITUDE	ELEVATION
681850 E	5445850 N	1402

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SST	5Y	7/2	1/2	L	M	R	W	/	

COMMENTS: MATRIX HI IN CLAY 2 CM BEDDING

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

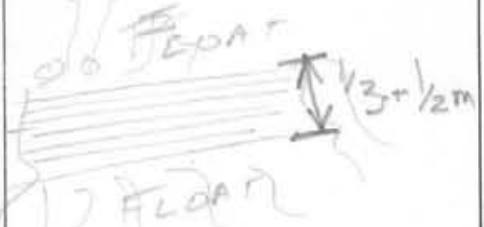
COMMENTS:

STRUCTURAL GEOLOGY

BEDDING NO. TAKEN		FAULTS
RANGE	MEAN	TYPE ORIENT DISP.
00 100	35° W 6000	

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH



COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

97.0
98.5

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 3/82	HCH&DH	H0014	—

MAP	AERIAL PHOTO	SAMPLE(S)
92H/7	—	SST

LONGITUDE	LATITUDE	ELEVATION
682150	5445450	1402

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SST	5Y 7/2	NO	1/2	LITH	M	R	W	NO	III LAM RIPPLES

COMMENTS: E. PERCENTAGE OF CLAY MAYBE

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 3	RB	R0016	—

MAP	AERIAL PHOTO	SAMPLE(S)
92 H/2	—	—

LONGITUDE E	LATITUDE N	ELEVATION
67825'	545120	950 m

GEOLOGY

UNIT 1	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
	V01	5YR 4/1	5G 5/1	40 m						

COMMENTS: ANDESITIC - BASALTIC PYROCLASTIC TOPPED BY THE SAME COMP. FLOW + though NO bedding found - slimy in places

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 3	R. B	R0017	-

MAP	AERIAL PHOTO	SAMPLE(S)
92 H/2	-	-

LONGITUDE E	LATITUDE N	ELEVATION
67870	545090	1005M

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	Vol	5Y 4/1	5Y 5/2	90m	-	-	-	-	-	-

COMMENTS: ANDESITE & AMPHIBOLE - Any.

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH 77753.6
- .8
- 4.2

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 3	R. B	R0018	–

MAP	AERIAL PHOTO	SAMPLE(S)
92 H/2	–	–

LONGITUDE	LATITUDE	ELEVATION
67900	545120	1070m

GEOLOGY

4.5 – 4.7

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	V01	5YR/N4		10m	BAS.					

COMMENTS: ARGILLITE – MT 4.9 – VFG

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

4.7 – 4.9

ELEVATION 1110 m

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3	SED	N5E 7/4	10YR 8/2	400 m	SST	F			–	

COMMENTS: IRON STAINED BANDS; CARBONACEOUS SST – SLTST

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	BEDDING NO. TAKEN MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

7784 – 4.7 – 4.9

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

77753.3

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 3/82	RLB	R0019	—

MAP	AERIAL PHOTO	SAMPLE(S)
92 H2	—	—

LONGITUDE E	LATITUDE N	ELEVATION
67950	545180	1136

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	VOL	5YR 7/4	5YR 4/1	3m	AND	F-MG	—	—	—	—

COMMENTS: AND ± MANY HORNBL PHENOS

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM 55.4-56.0

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 3/82	RLB	R0020	–

MAP	AERIAL PHOTO	SAMPLE(S)
92H/2		

LONGITUDE	LATITUDE	ELEVATION
67920	545190	1130

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SED + VOL	[illegible] LB			[illegible]					

COMMENTS: CLEAVED c̄ FINE GRAIN VERT - 90° SW. LAMINATIONS

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY

BEDDING NO. TAKEN RANGE	MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

ALL ALONG RD GET
VOL & SEDS
– NICOLA GP
⟶

VOL AT 55.5
TUFF + AND.
55.7 – DACITE

at 56.0 – 1165

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

777583

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 3/82	RLB	R00 21	-

MAP	AERIAL PHOTO	SAMPLE(S)
92H/2	-	-

LONGITUDE	LATITUDE	ELEVATION
68030	545205	1195

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SED VOL	SAME AS BEFORE		-	-	-				

COMMENTS: MTN SIDE COVERED W FLOAT & OUTCROP NICOLA

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

57.2-14

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 8/82	RLB	R0022	[illegible]

MAP	AERIAL PHOTO	SAMPLE(S)
92H/2	-	-

LONGITUDE	LATITUDE	ELEVATION
679?0	545170	1250

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	vol: [illegible]	same as [illegible]		5m.	-	VFG				LAMINA

COMMENTS: MIXTURE OF ARGILLITES, VOL FLOAT - [illegible] in argillites NICOLA

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY

BEDDING NO. TAKEN RANGE	BEDDING MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 3/82	RLB	R0023	-

MAP	AERIAL PHOTO	SAMPLE(S)
92H/2		-

LONGITUDE	LATITUDE	ELEVATION
68 130-	545025	1530

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	VOL	5YR 5/1	N4	1m	AND.	-	-	-	-	-

COMMENTS: MIN: DESCRIP. VOLCANIC ULTRA 30KMS - + phyllite + sst

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

BACK .3 km from fork.

- .8km " "

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE	RLB	R0024	

MAP	AERIAL PHOTO	SAMPLE(S)
92		Pa - congl matrix Pb - sst

LONGITUDE	LATITUDE	ELEVATION
68260	545015	1540

GEOLOGY

UNIT 1	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
	SED	10YR 6/6	N3	2m	-	Fg				

COMMENTS: Weedy Fm. Phyllic Pa - clay-silt
See congl - could be Pa - some sand above

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
	sst +	10YR	wet	3m		Fg	-	-	-	xbed

COMMENTS: congl

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

65.65 Eocene

Pa - congl matrix
Pb - sst

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

68.0

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
Jun	RLB	R0025	-

MAP	AERIAL PHOTO	SAMPLE(S)
92H2	-	P a, b, c (sst, cgl, sst)

LONGITUDE	LATITUDE	ELEVATION
63480	544990	1520

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	Var.	Var		-		Var.	P	P	[illegible]	[illegible]

COMMENTS: Very [illegible] outcrop? of shale, sst, volc rocks - dug into by machine. sst clasts? in place.

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	BEDDING NO. TAKEN MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

sst - made of volcanic fragments - incorporating [illegible] coaly piece of wood.

congl -

EOCENE

COAL DETAIL

802

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

68.7

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 3/82	RLB	R0026	-

MAP	AERIAL PHOTO	SAMPLE(S)
92H2	-	-

LONGITUDE	LATITUDE	ELEVATION
68540	545000	1540

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	VOL	5B1/4	N2	1M	BAS	VFG	-	-	-	-

COMMENTS: VERY, VERY FG volcanic - A FEW HBL THE 30's GAVE IT AWAY.

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM 7/11

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 3/82	RLB	R0027	-

MAP	AERIAL PHOTO	SAMPLE(S)
92H/2	-	P27 - conglomerate

LONGITUDE	LATITUDE	ELEVATION
68650	545095	1730

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SED	10YR 7/6	[illegible]	3 m	CONGL	VAR				

COMMENTS: VERY WEATHERED CONGL. - CLASTS VAR ROUNDING

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

71.4

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 3/82	RLB	R0028	-

MAP	AERIAL PHOTO	SAMPLE(S)
92H/2	-	-

LONGITUDE E	LATITUDE N	ELEVATION
62680	5450 90	1760

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	Vol	10YR 4/2	N3	2m	bas.	fg	-	-	-	

COMMENTS: very hard - few olivine phenos

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

at 71.6 - tuff congl.
- very weathered yellow; Nd.

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 3/82	RCB	R0029	
MAP	**AERIAL PHOTO**	**SAMPLE(S)**	
92 H/2	-	P29 - OUTCROP	
LONGITUDE	**LATITUDE**	**ELEVATION**	
68480	544990	1780	

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SED	10YR 3/4	10YR 6/6	<1m	SST	bg	-	-	-	massive

COMMENTS: Very small oc - r
- balmost quartz-te

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS	JOINTS	INTRUSIVES
TYPE ORIENT PLUNGE		TYPE RELATION

OUTCROP SKETCH

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 az/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 3/82	RLB	R0030	-

MAP	AERIAL PHOTO	SAMPLE(S)
92H/2	-	-

LONGITUDE	LATITUDE	ELEVATION
67790	545130	1300

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	VOL	5RY 5/2	10GY 5/2	10m	AND					

COMMENTS: TUFFACEOUS - PYROCLASTIC

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE 93.5
OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 6/82	W.H & D.H	#0019	Roll 2 Fr. 4,5

MAP	AERIAL PHOTO	SAMPLE(S)
92H/1		CONGLOMERATE

LONGITUDE E	LATITUDE	ELEVATION
699700	5447600	1128

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	GGL	5YR 6/1		30m		VCL	a	R	r	

COMMENTS: MASSIVE IMMATURE

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS		JOINTS	INTRUSIVES
TYPE	ORIENT PLUNGE		TYPE RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05 20

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 17	RB	R0053	–

MAP	AERIAL PHOTO	SAMPLE(S)
92I/15	–	–

LONGITUDE E	LATITUDE N	ELEVATION
642200	5641050	~1800'

GEOLOGY

UNIT 1	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
	Congl	[illegible]	"	2m	[illegible]	var	A	P	–	[illegible]

COMMENTS: SAME AS # 51

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	BEDDING MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

COAL DETAIL

28

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 17/87	R BERG	R0050	—

MAP	AERIAL PHOTO	SAMPLE(S)
92I/15	—	—

LONGITUDE W	LATITUDE N	ELEVATION
6493900	5640100	2500'

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	CONGL	DYR 5/2		1m	LITH	VAR	A	P		—

COMMENTS: PROBABLY VOLC

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 17	R. BERG	R0051	-

MAP	AERIAL PHOTO	SAMPLE(S)
92I/15	—	R0051 - P

~~LONGITUDE~~ E	~~LATITUDE~~ N	ELEVATION
642450	5640600	

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	cgl / volcan.	10YR 7/4	5YR 6/2	150m	vol clasts					

COMMENTS: - very course cgl - looks VC but mapped as eocene seds by GSC - underlain by VOLC

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	BEDDING NO. TAKEN MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

- forms "hoodoos"
- clasts angular

COAL DETAIL

MUNK CREEK 25

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 17	R B	R0052	✓
MAP	**AERIAL PHOTO**	**SAMPLE(S)**	
92I/15	—	R0052-P	
LONGITUDE E	**LATITUDE** N	**ELEVATION**	
641750	5646300	575 m	

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	cgl	10YR	7/4	3 m	vol	var	r	p	-	—

COMMENTS: possibly Pleistocene

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

30

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE/16	R BERG	R004/5	

MAP	AERIAL PHOTO	SAMPLE(S)
92 I/15	-	R004/5 ✓ P-SHALE

LONGITUDE	LATITUDE	ELEVATION
E 652500	N 5637500	3601

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SED	10 YR 6/1	N2	1m	lmST	CL	-	-	-	-

COMMENTS: WELL CEMENTED LmST

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3	SED	N5	N3	1m	SHALE	VFL	-	-	-	REMAIN.

COMMENTS: BOTH PROBABLY CRET

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	BEDDING NO. TAKEN MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

COAL DETAIL

30

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 16/82	K. BERG	R0047	–

MAP	AERIAL PHOTO	SAMPLE(S)
92I/15	–	R0047-55t

~~LONGITUDE~~ E	LATITUDE N	ELEVATION
647300	5647600	3100'

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SED	10R 6/6	5YR 5/6	<1m	Congl.	VAC	A	P	–	–

COMMENTS: LOOKS LIKE ED.

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

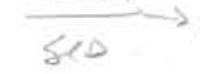
UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3	SED	10YR 8/4	10YR 6/2	<1m	SS	FK	A	M	–	–

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH



COAL DETAIL

30

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 16/88	R BERG	R0048	LGRZ #7

MAP	AERIAL PHOTO	SAMPLE(S)
92 I/15	-	R0048 P-SST

LONGITUDE	LATITUDE	ELEVATION
E 647850	N 5643150	3100'

GEOLOGY

UNIT 1	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
	SED	5YR 6/4	5YR 6/4	1/0 m	SC Q	mL	a	W	PLANT	

COMMENTS: IB SST + CONG - ie Pebble Beds ATT 155/15W + organic horizons

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
		5Y				

COMMENTS: - coarsening upwards

) EOCENE LIKE

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	BEDDING MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

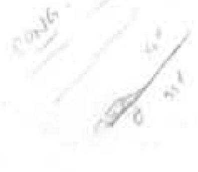
RB - PICT - ROLL 3

Fr 8 - 9

↓ ↓

o/c organic Bed.

6.2 km fr. T



COAL DETAIL

30

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 17/82	R BEES	R0049	—

MAP	AERIAL PHOTO	SAMPLE(S)
92I/15	—	R0049 SST; SH.

LONGITUDE W	LATITUDE N	ELEVATION
647500	5643100	2575'

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SS	10R 5/4	N8	2m	.Q	FU	F	W	—	—

COMMENTS: CRET? MORE LL CON. THAN #8.

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS: > CONTAINS A FEW CONG. BEDS & SHALELY LENES

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3		10YR 6/2	N5							

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

31

7685 82/09

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 15/82	R. BERG	R0044	—

MAP	AERIAL PHOTO	SAMPLE(S)
92I/10	—	R0044-55T WM

~~LONGITUDE~~ E	~~LATITUDE~~ N	ELEVATION
~~[illegible]~~ 673150	5623500	1900'

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SED	10YR 5/4	10YR 5/4	3m	CONGL	var	A	P	—	—

COMMENTS: GS C.SS TO BOULDER
TRANQUILLE BEDS ?

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

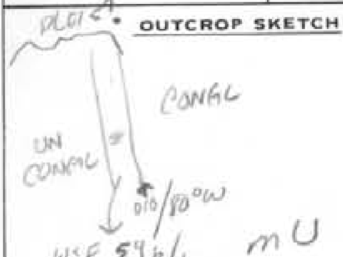
UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	BEDDING MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH



VERY UN CONSOL.
- PLEIST ?
BUT WITH NEAR VERT
CONTACT TO Fo. CONGL.

COAL DETAIL

31

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 16/82	R BERG	R0046	—

MAP	AERIAL PHOTO	SAMPLE(S)
92I/15	—	R0046P - metric

LONGITUDE E	LATITUDE N	ELEVATION
648280	5644950	2675'

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SED	5YR 8/1	W=10R 6/6	<1m	CONGL	VAR	P	P	-	—

COMMENTS:
CRET OR EO ?

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

93.8

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 11/82	R BERG	R0039	-

MAP	AERIAL PHOTO	SAMPLE(S)
92I/10	-	R0039 B

LONGITUDE E	LATITUDE N	ELEVATION
653250	5613000	3772'

GEOLOGY

UNIT 1	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
	SED	N5	N2	1.5 m	silt-st	VFL	+	-	-	-

COMMENTS: very small O/C. tuffite.

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

77.0

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 11	R BERG	R0040	-

MAP	AERIAL PHOTO	SAMPLE(S)
92 I/10	-	R0040 - SST FAILED

LONGITUDE E	LATITUDE N	ELEVATION
653850	5616800	4825'

GEOLOGY

UNIT 1	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
	SED	N5	N6	1 m	SST	mU	SR	G	-	

COMMENTS: FURTHER UP FORM. 2 Km - CONG WITH MATRIX OF SST & ANGULAR CLASTS

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:
CONGLOMERATE HAS CAP VOLC).
UNDERLYING
2 Km from top.

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

ROLL 2 3/4 - SST
35 - CONTACT

COAL DETAIL

Note.
Down the hill past
to get rong =
55+165.

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 11	R BERG	R004/	2/35

MAP	AERIAL PHOTO	SAMPLE(S)
92 I-/10	-	-

LONGITUDE	LATITUDE	ELEVATION
653950	5617800	4/5001

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SED	10YR 6/2	2.5Y 6/4	< 1 m	CONG	VAR.	A	P	—	-

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY

BEDDING NO. TAKEN		FAULTS
RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

5.2 FR TOP

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 11	RBERG	R0042	-

MAP	AERIAL PHOTO	SAMPLE(S)
92 I / 10	-	-

~~LONGITUDE~~ E	~~LATITUDE~~ N	ELEVATION
655350	5615500	7400'

GEOLOGY

UNIT 1	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
	SED	5Y 6/4	N4	1.5m	SLTST	V	-	-	-	-

COMMENTS: VERY HARD SILICEOUS SILTST - MUDSTONE. float

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
			N4			

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

12 Ka - C-M

MUCH LIKE AT TOP

COAL DETAIL

42

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
Jun 26/80	R Berg	R0057	-

MAP	AERIAL PHOTO	SAMPLE(S)
92 I/10	-	R0057 - P55t

LONGITUDE E	~~LATITUDE~~ N	ELEVATION
654300	5519800	1085 m

GEOLOGY

UNIT 1	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
	sst	10 YR 4/2	10 YR 4/2	3 m	LITH	m	o	M	-	bedding

COMMENTS:
+ B CONGL + SST. var. near top

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	BEDDING MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

COAL DETAIL

42

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

24.7

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 11/82	R. BERG	R0038	–

MAP	AERIAL PHOTO	SAMPLE(S)
92 I/7	–	–

~~LONGITUDE~~ E	~~LATITUDE~~ N	ELEVATION
~655650	~5595600	~3700

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SED (CONGL)	5Y4/1	5Y4/1	–	LITH	var	W	R	–	–

COMMENTS: – ROAD CROP OF CONG – QUESTIONABLE EOCENE AGE – NICOLA ALSO MAY BE CONGLOMERATE (MATRIX – ?)

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
						Poorly sorted cobble p-b

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN: RANGE	MEAN	FAULTS: TYPE ORIENT DISP.

FOLDS: TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES: TYPE RELATION

OUTCROP SKETCH

COAL DETAIL

5°

RECONNAISSANCE OUTCROP DESCRIPTION FORM

50.45°

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 10	R BURNS	P0037	—
MAP	**AERIAL PHOTO**	**SAMPLE(S)**	
92I/2	—	—	

~~LONGITUDE~~	~~LATITUDE~~	ELEVATION
E 673850	N 5547300	1400 m

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SED	5YR 3/4	5YR 4/4	3 m	LITH	VCR	M	P	—	—

COMMENTS: CONGL

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

CC-57

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 23/82	R. BEBS	R0054	–

MAP	AERIAL PHOTO	SAMPLE(S)
92I/11	–	R0054P -SST

LONGITUDE E	LATITUDE N	ELEVATION
654900	5620550	3400'

GEOLOGY

UNIT 1	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
	CONGL	5Y8 4/2	10YR 5/4	<1m	LITH	VCU	M	P	–	–

COMMENTS:

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
	SST	10YR 4/2	10YR 5/4	1 m	LITH	fU	M	r	[illegible]	[illegible]

COMMENTS: 058°/20° SE

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

COAL DETAIL

CC-57

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 23/82	R BERG	R0055	-

MAP	AERIAL PHOTO	SAMPLE(S)
92I/11	-	R0055 R-7

~~LONGITUDE~~ E	~~LATITUDE~~ N	ELEVATION
635300	5620450	3400'

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	CONGL	5Y 6/1	5YR 4/1	<1m	LITH	[illegible]				[illegible]

COMMENTS: scoria clasts

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3	SST	N8-N6	N4-N7	~2?	volc	[illegible]	[illegible]	m	-	bedded

COMMENTS: clasts + debris? 048°/[illegible]

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

COAL DETAIL

731.8

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 13/82	R. BERG	R0043	—

MAP	AERIAL PHOTO	SAMPLE(S)
92I/6	-	R0043 - P$_{SST}$

LONGITUDE E	LATITUDE N	ELEVATION
557970	6179500	750m

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SED	10YR 5/4	10YR 3/4	1 m	SS	mV	SR	m	plan	—

COMMENTS: SOME PLANT FRAGS FOUND - COALY.

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

Monte

7685 82/05

RECONNAISSANCE OUTCROP DESCRIPTION FORM

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 24	BERBERS	R0056 a	-

MAP	AERIAL PHOTO	SAMPLE(S)
82L/NW	—	R0056 Paleo - SST

~~LONGITUDE~~ E	~~LATITUDE~~ N	ELEVATION
301306	5614600	675m.

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SST	5YR 5/4	5YR 5/4	1m	LATH	VAR			-	BEDDED

COMMENTS: 3 SST & VC SST - FLOAT [illegible]

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	BEDDING MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

COAL DETAIL

MONTE N.L.

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/09

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
JUNE 24/82	R BERG	R0056 b	R3. F8 19 + 20
MAP	**AERIAL PHOTO**	**SAMPLE(S)**	
82 L/NW	—	R0056 b - CONGL MAT.	SST +
LONGITUDE	**LATITUDE**	**ELEVATION**	
W 298900	N 5601600	750m.	

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SST	10R 4/2	10R 3/4	2 m	LITH	M-F	a	M	-	SED - MINOR HOR.

COMMENTS: BAKED BY OVERLYING VOL CAP.

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION
2 COAL ZONE						

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 26	R Berg	R0058	-

MAP	AERIAL PHOTO	SAMPLE(S)
92I/15	-	R0058 - P sl/sst + sst

~~LONGITUDE~~ E	LATITUDE N	ELEVATION
665700	5525700	550 m

GEOLOGY

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	sst	[illegible]	[illegible]	c/m	g/3	F	-	-	-	[illegible]

COMMENTS: [illegible] sl/sst

[illegible]

40/25NW

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	BEDDING NO. TAKEN MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 26	R Berg	R0059	–

MAP	AERIAL PHOTO	SAMPLE(S)
92I/15	–	R0059

LONGITUDE E	LATITUDE N	ELEVATION
665300	5526 300	690 m

GEOLOGY

UNIT 1	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
		10YR 7/4		2m		F–VF	A	P	–	

COMMENTS: + CONGL 0°/40°W

UNIT 2 COAL ZONE	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL	DESCRIPTION

COMMENTS:

UNIT 3	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN RANGE	MEAN	FAULTS TYPE ORIENT DISP.

FOLDS TYPE ORIENT PLUNGE	JOINTS	INTRUSIVES TYPE RELATION

OUTCROP SKETCH

COAL DETAIL

RECONNAISSANCE OUTCROP DESCRIPTION FORM

7685 82/05

DATE	GEOLOGIST	OUTCROP	SLIDE/PHOTO
June 2nd	R Berg	R0002	

MAP (Canmore)	AERIAL PHOTO	SAMPLE(S)
92H/7		P0002 SST

LONGITUDE EASTING	LATITUDE NORTHING	ELEVATION
680500	5480900	790 m

GEOLOGY

matrix 69

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
1	SED	10YR 5/6	10YR 7/4	100m	CONG	CG	A	P	coal	X-bed slump

COMMENTS: LARGE % OF CONG - LENS OF CALCAREOUS CEMENT MORE RESISTANT BUT ON THE WHOLE IT IS MASSIVE - COALY STRINGERS

UNIT	LITH.	COLOR W	COLOR F	THICK COAL	THICK INTERVAL		DESCRIPTION
2 COAL ZONE							

COMMENTS:

ENVIRONMENT

073°/25° S

UNIT	LITH.	COLOR W	COLOR F	THICK	COMP.	GRAIN SIZE	R	S	FOS	SED. FEATURES
3										

COMMENTS:

STRUCTURAL GEOLOGY	BEDDING NO. TAKEN		FAULTS
	RANGE	MEAN	TYPE ORIENT DISP.

FOLDS			JOINTS	INTRUSIVES	
TYPE	ORIENT	PLUNGE		TYPE	RELATION

OUTCROP SKETCH

COAL DETAIL