ARCHER, CATHRO
& ASSOCIATES (1981) LIMITED
CONSULTING GEOLOGICAL ENGINEERS

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1993 FINAL REPORT

on the

DIVISION MOUNTAIN COAL PROPERTY

SOUTHERN YUKON

for

CASH RESOURCES LTD.

W.A. Wengzynowski, B.A.Sc. R.C. Carne, M.Sc., P.Geo.

JANUARY 1994

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SUMMARY AND RECOMMENDATIONS

The Division Mountain coal deposit is located 90 km north-northwest of Whitehorse, Yukon Territory. The Whitehorse-Aishihik-Faro electrical transmission line lies 20 km east of the area, alongside the Klondike Highway. Access is by a 31 km unmaintained road which leaves the highway at Braeburn Lodge. Territorial coal licenses encompassing the exploration area were obtained in April 1990 for W4 Joint Venture and later acquired by Cash Resources Ltd. Exploration to date, specifically by Cash Resources Ltd., has been directed toward determining reserves sufficient to feed a ten to twenty megawatt thermal electrical generation plant. Diamond drilling completed in the 1993 field season defined three potentially economic coal horizons with an aggregate true thickness of 11.4 m over a strike length of 1200 m. Results of coal quality analyses suggest Division Mountain coal is ideally suited for electrical power generation with characteristics comparable to Alberta high volatile bituminous coals used for that purpose. Calculated averages for Division Mountain samples are 2.86% residual moisture, 26.99% ash content, 25.05% volatile matter, 0.47% sulphur content and a calorific value of 5,391 cal/g (9,645 Btu/lb). Preliminary open pittable coal reserves totalling 2,566,370 tonnes have been calculated within an estimated total reserve of 11,139,920 tonnes.

Results of preliminary field mapping and prospecting carried out in 1993 suggest that the coal measures probably continue along strike to the southeast and northwest of the reserve block for a distance of at least 15 km. Exploration in 1994 will be directed toward increasing reserves in these areas and should consist of a detailed mapping and prospecting phase, followed by a fifteen to twenty hole diamond drill program. In addition, the entire area under license to Cash Resources Ltd. should be mapped and prospected at a regional scale to define other such targets for detailed exploration. A proposed budget for this work is given on the following page.

Proposed 1994 Budget
Division Mountain Coal Project
Phase 1 - Prospecting and Mapping

This budget assumes approximately six weeks of field work commencing in early June 1994.

Helicopter - 44 hrs @ $750/hr	$33,000
Labour	19,700
Environmental Surveys	12,000
Room and Board - 80 days @ $85/day	6,800
Truck rental/fuel, etc - 40 days @ $100/day	4,000
Office costs	3,000
Crew travel	1,500
Management	4,000
	$84,000
Plus 7% GST	5,880
	$89,880

Phase 2 - Diamond Drilling

This budget assumes approximately six weeks of drilling starting July 15 and ending August 31, 1994. It includes the cost of preparing a final report and filing assessment.

Diamond drilling - 1220 m @ $114/m	$140,000
Labour	70,000
Room and Board - 450 days @ $85/day	38,000
Bulldozer - 100 hrs @ $110/hr (including fuel)	11,000
Coal analyses	13,000
Truck rental, freight	7,000
Office costs	5,000
Crew travel	3,000
Management	13,000
	$300,000
Plus 7% GST	21,000
	$321,000

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

W.A. Wengzynowski, B.A.Sc.

R.C. Carne, M.Sc., P.Geo.

INTRODUCTION

The Division Mountain coal property is held under Territorial Coal Licenses obtained by W4 Joint Venture in April 1990 and acquired by Cash Resources Ltd. in August 1992. Cash Resources acquired three additional licenses in December 1993. The licenses cover Lower Jurassic Laberge Group coal-bearing stratigraphy which includes the Cairnes coal showing and the Red Ridge coal occurrence.

The 1993 field program described in this report was funded by Cash Resources Ltd. and managed by Archer, Cathro & Associates (1981) Limited. All work was supervised by the authors. Statements of Qualifications are listed in Appendix I. Field personnel hired by Archer Cathro and dates worked are documented in Appendix II. Work included 16.5 km of linecutting, VLF-EM, EM-31 and total magnetic geophysical surveys, hydrological surveys and diamond drilling in the vicinity of the Cairnes coal showing. A list of contractors and dates worked is outlined in Appendix III.

The 1993 campsite was located approximately 200 m southeast of the Nordenskiold River. Six canvas wall tents were utilized for sleeping, kitchen, office and washing facilities. Water for the kitchen and shower tents was supplied from the Nordenskiold River. Bottled water was bought in Whitehorse for drinking and cooking as Giardia contamination is present in this area.

All lumber and accessories, specifically tent floors and rafters (where upstart kits were not used), were stored intact at the campsite.

PROPERTY, LOCATION AND ACCESS

Division Mountain is located 90 km north-northwest of Whitehorse, Yukon Territory (Figure 1). Access is by 85 km of paved highway from Whitehorse to Braeburn Lodge and a 31 km four-wheel drive road from Braeburn to the main area of exploration interest. The property consists of seven contiguous Territorial Coal Licenses (Y441, Y442, Y452, Y453, Y457, Y458, Y459) registered with the Whitehorse Mining Recorder (Figure 2).

Partial upgrading of the access road from Braeburn Lodge to the Division Mountain property was contracted to Champagne Aishihik Enterprises Ltd. of Haines Junction, Y.T. Filling of wet sections with locally quarried gravel was carried out from June 26 to 29 utilizing a Caterpillar 950 rubber-tired loader and a Caterpillar D7E bulldozer. Supervisor and crew stayed at Braeburn Lodge. Continued use of the access road by Archer Cathro and others throughout the field season reduced the road to poor driving conditions. Sections upgraded and those still in need of upgrading are listed with photos in Appendix IV. Rerouting of the access road, as illustrated in Figure 2, is recommended as it would alleviate encroachment of Braeburn Lake lots and provide a more direct access route to the property.

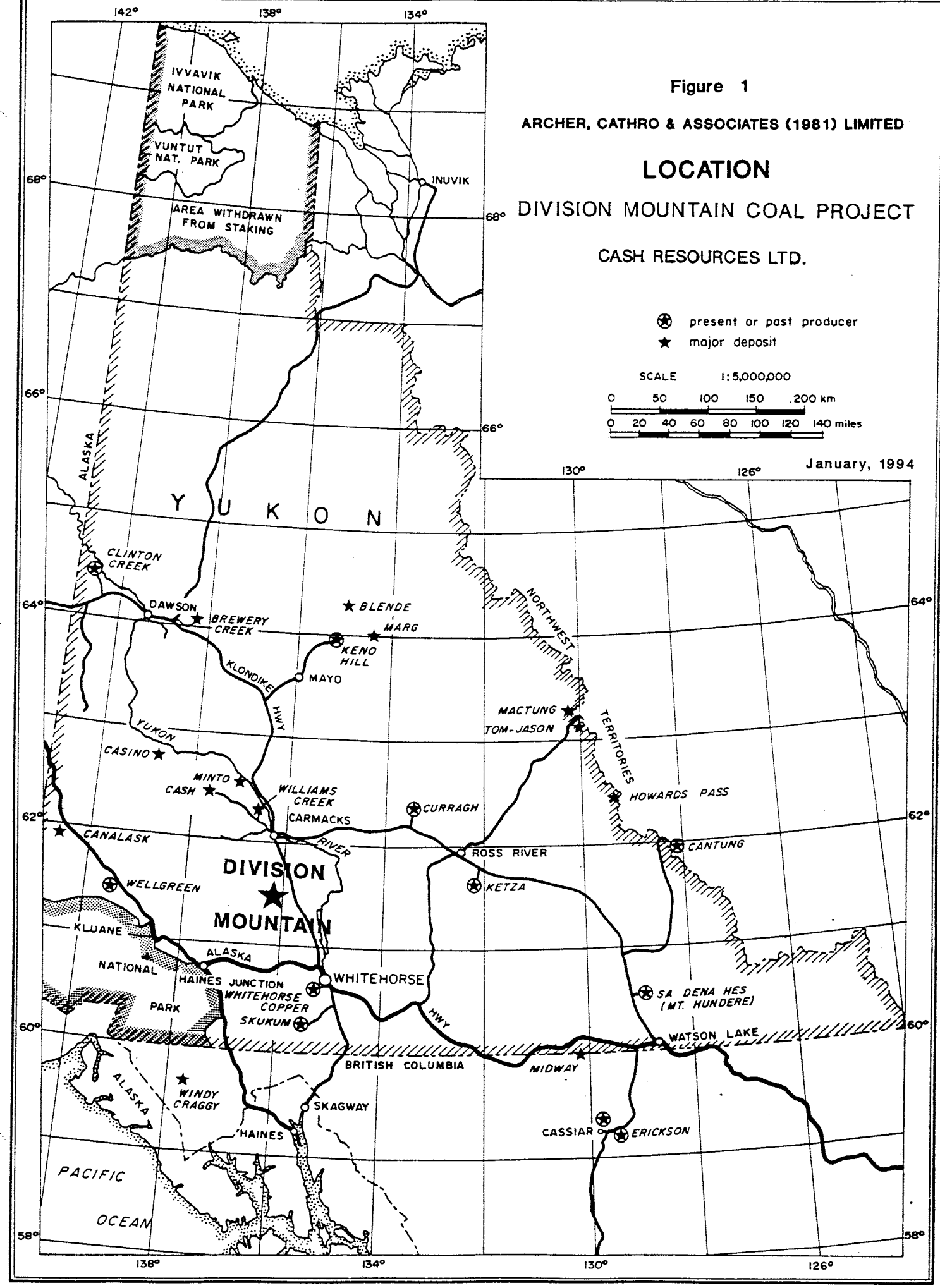


Figure 1

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

LOCATION

DIVISION MOUNTAIN COAL PROJECT

CASH RESOURCES LTD.

present or past producer

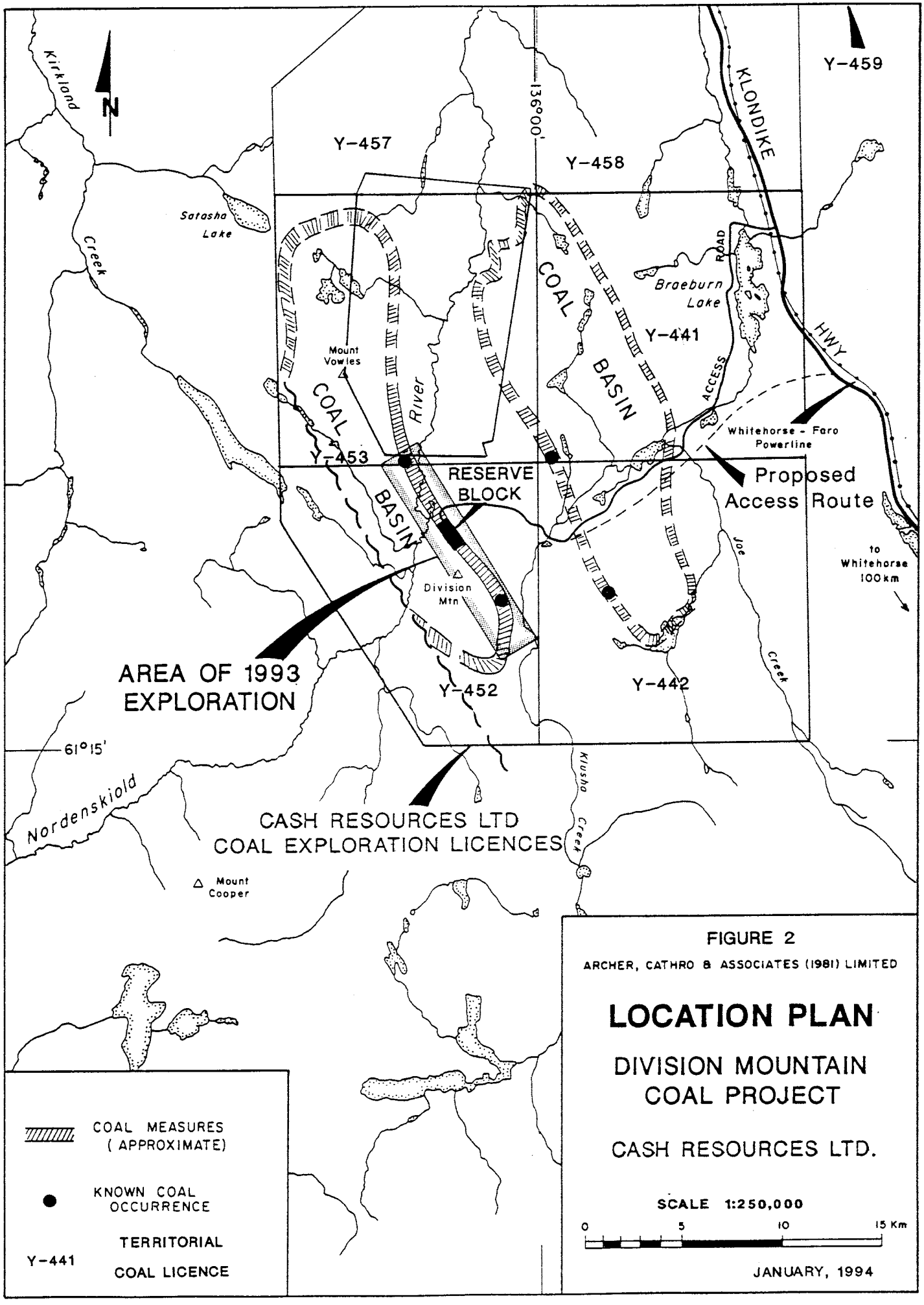
major deposit

SCALE 1:5,000,000

0 50 100 150 200 km

0 20 40 60 80 100 120 140 miles

January, 1994


N
Kirkland
Creek
Satasha Lake
Y-457
Y-458
Y-459
136°00'
KLONDIKE
HWY
ROAD
ACCESS
Broeburn Lake
Y-441
COAL BASIN
Mount Vowles
COAL
Y-453
BASIN
River
RESERVE BLOCK
Division Mtn
Whitehorse - Faro Powerline
Proposed Access Route
to Whitehorse 100km
Joe Creek
AREA OF 1993 EXPLORATION
Y-452
Y-442
61°15'
Nordenskiold
Kiusha Creek
CASH RESOURCES LTD
COAL EXPLORATION LICENCES
Mount Cooper
COAL MEASURES (APPROXIMATE)
KNOWN COAL OCCURRENCE
Y-441
TERRITORIAL COAL LICENCE
FIGURE 2
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
LOCATION PLAN
DIVISION MOUNTAIN COAL PROJECT
CASH RESOURCES LTD.
SCALE 1:250,000
0
5
10
15 Km
JANUARY, 1994

HISTORY AND PREVIOUS WORK

In 1907 D.D. Cairnes of the Geological Survey of Canada mapped and sampled three coal seams which outcrop in the Teslin Creek cut, 2 km north of Division Mountain. An additional coal occurrence was located by Cairnes near the base of the eastern flank of Red Ridge, approximately 5 km northwest of the Teslin Creek showings.

In 1970 Arjay Kirker Resources Ltd. excavated seven pits in the vicinity of the Cairnes coal outcrop with a D6 tractor. A total of eight seams were exposed ranging in thickness from 0.6 to 4.4 m wide. One 11 kg sample was taken from each of the three benches comprising the Cairnes coal seam and sent to Loring Laboratories Ltd. of Calgary, Alberta for proximate analyses. The coal was classified as low sulphur, high volatile bituminous, a rank suitable for thermal power generation. Reconnaissance mapping was also performed to the north and west of the Division Mountain coal showing to find the extent of the coal measures within the adjoining coal licenses.

Further exploration by Arjay Kirker in 1972 included a diamond drill program totalling 1047 m in six holes (Figure 3). Core was transported to Whitehorse, Y.T. where it was logged and sampled by Archer Cathro geologist M.P. Phillips. Drill logs are listed in Appendix V. Whole core samples were sent to Birtley Engineering Ltd. of Calgary, Alberta for proximate analyses, the results of which are listed in Table 1. A coal reserve totalling 2.54 million tonnes was outlined based on drill intersections DDH-72-1 and DDH-72-6.

Four bulldozer trenches were excavated along the southwest flank of Red Ridge to test the coal measures on the western limb of the syncline. Overburden cover in this area is extensive and none of the trenches exposed bedrock.

In 1992 minor excavator trenching was performed on the south side of Teslin Creek along strike of the Cairnes coal showing by the W4 Joint Venture. No bedrock exposures were attained.

TABLE 1
DIVISION COAL
1972 COAL QUALITY ANALYSES (AIR DRIED)

INTERSECTION	RESIDUAL MOISTURE (%)	ASH (%)	VOLATILE MATTER (%)	FIXED CARBON (%)	SULPHUR (%)	C.U. (DRY) Cal/g	C.U. (DRY) BTU/lb (Cal/g/.56)	C.U. (DAF) Cal/g	C.U. (DAF) BTU/lb
72-01 A	1.2	29.6	21.6	47.6	0.30	5092	9092		
B	1.3	22.9	16.7	59.1	0.46	6082	10860		
C	2.2	26.7	24.8	46.3	0.42	5620	10036		
D	2.2	18.6	24.9	54.3	0.42	6450	11517		
E	2.3	22.3	18.2	57.2	0.62	6185	11045		
F	2.5	51.4	12.6	33.5	0.42	3374	6025		
G	2.0	31.1	14.2	52.7	0.74	5580	9965		
H	2.3	31.6	10.8	55.3	0.68	5454	9739		
I	1.5	21.4	26.3	50.8	0.29	6180	11035		
J	1.7	26.9	30.4	41.0	0.74	5419	9677		
72-06 2429	2.0	33.6	20.7	43.7	0.57	4876	8708		
2430	7.1	27.2	15.0	50.7	0.40	5416	9672		
2431	1.3	36.9	16.6	45.2	0.51	4731	8449		
2432	2.1	27.6	25.5	44.8	0.48	5480	9786		
2433	1.2	31.1	17.8	49.9	0.40	5405	9651		
2434	1.3	35.0	20.5	43.2	0.37	4923	8791		
2435	2.3	35.0	23.2	39.5	0.38	4775	8527		
2436	2.3	34.6	22.7	40.4	0.48	4734	8454		
2437	1.9	45.8	22.2	30.1	0.36	3673	6559		
72-04 2438	0.6	41.3	14.1	44.0	0.56	4169	7445		

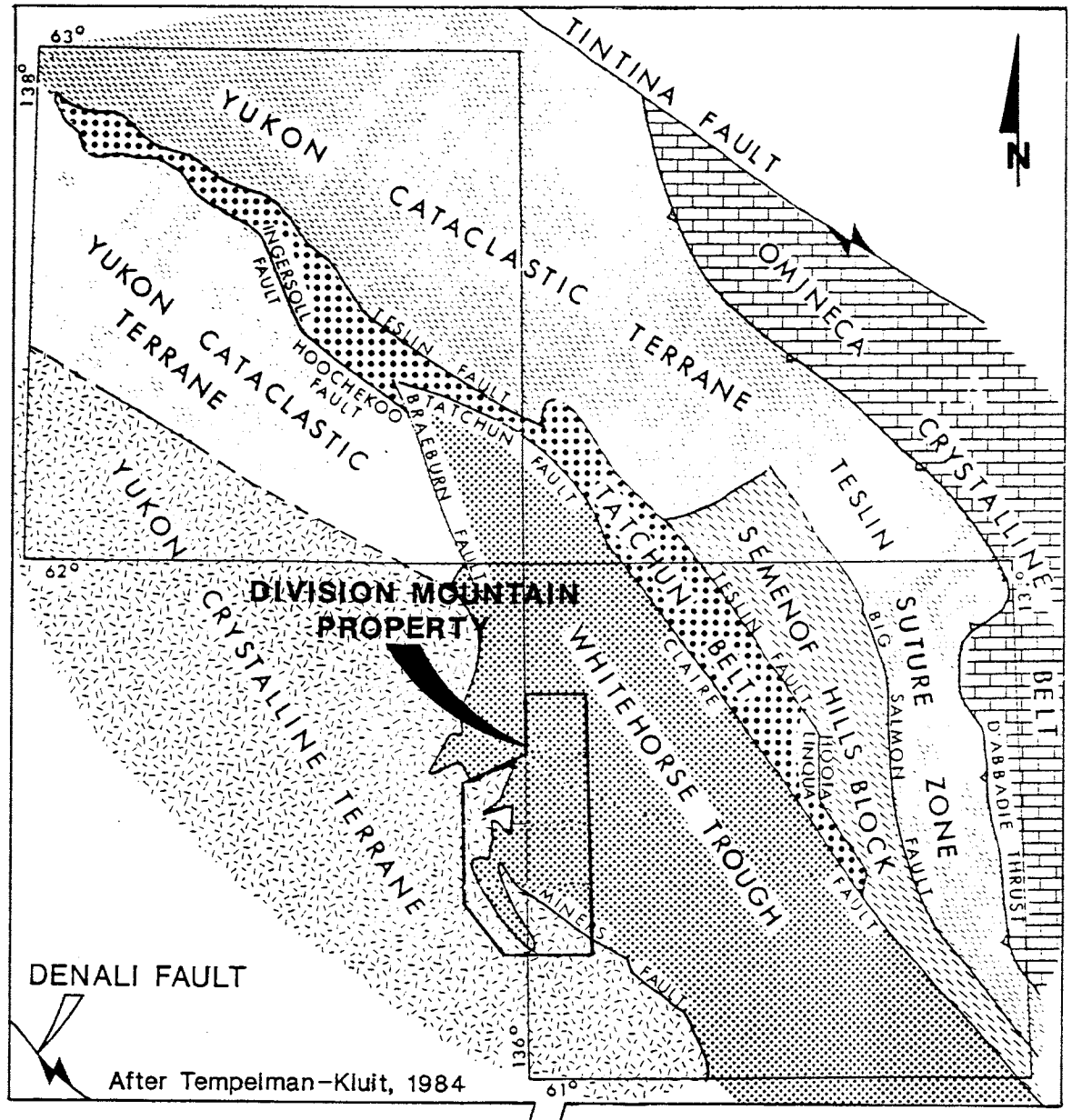
GEOMORPHOLOGY

Topography within the Territorial Coal Licenses is characterized by rolling hills and broad river valleys with local regions of moderate to steep relief. Elevations range between 1676 and 670 m. Most of the area is covered by glacial till and outwash up to 60 m thick. Glacial material is overlain by a veneer of volcanic ash. Much of the vegetation in this area is restricted to small poplar trees, moss and alpine grass growing amongst windfall and burn stand which resulted from the Braeburn fire in the 1960's, although some regions of large (>30 cm) diameter spruce exist to the southeast of the Cairnes Showing. Permafrost is localized to areas of moderate to dense vegetation generally on north-facing slopes. One such area was encountered during drill access road construction and was found to be impassable once uncovered and left to thaw.

TECTONIC SETTING AND REGIONAL GEOLOGY

The Division Mountain coal prospect lies within the north-central Cordilleran Intermontane Belt bounded to the northeast by the Tintina Trench and to the southwest by the Denali Fault (Figure 4). Coal licenses encompass the Yukon Crystalline Terrane to the southwest and Whitehorse Trough in the northeast. These two terranes are juxtaposed by the Braeburn Fault to the north and Miners Fault to the south. The Miners Fault transects licenses Y-442 and Y-452 as illustrated in Figure 4.

The Whitehorse Trough formed as a back arc basin behind the Lewes River volcanic arc system and the northeasterly accreting Yukon Crystalline Terrane (Tempelman-Kluit, 1978). The Yukon Crystalline Terrane comprises Paleozoic igneous and sedimentary rocks as well as their metamorphosed equivalents. These rocks are overlain and intruded by Jurassic to Cretaceous volcanic and igneous rocks. The Whitehorse Trough comprises Triassic to Lower Cretaceous non-marine clastics. Both terranes are overlain and intruded by Upper Cretaceous volcanic rocks.



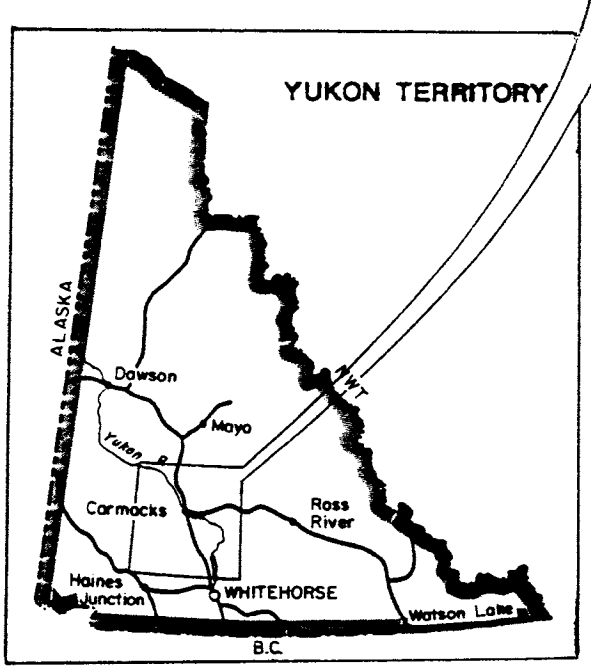


Figure 4

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

TECTONIC SETTING AND REGIONAL GEOLOGY

DIVISION MOUNTAIN COAL PROJECT

CASH RESOURCES LTD.

January, 1994

PROPERTY GEOLOGY

Property mapping and prospecting were carried out by W. Wengzynowski and a field assistant from September 4 to 8 and 11, 1993. The main objective was to delimit the boundaries of the coal measures within these licenses. A compilation of the property geology from the GSC (1973 and 1984), Arjay Kirker Resources Ltd. (1972) and the present program is illustrated in Figures 5, 6, 7 and 8.

STRATIGRAPHY

Stratigraphy of Whitehorse Trough is summarized below.

Lewes River Group (TRC) comprises the oldest stratigraphy within the Whitehorse Trough, consisting primarily of Upper Triassic to Jurassic volcaniclastic conglomerates at the base which are overlain by alternating lenses of greywacke and limestone near the upper contract. This unit outcrops in the north-central section of license Y-442 and is believed to exceed 610 m in thickness.

Laberge Group (JR, JN, JL) rocks disconformably overlay the Lewes River Group strata. This sequence consists of up to 3000 m of silty shales, granite clast conglomerates, arenites and arkose/sandstones of Lower to Mid-Jurassic age. The upper sequence (JL) comprises the favourable coal-bearing stratigraphy and is dominantly exposed in the central and northwestern portion of the property.

Tantalus Formation (LKT) disconformably overlies Laberge Group strata and comprises up to 610 m of Jurassic to Cretaceous/thick-bedded, chert pebble conglomerate. Tantalus stratigraphy outcrops as resistant ridges mainly in the central and southwest sections of the property.

Carmacks Group (UKCa) Upper Cretaceous porphyritic hornblende basalt and andesite flows, sills and dykes unconformably overlie and intrude most stratigraphically older rocks.

STRUCTURE

Deformation in the Whitehorse Trough occurred primarily as flexural slip folding in the Mid-Cretaceous (Tempelman-Kluit, 1973). Synclinal and anticlinal axes trend north-northwest parallel to the axis of the Whitehorse Trough. Folds, in general, are tight asymmetric folds with a weak to moderate component of westward vergence. Limbs dip in the range of 45° to 80°. Large scale faults trend semi-parallel to synclinal and anticlinal axes. The magnitude of strike-slip and dip-slip components is unknown.

GEOLOGY OF THE DIVISION MOUNTAIN AREA

Coal-bearing Lower to Middle Jurassic Laberge Group strata consists dominantly of interbedded fine- to coarse-grained arkose/sandstone, with lesser black to maroon, thin-bedded to massive shales and minor quartz pebble conglomeratic arkose. Laberge Group rocks are disconformably overlain by resistant Lower Cretaceous Tantalus Formation chert pebble/cobble conglomerates. Tantalus Formation is moderately to strongly resistant, forming steep-sided ridges. Tantalus and Laberge strata are folded, forming an isoclinal syncline with steeply-dipping limbs. The fold axis bisects Division Mountain and Red Ridge, as illustrated in Figure 9. The average strike and dip of these rocks are 132° and 65° SW, respectively.

Syn-fold cross faulting and thrust faulting evident from airphotos and geologic cross sections are moderately spaced (as close as 200 m) but appear to have minor vertical and lateral displacement.

Upper Cretaceous Carmacks Group volcanics unconformably overlie and intrude the folded sedimentary rocks forming thin flows, dykes and sills. Basaltic to andesitic flows are brown weathering, columnar jointed and vesicular to massive. Sills intruding the coal measures are commonly pale to dark green, hornblende chlorite feldspar porphyry andesites.

Four hand pits were dug on the northern side of the Teslin Creek canyon testing the orientation of several narrow coal seams within the stratigraphy of a suspected large scale slump block. The strike and dip of coal exposed in the hand pits averaged 047° and 40°NW, respectively. The approximate boundaries of the slump block are outlined in Figure 10.

Soil augering was successful only where coal horizons were exposed at surface or covered by thin veneers of glacial sand or organic matter. Most attempts to auger in old trenches were hampered by the presence of boulders and/or cobbles.

COAL MEASURE STRATIGRAPHY

Stratigraphy within the coal measures comprises three distinctive lithologic units. Hanging wall and footwall rocks in the vicinity of the coal seams consist of interbedded arkose/sandstones with lesser shales and hornblende chlorite feldspar andesite sills.

ARKOSE/SANDSTONE

This unit consists mostly of thin- to-thick bedded, fine- to coarse-grained, weakly to moderately calcareous arkose. Sandstones are commonly fine to medium grained and weakly to moderately conglomeratic. These rocks are white to pale grey, to tan and grey-black where carbonaceous. Footwall arkose/sandstones often contain less coal and shale fragments than hanging wall rocks. The most common variation of this unit is characterized by argillaceous content in the form of thin laminations, in which case the unit is described as an argillaceous arkose/ sandstone.

SHALE

Shales are commonly brown to maroon, fissile to massive and form recessive bands ranging from 0.05 to 3.0 m thick. Cross bedding and small scale slump features occur in moderate amounts and tend to be associated with arenaceous content. The abundance of coal fragments within this unit is variable, ranging from 10% to <1%.

HORNBLENDE CHLORITE FELDSPAR ANDESITE

This unit occurs mainly as sills and lesser dykes within the sedimentary rocks. Textures range from aphanitic to porphyritic with carbonate filled vesicles, decussate feldspar, chlorite and hornblende phenocrysts and minor disseminated pyrite. Calcite veins, veinlets and stringers are common. Sills vary in colour from pale green-grey to dark green, often with bleached chilled margins.

1993 DRILL PROGRAM

Approximately 4 km of drill site access roads were cleared by Champagne Aishihik Enterprises Ltd. of Haines Junction, Y.T. from July 19 to 23. A total of 16 drill pads was constructed with a D7E bulldozer, ten of which have not yet been used. Two cross lines, totalling 950 m in length, were cleared to widths of 5 m for purposes of fence drilling at some future date. All trees uprooted and left leaning from bulldozer clearing were cut into lengths and later compacted by the bulldozer.

All physical work on the property was performed under the provisions of a Territorial Land Use Permit. Inspections were carried out by land use officers on a regular basis and no outstanding deficiencies remain from the 1993 program.

DIAMOND DRILLING

A total of 1810.5 m of diamond drilling was completed in 16 holes (Figure 3). Drilling was contracted to E. Caron Diamond Drilling Ltd. of Whitehorse, Y.T. utilizing a Longyear 38 wireline-equipped drill and a D7E bulldozer. Bulldozer support was required for drill pad and sump construction as well as drill moves. Most holes were drilled with HQ size rods with the exception of Holes 11 and 22 which were reduced to NQ due to poor ground conditions.

Diamond drilling was completed in two phases from July 24 to August 21 and September 21 to October 3.

	Phase 1	Phase 2
Number of holes	11	5
Total length	1140.85 m	669.64 m
Number of shifts	56	32
Metres/shift	20.4	20.9

Drilling conditions were fair to good with an average advance of 20.65 m per shift (including drill moves and downtime for maintenance).

Diamond drill hole collars were surveyed by chain and compass from baseline hubs present from 1972 surveys by White, Hosford & Impey of Whitehorse, Y.T. Surface inclinations were set with a Brunton compass. Final inclinations were determined using acid tests at or near the bottom of each hole. All holes steepened with depth. The average amount of steepening was 5° ranging between 3° and 8° (Table 2). Two pump stations were used for drilling northwest and southeast of the Cairnes Seam outcrop. The first was located at the corduroy bridge over Teslin Creek and the other at a small tributary of Teslin Creek, approximately 650 m southeast along the access road.

Drill core was logged, photographed and sampled on site. Drill logs are documented in Appendix VI. All drill core from the 1993 program was stacked on pallets and left at the property.

TABLE 2
DIAMOND DRILL HOLE COORDINATES

Drill Hole	Northing (m)	Easting (m)	Final Depth (m)	Azimuth (°)	Surface Inclination(°)	Final Inclination(°)
DDH-72-1	14+422	9872	182.90	040	-50	---
DDH-72-2	14+223	10014	182.88	040	-50	---
DDH-72-3	14+648	9803	182.88	040	-50	---
DDH-72-4*	14+739	9665	24.99	040	-50	---
DDH-72-5	14+692	9585	306.32	040	-50	---
DDH-72-6	14+877	9908	167.03	040	-50	---
DDH-93-7	14+267	9927	97.84	040	-50	-55
DDH-93-8	14+572	9970	108.50	040	-50	-54
DDH-93-9*	15+182	9970	73.46	040	-50	---
DDH-93-10	14+267	9895	158.80	040	-62.5	-66
DDH-93-11	14+572	9910	92.66	040	-50	-55
DDH-93-12	13+962	9852	169.16	040	-50	-57
DDH-93-13	13+962	9932	74.37	040	-50	-54
DDH-93-14	13+658	9894	148.13	035	-57.5	-62
DDH-93-15	14+060	9887	82.60	034	-50	-54
DDH-93-16	14+747	9942	86.56	040	-50	-54
DDH-93-17	14+745	9972	48.77	046	-50	-53
DDH-93-18	14+745	9855	170.38	040	-50	-56
DDH-93-19	14+404	9968	84.12	040	-50	-54
DDH-93-20	14+572	9962	166.12	038	-50	-58
DDH-93-21	14+660	9764	61.87	154	-75	-78
DDH-93-22	14+087	9816	187.15	040	-60	-65

*Abandoned Hole

COAL

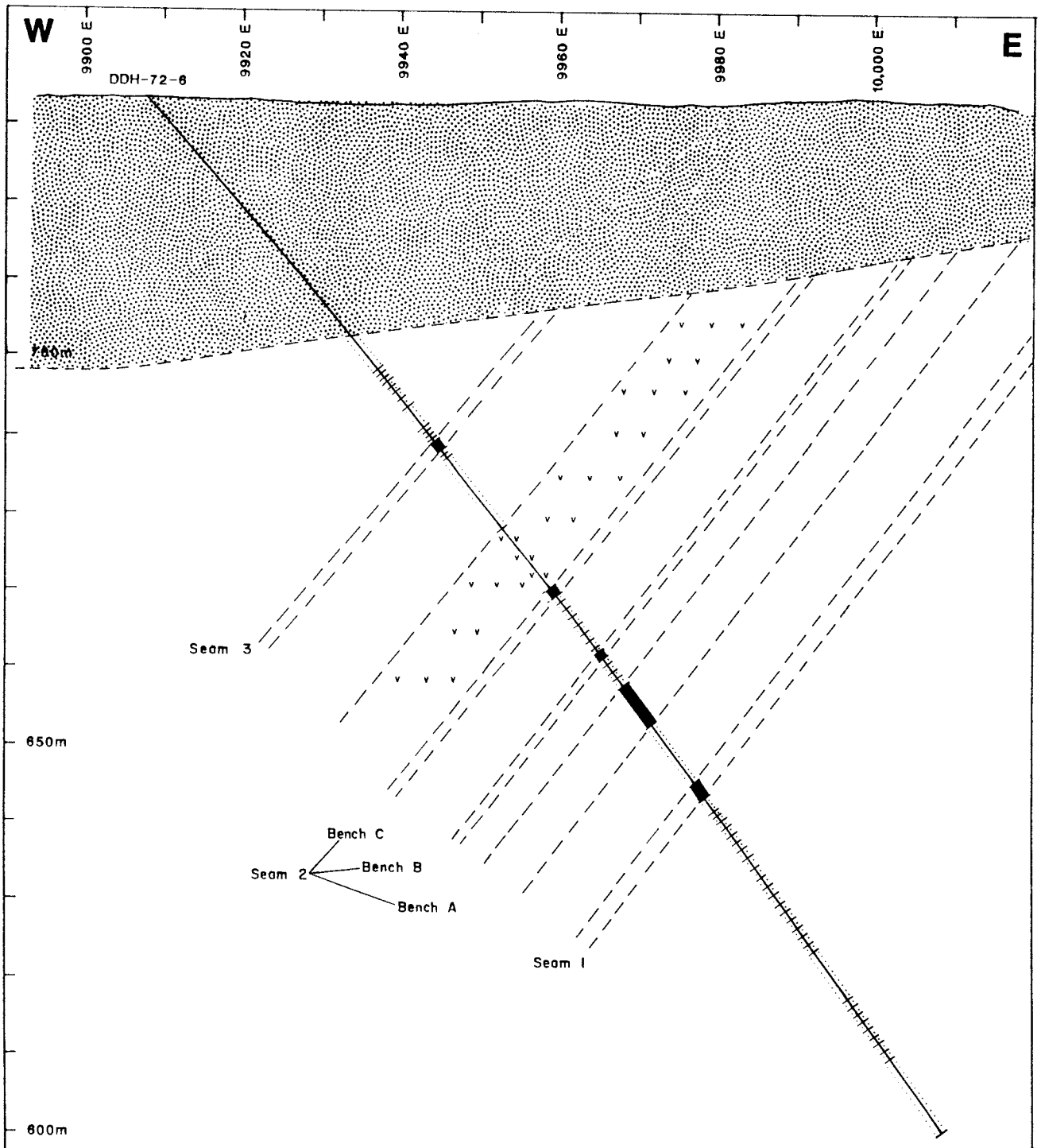
The Division Mountain coal measures contain three relatively continuous seams termed, from bottom to top, Seam 1, Seam 2 and Seam 3. At least twenty-five additional seams greater than 0.5 m thick were intersected by a few widely spaced drill holes in the hanging wall stratigraphy in 1972 by Arjay Kirker Resources Ltd. Strikes and dips of individual seams range between 130° to 142° and 50° to 73° southwest, respectively. Diamond drilling in the 1993 field season defined the three coal seams for a strike length of up to 1200 m with an average composite true thickness of 11.4 m. Cross sections through the deposit defined by the drilling are given on Figures 11 to 19. Drill hole coordinates are tabulated in Table 2.

Coal seams are generally vitreous black to dull black in colour, fissile to massive bedded and brittle. Fissility varies with argillaceous content. Sections of coal with moderate to high amounts of argillaceous matter are also more susceptible to shearing. Pyrite content is moderate to low and occurs as flakes or plates along bedding/shear planes. Narrow (0.5 to 3 cm) concentrated bands of fibrous calcite also occur in moderate to low proportions within the coal horizons.

Competency of the coal intersections is variable but, for the most part, can be rated as high. Intervals strongly gouged and sheared are those with high argillaceous content or in close proximity to faults or sills.

Seam 3 is stratigraphically the youngest of the three potentially economic seams encountered. It consists of one bench with an average true thickness of 1.3 m and ranges from 0.8 to 1.8 m thick.

Seam 2, referred to as the Cairnes Seam in previous reports, is located about 40 m stratigraphically below Seam 3 and consists of one to three benches separated by narrow argillaceous arkose/sandstone partings. The average composite true width of Seam 2 benches is 8.7 m. Seam thicknesses are most variable within Seam 2, as illustrated in Table 3.



OVERBURDEN

COAL

ANDESITE

ARKOSE/SANDSTONE

SHALE

ARGILLACEOUS ARKOSE

FIGURE 11

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

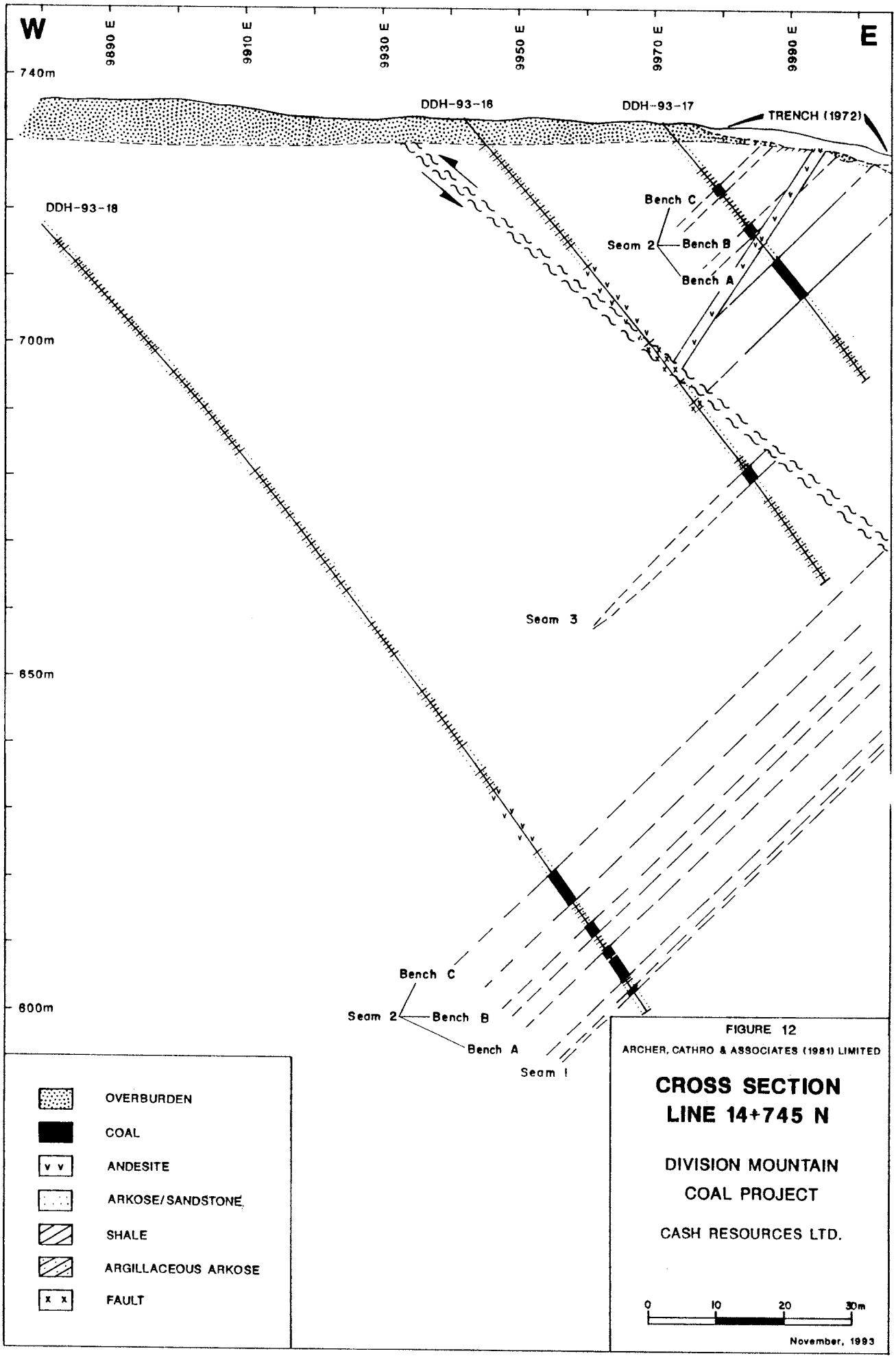
CROSS SECTION LINE 14+877 N

DIVISION MOUNTAIN COAL PROJECT

CASH RESOURCES LTD.

0 10 20 30m

November, 1993


W
E
9890 E
9910 E
9930 E
9950 E
9970 E
9990 E
740m
700m
650m
600m
DDH-93-16
DDH-93-17
TRENCH (1972)
DDH-93-18
Bench C
Seam 2
Bench B
Bench A
Seam 3
Bench C
Seam 2
Bench B
Bench A
Seam 1
OVERBURDEN
COAL
ANDESITE
ARKOSE/SANDSTONE
SHALE
ARGILLACEOUS ARKOSE
FAULT
FIGURE 12
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
CROSS SECTION
LINE 14+745 N
DIVISION MOUNTAIN
COAL PROJECT
CASH RESOURCES LTD.
0
10
20
30m
November, 1993

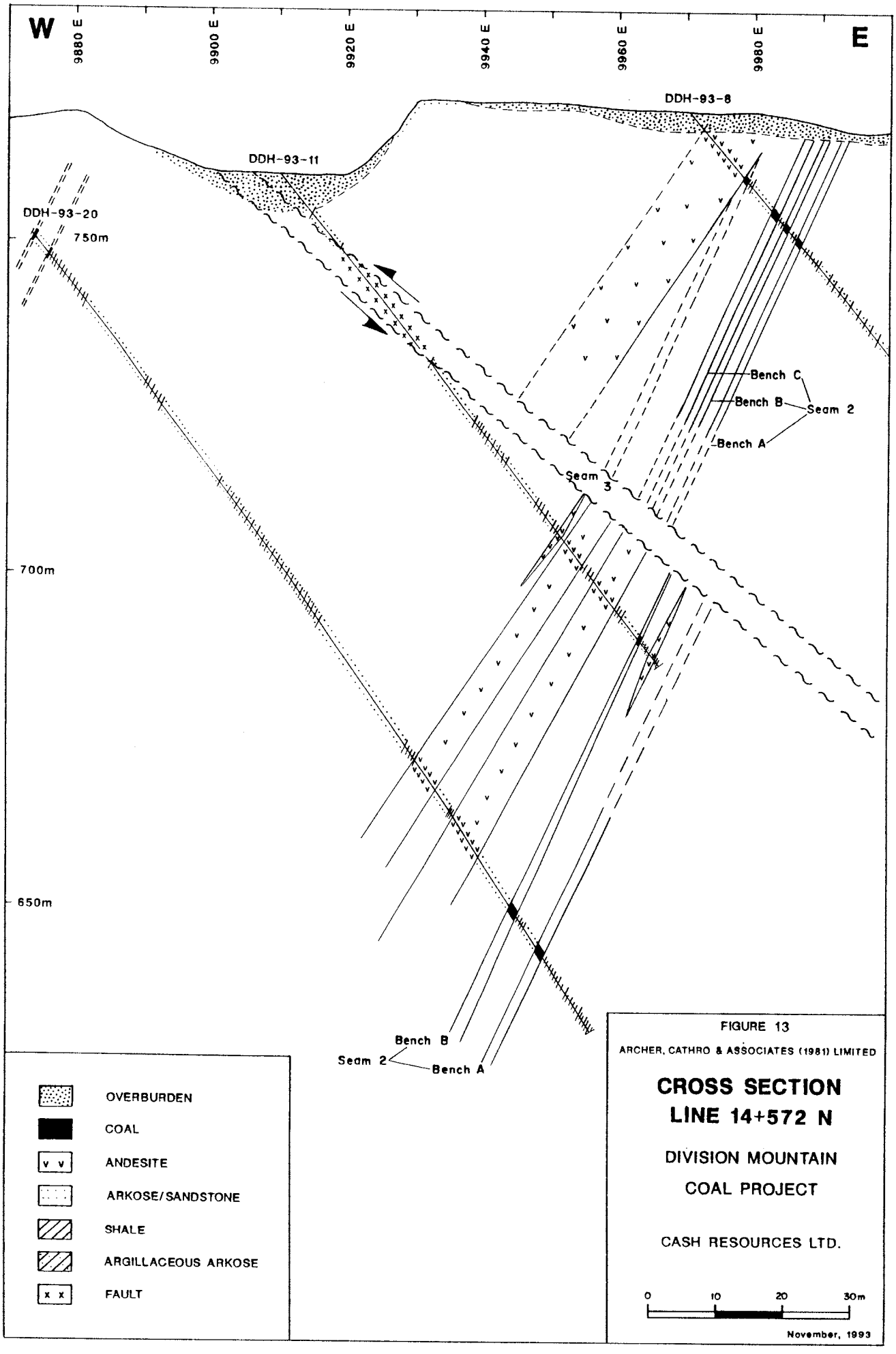


FIGURE 13

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

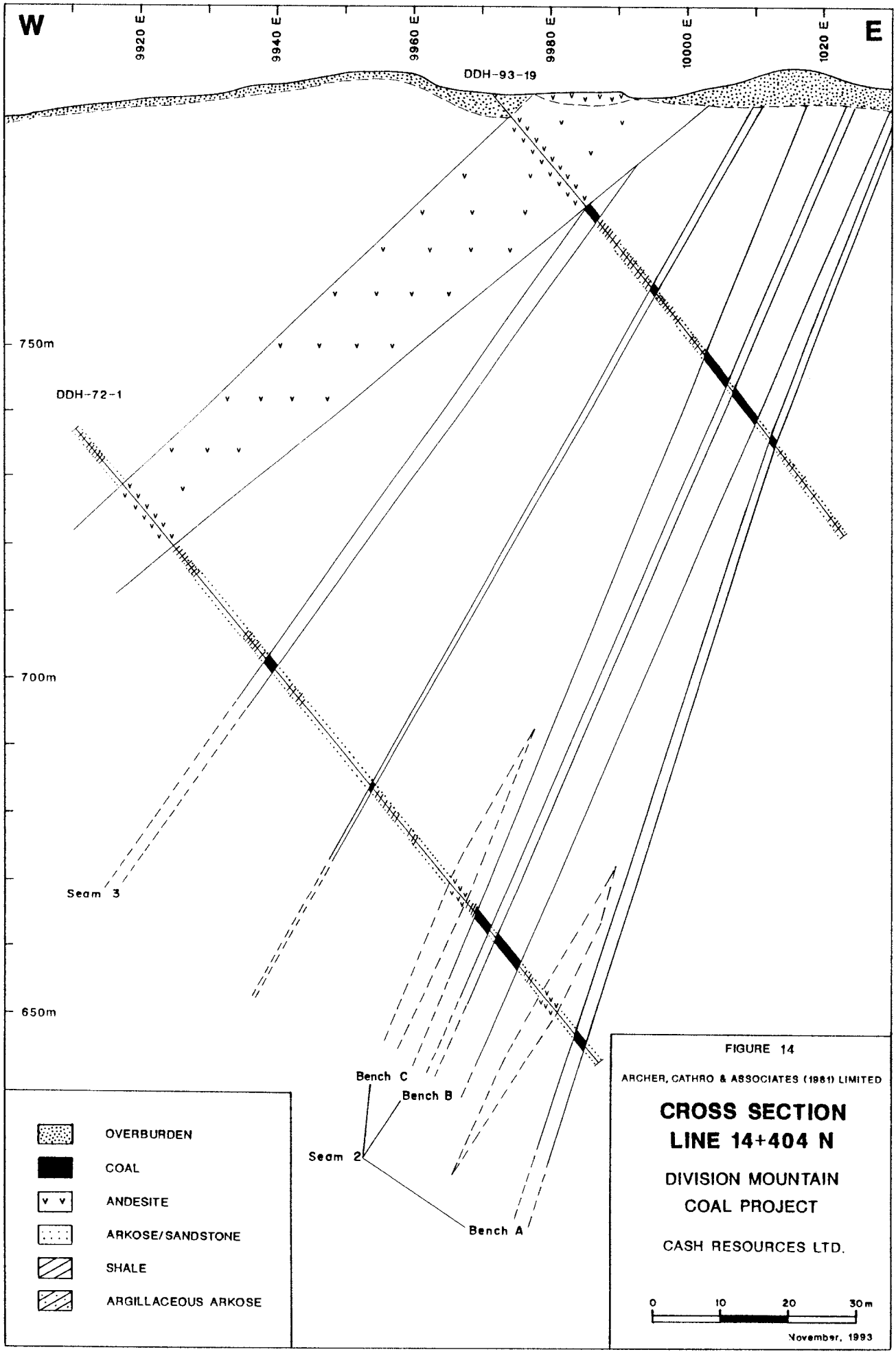
CROSS SECTION LINE 14+572 N

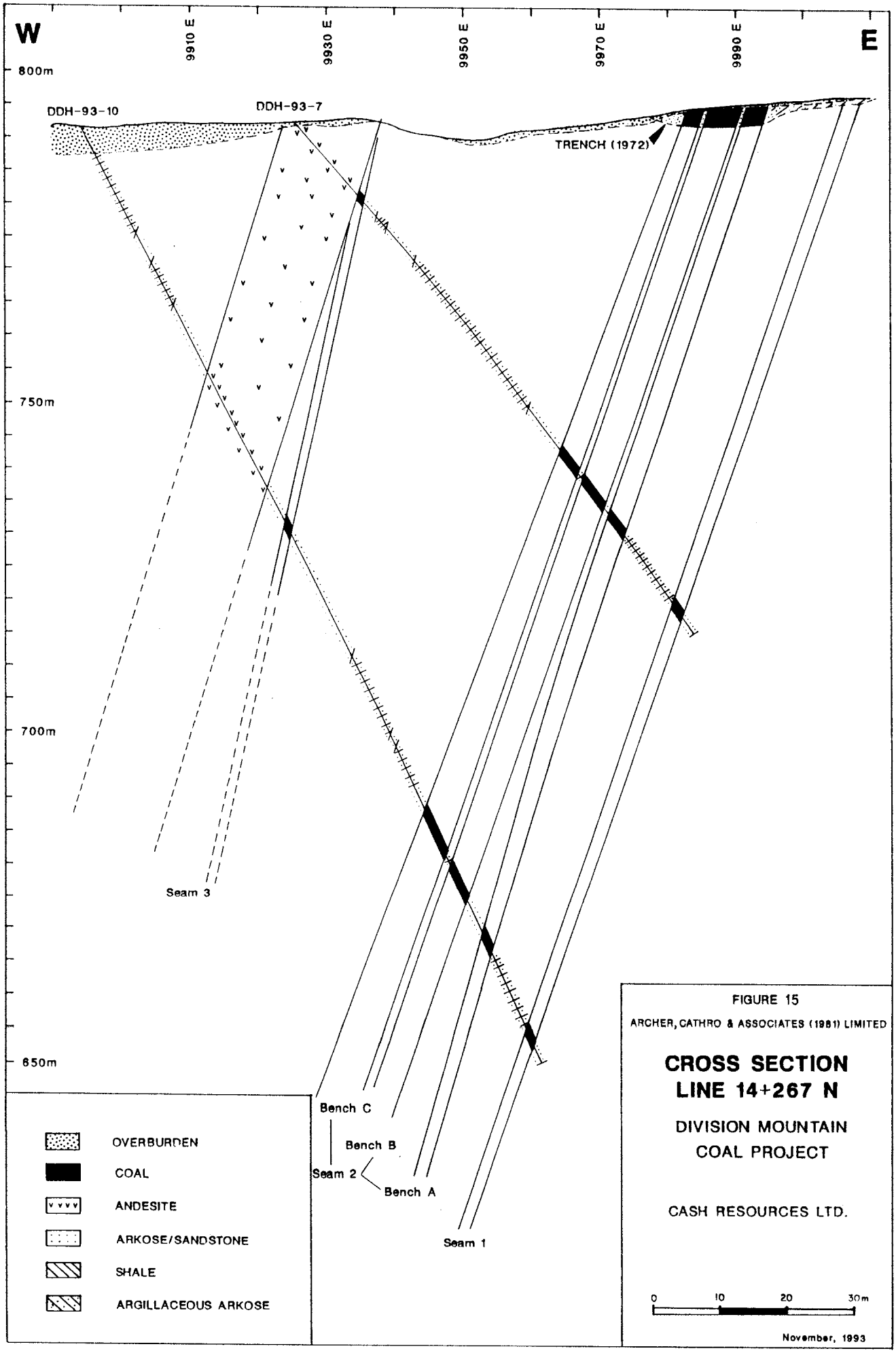
DIVISION MOUNTAIN COAL PROJECT

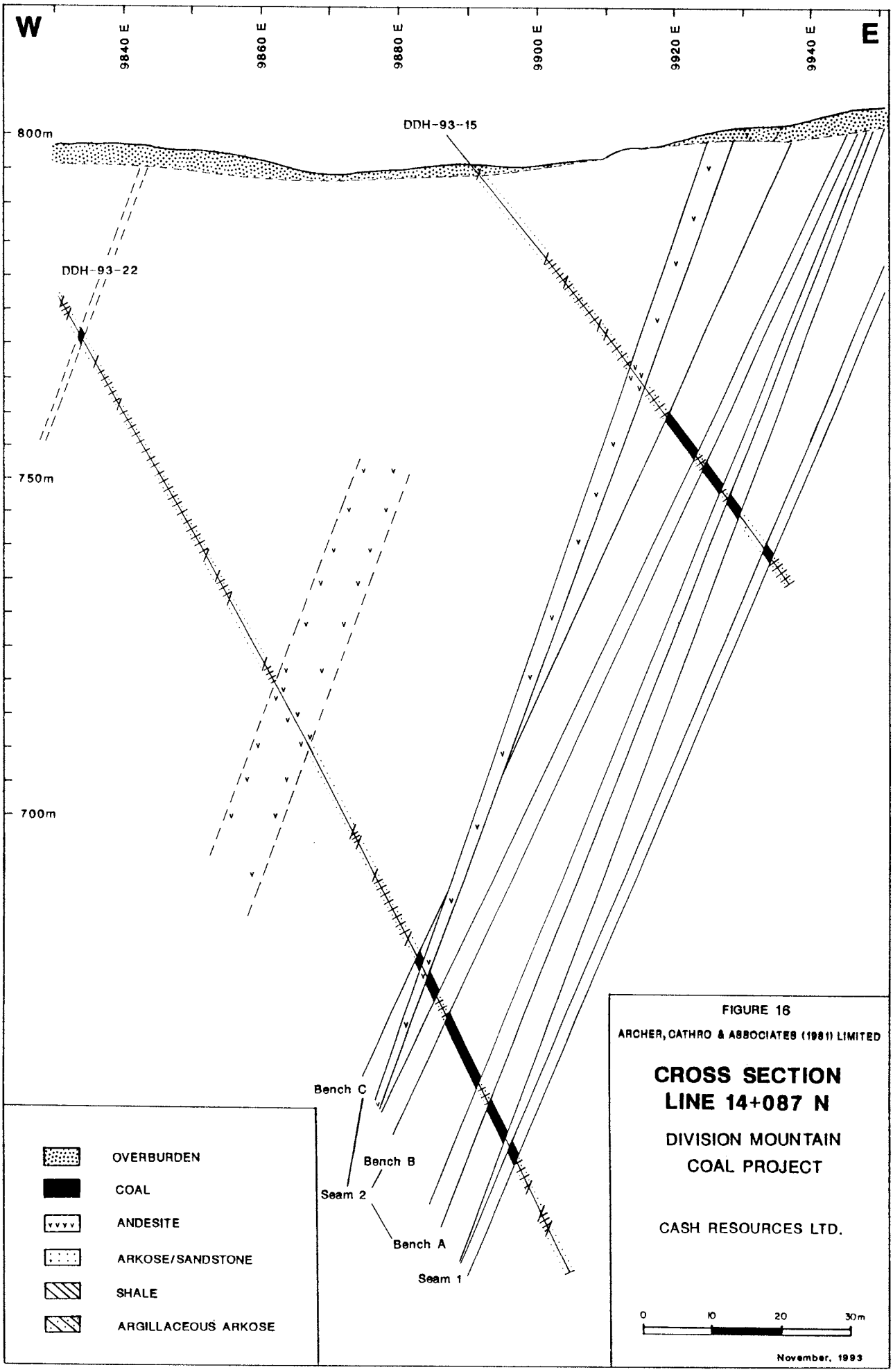
CASH RESOURCES LTD.

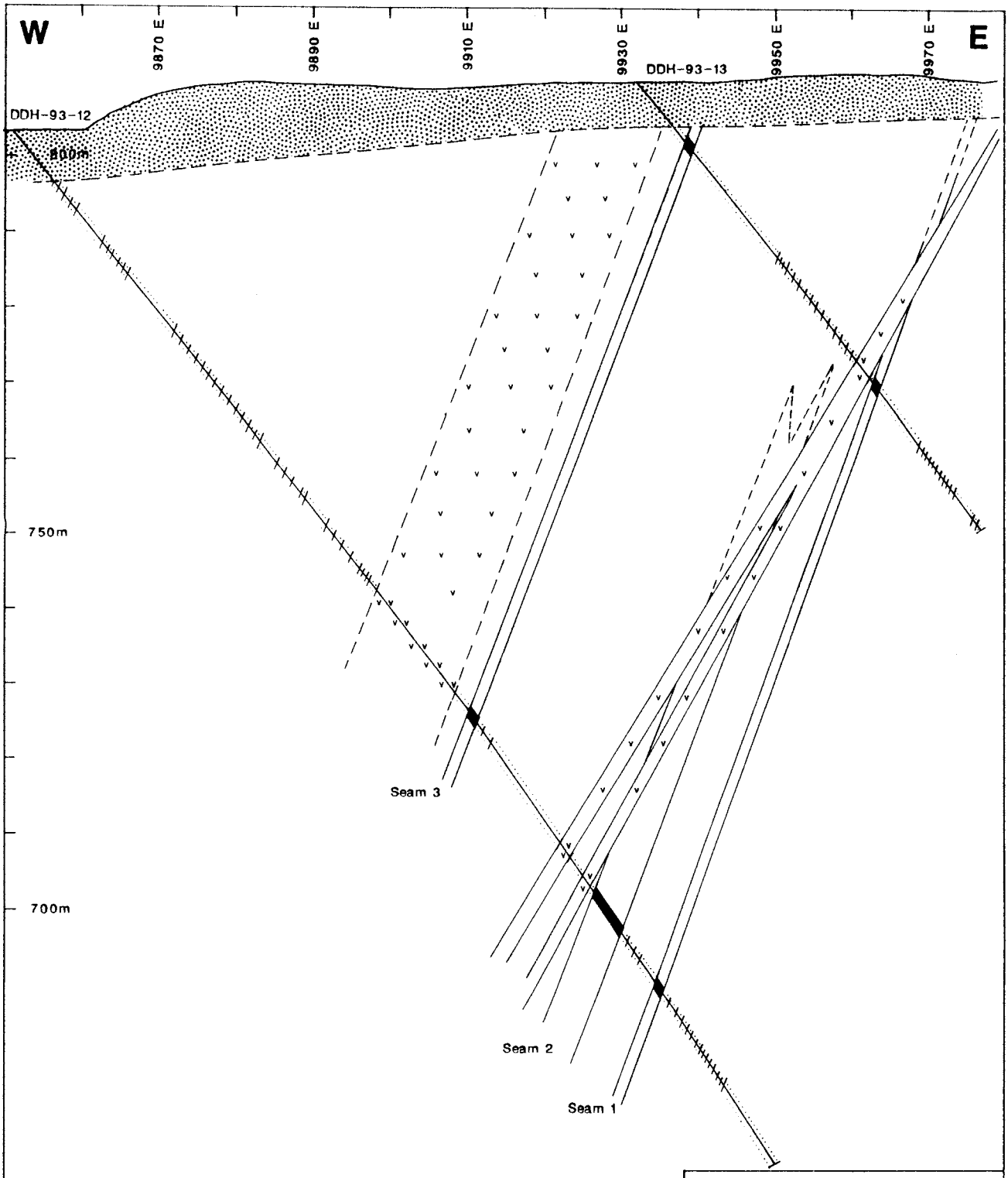
0 10 20 30m

November, 1993


W
9920 E
9940 E
9960 E
9980 E
10000 E
1020 E
E
DDH-93-19
750m
DDH-72-1
700m
Seam 3
650m
Bench C
Bench B
Seam 2
Bench A
OVERBURDEN
COAL
ANDESITE
ARKOSE/SANDSTONE
SHALE
ARGILLACEOUS ARKOSE
FIGURE 14
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
CROSS SECTION
LINE 14+404 N
DIVISION MOUNTAIN
COAL PROJECT
CASH RESOURCES LTD.
0
10
20
30m
November, 1993


W
E
9910 E
9930 E
9950 E
9970 E
9990 E
800m
750m
700m
650m
DDH-93-10
DDH-93-7
TRENCH (1972)
Seam 3
Bench C
Bench B
Seam 2
Bench A
Seam 1
OVERBURDEN
COAL
ANDESITE
ARKOSE/SANDSTONE
SHALE
ARGILLACEOUS ARKOSE
FIGURE 15
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
CROSS SECTION
LINE 14+267 N
DIVISION MOUNTAIN
COAL PROJECT
CASH RESOURCES LTD.
0
10
20
30m
November, 1993


W
9840 E
9860 E
9880 E
9900 E
9920 E
9940 E
E
800m
750m
700m
DDH-93-15
DDH-93-22
Bench C
Bench B
Seam 2
Bench A
Seam 1
OVERBURDEN
COAL
ANDESITE
ARKOSE/SANDSTONE
SHALE
ARGILLACEOUS ARKOSE
FIGURE 16
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
CROSS SECTION
LINE 14+087 N
DIVISION MOUNTAIN
COAL PROJECT
CASH RESOURCES LTD.
0
10
20
30m
November, 1993



OVERBURDEN
COAL
ANDESITE
ARKOSE/SANDSTONE
SHALE
ARGILLACEOUS ARKOSE

FIGURE 17

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

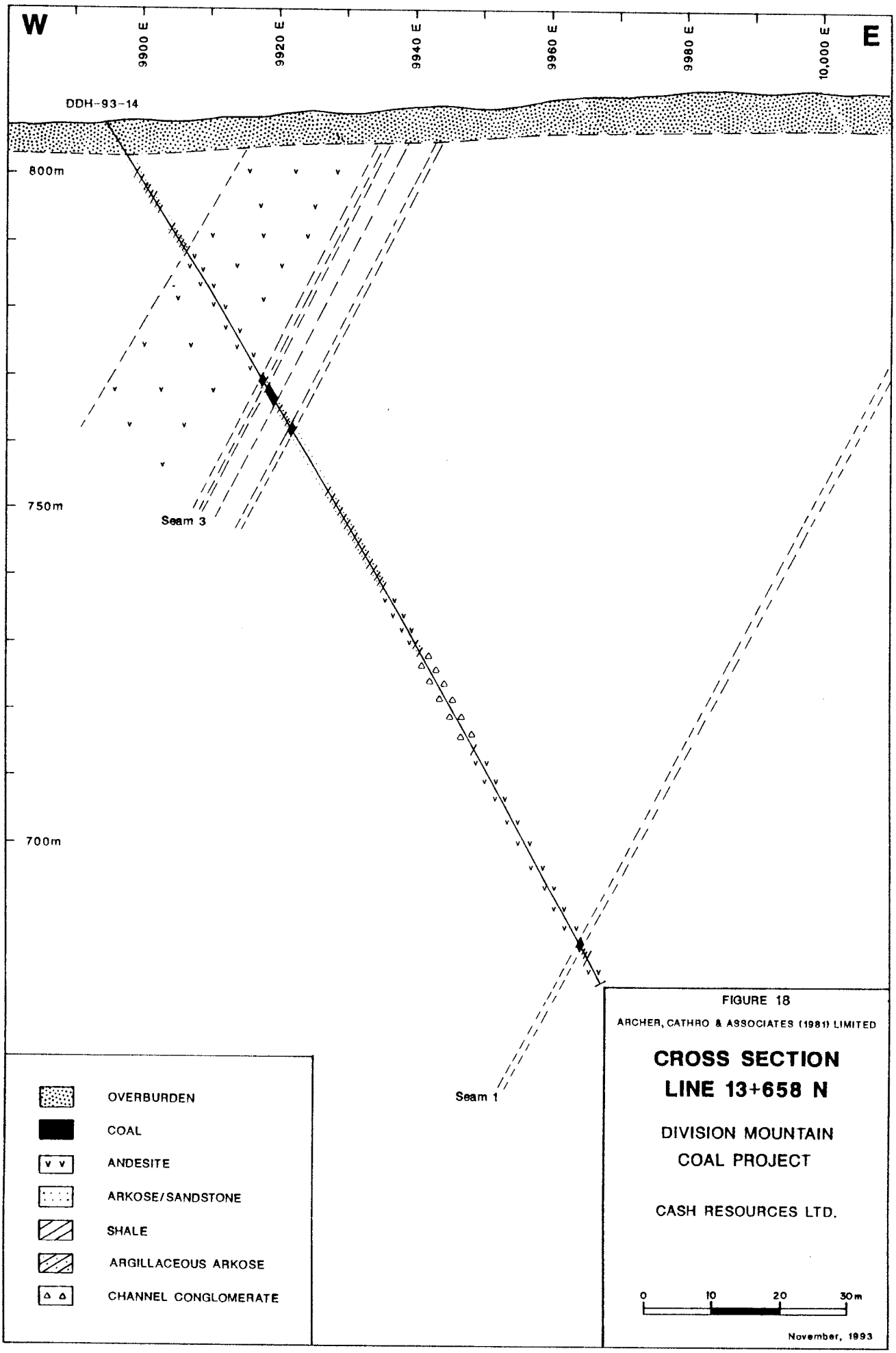
CROSS SECTION LINE 13+962 N

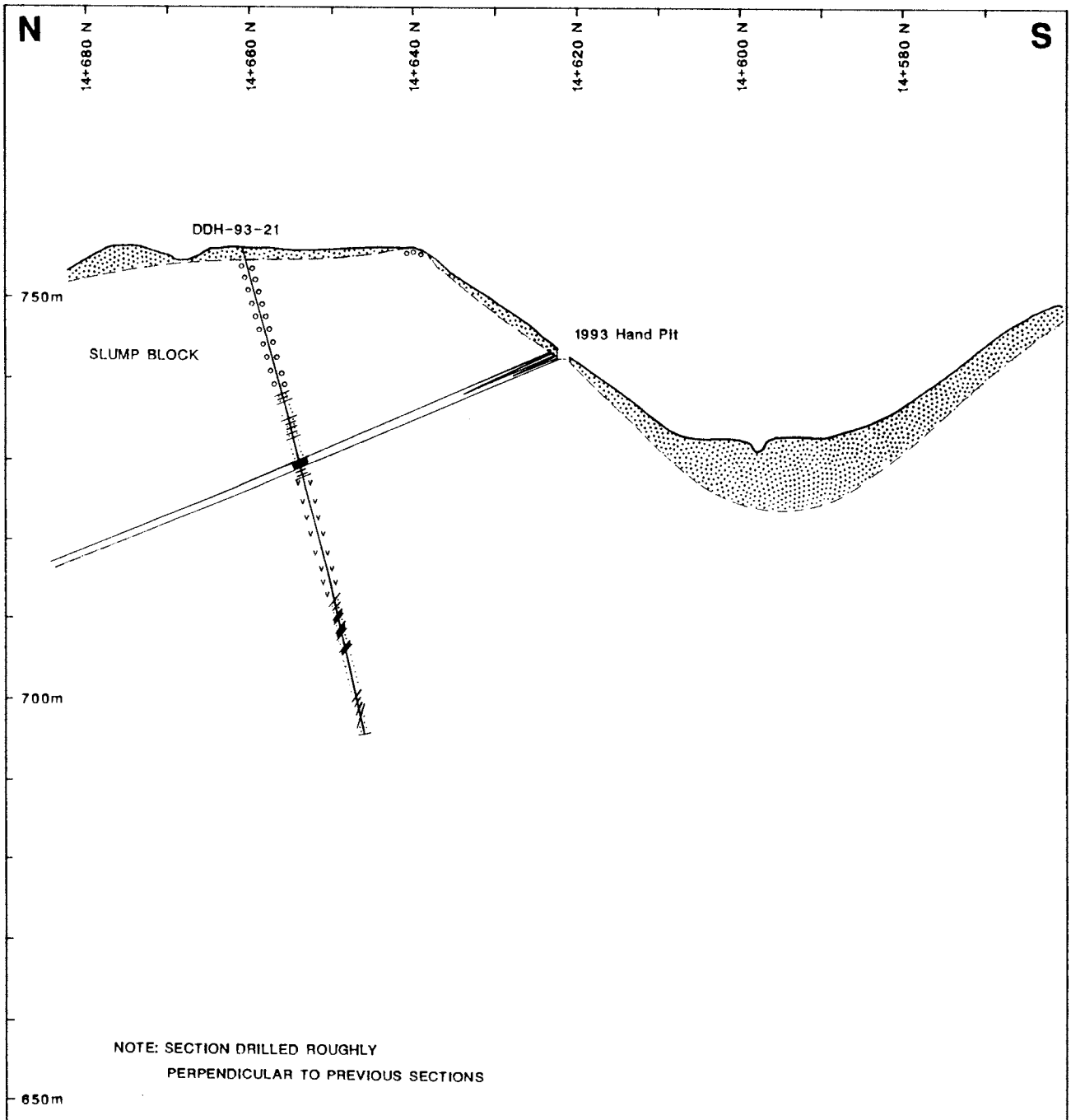
DIVISION MOUNTAIN
COAL PROJECT

CASH RESOURCES LTD.

0 10 20 30m

November, 1993


W
9900 E
9920 E
9940 E
9960 E
9980 E
10,000 E
E
DDH-93-14
800m
750m
700m
Seam 3
Seam 1
OVERBURDEN
COAL
ANDESITE
ARKOSE/SANDSTONE
SHALE
ARGILLACEOUS ARKOSE
CHANNEL CONGLOMERATE
FIGURE 18
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
CROSS SECTION
LINE 13+658 N
DIVISION MOUNTAIN
COAL PROJECT
CASH RESOURCES LTD.
0
10
20
30m
November, 1993



OVERBURDEN
COAL
ANDESITE
ARKOSE/SANDSTONE
SHALE
ARGILLACEOUS ARKOSE
CHERT PEBBLE CONGLOMERATE

FIGURE 19

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

CROSS SECTION LINE 9764 E

DIVISION MOUNTAIN COAL PROJECT

CASH RESOURCES LTD.

0 10 20 30 m

November, 1993

TABLE 3
DIVISION COAL
HORIZONTAL AND TRUE WIDTHS OF INTERSECTIONS

SECTION LINE	DRILL HOLE	SEAM 1(H)	SEAM 1(T)	SEAM 2(H)	SEAM 2(T)	SEAM 3(H)	SEAM 3(T)
14+877N	DDH-72-6	3.31	2.52	7.76	5.94	1.85	1.05
14+745N	DDH-93-16	—	—	—	—	2.07	1.73
	DDH-93-17	—	—	11.12	8.52	—	—
	DDH-93-18	0.54	0.45	12.82	9.82	—	—
14+572N	DDH-93-8	—	—	3.45	3.13	0.89	0.83
	DDH-93-11	—	—	—	—	—	—
	DDH-93-20	—	—	3.10	2.81	—	—
14+404N	DDH-72-1	—	—	9.68	8.97	2.32	1.75
	DDH-93-19	—	—	10.78	9.99	2.29	1.75
14+267N	DDH-93-7	1.95	1.80	11.27	10.78	0.85	0.82
	DDH-93-10	1.96	1.78	11.58	11.07	1.38	1.30
14+087N	DDH-93-15	1.46	1.31	13.29	12.24	—	—
	DDH-93-22	1.63	1.44	17.34	15.96	—	—
13+962N	DDH-93-12	1.26	1.16	5.33	5.01	1.57	1.25
	DDH-93-13	0.94	0.88	—	—	1.26	1.19
13+658N	DDH-93-14	0.60	0.54	—	—	1.70	1.58
	High	3.31	2.52	17.34	15.96	2.32	1.75
	Low	0.54	0.45	3.10	2.81	0.85	0.82
	Average Width	1.51	1.32	9.79	8.69	1.62	1.33

Average composite true thickness: 11.34 m
Average composite horizontal thickness: 12.92 m

T: True width in metres
H: Horizontal width in metres

Seam 1, referred to as the Footwall Seam in previous reports, occurs 13 m stratigraphically below Seam 2 and consists of one bench with an average true thickness of 1.3 m. Seam 1 is the least continuous of the three seams encountered.

COAL QUALITY ANALYSES

Whole core samples of coal intersections were submitted to Chemex Labs Ltd. in North Vancouver, B.C. for proximate analyses and determination of total sulphur and calorific value. Results are tabulated in Table 4. Analytical Certificates are listed in Appendix VII. Calculated average analysis for the Division Mountain coal samples is 2.86% residual moisture, 26.99% ash content, 25.05% volatile matter, 0.47% sulphur content, and calorific value of 5,391 cal/g (9,645 Btu/lb). The average analysis corresponds to an ASTM rank of High Volatile Bituminous "B" and the coal is similar in quality to thermal coals used to generate approximately 90% of Alberta's electrical requirements. In particular, the low sulphur content lies well within the range of coals which can be used to generate clean electrical power without expensive treatment of flue gases to reduce acid rain potential.

TABLE 4

DIVISION COAL

1993 COAL QUALITY ANALYSES (AIR DRIED)

INTERSECTION	RESIDUAL MOISTURE (%)	ASH (%)	VOLATILE MATTER (%)	FIXED CARBON (%)	SULPHUR (%)	C.V. (DRY) Cal/g	BTU/lb (Cal/g/.56)	C.V. (DAF) Cal/g	BTU/lb (Cal/g/.56)
93-07 Seam 1	2.51	25.23	31.30	40.96	0.62	5563	9934	7505	13402
Seam 2A	2.73	22.48	29.82	44.97	0.52	5696	10711	7408	13229
Seam 2B	2.71	28.28	28.39	40.62	0.44	5115	9134	7212	12879
Seam 2C	2.88	19.32	30.20	47.60	0.42	6030	10768	7527	13441
93-10 Seam 1	2.39	31.53	28.63	37.45	0.54	4970	8875	7342	13111
Seam 2A	1.61	55.43	20.89	22.07	0.32	2893	5166	6626	11832
Seam 2B	2.50	22.13	28.38	46.99	0.45	5803	10363	7507	13405
Seam 2C	2.81	17.91	31.35	47.93	0.42	6110	10911	7490	13375
93-12 Seam 1	2.97	19.78	32.12	45.13	0.61	6100	10893	7661	13680
Seam 2	3.11	21.41	28.60	46.88	0.50	5835	10420	7490	13375
Seam 3	1.25	20.00	12.97	65.78	0.48	6451	11520	8089	14445
93-14 Seam 3	2.16	43.76	8.06	46.02	0.40	4080	7286	7381	13180
93-15 Seam 1	2.53	23.87	28.50	45.10	0.52	5761	10252	7629	13623
Seam 2A	2.64	20.96	29.23	47.17	0.47	5926	10582	7551	13484
Seam 2B	2.88	21.86	28.24	47.02	0.42	5831	10412	7525	13438
Seam 2C	2.59	26.16	29.20	42.05	0.44	5441	9716	7439	13284
93-17 Seam 2	3.04	25.86	26.67	44.83	0.40	5485	9795	7480	13357
93-18 Seam 1	2.37	29.62	29.12	38.89	0.48	4876	8707	7170	12804
Seam 2	1.88	29.19	23.72	45.21	0.46	5218	9318	7569	13516
93-19 Seam 2A	3.00	22.82	31.09	43.09	0.72	5402	9646	7281	13002
Seam 2B	2.79	23.12	29.37	44.72	0.48	5520	9857	7451	13305
Seam 2C	3.16	17.92	30.26	48.66	0.41	5908	10550	7486	13368
Seam 3	9.96	41.08	6.32	42.64	0.19	3301	5895	6741	12038
93-20 Seam 2A	3.08	39.08	9.71	48.13	0.58	4448	7943	7690	13732
Seam 2B	1.26	33.90	23.42	41.42	0.51	4900	8750	7557	13495
93-22 Seam 2A	3.05	24.75	27.51	44.69	0.41	5530	9875	7426	13261
Seam 2B	2.73	21.96	28.88	46.43	0.40	5809	10373	7504	13400
Seam 2C	3.47	26.40	9.52	60.61	0.45	5638	10068	7761	13859
Average	2.86	26.99	25.05	45.11	0.47	5344	9561	7446	13297
ALBERTA Hi Vol Bit.	6-9	15-30	35-40		0.3-0.4		7500-10000		

COAL WASHABILITY ANALYSES

One 20 kg composite sample comprising Seam 2 coal intersections from DDH-93-15, DDH-93-18 and DDH-93-19 was submitted to Chemex Labs Ltd. of North Vancouver, B.C. for washability analyses.

Coal intersections were mixed thoroughly and split into 10 and 90% fractions. The 90% fraction was further segregated by three levels of screening: 3/8" x 28 mesh; 28 x 60 mesh; and, 60 x 0 mesh. Coal from the two coarser fractions was washed and then separated with respect to specific gravities (1.3, 1.5 and 1.7 g/cc). Proximate and ultimate analyses were carried out on the clean coal (1.3 and 1.5 g/cc) and raw coal (10% fraction) splits. The results are summarized in Table 5 and analytical certificates are listed in Appendix VII. Calorific value of the coal was enhanced by approximately 16%. The relative calorific increase with respect to loss in yield (48%) is not high enough to justify washing of mine product unless end use ash disposal costs are significantly high. Total sulphur was decreased by about 9% after washing. Sulphur reduction was in the form of organic sulphur while pyritic and inorganic sulphur levels remained constant.

TABLE 5
DIVISION COAL
1993 WASHABILITY TEST RESULTS (Air Dried)

Proximate Analysis - Raw Coal

RM (%)	A (%)	VM (%)	FC (%)	ST (%)	Sulphate Sulphur (%)	Pyrite Sulphur (%)	Organic Sulphur (%)	C.V. (Dry) Cal/g	C.V. (Dry) BTU/lb	HGI
2.62	22.73	28.80	45.85	0.63	0.02	0.14	0.47	5781	10323	46

Proximate Analysis - Clean Coal at 1.5 S.G.*

RM (%)	A (%)	VM (%)	FC (%)	ST (%)	Sulphate Sulphur (%)	Pyrite Sulphur (%)	Organic Sulphur (%)	C.V. (Dry) Cal/g	C.V. (Dry) BTU/lb	HGI
1.28	10.65	30.98	57.09	0.58	0.02	0.14	0.42	6883	12291	48

*Clean coal at 1.5 specific gravity represents 52.33% of total yield.

Ash Fusibility in a Reducing Atmosphere

STATE	DEGREES (F)
Initial	2295
Softening	2395
Hemispherical	2420
Fluid (Final)	2480

RM: Residual Moisture
A: Ash
VM: Volitile Matter
FC: Fixed Carbon
ST: Sulphur Total
C.V: Calorific Value
HGI: Hardgrove Grindability Index

COAL RESERVES

Surface measured, underground indicated and underground inferred coal reserves were calculated using reserve criteria established in Geological Survey of Canada Paper 88-21, "A Standardized Coal Resource/Reserve Reporting System for Canada" by J.D. Hughes, L. Klatzel-Mudry and D.J. Nikols. Relevant parameters are tabulated in Table 6. The geologic type is considered "moderate" as the Division Mountain area is a low to moderate wave length fold belt with only minor associated fault deformation in the vicinity of the coal measures. The remaining parameters, with the exception of coal density, are defined by the geologic type and have been quoted from the reference mentioned. Coal density of 1.5 g/cm3 was estimated based on coal rank and average ash content.

Open pit reserves measured to a mining depth of 150 m were calculated on a weighted average basis with respect to horizontal intersected widths projected to a vertical longitudinal section. Reserves total 2,566,370 tonnes with an average incremental stripping ratio of ten bank cubic metres per tonne.

Underground reserves, measured and indicated, total 8,573,550 tonnes. The total in situ reserves, for exploration completed to date, are estimated at 11,139,920 tonnes to a maximum depth of 600 m, as shown on Figure 20. Individual reserve block calculations are given on Table 7.

TABLE 6
DIVISION COAL
RESERVE CALCULATION PARAMETERS

Geology Type: Moderate

Density: 1.5 (assume 26% average ash content, high volatile Bituminous rank)

- For Surface Reserves:

  minimum seam horizontal thickness: 0.60 m
  maximum parting included in seam: 0.30 m

- Maximum incremental stripping ratio: 20:1 bank cubic metres/tonne coal equals 192 m from surface assuming 10 m average total coal thickness

- Measured Reserves: 0-450 m from data point
  Indicated Reserves: 450-900 m from data point
  Inferred Reserves: 900-2400 m from data point

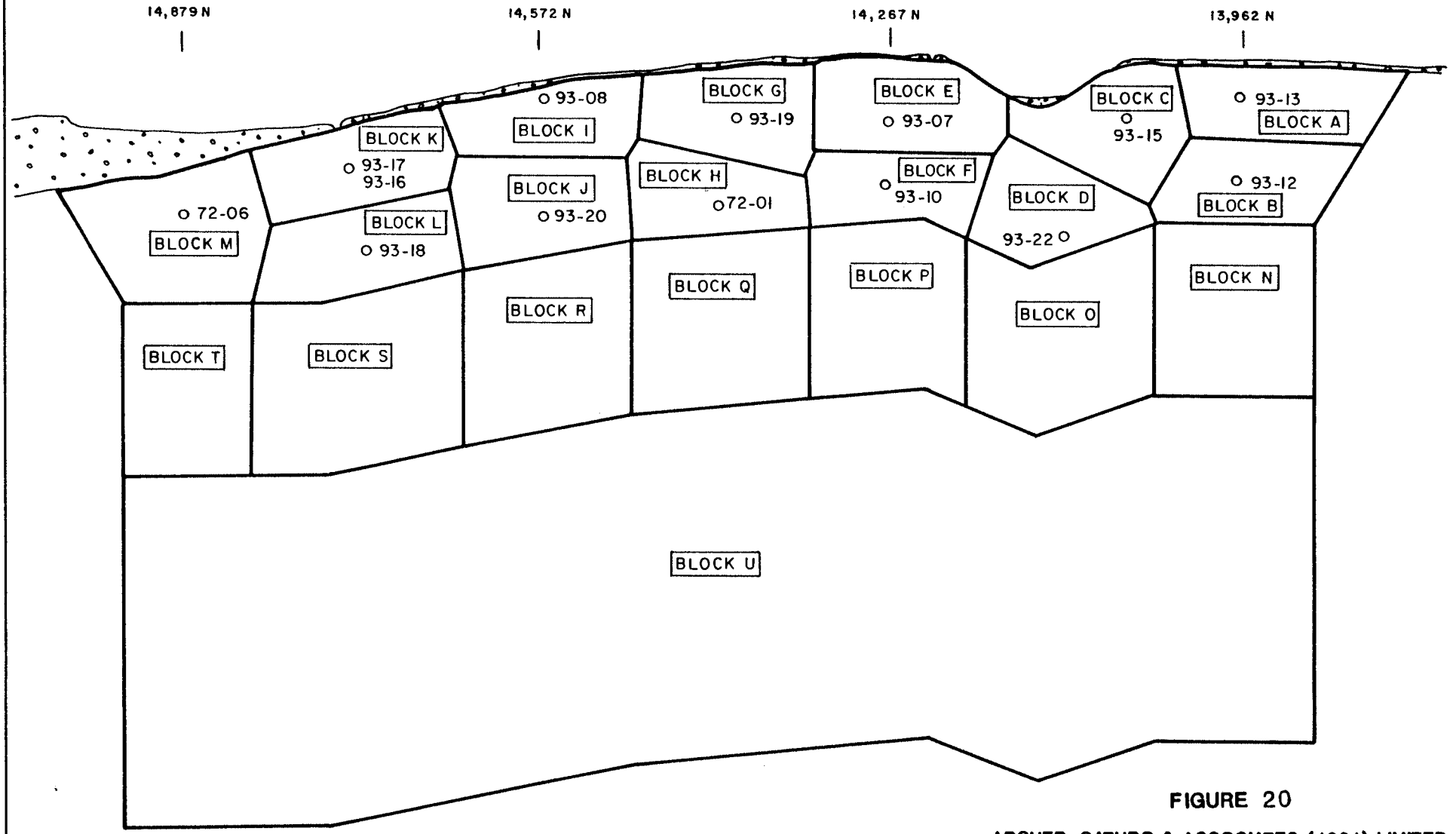


FIGURE 20

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

VERTICAL LONGITUDINAL SECTION

DIVISION MOUNTAIN COAL PROPERTY

CASH RESOURCES LTD.

SCALE 1:5000

0 50 100 200 300 m

COAL RESERVES

RESERVE BLOCK	AVG. COAL THICKNESS (m)	RAW COAL (tonnes)	RESERVE CATEGORY
A - M	10.2	2,566,370	MEASURED (SURFACE)
N - T	11.1	2,857,850	INDICATED (UNDERGROUND)
U	11.1	5,715,700	INFERRED (UNDERGROUND)

TABLE 7
DIVISION COAL RESERVES

SURFACE (Measured - to 150 m)

BLOCK	TOTAL COAL* (m)	AREA (m2)	VOLUME (m3)	x 1.5 = TONNES
A	2.2	11,597	25,513	17,400
B	9.8	11,695	114,606	171,910
C	14.0	12,341	172,774	259,160
D	19.8	11,250	222,750	334,120
E	16.8	13,446	225,893	338,840
F	16.3	10,140	165,282	247,920
G	14.4	12,568	180,979	271,470
H	14.9	10,141	151,101	226,650
I	3.0	10,256	30,768	46,150
J	2.8	13,208	36,982	55,470
K	10.6	11,607	123,034	184,550
L	12.4	11,570	143,468	215,200
M	7.5	17,558	131,685	197,530
	11.0 (Wt Avg)	157,377		2,566,370**

UNDERGROUND (Indicated - 150 to 300 m)

N	9.8	21,150	207,270	310,900
O	19.8	20,050	495,990	743,980
P	16.3	21,450	349,635	524,450
Q	14.9	22,950	341,955	512,930
R	2.8	22,500	63,000	94,500
S	12.4	26,100	323,640	485,460
T	7.5	16,500	123,750	185,630
	11.9			2,857,850

UNDERGROUND (Inferred - 300 to 600 m)

5,715,700

11,139,920 Tonnes

*Horizontal Width
**Strip Ratio 10 Bank m3/tonne

COALBED METHANE RESEARCH

Preliminary analyses for coalbed methane potential were conducted on coal samples extracted from DDH-93-10 by Andrew Beaton, currently carrying out Ph.D. research on quality of Yukon coals at the University of Western Ontario.

Eight samples, approximately 30 cm in length, were taken from Seam 1, 2A, 2B and 2C as listed in Table 8. Gas desorption was monitored and measured within five minutes of core extraction from the core tube at the drill site. Desorption measurements were continued until no gas was liberated from the sample over a period of 24 hours. The average desorbed volume within the coal samples was less than 0.1 cc/g at standard pressure and temperature (Table 8). These volumes of methane are very low, considering an acceptable volume for coalbed methane extraction is in the range of 8 to 12 cc/g. Low volumes may be attributed to several factors. Sections of the coal seams intersected may not have been far enough below the water table, inhibiting gas retention as a result of insufficient hydrostatic capping. DDH-93-10 was located approximately 100 m northwest of the Teslin Creek valley (Figure 10) which is coincident with strike-slip faulting. Gas at shallow depths may have escaped from the coal seams along fractures and fissures induced by such faulting.

Coalbed methane potential in the Division Mountain coal seams is at present inconclusive as the intersections tested are assumed to have come from too shallow a depth. Beaton recommends that any further coalbed methane tests should be completed on samples acquired from depths of at least 600 m below surface.

Table 8
Division Coal
1993 Coalbed Methane Results

Seam	Downdip Depth (m)	Elevation (m)	Mass of Sample (gms)	Vol. Desorbed Gas (cc)	Gas Desorption (cc/g)
1	152.7-153.1	654	1308	10	<0.1
2A	137.8-138.3	658	1662	81	<0.1
2A	136.6-137.0	659	1635	88	<0.1
2B	129.6-129.8	666	1644	83	<0.1
2B	127.9-128.3	667	1721	65	<0.1
2C	126.3-126.8	669	1837	14	<0.1
2C	119.2-119.5	675	1447	48	<0.1
2C	117.4-117.7	676	1583	68	<0.1

GEOPHYSICAL SURVEYS

VLF-EM, EM-31 and total magnetic field surveys were conducted over 16.5 km of grid crosslines at 10 m stations by Amerok Geophysics of Whitehorse, Y.T. between July 11 and 15. Conductor responses are probably attributed to steeply-dipping andesite sills, dykes and faults within the coal measures. The surface traces of the conductor axes correspond to VFL-EM, EM-31 and total magnetic highs as illustrated in Figure 21. Conductor traces located to the southwest of the baseline are segmented. This is most likely due to variations in overburden thickness limiting the depth of detection for the geophysical methods used. The strongest conductor trends 145° along the length of the grid (4.5 km) and probably coincides with an andesite sill of varying thickness located in the footwall of the coal-bearing stratigraphy. This conductor may be of significance as a stratigraphic marker for continued coal exploration to the southeast section of the grid.

A summary of the techniques employed and resultant line profiles is documented in Appendix VIII.

ENVIRONMENTAL SURVEYS

HYDROLOGICAL SURVEY

Hydrological surveys were contracted to J. Gibson & Associates of Whitehorse, Y.T. and completed in three phases from March to October 1993. Samples and measurements were taken from five sites established on the Nordenskiold River and Klusha Creek in the vicinity of Division Mountain. Summaries and data for the three surveys are tabulated in Appendix IX.

SITE RECLAMATION

Drill sites 7-17 were fully reclaimed prior to the commencement of Phase 2 drilling (September 21, 1993). Reclamation consisted of back blading the site with the bulldozer, redistributing organics over the bladed area and seeding with an approved northern seed mix. Sites 18-22 were only back bladed. Seeding was inhibited by heavy snowfall prior to the completion of Phase 2 drilling. Most of the sumps were left open to dry for later filling.

WILDLIFE

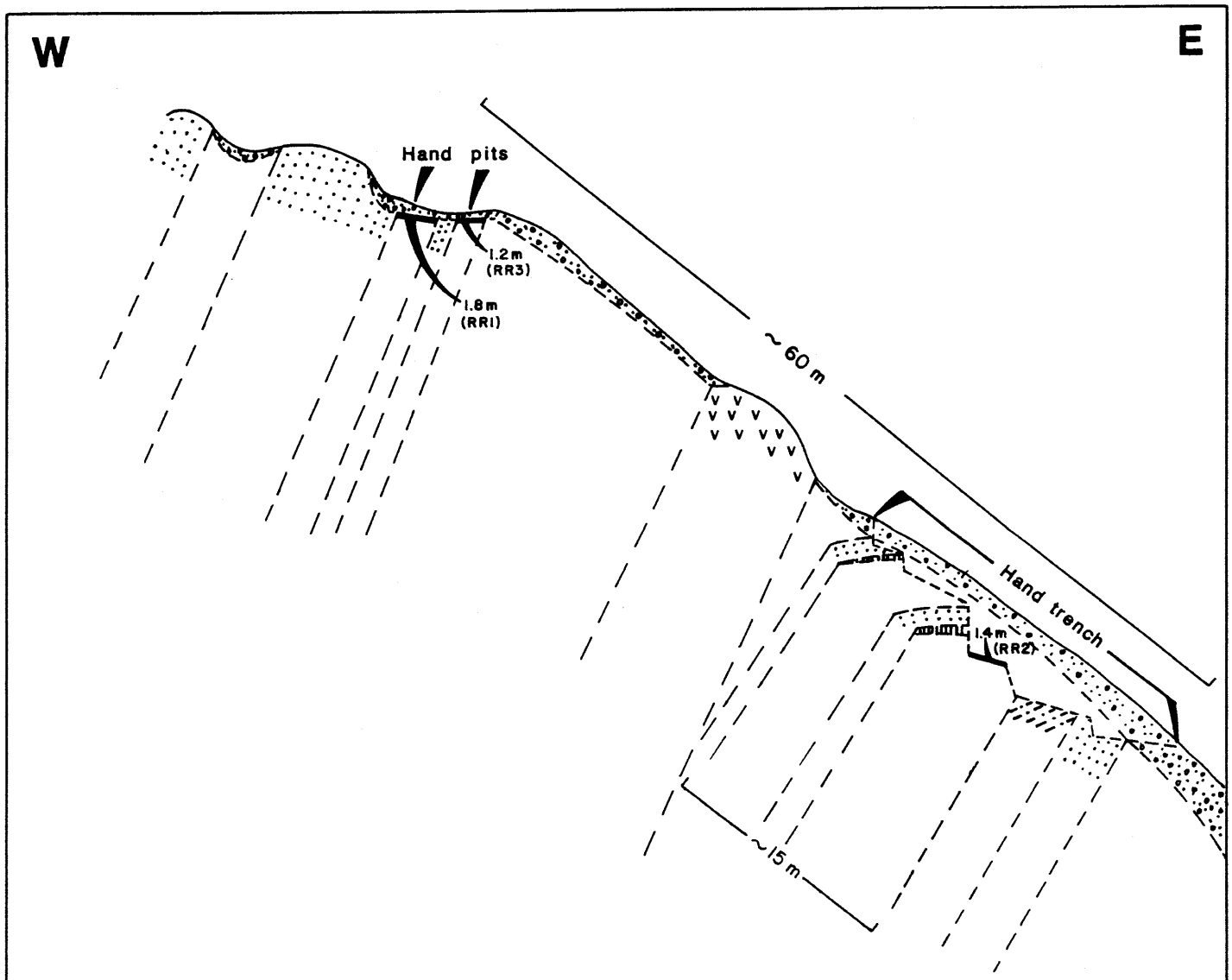
Wildlife on the property was documented by camp personnel from June 26 to October 5, 1993. A table of game sightings and dates is listed in Appendix X.

RED RIDGE OCCURRENCE

The Red Ridge coal occurrence was discovered and documented by D.D. Cairnes of the Geological Survey of Canada in 1907. In 1972 R.J. Kirker Resources Ltd. relocated the coal showing and measured a section from the top of Red Ridge running northeast down to the Nordenskiold River. The section defines approximately 245 m of Tantalus conglomerate overlying finer-grained Laberge sedimentary rocks. Two zones containing coal and carbonaceous shale were documented within the Laberge rocks. Widths of the actual coal seams were not described.

In 1993 the Red Ridge coal occurrence was relocated. Three hand trenches were excavated, fully defining two coal seams and partially defining one other, as illustrated in Figure 22. A measured section was not surveyed over the Laberge strata although approximately 450 m of stratigraphy is estimated to be exposed on the eastern flank of Red Ridge. Zones of coal and carbonaceous shale occur on the northwest-facing slopes of two gullies, approximately 200 m southwest of the R-41A native land claims block. The Laberge stratigraphy within the gullies comprises interbedded coarse- to medium-grained, white to tan arkose/sandstones and black to maroon shales. This sequence is intruded by tan to pink feldspathic porphyritic andesite sills up to 15 m thick.

Hand trenching was concentrated in the lower section of the northernmost gully near the Nordenskiold River valley bottom. The seams exposed are termed RR1, RR2 and RR3, as illustrated in Figure 22. RR1 and RR3 have horizontal widths of 1.8 and 1.2 m, respectively. Of these two seams, only RR1 was sampled and analyzed. RR2 was partially exposed to bedrock for a horizontal width of 1.4 m. This section was also sampled and analyzed. Each sample weighed approximately 2.5 kg and represented a continuous channel sample across the exposed width of the coal seam.



(RRI) Channel sample

1.4m Bedrock coal, horizontal width

Sand seam

Overburden

Arkose/Sandstone

Argilloceous Arkose

Coal, inferred

v v v Andesite

Figure 22

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

RED RIDGE PROFILE

DIVISION MOUNTAIN

COAL PROJECT

CASH RESOURCES LTD.

January, 1994

Further trenching on seam RR2 was inhibited due to extensive overburden cover. The trench profile consists of a blanket of glacial soil overlying a series of sub-horizontal layers of arkose/sandstone grit, sand lenses and coal fragment horizons varying in thickness from 20 to 70 cm. Structures within the coal fragment horizons are virtually nonexistent. The nature of the stratigraphy in the vicinity of RR2 is most likely attributed to downhill creep as a semi-continuous coal horizon was traced uphill from the initial exposure for approximately 10 m. The possible aggregate true width of bedrock coal may be in the range of 10 to 15 m as illustrated in Figure 22.

Coal is dull to vitreous black in colour with moderate to low shale content which occurs as thin interbeds. Coal quality analyses for RR1 and RR2 are tabulated in Table 9. Calculated average parameters for Red Ridge samples are 16.51% residual moisture, 17.66% ash, 28.32% volatile matter, 37.52% fixed carbon, 0.37% sulphur and a calorific value of 4807 Cal/g (8583 Btu/lb). Residual moisture content and calorific value are biased by the near surface nature of the samples. The remaining parameters are quite similar to those of the drill core analyses near the Cairnes outcrop.

The Red Ridge occurrence is believed to be a continuation of the Teslin Creek coal seams.

Further exploration is required in the vicinity of the Red Ridge coal occurrence to better define the width of RR2 and to delimit the continuity of the known coal seams along strike. All recessive gullies within Laberge strata should also be thoroughly prospected and hand trenched to the northwest of the Red Ridge coal occurrence where topographic relief is moderate to low.

TABLE 9
RED RIDGE
1993 COAL QUALITY ANALYSES (AIR DRIED)

SAMPLE	RESIDUAL MOISTURE (%)	ASH (%)	VOLATILE MATTER (%)	FIXED CARBON (%)	SULPHUR (%)	C.V. (DRY) Cal/g	C.V. (DRY) BTU/lb (Cal/g/.56)	C.V. (DAF) Cal/g	C.V. (DAF) BTU/lb (Cal/g/.56)
RR1*	16.28	18.93	27.77	37.02	0.34	4701	8395	6074	10846
RR2*	16.74	16.38	28.86	38.02	0.40	4912	8771	6115	10920
Average	16.51	17.66	28.32	37.52	0.37	4807	8583	6095	10883

*Samples taken within 2 m of ground surface.

REFERENCES

Huges, J.D., Klatzel-Mundry, L. and Nikols, D.J.
1989 A Standardized Coal Resource/Reserve Reporting System for Canada; GSC Paper 88-21, pp.1-17.

Tempelman-Kluit, D.J.
1984 Geology, Laberge (105E) and Carmacks (115I), Yukon Territory; GSC O.F. 1101.

1978 Reconnaissance Geology, Laberge Map-Area, Yukon; Current Research, Part A, GSC Paper 78-1A, pp.61-66.

1973 Reconnaissance Geology of Aishihik Lake, Snag and part of Stewart River Map-Areas, West Central Yukon (115A, 115F, 115G and 115K); GSC Paper 73-41, pp.1-97.

APPENDIX I

STATEMENTS OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, Robert C. Carne, geologist, with business addresses in Whitehorse, Yukon Territory and Vancouver, British Columbia and residential address in Burnaby, British Columbia, hereby certify that:

1. I graduated from the University of British Columbia in 1974 with a B.Sc. and in 1979 with an M.Sc. majoring in Geological Sciences.
2. I am a Professional Geoscientist registered with the Association of Professional Engineers and Geoscientists of the Province of British Columbia (registration number 19868).
3. From 1974 to present, I have been actively engaged as a geologist in mineral exploration in British Columbia and Yukon Territory and on June 1, 1981 became a partner of Archer, Cathro & Associates (1981) Limited.
4. I have personally participated in or supervised the field work reported herein and have interpreted all data resulting from this work.

Robert C. Carne, M.Sc., P.Geo.

STATEMENT OF QUALIFICATIONS

I, William A. Wengzynowski, geological engineer, with business addresses in Whitehorse, Yukon Territory and Vancouver, British Columbia and residential address in Vancouver, British Columbia, do hereby certify that:

1. I graduated from the University of British Columbia in 1993 with a B.A.Sc. in geological engineering, option 1, mineral and fuel exploration.
2. From 1983 to present, I have been actively engaged in mineral exploration in the Yukon Territory and am presently employed with Archer, Cathro & Associates (1981) Limited.
3. I have personally participated in and supervised the field work reported herein.

B. Wengzynowski.

W.A. Wengzynowski, B.A.Sc.

APPENDIX II

LIST OF PERSONNEL AND DATES WORKED

LIST OF PERSONNEL AND DATES WORKED

R.C. Carne, Project Supervisor
June 26-27, July 24, July 26-August 1, August 15, September 18-20

W. Wengzynowski, Project Manager/Party Chief
June 26-August 27, September 1-October 5

G. Duso, Field Assistant
June 29-August 5, September 1-October 5

B. Brown, Camp Cook
July 7-August 27

M. Phillips, Camp Cook
September 10-October 5

APPENDIX III

LIST OF CONTRACTORS AND DATES WORKED

LIST OF CONTRACTORS AND DATES WORKED

CONTRACTOR	ORIGIN	DATE
Champagne Aishihik Enterprises Ltd.	Haines Junction, Y.T.	June 26 to 29 July 19 to 23
Coureur Des Bois Contracting Ltd.	Whitehorse, Y.T.	July 1 to 14
Amerok Geophysics	Whitehorse, Y.T.	July 11 to 15
E. Caron Diamond Drilling Ltd.	Whitehorse, Y.T.	July 24 to August 21 Sept. 21 to Oct. 3
J. Gibson & Associates	Whitehorse, Y.T.	March 24 June 26 October 19

APPENDIX IV

ACCESS ROAD UPGRADING

ACCESS ROAD UPGRADING

Kilometre designations are referenced from Braeburn Lodge (Km 0.0) located on the Klondike Highway.

Road Sections Worked On To Upgrade

Km 4.7
Km 16.0
Km 24.0-24.6

Road Sections Requiring Further Upgrading

Km 7.0
Km 9.0
Km 10.2
Km 16.0
Km 19.2-20.2
Km 23.1
Km 24.0-24.6

Photos following depict areas requiring upgrading.

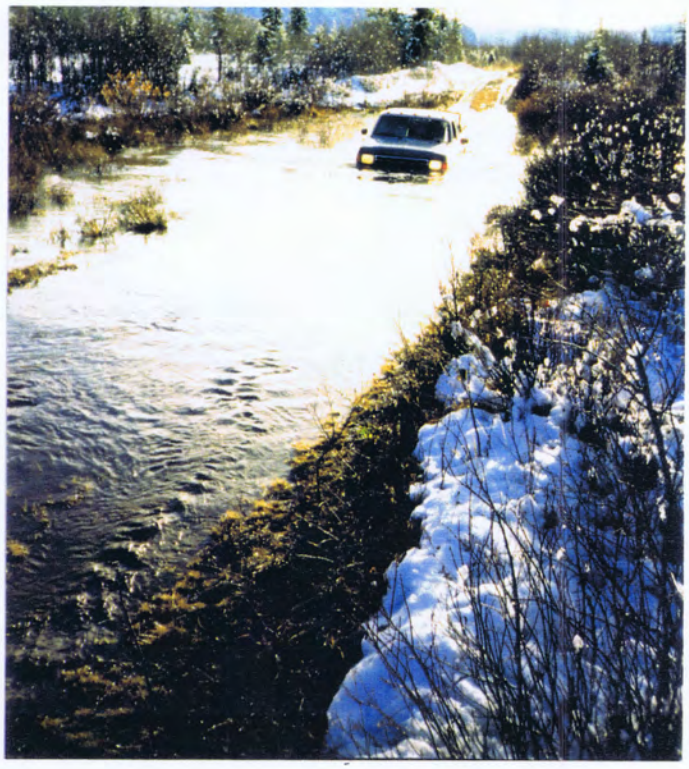
Kilometre 7.0

Kilometre 9.0

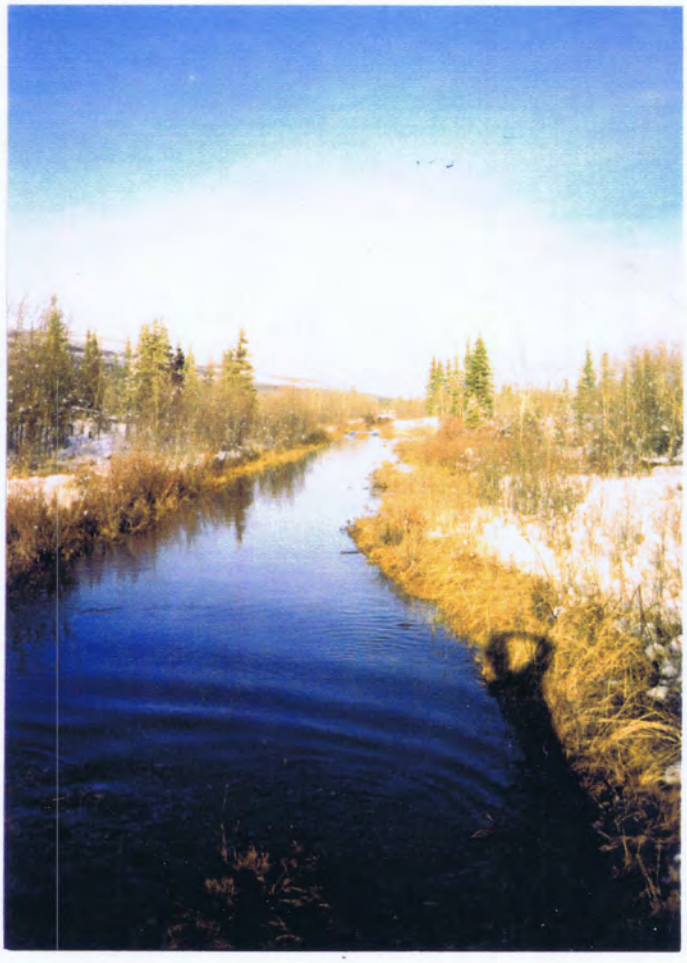
Kilometre 10.2

Kilometre 19.2

Kilometre 19.5



Kilometre 19.5



Kilometre 19.7

Kilometre 19.8

Kilometre 20.1

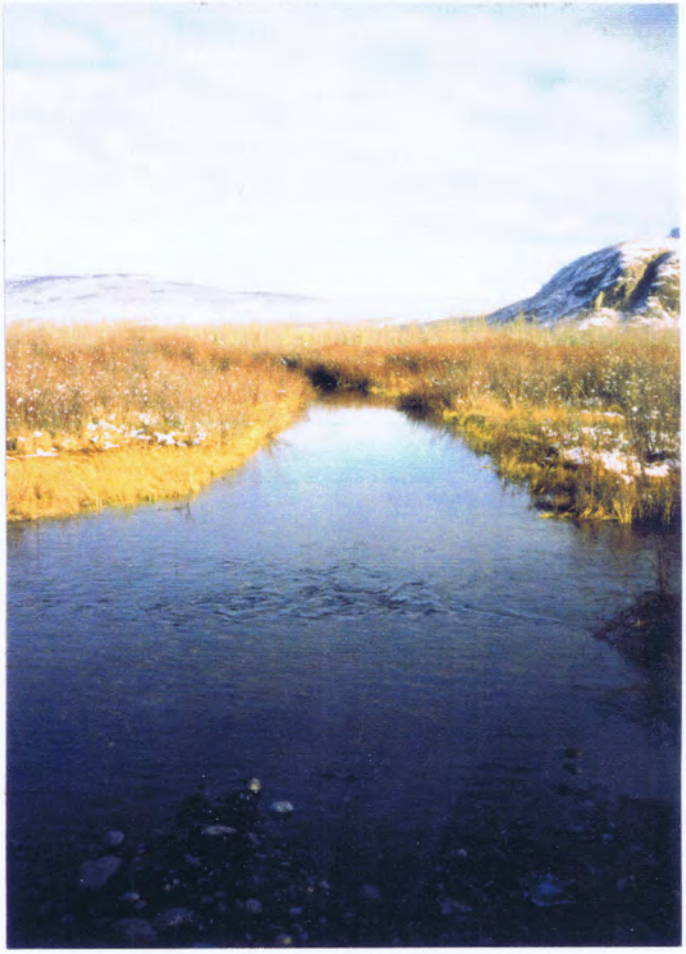
Kilometre 20.1

Kilometre 20.2

Kilometre 23.1

Kilometre 24.0

Kilometre 24.3



Kilometre 24.4

APPENDIX V

1972 DRILL LOGS

DRILL HOLE LOG
ARJAY KIRKER RESOURCES LTD.
NORDENSKIOLD COAL AREA

COORDINATES 22,321,498.55 N ; 189,921.8 E
ELEVATION 2,558.7
DIP -50°
AZIMUTH 040°
SCALE 1.5 ins. = 10.0 ft.

CORE SIZE HQ 0-600 FT
HOLE STARTED 27, AUGUST, 1972
HOLE COMPLETED 6 SEPTEMBER, 1972
LOGGED BY M.P. PHILLIPS

		DIP
	OVERBURDEN - GLACIAL TILL & WEATHERED BED ROCK	
5.0		
	LABERGE SERIES - GREY, COARSE GRAINED WITH OCCASIONAL PARTINGS OF COAL & BLACK SHALE	70°
8.7	SHALE - STRONGLY ARENACEOUS, LAMINATED	
10.0 -45°		70°
16.5	SHALE - VARIES FROM A LIGHT GREY, LAMINATED FINE GRAINED ARGILLACEOUS SANDSTONE TO A DARK, LAMINATED ARENACEOUS SHALE & OCCASIONAL BANDS OF BLACK MASSIVE SHALE WITH COAL PARTINGS	55°
		30°-55°
33.3 -70°	SANDSTONE	60°
34.2 -70°	SHALE - ARENACEOUS, LAMINATED	
35.0 -70°	SANDSTONE	
38.0 -60°	SHALE - MASSIVE ARENACEOUS	60°
40.2 - 55°	SANDSTONE	
41.0 - 55°	SHALE - BLACK, ARENACEOUS, LAMINATED - MASSIVE	
47.0 - 70°	SANDSTONE	
48.4 - 65°	SHALE - BLACK MASSIVE ARENACEOUS TOWARDS BOTTOM CONTACT, MINOR COAL PARTINGS	60°
52.3 - 65°	SANDSTONE - MINOR, IRREGULAR NARROW ARGILLACEOUS BANDS	60°
55.5 - 55°	SHALE - BLACK, MASSIVE	
56.5	SANDSTONE - LAMINATED GREY, ARGILLACEOUS, X-BEDDED	
59.3	SHALE	

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

COORDINATES : DIP - -

HOLE NO 1

LABERGE SERIES

62.3 SHALE - BLACK MASSIVE, IN PARTS SLIGHTLY ARENACEOUS

63.3 COAL PARTINGS COMMON

64.5 SHALE - SANDSTONE - LIGHT - DARK COLORED, WEAK - STRONGLY ARGILLACEOUS FINE GRAINED SANDSTONE - TRANSITIONAL TO ARENACEOUS, LAMINATED SHALE STRONG X-BEDDING.

68.2 SANDSTONE

70.2

73.9 SHALE - BLACK, MASSIVE, MINOR ARENACEOUS SECTIONS OCCASIONAL PARTINGS OF COAL

80.5 - 70°

SHALE - LAMINATED, STRONGLY ARENACEOUS

83.5 - 60° (RADATIONAL)

SANDSTONE - GREY, COARSE GRAINED, OCCASIONAL TO 0.2 FT SHALE BAND

89.5 SHALE - MASSIVE TOP & BOTTOM CONTACTS IN A DARK STRONGLY ARENACEOUS, MASSIVE SHALE

92.3

SANDSTONE - LIGHT GREY, MEDIUM GRAINED WITH IRREGULAR NARROW BANDS WITH FINE COAL PARTINGS COAL PARTINGS COMMON. UP TO 0.05 FT.

97.8 - 55° SHALE - BLACK, LAMINATED, ARENACEOUS TOWARDS BOTTOM CONTACT

100.0 - 65°

112.0 - 75° SANDSTONE - ARGILLACEOUS, LAMINATED GRADING INTO COALY SHALE - 0.5 FT. AT BOTTOM CONTACT

113.8 - 75° COAL PARTINGS COMMON

115.5

DIP

65°

60°

60°

60°

60

60

75°

65°

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

COORDINATES : DIP - -

HOLE NO 1

DIP

LABERGE SERIES

125.0 +70° COAL PARTINGS COMMON

126.3 - -

127.0 - - SHALE & COAL - INTERBEDDED

127.3 — — — — — — — —

128.6 - COAL - 0.4 FT SHALE - ARENACEOUS WEAKLING LAMINATED. UPPER 2.0 FT. GRADING INTO BLACK MASSIVE WITH MINOR ARENACEOUS BANDS. 65°

137.3 — — — — — — — — —

SANDSTONE GREY, FINE-MEDIUM GRAINED WITH COAL PARTINGS 65°

146.0 - - — — —

SANDSTONE - DARK, FINE GRAINED, ARGILLACEOUS LAMINATED 50°

148.5 - 55° - GRADATIONAL — —

SHALE - BLACK MASSIVE, COAL PARTINGS

150.5 - 60° - — — — — —

SHALE - ARENACEOUS, LAMINATED 60°

152.0 - - GRADATIONAL - - — — — —

153.3 - - - NUMEROUS PARTING OF SHALE, ARGILLACEOUS BANDS AND COAL PARTINGS — — — 60°

SANDSTONE

156.4 - GRIT STARTS

162.2 - 55° - - - 55°

SHALE - ARENACEOUS, LAMINATED.

163.7 - - - -

165.0 - -

SHALE - STRONGLY ARENACEOUS, LAMINATED WITH BANDS OF FINE GRAINED SANDSTONE TO A DARK ARENACEOUS, SLIGHTLY LAMINATED 55°

175° - 60° - -

173.1 - 60° - - 60°

SHALE - BLACK, MASSIVE

175.2 - 65° - -

176.0 - -

SANDSTONE - PARTINGS SHALE COMMON

SHALE - BLACK, MASSIVE

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

COORDINATES : DIP - -

HOLE NO 1

	DIP
SHALE — LABERGE SERIES	
180.8 SANDSTONE — WEAK TO MODERATELY ARGILLACEOUS FAINT BANDS STRONGLY ARGILLACEOUS	70°
186.5 - 65° — — — SHALE - BLACK, MASSIVE	
188.2 — — — SANDSTONE - CAST SHALE COMMON	60°
189.6 - 60° — — SHALE - VARIES FROM LIGHT COLORED, STRONGLY ARENACEOUS, WEAKLY LAMINATED TO WEAKLY ARENACEOUS MASSIVE TO DARK MASSIVE. BANDS UP TO 0.5 FT OF SANDSTONE IN CENTER. + COAL - 0.2 FT AT TOP CONTACT	
198.1 - 60° — — — — — SANDSTONE - COARSE GRAINED	60°
199.8 - 50° — — — SANDSTONE - FINE GRAINED WITH NARROW BANDS AND PARTINGS OF SHALE & ARGILLACEOUS LAMINATED SANDSTONE	
201.3 - 60° — — — SHALE - BLACK, SLIGHT ARENACEOUS WITH OCCASIONAL LAMINATIONS & NARROW BANDS OF FINE GRAINED, ARGILLACEOUS SLIGHTLY LAMINATED SANDSTONE. OCCASIONAL PARTINGS OF COAL	60°
	65°
210.3 - 60° — — — — — — — — — — SANDSTONE - DARK, FINE-MEDIUM GRAINED, MODERATELY ARGILLACEOUS WITH PARTINGS & BANDS OF BLACK ARENACEOUS, LAMINATED SHALE	
214.0 — — — — — — — — — — — — SANDSTONE - LIGHT COLORED, ARGILLACEOUS, WEAKLY LAMINATED BECOMING MORE LAMINATED, GRADING TO SHALE TOWARDS	60°
216.0 — — GRADATIONAL BOTTOM CONTACT — — — SHALE - BLACK, MASSIVE, WEAK. LAMINATED ARENACEOUS	
219.0 - 60° — — — — — — SANDSTONE - DARK COLORED, STRONGLY ARGILLACEOUS	60°
224.6 - 60° — — SHALE - BLACK MASSIVE	
226.0 — — — SANDSTONE - MEDIUM GREY, ARGILLACEOUS PARTINGS	50°
231.0 - 60° — SHALE — BLACK, MASSIVE	
231.6 — — SANDSTONE - STRONG BLACK ARGILLACEOUS	
232.7 - 65° CONTACT PARALLEL TO BEDDING	
HUTSHI GROUP - ANDESITE - DARK GREEN APHANITIC WITH ABUNDANT TO 2MM CHLORITE AND FELDSPAR SPECKLING	

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

COORDINATES : DIP -

DIP

HUTSHI GROUP - ANDESITE

252.0 — —
SHALE - BLACK MASSIVE - HIGHLY BROKEN
253.0 — —

258.0 —
SHALE — BLACK MASSIVE
258.5 —

271.5 CONTACT GROUND - 65°?
SANDSTONE - 0.3FT SHALE TOP CONTACT LABERGE SERIES
273.0 — — — —
SHALE - BLACK, MASSIVE, HIGHLY BROKEN
COAL PARTINGS OCCASIONALLY PRESENT

280.0 —
COAL BANDS TO 0.2 FT COMMON
281.7 — — — — — — — — —
SHALE - ARENACEOUS, WEAKLY LAMINATED

50°

289.5 — — — — — — — — —
SANDSTONE — LIGHT - DARK BANDED GREY, MEDIUM GRAINED, BLACK SPECKLED WITH PARTINGS OF COAL

50°

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

COORDINATES : DIP - -

HOLE NO 1

PAGE 6 OF 10

DIP

LABERGE SERIES

305.0 - GRIT BANDS BECOME COMMON

40°

40°

CORELOSS - 3.0 FT

SHALE — BLACK, MASSIVE WITH COAL PARTINGS

318.0 - 40°

SANDSTONE — GREY, IN PLACES, BANDED

323.9 - 50°

SHALE - ARENACEOUS, LAMINATED.

55°

330.5

COAL - SHALE BANDS COMMON

332.0

SHALE - WITH COAL PARTINGS

333.2

COAL - SHALE BANDS COMMON

335.0

SHALE - WEAK - MODERATELY LAMINATED ARENACEOUS

60°

338.0

SHALE - BLACK MASSIVE

70°

342.5

COAL

349.0

SANDSTONE - GREY MEDIUM GRAINED, BLACK SPECKLED AND WEAKLY BANDED

60°

357.0 - 60°

SHALE - ARENACEOUS, MASSIVE - WEAKLY LAMINATED OCCASIONALLY BLACK MASSIVE

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

COORDINATES : DIP - -

HOLE NO 1
PAGE 1 OF 10

LABERGE SERIES

DIP

362.0 - 60° SHALE BANDS UP TO 0.3 FT GREY, WEAK LAMINATED FINE GRAINED SANDSTONE MINOR COAL PARTINGS. — 60°

362.9 - SANDSTONE - GREY

368.5 - 60° SHALE - MASSIVE, ARENACEOUS

372.0 - 65° SANDSTONE - COARSE GRAINED, MODERATELY ARGILLACEOUS

375.8 - SHALE - BLACK, MASSIVE, HIGHLY BROKEN

378.0 - SANDSTONE - COARSE GRAINED - GRITTY MEDIUM GREY, MODERATELY ARGILLACEOUS WITH SCATTERED IRREGULAR PEBBLE BANDS - PEPPLES TO 0.1 FT IRREGULAR ARGILLACEOUS BANDS COAL PARTINGS AND LENSES OFTEN PRESENT — 60° — 60° — 70°

392.0 - COAL PARTINGS BECOME COMMON, PEBBLE BANDS ABSENT FINER, GRAINED

395.0 - SHALE - BLACK MASSIVE
395.5 — 60°

405.5 - 60° SHALE MODERATE GREY, STRONGLY ARENACEOUS, WEAKLY BANDED — 55° — 60°

407.7 - 60° GRADATIONAL - SANDSTONE - FINE - COARSE GRAINED, BANDED WITH NARROW GRADATIONAL ARGILLACEOUS BANDING LENSES & PARTINTING OF COAL. — 65°

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

COORDINATES : DIP - -

HOLE NO 1

PAGE 8 OF 10

DIP

SANDSTONE — LABERGE SERIES

422.0 - 45° — —
COAL
423.8 — — —
SHALE - BLACK, MODERATE - STRONGLY ARENACEOUS, LAMINATED WITH OCCASIONAL TO 0.2 FT SANDSTONE BAND. GRADES TO BLACK MASSIVE IN LOWER 2. FT.

60°

60°

66°

432.4 - 70° — — —
SANDSTONE
433.8 - 60° — — —
SHALE - ARENACEOUS, LAMINATED
435.0 — — — —
SHALE - BLACK, MASSIVE WITH COAL BANDS TO 0.5 FT
437.2 - 60° — — — — —
SANDSTONE — GREY, FINE GRAINED TO GRITTY WITH ARGILLACEOUS BANDING AND OCCASIONAL NARROW BLACK SHALE BANDS. SANDSTONE X-BEDDED

50°

60°

449.0 - 70° - GRADATIONAL —
SHALE - LIGHT COLORED, STRONGLY ARENACEOUS LAMINATED, MASSIVE BLACK TOWARDS BOTTOM CONTACT

60°

454.3 - 60° — — — — —
SANDSTONE

457.0 - 55° — — — — GRADATIONAL
SHALE — LIGHT COLORED, STRONGLY ARENACEOUS LAMINATED.
459.0 — — — — — — — — — — — — — —
459.3 - BLACK SHALE - 0.3 FT. SANDSTONE — LIGHT GREY, MASSIVE

60°

463.0 - 65° - SHALE - BLACK MASSIVE

60°

465.8 - 60° SHALE - BLACK MASSIVE

467.6 - 0.3 - SHALE - ARENACEOUS, LAMINATED

470.2 - 70° — —
SHALE - ARENACEOUS, LAMINATED

60°

472.9 - 70° — — —
474.1 — —
SHALE - BLACK SLIGHTLY LAMINATED
475.0 — —
476.0 — — SANDSTONE - DARK, STRONG ARGILLACEOUS, BLACK SPECKLING
477.0 - ANDESITE - 0.3 FT. SHALE - BLACK, MASSIVE TO ARENACEOUS LAMINATED WITH BANDS UP TO 0.5 FT OF COAL - HIGHLY BROKEN

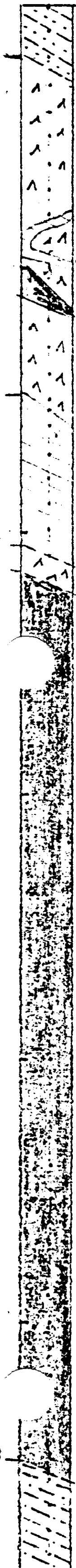
DRILL HOLE LOG

ARJAY KIRKER RESOURSES LTD

DIVISION MOUNTAIN COAL PROSPECT

COORDINATES: DIP -

HOLE NO 1



Depth / contact	Description	DIP
	SHALE - HIGHLY BROKEN — LABERGE SERIES	
482.5 - 60°? — ORIENTATION	HUTSHI GROUP - ANDESITE - PALE GREEN, CHLORITE SPECKLED WITH LENSES & BANDS OF SHALE	
489.3 - 70° — SHALE & COAL 489.8 - IRREGULAR 490.3 - 45° IRREGULAR — COAL 491.3 - 65° - PARALLEL BEDDING		
495.4 - 55°	SHALE - INDURATED - COAL BANDS TO 1 FT COMMON — LABERGE SERIES	65°
501.0 — INTRUSIVE		
502.0	CAIRNES SEAM - COAL	
535.7	SHALE - BLACK, MASSIVE, ARENACEOUS	65°

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

COORDINATES : DIP - [illegible]

HOLE NO 1

PAGE 10 OF 16

DIP

LABERGE SERIES

546.0 - 60° — SANDSTONE - LIGHT - DARK BANDED TO LAMINATED ARGILLACEOUS, FINE GRAINED SANDSTONE

553.0 - BRECCIA-ZONE - 0.2 FT.

553.3 - 0.20° IRREGULAR CONTACT - ORIENTATION PARALLEL TO BEDDING.

HUTSHI GROUP - ANDESITE

DARK GREEN WITH FINE QUARTZ, FELDSPAR PHENOCRYSTS. STEEP DIPPING QUARTZ, CARBONATE, FELDSPAR FILLED FRACTURES COMMON

565.6 - 40° - CHILLED - ORIENTATION?

SANDSTONE - COARSE GRAINED - GRITTY WITH BLACK SPECKLING

LABERGE SERIES

572.6 - 45° — SHALE - MASSIVE, STRONGLY ARENACEOUS WITH SANDSTONE BANDS

574.0 - 70° — GRADATIONAL — 60°

SANDSTONE - AS PREVIOUS

578.8 - 45° — COAL -

585.5 — SHALE - BLACK MASSIVE

586.0 — SHALE - LAMINATED, ARENACEOUS

587.5 — GRADATIONAL

SANDSTONE LIGHT GREY - FINE GRAINED - GRITTY WEAK - MODERATELY ARGILLACEOUS, BANDED — 60°

60°

600.0 - END OF HOLE

DRILL HOLE LOG
ARJAY KIRKER RESOURCES LTD.
NORDENSKIOLD COAL AREA

COORDINATES 22,321,410.69N;-189,712.62E
ELEVATION 2609.7
DIP -50°
AZIMUTH 040°
SCALE 1.5 ins. = 10.0 ft.

CORE SIZE HQ 0-600 FT.
HOLE STARTED 7 SEPTEMBER, 1972
HOLE COMPLETED 14 SEPTEMBER, 1972
LOGGED BY M.P PHILLIPS.

DIP

OVERBURDEN - GLACIAL TILL & WEATHERED BEDROCK

10.0

LABERGE SERIES

SHALE - PURPLE, BEDDED - MASSIVE, WEAKLY ARENACEOUS

HIGHLY BROKEN

20.0 — 40°

SHALE - PURPLE, ARENACEOUS, MASSIVE WITH MANY LIGHT COLORED STRIPPY PARTING TO NARROW BANDS OF VERY FINE GRAINED SANDSTONE — 45°

29.0
FAULT ? - HIGHLY FRACTURED & WEATHERED
30.0

32.0
HIGHLY WEATHERED

34.5

36.0
SHALE - PURPLE STRIPPY

38.5

48.3
SHALE - PURPLE, STRIPPY

56.3

52.0 60°
SHALE - INTERLAMINATED PURPLE SANDY SHALE & LIGHT GREY, FINE GRAINED — 60°

58.0
SANDSTONE — 60°

DRILL HOLE LOG.

ARJAY KIRKER RESOURSES LTD

DIVISION MOUNTAIN COAL PROSPECT

COORDINATES: DIP - ..

HOLE NO 2

Depth	Description	DIP
4.5	LABERGE SERIES	60°
	SHALE - BANDS OF PURPLE - GREY INTERLAMINATED SHALE.	
62.0 -	SANDSTONE - GREY, FINE - MEDIUM GRAINED BLACK SHALE SPECKLED.	70°
		45°
		60°
80.5 -	PARTINGS & NARROW BANDS OF SHALE	
86.0 -		
94.3 - 70°	SHALE - BLACK ARENACEOUS WITH WEAK INTERLAMINATIONS OF GREY FINE GRAINED SANDSTONE	60°
101.8 - 65°	SANDSTONE - FRAGMENTS & NARROW BANDS OF SHALE	
104.0 - 60°		60°
106.0 -	BANDS FROM 0.1 TO 0.5 FT OF SANDSTONE BECOME COMMON.	60°
113.0 -		65°

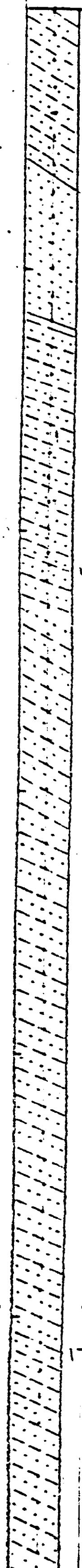
DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD
DIVISION MOUNTAIN COAL PROSPECT

COORDINATES:

DIP -

HOLE NO /



LABERGE SERIES

SHALE -

126.5 - 55°

SANDSTONE - GREY, FINE TO MEDIUM GRAINED WITH CONTORTED FOLDED NARROW BANDS OF INTERLAMINATED BLACK SHALE & GREY FINE GRAINED SANDSTONE

132.0 - 70°

PARTINGS & BANDS UP TO 0.3 FT OF GREY FINE GRAINED SANDSTONE COMMON.

141.5

SHALE - BLACK, ARENACEOUS WITH WELL SPACED LAMINATIONS & OCCASIONAL NARRO
BANDS TO 0.2 FT OF GREY FINE GRAIN
SANDSTONE. LAMINATION AV. 0.2 FT INTERVAL

171.0

LAMINATIONS & BANDS UP TO 0.3 FT WIDE BECOME COMMON.

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

COORDINATES : DIP -

HOLE NO 2

		DIP
	LABERGE SERIES SHALE	65°
186.3	SANDSTONE - GREY, FINE GRAINED	
187.0	SHALE - BLACK, ARENACEOUS WITH GREY FINE GRAINED SANDSTONE LAMINATIONS AT 0.1 - 0.2 FT INTERVALS, OCCASIONAL BAND OF GREY FINE GRAINED SANDSTONE	65°
		65°
199.0	CRUMBLY ALONG BEDDING PLANES	
		65°
		65°
212.0		
		60°
219.0 -60°	SANDSTONE - GREY, FINE GRAINED, MASSIVE	
		60°
223.5	BANDS & FRAGMENTS UPTO 0.2 FT OF BLACK ARENACEOUS SHALE	
226.0	IN GRITTY SANDSTONE	
		65°
229.3 -65°	SHALE - ARENACEOUS, WEAKLY LAMINATED	
230.3 - 55°		
230.8 - 55°	SHALE - ARENACEOUS, LAMINATED	60°
234.0 -60°	SANDSTONE - COARSE GRAINED WITH MINOR SHALE LENSES & 0.3 FT FINE GRAINED	
237.0 -65°	SANDSTONE BOULDER	60
	SHALE -	

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

COORDINATES : DIP -

HOLE NO 2

	DIP
LABERGE SERIES - SHALE BLACK ARENACEOUS SHALE WITH LAMINATIONS OF GREY, VERY FINE GRAINED SANDSTONE, AU 1-2 PER 0.1 FT. OCCASIONAL BANDS TO 0.1 FT	60°
	60
	60°
255.0 - 60° — — BANDS UP TO 0.3 FT OF GREY FINE GRAINED SANDSTONE BECOME COMMON	
260.0 - 60° — — SANDSTONE — FINE GRAINED, GRADING INTO GRITTY	65°
261.3 - 70° — — SHALE - LAMINATED & SANDSTONE - FINE GRAINED INTERBEDDED	
263.6 - 60° — — SANDSTONE - FINE - MEDIUM GRAINED	
265.0 - 65° — —	
	70°
270.0 - 60° — SANDSTONE - 0.5 FT GREY, FINE GRAINED	
	65°
	65°
285.0 - 60° — — BANDS OF GREY, FINE GRAINED SANDSTONE UP TO 0.3 FT PRESENT	60°
289.6 - 60°	
SANDSTONE - GREY, FINE GRAINED WITH MINOR BANDS TO 0.2 FT & PARTINGS OF BLACK ARENACEOUS	60°
293.0 — GRADATIONAL SHALE	
SANDSTONE - GREY, MASSIVE, MEDIUM TO COARSE GRAINED	
296.0 — CASTS OF BLACK LAMINATED SHALE COMMON	
299.2 — SANDSTONE - FINE GRAINED, FINE CHIPS OF SHALE AND COAL	

DRILL HOLE LOG.

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

COORDINATES : DIP -

HOLE NO 2

		DIP
300.3	LABERGE SERIES –	
301.0	SHALE - INTERLAMINATED	60°
	SANDSTONE - FINE GRAINED, PARTINGS OF SHALE & COAL COMMON	
303.5	SANDSTONE – GREY, MEDIUM GRAINED MASSIVE	
305.2	CASTS OF SHALE	
306.8	COMMON.	
309.0	SHALE - LAMINATED	60
310.0	SANDSTONE - FINE GRAINED, PARTINGS & LENSES	
311.5	OF SHALE COMMON	
	SHALE - LAMINATED WITH BANDS UP TO 1.0 FT OF GREY FINE GRAINED SANDSTONE. SHALE CAST COMMON NEAR TOP CONTACT	
315.5 –60°		60°
	SANDSTONE – SHALE CASTS COMMON	
317.0 - 60°		
	SANDSTONE – GREY FINE GRAINED	
322.0	GRADATIONAL	
	SANDSTONE - GREY, MEDIUM GRAINED, CARBONATE FILLED FRACTURES	60°
326.0 -60°		
	SHALE & SANDSTONE INTERBEDDED - BED UP TO 0.5 FT.	60°
329.1 - 60°		
	SANDSTONE - GREY, FINE - MEDIUM GRAINED OCCASIONAL SHALE CAST	
333.1		
334.2	SHALE – MASSIVE, ARENACEOUS IRREGULAR	60°
	SANDSTONE - GREY, MEDIUM GRAINED, LARGE CASTS OF LAMINATED SHALE COMMON	
339.0 -60°		60°
	SHALE - SANDSTONE INTERBANDED - GREY, FINE GRAINED SANDSTONE & INTERLAMINATED GREY, FINE GRAINED SANDSTONE & BLACK ARENACEOUS SHALE - BANDS - 0.1 TO 1.0 FT WIDE	
		55°
		55°
353.5		
	SHALE – BLACK ARENACEOUS WITH FINE GREY SANDSTONE LAMINATIONS	
355.1		
	SANDSTONE – GREY, FINE GRAINED, WITH PARTINGS OF SHALE & MINOR COAL	55°
358.1		
	SHALE	

DRILL HOLE LOG.

ARJAY KIRKER RESOURSES LTD
DIVISION MOUNTAIN COAL PROSPECT

COORDINATES: DIP -

DIP

SHALE - BLACK ARENACEOUS WITH MANY PARTINGS & NARROW BANDS OF GREY FINE GRAINED SANDSTONE.

LABERGE SERIES

365.5 — SANDSTONE - GREY FINE GRAINED

366.5 —

367.5 - 60° — SANDSTONE - GREY, FINE GRAINED WITH NARROW BANDS - 0.2 FT OF LAMINATED SHALE

370.0 - 60° — SHALE - INTERLAMINATED SHALE & FINE GRAINED SANDSTONE. IN PLACES HIGHLY CONTORTED & FRACTURED

374.6 - 70° — SANDSTONE - MEDIUM GRAINED

377.0 - 65° — SHALE - INTERLAMINATED WITH FINE GRAINED SANDSTONE HIGHLY FRACTURED & CONTORTED

380.0 — SANDSTONE - DIRTY GREY COLOR, MEDIUM - COARSE GRAINED, HIGHLY FRACTURED WITH CARBONATE VEINING

385.7 - 25° — SANDSTONE — DRAGGED SHALE BANDS

387.8 - 45° - FAULT CONTACT

HUTSHI GROUP - ANDESITE

391.2 - 35° - BRECCIATED & FAULTED CONTACT - PARALLEL BEDDING?

SANDSTONE & SHALE - INTERBANDED, HIGHLY FRACTURED & DRAG FOLDED

393.7 - 60° — SANDSTONE - BROWN, FINE GRAINED - GRITTY WITH OCCASIONAL SHALE BANDS & FRAGMENTS.

398.0 — STRONGLY ARGILLACEOUS

399.7 —

406.0 - GRADATIONAL —

CONGLOMERATE - LOOSELY PACKED, FINE-MEDIUM ANGULAR PEBBLE CONGLOMERATE

407.0 — SANDSTONE - BROWN, STRONGLY ARGILLACEOUS FINE GRAINED, MASSIVE — 55°

55°

413.8 — SANDSTONE - BROWN, MEDIUM TO COARSE GRAINED WITH SCATTERED UP TO 0.05 FT ANGULAR QUARTZ PEBBLES

416.2 — SANDSTONE - GREY, FINE GRAINED

419.5 - 60° - CHILLED CONTACT — PARALLEL BEDDING — HUTSHI GROUP - ANDESITE

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

COORDINATES : DIP - :

HOLE NO 2

DIP

HUTSHI GROUP - ANDESITE

430.5 - 70°

LABERGE SERIES

SANDSTONE - GREY, SLIGHT - MODERATELY ARGILLACEOUS, FINE - MEDIUM GRAINED, MINOR, TO 0.05 FT SHALE FRAGMENTS.

443.5 - 60° - SHALE - 0.2 FT.

445.5 - 60° — — —

SANDSTONE DARK GREY, FINE GRAINED IN PLACES STRONGLY ARGILLACEOUS GRADING TO NARROW INTERLAMINATED SHALE. OCCASIONAL CASTS OF SHALE

60

60°

459.4 - GRADATIONAL — —

SANDSTONE - GREY FINE - MEDIUM GRAINED.

461.0 - GRADATIONAL — — —

SANDSTONE - GREY, COARSE GRAINED WITH NUMEROUS ANGULAR QUARTZ & SHALE PEBBLES TO ¼ - ½ INCH.

470.0 - 65° — — — — —

SANDSTONE - DARK, ARGILLACEOUS, FINE GRAINED WITH FAINT SHALE PARTINGS AND WISPS INTERLAMINATED IN NARROW BANDS OF BLACK SHALE

65°

478.2 - 70° — — — —

SHALE - BLACK ARENACEOUS WITH PARTING OF FINE GRAINED SANDSTONE

70°

DIP

486.4 – SHALE 70°

LABERGE SERIES

SANDSTONE - GREY, FINE GRAIN MASSIVE WITH MINOR GRIT BANDS UP TO 1 FT. — 70°

486.0 - 70° – SHALE - INTERLAMINATED FINE GRAINED SANDSTONE — 60°

486.0 — — —

488.7 — — — — SANDSTONE - DARK BROWN, FINE GRAINED, STRONGLY ARGILLACEOUS WITH NARROW BANDS OF SHALE PARTINGS & SHALE CHIPS

490.8 — — — — — — 70°

493.8 - 60° — SHALE - BLACK, ARENACEOUS WITH LAMINATIONS AND OCCASIONAL NARROW BANDS UP TO 0.2 FT OF GREY, FINE GRAINED SANDSTONE — 65°

70°

70°

70°

512.0 — — BANDS UP TO 0.5 FT OF GREY FINE GRAINED SANDSTONE BECOME COMMON

516.0 — — — — SANDSTONE - GREY, MEDIUM GRAINED - GRITTY WITH SCATTER ANGULAR PEBBLES FROM ¼" - ½" WIDTH — 70°

522.5 - GRADATIONAL — — — SANDSTONE - DARK GREY, FINE GRAINED WITH DRAGGED PARTINGS OF BLACK SHALE IN CENTER — 70°

525.5 - GRADATIONAL — —

534.2 - 60° SHALE - LAMINATED — 70

535.0 — — —

536.2 - 70° — — — SHALE - BLACK, LAMINATED, ARENACEOUS WITH BANDS UP TO 0.5 FT OF FINE & MEDIUM GRAINED QUARTZITE — 70°

539.0 - 70° — — SANDSTONE

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

HOLE NO 2

COORDINATES : DIP -

		DIP
SANDSTONE - BROWN, FINE GRAINED, OCCASIONALLY MEDIUM GRAINED, OFTEN WITH PARTINGS OF BLACK SHALE & COAL	LABERGE SERIES	70°
		65
552.0 TRANSITION.		
554.2 SANDSTONE - GREY, FINE - COARSE GRAINED UPTO 2 FT ARGILLACEOUS GRIT BANDS		
		65°
571.8 GRADATIONAL - GRIT DARK, STRONGLY ARGILLACEOUS, COARSE GRAINED SANDSTONE WITH ABUNDANT ¼" ANGULAR QUARTZ PEBBLES	SANDSTONE - GREY, COARSE GRAINED - GRITTY WITH STRONG FRACTURING & WEATHERING.	
574.2 - GRADATIONAL -		
575.5 – 576.0 SANDSTONE - WITH COAL & SHALE PARTINGS		
586.0 – 60° SHALE - BLACK INTERLAMINATED WITH FINE GRAINED SANDSTONE		
587.4 – 60° SANDSTONE - FINE GRAINED, WITH OCCASIONAL BLACK SHALE PARTING		70°
592.2 SANDSTONE - MEDIUM - COARSE GRAINED. WITH SCATTER PEBBLES TO 0.1 FT.		
595.3 - 60° SANDSTONE - FINE GRAINED WITH 0.1 TO 0.5 FT BANDS WITH COAL & SHALE LAMINATIONS		60°
600.0 END OF HOLE		70

DRILL HOLE LOG
ARJAY KIRKER RESOURCES LTD.
NORDENSKIOLD COAL AREA

295-394

COORDINATES 22,321,783.19N ; -190,635.16E
ELEVATION 2,486.3
DIP -50°
AZIMUTH 040°
SCALE 1.5 ins. = 10.0 ft.

CORE SIZE HQ 0-600 FT.
HOLE STARTED 14 SEPTEMBER, 1972
HOLE COMPLETED 21, SEPTEMBER, 1972
LOGGED BY M.P. PHILLIPS

DIP

OVERBURDEN - GLACIAL TILL & WEATHERED BEDROCK.

12.0

SHALE - PURPLE, MASSIVE, ARENACEOUS — LABERGE SERIES

15.8 -70°

SANDSTONE - FINE GRAINED, LIGHTLY BANDED

18.0 -70°

SHALE - PURPLE, MASSIVE, ARENACEOUS
LIGHT COLORED, LAMINATIONS

21.5

SANDSTONE - GREY, MASSIVE, FINE-MEDIUM GRAINED

31.0 -70°

SHALE - BLACK, HIGHLY BROKEN

32.3 - CONTACT LOST

HUTSHI GROUP - ANDESITE - PALE GREEN, APHANITIC, SCATTERED UP TO 5 MM QUARTZ FILLED AMYGDALES, HIGHLY WEATHERED

38.7 -15° ORIENTATION ?

SHALE - BLACK, MASSIVE, 0.3 FT SANDSTONE ON BOTTOM CONTACT — LABERGE SERIES

41.0

COAL - SHALE COMMON IN UPPER SECTION

42.3

SANDSTONE - STRONGLY ARGILLACEOUS WITH BANDS OF PURPLE SHALE

44.8 -70°

SANDSTONE

46.0

SHALE - BLACK MASSIVE

47.5

SANDSTONE

52.0

COAL SHINY, BLACK ~3FT RECOVERY

57.0 -70°

SANDSTONE - FINE-MEDIUM GRAINED WITH NARROW BANDS

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

HOLE NO 3

COORDINATES :

DIP -

DIP

LABERGE SERIES

61.0 — SANDSTONE - COARSE GRAINED - GRITTY MASSIVE - SLIGHTLY BANDED.

70°

74.5 - 70° — COAL

70°

79.5 - CONTACT LOST

SHALE — BLACK, MASSIVE WITH COAL PARTINGS

81.0 — SHALE - DARK, STRONGLY ARENACEOUS WITH NARROW BANDS OF SANDSTONE

70°

84.0 - GRADATIONAL

SHALE - BLACK, MASSIVE, OCCASIONAL ARENACEOUS PARTINGS AND COAL PARTING COMMON

80°

87.0 — SANDSTONE - FINE - MEDIUM GRAINED WITH DARK NARROW ARGILLACEOUS BANDS

88.7 — SHALE - BLACK, MASSIVE, COAL AND SANDSTONE PARTINGS

90.5 — SANDSTONE - MEDIUM - COARSE, FAINT ARGILLACEOUS BANDS

92.3 — SHALE - ARENACEOUS, WEAKLY LAMINATED

70°

95.0 — SANDSTONE

97.0 — SHALE - ARENACEOUS, WEAKLY LAMINATED & BANDED

98.7 - 70° — SANDSTONE - COARSE GRAINED

70°

100.7 — COAL

102.6 — SANDSTONE & SHALE - ALTERNATING BANDS & PARTING UP TO 1.0 FT, AVERAGE 0.3 FT.

70°

108.2 - 70° — COAL

108.6 — SHALE - ARENACEOUS, WEAKLY LAMINATED

113.3 — COAL - 0.3 FT

SANDSTONE

65°

119.4 — COAL - 0.4'

1' SHALE

ARJAY KIRKER RESOURCES LTD
DIVISION MOUNTAIN COAL PROSPECT

COORDINATES :

DIP -

HOLE NO 3
PAGE 3 OF 10

DIP

LABERGE SERIES

121.0 - 55° - SANDSTONE - 0.3 FT.

SHALE - LAMINATED ARENACEOUS, OCCASIONAL COAL PARTING. OFTEN LIGHT COLORED, STRONGLY ARENACEOUS BANDS

50°

126.0 - SANDSTONE - 0.3 FT.

70°

134.1 — — — — — COAL

136.5 - SHALE - 0.5'

137.5 — — —

70°

142.6 45°

SANDSTONE - MEDIUM - COARSE GRAINED, WEAKLY BANDED

70°

147.0 — — — SHALE — ARENACEOUS, MODERATE - STRONGLY BANDED

65°

154.5 — — — SANDSTONE - STRONG X-BEDDING, BANDED

157.0 — — — SHALE - ARENACEOUS, WEAKLY LAMINATED

70°

161.0 — — — SANDSTONE - FINE GRAINED, OFTEN TO ARENACEOUS SHALE

166.5 — — —

60°

169.5 — — — — — —

SANDSTONE - FINE GRAINED, OFTEN GRADING TO NARROW BANDS OF STRONGLY ARENACEOUS SHALE

173.5 — — — — — —

70°

179.0 — — SANDSTONE

DRILL HOLE LOG

ARJAY KIRKER RESOURSES LTD
DIVISION MOUNTAIN COAL PROSPECT
DIP- ...

COORDINATES:

Depth	Description	DIP
	SANDSTONE - GREY, FINE-MEDIUM GRAINED, WEAK-MODERATELY ARGILLACEOUS WITH OCCASIONAL NARROW BANDS - PARTINGS OF SHALE — LABERGE SERIES	65°
183.7	SHALE - WEAK-MODERATELY ARENACEOUS LAMINATED WITH UP TO 0.3FT BANDS AND PARTING OF COAL	60°
		70°
181.1	SANDSTONE - GREY, MEDIUM GRAINED	
194.1	SHALE - ARENACEOUS, LAMINATED, WITH NARROW BANDS OF COAL & SANDSTONE	70°
197.0	SANDSTONE	
198.0	SHALE - BLACK, MASSIVE, IN PLACES WEAKLY ARENACEOUS, LAMINATED	
200.8	SANDSTONE	70°
202.5	SHALE - ARENACEOUS LAMINATED OFTEN STRONGLY ARENACEOUS; PARTINGS & NARROW BANDS OF COAL	
205		
		75°
211.7	SANDSTONE - DARK, STRONGLY ARGILLACEOUS	
212.6	SHALE - ARENACEOUS, LAMINATED - 0.5 FT COAL TOP CONTACT	70°
213.7	SANDSTONE	
214.5	SHALE - LAMINATED, ARENACEOUS	
215.8	SANDSTONE - BROWN, MODERATELY ARGILLACEOUS	
217.8	SHALE - ARENACEOUS, WEAK-MODERATELY ARGILLACEOUS WEAK-MODERATELY LAMINATED, RARE PARTING OF COAL	75°
		60°
224.8	SANDSTONE - GRITTY	
228.3		
		65°
237.0	STRONGLY ARENACEOUS	75°

ARJAY KIRKER RESOURCES LTD
DIVISION MOUNTAIN COAL PROSPECT

COORDINATES :

DIP -

HOLE NO 3
PAGE 5 OF 10

LABERGE SERIES

		DIP
240.0	SANDSTONE - WEAKLY ARGILLACEOUS BANDED	60°
242.0	SHALE - WEAK-STRONGLY ARENACEOUS LAMINATED	
245.6	SANDSTONE - PARTINGS SHALE COMMON	
247.8	SHALE - ARENACEOUS, WEAKLY LAMINATED MINOR NARROW BANDS OF SANDSTONE	55°
255.2	SANDSTONE - LIGHT GREY, MEDIUM GREY MINOR PARTINGS & BANDS OF SHALE	70°
259.5	SHALE - ARENACEOUS, GRADING TO ARGILLACEOUS SANDSTONE, WEAKLY LAMINATED	
262.0	SANDSTONE - GREY, WEAK-STRONGLY ARGILLACEOUS MINOR SHALE BANDS	
266.8	SHALE - LIGHT COLORED, STRONGLY ARENACEOUS, GRADING INTO ARENACEOUS LAMINATED	70°
269.0	SANDSTONE - GREY COARSE GRAINED - GRITTY WITH ARGILLACEOUS BANDS & NARROW BANDS & PARTINGS OF COAL	70°
276.3	SHALE - ARENACEOUS, LAMINATED	70°
279.0	SANDSTONE - ARGILLACEOUS, PARTING OF SHALE & COAL	
282.9	SHALE - BLACK, PARTINGS OF COAL	70°
283.8		
285.4	SHALE - ARENACEOUS, LAMINATED, OCCASIONAL PARTINGS OF SANDSTONE	
287.0		
288.5	SHALE - ARENACEOUS, LAMINATED	
290.0	PARTING OF ARENACEOUS SHALE COMMON	70°
293.8	SHALE - ARENACEOUS, WEAKLY LAMINATED	
296.8	SANDSTONE - LIGHT GREY, GRITTY	

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

HOLE NO 3

COORDINATES :

DIP - [illegible]

		DIP
	SANDSTONE — LABERGE SERIES	
301.3	SHALE - DARK, ARENACEOUS, MASSIVE GRADING TO LIGHT STRONGLY ARENACEOUS LAMINATED, OCCASIONAL NARROW BANDS OF SANDSTONE PARTING OF COAL COMMON.	65°
		70°
311.4	SANDSTONE	
312.6	SHALE - MASSIVE, ARENACEOUS, BLACK, WHITE SPECKLING	70°
314.6		
322.0	SHALE - ARENACEOUS, MASSIVE - WEAKLY LAMINATED, COAL PARTINGS COMMON.	70°
325.9	SANDSTONE - COARSE GRAINED, GRADATION FINE GRAINED ARGILLACEOUS TOWARDS BOTTOM	70°
329.8	SHALE - DARK COLORED, WEAK TO LIGHT STRONGLY ARENACEOUS, LAMINATED OCCASIONAL COAL PARTINGS & IRREGULAR NARROW SANDSTONE BANDS	70°
		65°
339.5	SANDSTONE — BLACK SHALE PARTINGS COMMON	
340.1		
346.0	SANDSTONE - LIGHT GREY, FINE GRAINED.	70°
347.7	SHALE - LIGHT STRONGLY ARENACEOUS - DARK WEAK ARENACEOUS, LAMINATED	70°

ARJAY KIRKER RESOURCES LTD
DIVISION MOUNTAIN COAL PROSPECT

HOLE NO 3
PAGE 7 OF 10

COORDINATES :

DIP - 50

DIP

SHALE - SEE PAGE 6

LABERGE SERIES

362.0 — —
SANDSTONE - LIGHT GREY, FINE - MEDIUM GRAINED

70°

367.8 — — —
SHALE - BLACK SLIGHTLY ARENACEOUS TO LIGHT COLORED, STRONGLY ARENACEOUS LAMINATED SHALE WITH PARTINGS OF SANDSTONE, OCC. GRADING TO IRREGULAR ARGILLACEOUS SANDSTONE BANDS

65°

371.3 — —
SANDSTONE - GREY, FINE GRAINED
372.5 — —

70°

375.6 - 70°
SANDSTONE
377.0 — —

70°

380.8 — — — —
SANDSTONE - LIGHT GREY, MEDIUM GRAINED
COAL PARTINGS COMMON

396.3 - 50° — — —
SHALE - BLACK MASSIVE WITH COAL PARTINGS
397.5 - GRADATIONAL — —
SHALE - ARENACEOUS, WEAKLY LAMINATED - MASSIVE.

65°

406.7 — — — — —
SANDSTONE - MEDIUM - COARSE GRAINED WITH SHALE PARTINGS

65°

411.3 — — — — —
SHALE - MASSIVE WEAKLY ARENACEOUS TO STRONGLY ARENACEOUS MASSIVE - WEAKLY LAMINATED

ARJAY KIRKER RESOURSES LTD
DIVISION MOUNTAIN COAL PROSPECT

COORDINATES: DIP -

Depth	Description	DIP
	SHALE - LABERGE SERIES	70°
423.8	SANDSTONE - MASSIVE, MEDIUM - COARSE GRAINED, OCCASIONAL SHALE PARTINGS	
434.3	TRANSITION - FINE GRAINED, ARGILLACEOUS SANDSTONE	
435.7	SHALE - DARK MODERATE - STRONGLY ARENACEOUS LAMINATED SHALE	65°
		70°
445.5	SANDSTONE - WEAK - STRONGLY ARGILLACEOUS, LAMINATED WITH NARROW BANDS OF BLACK SHALE	70°
457.0	SHALE - DARK MASSIVE SLIGHTLY ARENACEOUS WITH IRREGULAR BANDS OF LAMINATED, STRONGLY ARENACEOUS SHALE GRADING TO ARGILLACEOUS SANDSTONE	
460.3	SANDSTONE	70°
462.7 -	Boulders; overlap w/ 93-11 from here	70°
		70°
475.0	SANDSTONE - FINE - MEDIUM GRAINED WEAKLY BANDED	70°
478.4	SHALE - MASSIVE ARENACEOUS	

ARJAY KIRKER RESOURCES LTD
DIVISION MOUNTAIN COAL PROSPECT

COORDINATES : DIP - -

HOLE NO 3
PAGE 9 OF 10

		DIP
	SANDSTONE - DARK, MASSIVE, STRONGLY ARGILLACEOUS. LABERGE SERIES	
486.0		
487.0	SANDSTONE - LIGHT GREY, MEDIUM GRAINED	
	SHALE - ARENACEOUS, LAMINATED	
489.5	SANDSTONE - ARGILLACEOUS BANDING, HIGHLY WEATHERED 492.0 - 496.0 FT.	60°
496.0	SHALE - ARENACEOUS WEAKLY LAMINATED WITH COAL PARTING, GRADING TO MASSIVE TOWARDS BOTTOM CONTACT	60°
500.5	GRADATIONAL. SANDSTONE - LIGHT GREY FINE-MEDIUM GRAINED WITH ARGILLACEOUS BANDING IN UPPER SECTION. OCCASIONAL SHALE & COAL PARTINGS	
513.9	SHALE - DARK-LIGHT, ARENACEOUS, WEAK-STRONGLY LAMINATED WITH COAL PARTINGS.	80°
518.5	SANDSTONE - LIGHT GREY, OCCASIONAL SHALE-COAL PARTING	70°
522.0	SHALE - MASSIVE, SLIGHTLY ARENACEOUS	
523.3	SANDSTONE - GREY, MASSIVE WITH ARGILLACEOUS BANDING TOWARDS BOTTOM CONTACT.	
527.0		
527.5	SHALE - MASSIVE, ARENACEOUS	
530.0		
531.0	SHALE - MASSIVE, ARENACEOUS	
532.0	SANDSTONE - STRONGLY ARGILLACEOUS, LAMINATED	
	SHALE - ARENACEOUS, WEAKLY LAMINATED, MASSIVE TOWARDS BOTTOM CONTACT WITH COAL PARTINGS.	70°
539.0	SANDSTONE GRADATIONAL	

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

HOLE NO 3

COORDINATES :

DIP - -

DIP

SANDSTONE — GREY, COARSE GRAINED WITH ARGILLACEOUS BANDS & PARTINGS COMMON — LABERGE SERIES — 70°

546 — —
SANDSTONE - COARSE GRAINED - GRITTY HIGHLY WEATHERED ALONG FRACTURES

559.4 — —
SHALE - ARENACEOUS LAMINATED — 60°

563.2 — — —
SANDSTONE — DARK WITH BLACK SHALE STREAKING
565.7 — — —
566.0 — SHALE - BLACK, ARENACEOUS
567.3 — — SANDSTONE - FINE-MEDIUM GRAINED ARGILLACEOUS & BLACK SPECKLED
SHALE - BLACK ARENACEOUS, MASSIVE

570.0 — —
SANDSTONE - DARK FINE GRAINED, ARGILLACEOUS
571.7 — —
SHALE - BLACK, ARENACEOUS, MASSIVE OCCASIONALLY WEAKLY LAMINATED — 66°

577.2 —
578.0 — SANDSTONE - DARK COLORED, BLACK SHALE SPECKLED

581.2 -70°? CHILLED CONTACT

HUTSHI GROUP - ANDESITE
PALE GREEN BORDER, DARK GREEN CHLORITE SPECKLED WITH NUMEROUS CARBONATE FILLED FRACTURES

600.0 END OF HOLE

DRILL HOLE LOG
ARJAY KIRKER RESOURCES LTD.
NORDENSKIOLD COAL AREA

COORDINATES 22,321,629.36N; -191,156.44E
ELEVATION 2402.9
DIP -50°
AZIMUTH 040°
SCALE 1.5 ins. = 10.0 ft.

CORE SIZE HQ 0-82.0 FT.
HOLE STARTED 22 SEPTEMBER, 1972
HOLE COMPLETED 27, SEPTEMBER, 1972
LOGGED BY M.P. PHILLIPS

		DIP
19.3	HUTSHI GROUP ANDESITE - DARK GREY WITH BLEACHED BORDERS, APHANITIC WITH OCCASIONAL FINE WHITE FELDSPAR PHENOCRYSTS	
24.3 - CONTACT LOST	LABERGE SERIES -	
	SANDSTONE - DARK COLORED, MEDIUM GRAINED WITH NUMEROUS BLACK CARBONACEOUS SHALE FRAGMENTS & BANDS - 1-3"	45°
29.0 HIGHLY WEATHERED TO SAND		
32.0 CONTACT LOST	COAL - CRUMBLY, DULL BLACK WITH PARTINGS & NARROW BANDS OF BLACK SHALE	
35.0 CONTACT LOST	SHALE - DULL BROWN-BLACK, SLIGHTLY ARENACEOUS WITH LENSES OF DARK COLORED CARBONACEOUS SANDSTONE UP TO 0.2 FT. SHEARED?	
44.5	SANDSTONE - DARK COLORED, FINE TO MEDIUM GRAINED SANDSTONE WITH UP TO 0.5 FT BANDS OF BLACK SHALE - HIGHLY BROKEN & SLICKENSIDES 0-30° COMMON	30°?
51.0 SLIGHTLY ARENACEOUS	SHALE - BLACK MASSIVE SHALE IN PARTS SLIGHTLY ARENACEOUS	"
54.0		

ARJAY KIRKER RESOURSES LTD

DIVISION MOUNTAIN COAL PROSPECT

HOLE NO 4

COORDINATES :

DIP -

DIP

LABERGE SERIES - SHALE - DARK COLOREE

MASSIVE SLIGHTLY SANDY SHALE WITH OCCASIONAL TO 0.2 FT DARK COLDREED SANDSTONE

74.0 - BLACK, SANDY SHALE - HIGHLY CRUMBLY

NO RECOVERY.

82.0 - END OF HOLE - ABANDONED

DRILL HOLE LOG
ARJAY KIRKER RESOURCES LTD.
NORDENSKIOLD COAL AREA

COORDINATES 22,321,290.80N ; -191,208.83E
ELEVATION 2457.7
DIP -50°
AZIMUTH 040°
SCALE 1.5 ins. = 10.0 ft.

CORE SIZE HQ 0-434.0 FT NQ 434-1205 F
HOLE STARTED 29, SEPTEMBER, 1972
HOLE COMPLETED 13, OCTOBER, 1972
LOGGED BY M.P. PHILLIPS

DIP

OVERBURDEN - GLACIAL TILL & WEATHERED BEDROCK

20.0

LABERGE SERIES

SANDSTONE - DARK COLORED, GRITTY. BLACK SPECKLED WITH OCCASIONAL NARROW BANDS OF BROWN SHALY COARSE GRAINED SANDSTONE 60°

28.2 -60° CONTACT — SHALE - SANDY, WEAKLY LAMINATED
29.2 -60° CONTACT —
30.0 -60° — SANDSTONE - DARK BROWN, MEDIUM GRAINED 60°
30.8 — COAL
32.0 -60° — SHALE - BLACK, MASSIVE, ARENACEOUS
32.7 -60° — COAL - SANDSTONE & 0.4 FT COAL
SANDSTONE - BROWN, FINE-MEDIUM GRAINED, IN PLACES STRONGLY ARGILLACEOUS & LAMINATED 70°
37.0 -60° —
38.2 -55° — COAL - NARROW BANDS & PARTINGS OF BLACK SHALE
SANDSTONE - BROWN, ARGILLACEOUS, MEDIUM-COARSE GRAINED
41.3 -70° — 70°
SANDSTONE - GREY, COARSE GRAINED TO GRITTY
44.0

SHALE - BLACK MASSIVE TO ARENACEOUS MASSIVE, LAMINATED ARENACEOUS SHALE & COAL PARTINGS TO 0.2 FT COMMON 70°

46.0 COAL - 0.2 FT
46.9 COAL 0.1 FT
49.8 COAL - 0.5 FT
50.8 - COAL - 0.1 FT —
SANDSTONE
52.6 -55° —
53.1 COAL 0.1 FT 65°
55.4 —
55.9 -40° — COAL
57.7 -40° COAL
SANDSTONE
62.1 -60° COAL 0.3 FT
63.7 -60° —
SANDSTONE
65.3 -66° —
66.8 —
67.9 — COAL BANDS TO 0.2 FT
69.4 — COAL

DRILL HOLE LOG.

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

HOLE NO 5

COORDINATES : DIP - -

DIP

70.5 COAL

LABERGE SERIES

71.5 - 70° CONTACT - -

SANDSTONE

75°

75.2 - 75° CONTACT - COAL - 0.2 FT. DULL, SANDY

75.8 - - -

COAL - DULL SANDY.

77.0 - - -

SHALE - BLACK - COAL PARTINGS

78.4 - 75° CONTACT

75°

COAL - DULL BLACK, PARTINGS & BANDS OF BLACK SHALE

80.8 - 75° CONTACT

81.5 - COAL - 0.2 FT.

SANDSTONE - DARK, X BEDDED, LAMINATED ARGILLACEOUS, FINE GRAINED SANDSTONE.

70°

85.0 - 70° CONTACT

SANDSTONE - LIGHT GREY, COARSE GRAINED - GRITTY, FELDSPATHIC SANDSTONE. RARE PARTINGS OF ARENACEOUS SHALE

65°

70

70°

101.3 - - SHALE PARTINGS & FINE SHALE PARTICLES IN SANDSTONE

104.2 - 60° CONTACT - COAL PARTING

SANDSTONE - SHALE PARTICLES IN SANDSTONE COMMON

70°

106.0 - 60° SHALE - INDURATED

106.7 - 45° - 70° CHILLED CONTACT

ANDESITE - PALE GREEN ANDESITE WITH ALTERED CHLORITE & FELDSPAR PHENOCRYSTS. XENOLITH TO 0.3 FT

109.2 - 70° CHILLED CONTACT

COAL

SHALE CONTACTS PARALLEL TO BEDDING

110.6 - 70° - - -

SANDSTONE - GREY TO BROWN, CLEAN TO ARGILLACEOUS MEDIUM - COARSE GRAINED, OCCASIONAL

70°

113.0 - 70° - - - - - - BANDS OF BLACK SPECKLING

114.0 SHALE - BLACK MASSIVE

114.5 SANDSTONE

COAL - DULL BLACK.

116.5

117.0 SHALE - ARENACEOUS WEAKLY LAMINATED

SANDSTONE - DARK, BLACK SHALE SPECKLING

118.3 - 60° CONTACT

118.8 - 70° CHILL CONTACT - PARALLEL BEDDING.

HUTSHI GROUP - ANDESITE

121.3 - 70° CHILLED CONTACT PARALLEL BEDDING.

SHALE

122.3 - LOST

123.0 - 70° CHILLED SHALE

123.5 - 40° - - -

125.4 - 40° CHILLED CONTACT

SHALE - BLACK MASSIVE SHALE, PARTINGS OF COAL COMMON, AND NARROW BANDS OF LIGHT COLORED, ARENACEOUS

65°

128.2 - -

COAL

129.0

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

HOLE NO 5

COORDINATES :

DIP -

		DIP
	LABERGE SERIES - SHALE	
132.5 – 133.0	COAL	60°
136.3 – 137.4	COAL	
139.1 –	SHALE - LAMINATED, ARENACEOUS	
141.0 –	SANDSTONE WITH NARROW BANDS OF BLACK SHALE	
142.0 –	BLACK SHALE & SANDSTONE WITH 0.4 FT COAL	
143.3 –		60°
	SANDSTONE – MEDIUM GREY, MEDIUM TO COARSE GRAINED WITH SHALE FRAGMENTS & PARTINGS OF ARGILLACEOUS MATERIAL	
145.5 - 60°	CHILLED CONTACT PARALLEL TO BEDDING — ANDESITE — BLEACHED	
148.6 - 60°		
149.8 - 60°		
	SHALE - BLACK MASSIVE SHALE	70°
152.1 – 153.0	COAL	
154.0 - 70°		
	SANDSTONE - DARK GREY, COARSE GRAINED TO GRITTY ARGILLACEOUS CROSS-BEDDED SANDSTONE	70°
155.0 - 60° 159.8 –	COAL	
		65°
164.3 - 65°		
	SHALE - LAMINATED CROSS BEDDED ARENACEOUS SHALE WITH BANDS OF BLACK SHALE WITH PARTINGS AND BANDS UP TO 0.2 FT OF COAL.	70°
171.5		
174.0 –	COAL - PARTINGS & BANDS OF BLACK SHALE	65°
176.5 - 65°		
	SANDSTONE - LIGHT GREY GRITTY SANDSTONE	70°
182.2 - 80°		
	SHALE - BLACK, MASSIVE SHALE WITH PARTING AND BANDS UP TO 0.4 FT OF COAL	65°
186.3 - 60°		
187.3 - 6.6 FT COAL		
	SANDSTONE - LIGHT TO DARK GREY MEDIUM - COARSE GRAINED SANDSTONE WITH ARGILLACEOUS AND SHALE BANDS	60°

DRILL HOLE LOG

ARJAY KIRKER RESOURSES LTD

DIVISION MOUNTAIN COAL PROSPECT

HOLE NO 5

COORDINATES :

DIP - =

DIP

LABERGE SERIES - SANDSTONE

191.3 - 40° COAL
192.6

194.4 - 40°

SHALE - BLACK MASSIVE WITH OCCASIONAL ARENACEOUS PARTINGS · BEDDING 0 - 30°

197.0 -

SANDSTONE & SHALE - INTERBEDDED & INTERLAMINATED - BEDDING 0 - 30°

199.5 -

SHALE - BLACK MASSIVE

203.0 - GRADATIONAL

SHALE - DULL DARK GREY, ARENACEOUS WEAKLY LAMINATED SHALE BEDDING - 0 - 20°

212.0 - SHALE - BLACK MASSIVE WITH 0.1 FT COAL PARTING ON BOTTOM CONTACT

213.4 - 50°

214.8 - COAL - 0.4 FT SANDSTONE - IN PARTS ARGILLACEOUS WITH NARROW BANDS OF SHALE

216.8 -

SANDSTONE - ARENACEOUS SHALE GRAD CHANGE TO DARK, FINE GRAINED ARGILLACEOUS SANDSTONE

222.0 - 35° SHALE - DARK GREY, MODERATELY ARENACEOUS WEAKLY LAMINATED

224.0 - 20° SANDSTONE - LIGHT GREY, IN PARTS WEAKLY ARGILLACEOUS WITH PARTINGS OF COAL

228.5 - 10° SHALE - BLACK MASSIVE TO ARENACEOUS WEAKLY LAMINATED

232.0 - 10° SANDSTONE - DARK GREY, STRONGLY, ARGILLACEOUS

234.9 - 10 - 20° COAL - PARTINGS & BANDS OF BLACK SHALE

235.8 - SHALE - BLACK MASSIVE

237.0 - COAL - 30°? - BANDS OF BLACK SHALE COMMON

239.0 - SHALE - INTERLAMINATED STRONGLY ARENACEOUS SHALE & BLACK MASSIVE SHALE

246.0 - SHALE - BLACK MASSIVE - STRONG SLICKENSIDED FRACTURES & BEDDING PLANES

40°

30°

50°

35°

10°

25°

ARJAY KIRKER RESOURSES LTD
DIVISION MOUNTAIN COAL PROSPECT

COORDINATES:

DIP -

DIP

LABERCE SERIES

SANDSTONE - LIGHT TO MEDIUM GREY, COARSE GRAINED TO GRITTY, WEAK TO BANDS STRONGLY ARGILLACEOUS SANDSTONE

SHALE

250.2 - SHALE - BLACK MASSIVE WITH QUARTZ GRAINS
FAULT?
251.2 - -
252.0 SAND STONE - CRUMBLY

IN PART CRUMBLY - WEATHERED - FAULTZONE?

255.0

65°

60°

263.6 - SHALE - DARK DULL GREY, LAMINATED ARENACEOUS SHALE WITH OCCASIONAL UP TO 0.5 FT BLACK MASSIVE SHALE BANDS

50°

272.5 - COAL - 0.5 FT - PARTING OF SHALE.

60°

SANDSTONE - COARSE GRAINED, WEAK TO STRONGLY ARGILLACEOUS

274.0 - SHALE - BLACK, MASSIVE, IN PARTS ARENACEOUS

275.7 - COAL - PARTING & BANDS OF BLACK SHALE

60°

277.0 - SANDSTONE - IRREGULAR TO 0.3 FT ARGILLACEOUS BANDS AND OCCASIONAL UP TO 0.5 FT BANDS OF BLACK SHALE WITH GRIT FRAGMENTS

282.0 - SHALE - DULL DARK GREY, WEAKLY LAMINATED ARENACEOUS OCCASIONAL NARROW. BANDS BLACK MASSIVE SHALE

30°

287.0 - SANDSTONE - GREY, MEDIUM GRAINED OCCASIONAL PARTINGS & NARROW BANDS OF BLACK SHALE & COAL

60°

288.5 - SHALE - ARENACEOUS, WEAKLY LAMINATED
290.0

292.3 - SHALE - ARENACEOUS, LAMINATED
293.0

295.4
296.1 - SHALE - ARENACEOUS, LAMINATED

65°

297.0 - 30°
SHALE - ARENACEOUS, LAMINATED.
297.5 - 30°
299.4 - 60°

SHALE - STRONGLY ARENACEOUS, LAMINATED.

40°

30°

304.5 - SHALE - BLACK, MASSIVE, NUMEROUS SLICKENSIDES ALONG BEDDING(?)

310.0

DRILL HOLE LOG

ARJAY KIRKER RESOURSES LTD

DIVISION MOUNTAIN COAL PROSPECT

COORDINATES:

DIP-

LABERGE SERIES

Depth	Description	DIP
	SANDSTONE - INTERBEDDED & BANDED GREY SANDSTONE, ARGILLACEOUS FINE - MEDIUM GRAINED SANDSTONE AND ARENACEOUS LAMINATED SHALE	40°
314.2	- GRADATIONAL — SANDSTONE - GREY, GRITTY WITH BANDS TO 0.3 FT STRONGLY ARGILLACEOUS	55°
		50°
320.0	COAL - TWO 0.3 FT BANDS IN BLACK MASSIVE SHALE AND ARENACEOUS LAMINATE SHALE	
322.0		
333.0	SHALE - BLACK, MASSIVE ARENACEOUS WITH SCATTERED GRITS	
	SANDSTONE - DARK GREY, MODERATELY ARGILLACEOUS	60°
327.3 - 30°	SHALE - ARENACEOUS - LAMINATED	
328.2 - 50°	SHALE - BLACK, MASSIVE	50°
329.8		
330.5 - 50°	SHALE - BLACK, MASSIVE, OCCASIONAL, NARROW ARENACEOUS BANDS	
332.5	SHALE - ARENACEOUS, WEAK - MODERATELY LAMINATED	55°
337.0	SHALE - BLACK, MASSIVE, PARTINGS OF COAL	
337.5	COAL - DULL BLACK	
339.0	SHALE - BLACK, MASSIVE - PARTINGS OF SANDSTONE	
341.5	COAL - PARTING OF SHALE	40°
343.5	SHALE - ARENACEOUS, WEAKLY LAMINATED	
344.0 - 45°	SANDSTONE - GREY, COARSE GRAINED, PARTINGS OF ARENACEOUS SHALE	40°
347.6	SHALE - ARENACEOUS, LAMINATED, NARROW BANDS OF SANDSTONE TO 0.3' COMMON TOWARDS BOTTOM	50°
350.5	SHALE - ARENACEOUS, LAMINATED AND SANDSTONE INTERBEDDED	50°
353.3	SANDSTONE - GREY, COARSE GRAINED GRITTY	40°
357.7 - 45°	SHALE - BLACK, MINOR PARTINGS OF ARENACEOUS SHALE	35°
362.0	COAL - DULL, ARGILLACEOUS	
363.0	SHALE - ARENACEOUS, LAMINATED, X-BEDDED	35°
366.2	SANDSTONE	
367.2	COAL - 0.5 FT	

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

HOLE NO 5

PAGE 7 OF 17

COORDINATES :

DIP - - -

DIP

LABERGE SERIES -

SHALE - ARENACEOUS, LAMINATED, X-BEDDED
OCCASIONAL BANDS UP TO 1 FT. BLACK
MASSIVE AND ARENACEOUS MASSIVE

40°

0°

20°

387.4 — SHALE - BLACK, MASSIVE, SLICKENSIDES COMMON

390.0 — SANDSTONE - GREY, MEDIUM GRAINED, NARROW ARGILLACEOUS BANDS

35°-60°

393.3 - 45° - FAULT? —
SHALE - SANDSTONE BRECCIA FRAGMENTS - 0.5 FT. WIDE ZONE

SHALE - BLACK MASSIVE, BROKEN, SLICKENSIDES COMMON
OCCASIONAL DARK ARGILLACEOUS
QUARTZITE BAND

398.3 — SHALE & SANDSTONE - INTERBEDDED, ARENACEOUS COARSE GRAINED SHALE AND SANDSTONE

20°

402.8 - 30° — COAL - DULL BLACK, OCCASIONAL PARTINGS OF SHALE AND ARENACEOUS SHALE

20°

405.3 — SANDSTONE - 0-10°

406.6 —

10°

410.2 - 10° ? CONTACT — SANDSTONE - GREY, MEDIUM - COARSE GRAINED, OCCASIONAL PARTINGS OF COAL

10°

416.4 - 6-10° — SHALE - BLACK MASSIVE - HIGHLY BROKEN. 0.5 FT COAL UPPER CONTACT

420.0 — FAULT ZONE ? - HIGHLY FRACTURED & BROKEN ROCK

421.0 — SANDSTONE

424.0 — SHALE - BLACK MASSIVE - HIGHLY BROKEN

ARJAY KIRKER RESOURCES LTD
DIVISION MOUNTAIN COAL PROSPECT
HOLE NO 6.
COORDINATES :
DIP -

		DIP
	LABERGE SERIES	
	CORE LOSS - 6 FT.	
432.0	SHALE - BLACK, MASSIVE	
434.5 - 30°	SANDSTONE - GREY, MEDIUM GRAINED, OCCASIONAL COAL AND ARGILLACEOUS PARTING.	10°
442.0	SHALE - BLACK, MASSIVE - HIGHLY BROKEN	0
443.8 - 30°		30°
447.0 - 30°	SHALE - BLACK, MASSIVE	
448.1 - 25°	SANDSTONE - ABUNDANT SHALE GRAINS	25°
449.6		35°
454.2	WEATHERED SANDSTONE - FAULT — AFTER 454.2 - NARROW BANDS - 0.1 FT OF BLACK SHALE COMMON	
456.0 - 457.5 - 30°	SHALE - BLACK, MASSIVE - STRONG SLICKENSIDES ON BEDDING, OCCASIONAL NARROW BAND OF COAL AND SANDSTONE	30°
463.0	SANDSTONE - ARGILLACEOUS TOWARDS BOTTOM CONTACT	30°
466.0	SHALE - BLACK, MASSIVE, SLIGHT ARENACEOUS PARTING OF COAL	
469.0 - 45°	IRREGULAR CONTACT SANDSTONE - BLACK, ARGILLACEOUS MATERIAL ABUNDANT, PARTINGS & NARROW BANDS OF BLACK SHALE COMMON	30°
473.5	SHALE - INTERBEDDED BLACK SHALE & COAL	30°
476.0	SANDSTONE - DARK COLORED, STRONGLY ARGILLACEOUS	50°
478.6 - 30°	SHALE - BLACK, MASSIVE, OCCASIONAL PARTING OF COAL.	
485.0	ARENACEOUS PARTINGS.	50°
486.5		
489.0 - 30° & 50° CNTS	ANDESITE	

ARJAY KIRKER RESOURSES LTD

DIVISION MOUNTAIN COAL PROSPECT

COORDINATES:

DIP -

DIP

SHALE

LABERGE SERIES

492.8 - 70° CNT - ORIENTATION?

ANDESITE - PALE GREEN, APHANITIC

496.0 - CONTACT LOST

SANDSTONE

CORE LOSS - 496.0 - 502.0 - 3.5 FT.

SHALE - BLACK, MASSIVE, HIGHLY BROKEN, OCCASIONALLY ARENACEOUS PARTINGS.

507.0 SANDSTONE - DARK GREY, STRONGLY ARGILLACEOUS

508.4 - 30°

SANDSTONE - LIGHT - DARK GREY FINE TO COARSE GRAINED WITH NARROW BANDS STRONGLY ARGILLACEOUS, HIGHLY FRACTURED — 50°

511.0 STRONGLY WEATHERED - FAULT?
512.0

512.9 - 40° SHALE - 0.4' AND STRONGLY ARGILLACEOUS SANDSTONE

515.4 - 50°

520.8

SANDSTONE - GREY MEDIUM GRAINED, MASSIVE SANDSTONE WITH OCCASIONAL FRAGMENTS & PARTINGS OF COAL

522.0 SHALE - BLACK MASSIVE

SHALE - ARENACEOUS, LAMINATED

524.5 - 45° - GRADATIONAL

45°

30°

30°

542.2 - 35° SHALE - ARENACEOUS, WEAKLY LAMINATED & ARGILLACEOUS FINE GRAINED DARK SANDSTONE

545.0 — 30°

SANDSTONE - DARK, FINE GRAINED, ARGILLACEOUS

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

HOLE NO 6

COORDINATES :

DIP -

DIP

SANDSTONE - AS PREVIOUS

LABERGE SERIES -

554.2 - 30° —

SHALE - BLACK, MASSIVE, MINOR SANDSTONE FRAGMENTS

556.7 —

SANDSTONE - LIGHT-DARK WEAK-MODERATELY ARGILLACEOUS SANDSTONE

558.8 - 10° - FAULT?

559.3 — SHALE — BLACK MASSIVE WITH UP TO 0.1 FT SANDSTONE FRAGMENTS

561.0 - 0.3 FT BRECCIA - SANDSTONE FRAGMENTS IN BLACK SHALE

563.7 - 0.3' BRECCIA - SANDSTONE FRAGMENTS IN BLACK SHALE.

565.0 —

BRECCIA ZONE - MAINLY BLACK SHALE WITH SANDSTONE FRAGMENTS AND MINOR BRECCIATED SANDSTONE

569.5 —

BRECCIA ZONE - UP TO 0.3 FT SANDSTONE FRAGMENTS IN BLACK SHALE

576.3 —

BRECCIA ZONE - BLACK, MASSIVE SHALE WITH OCCASIONAL SANDSTONE FRAGMENT

576.3 —

SHALE - ALTERNATING BANDS UP TO 2 FT OF BLACK MASSIVE AND ARENACEOUS LAMINATED SHALE, OCCASIONAL BRECCIA FRAGMENTS TO 6 INCH.

30°

30°

588.6 —

SHALE - ARENACEOUS, LAMINATED.

590.0 —

SANDSTONE - BLACK SHALY MATRIX

591.3 —

SANDSTONE - LIGHT TO DARK GREY, FINE - GRITTY SANDSTONE WITH IRREGULAR MODERATE - STRONG ARGILLACEOUS SANDSTONE BANDS, OCCASIONAL PARTINGS & LENSES OF COAL & SHALE, IN PLACES CRUMBLY ALONG FRACTURE

40°

35°

45°

DRILL HOLE LOG

ARJAY KIRKER RESOURSES LTD
DIVISION MOUNTAIN COAL PROSPECT

COORDINATES: DIP- 5[illegible]

HOLE NO 6

DIP

AFTER 610.0 FT. GRITTY BANDS BECOME COMMON. — LABERGE SERIES — 30°

30°

635.0 - GRADATIONAL - END OF GRIT BANDS — 30
SANDSTONE - LIGHT TO DARK, MEDIUM TO COARSE GRAINED, WEAK - STRONGLY ARGILLACEOUS MODERATE FRACTURING COAL & BLACK SHALE PARTING & LENSES COMMON OFTEN DRAGGED.

641.0 - GRADUALLY CHANGE TO STRONGLY ARGILLACEOUS DARK COLORED

25?

651.0 - 10° - - -
SHALE - MASSIVE ARENACEOUS.

655.1 - 30°? IRREGULAR - PARALLEL BEDDING? - CHILLED CONTACT
HUTSHI GROUP - ANDESITE - PALE GREEN GRADUALLY DARKER IN COLOR TOWARDS CENTER, CHLORITE & QUARTZ - FELDSPAR FILLED AMYGDALES COMMON. FAIR CARBONATE - FELDSPAR VEINING.

60

ARJAY KIRKER RESOURCES LTD
DIVISION MOUNTAIN COAL PROSPECT

COORDINATES : DIP -

HOLE NO 6
PAGE 12 OF 17

DIP

HUTSHI GROUP - ANDESITE

688.7 - 60° — SHALE - BLACK MASSIVE
688.5 - 86° —

693.3 - 0.3' SHALE - BLACK MASSIVE

706.0 - 80° CHILLED CONTACT

LABERGE SERIES

707.0 - SHALE - BLACK MASSIVE, SLIGHT ARENACEOUS
BRECCIA - 0.5 FT - FAULT?
SANDSTONE - COARSE GRAINED - GRITTY
STRONGLY WEATHERED

712.0 - 45° — — —
SHALE - BLACK, MASSIVE, PARTINGS OF COAL
ARENACEOUS AT UPPER CONTACT.

716.0 —
SANDSTONE

717.7 — SHALE - ARENACEOUS, WEAKLY LAMINATED, MINOR MASSIVE

719.5 - 50° — — —
720.4 - 50 — — SHALE - BLACK, MASSIVE, NUMEROUS PARTINGS OF COAL
COAL - BLACK

722.6 - 40° — — — — — —
SANDSTONE - GREY, GRITTY, OCCASIONAL
PARTING OF COAL, GRAINS TO 1/4 INCH

55°

58°

ARJAY KIRKER RESOURSES LTD
DIVISION MOUNTAIN COAL PROSPECT

COORDINATES: DIP - -

DIP

LABERGE SERIES

742.0 - 50° 0.5 SHALE - ARENACEOUS, LAMINATED

745.0 - 50° SHALE - MASSIVE, SLIGHT ARENACEOUS. 50°
746.0 -

747.7 - 50° GRADATIONAL
SHALE - BLACK, MASSIVE & ARENACEOUS
748.6 - FAULT 45°
SANDSTONE - LIGHT - MEDIUM GREY, MODERATELY ARGILLACEOUS, OCCASIONAL PARTING OF COAL.

753.5 - 30° SLICKENSIDE
754.6 - 60° SHALE

756.0 - 20° - SLICKENSIDE - 0.7' SHALE

50°

762.0 - 60°
SHALE - ARENACEOUS, LAMINATED, STRONG SLICKENSIDES
764.0 -

767.0 - SHALE - ARENACEOUS, SLIGHTLY LAMINATED. 30°

770.0 - 50°

772.3 - 50° SHALE - STRONGLY ARENACEOUS
773.0 -

45°

781.0 - 70° SHALE - BLACK MASSIVE
782.0 -
SHALE - ARENACEOUS, LAMINATED 55°
783.4 - 60°

789.5
SHALE - ARENACEOUS, WEAKLY LAMINATED
790.1 - 60°

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD
DIVISION MOUNTAIN COAL PROSPECT

COORDINATES : DIP - -

LABERGE SERIES

DIP

790.5 SHALE - BLACK MASSIVE, COAL PARTINGS
791.4 COAL - SHALE PARTING COMMON
793.2 -70° SHALE - ALTERNATING BANDS - TO 1 FT OF BLACK MASSIVE SHALE WITH COAL PARTINGS & BANDS TO .2 FT AND ARENACEOUS, WEAKLY LAMINATED
799.7 -70° SANDSTONE
801.4 -55° COAL
804.5? -55° SHALE - BLACK - GREY, MASSIVE, HIGHLY BROKEN
808.0 - 65° SHALE - STRONGLY ARENACEOUS, LAMINATED, BANDS OF FINE GRAINED SANDSTONE — 65°
810.7 -65° GRADATIONAL SANDSTONE - FINE GRAIN, IRREGULAR NARROW ARGILLACEOUS BANDS
813.0 -70° PARTINGS OF COAL
SHALE - MASSIVE, ARENACEOUS 0.5 FT BLACK SHALE WITH COAL PARTINGS ON BOTTOM CONTACT
815.0 SANDSTONE - GREY, COARSE GRAINED - GRITTY WITH PARTINGS OF BLACK, ARENACEOUS SHALE
821.0 -30° SHALE - MASSIVE ARENACEOUS — 50°
826.3 -30° SHALE - ARENACEOUS, LAMINATED — 50°
829.1 -50° SHALE - BLACK, MASSIVE
837.4 SANDSTONE - WEAK - STRONGLY ARGILLACEOUS — 50°
838.4 SHALE - BLACK, MASSIVE, OCCASIONALLY ARENACEOUS MINOR COAL PARTINGS
841.8 COAL
843.3 SANDSTONE - WEAK TO STRONGLY ARGILLACEOUS
844.5 SHALE - BLACK, MASSIVE & ARENACEOUS
845.3 -60° SANDSTONE & SHALE - BLACK, MASSIVE & ARENACEOUS LAMINATED
847.2 SANDSTONE — 65°
849.0 SHALE - BLACK MASSIVE

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

COORDINATES :

DIP - -

HOLE NO 6

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		DIP
850.5	COAL - 0.5 FT.	LABERGE SERIES
	SANDSTONE - DARK, STRONGLY ARGILLACES GRADING INTO ARENACEOUS SHALE, MINOR COAL PARTINGS IN PLACES	60°
853.3 - 50°		
	SANDSTONE - ARGILLACEOUS BANDS TOWARDS BOTTOM CONTACT	
856.8 - 60°		
	SHALE - ARENACEOUS, WEAKLY LAMINATED WITH NARROW BANDS OF BLACK MASSIVE	
860.6		
	COAL - SHALE PARTING & NARROW BANDS COMMON	
862.8		
863.7	SHALE - BLACK MASSIVE WITH COAL PARTINGS	
864.3	COAL	
	SANDSTONE - 0.4 FT	
866.0	COAL	
867.0	SHALE - ARENACEOUS	
	COAL - BANDS OF BLACK MASSIVE SHALE UP TO 0.2 FT COMMON	
870.3 - 60°		
	SHALE - LIGHT COLORED, ARGILLACEOUS, FINE GRAINED SANDSTONE LAMINATED ARENACEOUS SHALE	65°
		60°
880.0		55°
	COAL PARTING BECOME COMMON	
882.1		
	SANDSTONE - STRONGLY ARGILLACEOUS, DARK, GRADING INTO LIGHT COLORED, MEDIUM - COARSE GRAINED	
884.8 - 0.6 FT SHALE - BLACK MASSIVE 70°		
886.5 - 70°		70°
	SHALE - DARK, MASSIVE, WEAK - MODERATELY ARENACEOUS, COAL PARTINGS COMMON	
891.5 - 76°		
892.2 -	COAL	
	SANDSTONE - GREY TO LIGHT BROWN, FINE GRAINED TO GRITTY, MODERATE - STRONGLY ARGILLACEOUS	70°
894.3	SHALE - 0.5 FT.	
		70°
901.4		
	SHALE - LIGHT TO DARK COLORED, INTERLAMINATED, ARGILLACEOUS FINE GRAINED SANDSTONE LARENACEOUS SHALE AND LAMINATED ARENACEOUS SHALE.	65°
		65°

ARJAY KIRKER RESOURCES LTD
DIVISION MOUNTAIN COAL PROSPECT

COORDINATES: DIP - -

HOLE NO 6

LABERGE SERIES

912.4 - 70° — SANDSTONE - GREY, OCCASIONAL NARROW, ARGILLACEOUS BANDS

915.3 - 45° —

926.3 - 65° — SANDSTONE - COAL & BLACK SHALE PARTINGS COMMON

SANDSTONE — GREY TO LIGHT BROWN MODERATELY ARGILLACEOUS, FINE-MEDIUM GREY SANDSTONE WITH IRREGULAR NARROW ARGILLACEOUS BANDS & PARTINGS COAL PARTINGS & LENSES COMMON

927.8 - 55° —
928.5 —
929.5 — COAL

SHALE - BLACK, MASSIVE, SLIGHT ARENACEOUS MINOR NARROW COAL BANDS

933.5 - 50° — SANDSTONE
934.0 - 40° — SHALE - BLACK MASSIVE WITH COAL PARTINGS GRADING INTO ARENACEOUS LAMINATED
935.1 - 50° —

937.0 - 70° — SHALE - BLACK, MASSIVE, SLIGHTLY ARENACEOUS, NARROW BANDS OF COAL
938.3 - 55° —

941.0 - 70° — SHALE - BLACK MASSIVE WITH COAL PARTINGS & ARENACEOUS, LAMINATED

944.4 - 60° —

946.1 - 55° — SHALE - BLACK MASSIVE WITH 0.2 FT COAL BAND
946.7 - 45° —

951.3 — SHALE - LAMINATED, STRONGLY ARENACEOUS. - COAL PARTING ON UPPER CONTACT
952.0 —
952.6 - 60° —

SHALE - BLACK, MASSIVE, SLIGHT ARENACEOUS LAMINATED

957.0 - 70° —

959.8 - SHALE - 0.4 FT BLACK, MASSIVE

961.6 - 60° — SHALE - LIGHT COLORED, STRONGLY ARENACEOUS LAMINATED, MINOR BLACK SHALE WITH COAL PARTINGS

965.0 - 60° —

966.4 - 70° —
967.5 - 70° — SHALE - BLACK MASSIVE - 0.3 FT COAL ON UPPER CONTACT
968.2 —

SHALE - ARENACEOUS, LAMINATED

DIP: 70°, 65°, 70°, 55°, 55°, 60°, 55°, 65°, 60°, 60°

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

COORDINATES : DIP - -

HOLE NO 6
PAGE 17 OF 17

LABERGE SERIES

		DIP
967.2 - 75°	SHALE	
972.8 - 70°	SHALE - ARENACEOUS, WEAKLY LAMINATED	75°
974.1 - 65°		
978.5 - 70°	BLACK, MASSIVE, COAL PARTINGS	70°
979.0		
981.5 - 70°	SHALE - BLACK, MASSIVE WITH COAL PARTINGS GRADING INTO ARENACEOUS LAMINATED	65°
984.1 - 70°		
986.3 - 65°	SHALE - ARENACEOUS, WEAKLY LAMINATED	70°
989.8		
991.2 - 70°	SHALE - 0.3 FT.	
993.6	SHALE - BLACK, SLIGHTLY ARENACEOUS WITH BANDS OF ARGILLACEOUS FINE GRAINED	70°
995.8	GREY SANDSTONE, MINOR PARTINGS OF COAL	
998.3 - 70°	SHALE - BLACK, MASSIVE WITH BANDS GRADATION MASSIVE TO WEAKLY LAMINATED ARENACEOUS	70°
1005 - END OF HOLE		

DRILL HOLE LOG
ARJAY KIRKER RESOURCES LTD.
NORDENSKIOLD COAL AREA

COORDINATES 22,322,503.29N ; -191,009.45E
ELEVATION - 2381.2
DIP -50°
AZIMUTH 040°
SCALE 1.5 ins. = 10.0 ft.

CORE SIZE NQ 0-548 FT.
HOLE STARTED 13 OCTOBER, 1972
HOLE COMPLETED 21 OCTOBER, 1972
LOGGED BY M.P. PHILLIPS

		DIP
	OVERBURDEN - GLACIAL TILL & WEATHERED BEDROCK	
131.0 (39.95m)		
	LABERGE SERIES	
132.8 (40.48m)	SANDSTONE - LIGHT GREY, COARSE GRAINED TO GRITTY WITH BANDS UP TO 2 FT OF LIGHT BROWN FINE GRAINED, OCCASIONAL PARTINGS & FRAGMENTS OF BLACK SHALE & COAL	75°
CONGLOMERATE		
135.0		
135.5 MUD (41.30m)		75°
148.2 - 75° (45.17m)		
SHALE - BLACK, MASSIVE, HIGHLY BROKEN		
149.5		
151.0 (46.02m)		
	SHALE - LIGHT - DARK GREY, LAMINATED X-BEDDED SHALE & FINE GRAINED SANDSTONE	50°
(47.10m)		
154.2 SHALE - BLACK MASSIVE		
155.5 (47.40)		
	SANDSTONE - BROWN, MODERATELY ARGILLACEOUS, FINE - MEDIUM GRAINED WITH PARTINGS & WISPS OF BLACK SHALE	55°
161.8 (49.31m)		
	SHALE - BLACK, MASSIVE, MINOR 0.2 FT BANDS OF BROWN ARGILLACEOUS SANDSTONE	
168.3 (51.32m)		
	SANDSTONE - LIGHT GREY, COARSE GRAINED TO GRITTY, PARTINGS, NARROW BANDS AND LENSES OF COAL	60°
171.3		
171.8 SHALE - BLACK MASSIVE		
178.0		
SHALE - BLACK, MASSIVE		45°
174.5		
(54.50)		
178.8 SHALE - BLACK MASSIVE		

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

COORDINATES :

DIP -

HOLE NO 6

DIP

SHALE - BLACK MASSIVE HIGHLY BROKEN

181.7 (55.39)

183.7 (55.99)

SHALE - BLACK MASSIVE

55°

188.0 (57.30)

SANDSTONE - GREY, FINE GRAINED WITH MODERATE LAMINATIONS & NARROW BANDS OF BLACK SHALE

190.0 - CONTACT LOST

(57.91) COAL - DULL BLACK.

LABERGE SERIES - SANDSTONE

- SANDSTONE - DARK BROWN TO BLACK, VERY FINE GRAINED, WEAK TO MODERATELY LAMINATED ARGILLACEOUS SANDSTONE

193.5 - CONTACT LOST (58.99)

195.2 (59.50)

SHALE - BLACK MASSIVE HIGHLY BROKEN

197.3 (60.14)

50°

45°

60°

75°

(65.32)

214.3 - SANDSTONE - PARTINGING & LENSES OF COAL

215.2

216.0 COAL - 0.3 FT DULL BLACK IN A BLACK SHALE

AFTER 214.3 - BECOMES STRONGLY ARGILLACEOUS AND DARKER IN COLOR, LAMINATIONS NOT PROMINENT

60°

218.0 - GRADATIONAL CONTACT

SHALE - BLACK MASSIVE

220.0 GRADATIONAL CONTACT

221.0 - GRADATIONAL CONACT.

SHALE - BLACK MASSIVE - MINOR SANDSTONE LAMINATIONS

223.0 (67.97)

65°

65°

60°

(71.02)

233.0 - CHILLED IRREGULAR CONTACT ±70° PARALLEL TO BEDDING

HUTSHI GROUP - ANDESITE

DARK GREEN FINE GRAINED INTRUSIVE WITH CHLORITE AND ALTERED FELDSPAR SPECKING. CHLORITE & CALCITE FILLED FRACTURES 0-30°

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

HOLE NO 6

COORDINATES :

DIP -

DIP

HUTSHI GROUP - ANDESITE

265.0 CONTACT GROUND

COAL - DULL BLACK IN PLACES SANDY.

LABERGE SERIES - SANDSTONE & SHALE

LIGHT GREY TO BLACK, INTERLAMINATED VERY FINE GRAINED WEAK TO MODERATE ARGILLACEOUS SANDSTONE AND BLACK ARENACEOUS SHALE STRONGLY X-BEDDED.

266.5 — SHALE - BLACK, MASSIVE, MINOR PARTINGS OF COAL

269.0 — SANDSTONE - DARK COLORED, MEDIUM GRAINED WITH FRAGMENT OF BLACK SHALE X-BEDDED

270.0 — SHALE + BLACK, MASSIVE COAL PARTINGS

271.3 — GRADATIONAL

30°

70°

276.0 — SHALE - BLACK MASSIVE

278.5 —

75°

282.8 BANDS TO 0.3FT OF GREY SANDSTONE

284.2 65° —

SANDSTONE - LIGHT GREY, MEDIUM GRAINED TO GRITTY SANDSTONE OCCASIONAL PARTING OF ARENACEOUS SHALE

70°

288.1 — PARTINGS AND LENSES OF COAL AND SHALE

289.7 —

70°

296.0 COAL PARTINGS

296.9 - 60° —

SHALE - BLACK, WEAKLY BEDDED

299.5 - CONTACT GROUND

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

HOLE NO 6

COORDINATES :

DIP - 55

DIP

302.0 — —

COAL - BLACK SHALE WITH PARTINGS AND BANDS OF BLACK SHINY COAL

LABERGE SERIES - SANDSTONE

GREY, MEDIUM GRAINED SANDSTONE WITH OCCASIONAL PARTINGS & WISPS OF BLACK SHALE & COAL

SANDSTONE - BROWN, MEDIUM GRAINED. MODERATE TO STRONGLY ARGILLACEOUS WEAK LAMINATED

304.0 —

305.0 — SHALE - BLACK, MASSIVE

SHALE & SANDSTONE - INTERBEDDED

306.0

SHALE - BLACK MASSIVE, OCCASIONAL ARENACEOUS LAMINATIONS

308.5

313.0 - 55°

SHALE - BLACK, MASSIVE

315.0 - 55°

315.0 SHALE - BLACK MASSIVE.

316.5

317.0 - CONTACT LOST

CAIRNES SEAM - COAL

337 - CONTACT LOST

338.2 — — — — —

SANDSTONE - MEDIUM TO DARK GREY WEAK TO STRONG ARGILLACEOUS LAMINATED, X-BEDDED, FINE GRAINED SANDSTONE, PARTINGS OF COAL

SANDSTONE - GREY, ALTERNATING. NARROW BANDS OF COARSE GRAINED & GRITTY SANDSTONE PARTINGS AND LENSES OF BLACK COAL COMMON. SANDSTONE X BEDDED 35-60°

70°

60°

50°

50°

50°

55°

55°

65°

50°

60°

55°

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

HOLE NO 6

PAGE 5 OF 8

COORDINATES :

DIP -

DIP

LABERGE SERIES - SANDSTONE - AS PAGE 5

50°

367.0 - 45° CONTACT

COAL

50°

371.0

PARTINGS & NARROW BANDS OF SHALE

375.5 - 45° CONTACT

ARENACEOUS SHALE

376.0

SHALE - BLACK MASSIVE

383.0 - 65° CONTACT

SANDSTONE - BROWN, MEDIUM TO COARSE GRAINED ARGILLACEOUS SANDSTONE

60°

387.6 - 45° CONTACT

SANDSTONE & SHALE - INTERLAMINATED AND INTERBANDED BLACK, SLIGHTLY ARENACEOUS SHALE AND GREY, FINE GRAINED SANDSTONE X-BEDDING AND SLUMPING FEATURES COMMON. SANDSTONE BANDS 0.1 TO 0.5 FT AV 0.2 FT

55

55°

50°

55°

55°

414.5 - 50° CONTACT (126.34)

SANDSTONE - GREY, FINE GRAINED

417.0 - 55° CONTACT (127.10)

BANDS OF SANDSTONE - GREY, FINE GRAINED BECOME LESS COMMON.

DRILL HOLE LOG

ARJAY KIRKER RESOURSES LTD
DIVISION MOUNTAIN COAL PROSPECT

COORDINATES:

DIP -

HOLE NO 6
PAGE 6 OF 8

Depth / Description	Description	DIP
	LABERCE SERIES - SANDSTONE & SHALE AS PAGE 5; GREY FINE GRAINED SANDSTONE LAMINATION NOT AS COMMON	
424.6 - CONTACT LOST SANDSTONE - MEDIUM GREY GRITTY.		50°
425.6 45° CONTACT		
		55°
436.0	BANDS UP TO 0.5 FT OF GREY FINE GRAINED SANDSTONE BECOME COMMON	55°
		55°
446.4 - 60° CONTACT SANDSTONE - FINE TO COARSE GRAINED BANDS WITH. BLACK SHALE CASTS AND BANDS FROM 449.5		
451.2 - 50° CONTACT ALTERNATING BANDS OF BLACK SHALE WITH LAMINATIONS OF GREY SANDSTONE AND. GREY FINE GRAINED SANDSTONE UP TO 0.5 FT		55°
454.0 - 60° CONTACT.	SANDSTONE - GREY FINE GRAINED - OCCASIONALLY COARSE GRAINED, BLACK SPECKLED SANDSTONE. MINOR BLACK SHALE BANDS TO 0.1 FT AND UP TO 2 FT BANDS WITH. BLACK SHALE LAMINATION. CASTS OF BLACK SHALE SOMETIMES PRESENT	55°
		60°
		65°
		60°
478.6 - 60°	SANDSTONE & SHALE.	

ARJAY KIRKER RESOURSES LTD
DIVISION MOUNTAIN COAL PROSPECT

COORDINATES:

DIP -

DIP

LABERGE SERIES - SANDSTONE & SHALE

BLACK, SLIGHTLY ARENACEOUS SHALE WITH MODERATE-NUMEROUS LAMINATIONS & BANDS UP TO 0.5 FT OF GREY FINE GRAINED SANDSTONE X-BEDDING & SLUMPING COMMON. 55°

60°

55°

493.0 - 55° CONTACT --- SANDSTONE - GREY, FINE-MEDIUM GRAINED 55°
497.4 - 55° CONTACT ---

496.3 - 60° CONTACT ---
SANDSTONE
497.2 - 60° CONTACT ---

65°

65

65°

510.0 ---
SANDSTONE - GREY, MEDIUM GRAINED
BLACK SPECKLED SANDSTONE 60

516.0 - 65° CONTACT --
SHALE WITH SANDSTONE CASTS 65°

518.0 - 65° --
SANDSTONE - GREY, FINE-MEDIUM GRAINED WITH MINOR PARTINGS & LOAD CASTS OF BLACK SHALE
519.7 - SHALE
520.2 ---

522.2 - 60° --- 60°

GREY, FINE GRAINED SANDSTONE BANDS RARE-ABSENT AND LAMINATION NOT PROMINENT

60°

60°

45°

65°

65°

DRILL HOLE LOG

ARJAY KIRKER RESOURCES LTD

DIVISION MOUNTAIN COAL PROSPECT

COORDINATES :

DIP- [illegible]

HOLE NO 6

PAGE 8 OF 8

540

DIP

LABERCE SERIES - SANDSTONE & SHALE

65°

70°

5480 END OF HOLE

APPENDIX VI

1993 DRILL LOGS

Project Div mtn.	NTS	Scale 1:200	Page 1 of 3	Traverse DDH 93-7
Sampler WONG	Location, Target (words) 14+267 N, 9927 E. (-50°)		Sample Nos	
Date July 25/93.	photo no.		Cert. Nos	

STRATA / Depth	DESCRIPTION	REC%	RQD
0m – OVERBURDEN	DARK GREEN CHLORITE BIOTITE ANDESITE EXTREMELY FRACTURED, RUSTY WEATHERING. ~3-5% CALCITE STRINGERS; PARALLEL TO FRACTURES AND RANDOM ORIENTATIONS. (attitudes 20, 40, 0, 20, 40, 40, 45, 60, 45)	49-58%	0
12.80m	GRADATIONAL CONTACT. GREY GREEN FELDSPAR SPECKLED CHLORITE BIOTITE ANDESITE: MODERATELY FRACTURED	83%	39%
14.80m – ~10 cm tan SST. ~/ANDT XENOLITH.	BLACK VITRIOUS SHALEY COAL ∴ COAL > SHALE. TR. CALCITE STRINGERS.	60%	0
15.86. (70° CONTACT)	MED gr QTZ RICH ARKOSE, NO RUSTY WEATHERING. WHITE APPEARANCE WITH ABUNDANT BLACK (COAL) SPECKLING. (20-30%) (40, 76)	83%	58%
65° SHARP 16.8m	BLACK SHALE WITH NARROW SST & CARBONIFEROUS PARTINGS (5-30 cm). NUMEROUS VITRIOUS SLICKEN SIDES ALONG FRACTURES. MINOR Ca VNLTS & STRINGERS (30, 15, 45)	70%	20%
40° 21.40m	FINE gr BROWN/GREY SST. ABUNDANT (10%) SHALE PARTINGS, ~5% COAL FRAGS IN MATRIX 2% CALCITE STRINGERS + VNLTS. SHALE IS FISSILE TO SOLID. (40)	76%	18%
60° SEMI SHARP. 23.90m	COARSE gr. WHITE/RUSTY ARKOSE. ROUNDED QTZ GRAINS UP TO 10mm DIAM. SUBHEDRAL FELD UP TO 5mm DIAM. LOCALLY FINE gr. SECTIONS UP TO 20cm WIDE. 90% OF FELDSPARS ALTERING TO CLAY. (ORANGE/RUSTY) (50, 25)	88%	48%
SHARP CONTACT. 27.74 ▽?	COARSE gr. GREY/WHITE ARKOSE LITTLE/NO ALTERATION OF FELSPARS. COAL & SHALE PARTINGS .1-2cm. WITH LARGER PARTING FROM 29.5-29.8 (40, 60)	69%	16%
30.0			
30.18 SHARP	grey to black shale with intervals of finegrained SST. competent with minor intervals of increasing fissility probably due to varying SST content. Plant fossils visible along some partings. Minor 15cm coal seam from 33.1-33.25 Minor calcite stringers and rusty coating along fractures. (45, 20)	80%	35%
37.20	grey to black shale interbedded with medium grained white arkose. Contacts graded to sharp (40, 60)	90%	63%
38.55	Crumbly very fissile shale.	50%	4%
40.9	TAN/GREY MED gr. ARKOSE W/ MINOR CALCITE STRINGERS & SHALE PARTINGS. (70)	80%	36%
42.15 SHARP (65° CONTACT)	5cm COAL PARTING AT CONTACT. INTERBEDDED SHALE & FINE gr. SST/ARKOSE. DISTINCT BEDDING PLANES. 60° TO CORE AXIS.	74%	33%
45.82	SEMI-GRADATIONAL TRANSITION TO COARSE gr. WHITE/GREY ARKOSE. FELSPARS STRONGLY ALTERED TO CLAY.	90%	73%

ASSAY:

GEOCHEM: Cu Mo Pb Zn U W

ATTITUDES (100/40 N)

SANDSTONE SILTSTONE · CONGLOMERATE · VOLCANIC · CHERT · SHALE · LIMESTONE DOLOMITE · INTRUSIVE · GOSSAN MINERALS

SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

SILT x SOIL • ROCK • PAN Δ WATER O

DON'T FORGET CO. JRS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, TRAILS, GOSSANS, OBSERVED GEOLOGY: DEFINED —— INFERRED --- ASSUMED ....

Project Div mtn.	NTS	Scale 1:200	Page 2 of 3 — Traverse DDH-93-[illegible]
Sampler WENG	Location, Target (words)		Sample Nos
Date July 26	photo no.	14+267 N, 9927 E (-50°)	Cert. Nos

STRATA / Depth	DESCRIPTION	Attitude	REC	RQD
45.82 m	GREY/WHITE ARKOSE (COARSE gr). FELDSPARS STRONGLY ALTERED TO CLAY.	20 / 50		
49.0 m – 50.00 m	BRN/BLK CARBONACEOUS SHALE. EXTREMELY FR. : FISSILE – FRACTURE SURFACE. VITRIOUS.		50%	0
50.40 – 51.2	CARBONACEOUS SHALE. BRN/BLK. EXTREMELY FISSILE	50	68%	0
52.1 m	SHARP BASAL CONTACT TO CARBONACEOUS ARKOSE. (55°)		40%	0
53.08 m. (55°)	SHARP CONTACT. DARK BLK VITRIOUS COAL. CONC OF Py STRINGERS AT HW CONTACT.			
	FINE gr. TAN/BRN ARKOSE/SST. W/ SHALE PARTINGS AND INTERBEDS. (50° to core axis). Minor CARBONACEOUS FRAGS.	70 / 30	71%	27%
57.0 (55°)	GREY/WHT ARKOSE (COARSE gr) W/ MINOR COAL FRAGS & TR. PY.			
60.40 m.	Fine gr. TAN ARKOSE W/ SHALE interbeds. CRUMBLY WHITE/GREY GOUGEY ARKOSE. CONTACTS SHARP.		40%	0
61.78 m	BLK/BRN SHALE (NOT FISSILE) W/ SST interbeds/bands	50 / 60	88%	55%
	DIRTY BLK COAL SPECKLED TAN/MAROON ARKOSE. GRADATION FROM COARSE – FINE gr. @ LOWER CONTACT	40 / 50	45%	6%
64.0 m	CAIRNES SEAM BENCH C. – BLK VITRIOUS COAL. TR – 1% Py ON FRAC PLANES. TOP 1.2 m HAS MODERATE Ca stringers. 0.6 m SHALE rich SECTION.	40 / 65	68%	
68.25	Fine gr. TAN/BRN SST W/ SHALE interbeds/BANDS. Lower contact – CRUMBLY FISSILE SHALE.	25 / 65	85%	41%
69.35 – 70.0 m	CAIRNES SEAM: BENCH B. – BLK VITRIOUS COAL. – LOW/MOD SHALEY SECTIONS (up to 7cm) – SOME SECTIONS WITHIN SEAM EXHIBIT BANDS OF FIBROUS CALCITE + Py. (up to 10% combined over 10cm)	40 / 65	78%	
74.65	Fine gr. TAN/grey SST/ARKOSE WITH minor SHALE BANDS.	55 / 70	95%	63%
75.75 m	CAIRNES SEAM. BENCH A. – SAME AS ABOVE.	55 / 70	70%	
79.70 m – 80.0	FINE gr TAN/GREY ARKOSE W/ NUMEROUS SHALE PARTINGS AND BANDS. STRONGLY FRACTURED. CALCITE ON SLICKEN SIDE fr. planes. LOCAL GRADATION INTO MED gr grey SST & COARSE WHITE/grey ARKOSE. ABUNDANT COAL FRAGS.	30 / 50	69%	9%
88.0 m	MED/COARSE gr. WHITE/grey ARKOSE. GRADATION INTO grey/MAROON COARSE gr. ARKOSE. MINOR CA VEINLETS W/ ABUNDANT Py ALONG fr. Lower 30cm ABUNDANT COAL frags & partings.		93%	71%
92.77 (70°)	FW SEAM. • BLK VITRIOUS COAL GRADING into shale rich BANDS. • TR – 1% Py IN SOME SECTIONS.		75%	
	[illegible] SHALE + COAL.			

ATTITUDES (100/40 N)

SANDSTONE / SILTSTONE; CONGLOMERATE; VOLCANIC; CHERT; SHALE; LIMESTONE / DOLOMITE; INTRUSIVE; GOSSAN / MINERALS

SILT x SOIL ● ROCK ■ PAN △ WATER ○

SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

OBSERVED GEOLOGY: DEFINED —— INFERRED --- ASSUMED.....

DON'T FORGET CONTOURS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, TRAILS, GOSSANS,

ASSAY:

GEOCHEM: Cu Mo Pb Zn U W

Project	DIV mtn.	NTS	Scale	1:200	Page	3 of 3	Traverse	DDH-93-7
Sampler	MEN6	Location, Target (words)			Sample Nos			
Date	July 26	photo no.	14+267 N, 9927 E (-50°)		Cert. Nos			

STRATA	95.05m. DESCRIPTION	REC.	RQD.
	FINE gr. grey/maroon sst. Minor coal frags.	97%	80%
	97.84 END OF HOLE.		

SAMPLE NOTES

(FW) SEAM 1 - SOME SHALIER CLASTS (ANGULAR) WITHIN COAL

(CAIRNE) SEAM 2 BENCH C 64-68.25m

6cm shale parting at 66.3m

3cm " " at 65.3m

BENCH B 69.35-74.65m

- much less shale
- more pyrite & calcite.

BENCH A 75.75-79.70m

- 3cm shaly parting at 77.3m
- 4 " " <1cm 78.5m
- increased calcite 91%

SEAM 3 14.8-15.86m very shaley.

ATTITUDES (100/40 N)

SANDSTONE SILTSTONE CONGLOMERATE VOLCANIC

SPECIMEN SITE A,B...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

...AILS, GOSSANS, OBSERVED GEOLOGY: DEFINED —— INFERRED - - - ASSUMED.....

CHERT SHALE PAN △ WATER ○

LIMESTONE DOLOMITE SILT X SOIL • ROCK ■

INTRUSIVE

...RS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS,

GOSSAN, MINERALS

DON'T FORGET CO...

ASSAY: GEOCHEM: Cu Mo Pb Zn U W

Project DIN MTN	NTS	Scale 1:200	Page 1 of 3	Traverse DDH 93-8
Sampler DUSO	Location, Target (words)		Sample Nos	
Date JULY 27/93	photo no.	14+572 N, 9970 E (-50°)	Cert. Nos	

	REC	RQD
OVERBURDEN		
3.65 SANDSTONE (PROBABLY STILL OVERBURDEN) MAYBE NOT.		
4.46 DARK GREEN ANDESITIC SILL - HIGHLY FRACTURED AND WEATHERED FOR MOST OF IT. RUSTY ALONG FRACTURES. - SHALE/COAL PARTING FROM 6.5-6.8m. - SHALE/COAL PARTING FROM 12.7-12.85m - SHALE/COAL PARTING FROM 13.0-13.10m 50/20	61%	7%
C/SH 45° CONTACT 13.2 HIGHLY SHEARED MUSHY COAL SEEM GRADING TO SHALE AT BOTTOM	44%	0
14.12 SHALE GRADING DOWNWARD INTO SANDSTONE	45%	0
15.20 GRADATIONAL CONTACT INTO FINE TO COARSE GRAINED INTERBEDDED (WHITE) ARKOSE. SOME <1cm CALCITE STRINGERS ALONG FRACTURES. THIN COAL/SHALE PARTINGS <1cm APPROX EVERY 30-40 cm. (RAPIDLY CHANGING DEPOSITIONAL ENVIRONMENT) 50/30	95%	62%
19.35 SHARP CONTACT BLACK, FLAKEY, LIGHT COAL. VERY LOW SHALE COMPONENT	65%	0
20.6 SHALE WITH MINOR FINEGRAINED SST AT TOP. HIGHLY FRACTURED.	60%	6% ASSAY
22.1 COAL WITH SHALE INCREASING TOWARDS BOTTOM. ABUNDANT CALCITE STRINGERS	60%	25%
23.36 GRADATIONAL CONTACT SHALE WITH VARYING AMOUNTS (UP TO 50%) FINE GRAINED SST. 50/20	86%	6%
25.0 SEMI SHARP CONTACT CRUMBLY COAL W MINOR PYRITE (POOR RECOVERY)	30%	0
26.0 SHALE W FINE TO COARSE GRAINED ARKOSE INTERVALS UPTO .5 m. thick. HIGHLY FRACTURED IN PLACES. 60/45	65%	5% U Zn Pb
29.88 - GRADED CONTACT WHITE COARSE GRAINED ARKOSE WITH LARGE ROUNDED PEBBLES TOWARDS middle. Grades into medium grained arkose and last 40cm is a 5cm shale parting then faulted, coarse arkose. 1-4cm	98%	77% Mo Cu GEOCHEM:
32.1 FAULT CONTACT BANDED BLACK/BROWN/GREY - INTERBEDDED SHALE/SANDSTONE/SILTSTONE INDIVIDUAL LAYERS VARY FROM .01-20 cm. CROSS BEDDING AND FLAME STRUCTURES VISIBLE, FISSILE ALONG BEDDING PLANES. SANDSTONE MOSTLY FINEGRAINED. CALCITE FILLED FRACTURES RARE. FAIRLY COMPETENT ROCK. FACIES CONTACTS PREDOMINANTLY SHARP. CORE AXIS TO BEDDING ANGLES ABOUT 60° at top approaching 55° near bottom. Two minor fissile coaly shale partings <5cm at 38.9 and 42.8m.	90%	44%
41.9 WHITE HOMOGENOUS FINE GRAINED SANDSTONE SPECKLED WITH <1% SHALE CLASTS <1mm DIAM. 70/40	95%	57%
46.3		

ATTITUDES (100/40 N)

SANDSTONE SILTSTONE CONGLOMERATE VOLCANIC CHERT SHALE PAN WATER LIMESTONE DOLOMITE SILT SOIL ROCK INTRUSIVE GOSSAN, MINERALS

SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

DON'T FORGET COORDS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, TRAILS, GOSSANS, OBSERVED GEOLOGY: DEFINED —— INFERRED - - - ASSUMED .....

Project DIV MTN	NTS	Scale 1:200	Page 2 of 3	Traverse DDH 93-8
Sampler DUSO	Location, Target (words) 14+572N, 9970 E (-50°)		Sample Nos	
Date JULY 28/93	photo no.		Cert. Nos	

STRATA	DESCRIPTION	REC%	RQD
46.3	INTERBANDED SHALE/SANDSTONE. BANDS .1-10 cm. SHARP CONTACTS. 80% SHALE EXCEPT FOR TWO FINEGRAINED SANDSTONE INTERVALS FROM 47.54-47.84 and 49.6-50.0. CROSS BEDDING. C/A&B 60°	90%	30%
53.54	WHITE, COARSE TO FINE GRAINED ARKOSE. MINOR SHALEY PARTINGS OR THIN BANDS OF SHALE FRAGS. MINOR PUZZLE SHAPED SHALE BEDS <3cm. BOTTOM 1m becomes a pebble conglomerate with pebbles to 3cm diam. 2 larger shale partings 63.5 to 63.6 and 57.8 to 57.9 Bedding to c/a 60° 45/20	90%	92%
65.2	SHARP CONTACT interbanded shale/sandstone. Crossbedding abundant fracture offsets C/A to bedding 50°	95%	20%
66.7	homogenous fine to medium grained sandstone	95%	80%
68.2	interbanded/bedded shale & sandstone bands .1-5cm with larger intervals of sandstone, Crossbedding. 72.4-73.3 sandstone clasts 1 to 10cm floating in shale matrix. c/a to bedding varies between 50-65°. 30/	90%	64%
75.4	White, Fine to coarse grained sandstone. Shale absent in most of it. 90/20	95%	72%
79.2	interbanded shale/sandstone. Sandstone bands dominantly less than 1cm. Shale bands .1-10cm. Crossbedding visible. Composition of entire interval 70-80° shale. Except for 5 intervals of sandstone 15-40cm. Some of the thinner bands within the shale are pink with greater % K-spar concentrations. Thin coal parting 5cm at 102.15m. CORE AXIS TO BEDDING ANGLE 55-60°.	87%	27%

ASSAY: GEOCHEM: Cu Mo Pb Zn U W

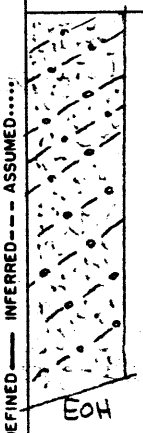
ATTITUDES (100/40 N) SANDSTONE SILTSTONE CONGLOMERATE VOLCANIC CHERT SHALE LIMESTONE DOLOMITE INTRUSIVE GOSSAN, MINERALS

SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS ——— DEFINED - - - INFERRED - - - ASSUMED.....

SILT X SOIL ● ROCK ■ PAN △ WATER O

DON'T FORGET COORS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, TAILS, GOSSANS, OBSERVED GEOLOGY:

Project	DIV MTN	NTS	Scale	1:200	Page	3 of 3	Traverse	DDH 93-8
Sampler	DUSO	Location, Target (words)			Sample Nos			
Date	JULY 28/93	photo no.	14+572N, 9970E	(-50°)	Cert. Nos			



108.5

EOH

SEAM SAMPLING

4 13.2 - 14.12 m
3 19.35 - 20.6 m
2 22.1 - 23.36 m
1 25.0 - 26.0 m

ASSAY:

GEOCHEM: Cu Mo Pb Zn U W

ATTITUDES (100/40 N)

SANDSTONE SILTSTONE
CONGLOMERATE
VOLCANIC
INTRUSIVE
LIMESTONE DOLOMITE
SHALE
CHERT
GOSSAN, MINERALS

SILT X SOIL ● ROCK ■ PAN △ WATER O

SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

DEFINED —— INFERRED - - - ASSUMED .....

DON'T FORGET CONTOURS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, TRAILS, GOSSANS, OBSERVED GEOLOGY:

Project DIV MTN	NTS	Scale 1:200	Page 1 of 4	Traverse DDH 93-10
Sampler WENG/DUSO	Location, Target (words)		Sample Nos	
Date AUG 3/93	photo no. L 142 67 N, 9895 E (-62.5°)		Cert. Nos	

STRATA	DESCRIPTION	BEDDING ANGLES	REC	RQD
	OVERBURDEN			
	4.5 m Black massive to heavily arenaceous shale w 10cm intervals of fine grained sandstone. Plant prints visible along bedding cleavages.	60 -65	34%	2%
	12.65 m 13.72 m Brown fine grained sandstone sharply grading to coarse arkose.	65	95%	60%
	15.14 m Black massive to arenaceous shale.	60	75%	14%
	16.1 m Brown coarse arkose grading to fine grained & shaley.	65	95%	80%
	Black massive shale w arenaceous intervals.	60	75%	15%
	18.1 m Graded contact Grey to white arkose. Coarse at top, finer grained in bottom 2/3. 2 minor <5cm shale partings.	55 -65	90%	50%
	22.9 m Black massive to arenaceous shale with 2 10cm calcite rich coal partings. More black massive towards bottom.	60 -65	80%	24%
	30.2 m White to gray coarse to medium grained arkose w strong disseminated shale concentrations in some 1-20 cm intervals becoming rare in the bottom 1/3. Greenish w red matrix (finer grained) from 40.2-41.1 m.	65	87%	58%
	42.0 m sharp contact - ANDESITE SILL - GREEN w RUSTY FRACTURES - CHLORITE & BIOTITE. - LAST .5m IS BLEACHED GREY WITH GREEN FELDSPARS.	-	40-90%	23%

ASSAY: GEOCHEM: Cu Mo Pb Zn U W

Project	DIN MTN	NTS	Scale 1:200	Page 2 of 4	Traverse DDH 93-10
Sampler	WENG/DUSO	Location, Target (words) L14267N, 9895E (-62.5°)		Sample Nos	
Date	AUG 4/93	photo no.		Cert. Nos	

STRATA	DESCRIPTION	BEDDING ANGLES	REC	RQD
	ANDESITE			
61.1m	medium to coarse grained arkose ϖ some disseminated shale.	65	75%	8%
62.65m	Black massive shale ϖ occasional thin coal partings.	65	66%	6%
64.4 m	Shaley grey, medium to find grained arkose.	65	61%	30%
65.83m	Shale black massive	60	70%	0
66.44	Coal, minor pyrite, <1% calcite. Poor recovery.	60	16%	0
68.5 m	Shale black massive	60	23%	0
68.9m	Medium to coarse grained white arkose Disseminated shale turns it grey in places.	65	95%	52%
71.3m	Sharp contact Black to grey arenaceous shale, some massive black intervals.	60	62%	21%
74.1m	White, medium to coarse grained arkose.	65	82%	53%
	Medium to coarse grained arkose ϖ occasional shale partings to 10cm and 2-5 cm coal blebs or partings (highly calcitic) Grey ϖ disseminated coal or shale.	60 -65	96%	84%
89.3	Black massive shale ϖ arenaceous intervals and 4 thin coal partings 1-10cm thick. Highly fractured.	65	54%	3%
92.3	Medium to fine grained arkose ϖ disseminated shale.	65	67%	10%
93.0	Dominantly arenaceous to black, massive shale. Drill stuck at at 93m for a long time. Poor recovery. 2 arkosic partings near bottom.	65	53%	2%
96.77	White, medium to coarse grained arkose.	60	95%	50%
97.5				

ASSAY: GEOCHEM: Cu Mo Pb Zn U W

ATTITUDES (100/40 N) SILTSTONE SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS ...AILS, GOSSANS, OBSERVED GEOLOGY: DEFINED —— INFERRED- - - ASSUMED..... ...RS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKING: SILT X SOIL ● ROCK ■ PAN △ WATER ○ DON'T FORGET CC

Project DIV Mtn	NTS	Scale 1:200	Page 3 of 4	Traverse DDH 93-10
Sampler WENG/DUSO	Location, Target (words) L 14267N, 9895E (-62.5)		Sample Nos	
Date Aug 4/93	photo no.		Cert. Nos	

STRATA	DESCRIPTION	BEDDING ANGLES	REC	RQD
	97.5m Massive black to arenaceous shale with competent 25cm coal seam at top.	45	66%	17%
	99.2m Medium to coarse grained arkose with occasional thin <1cm shaley slickenside fractures. Abundant coal and shale in bottom 20 cm	55	95%	68%
	101.3m Massive black shale. 2 thin coal partings < 2cm.	55	60%	0
	102.26m Coarse brownish grey arkose.	60	90%	84%
	103.1 Black massive to arenaceous shale.	55	86%	50%
	104.8 Graded contact White, medium to coarse grained arkose ± disseminated shale intervals and two 15cm partings of shale.	60	95%	79%
	107.63 Black massive shale grading to arenaceous in places. Shiney uneven fractures, coal in places.	60	82%	40%
	109.4 white medium grained arkose	60	66%	0
	110.0 Black massive shale grading to arenaceous then to arkose and abruptly back into black massive. One 3cm coal parting	55	82%	40%
	112.0 Fine to medium grained arkose. Grey in places with disseminated shale and coal.	60	95%	75%
	114.8m Tan shaley fine grained sst. Abundant coal partings < 2mm			
	115.8m Caimes Seam (BENCH C) Black vitreous shale. {CONTACTS SHARP} Strongly sheared but competent 1-2% py on fractures. Locally concentrated bands of fibrous calcite (up to 5cm)	40	93%	— ASSAY
	123.0m MEDIUM GRND TAN ARKOSE Arenaceous shale : lower contact grades into fine gr tan sst/siltstone ± coal slump casts and stringers.	40	95%	77% W U Zn
	124.8 CAIRNES SEAM (BENCH B) Black vitreous coal, strongly sheared. Numerous crumbly sections and bands of fibrous calcite.	50%	89%	— GEOCHEM: Cu Mo Pb
	I Increase in shale bands (2-4mm) ± local shale/coal brxx.			
	130.9 CONTACT ANGLE LOST BRN/BLK MASSIVE SHALE grades into fine gr white/tan arkose to medgrained white ark.			
	131.45 Gradationally coarsening & fining white/tan arkose. Abundant coal stringers and irregular discontinuous coal linaments and fragments.	60°	85%	82%
	136.5m CAIRNES SEAM (BENCH A) COAL HEAVILY BRECCIATED ± COARSE CLASTS OF SHALE & ARKOSE FRAGS ARE SUBROUNDED TO ANGULAR	45°	90%	60%
	ARENACEOUS SST (TAN ARKOSE ± SHALE BANDS) LOCAL ZONES OF MASSIVE BRN/BLK SHALE. ABUNDANT COAL FRAGS & STRINGERS	45°	95%	80%
	STRONGLY SHEARED CONTACT/COAL PARTINGS ALONG FRACTURES			

Project DIVITN	NTS	Scale 1:200	Page 4 of 4	Traverse DDH-93-10
Sampler WENG / DUSO	Location, Target (words) L14267 N, 9895 E, (-62.5°)		Sample Nos	
Date AUG 4/93	photo no.		Cert. Nos	

STRATA	DESCRIPTION	BEDDING ANGLES	REC	RQD
	146.6m GRADATIONALLY COARSENING AND FINING (MED - V. COARSE) ARKOSE. * EXTREMELY COARSE (PEBBLE) ARKOSE. TAN TO BLK GREY (COAL FRAGS & STRINGERS) GENERALLY TAN/WHITE GREY LARGE IRREGULAR COAL FRAGS, ALONG FRACTURES & RANDOM ORIENTATIONS	30°	92%	81%
	152.18m FINE GRND TAN/GREY SST.			
	SHARP CONTACT TO COAL (35°) FW (SEAM 1) BLK VITREOUS COAL, LOW SHALE CONTENT, STRONGLY SHEARED. ~1-4% PY ON FRAC/SHEAR SURFACES.	-	75%	-
	154.9 TAN/BRN FINE GRNED SST ABUNDANT COAL FRAGS IN TOP 40cm to coal parting. BARREN AFTER.	50°	96°	80°
	157.3 E.O.H.			

SAMPLES: 93-10, SEAM 1 152.2 - 156.0 m
93-10, SEAM 2, BENCH A : 137.1 - 140.2m
93-10, SEAM 2, BENCH B : 125 - 130.9m
93-10, SEAM 2, BENCH C : 115.9 - 123.0m.

ASSAY:

GEOCHEM: Cu Mo Pb Zn U W

ATTITUDES (100/40 N)

SILTSTONE CONGLOMERATE

SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

RAILS, GOSSANS, OBSERVED GEOLOGY: DEFINED —— INFERRED - - - ASSUMED.....

SILT X SOIL ● ROCK ■ PAN △ WATER O

DOLOMITE

RS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKING

DON'T FORGET CL

VANCAL 10370

Project	Div mtn.	NTS	Scale 1:200	Page 1 of 2	Traverse DDH-93-11
Sampler	WENG.	Location, Target (words)		Sample Nos	
Date	Aug 6/93.	photo no.	14+572 N, 9910 E (-50°)	Cert. Nos	

STRATA	DESCRIPTION	BEDDING ANGLES	REC	RQD
		/	/	/
7.31				
7.92	WHITE/BRN COARSE GRAINED ARKOSE.			
8.22	MOD RUSTY APPEARANCE W/ TRACE PY. BRN MASSIVE SHALE			
	MINOR COAL FRAGS.			
	FELDSPARS MODERATELY ALTERED TO CLAY.			
	LOCALLY FINING TO MED GRAINED ARKOSE.	60°	81%	22%
12.50	SHARD INCL. IN COAL FRAGS AND STRINGERS.	40°		
14.20	(CONTACT LOST).			
	SHARP CONTACT TO BOULDER ERRATIC FAULT FILL (ABRUPT).			
	• DIAMOND DRILLED TO 15.54m.			
	• TRICONE THROUGH BOULDERS AND CLAY SEAMS TO ~34.0m.			
	CHANGED TRICONE BIT @ ~24.0m : BIT PLUGGED W/ CLAY.			
	COAL FRAGS IN CLAY.	/	/	/
34.0m	• TRICONED TO 36.5m INTO SUSPECTED BEDROCK			
	• EXAMINING TRICONE CUTTINGS : APPEARED TO BE ARGILLACEOUS SST. OR ARKOSE W/ COAL FRAGS.			
36.45	MED GRAINED WHITE/GREY ARKOSE, WEAKLY CALCIC.			
	WEAKLY RUSTY APPEARANCE, LITTLE/NO FELDSPAR ALTN.	55°-60°	95%	85%
	SAME AS ABOVE, NO COAL FRAGS OR STRINGERS.			
40.0	ARGILLACEOUS SST GRADING INTO ARENACEOUS SHALE @ 40.12 - 40.72m	65°-72°	95%	67%
	MINOR COAL STRINGERS.			
42.90	FINING UPWARD SUCCESSION (COARSE → FINE) WHITE/TAN ARKOSE.	58°	97%	71%
	MINOR COAL FRAGS AND STRINGERS.			
(10cm)	ARGILLACEOUS SST.			
46.50	BRN/BLK MASSIVE SHALE : COALY SECTION FROM 46.15 - 48.85			
	ABUNDANT FIBROUS CALCITE & PY BANDS (2mm).			
	GRADES INTO ARENACEOUS SHALE.			
49.50	SHARP CONTACT TO MED gr. DIRTY ARKOSE (COAL FRAGS + BLACK SHALE FLECKS).	58°		
	GRADES INTO TAN/WHT ARKOSE @ 49.90m.			
	ALTERNATING ARENACEOUS SHALE & ARGILLACEOUS ARKOSE. W/ MINOR COAL		94%	73%
	PARTINGS (1-4 mm).			
52.24	(8cm COAL SECTION : ABUNDANT FIBROUS CALCITE, LOWER CONTACT 2mm PY BAND	58°		
	COARSE gr. ARKOSE @ 53.14 - 53.44. (CLEAN, NO COAL FRAGS).			
53.54	ARENACEOUS SHALE : UPPER & LOWER 10cm CONTACTS BLK/BRN MASSIVE SHALE.	62°		
54.44	MED gr. GREY ARKOSE W/ LOCALLY COARSENED SECTIONS.			
	BLK SHALE FLECKED BANDS WITH MINOR COAL FRAGS.	50°		
	BMS (55.07 - 55.97) COAL PARTING @ 55.72 (2cm).			
57.34	ARGILLACEOUS ARKOSE : SLUMP (FLAME STRUCTURES) FEATURE FROM 57.34 - 57.64.			
59.24	CONTACT GRADATIONAL			
60.0				

ATTITUDES (100/40 N)

SILTSTONE

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RAILS, GOSSANS, OBSERVED GEOLOGY: DEFINED —— INFERRED - - - ASSUMED .....

URS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKING

SILT X SOIL ● ROCK ● PAN △ WATER O

DON'T FORGET C.

ASSAY:

GEOCHEM: Cu Mo Pb Zn U W

VANCAL 10370

Project DIV MTN	NTS	Scale 1:200	Page 2 of 2	Traverse DDH-93-11
Sampler WENG	Location, Target (words)		Sample Nos	
Date Aug 7/98	photo no. 14+572N, 9910E (-50°)		Cert. Nos	

DEPTH	DESCRIPTION	BEDDING ANGLES	REC	RQD
	MED gr. ARKOSE : upper contact/lower sharp. : upper 0.5m dirty grey/blk grading into white partially bleached med gr. arkose.	66° 52°		
61.29	Strongly sheared & fractured blk massive shale : local sections of blk massive argillite ? (not fissile, massive, no bedding or cleavage). Upper contact arenaceous sst.	65°	51%	7%
64.00	MED/COARSE gr. dirty grey arkose. Black due to shale. Mushy coal/shale @ 64.45 (10cm).	60°	92%	37%
65.74	Dull blk coaly shale, upper contact mushy. Entire interval sheared & fractured.	57°	50%	0
66.64	Light grn chlorite andesite with carbonate filled vesicles. Abundant calcite stringers with Py bands (1mm).	44°		
68.74	Strongly fractured. Upper contact sharp (? [illegible])		62%	0
69.00	Fault contact. Grey aphanitic andesite w/ minor section of argill. sst & chlorite shear planes. Some anhydrite along shears (gypsum)	/		
70.20	Gradational contact to pale grn crumbly chlorite andesite. Minor sections of arkose (cooked) & darker gr. chlorite andesite. Entire interval sheared & crumbly but rec good.		76%	2%
73.33	Very shaley coal. Blk. Remnant bedding preserved but interval extremely sheared and gougy. Water saturated making distinction from coal/shale difficult. 74.48-75.28 : arenaceous shale/argillaceous sst	60° 63°	86%	0
76.20	Dark green chlorite hornblende andesite. Moderate calcite stringers, slicken-side shear planes. (56°) Fairly competent from 76.20-78.0m. Lower section strongly fractured and pitted. Lower contact faulted/fractured.	65°	67%	10%
81.32	Massive brn/blk shale w/ minor sections (10cm) of argillaceous sst. 10cm of mushy coal/shale @ 82.10m.	/	62%	0
82.76	Sharp contact. White/grey med grained arkose w/ locally coarsened intervals 10-20cm. Interval strongly calcareous; coarsened intervals mildly chloritic. Minor calcite stringers and coal partings (2-4mm). : shale flecking.	53° 58°	72%	26%
86.97	Strongly sheared, blk vitrious coal w/ minor shale content.	56°	70%	0
87.47	Upper 50cm massive brn shale, strongly sheared & fractured.	/		
88.50	10cm coal seam @ 88.50m. Arenaceous shale. Lower 10cm to contact : mushy shaley coal.		56%	7%
90.07	Grn/grey chlorite Hbl Bi andesite, abundant Hbl/carbonate filled vesicles. Upper contact bleached pale brn/tan. Minor calcite stringers. (minor Py).	36°	94%	70%
91.19	Strongly sheared blk/brn massive shale, calcite on shear planes. Upper 10cm @ contact : mushy blk shaley coal. Competent blk (dull) coal from 91.85-92.05m.	51°	50%	0
92.66 EOH.	Hole stopped in massive brn shale.			

EOH.

DON'T FORGET CONTOURS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, TRAILS, GOSSANS, OBSERVED GEOLOGY: DEFINED —— INFERRED - - - ASSUMED .....

SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

MINERALS, SILT x SOIL ● ROCK ■ PAN △ WATER ○

DOLOMITE, CONGLOMERATE, SILTSTONE, ATTITUDES (100/40 N)

GEOCHEM: Cu Mo Pb Zn U W

ASSAY:

ANCAL 10370

Project DIV MTN.	NTS	Scale 1:200	Page 1 of 4	Traverse DDH-93-12
Sampler WONK.	Location, Target (words) 13+962N, 9852E (-50°)		Sample Nos	
Date Aug 8/93	photo no.		Cert. Nos	

Depth (m)	Rem.	DESCRIPTION	BEDDING ANGLE	REC	RQD
		OVERBURDEN.	–	–	–
7.92		MED gr. TAN ARKOSE, WEAKLY CALCAREOUS. MINOR CALCITE STRINGERS.	55°	60%	22%
8.08		ARGILLACEOUS SST. MODERATE COAL PARTING (1-4 mm). RUSTY FRACTURE SURFACES.	62°		
11.00 – 11.60		BLK MASSIVE SHALE W/ NARROW COAL PARTINGS (1-4 mm). CONTACTS GRADATIONAL. MINOR CA STR.	65°	75%	35%
13.06	CONTACT LOST.	*: CROSS-BEDDING & SLUMP FEATURE. LARGE COAL CLAST W/ ~20% CALCITE.			
		COARSE gr. TAN/WHITE ARKOSE. FELDSPARS WEAKLY TO MODERATELY ALTERED TO CLAY. LOCALLY FINING SECTIONS. MINOR COAL FLECKS. WEAKLY CALCAREOUS.	56°	80%	70%
18.49		FINE gr. ARGILLACEOUS SST. SHEARED ALONG SHALE PARTINGS (CALCAREOUS). STRONGLY FRAC & SHEARED DUE ABUNDANT COAL PARTINGS IN BLEACHED WHITE ARKOSE.	52°	63%	41%
21.49		BLEACHED MED/COARSE gr. ARKOSE, MINOR COAL PARTINGS (1-4 mm).			
		BRN ARGILLACEOUS SST. (UPPER 40 cm BLK MASSIVE SHALE). ARGILLACEOUS COMPONENT INCR. W/ DEPTH. MINOR CA + COAL STRINGERS/PARTINGS.		87%	61%
23.56	FRACTURED CONTACT.	MED/COARSE gr. TAN/WHITE/GREY ARKOSE. NARROW INTERVALS OF ARGILLACEOUS SST. (4-10 cm). MINOR BRXX @ 24.55 (5 cm). ABUNDANT COAL FRAGS AND PARTINGS IN LOWER 30 cm. OF INTERVAL.	53°; 61°-75°	92%	71%
26.34	WEAKLY SHEARED.	ARGILLACEOUS SST. ; 20 cm COAL SEAM @ 29.26 - 29.46.	65°	88%	49%
29.76		ARGILL. SST. : UPPER CONTACT FRACTURED SHALE 25 cm	61°	60%	–
30.98		FINE gr. TAN/BRN ARKOSE/SST. W/ NARROW SHALE PARTINGS. 10 cm BRX @ 31.21 m.	66°	87%	47%
33.58		BLK/BRN MASSIVE SHALE : COALY SECTIONS	75°	75%	60%
34.53		MED TO COARSE gr. TAN/WHT ARKOSE. NARROW INTERVALS OF ARGILL. SST (SHARP CONTACTS). MOD COAL FRAGS AND PARTINGS. 38.25 - 38.50 m : SHALEY COAL INTERVAL. LOWER CONTACT MOD BLEACHED W/ ABUNDANT COAL PARTINGS.	40°-60°	93%	70%
40.32		ARENACEOUS SHALE. W/ NARROW (UP TO 8 cm) COAL SEAMS/PARTINGS. PURE COAL INTERVALS CHAR. BY HI Ca CONTENT.	68°	82%	50%
43.03		ALTERNATING INTERVALS (20-50 cm) OF ARENACEOUS SHALE / ARGILL. SST / COARSE gr. ARKOSE. MINOR COAL PARTINGS.	70°	95%	70%
46.15					

ATTITUDES (100/40 N)

CONGLOMERATE SILTSTONE

DON'T FORGET CONTOURS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, TRAILS, GOSSANS, OBSERVED GEOLOGY: DEFINED —— INFERRED --- ASSUMED .....

SILT X SOIL ● ROCK ■ PAN Δ WATER O SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

ASSAY:

GEOCHEM: Cu Mo Pb Zn U W

VANCAL 10870

Project Div mtn.	NTS	Scale 1:200	Page 2 of 4	Traverse DDH-93-12
Sampler WENB.	Location, Target (words)		Sample Nos	
Date Aug 9/93	photo no. 131962 N, 9852 E (-50°)		Cert. Nos	

STRATA	Depth	DESCRIPTION	BEDDING Angle	REC	RQD
	48.15				
		COARSE gr. GREY ARKOSE. TRACE Py.	65°		
	49.07	ARENACEOUS SHALE / ARGILLACEOUS SST. CROSS BEDDING & SLUMP FEATURES COMMON. MINOR CALCITE STRINGERS. GRADATION INTO BRN MASSIVE SHALE @ LOWER CONTACT.	65°-69°	94%	70%
	50.0				
	51.72	COARSE gr. grey gritty ARKOSE. Minor/MODERATE COAL Frags. @ 53.64 grades into TAN MED gr. gritty ARKOSE. w/ minor coal frags. strongly FRACTURED.	65°	82%	44%
	55.17	ALTERNATING ARGILLACEOUS SST (ARKOSE) / ARENACEOUS SHALE. Low/mod CALCITE STRINGERS. EXTREMELY FRACTURED AT 58.02 - 58.42 ; @ 59.24 - 59.44. CROSS BEDDING & SLUMP FEATURES COMMON.	47-65°	92%	58%
	59.54				
	60.20				
	61.36	MED gr. TAN/WHITE ARKOSE. MOD/STRONGLY FRACTURED. MODERATELY CALCAREOUS MTX w/ CALCITE STRINGERS AND VNLTS. MINOR COAL FRAGS AND SHALE FLECKING.	54°-62°	81%	20%
	BMS.				
	65.83	MED/COARSE gr DIRTY grey ARKOSE w/ ALTERNATING INTERVALS OF ARGILLACEOUS ARKOSE/SST. STRONGLY FRACTURED.	65°	86%	12%
	67.50	5cm shaley coal @ contact. ARENACEOUS SHALE. EXTREMELY FRACTURED, grades into ARGIL ARKOSE From 69.20 - 70.20.	55°	70%	28%
	69.20				
	70.20				
	71.46	MED gr GREY ARKOSE. EXTREMELY FRACTURED & gritty. Minor coal frags & SHALE flecking increasing toward BASAL CONTACT.	55°	65%	5%
	73.50	BLK MASSIVE SHALE. Strongly sheared w/ Numerous GOUGE SECTIONS (LAST ½ section)	B 43°	72%	/
	75.00	gouge contact. APHANITIC GREY ANDESITE w/ LARGE QUARTZ grains. SHEAR Angle 35°	S 35°	70%	-
	75.85	MED gr CARBONACEOUS ARKOSE (gritty).			
	76.26	DIRTY GREY/BLK ARKOSE (MED gr).			
	76.57	CARBONACEOUS SHALE w/ ABUNDANT CALCITE STRINGERS : STRONGLY SHEARED.	53-62°	66%	8%
	76.90	SHEARED CONTACT. PALE green/grey APHANITIC ANDESITE SILL w/ ABUNDANT CHLORITE/CARBONATE Filled VESICLES. ABUNDANT CALCITE STRINGERS, VNLTS, AND VNS : common orientations 35° & 65°. GRADATIONAL DARKENING TOWARD LOWER CONTACT, Hol @ 86.47 m		95%	81%
	86.20	→ CHLORITE FLECKS ORIENTED @ ~ 53°. (BANDED NATURE).			
		@92.74 : EXTREMELY FRACTURED AND SHEARED. SILL APPEARS MORE CHLORITIC.			
	93.67				

ATTITUDES (100/40 N) — SANDSTONE SILTSTONE — CONGLOMERATE — VOLCANIC — SPECIMEN SITE A, B, ...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS — OBSERVED GEOLOGY: DEFINED —— INFERRED - - - ASSUMED .... — CHERT — SHALE — WATER O — PAN Δ — ROCK ● — SOIL ● — SILT X — LIMESTONE DOLOMITE — INTRUSIVE — GOSSAN, MINERALS — DON'T FORGET CONTOURS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, TRAILS, GOSSANS,

GEOCHEM: Cu Mo Pb Zn U W ASSAY:

VANCAL 10370

Project DIV Mtn.	**NTS**	**Scale** 1:200	**Page** 3 **of** 4	**Traverse** DDH-93-12
Sampler WENG	**Location, Target (words)**		**Sample Nos**	
Date Aug 9	**photo no.** 13+962N, 9852E (-50°)		**Cert. Nos**	

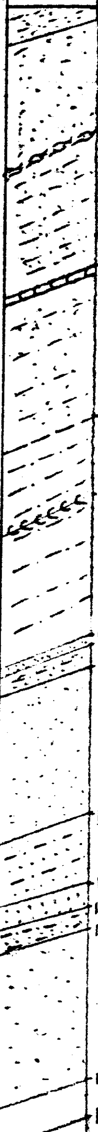
Depth (m)		Description	Bedding Angle	Rec	RQD
94.00–94.64		GREY/BLK MED gr. CARBONACEOUS ARKOSE. SHALEY REGIONS EXTR. SHEARED	45°-50°	90%	50%
94.64–95.29	BMS.				
95.29–95.71		ARGILL COAL : LOWER 10 cm BMS	52°-61°	90%	–
95.71–96.21		BLK/GREY ARGILL/CARBONACEOUS ARKOSE.		90%	–
96.21–96.62	BMS.			60%	–
96.62–98.33		BLK VITRIOUS COAL, HI SHALE CONTENT. (TOP 30 HI SHALE CONTENT) (BOTTOM 40 cm " ") EXTREMELY FRACTURED AND SHEARED FROM 97.84-98.33 (POOR RECOVERY)	58°	44%	–
98.33–99.67		ARGILLACEOUS ARKOSE/SST. EXTREMELY FRACTURED @ LOWER 30 cm TO CONTACT.	55°	70%	12%
99.67–100.60		BRN/BLK MASSIVE SHALE	58°	82%	15%
100.60–101.09		ARGILL ARKOSE : LOWER CONTACT FAULTED AND RECEMENTED GOUGE.	61°	60%	–
101.09–102.61		COARSE gr. WHT ARKOSE. FELDSPARS STRONGLY ALTERED TO CLAY. & MINOR COAL FRAGS & PARTINGS.	58-62°	94%	63%
102.61–104.04		ARGILL ARKOSE GRADING INTO BMS AT LOWER CONTACT. NARROW COAL PARTING AT LOWER CONTACT.	55°	93%	52%
104.04–109.62		MED/COARSE gr. WHT/TAN ARKOSE MINOR COAL FRAGS & PARTINGS.	57°	95%	65%
109.62–111.40	BMS	ARENACEOUS SHALE GRADING IN AND OUT OF ARGILL ARKOSE. COAL PARTINGS (2mm) COMMON.	50°	94%	53%
111.40–115.10		MED GR. TAN/WHITE ARKOSE W/ COARSENED INTERVALS (up to 20cm). MINOR COAL FRAGS AND CALCITE STRINGERS. LAST 30 cm HIGHLY FRACTURED.	42°	95%	55%
115.10–115.86		ARENACEOUS SHALE W/ SHALEY COAL SEAM	68°	90%	22%
115.86–116.43		BRN/BLK MASSIVE SHALE DIRTY BLK ARENACEOUS COAL.	57°	70%	10%
116.43–117.05		WHT MED GR. ARKOSE. MODERATELY ABUNDANT COAL FRAGS & SHALE FLECKS.	–	–	–
117.05–117.65		STRONGLY CARBONACEOUS SHALE.			
117.65–118.50	distorted CONTACT.	MED gr. DIRTY grey/BLK ARKOSE (COAL & SHALE FRAGS COMMON).	52°	90%	65%
118.50–120.43		PALE GREEN APHANITIC ANDESITE W/ ABUNDANT CARBONATE FILLED VESICLES AMYG. ABUNDANT CALCITE STRINGERS & VNLTS. CALCITE VNS ARE POST-SILL AS SEEN BY TWO ZONES OF BXX'N @ 115.58 m & 120.23 m.	Ca. 62°	94%	75%
120.43–121.20		MED/COARSE gr. GREY/BLK CARBONACEOUS ARKOSE W/ ABUNDANT CALCITE STRINGERS.	–	82%	42%
121.20–122.22	*Rob Look @*	APPEARS TO BE EXTREMELY CARBONACEOUS MUD & SHALE (TOO DENSE FOR PURE COAL) FRESH SURFACE IS DULL BLK W/ SPHERICAL PELLETAL IMPRESSIONS (NOT SAMPLED).	–	75%	–
122.22–123.15		ARENACEOUS SHALE GRADING INTO BMS W/ ABUNDANT CALCITE VNLTS. LOWER CONTACT FRACTURED.	55°	93%	20%
123.15–124.90		PALE GREEN/GREY APHANITIC ANDESITE W/ ABUNDANT CARBONATE FILLED VESICLES AND CALCITE VNLTS.	Ca. 60°	91%	61%
124.90–125.27	HIGHLY FR. BMS W/ CA				
125.27–126.02		ARENACEOUS SHALE.	54°	80%	5%
126.02–132.14		BLACK VITRIOUS COAL. ~1.2 m OF ARGILLACEOUS COAL THROUGHOUT INTERVAL (THINLY INTERBEDDED). SMALL (1-2cm) INTERVALS OF CONCENTRATED FIBROUS CALCITE BANDING. UPPER & LOWER CONTACTS STRONGLY FRACTURED. CONCENTRATED FLAKEY PY ON BEDDING/SHEAR PLANES	63°	70%	–
132.14–132.64 / 132.84					
132.84–135.82		ARGILLACEOUS ARKOSE.	61°	81%	30%
135.82–140.30		MED/COARSE gr. TAN/WHT ARKOSE MINOR SHALE/CARBONACEOUS PARTINGS.	56°	75%	50°
140.30–141.74		BLK VITRIOUS COAL LOW SHALE COMP. MINOR PY. (TOP 30 cm IS SHALEY)		83%	–

(130.00 marked in depth column)

ATTITUDES (100/40 N)
SANDSTONE SILTSTONE — CONGLOMERATE — VOLCANIC — CHERT — SHALE — LIMESTONE DOLOMITE — INTRUSIVE — GOSSAN, MINERALS
SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS
SILT x SOIL ● ROCK ● PAN Δ WATER O
OBSERVED GEOLOGY: DEFINED —— INFERRED – – – ASSUMED ...
DON'T FORGET ...URS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKIN... RAILS, GOSSANS,

ASSAY:
GEOCHEM: Cu Mo Pb Zn U
VANCAL 10370

Project DIV mtn.	NTS	Scale 1:200	Page 4 of 4	Traverse DDH-93-12
Sampler WONG	Location, Target (words)		Sample Nos	
Date Aug 10/93.	13+962 N, 9852 E (-50°) photo no.		Cert. Nos	



Depth	DESCRIPTION	Bedding Angle	REC	RQD
140.00 – 142.24	EXTREMELY FRACTURED FINE gr. ARKOSE / SST. MINOR COAL PARTINGS AND CALCITE STRINGERS.	45°	80%	12%
143.26	~~COARSE gr. ARKOSE~~			
143.26 – 146.80	TAN ARGILLACEOUS ARKOSE / SST. WEAKLY FRACTURED MINOR COAL PARTINGS. (BANDED)	62°	92%	62°
146.80 – 150.72	TAN/BRN ARGILLACEOUS ARKOSE / SST TO ARENACEOUS BRN SHALE LESS BANDED IN APPEARANCE THAN upper interval. LOWER CONTACT STRONGLY FRACTURED w/ ABUNDANT CALCITE ON SHEAR PLANES	55°	86%	61°
150.72 – 156.51	BRN / BLK MASSIVE SHALE EXTREMELY SHEARED LOCAL intervals ARE ARENACEOUS w/ FELDSPAR FLECK PARALLEL TO BEDDING. CALCITE ON SHEAR PLANES. MINOR COAL FRAGS ALONG BEDDING PLANES. (152.70)	53°	83%	10%
156.51 – 156.81	MED gr. TAN ARKOSE.			
156.81 – 157.37	STRIPPY (BANDED) SHALE / SST. BEDDING STRONGLY DISTORTED @ LOWER CONTACT {PSEUDO BRXX} MINOR Py STRINGERS.			
157.37 – 161.22	MED TO COARSE gr. GREY ARKOSE w/ MINOR SHALE CLASTS AND COAL FRAGS STRONGLY FRACTURED w/ ABUNDANT CALCITE VNLTS & STRINGERS. LOWER 30 cm FINE gr TAN ARKOSE, w/ 10 cm BANDED SHALE / ARKOSE	60°	79%	13%
161.22 – 163.07	STRIPPY BANDED SST AND SHALE SLUMP & CROSS-BEDDING AT SST/SHALE CONTACTS : INDICATIVE OF HIGH ENERGY influence	62°	96%	79%
163.07 – 163.77	MED gr. GREY ARKOSE. MOD ABUNDANT SHALE FRAGS.		95%	81%
164.33 – 168.22	FINE TO MED GR. GREY ARKOSE. LOCALLY COARSENED SECTIONS. SHALE FRAGMENTED BANDS @ 167.52 - 167.72 m. 167.82 m : LARGE SHALE (BLK) CLASTS IN ARKOSE mtx	58°	92%	69%
168.22 – 169.16 EOH.	STRIPPY BANDED BLK SHALE & MED gr. grey ARKOSE ABUNDANT FLAME STRUCTURES, RIP-UP CLASTS AND SLUMP FEATURES. (RESEMBLES DE-WATERING COMPACTION FEATURES). MICRO FAULTS w/ minor displacement (calcite vnlts)	62°	96%	72%

SAMPLES TAKEN

93-12, SEAM 1 : 140.30 m - 141.74 m
93-12, SEAM 2 : 126.02 m - 132.14 m
93-12, SEAM 3 : 96.62 m - 98.20 m

ATTITUDES (100/40 N)
SANDSTONE SILTSTONE — CONGLOMERATE — VOLCANIC — SHALE — CHERT — LIMESTONE DOLOMITE — INTRUSIVE — MINERALS
SPECIMEN SITE A, B, ...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS
SILT x SOIL • ROCK • PAN Δ WATER O
DON'T FORGET C...RS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKING, ...RAILS, GOSSANS, OBSERVED GEOLOGY: DEFINED —— INFERRED - - - ASSUMED ....

ASSAY:
GEOCHEM: Cu Mo Pb Zn U W

Project	DIV mtn	NTS	Scale 1:200	Page 1 of 2	Traverse DDH-93-13
Sampler	WENG	Location, Target (words)		Sample Nos	
Date	Aug 12/93	photo no.	13+962N, 9932E (-50°)	Cert. Nos	

STRATA		DESCRIPTION	BED Angle	REC	RQD
	0.00	OVERBURDEN : SAND AND BOULDER ERRATICS.			
	6.71	SAND SEAM.	–	50%	–
	7.22	35° CONTACT ANGLE. DARK GREEN CHLORITE ANDESITE W/ ABUNDANT CARBONATE FILLED VESICLES. MOD CALCITE STRINGERS. LOWER CONTACT RUSTY.	Ca 12°	90%	83%
	8.22	MED gr. GREY ARKOSE W/ ABUNDANT SHALE FLECKS. LOWER CONTACT RUSTY AND WEATHERED.	57°	73%	56%
	9.90	SHEARED GOUGEMOUS SHALE.	–	90%	–
	10.20	BLK VITREOUS COAL. EXTREMELY CRUSHED AND SHEARED. 10.97 - 11.57 IS VERY SHALEY.	–	69%	–
	11.57	MED TO COARSE gr WHITE ARKOSE. UPPER CONTACT (25cm) RUSTY. STRONGLY CALCAREOUS. COARSENED MINERAL @ 12.35 - 12.55. ABUNDANT SHALE FLECKS and FRAGS. LOWER CONTACT - THIN COAL PARTINGS.	58°	96%	65%
	14.02	67° BMS. MOD FRACTURED : WEAKLY SHEARED TRACE PY.	60°	78%	27%
	14.94	MED TO COARSE gr WHITE ARKOSE. TOP 5m : NO SHALE OR COAL FRAGS. FROM 20.29 SEE MINOR COAL FRAGS AND PARTINGS INCR IN ABUNDANCE. TOOTHED LOWER CONTACT. EXTREMELY COARSE TEXTURE @ 20.67 - 20.82. LARGE COAL FRAGS (2cm) INTRUDED BY CALCITE VNTS. 4cm Calcite VN @ 28.85.	60°-66°	95%	67%
	29.61	61° CONTACT.			
	30.00	BLK MASSIVE SHALE W/ MINOR COAL PARTINGS. LOWER CONTACT STRONGLY SHEARED.	61°	87%	51%
	31.52	FINE gr. THIN ARGILLACEOUS ARKOSE. 10 cm COAL SEAM @ 32.21 m.	64°		
	33.38	15cm COAL SEAM @ CONTACT. ABUNDANT Cu Str. ALTERNATING INTERVALS OF ARENACEOUS BLK SHALE AND ARGILLACEOUS ARKOSE. NARROW COAL PARTINGS (up to 10 cm) COMMON.	61°-64°	80%	52%
	44.28	MED gr. GREY/BLK GRITTY ARKOSE. ABUNDANT FLAKEY PY ON FRACTURE SURFACES. BMS INTERVALS. (10cm).	62°	82%	33%
	45.73				
	46.38				
	46.93				

GEOCHEM: Cu Mo Pb Zn U W ASSAY:

ANCAL 10370

Project Div Mtn.	NTS	Scale 1:200	Page 2 of 2	Traverse DDH-93-13
Sampler WENG	Location, Target (words)		Sample Nos	
Date Aug 12/93	photo no. 13+962N, 99 32E (-50°)		Cert. Nos	

STRATA	46.98	DESCRIPTION	BED Angle	REC	RQD
		PALE GREEN/GREY CHLORITE ANDESITE W/ ABUNDANT CARBONATE FILLED VESICLES AND CALCITE STRINGERS/VNLTS. UPPER ½m STRONGLY FRACTURED.	Ca 50°/34°	82°	61%
	49.72	60°			
	50.00	MED TO COARSE gr. GREY/BLK GRITTY ARKOSE.	Ca		
	50.60	STRONGLY FRACTURED W/ ABUNDANT CALCITE VNLTS. & SHEAR DISPLACEMENT 3cm CA/N	55°	76%	41%
	51.66	ARGILLACEOUS COAL / CARBONIFEROUS SHALE : EXTREMELY SHEARED AND CRUSHED.	–	85%	–
	52.82	TAN/BRN SHALE/SILTSTONE EXTREMELY FRACTURED (FAULTED). Minor Breccia @ LOWER CONTACT.	60°	85%	–
	53.54	STRONGLY BMS.			
		MED TO COARSE gr. WHITE ARKOSE; MINOR COAL FRAGS, PYRITES AND SHALE FLECKS.	59°	90%	71%
	60.00				
	60.44	BLK/BRN MASSIVE SHALE GRADING IN AND OUT OF ARENACEOUS SHALE W/ THIN (15cm) INTERVALS OF ARGILLACEOUS ARKOSE. UPPER 3m STRONGLY FRACTURED & SHEARED. FROM 62.64m : NUMEROUS ERRATIC BOUNDARIES (SST/SHALE) TURBULENCE FEATURES & COAL CLASTS. TRACE Py *(ONE Py BAND, STRONGLY DEFORMED @ 65.50m. STRONG deformation FEATURE @ 65.23	58°	62%	41%
	66.70	COARSE gr. TAN ARKOSE			
	67.05				
	67.85	STRIPPY INTERBANDED BMS AND LIGHT GREY GREY MED TO COARSE gr. ARKOSE. W/ NUMEROUS SHALE CLASTS LOCALLY V. COARSE SECTIONS. UPPER interval STRONGLY FRACTURED. (SEVERAL EPISODES OF DEPOSITION	–	94%	52%
	72.30	STRIPPY INTERBANDED BMS AND Fine gr GRY ARKOSE NARROW intervals of fine gr grey ARKOSE (20cm).	70°	87%	67%
	74.37	EOH.			

NO SAMPLES TAKEN

ASSAY: GEOCHEM: Cu Mo Pb Zn U W

ATTITUDES (100/40 N)

SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

SANDSTONE SILTSTONE CONGLOMERATE VOLCANIC CHERT SHALE WATER PAN ROCK SOIL SILT LIMESTONE DOLOMITE INTRUSIVE

OUTCROPS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKING. DEFINED —— INFERRED - - - ASSUMED....

DON'T FORGET COLOURS, MINERALS

Project	Div Mtn.	NTS	Scale 1:200	Page 1 of 4	Traverse DDH-93-14
Sampler	WENG	Location, Target (words)		Sample Nos	
Date	Aug 12/93	photo no.	13+658N, 9894E (-57.5°)	Cert. Nos	

STRATA	m	DESCRIPTION	Bed Angle	REC	RQD
	0	OVERBURDEN BOULDER ERRATICS.	–	–	–
	4.32				
	6.40				
	6.92	SAND SEAM.	–	70%	–
	7.42	MED gr. TAN/WHITE ARKOSE W/ THIN (20-30cm) SECTIONS OF ARGILLACEOUS ARKOSE. MINOR COAL PARTINGS AND FOLDS.	51°-60°	66%	40%
	8.84 → 73°				
	9.50	ARGILLACEOUS ARKOSE.	64-68°	84%	56%
	12.50	BRN/BLK MASSIVE SHALE MINOR CALCITE VNLTS.	–	86%	45%
	14.22	MED/COARSE gr. WHITE ARKOSE. (MED @ TOP / COARSE BASE)	58°	99%	90%
	14.82	ARGILLACEOUS ARKOSE GRADING INTO ARGILLACEOUS SHALE INTO BMS AT LOWER CONTACT		80%	54%
	16.44	FINE/MED gr. GREY ARKOSE W/ ABUNDANT SHALE FLECKS AND ARGILLACEOUS INTERVALS (BANDED). MINOR COAL PARTINGS.	62°	98%	70%
	19.32	DOMINANTLY BMS W/ GRITTY ARGILLACEOUS INTERVALS. CARBONACEOUS SECTIONS COMMON (W/ < 1% PY.	57°	96%	65%
	21.1	ALTERNATING INTERVALS OF ARGILLACEOUS COAL TO CARBONACEOUS SHALE. NOT GOOD SAMPLE.	67°	75%	6%
	23.31	BLK/GREY GRITTY ARKOSE (MED gr.)			
	23.51				
	24.69	DARK GREEN CHLORITE ANDESITE SILL. GRADATIONAL CHANGE TO DARK GREEN ANDESITE W/ ABUNDANT CHLORITE/CARBONATE FILLED VESICLES AND MOD/BI. MINOR CALCITE VNLTS & STRINGERS.	Ca 37°	86%	64%
	30.0				
	38.70	5cm MUD SEAM			
	44.20	ABUNDANT CALCITE VNHs & STRINGERS IN BOTTOM 2 meters GRADATIONAL TRANSITION TO DARK GRN CHLORITE ANDESITE W/ NO BI/HBL VESICLES FILLED W/ CHLORITE/CARBONATE & MINOR FELDSPAR.			
	44.95				

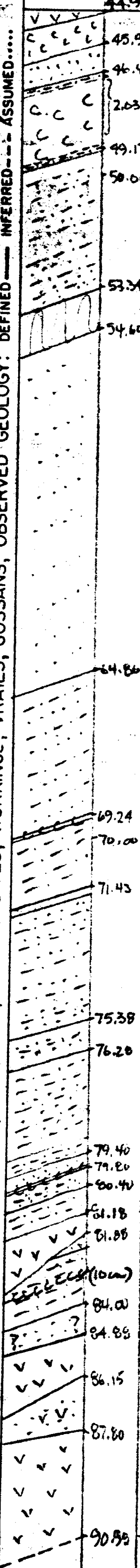
ASSAY:

GEOCHEM: Cu Mo Pb Zn U W

DON'T FORGET CONTACTS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, TRAILS, GOSSANS, OBSERVED GEOLOGY: DEFINED —— INFERRED - - - ASSUMED.....
SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

ATTITUDES (100/40 N)
SANDSTONE SILTSTONE
CONGLOMERATE
VOLCANIC
CHERT
SHALE
WATER O
PAN Δ
ROCK ●
SOIL ●
SILT X
LIMESTONE DOLOMITE
INTRUSIVE
GOSSAN, MINERALS

Project DIV Mtn	NTS	Scale 1:200	Page 2 of 4	Traverse DDH-93-14
Sampler WENG	Location, Target (words) 13+658 N, 9894 E (-57.5°)		Sample Nos	
Date Aug 13/93	photo no.		Cert. Nos	



Depth	Notes	DESCRIPTION	BEDDING ANGLE	REC	RQD
44.95 – 45.92	CONTACT ~50°	BLK VITREOUS COAL W/ MODERATE TO HIGH ARGILLACEOUS SECTIONS. OVER ALL QUALITY IS POOR DUE TO SHALE CONTENT. (NOT Sampled). Py 1%	48°		
45.92 – 46.80		MED gr. GREY/BLK gritty ARKOSE			
46.80 – 49.17 (2.03 m)	NOTE: ground up coal is FROTHY & shiny.	INTERVAL IS VERY EXTREMELY SHEARED AND GOUGEY. VERY DIFFICULT TO DISTINGUISH SHALE/COAL CONTACTS AND SHALE CONTENT IN COAL. MOST OF interval GROUND BADLY. ESTIMATE 20% SHALE CONTENT.	–	80%	–
49.17 – 53.34 (50.00)		ARGILLACEOUS ARKOSE GRADING INTO ARENACEOUS SHALE TOWARDS LOWER CONTACT. 80% OF INTERVAL EXTREMELY SHEARED & FRACTURED	59°	75%	4%
53.34 – 54.60	20° CONTACT	GOUGE W/ ground up SHALE BITS.	–	95%	–
54.60 – 64.86		MED TO COARSE gr WHITE ARKOSE. MINOR COAL PARTINGS AND SHALE FLECKS. V. COARSENED @ LOWER CONTACT (30 cm).	58°	97%	77%
64.86 – 69.24		ARENACEOUS SHALE / ARGILLACEOUS ARKOSE. LOWER CONTACT DISTORTED	60°	90%	65%
69.24 – 71.43 (70.00)		BRN/BLK MASSIVE SHALE W/ ARENACEOUS INTERVALS	67°	90%	63%
71.43 – 75.38		ARENACEOUS BRN SHALE W/ ~~BR~~ BLK SHALE FRAGS. FRACTURE SURFACES CHLORITIC.	59°	92%	56%
75.38 – 76.20		FINE/MED gr. GREY ARKOSE : SHALEY at LOWER CONTACT. CHL. FRAC surf.			
76.20 – 79.40		ARGILLACEOUS ARKOSE / ARENACEOUS SHALE W/ CHLORITIC FRACTURE SURFACES.	50–52°	88%	43%
79.40 – 79.80	5 cm coal				
79.80 – 81.18 (80.40)		BMS STRONGLY FRACTURED & SHEARED.	58°	60%	10%
81.18 – 84.00 (81.88)	~~35° CONTACT~~ Down Hole.	BLK MASSIVE SHALE W/ MINOR Cu stringers. EXTREMELY SHEARED.	–	65%	–
84.00 – 84.88		Fine gr. GREY ARKOSE EXTREMELY Fractured / SLICKEN SIDES. (could be VOLCANIC W/ NO CHLORITE)			
84.88 – 86.15	27° CONTACT Down HOLE	DARK GREEN CHLORITE ANDESITE : ABUNDANT carbonate filled vesicles and CALCITE STRINGERS.			
86.15 – 87.80		Fine gr. grey ARKOSE. EXTREMELY FRACTURED & SHEARED. NARROW intervals of DARK green ANDESITE : upper & Lower contact BRXX'ED.			
87.80 – 90.89		DARK GREEN CHLORITE ANDESITE. HBL FLECK. CARBONATE Filled vesicles & Cu stringers.			

ATTITUDES (100/40 N)
SANDSTONE SILTSTONE CONGLOMERATE VOLCANIC CHERT SHALE LIMESTONE DOLOMITE INTRUSIVE MINERALS
SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS
GEOLOGY: DEFINED —— INFERRED - - - ASSUMED .....
SILT X SOIL ● ROCK ■ PAN △ WATER ○
DON'T FORGET CONTOURS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, TRAILS, GOSSANS, OBSERVED GEOLOGY
ASSAY: GEOCHEM: Cu Mo Pb Zn U W

ARCHER, CATHRO & ASSOCIATES LTD DAILY TRAVERSE REPORT

Project DIV nith	NTS	Scale 1:250	Page 3 of 4	Traverse DDH-93-14
Sampler WSW6	Location, Target (words)		Sample Nos	
Date Aug /93	photo no. 13+650N, 98946 (-57.5°)		Cert. Nos	

STRATA		DESCRIPTION	BEDDING ANGLE	REC	1240
	90.40 / 90.98				
		FINE gr. GREY ARKOSE (SHALEY INTERVALS) ARGILLACEOUS. EXTREMELY FRACTURED : CHLORITIZED FRACTURE/SHEARE PLANES	–	60%	–
	92.15				
		COARSE CLASTIC CHANNEL Conglomerate. CLAST CONSIST OF DALE GREEN ANDESITE, BLK/BRN SHALE, MED gr. WHITE ARKOSE IN SHALE MATRIX. ABUNDANT Ca STRINGERS. MODERATELY FRACTURED	–	88%	37%
	100.00	NO COAL FRAGS OR CLASTS. NARROW (20 cm) intervals of MED gr. WHITE ARKOSE.			
	105.46	39° CONTACT			
		LARGE ANDESITIC BOULDER W/ CARBONATE VESICLES.	–	82%	43%
	106.56	~40° CONTACT. ARKOSE AND BRXX			
		SAME AS ABOVE Conglomerates. VARIOUS CONTACTS OF FAULT BRXX W/ NEARBY BANDS & SST INTERVALS : 29-32°.		92%	61%
	118.86				
	119.13	45° MED gr. WHITE/GREY ARKOSE. ABUNDANT SHALE FLECKING. LOWER CONTACT CUTS BEDDING.	56°		
	119.66	DALE GRN-GRN CHLORITE ANDESITE PREMINERAL BRECCIATED CONTACT/ANDESITE			
		DARK GRN CHLORITE BIOTITE ANDESITE W/ LOCALLY ABUNDANT CARBONATE. Filled vesicles, CALCITE STRINGERS AND SHALE FLECKS. INTERVALS UP TO 1m STRONGLY BRXX'ED AND CEMENTED W/ SHALE MTX AVERAGE PY CONTENT < 1% AS BLEBS & DISSEMINATIONS, LOCALLY > 1%	Ca 30°	90%	63%
	130.00	FROM 128.60 - 130.44 : DARK GREY AUPHANITIC ANDESITE? 130.44 CONTACT to 132.70 SEE BRXX'ED CHLORITE ANDESITE (FAULT BRXX).			
	140.00				

GEOCHEM: Cu Mo Pb Zn U W ASSAY:

SILT X SOIL ● ROCK ● PAN △ WATER O

SPECIMEN SITE A,B...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS: DEFINED —— INFERRED - - - ASSUMED.....

DON'T FORGET CL ...URS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKING..., RAILS, GOSSANS, OBSERVED GEOLOGY:

ATTITUDES (100/40 N)

SANDSTONE SILTSTONE · CONGLOMERATE · VOLCANIC · CHERT · SHALE · LIMESTONE DOLOMITE · INTRUSIVE · GOSSAN, MINERALS

Project Div mtn	NTS	Scale 1:200	Page 4 of 4	Traverse DDH93-14
Sampler WENG	Location, Target (words) 13+65BN, 9894E (-57.5°)		Sample Nos	
Date Aug 15 /93	photo no.		Cert. Nos	

STRATA	140.42	DESCRIPTION	Bedding Angle	REC	RQD
V V V		LOWER CONTACT PALE GRN.			
	141.76	DULL BLK COAL W/ MOD SHALE content. VERY BRITTLE : COOKED BY SILL?	-	40%	/
	142.99	BRN / BLK MASSIVE SHALE EXTREMELY SHEARED.	/	70%	/
	144.08 144.48	ANTHRACTIC SHALEY COAL V. HIGH REFLECTANCE : STRONGLY SHEARED	/	65%	/
	145.28	PALE GREEN CHLORITE ANDESITE. STRONGLY ALTERED (V. SOFT). MINOR CALCITE STRINGERS. MILDLY BRECCIATED.	-	98%	54%
	146.13				

EOH.

SAMPLE TAKEN : SEAM 3 : 46.94 - 48.92m.

ATTITUDES 100/40 N

GOSSAN, MINERALS — INTRUSIVE — LIMESTONE DOLOMITE — SHALE — CHERT — VOLCANIC — CONGLOMERATE — SANDSTONE SILTSTONE

SILT X SOIL ● ROCK ■ PAN △ WATER ○ SPECIMEN SITE A,B,..; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

DON'T FORGET CO. JRS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, RAILS, GOSSANS, OBSERVED GEOLOGY: DEFINED —— INFERRED - - - ASSUMED ....

GEOCHEM: Cu Mo Pb Zn U W ASSAY:

Project DIV MTN	NTS	Scale 1:200	Page 1 of 2	Traverse DDH-93-15
Sampler WENG	Location, Target (words) 14+060 N, 9887 E (-50°)		Sample Nos	
Date Aug 17/93	photo no.		Cert. Nos	

STRATA	0.00m DESCRIPTION	Bedding Angle	REC	RQD	
	OVERBURDEN.	–	–	–	
	7.42 DOMINANTLY COARSE gr. WHITE ARKOSE UPPER 3m is STRONGLY WEATHERED W/ RUSTY SECTIONS LOCAL SECTIONS OF MED gr. WHT/TAN ARKOSE WITH ABUNDANT COAL PARTINGS. MODERATELY CALCAREOUS TYPICAL FINING UP SEQUENCE. FRACTURE/SHEAR ANGLE: 27°-32°	57°	88%	69%	ASSAY:
	20.19 ARENACEOUS SHALE AT UPPER CONTACT GRADING INTO ARGILLACEOUS ARKOSE AT BASE. (MINOR COAL BANDS).	64°	83%	22%	
	21.68 COARSE gr. WHT/TAN ARKOSE, RUSTY PATN, STRONGLY FRACTURED	31°	62%	10%	
	23.16 BLACK MASSIVE SHALE COAL PARTINGS AND SEAMS (up to 20 cm) COMMON w/ BLK VITREOUS (ANTHRACITIC) & DULL BLK w/ ABUNDANT FIBROUS CALCITE.	55°-60°	86%	25%	Zn U W
	27.64				Pb
	28.74 66° CONTACT MED gr. WHT ARKOSE w/ MINOR SHALE & COAL PARTINGS.	50°	95%	90%	
	30.00 GRADATIONAL ARGILLACEOUS ARKOSE / ARENACEOUS SHALE w/ NARROW INTERLITHS OF BMS.	60°-65°	96%	45%	Cu Mo
	31.50 BLK MASSIVE SHALE w/ MINOR COAL PARTINGS (5cm)	45°	80%	10%	GEOCHEM:
	32.30 53° CONTACT ARENACEOUS SHALE / ARGILLACEOUS ARKOSE w/ NARROW (30cm) INTERVALS OF WHT ARKOSE AND BMS.	51°-66°	85%	36%	
	34.96 BMS	–	96%	20%	
	35.56 SIMILAR AS ABOVE COARSE gr. WHT/GREY ARKOSE w/ MODERATE COAL + SHALE FLECKING MOD. FRACTURED.	–	88%	60%	
	37.58 ARGILLACEOUS MED gr. grey ARKOSE w/ NARROW BMS INTERVALS (30cm). MINOR CALCITE STRINGERS. @ 41.15 GRADATIONAL TRANSITION TO MED gr. GREY ARKOSE	52°-78°	89%	30%	
	42.00 STRONGLY SHEARED BMS	–	80%	–	
	42.82 43.22 18° CONTACT PALE GREEN VESICULAR CHLORITE ANDESITE VESICLES CARBONATE FILLED. MOD FRACTURED w/ CALCITE VNLTS. UPPER CONTACT BLEACHED & GOUGEY.	Ca. 22°	92%	41%	
	46.82 47.00				

SILT X SOIL ● ROCK ■ PAN △ WATER ○

LIMESTONE DOLOMITE | SHALE | CHERT | VOLCANIC | CONGLOMERATE | SANDSTONE SILTSTONE | ATTITUDES (100/40 N)

INTRUSIVE | GOSSAN, MINERALS

SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

DON'T FORGET CC. JURS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, TRAILS, GOSSANS, OBSERVED GEOLOGY: DEFINED —— INFERRED - - - ASSUMED .....

Project DIV MTN	NTS	Scale 1:200	Page 2 of 2	Traverse DDH-93-15
Sampler WENG	Location, Target (words) 14060 N, 9887 E (-50°)		Sample Nos	
Date AUG 17/93	photo no.		Cert. Nos	

Strata (depth)	Description	Bed angle	Rec	RQD
47.00 m – 47.36	CARBONACEOUS BMS			
47.36 – 47.72	MED GR. WHT ARKOSE			
47.72 – 52.12	BMS. W/ CARBONACEOUS SECTIONS AND ARENACEOUS INTERVALS. STRONGLY SHEARED & FRACTURED.	57°	86%	15%
52.12 – 59.34	DULL BLK TO VITRIOUS COAL. 52.12 - 53.04 : MOD SHALE CONTENT; 57.54 - 57.94 : " " "; 58.34 - 59.34 : " " " > BASED ON BLK COLOR & SHEAR COMPONENT OF COAL. OVERALL CALCITE CONTENT LOW. MINOR (<1%) PYRITE ON FRACTURE SURFACES. COAL IS COMPETANT.	S 42°	87%	✓
59.34 – 60.00 – 61.01	ARENACEOUS SHALE. EXTREMELY FRACTURED.	–	60%	0%
61.01 – 65.09	DULL BLK COAL W/ MINOR PY ON SHEAR SURFACES. ~2% BANDS OF FIBROUS CALCITE. 61.01 - 61.56 : HI SHALE CONTENT; 63.90 - 65.00 : " " ". OVERALL SHALE CONTENT LOW.	Ca 52°, S 55°	92%	–
65.09 – 67.38	ARGILLACEOUS ARKOSE.	51°	95%	32%
67.38 – 70.21	DULL BLK COAL. ~3-5% CALCITE BANDS (FIBROUS). MINOR PY ON SHEAR PLANES. OVERALL SHALE CONTENT MODERATE. (LOWER CONTACT HI SHALE content → 30 cm). 35° CONTACT UP.	48°	89%	–
70.21 – 76.50	MED TO COARSE GR. WEAKLY ARGILLACEOUS ARKOSE. 71.93 - 74.83 : FELDSPAR STRONGLY BLEACHED AND ALT TO CLAY. MINOR COAL PARTINGS.	80°	84%	47%
76.50 – 78.03	BLK VITRIOUS COAL. LOW SHALE CONTENT.	–	37%	–
78.03 – 79.05	BRN MASSIVE SHALE : STRONGLY SHEARED	–	60%	–
79.05 – 80.00 – 81 – 82.60	MED TO FINE GR. GREY ARKOSE W/ FINE BANDS OF BLK SHALE. RESEMBLY STRIPPY TEXTURE SEEN IN HOLES PREVIOUSLY. SMALL SCALE FAULT DISPLACEMENT W/ STRIPPY SECTIONS : 1-2 cm.	B 82°, S 45-51°	83%	20%
82.60 EOH				

Sampling :
SEAM 1 : 76.50 m - 78.03 m
SEAM 2 : BENCH C : 67.38 - 70.21 m
SEAM 2 : BENCH B : 61.01 - 65.09 m
SEAM 2 : BENCH A : 52.12 - 59.34.

ATTITUDES ∠100/40 N
SANDSTONE SILTSTONE · CONGLOMERATE · VOLCANIC · CHERT · SHALE · LIMESTONE DOLOMITE · INTRUSIVE · GOSSAN, MINERALS
SILT x SOIL • ROCK ■ PAN Δ WATER O
SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS
DON'T FORGET CO[...]RS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, TRAILS, GOSSANS, OBSERVED GEOLOGY: DEFINED —— INFERRED --- ASSUMED ....

ASSAY:
GEOCHEM: Cu Mo Pb Zn U W

Project	DIV MTN	NTS	Scale 1:200	Page 1 of 2	Traverse DDH-93-16
Sampler	WENG	Location, Target (words)		Sample Nos	
Date	Aug 19/93	photo no. 14+747N, 9942E (-50°)		Cert. Nos	

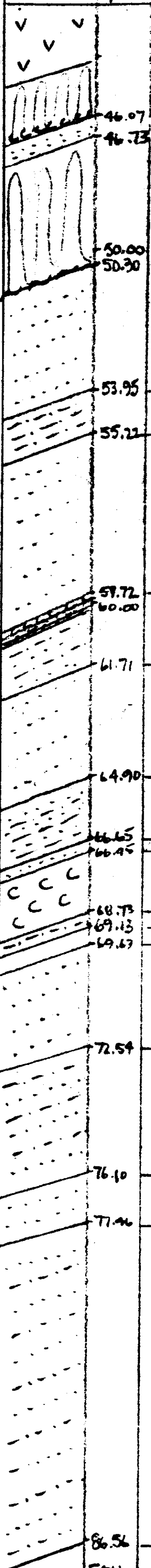
DON'T FORGET CO. ORDS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, ROADS, GOSSANS, OBSERVED GEOLOGY: DEFINED —— INFERRED - - - ASSUMED ..... SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

GOSSAN MINERALS | INTRUSIVE | LIMESTONE DOLOMITE | SHALE | CHERT | VOLCANIC | CONGLOMERATE | SANDSTONE SILTSTONE | ATTITUDES (100/40 N)

SILT X SOIL ● ROCK ■ PAN △ WATER O

STRATA		DESCRIPTION	BEDDING ANGLE	REC	RQD	ASSAY: GEOCHEM: Cu Mo Pb Zn U W
	0.00	OVERBURDEN.				
	4.95	COARSE gr. WHITE ARKOSE. FELDSPARS STRONGLY ALTERED W RUSTY APPEARANCE. LOWER CONTACT GREY/BLK ARKOSE.	56°	73%	24%	-
	6.60	FINE gr. ARENACEOUS SHALE / ARGILLACEOUS ARKOSE. GRADES INT BRN MASSIVE SHALE @ 20 cm ABOVE LOWER CONTACT.	55°	64%	10%	
	9.25	MED gr. BANDED TAN/WHT ARKOSE.	52°	98%	78%	
	9.76	ARGILLACEOUS ARKOSE W NARROW INTERVALS (20-30 cm) OF BMS. STRONGLY FRACTURED (RUST ON FRACTURES). NARROW ARKOSE INTERVAL @ 13.25 - 13.50 m	60°	70%	28%	
		LOWER METER EXTREMELY FRACTURED & SHEARED.				
	15.54	COARSE gr. WHT ARKOSE : FELDSPARS ALTERED ORANGE/RUST MINOR CALCITE VNLTS & STRINGERS.	26°	74%	20%	
	17.00	DOMINANTLY BRN MASSIVE SHALE GRADING IN & OUT OF ARENACEOUS SHALE. MINOR COAL FRAGS/PIECES STRONG TO EXTREME FRACTURE & SHEAR.	44-47°	69%	10%	
	21.64	GOUGEOUS LOWER CONTACT ARKOSE W COAL PARTING.				
		SAME AS ABOVE W MORE ARENACEOUS COMPONENT.	50°	70%	17%	
	24.69	MED gr. WHT/GREY ARKOSE SHALE/COAL PARTING COMMON. EXTREMELY FRACTURED from 25.80 - 26.82 m	55°	68%	22%	
	27.70	ARENACEOUS SHALE GRADING INTO SHEARED BMS W CARBONACEOUS SECTIONS.	36°	80%	-	
	28.54	72° CONTACT CHILLED UP. LIGHT GREY CHLORITE ANDESITE. TR to 2% Py. (LESSENING down SECTION). ABUNDANT CARBONATE				
	29.86 (30.00)	SEMI-GRADATIONAL CHANGE TO GRN/DARK GRN CHLORITE HBL ANDESITE W CARBONATE CHLORITE FILLED VESICLES				
			25° 45°	91%	75%	
		STRONGLY FRACTURED INTERVAL.				
	43.13	SEMI-GRADATIONAL TRANSITION TO LIGHT GREY CHLORITE ANDESITE W ABUNDANT CARBONATE CHLORITE FILLED VESICLES. TRACE to 1% pyrite.				

Project Div Mtn.	NTS	Scale 1:200	Page 2 of 2	Traverse DDH-93-16
Sampler WENG	Location, Target (words) 14+747 N, 9942E (-50°)		Sample Nos	
Date Aug 19/93	photo no.		Cert. Nos	



STRATA 43.00m	DESCRIPTION	Bedding Angle	REC	RQD
~~37° down~~	EXTREMELY Ground/Gougeous BMS/BLK CLAY. Ground & Sheared core at lower contact. (20cm). Rods stuck HERE	/	50%	/
46.07 20cm				
46.73	WHT/Grey MED gr. ARKOSE/MOD ALTERED : SHALE + COAL FLECKING		90%	
	GOUGEOUS BMS/ARKOSE AND COAL. COAL interval 15-20cm @ 48.75 - 48.90	/	60%	/
50.00	← REDUCED TO NQ.			
50.30	MED TO COARSE gr. WHT ARKOSE. COAL FRAGS AND lenses common. FELDSPARS strongly ALTERED. NARROW ARGILLACEOUS BANDS	41°-51°	75%	15%
53.95	Gougeous BLK massive SHALE.	/	70%	/
55.22	COARSE gr. GREY/WHITE GRITTY ARKOSE w/ COAL LENSES & FRAGS. Minor ARGILLACEOUS Banding.	41°-50°	92%	56%
59.72 / 60.00	ARENACEOUS SHALE / ARGILLACEOUS ARKOSE (Fine gr.). Strongly FRACTURED & SHEARED (varying calcareousness).	/	68%	/
61.71 56° contact	COARSE gr. WHITE ARKOSE w/ Numerous Calcite Stringers. Minor coal frags and lenses. Lower ½ meter ARGILLACEOUS	54°	86%	61%
64.90	Fine gr. ARGILLACEOUS ARKOSE w/ minor coal partings (lenses). Strongly SHEARED.	40°	76%	10%
66.65	COARSE gr. WHITE ARKOSE			
66.95	DULL BLK coal ! Strongly SHEARED & crumbly. 20cm of shaley banded coal. From 67.05 - 67.15! Minor calcite	50°	88%	-
68.73	WEAKLY ARENACEOUS BRN SHALE : mod coal frags : strongly sheared	48°	60%	-
69.13	STRIPPY BANDED Fine gr Grey Arkose & Shale w/ abundant calcite stringers, vnlts, vns.	42°	96%	50%
69.67	MED gr. GREY ARKOSE w/ mod calcite stringers + vnlts. MODERATE COAL FLECKS & SHALE CLASTS AT LOWER CONTACT. ½m.	45°-51°	90%	42%
72.54	STRIPPY BANDED GREY ARKOSE AND BLK SHALE. Minor calcite stringers. Abundant X-BEDDING & SLUMP FEATURES. Small scale faulting (cm displmt).	51°-55°	94%	70%
76.10	MED gr. GREY ARKOSE w/ minor coal & shale flecking. Mod/strongly fracturing.	54°	91%	30%
77.46	SAME AS STRIPPY BANDED INTERVAL ABOVE. * AT 84.50 - 84.70 : GRN CHLORITIZED SECTION w/ calcite stringers. SEE HOLE 17 for same unit. AT LOWER CONTACT : RED/PINK STAINING AT SHALE BAND BORDERS (Pink SST).	34°-51°	94%	60%
86.56 EOH.				

ATTITUDES (100/40 N) SANDSTONE SILTSTONE CONGLOMERATE VOLCANIC INTRUSIVE LIMESTONE DOLOMITE SHALE CHERT GOSSAN, MINERALS

SILT x SOIL • ROCK ■ PAN Δ WATER ○ SPECIMEN SITE A,B,..; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

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ASSAY: | GEOCHEM: Cu Mo Pb Zn U W

ARCHER, CATHRO & ASSOCIATES LTD DAILY TRAVERSE REPORT

Project Div Mtn	NTS	Scale 1:200	Page 1 of 1	Traverse DDH-93-17
Sampler WEN6	Location, Target (words)		Sample Nos	
Date Aug 22/93	photo no. 14+745 N, 9972 E (-50°)		Cert. Nos	

STRATA	DESCRIPTION	Bedding Angle	REC	RQD	
0.00	OVERBURDEN	–	–	–	
3.35	MED gr. DIRTY BLK/GREY ARKOSE (GRITTY). MINOR CALCITE STRINGERS. STRONGLY FRACTURED. COARSENING TOWARD LOWER CONTACT. WEAKLY TO NON-CALCAREOUS. BEDDING ANGLE TAKEN @ CONTACT BTW WHT/BLK ARKOSE TRANSITION.	71°	88%	22%	
9.20	EXTREME FRACTURE. BLK MASSIVE SHALE W/ NARROW ARENACEOUS INTERVALS (10cm). EXTREMELY FRACTURED / MILDLY SHEARED (LITTLE TO NO GOUGEOUS MATERIAL). FRACTURE SURFACES RUSTY.	S 56°	69%	–	
11.91					
12.90	BLK VITREOUS COAL : STRONGLY FRACTURED / SHEARED : LOW SHALE COMPONENT.	–	96%	–	
13.72	DOMINANTLY BMS W/ VARYING ARENACEOUS CONTENT. STRONG TO EXTREME FRACTURING.	61°-67°	71%	10%	
16.86	LOWER CONTACT GREY/BLK ARKOSE W/ 4-6% PY BLEBBS & STRINGERS. NARROW GOUGEOUS INTERVALS (10cm)				
18.89	MED gr GRAY/BLK ARKOSE W/ CHLORITE INTERVALS : LOWER CONTACT ~ 20-25% PY. (10cm)	57°	95%	50%	
19.15	EXTREMELY GROUND & CRUMBLY (SHEARED) CARBONACEOUS SHALE / SHALEY COAL.	–	50%	–	ASSAY
20.12	GREY/BLK VITREOUS COAL. STRONGLY SHEARED W/ VERY LITTLE TO MOD SHALE CONTENT. 1% PY	S 60°	95%	–	
21.34	UPPER CONTACT: GOUGEOUS. CARBONACEOUS SHALE / SHALEY COAL 1-4% PY.	–	98%	–	
21.94	61° CONTACT up. DARK GREEN CHLORITE HBL ANDESITE.	–	94%	41%	
23.86	15° CONTACT down. ABUNDANT CALCITE STRINGERS : TR-5% PY IN PLACES	–	96%	–	
24.36	GOUGEOUS SHALE : LAST 10cm COAL	–	94%	60%	
24.99	MED gr. TAN/WHITE ARKOSE W/ MOD COAL FRAGS & LENSES.	–	95%	–	
25.50	FRACTURED & GOUGEOUS BRN SHALE	51°	98%	79%	
26.86	V. COARSE gr. QTZ SST : RESEMBLES QTZ PEBBLE CONGL. ABUNDANT COAL PARTINGS (< 3-5cm)	–	45%	–	GEOCHEM: Cu Mo Pb Zn
27.74	HIGH SHALE CONTENT : EXTREMELY GROUND & CRUMBLY. DULL BLK TO VITREOUS COAL. BROKEN UP. SHALEY SECTIONS : 28.14 - 28.24 ; 28.96 - 29.24 ; 29.56 - 30.78 31.65 - 31.73 ; 33.15 - 33.55. MINOR FIBROUS CALCITE. OVERALL SHALE CONTENT HIGH.	56°-62°	82%	–	
30.00					
33.53	FINE gr. TAN ARGILLACEOUS ARKOSE. ABUNDANT CALCITE STRINGERS.	37°-37°	90%	24%	
34.60	SMALL SCALE FAULT DISPLACEMENTS (1-2cm)				
34.90	HIGHLY FRACTURED BMS.	–	70%	–	
37.52	COARSE gr. WHT ARKOSE W/ ABUNDANT COAL PARTINGS & LENSES ARGILLACEOUS from 36.02 - 36.42 (COAL FLECKED). STRONGLY CALCAREOUS NARROW INTERVALS OF QTZ PEBBLE CONGL typ SST AS BEFORE (UPPER STRATA)	47°	84%	36%	
37.97	BMS W/ 5cm CALCITE VN.	–	96%	–	
38.96	??? GREY/GREEN CHANNEL CONGL. (CHLORITIZED) QTZ/FELSPR/CHLORITIZED FRAGS / ORIENTED BMS W/ ARENACEOUS PARTINGS	50°	93%	69%	
39.17	MED gr. GREY SST W/ INTERMITTANT SHALE PARTINGS. SIMILAR SCALE "FID-UP" FEATURE @ SHALE / SST CONTACTS	55°	98%	80%	
40.80	STRIPPY BANDED BMS & GREY, FINE gr. SST. MINOR X-BEDDING & SLUMPING. : CHLORITE + Cu on FRAC PLANES.	51°-54°	91%	56%	
43.03	FINE gr. GREY SST W/ MINOR SHALE LENSES & CLASTS. (SHALE FLECKING ALONG BEDDING	56°	87%	47%	
44.20	STRIPPY BANDED BMS & FINE gr. GRAY SST. NARROW INTERVAL @ 47.40 : CHLORITIC SST W/ CALCITE FILLED FRACTURES ⊥ to BEDDING. LOWER 2m : SEE ORANGY/RED SST BANDS INSTEAD OF GRY SST.	50°-52°	98%	64%	
48.77	EOH				

Project	Div mtn	NTS	Scale	Page of	Traverse
Sampler	WEN6.	Location, Target (words)		Sample Nos	
Date	Aug 22/93	photo no.		Cert. Nos	

SAMPLES TAKEN FROM DDH-93-17

SEAM 2: 26.86m - 33.63m.

SEAM 3: 20.22 - 21.34 m. } NOT SENT OUT.

SEAM 4: 12.90 - 13.72 m. }

ASSAY:

GEOCHEM: Cu Mo Pb Zn U W

ATTITUDES (100/40 N)

SANDSTONE SILTSTONE CONGLOMERATE VOLCANIC CHERT SHALE LIMESTONE DOLOMITE INTRUSIVE GOSSAN, MINERALS

SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

DON'T FORGET OUTCROPS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, TRAILS, GOSSANS, OBSERVED GEOLOGY: DEFINED —— INFERRED - - - ASSUMED.....

SILT X SOIL ● ROCK ■ PAN △ WATER O

Project	Div mtn	NTS	Scale 1:200	Page 1 of 4	Traverse DDH-93-18
Sampler	WENG.	Location, Target (words)		Sample Nos	
Date	SEPT 18/93	photo no.	14+745N, 9855E (-50°)	Cert. Nos	

STRATA	0.00	CONTACTS	DESCRIPTION	BED ANGLE	RE	RQD
			OVERBURDEN glacial & WEATHERED BEDROCK.	/	%	%
	5.40		COARSE gr. TAN/WHT ARKOSE, MOD-WEAK RUSTY APPEARANCE, Loc-mod COAL FRAGS.	50	95	45
	6.40		FINE gr. TAN/RED ARKOSE W ABUNDANT COAL FRAGS AND PARTINGS / INTERVALS	55	65	0
	6.90		BMS : EXTREMELY FRACTURED	-	30	0
	7.82	64°	MED-COARSE gr. ARKOSE W NARROW ARGILL. INTERVALS AND CARBONACEOUS INTERVALS COAL FRAGS & PARTINGS ABUNDANT.	60	61	13
	9.65		DULL BLK COAL W Ca stringers, moderate shale contact : Lower 4cm COAL ARKOSE	-	50	0
	10.03		CARBONACEOUS ARKOSE	60	88	100
	10.50		BMS grading into ARENACEOUS SHALE AT BOTTOM interval. Minor COAL PARTINGS.	60	67	21
	11.99		MED gr. WHT ARKOSE W ABUNDANT COAL FRAGS.	65	108	100
	12.29		ARGILL ARKOSE.	65	95	54
	12.79	DULL BLK COAL	MED/COARSE gr. WHT ARKOSE W LOW-MODERATE COAL FRAGS.	65-80	95	77
	13.59		10 cm of BLK GRITTY CARBONACEOUS ARKOSE AT 17.39m.			
	17.69		BMS W/ NARROW (10 cm) SHALEY COAL AT 17.72m.	60-70	81	66
	18.59		ARENACEOUS SHALE MODERATE COAL PARTINGS (≤ 2mm) AND FRAGS. ≤ 1% Py IN CONCENTRATED) ARKOSE intervals. Lower 10cm: WHT ARKOSE W COAL FRAGS			
	21.11		BLK VITREOUS COAL (competent). SHALE intervals @ 1.35m 21.46-21.71 & 22.09-22.19.	50	88	48
	22.49		WEAKLY ARGILL WHT ARKOSE W MOD COAL FRAGS	45	98	70
	22.70		TOP 40.0 cm IS WEAKLY ARENACEOUS SHALE W MOD COAL FRAGS. SHARP CONTACT TO ARENACEOUS SHALE W minor COAL PARTINGS & FRAGS	55	90	73
	24.08		MED gr. WHT ARKOSE W MOD-ABUNDANT COAL FRAGS AND THIN (2mm) PARTINGS. WITHIN THIS interval: up to 10cm intervals of ARGILL ARKOSE AND 2-3 cm COAL SEAMS. Minor calcite veining.	55	86	42
	27.30		WEAKLY ARENACEOUS BM. W ABUNDANT COAL PARTINGS (≤ 4 mm).	50	92	46
	28.59		COARSE gr. WHT ARKOSE W NARROW (5mm) interbeds of FINE gr ARKOSE : NO COAL FRAGS	50	90	80
	29.36		CARBONACEOUS BMS.	65	41	0
	30.40		WEAKLY ARENACEOUS SHALE GRADING into STRONGLY ARENACEOUS SHALE. MOD COAL FRAGS.	55	95	70
	30.88		V. COARSE gr ARKOSE/SST. QTZ grains up to 6mm (QTZ PEBBLE CONGL).	60	100	66
	31.38		ARGILLACEOUS ARKOSE / ARENACEOUS SHALE, WITH MODERATE COAL PARTINGS (≤ 2mm).	65-70	90	37
	33.44	BMS W COAL PARTINGS		65	100	71
	33.73					
	34.35		BMS W/ NARROW (up to 1cm) INTERVALS OF MED gr ARKOSE. (2). 1 (7cm) COAL SEAM. BMS HAS MOD to ABUNDANT COAL FRAGS & PARTINGS	65	76	26
	36.51		ARGILLACEOUS ARKOSE grading into FINE gr. tan ARKOSE. COAL parting common (≤ 1cm). NARROW intervals of DECUSSATE FRAGS (5cm) NOT uniform to BEDDING	75	90	32
	36.83					
	37.46					
	38.38		WEAKLY ARENACEOUS BMS. COAL PARTINGS common (up to 1.5cm).	70-75	37	13
	40.02		WEAKLY ARGILL ARKOSE	60	62	37
	40.42		BLK DULL COAL W MOD CALCITE (FIBROUS) : UPPER & LOWER 5cm are BMS (CONTACTS)	70	85	50
	40.89		MED gr WHT ARKOSE W MOD COAL FRAGS	70	95	50
	41.29		BMS W ABUNDANT COAL PARTINGS	30	90	50
	41.70		MED gr WHT ARKOSE W MOD/ABUNDANT COAL FRAGS & PARTINGS	60	100	71
	42.09		BMS W ABUNDANT COAL PARTINGS	80	85	13
	42.44		MED & COARSE gr. ARKOSE : RESEMBLE QTZ PEBBLE congl ABOVE / Low tono COAL frags	80	90	81
	43.54		ARGILLACEOUS ARKOSE (Fine gr). W MOD COAL PARTINGS (≤ 2mm). GRADES IN & OUT OF ARENACEOUS BMS W COAL PARTS. - MINOR SLUMP FEATURES & CROSS BEDDING.	60-80	90	43
			• 10cm COARSE gr ARKOSE @ 47.05. - 15cm COAL @ 46.80m.			
	49.28					

ARCHER, CATHRO & ASSOCIATES LTD DAILY TRAVERSE REPORT

ASSAY: W U Zn Pb Mo Cu GEOCHEM

ATTITUDES ∠ 100/40 N)

SANDSTONE SILTSTONE CONGLOMERATE VOLCANIC CHERT SHALE LIMESTONE DOLOMITE INTRUSIVE GOSSAN, MINERALS

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SILT X SOIL ● ROCK ■ PAN △ WATER O

Project Div mtn.	NTS	Scale 1:200	Page 2 of 4	Traverse DDH-93-18.
Sampler WEN6.	Location, Target (words)		Sample Nos	
Date Sept 20/93	photo no. 14+745 N, 9855 E (-50°)		Cert. Nos	

STRATA	49.22	Contact	DESCRIPTION	BED Angle	REC	BED
	50.00		COARSE gr. TAN/WHT ARKOSE W/ MOD COAL FRAGS. NARROW INTERVALS OF ARGILLACEOUS ARKOSE " " OF DIRTY GRY/BLK ARKOSE.	45-55	95	72
	53.44		ARGILLACEOUS ARKOSE / ARENACEOUS SHALE (INTERBANDING) MINOR SLUMP FEATURES & CROSS BEDDING MOD COAL FRAGS.	60-65	84	53
	56.27		COARSE gr. WHT ARKOSE W/ FAIR/MOD COAL FRAGS.	60	87	70
	57.10		ARENACEOUS ARGILLACEOUS SHALE W/ THIN (≤1mm) COAL PARTINGS. WIDELY SPACED INTERVALS OF TAN/WHT COARSE ARKOSE (25cm ; 1).	60	85	70
	59.94		MED gr. WHT/TAN ARKOSE W/ MINOR COAL FRAGS & PARTINGS.	40	100	100
	60.96		DULL BLACK COAL	60	80	0
	61.26		COARSE gr. GRY/TAN ARKOSE W/ MOD COAL FRAGS. NARROW INTERVALS OF ARENACEOUS SHALE (≤ 20cm).	50	95	87
	62.79		ARGILLACEOUS ARKOSE / ARENACEOUS SHALE. COAL PARTINGS COMMON (2mm). CROSSBEDDED	60-70	100	95
	63.71		WEAKLY ARGIL COARSE gr. ARKOSE W/ ABUNDANT COAL FRAG & PARTINGS.	65	84	76
	64.51		ARENACEOUS SHALE GRADING IN & OUT OF BMS (BANDED). CROSSBEDDING & SLUMP FEATURES COMMON FAIR/MOD COAL FRAGS.	50	93	60
	68.18		V. COARSE GRAINED ARKOSE (GRIT) LITTLE TO NO COAL FRAGS. NARROW INTERVALS OF BMS [redacted] ARGILL ARKOSE.	70	100	87
	71.08		ARGILLACEOUS COAL (HIGH SHALE CONTENT) 80%	65	74	80
	71.50		SAME AS ABOVE QTZ/FELD GRIT IN TAN MTX.	-	96	80
	72.63		ARGIL ARKOSE / ARENAC SHALE WITH NUMEROUS INTERVALS OF COAL FRAG RICH MED gr. WHT ARKOSE (≤ 25 cm) BANDED APPEARANCE. (SLUMP FEATURES MOD/LOW).	60	78	33
	75.99		MED gr. TAN ARKOSE GRADING INTO COARSE gr. QTZ/FLDSPR ARKOSE GRIT AT BASE. LOW COAL FRAGS	65	90	60
	77.82		ARENACEOUS SHALE W/ MOD/LOW COAL FRAGS. CROSS BEDDING & SLUMP FEATURES FAIR/MOD). NUMEROUS INTERVALS OF WHT/TAN ARKOSE W/ COAL FRAGS. (≤ 30cm).	65-72	82	36
	80.00					
	83.01		MED/FINE gr. WHT ARKOSE WEAKLY ARGIL W/ LOW/MOD COAL FRAGS.	60-80	92	55
	85.34		BANDED ARENACEOUS SHALE GRADING INTO BMS AND BACK TO A.S. CROSS BEDDING & SLUMP FEATURES COMMON. FAIR/MOD COAL FRAGS & PARTINGS.	65-90	94	74
	89.74		WEAKLY ARGIL COARSE gr QTZ/FELD ARKOSIC GRIT.	60	95	72
	90.30		SAME AS ABOVE	60-80	90	63
	94.10					

ASSAY: GEOCHEM: Cu Mo Pb Zn U W

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ATTITUDES (100/40 N)

SANDSTONE SILTSTONE CONGLOMERATE VOLCANIC CHERT SHALE PAN △ WATER ○ LIMESTONE DOLOMITE SILT × SOIL ● ROCK ■ INTRUSIVE GOSSAN, MINERALS

DON'T FORGET C JURS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKING, TRAILS, GOSSANS, OBSERVED GEOLOGY:

Project Div mtn.	NTS	Scale 1:200	Page 3 of 4	Traverse DDH-93-18
Sampler WENG	Location, Target (words)		Sample Nos	
Date SEPT 21/93	photo no. 14+745N, 9855E (-50°)		Cert. Nos	

STRATA (depth, m)	CONTACTS	DESCRIPTION	BED ANGLE	REC	RQD
94.10 – 99.06		INTERBEDDED COARSE gr. QTZ/FELD ARKOSIC GRIT & WHT MED gr. ARKOSE. LOW/MOD COAL PARTINGS (≤ 5mm) & COAL FRAGS. Minor CALCITE VEINING.	70	95	62
99.06 – 100.00		WEAKLY ARGIll COARSE gr. WHT ARKOSE. LOW COAL FRAGS			
100.18 – 103.01		BRN/BLK MASSIVE SHALE W/ NARROW (≤ 10cm) intervals OF ARENOUS SHALE. (BANDED) NARROW (10cm) interval OF QTZ CLAST/SHALE/COAL PSEUDO BRECCIA (BANDED) COAL PARTINGS & FRAGS MOD (≤ 4mm).	60	95	64
103.01 – 103.85		WEAKLY ARGIll TAN (BANDED) MED TO COARSE gr. ARKOSE, MOD COAL partings	60	95	41
103.85 – 105.46		BRN MASSIVE SHALE grading into BANDED ARENAC SHALE / ARGIll ARKOSE.	55	90	60
105.46 – 106.58		COARSE gr. QTZ/FELD ARKOSIC GRIT minor COAL FRAGS	55	95	86
106.58 – 107.60		ARENACEOUS SHALE grading into BMS (BANDED WEAKLY).	55	90	35
107.60 – 108.79		MED gr. WHT ARKOSE W/ NARROW (15cm) ARGILLACEOUS ARKOSE. Minor COAL FRAGS.	60	84	50
108.79 – 109.60		WEAKLY AREN BMS W/ minor COAL FRAGS.	50	95	82
109.60 – 111.15		COARSE gr. QTZ/FELD ARKOSIC grit WITH NUMEROUS 3-5cm BANDS OF ARGIll ARKOSE / BMS. Minor COAL FRAGS.	55	88	62
111.15 – 112.15		BRN/BLK MASSIVE SHALE W/ MOD COAL FRAGS.	65	90	55
112.15 – 114.30		BANDED ARGIll/ARENACEOUS minor COAL FRAGS. CROSSBEDDING PRESENT.	65	98	69
114.30 – 115.36		MED gr. WHT ARKOSE W/ minor CALCITE stringers.	50	95	72
115.36 – 116.85		WEAKLY AREN SHALE. CROSSBEDDING & slumping common. EXTREME SHEAR FROM 116.22 - 116.56m. minor COAL partings & FRAGS.	60	76	20
116.85 – 120.55		COARSE QTZ/FELD ARKOSIC GRIT (NO COAL FRAGS) BANDED ARGIll/AREN: MOD COAL FRAGS & lenses. FRACTURED ZONE FROM 117.30 - 117.85.	70	82	60
120.55 – 121.05		COARSE WHT ARKOSE W/ ABUNDANT COAL FRAGS BMS	70	90	0
121.05 – 122.30		BANDED ARGIll/AREN W/ minor COAL FRAGS.	30-50	68	24
122.30 – 126.79		COARSE gr. WHT/TAN ARKOSE & FAIR COAL FRAGS. WEAKLY ARGIll IN PLACES.	45	91	48
126.79 – 128.60		TOP 40cm: ARKOSE/SHALE BRECCIA. ARKOSE CLASTS IN SHALE mtx (up to 3cm). STRONG SHEARING/FRAC FROM 128.59 - 128.32. (SHALEY)	60	66	22
128.60 – 130.00		MOD - EXTREMELY SHEARED/FRAC BMS. BOTTOM 15cm IS DIRTY BLK ARKOSIC GRIT.	—	60	0
130.14 – 141.18		DARK GREEN CHLORITE/ALTERED ANDESITE. Upper & Lower contacts CHILLED, LIGHT GREY W/ CHLORITE. MOD CALCITE stringers & CARBONATE FILLED VESICLES.	—	82	94

GEOCHEM: Cu Mo Pb Zn U W

ASSAY:

ATTITUDES (100/40 N)

SANDSTONE SILTSTONE — CONGLOMERATE — VOLCANIC — CHERT — SHALE — LIMESTONE DOLOMITE — INTRUSIVE — GOSSAN, MINERALS

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OBSERVED GEOLOGY: DEFINED —— INFERRED ---- ASSUMED ....

SILT x SOIL • ROCK ■ PAN Δ WATER O

DON'T FORGET CONTOURS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, TRAILS, GOSSANS, OBSERVED GEOLOGY

Project	DIV MTN	NTS	Scale 1:200	Page 4 of 4	Traverse DDH-93-18
Sampler	WENG.	Location, Target (words)		Sample Nos	
Date	Sept 21/93	photo no. 14745N, 9855E (-50°)		Cert. Nos	

Strata	Depth	Contact	Description	Bed Angle	Rec	RQD
	141.00 – 141.18	90°	Gougenous coal & shale.	–	76	0
	141.58		Med - v. coarse gr. blk/grey carbonaceous arkose. Strongly fractured & cemented @ 143.56 - 143.89m. Coal in frac seams.	50	76	26
	144.1?		Extremely sheared brn/blk massive shale.	–	43	0
	145.0? – 145.86		Same as arkose above. Bottom - sheared shale (5cm).	40	83	16
	150.00, 151.10		Dull blk coal w/ mod to high interbedded (thinly) shale (brn). Minor calcite banding (fibrous). BMS parting from 147.50 - 147.75 (not sampled) .25m. Arkose " " 149.45 - 149.55 (" "). .10m. Coal is strongly fractured. Top 23cm ground & sheared, bottom 13 cm same. **Cairns Seam 2**	40	48	5
	155.65		Brn massive shale w/ minor to mod coal partings grading into weakly arenaceous brn shale.	35	93	55
	157.00		Dull blk coal w/ minor calcite & py. Moderate/hi thinly interbedded brn shale. Massive shale from: 155.95-156.15 & 156.55 - 156.80	30	86	18
	160.35		Weakly aren brn massive shale w/ narrow intervals (10 cm) wht arkose minor calcite, some banding. Strongly fractured. 15cm of fine gr. arkose @ lower contact.	30	68	6
	161.13, 161.53, 162.00		Dull blk coal with low/fair thinly interbedded brn shale. minor py. only mod/low shear.	20	54	27
	164.90		Massive brn shale from: 161.13 - 161.53 (.40m), 161.60 - 161.85 (.25m) not sampled. ⅓ seam missing where rod broke. @ 162.9-164.0. **Seam 1**	40	66	28
	165.3?		Weakly aren Bms w/ coal lenses & frags (≤ 1mm). Bottom 30 cm extremely sheared.	–	88	11
	167.21		Med/coarse gr. wht arkose w/ mod coal frags.	–	100	100
	167.68		Black vitreous/dull coal w/ mod/low thinly interbedded shale (not fib?).	40	70	21
	170.38		Med gr. grey arkose w/ narrow intervals of large shale clasts (10-15cm) clast are irregular (≤2cm): minor coal partings & frags (concentrated sections).	70-80	90	77
			EOH.			

Samples: 145.86 - 151.10 (4.89 m sampled) Seam 2
164.90 - 160.35 (3.90 m sampled) Seam 1
167.68 - 167.21 (.47m sampled NOT SENT OUT)

ATTITUDES ∠100/40 N

INTRUSIVE, LIMESTONE DOLOMITE, SHALE, CHERT, VOLCANIC, CONGLOMERATE, SANDSTONE SILTSTONE, GOSSAN, MINERALS

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ASSAY:

GEOCHEM: Cu Mo Pb Zn U W

ARCHER, CATHRO & ASSOCIATES LTD DAILY TRAVERSE REPORT

Project DIV mtn	**NTS**	**Scale** 1:200	**Page** 1 **of** 2	**Traverse** DDH-93-19	
Sampler WENG	**Location, Target (words)** 14+404N, 9968E (-50°)		**Sample Nos**		
Date SEPT 21/93	**photo no.**		**Cert. Nos**		

STRATA (depth)	DESCRIPTION	BED ANGLE	REC	RQD
0.00	OVERBURDEN & GLACIAL & WEATHERED BEDROCK.			
5.18	DARK gr. CHLORITE/HBL ANDESITE w/ CARBONATE FILLED VESICLES. RUSTY SHEAR SURFACES. BOTTOM CONTACT LIGHT GREY.	–	84	45
22.55	BLK VITREOUS COAL w/ MINOR FIBROUS CALCITE & PY. LOW/MOD SHALE. SMALL ANDESITE INTRUSION FROM 23.11 - 23.36 m. **SEAM 3.**	45	56	15
24.50	BMS GRADING INTO WEAKLY/MOD ARENACEOUS BANDED SHALE. 7cm COAL SEAM @ 25.24m	55	66	16
26.29	MED gr. WHT ARKOSE w/ ABUNDANT COAL FRAGS. RUSTY ON FRAC SURFACES	60	90	50
26.79	BMS.	45	55	31
27.63	COARSE gr WHT ARKOSE w/ ABUNDANT COAL FRAGS & PARTINGS (≤ 3mm).	40	55	0
28.65 – 30.00	WEAKLY AREN SHALE W/ LOW COAL FRAGS GRADING INTO BANDED AREN/ARGILL. W/ MOD COAL FRAGS.	40	97	35
32.35	MED gr. WHT/TAN ARKOSE w/ ABUNDANT COAL FRAGS.	55	95	58
33.20	STRONGLY SILICIFIED COALY SHALE.	–	47	0
33.83	COARSE gr GRY/BLK GRITTY ARKOSE ABUND COAL FRAGS	55	100	76
34.29	BMS GRADING INTO ARENACEOUS/ARGILLACEOUS BANDED w/ MINOR COAL FRAGS.	65	87	33
35.66	DULL BLK (VITREOUS IN SPOTS) COAL w/ MOD THINLY INTERBEDDED SHALE. MASSIVE SHALE FROM: 36.01 - 36.11 ; 36.66 - 36.76 (20cm)	55	60	0
37.05	AREN/ARGILL BANDED w/ 10cm INTERVALS OF WHT ARKOSE. MOD COAL FRAGS.	50	85	22
38.40	WEAKLY ARENACEOUS BMS GRADING INTO BMS. LITTLE TO NO COAL FRAGS.	55	60	7
41.60	MED gr. WHT ARKOSE w/ MOD/LOW COAL FRAGS. 10cm BMS. MOD FRACTURED.	–	66	31
44.00	LOW/MOD ARGILL ARKOSE (FINE gr. TAN/WHT). w/ BMS INTERVALS (≤ 10-15cm). MOD/ABUNDANT COAL FRAGS & PARTINGS (≤ 4mm). FAIR/MOD CALCITE VEINING.	70	68	17
47.54				
48.00				

ASSAY: GEOCHEM: Cu Mo Pb Zn U W

ATTITUDES (100/40 N) · SANDSTONE SILTSTONE · CONGLOMERATE · VOLCANIC · INTRUSIVE · LIMESTONE DOLOMITE · SHALE · CHERT · GOSSAN, MINERALS

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SILT x SOIL ● ROCK ■ PAN △ WATER ○

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ARCHER, CATHRO & ASSOCIATES LTD DAILY TRAVERSE REPORT

Project Div mtn.	NTS	Scale 1:200	Page 2 of 2	Traverse DDH-93-19
Sampler WEN6	Location, Target (words)		Sample Nos	
Date Sept 22/93	photo no. 14+404N, 9968E (-50°)		Cert. Nos	

STRATA	DESCRIPTION	BED ANGLE	REC	DRD
48.80	BODY SAMPLE W/ 5cm INTERVALS OF DULL BLK COAL	55	53	8
50.00	BENCH C CARNES: BLK VITREOUS COAL W/ LOW TO MOD THINLY INTERBEDDED BRN SHALE. OVERALL SHALE CONTENT IS LOW/MOD. NO CALCITE. MINOR PY. SOME INTERVALS STRONGLY SHEARED & GROUND.	60	60	2
53.61	BANDED ARENACEOUS / ARGILLACEOUS SILTSTONE / ARKOSE. STRONGLY FRACTURED. LITTLE TO NO COAL FRAGS.	60	72	12
58.25	BENCH B CARNES: BLK VITREOUS COAL W/ LOW TO MOD THINLY INTERBEDDED BRN SHALE & INTERVALS OF FIBROUS CALCITE. MINOR PY. SHALE CONTENT INCR. TOWARD BOTTOM CONTACT. BOTTOM .52 m HI SHALE CONTENT; ALL INTERBANDED. (6-4mm)	40	61	2
60.14 / 60.66	BANDED ARENACEOUS / ARGILLACEOUS SILTSTONE / ARKOSE W/ MOD COAL FRAGS. GRADING INTO MOSTLY ARGILL FINE GR TAN ARKOSE W/ MOD COAL FRAGS. MOD / STRONGLY FRACTURED.	60	82	20
64.16	* NOTE RECOVERY. BENCH A CARNES: STRONG / EXTREMELY SHEARED BLK VITREOUS COAL MINOR PY & CA. ~50-60% SHALEY COAL PARTING (LOW ANGLE SHEAR DETRIN.)	-	23	0
65.55 / 66.98	COARSE GR WHT / TAN ARKOSE, NO COAL FRAGS			
67.06	FINE / MED GR GREY ARKOSE W/ BLK MASSIVE SHALE "INJECTIONS" TURBULANCE FEATURE BRECCIA			
68.46	THINLY INTERBANDED GREY ARKOSE (MED / FINE GR) & BANDS. MINOR CALCITE & SMALL SCALE FAULTING (2-3 cm). NO COAL FRAGS IN ARKOSE. ONLY MINOR PARTING IN ONE 10cm INTERVAL ASSOC W/ BANDS & CALCITE STRINGS (≤ 1mm). "STRIPY BANDED"	50	90	47
75.58	MED / FINE GR. GREY ARKOSE GRADING COARSE TO BOTTOM CONTACT. NO COAL FRAGS OR PARTING.	60	98	60
77.97	"STRIPPY BANDED"			
78.85	MED GR GREY ARKOSE W/ SHALE CLASTS. * CHLORITIC SECTION WITH COAL FRAGS @ 79.23 - 79.36. SAME AS HOLE 19 & 17. LINE UP			
79.45	DOMINANTLY BANDS W/ THINLY INTERBEDDED WHT / GREY & PINK ARKOSE. MINOR SLUMP & CROSSBED FEATURES.	65	98	52
84.10 EOH				

SEAM 3 :
SEAM 2 : BENCH A
SEAM 2 : BENCH B
SEAM 1 : Bench C

GEOCHEM: Cu Mo Pb Zn U W ASSAY:

ATTITUDES (100/40 N)

SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

DON'T FORGET C...OURS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKING, TRAILS, GOSSANS, OBSERVED GEOLOGY: DEFINED ——— INFERRED - - - - ASSUMED.....

SANDSTONE SILTSTONE | CONGLOMERATE | VOLCANIC | CHERT | SHALE | PAN Δ WATER O | LIMESTONE DOLOMITE | SILT x SOIL ● ROCK ■ | INTRUSIVE | GOSSAN, MINERALS

Project DIV Mtn.	NTS	Scale 1:200	Page 1 of 4	Traverse DDH-93-2
Sampler WENG	Location, Target (words)		Sample Nos	
Date SEPT 23/93.	photo no. 14+572 N, 9862 E (-50°)		Cert. Nos	

STRATA		DESCRIPTION	BED Angle	REC	RQD	
	0.00	OVERBURDEN / GLACIAL / WEATHERED BEDROCK.				
	6.70	COAL.				
		WEAK TO MOD ARGILLACEOUS WHT/TAN ARKOSE. (BANDED APPEARANCE). RUSTY	65	84	12	
	9.20	ABUNDANT COAL FRAGS. & PARTINGS (± 3 mm)				
	10.00	WEAKLY ARENACEOUS SILTY W MINOR COAL FRAGS	60	50	0	
	10.90	ARENAC/ARGIL SHALE/ARKOSE (BANDED). ; ARKOSE INTERVALS 10cm; MOD COAL FRAGS	55	80	25	
	11.73	10 cm COAL SEAM 10.20-10.30 m.				
	12.19	COARSENING UP WHT RUSTY ARKOSE MINOR COAL FRAGS.	55	81	43	
	12.79	WEAKLY ARENACEOUS BMS. (SLIGHTLY BANDED APPEARANCE)	70	61	8	
		TOP 10 cm: carb shale w QTZ clasts, Rest is WHT ARKOSE (MED gr) w/ minor COAL Frags	60	90	61	
		TOP 20 cm: carb shale w minor QTZ BLEBS.				
		ARENACEOUS/ARGILLACEOUS SHALE/ARKOSE (BANDED). W 10cm intervals WHT ARKOSE & BMS. LOW/MOD COAL FRAGS.	65	98	52	
	15.29	TOP 25 cm: BLK carb ARKOSE				
	16.19	BOTTOM: MED/COARSE gr WHT ARKOSE W MINOR COAL FRAGS	60	98	88	
		WEAKLY ARENACEOUS SHALE grading INTO BANDED AREN/ARGILL W ABUNDANT COAL Frags & PARTINGS.	60-70	90	35	
		COAL SEAMS: 16.49-16.59 m ; 18.34-18.41 m.				
	19.00	COARSE gr WHT ARKOSE W CM laying COAL FRAG	65	95	25	
	19.39	BANDED AREN/ARGILL W MINOR COAL FRAGS.	70	90	64	ASSAY:
	20.11	MED/COARSE gr. WHT (RUSTY) ARKOSE W MINOR COAL FRAGS.				
	21.95	ARGILL SECTION @ 21.20-21.60 W 3cm COAL SEAM).	50	95	52	
	22.30	BLK VITRIOUS COAL W THINLY INTERBEDDED SHALE (AREN)	60	60	0	
	23.04	COARSE gr. WHT ARKOSE (QTZ PEBBLE CONGL) 10cm OF BLK SHALE 22.46-22.56	55	95	72	
	23.86	WEAKLY ARENACEOUS BLK SHALE W MINOR COAL PARTINGS (± 2mm).	70	86	45	
		MED gr. WHT/TAN ARKOSE. TOP 20cm ARGILLACEOUS. RUSTY FRAC SURFACES				
	25.14	MOD COAL FRAGS & partings (± 3mm)	70	85	33	W
	25.48	TOP 10 cm: BMS REST BLK VITRIOUS COAL. MINOR FIBROUS CALCITE.	60	95	9	
	25.84	WEAKLY ARGILLACEOUS MED gr TAN/WHT ARKOSE. 10 cm OF COARSE QTZ/FELD ARKOSIC CONGL	50	98	100	J
		WEAKLY ARENACEOUS BLK SHALE W NARROW (5-10cm) BANDED ARGILL/AREN SHALE/ARKOSE.	70-80	90	61	Zn
		MINOR SLUMP FEATURES & CROSS BEDDING				
		2 COAL SEAMS: 10 cm & 7 cm.				
		WHT ARKOSE FROM 27.50 - 27.54				
	29.06	MED gr. WHT ARKOSE W NARROW REGIONS OF COARSE gr QTZ/FELD CONGL (COARSE gr ARKOSE)	75	98	71	Pb
	29.76					
	30.00	BMS W NARROW intervals OF BANDED ARENACEOUS SHALE & MODERATE COAL FRAGS & PARTINGS (± 1cm).	70	84	34	Mo
	34.30	COARSE gr. WHT ARKOSE W ABUNDANT COAL PARTINGS (± 2mm) STRONGLY FRACTURED	70	71	0	GEOCHEM: Cu
	35.06	WEAKLY ARGILLACEOUS BLACK SHALE. BOTTOM 5 cm IS CARBONACEOUS/ARGILLACEOUS ARKOSE	65	82	37	
	35.46	COARSE gr. WHT ARKOSE W ABUNDANT COAL FRAGS. & PARTINGS (± 3mm)				
		30 cm WEAK/MOD ARGILLACEOUS interval FROM: 35.56 - 35.86 m. (no COAL Frags).	80	85	86	
	38.05					
	38.62	BMS GRADING INTO BANDED ARGILL/AREN. ; MINOR COAL FRAGS	80	98	84	
		COARSE gr. TAN/WHT QTZ/FELD ARKOSIC CONGL. GRADING INTO COARSE gr. WHT ARKOSE	75-80	98	82	
		FAIR/MOD COAL FRAGS.				
	40.95	THINLY interbedded BMS & Fine gr ARKOSE. LOW/MOD COAL Frags & PARTINGS (± 1mm).	70	95	87	
	41.87	MED gr. WHT ARKOSE W MOD COAL FRAGS & PARTINGS.	70	90	43	
	44.56					
	45.35	WEAKLY AREN BLK SHALE W MINOR COAL Frags.	60	75	20	
	46.80					

Project	Div mtn	NTS		Scale	1:200	Page	2 of 4	Traverse	DDH-93-20
Sampler	WENG	Location, Target (words)				Sample Nos			
Date	Sept 25/93	photo no.	14+572 N, 9862E (-50°)			Cert. Nos			

Strata (m)	Description	Bed Angle	REC	RQD
46.00	Coarse to v. coarse gr. wht arkose. 20cm interval of med gr. tan arkose. Minor coal frags @ base of interval.	65	90	58
49.20 – 50.00	Weakly arenaceous brn shale w/ abundant coal frags. Strongly fractured from 49.37 - 50.29m. Minor calcite veinlets.	65	73	30
52.24	Fine gr. tan arkose w/ little no coal frags.			
53.34 – 54.10	BMS grading into banded fine gr tan arkose & brn shale.	60	90	79
	Coarse gr. tan/wht arkose w/ low/mod coal frags. : grades in & out of fine gr. tan arkose at top of interval. Carb shale from 54.36 - 54.41m. 1cm shear (shaley) @ 56.00m. Cont. calcite veining in arkose intervals (≤ 2cm)	70	95	60
56.09	Weakly arenaceous brn shale w/ minor coal frags w/ intervals of BMS. (slightly banded). Minor calcite stringers.	60	90	60
58.21	Brn massive shale. 5cm gouge @ top contact : 1cm coal seam @ basal contact w/ abundant fibrous Ca.	60	90	60
59.24 – 60.00	Thinly banded argill/aren. Minor coal flecks & frags.	60	90	40
60.96	Coarse gr. wht. arkose w/ abundant coal frags and partings (≤ 3 cm). Extremely fractured from 60.96 - 61.26m.	60	90	60
64.75 – 65.35	BMS w/ low/mod coal frags grading into thinly banded argill/aren.	55	95	60
65.83	Med / coarse gr wht arkose w/ minor coal frags. 3cm coal seam @ 66.23m.	60	84	20
67.90	Thinly banded fine gr. argill arkose & brn shale w/ grading intervals of shale (BMS) brn) to argill arkose. Mod/abundant coal frags & partings (≤ 2cm).	65	92	83
74.05	Coarse gr. wht/grey arkose w/ abundant coal frags & partings (≤ 2.5 cm).	45	90	22
75.9	Thinly banded argill/aren w/ minor coal frags.	60	95	74
77.87	Weakly aren brn shale with narrow intervals of banded argill/aren. Minor coal frags. (≤ 2cm) (1 seam 2cm, rest 2-3 mm).	60	98	100
80.00 – 80.75	→ Dull blk coal			
	Med/coarse gr. grey arkose w/ 10-15 cm intervals of argill arkose (banded) & BMS. Moderate/low coal frags concentrated in shale regions. Coal partings (≤ 2cm) common.	60-70	86	65
91.82	Thinly banded argill/aren w/ minor coal frags.	60	98	90
93.20				

ATTITUDES (100/40 N)

SANDSTONE SILTSTONE | CONGLOMERATE | VOLCANIC | CHERT | SHALE | LIMESTONE DOLOMITE | INTRUSIVE | GOSSAN, MINERALS

SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

OBSERVED GEOLOGY: DEFINED —— INFERRED - - - ASSUMED .....

WATER O PAN △ ROCK ■ SOIL ● SILT X

DON'T FORGET CONTOURS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, TRAILS, GOSSANS,

GEOCHEM: Cu Mo Pb Zn U W ASSAY:

ARCHER, CATHRO & ASSOCIATES LTD DAILY TRAVERSE REPORT

Project DIV MTN.	NTS	Scale 1:200	Page 3 of 4	Traverse DDH-93-20
Sampler WENG	Location, Target (words)		Sample Nos	
Date SEPT 26/93	photo no. 14+572N, 9862E (-50°)		Cert. Nos	

STRATA		DESCRIPTION	BED Angle	REC	RQD	
	94.00	MED/COARSE gr. WHT ARKOSE W/ ABUNDANT COAL FRAGS & partings (± 2cm).	70	95	76	
	100.10	BAND(S) ARGILL/AREN W/ minor COAL FRAGS. GRADES into ARGILL ARKOSE (weakly)	70	98	85	
	102.40	COARSE gr WHT ARKOSE W/ ABUNDANT COAL FRAGS & partings. (± 5mm)	75	74	30	
	103.92	BRN MASSIVE SHALE W/ MOD. COAL PARTINGS (± 1cm)		↑		
	105.80	LIGHT/MED ARGILL MED gr WHT ARKOSE (BANDED) : MINOR COAL FRAGS				
	105.50	BRN MASSIVE SHALE W/ MOD COAL PARTINGS (± 1.5cm)				
	106.00	THINLY BANDED ARGILL/AREN ARKOSE/SHALE LOW/MOD COAL FRAGS AND PARTINGS				
	107.70	COARSE gr. WHT ARKOSE : NO COAL FRAGS.				
	108.20	FINE GRAINED WHITE ARKOSE QUICKLY GRADING INTO MASSIVE BLACK SHALE. WITH ARKOSE DOMINATING THE LOWER 25%.	45-60	77	37	
	111.75	COARSE GRAINED WHITE TO GREY ARKOSE WITH NO COAL FRAGS AND ONE MINOR SHALEY PARTING.	60	80	50	ASSAY:
	115.82	SHALEY FINE GRAINED ARKOSE		↑		
	117.0	FAULTED, GOUGY MASSIVE BLACK SHALE. 50% COMPETENT 50% GOUGE	55	95	53	
	117.6	FINE TO MED GRAINED ARK & FINE COAL & SHALE FRAGS.		↓		
	118.4	MASSIVE BLACK SHALE WITH GOUGY FAULT INTERVALS & SLICKENSIDES	–	90	0	W
		GREEN CHLORITIC ANDESITE. MINOR CALCITE STRINGERS.	–	82	40	U Zn Pb Mo Cu
	123.85	MIXED INTERVALS OF MASSIVE TO ARENACEOUS SHALE WITH A MED GRAINED ARKOSE IN THE MIDDLE. THREE GOUGY ZONES (FAULTS). MINOR COAL PARTINGS <1cm IN SHALES.	20-45	83	40	GEOCHEM:
	128.01	GREEN ANDESITE. HIGHLY FRACTURED TOWARDS BOTTOM MINOR CALCITE STRINGERS.	–	95	56	
	134.7	BLACK MASSIVE (GOUGY) SHALE GRADING INTO MED GRAINED ARKOSE AND BACK INTO SHALE. 3 SMALL GOUGE ZONES (FAULTS)	–	70	10	
	137.35					

Project	Div mtn	NTS	Scale 1:200	Page 4 of 4	Traverse DDH-93-20
Sampler	WEN6	Location, Target (words)		Sample Nos	
Date	Sept 27/93	photo no.	14+572N, 9862E (-50°)	Cert. Nos	

STRATA	137.35 DESCRIPTION	BED Angle	REC	RQD
	WHITE MED TO COARSE GRAINED ARKOSE. FAIRLY CLEAN WITH MINOR COAL IN TOP OF INTERVAL (FRAGS)	40	98	80
144.0	HEAVILY SHEARED AND GOUGY COAL. (SLICKENSIDES/FROTHY/GROUND UP.	–	70	0
145.7	BLACK MASSIVE SHALE. GOUGY AT TOP BECOMING INCREASINGLY ARENACEOUS TOWARDS BOTTOM.	50	85	30
147.6	WEAK TO MODERATELY ARGILLACEOUS FINE gr. GREY ARKOSE GRADING INTO MED gr. GREY ARKOSE AT BOTTOM OF INTERVAL ARKOSE HAS MINOR CARBONACEOUS SECTIONS (5-7cm) FROM 150.1m to LOWER CONTACT. Ca VN at LOWER CONTACT. (5mm), INJECTION NO REAL ORIENTATION.	60	82	60
150.00				
151.30	MUD/STRONGLY SHEARED DULL BLK COAL. MUD/HIGH SHALE CONTENT (THINLY INTERBANDED BLK & BRN). NO CARBON AT TOP	60	60	12
152.91	ARGILL/AREN W/ MINOR COAL FRAGS.	60	90	5
154.24	BRN MASSIVE SHALE, WEAKLY ARENACEOUS IN PLACES MINOR COAL FRAGS. 3cm COAL SEAM @ 56.17m. ↑ INTERVAL MOD SHEARED.		↓	
157.12	BLK CARB SHALE W/ ANDESITE INJECTION GREY/GRN APHANITIC CHLORITE ANDESITE. * Probably taken out coal seam*	–	80	37
159.22	BLK VITREOUS COAL GRADING INTO BMS LAST 10cm			
160.22	THINLY BANDED BRN SHALE & ARGILL ARKOSE (Fine gr. tan) NO COAL FRAGS.	55	85	50
	COARSE gr. QTZ/FELD/minor SHALE PEBBLE/CLAST CONGL. GRADING INTO FINE/MED gr. QTZ ARKOSE/WACKE. BEDDING V. DISTINCT TOWARDS BASAL CONTACT. NO COAL FRAGS	45	95	80
162.80	BRN SHALE / ARGILL ARKOSE THINLY BANDED NO COAL FRAGS.			
	STRIPEY FINE gr. GREY ARKOSE AND BMS. NO COAL FRAGS CROSS BEDDING & SLUMP FEATURES COMMON.	59	95	84
166.12 EOH.				

Samples: SEAM 1 151.30 - 152.91
SEAM 2 144.0 - 145.70

ASSAY: GEOCHEM: Cu Mo Pb Zn U W

DON'T FORGET COLOURS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, TRAILS, GOSSANS, OBSERVED GEOLOGY: DEFINED —— INFERRED - - - - ASSUMED..... SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

ATTITUDES (100/40 N) SANDSTONE SILTSTONE CONGLOMERATE VOLCANIC CHERT SHALE PAN △ WATER ○ LIMESTONE DOLOMITE ROCK ● SOIL ● SILT x INTRUSIVE GOSSAN, MINERALS

Project	Div Mtn	NTS	Scale 1:200	Page 1 of 2	Traverse DDH-93-21
Sampler	LWENG	Location, Target (words)		Sample Nos	
Date	Sept 27/93	photo no.	14+660N, 9764E (-75°)	Cert. Nos	

STRATA	0.00	DESCRIPTION	BED Angle	REC	RQD	
		OVERBURDEN.				
	2.44	Fine gr. SAND SIZE CHERT/QTZ/FELD congl. NARROW INTERVALS OF PEBBLE congl. (CHERT, VOLC, QTZ.) LITTLE to NO FELD. NO COAL FRAGS. RUSTY mtx.		↓		
	6.20	QTz/CHERT/VOLC PEBBLE congl.	70	90	27	
	7.90	Fine gr. CHERT/QTZ/FELD congl. TAN color. ∴ ODD PEBBLE OF CHERT (5cm diam).	85	98	17	
	8.75	CHERT/VOLC/QTZ PEBBLE congl. minor FELD ALTERING to clay (RUST/TAN). PEBBLES up to 2cm AVERAGE 5-8 mm. STRONGLY FRACTURED @ 12.00-12.49m. (ABUNDANT COAL PARTINGS (2-3mm) & Frags. Fine gr congl (clast AVE. 1-3 mm).	80	90	81	
	12.00					
	12.49	BANDED SILTSTONE & ARGILL TAN ARKOSE w/ THIN COAL PARTINGS (≤ 1mm)	80	85	25	
	13.30	CHERT/VOLC/QTZ PEBBLE congl NO COAL FRAGS.	75	93	18	
	14.12	SAME				
	14.97	Fine gr. (SAND SIZE w 20% PEBBLE SIZE) CHERT/FELD/QTZ congl. COAL Frag @ 14.62.	70	90	64	
	15.14	COARSE PEBBLE congl. grading to SAND SIZE congl. w/ HIGHER FELDSPAR CONTENT @ BASAL CONTACT.	60	98	95	
	18.45					
	18.79	Fine gr GREY SST/ARKOSE w/ ABUNDANT COAL PARTINGS (≤ 1.5mm)	75	98	40	
	19.55	THINLY BANDED ARGILL/ARGN w/ MOD COAL FRAGS. X-BEDDING & SLUMP FEATURES	65	90	60	
		Fine gr. TAN SST w/ MOD COAL FRAGS. CONCENTRATED @ 19.60-19.70 ; 21.41-21.51	85	80	44	ASSAY
	21.50	12cm OF BLK VITRIOUS COAL @ 20.57				
	22.16	BRN MASSIVE SILTST w/ MINOR COAL PARTINGS.	70	85	50	
		THINLY BEDDED ARGILL/ARGN WITH LOCAL BLK/BRN MASSIVE SILTST SECTIONS. X-BEDDING & SLUMP FEATURES COMMON. LOWER 10cm MAS conc. COAL PARTINGS (≤ 4mm)	80	90	88	
	23.92	Fine gr. grey SST w/ minor COAL FLECKS. INCREASING FELDSPAR CONTENT TOWARD BOTTOM.	75	98	95	U W
	26.36					
	26.66	BASE W/ SOMEWHAT LOWER CONTACT TO COAL				
	27.30	DULL BLK COAL, STRONGLY SHEARED/FRAC. LOWER 7cm V. SMUDGEY	80	50	0	Zn
	29.07	V. COARSE gr WHT/TAN QTZ PEBBLE ARKOSIC congl. MODERATE COAL FRAGS & PARTINGS (≤ 2mm). LOWER 5cm STRONGLY CARBONACEOUS.	75	67	10	Pb
	30.00	PALE green/grey APHANITIC ANDESITE. QTZ, CALCITE, FELDSPAR AMYGDULES COMMON. ABUNDANT CALCITE STRINGERS & VNLTS. SOME STRINGERS HAVE QTZ CORE w/ CALCITE SELVAGE. (ALL ORIENTATIONS).				GEOCHEM: Cu Mo
		FROM 36.72-39.22m: MINOR FAULT BRXX & ALTN TO ANDESITE. (V. SOFT but not GOUGY). LOOKS LIKE DARK GREY DYKES IN PALE GRN ANDESITE)	—	90	60	
		GOUGY INTERVAL FROM 38.00-38.40m & 44.26-44.46m.				
		CALCITE FILLED FRACTURES ORIENTED 15, 30, 55, 70° TO CORE AXIS.				
	44.46					
	45.00	MOD/WEAKLY CARBONACEOUS ARGILL/ARGN. *. ALTERED BY SILL.*				

DON'T FORGET CONTOURS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, TAILS, GOSSANS, OBSERVED GEOLOGY: DEFINED —— INFERRED - - - ASSUMED..... SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

GOSSAN, MINERALS | INTRUSIVE | LIMESTONE DOLOMITE | SHALE | CHERT | VOLCANIC | CONGLOMERATE | SANDSTONE SILTSTONE | ATTITUDES (100/40 N)

SILT X SOIL ● ROCK ● PAN △ WATER O

Project DIV Mtn	NTS	Scale 1:200	Page 2 of 2	Traverse DDH-93-21
Sampler WENG.	Location, Target (words)		Sample Nos	
Date Sept 28/93	photo no. 14+660N, 9764E (-75°)		Cert. Nos	

Depth	Description	Bed Angle	Rec	RQD
45.01 – 45.40		50	95	70
45.40 – 45.80	Blk vitrious coal w/ thinnly interbedded Brn shale.			
45.80 – 49.67 (46.80, 47.60)	Brn massive shale w/ abundant coal parting besides 3 small seams shown. Strongly sheared. 3 coal seams shown are mod to high shale content (Brn/Blk thinnly bedded).	50-60	78	9
49.67 – 50.00	Med gr. wht arkose w/ abundant coal partings & frags (≤6mm)			
50.00 – 50.44	Dull Blk coal, shaley & anthracitic in places.			
50.99 – 53.49	Brn massive shale w/ coal seams up to 30 cm common. Coal is dull Blk, strongly sheared, and has med to high shale content. Total of 1.4m coal (20-30 cm seams).	50	67	0
53.49 – 54.15	Med gr. wht/gry arkose w/ low/mod coal partings (≤3mm)	55	90	50
54.15 – 54.45	Vitrious Blk coal no shale	55	50	0
54.45 – 54.95	V. coarse gr. wht/gry qtz pebble knobby congl w/ 5mm coal partings	70	98	98
54.95 – 55.32	Brn massive shale grading into cgrd arkose	–	68	33
55.32 – 56.69	Med gr. gry/wht arkose w/ weakly argill sections. Minor coal frags & partings	60	98	55
56.69 – 58.64	Brn massive shale, strongly sheared. Little/no coal frags.	35	55	20
58.64 – 59.44	Weakly to mod argill fine gr. wht/tan arkose w/ mod coal partings (≤2mm)	10	70	50
59.44 – 59.79	Bms weakly arenaceous no coal frags.	10	50	0
59.79 – 61.87	Coarse gr. wht arkose w/ mod coal parting & frags (≤2-3 mm).	30	95	80
EOH.				

No Samples Taken.

ATTITUDES (100/40 N)
SANDSTONE SILTSTONE ... COLOURS
CONGLOMERATE ... DO NOT WRITE ON OTHER SIDE OR USE. DEFINED —— INFERRED - - - ASSUMED .....
VOLCANIC ... SPECIMEN SITE A.B....; OBSERVED GEOLOGY:
CHERT ... WATER ○ ... TRAILS, GOSSANS,
SHALE ... PAN △ ... SAMPLE SITES, WORKINGS,
LIMESTONE DOLOMITE ... ROCK ■ ... SOIL ● ... LAT/LONG,
INTRUSIVE ... SILT × ... NORTH ARROW,
GOSSAN, MINERALS ... DON'T FORGET CONTOURS, DRAINAGE,

GEOCHEM: Cu Mo Pb Zn U W
ASSAY:

ARCHER, CATHRO & ASSOCIATES LTD DAILY TRAVERSE REPORT

Project	Div mtn.	NTS	Scale	1:200	Page	1 of 4	Traverse	DDH-93-22
Sampler	WENG.	Location, Target (words)			Sample Nos			
Date	Sept 30/93	photo no.	14+067N, 9816E (-60°)		Cert. Nos			

STRATA	0.00	DESCRIPTION	BED Angle	RE	RQD
		OVERBURDEN & GLACIAL	—	—	—
	4.00	COARSE gr. grey/WHT ARKOSE, RUSTY ON FRAC SURFACES	—	80	60
	5.43	LOCALLY CONCENTRATED CARBONACEOUS INTERVALS (7-5cm)			
	6.40	SAME AS ABOVE, NARROW interval (20cm) is STRONGLY CARBONACEOUS fine gr ARKOSE	—	60	35
		Fine gr. CARBONACEOUS ARKOSE, ARGILLACEOUS in places			
		20 cm COAL (SHALEY) @ 8.40 - 8.60m	60	50	0
	9.14	Lower 10 cm CONTACT GUNGE. STRONGLY FRAC.			
		COARSE gr WHT/TAN ARKOSE (30cm) grading into fine gr. TAN/BRN ARGILL			
		CARBONACEOUS ARKOSE.	60	60	10
	11.17	LAST 20 cm ARENACEOUS BRN SHALE. STRONGLY FRAC.			
		COARSE gr. WHT ARKOSE, RUSTY FRAC SURFACES			
		MINOR COAL PARTING	50	80	20
	13.62	EXTREMELY FRAC FROM 12.49 - 13.62.			
	14.22	FILN gr. TAN/BRN CARBONACEOUS ARKOSE. TOP 5cm is ≈ 50% COAL.			
		MED gr. grey ARKOSE.			
		RUSTY FRAC SURFACES			
		CARBONACEOUS INTERVALS: 16.00 - 16.90 STRONGLY FRACTURED IN CARB REGIONS	30	84	50
		5cm of BMS @ 17.70			
		WEAKLY ARGILLACEOUS IN SECTIONS (@ 20cm)			
	19.50				
		ARENACEOUS BRN SHALE w/ 2-4 cm COAL PARTINGS @	30	90	0
	20.40	WEAKLY ARGILLACEOUS ARKOSE (WHT/GRY MED gr). grading into WHT MED gr ARKOSE			
		w/ LITH/NO COAL FRAG.	25	95	70
	22.04	BRN MASSIVE SHALE w/ ARENACEOUS SECTION (15cm) MINOR COAL PARTINGS (@ 2mm)	35	90	0
	23.01	MED gr WHT ARKOSE. TOP 15 cm ARGILL			
		LOWER 10cm CARBONACEOUS	40	95	84
	24.39	BMS MINOR COAL PARTINGS	35	90	80
	24.64	BLK VITREOUS COAL V. LITTLE SHALE			
	25.14	WEAKLY ARGILLACEOUS (BANDED) MED gr. WHT ARKOSE w/ LOW/MOD COAL FRAGS			
	26.03	AND PARTINGS (@ 1mm)	45	80	45
		MODERATELY ARGILLACEOUS TO ARGILL/AREN MED gr WHT ARKOSE w/ NARROW			
		(10cm) intervals of CARBONACEOUS BLK/GRY ARKOSE. MOD COAL FRAGS THROUGHOUT.	35	76	30
	28.92	(PARTING up to 1cm)			
		MED/COARSE gr. TAN/WHT QUARTZ PEBBLE ARKOSIC CONGL.			
	30.00	w/ SHARP INTERVALS OF fine gr. TAN ARKOSE.	40	98	90
		ABUNDANT CALCITE VN LTS. LOW/MOD COAL FRAGS.			
	31.75				
	32.50	ARENACEOUS BRN SHALE w/ ABUNDANT COAL PARTING (@ 1.5cm)	40	50	0
	33.00	BLK VITREOUS COAL. NO SHALE (LAST 5cm SHALEY). MINOR PY ON SHEAR PLANES	40	50	0
		WEAKLY ARGILLACEOUS MED gr WHT ARKOSE w/ ABUNDANT COAL FRAG.	40	90	20
	34.69				
	34.99	BLK VITREOUS COAL w/ THINLY INTERLAMINATED BRN SHALE & MOD PY ON SHEARS	30	90	0
		MED gr. WHT ARKOSE WITH WEAKLY ARGILLACEOUS SECTIONS (BANDED)	45	76	20
	36.71	MOD/ABUNDANT COAL FRAGS & PARTINGS (@ 2cm).			
		BANDED ARGILL/AREN. w/ NARROW intervals (10-15cm) of BMS & WHT ARKOSE.			
		ABUNDANT COAL FRAGS & PARTINGS (@ 5cm) 3-5 cm COMMON.	50	79	20
	43.73	MED gr. WHT ARKOSE w/ MOD/LOW COAL FRAGS & PARTINGS.	45	95	60
	44.34	BANDED ARGILL/AREN grading into ARENACEOUS BRN SHALE. 3cm COAL PARTING.	40	95	64
	45.72	MED gr WHT ARKOSE, MINOR COAL FRAGS.	40	80	50
	46.32	BLK VITREOUS COAL w/ BRN SHALE upper & LOWER CONTACT.	40	60	10
	46.92				

ASSAY: GEOCHEM: Cu Mo Pb Zn U W

Project	Div mtn	NTS	Scale 1:200	Page 2 of 4	Traverse DDH-93-22
Sampler	WEN6.	Location, Target (words)		Sample Nos	
Date	Oct 1/93	photo no. 14+067N, 9816E (-60°)		Cert. Nos	

STRATA		DESCRIPTION	BED ANG°	REC	RQD
	47.00				
	48.04	MED gr. WHT/GRY ARKOSE W/ MOD/LOW COAL FRAG & PARTNG. MOD FRAC.	55	90	40
	48.24				
	48.81	BRN MASSIVE SHALE GRADING INTO ARGILLACEOUS BANDED SHALE : MOD/LOW COAL FRAG.	40	75	0
	49.69	COARSE/MED gr. WHT ARKOSE W/ MINOR ARGILL BANDS... MINOR COAL FRAG.	45	90	66
	50.00	THINNLY BANDED GREY/WHT fine gr. ARKOSE & BLK/BR SHALE.			
		BAND (30cm) GRADING INTO BANDED. MINOR COAL FRAGS.	40	90	50
	51.29	MED gr. WHT/TAN ARKOSE W/ COARSENED SECTIONS			
		5cm ZONE W/ COAL FRAG.	45	97	75
	52.91				
		THINNLY BANDED fine gr. GRY/WHT ARKOSE & BRN ARGILLACEOUS SHALE. MINOR COAL FRAG			
	54.26				
	54.81	COARSE gr. CARBONACEOUS (MTX) ARKOSE. FAULT ANGLES 40-45°	40	84	66
	55.96				
	56.68	BRN MASSIVE SHALE. MOD COAL PARTINGS (≤ 2mm). UPPER CONTACT STRONGLY SHEARED (20cm)	55	96	15
		THINNLY BANDED fine gr. GRY/WHT/TAN ARKOSE & BRN SHALE.			
		MOD/LOW COAL FRAGS & PARTNG	45	86	70
	58.84	NARROW INTERVALS OF BMS (10cm)			
	59.49	FINE gr. WEAKLY ARGILLACEOUS TAN ARKOSE	65	95	65
		FAULT BRXX. ARGILL ARKOSE CLAST & MINOR COAL FRAG IN BRN SHALE			
	60.90	MTX. GOUGE. 20cm @ WHT ARKOSE MILDLY ALTERED. FAULT ⊂:C/A 50°	50	90	50
		THINNLY BANDED...	65	90	80
	62.09				
	63.01	MED gr. WHT ARKOSE. MOD FRAC. NO COAL PARTINGS	60	90	10
		THINNLY BANDE fine gr. TAN/WHT ARKOSE & BRN SHALE W/ NARROW (10 cm)			
		INTERVALS OF BMS.			
		COAL PARTNGS COMMON UP TO 4cm ANGLING (≤ 4 mm).	60	80	42
		MOD/STRONGLY FRACTURED			
	69.30				
		MED gr. WHT ARKOSE W/ UP TO 15cm INTERVALS OF MOD ARGILLACEOUS ARKOSE	40-60	74	27
		THESE INTERVALS ARE STRONG FRACTURED & SHEARED			
		MOD/LOW CALCITE STRINGERS. MINOR CHLORITE ON FRAC SURFACES			
		LOW COAL FRAG. (MINOR)			
	73.15				
		THINNLY BANDED fine gr. WHT ARKOSE & BRN SHALE W/ 10 cm INTERVALS	45	90	20
		OF BMS.			
		FAULT BRXX FROM 74.37 - 74.67m. (ARGILL ARKOSE CLASTS IN BMS MTX).			
		STRONGLY SHEARED.			
	76.40				
		COARSE gr. QTZ PEBBLE ARKOSIC CONGL... (TAN MTX).	50	95	12
		MINOR COAL FRAGS.			
		STRONGLY FRACTURED.			
	80.00				
	81.07				
	81.37	STRONGLY SHEARED BMS.	-	50	0
		SHALE AS ABOVE W/ MED gr. INTERVALS (LOWER CONTACT MED gr).	40-60	90	33
		MINOR COAL FRAGS.			
	83.67				
	84.22	THINNLY BANDED ARGILL/ARGEN.	40	66	0
		MED gr. WHT/BLK ARKOSE.			
		GRADING INTO BLK GRITTY ARKOSE @ 85.65 DUE TO CARBONACEOUS	60	80	27
		CONTENT.			
	87.38				
	88.10	BMS GRADING INTO THINNLY BANDED ARGILL/ARGEN.	65	80	30
	88.69	MED gr CARBONACEOUS WHT/BLK GRITTY ARKOSE	45	90	50
	89.31	THINNLY BANDED ARGILL/ARGEN	40	95	60
	90.06	MED/FINE gr. GRY ARKOSE. BOTTOM CONTACT - CALCITE VNLTS W/ SHALE CLASTS.	60	85	30
		EXTREMELY SHEARED BMS W/ NARROW ARGILLACEOUS INTERVAL (10cm).	-	85	0
	91.13	FAULTED BY SILL FAULT CONTACTS 25 & 45° to C/A			
	92.00	PALE GRN/GRY CHLORITE ANDESITE			
	92.86	STRONGLY FRACTURED, MOD CALCITE VNLTS.			

ASSAY: GEOCHEM: Cu Mo Pb Zn U W

SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS. DEFINED —— INFERRED - - - ASSUMED.....

ATTITUDES (100/90 N) SANDSTONE SILTSTONE CONGLOMERATE VOLCANIC CHERT SHALE LIMESTONE DOLOMITE INTRUSIVE GOSSAN, MINERALS

SILT X SOIL ● ROCK ■ PAN △ WATER O

JRS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, .RAILS, GOSSANS, OBSERVED GEOLOGY;

DON'T FORGET CO.

Project	Div Mtn	NTS	Scale 1:200	Page 3 of 4	Traverse DDH-93-22
Sampler	WENG	Location, Target (words)		Sample Nos	
Date	Oct 2/93	photo no.	144087N, 9816E (-60°)	Cert. Nos	

STRATA	92.00	DESCRIPTION	136° Angle	122	RQD
	92.86	DARK GRN CHLORITE HBL ANDESITE STRONGLY FRACTURED ABUNDANT CALCITE VNLTS.			
	100.07	PALE GRN/GREY CHLORITE ANDESITE STRONGLY FRACTURED (CRUMBLY/SOFT) ABUNDANT CALCITE VNLTS.			
	101.25	STRONGLY CARBONACEOUS BLK GRITTY ARKOSE			
	102.20	~~CARBONACEOUS BLK SHALE / STRONGLY SHEARED~~			
	102.60	STRONGLY CARBONACEOUS BLK GRITTY ARKOSE.			
	106.52	WEAKLY CARBONACEOUS MED/COARSE GR. GRY ARKOSE. MOD FRACTURED. MINOR CALCITE STRINGERS.			
	112.77				
	113.07	COARSE GR. WHT/TAN ARKOSE W/ MINOR COAL FRAGS & PARTINGS. STRONGLY FRAC/FAULTED FROM 113.84 to 114.95.			
	114.95	WEAK to MOD CARBONACEOUS BRN SHALE, WEAKLY BANDED.			
	116.56	MED COARSE GR WHT ARKOSE SOME V COARSE INTERVALS RESEMBLING QTZ DERBLE ARKOSIC CONGL. MOD COAL FRAGS & PARTINGS (≤ 5mm) MOD/STRONGLY FRACTURED. GOUGEMONS INTERVAL FROM 116.91 - 120.09m EXTREME FRACTURE from 121.60 - 122.83m.			
	122.83				
	123.64	BRN MASSIVE SHALE W/ COAL PARTING MOD/LOW (≤ 3mm) SHEARED & SOFT.			
	125.57	THINLY BANDED BRN SHALE AND FINE GR TAN ARKOSE. MINOR COAL PARTINGS (≤ 2mm) GRADING into BANDS & LOWER CONTACT.			
	126.33	WEAKLY ARGILL FINE GR TAN ARKOSE W/ MINOR COAL FRAGS. SHARP LOWER CONTACT.			
		~~WEAKLY BANDED BRN SHALE LOWER 10cm GREENISH SHALE CLAST BRXX~~			
		DOMINANTLY THINLY BANDED BRN SHALE & FINE GR TAN ARKOSE WITH 10-15 cm intervals of MED GR. WHT/TAN ARKOSE & BANDS. MOD/minor COARSE FRAGS & PARTINGS (≤ 5mm). 10 cm COAL SEAM @ 131.60 - 131.70 m			
	132.60	MED/COARSE GR GREY/TAN ARKOSE GRADING INTO THINLY BANDED BRN SHALE & FINE GR TAN ARKOSE AT LOWER CONTACT. MINOR COAL FRAGS.			
	136.41 136.51				

ASSAY: GEOCHEM: Cu Mo Pb Zn U W

ATTITUDES (100/40 N)

SANDSTONE SILTSTONE CONGLOMERATE VOLCANIC CHERT SHALE LIMESTONE DOLOMITE INTRUSIVE GOSSAN, MINERALS

SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

DON'T FORGET CU, JURS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, RAILS, GOSSANS, OBSERVED GEOLOGY: DEFINED —— INFERRED - - - ASSUMED.....

SILT X SOIL ● ROCK ■ PAN △ WATER O

Project Div Mtn.	**NTS**	**Scale** 1:200	**Page** 4 **of** 4	**Traverse** DDH-93-22
Sampler WENG	**Location, Target (words)**		**Sample Nos**	
Date Oct 3/93.	**photo no.** 14+087N, 9816 E (-60°).		**Cert. Nos** * REDUCE to NQ @ 310'	

STRATA	Depth	DESCRIPTION	BED Angle	REC.	RQD
C C C	136.00 / 136.51 – 137.76	EXTREMELY ARGILLACEOUS / SATURATED DULL BLK COAL, SHALE LOW BUT HARD TO TELL.			
V V	137.76 – 139.82	PALE GRN/GRY CHLORITE ANDESITE. EXTREMELY FRACTURED / SHEARED AND GOUGY. MOD CALCITE VNLTS			
C C C	139.82 – 140.00 – 142.65	DULL BLK COAL W/ MOD PY ALONG FRAC/SHEAR SURFACES. CORE IS GOUGY FROM 139.82 – 140.02 m. RELATIVELY competent to lower contact from 140.02 m.			
	142.65 – 146.30	THINLY BANDED BRN SHALE & FINE GRAINED GRY/TAN ARKOSE W/ 10 cm intervals OF BMS. Minor COAL FRAGS			
C C	146.30 – 156.06	BLACK VITREOUS COAL, DULL IN PLACES. V. LOW SHALE CONTENT, OCCURRING AS THIN interbeds & 2-3 cm BANDS (~10 cm WITHIN ENTIRE interval). MOD PY CONTENT ON FRACTURES. MOD/minor FIBROUS CALCITE BANDS. (< 5mm). CALCITE ALSO OCCURS AS NARROW (< 1cm) PELLETAL BANDS. CORE IS DOMINANTLY COMPETENT W/ GOUGY intervals			
	156.06 – 160.12	THINLY BANDED BRN SHALE & FINE gr. tan ARKOSE W/ 10-15 cm intervals OF BMS. MINOR COAL FRAGS & CALCITE VNLTS.			
C C	160.12 – 165.76	BLK VITREOUS COAL. LOW SHALE CONTENT. minor/mod CALCITE BANDING (concentrated in BANDS up to 1cm). GROUND @ LOWER CONTACT. minor/mod Py on Fractures (FINELY).			
	165.76 – 167.28	EXTREMELY FRACTURED BRN MASSIVE SHALE. Little/No COAL FRAGS			
C C	167.28 – 169.06	MOD SHEARED & FRACTURED BLK (DULL) COAL. MOD PY ON FRAC SURFACES. Lower contact strongly ground.			
	169.06 – 170.00 – 173.33	DOMINANTLY BRN MASSIVE SHALE W/ WEAKLY ARENACEOUS intervals. Minor COAL FRAGS. Strongly Fractured.			
	173.33 – 177.40	MED gr. TAN/GRY ARKOSE W/ V. COARSENED intervals (QTZ PEBBLE congl.). MOD COAL FRAGS. AND PARTINGS (< 2mm).			
	177.40 – 179.83	BMS AND WEAKLY ARENACEOUS BRN SHALE. MOD CALCITE VNLTS. NO COAL FRAGS.			
	179.83 – 181.45	COARSE gr QTZ PEBBLE CONGL (V. LITTLE FELDSPAR). 10 cm COAL SEAM (BADLY GROUND : BY DRILLER)			
	181.45 – 187.5 (continued)	MED gr. GRY ARKOSE/SST (MOD FELD). WITH SHALE FLECKING AND FRAGS. NARROW intervals of ARGILL ARKOSE.			
	EOH				

ATTITUDES ∠100/40 N

SANDSTONE SILTSTONE · CONGLOMERATE · VOLCANIC · CHERT · SHALE · LIMESTONE DOLOMITE · INTRUSIVE · GOSSAN, MINERALS

SPECIMEN SITE A.B...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

SILT x SOIL • ROCK ■ PAN △ WATER ○

DON'T FORGET CL JURS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKINGS, TRAILS, GOSSANS, OBSERVED GEOLOGY: DEFINED —— INFERRED - - - ASSUMED ...

ASSAY:

GEOCHEM: Cu Mo Pb Zn U W

Project	Div mtn.	NTS	Scale 1:200	Page of	Traverse DDH-93-22
Sampler	WENO	Location, Target (words)		Sample Nos	
Date		photo no.		Cert. Nos	

STRATIA		DESCRIPTION	(360) ANGLE	(RE	(DD)

SAMPLES : BENCH C : 136.51 - 137.76 } 1 sample
139.82 - 142.65 }

BENCH B : 146.30 - 156.05

BENCH A : 160.12 - 165.76 } - composite
167.28 - 169.06 }

ATTITUDES (100/40 N)

SANDSTONE SILTSTONE

CONGLOMERATE

VOLCANIC

SPECIMEN SITE A,B,...; DO NOT WRITE ON OTHER SIDE OR USE COLOURS

.RAILS, GOSSANS, OBSERVED GEOLOGY: DEFINED —— INFERRED - - - ASSUMED....

CHERT

SHALE

WATER O

PAN △

LIMESTONE DOLOMITE

ROCK ■

SOIL ●

SILT X

INTRUSIVE

GOSSAN, MINERALS

DON'T FORGET CO URS, DRAINAGE, NORTH ARROW, LAT/LONG, SAMPLE SITES, WORKING

ASSAY:

GEOCHEM: Cu Mo Pb Zn U W

APPENDIX VII

ANALYTICAL CERTIFICATES

Chemex Labs Ltd.

Analytical Chemists *Geochemists* *Registered Assayers*

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1
Phone: (604) 984-0221
Telex: 04-352597
Fax: (604) 984-0218

To: Archer, Cathro & Associates (1981) Limited
Box 4127
2054 Second Avenue
Whitehorse, YT
Y1A 3S9

Certificate No.: A9318901
Invoice No.: I9380717
Project: DDH 93-07 & 10

Date: August 20, 1993

Attn: R.C. Carne

DD-93-07

Sample	Basis	R.M. %	Ash %	V.M. %	F.C. %	Sulphur %	C.V. Cal/g
Seam 1	A.D. Dry	2.51	25.23 25.88	31.30 32.10	40.96 42.02	0.62 0.64	5423 5563 7505
Seam 2 Bench A	A.D. Dry	2.73	22.48 23.11	29.82 30.65	44.97 46.24	0.52 0.53	5540 5696 7408
Seam 2 Bench B	A.D. Dry	2.71	28.28 29.07	28.39 29.19	40.62 41.74	0.44 0.45	4977 5115 7212
Seam 2 Bench C	A.D. Dry	2.88	19.32 19.89	30.20 31.09	47.60 49.02	0.42 0.43	5856 6030 7527

DDH-93-10

Sample	Basis	R.M. %	Ash %	V.M. %	F.C. %	Sulphur %	C.V. Cal/g
Seam 1	A.D. Dry	2.39	31.53 32.30	28.63 29.34	37.45 38.36	0.54 0.56	4851 4970 7342
Seam 2 Bench A	A.D. Dry	1.61	55.43 56.33	20.89 21.24	22.07 22.43	0.32 0.33	2847 2893 6626
Seam 2 Bench B	A.D. Dry	2.50	22.13 22.70	28.38 29.10	46.99 48.20	0.45 0.46	5657 5803 7507
Seam 2 Bench C	A.D. Dry	2.81	17.91 18.43	31.35 32.26	47.93 49.31	0.42 0.43	5938 6110 7490

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Fax: (604) 984-0218

To: Archer, Cathro & Associates (1981) Limited
Box 4127
2054 Second Avenue
Whitehorse, YT
Y1A 3S9

Certificate No.: A9319809
Invoice No.: I9380919
Project: DDH 93-12

Date: October 6, 1993

Attn: R.C. Carne

DDH 93-12

Sample	Basis	R.M. %	Ash %	V.M. %	F.C. %	Sulphur %	C.V. Cal/g
Seam 1	A.D. Dry	2.97	19.78 20.38	32.12 33.11	45.13 46.51	0.61 0.63	5918 6100 7661
Seam 2	A.D. Dry	3.11	21.41 22.10	28.60 29.52	46.88 48.38	0.50 0.51	5654 5835 7490
Seam 3	A.D. Dry	1.25	20.00 20.25	12.97 13.14	65.78 66.61	0.48 0.49	6371 6451 8089

L. Lakos

Certified by:

Chemex Labs Ltd.

Analytical Chemists *Geochemists* *Registered Assayers*

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1
Phone: (604) 984-0221
Telex: 04-352597
Fax: (604) 984-0218

To: Archer, Cathro & Associates (1981) Limited
Box 4127
2054 Second Avenue
Whitehorse, YT
Y1A 3S9

Attn: R.C. Carne

Certificate No.: A9320660
Invoice No.: I9380918
Project: DDH 93-14,15,17

Date: October 6, 1993

Sample	Basis	R.M. %	Ash %	V.M. %	F.C. %	Sulphur %	C.V. Cal/g
DDH 93-14							
Seam 3	A.D. Dry	2.16	43.76 44.72	8.06 8.24	46.02 47.04	0.40 0.41	3992 4080 7381
DDH 93-15							
Seam 1	A.D. Dry	2.53	23.87 24.49	28.50 29.24	45.10 46.27	0.52 0.53	5615 5761 7629
Seam 2 Bench A	A.D. Dry	2.64	20.96 21.53	29.23 30.02	47.17 48.45	0.47 0.49	5769 5926 7551
Seam 2 Bench B	A.D. Dry	2.88	21.86 22.51	28.24 29.08	47.02 48.41	0.42 0.43	5664 5831 7525
Seam 2 Bench C	A.D. Dry	2.59	26.16 26.85	29.20 29.97	42.05 43.18	0.44 0.45	5300 5441 7439
DDH 93-17							
Seam 2	A.D. Dry	3.04	25.86 26.67	26.67 27.50	44.43 45.83	0.42 0.43	5319 5485 7480

L. Lakosil

Certified by:

Chemex Labs Ltd.

Analytical Chemists *Geochemists* *Registered Assayers*

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1

Phone: (604) 984-0221
Telex: 04-352597
Fax: (604) 984-0218

To: Archer, Cathro & Associates (1981) Ltd.
Box 4127, 2054 Second Avenue
Whitehorse, YT
Y1A 3S9

Attn: R.C.Carne

Certificate No.: A9323643
Invoice No.: I9381093
Project: DIV.MTN.93-18->20,22

Sample	Basis	R.M. %	Ash %	V.M. %	F.C. %	Sulphur %	C.V. Cal/g
93-18-1	A.D. Dry	2.37	29.62 30.34	29.12 29.83	38.89 39.83	0.48 0.49	4876 4994 7170
93-18-2	A.D. Dry	1.88	29.19 29.75	23.72 24.17	45.21 46.08	0.46 0.46	5218 5317 7659
93-19-3	A.D. Dry	9.96	41.08 45.62	6.32 7.02	42.64 47.36	0.19 0.22	3301 3666 6741
93-19-2A	A.D. Dry	3.00	22.82 23.52	31.09 32.05	43.09 44.43	0.72 0.74	5402 5569 7281
93-19-2B	A.D. Dry	2.79	23.12 23.78	29.37 30.22	44.72 46.00	0.48 0.50	5520 5679 7451
93-19-2C	A.D. Dry	3.16	17.92 18.50	30.26 31.24	48.66 50.26	0.41 0.42	5908 6101 7486
93-20-1C	A.D. Dry	3.08	39.08 40.32	9.71 10.02	48.13 49.66	0.58 0.60	4448 4589 7690
93-20-2B	A.D. Dry	1.26	33.90 34.33	23.42 23.72	41.42 41.95	0.51 0.52	4900 4962 7557
93-22-2A	A.D. Dry	3.05	24.75 25.52	27.51 28.38	44.69 46.10	0.41 0.42	5362 5530 7426
93-22-2B	A.D. Dry	2.73	21.96 22.58	28.88 29.69	46.43 47.73	0.40 0.42	5651 5809 7504
93-22-2C	A.D. Dry	3.47	26.40 27.35	9.52 9.87	60.61 62.78	0.45 0.47	5443 5638 7761
RR1	A.D. Dry	16.28	18.93 22.61	27.77 33.18	37.02 44.21	0.34 0.41	3935 4701 6074
RR2	A.D. Dry	16.74	16.38 19.67	28.86 34.67	38.02 45.66	0.40 0.48	4090 4912 6115

Chemex Labs Ltd.

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212 Brooksbank Ave.
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Phone: (604) 984-0221
Telex: 04-352597
Fax: (604) 984-0218

To: Archer, Cathro & Associates (1981) Ltd.
1016 - 510 West Hastings Street
Vancouver, BC
V6B 1L8

Certificate No.: A9410395
Invoice No.: I9480049

Date: January 25, 1994

Attn: Bill Wengzynowski

Re: Division Mountain Coal 1993

Compositing (as per attached instructions)

D 93-15	2A	3 kg
	2B	3 kg
	2C	3 kg
DH 93-18	1	3 kg
	2	3 kg
DH 93-19	2A	1734 grams (no more left)
	2B	3 kg
	2C	3 kg

After compositing and mixing, RAW HEAD sample taken for analysis before screening.

Raw Coal screened on 3/8", 28M, 60M

Screen Yield	3/8" X 28M	79.8 %
	28M X 60M	10.6 %
	60M X 0M	9.6 %

Fractions 3/8" X 28M and 38M X 60M - subject to washability testing in 1.3, 1.5, 1.7 specific gravities.

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

ARCHER CATHRO & ASSOC. (1981) LTD.

P.O. BOX 4127
WHITEHORSE, YT
Y1A 3S9

A9410396

Comments:

CERTIFICATE A9410396

ARCHER CATHRO & ASSOC. (1981) LTD.

Project: CLEAN COAL 1.5 SG
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 19-JAN-94.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
248	1	Geochem Zr ring approx 150 mesh
200	1	Whole rock fusion

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
594	1	Al2O3 %: Whole rock	ICP-AES	0.01	99.99
588	1	CaO %: Whole rock	ICP-AES	0.01	99.99
590	1	Cr2O3 %: Whole Rock	ICP-AES	0.01	100.00
586	1	Fe2O3(total) %: Whole rock	ICP-AES	0.01	100.00
821	1	K2O %: Whole rock	ICP-AES	0.01	99.99
593	1	MgO %: Whole rock	ICP-AES	0.01	99.99
596	1	MnO %: Whole rock	ICP-AES	0.01	99.99
599	1	Na2O %: Whole rock	ICP-AES	0.01	99.99
597	1	P2O5 %: Whole rock	ICP-AES	0.01	99.99
592	1	SiO2 %: Whole rock	ICP-AES	0.01	99.99
595	1	TiO2 %: Whole rock	ICP-AES	0.01	99.99
475	1	L.O.I. %: Loss on ignition	FURNACE	0.01	99.99
540	1	Total %	CALCULATION	0.01	105.00
380	1	S %: Leco induction furnace	LECO-IR DETECTOR	0.001	100.0

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To: ARCHER CATHRO & ASSOC. (1981) LTD.

P.O. BOX 4127
WHITEHORSE, YT
Y1A 3S9

Project : CLEAN COAL 1.5 SG
Comments:

Page Number :1
Total Pages :1
Certificate Date: 19-JAN-94
Invoice No. :I9410396
P.O. Number :
Account :F

CERTIFICATE OF ANALYSIS A9410396

SAMPLE	PREP CODE		Al2O3 %	CaO %	Cr2O3 %	Fe2O3 %	K2O %	MgO %	MnO %	Na2O %	P2O5 %	SiO2 %	TiO2 %	LOI %	TOTAL %	S % Total
ASH:AFT REDUCING	248	200	22.16	17.43	< 0.01	6.74	0.54	1.41	0.10	0.31	1.48	36.77	1.65	3.22	91.82	3.50

CERTIFICATION: Thai D'Ma

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Canada V7J 2C1
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To: Archer, Cathro & Associates (1981) Ltd.
1016 - 510 West Hastings Street
Vancouver, BC
V6B 1L8

Certificate No.: A9410395
Invoice No.: I9480049

Date: January 25, 1994

Attn: Bill Wengzynowski

Re: Division Mountain Coal 1993 - Composite

Raw Coal Analysis - 3/8" X 0 Mesh

Proximate Analysis

Basis	RM %	A %	VM %	FC %	ST %	S SO4%	S pry %	S org %	Gross CV cal/g	Grinda-bility HGI
A.D.	2.62	22.73	28.80	45.85	0.63	0.02	0.14	0.47	5630	46
Dry		23.34	29.57	47.09	0.65	0.02	0.15	0.48	5781	

Ultimate Analysis

Basis	RM %	A %	C %	H %	N %	S %	O_2 %*
A.D.	2.62	22.73	61.70	3.83	0.85	0.63	10.26
Dry		23.34	63.36	3.63	0.87	0.65	8.15

* Note: 1. Hydrogen and Oxygen reported on as determined (air dry) basis include H and O_2 in free moisture.

2. Oxygen not determined, calculated by difference.

Screen Fractions

Fraction	Yield %	Basis	RM %	A %	VM %	FC %	S%	CV Gross cal/g
3/8" X 28M	79.8	A.D.	2.67	24.68	28.69	43.96	0.48	5363
		Dry		25.36	29.48	45.16	0.49	5510
28M X 60M	10.6	A.D.	2.88	18.52	28.75	49.85	0.59	6002
		Dry		19.07	29.60	51.33	0.61	6180
60M X 0M	9.6	A.D.	2.76	20.77	28.53	47.94	0.54	5752
		Dry		21.36	29.34	49.30	0.56	5915

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Re: Division Mountain Coal 1993 - Composite

Clean Coal at 1.5 SG - 3/8" X 60 Mesh

Proximate Analysis

Basis	RM %	A %	VM %	FC %	ST %	S SO4%	S pry %	S org %	Gross CV cal/g	Grinda-bility HGI
A.D.	1.28	10.65	30.98	57.09	0.58	0.02	0.14	0.42	6795	48
Dry		10.79	31.38	57.83	0.59	0.02	0.14	0.43	6883	

Ultimate Analysis

Basis	RM %	A %	C %	H %	N %	S %	O_2 %*
A.D.	1.28	10.65	70.51	4.20	0.91	0.58	13.15
Dry		10.79	71.42	4.11	0.92	0.59	12.17

* Note: 1. Hydrogen and Oxygen reported on as determined (air dry) basis include H and O_2 in free moisture.

2. Oxygen not determined, calculated by difference.

Chemical Analysis of Ash - % in Dry Ash

Al_2O_3	CaO	Fe_2O_3	K_2o	MgO	Na_2O	P_2O_5	SiO_2	TiO_2	SO_3	LOI
22.16	17.43	6.74	0.54	1.41	0.31	1.48	36.77	1.65	8.74	3.22

Ash Fusibility In Reducing Atmosphere

	F Degrees
Initial	2295
Softening	2395
Hemispherical	2420
Fluid (Final)	2480

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Date: January 25, 1994

Attn: Bill Wengzynowski

Re: Division Mountain Coal 1993 - Composite

WASHABILITIES - 28 MESH X 60 MESH

FRACTIONAL

	Basis	Yield %	RM %	Ash %	Sulphur %	CV cal/g
1.3	A.D. Dry	 1.64	1.97	3.07 3.13	0.83 0.85	7512 7663 MAF 7911
1.5	A.D. Dry	 63.82	1.70	7.68 7.81	0.62 0.63	7008 7130 MAF 7734
1.7	A.D. Dry	 19.04	1.24	26.34 26.67	0.51 0.52	5290 5356 MAF 7305
SINK	A.D. Dry	 15.50	1.17	54.07 54.71	0.47 0.47	2482 2511

CUMULATIVE

	Basis	Yield %	Ash %	Sulphur %	CV cal/g
1.3	Dry	1.64	3.13	0.85	7663 MAF 7911
1.5	Dry	65.46	7.69	0.63	7143 MAF 7739
1.7	Dry	84.50	11.97	0.61	6741 MAF 7657
XXX	Dry	100.00	18.59	0.66	6085

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Date: January 25, 1994

Attn: Bill Wengzynowski

Re: Division Mountain Coal 1993 - Composite

WASHABILITIES - 3/8" x 28 MESH

FRACTIONAL

	Basis	Yield %	RM %	Ash %	Sulphur %	CV cal/g
1.3	A.D. Dry	0.36	1.35	6.36 6.45	0.84 0.85	7310 7410 MAF 7920
1.5	A.D. Dry	56.52	1.51	10.97 11.14	0.60 0.61	6776 6880 MAF 7743
1.7	A.D. Dry	22.56	1.54	23.35 23.71	0.51 0.52	5561 5648 MAF 7404
SINK	A.D. Dry	20.56	0.95	59.66 60.24	0.27 0.28	2224 2245

CUMULATIVE

	Basis	Yield %	Ash %	Sulphur %	CV cal/g
1.3	Dry	0.36	6.45	0.85	7410 MAF 7920
1.5	Dry	56.88	11.11	0.62	6884 MAF 7744
1.7	Dry	79.44	14.69	0.59	6533 MAF 7658
XXX	Dry	100.00	24.05	0.52	5651

APPENDIX VIII

GEOPHYSICAL SURVEY DATA

Geophysical Surveys

Very low frequency electromagnetic (VLF-EM), total magnetic field and shallow ground conductivity surveys were performed on the Division Mountain Coal Property from July 11 to 15, 1993. For each survey, measurements were taken at a 10 m interval along the survey lines and are shown in line profiles.

A. Total magnetic field and VLF-EM surveys

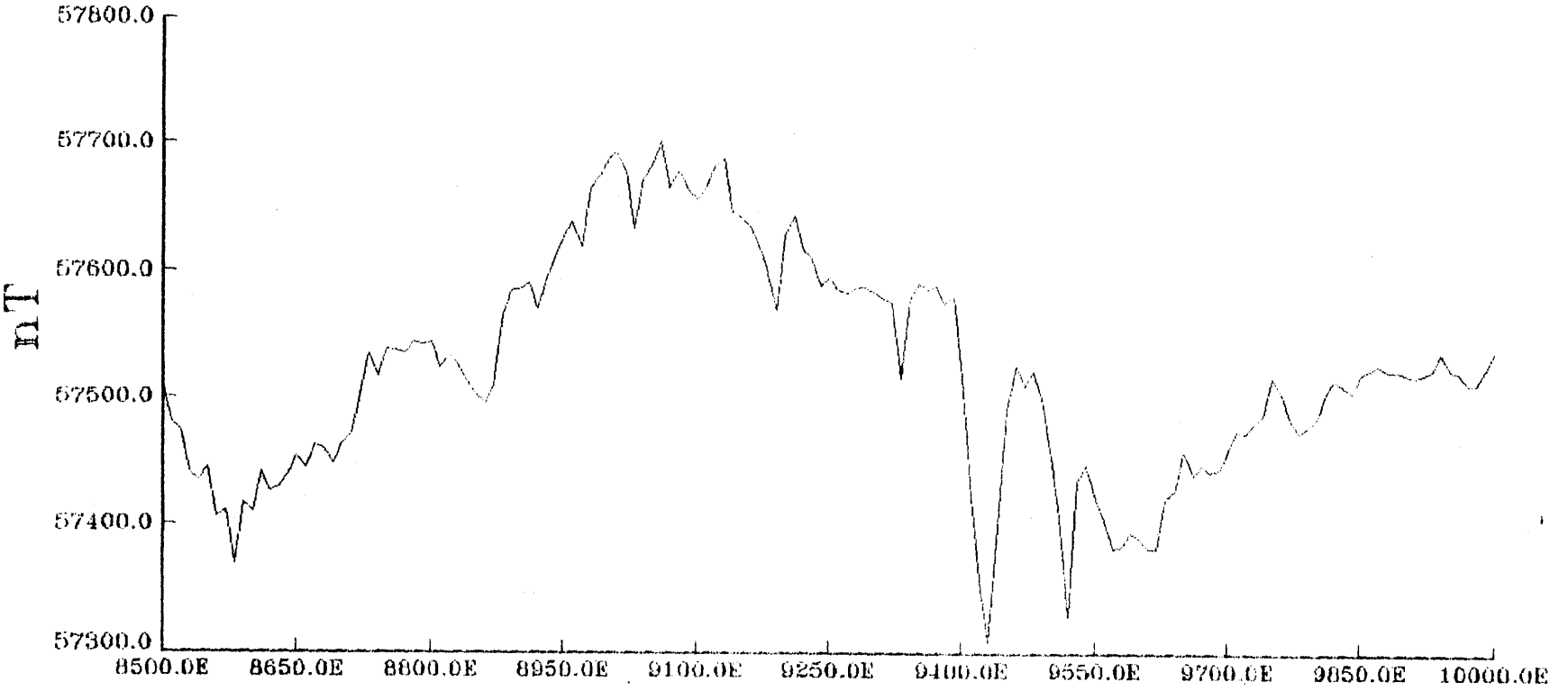
The total magnetic field and VLF-EM survey was performed with an Omni Plus total field proton precession magnetometer and VLF-EM receiver and a synchronized Omni IV base station magnetometer. Both instruments are manufactured by Scintrex Ltd. of Mississauga ON. The base station is required to remove temporal (largely diurnal) variation in the geomagnetic field; it is installed at a permanent location free of magnetic material and left to take repeated and frequent measurements during the field survey. The temporal variation in survey measurements is calculated by interpolation of the apparent base station field drift. The base station and field unit were synchronized daily and the base station cycled at a 30 s interval throughout the survey. No significant geomagnetic disturbances which could not be removed by this procedure were recorded at the base station. The field data is probably repeatable to within $\pm$ 10 nT with most of the error due to station relocation variances.

The VLF-EM survey was performed using the Jim Creek, Washington transmitter (Station NLK). It operates at 24.0 KHz and has an apparent station azimuth at the Division Mountain Property of approximately 170°. The Omni Plus measures the total field strength and vertical in-phase and quadrature components of the VLF field. The latter two measurements are shown in the line profiles; these are expressed in percentages of the horizontal field strength. The data is probably repeatable to within $\pm$ 4%. The Omni Plus produces profiles which are independent of the facing direction and an anomalous response consists of a positive to negative cross-over in the in-phase component from south to north along the survey lines. Conductor axes are indicated on the field profiles.

B. Conductivity survey

The ground conductivity survey was performed with a Geonics EM-31 horizontal loop electromagnetic system manufactured by Geonics Ltd. of Mississauga ON. This instrument employs horizontal transmitter and receiver loops at a fixed separation in a rigid 4 m boom to generate a vertical magnetic dipole field. With this design, accurate measurements of anomalous in-phase and quadrature responses are possible. The system operates at a low induction number and primarily uses the quadrature response to calculate a half-space conductivity in milli-Siemens (mS). The effective instrument depth of penetration is 6.0 m. Zones of anomalously low conductivity are indicated on the line profiles; in many cases these coincide with VLF-EM conductors, indicating that the overburden in these areas is probably less than 6.0 m deep.

LINE: 10+000 N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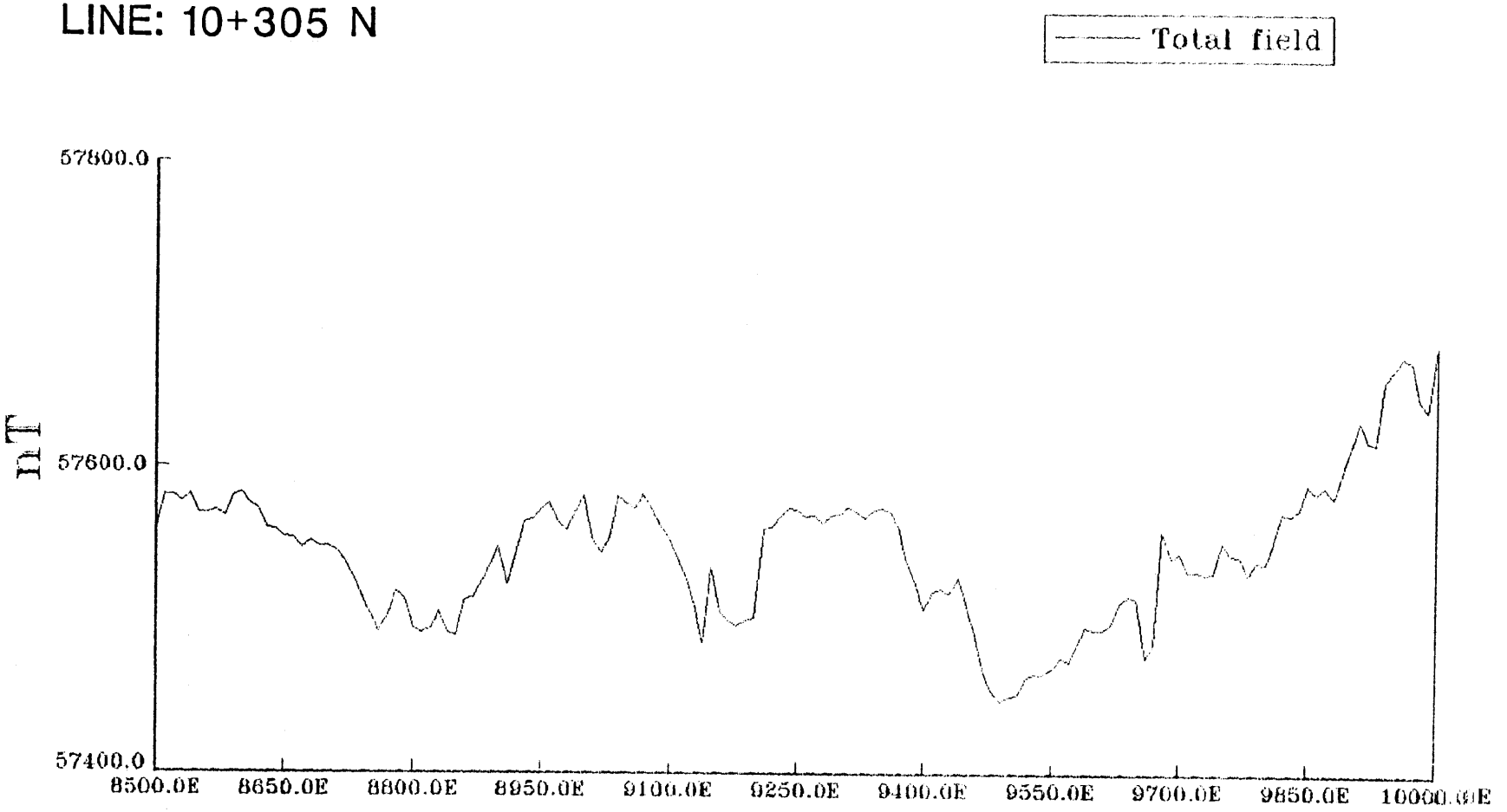
LINE: 10+305 N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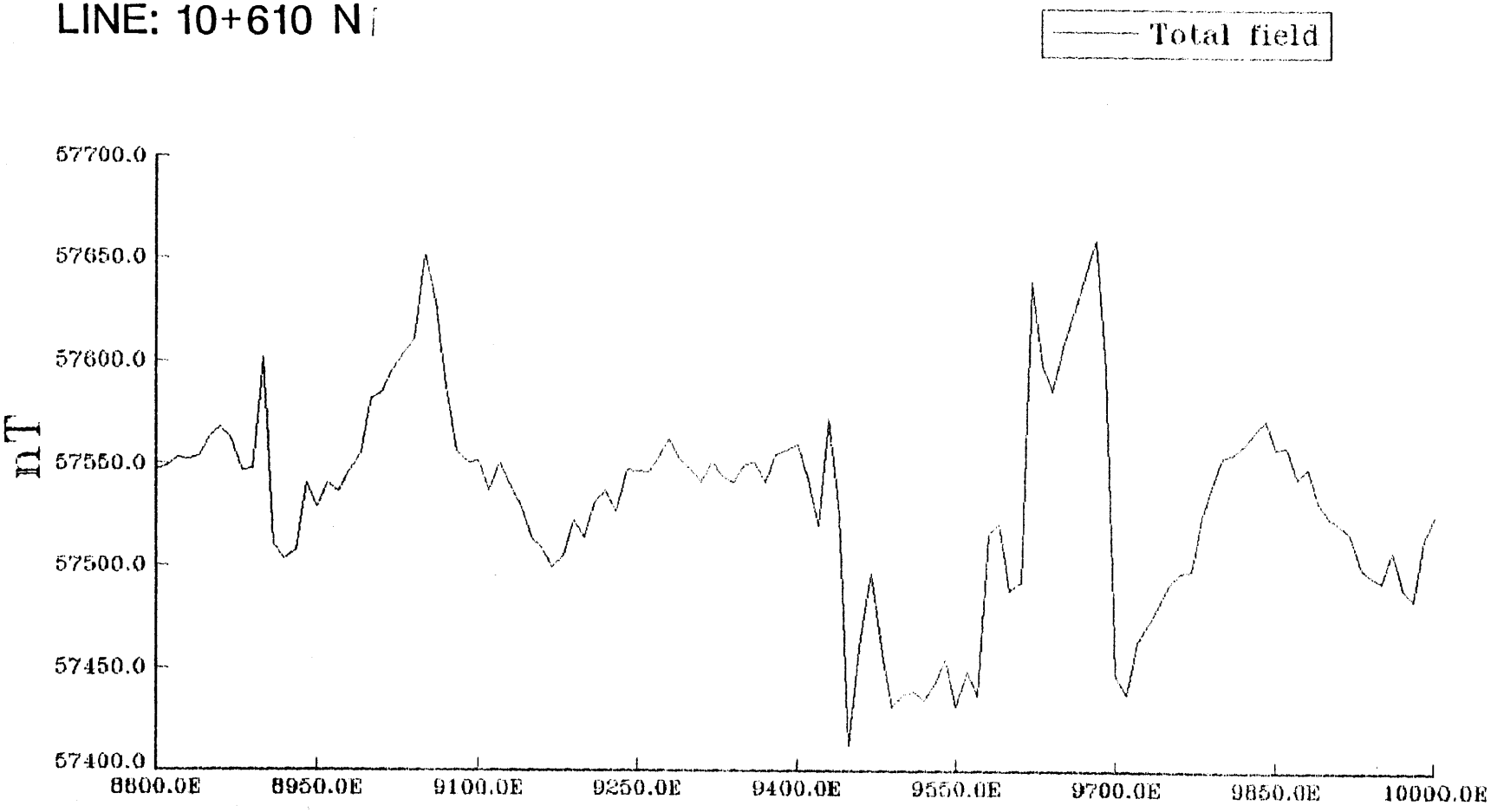
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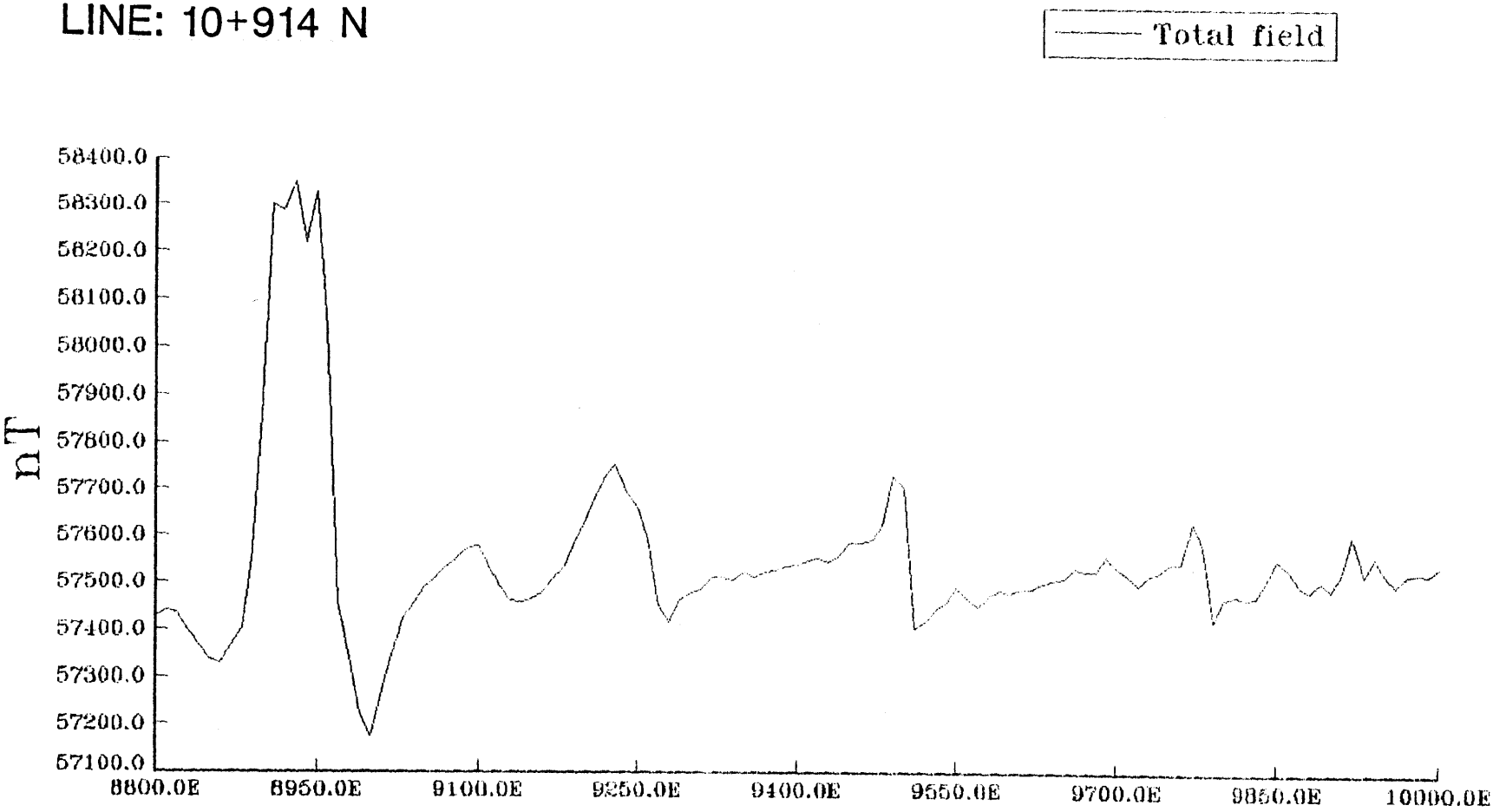
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8800.0E
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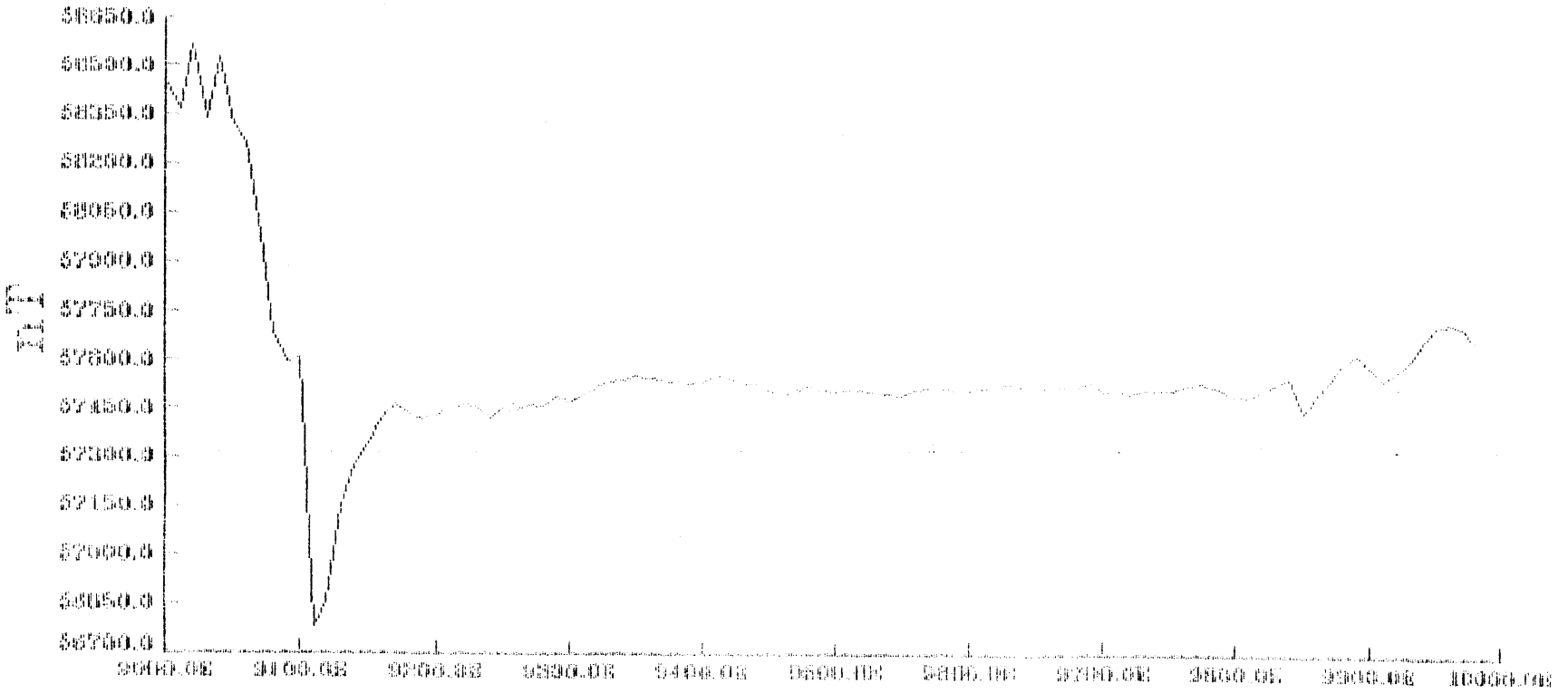
10000.0E

LINE: 11+219 N



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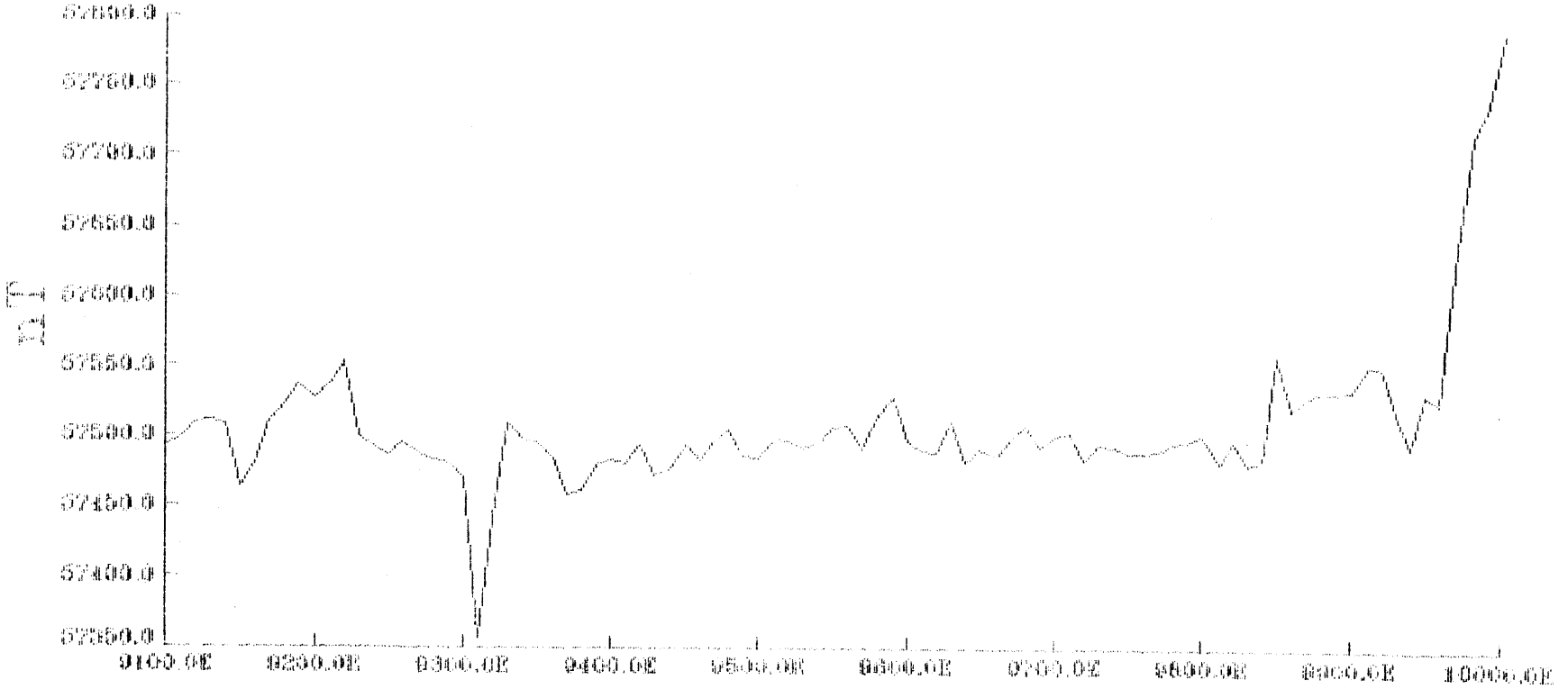
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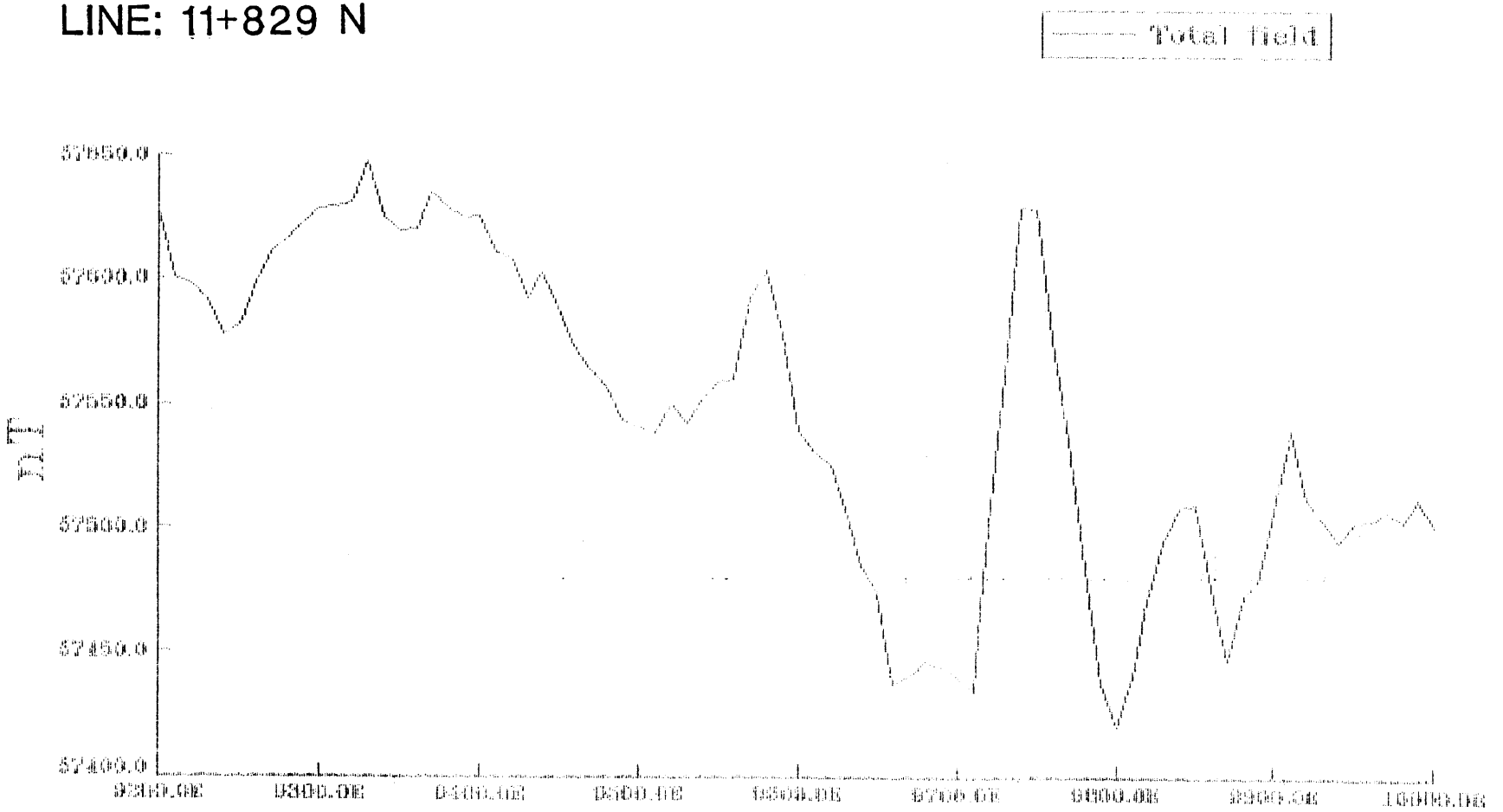

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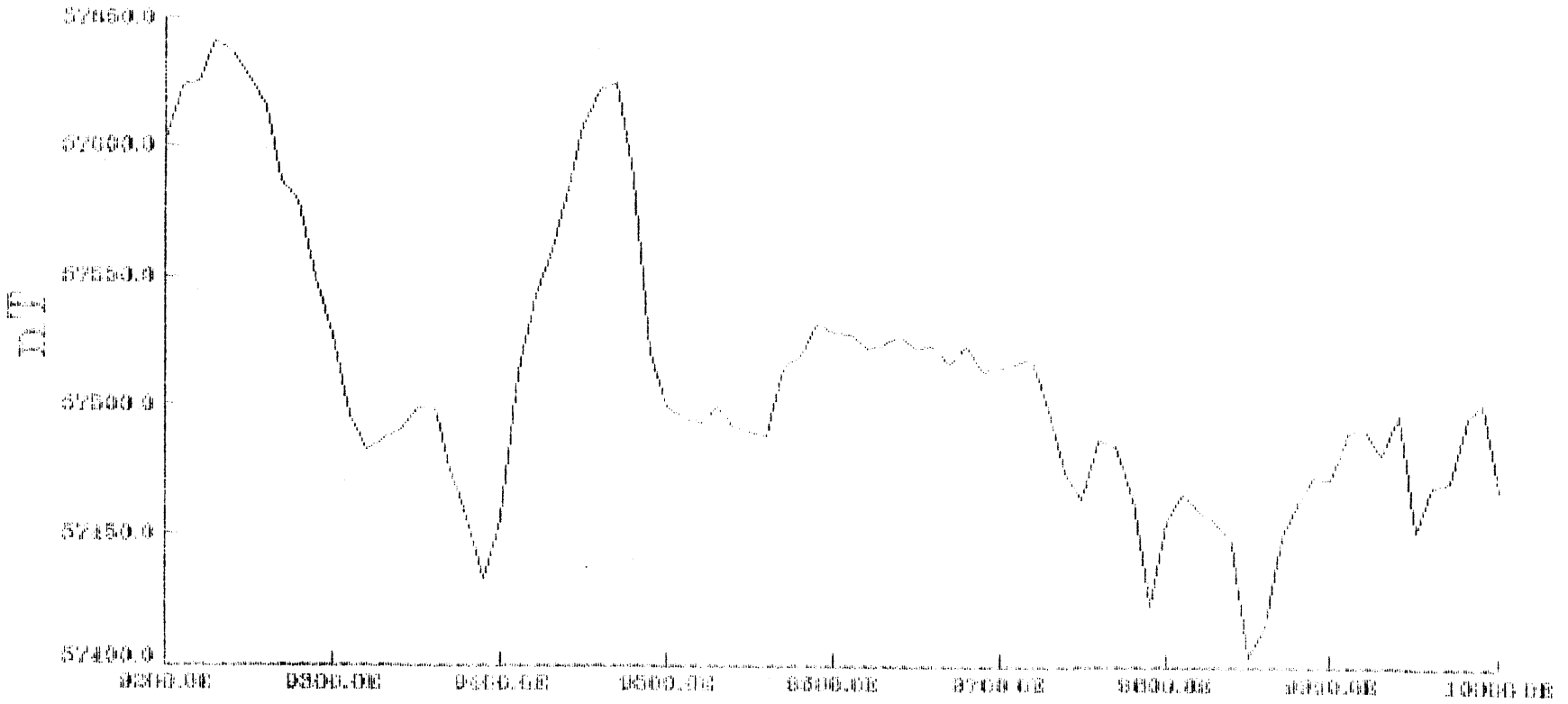

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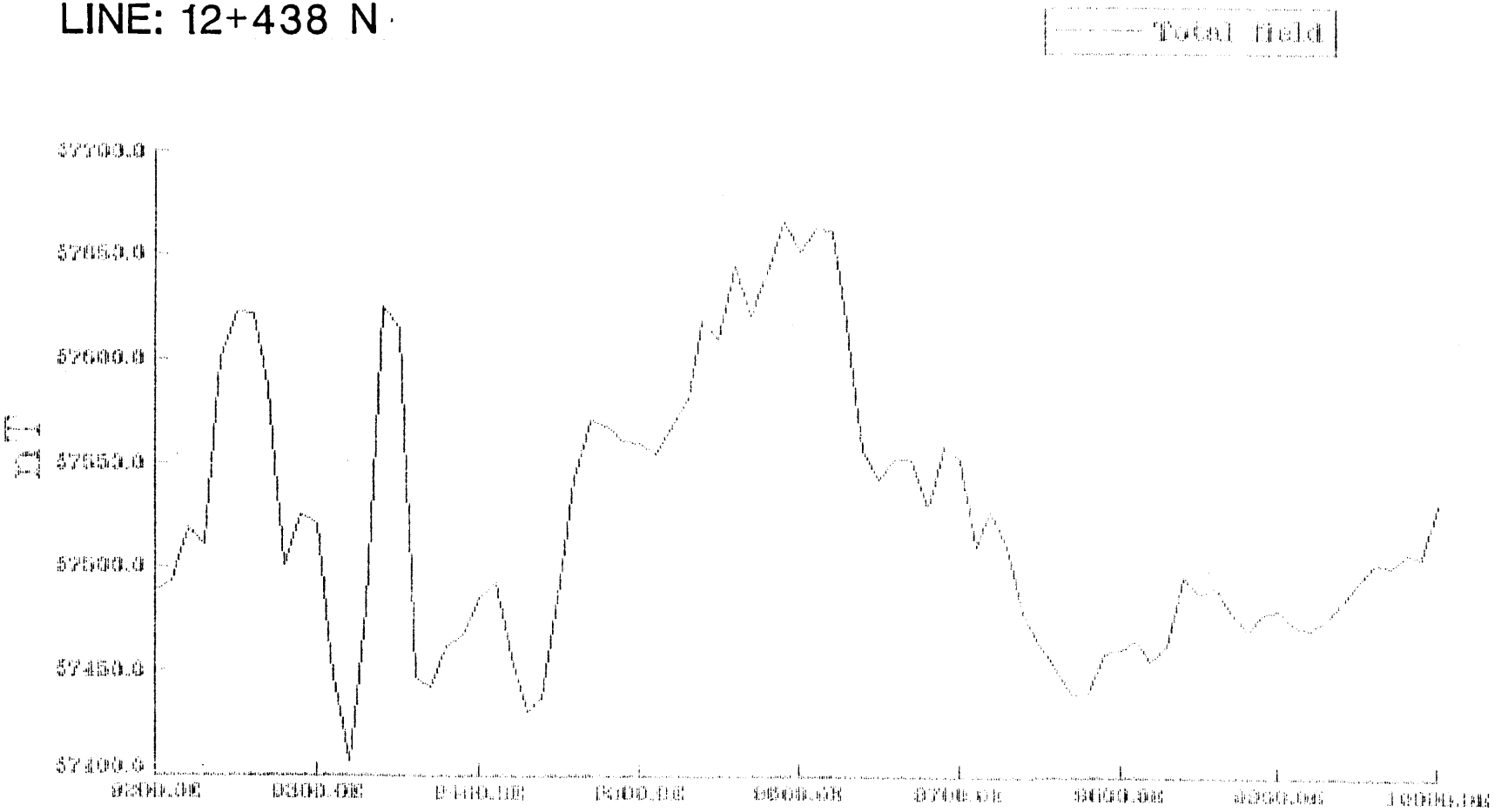

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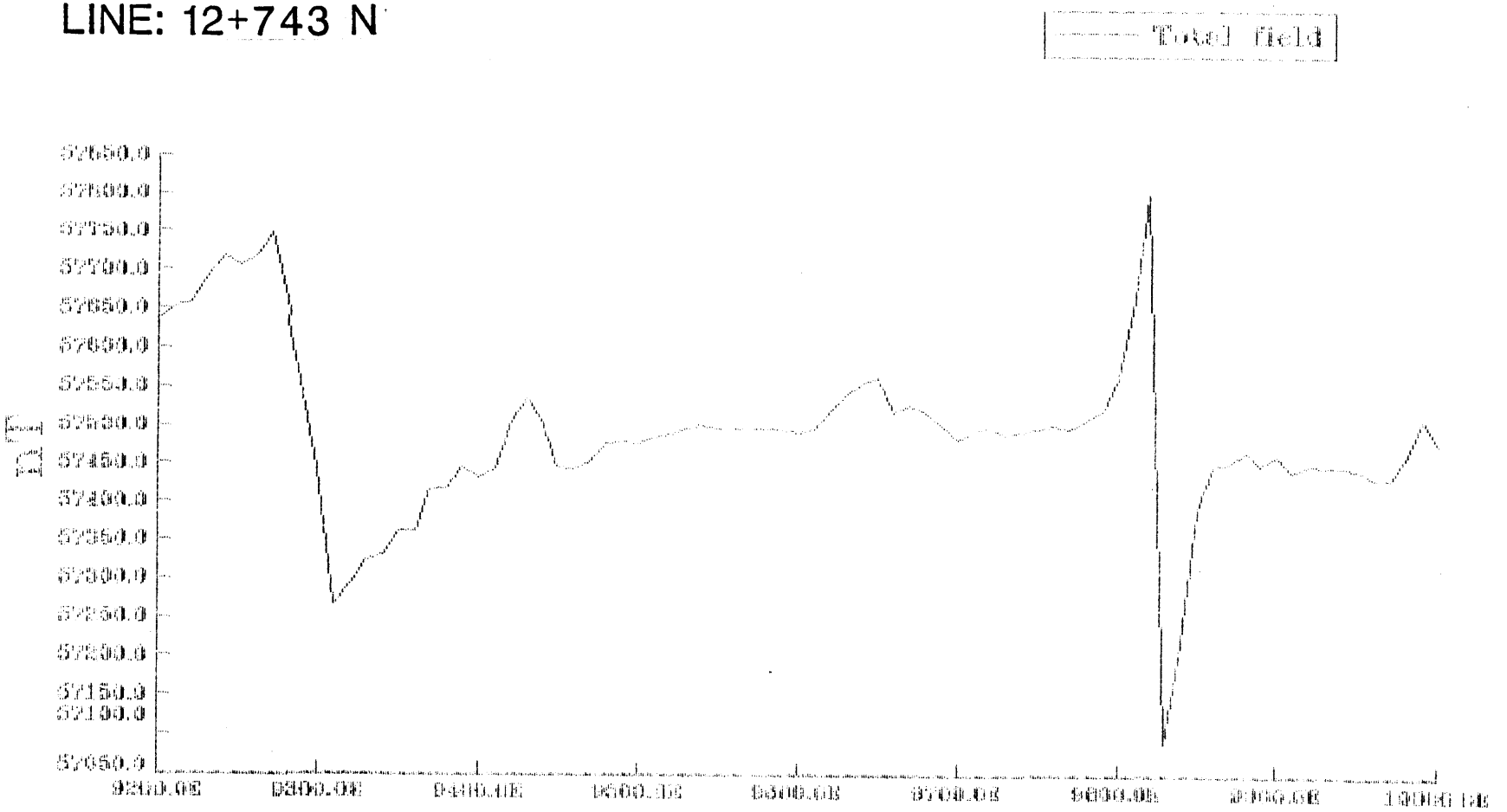

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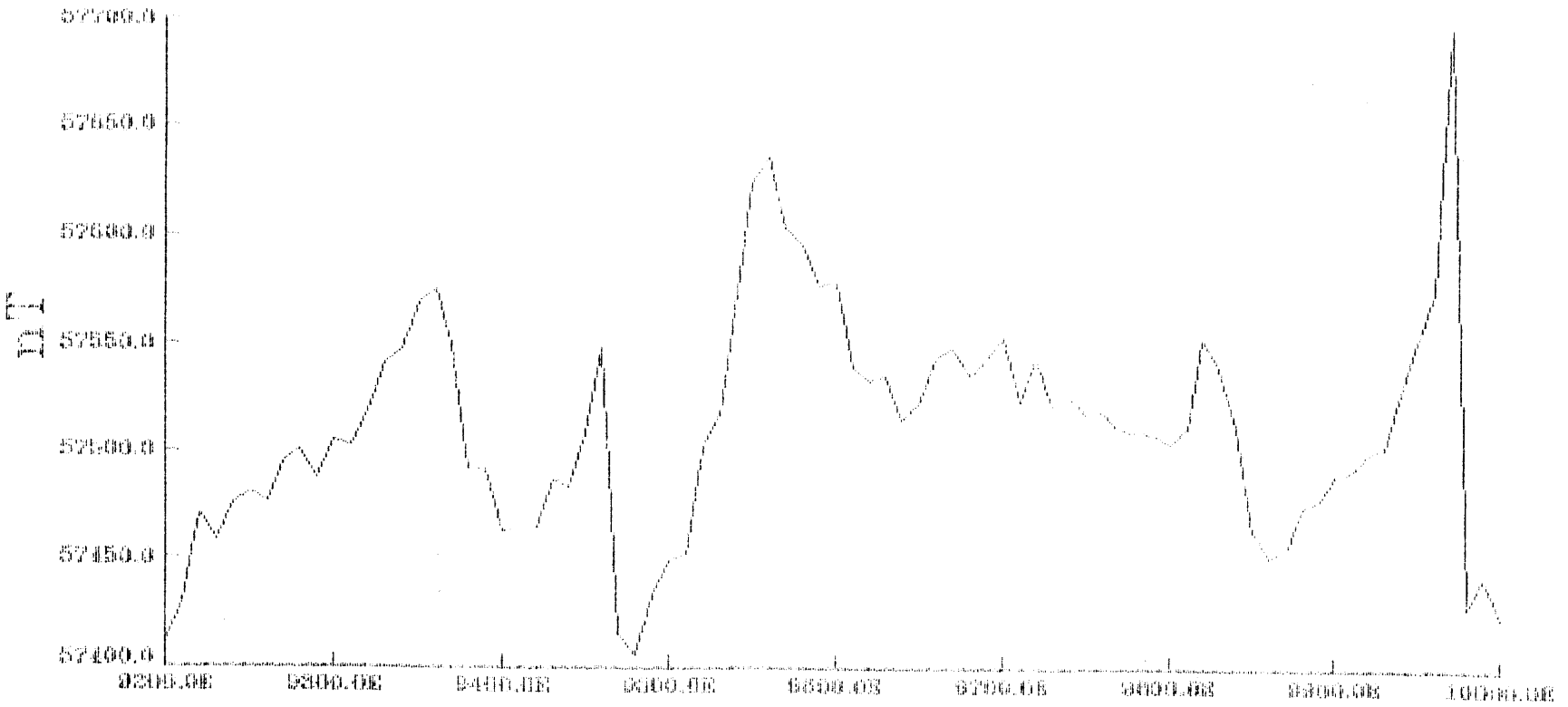

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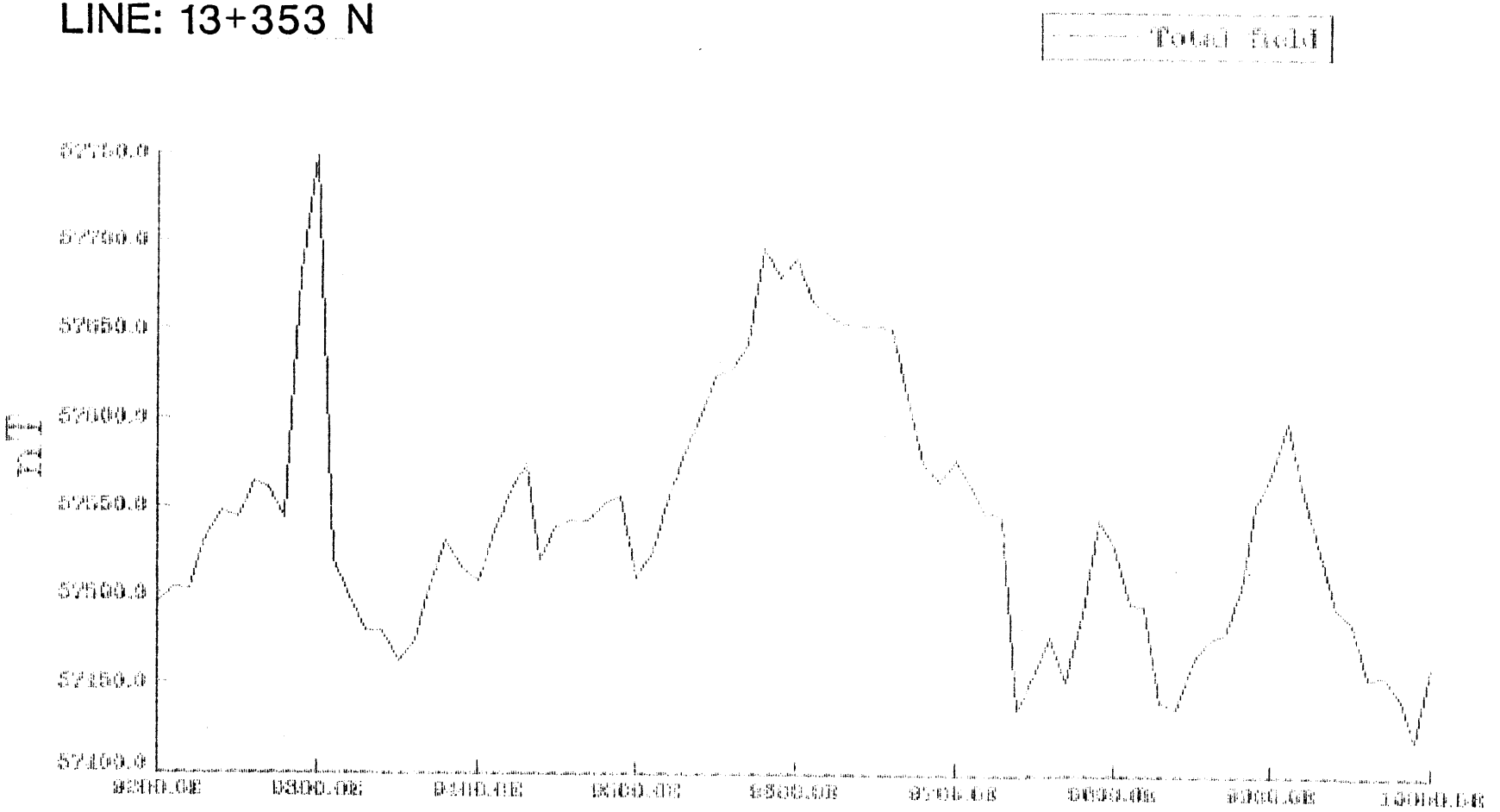

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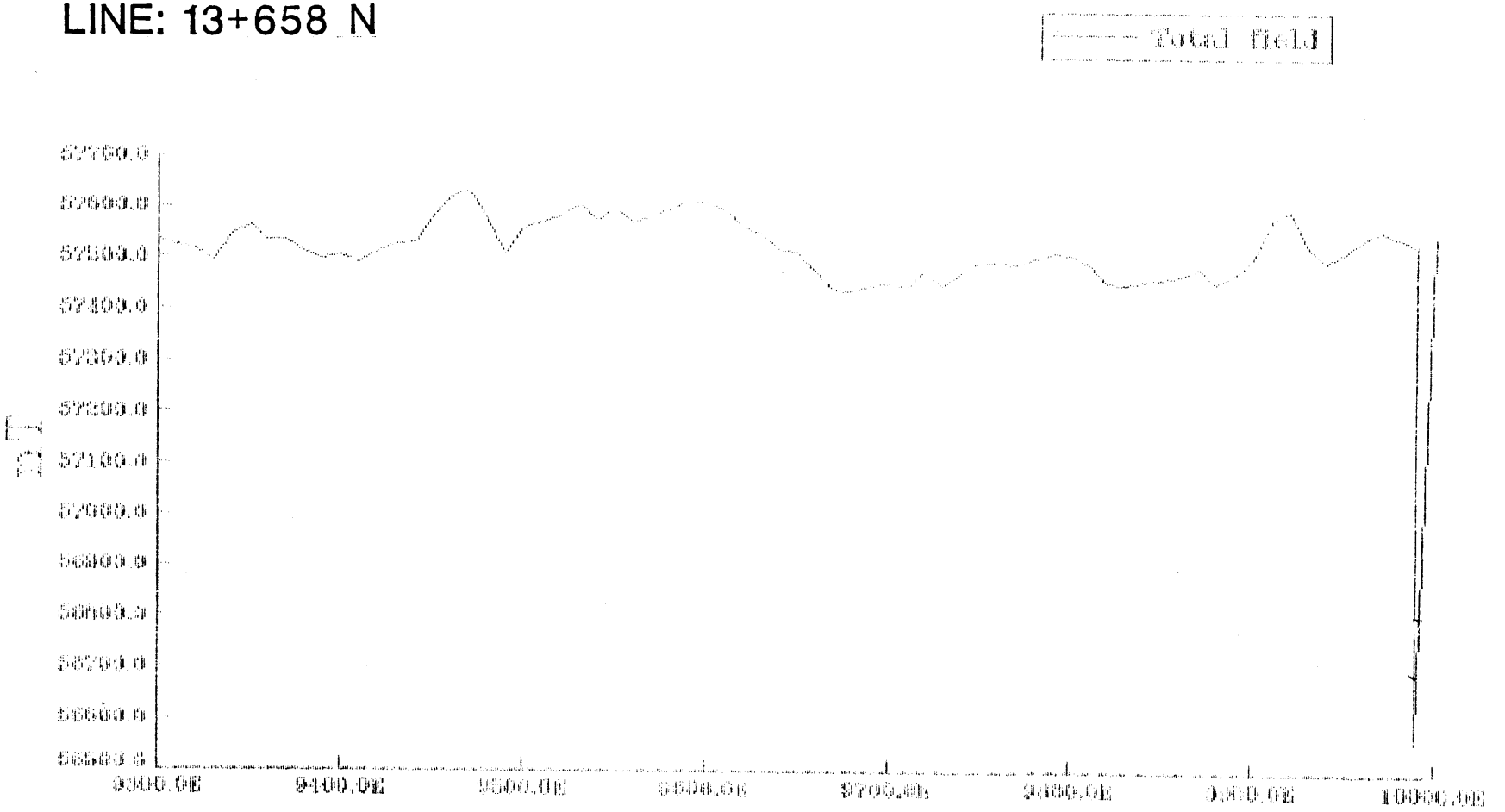

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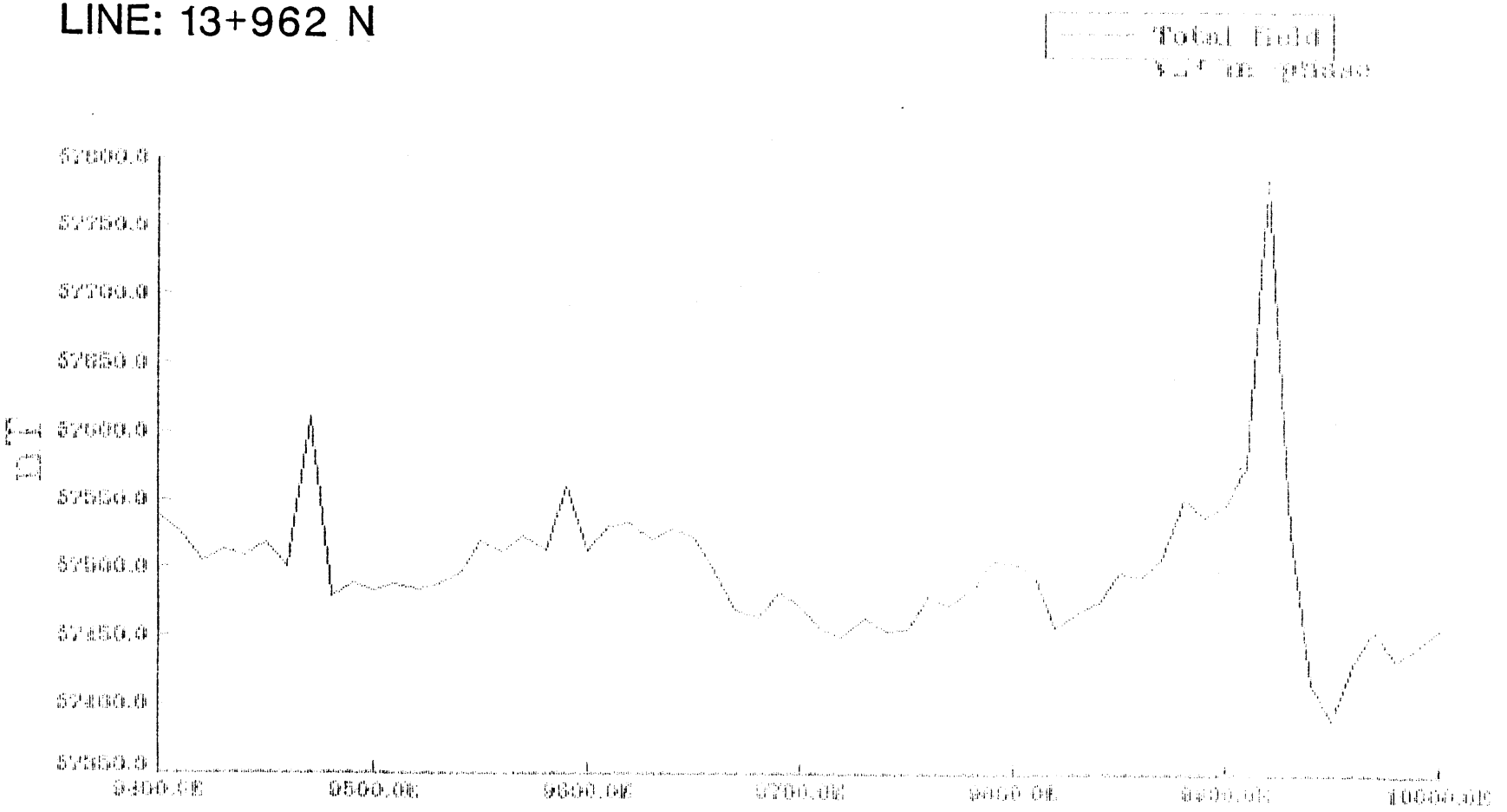

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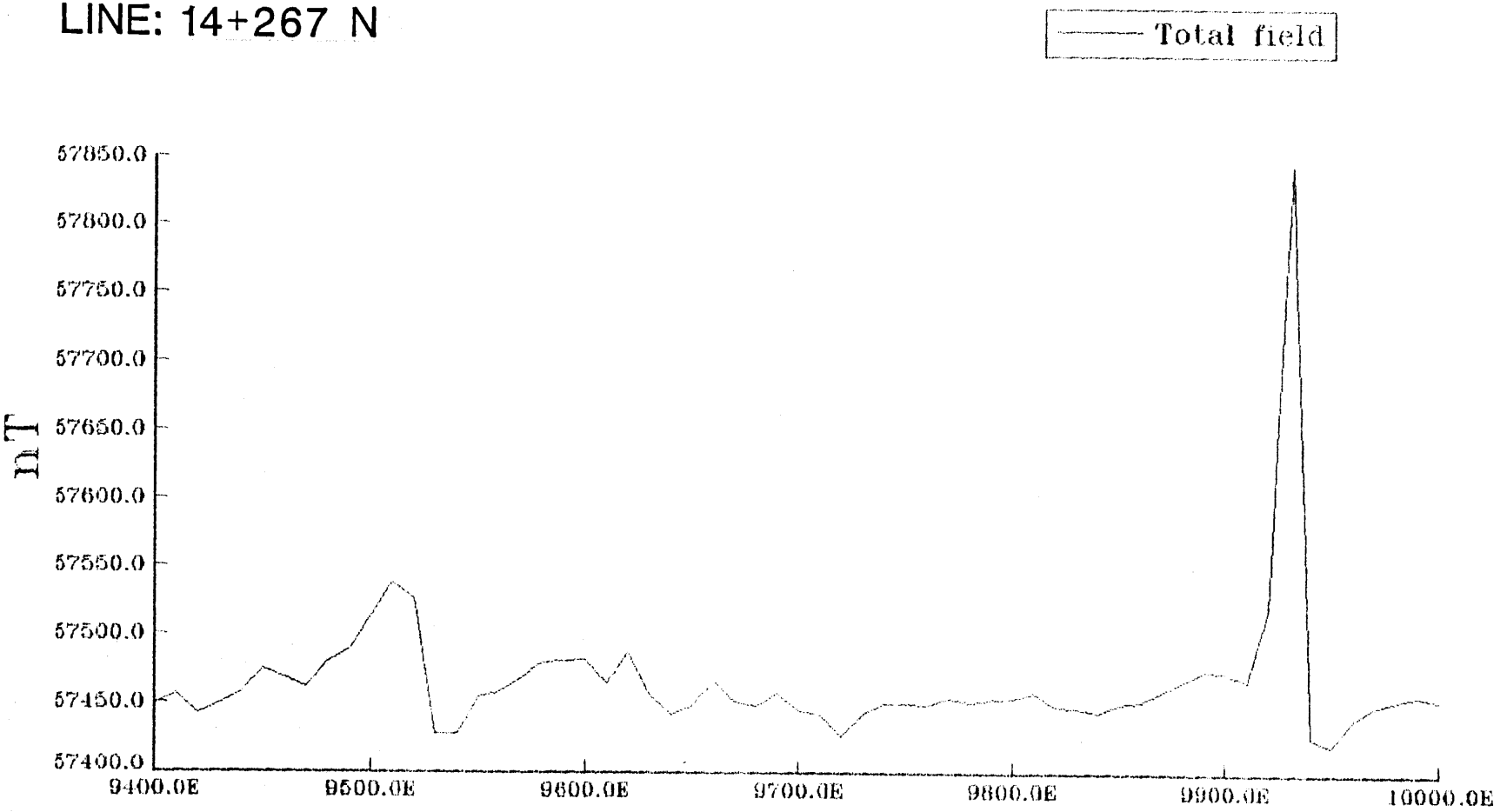
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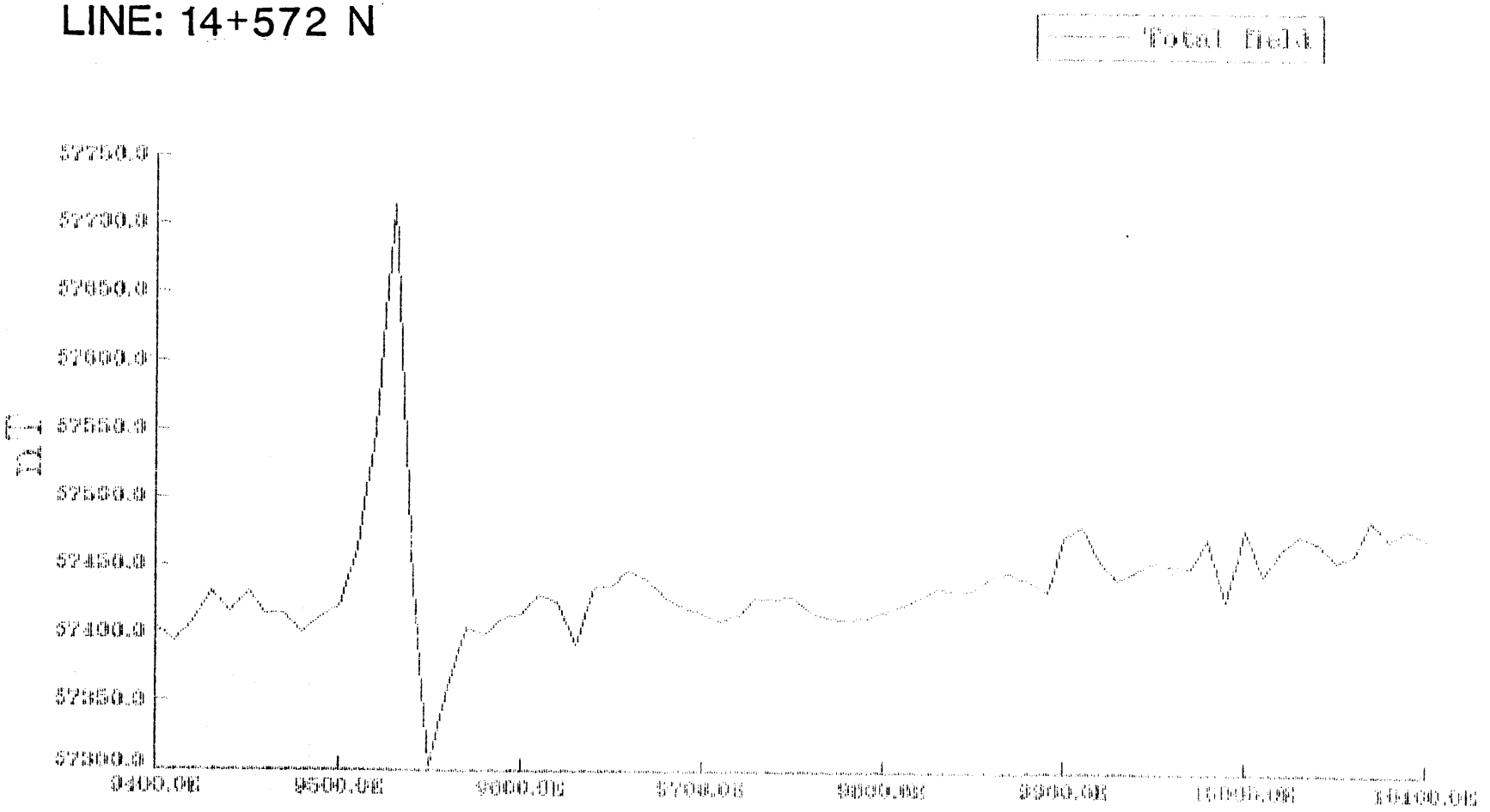
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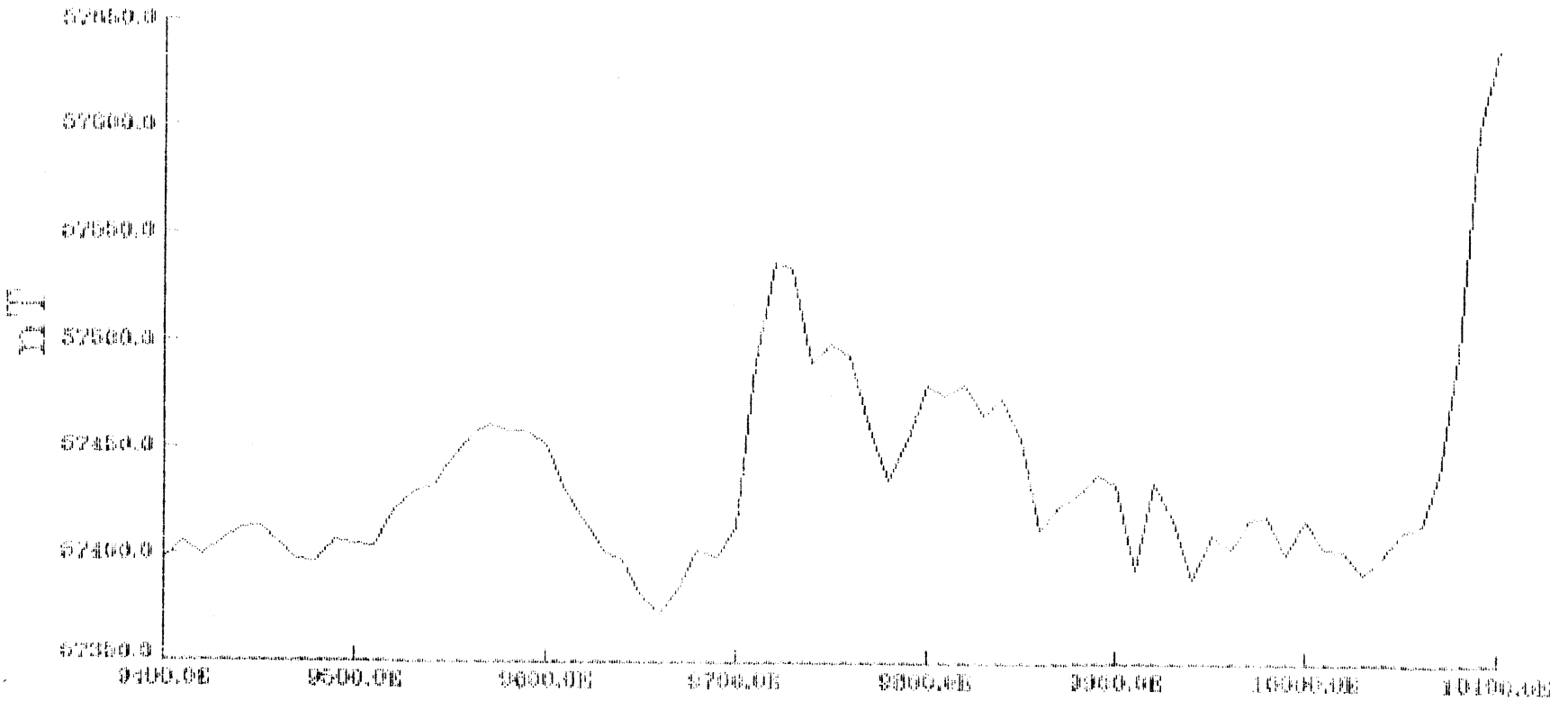

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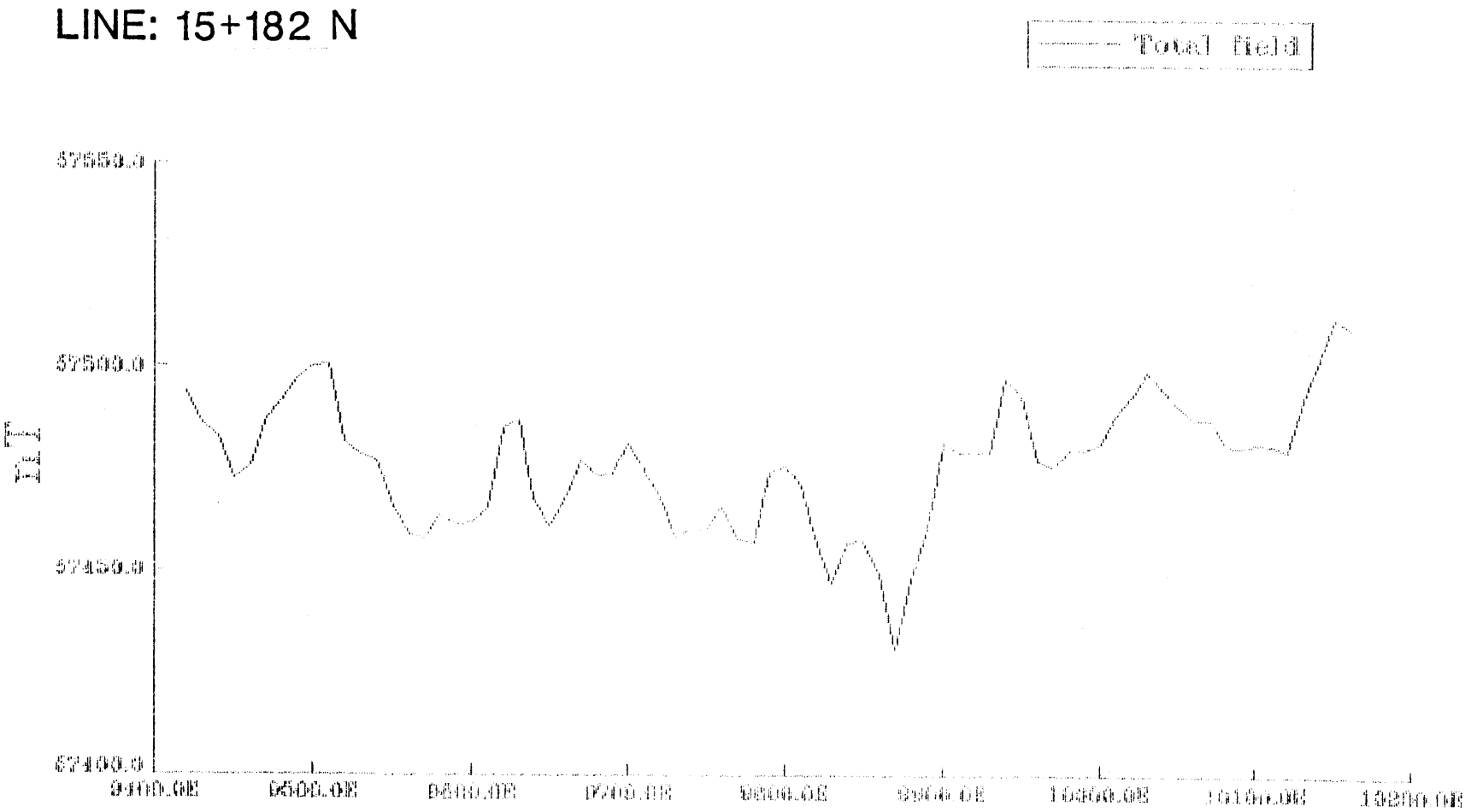
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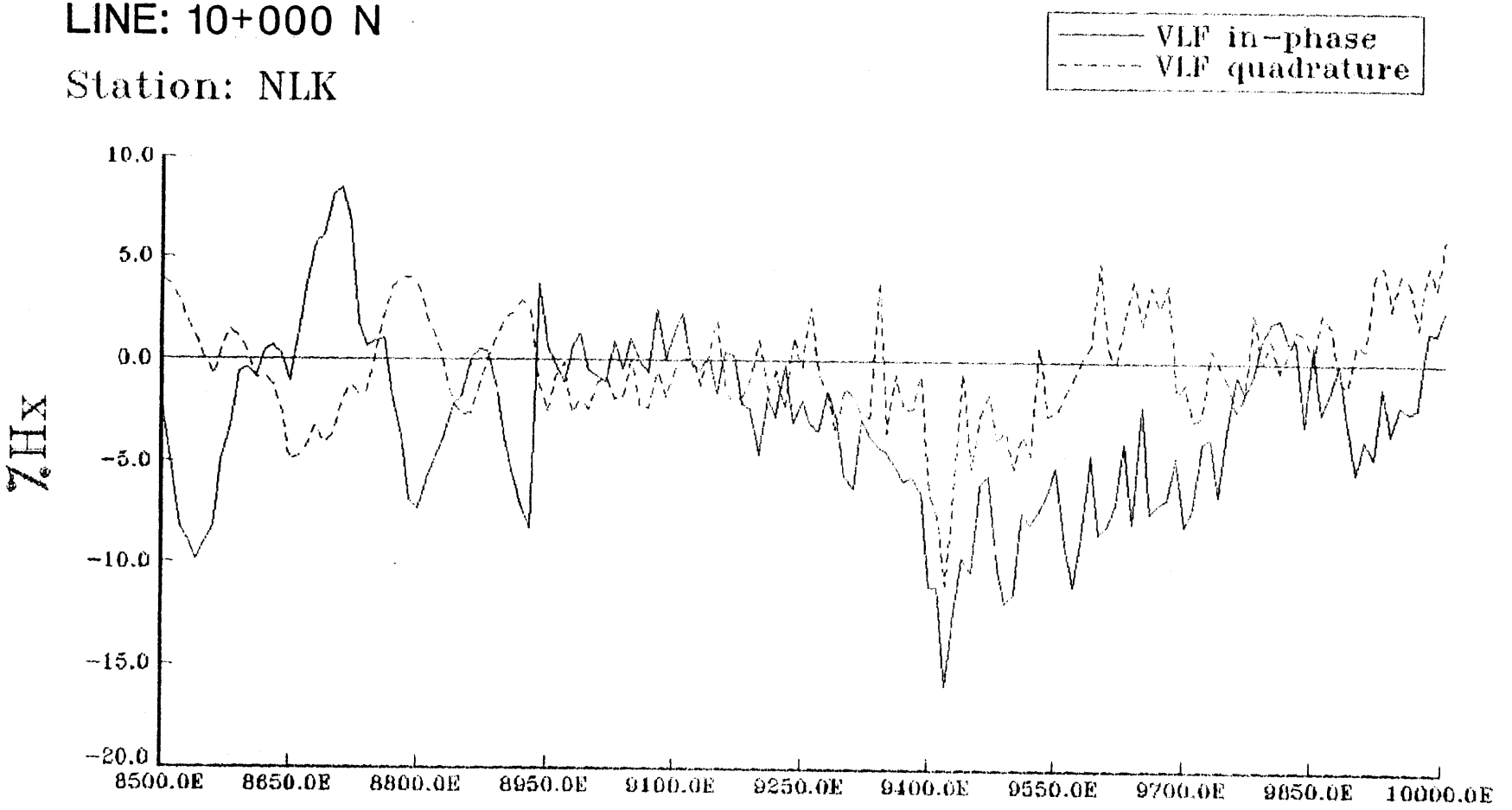
LINE: 10+000 N

Station: NLK



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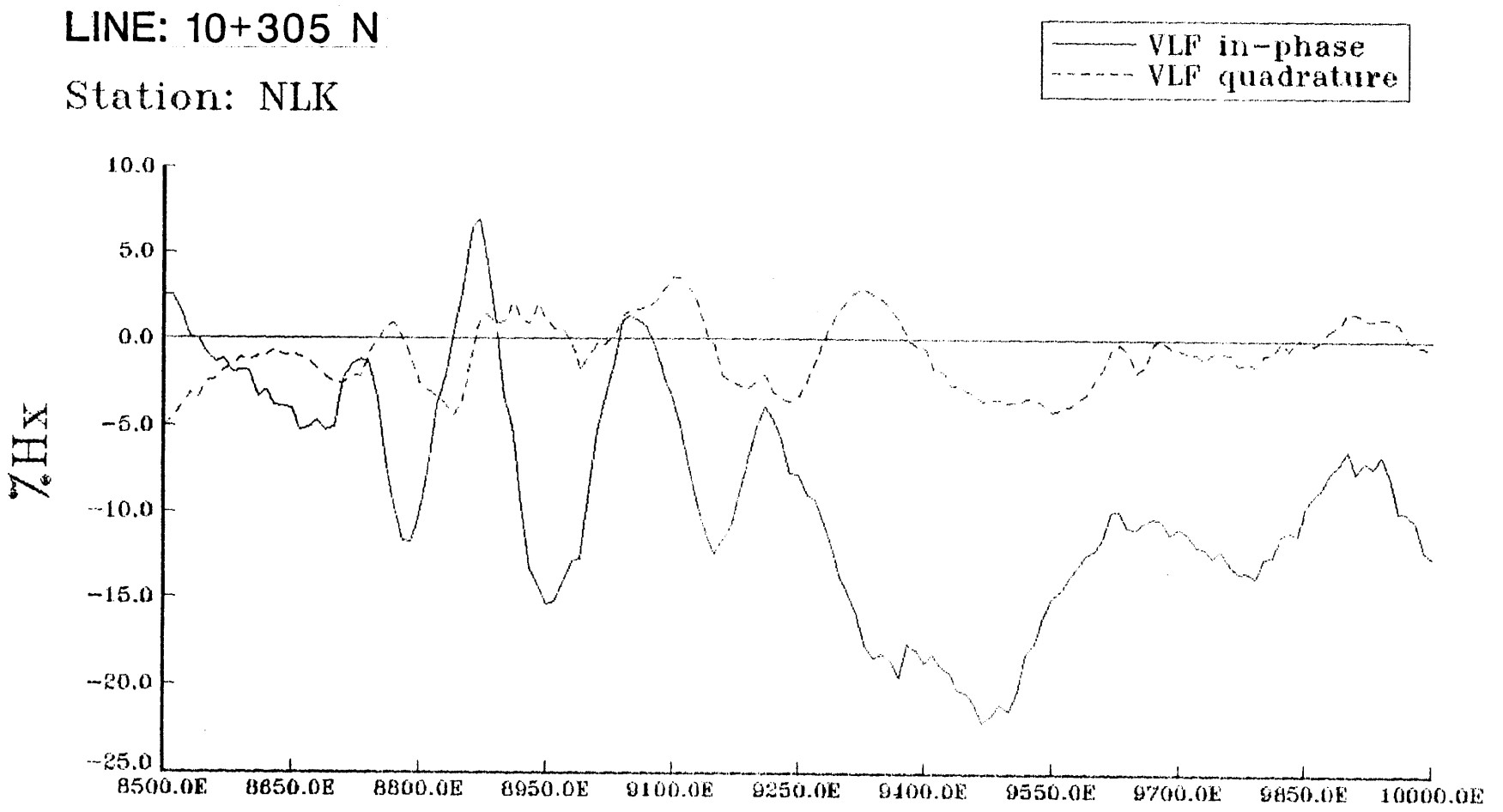

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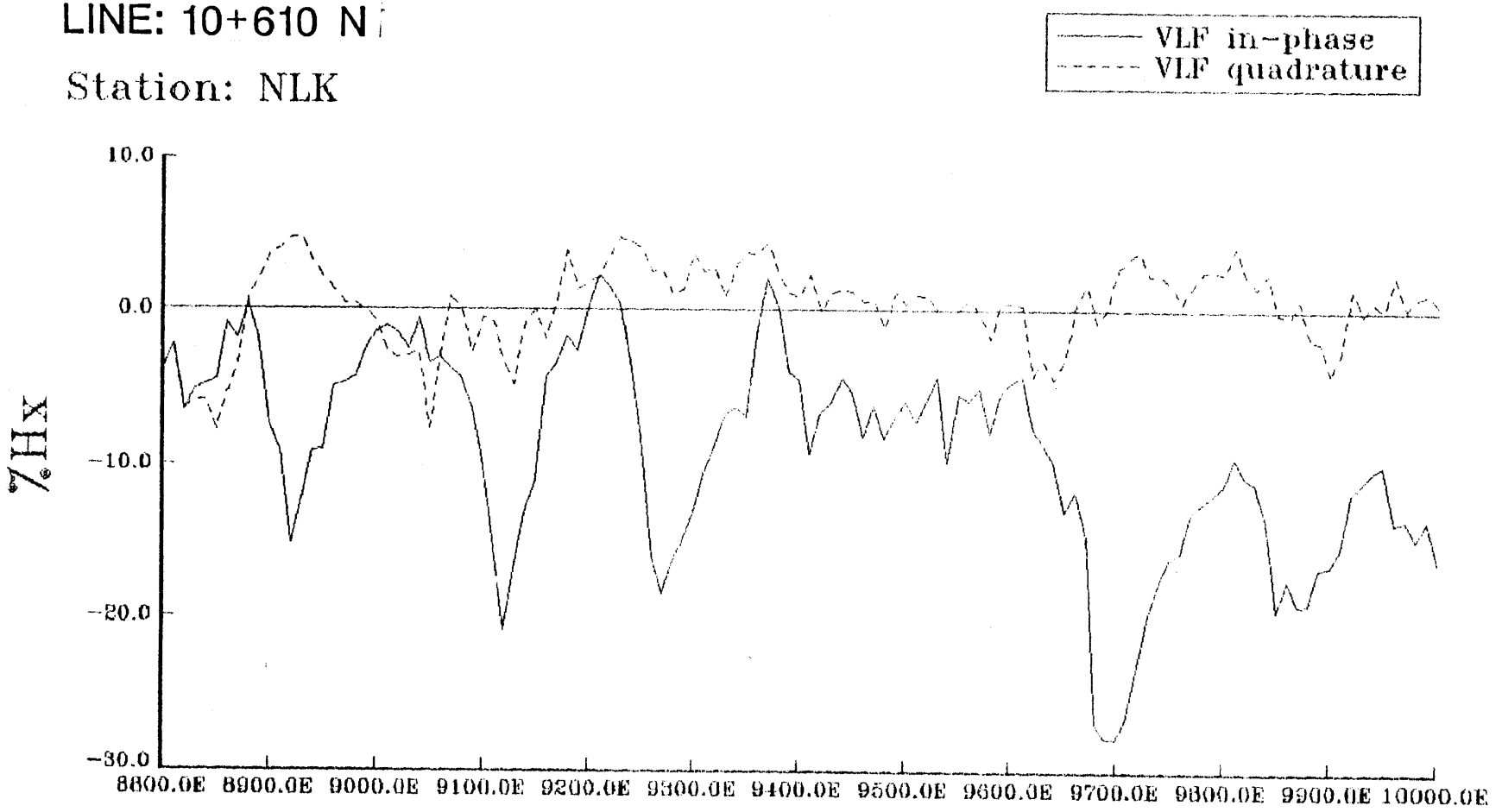

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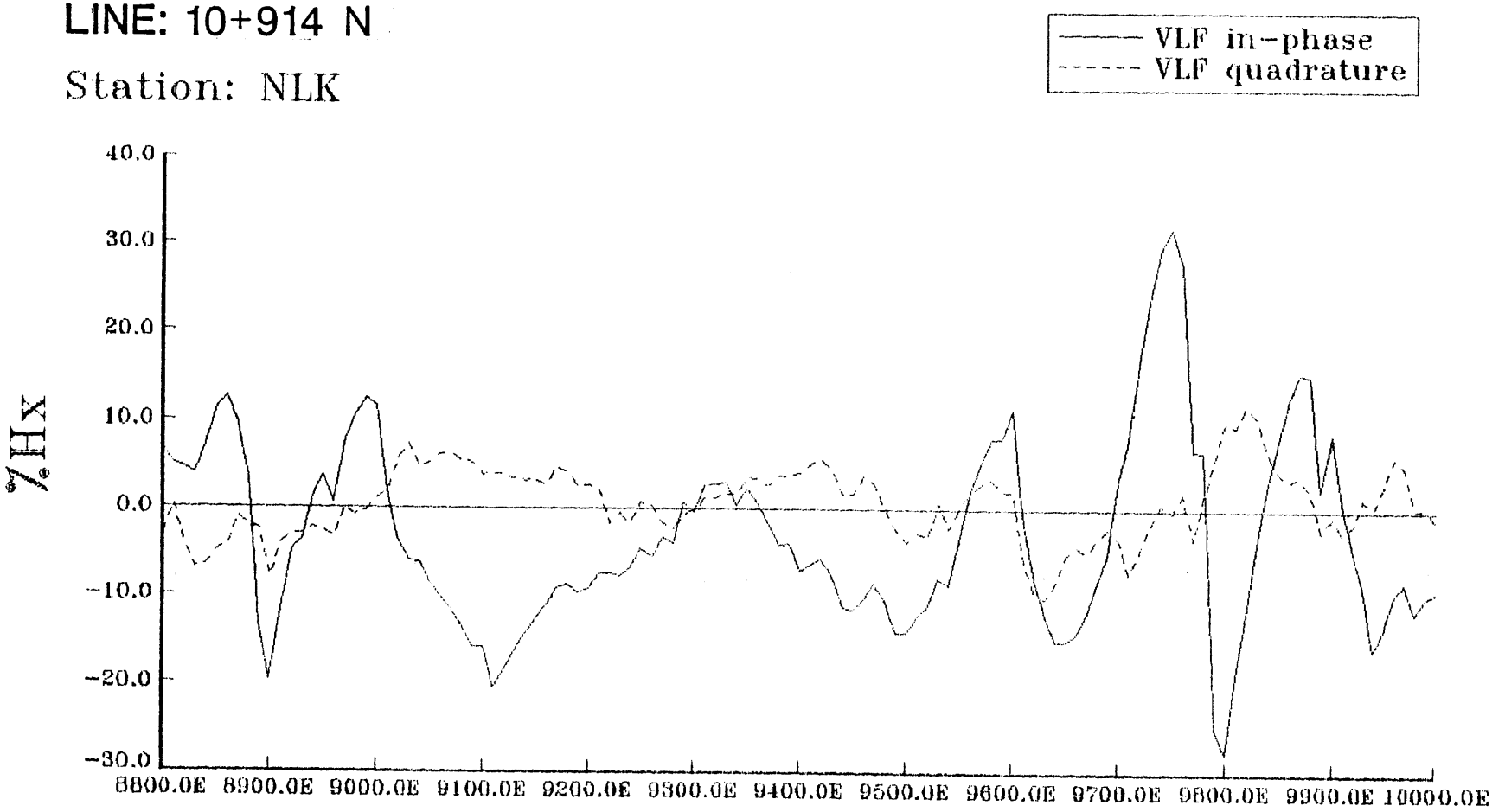
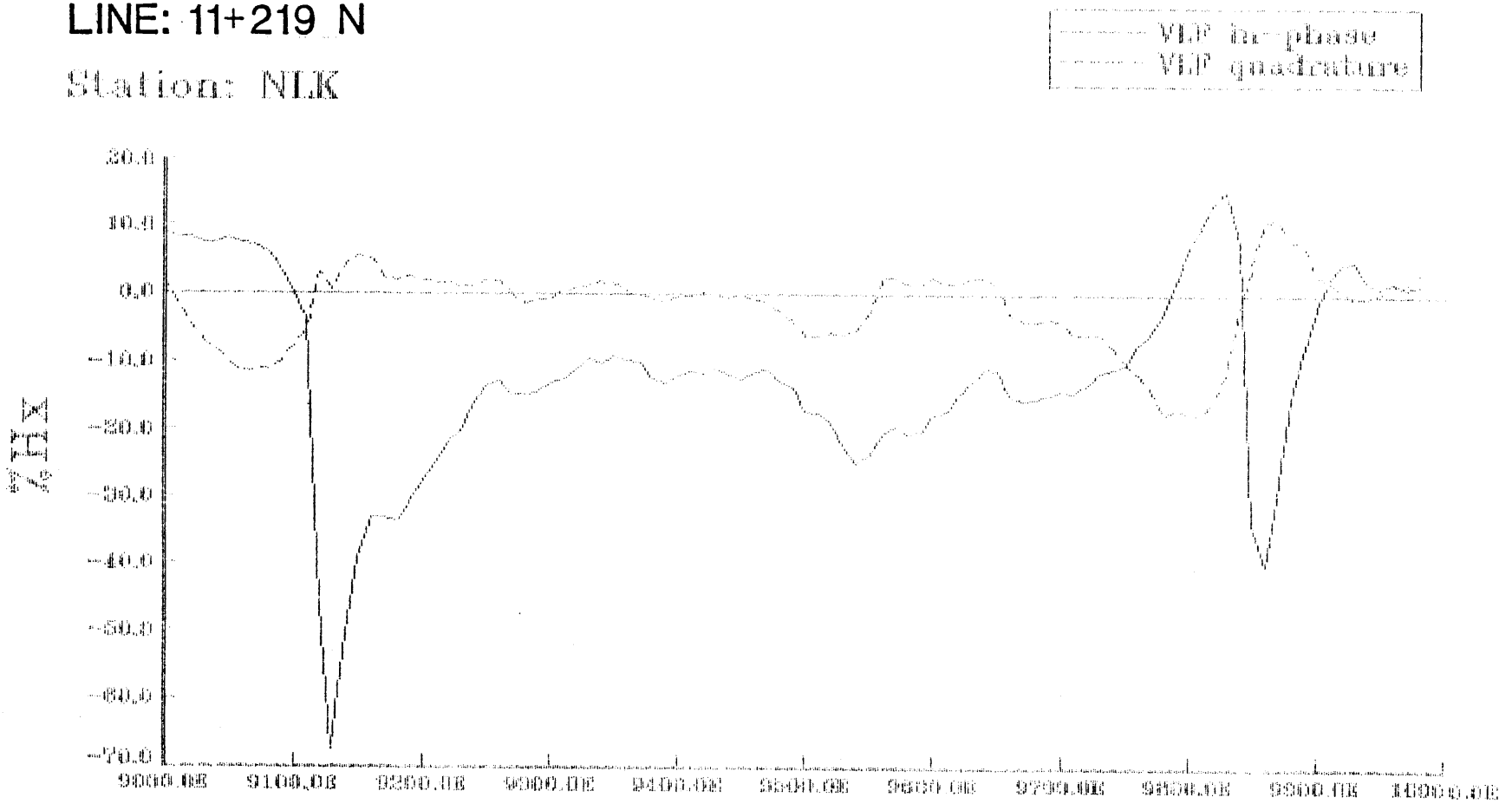


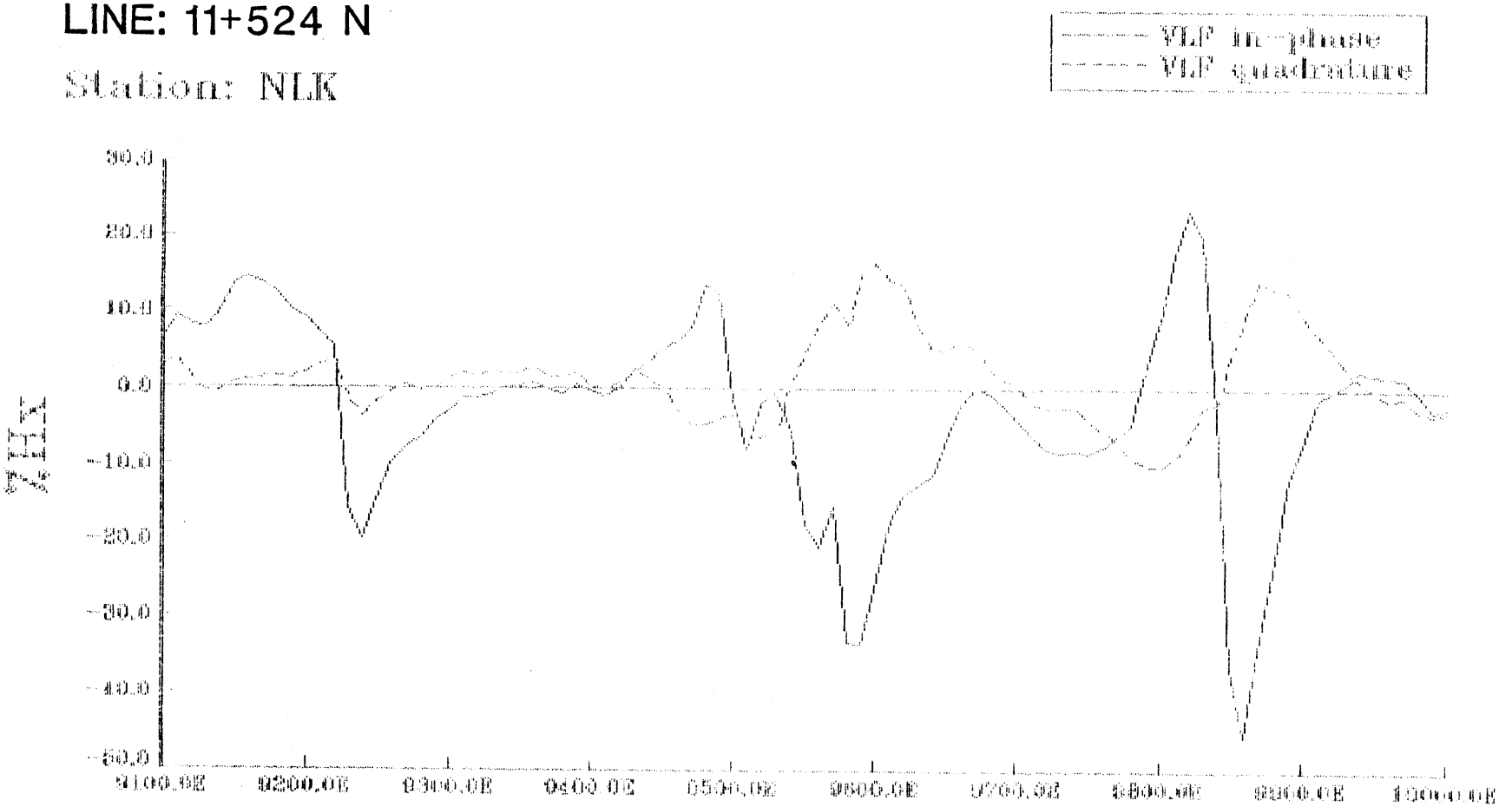
LINE: 11+219 N

Station: NLK



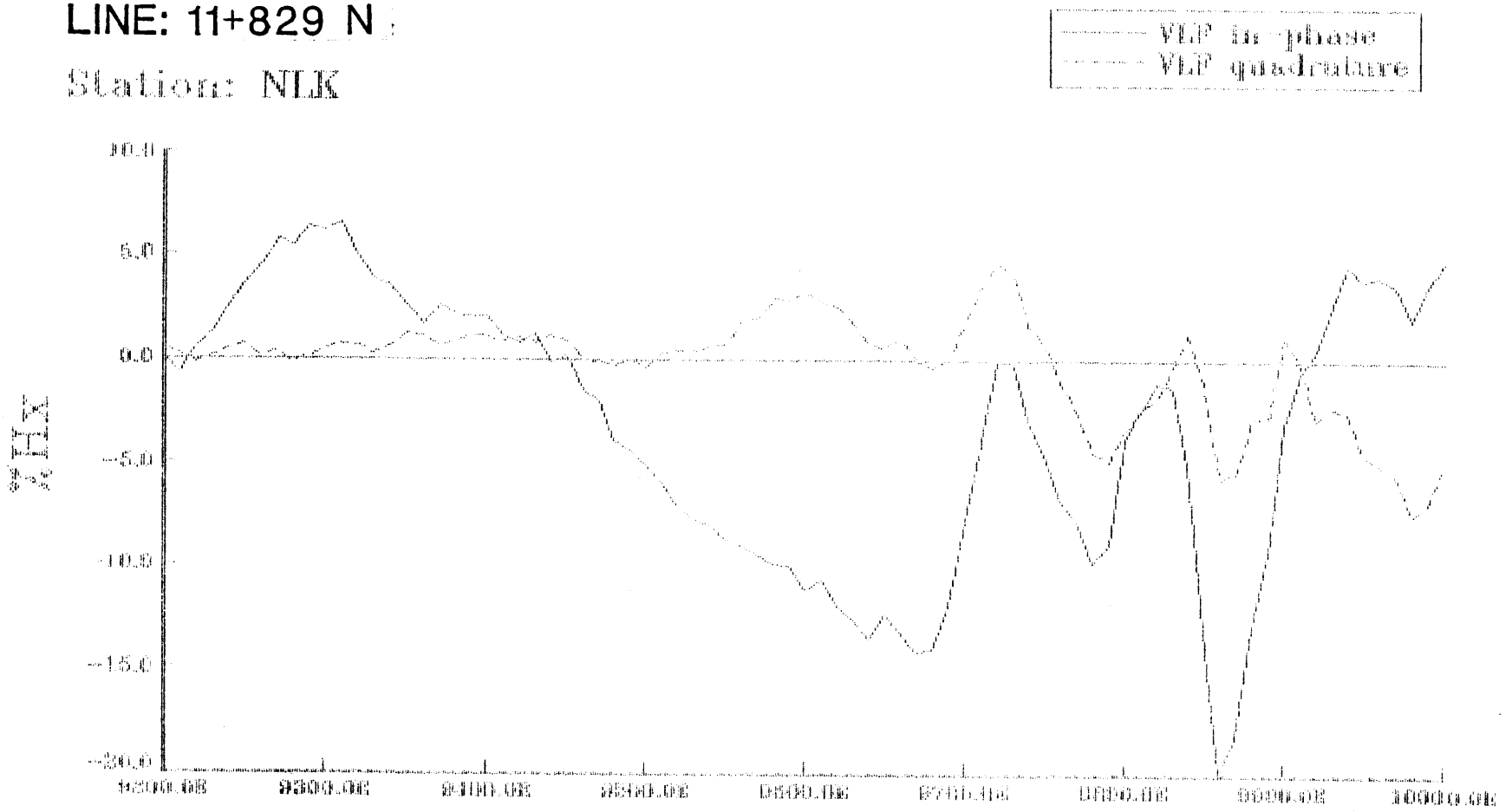
LINE: 11+524 N

Station: NLK



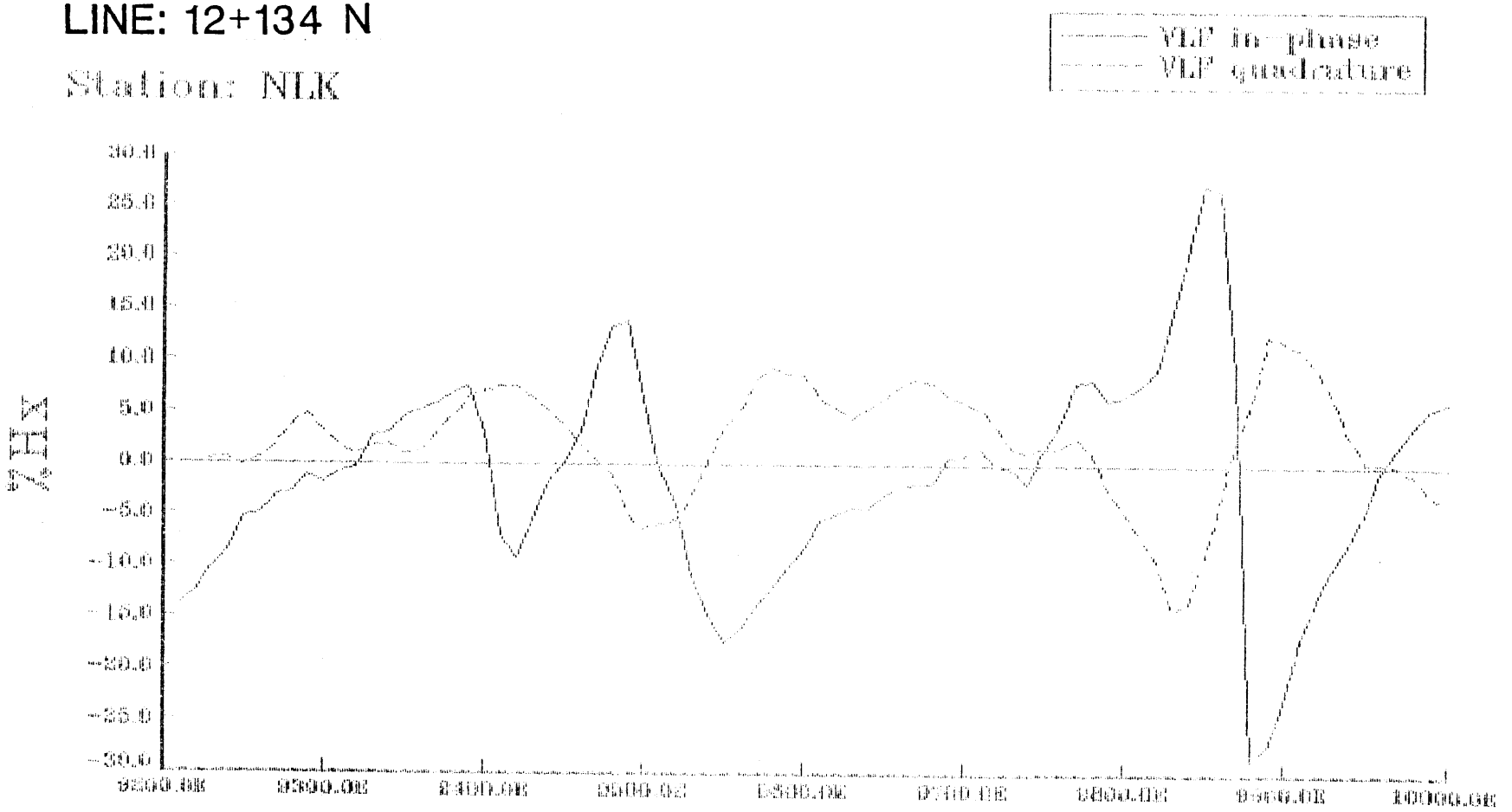
LINE: 11+829 N

Station: NLK



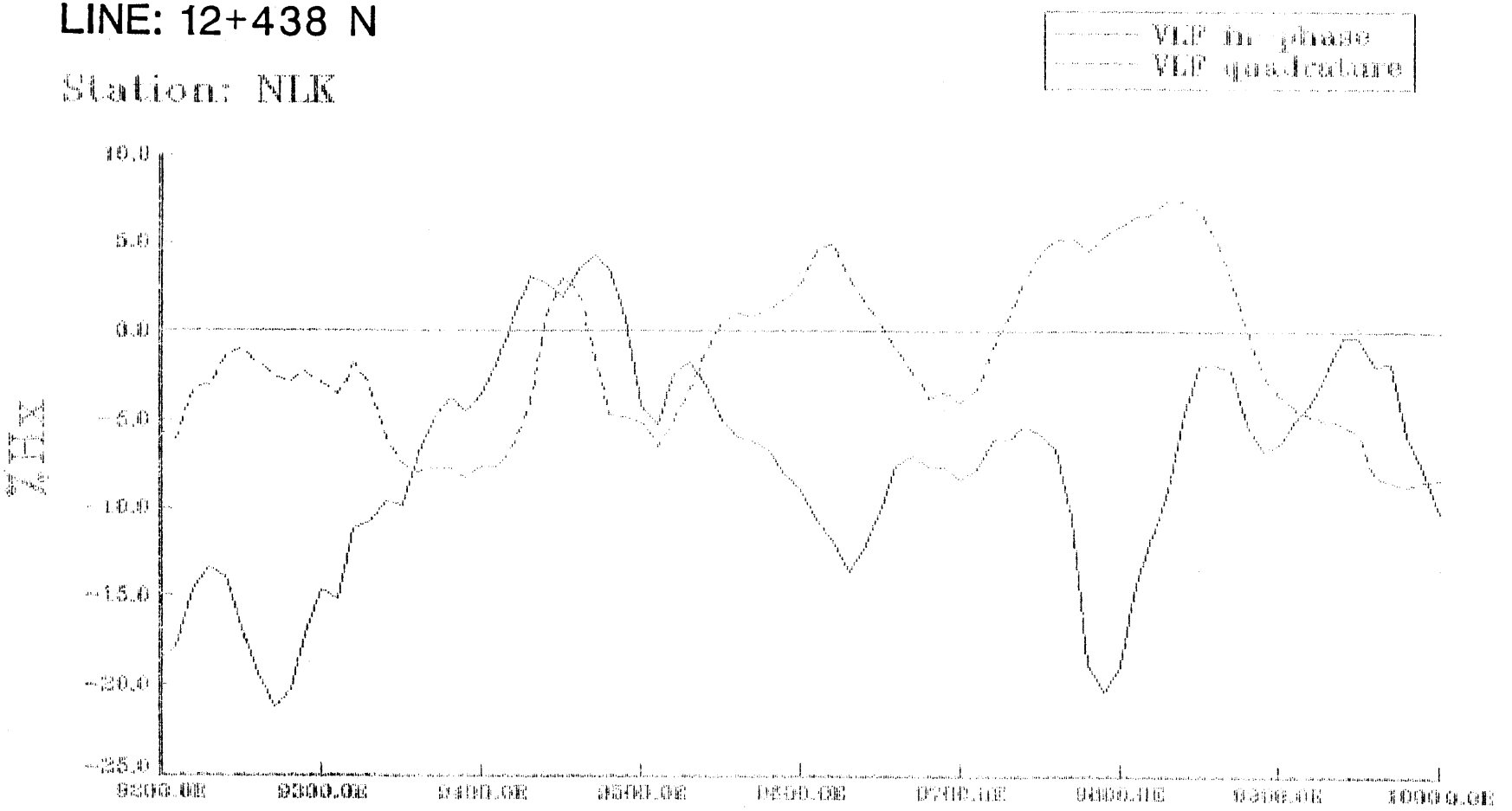
LINE: 12+134 N

Station: NLK



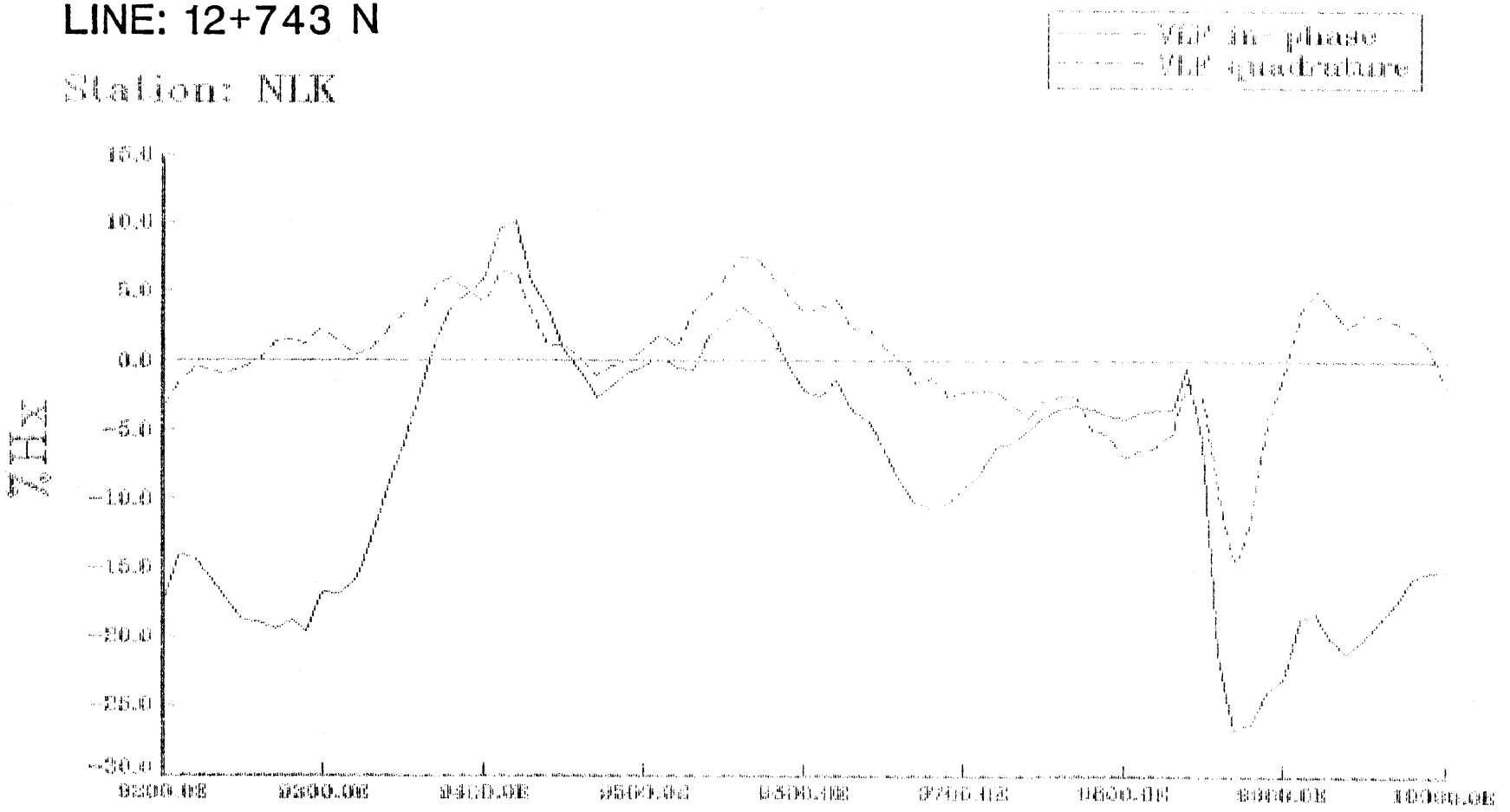
LINE: 12+438 N

Station: NLK



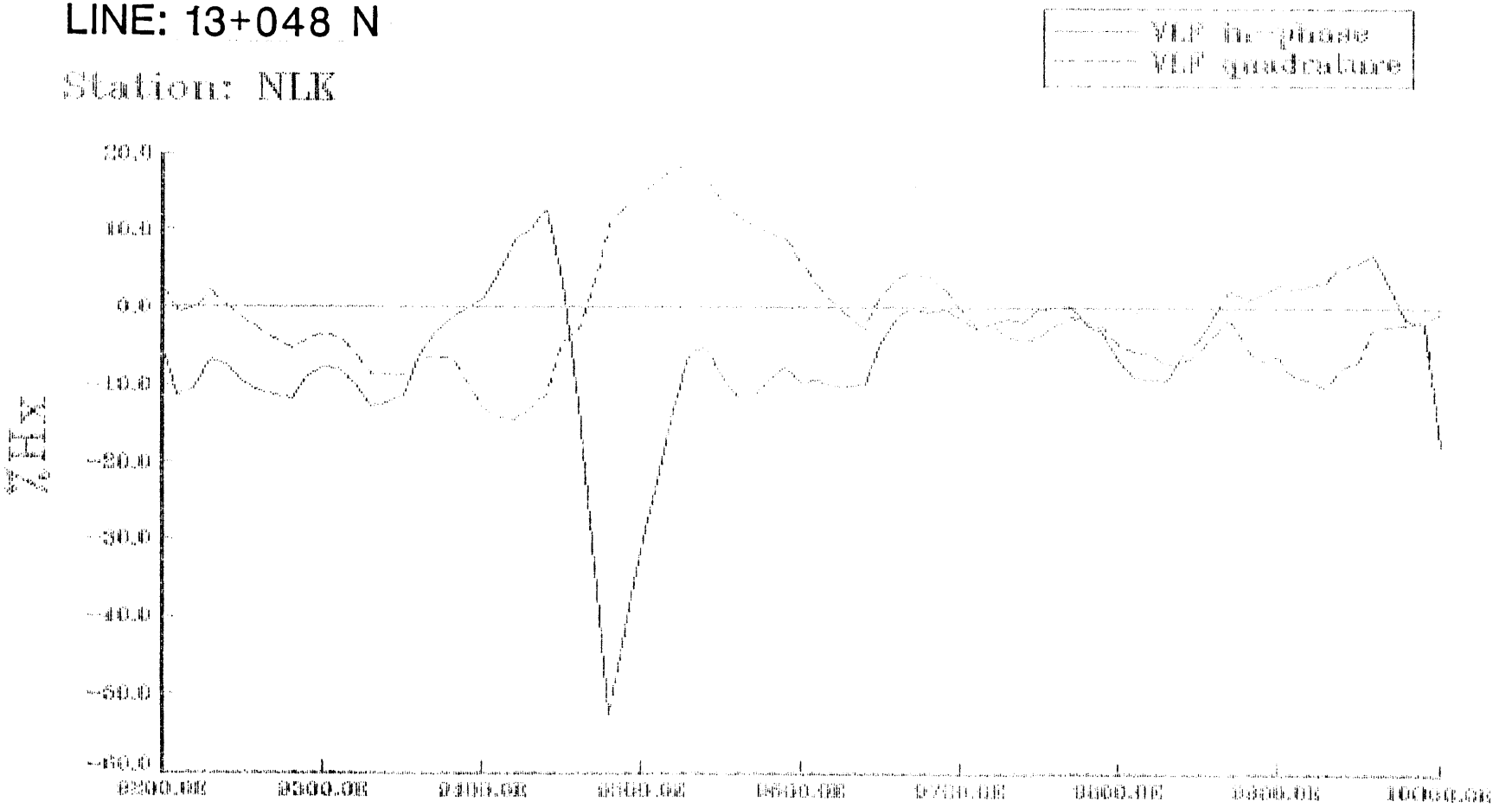
LINE: 12+743 N

Station: NLK



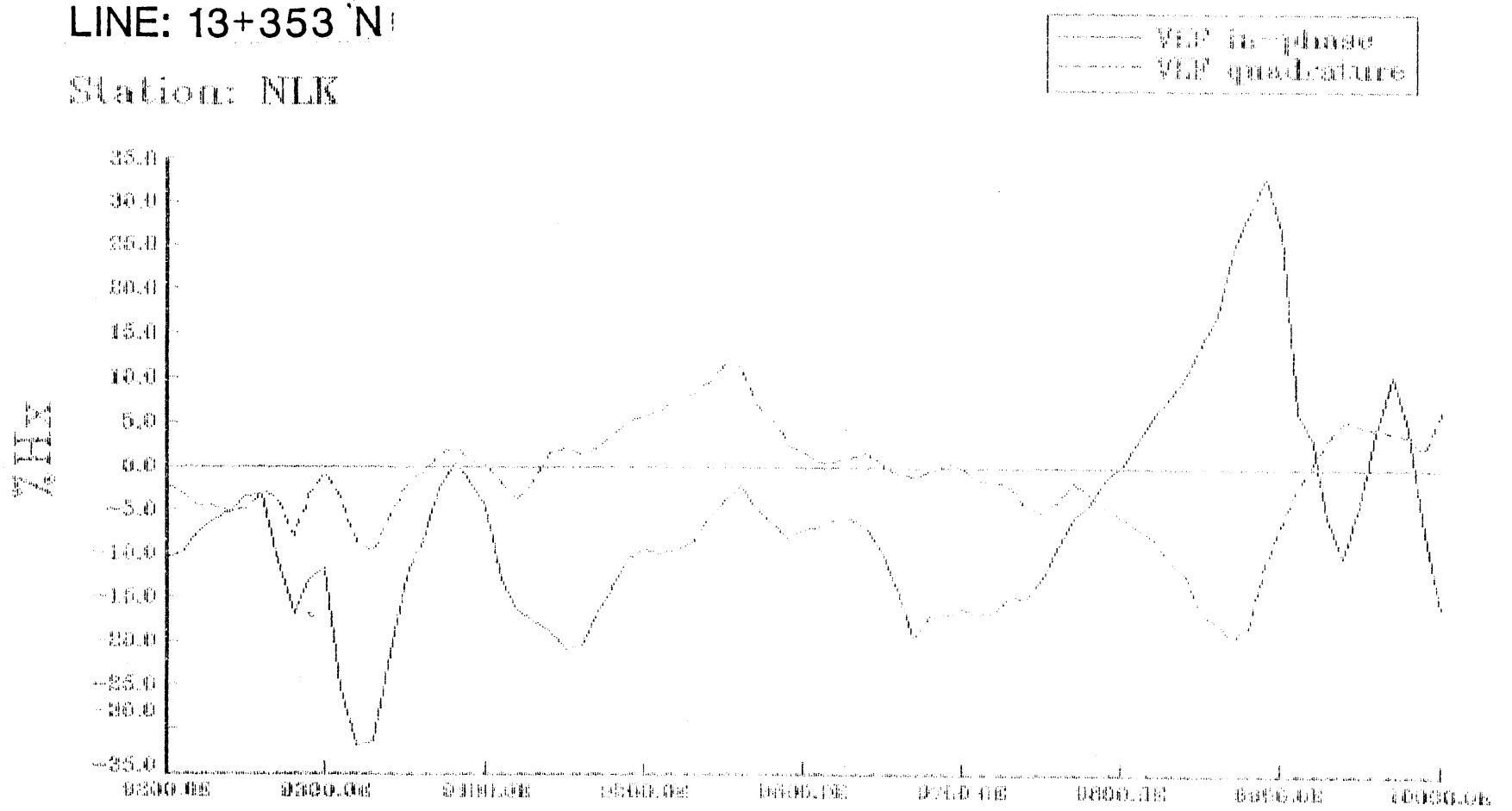
LINE: 13+048 N

Station: NLK



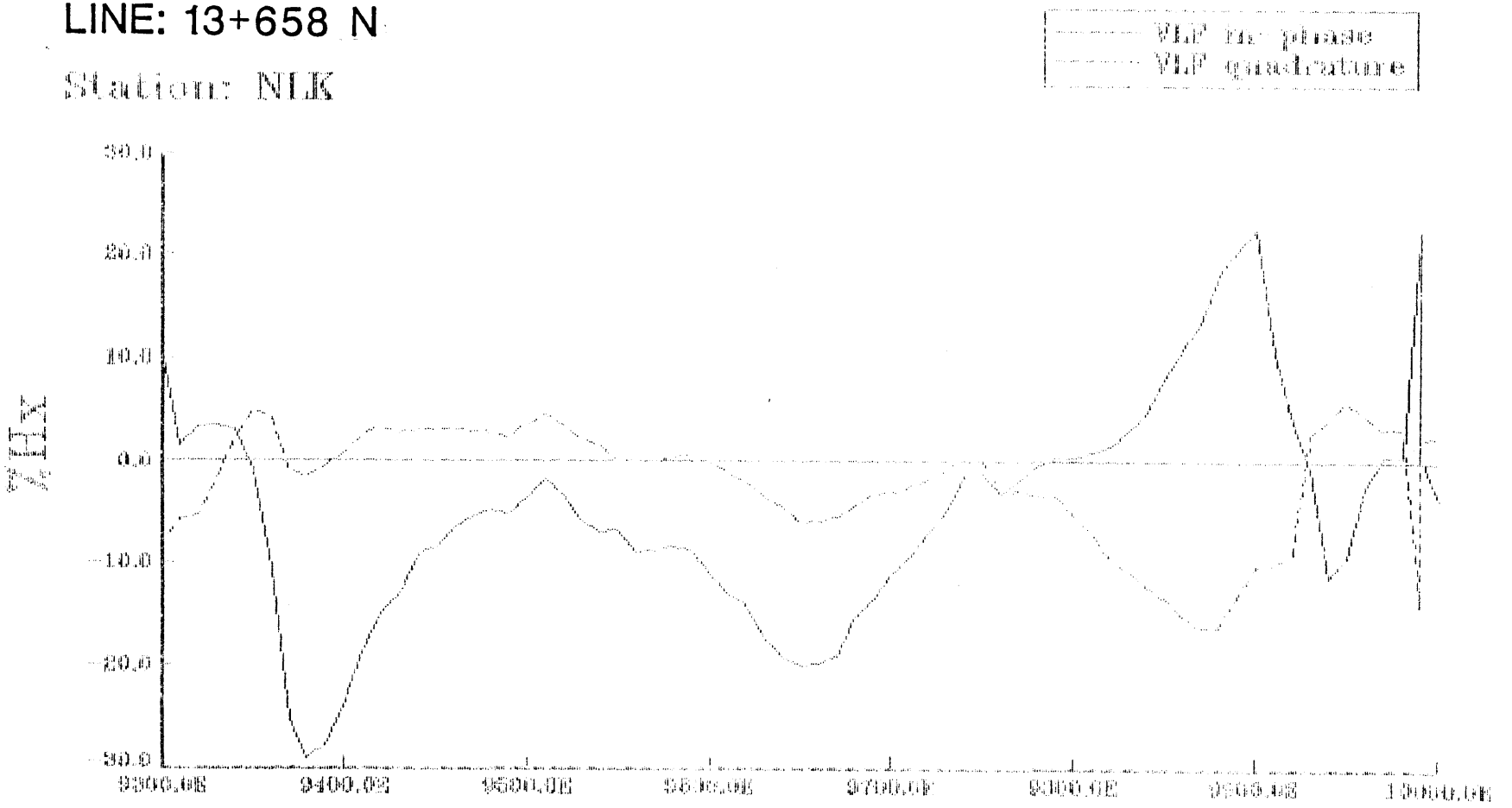
LINE: 13+353 N

Station: NLK



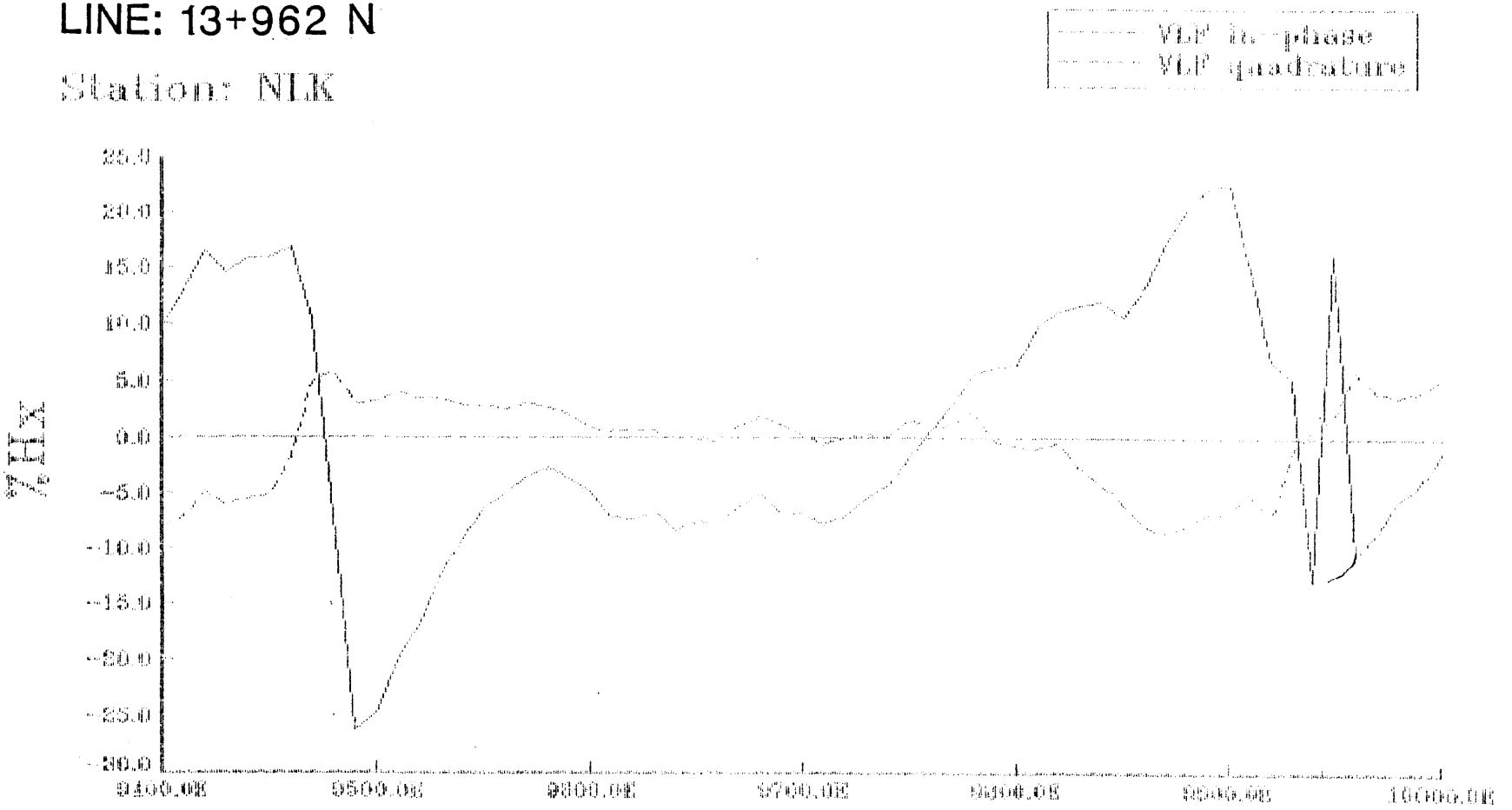
LINE: 13+658 N

Station: NLK



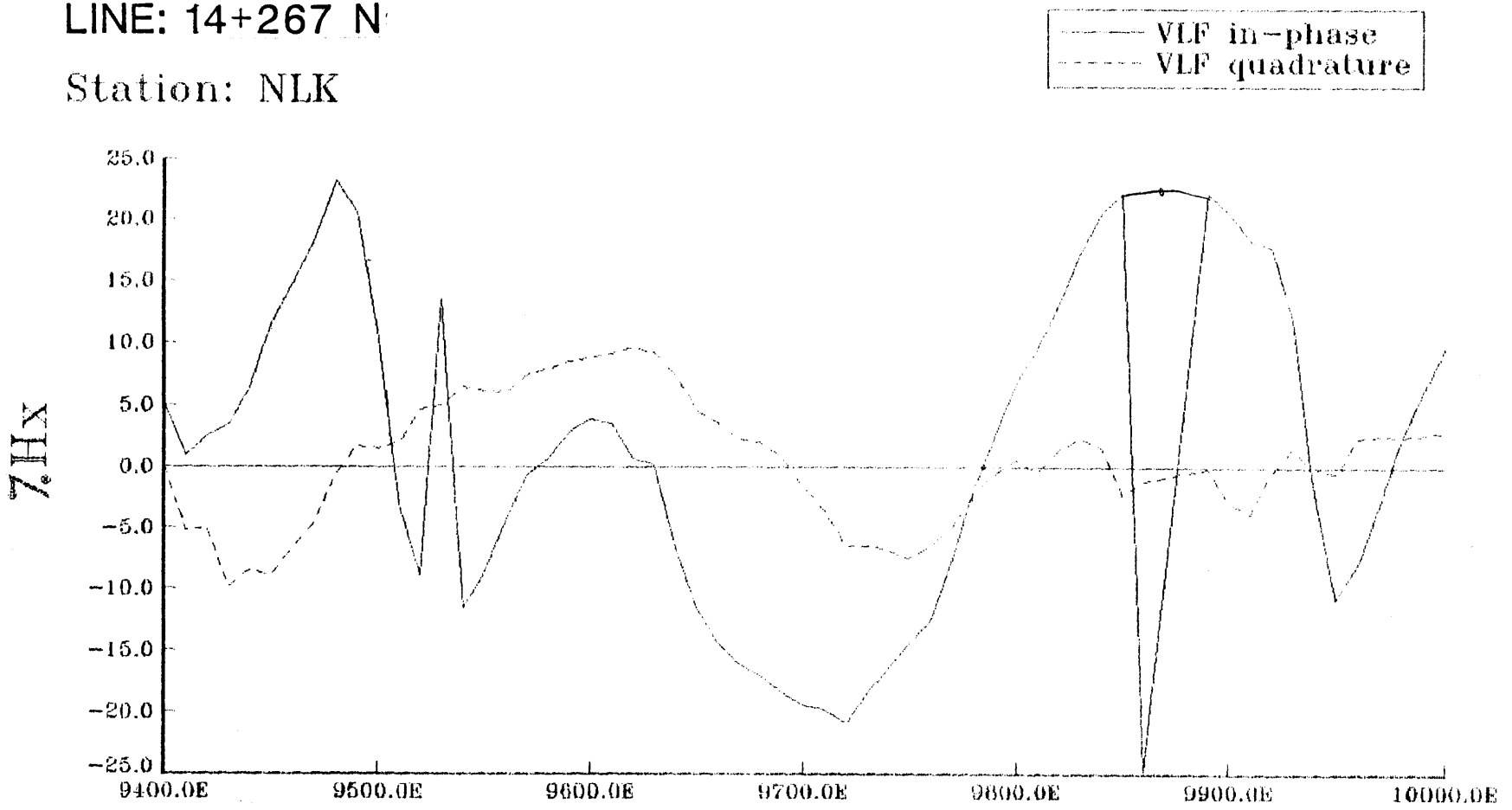
LINE: 13+962 N

Station: NLK



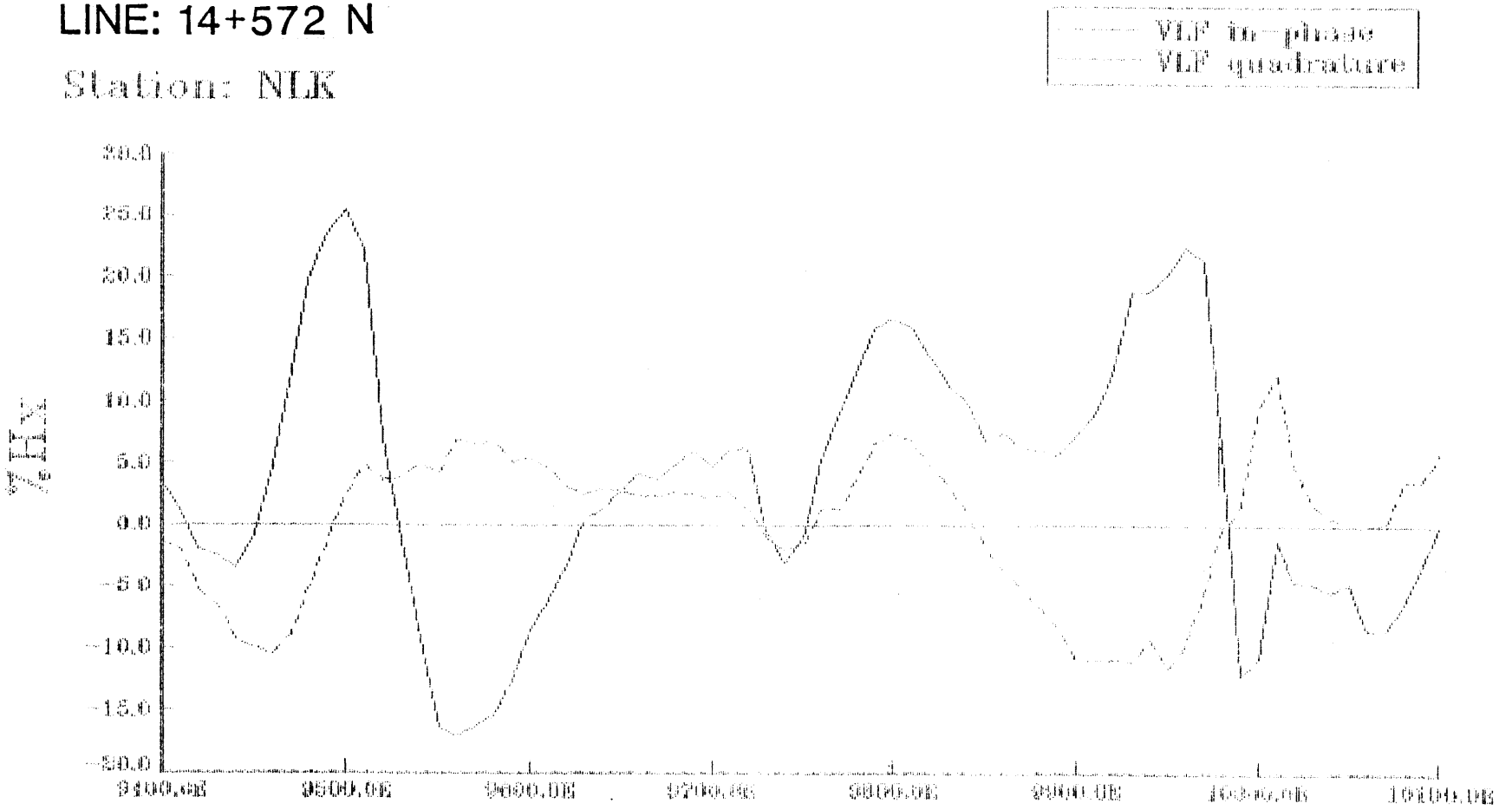
LINE: 14+267 N

Station: NLK



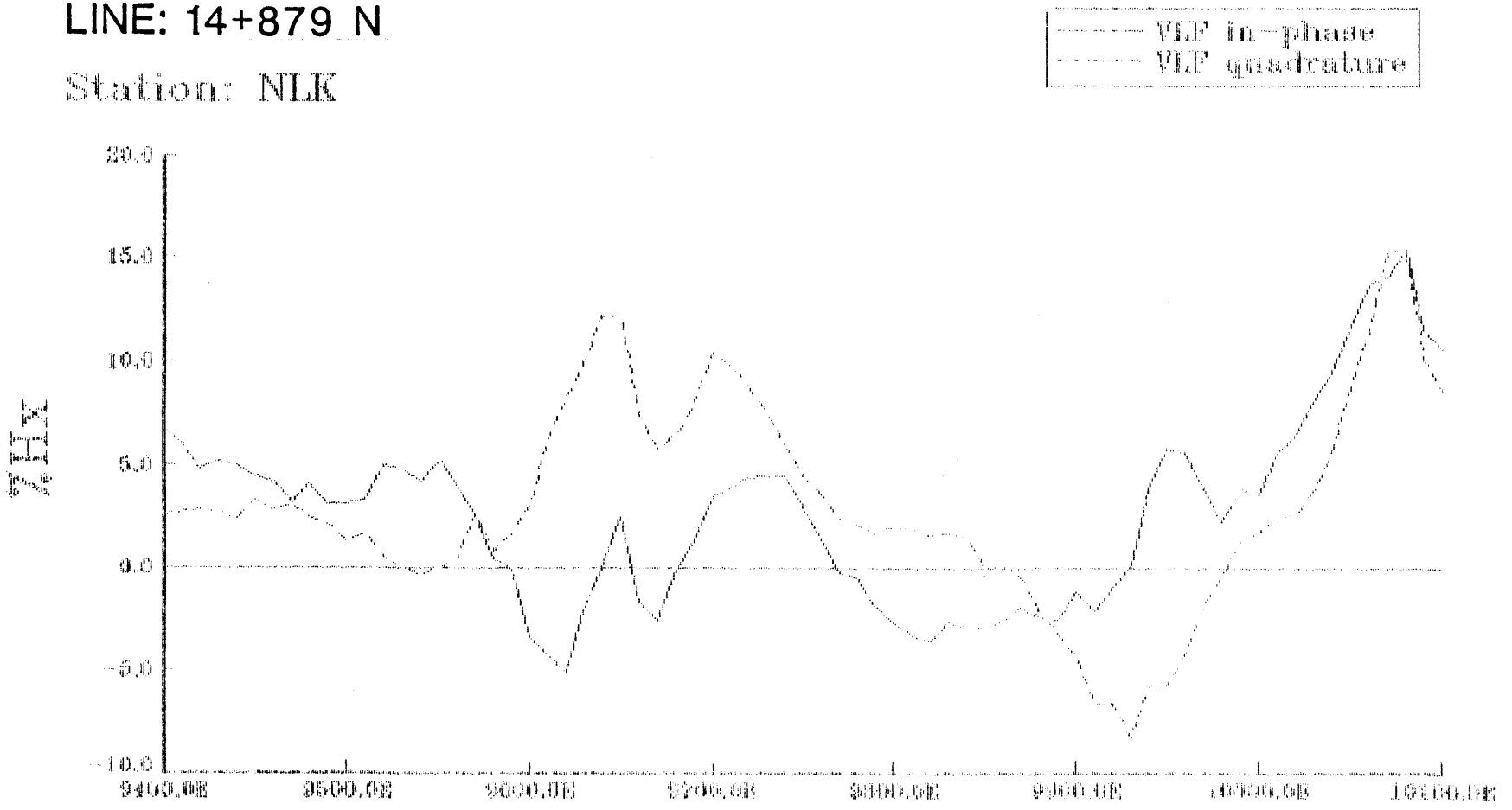
LINE: 14+572 N

Station: NLK

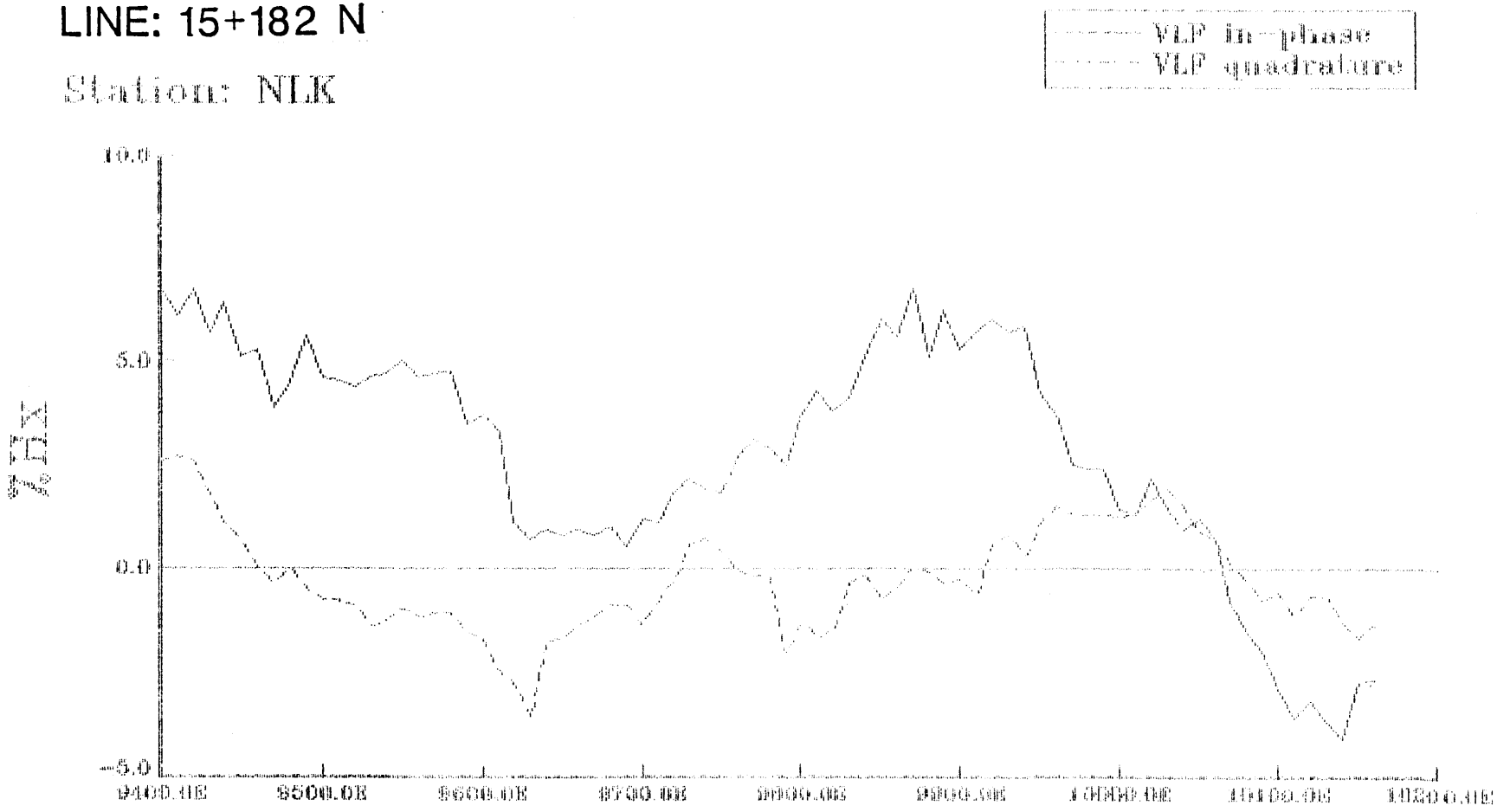


LINE: 14+879 N

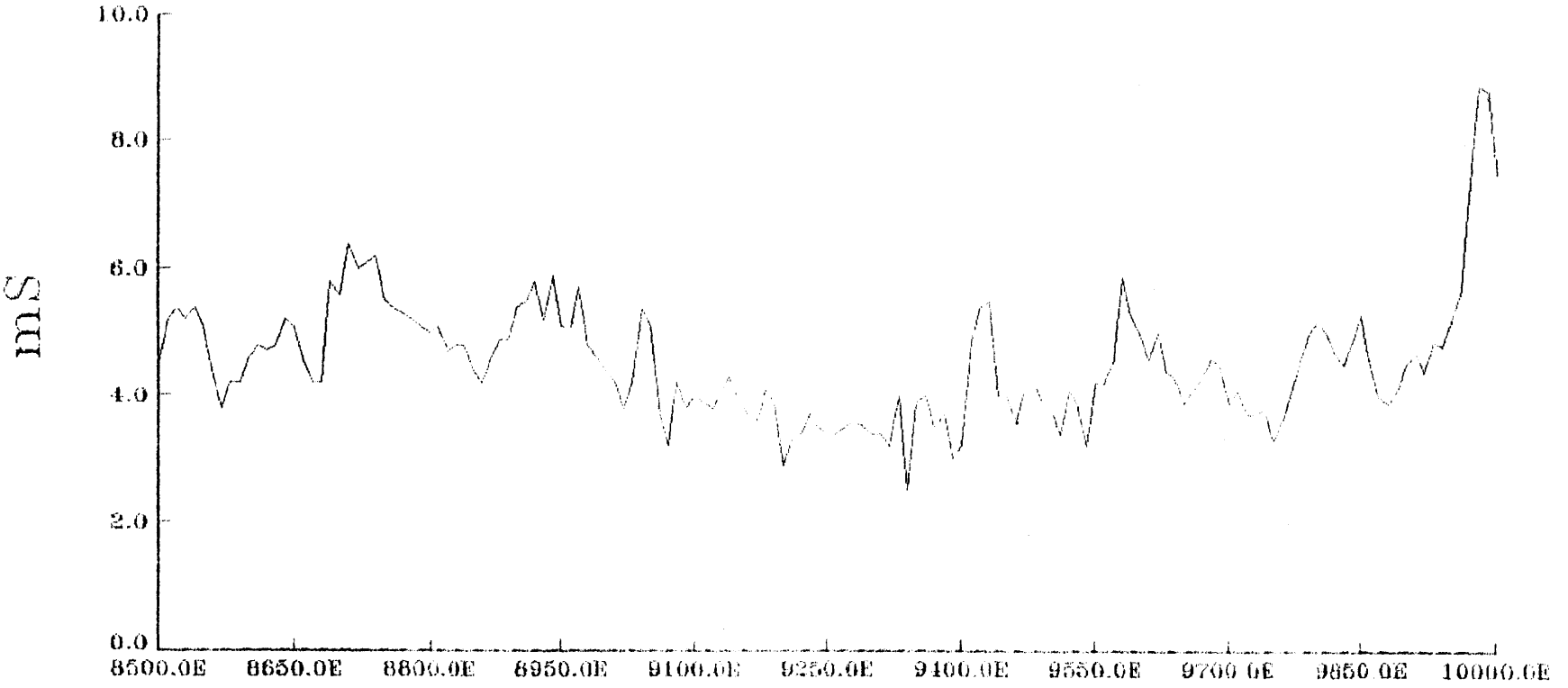
Station: NLK



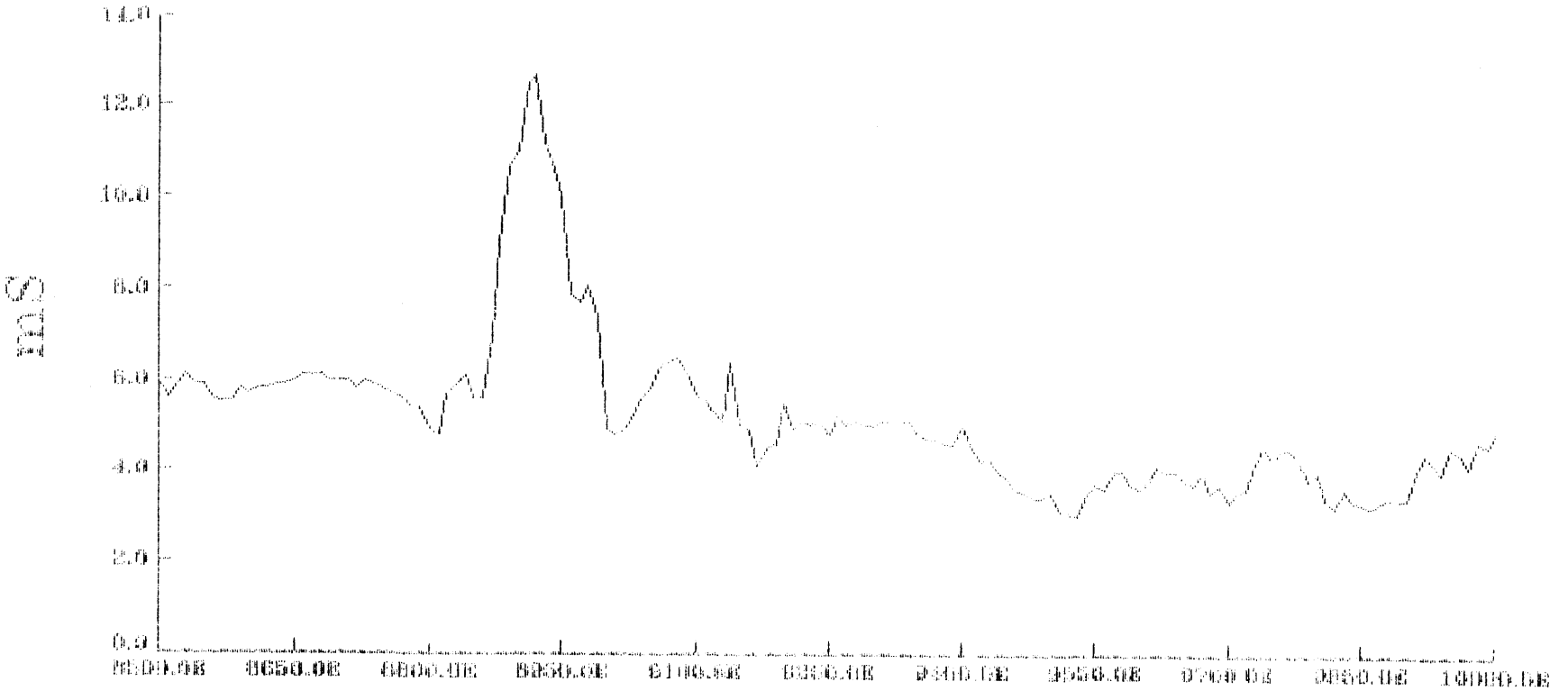
LINE: 15+182 N


Station: NLK
VLP in-phase
VLP quadrature
10.0
5.0
0.0
-5.0
%FSR
8400.0E
8500.0E
8600.0E
8700.0E
8800.0E
8900.0E
9000.0E
9100.0E
9200.0E

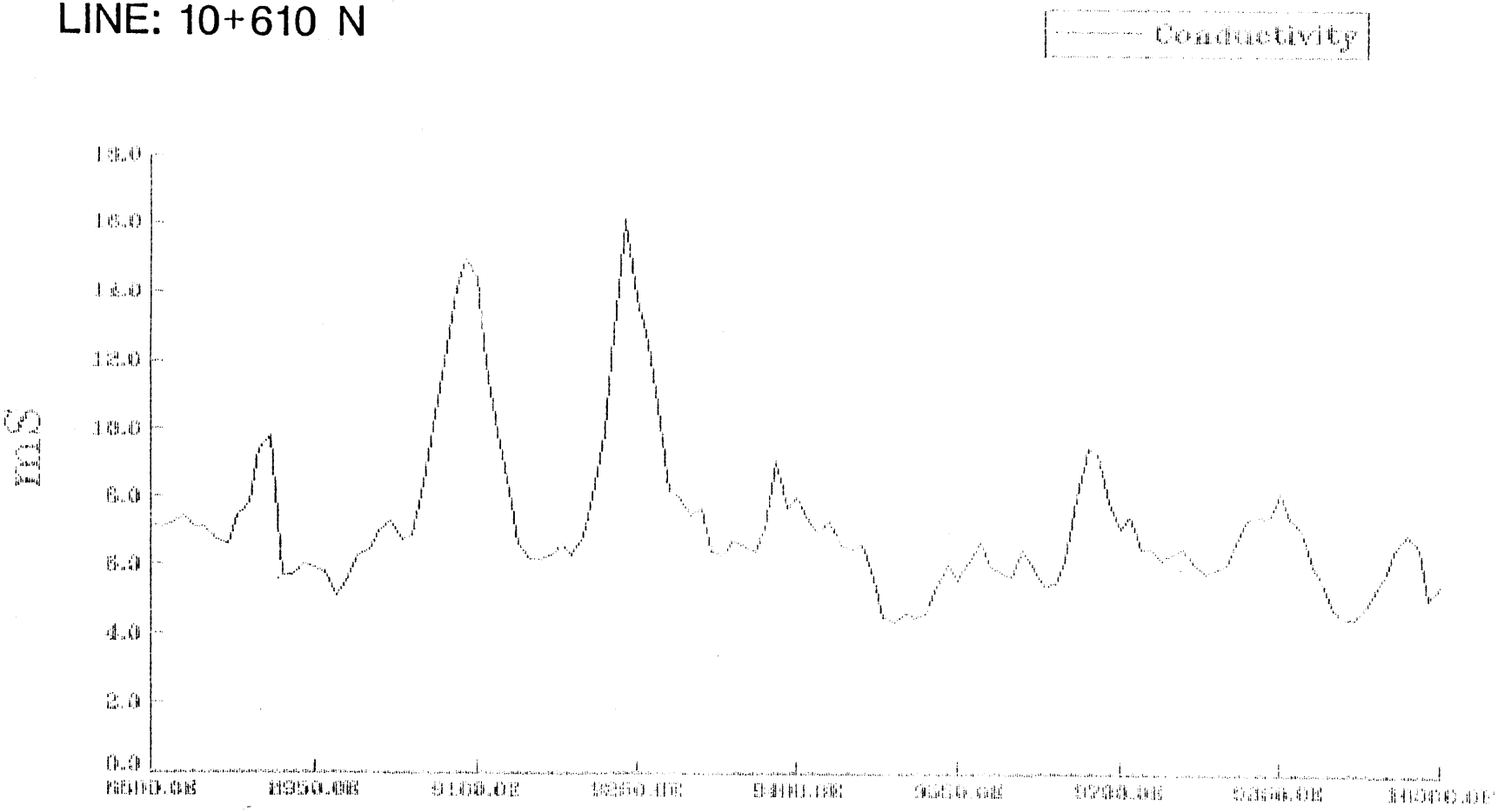
LINE: 10+000 N


Conductivity
mS
10.0
8.0
6.0
4.0
2.0
0.0
8500.0E
8650.0E
8800.0E
8950.0E
9100.0E
9250.0E
9400.0E
9550.0E
9700.0E
9850.0E
10000.0E

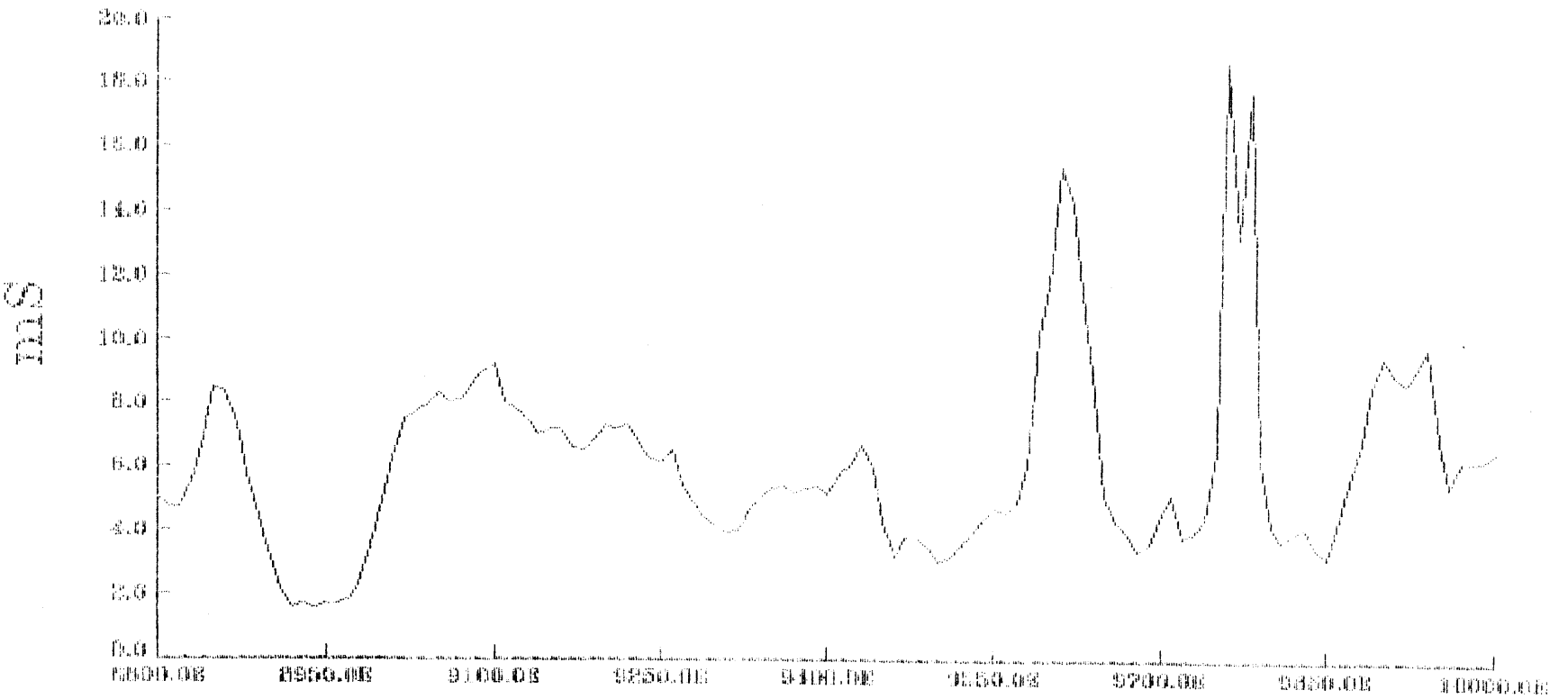
LINE: 10+305 N



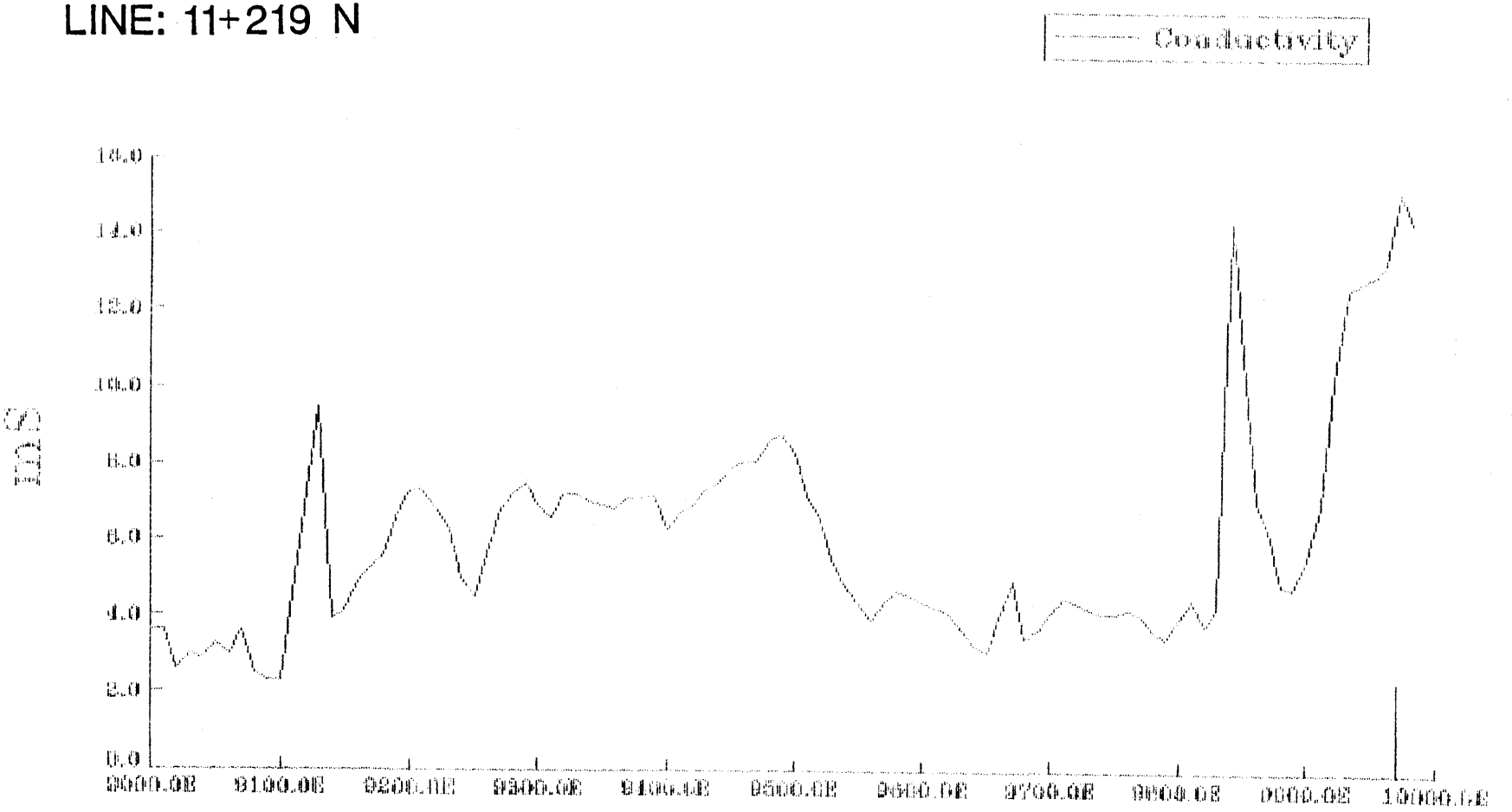
LINE: 10+610 N



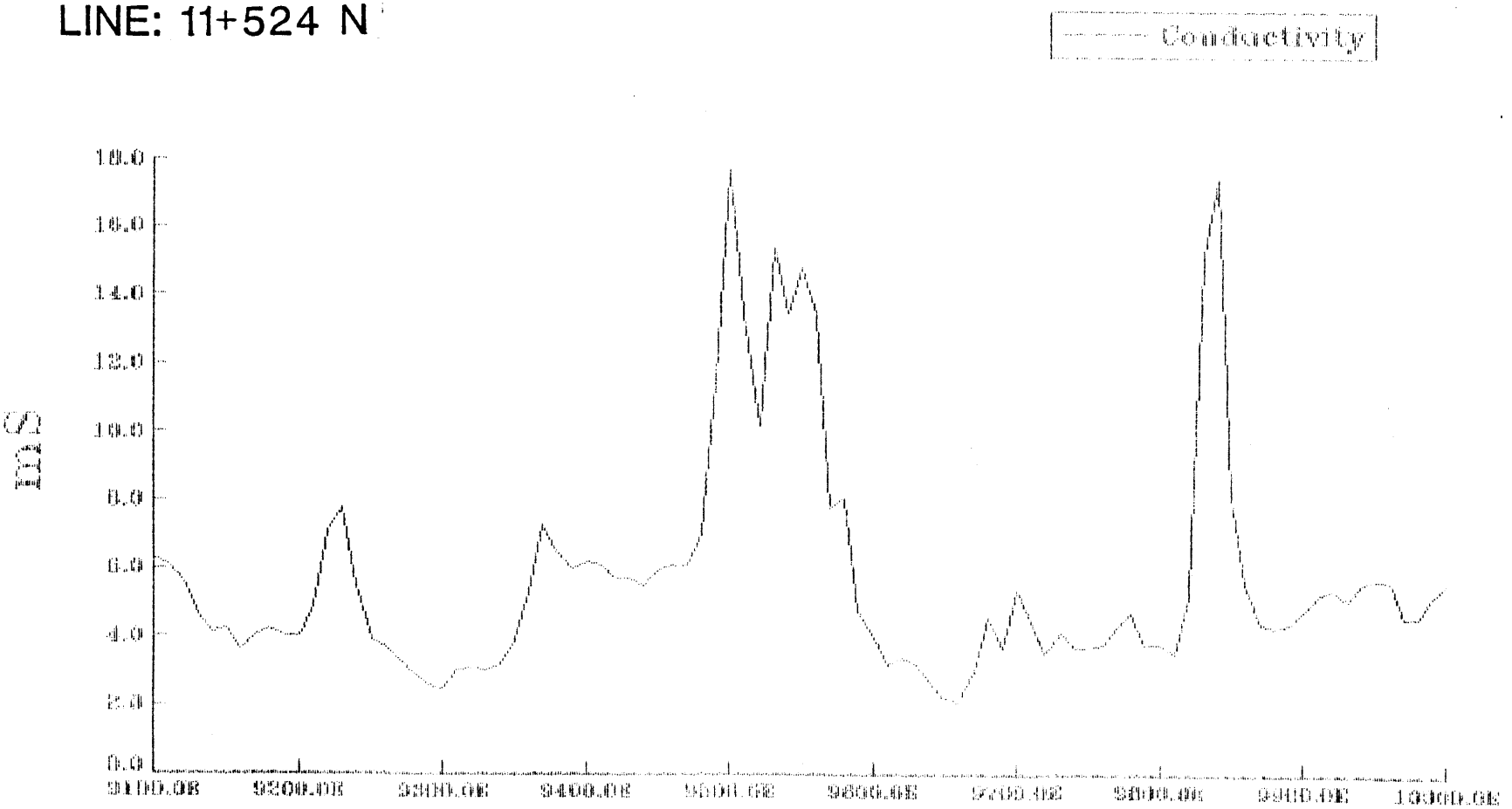
LINE: 10+914 N



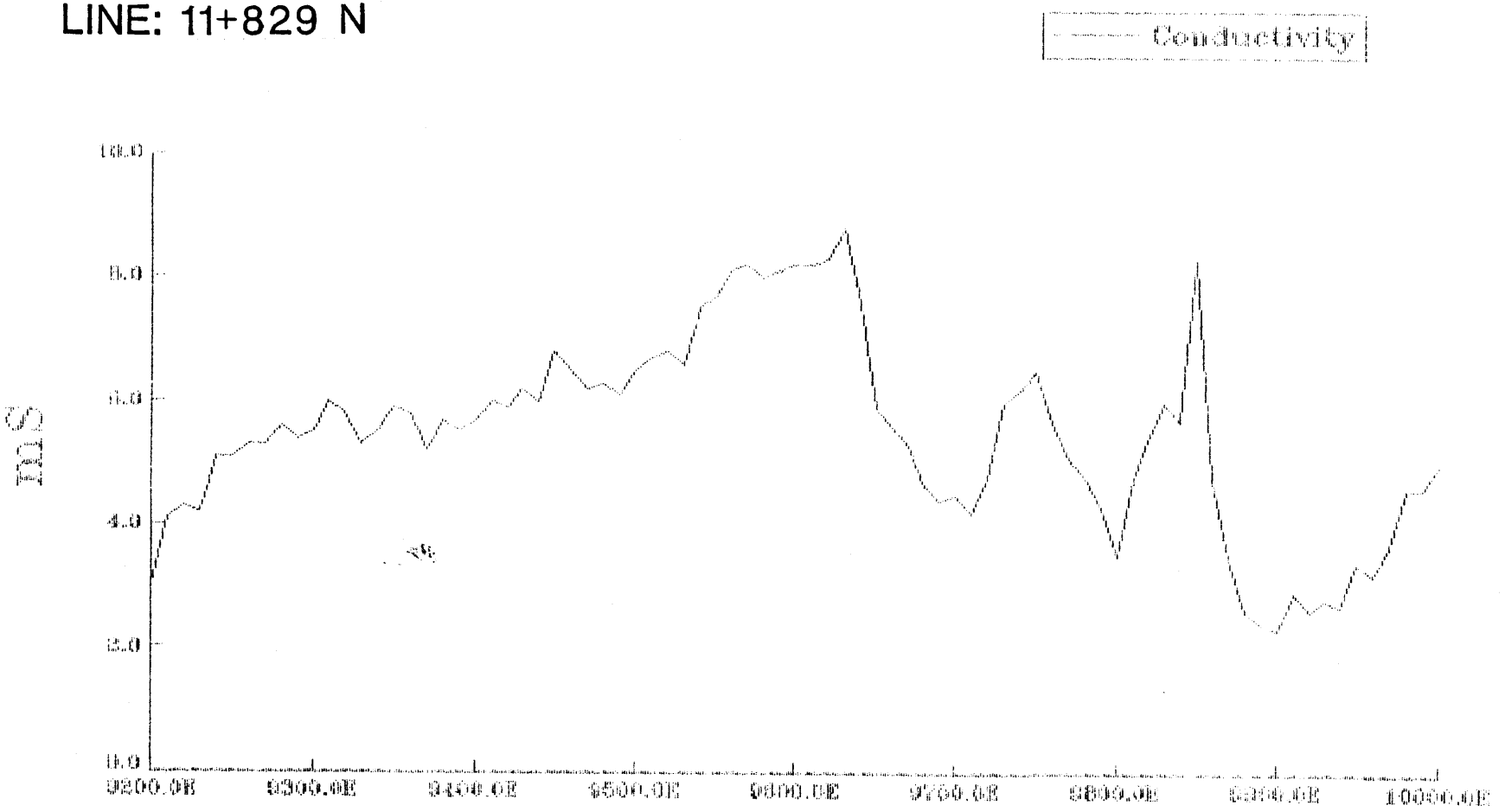
LINE: 11+219 N


Conductivity
mS
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
9000.0E
9100.0E
9200.0E
9300.0E
9400.0E
9500.0E
9600.0E
9700.0E
9800.0E
9900.0E
10000.0E

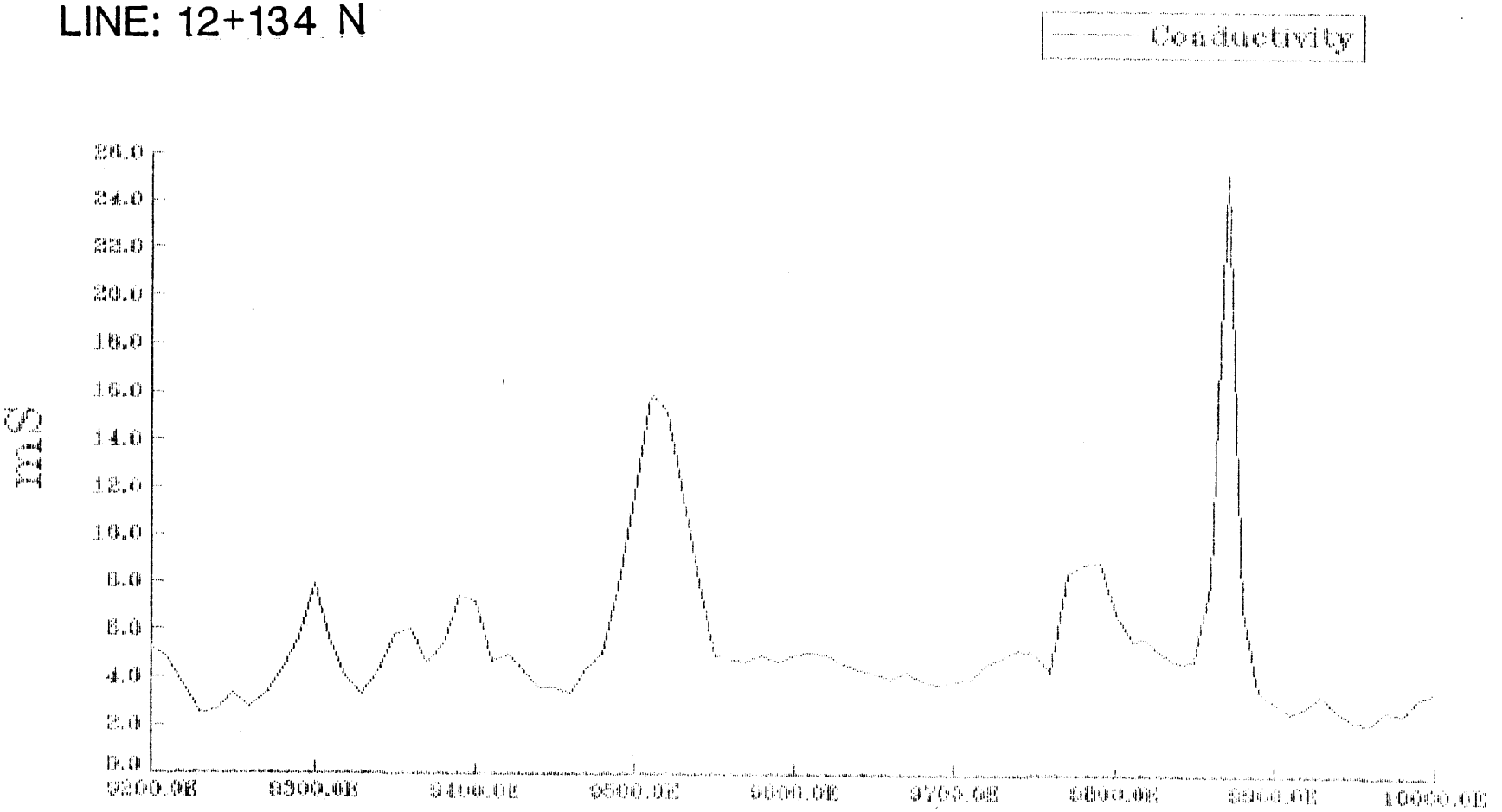
LINE: 11+524 N


Conductivity
mS
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
9200.00
9400.00

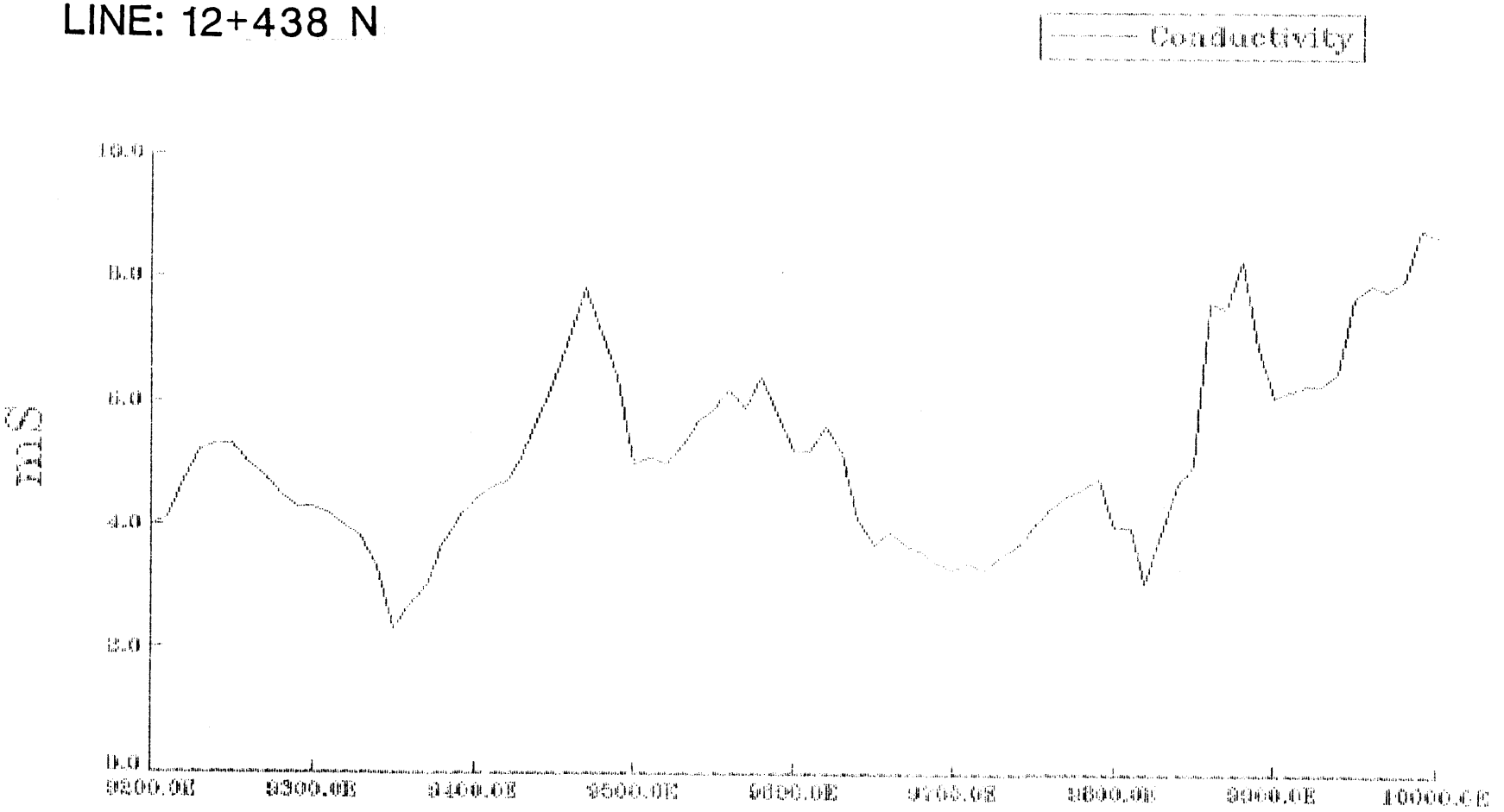
LINE: 11+829 N


Conductivity
mS/m
10.0
8.0
6.0
4.0
2.0
0.0
9200.0E
9300.0E
9400.0E
9500.0E
9600.0E
9700.0E
9800.0E
9900.0E
10000.0E

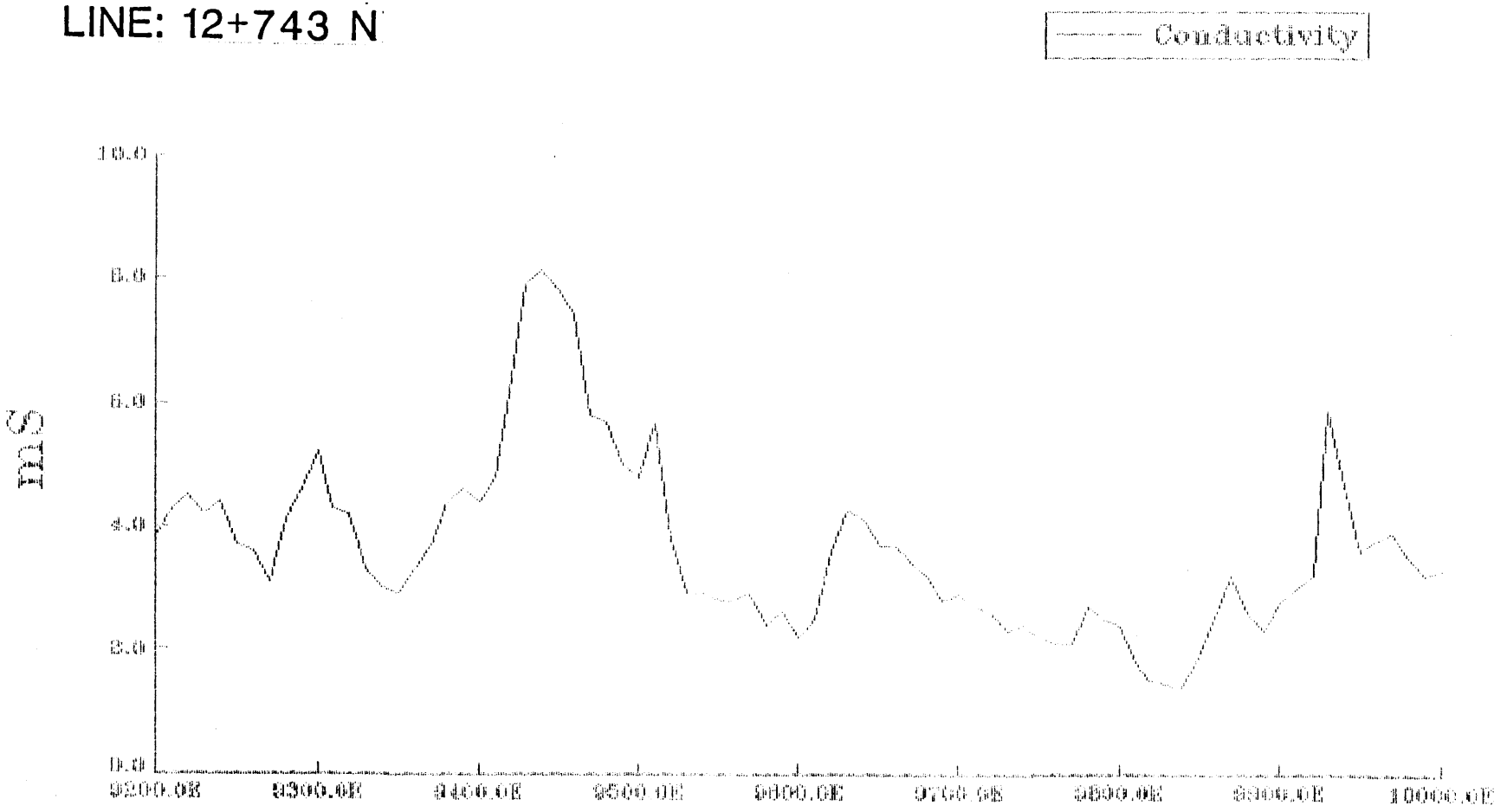
LINE: 12+134 N


Conductivity
mS
26.0
24.0
22.0
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
9200.0E
9300.0E
9400.0E
9500.0E
9600.0E
9700.0E
9800.0E
9900.0E
10000.0E

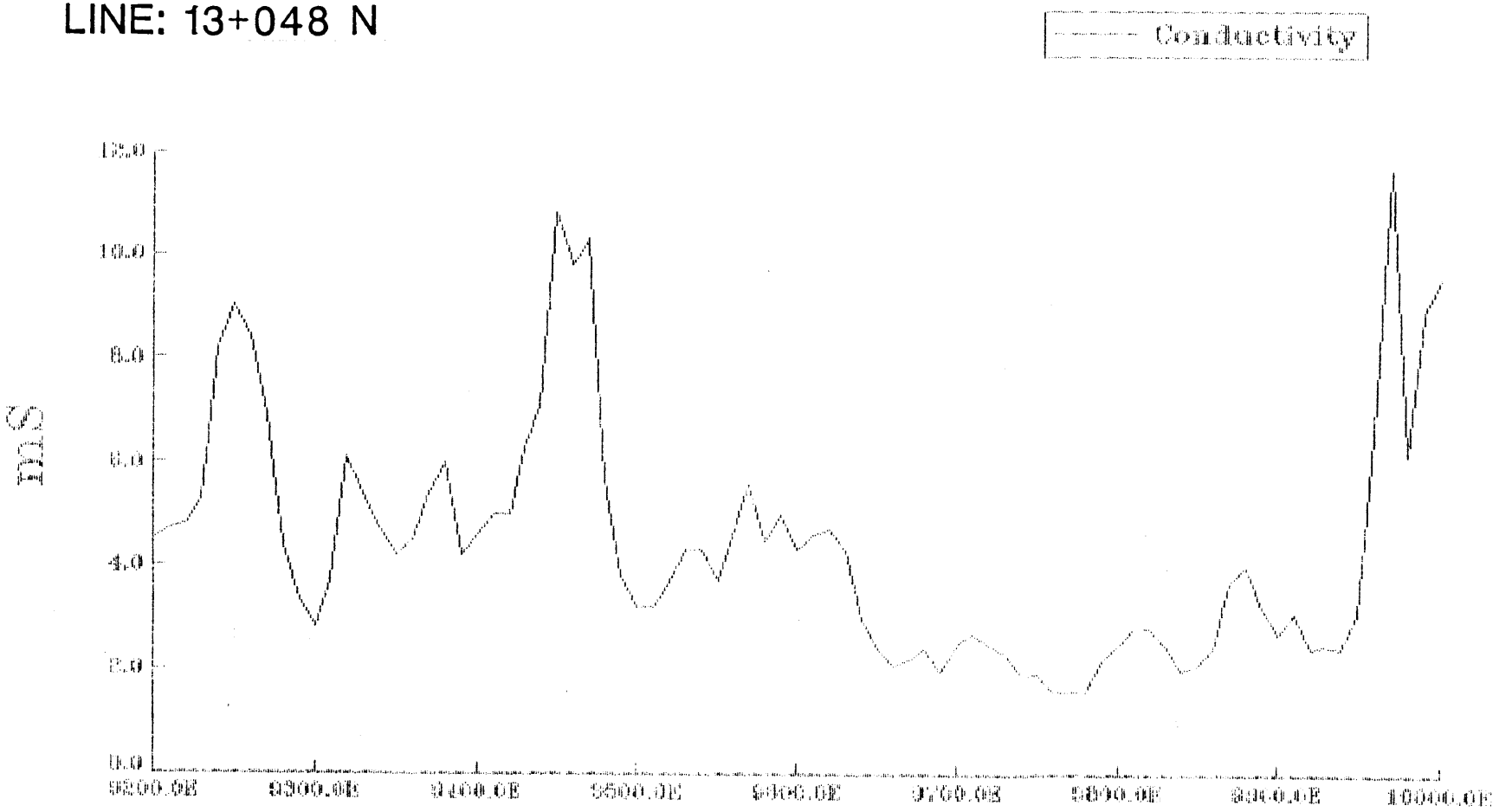
LINE: 12+438 N


Conductivity
mS/m
10.0
8.0
6.0
4.0
2.0
0.0
9200.0E
9300.0E
9400.0E
9500.0E
9600.0E
9700.0E
9800.0E
9900.0E
10000.0E

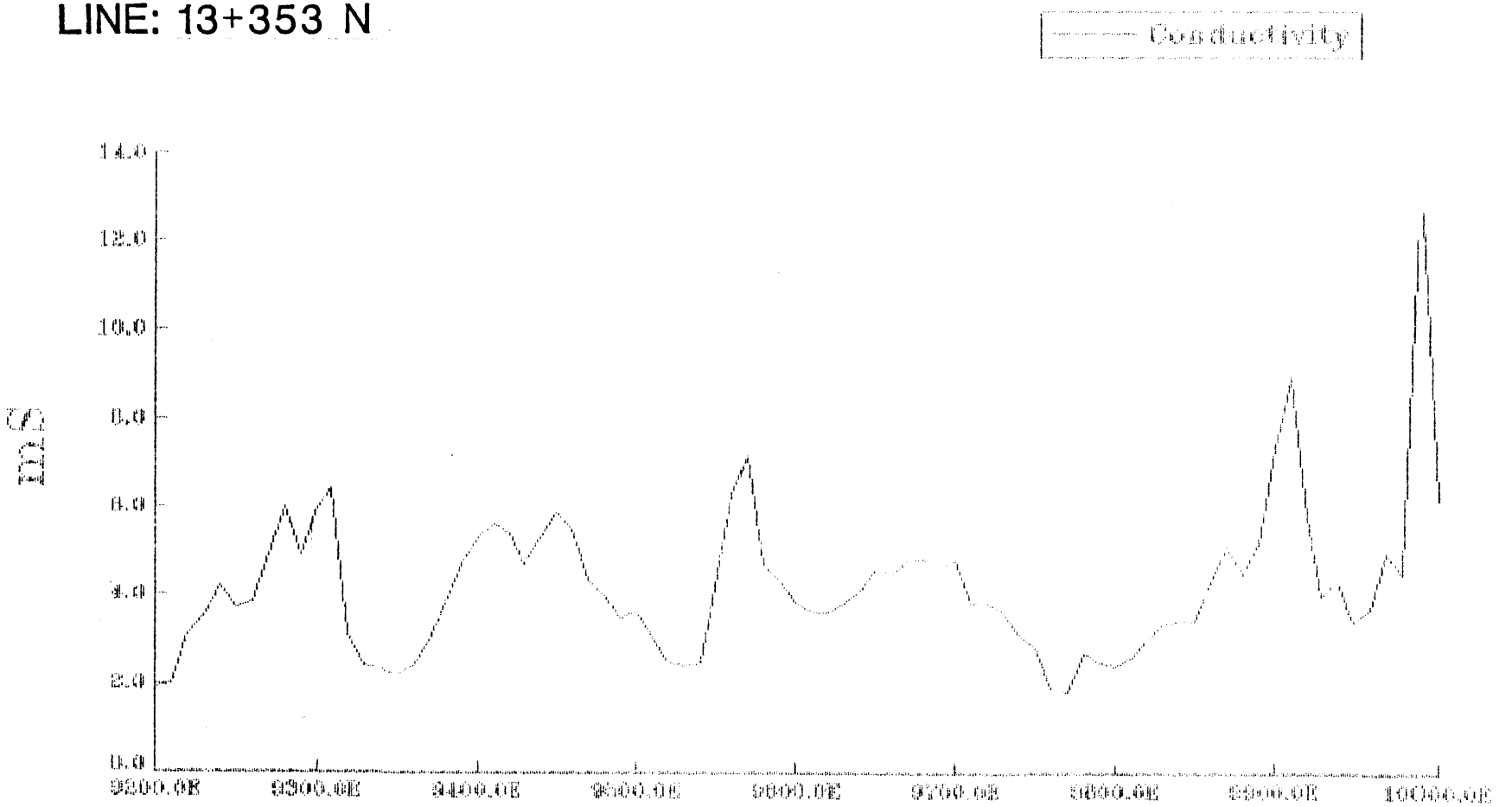
LINE: 12+743 N


Conductivity
mS
10.0
8.0
6.0
4.0
2.0
0.0
9200.0E
9300.0E
9400.0E
9500.0E
9600.0E
9700.0E
9800.0E
9900.0E
10000.0E

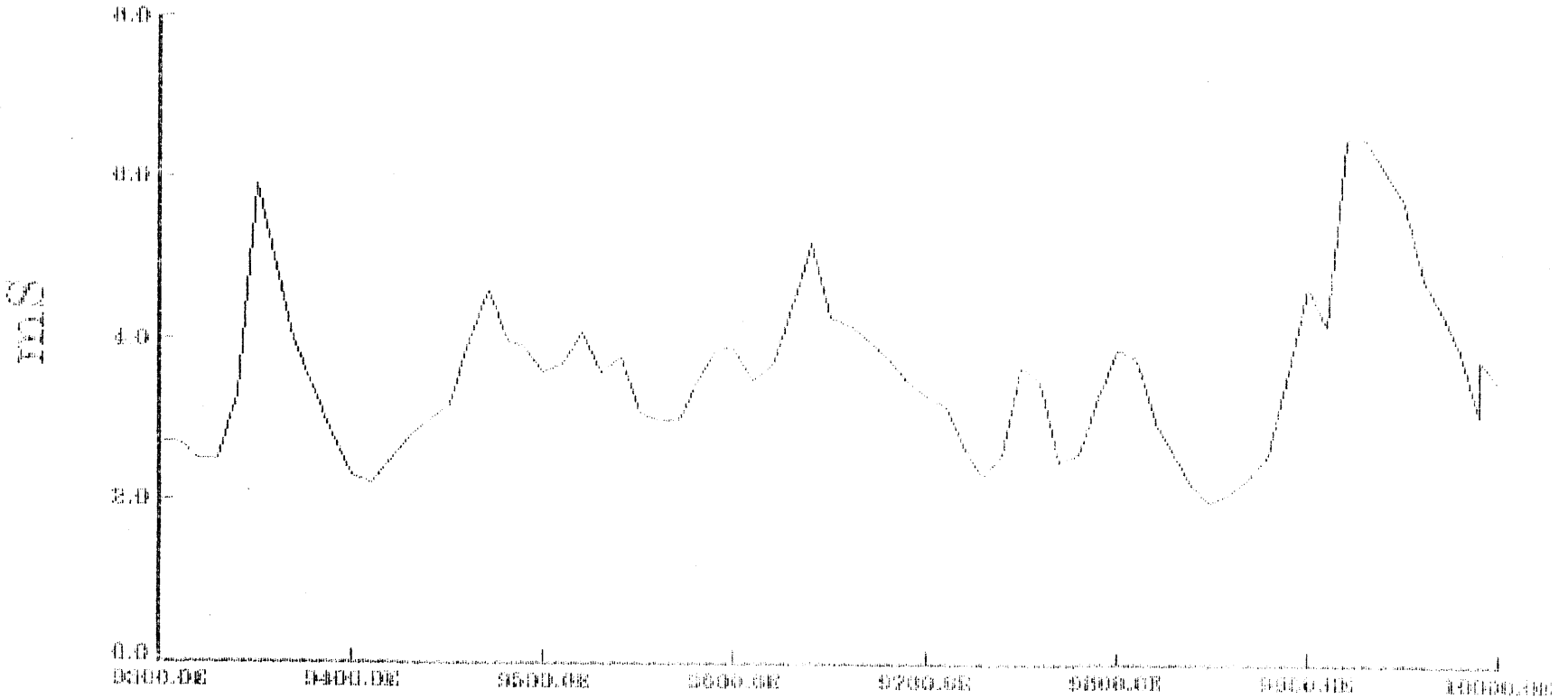
LINE: 13+048 N


Conductivity
mS
12.0
10.0
8.0
6.0
4.0
2.0
0.0
9200.0E
9300.0E
9400.0E
9500.0E
9600.0E
9700.0E
9800.0E
9900.0E
10000.0E

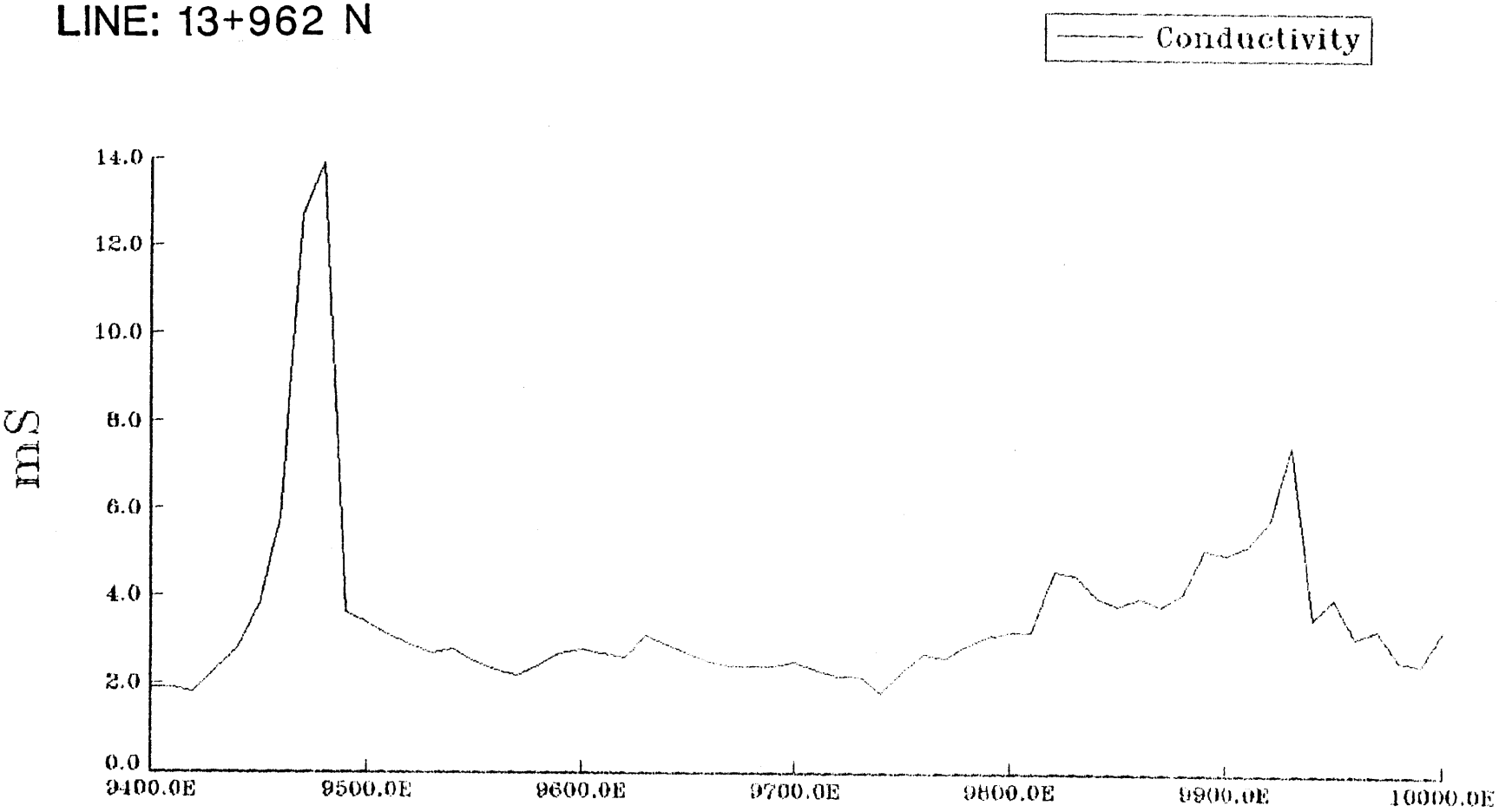
LINE: 13+353 N


Conductivity
mS/m
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
9200.0E
9300.0E
9400.0E
9500.0E
9600.0E
9700.0E
9800.0E
9900.0E
10000.0E

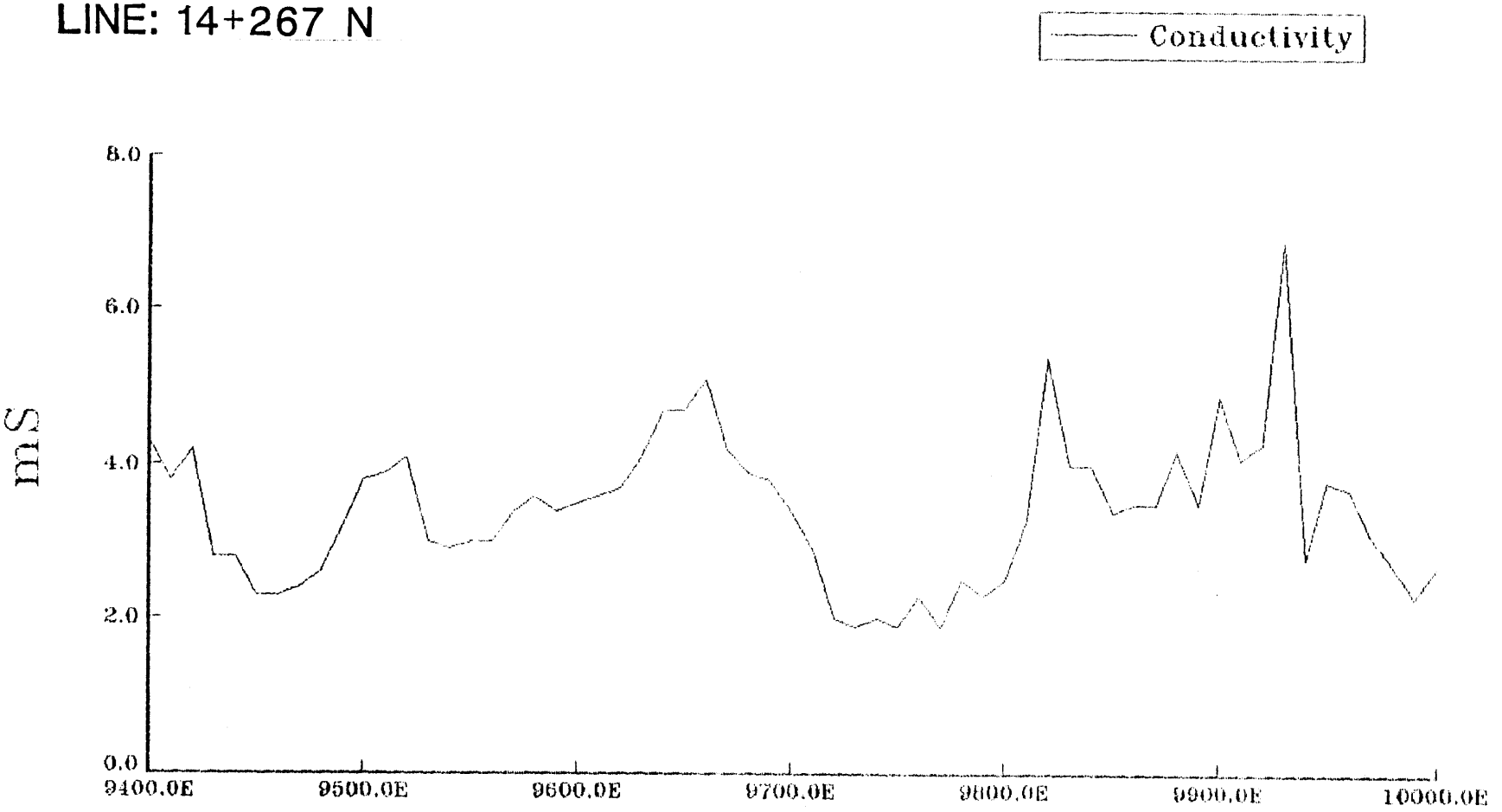
LINE: 13+658 N



LINE: 13+962 N


Conductivity
mS
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
9400.0E
9500.0E
9600.0E
9700.0E
9800.0E
9900.0E
10000.0E

LINE: 14+267 N


Conductivity
mS
8.0
6.0
4.0
2.0
0.0
9400.0E
9500.0E
9600.0E
9700.0E
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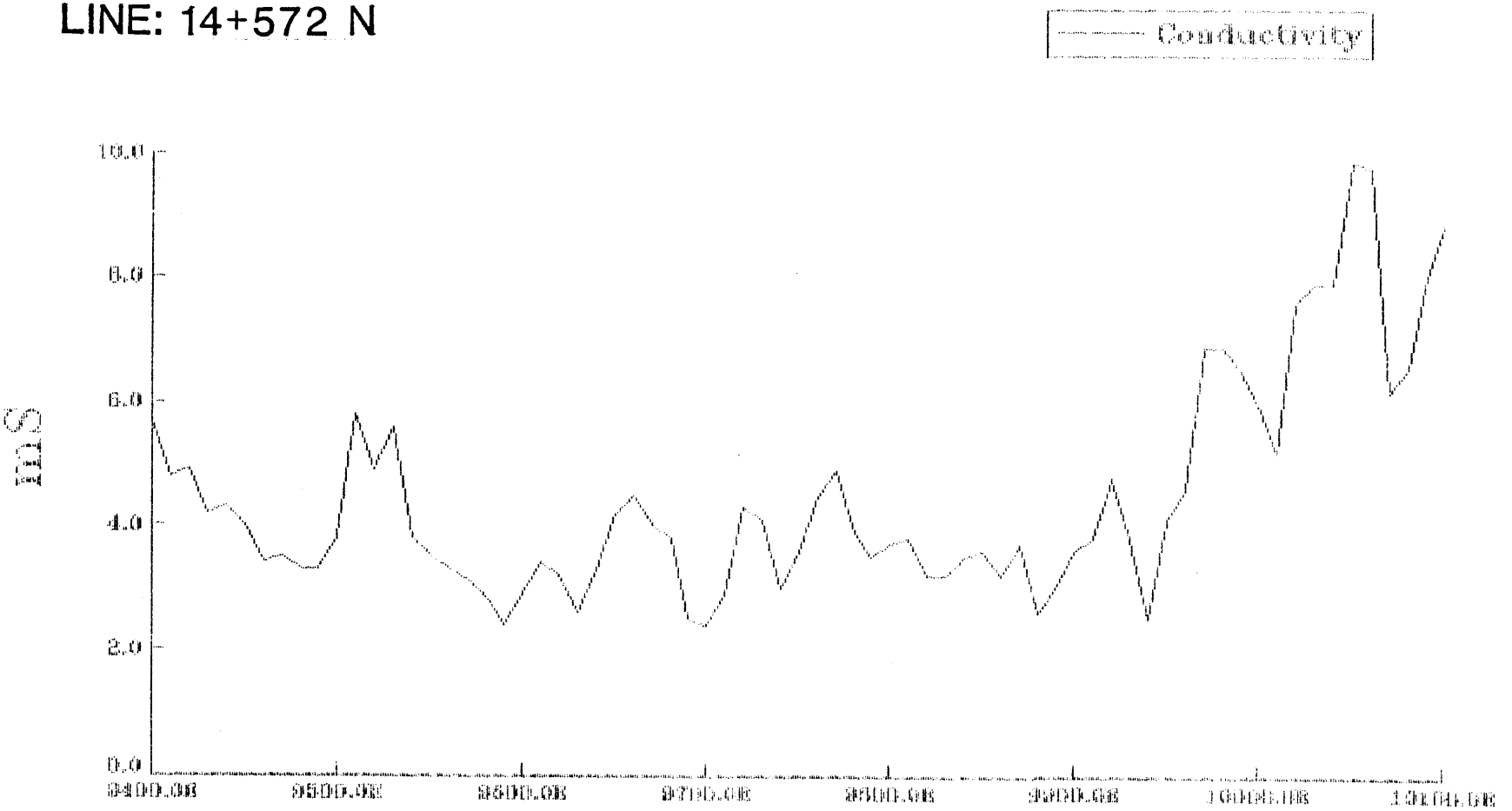
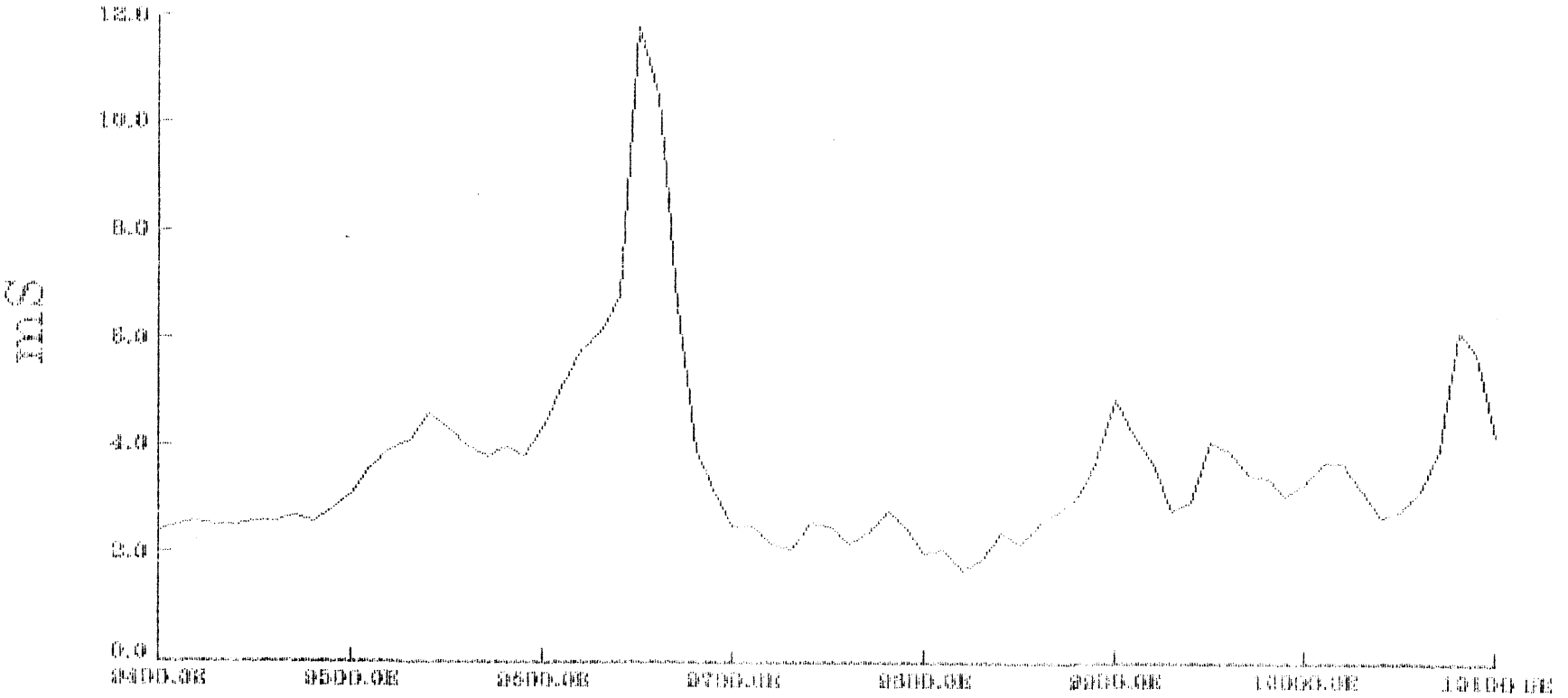
9900.0E
10000.0E

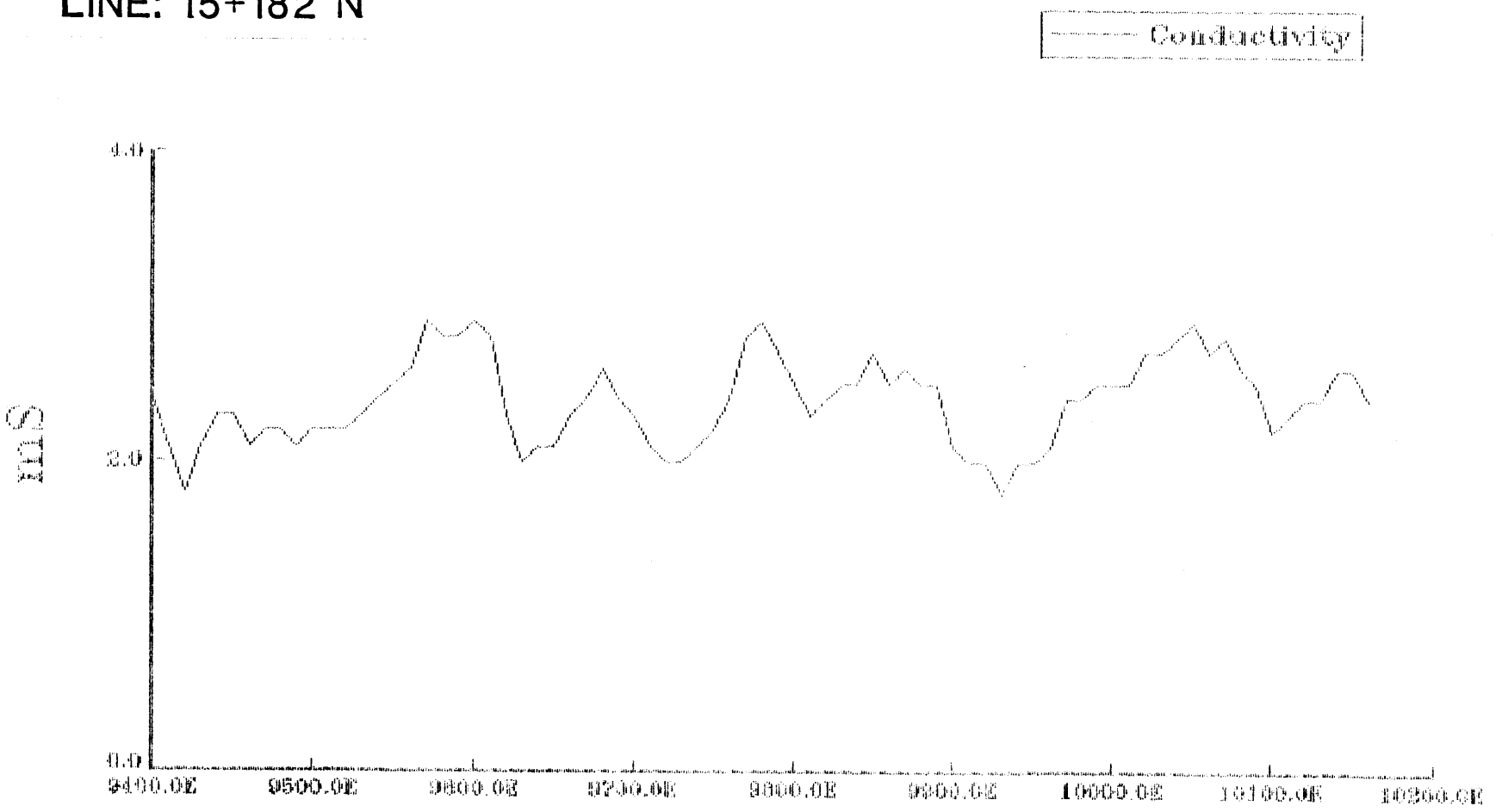
LINE: 14+572 N



LINE: 14+879 N



LINE: 15+182 N


Conductivity
mS/m
4.0
2.0
0.0
9400.0E
9500.0E
9600.0E
9700.0E
9800.0E
9900.0E
10000.0E
10100.0E
10200.0E

APPENDIX IX

HYDROLOGICAL SURVEY DATA

J. Gibson & Associates
Site 15 Comp 111 RR # 2
Whitehorse, Yukon
Y1A 5A5
Phone: (403) 633-4522

April 15, 1993

Archer, Cathro & Associates (1981) Limited
1016 - 510 West Hastings Street
Vancouver, B.C.
V6B 1L8

Attention: Rob

Dear Rob:

The initial water quality / hydrology survey of the Division Coal property was done March 24, 1993. The site was accessed by helicopter directly from Whitehorse.
There were five water survey stations established around the mineral property:

DC-1. Nordenskiold River upstream of Division Mt. (water samples, flow and insitu measurements - pH, conductivity, dissolved oxygen and water temperature)
DC-2. Nordenskiold River downstream of Division Mt. (water samples and insitu measurements)
DC-3. Tributary to Nordenskiold River draining the north side of Division Mt.(no surface flow - no samples or measurements).
DC-4. Klusha Creek upstream of Division Mt. (no surface flow)
DC-5. Klusha Creek downstream of Division Mt. but upstream of the lake (water samples, flow and insitu measurements).

Sites DC-1 to DC-4 were all under total ice cover, Site DC-5 was under partial ice cover. The ice cover at sites with no surface flow were augered in a number of locations to ensure no surface flow was missed. In addition, survey bench marks were established at station DC-1 and water level elevation was obtained for future reference.

Laboratory analysis reporting sheets are attached along with a summary of flow and insitu measurements. Initial review of data for the two Nordenskiold River stations shows little or no variation between the stations. For all metal parameters with the exception of iron, a high percentage of the metals are in dissolved form. This is "normal" given the majority of surface flows are of groundwater origin at this time of year and there is no sediment particles.
Surface waters in Klusha Creek are very similar to those in the Nordenskiold River with the exception of lower iron values.
Insitu measurements are consistent between the three stations with the exception of lower dissolved oxygen values in the downstream Klusha Creek station. These lower values are likely the result of a high degree of organic matter in the stream at the sample point utilizing the oxygen for decomposition.

As we discussed on the phone, survey data will be compiled for two or more surveys before a formal report is written.

In recent discussions with Northern Affairs (Water Resources) EARP assessment staff, the EARP system has "evolved" to a more rational system. Previously they wished an applicant to complete all the necessary studies and submit them en mass for assessment. This delays and a lack of feedback result in industry not being able to modify studies as they progressed. They now prefer a "Prospectus" outlining the project with a schedule of what environmental studies will be done and when. The completed studies can be submitted as they are finished, allowing quicker feedback and keeping the project fresh in the agency's mind.
When you arrive in Whitehorse give me a call and we can discuss this further as it relates to Division Coal.

I also enclose my invoice for payment.

Your truly,

John

John Gibson.

Division Coal Property

March 24, 1993 - Results of Insitu and Flow Measurements.

Station	pH (r.u.)	Conductivity (us/cm)	Dissolved Oxygen (mg/l)	Temp (C)	Flow (Q) (cms)
DC-1	7.57	336	9.2	- 2	0.458
DC-2	7.37	338	8.0	- 1.8	-
DC-3	No surface flow				
DC-4	No surface flow				
DC-5	7.50	418	5.2	- 0.2	0.023

quanta trace laboratories inc.
#401-3700 Gilmore Way, Burnaby, B.C., V5G 4M1 Tel:(604)438-5226 Fax:436-0565

ANALYSIS OF ENVIRONMENTAL SAMPLES

To: J. GIBSON & ASSOCIATES
Site 15, Comp 111, RR2
Whitehorse, Yukon *
Y1A 5A5

Workorder: 20513
Received : 25-Mar-93
Completed: 02-Apr-93

Sample type	water	water	water	water
Identification	DC-1	DC-1	DC2	DC2
Lab Reference #	20513-001	20513-001	20513-002	20513-002
Gravimetric - Solids				
Suspended	< 5.	-	< 5.	-
Results in	mg/l		mg/l	
Physical Tests				
Conduct. uS/cm	280.	-	280.	-
Turbidity FTU	2.	-	2.	-
Colour TCU	< 5.	-	< 5.	-
pH	7.7	-	7.7	-
Alkalinity as mg/l CaCO3				
Total	164.	-	166.	-
Results in	mg/l		mg/l	
IEC - Water Soluble Anions				
Sulfate SO4	13.5	-	14.6	-
Results in	mg/l		mg/l	
SIE - Water Soluble Ions				
Ammonia NH3-N	< 0.05	-	< 0.05	-
Results in	mg/l		mg/l	
Colorimetric				
NO2/NO3-N	0.129	-	0.136	-
Total PO4-P	0.005	-	< 0.005	-
Results in	mg/l		mg/l	
Extraction - Colorimetric				
Total Cyanide CN	< 0.005	-	< 0.005	-
Results in	mg/l		mg/l	

/2...

quanta trace laboratories inc.
#401-3700 Gilmore Way, Burnaby, B.C., V5G 4M1 Tel:(604)438-5226 Fax:436-0565

To: J. GIBSON & ASSOCIATES W/O: 20513

Sample type		water	water	water	water
Identification		DC-1	DC-1	DC2	DC2
Lab Reference #		20513-001	20513-001	20513-002	20513-002
ICP - Ultrasonic Nebulization Method used		field filt. RAR soluble DISSOLVED	microwave RAR soluble TOTAL	field filt. RAR soluble DISSOLVED	microwave RAR soluble TOTAL
Aluminum	Al	< 0.005	< 0.005	< 0.005	< 0.005
Antimony	Sb	< 0.02	< 0.02	< 0.02	< 0.02
Arsenic	As	< 0.04	< 0.04	< 0.04	< 0.04
Barium	Ba	0.072	0.077	0.066	0.075
Beryllium	Be	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Bismuth	Bi	< 0.02	< 0.02	< 0.02	< 0.02
Cadmium	Cd	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Calcium	Ca	46.8	52.8	44.1	52.3
Chromium	Cr	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	Co	< 0.001	< 0.001	< 0.001	< 0.001
Copper	Cu	< 0.001	< 0.001	< 0.001	< 0.001
Iron	Fe	< 0.003	0.091	< 0.003	0.096
Lead	Pb	< 0.004	< 0.004	< 0.004	< 0.004
Lithium	Li	< 0.05	< 0.05	< 0.05	< 0.05
Magnesium	Mg	9.17	9.86	8.69	9.95
Manganese	Mn	0.013	0.019	0.015	0.022
Molybdenum	Mo	< 0.003	< 0.003	< 0.003	< 0.003
Nickel	Ni	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus	P	< 0.02	< 0.02	< 0.02	< 0.02
Potassium	K	2.34	2.38	2.13	2.34
Selenium	Se	< 0.02	< 0.02	< 0.02	< 0.02
Silicon	Si	7.41	7.89	6.50	6.71
Silver	Ag	< 0.001	< 0.001	< 0.001	< 0.001
Sodium	Na	5.34	5.68	5.21	5.88
Strontium	Sr	0.35	0.38	0.31	0.37
Thorium	Th	< 0.01	< 0.01	< 0.01	< 0.01
Titanium	Ti	< 0.001	< 0.001	< 0.001	< 0.001
Uranium	U	< 0.02	< 0.02	< 0.02	< 0.02
Vanadium	V	< 0.001	< 0.001	< 0.001	< 0.001
Zinc	Zn	< 0.001	0.002	< 0.001	< 0.001
Zirconium	Zr	< 0.001	< 0.001	< 0.001	< 0.001
Results in		mg/l	mg/l	mg/l	mg/l
Total Hardness as CaCO3	mg/l	155.	173.	146.	172.

.../3

quanta trace laboratories inc.
#401-3700 Gilmore Way, Burnaby, B.C., V5G 4M1 Tel:(604)438-5226 Fax:436-0565

Sample type	water	water
Identification	DC5	DC5
Lab Reference #	20513-003	20513-003
Gravimetric - Solids		
Suspended	< 5.	-
Results in	mg/l	
Physical Tests		
Conduct. uS/cm	340.	-
Turbidity FTU	< 1.	-
Colour TCU	< 5.	-
pH	7.7	-
Alkalinity as mg/l CaCO3		
Total	203.	-
Results in	mg/l	
IEC - Water Soluble Anions		
Sulfate SO4	10.9	-
Results in	mg/l	
SIE - Water Soluble Ions		
Ammonia NH3-N	< 0.05	-
Results in	mg/l	
Colorimetric		
NO2/NO3-N	< 0.005	-
Total PO4-P	< 0.005	-
Results in	mg/l	
Extraction - Colorimetric		
Total Cyanide CN	< 0.005	-
Results in	mg/l	

/4...

quanta trace laboratories inc.
#401-3700 Gilmore Way, Burnaby, B.C., V5G 4M1 Tel:(604)438-5226 Fax:436-0565

To: J. GIBSON & ASSOCIATES W/O: 20513

Sample type		water	water
Identification		DC5	DC5
Lab Reference #		20513-003	20513-003
ICP - Ultrasonic Nebulization			
Method used		field filt. RAR soluble DISSOLVED	microwave RAR soluble TOTAL
Aluminum	Al	< 0.005	< 0.005
Antimony	Sb	< 0.02	< 0.02
Arsenic	As	< 0.04	< 0.04
Barium	Ba	0.064	0.071
Beryllium	Be	< 0.0002	< 0.0002
Bismuth	Bi	< 0.02	< 0.02
Cadmium	Cd	< 0.0003	< 0.0003
Calcium	Ca	48.7	55.5
Chromium	Cr	< 0.001	< 0.001
Cobalt	Co	< 0.001	< 0.001
Copper	Cu	< 0.001	< 0.001
Iron	Fe	< 0.003	< 0.003
Lead	Pb	< 0.004	< 0.004
Lithium	Li	< 0.05	< 0.05
Magnesium	Mg	13.4	15.2
Manganese	Mn	< 0.001	0.002
Molybdenum	Mo	< 0.003	< 0.003
Nickel	Ni	< 0.001	< 0.001
Phosphorus	P	< 0.02	< 0.02
Potassium	K	2.05	2.05
Selenium	Se	< 0.02	< 0.02
Silicon	Si	5.98	5.98
Silver	Ag	< 0.001	< 0.001
Sodium	Na	7.99	8.90
Strontium	Sr	0.41	0.47
Thorium	Th	< 0.01	< 0.01
Titanium	Ti	< 0.001	< 0.001
Uranium	U	< 0.02	< 0.02
Vanadium	V	< 0.001	< 0.001
Zinc	Zn	< 0.001	< 0.001
Zirconium	Zr	< 0.001	< 0.001
Results in		mg/l	mg/l
Total Hardness as CaCO3	mg/l	177.	201.

 Analyst: _____

J.Gibson & Associates
Site 15 Comp 111 RR # 2
Whitehorse, Yukon
Y1A 5A5

July 27, 1993

Archer, Cathro & Associates (1981) Limited
1016 - 510 West Hastings Street
Vancouver, B.C.
V6B 1L8

Attention: Rob

Dear Rob:

The second water quality / hydrology survey of the Division Coal property was done June 26, 1993. The site was again accessed by helicopter directly from Whitehorse.

The five survey stations established during the March, 1993 survey were all sampled for water quality analysis. The upper sites on both the Nordenskiold River and Klusha Creek were measured for flow volumes and water levels obtained in relation to benchmarks established in March.

Laboratory analysis reporting sheets are again attached along with a summary of flow and insitu measurements. Initial data review indicates lower values for groundwater related parameters such as alkalinity, barium, calcium, potassium and sodium over those measured in March. Conversly, higher values for sediment related parameters such as aluminum, iron and hardness are noted. These changes in water quality are common to non lake fed streams and rivers with a change from late winter's higher groundwater input to summer sediment laden freshet and post freshet waters.

With the summer sampling of the two stations not sampled in March, it is also noted that the tributary channel draining the north face of Division Mountain (DC-3) has significantly higher sulphate values compared to the other stations (78 mg/l to 12.8 mg/l). It is also worth noting that total iron values at the upper Klusha Creek station were high (0.467 mg/l).

As we discussed earlier, water quality data will be compiled from three survey events before being formally written up. The next survey should be done in mid to late September. If this does not fit with your schedule, give me a call and we can arrange a better time.

I also enclose my invoice for payment.

Yours truly,

John

Division Coal Property

June 26, 1993 - Results of Insitu and Flow Measurements.

Station	pH (r.u)	Conductivity (us/cm)	Dissolved Oxy. (mg/l)	Temp (C)	Flow (cms)
DC-1	8.46	55.0	10.2	12.2	4.970
DC-2	8.28	56.4	10.5	11.8	-
DC-3	7.72	464	10.2	2.8	0.004
DC-4	8.37	322	8.2	8.9	0.787
DC-5	8.43	314	8.4	12.1	-

quanta trace laboratories inc.
#401-3700 Gilmore Way, Burnaby, B.C., V5G 4M1 Tel:(604)438-5226 Fax:436-0565

To: J. Gibson & Associates W/O: 21109

Identification		DC-1	DC-1	DC-2	DC-2	DC-3
Lab Reference #		21109-001	21109-001	21109-002	21109-002	21109-003
ICP - Ultrasonic Nebulization		field filt.	microwave	field filt.	microwave	field filt.
Method used		DISSOLVED	RAR soluble TOTAL	DISSOLVED	RAR soluble TOTAL	DISSOLVED
Aluminum	Al	0.045	0.11	0.039	0.132	0.007
Antimony	Sb	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Arsenic	As	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Barium	Ba	0.040	0.051	0.044	0.053	0.018
Beryllium	Be	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Bismuth	Bi	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Cadmium	Cd	0.0004	0.0004	< 0.0003	< 0.0003	< 0.0003
Calcium	Ca	28.8	34.5	31.8	36.0	58.0
Chromium	Cr	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	Co	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Copper	Cu	< 0.001	0.002	< 0.001	0.010	< 0.001
Iron	Fe	0.083	0.216	0.030	0.224	0.019
Lead	Pb	< 0.004	0.005	< 0.004	< 0.004	< 0.004
Lithium	Li	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Magnesium	Mg	5.73	6.91	6.33	7.25	19.3
Manganese	Mn	0.009	0.022	0.009	0.022	0.002
Molybdenum	Mo	< 0.003	< 0.003	< 0.003	< 0.003	0.004
Nickel	Ni	0.002	0.002	0.002	0.002	0.002
Phosphorus	P	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Potassium	K	1.34	1.67	1.53	1.75	1.34
Selenium	Se	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Silicon	Si	2.66	3.87	2.90	3.87	6.08
Sodium	Na	3.43	4.20	3.79	4.50	12.3
Strontium	Sr	0.23	0.23	0.22	0.23	0.55
Thorium	Th	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Titanium	Ti	< 0.001	0.009	< 0.001	0.009	< 0.001
Uranium	U	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Vanadium	V	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Zinc	Zn	0.005	0.008	0.004	0.010	0.005
Zirconium	Zr	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Results in		mg/l	mg/l	mg/l	mg/l	mg/l
Total Hardness as CaCO3	mg/l	96.0	116.	106.	121.	225.

/3...

quanta trace laboratories inc.
#401-3700 Gilmore Way, Burnaby, B.C., V5G 4M1 Tel:(604)438-5226 Fax:436-0565

To: J. Gibson & Associates W/O: 21109

Identification	DC-3	DC-4	DC-4	DC-4B	DC-4B
Fraction		duplicate	duplicate	duplicate	duplicate
Lab Reference #	21109-003	21109-004A	21109-004A	21109-004B	21109-004B
Gravimetric - Solids					
Suspended	-	10.	-	9.	-
Results in		mg/l		mg/l	
Physical Tests					
Conduct. uS/cm	-	270.	-	265.	-
Turbidity FTU	-	7.	-	7.	-
Colour TCU	-	17.	-	17.	-
pH	-	8.1	-	8.1	-
Alkalinity as mg/l CaCO3					
Hydroxide	-	< 5.	-	< 5.	-
Carbonate	-	< 5.	-	< 5.	-
Bicarbonate	-	151.	-	159.	-
Total	-	151.	-	159.	-
Results in		mg/l		mg/l	
IEC - Water Soluble Anions					
Sulfate SO4	-	12.1	-	11.9	-
Results in		mg/l		mg/l	
SIE - Water Soluble Ions					
Ammonia NH3-N	-	< 0.05	-	< 0.05	-
Results in		mg/l		mg/l	
Colorimetric					
Nitrite NO2-N	-	< 0.003	-	< 0.003	-
Nitrate NO3-N	-	< 0.005	-	< 0.005	-
Total PO4-P	-	0.028	-	0.028	-
Results in		mg/l		mg/l	
Extraction - Colorimetric					
Total Cyanide CN	-	< 0.005	-	< 0.005	-
Results in		mg/l		mg/l	

/4...

quanta trace laboratories inc.
#401-3700 Gilmore Way, Burnaby, B.C., V5G 4M1 Tel:(604)438-5226 Fax:436-0565

To: J. Gibson & Associates W/O: 21109 Page 4

Identification		DC-3	DC-4 duplicate	DC-4 duplicate	DC-4B duplicate	DC-4B duplicate
Fraction						
Lab Reference #		21109-003	21109-004A	21109-004A	21109-004B	21109-004B
ICP - Ultrasonic Nebulization						
Method used		microwave RAR soluble TOTAL	field filt. DISSOLVED	microwave RAR soluble TOTAL	field filt. DISSOLVED	microwave RAR soluble TOTAL
Aluminum	Al	0.063	0.035	0.256	0.035	0.344
Antimony	Sb	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Arsenic	As	< 0.05	< 0.04	< 0.04	< 0.04	< 0.04
Barium	Ba	0.023	0.056	0.077	0.058	0.068
Beryllium	Be	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Bismuth	Bi	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Cadmium	Cd	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Calcium	Ca	58.6	34.0	43.9	35.5	38.1
Chromium	Cr	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	Co	< 0.001	0.002	0.002	0.002	0.002
Copper	Cu	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Iron	Fe	0.058	0.054	0.467	0.043	0.442
Lead	Pb	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
ithium	Li	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Magnesium	Mg	19.3	10.6	13.4	10.9	11.9
Manganese	Mn	0.018	0.037	0.063	0.037	0.058
Molybdenum	Mo	0.005	< 0.003	0.005	< 0.003	0.007
Nickel	Ni	0.004	0.001	0.002	0.001	0.002
Phosphorus	P	0.04	< 0.02	0.03	< 0.02	< 0.02
Potassium	K	1.72	1.22	1.70	1.29	1.31
Selenium	Se	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Silicon	Si	8.16	4.05	5.67	3.88	5.81
Sodium	Na	15.0	10.8	13.7	11.3	12.4
Strontium	Sr	0.55	0.33	0.36	0.34	0.37
Thorium	Th	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Titanium	Ti	0.003	< 0.001	0.012	< 0.001	0.014
Uranium	U	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Vanadium	V	0.002	< 0.001	< 0.001	< 0.001	< 0.001
Zinc	Zn	0.009	0.008	0.015	0.009	0.016
Zirconium	Zr	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Results in		mg/l	mg/l	mg/l	mg/l	mg/l
Total Hardness as CaCO3	mg/l	228.	129.	167.	134.	322.

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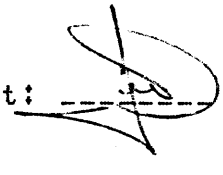
quanta trace laboratories inc.
#401-3700 Gilmore Way, Burnaby, B.C., V5G 4M1 Tel:(604)438-5226 Fax:436-0565

To: J. Gibson & Associates W/O: 21109 Page 6

Identification		DC-5	DC-5
Lab Reference #		21109-005	21109-005
ICP - Ultrasonic Nebulization			
Method used		field filt. DISSOLVED	microwave RAR soluble TOTAL
Aluminum	Al	0.036	0.064
Antimony	Sb	< 0.02	< 0.02
Arsenic	As	< 0.04	< 0.04
Barium	Ba	0.060	0.065
Beryllium	Be	< 0.0002	< 0.0002
Bismuth	Bi	< 0.02	< 0.02
Cadmium	Cd	< 0.0003	< 0.0003
Calcium	Ca	37.5	39.4
Chromium	Cr	< 0.001	< 0.001
Cobalt	Co	< 0.001	< 0.001
Copper	Cu	< 0.001	< 0.001
Iron	Fe	0.026	0.098
Lead	Pb	< 0.004	< 0.004
Lithium	Li	< 0.05	< 0.05
Magnesium	Mg	12.5	13.5
Manganese	Mn	0.007	0.013
Molybdenum	Mo	0.007	0.007
Nickel	Ni	0.002	0.002
Phosphorus	P	< 0.02	< 0.02
Potassium	K	1.37	1.46
Selenium	Se	< 0.02	< 0.02
Silicon	Si	3.51	4.88
Sodium	Na	13.3	14.3
Strontium	Sr	0.34	0.35
Thorium	Th	< 0.01	< 0.01
Titanium	Ti	< 0.001	< 0.001
Uranium	U	< 0.02	< 0.02
Vanadium	V	< 0.001	< 0.001
Zinc	Zn	0.003	0.005
Zirconium	Zr	< 0.001	< 0.001
Results in		mg/l	mg/l
Total Hardness as CaCO3	mg/l	146.	155.

Analyst: 

J. Gibson & Associates
Site 15 Comp 111 RR #2
Whitehorse, Yukon
Y1A 5W8

November 12, 1993

Archer, Cathro & Associates (1981) Limited
1016 - 510 West Hastings Street
Vancouver, B.C.
V6B 1L8

Attention: Rob Carne

Dear Rob:

The third water quality / hydrology survey of the Division Coal property was done October 19, 1993. The site was again accessed by helicopter directly from Whitehorse.

All five water quality stations were sampled with flow measurements and surveyed water levels obtained at the upper Klusha Creek and Nordenskiold River sites.

Laboratory reporting sheet are attached along with a summary of flow and insitu measurements.

With the completion of three surveys, a report covering the year's data will be worked up shortly.

Now is also a good time to consider the data you require for the 1994 season. The project's development and potential effects to the surrounding environment will determine the level of Environmental screening required. This in turn determines the scope of the baseline data collection. I will give you a call in the near future to discuss this.

I enclose my invoice for payment.

Yours truly,

JGibson

John Gibson.

J. Gibson & Associates
Site 15 Comp 111 RR # 2
Whitehorse, Yukon
Y1A 5W8

November 12, 1993

Archer, Cathro & Associates (1981) Limited
1016 - 510 West Hastings Street
Vancouver, B.C.
V6B 1L8

Re: Division Coal - October, 1993 Survey

I N V O I C E

Laboratory Analysis - Quanta Trace Labs 5 Stations	$ 1,162.93
Survey Time - 9.0 hrs @ $40/hr	360.00
Transportation - TNTA direct invoice to client	0.00
Equipment charge out	
Field measurements - 5 stations @ $20	100.00
Dissolved metal filters - 5 @ $7.50	37.50
Velocity Meter - 2 stations @ $20	40.00
	$ 1,700.43
GST (122893829) @ 7%	119.03
TOTAL ---	$ 1,819.46

Thank you,

J Gibson

John Gibson.

quanta trace laboratories inc.
#401-3700 Gilmore Way, Burnaby, B.C., V5G 4M1 Tel:(604)438-5226 Fax:436-0565

To: J. Gibson & Associates W/O: 21109 Page 5

Identification	DC-5	DC-5
Lab Reference #	21109-005	21109-005
Gravimetric - Solids		
Suspended	< 5.	-
Results in	mg/l	
Physical Tests		
Conduct. uS/cm	280.	-
Turbidity FTU	< 1.	-
Colour TCU	17.	-
pH	7.9	-
Alkalinity as mg/l CaCO3		
Hydroxide	< 5.	-
Carbonate	< 5.	-
Bicarbonate	147.	-
Total	147.	-
Results in	mg/l	
IEC - Water Soluble Anions		
Sulfate SO4	12.8	-
Results in	mg/l	
SIE - Water Soluble Ions		
Ammonia NH3-N	< 0.05	-
Results in	mg/l	
Colorimetric		
Nitrite NO2-N	< 0.003	-
Nitrate NO3-N	< 0.005	-
Total PO4-P	0.008	-
Results in	mg/l	
Extraction - Colorimetric		
Total Cyanide CN	< 0.005	-
Results in	mg/l	

/6...

quanta trace laboratories inc.
#401-3700 Gilmore Way, Burnaby, B.C., V5G 4M1 Tel:(604)438-5226 Fax:436-0565

ANALYSIS OF ENVIRONMENTAL SAMPLES

To: J. GIBSON & ASSOCIATES
Site 15, Comp 111, RR2
Whitehorse, Yukon *
Y1A 5A5

Workorder: 21923
Received : 21-Oct-93
Completed: 03-Nov-93

Attn: John Gibson

Re: Division Coal

Sample type	water	water	water	water	water
Identification	DC 1	DC 1	DC 2	DC 2	DC 3
Fraction					duplicate
Lab Reference #	21923-001	21923-001	21923-002	21923-002	21923-003A
GRAVIMETRIC - SOLIDS					
Suspended	< 5.	-	< 5.	-	< 5.
Results in	mg/l		mg/l		mg/l
PHYSICAL TESTS					
Conduct. uS/cm	280.	-	290.	-	550.
Turbidity FTU	1.	-	1.	-	1.
Colour TCU	7.	-	12.	-	50.
pH	8.0	-	8.1	-	8.0
ALKALINITY - mg/l CaCO3					
Hydroxide	< 5.	-	< 5.	-	< 5.
Carbonate	< 5.	-	< 5.	-	< 5.
icarbonate	103.	-	134.	-	175.
Total	103.	-	134.	-	175.
Results in	mg/l		mg/l		mg/l
IEC - WATER SOLUBLE ANIONS					
Nitrate NO3-N	< 0.2	-	< 0.2	-	< 0.2
Results in	mg/l		mg/l		mg/l
SIE - WATER SOLUBLE IONS					
Ammonia NH3-N	< 0.05	-	< 0.05	-	< 0.05
Results in	mg/l		mg/l		mg/l
COLORIMETRIC					
Nitrite NO2-N	< 0.003	-	< 0.003	-	< 0.003
Results in	mg/l		mg/l		mg/l
EXTRACTION - COLORIMETRIC					
Total Cyanide CN	< 0.005	-	< 0.005	-	0.025
Results in	mg/l		mg/l		mg/l

/2...

quanta trace laboratories inc.
#401-3700 Gilmore Way, Burnaby, B.C., V5G 4M1 Tel:(604)438-5226 Fax:436-0565

To: J. GIBSON & ASSOCIATES W/O: 21923 Page 2

Sample type		water	water	water	water	water
Identification		DC 1	DC 1	DC 2	DC 2	DC 3
Fraction						duplicate
Lab Reference #		21923-001	21923-001	21923-002	21923-002	21923-003A
ICP - ULTRASONIC NEBULIZATION-- Method used		field filt. DISSOLVED	microwave RAR soluble TOTAL	field filt. DISSOLVED	microwave RAR soluble TOTAL	field filt. DISSOLVED
Aluminum	Al	0.114	0.144	0.10	0.170	0.153
Antimony	Sb	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Arsenic	As	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Barium	Ba	0.058	0.056	0.058	0.058	0.019
Beryllium	Be	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Bismuth	Bi	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Cadmium	Cd	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Calcium	Ca	39.3	39.6	43.7	43.8	66.0
Chromium	Cr	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	Co	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Copper	Cu	0.002	0.027	0.003	0.023	0.004
Iron	Fe	0.061	0.144	0.073	0.230	0.041
Lead	Pb	< 0.004	< 0.004	0.005	0.012	< 0.004
Lithium	Li	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
agnesium	Ms	7.35	7.85	8.47	8.49	23.8
Manganese	Mn	0.016	0.019	0.022	0.027	< 0.001
Molybdenum	Mo	0.005	0.006	0.006	0.008	0.005
Nickel	Ni	0.002	0.002	0.002	0.003	0.005
Phosphorus	P	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Potassium	K	1.63	1.92	2.05	1.95	1.92
Selenium	Se	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Silicon	Si	6.57	6.73	6.88	6.91	10.6
Silver	Ag	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Sodium	Na	4.93	4.96	5.24	5.37	12.9
Strontium	Sr	0.31	0.31	0.33	0.31	0.62
Thorium	Th	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Titanium	Ti	0.001	0.001	0.003	0.004	0.004
Uranium	U	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Vanadium	V	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Zinc	Zn	0.027	0.027	0.001	0.002	0.002
Zirconium	Zr	0.002	0.001	0.001	0.001	0.003
Results in		mg/l	mg/l	mg/l	mg/l	mg/l
TOTAL HARDNESS as CaCO3	mg/l	131.	135.	145.	146.	264.

/3...

quanta trace laboratories inc.
#401-3700 Gilmore Way, Burnaby, B.C., V5G 4M1 Tel:(604)438-5226 Fax:436-0565

To: J. GIBSON & ASSOCIATES W/O: 21923

Sample type	water	water	water	water	water
Identification	DC 3	DC 3	DC 3	DC 4	DC 4
Fraction	duplicate	duplicate	duplicate	duplicate	duplicate
Lab Reference #	21923-003A	21923-003B	21923-003B	21923-004A	21923-004A
GRAVIMETRIC - SOLIDS					
Suspended	-	< 5.	-	< 5.	-
Results in		mg/l		mg/l	
PHYSICAL TESTS					
Conduct. uS/cm	-	550.	-	375.	-
Turbidity FTU	-	1.	-	< 1.	-
Colour TCU	-	50.	-	17.	-
pH	-	8.0	-	8.3	-
ALKALINITY - mg/l CaCO3					
Hydroxide	-	< 5.	-	< 5.	-
Carbonate	-	< 5.	-	< 5.	-
Bicarbonate	-	165.	-	175.	-
Total	-	165.	-	175.	-
Results in		mg/l		mg/l	
IEC - WATER SOLUBLE ANIONS					
Nitrate NO3-N	-	< 0.2	-	< 0.02	-
Results in		mg/l		mg/l	
SIE - WATER SOLUBLE IONS					
Ammonia NH3-N	-	< 0.05	-	< 0.05	-
Results in		mg/l		mg/l	
L _ORIMETRIC					
Nitrite NO2-N	-	< 0.003	-	< 0.003	-
Results in		mg/l		mg/l	
EXTRACTION - COLORIMETRIC					
Total Cyanide CN	-	0.02	-	0.014	-
Results in		mg/l		mg/l	

/4...

quanta trace laboratories inc.
#401-3700 Gilmore Way, Burnaby, B.C., V5G 4M1 Tel:(604)438-5226 Fax:436-0565

To: J. GIBSON & ASSOCIATES W/O: 21923

Sample type		water	water	water	water	water
Identification		DC 3	DC 3	DC 3	DC 4	DC 4
Fraction		duplicate	duplicate	duplicate	duplicate	duplicate
Lab Reference #		21923-003A	21923-003B	21923-003B	21923-004A	21923-004A
ICP - ULTRASONIC NEBULIZATION						
Method used		microwave RAR soluble TOTAL	field filt. DISSOLVED	microwave RAR soluble TOTAL	field filt. DISSOLVED	microwave RAR soluble TOTAL
Aluminum	Al	0.168	0.150	0.172	0.127	0.170
Antimony	Sb	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Arsenic	As	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Barium	Ba	0.019	0.019	0.018	0.075	0.076
Beryllium	Be	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Bismuth	Bi	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Cadmium	Cd	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Calcium	Ca	66.3	68.2	68.6	47.1	47.2
Chromium	Cr	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	Co	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Copper	Cu	0.024	0.003	0.003	0.002	0.025
Iron	Fe	0.086	0.039	0.116	0.057	0.156
Lead	Pb	0.006	0.005	0.012	0.007	0.011
Lithium	Li	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Magnesium	Mg	23.8	24.3	24.9	14.1	14.6
Manganese	Mn	0.004	< 0.001	< 0.001	0.021	0.030
Molybdenum	Mo	< 0.003	0.005	0.005	< 0.003	0.006
Nickel	Ni	0.005	0.005	0.004	0.002	0.004
Phosphorus	P	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Potassium	K	1.91	1.82	1.84	2.00	2.02
Selenium	Se	< 0.02	< 0.02	< 0.02	0.06	< 0.02
Silicon	Si	10.7	10.6	10.8	8.70	8.69
Silver	Ag	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Sodium	Na	13.1	12.8	12.8	11.3	11.5
Strontium	Sr	0.63	0.64	0.61	0.42	0.43
Thorium	Th	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Titanium	Ti	0.002	0.005	0.003	0.006	0.003
Uranium	U	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Vanadium	V	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Zinc	Zn	0.010	0.003	0.01	< 0.001	< 0.001
Zirconium	Zr	0.001	0.003	0.002	0.003	0.004
Results in		mg/l	mg/l	mg/l	mg/l	mg/l
TOTAL HARDNESS as CaCO3	mg/l	264.	271.	273.	176.	176.

/5...

quanta trace laboratories inc.
#401-3700 Gilmore Way, Burnaby, B.C., V5G 4M1 Tel:(604)438-5226 Fax:436-0565

To: J. GIBSON & ASSOCIATES W/O: 21923

Sample type	water	water	water	water
Identification	DC 4	DC 4	DC 5	DC 5
Fraction	duplicate	duplicate		
Lab Reference #	21923-004B	21923-004B	21923-005	21923-005
GRAVIMETRIC - SOLIDS				
Suspended	-	-	< 5.	-
Results in	-		mg/l	
PHYSICAL TESTS				
Conduct. uS/cm	-	-	390.	-
Turbidity FTU	-	-	< 1.	-
Colour TCU	-	-	18.	-
pH	-	-	5.1	-
ALKALINITY - mg/l CaCO3				
Hydroxide	-	-	< 5.	-
Carbonate	-	-	< 5.	-
Bicarbonate	-	-	175.	-
Total	-	-	175.	-
Results in	-		mg/l	
IEC - WATER SOLUBLE ANIONS				
Nitrate NO3-N		-	< 0.2	-
Results in	-		mg/l	
SIE - WATER SOLUBLE IONS				
Ammonia NH3-N	-	-	0.20	-
Results in	-		mg/l	
COLORIMETRIC				
Nitrite NO2-N	-	-	< 0.003	-
Results in	-		mg/l	
EXTRACTION - COLORIMETRIC				
Total Cyanide CN	-	-	0.012	-
Results in	-		mg/l	

/6...

quanta trace laboratories inc.
#401-3700 Gilmore Way, Burnaby, B.C., V5G 4M1 Tel:(604)438-5226 Fax:436-0565

To: J. GIBSON & ASSOCIATES W/O: 21923

Sample type		water	water	water	water
Identification		DC 4	DC 4	DC 5	DC 5
Fraction		duplicate	duplicate		
Lab Reference #		21923-004B	21923-004B	21923-005	21923-005
ICP - ULTRASONIC NEBULIZATION-- Method used		field filt. DISSOLVED	microwave RAR soluble TOTAL	field filt. DISSOLVED	microwave RAR soluble TOTAL
Aluminum	Al	0.130	0.160	0.116	0.146
Antimony	Sb	< 0.02	< 0.02	< 0.02	< 0.02
Arsenic	As	< 0.04	< 0.04	< 0.04	< 0.04
Barium	Ba	0.076	0.074	0.072	0.072
Beryllium	Be	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Bismuth	Bi	< 0.02	< 0.02	< 0.02	< 0.02
Cadmium	Cd	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Calcium	Ca	48.0	48.4	49.5	49.4
Chromium	Cr	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	Co	< 0.001	< 0.001	< 0.001	< 0.001
Copper	Cu	0.002	0.022	0.002	0.022
Iron	Fe	0.056	0.118	0.040	0.076
Lead	Pb	0.006	0.013	0.007	0.009
Lithium	Li	< 0.05	< 0.05	< 0.05	< 0.05
Magnesium	Mg	14.2	14.8	15.3	15.5
Manganese	Mn	0.022	0.031	0.004	0.008
Molybdenum	Mo	0.005	0.007	0.004	0.006
Nickel	Ni	0.004	0.003	0.003	0.003
Phosphorus	P	< 0.02	< 0.02	< 0.02	0.02
Potassium	K	2.08	2.10	1.87	2.07
Selenium	Se	< 0.02	< 0.02	< 0.02	< 0.02
Silicon	Si	8.83	8.89	8.60	8.68
Silver	Ag	< 0.001	< 0.001	< 0.001	< 0.001
Sodium	Na	11.2	11.4	11.9	11.9
Strontium	Sr	0.43	0.43	0.45	0.44
Thorium	Th	< 0.01	< 0.01	< 0.01	< 0.01
Titanium	Ti	0.002	0.003	0.002	0.003
Uranium	U	< 0.01	< 0.01	< 0.01	< 0.01
Vanadium	V	< 0.001	< 0.001	< 0.001	< 0.001
Zinc	Zn	0.003	0.005	< 0.001	< 0.001
Zirconium	Zr	0.003	0.003	0.002	0.002
Results in		mg/l	mg/l	mg/l	mg/l
TOTAL HARDNESS as CaCO3	mg/l	179.	180.	187.	188.

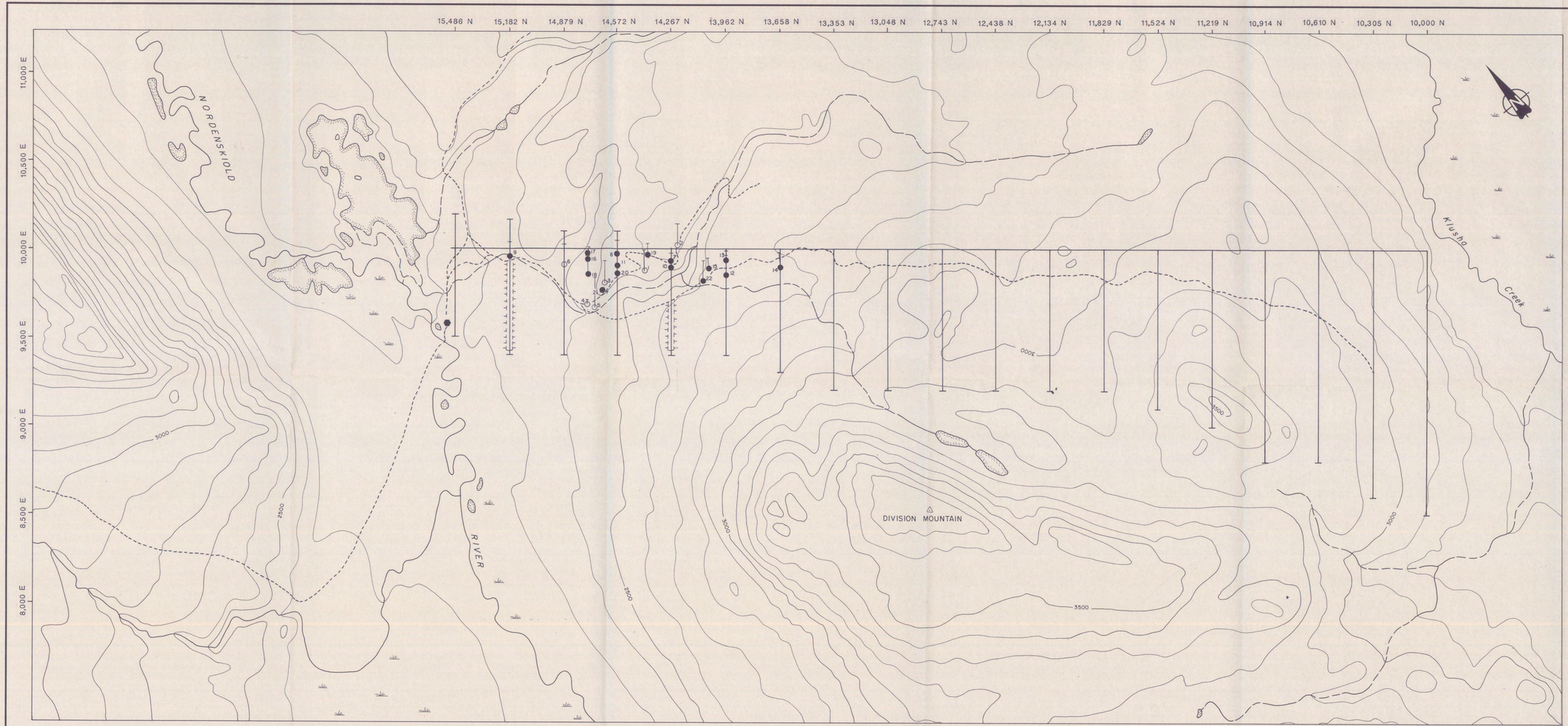
 Analyst:

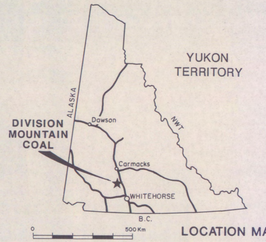
APPENDIX X

WILDLIFE LOG

WILDLIFE LOG
SUMMER/FALL 1993

Date	Game	Location	Recorded By
July 5	Grizzly bear	South grid	Linecutter
July 14	Cow and calf elk	Km 20.0, access road	W. Wengzynowski
September 17	Bull moose	Km 13.0, access road	T. Caron
September 17	16 Sheep	Red Ridge	W. Wengzynowski
September 19	18 Sheep	Red Ridge	W. Wengzynowski
September 25	Black wolf	campsite	G. Duso





LOCATION MAP

- Campsite, 1993
- Access road
- Grid line cut to 1 metre width
- Diamond drill hole, 1972: surface projection
- Diamond drill hole, 1993: surface projection
- Grid line cleared to 5 metre width

Figure 3

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

GRID & DIAMOND DRILL HOLE LOCATION

DIVISION MOUNTAIN COAL

CASH RESOURCES LTD.

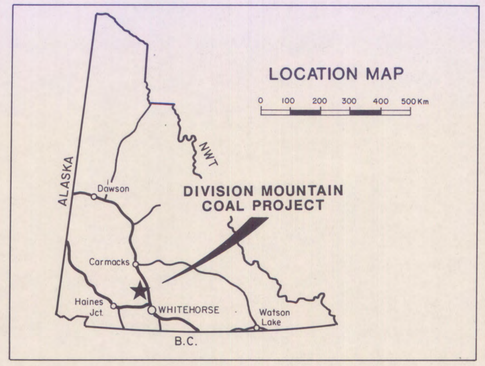
SCALE 1:10,000

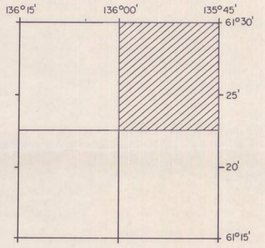
0 100 200 300 400 500 1000 Metres

0 500 1000 2000 3000 Feet

January, 1994

136°00' 55' 50' 135°45'
61°30'





LEGEND

UPPER CRETACEOUS

uKCc — CARMACKS GROUP: andesite sills and flows.

LOWER CRETACEOUS AND/OR UPPER JURASSIC

LKT — TANTALUS FORMATION: chert pebble conglomerate.

LOWER AND MIDDLE JURASSIC

JL — LABERGE GROUP: poorly sorted, medium to massive, arkose/sandstone with minor interbedded shale.

JN — NORDENSKIOLD DACITE: resistant, red-brown weathering, massive, green dacite tuff.

JR — RICHTHOFEN FORMATION: recessive, dark brown weathering, thin bedded, dark brown to green, silty shale.

UPPER TRIASSIC TO JURASSIC

TRc — CASCA MEMBER: recessive, brown and rusty weathering brown shale and green calcareous greywacke and sandstone.

——····· Outcrop boundary, defined and inferred

~~~~ Fault contact, inferred

Figure 5

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

PROPERTY GEOLOGY

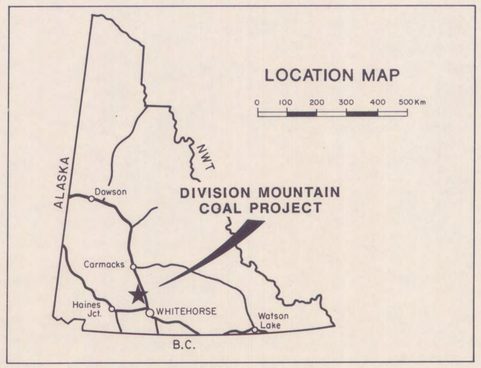
(Y-441)

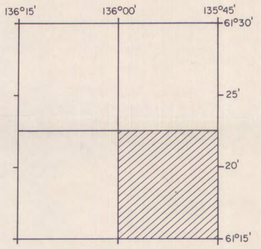
DIVISION MOUNTAIN COAL PROJECT
(NORTHEAST SHEET)
CASH RESOURCES LTD.

SCALE 1:25,000

0 500 1000 1500 2000 m
0 1000 2000 3000 4000 5000 6000 ft

January, 1994
~~~~





LEGEND

UPPER CRETACEOUS

uKCa — CARMACKS GROUP: andesite sills and flows.

LOWER CRETACEOUS AND/OR UPPER JURASSIC

LKT — TANTALUS FORMATION: chert pebble conglomerate.

LOWER AND MIDDLE JURASSIC

JL — LABERGE GROUP: poorly sorted, medium to massive, arkose/sandstone with minor interbedded shale.

JN — NORDENSKIOLD DACITE: resistant, red-brown weathering, massive, green dacite tuff.

JR — RICHTHOFEN FORMATION: recessive, dark brown weathering, thin bedded, dark brown to green silty shale.

Outcrop boundary, defined and inferred

Fault contact, inferred

Syncline axis

Figure 6

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

PROPERTY GEOLOGY

(Y-442)

DIVISION MOUNTAIN COAL PROJECT
(SOUTHEAST SHEET)

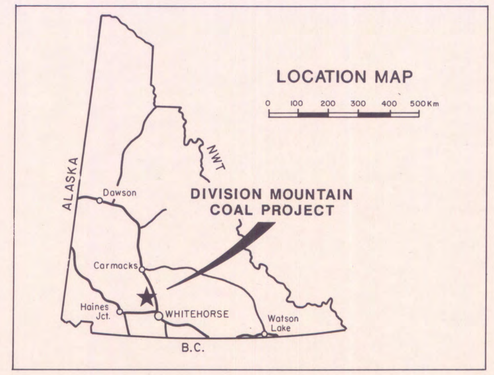
CASH RESOURCES LTD.

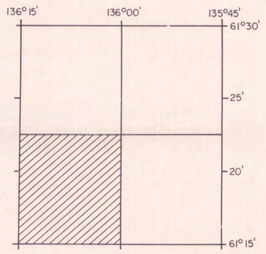
SCALE 1:25,000

0 500 1000 1500 2000 m

0 1000 2000 3000 4000 5000 6000 ft

January, 1994





LEGEND

UPPER CRETACEOUS

uKCa — CARMACKS GROUP: andesite sills and flows.

LOWER CRETACEOUS AND/OR UPPER JURASSIC

LKT — TANTALUS FORMATION: chert pebble conglomerate.

LOWER AND MIDDLE JURASSIC

JL — LABERGE GROUP: poorly sorted, medium to massive, arkose/sandstone with minor interbedded shale.

Outcrop boundary, defined and inferred

Fault contact, inferred

Syncline axis

Anticline axis

Figure 7

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

PROPERTY GEOLOGY

(Y-452)

DIVISION MOUNTAIN COAL PROJECT

(SOUTHWEST SHEET)

CASH RESOURCES LTD.

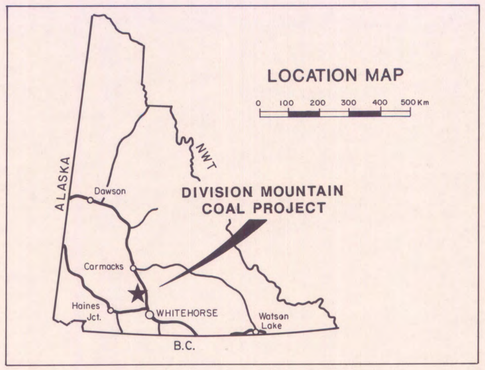
SCALE 1:25,000

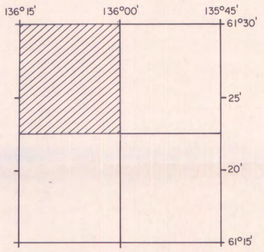
0 500 1000 1500 2000m

0 1000 2000 3000 4000 5000 6000 ft

January, 1994

136°15'
61°30'
10'
05'
136°00'
61°30'
25'
20'
61°15'





R-11A and R-41A
Native Land Claims block

RIVER

NORDENSKIOLD

VOWEL
MOUNTAIN
5000

RED RIDGE
COAL OCCURRENCE

LEGEND

UPPER CRETACEOUS

uKCa — CARMACKS GROUP: andesite sills and flows.

LOWER CRETACEOUS AND/OR UPPER JURASSIC

LKT — TANTALUS FORMATION: chert pebble conglomerate.

LOWER AND MIDDLE JURASSIC

JL — LABERGE GROUP: poorly sorted, medium to massive, arkose/sandstone with minor interbedded shale.

- Outcrop boundary, defined and inferred
- Fault contact, inferred
- Syncline axis
- Anticline axis

Figure 8

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

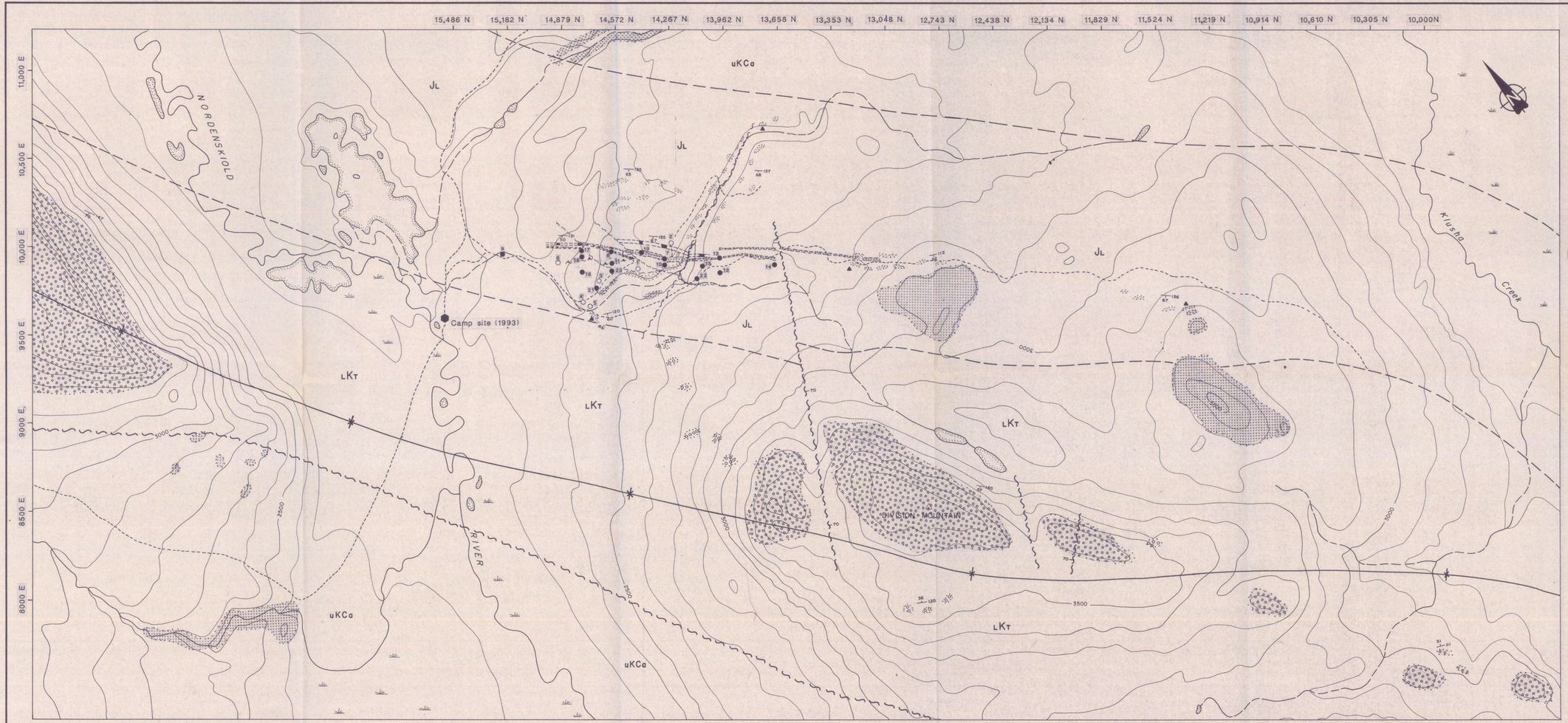
PROPERTY GEOLOGY

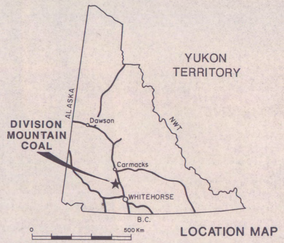
(Y-453)

DIVISION MOUNTAIN COAL PROJECT
(NORTHWEST SHEET)
CASH RESOURCES LTD.
SCALE 1:25,000

0 500 1000 1500 2000 m
0 1000 2000 3000 4000 5000 6000 ft

January, 1994





LOCATION MAP

UPPER CRETACEOUS

uKCa CARMACKS GROUP: andesite sills and flows.

LOWER CRETACEOUS AND/OR UPPER JURASSIC

LKT TANTALUS FORMATION: chert pebble conglomerate.

LOWER AND MIDDLE JURASSIC

JL LABERGE GROUP: poorly sorted medium to massive sandstone/arkose with minor interbedded shale.

- Diamond drill hole, 1972
- Diamond drill hole, 1993
- Cairnes seam projected to surface
- Outcrop
- Geologic contact, inferred
- Fault contact, inferred
- Syncline axis
- 136/67 Bedding orientation
- Coal float occurrence
- Access road

Figure 9

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

DIVISION MOUNTAIN GEOLOGY

DIVISION MOUNTAIN COAL

CASH RESOURCES LTD.

SCALE 1:10,000

0 100 200 300 400 500 1000 Metres

0 500 1000 2000 3000 Feet

January, 1994

14,877 N

14,572 N

14,267 N

13,962 N

13,658 N

13,353 N

10,300 E

10,000 E

9700 E

Tesiin Creek

2500

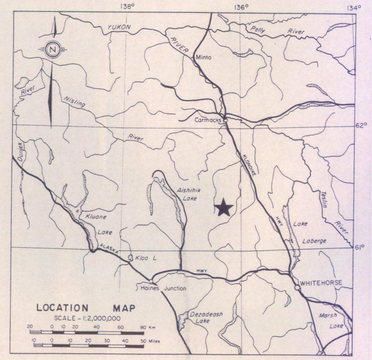
2600

2700

2800

2900

Corduroy Bridge



★ DIVISION MOUNTAIN COAL PROPERTY

LEGEND

- ACCESS ROAD
- TRENCH
- 72-1 — 1972 DIAMOND DRILL HOLE AND ORIENTATION
- 93-7 — 1993 DIAMOND DRILL HOLE AND ORIENTATION
- OUTCROP
- 65 / 119 — BEDDING ORIENTATION
- 71 / 250 — JOINT ORIENTATION
- 1993 HAND PIT
- SLUMP BLOCK BOUNDARY
- GEOLOGIC CONTACT, INFERRED
- FAULT TRACE, INFERRED
- 70 — APPARENT DIP OF COAL SEAM
- COAL
- CONGLOMERATE
- ARKOSE/SANDSTONE
- SHALE
- ANDESITE

Figure 10

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

DIVISION MOUNTAIN GEOLOGY

DIVISION MOUNTAIN COAL

CASH RESOURCES LTD.

SCALE 1:2000

0 10 20 50 100 150 200 Metres

0 100 200 300 400 500 600 Feet

January, 1994

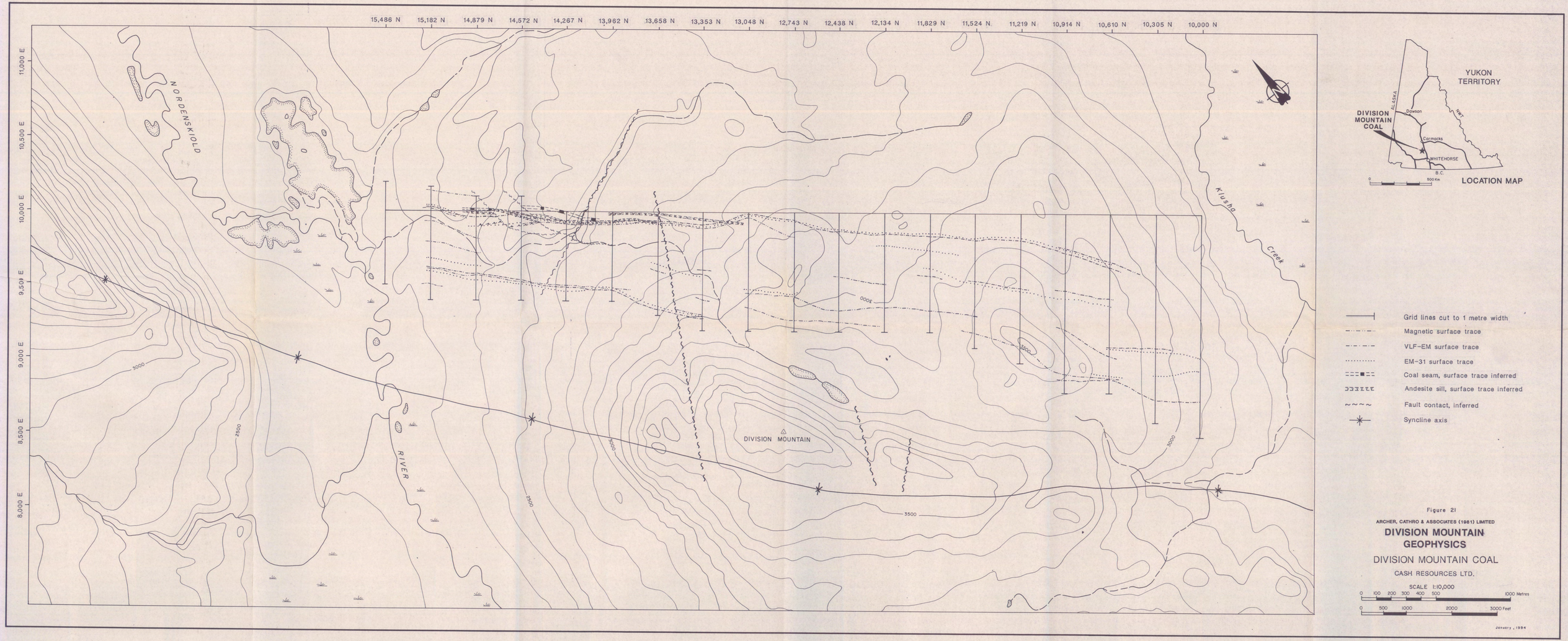


Figure 21

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

DIVISION MOUNTAIN GEOPHYSICS

DIVISION MOUNTAIN COAL

CASH RESOURCES LTD.

SCALE 1:10,000

0 100 200 300 400 500 1000 Metres

0 500 1000 2000 3000 Feet

January , 1984