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GEOPEKO

A REPORT ON THE EXPLORATION ACTIVITY
FOR EL 6/83, MOUNT CLEVELAND
DECEMBER 1983 TO JUNE 1984

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BY

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WITH GEOPHYSICS BY

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VOLUME 1

TEXT, TABLES AND APPENDICES

MICROFILMED

GEOPEKO, DEVONPORT
JUNE, 1984.

Thou waitest for the spark from heaven!

and we,

Light half-believers in our casual creeds...

Who hesitate and falter life away,

And lose to-morrow the ground won to-day.

MATTHEW ARNOLD 1822-1888.

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1. INTRODUCTION

The exploration license 6/83 known as Mount Cleveland was granted to Peko-Wallsend Operations Ltd. on 16th October 1983, after a brief legal skirmish with Cleveland Tin Ltd. (a subsidiary of Aberfoyle), the previous licensee of the ground. EL 6/83 is located between Waratah and Luina in North-West Tasmania. See figure 1. The area has been subjected to intensive prospecting over the past 100 years with the discovery of tin mineralization at Mt Bischoff and Cleveland and lead-silver zinc mineralization at the Magnet Mine. The EL itself is located between the Cleveland Mine, five kilometres West-South West and the Magnet Mine located less than a kilometre from the northern boundary of the license area. Indeed the track to the Magnet Mine passess from south to north through the EL, providing good vehicular access.

The area is covered in dense rainforest with varied and thick undergrowth. The dominant tree types are myrtle (Nothofagus cunninghami), sassafras (Atherosperina moschatum), leatherwood (Eucryphia billardieri), and celery top pine (Phyllodadus rhomboidalis). Euculypts predominate in the north western corner of the EL and again in the south-east corner. The understory is composed of horizontal (Anodopetalum biglandulosum), tree fern (Dicksonia), tea-tree and bauera.

The terrain is variable with a plateau in the central southern part of the EL which composes about 30-40% of the area with the remainder formed of deeply incised valleys and steep ridges, often with small escarpments. The ridges generally trend north-east to south-west. The elevation, though variable is high, i.e. greater than 500m.

The climate is harsh, especially where exposed, the winters are cold and wet with snow particularly on the higher ground. The summers are relatively dry and warm. Rainfall recorded at the Magnet Mine, during its operation, averaged 2250 mm per annum (Nye 1923).

The predominant industry in the area for the past 100 years has been mining, with some agriculture.

2. THE MOUNT CLEVELAND EXPLORATION PROGRAMME

A Summary Of Exploration Prior To Peko's Tenure.

The area has been prospected since the 1870's with mining commencing at Mount Bischoff in 1871 (Groves et al 1971) and the area quickly became a centre of tin mining. Lead and zinc were discovered at the Magnet Mine in 1888 (Nye 1923). The Cleveland Mine was discovered in the late 1890s (McIntosh Reid 1923).

A number of reports were written in the mid 1950's concerning work undertaken by the Tas. Dept. of Mines and the BMR in the area of the Cleveland Mine e.g. Hughes (1953) and Keunecke and Tate (1954).

The work undertaken by Cleveland, following the granting of their EL is outlined below.

i Gridding

EL 6/83 is covered by the north-eastward extension of the Cleveland Mine grid, this grid was composed of an informal base-line which has an approximate north-east to south-west trend with traverse lines (numbered NL 4 to NL 26), roughly at right angles to the base line, the traverse lines are spaced at intervals of between 100 and 130m at the base-line and 10 to 200m at the extremities. The grid covered a total of 42 line kilometres.

ii Geology

The EL has been the subject of extensive and detailed mapping such as Cox (1968) and later, in conjunction with the 1980 soil sampling programme (Hespe 1983). The quality of this mapping is good, the knowledge possessed by the Cleveland Mine geologists would have proved valuable for detailed geological mapping of the area. The most recent and comprehensive regional mapping has been by Peter Collins of the Tasmanian Geological Survey who mapped the Cleveland Mine and the area south of EL 6/83 (Collins 1981). It is thought that these maps provide the most accurate correlation between the Cleveland Mine and the license area.

iii Geochemistry

Cleveland undertook a stream sediment survey in 1974 with samples taken at a density of $6/km^2$. The samples were initially analysed for As, Ag and Bi by emission spectrography and the fluride ion content was measured by selective ion electrode. Five years later the samples were re-analysed for tin, tungsten and rubidium. The negative response in this part of Clevelands tenure down graded it relative to those parts that indicated the presence of tin.

Soil geochemistry has been undertaken by Cleveland throughout the history of EL 1/63 the most recent and relevant work was undertaken in 1980 along four cut-lines: NLs 10, 14, 18 and 22. Samples were taken by hand auger from the C horizon at intervals of 25m, with follow-up sampling at 12.5m intervals over "anomalous" areas. Analyses were by XRF for Sn and WO_3 and by AAS for Ni, Pb, Zn and Cu. It is thought that the analyses for tin and tungsten were undertaken in the laboratory at the Cleveland mine, this may account for the spuriously high readings for tin and tungsten which bare no similarity to the results from the Geopeko orientation programme - See below. The results of Clevelands soil sampling gave no indication of mineralization.

iv Geophysics

Cleveland covered their tenure with an airborne magnetic survey in 1974 (Palmer 1975), this survey, whilst detailed was not of a high quality due to poor data-processing techniques.

Ground magnetics along lines NL 10, 14, 18 and 22 were undertaken in 1980 with a sample interval of 25m, the wide spacing of the traverse lines together with the relatively limited cover has little chance of success, although as stated by Hespe (1983) "Ground magnetics has an obvious application for exploration for Cleveland stype pyrrhotite/cassiterite mineratlization and has found wide use as an aide to mapping".

A DIGHEM survey was flown in 1981 over Cleveland's tenure, "two bedrock conductors" were found on the central southern part of the current license area although they were not followed up, these anomalies were thought to be of a fairly low order and not likely to be caused by mineralization. Airborne magnetics were also undertaken with this survey.

From the review of the earlier exploration activity over EL 6/83 it is clear that a significant amount of work had been carried out, which in other parts of their tenure had met with some technical success. There was however doubt about effectiveness and quality of some of Clevelands work, particularly the soil sampling and the geophysics. These techniques it was subsequently decided could be improved upon, both as direct aids to detecting mineralization and to improve the understanding of the regional geology. The geological mapping was thought to be of a good quality, only requiring field checking in order to gain an aquaintance with the rock types and to act as a control for the geochemistry and geophysics. The presence of an untested DIGHEM anomaly was not rated as a major enducement to exploring the ground.

B. Geopeko's Proposed Exploration Programme

The primary reason for Geopeko aquiring the ground was because it lay along strike from major mineralization, to the south-west the Cleveland Mine and to the north the Magnet Mine. The target was for Cleveland style replacement pyrrhotite - cassiterite mineralization. To this end it was decided to mount an intensive, integrated exploration programme between January and April 1984. The first phase of this programme was to assess the access problems of the area, fortunately the existing grid was in good order, requiring only minimal refurbishment. It was decided to persist with the idiosyncracies and vagaries of the Cleveland grid given the expense and time of cutting a completely new one. However the Cleveland grid did not cover the entire EL and it was decided both to extend some of the existing lines and to cut further lines over the DIGHEM anomalies. In all a further 17.2 Km were cut bringing the total grid to 59.2 line kilometres.

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Geopeko's 1984 programme was composed of the following:-

i Geology — Mapping the entire grid at a scale of 1:2500.

ii Geochemistry — An orientation geochemical programme, to check the feasability of the technique and the results of Clevelands survey.

Selective C horizon soil sampling.

Pan-concentrate sampling, firstly for visual examination and secondly to check the presence of tin and tungsten.

iii Geophysics — Follow-up of the DIGHEM anomalies on the ground using TURAM.

Detailed ground magnetics, to test for the presence of Cleveland style mineralization and to assist with the geological mapping.

Fixed loop SIROTEM over prospective geological targets.

C. A Discussion of Geopeko's 1984 Exploration Programme

i GEOLOGY

Regional Geology

EL 6/83 lies within the Dundas Trough, a north-east to south-west trending sequence of early Palaeozoic eugeosynclinal deposition.

The license area is located within a sequence of argillites (frequently silicified) siltstones, tuffaceous siltstones, greywacks, with basalts, gabbros and serpentinites. The sequence forms part of the Crimson Creek Formation, which occurs at the base of the western portion of the Dundas Trough (Collins 1981). The area was intruded by the Devonian Meradith Heemskirk Granite which crops out extensively to the south and east of the EL, the nearest point being approximately four kilometres to the southeast.

Stratigraphy

The 1984 programme indicated a close correlation with the earlier work of Cleveland. There is some controversy as to the direction that the sequence is facing, evidence indicating that the sequence ages to the east was pointed out to the author by Collins (pers. comm) on the Luina to Waratah road, this was based largely on the direction of grading on steeply dipping greywackes, however this was opposite to the view held by Cox (1968) who believed in an eastward facing sequence. The author believes the Collins argument to be correct (it is largely academic for the purposes of this report).

The stratigraphic sequence is shown below on Table 1.

TABLE 1.

The Crimson Creek Fromation - Cambrian

The Crescent Spur formation	micaceous greywackes with argillite sequences.
The Halls Formation	shale, silicified shale with basaltic volcanics.
The Deep Creek formation	basic volcanics.

Assuming the correct stratigraphy is given in Table 1, broadly speaking one moves down sequence from north west to south east, however a large number of faults are thought to be present which caused the stratigraphy to be chopped up and displaced for instance greywackes occur in the south east corner of the EL will away from their main stratigraphic position in the west.

Lithologies

Sedimentary Units

a. Argillites, the most dominant sediment is the argillite, it varies in colour between white, grey, red, brown and purple. The variation in colour is thought to be a post-depositional change as it can be seen to transgress apparent bedding planes. The argillites are frequently silicified possessing a chert like appearence again this is thought to be a post depositional alteration. Where the unit outcrops,bedding and occasionaly cleavage can be seen. The bedding is generally fine and shows a steep dip with a strike between north and north-east.

b. Micaceous greywacke, this unit varies in colour from sandy (the most common), yellow brown to brick red. It contains coarse flakes of mica, usually muscovite, although biotite becomes more common adjacent to the Cleveland Mine (Collins pers. comm.) The micaceous greywacke is seldom seen in outcrop, it is generally massive when seen as float although bedding,including graded bedding can be seen in road cuttings on the Luina to Waratah road. The composition is relatively uniform containing major micas, quartz, feldspar and clays. This unit is generally unstressed and lithologically homogenous.

c. Metasomatized greywackes are to be found in the south-east corner of the EL, they are dark grey with white "grains" of feldspar. In a petrological examination undertaken by C.M.S. (appendix 1) The major minerals were found to be actinolite, biotite and plagioclase with accessory sphalerite and pyritised pyrrhotite.. The unit, which was only rarely seen, is generally medium to coarse grained and massive.

d. Purple Sediments, east of a major fault that passes through the eastern half of the EL. There are a series of purple sediments ranging from fine grained, fine banded shales to coarse siltstones andfine greywackes/lithic sandstones. They are heavily ferrugenised and composed of quartz, feldspar and oxidized opaques with accessory degraded ferromags silicates (CMS report), with veinlets of quartz

and calcite. The unit varies only in grain size and bedding. It gives a uniformally high magnetic response. See Figures 4&5.

e. Miscellaneous sediments within EL 6/83. There are a number of relatively small occurrences of highly weathered silt sized sediments, possibly of tuffaceous origin which contain white flecks of weathered feldspar.

Igneous Units

In general the igneous units, with the exception of the gabbros are poorly exposed within the EL, only occuring as highly weathered iron and manganese stained rubble and small outcrops. The Luina to Waratah road provides the best outcrop, but again severely weathered.

a. Spilitic Basalt, the largest outcrop of this unit is near the junction of the Magnet Mine track and Luina to Waratah road. Collins (1981) describes this unit as occuring with "intercalated and interbedded pyroclastics, volcaniclastic greywacke, red argillite and red-grey chert", although this type of sequence could not be found on the EL. Locally the spilitic lavas exhibit pillow structures, these can be seen just west of the junction of the Magnet Mine track and Luina to Waratah road and again adjacent to the Magnet track on NL 17. The spilitic lavas can be traced north-eastward through the EL by means of the ground magnetics, their response is more marked than the tholeitic basalts to the east and the argillites to the west.

b. Basalts of a tholeitic composition (Collins 1981) are to be found to the east of the spilitic lavas. In keeping with the mafic and ultramafic units of the Crimson Creek Formation they form a recessive unit which does not crop out on the EL. Evidence of their extent is based on weathered float and boulders.

c. Altered Gabbro, there are a number of gabbroic units within the EL which occur both as major (?) concordant bodies and as minor dykes. There are two major occurences of this Gabbro on the EL,

both to the north-west of the base line, they are clearly visible on the ground as large outcrops and boulders, forming along the tops of ridges, locally forming escarpments. The gabbros are medium to coarse grained, massive and tough to hammer. Petrological examination by CMS indicated that the gabbros (or microgabbros) have been altered with actinolite present together with prehnitised feldspar (andesine) chloritised augite, with disseminated magnetite accessory pumpellyite and epidote. The disseminated magnetite is sufficient to give the gabbros a pronounced magnetic signiture.

d. Gabbro, a further less conspicuous gabbro occurs in the south-eastern part of the EL. It is light grey in colour and contains major plagioclase (Labradorite), colourless augite and ilmenite with traces of apatite and biotite, the unit is weakly magnetic.

e. Mafics and Ultramafics. The eastern side of the southern boundary contains a large area of mafic and ultramafic unit. The units are very poorly exposed, evidence of their extent is from sparse boulders and float together with vegetational changes and the low magnetic response. The one member of this group that is recognisable is a very green volcanic unit possibly belonging to the high magnesium andesite classification of Brown (Collins pers comm). Pan concentrate samples in this area showed a very high percentage of rutile.

Metamorphic Units

a. Serpentinite, is present in a number of localities throughout the EL in lenses of black fine grained waxy unit that has a cherty appearence. It can be readily distinguished from argillitic units by its magnetic response to a pen magnet. The unit has a typically massive habit which further distinguished it from the argillites. Petrological examination indicates that is is composed of antigorite with minor serpophitic serpentine and fine magnetitie (CMS report). The unit was thought to have been derived

from a dunite. A large outcrop can be seen in a quarry on the western side of the Luina township.

b. Carbonate. Coarsely crystalline carbonate was observed in one outcrop in the White River on NL 24 in the north-west corner of the EL. The carbonate, the only carbonate seen during the mapping is thought to have been caused by the alteration of a calcium rich mafic unit.

To summarize the findings of the geological mapping.

Firstly the outcrop within EL 6/83 is restricted primarily by rock type and also by topography, therefor mapping tends to over estimate the abundance of rock types such as the argillite and gabbro at the expense of the recessive units such as the greywackes and the ultramafics. The 1984 mapping essentially only added to the degree of detail resolution in the knowledge of the distribution of the rock units. No direct or indirect indications of mineralization were gained from this programme.

The results of the geological mapping can be seen in figures 2 - Factual Geology and 3 - Interpretation Geology. The factual geology plan incorporates the logs of rock ship samples from the C horizon soil sampling programme, on lines 8,12,16 and 20 and 22. The interpretation geology plan draws from information gained from both the geochemical and geophysical surveys.

ii GEOPHYSICS

a. Magnetics

The existing grid and extensions were covered by a ground magnetometer survey in order to aid in geological mapping and to detect,if present, any magnetic anomaly which may be caused by a massive pyrrhotite body. The magnetometer used was a Geometrics G816, with diurnal corrections applied using data aquired by a Geometrics G856 base magnetometer. The sampling interval along grid lines was 10m.

The magnetic intensity contour plan presented as figure 5,I-IV show elevated levels of magnetic intensity over the various magnetic rock formations that occur within the area, namely gabbro, serpentinites, purple sediments occuring in the north east of the area, and to a lesser degree spilitic basalts. The exception to this is an anomaly occuring on line NL 25, at approximately 275 E. This anomaly occurs within greywacke and argellite which are elsewhere non magnetic. To date this anomaly is unexplained, however as it has a very shallow source sampling of the soils across the zone should reveal if its source is of any economic interest. Profiles of Total Magnetic Intensity are shown in Fig. 4, I - IV.

b. TURAM

In order to locate the position of the DIGHEM airborne EM anomaly identified during a survey conducted by the previous licence holders, a small TURAM survey was undertaken over the area where the airborne anomaly occured.

Seven lines were read using a Scintrex SE - 77 multifrequency TURAM unit, with the primary field being generated by a transmitter loop approximately 500m x 650m, driven by a Scintrex TSQ - 1 transmitter (see figure 6). All lines were read using a frequency of 945 Hz, which is close to the transmitted frequency of the DIGHEM II system, while where radio communication permitted readings were also taken at 315 Hz. Line 20.5 was read with all available frequencies as a

test to see which would be the most effective. The profiles of normalised field strength ratio and phase difference are included as figures 7 (a) to 7 (f).

The profiles do not show any discrete bedrock conductor which would directly relate to the airborne anomaly. It seems likely that both the airborne and ground EM responses are due to a conductive and laterally inhomogeneous surface layer.

John Sumpton.
Geophysicist

c. SIROTEM

In March and April of 1984, a program of fixed loop SIROTEM was planned, to cover the most prospective area of the Cleveland grid.

Taking the local geology into account, any conducting body would probably be small and steeply dipping. Fourteen transmitter loop locations were planned to completely cover the prospective area, each loop being 400 x 100m in size. The equipment used was the SIROTEM MK2 unit and a one metre diameter receiver coil with an effective area of $200m^2$. The traverses read were up to 400m long, 100m apart with 25m station spacing. Only the vertical component was read, with a view to reading the horizontal components if an anomaly was encountered. The maximum depth penetration using this set-up is of the order of 300 - 400m.

The survey commenced during the third week of March. Progress was delayed by bad weather and by high electromagnetic noise levels which were at first thought to be due to sferic activity, but ultimately pinned down to a 22 kilovolt power line which supplied the Savage River Mine. The power line was two km. from the grid, and under intermittent load such that some days it was not possible to operate. The noise was usually of the order of five microvolts in all channels. Transmitter loops one and two were read, and two lines on loop three were also completed before the survey was terminated.

Results

There is an anomalous response in the loop one and loop two data. It is most evident as the negative low at 775E on NL 19, but is also apparent at 725E on NL 18 and 800E on NL 19, loop two (see attached contour maps of transient response in channels eight and twelve for loops one and two). This would indicate the presence of a steeply dipping (grid west) conductor situated near 800E on NL 19.

Interpretation

Initially, attempts were made to model this response using the CSIRO program, PLASI, which computes the transient response along traverses over a plate with variable orientations and dimensions. This proved unsatisfactory to model the field data, however, due to the odd shape of the anomaly.

The most acceptable interpretation of this response is that it is caused by a chemically weathered zone along the boundary between two rock units, being the magnetic, resistive spilites to the North and the non-magnetic, low resistivity basalts to the South. This boundary is evident on the airborne magnetics and DIGHEM maps, and is drawn on the SIROTEM contour maps. The local topography in this particular location also supports this, as there is a wide depression around 800E on NL 19.

The depth to the top of the conductive zone is approximately 20 - 30m. The zone becomes bigger with depth and extends up to the North along the lithological boundary. Profiles of Transient Response are included as figures 8(A) to 8(J), and contour plans with loop positions are presented as figure 9(a) to 9(d).

James Gunson
Geophysicist

iii GEOCHEMISTRY

a. The Orientation Programme

The area of EL 6/83 has been the subject of a number of soil sampling programmes and before embarking on yet more geochemistry it was decided to undertake a brief orientation programme for two reasons:

First to assess the effectiveness of the technique, a number of gullies along the Luina to Waratah road contained thick, non residual clay and gravel deposits of possible Tertiary age. Such alluvial cover would prevent accurate and consistent results from a soil sampling programme as they would act to mask the true response from the country rock.

Second to check the sampling and analytical techniques of Clevelands 1980 soil sampling survey.

A line was chosen, NL 22, that was included in the Cleveland survey and was thought to be typical of the area. Samples were taken at 25 metre intervals by means of a hand held power auger, where possible samples were taken from the C horizon just above bed-rock down to a maximum depth of two metres. The samples were taken at approximately the same position as with the Cleveland survey between the base line and 1050m E. As well as analysing the samples for Cu, Pb, Zn, Ni, As, Fe, Mn, Sn and WO_3, the rock types, the soil horizon and depth of hole were recorded. See figures 10 A - I.

The results of the orientation programme indicated that soil sampling was only of use in selected areas, not only were non-residual clays encountered but also extensive scree material, on steep slopes where there was little or no soil development. This meant that C horizon soil sampling could only effectively be undertaken on flat ground where neither of these problems would arise.

With the exception of tin and tungsten the orientation programme showed a good correlation with the results of Clevelands survey, the character of response was similar in both surveys although the reported readings varied. The tin and tungsten results were very different, the tin results of the orientation survey did not rise above the minimum detection

limit of 5 ppm whereas Clevelands results showed a number of peaks of upto 320 ppm, the discrepancy is put down to Clevelands results being contaminated, probably in the laboratory. A similar story is true of tungsten, however a peak of over 50 ppm WO_3 from the orientation programme coincided with a peak in Clevelands results which it was decided to pursue further. See below.

The correlation of certain geochemical values, particularly Cu and Ni with rock types it was thought would provide a useful tool in geological mapping. E.g. Cu values were high over basalt and clay but low over gabbros.

A number of conclusions were drawn from the orientation programme.

1. That C horizon soil sampling could only be used on the flatter parts of EL 6/83 in south-east quadrant.
2. That Clevelands tin and tungsten results should be treated with caution.
3. That there was a good correlation between the results of the two surveys (with the exception of tin and tungsten).
4. That soil geochemistry could prove to be of use in the geological mapping of the license area.

b, The C Horizon Soil Sampling Programme

Following the conclusions of the orientation programme the idea of large scale soil sampling was abandoned in favour of selective soil sampling over the relatively flat lying plateau in the south-east quadrant. The survey was undertaken for three reasons:

1. To locate near surface mineralization including a possible primary halo adjacent to the body, as is found at the Cleveland Mine.
2. To gain chemical information in order to distinguish rock types.
3. To collect rock ships in an area where surface geological information is scarce.

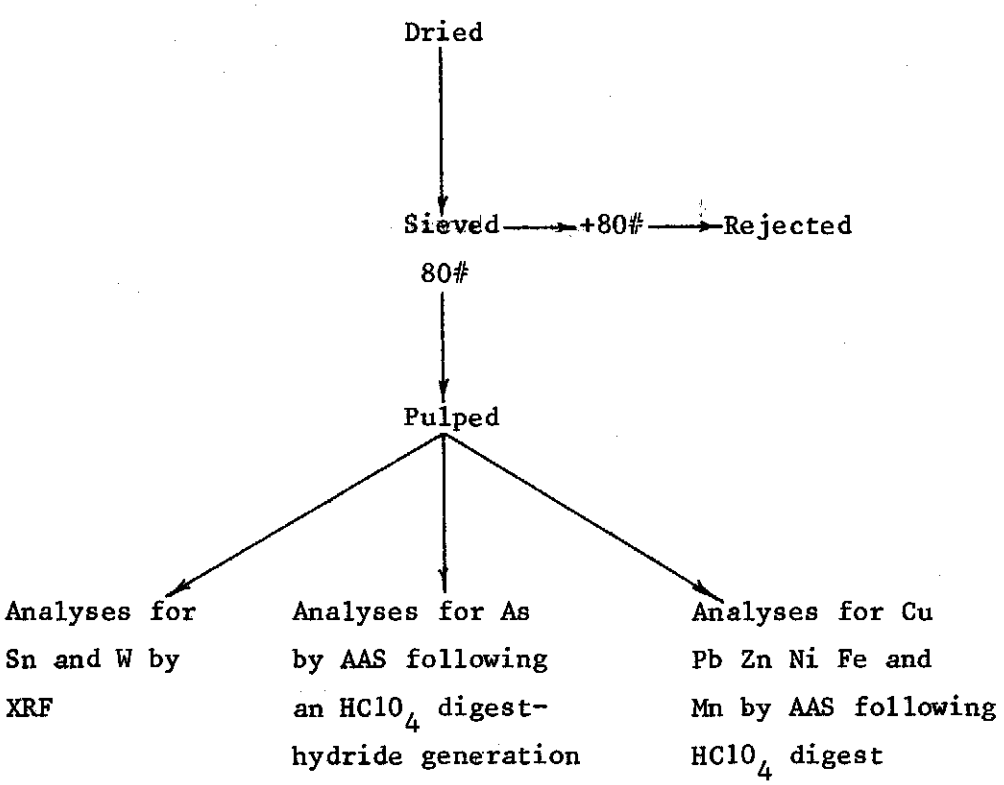
Four lines were selected: NLs 8,12,16 and 20 which lay mid-way between the lines sampled by Cleveland, thereby giving a good cover of soil sampling in the eastern part of the EL.

Sampling Procedure

Samples were taken at 25m spacings by means of a hand held power auger which had the capability of drilling to a depth of two metres. This capability meant that the C horizon was reached in almost every case. Once the C horizon had been reached the sample was taken by means of a retriever. Two sample bags were filled. The first, bag A, was dried and sent to Aust. Lab. Services for analysis, the second, bag B, was returned to Devonport initially to be logged and then to be stored at the Geopeko office.

Sample Preparation

A Samples



B Samples

40% of sample removed from bag, this fraction is then washed and the rock chips are logged, bagged and stored for future reference.

Results

The results of the analyses are summarized below in Table 2.

Table 2.

Summary of the Results of the Soil Geochemistry

Element	Range		Population Breaks							Expected figure
	Low	High	i	ii	iii	iv	v	vi	vii	for temperate soils
Cu	2	800	12.3	270	(800)	-	-	-	-	25
Pb	10	1250	22	54	95	210	(1250)-		-	40
Zn	2	700	23	440	(700)	-	-	-	-	10-600
Ni	5	4000	27.5	45	180	620	1250	(2000)-		25
As	1	40	13	36	(40)	-	-	-	-	1-50
Mn	3	6.0%	45	95	180	650	950	4500	(6%)	850
Fe%	0.3%	20%	2.3%	6.5%	(20%)	-	-	-	-	-
Sn	5	10	-	-	-	-	-	-	-	2-10
W	10	50	-	-	-	-	-	-	-	-

NB

1. All figures in ppm unless stated otherwise
2. Trace element values for soils taken from Levinson 1974.
3. The figures used to compile the above table incorporate those from the orientation programme and the follow-up sampling as well as the main soil sampling programme.

The results of the C horizon soil sampling were subjected to cursory statistical analysis by means of cumulative frequency plots and the break down of the data in statistical populations. This was done primarily with a view to assisting the geological mapping. The technique employed for the analysis of Cu, Pb, Zn, Ni, Fe and Mn was such that complete extraction of Fe and Mn would not have occured and that low

reported values may have been reported for Pb and Zn when high Mn was present. The Fe and Mn values were high, despite the possibility of incompleted extraction and therefor it can be assumed that Pb and Zn values may be artificially low. These points however do not hide the fact that no obvious signs of mineralization arise from the data although the author acknowledges that an in depth study of the results together with those of the Cleveland survey could prove beneficial. The four lines of soil samples failed to discover tin values greater than 10ppm and tungsten values greater than 40ppm. The absence of tin in levels greater than 10ppm is a good indication that tin mineralization does not occur on or adjacent to the lines tested.

c. Follow-up Sampling

Follow-up sampling was undertaken in the area of NL 22, and adjacent lines, where tungsten values of 50ppm were recorded in the orientation programme. These values were coincident with a peak from Clevelands programme. The area in question is on a steep scree slope of silicified argillite where soil development is very poor and therefor unsuitable for this technique, however repeat sampling was deemed worthwhile together with some pan concentrate sampling. The follow-up sampling was able to repeat the values found in the orientation programme, however there was no indication of tungsten in pan-concentrates taken from the drainage system in that area. The significance of these relatively high values of tungsten is difficult to assess. Two possibilities arise:

1. That they are caused by minor mineralization at the point of origin of the scree material in dense undergrowth and therefor difficult to pursue.

2. They are caused by contamination of the sample in the process of augering the hole, with tungsten from the auger rods in the hard silicified argillite.

The second possibility is thought less likely because of the reproducability of the high values and the absence of similar values in other areas of silicified argillite. Either way no further work is

recommended. The results of all the soil sampling are given in figure 11 I -IV and the analytical data sheets are given in appendix 2.

d. The Pan Concentrate Sampling Programme

A pan concentrate sampling programme was mounted coincidently with the geological mapping. In all 21 pan concentrates were taken, the distribution of samples was not even thoughout the EL but locally concentrated in areas of interest e.g. the creeks draining the area of high tungsten values in the orientation soil sampling programme. The reason for the survey was two fold: firstly to observe the heavy mineral concentrations as an aid to mapping and secondly to locate concentrations of the following elements:- Sn, W, Mo and Au.

Samples were taken from sites where heavy minerals would accumulate. Sands, gravels and silts were taken from the creeks and sieved at 4 mm, the minus 4 mm was pan concentrated by a (visually estimated) factor of 40. The concentrate was observed and sent to Aust. Lab. Services for analysis by means of XRF for Sn, W and Mo, and by AAS/carbon rod, after an aqua-regia digest for Au.

The results do not indicate the presence of Sn, W, Mo or Au. The EL provides an ideal environment for drainage sampling and the absence of significant quantities of these elements greatly reduces the chances of mineralization being present. The results of this survey are given below in Table 3 and in Figure 11 I - IV.

TABLE 3 :

MT CLEVELAND PAN CONCENTRATE SAMPLES

SAMPLE NUMBER	Sn ppm	W ppm	Mo ppm	Au ppb
TD 10351	30	(10	8	5
TD 10352	5	(10	12	(3
TD 10353	(5	20	12	25
TD 10354	(5	10	8	200
TD 10355	(5	40	28	(3
TD 10356	5	10	24	5
TD 10357	(5	10	4	20
TD 10358	(5	10	4	(3
TD 10359	(5	(10	(4	(3
TD 10360	95	(10	4	3
TD 10361	5	(10	20	(3
TD 10362	(5	(10	(4	(3
TD 10363	(5	10	4	5
TD 10364	160	10	32	(3
TD 10365	190	10	8	(3
TD 10366	(5	20	4	(3
TD 10367	(5	(10	(4	(3
TD 10368	(5	10	4	(3
TD 10369	(5	10	8	3
TD 10370	105	(10	4	(3
TD 10371	5	10	4	(3

3. EXPENDITURE

Table 4 below outlines the expenditure of the Cleveland Project for the 1983 - 1984 financial year.

Table 4. Expenditure for EL 6/83, Mount Cleveland 1983/84 Financial Year.

	$
Salaries - Geologists	16668
- Geophysicists	8559
- Drafting	830
- Other	654
Wages - Field Assistants	5178
- Drafting	1412
Tenement Expenses	31
Vehicles	3358
Travel and Accommodation	5953
Freight	1740
Supplies	1976
Sustenance	3766
Premises - Housing	97
- Other	1600
Communications	9
Maintenance	278
Other Expenses	1665
Maps	312
Mineralogy & Petrology	316
General Contractors	1895
Survey and Gridding	7692
Geochemistry	6191
Drilling - Soil Probe	1134
- Diamond	92
Geophysics - Graphics On Charge	2974
PPN Indirect Cost	29636
Management Charge	28353
TOTAL COST	$152,369

NB. These figures have been compiled from Geopeko's Project cost statement for May 1983-84 and calculated to include the costs until the end of June 1983-84.

4. Conclusions and Recommendations

A. GEOLOGY

The 1984 mapping programme enhanced the understanding of the geology of the area considerably although it gave no indication that Cleveland style mineralization exists on the EL. Whilst this conclusion is not surprising given the limited outcrop, there were also no indications of carbonates such as the limestone horizon present at the Cleveland Mine. limestone does not outcrop.

B. GEOPHYSICS

i. Magnetics

The detailed ground magnetic cover contributed greatly to the geological picture, However there were no indications of pyrrhotite bearing bodies, although it should be pointed out that such bodies give a magnetic response that could be masked by one of the more magnetic igneous units such as the gabbro or spilitic basalt. One small anomaly occurs on NL 25 between 200 and 350E that can not be answered by known geology.

ii. TURAM

The TURAM survey showed that the DIGHEM anomaly was most likely caused by a conductive and laterally inhomogeneous surface layer and as such is of no further interest.

iii. Fixed Loop SIROTEM

This survey suffered from a number of logistical problems one of which was the high voltage power lines to the south of the EL. It is unfortunate that not more time was available so that a true assessment of this technique could be made. This type of deep penetrating EM survey probably provides the most promising method for future exploration in the license area.

C. GEOCHEMISTRY

a. Orientation Programme

This proved a worthwhile excercise showing that soil sampling was of limited use in this area due to the presence of extensive, non residual clays and gravels and the poorly developed soils on steep

scree and boulder strewn slopes. Further, that with the exception of the Sn and W values the results of the Cleveland Tin survey were comparable with Geopekos survey. The Sn and W values should be treated with caution.

b. The Soil Sampling Programme

No direct evidence of mineralization was gained from this survey other than to provide further information to the geological mapping.

c. Pan Concentrate Sampling

The pan concentrate sampling, it is thought, would have given some indication of the presence of tin and tungsten in an area such as EL 6/83. The results of this survey concur with those of Clevelands drainage sampling survey in showing that the drainage system in the license area does not contain these heavy mineral concentrates.

To summarize, the basic geological idea, for which Geopeko took up the tenure, was that the area contains the strike extension of the stratigraphic sequence similar to that at the Cleveland Mine. However the exploration work undertaken by Cleveland Tin and Geopeko has failed to locate near surface mineralization, which given the incised topography is a large volume of rock. Therefor one must assume either that the area has no potential or that the mineralization is below a depth explored to date.

Recent exploration in Tasmania has shown that deep sulphide-bearing bodies can be detected by means of deep penetrating EM techniques such as Utem or SIROTEM. From a technical point of view it is recommended that this work should be undertaken over selective parts of the EL namely the central argillitic horizons. However one must first assess whether it is worthwhile searching for a deposit that:

a. would produce tin as its major ore, for which the short to medium future is bleak.

and b. would have to be mined underground where costs are necessarily higher.

It is the opinion of the author that given the current economic circumstances, the potential for an ore body to be found within EL 6/83 is not sufficiently good to warrant further work at this time.

Acknowledgements.

The author wishes to acknowledge the assistance given by a number of people and organizations involved in the 1983/84 Mount Cleveland programme. Firstly Dr. Peter Collins of the Tas. Dept. of Mines for his knowledge and opinions concerning the geology of the area. Secondly Metals Exploration Ltd. for the use of their camp at Waratah. Further the author wishes to thank the field crew who assisted with the exploration programme particularly Mick Good and Ron Dean for perseverance.

401031

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031

401032

APPENDIX 1

PETROLOGICAL REPORT

CENTRAL MINERALOGICAL SERVICES

MARCH 1984

032

401033

Central Mineralogical Services

39 Beulah Road
Norwood, S.A. 5067
Telephone 42 5659

Mr. S. D. Turley
Geologist
Geopeko
P.O. Box 598
DEVONPORT / TAS. 7310

6th March, 1984

REPORT CMS 84/2/11

YOUR REFERENCE:	Purchase Order No. KP 3371
DATE RECEIVED:	21st February, 1984
SAMPLE NOS.:	KR 12607 - KR 12616
SUBMITTED BY:	S.D. Turley
WORK REQUESTED:	Petrology

for

H.W. Pander, M. Sc.

REPORT CMS 84/2/11

Ten rock samples (KR 12607 - KR 12616 incl.) were received for thin-section preparation and identification. Representative thin-sections were prepared, examined in transmitted light and, together with their respective offcuts, in oblique incident light. Petrological features are summarised in the attached brief tabulated descriptions which include interpretative comments.

Summary

This suite is a composite of variably altered igneous and psammopelitic sedimentary rocks. The clastid sediments include a protoquartzite, but are more typically strongly basic-intermediate volcanomict labile turbiditic types, which may be closely compared with the "tuffaceous greywacke" facies of the Crimson Creek Formation. These rocks exhibit a diagenetic to low-grade metamorphic chloritic alteration assemblage, locally supplemented by marginal contact-metasomatic assemblages of actinolite and biotite.

Igneous rocks may be categorised into two groups, dolerites (or strictly micro-gabbros, i.e. medium-grained, gabbroic) and ultramafics. Microgabbros are typically altered with a chlorite ± pumpellyite, prehnite, albite assemblage, but are partly identifiable as andesine gabbroic in composition, with possible affinities to the Jurassic dolerites. In contrast, sample KR 12616 represents an unaltered microgabbro of orthodox (labradorite gabbroic) composition. This rock may be contrasted with the altered types in such details as augite colouration (essentially colourless in contrast to the green pyroxene of altered types) and accessory minerals and reflects a different petrogenesis. Full interpretation will be dependant on field relationships.

Samples KR 12607 and KR 12613 represent the ultramafics. These rocks are strongly altered with KR 12607 reflectin an initial phase of silicification and magnesite development (probably post-serpentinisation), followed by sideritic carbonation and introduction of base metal sulphide, and may be argentiferous. There are also affinities with the altered serpentinites developed, for example, at Razorback which, although stanniferous, tend to carry stannite as the main tin mineral.

In contrast, KR 12613 represents an unaltered serpentinite. This rock is clearly derived from an olivine-rich phase and would support an orthodox serpentinised dunite interpretation. However, specific indicators, notably relict primary chrome spinel, are absent, and the possibility that the primary silicate was an olivine group phase(e.g. humite) rather than olivine, sensu stricto, cannot be ruled out. Geochemistry for Cr and Ni may be warranted to resolve these possible alternative modes of origin (i.e. serpentinised dunite as against serpentinised contact-metasomatic). By analogy with tin-silicate-bearing humitic assemblages in N.W. Tasmania, Sn assays would also be warranted.

D. Cowan, B. Sc.

Sample No.	Classification - Composition	Fabric	Accessories	Comments
KR 12607 (T.S. 48919)	Altered Ultramafic. Fine-grained to microcrystalline quartz with semi-pervasive sideritic carbonate, sporadic clots, films, foliae of Fe-talc (minnesotaite), thinly disseminated sphalerite, galena. MAGNET MINE	Crudely lenticularly banded (semi-massive quartz alternating with siderite). Mildly sheared.	Evenly disseminated relict primary chromite, minor ocrroded relics of magnesite.	Interpreted as a silicified/carbonated serpentinite with subsequent sideritic carbonation (replacive after magnesite and introduction of sphalerite, galena.
KR 12608 NL 24 445 W	Protoquartzite. Framework of fine to medium sand-sized subangular quartz, subordinate feldspar (orthoclase) grains and sericitic pelite/impure chert clasts. Variably Fe-stained matrix of microcrystalline quartz, semi-sericitic white mica.	Moderately sorted, essentially massive (unbedded). Unstressed.	Oxidised/leucoxenised detrital opaques, traces detrital schorl, zircon, muscovite, monazite.	Lithified, but essentially unmetamorphosed quartzose sandstone. Reflects a composite granitic, low-grade regional metapelite source, *?fluvial deposition.*
KR 12609 NL 17 420 W	Altered Microgabbro. Extensively saussuritised (prehnitised) feldspar laths and variably bastitic serpentine-pseudomorphed augite with disseminated leucoxenic Ti-magnetite. Sporadic veinlets, replacive aggregates of prehnite, pumpellyite.	"Doleritic" (medium-grained, ophitic). Mildly fractured.	Minor albite veinlets, late chloritic fractures/ replacement selvedges.	Thoroughly altered ophitic microgabbro. Apart from ?deuteric albite veinlets, alteration is of "*zeolite facies*" *metamorphic* character.
KR 12610 NL 23 ~1100 W	Altered Microgabbro. Weakly saussurite-stained andesine laths and variably chloritised augite with disseminated magnetite and a sparse chloritic mesostasis.	"Doleritic" (sub-ophitic, medium-grained), relatively uneven-grained in comparison with KR 12609.	Thinly disseminated montmorillonitised ?orthopyroxene. Traces actinolite.	Exhibits partial uralitisation; subsequent chloritic alteration of *pyroxene in contrast to the prehnite-pumpellyite assemblage in KR 12609.* Possibly a "younger" (?Jurassic) dolerite.
KR 12611 NL 16 100 E	"Tuffaceous Greywacke". Framework of extensively chloritised basaltic-andesitic lava clasts, minor albitised plagioclase, actinolitised/ chloritised pyroxene grains. Chlorite matrix. Sparse veinlets of albite, prehnite.	Poorly sorted silty *fine to medium* turbidite-like sandy clastic. Weakly bedded. Unstressed.	Clastic opaques (*largely magnetite*). Rare clastic chert clasts, quartz grains.	Chloritic basic-intermediate volcanomict greywacke. Close affinities with the tuffaceous greywacke facies of Crimson Creek Formation.
KR 12612 NL 20 140 W.	Andesine Microgabbro. Incipiently saussurite-stained andesine laths and incipiently actinolitised (uralitised) to locally chloritised augite with disseminated *extensively leucoxenised Ti-magnetite.*	"Doleritic" (sub-ophitic), similar to KR 12610, but coarser-grained. Unstressed.	*Sparse chlorite* mesostasis. Traces primary apatite, sporadic clots of fine-grained secondary pumpellyite, epidote.	Affinities with KR 12609 and KR 12610; relatively mildly altered in comparison.
KR 12613 NL 23 900 W.	Serpentinite. Mesh-textured antigorite aggregates with subordinate to minor interstitial aggregates of serpophitic serpentine. Conspicuous fine-grained magnetite disseminations.	Pervasive granular "olivine"-derived textures with featureless serpophitic matrix. Unsheared.	Leucoxenic TiO_2 stainings in matrix.	Serpentinised dunite or, conceivably/ less likely, a serpentinised humite rock. Cr. Ni analyses may be warranted as confirmatory measure.
KR 12614 NL 4 300 E	Ferruginised Pelite. Degraded/ferruginised fine-grained mica flakes and weakly recrystallized silt-sized quartz, subordinate degraded/ferruginised feldspar, conspicuous oxidised silt-sized opaques.	Planar-microlaminated, incipiently silty shale-parted silty clastic.	Traces of degraded detrital ferromag silicate (?pyroxene). Minor veinlets of quartz, calcite, chlorite, cloudy epidote.	Finer detail obscured by weathering, secondary ferruginisation. General features consistent with a sublabile (partly basic volcanic-derived) siltstone.

CENTRAL MINERALOGICAL SERVICES

Sample No.	Classification - Composition	Fabric	Accessories	Comments
KR 12615 Nh 12 1995 E	Metasomatised Greywacke. Framework of actinolite-biotite-stained basic-intermediate lava clasts, subordinate quartz, saussuritic albitised plagioclase grains. Actinolite-biotite matrix. Minor veinlets of actinolite, chlorite, ankeritic carbonate.	Poorly sorted, silt-supported, turbiditic fine to medium sandy clastic. Weakly hornfelsed.	Conspicuous clastic opaques, leucoxenic semi-opaques. Minor traces secondary sphalerite, pyritised pyrrhotite.	Relatively quartzose labile grey-wacke with affinities to KR 12611. In contrast, this rock reflects marginal contact-metasomatic effects, weak subsequent chlorite-carbonate alteration.
KR 12616 (T.S. 48928)	Microgabbro. Labradorite laths and essentially colourless augite with a sparse felsic (albitic) mesostasis, thinly disseminated fine flaky ilmenite.	Uneven, medium-grained, subophitic. Unstressed.	Traces very fine acicular apatite, rare fine biotite flakes.	Unaltered microgabbro. This rock may be contrasted compositionally, and in the absence of alteration features, with KR 12609, KR 12610 and KR 12612.

APPENDIX 2

ANALYTICAL DATA SHEETS

AUST. LAB. SERVICES. BRISBANE

Australian Laboratory Services PTY. LTD.

Incorporated in Queensland

CONSULTING ANALYTICAL CHEMISTS

LABORATORY REPORT

Office & Laboratory
32 Shand Street
Stafford, Q. 4053
PO Box 66,
Everton Park, Q. 4053
Phone: (07) 352 5577
Telex: ALSEV 42344

Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

COPY

Batch Number: A089

Contact: DR. ROSS LARGE.

No. of Samples: 43
Date Received: 18/01/84
Date Completed: 25/01/84

Order No. KP 3340, [redacted] Sample Type: SOIL.

SAMPLE NUMBER	Element Unit Method	Cu ppm G001	Pb ppm G001	Zn ppm G001	Mn ppm G001	Ni ppm G001
TS 25001 NL22 1050E		35	55	320	1500	120
TS 25002	1025	30	65	360	2600	85
TS 25003	1000	125	60	690	3600	70
TS 25004	975	95	60	300	1800	60
TS 25005	950	160	65	560	2250	80
TS 25006	925	95	60	410	1900	55
TS 25007	900	65	50	145	2100	40
TS 25008	875	65	125	145	1400	25
TS 25009	850	135	50	230	520	50
TS 25010	825	140	70	175	6000	65
TS 25011	800	125	90	155	7800	55
TS 25012	775	105	75	230	1300	60
TS 25013	750	55	55	200	2000	60
TS 25014	725	70	70	195	860	40
TS 25015	700	45	55	110	420	35
TS 25016	675	25	55	120	400	45
TS 25017	650	25	65	155	700	70
TS 25018	625	30	60	210	820	130
TS 25019	600	25	45	95	340	35
TS 25020	575	5	20	50	100	55
TS 25021	550	5	20	30	80	15
TS 25022	525	5	20	40	90	20
TS 25023	500	10	45	55	540	60
TS 25024	475	110	45	80	660	100
TS 25025	450	120	55	105	1550	150
TS 25026	425	170	50	105	1300	170
TS 25027	400	200	50	105	1350	200
TS 25028	375	45	45	160	3200	430
TS 25029	350	50	50	135	2250	400
TS 25030	325	35	35	60	660	120
Detection Limit:		2	5	2	10	5

Comments:

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Signatory: G J Kilmister

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Telex: ALSEV 42344

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Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

COPY

Batch Number: A0

Contact: DR. ROSS LARGE.

No. of Samples: 4
Date Received: 18/0
Date Completed: 25/0

Order No. KP 3340, K 751 Sample Type: SOIL

SAMPLE NUMBER	Element Unit Method	Fe % G001	As ppm G003	Sn ppm XRF 1A	W ppm XRF 1A
TS 25001		7.80	<20	<5	<10
TS 25002		8.88	40	<5	<10
TS 25003		8.44	<20	<5	<10
TS 25004		9.76	<20	<5	<10
TS 25005		9.81	<20	<5	<10
TS 25006		8.52	<20	<5	<10
TS 25007		5.38	<20	<5	<10
TS 25008		7.23	<20	<5	<10
TS 25009		7.31	<20	<5	<10
TS 25010		10.2	<20	<5	<10
TS 25011		13.2	<20	<5	<10
TS 25012		8.97	<20	<5	<10
TS 25013		9.19	<20	<5	<10
TS 25014		8.02	<20	<5	<10
TS 25015		8.79	<20	<5	<10
TS 25016		5.38	<20	<5	<10
TS 25017		12.7	<20	<5	<10
TS 25018		5.82	<20	<5	<10
TS 25019		3.71	<20	5	<10
TS 25020		1.41	<20	<5	30
TS 25021		1.01	<20	<5	<10
TS 25022		1.44	20	<5	10
TS 25023		5.37	<20	<5	10
TS 25024		5.13	<20	5	<10
TS 25025		9.68	<20	<5	<10
TS 25026		9.49	<20	<5	<10
TS 25027		9.93	<20	<5	<10
TS 25028		8.93	<20	<5	<10
TS 25029		9.04	<20	<5	<10
TS 25030		5.60	<20	<5	<10
Detection Limit:		0.01	20	5	10

Comments:

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Telex: ALSEV 42344

ent: GEOPEKO LIMITED,
dress: P.O. BOX 598,
DEVONPORT TAS. 7310

COPY

Batch Number: A089

ntact: DR. ROSS LARGE.

No. of Samples: 43
Date Received: 18/01/84
Date Completed: 25/01/84

er No. KP 3340, K 751

Sample Type: SOIL

SAMPLE NUMBER	Element Unit Method	Cu ppm G001	Pb ppm G001	Zn ppm G001	Mn ppm G001	Ni ppm G001
TS 25031 NL22 300 E		125	45	95	1400	180
TS 25032 275		170	45	95	1450	240
TS 25033 250		85	45	85	1300	170
TS 25034 225		40	65	115	800	105
TS 25035 200		65	50	155	3400	340
TS 25036 175		95	45	140	2400	210
TS 25037 150		30	40	60	440	75
TS 25038 125		25	50	95	380	50
TS 25039 100		20	55	55	270	45
TS 25040 75		10	35	60	180	40
TS 25041 50		35	35	50	440	65
TS 25042 25		15	280	145	330	115
TS 25043 0		20	20	110	150	125
tection Limit:		2	5	2	10	5

mments:

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Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

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Batch Number: A089

Contact: DR. ROSS LARGE.

No. of Samples: 43
Date Received: 18/01/84
Date Completed: 25/01/84

Order No. KP 3340, K 751

Sample Type: SOIL

SAMPLE NUMBER	Element Unit Method	Fe % G001	As ppm G003	Sn ppm XRF 1A	W ppm XRF 1A
TS 25031		8.35	<20	<5	<10
TS 25032		8.16	<20	<5	<10
TS 25033		7.30	<20	<5	<10
TS 25034		3.79	<20	<5	<10
TS 25035		6.40	<20	<5	<10
TS 25036		6.48	<20	<5	<10
TS 25037		2.73	<20	<5	20
TS 25038		4.93	<20	<5	<10
TS 25039		5.55	<20	<5	<10
TS 25040		3.10	<20	<5	10
TS 25041		3.50	<20	<5	20
TS 25042		1.56	<20	<5	40
TS 25043		0.93	<20	<5	50
Detection Limit:		0.01	20	5	10

Comments:

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Signatory: G J Kilminster

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Everton Park, Q. 4053
Phone: (07) 352 5577
Telex: ALSEV 42344

Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

Batch Number: B023

Contact: MR. S. TURLEU

No. of Samples: 29
Date Received: 06/02/84
Date Completed: 13/02/84

Order No. K 752, KP 3353

Sample Type: SOIL

SAMPLE NUMBER	Element Unit Method	Cu ppm G001	Pb ppm G001	Zn ppm G001	Fe % G001	Mn ppm G001
TS 25044 NL 20, 1700E		120	30	145	7.60	520
TS 25045	1675	40	40	120	7.22	720
TS 25046	1650	25	25	85	6.64	760
TS 25047	1625	35	30	110	6.88	560
TS 25048	1600	600	25	100	7.25	880
TS 25049	1575	50	15	50	5.75	600
TS 25050	1550	150	20	80	7.88	740
TS 25051	1525	100	15	60	4.94	660
TS 25052	1500	40	15	50	4.50	600
TS 25053	1475	60	20	65	5.91	740
TS 25054	1450	10	20	80	6.37	720
TS 25055	1425	80	20	95	7.65	520
TS 25056	1400	60	35	220	7.80	1300
TS 25057	1375	25	25	105	8.25	400
TS 25058	1350	35	25	100	9.39	520
TS 25059	1325	105	45	230	8.30	260
TS 25060	1300	75	30	170	8.72	340
TS 25061	1275	165	30	210	12.5	380
TS 25062	1250	110	25	170	9.23	420
TS 25063	1225	400	30	280	12.0	3200
TS 25064	1200	15	40	75	11.1	3600
TS 25065	1175	115	110	140	9.90	280
TS 25066	1150	50	35	95	8.39	320
TS 25067	1125	80	30	105	8.54	680
TS 25068	1100	85	35	135	8.58	280
TS 25069	1075	75	30	100	6.68	160
TS 25070	1050	80	25	70	8.55	160
TS 25071	1025	115	25	75	8.32	240
TS 25072	1000	360	20	65	9.07	240
Detection Limit:		2	5	2	0.01	5

Comments:

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Signatory: G J Kilmister

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Office & Laboratory
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PO Box 66,
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Phone: (07) 352 5577
Telex: ALSEV 42344

401040

Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

Batch Number: B023

Contact: MR. S. TURLEU

No. of Samples: 29
Date Received: 06/02/84
Date Completed: 13/02/84

Order No. K 752, KP 3353

Sample Type: SOIL

SAMPLE NUMBER	Element Unit Method	Ni ppm G001	As ppm G004	Sn ppm XRF 1A	W ppm XRF 1A
TS 25044		150	<1	<5	<10
TS 25045		320	2	<5	<10
TS 25046		500	<1	<5	<10
TS 25047		360	<1	<5	<10
TS 25048		280	<1	<5	<10
TS 25049		210	<1	<5	<10
TS 25050		270	<1	<5	<10
TS 25051		340	<1	<5	<10
TS 25052		250	<1	<5	<10
TS 25053		260	<1	<5	<10
TS 25054		230	<1	<5	<10
TS 25055		360	<1	<5	<10
TS 25056		640	<1	<5	<10
TS 25057		130	<1	<5	<10
TS 25058		150	<1	<5	<10
TS 25059		80	2	<5	<10
TS 25060		70	1	<5	<10
TS 25061		120	<1	<5	<10
TS 25062		125	1	<5	<10
TS 25063		145	1	<5	<10
TS 25064		50	10	<5	<10
TS 25065		90	2	<5	<10
TS 25066		80	3	<5	<10
TS 25067		115	3	<5	<10
TS 25068		145	4	<5	20
TS 25069		90	<1	<5	10
TS 25070		160	1	<5	<10
TS 25071		250	<1	<5	<10
TS 25072		270	<1	<5	<10
Detection Limit:		5	1	5	10

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Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

Batch Number: B077

Contact: S.D. TURLEY

No. of Samples: 73
Date Received: 14/02/84
Date Completed: 22/02/84

Order No. K 753, KP 3367 Sample Type: SOIL

SAMPLE NUMBER	Element Unit Method	Cu ppm G001	Pb ppm G001	Zn ppm G001	Mn ppm G001	Ni ppm G001
TS 25073		60	75	90	145	50
TS 25074		40	50	95	230	35
TS 25075		40	80	150	150	55
TS 25076		40	55	560	360	190
TS 25077		40	45	100	520	320
TS 25078		40	45	120	680	310
TS 25079		55	25	90	480	230
TS 25080		20	30	110	600	200
TS 25081		10	25	105	540	80
TS 25082		5	15	35	210	85
TS 25083		35	20	40	480	155
TS 25084		5	25	75	320	130
TS 25085		10	20	60	110	100
TS 25086		190	25	50	480	150
TS 25087		5	15	30	370	130
TS 25088		2	20	70	740	260
TS 25089		65	25	75	940	400
TS 25090		20	15	70	480	290
TS 25091		5	15	40	200	55
TS 25092		5	20	95	560	320
TS 25093		10	30	105	560	400
TS 25094		5	30	100	600	300
TS 25095		10	25	80	370	180
TS 25096		2	20	50	260	180
TS 25097		5	30	65	640	1700
TS 25098		5	20	90	300	760
TS 25099		600	20	70	540	310
TS 25100		50	30	70	780	360
TS 25101		30	30	80	600	440
TS 25102		170	50	145	620	440
Detection Limit:		2	5	2	5	5

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Telex: ALSEV 42344

401041

Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

Batch Number: B077

Contact: S.D. TURLEY

No. of Samples: 73
Date Received: 14/02/84
Date Completed: 22/02/84

Order No. K 753, KP 3367 Sample Type: SOIL

SAMPLE NUMBER	Element Unit Method	Fe % G001	As ppm G004	Sn ppm XRF 1A	W ppm XRF 1A
TS 25073		6.40	4	5	10
TS 25074		7.08	9	<5	10
TS 25075		2.34	14	5	10
TS 25076		3.27	24	<5	10
TS 25077		8.05	2	<5	<10
TS 25078		9.21	2	<5	<10
TS 25079		5.32	<1	<5	<10
TS 25080		7.22	<1	<5	10
TS 25081		6.28	<1	<5	10
TS 25082		3.87	<1	<5	<10
TS 25083		4.42	<1	<5	<10
TS 25084		7.71	<1	<5	10
TS 25085		6.40	<1	<5	<10
TS 25086		8.64	<1	<5	<10
TS 25087		4.34	<1	<5	<10
TS 25088		7.49	<1	<5	<10
TS 25089		6.39	<1	<5	<10
TS 25090		5.29	<1	<5	<10
TS 25091		5.77	<1	<5	<10
TS 25092		7.57	<1	<5	<10
TS 25093		9.80	1	<5	10
TS 25094		7.63	<1	<5	<10
TS 25095		8.80	<1	<5	<10
TS 25096		4.45	<1	<5	<10
TS 25097		9.32	<1	<5	<10
TS 25098		4.19	<1	<5	<10
TS 25099		6.64	<1	<5	<10
TS 25100		5.80	<1	<5	<10
TS 25101		6.37	<1	<5	<10
TS 25102		12.5	14	<5	<10
Detection Limit:		0.01	1	5	10

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Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

Batch Number: B077

Contact: S.D. TURLEY
Order No. K 753, KP 3367
Sample Type: SOIL

No. of Samples: 73
Date Received: 14/02/84
Date Completed: 22/02/84

SAMPLE NUMBER	Element Unit Method	Cu ppm G001	Pb ppm G001	Zn ppm G001	Mn ppm G001	Ni ppm G001
TS 25103 NL6, 1250 E		60	65	190	460	220
TS 25104	1225	115	45	140	480	180
TS 25105	1200	210	40	190	580	280
TS 25106	1175	130	30	110	440	200
TS 25107	1150	80	35	95	580	240
TS 25108	1125	150	40	120	780	400
TS 25109	1100	50	30	90	580	320
TS 25110	1075	55	30	80	2600	360
TS 25111	1050	45	30	70	900	240
TS 25112	1025	35	30	75	820	290
TS 25113	1000	30	30	60	640	250
TS 25114	975	35	30	55	720	320
TS 25115	950	35	35	80	1400	520
TS 25116	925	20	35	180	1700	400
TS 25117	900	50	45	105	1150	170
TS 25118	875	95	45	130	4800	360
TS 25119	850	120	45	165	3200	440
TS 25120	825	55	50	250	740	360
TS 25121	800	90	40	170	2400	280
TS 25122	775	45	45	100	860	125
TS 25123	750	130	60	210	1950	100
TS 25124	725	100	45	165	4800	40
TS 25125	700	110	55	230	5600	50
TS 25126	675	720	50	280	3000	250
TS 25127	650	40	50	230	1800	105
TS 25128	625	80	50	230	1700	85
TS 25129	600	130	50	360	3600	75
TS 25130	575	120	45	125	2000	50
TS 25131	550	85	40	150	1650	45
TS 25132	525	80	40	120	500	30
Detection Limit:		2	5	2	5	5

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401042

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Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

Batch Number: B077

Contact: S.D. TURLEY
Order No. K 753, KP 3367
Sample Type: SOIL

No. of Samples: 73
Date Received: 14/02/84
Date Completed: 22/02/84

SAMPLE NUMBER	Element Unit Method	Fe % G001	As ppm G004	Sn ppm XRF 1A	W ppm XRF 1A
TS 25103		5.16	10	10	10
TS 25104		12.2	10	<5	<10
TS 25105		10.4	<1	<5	<10
TS 25106		7.02	<1	<5	<10
TS 25107		8.99	1	<5	<10
TS 25108		9.98	<1	<5	<10
TS 25109		6.06	<1	<5	<10
TS 25110		5.82	<1	<5	<10
TS 25111		5.50	<1	<5	<10
TS 25112		5.71	<1	<5	<10
TS 25113		4.59	<1	<5	<10
TS 25114		5.33	<1	<5	<10
TS 25115		6.58	<1	<5	<10
TS 25116		7.07	<1	<5	<10
TS 25117		6.16	<1	<5	<10
TS 25118		10.6	<1	<5	<10
TS 25119		10.1	<1	<5	<10
TS 25120		9.77	<1	<5	<10
TS 25121		7.99	1	<5	<10
TS 25122		9.76	8	<5	<10
TS 25123		11.4	5	<5	<10
TS 25124		7.38	6	<5	<10
TS 25125		8.84	4	<5	<10
TS 25126		8.39	3	<5	<10
TS 25127		9.83	1	<5	<10
TS 25128		11.3	<1	<5	<10
TS 25129		11.5	<1	<5	<10
TS 25130		11.7	<1	<5	<10
TS 25131		9.76	<1	<5	<10
TS 25132		10.9	<1	<5	<10
Detection Limit:		0.01	1	5	10

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Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

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Batch Number: B077

Contact: S.D. TURLEY

Order No. K 753, KP 3367 Sample Type: SOIL

No. of Samples: 73
Date Received: 14/02/84
Date Completed: 22/02/84

SAMPLE NUMBER	Element Unit Method	Cu ppm G001	Pb ppm G001	Zn ppm G001	Mn ppm G001	Ni ppm G001
TS 25133 NL 16, 500 E		560	40	280	1950	50
TS 25134	475	105	50	195	3000	70
TS 25135	450	100	40	200	2400	65
TS 25136	425	110	45	200	780	75
TS 25137	400	80	40	280	1100	75
TS 25138	375	60	40	145	520	45
TS 25139	350	135	40	140	2800	100
TS 25140	325	110	65	120	2400	80
TS 25141	300	130	40	95	1950	100
TS 25142	275	95	45	85	1200	55
TS 25143	250	125	30	95	380	75
TS 25144	225	155	20	35	110	30
TS 25145	200	10	20	45	105	15
Detection Limit:		2	5	2	5	5

Comments:

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Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

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Batch Number: B077

Contact: S.D. TURLEY

Order No. K 753, KP 3367 Sample Type: SOIL

No. of Samples: 73
Date Received: 14/02/
Date Completed: 22/02/

SAMPLE NUMBER	Element Unit Method	Fe % G001	As ppm G004	Sn ppm XRF 1A	W ppm XRF 1A
TS 25133		10.1	<1	<5	<10
TS 25134		10.3	<1	<5	<10
TS 25135		11.0	1	<5	<10
TS 25136		13.2	<1	<5	<10
TS 25137		11.2	<1	<5	<10
TS 25138		11.3	<1	<5	<10
TS 25139		9.84	3	<5	<10
TS 25140		10.1	2	<5	<10
TS 25141		9.47	<1	<5	<10
TS 25142		11.3	2	<5	<10
TS 25143		8.97	<1	<5	<10
TS 25144		4.85	6	<5	<10
TS 25145		1.55	1	10	<10
Detection Limit:		0.01	1	5	10

Comments:

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Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

Batch Number: B087

Contact: S.D. TURLEY

No. of Samples: 45
Date Received: 16/02/84
Date Completed: 23/02/84

Order No. K 754, KP 3368

Sample Type: SOIL

SAMPLE NUMBER	Element Unit Method	Cu ppm G001	Pb ppm G001	Zn ppm G001	Mn ppm G001	Ni ppm G001
TS 25146 NL16, 175E		10	20	5	30	15
TS 25147	150	5	10	2	35	20
TS 25148	125	10	20	10	45	15
TS 25149	100	5	15	2	40	15
TS 25150	75	5	20	20	150	20
TS 25151	50	10	25	35	135	20
TS 25152	25	30	20	50	540	25
TS 25153	0	55	25	120	340	40
TS 25154 NL12, 2400E		90	70	130	600	220
TS 25155	2375	60	95	330	540	165
TS 25156	2350	20	60	230	360	130
TS 25157	2325	115	85	210	400	120
TS 25158	2300	65	35	165	420	100
TS 25159	2275	55	35	105	430	90
TS 25160	2250	55	50	115	360	90
TS 25161	2225	50	50	95	230	80
TS 25162	2200	45	45	125	300	85
TS 25163	2175	45	30	135	240	100
TS 25164	2150	70	50	75	55	60
TS 25165	2125	60	90	75	65	55
TS 25166	2100	50	30	135	105	70
TS 25167	2075	35	40	40	30	30
TS 25168	2050	50	40	70	170	55
TS 25169	2025	40	30	55	165	50
TS 25170	2000	40	40	85	220	50
TS 25171	1975	60	15	45	140	35
TS 25172	1950	80	20	90	190	85
TS 25173	1925	85	30	150	110	105
TS 25174	1900	75	30	90	90	65
TS 25175	1875	35	15	60	145	45
Detection Limit:		2	5	2	5	5

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Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

401044

Batch Number: B08

Contact: S.D. TURLEY

No. of Samples: 45
Date Received: 16/02
Date Completed: 23/02

Order No. K 754, KP 3368

Sample Type: SOIL

SAMPLE NUMBER	Element Unit Method	Fe % G001	As ppm G004	Sn ppm XRF 1A	W ppm XRF 1A
TS 25146		0.65	<1	<5	10
TS 25147		0.40	<1	<5	30
TS 25148		0.59	<1	<5	20
TS 25149		0.42	<1	<5	20
TS 25150		0.91	<1	<5	<10
TS 25151		0.76	<1	<5	10
TS 25152		1.63	<1	<5	<10
TS 25153		2.81	1	<5	10
TS 25154		9.67	8	<5	<10
TS 25155		12.4	1	<5	<10
TS 25156		12.5	3	<5	10
TS 25157		15.7	7	<5	<10
TS 25158		6.24	1	<5	10
TS 25159		5.87	3	<5	10
TS 25160		5.96	3	<5	10
TS 25161		6.55	8	<5	10
TS 25162		6.93	6	<5	<10
TS 25163		7.41	1	5	<10
TS 25164		7.54	12	<5	<10
TS 25165		5.59	10	<5	<10
TS 25166		9.45	3	<5	<10
TS 25167		1.87	9	<5	<10
TS 25168		7.01	7	<5	10
TS 25169		6.78	2	<5	10
TS 25170		6.23	4	<5	10
TS 25171		5.57	2	<5	<10
TS 25172		9.25	2	<5	10
TS 25173		9.12	1	<5	10
TS 25174		5.32	11	<5	<10
TS 25175		5.63	1	<5	<10
Detection Limit:		0.01	1	5	10

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Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

Batch Number: B087

Contact: S.D. TURLEY

Order No. K 754, KP 3368

Sample Type: SOIL

No. of Samples: 45
Date Received: 16/02/84
Date Completed: 23/02/84

SAMPLE NUMBER	Element Unit Method	Cu ppm G001	Pb ppm G001	Zn ppm G001	Mn ppm G001	Ni ppm G001
TS 25176 NL12 1850E		75	20	110	210	85
TS 25177	1825	60	20	100	200	60
TS 25178	1800	90	40	75	100	100
TS 25179	1775	100	30	65	135	65
TS 25180	1750	75	25	40	65	30
TS 25181	1725	55	25	70	135	50
TS 25182	1700	90	110	140	300	75
TS 25183	1675	45	30	60	270	50
TS 25184	1650	50	30	50	145	35
TS 25185	1625	60	30	80	260	50
TS 25186	1600	45	35	40	115	30
TS 25187	1575	45	60	20	90	30
TS 25188	1550	35	30	50	105	45
TS 25189	1525	55	140	70	145	40
TS 25190	1500	60	40	125	480	80
Detection Limit:		2	5	2	5	5

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Signatory: G J Kilmister

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Phone: (07) 352 5577
Telex: ALSEV 42344

Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

401045

Batch Number: B087

Contact: S.D. TURLEY

Order No. K 754, KP 3368

Sample Type: SOIL

No. of Samples: 45
Date Received: 16/02/
Date Completed: 23/02/

SAMPLE NUMBER	Element Unit Method	Fe % G001	As ppm G004	Sn ppm XRF 1A	W ppm XRF 1A	
TS 25176		7.90	<1	<5	10	
TS 25177		5.34	1	<5	<10	
TS 25178		6.83	23	<5	<10	
TS 25179		7.85	16	<5	<10	
TS 25180		6.18	4	<5	10	
TS 25181		6.13	4	<5	10	
TS 25182		10.2	18	<5	10	
TS 25183		5.28	2	5	10	
TS 25184		4.37	1	<5	10	
TS 25185		8.33	2	<5	10	
TS 25186		8.08	5	<5	10	
TS 25187		5.41	17	<5	10	
TS 25188		6.38	3	5	10	
TS 25189		5.43	9	<5	<10	
TS 25190		6.88	2	<5	10	
Detection Limit:		0.01	1	5	10	

Comments:

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Signatory: G J Kilmister

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CONSULTING ANALYTICAL CHEMISTS

LABORATORY REPORT

Office & Laboratory
32 Shand Street
Stafford, Q. 4053
PO Box 66,
Everton Park, Q. 4053
Phone: (07) 352 5577
Telex: ALSEV 42344

Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

Batch Number: B098

Contact: S.D. TURLEY

Order No. K 855, KP 3369

Sample Type: SOIL

No. of Samples: 50
Date Received: 20/02/84
Date Completed: 23/02/84

SAMPLE NUMBER	Element Unit Method	Cu ppm G001	Pb ppm G001	Zn ppm G001	Mn ppm G001	Ni ppm G001
TS 25191	1475	20	30	110	900	50
TS 25192	1450	50	25	210	1800	90
TS 25193	1425	80	30	120	280	60
TS 25194	1400	135	1100	85	130	60
TS 25195	1375	50	85	135	520	50
TS 25196	1350	20	25	50	140	10
TS 25197	1325	110	35	130	440	60
TS 25198	1300	45	25	45	165	25
TS 25199	1275	55	30	70	300	40
TS 25200	1250	35	30	65	195	30
TS 25201	1225	60	25	90	290	65
TS 25202	1200	100	25	100	960	65
TS 25203	1175	70	25	125	460	80
TS 25204	1150	120	30	155	1750	75
TS 25205	1125	80	25	125	1250	90
TS 25206	1100	60	25	240	1550	100
TS 25207	1075	50	20	165	1100	70
TS 25208	1050	45	25	240	3200	70
TS 25209	1025	100	30	175	1850	90
TS 25210	1000	45	30	160	1350	55
TS 25211	975	90	20	180	3200	90
TS 25212	950	75	40	145	1900	65
TS 25213	925	100	30	190	2350	110
TS 25214	900	100	20	150	1900	90
TS 25215	875	80	35	70	290	40
TS 25216	850	65	340	160	270	60
TS 25217	825	105	40	250	1800	135
TS 25218	800	50	55	90	1200	45
TS 25219	775	105	30	90	230	55
TS 25220	750	100	30	250	600	145
Detection Limit:		2	5	2	5	5

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Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

Batch Number: B098

Contact: S.D. TURLEY

Order No. K 855, KP 3369

Sample Type: SOIL

No. of Samples: 50
Date Received: 20/02/8
Date Completed: 23/02/8

SAMPLE NUMBER	Element Unit Method	Fe % G001	As ppm G004	Sn ppm XRF 1A	W ppm XRF 1A
TS 25191		3.90	<1	<5	<10
TS 25192		10.1	3	<5	<10
TS 25193		7.86	<1	<5	<10
TS 25194		4.42	70	<5	<10
TS 25195		4.58	<1	<5	<10
TS 25196		3.01	4	<5	<10
TS 25197		6.63	<1	<5	<10
TS 25198		3.81	<1	<5	<10
TS 25199		6.94	6	<5	10
TS 25200		5.60	5	<5	<10
TS 25201		8.04	<1	<5	<10
TS 25202		9.16	<1	<5	<10
TS 25203		8.78	<1	<5	10
TS 25204		10.4	<1	<5	10
TS 25205		10.4	<1	<5	10
TS 25206		12.3	<1	<5	<10
TS 25207		14.0	<1	<5	<10
TS 25208		12.9	<1	<5	10
TS 25209		10.1	<1	<5	<10
TS 25210		11.3	<1	<5	<10
TS 25211		10.5	<1	<5	<10
TS 25212		10.9	2	<5	<10
TS 25213		10.0	4	<5	10
TS 25214		9.76	1	<5	<10
TS 25215		9.37	26	<5	<10
TS 25216		8.53	<1	<5	<10
TS 25217		11.9	1	<5	<10
TS 25218		13.6	<1	<5	<10
TS 25219		14.5	<1	<5	10
TS 25220		13.1	<1	<5	<10
Detection Limit:		0.01	1	5	10

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Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

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Batch Number: B098

Contact: S.D. TURLEY

Order No. K 955, KP 3369 Sample Type: SOIL

No. of Samples: 50
Date Received: 20/02/84
Date Completed: 23/02/84

SAMPLE NUMBER	Element Unit Method	Cu ppm G001	Pb ppm G001	Zn ppm G001	Mn ppm G001	Ni ppm G001
TS 25221 NK12, 725E		40	70	270	3600	70
TS 25222	700	100	30	145	2050	70
TS 25223	675	60	30	80	1150	70
TS 25224	650	45	30	60	3450	190
TS 25225	625	50	25	95	640	170
TS 25226	600	75	20	80	1850	290
TS 25227	575	35	20	65	1200	240
TS 25228	550	125	30	200	3050	580
TS 25229	525	10	35	170	5200	3900
TS 25230	500	95	30	95	1550	195
TS 25231	475	170	20	240	1000	140
TS 25232	450	40	20	115	1650	70
TS 25233	425	90	35	140	3000	100
TS 25234	400	60	40	115	540	75
TS 25235	375	95	40	145	820	95
TS 25236	350	95	30	155	1950	70
TS 25237	325	155	45	240	2800	100
TS 25238	300	130	30	190	2800	90
TS 25239	275	125	35	200	2650	85
TS 25240	250	150	50	250	2400	95
Detection Limit:		2	5	2	5	5

Comments:

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Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

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Batch Number: B098

Contact: S.D. TURLEY

Order No. K 955, KP 3369 Sample Type: SOIL

No. of Samples: 50
Date Received: 20/02/8
Date Completed: 23/02/8

SAMPLE NUMBER	Element Unit Method	Fe % G001	As ppm G004	Sn ppm XRF 1A	W ppm XRF 1A
TS 25221		12.5	<1	<5	10
TS 25222		8.96	2	<5	<10
TS 25223		10.3	<1	<5	<10
TS 25224		7.79	<1	<5	<10
TS 25225		8.02	<1	<5	<10
TS 25226		7.07	<1	<5	<10
TS 25227		6.05	<1	<5	<10
TS 25228		10.3	<1	<5	10
TS 25229		13.4	<1	<5	10
TS 25230		9.63	<1	<5	<10
TS 25231		8.52	1	<5	<10
TS 25232		5.93	1	<5	<10
TS 25233		9.37	2	<5	<10
TS 25234		4.71	1	<5	10
TS 25235		8.20	<1	<5	<10
TS 25236		9.47	3	<5	<10
TS 25237		10.6	2	<5	<10
TS 25238		9.84	<1	<5	<10
TS 25239		10.6	1	<5	<10
TS 25240		10.6	1	<5	<10
Detection Limit:		0.01	1	5	10

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Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

COPY

Batch Number: B148

Contact: MR. S.D. TURLEY

No. of Samples: 47
Date Received: 28/02/84
Date Completed: 01/03/84

Order No. K 756, KP 3373 Sample Type: SOIL

SAMPLE NUMBER	Element Unit Method	Cu ppm G001	Pb ppm G001	Zn ppm G001	Fe % G001	Mn ppm G001
TS 25241	NL12 2256	170	35	220	11.1	780
TS 25242	200	300	15	240	8.31	1300
TS 25243	175	45	20	60	2.05	210
TS 25244	150	55	15	100	10.2	5850
TS 25245	125	55	20	60	2.59	270
TS 25246	100	5	20	25	0.99	75
TS 25247	75	5	10	20	0.54	30
TS 25248	50	5	10	10	0.79	35
TS 25249	25 E	5	15	35	0.57	45
TS 25250	0	10	20	20	1.13	65
TS 25251	NL5 1900	45	25	75	10.6	860
TS 25252	1875 E	105	25	145	10.5	790
TS 25253	1850	115	20	220	7.61	1250
TS 25254	1825	10	20	45	3.15	135
TS 25255	1800	5	15	10	1.41	105
TS 25256	1775	140	30	155	7.79	1300
TS 25257	1750	15	20	15	2.47	210
TS 25258	1725	5	20	15	1.17	110
TS 25259	1700	10	20	45	2.06	125
TS 25260	1675	10	30	60	2.60	380
TS 25261	1650	15	30	35	5.89	125
TS 25262	1625	80	35	95	11.4	360
TS 25263	1600	135	30	195	10.3	920
TS 25264	1575	60	30	110	4.37	350
TS 25265	1550	200	30	115	14.7	830
TS 25266	1525	55	20	75	5.30	360
TS 25267	1500	210	25	125	11.7	760
TS 25268	1475	70	15	240	6.45	1700
TS 25269	1450	75	30	135	10.3	680
TS 25270	1425	110	30	220	9.98	830
Detection Limit:		2	5	2	0.01	5

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401048

Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

COPY

Batch Number: B148

Contact: MR. S.D. TURLEY

No. of Samples: 47
Date Received: 28/02/
Date Completed: 01/03/

Order No. K 756, KP 3373 Sample Type: SOIL

SAMPLE NUMBER	Element Unit Method	Ni ppm G001	As ppm G004	Sn ppm XRF 1A	W ppm XRF 1A
TS 25241		80	9	<5	<10
TS 25242		55	4	<5	<10
TS 25243		25	5	<5	<10
TS 25244		65	8	5	<10
TS 25245		25	4	<5	10
TS 25246		10	3	<5	10
TS 25247		20	2	<5	10
TS 25248		5	2	<5	10
TS 25249		20	2	<5	10
TS 25250		10	4	5	<10
TS 25251		50	1	<5	<10
TS 25252		120	1	<5	<10
TS 25253		125	1	<5	<10
TS 25254		20	3	<5	20
TS 25255		20	2	<5	20
TS 25256		100	4	<5	<10
TS 25257		25	3	<5	20
TS 25258		10	2	<5	20
TS 25259		35	2	<5	30
TS 25260		45	3	<5	10
TS 25261		30	2	<5	20
TS 25262		65	3	<5	10
TS 25263		85	5	<5	<10
TS 25264		60	4	<5	<10
TS 25265		100	12	<5	10
TS 25266		45	6	5	<10
TS 25267		80	4	<5	<10
TS 25268		75	3	<5	<10
TS 25269		65	2	<5	<10
TS 25270		120	7	<5	<10
Detection Limit:		5	1	5	10

Comments:

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Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

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Batch Number: B148

Contact: MR. S.D. TURLEY

No. of Samples: 47
Date Received: 28/02/84
Date Completed: 01/03/84

Order No. K 756, KP 3373

Sample Type: SOIL

SAMPLE NUMBER	Element Unit Method	Cu ppm G001	Pb ppm G004	Zn ppm G001	Fe % G004	Mn ppm G001
TS 25271	NLS 1400 E	45	25	135	8.66	540
TS 25272	1375	75	30	120	13.0	420
TS 25273	1350	50	25	110	12.0	560
TS 25274	1325	95	25	135	9.43	750
TS 25275	1300	45	30	150	8.92	920
TS 25276	1275	55	30	150	13.8	660
TS 25277	1250	75	30	190	15.7	550
TS 25278	1225	55	25	145	11.4	3300
TS 25279	1200	70	30	95	10.6	430
TS 25280	1175	150	30	145	9.53	630
TS 25281	1150	65	30	90	9.62	650
TS 25282	1125	175	30	150	10.3	2400
TS 25283	1100	310	25	130	11.61	1550
TS 25284	1075	95	35	105	10.1	2600
TS 25285	1050	50	30	105	9.05	1200
TS 25286	1025	75	25	85	6.52	3250
TS 25287	1000	45	30	70	11.4	710
Detection Limit:		2	5	2	0.01	5

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DEVONPORT TAS. 7310

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Batch Number: B148

Contact: MR. S.D. TURLEY

No. of Samples: 47
Date Received: 28/02/8
Date Completed: 01/03/8

Order No. K 756, KP 3373

Sample Type: SOIL

SAMPLE NUMBER	Element Unit Method	Ni ppm G001	As ppm G004	Sn ppm XRF 1A	W ppm XRF 1A
TS 25271		60	5	<5	<10
TS 25272		75	6	<5	<10
TS 25273		55	8	<5	10
TS 25274		75	4	<5	<10
TS 25275		95	4	<5	<10
TS 25276		95	14	<5	<10
TS 25277		90	<1	<5	<10
TS 25278		100	2	<5	<10
TS 25279		60	4	<5	<10
TS 25280		85	3	<5	<10
TS 25281		95	8	<5	<10
TS 25282		95	5	<5	<10
TS 25283		85	7	<5	<10
TS 25284		85	8	<5	<10
TS 25285		95	6	<5	<10
TS 25286		65	8	5	<10
TS 25287		50	7	5	<10
Detection Limit:		5	1	5	10

Comments:

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LABORATORY REPORT

Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

Batch Number: C027

Contact: MR. S.D. TURLEY
Order No. K 757, KP 3377
Sample Type: SOIL

No. of Samples: 64
Date Received: 02/03/84
Date Completed: 13/03/84

SAMPLE NUMBER	Element Unit Method	Cu ppm G001	Pb ppm G001	Zn ppm G001	Fe % G001	Mn ppm G001
TS 25288 NLS	975 E	95	50	130	11.3	1050
TS 25289	950	60	45	55	10.4	210
TS 25290	925	45	40	60	8.57	430
TS 25291	900	85	35	85	9.70	810
TS 25292	875	100	35	140	10.4	950
TS 25293	850	105	35	140	9.91	1400
TS 25294	825	100	35	115	9.84	1400
TS 25295	800	65	30	60	7.58	470
TS 25296	775	105	30	85	7.16	560
TS 25297	750	95	35	140	11.1	1350
TS 25298	725	125	35	155	11.3	990
TS 25299	700	55	40	125	8.17	830
TS 25300	675	110	40	210	10.4	1750
TS 25301	650	125	35	165	11.4	2600
TS 25302	625	80	30	90	10.3	900
TS 25303	600	75	35	80	10.3	770
TS 25304	575	75	30	135	9.69	780
TS 25305	550	200	30	150	12.1	2500
TS 25306	525	65	35	125	10.6	1050
TS 25307	500	65	35	140	10.7	620
TS 25308	475	95	35	110	10.3	1100
TS 25309	450	50	45	65	6.45	610
TS 25310	425	125	80	145	10.2	940
TS 25311	400	70	40	115	9.89	2400
TS 25312	375	90	45	180	11.6	3300
TS 25313	350	60	45	195	7.92	1150
TS 25314	325	55	40	75	9.68	590
TS 25315	300	55	40	65	10.7	470
TS 25316	275	75	40	85	9.35	440
TS 25317	250	85	35	110	9.69	1100
Detection Limit:		2	5	2	0.01	5

Comments:

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LABORATORY REPORT

Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

401050

Batch Number: C02

Contact: MR. S.D. TURLEY
Order No. K 757, KP 3377
Sample Type: SOIL

No. of Samples: 64
Date Received: 02/03/
Date Completed: 13/03/

SAMPLE NUMBER	Element Unit Method	Ni ppm G001	As ppm G004	Sn ppm XRF 1A	W ppm XRF 1A
TS 25288		95	9	<5	<10
TS 25289		55	8	5	<10
TS 25290		50	5	<5	<10
TS 25291		70	7	<5	<10
TS 25292		110	3	<5	<10
TS 25293		115	6	<5	<10
TS 25294		100	6	<5	<10
TS 25295		60	8	<5	<10
TS 25296		65	3	<5	<10
TS 25297		100	12	<5	<10
TS 25298		95	5	<5	<10
TS 25299		75	2	<5	<10
TS 25300		135	5	<5	<10
TS 25301		115	3	<5	<10
TS 25302		55	2	<5	<10
TS 25303		50	1	<5	<10
TS 25304		100	2	<5	<10
TS 25305		105	1	<5	<10
TS 25306		90	<1	<5	<10
TS 25307		100	1	<5	<10
TS 25308		80	2	<5	<10
TS 25309		35	5	<5	<10
TS 25310		55	5	<5	<10
TS 25311		65	4	<5	<10
TS 25312		85	4	<5	<10
TS 25313		210	<1	<5	<10
TS 25314		55	7	5	<10
TS 25315		35	3	<5	<10
TS 25316		60	4	<5	<10
TS 25317		70	2	<5	<10
Detection Limit:		5	1	5	10

Comments:

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Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

Batch Number: C027

Contact: MR. S.D. TURLEY
Order No. K 757, KP 3377
Sample Type: SOIL

No. of Samples: 64
Date Received: 02/03/84
Date Completed: 13/03/84

SAMPLE NUMBER	Element Unit Method	Cu ppm G001	Pb ppm G001	Zn ppm G001	Fe % G001	Mn ppm G001
TS 25318 NL12 225E		40	30	55	8.31	280
TS 25319	200	70	45	115	10.3	420
TS 25320	175	45	45	105	6.07	320
TS 25321	150	30	30	60	5.48	190
TS 25322	125	55	35	60	8.61	150
TS 25323	100	65	45	155	9.25	3400
TS 25324	75	95	45	175	10.5	1400
TS 25325	50	45	30	70	6.70	3050
TS 25326	25	70	40	80	8.24	1450
TS 25327	0	15	25	35	2.70	750
TS 25328 NL21 200E		75	30	75	5.58	1100
TS 25329	175	60	30	55	6.50	380
TS 25330	150	10	15	15	1.48	240
TS 25331	125	5	20	15	1.08	1850
TS 25332	100	5	20	25	2.54	770
TS 25333	75	5	15	20	1.08	690
TS 25334	50	5	20	10	0.63	195
TS 25335	25E	2	10	10	0.56	95
TS 25336	0	2	15	5	0.55	150
TS 25337	25W.	10	15	30	0.66	65
TS 25338	50	5	10	2	0.55	65
TS 25339	75	5	15	15	0.37	150
TS 25340	100	2	10	10	0.50	85
TS 25341	125	5	10	30	0.63	240
TS 25342	150	10	15	10	0.73	100
TS 25343	175	2	10	10	0.58	100
TS 25344	200	140	30	155	8.73	570
TS 25345 BL	1425 NL	10	15	20	1.00	185
TS 25346	1495	5	15	35	0.52	90
TS 25347	1500	25	40	700	0.33	75
Detection Limit:		2	5	2	0.01	5

Comments:

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Phone: (07) 352 5577
Telex: ALSEV 42344

Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

401051

Batch Number: C027

Contact: MR. S.D. TURLEY
Order No. K 757, KP 3377
Sample Type: SOIL

No. of Samples: 64
Date Received: 02/03/
Date Completed: 13/03/

SAMPLE NUMBER	Element Unit Method	Ni ppm G001	As ppm G004	Sn ppm XRF 1A	W ppm XRF 1A
TS 25318		40	2	<5	<10
TS 25319		85	4	<5	<10
TS 25320		70	7	<5	10
TS 25321		40	4	<5	<10
TS 25322		45	7	<5	<10
TS 25323		120	16	<5	<10
TS 25324		360	20	<5	<10
TS 25325		210	3	<5	<10
TS 25326		330	1	<5	<10
TS 25327		80	<1	<5	<10
TS 25328		150	5	<5	<10
TS 25329		40	5	<5	<10
TS 25330		15	1	<5	10
TS 25331		25	<1	<5	10
TS 25332		20	2	<5	10
TS 25333		15	1	<5	10
TS 25334		15	1	<5	<10
TS 25335		10	1	<5	20
TS 25336		25	<1	<5	20
TS 25337		20	2	<5	10
TS 25338		35	1	<5	40
TS 25339		30	1	<5	20
TS 25340		10	1	<5	10
TS 25341		35	1	<5	20
TS 25342		20	1	<5	20
TS 25343		20	1	<5	30
TS 25344		140	<1	<5	<10
TS 25345		15	1	<5	10
TS 25346		40	1	<5	10
TS 25347		45	1	<5	20
Detection Limit:		5	1	5	10

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Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

Batch Number: C027

Contact: MR. S.D. TURLEY

No. of Samples: 64
Date Received: 02/03/84
Date Completed: 13/03/84

Order No. K 757, KP 3377

Sample Type: SOIL

SAMPLE NUMBER	Element Unit Method	Cu ppm G001	Pb ppm G001	Zn ppm G001	Fe % G001	Mn ppm G001
TS 25348 BL 1525 N		5	15	20	0.68	110
TS 25349 1550		10	20	25	0.57	180
TS 25350 DUPLICATE OF 25337		10	15	25	0.57	60
TS 25351 DUPLICATE OF 25348		5	15	10	0.75	75
Detection Limit:		2	5	2	0.01	5

Comments:

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Telex: ALSEV 42344

401052

Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

Batch Number: C027

Contact: MR. S.D. TURLEY

No. of Samples: 64
Date Received: 02/03/
Date Completed: 13/03/

Order No. K 757, KP 3377

Sample Type: SOIL

SAMPLE NUMBER	Element Unit Method	Ni ppm G001	As ppm G004	Sn ppm XRF 1A	W ppm XRF 1A
TS 25348		30	1	<5	10
TS 25349		45	1	<5	30
TS 25350		20	2	<5	20
TS 25351		20	<1	<5	20
Detection Limit:		5	1	5	10

Comments:

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Phone: (07) 352 5577
Telex: ALSEV 42344

Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

Page 1 of 6

Batch Number: C086

Contact: DR. ROSS LARGE.

No. of Samples: 85
Date Received: 13/03/84
Date Completed: 20/03/84

Order No. K 758, KP 3379

Sample Type: SOIL

SAMPLE NUMBER	Element Unit Method	Cu ppm G001	Pb ppm G001	Zn ppm G001	Fe % G001	Mn ppm G001
TS 25352 BL 1575 N		10	10	30	0.81	115
TS 25353 NL 22 350 W		20	30	65	3.39	210
TS 25354 325		55	35	80	4.64	1400
TS 25355 300		15	25	70	4.08	180
TS 25356 275		30	20	90	4.07	1450
TS 25357 } 250		10	15	30	1.39	220
TS 25358 }		10	20	20	1.16	220
TS 25359 225		40	25	195	4.42	1650
TS 25360 200		10	10	30	1.18	130
TS 25361 175		115	30	90	10.3	3650
TS 25362 162.5		135	30	145	10.9	2000
TS 25363 150		10	35	70	5.70	790
TS 25364 137.5		15	20	25	2.07	290
TS 25365 125		10	15	15	0.52	135
TS 25366 112.5		10	20	15	0.97	165
TS 25367 } 100		5	15	10	0.92	350
TS 25368 }		5	15	10	0.83	270
TS 25369 87.5		10	20	20	0.89	570
TS 25370 75		5	15	15	0.48	560
TS 25371 62.5		10	15	30	0.63	590
TS 25372 50		5	10	5	0.57	135
TS 25373 37.5		5	10	15	0.48	185
TS 25374 25		5	10	25	0.59	155
TS 25375 12.5 W		5	10	30	0.76	115
TS 25376 0		5	10	15	0.31	40
TS 25377 12.5 E		10	20	15	0.33	210
TS 25378 } 25		5	10	10	0.16	65
TS 25379 }		5	20	15	0.29	210
TS 25380 37.5		15	40	15	2.63	150
TS 25381 50		30	30	40	3.48	380
Detection Limit:		2	5	2	0.01	5

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Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

Page 2 of

401053 Batch Number: C086

Contact: DR. ROSS LARGE.

No. of Samples: 85
Date Received: 13/03/
Date Completed: 20/03/

Order No. K 758, KP 3379

Sample Type: SOIL

SAMPLE NUMBER	Element Unit Method	Ni ppm G001	As ppm G004	Sn ppm XRF 1A	W ppm XRF 1A
TS 25352		25	3	<5	40
TS 25353		25	5	<5	10
TS 25354		55	4	<5	<10
TS 25355		35	4	<5	<10
TS 25356		210	3	<5	<10
TS 25357		25	3	<5	20
TS 25358		20	3	<5	10
TS 25359		80	9	<5	20
TS 25360		25	2	<5	10
TS 25361		240	12	<5	<10
TS 25362		370	3	<5	<10
TS 25363		40	16	<5	<10
TS 25364		20	5	<5	<10
TS 25365		10	2	<5	10
TS 25366		15	2	<5	10
TS 25367		5	2	<5	10
TS 25368		5	2	<5	10
TS 25369		10	3	<5	10
TS 25370		5	2	<5	10
TS 25371		55	2	<5	30
TS 25372		30	1	<5	20
TS 25373		35	2	<5	20
TS 25374		10	2	<5	10
TS 25375		25	2	<5	10
TS 25376		35	2	<5	20
TS 25377		5	2	<5	<10
TS 25378		5	1	<5	<10
TS 25379		10	2	<5	<10
TS 25380		25	4	<5	20
TS 25381		65	4	<5	20
Detection Limit:		5	1	5	10

Comments:

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Signatory: G J Kilmister

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Telex: ALSEV 42344

Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

Batch Number: C086

Contact: DR. ROSS LARGE.

Order No. K 758, KP 3379 Sample Type: SOIL

No. of Samples: 85
Date Received: 13/03/84
Date Completed: 20/03/84

SAMPLE NUMBER	Element Unit Method	Cu ppm G001	Pb ppm G001	Zn ppm G001	Fe % G001	Mn ppm G001
TS 25382 NL 22.	62.5 E	25	30	55	5.32	410
TS 25383	75	10	20	20	2.67	145
TS 25384	87.5	15	30	30	4.66	220
TS 25385	100	15	35	40	5.13	220
TS 25386	112.5	55	35	80	6.50	360
TS 25387 }	125	25	35	50	5.78	290
TS 25388 }		20	30	65	5.88	310
TS 25389	137.5	15	30	25	2.93	175
TS 25390	150	15	20	25	2.20	240
TS 25391	162.5	35	60	85	4.23	400
TS 25392	175	150	25	125	8.45	1300
TS 25393	187.5	160	25	110	8.80	1050
TS 25394	200	15	25	65	6.27	1300
TS 25395	450 E	175	20	70	9.98	1700
TS 25396	462.5	320	40	165	13.1	2200
TS 25397 }	475	105	35	60	5.61	500
TS 25398 }		95	35	55	5.24	460
TS 25399	487.5	15	45	55	6.37	460
TS 25400	500	10	45	50	5.25	520
TS 25401	512.5	10	25	15	1.23	115
TS 25402	525	5	20	15	1.26	75
TS 25403	537.5	10	20	15	1.45	75
TS 25404	550	10	25	20	1.23	90
TS 25405	662.5	15	25	15	1.64	240
TS 25406	575	10	20	10	0.91	75
TS 25407 }	587.5	10	20	20	0.89	650
TS 25408 }		10	20	15	0.89	640
TS 25409	600	10	45	75	4.03	310
TS 25410	612.5	200	25	130	5.47	790
TS 25411	625.	10	45	75	5.17	520
Detection Limit:		2	5	2	0.01	5

Comments:

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Telex: ALSEV 42344

Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

401054

Batch Number: C086

Contact: DR. ROSS LARGE.

Order No. K 758, KP 3379 Sample Type: SOIL

No. of Samples: 85
Date Received: 13/03/
Date Completed: 20/03/

SAMPLE NUMBER	Element Unit Method	Ni ppm G001	As ppm G004	Sn ppm XRF 1A	W ppm XRF 1A
TS 25382		35	9	5	<10
TS 25383		15	4	<5	10
TS 25384		25	5	<5	10
TS 25385		35	7	5	10
TS 25386		65	10	<5	10
TS 25387		35	7	5	<10
TS 25388		30	7	<5	<10
TS 25389		15	4	<5	10
TS 25390		30	4	<5	10
TS 25391		70	9	<5	<10
TS 25392		240	8	<5	<10
TS 25393		210	8	<5	<10
TS 25394		125	10	5	<10
TS 25395		130	6	<5	<10
TS 25396		340	8	<5	<10
TS 25397		110	9	<5	<10
TS 25398		100	9	<5	<10
TS 25399		35	12	5	<10
TS 25400		40	12	<5	<10
TS 25401		60	7	<5	40
TS 25402		20	5	<5	<10
TS 25403		30	2	<5	20
TS 25404		20	9	<5	<10
TS 25405		20	4	<5	10
TS 25406		30	3	<5	20
TS 25407		25	3	<5	10
TS 25408		25	2	<5	20
TS 25409		40	8	<5	<10
TS 25410		70	6	<5	<10
TS 25411		50	6	<5	<10
Detection Limit:		5	1	5	10

Comments:

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Phone: (07) 352 5577
Telex: ALSEV 42344

Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

Batch Number: C086

Contact: DR. ROSS LARGE.

Order No. K 758, KP 3379

Sample Type: SOIL

No. of Samples: 85
Date Received: 13/03/84
Date Completed: 20/03/84

SAMPLE NUMBER	Element Unit Method	Cu ppm G001	Pb ppm G001	Zn ppm G001	Fe % G001	Mn ppm G001
TS 25412 BL 1600 N		10	25	10	0.84	105
TS 25413	1625	10	25	15	0.98	110
TS 25414	1650	20	30	25	5.60	260
TS 25415	1675	35	45	45	8.55	1450
TS 25416	1725	5	20	10	0.86	125
TS 25417 }	1750 N	10	20	10	0.59	70
TS 25418 }		10	20	10	0.63	75
TS 25419 NL 23	200 W	15	35	30	3.62	280
TS 25420	175	20	30	35	3.91	220
TS 25421	150	145	25	70	14.3	145
TS 25422	125	25	25	20	5.09	110
TS 25423	100	20	15	15	2.53	120
TS 25424	75	100	20	45	3.60	1700
TS 25425	50	10	10	5	0.66	110
TS 25426	25 N	115	40	150	13.0	5.99 %
TS 25427 }	0	50	30	45	10.1	1700
TS 25428 }		50	40	40	10.2	1450
TS 25429	25 E	30	40	25	4.93	580
TS 25430	50	15	20	15	2.27	145
TS 25431	75	10	20	20	0.89	160
TS 25432	100	10	25	15	1.07	220
TS 25433	125	5	20	10	0.54	85
TS 25434	150	10	25	15	0.69	55
TS 25435	175	10	20	10	1.07	250
TS 25436	200 E.	15	35	45	3.54	310
Detection Limit:		2	5	2	0.01	5

Comments:

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Client: GEOPEKO LIMITED,
Address: P.O. BOX 598,
DEVONPORT TAS. 7310

401055

Batch Number: C086

Contact: DR. ROSS LARGE.

Order No. K 758, KP 3379

Sample Type: SOIL

No. of Samples: 85
Date Received: 13/03/
Date Completed: 20/03/

SAMPLE NUMBER	Element Unit Method	Ni ppm G001	As ppm G004	Sn ppm XRF 1A	W ppm XRF 1A
TS 25412		45	2	<5	10
TS 25413		30	3	<5	10
TS 25414		30	7	<5	<10
TS 25415		30	10	<5	<10
TS 25416		20	5	<5	<10
TS 25417		15	4	<5	<10
TS 25418		20	4	<5	10
TS 25419		40	7	<5	10
TS 25420		40	10	<5	<10
TS 25421		140	14	<5	<10
TS 25422		40	10	<5	<10
TS 25423		35	6	<5	10
TS 25424		20	10	<5	<10
TS 25425		10	2	<5	10
TS 25426		140	36	<5	<10
TS 25427		35	16	5	<10
TS 25428		35	16	<5	<10
TS 25429		15	16	<5	10
TS 25430		20	6	<5	<10
TS 25431		10	3	<5	10
TS 25432		15	3	<5	10
TS 25433		10	3	<5	10
TS 25434		20	2	<5	<10
TS 25435		25	2	<5	10
TS 25436		35	8	<5	10
Detection Limit:		5	1	5	10

Comments:

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Signatory: G J Kilmister

054

055

401056

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D.DIR. | - 2 JUL 1984 | E & IL
DEPT. OF MINES
OPEN FILE 6659/84

GEOPEKO

A REPORT ON THE EXPLORATION ACTIVITY FOR EL 6/83, MOUNT CLEVELAND DECEMBER 1983 TO JUNE 1984

MICROFILMED

BY

S.D. TURLEY

WITH GEOPHYSICS BY

J. SUMPTON - MAGNETICS AND TURAM

J. GUNSON - SIROTEM

VOLUME 2

FIGURES 1 TO 11 PLUS DIVISIONS (51 PLANS)

GEOPEKO, DEVONPORT

JUNE, 1984.

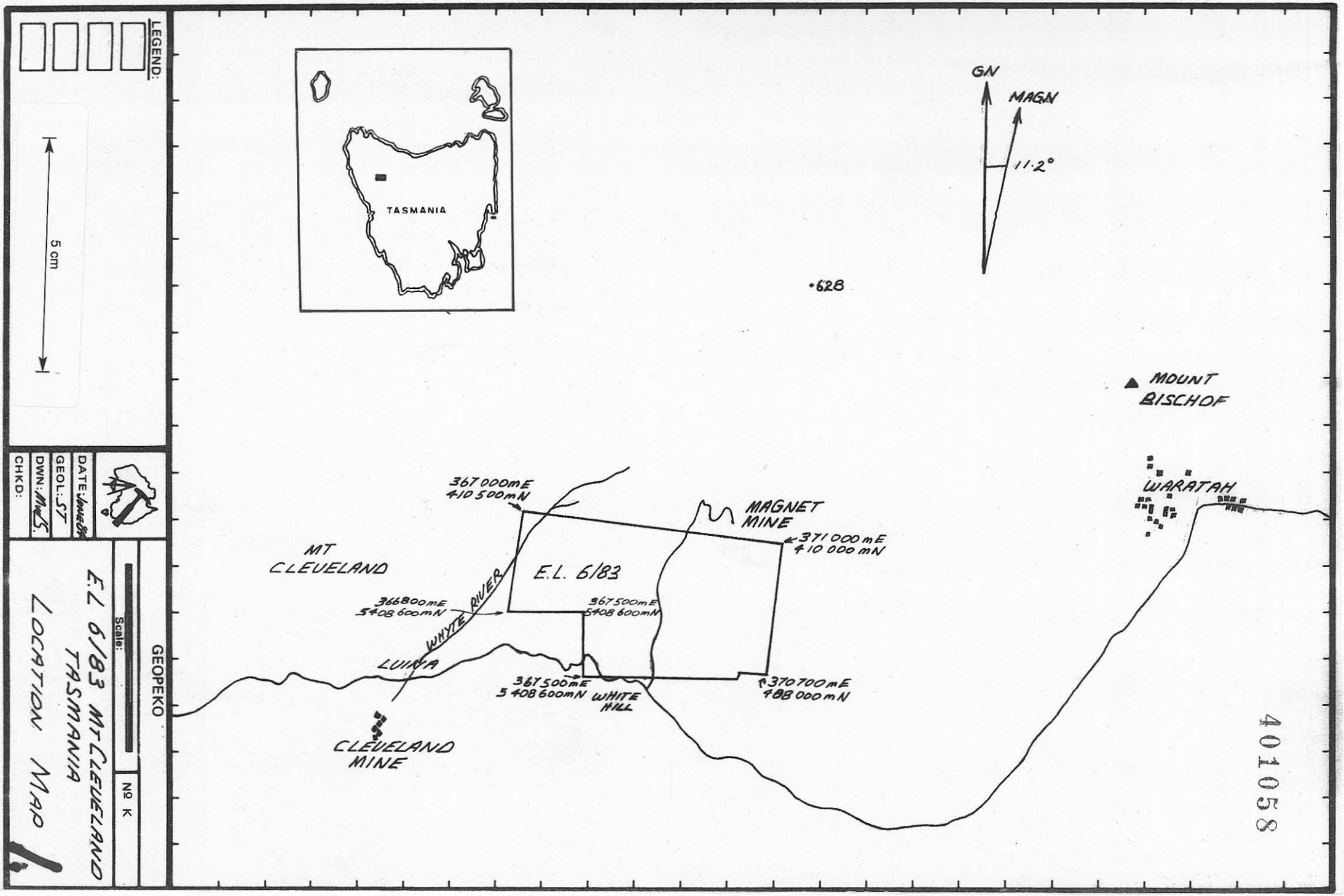
LIST OF FIGURES

Figure No	
1.	Locality Plan
2. I - IV	Geology Factual
3. I - IV	Geology Interpretation
4. I - IV	Profiles of Total Magnetic Intensity
5. I - IV	Contours of Total Magnetic Intensity
6.	TURAM. Loop and Traverse Lines
7. A - F	TURAM Profiles of Normalized FSR and Phase Difference
8. A - J	SIROTEM RVR Profiles
9. A - D	SIROTEM Loop and Contours
10. A - I	Profiles of Geochemical Orientation Programme
11. I - IV	Results of C Horizon and Pan Concentrate Sampling, Including:-

The Orientation Programme

The Selective Soil Sampling Programme

The Follow-Up Soil Sampling Programme


LEGEND:
5 cm
TASMANIA
GN
MAGN
11·2°
·628
MOUNT BISCHOF
WARATAH
MAGNET MINE
367 000mE
410 500mN
371 000mE
410 000mN
MT CLEVELAND
E.L. 6/83
366800mE
5408 600mN
367 500mE
5408 600mN
WHYTE RIVER
LUINA
367 500mE
5 408 600mN
WHITE HILL
370 700mE
488 000mN
CLEVELAND MINE
DATE: June 84
GEOL: ST
DWN: MWS
CHKD:
GEOPEKO
Scale:
Nº K
E.L 6/83 MT CLEVELAND
TASMANIA
LOCATION MAP
1

401058



ABBREVIATIONS

ACCESS	–	ACCESSORY	MED	–	MEDIUM (GRAINED)
ARG	–	ARGILLITE	MN	–	MANGANESE (OXIDE
BLK	–	BLACK	O/C	–	OUTCROP
BLD	–	BOULDERS OF	PUR	–	PURPLE
BREC	–	BRECCIA	QTZ	–	QUARTZ
BRN	–	BROWN	SERP	–	SERPENTINITE
CK	–	CREEK	SILICIF	–	SILICIFIED
DOL	–	DOLERITE	SLTSTONE	–	SILTSTONE
FE	–	IRON (OXIDE)	SLTS	–	SILTS
FRAGS	–	FRAGMENTS	UB	–	ULTRA BASIC
FSPAR OR FS	–	FELDSPAR	V	–	VERY
GR	–	GRAVEL	VERT	–	VERTICAL
GRN	–	GREEN	VOLCS	–	VOLCANICS
G WACKE OR GW	–	GREYWACKE	XALS	–	CRYSTALS
GY OR GRY	–	GREY	Y	–	YELLOW
MAG	–	MAGNETITE			

SYMBOLS

BEDDING

- STRIKE
- STRIKE + ANGLE AND DIRECTION OF DIP
- VERTICAL BEDDING

CLEAVAGE

- DIRECTION AND INCLINATION
- VERTICAL CLEAVAGE
- ESCARPMENT

CLEVELAND GRID

GEOPEKO'S 1984 GRID EXTENSION

TRACK TO MAGNET MINE

IV	I
III	II

LIB BOOK NO

DATE JUNE 1984

GEOL S. TURLEY

DRAWN mudS.

CHECKED

GEOPEKO

A DIVISION OF PEKO-WALLSEND OPERATIONS LTD – DEVONPORT

2 I

25 0 50 125 metres

Scale 1:2500

Plan No I

E.L. 6/83 Cleveland, Tasmania

FACT GEOLOGY

2084

84-2156

FILE NO:

5409 000 N
5408 000 N
5407 000 N
371 000 E
370 000 E
369 000 E

N1 1400E
N2 1400E
N3 1400E
N4 1400E
N5 1000E
N6 1000E
N7 1000E
N8 1000E
N9 1400E
N10 1400E
N11 1400E
N12 1400E
N13 1400E
N14 1400E
N15 1000E
N16 1000E
N17 1000E
N18 1000E
N19 1000E
N20 1000E
N21 1000E
N22 1000E
N23 1000E

GRID/MAGNETIC MODEL 1°42'

401060
5 cm

ABBREVIATIONS

ACCESS	ACCESSORY	MED	MEDIUM (GRAINED)
ARG	ARGILLITE	MN	MANGANESE (OXIDE
BLK	BLACK	OC	OUTCROP
BLD	BOULDERS OF	PUR	PURPLE
BREC	BRECCIA	QTZ	QUARTZ
BRN	BROWN	SERP	SERPENTINITE
CK	CREEK	SILIC'D	SILICIFIED
DOL	DOLERITE	SLTST	SILTSTONE
FE	IRON (OXIDE)	SLTS	SILTS
FRAGS	FRAGMENTS	UB	ULTRA BASIC
FSPAR or FS	FELDSPAR	V	VERY
GR	GARNET	VERT	VERTICAL
GRN	GREEN	VOLCS	VOLCANICS
GWACKE or GW	GREYWACKE	XALS	CRYSTALS
GY or GRY	GREY	Y	YELLOW
MAG	MAGNETITE		

SYMBOLS

BEDDING
- STRIKE
- STRIKE + ANGLE AND DIRECTION OF DIP
- VERTICAL BEDDING

CLEAVAGE
- DIRECTION AND INCLINATION
- VERTICAL CLEAVAGE

ESCARPMENT

CLEVELAND GRID

GEOPEKO'S 1984 GRID EXTENSION

TRACK TO MAGNET MINE

IV | I
III | II

LIB BOOK NO.:
DATE: JUNE 1984
GEOL: S.TURLEY
DRAWN: mdS
CHECKED:

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD - DEVONPORT

2 II

25 0 50 125 Scale 1:2500 Plan No II

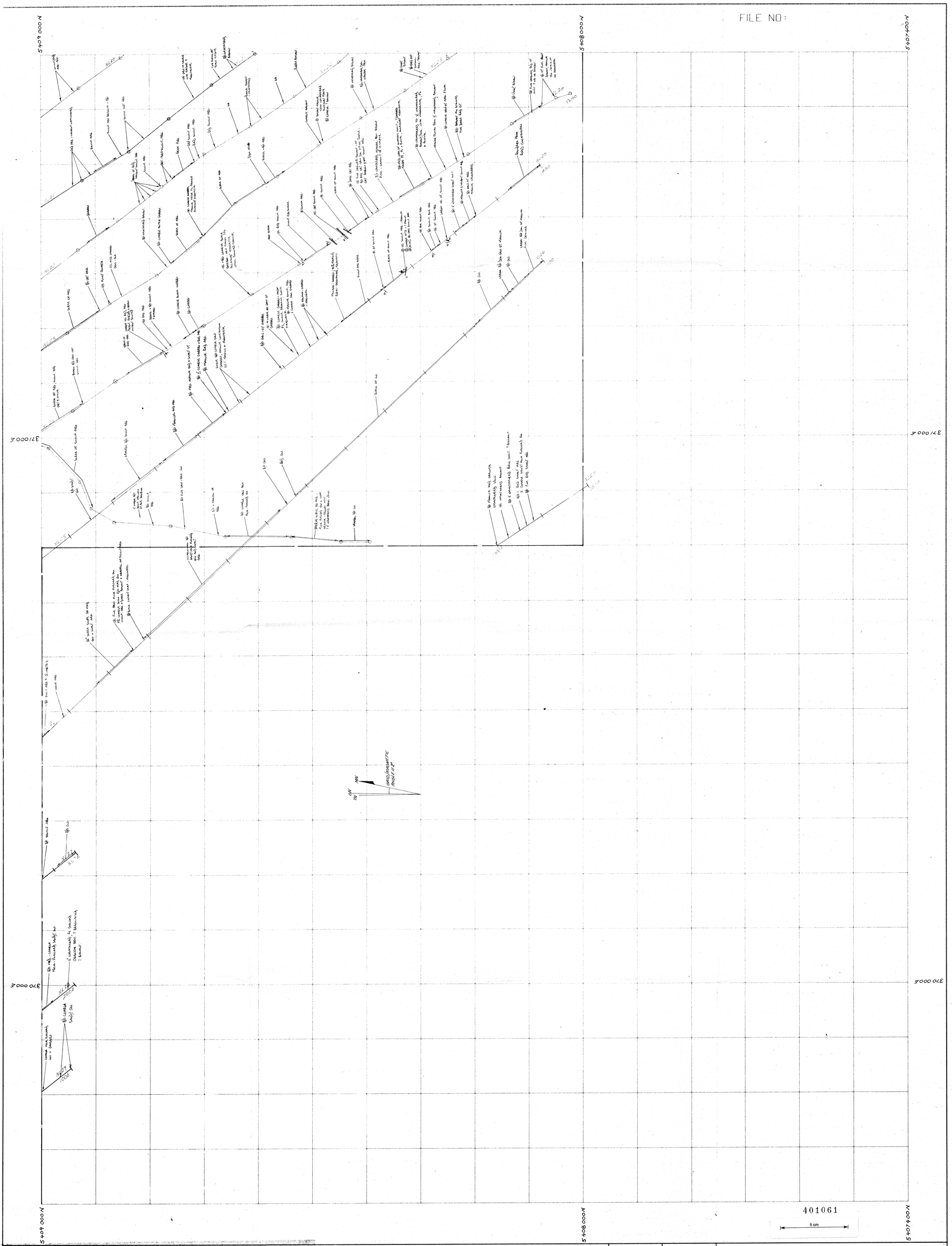
EL 6/83 Cleveland, Tasmania

FACT GEOLOGY

2085

84-2156

FILE NO:



401061

5 cm

ABBREVIATIONS

ACCESS	ACCESSORY	MED	MEDIUM (GRAINED)		
ARG	ARGILLITE	MN	MANGANESE (OXIDE		
BLK	BLACK	OC	OUTCROP		
BLD	BOULDERS OF	PUR	PURPLE		
BREC	BRECCIA	QTZ	QUARTZ		
BRN	BROWN	SERP	SERPENTINITE		
CK	CREEK	SILICIF	SILICIFIED		
DOL	DOLERITE	SLTN	SILTSTONE		
FE	IRON (OXIDE)	SLTS	SILTS		
FRAGS	FRAGMENTS	UB	ULTRA BASIC		
FSPAR or FS	FELDSPAR	V	VERY		
GR	GRAVEL	VERT	VERTICAL		
GRN	GREEN	VOLCS	VOLCANICS		
G' WACKE or GW	GREYWACKE	XALS	CRYSTALS		
GY or GRY	GREY	Y	YELLOW		
MAG	MAGNETITE				

SYMBOLS

BEDDING

- STRIKE
- STRIKE + ANGLE AND DIRECTION OF DIP
- VERTICAL BEDDING

CLEAVAGE

- DIRECTION AND INCLINATION
- VERTICAL CLEAVAGE
- ESCARPMENT

CLEVELAND GRID

GEOPEKO'S 1984 GRID EXTENSION

IV	I
III	II

LIB BOOK NO.:

DATE: JUNE 1984

GEOL: S. TURLEY

DRAWN: M.V.D.S.

CHECKED:

GEOPEKO

A DIVISION OF PEKO-WALLSEND OPERATIONS LTD - DEVONPORT

2 III

25 0 50 125 metres

Scale 1:2500

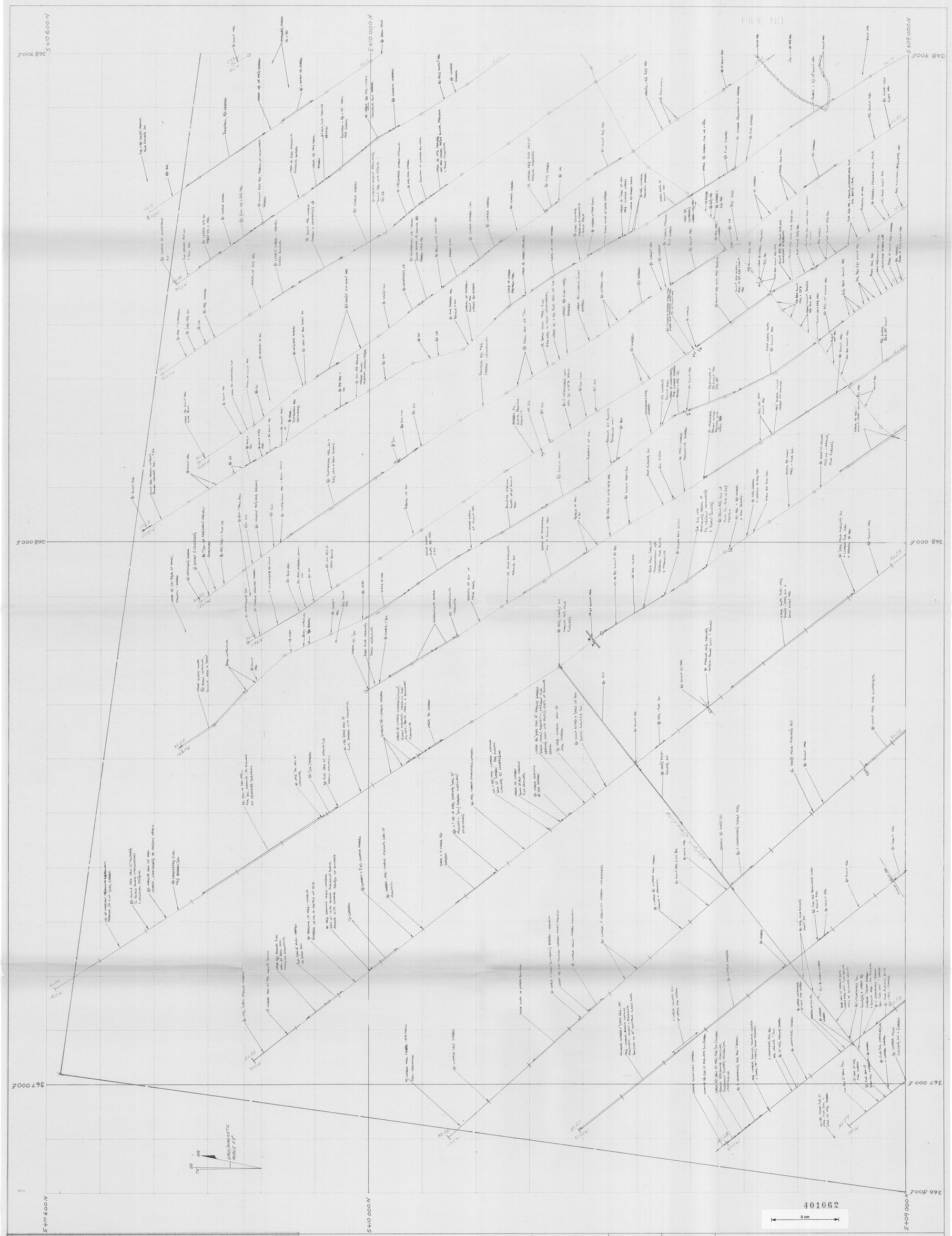
Plan No III

E.L. 6/83 Cleveland, Tasmania

FACT GEOLOGY

2086

84-2156



ABBREVIATIONS

ACCESS	–	ACCESSORY	MED	–	MEDIUM (GRAINED)
AAG	–	AAGILLITE	MN	–	MANGANESE (OXIDE
BLK	–	BLACK	O/C	–	OUTCROP
B/O	–	BOULDERS OF	PUR	–	PURPLE
BREC	–	BRECCIA	QTZ	–	QUARTZ
BRN	–	BROWN	SERP	–	SERPENTINITE
CK	–	CREEK	SILICIF	–	SILICIFIED
DOL	–	DOLERITE	SLTN	–	SILTSTONE
FE	–	IRON (OXIDE)	SLTS	–	SILTS
FRAGS	–	FRAGMENTS	UB	–	ULTRA BASIC
F.SPAR OR FS	–	FELDSPAR	V	–	VERY
GR	–	GRAVEL	VERT	–	VERTICAL
GRN	–	GREEN	VOLCS	–	VOLCANICS
G.WACKE OR GW	–	GREYWACKE	XALS	–	CRYSTALS
GY OR GRY	–	GREY	Y	–	YELLOW
MAG	–	MAGNETITE			

SYMBOLS

BEDDING

- STRIKE
- 45 STRIKE + ANGLE AND DIRECTION OF DIP
- VERTICAL BEDDING

CLEAVAGE

- DIRECTION AND INCLINATION
- VERTICAL CLEAVAGE
- ESCARPMENT

CLEVELAND GRID

GEOPEKO'S 1984 GRID EXTENSION

TRACK TO MAGNET MINE

IV	I
III	II

LIB BOOK NO

DATE JUNE 1984

GEOL S. TURLEY

DRAWN MudS

CHECKED

GEOPEKO

A DIVISION OF PEKO-WALLSEND OPERATIONS LTD - DEVONPORT

2 IV

25 0 50 125 metres

Scale 1:2500

Plan No IV

2087

E.L. 6/83 Cleveland, Tasmania

FACT GEOLOGY

84-2156

369 000 E

370 000 E

371 000 E

5 410 600 N

5 410 000 N

5 409 000 N

GM

TN

MN

GRID/MAGNETIC ANGLE 8°E

SILICIFIED ARGILLITE.

SILICIFIED ARGILLITE.

GABBRO

SPILITIC BASALT

BASALT

SILICIFIED ARGILLITE

SPILITIC BASALT.

SPILITIC BASALT.

BASALT

BASALT

GEN. DOLER

SERPENTINITE

PURPLE ARGILLITE, SILTSTONE AND GREYWACKE.

PURPLE ARGILLITE, SILTSTONE AND GREYWACKE WITH BASALTS.

PURPLE ARGILLITE, SILTSTONE, AND GREYWACKE WITH BASALTS

E.L. 6/83 Boundary

GREYWACKE.

PURPLE ARGILLITE, SILTSTONE AND GREYWACKE.

GREYWACKE.

TUFFACEOUS GREYWACKE

TUFFACEOUS GREYWACKE

TUFFACEOUS GREYWACKE.

PURPLE GREYWACKE

MAGNET DAM.

GABBRO

BASALT

Magnet Mine Track

Eastern Boundary

Magnet Mine Track

Magnet Mine Track

Magnet Mine Track

FILE NO:

71

70

(5)

5409 000 N

5408 000 N

5407 400 N

370 000 E

371 000 E

369 000 E

Basalt

Gabbro

Granophyre

Argillites.

Mafic Granophyre

Magnetic Anomaly

Gabbro Volcanics

Gabbro Volcanics + ? U.B.

Intrusions (Gabbro) Argillites.

Purple Argillite, Quartzose and Calcareous.

Calcareous / Argillite.

Basalt

Gabbro

Granophyre

Gabbro Volcanics

Gabbro Volcanics.

Basalt

Gabbro Volcanics.

Basalt

Basalt

Basalt

FILE NO:

5409 000 N

5408 000 N

5407 000 N

367 000 E

401065

5 cm

SILICIF. ARG.

SILICIFIED ARGILLITE.

SILICIF. ARGILLITE.

SILICIF. (RAS) ARGILLITE.

SILICIFIED ARGILLITE.

SILICIFIED ARGILLITE.

SILICIFIED

FILE NO:

5410 600 N
5410 000 N
5409 600 N
368 200 E
368 000 E
367 800 E
367 000 E
366 800 E

Gabbro
Silicified Rhyolite
Tuffaceous Rhyolite
Sandstone with Rhyolite
Basalt
Serpentinite
Mineralised Rhyolite with Basaltic (?) Basic Tuffaceous Rock Fragments.
Sand (Gravelled Road) Alluvial Flats (Swamps) Contact of Gabbro Boundaries Faint Relief.
Inferred Boundary of Gabbro Intrusive Complex
White Gloss
E.L. 6/83
Grid Magnetic Meridian

401066

5 cm

ABBREVIATIONS

ACCESS	–	ACCESSORY	MED	–	MEDIUM (GRAINED)
ARG	–	ARGILLITE	MN	–	MANGANESE OXIDE
BLK	–	BLACK	OC	–	OUTCROP
BLD	–	BOULDERS OF	PUR	–	PURPLE
BREC	–	BRECCIA	QTZ	–	QUARTZ
BRN	–	BROWN	SERP	–	SERPENTINITE
CK	–	CHERT	SEVST	–	SILICIFIED
DOL	–	DOLERITE	SLTH	–	SILTSTONE
FE	–	IRON (OXIDE)	SLTS	–	SILTS
FRAGS	–	FRAGMENTS	UB	–	ULTRA BASIC
FSPARS/FS	–	FELDSPAR	V	–	VERY
GR	–	GRAINED	VERT	–	VERTICAL
GRN	–	GREEN	VOLCS	–	VOLCANICS
(S)RICKED/DW	–	GREYWACKE	XALS	–	CRYSTALS
GY/GRY	–	GREY	Y	–	YELLOW
MAG	–	MAGNETITE			

CLEVELAND GRID
GEOPEKO'S 1984 GRID EXTENSION
DRAINAGE
TRACK TO MINE

SYMBOLS

BEDDING
- STRIKE
- STRIKE & ANGLE AND DIRECTION OF DIP
- VERTICAL BEDDING

CLEAVAGE
- DIRECTION AND INCLINATION
- VERTICAL CLEAVAGE

ESCARPMENT

IV | I
III | II

LIB BOOK NO.
DATE : JUNE 1984
GEOL : S TURLEY
DRAWN : MvdS
CHECKED

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD - DEVONPORT

25 0 50 125 metres
Scale : 1:2500
Plan No : IV

2091

E.L. 6/83 Cleveland, Tasmania

INTERPRETATION GEOLOGY. Fig VI

84-2156

FILE NO:

371 000E
370 000E
369 000E
5 410 600N
5 410 000N
5 409 000N

N0.0

325M
N41

500M
N43

N45

N46

N47

401067

5 cm

MN
GN
TM
GRAD/MAGNETIC ANGLE 11.2°

IV | I
III | II

H.S. 1:2500
V.S. 1cm = 200nT
Inst-BASE GB56
FIELD GB16
Obs T. Coff.

LIB BOOK NO.
DATE JUNE 1984
GEOL JMS
DRAWN ST
CHECKED

GEOPEKO

A DIVISION OF PEKO-WALLSEND OPERATIONS LTD - DEVONPORT

4I

25 0 50 125 metres Scale 1:2500 Plan No. I

2092

E.L. 6/83 Cleveland, Tasmania

PROFILES OF TOTAL MAGNETIC INTENSITY

84-2156

FILE NO:

5 409 000 N
5 408 000 N
5 407 400 N
371 000 E
370 000 E
369 000 E

NL11 1400E
NL13 1400E
NL15
NL16
NL17
NL20 1700E
1700E
1700E
1700E
1700E
1700E
NL20 1900E
2014E
2017E
2017E
2017

FILE NO:

5409000N

5408000N

5407400N

370000E

371000E

370000E

NL21

NL23

NL25

700

NL26

700

NL27

1,500

1300E

NL27

NL28

700E

NL29

100E

401169

5 cm

5409000N

5408000N

5407400N

H.S. 1:2500
V.S. 1cm=200nT
Inst-BASE G856
FIELD G816
O6S T.COFF

GRID/MAGNETIC ANGLE 11°20'

GN MN TN

IV | I
III | II

LIB BOOK NO. :
DATE : JUNE 1984
GEOL : JMS, ST
DRAWN :
CHECKED :

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD - DEVONPORT

4 III

25 0 50 125 metres

Scale : 1:2500

Plan No : III

2094

E.L. 6/83 Cleveland, Tasmania

PROFILES OF TOTAL MAGNETIC INTENSITY

84-2156

FILE NO:

5410 600 N
5410 000 N
5409 000 N
368 800 E
368 000 E
367 000 E
367 200 E
366 800 E

NL15
NL16
NL17
NL18
NL20
NL23
NL24
NL25
NL26
NL27
NL28
NL29

Western Coastline

401070

5 cm

H.S. 1:2500
V.S. 1cm=200nT
Inst-Base GB56
FIELD GB16
Obs T. Coff

GRID/MAGNETIC ANGLE 11.2°
GN MN TN

IV | I
III | II

LIB BOOK NO. :
DATE : JUNE 1984
GEOL : JMS, ST
DRAWN :
CHECKED :

GEOPEKO

A DIVISION OF PEKO-WALLSEND OPERATIONS LTD - DEVONPORT

4 IV

25 0 50 125 metres | Scale : 1:2500 | Plan No : IV

2095

E.L. 6/83 Cleveland, Tasmania

PROFILES OF TOTAL MAGNETIC INTENSITY

84-2156

FILE NO:

5410 600N

5410 000N

5409 000N

371 000E

370 000E

369 000E

E.L. 6183 Boundary

Cleveland Fault Line

NL1 NL2 NL3 NL4 NL5 NL6 NL7 NL8 NL9 NL10 NL11 NL12 NL13 NL14 NL15 NL16 NL17 NL18

62300 62400 62500 62600 62700 62800 62900 63000 63100 63200 63300 63400 63500 63600 63700 63800 63900 64000 64100 64200 64300 64400 64500 64600 64700 64800 64900 65000 65100 65200 65300 65400 65500 65600 65700 65800 65900 66000 66100 66200 66300 66400 66500 66600 66700 66800 66900 67000 67100 67200 67300 67400 67500 67600 67700 67800 67900 68000 68100 68200 68300 68400 68500 68600 68700 68800 68900 69000 69100 69200 69300 69400 69500 69600 69700 69800 69900 70000 70100 70200 70300 70400 70500 70600 70700 70800 70900 71000 71100 71200 71300 71400 71500 71600 71700 71800 71900 72000 72100 72200 72300 72400 72500 72600 72700 72800 72900 73000 73100 73200 73300 73400 73500 73600 73700 73800 73900 74000 74100 74200 74300 74400 74500 74600 74700 74800 74900 75000 75100 75200 75300 75400 75500 75600 75700 75800 75900 76000 76100 76200 76300 76400 76500 76600 76700 76800 76900 77000 77100 77200 77300 77400 77500 77600 77700 77800 77900 78000 78100 78200 78300 78400 78500 78600 78700 78800 78900 79000 79100 79200 79300 79400 79500 79600 79700 79800 79900 80000 80100 80200 80300 80400 80500 80600 80700 80800 80900 81000 81100 81200 81300 81400 81500 81600 81700 81800 81900 82000 82100 82200 82300 82400 82500 82600 82700 82800 82900 83000 83100 83200 83300 83400 83500 83600 83700 83800 83900 84000 84100 84200 84300 84400 84500 84600 84700 84800 84900 85000 85100 85200 85300 85400 85500 85600 85700 85800 85900 86000 86100 86200 86300 86400 86500 86600 86700 86800 86900 87000 87100 87200 87300 87400 87500 87600 87700 87800 87900 88000 88100 88200 88300 88400 88500 88600 88700 88800 88900 89000 89100 89200 89300 89400 89500 89600 89700 89800 89900 90000 90100 90200 90300 90400 90500 90600 90700 90800 90900 91000 91100 91200 91300 91400 91500 91600 91700 91800 91900 92000 92100 92200 92300 92400 92500 92600 92700 92800 92900 93000 93100 93200 93300 93400 93500 93600 93700 93800 93900 94000 94100 94200 94300 94400 94500 94600 94700 94800 94900 95000 95100 95200 95300 95400 95500 95600 95700 95800 95900 96000 96100 96200 96300 96400 96500 96600 96700 96800 96900 97000 97100 97200 97300 97400 97500 97600 97700 97800 97900 98000 98100 98200 98300 98400 98500 98600 98700 98800 98900 99000 99100 99200 99300 99400 99500 99600 99700 99800 99900 100000

401071

5 cm

HS 1:2500
CONT INT 100nT
INST - BASEGB56
FIELDGB16
Obs T. COFF

GRID/MAGNETIC ANGLE 11.20

GN MN TN

IV | I
III | II

LIB BOOK NO. :
DATE : JUNE 1984
GEOL : J.M.S.
DRAWN : M.W.S.
CHECKED :

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD - DEVONPORT

5I

25 0 50 125 metres | Scale : 1:2500 | Plan No : I

2096

E.L. 6183 Cleveland Tasmania

CONTOURS OF TOTAL MAGNETIC INTENSITY

CONT INT 100nT. 84-2156

FILE NO:

5409000N
5408000N
5407400N
371000E
370000E
369000E

NL8 1900E
NL10
NL12
NL9 1300E
NL10
NL11 1400E
NL12 1400E
NL1
NL13 1400E
NL13
NL14
NL15 1000E
NL16
NL16 1030E
NL17 994E
NL17
NL18
NL18
NL19
NL20
NL21
NL22 1512E
NL23 1358E
NL18
NL16 2000E
NL17 1700E
NL18.5 1675E
NL19 1700E
NL20 1700E
NL20.5 1700E
NL21 1080E
Southern

401072

5 cm

HS 1:2500
CONT INT 100nT
Instr - BASE GB56
FIELD GB16
Obs T. COFF

GRID MAGNETIC A NGLE 11.2°
GN MN TN

IV I III II

LIB BOOK NO. :
DATE : JUNE 1984
GEOL : J.M.S.
DRAWN : M.vd.S.
CHECKED :

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD - DEVONPORT

5II

25 0 50 125 metres | Scale : 1:2500 | Plan No : II

2097

E.L. 6/83 Cleveland, Tasmania
CONTOURS OF TOTAL MAGNETIC INTENSITY
CONT INT 100nT

84-2156

FILE NO:

5409 000N

5408 000N

5407 000N

371000E

370000E

NL10 NL21 NL22 NL23 NL24 NL25 NL26 NL27 NL28 NL29

61900 62000 62100 62200 62300 62400

1800 1700 1600 1500 1400 1300E 1200 1100 1000 900 800 700 600 500 400 350E 300 200E 100E

401073

5 cm

GRID/MAGNETIC ANGLE 11.2°

GN MN TN

IV I III II

HS 1:2500
CONT INT 100nT
INST - BASE GB56
FIELD GB16
Obs T. COFF

LIB BOOK NO. :
DATE : JUNE 1984
GEOL : I.M.S.
DRAWN : M.W.S.
CHECKED :

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD - DEVONPORT

5 III

25 0 50 125 metres

Scale : 1:2500

Plan No : III

2098

E.L. 6/83 Cleveland Tasmania

CONTOURS OF TOTAL MAGNETIC INTENSITY

CONT INT 100nT

84-2156

FILE NO:

5410 600 N
5410 000 N
5409 000 N
368 800 E
368 000 E
367 000 E
366 800 E

NL14 532W
NL15 632W
NL16 903W
NL17 1007W
NL18 1230W
NL19 1205W
NL20 1207W
NL21 1196W
NL22 1487W
NL23
NL24
NL25 900W
NL26 700W
NL27 500W
NL28 300W
NL29 100W

6200
6220
6240
6260
6280
6300
6320
6340
6360
6380
6400
6420
6440
6460
6480
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6640
6660
6680
6700
6720
6740
6760
6780
6800
6820
6840
6860
6880
6900
6920
6940
6960
6980

NL-24

NL-25

NL-26

NL-27

NL-28

NL-29

NL-30

NL-31

NL-32

NL-33

NL-34

NL-35

NL-36

NL-37

NL-38

5409000N

1900E

1800E

1700E

1600E

1500E

1400E

1300E

1200E

1100E

1000E

900E

800E

700E

600E

500E

400E

300E

200E

100E

BASE LINE

100N

200N

300N

400N

500N

600N

700N

800N

900N

1000N

1100N

1200N

1300N

1400N

1500N

1600N

1700N

1800N

1900N

2000N

2100N

2200N

2300N

2400N

2500N

2600N

2700N

2800N

2900N

3000N

3100N

3200N

3300N

3400N

3500N

3600N

3700N

3800N

3900N

4000N

A

MOUNT CLEVELAND-TASMANIA

PROFILES OF NORMALISED FIELD STRENGTH RATIO
AND PHASE DIFFERENCE

SCALE Horz - 1:2500
Vert - 1cm=0.1, 5deg

Obs - T.C.

Instr - Scintrex SE-77 TURAM

Date - Feb 1984

Note. Leading edge of transmitter loop at 1000E

5 cm

FSR

PD

LINE N.L.16
945Hz

1.4
1.2
1.0
0.8
0.6

20°
10°
0°
-10°
-20°

1100E 1200E 1300E 1400E 1500E 1600E 1700E

Fig 7a

2101

401076

HEWLETT PACKARD 9270-1024

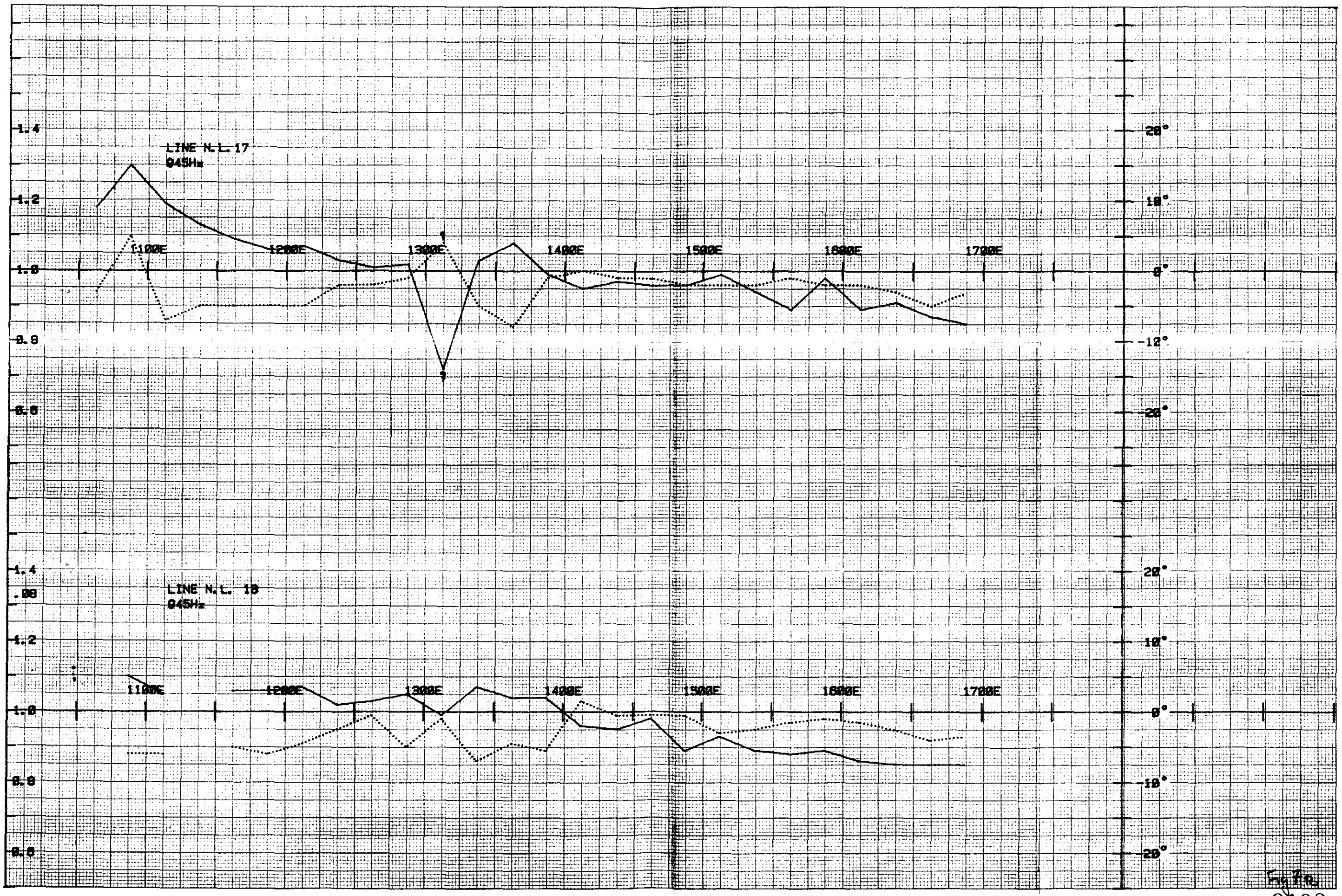


Fig 7a

2102

401077

HEWLETT PACKARD 9270-1024

HEWLETT PACKARD 9270-1024



Fig 7c

HEWLETT-PACKARD 9270-1024

LINE N.L. 20
945Hz

1.6
1.4
1.2
1.0
0.8
0.6

1100E 1200E 1300E 1400E 1500E 1600E 1700E

30°
10°
0°
-10°
-20°

LINE N.L. 20.5
945 Hz

1.6
1.4
1.2
1.0
0.8
0.6

1100E 1200E 1300E 1400E 1500E 1600E 1700E

20°
10°
0°
-10°
-20°

Fig 7b

401079

2104

HEWLETT PACKARD 92/0-1024

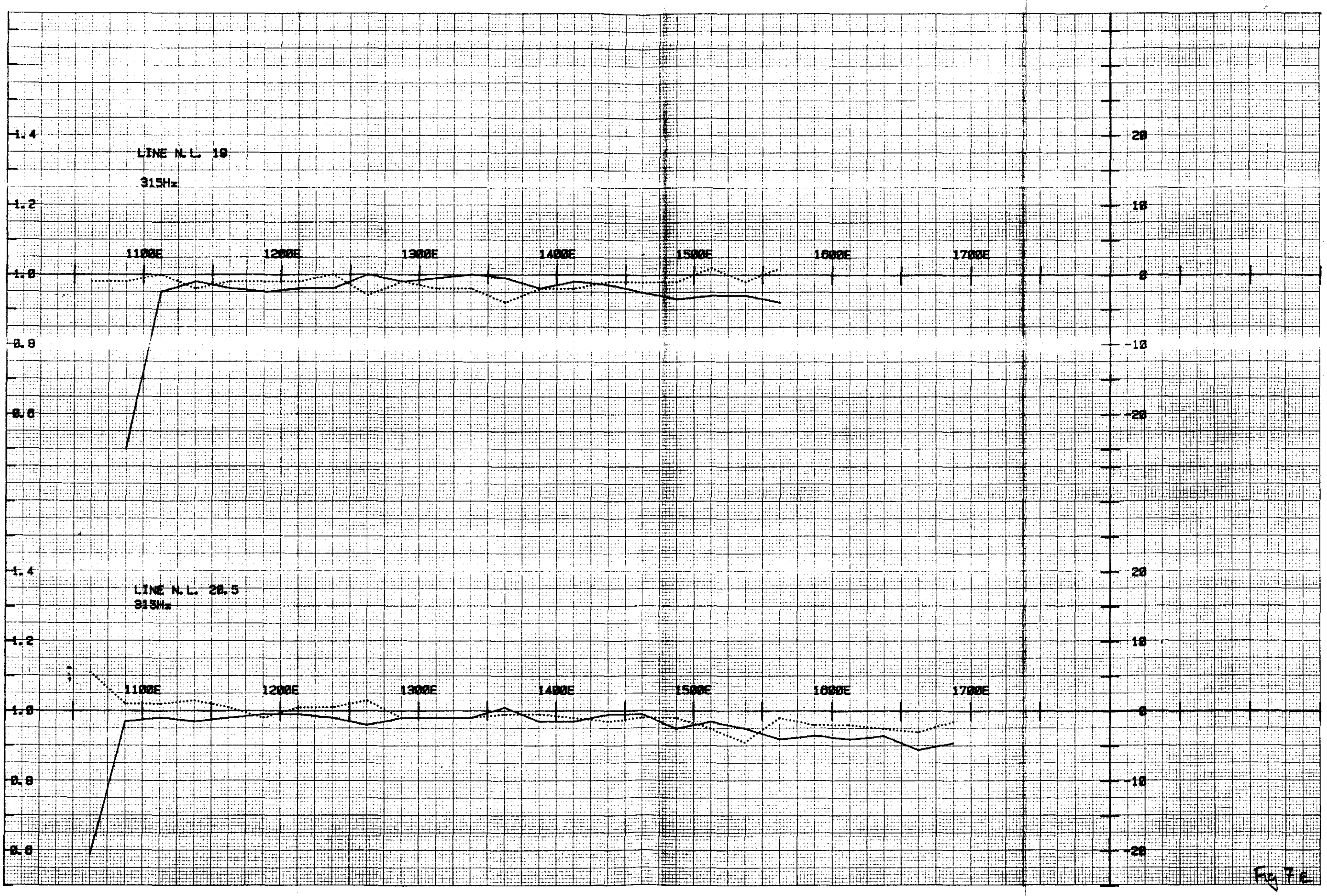


Fig 7c

LINE N.L. 28.5

(Test line with all frequencies)

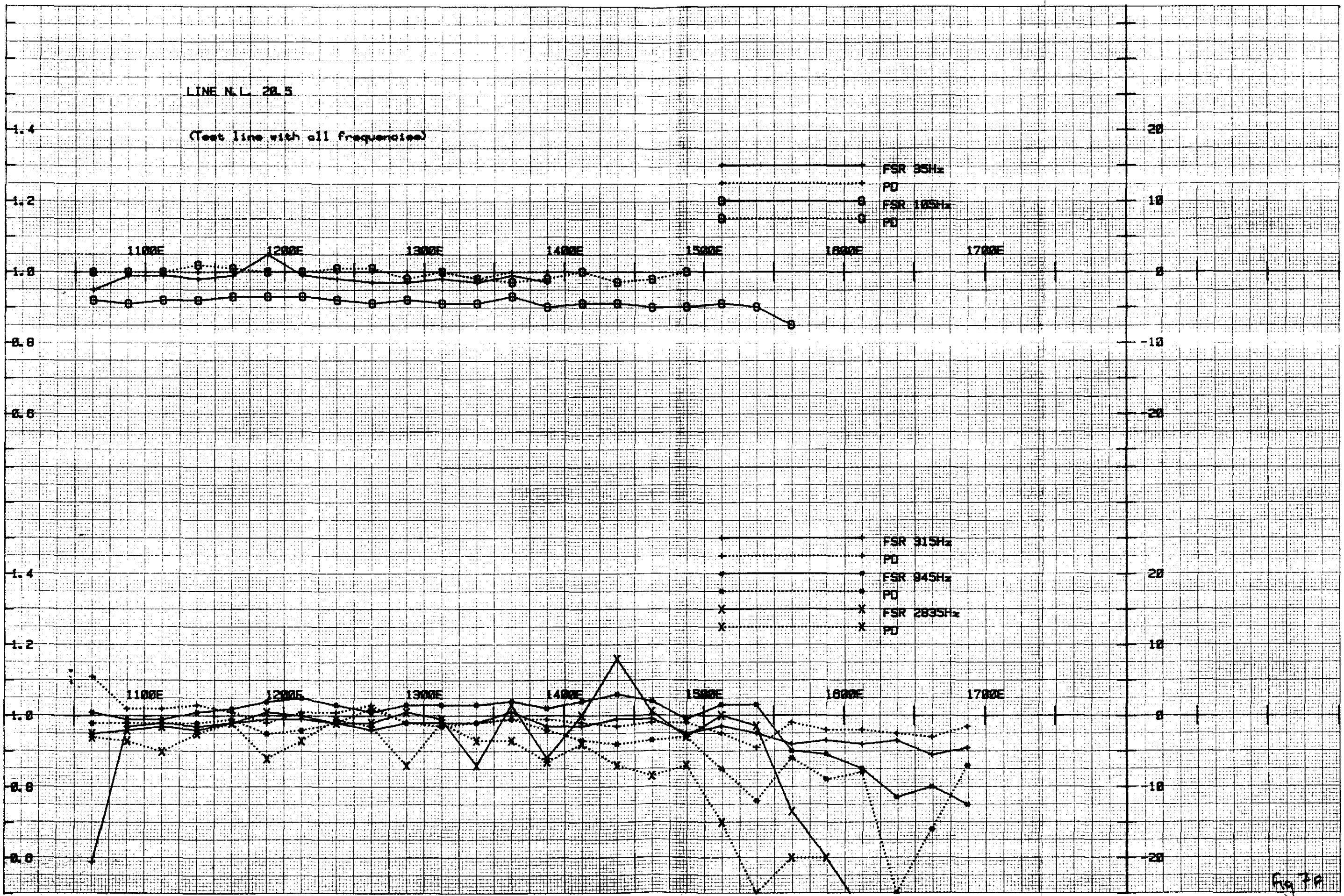
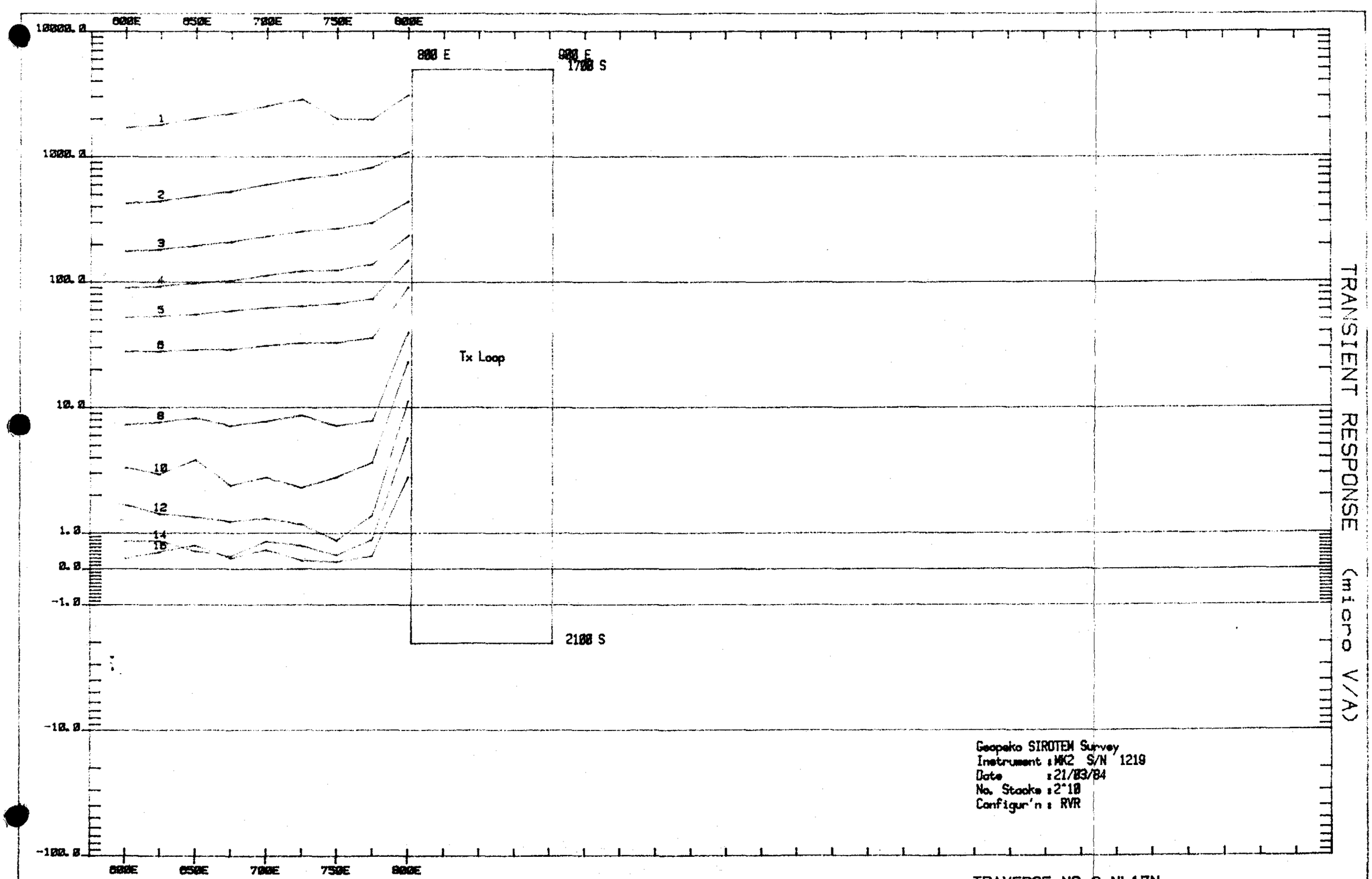


Fig 7.6

2106

401081

HEWLETT-PACKARD 9270-1024

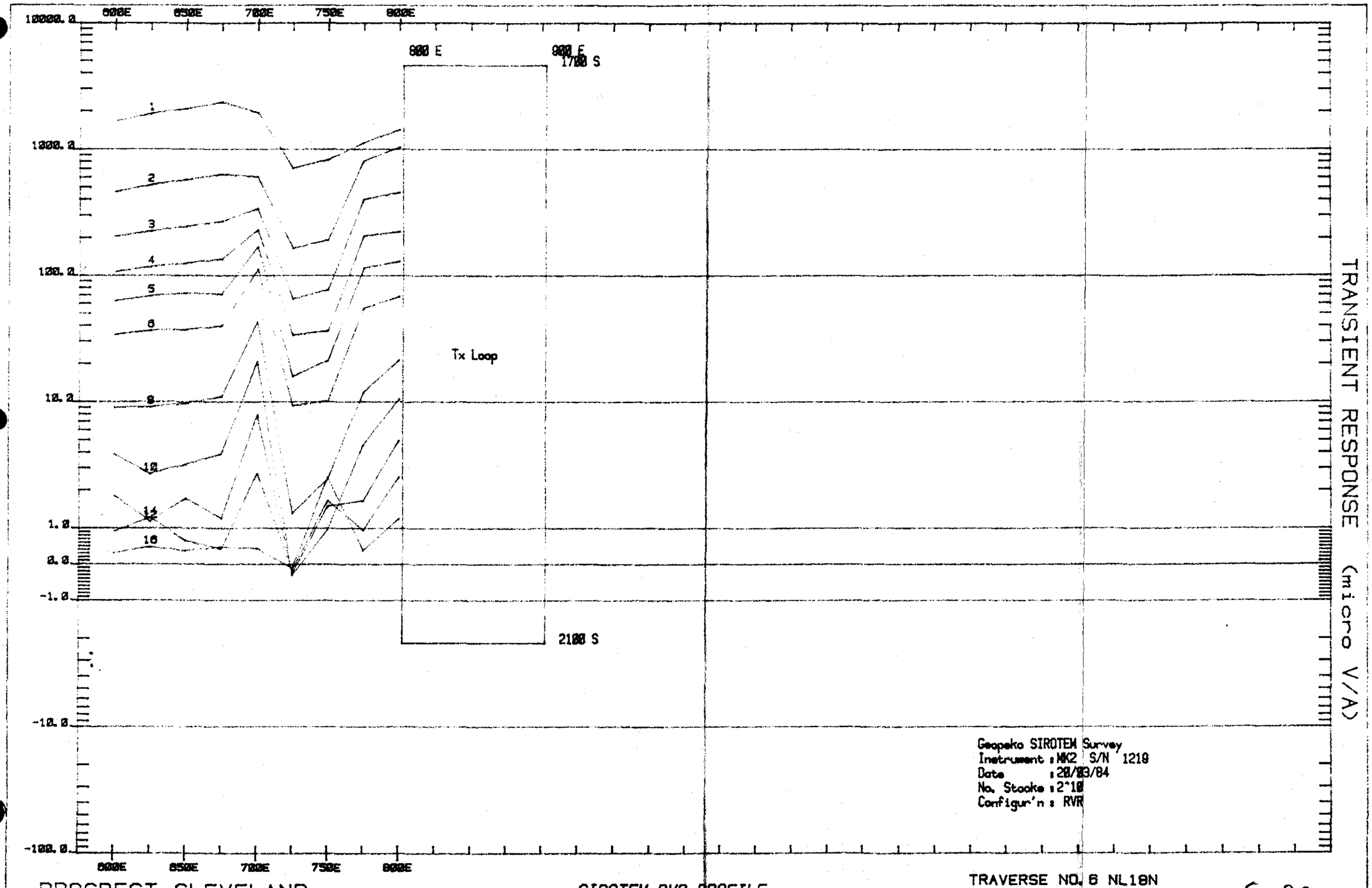


PROSPECT CLEVELAND

SIROTEM RVR PROFILE

TRAVERSE NO. 6 NL17N
VERTICAL (HZ) COMPONENT

Fig. 8A



PROSPECT CLEVELAND

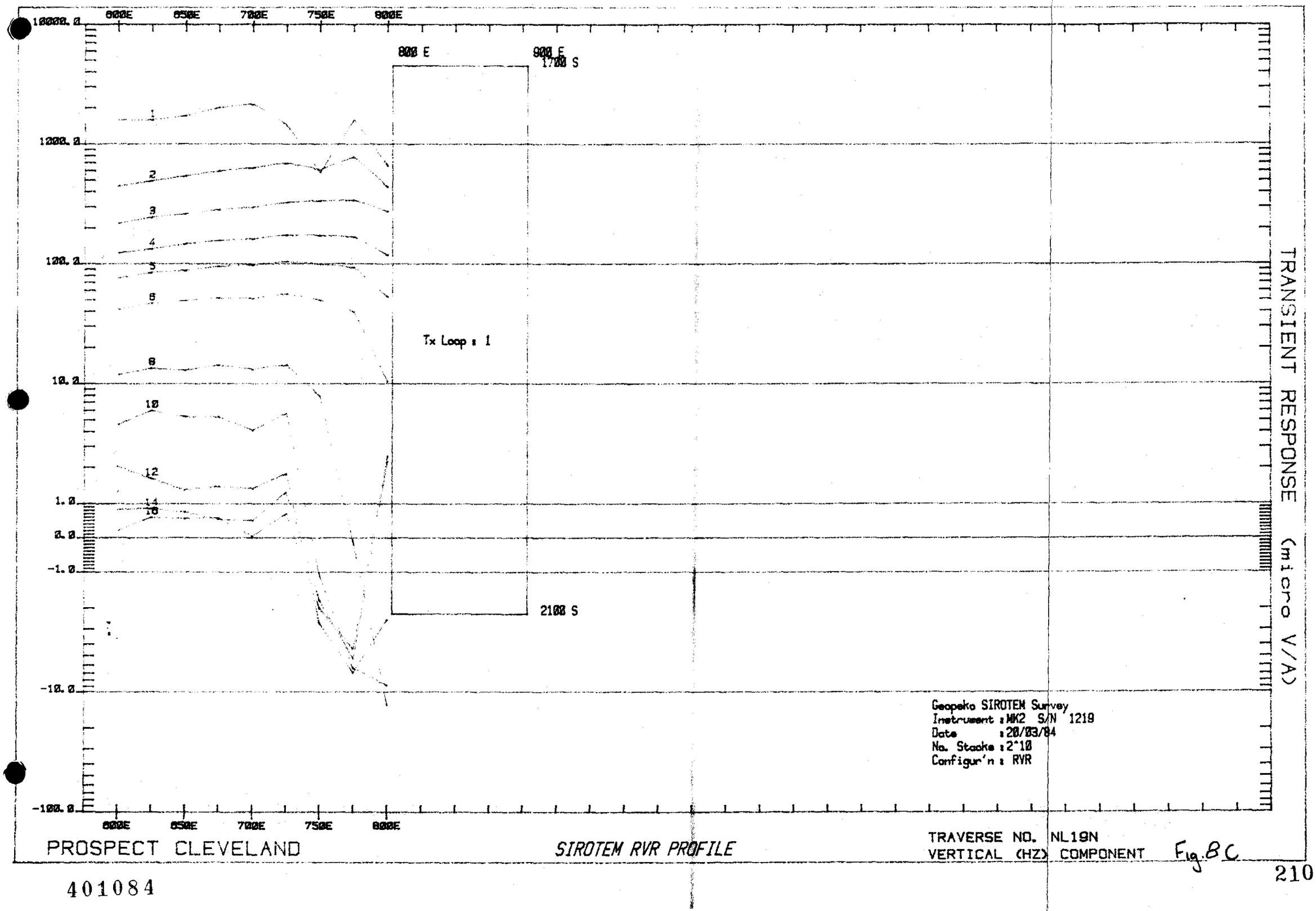
SIROTEM RVR PROFILE

TRAVERSE NO. 6 NL18N
VERTICAL (HZ) COMPONENT

Fig 8 B

2108

401083



PROSPECT CLEVELAND

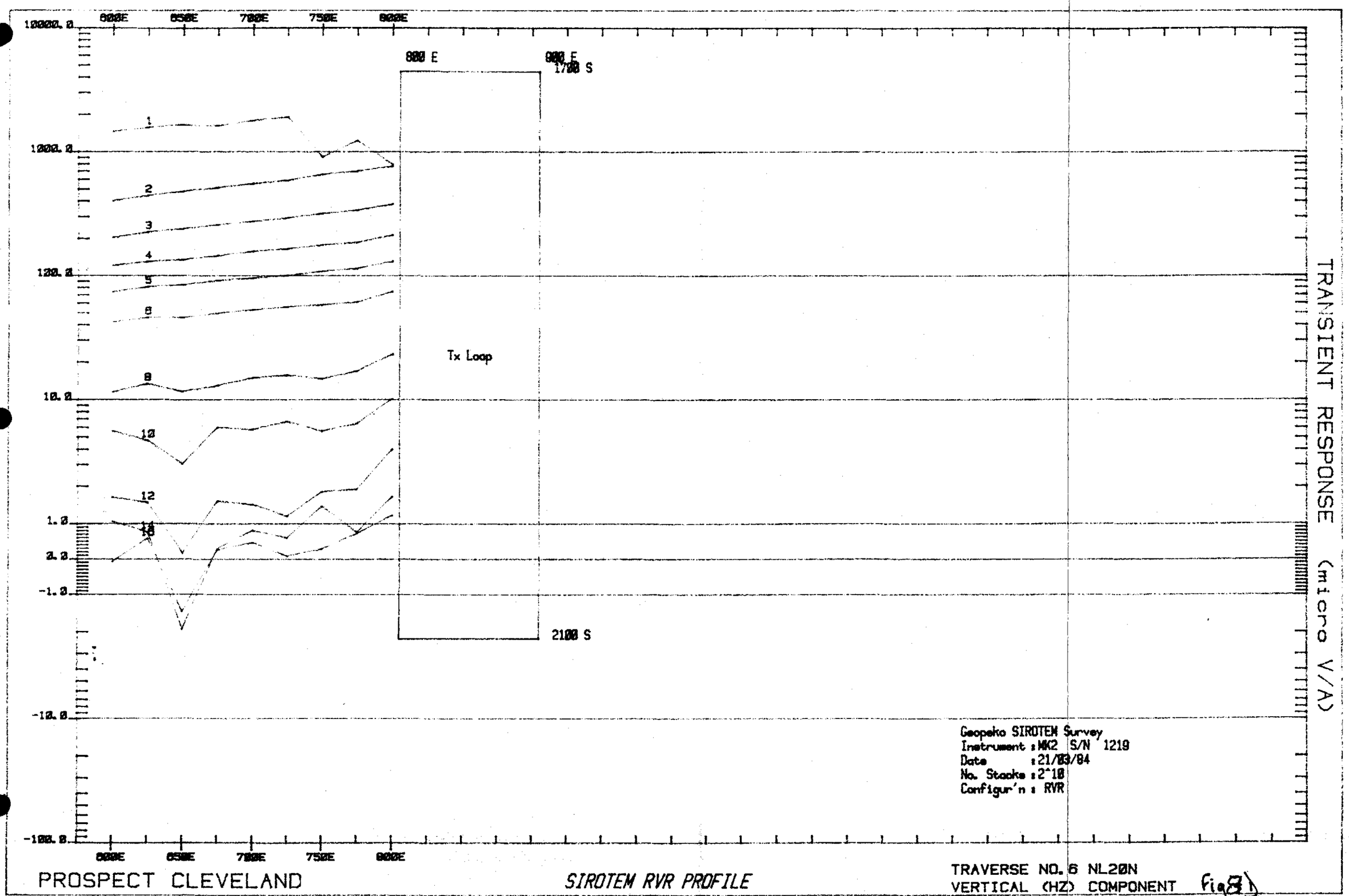
SIROTEM RVR PROFILE

TRAVERSE NO. NL19N
VERTICAL (HZ) COMPONENT

Fig. 8C

401084

2109



PROSPECT CLEVELAND

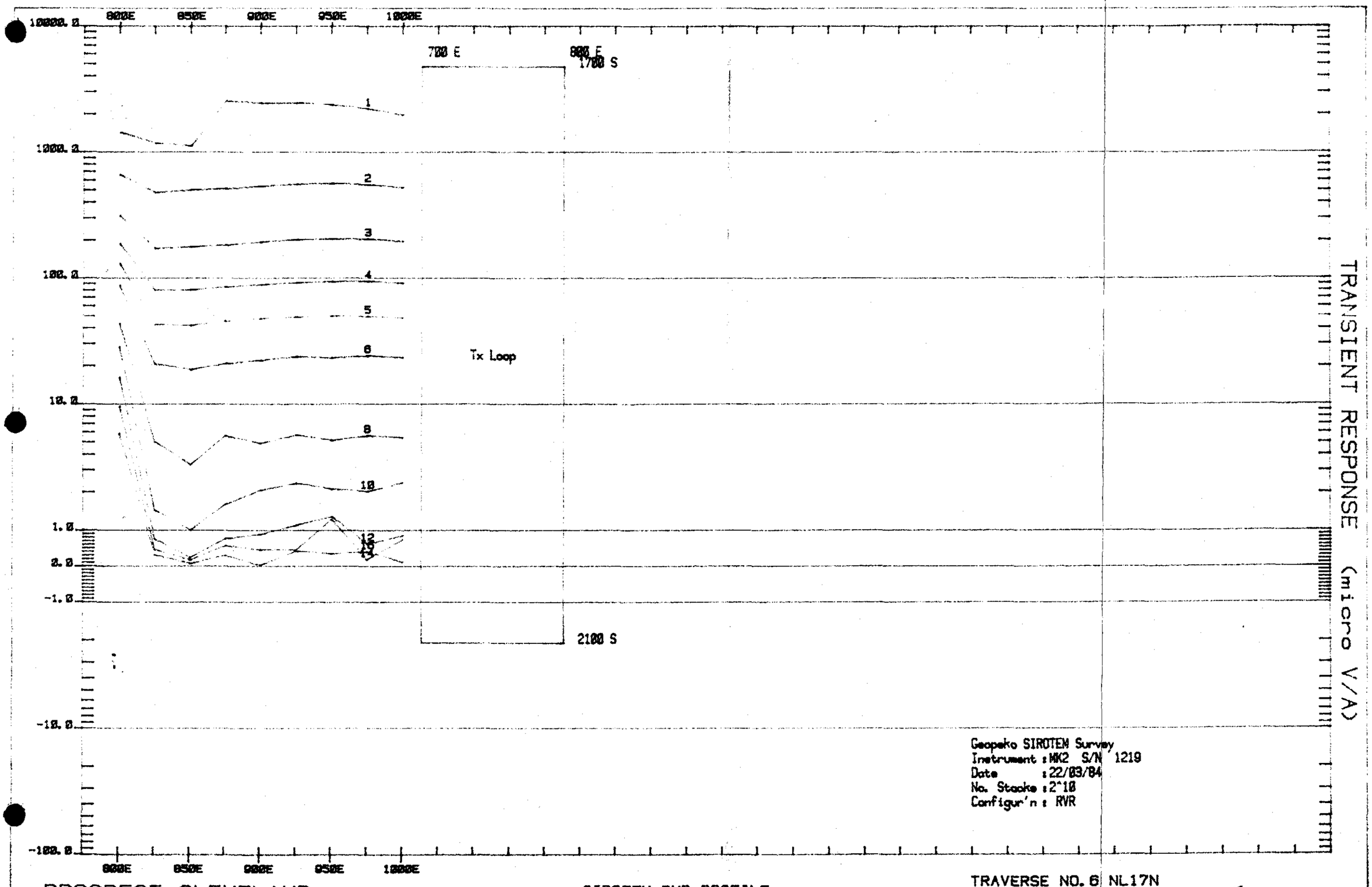
SIROTEM RVR PROFILE

TRAVERSE NO. 6 NL20N
VERTICAL (HZ) COMPONENT

Fig 3)

2110

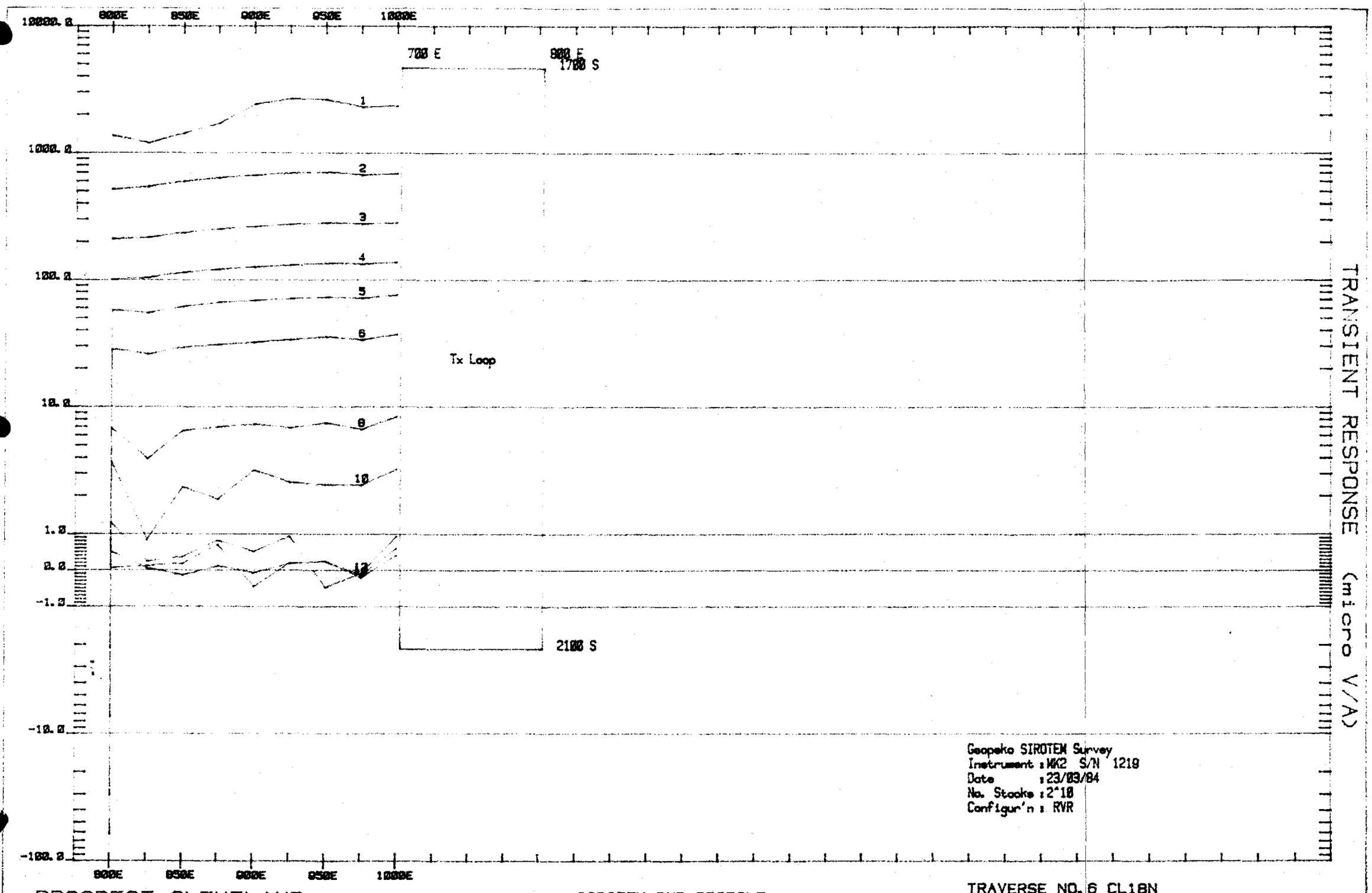
401085



PROSPECT CLEVELAND — *SIROTEM RVR PROFILE* — TRAVERSE NO. 6 NL17N
VERTICAL (HZ) COMPONENT Fig 8 E

401086

2111



PROSPECT CLEVELAND

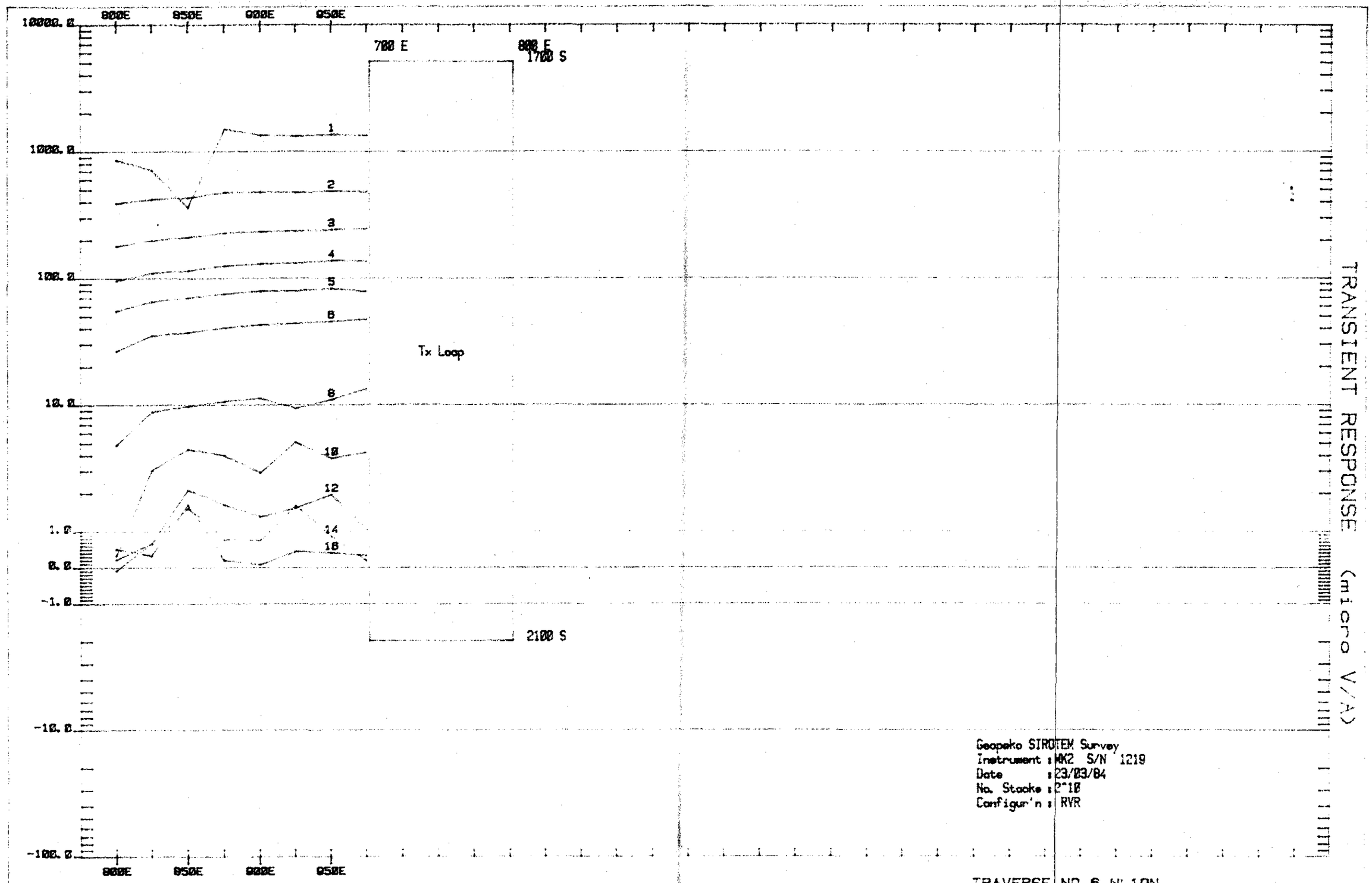
SIROTEM RVR PROFILE

TRAVERSE NO. 6 CL18N
VERTICAL (HZ) COMPONENT

Fig 8 f

401087

2112



PROSPECT CLEVELAND

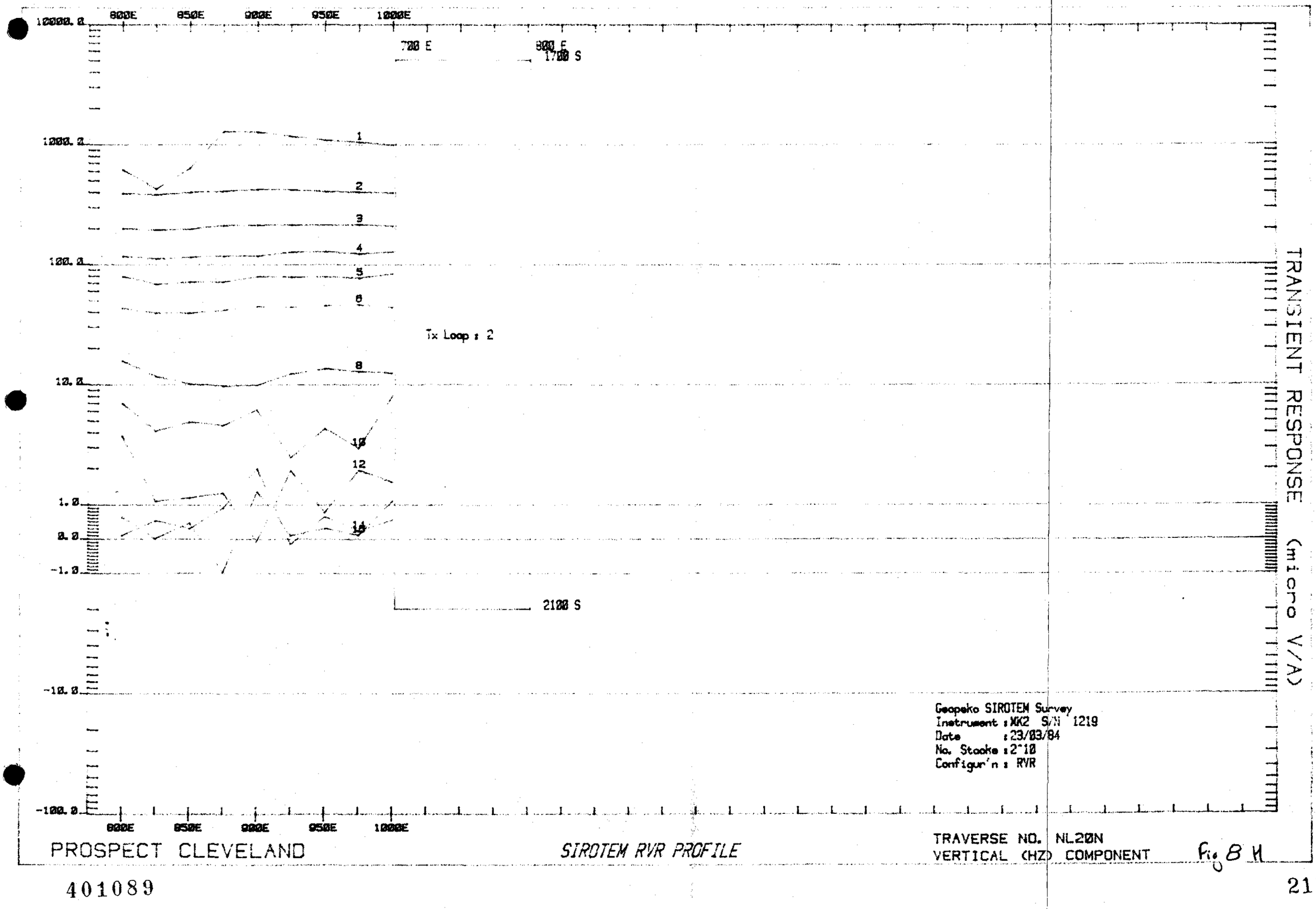
SIROTEM RVR PROFILE

TRAVERSE NO. 6 NL19N
VERTICAL (HZ) COMPONENT

Fig 8 6

401088

2113



PROSPECT CLEVELAND

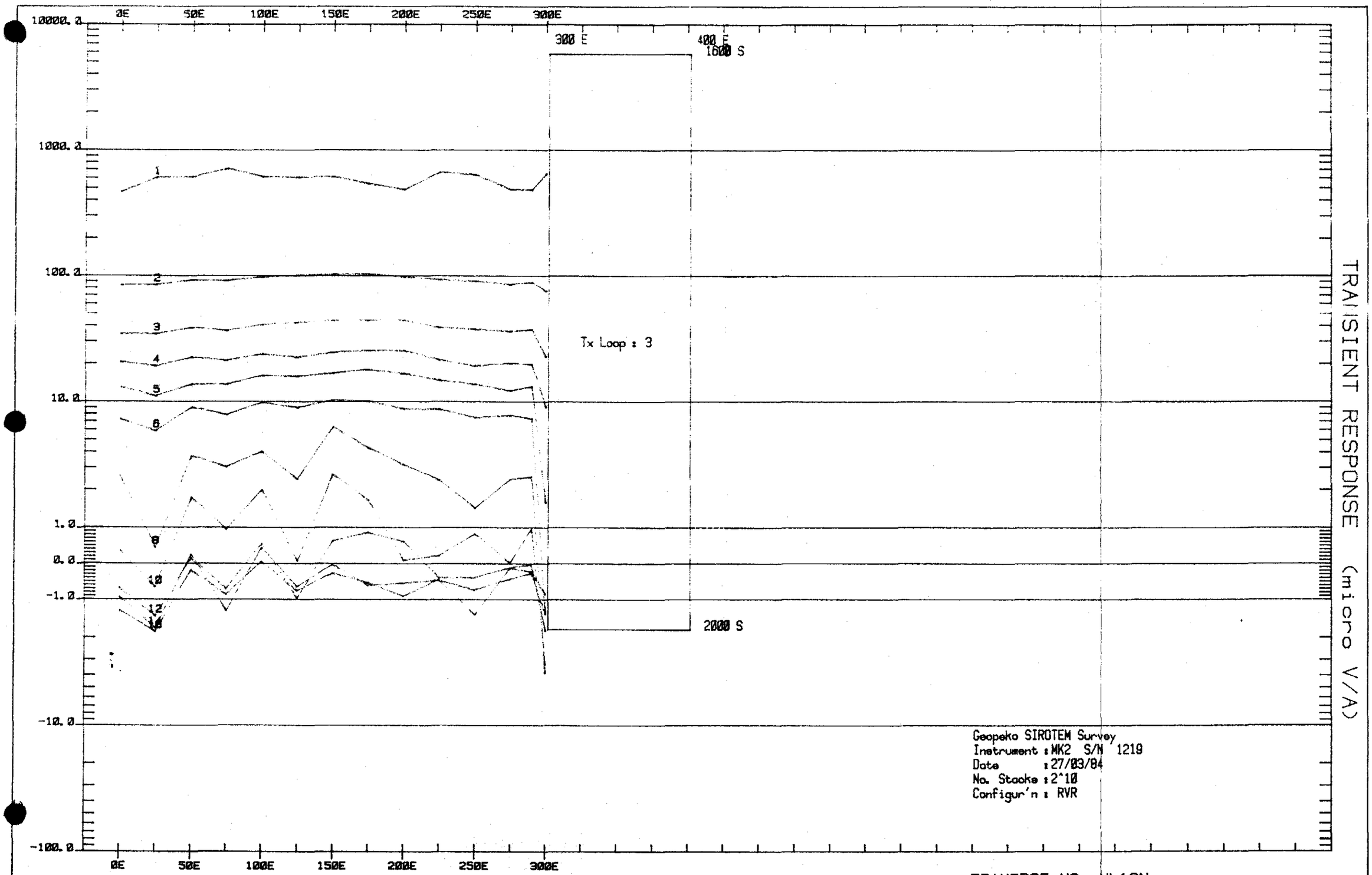
SIROTEM RVR PROFILE

TRAVERSE NO. NL20N
VERTICAL (HZ) COMPONENT

Fig 8 H

401089

2114



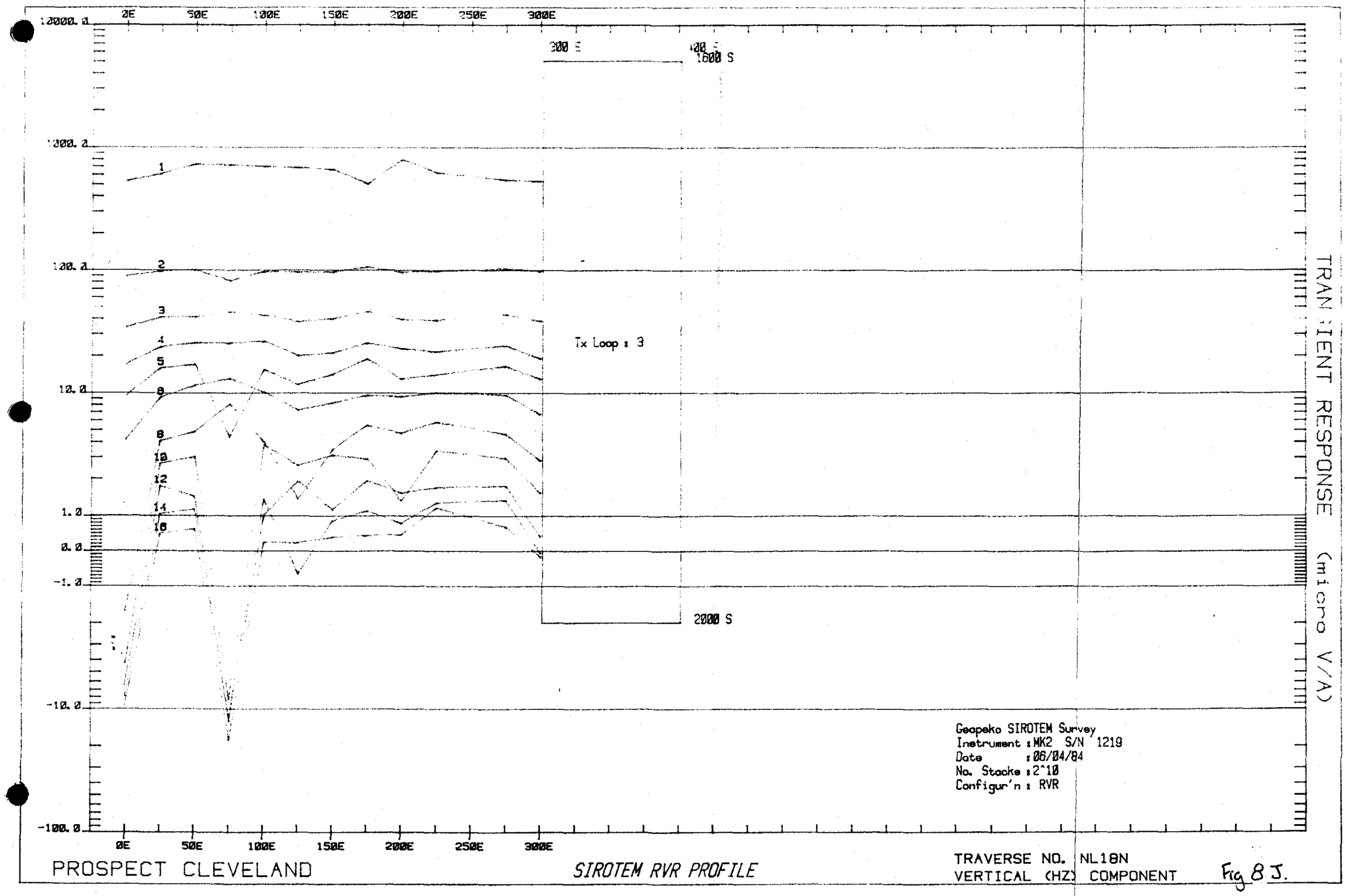
PROSPECT CLEVELAND

SIROTEM RVR PROFILE

TRAVERSE NO. NL19N
VERTICAL (HZ) COMPONENT

Fig 8.1

401090

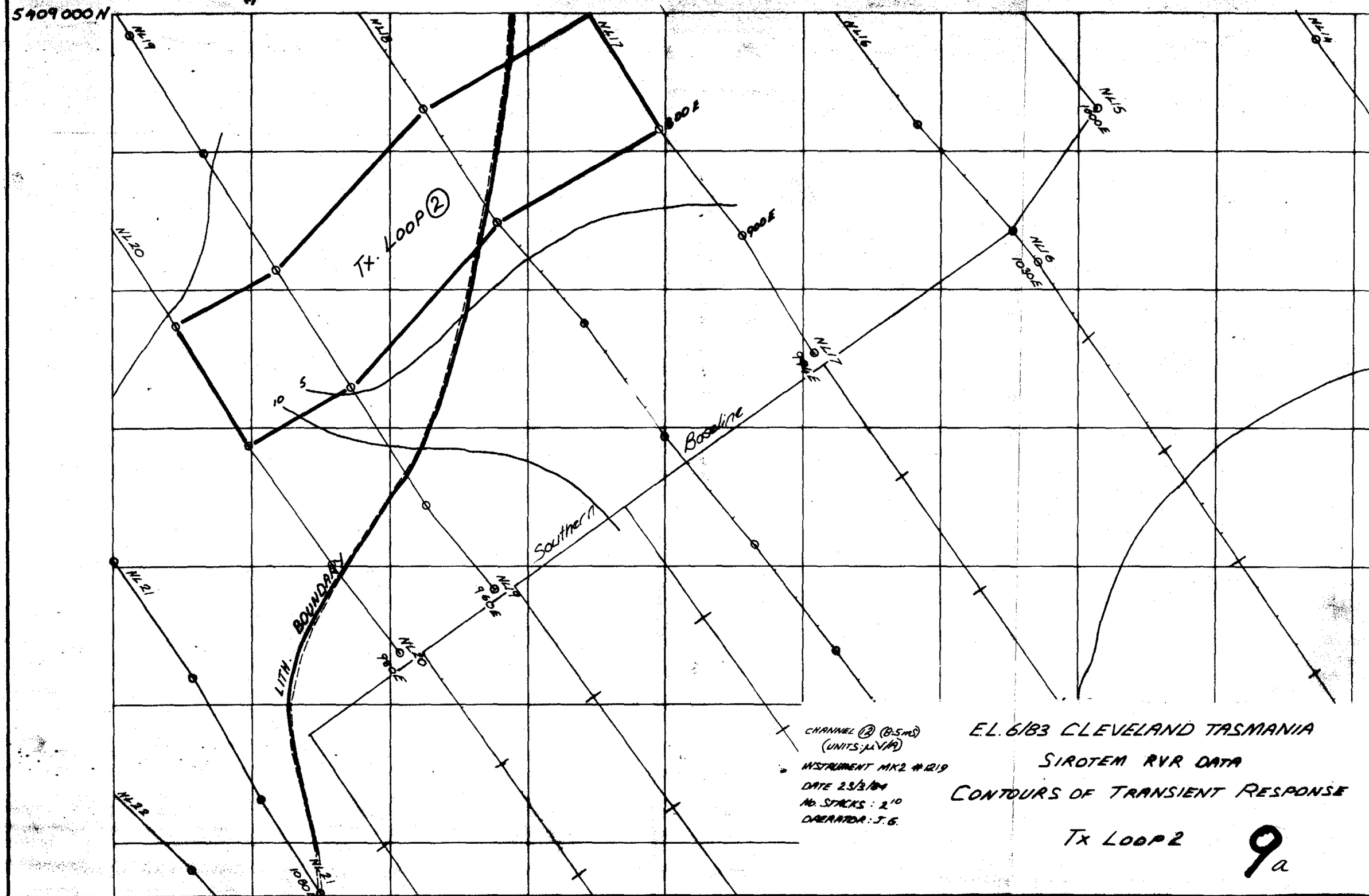


PROSPECT CLEVELAND

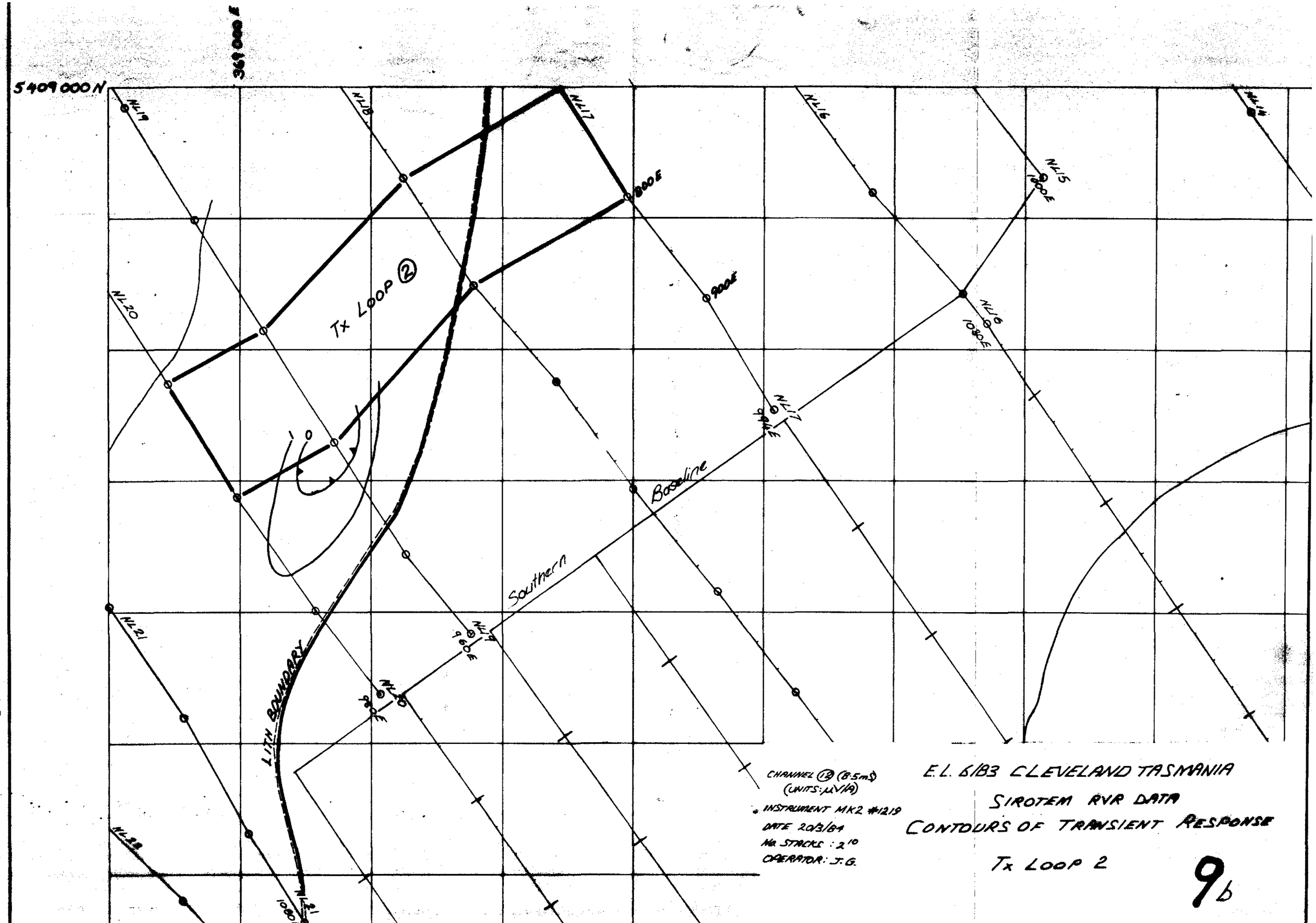
SIROTEM RVR PROFILE

TRAVERSE NO. NL18N
VERTICAL (HZ) COMPONENT

Fig 8 J.

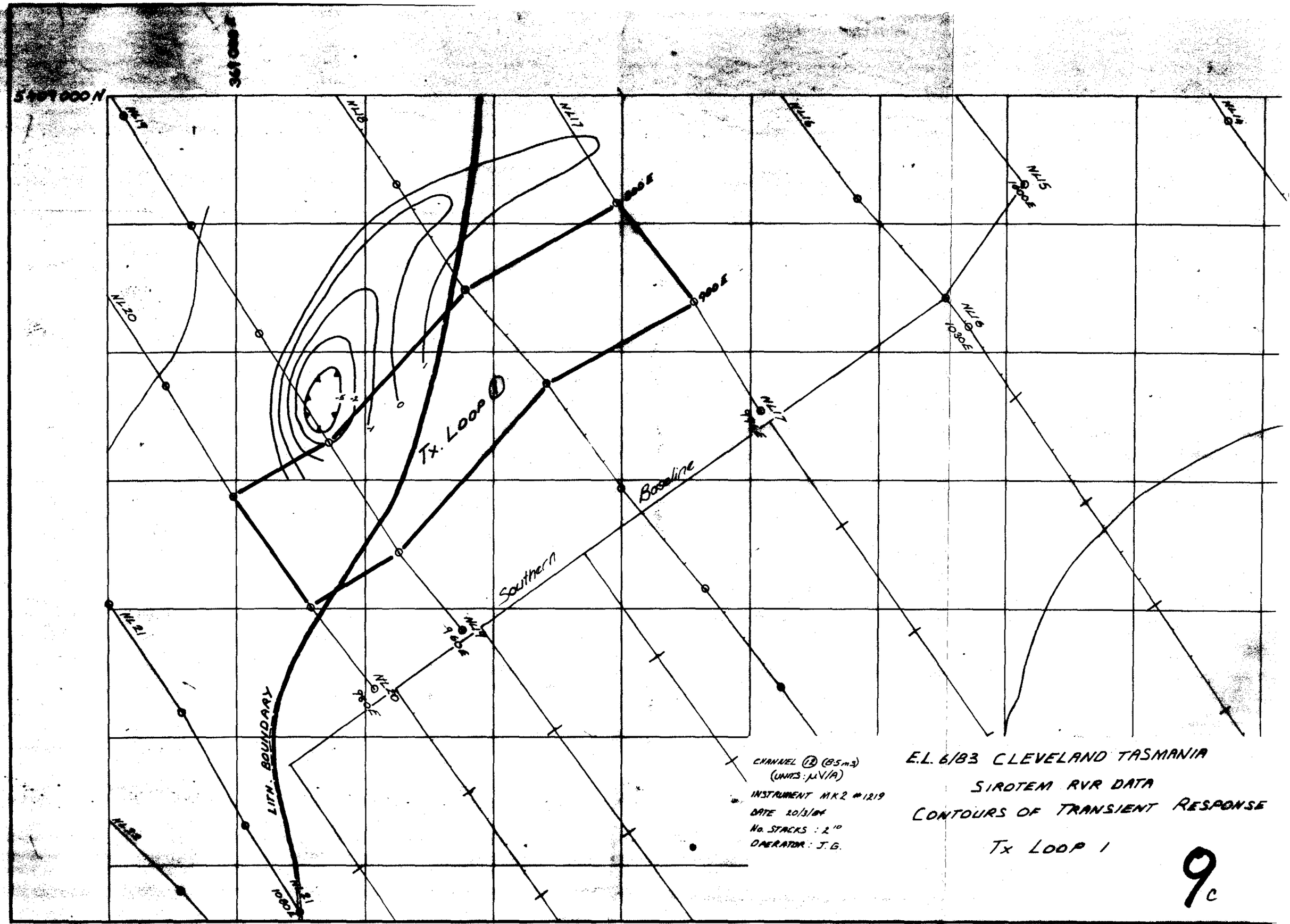

5409000N
NL19
NL18
NL17
NL16
NL15
NL14
NL20
NL21
NL22
Tx. LOOP 2
800E
900E
1000E
1030E
960E
980E
1080E
10
5
Baseline
Southern
LITH. BOUNDARY
CHANNEL 12 (8.5mS)
(UNITS: μV/A)
INSTRUMENT MK2 #1219
DATE 23/3/84
No. STACKS: 2^10
OPERATOR: J.G.
E.L. 6/83 CLEVELAND TASMANIA
SIROTEM RVR DATA
CONTOURS OF TRANSIENT RESPONSE
Tx LOOP 2
9a

401092

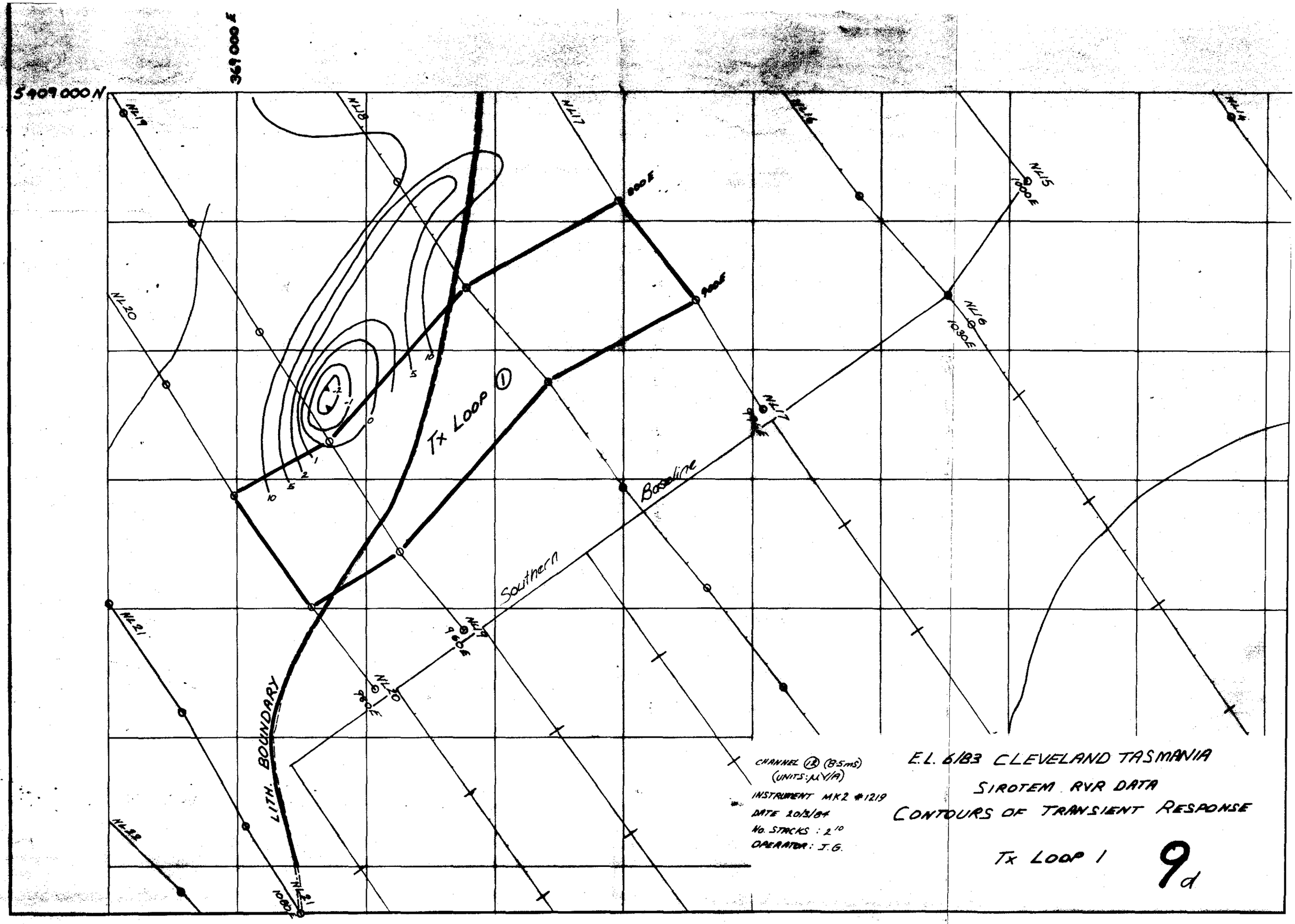

5409000N
369000E
NL19
NL18
NL17
NL16
NL15
NL14
NL20
NL21
NL22
800E
900E
1000E
1030E
960E
980E
1080E
Tx LOOP ②
1
0
Baseline
Southern
LITH BOUNDARY
CHANNEL ⑫ (8.5mS)
(UNITS: μV/A)
INSTRUMENT MK2 #1219
DATE 20/3/84
No. STACKS : 2^10
OPERATOR: J.G.
E.L. 6/83 CLEVELAND TASMANIA
SIROTEM RVR DATA
CONTOURS OF TRANSIENT RESPONSE
Tx LOOP 2
9b

401093

2118


5409000 N
NL19
NL18
NL17
NL16
NL15
NL14
NL20
NL21
NL22
800E
900E
1000E
1030E
960E
1080E
Tx. LOOP 1
Baseline
Southern
LITH. BOUNDARY
CHANNEL 12 (8.5ms)
(UNITS: μV/A)
INSTRUMENT MK2 #1219
DATE 20/3/84
No. STACKS : 2^10
OPERATOR : J.G.
E.L. 6/83 CLEVELAND TASMANIA
SIROTEM RVR DATA
CONTOURS OF TRANSIENT RESPONSE
Tx LOOP 1
9c

401094

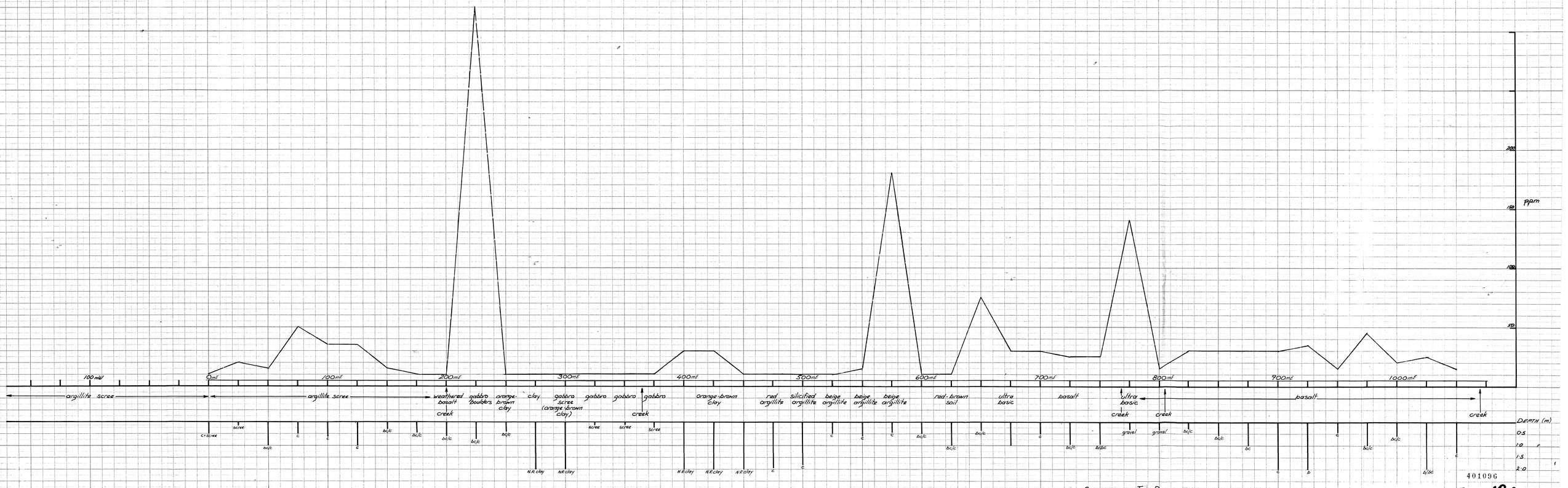


369 000 E
5409 000 N
NL19
NL18
NL17
NL16
NL15
1000E
NL14
800E
900E
NL20
NL16
1030E
NL17
Tx LOOP 1
Baseline
Southern
NL21
NL19
960E
NL20
960E
LITH. BOUNDARY
NL22
NL21
1080E
CHANNEL 12 (8.5ms)
(UNITS: μV/A)
INSTRUMENT MK2 #1219
DATE 20/3/84
No. STACKS : 2^10
OPERATOR : J.G.
E.L. 6/83 CLEVELAND TASMANIA
SIROTEM RVR DATA
CONTOURS OF TRANSIENT RESPONSE
Tx LOOP 1
9d

401095

2120

2121



NR = Non Residual

CLEVELANDS TIN RESULTS

GEOPEKO RESULTS

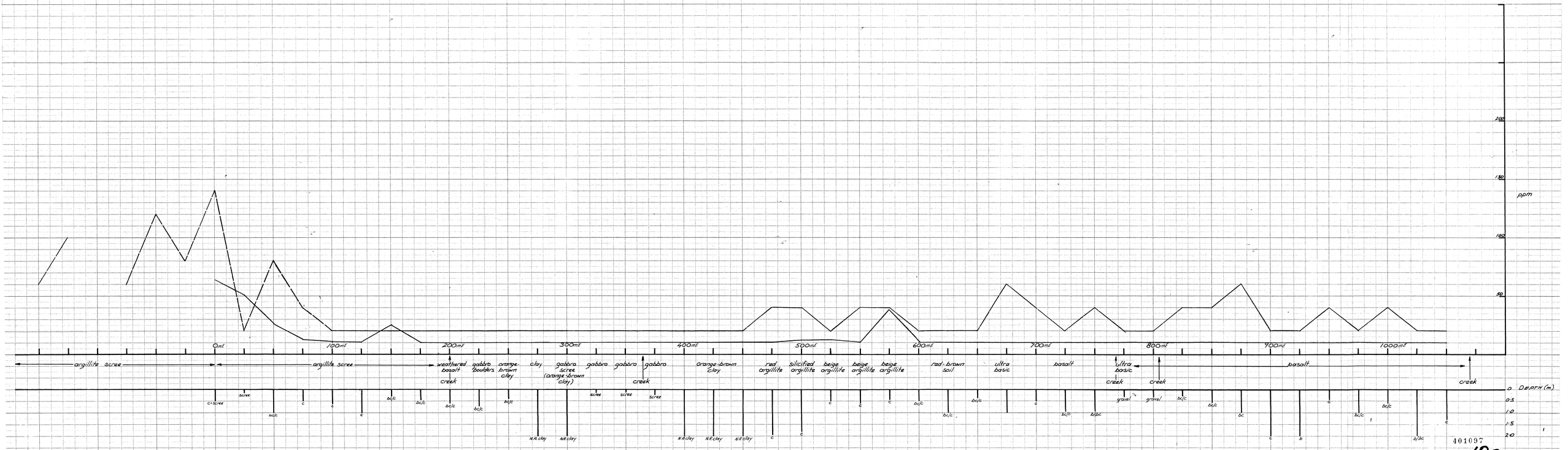
FIG 10A
TIN
Scale 1:1000
Cleveland 6/83
Jan-Feb 1984

Geologist: S. Turley
Draftsman: R. Tognoni

8-2156

2121

2122



401097

FIG 10B

TUNGSTATE

Scale 1:1000

Geologist: S. Turley

Cleveland 6/83

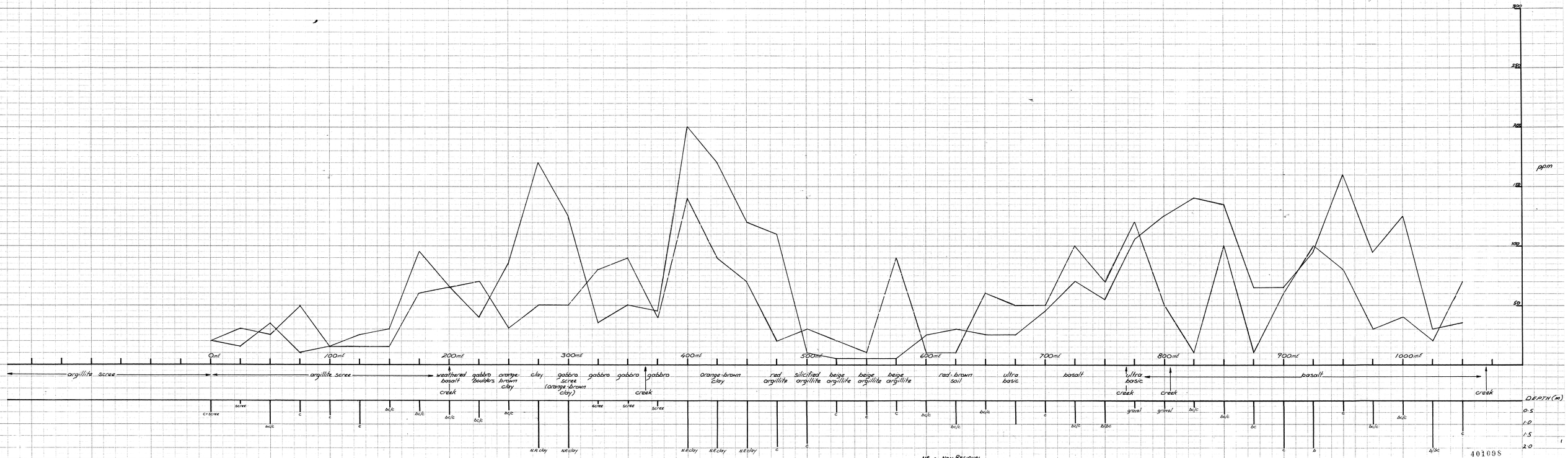
Draftsman: R. Tognoni

Jan-Feb 1984

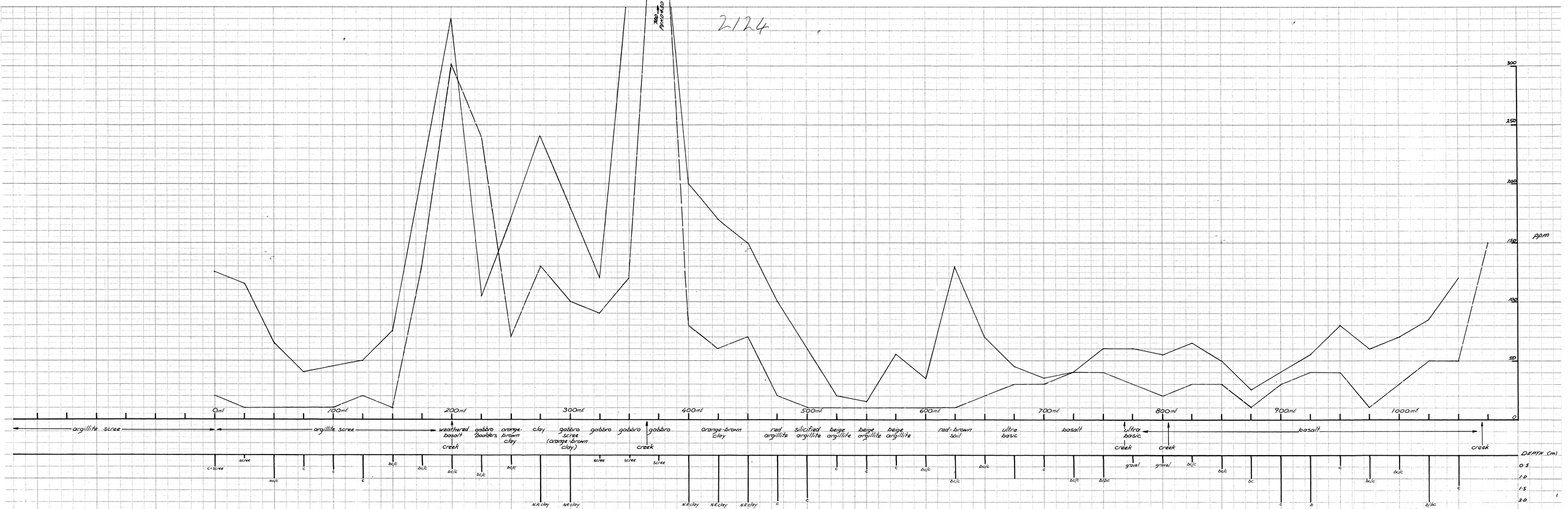
Bu-2.156

2122

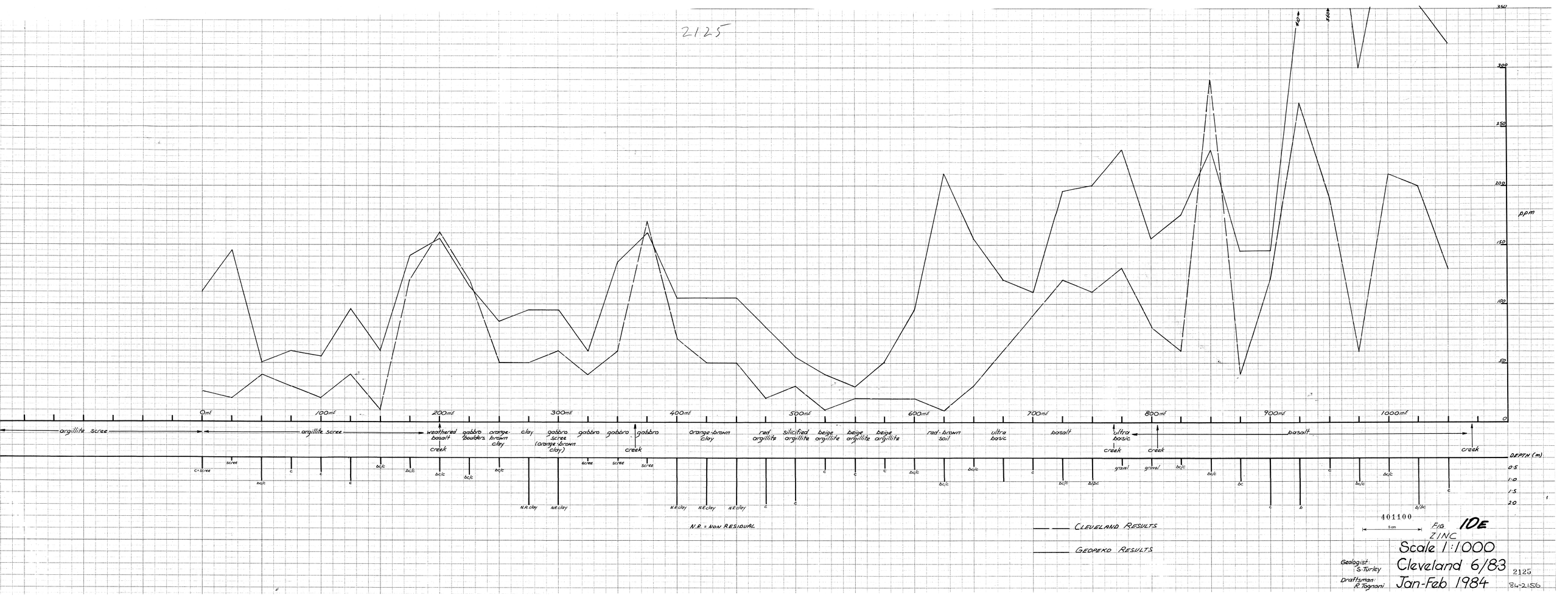
2123


ppm
300
250
200
150
100
50
0m.E
100m.E
200m.E
300m.E
400m.E
500m.E
600m.E
700m.E
800m.E
900m.E
1000m.E
argillite scree
argillite scree
weathered basalt
creek
gabbro boulders
orange-brown clay
clay
gabbro scree (orange-brown clay)
gabbro
gabbro
creek
gabbro
orange-brown clay
red argillite
Silicified argillite
beige argillite
beige argillite
beige argillite
red-brown soil
ultra basic
basalt
ultra basic
creek
creek
basalt
creek
DEPTH (m)
0·5
1·0
1·5
2·0
N.R. clay
NR = NON RESIDUAL
CLEVELAND RESULTS
GEOPEKO RESULTS
401098
FIG 10c
COPPER
Scale 1:1000
Geologist: S. Turley
Cleveland 6/83
Draftsman: R. Tognoni
Jan-Feb 1984
84-2156
2123

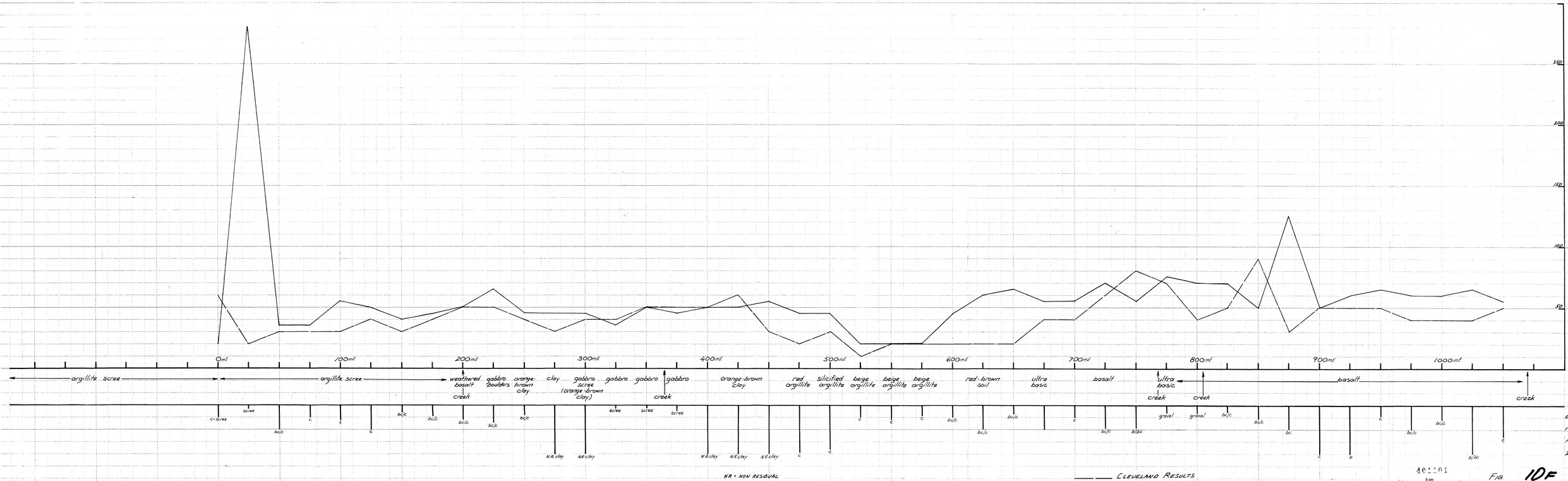
2124


300
250
200
150
100
50
0
ppm
0m E
100m E
200m E
300m E
400m E
500m E
600m E
700m E
800m E
900m E
1000m E
argillite scree
argillite scree
weathered basalt
creek
gabbro boulders
orange-brown clay
clay
gabbro scree (orange-brown clay)
gabbro
gabbro
gabbro
creek
orange-brown Clay
red argillite
silicified argillite
beige argillite
beige argillite
beige argillite
red-brown Soil
ultra basic
basalt
ultra basic
creek
creek
basalt
creek
DEPTH (m)
0·5
1·0
1·5
2·0
N.R. clay
N.R. clay
N.R. clay
N.R. clay
N.R.= NON RESIDUAL
CLEVELAND RESULTS
GEOPEKO RESULTS
401099
5 cm
FIG 10
NICKEL
Scale 1:1000
Geologist: S. Turley
Cleveland 6/83
Draftsman: R. Tognoni
Jan-Feb 1984
84-2156
2124

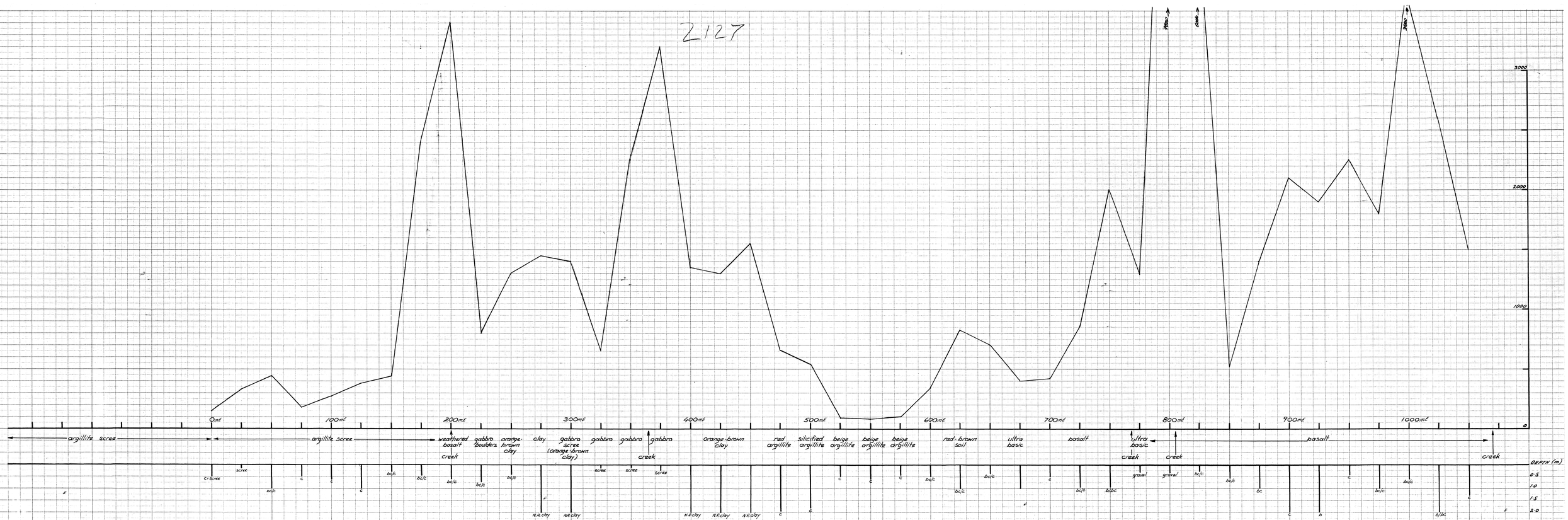
2125


argillite scree
argillite scree
weathered basalt
creek
gabbro boulders
orange-brown clay
clay
gabbro scree (orange-brown clay)
gabbro
gabbro
gabbro
creek
orange-brown clay
red argillite
silicified argillite
beige argillite
beige argillite
beige argillite
red-brown soil
ultra basic
basalt
ultra basic
creek
creek
basalt
creek
0mE
100mE
200mE
300mE
400mE
500mE
600mE
700mE
800mE
900mE
1000mE
ppm
DEPTH (m)
N.R. = NON RESIDUAL
CLEVELAND RESULTS
GEOPEKO RESULTS
401100
FIG 10E
ZINC
Scale 1:1000
Geologist: S. Turley
Cleveland 6/83
Draftsman: S. Pignatoni
Jan-Feb 1984
2125
84-2156

2126


250
200
150
100
50
ppm
0mE
100mE
200mE
300mE
400mE
500mE
600mE
700mE
800mE
900mE
1000mE
argillite scree
argillite scree
weathered basalt
creek
gabbro boulders
orange-brown clay
clay
gabbro scree (orange-brown clay)
gabbro
gabbro
gabbro
creek
orange-brown clay
red argillite
silicified argillite
beige argillite
beige argillite
beige argillite
red-brown soil
ultra basic
basalt
ultra basic
creek
creek
basalt
creek
DEPTH (m)
0.5
1.0
1.5
2.0
N.R. clay
N.R. clay
N.R. clay
N.R. clay
N.R. clay
N.R. = NON RESIDUAL
CLEVELAND RESULTS
GEOPEKO RESULTS
5 cm
FIG 10F
LEAD
Scale 1:1000
Cleveland 6/83
Jan-Feb 1984
Geologist: S. Turley
Draftsman: R. Tognoni
2126
84-2156

2127



401102

FIG. 106

MANGANESE

Scale 1:1000

Cleveland 6/83

Geologist: S. Turley

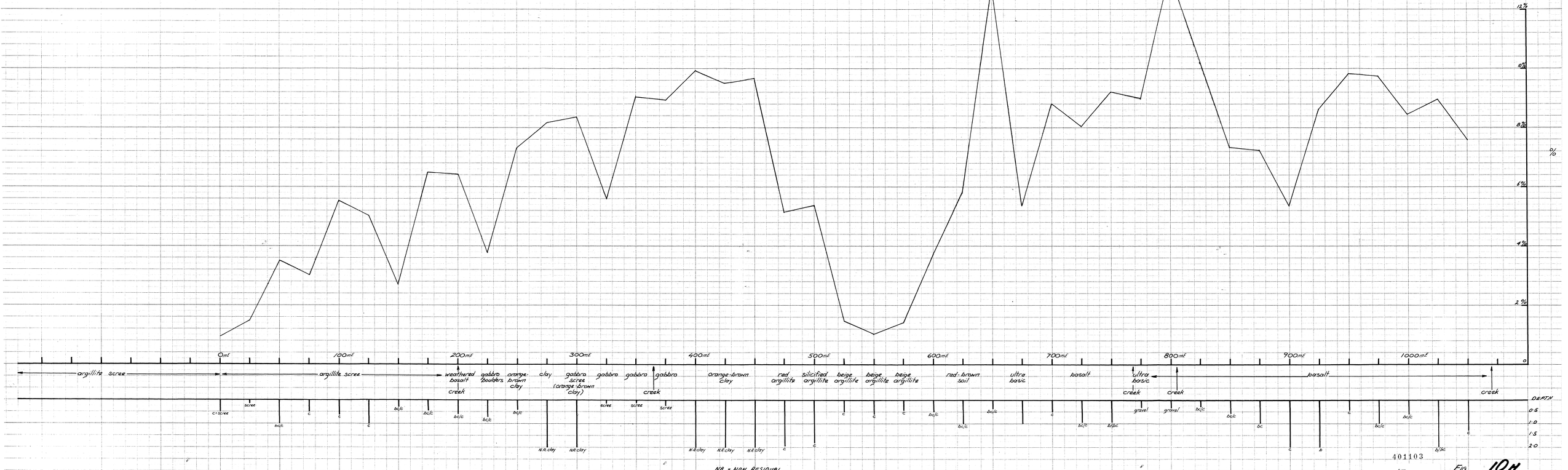
Draftsman: R. Tognoni

Jan-Feb 1984

2127

BL-2156

2128



NR = NON RESIDUAL

GEOPEKO RESULTS

401103

5 cm

FIG 10N

IRON

Scale 1:1000

Cleveland 6/83

Jan-Feb 1984

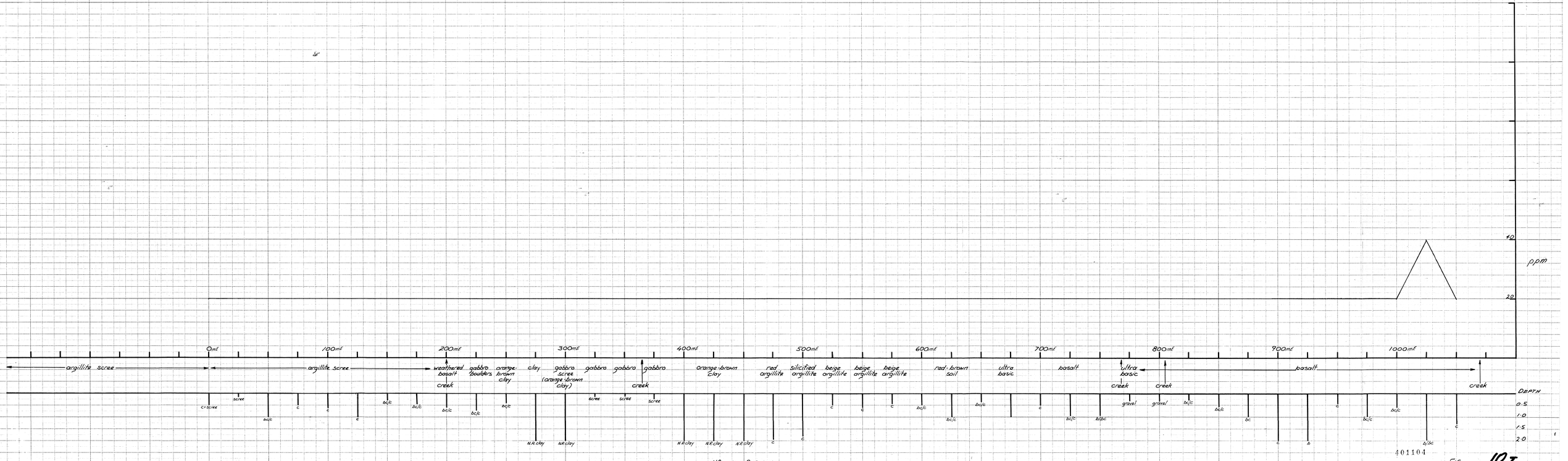
Geologist: S. Turley

Draftsman: R. Tognoni

2128

84-2156

2129



N.R. NON RESIDUAL

GEOPEKO RESULTS

FIG 10I
ARSENIC
Scale 1:1000
Cleveland 6/83
Jan-Feb 1984

Geologist: S. Turley
Draftsman: R. Tognoni

2129
84-2156

FILE NO:

GEOPEKO

A DIVISION OF PEKO-WALLSEND OPERATIONS LTD. DEVONPORT

Scale 1:2500 | Plan No. 1

EL 6/83 Cleveland, Tasmania 2130

GEOCHEMISTRY-SOILS AND STREAM SEDIMENTS (RAW CONCENTRATIONS)

1984 SURVEY

BL-2136

LIB BOOK NO.

DATE JUNE 1984

GEOL. S. STANLEY

DRAWN M.W.S

CHECKED

Grid: AMG Zone 55 (Clarke 1858)

Projection: Transverse Mercator

Datum: Australian Geodetic Datum 1966

Spheroid: Australian National Spheroid

Units: Metres

Declination 1984: 12° 45' E

Annual change: 0° 10' W

Grid variation: 13° 15' E

Magnetic variation: 0° 30' E

Grid north is 13° 15' east of true north

Magnetic north is 0° 30' east of true north

Grid north is 12° 45' east of magnetic north

Contour interval 25 metres

Base map compiled from aerial photography flown in 1983

Topography by photogrammetric methods

Field control by theodolite traverse

Cleveland Grid

Geographical Grid Extension

Drainage

Track to Magnet Mine

Claim Boundaries

Elements Analysed

Cu Pb Zn Ni Co Mn Fe As Sb Mo Ag Au W Sn Bi

Soil Sample

Stream Sediment

Rock Chip

Soil Sample Number

Stream Sediment Number

Rock Chip Number

Soil Sample Number

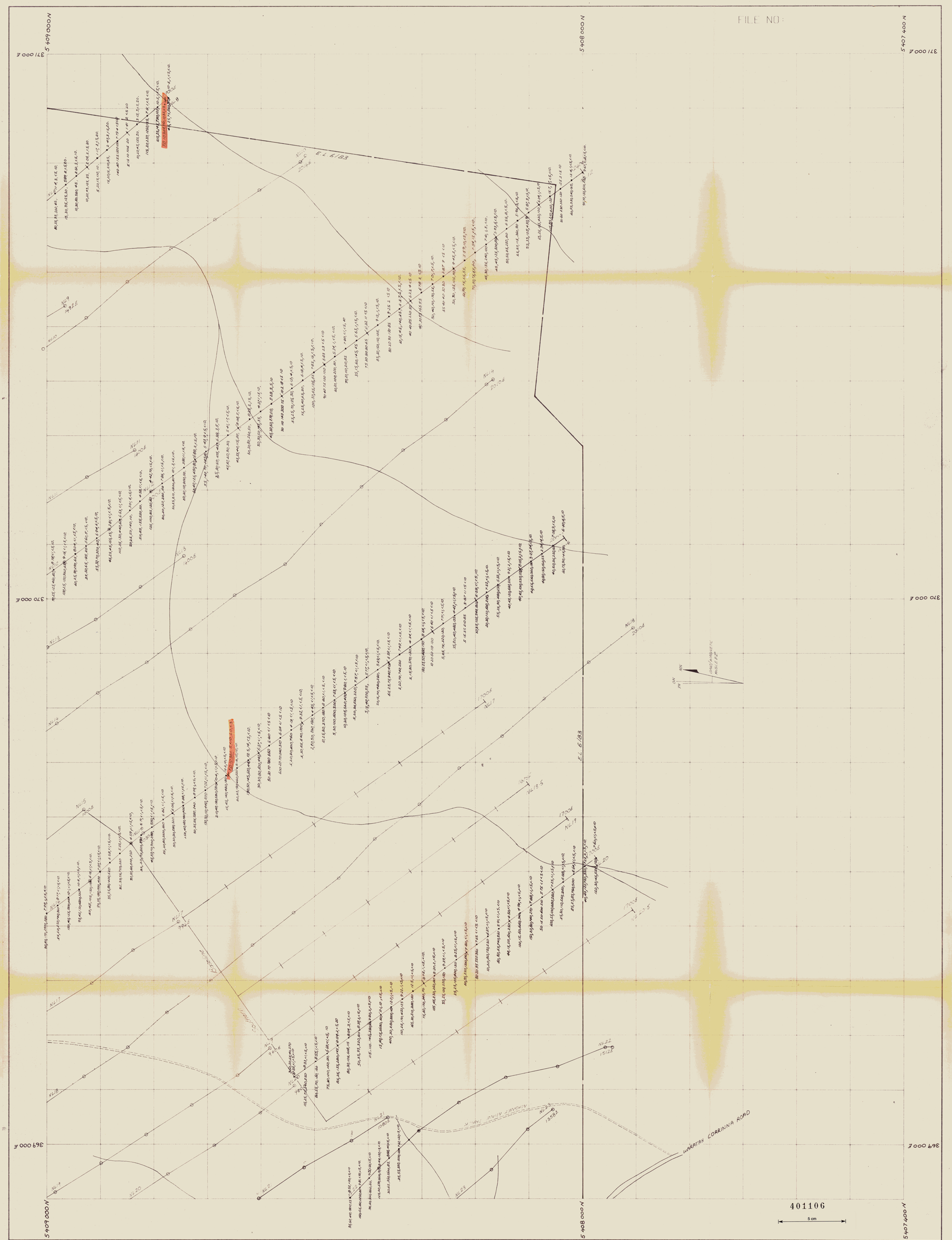
Stream Sediment Number

Rock Chip Number

Soil Sample Number

Stream Sediment Number

Rock Chip Number



C HORIZON SOILS

Elements Analysed

- W
- Sn
- As
- Fe %
- Ni
- Mn
- Zn
- Pb
- Cu

Sample position

CLEVELAND GRID

GEOPEKO'S 1984 GRID EXTENSION

DRAINAGE

TRACK TO MAGNET MINE

PAN CONCENTRATE

TO 10376
10,20,60,4
Au ppb
Mo
W
Sn

N.B. ALL ANALYSES GIVEN IN PPM EXCEPT WHERE STATED.

IV	I
III	II

LIB BOOK NO	
DATE	JUNE 1984
GEOL	S TURLEY
DRAWN	MvdS
CHECKED	

GEOPEKO

A DIVISION OF PEKO-WALLSEND OPERATIONS LTD - DEVONPORT

11 II

25 0 50 125 metres

Scale 1:2500

Plan No II

E.L. 6/83 Cleveland, Tasmania

2131

GEOCHEMISTRY - SOILS AND STREAM SEDIMENTS
(PAN CONCENTRATES)
1984 SURVEY

84-2156



C HORIZON SOILS

Elements Analysed

- W
- Sn
- As
- Fe %
- Ni
- Mn
- Zn
- Pb
- Cu

Sample position

CLEVELAND GRID

GEOPEKO'S 1984 GRID EXTENSION

DRAINAGE

TRACK TO MAGNET MINE

PAN CONCENTRATE

TD 10.875, 10, 20, 60, 4, Au ppb, Mo, W, Sn

N.B. ALL ANALYSES GIVEN IN PAN EXCEPT WHERE STATED

IV	I
III	II

LIB BOOK NO.:

DATE: JUNE 1984

GEOL: S. TURLEY

DRAWN: MvdS

CHECKED:

GEOPEKO

A DIVISION OF PEKO-WALLSEND OPERATIONS LTD - DEVONPORT

II III

25 0 50 125 metres

Scale: 1:2500

Plan No: III

E.L. 6/83 Cleveland, Tasmania

GEOCHEMISTRY-SOILS AND STREAM SEDIMENTS (PAN CONCENTRATES)

1984 SURVEY

2132

84-2156



C HORIZON SOILS

Elements Analysed

Sample position

CLEVELAND GRID

GEOPEKO'S 1984 GRID EXTENSION

DRAINAGE

TRACK TO MAGNET MINE

PAN CONCENTRATE

N.B. ALL ANALYSES GIVEN IN PPM EXCEPT WHERE STATED

IV	I
III	II

LIB BOOK NO.

DATE JUNE 1984

GEOL. S TURLEY

DRAWN MVdS

CHECKED

GEOPEKO

A DIVISION OF PEKO-WALLSEND OPERATIONS LTD - DEVONPORT

25 0 50 125 metres

Scale 1:2500

Plan No IV

E.L. 6/83 Cleveland, Tasmania

2133

GEOCHEMISTRY-SOILS AND STREAM SEDIMENTS (PAN CONCENTRATES)

1984 SURVEY

84-2156