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ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED

West Coast Mines

MT. BLACK EXPLORATION LICENCE E.L. 1/82

Progress Report on Activity

July, 1980 - June, 1981

Geological Department

I.R. McDonald

Report No. 142

December, 1981.

Digitem profiles in folder in library.

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1.0 INTRODUCTION

The report covers work on Exploration Licence 1/62 by E.Z. Co. Ltd., between 30th June, 1980 and 30th June, 1981.

The work was carried out on behalf of a Joint Venture betwee E.Z. Co. Ltd., and Getty Oil Development Co. Ltd., which was initiated in April, 1978. A description of the Licence and its history of tenure can be found in E.Z. Report No. 131 - "E.L. 1/62 Work Undertaken to 30th June, 1979".

2.0 PREVIOUS EXPLORATION

E.Z. Report No. 134 - "E.L. 1/62 Work Undertaken 30th June, 1979 - 30th June, 1980" - in addition to detailing all activities carried out during 1979/80, also contains a detailed reference to all previous exploration undertaken since the granting of the E.L. in 1962.

3.0 ABBREVIATIONS

Standard symbols and terminology used on geological plans can be found on Plate 1 - Geological Legend Exploration.

4.0 EXPLORATION UNDERTAKEN 30.6.'80 - 30.6.'81 (Refer to Plan No. A2-504-0226)

4.1. Mt. Sale

4.1.1. Work Completed

Thirty six soil pits were dug on the Mt. Sale Grids, No's 1 to 8. These are several small detail grids

constructed to follow-up anomalies generated by the reconnaissance gradient array I.P. survey of the Mt. Sale area carried out in 1978. (Refer to the E.L. 1/62 Annual Report for 1979/80 - E.Z. Report No. 131). No anomalous soil geochemistry was ever returned from any of these grids. The pits were dug to ascertain whether there may have been a transported soil cover, such as glacial overburden, which could be masking bedrock geochemistry.

At each of 12 I.P. anomalies, with no geochemical response, a series of three pits were dug, 10m apart straddling the I.P. response. Each pit was dug to bedrock. Vertical channel samples were taken through the various soil horizons exposed, with a maximum sample width of 0.2m, and the -80 mesh fraction analysed. A bedrock sample was collected and examined for any mineralisation, such as disseminated pyrite, which might explain the I.P. response. A litter sample was also collected round each pit site to examine any correlation between rock, soil and litter geochemistry. All samples were analysed by Analabs for Cu, Pb, Zn, Fe and Mn by A.A.S..

4.1.2. Results Received

Data sheets containing the results of the pit sampling programme are contained in Appendix I. The pits are numbered 1 to 12 with the existing grid number as a prefix and each group of three pits labelled a, b and c from west to east. e.g. Pit No. G5-7b is the central pit from site No. 7 which was dug on grid No. 5.

In general the pits reveal a group of thin residual soils, with an average thickness of 0.7m. Soil profile development is fairly immature. In most cases a leached A1 horizon is evident but there is

usually no differentiation of B and C horizons. This is best demonstrated by the Fe values. In almost all cases these increase to the base of the profile, with usually the bedrock sample being the highest value in the pit, indicating that there is no development of a B horizon of enrichment. Exceptions to this general pattern can be seen in pits G3-4b and G3-4c where a double soil profile is developed. These were the only examples of possible transported soils encountered, but the similarity in soil type and geochemical response suggests that any transport was over a very short distance only. Local soil creep or landslip is probably the cause. The best developed profiles occur in the G7-11 group, which have an average depth of 1.5m, and where there is a suggestion of a B horizon development. This is especially so in G7-11c where values of up to 240 ppm Zn and 130 ppm Pb occur. This represents a considerable enrichment over the bedrock values of 85 ppm Zn and 15 ppm Pb. In general, however, soils are leached with respect to bedrock. Pit No. G2-3a is a more extreme example of this. The bedrock geochemistry, however, is generally so low that it is difficult to determine trends in leaching with so many values near the limits of analytical detection. For example, in pit G2-2a there is no detectable Cu or Pb in the soil, but it is difficult to interpret this as extreme leaching when the bedrock values are only 5 ppm Cu and 10 ppm Pb.

The examination of the rock samples was largely negative in its results. Only one sample, from pit G6-9c, contained visible sulphides, and that was only 1% disseminated pyrite. Several samples are strongly limonitic, which might be the results of oxidised sulphides, but in only one other sample, from pit G8-12a, was there any textural evidence to suggest the limonite might be after pyrite. The strongly oxidised nature of most of the rocks made positive identification difficult. Most appeared to be trachytic

to andesitic volcanics, with a few acid volcanic samples. Pyroclastic textures predominate.

Correlation of litter sample geochemistry with soils and rocks is generally erratic. This may well be due to the low backgrounds in all sample types and lack of anomalous responses. There is probably no reason why background 'noise' in the litter sampling should parallel the background 'noise' in the soils. The only consistant feature of the litter sampling is the strong concentration of Mn in the litter phase. Pits G1-1 are extreme examples of this.

In summary, the soil pitting programme failed to return any anomalous geochemistry. The results confirmed the validity of the original routine soil sampling by revealing residual soils with low base metal geochemistry, which reflects very well the low geochemistry of the underlying bedrock.

4.2. Tullah-Murchsion River

4.2.1. Work Completed

The existing Murchison River Grid, which consisted of 10.7 line km on 12 east-west lines at 100m spacing, was extended north to the Tullah town boundary at 5,377,500N and east across the button grass flats to the rising ground at the base of Mt. Farrell at about 385,700E. A total of 26 line km was cut on 26 lines 100m apart, and pegged on 20m slope corrected intervals. The existing grid lines were repegged to bring the grid more closely into line with the A.M.G. co-ordinates, and to maintain consistency with the new lines. The original 12 line grid had been pegged approximately 100m west of A.M.G.. The baseline originally labeled 384,000E, in fact lay almost along 383,900E A.M.G..

As a result the existing grid was repegged by numbering the baseline as 383,900E and subtracting 100m from all existing peg eastings. The line northings remained unchanged.

The new grid lines were geologically mapped. In the areas of residual soils -80 mesh, nominal C horizon soil samples were collected at 20m intervals. As most of the grid is covered by glacial till only 5.4 line km of soil sampling was done on 25 lines. Samples were sent to Analabs and analysed for Cu, Pb, Zn, Fe, Mn, As and Sn by A.A.S.. Stream sediment samples were collected where creeks crossed grid lines. Forty-seven stream sediment samples were collected and the -80 mesh size fraction analysed by A.C.S. for Cu, Pb, Zn, Fe, Mn by A.A.S. and Sn by X.R.F..

The old and new grids were covered by a proton precession ground magnetometer survey. Readings were taken using Scintrex MP-2 magnetometers every 10m over a total of 35 line km on 27 lines.

Three diamond drill holes were completed on the grid.

i) DDH MRP 219 was collared on line 5,375,100N at 384,435E on a grid east azimuth and -60° dip. The hole was drilled to 140.8m as a follow-up to the previous year's DDH MRP 212.

ii) DDH MRP 226 was collared on line 5,376,300N at 384,690E on a grid east azimuth and -60° dip, and was drilled to 211.5m.

iii) DDH MRP 227 was collared on line 5,376,400N at 384,778E on a grid east azimuth and -60° dip, and was drilled to 155.6m. Both MRP 226 and 227 were drilled to test a strong ground magnetic anomaly under glacial cover.

All three holes were geologically logged and sampled and analysed by Analabs for Pb, Zn, Cu, Fe, Mn, As and Sn by A.A.S.. Magnetic susceptibility

measurements were taken on all the core and down hole I.P. surveys attempted on each hole.

To the north of the grid area geological mapping was carried out along the Mackintosh River while the water level was low due to the filling of the Mackintosh Dam.

4.2.2. Results Received

4.2.2.1. Geology (Refer to plans AO-525-0006 and AO-525-0055, 1:10,000 scale geology sheets 7 & 8) Most of the Tullah Grid area is covered by glacial overburden. Outcrop is limited to two strips along the western and eastern margins of the grid. The eastern grid margin encroaches on the lower slopes of the Mt. Farrell ridge and rises above the glacial morraine level. This exposes the eastern contact of the Farrell Slates. The contact appears to be gradational from acid tuffs in the east through distinctly reworked tuffaceous units into volcanic lithic wackes and strongly cleaved siltstones and shales. The contact dips west at 65° to 70°. Facing evidence on line 5,376,600N indicates a west facing. The finer grained argillaceous sediments display a strong to slatey cleavage which generally sub-parallels the bedding.

About 50m to 150m above the basal sediment contact an acid tuff unit, of 45m to 120m thickness, persists for over 2km, from the southern boundary with E.L. 4/73 north to where it disappears beneath glacial cover. This suggests fluctuating basin margins during the early deposition of the Farrell Slates.

Only one major break in the contact is interpreted. An east-west fault with north-block-down movement cuts the contact at about 5,376,150N. A vertical throw of about 200m is implied. North of this fault the contact trends almost due north; south of it the contact trends north-north-east.

The western contact of the Farrell Slates is exposed only in the Murchison River bed. It has also been penetrated by diamond drill holes MRP 212, 219, 226 and 227. The contact appears to be faulted with shales and wackes of the Farrell Slates abutting strongly silicified and carbonated intermediate volcanics to the west. In the river the contact is obscured under a narrow zone of strong clay weathering. In MRP 212 the contact consisted of a zone of chlorite schist and puggy clay. In MRP 219 the contact took the form of a quartz annealed breccia with thin zones of crushed and puggy rock lying within the top 15m of the sediments. In MRP 226 the contact was distinguished only by silification and minor quartz-carbonate veining. The top 20m of sediment shows a pronounced cleavage. In MRP 227 the contact is marked by very broken core containing quartz-carbonate veins. A zone of strongly veined and crushed volcanics some 4m above the contact and zones of chlorite and sericite schist from 5 to 8m below the contact, appear to be the main locus of stress.

This faulting along the western contact of the Farrell Slates is interpreted as the northern extension of the Henty Fault Zone. The structure is of some importance in this area as the fault zone appears to be a locus

for mineralisation. Both MRP 212 and 219 intersected Sn mineralisation associated with pyrrhotite, pyrite, arsenopyrite, chalcopyrite and fluorite in the cleaved sediments abutting the contact. MRP 226 and 227, although essentially unmineralised, contain small concentrations of pyrite with traces of galena, sphalerite and arsenopyrite.

Intermediate volcanics persist west from the Farrell Slates contact to the western edge of the grid although most of the area is covered by glacials. Outcrop is seen in the Murchison River and on a series of low ridges running north from the river at about 384,400E. The rocks consist of lavas and pyroclastics of trachy-andesite and andesite to dacite composition (C.M.S. petrological report 80/10/45 in Appendix V). Coarse agglomerate units are fairly common, especially west of the Murchison River. These might suggest a volcanic centre in the region of 5,376,000N 384,400E. The volcanics are typically chloritised, and in the vicinity of the Farrell Slates contact are strongly silicified and carbonated.

4.2.2.2. Geochemistry - Soils (Refer to plans A0-525-0025, 0026, 0027, 0071, 0125, 0265, 0266, 0267, 0268, 0269 - 1:10,000 scale soil sample contours for Pb, Zn, Cu, As, Sn; and to Appendix II Soil Sample Data Sheets)

Soil sampling was largely restricted to a strip down the eastern side of the grid on the lower slopes of the Mt. Farrell range, and an area on the western side of the grid near where the Murchison River has cut down through the glacials. The entire central section of the grid is covered by glacials.

Four areas of anomalism are indicated by the soil sampling.

1) The first area is centred on line 5,376,700N between 385,480E and 385,560E. The zone is anomalous in Zn, Pb, Cu, As and Sn with peak values of 1.40% Pb; 5350 ppm Zn; 325 ppm Cu; 420 ppm As and 60 ppm Sn. With the exception of As, these represent the highest values returned over the grid. The zone shows maximum dispersion in Zn which is weakly anomalous over 600m of strike. Pb extends for 300m, with Cu and As restricted to 100m. Sn is only a one line anomaly. This anomalous zone appears directly relatable to contamination from the dumps of the old Murchison Mine which lie adjacent to the peak values on line 5,376,700N. The weak on-strike extension of the Pb and Zn anomalies largely follow the track running past the mine and may also be due in part to contamination.

2) The second area lies along strike to the north of the first and is centred on line 5,377,300N at 385,560E. The zone is anomalous in Zn, Pb and As with peak values of 700 As, 245 Zn and 100 Pb. A value of 32 ppm Sn at 5,377,500N 385,460E is probably part of the same anomalous zone. The zone is associated with the contact zone between the Eastern Volcanics and the Farrell Slates, with the bulk of the anomalous values lying over the acid volcanics. Small old workings known as Duttons Workings lie off the grid area, some 400m north-east of the centre of the anomaly. There may be some connection with the Duttons Workings mineralisation but no contamination was observed on the sampled areas.

3) The third area lies on the western margins of the grid between 5,376,300N and 5,376,600N and between 384,280E and 384,460E. A continuous zone of +50 ppm Zn contains patchy areas of +50 ppm Cu and +20 ppm Sn. Peak values are 165 ppm Zn, 95 ppm Cu, and 30 ppm Sn. The anomalies lie along a low ridge running down to the Murchison River which contains outcropping intermediate tuffs and minor lavas. Agglomerates and lapilli tuffs have been mapped, especially to the south in the Murchison River bed. The weakly anomalous geochemistry may be related to the postulated volcanic centre in the vicinity of 5,376,000N, 384,400E.

4) The fourth area comprises a group of small anomalies for Zn, Pb, As and Sn in the south-east corner of the grid. The anomalies fall into 2 small groups. A Pb-Zn anomaly runs along the Murchison Highway on lines 5,375,100N and 5,375,200N with peak values of 495 ppm Zn, 480 ppm Pb. The zone is associated with the eastern contact of the Farrell Slates with the acid volcanics as in area 2 above. Some doubts must exist about the validity of this anomaly because of its close conformity with the highway. It is known that tailings from the Farrell Mine were used in places in the construction of the Murchison Highway. Being anomalous only in Pb and Zn may also support a contamination origin. A second anonaly lies on 5,375,200N between 385,000E and 385,100E. Peak values of 600 ppm Zn, 550 ppm As and 90 ppm Pb occur in a small pocket of non-glacial soils close to the river bank. They are associated with the prominant inter-bedded horizon of acid tuffs within the Ferrell Slates. A one-sample anomaly with values of

450 ppm Pb; 255 ppm Zn and 100 ppm As occurs on line 5,374,900N at 385,360E within the eastern acid volcanics. This sample was recorded as a B horizon sample as opposed to the C horizon sampled on most of the grid. It is possible this may be a sampling anomaly rather than real geochemical variation. However running west from this to 385,080E is a zone of elevated Sn values. Although the highest value is only 28 ppm Sn the zone contains the largest group of +20 ppm Sn samples encountered on the entire grid. The Sn zone lies mostly over Farrell Slates but also covers the eastern contact against the acid volcanics.

4.2.2.3. Geochemistry - Stream Sediments (refer to plans A0-525-0049, 0091; 1:10,000 scale stream sediment geochemistry and Appendix III Stream Sediment Sample Data Sheets)

Assessment of the drainage geochemistry results in this area is complicated by several factors. The flat button-grass areas on glacial debris are not particularily suited to stream sediment sampling. Drainage is poor and slow. There is often not an active stream load and the streams are usually very high in organic matter content. The area is known to contain old workings along its eastern margin which is the source area for all the creeks on the grid so contamination could be a problem. The area is also traversed by the Murchison Highway and several well used H.E.C. access roads and tracks so these may also be a source of contamination. The use of Farrell Mine tailings in construction of the Highway has already been mentioned.

The area sampled is relatively small and the data base of only 47 samples means that statistical analysis of the data may not be very meaningful. The most striking feature of the results is the extreme variability of the values. This is reflected in the standard deviations for the various elements. Means and Standard deviations for all 47 samples are as follows:

	$\bar{x}$ (ppm)	S
Pb	505	1704
Zn	615	2032
Cu	35	122
Sn	16.5	33

If these figures are used and anomalous samples taken to be those greater than the mean $\div 2 \times S$, then only two samples are anomalous in Pb, Zn and Cu. These occur at 5,376,400N; 385,400E and at 5,376,700N; 385,483E. The latter sample drains out of the Murchison Mine area and is obviously contaminated. Both samples also contain over 1% Mn, so the probability of Mn scavenging contributing to the anomalous values is high. If these two samples are ignored the means and standard deviations for the remaining 45 samples become as follows:

	$\bar{x}$ (ppm)	S
Pb	160	272
Zn	200	345
Cu	15	15

On the plans A0-525-0049; 0091, two classes of samples have been selected. Using the values for 45 samples; anomalous values are regarded as those greater than $(\bar{x} + 2S)$. Samples lying between $(\bar{x} + S)$ and $(\bar{x} + 2S)$ may be high background samples or low threshold anomalies, so these have been isolated as a weakly anomalous class. The classes for Sn were calculated using all 47 values as the distribution of Sn appears much less erratic than the base metals. This may well be due to Sn being the result of mechanical dispersion of cassiterite, and therefore less prone to the effects of Mn scavenging or chelation by organic matter.

The sample at 5,376,700N; 385,483E is highly anomalous in Pb, Zn and Cu but as already mentioned this is probably due to contamination from the various Murchison Mine workings and possible Mn scavenging. However, using the lower threshold values the sample now shows a downstream tail weakly anomalous in Zn, Cu and Sn.

The other highly anomalous sample for Pb, Zn and Cu at 5,376,400N; 385,400E may be due to Mn scavenging but may also have some contamination content as the stream drains off the H.E.C. Murchsion Dam road and the old Section 2830 workings lie about 350m south east of the sample.

A sample at 5,377,500N; 385,260E is anomalous in Pb, Zn and Cu and weakly anomalous in Sn. Once again, contamination could play a part in the sample values. The sample lies adjacent to the track from the Murchison Mine to Tullah and the Central and Duttons workings

lie some 400m to the north-east up on the slopes of the Farrell Range. The anomalism however does not extend back up-slope to the east and the coincidence of soil sample anomalies as reported above in 4.2.1.2. suggests this may be a valid drainage anomaly.

The sample at 5,376,000N; 385,339E is anomalous in Cu and weakly anomalous in Pb. This lies on the button-grass close to the Murchison Highway. The creek passes through a culvert on the highway so the possibility of contamination is high. The lack of supporting Zn values supports this interpretation.

The sample at 5,376,300N; 384,806E is anomalous in Zn and weakly anomalous in Pb. This lies on the button-grass with no obvious signs of contamination. The Mn content of 2500 ppm is not exceptionally high so this may be a valid anomaly.

The next sample upstream from the above at 5,376,500N; 384,815E is the most anomalous Sn sample on the grid containing 180 ppm Sn. It is difficult to imagine how a mechanically dispersed mineral like cassiterite could give rise to a single sample drainage trail lying entirely in glacial soils unless the cassiterite source is within the glacial material. Although this is a very interesting result it seems most likely that it does not relate to a nearby bedrock source.

Similar comments could apply to the anomalous Sn sample at 5,375,300N; 385,190E and the weakly anomalous Sn sample at 5,375,100N; 385,110E. In this area, however the glacial cover is not complete and small areas of sub-

outcrop occur so the anomalies could have a bedrock source. The latter anomaly is also coincident with a weak soil anomaly for Sn.

4.2.2.4. Geophysics - Magnetics (Refer to plans A0-525-0148, 0149; 1:10,000 scale Ground Magnetics)

On the contour plans and in the following discussion 62,000nT has been subtracted from the field readings to produce more manageable figures.

The magnetic responses over the grid area fall into five fairly distinct zones.

1) The Western Margin:
This zone runs up the edges of the grid west of a line running approximately from 5,375,100N 384,150E to 5,377,500N 384,500E. The zone is characterised by values in the 250-300nT range with narrow short strike length areas of 200-250nT and 300-350nT values. In the southern half the zone lies over glacial cover between the Murchison and Sterling Rivers. In the northern half the zone covers a mixture of thin glacial cover and low sub-outcropping ridges of intermediate volcanics along the banks of the Murchison River. There are no major magnetic features represented in this zone.

2) The West-Central Portion:
This zone lies between zone 1) above and a north-north-east trending line running approximately from 5,375,100N, 384,500E to 5,377,500N 385,300E. The zone is charater-

ised by a broad area of 300-350nT values. Along the western side small scale highs of over 400nT and small lows of below 300nT occur. These features may be an outcrop effect. On the sub-outcropping ridges the magnetometer is effectively much closer to the bedrock than it is out on the glacial covered flats, and would, therefore, be expected to see more local fluctuations in this area. A small pronounced low of less than 250nT is centred on 5,375,500N 384,500E. It is only a one-line feature and may be an unrecognised short-term drift rather than a real magnetic low. A strong north-north-east trending anomaly runs from 5,376,100N to 5,376,600N between 384,600E and 384,950E. This is the highest anomaly on the grid with a peak value over 800nT centred on 5,376,300N 384,740E. The anomaly lies on glacials over interpreted intermediate volcanics, just west of their interpreted contact with the Farrell Slates. The anomaly would appear to represent a significant magnetic body. The northernmost line, 5,377,500N, shows low values of noisy character. This is due to cultural effects as the line runs along the southern boundary of the Tullah townsite and cuts across several water pipes.

3) The Eastern Central Portion:
This zone lies to the immediate east of zone 2) above and is characterised by a high background of 350-400nT. The zone is entirely covered by glacials, except where the Murchison River cuts through to bedrock across the southern end, but is interpreted to lie over the sediments of the Farrell Slates group.

The boundary between zones 2) and 3) runs approximately along the interpreted contact of the volcanics and sediments. A long broad anomaly of above 400nT, containing a line of above 450nT highs, runs from 5,375,500N to 5,377,200N. The size and shape of the anomaly suggest that it is a formational feature. It is probably due to pyrrhotite in the Farrell Sediments. A hole, DDH STP 220, drilled under a magnetic anomaly to the south in adjoining E.L. 4/73, in roughly the same stratigraphic position, intersected pyrrhotitic black shales. A magnetic traverse was run along the bank of the Murchison River through this zone. The results were very noisy compared with the rest of the anomaly. The smoothing out of the magnetic zone is thought to be due to the thick glacial cover which effectively raises the magnetometer above the most localised bedrock fluctuations.

4) The Eastern Margin:

This zone forms a strip down the edge of the grid east of about 385,400E and north of line 5,375,200N. The zone is characterised by a high range in values from less than 300nT to above 500nT, with narrow short strike-length but fairly intense highs. These lie primarily on the basal Farrell Slates close to their eastern contact. At the northern end of the zone the magnetic trend appears to cut across the geology with an above 500nT anomaly, on line 5,377,400N at 385,600E, lying above acid volcanics. The anomalies over the sediments are probably due to pyrrhotitic shales as suggested in zone 3) above. The anomalies in the volcanics must have a different source. The most likely source of the anomalies is magnetite in the acid

volcanics. The Darwin rhyolites which outcrop some distance to the south are strongly magnetic in places, and are thought to be stratigraphic equivalents of these acid volcanics. This zone lies over sporadic outcrop on the lower slopes of Mt. Farrell and the noisy nature of the magnetics relative to the central zone can once again be explained as the effects of outcrop versus glacial cover.

5) The South-East Corner:
This zone is essentially the strike equivalent of zone 4), covering the sub-outcropping contact zone of the Farrell Slates and acid volcanics, but is characterised by the lowest magnetics on the grid. Values drop rapidly westwards from 300nT to below 150nT. The rocks in this zone are clearly very different magnetically from those to the north but there does not appear to be any significant change in the character of the sediments or volcanics between the two areas. Presumably the difference is related to local variations in the content of pyrrhotite and/or magnetite. This suggests that these may be of epigenetic hydrothermal origin rather than syngenetic features.

4.2.2.5. Drilling - DDH MRP 219 (Refer to Summary Sheet plan A1-504-0127 and Appendix VI Diamond Drill Logs)

This hole was drilled as a follow up to DDH MRP 212 which intersected 2.0m at 0.55% Sn, on the faulted western contact of the Farrell Slates in a zone of pyrite, pyrrhotite and

arsenopyrite. DDH MRP 219 was collared 200m south on line 5,375,100N as a weak ground magnetic anomaly on this line suggested the possibility of a pyrrhotite concentration which might have associated Sn mineralisation.

DDH MRP 219 drilled through 32.6m of glacial overburden and then advanced from 32.6m to 113.0m through a sequence of intermediate tuffs and lavas with lavas increasing towards the base. Silicification and carbonitisation of the volcanics was common and increased towards the base but was less pronounced than in MRP 212. Also in contrast to MRP 212, the contact with the Farrell Slates was not strongly sheared but consisted of a quartz annealed breccia in the bottom 0.25m of the volcanics.

From 113.0m to the end of the hole at 140.8m an essentially siltstone sequence of the Farrell Slates was encountered. Rock types ranged from shales through siltstones to fine grained tuffaceous wackes. Plastic slump structures were present but some contorted crenulated folding appeared tectonic in origin. Zones of broken core and narrow bands of crushed puggy core are common between 123m and 136.6m, suggesting this is the main locus of faulting and shearing as opposed to the contact zone in MRP 212.

Mineralisation is restricted to the Farrell Slates. On the contact from 113.0m to 113.25m there occurs near massive pyrite, arsenopyrite, chalcopyrite and minor pyrrhotite. A few small grains were tentatively identified as cassiterite. This interval produced the highest Sn assay for the hole:

113.00 - 113.25m; 0.25m at 0.63% Sn.

From 113.25m to 136.6m essentially pyrite and pyrrhotite mineralisation persists as stringers and disseminations, up to a maximum of 10% over short intervals, averaging out at 2-3% overall. Pale green fluorite occurs around 123m and is associated with minor Sn mineralisation:-
122.6m - 123.65m; 1.05m at 0.27% Sn.
Mineralisation effectively ceases on a 0.15m quartz vein at 136.7m containing pyrrhotite. Below this vein the siltstones are more massive and barren.

Magnetic susceptibility measurements gave a very low flat response over the volcanics and a fairly low but noisy response from the sediments in direct response to the pyrrhotite mineralisation therein. This matches the ground magnetic profile which shows a higher background over the Farrell Slates than over the Mt. Black Volcanics. There is nothing however, in the core susceptibility values which corresponds to the small peak and trough feature on the ground profile between 384,425E and 384,450E.

The down hole I.P. also responded well to the lithological changes with a marked rise in chargeability and drop in resistivity over the Farrell Slates compared with the volcanics. The I.P. change commences before the contact and may suggest that away from the hole, the contact features, such as open space fractures and shears and/or mineralisation, may extend into the volcanics. A small resistivity low at 50m may be caused by a zone of limonite stained quartz veins at this depth.

Assay results for this zone were however insignificant.

In summary, DDH MRP 219 intersected thin bands of low grade Sn mineralisation in a similar stratigraphic and structural position to the mineralisation in MRP 212.

4.2.2.6. Drilling - DDH's MRP 226 and MRP 227

(Refer to Summary Sheet plans A1-504,0151, 0152; and to Appendix VI Diamond Drill Hole Logs)

These two holes were drilled to test the strong ground magnetic anomaly centred on 5,376,300N, 384,750E reported on in 4.2.2.4. above. This magnetic high lay in the Mt. Black Volcanics immediately west of the faulted contact with the Farrell Slates. To the south this contact was known to host low grade Sn mineralisation (c.f. MRP 212 and 219). Further south in adjacent E.L. 4/73 DDH STP 221 had intersected massive pyrrhotite in the volcanics above the contact. It was anticipated that this strong magnetic feature might represent a pyrrhotite body with associated Sn mineralisation. The results were as follows.

1) MRP 226

The hole drilled 9m of glacial overburden and advanced from 9m to 183.7m in intermediate volcanics, mainly pyroclastics showing chloritisation and increasing silicification below 104m. From 183.7m to 211.5m the hole intersected mainly greywackes with interbedded siltstones and shales of the Farrell Slates unit. The contact zone appeared relatively undisturbed being marked by silicification and minor carbonate veining.

Mineralisation was very sparse. On the Farrell Slates contact from 183.7 to 184.4m there occur bands and stringers of pyrite and galena with minor arsenopyrite and pyrrhotite.

Magnetic susceptibility readings taken of the core show background readings of around 0.1×10^{-3} cgs units. Elevated values are scarce. The following zones are above background:-

Depth (M)	Ranges x 10^{-3} cgs	Average x 10^{-3} cgs Units
101.8-102.2	2.55- 7.85	4.65
105.2-114.4	0.00-10.00	1.64 Scattered high values in background zone.
131.2-133.6	0.00- 5.85	2.16
164.2-164.8	4.45- 6.85	5.38

The source of the elevated magnetic susceptibilities was not immediately apparent but thin section examination of some core samples suggested very fine grained magnetite was the cause. (Refer to John Gilfillan & Assoc. report no. E3/81/52 in Appendix V) No pyrrhotite was reported. Results are summarised below:-

Sample No.	Depth	Mag. Susc.	Comments
40075	41.0	0.0	No significant magnetic phases.
40076	120.5	0.0	Complete lack of opaque oxides.
43457	102.2	7.8	Ubiquitous magnetite dust.

Down-hole I.P. results indicated that there are no significantly chargeable zones within the volcanics. The 5m and 20m electrode

spacing surveys are so similar in form it would appear that there are no chargeable bodies lying close to the hole and that the drill hole is a fair sample of the surrounding rocks. The lack of correlation between chargeability and magnetic susceptibility reinforces the view that the magnetic anomaly is due to magnetite and not pyrrhotite.

No significant Sn mineralisation was reported from the hole. The most significant assay interval was:-
183.3 - 185.2; 1.9m at 1.20% Pb; 0.44% Zn or
183.3 - 184.3; 1.0m at 2.31% Pb; 0.34% Zn.
The above interval lies in the Farrell Slates at its contact with the Mt. Black Volcanics.

2) MRP 227

The results from this hole were very similar to those from MRP 226. The hole drilled 11m of glacial overburden, then advanced from 11.0m to 126.2m in largely pyroclastic intermediate volcanics showing variable chloritisation and silicification. From 126.2 to 155.6m the sediments of the Farrell Slates unit were intersected comprising volcaniclastic wackes at the top grading down into greywacke with interbedded shale bands.

Mineralisation was limited to very minor disseminated pyrite in the sediment units.

Magnetic susceptibility readings were similar to MRP 226 with background values about $0.1 - 10^{-3}$ cgs units. The following zones were above background:-

Depth (M)	Ranges x 10^{-3} cgs	Averages x 10^{-3} cgs
37.8-39.0	0.6 - 12.0	3.51
40.6-41.0	3.0 - 6.8	5.01
43.2-46.8	0.0 - 12.6	7.01
51.2-55.2	0.4 - 10.2	5.66
61.4-64.6	0.4 - 9.0	3.82
66.8-69.0	0.0 - 2.4	1.08
76.4-77.0	1.4 - 5.0	2.53
89.6-92.2	0.2 - 10.2	4.27

The contact zone and the sediments show no magnetic susceptibility values.

Thin section examination of core samples confirmed the source of the magnetic anomaly to be fine grained magnetite (Refer to C.M.S. report no. 81/4/20 in Appendix V). Again no pyrrhotite was reported. Results are summarised below:-

Sample No.	Depth	Mag. Susc.	Comments
35185	45.2	11.8	Abundant fine magnetite.
35186	53.4	8.0	Conspicuous ultra-fine magnetite.
35187	90.6	7.2	" "
35188	122.0	0.0	Devoid of magnetite.

As is MRP 226, the down-hole I.P. response suggested that there were no chargeable bodies in the vicinity of the drill hole.

No significant Sn mineralisation was reported from the hole. The most significant assay interval was:-

135.3-137.8m; 2.5m at 0.20% Pb; 0.24% Zn.

This comes from the Farrell Slates and close to the contact with the Mt. Black Volcanics.

The results for the two holes MRP 226 and MRP 227 have revealed the source of the magnetic anomaly to be finely disseminated magnetite within an andesitic lava unit within the Mt. Black Volcanics. The measured magnetic susceptibilities, however, did not seem large enough, especially in MRP 226, to explain the observed ground magnetic anomaly. A suite of samples from MRP 226, covering a range of susceptibility values, were sent to Prof. P. Emerson at the University of Sydney, for further testing. The reports from Prof. Emerson are contained in Appendix VII but can be summarised as follows.

i) The E.Z. susceptibility meter is reasonably accurate. It appears to read on average about 10% low, but the accuracy of any meter is suspect at low susceptibility values.

ii) Petrological information is most useful in determining the cause of magnetic anomalies.

iii) The original magnetic modelling used a body, 40m thick with a susceptibility of 7500 x 10^{-6}. The susceptibility readings indicate a zone of 40m which contains narrow bands of very elevated values but which averages only 2450 x 10^{-6}.

iv) The original model is unrealistic for the environment in question, as magnetic zones in volcanics are never 40m thick. The modelling would have been more accurate is several narrow bodies had been taken instead of averaging the susceptibility over 40m.

v) Emerson did not, however comment on whether remodelling using the measured susceptibilities, would generate an anomaly to match the

measured ground magnetic anomaly. He implied it would not, by saying that he thought induction alone could not account for the ground anomaly and suspected remanence.

vi) Subsequent to these observations 2 high susceptibility and 2 low susceptibility samples were measured for NRM and no significant remanence was detected. It would appear therefore that there still remains some problem in matching measured drill core susceptibilities to the ground magnetic values.

4.3. White Spur - Dobsons Creek

4.3.1. Work Completed

The Dobsons Creek Grid was mapped. 19 line km were covered on 16 lines. A further 7.5 km of access tracks were mapped.

4.3.2. Results Received

4.3.2.1. Geology (Refer to plan no. - Plate 2, Report 142)

The main objectives involved in the geological mapping of the Dobsons Creek Grid were:-

i) to trace the Hercules Mine sequence south of the Rosebery Mine Lease, and

ii) to investigate the geological relationships between the geophysics and soil geochemistry.

The Hercules Mine sequence consists of rhyolitic, highly cleaved sericitised ashflow tuffs with large chlorite clots in the footwall rocks.

The Host Rocks consist of sericitised carbonated sediments grading into laminated fine grained shales and crystal tuffs towards the east. Porphyritic agglomerates tend to dominate the hangingwall rocks although the contact between the shales and pyroclastics is represented by a fine grained vitrified tuff probably representing a chilled margin on the base of an ignimbritic flow. The Mine sequence tends to indicate east facings. Attempts at physically tracing the Mine sequence south of the Mine Lease were hampered by poor outcrop and deposition of Permian tillites.

Immediately to the west of the last exposure of the Hercules shale sequence, is a pyritic shale horizon (with an East facing) underlain by reworked(?) crystal tuffs and silicified cleaved sericitic tuffs with minor disseminated pyrite which are similar in appearance to the Hercules footwall rocks.

Facings, cleavage, dips and lithologies indicate a north plunging anticline with the closure in the headwaters of the Dobsons Creek. The closure of the anticline coincided with a photolinear which extends through to the south of the grid.

A northerly striking fault near the western edge of the Mine Lease appears to have transported the mine sequence at least 450m to the north and uplifted the Eastern (Hercules) Limb at least 200m vertically, that is assuming the dip of the fault plane is near vertical. The strike length of the fault is not clear to the south while to the north it appears to intersect a northwest trending

photolinear.

The Scintrex interpretation of the Dobsons Creek I.P. survey (see E.Z. Report No. 134 - E.L. 1/62 Mt. Black Report for 1979-80), indicates an east-west trending fault(?) running along line 3,600S. If the Scintrex plan is compared with the revised geology plan (Plate 1), movement along the east west striking fault can be interpreted as north side moving east (rather than west on the Scintrex plan) by assuming the contact zone between less resistive and resistive rocks, i.e. shales and pyroclastics, as shown on the Scintrex plan represents two different horizons, as indicated by grid mapping. This interpretation accounts for displacement of minor shale lenses and pyroclastics to the west of the Hercules sequence as well as marking the closure of the north plunging anticline as a geophysical dislocation plane.

C.J. Eastoe suggests that the shales occurring along most of the length of Dobsons Creek are not related to those shales found in the headwaters, i.e. they are independent of the shales in the Hercules Mine Sequence.

Mapping to the south of the east-west trending fault on 3,600S indicates three general lithologies.

i) An eastern zone of rhyolitic vitric lithic tuffs.

ii) A central zone consisting of predominantly rhyolitic ashflow lithic tuffs with a wedge of interbedded(?) pyritic shales and reworked tuffs located to the south of the E.L. 1/62 boundary. And,

iii) A western zone of predominantly dacitic porphyritic feldspar crystal tuffs with minor shale horizons.

The exact relationships between the 3 zones are still not clear and are further complicated by:

i) pyroclastics mapped in the field probably representing different zones within one or more ignimbritic flows, i.e. each flow consisting of a chilled basal margin of vitric tuff grading into coarser grained ashflow and welded tuffs with a chilled upper surface of vitric tuff.

ii) Strong (particularly near the Hercules Mine) to weak easterly dipping cleavage tending to obscure bedding, facings and folding.

iii) A complex folding event which has resulted in tight regional northerly trending fold axes as well as broad open folds with east west trending axes.

Interpretation indicates two periods of vulcanism with the basal volcanics outcropping only in the central zone, consisting of rhyolitic ashflow crystal lithic tuffs which are similar in appearance to the eastern zone of rhyolitic tuffs.

Sedimentation in a small basin in the underlying volcanics resulted in deposition of fine grained shales, siltstones and reworked tuffs. To the west the sediments are represented by thin shale horizons which may represent thinning of sediments towards:

i) The margin of a sedimentary basin,or

ii) The western margin of major vulcanism with the thickness of ignimbrites being controlled by topographic highs in the underlying sediment basin.

Tight folding of the basin margin would account for a relatively complex structure.

To the east the sediments appear to dip beneath the volcanics as indicated by ashflows with hornfelsed shale and siltstone fragments. Overlying the sediments to the east are rhyolitic vitric lithic tuffs which have a chilled margin against the sediments together with shale fragments suggesting that they are younger than the sediments. To the west are the dacitic feldspar crystal tuffs with minor chloritised (shale?) fragments again indicating that they are younger than the sediments. The east and west pyroclastics appear to be separated by shales in the Dobsons Creek although minor rhyolitic tuff occurs to the west of the shales.

Identification of dacites and rhyolites was relatively easy at the western and eastern margins, respectively, of the grid although some difficulty was encountered in the central zone. No contact between the rhyolitic and dacitic tuffs was observed in the field although if one assumes the two lithologies are of the same age and generated from nearby sources then intermingling may occur resulting in a hybird rock type hence some difficulty in differentiation between the two types particularly in the central zone.

Table 4.3.2.1. lists zones containting 200+ ppm Pb and Zn obtained from soil geochemistry over the Dobsons Creek Grid (see E.Z. Report No. 134 - E.L. 1/62 Mt. Black Report for 1979-80). A comparison of Table 4.2.3.1. with the geology plan (Plate 1) indicates that the northerly anomalous zones on lines

2,400S and 2,800S are largely associated with the Hercules Mine sequence. The anomalous Pb/I.P. zone on line 2,400S at 2,800E occurs in the younger Hangingwall Pyroclastics which are known to carry disseminated mineralisation (mainly pyrite). This zone is considered relatively unimportant at this stage.

The anomalous Pb zone with a secondary I.P. response on line 4,000S at 700E appears to be associated with the contact between a rhyolitic lava and agglomerate tuff. The Pb anomaly may represent galena derived from a raft of sediments (which have been observed in pyroclastics on the White Spur road). Anomalous Pb zones on lines 6,000S, 6,400S, 6,800S and anomalous Zn zone on line 7,200S at 1,800E are not associated with any significant geophysical response. The Pb zones occur in lithic tuffs and hence the Pb may be derived from shale fragments within the pyroclastics.

The anomalies on lines 7,200S (except for 1,800E), 7,600S, 8,000S, 8,400S and 8,800S can be related to the one sedimentary horizon which has been intensely folded.

The three primary zones of interest on line 7,200S between 3,200E and 3,500E lie between 120 and 170 feet deep and occur near the contact between the sediments and overlying rhyolitic ashflows. The anomalies on lines 7,600S, 8,000S and 8,400S, both geochemical and geophysical, lying between 2,200E and 2,900E are associated with shales near the pyroclastic basement.

TABLE 4.3.2.1. - ZONES CONTAINING 200+ ppm Pb and Zn

Line	Easting	Elements	Range (ppm)	Geophysics	Geology
2400S	1100E	Pb	300	NGR*	Assoc. with pyritic shales. Assoc. with Hercules Mine Sequence
	1300E	Pb	225	NGR	" " silicified and sericities cleaved footwall tuffs.
	1800E	Pb	250	Minor Tertiary response at 1850E	Assoc. with hangingwall lithic tuffs
2800S	1300E	Pb	460	NGR	Assoc. with footwall tuffs.
4000S	800E	Pb	380	Secondary response at 700E	Assoc. with predominantly rhyolitic lithic tuffs with minor dacitic tuffs
6000S	200E	Pb	250	NGR	
6400S	3800E	Pb	790	NGR	
6800S	2100E	Pb	215	NGR	
	4000E	Pb	260	NGR	
7200S	1800E	Zn	210	NGR	
	3200-3500E	Pb	235-385	3 primary zones of interest between 120 & 170ft deep	
7600S	2200E	Pb	210	NGR	Assoc. with interbedded shales, siltstones and reworked tuffs near contacts with pyroclastics. Anomalies probably related to the same folded sedimentary horizon.
8000S	1000E	Pb	540	NGR	
	2200E	Pb	400	Primary zone of interest at depth of 220'	
8400S	2300E	Zn	400	Primary zone of interest at a depth of 200' at 2300E	
	2200-2900E	Pb	210-1500		
8800S	200E	Zn	235	NGR	

* NGR = No geophysical response.

It is of interest to note that the depth of the primary zones of interest in the southern wedge of sediments all lie within the order of 200 feet., consistent with a uniformly folded sediment. The target of most interest as indicated by both geophysics and geochemistry as well as favourable geology, i.e. contact zone between older pyroclastics and shales which may constitute a set of conditions for formation of Hercules style massive sulphides, lies between lines 8,000S and 8,400S at 2,200E at approximately 65m in depth.

4.4. Colebrook Hill

4.4.1. Work Completed

The existing grid was extended southwards with 6 lines being cut 200m apart, between 5,370,000N and 5,371,000N, totalling 10.9 km. Three lines 200m apart totalling 1.8 km were cut on the eastern side of the Rosebery Golf Course in the north-east corner of the original grid area. These lines were pegged at 20m slope corrected distances.

The grid extensions were geologically mapped. Rock samples collected for analysis were sent to Analabs and analysed for Cu, Pb, Zn, Fe, Mn, As, Sn and Cr by A.A.S..

Soil samples were collected over the grid extensions at 20m intervals and the -80 mesh fraction analysed by Analabs for Cu, Pb, Zn, Fe, Mn, As, Sn and Cr by A.A.S.. Stream sediment samples were collected where grid lines crossed creeks and the -80 mesh fraction analysed by A.C.S. for Cu, Pb, Zn, Fe, Mn, Co and As by A.A.S. and for Sn by X.R.F.. Forty

samples were collected.

Two lines on the original grid, 5,371,600N and 5,371,700N were used to run trial surveys of V.L.F. and S.P.. Proton magnetometry was also run using 2m and 4m sensor head poles to evaluate the effects of ground clearance. Following this work the grid extensions were covered by a proton magnetometer survey using Scintrex MP-2 magnetometers and taking readings every 10m. A V.L.F. survey was carried out over both the original grid and the extensions so that a total of 24.7 km on 16 lines was covered using a Phoenix VLF-2 meter which recorded dip angle and field strength parameters at a 10m station interval. Geoterrex Pty. Ltd. ran an orientation line of Max-Min E.M., on line 5,371,700N from 374,520E to 375,400E, to demonstrate the technique.

The area of the Colebrook Hill Grid was covered by a Dighem, airborne E.M. survey as part of a larger survey of the Natone area. This is reported on in Section 4.5. below.

Three diamond drill holes were completed. DDH CHP 228 was collared at 5,371,717N; 374,997E (A.M.G. co-ordinates), at an R.L. of 497m, on a 90° azimuth and -60° dip and was completed at 233.7m. DDH CHP 229 was collared at 5,372,185N; 374,863E, at an R.L. of 357m, on a 270° azimuth and -55° dip, and was completed at 247.4m. DDH CHP 230 was collared at 5,371,888N; 374,857E, at an R.L. of 454m, on a 90° azimuth and -55° dip, and was completed at 137m. All three holes were geologically logged and sampled and analysed by Analabs for Pb, Zn, Cu, Ag, Fe, Mn, As and Sn by A.A.S. Magnetic susceptibility measurements were made on all of the core.

Two holes, NP 104 and NP 107 were drilled in 1962 in the Natone Valley area to the immediate east of the Colebrook Grid. These holes were resampled and

analysed by Analabs for Cu, Pb, Zn, Fe, Mn, Ag, As and Sn by A.A.S..

4.4.2. Results Received

4.4.2.1. Geology (Refer to Plan no. Plate 2, Report 142)

The Colebrook area geology consists essentially of a clastic sedimentary sequence striking generally north-south with steep to vertical dips. This sequence contains an ultramafic unit, also striking roughly north-south, lying just inside the western E.L. boundary. The grid area straddles the steep-sided Colebrook Ridge which has strongly influenced the distribution of outcrop. The steep slopes provide reasonably abundant rubble and scree of variably oxidised rock, but solid outcrop is rare. The centrally located watershed also means that such creeks as are present are small and scree filled, rather than cutting through to bedrock. The ultramafic unit outcrops reasonably well, but good outcrop of the sediments is almost exclusively limited to old workings. This resulted in a scarcity of structural information and an inability to define any petrological or sedimentation trends across the area.

The sediments are typically fine grained and fine to medium grained volcanic lithic wackes of turbidite affinites. Finer grained siltstone and shale members are common and coarser grained more tuffaceous varieties also occur. On the eastern margin of the grid the sequence appears to change character, with poorly out-

cropping micaceous sandstones and shales being more common. Relationships are unclear as much of this area is hidden under patchy glacial cover. When seen in large outcrop the wackes and siltstones are usually thinly interbedded. Where observed, strikes range from north-north-west to north-north-east and dips are near vertical with steep west more common than steep east. Definite facings have not been observed in outcrop, but at about 5,371,800N; 375,100E on the grid possible graded bedding suggests a west facing and weak grading on a cutting on the Murchison Highway at about 375,800E suggests an east facing.

Many of the rocks show moderate to strong hornfelsing and some show strong metasomatic alteration with the growth of tremolite, biotite, phlogopite, tourmaline and axinite phases. Weak silicification is also common. Hornfelsing is very obvious around the old Colebrook workings but can be seen over a kilometer to the north in the railway cuttings and up to a kilometer to the south in the Olympic and Athenic workings. The strong metasomatic alteration effects are largely confined to the area of the old Colebrook workings between about 5,371,500N and 5,371,800N from about 375,000E to 375,100E. The true distribution of the hornfelsing is unknown, but is probably more widespread than it appears as it occurs in most of the old workings encountered and these are the only real sources of fresh rock outcrops. Dr. A. Brown of the Geological Survey has indicated that mapping to the west of the E.L. boundary shows a steadily decreasing metamorphic grade southwards. The metasomatic alteration

suites, for the same reasons may also be more widespread than indicated.

The ultramafic unit is very largely a serpentinised dunite, rich in magnetite, but shows some pyroxenite phases and minor gabbro units, especially near the margins. The outcrop pattern is linear, but complex in detail with thinning and thickening along strike. On the northern section of the grid the interpreted distribution of ultramafic is assisted by Cr distribution in soils and by ground magnetics. Some magnetic lineaments coinciding with discontinuities in the outcrop pattern are interpreted as faults. Two east-north-east trending breaks are interpreted together with a suite of north-north-east fractures, running sub-parallel to strike, and in places forming the contact of the ultramafic unit. In several places the serpentinite shows shearing which lends some support to a faulting hypothesis. In the south of the area an unusual silica-carbonate rock occurs in close association with the ultramafic. This is thought to be the result of very strong silicification of the ultramafic and may be the physical expression of some of the interpreted fault zones. There is no evidence of hornfelsing of the sediments in contact with the serpentinite. The contact zone, as will be seen below, is a locus of anomalous soil geochemistry for many of the elements analysed. The ultramafic unit is therefore interpreted as a probable cold-emplacement body, exploiting a zone of faulting which may also have acted as conduit zone for hydrothermal metal transport.

Mineralisation occurs at the Colebrook Mine workings in the form of small pyrrhotite ?replacement bodies with associated pyrite, arsenopyrite and chalcopyrite, within a zone of strong metasomatic alteration in the sediments. The occurrence of exotic calcium rich minerals such as axinite and datolite enhance the concept of replacement of more calcareous units as an origin for the mineralisation. To the south the Olympic and Athenic workings are reported to have exploited Sn mineralisation in quartz veins. A thin cassiterite bearing quartz vein was identified in one old dump. The wall rocks in these workings show hornfelsing and abundant limonite staining which suggests affinities with the Colebrook Mine pyrrhotite replacement style. Present data are insufficient to define any mineralogical or chemical zonations which might indicate a source area for the mineralising system. There would appear to be some structual controls on the location of mineralisation as both the Olympic and Athenic main workings lie on lineaments defined from aerial photographs.

4.4.2.2. Geochemistry - Rocks (Refer to plans AO-525-0209, 0264: 1:10,000 scale rock sample locations and Appendix IV Rock Sample Data Sheets)

The distribution of rock samples is very erratic, being controlled largely by the distribution of outcrop. Forty seven rock samples were collected from the grid area mapped in 1980-81 and over a third of these come from the area of the old Olympic mine workings. The forty sediments analysed are charaterised by generally high Fe content. Fe ranges from 0.36%

up to 19.0% with an average of 11.0%. The majority of samples fall in the range 7-15% Fe. There is no very obvious trend in Fe values but the few rocks from the eastern margin of the grid appear to be low in Fe.

Sn values are generally very low. An average of 40 ppm Sn occurs within range of 0-460 ppm. The higher Sn values appear to correlate with obvious hornfelsing in the rocks. There also seems to be some geographical distribution of Sn with the higher values (above 50 ppm) all occurring north of about 5,370,850N and east of about 374,600E. The old Olympic workings occur on the southern end of this area and it may be that the most significant correlation with elevated Sn values is their proximity to old workings.

Cu and As values both reach a high of 1000 ppm but are generally fairly low. Average values are 142 ppm Cu and 126 ppm As. Cu and As show reasonably good correlation, and higher values are concentrated in the 5,370,600N to 5,370,800N area west of about 374,600E. Most high values can be related to observable gossanous or sulphide concentrations. As with Sn, the Cu and As highs are closely associated with the old Olympic workings but peak about 200m south of the highest Sn values. The highest Cu and As values are associated with Sn values in the range 15-30 ppm Sn.

Pb values are generally very low. An average 17 ppm Pb occurs in a range of 0-100 ppm Pb. There appears to be a slight increase

in Pb values south and west away from the area of highest Sn values. The highest Sn samples all have less than 10 ppm Pb.

Zn values vary from 0-490 ppm with an average of 118 ppm Zn. There is a weak correlation with the Pb distribution pattern but it is not so pronounced for Zn. The highest Sn samples all contain less than 100 ppm Zn.

Mn values are erratic and are controlled by the amount of secondary manganese staining on the rocks. The average of 1118 ppm Mn occurs in a range of 25 ppm - 7800 ppm Mn.

Cr values show no patterns within the sediments. An average of 128 ppm Cr occurs in a range of 10 ppm - 490 ppm Cr. Analyses for Cr were done only to differentiate ultramafic samples.

Five ultramafic samples were analysed and are characterised by high Cr values. An average of 4200 ppm Cr occurs in a range of 1100 ppm - 1.3% Cr. A value of 1500 ppm Cr for the unusual silica-carbonate rock found in the south west corner of the grid confirms its affinities with the ultramafic unit. A brown gossanous sample (35296) was collected from the eastern contact of the ultramafic. The value of 1.3% Cr confirms it as originally ultramafic. It also contains the highest Zn assay on the grid of 585 ppm Zn. As also is weakly anomalous at 250 ppm As. To the south of the grid area this contact is the location of the Lynton Mine Pb-Ba mineralisation. This further occurrence of gossanous

material on the contact enhances the interpretation of the contact as a fault zone which may have acted as a conduit for mineralising fluids.

Only two samples could be regarded as genuinely gossanous. The first (35293) occurs centrally on the higher western slope of the ridge. It appears to be a concretionary nodule of manganese and iron oxides and is weakly anomalous in Sn, As, Cu and Pb. The second sample (35167) occurs on the south-eastern edge of the grid. An outcrop or large boulder of gossan at 5,370,285N, 375,900E is undercut by a small short adit. A costean and a three metre deep shaft had also been dug on the line of the adit. No further gossanous material or sulphides were observed in any of these workings. It appears that the gossan is a very large boulder and not an outcrop. It could have rolled downhill, or be a glacial erratic as it lies on the margins of the glacial fill through the Natone Valley. The gossan, however lies approximately on strike from a Sn soil anomaly and anomalous Sn in streams and approximately along strike from a V.L.F. anomaly. These features suggest that there is an anomalous horizon in the area to which the gossan may relate and that its present location may well be due to rolling down slope for a fairly short distance. Such a horizon may relate in some way to the contact between the main turbidite sequence and the eastern sandstone-shale sequence. The gossan is weakly anomalous in Sn, Cu and Zn and strongly anomalous in As and Pb with values of 34 ppm Sn, 440 ppm Cu, 170 ppm Zn, 800 ppm As and 170 ppm Pb.

4.4.2.3. Geochemistry - Soils (Refer to plans A0-525-0026, 0126, 0027, 0127, 0025, 0128, 0125, 0130, 0071, 0129: 1:10,000 scale contour plans for Pb, Zn, Cu, As, Sn and to Appendix II Soil Sample Data Sheets)

Soil sampling over the original Colebrook Hill Grid north of 5,371,000N is reported in E.Z. Report 134 - Mt. Black E.L. 1/62 Report for 1979-80.

Fe values are typically high with many values over 10% Fe, but show a greater range, and are less consistantly elevated than the original grid area sampled to the north. The rock sample geochemistry has shown that the high Fe in soils is directly related to the high Fe bedrocks.

Pb values display weak north-south trends possibly reflecting lithological variations. Two small areas stand out as anomalous. A weak high trend running along the eastern ultramafic contact intensifies to a highest value of 225 ppm Pb on line 5,370,800N between the ultramafic contact and the most westerly of the old Olympic workings. Some contamination could be possible here. Another elongate north-south trend, running along the eastern side of the grid, broadens and intensifies over line 5,370,200N where the maximum Pb values of 710 ppm is recorded at 375,520E. This anomaly lies over the 1978 Geoex aeromagnetic anomaly in the area.

Zn values show very diffuse north-south trends, again possibly reflecting lithologies. Values are higher over the ultramafic and reach

a peak of 1650 ppm near the western end of the southernmost line 5,370,000N. This is the area containing the strongly silicified ultramafic and interpreted strong faulting. The high Zn values may be related to fluid movement along fault zones.

Cr values, as could be expected, form two distinct populations. Values over 1000 ppm Cr outline the ultramafic fairly precisely whilst the sediments are generally covered by soils with less than 300 ppm Cr. The southernmost line 5,370,000N is an exception. Almost the entire western half of the line from 374,100E to 375,000E returned values over 1000 ppm Cr. The most easterly ultramafic outcrops were mapped at 374,540E, and, although much of the remainder of the high Cr zone was soil covered, outcrops of sediment were mapped east of this. The 1000 ppm Cr contour also extends north onto line 5,370,200N, in the centre of the grid between 374,900E and 375,060E, through an area of definite sediment sub-outcrop. The origins of the high Cr are not clear. There are no mappable differences in the sediments which might suggest a primary source for the Cr. Possibly the ultramafic has sporadic sub-outcrop further east on this line that is all covered by soil. This seems unlikely as the ultramafic shows good outcrop where it occurs elsewhere. The extended Cr high lies close to a photo-lineament passing through the ultramafic and also lies on strike of an interpreted fault zone passing through the ultramafic and the old Lynton Mine workings which lie to the south of the grid. Perhaps then, the high Cr in soils is related to a secondary dispersion from

the ultramafic along fracture zones in the area.

As on the original Colebrook Grid, Cu, As and Sn show good correlation, especially Cu and As. When compared to the original grid however, the absolute levels of Cu and As are considerably reduced. Projecting the old contour intervals south through the new grid lines results in very few contours. This highlights the extreme Cu and As anomalism of the immediate Colebrook Hill area but does not define any trends within the newer grid area. This example highlights the problems involved with contouring data through areas of shifting background. A line profile approach to the data will probably aid interpretation of the Cu and As results. Both elements show anomalous response over the old Olympic workings, but neither shows any significant anomalism over the Athenic workings.

Sn values are much more comparable with those from the original grid area. The Olympic and Athenic workings stand out as Sn anomalies. The highest value recorded of 2000 ppm Sn is probably contamination from the Olympic workings. The photo-lineament trend passing through the Olympic and Athenic also shows up as anomalous, and contains two small anomalies on line 5,370,400N centred on 374,800E and 375,080E which are not directly related to old workings. There is an anomalous Sn trend which runs along the eastern edge of the grid from 5,370,400N to 5,371,000N. On 5,371,000N a zone 350m wide carried scattered weakly anomalous Sn values. On

5,370,800N the zone is only 2 samples wide and on 5,370,600N and 5,370,400N the anomaly shows only in the last sample of each line. The anomaly also appears to partly lie over glacial cover. The glacial scree in the area is thin and patchy as it laps onto the eastern slopes of Colebrook Ridge. The source of the Sn is unknown. It could perhaps come from the glacial scree if there is a significant fluvioglacial component which might have had the potential to concentrate alluvial Sn. The Sn anomaly, however, lies over an old I.P. anomaly which was reported from the 1960 McPhar I.P. survey over the Natone Valley. This suggests that the geochemistry could be related to a bedrock source and this is supported by the occurrences of the gossan approximately on strike reported above.

It is difficult to construct a coherent zonation pattern from the soil geochemical results. Sn, Cu and As show a very strong concentration round the old Colebrook Mine areas with Cu and As decreasing southwards. Sn has a more even distribution across the grid suggesting that southwards from Colebrook represents the direction of increasing temperature. The Pb values however reach a maximum in the extreme south of the grid suggesting that southwards is the direction of decreasing temperature. There is obviously no simple zonation sequence at Colebrook and the observed distribution patterns may be the result of several complexly overlapping zonal systems.

4.4.2.4. Geochemistry - Stream Sediments

(Refer to Plan No's Plates 3, 4, 5, 6, 7, & 8 Report No. 142, and to Appendix III Stream Sediment Sample Data Sheets)

The -80 mesh stream sediment results are largely in agreement with the soil results. A few higher Zn values occur in streams draining the ultramafic. The only anomalous Pb value comes from the same area as the Pb soil anomaly on line 5,370,200N. This area also has one weakly anomalous As value. There are three groups of anomalous Sn values. A 440 ppm Sn is directly related to the old Olympic workings. Values of 290 ppm and 140 ppm Sn come from the area of anomalous Sn in soils on the eastern margin of the grid. Three very small streams immediately east of the Rosebery Golf Course returned 740, 270 and 110 ppm Sn. The two highest As values, both of 400 ppm, and the highest Cu values of 210 ppm also come from this area. These samples also have high Mn and Co values so some scavenging may be enhanceing the values. The highest Sn value of 740 ppm has no anomalous As, Cu, Mn or Co associated. These streams drain the area in which rock sample 35170 was collected. This contained moderately anomalous 52 ppm Sn in a strongly hornbelndised host. This area is obscured to the east by glacial cover and to the west by the golf course so the significance of the Sn anomaly is difficult to assess.

4.4.2.5. Geophysics - Magnetics (Refer to plans A0-525-0131; 0149: 1:10,000 Ground Magnetics)

Lines 5,371,600N and 5,371,700N were resurveyed using a 2m and a 4m pole, to carry the senor head, to see if this reduced the high 'noise' levels seen in the original survey which used a back pack to carry the sensor head. (Refer to E.Z. report 134 - E.L. 1/62 Report for 1979-80). The results are described in Appendix X "Magnetic, V.L.F. and S.P. surveys over Colebrook Hill" by Mitre Geophysics. Only small reductions in the range of readings were achieved and the overall character of the lines remained unchanged from the original survey.

The magnetic survey (refer to E.Z. report 134) was re-examined by Mitre Geophysics Pty. Ltd., using an 11 point filtering technique (refer to Appendix XI "An Interpretation of the Colebrook Hill Magnetic Survey"). The resulting figures indicated a west-north-west trending anomaly running across the old Colebrook workings. A best fit for this anomaly is a vertical dyke model, 100m wide, striking 307° true. The top of the body is at 250m a.s.l.. The surface on Colebrook Hill above the anomaly varies from about 350m to 500m a.s.l.. If this anomaly is real and represents a deep magnetic body, it cuts across all the measured strike directions in the area which trend northerly.

On the extension grid lines covered in this reporting period (refer to Appendix VIII - Magnetic Profiles Colebrook Hill Grid) the most prominant magnetic feature is, as before,

the ultramafic unit on the west of the grid. Although some high variations were recorded, readings over the remainder of the grid are generally much less noisy than the original survey to the north. A magnetic high trends from the Colebrook Mine down to the Olympic workings on line 5,370,800N with a weak extension to 5,370,600N. The 1978 Geoex aeromagnetic anomaly, in the south-east of the grid, is reflected in three north-south trending linear anomalies. The highest values occur, naturally, on the southernmost line 5,370,000N at 375,530E indicating that the Geoex airmag anomaly may have been misplotted by as much as 400m. The aeromagnetic anomaly on the north-east corner of the grid is also reflected in the ground magnetics. A strong north-south trending anomaly is coincident with the streams anomalous in Sn, east of the golf course, reported above, in section 4.4.2.4..

4.4.2.6. Geophysics - Self Potential

A test S.P. survey was carried out over two lines (refer to Appendix X "Magnetic, V.L.F. and S.P. surveys over Colebrook Hill"). The technique gave responses which could be correlated with the mineralisation in the old workings but was not continued with as it did not appear to be any advance on other techniques which were less consuming of manpower and time.

4.4.2.7. Geophysics - V.L.F.

Following trial lines of V.L.F. the entire grid was covered by the technique as it offered

some potential for resolution of the near surface 'noise' indicated on the previous vertical loop E.M. survey (refer to E.Z. report 134). The grid was covered in two sections. The results for the original grid coverage are contained in Appendix X "Magnetic, V.L.F. and S.P. surveys over Colebrook Hill".

For the southern half of the grid, line profiles are contained in Appendix IX. For this section two zones of anomaly are indicated running roughly north-south. The first zone runs approximately along the crest of the Colebrook ridge and shows a very pronounced cross-over on line 5,370,600N at about 374,950E. The strong correlation between this anomaly and the crest of the ridge suggested some terrain effect. However, computer modelling (see Appendix XII "Analyses of Computer Modelling of the V.L.F. survey over Colebrook Hill") by Mitre Geophysics claims that the terrain effect over the ridge is negligible and that this anomaly trend is real. The second anomaly, or group of anomalies, runs down the eastern side of the grid and has some correlation with the ground magnetic anomalies in this area, but appears to extend further north through all the grid lines.

4.4.2.8. Geophysics - Max-Min E.M. (Refer to Plan A2-511-0007)

A demonstration of the Max-Min horizontal loop E.M. system was run on line 5,371,700N, using a 200m transmitter-receiver separation and a 20m station interval. As with every other

technique tried on Colebrook, the Max-Min shows a very strong anomaly near the crest of the ridge. The anomaly appears centred about 374,980E which is about 40m west of the V.L.F. peak on this line. This may indicate westerly dips for conductors in the area as the Max-Min technique should see a deeper response level than the V.L.F..

The lowest frequency used, 222 hz, failed to obtain readings over most of this zone. As this frequency should, in theory, see the deepest response, it would appear that Max-Min has fared no better than other techniques at solving the key problem on Colebrook Hill; namely, are there significant deeper conductive sources under the hill, or are the apperent deep responses only the sum effect of several small near surface sources?

All three frequencies used show a moderate response at about 375,450E and a strong response at about 375,240E. The small shifts on the peaks with each frequency suggests a steep west dip for the former response and a steep east dip for the latter.

4.4.2.9. Geophysics - Dighem

The Colebrook Hill area was covered by a Dighem helicopter-borne E.M. survey as part of a larger survey covering the Natone area. The results of this survey are discussed in Section 4.5.2.5. below.

4.4.2.10. Drilling - NP 104 and NP 107

(Refer to Appendix VI - Diamond Drill Logs)

These two holes were drilled circa 1962 under I.P. anomalies on the old Natone Valley Grid. Collar co-ordinates of 5,370,093N, 375,982E for NP 104 and 5,370,742N, 375,903E for NP 107 locate the holes near the Sn soil anomaly on the eastern edge of the Colebrook Hill Grid, referred to in Section 4.4.2.3. above. The core was originally sampled for base metals only and then only over small intervals. The entire core was resampled by chipping.

Both holes intersected interbedded siltstones, sandstones and minor shales. The original I.P. anomalies were attributed to pyritic black shale horizons. No significant assays were returned from either hole in the resampling. The highest Sn assay was 170 ppm Sn in NP 104. The majority of samples were below 10 ppm Sn. The resampling was unable to duplicate the base metal values returned from the original 1962 sampling. In general the new values are about an order of magnitude less than the original for Pb, Zn and Cu. Some of this can be explained by the different laboratories used. The original sampling would have been analysed at the Rosebery Mine laboratory. The assays suggest that it had a fairly high lower limit of detection as they are reported in percent and not ppm. This would be consistant with a mine laboratory geared for run of mine ore-grade assaying. An assay of 0.1% Zn as in NP 107 205'-209' may have been the lower limit of detection and be correlatable with the repeat assay of 140 ppm Zn. However, it cannot

explain how an original 3.8% Zn reported from NP 104 767'-773' can give a repeat assay of 600 ppm Zn in the resampling. The reasons for the difference in assays is not known. It could be that at these low levels of metal content, contamination from a laboratory used to ore-grade assaying could be a significant factor. It seems possible that the repeat assays would be more reliable than the original.

4.4.2.11. Drilling - CHP 228; CHP 229; CHP 230 (Refer to Drill Hole Summary Sheets, plan no's A1-504-0153; 0156; 0154; and Appendix VI - Diamond Drill Hole Logs.)

The report on the Colebrook geophysics (see Appendix X) selected several geophysical targets considered worthy of testing. These were principally co-incident V.L.F. and ground magnetic anomalies. These targets were further rated on their geochemical signature and geological situation. Three of these targets were subsequently tested by a diamond drill hole. The steepness of the terrain around Colebrook made preparation of drill sites and accessing of the rig very difficult.

All three holes, CHP 228, 229 and 230 intersected similar lithologies. The rocks are predominantly hornfelsed interbedded siltstones and volcanic lithic wackes of turbidite facies. Carbonate facies sediments have not been observed, but lenses of calc-silicate mineral recrystalisation imply an original sediment with a significant carbonate content

such as a calcareous mud or impure limestone. DDH CHP 229 drilled through the sediment suite into the ultramafic unit which crops out on the western side of the grid. The contact zone of the ultramafic was very strongly carbonate altered which lends some support to the suggestion that the contact is a fracture zone which may have acted as a channel-way for hydrothermal solutions.

The sediments show variably developed alteration assemblages comprising quartz-tremolite-tourmaline-axinite-carbonate (see Appendix V Report No. E3/81/60). These alteration zones contain most of the sulphide mineralisation which comprises pyrrhotite, chalcopyrite, pyrite, arsenopyrite with minor sphalerite, galena and marcasite (Report E3/81/60).

In CHP 228 mineralisation occurs in stringers, veins, breccia infillings, and as near massive ?replacement bands. The surface V.L.F. and magnetic anomalies appear to be reflected in greater concentrations of sulphides between 38.6 and 55.8m and between 163.0 and 168.7m. These zones also display the strongest metasometic alteration effects. The lower zone lies within a strong alteration section from 163.0 to 195.8m. The most significant assay from the hole is:-

163.0 - 168.7m; 5.7m at 0.68% Cu

containing:-

166.8 - 167.8; 1.0m at 1.15% Cu.

This interval would appear to be the down-dip expression of the No. 2 Lode which was exploited by the C26 Adit (see plan A1-505-0153).

This lode is reported to have mined approximately 1.20% Cu (Colebrook Prospecting Association Sampling 1908). The highest Sn assay in CHP 228 is 36 ppm Sn from 175.0-178.0m which lies in a zone of patchy bands of intense hornblende-axinite alteration. Sulphides are very sparse in this interval consisting of rare fine veins of pyrrhotite, pyrite, chalcopyrite and arsenopyrite.

In CHP 229 scattered sulphides occur almost throughout the sediments below about 50m. Pyrrhotite, pyrite, arsenopyrite and chalcopyrite occur in variable amounts as scattered stringers, blebs and disseminations. Although sulphides are extensive there are very few concentrations of significant size. As in CHP 228, Cu is a significant metal with several scattered assays in the 0.2% Cu to 0.4% Cu range, but the highest values are reported for As with three values over 1.0% As. The most significant assays were:-

81.70-82.70m; 1.0m at 1.90% As

86.80-89.30m; 2.5m at 0.29% Cu; 0.61% As
2.5 ppm Ag

containing:-

87.80-88.80m; 1.0m at 0.39% Cu; 1.40% As
3.5 ppm Ag

98.20-99.20m; 1.0m at 1.70% As.

The highest Sn assay in CHP 229 is 160 ppm Sn from 135.5-136.4m. This comes from a zone containing bands of silicification and chlorite-hornblende-axinite alteration and minor carbonate veining. Sulphides are very sparse consisting of rare fine veins of pyrrhotite and disseminations of pyrite.

In CHP 230 sulphides occur between 25.5 and 115.3m but significant concentrations are limited to between 39.8 and 81.1m where variable concentrations of pyrrhotite, chalcopyrite, arsenopyrite and pyrite in stringers, blebs and disseminations, average about 3-5% overall but can be up to 20%. This zone is presumably the source of the V.L.F. and magnetic anomalies. As and Cu are again the most significant metals. Most significant assays are:-

43.25-47.15m; 3.90m at 0.15% Cu; 1.35% As containing:-

43.25-43.70m; 0.45m at 0.51% Cu; 2.8% As.

These assays come from a zone of strongly silicified and chlorite-hornblende altered, brecciated sediment containing abundant sulphide mineralisation. The most significant Sn assay is:-

50.90-52.90m; 2.0m at 108 ppm Sn.

This comes from an unaltered zone with only a thin band of silicification containing only 2-3% pyrrhotite in thin veins, stringers and minor disseminations.

The results from the three drill holes suggests that they have been technical successes only. They have intersected greater concentrations of sulphides in the zones indicated by the V.L.F. - magnetic anomalies, although, in the case of CHP 229 the anomaly appeared to indicate the top edge of the sulphides rather than the entire zone. The concentrations of sulphides in each hole, however, seem inadequate to explain the intensity of anomalism suggested by every ground and airborne geophysical technique used over the area. The

magnetic susceptibility measurements show some very high values but these typically lie within noisy zones of extreme variation. Thick sections of universally high susceptibility do not occur. In order to explain the extremely high conductivity indicated by the I.P. surveys (see E.Z. Report 134 - E.L. 1/62 Report for 1979-80), the veins and stringers intersected by the drill holes must form continuous interconnected stockworks which act electrically and magnetically as a single body. The mineralisation intersected however, does not seem regular enough in distribution to support such an hypothesis. Irrespective of whether the sulphides encountered are sufficient to account for the ground geophysical anomalies, all three drill holes have shown a distinct lack of correlation between sulphides and Sn mineralisation. It would appear that geophysics has been unsuccessful as a targeting technique for Sn mineralisation.

Because the Sn levels in the holes are all very low it is difficult to define any trends in the values which might indicate a chemical zonation pattern. CHP 228 contains less As and Zn than either CHP 229 or 230 which might suggest that temperatures are decreasing to the north and that a Sn zone, if present, would be to the south. However, the Sn assays suggest the opposite trend. The highest values increase to the north, 36 ppm Sn in CHP 228, 112 ppm Sn in CHP 230 and 160 ppm Sn in CHP 229. At such low absolute values this trend may be meaningless. There are no discernable trends down hole in the geochemistry, except for a slight decrease in As with depth in CHP 229 (see plan A1-504-0156). The

strong correlation between the reported Cu grades in the old No. 2 Lode and the Cu intersection in CHP 228 suggest no vertical zonation in that area. If there is a coherent mineral zonation pattern at Colebrook Hill it would appear that the three holes drilled to date have all intersected approximately the same level within the system.

4.5. Natone

4.5.1. Work Completed

A reconnaissance grid consisting of 11 east-west lines spaced 1 km apart was cut between 5,359,500N and 5,369,500N, for a total of 28.7 line km. In addition 15.5 km of creeks were cut to provide access. The grid lines were pegged at 20m slope corrected intervals.

The grid lines were geologically mapped and covered by proton precession ground magnetics with readings every 20m. Stream sediment samples were collected where creeks crossed the lines and the -80 mesh fraction was analysed by A.C.S. Pty. Ltd., for Pb, Zn, Cu, Ag, Mn, Fe, Co, Cr, As by A.A.S. and for Sn by XRF. 138 samples were collected from the lines.

Within the area north of the Moores Pimple track, 38.4 km of creeks were geologically mapped and 314 stream sediment samples were collected from all creek junctions and at approximately 250m intervals along creeks. The minus 80 mesh fraction was analysed by A.C.S. as above.

17 heavy mineral panned concentrates were collected from major creeks. Each sample was produced by panning two dishes of sediment to produce a small concentrate which was submitted for microscope indentification of the mineral phases.

The area, including the Colebrook Hill Grid section, was covered by a Dighem helicopter-borne E.M. survey. The survey covered 77 east-west lines at 200m north-south spacings between the Pieman River and Mt. Dundas. Magnetics were also measured in the survey.

4.5.2. Results Received

4.5.2.1. Geology (Refer to Plan No. Report 142, Plate 2 - 1:10,000 scale geology)
Before the commencement of the field programme a compilation of geological information was put together from several sources including F. Fitzgerald BSc Thesis, 1975, D. Reinhardt E.Z. 1973, N. Hanson E.Z. 1976, Loxton-Hunting Photogeological Interpretation 1979, and K. Corbett Geological Survey of Tasmania 1979-80. This exercise was intended as a supplement to the field programme and hence is incorporated into the general discussion.

All the field geological data was plotted and interpreted on the standard E.Z. 1:5,000 scale and the interpretation only transferred onto Plate 2 , for the purposes of presentation in this report.

Detailed interpretation within the Natone area has indicated a possible stratigraphy as outlined in Figure 4.5.2.1.. The basal rhyolitic and dacitic tuffs outcrop on the ridge to the east of Moores Pimple, immed-

iately to the west and north of Moores Pimple, and in the Ring River. These tuffs consist of predominantly feldspathic crystal vitric and lithic ashflow tuffs with vague chlorite wisps and minor sericite. Towards the upper and lower margins, particularly near the basal contacts against sediments, the ashflows consist of fine grained vitric tuffs which grade into coarser grained crystal and lithic tuffs towards the centre of the ashflow. The grain size and development of crystals appears to be directly related to the thickness of the ashflow, i.e. the edge of the flows appear to consist entirely of vitric tuff.

Outcrops in the Natone Area of the basal tuffs may represent:

i) topographic highs in a volcanic terrain, e.g. subsiduary volcanic vents, or

ii) domes produced as a result of broad open regional folding with east-west trending axes superimposed on tighter folding with north-south trending axes, or

iii) a combination of i) and ii).

Whatever the mechanism producing the outcrops, they appear to represent topographic highs which probably formed islands or ridges in a sedimentary basin or trough parallel to the current White Spur-Mt. Hamilton plateau. This trough or basin deepened to the west and south and shallowed to the current Ring River. Where the pyroclastics outcrop represented a topographic high at the time of deposition of the overlying sediments.

A thickened pyroclastic sequence to the east, currently the White Spur-Mt. Hamilton plateau resulted in only minor basins being developed over the Dobsons Creek Grid. The sediments deposited over the underlying tuffs and on the flanks of the ridges and plateau consist of relatively massive fine grained siltstones with rare sandstone interbeds. Within the siltstones are poorly delineated calcareous units of massive featureless dolomitic limestones with very limited areal distribution. The carbonates are sometimes associated with minor disseminated pyrite. The pyrite may be associated with late stage fumarolic activity as no evidence of fossils (probably indicative of biogenic origins) was found in the field. Outcrop of this sedimentary sequence tends to be limited to the western margin of E.L. 1/62 near the Montezuma Creek. No field evidence, both in contact relationships and hand specimens, was found for differentiating between older siltstones and the overlying younger siltstones. Some contemporanity between the underlying pyroclastics and the overlying silstones may account for lithic fragments observed in the tuffs on Moores Pimple Ridge.

Overlying these siltstones is a sandstone greywacke unit with an approximate true thickness of 100m. Both the upper and lower contact were observed in the Ring River traverse. The lower contact was relatively indistinct and contained impure calcareous sandstones to dolomitic limestones as well as coarser grained greywacke units. Also found near the lower contact was a pyrite 'pebble' in a

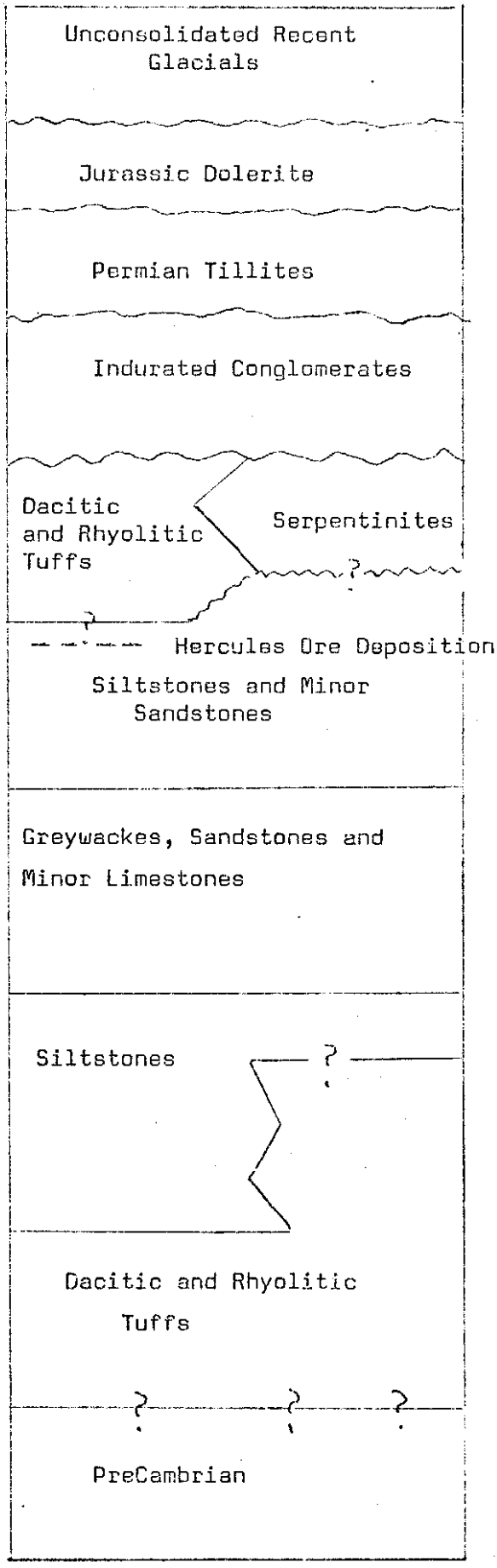


FIGURE 4.5.2.1. - POSSIBLE STRATIGRAPHIC COLUMN FOR THE NATONE AREA (Not to Scale)

sandstone matrix. The upper contact was marked by massive micaceous sandstones as well as a thin(?) unit of diamictite which was not observed at any other locality in the area covered by the Natone Grid, bar the Ring River. Outcrop of the sandstone/greywacke unit is persistant throughout the Natone Area with interpretation indicating possible thinning on the flanks of the pyroclastics near Moores Pimple and thickening to the south near Mt. Dundas.

Overlying the sandstone/greywacke unit is a relatively monotonous sequence of interbedded turbiditic siltstones and minor sandstones with extensive contorted and folded bedding indicative of preconsolidation plastic slump structures. These slump structures may be associated with earth movements resulting from ignimbritic events which led to extensive coverage of the Hercules/Dobsons Creek Grid with dacitic and rhyolitic tuffs. Thus the irregular contacts observed in the field may be explained by the deposition of the siltstones and sandstones being contemporaneous with the upper pyroclastic unit.

The exact relationship between the Hercules Mine sediments and those in the Natone trough are at this stage unclear but may be related to the lower siltstone unit. The entire sequence in the Natone area was extensively folded (probably during the Devonian) resulting in tight east/west anticlinorium/synclinorium systems with north-south trending fold axes. Superimposed on this there appears to be a broad open north-south anticline/syncline system with east-west trending

fold axes. This open folding is probably controlled by the original basement topography which would account for the broad general trends rather than tight isoclinal fold trends. Thus there appears to be a north plunging anticline north of Moores Pimple, a syncline at Moores Pimple and a syncline at Colebrook Hill. Associated with this folding event a series of faults may have occurred resulting in emplacement of serpentinites in the Colebrook Hill area. At the base of the syncline on Moores Pimple and Colebrook Hill there appears to be deposited an indurated conglomerate quite distinct from those tillites (Permian in age) found south of the Hercules Mine. This conglomerate is poorly sorted and contains fragments of chert and siltstones probably derived from the immediate vicinity in a very high energy environment indicative of extreme relief.

The only occurrence of dolerite in the area is on the eastern flank of Mt. Dundas as unconsolidated scree. Recent glacials appear to be restricted to areas north of the Ring River as indicated by the terminal moraine forming the Colebrook firebreak. Extensive ground moraine was deposited as the glacier retreated northwards towards the Pieman River, hence the lack of outcrop over most of the Natone Creek drainage system.

Mineral occurrences over the Natone Area tend to lie near contacts between the main lithologies.

The Moores Pimple Mine and the Ring Valley Mine lie near the older pyroclastic-siltstone contact and occur as veins and stockworks. The Moores Pimple Mine, from old records, reports dolomitised sediments in the vicinity of the vein deposit.

Block 302 and 291 and the Central Curtin Davis Mine, occurring on the western boundary of E.L. 1/62, occur near the contacts of the sandstone greywacke sequence and the older siltstones as veins and breccia infillings. The Fahlore and Svengali Mines occur at the upper contact of the sandstone/greywacke sequence and the younger slates as veins associated with brecciated slates.

4.5.2.2. Heavy Mineral Concentrates (Refer to Appendix V - Petrological Reports)

The standard procedure for obtaining heavy mineral samples was to pan two gold dishes full of sediment but in some cases where heavy minerals were very scarce more than two dishes

were panned to produce an adequate sample. In all cases the concentrates were heavily contaminated with silicate fractions owing to the scarcity of heavy minerals.

A full description of all samples is contained in Appendix V. The results are summarised below.

Sample No.	Position	Comments
40179	5,365,500N 374,950E	Contained mostly magnetite and 7% cassiterite. Minor Zircon and Rutile. This creek drains north from the Moores Pimple area over folded greywackes and shales. No intrusive was mapped in the area.
43317 & 43315	5,365,470N 373,900E	Contained trace and 1% cassiterite respectively from two creeks draining north from Moores Pimple. The major constituents of the sample were spinels, magnetite, pyrite and lesser zircon and rutile.
43319	5,366,420N 375,110E	This sample occurs down stream from 40179 and contains 3% cassiterite. The major constituents are magnetite, zircon, pyrite, spinel and limonite.
43316	5,366,430N 375,170E	Contained only haematite and magnetite.
43320	5,367,460N 374,270E	Contained only pyrite, magnetite spinel and zircon.
43318	5,366,860N 373,760E	This sample from a creek draining northwest in the Montezuma Falls region contained major cassiterite and magnetite. The other constituents were limonite, zircon, spinel and ilmenite. It is thus

		the most anomalous sample to be collected and is from an area of mainly shales and greywackes.
43321	5,366,520N 374,900E	Trace cassiterite and zircon in mainly limonitic material with pyrite and ?ilmenite.
43322	5,367,870N 374,260E	Contains mainly weathered magnetite, rare zircon and pyrite from a creek draining mainly glacials.
43323	5,372,230N 376,670E	The main constituents are 70% magnetite, 10% zircon less than 5% cassiterite with minor spinel. This sample is from the Natone Creek which drains the glacials from the Colebrook firebreak and sediments with minor volcanics to the north.
43325	5,362,620N 374,660E	Magnetite approximately 70% and spinel 30%, make up the bulk of the sample together with rare accessory cassiterite. This creek drains the Moores Pimple Ridge which is comprised of volcanics, siltstones and greywackes with some conglomerate.
43326	5,362,540N 374,580E	Magnetite 75%, spinel 20%, zircon 3% and accessory pyrite ilmenite and cassiterite are the main constituents from the creek which drains folded sediments on to the western margin of the E.L. 1/62 boundary.
43327	5,362,860N 375,240E	Magnetite 80%, spinels 10%, ilmenite and minor zircon and cassiterite are the major oxides from the drainage system running off the White Spur area. Rhyolitic tuffs and siltstones are the major lithologies.

43328	5,362,620N 375,820E	Ilmenite, magnetite, zircon (30%) and sphene are common with sparse spinel cassiterite and accessory corundum. This creek is the main drainage over the Dobsons Creek Grid.
43329	5,362,960N 375,440E	Rare cassiterite and monazite(?) are minor constituents amongst magnetite, spinel and zircon. This creek system drains volcanics and minor sediments.
43330	5,362,050N 375,230E	Spinel, magnetite and ilmenite are the main oxides with accessory zircon and rare cassiterite. This sample contained debris indicative of an ultrabasic source (possibly dolerite from Mt. Dundas).
43331	5,358,355N 375,780E	Magnetite, rare spinel, ilmenite and accessory zircon sphene and rutile are the major oxides from the creeks draining the folded siltstones and greywackes to the east of Mt. Dundas.

4.5.2.3. Geochemistry - Stream Sediments (Refer to Plan No's; Report 142 Plate 3, Plate 4, Plate 5, Plate 6, Plate 7, Plate 8)

For statistical analysis of the stream sediment data, the Natone area was split into three regions, each with a central topographic high and associated drainage systems. The regions used are:

1) South of the White Spur Creek to the southern boundary of E.L. 1/62 and including the east-west trending spur directly east of Mt. Dundas.
2) The area north of White Spur Creek and south of the Ring River including Moores Pimple and associated ridge.

3) The area north of the Ring River and south of the Pieman River including the Colebrook terminal morraine.

Statistical treatment was limited to calculation of the mean ($\bar{x}$) and standard deviation (s) for the separate populations from the three areas. Samples, obviously anomalous or known to be contaminated, with values in thousands of ppm were excluded from the calculation of $\bar{x}$ and s. For the same reasons as advanced for the Murchison River stream sediment data, in Section 4.2.2.3. above, it was felt that the conventional method of setting a threshold value at $\bar{x}$ + 2s does not allow sufficient scope for fluctuating background levels. Accordingly, for each element in each sub-area, two populations are distinguished. Samples greater than $\bar{x}$ + 2s are considered anomalous. Samples greater than $\bar{x}$ + s are also considered statistically significant as they could represent anomalous samples in a low background zone.

The results for Area 1 are contained in Table 4.5.2.3. - 1.

TABLE 4.5.2.3. - 1

	Pb	Zn	Cu	As	Sn
n	24	24	27	27	27
$\bar{x}$	89.4	35.2	19.3	50.4	<10
s	162.5	23.0	9.4	88.5	NA
$\bar{x}$+s	251.9	58.2	28.7	138.9	NA
$\bar{x}$+2s	414.4	81.2	38.1	227.4	NA

In Area 1 samples were collected only along the grid lines which has resulted in the low total population of 27 samples. For such a small population the results are of limited statistical validity, the following features however, are noted.

On line 5,360,500N at 374,140E and 374,200E, Pb assays of up to 840 ppm were located. They are associated with low Zn, Cu and in one case high Mn (>10,000 ppm). On line 5,359,500N two isolated high Pb assays were obtained. A value of 2200 ppm Pb was obtained from a Mn rich sample on the eastern boundary of E.L. 1/62 and 280 ppm from a stream draining south at 374,920E. Most of the higher Zn values are associated with the Pb highs. Two isolated As values, both 200 ppm As, occur on line 5,369,500N but do not appear to be related to the Pb assays. No Sn values exceeded 10 ppm in the area sampled, which was the limit of detection by the analytical technique used.

For Area 2 the results are shown in Table 4.5.2.3. - 2.

TABLE 4.5.2.3. - 2

	Pb	Zn	Cu	As	Sn
n	236	236	239	239	250
$\bar{x}$	91.2	118.5	35.5	41.0	<10
s	255.2	171.0	27.2	72.1	NA
$\bar{x}+s$	346.4	289.5	62.7	113.1	NA
$\bar{x}+2s$	601.6	460.5	89.9	185.2	NA

The most anomalous system is that draining the mine sequence host rocks south of Hercules, including the Ring River. This is probably derived directly from low-grade mineralisation in the area which has been outlined by mine drilling, but contamination from the Hercules workings down the very steep slopes in the area is distinctly possible. In this area Pb values of up to 4900 ppm, Zn values of up to 6200 ppm and Cu values up to 150 ppm were obtained from creeks which were also enriched in Mn, Co and Ag.

Other Pb anomalies were confined to a suite of 6 samples; up to 340 ppm Pb, 300 ppm Zn and 130 ppm Cu from a system centred at 5,365,500N 374,300E; one sample assaying 310 ppm Pb, 100 ppm Zn and 40 ppm Cu draining northwards into the Ring River on the western boundary of E.L. 1/62; two samples assaying up to 240 ppm Pb, from a creek draining north at 5,365,220N 375,000E; and one sample of 400 ppm Pb and 210 ppm Zn at 5,364,500N 374,430E. A single sample assaying 320 ppm Pb from a creek north of Williamsford is thought to be caused by contamination from the Williamsford-Rosebery bucketline.

Arsenic results were also low. Some contamination occurs in creeks draining the Hercules Mine where results of up to 400 ppm were obtained. However, the most anomalous results (>1000 ppm) occurs in a small creek draining eastwards at 5,366,530N 374,850E. High Mn in this sample (>10,000 ppm) and elevated Zn and Co values may indicate scavenging. Two other anomalous results were

obtained. A result of 600 ppm As from a creek at 5,365,780N 374,430E and 220 ppm As at 5,365,500N 374,210E are both unexplained responses.

Only 8 Sn values exceeded 10 ppm which was the limit of detection. The highest assay of 140 ppm Sn comes from a south draining creek at 5,367,580N 374,720E. An assay of 45 ppm Sn comes from a tributary creek at 5,367,620N 374,790E. The adjacent catchment to the west contains anomalous Cu and As values. The remaining six values which exceeded 10 ppm Sn all lie within a square kilometre bounded by 5,364,900N to 5,366,000N and by 374,700E to 375,900E which suggests a possible stratigraphic control. The highest of these values is 80 ppm Sn from a small creek at 5,365,805N 374,965E. The next highest assay of 30 ppm Sn comes from a slightly larger creek at 5,365,845N 374,745E which drains the same catchment. There does not appear to be any correlation between these six anomalous Sn values and any of the other elements.

For Area 3 the results are shown in Table 4.5.2.3. - 3.

TABLE 4.5.2.3. - 3

	Pb	Zn	Cu	As	Sn
n	161	161	161	161	161
$\bar{x}$	129.1	211.3	52.8	29.1	25
s	238.2	304.5	68.6	62.4	80.2
$\bar{x}+s$	367.3	515.8	121.4	91.5	105.2
$\bar{x}+2s$	605.5	820.2	190.0	153.9	185.4

Area 3 includes the area covered by the Colebrook Hill Grid and the results of the sampling over that area have been discussed in Section 4.4.2.4. above. This area is also the most diverse in terms of its source rocks for the sediment sample data. The drainage is dominated by the Natone Creek which flows northwards through a valley containing a cover of glacial sediments. The feeders for the creek system however drain off the very steep sided Colebrook Ridge to the west which comprises sediments, and the equally steep Mt. Read Massif on the east which is comprised of acid volcanics. For these reasons local backgrounds are liable to fluctuate strongly and the use of a statistical approach may not be very valid.

The Natone Creek shows a strongly anomalous train in Pb and Zn and to a lesser extent in Cu from the Murchison Highway back up to the old Jupiter Mine. Dump material from these workings can be seen in the creek where the Williamsford Road crosses the creek at 5,369,670N 376,670E. Contamination from the old Jupiter workings seems the most likely cause of this anomaly. A weak Cu trail extends further upstream to the east than the other elements and may be due to the old Jupiter Cu workings which lie about 350m south-east of the main Jupiter Pb-Zn workings.

The north trending creek which lies approaximately 500m east of Natone Creek shows a strongly

anomalous trail in Pb, Zn, Cu and As north of about 5,371,600N. This is thought to be due to contamination from the old T.M.E. smelter which is situated at about 5,371,550N 377,350E.

As in other areas the distribution of Sn shows no correlation with the other elements. The only anomalous areas are associated with the Colebrook Grid and this shows a trail extending eastwards into the Natone Creek centred about 5,370,500N 376,000E.

4.5.2.4. Geophysics - Ground Magnetics (Refer to plans AO-525-0194, 0195, 0196, 0197, 1:10,000 scale stacked ground mag. profiles)

The eleven 1km spaced lines of the Natone Grid were covered by proton precession ground magnetics and the results are presented on the above plans. The following is a line by line summary (from south to north) of the results.

Line 5,369,500N: There is a regional gradient of 75γ over the length (2.4km) of the line. No anomalies were detected.

Line 5,360,500N: An eratic response at the west of the line (290γ in amplitude) is possibly due to dolerite scree from nearby Mt. Dundas. The line displays the same regional trend as line 5,360,500N, however there are two unexplained 50γ anomalies centred at 375,640E and 375,740E.

Line 5,361,500N: The response over the entire line is very flat. There is a regional gradient of 50γ from west to east.

Line 5,362,500N: Apart from a small 30γ anomaly between 375,620E and 375,760E and a rise of 75γ at the eastern end of the line which may represent a lithological unit, the response was very flat.

Line 5,363,500N: There is a regional gradient of 50 γ between 373,320E and 373,900E, otherwise the response is very flat.

Line 5,364,500N: From 373,420E to 374,640E the response steadily drops from 62620γ to 62540 γ with a sharp low (250γ amplitude) at 373,940E. The low is on strike with the ultramafic unit to the north and may represent a persistant structural feature. The rest of the line is flat.

Line 5,365,500N: The line is noisy between 373,420E and 374,640E with the most significant response (50γ) occurring at 374,100E. Apart from a twin peak anomaly (100 γ amplitude) between 376,000E and 376,180E the remainder of the line is essentially flat.

Line 5,366,500N: A very broad anomaly (175γ amplitude) occupies the western section of the line between 373,600E and 374,750E. The anomaly probably represents a deep, broad source and is identified by the aeromagnetics. Apart from two small responses (50γ at 374,860E and 70γ at 375,940E) the remainder of the line was flat.

Line 5,367,500N: The broad anomaly seen 1km south has intensified on this line but is to some extent masked by noise. A sharp trough

and peak at the apex of the broad anomaly may reflect ultramafics. There is a shoulder anomaly of ±62600γ between 374,650E and 375,000E before the profile becomes flat east of 375,500E.

Line 5,368,500N: Again a broad high (amplitude ±200 γ) is masked by large negative response (amplitude 300 γ) centred on 374,180E. The anomaly lies along strike from an ultramafic but does not represent a typical ultramafic response. Perhaps they represent a structural feature which has been exploited by the ultramafic further north. It is possible that the feature represents ultramafics at depth. The remainder of the line is flat with up to 25 γ noise.

Line 5,369,500N: A typical ultramafic response of 5000 γ occurs between 374,280E and 374,380E. This is the only line on the Natone Grid to show this style of response which typifies the ultramafics to the north. It is felt that the ultramafic probably dies out south of this line although the structural feature along which it was emplaced probably continues at least to line 5,364,500N.

Perhaps the most significant response found by the survey is a well formed conical peak of 1200 γ between 374,920E and 374,960E. The response occurs in shales and siltstones on Colebrook Ridge, south of the old Olympic/ Athenic workings.

A broad 100 γ response occurs between 375,000E and 375,400E indicating either a deep source or

a lithological contact at 375,400E. The rest of the line is essentially flat.

In summary, the line magnetics have defined the southern extent of the ultramafic and indicate that a magnetic trend continues for up to 5km south of the ultramafic. The magnetics have also defined a broad high on lines 5,368,500N, 5,367,500N and 5,366,500N which may represent a deep seated source.

Apart from the 1200γ high on line 5,369,500N at 394,940E, no anomalies of significant nature were outlined by the survey.

4.5.2.5. Geophysics - Dighem (Refer to plans - Report 142 Plates 9, 10, 11 and 12)

The above plans show the Dighem survey results for electromagnetics, magnetics, enhanced magnetics and resistivity respectively. The data was also presented in the form of flight chart logs and as line profiles. All Dighem data is processed in Canada. Long delays were experienced in the receipt of the final data from Canada after the flying of the survey and at the time of writing a detailed assessment of the Dighem results had not been completed. The following conclusions are the result of a preliminary examination of the data.

i) The Colebrook Hill area stands out as grossly anomalous when compared to the rest of the Natone area. The anomalies occur in a group of north-south trending suites which terminate to the south by line 5,371,200N and to

the north at 5,372,200N. Isolated anomalies occur north of this zone as far as the E.L. boundary. Tha anomalies correlate with a magnetic feature of limited areal extent.

The main anomalous zone is flanked to the east and west by two north-south trending anomalies. The anomaly to the east closely follows a creek bed and may be caused by a fault zone which has been eroded by the creek. The western anomaly occurs to the west of the ultramafics in sediments on the E.L. boundary.

ii) A well defined north-south linear zone of 1.1km was defined in the White Spur area. The anomalies reflect a magnetic bedrock conductor which has a westerly dip.

iii) A group of short (200m) non-magnetic anomalies west of the aerial ropeway in the Williamsford area are associated with a large, well defined low resistivity zone. They may represent black shale horizons west of the Mt. Read Volcanics.

A detailed assessment of the data will be made by consulting geophysicists Mitre Geophysics Pty. Ltd..

798085 000003

Sec. of M	A.O.	C.G.	E.O.	D.S.M.E.
				Registration
Received / Answered	4 MAY 1982			E & M
DEPT. OF MINES REF. No: 3237/82				

APPENDIX I

MICROFILMED

Sample Data Sheets for Soil Pits - Mt. Sale.

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Exl/62 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.M. DATE: 14-1-81

PIT No.: G1-1a GRID CO-ORDINATES: 5,378,000 N 379,720 E

Sample Number	DEPTH (m.) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe	Mn
41607	0	0	A 0 0	Litter.	10	X	40	800	3150
41608	0·0	0·1	A + B	Clay, Organic matter, Sand	X	X	15	1200	20
41609	0·1	0·2	C	" , Rock frags , "	10	15	10	1350	10
41610	0·25		D	Rock Oxidised Trachyte.	X	10	10	2600	25

298086 000004

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Fh 1/G2 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.M. DATE: 14-1-81

PIT No.: G1-1b GRID CO-ORDINATES: 5,378,000 N 379,730 E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe	Mn
41611	0	0	A0	Litter	15	X	20	1400	2250
41612	0.0	0.1	A+B	Clay, Organic matter, Sand	5	X	15	1300	49
41613	0.1	0.2	B+C	" Rock Frags, Sand	10	X	5	1100	45
41614	0.25		D	Rock Trachyte with quartz-chlorite-limonite veins.	X	10	35	8400	70

7980870 000005

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Exl/G2 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.M. DATE: 14-1-81

PIT No. : G1-1c GRID CO-ORDINATES : 5,378,000N 379,740E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe	Mn
44615	0	0	A	Litter	10	X	20	865	2450
41616	0.0	0.15	A + B	Clay, Organic matter, Sand	5	5	10	1550	10
41617	0.15	0.30	B + C	" , Sand, Rock frags	X	X	5	2250	10
41618	0.30	0.45	C	" , "	X	X	5	3050	10
41619	0.45		D	Rock. Strongly oxidised basalt/mud ? Trachite	X	10	35	2500	25

900 880882

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black EL 1/62 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.M. & S.P. DATE: 6-8-80

PIT No. :G2-2a GRID CO-ORDINATES : 5,377,000 N 379,155 E

Sample Number	DEPTH (m.) From	To	Horizon	SAMPLE DESCRIPTION.	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe	Mn
38856	0	0	A0	Litter	10	15	225	3000	300
57									
38857	0.0	0.1	A1	Clay, Organic matter, Sand	X	X	10	900	20
58	0.1	0.3	B	" , Sand, Organic matter.	X	X	5	805	15
59	0.3	0.5	C	" , " , Rock Frags.	X	X	5	1200	20
38860	0.5	0.6	C	" , Rock Frags, Sand.	X	X	10	1300	20
38861	0.6		D	Rock. Sericitised and chloritised, welded Latite crystal tuff.	5	10	20	2.0%	110

7980089 007

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT : Mt. Black Eh 1/G2 LOCALITY : Mt. Sale Grid. SAMPLED BY: B.M. & S.P. DATE: 6-8-80

PIT No. : G2-26 GRID CO-ORDINATES : 5,377,000N 379,165E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe	Mn
38851	0	0	A0	Litter	5	5	65	4850	160
38852	0.0	0.1	A+B	Clay, Organic matter, Sand	x	5	10	950	20
53	0.1	0.3	C	" , " , "	x	5	5	800	20
38854	0.3	0.5	C	" , Sand , Rock Frags.	x	5	5	900	20
38855	0.5		D	Rock, limonite and manganese stained Acidic ? crystal lithic tuff.	5	10	20	9000	120

800 060862

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Eh 1/G2 LOCALITY: Mt. Sale Grid. SAMPLED BY: BM. & SP. DATE: 6-8-80

PIT No. : G2-2c GRID CO-ORDINATES : 5,377,000N 379,175 E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe	Mn
38847	0	0	A0	Litter	10	10	290	3700	450
38848	0.0	0.2	A+B	Clay, Organic matter, Sand.	X	30	15	1450	20
38849	0.2	0.3	C	" , Rock frags , "	X	X	10	1700	20
38850	0.3		D	Rock Stg. oxidised, kaolinised, sericitised ? Intermediate tuff.	5	5	10	5200	30

798091 009

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Exh 1/G2 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.M. & S.P. DATE: 6-8-80

PIT No. : G2-3a GRID CO-ORDINATES : 5,377,000 N 379,540 E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe	Mn
38841	0	0	A00	Litter.	10	10	270	4050	390
38842	0·0	0·3	A+B	Clay, Organic matter, Sand.	x	5	20	3550	40
43	0·3	0·3	C	" , Rock frags , "	x	x	15	4000	35
44	0·3	0·5	C	" , "	x	5	25	6950	40
38845	0·5	0·7	C	" , " , Sand.	x	5	20	5850	40
38846	0·7		D	Rock Strongly oxidised ? Intermediate luff or ? Intermediate to mafic minor intrusive	40	35	90	4·2%	900

798092 010

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black EL1/G2 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.M. & S.P. DATE: 1.8.80

PIT No. : G2-36 GRID CO-ORDINATES : 5,377,000 N 379,550 E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe	Mn
38834	0	0	A0	Litter.	10	15	135	1450	360
38835	0.0	0.1	A+B	Clay, Organic matter.	x	15	15	3500	50
36	0.1	0.3	C	"	x	10	10	5050	40
37	0.3	0.5	C	", Rock frags, Sand	x	20	20	8500	50
38	0.5	0.7	C	"	x	15	30	1.0%	75
38839	0.7	0.8	C	", Rock frags, Sand.	x	20	35	1.1%	70
38840	0.8		D	Rock. Sericitised, chloritised Intermediate tuff.	5	45	130	4.2%	250

7980930011

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black EL 1/82 LOCALITY: Mt. Sale Grid. SAMPLED BY: BM & SP DATE: 1-8-80

PIT No.: G2-3c GRID CO-ORDINATES: 5,377,000 N 379,560 E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe	Mn
38827	0	0	A0	Litter	5	5	50	1050	360
38828	0.0	0.1	A1	Clay, Organic matter, Sand	X	40	25	4200	40
29	0.1	0.2	B	" "	X	20	20	4650	40
30	0.2	0.4	C	" Rock Frags, Sand	X	15	20	9500	40
31	0.4	0.6	C	" " "	X	15	15	6550	40
38832	0.6	0.7	C	" " "	X	10	25	9500	60
38833	0.7		D	Rock Sericitised feldspathic intermediate tuff.	5	15	30	1.8%	125

298094

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT : Mt. Black. Exl 1/G2 LOCALITY : Mt. Sole. Grid. SAMPLED BY: BM. JSP DATE: 12-11-80.

PIT No. : G3-4a GRID CO-ORDINATES : 5,378,000 N 380,690 E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
38875	0	0	A00	Litter	10	15	15	0.24	265
38876	0.0	0.2	A1	Clay, Organic Matter.	X	10	20	0.48	20
77	0.2	0.4	B	Clay, Rock frags.	X	10	20	0.63	20
78	0.4	0.5	B	" "	X	5	20	1.20	20
79	0.5	0.7	C	" "	X	5	25	1.70	20
80	0.7	0.9	C	" "	X	5	25	2.25	20
38881	0.9	1.1	C	" "	X	10	30	1.90	20
38882	1.1		D	Rock. Oxidised fine grained massive Kaolinised & sericitised Trachyte.	5	10	25	1.10	35

798095 013

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Eh 1/G2 LOCALITY: Mt. Sole Grid. SAMPLED BY: BM. & S.P. DATE: 13-11-80

PIT No. : G3-46 GRID CO-ORDINATES : 5,378,000 N 380,700 E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
38883	0	0	A 0 0	Litter	16	20	20	0.11	520
38884	0.0	0.2	A 1	Clay, Organic matter, Sand	X	10	15	0.25	10
85	0.2	0.4	B	" , Rock frags, "	X	5	20	1.15	20
86	0.4	0.6	B	" , "	5	20	30	2.30	30
87	0.6	0.8	C	" , "	X	15	15	0.75	20
88	0.8	1.0	C	"	X	15	20	0.72	20
89	1.0	1.2	C	" , Sand	X	20	30	1.40	30
90	1.2	1.4	C	" , Rock frags, Sand	X	20	30	1.20	25
91	1.4	1.6	C	" , " , "	5	20	40	1.30	25
92	1.6	1.8	C	" , " , "	X	20	30	1.40	20
38893	1.8	2.1	C	" , Sand	X	15	25	1.10	15
38894	2.1		D	Rock. Sample lost.					

798096 015

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Exl/62 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.M. & S.P. DATE: 11-11-80

PIT No.: G3-4c GRID CO-ORDINATES: 5,378,000N 380,710 E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
38862	0	0	A 0 0	Litter.	20	5	20	0.14	260
38863	0.0	0.2	A 1	Clay, Sand, Rock Frags, Organic Matter	X	10	15	0.35	30
64	0.2	0.4	B	" , Rock Frags	X	5	15	1.00	20
65	0.4	0.6	B	" , " , Sand	X	20	25	2.00	30
66	0.6	0.8	C	" , " , "	X	15	20	1.63	30
67	0.8	1.0	C	" , "	X	10	40	1.23	20
68	1.0	1.2	C	" , "	X	10	20	0.64	20
69	1.2	1.4	C	" , "	5	10	20	0.61	20
70	1.4	1.6	C	" , "	5	10	30	0.90	30
71	1.6	1.8	C	" , "	X	15	30	1.00	30
72	1.8	2.0	C	" , "	X	50	45	1.15	30
38873	2.0	2.15	C	" , "	X	20	30	0.95	20
38874	2.15		D	Rock. Oxidised fine grained, massive, kaolinised, sericitised, Trachyte	5	15	30	1.35	55

29809 014

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT : Mt. Black Eh 1/G2 LOCALITY : Mt. Sale Grid. SAMPLED BY: B.M.P.S. DATE: 4-7-80

PIT No. : G4-Sa GRID CO-ORDINATES : 5,377,700 N 383,770 E

Sample Number	DEPTH (m.) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
37277	0	0	A 0 0	Litter.	5	x	35	0.15	580
37278	0.0	0.2	A + B	Clay, Organic matter.	5	15	15	0.35	35
37279	0.2	0.4	B + C	" " " , Rock frags, Sand.	5	x	5	0.46	10
37280	0.4		D	Rock Cleaved chloritised andesitic tuff	5	x	70	4.10	400

7980936 016

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Eh 1/62 LOCALITY: Mt. Sale Grid. SAMPLED BY: A.M.E.S. DATE: 2-7-80

PIT No.: G4-5b GRID CO-ORDINATES: 5,377,700 N 383,780 E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
37281	0	0	A 0 0	Litter	10	x	30	0.06	505
37282	0.0	0.1	A 1	Clay, Organic matter, Sand	10	25	35	0.40	120
83	0.1	0.2	B	" " " Rock frags, Sand	5	5	5	1.25	30
37284	0.2	0.4	C	" Rock frags, Sand	5	x	10	1.65	55
37285	0.4		D	Rock Limonite and manganese stained feldspathic Intermediate ? tuff.	35	125	140	7.90	2300

7980099 017

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Eh 1/62 LOCALITY: Mt. Sale Grid. SAMPLED BY: BM & ES DATE: 4-7-80

PIT No. : GL-5c GRID CO-ORDINATES : 5,377,700 N 383,790 E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
37286	0	0	A00	Litter	5	X	20	0.08	250
37287	0.0	0.1	A1	Clay, Organic matter, Rock frags, Sand.	10	15	25	3.75	80
88	0.1	0.3	B	" " " " "	10	10	30	4.20	135
89	0.3	0.5	C	Rock frags, Sand, Clay	10	15	25	5.30	80
37290	0.5	0.7	C	Clay, Rock Frags, Sand	10	25	30	9.00	90
37291	0.7		D	Rock. Oxidised clay rock rock after ? Intermediate crystal tuff.	25	20	80	4.70	220

798100 018

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Eh 1/62 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.M.? K.S. DATE: 3-7-80

PIT No.: G4-6a GRID CO-ORDINATES: 5,378,100 N 383,810 E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
37292	0	0	A00	Litter	5	x	65	0.06	800
37293	0.0	0.2	A1	Clay, Organic Matter, Sand	10	15	20	0.73	40
94	0.2	0.4	B	" , " " , Rock frags, Sand	5	x	10	0.79	25
37295	0.4	0.6	C	" , Rock Frags, Sand	5	x	15	2.80	40
37296	0.6		D	Rock. Cleaved, chloritised and weakly sericitised Intermediate Tuff.	10	5	55	3.98	470

7981101 019

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Eh 1/62 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.M.S.E.S. DATE: 3-7-80

PIT No. : G4-6b GRID CO-ORDINATES : 5,378,100 N 383,820 E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
37297	0	0	A 0 0	Litter.	5	x	65	0.12	1300
37298	0.0	0.1	A + B	Clay, Organic matter	5	10	20	0.83	45
37299	0.1	0.2	C	" , " " , Rock frags, Sand.	5	5	15	1.40	40
37300	0.0			Outcrop Cleaved, chloritised and weakly sericitised and limonite stained feldspathic Intermediate tuff	15	x	55	3.20	590

020210861

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Exl/G2 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.T.E.S. DATE: 3-7-80

PIT No.: G4-6c GRID CO-ORDINATES: 5,378,100 N 383,830 E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
38801	0	0	A 0 0	Litter	5	x	30	0.03	590
38802	0.0	0.2	A 1	Clay, Organic matter, Sand	5	15	15	0.37	25
03	0.2	0.4	B	" , Rock frags , Sand	5	5	10	0.34	20
38804	0.4	0.6	C	Rock frags , Sand , Clay.	5	x	5	0.28	20
38805	0.6		D	Rock Cleaved sericitised, chloritised feldspathic Intermediate ? Lithic crystal Tuff.	5	5	45	1.70	120

7981103 021

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Eh 1/G2 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.M. & M.D. DATE: 22-1-81

PIT No. : G5-7a GRID CO-ORDINATES : 5,376,000 N 381,450 E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
41620	0	0	A00	Litter	15	x	50	0·62	295
41621	0·0	0·15	A + B	Clay, Organic Matter	5	20	35	4·40	70
41622	0·15	0·35	C	Clay, Rock frags	20	10	60	8·50	145
41623	0·40			Rock. ? Intermediate volcanic & biotite and chloritised	5	5	360	21·00	910

298104 .022.

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Eh 1/62 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.M. DATE: 13-1-81

PIT No. : G5-76 GRID CO-ORDINATES : 5,376,000 N 381,460 E

Sample Number	DEPTH (m.) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
41601	0	0	A 0 0	Litter	25	x	40	4850	290
	i								
41602	0·0	0·1	A + B	Clay, rock frags, Sand, Organic matter	x	15	15	1·05	20
03	0·1	0·2	B	" , " , "	x	5	10	1·35	10
04	0·2	0·4	C	" , " , "	x	x	10	1·55	15
41605	0·4	0·6	C	" , " , "	5	5	25	2·90	35
41606	0·6		D	Rock Chloritised andesite & minor biotite	x	10	80	5·60	175

798105 023

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT : Mt. Black.. EL1/82... LOCALITY : Mt. Sale. Grid.. SAMPLED BY: BM, AMD, PB DATE: 13-1-81....

PIT No. : G5-7c GRID CO-ORDINATES : 5,376,000 N 381,470 E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
38894	0	0	A0	Litter	20	20	45	3350	210
38895	0	0·1	A + B	Clay, Sand	10	30	45	2·70	75
96	0·1	0·3	B + C	" , Rock Frags, Sand	5	10	50	7·30	110
38897	0·3	0·55	C	" , " ,	20	15	60	9·00	160
38898			D	Rock. Chloritised andesite & minor quartz and biotite	5	5	95	13·50	375

7981106 024

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Feb 1/82 LOCALITY: Mt. Sale Grid. SAMPLED BY: BM & ES DATE: 1-7-80

PIT No.: GG-8a GRID CO-ORDINATES: 5,376,900 N 382,560 E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
37249	0	0	A 0 0	Litter	10	5	30	0.44	390
37250	0.0	0.1	A 1	Clay, Organic Matter, Sand.	10	65	30	1.10	110
51	0.1	0.3	B	" , " , "	5	25	20	1.20	90
52	0.3	0.5	C	" , "	5	25	25	1.30	80
37253	0.5	0.8	C	"	5	15	25	1.60	90
37254	0.8		D	Rock. Weakly chloritized, porphyritic, lithic crystal, vitric, Latite tuff.	5	15	40	3.00	500

79810 025

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Eh 1/62 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.M.E.S. DATE: 1-7-80

PIT No.: G6-86 GRID CO-ORDINATES: 5,376,900 N 382,570 E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
37255	0	0	A 0 0	Litter	5	5	35	0.82	580
37256	0.0	0.2	A 1	Clay, Organic Matter, Rock Frags, Sand	5	5	10	0.35	35
37257	0.2	0.5	B	" " " "	5	5	10	0.38	35
37258	0.5		D	Rock, Weakly chloritized Latite crystal tuff with feldspar and hornblende.	55	10	70	5.50	700

298108 026

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT : Mt. Black Feb 1/82 LOCALITY : Mt. Sale Grid. SAMPLED BY: B.M.E.S. DATE: 1-7-82

PIT No. : G6-8c GRID CO-ORDINATES : 5,376,900 N 382,580 E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
37259	0	0	A00	Litter	10	X	45	0.64	900
37260	0.0	0.3		Soil. Clay, Organic matter, sand.	5	5	10	0.31	35
37261	0	0		Outcrop. Weakly chloritised latite crystal tuff	20	20	80	4.40	740

79810 9.027

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Feb 1/62 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.M.P.E.S. DATE: 1-7-80

PIT No. : G6-9a GRID CO-ORDINATES : 5,377,000 N 382,540 E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
37262	0	0	A0	Litter	5	x	35	0.49	530
37263	0.0	0.1	A1	Clay, Organic matter, Sand	5	15	15	2.20	75
64	0.1	0.3	B	" , " , "	5	10	15	2.80	50
65	0.3	0.5	C	Rock frags, clay	5	10	15	2.15	60
37266	0.5	0.7	C	" , " , Sand.	5	5	15	2.30	60
37267	0.7		D	Rock. Sericitised porphyritic to Latite crystal tuff.	5	10	55	3.50	500

798110.028

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Feb 1/62 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.M.R. DATE: 2-7-62

PIT No.: G6-9b GRID CO-ORDINATES: 5,377,000 N 382,550 E

Sample Number	DEPTH (m.) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
37268	0	0	A0	Litter	5	5	30	0.36	365
37269	0.0	0.20	A + B	Clay, Organic matter, Sand	5	15	10	1.40	70
37270	0.20	0.40	C	Clay, Rock Frags, Sand.	5	10	15	2.20	55
37271	0.4		D	Rock. Limonite stained, weakly chloritised Latite explosive tuff.	15	15	70	7.60	655

7981111 029

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Eh 1/62 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.M.+ E.S. DATE: 2-7-80

PIT No.: G6-9c GRID CO-ORDINATES: 5,377,000 N 382,560 E

Sample Number	DEPTH (m.) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
37272	0	0	A00	Litter	10	5	40	0.26	545
37273	0.0	0.1	A1	Clay, Organic matter	5	10	15	0.55	40
74	0.1	0.2	B	" " , Rock frags, Sand.	5	10	5	1.10	50
37275	0.2	0.4	C	Rock frags, Clay, Sand.	5	10	5	1.50	55
37276	0.4		D	Rock Porphyritic lithic crystal Latite tuff ≤ 1% fine grained pyrite.	60	10	70	4.90	700

7981112 . 030

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Eh 1/G2 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.T. E.S. DATE: 1-7-80

PIT No. : G6-10a GRID CO-ORDINATES : 5,377,300 N 382,580 E

Sample Number	DEPTH (m.) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
37233	0	0	A 0 0	Litter	10	10	65	0.09	900
37234	0.0	0.05	A 1	Clay, Organic matter, Sand	5	15	25	0.29	110
35	0.05	0.15	B	" , " , Rock Frags, Sand.	5	10	15	0.20	50
36	0.15	0.30	C	" , Rock Frags, Organic Matter, Sand.	5	X	10	0.33	55
37237	0.30	0.50	C	" , " , " , "	X	X	10	0.29	55
37238	0.5		D	Rock. Porphyritic Lithic, relict crystal Lalite tuff.	5	X	40	3.00	500

7981113 031

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Eh 1/G2 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.M. & E.S. DATE: 1-7-80

PIT No.: GG-10b GRID CO-ORDINATES: 5,377,300 N 382,590 E

Sample Number	DEPTH (m.) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
37239	0	0	A 0 0	Litter	5	10	30	0.08	515
37240	0.0	0.1	A 1	Organic matter, clay	5	5	15	0.19	45
41	0.1	0.3	B + C	" " , " , Sand.	x	x	15	0.19	30
37242	0.3	0.5	C	Rock Frags, Organic matter, Sand, Clay	x	5	10	0.18	35
37243	0.5		D	Rock Sericitised Latite crystal tuff	5	5	30	2.60	350

298114 032

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Feb 1/82 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.A. & S. DATE: 1-7-80

PIT No.: G6-10c GRID CO-ORDINATES: 5,377,300N 382,600E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
37244	0	0	A00	Litter	10	10	45	0.08	545
37245	0.0	0.1	A1	Clay, Organic matter, Rock frags, Sand	5	10	10	0.24	55
46	0.1	0.3	B	" " " " "	X	X	10	0.22	50
37247	0.3	0.5	C	" " " " "	X	5	10	0.20	50
37248	0.5			Rock Massive fine grained Trachite	5	10	40	2.60	380

79811S 033

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT : Mt. Black Eh 1/62 LOCALITY : Mt. Sale Grid. SAMPLED BY: A.M. & E.S. DATE: 26.6.80

PIT No. : G7-11a GRID CO-ORDINATES : 5,376,000 N 382,700 E

Sample Number	DEPTH (m.) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
37201	0	0	A 0 0	Litter	10	5	60	1850	365
37202	000	0·02	A 1	Clay, Organic matter, Sand.	10	15	40	1·00	135
03	0·02	0·10	B	" , Sand , Rock frags.	5	15	20	1·30	75
04	0·1	0·3	B + C	" , " , "	5	10	20	2·10	75
05	0·3	0·5	C	"	5	15	30	2·50	80
06	0·5	0·7	C	" , Rock frags	10	15	40	3·30	100
07	0·7	0·9	C	" , Sand	10	20	45	3·60	135
08	0·9	1·10	C	" , Rock frags	10	20	45	4·20	140
09	1·10	1·30	C	"	10	5	35	2·80	85
37210	1·30	1·40	C	"	10	15	40	3·10	105
37211	1·40		D	Rock. Vitric crystal lapilli tuff, sericitised and chloritised.	5	25	60	5·00	700

798116 034

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black EL 1/82 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.M.R.E.S. DATE: 26.6.80

PIT No. : G7-116 GRID CO-ORDINATES : 5,376,000 N 382,710 E

Sample Number	DEPTH (m.) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
37212	0	0	A 0 0	Litter	10	10	60	0.18	195
37213	0.0	0.03	A	Clay, Sand, Organic Matter	10	25	40	1.80	105
14	0.03	0.15	B	" , " , Rock Frags , Organic matter	10	20	30	2.40	115
15	0.15	0.40	C	" ,	10	15	50	3.80	165
16	0.40	0.60	C	" , Rock frags.	15	15	55	4.60	260
17	0.60	0.80	C	"	10	5	50	4.20	760
18	0.80	1.00	C	" , Sand	15	x	70	3.60	765
19	1.00	1.20	C	" , "	10	x	65	4.20	1650
37220	1.20	1.40	C	" , "	10	x	55	3.00	710
37221	1.40		D	Rock ? crystal lithic andesite tuff ± minor quartz	10	x	70	5.00	710

798117 035

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black Eh 1/62 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.M. DATE: 27:6:80

PIT No. : G7-11c GRID CO-ORDINATES : 5,376,000 N 382,720 E

Sample Number	DEPTH (m.) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
37222	0	0	A 0 0	Litter	10	15	65	1·10	230
37223	0	0·1	A	Clay, Sand, Organic Matter	5	5	40	0·90	125
24	0·1	0·2	B	" " " "	5	25	35	0·95	95
25	0·2	0·4	C	" "	5	20	25	1·20	70
26	0·4	0·6	C	" "	5	25	75	2·60	155
27	0·6	0·8	C	" "	5	100	120	3·80	185
28	0·8	1·0	C	"	5	130	165	4·70	305
29	1·0	1·2	C	" Sand	10	120	240	6·30	460
30	1·2	1·4	C	" "	10	105	195	5·70	440
37231	1·4	1·6	C	" " Rock Frags.	10	80	165	5·80	405
37232	1·7		D	Rock Oxidised limonite stained intermediate Tuff.	5	15	85	4·20	205

2981118 .036

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT: Mt. Black EL 1/82 LOCALITY: Mt. Sale Grid. SAMPLED BY: B.M & E.S. DATE: 4-7-80

PIT No. : G8-12a. GRID CO-ORDINATES : 5,374,900 N 381,980 E

Sample Number	DEPTH (m.) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
38806	0.0	0.0	A00	Litter	5	10	90	0.12	
07	0.0	0.1	A1	Clay, Organic Matter Sand.	10	35	45	2.10	
08	0.1	0.3	B	Clay Organic matter, Rock frags., Sand	10	25	45	3.15	
09	0.3	0.5	C	" " " " " "	30	55	110	4.90	
10	0.5	0.7	C	" , Sand, Rock frags.	35	70	135	5.05	
38811	0.7	0.9	C	" , Rock Frags, Sand.	25	95	150	5.10	
38812	0.9		D	Rock. Ox. Feldspathic Intermediate ? tuff with limonite staining ? after Pyrite.	15	80	210	5.70	

798119 037

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT : Mt. Black EH 1/G2 LOCALITY : Mt. Sale Grid. SAMPLED BY: B.M. & E.S. DATE: 4/12-80

PIT No. : G8-12b GRID CO-ORDINATES : 5,374,900 N 381,990 E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
38813	0 - 0	0 - 0	A 0 0	Litter	10	30	65	0 - 55	235
38814	0 - 0	0 - 1	A	Clay, Sand, Organic Matter	15	155	60	2 - 60	110
15	0 - 1	0 - 3	C	Rock Frags, Sand, Clay	10	155	65	3 - 35	125
38816	0 - 3	0 - 5	C	Clay, Rock Frags, Sand.	10	150	105	4 - 45	180
38817	0 - 5		D	Rock. Oxidised feldspathic intermediate. crystal lithic tuff ± limonite and minor manganese staining	10	115	140	5 - 20	400

298120

038

GEOCHEMICAL DATA SHEET - SOIL PIT PROFILES

PROJECT : Mt. Black Feb 1/62 LOCALITY : Mt. Sale Grid. SAMPLED BY: A.M.P.E.S. DATE: 4-7-80

PIT No. : G8-12c GRID CO-ORDINATES : 5,374,900 N 382,000 E

Sample Number	DEPTH (m) From	To	Horizon	SAMPLE DESCRIPTION	GEOCHEMICAL VALUES (p.p.m. unless specified) Cu	Pb	Zn	Fe %	Mn
38818	0	0	A00	Litter	10	40	60	0.85	220
38819	0.0	0.2	A	Clay, Organic Matter Sand	10	95	40	1.80	70
20	0.2	0.4	B	" "	10	130	60	3.30	120
21	0.4	0.6	C	" , Rock frags , Sand	10	140	105	4.05	195
38822	0.6	0.8	C	" " "	5	90	125	5.15	280
38823	0.8		D	Rock. Very Oxidised feldspathic ? intermediate volcanic with limonite staining	20	230	220	5.90	370

7981121 039

798122

APPENDIX II

Soil Sample Data Sheets - Tullah

- Colebrook Hill

PROJECT: MT BLACK
MURCHISON RIVER GRID.

CO-ORDINATES
LINE: 5,375,800N
FROM: 385,450E
TO: 385,340E

SAMPLED BY: B.M.
DATE: 4-11-80

MATERIAL: SOIL
DEPTH: C HORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES (N) S	(E) W	Interval + (E)	Fe	Mo	W	Zn	As	Sb	Pb	DESCRIPTION
36556	375800	385450	20	560	10	x	100	1	6	5	CS
5557		460		1650	110	20	55	7	x	15	CSI
5558		440		1.55%	25	5	15	7	x	5	CRF
5559		420		2.15%	25	5	15	7	x	x	CRFS
5560		400		1550	25	5	15	3	x	5	CSO
5561		380		1650	52	5	20	2	x	10	CSO
5562		360		1250	25	5	10	3	x	x	CS
5563		340		2650	30	x	15	3	x	x	SCRF

798123 053

PROJECT: MT BLACK

MURCHISON RIVER GRID

CO-ORDINATES
LINE: 5,376,800N
FROM: 384,420E
TO: 384,260E

SAMPLED BY: BM.

DATE: 4-11-80

MATERIAL: SOIL

DEPTH: CHORIZON

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES (N) S	CO-ORDINATES (E) W	INTERVAL + (-)	Fe	Mn	Cu	Zn	As	Sn	Pb	DESCRIPTION
36564	37680	38442	20	2050	50	x	10	2	x	x	BIOGEOCHEM ONLY CS
36565		400		4800	40	x	10	3	x	10	CS
36566		380		1050	20	x	5	2	x	x	CS
567		360		1080	45	5	15	9	x	5	CRF
568		340		1300	20	x	15	3	x	x	BIOGEOCHEM AND LOCAM CS
569		320		645	20	x	5	3	x	5	BIOGEOCHEM ONLY SCRF
570		300		14145%	100	10	40	29	x	10	BIOGEOCHEM ONLY SC
571		280		NO SAMPLE							G
572		260		2450	10	x	5	1	x	x	CS

79124

050

PROJECT: MT BLACK. MURCHISON RIVER GRID.

CO-ORDINATES: LINE: 5,377,200N; FROM: 384,360E; TO: 384,320E

SAMPLED BY: BM.

DATE: 4-11-80

MATERIAL: SOIL

DEPTH: CHORIZON

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES (N/S)	CO-ORDINATES (E/W)	Interval + / −	Fe	Mn	Mo	Zn	As	Sn	Pb	DESCRIPTION
36573	37200	384360	20	4.15%	40	X	20	4	X	10	CS
5734		340		3.3%	125	5	25	4	X	10	CRFS
5735		320		8.3%	65	25	35	11	X	15	CRFS

79812S 047

PROJECT: MT BLACK
MURCHISON RIVER GRID

CO-ORDINATES
LINE: 5,377,300N
FROM: 384,240E
TO: 384,420E

SAMPLED BY: BM.
DATE: 4-11-80

MATERIAL: SOIL
DEPTH: C HORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL + -	Fe	Mn	W	Zn	As	Sn	Pb		DESCRIPTION
36576	377.300	384 240	20	2.4%	65	5	25	11	X	10	Partial from C Horizon	CRFS
577		260		1.3%	65	X	5	14	X	X		CRFS
578		280		6.55%	65	5	15	9	X	15		CSRF
579		300		2.05%	35	5	5	1	X	20	B Horizon Only	CRFS
580		320		5.0%	70	5	20	14	X	15		CRFS
581		340		4.8%	50	5	15	6	X	15		CRFS
582		360		4.35%	85	X	25	12	X	15	B Horizon Only	CRFS
583		380		1.0%	55	X	10	3	X	X		CRFS
584		400		NO SAMPLE								G
585		420		1150	20	X	10	1	X	5	B Horizon Only	CRFS

798136

045

PROJECT: MT BLACK. MURCHISON RIVER GRID.

CO-ORDINATES
LINE: 5,377,400N.
FROM: 384,860E
TO: 384,900E

SAMPLED BY: BM.
DATE: 4-11-80

MATERIAL: SOIL.
DEPTH: CHORIZON

BOOK Nº
SHEET Nº
JOB Nº

SAMPLE NUMBER	CO-ORDINATES (N)/S	(E)/W	INTERVAL (+)/-	Fe	Mn	U	Zn	As	Sb	Pb	DESCRIPTION
36586	377400	384860	20	150	30	X	15✓	2	X	X✓	CRFS
5587		8800		230	100	5	30✓	5	X	10✓	CRFS
5588		9000		212	120	10	35✓	5	X	25✓	CRFO

ASS CONFIRMED BY GEOLOGIST ONLY
ATOMIC ABS ONLY

798127 -043

PROJECT: MT BLACK. Murchison River GRID.

CO-ORDINATES — LINE: 5,377,500N — FROM: 385,660E. — TO: 385,420E

SAMPLED BY: Bm & SP + DE

DATE: 14-10-80

MATERIAL: SOIL C HORIZON.

DEPTH: C HORIZON.

BOOK Nº

SHEET Nº

JOB Nº

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/(-)	FE	MN	CU	ZN	AS	SN	PB	DESCRIPTION
37001	37500	385660	20m	3600	40	10	10	9	X	X	CRF
002	"	16 40		1650	20	5	5	3	X	5	CSC
003		6420		1600	20	X	10	3	X	X	CSRF
004		6400		2200	40	X	5	3	X	10	COS
005		5980		1200	25	5	5	3	X	X	CRF
006		5960		4.85%	550	25	70	33	X	45	CRF
007		5940		1.40%	95	10	25	14	X	10	C
008		5920		1800	30	X	5	5	X	10	CS
009		5900		7350	70	5	15	10	24	20	CSRF
010		5880		2.55%	295	15	35	15	X	35	CORF
011		4660		9500	90	10	30	10	32	75	CSRF
012		4640		1800	30	X	10	3	24	X	CS
013		4620		1.55%	60	X	15	14	14	57	CSRF

7981128 041

PROJECT: MT BLACK
MURCHISON RIVER GRID

CO-ORDINATES
LINE: 5,377,400N
FROM: 385,660E
TO: 385,500E

SAMPLED BY: BM+SP+DE
DATE: 14-10-80

MATERIAL: SOIL
DEPTH: CHORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL ÷10	Fe	Mn	Cu	Zn	As	Sn	Pb	DESCRIPTION
3701	3774 00	3856 60	20	2100	30	X	10	2	X	X	CSRF
015		640		1.4 0%	55	5	25	9	X	X	CSRF
016		620		1900	30	X	10	2	X	X	CSD
017		600		1550	40	X	10	2	X	X	CSRF
018		580		6.3 0%	5350	10	120	43	4	25	CS
019		560		4.1 2%	645	10	100	43	6	25	CRF
020		540		4.5 5%	1050	15	63	25	X	35	CSRF
021		520		2.5 2%	800	25	45	15	X	55	CSRF
022		500		6300	710	X	20	4	X	25	CRFS

79 81 29 042

PROJECT: MT BLACK, MURCHISON RIVER GRID

CO-ORDINATES
LINE: 5,377,300N
FROM: 395,700E
TO: 395,520E

SAMPLED BY: BM+SP+OE

DATE: 14-10-80

MATERIAL: SOIL

DEPTH: CHORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL	Fe	Mn	Cu	Zn	As	Sb	Pb	DESCRIPTION
37023	377,300	395700	20	2.10%	30	X	5	2	X	5	C SRE
024		6800		4.00%	15	X	X	2	X	25	C RAS
025		6600		5.00%	15	X	X	1	X	15	C SRF
026		6400		3.25%	35	X	10	6	X	X	RF C
027		6200		1.09%	1.55%	45	215	63	1 X	40	C
028		6000		1.45%	45	10	20	75	X	25	C R O
029		5800		6.85%	5.00%	20	120	1/4 C	X	40	C SRF
030		5600		20.0%	1.45%	20	245	700	X	100	C S
031		5400		1.25%	225	20	155	23	12	35	C
032		5200		3.20%	1.10	20	125	23	4	30	C RES

Reconnaissance Geochemistry Grid Samples

Bottom

7981130 044

PROJECT: MT BLACK
MURCHISON RIVER GRID

CO-ORDINATES
LINE: 5,377,200N
FROM: 395,700E
TO: 395,600E

SAMPLED BY: SPADE
DATE: 15-10-80

MATERIAL: SOIL
DEPTH: C HORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL	Fe	Mn	Cu	Zn	As	Sb	Pb	DESCRIPTION
37033	377200	395700	20	1,70%	125	5	50	12	X	45	CRF
034		6 80		2500	25	X	10	2	X	X	CRFS
035		660		2400	20	X	10	3	X	X	CRF
036		640		750	20	X	5	1	X	X	CR
037		620		3,90%	4300	5	165	210	X	60	CS
038		600		4,25%	1600	5	165	250	X	65	CS

RADIATION ANOMALY

79 81 31

046

PROJECT: MT BLACK
MURCHISON RIVER GRID

CO-ORDINATES
LINE: 5,377,100N
FROM: 385,740E
TO: 385,600E

SAMPLED BY: SD+OE
DATE: 15-10-80

MATERIAL: SOIL
DEPTH: C HORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/-	Fe	Mn	Cu	Zn	As	Sb	Pb	DESCRIPTION
37039	377,100	385,740	20	3.50%	545	15	75	4	X	50	C RF
040		720		9000	60	X	15	9	X	20	C
041		700		2.00%	185	15	40	26	X	45	C RF
042		690		4.85%	75	5	30	18	10	15	C S RF
043		660		3.95%	40	X	16	16	X	X	C S RF
044		640		1.40%	190	X	20	33	X	X	C RF
045		620		1.25%	300	X	40	16	X	10	C C
046		600		1900	80	X	10	2	X	5	C

From outcrop at the creek
From outcrop at the road

79 81 132

PROJECT: MT BLACK — Murchison River Grid

CO-ORDINATES — LINE: 5,377,000N — FROM: 385, 6400E — TO: 385, 4800E

SAMPLED BY: SP+DE

DATE: 15-10-80

MATERIAL: SOIL

DEPTH: C HORIZON

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/-	Fe	Mn	Cu	Zn	As	Sb	Pb	DESCRIPTION
37047	37700	38564	20	3.25%	1050	50	50	16	X	15	C R F
049		6220		4.15%	1440	30	35	12	2	20	C R F
049		6000		3.90%	1550	40	60	32	X	25	C R F
050		5880		3.70%	5500	20	25	13	X	X	C R F
051		5660		3.75%	5000	25	20	14	X	5	C R F
052		5440		6.20%	6500	50	40	3	X	40	C
053		5220		3.60%	5000	50	30	4	X	X	C
054		5000		3.90%	5000	50	30	5	6	20	C O
055		4880		1.90%	3000	X	10	X	6	10	C R F

79813 049

PROJECT: MT BLACK. MURCHISON RIVER GRID

CO-ORDINATES — LINE: 5,374,900N; FROM: 385,400E; TO: 385,000E

SAMPLED BY: SP+DE

DATE: 16-10-80

MATERIAL: SOIL

DEPTH: C HORIZON

BOOK No.

SHEET No.

JOB No.

SAMPLE NUMBER	CO-ORDINATES (N/S)	CO-ORDINATES (E/W)	INTERVAL ×10	Fe	Mo	Cu	Zn	As	Sn	Pb	DESCRIPTION
37056	37490	23854	40 20	2350	50	X	10	1	X	X	RFSK
057			420	500	15	X	5	2	8	10	CSO
058			400	2900	65	X	10	1	X	X	SRFC
059			380	500	15	X	5	1	10	X	CSORF
060			360	6½	40½	10	25	5	100	11	450	COKSRF
061			340	950	145	5	35	1	15	20	150	CS
062			320	500	75	X	5	3	1	10	X	CSRF
063			300	3200	55	X	10	1	5	X	CSRF
064			280	5405	200	5	30	5	22	X	CSRF
065			260	2200	20	X	10	1	6	X	SCRF
066			240	2350	30	X	10	1	15	X	CSRF
067			220	3400	60	X	15	5	16	5	SC
068			200	1950	260	X	10	3	24	10	CSRF
069			180	900	50	X	15	1	12	X	CS
070			160	1300	40	X	10	5	12	5	CSRF
071			140	650½	40	5	15	18	24	30	COS
072			120	7100	110	15	60	5	15	30	C
073			100	1025½	110	20	60	9	25	20	C
074			080	3200	55	5	30	2	24	20	CS
075			060	3500	90	5	45	4	24	X	CS
076			040	1555½	75	5	20	20	X	X	CS
077			020	3155½	45	X	15	44	X	X	CS
078			000	2150	40	X	10	2	X	X	CS

BHORIZON

BHORIZON

BHORIZON

CREEK

TRAK

TRAK

TRAK

TRAK

CHORIZON

7981340 000

PROJECT: MT BLACK
MURCHISON RIVER GRID

CO-ORDINATES
LINE: 5,375,000N
FROM: 385,180E
TO: 385,160E

SAMPLED BY: SP+DE
DATE: 16-10-80

MATERIAL: SOIL
DEPTH: CHORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/-	Fe	Mn	Cu	Zn	As	Sn	Pb	DESCRIPTION
37079	375000	385180	20	2.2%	410	5	20	11	26	15	CRF
0560		160		2800	20	X	10	1	16	X	CS

79813 079

PROJECT: Mt BLACK. MURCHISON RIVER GRID

CO-ORDINATES
LINE: 5,375,000N
FROM: 385,440E
TO: 385,360E

SAMPLED BY: SPADE
DATE: 16-10-80

MATERIAL: SOIL
DEPTH: CHORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL	Fe	Mo	Cu	Zn	As	Sb	Pb	DESCRIPTION
37051	37500	385440	20	1100	20	X	5	X	15	X	C RF
052		420		5500	130	X	25	1	10	X	C S
053		400		10600	185	X	35	1	14	5	S C RF
054		390		6200	105	X	20	1	6	X	C S
055		360		3000	50	X	15	X	X	X	RF C

Rock in basal Chorizon

2981136 078

PROJECT: MT BLACK
MURCHISON RIVER GRID

CO-ORDINATES
LINE: 5,376,900N
FROM: 385,580
TO: 385,480

SAMPLED BY: SP + DE
DATE: 17-10-80

MATERIAL: SOIL
DEPTH: C HORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL	Fe	Mn	Cu	Zn	As	Sn	Pb	DESCRIPTION
37096	376,900	385,580	20	2.10%	140	X	15	4	X	X	C RF
097		560		3.60%	300	10	40	4	X	5	C RF
098		540		6.20%	115	20	40	12	3	15	C Road
099		520		5.35%	1250	35	385	62	X	720	C
090		500		1.30%	60	65	35	14	6	5	C
091		480		8500	50	15	85	5	X	65	C Bottom

C = Transitional C horizon
C = C horizon
Bottom = Bottom of hole

79813 — 050 — L

PROJECT: MT BLACK
MURCHISON RIVER GRID.

CO-ORDINATES
LINE: 5,376,800N
FROM: 385,560
TO: 385,420

SAMPLED BY
DATE

MATERIAL
DEPTH

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES (E)/W	INTERVAL +10	Fe	Mn	Cu	Zn	As	Sn	Pb	DESCRIPTION
37 09 23	37 68 00	38 55 60	20	6.5%	400	15	20	14	10	5	C
093		540		4.00%	1200	15	40	11	X	40	C S O R F
094		520		4.70%	1500	40	60	15	X	30	C R F
095		500		3.50%	1550	25	50	15	X	30	C
096		480		2.00%	550	X	15	2	X	10	C S
097		460		4.50%	3750	35	175	150	X	900	C
098		440		?	2600	55	515	220	14	1550	C R F
099		420		3.50%	1600	40	500	300	6	1050	C S

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

098138 051

PROJECT: MT BLACK — MARCHISON RIVER GRID

CO-ORDINATES — LINE: 5,376,700N — FROM: 385,420E — TO: 385,580E

SAMPLED BY: SP + DE

DATE: 17-10-80

MATERIAL: SOIL

DEPTH: C HORIZON

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES (N)/S	(E)/W	INTERVAL (+)/-	Fe	Mn	Cu	Zn	As	Sb	pH	DESCRIPTION
37101	376700	385420	20	5.0%	950	45	755	250	4	900	CRF
101		440		½ 5.5%	1.0%	50	605	140	6	1600	C
102		460		3.3.0%	3500	25	445	1410	10	1150	CS
103		480		½ 5.5%	1.1%	75	3200	270	6	4100	SC
104		500		2.5.5%	850	25	310	25	x	250	CRFO
105		520		8.9.0.0	900	20	1300	15	x	150	CRF
106		540		½ 7.5%	4000	140	5350	150	8	2850	SRFC
107		560		½ 3.0%	33%	325	½ 650	420	60	1.40%	OC
108		580		2.½ 0%	2750	25	350	39	8	140	CRF

79 8139 054

PROJECT: Mt Black. Murchison River Grid

CO-ORDINATES
LINE: 5,376,600N
FROM: 385,600E
TO: 385,480E

SAMPLED BY: SP+DE
DATE: 17-10-80

MATERIAL: Soil
DEPTH: C Horizon

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/-	Fe	Mn	Cu	Zn	As	Sn	Pb	DESCRIPTION
37109	376,600	385,600	20	42%	385	30	85	30	x	95	TRENCH C R F
110		590		56%	155	30	55	25	4	35	C R F
111		560		52%	155	30	65	25	x	55	C R F
112		540		47.5%	110	65	70	30	6	30	C R F
113		520		61.2%	100	35	60	25	x	40	C R F
114		500		25.5%	40	x	35	9	x	15	C R F
115		480		1.25%	20	x	35	6	x	15	C R F

298140 057

PROJECT: MT BLACK. / MURCHISON RIVER GRID

CO-ORDINATES
LINE: 5,376,500N
FROM: 385560E
TO: 385540E

SAMPLED BY: DE.

DATE: 20-10-80

MATERIAL: SOIL.

DEPTH: C. HORIZON.

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL	Fe	Mn	Cu	Zn	As	Sb	Ag	DESCRIPTION
37116	376500	385560	20	410%	65	30	65	12	2	30	C
117		5440		630%	40	50	60	18	X	20	C

79 8141

060

PROJECT: MT BLACK. MURCHISON RIVER GRID

CO-ORDINATES
LINE: 5,376,400N
FROM: 385,440E
TO: 385,520E

SAMPLED BY: D. E
DATE: 20-10-80

MATERIAL: SOIL
DEPTH: C. HORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/-	Fe	Mn	W	Zn	As	Sn	Pb	DESCRIPTION
37118	376400S	385440W	20	3.2%	30	10	30	6	X	25	CS
119		460		650	10	5	10	1	X	5	CSRF
120		480		4200	15	5	40	2	2	10	CRF
121		500		5900	100	20	25	5	6	15	CRF
122		385520		1.55%	165	75	110	16	10	40	CSORF
123		540		3.30%	240	35	105	19	8	30	CRF

Broken Earth Road
Possible Contact
Zone

79814 063

PROJECT: MT BLACK. MERRITT/MERRITT RIVER GRID.

CO-ORDINATES — LINE: 5376,300N — FROM: 385,380E — TO: 385,500E

SAMPLED BY: SPADE

DATE: 20-10-90

MATERIAL: SOIL.

DEPTH: CHORIZON.

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL (+)/-	Fe	Mn	W	Zn	As	Sn	Pb	DESCRIPTION
37124	376,300	385,380	20	1200	45	X	10	5	14	20	CRF
125		400		6400	40	X	10	7	16	0	CS
126		420		900	15	5	5	1	18	5	CSO
127		440		3500	40	X	10	2	4	10	CS
128		460		600	25	X	5	1	4	10	CS
129		480		500	25	X	5	1	2	5	SCRF
130		500		950	20	X	5	1	4	5	SCRF

79-8143 064

PROJECT: MT BLACK. MURCHISON RIVER GRID.

CO-ORDINATES — LINE: 5,375,100N. FROM: 385,060E TO: 385,400E

SAMPLED BY: SP + DE

DATE: 21-10-80 / 20-10-80

MATERIAL: SOIL

DEPTH: C HORIZON

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES (N) S	(E) W	INTERVAL ⊙/-	Fe	Mn	W	Zn	As	Sb	Pb	DESCRIPTION
37/131	375,100	385,060	20	550	10	X	X	1	2	5	TALUS SCRF
132		380		850	20	X	X	1	12	10	C O R F
133		400		1800	200	X	15	8	26	5	C S O R F
134		120		2100	55	X	10	3	14	20	C S
135		140		2650	50	5	20	3	4	25	C S
136		160		1.45%	2550	5	35	14	4	20	C O
137		180		7500	1000	10	35	32	6	30	C S O
138		200		6500	7350	X	50	25	4	85	C S R F
139		220		2.5%	1350	5	190	70	X	480	C S R F O
140		240		1.75%	7550	30	180	39	X	205	R F S
141		260		1.25%	1250	10	65	13	X	10	S
142		280		4500	650	5	95	18	X	340	C S
143		300		2550	30	X	15	5	X	15	C R F S
144		320		8100	1050	X	35	10	X	30	F S
145		340		1700	60	X	15	5	X	20	C O R F
146		360		1950	30	X	5	4	X	10	R F S C
147		380		1850	30	X	5	3	X	5	R F S C
148		400		6200	1050	X	20	3	X	5	R F S C

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78

79814A 076

PROJECT: MT BLACK — MURCHISON RIVER GRID

CO-ORDINATES — LINE: 5,375,200N. — FROM: 3850 20E — TO: 385,290E

SAMPLED BY: SP+DE

DATE: 21-10-80

MATERIAL: SOIL

DEPTH: C HORIZON

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL E/-	Fe	Mn	W	Zn	Ag	Sn	Pb	DESCRIPTION
37149	375200	385020	20	6 3/4	IN SOIL	15	40	15	4	80	
150		040		17 3/4	2 1/2	5	600	550	X	50	
151		060		3 0	1 4 5	5	25	39	X	60	
152		080		1 5 5	1 1 0	5	30	23	X	20	
153		000		3 5 5/8	1 6 5	25	215	200	X	90	
154		120		4 0	2 9 5	15	80	22	1	30	
155		140		3 4	2 7 0	25	45	18	3	30	
156		160		BG 7 5	2 0 5 0	10	70	17	X	20	
157		180		4 3/4	1 4 5	10	30	15	X	5	
158		200		5 5 0 0	5 0	5	20	11	X	15	
159		220		1 5 5 0	3 0	X	5	9	X	20	
160		240		3 6 0 0	3 0	5	5	6	X	15	
161		260		3 7 5/8	2 1 5	10	40	19	X	95	
162		280		4 6 3/4	3 0 5 0	25	645	28	X	260	

DESCRIPTION: M F C / R F C / R F S C / C O / C S / C R F / C S / C O / C R F / C O / C R F / C O / C O / C R F

7981 15

075

PROJECT: MT BLACK. MURCHISON RIVER GRID

CO-ORDINATES — LINE: 5,375,300N — FROM: 384,880E — TO: 384,940E

SAMPLED BY: SPADE

DATE: 22-10-80

MATERIAL: SOIL

DEPTH: C HORIZON

BOOK Nº

SHEET Nº

JOB Nº

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL ⊙/-	Fe	Mn	Cu	Zn	As	Sn	Pb	DESCRIPTION
37163	37530	38480	20	6.0%	140	10	65	90	X	SS	C S R F
164		900		1700	15	X	10	7	X	X	C R F
165		920		1600	25	X	15	3	X	S	S C R F
166		940		2.55%	125	10	55	13	X	10	C S

29814 074

PROJECT: MT BLACK
MURRAY RIVER GRID.

CO-ORDINATES
LINE: 5,375,300N
FROM: 385,120
TO: 385,060

SAMPLED BY: SP+PE
DATE: 22-10-80

MATERIAL: SOIL
DEPTH: C HORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/(-)	Fe	Mn	W	Zn	As	Sn	Pb	DESCRIPTION
37167	75300	385120	20	1.1%	90	X	20	8	X	5	CO
168		100		1.5%	80	X	30	11	X	10	CS
169		080		1.4%	230	10	35	9	X	25	CO
170		060		1.5%	390	5	40	15	X	25	CR

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79

79 147 073

PROJECT: MT BLACK
MURCHISON RIVER GRID

CO-ORDINATES
LINE: 5375.100N
FROM: 384.840E
TO: 384.960E

SAMPLED BY: SP+DE
DATE: 22-10-80

MATERIAL: SOIL
DEPTH: C HORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/-	Fe	Mn	Cu	Zn	Ag	Sn	Pb	DESCRIPTION
37172	375.100	384.840	20	0.5%	30	x	15	2	x	S	C S R F
37172		384.860		2.0%	30	x	15	0	x	S	

Soil
All Plotted

79818

070

PROJECT: MT BLACK
MURCHISON RIVER GRID

CO-ORDINATES
LINE: 5,375,500N
FROM: 384,840E
TO: 384,880E

SAMPLED BY: SP + DE
DATE: 22-10-80

MATERIAL: SOIL
DEPTH: C HORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL (+)/-	Fe	Mn	Cu	Zn	Ag	Sn	Pb	DESCRIPTION
37173	3750	3840	20	1350	15	x	15	5	x	15	CS
17174		8960		1100	15	10	15	i	x	5	CSRF
17175		8880		750	120	10	25	5	x	x	CRF

PLOTTED

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

79 81 49 072

PROJECT: MT BLACK
MURCHISON RIVER GRID

CO-ORDINATES
LINE: 5,376,400N
FROM: 384,420E
TO: 384,260

SAMPLED BY: B.M.
DATE: 24-10-80

MATERIAL: SOIL
DEPTH: C HORIZON

BOOK Nº
SHEET Nº
JOB Nº

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/-	Fe	Mn	Cu	Zn	As	Sn	Pb	DESCRIPTION
176	376,400	384,420	20	1.10%	255	X	55	1	X	X	CS
177	1	400		730	30	X	55	1	X	X	CSS
178		380		2.65%	455	X	155	1	X	10	CS
179		360		6.35%	455	55	255	6	X	10	C
180		340		725	30	X	55	1	X	10	CS
181		320		NO SAMPLE							S
182		300		NO SAMPLE							S
183		280		10.4%	270	655	600	55	X	30	CRFS
184		260		24.5%	6955	805	855	55	X	20	CRFS

Plotted.

798150

062

PROJECT: MT BLACK
MURCHISON RIVER GRID

CO-ORDINATES
LINE: 5,376,300N
FROM: 384,700E
TO: 385,800E

SAMPLED BY: BM.

DATE: 24-10-80

MATERIAL: SOIL

DEPTH: C HORIZON

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL ±	Fe	Mn	W	Zn	As	Sn	Pb	DESCRIPTION
3785	376,300	3847000	20	NO SAMPLE							
1786		7200		660	35	X	S	1	X	S	BROWN CLAY
1787		7400		NO SAMPLE							
1788		7600		NO SAMPLE							
1789		7800		12.7%	190	S	SS	8	X	20	BROWN CLAY
1790		8000		NO SAMPLE							

DESCRIPTION: C S S S C R F S S

79815 1067

PROJECT: MT BLACK
MURCHISON RIVER GRID.

CO-ORDINATES
LINE: 5,376,200N
FROM: 385,480E
TO: 385,360E

SAMPLED BY: SP+DE.
DATE: 31-10-80

MATERIAL: SOIL
DEPTH: C HORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES (N) S	(E) W	INTERVAL	Fe	Mn	Cu	Zn	As	Sb	Pb	DESCRIPTION
371911	376200	385480	20	10000	35	<	10	1	x	x	CRF
1912		460		12000	25	x	10	2	x	x	CRF
1913		440		21500	25	x	15	1	x	x	REC
1914		420		53500	35	15	35	9	x	20	CRF
1915		400		45500	30	5	25	1	x	15	CRF
1916		380		25000	30	x	15	2	x	10	CRF
1917		360		11500	20	x	10	1	x	5	CRF

79815 2

L 980

PROJECT: MT BLACK
MURCHISON RIVER GRID

CO-ORDINATES
LINE: 5,376,100N
FROM: 385,500E
TO: 385,380E

SAMPLED BY: SPADE
DATE: 31-10-80

MATERIAL: SOIL
DEPTH: CHORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES (N) S	(E) W	INTERVAL + (-)	Fe	Mn	Cu	Zn	As	Sn	Pb	DESCRIPTION
37198	376,100	385500	20	800	30	x	10	1	x	x	CRFS
199		480		3250	30	x	5	x	x	x	CRF
200		460		3350	20	x	15	1	x	5	CRFS
36801		440		4-7½	50	25	55	18	x	30	CS
802		420		1950	20	x	10	2	x	x	CRF
803		400		1850	70	x	15	5	x	x	CRFQ
804		380		1150	35	x	10	1	x	x	CSRF

GROUP EIGHT EXPLORATION

798153 069

PROJECT: MT BLACK — MURCHISON RIVER GRID

CO-ORDINATES — LINE: 5,376,000N — FROM: 385,360E — TO: 385,540E

SAMPLED BY: SPHOE

DATE: 31-10-80

MATERIAL: SOILS

DEPTH: CHORIZON

BOOK Nº

SHEET Nº

JOB Nº

SAMPLE NUMBER	CO-ORDINATES (N) S	CO-ORDINATES (E) W	INTERVAL (+)/-	Fe	Mn	Cu	Zn	As	Sb	Pb	DESCRIPTION
36805	376000	385360	20	1100	65	x	15	1	x	x	CRF
806		380		1.0%	20	x	15	2	x	5	CRF
807		400		1.6%	30	x	25	9	x	15	CSRF
808		420		1.8%	20	x	20	3	x	10	CRF
809		440		2400	25	x	15	1	x	x	SC
810		460		1500	20	x	20	1	x	x	CO
811		480		2950	20	x	10	1	x	x	CSRF
812		500		1900	15	x	10	x	x	x	CS
813		520		2850	40	5	35	8	x	20	CRFO
814		540		2.0%	1950	10	95	4	x	25	CSO

298154

PROJECT: MT BLACK — MURCHISON RIVER GRID

CO-ORDINATES — LINE: 5,375,900N — FROM: 385,540E — TO: 385,340E

SAMPLED BY: SP+DE

DATE: 31-10-80

MATERIAL: SOIL

DEPTH: CHORIZON

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	Interval +/-	Fe	Mn	Cu	Zn	As	Sn	Pb	DESCRIPTION
3861	375900	385540	20	1150	75	x	10	x	x	5	CS
816		385520		3.25%	1500	10	45	5	x	30	C
817		385500		2.8%	80	5	30	6	x	15	CO
818		385480		1.25%	30	x	20	3	x	5	V
819		385460		3050	20	x	15	x	x	x	CS
820		385440		2600	150	5	40	x	x	x	CSO
821		385420		2350	55	x	15	x	x	x	RFS
822		385400		1600	40	x	35	1	x	5	CSRFO
823		385380		4150	60	x	10	x	x	x	SRF
824		385360		720	35	x	5	x	x	x	CS
825		385340		610	20	x	10	x	2	x	SRF

79815 071

PROJECT: Mt Black / Murchison River Grid

CO-ORDINATES
LINE: 5,376,300N
FROM: 384,660E
TO: 384,620E

SAMPLED BY: SP+DE

DATE: 4-11-80

MATERIAL: Soil

DEPTH: C Horizon

BOOK Nº

SHEET Nº

JOB Nº

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	Interval +/-	Fe	Mn	Cu	Zn	As	Sb	Pb	DESCRIPTION
36826	376,300	384,660	20	45%	95	25	25	5	X	20	CRF
36827		384,640		35%	200	30	40	4	X	30	CRFO
36828		384,620		65%	55	35	30	14	10	10	CRFO

Geochem Results Entered

990 9 GT 867

PROJECT: MT BLACK
MURCHISON RIVER GRID.

CO-ORDINATES
LINE: 5,376,300N
FROM: 384,260E
TO: 384,520E

SAMPLED BY: SP+OE
DATE: 4-11-80

MATERIAL: SOIL
DEPTH: C HORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES (N/S)	(E/W)	INTERVAL (+/-)	Fe	Mn	Cu	Zn	As	Sn	Pb	DESCRIPTION
36829	376300	384260	20	4.8%	215	15	60	4	x	x	C R F
830		280		6.3%	585	15	135	2	26	x	C F
831		300		1.3%	60	10	50	2	24	5	C S
832		320		7.0%	10000	15	165	4	x	5	C R F O
833		340		3.8%	1185	20	85	10	x	15	C R F
834		360		2.75%	1115	5	40	5	x	15	C S R F
835		380		7760	85	5	15	1	x	15	C O
836		400		3300	50	x	10	1	x	x	C G
837		420		4500	55	5	10	3	x	5	C R F
838		440		8000	90	5	30	6	x	5	S R F
839		460		4.65%	1355	95	60	7	x	10	C R F
840		480		3.3%	995	15	45	10	x	10	C S
841		500		3.5%	2700	10	60	3	x	x	C R F
842		520		1.700	990	10	50	3	4	10	C

79815 065

PROJECT: MT BLACK

MURCHISON RIVER GRID

CO-ORDINATES
LINE: 5,376,600N
FROM: 384,260E
TO: 384,180E

SAMPLED BY: SP+DE

DATE: 4-11-80

MATERIAL: SOIL

DEPTH: CHORIZON

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES (N/S)	(E/W)	INTERVAL +/-	Fe	Mn	Mo	Zn	Pb	Sb	DESCRIPTION
368433	376,600	384,260	20	810	25	X	10	X	X	CS
844		240		3400	35	X	15	2	X	SRFO
845		220		3830	15	X	10	1	X	CSRF
846		200		1450	10	X	10	1	X	SORF
847		180		690	10	X	10	2	X	SCRF

7981158 058

PROJECT: MT BLACK
MURCHISON RIVER GRID.

CO-ORDINATES
LINE: 5,376,600N
FROM: 384,560E
TO: 384,360E

SAMPLED BY: SP+DE
DATE: 4-11-80

MATERIAL: SOIL
DEPTH: CHORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/(-)	Fe	Mn	Cu	Zn	As	Sb	Pb	DESCRIPTION
5684848	376600	384560	20	6.0	35	X	5	1	4	X	C.S
849		540		8.5%	10	X	5	1	12	X	S
850		520		9.9%	10	X	15	2	6	X	C S O
851		500		3.25%	10	X	5	1	X	X	C S S
852		480		3.2%	315	15	25	3	X	25	C S R F
853		460		12.5%	225	85	45	9	X	25	C R F
854		440		8.0%	220	80	65	10	X	20	C R F
855		420		7.75%	95	20	30	7	X	25	C R F
856		400		4.25%	215	15	25	2	30	35	C R F
857		380		6.0%	135	10	30	67	8	25	C
858		360		4.0%	185	15	25	3	30	25	C R F

29815 059

PROJECT: MT BLACK
MURCHISON RIVER GRID

CO-ORDINATES
LINE: 5,376,500N
FROM: 384,440E
TO: 384,180E

SAMPLED BY: SP+DE
DATE: 5-11-80

MATERIAL: SOIL
DEPTH: C HORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES (N)/S	(E)/W	Interval +/(-)	Fe	Mn	Cu	Zn	As	Sn	Pb	DESCRIPTION
36859	37650	38440	20	6.6%	380	50	75	5	2	35	CREO
8600		420		6.35%	245	40	50	5	14	35	CRFO
8601		400		3.95%	80	5	20	3	16	10	CS
8602		380		1.48%	280	65	55	6	6	25	CRF
8603		360		5.75%	345	40	45	5	X	25	CRF
8604		340		4.78%	110	15	40	2	12	10	SC
8605		320		2.150	20	X	15	1	8	X	RFCO
8606		300		1.800	15	5	15	1	12	10	CSO
8607		280		1.050	20	5	15	1	16	15	CSO
8608		260		405	10	X	5	1	0	X	S
8609		240		535	10	X	5	1	6	5	CS
8610		220		1.000	20	X	15	1	X	20	CO
8611		200		800	15	X	10	1	14	5	CS
8612		180		670	15	X	10	1	22	5	CSRE

79816 0 061

PROJECT: MT BLACK.
MURCHISON RIVER GRID.

CO-ORDINATES
LINE: 5,376,700N
FROM: 384, 660E
TO: 384, 620E

SAMPLED BY: SP+DE
DATE: 5-11-80

MATERIAL: SOIL
DEPTH: CHORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES (N/S)	CO-ORDINATES (E/W)	INTERVAL +/-	Fe	Mn	W	Zn	As	Sn	Pb	DESCRIPTION
36873	376700	384660	20	4.50%	50	S	60	4	NS	25	C
874		6440		2.45%	160	15	30	2	X	25	C R A O
875		6420		1.50%	20	X	10	1	X	5	C O R F

79816 1 — 056

PROJECT: MT BLACK. MURCHISON RIVER GRID.

CO-ORDINATES: LINE: 6,376,700N; FROM: 384,520E; TO: 384,420E

SAMPLED BY: SP+DE

DATE: 5-11-80

MATERIAL: SOIL.

DEPTH: CHORIZON

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES (N)S	(E)/W	INTERVAL +10	Fe	Mo	Cu	Zn	As	Sb	Pb	DESCRIPTION
36876	37670	38452	20	695	5	X	15	1	X	5	CSO
8877		500		11.1%	20	15	40	6	X	20	CRF
8878		480		6.75%	140	15	35	4	X	20	CRF
8879		460		5.4%	155	15	35	5	X	15	CSO
8880		440		10.5%	170	45	80	8	6	35	CRF
8881		420		1250	20	X	20	1	14	5	CO

2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

798162 055

PROJECT: MT BLACK.

COLEBROOK HILL GRID.

CO-ORDINATES
LINE: 5371,000N
FROM: 374,200E
TO: 374,680E

SAMPLED BY: BM + DE
DATE: 17-11-80

MATERIAL: SOIL
DEPTH: CHORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/-	Pb	Zn	Cu	Fe %	Mn	Cr	As	Sn	DESCRIPTION
56882	371,000	374,200	20	10	40	45	3.5	70	105	4	12	CRFO
8883		220		20	85	45	5.0	95	145	20	X	CRF
8884		240		5	25	30	3.6	30	125	10	X	CRF
8885		260		5	15	15	2.2	20	105	17	18	CS
8886		280		30	45	60	5.2	25	135	14	18	CS
8887		300		10	410	40	4.9	50	130	21	10	CRFS
8888		320		20	70	55	6.2	105	225	7	X	CS
8889		340		15	55	55	7.0	110	585	10	6	CRF
8890		360		30	60	85	6.0	160	690	35	X	SRFC
8891		380		20	50	30	4.8	130	480	38	X	CRFS
8892		400		15	170	50	12.4	610	1200	170	14	CRF
8893		420		45	290	20	16.1	1050	1550	75	14	CRF
8894		440		40	160	25	7.5	2450	4200	29	6	CO
8895		460		35	215	55	13.6	2.99%	4750	180	X	CO
8896		480		30	85	235	13.2	850	3200	700	10	CO
8897		500		15	90	100	9.5	696	2850	750	6	CRF
8898		520		6	95	145	9.5	750	3350	600	X	CRF
8899		540		X	110	95	10.0	620	2250	900	X	CRF
8900		560		40	140	305	12.2	1200	1800	1000	6	CO
37301		580		40	65	170	8.4	800	155	350	X	CRFS
3002		600		10	40	205	6.4	800	225	90	X	CRF
3003		620		10	35	90	6.3	265	195	50	10	CRFS
3004		640		5	30	95	6.5	230	130	75	8	CRF
3005		660		10	50	125	7.0	650	155	75	8	CSRF
3006		680		10	80	335	7.9	1640	150	300	11	CRS

7981163 084

PROJECT: MT BLACK.

COLEBROOK HILL GRID

CO-ORDINATES
LINE: 5,371,000N
FROM: 374,700E
TO: 375160E

SAMPLED BY: BM+DE.
DATE: 17-11-80.

MATERIAL: SOIL
DEPTH: CHORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES (N) S	(E) W	INTERVAL (+) -	Pb	Zn	Cu	Fe %	Mn	Cr	As	Sn	DESCRIPTION
37307	371000	374700	20	45	75	250	8.4	900	200	220	22	CRFS
3308		7720		40	100	220	10.2	2300	205	170	22	CRFS
3309		7740		40	175	130	7.5	3750	175	55	52	CRFS
3310		7760		15	95	120	7.9	1550	180	55	16	CRFS
3311		7780		10	90	200	7.6	1150	145	75	7	CRFS
3312		8000		15	85	220	10.3	560	190	70	25	CRFS
3313		8020		15	85	160	7.8	1400	145	29	130	CRFS
3314		8040		15	35	90	6.3	550	105	30	22	CRF
3315		8060		25	55	75	9.0	900	125	21	35	CRFS
3316		8080		25	75	260	14.6	900	230	2200	30	CRF
3317		9000		15	100	110	12.2	1900	195	90	10	CRFS
3318		9020		20	130	215	13.0	1300	160	70	X	CRF
3319		9040		40	115	195	12.2	1900	210	140	15	CRF
3320		9060		35	120	125	11.0	3300	205	50	20	CRFS
3321		9080		25	110	150	10.5	950	155	55	8	CRF
3322		10000		115	105	155	11.5	1600	175	120	10	CRF
3323		0020		90	95	115	12.4	2700	200	550	24	CRFS
3324		0040		75	115	110	11.2	680	225	70	12	CRFS
3325		0060		65	155	105	11.0	1100	265	50	X	CSRF
3326		0080		65	100	65	6.9	1650	180	70	18	COS
3327		10000		30	70	75	10.1	2600	215	26	132	CRF
3328		10020		20	70	60	12.3	1500	150	12	55	CRF
3329		10040		15	70	55	8.2	610	130	8	20	CRF
3330		375160		60	55	40	7.6	330	110	9	38	CRFS

7981164 085

PROJECT: Mount Black

Colebrook Hill GRID

CO-ORDINATES
LINE: 5371000 N
FROM: 375,840 E
TO: 375,360 E

SAMPLED BY: SP + DE + BM.

DATE: 18-11-80

MATERIAL: Soil

DEPTH: C Horizon

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL	Pb	Zn	Cu	Fe %	Mn	Cr	As	Sn	DESCRIPTION
37331	37100 N	37580 E	20	15	5	10	1.90	30	15	3	60	CRFS
332		560		10	5	5	1.50	15	10	3	X	CRF
333		800		10	5	5	1.70	15	10	4	68	CRFS
334		780		5	5	10	.59	15	5	2	70	CRF
335		760		X	X	5	.33	5	X	3	60	CRF
336		740		X	X	5	1.35	5	5	2	72	CRF
337		720		5	X	5	1.20	10	15	4	42	CRFS
338		700		5	X	5	.40	10	5	4	36	CRF
339		680		5	X	5	1.20	15	5	3	90	CRFS
340		660		15	5	35	3.99	150	25	57	28	CRFS
341		640		15	5	10	6.80	25	20	44	62	CRFS
342		620		20	20	25	5.5%	45	20	58	6	CRFS
343		600		30	55	90	11.2%	340	25	30	38	CRF
344		580		65	65	55	6.1%	420	85	18	24	CO
345		560		40	85	155	10.5%	190	215	220	56	CRF
346		540		40	140	135	12.3%	2400	110	21	64	CRFS
347		520		20	130	85	13.4%	3600	105	11	100	CRFS
348		500		25	115	160	12.2%	2600	130	27	25	CRFS
349		480		55	145	170	13.5%	2550	130	28	21	CRF
350		460		75	205	160	13.4%	5100	130	25	28	CRFS
351		440		65	190	145	11.3%	3600	130	24	11	CRFS
352		420		50	85	55	12.6%	1250	125	12	30	CRFS
353		400		20	80	35	10.4%	1700	110	7	X	CRF
354		380		30	105	35	11.6%	1750	85	5	16	CRF
355		360		45	80	30	11.0%	1760	105	12	15	CRF

Boundary between Creek Alluvium and Residual Soil

Boundary between Residual Soil and Colluvium

Boundary between Creek Alluvium and Colluvium only

Boundary between Residual Soil and Creek Alluvium

Boundary between Residual Soil and Colluvium

Boundary between Creek Alluvium and Residual Soil

Boundary between Creek Alluvium and Col

PROJECT: MT BLACK.

COLEBROOK HILL GRID.

CO-ORDINATES
LINE: 5371,000 N
FROM: 375,340 E
TO: 375,180 E

SAMPLED BY: SP 10E + 8M.

DATE: 20-11-80.

MATERIAL: SOIL

DEPTH: CHORIZON.

BOOK Nº

SHEET Nº

JOB Nº

SAMPLE NUMBER	CO-ORDINATES (N)/S	CO-ORDINATES (E)/W	INTERVAL + (-)	Pb	Zn	Cu	Fe %	Mn	Cr	As	Sn	DESCRIPTION
3735	37,000	375340	20	20	100	90	12.4	1000	135	11	17	CRF
57		320		25	125	110	13.5	1150	175	8	8	CRF
58		300		25	95	75	13.2	1200	185	20	10	CRF
59		280		40	100	85	11.8	1500	175	13	16	CRF
60		260		30	110	100	12.8	2800	135	18	10	CRF
61		240		45	170	95	15.2	1050	130	10	7	CRFS
62		220		135	100	75	10.3	240	130	18	4	CRFS
63		200		60	105	70	10.1	335	170	11	6	CSRF
64		180		30	65	50	8.0	260	140	11	28	CRF

298166 086

PROJECT: MT. BLACK. COLEBROOK HILL GRID.

CO-ORDINATES — LINE: 5,370,800N; FROM: 374,880E; TO: 375,060E

SAMPLED BY: SP + BM.

DATE: 20-11-80.

MATERIAL: SOIL

DEPTH: C HORIZON.

BOOK Nº

SHEET Nº

JOB Nº

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/-	Pb	Zn	Co	Fe %	Mn	Cr	As	Sn		DESCRIPTION
3736 5	370 800	374 880	20	60	115	100	14.2%	1800	235	34	34		CRAS
66		900		140	300	145	16.1%	4400	295	38	28		CRF
67		920		60	120	75	11.5%	220	230	23	32		C
68		940		50	130	70	12.4%	150	210	30	45		CRF
69		960		75	130	185	12.2%	155	205	34	32		CRAS
70		980		55	115	65	10.5%	185	640	20	24		C
71	375	000		125	200	85	14.8%	225	520	16	26		CS
72		020		180	365	170	13.0	3200	45	60	12		CRF
73		040		30	100	75	16.0	1050	250	15	14		CRF
74		060		20	55	55	11.5%	2400	190	11	18		C

79816 092

PROJECT: MT BLACK. COLEBROOK HILL GRID.

CO-ORDINATES — LINE: 5,370,800N. FROM: 375,260E TO: 375,080E

SAMPLED BY: SP+BM

DATE: 20-11-80.

MATERIAL: SOIL

DEPTH: CHORIZON

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES (N/S)	CO-ORDINATES (E/W)	INTERVAL +/(-)	Pb	Zn	Cu	Fe%	Mn	Cr	As	Sn	DESCRIPTION
3735	370800	375260	20	40	100	95	11.0	1150	200	15	6	CRF
76		240		65	85	110	9.4	545	190	13	14	CRF
77		220		10	115	125	11.45	1150	200	16	28	CRF
78		200		35	95	90	10.75	790	160	13	24	CRF
79		180		35	110	60	9.85	650	135	9	32	CRFS
80		160		20	110	65	1.00	1500	150	11	32	CRF
81		140		25	115	75	11.5	1350	155	15	28	CRF
82		120		45	115	80	9.0	450	165	13	48	CRFS
83		100		30	110	75	11.0	535	205	4	32	CRF
84		080		55	75	100	10.9	1900	140	17	1	CRFS

79 8168 093

PROJECT: MT BLACK. COCEBROOK HILL GRID

CO-ORDINATES — LINE: 5,370,800N — FROM: 374,280E — TO: 374,760E

SAMPLED BY: SP & BM.

DATE: 24-11-80.

MATERIAL: SOIL

DEPTH: CHORIZON

BOOK Nº

SHEET Nº

JOB Nº

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL	Pb	Zn	Cu	Fe%	Mn	Cr	As	Sn	DESCRIPTION
37385	370280	374280	20	10	90	40	5.45	30	120	11	28	CRF
86		300		20	40	50	4.6	20	105	17	22	C
87		320		30	90	50	3.7	10	125	18	34	C
88		340		50	75	35	3.9	115	1450	13	16	CRFS
89		360		50	60	45	5.5	75	900	20	56	CRFS
90		380		55	35	35	5.5	45	480	14	54	CRFS
91		400		35	375	15	14.0	2250	3.5%	16	6	CRFS
92		420		115	395	15	13.5	3550	2.9%	6	16	CRFSU
93		440		90	295	15	11.9	3450	1.8%	6	30	CSRFU
94		460		85	220	15	8.0	2400	1.0%	21	34	CSU
95		480		215	215	20	8.7	5800	1710	21	40	COS
96		500		75	135	20	4.85	395	9500	53	240	CS
97		520		140	195	170	7.65	1450	1200	300	76	CRF
98		540		225	225	185	10.0	370	280	550	60	CRFS
99		560		40	85	170	10.4	650	335	530	110	CRFS
37400		580		35	10	155	7.1	760	575	530	56	CRF
01		600		55	130	160	7.15	800	110	300	340	CRFS
02		620		50	70	330	12.0	660	160	1300	180	CRFS
03		640		55	65	325	10.35	1400	205	900	2000	CRFS
04		660		50	55	125	9.0	495	135	910	72	CRFS
05		680		30	55	170	8.0	530	175	900	92	CRFS
06		700		110	30	100	5.0	135	60	170	70	CRF
07		720		115	55	85	7.25	2000	115	630	36	CRF
08		740		120	95	130	10.35	6800	175	330	130	CRFS
09		760		120	80	230	10.0	2950	175	400	400	CRF

79816 9 090

PROJECT: MT BLACK — COLEBROOK HILL GRID

CO-ORDINATES — LINE: 5,370,800N — FROM: 374,750E — TO: 374,860E

SAMPLED BY: SP+Bm.

DATE: 24-11-80.

MATERIAL: SOIL

DEPTH: CHORIZON

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES (N)/S	(E)/W	Interval (+)/-	Pb	Zn	Cu	Fe %	Mn	Cr	As	Sn	DESCRIPTION
374 10	370,800	374,780	20	25	70	165	1.2	3800	135	90	1400	CRA
11		500		25	90	45	1.03	395	155	14	64	CRA
12		520		35	130	90	1.10	560	225	10	52	CS
13		540		30	205	215	1.25	1100	200	4	72	CRFS
14		560		45	95	150	1.35	1150	235	50	100	CRF

298170 091

PROJECT: MT BLACK

COLEBROOK HILL GRID.

CO-ORDINATES
LINE: 5,370,600N
FROM: 374,950E
TO: 374,640E

SAMPLED BY: SP & BM.

DATE:

MATERIAL: SOIL

DEPTH: CHORIZON

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +10	Pb	Zn	Cu	Fe %	Mn	Cr	As	Sn		DESCRIPTION
374151	370,600	374980	20	25	90	65	9.0	4600	570	55	30		CRAS
16		960		110	165	90	10.45	1400	450	90	40		CRF
17		940		95	230	135	11.20	70	115	37	54		CRF
18		920		65	125	90	10.55	2750	220	29	16		CRFS
19		900		55	90	90	10.50	1.2%	160	260	10		CRFS
20		880		110	195	60	10.40	2150	80	220	4		CRFS
21		860		175	310	95	10.90	4200	245	57	10		CRFS
22		840		30	110	95	10.00	1100	185	24	X		CRF
23		820		35	85	55	7.85	1800	225	16	4		CRF
24		800		20	75	40	6.80	1300	150	10	X		CRF
25		780		20	90	85	7.05	4300	130	75	30		CRFS
26		760		20	80	40	7.90	1500	205	25	10		CRF
27		740		20	70	45	7.85	1000	1190	20	26		CRFS
28		720		15	105	65	10.3	1550	210	20	22		CRF
29		700		15	75	185	7.55	1550	215	20	14		CRFS
30		680		25	85	100	9.1	2900	220	38	6		CRFS
31		660		10	70	75	10.45	1300	190	45	X		CRF
374332		374640		15	90	115	10.65	1300	185	51	28		CRF

79817 097

PROJECT: MT BLACK.

COLEBROOK HILL GRID.

CO-ORDINATES
LINE: 5,370,800N
FROM: 376,020E
TO: 375,540

SAMPLED BY: SP+BM+GJ

DATE: 25-11-80.

MATERIAL: SOIL

DEPTH: CHORIZON

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES (N/S)	CO-ORDINATES (E/W)	INTERVAL +/-	Pb	Zn	Cu	Fe%	Mn	Cr	As	Sn	DESCRIPTION
37433	37080	37602	20	5	40	X	1900	40	15	2	8	CRFSO
34		000		5	15	X	1050	10	15	1	6	CRFS
35		37598		5	20	X	1950	55	15	2	12	CRFS
36		596		8	30	X	1100	90	10	1	14	CRFS
37		594		X	20	X	1500	25	10	1	12	CRF
38		592		X	10	X	570	15	10	1	6	CKFS
39		590		X	15	X	800	15	10	1	12	CKFS
40		588		X	10	5	1150	15	20	3	580	RFSC
41		586		X	20	X	770	20	10	2	58	CRFS
42		584		X	10	X	950	15	10	2	10	FSC FALL CONT BELOW TRACK
43		582		15	20	X	1450	65	15	6	22	CRFS
44		580		5	10	X	1000	15	10	1	X	RFCS
45		578		5	10	X	1900	20	5	6	8	RFCS
46		576		5	10	X	1300	15	10	2	22	KFKS
47		574		5	10	X	1450	15	15	16	12	RFCS
48		572		10	10	X	1300	10	15	3	4	RFCS
49		570		15	10	5	1050	5	60	3	12	CS
50		568		15	15	10	1600	20	105	25	2	CS
51		566		45	45	110	1400	85	210	75	X	CS
52		564		40	50	90	11.35	95	265	100	X	C
53		562		50	80	115	11.15	125	85	58	X	CRFS
54		560		55	115	70	10440	265	255	42	14	FSS. JOINT BEDDING CRACK CSKF
55		558		30	90	100	12.70	340	180	60	X	C
56		556		15	80	90	16.00	235	70	24	X	CKFS
37457	37080	37554	20	30	145	95	12415	515	195	18	8	FSS. CONT BEDDING CRACK FRFS

7981172 095

PROJECT: Mt. Black Colebrook Hill Grid

CO-ORDINATES — LINE: 5, 370, 800 N; FROM: 375, 520 E; TO: 375, 280 E

SAMPLED BY: SP + BM + GJ.

DATE: 25-11-80

MATERIAL: Soil

DEPTH: C Horizon

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/E	Pb	Zn	Cu	Fe %	Mn	Cr	As	Sn	DESCRIPTION
37458	37080	37520	20	55	80	100	12.45	850	130	24	4	CRFS
59		500		40	135	145	11.75	3700	115	15	2	CRFS
60		480		45	100	85	12.80	565	160	26	14	CRFS
61		460		15	75	40	9.80	195	110	14	12	CRFS
62		440		15	55	40	10.65	90	85	13	14	C
63		420		30	60	35	10.00	175	105	9	10	CRFS
64		400		70	90	55	11.35	535	105	9	X	CRA
65		380		60	70	40	11.50	700	105	6	X	CRFS
66		360		45	75	105	10.00	955	170	11	8	CRF
67		340		85	90	115	11.00	875	175	14	X	CRFS
68		320		85	85	145	10.00	1000	190	14	8	CRFS
69		300		20	145	80	11.50	2700	155	8	8	CRFS
37470		37528		40	120	75	11.00	2000	190	13	6	CRFS

79813 094

PROJECT: Mt. Black
Colebrook Hill Grid

CO-ORDINATES
LINE: 5,370,600N
FROM: 375,000E
TO: 375,080E

SAMPLED BY: S.P. + G.T + B.M

DATE: 25-11-80

MATERIAL: Soil

DEPTH: C Horizon

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL	Pb	Zn	Cu	Fe%	Mn	Cr	As	Sn	DESCRIPTION
37476	37060	37500	20	30	110	110	15.50	600	255	4	X	CRFS
77		020		75	180	80	13.50	1.65	850	15	9	CRF
78		040		45	145	115	16.00	600	510	28	8	C
79		060		25	80	70	7.45	590	150	14	X	CRF
37480		37508		25	100	200	1.40	2200	195	9	10	CRFS

7981174 098

PROJECT: Mt. Black
Colebrook Hill Grid

CO-ORDINATES
LINE: 5,370,600N
FROM: 375 860 E
TO: 375 480 E

SAMPLED BY: G. J + B.M.
DATE: 26-11-80

MATERIAL: Soil
DEPTH: C. Horizon

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	Interval	Pb	Zn	Cu	Fe %	Mn	Cr	As	Sn	DESCRIPTION
37481	37600	375860	20	5	20	.1 X	2350	50	25	8	250	CSRF
82		8400		5	10	X	1650	20	20	4	32	CRFS
83		8200		5	10	X	2350	20	15	3	X	CSRF
84		8000		5	10	X	6700	25	15	7	X	CSRF
85		7800		5	15	5	4.20%	25	25	19	12	CS
86		7600		45	30	50	6.15%	35	125	360	X	CDS
87		7400		45	90	95	11.50%	230	165	22	13	CRFS
88		7200		35	110	95	11.00%	235	120	17	8	CRFS
89		7000		40	75	100	12.00%	130	165	21	6	CRF
90		6800		35	110	90	11.50%	245	135	17	10	CBFS
91		6600		25	65	50	10.35%	250	155	26	12	CRF
92		6400		40	80	75	13.00%	360	180	21	8	CRF
93		6200		25	75	195	11.80%	145	85	9	12	CRFS
94		6000		15	80	135	12.85%	1300	55	4	20	CRF
95		5800		25	100	105	10.50%	170	115	12	30	CRF
96		5600		30	110	50	13.50%	180	145	10	8	CBF
97		5400		30	45	35	9.30%	185	165	14	23	CS
98		5200		80	70	95	13.00%	180	165	24	8	CBFS
99		5000		45	90	80	11.00%	1700	110	21	+	CRF
37500		375480		25	125	75	11.00%	210	80	11	X	CRFS

Collected by Geology 60

298175 100

PROJECT: MT. BLACK
COLEBROOK HILL GRID

CO-ORDINATES
LINE: 5 370 SOON
FROM: 375 460 E
TO: 375 100 E

SAMPLED BY: G.J.
DATE: 26-11-80

MATERIAL: SOIL
DEPTH: C HORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/E	Pb	Zn	Cu	Fe%	Mn	Cr	As	Sn	DESCRIPTION
38001	37060	37540	20	15	60	75	7.35	135	50	10	20	C S
002		440		15	100	75	8.00	245	35	4	26	C R F S
003		420		35	60	25	11.00	170	35	4	18	C R F S
004		400		45	60	105	10.50	470	40	17	29	C R F
005		380		20	70	75	15.00	155	175	1	25	C R F
006		360		445	65	70	7.35	100	55	36	20	C R F S
007		340		40	80	70	11.50	200	140	14	16	C R F S
008		320		45	70	70	12.50	470	220	8	X	C R F S
009		300		60	85	80	10.75	915	115	16	10	C R F
010		280		105	125	60	19.65	640	70	28	17	C R F
011		260		55	130	85	10.50	480	100	28	29	C R F S
012		240		35	90	70	7.25	650	75	19	10	C R F
013		220		45	135	60	13.00	1450	60	11	X	C R F S
014		200		25	100	80	10.70	655	75	8	16	C R F
015		180		30	85	45	12.50	475	85	8	16	C R F
016		160		15	90	120	10.25	715	65	5	20	C R F
017		140		25	95	45	10.55	800	140	8	34	C R F
018		120		20	60	85	6.65	285	130	20	26	C R F S
38019	37060	37510	20				not Analysed					C R F

& HOR. C HOR.

998176 099

PROJECT: MT. BLACK
COLEBROOK HILL GRID.

CO-ORDINATES
LINE: 5 370 400 N
FROM: 374 980 E
TO: 375 120 E

SAMPLED BY
26-11-80

DATE
26-11-80

MATERIAL
SOIL

DEPTH
C HORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/-	Pb	Zn	Cu	Fe%	As	Cr	Sn	Mn	DESCRIPTION
38220	37040	37490	20	40	35	45	4.35	25	130	20	530	C
221		37500		35	70	85	7.40	15	190	12	500	C K F S
222		020		45	75	60	7.85	80	135	80	500	C R F S
223		040		65	80	70	7.10	65	65	52	2850	C R F S
224		060		55	75	85	7.65	37	135	40	2800	C R F
225		080		60	65	70	7.90	44	115	160	1500	C R F
226		100		120	110	185	8.80	110	250	92	3250	C R F
227	37060	37512		115	335	100	6.65	16	75	52	435	C R F S

79 8177 104

PROJECT: MT. BLACK
COLEBROOK HILL GRID

CO-ORDINATES
LINE: 5370 600N
FROM: 374 340 E
TO: 374 620 E

SAMPLED BY: G.J.
DATE: 27-11-80

MATERIAL: SOIL
DEPTH: C HORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/-	Pb	Zn	Cu	Fe %	Cr	As	Mn	Sn		DESCRIPTION
38028	37060	37430	20	80	75	20	1.30	420	6	570	10	A more only / B	CO
29		360		65	90	20	1.10	720	7	1600	120	A more only	CO
30		380		80	240	10	9.15	2.4%	9	2450	4	B more abu. C	COS
31		400		45	245	10	9.30	1.35%	10	3500	22		CRFSO
32		420		135	210	15	9.45	1.15%	6	1550	32		CRFOS
33		440		55	155	15	10.30	1.30%	13	535	18		CORFS
34		460		65	335	25	5.70	5000	140	1450	6		COSRF
35		480		60	185	135	9.35	545	170	320	42		CRFS
36		500		70	415	150	8.35	500	170	1250	50		CRFS
37		520		125	315	170	7.90	305	170	3200	22		CRFS
38		540		45	175	130	8.10	145	70	2750	38		CRFS
39		560		25	160	140	7.65	165	44	1350	17		CR
40		580		15	115	115	8.25	180	35	1500	50		CRFS
41		600		30	125	90	7.75	165	32	2500	18		CRFOS
38042	37060	37462		20	115	105	8.00	155	45	2050	20		CRF

79178 096

PROJECT: MT. BLACK
COLEBROOK HILL GRID.

CO-ORDINATES
LINE: 5 370 400 N
FROM: 374 460 E
TO: 374 940 E

SAMPLED BY: G. J & B.M
DATE: 27-11-80

MATERIAL: SOIL
DEPTH: C HORIZON

BOOK No.
SHEET No.
JOB No.

SAMPLE NUMBER	CO-ORDINATES (N)/S	(E)/W	Interval (+)/-	Mo	Zn	Cu	Fe%	Mn	Cr	As	Sn	DESCRIPTION
38043	37040	37460	20	45	100	60	6.60%	130	140	26	16	CRFS
44		4800		50	90	55	6.10%	60	135	26	22	CRF
45		5000		55	90	55	7.40%	75	120	26	24	CRF
46		5200		25	65	40	5.70%	45	95	18	50	C
47		5400		55	65	90	6.45%	125	85	37	32	CRFS
48		5600		25	85	86	7.95%	1050	150	49	34	CRF
49		5800		40	140	100	8.10%	2200	130	42	20	CRFS
50		6000		50	120	100	8.35%	1050	120	36	10	CRFS
51		6200		40	100	115	7.75%	645	170	37	30	CRFS
52		6400		45	85	70	7.40%	605	160	36	6	CRF
53		6800		85	80	75	7.60%	1600	105	80	X	CS
54		6800		50	100	100	7.90%	1950	95	34	24	CRF
55		7000		35	120	60	5.65%	1750	125	17	11	B HOR ONLY CRFO
56		7200		35	85	40	7.15%	750	1100	19	14	B HOR. TOP C HOR CRFO
57		7400		20	80	60	7.20%	720	1100	31	36	CRF
58		7600		25	95	70	6.85%	900	95	35	50	CRF
59		7800		10	120	65	7.30%	2000	125	34	20	CRF
60		8000		25	85	55	7.30%	950	140	17	116	CRF
61		8200		20	80	45	7.25%	1250	135	21	49	B/C - HOR CRF
62		8400		20	110	65	8.35%	540	140	18	30	CRFS
63		8600		20	70	50	7.40%	255	130	55	X	CRFS
64		8800		20	60	45	7.00%	320	115	70	28	CS
65		9000		10	125	60	9.35%	170	125	33	X	CS
66		9200		15	90	35	9.85%	200	100	14	X	CRF
38061	37040	37494	0	10	45	45	4.65%	105	95	12	X	CSRF

7981179 106

PROJECT: MT. BLACK
COLEBROOK HILL GRID

CO-ORDINATES
LINE: 5 370 400N
FROM: 374 960 E
TO: 374 960 E

SAMPLED BY: G. J.
DATE: 27-11-80

MATERIAL: SOIL
DEPTH: C HORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES (N)/S	CO-ORDINATES (E)/W	Interval (+)/-	Pb	Zn	Co	Fe%	Mn	Cr	As	Sn	DESCRIPTION
38068	370400	374960	20	15	95	85	4.95%	45	115	114	X	C R FS

POOR CONT.

79180 105

PROJECT: MT. BLACK COLEBROOK HILL GRID

CO-ORDINATES
LINE: 5 370 400 N
FROM: 375 900 E
TO: 375 420 E

SAMPLED BY: G.J.

DATE: 28-11-80

MATERIAL: SOIL

DEPTH: C HORIZON

BOCK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES (N/S)	(E/W)	INTERVAL	Pb	Zn	Cu	Fe%	Mn	Cr	As	Sn	DESCRIPTION
38069	370400	375900	20	5	15	20	1.70	20	10	44	260	CRFS
70		880		25	10	5	1.05	5	30	9	X	CRFS
71		860		45	10	10	1.35	5	70	16	24	CRFS
72		840		X	10	5	.90	5	10	2	X	SRFC
73		820		X	10	5	1.35	10	10	2	18	RFS PASS CONT.
74		800		80	145	110	2.85	100	55	9	X	CRF
75		780		55	135	125	1.40	90	60	16	X	CRF
76		760		80	140	135	5.90	165	60	35	20	CSRF PASS CONT.
77		740		20	85	65	7.60	175	160	29	X	CRF "
78		720		5	60	60	11.30	140	210	29	X	CKF
79		700		X	60	20	13.80	260	125	9	X	CS
80		680		5	50	20	13.20	130	115	11	X	CRF B/C
81		660		X	60	70	12.60	255	110	10	X	CRFO "
82		640		40	150	115	9.80	2350	170	12	X	CRFSO "
83		620		30	145	115	11.90	735	85	19	X	CRF
84		600		20	130	65	4.02	185	90	6	X	CKF
85		580		10	75	65	7.50	105	80	8	X	C
86		560		X	50	45	5.90	75	65	4	2	C
87		540		40	115	135	11.20	115	25	8	X	CKF
88		520		10	60	115	15.00	215	40	5	X	C
89		500		X	55	100	10.60	530	45	3	X	C
90		480		15	95	140	16.60	475	90	9	X	CRF
91		460		5	75	75	9.50	165	65	11	X	C
92		440		45	165	50	5.80	435	55	14	X	C
38093	370600	375420		115	160	220	20.40	530	70	30	X	F

7981181 101

PROJECT: MT. BLACK COLEBROOK HILL GRID

CO-ORDINATES
LINE: 5 370 400 N
FROM: 375 400E
TO: 375 280E

SAMPLED BY: G.J.
DATE: 28 - 11 - 80

MATERIAL: SOIL
DEPTH: C HORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL (10)	Fe	Mo	Cr	Cu	Zn	As	Pb	Sn	DESCRIPTION
380947	370400	375400	20	10.6%	75	75	110	140	22	185	x	C
95		380		10.5%	165	125	55	70	12	30	x	C
96		360		10.4%	145	65	70	70	9	20	x	C S
97		240		13.3%	230	75	70	85	10	15	x	C S
98		320		10.1%	385	85	70	85	17	25	x	C S R F
99		300		10.5%	1050	100	60	90	12	30	x	C
100	370400	375280		10.2%	515	115	75	80	21	25	x	C
												C S

7981182 102

PROJECT: MT BLACK. COLEBROOK HILL GRID.

CO-ORDINATES
LINE: 5, 370,400N.
FROM: 375,260E
TO: 375 140E

SAMPLED BY: G.J.

DATE: 28-11-80

MATERIAL: SOIL

DEPTH: C. HORIZON.

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES (N/S)	CO-ORDINATES (E/W)	INTERVAL +/(-)	Pb ppm	Zn	Cu	Fe%	Mn	Cr	As	Sn		DESCRIPTION
38101	370400	375260	20	20	80	50	9.5	470	85	23	12		CSRF
102		24 0		65	85	45	9.8	545	70	33	x	B/T HORIZON	C
103		220		100	175	70	9.9	2400	75	19	x		CSR
104		200		130	150	45	7.3	1300	100	22	x	A HORIZON	C
105		180		25	75	35	7.4	600	70	13	x		CR
106		160		15	50	30	5.1	150	60	15	x		CS
38107	370400	375140		150	140	75	4.9	1700	86	18	x		C

7981183 103

PROJECT: MT BLACK COLEBROOK GRID.

CO-ORDINATES
LINE: 5 370 200N
FROM: 374 920E
TO: 374 440E

SAMPLED BY: SBP
DATE: 29-11-80

MATERIAL: SOIL
DEPTH: C HORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	Interval +/-	Pb	Zn	Cu	Fe%	Mn	Cr	As	Sn	DESCRIPTION
38108	370200	374920	20	20	65	90	9.20%	205	115	22	VAR	C
09		400		X	70	20	5.20%	235	100	5	X	C R F S O
38110		880		120	50	20	5.30%	175	105	12	X	C C
11		860		X	105	30	11.00%	350	120	13	X	C
12		840		5	100	95	10.80%	495	115	15	X	C R F
13		820		5	100	55	9.30%	265	110	10	X	C R F S
14		800		10	120	80	10.50%	550	125	15	X	C R F
15		780		10	150	85	9.50%	395	165	15	X	C R F
16		760		5	100	100	9.80%	695	230	18	X	C R F S
17		740		5	90	95	8.30%	1660	195	18	X	C R F S
18		720		5	130	45	10.50%	735	305	7	X	C R F S O
19		700		X	90	60	9.60%	455	225	9	X	C R F S
20		680		125	50	80	6.20%	1160	1970	130	X	C R F
21		660		25	55	65	5.70%	95	240	20	X	C R F S
22		640		40	55	110	6.80%	900	95	260	X	C R F S O
23		620		10	100	70	7.20%	850	170	45	X	C R F
24		600		X	75	65	7.40%	345	170	42	X	C R F
25		580		15	75	65	7.30%	235	125	42	X	C R F S
26		560		10	105	70	9.50%	325	90	70	X	C R F S O
27		540		20	125	60	9.00%	285	65	130	X	C R F S
28		520		20	125	60	7.30%	1050	80	90	X	C R F S
29		500		10	95	55	6.30%	510	80	50	X	C R F
30		480		X	150	15	7.60%	850	1289	22	X	C O S
31		460		10	65	10	9.20%	4050	1709	10	X	C R F O
38112	370200	374440	20	20	150	10	5.50%	1900	1353	9	X	C O R F S

29818 84 1111

PROJECT: MT BLACK COLEBROOK HILL GRID

CO-ORDINATES
LINE: 5 370 200N
FROM: 374 420E
TO: 374 100E

SAMPLED BY: SBP
DATE: 29-11/80.

MATERIAL: SOIL
DEPTH: C HORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/-	Pb	Zn	Cu	Fe %	Mn	Cr	As	Sn			DESCRIPTION
38133	370200	374200		35	180	10	6.0%	2000	1800		X	A HORIZON		OC
134		400		15	340	5	10.5%	4600	9500		X	B HORIZON		CRFSO
135		380		30	335	5	7.8%	3350	1.0%		X	"		CRF
136		360		165	320	10	12.4%	2850	1.15%		X			CSRF
137		340		15	200	20	6.4%	385	9500		X			CRFS
138		320		15	130	45	7.2%	215	1800	12	X			CRF
139		300		X	175	10	3.4%	225	1.65%	5	X			CRFS
140		280		5	110	135	7.2%	230	4110	8	X	B Poss. C Hor		CRFO
141		260		X	155	45	6.8%	210	9500	6	X	B Poss. C Hor.		CRF
142		240		25	70	200	7.1%	1900	4800	12	X			CRFO
143		220		10	70	125	6.4%	125	4000	6	X			CRF
144		200		20	80	145	7.9%	265	2800	6	X			CRF
145		180		15	75	130	7.4%	255	2100	5	X			CRFS
146		160		20	85	130	7.8%	590	2500	9	X			CRFS
147		140		25	75	75	7.4%	375	2050	13	X			CRFS
148		120		45	80	85	6.8%	80	1300	11	X			C
38149	370200	374100		40	85	105	7.2%	75	950	12	X			CRF

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79

2981865

PROJECT: MT. BLACK COLEBROOK HILL GRID.

CO-ORDINATES
LINE: 5370 400N
FROM: 374 440E
TO: 374 320E

SAMPLED BY: SBP
DATE: 29-11-80

MATERIAL: SOIL
DEPTH: C HORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/-	Pb	Zn	Cu	Fe %	Mn	Cr	As	Sn		DESCRIPTION
38150	370400	374440	20	215	3350	90	10.80%	605	175	24	X	Stream Sediment	CRFS
51		420		85	145	120	11.30	300	410	18	X		CRF
52		400		55	85	35	6.50	130	2100	13	X		CRFS
53		380		35	170	50	14.80	190	4800	24	X		CRF
54		360		20	360	20	10.90	1.09%	8200	9	X	Bedrock Contact	CRFSO
55		340		45	430	35	11.50	1.35%	1.35%	10	X	"	CRF
38156	370400	374320		40	495	70	14.20	3200	2.85%	12	X	"	CRFSO

7981866

PROJECT: MT. BLACK COLEBROOK HILL GRID

CO-ORDINATES — LINE: 5 370 000 N; FROM: 3 74 080 E; TO: 3 74 560 E

SAMPLED BY: SBP

DATE: 29-11-80

MATERIAL: SOIL

DEPTH: C HORIZON

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES (N)/S	(E)/W	Interval (+)/-	Pb	Zn	Cu	Fe %	Mn	Cr %	As	Sn	DESCRIPTION
38157	370000	374080	20	25	370	5	7.80%	3500	250	4	X	B HORIZON POSS. C CRFSO
58		100		55	605	5	17.20%	3300	200	7	X	B HORIZON CRORFS
59		120		45	735	5	22.30%	1200	240	7	X	A HORIZON CORS
60		140		40	1100	5	21.30%	1650	340	5	X	A POSS. B HOR. CORFS
61		160		60	430	5	12.20%	3050	1.90	5	X	" CORS
62		180		5	580	50	25.50%	1.13%	.850	7	X	A HORIZON CORSRF
63		200		25	1600	50	24.80%	1900	900	6	6	A HORIZON POSS. B SCORFC
64		220		25	1650	50	21.10%	7700	1750	24	X	B HORIZON POSS. CONT. CSRF
65		240		20	130	55	3.20%	2600	820	9	30	B HOR. POSS. C HOR. CRFSO
66		260		15	105	55	54.00	2900	1100	6	X	A HOR. ONLY CO
67		280		15	135	45	1.16%	650	700	8	X	A POSS B HOR. CORS
68		300		15	55	40	1.23	850	950	10	X	B HOR. POSS C HOR. CORS
69		320		15	110	40	7250	650	1100	3	X	B HOR. ONLY CORFS
70		340		15	1350	30	6.9%	415	2500	8	X	CRFS
71		360		15	300	30	4.5%	250	2900	11	X	B HOR. POSS C HOR. CRFSO
72		380		10	335	35	8.62	3900	2200	9	X	B HOR. ONLY CO
73		400		10	305	30	7.52	2000	1850	5	X	A HOR. POSS C HOR. CRF
74		420		15	330	30	9.42	1300	2150	3	X	" CSO
75		440		15	445	30	10.92	1.50%	1250	36	X	A HOR. ONLY OSRF
76		460		10	235	25	7.23	3350	890	5	X	" CO
77		480		15	345	20	10.62	4700	1800	15	X	B POSS. C HOR. CRFOS
78		500		25	460	55	4.16%	545	2150	5	X	C
79		520		45	300	105	7.90	2350	2200	10	X	A HOR. & C HOR. CORSRF
80		540		10	320	55	5.00%	740	3100	13	X	B HOR. ONLY CORS
38161	370000	374560		35	65	60	4.50%	165	2000	19	X	B HOR. POSS C HOR. CRFS

7931187 115

PROJECT: MT. BLACK
COLEBROOK HILL GRID

CO-ORDINATES
LINE: 5370 000N
FROM: 374 580 E
TO: 374 940 E

SAMPLED BY: SBP
DATE: 29-11-80

MATERIAL: SOIL
DEPTH: C HORIZON

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES (N)/S	(E)/W	INTERVAL (+)/-	Pb	Zn	Cu	Fe %	Mn	Cr	As	Sn		DESCRIPTION
38182	37000	37458	20	25	75	65	7.2	95	3500	50	4		C R F
813		600		25	100	65	8.8	120	3050	37	6		C R F S
814		620		20	140	65	9.3	105	2800	60	X		C R F S
815		640		50	80	150	6.6	55	3200	33	10		C R F S
816		660		20	65	60	5.2	45	1100	55	12		C R F S
817		680		40	55	140	4.8	35	3000	40	X		C R F S
818		700		15	90	70	7.5	125	1200	13	X		C
819		720		25	60	70	6.7	115	3450	13	X		C R F
910		740		15	60	25	7.4	55	2050	17	8	POSS CONT.	C R F
911		760		15	45	25	5.8	85	2000	10	6		C R F S
912		780		5	65	30	6.1	135	1000	16	X		C R F
913		800		15	75	35	7.0	135	6000	10	X		C R F
914		820		10	60	25	6.0	130	2800	9	6		C R F
915		840		15	80	30	7.5	120	1900	7	10		C R F
916		860		10	90	30	6.2	250	3450	10	X		C R F
917		880		30	55	35	4.7	50	1.50%	3	6	POSS CONT.	C
918		900		30	70	30	2.5	55	6600	2	X	"	C
919		920		25	45	35	2.1	40	1.55%	2	16		C
38200	37000	37490		20	130	30	9.0	115	11100	9	14		C

7981188 114

PROJECT: MT BLACK. COLEBROOK HILL GRID.

CO-ORDINATES — LINE: 5,370,200N; FROM: 374,940E; TO: 375,420E

SAMPLED BY: SP+J.S+GJ.

DATE: 30-11-80

MATERIAL: SOIL

DEPTH: CHORIZON

SAMPLE NUMBER	CO-ORDINATES (N)S	(E)W	INTERVAL (+)/-	Pb	Zn	Cu	Fe%	Mn	Cr	As	-Sn	DESCRIPTION
38201	5,370,200	374,940	20	25	90	30	7.8	315	1400	4	X	CRF
02		960		25	140	25	6.9	250	3400	4	X	CRFS
03		980		10	50	30	6.8	310	2150	13	X	C
04		375,000		25	90	40	7.8	2550	700	13	X	CRFS
05		020		35	75	65	7.6	720	2650	35	X	CRF
06		040		10	120	40	6.8	1800	1200	75	X	CRFS
07		060		5	100	45	7.0	1050	1250	60	X	ORF
08		080		145	185	160	7.3	1400	150	69	X	CRFS
09		100		195	460	95	7.75	435	95	27	X	C
10		120		75	175	85	8.30	1950	155	25	X	CRFS
11		140		55	140	65	8.40	900	165	21	X	CO
12		160		45	135	80	7.50	455	180	24	X	CRFS
13		180		25	65	35	7.20	390	135	14	X	CRF
14		200		20	80	35	7.5	165	145	11	X	CRFS
15		220		60	90	50	6.65	550	135	9	X	CRFO
16		240		50	90	60	7.9	320	135	12	X	CRF
17		260		45	90	65	10.4	205	160	19	X	CRF
18		280		55	185	105	10.65	220	135	26	X	CRF
19		300		60	95	70	7.8	480	110	21	X	CRF
20		320		125	70	65	6.6	135	110	18	X	CRF
21		340		65	130	100	12.6	305	235	12	X	CRF
22		360		95	110	85	12.55	215	250	25	X	CRF
23		380		70	130	65	6.75	315	150	29	X	CRFO
24		400		100	115	85	14.55	1000	175	9	X	CRF
38225		375,420		150	225	130	12.80	560	105	6	X	CRF

B HORIZON POSS. C HORIZON

B HORIZON POSS. C

B HORIZON ONLY

BOTTOM OF PEAT HORIZON

79 81 89 110

PROJECT: Mt. Black
Colebrook Hill Grid

CO-ORDINATES
LINE: 5,370,200 N
FROM: 375, 440E
TO: 375, 840

SAMPLED BY: S.P. + J.S. + G.J.
DATE: 30-11-80

MATERIAL: Soil
DEPTH: C Horizon

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	Interval E/-	Pb	Zn	Cu	Fe %	Mn	Cr	As	Sn		DESCRIPTION
38226	370,200	375,440	20	55	140	115	8.25	635	75	14	X		CRF
27		460		25	50	45	5.6	65	95	2	X		CO
28		480		25	110	85	16.8	150	140	18	X		CRF
29		500		300	470	140	15.5	1150	20	8	X		CS
30		520		710	1000	155	12.15	165	100	5	X		CRFS
31		540		125	205	170	15.4	135	85	10	X		C
32		560		50	70	65	4.6	70	65	18	X	Forest fire burned this area in 1980	CRFS
33		580		30	60	30	6.15	50	95	4	X		CS
34		600		35	35	30	6.70	55	155	7	X		CRF
35		620		15	30	30	5.25	50	105	2	X		C
36		640		15	25	50	12.55	55	65	8	X		C
38237	370,200	375,660		5	20	15	3.8	40	70	2	X		C
38		680		15	20	25	7.5	35	105	17	X		C
39		700		115	65	105	13.55	155	50	19	X	Horizon Colebrook Hill	CRFSO
40		720		45	85	115	14.4	70	630	16	X		C
41		740		25	35	30	5.5	75	130	6	X		C
42		760		35	65	110	15.85	90	170	6	X		C
43		780		40	40	160	13.55	355	325	33	X		C
44		800		45	40	145	17.75	50	330	25	X		C
45		820		15	35	45	4.8	50	165	8	X		C
38246	370,200	375,840		40	65	30	1.55	155	55	7	X		CRF

298190 109

PROJECT: Mt. Shasta
Colebrook Hill Grid

CO-ORDINATES
LINE: 5,370,000 N
FROM: 275,340 E
TO: 374,960 E

SAMPLED BY: S.P. + J.S + G.J.
DATE: 30-11-80

MATERIAL: Soil
DEPTH: C Horizon

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	Interval +/0	Pb	Zn	Cu	Fe %	Mn	Cr	As	Sn	DESCRIPTION
38272	370,000	375,340	20	30	70	40	9.4%	350	75	6	X	C R F
73		374,320		30	70	70	9.2	210	70	6	8	C R F
74		374,300		75	85	80	10.2	150	145	6	18	C R F
75		374,280		125	135	90	10.3	175	110	20	14	C R F
76		374,260		85	120	95	9.1	230	151	20	10	C R F
77		374,240		80	195	60	8.7	1650	80	23	X	C R F S
78		374,220		56	160	85	8.1%	2650	80	30	8	C R F
79		374,200		55	80	60	4.7%	1050	105	30	X	C O S
80		374,180		95	170	65	8.1%	1800	165	50	X	C R F S
81		374,160		65	180	95	17.2%	1550	100	40	X	C R F
82		374,140		140	210	90	8.1%	510	115	60	12	C R F
38283		374,120		65	110	50	6.9%	300	120	27	6	C O
84		374,100		40	85	50	7.0%	320	145	37	8	C R F
85		374,080		55	45	55	5.1%	135	55	70	14	C R F
86		374,060		40	70	60	6.2%	495	75	70	8	C R F
87		374,040		15	60	55	6.5%	435	80	20	X	C
88		374,020		30	95	60	8.0%	1600	95	16	X	C
89	375,000			20	65	50	9.6%	520	100	7	X	C R F
90	374,980			35	55	35	5.6%	340	110	10	10	C R F
91		374,960		25	70	45	8.1%	275	25	10	12	C

7981911 113

PROJECT: Mr. Black
Colebrook Hill Grid

CO-ORDINATES
LINE: 5,372,600
FROM: 375,900E
TO: 375,700E

SAMPLED BY: S.P. + J.S.

DATE: 1-12-80

MATERIAL: Soil

DEPTH: C. Horizon

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/-	Fe	Mn	Cr	Cu	Zn	Ag	Pb	Sn	DESCRIPTION
38292	372,600	375900	20	1150	25	25	10	5	2	10	x	A Horizon & B F C
93		880		490	20	30	x	5	2	x	x	C S R F
94		860		1300	25	15	x	5	5	5	10	glacial S R F C
95		840		590	30	20	x	5	2	5	10	glacial S R F C
96		820		655	20	20	x	5	3	5	6	glacial S R F C
97		800		395	15	20	x	5	2	x	14	glacial S C R F
98		780		320	10	20	x	5	1	x	26	glacial S R F C
99		760		1850	30	15	15	45	3	65	6	B Horizon only C O R F
38300		375740		950	10	10	10	25	4	35	x	B Horizon only C O S R F
01		720		6600	75	15	10	5	5	5	x	S R F C
02		700		10.1%	130	240	65	85	20	20	x	Possible contact between glacial till and bedrock C R F S

79 8192 083 L

PROJECT: MT BLACK. COLEBROOK HILL GRID

CO-ORDINATES
LINE: 5,371,000N
FROM: 375,560E
TO: 376,340E

SAMPLED BY: S.P. + B.M. + D.E.
DATE: November '80

MATERIAL: Soil
DEPTH: C. Horizon

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/-	Fe	Mn	Cr	Cu	Zn	As	Pb	Sn	DESCRIPTION
3840	5,371,000N	375,560E	20	750	15	10	X	X	2	X	X	REC
04		580		3300	10	15	X	X	7	10	22	CRF
05		600		575	10	15	X	X	1	5	14	CRF
06		620		1300	10	20	5	X	2	5	4	CRF
07		640		900	10	15	X	X	4	X	6	REC
08		660		590	10	15	X	X	1	X	X	CRF
09		680		6500	10	15	5	X	9	X	5	C
10	376,000E			1300	10	20	5	X	X	5	240	CRF
11		020		4450	15	30	5	X	7	10	38	C
12		040		1400	10	20	5	X	4	5	10	CRF
13		060		900	10	15	5	X	1	X	X	REC
14		080		1050	10	15	X	X	1	X	10	CRF
15		100		550	10	10	5	X	1	X	15	CRF
16		120		640	15	10	5	X	1	X	X	CRF
17		140		4.1%	30	300	35	30	33	40	X	C
18		160		9500	10	55	110	X	19	15	X	CRF
19		180		3.6%	10	110	45	5	17	15	X	C
20		200		3.8%	15	100	35	15	14	20	X	CRF
21		220		5.3%	25	105	35	20	12	15	X	C
22		240		5.5%	45	105	40	45	10	25	X	CRF
23		260		3.6%	25	75	20	15	6	15	6	CRF
24		280		6.0%	60	90	45	40	11	25	X	CRF
25		300		1.5%	475	180	240	120	31	35	X	CRF
26		320		7.8%	140	100	60	80	22	15	X	CRF
27		340		5.8%	245	60	45	45	13	30	X	CRF

7981193 088

PROJECT: MT BLACK.

COLEBROOK HILL GRID

CO-ORDINATES
LINE: 5,371,000N.
FROM: 376,360E
TO: 376,360E

SAMPLED BY: SP + PA + CM.

DATE: 2-12-80.

MATERIAL: SOIL

DEPTH: CHORIZON

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES (N)/S	(E)/W	Interval (+)/-	Fe	Mn	Cr	Cu	Zn	As	Pb	Sb	DESCRIPTION
36425	371,000	376,360	20	6.8%	270	85	55	35	20	15	X	CRF

79194 089

PROJECT: MT BLACK. COLEBROOK HILL GRID.

CO-ORDINATES: LINE: 5,377,200N. FROM: 375,340E. TO: 375,740E.

SAMPLED BY: CM+PA+BMQ.

DATE: 3-12-80.

MATERIAL: SOIL.

DEPTH: CHORIZON.

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	Interval +/-	Pb	Zn	Cu	Fe%	Mn	Cr	As	Sn	DESCRIPTION
38429	377200	375340	20	20	70	215	9.65	640	240	430	12	CRF
430		360		20	65	215	8.30	1000	200	400	26	C
431		380		10	65	330	9.85	635	255	600	16	CRF
432		400		15	65	290	9.00	1000	220	440	X	CRF
433		420		10	70	330	8.75	565	215	400	X	CORF
434		440		40	90	220	9.80	600	215	270	16	CO
435		460		50	100	145	8.05	365	200	130	X	CRF
436		480		50	155	140	7.85	620	155	220	32	CRF
437		500		25	65	105	10.25	295	170	110	8	CRF
438		520		30	45	55	11.50	320	195	190	34	CRF
439		540		30	55	95	11.65	210	165	100	60	CRF
440		560		35	90	75	13.00	515	185	27	69	CRF
441		580		45	55	55	11.05	205	165	51	40	C
442		600		40	50	65	10.50	135	180	52	40	CRF
443		620		55	45	75	10.00	125	190	55	38	C
444		640		120	75	45	4.65	120	75	31	6	CRF
445		660		5	10	X	12.50	15	10	5	2	CRF
446		680		10	10	X	8.50	15	10	3	8	CRFO
447		700		5	5	X	7.80	10	15	3	4	C
448		720		5	5	X	11.50	10	10	3	22	CRF
449		740		5	X	X	6.90	5	10	3	10	CRF

7981995 081

PROJECT: MT BLACK. COLEBROOK HILL GRID

CO-ORDINATES — LINE: 5,372,400N — FROM: 375,880E — TO:

SAMPLED BY: CM + PAT + BOB

DATE: 3-12-80

MATERIAL: SOIL

DEPTH: C HORIZON.

BOCK N° / SHEET N° / JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +10	Pb	Zn	Cu	Fe%	Mn	Cr	Ag	Sn	DESCRIPTION
3845 0	372400	375880	20	10	XX	X	540	5	15	2	2	CRFS
51		8 60		25	20	5	975	55	10	3	14	OCRFS
52		8 40		65	20	10	1350	15	5	3	4	CRFO
53		8 20		25	10	5	1.25	15	20	15	33	CRF
54		8 00		10	5	5	1.00	10	15	16	X	C
55		7 80		20	10	5	1.85	10	25	21	4	C
56		7 60		10	5	X	2200	5	15	3	12	CRFS
57		7 40		15	5	X	1050	5	15	3	22	CRF
58		7 20		65	75	130	13.50	145	380	10	30	C
59		7 00		60	95	150	14.00	160	295	20	14	C
60		6 80		30	70	85	12.80	180	285	12	2	CRF
61		6 60		80	65	120	11.20	90	170	17	X	CRF
62		6 40		35	60	70	10.45	120	180	16	4	CRF
63		6 20		25	85	110	8.30	220	150	75	8	CRF
64		6 00		40	80	100	9.80	180	155	85	36	CRFO
65		5 80		115	150	115	10.50	400	185	39	X	C
66		5 60		35	55	45	5.50	125	110	35	6	C
67		5 40		25	80	105	11.00	210	175	39	32	C
68		5 20		45	80	175	10.00	265	190	62	18	CRF
69		5 00		40	110	205	6.40	210	130	170	38	CRF
70		4 80		35	105	310	-7.85	405	100	600	10	CRFO
71		4 60		25	85	485	10.10	305	180	750	24	CRF
72		4 40		20	65	245	8.65	385	215	300	16	CRF

ROCKS ON HILL NEAR CREEK

ROCKS ON HILL NEAR CREEK

ROCKS ON HILL NEAR CREEK

7981960 082

PROJECT: Mt. Blackie / Colebrook Hill Grid

CO-ORDINATES — LINE: 5,370,400 N; FROM: 374,180 E; TO: 374,300 E

SAMPLED BY: G.J + A.M.Q + J.S.

DATE: 5-12-80

MATERIAL: Soil

DEPTH: C Horizon

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES (N/S)	CO-ORDINATES (E/W)	Interval	Pb	Zn	Cu	Fe %	Mn	Cr	As	Sn	DESCRIPTION
39301	3204	00 3741	50 20	30	35	70	8.00	55	600	23.0	14	CRF
02		200		30	60	55	7.20	50	220	45	x	CRF
03		220		25	105	130	7.05	155	175	7	x	CRF
04		240		15	70	135	11.03	75	65	8	x	C
05		260		290	125	135	7.05	155	175	7	x	CRF
06		280		35	150	240	8.20	300	50	3	x	C
07		300		25	135	160	12.50	165	350	8	x	CRF

Possible contamination (Soil)

79819 7 108

APPENDIX III

Stream Sediment Sample Data Sheets - Tullah
- Colebrook Hill
- Natone

798199

PROJECT: Mt. Black NaTone Grid

CO-ORDINATES LINE: 5,368,500 FROM: TO:

SAMPLED BY: G.J. + B. McQ

DATE: 23-12-80

MATERIAL: Stream Sods

DEPTH:

BOOK N°

SHEET N°

FOS N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	Interval +/-	Cu ppm	Pb ppm	Zn ppm	Co ppm	Mn ppm	Fe %	Ag ppm	Cr ppm	As ppm		DESCRIPTION
28464	36850	37432		26	40	40	<10	160	1.50	<2	75	30	very small creek	200° mag
28465	36850	37458		<10	<20	30	<10	110	2.00	<2	25	<5	very small creek	160° mag
28466	36850	37506		<10	<20	35	<10	230	1.50	<2	50	<5	medium creek	150° mag
28467	36850	37576		65	60	90	<10	230	1.00	<2	15	<5	medium creek	210° mag
28468	36850	37589		75	260	340	<10	1600	1.80	<2	<10	30	large creek	220° mag
28469	36850	37603		150	320	1000	<10	1900	2.00	<2	15	40	large creek	310° mag
28470	36850	37610		25	110	110	<10	1000	1.90	<2	<10	10	small creek	250° mag
28471	36850	37620		25	130	120	<10	1900	1.50	<2	10	10	small creek	250° mag

123

798200

PROJECT: Mt. Black. Natone Grid.

CO-ORDINATES LINE: 5368 500 N

FROM:

TO:

SAMPLED BY: G.J. & B.McQ

DATE: 23-12-80

MATERIAL: Stream Seds.

DEPTH:

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES (N)/S	(E)/W	Interval +/-	Sn ppm	DESCRIPTION
28464	36850	37473		10	
4654	36850	37485		<10	
4665	36850	37567		20	
4677	36850	37568		<10	
4688	36850	37581		<10	
4699	36850	37603		<10	
4701	36850	37614		10	
28471	36850	37617		<10	

798201

PROJECT: Mt. Black / Natone Grid

CO-ORDINATES — LINE: 5,369,500N — FROM: — TO:

SAMPLED BY: Cr.J. + Bm.Q + SP. + J.S.

DATE: 24 - 12 - 80

MATERIAL: Stream Sods

DEPTH:

BOOK N°: SHEET N°: JOB N°:

SAMPLE NUMBER	CO-ORDINATES N/S	E/W	Interval +/-	Cu ppm	Pb ppm	Zn ppm	Co ppm	Mn ppm	Fe %	Ag ppm	Cr ppm	As ppm		DESCRIPTION
28472	369500	375434		10	<20	50	<10	470	1·60	<2	25	<5	scarp	80° mag
28473	369500	375460		<10	<20	30	<10	270	1·20	<2	30	<5	scarp	25° mag
28474	369500	375600	5	25	<20	100	<10	740	3·00	<2	35	<5	small creek	80° mag
28475	369500	375643	5	20	<20	65	<10	500	2·00	<2	40	<5	small creek	65° mag
28476	369500	375719		<10	<20	15	<10	80	0·57	<2	<10	<5	very small creek	60° mag
28477	369500	375740		<10	<20	25	<10	95	1·00	<2	30	10	very small creek	25° mag
28478	369500	375818		15	<20	25	<10	100	0·62	2	15	<5	small creek	350° mag
28479	369500	375877		<10	<20	10	<10	25	0·50	<2	30	<5	very small creek	350° mag
35720	369500	376380		10	20	70	<10	320	0·96	<2	10	<5	medium creek	330° mag
7221	369500	376290		10	<20	75	<10	140	0·82	<2	80	10	small creek	350° "
7222	369500	376200		20	<20	55	<10	190	1·40	<2	210	30	small creek	330° "
7223	369500	375925		<10	<20	30	<10	120	0·78	<2	75	30	small creek	336° "
7224	369500	374370		25	<20	440	40	1200	5·50	<2	8900	10	small creek	235° "
35723	369500	374145		15	160	450	35	1300	5·40	<2	2·05%	10	large creek	125° "

- ultramafic outcrops in creek beds. JMD

121

798202

PROJECT: Mt. Black
Natone Grid

CO-ORDINATES
LINE: 5869 500 N
FROM:
TO:

SAMPLED BY: G.J., B.M.P., S.P. & J.S.
DATE: 24-12-80

MATERIAL: Stream Sed's.
DEPTH

BOOK N°
SHEET N°
JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/-	Sn ppm	DESCRIPTION
28472	3695000	375434		30	
28473	3695000	375466		10	
28474	3695000	375600		30	
28475	3695000	375643		<10	
28476	3695000	375719		10	
28477	3695000	375740		<10	
28478	3695000	375848		10	
28479	3695000	375877		<10	
35720				<10	
7221				<10	
7222				<10	
7223				<10	
7224				<10	
35725				<10	

122

798203

PROPERTY: Mt. Black Natone Grid

CO-ORDINATES — LINE: 5,367,500N — FROM: — TO:

SAMPLED BY: JS + G.J. & C.M.

DATE: 29-12-80

MATERIAL: Stream Sediment

DEPTH:

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES (N/S)	(E/W)	Interval +/-	Cu ppm	Pb ppm	Zn ppm	Co ppm	Mn ppm	Fe %	Ag ppm	Cr ppm	As ppm		DESCRIPTION
28480	36750	37523	Ring mater.	490	1600	8500	<10	3400	5.30	4	10	300	large ck.	1 mg mag
28481	36750	37483		15	30	95	<10	2000	2.60	<2	15	60	V.S. small ck.	20% mag.
28482	36750	37465		30	40	160	<10	970	1.90	<2	30	10	small ck.	20% mag
28483	36750	37458		30	20	85	<10	2000	3.60	<2	30	<5	v. small ck.	15% mag.
28484	36750	37423	Ring mater.	660	1800	8300	<10	4400	7.30	<2	20	300	Small river	35% mag.
28485	36750	37402		40	310	100	<10	1100	3.40	<2	80	100	very small creek	20% mag.
28486	36750	37381		40	120	290	<10	1000	5.00	2	180	30	V. small ck.	10% mag.
28487	36750	37379		10	<20	150	<10	640	2.30	2	610	20	v small ck	
Note. Ring Rater denotes moderate contamination from Hercules mine.														
35726	36750	37500	Baker Ck	620	1600	9600	<10	2700	6.00	8	25	400	large ck.	335 mag
35727	36750	37573		15	940	940	<10	4400	6.20	<2	170	60	med ck	50% mag.

Note Baker creek carries strong contamination from Hercules mine.

125

798204

PROJECT: Mt. Black. Natone Grid

CO-ORDINATES — LINE: 5367 500 N; FROM:; TO:

SAMPLED BY: G.J. & C.M.

DATE: 29-12-80

MATERIAL: Stream Sols.

DEPTH:

SOCK No:

SHEET No:

JOB No:

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/-	Sn ppm	DESCRIPTION
28480	367500	375235		< 10	
28481	367500	374830		< 10	
28482	367500	374656		< 10	
28483	367500	374558		< 10	
28484	367500	374230		< 10	
28485	367500	374022		< 10	
28486	367500	373810		< 10	
28487	367500	373798		< 10	
35726				< 10	
35727				< 10	

126

798205

PROJECT: Mt. Black - Nalone Grid

CO-ORDINATES — LINE: 5,364,500 — FROM: — TO:

SAMPLED BY: P.A. & J.S.

DATE: 2-1-81

MATERIAL: Stream Sods

DEPTH:

BOOK No. — SHEET No. — JOB No.

SAMPLE NUMBER	CO-ORDINATES (N) S	(E) W	INTERVAL +/-	Cu ppm	Pb ppm	Zn ppm	Co ppm	Mn ppm	Fe %	Ag ppm	Cr ppm	As ppm		DESCRIPTION
28494	364500	373680		25	70	95	<10	22000	7.00	<2	45	60	small ck.	345° mag
28495	364500	373677		25	<20	80	<10	13000	5.20	<2	310	<5	small ck.	337° mag
28496	364,500	373715		25	100	85	<10	29000	4.70	<2	570	<5	v. small ck	326° mag
28497	364,506	373755		25	100	110	<10	35000	5.30	<2	170	<5	v. small ck	260° mag.
28498	364,500	373760		35	10	110	<10	30000	6.10	<2	610	<5	v. small ck	278° mag.
28499	364,500	374270		55	60	120	<10	56000	8.20	<2	90	100	v. small ck	10° mag
28502	364,500	374383		15	80	130	<10	10,000	9.10	<2	100	100	v. small ck (dug)	30° mag
32997	364500	374400		35	100	60	<10	29000	7.70	2	95	10	v. small ck.	015° "
28488	364500	374421		55	400	210	<10	46000	6.00	<2	150	40	med ck	345° "
4889	364500	374500		35	100	75	<10	23000	3.60	<2	290	40	v. small ck	278° "
4890	364500	374696		25	160	190	<10	27000	2.40	<2	180	20	med ck.	18° "
4891	364500	374806		20	50	65	<10	17000	2.50	<2	50	10	small ck	320° "
4892	364500	375024		<10	<20	20	<10	1700	1.60	<2	20	10	small ck	335° "
28493	364500	375305		20	<20	20	<10	3100	1.60	<2	50	<5	small ck	337° "

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798206

PROJECT: Mt. Black. Natone Grid.

CO-ORDINATES — LINE: 5364 500 N; FROM:; TO:

SAMPLED BY: P.A. & J.S.

DATE: 2-1-81

MATERIAL: Stream Seds.

DOCK N°:

SHEET N°:

JOB N°:

DEPTH:

DESCRIPTION:

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	Interval +/-	Sn ppm
28494	364600	373480		<10
28495	364500	373677		<10
28496	364500	373715		<10
28497	364500	373755		<10
28498	364500	373760		<10
28499	364500	374270		<10
28500	364500	374383		<10
32997				<10
28488				<10
4489				<10
4490				<10
4491				<10
4492				<10
28493				<10

132

798207

PROJECT: MT BLACK MURCHISON RIVER GRID.

CO-ORDINATES — LINE: — FROM: — TO:

SAMPLED BY: BM & SP.

DATE: OCT 1980 ~~DEC~~ NOV 1980

MATERIAL: STREAM SEDIMENTS

DEPTH

BOOK Nº — SHEET Nº — JOB Nº

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/-	Cu	Pb	Zn	Mn	Fe	Sn	SIZE	DIRECTION	DESCRIPTION
32914	37750	38556		10	120	95	1800	1.97%	<10	MED.	290° MAG.	
915	37750	38542		10	120	75	4100	2.44%	<10	MED	300° MAG	
916	37710	38569		<10	10	25	270	.84 00	<10	SMALL	215° MAG	
917	37710	38562		20	700	450	8480	2.64%	<10	SMALL	225° MAG	
918	37500	38519		<10	70	40	640	74 00	<10	SMALL	350° MAG	
919	37510	38521		<10	70	75	1300	7800	<10	SMALL	30° MAG	
920	37520	38526		10	730	350	>10000	2.69%	<10	SMALL	25° MAG	
921	37640	38429		<10	25	60	130	1.59%	<10	SMALL-MED	205° MAG	
922	37640	38430		10	<10	30	170	2.32%	<10	MEDIUM GRAINED SMALL	235° MAG	
923	37630	38480		50	450	1600	2500	9800	<10	SMALL	173° MAG	
33104	37680	38498		10	110	180	180	5300	10	SMALL	184° MAG	
105	37680	38484		<10	50	70	210	5800	<10	SMALL	172° MAG	
106	37680	38446		10	<10	20	60	3400	20	SMALL	150° MAG	
107	37720	38432		<10	20	25	110	1.56%	<10	SMALL	310° MAG	
108	37730	38456		<10	10	10	60	3100	<10	SMALL	315° MAG	
109	37740	38458		<10	220	180	850	5800	<10	MEDIUM	316° MAG	
32924	37610	38535		<10	<10	100	150	4000	<10	SMALL	210° MAG	
925	37610	38535		35	190	95	95	7100	40	SMALL	280° MAG	
926	37610	38539		70	970	330	1400	2.02%	30	SMALL	189° MAG	
927	37590	38551		15	75	75	1220	4.16%	<10	SMALL	155° MAG	
928	37660	38451		10	10	40	210	6000	10	MEDIUM	180° MAG	
929	37650	38481		15	110	120	550	1.56%	180	SMALL	160° MAG	
930	37650	38461		<10	<10	<10	65	3100	<10	SMALL	215° MAG	
931	37650	38446		10	50	90	130	9100	20	MEDIUM	245° MAG	

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798208

PROJECT: MT BLACK. MORRISON RIVER GRID.

CO-ORDINATES — LINE: FROM: TO:

SAMPLED BY: Bm + SD.

DATE: NOVEMBER 1980.

MATERIAL: STREAM SEDIMENTS.

BODY N°: SHEET N°: JOB N°: DEPTH:

SAMPLE NUMBER	CO-ORDINATES (N)/S	(E)/W	INTERVAL +/-	Cu	Pb	Zn	Mn	Fe	Sn	SIZE	DIRECTION	DESCRIPTION
32 9332	3767000	3845115		<10	10	15	120	5500	<10	SMALL	175° 12%	
9333	3770000	3849650		20	180	90	1200	10.0 1%	<10	VERY SMALL	210° 20%	
9334	3769000	3851100		<10	25	120	65	7900	<10	MEDIUM	174° 15%	
9335	3775000	3852600		70	1500	1600	34000	2800	60	LARGE	228° 40%	
9336	3764000	3853800		<10	55	410	470	8600	<10	SMALL	155° 20%	
9337	3764000	3854000		230	6400	>10000	>10000	2664	<10	SMALL	150° 20%	
9338	3773000	3852500		15	120	45	1100	9300	<10	MEDIUM	355° 20%	
9339	3767000	3853600		30	390	880	3000	6900	60	SMALL	345° 20%	
9340	3767000	3854830		920	>10000	>10000	>10000	4769	40	SMALL	225° 20%	
9341	3761000	3851760		25	720	260	6300	6700	40	MEDIUM	197° 20%	
9342	3761000	3848650		<10	<10	20	1200	2800	<10	MEDIUM	325° 20%	
9343	3759000	3849000		<10	<10	<10	50	2900	20	MEDIUM	235° 10%	
9344	3759000	3848500		No Sample Taken								
9345	3755000	3849700		20	140	300	2100	5200	<10	SMALL	170° 20%	
9346	3752000	3852800		<10	150	140	11000	1.8 1%	<10	SMALL	355° 20%	
9347	3753000	3850700		15	50	100	95	3800	40	MEDIUM	15° 10%	
9348	3753000	3851900		15	45	140	1900	5800	120	MEDIUM-SMALL	340° 20%	
9349	3749000	3848200		<10	<10	15	60	5800	<10	SMALL	20° 10%	
9350	3749000	3847800		<10	<10	20	55	5700	60	SMALL	260° 20%	
9351	3752000	3848150		<10	<10	30	60	7500	<10	VERY SMALL	342° 10%	
9352	3752000	3849710		<10	<10	15	50	4000	20	SMALL	255° 20%	
9353	3755000	3850880		30	200	210	4800	1.9 3%	20	SMALL	358° 20%	
9354	3751000	3851100		20	120	160	1500	1.5 3%	60	SMALL	32° 20%	
9355	3753000	3853400		10	320	220	24000	2.3 2%	<10	LARGE	5° 10%	

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798209

PROJECT: MT BLACK. COLEBROOK HILL GRID

CO-ORDINATES — LINE: — FROM: — TO:

SAMPLED BY: SP+BM+DE+GJ+CM — DATE: NOVEMBER-DECEMBER 1980

MATERIAL: STREAM SEDIMENT — DEPTH:

BOOK N° — SHEET N° — JOB N°

SAMPLE NUMBER	CO-ORDINATES (N)/S	(E)/W	Interval +/-	Cu	Pb	Zn	Co	Fe %	Mn	As	Sn.	Size	Direction	DESCRIPTION
32956	371000	374740	-	95	30	300	40	5.86	2400	20	490	MEDIUM	288°MAG.	
57	371000	375795	/	10	<10	10	<10	1.06	80	10	<10	SMALL	178°MAG	
58	371000	375677	/	<10	<10	15	<10	0.35	85	<5	20	SMALL	166°MAG	
59	371000	375600	/	75	35	85	40	5.72	4000	80	<10	SMALL	140°MAG	
60	370800	375808	/	10	<10	10	<10	0.55	95	10	140	SMALL	200°MAG	
61	370800	375765	/	10	10	<10	<10	0.73	55	<5	10	SMALL-MEDIUM	150°MAG.	
62	370800	375602	/	40	10	160	35	5.48	4800	<5	30	SMALL-MEDIUM	140°MAG.	
63	370800	375550	/	60	25	230	20	3.20	10000	10	40	SMALL	146°MAG.	
64	370600	375821	/	20	<10	45	<10	1.98	410	<5	290	SMALL	138°MAG.	
65	370600	375755	/	50	25	30	15	5.60	340	20	<10	SMALL	146°MAG.	
66	370600	374663	/	15	25	510	200	8.96	10000	10	<10	VERY SMALL	180°MAG.	
67	370600	374535		120	20	130	60	5.60	31000	30	50	SMALL	215°MAG.	
68	370400	374576	/	65	25	200	40	6.20	34000	40	<10	SMALL	305°MAG.	
69	370400	375814	/	10	<10	20	<10	0.41	85	<5	40	VERY SMALL	280°MAG.	
70	370400	375756	/	40	25	140	25	6.44	12000	<5	<10	SMALL	140°MAG.	
71	370400	375604	/	30	30	130	<10	3.60	890	10	<10	SMALL	325°MAG.	
72	370400	375600	/	45	40	140	30	5.08	980	<5	<10	SMALL	325°MAG.	
73	370400	375457	/	50	35	250	35	6.48	39000	10	<10	MEDIUM	10°MAG.	
74	370200	374455	/	35	20	180	30	4.24	13000	<5	<10	VERY SMALL	285°MAG.	
75	370400	374440	/	40	50	280	30	5.20	32000	10	<10	SMALL	305°MAG.	
76	370000	374224	/	20	50	620	140	9.40	25000	<5	<10	VERY SMALL	310°MAG.	
77	370200	375387	/	60	60	280	45	6.12	31000	20	<10	SMALL	30°MAG	
78	370200	375489	/	60	130	260	25	7.60	14000	<5	<10	VERY SMALL	22°MAG.	
79	370200	375557	/	40	30	45	<10	3.30	970	100	<10	SMALL	40°MAG	
80	370200	375844	/	20	10	25	10	1.20	140	10	<10	VERY SMALL	60°MAG	

120

798210

PROJECT: MT BLACK. COLEBROOK HILL GRID

CO-ORDINATES — LINE: FROM: TO:

SAMPLED BY: SP + BM + DE + GJ + CM

DATE: NOVEMBER-DECEMBER 1980

MATERIAL: STREAM SEDIMENT

DEPTH:

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	Interval	Au ppb	Co	Pb	Zn	%Co	Fe %	Mn	As	Sn	Sig	Direction	DESCRIPTION
32981	370000	375727	1		~ 20	<10	30	<10	2·48	5800	<5	<10	SMALL	10° MAG	
982	370000	375515			~ 25	35	60	<10	1·16	13000	<5	<10	SMALL	350° MAG	
983	370000	375395			45	65	30	30	5·63	21000	40	<10	VERY SMALL	6° MAG	
984	372600	375733			~ 10	<10	10	<10	0·39	35	<5	<10	SMALL	348° MAG	
985	371000	376055			~ 25	20	30	<10	2·36	1800	20	20	VERY SMALL	110° MAG	
986	371000	376130			10	<10	15	<10	0·47	25	<5	20	VERY SMALL	127° MAG	
987	372200	375439	<2		~ 550	30	170	60	3·04	35000	400	100	VERY SMALL	347° MAG	
988	372200	375480			~ 30	10	55	<10	2·76	5700	40	30	MEDIUM	355° MAG	
989	372200	375646			~ 15	<10	30	<10	1·20	1600	<5	<10	SMALL	109° MAG	
990	372400	375841			~ 20	<10	<10	<10	0·31	35	<5	<10	VERY SMALL	280° MAG	
991	372400	375559			~ 30	<10	15	<10	0·93	1600	<5	<10	VERY SMALL	330° MAG	
992	372400	375522			~ 80	20	30	<10	3·64	7500	20	50	SMALL	55° MAG	
993	372400	375488			~ 85	<10	55	<10	2·30	4400	<5	740	VERY SMALL	340° MAG	
994	372400	375444			~ 210	<10	100	50	5·03	14000	400	270	VERY SMALL	30° MAG	
32995	370400	374225			40	<10	135	<10	2·76	75	20	<10	V. VERY SMALL	180° MAG	

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798211

PROJECT: Mt. Black / Nataone Grid

CO-ORDINATES — LINE: 5,363,500 N. — FROM: — TO:

SAMPLED BY: GJ + P.A. & C.M.

DATE: 30-12-80

MATERIAL: Stream Sediments

DEPTH:

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES @/S	CO-ORDINATES @/W	Interval +/-	Cu ppm	Pb ppm	Zn ppm	Co ppm	Mn ppm	Fe %	Ag ppm	Cr ppm	As ppm		DESCRIPTION
35728	36350	37336		<10	<20	140	<10	540	5.00	<2	90	10	Soak	224° mag.
35729	36350	37357		20	<20	20	<10	120	4.70	<2	20	100	V. small ck.	75° mag
35730	36351	37362		<10	<20	30	<10	190	1.50	<2	40	40	small ck.	183° mag
35731	36350	37378		20	80	50	<10	1300	4.30	<2	60	<5	small ck.	126° mag
35732	36350	37384		10	80	35	<10	180	3.40	<2	45	20	small ck.	148° mag
35733	36350	37394		<10	40	95	<10	3600	3.60	<2	2700	10	small ck.	155° mag
35734	36350	37400		10	<20	40	<10	990	2.90	<2	640	<5	small ck.	15° mag
35735	36350	37410		26	<20	40	<10	1500	2.20	<2	25	<5	v. small ck.	54° mag
35736	36350	37422		25	<20	50	60	2800	2.60	<2	<10	<5	V. small ck.	20° mag
35737	36350	37440		10	60	55	<10	2000	2.80	<2	910	80	Small ck.	120° mag
35738	36350	37445		10	<20	45	<10	290	4.10	<2	26	30	V.V. small ck.	162° mag
35739	36350	37485		<10	<20	40	<10	110	2.90	<2	30	10	V. small ck.	155° mag
35740	36350	37518		<10	<20	40	<10	90	3.10	<2	55	30	small ck.	200° mag
35741	36350	37540		<10	50	60	<10	610	4.90	<2	40	30	small ck ?	198° mag
35742	36350	37675		15	20	20	<10	80	1.20	<2	45	10	V. small ck.	200° mag
35743	36350	37604		10	<20	25	<10	210	1.10	<2	25	10	med ck	220° "
35744	36350	37594		<10	100	30	<10	190	1.80	<2	25	100	v small ck	165° "
35745	36350	37564		30	40	50	<10	1400	3.80	<2	20	10	large ck	175° "
35746	36350	37549		20	40	15	<10	140	0.82	<2	15	60	v small ck	110° "
35747	36350	37516		20	<20	15	<10	400	0.75	<2	15	10	v small ck	190° "
35748	36350	37495		<10	<20	55	10	5500	3.70	<2	10	10	v small ck	200° "
35749	36350	37491		25	<20	30	<10	150	1.30	<2	30	10	v small ck	150° "

798212

PROJECT: Mt. Black. Natone Grid.

CO-ORDINATES LINE: 5,363,500 N FROM: TO:

SAMPLED BY: P.A & C.M.

DATE: 30-12-80

MATERIAL: Stream Sods.

DEPTH:

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	Interval +/-	Sn ppm	DESCRIPTION
35728	363500	373360		<10	
729		373575		<10	
730		373623		<10	
731		373789		<10	
732		373835		<10	
733		373935		<10	
734		374005		<10	
735		374165		<10	
736		374225		<10	
737		374400		<10	
738		374445		<10	
739		374485		<10	
740		374518		<10	
741		374540		<10	
35742	363500	374675		<10	
743				<10	
744				<10	
745				10	
746				<10	
747				<10	
748				<10	
35749				<10	

798213

PROJECT: Mt. Black Natone Grid

CO-ORDINATES — LINE: 5,366,500 N — FROM: — TO:

SAMPLED BY: G.J. + C.M.

DATE: 2-1-81

MATERIAL: Stream Sediments

DEPTH:

BOOK N°

SHEET N°

JOB N°

SAMPLE NUMBER	CO-ORDINATES E/S	CO-ORDINATES E/W	INTERVAL +/-	Co ppm	Pb ppm	Zn ppm	Co ppm	Mn ppm	Fe %	Ag ppm	Cr ppm	As ppm		DESCRIPTION
35750	366500	373804		70	<20	35	<10	420	3.60	<2	20	20	U/small Ch	325° mag
35751	366500	374176		35	180	25	<10	240	2.90	<2	25	10	U. small ch.	80° mag
35752	366500	374195		<10	<20	10	<10	45	4.60	<2	<10	<5	U. Small ch.	60° mag
35753	366500	374220		35	120	75	<10	3500	1.00	<2	20	10	Small ch	70° mag
35754	366500	374770		20	<20	50	<10	1200	2.60	<2	10	<5	med ch	350° mag
35755	366500	375065		35	140	160	<10	3300	4.00	<2	120	<5	large ch	10° mag
35756	366500	375090		45	340	80	<10	6400	4.10	<2	<10	20	larg ch	260° mag
32996	366500	376020		20	120	260	<10	4000	5.30	<2	50	40	large ch	290° mag

127

798214

PROJECT: Mt. Black Natone Grid.

CO-ORDINATES — LINE: 5366 500 N — FROM: — TO:

SAMPLED BY: GJ & CM.

DATE: 2-1-81

MATERIAL: Stream Sed's.

BOOK N°

SHEET N°

JOB N°

DEPTH

DESCRIPTION

SAMPLE NUMBER	CO-ORDINATES (N)/S	(E)/W	INTERVAL +/-	Sn ppm
35750	36650	37380		NA
7561	〃	37417		< 10
7562	〃	37419		10
7563	〃	37472		< 10
7564	〃	37477		< 10
7565	〃	37506		< 10
35756	36650	37509		< 10
32996	36650	37602		< 10

128

798215

PROJECT: Mt. Black Nutone Grid

CO-ORDINATES — LINE: 5,365,500N; FROM:; TO:

SAMPLED BY: G.J. & C.M.

DATE: 5-1-81

MATERIAL: Stream Sediment

DEPTH:

BOOK N°:

SHEET N°:

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/-	Cu ppm	Pb ppm	Zn ppm	Co ppm	Mn ppm	Fe %	Ag ppm	Cr ppm	As ppm		DESCRIPTION
35757	36550	37480		<10	<20	40	<10	510	1.90	<2	90	<5	V. Small ck.	30° mag
35755	36550	37487		<10	<20	30	<10	110	1.50	<2	110	<5	V. Small ck.	10° mag
35759	36550	37493		<10	80	55	<10	160	3.20	<2	70	<5	V. Small ck.	30° mag
35760	36550	37496		20	150	130	<10	2300	2.60	<2	60	<5	Large Ck.	320° mag
35761	36540	37515		10	<20	85	<10	1200	1.90	<2	46	<5	V. Small Ck.	305° mag
35762	36550	37520		15	200	300	<10	3600	2.60	<2	30	<5	med. Large ck.	290° mag
35763	36550	37582		<10	360	270	<10	7300	1.50	<2	<10	10	V. Small Ck.	324° mag
35764	36550	37583		15	60	30	<10	220	1.10	<2	110	30	V. Small Ck.	315° mag
35765	36500	37512		<10	300	130	<10	6600	3.20	<2	40	<5	V. Small Ck.	340° mag
33111	36550	37366		30	100	300	170	860	6.60	<2	110	300	V. Small ck.	2° mag
11236	55003	73825		20	60	80	30	270	2.00	<2	90	30	V. Small ck.	332° "
11336	55003	73894		30	80	130	60	1200	6.00	<2	770	10	med-lg. ck.	355° "
11436	55003	73965		50	140	210	90	3100	5.20	2	760	20	med. ck.	353° "
11536	55003	74200		60	220	300	95	3800	5.00	<2	110	300	V. Small ck.	80° "
11636	55003	74243		65	340	240	75	5200	5.90	<2	95	60	V. Small ck.	10° "
11736	55003	74344		25	200	220	60	7100	4.20	2	1650	<5	Small ck.	342° "
11836	55003	74500		15	40	110	30	1900	2.50	<2	650	<5	V. Small dry ck.	70° "
11936	55003	74584		<10	60	70	10	1500	1.80	<2	350	<5	V. Small ck.	40° "
12036	55003	74643		<10	40	40	10	150	1.20	<2	120	<5	V. Small dry ck.	28° "
33121	36550	37476		<10	20	50	10	400	1.40	<2	220	<5	Small ck.	24° "

129

798216

PROJECT: Mt. Black. Natone Grid

CO-ORDINATES — LINE: 5365 500 N — FROM: — TO:

SAMPLED BY: G.J & C.M.

DATE: 5-1-81

MATERIAL: Stream Sed's.

DEPTH:

ROCK Nº

SHEET Nº

JOB Nº

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/-	Sn ppm.	DESCRIPTION
367573	365500	374840		<10	
7578	〃	374877		<10	
7579	〃	374932		<10	
7580	〃	374965		<10	
7581	〃	375185		<10	
7582	〃	375240		<10	
7583	〃	375820		<10	
7584	〃	375885		20	
357653	365500	376120		<10	
331111				<10	
1112				<10	
1113				<10	
1114				<10	
1115				<10	
1116				<10	
1117				<10	
1118				<10	
1119				<10	
1120				<10	
331211				<10	

130

798217

Electrolytic Zinc Co. of A'asia Ltd.
Rosebery, Tas.

GEOCHEMICAL DATA SHEET

Lines 5 36 1500 N
~~[illegible]~~ S 35 9500 N
~~[illegible]~~ S 35 0 3000 N

PROJECT: Mt. BLACK. MATERIAL : -80 # Bulk Stream Sediments
LOCALITY: NATONG GRID. SAMPLED BY: G.I. & P.A. DATE 2-2-81 ~~[illegible]~~ 3-2-81

SAMPLE NUMBER	CO-ORDINATES N	CO-ORDINATES E	Pb	Zn	Cu	Ag	Co	Mn	Fe %	Cr	Sample Type	Soil Parameters: Depth	Soil Parameters: Colour	Sample Composition: Rock Frags	Sand	Clay	Organic Content	Local Geology: Outcrop or Float	Local Geology: Concrete or Float	Stream Parameters: Stream Information	Orifice	Width	Direction (cms)
35766	36 1500	37 3305	130	30	20	<2	30	520	1.7	35											MED	3	17
67		37 3780	80	65	50		40	2900	2.7	20											V.Sm.	0	62
68		37 3805	65	25	<10		30	2000	2.3	25											V.Small	0	52
69		37 4382	130	110	30		110	7400	5.1	45											Med.	0	15
70		37 4777	55	35	15		10	820	2.6	130											V Sm.	0	62
71		37 4822	65	35	10		10	950	2.0	830											S	3	32
72		37 4890	50	35	10		20	1300	2.1	150											V S	0	22
73		37 5048	<20	10	20		10	400	2.9	90											VV S	0	15
35774	36 1500	37 5430	30	10	10		20	200	1.5	80											Med.	0	02
35775	35 9500	37 5660	2200	85	15		110	>10000	3.8	30											Med	1	57
76		37 5562	45	40	20		40	1400	3.6	45											V S	1	47
77		37 5237	90	40	25		50	3900	3.8	130											Med	1	72
78		37 5073	80	55	20		20	1500	3.7	150											S	1	72
79		37 4896	280	90	20		600	>10000	6.6	100											Med	1	72
80		37 3350	30	10	10		10	170	0.8	25											V S	2	02
81		37 3800	50	20	20		5	1700	3.8	20											S	1	72
82		37 3850	60	20	30		20	930	6.5	25											V S	1	82
35783	35 9500	37 4337	40	30	10		30	690	2.5	65											S		
84																							

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798218

Electrolytic Zinc Co. of A'asia Ltd.

GEOCHEMICAL DATA SHEET

Rosebery Tas.

PROJECT: Mt. BLACK. MATERIAL : -80# Stream Sediments

LOCALITY: NIHTONE GRID. SAMPLED BY: GJ C.P.A.

DATE 2/2/81 3/2/81

Line 5361500 N

~~FROM~~: 5359500 N

~~TO~~:

SAMPLE NUMBER	CO-ORDINATES N	CO-ORDINATES E	As	Sn.
35766			<5	<10
767			<5	
768			<5	
769			60	
770			<5	10
771			10	<10
772			<5	
773			10	
774			<5	
775			80	
776			80	10
777			200	<10
778			<5	<10
779			80	<10
780			<5	10
781			10	<10
782			200	<10
35783			10	<10

Sample Type

Soil Parameters: Depth; Colour

Sample Composition: Rock Frags; Sand; Clay; Organic Matter; Calcrete or Float; Gossan or Float

Local Geology

Stream Parameters: Stream Configuration; Order; Width; Direction

1381

798219

Electrolytic Zinc Co. of A'asia Ltd. — GEOCHEMICAL DATA SHEET

Rosebery, Tas.

PROJECT: Mt Black. MATERIAL: -80# Bulk Stream Sediments

LOCALITY: NATONG GRID SAMPLED BY: B. McQ. LMcD. PA DATE 5-2-81 9-2-81

Lines: 536500N; FROM: 536250N; TO:

SAMPLE NUMBER	CO-ORDINATES N	CO-ORDINATES E	Pb	Zn	Cu	Ag	Co	Mn	Fe%	Cr	Sample Type	Soil Parameters: Depth	Soil Parameters: Colour	Sample Composition: Rock Frags	Sample Composition: Sand	Sample Composition: Clay	Sample Composition: Organic Material	Sample Composition: Other	Local Geology: Outcrop	Local Geology: % Float	Stream Parameters: Stream Contamination	Stream Parameters: Order	Stream Parameters: Width	Stream Parameters: Direction (DMS)
35784	360500	374140	840	35	15	<2	25	2610	2·1	25												VS		070
85		374160	45	45	10		45	860	3·9	20												M		005
86		374194	670	130	25		75	10000	8·3	25												VS		315
87		374260	70	78	35		40	870	3·2	35												Proj Wash		295
88		374795	40	20	15		20	210	1·6	75												VS		060
89		374878	<20	15	20		20	140	1·1	70												<S		050
96		375186	25	25	<10		20	840	1·6	140												S		020
91		375224	40	50	25		30	2300	5·2	50												VS		025
35792	360500	376012	45	15	20		20	410	3·0	15												S		005
41801	362500	376840	420	100	25	<2	50	900	3·3	160												M		175
02		375090	50	40	10		70	590	3·8	15												S		180
03		376210	50	35	10		25	150	2·5	75												VS		185
04		376095	40	10	20		<5	140	1·9	15												VS		200
05		375940	45	25	35		20	480	4·7	40												M		185
06		375862	45	25	10		20	180	2·0	10												M		165
41807		375818	<20	20	15		40	210	2·0	50												S		205
42176		374819	120	55	20		20	480	4·9	45												VS		130
77		374660	120	40	15		40	360	2·6	40												S		335
78		374500	80	30	10		30	540	2·4	15												M		345
79		374440	50	40	15		30	790	2·7	25												M		110
80		374230	150	30	10		25	780	2·9	25												MS		015
81		374166	60	30	10		20	280	2·8	20												S		020
42182	362500	373800	210	110	35		160	7200	9·1	35												S		030

135

798220

Electrolytic Zinc Co. of A'asia Ltd.
Rosebery, Tas.

GEOCHEMICAL DATA SHEET

PROJECT: Mt. BLACK.
LOCALITY: NATONE GRID
MATERIAL : -80 # Stream Sediments
SAMPLED BY: BMcG, LMcD, PA.
DATE 5/2/81 9/2/81

Lines 5360500N
FROM: 5362500N
TO:

SAMPLE NUMBER	CO-ORDINATES N	CO-ORDINATES E	Metal Content (p.p.m. unless specified) As.	Sn.
35784			<5	<10
85			30	<10
86			30	N.A.
87			80	<10
88			<5	
89			<5	
90			<5	
91			400	
35792			20	
41801			<5	<10
02			30	
03			<5	
04			<5	
05			20	
06			<5	
41807			<5	
42176			20	
77			10	
78			<5	
79			10	
80			<5	
81			<5	
42182			300	

Soil Parameters: Sample/C. Type; Depth; Colour
Sample Composition: Rock frags; Sand; Clay; Organic; Oxidized surface; Oxidized at depth
Local Geology
Stream Parameters: Upstream Contamination; Order; Width; Direction

136

798221

41760 – no sample.

PROJECT: NATONE STREAM SEDS

CO-ORDINATES
LINE:
FROM:
TO: All data in ppm Except

SAMPLED BY

DATE: Fe 10/2/81 – 17/3/81

MATERIAL

DEPTH

BOOK No

SHEET No

FOLIO No

SAMPLE NUMBER	CO-ORDINATES N/S	CO-ORDINATES E/W	INTERVAL +/-	Pb	Zn	Cu	Ag	Co	Mn	Fe %	Cr	As	Sb	CREEK, GRIDLINE, DESCRIPTION
41758	36567 0	37628 0		740	80	75	5	20	9300	1.8%	<5	80	<10	HEAD CK.
41759	36575 0	37619 0		680	90	15	5	20	>10,000	2.0%	<5	100	<10	" "
41761	36579 0	37614 0		2200	240	30	<2	40	>10,000	2.7%	<5	200	<10	" "
41762	36578 0	37612 0		820	450	25	<2	75	>10,000	2.9%	20	100	<10	" "
41763	36579 20	37607 0		2400	2800	45	2	35	>10,000	1.8%	15	60	<10	" "
41764	36579 20	37605 0		640	390	20	<2	40	>10,000	2.6%	15	<50	<10	" "
41765	36603 0	37593 0		4900	5500	150	5	55	>10,000	2.9%	25	400	<10	" "
41766	36604 0	37593 0		2000	5200	40	5	60	>10,000	2.7%	10	-	<10	" "
41767	36636 0	37539 0		190	390	20	<2	30	2900	2.4%	30	100	<10	" "
41768	36611 60	37551 0		1400	4000	30	<2	50	>10,000	3.3%	35	100	<10	" "
41769	36614 0	37568 0		960	3300	30	<2	35	>10,000	2.9%	35	<50	<10	" "
41770	36615 0	37509 0		85	210	100	<2	45	8700	4.6	130	40	<10	Finger Ck
41771	36615 0	37500 0		140	210	110	<2	40	4500	4.3	280	30	<10	" "
41772	36609 0	37510 0		110	200	55	<2	45	8800	4.2	55	<5	<10	" "
41773	36609 0	37516 0		65	180	75	2	35	7200	3.6	60	80	<10	ELBOW Ck
41774	36595 0	37535 0		55	170	45	<2	30	7600	4.1	40	40	20	Finger Ck.
41775	36595 0	37521 0		75	170	65	<2	40	7900	4.1	60	100	<10	ELBOW Ck
41776	36554 0	37506 0		90	120	20	2	20	4000	3.4%	15	80	<10	NECK Ck
41777	36556 0	37510 0		120	250	25	<2	30	8000	3.1%	10	100	<10	" "
41778	36542 0	37525 0		170	140	20	<2	15	2900	2.6%	10	<5	<10	" "
41779	36535 0	37523 0		75	85	20	<2	20	6500	2.1%	110	40	<10	" "
41780	36534 0	37504 0		100	100	10	<2	15	2400	1.9%	10	<5	<10	" "
41781	36621 0	37504 0		40	20	10	<2	<5	650	11.1%	15	<5	<10	MOUTH CK.
41782	36621 0	37492 0		40	20	<10	<2	<5	170	0.8%	10	<5	<10	HEAD CK.
41783	36615 0	37487 0		35	65	50	<2	15	3200	1.3%	70	10	<10	MOUTH CK.

160

798222

41784 → 800 (+) 42301 − 308

PROJECT: NATONE STREAM SEDS

CO-ORDINATES
LINE:
FROM:
TO: All data in ppm except Fe.

SAMPLED BY

DATE: 3.3.81 – 18.3.81

MATERIAL

DEPTH

SAMPLE NUMBER	CO-ORDINATES S. N/S	E/W	Interval +/-	Cu	Pb	Zn	Co	Mn	Ag	Fe %	As	Cr	Sn.	Creek Name.
41784	36370	37500		65	55	70	25	1500	<2	1.8%	10	85	<10	MOUTH CK
41785	36569	37568		<10	70	40	10	1500	<2	1.7%	40	10	<10	" "
41786	36580	37555		45	40	90	25	17000	<2	0.9%	<5	1000	10	
41787	36609	37502		<10	150	120	25	3600	5	1.8%	20	20	<10	
41788	36411	37487		25	50	40	20	1200	<2	1.7	<5	65	<10	ARM CK
41789	36413	37486		45	35	55	10	210	<2	1.4	<5	50	<10	" "
41790	36444	37486		140	120	160	50	2200	<2	2.7	30	40	<10	" "
41791	36452	37480		50	100	65	15	1200	<2	2.0	20	80	<1	" "
41792	36452	37478		25	100	110	20	1100	<2	1.9	<5	230	<1	" "
41793	36477	37490		55	140	120	35	3600	<2	2.8	<5	120	<1	" "
41794	36493	37490		40	75	120	20	1400	<2	2.0	<5	50	<1	SHOULDER CK
41795	36402	37490		25	75	55	25	1000	<2	1.6	<5	90	25	ARM CK
41796	36506	37400		20	70	60	20	690	<2	1.8	10	40	<1	" "
41797	36505	37490		45	90	90	30	1500	<2	2.2	20	85	<1	" "
41798	36528	37490		100	210	190	35	3900	<2	3.6	<5	20	15	" "
41799	36520	37490		80	100	130	30	2000	<2	2.2	80	80	<1	" "
41800	[illegible]			90	55	70	10	190	<2	0.9	<5	20	<1	
42301		37520		90	380	1100	25	7200	75	5.2%	<50	20	<10	" "
42302	CANCELLED													
42303	36653	37490		35	20	100	35	1500	5	5.4%	<5	25	<10	ANKLE CK
42304	36637	37500		70	55	120	25	1100	5	5.6%	80	90	<10	KNEE CK
42305	36611	37500		35	140	250	25	4300	5	6.0%	20	30	<10	LEG CK
42306	36647	37500		40	310	610	25	5900	5	4.8%	60	20	<10	ARM CK
42307	SAMPLE LOST / LOCATION NOT KNOWN													LEG CK
42308	36561	37490		60	160	390	25	5300	5	4.7%	80	20	<10	JUNC: LEG & ARM CK

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798223

Electrolytic Zinc Co. of A'asia Ltd. Risdon, Tas.

GEOCHEMICAL DATA SHEET

Line
FROM:
TO:

PROJECT: MT BLACK. MATERIAL: STREAM SEDS.
LOCALITY: NATONE GRID. SAMPLED BY: A.J.M. DATE: 5/81

SAMPLE NUMBER	CO-ORDINATES S	N	E	Pb	Zn	Cu	Co	Mn	Fe %	Ag	Sn	Sample Type	Soil Parameters: Depth	Colour	Sample Composition: Rock Frags	Sand	Clay	Organic	Local Geology	Stream Parameters: Stream Classification	Order	Width	Direction
4/1901	37	12560	37720	80	40	20	15	1700	1.4	<2	<10								SMELL Ck.			M.	
4/1902	37	11640	37715	340	270	70	20	3400	3.4	<2	<10								"			M-L	
4/1903	37	11480	37710	120	140	55	10	11500	2.8	<2	<10								"				
4/1904	37	11860	37710	140	80	65	10	4400	4.6	<2	<10												
4/1905	37	12420	37710	4700	10000	4100	<10	22000	6.1	8.0	<10								"			L	
4/1906	37	12285	37630	380	500	70	35	6000	5.3		5			BROWN	✓	✓			NATONE Ck.			4M.	
4/1907	37	12035	37680	560	580	50	30	6500	3.8	<2	<10								"			L	
4/1908	37	11920	37620	30	35	<10	<10	2110	1.3	<2	<10								"			S.	
4/1909	37	11915	37605	340	330	40	35	41000	3.8		5								"			L	
4/1910	37	11765	37670	820	770	75	65	9700	4.7		5								"			L	
4/1911	37	11635	37560	1180	2160	50	40	31000	3.10	<2	<10								"			L	
4/1912	37	11645	37660	1100	80	30	30	21000	4.7	<2	<10								"			S.	
4/1913	37	11545	37625	50	50	15	<10	4300	1.3	<2	<10								"			M-S	
4/1914	37	11550	37605	440	620	60	40	66000	3.12	<2	45								"			L	
4/1915	37	11115	37640	460	3160	45	30	54000	2.8	<2	60								"			L	
4/1916	37	11135	37630	620	1110	40	25	6900	2.7	<2	60								"			M.	
4/1917	37	11455	37651	560	5910	55	50	71000	3.12	<2	<10								"	✓		L	
4/1918	37	12855	37646	620	800	70	60	9800	5.4	<2	<10								"				
4/1919	36	66955	37687	30	85	10	<5	11500	2.8	<2	<10								MUSCLE Ck.				
4/1920	36	66600	37600	860	210	15	20	57000	2.5	<2	<10								"			S.	
4/1921	36	70110	37655	190	160	25	35	31000	3.1	<2	<10								TENDON Ck.				
4/1922	36	70160	37695	1000	620	50	45	70000	4.8		5								MUSCLE Ck.				

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798224

Electrolytic Zinc Co. of A'asia Ltd.
Hobart, Tas.

GEOCHEMICAL DATA SHEET

Line
FROM:
TO:

PROJECT:
MATERIAL :
LOCALITY:
SAMPLED BY:
DATE

SAMPLE NUMBER	CO-ORDINATES N	CO-ORDINATES E	Metal Content (p.p.m. unless specified) Pb	Cu	Sample Type	Soil Parameters: Depth	Soil Parameters: Colour	Sample Composition: Rock Frags	Sample Composition: Sand	Sample Composition: Clay	Sample Composition: Organic	Sample Composition: Outcrop	Local Geology: Outcrop	Local Geology: Float	Stream Parameters: Contamination	Stream Parameters: Order	Stream Parameters: Width	Stream Parameters: Direction
41901			<5	180														
02			80	120														
03			40	110														
04			200	15														
41905			<5	130														
06			40	55														
07			40	210														
08			<5	35														
09			20	200														
41910			30	30														
11			<5	65														
12			60	550														
13			<5	55														
14			<5	190														
41915			30	65														
16			<5	270														
17			40	80														
18			40	140														
19			60	130														
41920			300	140														
21			30	95														
41922			200	140														

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798225

Sheet 1/2

Electrolytic Zinc Co. of A'asia Ltd. GEOCHEMICAL DATA SHEET
Risdon, Tas.
PROJECT: MATERIAL :
LOCALITY: NATONE BSS SAMPLED BY: RJW DATE 24·2·81 – 18·3·81

Line
FROM:
TO:

SAMPLE NUMBER	CO-ORDINATES N	E	Pb ppm	Zn ppm	Cu ppm	Co ppm	Mn	Fe %	Ag	Sn	Soil Parameters: Depth	Colour	Sample Composition: Mud/Silt	Sand	Clay	Organic Content	Name of Creek	Stream Parameters: Contamination	Order	Width	Direction
420001	366400	375090	140	100	15	35	2000	3.2%	<2	<10		Brown	✓	✓			ARM CREEK			4·0	
420002	366350	375085	100	110	20	30	2000	3.3%	<2	<10		Gr. Brn	✓	✓			" "			3·0	
420003	363860	373320	50	20	10	20	3700	3.8%	<2	<10		Brown	✓	✓		✓	MONTE ZUMA CK.			0·5	
420004	363880	373870	20	45	20	25	8200	3.1%	5	<10			✓	✓	✓	✓	" " "			0·5	
420005	364060	373775	45	55	25	30	8300	3.6%	<2	<10			✓	✓	✓		" " "			2·0	
420006	364210	373770	65	100	30	45	10000	7.6%	<2	<10		Brown	✓	✓	✓		" " "			2·0	
420007	364310	373750	45	80	35	60	22000	4.7%	<2	<10		"	✓	✓			" " "			1·0	
420008	364540	373740	45	70	20	35	17000	3.6%	<2	<10		"	✓	✓			" " "			1·5	
420009	364040	373530	30	65	35	30	2800	4.4%	<2	<10		Brn-Yell	✓	✓	✓	✓	ZUMA CREEK			0·3	
420010	364285	373545	35	90	50	40	4100	5.4%	<2	<10			✓	✓	✓	✓	" "				
420011	364300	373560	30	80	55	40	9700	4.4%	<2	<10			✓	✓	✓	✓	YOUNG "				
420012	364610	373500	35	100	60	50	18000	5.5%	<2	<10			✓	✓	✓	✓	" "				
420013	364110	373745	60	110	30	100	57000	5.9%	<2	<10			✓	✓	✓	✓	LOST "				
420014	364545	373725	45	45	15	30	10000	3.4%	<2	<10			✓	✓	✓	✓	LOFGREN "				
420015	364800	373725	60	85	25	60	42000	4.5%	<2	<10			✓	✓	✓	✓	MONTE ZUMA CK.				
420016	365050	373740	60	110	70	55	34000	4.4%	<2	<10			✓	✓	✓	✓	" "				
420017	365120	373730	50	95	65	85	26000	5.7%	<2	<10			✓	✓	✓	✓	ZUMA CK.				
420018	364980	373560	55	70	30	35	16000	5.5%	5	<10			✓	✓	✓	✓	" "				
420019	365350	373885	55	100	50	65	18000	5.4	<2	<10		Brn-Yell	✓	✓	✓		~~MONTE ZUMA~~				
420020	365495	373870	40	70	35	30	7100	4.6	<2	<10		Gry. Brn	✓	✓	✓	✓	LINE 373884 E.			2·0	
420021	365515	373790	130	270	85	150	88000	8.2	<2	<10			✓	✓	✓		CRAZY HORSE CK.			2·0	
420022	365275	374030	60	120	75	35	15000	4.2	<2	<10		LIGHT BRN	✓	✓	✓	✓	CRAZY HORSE CK.			2·0	
420023	365695	373750	25	75	30	15	9400	3.5	<2	<10				✓	✓		MONTEZUMA CK.			2·5	
420024	365700	373730	30	60	60	30	13000	5.1	<2	<10				✓	✓	✓	RUST CK.			1·0	
420025	365930	373710	65	140	90	70	35000	6.0	<2	<10			✓	✓		✓	MONTE ZUMA CK.				

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Sheet 3/2

Electrolytic Zinc Co. of A'asia Ltd.
Rosebery, Tas.

GEOCHEMICAL DATA SHEET

Line
FROM:
TO:

PROJECT:
MATERIAL :
LOCALITY:
SAMPLED BY:
DATE

SAMPLE NUMBER	CO-ORDINATES N	CO-ORDINATES E	Metal Content (p.p.m. unless specified) As	Metal Content (p.p.m. unless specified) Cr	Sample Type	Soil Parameters: Depth	Soil Parameters: Colour	Sample Composition: Rock Frags	Sample Composition: Sand	Sample Composition: Clay	Sample Composition: Organic	Sample Composition: Outcrop	Local Geology: Outcrop or Float	Stream Parameters: Stream Contamination	Stream Parameters: Order	Stream Parameters: Width	Stream Parameters: Direction
42001			300	250													
42002			20	250													
42003			100	250													
42004			60	400													
42005			<5	250													
42006			<5	950													
42007			<5	3700													
42008			40	4800													
09			<5	300													
NO			20	250													
11			10	600													
12			30	400													
42013			100	450													
42014			<5	350													
42015			<5	5400													
16			10	3900													
17			<5	550													
42018			100	800													
19			<5	2500													
20			<5	1700													
21			20	1200													
22			200	2900													
23			300	2000													
24			10	500													
42025			40	2200													

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798227

Sheet 1/2

Electrolytic Zinc Co. of A'asia Ltd. — GEOCHEMICAL DATA SHEET

Roseberry, Tas.

PROJECT: — MATERIAL: — Line — FROM: — TO:

LOCALITY: NATONE BSS — SAMPLED BY: RJW — DATE: 18-3-81 → 2-4-81

SAMPLE NUMBER	CO-ORDINATES S	CO-ORDINATES N	CO-ORDINATES E	Pb	Zn	Cu	Co	Mn	Fe %	Ag	Sn	Soil Parameters: Depth	Soil Parameters: Colour	Sample Composition: Rock Frags	Sample Composition: Sand	Sample Composition: Clay	Sample Composition: Organic Matter	NAME OF CREEK	Stream Parameters: Confluence Identification	Stream Parameters: Order	Stream Parameters: x(m) Width	Stream Parameters: Direction
420226		366200	373640	75	220	120	110	51600	6·7	<2	<16		SANDY	✓	✓			MONTE TUTTA CK.			3·0	
420227		365750	374390	100	170	75	40	36100	4·7	2	<10		BROWN	✓	✓	✓		LEG CK.			0·5	
420228		365630	374265	100	190	80	70	39900	6·3	<2	<10		"	✓	✓	✓		" "			0·3	
420229		365520	374265	280	300	80	110	10000	6·6	<2	<10		"	✓	✓	✓		" "			0·5	
420230		365465	374275	240	230	80	60	43300	5·1	<2	<10		GRY-BRN	✓	✓	✓		BALL BAG "			0·3	
420231		365195	374430	80	110	45	30	30000	3·4	<2	<10				✓	✓	✓	LEG CK				
420232		365015	374465	210	340	130	100	84000	4·8	<2	<10				✓	✓		" "				
420233		364530	374390	170	240	70	60	45000	5·1	<2	<10				✓		✓	ALABAMA CK.			1·0	
420234		364660	374360	130	190	60	50	49000	5·4	<2	<10				✓	✓	✓	CRAZY HORSE CK.				
420235		364850	374160	150	240	85	70	52000	8·0	<2	<10		BRN-BLK	✓	✓			" "			1·5	
420236		365095	374130	100	170	80	55	33000	6·7	<2	<10		"		✓	✓		" "			1·5	
420237		365220	374145	90	150	55	90	69000	6·2	<2	<10		Yell. Brn		✓	✓		" "			1·5	
420238		365220	374160	95	120	25	75	29000	4·4	<2	<10		" "		✓	✓	✓	NOUMEA CK.			1·0	
420239		365135	374300	70	80	20	50	14000	2·2	<2	<10				✓	✓	✓	" CK.			0·3	
420240		367400	374270	120	190	40	15	2760	4·7	<2	<10				✓	✓		HYDATIDS.			1·0	
420241		367300	374290	70	190	20	35	19500	3·3	<2	<10				✓	✓	✓	N.S.W. CK				
420242		367290	374265	150	160	35	50	27000	5·2	<2	<10				✓	✓	✓	HYDATIDS CK.				
420243		367070	374180	90	130	30	25	19000	4·7	<2	<10				✓	✓	✓	✓ " "				
420244		366950	374105	70	110	30	45	20000	4·7	<2	<10				✓	✓	✓	" "				
420245		366385	374235	50	85	25	20	14000	3·5	<2	<10		DARK BRN	✓	✓	✓		V.D. CK.				
420246		366250	374165	40	95	25	55	21000	4·1	<2	<10				✓	✓	✓	" "				
420247		366405	373920	260	350	150	110	1300	9·0	<2	<10						✓	PILES CK			1·0	
420248		366410	373940	40	100	25	15	1500	1·3	5	<10					✓	✓	SCROTUM CK.			1·0	
420249		366550	373790	160	350	65	10	2800	4·5	<2	<10				✓	✓	✓	PILES CK			2·0	
420250		366540	373780	540	400	145	30	47000	2·6	<2	<10				✓	✓	✓	RECTUM CK.			1·0	

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Sheet 2/2

Electrolytic Zinc Co. of A'asia Ltd. Risdon, Tas.

GEOCHEMICAL DATA SHEET

Line
FROM:
TO:

PROJECT: MATERIAL :
LOCALITY: SAMPLED BY: DATE

SAMPLE NUMBER	CO-ORDINATES N	CO-ORDINATES E	Metal Content (p.p.m. unless specified) As	Cr.	Sample Type	Soil Parameters: Depth	Soil Parameters: Colour	Sample Composition: Rock Frags	Sample Composition: Sand	Sample Composition: Clay	Sample Composition: Organic Material	Sample Composition: Calcareous Content	Local Geology: Outcrop or Float	Stream Parameters: Depth of Penetration	Stream Parameters: Sorting	Stream Parameters: Width	Stream Parameters: Direction
42026			30	110													
27			30	70													
28			20	40													
29			20	130													
42030			30	70													
31			<5	350													
32			40	500													
33			10	120													
34			20	140													
42035			40	95													
36			30	490													
37			20	100													
38			10	550													
39			<5	230													
42040			10	50													
41			100	255													
42			100	210													
43			100	50													
44			<5	45													
42045			20	50													
46			<5	45													
47			400	210													
48			100	355													
49			80	40													
42050			80	95													

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798229

Sheet 1/2

Electrolytic Zinc Co. of A'asia Ltd. GEOCHEMICAL DATA SHEET

Risdon, Tas.

PROJECT: NATONE GRID. MATERIAL: STREAM SEDS

LOCALITY: NATONE RSS SAMPLED BY: RSW DATE: 2·4·81

Line / FROM: / TO:

SAMPLE NUMBER	CO-ORDINATES S	N	E	Pb	Zn	Cu	Co	Mn	Fe %	Ag	Sn	Sample Type	Soil Parameters: Depth	Colour	Sample Composition: Rock Frags	Sand	Clay	Organic Matter	NAME OF CREEKS	Stream Parameters: Stream Contamination Order	Width	Direction
420511	366740	373740	240	50	35	10	780	2·9	<2	<10					✓	✓	✓	✓	PILES CK		2·0	
420522	366840	373765	560	60	60	100	4900	6·6	<2	<10					✓	✓	✓		" "		1·0	
420533	366740	373765	180	55	15	75	2300	4·7	2	<10				GRY-BRN		✓	✓		DUODENUM CK		0·5	
420544	366850	373770	100	140	20	50	2300	5·0	<2	<10					✓	✓	✓	✓	GUT CK.		0·3	
420555	366620	374660	110	45	25	30	13000	2·4	<2	<10				LIGHT BRN	✓	✓	✓	✓	ANKLE CK.		NIL	
420566	366625	374900	180	180	60	35	3300	4·5	2	<10				YELL-BRN	✓	✓		✓	" "		0·3	
420577	366960	374685	90	60	35	25	2300	3·4	<2	<10				BRN.	✓	✓	✓	✓	STUFFED CK.		0·1	
420588	367320	374005	100	60	20	10	1100	3·3	2	<10				L. BRN	✓	✓	✓		HAIRY CK.		1·0	
420593	367185	373930	50	75	20	45	1200	3·8	<2	<10				GRY-BRN	✓	✓	✓	✓	" "		0·5	
420604	367195	373945	50	65	10	40	900	2·7	10	<10				DK-BRN	✓	✓	✓	✓	PUBES "		0·3	
420611	368310	374560	90	80	15	15	1700	2·8	<2	<10				YELL-BRN	✓	✓	✓	✓	JN: LIVER CK. HEADACHE CK.		1·0	
420623	368480	374700	90	50	15	25	520	2·1	5	<10				GRY-BRN	✓	✓	✓	✓	LIVER CK.		1·0	
420633	368130	374415	80	160	20	55	2300	4·3	<2	<10				"	✓	✓	✓	✓	" "		1·0	
420644	368135	374405	50	180	30	60	3200	3·6	<2	<10				DK. BRN	✓	✓	✓	✓	PANCREAS CK.			
420655	368020	374340	130	180	30	25	2000	3·7	5	<10				GRY-BRN	✓	✓	✓	✓	LIVER CK.		1·0	
420666	368025	374315	140	740	85	240	10000	4·8	<2	<10				DK-BRN					BILE CK.		2·0	
420677	367965	374315	60	220	30	35	1900	5·2	<2	<10				BRN.	✓	✓		✓	LIVER CK.		1·0	
420688	368010	374510	70	65	<10	40	1500	1·9	<2	<10				DK. BRN	✓	✓	✓	✓	VOMIT CK.		0·5	
420699	367955	374335	50	140	15	80	4700	4·0	5	<10					✓	✓	✓	✓	" "		1·0	
420700	367740	374215	45	180	210	40	3660	5·1	10	<10				L BROWN	✓	✓			LIVER CK.		1·5	
420712	368950	374390	100	300	110	85	1500	5·7	5	<10					✓	✓		✓	LICK CK.			
420723	369030	374350	40	270	65	55	980	5·4	<2	<10					✓	✓		✓	SUCK CK.			
420734	369050	374370	70	260	90	40	950	6·4	5	<10					✓	✓	✓		LICK CK.			
420745	369190	374360	60	320	60	80	1300	7·5	<2	<10					✓	✓			SUCK CK.			
420755	369190	374340	130	580	55	170	1700	9·0	<2	<10					✓	✓			SIP CK.			

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798230

Electrolytic Zinc Co. of A'asia Ltd.

GEOCHEMICAL DATA SHEET

Line
FROM:
TO:

Prospect:
Locality:

MATERIAL :
SAMPLED BY:
DATE

Sample Number	CO-ORDINATES N	CO-ORDINATES E	Metal Content (p.p.m. unless specified) As	Cr	Sample Type	Soil Parameters Depth	Soil Parameters Colour	Sample Composition Rock/rags	Sample Composition Sand	Sample Composition Clay	Sample Composition Organic	Sample Composition Other	Local Geology		Stream Parameters Stream Contamination	Stream Parameters Order	Stream Parameters Width	Stream Parameters Direction
4205 51			40	50														
52			400	25														
53			10	25														
54			<5	30														
4205 55			40	40														
56			40	35														
57			<50	50														
58			10	30														
59			100	30														
4206 60			<5	25														
61			20	40														
62			10	50														
63			100	30														
64			<5	35														
4206 65			60	30														
66			200	100														
67			<5	35														
68			10	20														
69			80	15														
4207 70			400	55														
71			<5	120														
72			<5	710														
73			<5	120														
74			30	940														
4207 75			10	1000														

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798231

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Electrolytic Zinc Co. of A'asia Ltd.
Rosebery, Tas.

GEOCHEMICAL DATA SHEET

Line
FROM:
TO:

PROJECT: NATONE GRID MATERIAL: STREAM SEDS

LOCALITY: SAMPLED BY: DATE 1-5-81.

SAMPLE NUMBER	CO-ORDINATES N	CO-ORDINATES E	Pb	Zn	Cu	Co	Mn	Fe %	Ag	Sn	Sample Type	Soil Parameters: Depth	Soil Parameters: Colour	Sample Composition: Coarse	Sample Composition: Sand	Sample Composition: Clay	NAME OF CREEKS	Stream Parameters: Contamination	Stream Parameters: Depth	Stream Parameters: Width	Stream Parameters: Direction
420776	369480	374420	80	760	40	120	11800	7·2	<2	<10					✓✓	✓	TONIC CK			0·5	
420777	369450	374230	30	720	35	130	10000	6·8	<2	<10					✓✓		" "			"	
420778	369420	374230	100	430	55	80	10000	5·4	<2	<10					✓✓		SUCK CK				
420779	368350	374930	40	65	40	15	270	2·9	<2	<10			BUFF		✓✓		ANAL CK.			0·3	
420780	368280	375040	80	55	40	20	320	3·6	<2	<10			"		✓✓		" "			0·5	
420781	368300	375060	<20	30	30	<5	90	1·1	<2	<10			"		✓✓		HERBS CK			0·3	
420782	368200	375180	40	25	25	10	630	1·2	<2	<10			"				ANAL CK.			0·3	
420783	368180	375190	130	100	65	70	6900	4·1	<2	<10			BLACK		✓✓	✓	WART CK.			1·0	
420784	368160	375120	70	45	40	20	2100	1·5	5	<10			BROWN		✓✓	✓	WART CK.			2·0	
420785	368140	375150	160	75	80	50	4400	4·8	10	<10			"		✓✓		FRECKLE CK			1·0	
420786	368070	375400	220	120	120	60	5700	6·4	5	<10			BUFF		✓✓	✓	WART CK.			0·75	
420787	369580	375290	60	220	85	60	2500	7·2	10	<10			BROWN		✓✓	✓	BOOGEY CK			0·3	
420788	369610	375300	140	210	70	60	14000	7·3	<2	<10			"				SNOT CK.			0·3	
420789	369520	375540	40	110	45	40	15000	4·8	<2	<10			YEL-BRN		✓✓	✓	BOOGEY CK.			0·75	
420790	369570	375850	<20	50	30	30	13000	2·8	5	180			DARK BRN		✓✓	✓	" "			3·0	
420791	369630	375920	100	75	40	20	11000	4·4	<2	10			" "		✓✓	✓	" "			" "	
420792	369790	375970	40	45	20	10	2100	1·4	<2	20			" "		✓✓	✓	" "	✓		" "	
420793	369800	375940	30	25	15	20	1200	1·5	5	<10			" "		✓✓	✓	DAG CK.	✓		0·3	
420794	369950	375060	<20	40	20	<10	3100	2·2	<2	<10			SNOWY BRN		✓	✓				1·5	
420795	369970	375100	<20	45	10	20	3400	1·7	<2	<10			SANDY		✓✓	✓	NATONE CK.				
420796	369590	375160	40	30	30	<10	2800	2·8	<2	<10			" "		✓✓		SHAG CK.			2·0	
420797	369600	375180	80	20	10	<10	1800	1·0	<2	<10			" "		✓✓					0·3	
420798	369720	375190	40	70	15	<10	2200	1·2	<2	<10			" "		✓✓		NATONE CK.			1·0	
420799	369140	375490	40	45	25	<10	11000	2·2	<2	10			" "		✓✓		" "			0·5	
421000	369230	375400	160	270	40	<10	12000	2·9	<2	30			" "				" "	✓		0·75	

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798232

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Electrolytic Zinc Co. of A'asia Ltd. — GEOCHEMICAL DATA SHEET

Rosebery, Tas.

PROJECT: MATERIAL:

LOCALITY: SAMPLED BY: DATE

Line

FROM:

TO:

SAMPLE NUMBER	CO-ORDINATES N	CO-ORDINATES E	Metal Content (p.p.m. unless specified) As	Cu	Sample Type	Soil Parameters Depth	Soil Parameters Colour	Sample Composition Rock Frags	Sample Composition Sand	Sample Composition Clay	Sample Composition Organic Material	Local Geology Nature of Outcrop	Local Geology Nature of Float	Stream Parameters Stream Contamination	Stream Parameters Order	Stream Parameters Width	Stream Parameters Direction
42076			<5	3600													
42077			20	10000													
42078			30	>10000													
42079			<5	270													
42080			<5	110													
42081			<5	290													
42082			<5	180													
42083			<5	310													
42084			<5	270													
42085			10	140													
42086			30	100													
42087			60	120													
42088			30	130													
42089			<5	160													
42090			10	120													
42091			20	160													
42092			<5	60													
42093			<5	150													
42094			<5	100													
42095			<5	230													
42096			30	120													
42097			<5	130													
42098			<5	50													
42099			30	150													
42100			40	170													

798233

Electrolytic Zinc Co. of A'asia Ltd. GEOCHEMICAL DATA SHEET
Risdon, Tas.
PROJECT: NATONE GRID. MATERIAL: STREAM SEDS.
LOCALITY: SAMPLED BY: R.J.W. DATE MAY '81

Line
FROM:
TO:

SAMPLE NUMBER	CO-ORDINATES S	N	E	Pb	Zn	Cu	Co	Mn	Fe %	Ag	Sn	Sample Type	Soil Parameters: Depth	Colour	Sample Composition: Gravel	Sand	Clay	Organics	NAME OF CREEK	Stream Parameters: Width	Direction
42201	36	92	90	37	64	00	130	140	20	20	450	2·3	<2	<10							
42202	36	89	30	37	65	00	50	35	10	40	940	2·0	<2	<10							
42203	36	90	40	37	61	50	40	30	30	25	350	1·9	<2	<10							
42204	37	00	80	37	61	60	40	35	10	20	240	2·8	<2	<10							
42205	37	00	90	37	61	70	1100	1500	280	50	10000	3·7	<2	<10							
42206	37	02	50	37	61	80	860	1100	190	70	00000	3·8	<2	20							
42207	37	04	40	37	62	00	1200	1360	330	70	00000	3·7	<2	<10							
42208	37	04	50	37	62	30	130	130	30	25	1000	2·9	<2	<10							
42209	37	06	10	37	62	35	1100	680	110	55	00000	4·6	<2	<10							
42210	37	06	70	37	62	55	100	140	45	25	1200	4·7	<2	140							
42211	37	05	30	37	58	90	40	120	25	40	930	3·4	<2	120							
42212	37	06	25	37	60	70	30	170	35	40	1300	5·4	<2	520							
42213	37	08	65	37	63	50	500	560	65	40	7900	3·5	<2	110							
42214	36	98	50	37	64	75	1500	1900	350	30	00000	3·5	<2	10							
42215	36	99	10	37	63	40	1100	1700	300	30	10000	3·1	<2	<10							
42216	36	99	00	37	63	30	80	85	15	10	210	0·8	<2	<10							
42217	36	95	30	37	65	90	50	50	25	30	490	3·3	<2	<10							
42218	36	96	60	37	67	70	40	65	60	20	2000	2·4	<2	20							
42219	36	96	20	37	68	00	30	45	170	30	1600	3·0	<2	<10							
42220	36	99	70	37	66	20	130	35	30	40	11000	1·3	<2	40							
42221	37	03	60	37	66	80	230	250	30	25	00000	6·1	<2	<10							
42222	37	05	60	37	67	25	<20	25	25	15	30	0·31	<2	<10							
42223	37	07	50	37	66	85	80	240	20	<5	310	1·8	<2	<10							
42224	37	21	00	37	72	15	1800	5400	130	10	850	2·7	<2	<10							
42225	37	18	95	37	72	85	8000	2·70%	500	25	1600	4·0	<2	<10							

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798234

Electrolytic Zinc Co. of A'asia Ltd.
Rosebery, Tas.

GEOCHEMICAL DATA SHEET

Line
FROM:
TO:

PROJECT:
LOCALITY:
MATERIAL :
SAMPLED BY:
DATE

Sample Number	Co-ordinates N	Co-ordinates E	As	Cr	Sample Type	Soil Parameters: Depth	Soil Parameters: Colour	Sample Composition: Rock Frags	Sample Composition: Sand	Sample Composition: Clay	Sample Composition: Organic	Sample Composition: Outcrop	Sample Composition: Subcrop	Local Geology	Stream Parameters: Contamination	Stream Parameters: Order	Stream Parameters: Width	Stream Parameters: Direction
4220 01			<5	120														
02			<5	50														
03			<5	190														
04			10	140														
1220 05			20	20														
06			30	110														
07			40	160														
08			<5	190														
09			40	50														
1221 10			10	140														
11			30	90														
12			40	150														
13			20	70														
14			60	65														
4221 15			60	55														
16			20	200														
17			40	70														
18			20	90														
19			30	60														
4222 20			10	280														
21			10	160														
22			<5	120														
23			10	160														
24			100	120														
4225			200	140														

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798235

Electrolytic Zinc Co. of A'asia Ltd. GEOCHEMICAL DATA SHEET

Rosebery, Tas.

PROJECT:

LOCALITY: NATONE GRID

MATERIAL : STREAM SEDS.

SAMPLED BY: R.J.W.

DATE MAY '81.

Line

FROM:

TO:

SAMPLE NUMBER	CO-ORDINATES N	CO-ORDINATES E	Pb	Zn	Cu	Co	Mn	Fe %	Ag	Sn	Sample Type	Soil Parameters: Depth	Soil Parameters: Colour	Sample Composition: Rock Frags	Sample Composition: Sand	Sample Composition: Clay	Sample Composition: Organic Material	Name of Creek	Stream Parameters: Stream Classification	Stream Parameters: Order	Stream Parameters: Width	Stream Parameters: Direction
22226	37100	37165	170	1.65%	170	20	3000	3.21	<2	<10				✓	✓			Anonymous Creek	m	1	1.25	

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798236

Electrolytic Zinc Co. of A'asia Ltd.
Rosebery Tas.

GEOCHEMICAL DATA SHEET

PROJECT:
LOCALITY:
MATERIAL :
SAMPLED BY:
Line
FROM:
TO:
DATE

SAMPLE NUMBER	CO-ORDINATES N	CO-ORDINATES E	Metal Content (p.p.m. unless specified) As	Cr	Sample Type	Soil Parameters: Depth	Soil Parameters: Colour	Sample Composition: Rock Frags	Sample Composition: Sand	Sample Composition: Clay	Sample Composition: Organic Material	Local Geology	Stream Parameters: Description	Stream Parameters: Width	Stream Parameters: Direction
A2226			100	110											

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798237

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Electrolytic Zinc Co. of A'asia Ltd. Rosebery, Tas.

GEOCHEMICAL DATA SHEET

Line
FROM:
TO:

PROJECT: NATONE GRID MATERIAL: STREAMSEDS

LOCALITY: SAMPLED BY: DATE 3·3·81 – 12·3·81

SAMPLE NUMBER	CO-ORDINATES S	N	E	Cu	Pb	Zn	Co	Mn	Ag	Fe %	As	Soil Parameters: Depth	Soil Parameters: Colour	Sample Composition: Rock Frags	Sample Composition: Sand	Sample Composition: Clay	Sample Composition: Organic Matter	Local Geology	Stream Parameters: Channel Contamination	Stream Parameters: Width	Stream Parameters: Direction
42309	3	6550	6037490	10	<20	40	<5	800	<2	1·9%	<5										MOSAT CK.
42310	3	6552	0037495	SAMPLES MISSING																	LEG CK
42311	3	6580	0037493																		" "
42312	3	6490	0037485	120	110	450	190	10000	5	6·2%	>1000										" "
42313	3	6450	0037483	70	150	160	60	5400	<2	3·8%	20										LINEE CK
42314	3	6460	0037475	60	120	40	20	800	<2	4·0%	<50										" "
42315	3	6460	0037469	30	50	250	130	9500	<2	9·9%	60										" "
42316	3	6460	0037441	15	30	15	15	1500	<2	2·1%	30										" "
42317	CANCELLED.																				
42318	3	6250	0037476	15	45	10	10	170	5	1·6%	10										VARICOSE CK.
42319	CANCELLED.																				
42320	3	6170	0037464	10	40	10	<5	110	<2	1·5%	<5										VIEN CK
42321	3	6200	0037440	<10	25	10	<5	55	<2	1·2%	<5										" "
42322	3	6140	0037465	30	40	60	10	1300	<2	2·9%	<5										LEG CK
42323	3	6050	0037460	20	30	20	10	510	2	2·0%	10										MINER CK.
42324	3	6010	0037461	35	70	100	40	2700	<2	4·4%	<5										LEG CK.
42325	3	5990	0037456	30	50	120	40	1100	<2	5·2%	0										LIP CK
42326	3	5980	0037453	20	70	20	15	100	5	2·2%	60										TOOTH CK.
42327	3	5960	0037451	20	150	190	30	4700	<2	4·0%	60										JN: LEG & ARTERY
42328	3	5990	0037431	15	25	10	10	230	5	1·6%	100										ARTERY CK
42329	3	5990	0037425	10	35	10	10	220	10	1·1%	10										" "
42330	3	5900	0037452	60	45	180	130	3500	<2	1·2%	30										LEG CK
42331	3	6580	0037449	15	50	40	20	830	<2	2·1%	60										" "
42332	3	6580	0037444	15	30	10	20	20	<2	1·4%	80										" "
42333	3	6578	0037442	30	70	180	35	2700	<2	4·1%	600										" "

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Electrolytic Zinc Co. of A'asia Ltd.
Risdon, Tas.

GEOCHEMICAL DATA SHEET

Line
FROM:
TO:

PROJECT: NATONE GRID MATERIAL : STREAM SEDS.
LOCALITY: SAMPLED BY: DATE

SAMPLE NUMBER	CO-ORDINATES N	CO-ORDINATES E	Cr	Sn
42309			160	<10
10			SAMPLES MISSING	
11				
12			20	<10
13			<5	<10
14			15	<10
42315			10	<10
16			20	<10
17	CANCELLED			
18			15	<10
19	CANCELLED			
42320			10	<10
21			10	<10
22			30	<10
23			10	<10
24			35	<10
42325			25	<10
26			10	<10
27			50	<10
28			10	<10
29			<5	<10
42330			75	<10
31			20	<10
32			10	<10
33			160	<10

Metal Content (p.p.m. unless specified)

Sample Type | Soil Parameters: Depth, Colour | Sample Composition: Rock Frags, Sand, Clay, Organic Material, Soil/Rock or Float | Local Geology: Outcrop or Float | Stream Parameters: Contamination, Order, Width, Direction

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Sheet 1/2

Electrolytic Zinc Co. of A'asia Ltd. — GEOCHEMICAL DATA SHEET

Rosebery Tas.

PROJECT: — MATERIAL: — Line — FROM: — TO: — DATE

LOCALITY: NATONE BSS — SAMPLED BY: JAN / AJM.

SAMPLE NUMBER	CO-ORDINATES N	CO-ORDINATES E	Pb	Zn	Cu	Co	Mn	Fe %	Ag	Sn	Sample Type	Soil Parameters: Depth	Soil Parameters: Colour	Sample Composition: Rock Frags	Sample Composition: Sand	Sample Composition: Clay	Sample Composition: Organic Matter	Local Geology: Name of Creek	Stream Parameters: Distance from Source	Stream Parameters: Width	Stream Parameters: Direction
42334	36576	37400	60	70	30	25	2900	3·1	<2	<10											
35	36575	37370	40	15	25	30	1200	2·9	<2	<10											
36	36573	37350	50	15	15	10	1170	3·6	<2	<10											
37	36573	37310	<20	15	20	25	630	1·8	5	<10											
38	36684	37472	120	200	50	30	2200	4·1	<2	<10											
39	36680	37447	110	100	40	35	2600	4·3	<2	<10											
42340	36468	37528	45	15	10	20	130	1·3	<2	<10											
41	36488	37517	50	30	20	15	330	1·6	<2	<10											
42	36503	37516	240	75	25	40	2100	3·0	<2	<10											
43	36503	37518	130	140	15	25	2000	3·3	<2	<10											
44	36549	37472	30	30	20	10	500	2·8	<2	<10											
42345	36539	37459	25	25	15	10	490	2·0	<2	<10											
46	36442	37469	100	85	15	20	1200	2·1	<2	<10											
47	36580	37496	170	190	110	110	3600	7·1	<2	80											
48	36590	37497	120	160	40	70	4900	6·9	5	<10											
49	36584	37474	100	180	45	65	4700	6·6	<2	30											
42350	36484	37548	150	35	<10	10	65	1·1	5	<10											
51	36493	37546	80	25	<10	25	60	0·7	<2	<10											
52	36499	37531	240	290	10	95	10000	3·2	5	<10											
53	36508	37519	200	170	10	45	1800	2·1	<2	<10											
54	36741	37459	90	45	<10	25	1500	2·2	<2	<10											
42355	36757	37471	30	20	<10	30	1300	2·1	<2	40											
56	36773	37478	120	25	<10	15	1100	2·7	5	<10											
57	36760	37476	<20	20	<10	<5	130	1·4	<2	45											
58	36732	37470	70	110	40	30	4000	3·6	<2	<10											

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798240

Sheet 2/2

Electrolytic Zinc Co. of A'asia Ltd. GEOCHEMICAL DATA SHEET

Rosebery, Tas.

PROJECT: MATERIAL :

LOCALITY: NATONE BSS SAMPLED BY: JAN / AJM

Line

FROM:

TO:

DATE

SAMPLE NUMBER	CO-ORDINATES N	CO-ORDINATES E	As	Cr	Soil Parameters: Sample Type	Soil Parameters: Depth	Soil Parameters: Colour	Sample Composition: Outcrop	Sample Composition: Sand	Sample Composition: Clay	Sample Composition: Organic	Sample Composition: Other	Local Geology:	Local Geology:	Stream Parameters: Stream Name / Description	Stream Parameters: Order	Stream Parameters: Width	Stream Parameters: Direction
42334			100	50														
35			10	20														
36			20	30														
37			40	10														
38			30	60														
39			10	50														
42340			<5	20														
41			<5	30														
42			<5	80														
43			10	75														
44			20	100														
42345			<5	110														
46			20	95														
47			30	45														
48			<5	35														
49			60	30														
42350			<5	20														
51			<5	10														
52			<5	20														
53			<5	20														
54			<5	10														
42355			10	10														
56			20	70														
57			<5	25														
58			20	30														

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798241

Electrolytic Zinc Co. of A'asia Ltd. Rosebery, Tas.

GEOCHEMICAL DATA SHEET

Line
FROM:
TO:

PROJECT: Mt. Black MATERIAL: Bulk Stream Sediments

LOCALITY: Natone - Colebrook Hill SAMPLED BY: A.M., L.M°D., R.H. DATE 10-14/4/'81

SAMPLE NUMBER	CO-ORDINATES N	CO-ORDINATES E	Pb	Zn	Cu	Co	Mn	Fe %	Hg	Sb	Sample Type	Soil Parameters: Depth	Soil Parameters: Colour	Sample Composition: Gravel/Rocks	Sample Composition: Sand	Sample Composition: Clay	Sample Composition: Organic Material	Local Geology: Name of Creek	Stream Parameters: Contamination	Stream Parameters: Current	Stream Parameters: Width	Stream Parameters: Direction
42359	369345	374880	160	320	160	110	26000	5.4	5	<10								BREAST				
42360	369325	375120	120	470	70	50	11100	5.7	<2	<10								"				
61	369400	375130	110	500	85	50	11200	6.3	<2	<10								"				
62	369310	375200	220	1190	50	20	480	4.4	<2	<10								NIPPLE				
63	369330	375205	60	370	55	40	1000	5.4	5	<10								BREAST				
64	369335	375215	120	390	70	60	11200	6.5	10	<10								"				
65	368880	374825	100	420	50	40	9900	7.5	<2	<10								NIPPLE				
66	368870	374870	50	110	40	25	6600	4.9	<2	<10								"				
67	368880	374870	50	260	60	45	11100	3.6	5	<10								"				
68	368920	374980	40	45	35	10	1800	2.2	5	<10								"				
69	368930	374970	40	150	35	30	5400	5.2	<2	<10								"				
42370	368920	374990	20	20	20	15	45	0.7	<2	<10								"				
71	369050	375060	70	280	65	45	9900	7.0	<2	<10								"				
72	369040	375070	50	50	30	10	3500	2.4	5	<10								"				
73	369190	375120	40	65	25	15	3000	2.2	<2	<10								"				
74	369310	375220	60	50	35	10	1900	1.8	<2	<10								BREAST				
75	369300	375230	30	90	40	30	8300	3.8	<2	<10								NIPPLE				
42376	369330	375250	90	310	40	45	11100	5.6	<2	<10								BREASTCK.				
42377	369320	375250	20	130	70	20	3500	3.7	<2	<10								NIPPLE CK.				
42378	369240	375440	20	70	30	25	4100	2.4	5	<10								" "				
42379	368910	375530	70	60	35	20	7100	2.7	5	<10								" "				
42380	368670	375680	60	35	25	20	1500	1.2	<2	<10								" "				
42381	368610	375790	60	110	40	10	11100	2.9	<2	<10								SKIN CK.				
42382	UNABLE TO BE LOCATED.		140	100	30	10	4800	3.0	<2	<10								" "				
42383	375630	367160	200	110	40	30	1200	4.0	<2	<10								" "				

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798242

Electrolytic Zinc Co. of A'asia Ltd.
Risdon, Tas.

GEOCHEMICAL DATA SHEET

PROJECT:
LOCALITY:
MATERIAL :
SAMPLED BY:
Line
FROM:
TO:
DATE

SAMPLE NUMBER	CO-ORDINATES N	CO-ORDINATES E	As	Cr	Sample Type	Soil Parameters: Depth	Soil Parameters: Colour	Sample Composition: Rock Frags	Sample Composition: Sand	Sample Composition: Clay	Sample Composition: Organic Content	Sample Composition: Others (specify)	Local Geology	Stream Parameters: Grass Contamination	Stream Parameters: Order	Stream Parameters: Width	Stream Parameters: Direction
Metal Content (p.p.m. unless specified)																	
42359			30	120													
42360			10	150													
42361			40	170													
42362			<5	140													
42363			10	110													
42364			<5	160													
42365			30	110													
42366			10	120													
42367			20	150													
42368			<5	260													
42369			30	170													
42370			<5	120													
42371			<5	170													
42372			<5	130													
42373			20	210													
42374			10	120													
42375			<5	340													
42376			<5	120													
42377			<5	250													
42378			<5	110													
42379			<5	190													
42380			<5	120													
42381			<5	110													
42382			10	95													
42383			30	110													

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798243

Electrolytic Zinc Co. of A'asia Ltd. — GEOCHEMICAL DATA SHEET — Line

Risdon, Tas. — FROM:

PROJECT: NATONE — MATERIAL: STREAM SED — TO:

LOCALITY: — SAMPLED BY: AJM — DATE: MAY '81

SAMPLE NUMBER	CO-ORDINATES N	E	Pb	Zn	Co	Cu	Mn	Fe %	Ag	Sn	Sample Type	Soil Parameters: Depth	Soil Parameters: Colour	Sample Composition: Rock Frags	Sample Composition: Sand	Sample Composition: Clay	Sample Composition: Organic	NAME OF CREEK	Stream Parameters: Concentration	Stream Parameters: Colour	Stream Parameters: Width	Stream Parameters: Direction
42384	Unable To Be Located		140	60	45	20	4600	2·8	<2	<10								SKIN CK.				
42385	"	"	70	120	45	10	11000	4·3	<2	<10								" "				
42386	366950	375630	180	120	40	40	63000	4·1	<2	<10								FLESH CK.				
42387	366830	375620	130	210	55	30	38000	4·5	5	<10								" "				
42388	366850	375590	280	150	60	35	85000	5·7	<2	<10								" "				
42389	367280	375580	1300	470	700	440	160000	8·6	10	<10								PIMPLE CK.				
42390	367530	375420	230	85	50	45	11400	3·6	10	<10								EYE CK.				
42391	367310	375450	260	140	80	25	14000	6·8	<2	<10								" "				
42392	367280	375430	40	40	30	<5	10000	1·6	5	<10								" "				
42393	367270	375470	220	70	55	20	11000	4·4	<2	<10								" "				
42394	367030	375480	20	50	45	10	12000	2·8	<2	<10								" "				
42395	366920	375470	80	35	30	15	11000	2·4	5	<10								" "				
42396	367110	375760	500	360	65	40	64000	4·7	<2	<10								MISSILE CK.				
42397	366960	375800	460	440	65	50	100000	5·8	<2	<10								" "				
42398	366970	375840	380	230	95	20	45000	4·1	50	<10								" "				
42399	366820	375930	400	160	30	<10	49000	2·6	<2	<10								" "				
42400	366810	375910	340	170	35	20	50000	4·2	<2	<10								" "				

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Electrolytic Zinc Co. of A'asia Ltd. — GEOCHEMICAL DATA SHEET

Risdon, Tas.

PROJECT: — MATERIAL: BCS

LOCALITY: Natone — SAMPLED BY: — DATE

Line — FROM: — TO:

SAMPLE NUMBER	CO-ORDINATES N	CO-ORDINATES E	Pb	Cu	Soil Parameters: Sample Type	Soil Parameters: Depth	Soil Parameters: Colour	Sample Composition: Rock Frags	Sample Composition: Sand	Sample Composition: Clay	Sample Composition: Organic	Sample Composition: Calcium Carbonate	Sample Composition: Oxidation Profile	Local Geology: Outcrop	Local Geology: Soil Profile	Stream Parameters: Degree of Contamination	Stream Parameters: Order	Stream Parameters: Width	Stream Parameters: Direction
42384			30	75															
42385			20	90															
42386			40	110															
42387			20	140															
42388			80	100															
42389			20	130															
42390			10	110															
42391			<5	160															
42392			20	85															
42393			<5	160															
42394			30	110															
42395			60	200															
42396			100	140															
42397			300	50															
42398			100	120															
42399			30	85															
42400			80	140															

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APPENDIX IV

Rock Sample Data Sheets - Colebrook Hill.

Electrolytic Zinc Co. of A'asia Ltd.

[redacted] ROCK S[redacted]E LE[redacted]

PROJECT: Mt. Black E.L. 1/62 LOCALITY: Colebrook Hill Grid

[redacted] ED BY [redacted] M[redacted] D [redacted] DAT[redacted]

Sample Number	A.M.G.Co-ordinates N	A.M.G.Co-ordinates E	Sample Type	Geological Description	Metal Content (p.p.m. unless specified) Sn	As	Cu	Pb	Zn	Cr	Fe%	Mn
35170	372200	375608		Isolated piece of float fmg stg hornblendised sediment & veg hornblendes.	52	22	20	20	10	145	2.28	90
35275	371 005	374 620		Hornfelsed Siltstone, hornblendised and tourmalinised from dump of adit.	440	4	5	5	45	45	4.1	370
35273	371,010	374 805		fg. hornfelsed volcanic wacke & siltstone hornblendised and ? tourmalinised. Small qtz	88	5	40	5	95	85	9.72	660
35274	371010	374 855		fg hornfelsed volcanic wacke & siltstone & limonitic staining from dump of small adit.	54	2	60	5	90	65	10.0	565
35272	371 000	374 870		fg. hornblendised volcanic wacke.	88	5	30	10	95	105	12.5	700
35271	371 000	374 935		Wkly ox. fg. wacke & Mn & Fe oxide staining pos after sulphides	x	7	10	15	105	110	17.0	1700
35228	371 045	375 100		fg. Siltstone & strong Mn staining from access track.	6	4	110	x	165	85	13.0	2600
35297	371 000	375 455		Fmg. tuffaceous wacke & mcy foliation planes/qtz.	x	29	70	5	130	215	13.6	1260
35276	370 840	374 350		fg. chloritised and serpentinised pyroxenite.	12	x	5	5	55	1900	3.5	695
35290	370 840	374 500		Old costean down hillside. fg. hornfelsed volcanic wacke & siltstone	460	80	40	5	75	130	13.0	690
35288	370 840	374 504		" " " " fmg. wkly hornfelsed volcanic wacke & vn qtz-tourmaline in vgs.	11	21	245	5	105	85	7.45	535
35289	370 825	374 519		" " " " Wk ox. fg qtz-volcanic wacke & chlorite and wk hornblende.	14	4	125	x	115	210	15.3	565
35287	370 824	374 536		" " " " fmg chloritic volcanic wacke.	17	16	205	5	80	160	9.6	435
35286	370 822	374 554		" " " " fg. hornfelsed wacke & siltstone hornblendised & ?tourmalinised	14	400	150	x	75	125	14.8	765
35285	370 821	374 573		" " " " fmg wkly hornfelsed chloritic volcanic wacke.	14	400	200	x	85	100	11.4	455
35284	370 822	374 600		fg. hornblendised volcanic wacke & limonitic staining from dump of adit.	26	7	55	x	80	125	13.0	635
35283	370 822	374 700		Stg. Ox fg. wacke & limonitic staining from walls of small adit	32	65	215	5	115	303	6.51	685
35282	370 825	374 640		Fmg hornfelsed volcanic wacke & qtz-limonite veinlets and gossan on joint faces from dump	16	180	320	5	80	175	15.4	690
35281	370 845	374 642		Ox. fg. gossanous wacke & trace pyrite and quartz-limonite micro veins from walls of adit	28	65	175	10	75	115	14.2	535
35280	370 605	374 642		Fine grained volcanic wacke minor limonite & qtz microveinlets from open stope str 345° dip 70°E	18	200	235	35	100	145	13.1	560
35279	370 793	374 650		Stg ox sediment & ferruginous staining from small adit on a fracture str 75° dip 0° N.	32	550	800	90	490	105	19.0	755
35278	370 810	374 705		fg wkly hornfelsed volcanic wacke & limonite staining ?after pyrite. From walls of trench	14	1000	395	5	105	135	13.0	510
35277	370 800	374 730		fg. wkly hornfelsed volcanic wacke & micro quartz veins.	14	12	80	5	115	230	13.2	1050
35229	370 715	375 055		Ox Siltstone & stg Mn staining from access track	20	4	120	25	165	490	15.0	7800
35298	370 805	375 155		Fmg. wkly hornfelsed volcanic wacke from dump of old trench	x	20	88	35	285	115	14.3	2450
35169	370 825	376 310		Fmg. stg & bl porphyritic rhyolite welded crystal tuff & chloritised greenstone	22	14	40	20	100	30	18.9	645
35168	370 975	376 090		White quartz vein & limonitic stained inclusions from track.	36	750	10	5	20	730	0.95	50
35296	370 600	374 455		Brown ? gossanous material from shallow scrapings on the serpentinite contact	x	250	40	15	585	1.3%	12.0	2600
35295	370 585	374 720		Interbedded fg volcanic wacke and siltstone & very strong limonite staining	2	14	115	10	130	65	16.1	1450
35294	370 605	374 795		Stg limonite st. wkly gossanous sediment from small adit	6	880	1000	15	95	95	14.6	3650
35293	370 608	374 815		Float. Dk brn-blk. Mn oxide and limonitic nodule - possibly a cavity lining.	38	340	500	35	70	20	40.5	3.38%
35292	370 608	374 845		Wkly hornfelsed wacke & 4mm. qtz veins on joints from walls of trench	3	x	15	10	200	120	13.8	1000
35291	370 600	374 860		Wkly ox. fmg. chloritised & limonitic volcanic wacke from dump of small trench.	6	42	20	10	100	115	11.6	1400
35171	370 600	375 800		Cleaved micaceous siltstone & weak carbonatisation.	10	14	10	10	15	20	1.3	210
35299	370 400	374 700		Wkly ox. fg. volcanic wacke	x	12	110	20	90	110	12.5	1300
35172	370 405	375 012		Wkly ox, wkly cleaved fg. volcanic wacke & stg. limonite stain. from small trench.	x	75	140	55	150	30	5.8	3150
35177	370 200	374 305		Wide Qtz or cryptocrystalline silica & vugy weathered out carbonate clots	x	2	170	5	30	1500	1.6	215
35176	370 200	374 315		fg serpentinite & qtz veins carrying pyrite & magnetite. Carbonisation next to vein.	x	2	440	20	90	1100	2.6	1100
35175	370 200	374 325		Ox fg quartz-volcanic wacke	x	3	x	100	250	90	9.0	1750
35174	370 200	374 370		fg. massive carbonatised ultramafic & chlorite, carbonate and ?serpentine	x	8	x	5	40	3300	1.6	1650
35173	370 200	374 372		Fmg wkly ox volcanic wacke	18	8	60	5	120	55	7.0	300
35300	370 200	375 900		Grey cleaved shale and pale grey fg micaceous sandstones	x	2	10	20	x	15	3.36	45
35166	370 485	375 900		Stg ox grey siltstone from a small adit some holes & massive sulphide	14	65	140	30	36	10	9.6	725
35167	370 485	375 900		Gossanous ironstone. Very large boulder - possibly a gossan crop?	24	600	440	180	170	15	46.5	275
35178	370 000	374 305		fg. massive micaceous siltstone	x	2	60	5	150	260	4.8	420
35164	370 000	375 105		Ox fg wacke & thin quartz veins containing pyrrhotite and ?cassiterite? grains	x	16	30	30	260	65	12.1	1000
35165	370 000	375 130		[redacted]	8	65	140	30	10	10	9.6	725

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Electrolytic Zinc Co. of A'asia Ltd.
Rosebery, Tas.

ROCK SAMPLE LEDGER

PROJECT: MT Black LOCALITY: Cole Creek Hill
COLLECTED BY: I. M. DATE: 23-10-81 - 13-11-81

Sample Number	A.M.C. Co-ordinates N	A.M.C. Co-ordinates E	Sample Type	Geological Description	Rock-type (Macroscopic)	Thin or Polished Section: T or P	By	Reference	Rock-type (Microscopic)	Metal Content (p.p.m. unless specified): Pb / Cu	Zn / Ni	Cu / Co	Ag	Fe %	Mn	Sn	As
45901	5369600	374625	Rock	Purplish grey fine grained reworked tuff or tuffaceous sediment	Svwk					50	225	230	<0.5	7.45	530	25	5
45902	5369600	374585	"	Green greymedium grained greywacke	mSgwk					10	260	45	<0.5	12.4	730	30	9
45903	5369600	374395	"	Sheared and altered green serpentinite with associated limonite	ultUs												
45904	5369700	374305	"	Samples from hypton mine dump country rock and gangue	Usch												
45905	5369700	374530	"	Greyish oxidized medium grained slightly hornfelsed greywacke	Sgwk					10	115	25	<0.5	2.85	250	15	11
45906	5370550	374860	"	Dard grey chloritated siltstone with thin quartz pyrite veinlets	Sslt												
45907	5370900	374640	"	Dark grey hornfelsed fine grained volcanogenic wacke	Svwk					5	75	35	<0.5	14.9	825	35	21
45908	5370900	374450	"	Grey green medium grained indurated volcanogenic wacke	Svwk					35	65	50	<0.5	14.9	750	40	22
45909	5370900	374435	"	Coarse grained dark grey ultrabasic rock - altered	UPx												
45913	5370840	374640	"	Gossan (Olympic Mine) limonitic vein material	gos					180	35	980	1.5	15.9	60	14.0%	13.5%
45914	5370840	374640	"	Indurated fine grained volcanogenic wacke with pyrite (Olympic Mine)	Svwk					35	50	190	<0.5	12.2	450	4900	9.8%
45915	5370920	374640	"	Indurated fine grained volcanogenic wacke - quartz vein (Olympic Mine)	Svwk					15	155	190	<0.5	9.1	540	200	190
45918	5369700	375140E	"	Green medium grained volcanogenic wacke with limonite after pyrite	Svwk												
45919	5369700	375135		Purplish grey fine grained volcanogenic wacke	Svwk												
45920	5369700	375235		Fe + Mn stained milky quartz													

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Electrolytic Zinc Co. of A'sia Ltd.
Rosebery, Tas.

ROCK SAMPLE LEDGER

PROJECT: Mt Black LOCALITY: Confidence
COLLECTED BY: I.M. DATE: 13-11-81

Sample Number	A.M.G.Co-ordinates N	A.M.G.Co-ordinates E	Sample Type	Geological Description	Rock-type (Macroscopic)	Thin or Polished Section T or P	Thin or Polished Section By	Thin or Polished Section Reference	Thin or Polished Section Rock-type (Microscopic)	Metal Content (p.p.m. unless specified) Pb / Cr	Zn / Ni	Cu / Co	Ag	Fe %	Mn	Sn	As
45921	5369 650	375805	Rock	Sheared black shale.	Ssh												
45922	5369600	375795	"	Gossan	gos					60	150	65	0·5	38·5	19500		78
45923	5369600	375740	"	Gossan	gos					20	570	75	<0·5	37·5	7850		400
45924	5369600	375340	"	Limonite stained pale orange fine grained greywacke	Sgwk					<5	50	15	<0·5	4·65	560		6
45925	5369600	375175	"	Grey fine grained dolomitic sandstone with 5% diagenic pyrite	Sdst					20	150	175	<0·5	5·65	1450		11
45926	5 369600	375085		fine grained purplish grey indurated volcanogenic wacke	Svwk					<5	220	20	<0·5	8·55	1750		4
45927	5369600	375025		Fe + Mn incrusted medium grained volcanogenic wacke	Svwk					1450	1550	55	<0·5	9·95	98500		10
45928	5369900	375050		dark grey hornfelsed siltstone	Slt					<5	55	10	<0·5	6·40	405		1
45929	5369900	375785		Sheared dolomitic siltstone with traces of pyrite	Slt					<5	10	10	<0·5	0·42	40	9	3
45930	5369900	375340		grey slate	Ssh												
45931	5369900	374795		Pale orange oxidized volcanogenic wacke - limonite stained + quartz	Svwk					5	160	30	<0·5	27·0	675		430
45932	5369900	374775		Gossan	gos					5	175	155	<0·5	27·0	1750		400
45933	5369800	374750		Mn + Fe stained quartz vein						<5	160	25	<0·5	27·5	13000		270
45934	5369875	374750		Iron stone with possible Cu stained clay	gos					85	205	45	<0·5	0·45	650		260
45935	5369875	374750		Oxidized volcanogenic wacke now orange clay	Svwk					<5	295	35	<0·5	5·25	1950		220

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Electroiytie Zinc Co. of A'asia Ltd.
Rosebery, Tas.

ROCK SAMPLE LEDGER

PROJECT: Mt Black LOCALITY: COLE BROOK
COLLECTED BY: I.M. DATE: 19.11.81

Sample Number	A.M.G. Co-ordinates N	E	Sample Type	Geological Description	Rock-type (Macroscopic)	Thin or Polished Section: T or P	By	Reference	Rock-type (Microscopic)	Metal Content (p.p.m. unless specified): Pb / Cu	Zn / Ni	Cu / Co	Ag	Fe%	Mn	Sn	As
45936	5369900	374620	Rock	Oxidized orange medium grained volcanogenic wacke	SVWK					1000	3000	835	<0.5	30.0	1300		650
45937	5369900	374450		Dark green basalt + pyroxenite from same outcrop	UPX												
45938	5369900	374330		Gossan	gos					85	635	20	<0.5	35.5	1700		5
45939	5369800	374620		Dark grey indurated siltstone	Sslt					310	465	50	<0.5	8.20	435		7
45940	5369800	374725		White silicified and leached sandstone	Ssst												
45941	5369800	375650		Grey medium grained dolomitic sandstone	Ssst												
45942	5369800	375897		Mn wad and heavy ironstone from 2° deposit in creek bed													
45943	5371300	374880		Dark grey fine grained hornfels with minor pyrite						<5	40	65	<0.5	3.05	270		66
45944	5371380	374440		Fine grained pyroxenite - silicified + quartz veined	UPX												
45945	5371500	374875		Limonite stained layered hornfels						<5	80	440	<0.5	5.65	3200	2470	760
45946	5371300	375240		Grey green medium grained altered gabbro	GB					15	145	25	<0.5	7.35	780		9
45947	5371300	375515		Grey fine grained hornfelsed volcanogenic wacke - minor pyrite	SVWK					<5	130	160	<0.5	7.00	1150		12
45948	5371500	375505		Oxidized orange fine grained volcanogenic wacke - limonitic	SVWK					265	1050	340	<0.5	20.0	335		230
45949	5371100	374500		Pale brown talc													
45950	5371100	374560		Dark green grey fine grained rock ? diorite						<5	245	45	<0.5	12.5	580		71

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Electrolytic Zinc Co. of A'asta Ltd.
Rosebery, Tas.

ROCK SAMPLE LEDGER

PROJECT: Mt Black LOCALITY: COLEBROOK
COLLECTED BY: I. M. DATE: 27.11.81

Sample Number	A.M.G.Co-ordinates N	A.M.G.Co-ordinates E	Sample Type	Geological Description	Rock-type (Macroscopic)	Thin or Polished Section T or P	By	Reference	Rock-type (Microscopic)	Metal Content (p.p.m. unless specified) Pb / Cr	Zn / Ni	Cu / Co	Ag	Fe%	Mn	Sn	As
45951	5371100	375360	Rock	Dark grn grey volcanogenic wacke with quartz	Svwk					5	45	25	<0.5	14.0	3150		6
45952	5370760	375800		Sericitic sandstone - dark grey weathers pale grey	Ssst												
45953	5370700	375830		Fine grained sericitic sandstone with slaty cleavage	Ssst												
45954	5370500	375260		Green fine grained volcanogenic wacke	Svwk					<5	110	15	<0.5	8.60	1000		17
45955	5370500	375075		Pale orange limonite stained siltstone	Sslt					<5	100	15	<0.5	9.10	3850		1
45956	5370300	375040		Gossan	gos					<5	95	220	<0.5	42.0	2150		660
45957	5370305	375056	Chip		Svwk					48	180	175	<0.5	9.45	5500		120
45958	"	375052			gos					155	560	320	<0.5	21.5%	6.75%		100
45959	"	375050			Svwk					95	245	220	<0.5	15.5	7500		560
45960	"	375048			Svwk					70	185	205	<0.5	15.0	3400		110
45961	"	375046			Svwk					210	355	200	<0.5	22.0	5750		59
45962	"	375044			gos					145	330	155	<0.5	29.5	3900		310
45963	"	375042			Svwk					85	225	95	<0.5	15.0	4500		200
45964	"	375040			Sslt					<5	115	65	<0.5	5.9	3250		45
45965	"	375038		Very light - limonite Sad.	lim					415	305	150	0.5	14.5	21500		120

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Electrolytic Zinc Co. of A'asia Ltd.
Rosebery, Tas.

ROCK SAMPLE LEDGER

PROJECT: Mt Black LOCALITY: COLEBROOK
COLLECTED BY: I.M. DATE: 2.12.81

Sample Number	A.M.G.Co-ordinates N	A.M.G.Co-ordinates E	Sample Type	Geological Description	Rock-type (Macroscopic)	Thin or Polished Section: T or P	By	Reference	Rock-type (Microscopic)	Metal Content (p.p.m. unless specified): Pb/Cr	Zn/Ni	Cu/Co	Ag	Fe %	Mn	Sn	As
45966	5370305	375036	chip	dark grey indurated siltstone	Sslt					170	540	125	<0.5	8.40	2250		430
														17.0	12500		
45967	"	375034		gossan	gos					105	440	360	<0.5	17.0	18500		820
45968	"	375032		brecciated iron stained dark grey siltstone	Sslt					<5	115	385	<0.5	30.0	4050	5	400
45969	"	375030		brecciated iron stained dark grey siltstone	Sslt					10	80	140	<0.5	18.0	6300		79
45971	5370300	375630		Rounded pebbles cemented by manganese or limonite	Sal												
45972	5370305	375880		White fine grained sandstone with limonite veins	Sst					35	110	325	<0.5	19.0	175	17	630
45989	5370510	374890		Banded gossan	gos												
45990	5370580	374900		Brecciated indurated silt stone with quartz vns.	Sslt.												
45991	5370450	374930		Iron stained vein material out of purplish siltstone	lim												

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APPENDIX V

Petrological Reports	-	C.M.S. Reports	80/10/45
			81/ 4/20
	-	J. Gilfillan Reports	E3/81/52
			E3/81/60
			E3/81/62

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4 DEC 1980

Central Mineralogical Services

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

The Manager
Attn. Geology Dept.
Electrolytic Zinc Co. of
Australasia Ltd.
West Coast Mines
P.O. Box 21
ROSEBERY / TAS. 7470

2nd December, 1980

REPORT CMS 80/10/45

YOUR REFERENCE: Order No. 900207

DATE RECEIVED: 23rd October, 1980

SAMPLE NOS.: 35258, 35259, 35261

SUBMITTED BY: I. McDonald

WORK REQUESTED: Petrology

Tullah geol mapping - rocks.

for

H.W. Fander, M. Sc.

REPORT CMS 80/10/45

Petrological Descriptions

35258 (T.S. 34399) K-stain negative.
This is an altered and sheared weakly clastic porphyritic lava of andesitic-dacitic affinities.

The rock consists essentially of frequent discrete to clustered, saussurite-stained, albitised plagioclase phenocrysts in a pervasively chlorite-stained and variably carbonated microcrystalline feldspathic groundmass. Phenocrysts are sized to 1 mm (clusters or glomerophenocrysts to 2.5 mm) with a mean about 600 μ. The groundmass exhibits vague relict perlitic and felsitic devitrification microtextures largely obliterated by a variably developed, but pervasive slaty cleavage. Similarly, altered lava clasts (to 2.5 mm diameter) are thinly disseminated throughout. Tectonic effects give the rock a certain fragmental appearance but, in detail, there are no definite pyroclastic features and the rock is best interpreted as a tuff lava.

Accessory opaques are represented by leucoxenic clots, locally replaced by cloudy sphene. Fine-grained, partly oxidised pyrite is thinly disseminated throughout. The sulphide is of pretectonic origin and appears to have been introduced with sparse quartz-carbonate (ankeritic) veinlets which have been sheared into discontinuous lenses.

35259 (T.S. 34400) K-stain positive.
This is a greenschist facies metapsammite, primarily a volcanomict lithic sandstone.

The relict framework is poorly sorted in the silt to medium sand range, and is essentially unbedded, with angular to subround grainshapes variably modified by a penetrative slaty cleavage. Clastic components comprise mainly lithic clasts (sericitic pelite, carbonaceous shale, subordinate felsic intermediate microcrystalline lava clasts, impure chert/cherty argillite, total 60-70 %) with subordinate quartz and alkali feldspar grains (15-20 % each). Accessories include leucoxenic semi-opaques, thinly disseminated muscovite flakes and rare degraded (chloritised, muscovitised) biotite flakes. The matrix (30-35 %) comprises sericite- and chlorite-stained microcrystalline quartzofeldspathic material of authigenic character, with accessory carbonaceous matter concentrated into microscopic films in response to the low-greenschist metamorphism.

The slaty cleavage is marked, with pelitic rock fragments sheared into thin, dimensionally orientated lenses. Some of these features are quartzofeldspathic and appear to represent reworked pelitic ash.

Problematically, finer textural details have been obliterated, although the rock has a distinct reworked tuffaceous character.

The slaty cleavage appears to enhance a primary dimensional preferred orientation of platy clasts (i.e. bedding-controlled). There are no tangible polymetamorphic features.

35261 (T.S. 34401) K-stain positive.
This is an altered and weakly stressed tuff lava of andesitic (or, strictly, trachyandesitic) affinities.

Frequent saussurite-stained/albitised plagioclase phenocrysts (mean 500 μ, weakly clustered) are embedded in a weakly, but pervasively chlorite-stained groundmass of felsitic anhedral K-feldspar enclosing random plagioclase microlites and accessory sub- to euhedral magnetite. Similarly-textured, but pervasively epidote-stained and chlorite-stained lava clasts (to 3.5 mm, mean 1-1.5 mm) are common throughout. These appear relatively basic (andesitic) in comparison with the (trachyandesitic) matrix lava and give the rock a certain hybrid character. Some of these features include recrystallized quartz microspherulites and, rarely, chlorite-epidote semi-pseudomorphed microphenocrystal pyroxene subhedra.

Green phlogopitic mica, hydromuscovite and ankeritic carbonate are accessory alteration phases. The sectioned area includes rare, marginally oxidised pyrite subhedra. Stress is reflected in incipient microfracturing, weakly mottled extinctions and crudely schistose chlorite films which in part outline a weak perlitic cracking pattern.

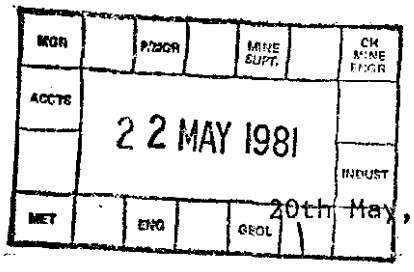
D. Cowan, B. Sc.

FILE MINERALOGY.

Central Mineralogical Services

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The Manager
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Electrolytic Zinc Co. of
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ROSEBERY / TAS. 7470



20th May, 1981

REPORT CMS 81/4/20

YOUR REFERENCE: Order No. 900299

DATE RECEIVED: 14th April, 1981

SAMPLE NOS.: 35185 - 35188

SUBMITTED BY: I. McDonald

WORK REQUESTED: Petrology

MRP. 227 core samples.

H.W. Fander, M. Sc.

REPORT CMS 81/4/20

Notes:

Four specimens of drill core were received for petrological examination and are briefly described in the attached table. Descriptions incorporate data from stereobinocular and petrological microscopic examination of representative thin-sections and offcuts, and include interpretative comments.

Summary

Specimens 35185, 186 and 187 are closely related, thoroughly altered flows of basic-intermediate character. Finer details have been obliterated, but 35186 and 187 exhibit relict basaltic textures. 35185 is less diagnostic in terms of relict features. All three rocks are characterised by conspicuous, extremely fine relict primary magnetite, which explains their relatively high magnetic susceptibility.

In cont ast, 35188 is coarser-grained, with a relict fabric suggestive of a minor intrusive or relatively slowly cooled flow core. This rock carries accessory leucoxenised opaques, and the absence of fresh magnetite is consistent with the low susceptibility.

D. Cowan, B. Sc.

Central Mineralogical Services

Sample No.	Classification - Composition	Fabric	Accessories	Comments
35185 (T.S. 36712)	Porphyritic "Andesite". Sericite-calcite-stained/ albitised phenocrystal plagioclase laths in chlorite-calcite-sericite-stained microcrystalline feldspathic groundmass, abundant fine magnetite.	Flow-structured, vaguely felsitic (partly devitrified). Sporadic quartz-calcite veinlets.	Traces epidote.	Incipiently sheared. Essentially a basic-intermediate pitchstone. Poorly crystalline and thus poorly resolved compositionally.
35186	Basalt Breccia. Irregular clasts of plagioclase-porphyritic lava, chlorite-carbonate-albite alteration. Frequent stressed, partly recrystallized calcite-quartz veins, veinlets.	Confused. Agglomerate-lava-like with "basalt"-textured clasts. Closely fractured, veined.	Conspicuous ultrafine primary magnetite.	Probably a flow-marginal breccia, of chilled basaltic character. Mild shearing postdates secondary quartz-calcite-healed brecciation.
35187	Altered Basalt. Saussurite-stained, albitised plagioclase phenocrysts, rare chloritised pyroxene phenocrysts in epidote-chlorite-stained/ albitised microlathic groundmass.	Glomeroporphyritic, "basaltic". Sporadic sheared calcite-quartz veins, segregations.	Conspicuous ultrafine primary magnetite.	Affinities with clasts in 35186, but slightly coarser-grained, homogeneous fabric.
35188 (T.S. 36715)	Altered Microgabbro. Calcite-sericite-stained/ albitised plagioclase, rare chloritised pyroxene phenocrysts in chlorite-calcite-stained feldspar-lathic groundmass. Disseminated leucoxenised opaques.	Weakly glomeroporphyritic. Sim. 35187, but trend medium-grained. Mildly sheared.	Sporadic chlorite and quartz-calcite veinlets (sheared).	Minor intrusive or core zone of flow. Devoid of magnetite, but with conspicuous leucoxenised primary opaques.

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PETROGRAPHIC EXAMINATION OF NINE SAMPLES OF HEAVY MINERAL CONCENTRATES, FROM TASMANIA.

NATONE HMA GREGS.

Report No. E3/81/62 12th June, 1981.

For: Electrolytic Zinc Company of Australiasia Ltd.

J. Barron.

Dr. B.J. Barron,
Petrologist.

Sample No. 43322

Thin Section This sample of mineral concentrate has an average grain size of about 0.3 mm across, with a few elongate grains up to about 1.3 mm long. It contains about 70% of silicate and lithic contaminants with the remainder as oxides. The oxide fraction contains mainly weathered yellow- and red-brown material comprising limonitic and partly oxidised former ?magnetite (a few grains have octahedral grain shapes), sparse grains of subrounded zircon and pyritic sulphides are accessory.

The silicate fraction is extremely abundant and this contains approximately equal proportions of quartz and lithic debris. The lithic contaminants include very strongly deformed and recrystallised quartzite, considerably sericitised siltstone, poorly sorted arenite or greywacke as well as highly sericitised feldspathic debris. There is no cassiterite present.

Sample No. 43323

Thin Section Much of the sample comprises a light silicate fraction which should have been eliminated during the separation. The average grain size forthe sample is about 0.3 mm across and it contains roughly equal proportions of silicates and oxide phases. The oxides consist mainly of cubic magnetite grains (magnetic) comprising up to about 70% of the oxide fraction. Subrounded to subhedral, prismatic zircon makes up a further 10% of the oxides, and cassiterite forms somewhat less than 5% of the oxides. Accessory oxides include red-brown and dark brown spinel.

In the silicate fraction quartz predominates, forming about 50% of this fraction with equally abundant lithic debris including fine grained quartzite, chert, siltstone partly recrystallised quartz arenite and accessory grains of blue to brown tourmaline, epidote, partly degraded biotite and highly sericitised, partly argillically altered plagioclase.

Sample No. 43325

Thin Section The sample again contains approximately equal proportions of oxides and silicate contaminants. The grain size for the sample ranges up to about 0.5 mm across, but with an average of about 0.25 mm across. The oxide fraction comprises about 70% octahedra of magnetite (magnetic), and about 30% of a red-brown spinel also with subhedral cubic grain shapes. Only one or two grains of accessory cassiterite are present and zircon appears to be absent.

The silicate phases include mainly angular quartz, with abundant but slightly subordinate lithic material. The latter comprises quartzite, chert, highly sericitised feldspathic material, quartz arenite, and fine grained foliated sericite-bearing types.

Sample No. 43326

Thin Section Only about 15% of this sample consists of oxides with the remainder comprising a lighter fraction of silicate contaminants. The average grain size for the sample is about 0.2 mm across. The oxides include mainly subhedral magnetite crystals (about 75% of the oxides), with about 20% of red-brown spinel with about 3% of zircon, several small accessory grains of cassiterite, pyritic sulphides, elongate opaque oxides that are probably ilmenite, and sphene.

The voluminous silicate fraction contains abundant angular to subrounded quartz, and an equally abundant lithic fraction, together with accessory subrounded to subhedral pale green amphibole, partly sericitised plagioclase, degraded former biotite flakes, subrounded to angular blue to pale brown tourmaline, minor topaz, epidote and several scattered subrounded to angular garnet grains. The lithic types include quartz arenite, siltstone, chert and foliated sericitic types.

Sample No. 43327

Thin Section Again about 60% of the concentrate comprises quartz-rich contaminants, and the average grain size for the sample is about 0.25 mm

across. The oxide fraction consists mostly of subhedral to angular and broken magnetic, magnetite octahedra (i.e., about 80% of the oxides). A second, minor, opaque oxide phase comprises elongate prismatic grains and may represent ilmenite. A red-brown subhedral to angular spinel, some grains with opaque oxide rims, occupies about 10% of the total oxides. The remainder of the oxides includes mostly subrounded to subhedral zircon, minor sphene and only several grains of irregular shaped yellow-brown cassiterite.

The abundant silicate fraction comprises approximately equal proportions of quartz and lithic debris, both of which have well rounded to quite angular grain shapes. Other crystal debris includes mostly angular to stumpy prismatic albitised plagioclase and deep blue-green tourmaline. The lithic types present include fine grained cherty material, fragments of a feldspar and quartz-bearing, poorly sorted greywacke or arenite, recrystallised quartzite with minor foliated sericite and several grains that contain only stained brown sericite.

Sample No. 43328

Thin Section About 60% of the sample consists of quartz and quartz bearing lithic debris, with the remaining 40% comprising the silicate phases and lithic contaminants. The average grain size for the concentrate is about 0.13 mm across and very few grains up to 0.3 mm across are also present. The oxide fraction contains mostly rather irregular to elongate shaped grains which have been largely converted to a white (to light grey) opaque phase which is probably leucoxene, indicating the former presence of common ilmenite. Also, subordinate, but also common, equant grains of strongly magnetic magnetite are present. Quite angular to subhedral zircon grains comprise about 30% of the oxide fraction, and clouded granular sphene is common. Rather sparse grains of red-brown to yellow-brown twinned cassiterite are present, as are sparse grains of a red brown, subhedral spinel. Accessory grains of corundum are also present.

In the silicate fraction subrounded lithic debris predominates slightly over rounded to quite angular quartz, with several rounded grains of blue-green to light brown, accessory tourmaline. Amongst the lithic debris the most abundant type is a fine grained sericitic and

granular felsic type, which probably constitutes the matrix of a type also containing large angular quartz clasts. Also present is minor recrystallised quartzite and several grains containing a clouded sphene-sericite assemblage.

Sample No. 43329

Thin Section This concentrate contains approximately equal proportions of oxides, and a 'light' silicate fraction including lithic debris. The average grain size for the sample is about 0.17 mm across and grain shapes are variable, from subhedral to subrounded, to angular and broken. The oxide fraction contains mainly subhedral to rather irregular shaped magnetite grains (strongly magnetic), with common red-brown spinel and zircon. Sparse grains of clouded sphene are present and several rare grains of rather rounded cassiterite and ?monazite.

The silicate fraction comprises abundant quartz, and lithic debris including chert, poorly sorted quartz arenite (or greywacke), quartzite and strongly sericitised types. Less common are grains of partly sericitised and albitised plagioclase, quite well rounded light brown to blue-brown tourmaline, ?orthopyroxene, minor clinopyroxene and rare grains of epidote.

Sample No. 43330

Thin Section This concentrate is somewhat different from the previous samples in that it contains abundant debris from an ultrabasic source. The sample has an average grain size of about 0.2 mm across and grain shapes are rather equant and angular to subhedral. The oxide phase comprises about 50% of the sample, and the most abundant phase in this fraction is an abundant red-brown spinel (probably chromium-bearing). Equally common are opaque oxide grains which include a mixture of(magnetic) magnetite and elongate grains of a ?titaniferous oxide possibly ilmenite. Accessory oxide phases include zircon (a few grains are euhedral but most are subrounded) rare grains of angular cassiterite.

The silicate fraction comprises abundant quartz and quartz-bearing lithic debris, together with equally abundant weakly pleochroic

orthopyroxene, clinopyroxene (?pigeonite), and several rare grains of blue to pale yellow-brown coloured tourmaline.

Sample No. 43331

Thin Section Approximately 40% of this sample consists of oxides, and the remainder contains quartz and lithic contaminants, and the average grain size for the concentrate is about 0.2 mm across. The oxide component comprises abundant(magnetic)magnetite, with common red-brown and rare yellow-brown spinel, and some elongate grains of ?ilmenite. Sparse grains of subhedral to subrounded zircon are present, and only about 1 or 2 grains of cassiterite are represented together with several grains of ?rutile. A few small acicular rutile grains are also present mainly within a fine grained quartz-sericite-bearing matrix and several grains of clouded sphene are an accessory phase.

The silicate fraction contains abundant angular to subhedral and rounded grains of quartz (some with distinct strain shadows), equally abundant lithic debris including fine grained quartzite, stained and weathered fine grained sericitic types, chert, epidote-quartz rock, together with accessory dark blue-green to straw coloured tourmaline and partly sericitised, albitised plagioclase.

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PETROGRAPHIC EXAMINATION OF THREE DRILL CORE SAMPLES AND EIGHT SAMPLES OF HEAVY MINERAL CONCENTRATES

DRILL CORE FROM MRP. 226 MURCHISON RIVER/TULLAH.
HEAVY MINERAL SAMPLES — NATONE CREEKS.

Report No. E3/81/52

7th May, 1981.

J. Barron

B.J. Barron,
Petrologist.

PART 1. DRILL CORE SAMPLES

Sample No. 40075

Rock Type Substantially altered and foliated fragmental lithology, possibly of pyroclastic derivation and containing strongly porphyritic debris of former ?trachytic to andesitic composition.

Hand Specimen This sample of drill core comprises a strongly foliated rock which appears to be distinctly fragmental. Dark greenish grey fine grained fragments ranging up to about 2.5 cm in long dimension, contain small white patches which may represent phenocryst sites. Deformed and elongate fragments make up about 70% of the sample, and these are set in a light yellowish green, fine grained matrix. Staining for K-feldspar proved negative.

Thin Section Although the rock is thoroughly altered, partly recrystallised and foliated, a distinct relict texture remains of a fragmental rock type containing irregular shaped, deformed and flattened, lithic and crystal clasts, mostly from a strongly porphyritic igenous source. In the thin section, the margins of the fragments are not always easily defined since they have greatly elongate irregular shapes due to the strong foliation. However one fragment appearing as a band across the thin section has a maximum dimension in excess of 2.5 cm, but other flattened fragments are generally smaller and in the order of 0.5 cm long (average). The most common lithic type represented contains up to about 35% phenocrysts and glomeroporphyritic aggregates, with an average size of about 1.2 mm across. These were clearly plagioclase, a little of which remains as albite amongst a mat of secondary products (see below). Very sparse mafic phenocrysts were also probably present, but none now remains and instead these sites contain mostly deformed chlorite and other secondary phases. The former groundmass of such fragments retains vague relict textures of recrystallised microlitic plagioclase set amongst a foliated mat of secondary phases. Other fragments have relict trachytic textures with slightly coarser microlitic plagioclase remaining in the former groundmass, while in others deformed small oval-shaped patches probably represent former vesicular structures. Several irregular shaped recrystallised granoblastic carbonate patches are probably

secondary, although these could represent former small primary limestone clasts. The carbonate in these patches reacts strongly with dilute HCl and is thus probably mostly calcite. The matrix in which this volcanically derived lithic material is set contains relict angular crystal and smaller lithic debris which is highly altered, and in turn this is set in a matrix of very fine grained,partly foliated, alteration products.

The alteration of this sample is extreme with a pervasive secondary assemblage developed which is characteristic of the greenschist facies of metamorphism. This includes quartz-albite-carbonate-epidote-sericite assemblages in some of the former feldspar phenocryst sites, with chlorite ± carbonate ± quartz ± sphene in former mafic crystal sites, and flattened relict vesicles filled with fine chlorite and rimmed with fine granular sphene. The former groundmass of most fragments now contains extremely fine grained quartz ± albite ± chlorite ± sphene ± minor carbonate, with trails of sphene granules largely defining the foliation. In one particular fragment very fine grained epidote and minor chlorite replaces largely, the former groundmass, while large phenocrysts contain patches of relict plagioclase (now albite), abundant carbonate and epidote dust. Clouded ?leucoxene (with rims of sphene) replaces former scattered titaniferous opaque oxides. In the matrix of the rock, the alteration pattern of the small lithic and crystal fragments is similar to that described above for the coarser fraction. However these are set in patchy microgranular recrystallised material also containing abundant chlorite, sphene and to a lesser extent, carbonate and epidote. There are no significant veins in the thin section but one very small patch of sulphide mineralisation is present.

The sample has a clearly fragmental parent, and probably represents a former pyroclastic lithology, containing strongly porphyritic lithic and crystal debris. The composition of the latter is largely obscured by the pervasive alteration, and textures are strongly modified by a distinct foliation. Most of the material however, may be of intermediate to rather basic (perhaps andesitic) composition. Alteration probably accompanied deformation of the rock and is characteristic of the greenschist facies of regional metamorphism. The rock may be classed as a substantially altered and foliated fragmental type, possibly of pyroclastic derivation and containing strongly porphyritic debris of former ?trachytic

to ?andesitic composition. There are no significant phases that are likely to cause a magnetic response.

Sample No. 40076

Rock Type Completely altered and veined, porphyritic and vesicular igneous rock, converted largely to an epidote-quartz assemblage.

Hand Specimen A pale yellowish green coloured fine grained drill core sample, which contains scattered rounded to irregular shaped patches and small prismatic patches of light grey to white material. The sample is rather massive and is not brecciated. Several narrow, white crosscutting veins contain material which reacts strongly with dilute HCl and is thus probably calcite. Staining for K-feldspar proved negative.

Thin Section In contrast to the previous sample 40075, this sample is not deformed and foliated. However, it has suffered pervasive alteration and none of the primary mineralogy remains. This alteration has been highly selective, and as a result, primary relict textures are extremely well preserved. The rock is probably a former vesicular and sparsely porphyritic igneous volcanic lithology, containing about 15% of relict subhedral to glomeroporphyritic phenocryst sites with an average grain size of about 0.6 mm across. In addition to the phenocryst sites, it contains a further 15% to 20% of large irregular to well rounded former veiscle sites which range up to about 4 mm across. Another relict feature of the rock includes evenly distributed clouded relict opaque oxide sites throughout the former fine grained groundmass. These comprise about 8% of the groundmass and have an average grain size of about 0.1 mm across. They have shapes that suggest former stumpy prisms and aggregates, and are now composed of clouded ?leucoxene and ?sphene dust.

Complete alteration of this rock precludes accurate compositional identification of the former parent lithology, with similar secondary assemblages developed in relict phenocryst, vesicle and groundmass sites. These respective sites are clearly defined by grain size differences with an average grain size for the secondary assemblage in former vesicle and phenocryst sites of about 0.16 mm across, while the secondary products of

the former groundmass fraction have an average grain size of less than about 0.01 mm across. The relict phenocryst and vesicle sites now contain assemblages amongst the phases quartz, ± epidote and minor carbonate, and these domains are relatively free of the abundant relict opaque oxide dust characteristic of the former groundmass. The quartz is present as fine granular aggregates, prismatic grains and very coarse, irregular shaped grains with strain shadows, and containing trails of very small fluid inclusions with distinct bubbles probably indicationg a hydrothermal source. The epidote also occurs both as granular aggregates as occasional prismatic grains, and in subradiating clusters of prismatic grains, particularly within the relict vesicle sites. The former groundmass now contains about 80% of extremely fine grained granular epidote with rare very small interstitial patches of quartz and fewer of carbonate. The rock is cut by very narrow veins in several different directions. These contain mainly granular quartz and carbonate, and some of these are lined with very fine clouded ?sphene dust.

The sample has very well preserved porphyritic and vesicular textures indicating an igneous volcanic parent lithology, possibly of intermediate to basic composition in spite of its complete alteration. The assemblage is dominated by an epidote-quartz association and appears to be at least partly hydrothermal. The rock may be classed as a completely altered and veined porphyritic and vesicular igneous lithology, possibly of former intermediate to basic composition but now converted largely to an epidote-quartz assemblage. It is most unlikely that any of the present assemblage should cause a significant magnetic response and especially in view of the almost complete lack of opaque oxides.

Sample No. 43457

Rock Type Partly altered and veined, strongly porphyritic and sparsely vesicular igneous rock, possibly of former andesitic composition.

Hand Specimen A greenish-grey coloured fine grained sample of drill core with small, sparse, scattered white patches possibly representing phenocrysts. Irregular and discontinuous narrow white veins and patches react strongly with dilute HCl indicating the presence of calcite. K-feldspar staining was negative.

Thin Section This sample is considerably less altered than the previous two samples 40075 and 40076. It is clearly a porphyritic igneous type containing about 30% of partly to completely altered phenocrysts with an average grain size of about 0.8 mm across, set in a felted groundmass of prismatic microlites with an average length of approximately 0.16 mm. Very sparse well rounded to oval shaped vesicles up to 2 mm across are now filled with a secondary assemblage. The phenocrysts comprise mainly plagioclase which has been converted to albite, and peppered with other fine alteration products. This plagioclase is present mainly as coarse stumpy prismatic grains and glomeroporphyritic aggregates. Some sparse mafic phenocryst sites have relict shapes which suggest the former presence of bladed amphibole, and one is possibly an altered euhedral stumpy pyroxene grain, however neither one of these primary phases remains. Cubic opaque oxide dust (possibly magnetite) is disseminated throughout the fine altered groundmass, and this phase accounts for up to about 2% of the total and it is possible that this could cause a weak magnetic response.

Alteration of the rock is extensive, with complete albitisation of all the primary plagiocalse, and such sites are crowded with fine sericite dust, patches of epidote granules, pale green chlorite, and scattered irregular carbonate grains and patches. In the former ?amphibole phenocryst sites, chlorite flakes are the main alteration product, with minor narrow zones of sericite, sparse patches of epidote granules, minor sphene, quartz and several small cubic opaque oxide inclusions. The possible former pyroxene site now contains mainly granular epidote with minor carbonate, sphene and chlorite, while vesicle sites appear to have a zoned secondary assemblage, some with carbonate centrally and a narrow zone of chlorite and quartz ± albite peripherally, and others have fibrous to subradiating epidote centrally and irregular narrow margins of chlorite peripherally. In the fine groundmass, interstitial to the albitised and sericitised plagioclase microlites, irregular patches of pale green chlorite and sphene are present in approximately equal proportions while clusters of epidote granules and carbonate are common but subordinate. The rock is cut by a substantial branching vein with a width of about 2 mm, and containing an assemblage of equigranular granoblastic calcite (see positive reaction with dilute HCl in the hand specimen), throughout which are irregular patches of very fine equigranular quartz and chlorite. Other extremely narrow veins carry mainly granular quartz and albite with very minor fine carbonate and chlorite.

Alteration in the rock is probably due to regional greenschist facies metamorphism with later hydrothermal veining.

The sample has a clear relict texture and mineralogy indicating a strongly porphyritic and sparsely vesicular parent, possibly of ?andesitic composition, although significant alteration has largely obscured its primary mineralogy. It may be classed as a partly altered and veined, strongly porphyritic and sparsely vesicular igneous rock, possibly of andesitic composition prior to alteration. The ubiquitous disseminated opaque oxide dust which is clearly unaltered and probably magnetite, could give a positive magnetic response. This is in contrast to the two previous samples 40075 and 40076 from which opaque oxides are almost completely absent.

PART 2. HEAVY MINERAL CONCENTRATES

Sample No. 43315 Crazy Horse Ck ①
5,365,500N 373,965E

Thin Section The average grain size of this mineral concentrate is about 0.25 mm across, and this is relatively constant with only a few grains present up to 0.5 mm across. It contains about 15% of silicate phases and about 75% of oxides and other opaque grains. Examination under the stereo binocular microscope reveals that about 65% of this oxide fraction is a red-brown colour and consists of equant subhedral grains. A further 30% of the oxide fraction comprises dark grey to black octahedral grains which are magnetite (distinctly magnetic) and about 5% contains pyrite grains which have distinct red-brown oxidised rims. Transmitted light examination shows that most of the red-brown subhedral grains of the oxide fraction comprise a red-brown to yellow-brown spinel, some grains of which have rims of an opaque oxide. Sparse oxidised grains are also present, and these now consist of fine limonitic phases. About 1% of the oxide fraction contains cassiterite as partly rounded to subhedral deep yellow-brown, birefringent well twinned grains. Other accessory phases include rounded small zircon grains and several small grains of ?rutile.

The silicate fraction contains approximately equal proportions of quartz and fine partly altered quartz rich lithic contaminants together with brown to blue tourmaline, fine grained foliated quartz-chlorite rock as small lithic fragments and possibly one grain of ?pyroxene.

Sample No. 43316 Head Ck 20m above Arm Ck
5,366,440N 375,180E

Thin Section This sample comprises mostly grains which should have been eliminated during heavy mineral separation. The average grain size for the sample is about 0.2 mm across, and there is little variation in size, and virtually no magnetic response. The sample comprises about 20% of oxide phases and the remaining 80% consists of lithic and crystal silicate grains. In reflected light the oxides consist mainly of partly oxidised red- to yellow-brown hematitic material, together with a few small scattered grains of dark grey to black ?magnetite. In the thin section a few accessory grains of red-brown spinel are evident, and a few grains of zircon are present

as rounded, as well as subhedral prisms. Cassiterite appears to be absent.

The silicate fraction comprises by far the majority of the sample and this includes equal major proportions of quartz and lithic material. The quartz occurs as irregular to subrounded grains, most of which are strained, and some of which are distinctly recrystallised. The lithic material present is mainly subrounded, very fine grained, quartzo-feldspathic material, some of which is distinctly foliated, and most of which is heavily sericitised. Other silicates present include partly sericitised plagioclase, partly degraded ?biotite, clusters of chlorite and sphene, deep brown to blue tourmaline and fine chert.

Sample No. 43317 Montezuma Ck above Junction with Crazy Horse Ck
5,365,500 N 373,884 E

Thin Section This concentrate contains about 60% of oxides and about 30% of silicate phases together with lithic material. The average grain size of the concentrate is about 0.2 mm across and very few larger grains are present. The oxide and other opaque fraction comprises mostly subhedral magnetite (magnetic), with a few elongate grains of ?ilmenite and sparse scattered grains of pyritic sulphides with red-brown oxidised rims. Also present are numerous red-brown grains and grains which are partly altered to limonitic oxides. Many of the red-brown grains in thin section are seen to be a spinel, and most of the oxide fraction has subhedral to rather irregular grain shapes. Subrounded zircon grains are quite rare, and yellow-brown cassiterite grains are also very sparse.

The silicate fraction again contains mostly light contaminants including roughly equal proportions of mostly angular quartz and very fine grained altered sericite- and chlorite-quartz bearing sub-rounded lithic grains. In addition are several grains of brown to blue tourmaline, clouded feldspar and one grain of colourless ?garnet.

Sample No. 43318 Piles Ck
5,366,940 N 373,720 E

Thin Section This heavy mineral concentrate is again contaminated with quite abundant quartz and very fine grained altered, quartz and feldspar rich lithic material. The oxide fraction consists of about 50%

of the sample with the remaining 50% containing silicates, and the average grain size is about 0.2 mm across. The oxides in this sample comprise approximately equal major proportions of cassiterite and subrounded to subhedral cubic magnetite grains. Also present in this fraction are numerous partly oxidised limonitic grains and some rare grains of pyrite have narrow, red-brown oxidised margins. Several sparse elongate opaque oxides which are partly altered to white ?leucoxene may represent former ilmenite and also present are a few grains of clear red-brown spinel, scattered grains of subrounded zircon and several ?rutile needles.

The silicate fraction contains largely angular to subrounded quartz, altered fine grained cherty lithic grains that are subrounded to angular with a few well rounded shapes, some fine grained, lithic material containing large feldspar grains and/or chlorite, sparse grains of blue and brown tourmaline, epidote clusters and a rare grain of carbonate.

Sample No. 43319 20m up Arm Ck from junction with Head Ck 5,366,360 N 375,080 E

Thin Section This is a very small sample and as in the previous sample 43318, it contains a large proportion of light contaminants. It contains roughly 60% of oxides and opaque phases and the remaining 40% comprises silicates and carbonate grains. Approximately 3% of the sample includes cassiterite, but most of the oxide fraction contains equal major proportions of black opaque oxides, (mostly magnetic magnetite octahedra), pyritic sulphides with narrow, oxidised red-brown rims, and partly weathered red-brown to yellow-brown limonitic material. Grain shapes of most of the opaque oxides and some pyritic grains are subhedral but the weathered oxidised grains generally have irregular outlines. In addition to the above phases are scattered grains of brown spinel, rounded zircon, and fewer of ?rutile.

In the silicate fraction quartz is the most abundant phase and most of these grains show strain shadows and are rather angular to irregular in shape. Lithic material is also abundant comprising mainly fine, granular, altered and some recrystallised types containing mostly quartz-clouded feldspar-chlorite-sericite assemblages. A few of these have

quite large grains of quartz. Additional accessory phases include blue and brown tourmaline and scattered broken rhombs of carbonate.

Sample No. 43320 Hydatids Ck
5,367,500N 374,270E

Thin Section This is a small sample, and again it consists largely of quartz-rich light contaminants and only about 10% of the sample contains a heavy mineral fraction. The grain size of the material reaches a maximum of about 0.6 mm across, but is mostly in the order of 0.23 mm across. The oxide and opaque fraction contains approximately equal proportions of equant subhedral black magnetite grains (magnetic), and pyritic sulphides with red-brown oxide coatings, but the majority of oxide grains comprise highly oxidised red-brown to yellow-brown limonitic products. A few grains of red-brown spinel and zircon are present but cassiterite is entirely lacking.

The silicate fraction contains abundant, mostly angular quartz, equally abundant fine grained lithic material and scattered grains of partly sericitised feldspar, tourmaline and partly altered ?epidote clusters. All the lithic material is rather fine grained and includes mainly partly foliated and altered cherty material, some with sericite and chlorite alteration. In some fragments coarser quartz grains are set in a similar fine grained matrix and many of these lithic grains show abundant limonitic staining. Other lithic fragments have patches of sub-radiating fibrous quartz while others are clearly recrystallised and partly granoblastic.

Sample No. 43321 Leg Ck.
5,366,520N 374,900E

Thin Section Again the sample consists mainly of lighter quartz-rich contaminants and only about 15% of this consists of opaque oxides and relatively heavy phases. The average grain size for the sample is about 0.2 mm across, and this is relatively constant. The opaque fraction including oxides contains mainly red- to yellow-brown limonitic material, common grains of partly oxidised pyritic sulphides with limonitic products along fractures and coating the grains, several grains of white ?leucoxene

replacing former ?ilmenite, one or two grains of cassiterite and accessory zircon.

The silicate fraction consists mainly of angular and irregular shaped quartz, together with equally abundant angular to subrounded lithic grains. The latter are generally very fine grained, and contain fine grained altered rock types which are considerably weathered and stained. Most contain abundant sericite and argillic products while others consist of fine granular quartz. Still others are clearly carbonaceous siltstone and a few contain highly sericitised feldspar. Accessory phases in addition to the above include epidote, blue to brown tourmaline and carbonate.

Sample No. 40179 Arm Ck 40m above Neck Ck
5,365,500 N 374,950 E

Thin Section The separation of the lighter fraction is good in this sample, and it conains about 80% of oxides and opaque grains. It is more or less equigranular with an average grain size of about 0.2 mm across. The oxide fraction contains mostly magnetite (strong magnetic response), comprising about 60% of the total sample, and which is present as small subhedral cubic grains. Yellow- to red-brown twinned cassiterite occupies about 7% of the sample, and these grains are subhedral to angular and irregular. Comprising about 10% of the sample is abundant zircon, which is present as subhedral to partly rounded prismatic grains and several of these grains are pale pink. A further 3% contains elongate red-brown rutile prisms.

In the sparse silicate fraction, scattered angular grains of quartz are the most prominant phase, with several grains each of tourmaline (olive green to straw coloured), clouded feldspar and minor subrounded, oxidised and partly weathered, fine grained lithic fragments.

JOHN F. GILFILLAN & ASSOCIATES PTY. LIMITED
MINERAL EXPLORATION AND GEOLOGICAL CONSULTANTS
PETROLOGY IN ASSOCIATION WITH Dr. B.J. BARRON

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DETAILED PETROLOGICAL EXAMINATION OF FOUR DRILL CORE SAMPLES FROM TASMANIA.

DDH CHP 228 Colebrook Hill.

Report No. E3/81/60 10th June, 1981.

For: Electrolytic Zinc Company of Australasia Limited.

J. Barron

Dr. B.J. Barron,
Petrologist.

Sample No. 42402 - C.H.P. 228, 40·60m.

Rock Type Tourmaline-bearing, deformed, veined and significantly mineralised, former banded arenaceous and cherty sediment.

Hand Specimen A rather complex section of strongly mineralised drill core which comprises areas, and lensed bands up to several centimetres across of medium grained dark greenish grey material which contain abundant sulphide mineralisation, (including at least three phases) separated by lensed and deformed discontinuous bands of light grey, finer grained material which is relatively little mineralised. Crosscutting fractures and veins are also filled with sulphides at least two phases of which are abundant, (see separate report). Staining for K-feldspar shows that rare small grains of this phase occur within the lighter grey material, but is otherwise absent.

Thin Section The sample is a complex mineralised, veined and recrystallised clastic lithology, which retains a lensed layering of clearly sedimentary origin, on a scale of several millimetres. At least three distinct lithic types are represented, and the description below is set out in several sections according to the several different textural types represented in the thin section.

Firstly, are bands with a distinctly poorly sorted, relict clastic texture, containing about 45% of mainly angular, irregular to subrounded debris, with an average grain size of approximately 0.3 mm across, but ranging up to about 0.6 mm across. The debris includes mostly quartz as large single grains, but also clasts of partly recrystallised quartz, and recrystallised fine grained quartz aggregates, possibly representing former cherty material. Also present are scattered clasts of partly recrystallised, clouded sodic plagioclase, and rare large detrital grains of yellow-brown to straw coloured, pleochroic tourmaline. Small clasts of more basic fine grained lithic types are now completely replaced by clusters of a fine subradiating fibrous pale blue-green amphibole, while other former lithic clasts are now marked by abundant sphene granules throughout a fine mosaic of recrystallised quartz. The matrix of such bands contain a fine mosaic of equigranular felsic material, throughout which, narrow wavy trails of granular sphene mark a distinct foliation. Also forming part of the secondary assemblage of the matrix are elongate patches of fine grained fibrous pale green amphibole, minor carbonate,

and associated with sparse, disseminated patches of sulphide are clusters of prismatic dark green to yellow brown tourmaline and rather coarse granular, ?hydrothermal quartz. This band clearly represents a rather poorly sorted sediment containing arenite sized detritus and possibly representing a former greywacke.

In an adjacent band, which has a sharp boundary against the altered arenite band, silt sized detritus including mainly clouded and partly degraded feldspar as well as quartz, occur as rare debris within a cherty micro-crystalline felsic mosaic, throughout which sphene dust forms subparallel lensed trails marking planes of a former foliation.

A third band also comprises largely cherty micro-crystalline material, but this is present mainly as flattened clasts with a distinct layering, again marked by trails of sphene dust. Such clasts are generally about 0.6 mm across and comprise up to 70% of the band with the remainder containing rounded patches of fine fibrous pale green amphibole together with minor granular quartz and scattered grains of irregular shaped quartz and recrystallised clouded feldspars. This band may contain largely brecciated sedimentary material, possibly of acid volcanic derivation.

Also present, and forming about 40% of the thin section are discontinuous, lensed and microfaulted bands, some in excess of 1 cm wide, containing a more mafic assemblage of patchy metamorphic phases, including most of the sulphide mineralisation. In these bands no recognisable relict texture remains, and instead is a rather patchy distribution of the secondary (metamorphic) phases. Scattered irregular patches of clacite, (which react with dilute HCl), form about 20% of the mineralised band, between which is mat of decussate fine grained fibrous amphibole (possibly mainly tremolite-actinolite) together with areas of prismatic to acicular blue-green to brown to colourless tourmaline comprising about 40% of such bands. Interstitial to the clusters of decussate prismatic tourmaline crystals is minor quartz, and a yellow, isotropic secondary phase closely associated with the large irregular patches of opaque sulphide mineralisation which comprises about 40% of the altered mafic bands. Accessory zircon and sphene are also present within these bands. Crosscutting narrow veins which also mark the position of small micro-faults are filled mainly with irregular and patchy sulphides associated with rather coarse grained ?axinite, carbonate, quartz and tourmaline. The

total sulphide component of the rock is about 10%.

The rock is a texturally complex lithology which retains a primary sedimentary layering, and was clearly derived from a banded sedimentary parent. It has since suffered a deformation and possibly at a later stage recrystallisation and development of selective hydrothermal alteration, mineralisation and veining. It may be classed as a tourmaline-bearing, deformed, veined and significantly mineralised, former banded arenaceous and cherty sediment.

Sample No. 42403 - CHP 128 ; 51·5 m.

Rock Type Highly mineralised axinite-tourmaline-actinolite-quartz rock.

Hand Specimen This is a rather small drill core sample with a patchy distribution of phases. It consists largely of irregular patches of sulphide mineralisation (see separate report) comprising at least two phases. Within the abundant mineralisation are set long bladed grey coloured crystals, and irregular patches of fine grained greenish grey coloured material. Sulphides comprise up to about 60% of the sample. Staining for K-feldspar proved negative.

Thin Section This is an extremely patchy metamorphic sample in which no relict textures remain to indicate the nature of the parent lithology prior to metamorphism and mineralisation. It has a somewhat variable texture, comprising large irregular shaped areas of opaque sulphides making up about 60% of the total, and which enclose several different metamorphic silicate phases. The most prominant of the latter includes large clusters (up to about 8 mm across) of bladed axinite crystals with a large negative axial angle and rather low birefringence. These comprise about 10% of the sample, and in turn they enclose patches and subradiating bundles of fibrous, possibly retrograde, pale green amphibole, together with scattered irregular patches of calcite (which reacts with dilute HCl). Also enclosed within the axinite are abundant narrow acicular tourmaline prisms in random orientations. These generally have a dark blue-brown to nearly colourless pleochroic scheme. Also scattered throughout the axinite are small clusters of sphene granules. All these phases are similarly poikiloblastically enclosed within the areas of sulphides, and uninterrupted trails of sphene dust pass through

both axinite crystals and sulphides, probably marking a former foliation direction. Several large irregular patches now contain dense radiating clusters of fibrous pale green actinolite amphibole together with irregular areas of carbonate and clusters of prismatic to acicular tourmaline, small areas of interstitial quartz, and abundant clusters and subparallel trails of sphene granules marking a former cleavage direction.

The sample largely represents a contact metamorphic or metasomatic assemblage, comprising abundant sulphides and bladed axinite crystals containing fibrous and acicular amphibole and carbonate, that probably mark retrograde effects. The parent rock may have been a highly altered calcareous sediment which has been mineralised by a metasomatic event probably accompanied by introduction of boron. It may be classed as a highly mineralised axinite-tourmaline-actinolite-quartz rock.

Sample No. 42404 - CHP 228 ; 125·7m.

Rock Type Contact metamorphosed and veined lithic greywacke.

Hand Specimen A rather massive fine to medium grained, widely banded drill core sample comprising part of one thick grey band, and part of a very fine grained dark brown band, none of which is represented in the thin section. Minor narrow and irregular crosscutting veinlets contain dark green material, as well as several small patches which also contain sulphide mineralisation. Staining shows a narrow zone of K-feldspar-bearing material adjacent to one narrow fracture.

Thin Section The sample represents a rather homogeneous, poorly sorted sediment, containing about 20% of detritus with an average grain size of approximately 0.3 mm across, set in an abundant matrix mainly comprising clastic debris of smaller grain size, in turn set in a rather meagre matrix now comprising extremely fine grained metamorphic products. Large irregular patches up to a centimetre across possibly represent contact metamorphosed, former calcareous veins which now contain sparse patches of sulphide mineralisation.

The detrital fraction of this sediment is generally angular with only a few subrounded clasts, and comprises the following approx-

imate proportions of components: quartz, 30%; feldspar 20%, altered mafic grains 10%; and lithic material 40%. The quartz occurs mainly as highly angular to irregular shaped grains but rare grains have subhedral outlines. Some larger feldspar grains also have subhedral shapes, but most are stumpy prismatic grains or angular chips. The feldspar fraction includes mostly plagioclase which is very heavily clouded by very fine grained sericitic and argillic products. Most of the plagioclase also has been converted to albite, however sparse, distinctly magmatically zoned grains are also present. Several lath shaped, and subhedral prismatic crystal sites now contain mainly contact metamorphic fibrous, blue-green actinolitic amphibole, but none of the former mafic component remains. Also, abundant small lath shaped, to rather irregular shaped sites are now filled with very fine grained red-brown contact metamorphic biotite. Accessory opaque oxides are rimmed with sphene and other accessory phases include detrital sphene and brown tourmaline.

In addition, several different types are included within the lithic fraction. The most common lithic detritus includes small, subrounded clasts of severely altered type with relict decussate to trachytic and weakly porphyritic textures involving abundant small plagioclase laths. Cherty, microcrystalline types and fine quartzite are also common, and other clasts which were probably siltstone, now contain abundant fine contact metamorphic biotite dust, throughout a fine felsic matrix with scattered silt sized quartz detritus. Still other lithic material includes types in which no relict textures remain, and they now comprise a dense mat of very fine grained sphene. The matrix of the rock is somewhat difficult to distinguish because of the contact metamorphic effects and comprises very fine grained phases similar to those partly replacing the lithic and crystal debris. Most common is very fine grained biotite and sphene dust, together with microcrystalline felsic material and blue-green actinolitic amphibole.

Several narrow crosscutting veins contain subradiating bundles of fibrous pale blue-green amphibole with minor biotite, minor pale green chlorite and scattered small clusters of sphene. In a narrow rather straight fracture (or vein) the assemblage includes a ?zeolite, k-feldspar (see staining), and patches of very fine amphibole and tourmaline.

The distinct clastic texture of this sample with abundant angular lithic fragments, quartz chips and more than 10% feldspar

indicates that the present lithology is essentially a lithic greywacke. The abundant contact metamorphic blue-green amphibole and patches of fine metamorphic biotite flakes do not comprise a diagnostic assemblage, but the lack of calcic plagioclase, and rather weak effects of recrystallisation suggest that the rock has probably reached a contact metamorphic grade a little below that of the hornblende-hornfels facies. The rock may be classed as a contact metamorphosed and veined lithic greywacke.

Sample No. 42405 - CHP 228; 167.5m.

Rock Type Significantly mineralised, foliated and contact metamorphosed, banded clacareous sediment (containing the common assemblage actinolitic amphibole-tourmaline-calcite-sericite).

Hand Specimen A distinctly banded drill core specimen with a well developed foliation parallel to the banding. Band widths vary from a maximum of about 1.3 cm and some bands as narrow as 2 mm are also present. Narrow, fine grained dark grey bands are present as well as wider dark green-grey mottled bands with scattered yellow sulphide mineralisation, and wide bands of dark pinkish-grey sulphide mineralisation (see separate report on sulphide mineralisation). Staining for K-feldspar proved negative.

Thin Section This is a strongly banded metamorphic lithology in which no primary mineralogy remains, but the compositional layering clearly reflects primary chemical differences in the parent rock, that was probably a banded sediment prior to metamorphism.

Several separate types of bands can be distinguished by the metamorphic textures and assemblages now present. These include the following:

1. Bands with extremely abundant sulphide mineralisation reaching up to 1 cm in width contain 70% of dense sulphides, but poikiloblastically enclose scattered patches up to about 0.5 mm across containing bundles of subradiating fibrous pale green to colourless actinolitic amphibole. Also present throughout the sulphides are discontinuous trails of very fine grained ?clinozoisite (with anomalous birefringence), small clouded feldspar grains and

sphene dust. Narrow highly irregular rims of chalcopyrite are present at the margins of such bands which grade into areas containing dense interlocking bundles of subradiating, bent, patchy blue-green to colourless actinolitic amphibole prisms throughout which are scattered narrow trails of sphene dust. These bands have very sharp boundaries with adjacent bands.

2. Narrow bands with sparse chalcopyrite mineralisation contain coarse decussate blue-green to olive green to straw coloured amphibole, together with irregular apressed carbonate patches, sericite, quartz, small blue to colourless tourmaline prisms and some small patches of a low birefringent ?zeolite are associated with some mineralised areas.

3. In the wider, less mineralised bands fine grained blue green to colourless amphibole again forms the major component and this occurs in flattened bundles, probably mimetic to a pre-existing foliation. Mineralisation throughout such areas occurs in highly irregular, somewhat dendritic patches accompanied by patches (about 0.5 mm across) of sericite in which are located decussate prisms of blue to brown partly zoned tourmaline.

4. In still other bands which are largely unmineralised, large (about 0.5 mm across) patches of carbonate are present in lieu of sericite, and these are scattered throughout a mat of well aligned blue tourmaline prisms and acicular blue-green actinolitic amphibole, with subparallel trails of sphene granules also developed parallel to the former foliation and layering.

The mineralogy of rock is clearly equivalent to that of a banded calcareous sediment prior to metamorphism and mineralisation. It has probably suffered foliation during a regional event which pre-dates contact metamorphism. Most of the contact metamorphic assemblage has formed in sub-parallel well aligned crystals, probably mimetic to the pre-existing foliation. Mineralisation of the rock has probably accompanied a retrograde phase of the contact metamorphic event, and also accompanies introduction of boron in the metamorphic fluid. Many small areas of mineralisation are specifically associated with metasomatic patchy sericite, tourmaline a ?zeolite and carbonate. The rock may have reached the lower limit of the hornblende hornfels facies but without an accurate composition for the amphibole this cannot be categorically stated. (Electron probe techniques are available if required). The rock may be classed as a significantly mineralised, foliated,

and contact metamorphosed, banded calcareous sediment which now contains the common assemblage ?actinolitic amphibole-tourmaline-calcite-sericite.

MINERAGRAPHIC EXAMINATION

24 June, 1981

K. L. Williams
25 Crandon Rd.,
EPPING NSW 2121

DRILL CORE SAMPLES
D.D.H CHP 228 Colebrook Hill.

MINERAGRAPHIC EXAMINATION

Three polished sections have been submitted by John F. Gilfillan and Associates for mineragraphic examination. The samples were identified as Nos. 42402, 42403 and 42405 respectively, and routine petrographic descriptions were sought.

The polished surfaces, as received, were of poor quality; pitting and plucking of the opaque phases were pronounced and it was necessary to re-polish all three sections to ensure that fine-grained inclusions were not overlooked.

Overall the three sections proved to be very similar mineralogically, differing from each other principally in their relative abundances of sulphides and only slightly in the relative proportions of different sulphides. No. 42403 was found to consist predominantly of sulphides, with inclusions of silicate (+ oxide?) gangue; sulphides and silicates are of approximately equal abundance in No. 42405; and silicates predominate in No. 42402.

Pyrrhotite is by far the most abundant of the opaque phases. It occurs as disseminated grains or as granular aggregates ranging from less than 0.1 mm up to approximately 1 cm in diameter. It appears to have been at least partially recrystallised - no strain textures are apparent, and abundant small silicate inclusions are frequently (but not invariably) concentrated in relatively narrow intergranular areas between larger, rounded pyrrhotite grains.

Patches within the pyrrhotite, up to about 1 mm in diameter, have been altered to colloform aggregates of fine-grained, secondary pyrite and very minor marcasite.

Chalcopyrite occurs in similar fashion to the pyrrhotite, although it is much less abundant. Samples 42402 and 42405 display relatively sharp lithological boundaries between sulphide-rich and sulphide-poor areas, and it is noticeable that chalcopyrite is strongly concentrated in the immediate vicinity of these boundaries. Larger areas of chalcopyrite (42403, 42405) are occasionally transected by narrow, discontinuous veinlets of pyrrhotite. The chalcopyrite aggregates are distinctly coarser grained in the sulphide-rich sample of No. 42403.

Sphalerite occurs as scattered, small grains enclosed within the pyrrhotite or, more commonly, in the chalcopyrite. The sphalerite grains commonly contain abundant small blebs of exsolved chalcopyrite.

Trace proportions of galena and arsenopyrite were also observed in all three sections, usually as scattered, very fine-grained inclusions in pyrrhotite. One very small inclusion of pentlandite, less than 0.1 mm diameter, was also observed in the pyrrhotite. A few irregular grains of magnetite were also noted, some in the sulphides but mostly intergrown with the silicates.

K. L. Williams
M.Sc., Ph.D., M.A.I.M.M.

24 June, 1981

25 Crandon Rd.,
EPPING NSW 2121

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APPENDIX VI

Diamond Drill Hole Logs

MRP 219
MRP 226
MRP 227
NP 104
NP 107
CHP 228
CHP 229
CHP 230

ELECTROLYTIC ZINC CO. OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. MRP 219 1 of 7

LOCATION Mt. Black E.L. 1/62 Murchison Rover Grid

OBJECTIVE To follow-up Sn mineralisation on the western contact of the Farrel' Slates by MRP 212, drilled 200m to the north.

RESULT Very weak Sn mineralisation is associated with sulphide and fluorite bearing sediments below their contact with intermediate volcanics.

Footage	Direction	Dip.

AMG

Depth	Direction	Dip.
0m	101°	-58.5°
56m		-56.5°
98m		-55.5°
140m		-54°

COLLAR DIP. -60°
DIRECTION 90° AMG
R.L. 171.3m
COORDINATES
Grid 5,374,100N 384,435E
AMG 5,374,104.1BN 384,449.97E

TOTAL DEPTH 140.8m
HOLE SIZE HQ 39m, NQ 47m, BQ rest
COMMENCED 21.10.'80
COMPLETED 6.11.'80
LOGGED BY I.R. McDonald

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION
0	32.6	Glacial Overburden 0–18 Recovery restricted to pebbles of quartzite. 18–18.4 Quartzite pebbles with sand & gravel inflow into hole. 18.4–21 Quartzite pebbles 21–31.5 F-mg sand, possible fluviglacial channel 31.5–32.6 Pebbles of quartzite & occassional Intermediate Volcanics	
32.6	33	Broken scree of Intermediate Volcanics with minor solid core of grey-green fg massive Intermediate andesite lava. Weakly chloritised with thin carbonate veinlets.	
33	42.4	Green f-mg porphyritic, vitric, lithic, crystal tuff. Intermediate trachy-andesite. Weakly chloritised & carbonated. Quartz-carbonate veins common with carbonate often removed by solution. Carbonate very white suggesting calcite. Limonite staining on joints decreases downwards. Phenocrysts are feldspar; liths are fg feldspathic, possibly trachytic. Clots & irregular veinlets of chlorite may represent shale liths but are more likely devitrified glass. Rare chloritic patches have flamme like shape suggesting some ashflow component. 33–34.7 Core fairly broken. 36.4–37.2 " " " 40.5–42.4 Decreasing grainsize with increasing quartz-carbonate veining & carbonation of the groundmass. Lower contact weakly brecciated against carbonate-(quartz) veins at 65°.	

SAMPLES

Sample No.	From	To	Core Rec'd	Sample Length	Assay Data per ppm Pb	Zn	Cu	Ag	Mn	Fe%	As	Sn
C = Chip S = Split												
38337C	32.6	35.0	2.6	2.4	10	180	5	0.5	2000	5.7%	20	X
338C	35.0	40.0	5.0	5.0	5	175	5	X	1800	6.2	5	X
339C	40.0	42.4	2.4	2.4	5	95	5	X	1450	3.0	X	6
38340C	42.4	45.0	2.6	2.6	5	85	5	X	1450	2.95	X	10
341C	45.0	47.3	2.3	2.3	X	100	5	X	1450	3.45	X	X
342C	47.3	51.2	3.9	3.9	5	60	X	0.5	1200	2.10	X	X
343C	51.2	55.8	4.6	4.6	5	130	X	X	1800	4.6	X	X
344C	55.8	60.0	4.2	4.2	5	97	5	0.5	1500	3.35	X	6
345C	60.0	62.65	2.65	2.65	10	90	X	X	1700	3.0	X	X
346C	62.65	64.5	1.85	1.85	5	125	X	X	1650	4.4	12	X
347C	64.5	67.7	3.1	3.2	X	125	X	0.5	1550	4.2	12	X
348C	67.7	72.5	4.8	4.8	5	125	X	0.5	1900	4.2	1	X
349C	72.5	75.0	2.5	2.5	5	135	5	0.5	1850	4.5	X	X
38350C	75.0	79.6	4.6	4.6	5	135	5	1.0	1900	4.2	X	X
351C	79.6	83.5	3.9	3.9	5	160	5	0.5	2150	5.1	X	X
352C	83.5	88.0	4.5	4.5	X	230	5	X	1900	7.1	X	X
353C	88.0	91.4	3.4	3.4	X	215	5	X	1900	7.1	X	X
354C	91.4	95.0	3.6	3.5	5	125	5	X	1700	3.45	X	X
355C	95.0	98.1	3.1	3.1	5	125	5	0.5	1450	4.0	X	X
356C	98.1	99.1	1.7	1.7	10	225	5	0.5	2050	6.6	1	X
357C	99.8	103.8	4.0	4.0	X	190	5	X	1950	6.25	1	X
358C	103.8	108.8	5.0	5.0	5	120	5	0.5	1650	3.7	1	X
359C	108.8	110.25	1.45	1.45	345	420	10	0.5	11000	11.5	41	65
38301S	110.25	111.25	1.0	1.0	450	1000	5	1.0	12000	5.8	34	X
302S	111.25	111.55	0.3	0.3	95	210	30	1.0	5700	9.7	190	50
303S	111.55	112.4	0.85	0.85	240	490	X	1.0	4250	4.15	170	400
304S	112.4	112.75	0.35	0.35	1000	1400	45	2.5	15000	12.0	150	X
305S	112.75	113.0	0.25	0.25	340	2900	260	4.0	2000	7.25	160	30
306S	113.0	113.25	0.25	0.25	4350	420	3300	110.0	1500	16.0	60000	0.63% (By XRF)
307S	113.25	114.0	0.75	0.75	540	2300	245	4.0	900	460	3650	6
308S	114.0	115.0	1.0	1.0	350	190	160	2.5	515	3.5	570	30
309S	115.0	115.8	0.8	0.8	160	100	120	1.5	545	4.05	270	X

CORE REC'D

RUN	SHORT

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ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. MRD 219 2 of 7

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION
42.4	47.3	Grey-green, fg weakly porphyritic lithic crystal tuff. Intermediate andesite. Strongly carbonated, weakly silicified, with quartz-carbonate veins. Some whispy textures suggest ashflow origins but may be due to weak cleavage. 47.1–47.3 Weakly chloritised. Lower contact gradational.	
47.3	47.8	Pale gry fg strongly silicified Intermediate volcanic centred on a quartz vein at 47.4–47.5. Lower contact gradational.	
47.8	51.2	Grey-green, fg silicified & carbonated, lithic crystal tuff. Intermediate andesite Weakly chloritised with quartz-carbonate veins. Carbonate is all white suggesting calcite. 50.2–50.7 Chloritic breccia zone healed by cg quartz-carbonate clots and veins. 51.0–51.2 Zone of increasing silicification ending in quartz vein forming lower contact at 50°.	
51.20	51.6	Green fg massive Intermediate andesite lava or minor intrusive, with quartz-carbonate veins. Lower contact irregular approx. 30°	
51.6	51.75	Green m-cg porphyritic with fg chloritised groundmass, crystal lithic tuff, Intermediate andesite with quartz-carbonate veins & clots Lower contact diffuse & quartz veined.	
51.75	53.2	Grey-green, fg strongly silicified and weakly chloritised., crystal lithic tuff, Intermediate ?andesite. Strong quartz-carbonate veins, especially from 52.2–52.65.	
53.2	55.8	Green, fg weakly porphyritic Intermediate andesite lava with carbonate-quartz vns. Carbonate is cream coloured suggesting an ankerite or siderite content. 54.9–55.3 Veryfg & very strongly chloritised	

Sample No.	From	To	Core Rec'd	Sample Length	Assay Data per ppm Pb	Zn	Cu	Ag	Mn	Fe%	As	Sn	CORE REC'D RUN	SHORT
383105	115.8	116.7	0.9	0.9	110	130	95	1.5	900	3.45	250	14		
3115	116.7	117.8	1.1	1.1	50	420	50	1.0	850	3.05	57	X		
3125	117.8	118.65	0.85	0.85	130	200	50	0.5	2700	3.75	53	26		
3135	118.65	119.3	0.65	0.65	50	75	120	1.5	2500	4.6	43	X		
3145	119.3	120.35	1.05	1.05	150	420	390	6.0	1000	6.55	2300	60		
3155	120.35	121.3	0.95	0.95	35	60	125	1.0	1100	3.65	250	440		
3165	121.3	121.9	0.6	0.6	10	55	65	0.5	1450	5.5	500	200		
3175	121.9	122.65	0.75	0.75	30	50	305	0.5	1650	4.5	2300	230		
3185	122.65	123.65	1.0	1.0	40	50	325	2.0	1200	2.8	4700	0.27% (By XRF)		
3195	123.65	124.6	0.95	0.95	25	40	25	0.5	1100	4.9	300	96		
383205	124.6	125.7	1.1	1.1	30	40	90	0.5	1900	5.9	250	X		
3215	125.7	126.5	0.8	0.8	5	30	25	0.5	3300	4.5	350	200		
3225	126.5	127.2	0.7	0.7	30	85	30	1.0	3300	6.2	210	300		
3235	127.2	127.8	0.6	0.6	40	20	145	1.5	1800	3.2	380	35		
383245	127.8	128.45	0.65	0.65	200	20	230	3.0	1350	3.85	250	X		
383255	128.45	129.35	0.9	0.9	55	45	330	1.5	2450	9.0	2000	4		
383265	129.35	129.8	0.45	0.45	50	80	30	X	12000	8.4	480	14		
3275	129.8	130.8	1.0	1.0	270	350	30	0.5	5050	4.5	300	X		
3285	130.8	131.8	1.0	1.0	750	430	255	5.5	1650	8.3	320	X		
3295	131.8	132.8	1.0	1.0	540	800	185	5.0	2450	6.15	2500	X		
3305	132.8	133.8	1.0	1.0	40	150	130	0.5	3000	5.65	290	X		
3315	133.8	134.3	0.5	0.5	360	710	255	2.5	1500	9.6	350	X		
3325	134.3	135.1	0.8	0.8	490	620	190	3.0	800	4.45	140	8		
3335	135.1	135.9	0.8	0.8	5100	700	110	22.5	1000	5.0	140	12		
3345	135.9	136.6	0.7	0.7	950	1300	140	13.0	1100	6.25	390	48		
3355	136.6	136.75	0.15	0.15	2100	270	755	53.0	505	5.45	200	X		
3365	136.75	137.75	1.0	1.0	70	395	20	0.5	2300	3.0	140	X		
3600	137.75	140.8	3.05	3.05	255	70	15	1.0	2250	3.5	100	22		

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ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. MRP 219 3 of 7

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA: Sample Length	Pb%	Zn%	Cu%	Ag - g/t	Au - g/t	Fe%		CORE REC'D: RUN	SHORT
55.8	56.1	Grey-green, mg porphyritic crystal lithic tuff. Intermediate andesite, weakly chloritised. Contacts diffuse.															
56.1	62.65	Green, generally fg, crystal lithic tuff Intermediate andesite chloritised & silicified with quartz-carbonate veins. Rare liths of trachytic to rhyolitic composition reach 35mm across. Some patches are very strongly silicified and quartz veined. Carbonate in veins is all white suggesting calcite. Lower contact fairly sharp at 70°.	Traces of sphalerite on some quartz-carbonate veins.														
62.65	64.5	Green, fg, carbonate-quartz veined Intermediate andesite lava. Carbonate largely dissolved out of veins leaving a vuggy appearance. 63.1–64.4 Core broken & oxidised with brown limonite staining on joints and vein cavities. Where present carbonate is cream coloured suggesting ankerite or siderite.														
64.5	72.5	Green, mottled in places, fg autobrecciated andesite lava. Weakly chloritised veins and clots 65.8–67.7 Oxidised with limonite staining and carbonate dissolved out of veins and clots giving a vuggy appearance. Core recovery 90%.															
72.5	79.6	Green, fg, generally massive, Intermediate andesite lava. Weakly chloritised & silicified. Quartz-carbonate veins. Rare thin bands of autobreccia in places. Carbonate is all white suggesting calcite. Lower contact diffuse through a 10cm zone of strongly silicified volcanic.															
79.6	98.1	White/green, mg porphyritic, with fg groundmass. Lithic crystal Intermediate andesite lapilli tuff. Lithic fragments range upto 50mm but comprises less than 10% of the rock. Rock is chloritised and weakly silicified.															

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ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. MRP 219 4 of 7

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA Sample Length	Pb%	Zn%	Cu%	Ag - g/t	Au - g/t	Fe%		CORE REC'D RUN	CORE REC'D SHORT
		79.6-83.5 Quartz-carbonate veins abundant 83.5-91.4 Very few veins. 91.4-98.1 Scattered quartz-carbonate veins. In all cases carbonate is white suggesting calcite.															
98.1	99.8	Green, fg, generally massive Intermediate andesite lava, chloritised with some porphyritic bands. 98.1-98.25 Breccia zone, possibly a flow top breccia. 98.25-98.5 Mg porphyritic. 98.9-99.1 Mg porphyritic. 99.3-99.8 Quartz-carbonate veins.															
99.8	108.8	Grey-green, fg, weakly porphyritic autobrecciated Intermediate andesite lava, chloritised, silicified with quartz-tourcarbonate veins. 103.8-108.8 Increased quartz-carbonate veining. Lower contact sharp 50°.															
108.8	109.8	Green, fg, massive Intermediate andesite lava, chloritised, weakly silicified. 109.1-109.8 Core very broken – possible fault or shear zone.															
109.8	111.25	Pale green, fg, strongly veined and brecciated Intermediate andesite lava. Silicified & chlorities. Quartz-carbonate veins anneal breccias. Carbonate is cream coloured suggesting ankerite or siderite.	Minor disseminated limonite after sulphides in veins.														
111.25	111.55	Dark green, fg massive Intermediate andesite lava, chloritised. Minor carbonate veinlets.	1-2% fg disseminated pyrite														
111.55	112.75	Pale green, fg, brecciated Intermediate andesite lava. Chloritised and silicified Quartz-carbonate veins anneal textures. Carbonate is cream coloured suggesting ankerite or siderite. 112.4-112.75 Increased chlorite.	2-3% fg disseminated pyrite with rate stringers of pyrite and ?sphalerite.														

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ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. MRP 219 5 of 7

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA: Sample Length	Pb%	Zn%	Cu%	Ag - g/t	Au - g/t	Fe%		CORE REC'D: RUN	SHORT
112.75	113.0	Breccia zone. Grey silicified Intermediate volcanic annealed by quartz veins.	3-4% pyrite as disseminations, blebs and stringers														
113.0	113.25	Near massive sulphides. Gangue of fractured quartz & fg chloritic material. Work banding at approximately 65°.	60% pyrite, arsenopyrite, chalcopyrite & minor pyrrhotite and ?cassiterite.														
113.25	127.2	Essentially of dark grey siltstone sequence, consisting of intimately interbedded fg tuffaceous wacke, siltstone, and dark grey to black chloritic shale, with bands and irregular blebs of white fg cherty siliceous material. Plastic slump structures are common. Some strongly contorted banding looks tectonic in origin. A weak cleavage persists throughout at 40-50° 114.2-115 Strongly contorted banding emphasised by siliceous "cherty" bands. 115.9-116.1 Banding subparallel in fg tuffaceous wacke. 116.1-117.1 Weak bedding approx 45° 117.1-117.4 Tight crenulated folds. Main axis approx. 75°, 117.5-117.8 Quartz veins 117.8-118.65 Carbonate-minor quartz veins Carbonate is cream to yellow suggesting ankerite or siderite. 118.65-118.7 Anastomosing quartz veins 118.9-119.1 Sub-parallel banding in shale around a block of fg tuffaceous wacke. 120.35-123.65 White "cherty" quartz nodules upto 5mm across 120.8-120.85 White quartz vein at 65°	113.25-114 3% pyrite as disseminations & stringers. 114-114.5 5-7% Pyrite as disseminations & stringers. 114.5-115.9 Variable 2-5% pyrite with minor pyrrhotite in stringers & veinlets. 115.9-116.1 5% pyrite with minor pyrrhotite disseminations & stringers 116.1-117.5 2-3% disseminated &stringer pyrite & pyrrhotite 117.5-117.8 4-5% Pyrite associated with the quartz veins. 117.8-118.25 >1% disseminated pyrite. 118.25-118.65 2-3% pyrite in stringers. 118.65-118.7 5-7% pyrite associated with the quartz veins. 118.7-119.3 3-4% disseminated pyrite & pyrrhotite 119.3-120.35 5% pyrite with subordinate pyrrhotite in stringers 120.35-120.8 3% pyrite & minor pyrrhotite in stringers. 120.8-120.85 5% pyrite associated with the quartz vein.													

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ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. MRP 219 6 of 7

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA: Sample & origin	Pb%	Zn%	Cu%	Ag - g/t	Au - g/t	Fe%		CORE REC'D: RUN	SHORT
			120.85–122.65 3–5% pyrite & pyrrhotite in stringers especially associated with zones rich in white quartz nodules. 122.65–123.65 3–4% pyrrhotite & pyrite in disseminations & stringers associated with cherty nodules & scattered fg green fluorite.														
		123.65–125.7 Core fairly broken 125.7–125.8 Crushed core, probable fault or shear zone. 125.8–127.1 Core fairly broken. 126.6–126.7 Strongly contorted banding with white cherty bands & cream carbonate clots. 127.1–127.2 Crushed core with puggy clay, probable fault or shear zone.	123.65–127.2 2–5% very fg disseminated pyrite & thin stringers of pyrite & irregular blebs of pyrrhotite.														
127.2	128.45	Pale grey to cream bleached altered siltstone, sericitised with contorted banding. Core fairly broken.	127.2–128.45 3–4% pyrite and pyrrhotite in stringers														
128.45	129.35	Grey, fg siliceous siltstone with thin bands of m–cg tuffaceous fragments.	128.45–129.35 5–7% pyrite and pyrrhotite in stringer and bands.														
129.35	130.7	Dark grey to green, fg tuffaceous wacke to siltstone. Weak banding contorted but averages 70–80° 129.35–129.6 Strong breccia annealed with quartz veins & clots.	129.35–131 1% fg disseminated pyrite with minor pyrrhotite.														
130.7	130.8	Strongly broken dark green chloritic siltstone. Probable fault or shear zone.															
130.8	136.6	Medium to dark grey interbedded fg tuffaceous wacke & siltstone. 131.5–131.7 Core very broken.	131–131.5 4–5% stringer of pyrite & pyrrhotite 131.5–131.7 1–2% fg disseminated pyrite & pyrrhotite 131.7–131.8 10% pyrite in large stringers														

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ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. MRP 219 7 of 7

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA: Sample Length	Pb%	Zn%	Cu%	Ag - g/t	Au - g/t	Fe%		CORE REC'D: RUN	SHORT
			131.8–134.3 2–5% pyrite & pyrrhotite in irregular stringers.														
		132.4–132.8 Core very broken with a crushed zone at 132.6 133.3–133.8 White quartz veins & nodules 133.8–134.3 Zone of broken & crushed core, probably a fault or shear zone.															
		134.3–135.1 Zone of quartz veins sub-parallel to core. Largest vein upto 10mm wide.	134.3–135.1 4–5% pyrite & pyrrhotite in blebs & stringers associated with quartz veins. 135.1–136.6 2–3% pyrite & pyrrhotite in stringers														
		136.4–136.6 Crushed core, probable fault or shear zone.															
136.6	136.75	White massive quartz vein. Contacts irregular.	136.6–136.75 10% pyrite & pyrrhotite in quartz vn.														
136.75	140.8	Dominantly grey siltstone interbedded with grey fg volcanic wacke & dark grey shale. Thin quartz-carbonate veins parallel a weak cleavage at 45–60°. Minor folding & micro-faulting occurs in the wacke bands Shale bands show plastic slump structures.	136.75–140.8 >1% pyrite associated with quartz carbonate vns.														
	EOH																

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ELECTROLYTIC ZINC CO. OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. MRP 226 1 of 4

LOCATION Murchison River Grid

OBJECTIVE To test ground magnetic anomaly partially covered by glacial overburden on line 5,376,300mN at 384,740mE

RESULT Weak Pb mineralisation occurs on the Farrell Slates contact.

Metres	Direction	Dip.
39m	94	-56½°
75m	86	-48°
120m	88	-44°
165m	92	-41½°
210m	88	-39°

Metres	Direction	Dip.

COLLAR DIP. -60°
DIRECTION 090°
R.L. 165.1
COORDINATES 5,376,288.4mN 384,692.8mE

TOTAL DEPTH 211.5m
HOLE SIZE NQ 0-36.2m BQ 36.2-211.5
COMMENCED 9.3.81
COMPLETED 18.3.81
LOGGED BY A. Mollison

Metres FROM	Metres TO	ROCK DESCRIPTION	MINERALISATION
0	9.2	Glacial Overburden	No visible sulphides
9.2	31.55	Andesitic crystal vitric lithic tuff: Grn fragmental, probably ashflow, tuff composed of: a framework of; ple gry-grn crystal vitric tuff frags with feldspar crystal. These frags are upto 3cm across and represent approx 50% of the core volume. Weathered crystals probably feldspar occur in a grn vitric matrix which is cleaved locally and sericitic. Joint surfaces are oxidised with limonite present. Oxidation to limonite is locally pervasive where sericite alteration and cleavage are strong.	No visible sulphides
31.55	33.6	Quartz phyric dacite: Gry-green qtz por-phyritic fg dacitic lava composed of irregular angular quartz grains upto 3mm across and about 20% of the core volume in a fg chl matrix. Minor fine siderite veins occur through the unit. A quartz vein 1cm wide occurs at 33.5m.	Depth of oxidation 32m
33.6	55.7	Andesitic vitric lithic ashflow agglomerate: Gry-grn agglomerate composed of quartz phyric lava frags & sub-ordinate vitric frags. A lime grn sil ash forms the interstices between the frags. The lava frags are upto 4cm long, ple gry to gry-grn and contain rounded to sub-angular quartz grains upto 4mm across Vitric fragments are elongate and angular upto 2cm long. Minor quartz veins occur through the unit.	No visible mineralisation 41.0m S/No 40075 – Thin Section
55.7	64.1	Andesitic crystal vitric tuff: Gry grn mg-cg feldspar phyric crystal vitric tuff composed of irregular sub-angular feld-spar crystals in a dk grn chl, vitric matrix Rare quartz veins occur through the unit.	No visible mineralisation

SAMPLE NO.	FROM	TO	CORE REC'D	Sample Length	ASSAY DATA per ppm Pb	Zn	Cu	Ag	Mn	Fe%	As	Sn
40066	9.2	14.2	4.8	5	15	145	80	X	920	5.05	5	X
067	14.2	19.2	4.9	5	10	130	45	X	875	4.65	3	X
068	19.2	24.2	5	5	10	120	80	X	1400	5.05	2	X
069	24.2	29.2	5	5	10	125	60	X	920	4.90	2	X
40070	29.2	31.55	2.35	2.35	10	130	55	X	1350	5.10	2	X
071	31.55	33.6	2.05	2.05	20	140	90	X	1050	4.10	2	X
072	33.6	38.6	5	5	15	135	95	X	1150	4.50	3	X
073	38.6	43.6	5	5	15	110	145	X	1050	4.30	4	X
074	43.6	48.6	5	5	15	100	130	0.5	980	4.35	6	X
077	48.6	53.6	5	5	10	105	415	X	970	4.00	1	X
078	53.6	55.7	2.1	2.1	15	130	115	X	1050	4.85	X	X
079	55.7	60.7	5	5	10	95	30	X	880	3.45	2	X
40080	60.7	64.1	3.4	3.4	15	100	60	X	845	3.55	1	X
081	64.1	69.1	5	5	15	150	95	X	1150	4.8	1	X
082	69.1	74.1	5	5	10	135	50	X	1500	4.55	1	X
083	74.1	75	0.9	0.9	15	155	35	X	1300	4.95	2	X
084	75	76.3	1.3	1.3	15	145	85	X	1250	4.3	2	X
085	76.3	81.4	5	5	10	115	100	X	1250	4.25	4	X
086	81.3	86.3	5	5	15	120	80	X	1400	4.35	2	X
087	86.3	91.3	5	5	10	120	105	X	1250	4.40	1	X
088	91.3	96.3	5	5	15	110	30	X	1550	4.25	1	X
089	96.3	99.2	2.9	2.9	10	155	10	X	1450	4.8	1	X
40090	99.2	104.2	5	5	5	170	25	X	1650	5.7	1	X
091	104.2	109.2	5	5	10	110	65	X	1350	4.3	1	X
092	109.2	114.2	5	5	15	90	5	X	1250	4.15	2	X
093	114.2	119.2	5	5	10	120	X	X	1450	4.7	3	X
094	119.2	124.2	5	5	15	130	X	X	1350	5.2	2	X
095	124.2	129.2	5	5	15	130	5	X	1450	4.85	1	X
096	129.2	134.2	5	5	15	110	X	X	1900	4.40	1	X
097	134.2	139.2	5	5	15	200	5	X	1850	5.9	1	X
098	139.2	144.5	5.3	5.3	15	145	20	X	1600	4.45	1	X
099	144.5	147.1	2.6	2.6	10	130	X	X	1350	3.55	5	X
40100	147.1	148.7	1.6	1.6	15	110	10	X	1350	2.85	4	X
43439	148.7	150.4	1.7	1.7	20	120	5	X	1500	3.60	4	X
440	150.4	155.4	5	5	15	150	X	X	1550	4.00	2	X
441	155.4	160.4	5	5	10	165	5	X	1650	4.85	1	X
442	160.4	165.4	5	5	15	120	230	X	1300	4.5	2	X
443	165.4	170.4	5	5	15	125	35	X	1400	4.05	3	X
444	170.4	175.4	5	5	75	170	X	0.5	1450	3.6	33	X
445	175.4	180.4	5	5	50	175	X	X	1500	2.85	15	X

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ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. MRP 226 2 of 4

Metre FROM	Metre TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA per ppm: Sample Length	Pb	Zn	Cu	Ag	Mn	Fe%	As	Sn
54.1	75	Rhyodacitic vitric lithic agglomerate: Grn vitric lithic agglomerate composed of rounded quartz phyric fg lavas; fg lavas & angular, elongate vitric frags in a lime green interstitial ash. NB frags make up more than 80% of core volume. Minor qtz vning throughout. Large qtz vein between 69.7 and 69.9m	Trace chalcopyrite & pyrite.	43446 chip	180.4	182.3	1.9	1.9	320	460	X	0.5	2550	2.3	14	X
				447 split	182.3	183.3	1	1	860	2100	15	2.0	4600	2.5	37	4
				448 split	183.3	183.7	0.4	0.4	1.0%	5150	90	13.0	7150	5.1	3.3%	X
				449 split	183.7	184.2	0.5	0.5	3.35%	2000	250	47.5	400	4.55	1.0%	X
75	76.3	Fine grained Andesitic lava: Minor qtz vning. Red? alteration between 76.6 and 76.9m	Tr chalcopyrite mineralisation assoc with red alteration between 76.6 and 76.9m	43450 split	184.2	185.2	1	1	2000	5350	35	4.0	9850	3.50	500	8
				451 chip	185.2	187.2	2	2	2800	1450	45	5.0	11500	4.0	85	X
76.3	99.2	Dacitic crystal vitric lithic ashflow agglomerate: Grn-gry-lime grn, agglomerate consisting of frags of: ple grn gry qtz phyric lava (or crystal vitric tuff); fg lava and angular vitric frags interstitial to, and as separate bands is lime grn crystal vitric tuff with rounded qtz grains upto 4mm. Frags are upto 10cm wide & crystal tuff bands are upto 30cm wide. Minor qtz vning with vns upto 1cm wide occurs throughout. Below 92.7m the lime green crystal vitric tuff is rare; frag boundaries are vague; and the lithology grades down hole to that of a vitric breccia.	No visible mineralisation	43452	187.2	191.8	4.4	4.6	610	135	20	1.5	16500	4.6	190	X
				453	191.8	196.8	5	5	515	530	10	1.5	4900	2.7	51	X
				454	196.8	201.8	4.3	5	1650	2500	25	3.5	13000	3.9	80	X
				455	201.8	206.8	4.5	5	11400	490	165	30.0	12000	4.45	5300	X
				456	206.8	211.5	4.6	4.7	210	145	50	1.5	7000	2.45	2000	X
				RESAMPLE by split core of chip sample 43455												
				42406	201.8	202.8	0.9	1.0	1750	1650	30	5.0	2.5%	5.6	230	X
				407	202.8	203.8	0.9	1.0	2.0%	3600	120	42.5	1.4%	4.1	140	X
				408	203.8	204.8	0.9	1.0	1.2%	85	425	24.5	8150	5.0	230	4
				409	204.8	205.8	0.9	1.0	350	345	110	4.5	2.25%	6.2	3700	48
				42410	205.8	206.8	0.9	1.0	110	40	30	1.5	1.1%	3.3	3800	X
99.2	144.5	Andesitic crystal vitric ashflow tuff with lava bands: Grn/lime grn banded ashflow composed of grn fg crystal vitric-vitric tuff showing some signs of brecciation; grading into lime grn silicified amigdaloidal lava with vesicles filled by secondary qtz. Qtz vning occurs throughout the unit & is locally strong with: about 5cm wide qtz vn at 113.2; 115.7 and 116.7m. A 70cm wide qtz vn occurs between 117.0 and 117.7m Chl is assoc with these qtz veins.	No visible mineralisation													
			102.2 S/No 43457 Thin section													
			120.5 S/No 40076 Thin section													
144.5	147.1	Altered crystal vitric tuff: A fluorite quartz chl alteration pervades a crystal vitric tuff.	No visible mineralisation													

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ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. MRP 226 3 of 4

FROM	TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA								Core Rec'd	
								Sample Length	Pb	Zn	Cu	Ag				Run	Short
147.1	148.7	Weakly altered crystal vitric tuff: Weak fluorite chl qtz alteration occurs sporadically through a crystal tuff with phenocrysts replaced by secondary qtz.	No visible mineralisation													0	
																9.2	9.2
																9.4	0.1
																10.45	–
																11.9	0.1
148.7	150.4	Altered crystal vitric tuff: As for 144.5–147.1. A 10cm wide qtz chl vn occurs at 150.4m	No visibile mineralisation													13.1	–
																14.3	–
																16.65	–
																17.8	0.1
150.4	183.7	Dacitic lithic crystal vitric tuff or tuff lava														19.6	–
																20.9	–
																22.1	–
150.4	169.3	Grn – Gry-grn lithic crystal vitric tuff/or tuff lava: Secondary qtz grains occur within a slightly chl mesostasis. Qtz vning occurs throughout the unit. Large qtz vns occur with assoc chl alteration between 154.1–154.7 and at 157m. A cleaved zone with chl-ser alteration occurs between 163 and 163.5m.	No visible mineralisation													23	–
																24.5	–
																26	–
																27	–
																29	–
																31.7	–
																34.	–
																36.7	–
																38	–
																41	–
169.3	182.3	Silicified moderately cleaved lithic tuff: Both matrix and lithic frags have been heavily silicified and carbonated with the degree of silicification and carbonation increasing downhole. Local fluorite alteration occurs between 169.3 and 169.8m	Tr pyrite as fine veins													44	–
																47	–
																50	–
																53	–
																56	–
																59	–
																62	–
182.3	183.7	Andesitic feldsparphyric ashflow crystal vitric tuff – silicified: Grn/yellow crystal vitric tuff with streaky ashflow texture, feldspar crystals and laths upto 6mm long and a chl matrix Siderite vns upto 3cm wide locally.	Tr pyrite as fine veins.													65	–
																68	–
																71	–
																74	–
																77	–
																80	–
																83	–
183.7	183.9	Silicified siltstone: Dk gry silicified and carbonated siltstone	183.7 Minor vns py and galena –184.2 with tr sp. Upto 20% total sulphides													86	–
																89	–
																92	–
																95	–
183.9	187.2	Volcaniclastic Greywacke: Pale grey moderately cleaved and sericitised greywacke. Minor siderite vns throughout, increasing downhole.	Tr py and galena 184.2 —187.2													98	–
																100.7	–
																104	–
																107	–
																110	–
																113	–
																116	–

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ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. MRP 226 4 of 4

FOOTAGE FROM	FOOTAGE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA Sample Length	Pb%	Zn%	Cu%	Ag - g/t	Au - g/t	Fe%		CORE REC'D RUN	CORE REC'D SHORT
187.2	191.8	Dk gry cleaved volcaniclastic siltstone: Common siderite vns with brecciation and silicification.	Tr pyrite													118.8	–
																121.9	–
																125	–
191.8	211.5	Grey volcaniclastic greywacke: Cleavage is variable: 191.8–199 locally broken core 199–202.7 heavily cleaved 202.7–204.7 moderately cleaved 204.7–205.7 very heavily cleaved–pug 205.7–211.5 weakly cleaved. Siderite vning occurs throughout unit with minor quartz vning. Sample No's 40075 40076 43457 For thin section descriptions refer to John F. Gilfillan & Assoc. report no. E3/81/52	Trace pyrite													128	–
																131	–
																134	–
																136.7	–
																139.9	–
																143	–
																146	–
																149	–
																152	–
																155	–
																158	–
																161	–
																164	–
																167	–
																170	–
																173	–
																176	–
																179	–
																182	–
																185	–
																185.7	–
																188	–
																189.4	–
																190.9	0.1
																191.5	0.1
																192.5	–
																195.6	–
																197	–
																199.7	0.2
																200	0.3
																201.7	0.2
																202.1	0.1
																203.9	0.1
																205.1	0.2
																207.9	0.2
																210.9	–
																211.5	–
																EOH	

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ELECTROLYTIC ZINC CO. OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. MRP 227 1 of 9

LOCATION Mt. Black E.L. 1/62 – Murchison River Grid (5,376,400N 384,778E)

OBJECTIVE To test a ground magnetic anomaly under glacial scree cover.

RESULT No significant mineralisation intersected. Magnetic anomaly due to disseminated magnetite.

	Direction	Dip.

Metre	Direction A.M.G.	Dip.
20	92°	-63.5°
65	92°	-61.5°
110	91°	-60°
155	96°	-58°

COLLAR DIP. -65°
DIRECTION 90° A.M.G.
R.L. 158.5
COORDINATES A.M.G. 5,376,394.0mN 384,778.0mE

TOTAL DEPTH 155.6m
HOLE SIZE HQ-12.2m, NQ-17.8m
COMMENCED BQ rest
COMPLETED 19th March, 1981
LOGGED BY 27th March, 1981
I.R. McDonald

FROM	TO	ROCK DESCRIPTION	MINERALISATION
0	11	Glacial Deposits 0–7.4 Quartzite boulders & brown clays 7.4–11 Grey ?fluvioglacial clays	
11	15.8	Green mg porphyritic, with fg groundmass, massive, lithic tuff. Intermediate-quartz latite, moderate to strongly chloritised. Phenocrysts of feldspar, trachytic liths, and minor quartz. 11.2–11.4 Strong carbonate clots (poss after liths?) 13.8–15.8 Chloritic fiamme and vague layering at 35° suggest ashflow origin	
15.8	25.5	Pale green mg porphyritic massive lithic tuff as above and possibly minor epidote. Groundmass chloritised 21.2–21.5 Very weakly porphyritic fg ashflow tuff. 23.5–24.0 Core vuggy, possibly weathered out ?carbonated liths. Lower contact gradational	
25.5	26.5	Pale green, f-mg, massive, intermediate, andesitic, crystal vitric ash flow tuff. Chloritised. Lower contact gradational.	
26.5	27.2	Grey-green, fg, weakly porphyritic lithic intermediate quartz-latite tuff. Chloritised, weakly silicified with thin quartz-carbonate vnlets and quartz-carbonate replacement of liths. Lower contact diffuse 35°	
27.2	27.6	Gree fg massive, chloritised andesitic vitric lava. Possibly a fg vitric tuff.	
27.6	33.1	Green, fg, variably porphyritic, chloritised, intermediate lithic ashflow tuff.	

C = Chip Samples and S = Spilt Sample

Sample No.	From	To	Core Rec'd	Sample Length	Assay Data per ppm Pb	Zn	Cu	Ag	Mn	Fe%	As	Sn	CORE REC'D RUN	SHORT
38485C	11.0	15.8	4.8	4.8	15	135	X	X	1300	4.65	3	X		
486C	15.8	20.5	4.7	4.7	5	130	X	X	1250	4.3	3	X		
487C	20.5	25.5	5.0	5.0	30	230	5	0.5	1700	5.7	2	X		
38488C	25.5	27.6	2.1	2.1	10	135	15	0.5	1650	4.7	1	X		
489C	27.6	30.8	3.2	3.2	15	135	X	X	1350	4.65	1	X		
38490C	30.8	33.1	2.3	2.3	15	215	X	0.5	1900	6.3	2	X		
491C	33.1	34.0	0.9	0.9	95	260	20	0.5	1600	5.8	19	6		
492C	34.0	37.2	3.2	3.2	10	120	10	X	1350	4.75	1	X		
493C	37.2	38.3	1.1	1.1	15	100	25	0.5	1400	4.9	2	X		
494C	38.3	41.9	3.6	3.6	10	125	15	X	1500	4.5	2	X		
495C	41.9	43.1	1.2	1.2	10	130	10	0.5	1700	4.65	2	X		
496C	43.1	46.8	3.7	3.7	20	120	40	X	1300	5.45	2	34		
497C	46.8	49.5	2.7	2.7	20	195	45	0.5	1700	5.6	110	34		
498C	49.5	52.2	2.7	2.7	785	125	20	3.0	29000	5.6	7700	6		
499C	52.2	55.4	3.2	3.2	10	160	15	X	1500	6.3	63	14		
38500C	55.4	57.3	1.9	1.9	25	105	55	0.5	1300	5.2	57	8		
43458C	57.3	58.8	1.5	1.5	55	140	10	X	1200	5.9	53	4		
459C	58.8	61.1	2.3	2.3	20	165	X	X	1350	6.2	61	8		
43460C	61.1	63.3	2.2	2.2	15	130	10	X	1200	5.6	38	2		
461C	63.3	64.4	1.1	1.1	25	145	X	X	1300	6.5	39	2		
462C	64.4	67.0	2.6	2.6	20	105	5	X	1150	4.8	25	12		
463C	67.0	69.6	2.6	2.6	15	110	5	X	1200	4.65	20	18		
464C	69.6	73.0	3.4	3.4	10	110	5	X	1050	4.35	16	4		
465C	73.0	76.9	3.9	3.9	15	125	X	X	1050	4.6	21	20		
466C	76.9	80.3	3.4	3.4	15	130	X	X	1250	4.4	12	16		
467C	80.3	84.0	3.7	3.7	5	150	X	X	1450	4.75	9	30		
468C	84.0	87.9	3.9	3.9	10	100	150	X	1300	4.3	9	10		
469C	87.9	89.9	2.0	2.0	5	140	70	X	1600	5.9	10	10		
43470C	89.9	92.4	2.5	2.5	65	90	115	X	1200	4.0	33	14		
471C	92.4	94.8	2.4	2.4	10	110	10	0.5	1200	4.2	14	20		
472C	94.8	98.8	4.0	4.0	10	100	5	X	1100	3.85	9	75		
473C	98.8	100.1	1.3	1.3	10	150	15	0.5	2400	4.6	9	16		
474C	100.1	103.4	3.3	3.3	10	105	5	0.5	1350	3.7	8	30		
475C	103.4	106.9	3.5	3.5	10	110	X	0.5	1150	4.45	8	8		
476C	106.9	109.2	2.3	2.3	10	130	5	0.5	1250	4.6	6	6		
477C	109.2	113.1	3.9	3.9	10	110	60	0.5	1300	4.1	7	X		

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ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. MRP 227 2 of 9

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION
		28.2-28.8 Carbonate replacement of coarse grained liths; possibly some are vesicle infillings. 29.4 Quartz vn 25mm thick at 50° Silicification around the vn. 29.4-30.8 Chloritic fiamme form weak banding at 40° 30.8-33.1 Bands of pale green to cream silicification with rare thin quartz veins. Lower contact diffuse irregular.	
33.1	34	Green fg massive andesitic vitric lava. Strongly chloritised. Lower contact sharp 40°.	
34	36.7	Green weakly porphyritic, lithic ashflow tuff. Intermediate, quartz latite, chloritised with rare thin quartz-carbonate veinlets.	
36.7	37.2	Crean/green porphyritic lithic tuff. Intermediate quartz latite chloritised. 36.7-37 Vuggy appearance ?solution cavities after carbonates liths Lower contact sharp at 40°	
37.2	38.3	Grey-green, fg, massive lithic vitric welded tuff, possibly a lava, Intermediate, chloritised, variably silicified with thin quartz-carbonate veins. 38-38.3 Silicified breccia zone annealed with quartz veins	
38.3	38.8	Dark grey fg weakly porphyritic lithic vitric welded tuff. Intermediate, weakly chloritised & sericitised.	Trace fg disseminated pyrite.
38.8	41.9	Grey-green fg lithic vitric welded tuff Intermediate, chloritised. Possibly a vesicular lava with the 'liths' being infilled vesicles, with quartz carbonate vns 40.6-40.75 Dark grey unit as per 38.3-38.8	
41.9	43.1	Grey-green, mg porphyritic with fg groundmass, vitric lithic tuff Intermediate. In places silicified with strong quartz-	

Sample No.	From	To	Core Rec'd	Sample Length	Assay Data per pom Pb	Zn	Cu	Ag	Mn	Fe%	As	Sn	CORE REC'D RUN	SHORT
43478C	113.1	114.3	1.2	1.2	10	140	45	1.0	1750	4.1	16	28		
479C	114.3	117.2	2.9	2.9	5	145	40	0.5	1600	3.9	10	14		
43480C	117.2	120.4	3.2	3.2	5	170	X	0.5	1200	4.0	5	6		
481C	120.4	122.3	1.9	1.9	5	185	X	0.5	1350	4.3	6	10		
482C	122.3	124.9	2.6	2.6	10	170	X	0.5	1650	4.05	9	20		
483C	124.9	125.3	0.25	0.4	810	425	5	1.0	4150	3.35	52	8		
484C	125.3	127.0	1.7	1.7	25	250	X	X	1700	5.8	12	10		
485C	127.0	129.1	2.1	2.1	150	500	5	X	2900	4.5	32	14		
486C	129.1	131.6	2.5	2.5	90	185	5	1.0	2600	2.7	83	18		
487C	131.6	134.4	2.8	2.8	165	320	5	1.0	2750	3.7	42	6		
43493S	134.3	135.3	0.9	0.9	950	1850	5	1.0	5250	5.5	57	10		
494S	135.3	135.5	0.2	0.2	1850	2500	10	4.0	1.8%	3.9	85	28		
495S	135.5	135.8	0.3	0.3	2700	3200	15	4.5	8600	4.0	76	26		
496S	135.8	136.4	0.5	0.6	1150	1350	10	3.0	7150	2.7	34	2		
497S	136.4	136.8	0.4	0.4	1700	2400	10	2.5	1.5%	2.85	68	X		
498S	136.8	137.3	0.35	0.5	1650	310	80	24.5	1.3%	6.5	6.5%	X		
499S	137.3	137.4	0.1	0.1	10	170	20	X	1450	4.7	130	4		
43500S	137.4	137.8	0.4	0.4	4000	6350	105	6.0	2.3%	5.1	900	2		
43488C	137.8	142.5	4.7	4.7	640	1100	20	2.0	8450	4.0	200	20		
489C	142.5	147.3	4.7	4.8	7150	1.7%	35	7.5	6800	3.45	200	8		
43490C	147.3	148.3	0.75	1.0	245	170	890	6.0	2.5%	6.2	1.8%	2		
491C	148.3	153.0	4.65	4.7	190	145	20	0.5	6850	4.4	280	X		
492C	153.0	155.6	2.6	2.6	150	410	40	0.5	2950	4.7	180	X		
Resample by split core of Chip Sample No. 43489														
41858	142.5	143.3	0.8	0.8	535	450	10	1.0	6700	3.5	100	6		
859	143.3	144.3	1.0	1.0	130	265	10	0.5	8150	3.6	130	X		
41860	144.3	145.3	1.0	1.0	225	195	15	1.0	9500	3.5	150	X		
861	145.3	146.0	0.7	0.7	140	90	15	0.5	6250	3.3	160	6		
862	146.0	146.8	0.8	0.8	295	630	20	0.5	9450	3.7	180	4		
41863	146.8	147.3	0.4	0.5	230	250	410	2.0	2.4%	5.9	600	8		

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ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY — TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. MRP 227 3 of 9

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA: Sample Length	Pb%	Zn%	Cu%	Ag - g/t	Au - g/t	Fe%	CORE REC'D: RUN	SHORT
		carbonate veining & brecciation 41.9–42.1 Strong breccia annealed with quartz vns 42.5–42.7 Strongly silicified 42.7–43.1 Strong breccia zone with quartz carbonate veins & chlorite clots														
43.1	46.8	Dark grey, fg massive intermediate lava *with rare thin quartz-carbonate veins.* Weakly chloritised. 43.1–43.6 Strong silicification decreasing downwards. 44.3–44.5 Strong silicification and quartz veining 45.2 Sample No 35185 thin section 46.2–46.5 Strong silicification & quartz vning with ?epidote alteration *Lower contact* 55°														
46.8	52.2	Green to grey fg lithic vitric pumaceous Intermediate ashflow. Chloritised with rare thin quartz vns and rare agglomerate sized blocks of grey porphyritic silicified tuff. Weak banding at 60° 49.3–49.5 Silicified & epidotised with chloritic clots after shale *fragments? or pumice?* Lower contact 45°														
52.2	52.9	Grey-green, fg lithic vitric Intermediate ashflow. Banded at 10°, finer grained bands are chloritied. Liths are replaced by quartz and carbonate. Lower contact irregular.														
52.9	55.4	Grey-green, *mg* porphyritic, fg groundmass vitric lithic tuff Intermediate andesitic. Weakly chloritised with thin quartz vns and patches of quartz filled vesicles. 52.9–53.1 Strong quartz-carbonate vning 53.4 Sample No 35186 thin section Lower contact irregular.														

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ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. MRP 227 4 of 9

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA: Sample Length	Pb%	Zn%	Cu%	Ag - g/t	Au - g/t	Fe%	CORE REC'D: RUN	SHORT
55.4	57.3	Pale green fg vesicular trachytic lava Silicifed and epidotised. Vesicles filled with quartz. 55.4–55.8 Auto breccia: possibly a flow top breccia Lower contact 30°														
57.3	58.2	Grey-green mg porphyritic lithic tuff Intermediate. Weakly silicified with thin quartz veins 57.8–58 Finer grained chloritic section ?vitric? with moderate cleavage at 15° Lower contact diffuse.														
58.2	58.8	Pale green, fg vesicular trachytic lava. Vesicles filled with quartz. Lower contact diffuse 30°.														
58.8	61.1	Green fg, weakly porphyritic vitric lithic tuff. Intermediate andesitic. Weakly chloritised with chloritic shale fragments Lower contact irregular.														
61.1	63.3	Grey-green fg *welded lithic vitric tuff* Intermediate weakly chloritised with quartz filled vesicles. Lower contact diffuse irregular.														
63.3	64.4	Green fg banded pumaceous ashflow tuff Intermediate andesitic. Weakly chloritised Lower contact 40°														
64.4	69.6	Grey-green, mg porphyritic, fg groundmass lithic tuff, Intermediate latite. Weakly silicified and chloritised with some liths replaced by quartz and some ?vesicles infilled by quartz. Lower contact diffuse.														
69.6	76.9	Interbanded zone. Two types of rock 1. Green fg weakly banded ?pumaceous ashflow Intermediate. Chloritised 2. White/grey porphyritic lapilli tuff. Intermediate, weakly silicified with liths frequently replaced by quartz.														

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ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. MRP 227 5 of 9

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA: Sample Length	Pb%	Zn%	Cu%	Ag - g/t	Au - g/t	Fe%		CORE REC'D: RUN	SHORT
		Rock type 2) is more abundant. Bands are up to 1m long. The entire unit is probably an ignimbrite.															
76.9	80.3	Cream/grey-green porphyritic lithic tuff to lapilli tuff. Intermediate latite. Weakly chloritised with rare thin quartz vns Lower contact irregular about 15°															
80.3	84	Pink/green agglomerate ?intermediate tuff. Coarse fragments of pink ?rhyolite occur in a fg chloritic groundmass. 81.9–82.3 No agglomerate fragments. *Weakly banded with ash to lapilli* sized fragments Lower contact 30°.															
84	87.9	Cream/grey-green porphyritic lithic tuff to lapilli tuff. Intermediate latite. Weakly chloritised. 87.2–87.9 Some pink agglomerate sized fragments of rhyolite. Lower contact 60°.	Trace of pyrite on the lower contact.														
87.9	89.9	Grey-Green, f-mg andesite lava. Possibly a small intrusive 88.9–89 Breccia annealed with quartz veins. Lower contact against a quartz annealed breccia.															
89.9	94.8	Cream/grey-green, porphyritic lithic tuff. Intermediate latite with rare quartz vns. 90.6 Sample No 35187 thin section 91.5–91.8 Strongly silicified 94.4–94.6 Breccia zone annealed by quartz and chlorite Lower contact diffuse, about 20°.															
94.8	98.8	Zone of two interbedded rock types as per the interval 69.6–> 75.9 Lower contact irregular.															

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798300

ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. MRP 227 6 of 9

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA: Sample Length	Pb%	Zn%	Cu%	Ag - g/t	Au - g/t	Fe%		CORE REC'D: RUN	SHORT
98.8	100.1	Breccia zone. Brecciated tuff is annealed by quartz, chlorite and pink carbonate. Lower contact gradational with veinlets of chlorite penetrating the underlying tuff.															
100.1	106.9	Cream/grey-green, porphyritic lithic tuff, Intermediate latite. Weakly chloritised with rare quartz veins 103.4–103.8 Strongly silicified & epidotised 104.3–104.7 " " " 105.3–105.5 " " " Lower contact diffuse.															
106.9	109.2	Green, fg, weakly porphyritic, weakly banded vitric tuff, Intermediate with bands of grey-green porphyritic lithic tuff. 107.6–107.9 Quartz-chlorite annealed breccia Lower contact gradational															
109.2	113.1	Cream/grey-green, mg porphyritic lithic tuff. Intermediate latite with rare quartz veins & weak silicification. Lower contact gradational															
113.1	113.5	Green, fg banded, lthic pumaceous, chloritised Intermediate tuff. Banding at 30° Lower contact diffuse.															
113.5	114.3	Green, fg, massive andesite lava or possibly small intrusive with thin quartz veins. Lower contact quartz vns at 60°															
114.3	120.4	Grey-green fg, weakly porphyritic silicified Intermediate lithic tuff. 117–117.2 Core broken ?possible fault zone? 119–119.2 Silicified breccia zone annealed by quartz vns															
120.4	122.3	Grey-green, f-mg massive andesite lava, ?or welded vitric tuff?, with thin quartz carbonate vns. Lower contact diffuse 30° 122.0 Sample No 35188 thin section															

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798301

ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. MRP 227 7 of 9

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA: Sample Length	Pb%	Zn%	Cu%	Ag - g/t	Au - g/t	Fe%		CORE REC'D: RUN	SHORT
122.3	124.9	Grey-green, fg, weakly porphyritic, crystal lithic tuff. Intermediate latite. Weakly silicified with thin quartz-carbonate vns.															
124.9	125.3	Fault zone? Core very broken, recovery 0.35m of chips 60%. The chips are strongly carbonate and quartz veined chloritic volcanics.	1% fg disseminated pyrite														
125.3	127	Grey-green, f-mg massive andesite lava, or possibly a welded vitric ashflow, with thin quartz-carbonate veins & moderate silicification 126.1-126.2 Fg massive green chloritic band. Possibly a chloritised vitric lava. Lower contact broken core.	1-2% fg disseminated pyrite partly associated with quartz-carbonate veins.														
127	129.1	Grey-green, f-mg lithic vitric ashflow tuff. Intermediate, weakly chloritised and silicified with quartz-carbonate veins. Core broken but no consistant fracture direction. Lower contact seems gradational but core very broken.	1-2% fg disseminated pyrite partly associated with quartz-carbonate veins.														
129.1	134.4	Pale grey fg banded sericitised carbonated volcanicalstic sediment. Core very broken but recovery of chips good. 129.2-129.9 Banding at 25° 130.8-131.1 White quartz vein, broken core. 131.2-131.3 White quartz vein at 45° 131.5-131.6 " " " 25° contacts irregular Lower contact, core very broken.	2% pyrite as fg disseminations and as small stringers and blebs.														
134.4	135.8	Dark green & white strongly carbonated chlorite schist. Core very broken	134.3-135.3 2-3% disseminated f-mg pyrite 135.3-135.8 15% pyrite in an irregular vein														
135.8	136.4	Cream/green-grey strongly carbonated chlorite sericite schist. Carbonate clots look like breccia infillings. Core fairly broken.	2-3% f-mg disseminated pyrite.														

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ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. MRP 227 8 of 9

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA: Sample Length	Pb%	Zn%	Cu%	Ag - g/t	Au - g/t	Fe%		CORE REC'D: RUN	SHORT
136.4	137.4	Grey silicified & carbonated brecciated sericite schist. ?After a volcaniclastic sediment?															
		136.9–137.3 Core very broken, more sericite rich	3–5% fg disseminated & stringer pyrite with trace arsenopyrite.														
		137.3–137.35 Bark grey fg ?crush zone. fragments of rock in a very fg matrix.	5–10% pyrite as disseminations & stringers infilling a breccia matrix.														
		Lower contact broken															
137.4	155.6	Grey fg & f–mg volcanic wacke. Variably carbonated with thin quartz–carbonate veins. Chloritic cleavage variably developed. Interbeds of siltstone & shale are of subordinate amount.	137.4–147.3 Trace to 1% fg disseminated pyrite														
		138–138.3 Breccia annealed by dolomite vne and clots.															
		139.7–140 Interbedded dark grey shale & grey volcanic wacke with carbonate veins. Scour texture at 139.7 indicates right way up facing. Banding irregular about 65°															
		141.9–142.1 Dolomite veining & cleavage sub parallel to core.															
		143.1–143.3 Strong dolomite & siderite veining															
		144–149 Core very broken.															
		145.3–145.5 Contorted banding partly sub-parallel to core. Suggestive of slumping.															
		146.8–147 Dark grey cleaved chloritic siltstone. Cleavage 80°															
		1471.–147.5 Recover 50%															
		147.5–148.4 " 90%															
		147.3–148.3 Breccia zone. Fragments of carbonated sediment lie in a black very fg matrix of ?crushed rock	2–3% fg pyrite														
		148.3 20mm zone of puggy clay & quartz veins.															
		148.3–148.8 Contorted banding	148.3–153 Trace of 2% fg disseminated pyrite														

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ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. MRP 227 9 of 9

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA: Sample Length	Pb%	Zn%	Cu%	Ag - g/t	Au - g/t	Fe%		CORE REC'D: RUN	SHORT
		149–155.4 Weak banding & cleavage at 75°	153–153.2 3% disseminated pyrite & trace galena associated with dolomite veins 153.2–155.6 1% disseminated fg pyrite														
		155.4–155.6 Interbedded dark grey siltstone & grey volcanic wacke Banding subparallel to core.															
	155.6 EOH	Sample No's 35185, 186, 187 & 188 Thin Section descriptions refer to C.M.S. Report 81/4/20.															

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793305

Electrolytic Zinc Company of Australasia Limited

WEST COAST DEPARTMENT

A 9/027

RECORD OF DIAMOND DRILL CORE

Hole No. NP10

Sheet No. 1

SPECIFICATIONS

Mine: Natone Prospect Area — Length: 923'
Location: Surface — Size Hole: Ax - Ex
N. Coord.: 11,298S — 0-807 Ax
E. Coord.: 11,922W — 807-923 Ex.
R.L. 918'
Direction: 317°R Grid
Angle: -45°

SURVEY DATA

Footage	Dirtion	Angle	Footage	Dirtion	Angle
0		-45°	500'		-46.5°
138'		-53°	600'		-47.5°
200'		-53.25°	700'		-48.1°
300'		-49.5°	800'		-41.7°
400'		-50.0°	900'		-48°

OBJECT: To test the IP anomaly on the Natone Grid on line 100S at a depth of 300ft. below peg 23W (centre of anomaly).

RESULT: Hole passed 150ft. below target to intersect quartz - pyrite mineralised fault zone 600ft. below surface and west dipping.

PLOTTED
40 Plan
S.
L.P.
100 Plan
XS YS
L.P. 287.2

PROGRESS — 1962

Date	Depth	Advance	Amount of Core
May			
3	50	50	-
4	90	40	-
7	120	30	-
8	145	25	-
9	155	10	-
10	165	10	-
	HOLE LOST AT 60'		
17	80	20	-
18	95	15	-
22	101	6	-
23	110	9	-
24	120	10	-
June	Hole lost at 91		
7	135	15	-
7	150	15	6"
11	160	10	1'
12	190	30	1
13	210	20	7
14	235	25	7
15	245	10	4
19	265	20	4
20	285	20	4
21	295	10	3
22	315	20	9
25	325	10	5
26	335	10	-
29	360	25	9
July			
5	375	15	-
6	395	20	14
9	419	24	19

DESCRIPTION

From	To	Rock type.
0	130½	Glacial clay and fine sand.
130½	185	Broken black slate 24" of core only.
185	235	Black slate with some sandy interbeds.
235	236½	Slatey sandstone.
236½	240	Black slate.
240	275	Slatey sandstones.
275	330	Black slates.
330	355	Slates with sandstone interbeds.
355	375	Black slates.
375	395	Slatey sandstones.
395	400	Grey sandy slate with black slate interbeds.
400	537	Black slates.
537	662	Black slates with grey interbedded sandstones.
662	696	Grey sandstones with some black slate interbeds.
696	747	Black slates with some sandy beds.
747	767	Somewhat broken black slates.
767	797	Well shattered and partly replaced black slates recemented with gangue and sulphide material.
797	803	Black slates - somewhat broken.
803	807	Sandstone with slate interbeds.
807	860	Black slates.
860	875	Grey sandstones with slate interbeds.

ANALYTICAL DATA

From	To	Amount of Core	Pb %	Zn %	Cu %	Ag. ozs.	Au dwts.	Fe %	Py%
767	773	5'8"	0.1	3.8	0.13	0.8	0.4	13.4	10.8
773	775	1'11"	0.2	0.8	0.20	0.2	<0.1	30.5	7.3
775	780	5'0"	0.2	0.8	0.10	0.3	0.2	15.3	10.7
780	782	1'8"	0.3	0.8	0.35	0.3	<0.1	17.6	15.0
782	787	2'0"	0.1	1.6	0.10	0.1	<0.1	13.0	12.0
AVERAGE									
767	787	16'3"	0.2	1.9	0.14	0.4	0.2	15.9	11.1

DIPS

5.7	0.03
1.2	0.03
1.2	0.03
1.2	0.04
2.4	0.03
2.8	0.03

For Dips see page 2

Form No. 1

PROGRESS				DESCRIPTION			DIPS		DESCRIPTION			DIPS	
Date	Depth	Advance	Amount of Core	From	To	Rock Type.	Footage	Angle	From	To	Mineralisation	Footage	Angle
July				875	905	Black slate.	165b	60°			abundant veins of quartz and		
10	425	6	1	905	923	Grey sandstones with black	195b	43°			siderite gangue carryiny		
11	435	10	5			slate interbeds.	225b	52°			disseminated to fine grained		
12	455	20	16	1			236½b	46°			pyrite which makes up 10% of		
13	475	20	13			Mineralisation.	405b	72°			core. Traces of sphalerite		
16	495	20	16				423b	60°			present.		
17	520	25	25	130½	195	Occasional traces of pyrite	482c	44°	773	775	Massive to semi massive quartz -		
23	550	30	25			either as disseminations along	482b	32°			siderite gangue with fine grained		
24	558	8	8			beds or as specks in quartz	492b	26°			pyrite and pyrrhotite.		
25	583	25	12			carbonate veins.	505b	27°	775	780	Broken and mashed slates with		
26	599	16	6	255	275	Occasional quartz siderite	505c	37°			quartz siderite gangue carrying		
27	619	20	12			veinlets up to ⅛" thick - no	515b	33°			10% semi massive fine to medium		
30	635	16	5			visible sulphides.	537b	56°			grained pyrite.		
31	656	21	10	349	363	Scattered quartz carbonate vein-	605b	43°	780	782	Quartz gangue in shattered slates		
Aug.						lets - no sulphides.	643b	37°			with semi massive fine grained		
1	676	20	8	435	450	Slumped and contorted zone	674b	46°			pyrite and pyrrhotite.		
2	696	20	9			at 435½. ¼" bed of pyrite	697b	53°	782	787	Disseminated to semi-massive		
3	706	10	-	at	456	1" bleb of fine grained pyrite	707b	59°			pyrite with traces of sphalerite.		
7	726	20	2	456	475	Dragfolded zone at 463 2"	735sh	64°	787	797	(core rec. 3'0") Traces of pyrite		
8	742	16	4			zone of quartz carbonate vein-	760sh	30°			only 3" semi massive pyrite at		
9	756	14	3			lets	785sh	22°			789' and 6" at 795'.		
14	771	15	9	at	498	2" quartz carbonate vein.	855b	41°					
15	781	10	16	at	508	½" - 1" quartz carbonate vein	888b	30°	797	807	(Core rec. 3'6") Traces dissemin-		
16	797	16	7		508¾	with traces fine grained pyrite	900b	34°			ated fine grained pyrite.		
17	807	10	4		512		915b	13°	at	848	⅛" veinlet of fine grained pyrite.		
Oct.				519	520	Quartz carbonate vein - no			850	880	Abundant veinlet of quartz car-		
15	827	20	3			sulphides.					bonate gangue.		
16	837	10	1	520	575	Scattered quartz siderite vein-			880	923	Scattered veinlet of quartz car-		
17	850	13	3			lets.					bonate gangue.		
18	860	10	12	575	662	More abundant quartz siderite							
19	870	10	2			veinlets up to ⅛" thick - no							
22	875	5	3"			visible sulphides.							
23	890	15	15	662	696	Zone of scattered quartz							
24	903	13	13			siderite veinlets up to ½" thick							
26	913	10	10			with traces disseminated pyrite							
29	923	10	10			at 664', 676½' 687' and 689'.							
				747	767	Abundant quart-siderite vein-							
						lets.							
				767	773	Well shattered slates with							

ELECTROLYTIC ZINC CO. OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. NP 104 1 of 2

		Footage	Direction	Dip.	Footage	Direction	Dip.		
LOCATION	Natone Valley 11,922W 11,298S							COLLAR DIP. -45°	TOTAL DEPTH 923'
OBJECTIVE	Resample of the core to check Sn content & potential							DIRECTION 306° A.M.G.	HOLE SIZE Ax – EX
								R.L.	COMMENCED
RESULT	No significant mineralisation encountered							COORDINATES 5,370,092.9N 375,982.1E	COMPLETED
									LOGGED BY

FOOTAGE FROM	FOOTAGE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA in ppm: Sample Length	Pb	Zn	Cu	Ag	Fe	Mn	As	Sn
		N.B. ALL SAMPLE DEPTHS ARE IN FEET		36391	130	185	3	55	55	110	40	0.5	1.30	115	15	8
				392	185	215	5	30	30	80	20	X	0.95	75	9	8
				393	215	225	4	10	25	70	40	X	1.50	190	12	6
				394	225	235	5	10	15	60	45	X	1.60	160	19	30
				395	235	245	5	10	30	110	30	X	1.65	175	9	X
				396	245	255	3	10	40	75	35	0.5	1.75	100	16	X
				397	255	265	6.5	10	145	200	70	0.5	2.30	530	23	X
				398	265	285	5	20	40	70	40	X	1.95	230	14	12
				399	285	295	9	10	40	80	40	0.5	2.95	430	11	10
				36400	295	315	9	20	30	65	25	X	3.25	420	10	2
				36589	315	330	6	15	45	150	35	0.5	5.00	830	14	X
				590	330	340	7.5	10	35	100	40	0.5	4.05	670	18	4
				591	340	355	7	15	10	50	25	0.5	1.80	490	4	32
				592	355	363	6.5	8	30	80	40	X	3.55	1050	16	6
				593	363	375	7.5	12	15	65	30	0.5	4.35	1050	4	X
				594	375	385	4.5	10	35	130	20	X	2.20	470	6	X
				595	385	395	10	10	10	35	35	X	2.00	410	3	X
				596	395	405	9	10	30	70	25	0.5	2.35	420	11	X
				597	405	415	6	10	35	90	25	X	1.95	270	13	X
				598	415	425	4	10	40	65	20	X	1.75	300	12	X
				599	425	435	5	10	15	65	30	X	2.00	380	6	16
				36600	435	445	5	10	25	80	25	X	2.40	470	8	X
				37668	445	455	5	10	10	45	30	X	2.90	560	7	X
				669	455	465	10	10	25	110	25	X	2.30	380	8	X
				37670	465	475	4	10	25	80	40	0.5	3.20	500	7	X
				671	475	485	7	10	10	40	20	X	2.15	350	8	X
				672	485	495	10	10	10	30	25	X	2.50	460	3	X
				673	495	505	10	10	50	120	35	X	3.00	420	25	X
				674	505	515	10	10	75	160	50	X	2.65	660	24	X
				675	515	520	5	5	110	530	20	X	3.35	660	8	6
				676	520	530	9.5	10	80	115	25	X	2.80	340	8	8
				677	530	537	5	7	30	55	30	X	2.60	500	4	X
				678	537	550	6	13	50	145	20	X	1.50	400	5	X
				679	550	565	5	15	35	75	35	X	3.15	800	11	2
				37680	565	575	7.5	10	15	55	30	X	2.70	490	6	6
				681	575	595	5	20	25	60	30	X	3.15	890	10	2
				682	595	606	5	11	20	45	20	X	3.20	980	6	18
				683	606	616	6	10	25	65	25	X	2.90	315	10	6
				684	616	636	4	20	50	75	25	X	2.55	350	11	6
				685	636	650	6.5	14	10	45	25	X	2.30	350	10	1

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ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. NP 104 2 of 2

FOOTAGE FROM	FOOTAGE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA per ppm: Sample Length	Pb	Zn	Cu	Ag - g/t	Fe %	Mn	As	Sn
				37696	550	662	7.5	12	25	60	45	X	2.45	750	23	12
				687	662	676	3	14	30	115	35	0.5	3.35	1650	10	8
				688	676	686	3.5	10	30	80	200	X	5.40	5700	36	90
				689	686	696	7	10	20	65	45	X	2.85	2100	12	6
				37690	696	706	10	10	15	65	30	X	1.60	470	5	4
				691	706	717	3.5	11	280	470	200	1.0	1.45	670	43	10
				692	717	727	3	10	50	80	45	X	1.95	1450	55	14
				693	727	737	2.5	10	75	180	25	X	2.60	2550	14	6
				694	737	747	3	10	70	245	25	X	3.25	3100	19	2
				695	747	757	2	10	75	420	45	X	3.30	5900	34	12
				696	757	767	8.5	10	80	190	25	0.5	3.35	5250	310	2
				697	767	773	5'8"	6	265	600	25	0.5	20.5	5.05%	130	X
				698	773	775	2	2	635	680	80	3.0	10.5	2.2%	330	X
				699	775	780	5	5	1800	930	75	7.5	10.5	1.7%	2100	X
				37700	780	782	1'8"	2	2450	6750	180	6.5	8.3	1.45%	140	22
				33122	782	787	2	5	375	375	145	6.0	8.5	4350	3500	X
				123	787	797	3	10	90	120	60	1.5	7.00	1950	260	170
				124	797	807	3.5	10	60	120	25	0.5	2.2	720	29	6
				125	807	827	4.5	20	45	140	25	0.5	2.20	300	37	12
				126	827	847	2.5	20	20	35	20	0.5	1.60	260	14	22
				127	847	850	2.5	3	140	330	65	0.5	2.70	960	28	12
				128	850	860	7.5	10	30	80	30	0.5	2.10	315	25	22
				129	860	875	6	15	25	75	40	X	2.80	630	14	X
				33130	875	880	5	5	15	75	70	X	1.55	330	10	X
				131	880	890	10	10	25	100	55	X	1.65	390	6	14
				132	890	900	10	10	5	60	25	X	1.40	230	3	10
				133	900	910	9	10	40	180	50	X	2.10	720	9	6
				134	910	923	11	13	20	90	110	0.5	2.50	740	4	16

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Electrolytic Zinc Company of Australasia Limited

WEST COAST DEPARTMENT

Hole No. NP10?

Sheet No. 1

RECORD OF DIAMOND DRILL CORE

SPECIFICATIONS

Mine: Rotoroa Valley
Location:
N. Coord.: 9,159'S
E. Coord: 11,759'W
R.L.
Direction: -47°
Angle: 30° Somerset Grid.
Length:
Size Hole: BX

SURVEY DATA

Footage	Diction	Angle	Footage	Diction	Angle
0'	309°M	-47°	500'	299°M	-43°
100		-46.5°	600		-49°
200		-50.2°	700'		-48°
300	305°M	-48.3°	800'		
400		-49.0°	900'		

OBJECT: To test I.P. Anomaly on grid line 32S Narone Valley.

RESULT: The mineralisation intersected was predominantly pyritic and associated with black carbonaceous shales.

PLOTTED
40 Plan
S.
I P.
400 Plan
S
I P

PROGRESS				DESCRIPTION			ANALYTICAL DATA										SURV	
ce	Depth	Advance	Amount of Core	From	To	ROCK TYPE	From	To	Amount of Core	Pb %	Zn %	Cu %	Ag. ozs.	Au Ag dwts.	Fe %	S/SG	Footage	Angle
				0	45	Possible slate or shale, highly weathered	205	209	3'1"	0.2	0.1	0.02	<0.1	Nil	10.6	4.2	64b	27°
	23	25	-				209	222½	13'	0.1	0.1	0.02	<0.1	Nil	18.0	11.9	274b	20°
	45	20	-	45	53	Weathered siltstone with lenses of black slate.	222½	228	5'4"	0.1	0.1	0.02	<0.1	Nil	8.1	5.6	287b	25°
	60	15	-				228	234	2'2"	0.2	0.8	0.03	<0.1	Nil	20.8	13.9	296b	20°
53				53	116	Broken silicified black slate.	234	254	9'2"	0.1	0.1	0.02	<0.1	Nil	4.9	2.8	331b	30°
m.				116	126	Grey silicified siltstone with solution channels.											396b	30°
	85	25	3														408b	70°
	108	23	3	126	156	Broken black siliceous vughy slate.											412b	60°
	120	12	2														450b	70°
	146	26	3	156	166	Possibly sandstone, very broken core											462b	55°
	176	30	6														466b	45°
	209	24	9	166	179	Silicified black slate.											528b	50°
.6	214	14	9	179	197½	Weathered siltstone.											575b	55°
	234	20	20	197½	206	Mixture of siltstone and slate or shale.											630b	70°
	244	10	5														720b	45°
	274	30	18			(The above core is very broken and partially weathered, no reliable structure may be obtained.)												
	296	22	12															
	326	30	20															
	352	26	15															
	378	26	20	206	209½	Black carbonaceous slate or shale.												
	400	22	20															
	423	23	20	209½	222	Black shale and pyritic veinlets which are occasionally coarse grained; Siltstone possibly (213½ - 215).												
	453	30	30															
2	474	21	20															
	494	20	20															
	514	20	20	222	228	Massive grey fine grained sandstone, silicified fine stringers of pyrite throughout and occasional thin lenses of black slate.												
m.																		
	536	22	20															
	556	20	20															

LOGGED BY: /RJH

Distribution: Dept. of Mines 1
Mines 1
Geology 1
File 1

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798309

Hole No. NP107

Sheet No. 2

PROGRESS				DESCRIPTION			DIPS		DESCRIPTION			DIPS	
Date	Depth	Advance	Amount of Core	From	To	ROCK TYPE	Footage	Angle	From	To	ROCK TYPE	Footage	Angle
Mar.				228	293	Black slate predominantly massive but some structure observed 234-244 core very broken, large segments missing. 244 - 249 core shows irregular random flowage folds, no structural pattern.			454	462½	Interlaminated thin bands of dark and light sandstone.		
7	581	25	21						462½	466	As above.		
8	601	20	12						466	479	Predominantly siltstone with quartz veins (flowage folding 1' breccia at 571).		
11	606	5	-						479	483	Massive dark grey sandstone with numerous quartz veinlets.		
12	626	20	20						483	498	Flowage folding, interlaminated siltstone and sandstone.		
13	646	20	20						498	521	Massive dark grey sandstone with numerous quartz veins.		
15	666	20	20						521	523	As above.		
18	686	20	20	293	316	Very strongly bedded interlaminated siltstone, grading downward to black carbonaceous slate or shale. Showing flowage folding at 316'.			523	534	Massive light grey sandstone.		
19	706	20	20						534	582	Interlaminated sandstone and siltstone, flowage folding along core.		
20	726	20	20						582	594	Siltstone and sandstone interbedded showing flowage folding along core.		
21	736	10	10						594	606½	Massive siliceous sandstone (approx. 4' missing).		
25	746	10	-						606½	608	Interlaminated sandstone and siltstone, flowage folded.		
26	750	4	10	316	326	Massive light grey fine grained sandstone with quartz veins.			608	612½	Massive grey fine grained sandstone.		
27	770	20	20						612½	615	Interlaminated sandstone and siltstone slightly brecciated with flowage folding.		
28	790	20	20	326	327	Black carbonaceous slate.			615	620	Massive siliceous sandstone.		
				327	341	Massive dark grey fine grained sandstone with quartz veinlets.			620	621	Interlaminated sandstone and siltstone.		
				341	346	Black carbonaceous slate very broken, Fragments showing flowage folding.			621	624½	Massive fine grained grey sandstone.		
				346	356	Interlaminated sandstone and slate.			624½	627¾	Interbedded siltstone and sandstone.		
				356	361	Massive dark grey fine grained sandstone.			627¾	628¾	Massive sandstone, bedding (normal to core?) small fault.		
				361	368	Sandstone with lenses of slate (1') showing flowage folding.							
				368	381	Massive dark fine grained sandstone.							
				381	383	Interbedded dark siltstone and light grey sandstone.							
				383	396	Dark siltstone showing flowage folding interlaminated with extremely fine black seams.							
				396	423	Dark and light grey sandstone.							
				423	~~426~~ 430	Massive light grey siltstone and quartz veins.							
				~~426~~ 430	454	Interlaminated light grey sandstone and black thin bands of siltstone folding parallel/core.							

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798340

Hole No. NPT

Sheet No. 3

PROGRESS				DESCRIPTION			DIPS		DESCRIPTION			DIPS
Date	Depth	Advance	Amount of Core	From	To	ROCK TYPE	Footage	Angle	From	To		Footage
				628 3/4	632 3/4	Dark siltstone, bedding (normal to core?).			780	784	Black shale interbedded with grey sandstone bands ~ 10mm thick subll to core. with Fe oxide staining on core surface.	
				632 3/4	636	Interlaminated sandstone and siltstone.						
				636	641	Dark massive siltstone slightly mottle.						
				641	644	Siltstone with flowage folds.						
				644	646	Massive siltstone.						
				646	658 1/2	siltstone flowage folding parallel to core (651-656 occasional blebs of pyrrhotite or pyrite).						
				658 1/2	661	Massive fine grained grey sandstone.						
				661	676	Predominantly interlaminated sandstone and siltstone, flowage folding along core.						
				676	678	Massive sandstone.						
				678	~~691 1/2~~ 694	Interlaminated sandstone and siltstone.						
				~~694~~ ~~691 1/2~~	698	Massive siliceous grey fine grained sandstone.						
				698	706 1/2	Interlaminated sandstone and siltstone, flowage folding along core.						
				706 1/2	720	Dark siltstone with consistent bedding.						
				720	728	Interlaminated siltstone and possibly slate showing flowage folding along core.						
				728	733	Dark siltstone bedding consistent as before.						
				733	748	Dark mixture of possibly siltstone and slate, faint flowage folds evident.						
				748	780	Predominantly black slate interbedded with thin lenses of siltstone? and light grey sandstone.						

798311

ELECTROLYTIC ZINC CO. OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. NP 107 1 of 2

LOCATION: Natone Valley 9,159S 11,759W
OBJECTIVE: Resample core to determine Sn content & potential
RESULT: No significant mineralisation encountered.

Footage	Direction	Dip.

Footage	Direction	Dip.

COLLAR DIP. −47°
DIRECTION 298° A.M.G.
R.L.
COORDINATES S,370,741.9N
375,903.1E

TOTAL DEPTH 789'
HOLE SIZE BX
COMMENCED
COMPLETED
LOGGED BY

FOOTAGE FROM	FOOTAGE TO	ROCK DESCRIPTION	MINERALISATION
		N.B. ALL SAMPLE DEPTHS ARE IN FEET	

SAMPLE NO.	FROM	TO	CORE REC'D	Sample Length	Pb	Zn	Cu	Ag · g/t	Fe%	Mn	As	Sn
				ASSAY DATA in ppm								
33135	0	53	2.5	53	30	65	45	0.5	0.80	80	20	X
136	53	85	4.5	32	40	70	55	0.5	0.85	130	10	2
137	85	116	3	31	70	185	70	1.0	4.35	940	46	10
138	116	126	2	10	35	120	50	0.5	7.50	3400	16	6
139	126	156	2.5	30	45	110	70	0.5	5.45	1850	14	12
33140	156	179	6.5	23	25	140	45	X	7.70	2700	4	2
141	179	198	5	19	60	80	65	0.5	5.70	2100	70	X
142	198	205	7	7	65	60	240	0.5	13.5	1700	550	10
143	205	209	3	4	185	140	160	1.5	17.0	1200	900	2
144	209	222.5	13	13.5	125	850	65	0.5	5.10	1450	690	14
145	222.5	228	5.5	5.5	120	720	55	0.5	4.50	1350	420	10
146	228	234	2	6	40	120	45	X	1.20	180	24	6
147	234	254	9	20	150	900	65	1.0	5.60	1300	800	4
148	254	269	7	15	75	220	45	0.5	2.80	1050	530	8
149	269	279	9	10	30	110	30	X	2.80	1000	24	4
33150	279	293	11.5	14	20	45	35	X	3.00	830	13	2
151	293	316	11	23	35	110	50	X	2.50	410	24	6
152	316	326	6	10	35	90	40	X	2.60	510	13	X
153	326	333	7	7	10	50	25	X	2.20	530	11	X
154	333	341	8	8	25	85	80	X	2.85	1300	6	8
155	341	356	5	15	15	50	40	X	2.30	880	12	6
156	356	367	7	11	15	40	35	X	2.35	510	13	26
157	367	374	7	7	10	40	20	X	2.55	830	7	4
158	374	381	7	7	50	165	25	X	3.20	1700	10	6
159	381	388	7	7	25	45	65	X	2.85	800	16	6
33160	388	396	6.5	8	20	50	35	X	2.55	430	13	4
161	396	404	7.5	8	15	45	40	X	1.75	330	14	2
162	404	414	8.5	10	40	1650	35	X	2.70	1650	7	X
163	414	423	8	9	70	270	25	X	2.35	850	5	4
164	423	430	6	7	20	40	30	X	2.90	1250	19	X
165	430	439	9	9	15	50	40	X	3.20	510	19	2
166	439	449	10	10	15	35	90	X	2.35	445	20	2
167	449	454	5	5	10	50	20	X	1.80	370	6	3
168	454	460	5	6	20	40	30	X	2.50	240	38	5
169	460	466	6	6	15	50	30	X	3.20	600	11	2
33170	466	473	7	7	15	40	25	X	2.25	350	16	4
171	473	479	6	6	10	35	30	X	1.90	250	26	4
172	479	483	4	4	35	35	30	X	2.40	950	4	6
173	483	490	7	7	20	35	35	X	1.65	280	14	4
174	490	498	7.5	8	20	30	60	X	2.40	270	26	2
175	498	506	7.5	8	15	30	30	X	2.05	290	31	X

A 03197

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798312

ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. NP 107 2 of 2

FOOTAGE FROM	FOOTAGE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA per ppm: Sample Length	Pb	Zn	Cu	Ag - g/t	Fe%	Mn	As	Sn
				33176	506	514	8	8	15	70	30	X	2.05	420	14	3
				177	514	521	7	7	40	80	35	X	1.40	280	14	X
				178	521	534	12.5	13	60	105	130	0.5	2.70	730	24	X
				179	534	544	7	10	20	90	85	X	2.65	500	13	2
				33180	544	554	10	10	15	60	70	0.5	2.70	1000	7	X
				181	554	564	4	10	15	60	30	X	1.70	190	4	2
				182	564	574	8.5	10	15	60	50	X	2.75	700	6	5
				183	574	584	5	10	20	75	30	X	2.80	530	13	4
				184	584	594	7	10	25	105	140	0.5	3.80	730	10	X
				185	594	606.5	8.5	12.5	20	60	25	X	1.90	450	14	2
				186	606.5	615	7.5	8.5	35	80	70	0.5	2.95	720	40	X
				187	615	629	12.5	14	55	105	30	X	2.05	500	9	2
				188	629	641	12	12	10	45	25	X	3.00	830	25	X
				189	641	651	10	10	20	60	25	0.5	3.00	830	18	X
				33190	651	656	5	5	45	175	20	X	3.20	680	16	X
				191	656	666	10	10	30	75	15	X	1.90	300	26	2
				192	666	676	10	10	10	30	20	X	1.85	510	16	2
				193	676	686	10	10	45	70	30	0.5	2.05	250	38	X
				194	686	698	12	12	45	115	45	X	2.90	500	30	2
				38475	698	706	8	8	20	70	45	0.5	2.30	370	24	2
				476	706	720	14	14	20	45	35	X	2.40	350	26	X
				477	720	728	8	8	20	70	30	X	3.00	730	15	2
				478	728	733	5	5	15	70	10	X	2.50	380	7	X
				479	733	740	7	7	10	35	20	X	2.20	530	24	X
				38480	740	748	5	8	10	40	65	X	3.30	520	28	X
				481	748	760	12	12	10	35	25	X	2.30	290	14	X
				482	760	770	10	10	10	50	30	X	3.70	470	30	X
				483	770	780	10	10	20	140	5	X	4.35	1100	3	10
				484	780	789	9	9	20	40	40	X	2.55	350	21	X
				END OF HOLE 789'												

798313

ELECTROLYTIC ZINC CO. OF A'ASIA LTD
ROSEBERY - TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. CHP 228 1 of 3

		Metre	Direction	Dip.	Metre	Direction	Dip.
LOCATION	Mt. Black E.L. 1/62 Colebrook Hill Grid						
OBJECTIVE	To test coincident V.L.F., magnetic, and soil geochemical anomalies & to continue beneath old workings.						
RESULT	Minor Cu mineralisation intersected. No Sn mineralisation encountered.						

COLLAR DIP.	-60°
DIRECTION	90° AMG
R.L.	496.8m
COORDINATES (AMG)	5,371,717.0mN 374,997.2mE
TOTAL DEPTH	233.7m
HOLE SIZE	HQ 3.4; NQ 9.1; BQ
COMMENCED	1.4.81
COMPLETED	15.4.81
LOGGED BY	A. Mollison

FROM	TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA: Sample Length	Pb%	Zn%	Cu%	Ag - g/t	Au - g/t	Fe%		CORE REC'D: RUN	SHORT
0	233.7	Dark brown & Grey to green-grey hornfelsed siltst and volcanic wacke														0	
																1.4	0.1
																2.2	–
																3.4	0.1
																3.7	–
																4.4	–
																5.3	–
																11	–
																13.8	–
																16.9	–
																20	–
																23	–
																26	–
																27	–
																29	–
																33.3	–
																34.5	–
																37.2	–
																38	–
																40.6	–
																41	–
																44	–
																47	–
																48.8	
																51.2	–
																53.2	–
																54.5	–
																56	–
																59	–
																62	–
																65	–
																68	–
0	11.5	Uncommon & only weak alteration where it occurs.	0–38.6 Tr pyrrhotite, arsenopyrite, chalcopyrite & possibly oxidised pyrite as generally fine veins assoc with qtz													71	–
																74	–
																75.9	–
11.5	23.0	Nearly continuous ble green alteration of moderate strength. Alteration appears to be assoc with the more common coarser wackes	Larger vwins occur at:- 3.3m Quartz vein													76.2	–
																78.1	–
			23.2m Partially oxidised po, cpy & asp													81.2	–
		Siltstone lamellae are usually not altered														83	–
		e.g. at 13.9 and 19.5m approx 80% of core has been altered.	27.0m Po, Cpy, Asp & Py in qtz													88.3	–

A 03197

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798314

ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. CHP 228 2 of 3

FOOTAGE FROM	FOOTAGE TO	ROCK DESCRIPTION	MINERALISATION
			28.6m Oxidised Po & Cpy
23.0	37.7	Weak poorly defined chlorite - hornblende alteration occurs in about 20% of the core volume. There is no apparent association between lithology and alteration, however the unit is fairly evenly fine grained.	
37.7	61.8	Alteration to chlorite and hornblende is irregular with bands from 30mm to 0.6m. Silicification occurs throughout with quartz veins and minor carbonate. The chlorite hornblende alteration occurs in about 50% of the core and is moderate. 38-41 Minor carbonate 40.6 Sample No. 42402, Thin & polished sections 44-44.2 Quartz veins 44.7 Quartz veins 50.5-61.8 Minor carbonate 51.5 Sample No. 42403. Thin & polished sections 59.7 Quartz veins 59.9 Quartz veins	38.6-39.2 Approx 20% Po + trace cpy as alteration and/or breccia replacement. 39.2-40.3 Trace Po + Cpy as veins 40.3-40.7 Approx 20% Po + trace cpy as alteration and/or breccia replacement. 40.7-50.6 Trace Po + Cpy as veins 50.6-55 5% Po + trace Cpy as veins and alteration replacements. Trace asp as veins 55-56 Trace Po + Cpy 56-57.3 Minor Po and trace Cpy as veins and alteration replacements. Trace asp as veins 57.3-59.9 Trace Po + Cpy as veins 59.9-61.8 Trace to minor Po with trace cpy and asp as veins
61.8	163	Chlorite-hornblende alteration is in irregular vague bands upto 1m long. About 20% of the core is altered. Recrystalised hornblende, in veins, within the altered bands occurs occasionally throughout the unit. The recrystelisation is commonly associated with quartz veining and leaching of the surrounding chlorite-hornblende alteration Recrystalised hornblende veins at:- 72.0, 79.6, 101.2, 103.2, 115.1, 115.4, 118.4, 119.4, 119.7, 123.2, 125.2 and 125.3m 127.5 Sample No 42404 Thin Section	61.8-64.3 Trace Po & Cpy veins 64.3-65 Minor Po and trace Cpy as veins associated with quartz. 65-163 Trace Po & Cpy occur in veins of quartz and also hornblende.

Samples marked * are SPLIT samples.
The remainder are grind samples

Sample No	From	To	Core Rec'd	Sample Length	Assay Data per ppm Pb	Zn	Cu	As	Mn	Fe%	As	Sn	CORE REC'D RUN	SHORT
													91.4	-
													94.4	-
46001	0.0	3.0	2.9	3.0	40	250	120	X	650	7.0	9	2	96.2	-
002	3.0	6.0	2.9	3.0	25	170	225	X	510	5.1	5	X	99.2	-
003	6.0	9.0	3.0	3.0	20	290	150	X	795	6.1	21	X	102.2	-
004	9.0	12.0	3.0	3.0	10	220	425	X	575	6.0	20	4	103	-
005	12.0	15.0	3.0	3.0	15	155	45	X	725	4.9	23	X	104.2	-
006	15.0	18.0	3.0	3.0	15	150	85	X	650	6.7	11	X	105.8	-
007	18.0	21.0	3.0	3.0	15	185	105	X	750	6.7	13	X	111.8	-
008	21.0	24.0	3.0	3.0	10	115	180	X	885	8.3	220	X	114.4	-
009	24.0	27.0	3.0	3.0	10	125	55	X	815	6.7	33	X	120.6	-
46010	27.0	30.0	3.0	3.0	10	150	225	X	500	4.9	400	4	123.7	-
011	30.0	33.0	3.0	3.0	15	125	35	X	690	6.1	58	2	126.8	-
012	33.0	35.0	3.0	3.0	15	155	85	X	635	5.0	50	2	128.9	-
013	36.0	37.6	1.6	1.6	15	140	35	X	685	7.7	38	12	131	-
014*	37.6	38.6	1.0	1.0	45	175	3000	0.5	1600	14.0	4	4	134	-
015*	38.6	39.2	0.6	0.6	40	215	180	X	885	5.2	74	8	137	-
016*	39.2	40.1	0.9	0.9	40	145	50	0.5	430	4.2	63	18	140	-
017*	40.1	40.7	0.6	0.6	295	745	1400	1.5	1700	6.6	26	X	143	-
018*	40.7	41.7	1.0	1.0	80	215	380	0.5	705	3.8	40	X	146	-
019	41.7	44.7	3.0	3.0	10	165	460	X	725	7.1	39	4	149	-
46020	44.7	47.7	3.0	3.0	15	110	40	X	740	5.1	77	14	152	-
021	47.7	49.6	1.9	1.9	15	135	125	X	770	4.2	65	X	155	-
022*	49.6	50.6	1.0	1.0	45	125	120	X	425	5.0	57	X	158	-
023*	50.6	51.6	1.0	1.0	25	65	890	X	570	7.3	20	X	161	-
024*	51.6	52.6	1.0	1.0	35	165	1150	X	455	7.7	32	X	164	-
025*	52.6	53.6	1.0	1.0	25	70	410	X	510	4.4	29	X	167	-
026*	53.6	54.3	1.0	1.0	25	175	2950	X	1600	4.1	93	X	170	-
027*	54.3	55.0	0.7	0.7	35	225	5500	1.5	430	9.0	100	6	173	-
028*	55.0	56.0	1.0	1.0	10	75	240	X	450	5.1	56	10	175.3	-
029*	56.0	56.7	0.7	0.7	135	315	320	0.5	565	5.0	53	X	178	-
46030*	56.7	57.6	0.6	0.6	10	140	2050	0.6	390	4.8	100	12	182	-
031*	57.3	58.3	1.0	1.0	10	80	30	X	405	6.3	100	X	182.4	-
032	58.3	59.9	1.6	1.6	15	130	365	X	355	6.9	200	14	184.4	-
033	59.9	61.8	1.9	1.9	45	285	2600	X	520	4.6	9300	X	186.8	-
034	61.8	63.3	1.5	1.5	10	130	1550	X	240	6.2	670	4	189.2	-
035*	63.3	64.3	1.0	1.0	20	45	615	X	270	4.0	100	X	191	-
036*	64.3	65.0	0.7	0.7	20	145	3500	X	475	7.6	1500	X	192.9	-
037*	65.0	66.0	1.0	1.0	15	95	315	X	430	6.6	700	4	194.1	-
038	66.0	69.0	3.0	3.0	10	160	250	X	390	6.7	370	X	196.4	-
039	69.0	72.0	3.0	3.0	20	140	170	X	415	5.0	2400	X	200.4	-
46040	72.0	75.0	3.0	3.0	15	105	295	X	465	5.9	260	X	201.8	-
041	75.0	78.0	3.0	3.0	10	100	60	X	465	6.1	240	2	204.6	
042	78.0	81.0	3.0	3.0	15	120	170	X	590	7.3	800	X	207.7	-
043	81.0	84.0	3.0	3.0	15	100	90	X	610	6.6	70	2	210.8	-
044	84.0	87.0	3.0	3.0	20	115	125	X	620	7.4	190	X	211.2	-
045	87.0	90.0	3.0	3.0	5	105	1450	X	525	7.6	2200	X	212.8	-
046	90.0	93.0	3.0	3.0	10	120	3400	X	565	6.5	1300	X		
047	93.0	96.0	3.0	3.0	10	85	360	X	435	6.8	150	X		
048	96.0	99.0	3.0	3.0	10	140	560	X	375	4.6	53	4		
049	99.0	102.0	3.0	3.0	15	135	405	X	595	7.9	25	X		

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798315

ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY — TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. CHP 228 3 of 3

FOOTAGE FROM	FOOTAGE TO	ROCK DESCRIPTION	MINERALISATION
		Recrystalised hornblende veins as: 128.0, 132.1, 132.3, 138.9, 147.6, 149.6, 152.9, 155.5, 155.7, 156.7, 158.8 & 159.0m.	160.0 20mm wide Po + Cpy vein
163	195.20	Strong chlorite-hornblende alteration pervades this unit. Axinite & associated hornblende recrystallisation occurs in bands Minor carbonate occurs in patches between 163 and 184. Silicification is commonly associated with the alteration. 165.4-165.8 Axinite-hornblende recrystalisation 167.5 Sample 42405, Thin & polished sections. 168.7-169 Axinite-hornblende recrystalisation 170-170.4 Unaltered sediment Axinite-hornblende recrystalisation at:- 171.9, 172.1, 172.3, 173.4-173.5, 174.3, 174.9 and 175.6-181.1m, in patches which are strongest at 181.0m Unaltered sediments 181.7-182 & 182.4-183.1 187.7-188, 190-190.4, 191.1-192.1m	163-164.7 Po, cpy & asp as alteration replacement Po forms upto 50% of the core volume, averaging 10% 164.7-165.3 Semi-massive Po with minor cpy as a net-work replacement. 165.3-165.9 Minor Po and trace cpy as veins and alteration replacements average 10% Po 165.9-166.8 Trace Po as veins 166.8-168.7 Po as semi-massive interbed replacements upto 10cm wide, with cpy forming discrete replacement bands separate from po. Sulphides are parallel to bedding. Po upto 70% volume averaging 10% 168.7-186 Trace Po, py and cpy and rare asp as fine veins. Less than 1% total sulphides. 186-195.2 Minor po & cpy as veins upto 2cm wide 2% total core volume. 195.2-233.7 Trace Po, cpy & py; Larger veins occur at 216.10m and 220.90m
195.2	233.7 EOH	Small bands of chlorite-hornblende alteration upto 30cm wide occur occasionally through this unit. Silicification is commonly associated with the alteration. Sample No's 42402, 42403, 42404 and 41405 Refer to John Gilfillan and Assoc petrological report No. E3/81/60	

Sample No	From	To	Core Rec'd	Sample Length	Assay Data per ppm Pb	Zn	Cu	As	Mn	Fe%	Ag	Sn
Samples marked * are SPLIT SAMPLES The remainder are grid samples.												
46050	102.0	105.0	3.0	3.0	35	85	135	X	465	6.4	1200	X
051	105.0	108.0	3.0	3.0	5	95	130	X	410	7.0	58	2
052	108.0	111.0	3.0	3.0	5	75	35	X	470	6.6	29	X
053	111.0	114.0	3.0	3.0	10	160	1600	X	445	7.6	22	2
054	114.0	117.0	3.0	3.0	15	170	80	X	500	4.6	34	2
055	117.0	120.0	3.0	3.0	10	125	540	X	415	4.7	220	X
056	120.0	123.0	3.0	3.0	10	140	135	X	315	4.6	51	6
057	123.0	126.0	3.0	3.0	20	150	1750	X	345	4.3	1600	X
058	126.0	129.0	3.0	3.0	35	250	2700	X	345	4.2	39	4
059	129.0	132.0	3.0	3.0	20	110	400	X	390	5.0	370	X
46060	132.0	135.0	3.0	3.0	10	360	6450	3.5	495	6.3	95	6
061	135.0	138.0	3.0	3.0	10	85	30	X	350	5.5	190	4
062	138.0	141.0	3.0	3.0	10	75	80	0.5	420	5.2	69	X
063	141.0	144.0	3.0	3.0	10	95	30	X	410	4.8	60	2
064	144.0	147.0	3.0	3.0	15	115	590	X	380	6.1	210	X
065	147.0	150.0	3.0	3.0	10	100	185	0.5	410	5.7	600	10
066	150.0	153.0	3.0	3.0	10	100	110	X	420	5.9	600	2
067	153.0	156.0	3.0	3.0	10	95	110	X	405	5.1	86	2
068	156.0	159.0	3.0	3.0	10	95	125	X	430	5.1	290	10
069	159.0	162.0	3.0	3.0	10	95	295	X	415	5.8	100	6
46070*	162.0	163.0	1.0	1.0	15	140	910	X	850	6.4	500	6
071*	163.0	163.9	0.9	0.9	40	380	5650	3.5	2500	10.5	4400	X
072*	163.9	164.7	0.8	0.8	15	340	50	3.0	1050	14.0	900	4
073*	164.7	165.3	0.6	0.6	15	110	7400	1.5	230	25.0	100	X
074*	165.3	165.9	0.6	0.6	20	150	1850	0.5	5050	7.0	400	6
075*	165.9	166.8	0.9	0.9	10	245	3450	2.0	2850	5.0	600	16
076*	166.8	167.8	1.0	1.0	15	550	1.15%	8.0	1950	10.0	500	10
077*	167.8	168.7	0.9	0.9	15	330	7100	5.0	1950	12.0	100	6
078*	168.7	169.7	1.0	1.0	40	235	145	X	3800	5.0	100	24
079	169.7	172.0	2.3	2.3	35	165	50	0.5	3250	6.0	100	24
46080	172.0	175.0	3.0	3.0	15	155	25	X	4100	5.1	310	20
081	175.0	178.0	3.0	3.0	10	155	20	X	6500	4.9	400	36
082	178.0	179.9	1.9	1.9	15	130	50	0.5	5200	4.3	120	24
083	179.9	181.2	1.3	1.3	15	185	285	X	7450	3.9	170	20
084	181.2	184.1	2.9	2.9	25	150	265	X	2400	5.1	720	10
085	184.1	186.0	1.9	1.9	30	140	770	0.5	680	3.6	96	X
086	186.0	189.0	3.0	3.0	35	165	1000	0.5	1000	6.5	110	2
087	189.0	192.0	3.0	3.0	20	120	360	0.5	615	4.4	100	6
088	192.0	195.2	3.2	3.2	20	150	340	X	595	5.1	150	8
089	195.2	198.0	2.8	2.8	10	95	25	X	465	6.0	61	16
46090	198.0	201.0	3.0	3.0	15	125	200	X	480	6.0	390	4
091	201.0	204.0	3.0	3.0	15	100	50	X	495	5.9	79	6
092	204.0	207.0	3.0	3.0	10	95	100	X	485	6.2	87	4
093	207.0	210.0	3.0	3.0	15	100	250	X	485	6.6	200	14
094	210.0	213.0	3.0	3.0	10	95	50	0.5	500	6.6	95	12
095	213.0	216.0	2.8	3.0	20	145	735	X	600	7.1	70	24
096	216.0	219.0	3.0	3.0	20	100	125	0.5	455	6.4	96	6
097	219.0	222.0	3.0	3.0	10	130	1350	0.5	480	7.7	270	12
098	222.0	225.0	3.0	3.0	15	95	290	X	410	6.7	56	20
099	225.0	228.0	3.0	3.0	10	110	165	X	440	3.5	94	30
45100	228.0	231.0	3.0	3.0	10	80	555	X	350	5.8	39	4
42401	231.0	233.7	2.7	2.7	15	90	135	X	460	6.4	60	6

CORE REC'D RUN	SHORT
213.8	0.1
215.1	0.1
217.6	-
218.1	-
221.1	-
222.4	-
226.1	-
229.2	-
231.3	-
232	-
233.7	-
EOH	

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798316

ELECTROLYTIC ZINC CO. OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. CHP 229 1 of 5

LOCATION: Mt. Black E.L. 1/62 Colebrook Hill Grid
OBJECTIVE: To test a zone of coincident V.L.F. and magnetic anomaly
RESULT: Scattered very weak Cu mineralisation intersected.

Footage	Direction	Dip.
58m	268°	-53.5°
106m	268°	-52.5°
154m	268°	-51.5°
202m	278°	-50°

Footage	Direction	Dip.
236m	272°	-49°

COLLAR DIP. -55°
DIRECTION 268°
R.L.
COORDINATES

TOTAL DEPTH 247.4m
HOLE SIZE HQ 4.7m NQ 51.5m BQ
COMMENCED 18.4.81
COMPLETED 12.5.81
LOGGED BY A.J. Mollison

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION
0	234.0	Variably altered, hornfelsed siltstones and volcanic wackes.	
0	48.0	Dark grey-grey-grey green, weathered weakly to heavily fractured and/Or brecciated siltstone and volcanic wacke. 7.2-7.6 Moderate to strong fracturing 8.1-8.6 " " " 9.9-10.2 " " " 10.3-10.5 " " " 10.9-11.2 " " " 12.2-12.7 " " " 13.2-14.8 " " " 15.2-15.5 " " " 15.8-16.2 " " " 17.7-17.8 " " " 18.1-18.5 " " " 19.9-21.4 " " " 20.0-21.4 Moderate chlorite alteration 22.1-22.3 " " " 22.9-26.3 " " " 29.4-33.0 " " " 29.4-29.7 Moderate to strong fracturing 33.0-48.0 Chlorite alteration in assoc with moderate brecciation and as veins	0-48.0 Weathering has oxidised any sulphide mineralisation. 30.4m Iron stained breccia is probably after sulphide mineralisation
48.0	56.9	Dark brown, grey-green, grey weakly silicified siltstone and volcanic wacke. Slumping & other sedimentary structures occur occasionally through the unit. Chlorite-hornblende veins occur occassionally as dp narrow bands of quartz replacement	
56.9	80.7	Moderately silicified & slumped siltstones & minor volcanic wackes. Qtz replacement occurs in assoc with clasts & slumped bands. Weak chlorite-hornblende alteration and fine veining occurs in patches of this unit.	56.9-80.7 Tr py and Po as fine veins assoc with qtz veins & silicification in slumped siltstone and volcanic wacke

SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA: Sample Length	Pb%	Zn%	Cu%	Ag - g/t	Au - g/t	Fe%	

CORE REC'D RUN	CORE REC'D SHORT
0	
4.2	3.8
4.7	0.1
6.2	0.2
7.4	0.2
8.5	0.1
9.9	0.1
10.4	0.1
11	–
12.2	0.1
13.7	0.2
14.5	–
15.4	0.1
16	–
16.8	–
17	–
18.1	–
19.4	–
20.0	–
21.4	0.1
22.8	–
23.1	–
25.2	0.1
27.2	0
27.8	–
28.5	–
29.6	0.1
33.0	–
35.0	–
36.2	–
37.1	–
38.0	–
40.0	–
42.0	–
44.0	–
47.0	–
48.2	–
51.1	–
53.0	–

AM03197

798317

ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. CHP 229 2 of 5

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION
80.7	83.8	Heavily slumped siltstone with silicification and chlorite-carbonate replacement, especially at 83.0m	80.7–83.8 Minor Po with tr asp cpy, and po as veins in assoc with silicification & qtz veining
83.8	95.3	Weakly slumped siltstone & volcanic wacke with minor silicification and chlorite-hornblende alteration.	83.8–86.8 Tr po and asp as fine veins assoc with qtz veins and silicification 86.8–89.9 Minor po with tr cpy and asp as frequent fine veins, networks of fine veins & veins up to 10mm wide i.e. at 88.2m 89.9–95.2 Tr po and py as fine veins
95.3	112.5	Strongly silicified and chloritised volcanic-wacke with minor siltstones 95.4–102.1 Leaching of chlorite from silicified bands of the greywacke to recrystalised chlorite-hornblende networks. These networks have assoc axinite and minor carbonate veining and replacements. 103.4–105.9 Relatively unaltered sediments 105.9–112.5 As per 95.4–102.1	95.2–103.0 Minor py as veins up to 100mm wide. Tr asp and po as veins 103–105.9 Tr py and Po as fine veins 105.9–110.4 Minor py as veins up to 50mm with trace cpy and po 110.4–128.8 Trace diss po & py
112.5	116.5	Dark green chloritised volcanic greywacke Chlorite alteration is strong & pervasive Minor chlorite veins occur through the unit. Silicification & occasional qtz replacement also occur.	
116.5	126.0	Pale grey-green slumped siltstone. Silicification and chlorite-hornblende-axinite alteration are strong throughout the unit. Carbonate veining & replacement are present to a minor degree. Ramnant slump structure are visible due to selective alteration of siltstone & wackes.	
126.0	134.4	Dark green-brown slumped/brecciated siltstone & volcanic wacke. Minor silicification and chlorite-hornblende alteration occurs through the unit.	128.8–136.4 Tr to minor po as fine veins & replacements with diss py

Sample No's marked * are split samples
Unmarked samples are grind or chip samples

Sample No.	From	To	Core Rec'd	Sample Length	Assay Data per ppm Pb	Zn	Cu	Ag	Mn	Fe%	As	Sn	CORE REC'D RUN	SHORT
													55.3	–
													56.0	–
													58.5	–
42411	3.9	6.0	1.8	2.1	30	125	15	X	400	5.2	140	X	61.6	–
412	6.0	9.0	2.6	3.0	5	85	15	X	385	5.8	90	X	64.6	–
413	9.0	12.0	2.7	3.0	20	70	20	X	340	5.7	87	X	66.5	–
414	12.0	15.0	2.8	3.0	15	80	30	X	350	6.0	160	8	68.0	–
415	15.0	18.0	2.9	3.0	10	80	20	X	400	5.9	140	8	71.0	–
416	18.0	21.0	3.0	3.0	10	115	45	X	575	5.1	220	14	72.6	–
417	21.0	24.0	2.9	3.0	5	160	5	0.5	720	5.0	210	18	73.2	–
418	24.0	27.0	2.9	3.0	15	225	10	X	830	5.8	630	42	75.1	–
419	27.0	30.0	2.9	3.0	5	145	40	X	590	4.2	130	10	76.0	–
42420	30.0	33.0	3.0	3.0	15	230	275	X	830	6.1	240	16	77.4	–
421	33.0	36.0	3.0	3.0	5	250	115	X	855	6.7	140	14	80.0	–
422	36.0	39.0	3.0	3.0	100	395	115	X	1000	5.9	190	10	82.4	–
423	39.0	42.0	3.0	3.0	20	265	95	X	1450	6.3	330	6	85.3	–
424	42.0	45.0	3.0	3.0	20	620	180	X	1000	6.2	340	28	88.0	–
425	45.0	48.0	3.0	3.0	5	220	35	X	950	6.5	360	8	89.8	–
426	48.0	51.0	3.0	3.0	10	225	85	X	785	5.0	220	6	92.0	–
427	51.0	54.0	3.0	3.0	25	320	140	X	920	5.8	650	4	94.5	–
428	54.0	56.9	2.9	2.9	10	320	140	X	7720	5.6	470	4	96.0	–
429	56.9	60.0	3.1	3.1	X	145	175	X	570	4.6	110	10	98.0	–
42430	60.0	63.0	3.0	3.0	5	145	260	X	570	5.2	120	12	100.2	–
431	63.0	66.0	3.0	3.0	25	180	220	X	565	5.2	220	6	100.5	–
432	66.0	69.0	3.0	3.0	15	190	545	X	740	6.9	270	2	104.0	–
433	69.0	72.0	3.0	3.0	15	185	235	X	620	4.8	190	6	107.0	–
434	72.0	75.0	3.0	3.0	10	120	235	X	495	5.1	690	12	110.0	–
435	75.0	78.0	3.0	3.0	10	125	130	0.5	475	4.9	77	8	112.5	–
436	78.0	80.7	2.7	2.7	20	195	260	X	495	5.2	130	2	115.5	–
437*	80.7	81.7	1.0	1.0	25	145	900	X	785	8.5	420	6	118.4	–
438*	81.7	82.7	1.0	1.0	35	400	1150	0.5	4050	9.6	1.9%	X	121.5	–
439*	82.7	83.2	0.5	0.5	35	980	1450	1.0	6100	10.0	3400	24	124.0	–
42440*	83.2	83.8	0.6	0.6	55	255	1750	1.0	4700	9.1	3600	18	126.4	–
441*	83.8	84.8	1.0	1.0	55	420	555	X	1500	6.8	700	28	128	–
442*	84.8	85.8	1.0	1.0	50	325	460	X	1100	6.1	770	8	128.8	–
443*	85.8	86.8	1.0	1.0	50	240	770	X	1150	7.1	160	6	132.3	–
444*	86.8	87.8	1.0	1.0	120	920	1850	1.5	1550	9.3	810	12	134.0	–
445*	87.8	88.8	1.0	1.0	180	255	3900	3.5	910	14.6	1.4%	8	137.0	–
446*	88.8	89.3	0.5	0.5	225	460	2850	2.5	1250	14.1	960	26	140.0	–
447*	89.3	89.9	0.6	0.6	50	320	1100	X	1200	8.0	780	24	143.0	–
448	89.9	92.9	3.0	3.0	20	230	480	X	885	6.6	360	8	146.0	–
449	92.9	95.2	2.3	2.3	15	135	685	X	1100	5.7	1000	4	147.2	–
42450*	95.2	96.2	1.0	1.0	15	215	2250	1.0	1250	11.4	1000	X	149.0	–
451*	96.2	97.2	1.0	1.0	60	180	2900	1.0	1030	17.7	8500	4	151.1	–
452*	97.2	98.2	1.0	1.0	5	295	510	X	2350	7.8	2000	56	153.0	–
453*	98.2	99.2	1.0	1.0	30	275	1350	0.5	4600	10.4	1.7%	14	156.8	–
454*	99.2	100.2	1.0	1.0	30	210	1050	X	3950	7.7	1700	54	159.8	–
455*	100.2	101.2	1.0	1.0	35	280	600	1.0	2650	7.6	960	14		
456*	101.1	102.2	1.0	1.0	45	200	1500	X	2900	10.0	1000	26		
457*	102.2	103.2	1.0	1.0	45	125	605	X	1100	7.0	220	16		
458*	103.2	104.2	1.0	1.0	40	120	670	X	1000	7.4	110	12		
459*	104.2	105.2	1.0	1.0	35	100	400	X	890	6.5	80	16		
42460*	105.2	105.9	0.7	0.7	75	150	290	X	5450	6.6	480	30		
461*	105.9	106.9	1.0	1.0	10	170	1400	X	5800	10.6	250	36		
462*	106.9	107.9	1.0	1.0	10	160	120	X	5500	7.1	290	48		

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798318

ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. CHP 229 3 of 5

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION
134.4	136.3	Pale grey green slumped, weakly bedded, altered siltstone and volcanic wacke. Silicification, chlorite-hornblende-axinite alteration is prominant replacing individual beds which are slumped and irregularly bedded. Carbonate replacement and veining is present in minor proportion. 135.3 bedding at 40° 136.3 bedding at 33°	
136.3	139.7	Green-grey-brown weakly silicified and chlorite-hornblende altered siltstones	136.4–140.5 Tr po as fine veins with diss py
139.7	145.7	Dark brown-green to pale grey siltstone and minor volcanic wacke with irregular quartz-carbonate replacement and veining Quartz replacement bands or veins up to 40mm wide form about 5% of core volume. Minor carbonate replacement also occurs. Weak hornblende-chlorite alteration pervades the unit.	140.5–141 Minor po with cpy as veins assoc with quartz-carbonate veining. 141–151 7 Trace to minor po as frequent fine veins.
145.7	150.6	Green-grey to brown-grey weakly chloritised and silicified siltstone and volcanic wacke. Minor quartz veining occurs through the unit.	
150.6	151.7	Pale green grey volcanic wacke with strong silicification, chlorite-hornblende alteration and carbonate replacement.	
151.7	155.5	Pale grey grn to dark grey brown volcanic wacke.	151.7–166.9 Traces diss po and py
155.5	166.4	Pale grey green chlorite-hornblende altered siltstone and volcanic wacke with minor silicification, quartz and carbonate veining, and intensive bands of exinite crystalisation between 0.5m and 2.5m wide	
166.4	202.3	Green grey chlorite-hornblende altered siltstone and volcanic wacke with patches of axinite crystalisation up to 1m wide decreasing down hole	166.9–180.8 Tr to minor po as veins up to 10mm wide with tr cpy & diss py

ASSAY DATA

Sample No.	From	To	Core Rec'd	Sample Length	Assay Data per ppm Pb	Zn	Cu	Ag	Mn	Fe%	As	Sn
42463*	107.9	108.4	0.5	0.5	15	180	105	X	5950	7.4	760	34
464*	108.4	109.4	1.0	1.0	10	245	3550	4.0	2950	15.4	880	34
465*	109.4	110.4	1.0	1.0	10	200	1550	1.0	4150	9.2	430	60
466*	110.4	111.4	1.0	1.0	10	185	440	X	7050	11.2	260	90
467*	111.4	112.4	1.0	1.0	5	140	5	X	1950	6.3	170	16
468	112.4	114.2	1.8	1.8	5	150	25	X	1050	5.2	130	2
469	114.2	116.5	2.3	2.3	5	140	10	X	955	4.6	110	2
42470	116.5	119.5	3.0	3.0	50	195	835	X	6100	6.5	7900	6
471	119.5	122.5	3.0	3.0	80	385	850	X	6050	6.5	300	12
472	122.5	125.5	3.0	3.0	25	275	125	X	6650	6.6	640	14
473	125.5	128.5	3.0	3.0	35	315	330	X	1850	4.7	700	8
474	128.5	131.5	3.0	3.0	10	165	245	X	415	3.9	170	2
475	131.5	134.5	3.0	3.0	15	160	245	X	1000	4.3	310	X
476*	134.5	135.5	1.0	1.0	20	195	185	X	2100	4.8	980	12
477*	135.5	136.4	0.9	0.9	40	170	55	X	7150	5.0	410	150
478	136.4	139.4	3.0	3.0	20	190	270	X	1300	5.2	260	6
479*	139.4	140.4	1.0	1.0	5	115	55	X	890	6.5	510	16
42480*	140.4	141.0	0.6	0.6	20	135	670	X	680	6.8	320	8
481*	141.0	142.0	1.0	1.0	25	230	365	X	690	4.8	140	6
482*	142.0	143.0	1.0	1.0	50	275	170	X	1400	3.5	200	28
483*	143.0	144.0	1.0	1.0	20	65	165	X	2000	1.15	180	12
484*	144.0	145.0	1.0	1.0	10	55	85	X	8250	3.1	280	12
485*	145.0	148.0	3.0	3.0	40	190	190	X	1350	3.3	600	6
486	148.0	150.0	2.0	2.0	10	135	315	X	685	5.2	210	4
487*	150.0	151.0	1.0	1.0	15	145	255	X	2050	6.3	160	8
488*	151.0	151.7	0.7	0.7	10	120	460	X	8150	6.2	20	12
489	151.7	154.9	3.2	3.2	15	130	265	X	675	4.2	300	2
42490	154.9	157.9	3.0	3.0	25	250	70	X	6550	4.9	410	14
491	157.9	160.9	3.0	3.0	25	215	25	X	9650	4.6	240	4
492	160.9	163.9	3.0	3.0	10	195	80	X	7300	5.0	210	8
493	163.9	166.9	3.0	3.0	10	160	90	X	7000	4.9	890	6
494*	166.9	167.9	1.0	1.0	10	130	315	X	5450	6.9	330	22
495*	167.9	168.9	1.0	1.0	10	135	410	X	6200	7.6	650	24
496*	168.9	169.9	1.0	1.0	15	165	670	X	4700	7.5	530	16
497*	169.9	170.9	1.0	1.0	30	160	450	X	5550	7.2	850	30
498*	170.9	171.3	0.4	0.4	150	620	1050	0.5	1900	9.1	370	8
499*	171.3	172.3	1.0	1.0	80	355	1500	X	2100	10.2	900	14
42500*	172.3	173.3	1.0	1.0	15	150	1450	0.5	5750	12.8	1600	10
45701*	173.3	174.3	1.0	1.0	30	150	265	X	4000	5.9	55	24
702	174.3	177.8	3.5	3.5	15	190	275	X	2650	5.2	93	8
703*	177.8	178.6	0.8	0.8	30	290	955	X	5350	9.1	2200	10
704*	178.6	179.6	1.0	1.0	50	375	450	X	1150	6.5	160	12
705*	179.6	180.55	0.95	0.95	20	190	745	X	5250	7.7	400	20
706*	180.55	181.55	1.0	1.0	15	140	1050	X	5200	9.1	2400	16
707*	181.55	182.3	0.75	0.75	15	140	960	X	4700	10.3	4300	4
708*	182.3	183.25	0.95	0.95	50	1000	2750	1.0	2250	15.2	7900	X
709*	183.25	184.2	0.95	0.95	25	225	800	X	6150	8.5	1900	28
45710*	184.2	185.0	0.8	0.8	45	200	1700	X	4100	10.5	510	6
711	185.0	185.8	0.8	0.8	60	370	900	X	1500	8.3	660	12
712*	185.8	186.4	0.6	0.6	140	420	2850	1.5	1700	14.7	4000	8
713*	186.4	187.4	1.0	1.0	15	140	335	X	1250	5.0	30	10
714*	187.4	188.4	1.0	1.0	60	190	545	X	2350	7.2	340	18
715*	188.4	189.0	0.6	0.6	55	180	1900	X	4400	11.7	2000	2

CORE REC'D RUN	SHORT
162.8	–
165.4	–
167.8	–
170.0	–
173 0	–
176.0	–
179.0	–
182.0	–
185.0	–
187.1	–
190.8	–
191.8	–
194.9	–
195.4	–
196.7	–
199.8	–
200.5	–
203.0	–
203.9	–
206.3	–
208.9	–
210.2	–
213.5	–
216.6	–
219.7	–
220.9	–
225.2	–
227.0	–
229.1	–
232.2	–
235.3	–
238.4	–
242 0	–
245.0	–
247.4	–
EOH	

798319

ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. CHP 229 4 of 5

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION
			180.8–186.4 Minor po as veins and bedding replacements up to 40mm wide about 10% of core volume. Tr cpy is assoc with the po.
			186.4–186.4 Tr po as fine sparse veins and diss assoc with axinite crystalisation
			188.4–189 Po as bedding replacements up to 40% of core volume, averaging 10% Minor cpy assoc with the po
			189–198.2 Minor po as fine veins.
			Larger veins and replacements of po with trace cpy occur at:– 189.6; 190.7–191 192.6–193.5 193.5–193.8 196.7–197.0 197.3–197.6 198.0–198.2 Asp occurs rarely in assoc with po veins.
202.3	210.7	Green grey to brown siltstone and volcanic wacke with irregular weak chlorite–hornblende alteration. Minor axinite crystalisation and quartz veining is present.	198.2–212.6 Tr to minor po as fine veins with occasionaly larger veins upto 20mm wide with associated cpy. Trace disseminated py
210.7	225.4	Green grey to pale green grey to brown siltstone and volcanic wacke with irregular bands of:– chlorite–hornblende alteration; 60% of core volume. Axinite crystalisation; upto 70% of core averaging 10% and bands upto 0.4m. Silicification; bands parallel to bedding; about 30% of core is silicified.	212.6–216.6 Minor po as veins & replacement bands upto 0.4m wide with assoc Asp & Cpy 214.8–215.2 0.4m wide sulphide band.
225.4	226.8	Pale green to cream strongly silicified & brecciated siltstone with strong hornblende–chlorite alteration.	216.6–228.0 Trace po, asp and py as veins & diss

Sample No.	From	To	Core Rec'd	Sample Length	Assay Data per ppm Pb	Zn	Cu	Ag	Mn	Fe%	As	Sb	CORE REC'D RUN	SHORT
45716*	189.0	190.0	1.0	1.0	45	535	955	X	2500	9.5	200	10		
717*	190.0	191.0	1.0	1.0	15	165	480	X	4000	7.0	50	10		
718	191.0	193.4	2.4	2.4	30	215	120	X	3600	6.3	95	X		
719*	193.4	193.9	0.5	0.5	30	215	1000	X	6050	9.0	30	18		
45720	193.9	196.7	2.8	2.8	70	310	445	X	3000	5.9	800	6		
721*	196.7	197.8	1.1	1.1	20	820	2750	1.0	1550	14.6	3700	X		
722*	197.8	198.8	1.0	1.0	70	390	1350	X	3400	9.5	440	22		
723	198.8	201.8	3.0	3.0	60	280	300	X	2350	4.8	300	X		
724	201.8	204.8	3.0	3.0	25	250	465	X	1850	5.1	68	4		
725	204.8	207.8	3.0	3.0	30	305	585	0.5	2300	6.4	970	X		
726	207.8	211.0	3.2	3.2	385	535	355	X	2250	4.6	270	6		
727	211.0	212.6	1.6	1.6	95	205	250	X	5100	6.0	70	10		
728*	212.6	213.5	0.9	0.9	115	340	1400	1.5	3200	9.5	90	22		
729*	213.5	214.5	1.0	1.0	30	245	1400	0.5	4650	8.2	5800	6		
45730*	214.5	215.3	0.8	0.8	40	230	3600	2.5	3300	14.4	130	X		
731*	215.3	216.3	1.0	1.0	80	1000	1300	0.5	4300	7.2	930	36		
732	216.3	219.3	3.0	3.0	10	470	375	X	2500	5.5	1500	4		
733	219.3	221.9	2.6	2.6	95	340	395	X	580	5.0	200	X		
734	221.9	224.9	3.0	3.0	50	485	365	0.5	1450	3.8	850	X		
735	224.9	228.0	3.1	3.1	15	165	60	X	1800	3.8	420	14		
736*	228.0	229.0	1.0	1.0	X	100	225	X	5700	3.8	50	48		
737*	229.0	230.0	1.0	1.0	X	110	960	X	5700	7.9	6	24		
738*	230.0	230.6	0.6	0.6	25	150	560	X	2300	5.0	3000	88		
739*	230.6	231.6	1.0	1.0	15	145	25	X	1350	4.1	70	12		
45740*	231.6	232.6	1.0	1.0	X	155	15	X	1100	4.2	30	10		
741*	232.6	233.6	1.0	1.0	5	210	20	X	1000	6.7	12	8		
742*	233.6	233.9	0.3	0.3	X	170	5	X	950	4.9	13	8		
743*	233.9	234.9	1.0	1.0	25	115	40	X	1400	4.0	1300	6		
744*	234.9	235.9	1.0	1.0	215	270	195	X	8450	4.2	490	15		
745	235.9	238.9	3.0	3.0	30	100	40	X	4150	2.6	89	X		
746	238.9	241.9	3.0	3.0	20	90	160	X	1550	1.9	250	X		
747	241.9	244.9	3.0	3.0	X	45	15	X	1200	2.2	43	X		
748	244.9	247.4	2.5	2.5	10	85	15	X	1650	2.0	61	X		

END OF HOLE

798320

ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. CHP 229 5 of 5

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA: Sample Length	Pb%	Zn%	Cu%	Ag - g/t	Au - g/t	Fe%		CORE REC'D: RUN	SHORT
226.8	234.0	Grey-green to dark brown to black chlorite hornblende altered rock with silicification and axinite crystalisation. Chlorite alteration is in two forms: i) As a dark brown to black fine grained matt. ii) As blue-green coarser grained veins	228.0–230.4 Minor po, py and asp with trace blebs and crystal aggregates. 230.4–247.4 No visible mineralisation														
234.0	247.4	Dark green and cream, heavily carbonated ultramafic rock. Pale green to white carbonate veins and networks compose about 60% of the core volume.															
	EOH																

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798321

ELECTROLYTIC ZINC CO. OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. CHP 230 1 of 6

LOCATION	Mt. Black E.L. 1/62 Colebrook Hill Grid
OBJECTIVE	To test a zone of co-incident V.L.f., magnetic, and soil geochemical anomalies.
RESULT	No significant tin values were obtained.

Footage	Direction	Dip.

Footage	Direction A.M.G.	Dip.
0 m	84°	−53°
92m	96°	−53°
137m	97°	−53°

COLLAR DIP. −55°
DIRECTION 90° A.M.G.
R.L.
COORDINATES

TOTAL DEPTH 137m
HOLE SIZE HQ 3m, NQ 17.8m BQ
COMMENCED 14.5.'81
COMPLETED 20.5.'81
LOGGED BY I.R. McDonald

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION
0	137.0	BROWN, GREY & GREEN-GREY MASSIVE VOLCANIC LITHIC WACKES & SILTSTONES SHOWING MODERATE HORNFELSING & VARIABLE ALTERATION	
		100% Core recovery throughout the entire hole.	
0	8.5	Core fairly broken & weakly oxidised.	
17.0	17.3	Sedimentary breccia.	17.2m 5mm quartz vein at 50° with 5% cpy stringers 19.4m Vuggy quartz vns at 45° with 2% disseminated cpy
21.8	21.85	Patch of pale silicification with quartz vns at 50°	2-3% cg cpy associated with the quartz vns.
22.1	22.3	Laminated bedding at 25°. Weak grading & scour textures indicate an up-hole, west facing.	
24.0	24.1	Silicified weak breccia with blebbt secondary quartz at 40°.	
25.6	25.8	Pale silicification & quartz vns at 30°.	
26.4	26.8	Silicification & quartz vns at 30° appear to be associated with a zone of sedimentary breccia	Patchy stringers of Po & Cpy associated with quartz vns. Approx 5% total sulphides.
26.8	27.25	Brown fg wacke with weak sedimentary breccia texture.	Trace (<1%) Po + Cpy
27.35	28.90	Irregular quartz vns & patches in a zone of silicification and weak ?hornblende alteration of mainly mg wacke lithology. 27.6-27.8 Most intense quartz vning. Core is 80% quartz vn. 27.8-28.5 Thin (0.5mm) chlorite vns at 55°	27.35-27.60 Trace fg sulphides 27.6-27.8 10% cg Po + Cpy + Asp in quartz vn. 27.8-28.9 2% stringers of Po+Cpy associated with quartz vns and patchas

S. LE REC'D SHORT

Sample No.	From	To	Core Rec'd	Sample Length	Assay Data per ppm Pb	Zn	Cu	Ag	Mn	Fe%	As	Sn
Sample No's marked * are split samples remainder of samples are grinds.												
39351	0.0	5.0	5	5	20	120	60	0.5	575	6.5	62	8
352	5.0	10.0	5	5	10	115	95	0.5	695	7.3	89	X
353	10.0	15.0	5	5	10	60	15	X	435	6.7	98	5
354	15.0	20.0	5	5	20	215	2300	1.5	980	7.1	170	10
355	20.0	25.0	5	5	15	175	630	X	680	6.3	180	10
45751	25.0	26.4	1.4	1.4	60	310	195	X	1050	6.6	460	16
752*	26.4	26.8	0.4	0.4	265	1100	845	2.0	1550	6.0	200	4
753*	26.8	27.35	0.55	0.55	20	170	35	1.0	1550	5.5	100	6
754*	27.35	27.60	0.25	0.25	100	430	15	X	1300	6.0	16	4
755*	27.60	27.80	0.20	0.20	75	125	560	1.5	1490	2.75	3.5%	X
756*	27.80	28.50	0.70	0.70	70	160	190	X	1750	5.0	4200	4
757*	28.50	28.90	0.40	0.40	35	205	5	X	1400	5.5	1500	X
758	28.90	33.00	4.10	4.10	15	165	155	X	605	5.6	130	14
759*	33.00	33.30	0.30	0.30	25	330	95	X	710	4.55	47	X
45760	33.30	36.5	3.2	3.2	10	190	55	0.5	825	6.7	310	2
761	36.5	39.8	3.3	3.3	10	115	95	X	760	6.3	100	X
762*	39.8	40.0	0.20	0.20	20	105	2500	0.5	505	15.5	520	X
763*	40.0	40.5	0.50	0.50	50	355	405	0.5	1150	6.0	850	4
764*	40.5	41.4	0.9	0.9	5	155	580	3.0	1600	5.2	3800	6
765*	41.4	42.3	0.9	0.9	5	130	1850	1.0	925	10.5	8000	16
766*	42.3	43.25	0.95	0.95	10	200	415	0.5	2700	10.0	360	40
767*	43.25	4.37	0.45	0.45	5	220	5100	2.5	455	16.5	2.8%	15
768*	43.7	44.05	0.35	0.35	30	60	575	X	700	6.0	1.5%	X
769*	44.05	45.15	1.1	1.1	15	80	1050	0.5	1600	7.0	7000	18
45770*	45.15	46.1	0.95	0.95	25	255	200	0.5	2050	5.6	2.5%	20
771*	46.1	47.15	1.05	1.05	45	80	1850	1.0	1400	8.9	1900	X
772*	47.15	47.9	0.75	0.75	350	875	545	1.0	1600	8.1	450	10
773*	47.9	48.9	1.0	1.0	315	1250	315	0.5	2100	6.5	260	16
774*	48.9	49.9	1.0	1.0	190	710	585	0.5	2350	8.2	460	18
775*	49.9	50.9	1.0	1.0	200	450	730	1.0	2150	7.1	220	12
776*	50.9	51.9	1.0	1.0	30	310	535	2.0	2450	6.9	280	104
777*	51.9	52.9	1.0	1.0	60	255	285	X	3250	6.7	360	112
778*	52.9	53.9	1.0	1.0	25	250	415	X	3350	9.5	570	44
779*	53.9	55.0	1.1	1.1	5	215	595	X	2400	10.0	90	26

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798322

ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. CRP 230 2 of 6

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION
		28.5–28.9 Quartz veined breccia zone.	
29.5	29.7	*Breccia zone. Grading in a m–cg wacke* block suggests down-hole east facing but it may be a disturbed block.	
30.45	30.85	Zone of silification, quartz vns, minor carbonate and minor hornblende recrystalisation with some breccia textures which are probably original sedimentary breccia.	
32.0	32.5	Irregular quartz vnlets with minor carbonate.	32.0–32.5 2% Po, Py & Cpy associated with quartz vns
33.0	33.3	Quartz veins at 10° in a zone of silicification.	33–33.3 5% Po+Cpy associated with quartz vns 33.3–37.8 Rare Po, Cpy + Py associated with rare quartz vns. Total suls only trace.
34.1	34.35	Pale silicification with thin quartz veins	
34.5	34.85	" " " " " "	
35.4	35.5	Zone of silicification trending 45°	
35.8	35.85	Pale silicification & chlorite veinlets trending 60°.	
	37.8	Contact between brown m–cg tuffaceous wacke above & grey-green fg hornfelsed wacke below occupied by a sulphide band at 65°.	37.8 45mm wide vein of Py + Po + Cpy 37.8–39.8 Rare Cpy + Po on joint faces.
39.5	39.8	Weak bedding at 25°	
39.8	40.0	Quartz–sulphide–chlorite veins at 35°	39.8–40 10% Po, Cpy, Py in *quartz veins.*
40.3	57.95	Zone of variably developed silicification hornblende–chlorite alteration, quartz veining & mineralisation. Alteration and mineralisation appears to slightly favour the coarser grained rocks but not exclusively so. Core angles are variable but most are at about 50°	40–40.5 Less than 1% sulphides as fine disseminations

Sample No.	From	To	Core Recd	Sample Length	Assay Data per ppm Pb	Zn	Cu	Ag	Mn	Fe%	As	Sn	CORE REC'D JN	SHORT
45780*	55.0	55.9	0.9	0.9	10	230	570	X	2450	10.5	85	12		
781*	55.9	56.9	1.0	1.0	30	155	415	X	2450	8.5	2900	36		
782*	56.9	57.4	0.5	0.5	15	135	1300	0.5	2700	8.5	180	20		
783	57.4	61.9	4.5	4.5	45	255	250	1.0	1200	8.6	450	58		
784*	61.9	62.35	0.45	0.45	80	245	1100	X	2400	9.5	1200	62		
785*	62.35	63.25	0.9	0.9	40	200	340	X	1750	8.0	320	24		
786*	63.25	63.85	0.6	0.6	45	185	1450	1.0	1250	9.0	2300	24		
787*	63.85	64.95	1.1	1.1	45	205	480	0.5	2050	9.4	930	20		
788	64.95	67.95	3.0	3.0	35	285	300	X	1600	7.5	120	X		
789	67.95	69.95	2.0	2.0	10	255	10	X	1550	6.6	160	X		
45790	69.85	74.3	4.35	4.35	45	245	10	X	1550	7.3	190	X		
791*	74.30	75.0	0.7	0.7	25	220	400	X	3000	8.2	1100	10		
792*	75.0	75.9	0.9	0.9	20	185	1650	0.5	2450	10.0	5900	14		
793*	75.9	76.9	1.0	1.0	70	215	2150	1.0	1650	14.0	2.3%	X		
794	76.9	80.0	3.1	3.1	55	230	670	1.5	1550	9.1	230	X		
39367	80.0	85.0	5.0	5.0	20	185	1300	1.0	950	10.6	510	8		
368	85.0	90.0	5.0	5.0	10	70	125	X	640	10.2	80	8		
369	90.0	95.0	5.0	5.0	20	85	105	X	730	8.8	400	12		
39370	95.0	100.0	5.0	5.0	15	50	70	X	440	8.7	50	8		
371	100.0	105.0	5.0	5.0	15	105	1500	1.0	720	9.2	1000	8		
372	105.0	110.0	5.0	5.0	5	100	1150	1.0	640	9.6	650	8		
373	110.0	115.0	5.0	5.0	25	60	45	X	535	7.1	70	X		
374	115.0	120.0	5.0	5.0	10	100	1350	0.5	600	7.0	40	8		
375	120.0	125.0	5.0	5.0	10	50	240	X	355	8.3	50	8		
376	125.0	130.0	5.0	5.0	10	95	550	0.5	565	7.6	70	X		
377	130.0	135.0	5.0	5.0	10	75	160	X	615	7.4	50	8		
378	135.0	137.0	2.0	2.0	10	75	880	X	680	9.6	190	12		

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ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. CHP 230 3 of 6

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA: Sample Length	Pb%	Zn%	Cu%	Ag - g/t	Au - g/t	Fe%		CORE REC'D: RUN	SHORT
		40.5–40.9 Grey & green-grey brecciated wacke with quartz vns	40.5–41.4 2–3% Po with minor Asp & Cpy as stringers and fine vns.														
		40.9–42.1 Dark grey-green brecciated, chloritised siltstone & wacke with quartz-carbonate vns & clots & patchy hornblendisation	41.4–42.3 5–7% coarse irregular vns of Po with minor Cpy & Asp. Vns range from subparallel to 75°.														
		42.1–42.6 Green tuffaceous wacke with strong chlorite-hornblende-tourmaline alteration	42.3–43.25 3% total sulphides as erratic vns & stringers of Po assoc with silica-shlorite-hornblende alteration. Up to 10% sulphides 42.75–42.90.														
		42.6–43.25 Dark grey-brown massive ?hornfelsed fg wacke & siltstone with weak bedding at 40°.															
		43.25–43.7 Strongly mineralised, strongly altered, brecciated, silicified and quartz vned sediments.	43.25–43.7 50% Po, Py, Cpy, Asp. as vns to near massive sulphide. Vns mostly subparallel to core.														
		43.7–44.05 Dark grey-green weakly silicified massive fg wacke and siltstone.	43.7–46.1 2–5% fine veins end stringers of Po.														
		44.05–46.1 Green grey and brown fg wacke with variable chlorite-hornblende alteration and sporadic silicification and quartz vning.															
		46.1–47.15 Grey m-cg massive tuffaceous wacke with weak silica-chlorite-hornblende-tourmaline alteration throughout.	46.1–46.3 10% irregular vns & stringers of Po associated with silicification & quartz vns. 46.3–47.15 5% vns & stringers of Po & Asp 46.7 15mm vn of massive Asp at 75°														
		47.15–47.9 Brown massive fg hornfelsed siltstone	47.15–52.8 2–3% total suls as thin vns & stringers & minor disseminations														

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ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. CHP 230 4 of 6

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA: Sample Length	Pb%	Zn%	Cu%	Ag - g/t	Au - g/t	Fe%		CORE REC'D: RUN	SHORT
		47.9–50.9 Brown massive fg hornfelsed siltstone & wacke with irregular bands of grey-green silicification and chlorite-hornblende alteration. This appears to follow coarser grained bands or bands showing some brecciation.	of Po. In patches sulphides total up to 5%														
		50.9–51.35 Brown massive fg hornfelsed siltstone.															
		51.35–52.25 Grey-green f-mg hornfelsed volcanic wacke. Moderately silicified from 52.1–52.25.															
		52.25–52.5 Brown massive fg volcanic wacke															
		52.5–54.8 Interbanded brown massive fg wacke and green chloritised & quartz-carbonate vned wacke	52.8–52.9 10% Po in bands at 55° associated with silicification & thin quartz vns.														
			52.9–55.0 1% Po as rare fine vns and stringers.														
		54.8–57.4 Green strongly chlorite-hornblende altered, weakly silicified & carbonated volcanic wacke.	55.0–55.9 5% Po and minor Cpy at stringers blebs and veins.														
			55.9–56.9 Variable 0–5% Po & Asp, veins & stringers Average 2%														
			56.9–57.4 2–5% Po vns, stringers & weak disseminations														
		57.4–57.95 Interbanded brown fg wacke & green chloritised & quartz-carbonate veined wacke.	57.4–61.9 1% Po associated with quartz veins.														
57.95	61.7	Brown f-mg massive volcanic wacke with narrow bands of alteration.															
		58.35–58.5 Grey-green silicified & chlorite-hornblende altered wacke.															
		59.65–59.85 " "															
		60.05–60.2 Grey m-cg tuffaceous wacke with strong hornblende recrystalisation															
		60.6–60.75 Grey-green silicified fg wacke															
		61.2–61.25 Silicification & quartz vns at 60°															

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ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. CHR 230 5 of 6

METRE FROM	METRE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA: Sample Length	Pb%	Zn%	Cu%	Ag - g/t	Au - g/t	Fe%	CORE REC'D: RUN	SHORT
61.7	63.25	Interbanded grey-green silicified, chlorite-hornblende-tourmaline altered wacke, and brown f-mg massive hornfelsed volcanic wacke.	61.9–62.35 5% Po in irregular vns & stringers associated with quartz vns 62.35–62.7 Less than 1% Sulphides 62.7–62.8 10% Po + Cpy associated with quartz tourmaline alteration 62.8–63.25 1% Po as fine vns and stringers													
63.25	64.95	Grey-green & brown silicified & strongly chlorite-hornblende-tourmaline altered volcanic wacke.	63.25–63.85 5–7% Po as irregular vns & stringers 63.85–64.95 2% Po as irregularly scattered fine vns.													
64.95	69.00	Brown f-mg massive hornfelsed volcanic wacke with patches of grey-green chlorite-hornblende-carbonate alteration. 65.55–65.8 Altered silicified zone. 67.3–67.5 Grey-green altered tuffaceous wacke. 67.75–67.95 " " " "	64.95–74.3 1% Po as irregularly scattered fine vns & coatings on joint surfaces.	CO												
69	69.6	Green-grey mg tuffaceous wacke with strong chlorite-hornblende-carbonate alteration.														
69.6	69.95	Grey-brown massive fg siltstone.														
69.95	74.3	Brown-green & grey mg massive volcanic chlorite-hornblende-carbonate alteration.														
74.3	76.9	Grey-green strongly chlorite-hornblende-tourmaline altered & silicified wacke. Coarse alteration banding at 55°.	74.3–75 2% Po as vns and stringers 75–76.9 5–10% Po with Py & Cpy as irregular vns & stringers.													
76.9	78.8	Interbanded grey-brown fg massive wacke & siltstone & green-grey altered & brecciated wacke. 77.3–77.4 Altered breccia zone 78.25–78.4 Alteration zone	76.9–80 1–2% Po in fine vns & stringers 77.3–77.4 5% Po+Cpy as vns 78.25–78.4 5% Po+Cpy as blebs & stringers													

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ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. CHP 230 6 of 6

FOOTAGE FROM	FOOTAGE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA: Sample Length	Pb%	Zn%	Cu%	Ag - g/t	Au - g/t	Fe%		CORE REC'D: RUN	SHORT
78.8	95.5	Dark green-grey massive f-mg volcanic wacke & interbedded dark grey fg siltstone. Generally moderately hornfelsed but largely unaltered.	80.8 20mm vn of Po with minor Cpy at 55° 80.8–95.5 Less than 1% suls as rare fine vns of Po.														
95.5	96.1	Pale green to grey silicified breccia zone with chlorite-hornblende alteration and quartz-carbonate vning.	95.5–96.1 2–5% Po and Cpy as stringers & irregular blebs.														
96.1	118.6	Dark grey-green to brown massive fg hornfelsed wacke and siltstone. 102.1–102.75 Irregular quartz vns & weak breccia 104–109 Scattered quartz vns, 0.5–5mm wide, mostly less than 2mm at variable angles but mainly 30° 114–114.7 Grading in a tuffaceous wacke indicates up-hole west facings	96.1–102.1 >1% sulphides as rare fine vn of Po. 102.1–102.3 10% Cpy & Asp blebs & stringers associated with quartz vns. 102.3–108.2 1% sulphides in scattered quartz vns containing cg Po & Cpy. Also minor sulphides coatings on joint surfaces. 108.2–137 Sulphides much less than 1% as rare fine veinlets of Po. 115.3–115.35 50% Po+Py+Cpy in a quartz vein at 50°														
118.6	121.4	Pale green grey m-cg tuffaceous wacke, weakly hornfelsed & carbonated.															
121.4	137 EOH	Grey-brown massive hornfelsed fg wacke & siltstone with minor bands of green-grey mg volcanic wacke.															

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APPENDIX VII

Geophysical Reports on MRP 226 by Prof. D. Emerson.

THE UNIVERSITY OF SYDNEY

DEPARTMENT OF GEOLOGY & GEOPHYSICS, EDGEWORTH DAVID BUILDING,

N.S.W. 2006 Tel. 692 1122

Dr. John Bishop
Mitre Geophysics Pty. Ltd.,
Buggs Lane,
ELLIOTT. TAS. 7325.

22 September, 1981.

Dear John,

Further to my letter regarding the metavolcanic (LOT 4) specimens remanence. I wish to advise that two magnetic and two non magnetic cores were selected at random and measured for remanent magnetization. Without accurate orientation data the inclination and declination of NRM in the core do not mean very much, but the magnitude of NRM is useful information. The results are as follows:

Specimen No.	Susceptibility (k) cgs x 10^{-6}	NRM magnitude microgauss (emu x 10^{-6})	Koenigsberger Ratio Q = NRM/Induced Intensity (k F) (for F = .0.625 Gauss)
39 310	70	2	0.05
39 315	7000	190	0.04
39 317	20	1	0.08
39 322	5000	180	0.06

The directions of NRM in samples 315 and 322 appear to be between 45° and 90° to the core axis i.e. not along the line of the hole. The magnitudes of remanence, as indicated by the Q value, are not of significance in interpreting the ground magnetics - assuming, of course, that the samples represent the bulk of the rock mass.

Yours sincerely,

Dan Emerson.

D.W. Emerson
Assoc.Professor in Exploration Geophysics.

798330

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THE UNIVERSITY OF SYDNEY

DEPARTMENT OF GEOLOGY & GEOPHYSICS, EDGEWORTH DAVID BUILDING,

N.S.W. 2006 Tel. 692 1122

Dr. John Bishop
Mitre Geophysics Pty. Ltd.,
Buggs Lane,
ELLIOTT. TAS. 7325.

11 August, 1981.

Dear John,

Susceptibility Tests MRP 226 - 42 Core Samples.

1. Following receipt of the EZ samples we tested them on our bridges. We have five susceptibility bridges - two Elliots, one Scintrex, one Geoinstruments (all these are portable) and a laboratory MS-3 which is not performing properly so disregard its column on the enclosed tabulated work sheet.

The precision (repeatability) and accuracy (validity) of the field bridges are not very good and were never meant to be, because portability and ruggedness were the instrumental criteria. Nevertheless the performance of the bridges should be adequate for exploration work provided they are checked regularly by a technician (e.g. see Elliot manual) and calibrated on samples whose susceptibilities are accurately known.

I have two synthetic core containing 1% by weight (0.3% by volume) and 3% by weight (1.3% by volume) pure (i.e. no ulvospinel) magnetite. The accurate mean susceptibilities are 781 and 3713 x 10^{-6} cgs respectively representing low and medium values commonly encountered in rocks. Checks of our bridges show up to 20% error ±, also repeatability on the Elliot is ± 100 x 10^{-6} so reliable estimates of low susceptibilities are difficult. However, as long as one is aware of the accuracy limitations, there really is no problem in usefully applying the quite valuable data obtained from the bridges in the field or core shed.

As an example of the variability in bridge readings let us look at the following readings from MRP226 corrected for core diameter:

Sample	Susceptibility	Depth m	EZ Elliot	S.Uni Elliot 1	S.Uni Elliot 2	S.Uni Scintrex CTV-2
39325	medium	110.04	2000	2700	2100	3100
			2400	2700	2800	4100
			2400	2000	2800	2200
			2800	3000	3000	4000
39326	high	110.42	10400	10000	11000	9900
			8400	10000	9000	10500
			8600	10100	9500	9900
			8600	9600	9600	9200
39329	low	112.25	0	190	180	60
			200	190	180	60
			200	190	180	70
			0	0	0	70

The readings vary because of the patchy nature of (titano-?) magnetite distribution, anisotropy and instrumental error. If we take the mean susceptibilities of the data groups:

Sample	EZ	Elliot S.U. 1	Elliot S.U. 2	Scintrex CTU-2
39325	2400	2600	2675	3350
39326	9000	9925	9775	9875
39329	100	143	135	65

it would appear that the EZ bridge reads about 10% too low, but in other cases it appears to read higher than the others (see data comparison work sheet e.g. sample 39321 @ 108.9 m EZ mean 4800 > 3975 SU CTU-2 > 3375 SU Elliot).

I would say that the EZ bridge appears to be giving adequate results, but my advice on checking and calibration should be followed every six months. By EZ results I mean the summaries (¼ turn) sent to me not the drill log plots or the March 1981 work sheets which appear to be uncorrected or to have suspect readings e.g. negative readings?.

(2) Petrological information is really quite useful in magnetic work. Opaque mineral nature, distribution and grainsizes are the desired data.

The petrological examination indicates about 2% by volume of possible magnetite 'dust' (grainsize = ?) @ 102.2 m in meta-andesite. For up to about 4% by volume of (pure) magnetite $k \simeq 0.25\ f$ where f is the volume fraction of magnetite, so k here would be about 5000×10^{-6} which is near the measured susceptibility of 7800×10^{-6}. This is only a rough guide dependent on optical assessment of magnetite and its volume fraction e.g. if the magnetite really was 3% by volume than $k \simeq 7500 \times 10^{-6}$, much closer to the measured value.

I would recommend that in establishing the sources of magnetic anomalies more petrology be done the section on a routine basis. Polished thin sections can give petrological and mineragraphic data cheaply.

(3) If one looks carefully at the EZ detailed susceptibility data it is clear that, in common with many metavolcanic areas, the magnetite is distributed in bands (along strike ?) that are quite narrow individually but collectively form zones with an overall increased magnetic response.

In MRP226, from 95 to 135 m, there is a 40 m zone in which 32% of the k values exceed 400×10^{-6} for the whole zone. From 160 to 170 there is virtually the same effect. So we have two zones really comprising narrow bands of (in some cases intense) magnetization, but "average" k of the zones is moderate $\simeq 2450 \times 10^{-6}$ corresponding to about 1% + disseminated magnetite.

Of course one should really model each band in studies of the magnetic anomaly, but it is quicker and simpler to composite the effect as outlines. It is permissible to do this as long as the interpreter is aware of the simplification and the reason for it. For a 3-D finite sheet model there is a susceptibility - thickness product factor outside the involved geometrical terms. Her $k\,t = 2450 \times 10^{-6} \times 40$ m (similarly for the other deeper one). This compares with the computed model which used $k\,t = 7500 \times 10^{-6} \times 40$ m. The two products are about the same, but the latter is incorrect

because it does not represent the full magnetic zone and also it ascribes a very high unrealistic susceptibility to the whole sheet - such susceptibilities may occur in narrow bands; they rarely occur over large (several metre) thicknesses except in ferruginous formations such as jaspilites and other rocks such as some phases in monzonites, but never metavolcanics in my experience.

It would seem that EZ's susceptibilities are quite alright, or near enough. What was wrong was the unrealistic model.

4. I think induction alone cannot account for the anomaly. Quick tests for remanence showed NRM of some magnitude in the magnetic parts of the core. This NRM would add to the susceptibility effect especially if it was directed vertically or sub vertically giving a higher quasi-susceptibility (not a real susceptibility increase although that is its overall effect).

Perhaps in view of the effort so far a couple of core should be tested thoroughly for NRM.

5. The cost of this testing work is $200. Please send a cheque for that amount direct to me. The cheque should be made payable to the Sydney Uni. Petrophysical Testing A/c.

6. I enclose details of the skarn research proposal - perhaps EZ might be interested?

Regards,

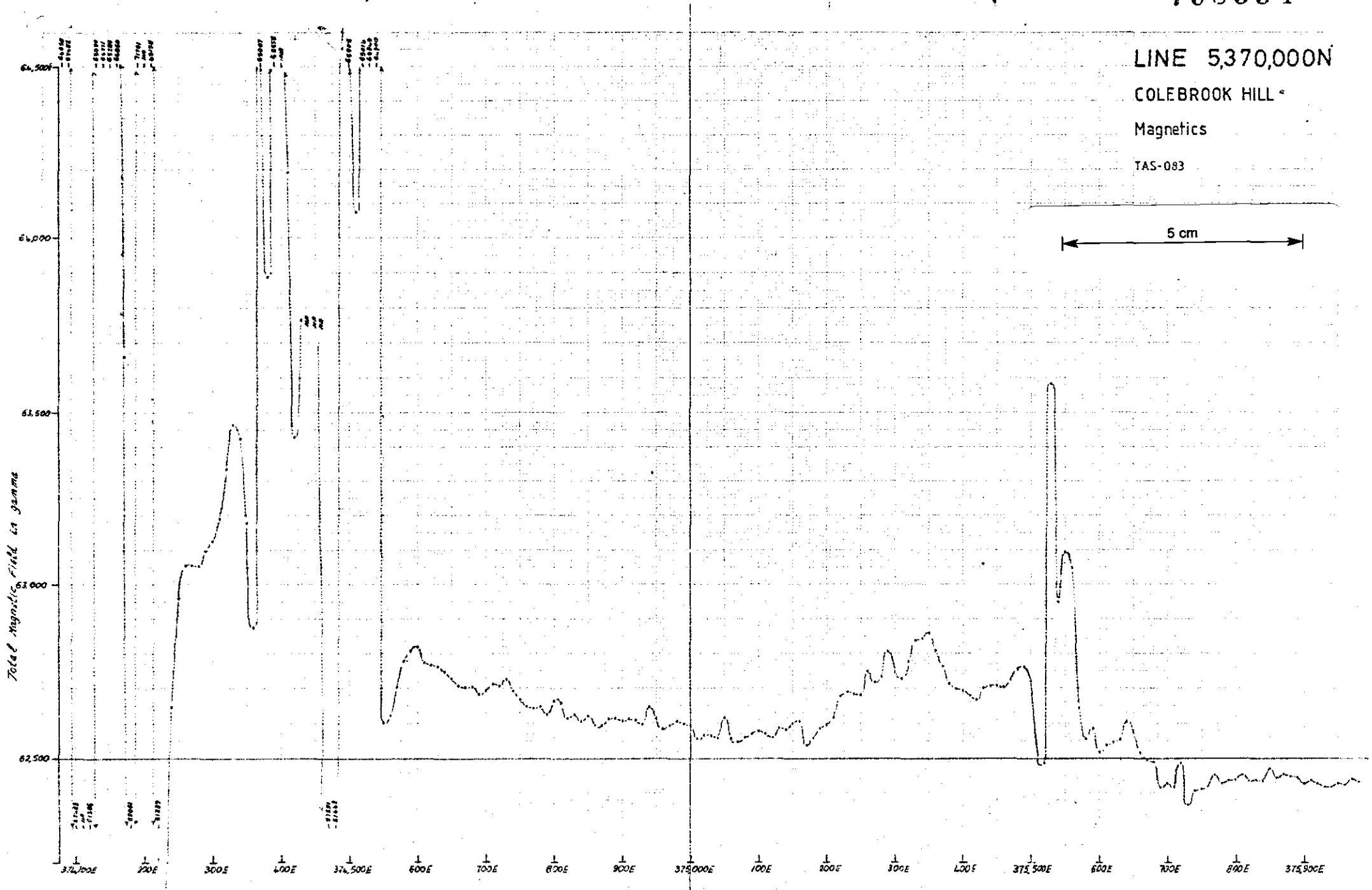
Yours sincerely,

D.W. Emerson
Assoc.Professor in Exploration Geophysics.

Encl:

APPENDIX VIII

Magnetic Line Profiles 1:5,000 scale - Colebrook Hill.


LINE 5,370,000N
COLEBROOK HILL
Magnetics
TAS-083
5 cm
Total Magnetic Field in gamma
64,500
64,000
63,500
63,000
62,500
374,300E
200E
300E
400E
374,500E
600E
700E
800E
900E
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300E
400E
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600E
700E
800E
375,900E

798335

LINE 5,370,200N

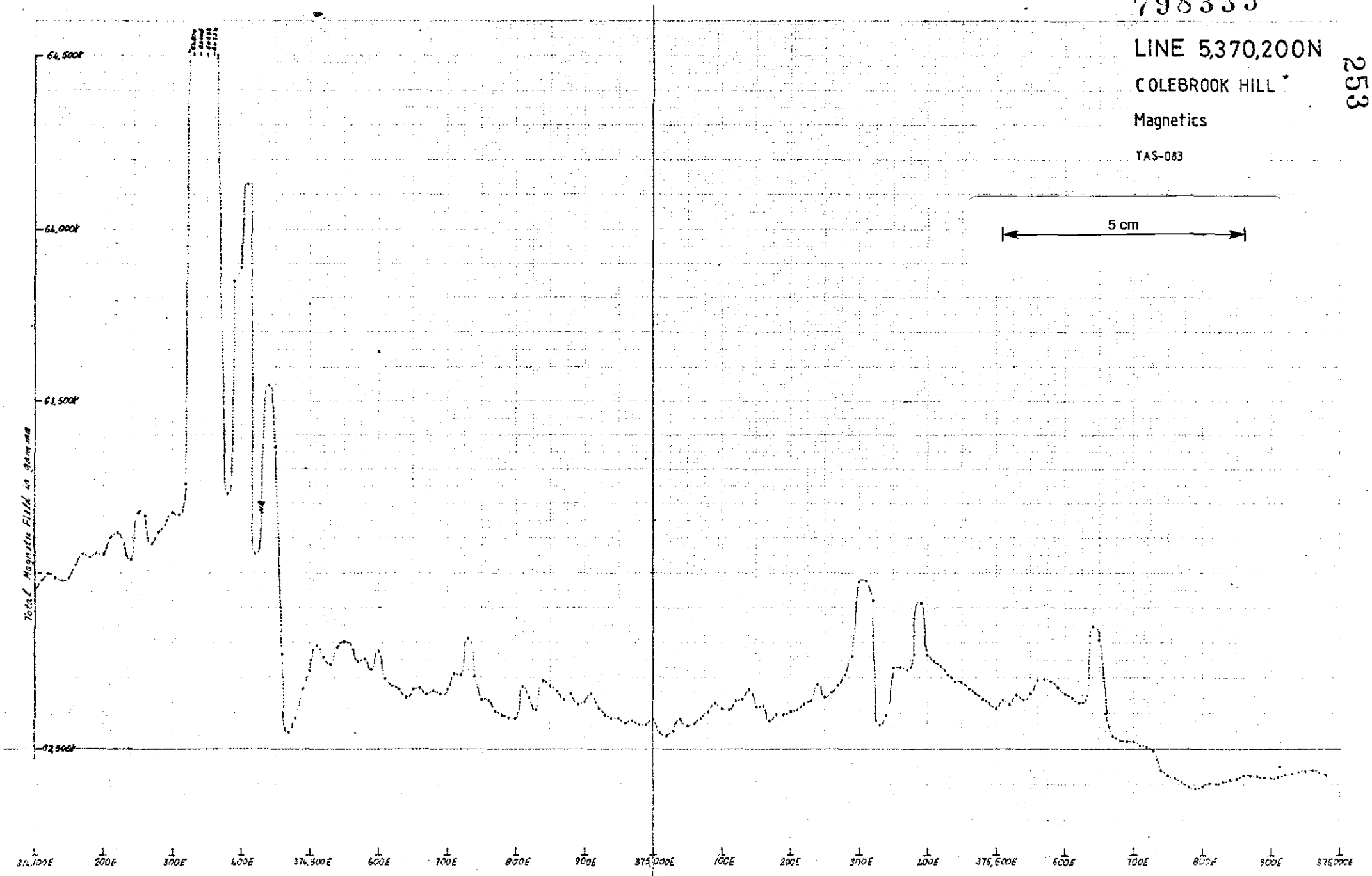
COLEBROOK HILL

Magnetics

TAS-083

253

5 cm



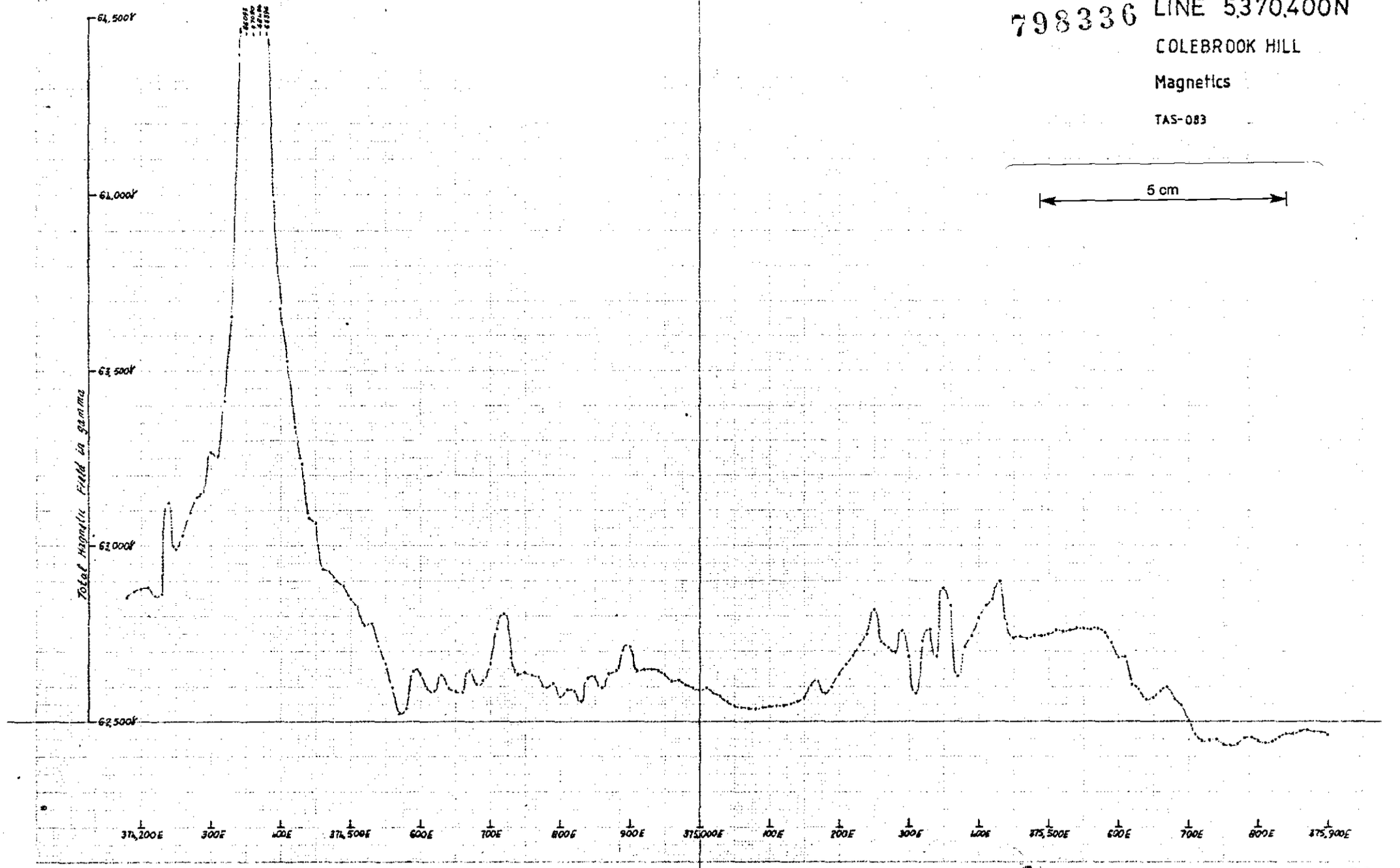
798336 LINE 5,370,400N

COLEBROOK HILL

Magnetics

TAS-083

5 cm



798337

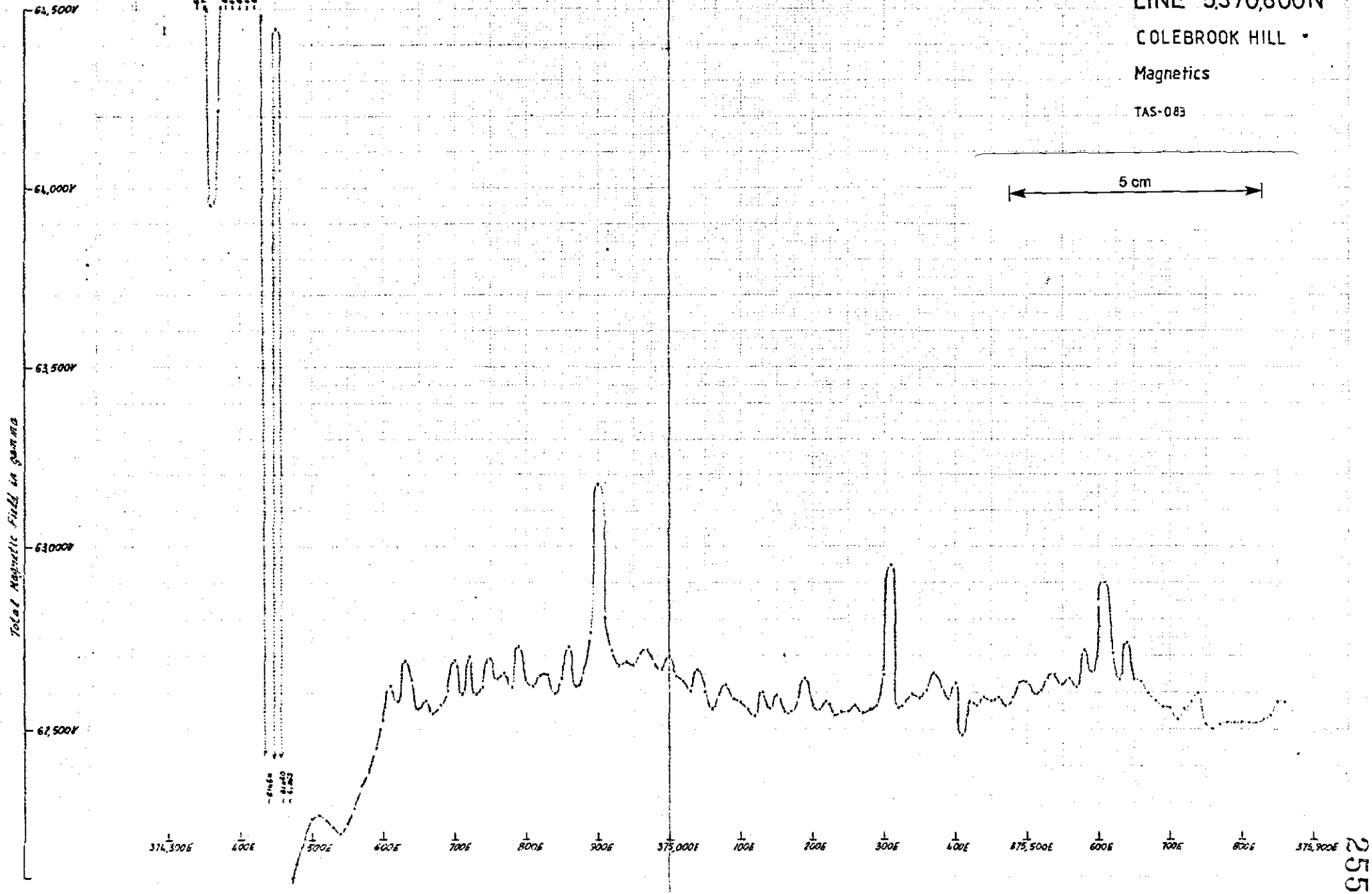
LINE 5,370,600N

COLEBROOK HILL

Magnetics

TAS-083

5 cm



798338

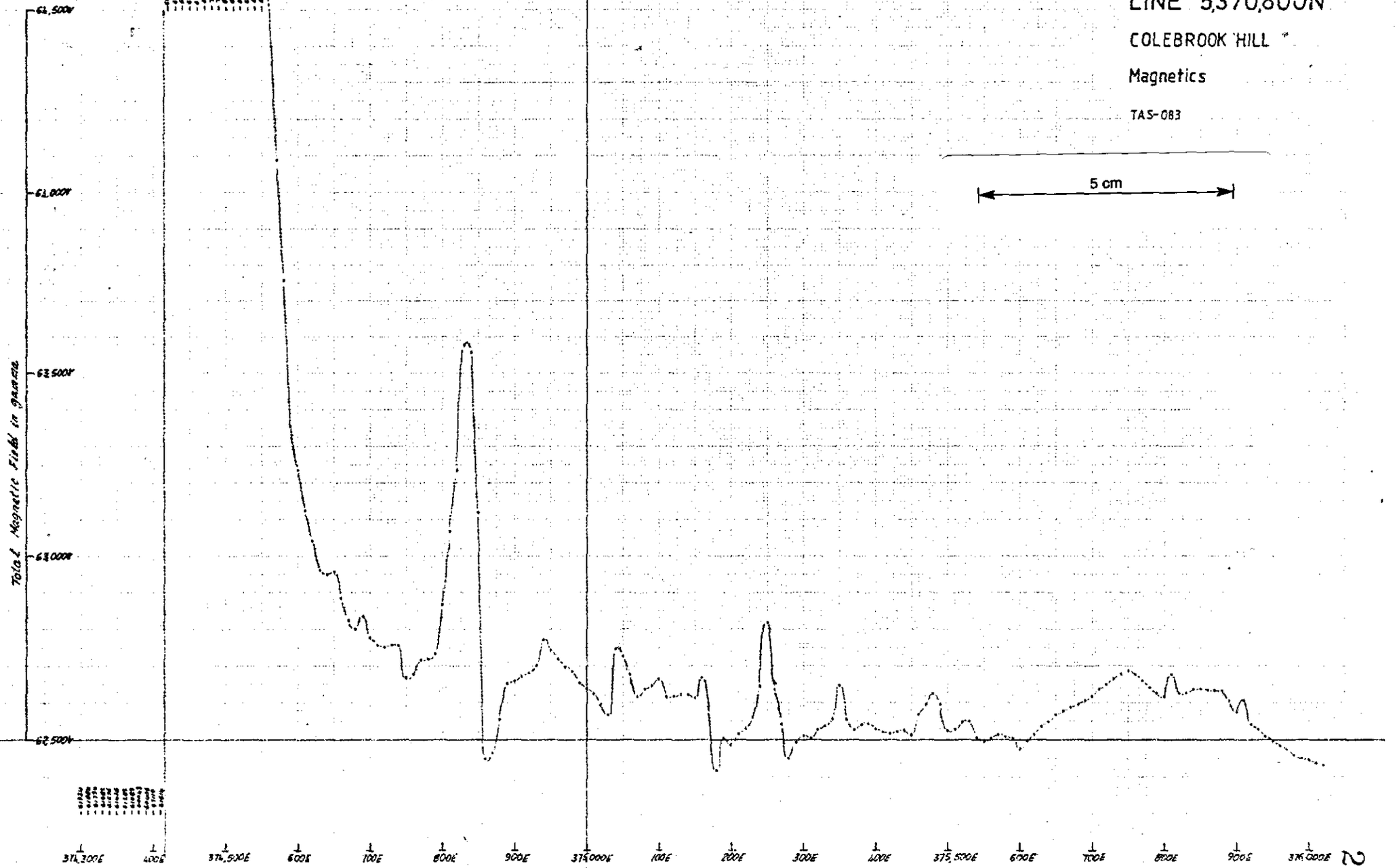
LINE 5,370,800N

COLEBROOK HILL

Magnetics

TAS-083

5 cm



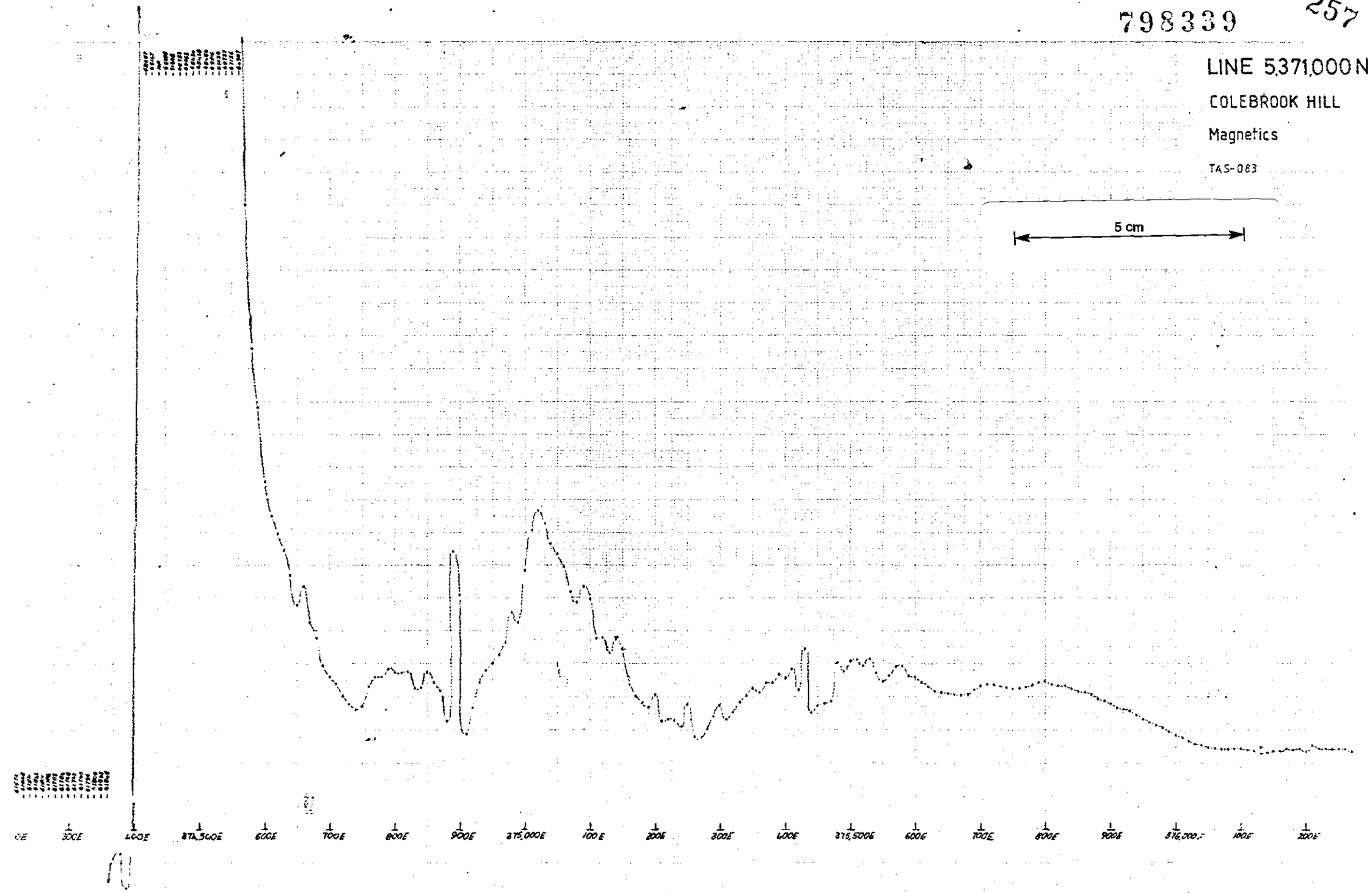
LINE 5,371,000N

COLEBROOK HILL

Magnetics

TAS-083

5 cm



798340

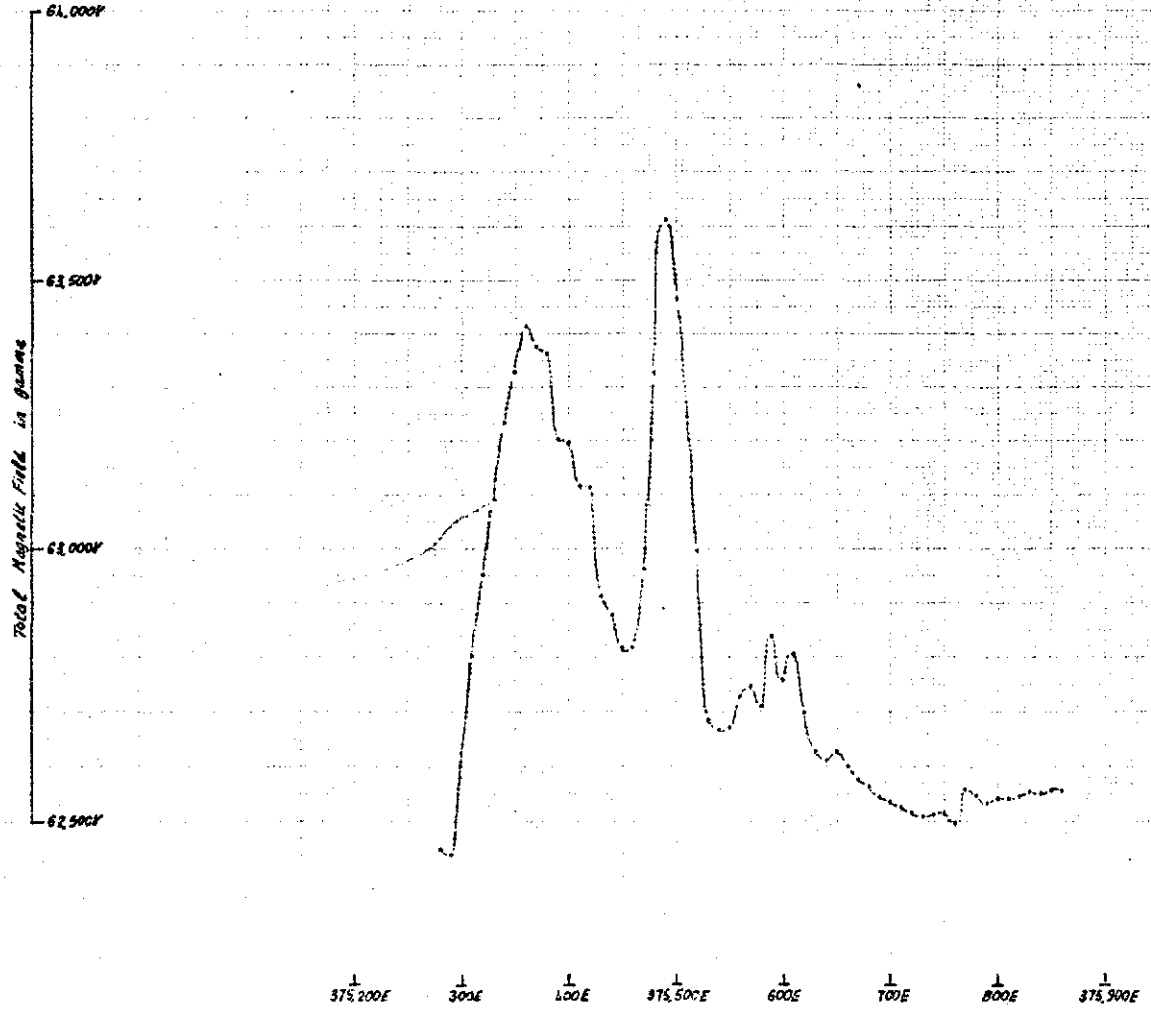
LINE 5,372,200N

COLEBROOK HILL

Magnetics

TAS-083

5 cm



798341

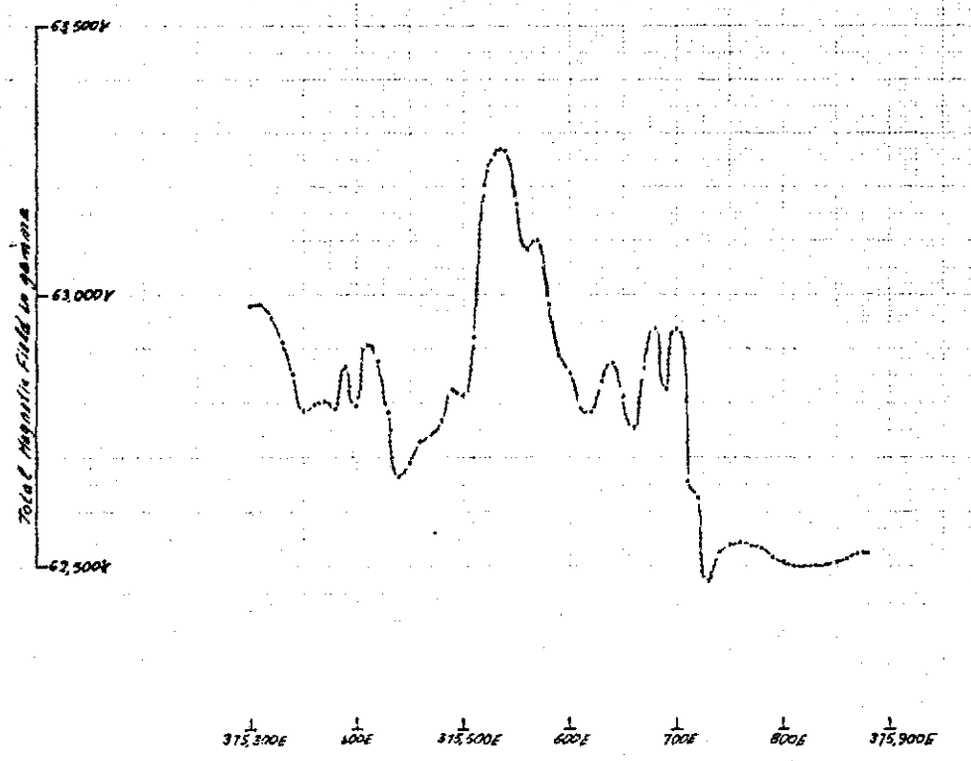
LINE 5,372,400N

COLEBROOK HILL

Magnetics

TAS-083

5 cm



798342

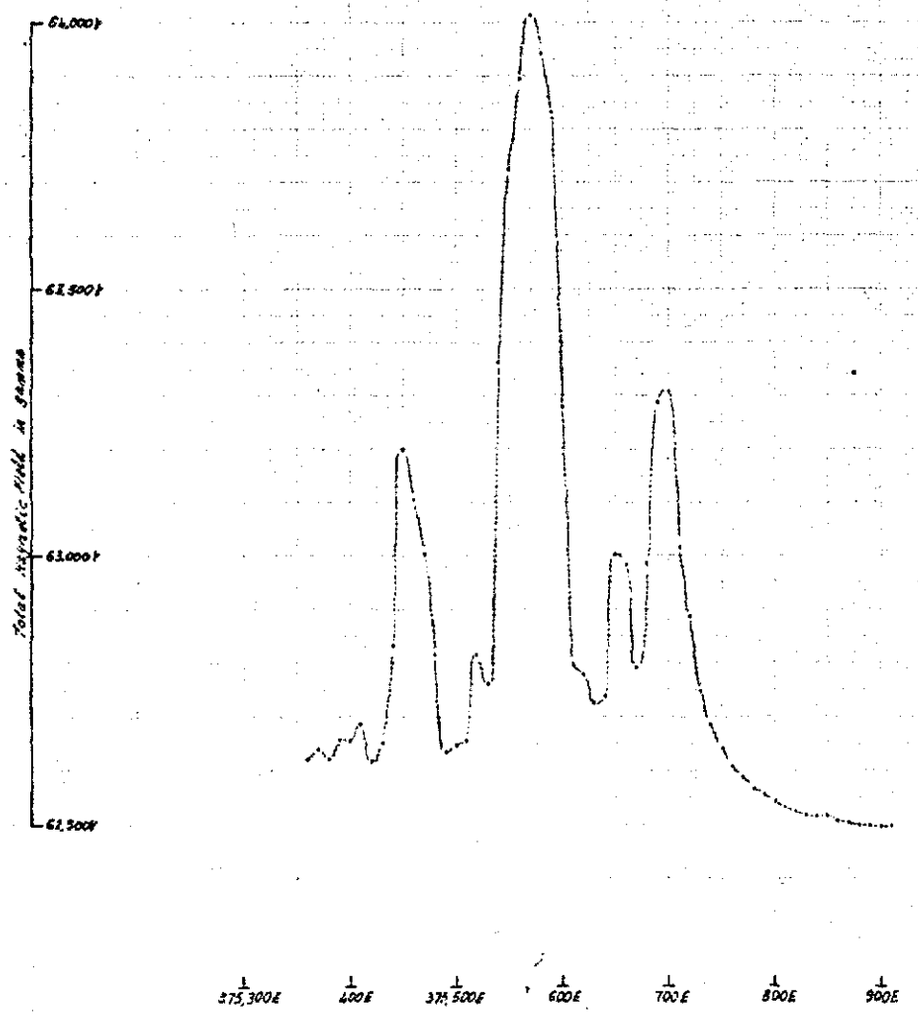
LINE 5,372,600N

COLEBROOK HILL

Magnetics

TAS-083

5 cm



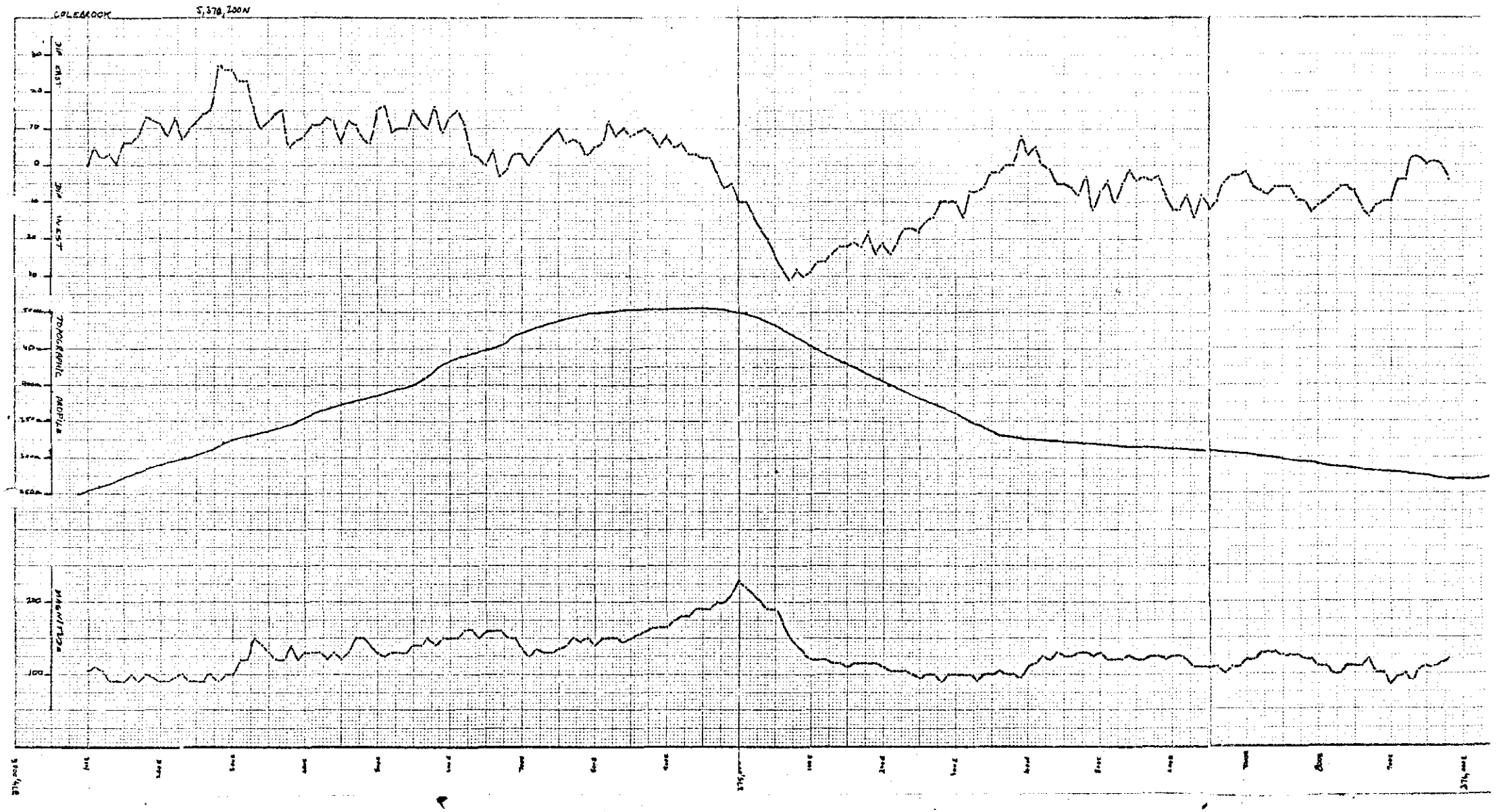
APPENDIX IX

V.L.F. Line Profiles 1:5000 scale - Colebrook Hill.

VLF COLEBROOK
5,370,000 N
DIP ANGLE
TOPOGRAPHIC PROFILE
AMPLITUDE
5 cm

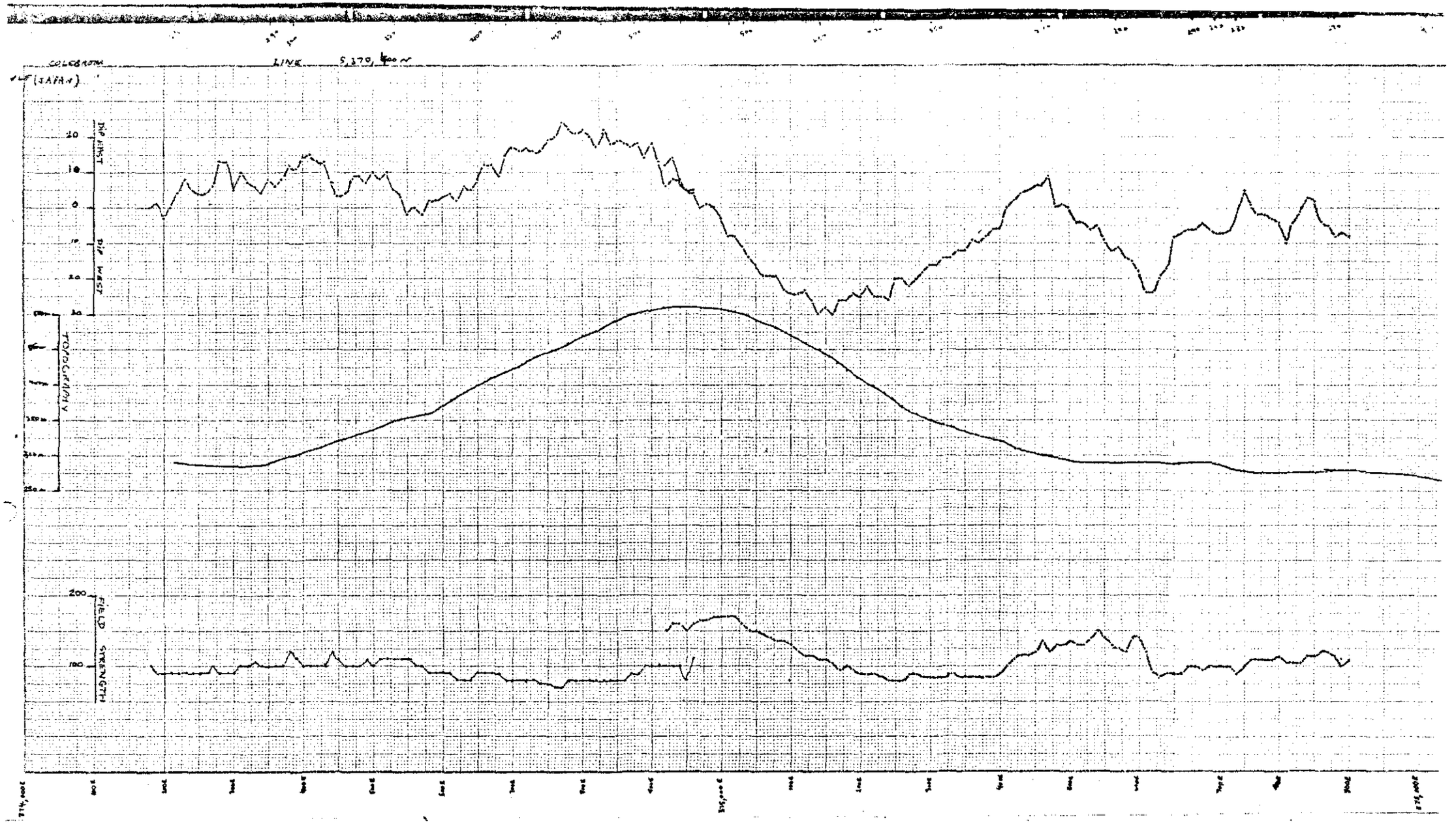
262

798344


COLEBROOK
5,378,200N
DIP EAST
DIP WEST
TOPOGRAPHIC PROFILE
MAGNETICS
5 cm

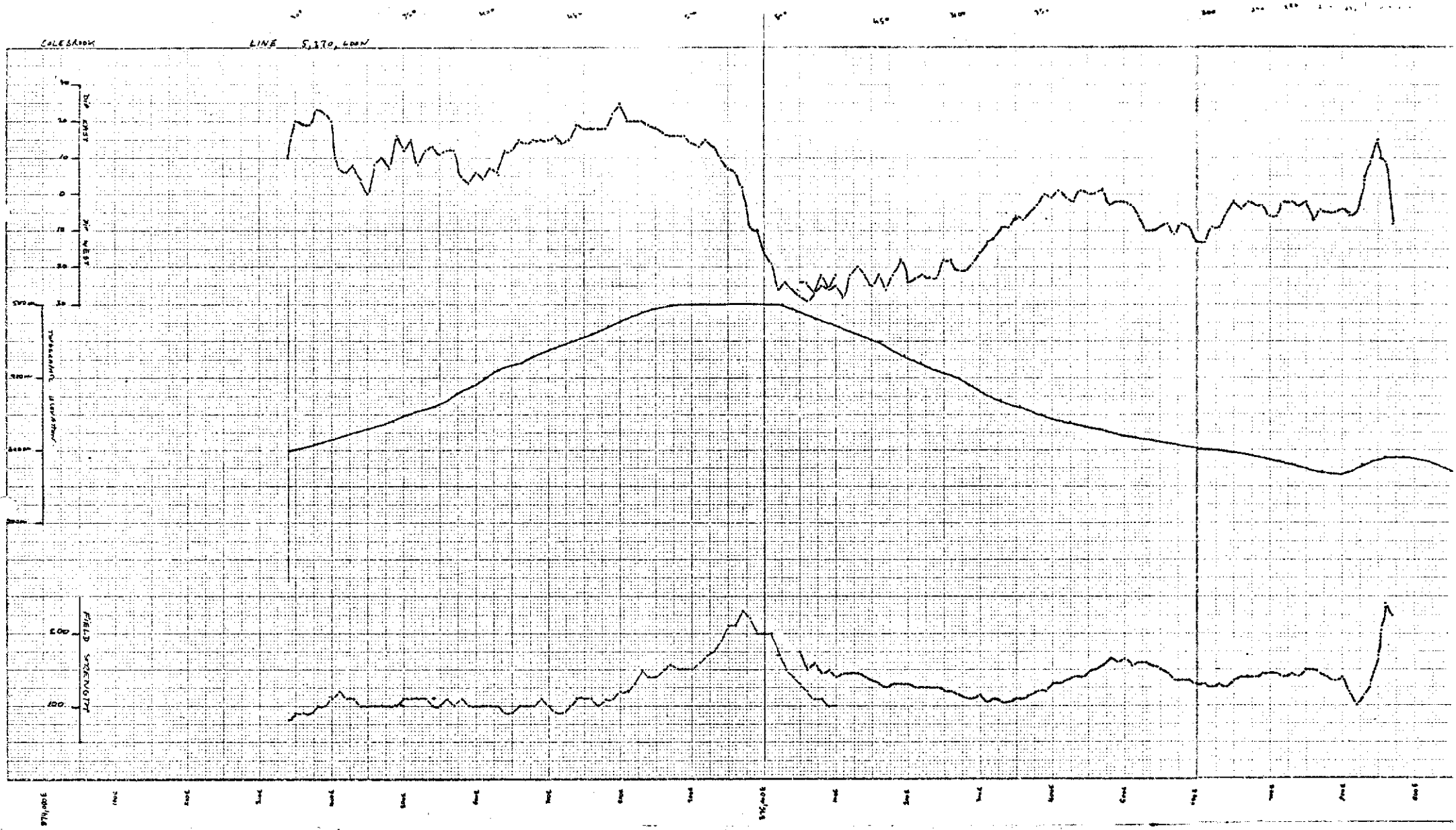
263

798345


COLOGNE
LINE 5,370, 400 m
VLF (JAPAN)
DIP ANGLE
TOPOGRAPHY
FIELD STRENGTH
5 cm

264

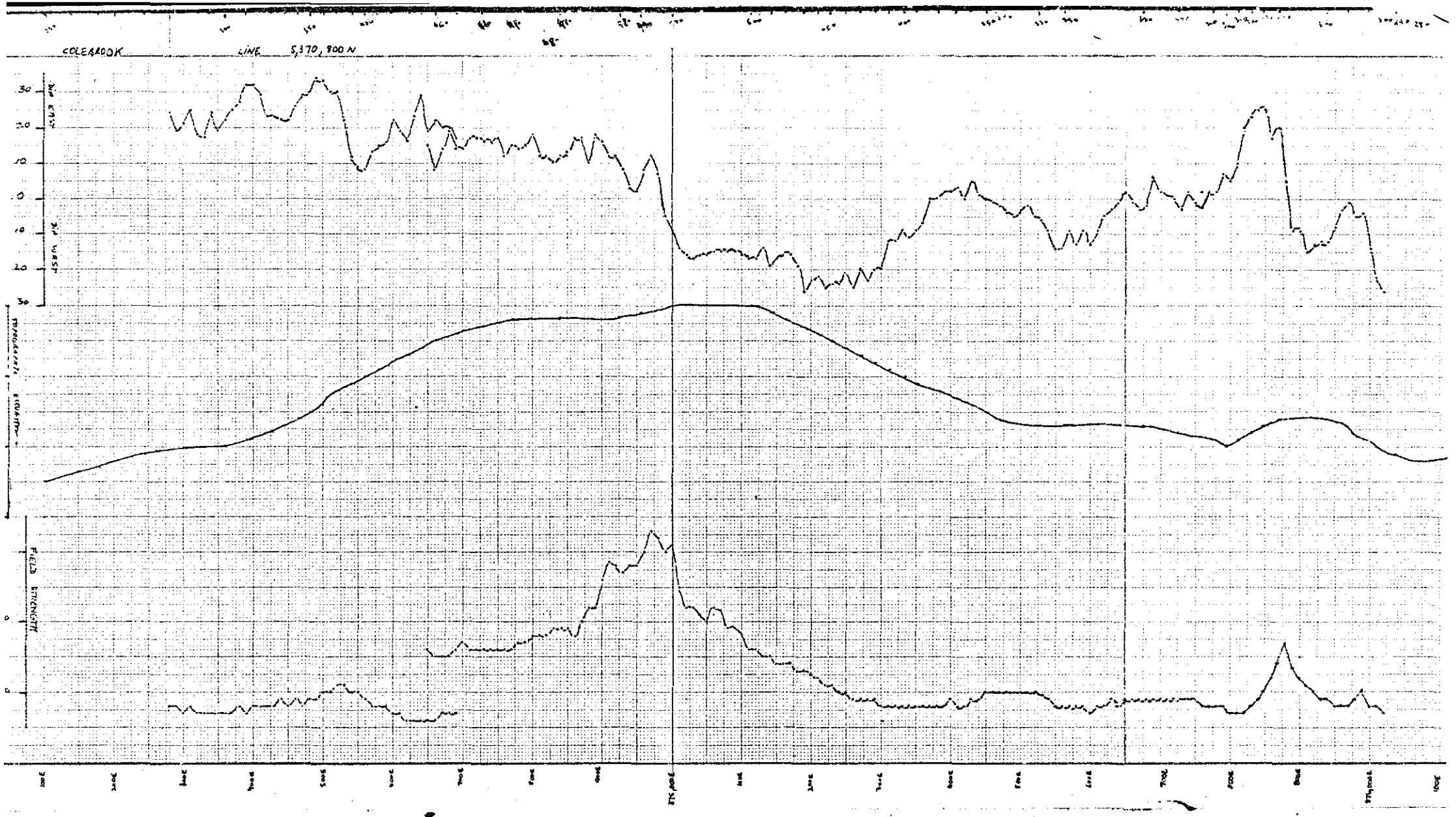
798346



265

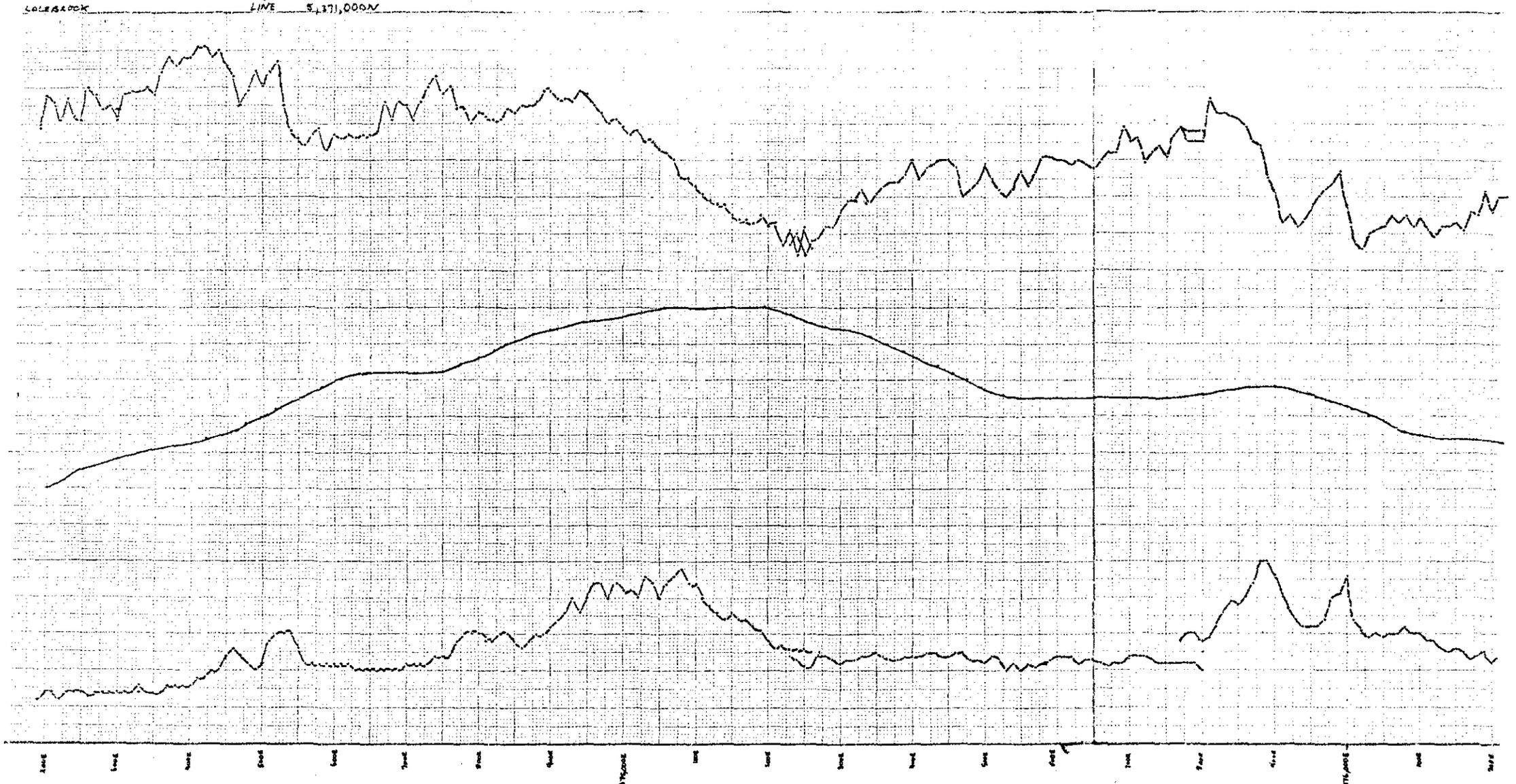
5 cm

798347



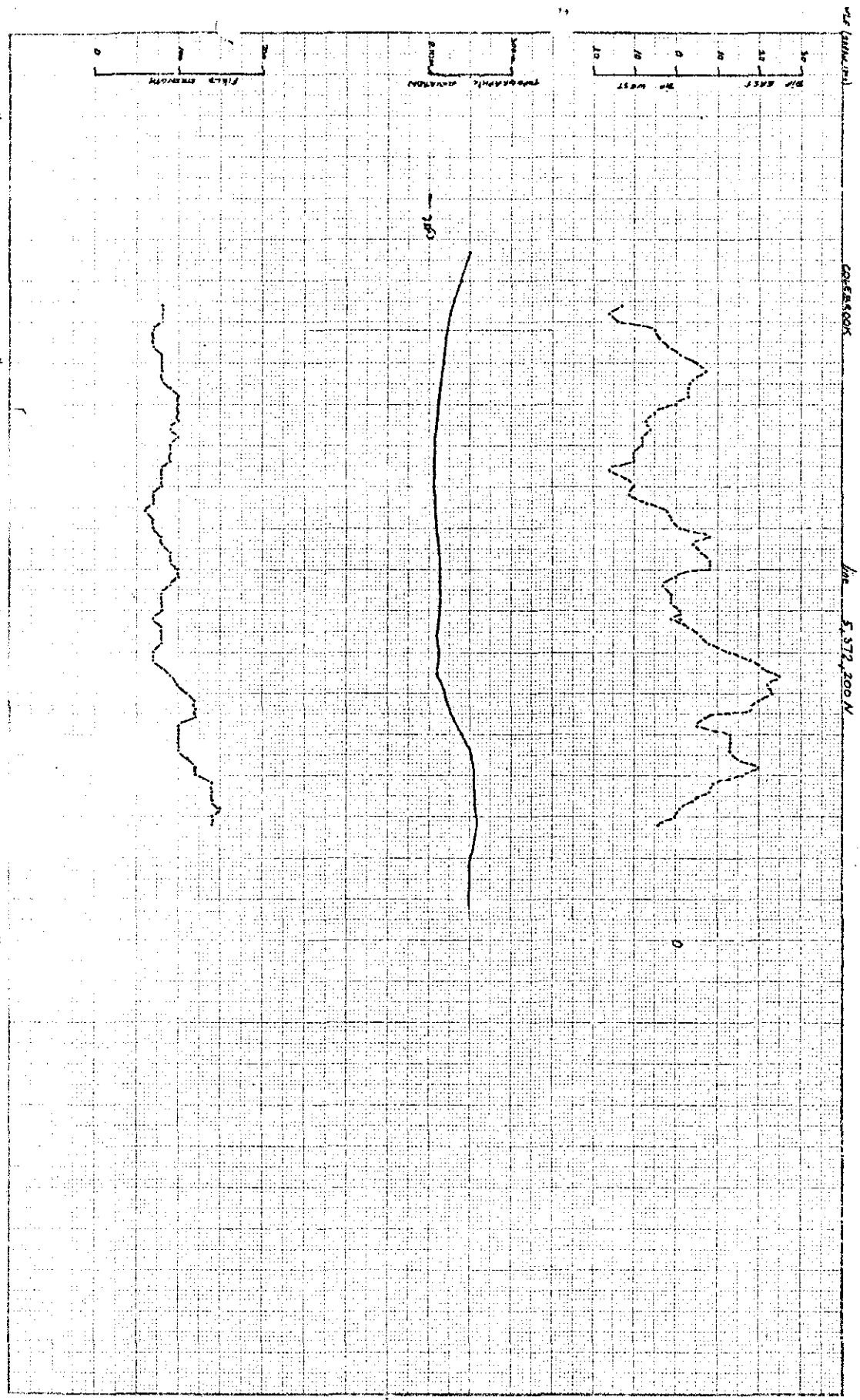
996
798348

COLEBROOK LINE 5,371,000N

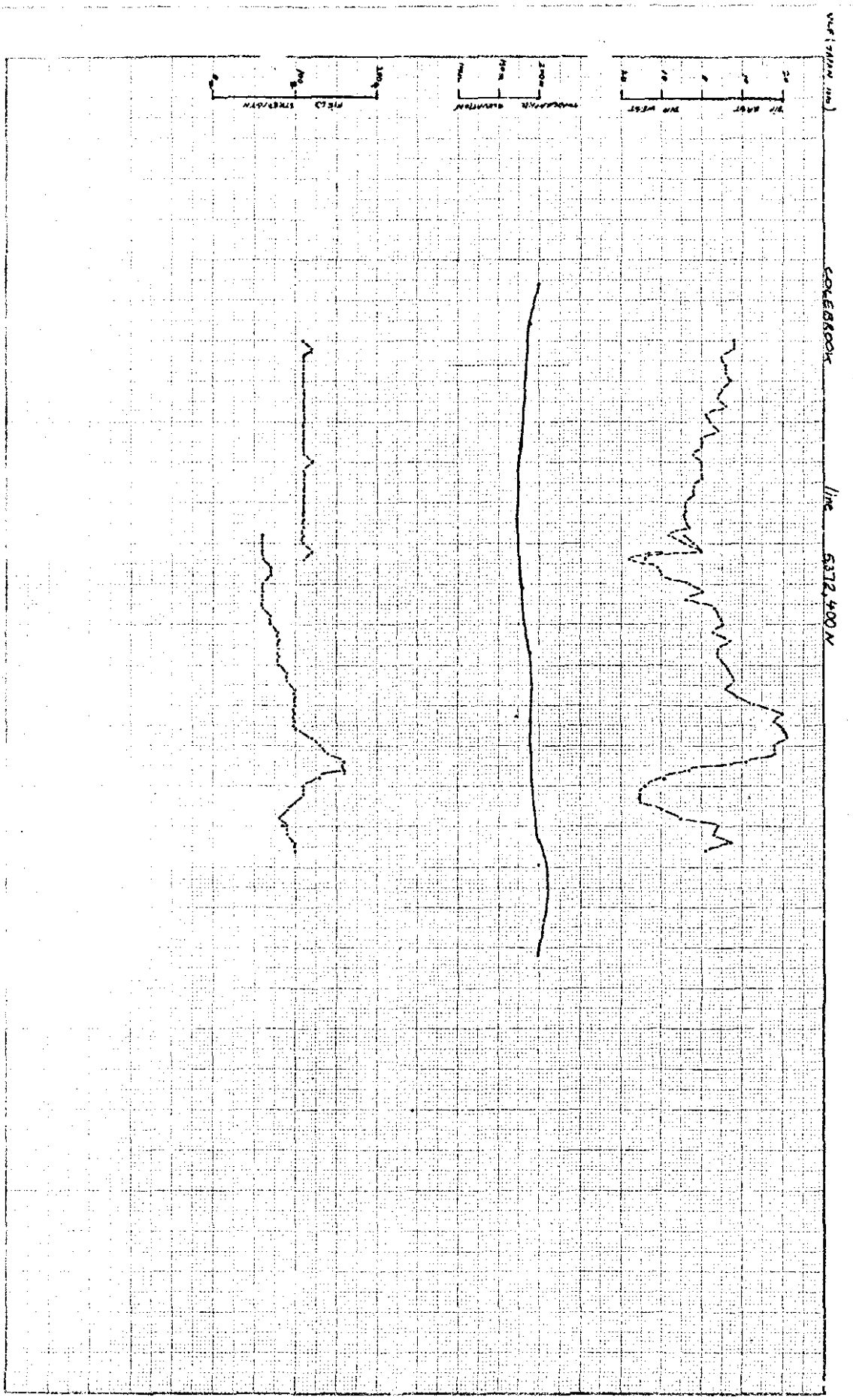


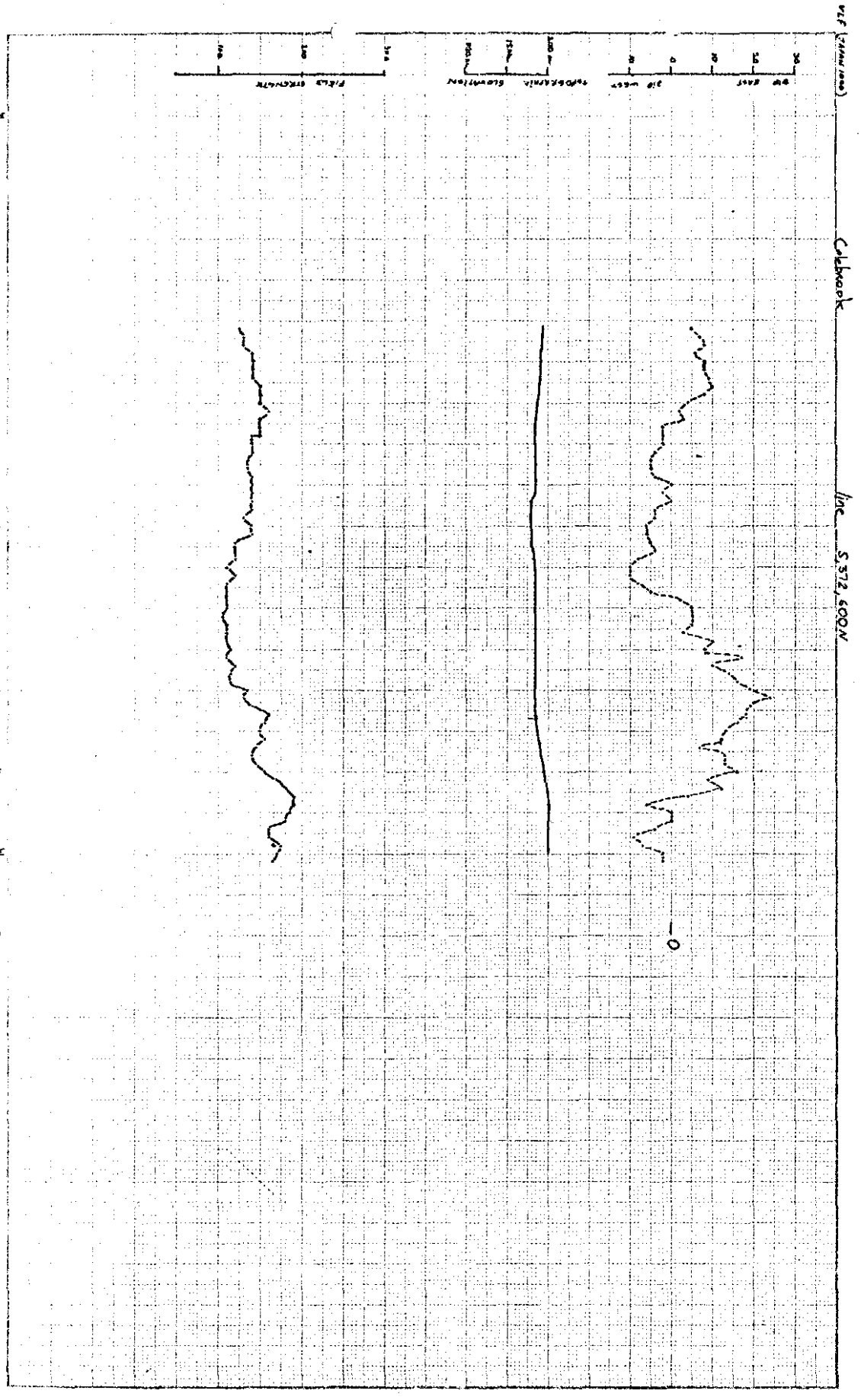
5 cm

798349



5 cm


COKEBROOK
line 5372,400 N
5 cm


Colebrook
line S 372,600N
5 cm

APPENDIX X

'Magnetic, V.L.F. and S.P. surveys over Colebrook Hill'
by Mitre Geophysics.

798354 272 315.10/7T

MITRE GEOPHYSICS PTY LTD
MINERAL EXPLORATION AND ENGINEERING CONSULTANTS
BUGGS LANE ELLIOTT TASMANIA 7325 PHONE 004-363143

A REPORT

FOR

ELECTROLYTIC ZINC COMPANY OF A'ASIA LIMITED
West Coast Mines

ON

MAGNETIC, V.L.F. AND SELF POTENTIAL SURVEYS

OVER COLEBROOK HILL

BY

DR. J.R. BISHOP.

OCTOBER, 1980

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2. - Geoterrex Aeromagnetics and Input anomalies (1975) 1:10,000.

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4. - Contour of VLF dip angles 1:5,000

5. - Contour of VLF field strength 1:5,000

6(a) - 6(j) Profiles of VLF dip and field strength

7(a) - 7(j), Profiles of hand smoothed magnetics

8. - Contour of smoothed magnetics 1:5,000

9. - Filtered magnetic profile over line 5,371,800N

10. - Self Potential profiles over lines 5,371,600N and 5,371,700N.

798357

SUMMARY:

Magnetics, VLF and SP surveys were carried out over Colebrook Hill. The magnetics survey was a test in which two lines (5,371,600N and 5,371,700N) of a previous survey were repeated with the sensor at 2m and 4m above the ground (the original survey had been carried out with the sensor in a back pack) in an attempt to significantly reduce the influence of near-surface mineralisation. This was not achieved and the (hand) smoothed results of the original survey were used for interpretation.

An SP survey was run over the same two lines and good responses were obtained from the mineralisation. There was the suggestion of a sought-after deeper-seated body on one line, but not on the other. On both lines there was a strong response over the contact between the serpentinites and the sediments. However, the method was much slower and required more personnel than the VLF which appeared to be giving much the same results over the mineralised areas.

A VLF survey was made over all lines of the Colebrook Grid at a 10m station spacing and some large anomalies were recorded. The results were smoothed and contoured. Since the mineralisation was known to contain (strongly magnetic) pyrrhotite, the magnetic results were used in conjunction with the VLF results to pick drill hole targets. The following list is in order of merit

1a	5,371,700N	375,038E	The one anomaly
1b	5,371,600N	375,038E	
1c	5,371,800N	375,063E	
2	5,371,900N	374,938E	
3	5,371,800N	374,838E	
4	5,372,200N	374,838E	

..2/.

Sites with poorer correlation between the magnetics and VLF are:

5.	5,371,600N	374,938E
6.	5,372,400N	374,938E
7.	5,372,200N	375,113E

Some simple filtering has been applied to one line of the magnetics to see whether there is any deep-seated source for the surface mineralisation. Initial results were encouraging and the process is being applied to all lines, however, to obtain all the information from the magnetics, more sophisticated processing is necessary. Completion of the SP survey would also be recommended in any search for a deeper body.

OBJECTS AND METHODS:

The target at Colebrook Hill is for cassiterite in association with pyrrhotite, preferably replacement-type mineralisation but possibly veins (with a source at depth) or a stockwork body. Detailed summaries of the area, geology, etc., are contained in E.Z. Report 134 (Progress Report, 1979-80).

Ground magnetics, VLF and SP surveys were carried out to locate and better define the strong aeromagnetic and aero-electromagnetic anomalies (Figures 1, 2 and 3) that have been obtained from several surveys over old workings on Colebrook Hill (Bishop, 1980).

It was known from these old workings that bands of surface mineralisation were present in the area: from the geophysical surveys, it was hoped that the extent of this mineralisation would be defined and the presence of any deeper and larger body(s) revealed.

VLF.

A VLF (very low frequency) survey was tried in the expectation that the (geophysically) high frequency (in the order of 20 KHz) would provide good resolution for locating the surface mineralisation. The results suggest that this was largely realised (Figure 4).

The instrument used was a Phoenix type VLF-2 meter which measured relative field strength as well as dip.

Magnetics.

A ground magnetic survey was carried out in June, 1980; the results were very noisy with some stations showing variations of several thousands of gammas. This survey had been conducted with the sensor head in a back pack. Since it was thought that the magnetics would provide the best means of defining any deeper body; a test survey with the sensor head at 2m and 4m above the ground was carried out over two of the noisiest lines (5,371,600N and 5,371,700N) in the hope that the near-surface response would be considerably reduced. These surveys did reduce the variations recorded at some stations from thousands to tens of gammas, but the essential character of the data was little changed; there still being large respnses and rapid changes over the ultra-basic and mineralised zones. The smoothed profiles of the original survey and this test survey showed no significant differences and the original survey has been used for the interpretation.

Self Potential

The SP method was tried since the conductive conditions that had precluded measurement in a previous IP survey would not prevent SP readings. Also the method might respond to a large deep-seated conductor as well as indicating veins of surface mineralisation.

Two lines, 5,371,600N and 5,371,700N were surveyed and strong, well defined anomalies were obtained. On line 5,371,600N there was the suggestion of a deeper source, but this was not carried through on to the next line. The method was much slower than the VLF and required more personnel. It was therefore decided not to continue with the SP method during these initial stages of exploration. (The survey was carried out by leaving one electrode fixed near the eastern end of the line and by moving the other electrode at 10m intervals. The two lines were not tied in.)

...4/.

RESULTS:

VLF

Profiles of the VLF dip angle and (relative) field strength together with the topography are shown in Figures 6(a) to 6(j). Large anomalies of up to 40° were recorded. Both dip and field strength were smoothed before contouring. The field strength was plotted directly; but the dip data was contoured after the following operation:-

$$\theta_{23} = (\theta_1 + \theta_2) - (\theta_3 + \theta_4)$$

where θ_i are the dip angles and the result is plotted midway between stations 2 and 3. This operation (Fraser, 1969) ensures that only genuine cross overs are plotted (negative numbers are ignored). The result is shown in Figure 4. A series of conductive veins are evident. Comparison with the contour plan of the field strength (Figure 5) suggests that (as expected) the dip is a much more sensitive parameter than the field strength.

The VLF transmitter in Japan was used for the survey. The signal was weak (the gain was set at the maximum value of 1000) but the direction was within 10° or 20° of strike, whilst the north west cape transmitter (with a stronger signal) was almost at right angles. Electromagnetic theory dictates that a direction parallel to strike is desirable and this was confirmed by surveys of lines 5,371,600N; 5,371,700N and 5,372,200N using the north west cape transmitter. The anomalies were of smaller amplitude and the results were generally noisier than the readings from the Japanese transmitter.

Large anomalies were recorded near the crest of Colebrook Hill and a topographic effect will have added to this anomaly. Model studies are being undertaken to determine the extent of a conductive hill on dip and field strength. (However, Fraser, 1969, states that the operation described above should reduce any topographic effect.)

Magnetics

Profiles of the June, 1980 magnetic survey were hand smoothed (Figures 7(a) to 7(j)) and from these a contour plan was prepared (Figure 8).

...5/.

The plan defines the extent of the serpentinite intrusion as well as the existence of several mineralised areas within the sediments. However, as mentioned above, it is hoped that the magnetic results may be used to look for deeper mineralisation. A simple 11 point moving average was applied to line 5,371,800N and the result suggested a source at depth (Figure 9). The same filter is being applied to the rest of the results and a contour plan will be prepared. However, to extract the maximum amount of information from the results, more sophisticated processing is required.

Self Potential

Lines 5,371,600N and 5,371,700N were surveyed with the SP method. The profiles correlate well with the VLF results over the mineralisation (Figure 10). On line 5,371,600N there is a zone of rapid fluctuations over the surface mineralisation at 373,050E, but on 5,371,700N this occurs as a well defined low. There is also a strong anomaly on the western side of both lines which is over the serpentinites/sediments contact. Such anomalies may occur between rock types with contrasting electrochemical properties.

The SP has done no better job than the VLF in defining the near surface conductors and it is much slower; however, it is possible that a deeper and larger body may be detected by this method. This point is further discussed later.

INTERPRETATION:

Both the VLF and magnetic methods may respond to features other than the mineralisation. The VLF method will often respond to faults, swamps, conductive overburden, etc.. The magnetic method will respond to any concentrations of magnetic minerals and at Colebrook Hill, it clearly defines the ultra-basic intrusive on the western side of the grid.

The target mineralisation is massive sulphides containing pyrrhotite, which has been tested in the hand specimen and found to be strongly magnetic.

...6/.

Therefore coincident VLF and magnetic anomalies are the obvious targets. There are several areas of such coincidence including in part, the ultra-basics where the VLF has presumably also responded to the high magnetite concentration. However, the main interest is centred on anomalies referred to below as the eastern and western limbs.

VLF

The contour plan of the VLF dip angles (Figure 4) shows several long, thin anomalies suggestive of mineralised veins. There are also anomalies on the western side which are associated with the serpentinites.

On the southernmost line, 5,371,200N the VLF response over the mineralisation is between 375,000E and 375,100E and it occurs as one anomaly. This anomaly splits into two northwards and grows in intensity; the maximum values being on the eastern limb on lines 5,371,600N and 5,371,700N at 375,040E. On line 5,371,700N the eastern limb splits with a north-east trending vein extending through to line 5,372,000N. The eastern limb stops at line 5,372,200N but the anomaly on line 5,372,600N at 375,225E may be its reappearance.

The western limb has its maximum values on lines 5,371,800N and 5,371,900N (at 374,840E and 374,940E respectively) where the line kinks to the north-east. It then splits into two arms on lines 5,372,200N and 5,372,400N but rejoins to form one anomaly on line 5,372,600N.

Those anomalies not described above are presumably associated with the ultra-basics but the anomalies are not consistent with either the body of the intrusive or the contact zones. The anomaly over lines 5,372,400N and 5,372,600N at about 374,670E is the only VLF anomaly with no correlation at all with any magnetic response.

There is scope for alternative contouring of the VLF dip angles, however, correlation between the profiles and consideration of the magnetic contour maps were taken into account when preparing the plan.

...7/.

Magnetics

Whilst the same broad features of the VLF plan are seen in the magnetics there are several anomalies that do not occur on the VLF and there is some difference in the detail.

The magnetics (Figure 8) follows the eastern limb of the VLF dip angle anomalies described above and has the highest readings similarly located. In the magnetics, the eastern limb is not continuous (a break on line 5,372,000N) but high values are obtained on line 5,372,200N where the VLF anomaly is decreasing. The north-east trending split from the eastern limb is not so evident on the magnetics and the VLF high of this anomaly corresponds with a magnetic low. There are four magnetic anomalies east of the eastern limb which do not correspond with VLF anomalies. However, old workings have recently been discovered (Bill's Pit) in the vicinity of the eastern-most anomalies on lines 5,371,600N and 5,371,700N and they may represent mineralisation that is either not extensive enough to respond to the VLF method or a lower grade of mineralisation.

The southern portion of the western limb is not evident on the magnetics at this contour interval, however, it weakly and poorly mirrors the VLF anomaly until lines 5,371,800N and 5,371,900N where it correlates well with the high values on the 'kink'. The magnetics and VLF then continue to correlate well on the western side of the split anomaly (lines 5,372,200N and 5,372,400N) and this carries through to line 5,372,600N. However, the magnetic intensity on the eastern side of the split is not as intense and the correlation with the VLF is poor, the dip angle peak being some 60m further to the west.

Unlike the VLF which correlates with neither the centre of the ultra-basic intrusion nor its boundaries, the magnetics closely define its extent.

...8/.

CONCLUSIONS AND RECOMMENDATIONS:

All three methods, magnetics, VLF and SP responded to the mineralisation. The SP method was slower than the VLF and since the first targets are to be the more obvious near-surface conductors, this method was abandoned in favour of the VLF. However, it is possible that this method may help the magnetics to define a deeper body.

Magnetics and VLF worked well in concert when picking drill holes targets. The locations listed below are recommended in order of merit. The depths will be minimal as exemplified by the strong VLF response and the 'noisy' magnetic anomalies. The subjective nature of the smoothing of the magnetics makes modelling of these portions of the magnetic anomalies a rather dubious exercise and none has been attempted. And, therefore, no estimate has been made on widths of the mineralisation.

1a	5,371,700N	375,038E	The one anomaly
1b	5,371,600N	375,038E	
1c	5,371,800N	375,063E	
2	5,371,900N	374,938E	
3	5,371,800N	374,838E	
4	5,372,200N	374,838E	

Sites with poorer correlation between the magnetics and VLF are:

5	5,371,600N	374,938E
6	5,372,400N	374,938E
7	5,372,200N	375,113E

(The easting co-ordinates are the maximum VLF dip values and these were plotted midway between the points taken at 25m intervals from the smoothed profiles.)

Future Exploration

As previously mentioned a large ore body is a preferred target and the results of the geophysical surveys so far do not preclude the possibility of such a body.

...9/.

A mise à la masse (applied potential) survey should be carried out using any conductors intersected down hole. A survey applying potential to the surface mineralisation could also be most useful. However, interconnection of the veins may obscure a deep-seated response.

Following drilling, the magnetic results may be analysed to see whether the intersected magnetic bodies are sufficient to cause the observed aeromagnetic anomalies. (This will require knowledge of the magnetic remanence which in turn requires the complete core orientation.) Also the data may be processed to try and extract any deeper sourced responses.

The completion of the SP survey is also recommended since the method responds to the mineralisation and may show a 'regional' trend reflecting a larger deeper source.

Other methods to be considered (later) in the search for a massive conductor at depth include magnetometric resistivity (MMR) and transient electromagnetic methods (TEM). However, similar prospects to the south of Colebrook Hill should perhaps be brought up to a similar level of completed exploration before proceeding with further testing of Colebrook Hill.

John Bishop

DR. J.R. BISHOP

JRB/amd

22nd November, 1980

798366

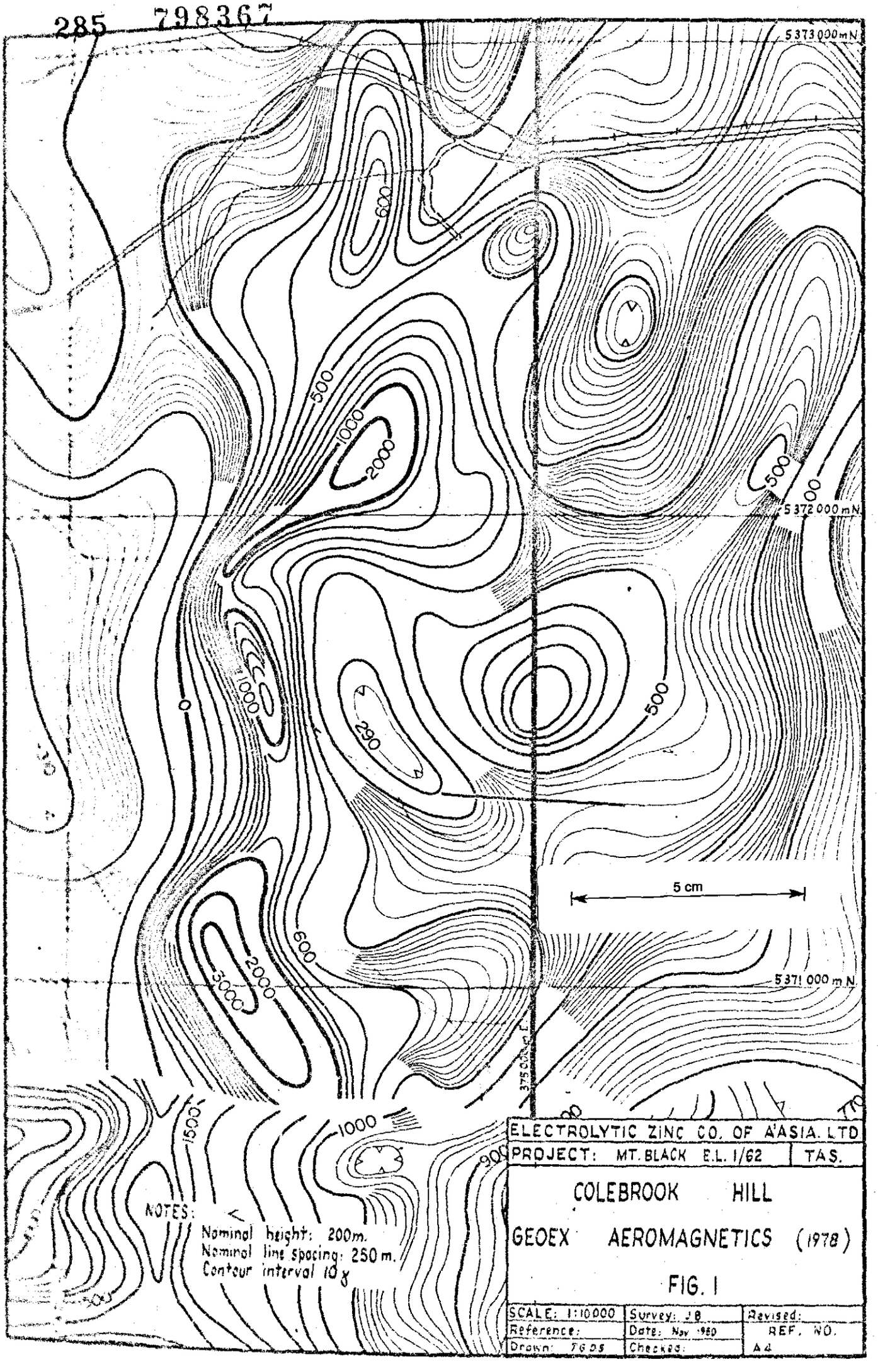
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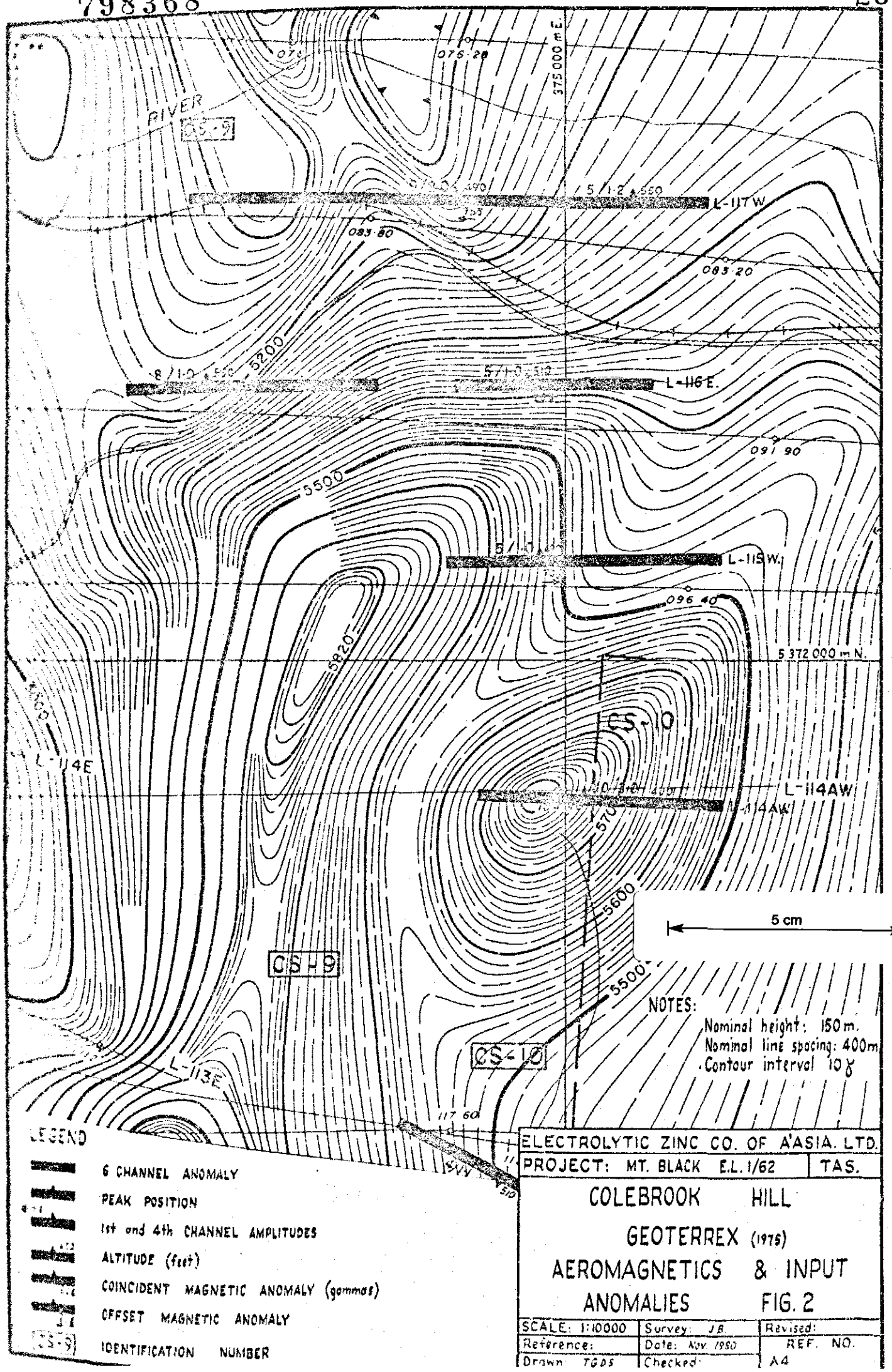
Bishop J.R. 1980 — Appraisal of Colebrook Hill Geophysics (August, 1980). Report for E.Z., West Coast Mines.

Fraser D.C. 1969 — Contouring of VLF-EM Data, Geophysics 34; p 958-967

Hill J.H.A., McDonald I.R. and Wooden R.J. 1980 — Mt. Black Exploration Licence 1/62 - Report No. 134.

285 798367


5373000mN
5372000mN
5371000mN
600
500
1000
2000
500
00
0
1000
290
500
5 cm
600
2000
3000
1000
1500
900
NOTES:
Nominal height: 200m.
Nominal line spacing: 250 m.
Contour interval 10 γ
ELECTROLYTIC ZINC CO. OF A'ASIA. LTD
PROJECT: MT. BLACK E.L. 1/62
TAS.
COLEBROOK HILL
GEOEX AEROMAGNETICS (1978)
FIG. 1
SCALE: 1:10000
Survey: J.B
Revised:
Reference:
Date: Nov 1980
REF. NO.
Drawn: T.G.D.S
Checked:
A4



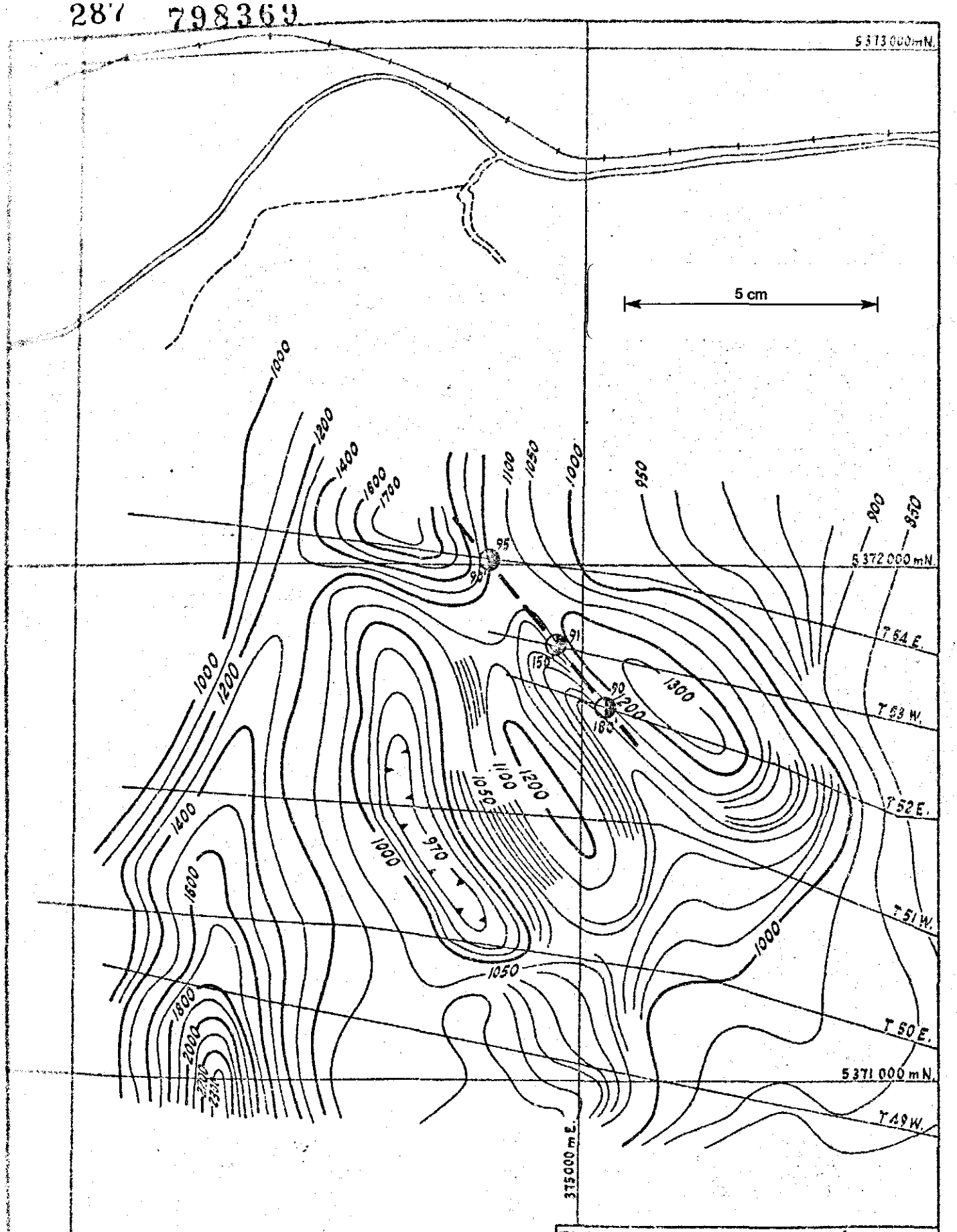
ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.

PROJECT: MT. BLACK E.L. 1/62 TAS.

COLEBROOK HILL
GEOTERREX (1975) AEROMAGNETICS & INPUT ANOMALIES FIG. 2

SCALE: 1:10000	Survey: J.B.	Revised:
Reference:	Date: Nov. 1980	REF. NO.
Drawn TGDS	Checked:	A4

287 798369



NOTES:

Nominal height: 45 m.
Nominal line spacing: 150 m.

E.M. — 90 / 150' — Anomaly No. / Depth to Conductor

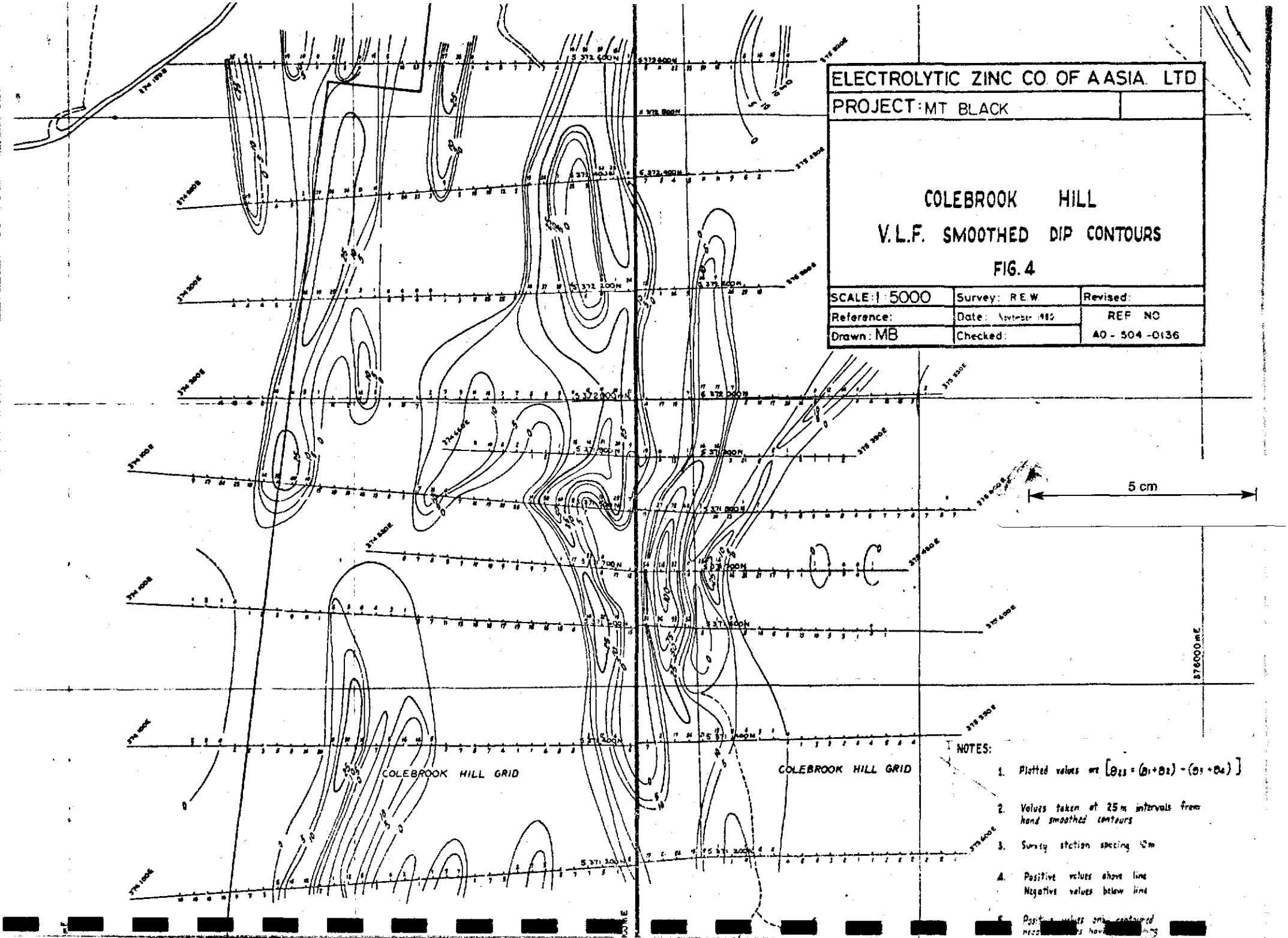
ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.

PROJECT: MT. BLACK E.L. 1/62 | TAS.

COLEBROOK HILL
SCINTREX AEROMAGNETICS
(TURAIR SURVEY 1972)
FIG. 3

SCALE: 1:10000	Survey: J.B.	Revised:
Reference:	Date: Nov. 1980	REF. NO.
Drawn: T.G.S.	Checked:	A4

79337D 288



ELECTROLYTIC ZINC CO OF A'ASIA. LTD

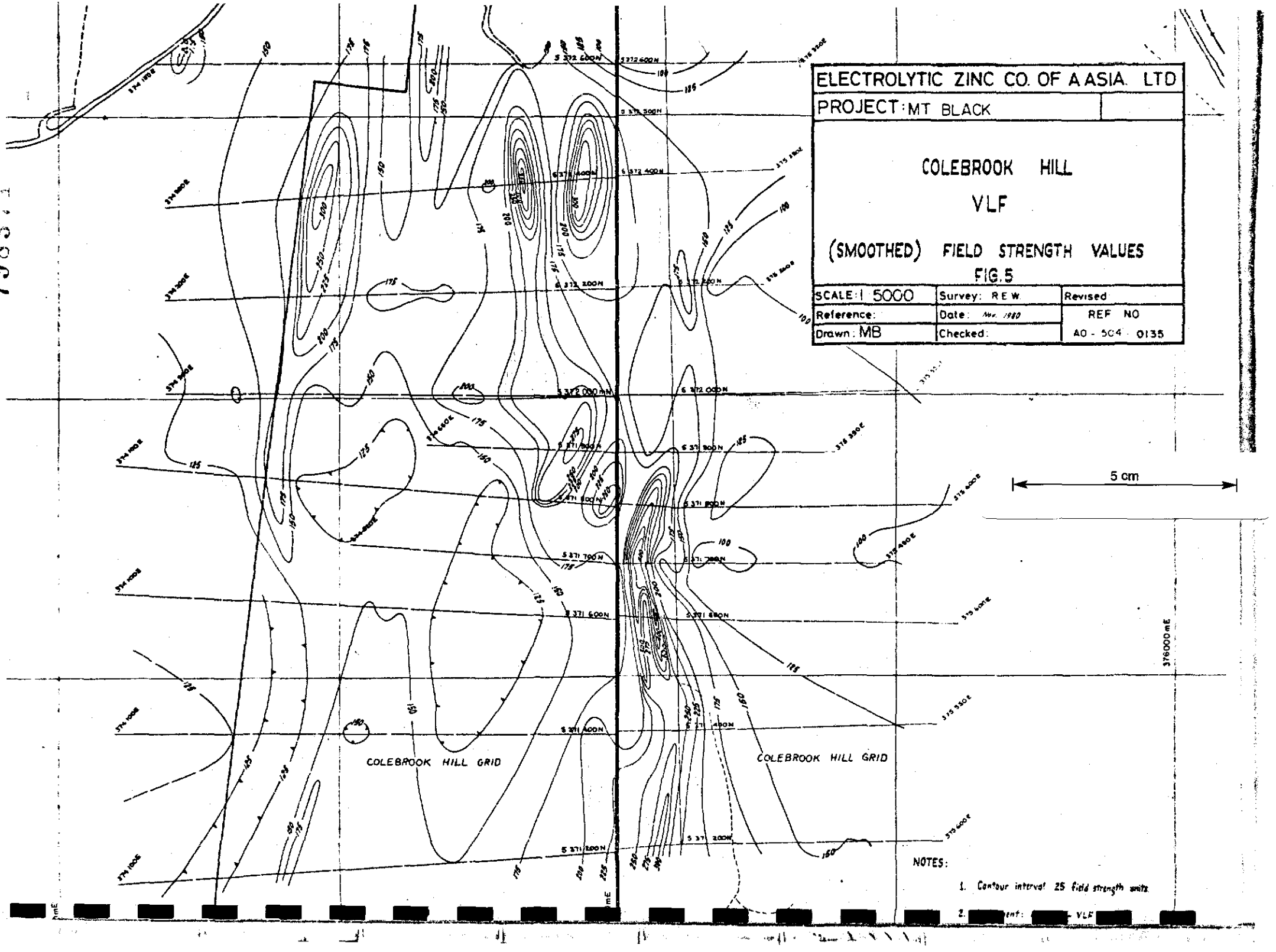
PROJECT: MT BLACK

COLEBROOK HILL
V.L.F. SMOOTHED DIP CONTOURS
FIG. 4

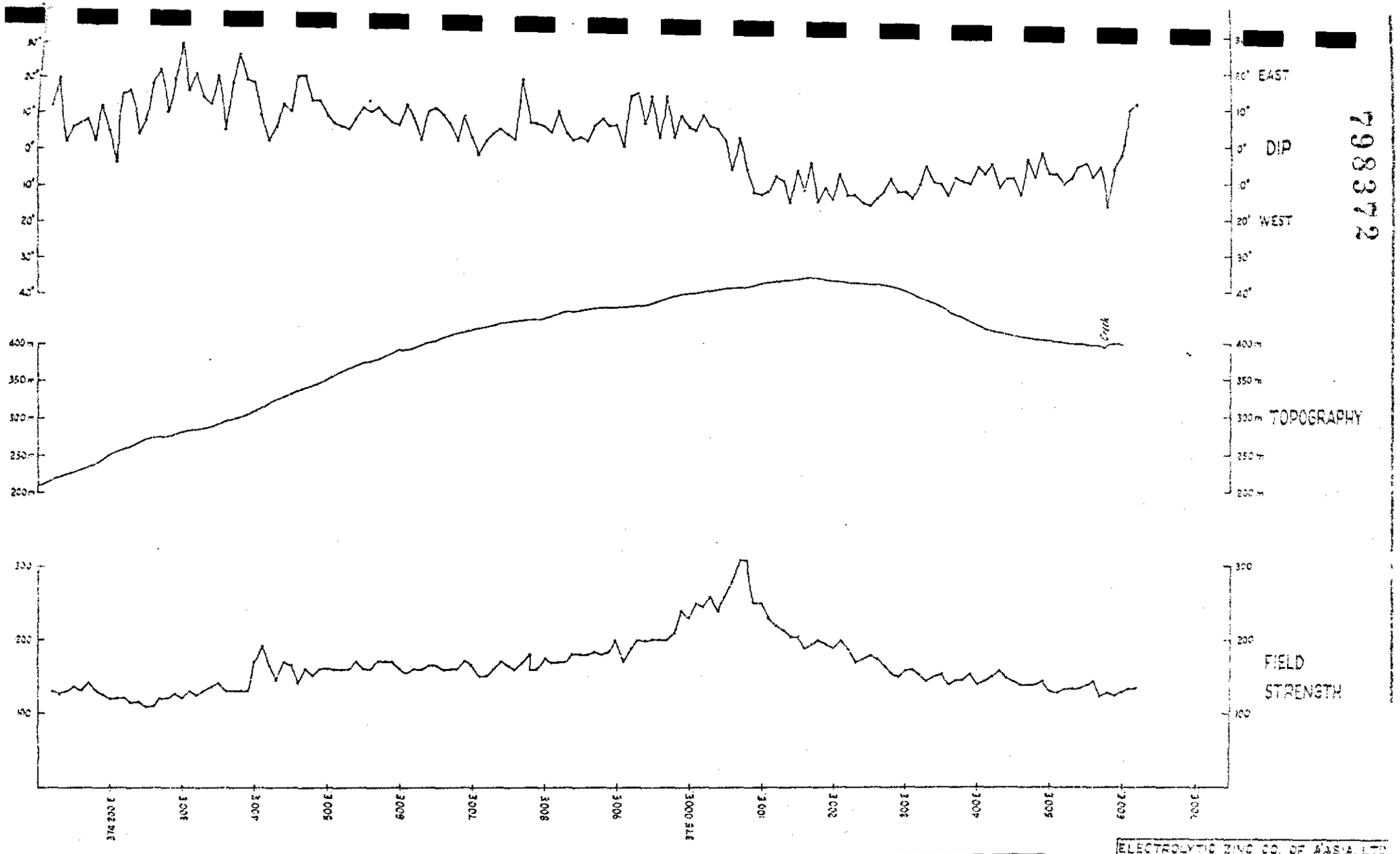
SCALE: 1 5000	Survey: R.E.W.	Revised:
Reference:	Date: November 1985	REF NO
Drawn: MB	Checked:	A0 - 504 -0136

NOTES:

1. Plotted values are $[\theta_{ES} = (\theta_1 + \theta_2) - (\theta_3 + \theta_4)]$
2. Values taken at 25 m intervals from hand smoothed contours
3. Survey station spacing 10m
4. Positive values above line
   Negative values below line
5. Positive values only contoured


ELECTROLYTIC ZINC CO. OF A'ASIA. LTD
PROJECT: MT BLACK
COLEBROOK HILL
VLF
(SMOOTHED) FIELD STRENGTH VALUES
FIG.5
SCALE: 1 5000
Survey: R E W
Revised
Reference:
Date: Nov. 1980
REF NO
Drawn: MB
Checked:
A0 - 504 - 0135
5 cm
COLEBROOK HILL GRID
COLEBROOK HILL GRID
376000 mE
NOTES:
1. Contour interval 25 field strength units.
2. [redacted] ent: [redacted] VLF

290



79837?

5 cm

NOTES.

Transmitter: Jaxon

Instrument: Sigma-VLF 2 - gain setting 1,000

Station spacing: 10m

ELECTROLYTIC ZINC CO. OF AUSTRALASIA LTD.	
PROJECT: MT BLACK E.L. 1/62	TAS.

COLEBROOK HILL.

VLF SURVEY

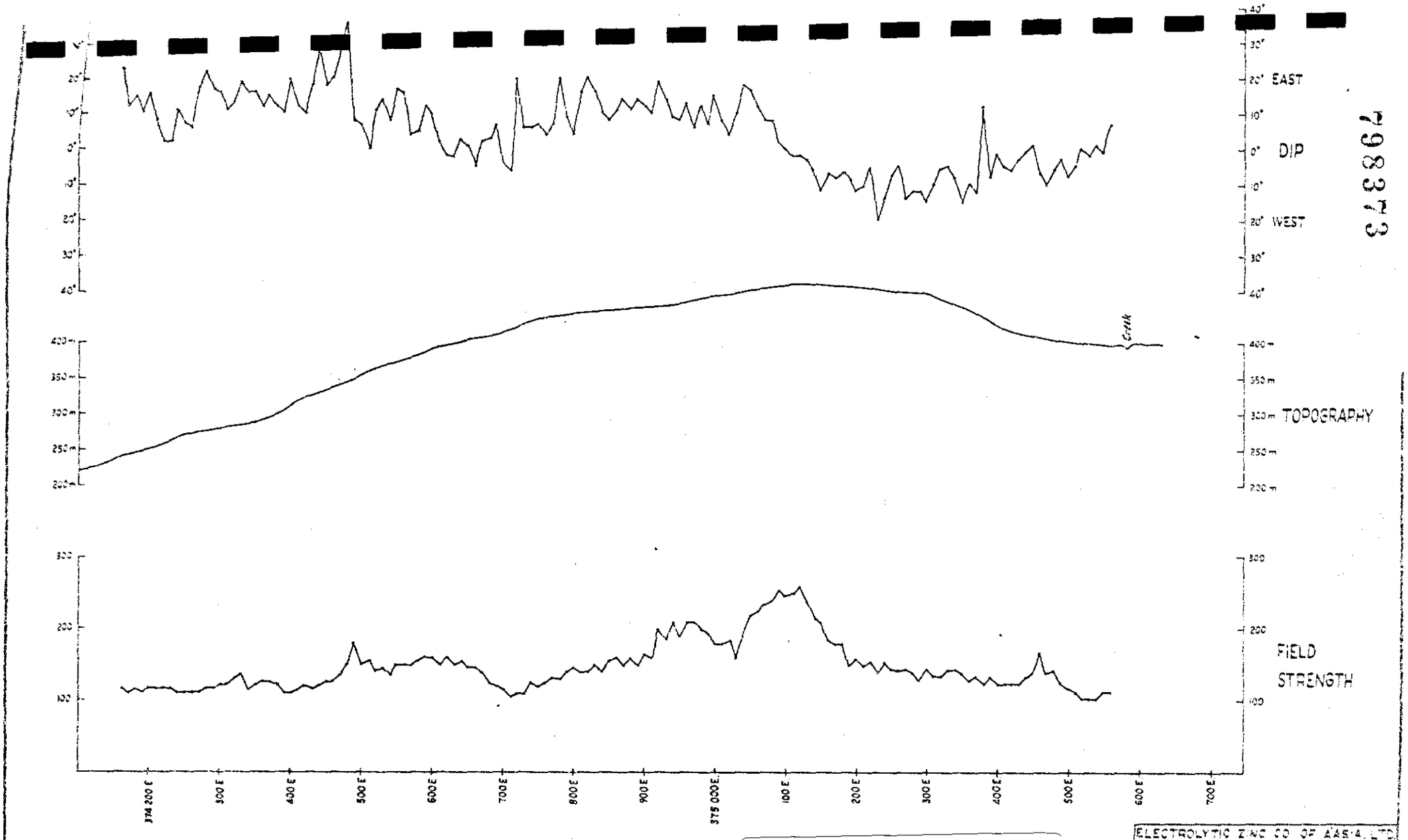
LINE 5 STN 200 N.

FIG. 6a

SCALE: 1:500	Surveyed: JR	Reviewed:
Delineated:	Date: Apr. 82	REF. NO.
Drawn: F.D.S.	Checked:	A.J.

291

79833



NOTES:

Transmitter: Japan

Instrument: Phoenix - VLF 2 - gain setting 1,000

Station spacing: 10 m

ELECTROLYTIC ZINC CO OF ASIA LTD

PROJECT: MT BLACK E.L. 162 LEASE

COLEBROOK HILL

VLF SURVEY

LINE 3 ST 400 N.

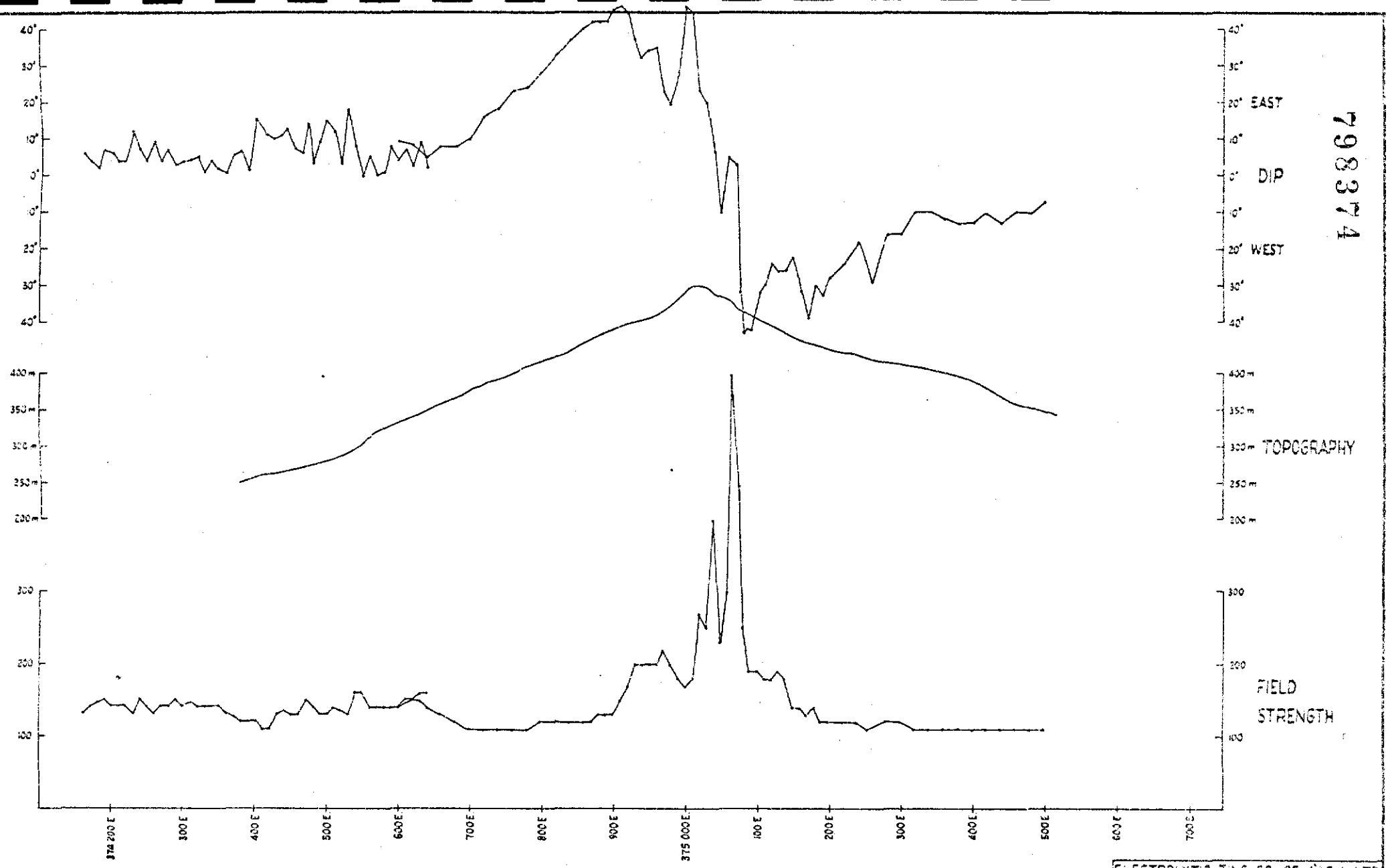
FIG 6 b

SCALE 50/0 | Surveyed | Revised

Reference | Date Nov 80 | REF NO

Drawn 7635 | Checked | A4

79834



NOTES:

Transmitter: Japan

Instrument: Phoenix - VLF 2 - gain setting 1,000

Station spacing: 10 m

ELECTROLYTIC ZINC CO. OF ASIA, LTD.

PROJECT: MT. BLACK EL. 1.62 | TAS.

COLEBROOK HILL

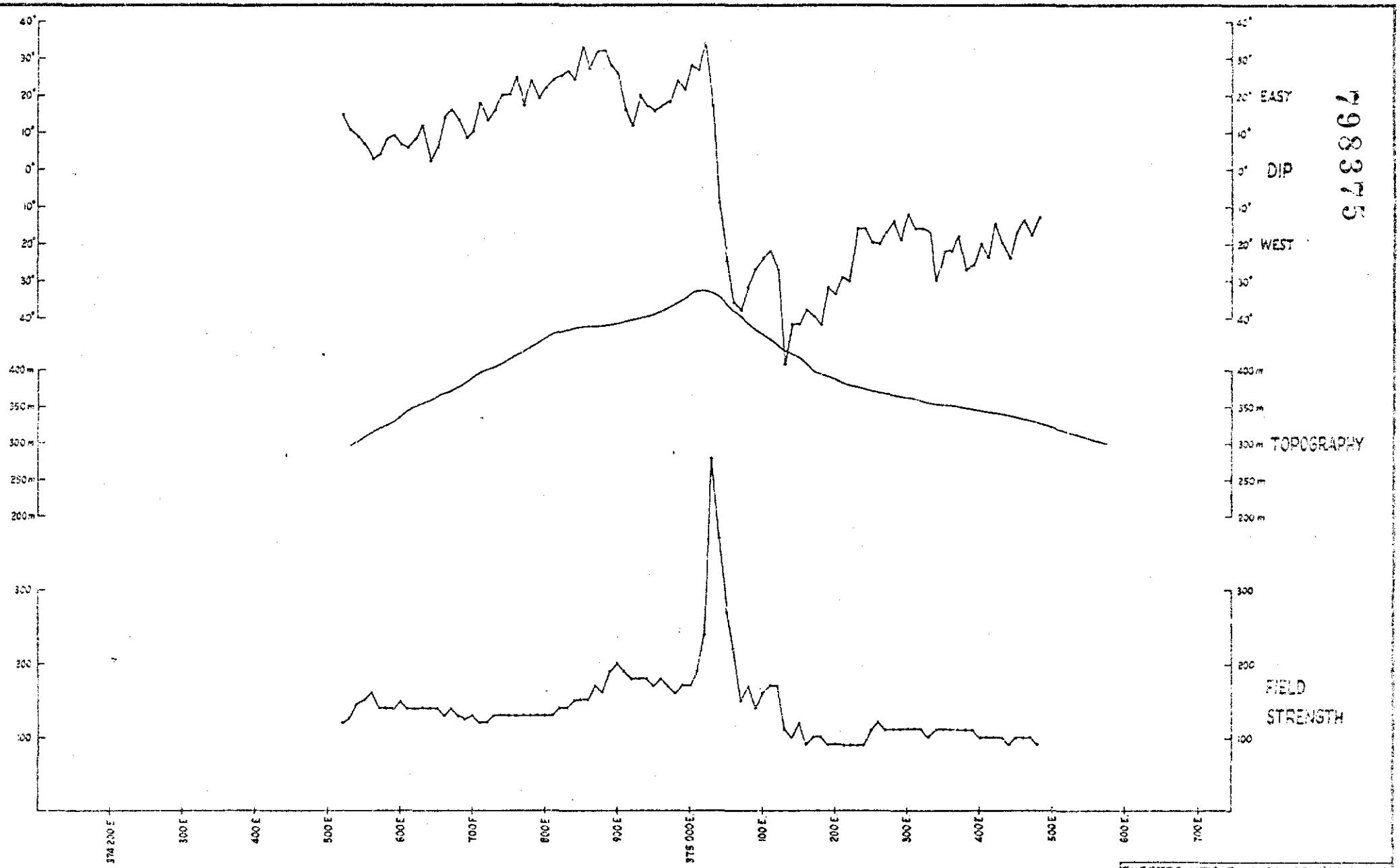
VLF SURVEY

LINE 5 371 600 N.

FIG. 6c

SCALE 1:5000 | Survey J.B. | Revised

79834



NOTES:

Transmitter: Japan

Instrument: Phoenix - VLF 2 - gain setting 1,000

Station spacing: 10 m

ELECTROLYTIC ZINC CO. OF AUSTRALASIA LTD.

PROJECT: MT. BLACK E.L. 1/62 TAS

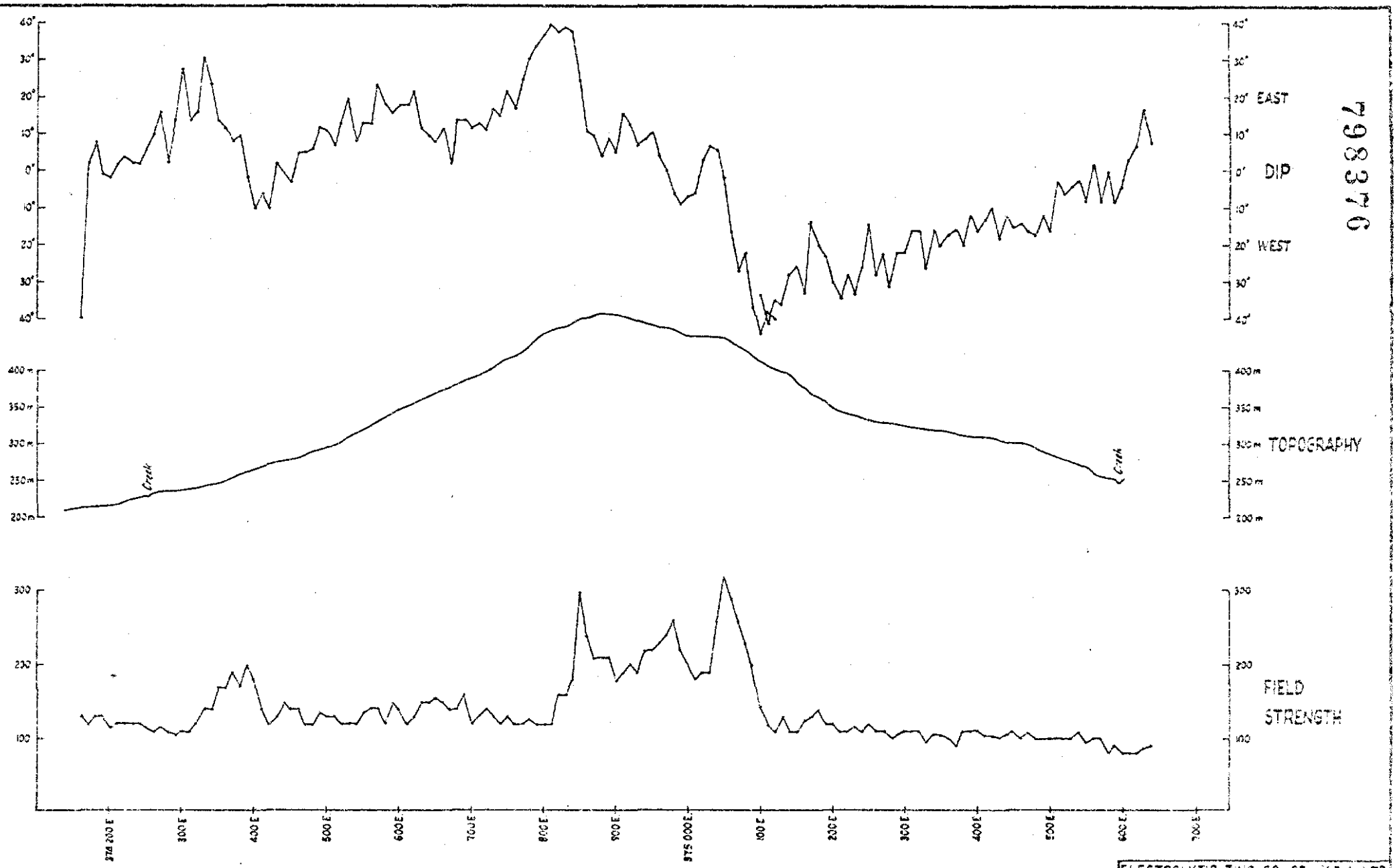
COLEBROOK HILL

VLF SURVEY

LINE 5 371 TOO N.

FIG 6a

798376



5 cm

NOTES:

Transmitter: Japan

Instrument: Phoenix - VLF 2 - gain setting 1,000

Station spacing: 10 m

ELECTROLYTIC ZINC CO. OF AUSTRALASIA LTD.

PROJECT: MT. BLACK E.L. 1/82 | TAS.

COLEBROOK HILL

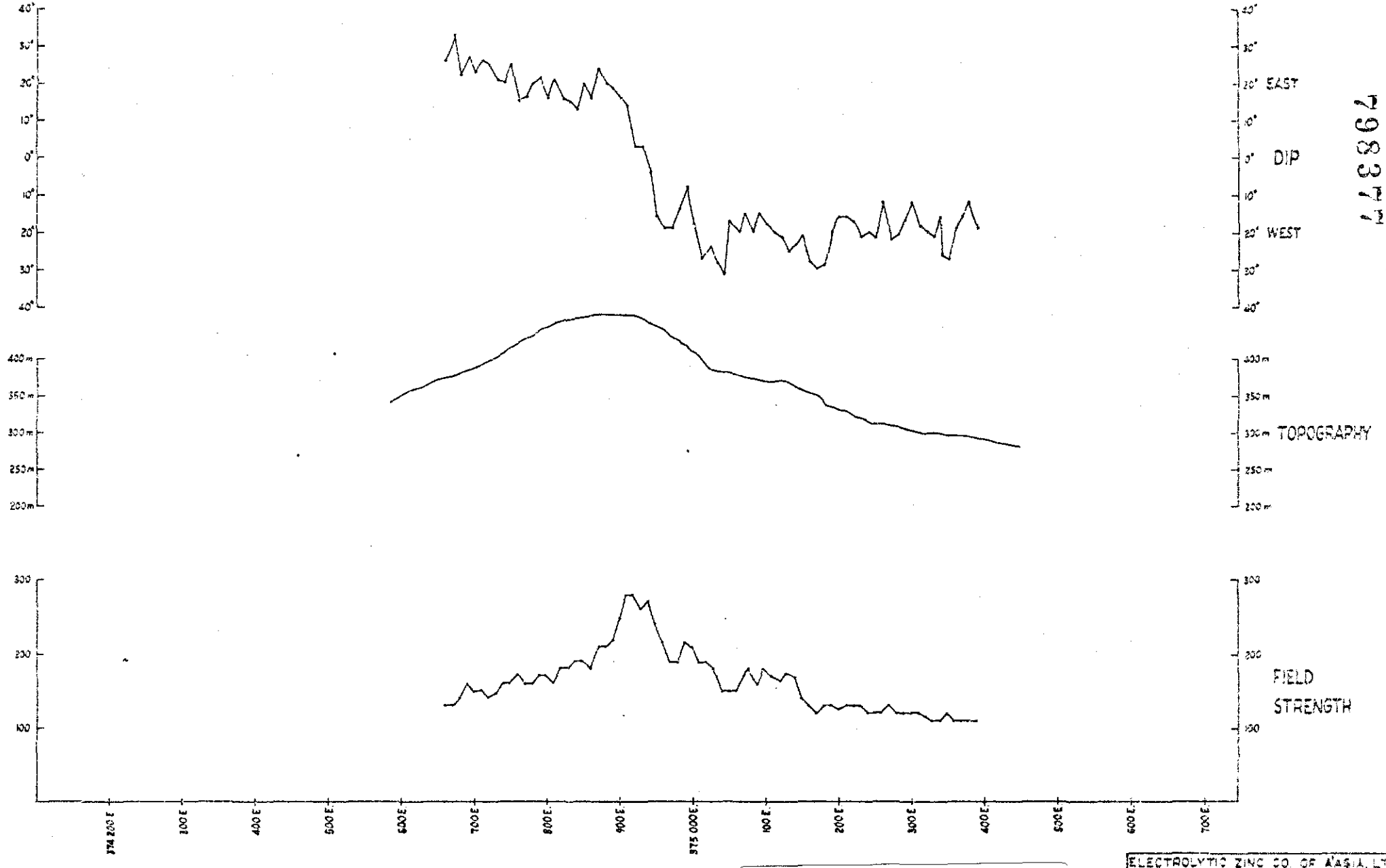
VLF SURVEY

LINE 5 371800 N.

FIG. 6 a

SCALE 1:500 | SURVEY | PLOTTED

295



5 cm

NOTES:

Transmitter: Japan

Instrument: Phoenix - VLF 2 - gain setting 1,000

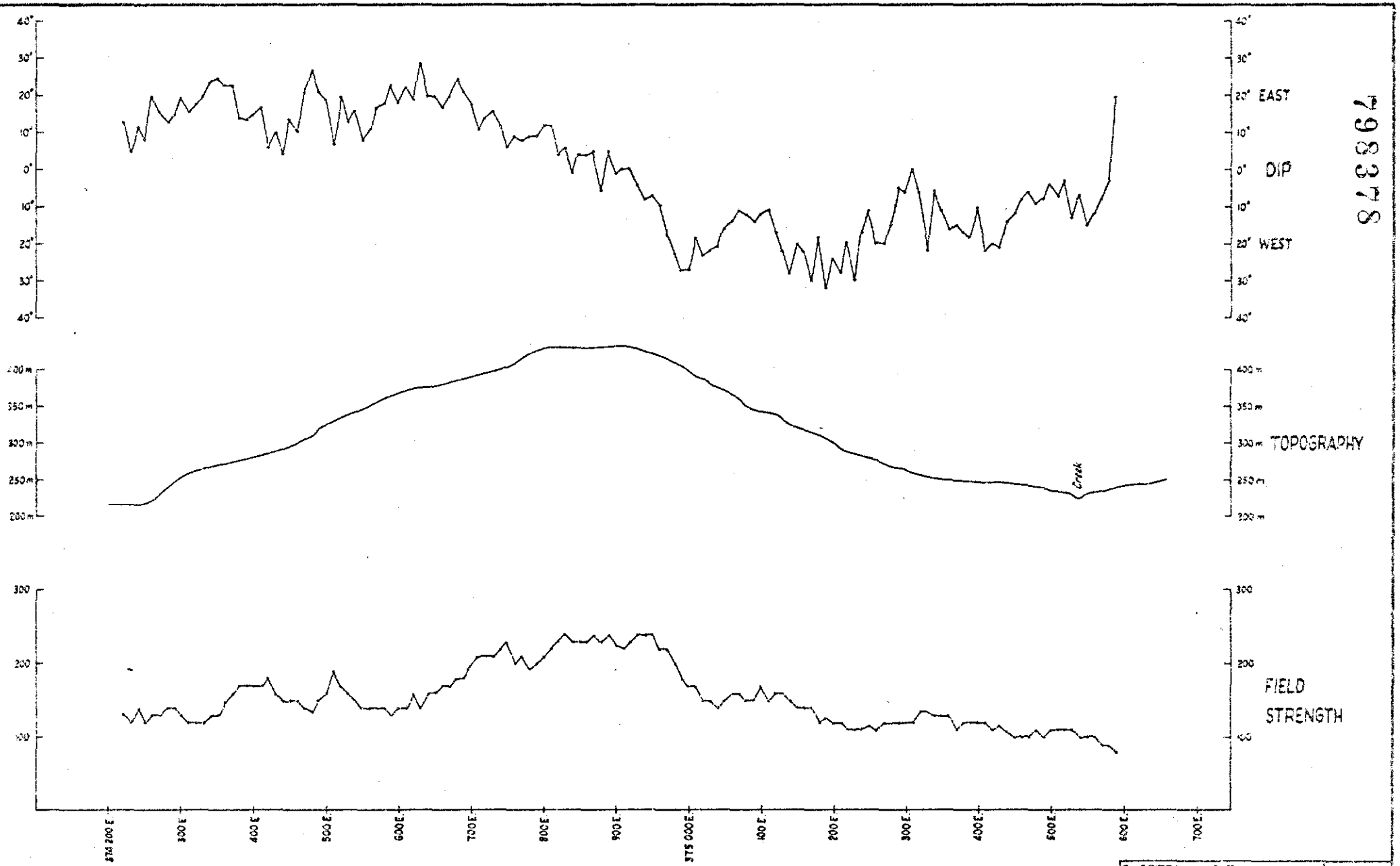
Station spacing: 10 m

ELECTROLYTIC ZINC CO. OF AASIA. LTD.	
PROJECT: MT BLACK E.L. 1/62	TAS.
COLEBROOK HILL	
VLF SURVEY	
LINE 5 371 900N.	
FIG 6 f	
SCALE 1:5000	

79837

296

79364



5 cm

NOTES:

Transmitter: Japan

Instrument: Phoenix - VLF 2 - gain setting 1,000

Station spacing: 10 m

ELECTROLYTIC ZINC CO. OF ASIA LTD.

PROJECT: MT. BLACK E.L. 1/62 | TAS.

COLEBROOK HILL

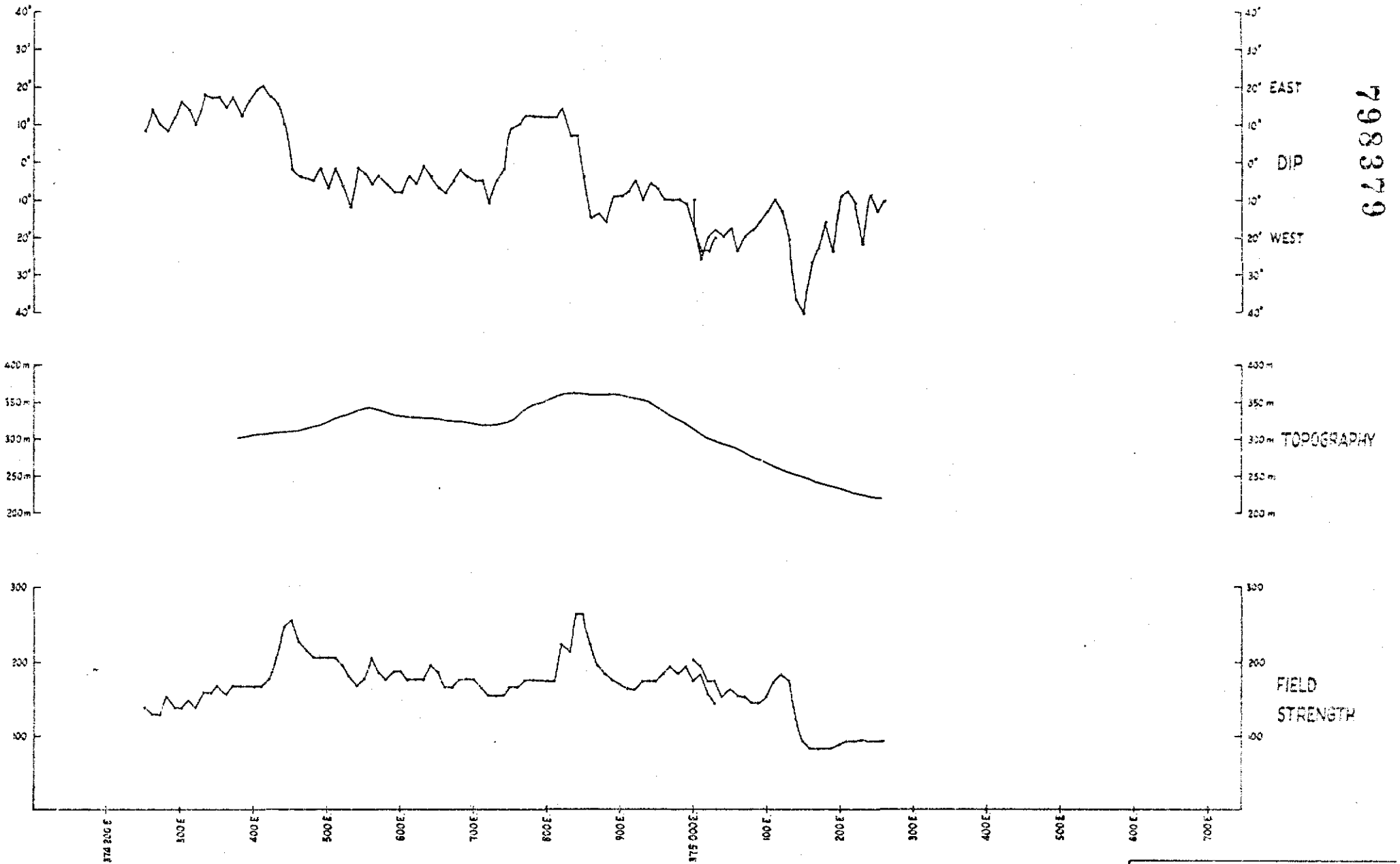
VLF SURVEY

LINE 5 372 000 N.

FIG. 6 g

SCALE 1:5000 | Surveyed JB | Revised

297



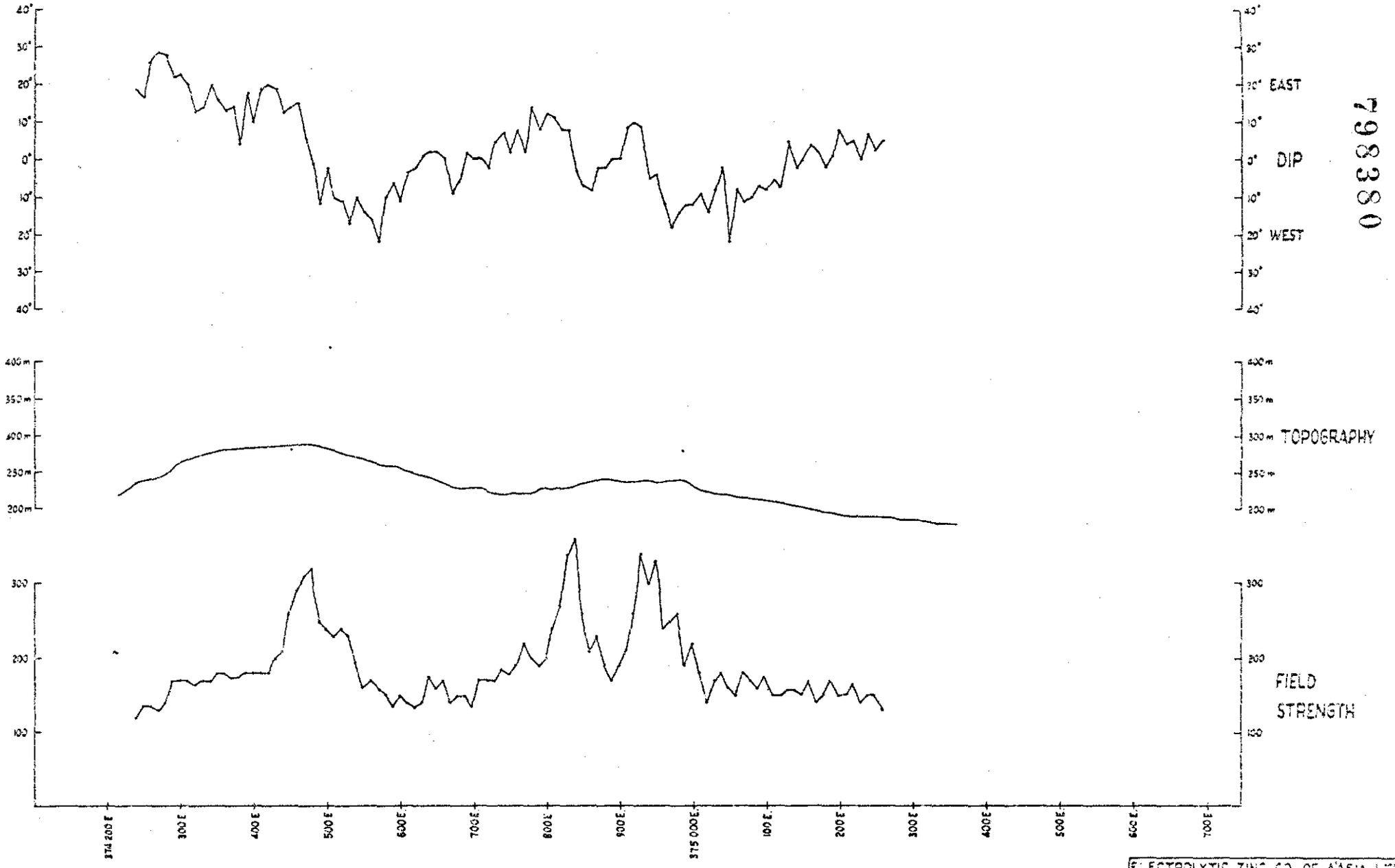
5 cm

NOTES:
Transmitter: Japan
Instrument: Phoenix - VLF 2 - gain setting 1,000
Station spacing: 10 m

ELECTROLYTIC ZINC CO OF ASIA LT
PROJECT: MT BLACK E.L. 1162
COLEBROOK HILL
VLF SURVEY
LINE 5 372 200N
FIG. 6h
SCALE 1:5000

79383

79880



NOTES:

Transmitter: Japan

Instrument: Phoenix - VLF 2 - gain setting 1,000

Station spacing: 10 m

ELECTROLYTIC ZINC CO. OF AUSTRALASIA LTD.

PROJECT: MT. BLACK E.L. 1/82 | TAS.

COLEBROOK HILL

VLF SURVEY

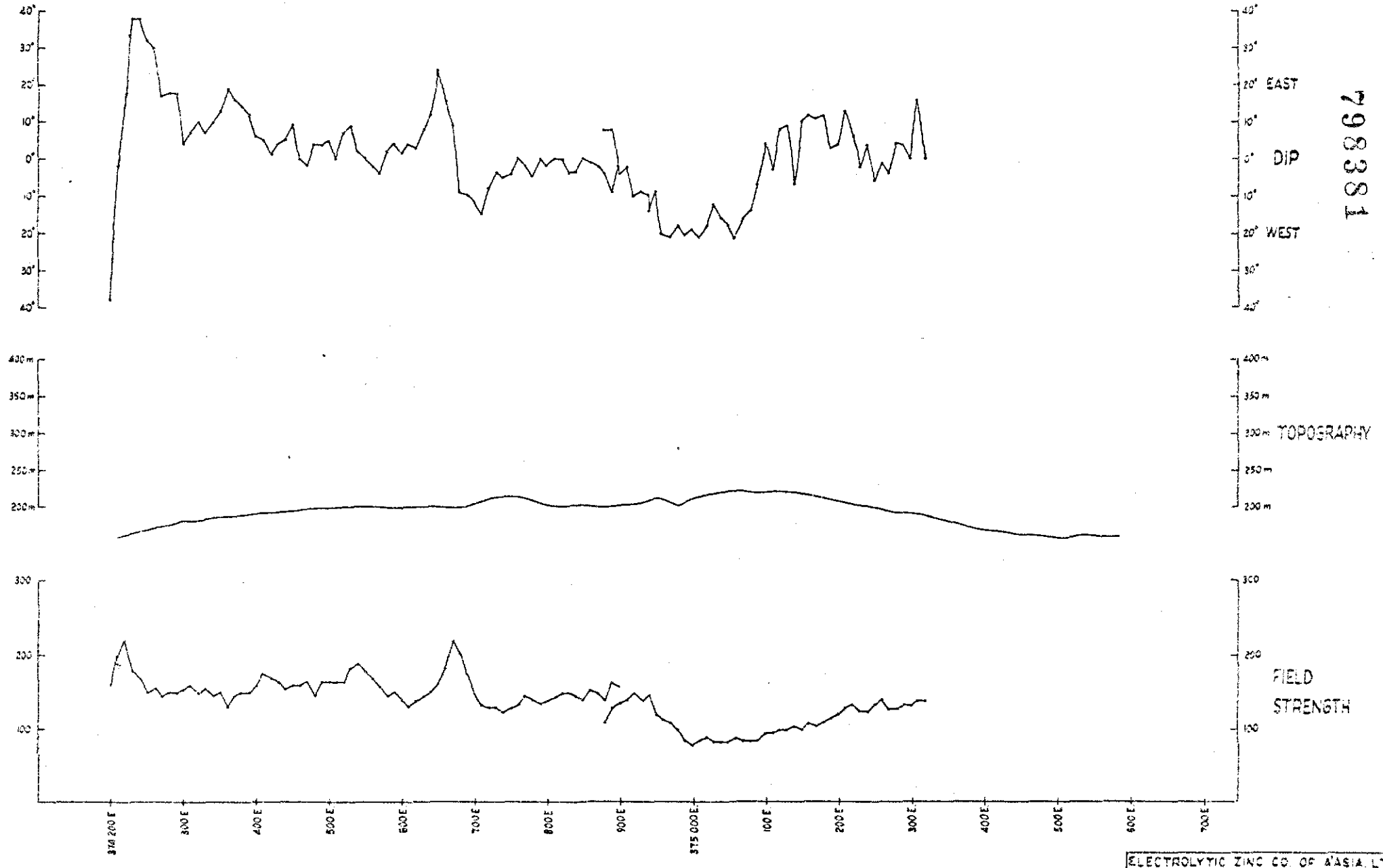
LINE 5 372400N.

FIG. 6 L

SCALE 1:5000 | Surveyed JB | Revised

Aug 82 | REF

79838



5 cm

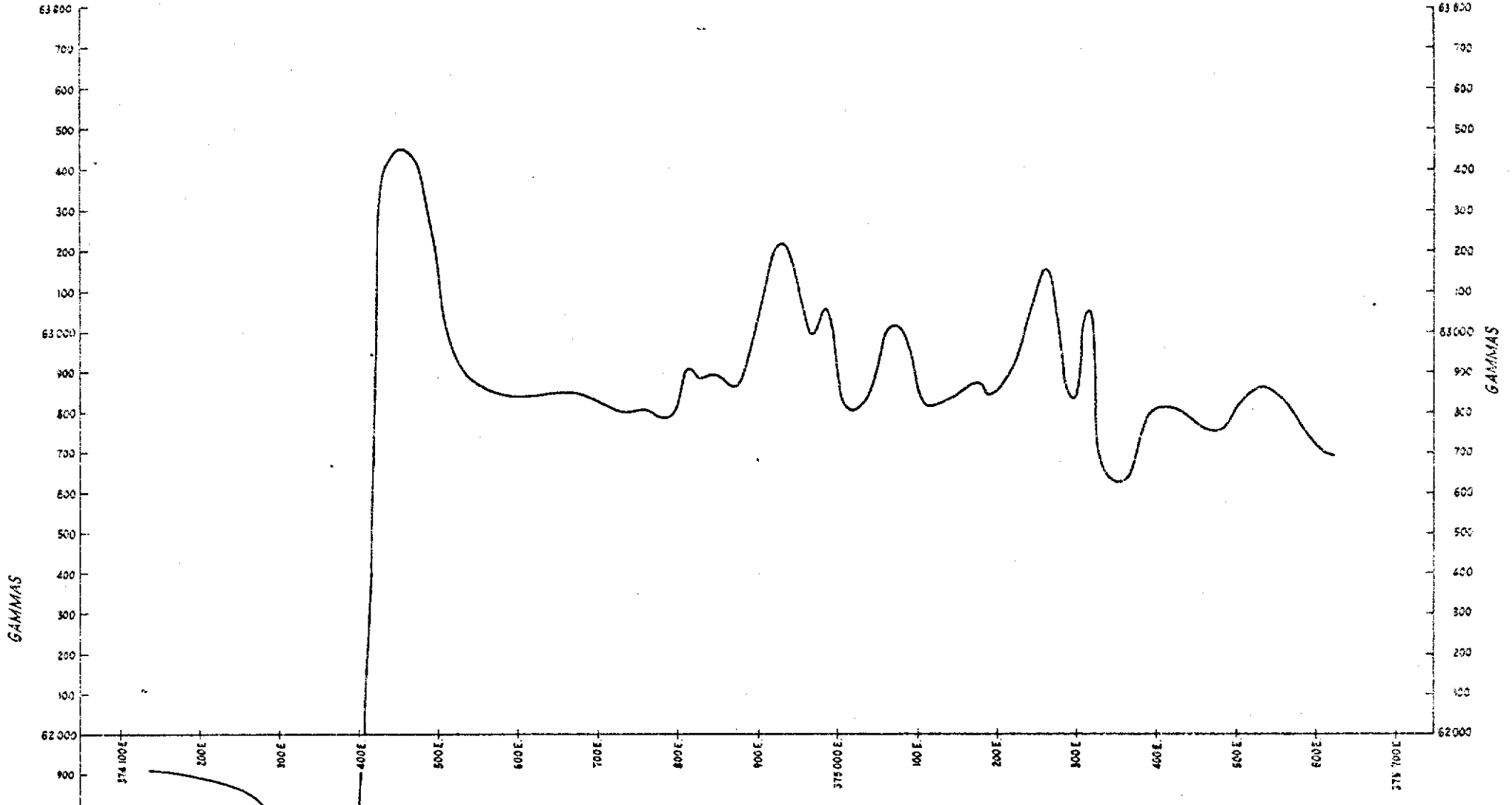
NOTES:

Transmitter: Japan
Instrument: Phoenix - VLF 2 - gain setting 1,000
Station spacing: 10 m

ELECTROLYTIC ZINC CO OF A'ASIA LTD
PROJECT: MT BLACK EL 1/62 | TAS.

COLEBROOK HILL
VLF SURVEY
LINE 5 372 600 N

FIG. 6j



5 cm

NOTES:

Hand smoothed profile station spacing 10 m

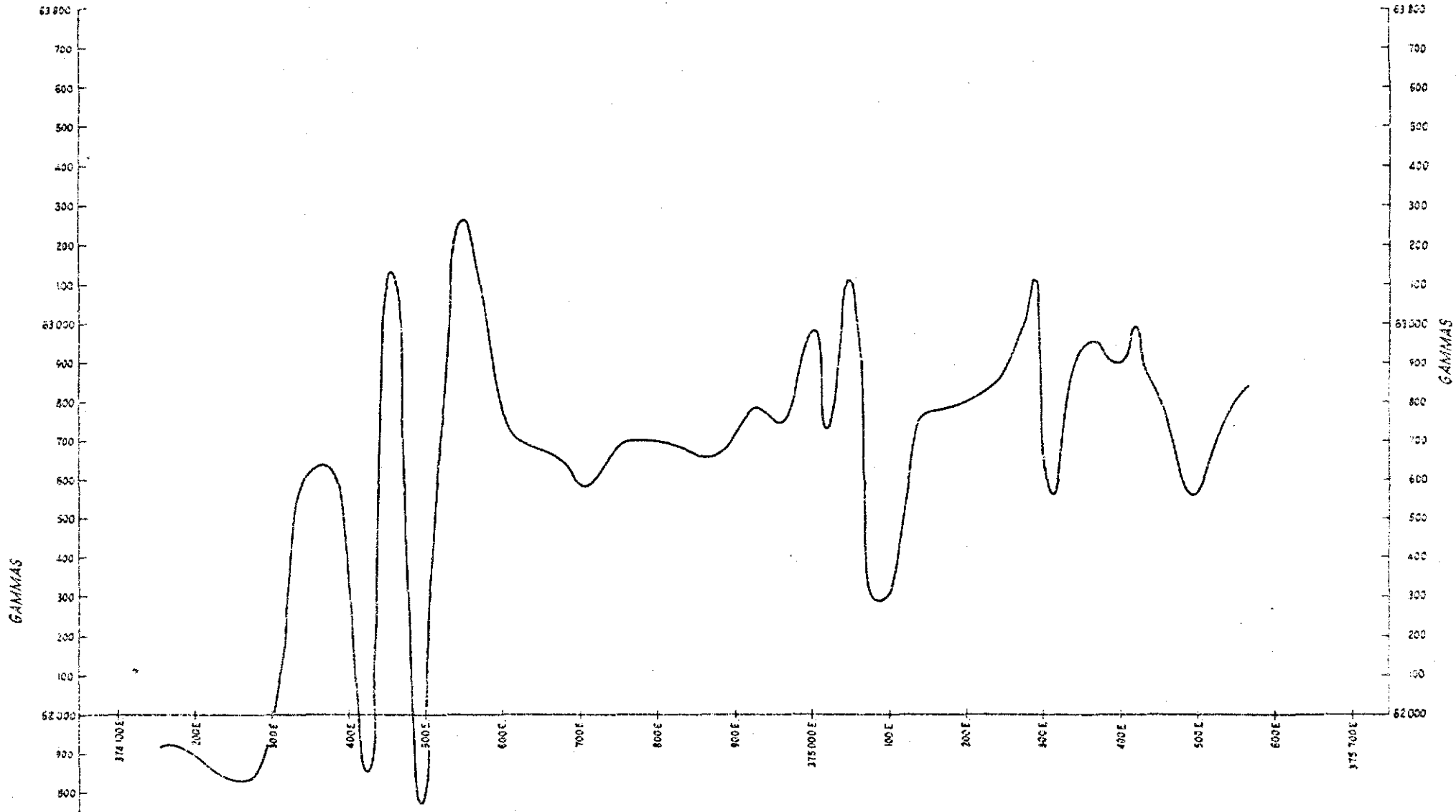
ELECTROLYTIC ZINC CO. OF ASIA LTD.	
PROJECT: MT BLACK E.L. 1/62	TAS.

COLEBROOK HILL
HAND SMOOTHED MAGNETIC PROFILES
LINE 5371 200 N.
FIG. 7a

SCALE 1:5000	Surveyed 1/8	Received
Referred to	Date Jan 1962	REF. No.

301

79383



5 cm

NOTES:

Hand smoothed profile station spacing 10 m.

ELECTROLYTIC ZINC CO. OF AAS A LTD

PROJECT: MT BLACK E.L. 62 | TAS

COLEBROOK HILL

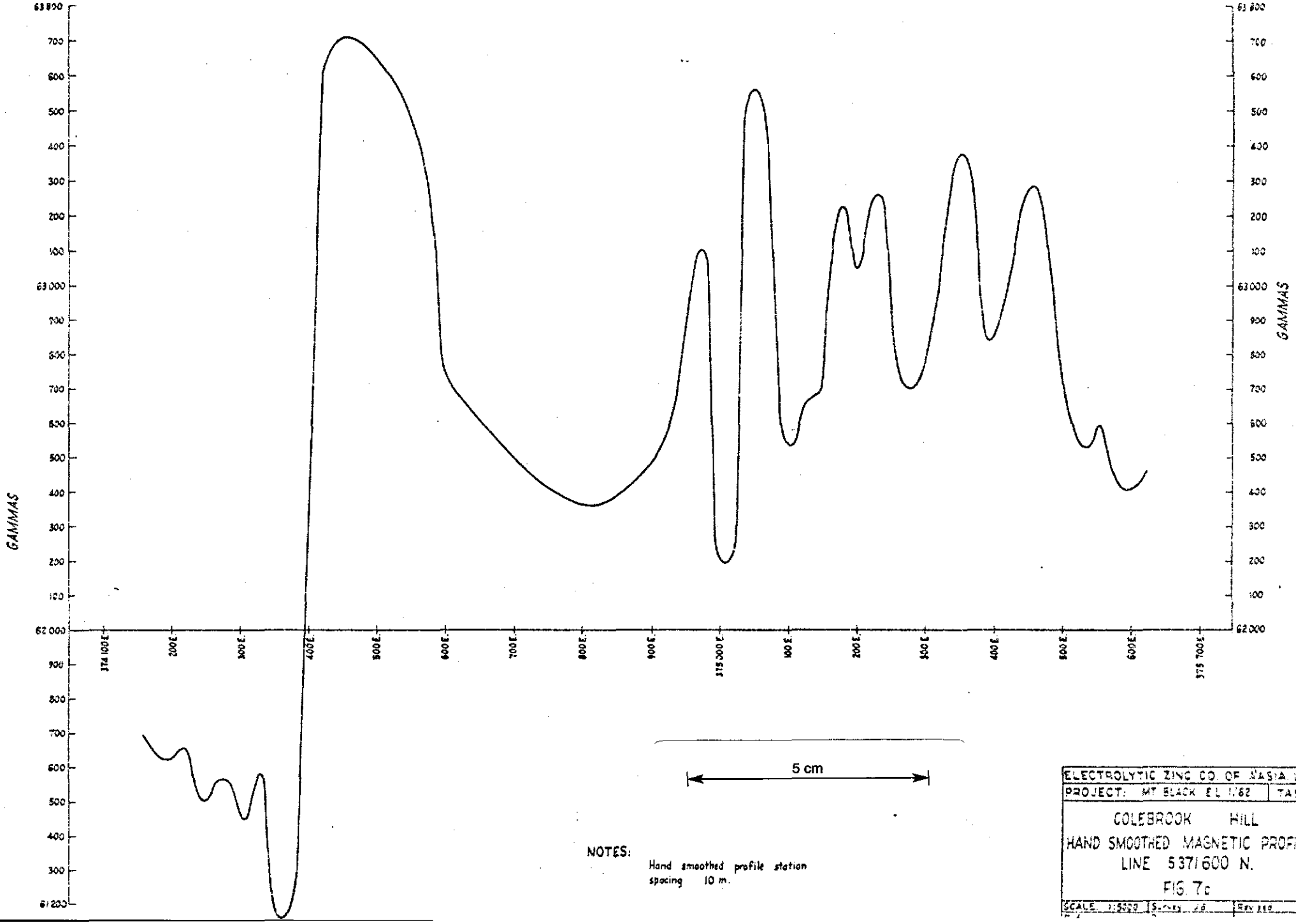
HAND SMOOTHED MAGNETIC PROFILES

LINE 5371400 N.

FIG. 7b

SCALE 1:500 | S.M.X. | 3 | [illegible]

19838



NOTES:

Hand smoothed profile station spacing 10 m.

ELECTROLYTIC ZINC CO. OF TASMANIA LTD.

PROJECT: MT BLACK E.L. 1/62 | TAS

COLEBROOK HILL

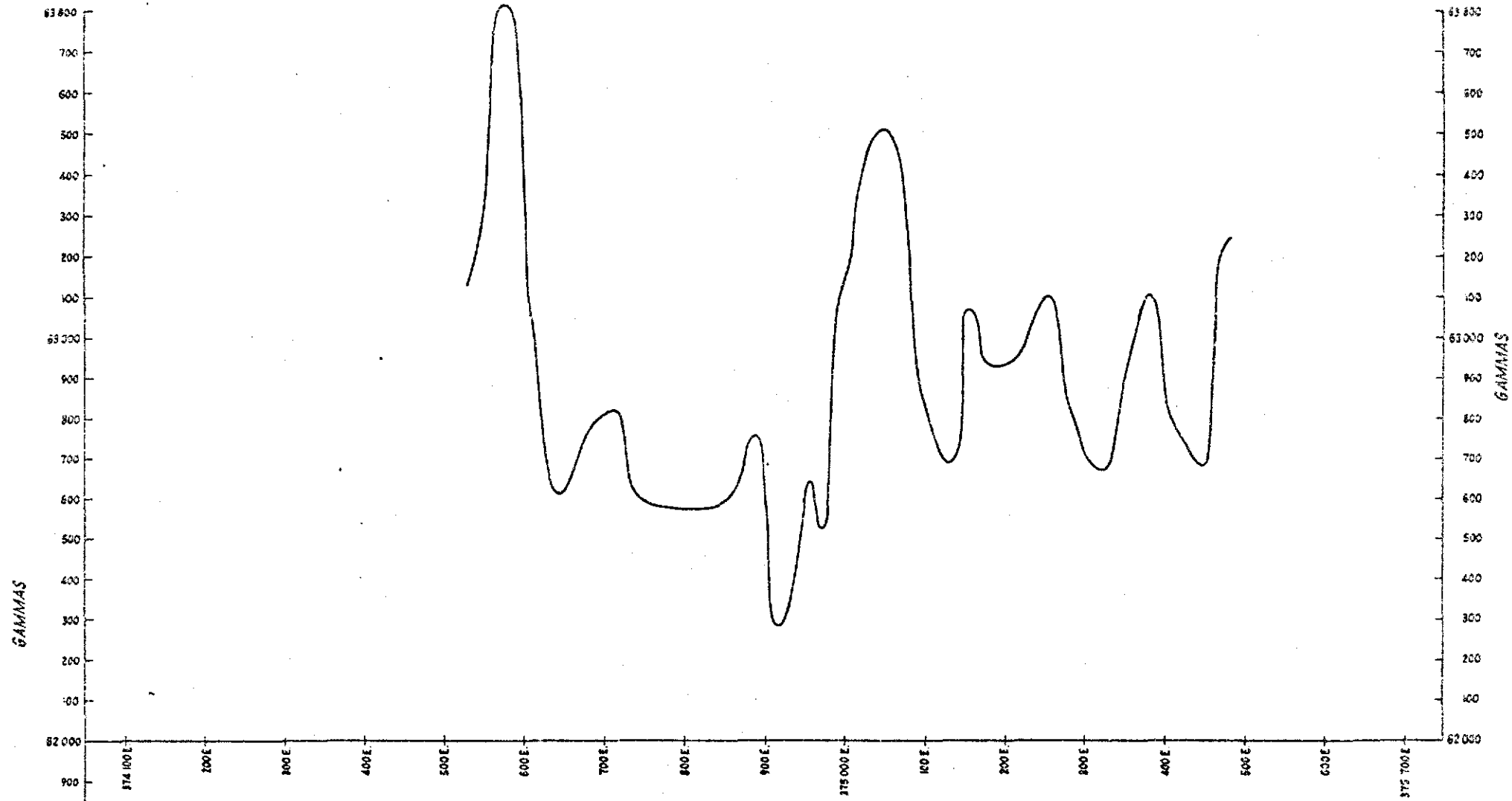
HAND SMOOTHED MAGNETIC PROFILES

LINE 537/600 N.

FIG. 7c

SCALE 1:5000 | S. [illegible] | Rev [illegible]

79838



5 cm

NOTES:

Hand smoothed profile station spacing 10 m.

ELECTROLYTIC ZINC CO. OF ASIA LTD.

PROJECT: MT. BLACK E.L. 1/62 | T.A.S.

COLEBROOK HILL

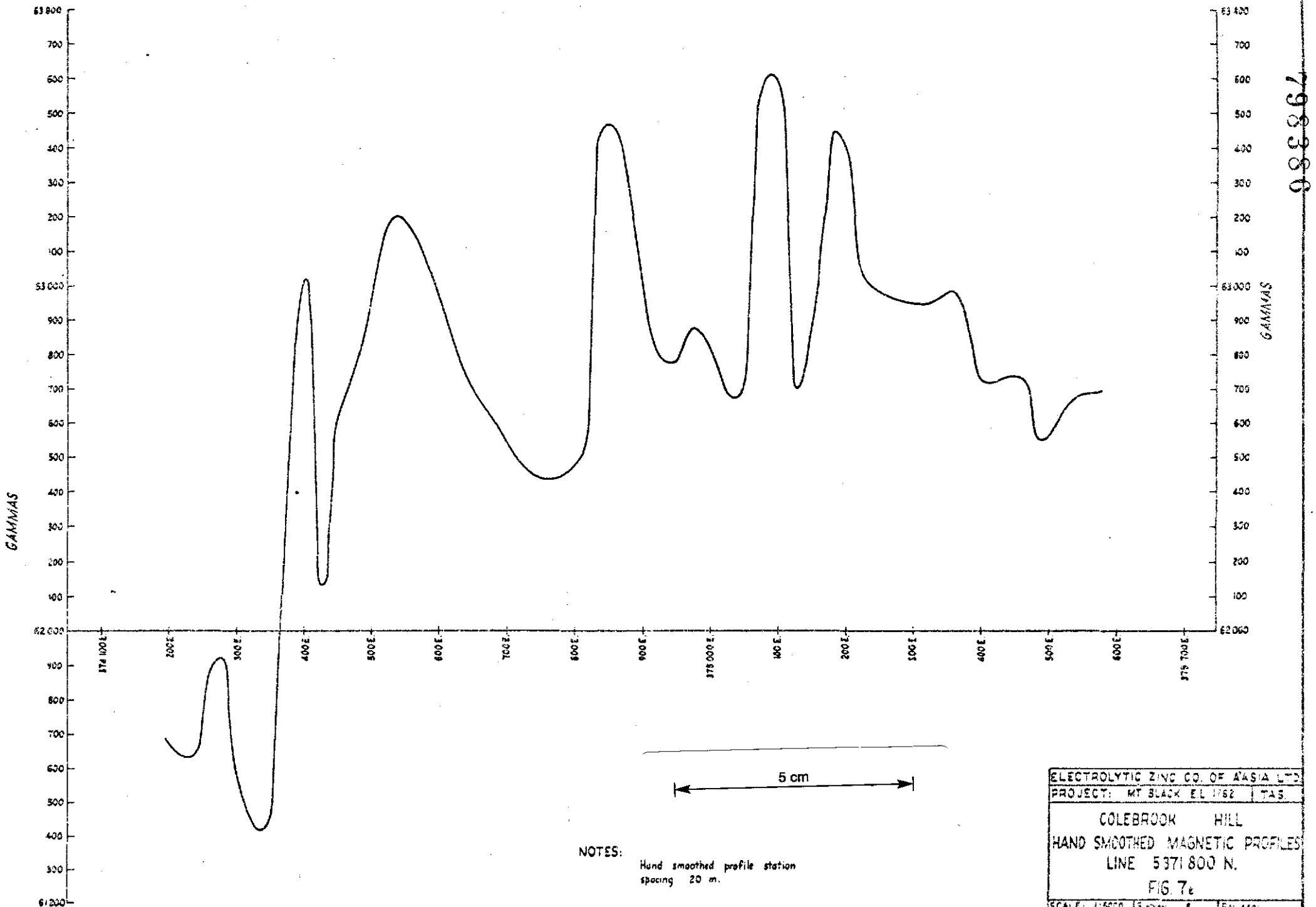
HAND SMOOTHED MAGNETIC PROFILES

LINE S 37 1/2 700 N.

FIG. 7d

SCALE: 1:5000 | SURVEY: J.B. | REVISED:

79333



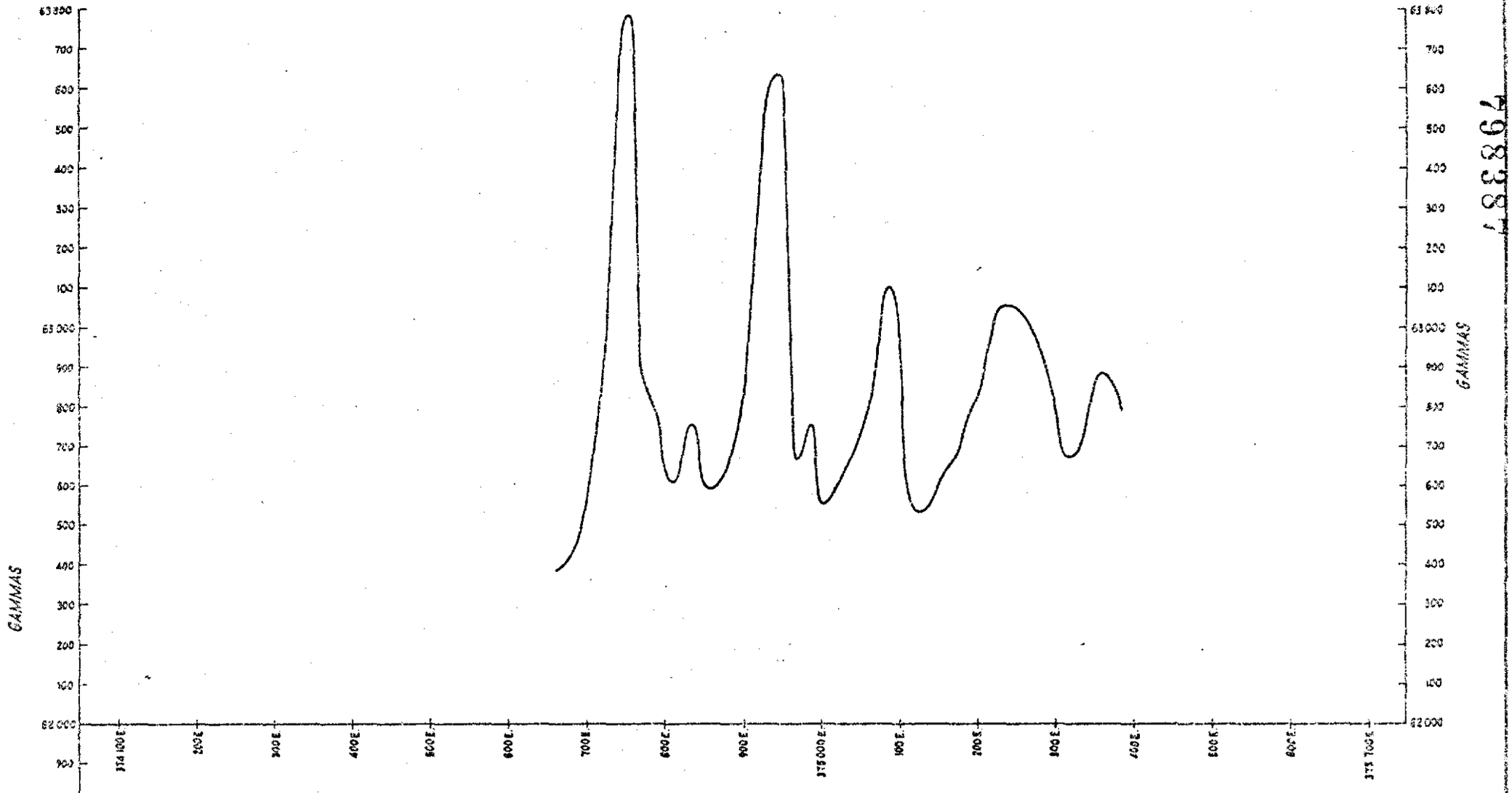
NOTES:

Hand smoothed profile station spacing 20 m.

ELECTROLYTIC ZINC CO. OF ASIA LTD.
PROJECT: MT BLACK E.L. 1/62 | TAS.

COLEBROOK HILL
HAND SMOOTHED MAGNETIC PROFILES
LINE 5371 800 N.
FIG. 7e

SCALE: 1:2500 | DATE: | DRAWN:



NOTES:

Hand smoothed profile station spacing 20 m.

ELECTROLYTIC ZINC CO. OF AUSTRALASIA LTD.

PROJECT: MT BLACK E.L. 1/82 TAS

COLEBROOK HILL

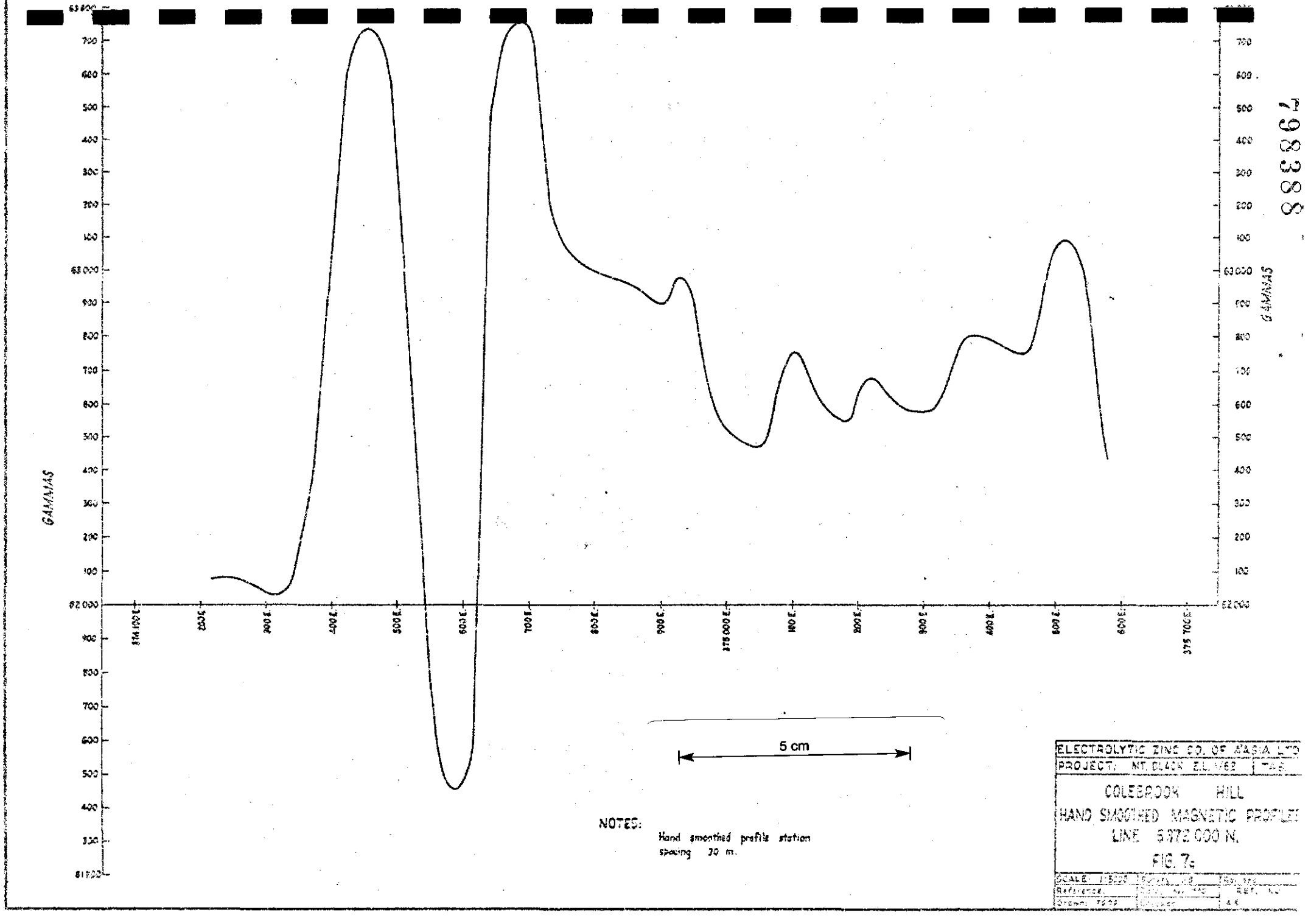
HAND SMOOTHED MAGNETIC PROFILES

LINE 537 900 N.

FIG. 7

SCALE: 1:5000 5 cms. = 1 in. 1 cm. = 200 m.

79838



NOTES:

Hand smoothed profile station spacing 20 m.

ELECTROLYTIC ZINC CO. OF ASIA LTD

PROJECT: MT. BLACK E.L. 962

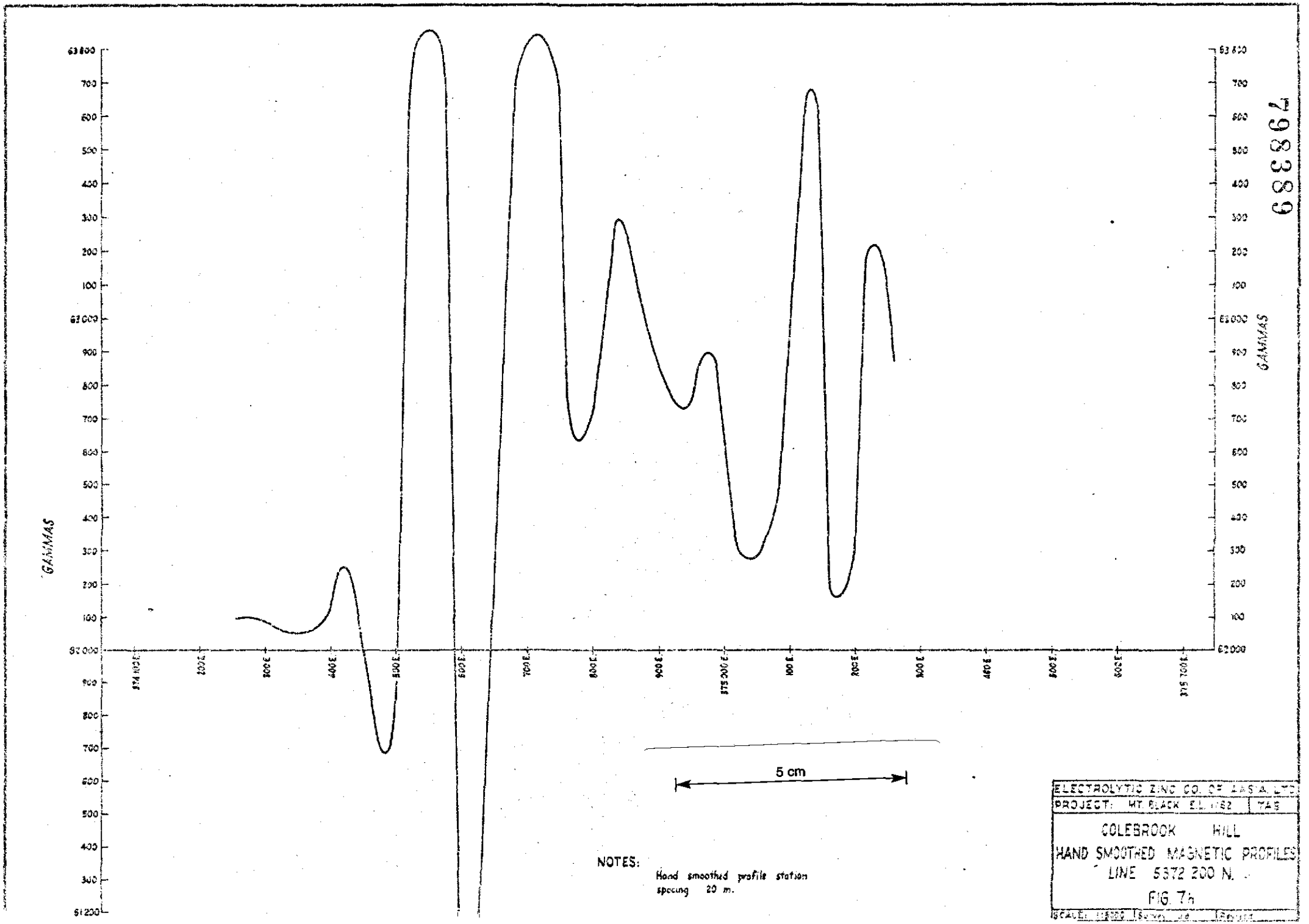
COLEBROOK HILL

HAND SMOOTHED MAGNETIC PROFILES

LINE 5 972 000 N.

FIG. 7c

SCALE: 1:500 | Reference | Drawn: T.G.S.



NOTES:

Hand smoothed profile station spacing 20 m.

ELECTROLYTIC ZINC CO. OF AUSTRALASIA LTD.

PROJECT: MT BLACK EL 1/62 TAS

COLEBROOK HILL

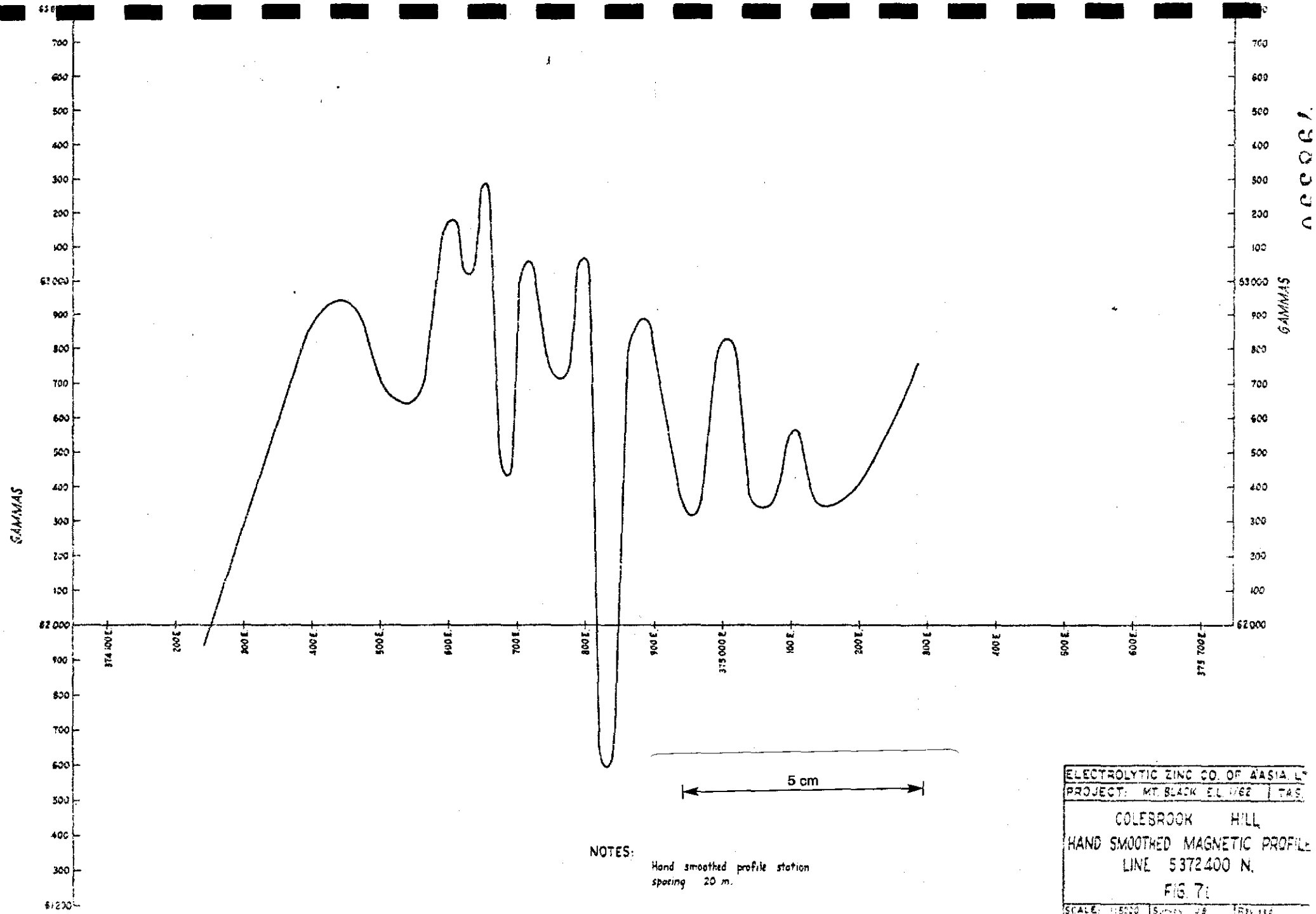
HAND SMOOTHED MAGNETIC PROFILES

LINE 5372 200 N.

FIG. 7h

SCALE: 1:5000 (1cm = 100 m) Reduced

79838



NOTES:

Hand smoothed profile station spacing 20 m.

ELECTROLYTIC ZINC CO. OF AASIA, LTD.

PROJECT: MT. BLACK E.L. 1962 | TAS.

COLESBROOK HILL

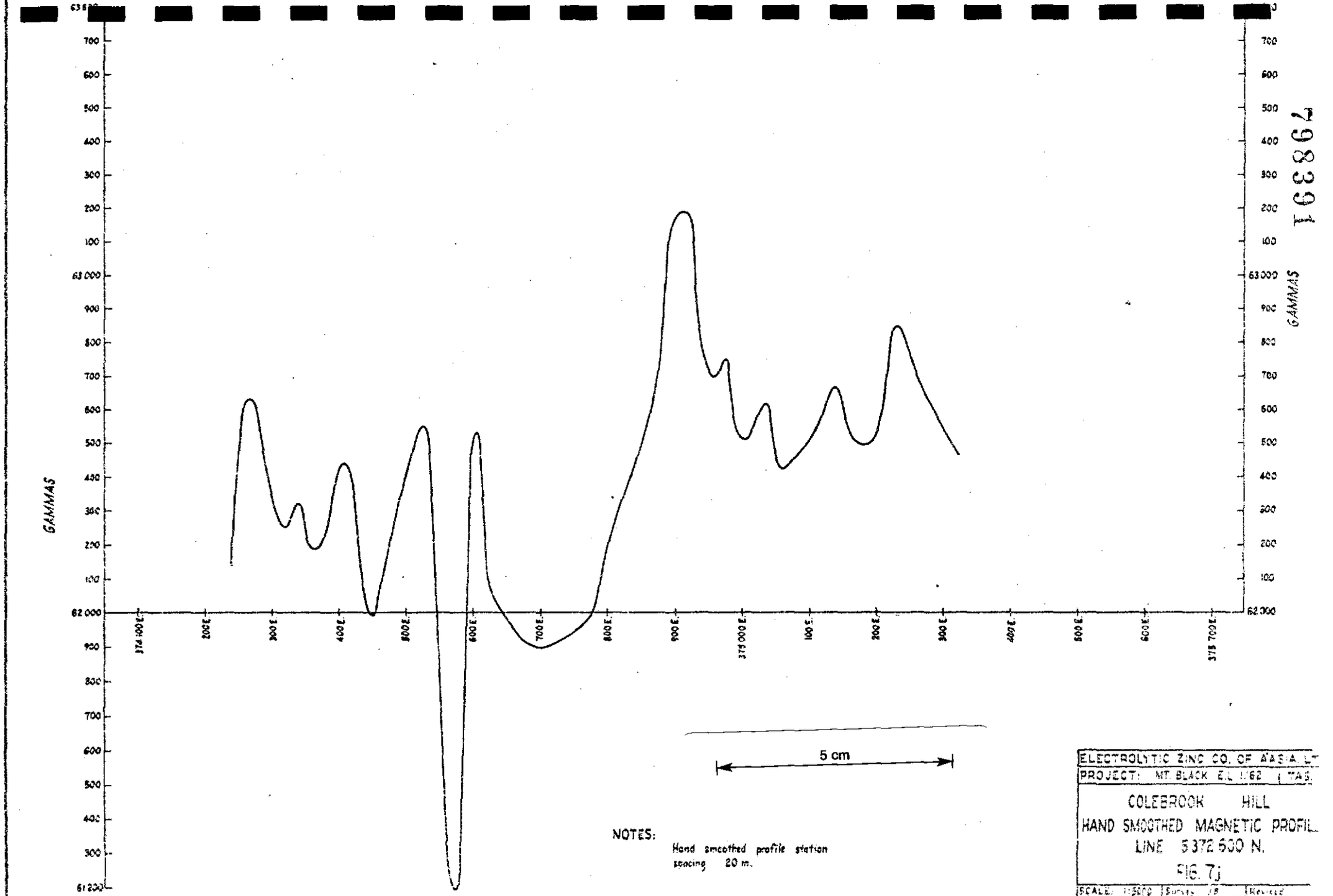
HAND SMOOTHED MAGNETIC PROFILE

LINE 5372400 N.

FIG. 7

SCALE: 1:5000	Surveyed: J.B.	Revised:
Reference:	Date: Apr. 1962	N.E.A. No.
Drawn: T.B.B.	Checked:	A.B.

309



NOTES:

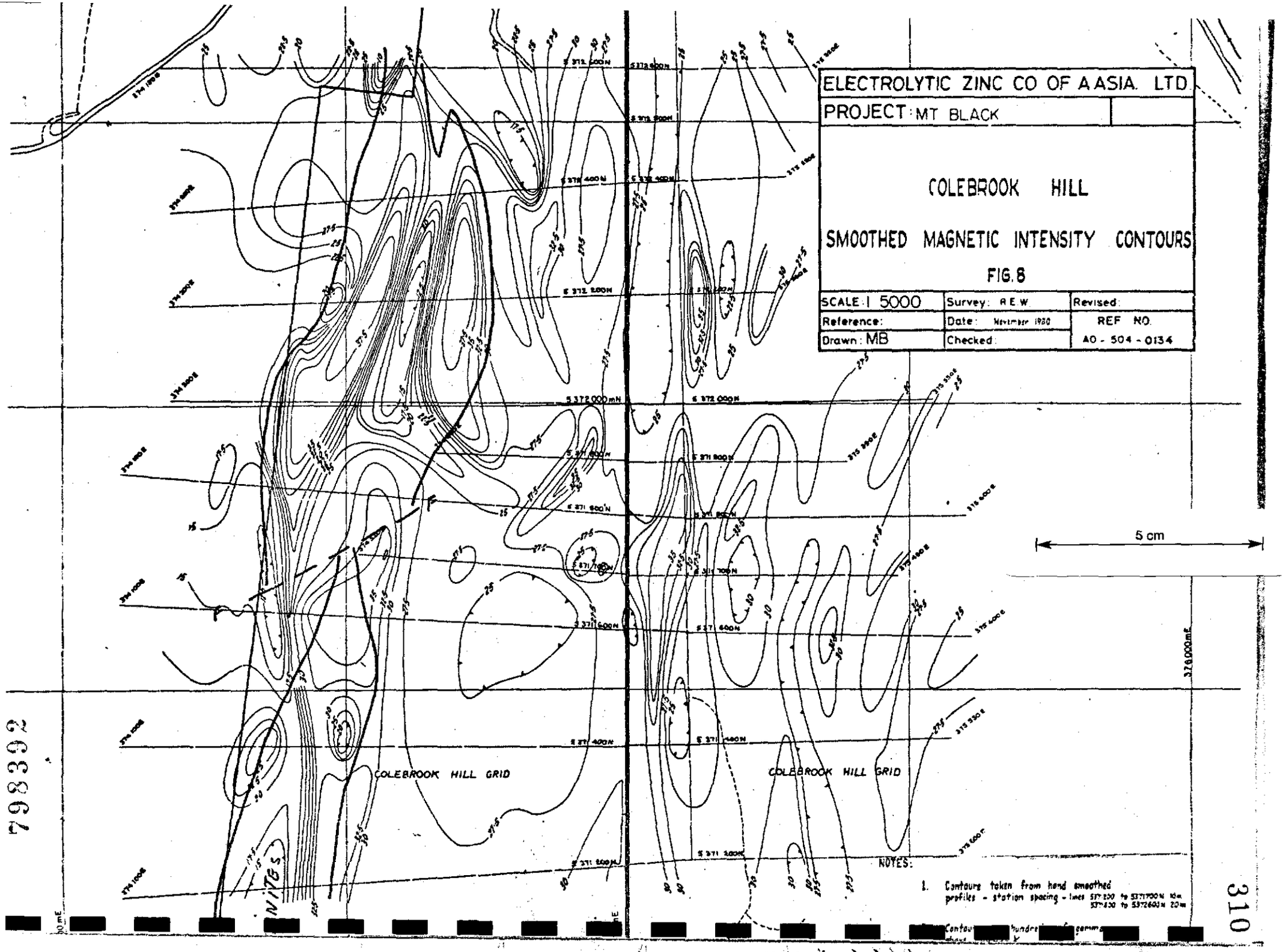
Hand smoothed profile station spacing 20 m.

ELECTROLYTIC ZINC CO. OF ASIA LT
PROJECT: MT. BLACK E.L. 1/62 TAS.

COLEBROOK HILL
HAND SMOOTHED MAGNETIC PROFIL
LINE 5 372 600 N.
FIG. 7j

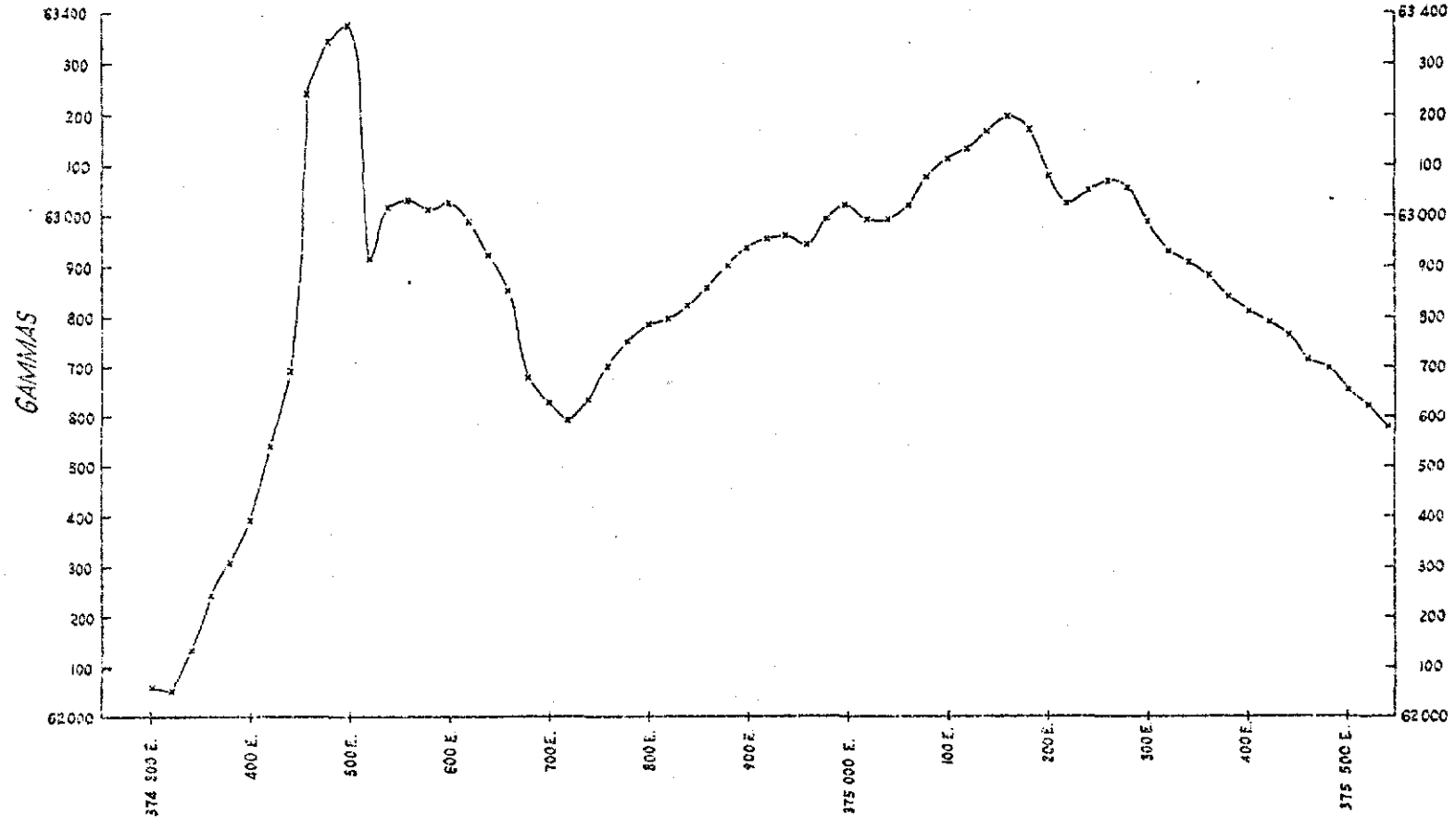
SCALE 1:500 | Surveyed | Revised
Reference | Date | REF NO.
Drawn | Checked | A4

1083301


ELECTROLYTIC ZINC CO OF A'ASIA. LTD.
PROJECT: MT BLACK
COLEBROOK HILL
SMOOTHED MAGNETIC INTENSITY CONTOURS
FIG. 8
SCALE: 1 5000
Survey: R.E.W.
Revised:
Reference:
Date: November 1980
REF NO.
AO - 504 - 0134
Drawn: MB
Checked:
5 cm
COLEBROOK HILL GRID
COLEBROOK HILL GRID
NOTES:
1. Contours taken from hand smoothed profiles - station spacing - lines 537100 to 5371700N 10m
537400 to 5372600N 20m
798392
310

311

798393



5 cm

ELECTROLYTIC ZINC CO. OF ASIA LTD.

PROJECT: MT BLACK EL. 1/62 | TAS.

COLEBROOK HILL

FILTERED MAGNETICS - LINE 5 STI 800 N

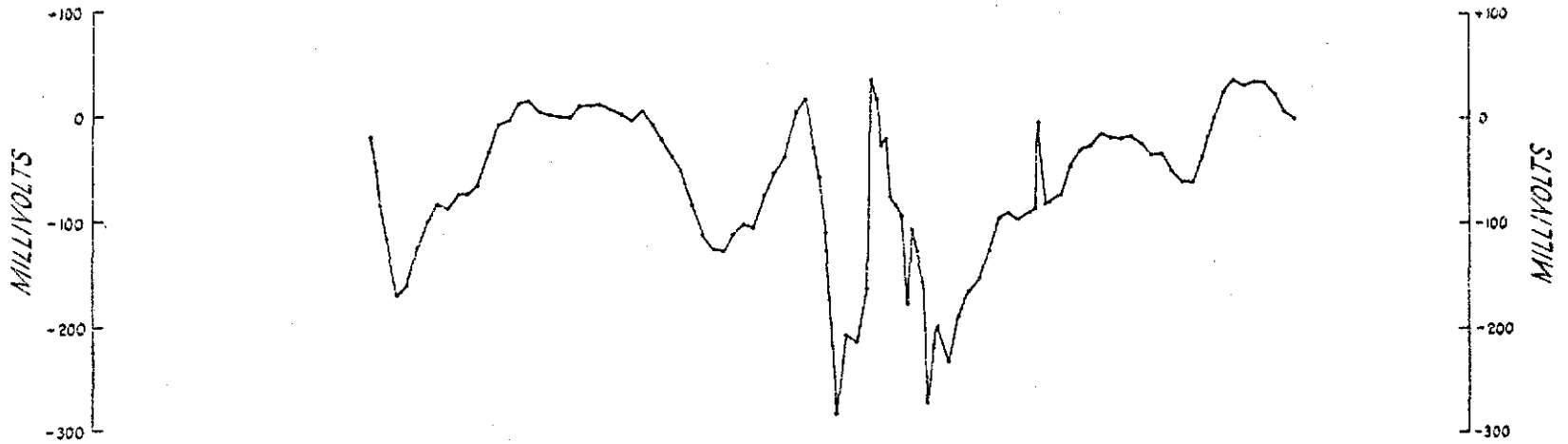
11 pt moving average filter

FIG. 9

SCALE: 1:5000 | Survey: J.B. | Plotted:

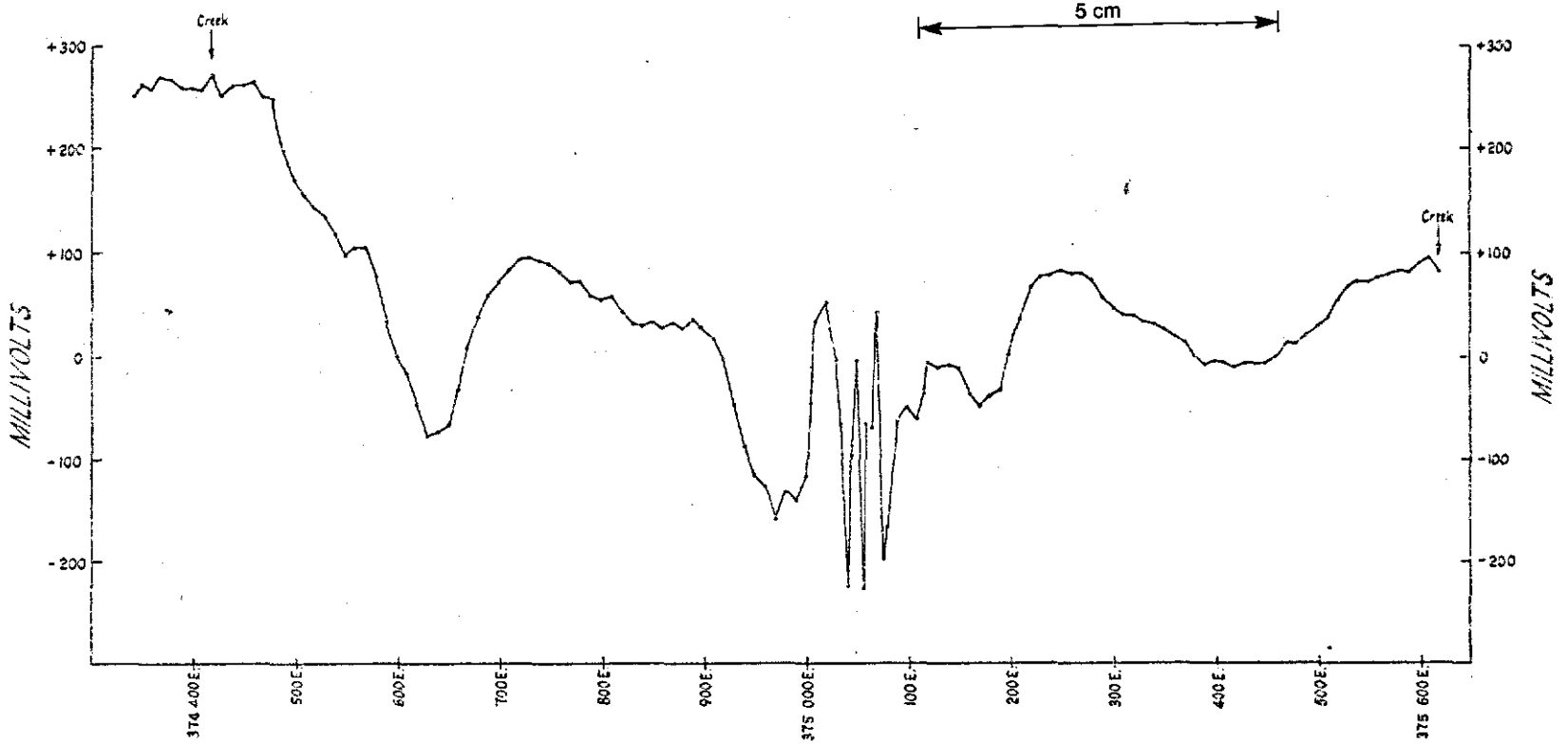
312

79833 94



LINE 5 371 700 N.

Station interval 10m.



LINE 5 371 600 N.

ELECTROLYTIC ZINC CO. OF AASIA. LTD.

PROJECT: MT. BLACK E.L. 1/82 | TAS

COLEBROOK HILL

S.P. SURVEY

LINE 5 371 600 N. & 5 371 700 N.

FIG. 10

SCALE: 1:5000 | Survey | Plotted

198395

APPENDIX XI

'An Interpretation of the Colebrook Hill magnetic survey' by Mitre Geophysics.

MITRE GEOPHYSICS PTY LTD
MINERAL EXPLORATION AND ENGINEERING CONSULTANTS
BUGGS LANE ELLIOTT TASMANIA 7325 PHONE 004-363143

AN INTERPRETATION

OF

THE COLEBROOK HILL MAGNETIC SURVEY

FOR

ELECTROLYTIC ZINC COMPANY OF A'ASIA LIMITED
West Coast Mines

BY

DR. J.R. BISHOP

DECEMBER, 1980.

315
798397

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LIST OF FIGURES

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2a - 2j. Profiles of Filtered Magnetics (Scale 1:5,000).

3. Contour Plan of Scintrex (Turair) Aeromagnetic Survey (Scale 1:10,000).

4. Thin Magnetic Dyke - Model 1.

5. Thin Magnetic Dyke - Model 2.

6. Projection of Magnetic Dyke Models onto Line 5,371,700N.

7. Projection of Dyke onto the Unfiltered Magnetic Contour Map (Scale 1:5,000).

SUMMARY

Data from the June, 1980 magnetic survey was filtered by hand smoothing the profiles and then applying an eleven point moving average. The resultant map differed markedly from the unfiltered data, and the dominating NW trending anomaly has similarities with the results from the Scintrex (Turair) aeromagnetic survey.

The anomaly was interpreted by matching a profile to theoretical responses of magnetic dykes. The best fitting curves were from dykes with near vertical dips trending 127° to A.M.G. north, probably at least 100m wide and at depth of 250 to 300m below the crest of the hill (on line 5,371,700N).

To test this anomaly a DDH has been proposed, sited at 375,120E, 5,371,880N; trending 217° to A.M.G. north, with a plunge of 60°. The length of the hole would be about 400m. However, modelling of less-simplistic shapes should be done before siting a drill hole. Also, more sophisticated data processing methods could (and perhaps should) be applied to define the response from a body at depth.

Whilst it is hoped that the magnetic anomaly defined by this filtering is due to pyrrhotite and is the source for the surface mineralisation, it is of course possible that it is due to an offshoot, at depth, of the serpentinites on the western side of the grid.

OBJECTS AND METHODS

This report examines the data from the June, 1980 ground magnetic survey over Colebrook Hill to try and locate a deep source of mineralisation.

Several aeromagnetic surveys have defined a large anomaly within the Crimson Creek sediments on Colebrook Hill, as well as responding to the belt of ultrabasics on the western side of the grid. Two of these surveys also showed electromagnetic responses over the area (Turair and Input anomalies) these surveys were described by Bishop (1980 a).

A ground magnetics survey was carried out to locate and better define the aeromagnetic anomaly(s). The results of this survey were strongly influenced by near-surface magnetite (in the ultrabasics) and by pyrrhotite over much of the grid. Hand smoothing of this data produced a map that defined the extent of the ultrabasics, plus anomalies that also defined the extent of the near-surface mineralisation, particularly when correlated with the results of the V.L.F. survey (Bishop, 1980 b).

The magnetic method was a logical tool to use in the search for a deeper source of mineralisation and a later attempt to 'filter' the surface noise was made by surveying with the magnetometer sensor head on a 4m pole, however, this was not successful. Processing of the data from the original survey was then attempted and this report interprets the result of passing an eleven point moving average filter through the hand smoothed profiles.

RESULTS

The results of the filtering operation are shown on a 1:5,000 scale contour plan, Figure 1, and as profiles, Figures 2a to 2j. The dominating feature of the contour plan is a large, elongate anomaly with a NW strike which extends from the eastern end of line 5,371,600N to the western end of line 5,372,400N. This anomaly closely approximates one of the anomalies

defined by the Scintrex Turair survey (Figure 3). This survey outlined two sub-parallel anomalies with a NW strike between lines 5,371,400N and 5,371,900N. The more north easterly one coincides with the anomaly defined in the filtered magnetics contour map. The other Turair anomaly (to the SW) is not seen in the filtered magnetics, however, this anomaly is poorly defined - the flight lines being 500m apart in the NW corner of the map.

There are two peaks within the filtered magnetic anomaly described above; the peak at the NW end is close to the serpentinites/sediments contact whilst the one to the SE, centred at 375,200E on line 5,371,800N is beneath strong V.L.F. and surface magnetic anomalies. Other coincident V.L.F. and magnetic anomalies on lines 5,371,700N and 5,371,900N also occur above this deep-seated anomaly. Since these surface anomalies are largely parallel or sub-parallel to strike, they are at a high angle (almost at right angles) to the strike of the deep anomaly.

The anomaly is sharply truncated to the north between lines 5,372,400N and 5,372,600N, possibly suggesting a ENE striking fault.

There is one other well defined anomaly and this is apparently associated with the serpentinites, near the inferred fault between lines 5,371,600N and 5,371,800N. Rising values on the southernmost line 5,371,200N indicate further anomalies to the south, both within the sediments and the serpentinites.

INTERPRETATION

The magnetic anomaly centred at 375,200E on line 5,371,800N and discussed above is clearly due to some finite, but elongate body at depth. Some idea of the depth and extent of the body may be obtained by using simple shapes as models for the cause of the anomaly. Whatever model is used, topography must be taken into account since variations along profiles over the anomaly are in the order of 300m.

Figure 1 shows the position of Profile AA' which passes through the highest value on the SE end of the anomaly. To this profile were matched anomalies from magnetic thin dykes and spheres. No reasonable fit was obtained for a sphere and though the fits for the final dyke models are not close, they may be used as approximations for the position of, and depth to, the body. Figure 4 shows the match between the field and model results for a thin, infinite dyke (Parker Gay, 1967), the top of which is at 250m a.s.l. The dip is near vertical, strike is about 127° to A.M.G. north, and for a susceptability of .01, it has a thickness of 100m. Figure 5 shows a poorer match from a slightly wider dyke that is 50m deeper. Other models at various depths were tried, and the fits to the dykes above, though poor, were the best obtained. Nevertheless it is considered likely that if magnetic remanence is minimal, then the depth to the body below the crest of the hill on line 5 5,371,700N (375,025E) will be between 250m and 300m. (Note that the centre of the models are offset about 160m from the peak amplitude. This is largely due to the topographic variation.)

Figure 6 shows an interpretation of a cross section along line 5,371,700N. The intersection of the magnetic dyke models with this line are indicated, as are the surface magnetic and V.L.F. anomalies which occur over the 'dyke'. Figure 7 shows the projection of the 100m thick dyke onto the contour plan of the unfiltered (but hand smoothed) magnetics (Bishop, 1980 b figure 8).

CONCLUSIONS

A simple (eleven point) moving average filter of hand smoothed magnetic profiles has produced a magnetic contour map with features similar to the Spectrex aeromagnetic map. This similarity suggests that the procedure is valid and that the results may be used to help estimate the parameters of a magnetic source at depth. Nevertheless more sophisticated data processing should perhaps be used before siting a drill target.

Using a thin infinite dyke model, the best fits were obtained for dykes with near vertical dips and upper limits between 250m and 300m a.s.l. They strike 127° A.M.G. north and on line 5,371,700N are centred beneath 375,100E. Disregarding other factors such as access, the best drill hole location to test this anomaly is from 375,210E, 5,371,850N with a direction of 217° to A.M.G. north and a dip of approximately 60°. The length of the hole would be nearly 400m. Figures 4 and 5 show projections of the proposed DDH.

Whilst it is hoped that the magnetic body is due to pyrrhotite and is the 'source' for the surface mineralisation, it is of course possible that the anomaly is due to an offshoot, at depth, of the serpentinites.

The magnetic data from the southern and eastern extensions of the Colebrook Grid (December, 1980) should be 'tied in' to this, the June, 1980 data and a map of the filtered magnetics produced which includes this extra data.

J.R. BISHOP.

JRB/and

[illegible] December, 1980.

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322

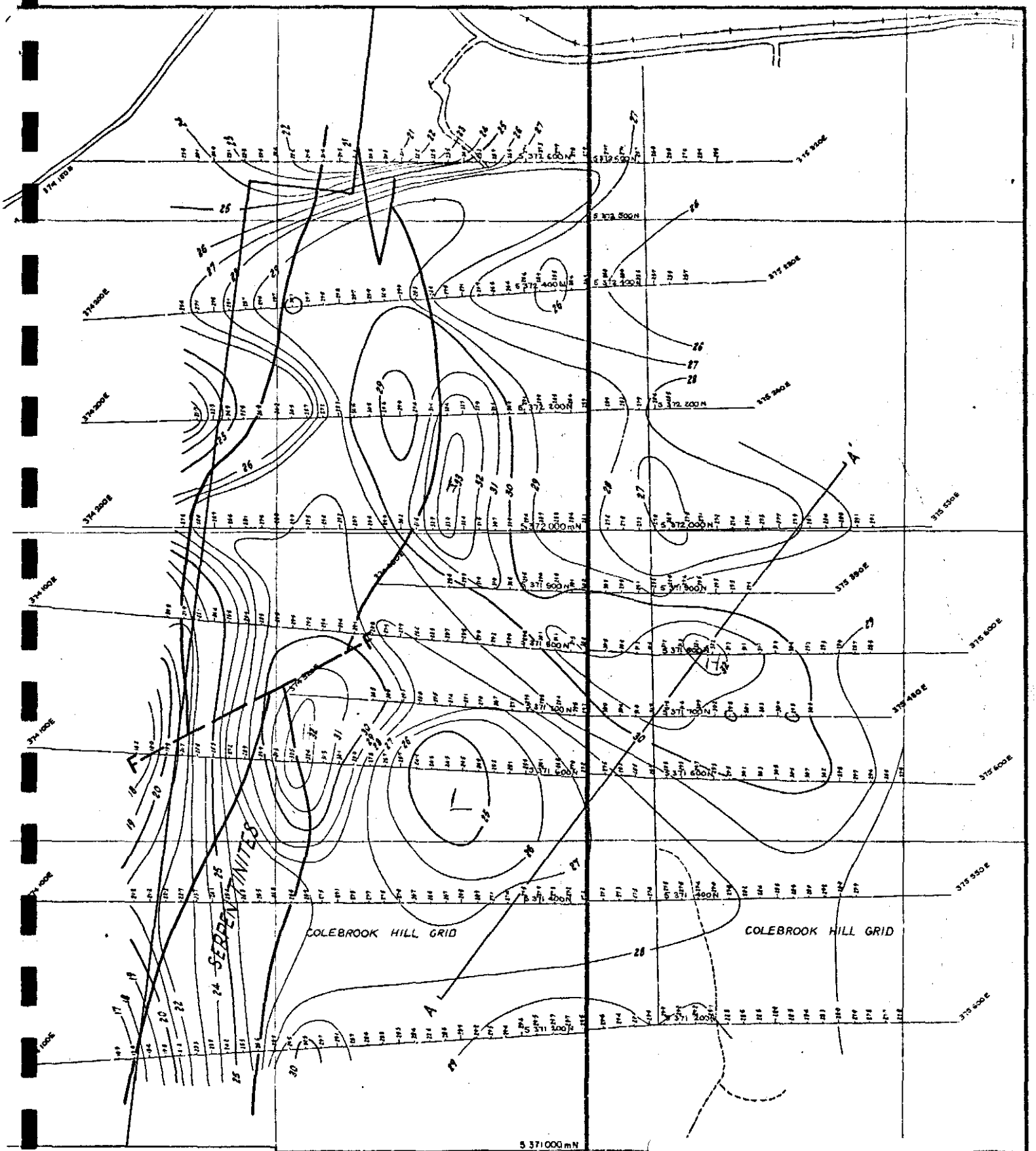
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Appraisal of Colebrook Hill Geophysics, August, 1980.
Report for E.Z., West Coast Mines.

Bishop J.R., 1980 b
Mitre Geophysics
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Report for E.Z., West Coast Mines.

Parker Gay S., 1967
Standard curves for interpretation of magnetic anomalies over long tabular bodies, in: Mining Geophysics, Vol. 2 SEG.

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NOTES:

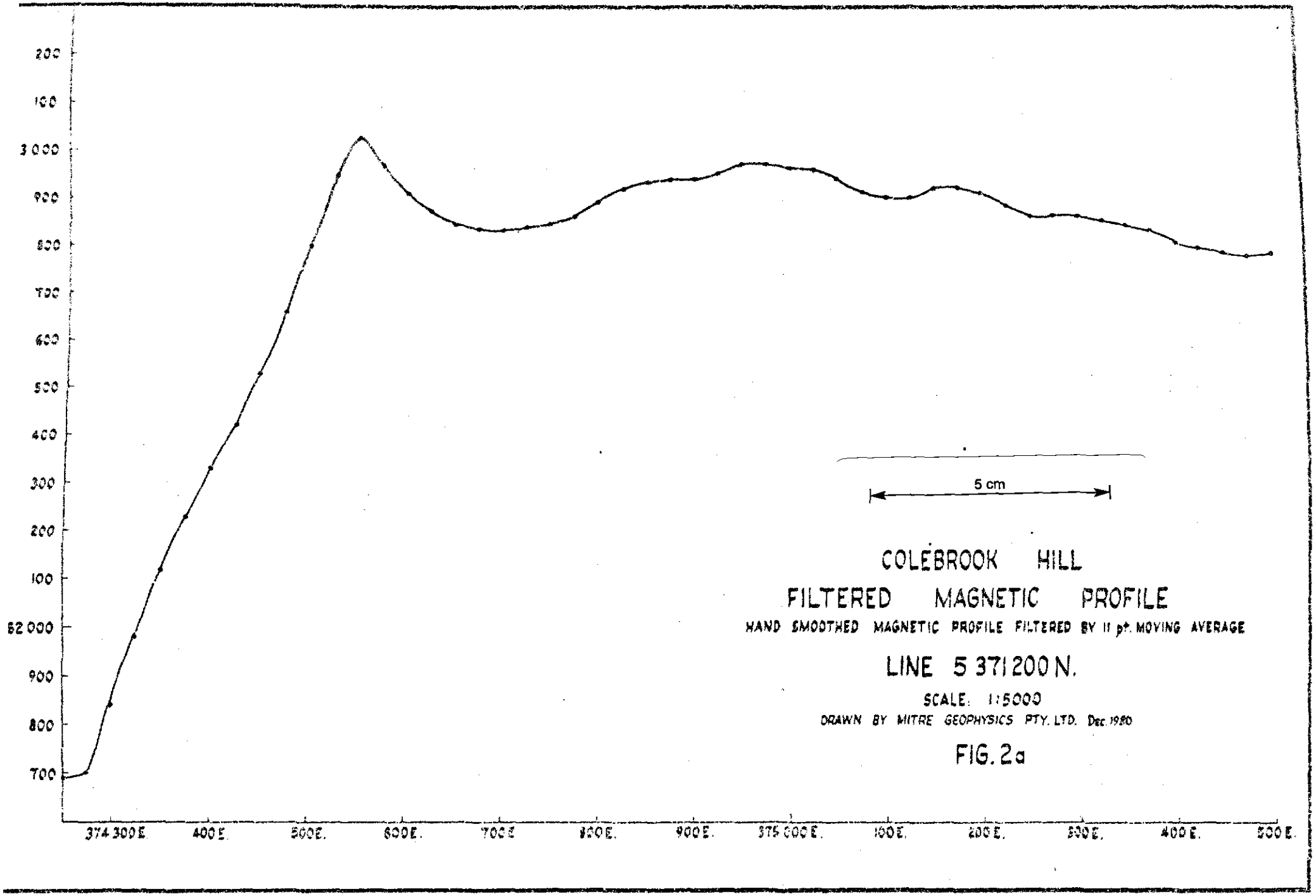
1. An 11 point moving average has been applied to the hand smoothed magnetics.
2. Contours are hundreds of gammas above 60,000 γ
3. Contour interval 100 γ
4. Data points were taken at 25 m intervals from the hand smoothed profiles.
5. The survey station spacing was :-
   5 371 200 N to 5 371 750 N 10m
   5 371 800 N to 5 372 600 N 20m.

MITRE GEOPHYSICS PTY. LTD.

COLEBROOK HILL

FILTERED MAGNETICS

DRAWN JB	SCALE 1:5000	FIG 1
TRACED TSDS	DATE DEC 1980	



COLEBROOK HILL

FILTERED MAGNETIC PROFILE

HAND SMOOTHED MAGNETIC PROFILE FILTERED BY 11 pt. MOVING AVERAGE

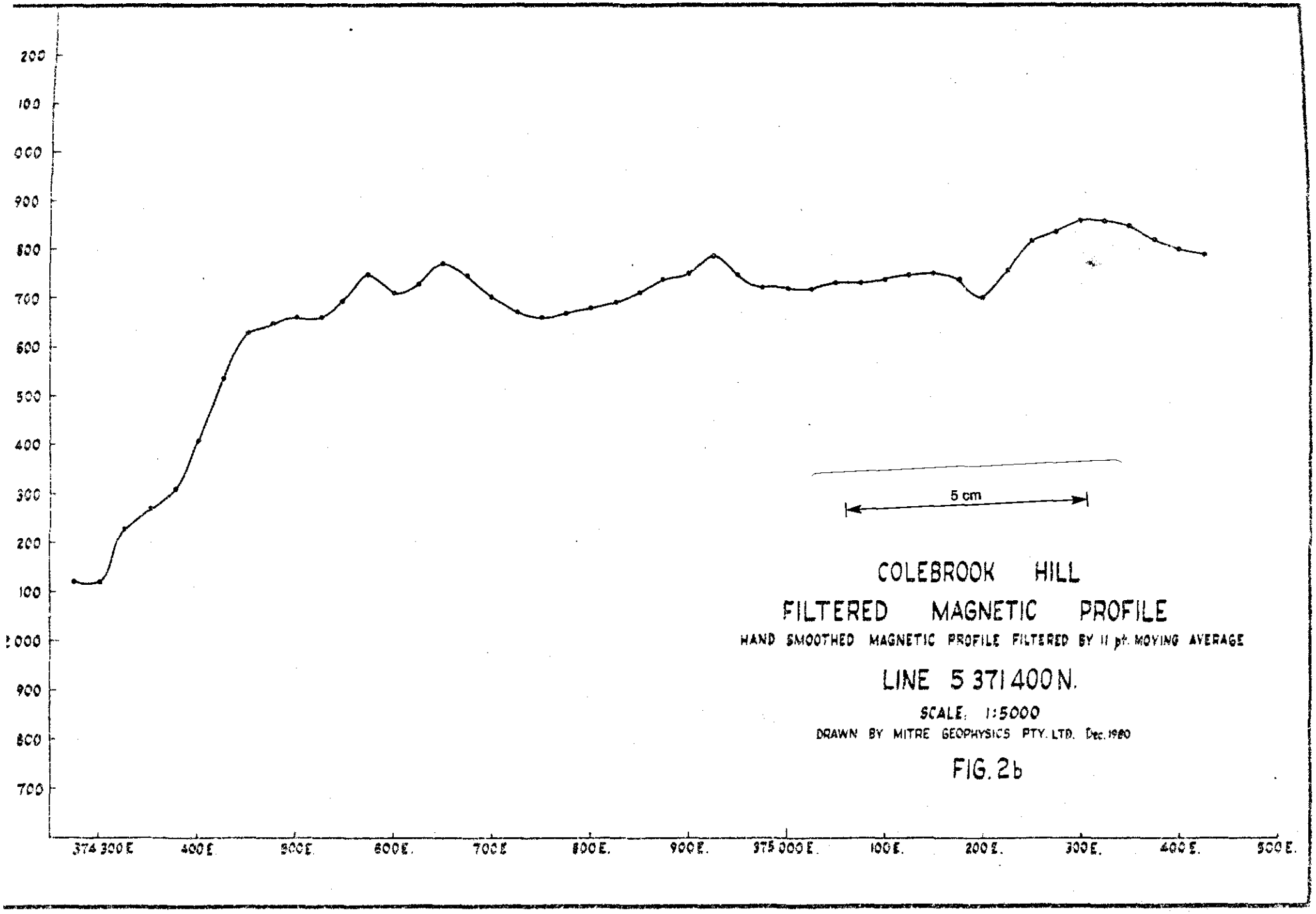
LINE 5 371 200 N.

SCALE: 1:5000

DRAWN BY MITRE GEOPHYSICS PTY. LTD. Dec. 1980

FIG. 2a

79 3406 324



COLEBROOK HILL

FILTERED MAGNETIC PROFILE

HAND SMOOTHED MAGNETIC PROFILE FILTERED BY 11 pt. MOVING AVERAGE

LINE 5 371 400 N.

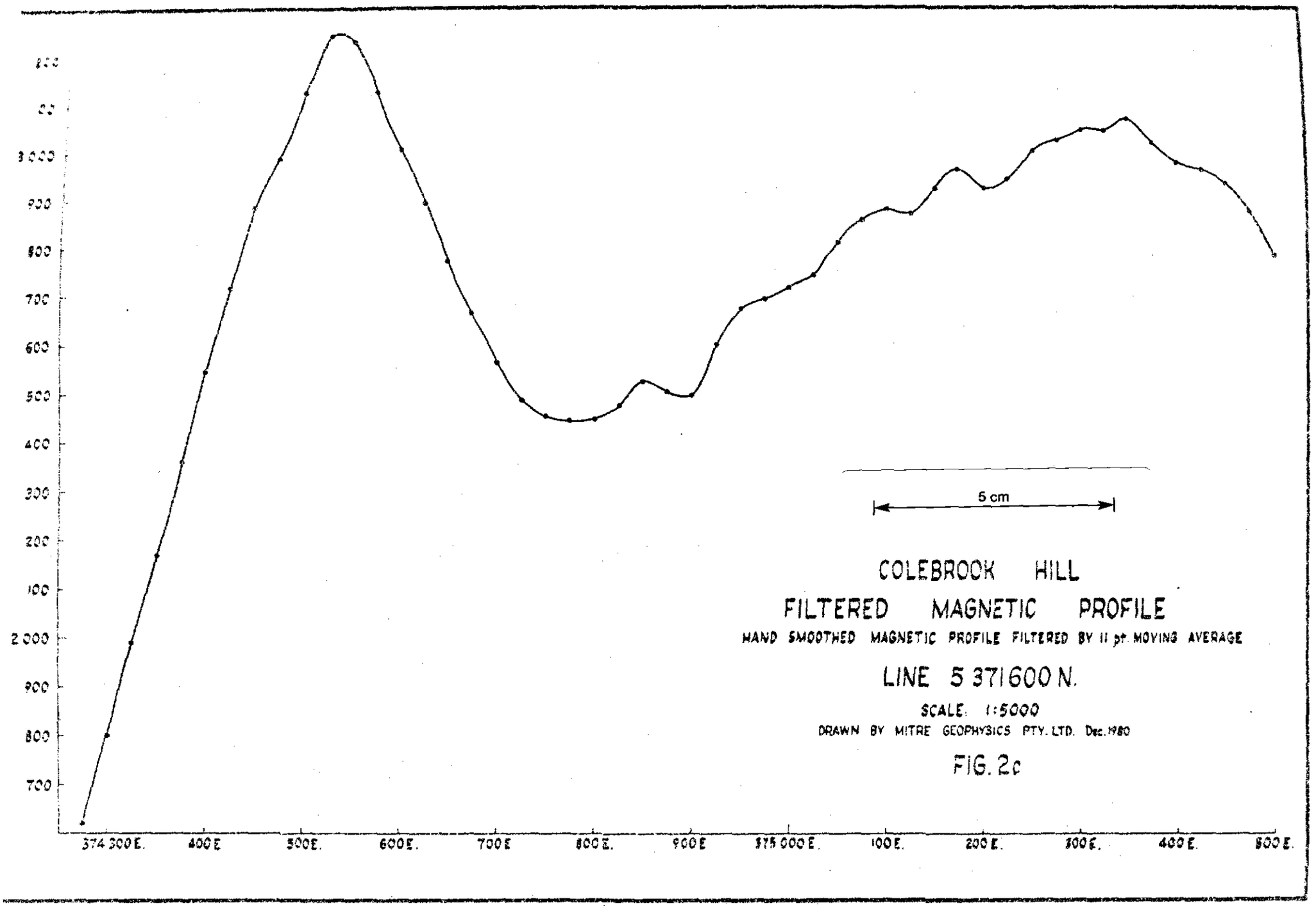
SCALE: 1:5000

DRAWN BY MITRE GEOPHYSICS PTY. LTD. Dec. 1980

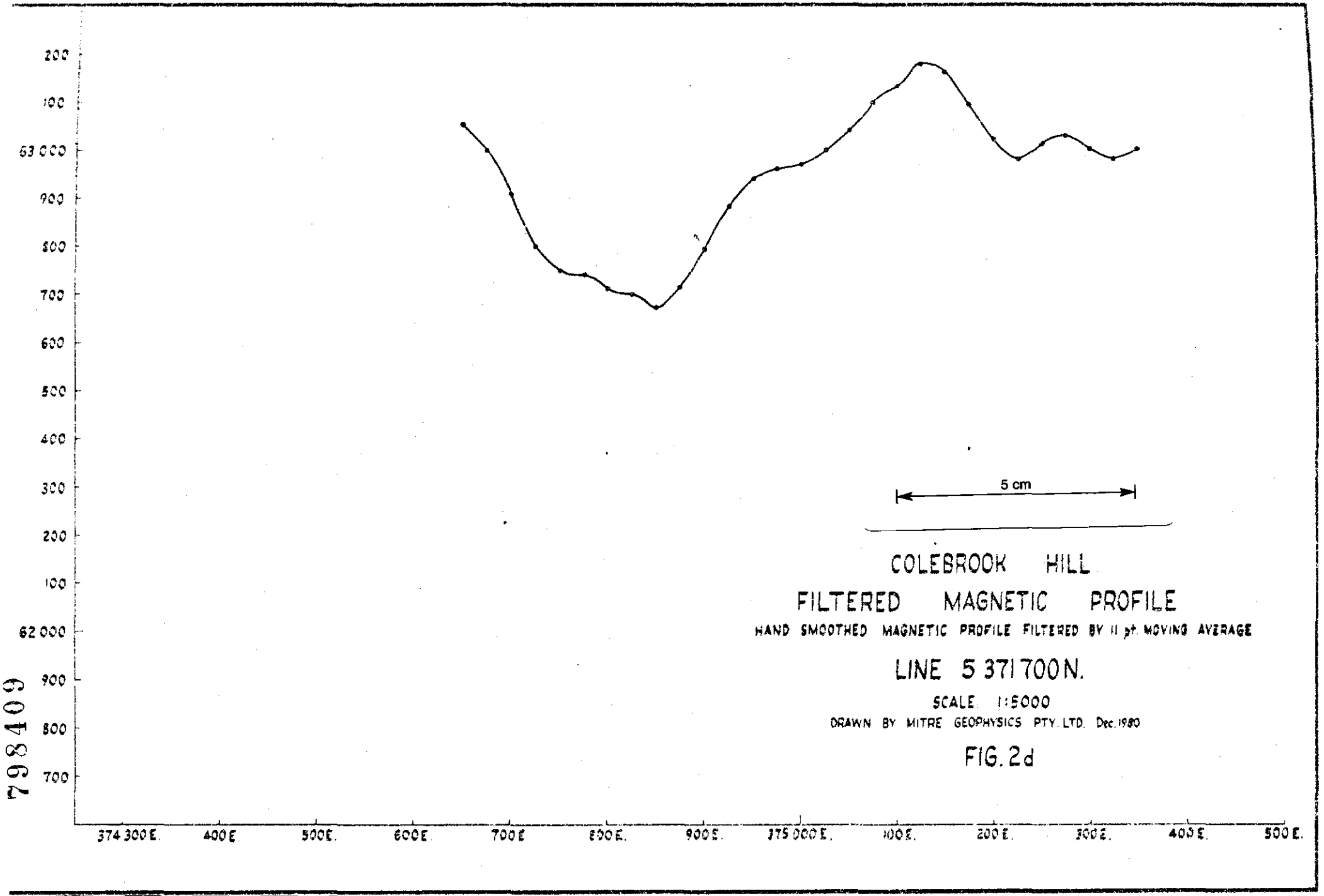
FIG. 2b

79840?

325

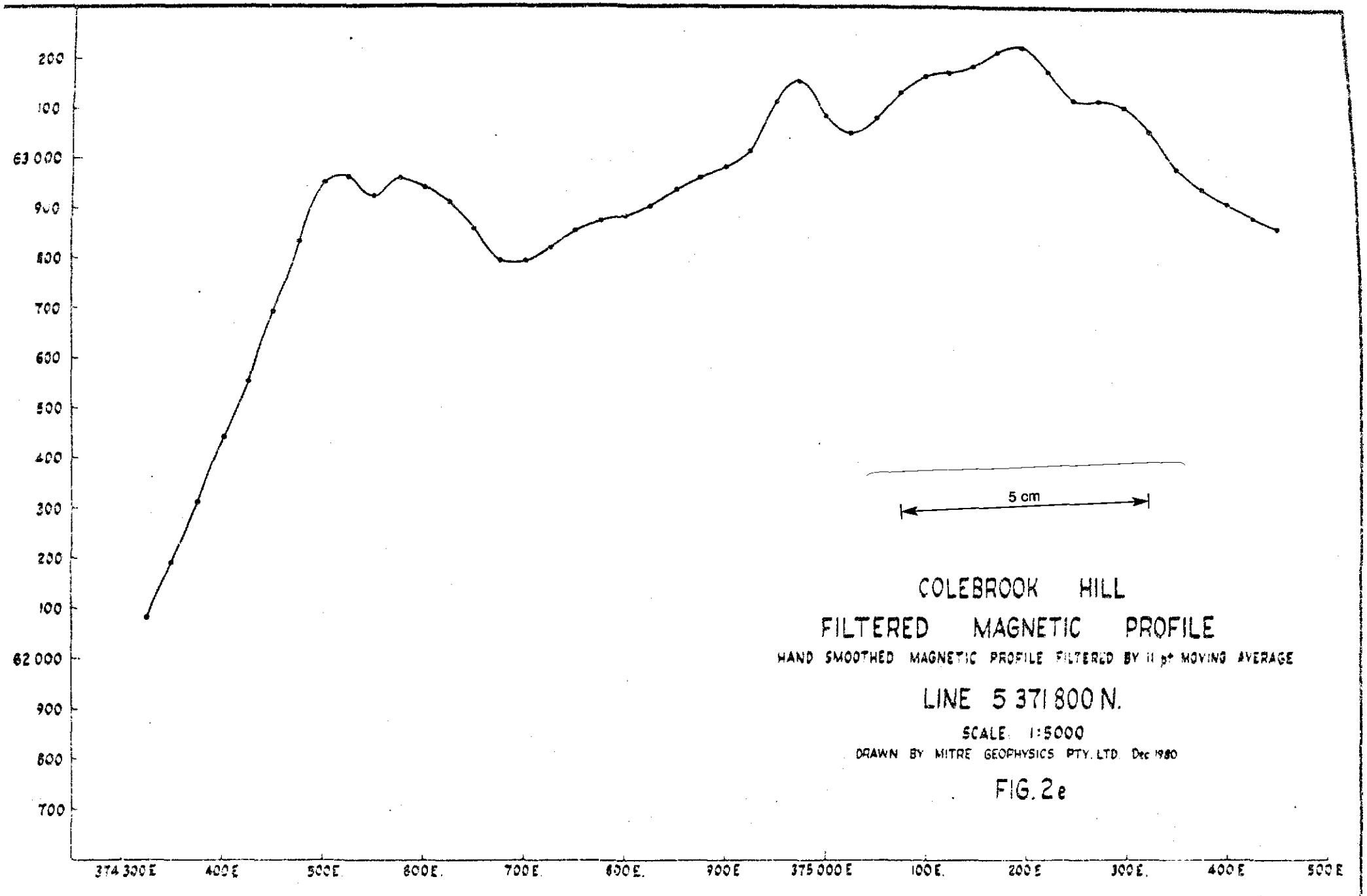

3 000
900
800
700
600
500
400
300
200
100
2 000
900
800
700
374 300 E.
400 E.
500 E.
600 E.
700 E.
800 E.
900 E.
375 000 E.
100 E.
200 E.
300 E.
400 E.
500 E.
5 cm
COLEBROOK HILL
FILTERED MAGNETIC PROFILE
HAND SMOOTHED MAGNETIC PROFILE FILTERED BY 11 pt. MOVING AVERAGE
LINE 5 371600 N.
SCALE: 1:5000
DRAWN BY MITRE GEOPHYSICS PTY. LTD. Dec. 1980
FIG. 2c

798408


200
100
63 000
900
800
700
600
500
400
300
200
100
62 000
900
800
700
374 300 E.
400 E.
500 E.
600 E.
700 E.
800 E.
900 E.
375 000 E.
100 E.
200 E.
300 E.
400 E.
500 E.
5 cm
COLEBROOK HILL
FILTERED MAGNETIC PROFILE
HAND SMOOTHED MAGNETIC PROFILE FILTERED BY 11 pt. MOVING AVERAGE
LINE 5 371 700 N.
SCALE 1:5000
DRAWN BY MITRE GEOPHYSICS PTY. LTD. Dec. 1980
FIG. 2d

798409

7984110



COLEBROOK HILL

FILTERED MAGNETIC PROFILE

HAND SMOOTHED MAGNETIC PROFILE FILTERED BY 11 pt MOVING AVERAGE

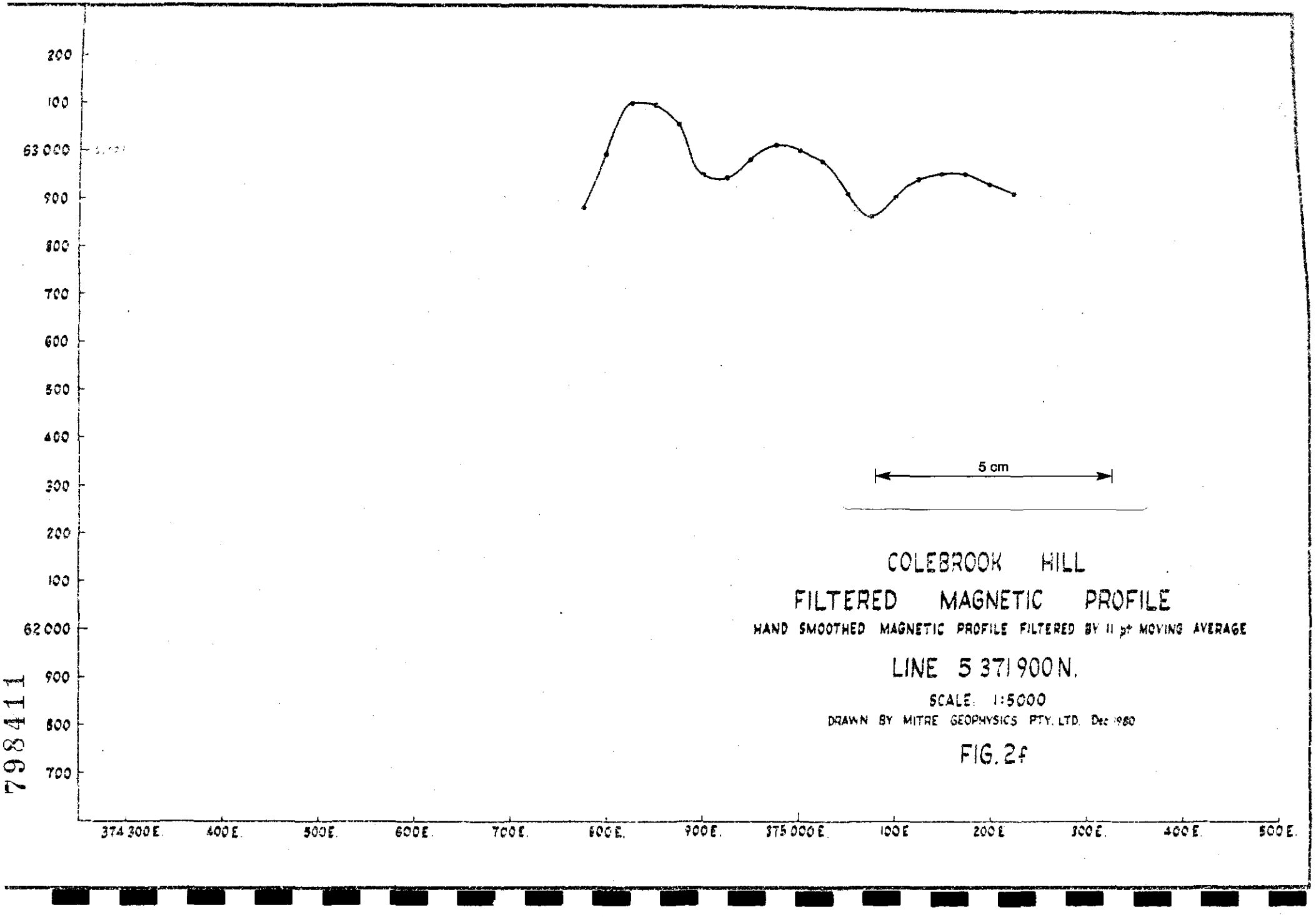
LINE 5 371 800 N.

SCALE 1:5000

DRAWN BY MITRE GEOPHYSICS PTY. LTD. Dec 1980

FIG. 2e

328



COLEBROOK HILL

FILTERED MAGNETIC PROFILE

HAND SMOOTHED MAGNETIC PROFILE FILTERED BY 11 pt MOVING AVERAGE

LINE 5 371 900 N.

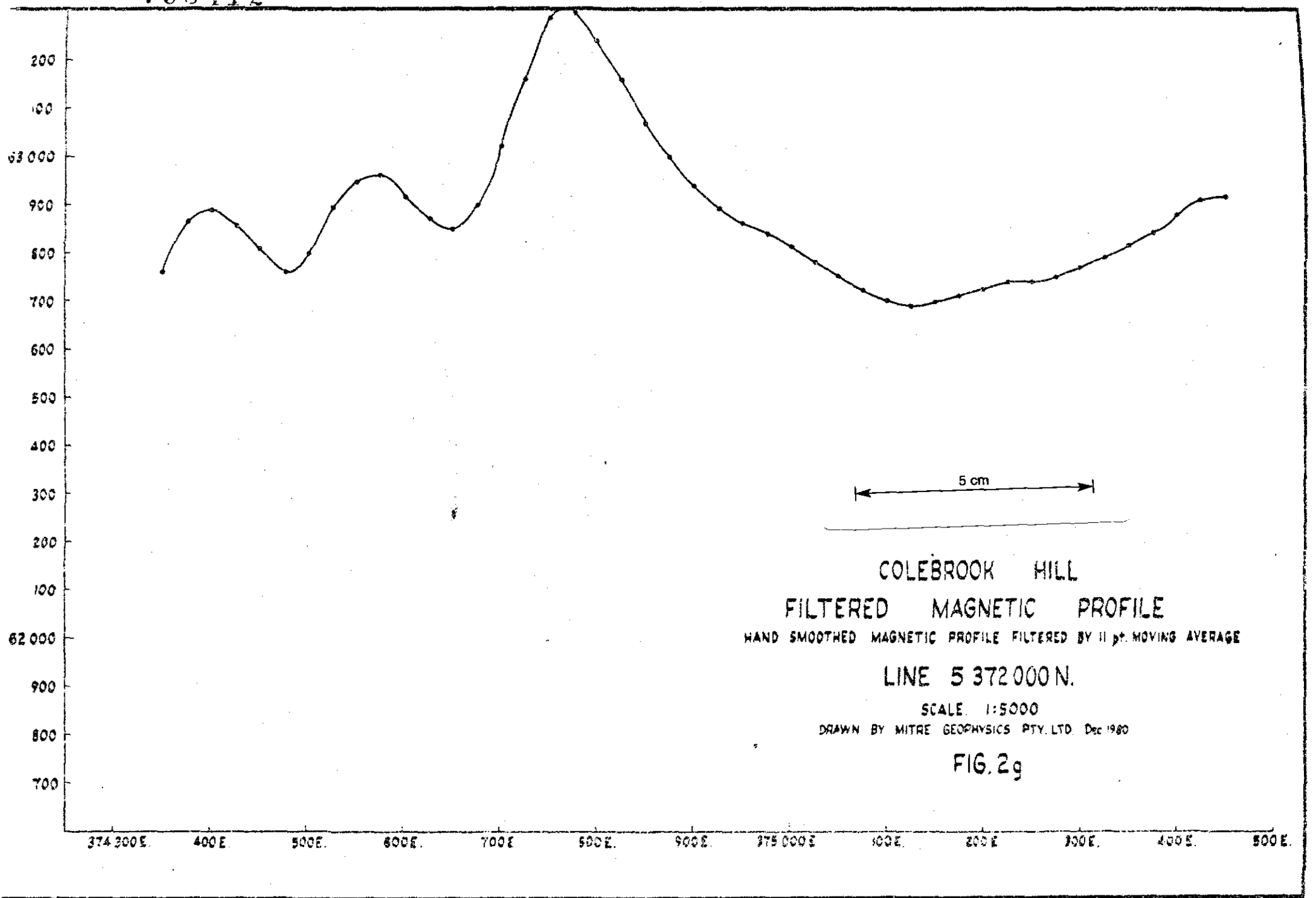
SCALE 1:5000

DRAWN BY MITRE GEOPHYSICS PTY. LTD. Dec 1980

FIG. 2f

79841 1

798412



COLEBROOK HILL

FILTERED MAGNETIC PROFILE

HAND SMOOTHED MAGNETIC PROFILE FILTERED BY 11 pt. MOVING AVERAGE

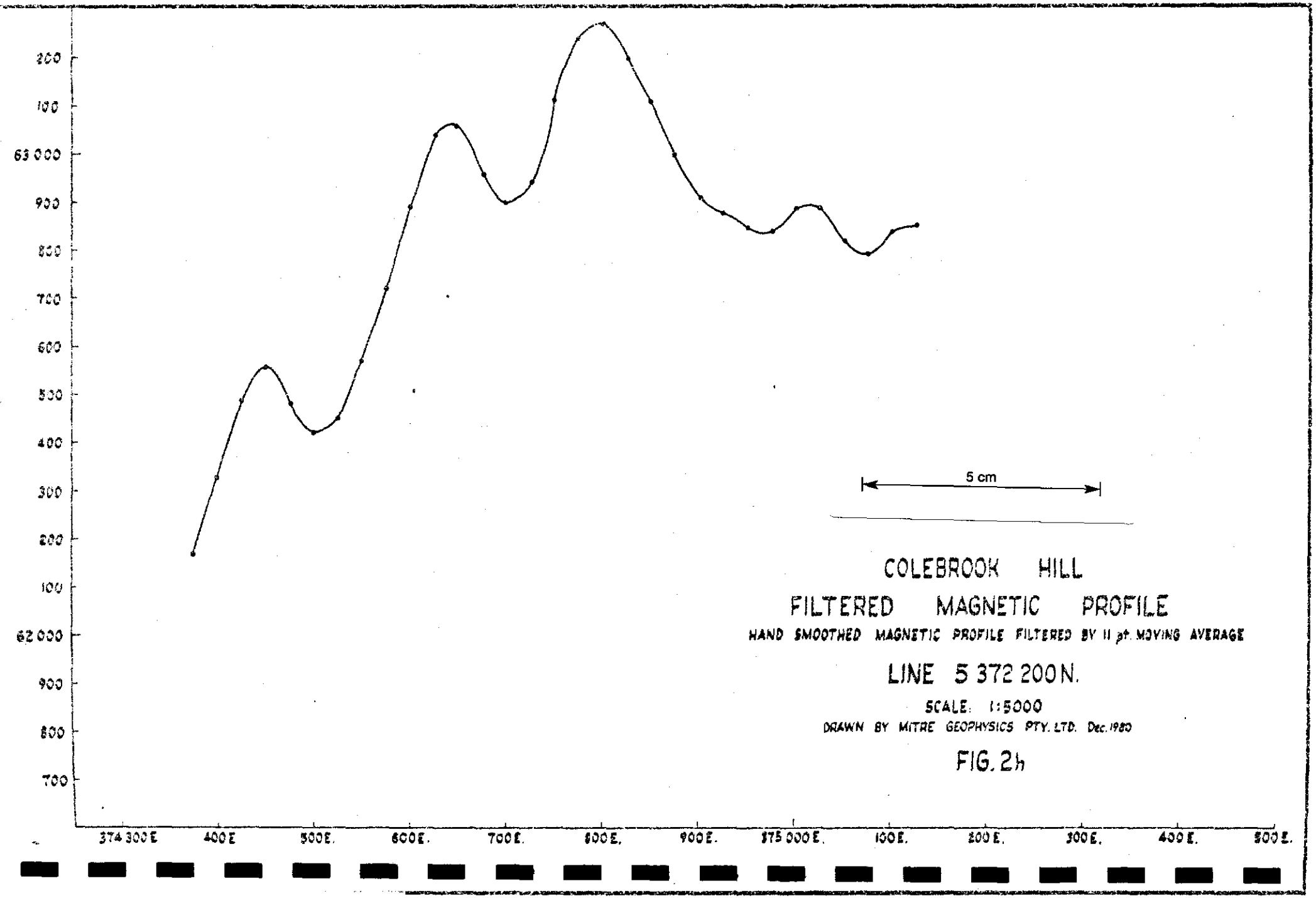
LINE 5 372 000 N.

SCALE 1:5000

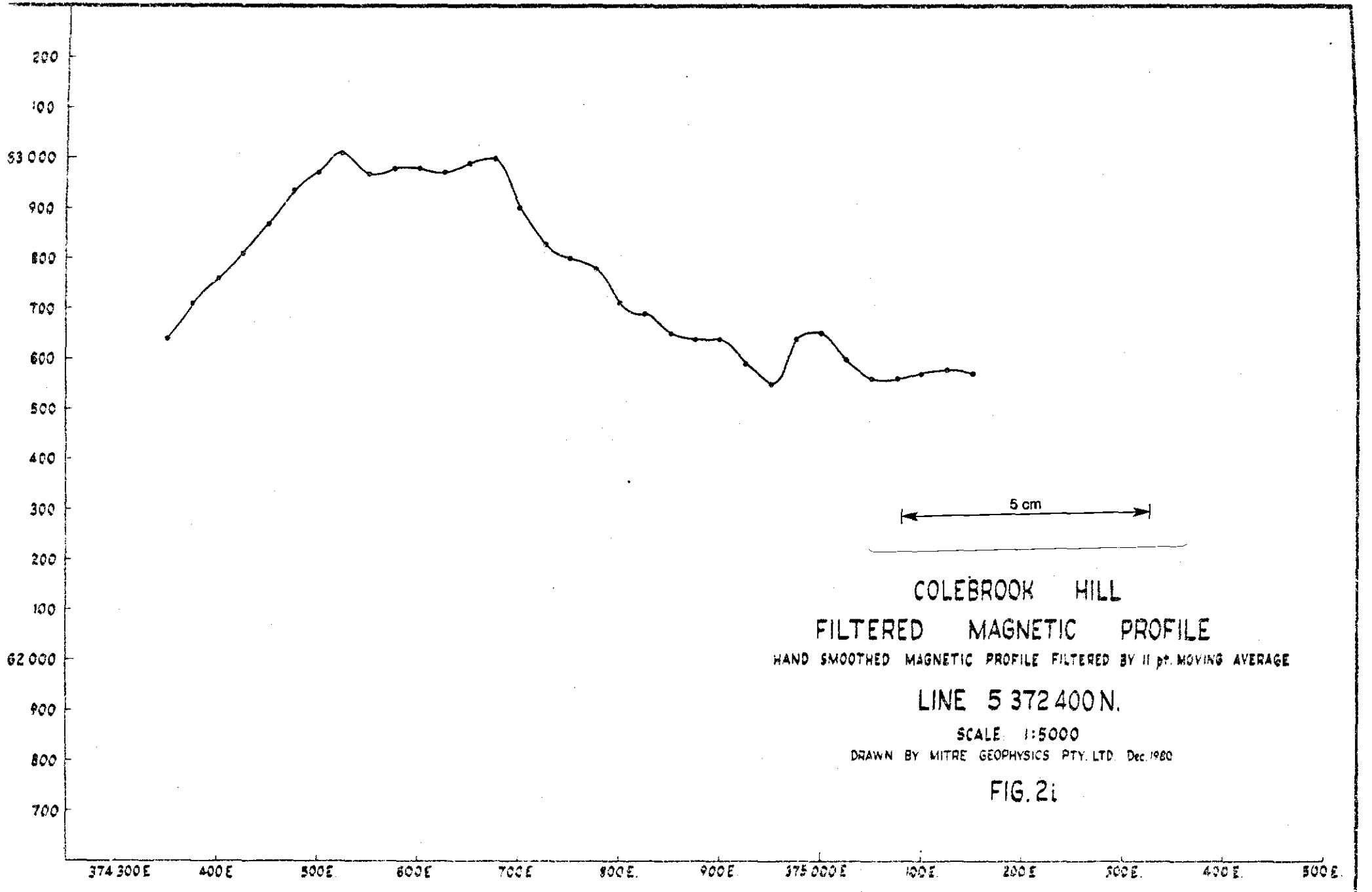
DRAWN BY MITRE GEOPHYSICS PTY. LTD. Dec 1980

FIG. 2g

798413


200
100
63 000
900
800
700
600
500
400
300
200
100
62 000
900
800
700
374 300 E
400 E
500 E.
600 E.
700 E.
800 E.
900 E.
375 000 E.
100 E.
200 E.
300 E.
400 E.
500 E.
5 cm
COLEBROOK HILL
FILTERED MAGNETIC PROFILE
HAND SMOOTHED MAGNETIC PROFILE FILTERED BY 11 pt. MOVING AVERAGE
LINE 5 372 200 N.
SCALE: 1:5000
DRAWN BY MITRE GEOPHYSICS PTY. LTD. Dec. 1980
FIG. 2h

798414



COLEBROOK HILL

FILTERED MAGNETIC PROFILE

HAND SMOOTHED MAGNETIC PROFILE FILTERED BY 11 pt. MOVING AVERAGE

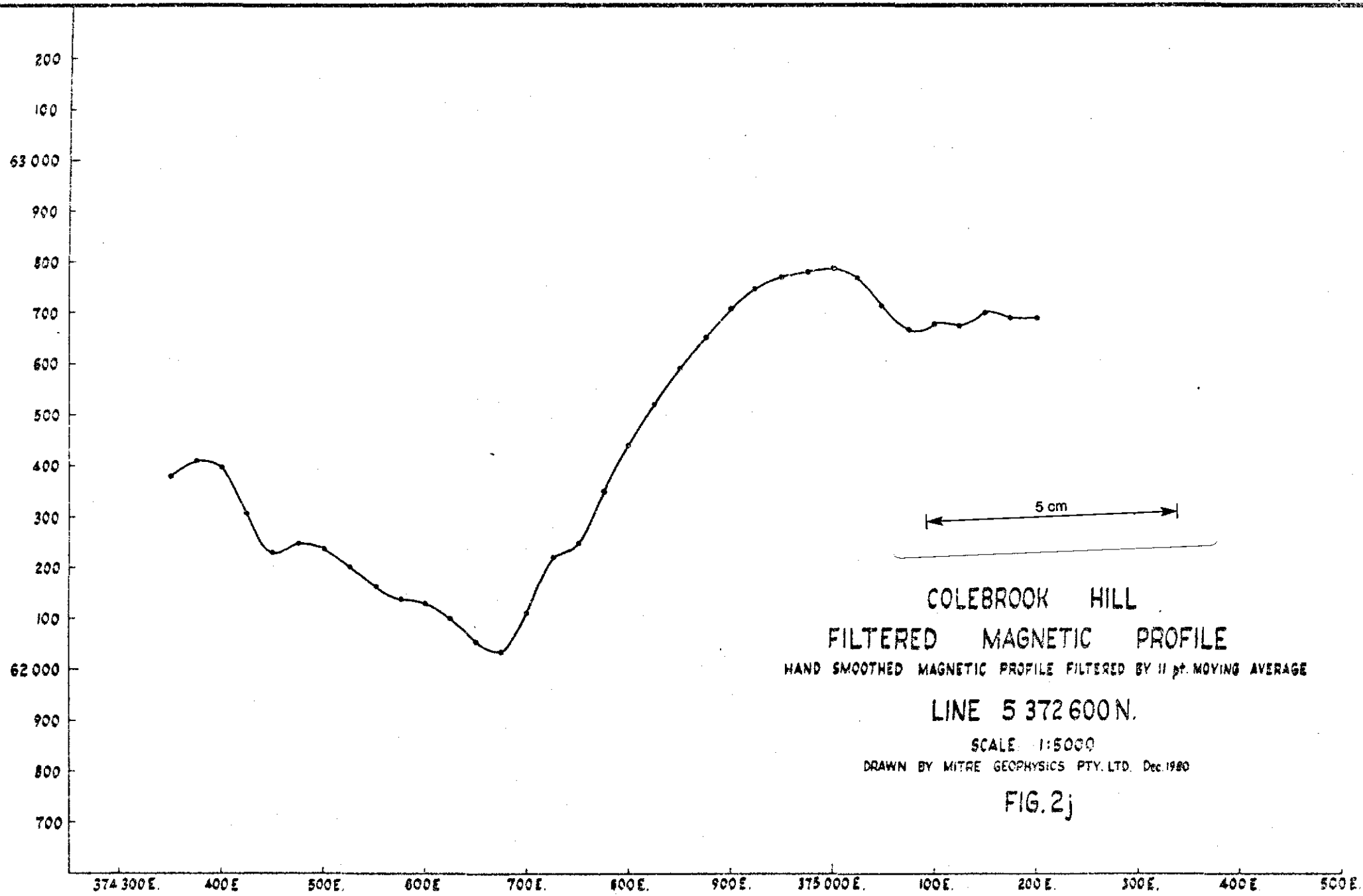
LINE 5 372 400 N.

SCALE 1:5000

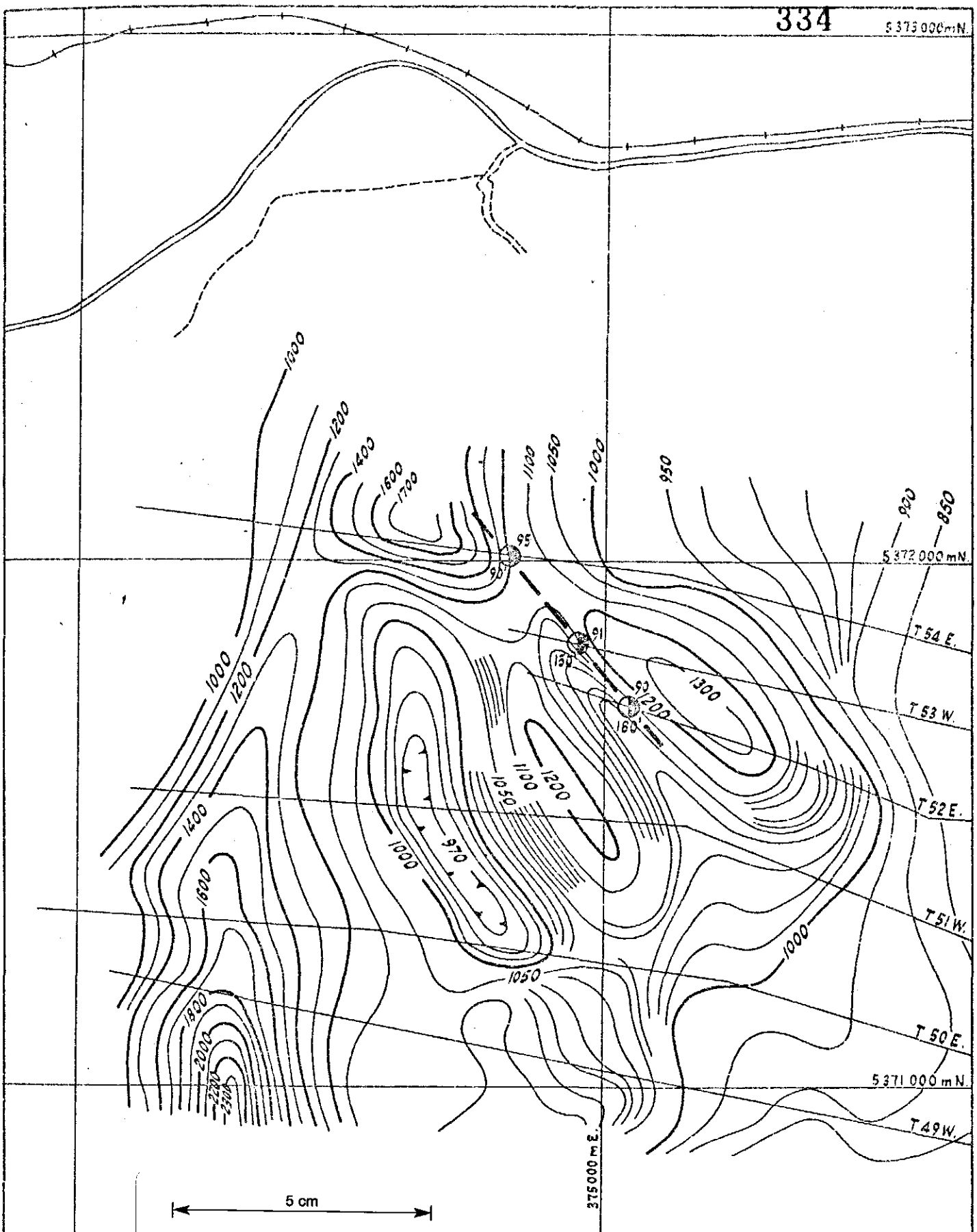
DRAWN BY MITRE GEOPHYSICS PTY. LTD. Dec. 1980

FIG. 2i

798415


200
100
63 000
900
800
700
600
500
400
300
200
100
62 000
900
800
700
374 300 E.
400 E
500 E.
600 E
700 E.
800 E.
900 E.
375 000 E.
100 E.
200 E.
300 E.
400 E
500 E.
5 cm
COLEBROOK HILL
FILTERED MAGNETIC PROFILE
HAND SMOOTHED MAGNETIC PROFILE FILTERED BY 11 pt. MOVING AVERAGE
LINE 5 372 600 N.
SCALE 1:5000
DRAWN BY MITRE GEOPHYSICS PTY. LTD. Dec. 1980
FIG. 2j

798410



NOTES:

Nominal height: 45 m.
Nominal line spacing: 150 m.

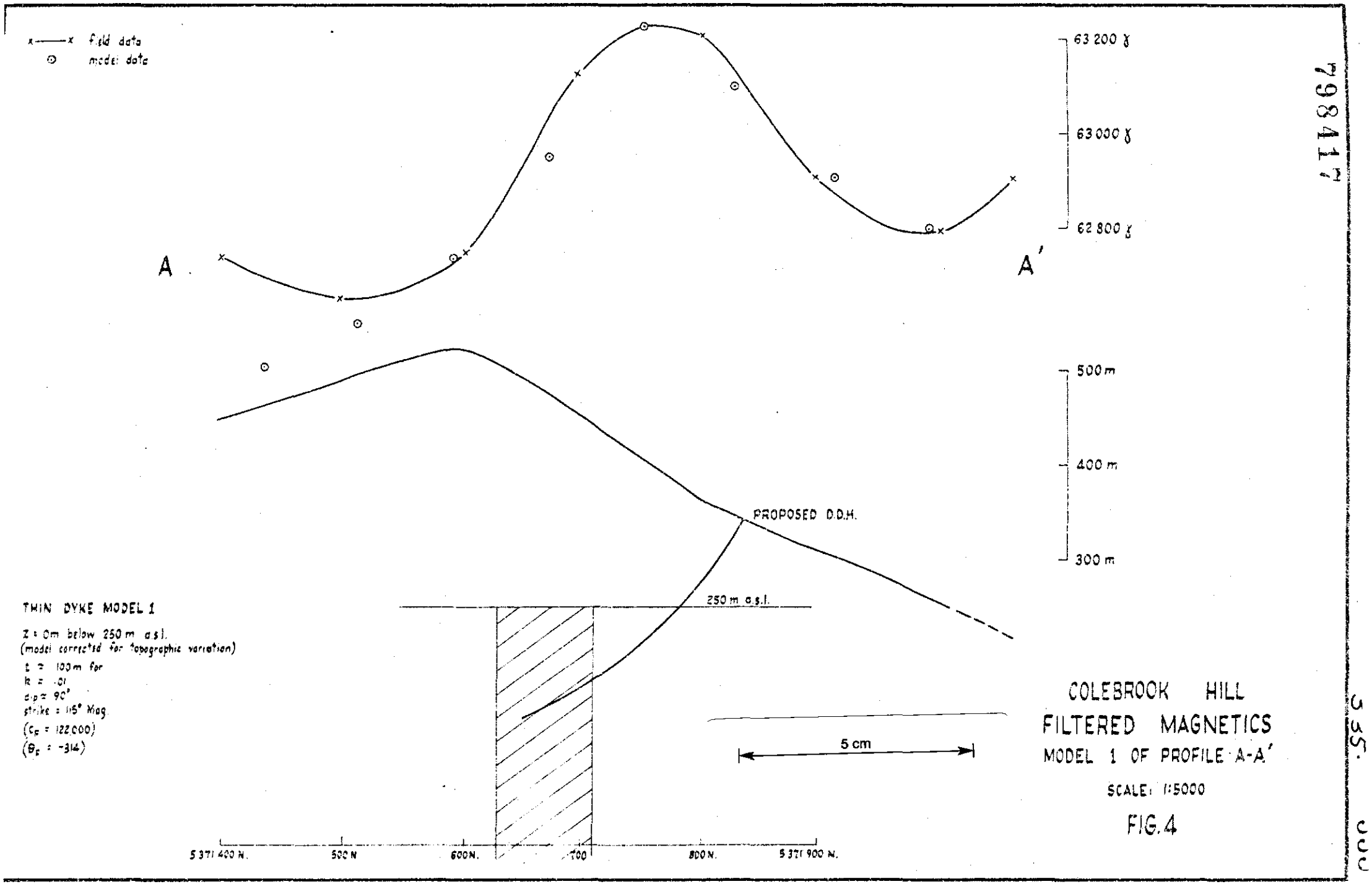
E.M. — 90 / 150' — Anomaly No. / Depth to Conductor

ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.

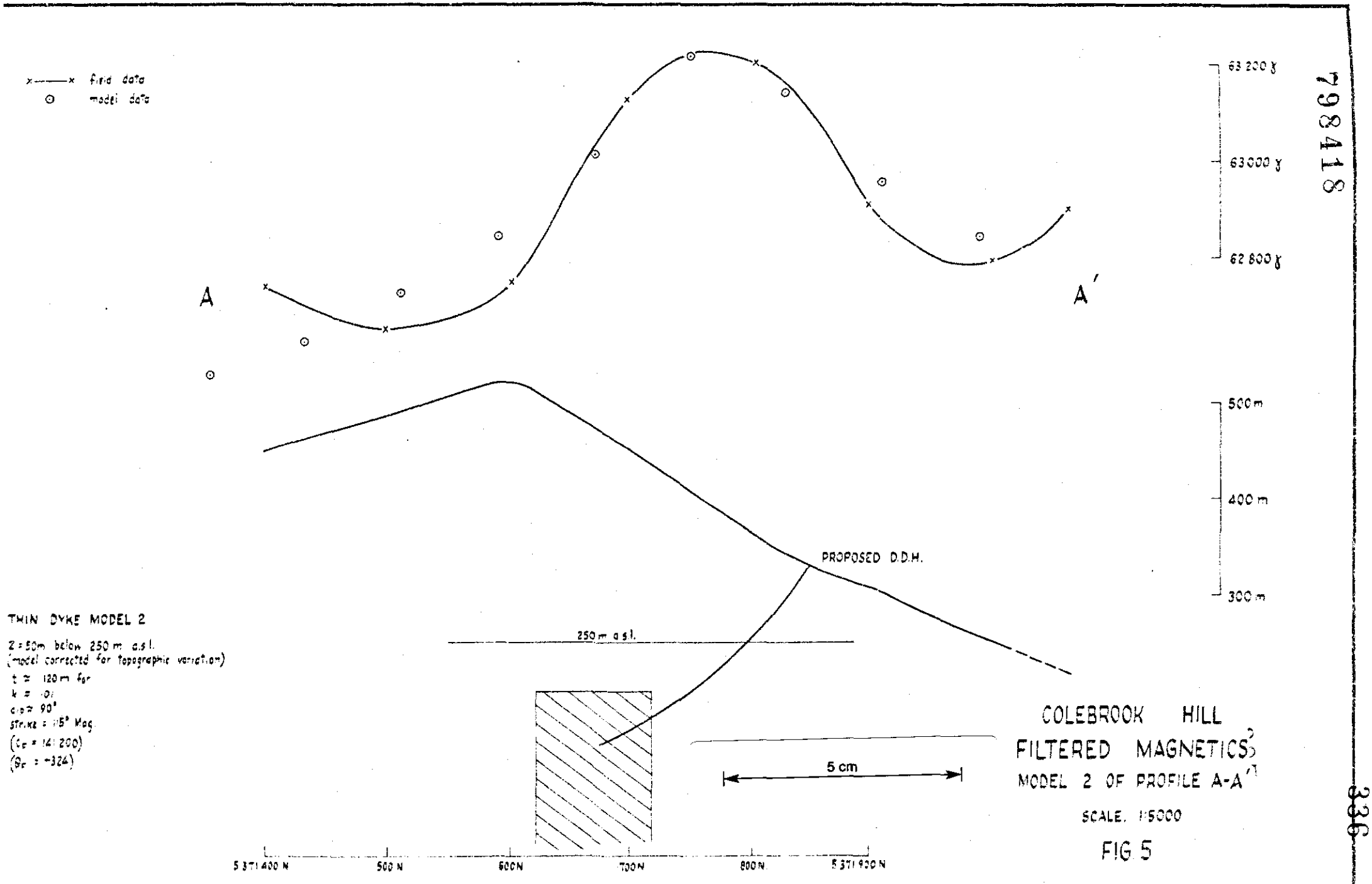
PROJECT: MT. BLACK E.L. 1/62 | TAS.

COLEBROOK HILL
SCINTREX AEROMAGNETICS
(TURAIR SURVEY 1972)
FIG. 3

SCALE: 1:10000	Survey: J.B.	Revised:
Reference:	Date: Nov. 1980	REF. NO.
Drawn: TGDS	Checked:	A4


x——x field data
⊙ model data
63 200 γ
63 000 γ
62 800 γ
A
A'
500 m
400 m
300 m
PROPOSED D.D.H.
250 m a.s.l.
THIN DYKE MODEL 1
Z = 0m below 250 m a.s.l.
(model corrected for topographic variation)
t = 100m for
k = .01
dip = 90°
strike = 115° Mag.
(c_p = 122,000)
(θ_p = -314)
5 cm
5 371 400 N.
500 N
600N.
700
800 N.
5 371 900 N.
COLEBROOK HILL
FILTERED MAGNETICS
MODEL 1 OF PROFILE A-A'
SCALE: 1:5000
FIG. 4

79811A



TWIN DYKE MODEL 2

Z = 50m below 250 m a.s.l.
(model corrected for topographic variation)
t = 120 m for
k = .01
dip = 90°
strike = 15° Mag
(θ_F = 14 200)
(θ_F = -324)

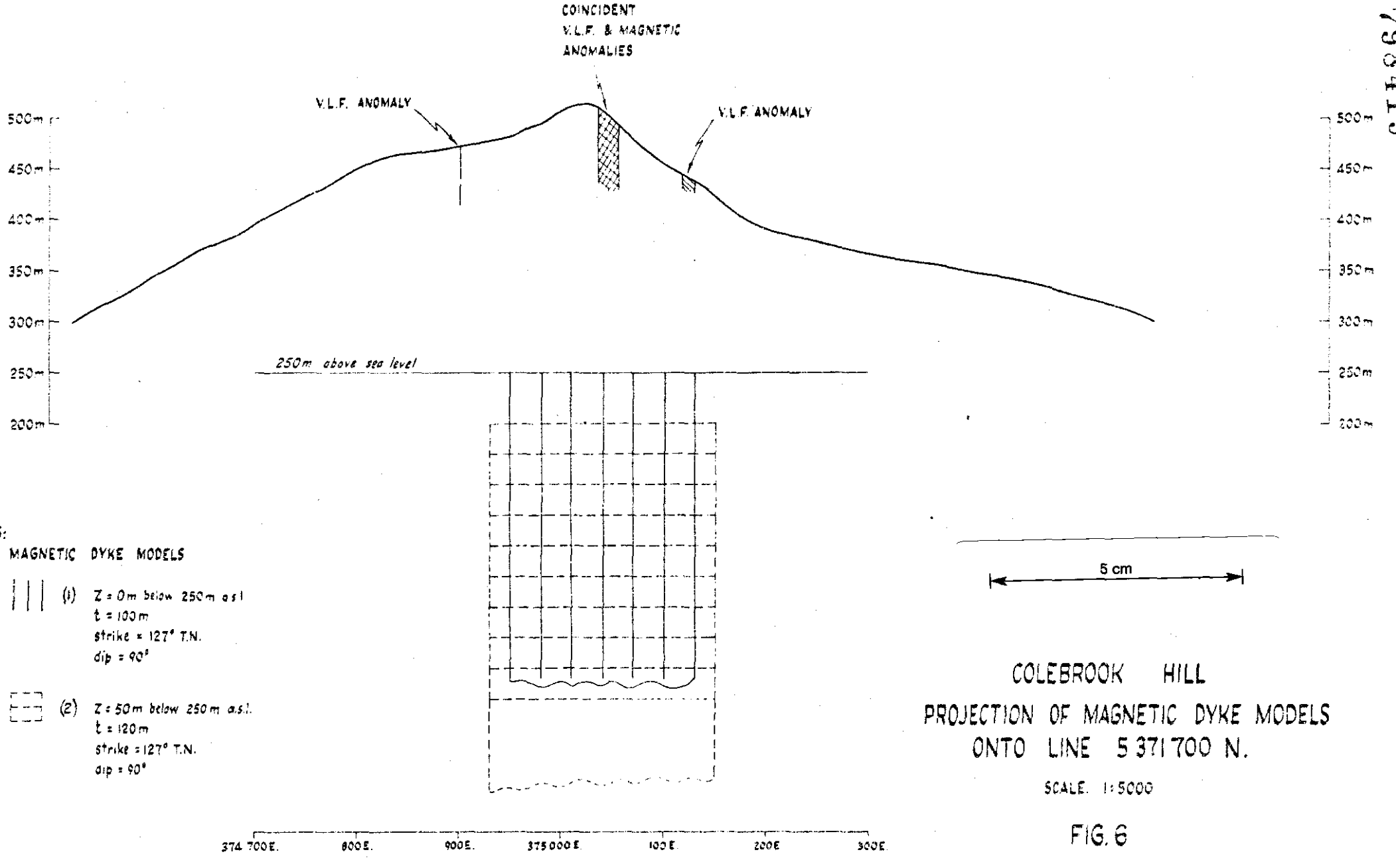
COLEBROOK HILL
FILTERED MAGNETICS
MODEL 2 OF PROFILE A-A′
SCALE. 1:5000

FIG 5

7984418

339

79814G



OTES:

MAGNETIC DYKE MODELS

(1) Z = 0m below 250m a.s.l
t = 100m
strike = 127° T.N.
dip = 90°

(2) Z = 50m below 250m a.s.l.
t = 120m
strike = 127° T.N.
dip = 90°

COLEBROOK HILL

PROJECTION OF MAGNETIC DYKE MODELS
ONTO LINE 5 371 700 N.

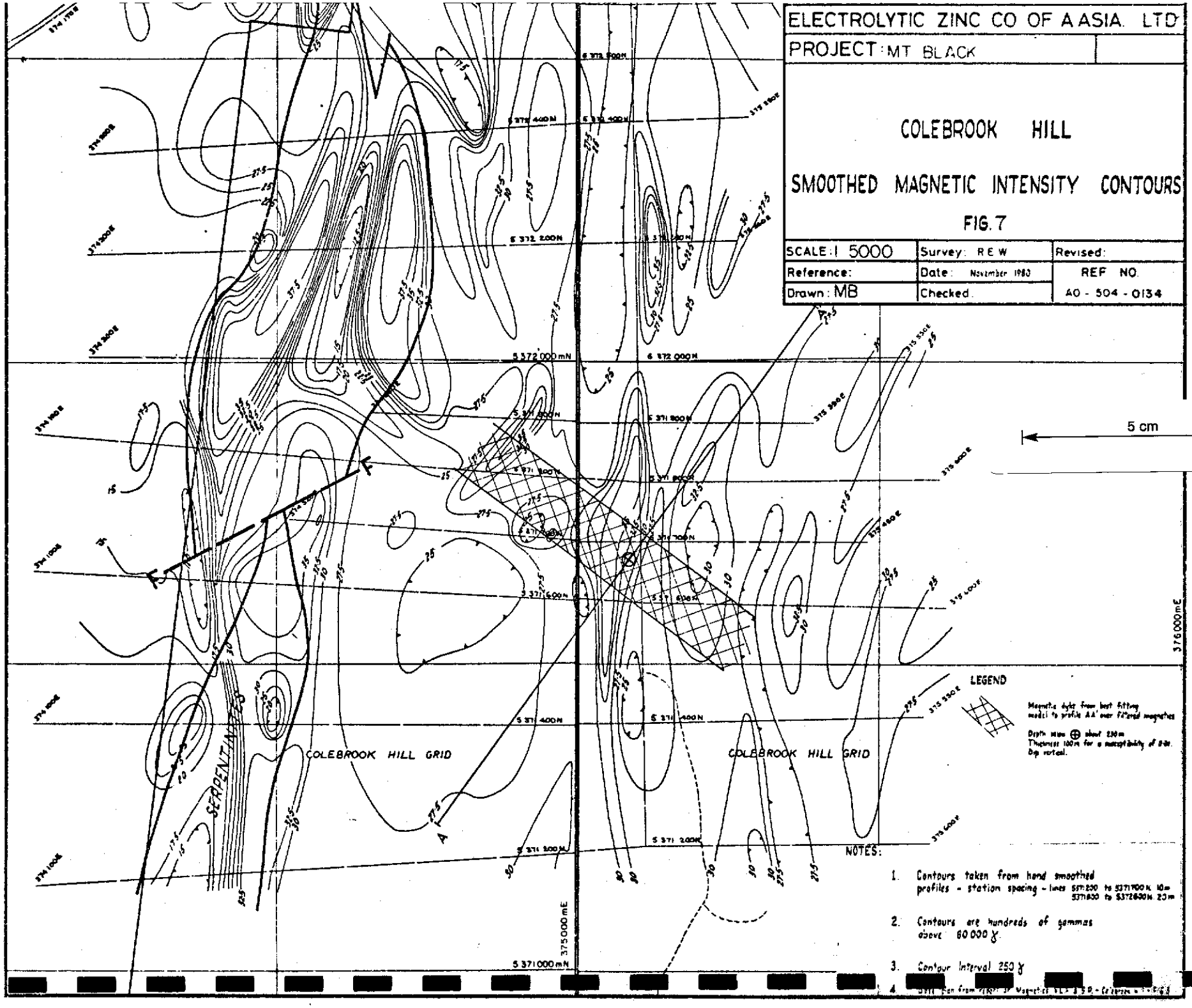
SCALE. 1:5000

FIG. 6

337

338

798420


ELECTROLYTIC ZINC CO OF A'ASIA LTD
PROJECT: MT BLACK
COLEBROOK HILL
SMOOTHED MAGNETIC INTENSITY CONTOURS
FIG. 7
SCALE: 1 5000
Survey: R E W
Revised:
Reference:
Date: November 1980
REF NO.
Drawn: MB
Checked:
AO - 504 - 0134
5 cm
COLEBROOK HILL GRID
COLEBROOK HILL GRID
SERPENTINE
LEGEND
NOTES:
1. Contours taken from hand smoothed profiles - station spacing - lines 5371250 to 5371700 N. 10m 5371650 to 5372600 N. 25m
2. Contours are hundreds of gammas above 60 000 γ.
3. Contour Interval 250 γ
4.
5 372 000mN
5 371 800N
5 371 600N
5 371 400N
5 371 200N
5 371 000mN
375000mE
376000mE

APPENDIX XII

'Analysis of the computer modelling of the V.L.F. survey over Colebrook Hill' by Mitre Geophysics.

798422
340

ANALYSIS OF

THE COMPUTER MODELLING OF

THE V.L.F. SURVEY

OVER

COLEBROOK HILL

BY

MITRE GEOPHYSICS PTY. LTD.

FEBRUARY, 1981.

EZ/MG81/04

MITRE GEOPHYSICS PTY LTD
MINERAL EXPLORATION AND ENGINEERING CONSULTANTS
BUGGS LANE ELLIOTT TASMANIA 7325 PHONE 004-363143

798423

ANALYSIS OF

THE COMPUTER MODELLING OF

THE V.L.F. SURVEY

OVER

COLEBROOK HILL

BY

DR. J.R. BISHOP

4th February, 1981

EZ/MG81/04

342
[illegible]84424

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AIM AND INTRODUCTION	3
RESULTS	3 - 8
CONCLUSIONS	8 - 9
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LIST OF FIGURES

FIGURE 1. V.L.F. dip angle and field strength profiles over a conductive hill.

FIGURE 2. V.L.F. dip angle and field strength profiles over a vertical contact on a hill.

FIGURE 3. V.L.F. dip angle and field strength profiles over a conductor in 1,000 ohm-m host, at the crest of a hill ($\sigma t = 10$).

FIGURE 4. V.L.F. dip angle and field strength profiles over a conductor in a 1,000 ohm-m host, at the crest of a hill ($\sigma t = 3.3$).

FIGURE 5. V.L.F. dip angle and field strength profiles over a conductor in a 1,000 ohm-m host, at the crest of a hill ($\sigma t = 33$).

FIGURE 6. V.L.F. dip angle and field strength profiles over a conductor in a 10,000 ohm-m host, at the crest of a hill ($\sigma t = 5$).

FIGURE 7. V.L.F. dip angle and field strength profiles over a conductor in a 10,000 ohm-m host, at the crest of a hill ($\sigma t = 10$).

FIGURE 8. V.L.F. dip angle and field strength profiles over a conductor of limited depth extent.

FIGURE 9. V.L.F. dip angle and field strength profiles over a conductor buried by 20m of overburden.

FIGURE 10. V.L.F. dip angle and field strength profiles over a conductor at the crest of a hill with a smaller conductor on the western slope.

FIGURE 11. V.L.F. dip angle and field strength profiles over line 5,371,700N, Colebrook Hill.

..(iii)/.

FIGURE 12. Frequency response of filter operator for a station spacing of 15m (50ft).

FIGURE 13. Results of the filter operator using 15m and 25m sampling intervals on the V.L.F. topographic response.

FIGURE 14. Results of the filter operator using 15m and 25m sampling intervals on the V.L.F. model no. 7 - a conductive dyke in a 10,000 ohm-m host.

FIGURE 15. Results of the filter operator using 15m, 25m and 10m sampling intervals on V.L.F. data from line 5,371,700N.

SUMMARY

Computer modelling of the V.L.F. survey over Colebrook Hill was carried out to determine to what extent the topography contributed to the responses.

The work was carried out at Macquarie University by Keeva Vozoff, Professor of Geophysics. The following situations were modelled.

1. A hill only with resistivity of 1,000 ohm-m.
2. A vertical contact at the crest of a hill, resistivies 1,000 and 500 ohm-m.
3. A thin vertical conductor (σt* = 10) in a 1,000 ohm-m hill.
4. A thin vertical conductor (σt = 3.3) in a 1,000 ohm-m hill.
5. A thin vertical conductor (σt = 33) in a 1,000 ohm-m hill.
6. A thin vertical conductor (σt = 5) in a 10,000 ohm-m hill.
7. A thick vertical conductor (σt = 10) in a 10,000 ohm-m hill.
8. A thick vertical conductor (σt = 10) of limited depth extent in a 10,000 ohm-m hill.
9. A thick vertical conductor (σt = 10) buried by 20m of overburden in a 10,000 ohm-m hill.
10. A thick vertical conductor (σt = 10) with a subsidiary body 130m west in a 10,000 ohm-m hill.

The profile over line 5,371,700N was used as the type anomaly. However, no attempt was made at precise curve matching, but rather the modelling was carried out to determine more general relationships.

The results showed that whilst a V.L.F. dip angle anomaly of the order of 20° can be obtained over a quite resistive (1,000 ohm-m) hill, this response did not make a significant contribution to the results over Colebrook Hill. The modelling shows that these anomalies are due to (near) outcropping conductors and a conductivity-thickness product (σt) of the order of 10 is suggested (this means, for example, that a vein of massive sulphides with a conductivity of 10 siemens/m, would be 1m thick). However, this paramter was not very sensitive to change.

* σt stands for conductivity-thickness product.

..2/.

The modelling also showed that the vertical thickness - at least for 100m or greater could not be estimated. It also showed that the conductor causing the response on the western side of the hill was very much smaller (i.e. a lower σt) than that on the crest of the hill.

The Colebrook Hill V.L.F. data had been contoured using the method of Fraser (1969). This method is actually a filtering operation, whereby some anomalies may be enhanced and others attenuated. Tests on the V.L.F. response over the hill showed that Fraser's recommended sampling interval of 15m was more effective than was the 25m interval used on the survey data. However, this latter interval enhanced the anomaly over the conductor to a larger extent than did the 15m spacing. Thus it appears that with judicious use of sample interval, Fraser's operator can be used to enhance surface anomalies and minimize terrain effects.

AIM AND INTRODUCTION

The V.L.F. survey over Colebrook Hill revealed several well-defined anomalies. The strongest of these were associated with the crest of the hill and it was desired to know to what extent the topography affected the results.

Professor Vozoff of Macquarie University carried out some computer modelling using a program which gives the responses of two dimensional structures to plane (electromagnetic) waves.

RESULTS

Ten different models were calculated and these are listed in Table 1. Apart from calculating the effect of the topography only (Figure 1) responses from various thin tabular conductors on the crest of a hill were also calculated (Figures 3 to 10). Line 5,371,700N (Figure 11) was used as the type profile, however, the aim not to try and exactly match the results but rather to establish some generalised relationships. The figures have been presented as overlays so that they may be readily compared with another and with the type profile 5,371,700N.

The modelling of the topography meant that a fine grid for modelling of narrow sheet-like bodies could not be used and the model widths of 20m and 40m are much wider than is expected to be the field situation. However, the conductivity-thickness product (around 10 siemens) is expected to be within an order of magnitude (although the model anomalies are a little larger than the field curves). Thus if the resisitivity of the conductor is between 0.1 and 1.0 ohm-m (massive sulphides) then the width will be 1 to 10m wide.

Two topographic models were used. The first, on model 1 only, is a symmetric hill but with the flat ground on the eastern side 20m higher than on the western side. This illustrates the differences in field

TABLE 1.

Model No.	Model Type	Conductivity Thickness Product (σt siemens)	Body Thickness	Host Resistivity ohm-m	Comments
1.	A	-	-	1,000	Broad anomaly
2.	B	-	-	1,000/500	Broad anomaly
3.	C	10	20m	1,000	Sharp anomaly
4.	C	3.3	20m	1,000	Little change from Model 2.
5.	C	33	20m	1,000	Slightly more anomalous
6.	C	5	20m	10,000	A better approximation to field curve
7.	C	10	40m	10,000	Similar response to Model 6.
8.	D	10	40m	10,000	Similar response to Model 6.
9.	E	10	40m	10,000	Anomaly slightly attenuated
10.	F	10, 5	40m, 20m	10,000	Small conductor too large in comparison with field curve

A = Topography only.
B = Vertical contact at crest of a hill.
C = Vertical outcropping conductor at crest of hill.
D = Vertical conductor of limited (120m) depth extent.
E = Vertical conductor buried by (20m) overburden.
F = Second small conductor 130m from main conductor.

..5/.

strength levels recorded on line 5,371,700N, Colebrook Hill (which has its higher topography on the western side). The second topographic profile - used on all the other models is an asymmetric profile with a steeper lower slope on the eastern side. For both models the hill is 180m high and they are quite adequate approximations to the profile for line 5,371,700N (Figure 11). A brief description of the models follows.

Figure 1 shows the V.L.F. reponse for a 180m high hill with a 27° slope. The hill is on the surface of a homogeneous half-space which has a resistivity of 1,000 ohm-m. The dip angle anomaly is nearly 20° and is very broad. The field strength rises from 1% to 1.7% (it is the horizontal, and perpendicular to strike, magnetic component of the resultant electromagnetic field that is plotted). In the field it is the horizontal component perpendicular to the propogation direction that is measured (ideally these are identical). The eastern side of the topographic profile is 20m higher than the western, and this shows the reason for the difference in field strength levels on the field profile, Figure 11. (Data points further east than those points shown in Figure 1 have even higher field strength values.)

Figure 2 shows the V.L.F. response over a vertical contact coincident with the crest of a hill. The hill is slightly different from Figure 1; the lower eastern flank is slightly steeper and the elevations are the same away from each side of the hill (this topography was used for all models except No. 1). The resistivities either side of the contact are 1,000 and 500 ohm-m. The profile is a little steeper, and a little larger, than for the topography only, but is effectively indistinguishable from it.

Figure 3 shows the V.L.F. response for a vertical sheet-like conductor coincident with the crest of a hill. The host material has a resistivity of 1,000 ohm-m and the conductor a resisitivity of 2 ohm-m. The body is 20m wide and infinitely deep (and long). The resultant anomaly is large (40 plus degrees) and is an approximation to the dip angle profile over line 5,371,700N. Limitations to the model program require a wider, more resistive body than is likely to be the case at Colebrook Hill. However, the response is dependant upon the conductivity-thickness product (σt) and this may be modelled quite accurately.

Figure 4 shows the same model as in Figure 3 except that the resisivity of the body is higher at 6 ohm-m, thus $\sigma t = 3.3$ (one third of Model 3), however, there is little noticeable reduction in the response.

Figure 5 is the same as for Figure 3 except that the resistivity of the body has been dropped to 0.6 ohm-m (i.e. $\sigma t = 33$, 3.3 times larger than in Figure 3). Again there is no noticeable change in the response. Thus at least within the ranges of this model, the conductivity thickness product is not a sensitive parameter over a change of one order of magnitude (3.3 to 33).

Figure 6 shows the result of increasing the host-rock resistivity by an order of magnitude (to 10,000 ohm-m). The resistivity of the conductor is 4 ohm-m and since the width is still 20m, $\sigma t = 5$. The anomaly is much larger owing to the increased contrast, but it also decays more gradually and in this respect, is a better approximation to the field data. This host resistivity is used for all the subsequent models.

Figure 7 is as Figure 6 except that a 40m wide body is used. The resistivity is the same and the σt is increased from 5 to 10. This was done to keep the resistivity contrasts within the limitations of the program. There is little change from Figure 6.

Figure 8 shows the effect of a finite depth to the conductor; in this case 120m. The negligible change from Figure 7 illustrates the poor penetration of the V.L.F. method.

Figure 9 illustrates the effect of burying the conductor; in this case 20m. Although the amplitude of the dip angle is a better match to the field curve, the rounded profile of the model field-strength results compared with the 'spike' of the field data (Figure 11), confirms that the body outcrops.

Figure 10 shows the effect of a second, small conductor on the western side of the hill. Although only half the σt of the main body and only 40m deep, the response is far larger than the response recorded in the

..7/.

field and thus the model may serve as an upper limit to any body on the west side of Colebrook Hill. However this western response does strengthen both to the north and south of line 5,371,700N (see Bishop, 1980, Figure 4).

The method of contouring the V.L.F. dip angle data (Fraser, 1969) proved most effective in defining the V.L.F. anomalies (see Bishop, 1980, Figure 4). Fraser also shows that his operation accentuates anomalies typical of ore bodies and attenuates responses with both higher and lower wavelengths. Fraser argues that a station spacing of 50ft (15m) should be used for V.L.F. surveys and he shows the frequency response for his filtering operation using this spacing (Figure 12). The figure shows that anomalies with wavelengths of 75m (five times the station spacing) are enhanced by a factor of three, whilst those with much shorter wavelengths (high frequency noise) are completely attenuated. The low frequency response (e.g. an anomaly due to a hill) decays asymptotically to zero amplitude at zero frequency. Fraser states that topographic effects are greatly attenuated by the filter 'and generally do not appear on the contoured maps'. As an example, the response over the hill is filtered using a 15m data interval and this is compared with a 25m interval (which was used for the Colebrook survey) - see Figure 13.

The anomaly due to the hill has a wavelength of approximately 800m (i.e. a space frequency of 1.3×10^{-3} cycles/m or 3.8×10^{-4} cycles per/ft) and thus the anomaly should be reduced by about one half. The 15m interval filtering operation does in fact almost attenuate the anomaly by one half (actually 0.58). It can be seen that the 25m spacing used on the Colebrook Hill field results hardly attenuates the topographic effect at all (an attenuation factor of 0.89). These two spacings were tried on model 7 - the best fitting model to the field data (Figure 7). In this model we would expect the anomaly due to the conductor to be enhanced (to a maximum of three times for anomalies with wavelengths five times the sampling interval). In fact the 15m sampling interval changes the amplitude very little (1.07). However the 25m interval works rather better (1.5)- see Fig. 14. Thus it would appear that this anomaly has a wavelength somewhat larger than that expected by Fraser (1969).

..8/.

The filtering operation using the 15m interval was applied to line 5,371,700N and compared with the 25m interval used by Bishop, 1980 (the smoothed profile was used for both intervals). The results are shown in Figure 15. It can be seen that there is little difference between the two intervals and thus it is unlikely that anything would be gained by recalculating the Colebrook Hill V.L.F. contour values with the smaller spacing. The third profile on Figure 15 shows the results for a 10m interval using the unsmoothed data. Line 5,371,700N was particularly noisy and this has been accentuated by the filtering operator (much of the noise has a wavelength of 30-50m and thus enhancement would be expected). However, the profile does show three or four zones which might represent genuine conductors that were lost by the smoothing process. If favourable results are obtained from drilling of the larger anomalies, then it may be worthwhile recalculating the contour map using the unsmoothed values with a 10m spacing in a search for (much) smaller veins of mineralisation.

CONCLUSIONS

The modelling shows that the V.L.F. profile over line 5,371,700N (this profile gave one of the strongest responses of the survey) was caused by a conductor near the crest of the hill with a conductivity-thickness product of the order of 10, i.e. a very good conductor. The mineralisation is close to outcropping. The host rock, from the modelling, is highly resistive (this point is discussed later). No comment can be made as to the depth extent of the conductor, since it need not be of any great depth (less than 100m) before appearing infinite to the V.L.F. meter (Figure 8).

An initial attempt to model the conductor on the western side of the hill as a outcropping body of 40m depth extent with a σt = 5 (Figure 10), resulted in too large an anomaly, and thus the western conductor is certainly less than half the conductivity x thickness of the main conductor and/or its depth extent is very limited.

..9/.

The V.L.F. computer modelling has shown that a significant effect may be obtained over hills with resisitivies typical of the West Coast of Tasmania. However, it has also shown that the topography has contributed little to the Colebrook Hill anomalies.

For very small, poorly conducting or deep-seated sulphide bodies, a topographic effect may well mask the desired response.

The filtering operation as described by Fraser (1969) was seen to be very effective in removing the topographic effect. Further, by using the appropriate sampling interval, certain anomalies may be enhanced and others attenuated. To use this method effectively some resonable estimate of the anomaly wavelengths must be made.

J.R. BISHOP,
FEBRUARY, 1981

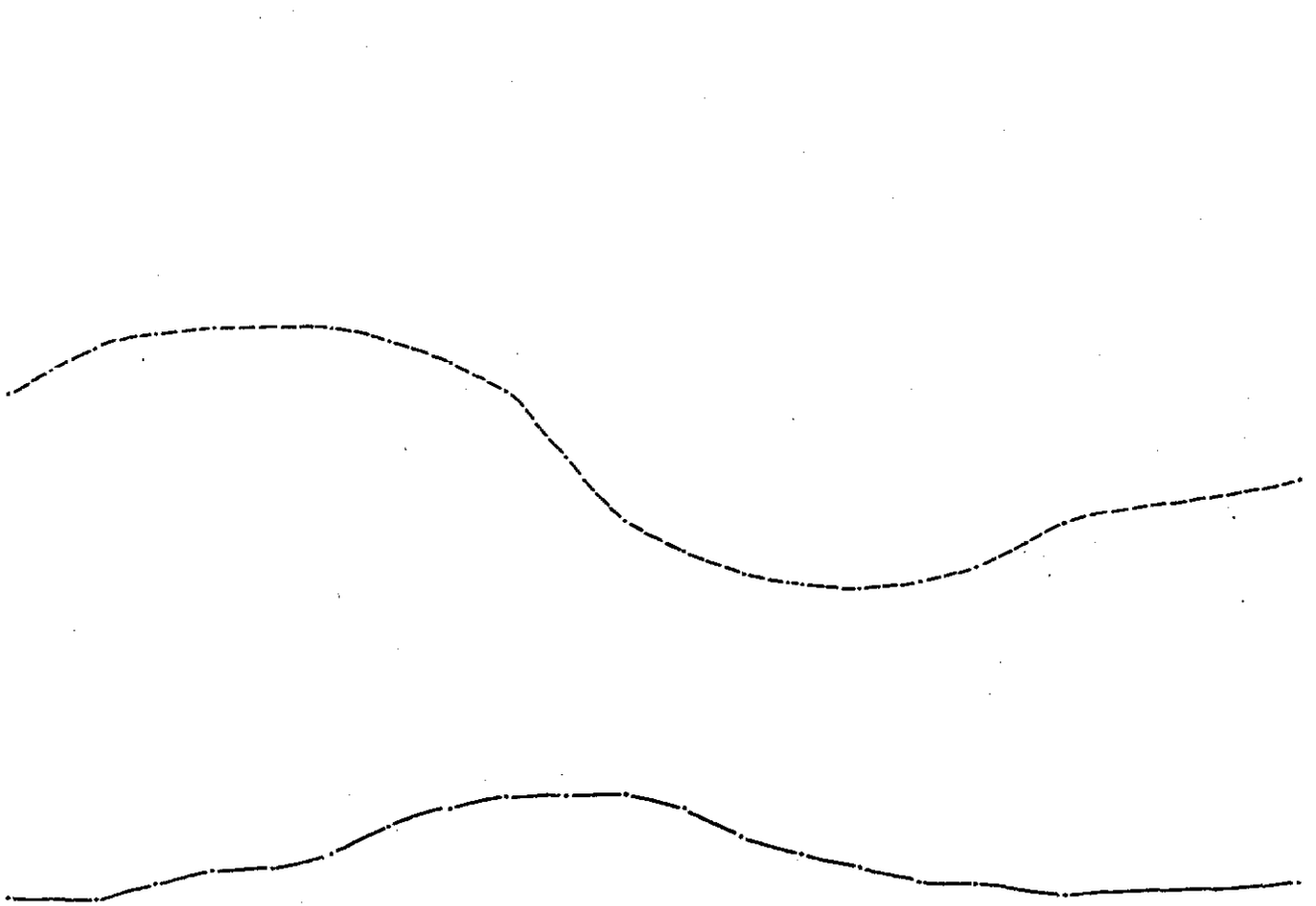
JRB/amc

REFERENCES

BISHOP J.R., 1980 — Magnetic, V.L.F. and Self Potential Surveys over Colebrook Hill.
Mitre Geophysics report for E.Z., West Coast Mines.

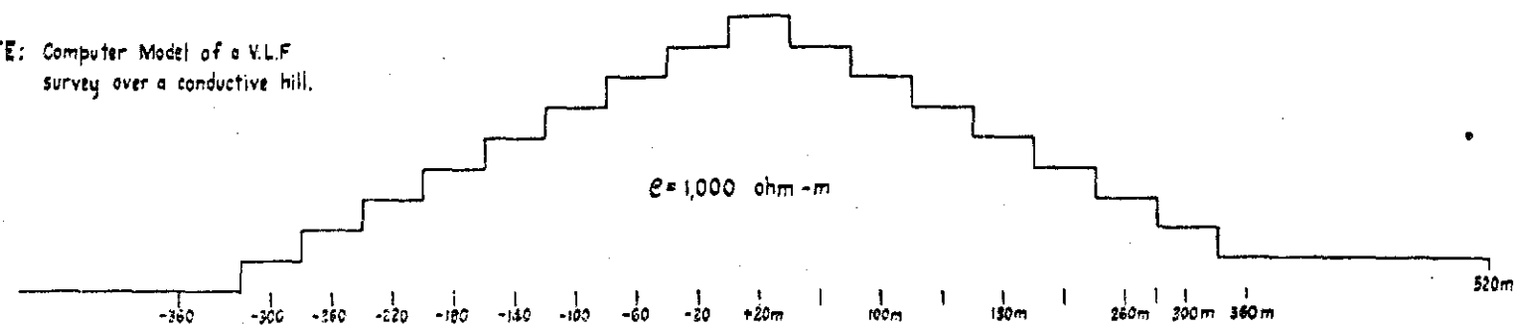
FRASER D.C., 1969 — Contouring of V.L.F. - E.M. data.
Geophysics, vol. 34 no. 6, p 958-967.

79843?



5 cm

NOTE: Computer Model of a V.L.F survey over a conductive hill.

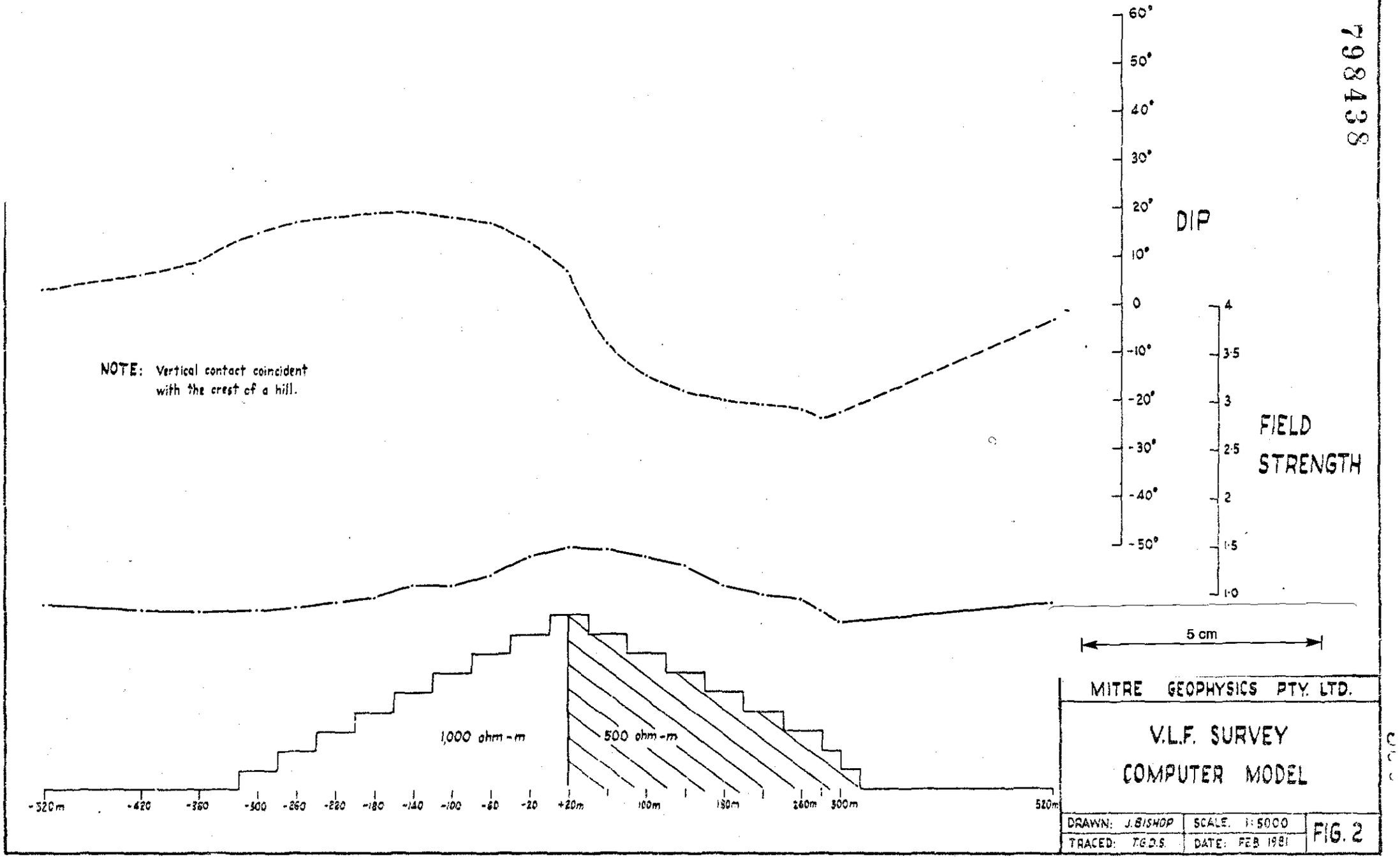


MITRE GEOPHYSICS PTY. LTD.

V.L.F. SURVEY
COMPUTER MODEL

DRAWN: J. BISHOP	SCALE: 1:5000	FIG. 1
TRACED: T.G.D.S.	DATE: FEB. 1981	

79843



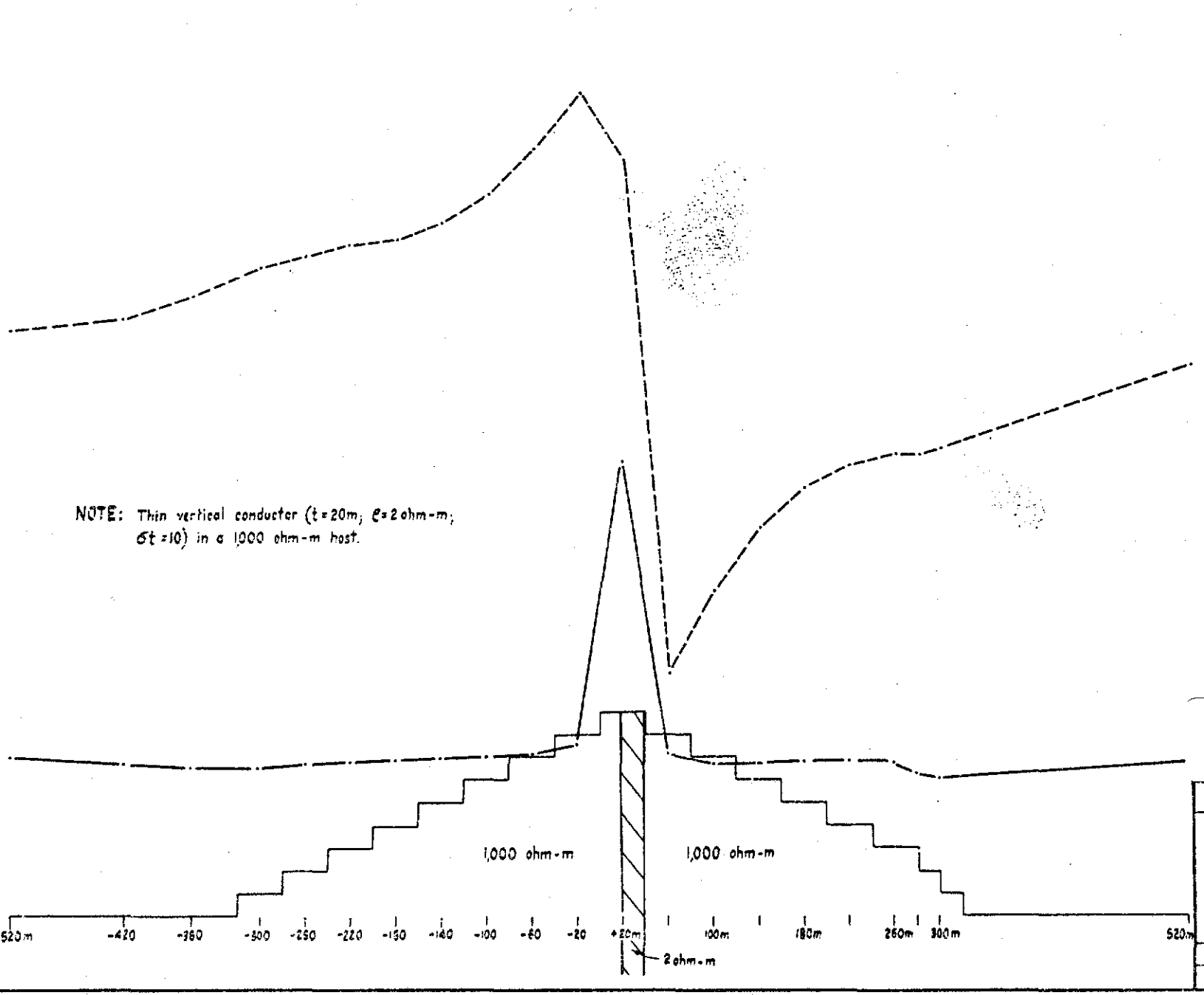
MITRE GEOPHYSICS PTY. LTD.

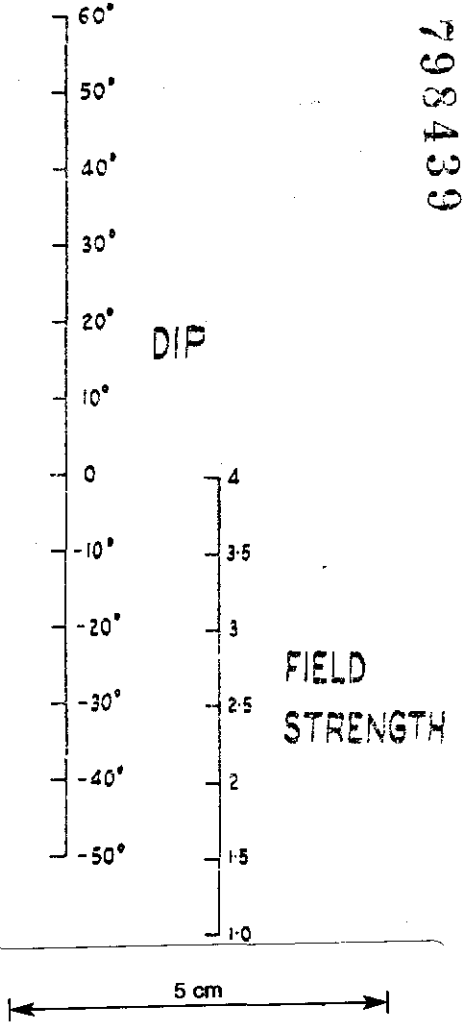
V.L.F. SURVEY COMPUTER MODEL

DRAWN: J.BISHOP	SCALE: 1:5000
TRACED: T.G.D.S.	DATE: FEB 1981

FIG. 2

79 84 39





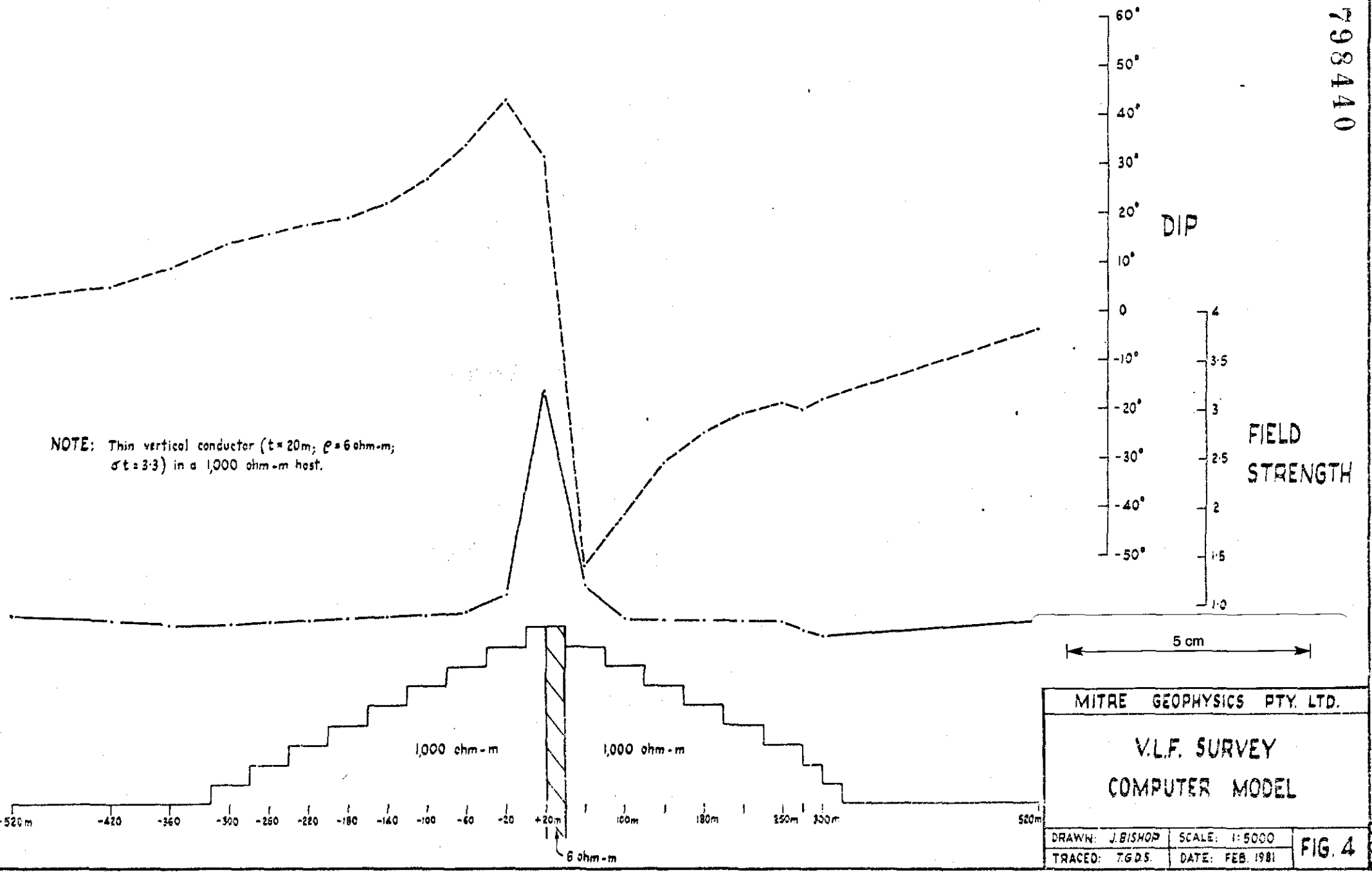
MITRE GEOPHYSICS PTY. LTD.

V.L.F. SURVEY COMPUTER MODEL

DRAWN: J.BISHOP	SCALE: 1:5000	FIG. 3
TRACED: T.G.D.S.	DATE: FEB. 1981	

357

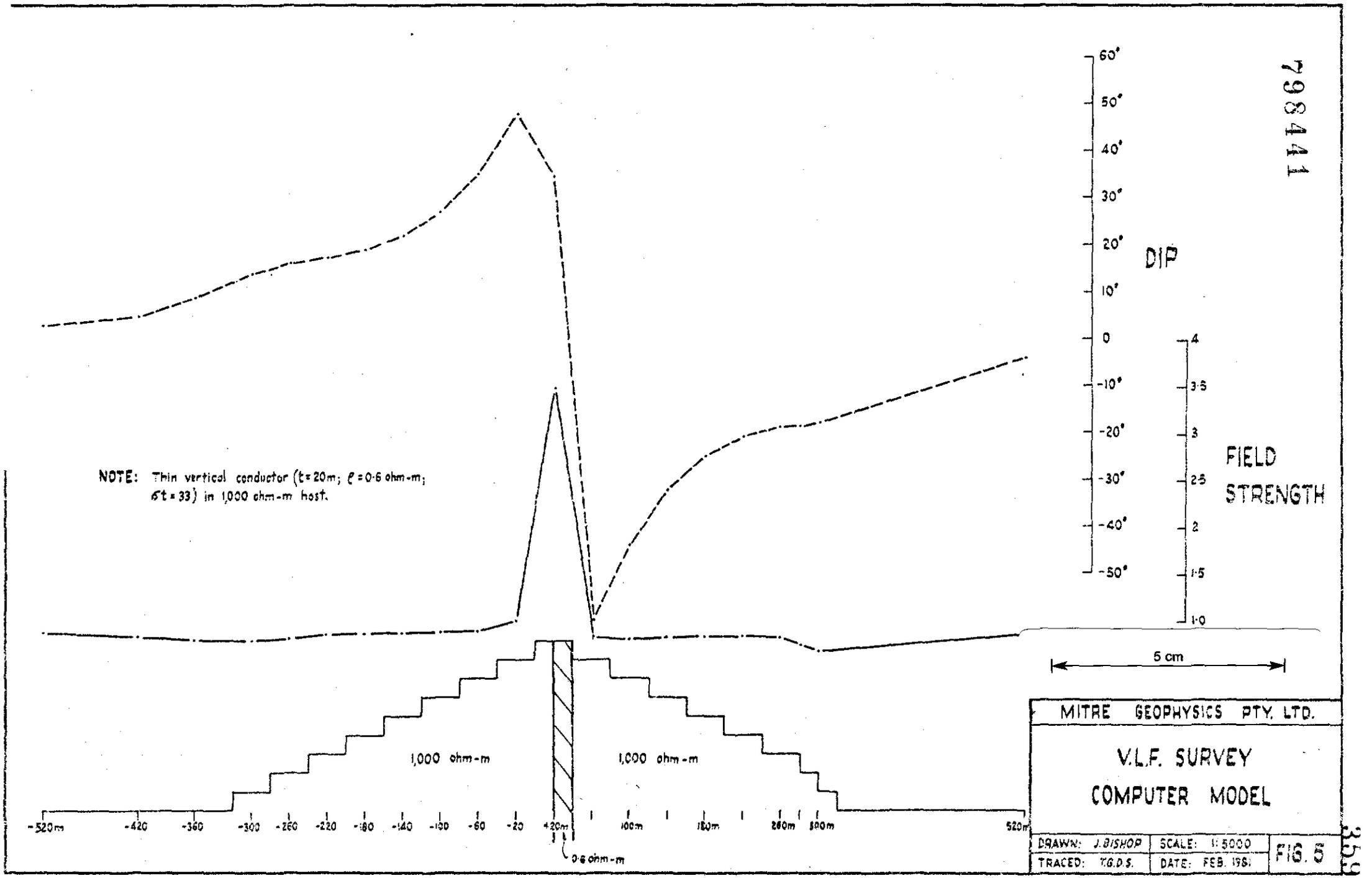
298440



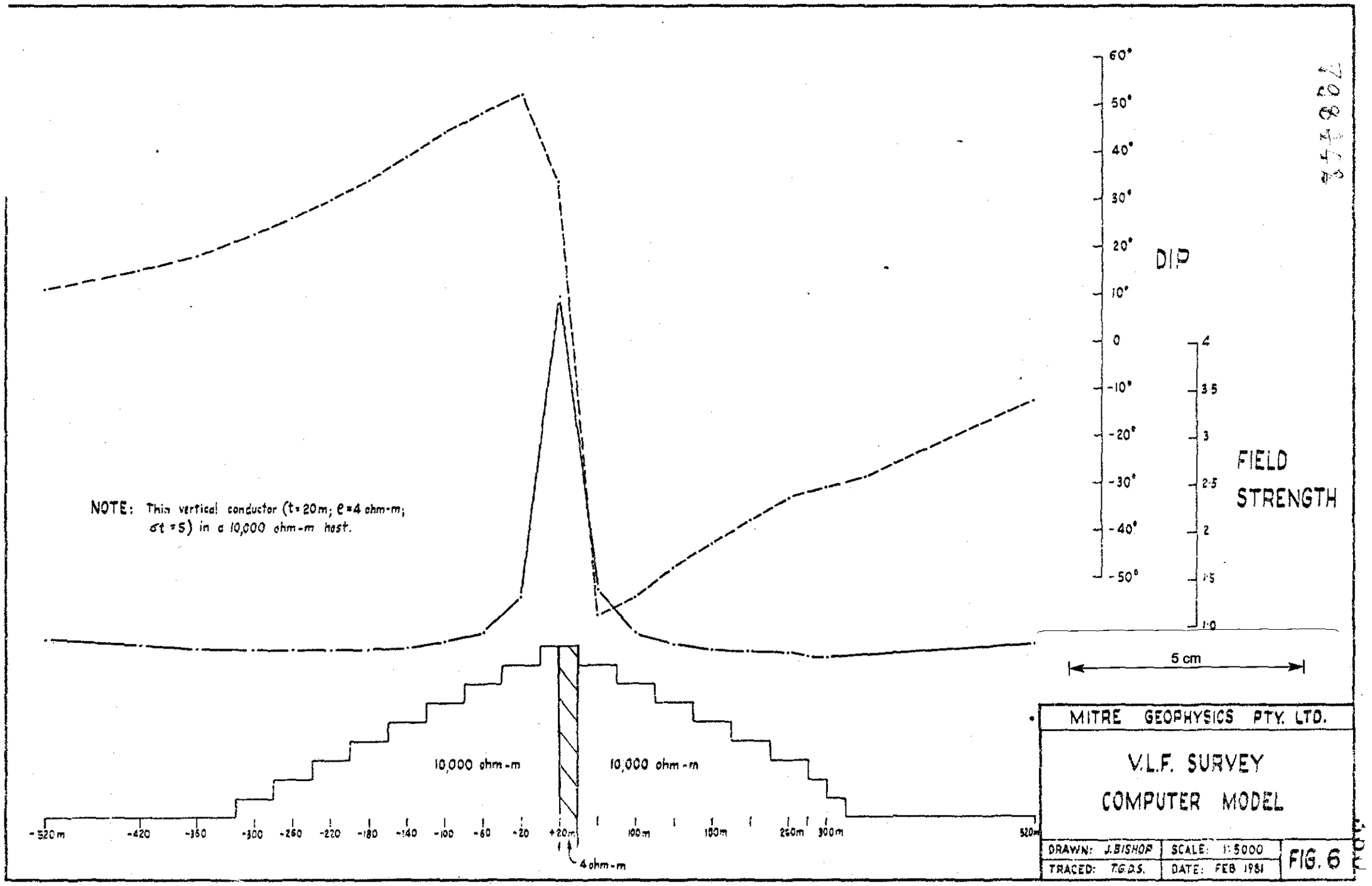
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V.L.F. SURVEY
COMPUTER MODEL

DRAWN: J. BISHOP	SCALE: 1:5000	FIG. 4
TRACED: T.G.D.S.	DATE: FEB. 1981	


60°
50°
40°
30°
20°
10°
0
-10°
-20°
-30°
-40°
-50°
DIP
4
3·5
3
2·5
2
1·5
1·0
FIELD STRENGTH
5 cm
NOTE: Thin vertical conductor (t = 20m; ρ = 0·6 ohm-m; δt = 33) in 1,000 ohm-m host.
1,000 ohm-m
1,000 ohm-m
-520m
-420
-360
-300
-260
-220
-180
-140
-100
-60
-20
420m
100m
180m
260m
300m
520m
0·6 ohm-m
MITRE GEOPHYSICS PTY. LTD.
V.L.F. SURVEY
COMPUTER MODEL
DRAWN: J. BISHOP
SCALE: 1:5000
TRACED: T.G.D.S.
DATE: FEB. 1981
FIG. 5

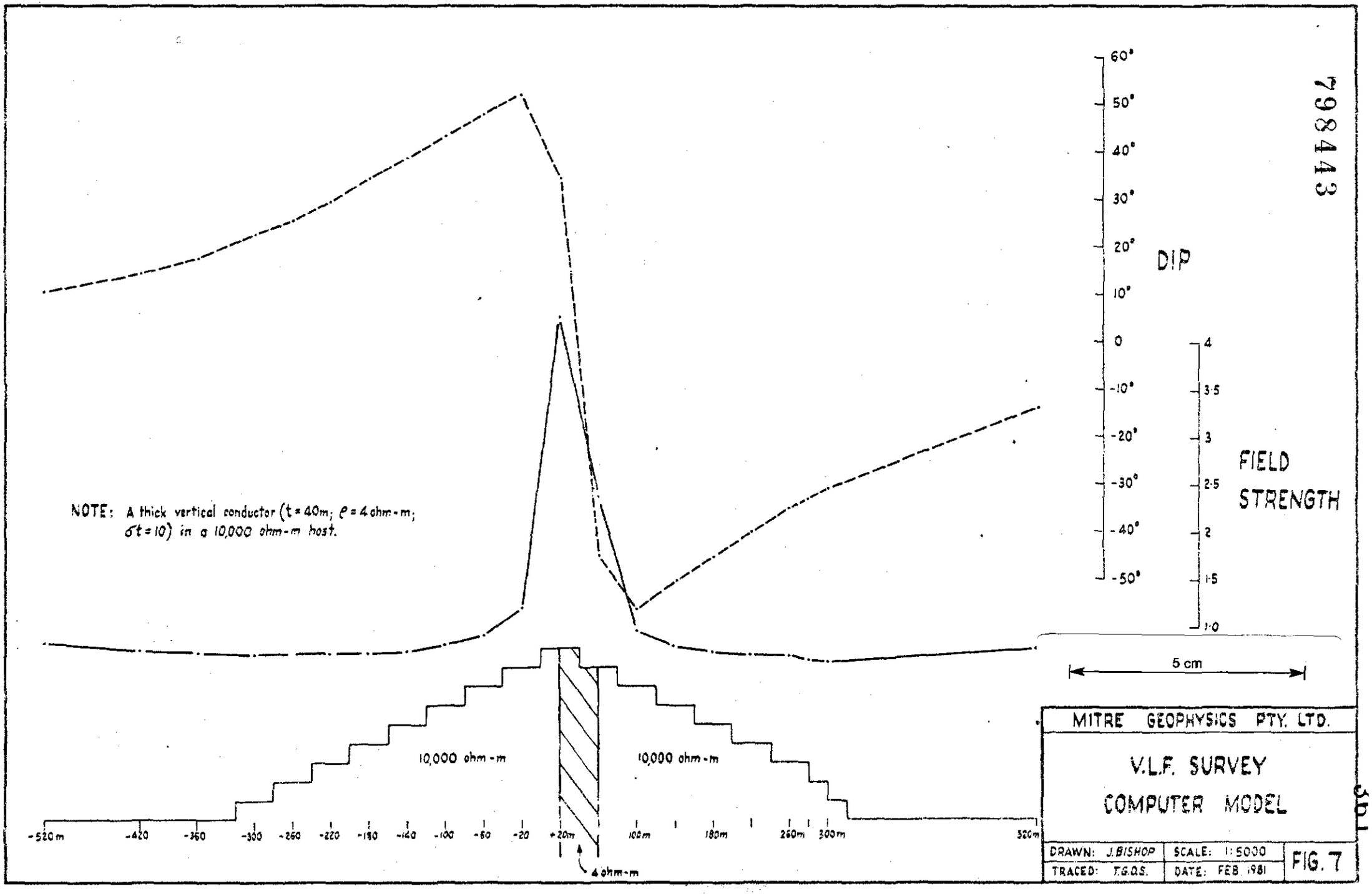
79 8441



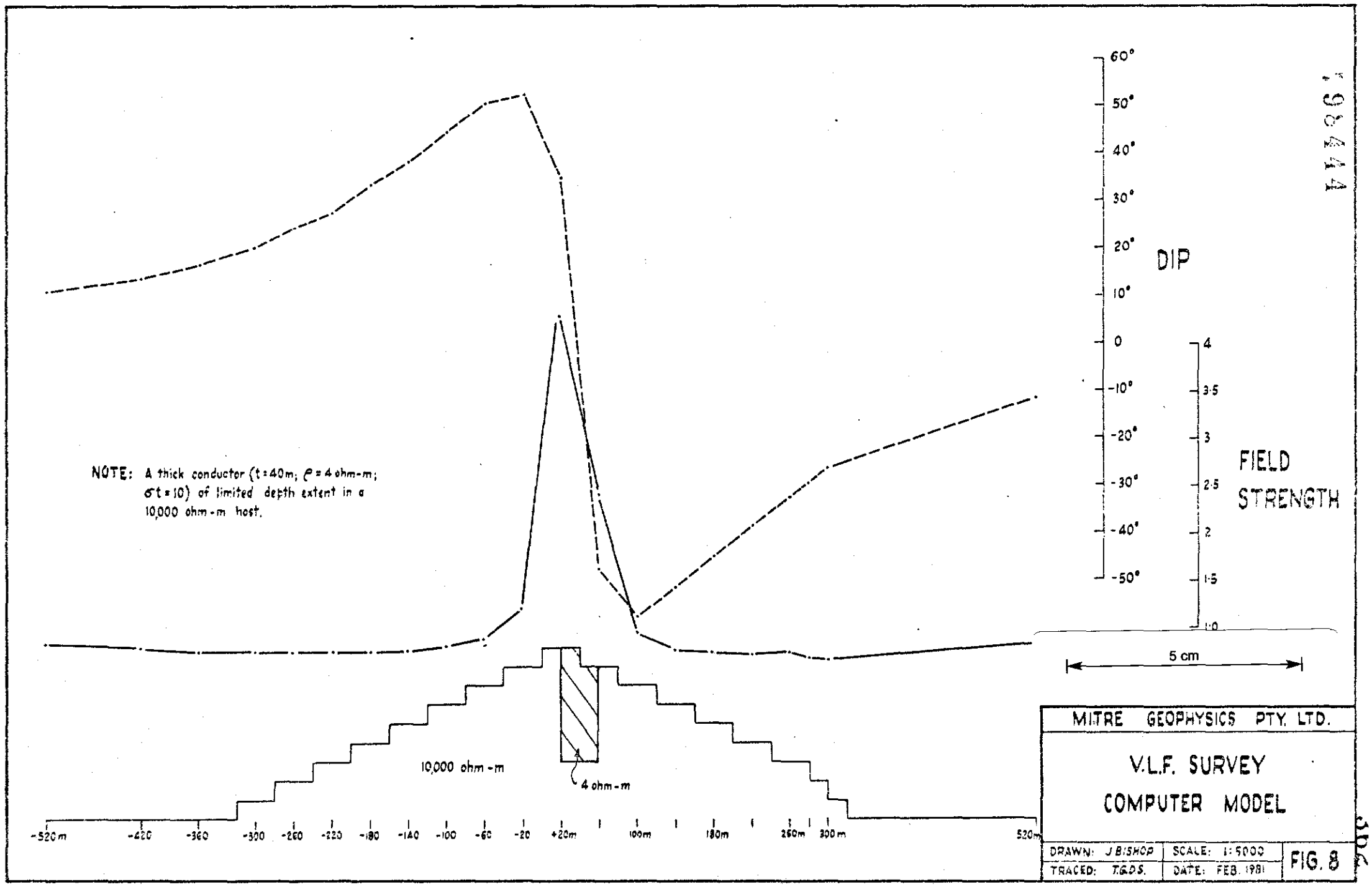
MITRE GEOPHYSICS PTY. LTD.

V.L.F. SURVEY
COMPUTER MODEL

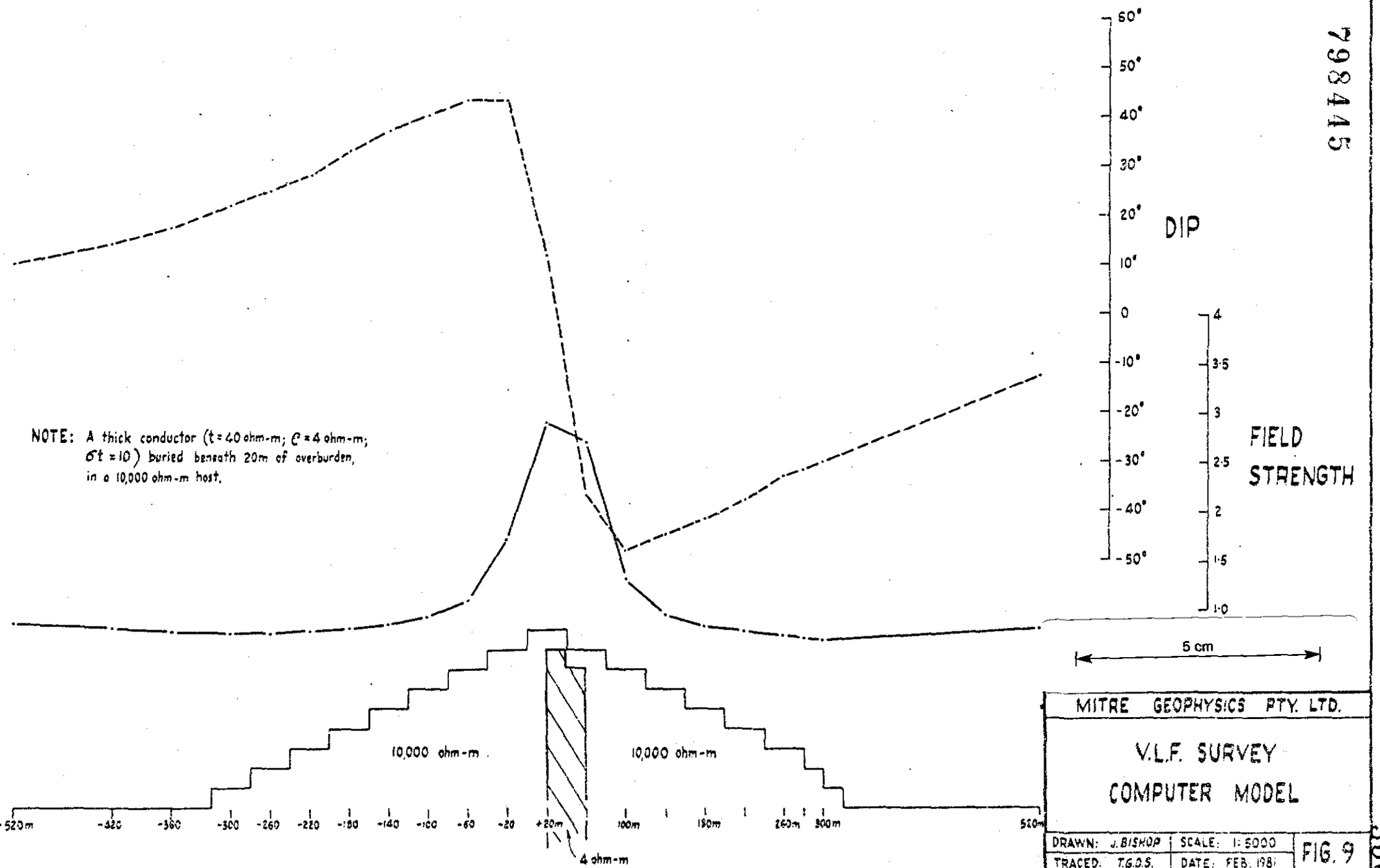
DRAWN: J.BISHOP	SCALE: 1:5000	FIG. 6
TRACED: T.G.D.S.	DATE: FEB 1981	


60°
50°
40°
30°
20°
10°
0
-10°
-20°
-30°
-40°
-50°
DIP
4
3·5
3
2·5
2
1·5
1·0
FIELD STRENGTH
NOTE: A thick vertical conductor (t = 40m; ρ = 4 ohm-m; σt = 10) in a 10,000 ohm-m host.
5 cm
10,000 ohm-m
10,000 ohm-m
-520m -420 -360 -300 -260 -220 -180 -140 -100 -60 -20 +20m 100m 180m 260m 300m 520m
4 ohm-m
MITRE GEOPHYSICS PTY. LTD.
V.L.F. SURVEY
COMPUTER MODEL
DRAWN: J.BISHOP
SCALE: 1:5000
TRACED: T.G.O.S.
DATE: FEB. 1981
FIG. 7

79843


60°
50°
40°
30°
20°
10°
0
-10°
-20°
-30°
-40°
-50°
DIP
4
3·5
3
2·5
2
1·5
1·0
FIELD STRENGTH
5 cm
NOTE: A thick conductor (t = 40m; ρ = 4 ohm-m; σt = 10) of limited depth extent in a 10,000 ohm-m host.
10,000 ohm-m
4 ohm-m
-520m
-420
-360
-300
-260
-220
-180
-140
-100
-60
-20
+20m
100m
180m
260m
300m
520m
MITRE GEOPHYSICS PTY. LTD.
V.L.F. SURVEY
COMPUTER MODEL
DRAWN: J BISHOP
SCALE: 1:5000
TRACED: T.G.D.S.
DATE: FEB. 1981
FIG. 8

2984415



NOTE: A thick conductor (t = 40 ohm-m; ρ = 4 ohm-m; σt = 10) buried beneath 20m of overburden, in a 10,000 ohm-m host.

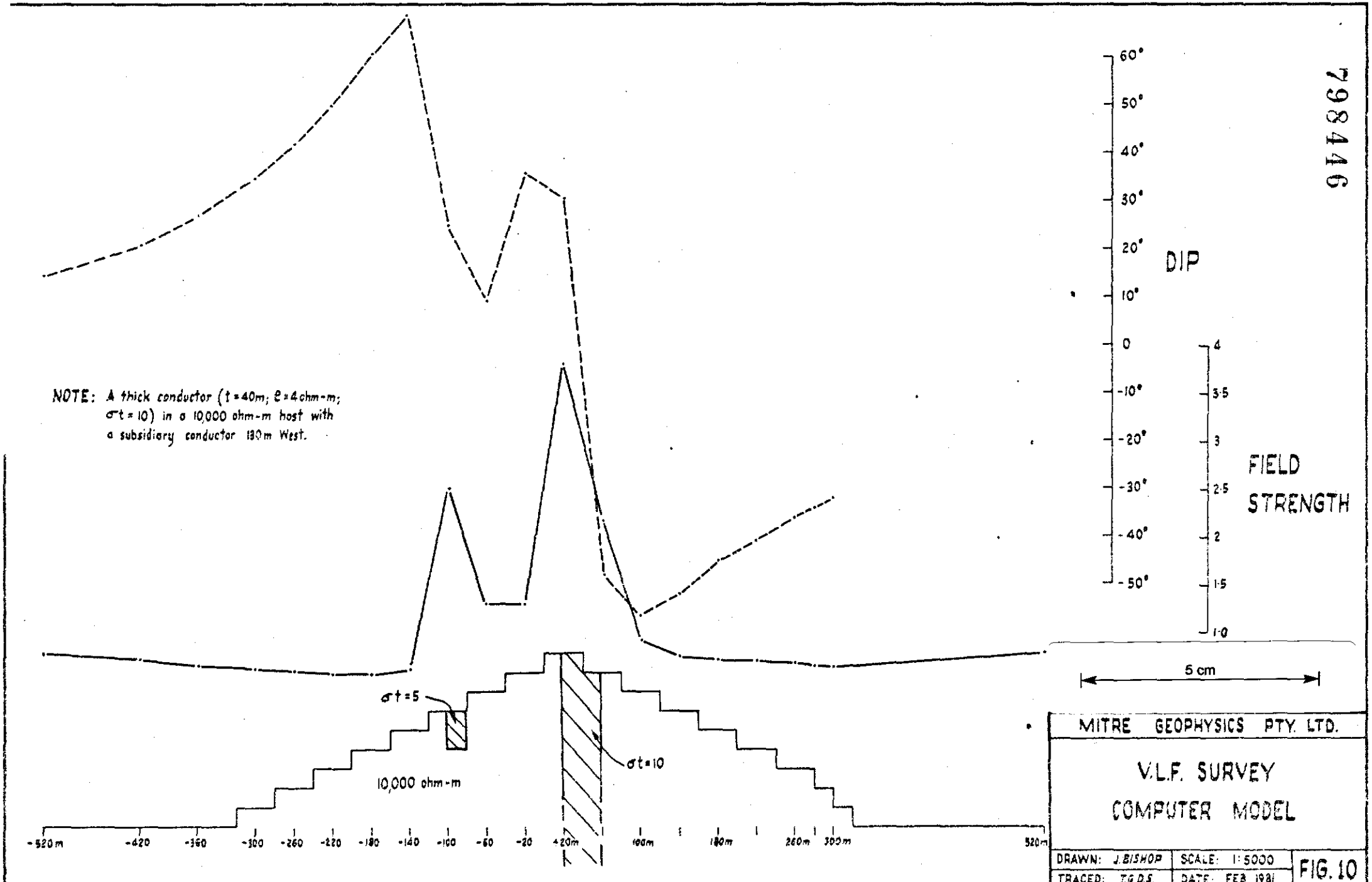
MITRE GEOPHYSICS PTY. LTD.

V.L.F. SURVEY
COMPUTER MODEL

DRAWN: J. BISHOP	SCALE: 1:5000	FIG. 9
TRACED: T.G.D.S.	DATE: FEB. 1981	

3b3

79844 6

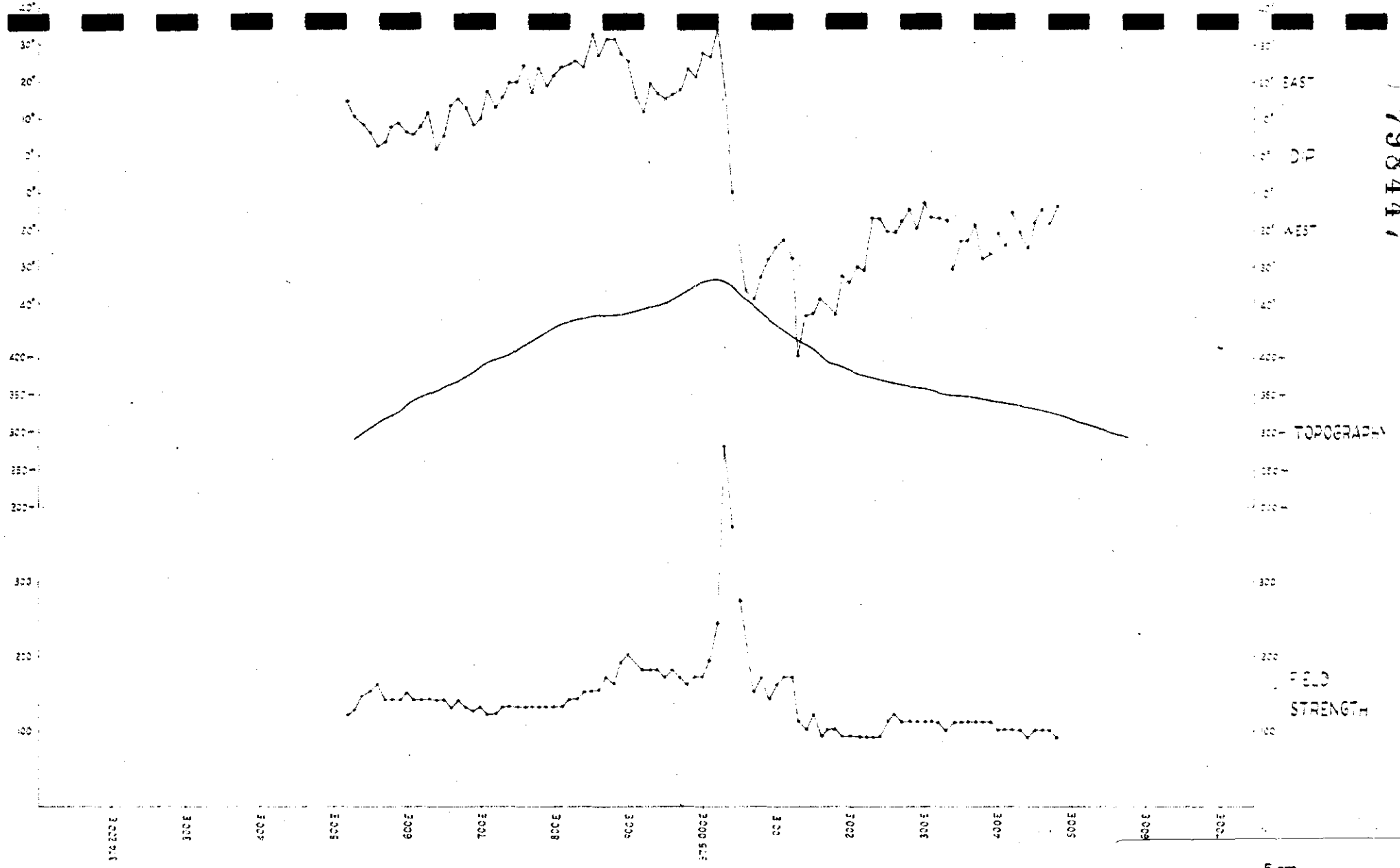


MITRE GEOPHYSICS PTY. LTD.

V.L.F. SURVEY
COMPUTER MODEL

DRAWN: J.BISHOP	SCALE: 1:5000	FIG. 10
TRACED: T.G.D.S.	DATE: FEB 1981	

004



NOTES:

Transmitter: Japan

Instrument: Phoenix VLF 2 - gain setting 1,000

Station spacing 10 m

VICTOR GEOPHYSICS PTY. LTD.

COLEBROOK HILL

VLF SURVEY

LINE S 37,700 N

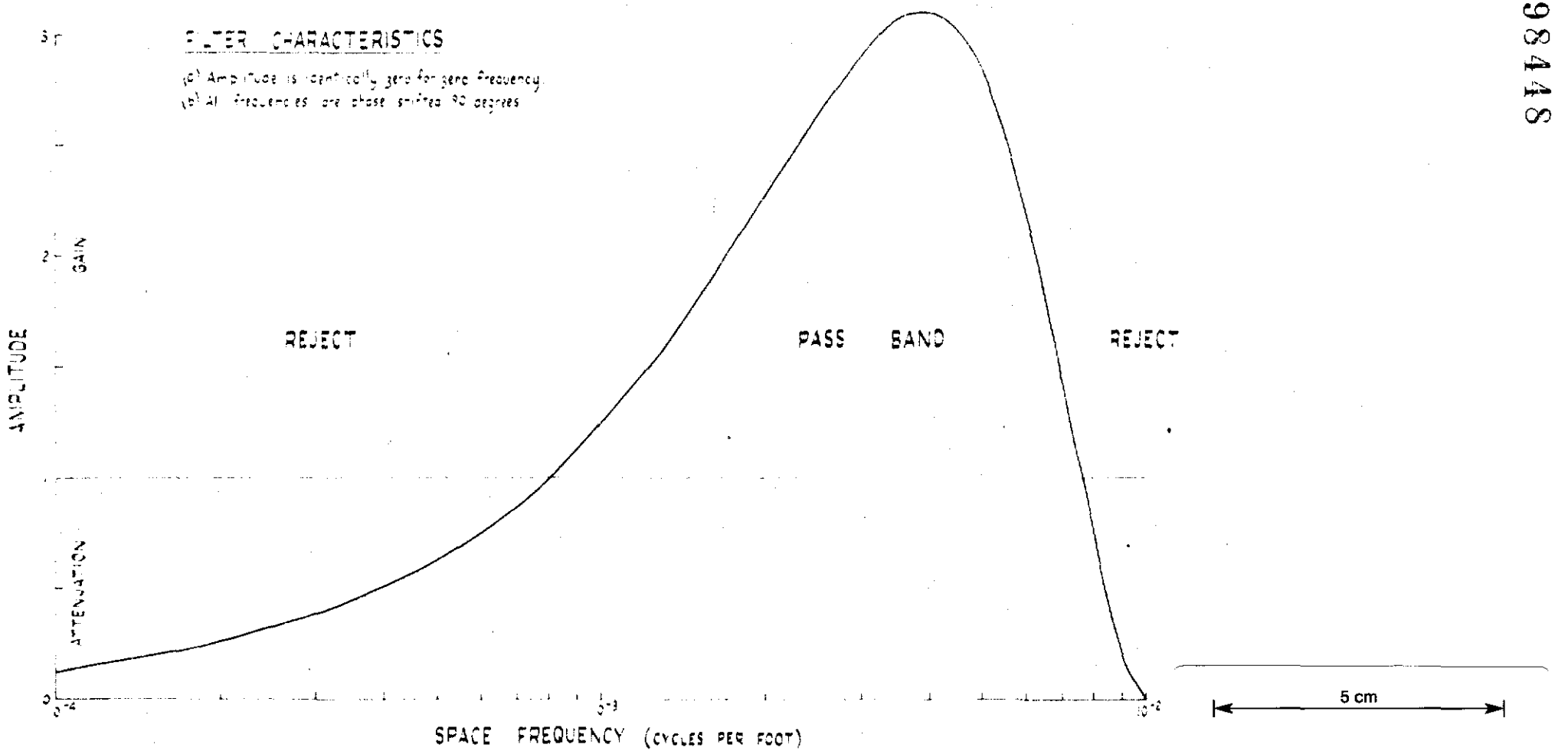
DRAWN: J.BAKER | SCALE: 1:500 | FIG. 12

TRACED: TOPS | DATE: FEB 88

7984417

365

798448



(From Fraser, 1969 Figure 4.)

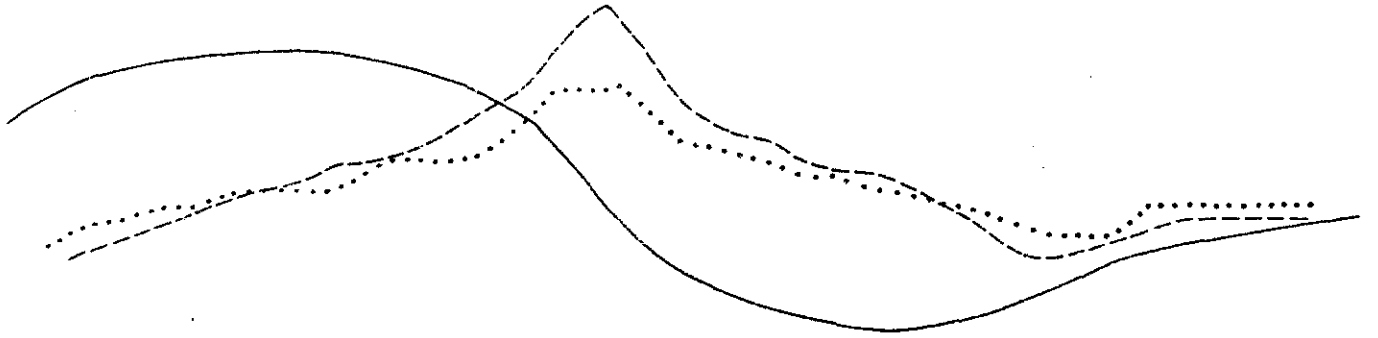
MITRE GEOPHYSICS PTY LTD.

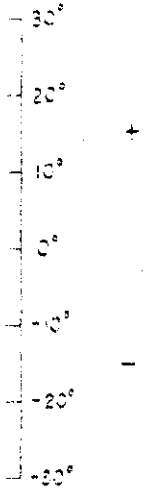
FREQUENCY RESPONSE
OF FILTER OPERATOR
FOR A STATION SPACING OF 15m (50ft)

DRAWN J.S.SHOP	SCALE 1:5000
TRACED T.G.D.S.	DATE FEB 98

FIG. 12

366

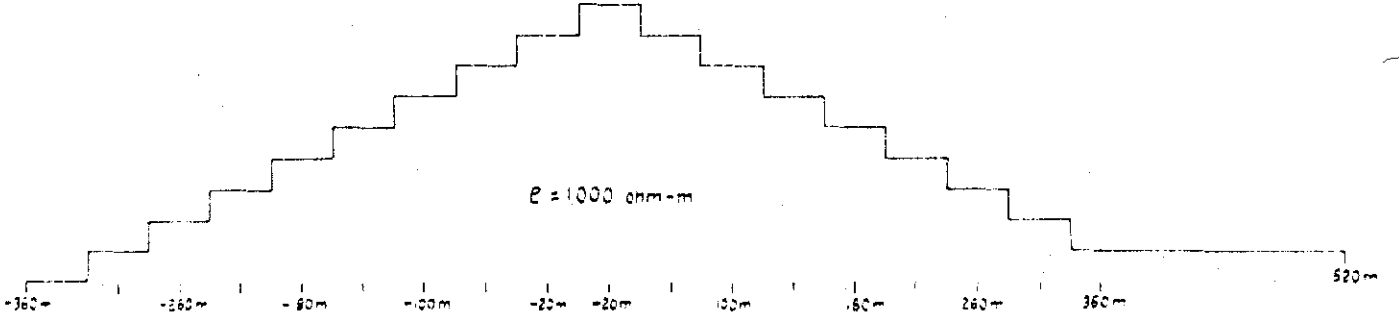


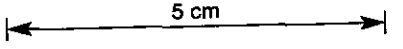


——— Filter operator with a 25m station interval attenuated the anomaly by 0·89

••••••• Filter operator with a 15m station interval attenuated the anomaly by 0·56.

NOTE: The operator $(\theta_1 - \theta_2) - (\theta_3 - \theta_4)$ for intervals of 15m and 25m are compared with the original dip angle anomaly over a conductive dike.





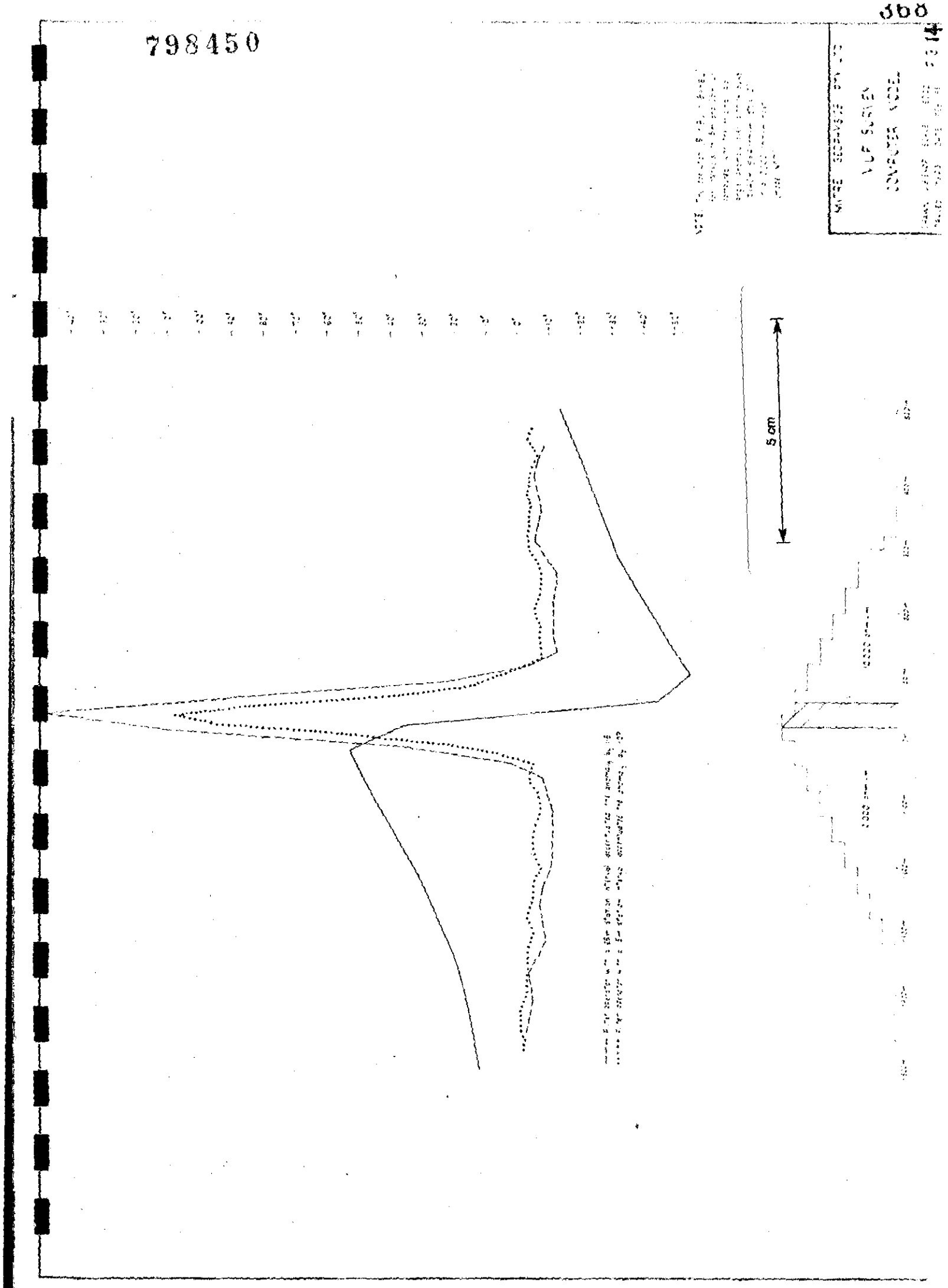
MITRE GEOPHYSICS PTY LTD

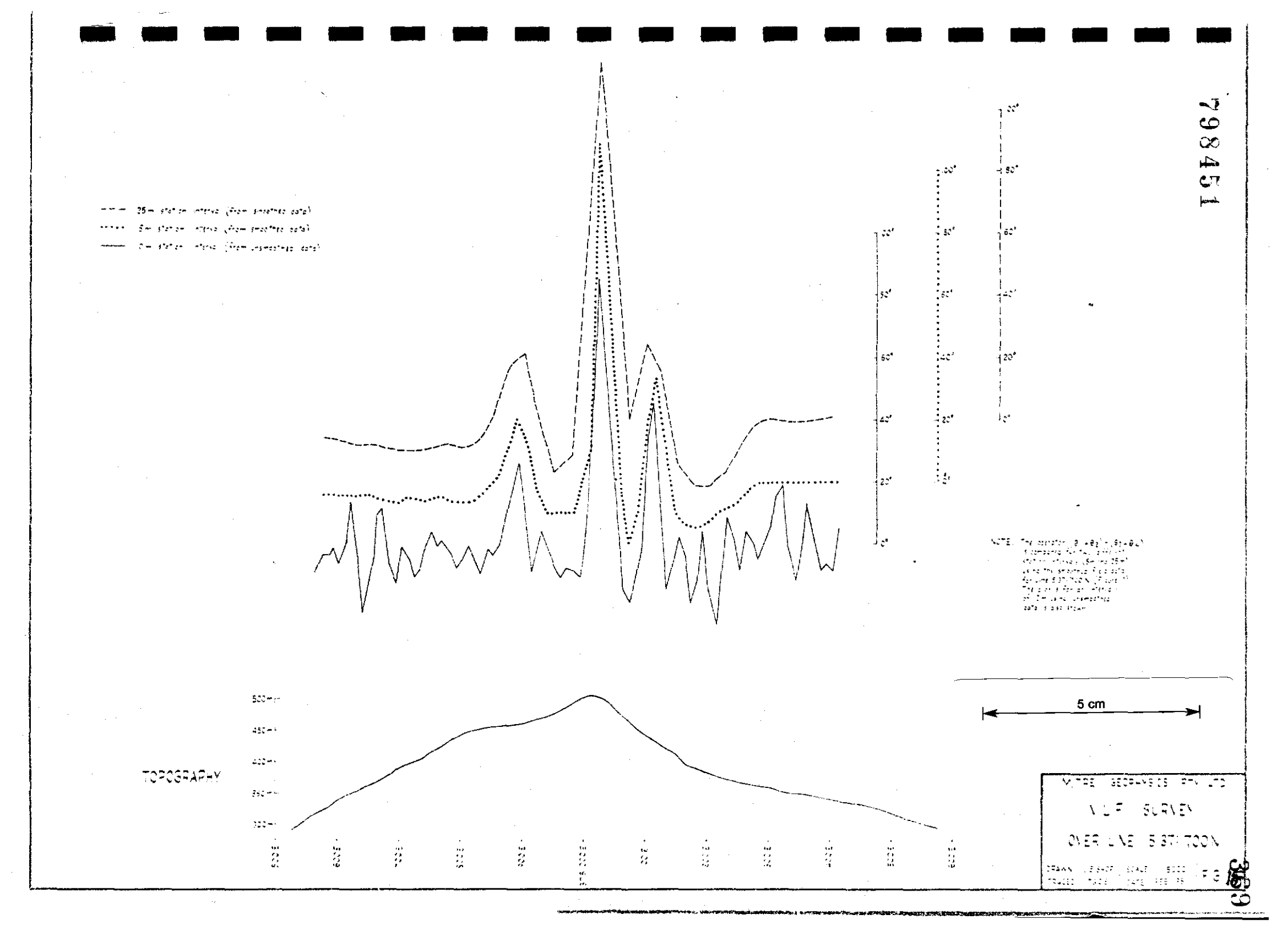
VLF SURVEY

COMPUTER MODEL

DRAWN	J.B.SHOP	SCALE	5000	FIG. 13
TRACED	TGDS	DATE	FEB 68	

798450





7984151

MINERE GEOPHYSICS PTY LTD

VLF SURVEY

OVER LINE STATION

DRAWN ... SCALE ... RECD ... FILE ...

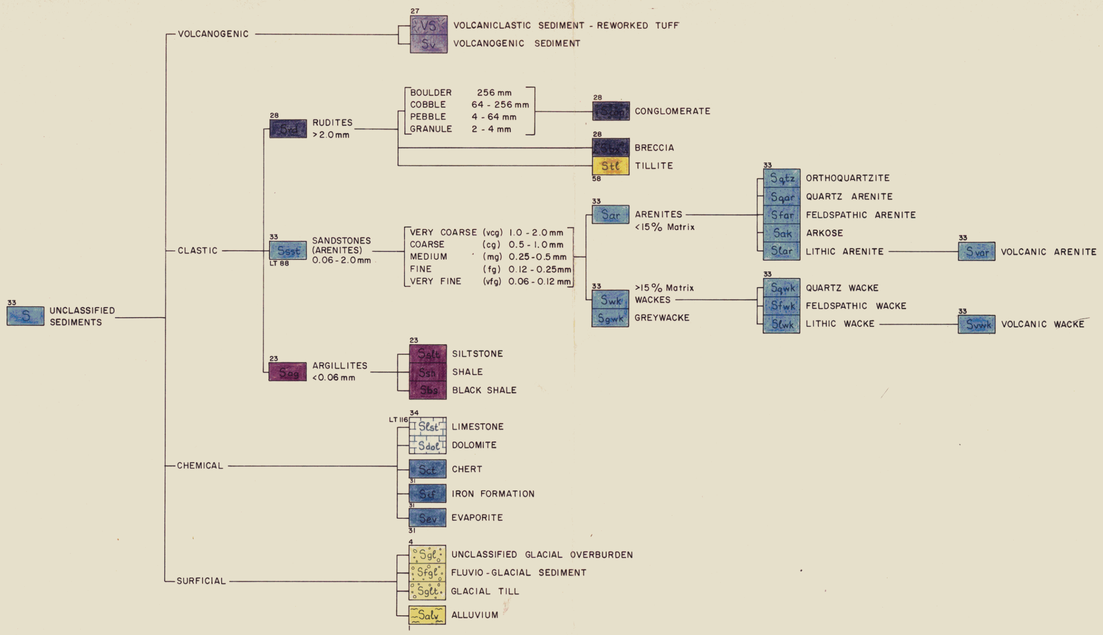
TRACED ... DATE ... APPD ...

369

IGNEOUS ROCKS



SEDIMENTARY ROCKS



METAMORPHIC ROCKS

69 (Igneous overstripe if required)

SCH UNCLASSIFIED SCHISTS

IGNEOUS GRAIN SIZE

vcg	VERY COARSE GRAINED >5cm
cg	COARSE GRAINED 5cm - 5mm
mg	MEDIUM GRAINED 5mm - 1mm
fg	FINE GRAINED <1mm

STRUCTURAL AND TEXTURAL SYMBOLS

LT 958		MAJOR INTRUSIVES
LT 963	t	MINOR INTRUSIVES
LT 132	t	UNDIFFERENTIATED TUFF
LT 132	lt	LITHIC TUFF
LT 132	xt	CRYSTAL TUFF
LT 132	vt	VITRIC TUFF
LT 130	lpt	LAPILLI TUFF 4 - 32mm
LT 970	bx	PYROCLASTIC BRECCIA >32mm
LT 970	ag	AGGLOMERATE >32mm
LT 191	af	ASH FLOW
LT 132/153	ashft	ASH FALL (AIR FALL TUFF)
LT 973		LAVA
	bm	BOMBS
	pm	PUMICE
	fm(3)	FIAMME (LENGTH IN cms)
	p	PORPHYRITIC
	a	AMYGDALOIDAL
	ves	VESICULAR
	s	SPHERULITIC
	wld	WELDED
	rwk'd	REWORKED
	acic	ACICULAR
	oph	OPHITIC
	clt	CLOTS
	pg	PEGMATIC
	qz aug	QUARTZ EYES / AUGEN TEXTURE
	bnd	BANDING
	fb	FLOW BANDING
	fa	FLOW BRECCIA
	pil	PILLOWS (WITH FACING)
	chlmgn	CHILLED MARGIN
	vns	VEINS
LT 153	bd	BEDDED
	Xbd	CROSS BEDDED
	tkbd	THICK BEDDED
	tnbd	THIN BEDDED
	lam	LAMINATED
	gd	GRADED or DIRECTION OF DECREASING GRAIN SIZE
	ldcst	LODE CAST
	sf	SCOUR AND FILL
	m	MASSIVE
	clvd	CLEAVED
	sch	SCHISTOSE
	jt'd	JOINTED
	bx'd	BRECCIATED (TECTONIC)
	ox	OXIDISED
	L	LATERITE
	stn	STAINING

STRUCTURAL SYMBOLS

- FAULT
- DEFINITE CONTACT or OUTCROP LIMIT
- APPROXIMATE CONTACT or RUBBLE BOUNDARY
- INTERPRETED CONTACT or FLOAT BOUNDARY
- SCHISTOSE ZONE
- UNCONFORMITY
- BEDDING
- OVERTURNED BEDDING
- CLEAVAGE
- PRIMARY FOLIATION
- JOINTING
- PLUNGE
- FOLD AXIS PLUNGE
- FACING

SULPHIDE AND OXIDE MINERALOGY

	bwk	BOXWORK
	sul	SULPHIDES
RED INK	gos	GOSSAN
	pn	PENTLANDITE
	hm	HÆMATITE
	cc	CHALCOCITE
	cv	COVELLITE
	bn	BORNITE
	cp	CHALCOPYRITE
	sp	SPHALERITE
	gn	GALENA
	po	PYRRHOTITE
	py	PYRITE
	il	ILLMENITE
	lx	LEUCOXENE
	mag	MAGNETITE
	lim	LIMONITE
	Mn	MANGANESE OXIDES
	chr	CHROMITE

MINERALISATION

STAEDTLER 104 - 2	DISS	10% DISSEMINATED
	DI98	10 - 20% DISSEMINATED
	DI65	~25% DISSEMINATED
	STR	STRINGER
	MAS	MASSIVE

DRILL HOLE SYMBOLS

- DRILL HOLE - BARREN
- DRILL HOLE - MINOR OR POSSIBLE SUB-ORE GRADE MINERALISATION
- DRILL HOLE - SIGNIFICANT OR POSSIBLE ORE GRADE AND WIDTH
- DRILL HOLE - FAILED TO REACH TARGET

SILICATE MINERALOGY

20	q	QUARTZ
51	k	K - FELDSPAR
17	ab	ALBITE
45	p	PLAGIOCLASE
45	a	AMPHIBOLE
64	px	PYROXENE
10	b	BIOTITE
45	c	CHLORITE
55	cb	CARBONATE
31	s	SERICITE
46	e	EPIDOTE
64	t	TALC
6	ba	BARITE
45	f	FELDSPAR
45	hb	HORNBLENDE
55	sd	SIDERITE
47	to	TOURMALINE
51	ov	OLIVINE

ALTERATION MINERALOGY

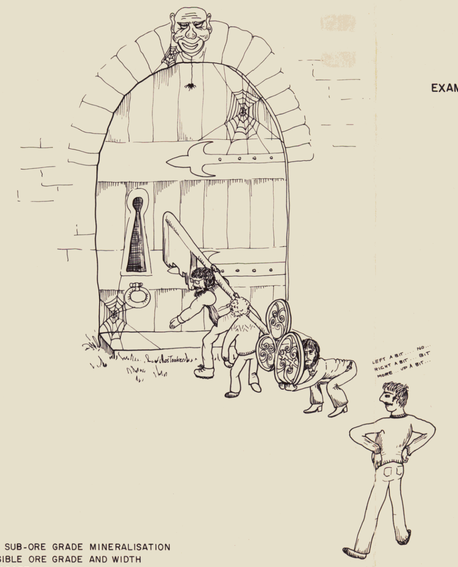
17	a'b	ALBITISED
55	cb'd	CARBONATED
45	c'd	CHLORITISED
31	s'd	SERITICISED
20	si	SILICIFIED
45	hb'd	HORNBLENDISED
47	to'd	TOURMELINISED
27	kl'd	KAOLINISED

COLOURS

ple	PALE
dk	DARK
pk	PINK
rd	RED
org	ORANGE
yel	YELLOW
ol	OLIVE
grn	GREEN
bl	BLUE
gry	GREY
blk	BLACK
brn	BROWN
wht	WHITE
crm	CREAM
purp	PURPLE

TOPOGRAPHICAL SYMBOLS

- WATER RACE
- FENCE
- FORMED ROAD
- TRACK
- RAILWAY
- RAILWAY (ABANDONED)
- RIVER
- STREAM
- LAKE
- SWAMP
- BUILDING
- POWER LINE
- TRIG. STATION
- WET HILL
- SHAFTS
- ADIT
- TRENCH
- MINE OR QUARRY



OPERATION OF LEGEND

DESCRIBING ROCK UNITS

1. CAPITAL LETTER : indicates primary classification eg. S - sedimentary rocks; A - acid igneous rocks
2. LOWER CASE LETTERS : indicates the following -
   - 2.1. AS PREFIXES : in progressive order
     - (i) COLOURS eg. gmM : green mafic igneous rock; pk/grn A : pink fragments or phenocrysts in an acid igneous rock with a green matrix
     - (ii) STRUCTURAL or TEXTURAL FEATURES eg. xtA : crystal tuff of acid composition; xbdS : cross bedded sedimentary rock
   - 2.2. AS SUFFIXES : in progressive order
     - (i) CATEGORISED eg. Ar : rhyolite, Ssh : Shale
     - (ii) MINERALOGY eg. pArf : rhyolite with feldspar phenocrysts; Aqs : quartz sericite rock of acid igneous origin; Ara'b : albitised rhyolite

EXAMPLE : pk/grn clvd xvt Ard ab c'd
- pk/grn : (Colours) pink crystals in a green matrix
- clvd : (Structural feature) cleaved
- xvt : (Texture) crystal vitric tuff
- A : (Primary subdivision) acid igneous rock
- rd : (Categorised) rhyodacite
- ab : (Primary mineralogy) albite phenocrysts
- c'd : (Alteration mineralogy) chloritised

LT 132 : Code Number of LETRATONE pattern 82-1738. Von 4 of 6.
10 : Number of CUMBERLAND DERWENT SERIES No. 19 Coloured Pencil

ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.

PROJECT: TAS.

GEOLOGICAL LEGEND

EXPLORATION

798452 Plate 1 Report No 142

SCALE:	Survey: I.R.M.	Revised:
Reference:	Date: August 1980	REF. NO.
Drawn: R.P.T.	Checked: I.R.M.D.	AI - 504 - ORIGINAL

001

1610.

370000 mE

380000 mE

390000 mE

5380000 mN

5370000 mN

5360000 mN

BURNS PEAK

RAILWAY

BAY

Mackintosh River

FARRELL MINE

TULLAH

MT. FARRELL

EMU

MRP 227

MRP 226

MRP 219

MT. BLACK

Sterling Valley E.L.4/73

Pieman River

MURCHISON

CHP229

CHP230

CHP 228

ROSEBERY

HIGHWAY

Sterling River

Murchison River

MT. MURCHISON

Stitt

AERIAL ROPEWAY

WILLIAMSFORD

E.L. 1/62

River

BOUNDARY OF
SOUTH WEST TASMANIA
CONSERVATION AREA

MT. READ

JCP 211

JCP 216

MOORES PIMPLE

Jores Creek

Dobson Creek

White Spur Ck

MT. DUNDAS

AREA COVERED BY
DIGHEM SURVEY

5 cm

LEGEND

- Line cut, pegged, mapped, soils, stream sediments, magnetics, V.L.F.
- Line cut, pegged, mapped, stream sediments, magnetics
- Line geological mapping
- Line soil sampled
- Line V. L.F.
- Access mapping completed
- Area of creeks cut, mapped and stream sediments sampled
- Soil pit dug and sampled
- Heavy Mineral Concentrate sample
- MRP 219 — Diamond Drillhole completed
- Vehicle track constructed

82-1738. Vol 4 of 6.

ELECTROLYTIC ZINC CO. OF A'ASIA LTD.

PROJECT: MT. BLACK | TAS.

WORK COMPLETED DURING

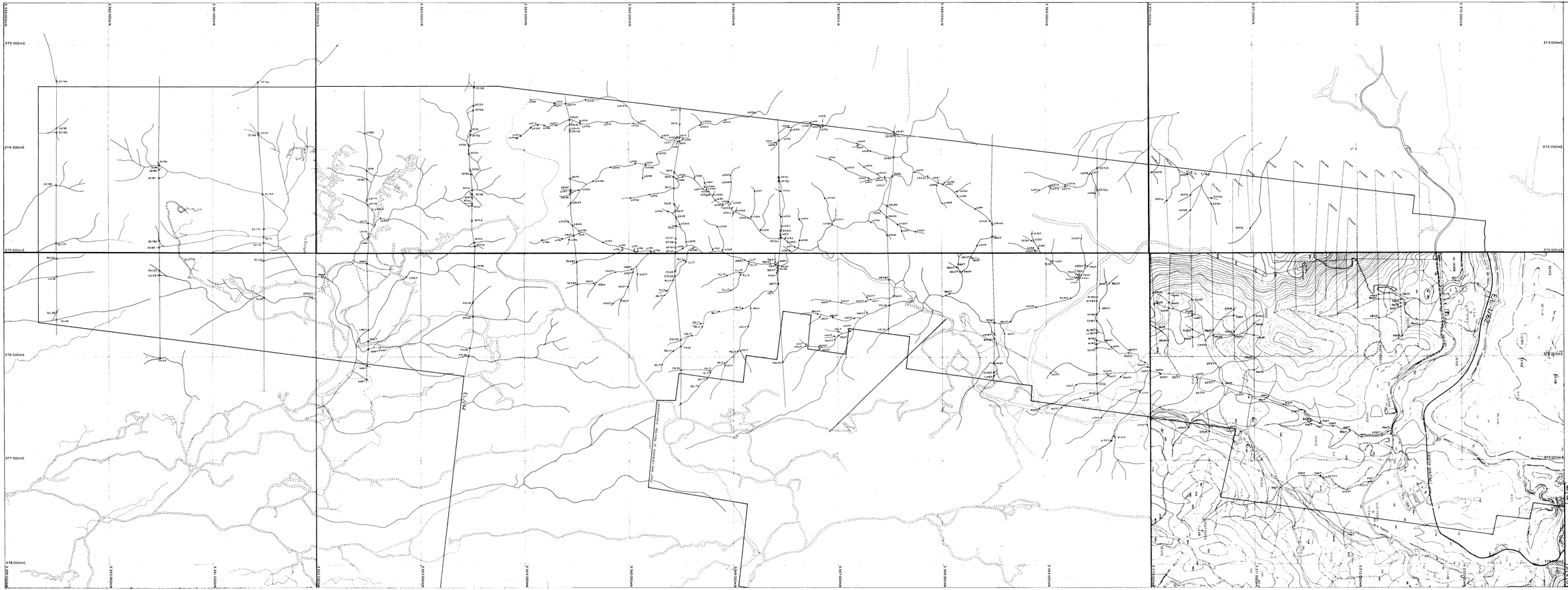
30/6/1980 - 30/6/1981

798453

SCALE 1 : 50,000	REVISED : 26 · 5 · 1981	REFERENCE NO.
REFERENCE :		A2 - 504 - 0226
DATE : 30.6.81	DRAWN : Nik	

002 1610


NB.1 Part of the topographic detail on this sheet is plotted from photo-enlarged 20 chains to the inch prints (Lands Dept.). Contours in feet
NB.2 The grid is centred over the following points:
AG 525 0006, 0013, 0106, 0093, 0110, 0141
5 cm
ELECTROLYTIC ZINC CO. OF AASIA LTD
PROJECT: MT. BLACK EL. 1/62 TAS
NATONE AREA
GEOLOGY
SCALE 1: 10,000
Survey: J.R.G.L. & W.
Drawn: K.A.T.
Checked
Revised
DATE
REPORT NO. 43
EL. 1/62
approx. position
contours in metres
contours in feet
EL. 1/62
EL. 1/62



N.B. : This plan has been compiled from the following plans :
AO 525-0036, -0201, -0203, -0205, -0207, -0210 .

LEGEND

Stream Sediment Sampled in conjunction with grid line pegging by E.Z. Exploration (1980-1981)

Stream Sediment Sampled in conjunction with geological mapping of streams (1981)

Heavy mineral pan concentrate sample (1981)

82-1738. 4of6

ELECTROLYTIC ZINC CO OF A'SIA LTD

PROJECT: MT. BLACK E.L 1/62 | TAS.

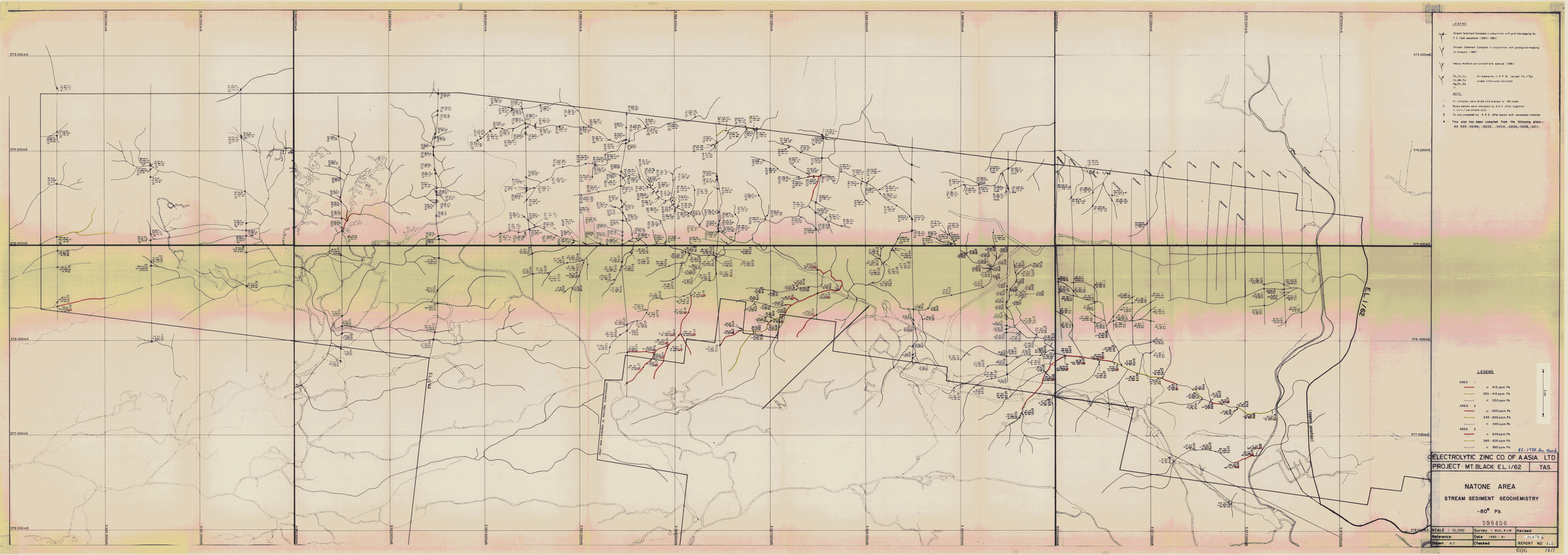
NATONE AREA

STREAM SEDIMENT SAMPLE LOCATIONS

798455

SCALE : 10,000	Survey P.K., I.M.D., K.M.	Revised
Reference	Date 1980 - 81	PLATE 3
Drawn R.R.T., K.T.	Checked	REPORT NO. 142

005 16/0



LEGEND

Stream Sediment Sampled in conjunction with grid line pegging by E Z field assistants (1980 - 1981)

Stream Sediment Sampled in conjunction with geological mapping of streams (1981)

Heavy mineral panconcentrate sample (1981)

Pb, Zn, Cu, Co, Mn, Fe, Ag, Sn, As — All elements in P.P.M (except Fe in %) unless otherwise indicated

NOTE:

1. All samples were dried and sieved to -80 mesh
2. Base metals were analysed by A.A.S. after digestion in nitric / perchloric acid
3. Sn was analysed by A.A.S. after fusion with ammonium chloride
4. This plan has been compiled from the following plans:- AO 525 - 0049, -0202, -0204, -0206, -0211.

LEGEND

AREA 1
- > 415 ppm Pb
- 250 - 415 ppm Pb
- < 250 ppm Pb

AREA 2
- > 600 ppm Pb
- 345 - 600 ppm Pb
- < 345 ppm Pb

AREA 3
- > 605 ppm Pb
- 365 - 605 ppm Pb
- < 365 ppm Pb

1 KM

82-1939 Vol 4 pg 6

ELECTROLYTIC ZINC CO. OF A'ASIA LTD

PROJECT: MT. BLACK E.L. 1/62 | TAS.

NATONE AREA

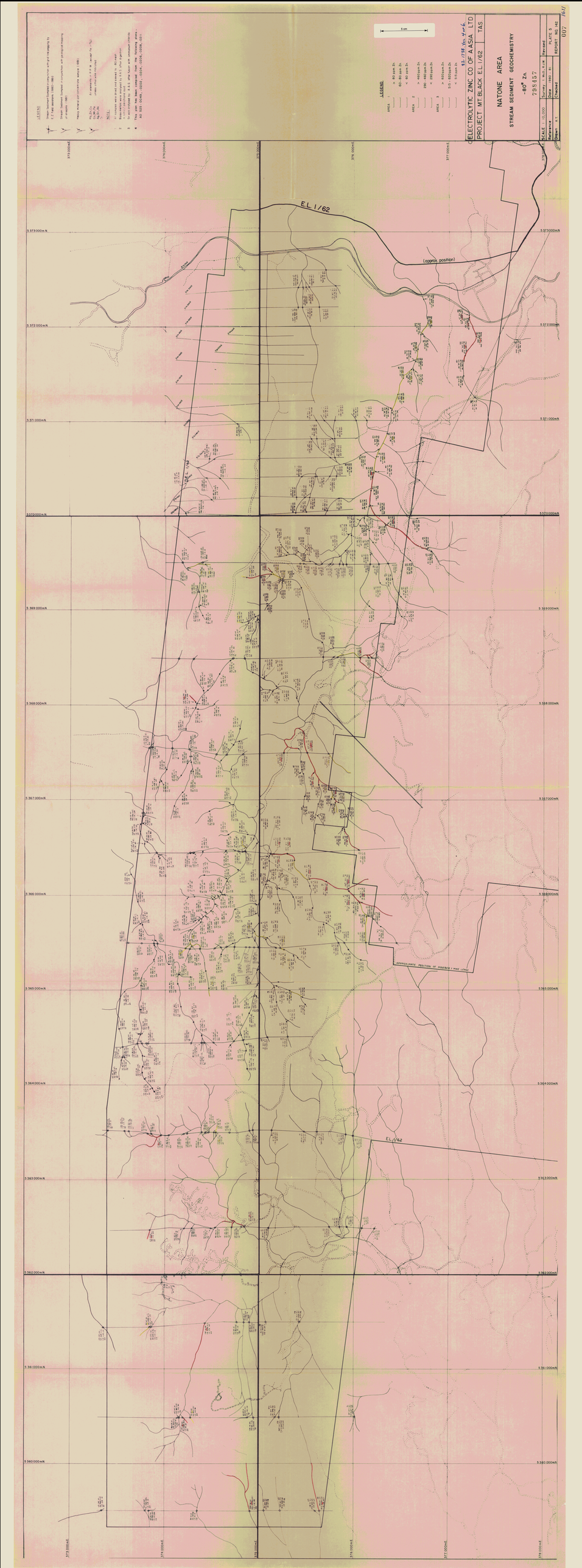
STREAM SEDIMENT GEOCHEMISTRY

-80# Pb.

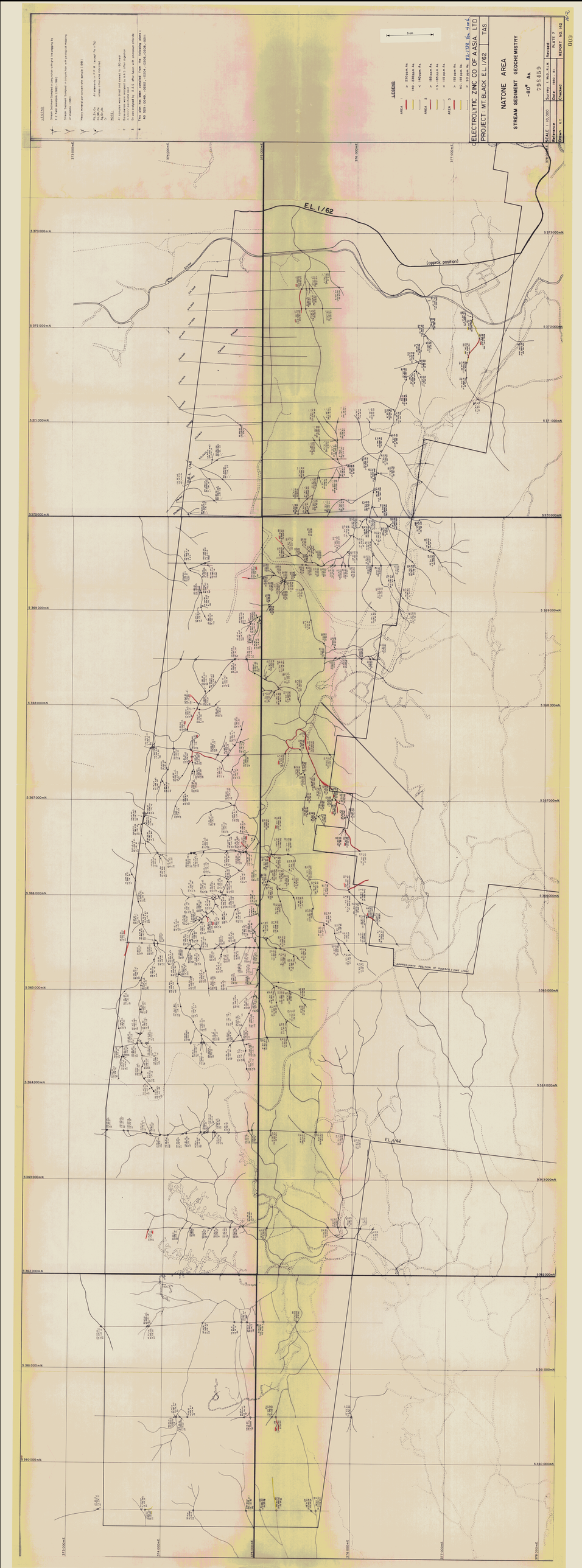
798456

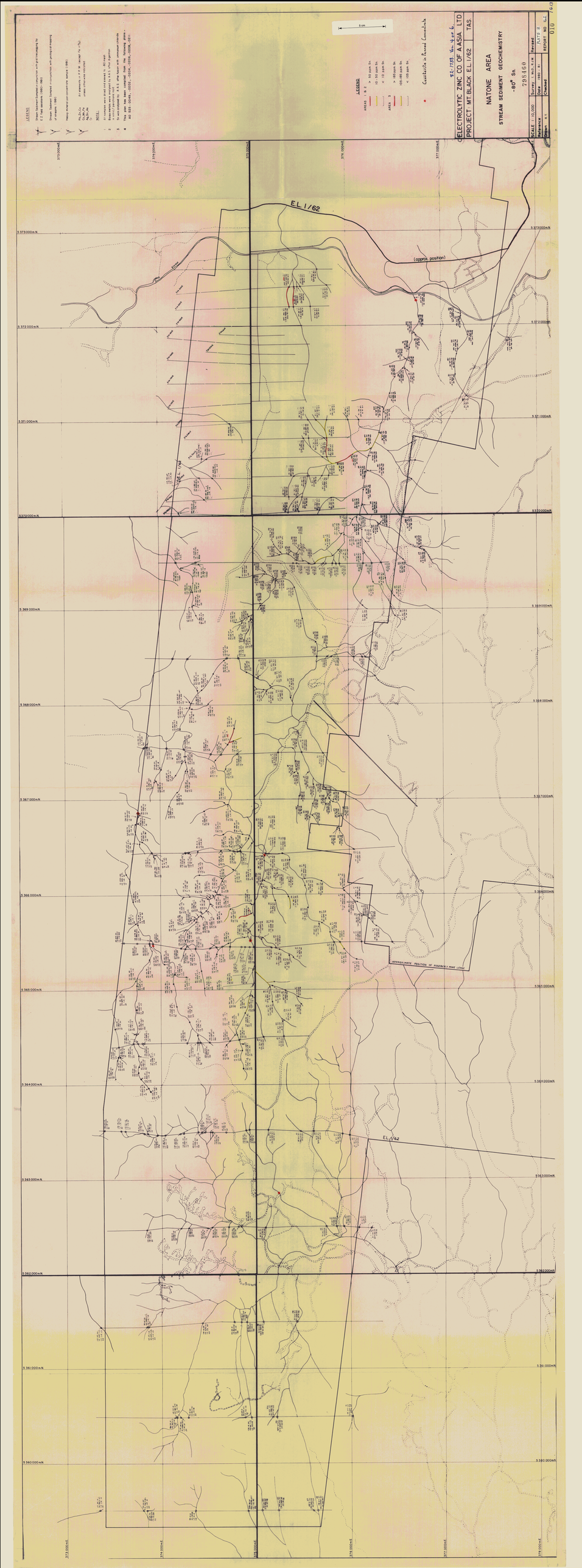
SCALE 1:10,000	Survey I. McD., R.J.W.	Revised	
Reference:	Date 1980 - 81	PLATE 4	
Drawn R.T.	Checked	REPORT NO 1.L.	

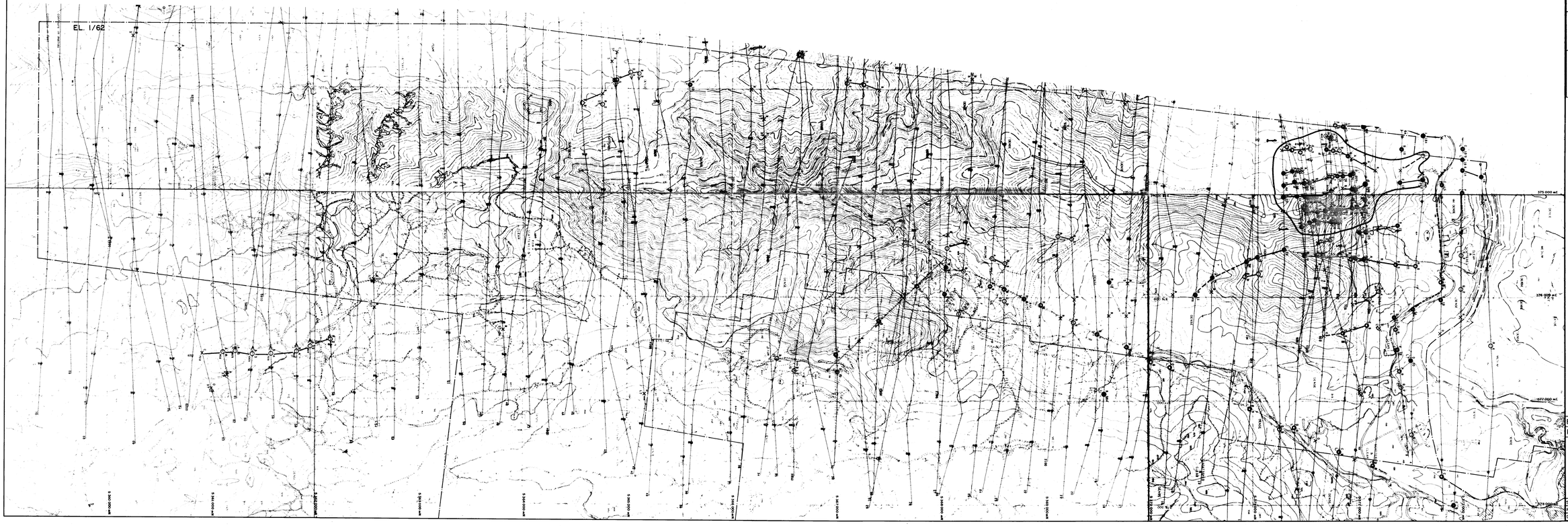
006 7611


ELECTROLYTIC ZINC CO OF AASIA LTD
PROJECT MT BLACK E.L. 1/62 TAS
NATONE AREA
STREAM SEDIMENT GEOCHEMISTRY
-80# Zn.
795457
SCALE 1:10,000
Survey 1 MOLYBDENUM
Date 1980 - 81
Drawn S.T.
Checked
Revised
PLATE 5
REPORT NO. 162
007 1611
LEGEND
AREA 1
< 60 ppm Zn
60 - 120 ppm Zn
> 120 ppm Zn
AREA 2
< 180 ppm Zn
180 - 450 ppm Zn
> 450 ppm Zn
AREA 3
< 510 ppm Zn
510 - 820 ppm Zn
> 820 ppm Zn
5 cm
E.L. 1/62
(approx position)
APPROXIMATE POSITION OF RAILWAY MINE LEVEL
E.L. 1/62

ELECTROLYTIC ZINC CO OF AASIA LTD
PROJECT MT BLACK EL 1/62 TAS
NATONE AREA
STREAM SEDIMENT GEOCHEMISTRY
-80# Cu
7983438
SCALE 1:10,000
Surveyed J.Mc.D., K.W.
Drawn K.T.
Checked
Revised
DATE 1.6.83
REPORT NO. 142
EL 1/62
(approx position)
APPROXIMATE POSITION OF ROSEBERY MINE LEASE
LEGEND
AREA 1
> 60 ppm Cu
30 - 60 ppm Cu
< 30 ppm Cu
AREA 2
> 90 ppm Cu
60 - 90 ppm Cu
< 60 ppm Cu
AREA 3
> 190 ppm Cu
120 - 190 ppm Cu
< 120 ppm Cu
5 cm
LEGEND
Stream sediment sample site with -80# Cu value
Stream sediment sample site with -80# Cu value in parenthesis
Heavy mineral concentrate sample (1983)
Stream sediment sample site with panned concentrate
Fe concentrate (-1.4 S.G. fraction) sample (1983)
Fe concentrate (-1.4 S.G. fraction) sample (1984)
NOTES
1. Stream sediment and concentrate samples collected by A.A.S. and analysed by A.A.S. Mt Isa Laboratory.
2. Stream sediment samples (-1.4 S.G. fraction) were analysed by A.A.S. Mt Isa Laboratory.
3. This map has been compiled from the following plans:-
AD 1983 SAMPLES - 10000, 10001, 10002, 10003, 10004, 10005
1642
005


ELECTROLYTIC ZINC CO OF AASIA LTD
PROJECT MT BLACK EL 1/62 TAS
NATONE AREA
STREAM SEDIMENT GEOCHEMISTRY
-80# As.
LEGEND
AREA 1
> 232ppm As
140 - 232ppm As
< 140ppm As
AREA 2
> 185ppm As
115 - 185ppm As
< 115ppm As
AREA 3
> 155ppm As
90 - 155ppm As
< 90ppm As
EL 1/62
(approx. position)
APPROXIMATE POSITION OF HOUSEY'S MINE LEVEL


ELECTROLYTIC ZINC CO OF AASIA LTD
PROJECT: MT BLACK EL 1/62 TAS
NATONE AREA
STREAM SEDIMENT GEOCHEMISTRY
-80# Sn.
7934460
SCALE 1:10,000
Survey 1 MAR. 82
Drawn K.S.
Reference
Date 1982 - 81
Checked
Revised
PLATE 8
REPORT NO. 1162
LEGEND
AREA 2
> 10 ppm Sn.
05-10 ppm Sn.
< 05 ppm Sn.
AREA 3
> 100 ppm Sn.
10-100 ppm Sn.
< 10 ppm Sn.
Contours in Pound Creek Mk
EL 1/62
(approx position)
APPROXIMATE POSITION OF ROSEBERY MINE LEASE
373000mE
374000mE
375000mE
376000mE
377000mE
378000mE
5373000mN
5372000mN
5371000mN
5370000mN
5369000mN
5368000mN
5367000mN
5366000mN
5365000mN
5364000mN
5363000mN
5362000mN
5361000mN
5360000mN
5359000mN



ANOMALY CLASS	EM GRADE SYMBOL	MAG RANGE
A	●	24 -100
B	●	10 - 24
C	●	5 - 10
D	○	2 - 5
E	○	1 - 2
F	○	<1 *
M	Possible conductor	

DIGHEM interprets the anomaly into six grades of conductivity - thickness product. This product, or effect, is the conductance of a conductive sheet. The term is a measure of conductance and is the product of conductivity and thickness. Grade 1 anomalies are the highly conducting zones (on your Grade 1 overlays). They usually, but not always, stream after active surface conductors by the direction of the flight line, or because of a shallow dip or conductive overburden effects. The remaining Grade 2 and 3 anomalies could be weak bedrock conductors. The higher grade values indicate increasingly higher conductance - thickness products. Grade 4 anomalies, also called poor Grade 3 anomalies, often delineate weak bedrock (or Grade 3) conductors and sometimes can span all grades but, in this survey, usually Grade 4. Grade 5 anomalies are the different grades indicating different types of conductors.

Conductor dip	Conductance (mhos)
90°	1 mho
45°	1.4 mhos
30°	2 mhos
20°	3 mhos
10°	6 mhos

Note: Conductance is the product of conductivity and thickness. Conductivity is the reciprocal of resistivity. Thickness is in metres. Resistivity is in ohm-metres.

The actual strike value is plotted beside the EM anomaly symbol. The strike is the direction of the conductive zone, measured clockwise with respect to the magnetic north, and the vertical column gives the conductive depth. The depth may be unreliable because of the flight line, or because of a shallow dip or conductive overburden effects.

Conductive zone	
Weakly conductive overburden	
Possible surface channel	
Possible non-geological anomaly (cultural source or "noise")	
Resistive zone	
Approximate magnetic boundary	
Direction and thickness (1-5 in this case) of conductive overburden	
1000 Direct magnetic correlation of EM anomaly	

DIGHEM maps are designed to provide a concise interpretation of the airborne electromagnetic survey. The maps show the location of surface conductive sheets or geology when plotting a follow-up program. The actual strike values are plotted for those who wish to construct their own geological interpretation. Also, the anomalous zones are shown which should not contact from the conductor patterns, while being helpful to those who wish this information for comparison with ground geophysical results. Conductance, dip, strike direction, conductance and depth. The survey is comparable to an airborne plan from a ground EM survey. Namely, the same line spacing.

Flight line

Fiducials and numbers

28
30
32
9
11

Vehicular Track
Walking Track
Vehicular Track (Approx-mate position)
Walking Track (Approx-mate position)

N.B. Part of the topographic detail on this sheet is derived from photo enlarged 20 chains to the inch plans (1 inch = 1320 feet) contours in feet

93-73F Vol. Map 6

ELECTROLYTIC ZINC CO OF A'ASIA LTD

PROJECT MT. BLACK | TAS.

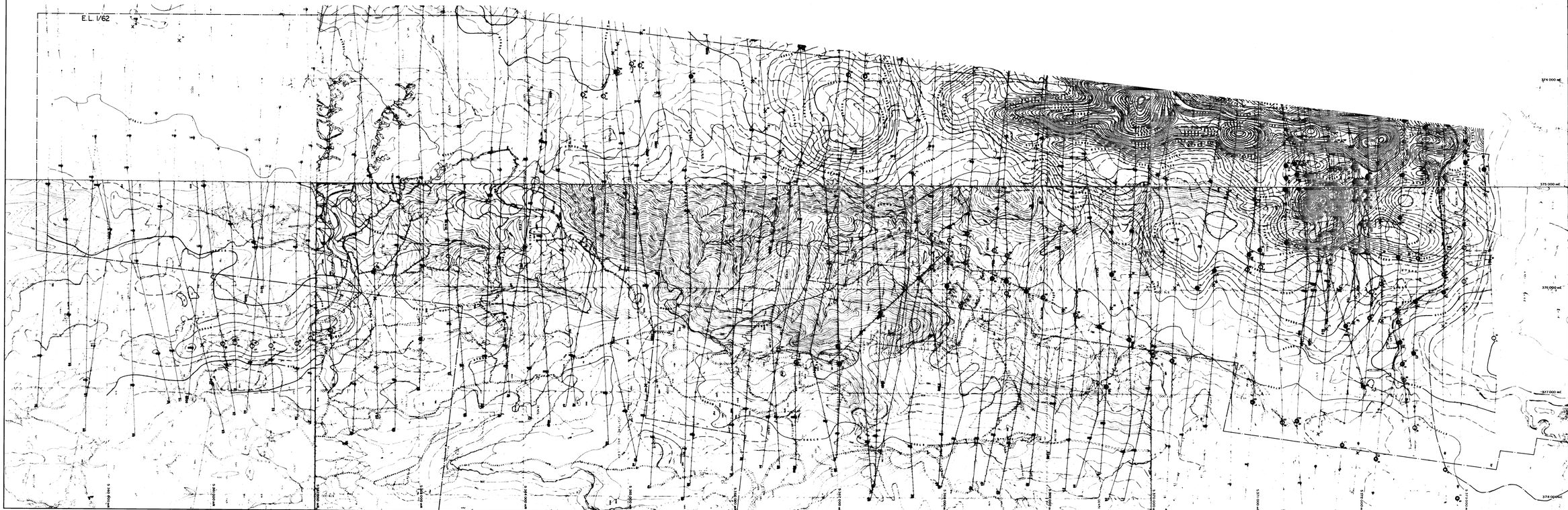
DIGHEM II SURVEY

ELECTROMAGNETICS

NATONE - COLEBROOK HILL AREA

SCALE 1:10,000	Survey	Revised
Reference	Date FEB. 81	REPORT NO 142
Drawn NNo	Checked	PLATE 9

798461 011 E.Z. PLAN CABINET TRIM LINE



ISOMAGNETIC LINES

(total field)

- 1000 gammas
- 200 gammas
- 50 gammas
- 25 gammas
- magnetic depression

Magnetic Inclination within the survey area 72°

Flight line

Fiducials and numbers

1 mile

1 km

vehicular Track

mining Track

vehicular Track Approximate position

mining Track Approximate position

N.B. Most of the topographic detail on this sheet is derived from photo enlarged 20 chains to the inch aerial Lines (kept confidential in Files)

82-1236 Wed

ELECTROLYTIC ZINC CO OF A'ASIA LTD

PROJECT MT. BLACK TAS.

DIGHEM II SURVEY

798462

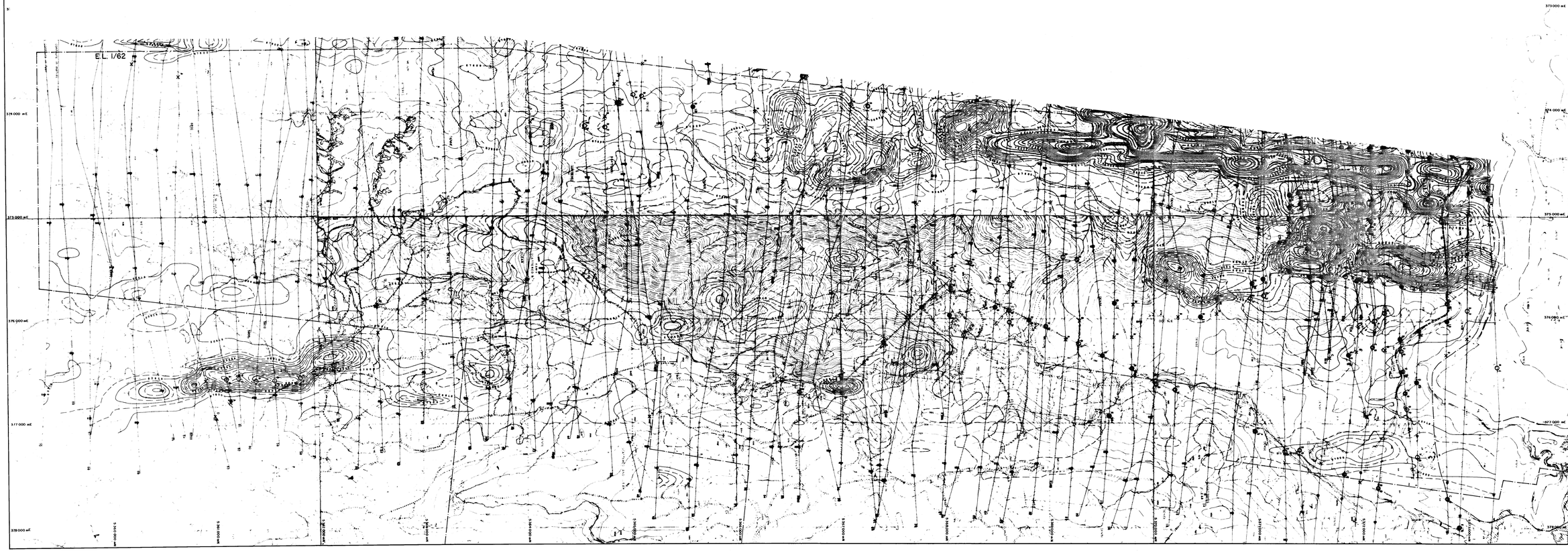
MAGNETICS

NATONE – COLEBROOK HILL AREA

SCALE 1:10,000	Survey	Revised	
Reference	Date FEB '81		REPORT NO. 142
Drawn NAG	Checked		PLATE 10

012

E.Z. PLAN CABINET 19cm. LINE



ISOMAGNETIC LINES
(enhanced field)

- 5000 gammas
- 1000 gammas
- 200 gammas
- 100 gammas
- magnetic depression

REJECT

Frequency response of magnetic operator

Flight line

Fiducials and numbers

28
30
32

reinvert Traps
Working Traps
reinvert Traps (Approximate position)
Working Traps (Approximate position)

N.B. Part of the topographic detail on this sheet is derived from photo enlarged 20 chains to the inch plans Lands Dept. canberra in Year

92-1733. 4 of 6

ELECTROLYTIC ZINC CO OF A'ASIA LTD

PROJECT MT. BLACK | TAS

DIGHEM^{II} SURVEY

798463

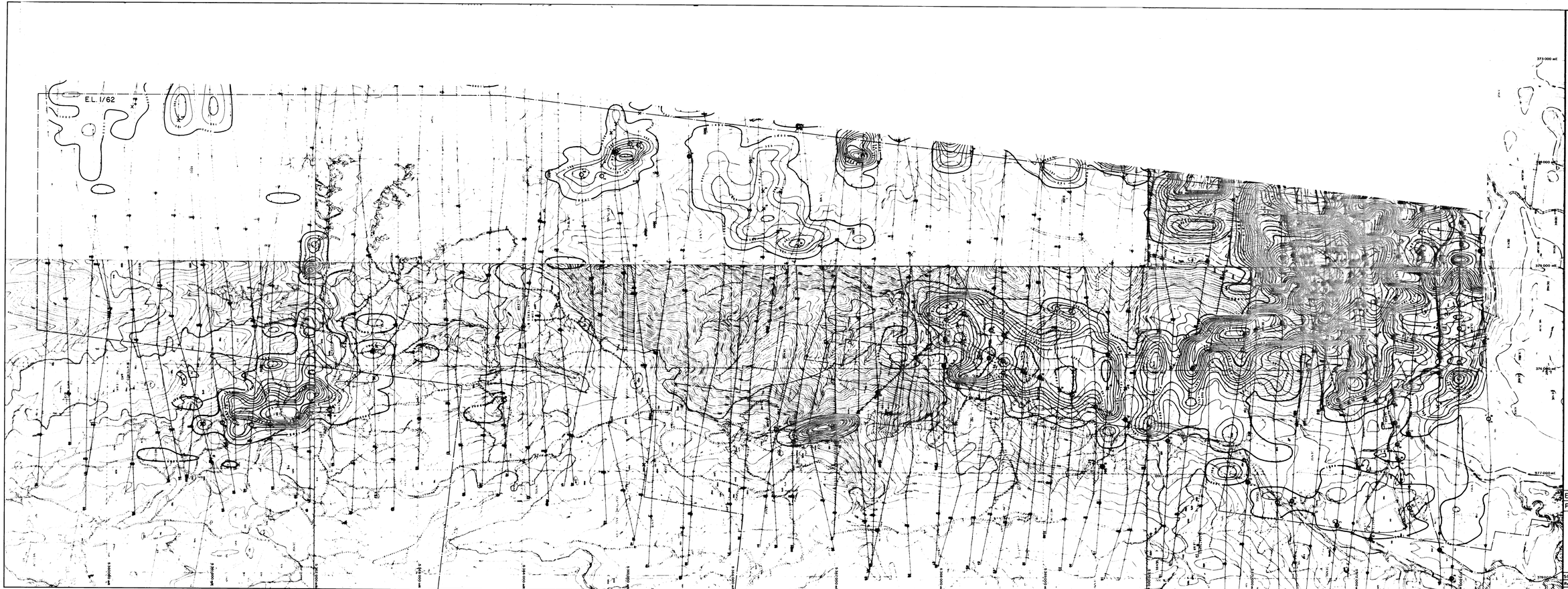
ENHANCED MAGNETICS

NATONE – COLEBROOK HILL AREA

SCALE 1:10,000	Survey	Revised	
Reference	Date FEB '81	REPORT NO. 142	
Drawn NNo	Checked	PLATE II	

013

F/ PLAN CABINET TRIA LINE



LEGEND

Contours in ohm-m at eight intervals per decade

100
75
56
42
31
23
17
13
10

Note

The numbers face in the direction of increasing value

Flight line

Fiducials and numbers

28
7
30
9
32
11

Contour interval 10 ohm-m

Contours in feet

Reference: 92-1736, 4 of 6

ELECTROLYTIC ZINC CO OF A'SIA LTD

PROJECT MT. BLACK | TAS.

DIGHEM II SURVEY

798464

RESISTIVITY

NATONE - COLEBROOK HILL AREA

SCALE 1:10,000	Survey	Revised
Reference	Date FEB 81	REPORT NO. 142
Drawn NM	Checked	PLATE 12

EL. 1762

approx position

APPROXIMATE POSITION OF QUARTZ PINE LEASE

CELLULAR PHONE REPEATER

5 cm

82-1738. Vol. 4of6.

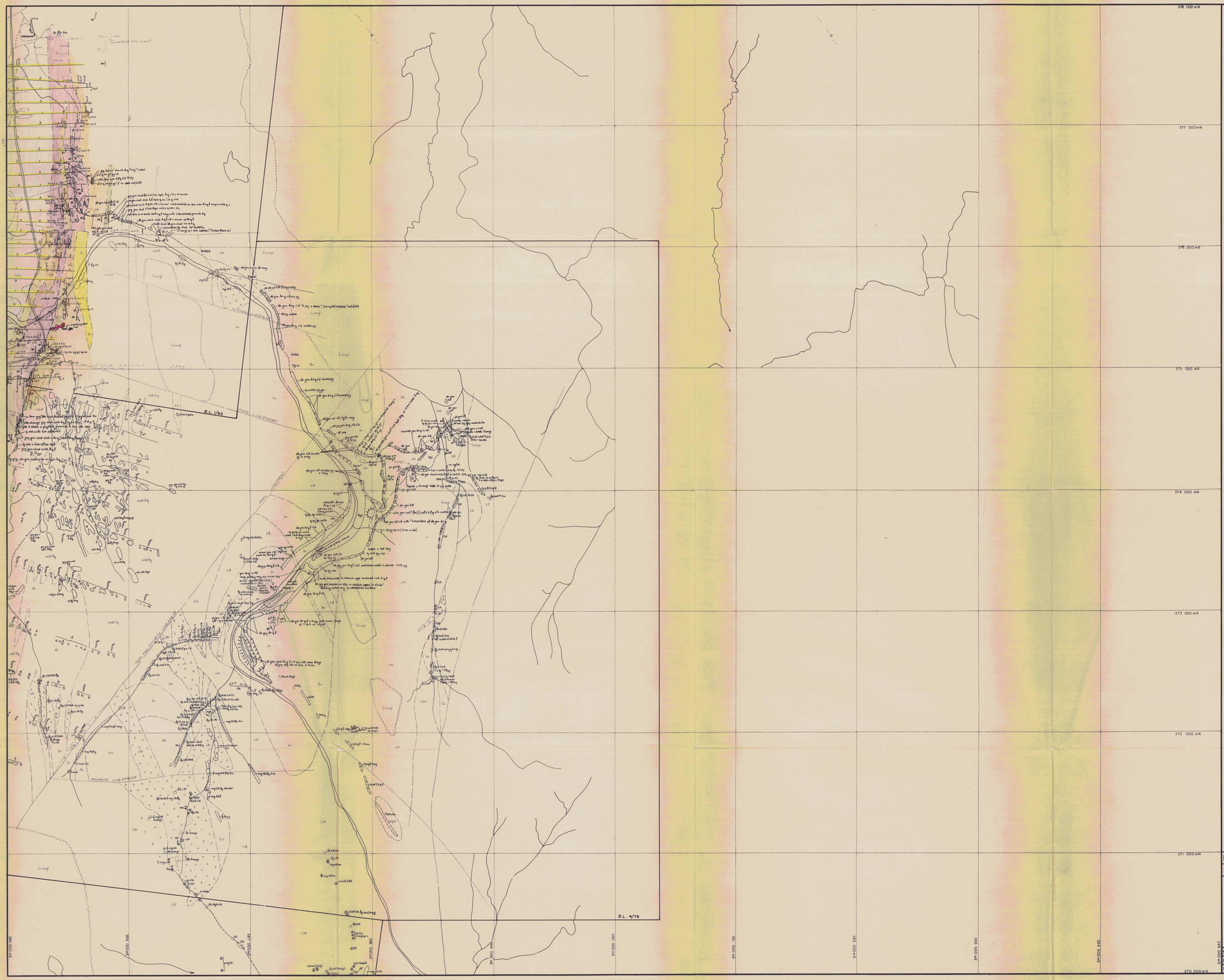
ELECTROLYTIC ZINC CO. OF A'ASIA LTD.

PROJECT: MT. BLACK TAS.

GEOLOGY

SCALE: 1:10,000	Survey P.K., J.M., W.S.F., C.I.	Revised	
Reference:	Date 1978/9	REF. Nº	
Drawn: R.P.T.	Checked:	AO-525-0006	

798465 015 1615



1	2		
3	4		
5	6		
28	7	8	
30	9	10	
32	11		

32-1738, Vol 4 of 6.

ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.

PROJECT: MT. BLACK — TAS

GEOLOGY

5 cm

SCALE: 1:10 000	Survey: W.F.	Revised: 1.8.70
Reference:	Date: 4/9/79	REF. NO.
Drawn: R.P.T.	Checked: ?	AO-525-0055

798466 016

EZ PLAN CABINET TRIM LINE

AO TRIM LINE

1615

GRID ORIGIN
379300mE, 5378000mN

GRID ORIGIN
380500 mE, 5378000mN

GRID ORIGIN
383900mE,
5378000mN

GRID ORIGIN
379700mE,
5377000mN

GRID ORIGIN
382500mE,
5377000mN

ROSEBERRY
MINE GRID

GRID ORIGIN
381600mE,
5376000mN

GRID ORIGIN
383500 mE,
5376000mN

TULLAH GRID

(MURCHISON)
GRID ORIGIN
383900mE,
5378000mN

GRID ORIGIN
382000mE, 5376000mN

E.L. 1/62

approx position

COLEBROOK HILL GRID

HERCULES
GRID

ROSEBERY LODES
GRID

APPROXIMATE POSITION OF ROSEBERY MINE LEASE

STITT FOLLOW UP GRID

E.L. 1/42

E.L. 4/73

STERLING
VALLEY
GRID

LEGEND — TULLAH GRID 1980/81

	> 1000	ppm Pb
	100 — 1000	" "
	50 — 100	" "
	< 50	" "

LEGEND — COLEBROOK HILL GRID

	< 500	ppm Pb
	200 — 500	" "
	100 — 200	" "
	50 — 100	" "
	> 50	" "

Note 1: The position of the Murchison Grid has been corrected to fit topographical and cultural features.

2: Information shown on this plan has been photoreduced from 1:5,000 scale geochem plans which show individual sample data.

Heavy line denotes grid line not sampled.

3: Refer to plan AO-525-0023 for surveyed locations of some Murchison River Grid and Sterling Valley Grid lines.

STERLING VALLEY GRID:
- Old grid lines
- Recut grid lines E.Z. 1979/80
- Grid line not sampled E.Z. 1979/80

LEGEND

Pb
- 50 p.p.m.
- 45 100 p.p.m.
- 150 200 p.p.m.
- 200 500 p.p.m.

Note: Samples taken since commencement of E.Z.-GETTY joint venture have been sieved to -80# and analysed by AAS after Perchloric/Nitric acid digestion.

1	2	
3	4	
5	6	
28	7	8
30	9	10
32	11	

82-1738. Vol 4 of 6.

ELECTROLYTIC ZINC CO OF A'ASIA LTD

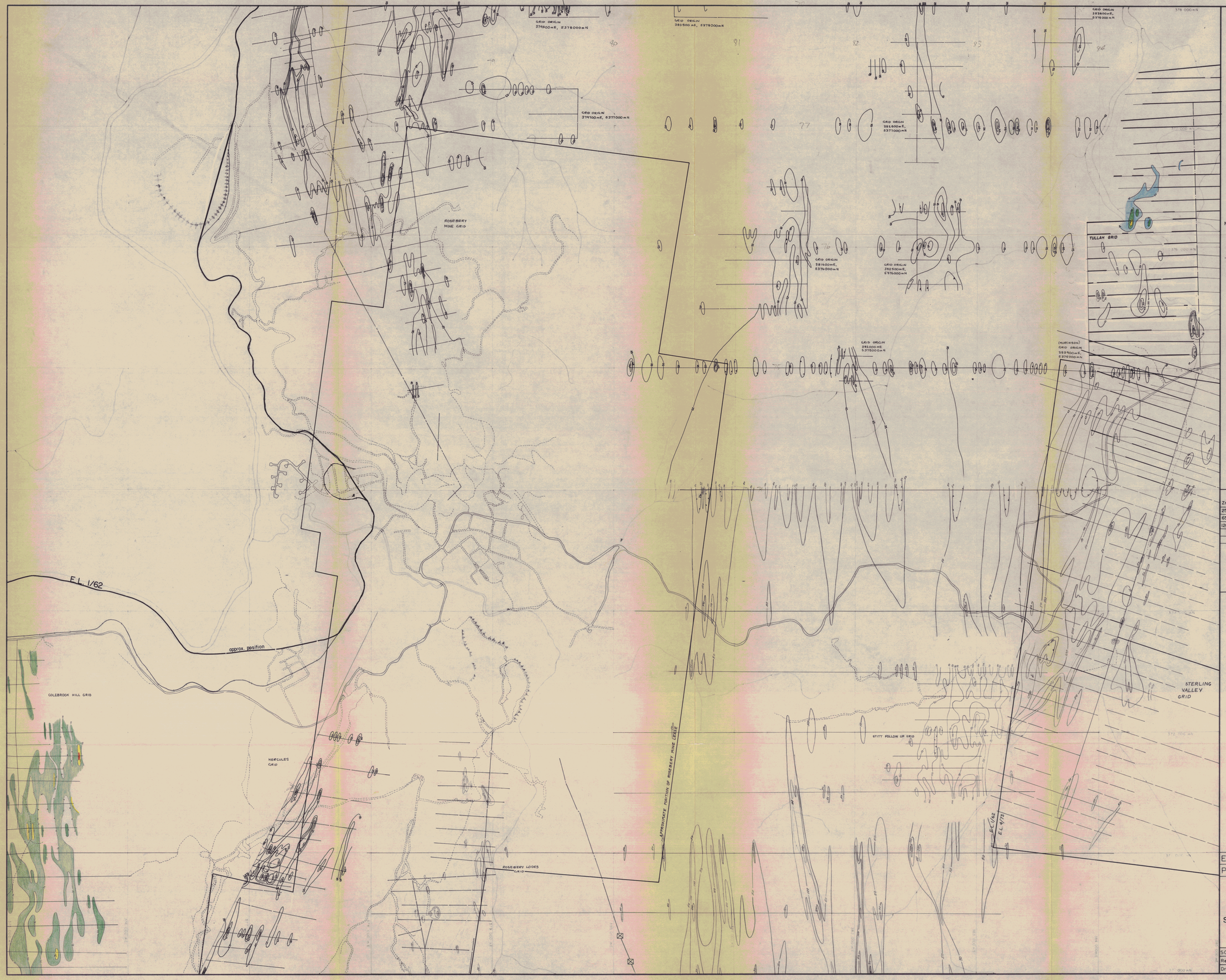
PROJECT MT BLACK | TAS

SOIL GEOCHEMISTRY : Pb

5 cm

SCALE 1:10,000	Survey	Revised 5.12.81
Reference	Date JUNE '79	REF NO
Drawn MB	Checked	AO 525 0026

798467 017 E.Z. PLAN CABINET TRIM LINE 1616



LEGEND — TULLAH GRID 1980/81

	> 1000 ppm Zn
	500 — 1000 " "
	200 — 500 " "
	100 — 200 " "
	50 — 100 " "
	< 50 " "

LEGEND — COLEBROOK HILL GRID

	> 500 ppm Zn
	200 — 500 " "
	100 — 200 " "
	< 100 " "

Note 1: The position of the Murchison Grid has been corrected to fit topographical and cultural features.

2: Information shown on this plan has been photoreduced from 1:5,000 scale geochem. plans which show individual sample data.

Heavy line denotes grid line not sampled.

3: Refer to plan AO-525-0023 for surveyed locations of some Murchison River Grid and Sterling Valley Grid lines.

STERLING VALLEY GRID:

Old grid lines

Recut grid lines E.Z. 1979/80

Grid line not sampled E.Z. 1979/80

LEGEND

Zn	
25	50 p.p.m.
65	100 p.p.m.
120	200 p.p.m.
	500 p.p.m.
	1000 p.p.m.

Note: Samples taken since commencement of E.Z. – GETTY joint venture have been sieved to -80# and analysed by A.A.S. after Perchloric/Nitric acid digestion.



92-1738. Vol 5 of 6.

ELECTROLYTIC ZINC CO OF A'ASIA LTD

PROJECT MT BLACK | TAS

5 cm

SOIL GEOCHEMISTRY: Zn

SCALE 1:10,000	Survey	Revised 6/12/81
Reference	Date JUNE '79	REF NO
Drawn MB	Checked	AO 525 0027

798468 018

E.Z. PLAN CABINET TRIM LINE

GRID ORIGIN
379300mE, 5378000mN

GRID ORIGIN
380500mE, 5378000mN

GRID ORIGIN
383400mE
5378000mN

GRID ORIGIN
379700mE, 5377000mN

ROSEBERY MINE GRID

GRID ORIGIN
382600mE, 5377000mN

378 000mN

GRID ORIGIN
382500mE
5376000mN

GRID ORIGIN
381600mE,
5376000mN

376 500mN

GRID ORIGIN
383000mE, 5375000mN

(MURCHISON)
GRID ORIGIN
383200mE,
5375000mN

E.L. 1/62

approx position

COLEBROOK HILL GRID

HERCULES
GRID

ROSEBERY LODES GRID

APPROXIMATE PORTION OF ROSEBERY MINE LEASE

STITT FOLLOW UP GRID

STERLING
VALLEY
GRID

E.L. 1/62
E.L. 4/73

372 000mN

LEGEND —— TULLA GRID - 1980/81

	>	300	ppm	Cu
	100	– 300	"	"
	50	– 100	"	"
	<	50	"	"

LEGEND —— COLEBROOK HILL GRID

	>	1000	ppm	Cu
	500	– 1000	"	"
	200	– 500	"	"
	<	200	"	"

Note 1: The position of the Murchison Grid has been corrected to fit topographical and cultural features.

2: Information shown on this plan has been photoreduced from 1:5,000 scale geochem plans which show individual sample data.

—— Heavy line denotes grid line not sampled.

3: Refer to plan AO-525-0023 for surveyed locations of some Murchison River Grid and Sterling Valley Grid lines.

Cu LEGEND

100	1000 p.p.m.
	500 p.p.m.
35	200 p.p.m.
13	100 p.p.m.
2	50 p.p.m.

NOTE: Samples taken since commencement of E.Z. - Getty joint venture have been sieved to -80 M and analysed by A.A.S. after perchloric/nitric acid digestion.

STERLING VALLEY GRID

—— —— Old grid lines

—— —— Recut grid lines E.Z. 1979/80

—— Grid line not sampled E.Z. 1979/80

28			8
30	9		10
32	11		

82-1738: Vol. 5 of 6.

ELECTROLYTIC ZINC CO OF A'ASIA. LTD

PROJECT: MT. BLACK — TAS

5 cm

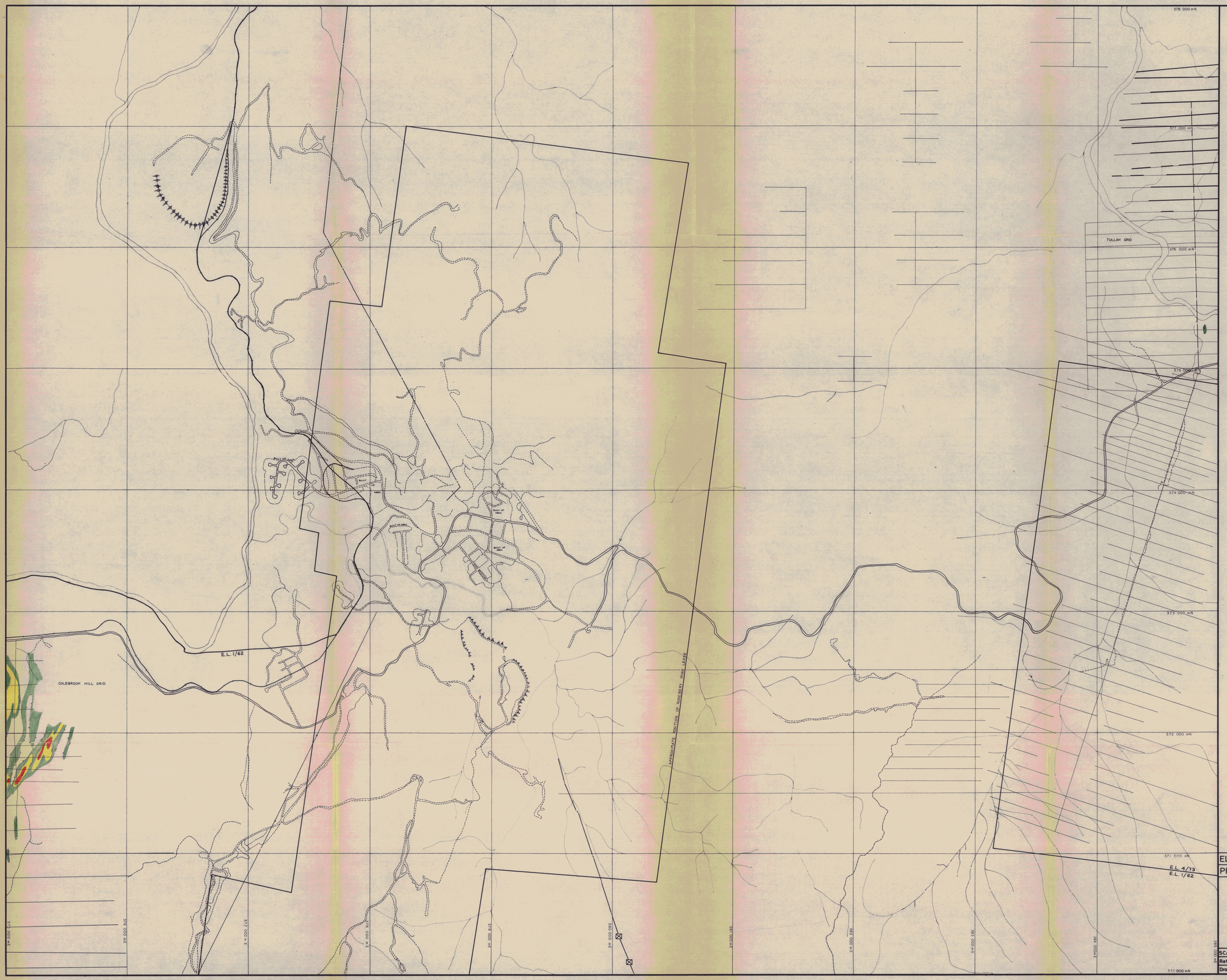
SOIL GEOCHEMISTRY : Cu

SCALE 1:10,000	Survey	Revised: 5.12.81	
Reference	Date JUNE '79	REF. NO.	
Drawn MB	Checked	AO 525 0025	

798469 019

E.Z. PLAN CABINET TRIM LINE

A0 TRIM LINE



LEGEND — TULLAH GRID

	>	500	ppm As
	100 –	500	" "
	50 –	100	" "
	<	50	" "

LEGEND — COLEBROOK HILL GRID

	>	2000	ppm As
	1000 –	2000	" "
	500 –	1000	" "
	<	500	" "

1	2	
3	4	
5	6	
28	7	8
30	9	10
32	11	

82-1738. Vol. 506.

ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.

PROJECT: MT. BLACK | TAS

798470

SOIL GEOCHEMISTRY : As

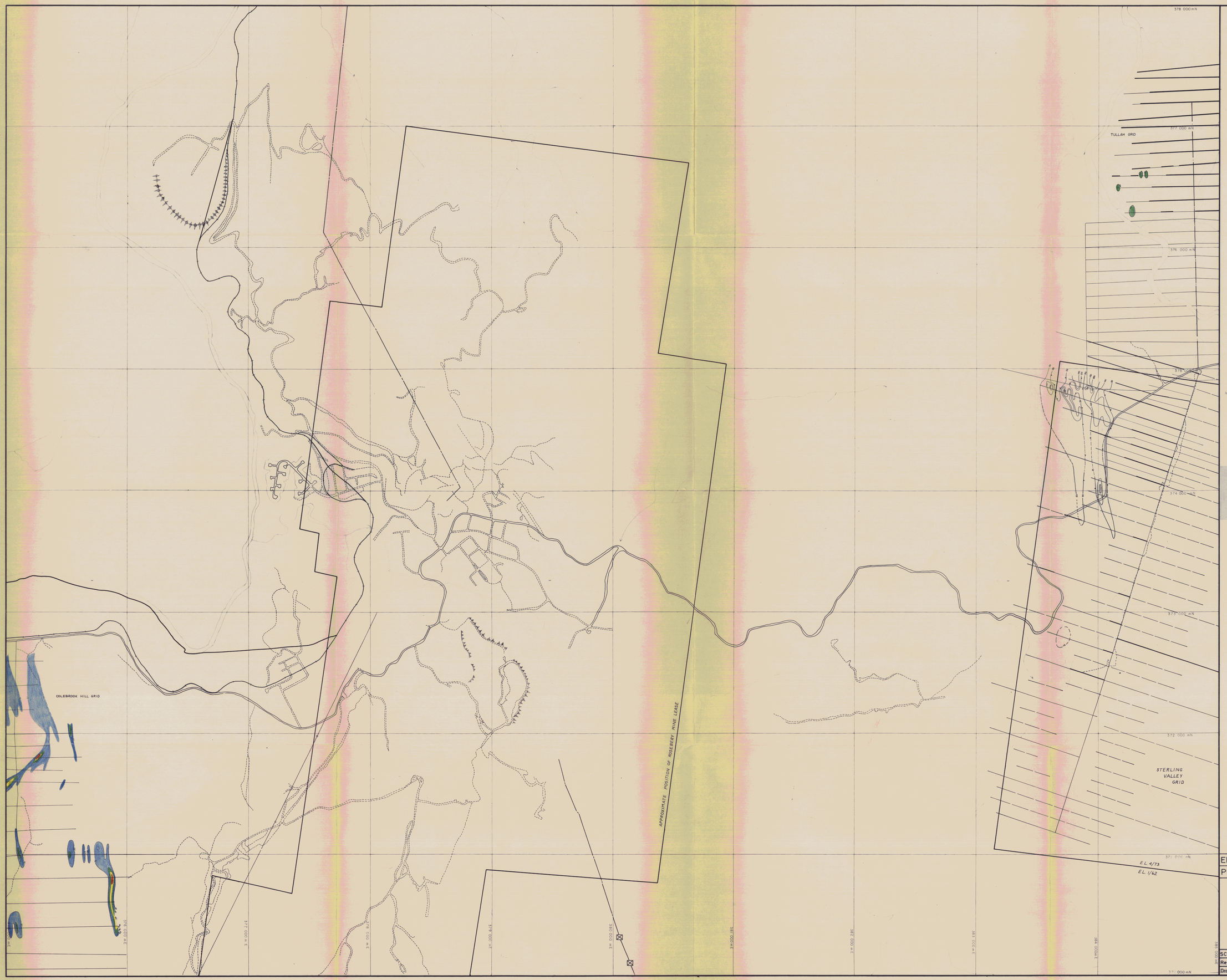
5 cm

SCALE: 1:10,000	Survey: I.R.M.	Revised: 8.12.81
Reference:	Date: 6.8.80	REF. NO.
Drawn: R.P.T.	Checked:	AO-525-0125

020

E.Z. PLAN CABINET TRIM LINE

1617



LEGEND — TULLAH GRID

	> 20	ppm	Sn
	< 20	"	"

LEGEND — COLEBROOK HILL GRID

	> 400	ppm	Sn
	200 – 400	"	"
	100 – 200	"	"
	50 – 100	"	"
	< 50	"	"

NOTE: 3 dot lines = cut grid lines. Please do not assume these to be a typical spacing of magnetic N/S.

STERLING VALLEY GRID:

- Old grid lines
- Recut grid lines E.Z. 1979/80
- Grid line not sampled E.Z. 1979/80

Sn LEGEND

- > 200 ppm
- 100 – 200 ppm
- 50 – 100 ppm

1	2	
3	4	
5	6	
28		8
30	9	10
32	11	

82-1738, Vol. 5 of 6.

ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.

PROJECT: MT. BLACK — TAS

798471

SOIL GEOCHEMISTRY : Sn

5 cm

SCALE: 1:10,000	Survey: J. M.	Revised: 8.12.81
Reference:	Date: 13.2.80	REF. NO.
Drawn: R.P.T.	Checked:	AO - 525 - 0071

021

E.Z. PLAN CABINET TRIM LINE 16/7

A0 TRIM LINE

Note 1 The position of the Murchison Grid has been corrected to fit topographical and cultural features

2 Information shown on this plan has been photoreduced from 1:5,000 scale geochem plans which show individual sample data

Heavy line denotes grid line not sampled

3 Refer to plan AO-525-0023 for surveyed locations of some Murchison River Grid and Sterling Valley Grid lines

STERLING VALLEY GRID

EL 1/82

EL 4/73

LEGEND — TULLAH GRID

	> 1000 ppm Pb
	100 – 1000 " Pb
	50 – 100 " Pb
	< 50 " Pb

	1	2
	3	4
	5	6
28	7	8
30	9	10
32	11	

82-1738, Vol. 6 of 6.

ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.

PROJECT: MT. BLACK | TAS

5 cm

SOIL GEOCHEMISTRY

Pb

798472

SCALE: 1:10 000	Survey: I McD.	Revised:
Reference:	Date: 23. 11. '81	REF. NO.
Drawn: N I K	Checked:	AO - 525 - 0265

022

E Z PLAN CABINET TRIM LINE

A0 TRIM LINE

STERLING VALLEY GRID

EL 1162

EL 4173

Note 1 : The position of the Murchison Grid has been corrected to fit topographical and cultural features

2 Information shown on this plan has been photoreduced from 1:5,000 scale geochem plans which show individual sample data

—— Heavy line denotes grid line not sampled

3 Refer to plan AO-525-0023 for surveyed locations of some Murchison River Grid and Sterling Valley Grid lines

LEGEND —— TULLAH GRID

	> 1000	ppm	Zn
	500 – 1000	"	Zn
	200 – 500	"	Zn
	100 – 200	"	Zn
	50 – 100	"	Zn
	< 50	"	Zn

	1	2
	3	4
	5	6
28	7	8
30	9	10
32	11	

82-1739 Vol. Sof 6.

ELECTROLYTIC ZINC CO OF AASIA LTD.

PROJECT: MT. BLACK | TAS

5 cm

SOIL GEOCHEMISTRY

Zn

798473

SCALE 1:10000	Survey: I. McD.	Revised:
Reference:	Date 23.11.'81	REF NO
Drawn: NIK	Checked:	AO-525-0266

024

E Z PLAN CABINET TRIM LINE

1618

AO TRIM LINE

Note 1: The position of the Murchison Grid has been corrected to fit topographical and cultural features

2: Information shown on this plan has been photoreduced from 1:5,000 scale geochem plans which show individual sample data

——— Heavy line denotes grid line not sampled

3: Refer to plan AO-525-0023 for surveyed locations of some Murchison River Grid and Sterling Valley Grid lines

STERLING VALLEY GRID

E.L. 1/62

E.L. 4/73

LEGEND —— TULLAH GRID

	> 300 ppm Cu
	100 – 300 " Cu
	50 – 100 " Cu
	< 50 " Cu

	1	2
	3	4
	5	6
28	7	8
30	9	10
32	11	

82-1738. Vol. 5 of 6.

ELECTROLYTIC ZINC CO OF A'ASIA LTD.

PROJECT: MT. BLACK | TAS

5 cm

SOIL GEOCHEMISTRY
Cu

SCALE: 1:10000	Survey: I.McD.	Revised:
Reference:	Date: 23. 11. 81	REF. NO.
Drawn: NIK	Checked:	AO - 525 - 0267

798474 025

E.Z PLAN CABINET TRIM LINE

1618

STERLING VALLEY GRID

E.L. 1162

E.L. 4173

377 000 mN

376 000 mN

375 000 mN

374 000 mN

373 000 mN

372 000 mN

371 000 mN

370 000 mN

389 000 mE

388 000 mE

387 000 mE

386 000 mE

385 000 mE

384 000 mE

383 000 mE

382 000 mE

381 000 mE

380 000 mE

379 000 mE

Note 1. The position of the Murchison Grid has been corrected to fit topographical and cultural features.

2. Information shown on this plan has been photoreduced from 1:5,000 scale geochem plans which show individual sample data.

—— Heavy line denotes grid line not sampled

3. Refer to plan AO - 525 - 0023 for surveyed locations of some Murchison River Grid and Sterling Valley Grid lines.

LEGEND —— TULLAH GRID

	> 500	ppm	As
	100 — 500	"	As
	50 — 100	"	As
	< 50	"	As

28	7	8
30	9	10
32	11	

82-1738: Vol 5 of 6.

ELECTROLYTIC ZINC CO OF A'ASIA LTD.

PROJECT: MT. BLACK — TAS

5 cm

SOIL GEOCHEMISTRY

As

SCALE 1:10000	Survey I. McD	Revised
Reference:	Date 23.11.81	REF NO
Drawn NIK	Checked	AO - 525 - 0268

798475 026

E.Z. PLAN CABINET TRIM LINE

A0 TRIM LINE

Note 1. The position of the Murchison Grid has been corrected to fit topographical and cultural features.

2. Information shown on this plan has been photoreduced from 1:5,000 scale geochem plans which show individual sample data.

—— Heavy line denotes grid line not sampled.

3. Refer to plan AO-525-0023 for surveyed locations of some Murchison River Grid and Sterling Valley Grid lines.

STERLING VALLEY GRID

EL 1/62

EL 4/73

Sn

LEGEND — TULLAH GRID

> 20 ppm Sn

< 20 " Sn

28	7	8
30	9	10
32	11	

82-1734. Vol 5 of 6.

ELECTROLYTIC ZINC CO OF A'ASIA LTD.

PROJECT: MT. BLACK | TAS

5 cm

SOIL GEOCHEMISTRY

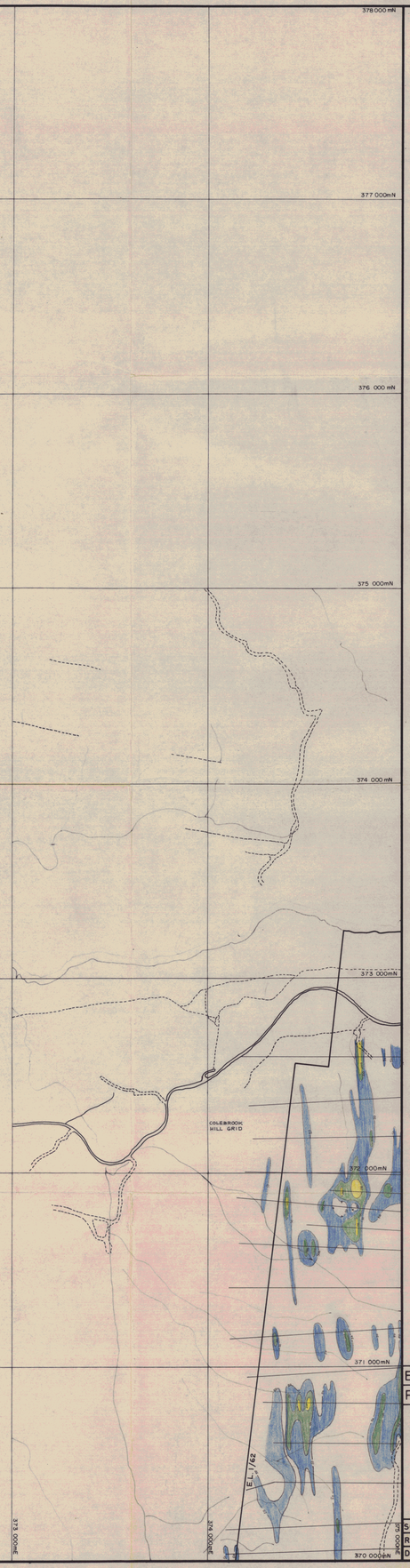
Sn

798476

SCALE: 1:10000	Survey: I. McD.	Revised:
Reference:	Date: 23.11.81	REF. NO.
Drawn: NIK	Checked:	AO-525-0269

027

E Z PLAN CABINET TRIM LINE



LEGEND — COLEBROOK HILL GRID

	> 500 ppm Pb
200	– 500 " "
100	– 200 " "
50	– 100 " "
	< 50 " "

		1	2	
		3	4	
		5	6	
28		7	8	
30		9	10	
32		11		

82-1738 Vol 5 of 6.

ELECTROLYTIC ZINC CO. OF A'SIA. LTD.

PROJECT: MT. BLACK | TAS

5 cm

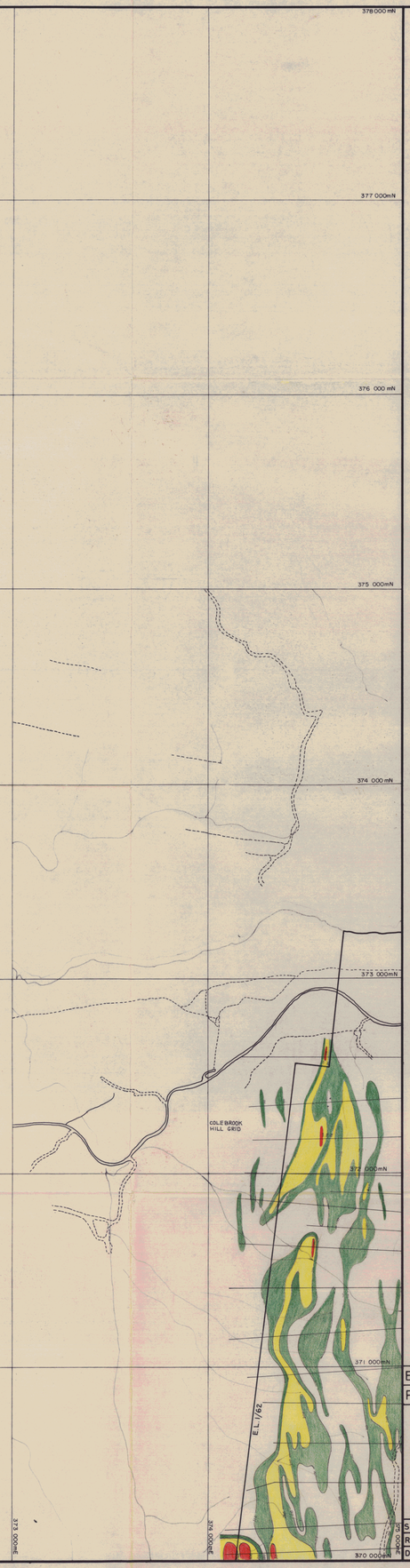
SOIL GEOCHEMISTRY : Pb

SCALE: 1:10 000	Survey: I.R.M.	Revised: 8.12.81
Reference:	Date: 6.8.80	REF. NO.
Drawn: R.P.T.	Checked:	AO - 525 - 0126

1619

798477 028 E.Z. PLAN CABINET TRIM LINE

AO TRIM LINE



LEGEND — COLEBROOK HILL GRID

	> 500 ppm Zn
	200 – 500 " "
	100 – 200 " "
	< 100 " "

	1	2
	3	4
	5	6
28	7	8
30	9	10
32	11	

82-1738. Vol 5 of 6.

ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.

PROJECT: MT. BLACK | TAS

5 cm

SOIL GEOCHEMISTRY : Zn

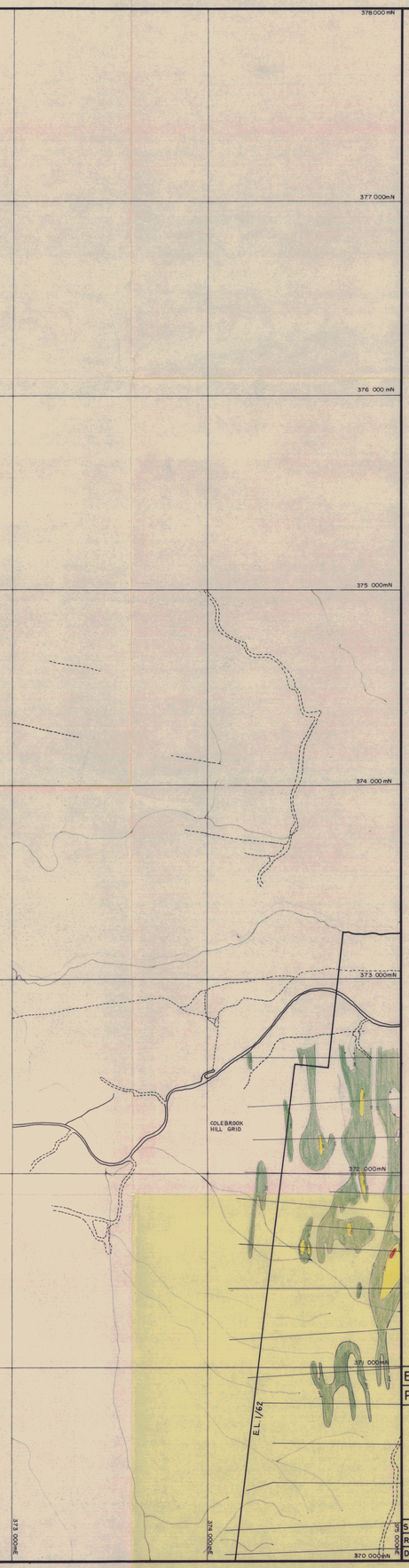
SCALE: 1:10 000	Survey: I.R.M.	Revised: F 12. P1
Reference:	Date: 6.8.80	REF. NO.
Drawn: R.P.T.	Checked:	AO - 525 - 0127

1619

79847 8 029

E Z PLAN CABINET TRIM LINE

A0 TRIM LINE



LEGEND — COLEBROOK HILL GRID

	> 1000 ppm Cu
	500 — 1000 " "
	200 — 500 " "
	< 200 " "

	1	2
	3	4
	5	6
28	7	8
30	9	10
32	11	

82-1738. Vol 5 of 6.

ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.

PROJECT: MT. BLACK | TAS

5 cm

SOIL GEOCHEMISTRY : Cu

798479

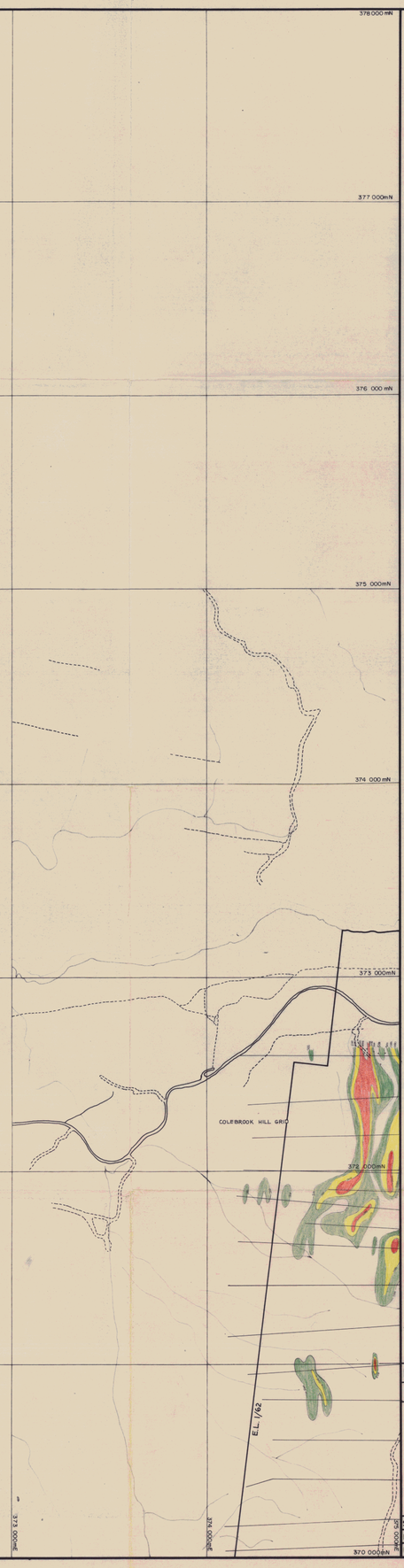
SCALE: 1:10 000	Survey: I.R.M.	Revised: 6.12.81
Reference:	Date: 6.8.80	REF NO.
Drawn: R.P.T.	Checked:	AO - 525 - 0128

1620

030

E.Z PLAN CABINET TRIM LINE

A0 TRIM LINE



82-1738. Vol 5 of 6.

ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.

PROJECT: MT. BLACK | TAS

5 cm

SOIL GEOCHEMISTRY : As

798480

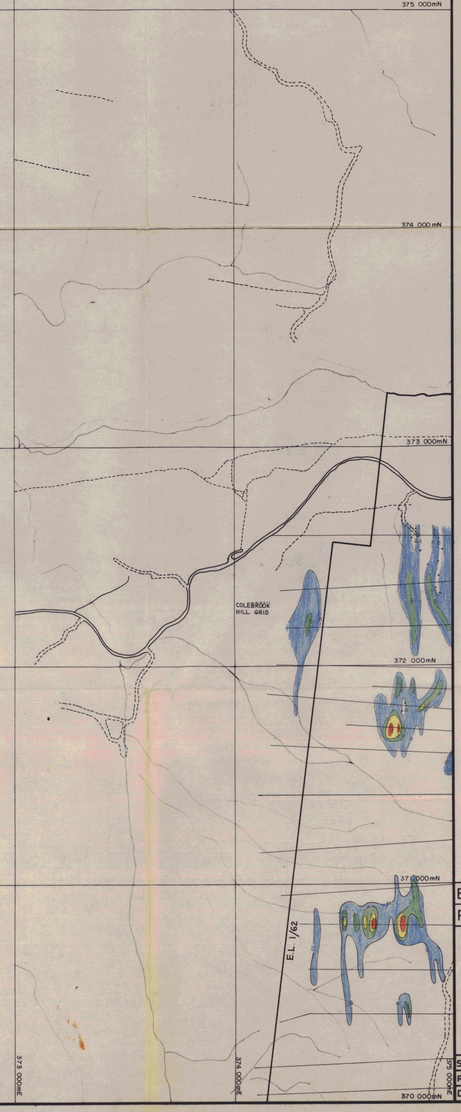
SCALE: 1:10 000	Survey: I.R.M.	Revised: 6.12.81
Reference:	Date: 6.8.80	REF. NO.
Drawn: R.P.T.	Checked:	AO - 525 - 0130

1622

031

E-Z PLAN CABINET TRIM LINE

A0 TRIM LINE



LEGEND — COLEBROOK HILL GRID

	> 400 ppm Sn
	200 — 400 " "
	100 — 200 " "
	50 — 100 " "
	< 50 " "

	1	2
	3	4
	5	6
28	7	8
30	9	10
32	11	

82-1738. Vol 5 of 6.

ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.

PROJECT: MT. BLACK — TAS

5 cm

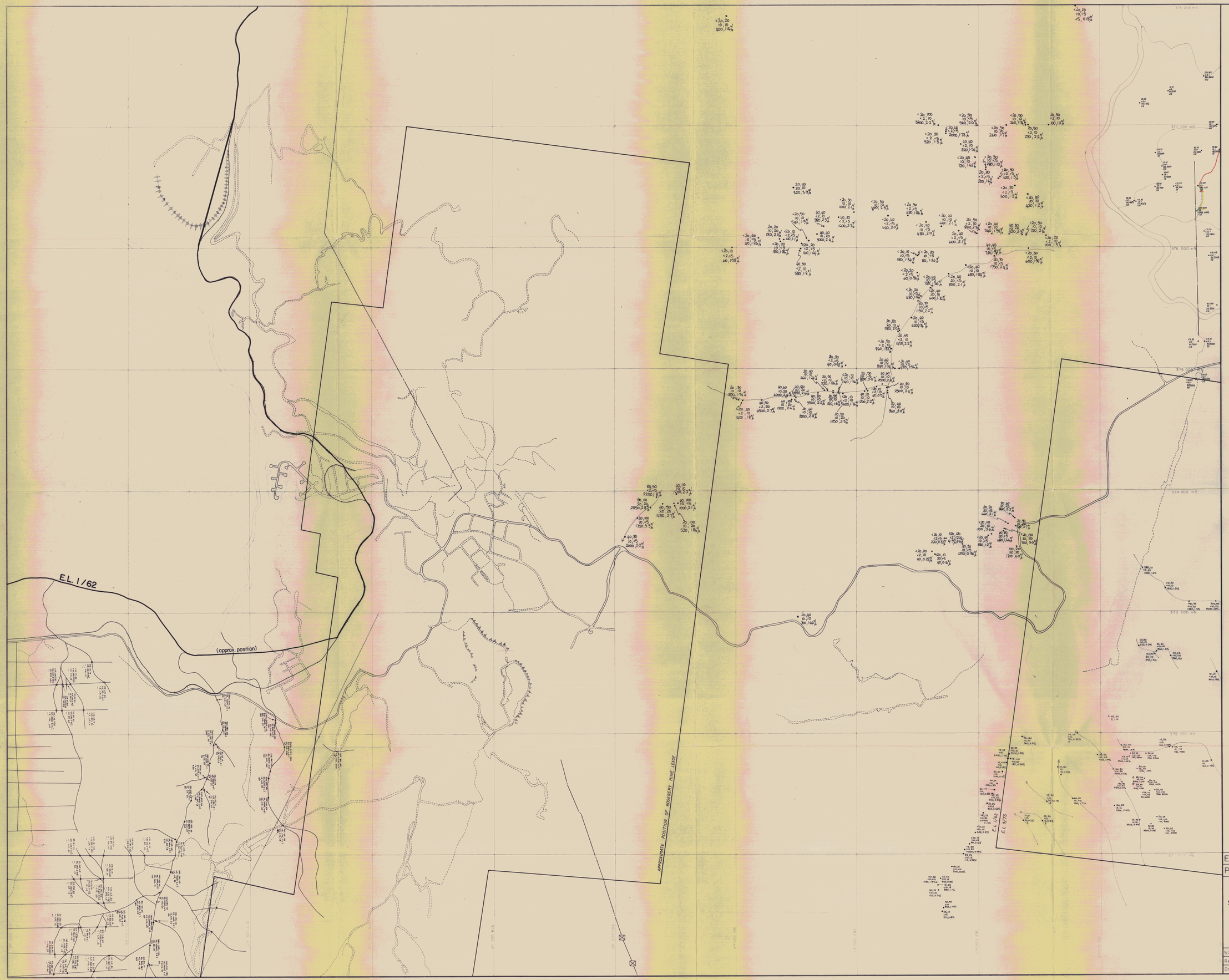
SOIL GEOCHEMISTRY : Sn

798481

SCALE: 1:10 000	Survey: I.R.M.	Revised: 8.12.81
Reference:	Date: 6.8.80	REF. NO.
Drawn: R.P.T.	Checked:	AO - 525 - 0129

1620

E.Z PLAN CABINET TRIM LINE



LEGEND

Pb, Zn, Cu, Fe, Mn, Fe, Sn – Not analysed

NOTE: For analytical method refer to "GEOCHEMICAL EXPLORATION FOR BASE METALS, WEST COAST TASMANIA" N.J. MARSHALL, APRIL 1979

LEGEND – TULLAH GRID

> 705 ppm	Pb
435 – 705 "	Pb
> 890 ppm	Zn
545 – 890 "	Zn
> 45 ppm	Cu
30 – 45 "	Cu
> 65 ppm	Sn
50 – 65 "	Sn

1	2	
3	4	
5	6	
28	7	8
30	9	10
32	11	

82-1738. Von Sorb.

ELECTROLYTIC ZINC CO OF A'ASIA LTD

PROJECT: MT BLACK TAS

5 cm

STREAM SEDIMENT GEOCHEMISTRY

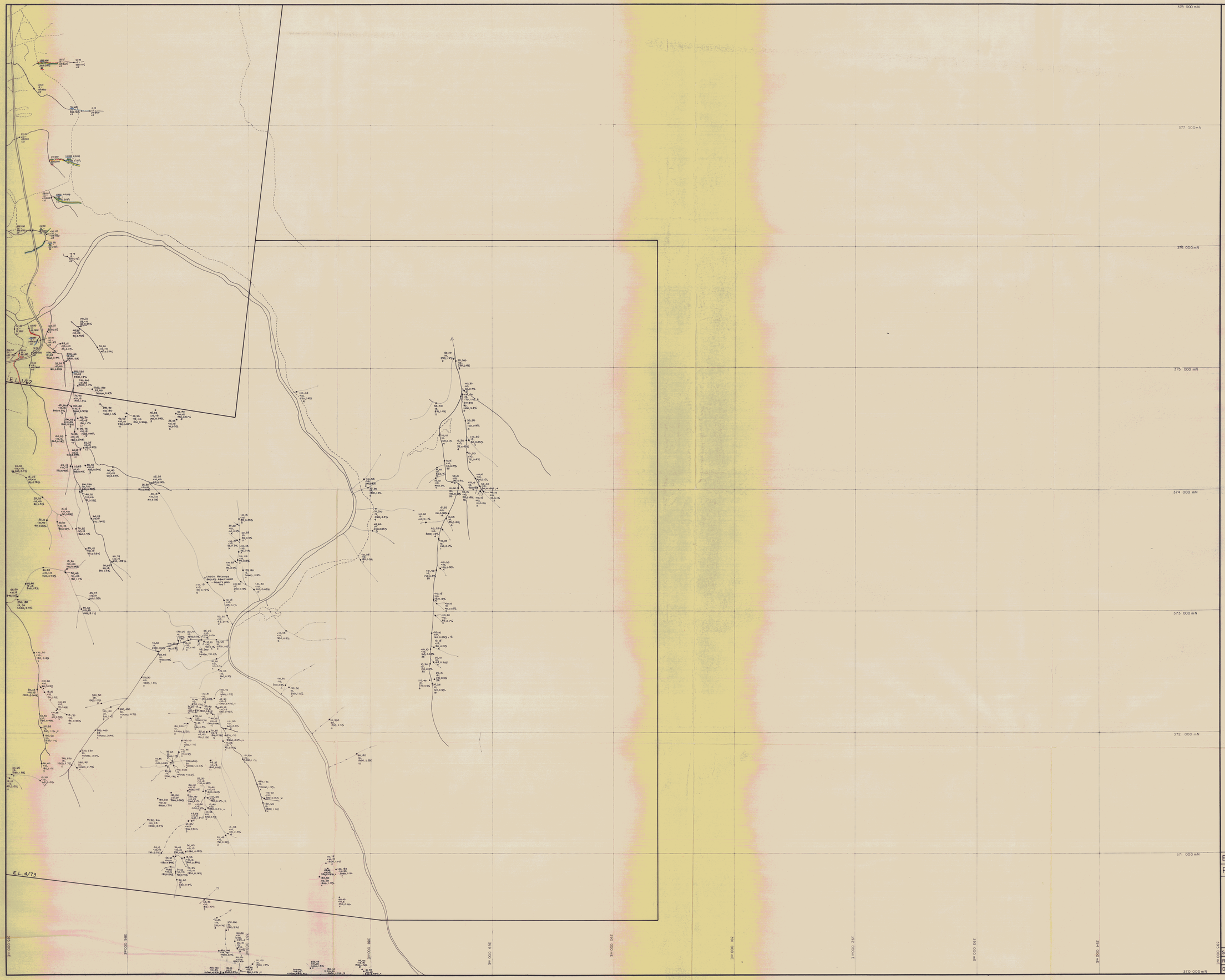
-80#

798482

SCALE 1:10,000	Survey	Revised 28 4 80
Reference	Date AUGUST '79	REF NO
Drawn MB	Checked	A0 - 525 - 0049

033

1621



LEGEND

Pb, Zn
Cu, Co
Mn, Fe
Sn
- Not analysed

Samples were dried and sieved to -80 mesh. Base metals were analysed by A.A.S. after digestion in nitric/perchloric acid. Sn was analysed by A.A.S. after fusion with ammonium iodide.

> 300 ppm Pb is highly anomalous
200 - 300 ppm Pb is weakly anomalous

> 300 ppm Zn is highly anomalous
200 - 300 ppm Zn is weakly anomalous

LEGEND — TULLA GRID

> 705 ppm Pb
435 – 705 " Pb

> 890 ppm Zn
545 – 890 " Zn

> 45 ppm Cu
30 – 45 " Cu

> 65 ppm Sn
50 – 65 " Sn



82-1738. Vol 5 of 6.

ELECTROLYTIC ZINC CO OF A'ASIA LTD

PROJECT: MT. BLACK — TAS

5 cm

GEOCHEMISTRY

Stream Sediment Samples -80#

SCALE: 1:10 000	Survey: I. McD.	Revised:	
Reference:	Date: 18.3.80	REF. NO.	
Drawn: R.P.T.	Checked:	AO - 525 - 0091	

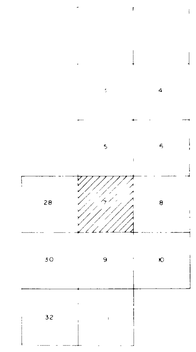
1621

798483 034

E-Z PLAN CABINET TRIM LINE

A0 - TRIM LINE

Sample No	Pb	Zn	Cu	Co	Mn	Fe	Ag	Sn	As	Cr	Ni
23 088	5	60	20	45	850	10 0	0 5	<	4 6	230	120
089	5	60	60	40	640	9 0	•	10	20	26	110
090	5	60	35	40	620	5 5	•	•	170	125	75
35 164	730	670	1600	-	181	16 8	-	•	800	125	-
165	30	240	30	-	1000	13 1	-	8	16	58	-
166	30	30	140	-	723	9 4	-	14	65	10	-
35 167	185	170	440	-	285	6 1 5	-	34	800	15	-
168	5	20	10	-	50	1 05	-	36	750	490	-
169	20	200	40	-	645	18 8	-	22	14	30	-
35 170	20	10	20	-	90	2 28	-	52	22	145	-
171	10	15	10	-	210	1 90	-	10	14	20	-
172	55	150	140	-	3150	5 6	-	•	75	30	-
35 225	•	115	120	60	850	13 0	•	6	18	200	180
226	5	170	90	60	850	11 5	0 5	•	5	360	50
227	60	390	185	180	15000	17 0	•	6	2	30	145
35 228	•	165	110	85	2600	13 0	•	6	4	85	145
229	25	165	120	250	7800	15 0	•	20	4	490	650
231	10	480	220	185	1600	11 0	•	12	24	210	120
35 232	No RESULTS										
233	5	30	335	20	526	7 0	•	18	960	390	25
234	5	15	690	20	85	6 0	•	40	5800	300	15
35 235	390	10	75	10	230	66 0	0 5	28	260	200	15
236	25	45	285	45	420	7 0	•	12	25	130	85
237	5	50	75	25	470	7 0	•	30	730	70	65
35 238	•	50	120	40	12	62 0	•	800	11	230	40
239	5	35	560	25	320	6 2	•	6	10	480	85
240	•	60	405	55	470	2 0	•	14	48	195	65
35 241	5	475	16000	320	2050	7 3	15 5	8	21000	535	75
242	10	220	2750	60	6100	29 0	•	50	16000	360	60
243	15	150	230	25	2200	4 65	•	16	170	180	30
35 244	•	245	140	70	760	14 0	•	12	16	80	150
252	50	80	110	-	-	-	-	-	9200	-	-
253	20	70	1850	-	-	-	-	-	1100	-	-
35 254	1100	120	1100	-	-	-	-	-	1200	-	-
255	NO RESULTS										
257	5	130	70	-	1260	13 6	-	•	28	215	-
35 298	85	265	65	-	2450	14 3	-	•	20	115	-
35 300	20	•	10	-	20	0 36	-	•	5	15	-
38 561	80	20	70	20	140	2 1	0 5	4	60	730	40
38 562	NO RESULTS										
563	"										
564	"										
38 565	15	135	6700	30	660	13 0	2 0	•	65	110	50



82-1739 Vol. 6 of 6.

ELECTROLYTIC ZINC CO OF A'ASIA LTD

PROJECT MT BLACK | TAS

5 cm

ROCK SAMPLE LOCATIONS

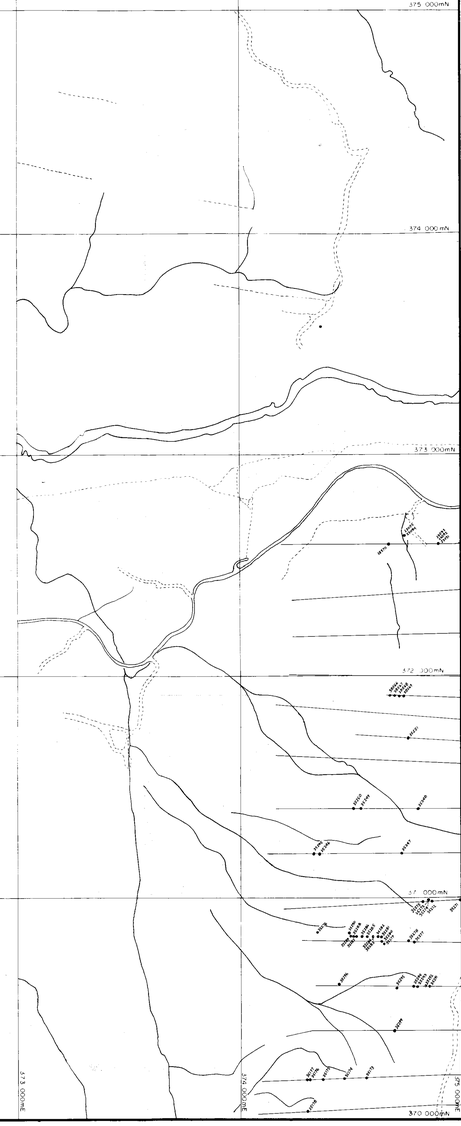
798484

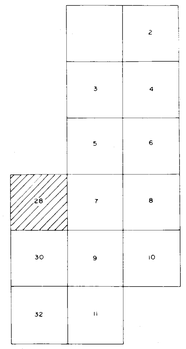
SCALE 1:10 000	Survey I McD.	Revised
Reference	Date 17 11 '81	REF NO.
Drawn NIK	Checked	AO-525-0209

1621

E Z PLAN CABINET TRIM LINE

Sample No.	Pb	Zn	Cu	Co	Mn	Fe	Ag	Sn	As	Cr	Ni
23 091	45	660	185	–	–	–	×	–	–	415	20
092	10	18	645	–	–	–	×	20	1200	415	5
093	70	16	445	–	–	–	×	28	2700	65	5
23 094	60	58	785	–	–	–	×	104	4500	75	15
095	25	70	250	–	–	–	×	9	800	1850	80
35 173	5	120	60	–	300	7·9	–	18	8	55	–
35 174	5	60	×	–	1850	1·6	–	×	8	3800	×
175	100	250	×	–	1750	9·0	–	×	3	80	×
176	20	90	440	–	1100	2·6	–	×	2	1100	–
35 177	5	30	170	–	215	1·6	–	×	2	590	–
178	5	190	60	–	240	4·6	–	×	2	260	×
230	20	235	235	155	9950	16·0	×	12	62	260	245
35 245	5	320	20	170	1450	3·2	0·6	×	8	2000	2350
246	45	125	10	60	950	14·0	×	×	28	280	230
247	5	200	90	50	640	11	×	9	2	2100	195
35 248	×	100	10	60	950	16	×	6	2	2200	195
249	5	135	500	55	90	37	×	13	4700	2000	225
250	25	130	1300	60	1090	21	×	8	800	280	100
35 251	570	95	555	30	1400	17	×	60	5200	190	35
271	15	108	10	–	1700	17	–	×	7	110	–
272	10	95	30	–	700	12·5	–	88	5	105	–
35 273	5	95	40	–	680	9·72	–	88	5	85	–
274	5	90	60	–	595	10	–	84	2	65	–
275	5	65	5	–	370	4·1	–	440	6	45	–
35 276	5	95	5	–	695	3·5	–	12	–	1900	–
277	5	115	80	–	1050	13·2	–	14	12	230	–
278	5	105	395	–	510	13	–	14	1000	135	–
35 279	90	490	800	–	755	19	–	32	550	105	–
280	35	100	235	–	560	13·1	–	18	200	14·5	–
281	10	75	175	–	535	14·2	–	28	65	115	–
35 282	5	60	320	–	660	18·4	–	16	160	175	–
283	5	115	215	–	685	6·51	–	32	65	305	–
284	×	60	55	–	635	13	–	24	7	125	–
35 285	×	85	200	–	455	11·4	–	14	400	100	–
286	×	75	150	–	765	14·8	–	14	400	125	–
287	5	80	205	–	495	9·6	–	17	16	160	–
35 288	×	115	125	–	365	15·3	–	14	4	240	–
289	5	105	245	–	535	7·25	–	11	21	80	–
290	5	75	40	–	690	13	–	440	80	130	–
35 291	10	100	20	–	1400	11·6	–	6	42	115	–
292	10	500	15	–	1900	10·8	–	6	4	125	–
293	35	70	500	–	3380	40·5	–	38	340	20	–
35 294	15	75	1000	–	3650	14·6	–	6	890	95	–
295	10	130	115	–	1460	16·1	–	2	14	68	–
296	15	595	40	–	2600	12·0	–	×	250	115	–
35 289	20	90	110	–	1300	12·5	–	×	12	110	–
38 566	145	1700	640	25	1700	25	3·5	4	15000	260	45
567	255	610	1700	60	1200	25	3·5	×	21000	260	45
38 568	165	3700	8500	55	1200	17·0	9	20	15000	470	45
569	85	180	850	23	3700	5·6	2	14	1300	800	25
570	165	ASSAULTS									





82-1738 Vol 6 of 6.

ELECTROLYTIC ZINC CO. OF A'ASIA LTD.

PROJECT: MT BLACK — TAS

5 cm

ROCK SAMPLE LOCATIONS

798485

SCALE 1 : 10000	Survey: L McD.	Revised:	
Reference:	Date: 20.11.'81	REF. NO. AO-525-0264	
Drawn: NIK	Checked:		

1622

E.Z. PLAN CABINET TRIM LINE

N.B. 1. Murchison River grid/ Tullah grid Scintrex 1980.

NOTES.

1. Add 62 000 to all values to obtain readings in gammas.
2. Murchison River Grid and Sterling Valley Grid were surveyed by E.Z. in January/February 1980 at 20 and 30 m intervals respectively.
3. Murchison River Grid / Tullah Grid / Sterling Valley Grid were resurveyed by Scintrex in October 1980 at 10 m intervals. (data also available at 1:5000 scale as profiles and contour plans.)
4. Colebrook Hill Grid surveyed by E.Z. 1980 at 10m intervals. (profile data available at 1:5000, scale, smoothed profiles and contours also available at 1:5000 and 1:10000.)
5. 62515 Data from Abminco report (1976, 1978) Anomaly >62500 ɣ

LEGEND — COLEBROOK HILL GRID

	>	10 000	ɣ
	7000	- 10 000	ɣ
	5000	- 7 000	ɣ
	3000	- 5 000	ɣ
	2500	- 3000	ɣ
	2000	- 2500	ɣ
	<	2000	ɣ

Add 60000 ɣ to obtain field readings

LEGEND — TULLAH GRID

	>	800	ɣ
	500	- 800	ɣ
	450	- 500	ɣ
	400	- 450	ɣ
	350	- 400	ɣ
	300	- 350	ɣ
	250	- 300	ɣ
	200	- 250	ɣ
	<	200	ɣ

NOTE (Stitt Grid) :

There is a cumulative discrepancy on the western end of some of the cut lines between actual E-W length and pegged E-W length. The relevant co-ordinates are noted on the respective cut lines.

NB. This discrepancy should be taken into account when adding geophysical/geochemical data.

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ELECTROLYTIC ZINC CO OF A'ASIA LTD

PROJECT MT BLACK — TAS

5 cm

TOTAL MAGNETIC FIELD CONTOURS

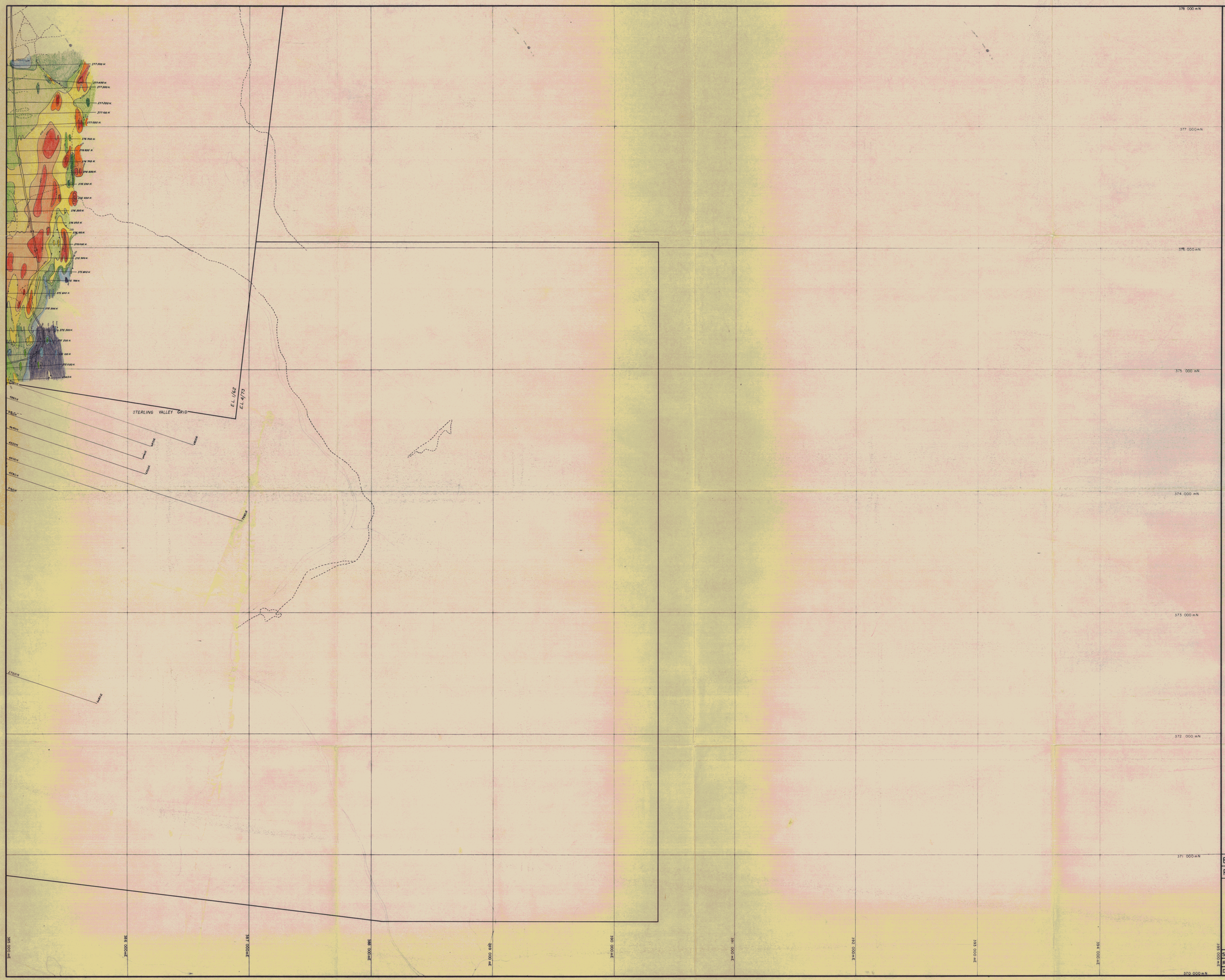
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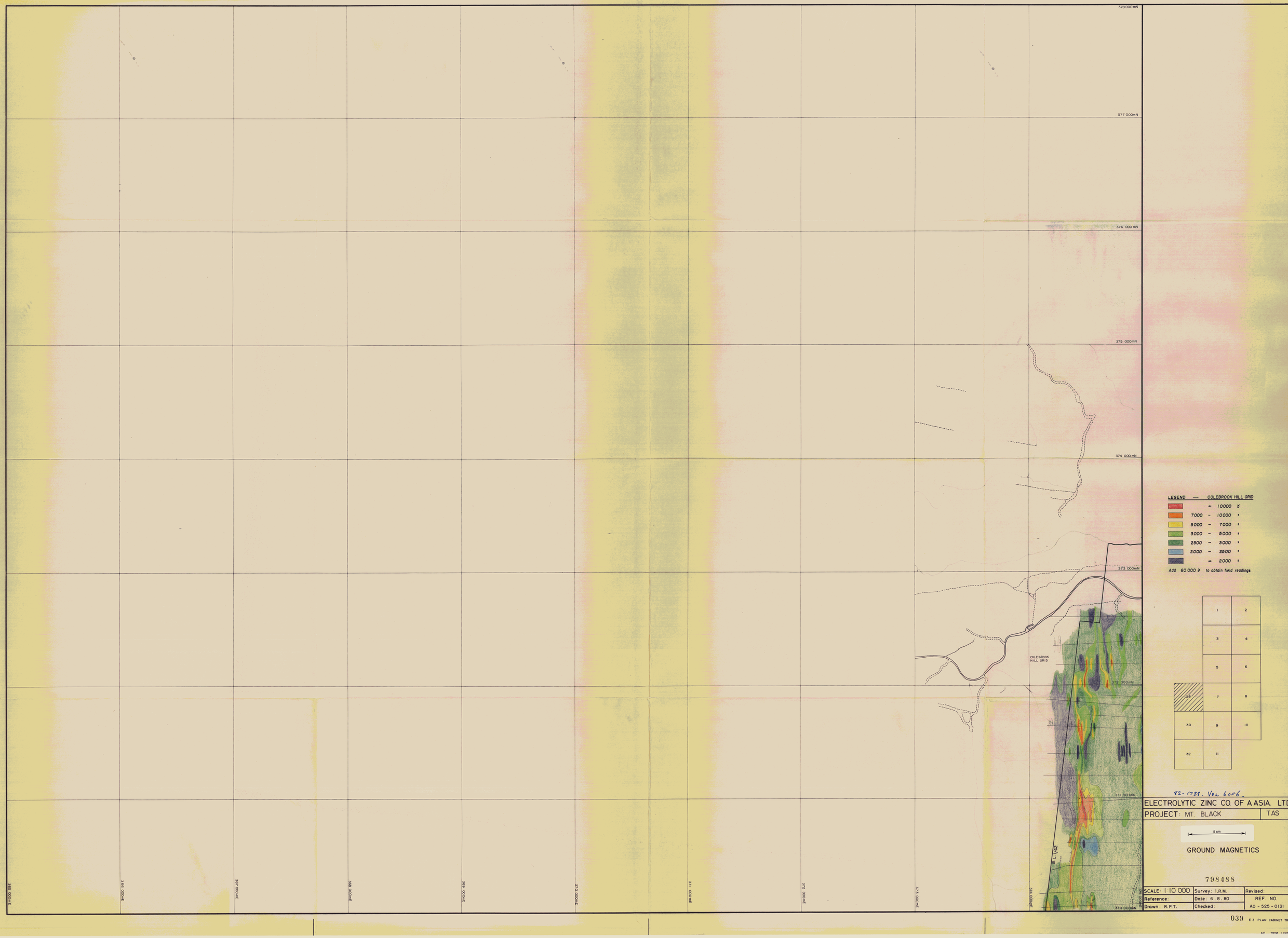
SCALE 1:10,000	Survey J.M.	Revised
Reference	Date November 1980	REF NO
Drawn T.G.O.S.	Checked	AO 525 0149

037

E.Z. PLAN CABINET TRIM LINE

1622


378 000 mN
377 000 mN
376 000 mN
375 000 mN
374 000 mN
373 000 mN
372 000 mN
371 000 mN
370 000 mN
384 000 mE
385 000 mE
386 000 mE
387 000 mE
388 000 mE
389 000 mE
390 000 mE
391 000 mE
392 000 mE
393 000 mE
394 000 mE
395 000 mE
STERLING VALLEY GRID
EL 1162
EL 4173
377 800 N
377 600 N
377 400 N
377 200 N
377 000 N
376 800 N
376 600 N
376 400 N
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375 800 N
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039 E Z PLAN CABINET TRIM LINE

A0 TRIM LINE

NOTES

1. Vertical Scale 1cm = 100 ft
2. Profiles indexed to 62,500 ft
3. NATONE AREA Magnetic Survey completed January 1981 – Scintrex
   Line Profiles at 1:5000 available

NOTE (Strip Grid)

There is a cumulative discrepancy on the western end of some of the cut lines between actual E-W length and pegged E-W length. The relevant co-ordinates are noted on the respective cut lines.

NB. This discrepancy should be taken into account when adding geophysical / geochemical data.

	1	2
	3	4
	5	6
28	7	8
30	9	10
32	11	

82-1738. Vol 6 of 6.

ELECTROLYTIC ZINC CO. OF A'ASIA LTD.

PROJECT: MT. BLACK TAS

5 cm

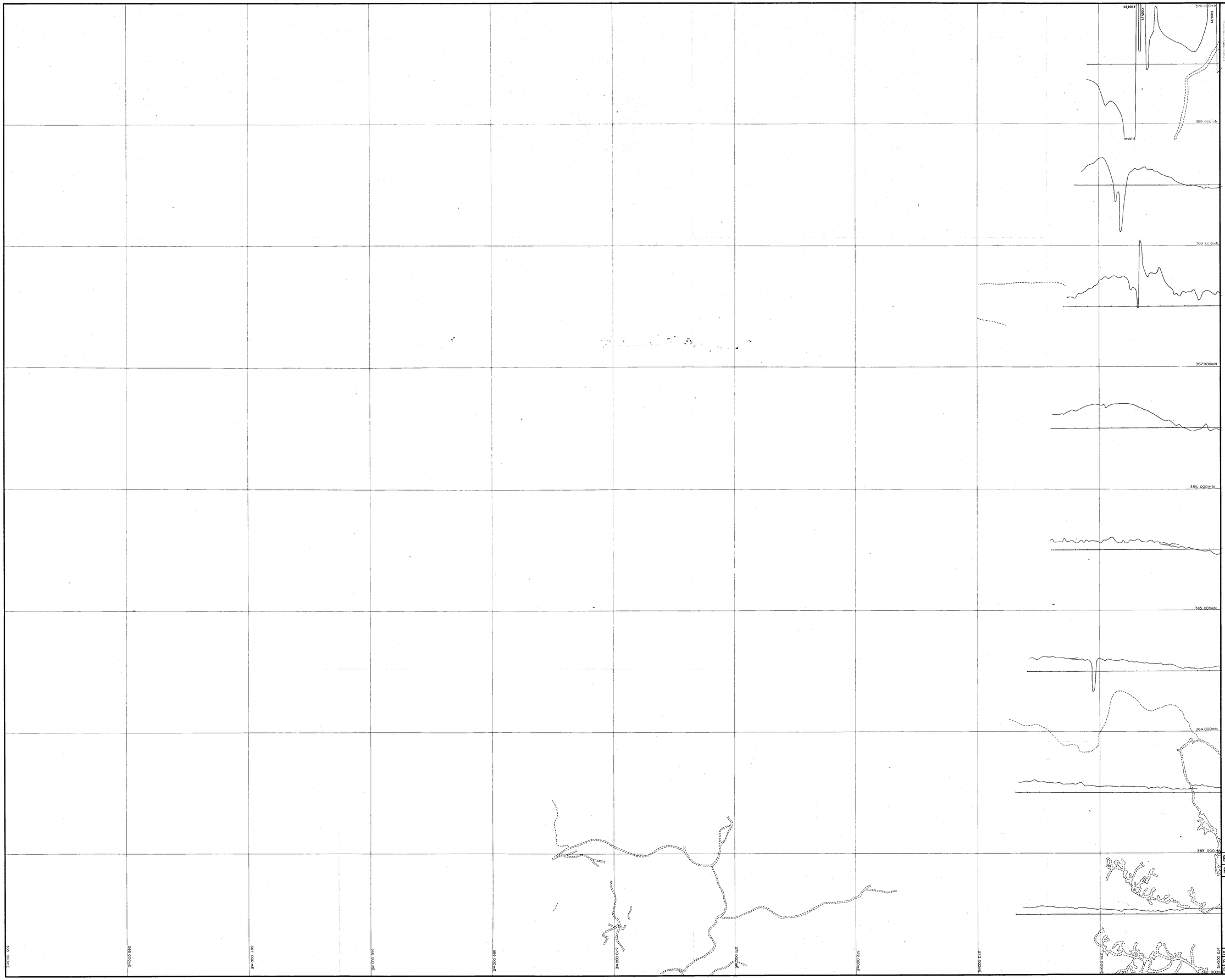
TOTAL MAGNETIC FIELD PROFILES.

798489

SCALE: 1 10,000	Survey: I. NEWBY	Revised 10.12.79
Reference:	Date: 29-1-1981	REF NO
Drawn: R.T.	Checked:	AO 525 0197

(623)

040 E.Z. PLAN CABINET TRIM LINE



NOTES

1. Vertical Scale 1cm = 100ft
2. Profiles indexed to 62,500ft
3. NATONE AREA. Magnetic Survey completed January 1981 - Scintrex
   Line Profiles at 1:5000 available

		1	2
		3	4
		5	6
28		7	8
30		9	10
32		11	

82-1738. Vol 6 of 6.

ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.

PROJECT: MT. BLACK — TAS

5 cm

TOTAL MAGNETIC FIELD PROFILES.

798490

SCALE: 1:10 000	Survey: I. NEWBY	Revised:
Reference:	Date: 29-1-1981	REF. NO.
Drawn: R.T.	Checked:	AO-525-0194

1623

E.Z. PLAN CABINET TRIM LINE

5 362 000 mN
5 361 000 mN
5 360 000 mN
5 359 000 mN
5 358 000 mN
5 357 000 mN
5 356 000 mN
5 355 000 mN
5 354 000 mN

376 000 mE
377 000 mE
378 000 mE
379 000 mE
380 000 mE
381 000 mE
382 000 mE
383 000 mE
384 000 mE
385 000 mE

NOTES

1. Vertical Scale 1cm = 100 ɣ
2. Profiles indexed to 62,500 N
3. NATONE AREA - Magnetic Survey completed January 1981 – Scintrex Line Profiles @ 1:5000 available

		1	2	
		3	4	
		5	6	
28		7	8	
30		9	10	
32				

82-1738. Vol 6006

ELECTROLYTIC ZINC CO. OF A.ASIA. LTD.

PROJECT: MT. BLACK — TAS

5 cm

TOTAL MAGNETIC FIELD PROFILES.

798491

SCALE: 10:000	Survey: I.NEWBY	Revised:
Reference:	Date: 29-1-1981	REF. NO.
Drawn: R.T.	Checked:	A0-525-0195

1624

042

E Z PLAN CABINET TRIM LINE

NOTES
1. Vertical Scale 1cm = 100 ϒ
2. Profiles indexed to 62,500 E
3. NATONE AREA - Magnetic Survey completed January 1981 - Scintrex Line Profiles at 1:5,000 available

5 362 000 mN
5 361 000 mN
5 360 000 mN
5 359 000 mN
5 358 000 mN
5 357 000 mN
5 356 000 mN
5 355 000 mN
5 354 000 mN

369 000 mE
368 000 mE
367 000 mE
366 000 mE
365 000 mE
364 000 mE
363 000 mE
362 000 mE
361 000 mE
360 000 mE

		1	2
		3	4
		5	6
28		7	8
30		9	10
32		11	

82-1738. Vol. 6 of 6.

ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.

PROJECT: MT. BLACK — TAS

5 cm

TOTAL MAGNETIC FIELD PROFILES.

798492

SCALE 1 : 10 000	Survey: I. NEWBY	Revised:
Reference:	Date: 29-1-1981	REF NO. AO-525-0196
Drawn: R.T.	Checked:	

043

1624

EZ PLAN CABINET TRIM LINE

222 Hz

888 Hz

3555 Hz

5 cm

LEGEND

Surveyed Monday 9·2·81

In phase

Out of phase

4mm/20m

20%/cm

82-1738. Von 6 of 6.

MAX-MIN Horizontal loop E.M. Survey.

COLEBROOK HILL

LINE 5 371700 N

Scale 1:5000	Date 12·3·81	REF. No. A2-511-0007
Survey: Geoterrex	Drawn: R.T.	

374 600 E
374 700 E
374 800 E
374 900 E
375 000 E
375 100 E
375 200 E
375 300 E
375 400 E

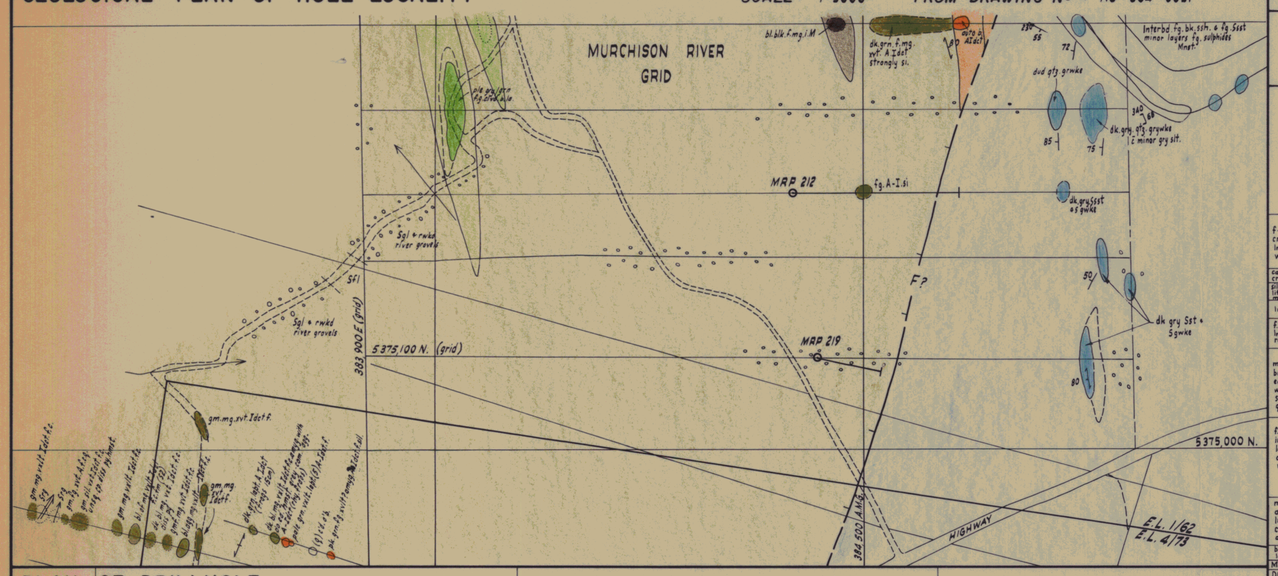
1624

044

798493

GEOLOGICAL PLAN OF HOLE LOCALITY

SCALE: 1:5000 FROM DRAWING NO.: A0-504-0021


MURCHISON RIVER GRID
MRP 212
MRP 219
F?
HIGHWAY
E.L. 1/62
E.L. 4/73
5375100 N. (grid)
5375000 N.
383 900 E (grid)
384 500 E (grid)
Sgl + rwkd river gravels
dk gry Sst + Sgwke
dk gry gty grwke & minor gry slt.
Interbd fg. blk. sltst. & fg. Sst minor layers fg. sulphides
dk grn f-mg vit. A.I.dcf strongly si.
dk gry/grn fg. Sst/Ag.Ic
dk gry Sst as gwke
dk gry gty grwke
f-mg A-I si
gm-mg. vit. I.dcf
gm-mg. vit. I.dcf f.
Sgl + rwkd river gravels
dk gry/blk Sltst (Tough) & dk gry gty Sst (Tough) with gm-vcse Mn(?) dissem. & veins
dk gry gty sltstone & dk gry/blk Sltst
dk gry sltstone & dk gry/blk Sltst
dk gry sltstone & dk gry/blk Sltst
dk gry

GEOLOGICAL PLAN OF HOLE LOCALITY

SCALE: 1:5000 FROM DRAWING NO: A0-504-0029 A0-504-0129



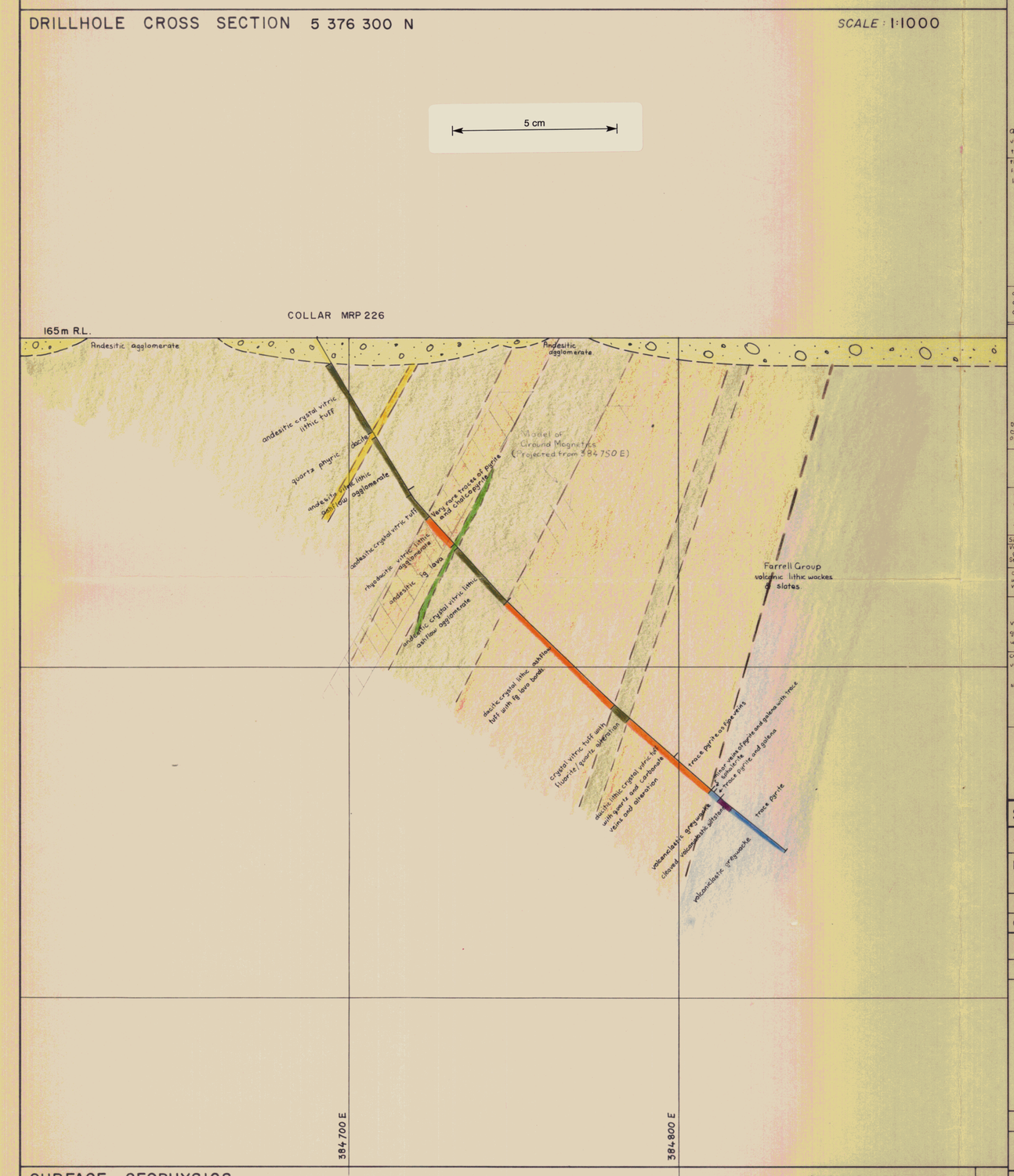
PLAN OF DRILLHOLE

SCALE: 1:1000



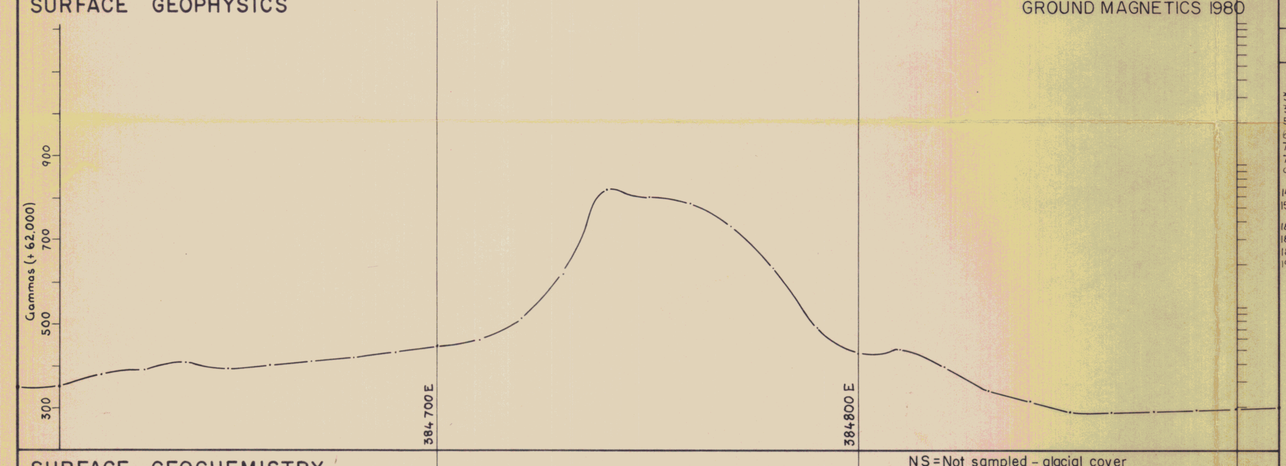
DRILLHOLE CROSS SECTION 5 376 300 N

SCALE: 1:1000



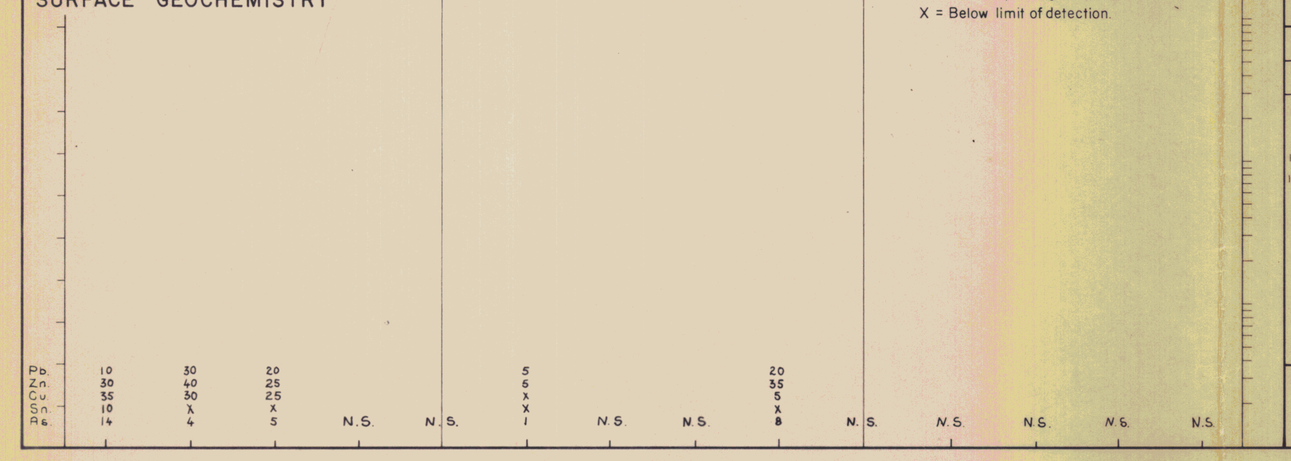
SURFACE GEOPHYSICS

GROUND MAGNETICS 1980

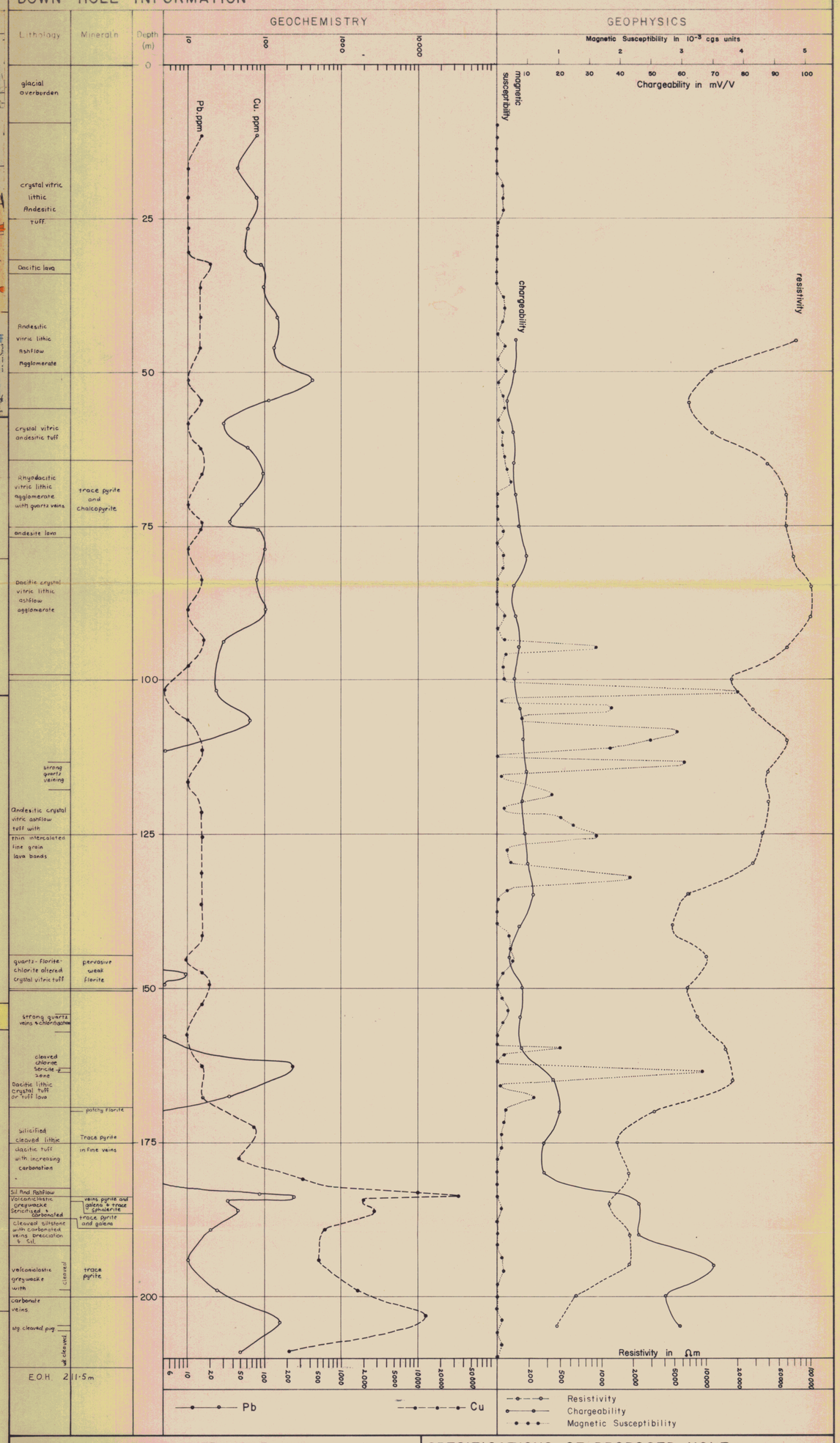


SURFACE GEOCHEMISTRY

NS = Not sampled – glacial cover
X = Below limit of detection.



DOWN HOLE INFORMATION



SUMMARY OF COMPLETED HOLE

CO-ORDINATES	NORTHING	EASTING	R.L.
LOCAL GRID	5376300 m	384690 m	165·1m
A.M.G.	5376288·4m	384692·8m	165·1m

AZIMUTH: 90° DIP: -60° TOTAL DEPTH: 211·50 m

COMMENCEMENT DATE: 9·3·1981 COMPLETION DATE: 19·3·1981

INTERNAL SURVEY INFORMATION

DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP
39 m	94° Amg.	-58·5°			
75	86	-48			
120	88	-44			
165	92	-415			
210	88	-39			

HOLE SIZE	FROM	TO	HOLE SIZE	FROM	TO
HQ	0	9·2 m			
NQ	9·20 m	36·20 m			
BQ	36·20 m	211·50m			

DRILLED GEOLOGY (SUMMARISED)

DEPTH	LITHOLOGY	DEPTH	MINERALISATION AND SIGNIFICANT ASSAYS
0·0 - 9·20	Glacial overburden	32.00	Depth of oxidation
9·2 - 31·55	andesitic crystal vitric lithic tuff	9·20 - 54·10	No visible mineralisation
31·55 - 33·60	quartz phyric dacite	54·10 - 99·20	Very rare traces of pyrite and chalcopyrite
33·60 - 55·70	andesitic vitric lithic ashflow agglomerate	99·20 - 169·30	No visible mineralisation
55·70 - 64·10	andesitic crystal vitric tuff	169·30 - 183·70	Trace pyrite as fine veins
64·10 - 75·00	rhyodacitic vitric lithic agglomerate	183·70 - 184·20	Minor veins of pyrite and galena with trace sphalerite up to 20% total sulphides
75·00 - 76·30	andesitic fg lava	184·20 - 187·20	Trace pyrite and galena
76·30 - 99·20	dacitic crystal vitric lithic ashflow agglomerate	187·20 - 211·50	Trace pyrite.
99·20 - 144·50	andesitic crystal vitric ashflow tuff with fg lava bands		
144·50 - 150·40	crystal vitric tuff with fluorite quartz alteration		
150·40 - 183·70	dacitic lithic crystal vitric tuff with quartz and carbonate veins and alteration.		
183·70 - 183·90	Siltstone - Silicified.		
183·90 - 187·20	volcaniclastic greywacke		
187·20 - 191·80	cleaved volcaniclastic siltstone		
191·80 - 211·50	volcaniclastic greywacke.		

LOGGED BY: A.J.M. DATE: 3·4·1981

SAMPLE DATA

SAMPLED INTERVAL	SAMPLE NUMBERS	SAMPLE TYPE	ELEMENTS DETERMINED	LAB. METHOD
9.2 - 182.3	40066 - 40074 40077 - 40100 43439 - 43446	chip core	Pb, Zn, Cu, Ag Mn, Fe, As, Sn	A.A.S.
182.3 - 185.2	43447 - 43450	split core	"	"
185.2 - 211.5	43451 - 43456	chip core	"	"
41.00	40075	core	petrology	Thin Section
102.20	43457	"	"	"
120.50	40076	"	"	"

NOTES:

SPECIFICATIONS OF PROPOSED HOLE

CO-ORDINATES	NORTHING	EASTING	R.L.
LOCAL GRID	5 376 300N	384 690 E	162m
A.M.G.			

AZIMUTH: 90° AMG DIP: -60° DESIGNED DEPTH: 230 m

ESTIMATED COMMENCEMENT: March 1981

ANTICIPATED GEOLOGY

DEPTH	LITHOLOGY	NATURE OF TARGET AND ANTICIPATED DEPTH
0 - 192m	Interbedded tuffs & lavas of the Mt Black Volcanics	Cassiterite associated with pyrrhotite in Mt Black Volcanics 64-74m & 96-106m
192 m.	Fault Zone	Cassiterite & pyrrhotite on contact at 192 m
192 - 230	Bedded volcanic lithic wackes & Slates of the Farrell Group	Minor pyrrhotite & cassiterite as thin veins (192 - 230 m)

DESIGNED BY: J.M. DATE Feb. 1981

AIM OF HOLE: To test a ground magnetic anomaly partially covered by glacial overburden on line 5 376 300 N at 384 740 E.

NOTES:

82-1738, Vol 6 of 6.

ELECTROLYTIC ZINC CO. OF A'ASIA LTD.

PROJECT: TAS.

SPECIFICATIONS AND SUMMARY OF RESULTS

EXPLORATION DIAMOND DRILL HOLE No. MRP 226

SCALE: As shown	Survey:	Revised:
Reference:	Date: Jan. 1981	REF. No.
Drawn: R.T.	Checked:	A1-504-0151

1625

798495 046

798496

GEOLOGICAL PLAN OF HOLE LOCALITY

SCALE : 1:5000 FROM DRAWING NO. : A0-504-0029 A0-504-0129



PLAN OF DRILLHOLE

SCALE : 1:1000

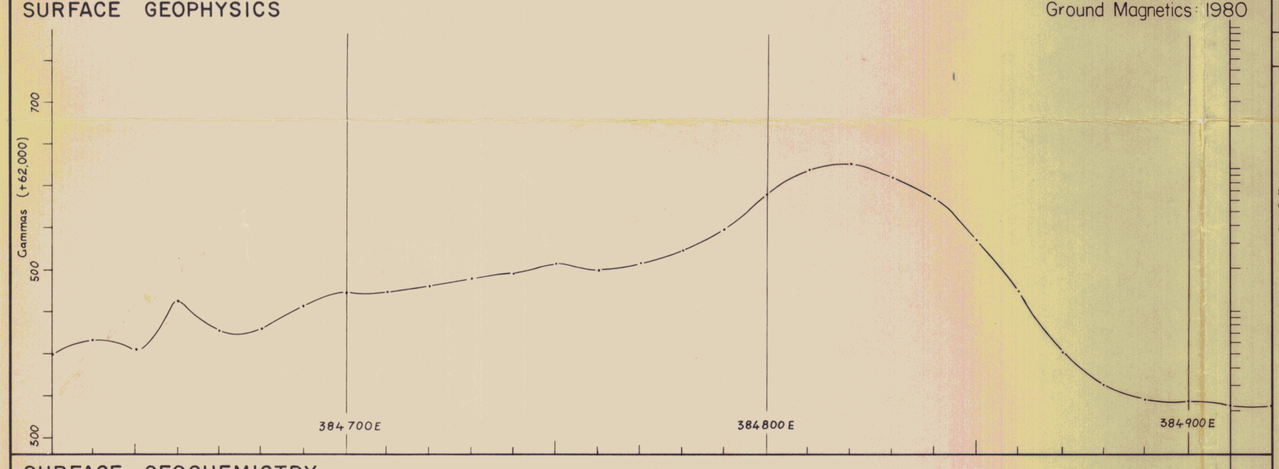


DRILLHOLE CROSS SECTION 5376400 N AMG

SCALE : 1:1000

SURFACE GEOPHYSICS

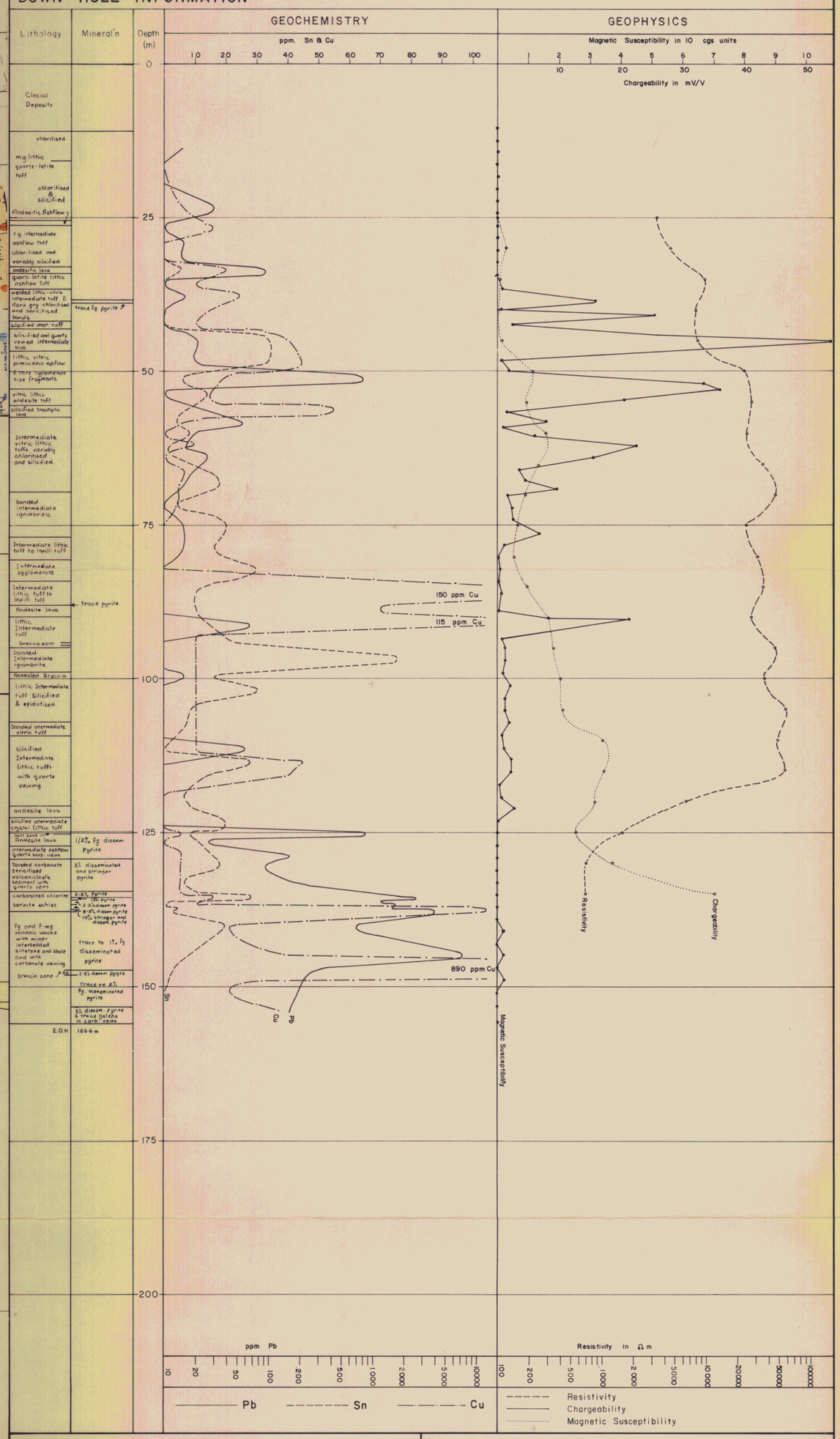
Ground Magnetics: 1980



SURFACE GEOCHEMISTRY

Glacial Cover No Soil Geochemistry

DOWN HOLE INFORMATION



SUMMARY OF COMPLETED HOLE

CO-ORDINATES	NORTHING	EASTING	R.L.
LOCAL GRID	5 376 400 N	384 778E	185·5m
A.M.G.	5 376 394·0	384 778·0	185·5 m

AZIMUTH: 90° AMG DIP: -65° TOTAL DEPTH: 155·6 m

COMMENCEMENT DATE: 19·3·1981 COMPLETION DATE: 27·3·1981

INTERNAL SURVEY INFORMATION

DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP
0	90° AMG	-65°			
20	92° AMG	-63·5°			
65	92° AMG	-61·5°			
110	91° AMG	-60°			
155	96° AMG	-58°			

HOLE SIZE	FROM	TO	HOLE SIZE	FROM	TO
HQ	0	12·1m			
NQ	12·1	17·8m			
BQ	17·8	155·6m			

DRILLED GEOLOGY (SUMMARISED)

DEPTH	LITHOLOGY	MINERALISATION AND SIGNIFICANT ASSAYS
0 - 11·0 m	Glacial overburden	38·3-38·8 Trace fg disseminated pyrite
11·0-27·2	Intermediate lithic tuffs	124·9-126·3 1% fg disseminated pyrite
27·2 - 36·7	Intermediate lithic ashflow tuffs with thin intercalated andesitic lavas	125·3 - 129·1 1-2% fg disseminated pyrite partly associated with fg-cb veins
36·7 - 43·1	Intermediate welded lithic vitric tuffs & variable silicification	129·1 - 134·4 2% disseminated and stringer pyrite
43·1 - 46·8	Massive intermediate lavas with patchy strong silicification	134·4 - 137·4 Avg 3% disseminated and stringer pyrite with 15% pyrite in an irregular vein from 135·2 - 135·6 and 5-10% pyrite as stringers in breccia matrix from 137·8 - 137·4
46·8 - 55·4	Intermediate lithic tuffs and ashflows	137·4 - 147·3 Trace to 1% disseminated pyrite.
55·4 - 55·8	Vesicular silicified trachytic lava	
55·8 - 80·3	Intermediate lithic tuffs with some ignimbrite and ashflow textures.	
80·3 - 87·9	Intermediate lapilli tuffs and agglomerates	
87·9 - 88·9	Andesite lava	
88·9 - 98·8	Intermediate lithic tuffs & some ignimbrite textures	
98·8 - 100·1	Annealed tectonic breccia zone	
100·1 - 124·9	Variable silicified intermediate lithic tuffs with thin intercalated andesitic lavas	
124·9 - 125·3	Fault zone? Crushed core	
125·3-127·0	Andesite lava	
127·0-129·1	Intermediate ashflow tuff	
129·1 - 134·4	Carbonated and sericitised volcaniclastic sediment	
134·4 - 137·4	Carbonated clorite sericite Schists	
137·4 - 155·6	Fg and F-mg volcanic wackes with minor thin interbeds of siltstone and shale containing a fault breccia zone from 143·3 to 146·3.	

LOGGED BY: I. R. McD. DATE: April 1981

SAMPLE DATA

SAMPLED INTERVAL	SAMPLE NUMBERS	SAMPLE TYPE	ELEMENTS DETERMINED	LAB. METHOD
11·0 - 134·4	38485 - 38500 43458 - 43487	chip core	Pb, Zn, Cu, Ag, Mn, Fe, As, Sn	AAS.
134·4 - 137·8	43493 - 43500	Split core	"	"
137·8 - 155·6	43488 - 43492	chip core	"	"
45·2	35185	core	petrology	Thin section
53·4	35186	"	"	"
90·6	35187	"	"	"
122·0	35188	"	"	"

NOTES:

SPECIFICATIONS OF PROPOSED HOLE

CO-ORDINATES	NORTHING	EASTING	R.L.
LOCAL GRID	5376 400N	384 760 E	160m
A.M.G.			

AZIMUTH: 90° AMG DIP: -60° DESIGNED DEPTH: 180 m

ESTIMATED COMMENCEMENT: March 1981

ANTICIPATED GEOLOGY

DEPTH	LITHOLOGY	NATURE OF TARGET AND ANTICIPATED DEPTH
0 - 35 m	Glacial overburden.	
35 - 145 m	Interbedded pyroclastics and lavas.	Massive pyrrhotite + associated cassiterite mineralisation (90 - 110 m)
145 m	Henty Fault Zone	Possible mineralization located on fault zone. (145m)
145 - 180 m	Volcaniclastic lithic wackes + slates	Minor pyrrhotite + cassiterite as thin veins (145 - 180 m)

DESIGNED BY: J. MILL DATE: Jan. 1981

AIM OF HOLE: To test a ground magnetic anomaly covered by Glacial Overburden on line 5376400 N at 384760 E.

NOTES:

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ELECTROLYTIC ZINC CO. OF A'ASIA LTD.

PROJECT: TAS.

SPECIFICATIONS AND SUMMARY OF RESULTS

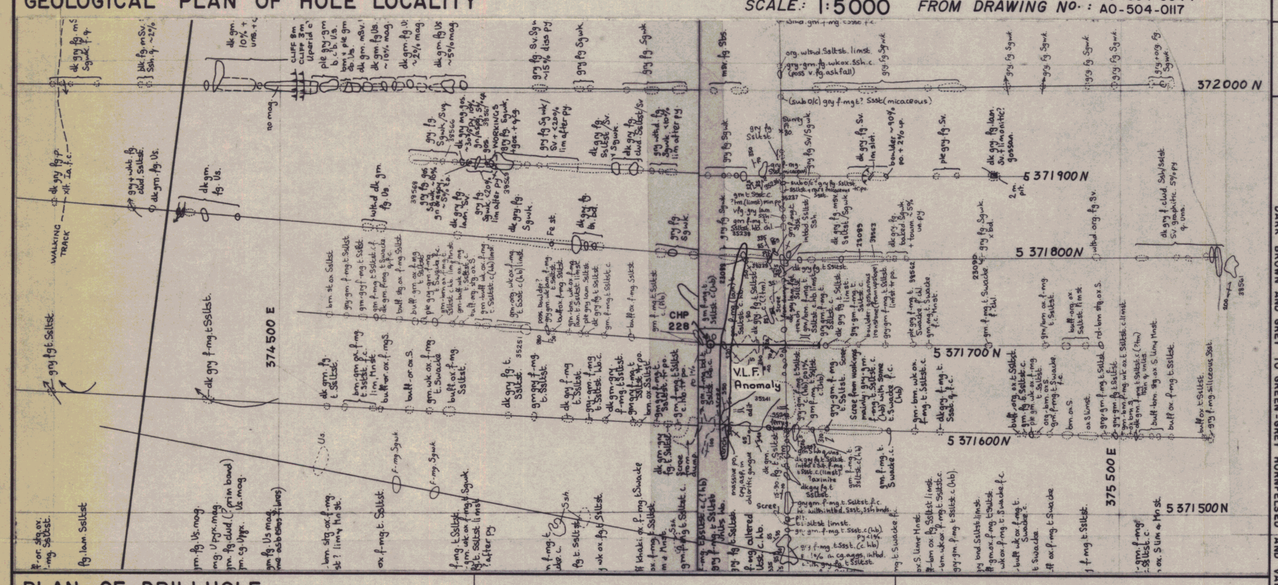
EXPLORATION DIAMOND DRILL HOLE No. MRP. 227

SCALE: As shown	Survey:	Revised:
Reference:	Date: JAN. 1981	REF. No.
Drawn: R.T.	Checked:	AI-504-0152

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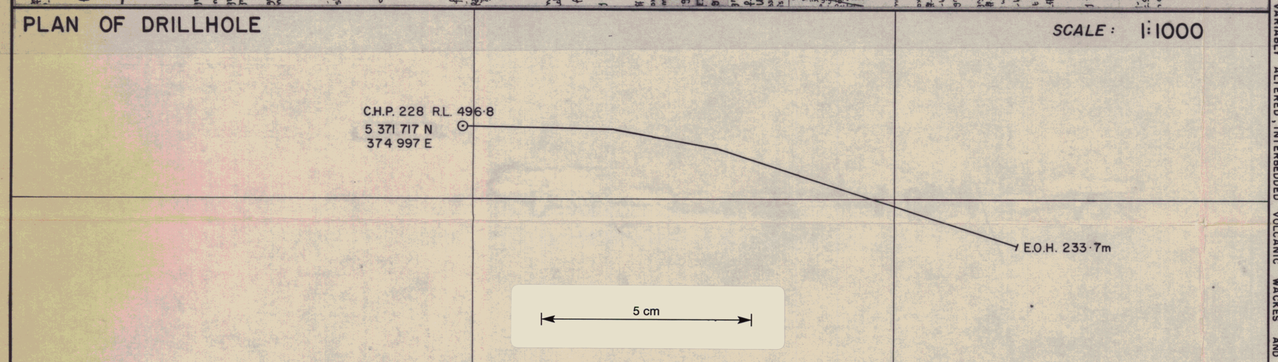
GEOLOGICAL PLAN OF HOLE LOCALITY

SCALE: 1:5000 FROM DRAWING NO.: A0-504-0044, A0-504-0117



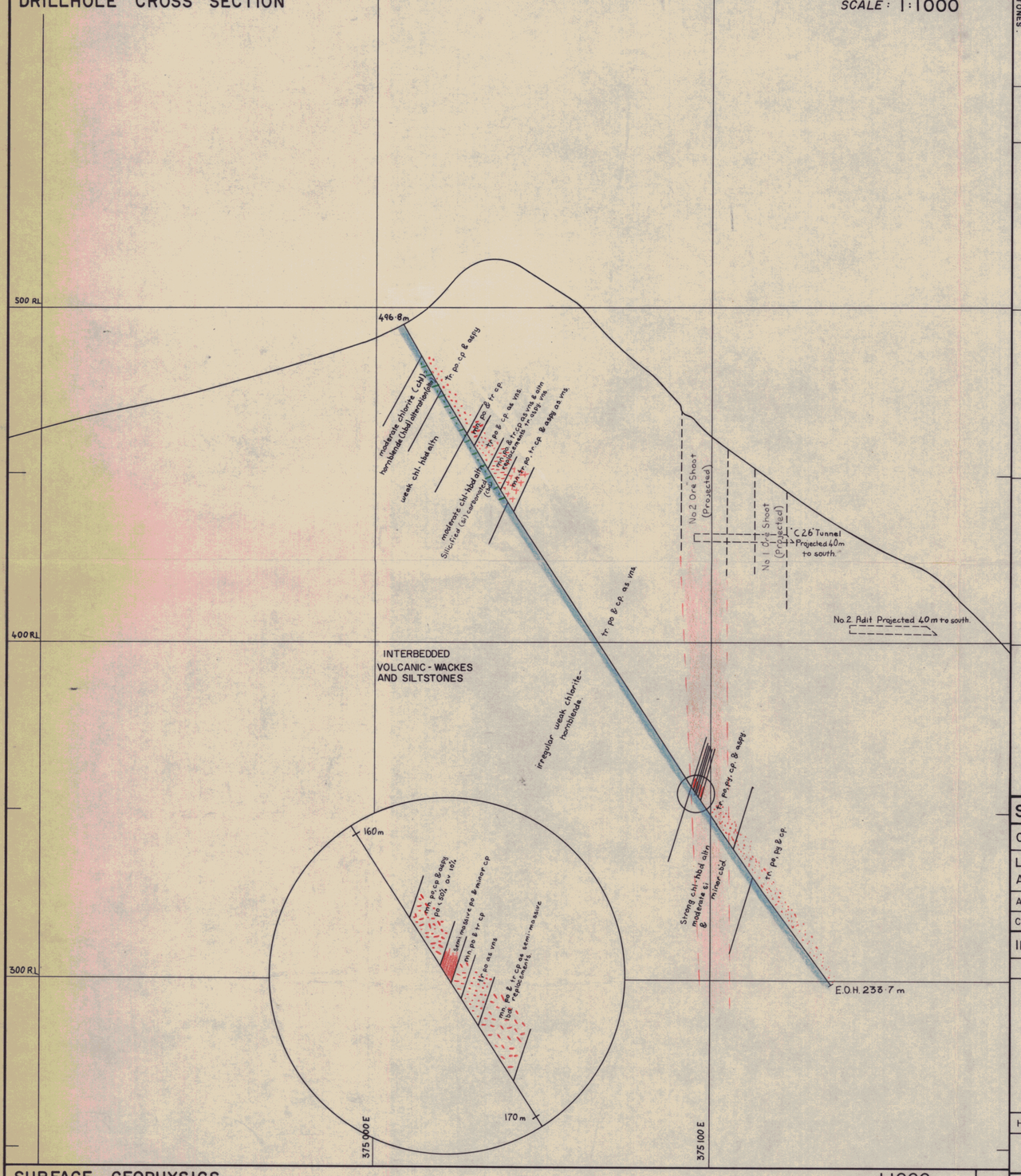
PLAN OF DRILLHOLE

SCALE: 1:1000



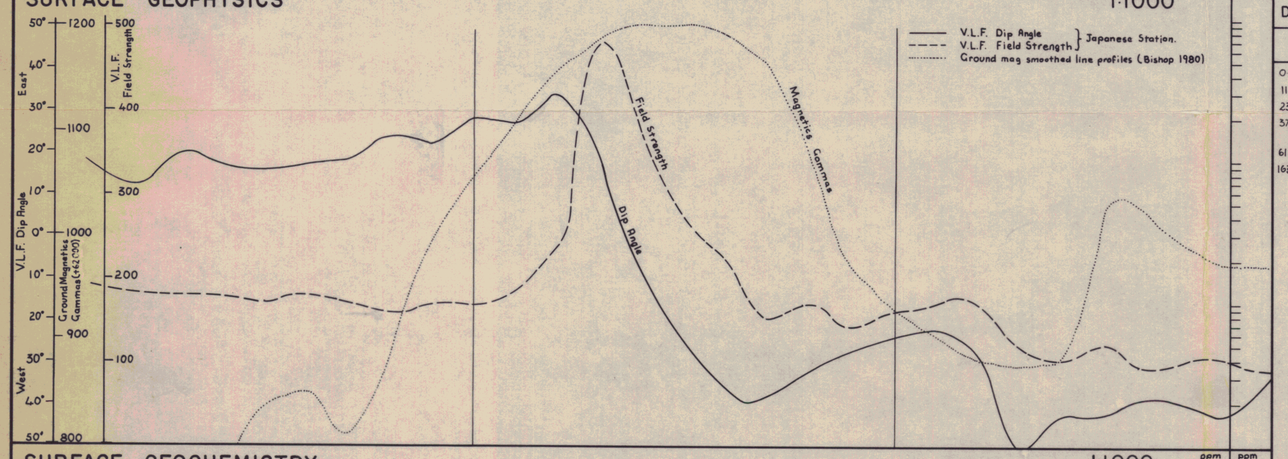
DRILLHOLE CROSS SECTION

SCALE: 1:1000



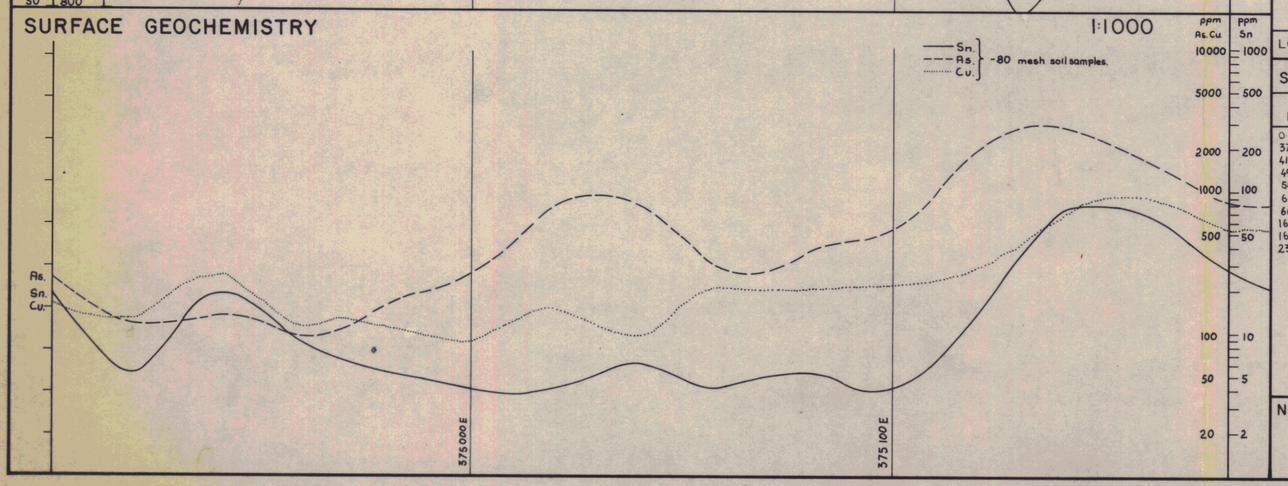
SURFACE GEOPHYSICS

1:1000

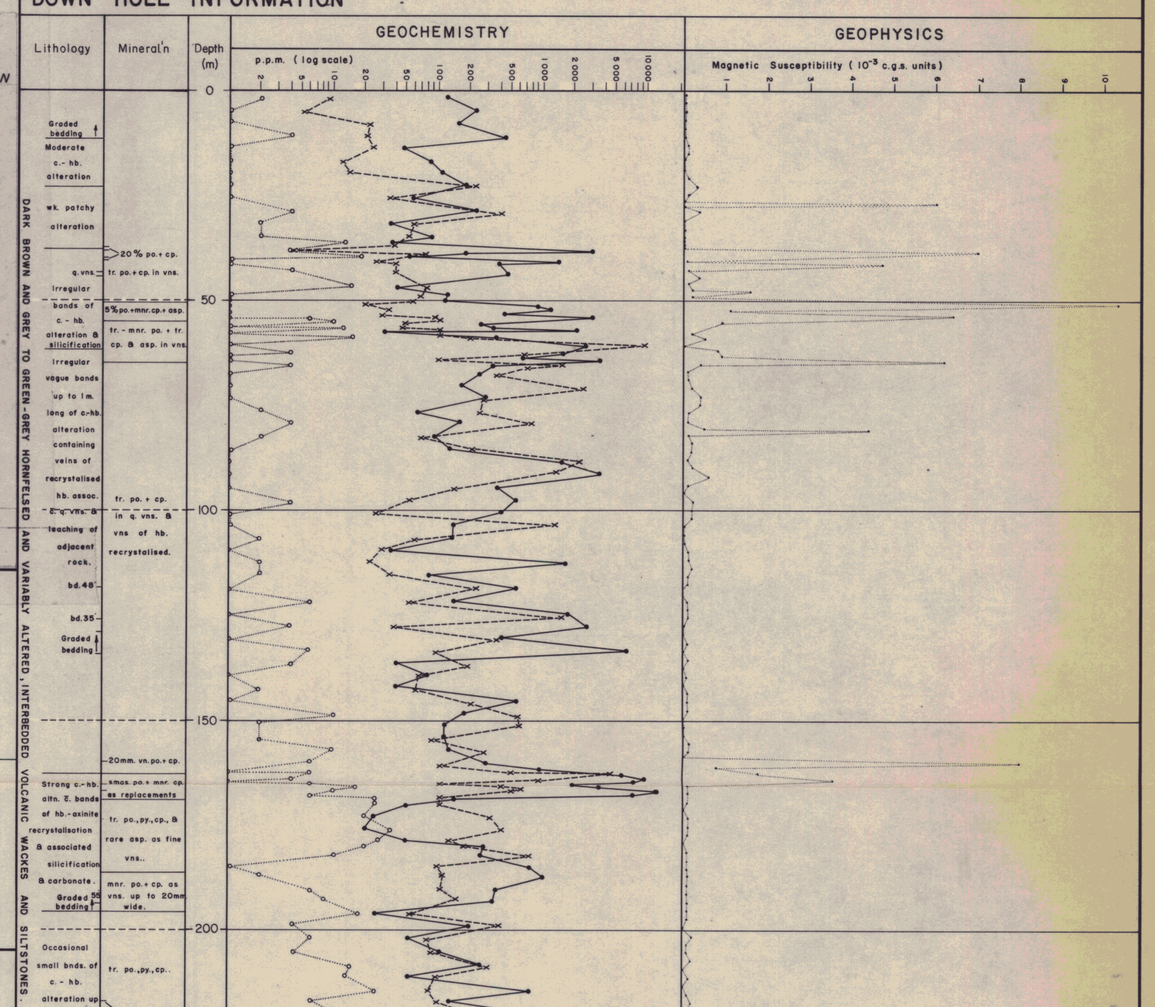


SURFACE GEOCHEMISTRY

1:1000



DOWN HOLE INFORMATION



SUMMARY OF COMPLETED HOLE

CO-ORDINATES	NORTHING	EASTING	R.L.
LOCAL GRID A.M.G.	5 371 717mN	374 997mE	496·8 m

AZIMUTH: 90° A.M.G. DIP: -60° TOTAL DEPTH: 233·7°

COMMENCEMENT DATE: 1·4·1981 COMPLETION DATE: 15·4·1981

INTERNAL SURVEY INFORMATION

DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP
13·0 m	097°	-58·5°	137·0 m	108°	-55·0°
47·0 m	091°	-57·5°	182·0 m	108°	54·0°
92·0m	100°	-56·5°			

HOLE SIZE	FROM	TO	HOLE SIZE	FROM	TO
HQ	0m	3·4m	BQ	9·1m	233·7m
NQ	3·4m	9·1m			

DRILLED GEOLOGY (SUMMARISED)

DEPTH	LITHOLOGY		MINERALISATION AND SIGNIFICANT ASSAYS
0·0-233·7	Hornfelsed siltstone and volcanic-wacke	0-38·6	Trace (Tr) pyrrhotite (Po) chalcopyrite (cp) and arsenopyrite (aspy)
11·5-23·0	Moderate chlorite-hornblende alteration.	38·6-40·7	Minor (mn) po. & tr. cp as alteration and/or breccia replacement
23·0-37·7	Weak chlorite-hornblende alteration.	40·7-50·6	Tr. po. & cp. as veins (vns)
37·7-61·8	Moderate chlorite-hornblende alteration Silicification and minor carbonate replacement	50·6-57·3	Mn. po. & tr. cp as vns & alteration (altn) replacements tr. aspy as vns.
61·8-163·0	Irregular-weak chlorite hornblende alteration	57·3-65·0	Tr-mn. po. with tr. cp. & aspy as vns
163·0-195·2	Strong chlorite-hornblende alteration, moderate silicification and minor carbonate replacement	65·0-163·0	Tr. po. & cp. as vns
		163·0-164·7	Mn. po. cp. & aspy. as. altn. replacements po. < 60%
		164·7-165·3	Semi-massive po. with mn. cp as network altn. replacement
		165·3-165·9	Mn. po. & tr. cp. vns. & altn. replacements av. 10% po.
		165·9-166·8	Tr. po. as vns.
		166·8-168·7	Mn. po. & tr. cp. semi-massive ibd. replacements po. <70% av. 10%
		168·7-186·0	Tr. po. cp. py. & aspy. vns.
		186·0-233·7	Tr. po. py. & cp. vns.

LOGGED BY: A.J.M. DATE: 30·4·1981

SAMPLE DATA

SAMPLED INTERVAL	SAMPLE NUMBERS	SAMPLE TYPE	ELEMENTS DETERMINED	LAB. METHOD
0·0 - 37·6	46001 - 46013	Core Shavings		
37·6 - 41·7	46014 - 46018	" Split		
41·7 - 49·6	46019 - 46021	" Shavings		
49·6 - 58·3	46022 - 46031	" Split		
58·3 - 63·3	46032 - 46034	" Shavings		
63·3 - 66·0	46035 - 46037	" Split		
66·0 - 162·0	46038 - 46069	" Shavings		
162·0 - 169·0	46070 - 46078	" Split		
169·0 - 231·0	46079 - 46100	" Shavings		
231·0 - 233·7	42401	" Shavings		

NOTES:

SPECIFICATIONS OF PROPOSED HOLE

CO-ORDINATES	NORTHING	EASTING	R.L.
LOCAL GRID A.M.G.	5 371 700 N	375 015 E	500m A.S.L

AZIMUTH: 90° AMG DIP: -60° DESIGNED DEPTH: 200m

ESTIMATED COMMENCEMENT:

ANTICIPATED GEOLOGY

DEPTH	LITHOLOGY	NATURE OF TARGET AND ANTICIPATED DEPTH
0 - 200m	Interbedded Volcanic Wacke's and Siltstones with variable hornfelsing and metasomatic alteration. Dips are near vertical.	25-50 Heavy Stringer to massive pyrrhotite replacement sulphides with associated chalcopyrite, arsenopyrite and cassiterite. 120-170 Zones of mineralisation similar to above.

DESIGNED BY: I.R.McD DATE: 11-2-81

AIM OF HOLE: To test beneath strong V.L.F. & magnetic anomalies which are coincident with the projected position of ore shoots in old workings, and to continue below further ore projections which are approximately coincident with a moderate magnetic anomaly, a weak V.L.F. anomaly, and elevated Sn, Cu, &, As values in soils.

NOTES: The projected positions of the ore shoots Nos 1-4 come from plans presented in "A Geological Report on Colebrook Prospect" by I.S. Gregory E.Z.Co. June 1958

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ELECTROLYTIC ZINC CO. OF A'ASIA LTD.

PROJECT: TAS.

SPECIFICATIONS AND SUMMARY OF RESULTS

EXPLORATION DIAMOND DRILL HOLE No. C.H.P. 228

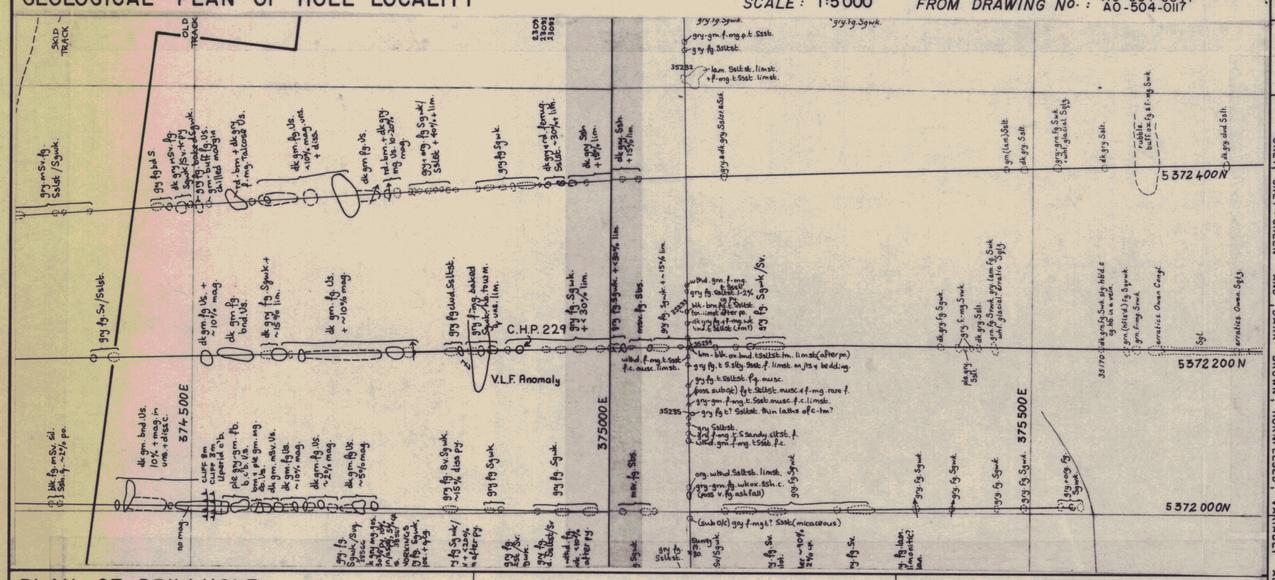
SCALE: As shown	Survey:	Revised:
Reference:	Date: 14·5·1981	REF. No.
Drawn: R.T. / R.A.H.	Checked:	A1-504-0153

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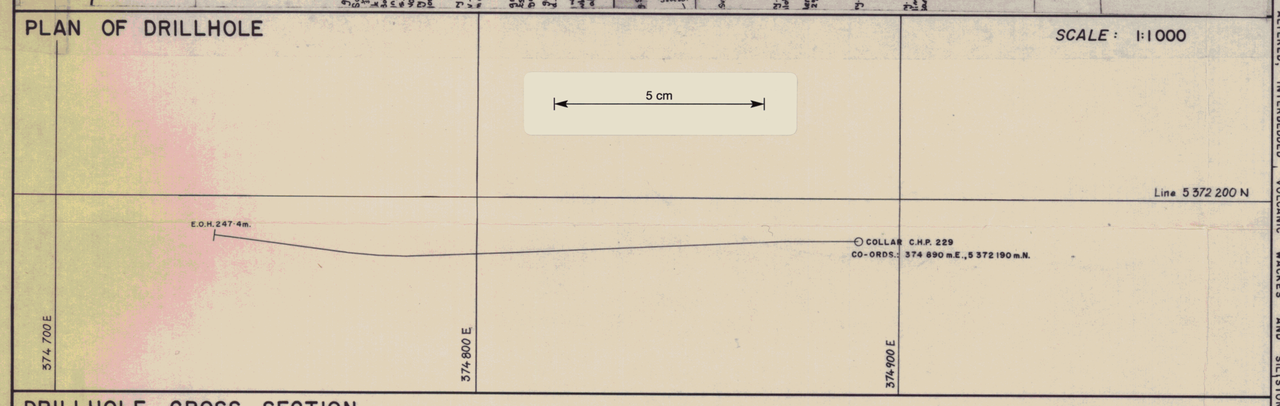
GEOLOGICAL PLAN OF HOLE LOCALITY

SCALE: 1:5000 FROM DRAWING NO.: A0-504-0044 A0-504-0117



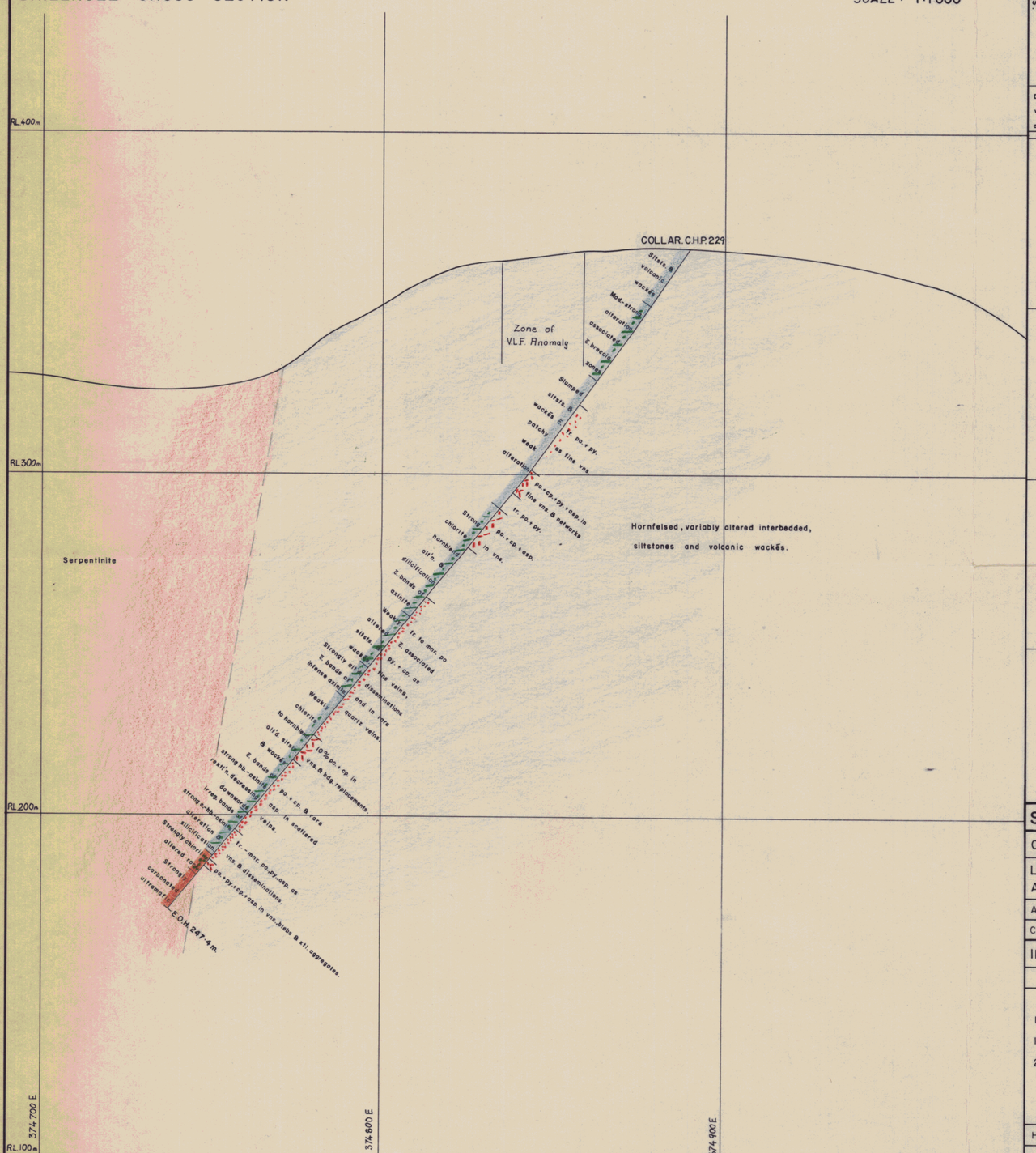
PLAN OF DRILLHOLE

SCALE: 1:1000



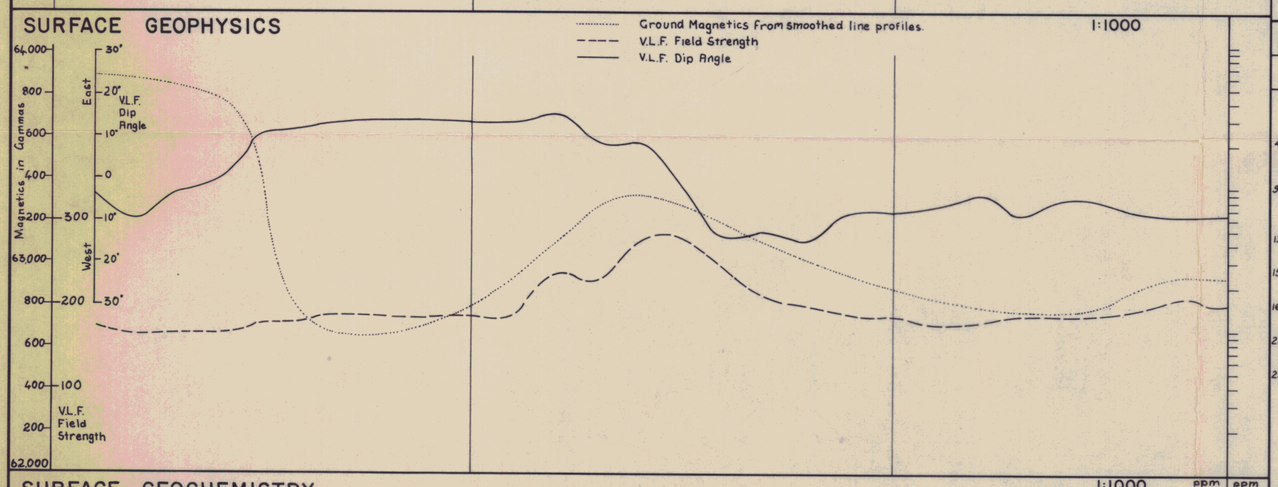
DRILLHOLE CROSS SECTION

SCALE: 1:1000



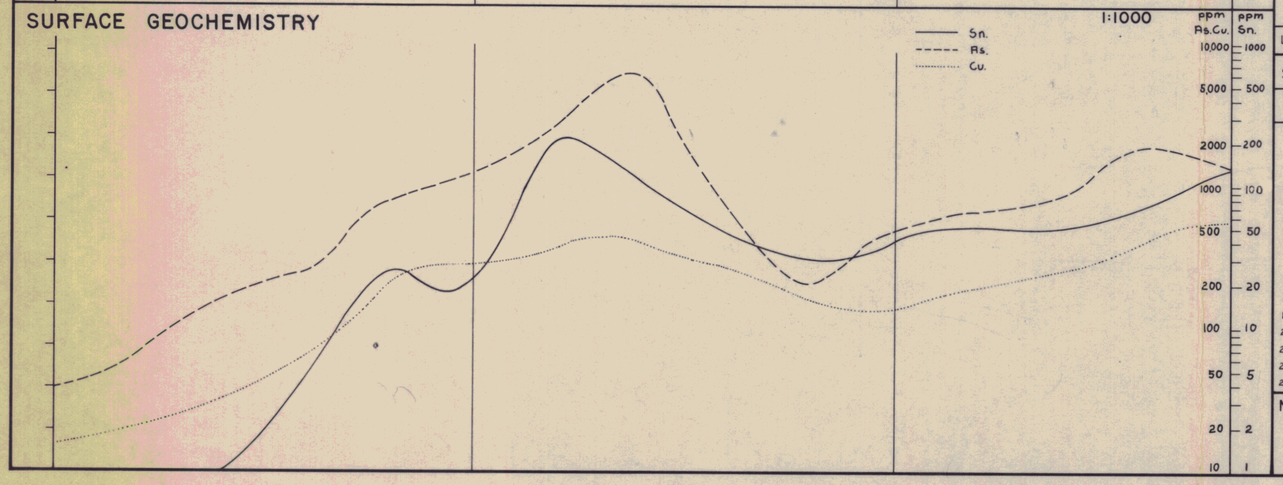
SURFACE GEOPHYSICS

1:1000

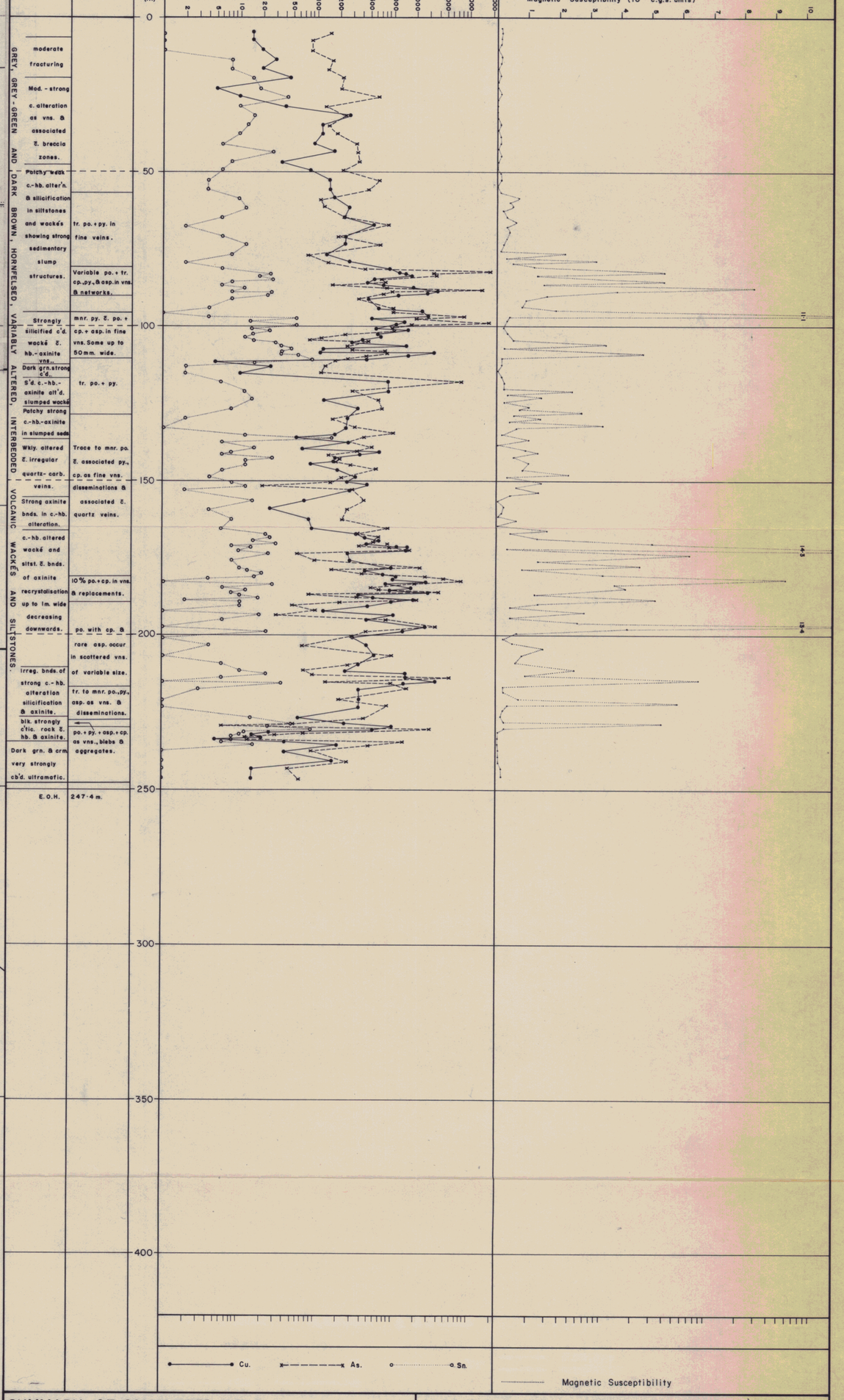


SURFACE GEOCHEMISTRY

1:1000



DOWN HOLE INFORMATION



SUMMARY OF COMPLETED HOLE

CO-ORDINATES	NORTHING	EASTING	R.L.
LOCAL GRID A.M.G.	5372184·5N	374862·8E	356·7 m

AZIMUTH: 270° A.M.G. DIP: -55° TOTAL DEPTH: 247·4 m

COMMENCEMENT DATE: 18·04·1981 COMPLETION DATE: 12·05·1981

INTERNAL SURVEY INFORMATION

DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP
58 m	268° A.M.G.	-53°5			
106 m	268°	-52°5			
154 m	268°	-51°5			
202 m	278°	-50°0			

HOLE SIZE	FROM	TO	HOLE SIZE	FROM	TO
HQ	00	4·7 m			
NQ	4·7 m	51·1 m			
BQ	51·1 m	247·4 m			

DRILLED GEOLOGY (SUMMARISED)

DEPTH	LITHOLOGY	MINERALISATION AND SIGNIFICANT ASSAYS
0 - 48 m.	Weakly oxidised moderate to strongly fractured &/or brecciated siltstone & volcanic wacké.	
48 - 95·3	Weakly silicified slumped siltstones & wackés with patchy weak c.-hb. alteration in veins.	56·9 - 80·7m. tr. po. + py. in fine veins.
95·3 - 136·3	Strongly silicified & chloritised wacké & mnr. siltstone, ξ. bands of hb.-axinite recrystalisation.	80·7 - 110·4m. tr.-mnr. po.+py. ξ. rare cp.+asp. as fine vns. & networks.
136·3 - 155·5	Siltstones & wackés ξ. wk. silicification, patchy c.-hb. alteration & irregular q.cb. veins.	128·8 - 180·8m. mnr. po. ξ. tr. py.+cp. as fine vns., replacements & dissemination.
155·5 - 166·4	Strongly c.-hb. altered sediments ξ. q.cb. veining & bands of intense axinite crystalisation.	
166·4 - 210·7	Weakly c.-hb. altered sediments ξ. patches of axinite decreasing downwards.	180·8 - 189·0m. po.+cp. as vns. & bedding replacements avg. 10%.
210·7 - 234·0	Siltstones & wackés ξ variable intense c.-hb.-axinite alteration & silicification.	189·0 - 216·6m. po.+cp.+tr. asp. as irregular vns.
234·0 - 247·4	Very heavily carbonated ultramafic.	216·6 - 230·4m. mnr. po.+cp.+asp. as scattered fine vns..

LOGGED BY: A. J. MOLLISON DATE: MAY 1981

SAMPLE DATA

SAMPLED INTERVAL	SAMPLE NUMBERS	SAMPLE TYPE	ELEMENTS DETERMINED	LAB. METHOD
3·9 - 80·7	42411 - 42436	Grind & Chip	Pb, Zn, Cu, Ag, Mn, Fe, As, Sn.	AAS.
80·7 - 89·9	42437 - 42447	Split	"	"
89·9 - 95·2	42448 - 42449	Grind	"	"
95·2 - 112·4	42450 - 42467	Split	"	"
112·4 - 134·5	42468 - 42475	Grind	"	"
134·5 - 151·7	42476 - 42488	Split	"	"
151·7 - 166·9	42489 - 42493	Grind	"	"
166·9 - 174·3	42494 - 42500, 45701	Split	"	"
174·3 - 177·8	45702	Grind	"	"
177·8 - 198·8	45703 - 45722	Split	"	"
198·8 - 212·6	45723 - 45727	Grind	"	"
212·6 - 216·3	45728 - 45731	Split	"	"
216·3 - 228·0	45732 - 45735	Grind	"	"
228·0 - 235·9	45736 - 45744	Split	"	"
235·9 - 247·4	45745 - 45748	Grind	"	"

NOTES:

SPECIFICATIONS OF PROPOSED HOLE

CO-ORDINATES	NORTHING	EASTING	R.L.
LOCAL GRID A.M.G.	5372200N	374890E	365 m

AZIMUTH: 270° A.M.G. DIP: -60° DESIGNED DEPTH: 200m

ESTIMATED COMMENCEMENT:

ANTICIPATED GEOLOGY

DEPTH	LITHOLOGY	NATURE OF TARGET AND ANTICIPATED DEPTH
0 - 185 m	Interbedded Volcanic wackes and Siltstones with variable hornfelsing.	60-100m Zone or zones of pyrrhotite replacement sulphides with associated arsenopyrite chalcopyrite and cassiterite.
185 - 200m	Serpentinised ultramafic.	

DESIGNED BY: I.R.McD DATE: 12·2·1981

AIM OF HOLE: To test a V.L.F. anomaly with coincident ground magnetic and soil geochemistry anomalies.

NOTES:

82-1738. Vol 6 of 6.

ELECTROLYTIC ZINC CO. OF A'ASIA LTD.

PROJECT: TAS.

SPECIFICATIONS AND SUMMARY OF RESULTS

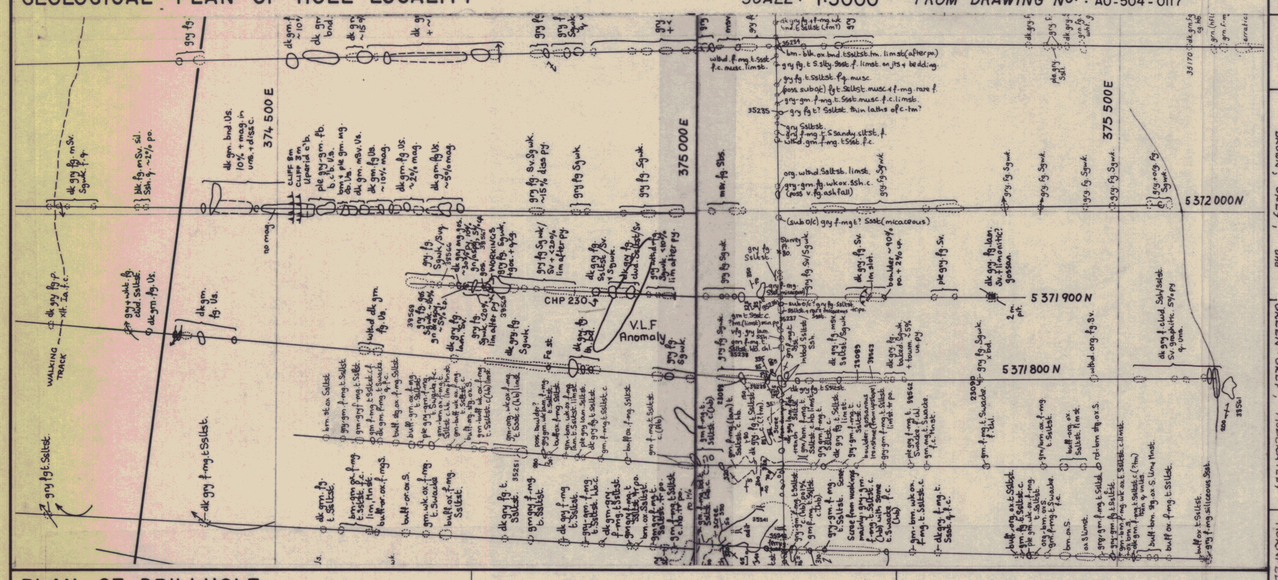
EXPLORATION DIAMOND DRILL HOLE No. C.H.P. 229

SCALE: As shown	Survey: I.R.McD.	Revised:
Reference:	Date: 05/10/1981	REF. No.
Drawn: R.A.H. / R.T.	Checked:	A1-504-0156

798498 049 1625

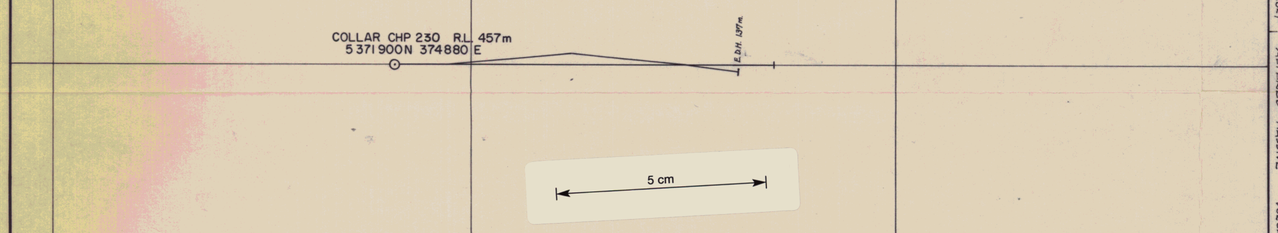
GEOLOGICAL PLAN OF HOLE LOCALITY

SCALE: 1:5000 FROM DRAWING No. A0-504-0044 : A0-504-0117



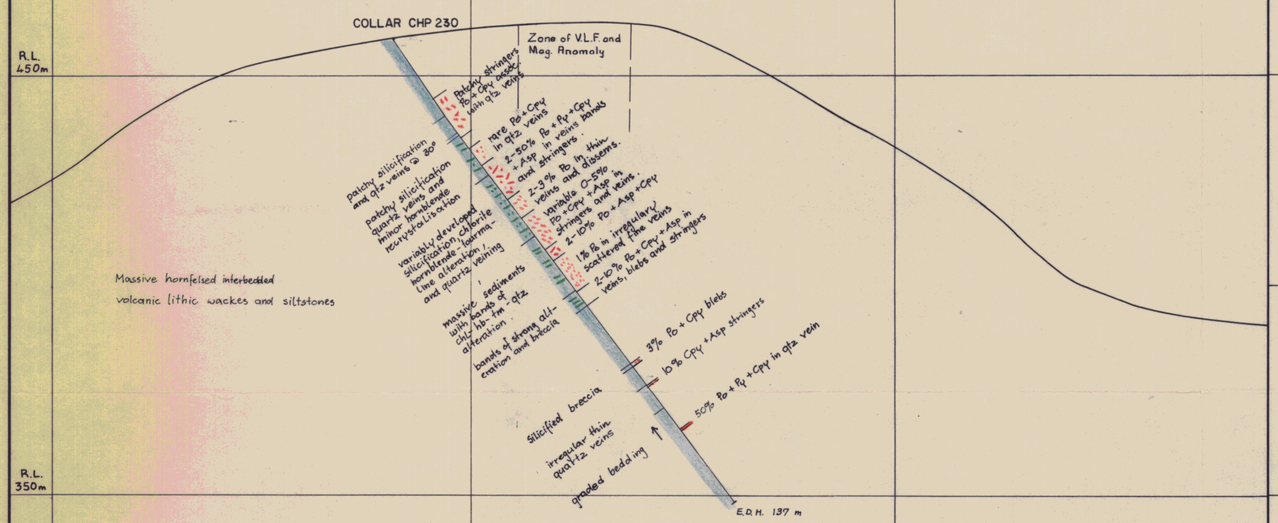
PLAN OF DRILLHOLE

SCALE: 1:1000



DRILLHOLE CROSS SECTION

SCALE: 1:1000



Po = Pyrrhotite
Py = Pyrite
Cpy = Chalcopyrite
Asp = Arsenopyrite

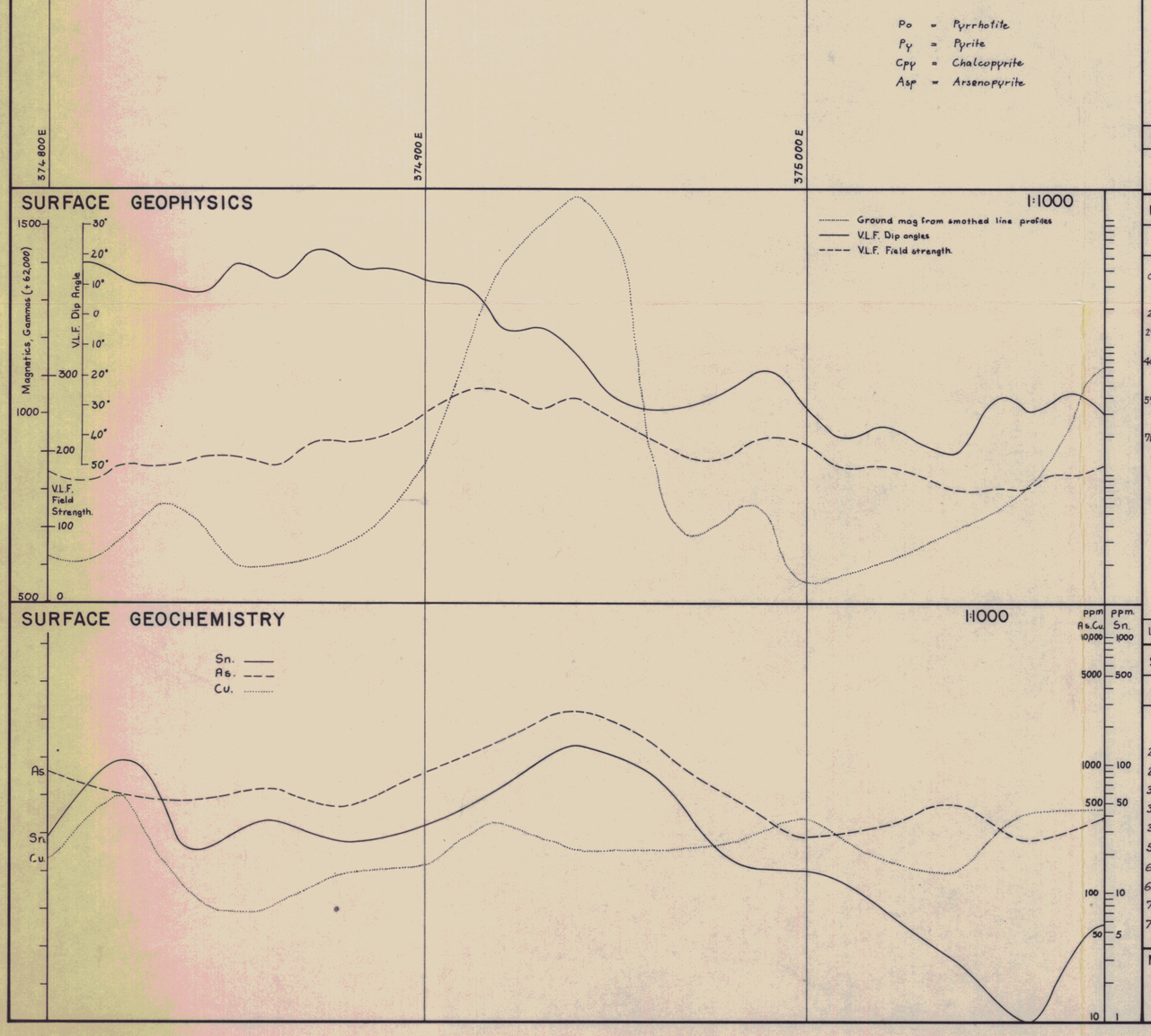
SURFACE GEOPHYSICS

1:1000

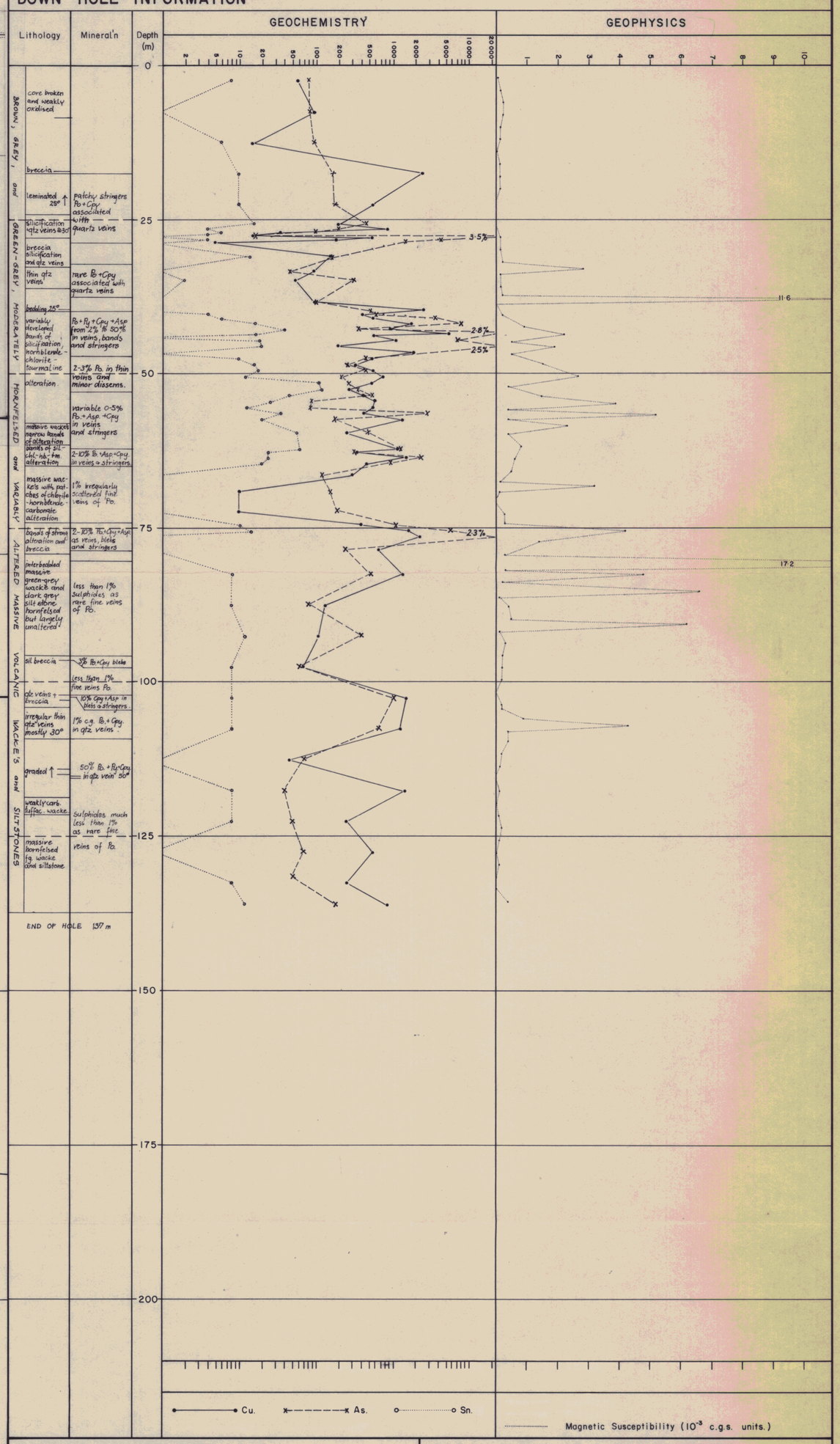


SURFACE GEOCHEMISTRY

1:1000



DOWN HOLE INFORMATION



SUMMARY OF COMPLETED HOLE

CO-ORDINATES	NORTHING	EASTING	R.L.
LOCAL GRID A.M.G.	5 371 888·2N	374 856·6 E	453·8 m

AZIMUTH: 90° A.M.G. DIP: -55° TOTAL DEPTH: 137m.

COMMENCEMENT DATE: 14·05·1981 COMPLETION DATE: 20·05·1981

INTERNAL SURVEY INFORMATION

DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP
47m.	84°	-53°			
92 m.	96°	-53°			
137 m.	97°	-53°			

HOLE SIZE	FROM	TO	HOLE SIZE	FROM	TO
HQ	0	3.0 m			
NQ	3.0	17.8 m			
BQ	17.8	137.0 m			

DRILLED GEOLOGY (SUMMARISED)

DEPTH	LITHOLOGY	MINERALISATION AND SIGNIFICANT ASSAYS	
0 - 137.0	Massive volcanic Lithic wacke's and interbedded siltstones showing moderate hornfelsing and variable alteration.	17.2 - 40.5	Scattered sulphides assoc. with quartz veins.
21.8 - 26.8	Patchy silicification and quartz veins	40.5 - 57.4	Variable bands, veins and stringers of Po., Py, Cpy, Asp.
27.35 - 40.0	Patchy silicification, quartz veins and minor hornblende recrystalisation.	61.9 - 78.4	Variable bands, veins and stringers of Po, Py, Cpy, Asp. often associated with quartz veins.
40.3 - 57.95	Variably developed silicification, hornblende - chlorite alteration, quartz veining and mineralisation.		
57.95 - 78.80	Inter-banded massive sediments and bands of chlorite - hornblende, quartz - tourmaline alteration.	78.4 - 115.3	Scattered sulphides associated with quartz veins.
78.8 - 137.0	Largely unaltered massive hornfelsed sediments.		

LOGGED BY: DATE:

SAMPLE DATA

SAMPLED INTERVAL	SAMPLE NUMBERS	SAMPLE TYPE	ELEMENTS DETERMINED	LAB. METHOD
0 - 26·4	39351 - 55 45751	grind	Pb, Zn, Cu, Ag, Mn, Fe, As, Sn.	A.A.S.
26·4 - 28·9	45752 - 57	split	"	"
28·9 - 33·0	45758	grind	"	"
33·0 - 33·3	45759	split	"	"
33·3 - 39·8	45760 - 61	grind	"	"
39·8 - 57·4	45762 - 82	split	"	"
57·4 - 61·9	45783	grind	"	"
61·9 - 67·95	45784 - 87	split	"	"
67·95 - 74·3	45788 - 90	grind	"	"
74·3 - 76·9	45791 - 93	split	"	"
76·9 - 137·0	45794 39367 - 78	grind	"	"

NOTES:

SPECIFICATIONS OF PROPOSED HOLE

CO-ORDINATES	NORTHING	EASTING	R.L.
LOCAL GRID A.M.G.	5 371 900 N	374 880 E	457 m

AZIMUTH: 90° AMG DIP: - 60° DESIGNED DEPTH: 150m

ESTIMATED COMMENCEMENT:

ANTICIPATED GEOLOGY

DEPTH	LITHOLOGY	NATURE OF TARGET AND ANTICIPATED DEPTH
0-150 m	Interbedded Volcanic Wackes & Siltstones showing variable hornfelsing and metasomatic alteration.	55-100 m Zones containing heavy stringer to massive pyrrhotite replacement sulphides with associated chalcopyrite, arsenopyrite and cassiterite.

DESIGNED BY: I.R. McD DATE: 11-2-1981

AIM OF HOLE: To test a zone of coincident V.L.F. magnetic and soil geochemical anomalies.

NOTES:

82-1738. Vol 6 of 6.

ELECTROLYTIC ZINC CO. OF A'ASIA LTD.

PROJECT: TAS.

SPECIFICATIONS AND SUMMARY OF RESULTS

EXPLORATION DIAMOND DRILL HOLE No. C.H.P. 230

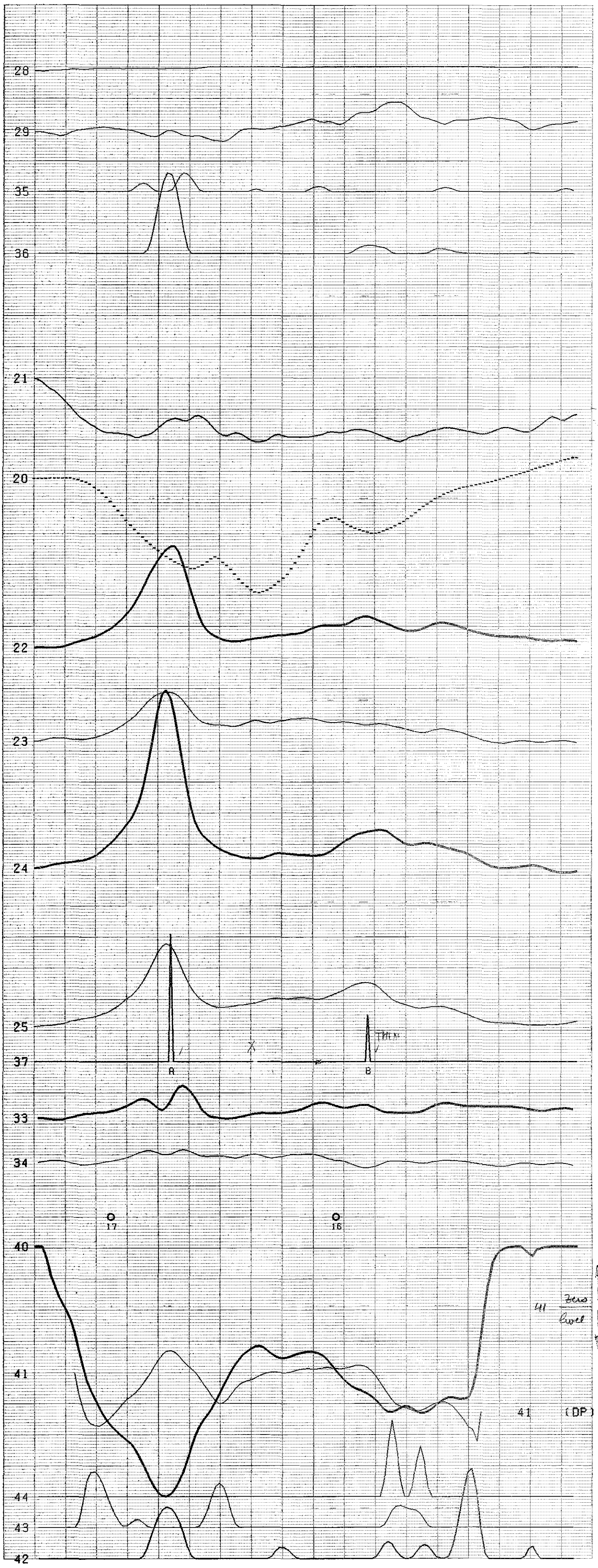
798499

SCALE: As shown	Survey:	Revised:
Reference:	Date:	REF. No. AI-504-0154
Drawn: R.T.	Checked:	

050

1625

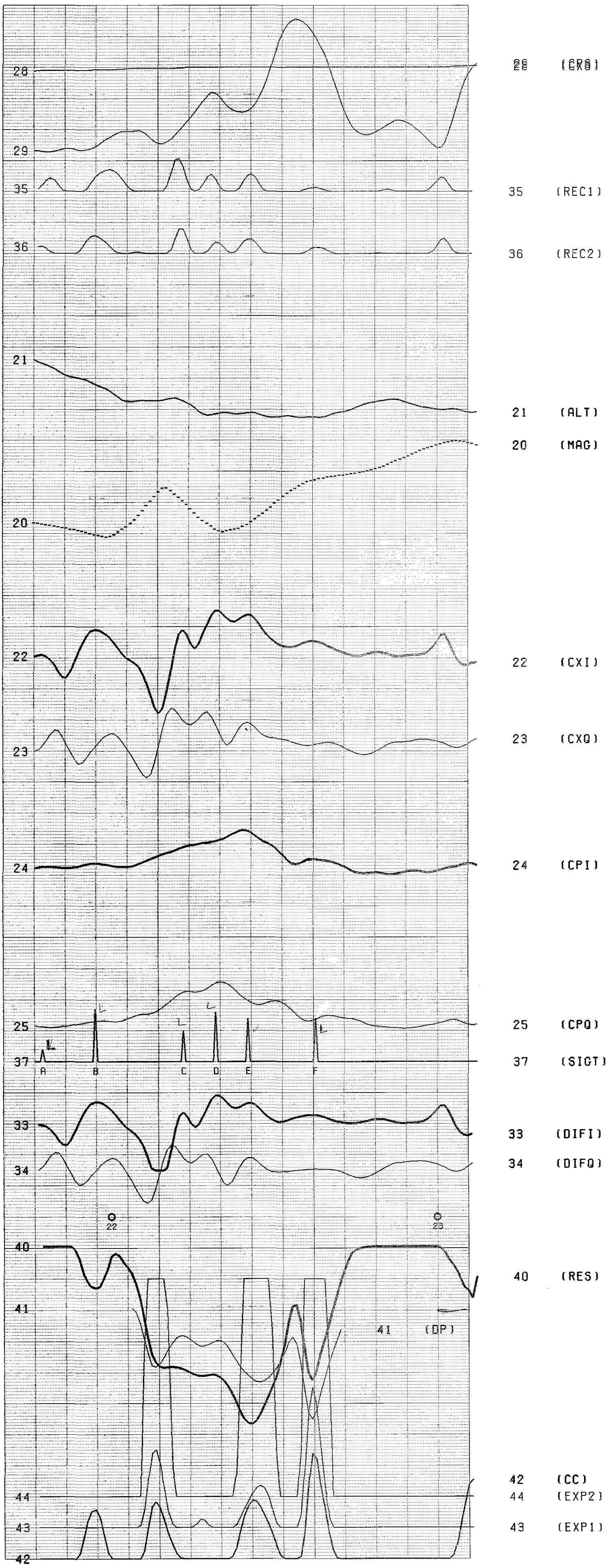
82-1738



LINE -1 JOB: 326 SH1 1: 10000

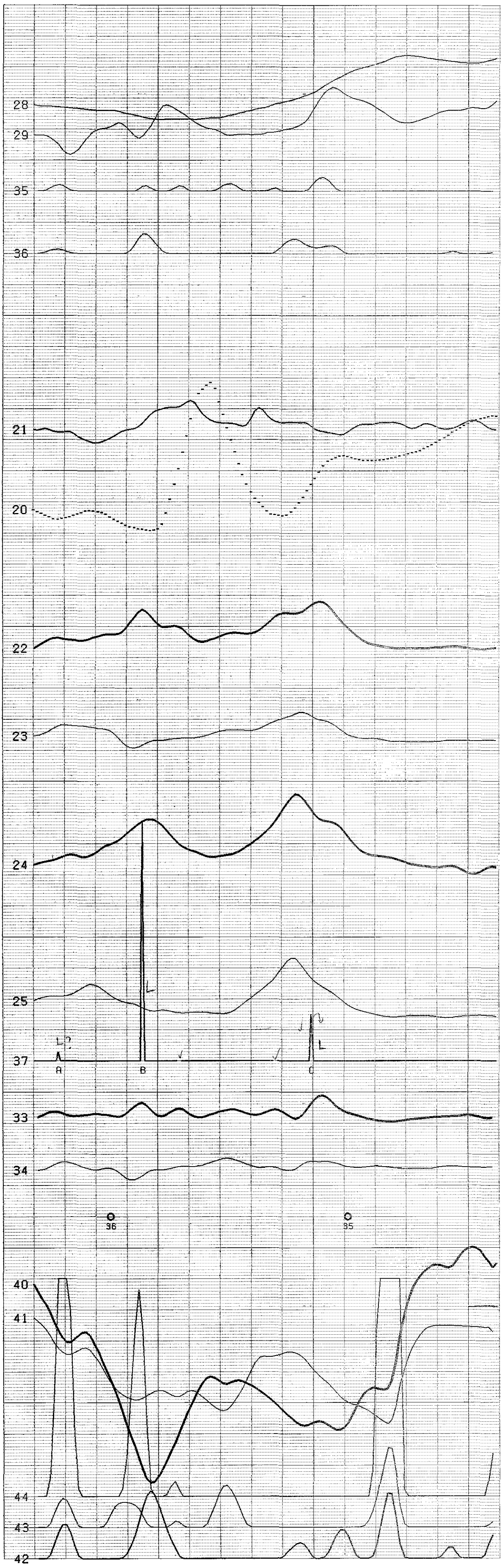
1 OF 24

798500



LINE 2 JOB: 326 SH1 1: 10000

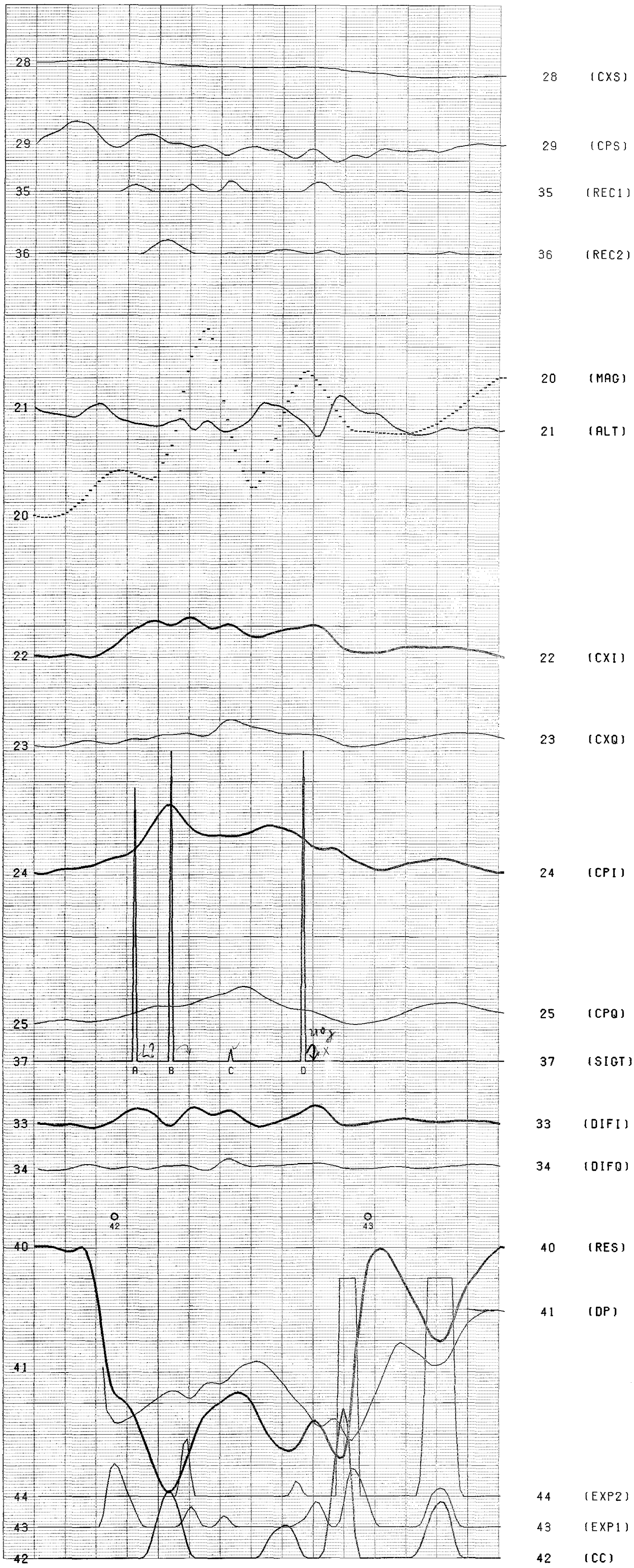
5 cm



LINE -3 JOB: 326 SH1 1: 10000

sheet #2

5 cm

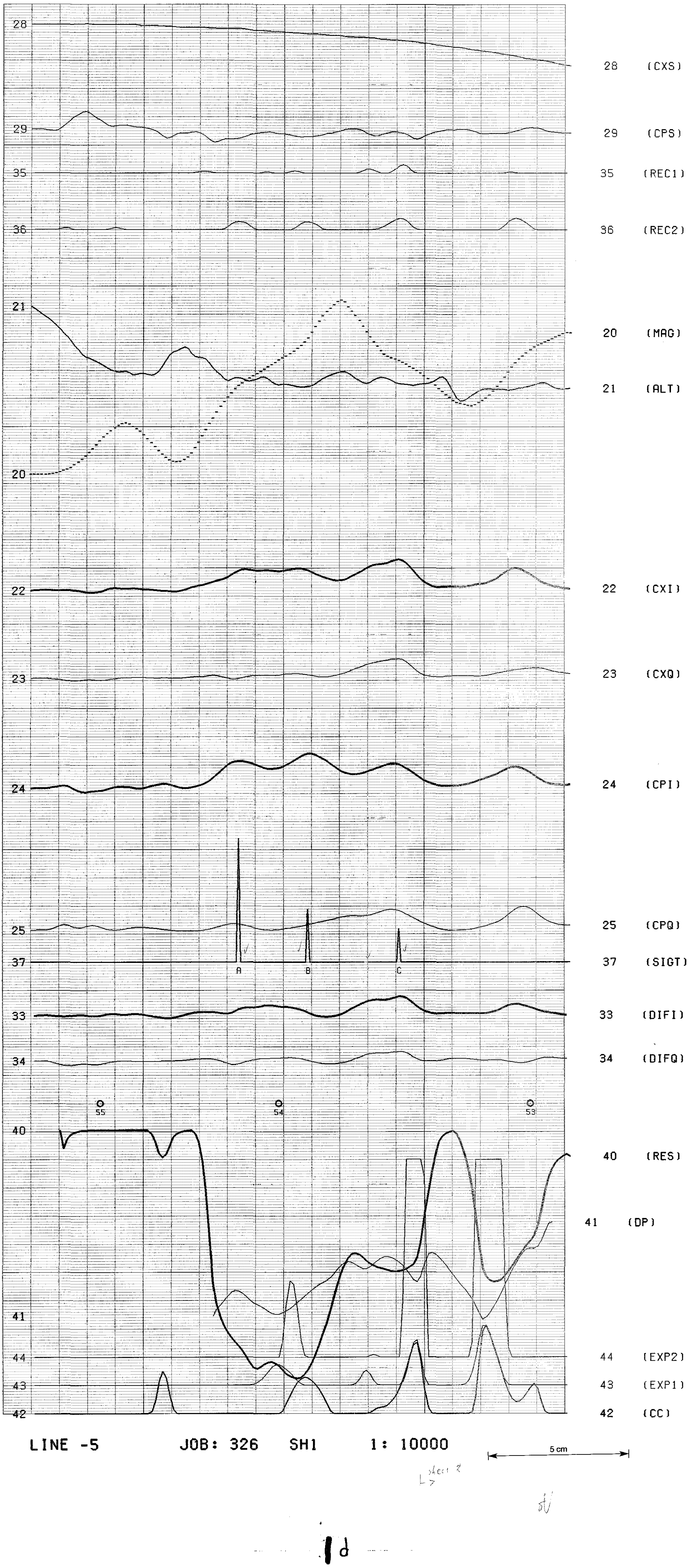


LINE 4 JOB: 326 SH1 1: 10000

Sheet 48

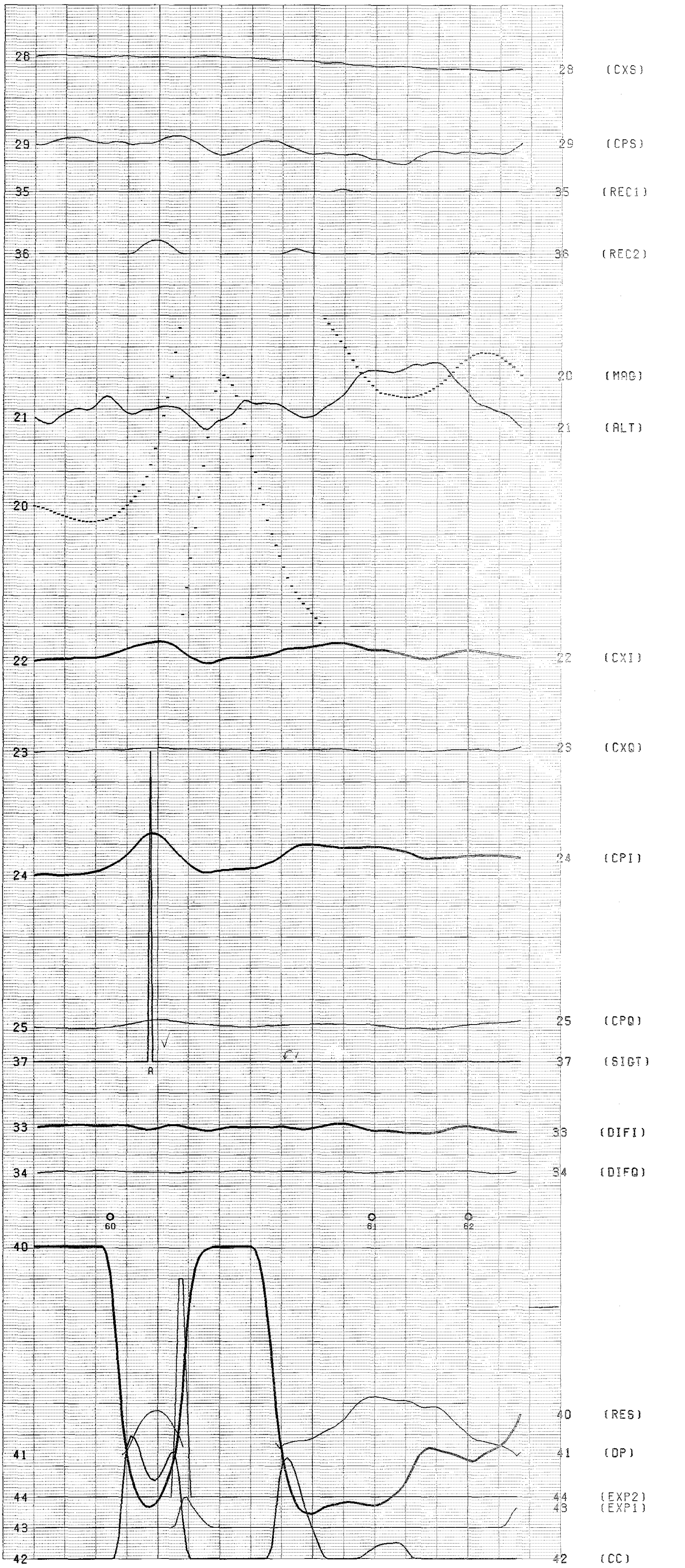
5 cm

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28
28 (CXS)
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29 (CPS)
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35 (REC1)
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37 (SIGT)
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33 (DIFI)
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34 (DIFQ)
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40 (RES)
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41 (DP)
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44 (EXP2)
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43 (EXP1)
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42 (CC)
LINE -5
JOB: 326 SH1
1: 10000
5 cm

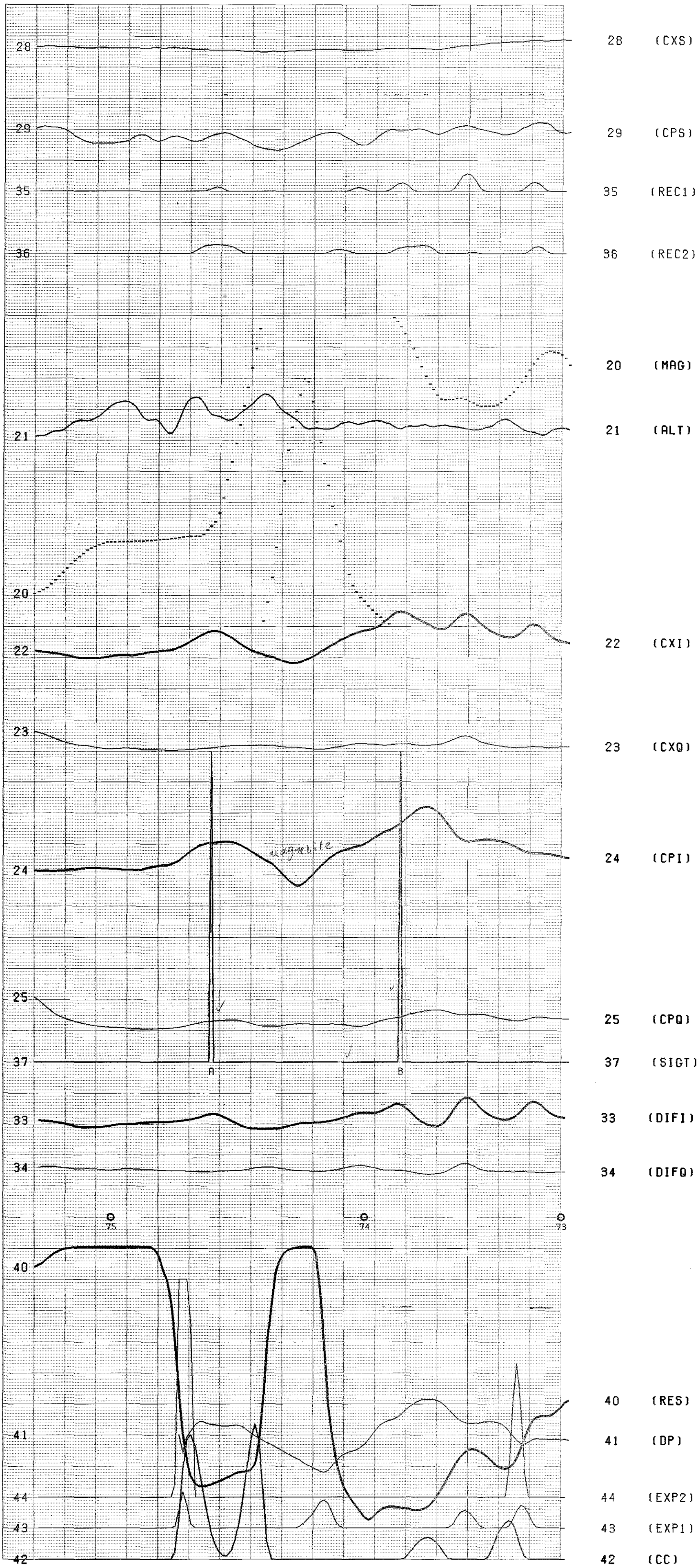
sheet 2

d



LINE 6 JOB: 326 SH1 1: 10000 5 cm

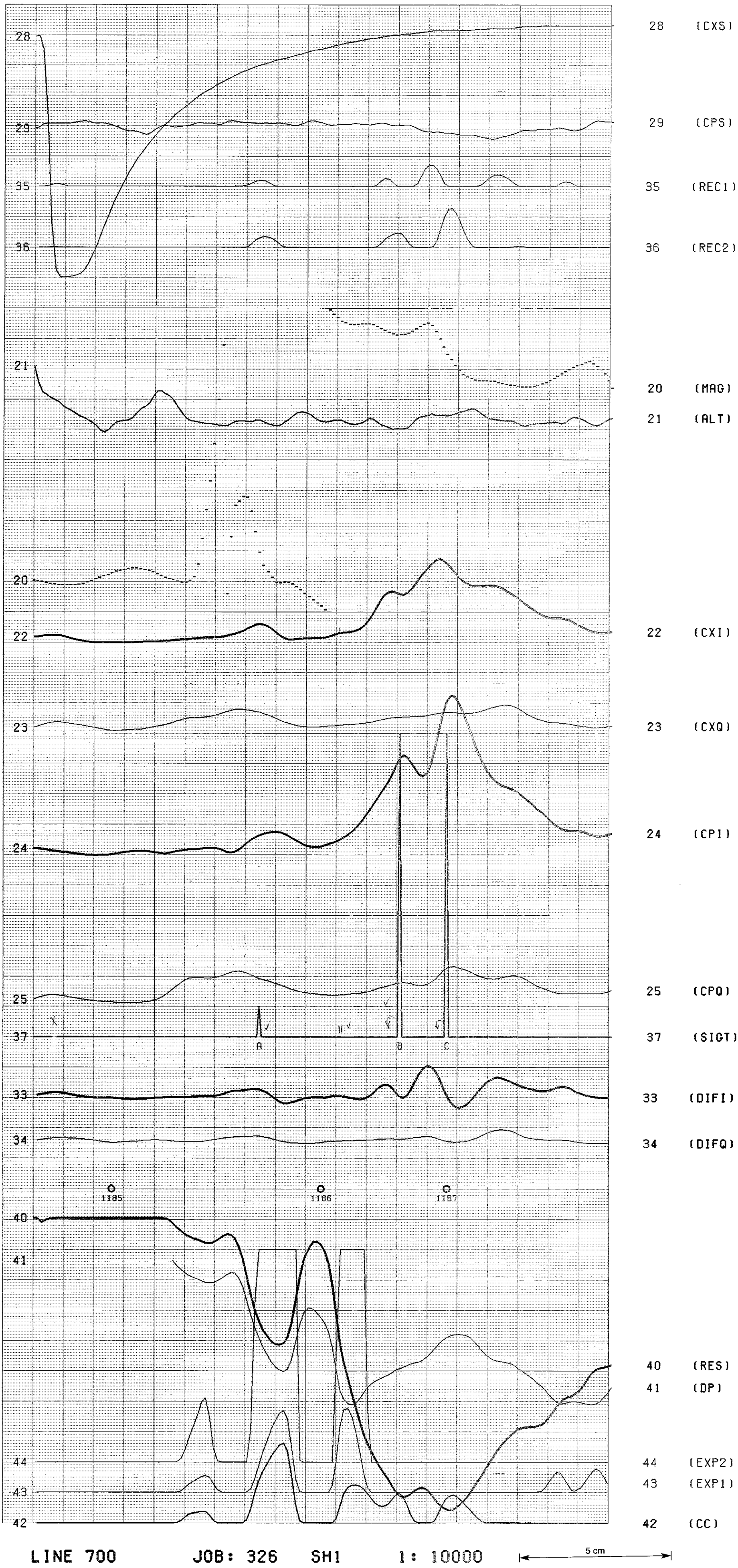
1e



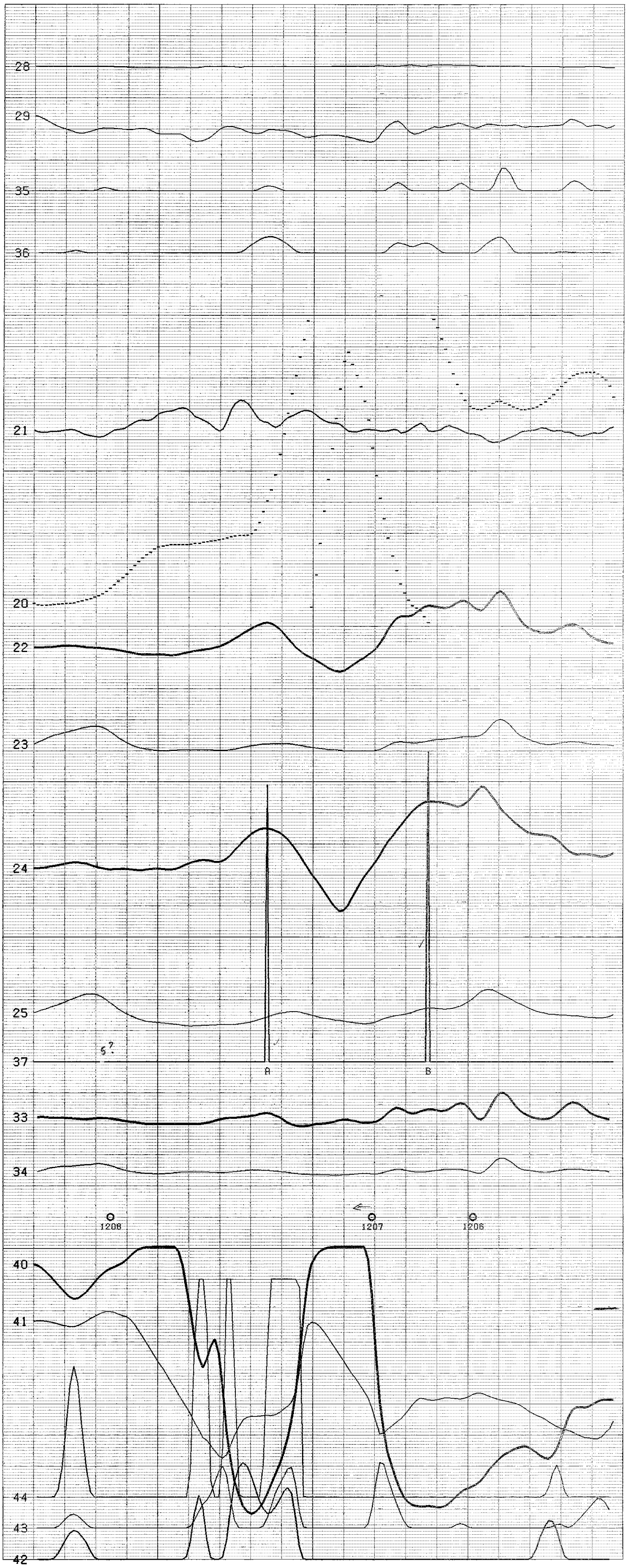
LINE -7 JOB: 326 SH1 1: 10000

Ishee #2

16



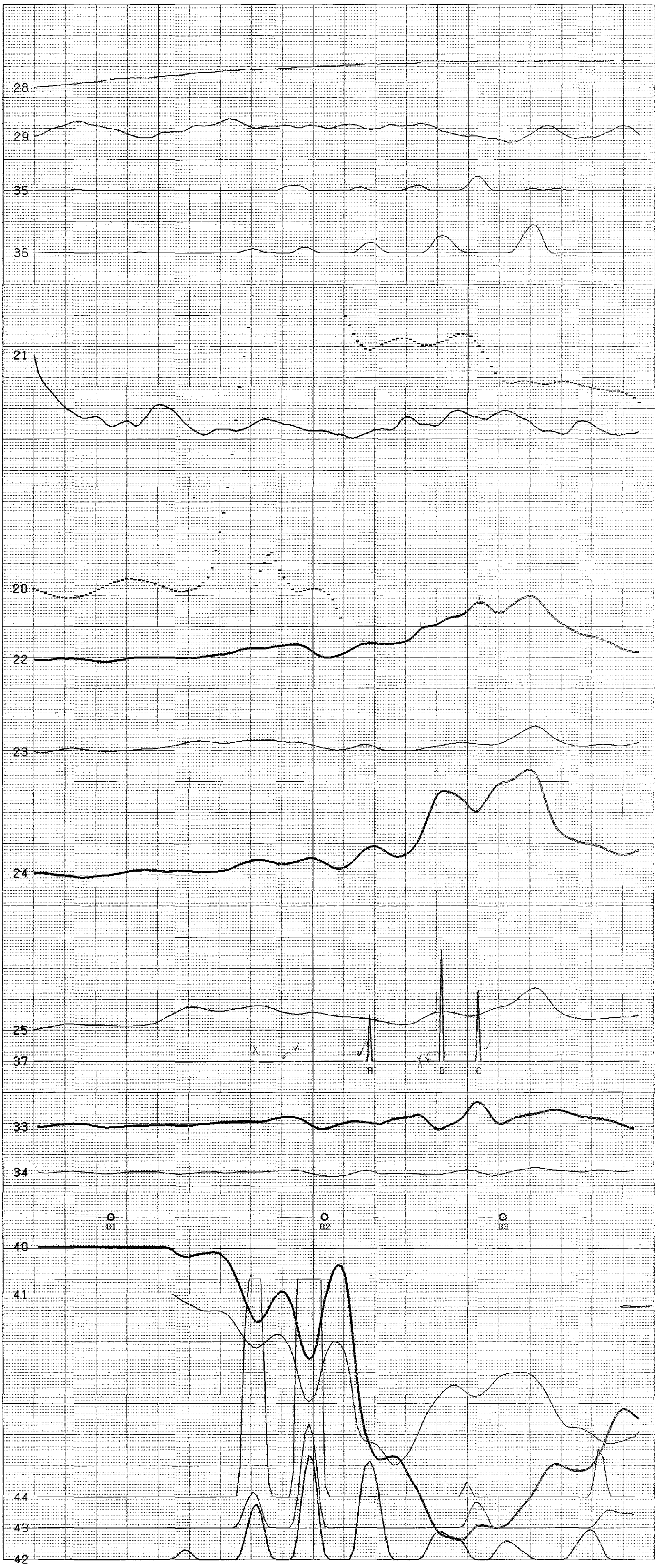
LINE 700 JOB: 326 SH1 1: 10000

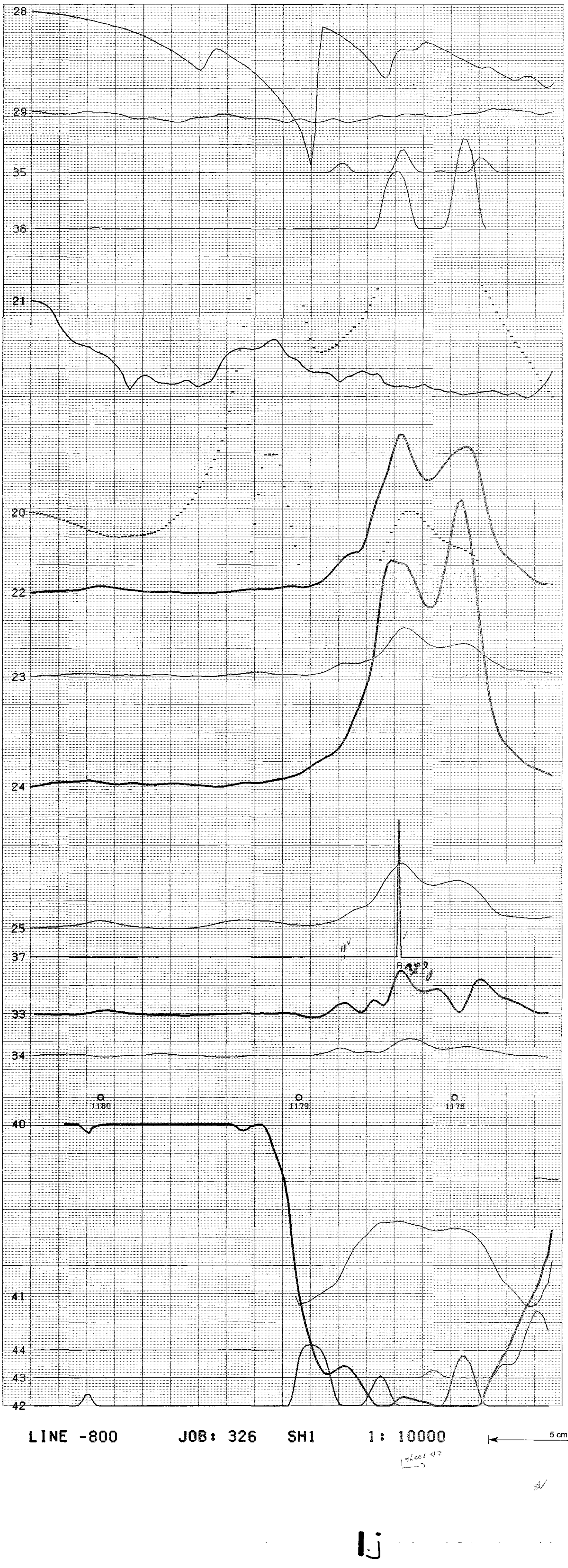


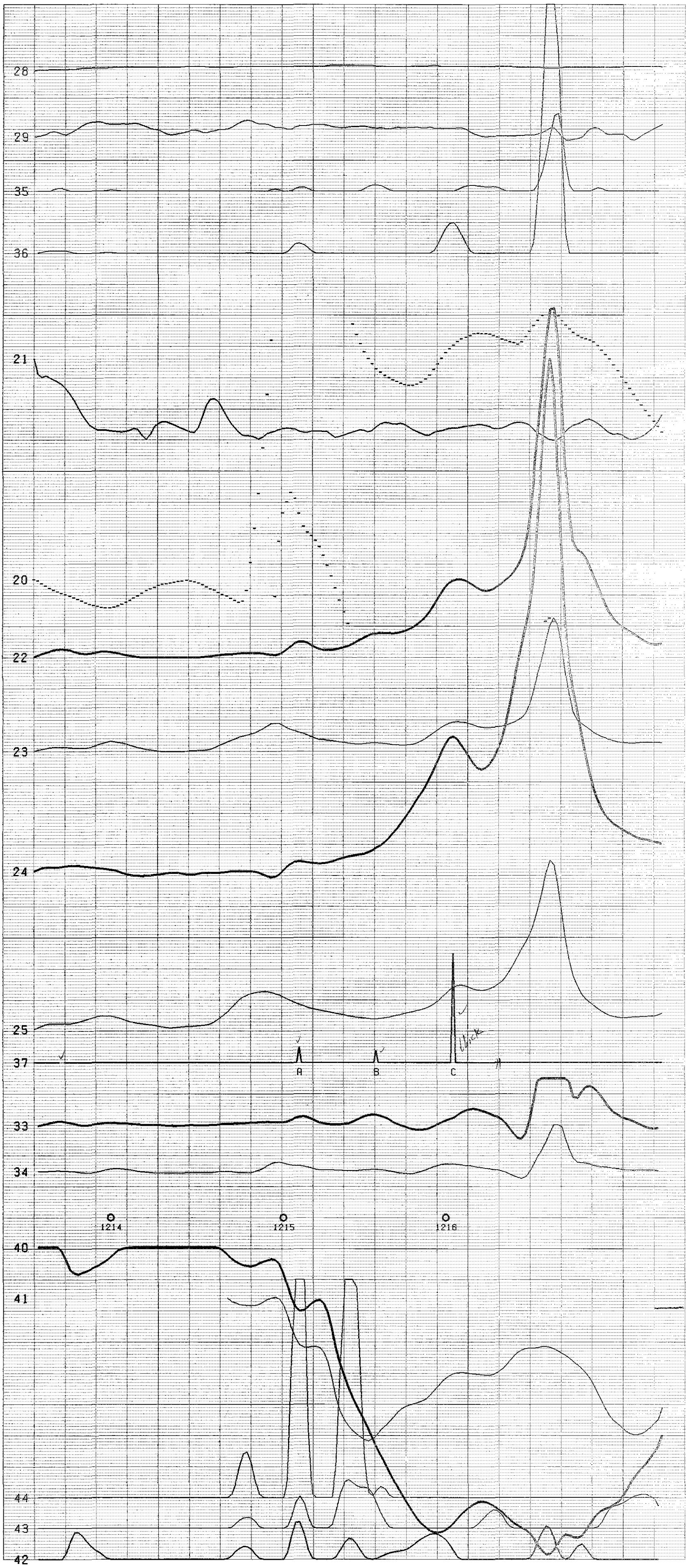
LINE -710 JOB: 326 SH1 1: 10000 5 cm

Sheet #2

1.h

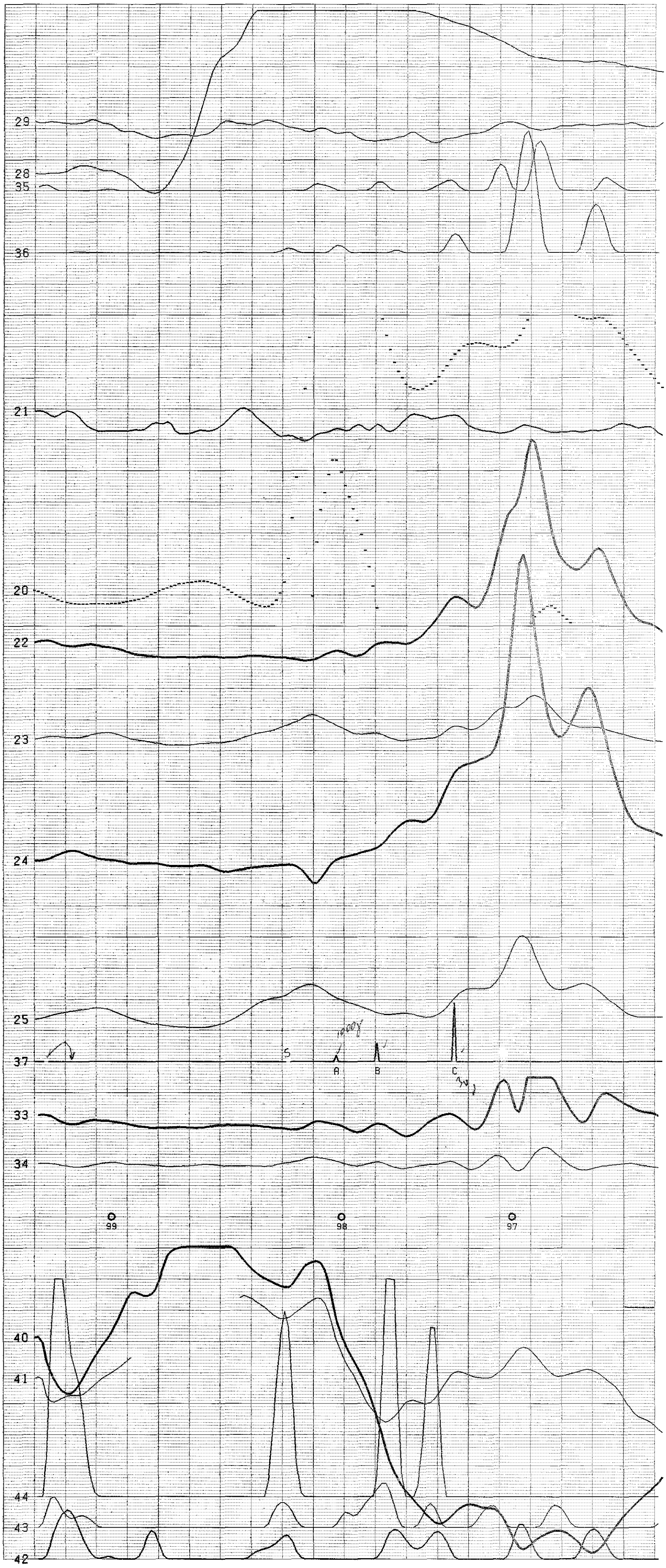

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28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
20 (MAG)
21 (ALT)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE 8
JOB: 326 SH1
1: 10000
5 cm


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1178
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
43 (EXP1)
44 (EXP2)
42 (CC)
LINE -800
JOB: 326
SH1
1: 10000
5 cm



LINE 810 JOB: 326 SH1 1: 10000 sheet #2

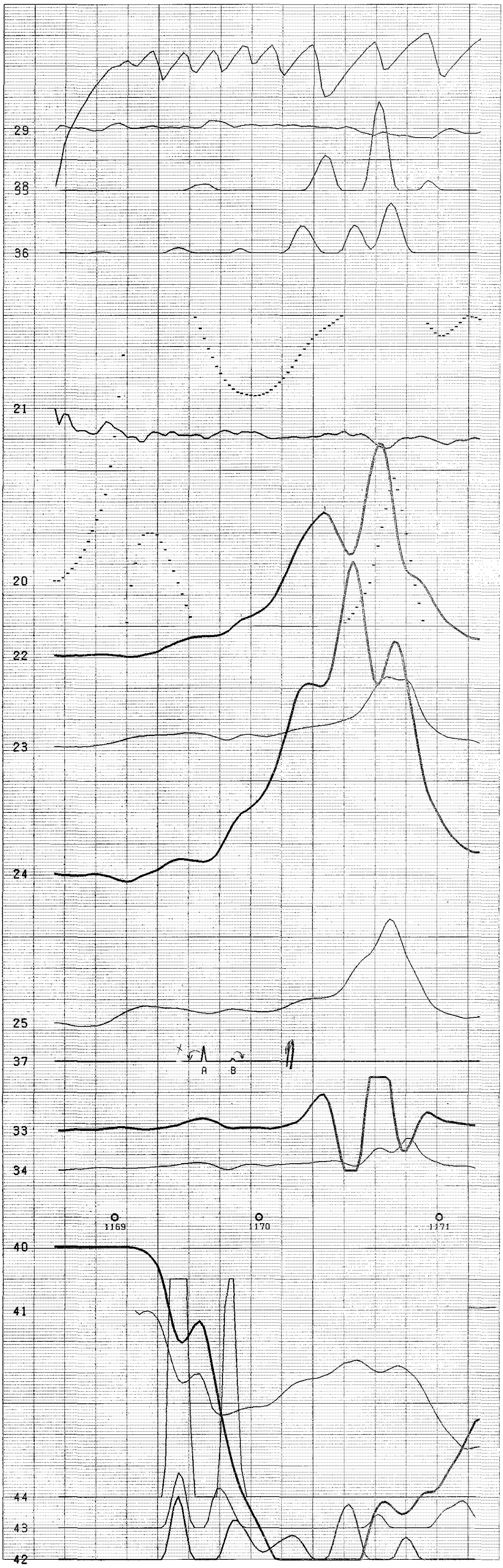
5 cm



LINE -9 JOB: 326 SH1 1: 10000

Test #2

5 cm

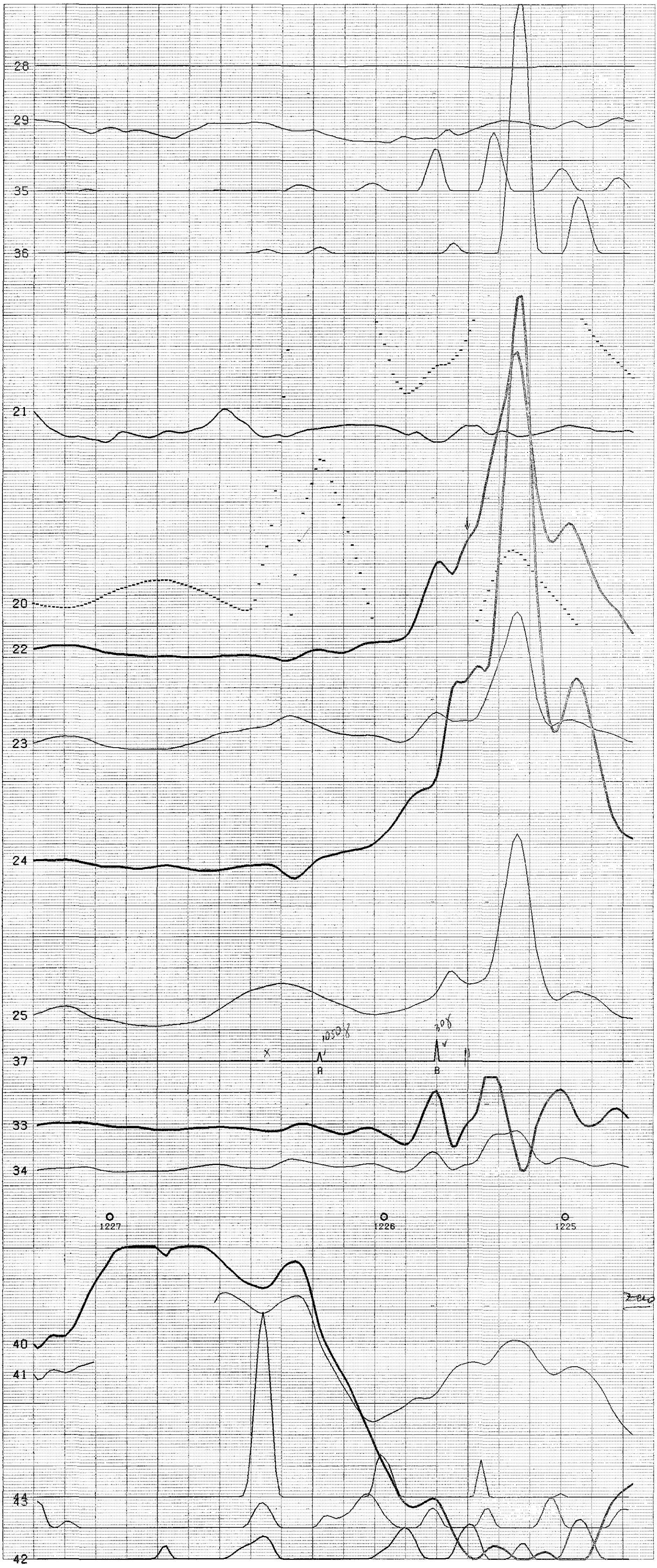


LINE 900 JOB: 326 SH1 1: 10000

sheet #2

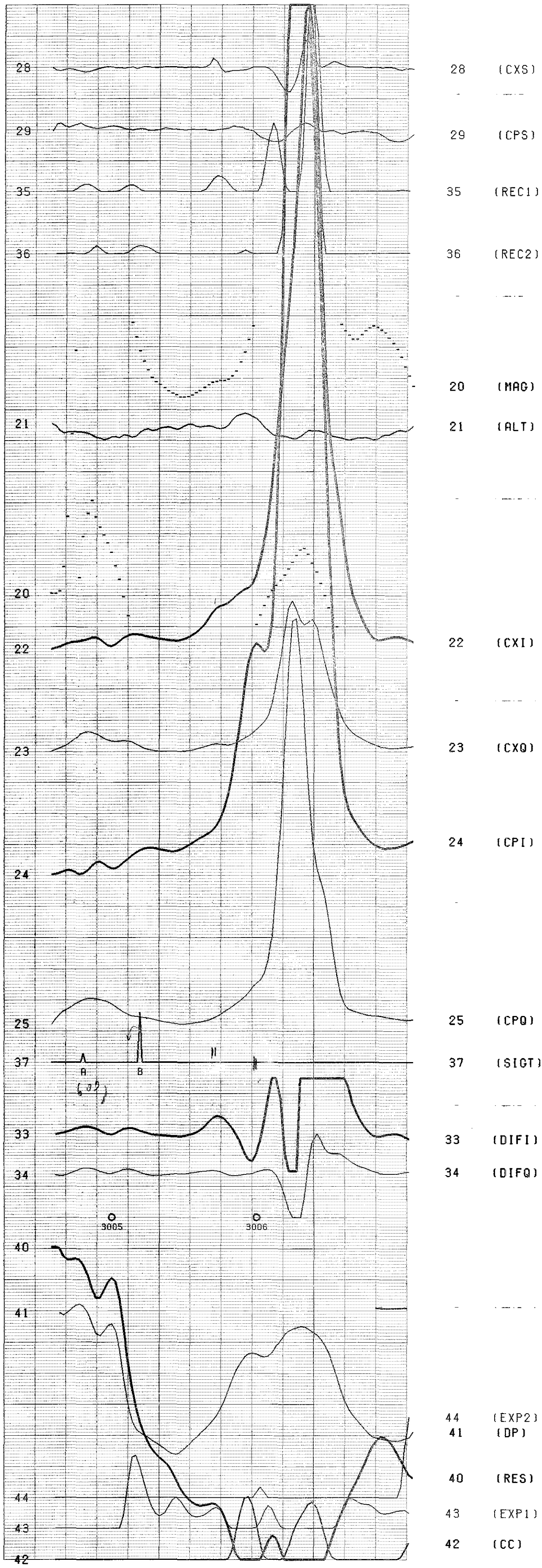
5 cm

1 m



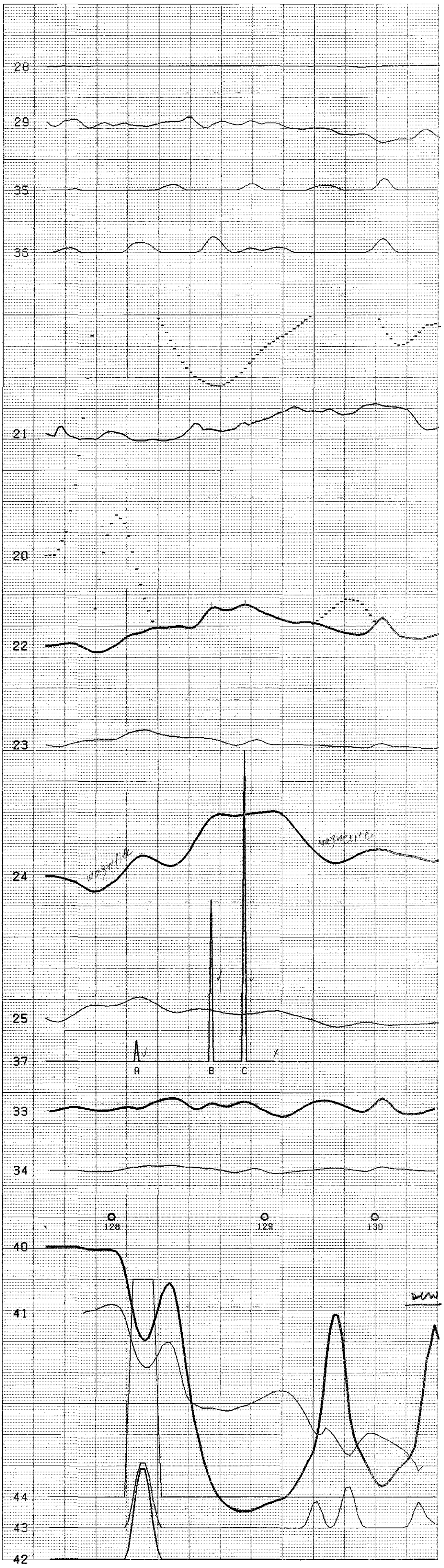
LINE -910 JOB: 326 SH1 1: 10000

5 cm



LINE 920 JOB: 326 SH1 1: 10000

5 cm

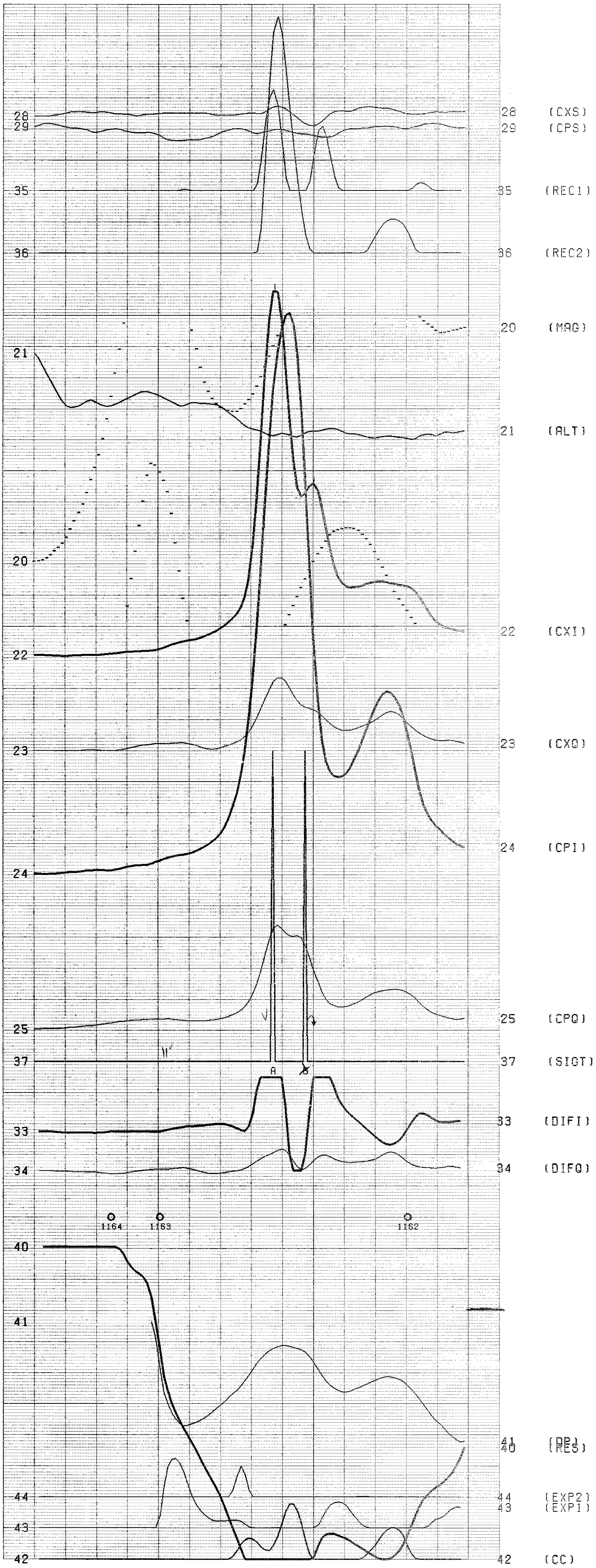


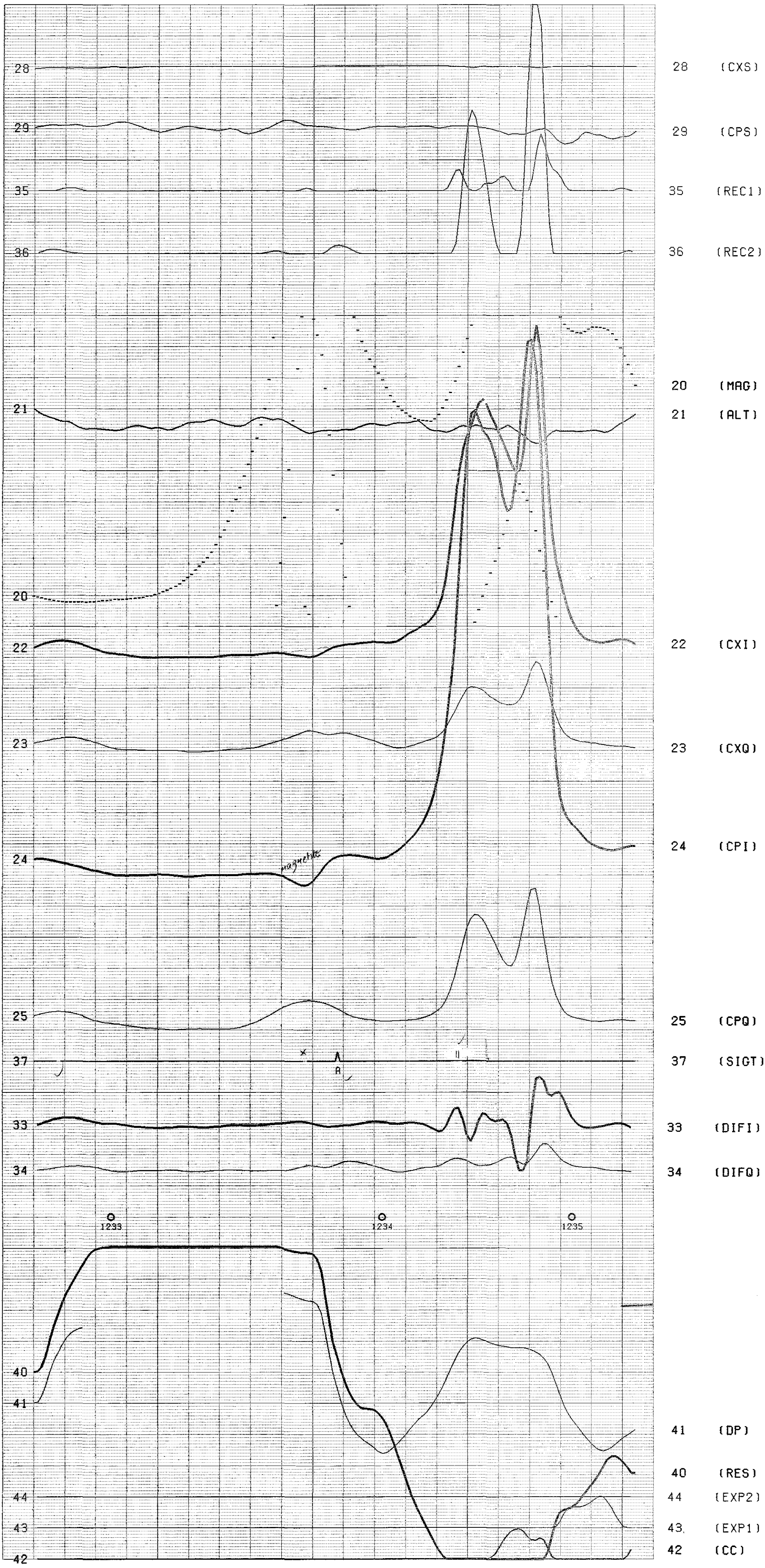
LINE 10 JOB: 326 SH1 1: 10000

sheet #2 →

5 cm

1p


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28 (CXS)
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35 (REC1)
36 (REC2)
20 (MAG)
21 (ALT)
22 (CXI)
23 (CXQ)
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25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
41 (RES)
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44 (EXP2)
43 (EXP1)
42 (CC)
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LINE -1000 JOB: 326 SH1 1: 10000
5 cm



LINE 1010 JOB: 326 SH1 1: 10000

5 cm

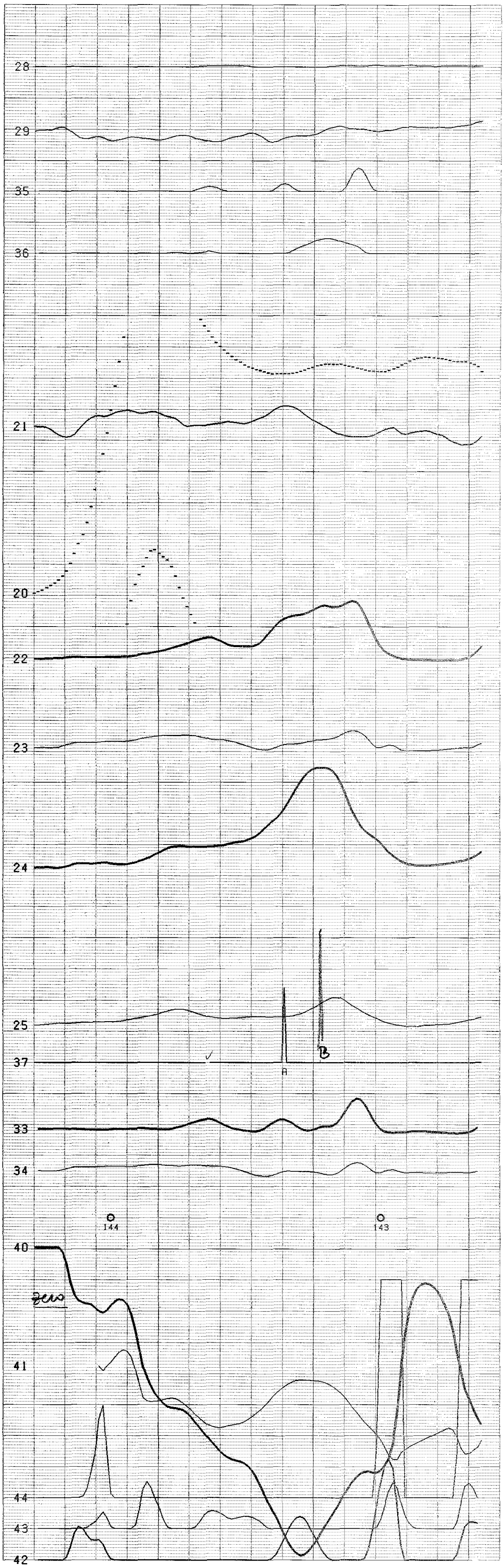


LINE 1020 JOB: 326 SH1 1: 10000

5 cm

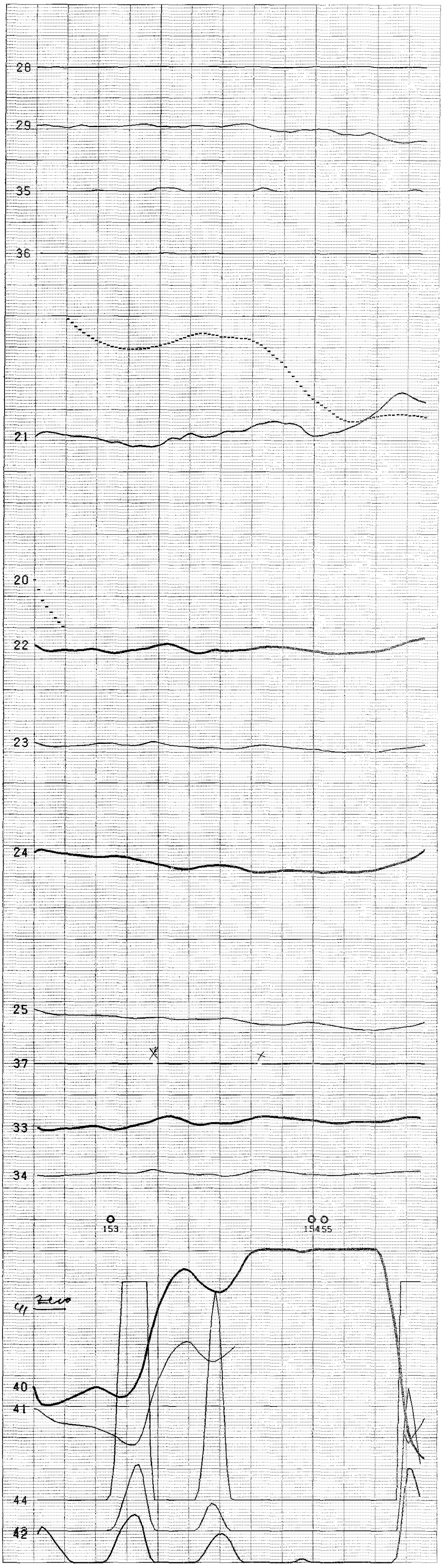
ls

82-1738



LINE -11 JOB: 326 SH1 1: 10000

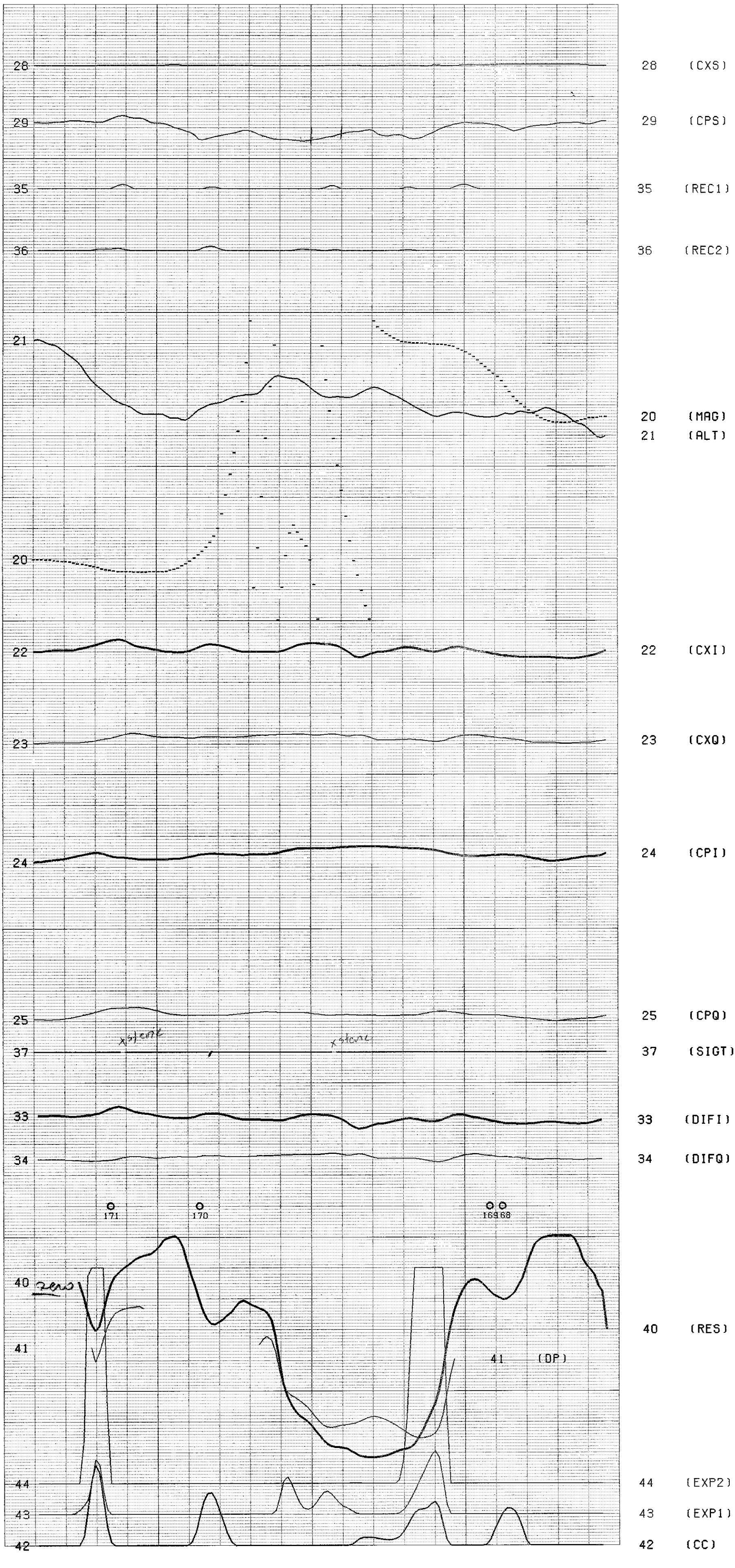
5 cm



LINE 12 JOB: 326 SH1 1: 10000

5 cm

2a



LINE -13 JOB: 326 SH1 1: 10000

26

LINE 14 JOB: 326 SH1 1: 10000

5 cm

2c

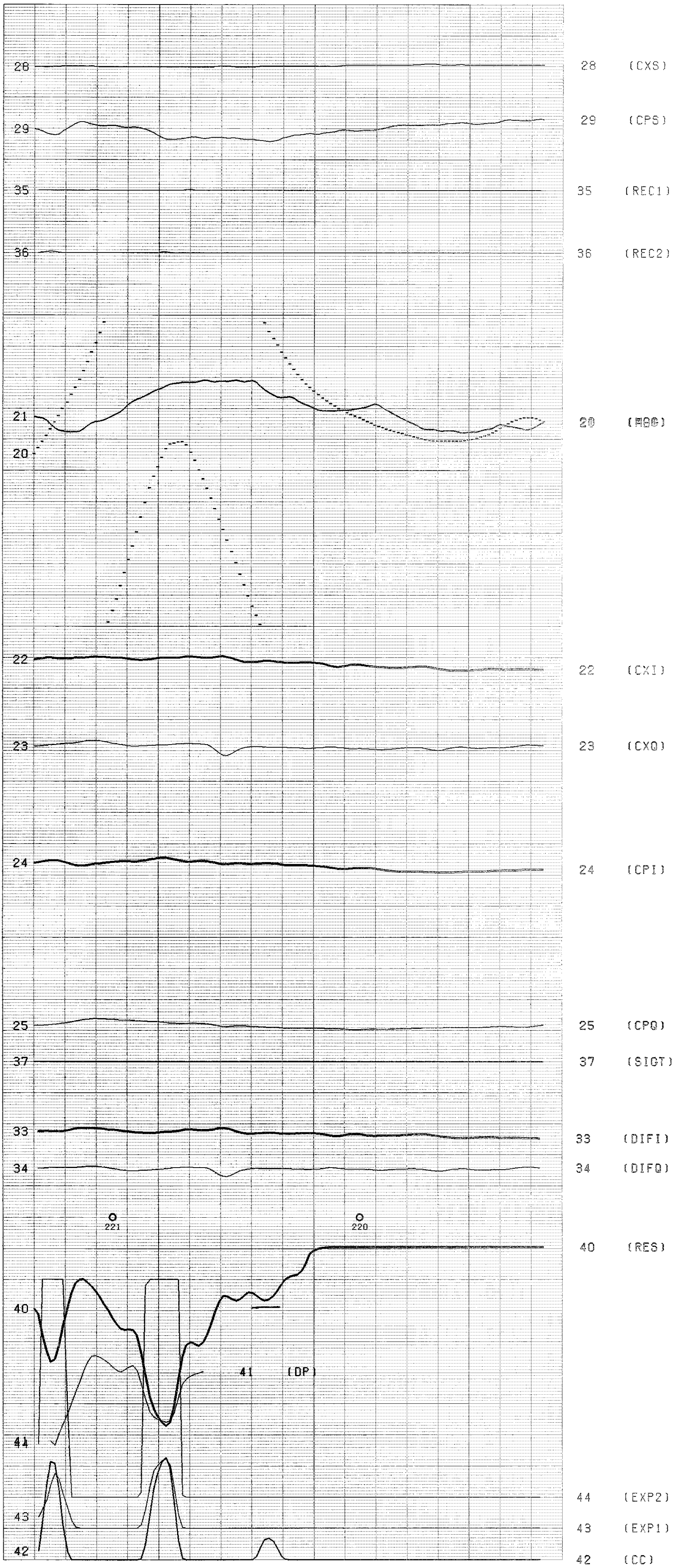

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28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (AHT)
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22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE -15
JOB: 326 SH1
1: 10000
5 cm

2d



LINE 16 JOB: 326 SH1 1: 10000 5 cm

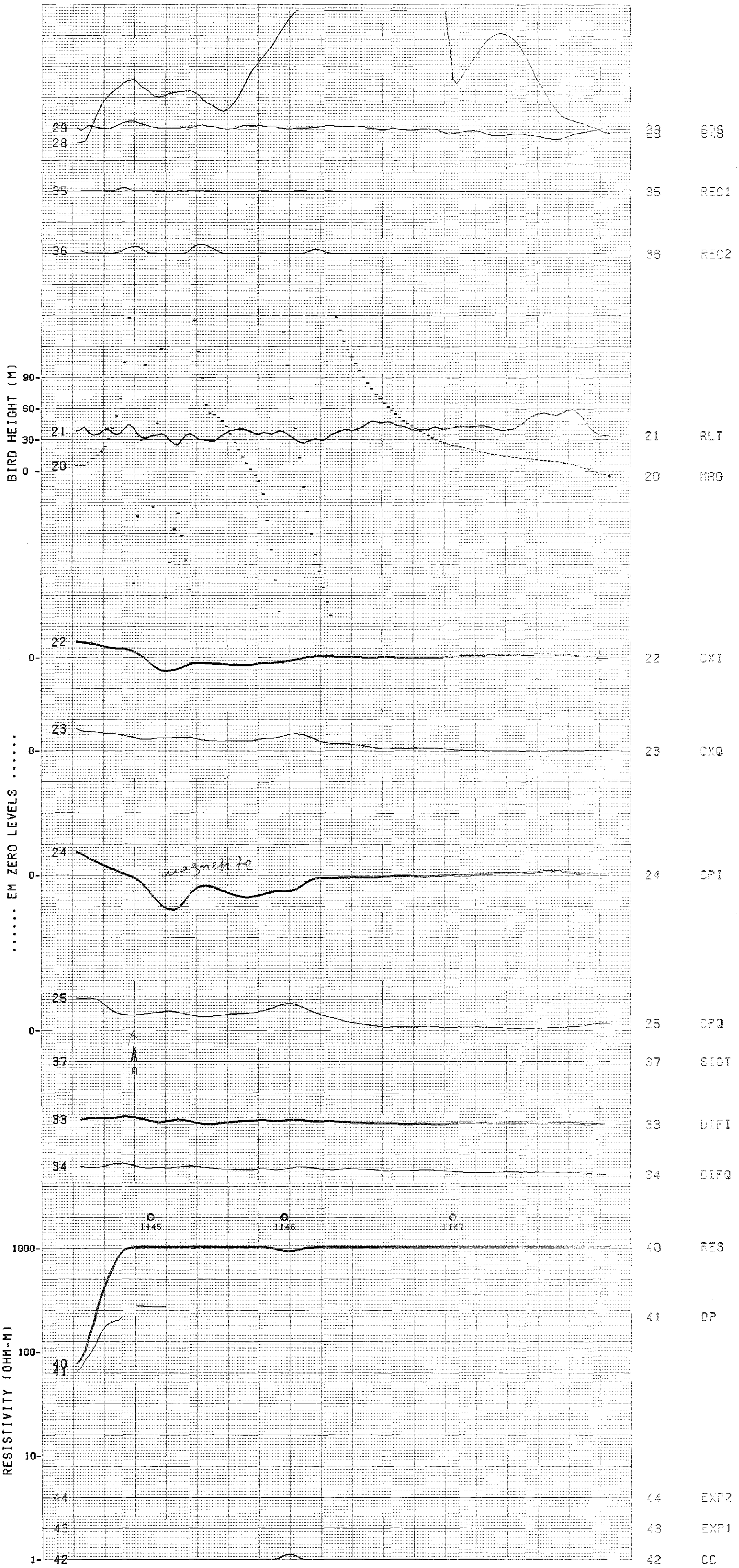
2e



LINE -17 JOB: 326 SH1 1: 10000

5 cm

2f


29
28
35
36
BIRD HEIGHT (M)
90
60
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0
21
20
22
0
23
0
24
0
25
0
37
33
34
1145
1146
1147
1000
100
10
1
40
41
44
43
42
RESISTIVITY (OHM-M)
29 BRG
35 REC1
36 REC2
21 RLT
20 MAG
22 CXI
23 CXQ
24 CPI
25 CPQ
37 SIGT
33 DIFI
34 DIFQ
40 RES
41 DP
44 EXP2
43 EXP1
42 CC
LINE 1700 JOB: 326 SH1 1: 10000
5 cm

82-1738

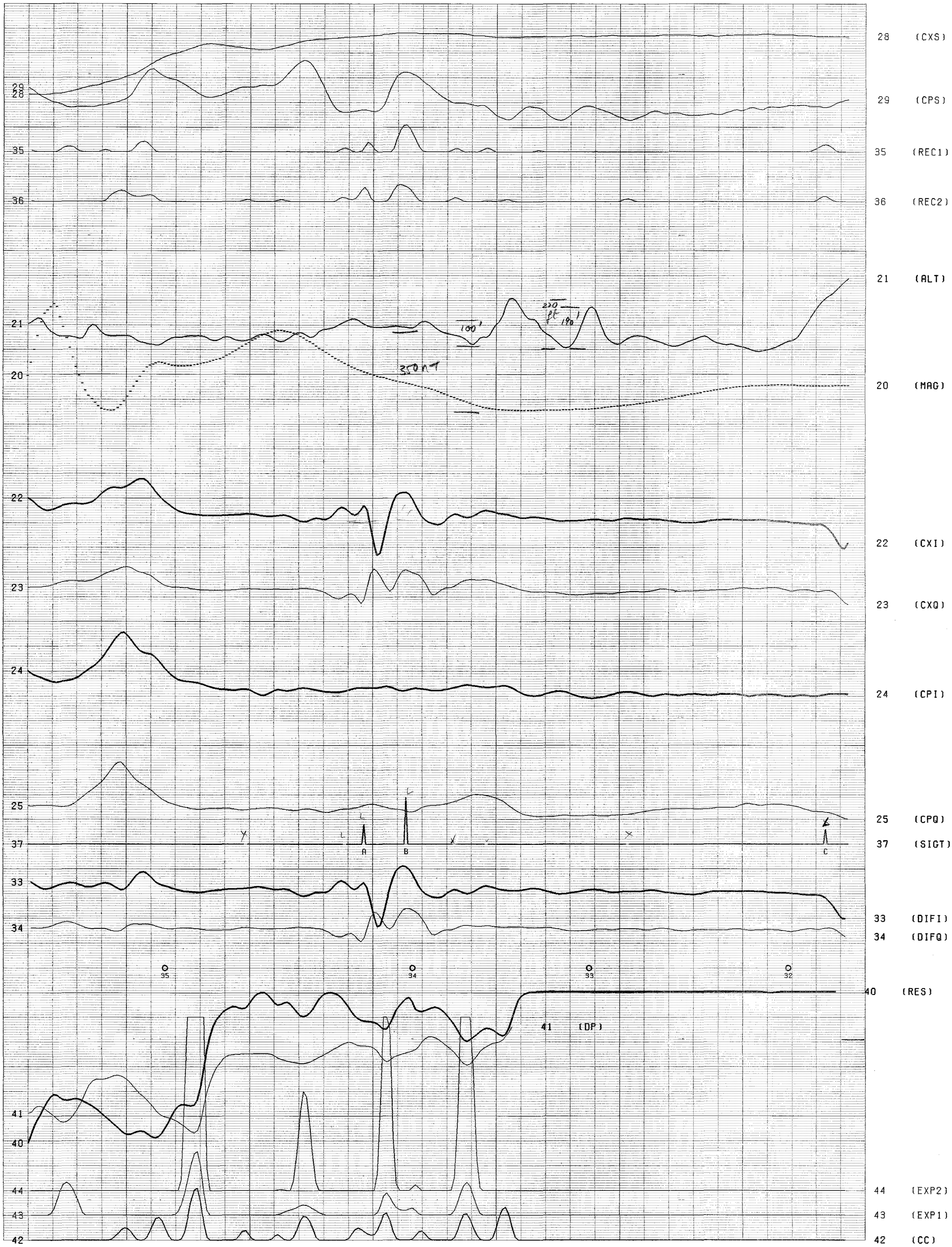


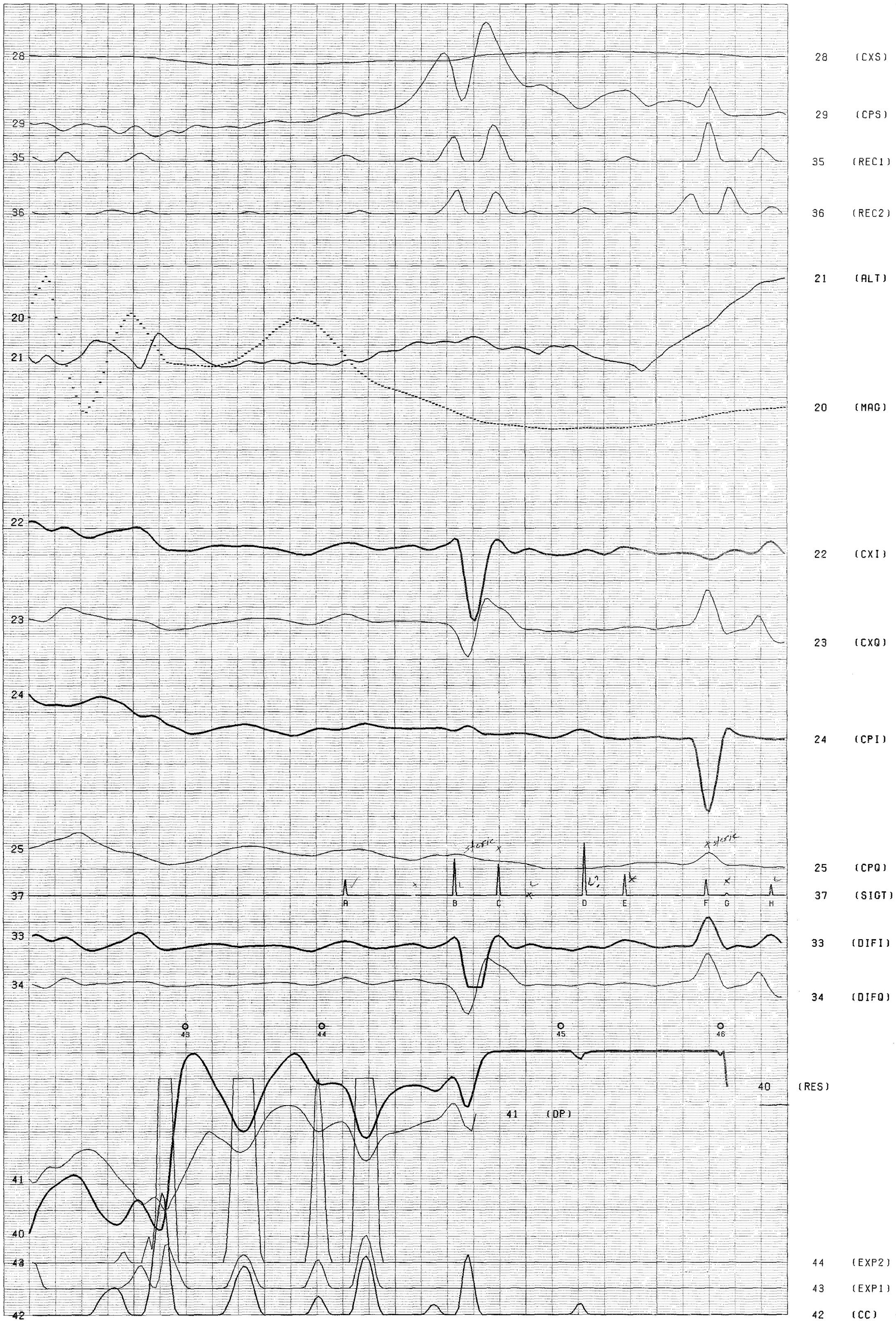
3 OF 24


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28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
190 feet
210 kn
A
B
C
D
E
X
L
LINE 2 JOB: 326 SH2 1: 10000
5 cm
LINE 2

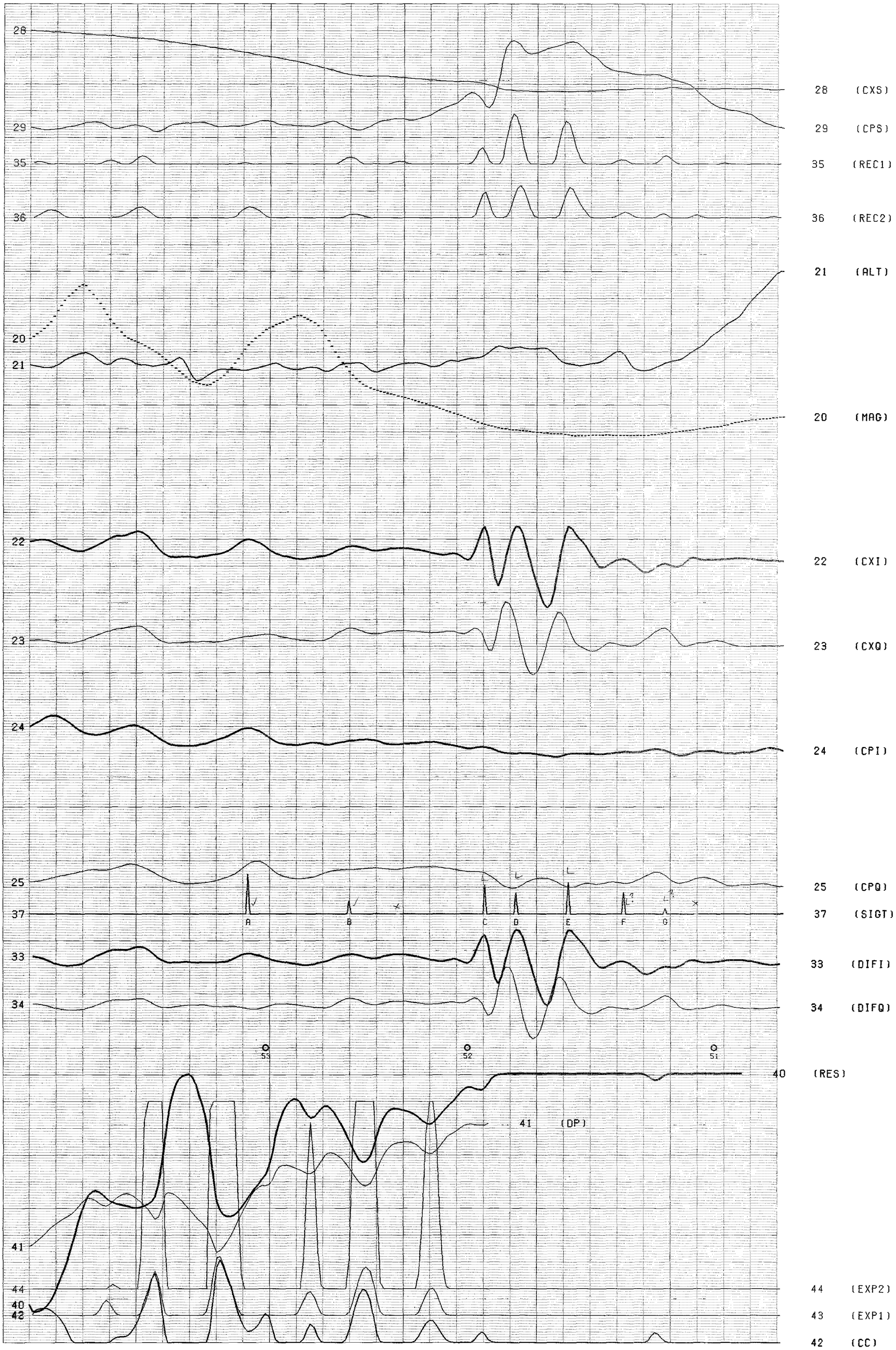
Sheet 1

3a


28 (CXS)
29
28
29 (CPS)
35
35 (REC1)
36
36 (REC2)
21 (ALT)
21
100'
220 ft
180'
20
350 nT
20 (MAG)
22
22 (CXI)
23
23 (CXQ)
24
24 (CPI)
25
25 (CPQ)
37
37 (SIGT)
L
A
B
C
33
33 (DIFI)
34
34 (DIFQ)
35
34
33
32
40 (RES)
41 (DP)
41
40
44
44 (EXP2)
43
43 (EXP1)
42
42 (CC)
LINE -3
JOB: 326 SH2
1: 10000
5 cm
LINE -3


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44
45
46
40
41
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A
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C
D
E
F
G
H
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE 4
JOB: 326 SH2
1: 10000
5 cm

3c


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28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
A
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C
D
E
F
G
LINE -5
JOB: 326 SH2
1: 10000
5 cm

3d

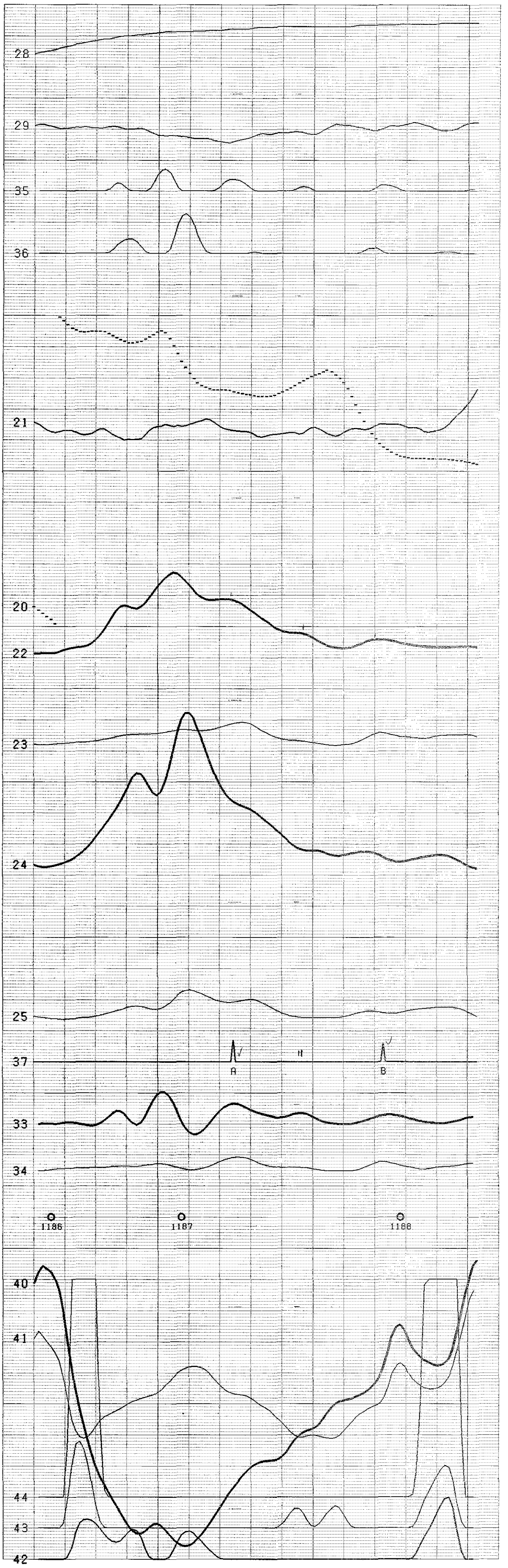

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28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
A
B
LINE 6 JOB: 326 SH2 1: 10000
5 cm
LINE 6



LINE -7 JOB: 326 SH2 1: 10000 LINE -7

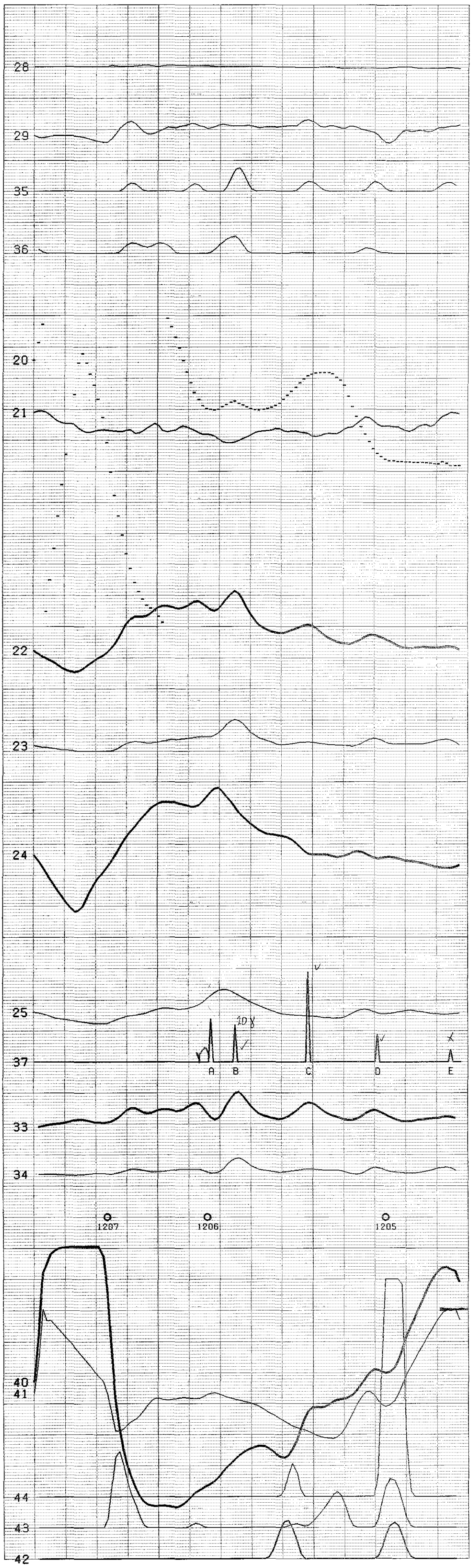
5 cm

3f



LINE 700 JOB: 326 SH2 1: 10000

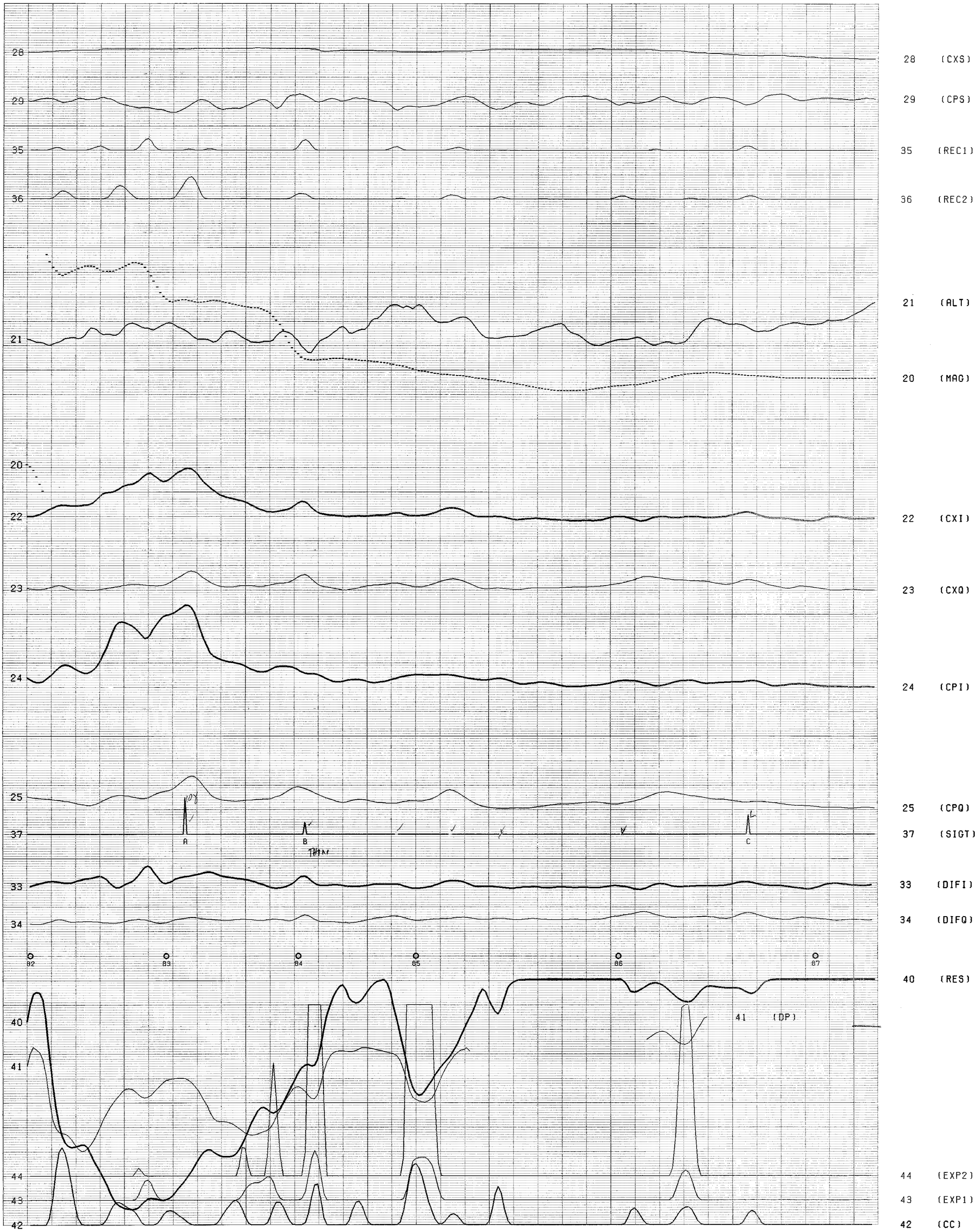
5 cm



LINE -710 JOB: 326 SH2 1: 10000

5 cm

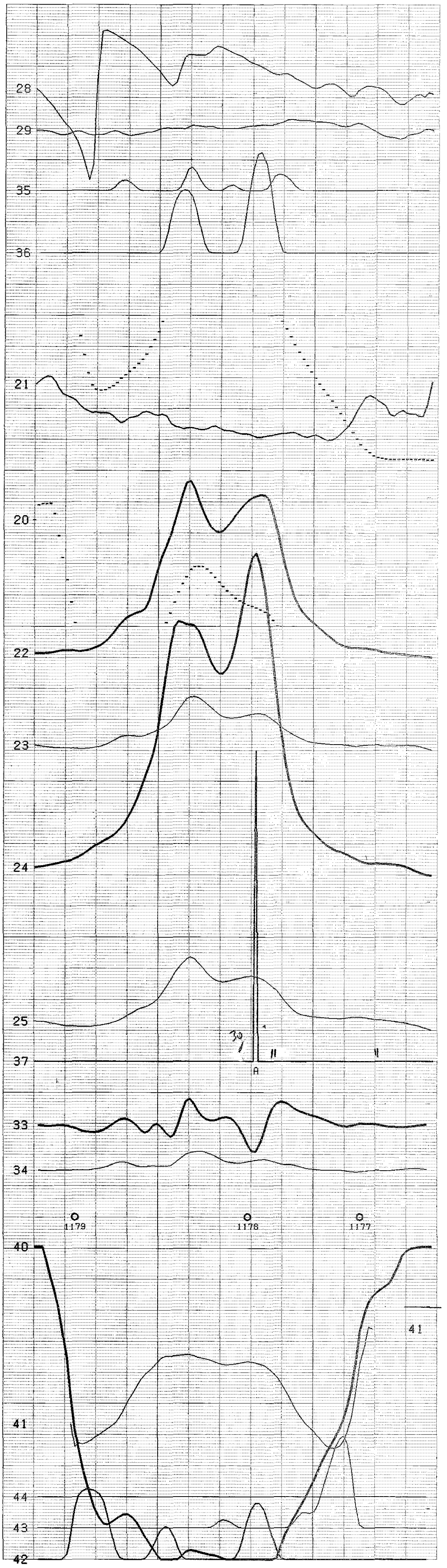
3 h



LINE 8 JOB: 326 SH2 1: 10000 LINE 8

5 cm

3i



28 (CXS)

29 (CPS)

35 (REC1)

36 (REC2)

21 (ALT)

20 (MAG)

22 (CXI)

23 (CXQ)

24 (CPI)

25 (CPQ)

37 (SIGT)

33 (DIFI)

34 (DIFQ)

40 (RES)

41 (DP)

44 (EXP2)

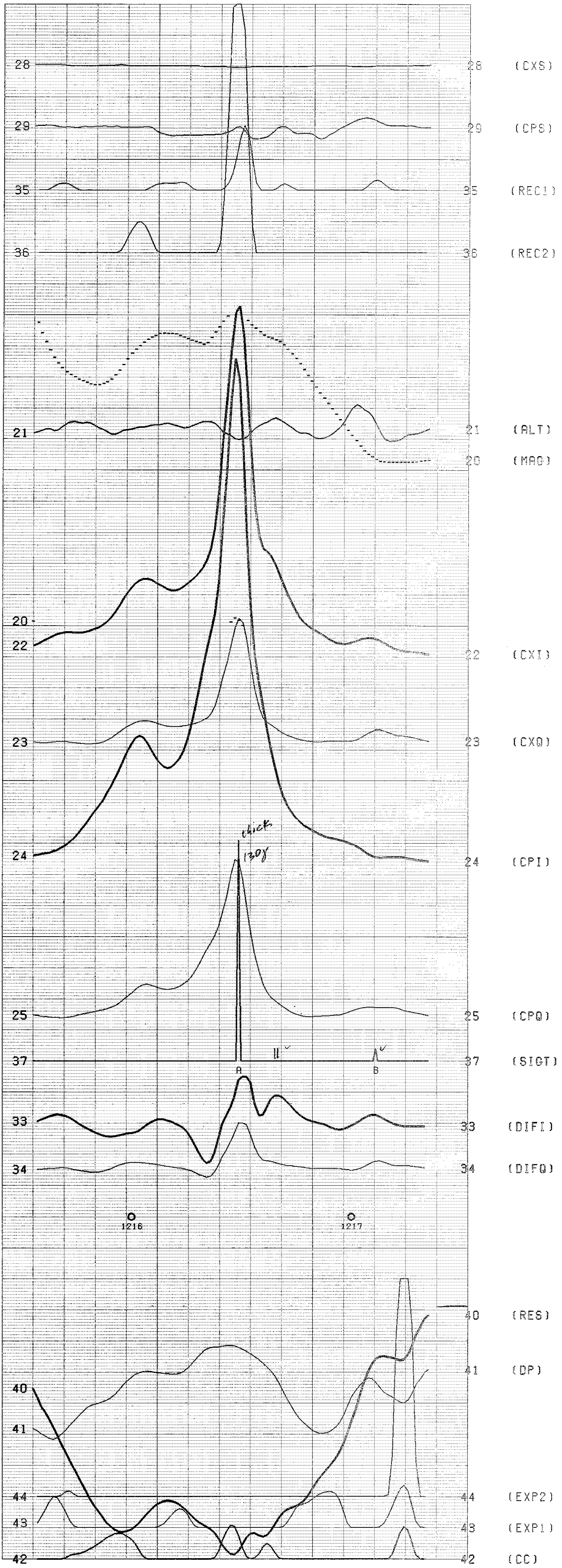
43 (EXP1)

42 (CC)

LINE -800 JOB: 326 SH2 1: 10000

5 cm

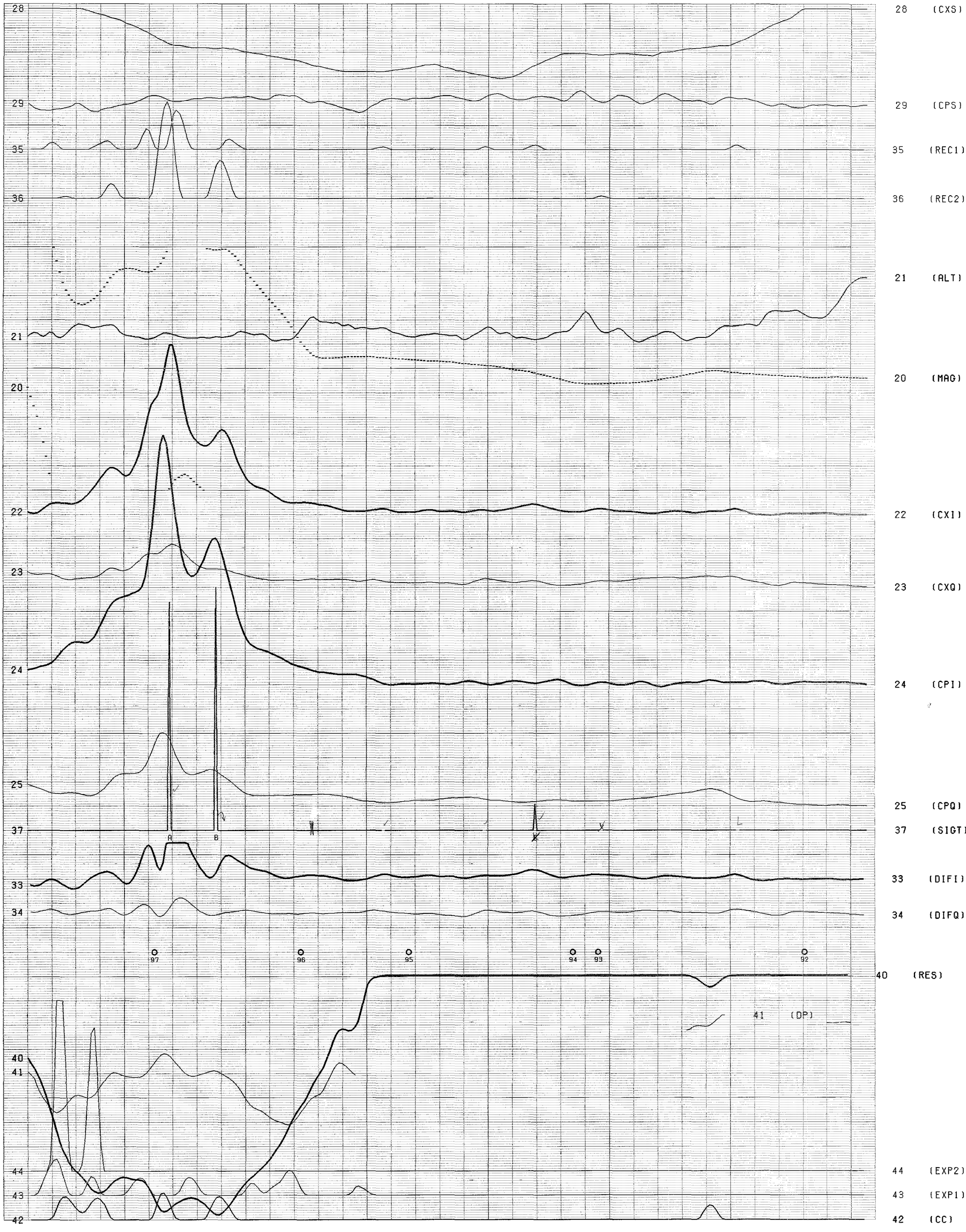
3J



LINE 810 JOB: 326 SH2 1: 10000

5 cm

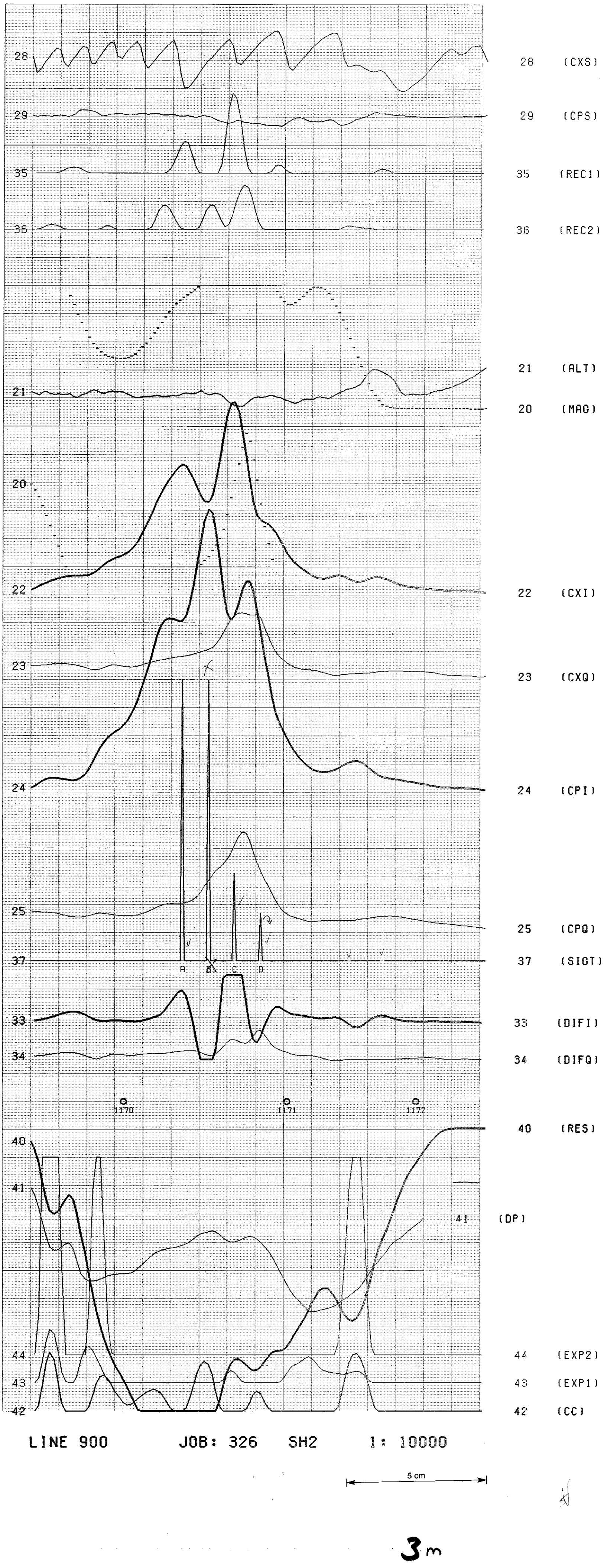
3k



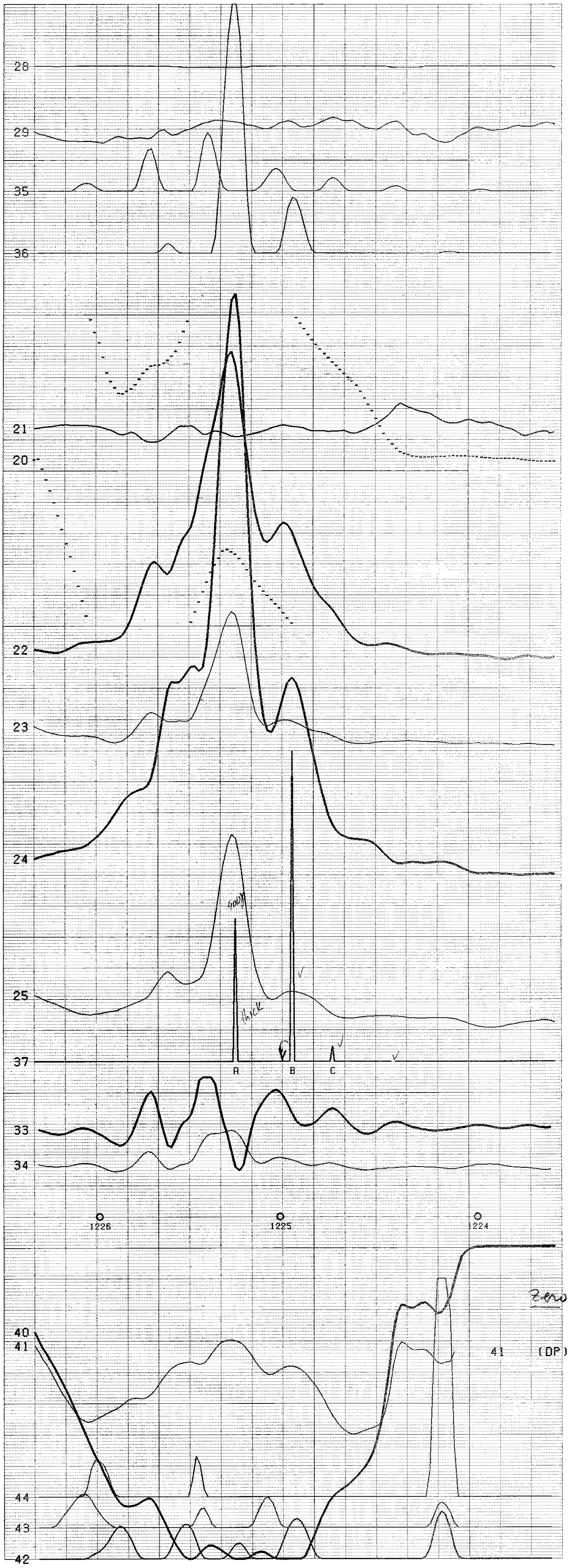
LINE -9 JOB: 326 SH2 1: 10000 LINE -9

5 cm

3L


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A
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1170
1171
1172
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE 900 JOB: 326 SH2 1: 10000
5 cm

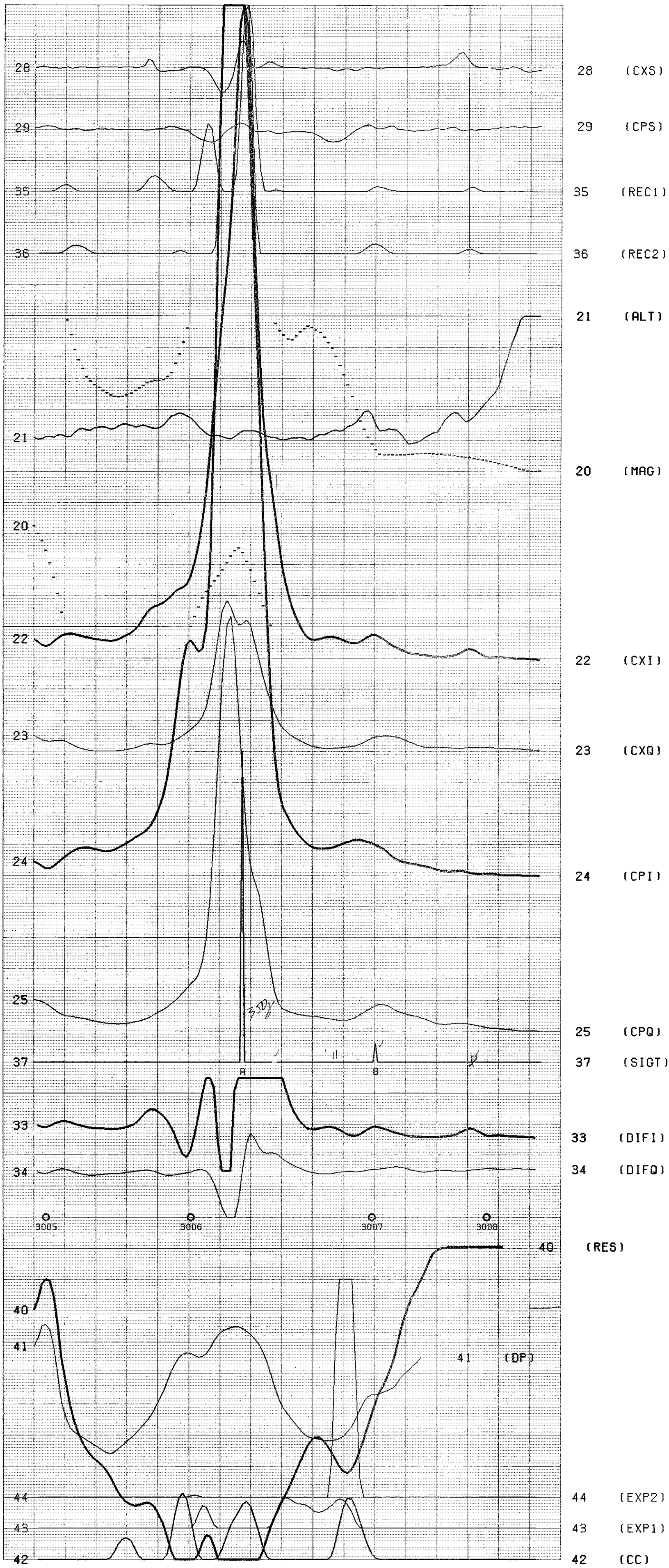
3m



LINE -910 JOB: 326 SH2 1: 10000

5 cm

3n



LINE 920 JOB: 326 SH2 1: 10000

5 cm

30



LINE 10 JOB: 326 SH2 1: 10000 LINE 10

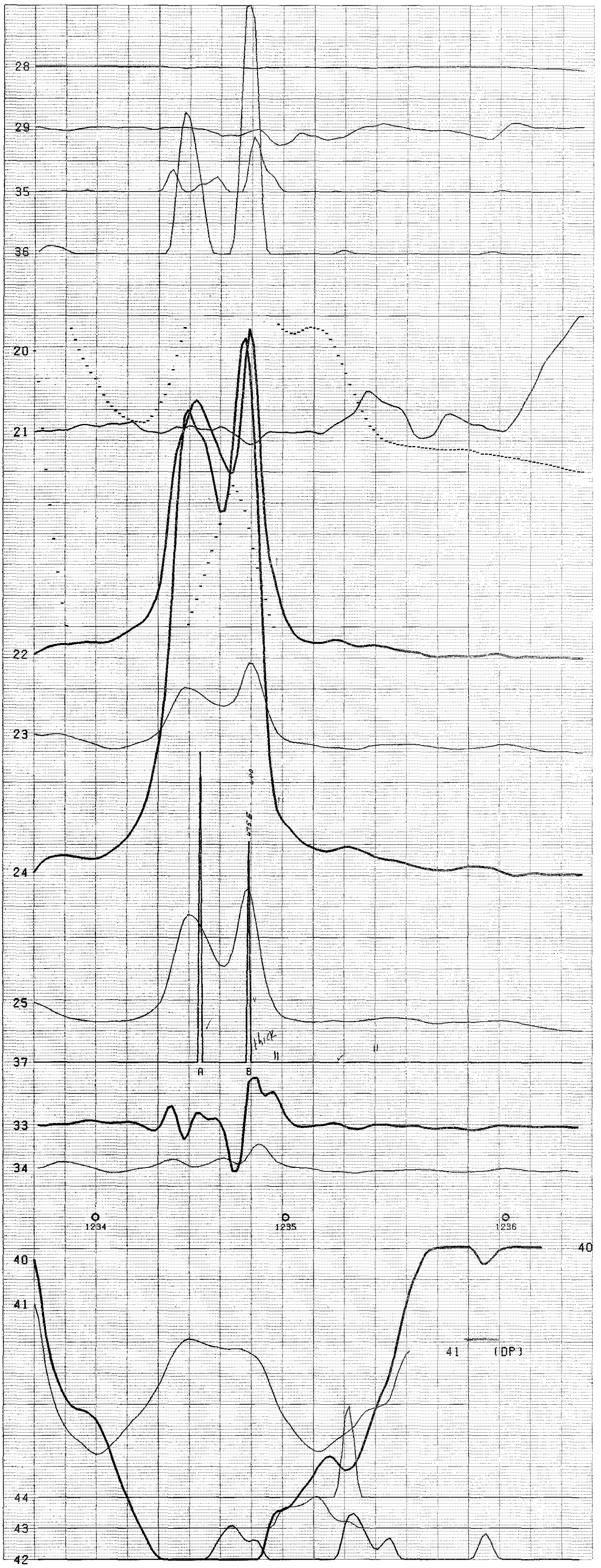
5 cm

3P



LINE -1000 JOB: 326 SH2 1: 10000

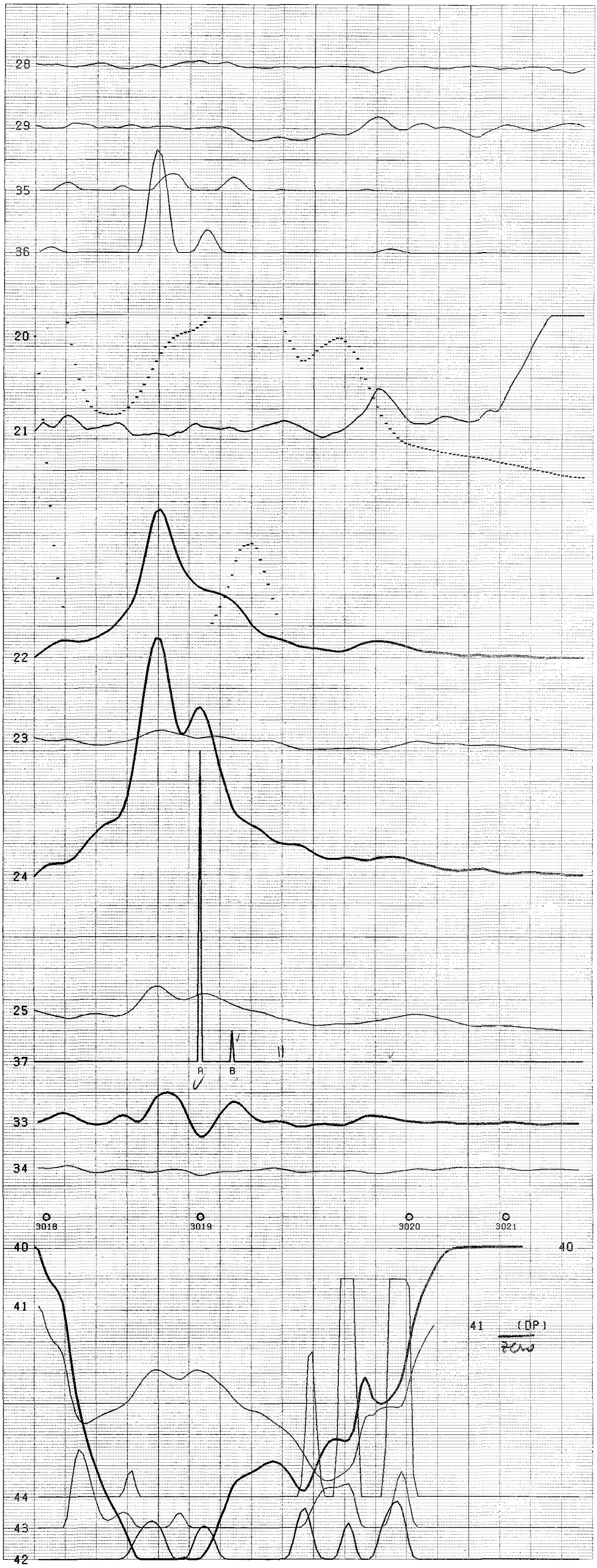
5 cm



LINE 1010 JOB: 326 SH2 1: 10000

5 cm

3r

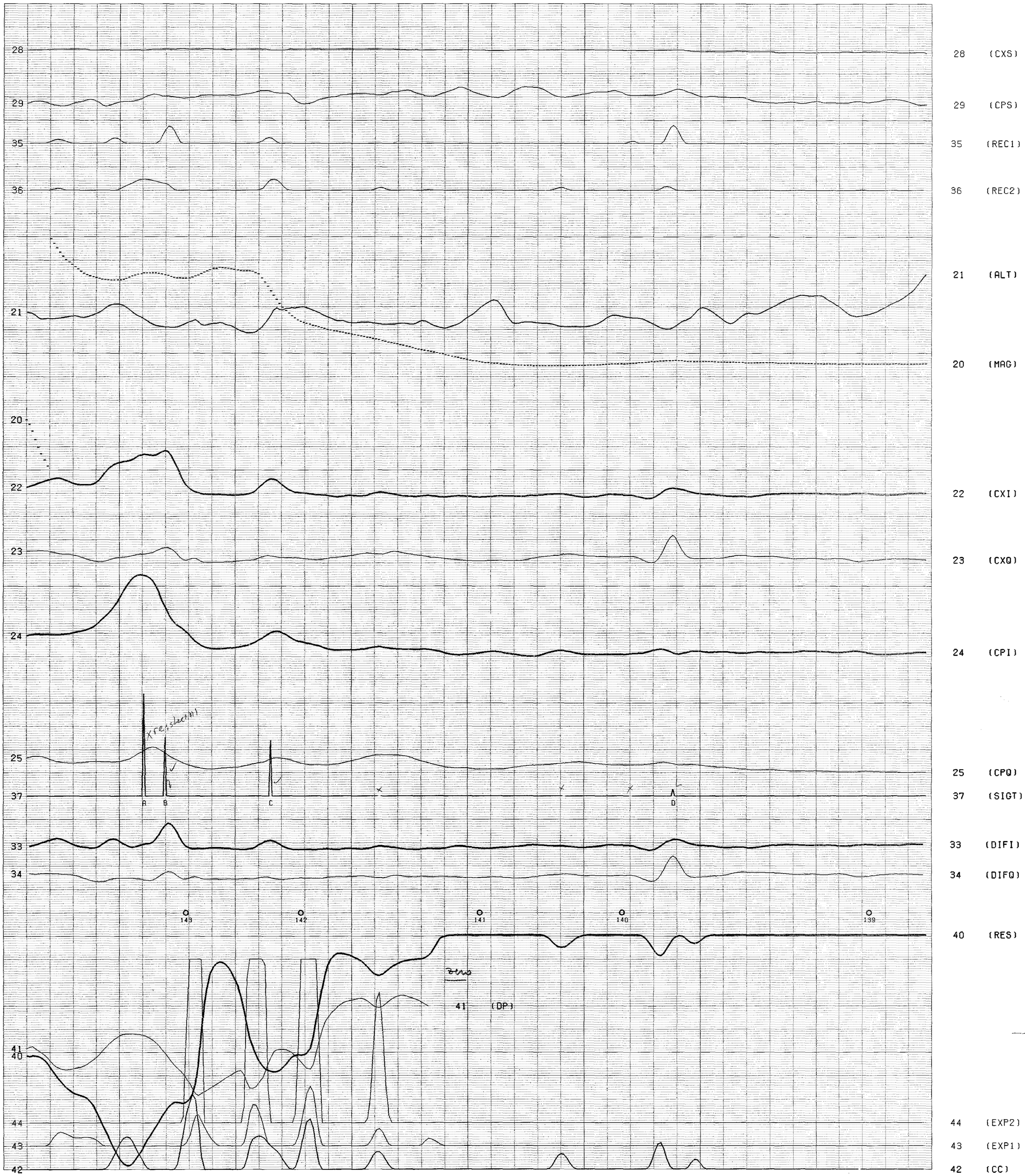


LINE 1020 JOB: 326 SH2 1: 10000

5 cm

Js

82.1738



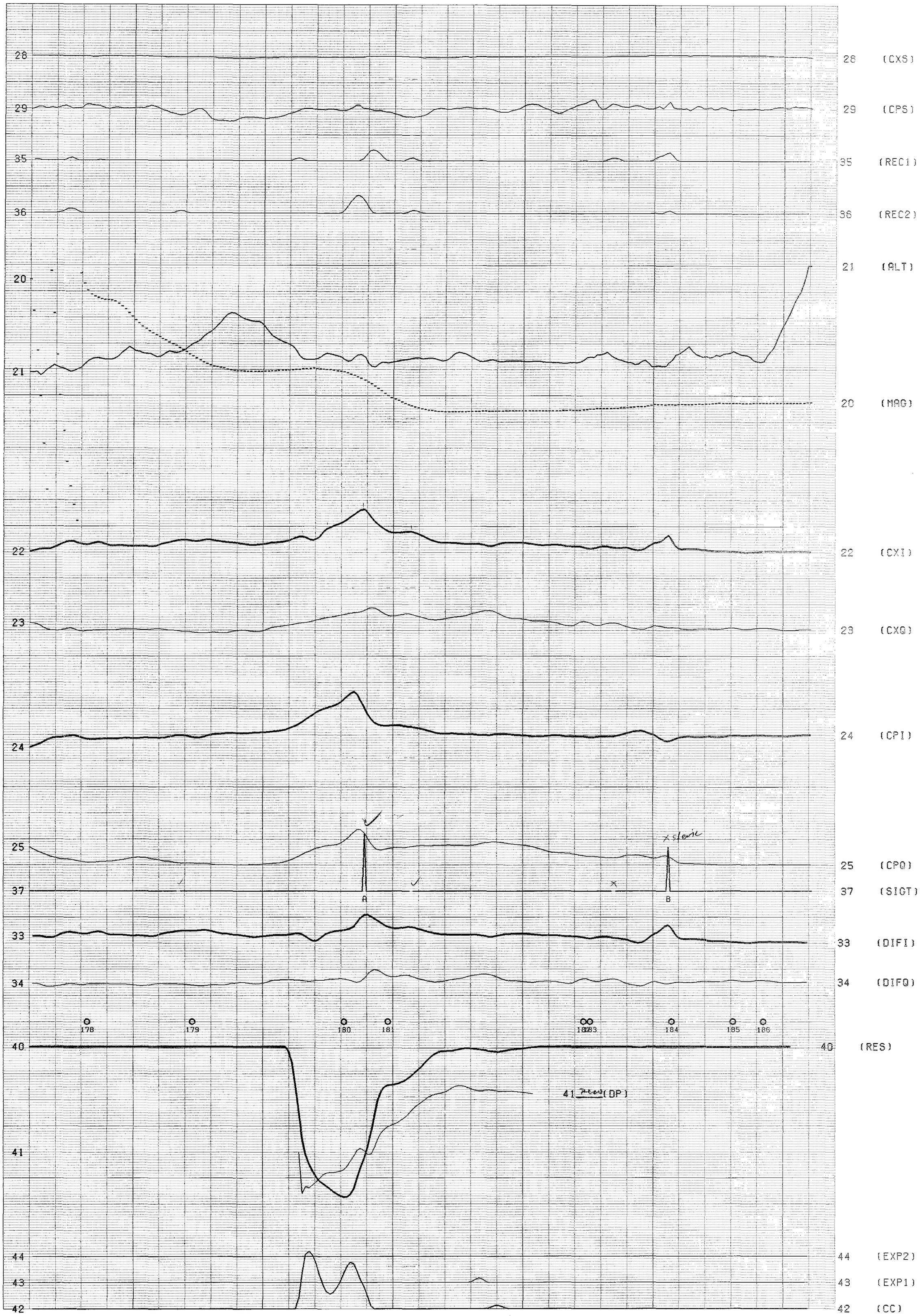
4 OF 24



LINE 12 JOB: 326 SH2 1: 10000 LINE 12

4a

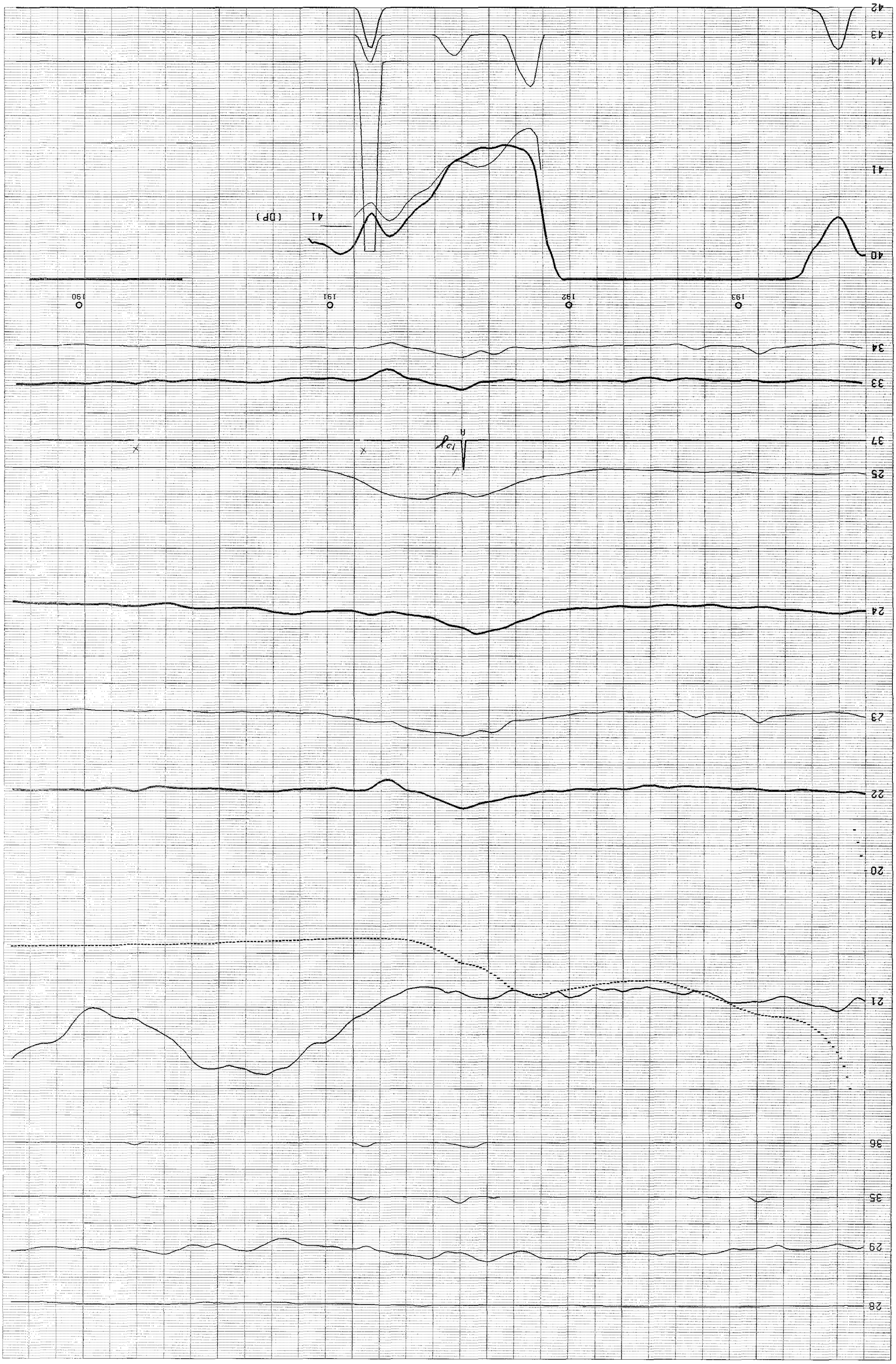

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A
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16968
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166
165
164
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE -13
JOB: 326 SH2
1: 10000
5 cm
LINE -13

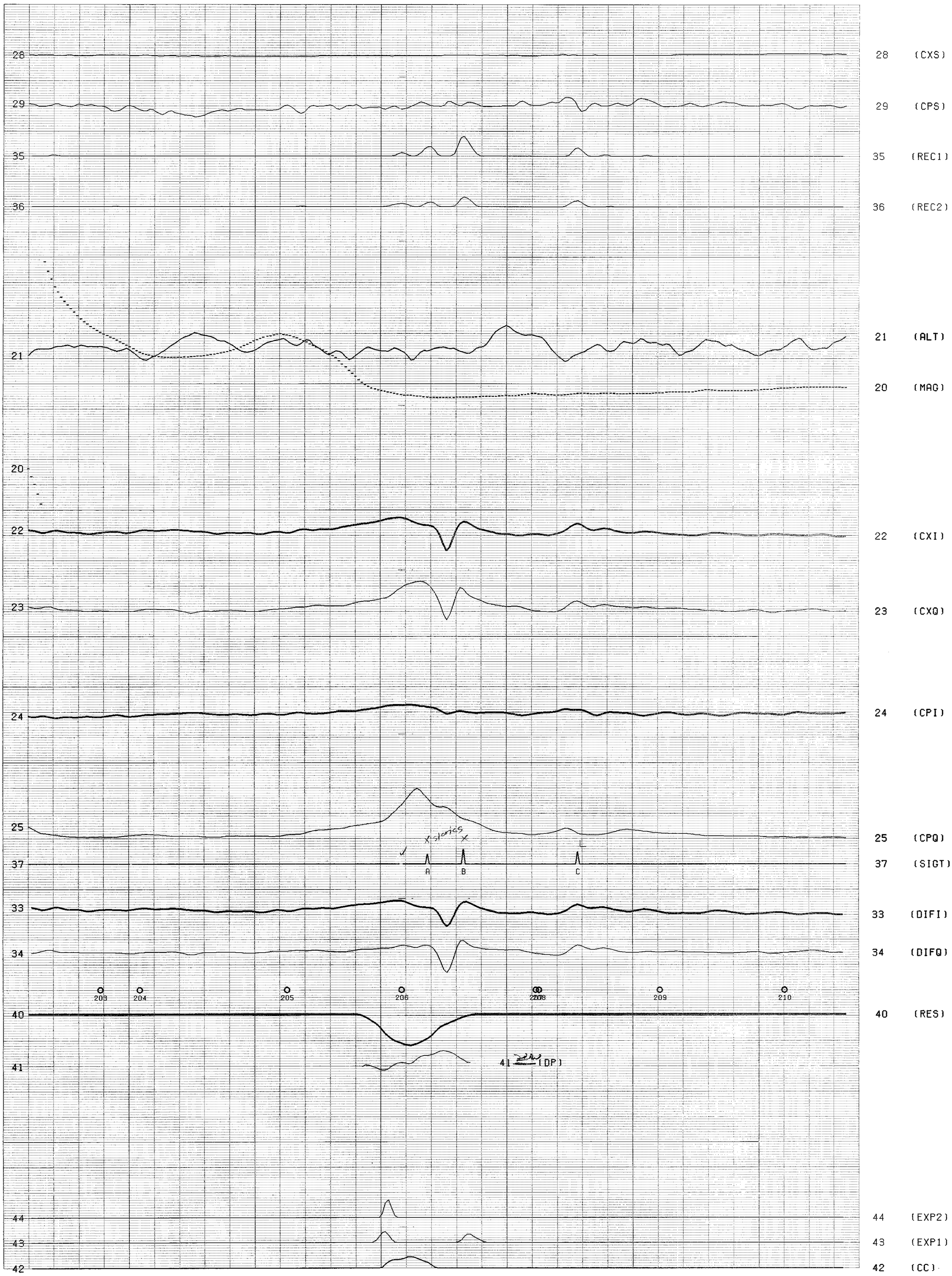


LINE 14 JOB: 326 SH2 1: 10000

4c

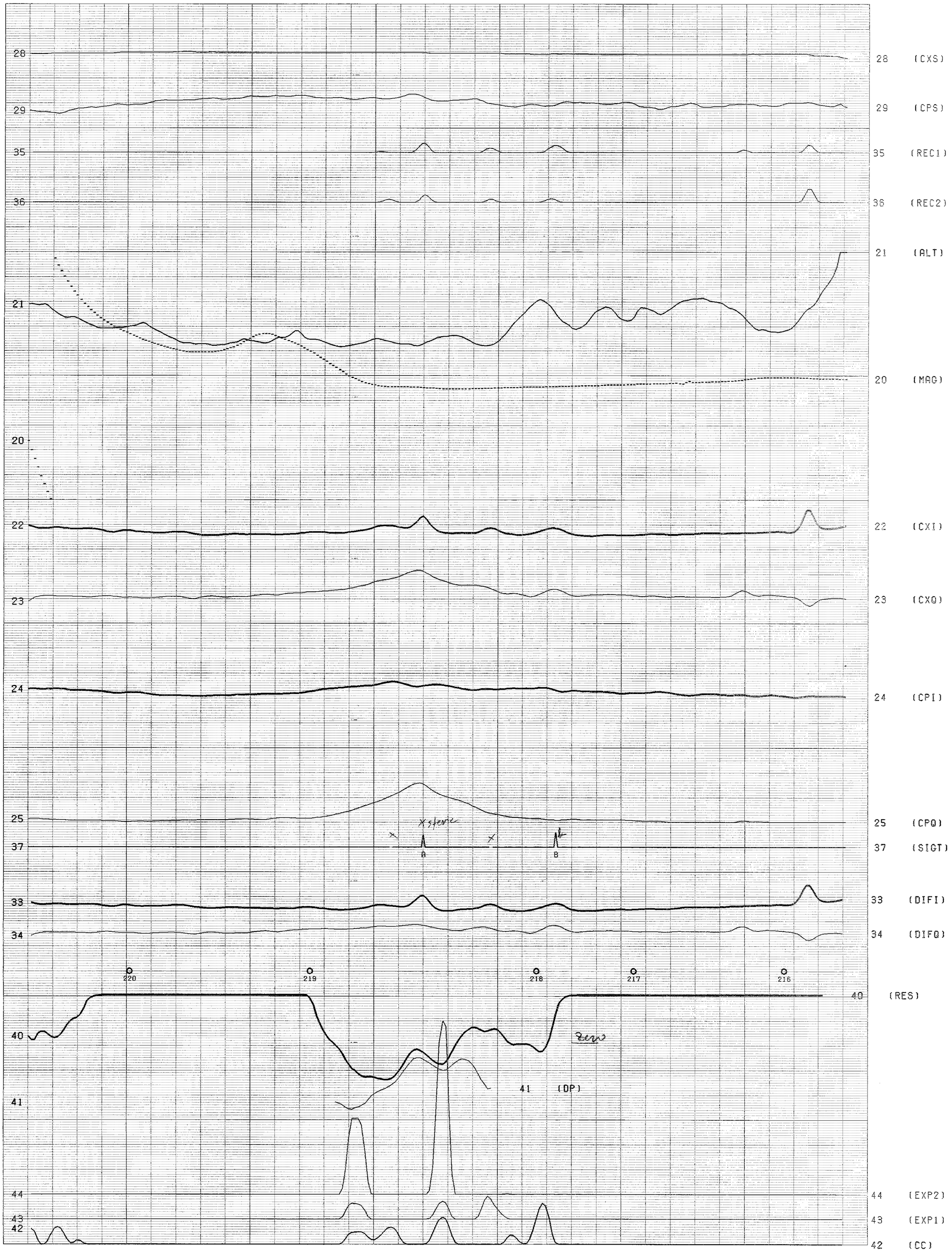
LINE -15 JOB: 326 SH2 1: 10000 5 cm LINE -15





LINE 16 JOB: 326 SH2 1: 10000 LINE 16

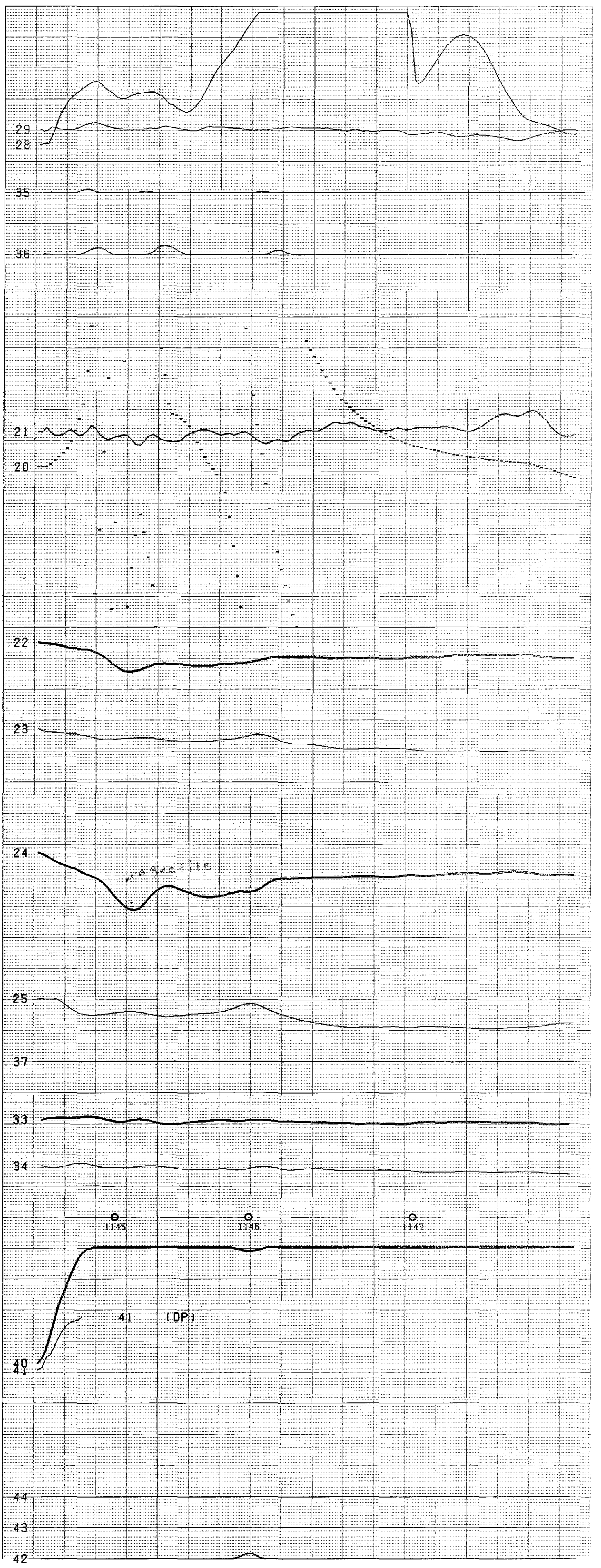
4e



LINE -17 JOB: 326 SH2 1: 10000 LINE -17

4f

82-1738



LINE 1700 JOB: 326 SH3 1: 10000

5 OF 24

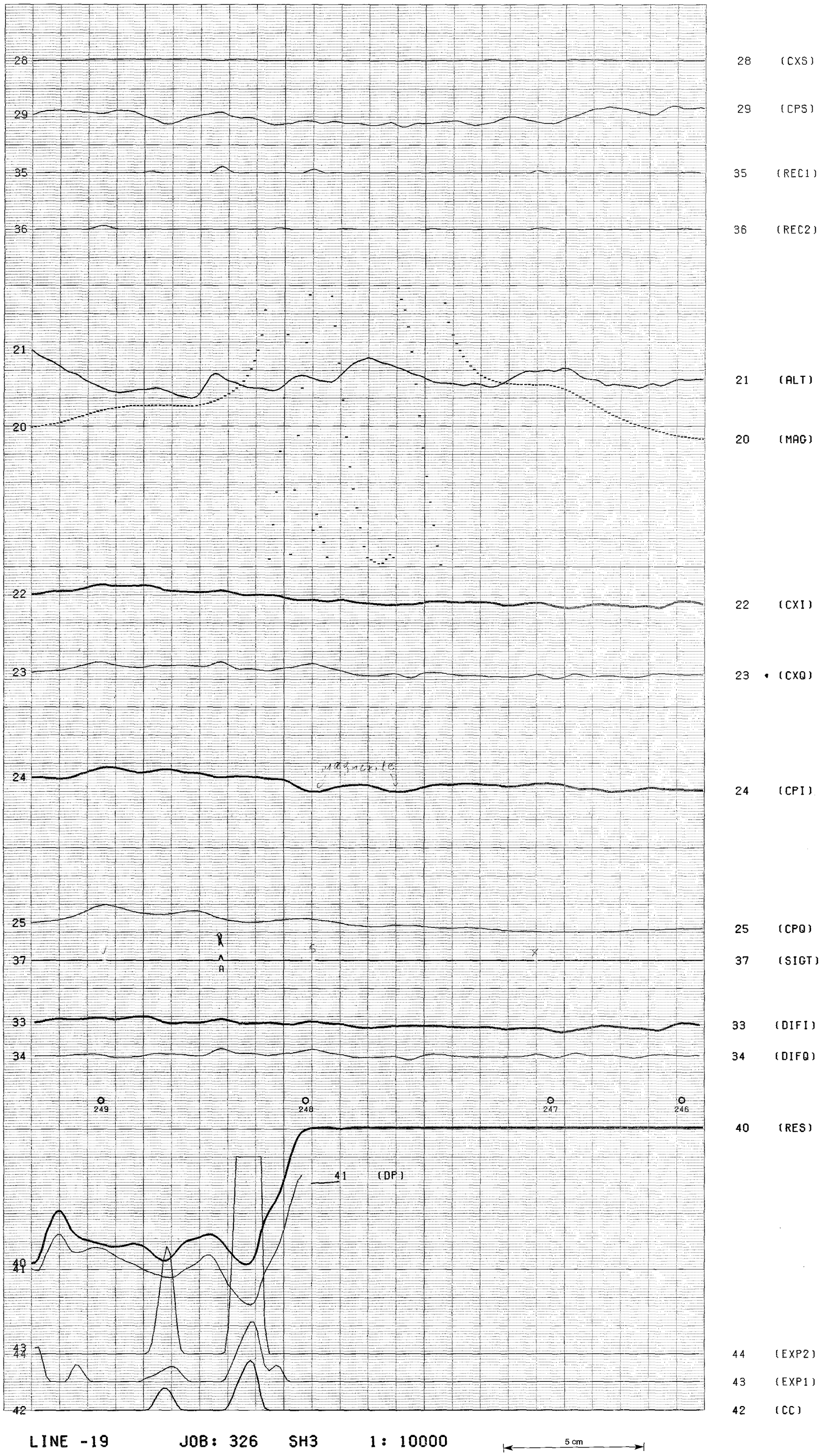


LINE 18 JOB: 326 SH3 1: 10000

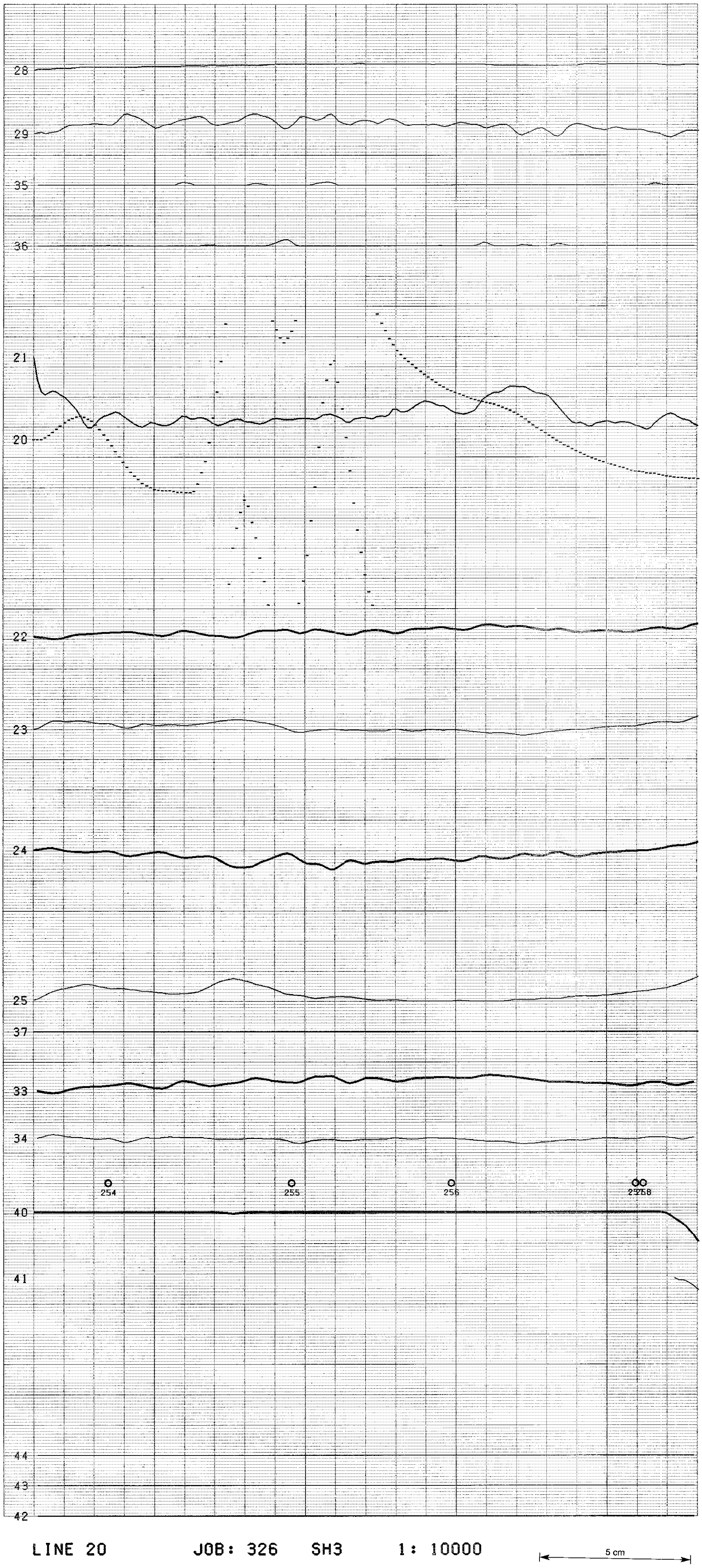
5 cm

5a

4



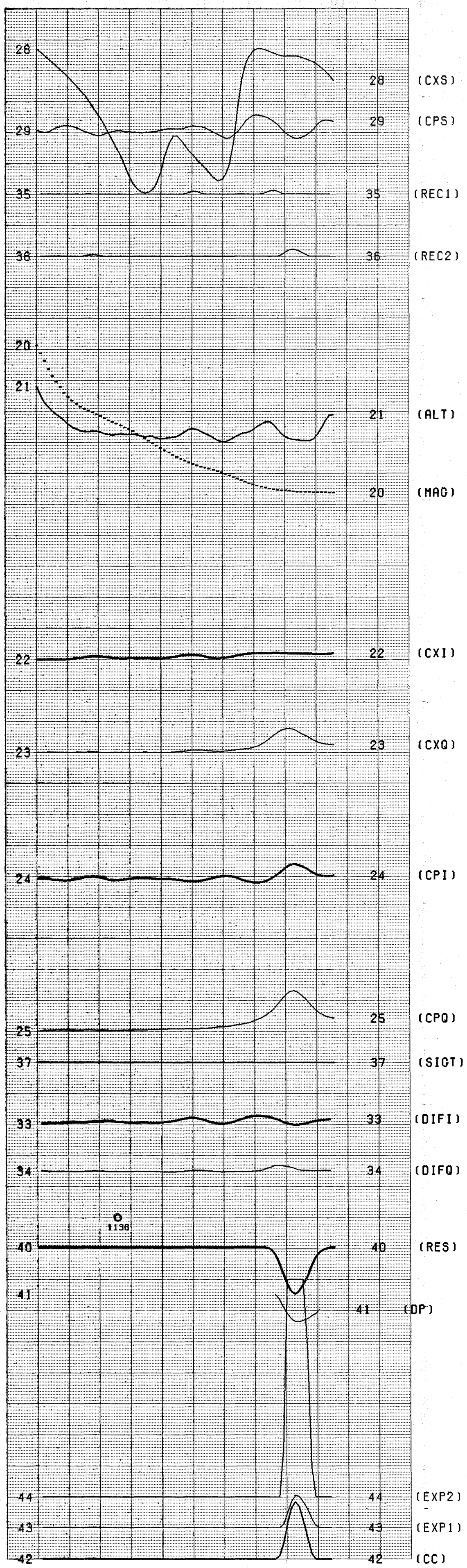
LINE -19 JOB: 326 SH3 1: 10000 5 cm


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28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE 20 JOB: 326 SH3 1: 10000
5 cm

5C

82-1738


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xstone
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE -21 JOB: 326 SH3 1: 10000
5 cm

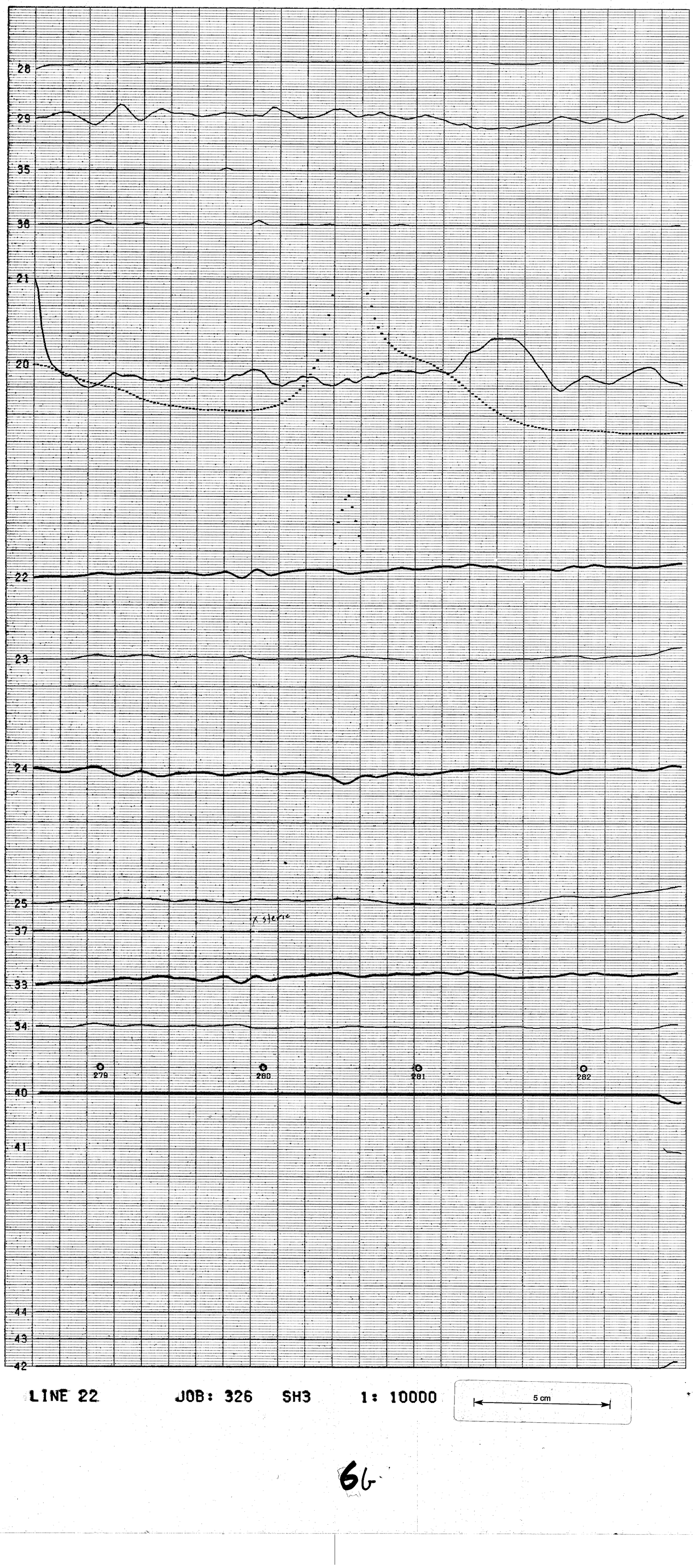


LINE -2100 JOB: 326 SH3 1: 10000

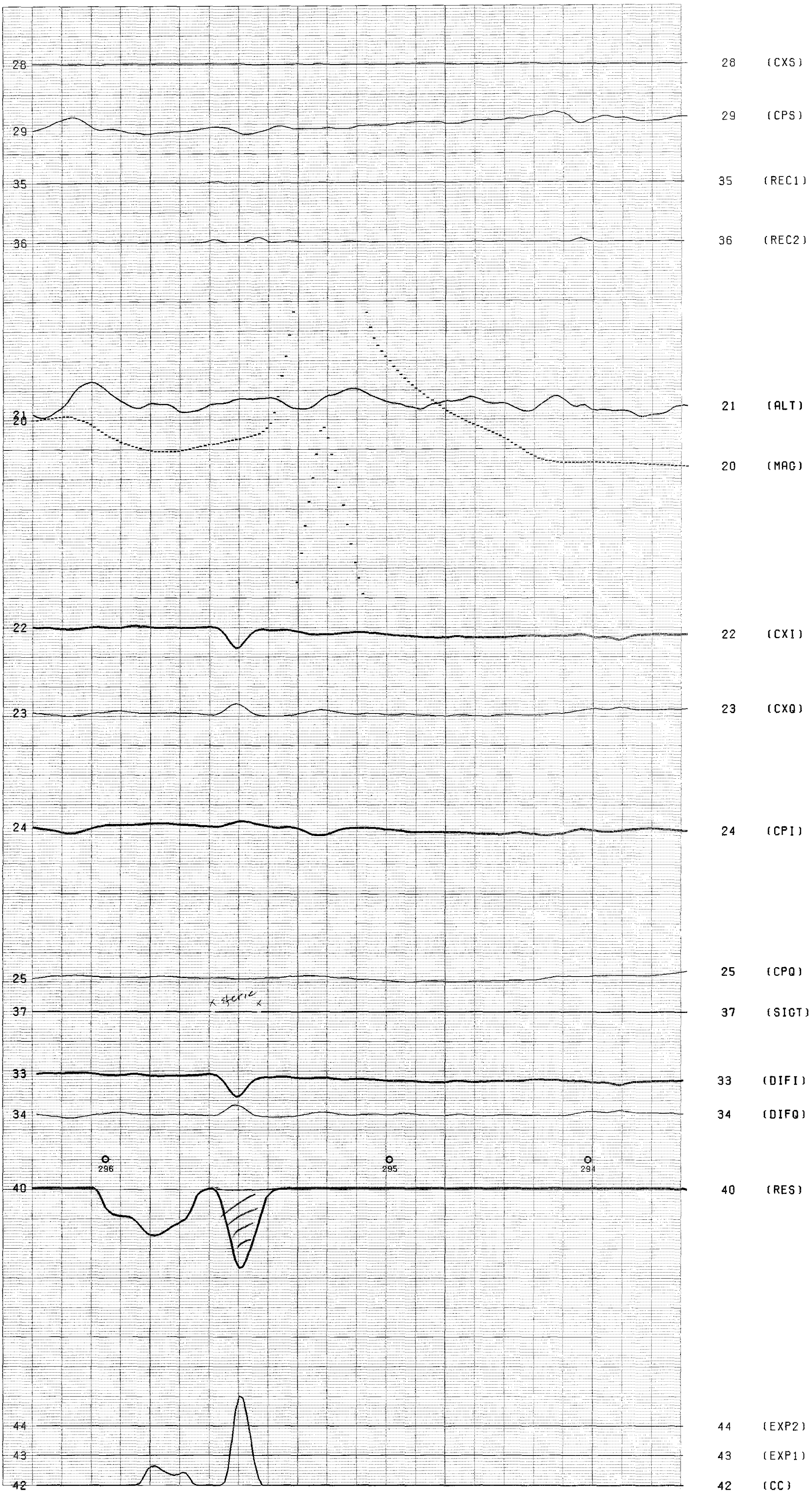
5 cm

Sheet #4

6a

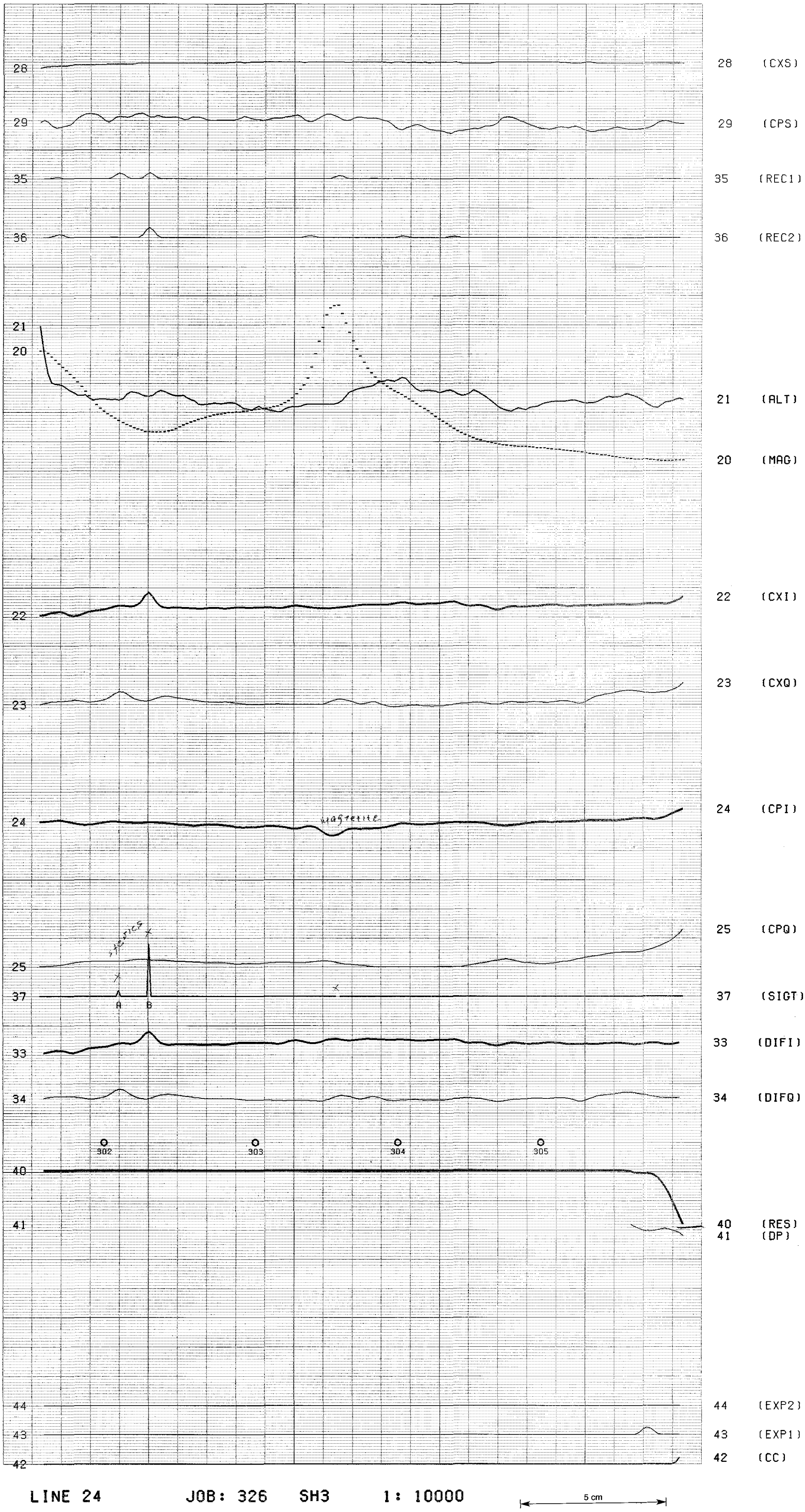


LINE 22 JOB: 326 SH3 1: 10000



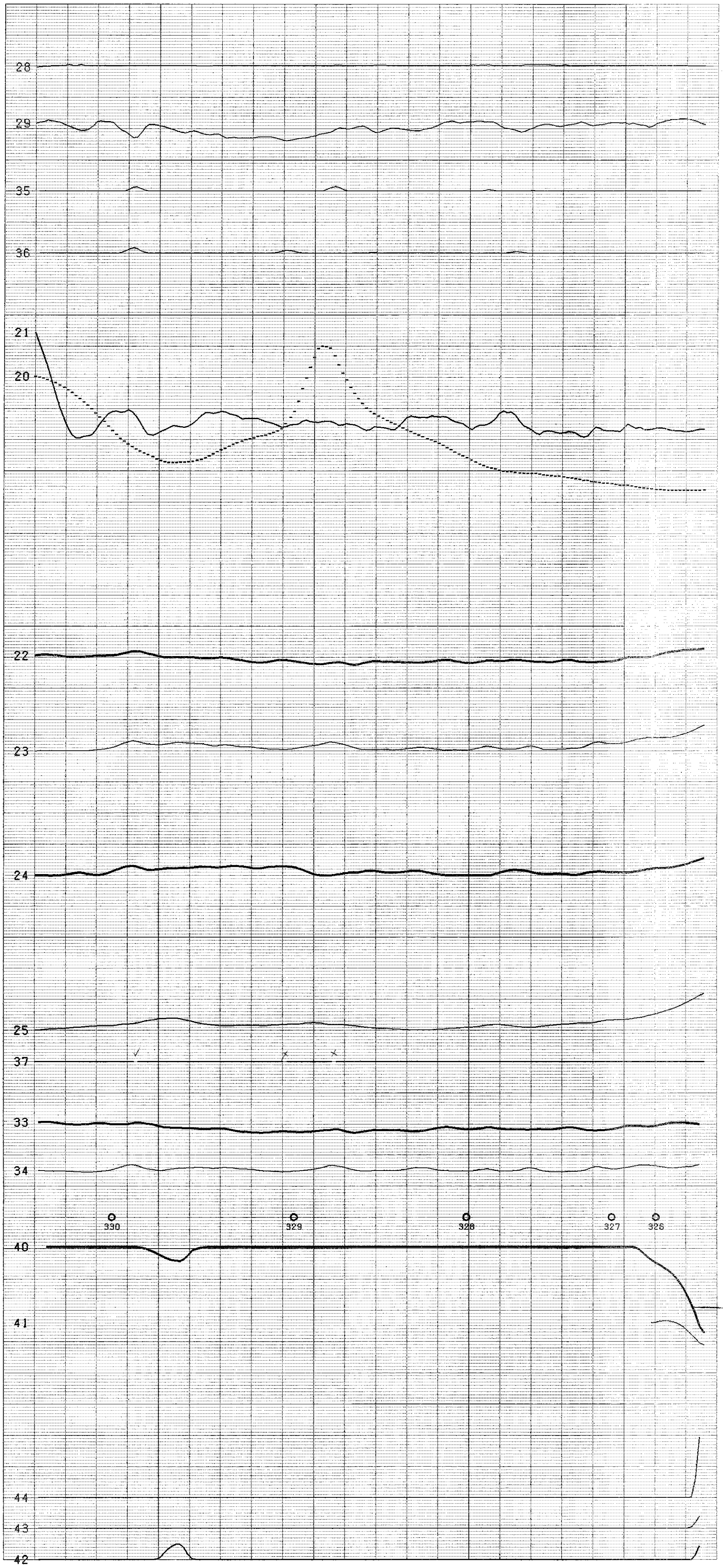
LINE -23 JOB: 326 SH3 1: 10000 5 cm

6c



LINE 24 JOB: 326 SH3 1: 10000

6d

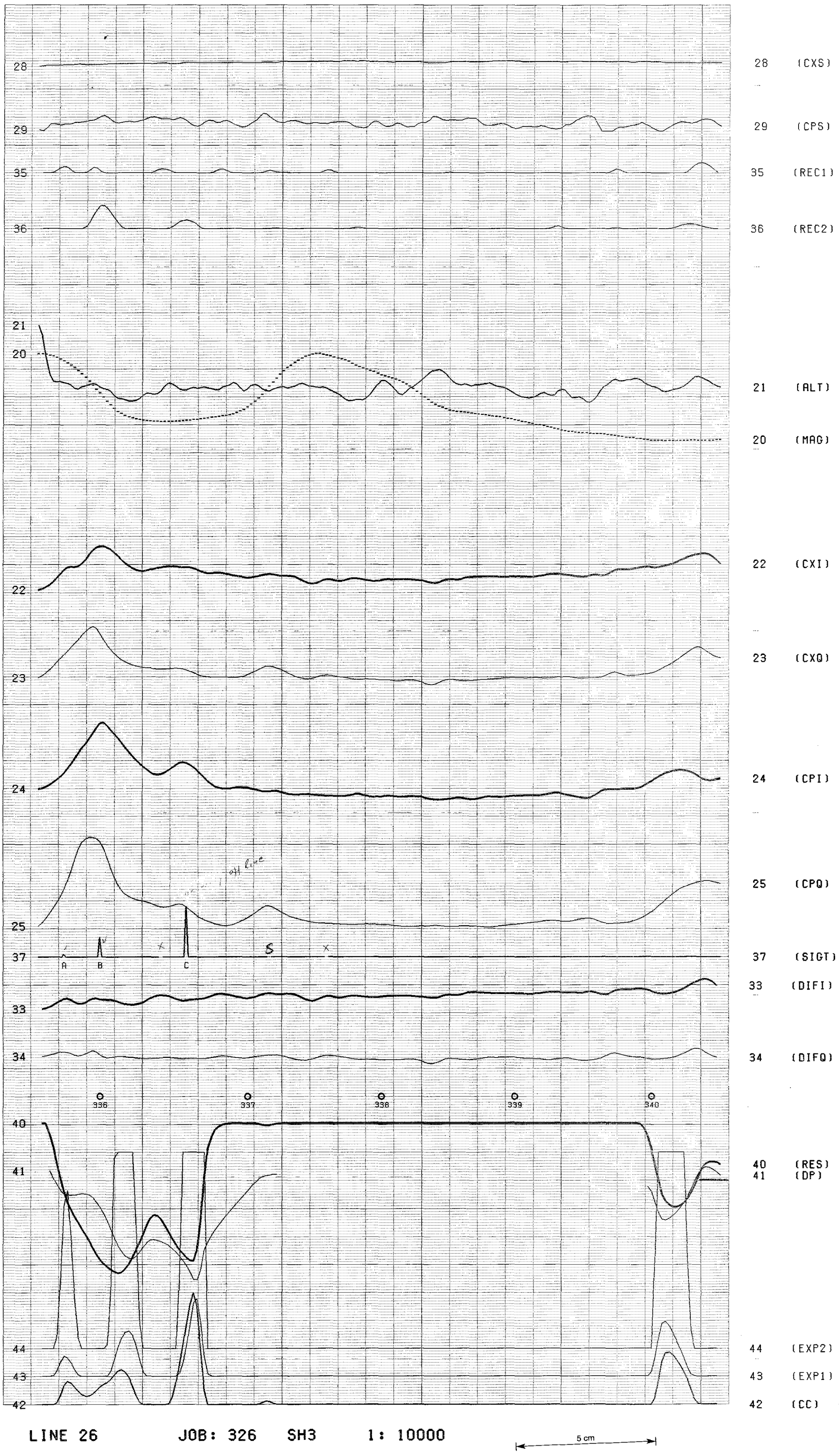


LINE -25 JOB: 326 SH3 1: 10000

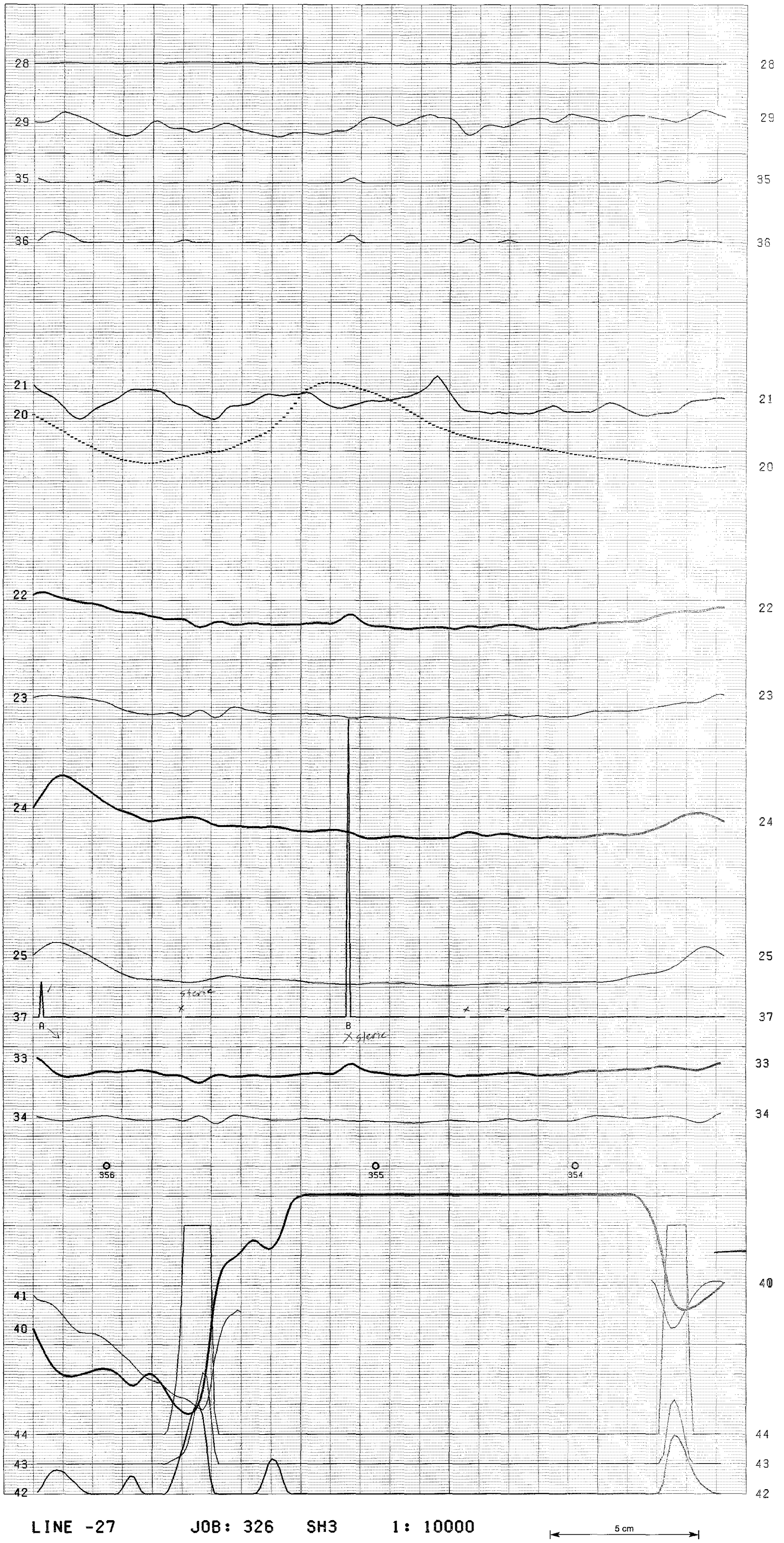
5 cm

A/

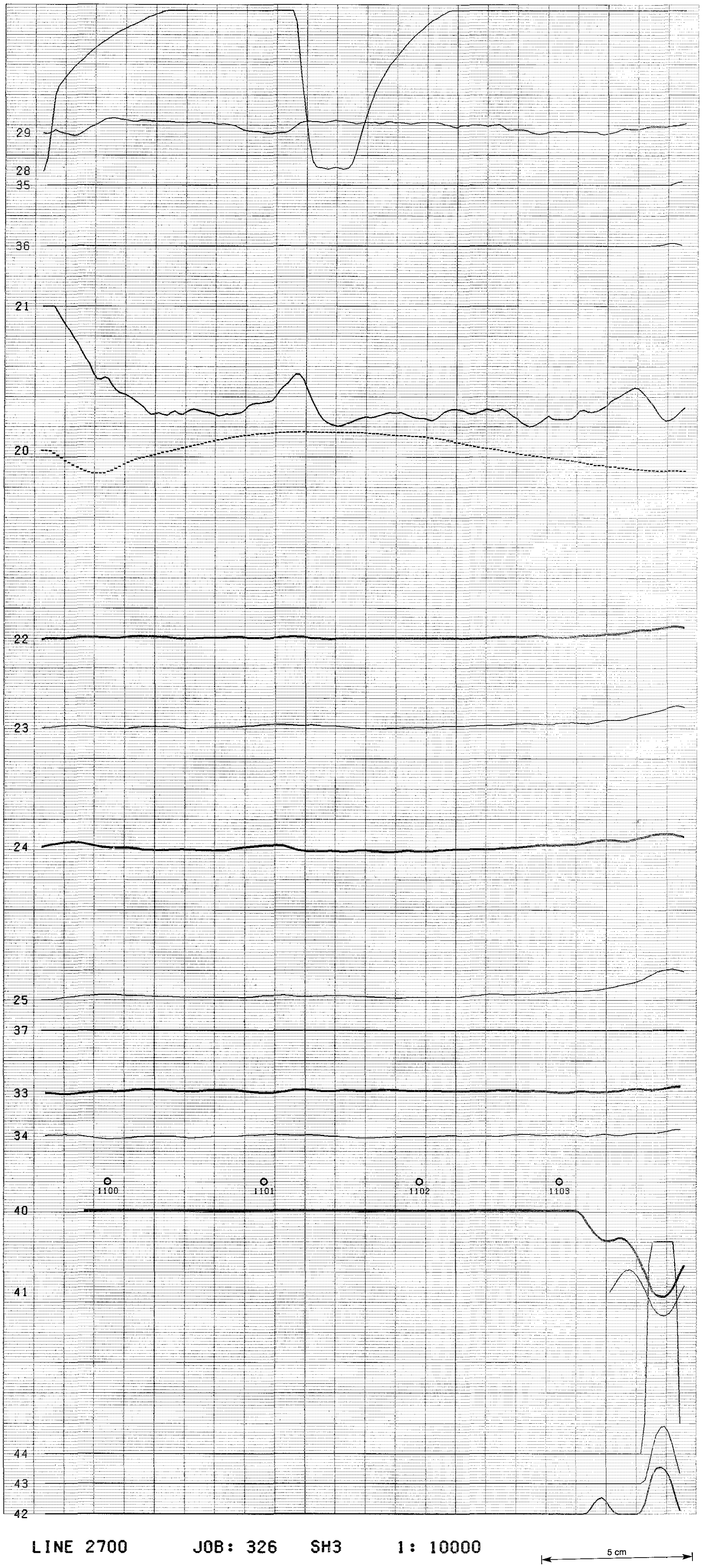
6e


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off line
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE 26 JOB: 326 SH3 1: 10000
5 cm

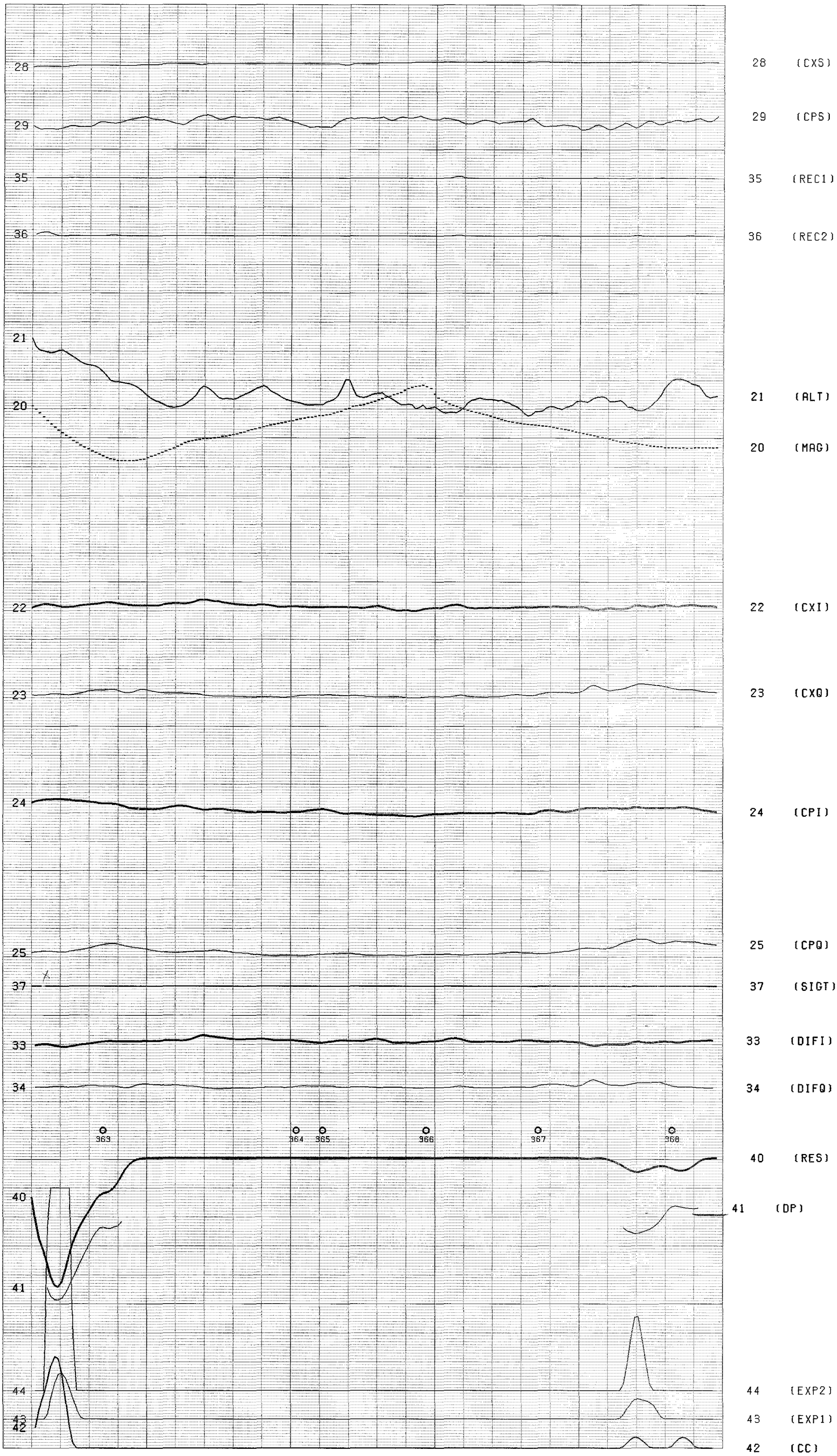
-6f


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LINE -27
JOB: 326 SH3
1: 10000
5 cm

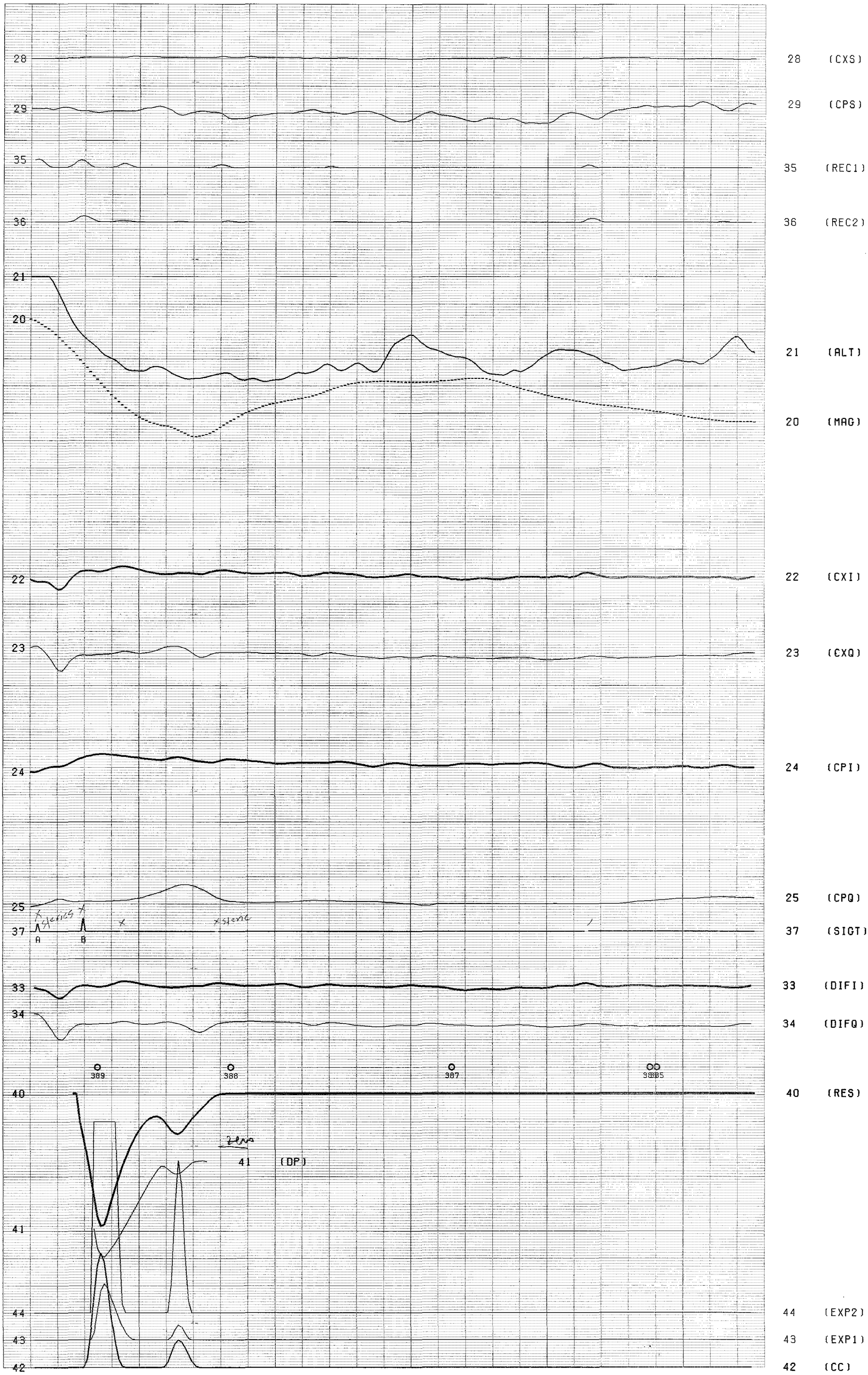
69



LINE 2700 JOB: 326 SH3 1: 10000


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28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE 28 JOB: 326 SH3 1: 10000
5 cm

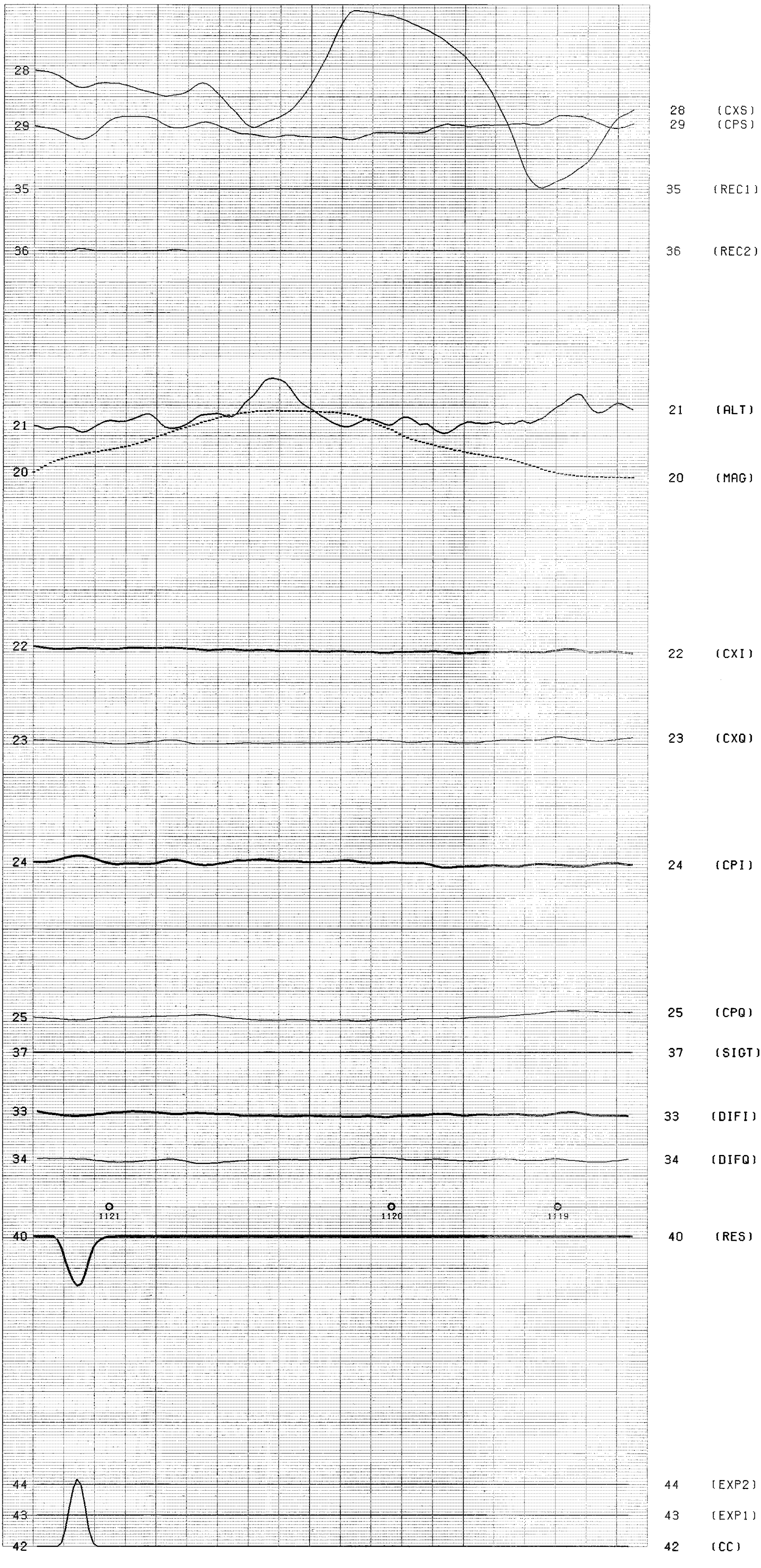
61



LINE -29 JOB: 326 SH3 1: 10000

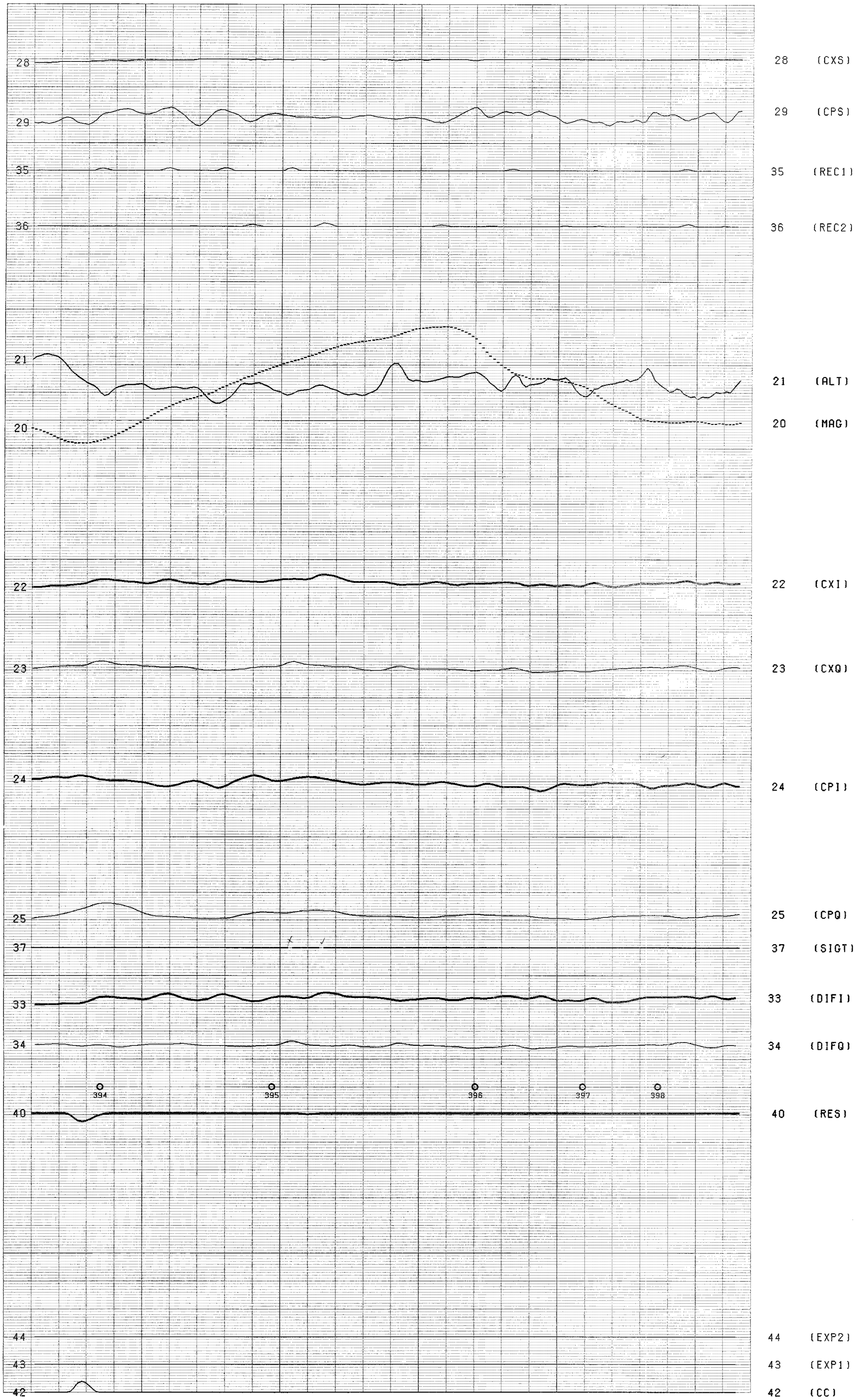
5 cm

6j



LINE -2900 JOB: 326 SH3 1: 10000

5 cm

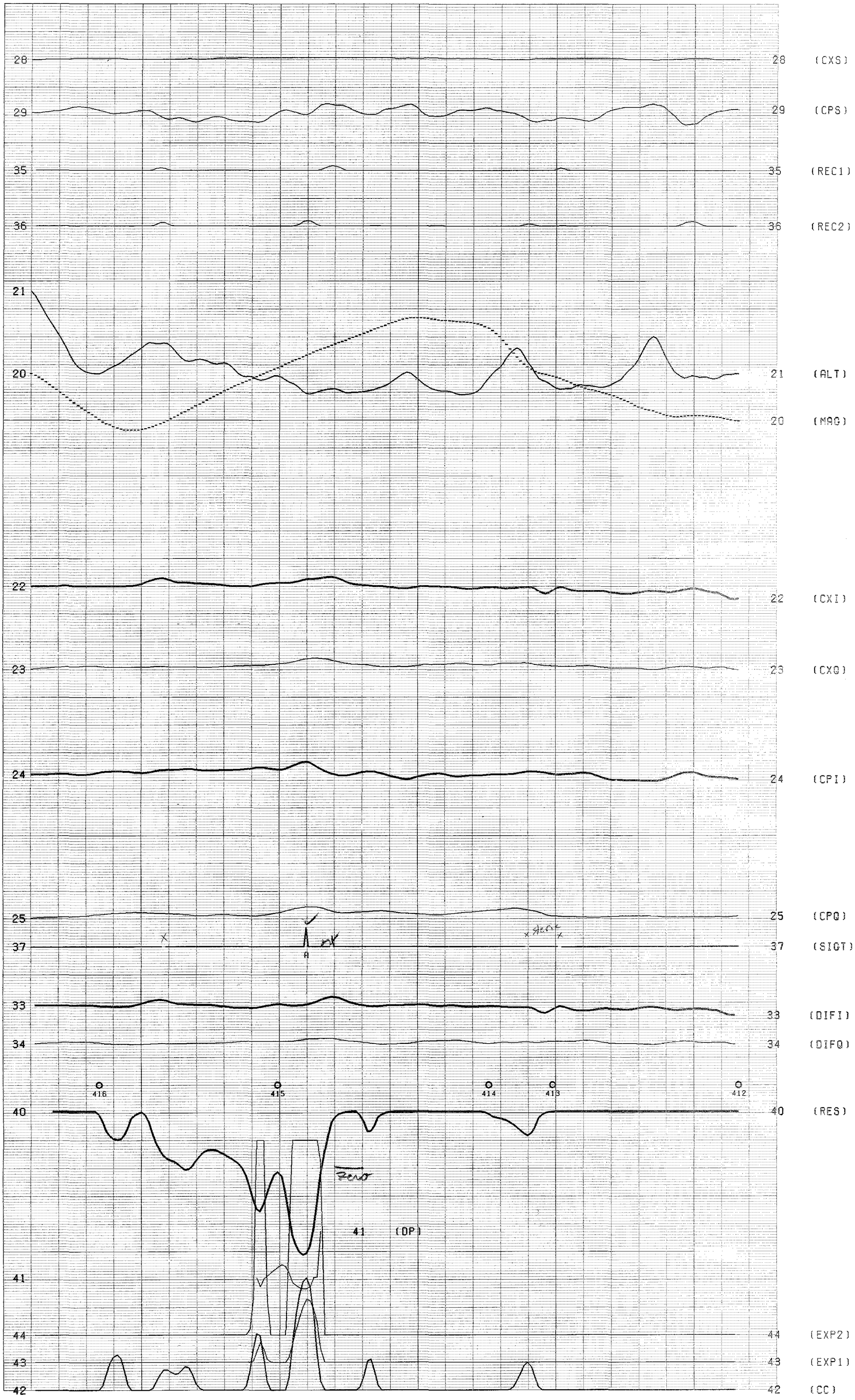


LINE 30 JOB: 326 SH3 1: 10000

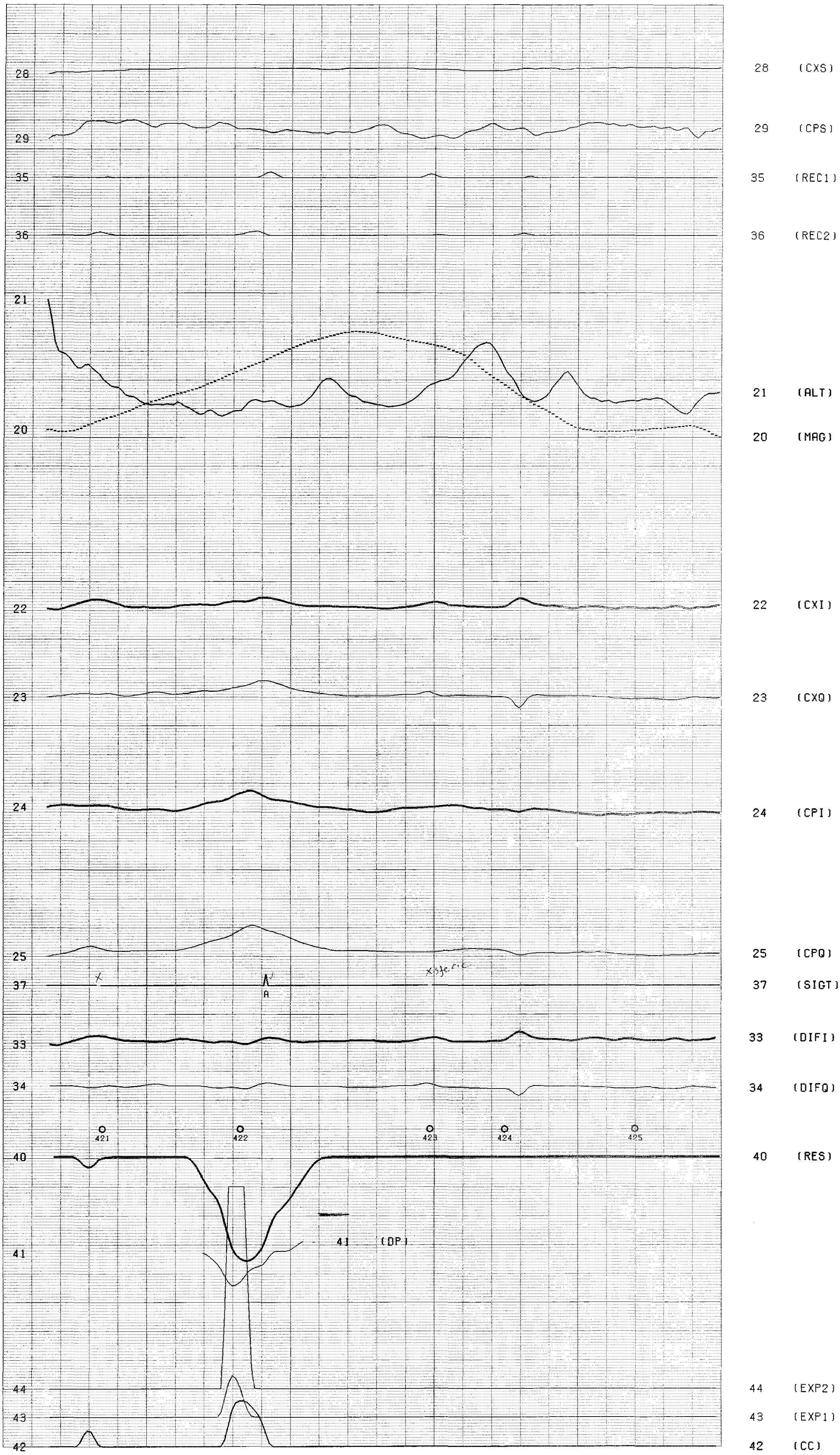
5 cm

61

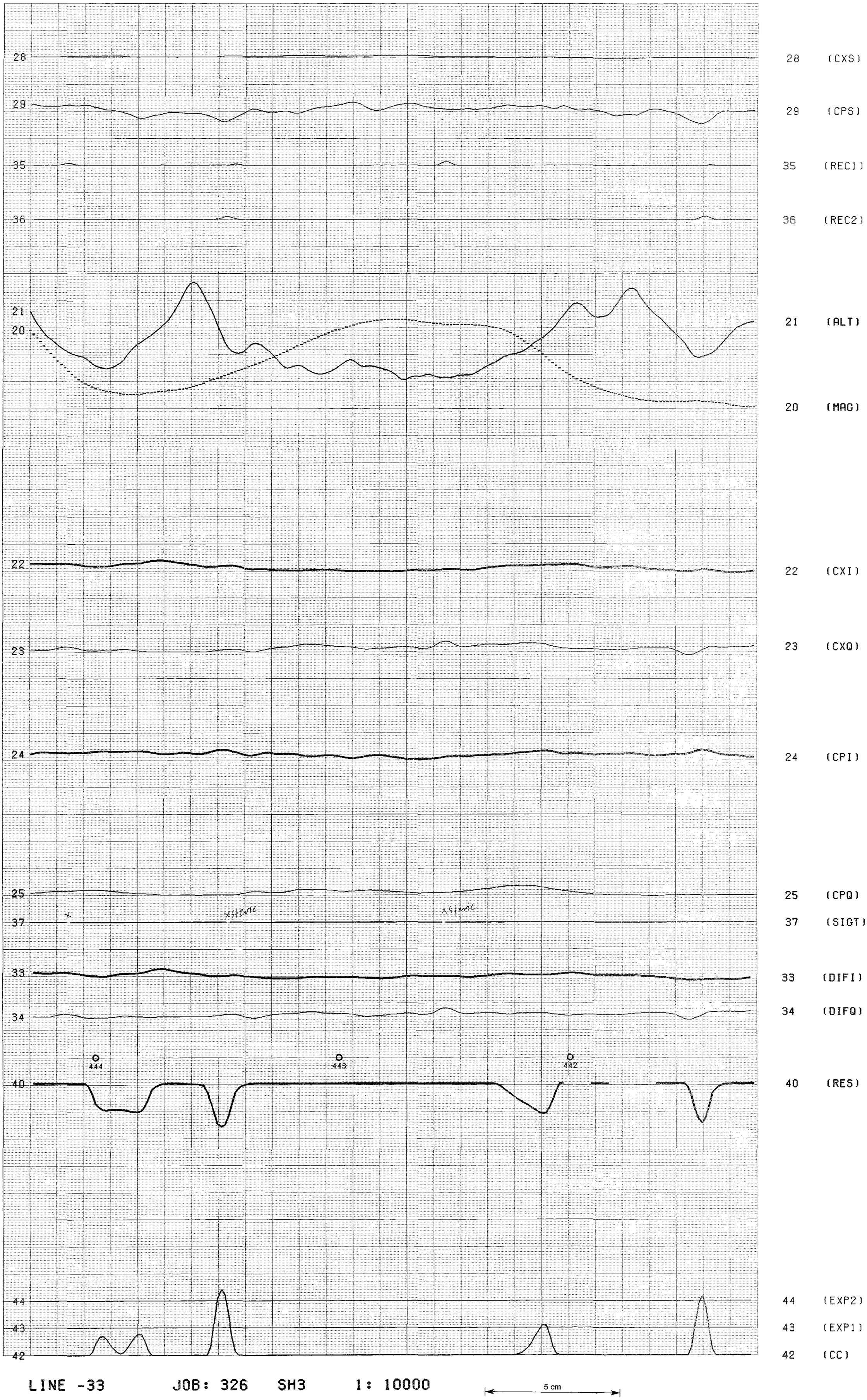
82-1738



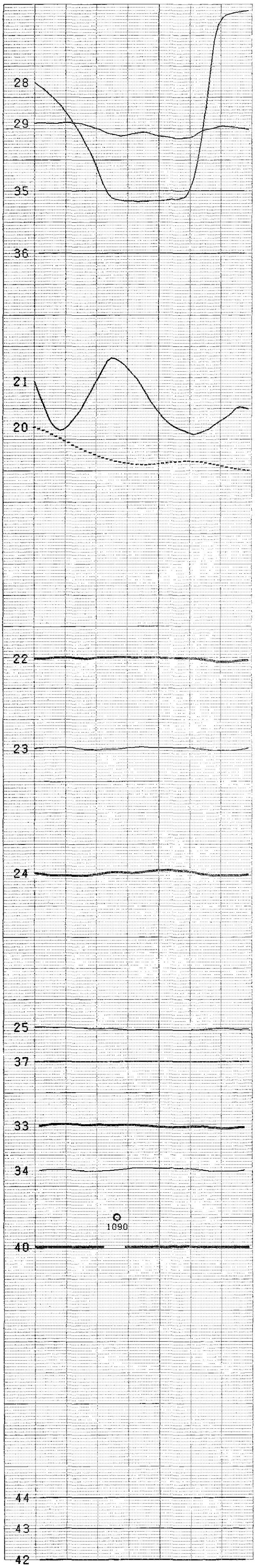
LINE -31 JOB: 326 SH3 1: 10000


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421
422
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A
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE 32
JOB: 326 SH3
1: 10000
5 cm

7a



LINE -33 JOB: 326 SH3 1: 10000



28 (CXS)

29 (CPS)

35 (REC1)

36 (REC2)

21 (ALT)

20 (MAG)

22 (CXI)

23 (CXQ)

24 (CPI)

25 (CPQ)

37 (SIGT)

33 (DIFI)

34 (DIFQ)

40 (RES)

44 (EXP2)

43 (EXP1)

42 (CC)

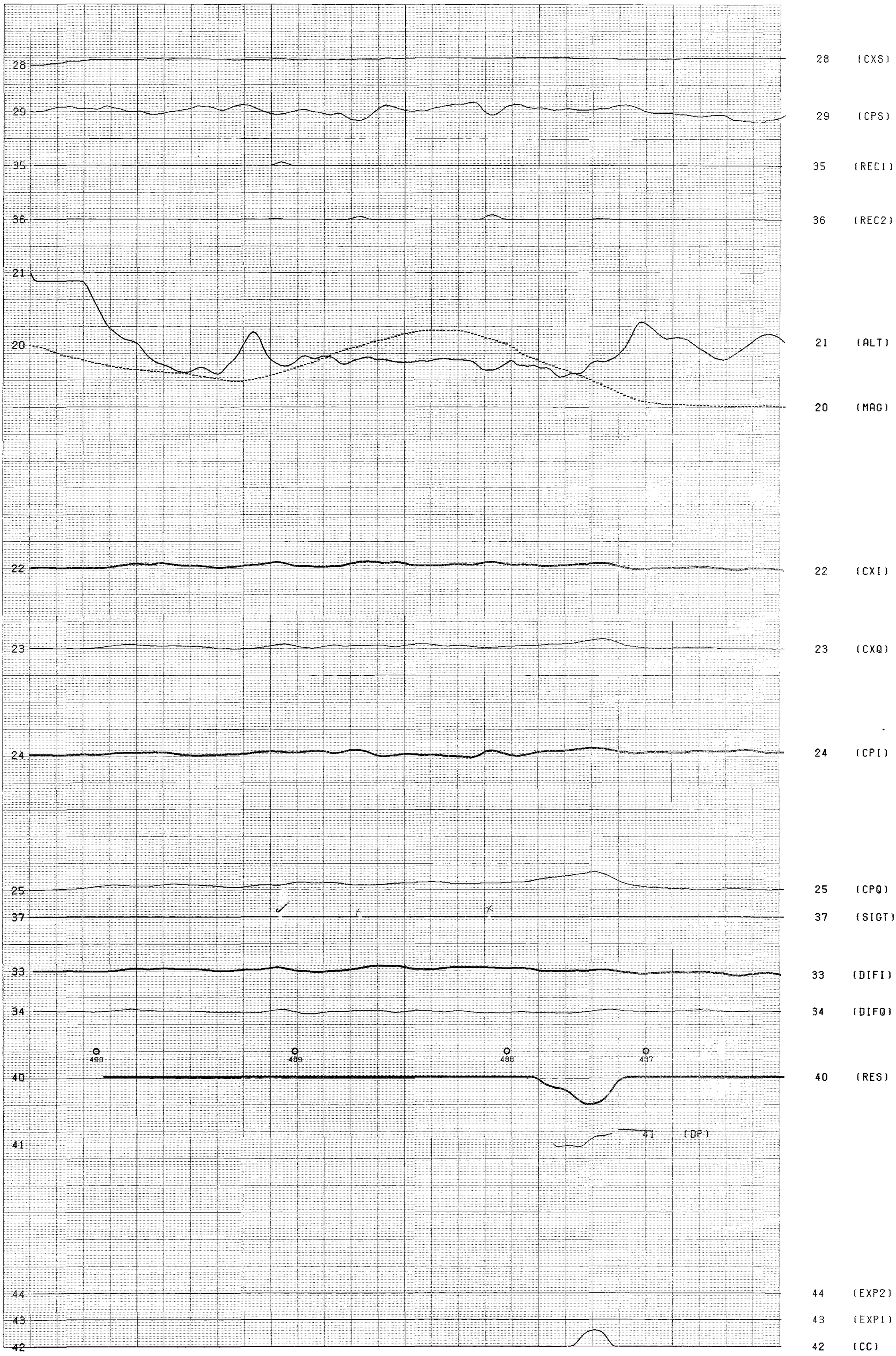
LINE -3300 JOB: 326 SH3

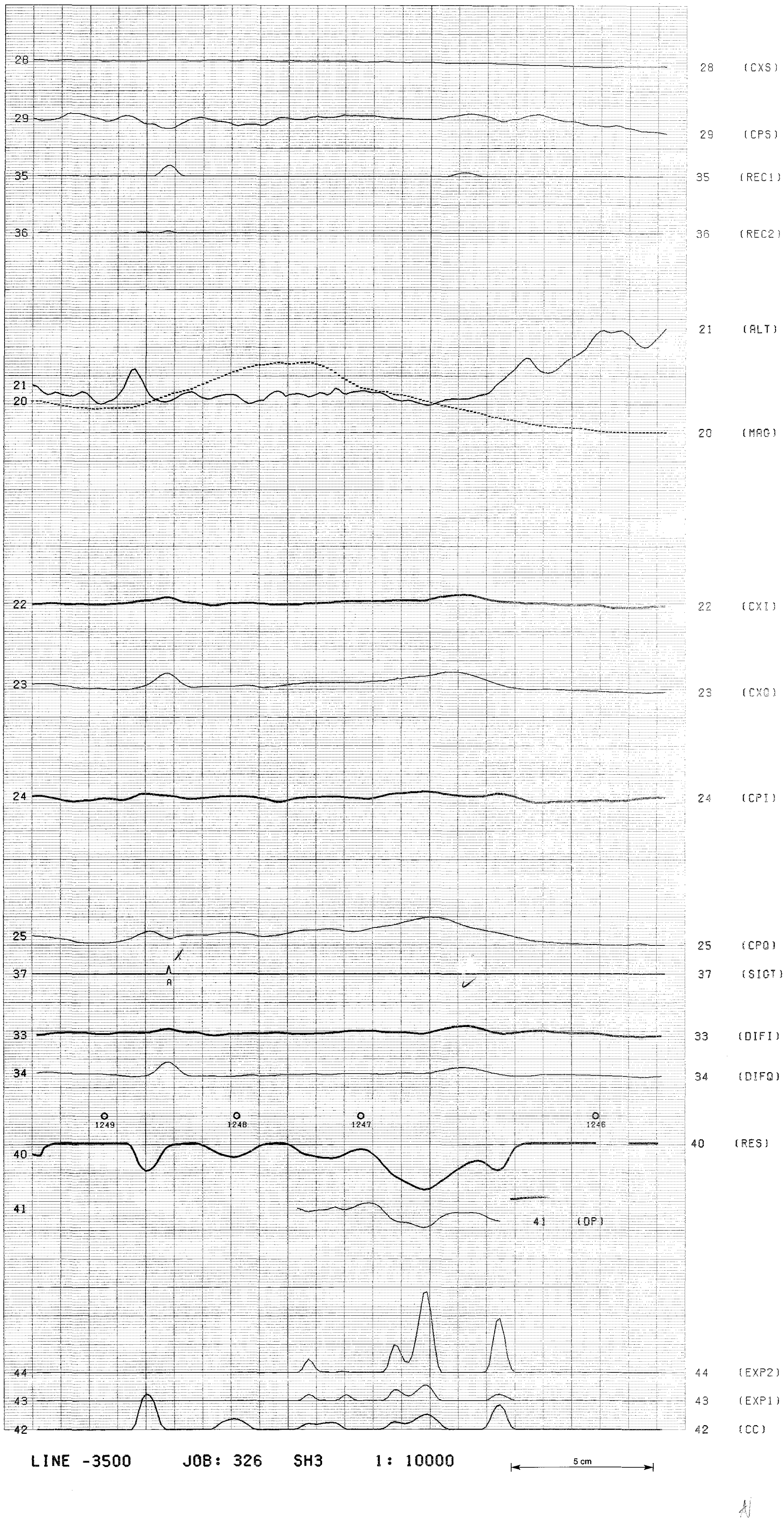
7c

1 : 10000 LINE 34 JOB: 326 SH3 1 : 10000

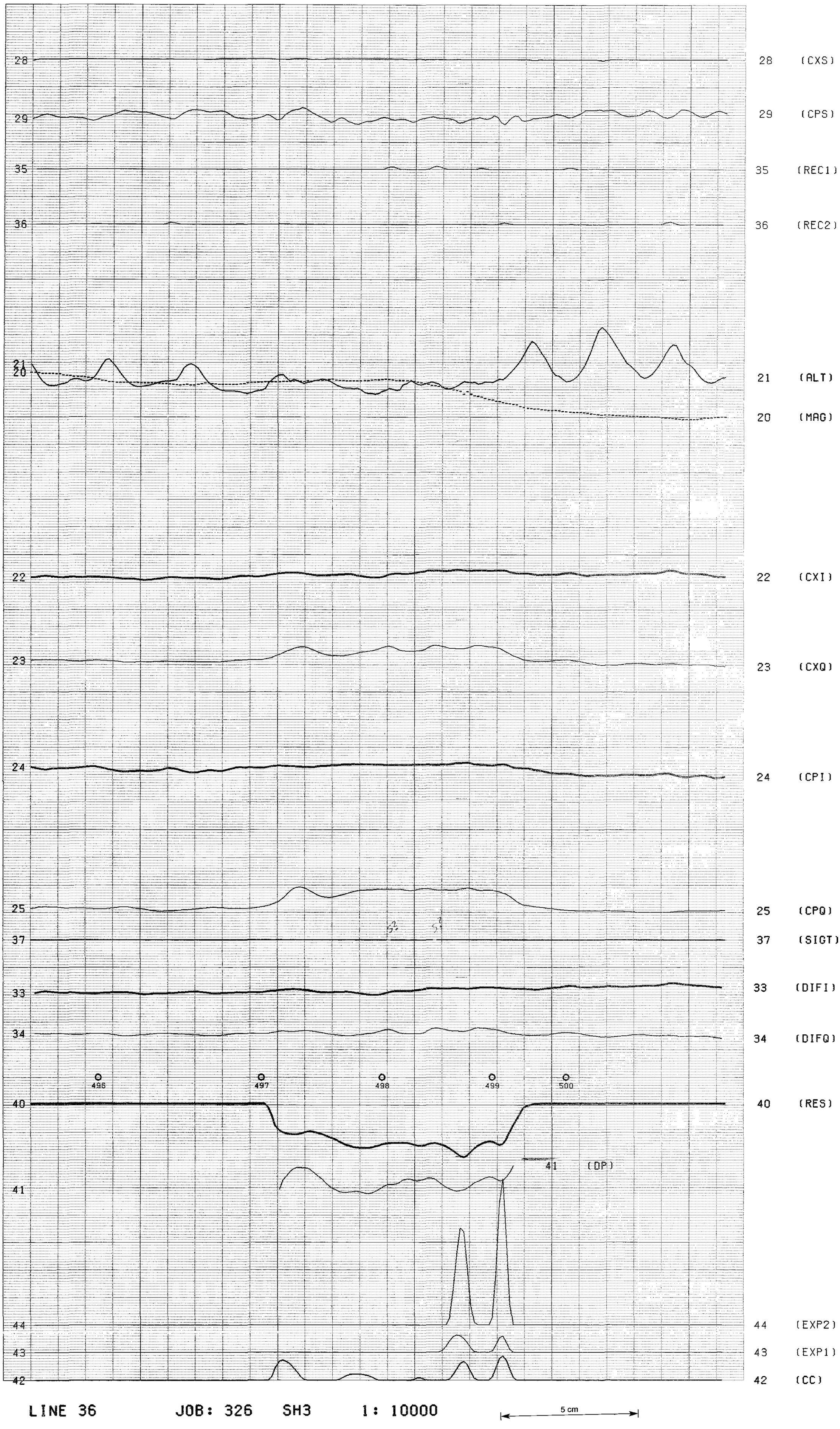
5 cm

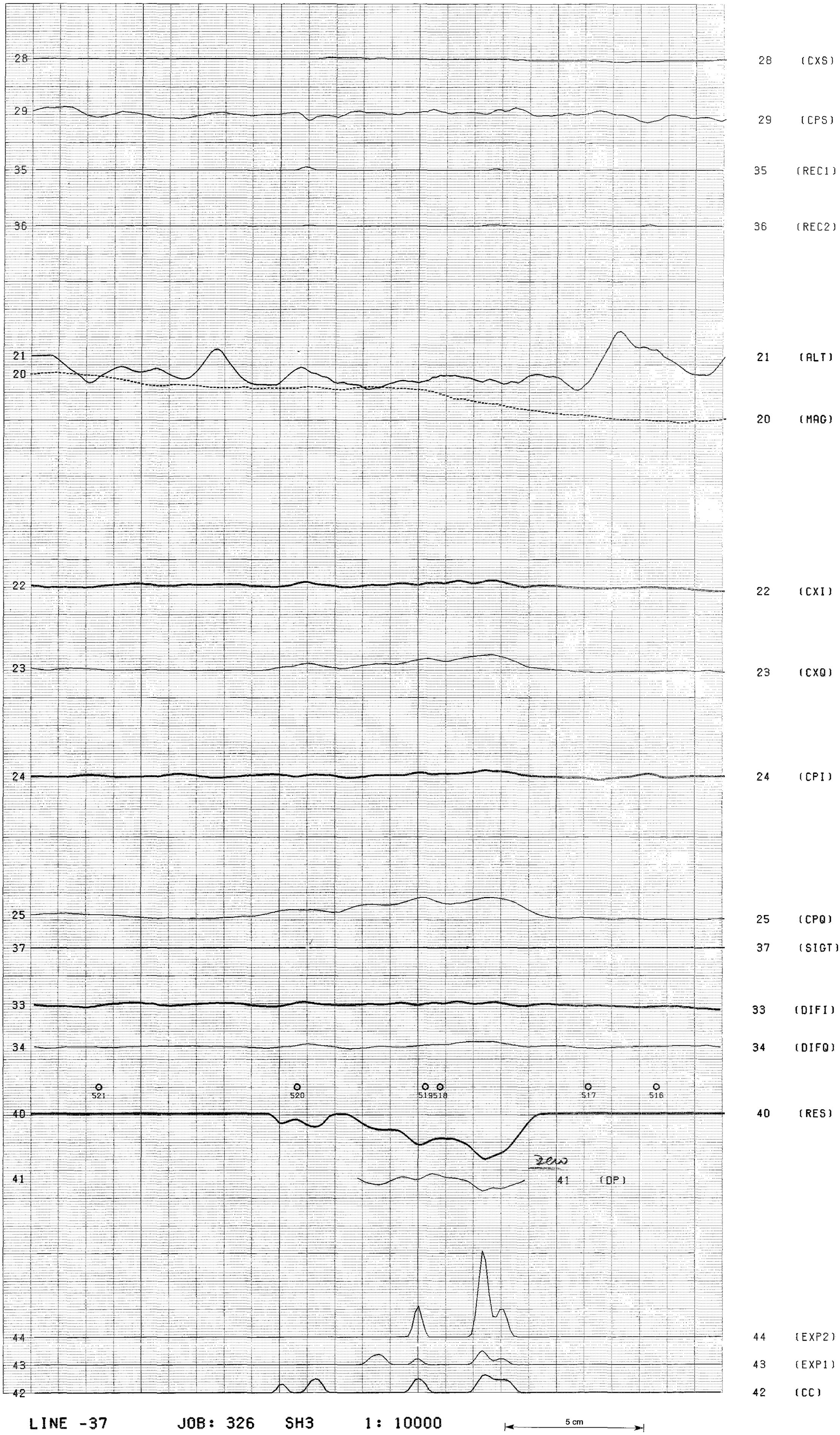



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42
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE -35
JOB: 326 SH3
1: 10000
5 cm


28
28 (CXS)
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29 (CPS)
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35 (REC1)
36
36 (REC2)
21
21 (ALT)
20
20 (MAG)
22
22 (CXI)
23
23 (CXQ)
24
24 (CPI)
25
25 (CPQ)
37
37 (SIGT)
A
33
33 (DIFI)
34
34 (DIFQ)
1249
1248
1247
1246
40
40 (RES)
41
41 (DP)
44
44 (EXP2)
43
43 (EXP1)
42
42 (CC)
LINE -3500 JOB: 326 SH3 1: 10000
5 cm

7f


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496
497
498
499
500
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41
44
43
42
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE 36 JOB: 326 SH3 1: 10000
5 cm

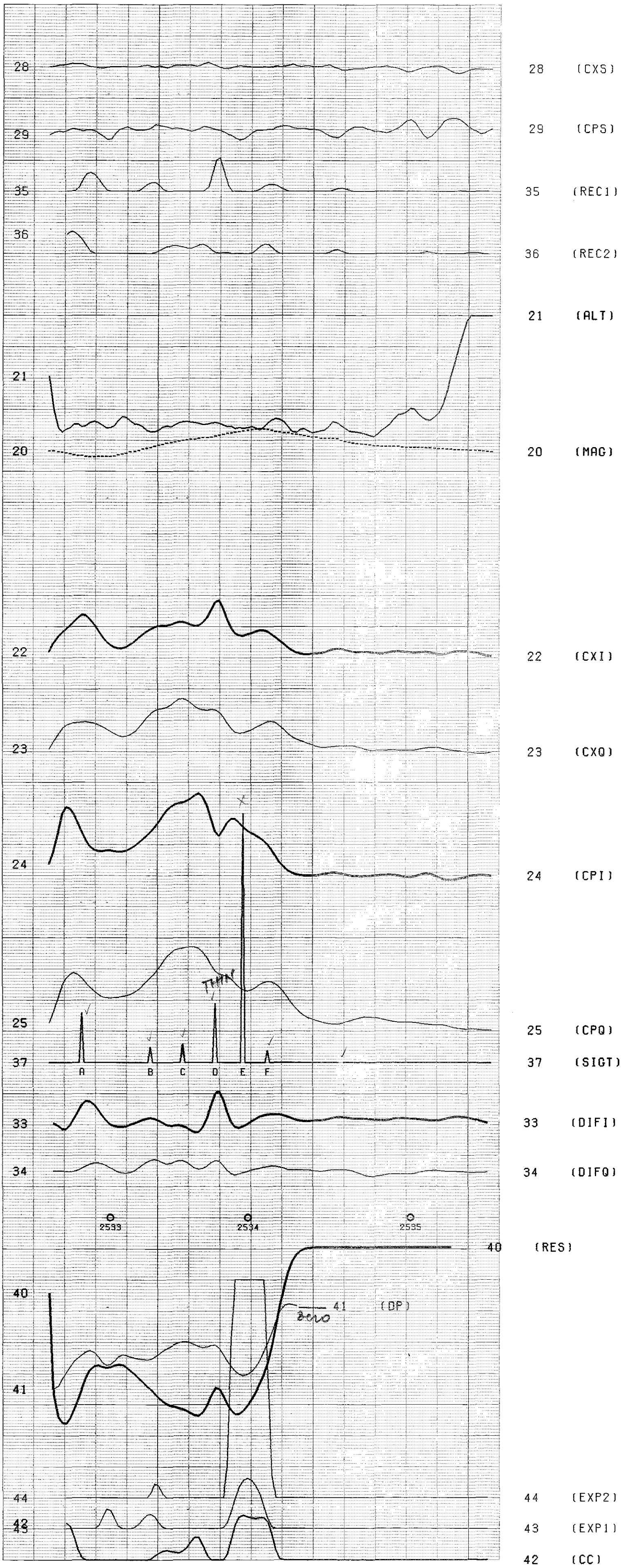


LINE -37 JOB: 326 SH3 1: 10000 5 cm

7h

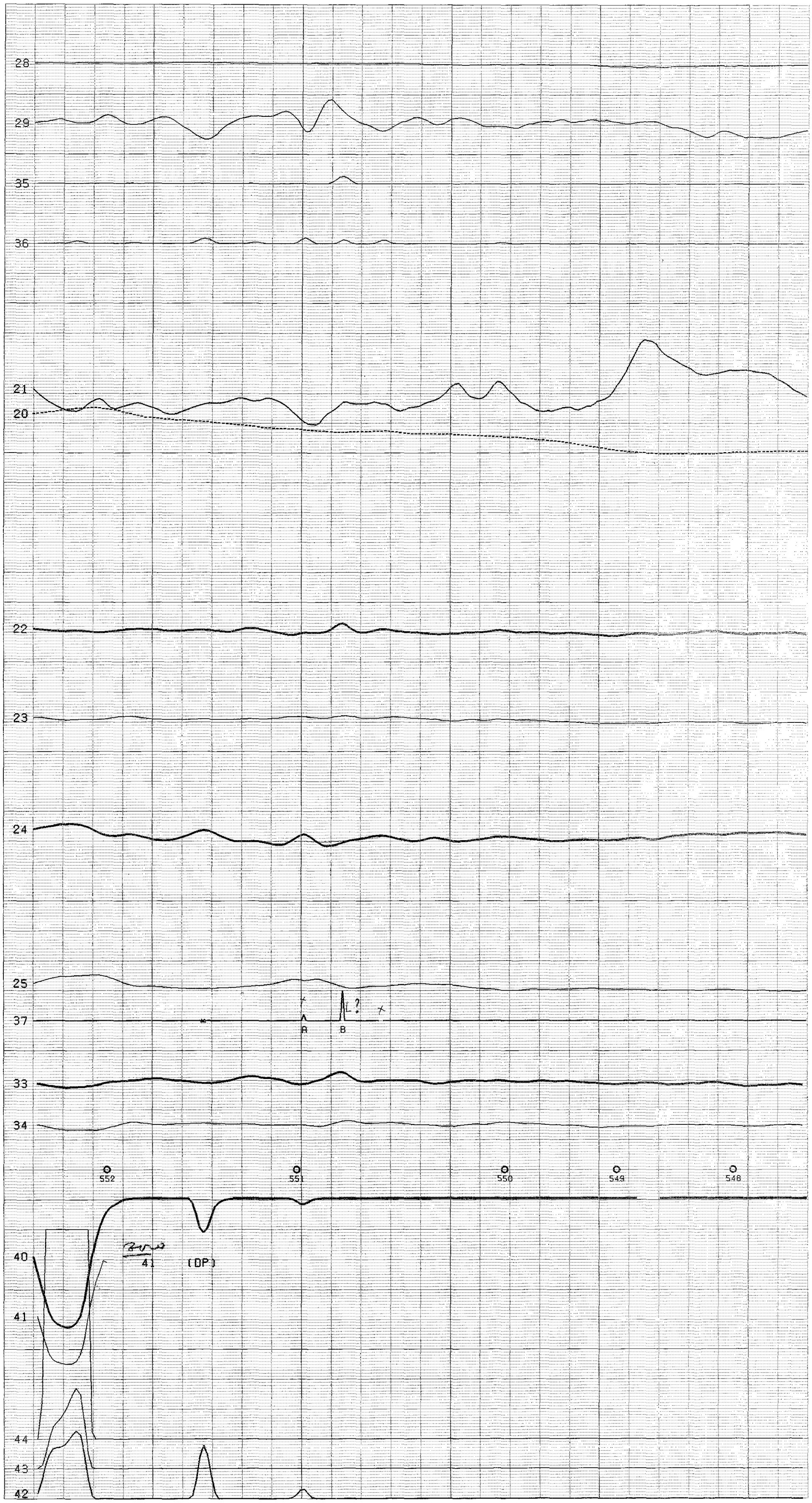

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A
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526
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42
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE 38 JOB: 326 SH3 1: 10000
5 cm

Ti



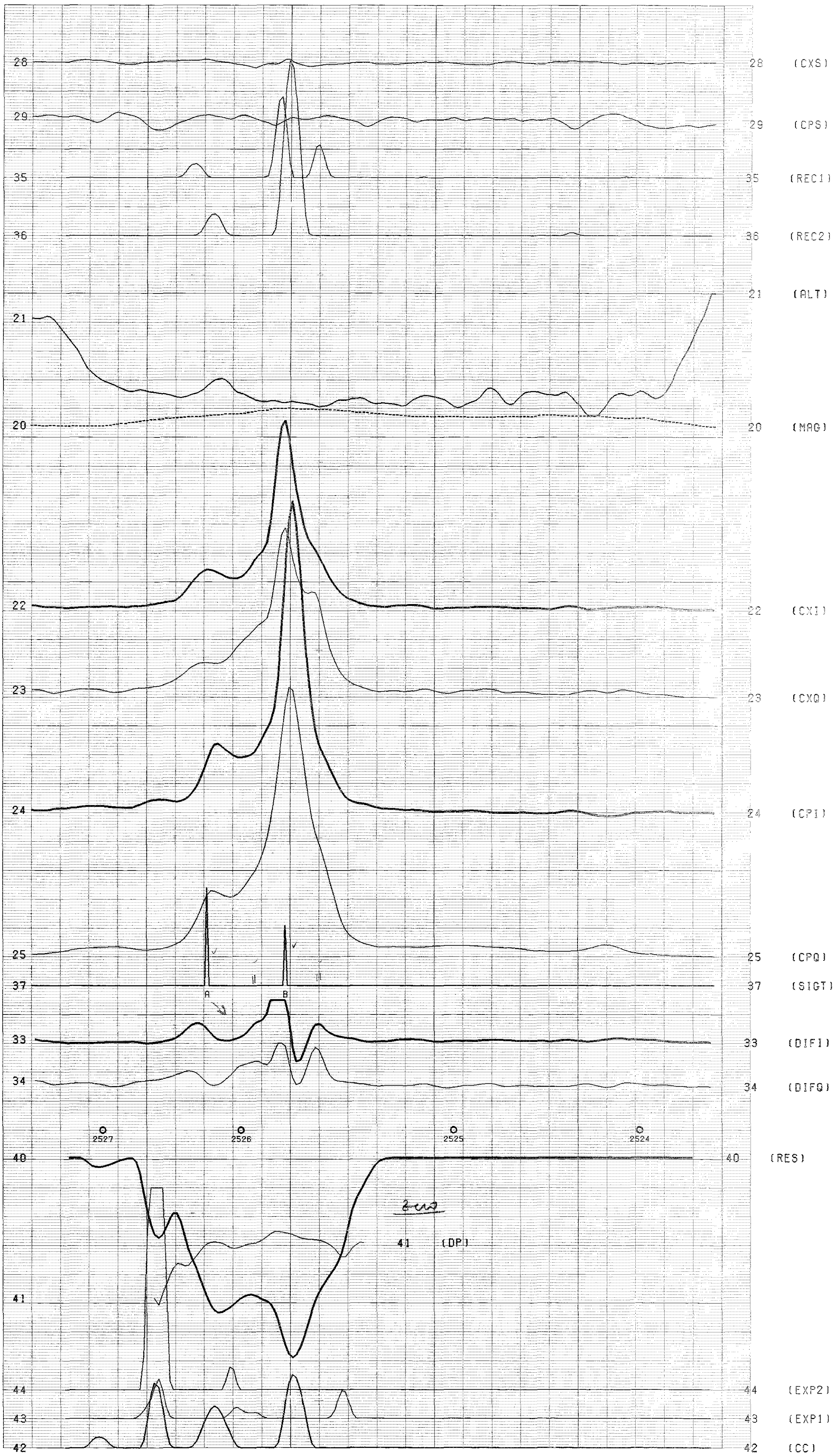
LINE 3800 JOB: 326 SH3 1: 10000

5 cm

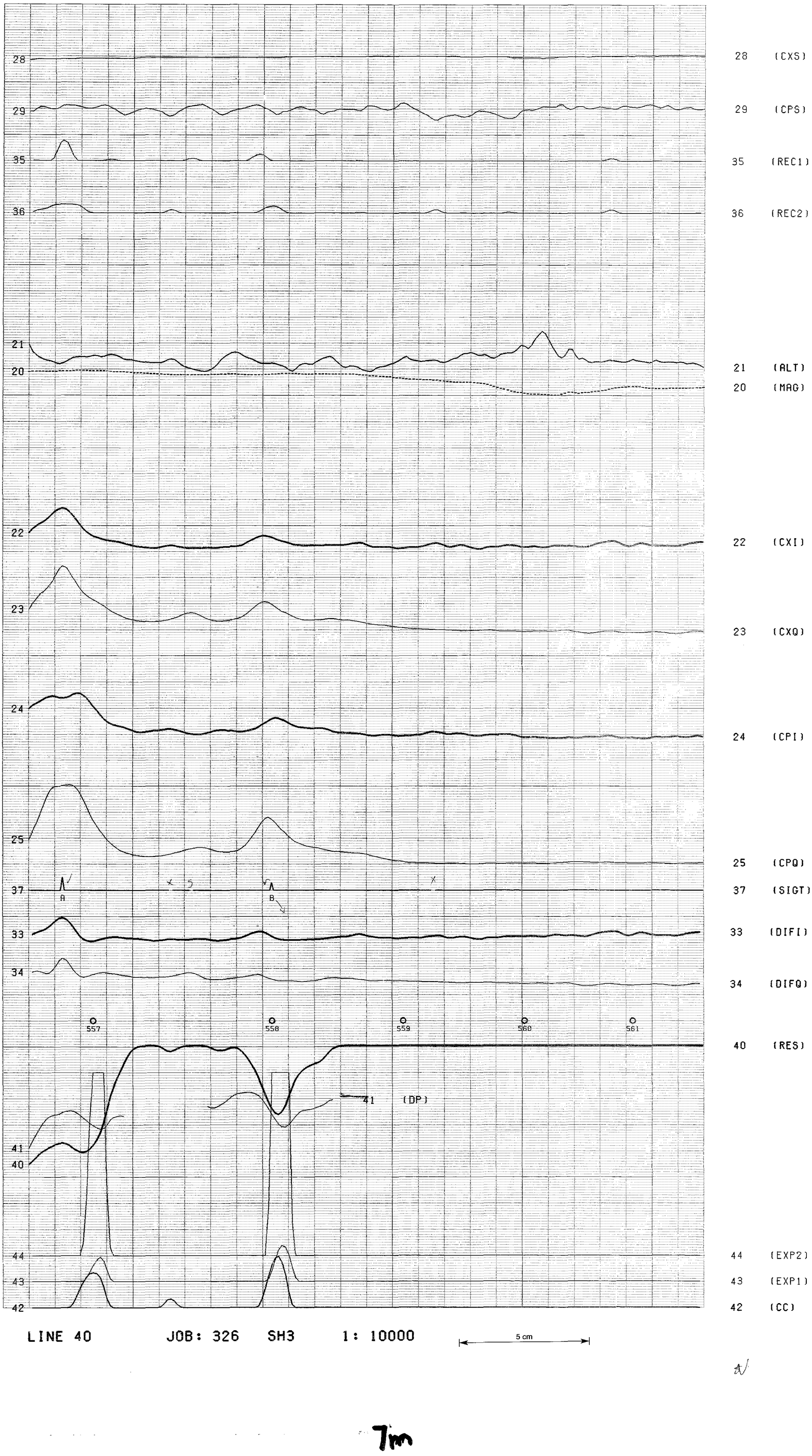


LINE -39 JOB: 326 SH3 1: 10000 5 cm

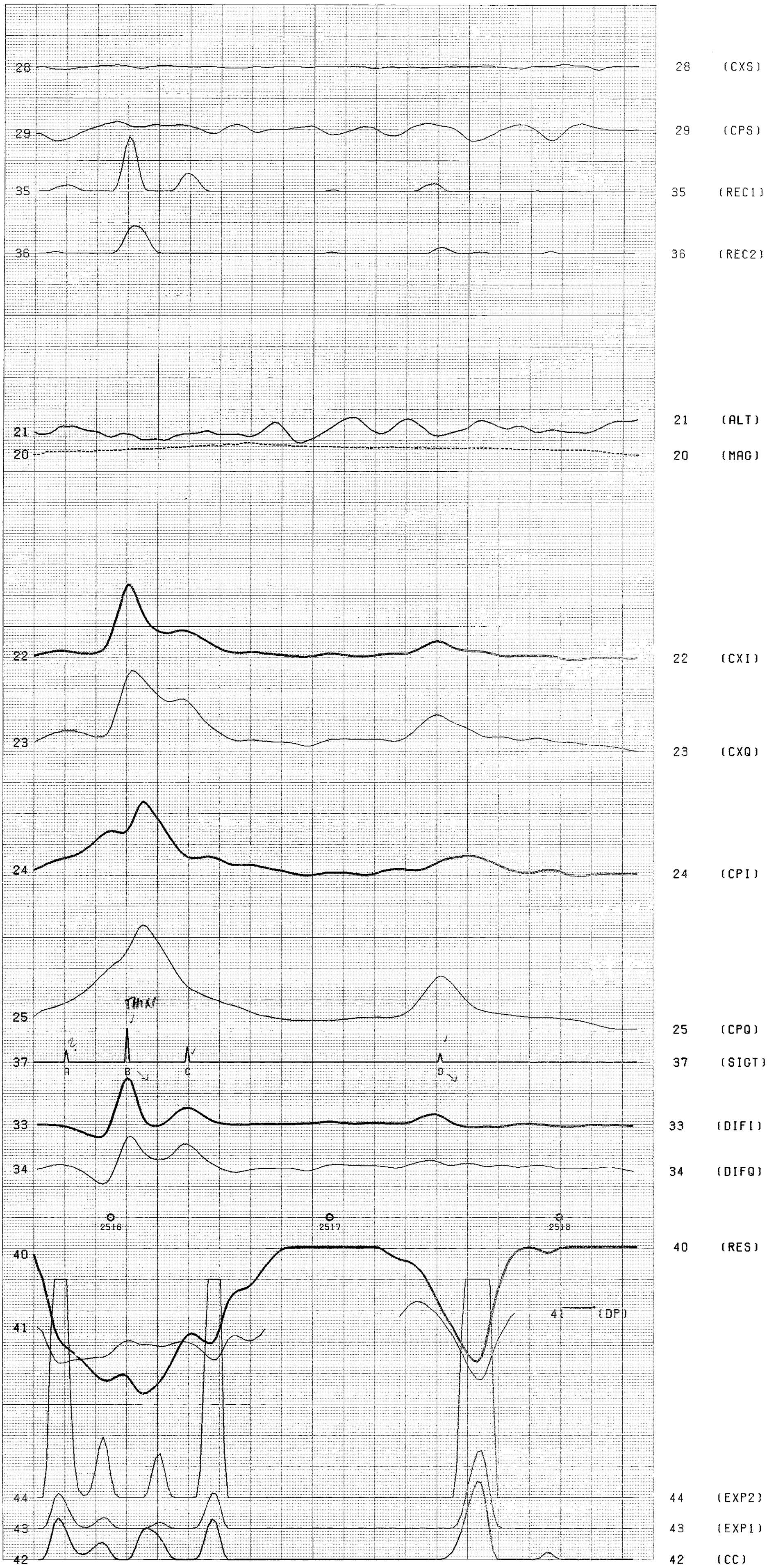
7k



LINE -3900 JOB: 326 SH3 1: 10000


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557
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42
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
A
B
LINE 40 JOB: 326 SH3 1: 10000
5 cm

7m


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A
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C
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2516
2517
2518
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE 4000 JOB: 326 SH3 1: 10000
5 cm

82-1738

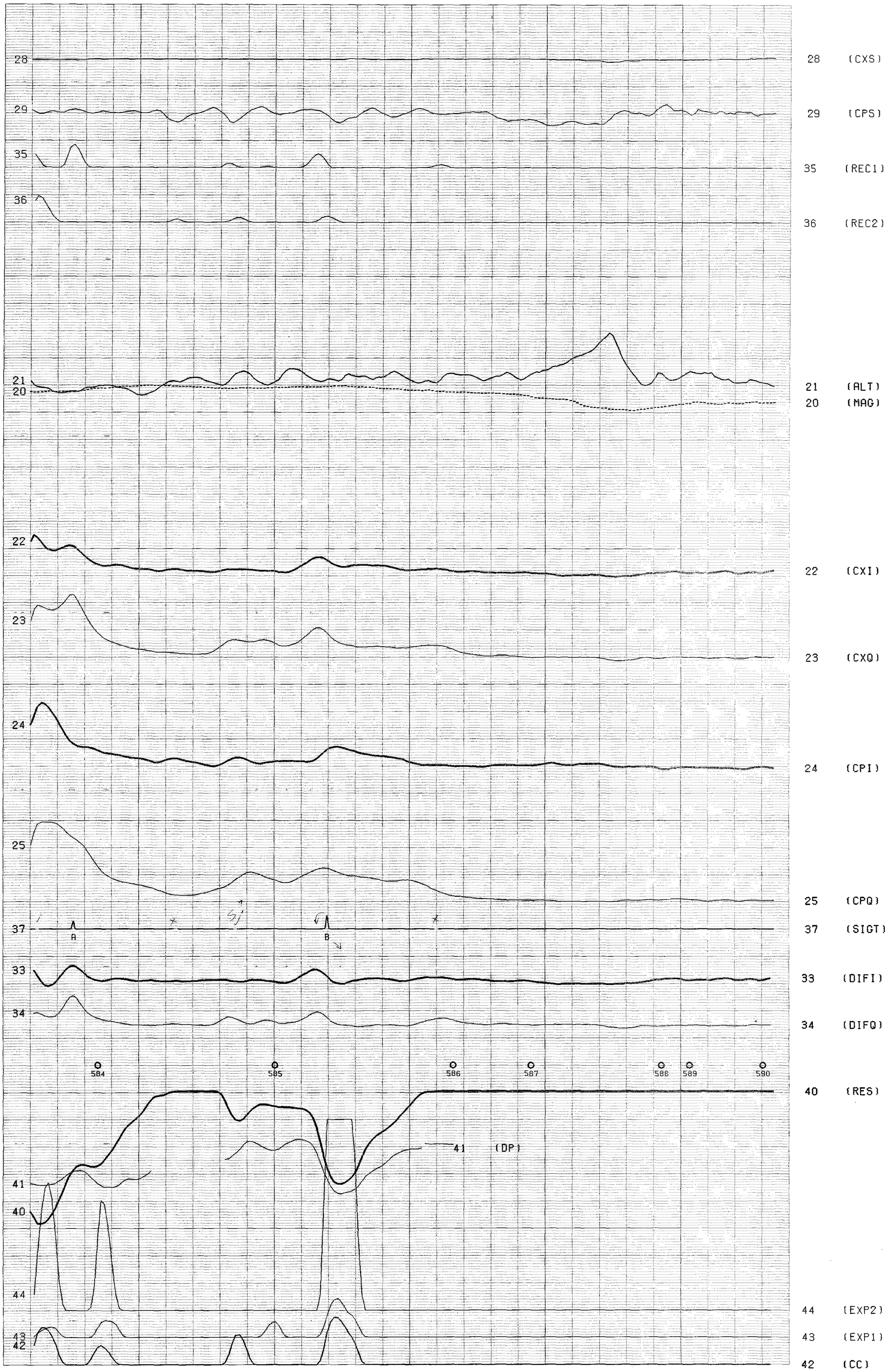

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A
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D
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578
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Zero
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(DP)
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43
42
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (AL)
20 (MP
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE -41 JOB: 326 SH3 1: 10000
5 cm
LINE -41



LINE -4100 JOB: 326 SH3 1: 10000

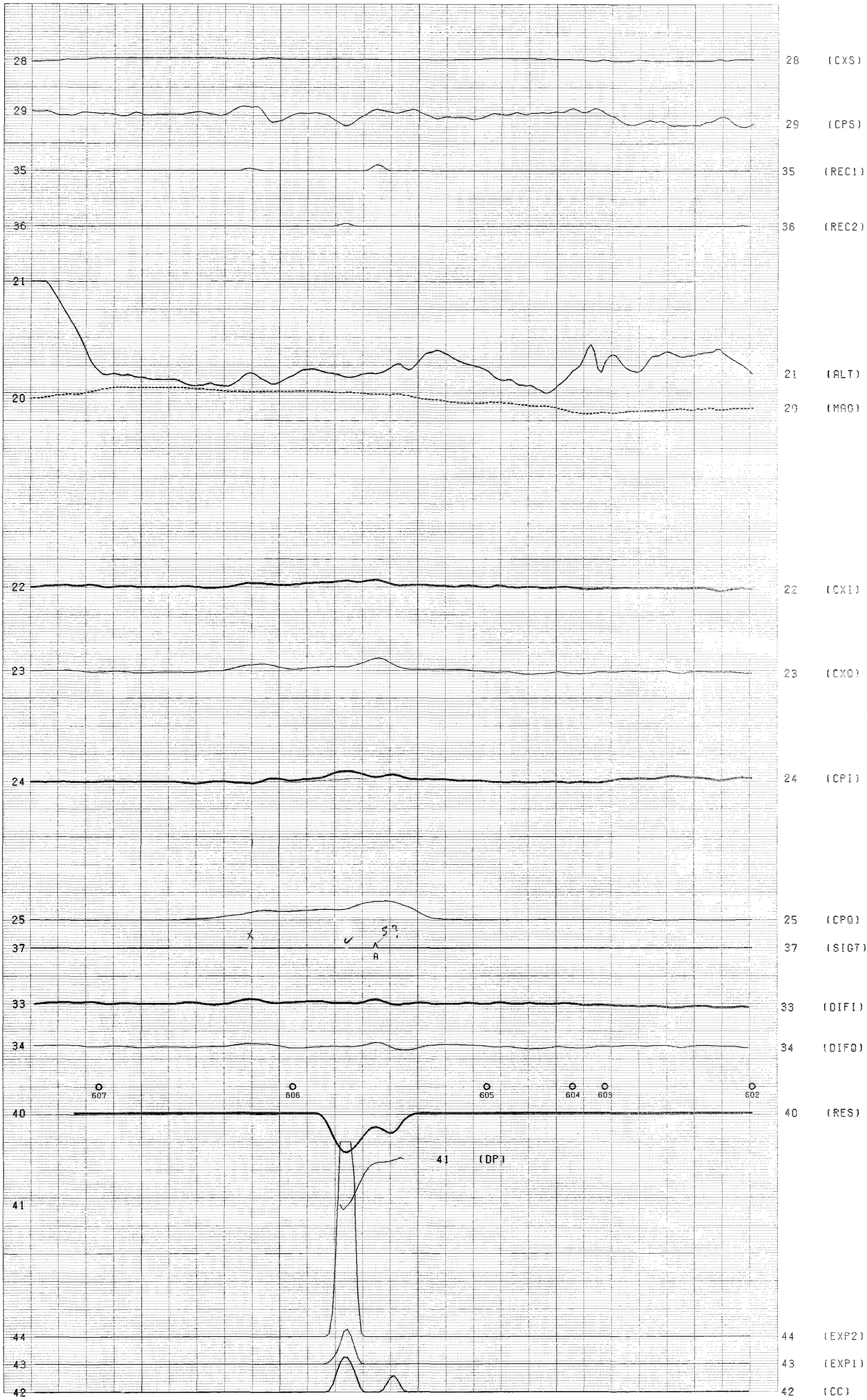
5 cm

8a



LINE 42 JOB: 326 SH3 1: 10000

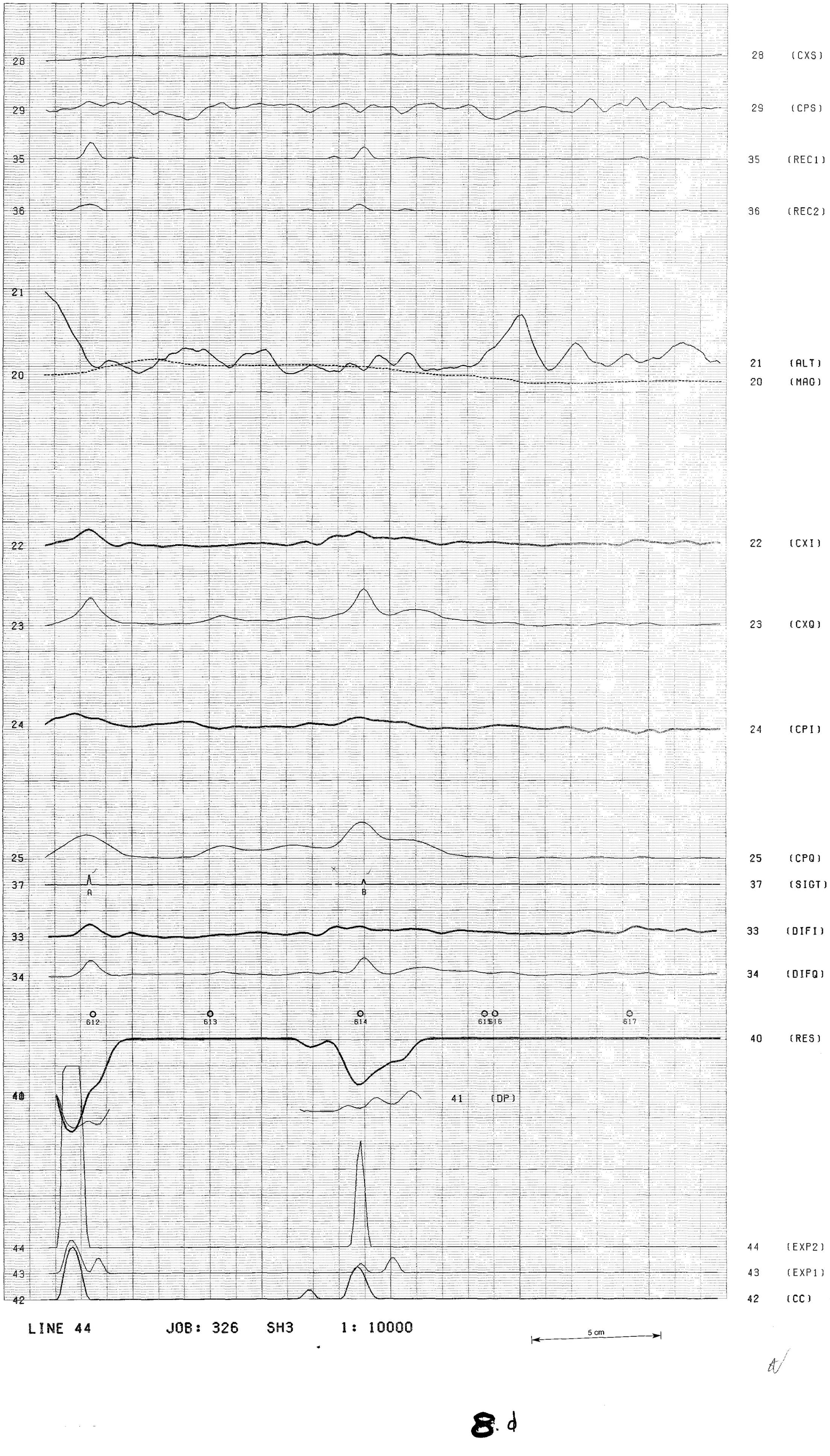
B6



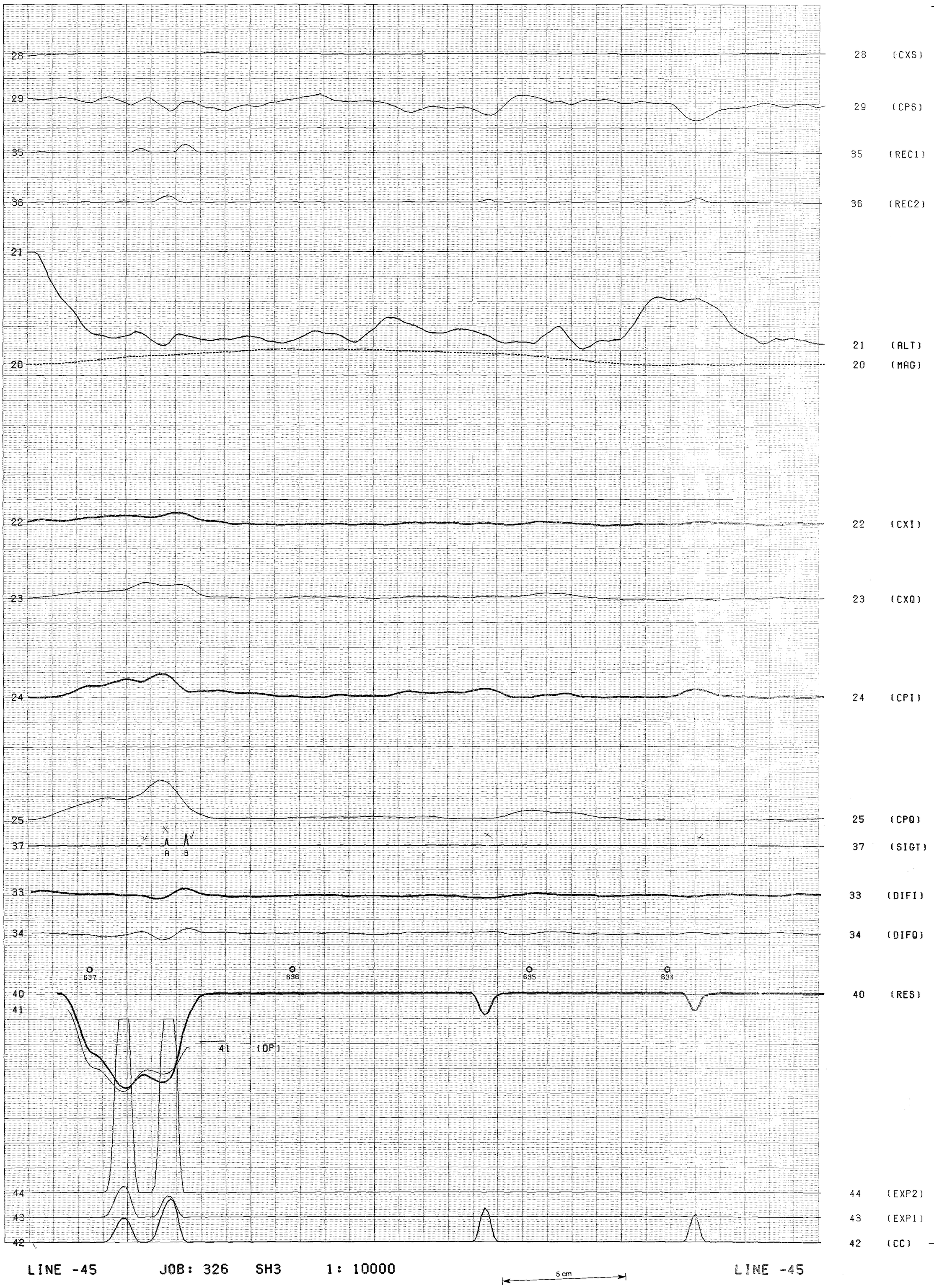
LINE -43 JOB: 326 SH3 1: 10000

5 cm

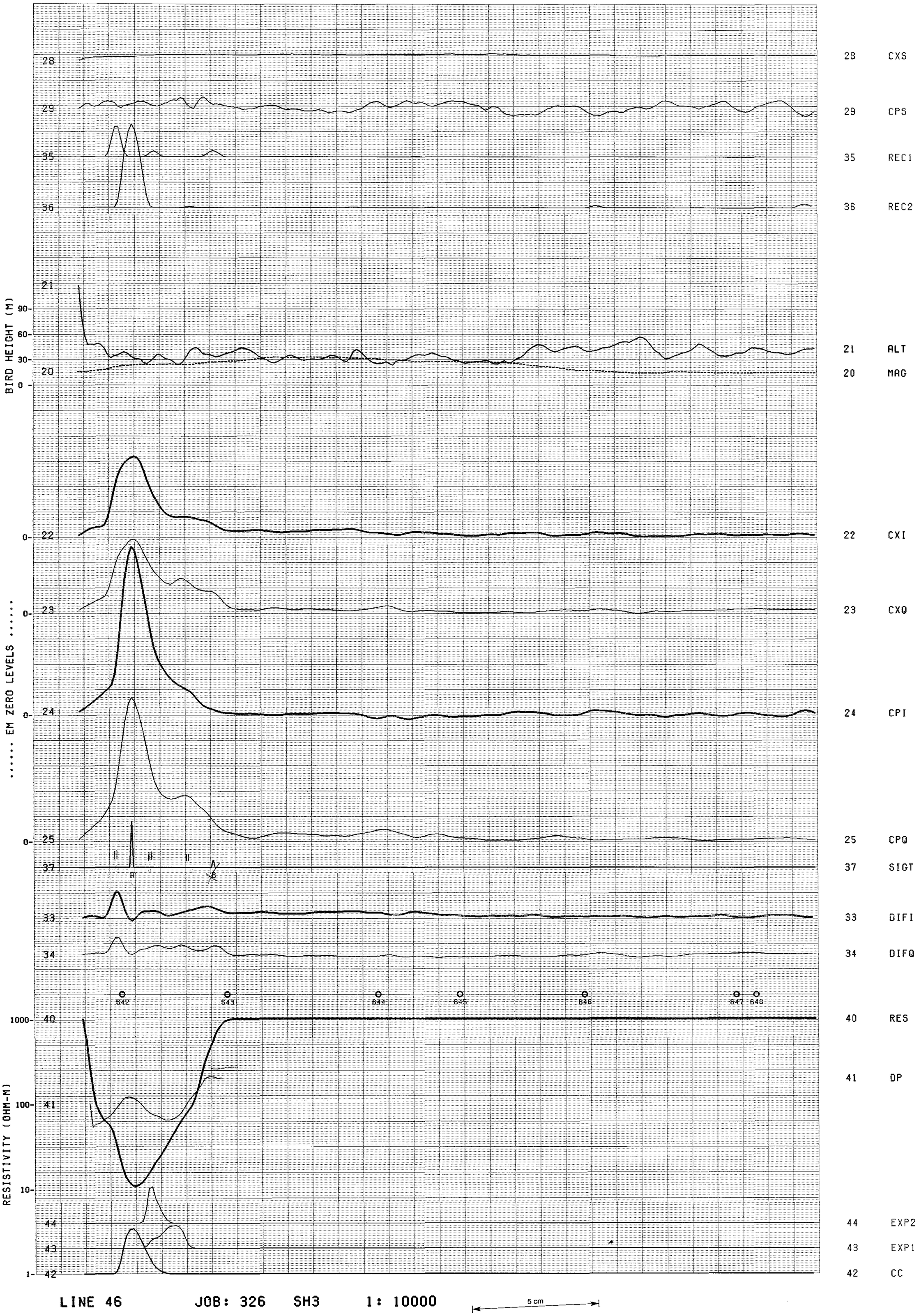
8.C

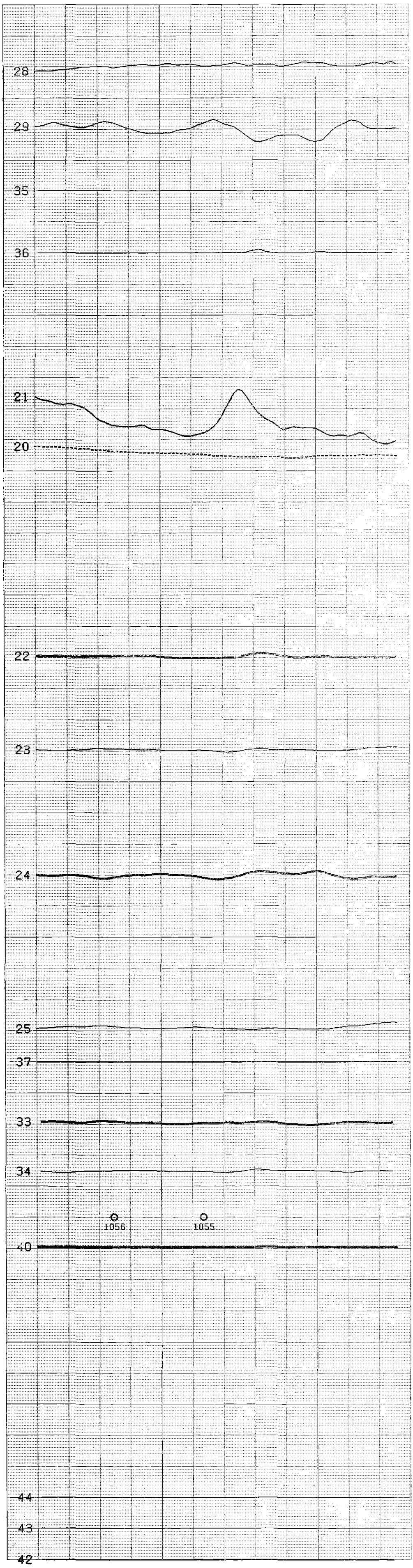

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28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
A
B
LINE 44 JOB: 326 SH3 1: 10000
5 cm

8.d


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637
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635
634
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41
41 (DP)
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43
42
A
B
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE -45 JOB: 326 SH3 1: 10000
5 cm
LINE -45

8.e


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90
60
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0
BIRD HEIGHT (M)
20
0
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34
..... EM ZERO LEVELS .....
642
643
644
645
646
647
648
1000
40
100
41
10
44
43
1
42
RESISTIVITY (OHM-M)
A
B
5 cm
28 CXS
29 CPS
35 REC1
36 REC2
21 ALT
20 MAG
22 CXI
23 CXQ
24 CPI
25 CPQ
37 SIGT
33 DIFI
34 DIFQ
40 RES
41 DP
44 EXP2
43 EXP1
42 CC
LINE 46 JOB: 326 SH3 1: 10000



28 (CXS)

29 (CPS)

35 (REC1)

36 (REC2)

21 (ALT)

20 (MAG)

22 (CXI)

23 (CXQ)

24 (CPI)

25 (CPQ)

37 (SIGT)

33 (DIFI)

34 (DIFQ)

40 (RES)

44 (EXP2)

43 (EXP1)

42 (CC)

LINE -4600 JOB: 326 SH3 1: 10000

5 cm

N

B 9

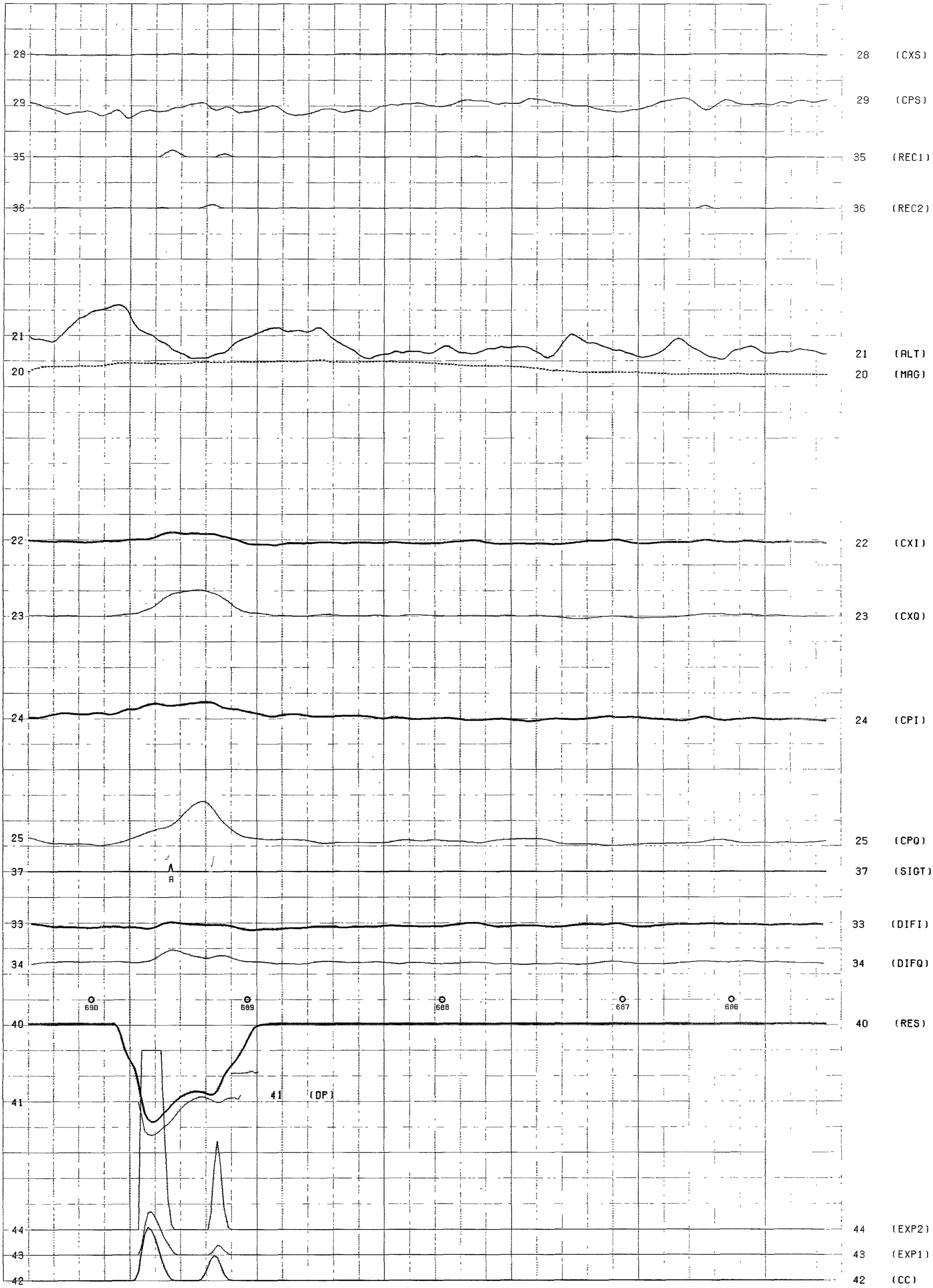

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A
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659
41 (DP)
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE -47 JOB: 326 SH3 1: 10000
5 cm
LINE -47

8 h



LINE 48 JOB: 326 SH3 1: 10000

5 cm

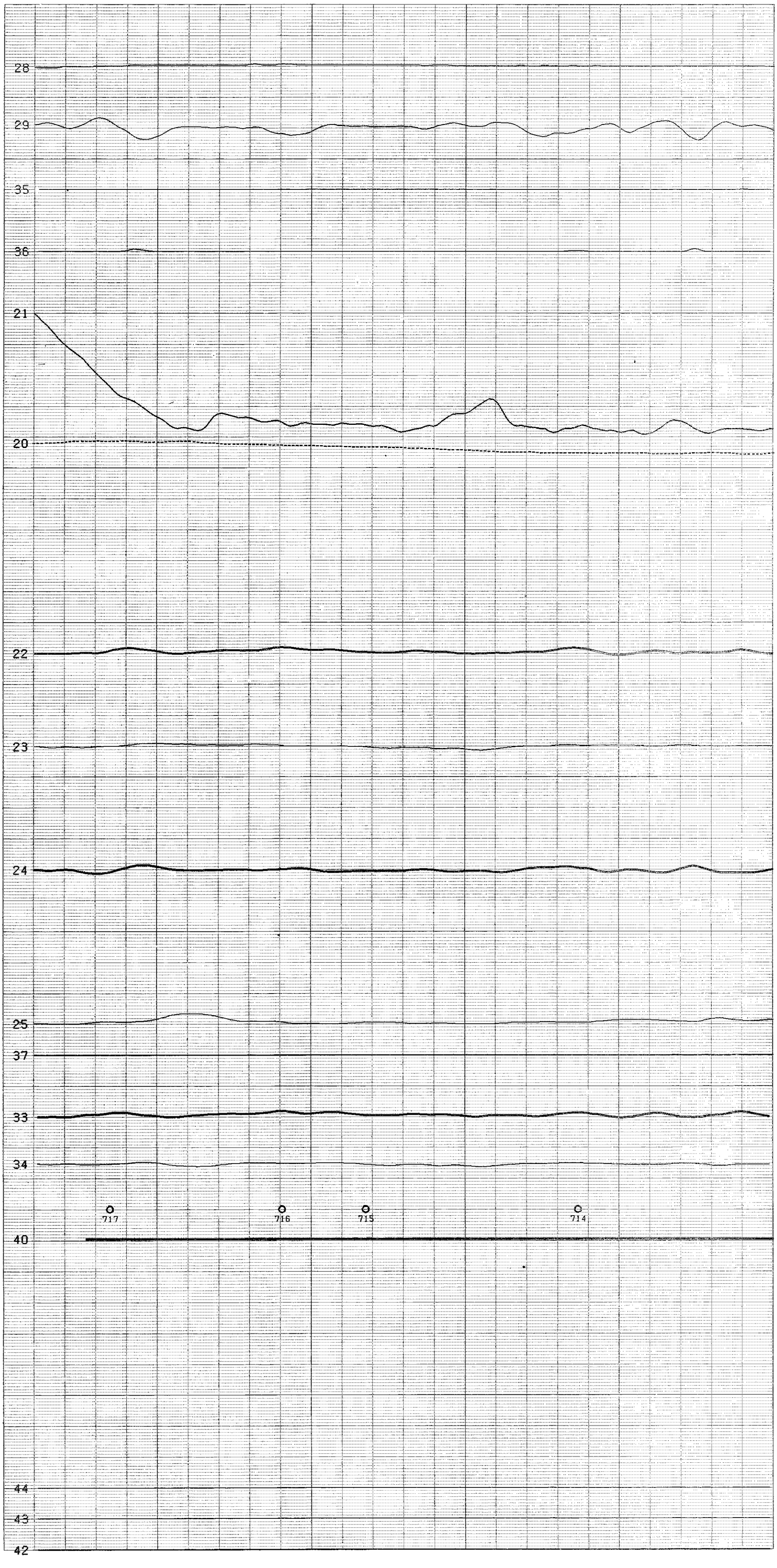

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686
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42
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE -49
JOB: 326 SH3
1: 10000
5 cm
LINE -49

8j


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43
A
B
C
699
700
701
702
70304
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE 50 JOB: 326 SH3 1: 10000
5 cm
LINE 50

8k

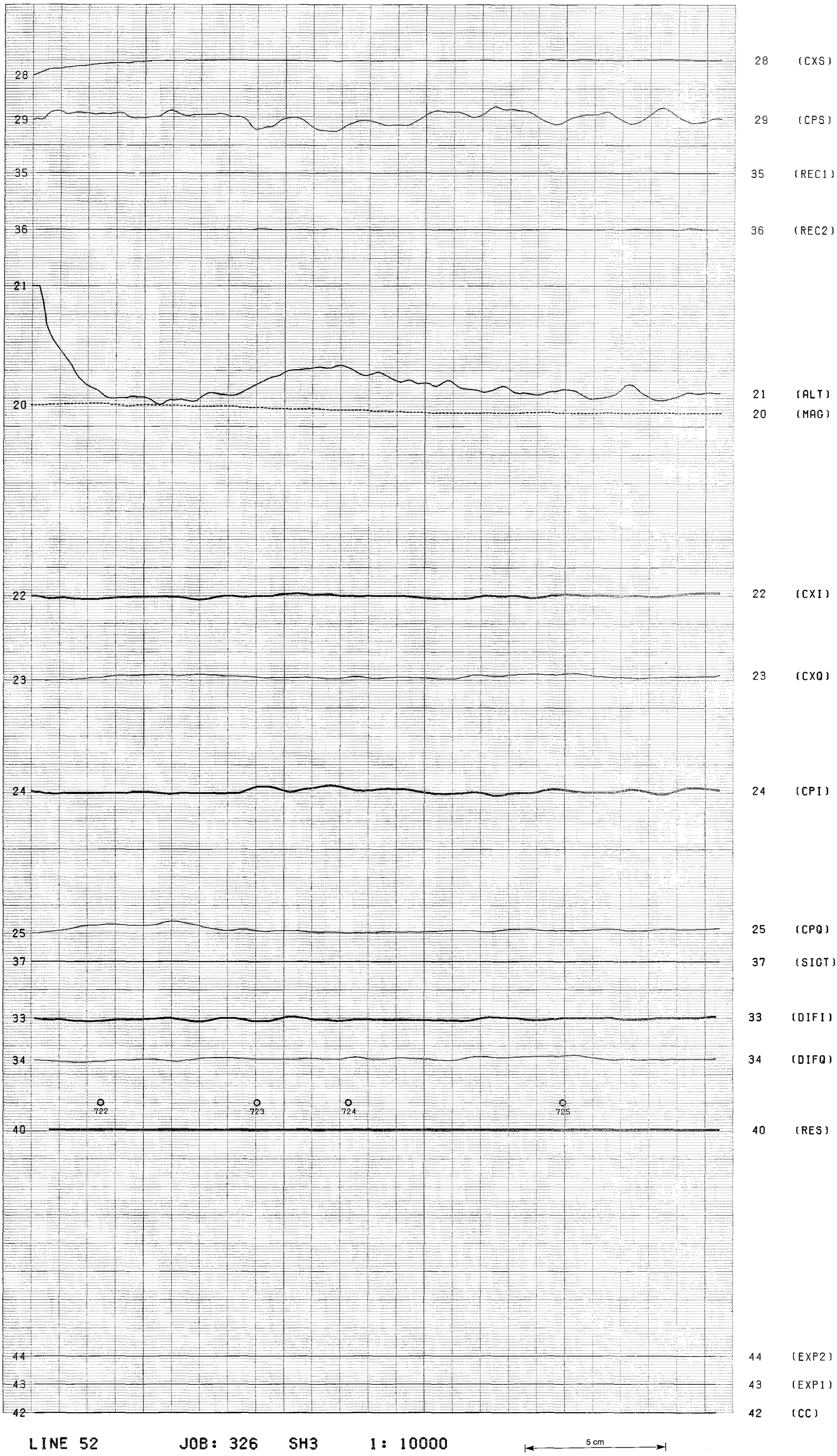
82-1738



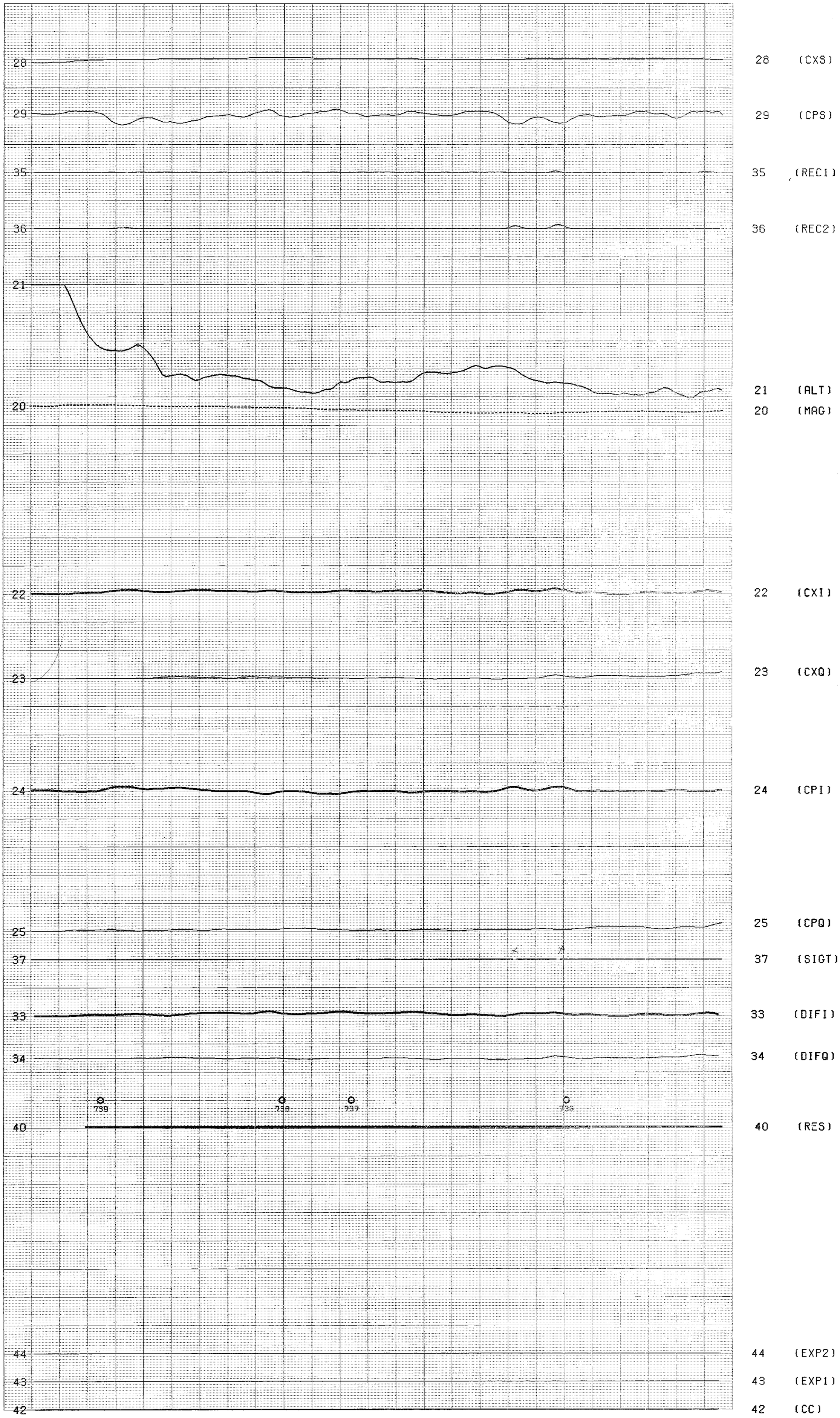
LINE -51 JOB: 326 SH3 1: 10000

5 cm

9 of 24

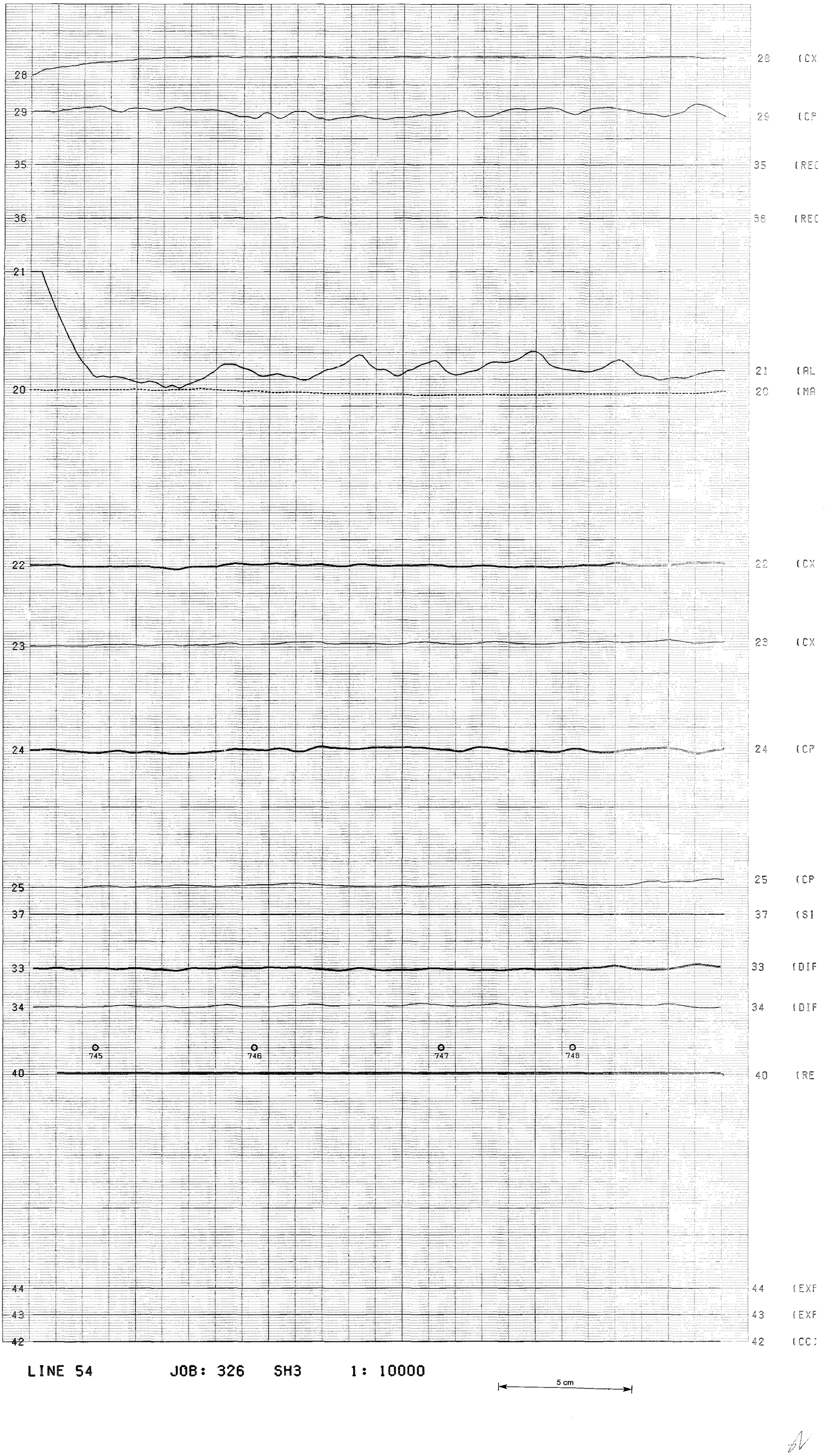

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723
724
725
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42
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE 52 JOB: 326 SH3 1: 10000
5 cm

9a



LINE -53 JOB: 326 SH3 1: 10000

5 cm



LINE 54 JOB: 326 SH3 1: 10000

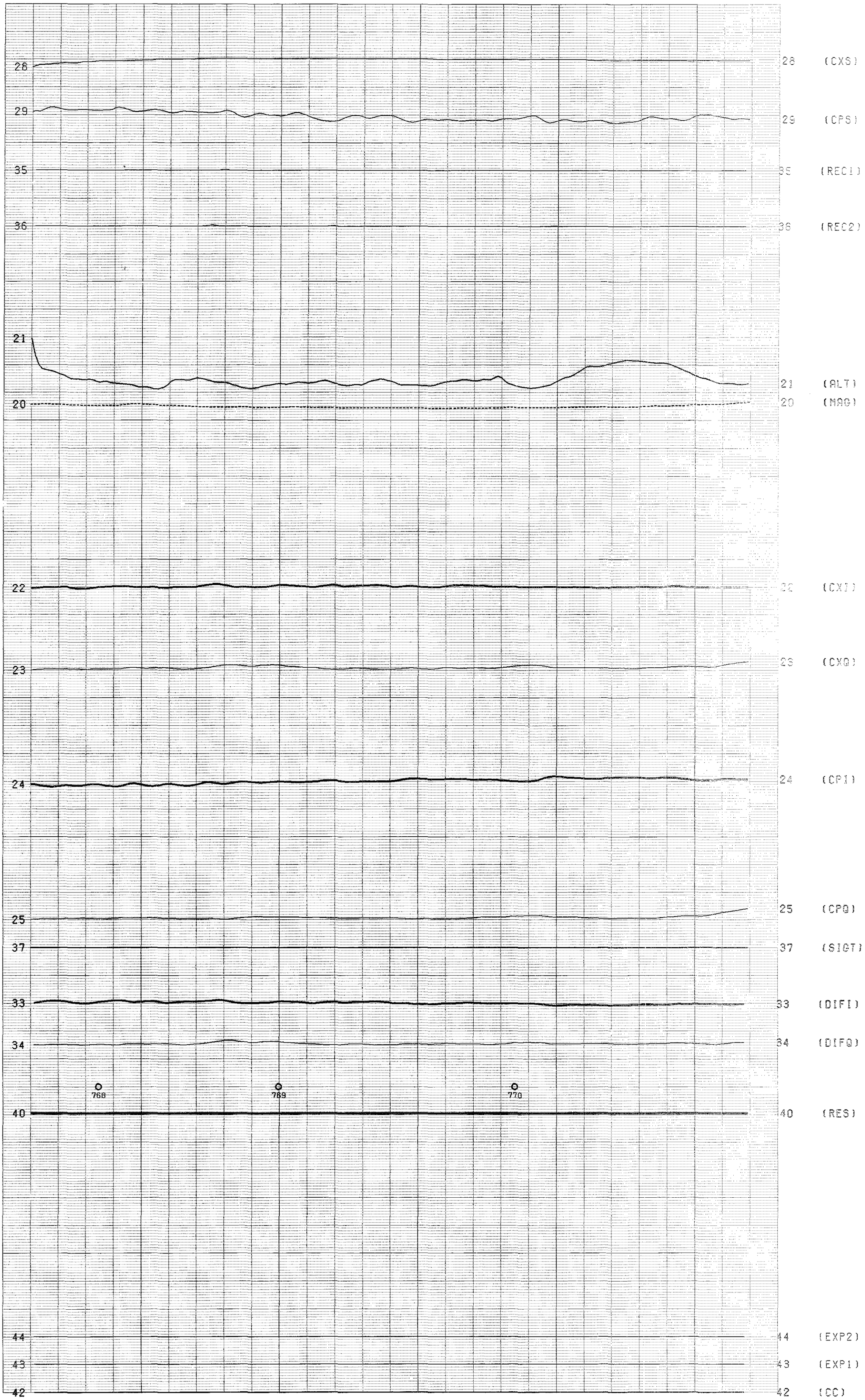
5 cm

9 c

LINE -55 JOB: 326 SH3 1: 10000

5 cm

9 d

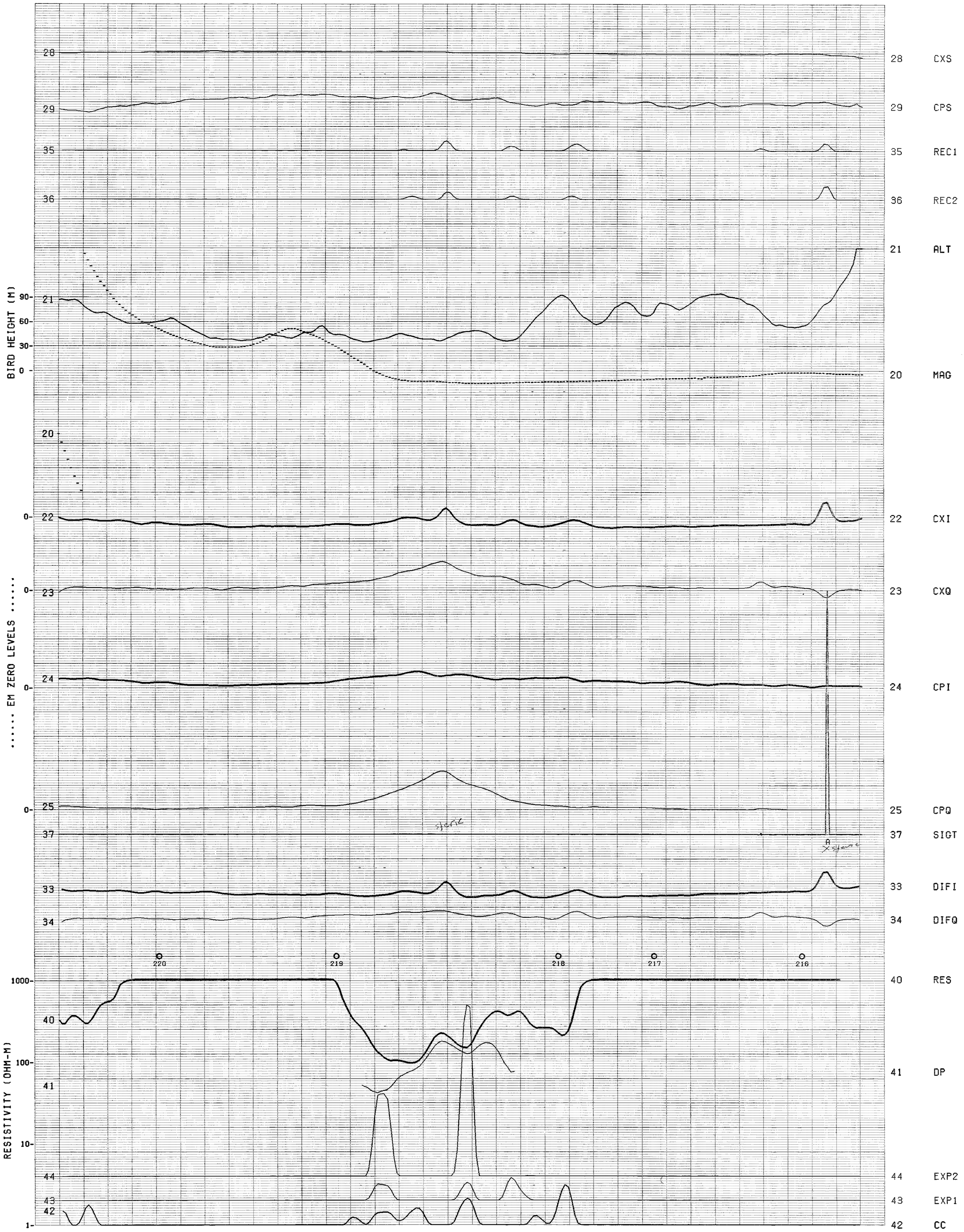


LINE 56 JOB: 326 SH3 1: 10000

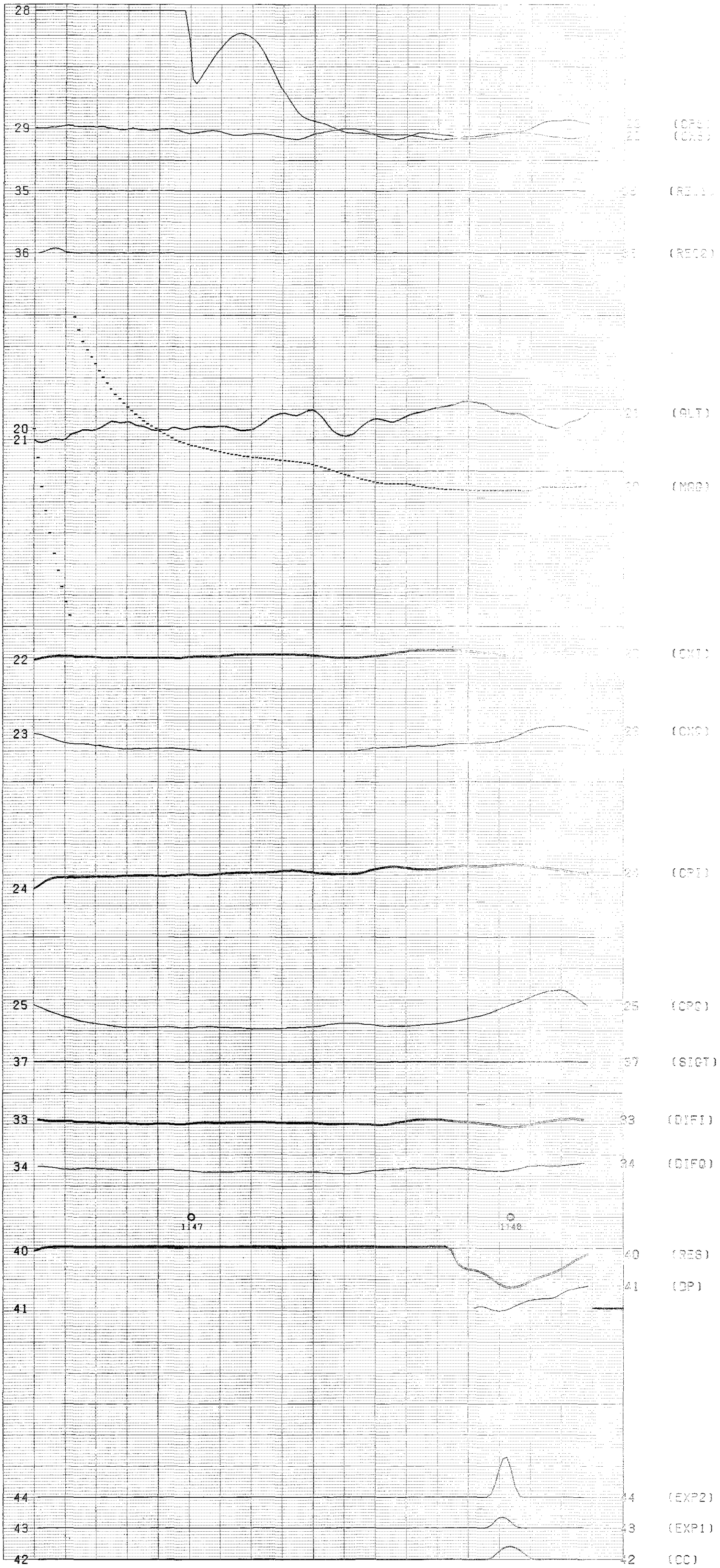
5 cm

9e

82_1738

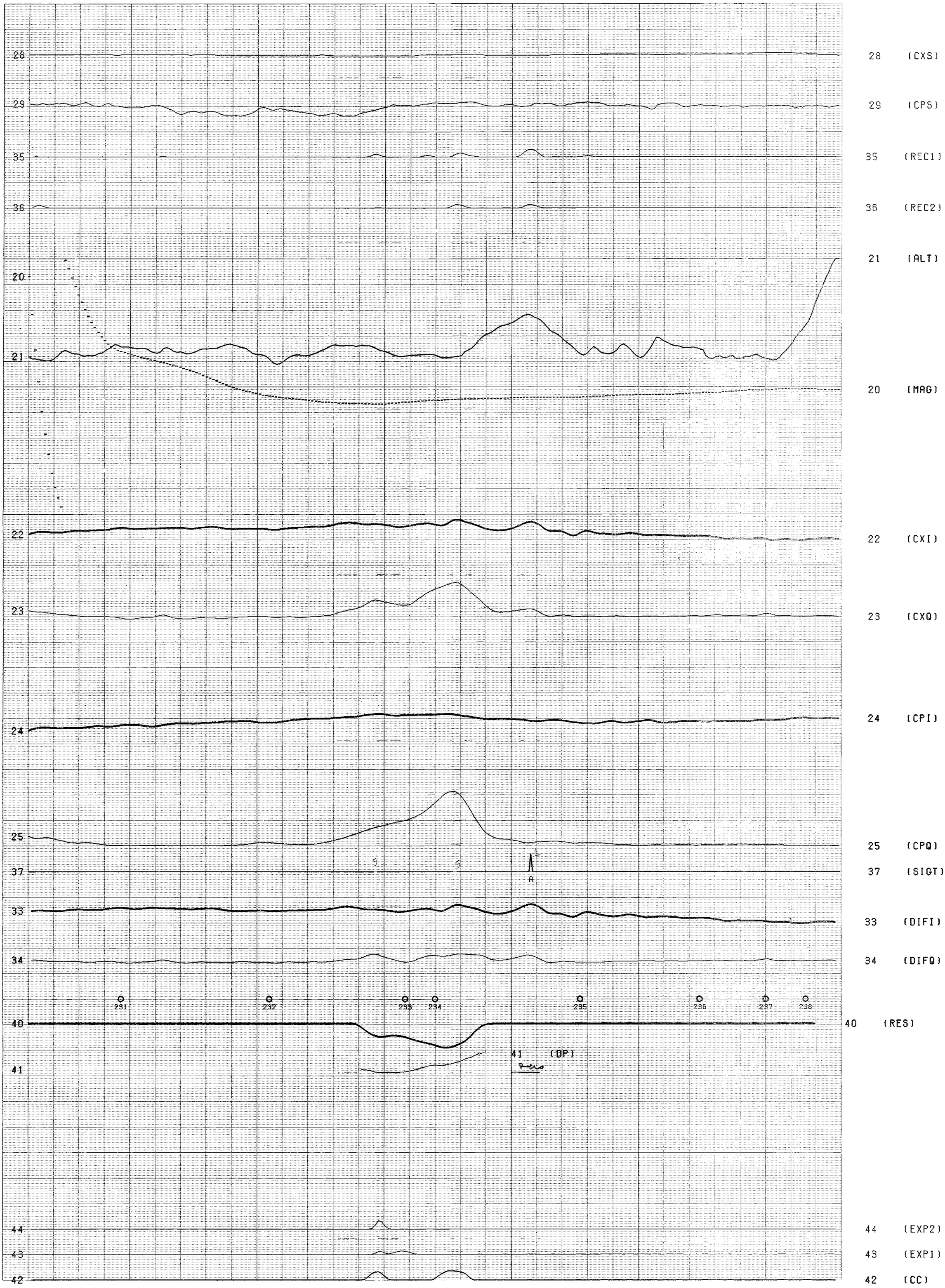


10 OF 24

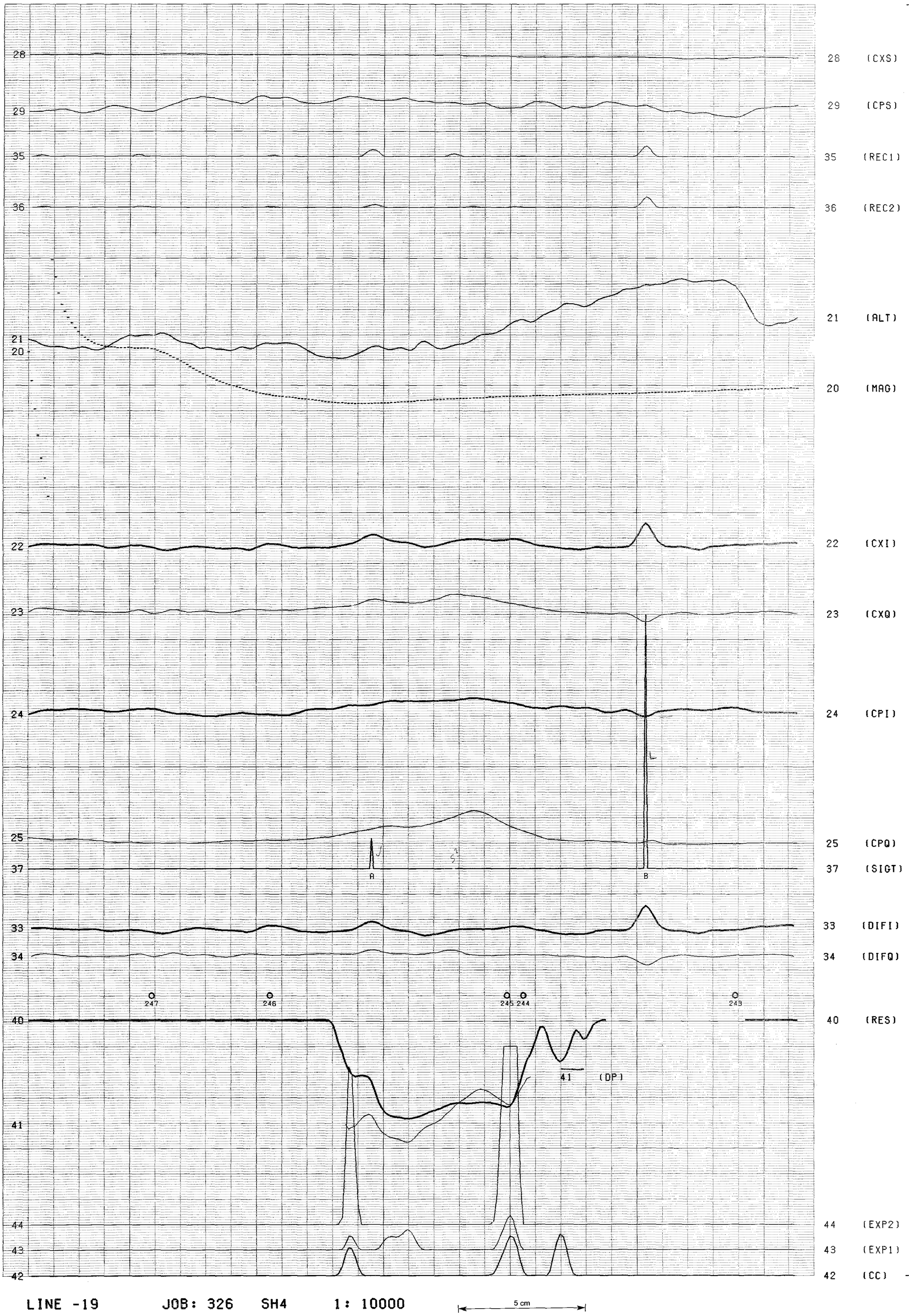


LINE 1700 JOB: 326 SH4 1: 10000

10a

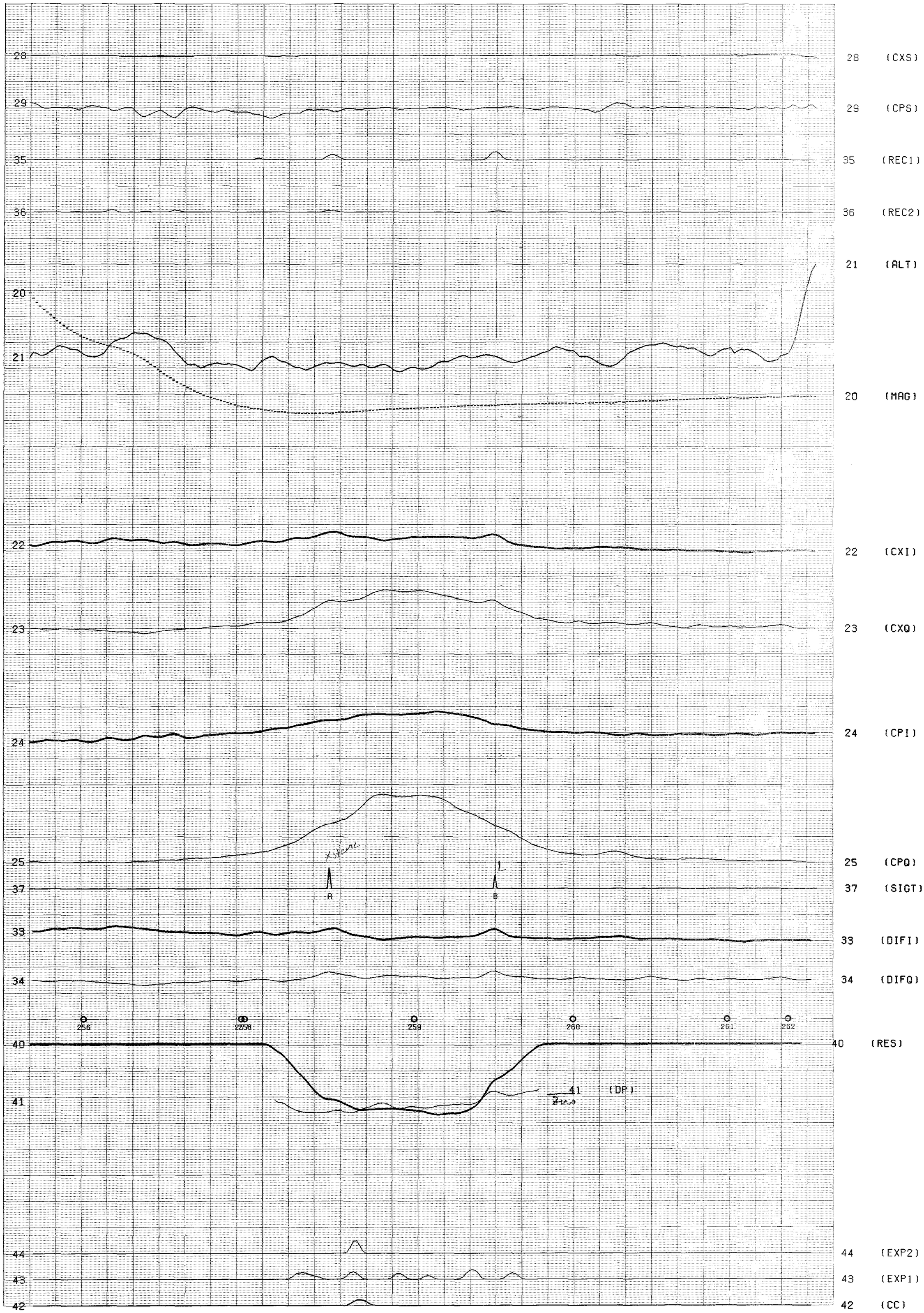


LINE 18 JOB: 326 SH4 1: 10000 5 cm LINE 18



LINE -19 JOB: 326 SH4 1: 10000

10 c

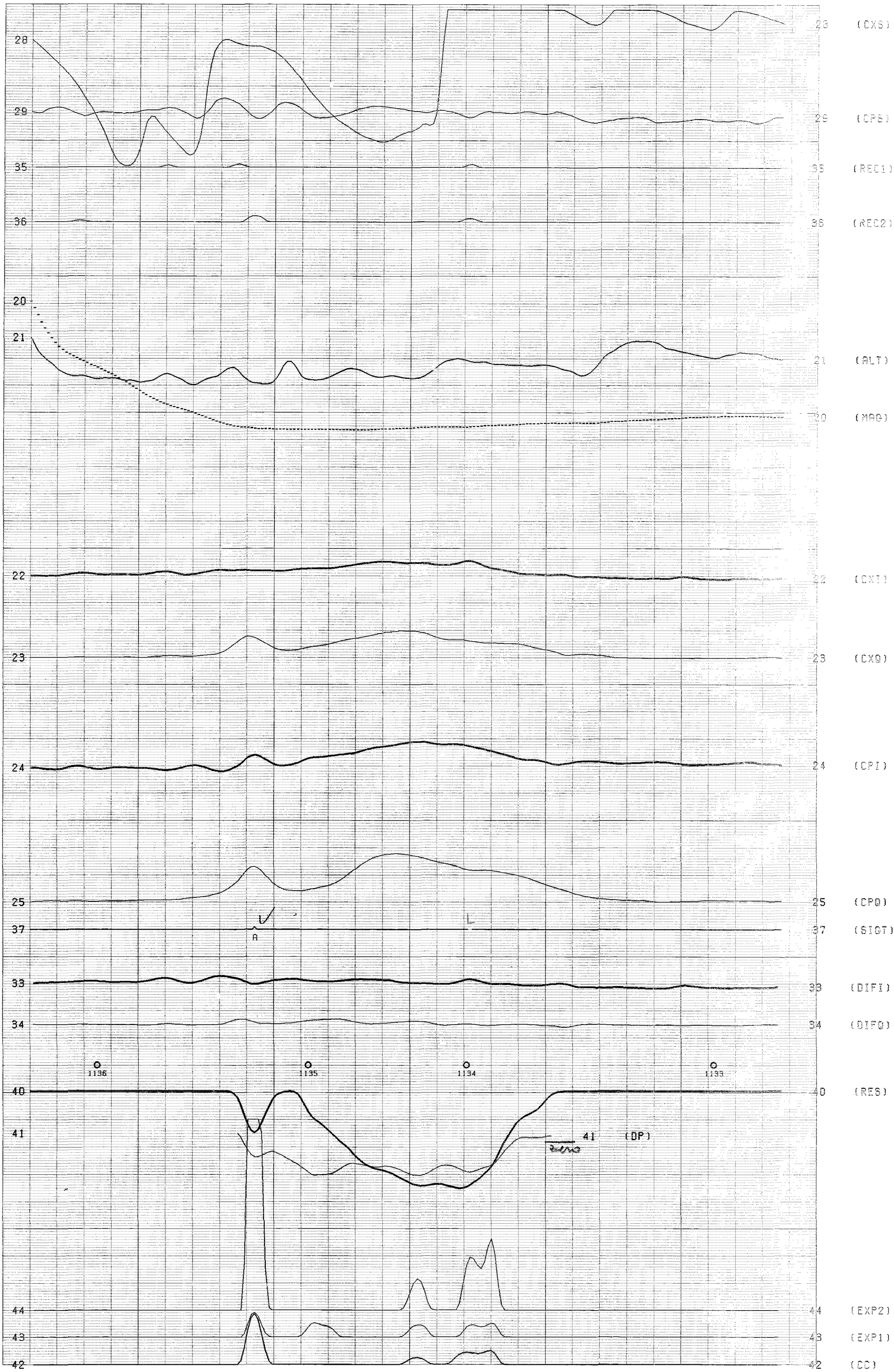


LINE 20 JOB: 326 SH4 1: 10000

10d

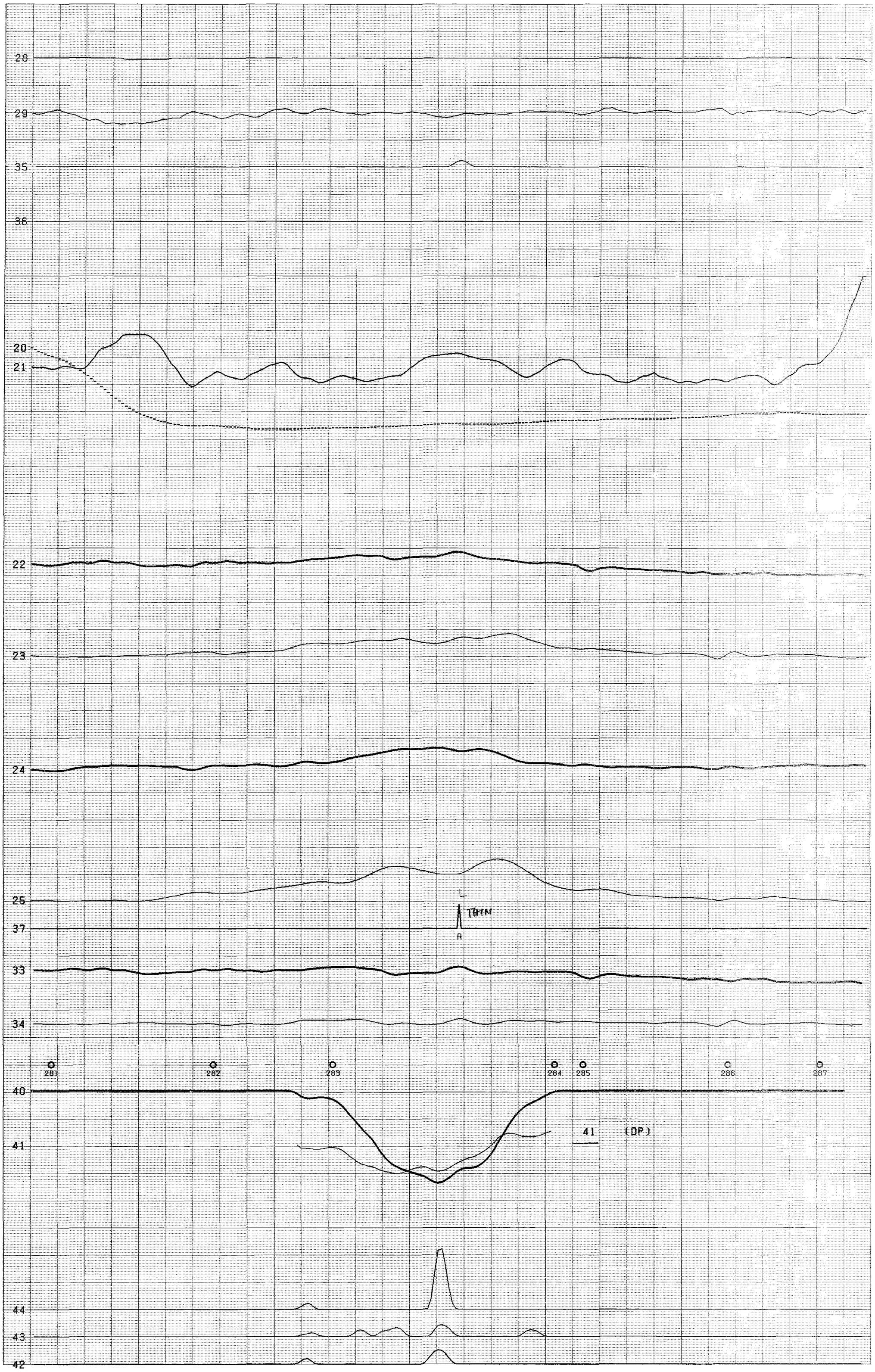
82.1738

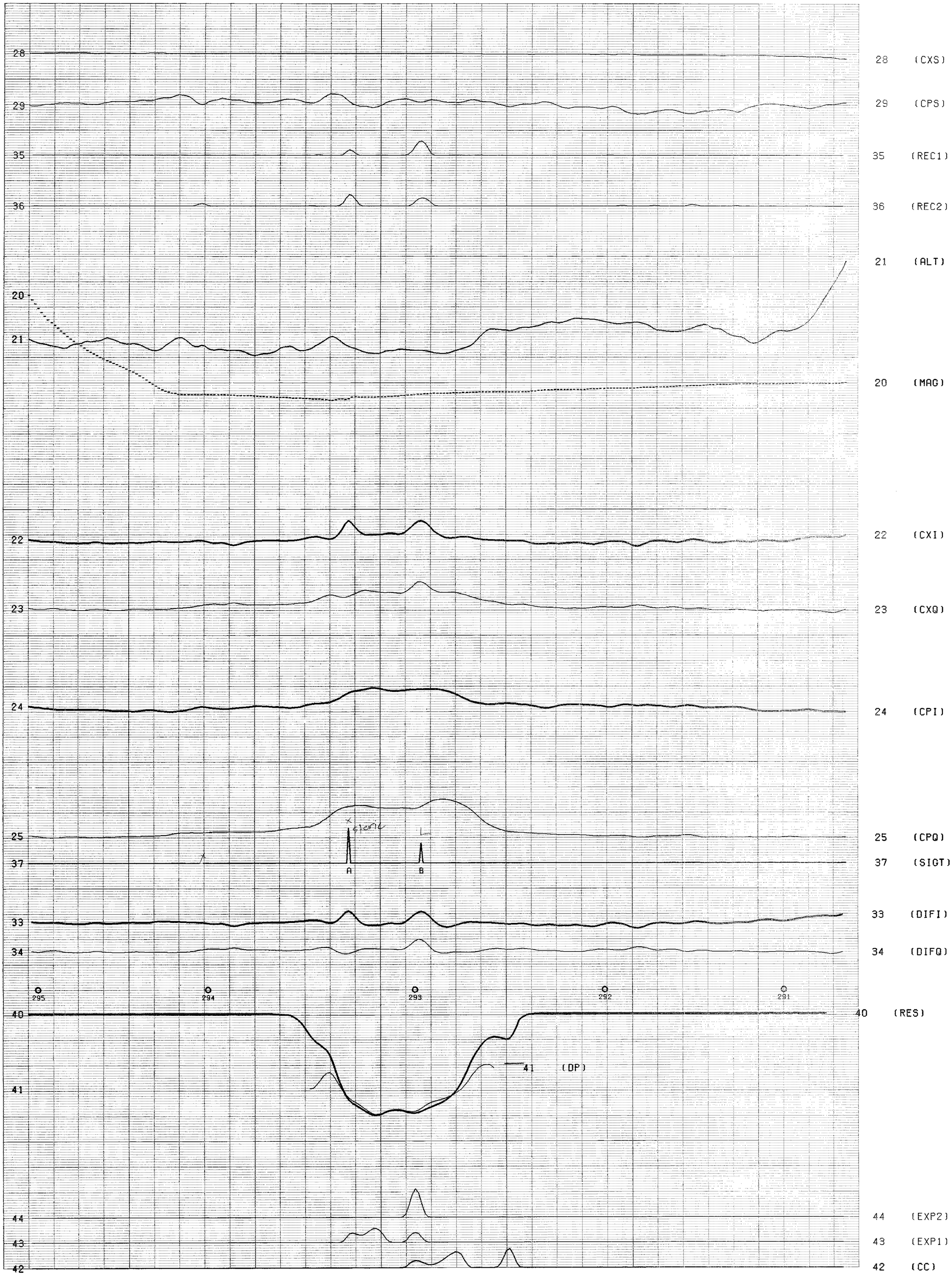

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A
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271
270
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268
267
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE -21 JOB: 326 SH4 1: 10000
5 cm
LINE -21



LINE -2100 JOB: 326 SH4 1: 10000

5 cm


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28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
281
282
283
284
285
286
287
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
THIN
A
LINE 22 JOB: 326 SH4 1: 10000
5 cm
LINE 22



LINE -23 JOB: 326 SH4 1: 10000

5 cm

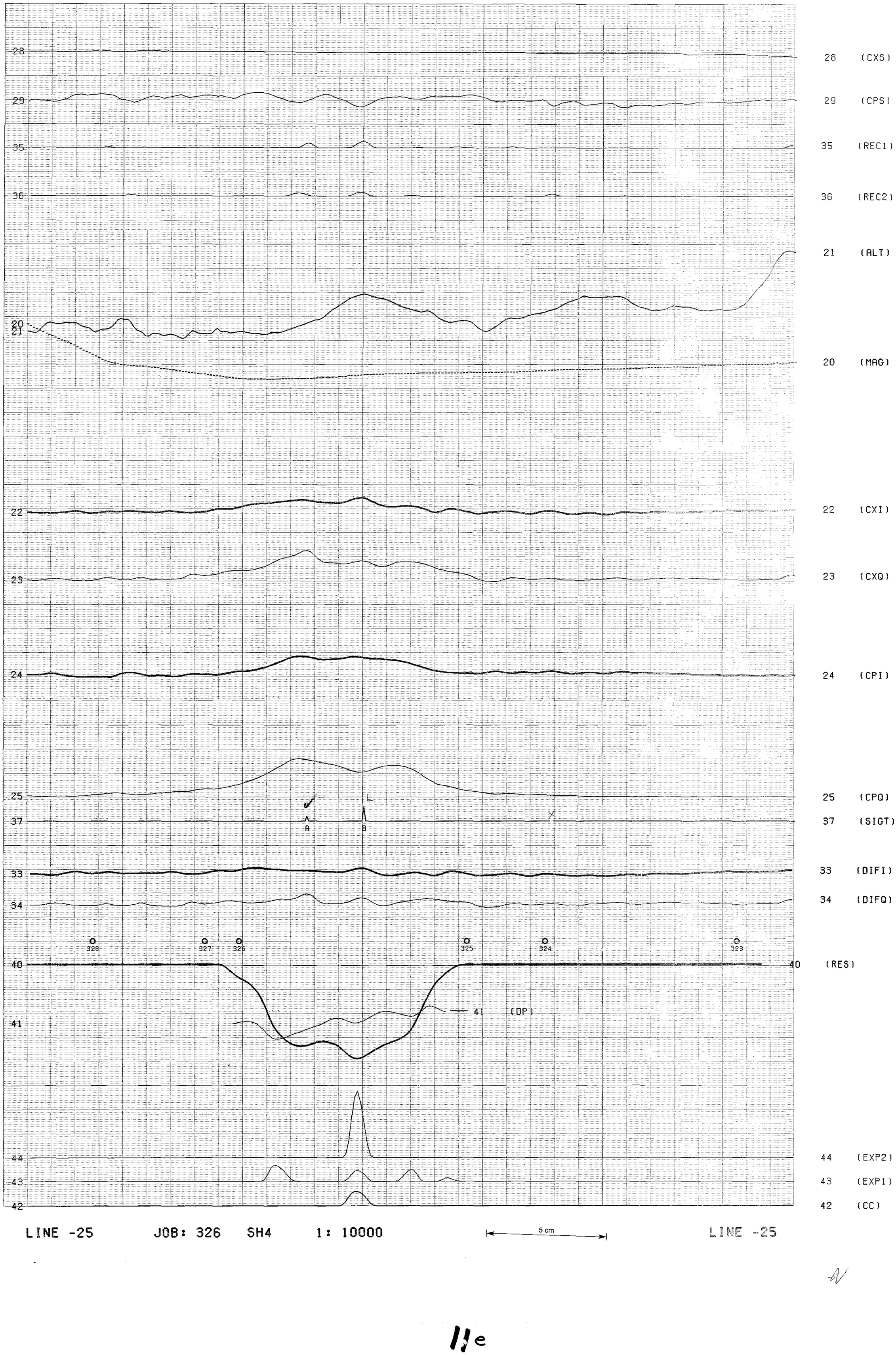
LINE -23

11c



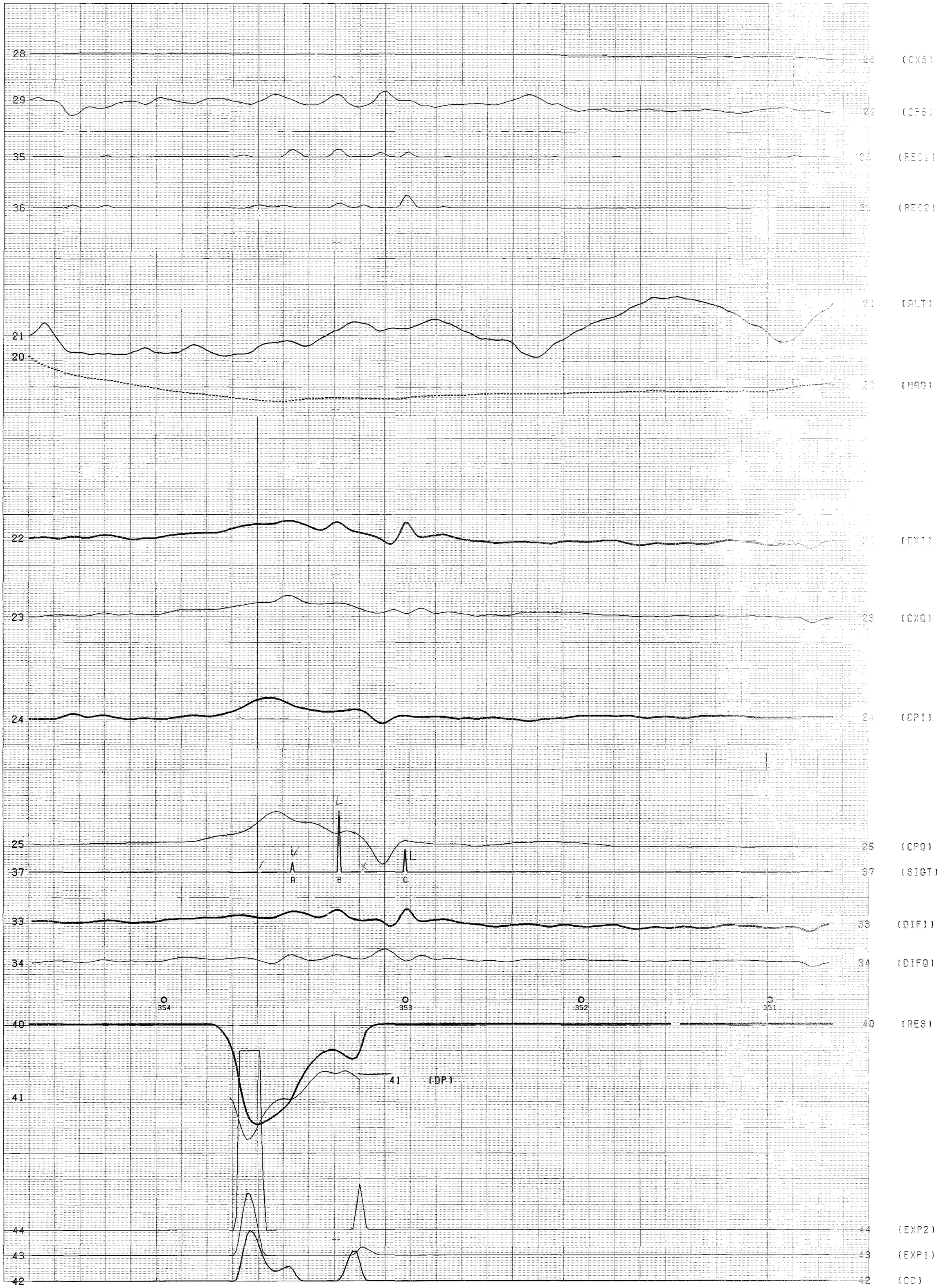
LINE 24 JOB: 326 SH4 1: 10000 LINE 24

11d


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328
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323
A
B
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE -25 JOB: 326 SH4 1: 10000
5 cm
LINE -25

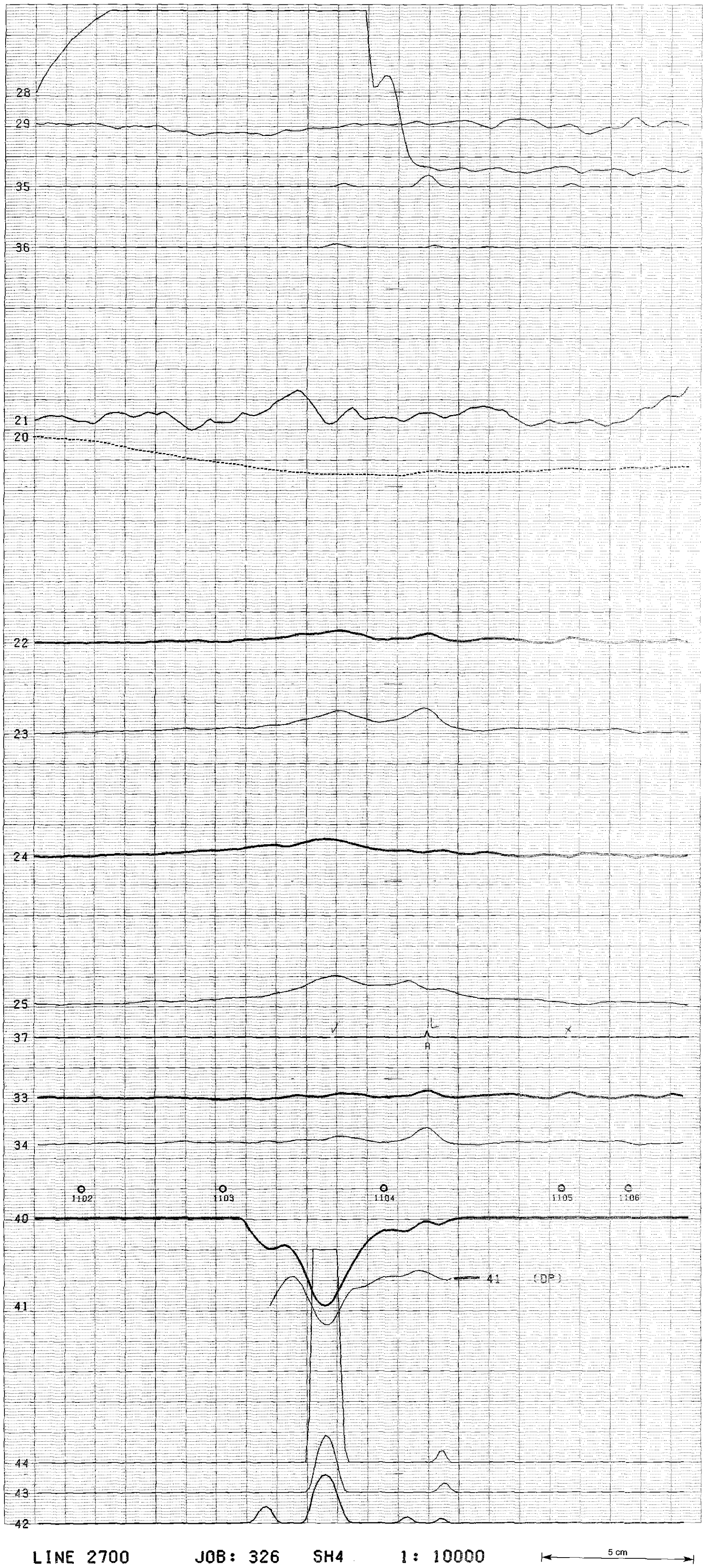


LINE 26 JOB: 326 SH4 1: 10000 LINE 26



LINE -27 JOB: 326 SH4 1: 10000

LINE -27

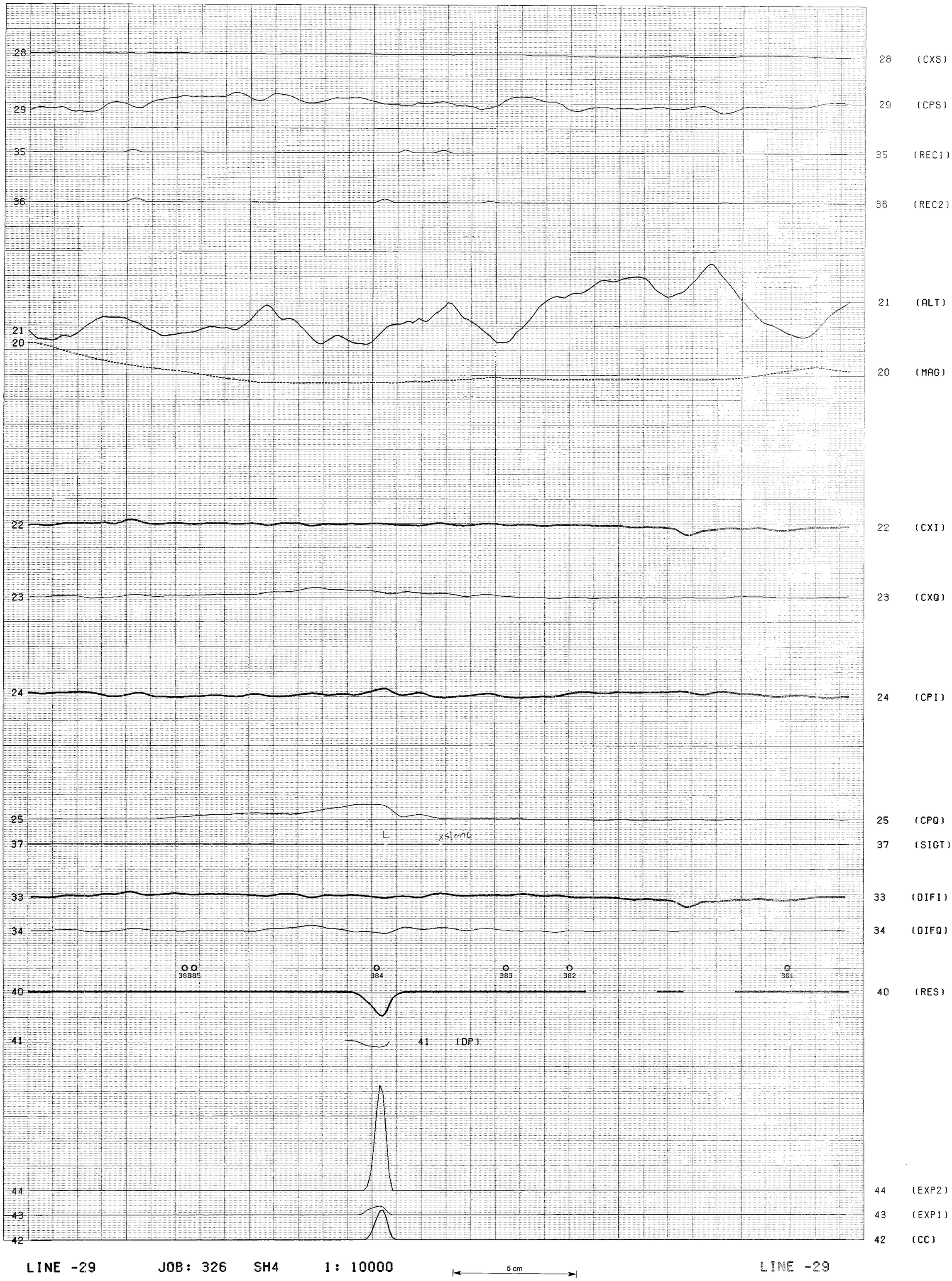


LINE 2700 JOB: 326 SH4 1: 10000

11h

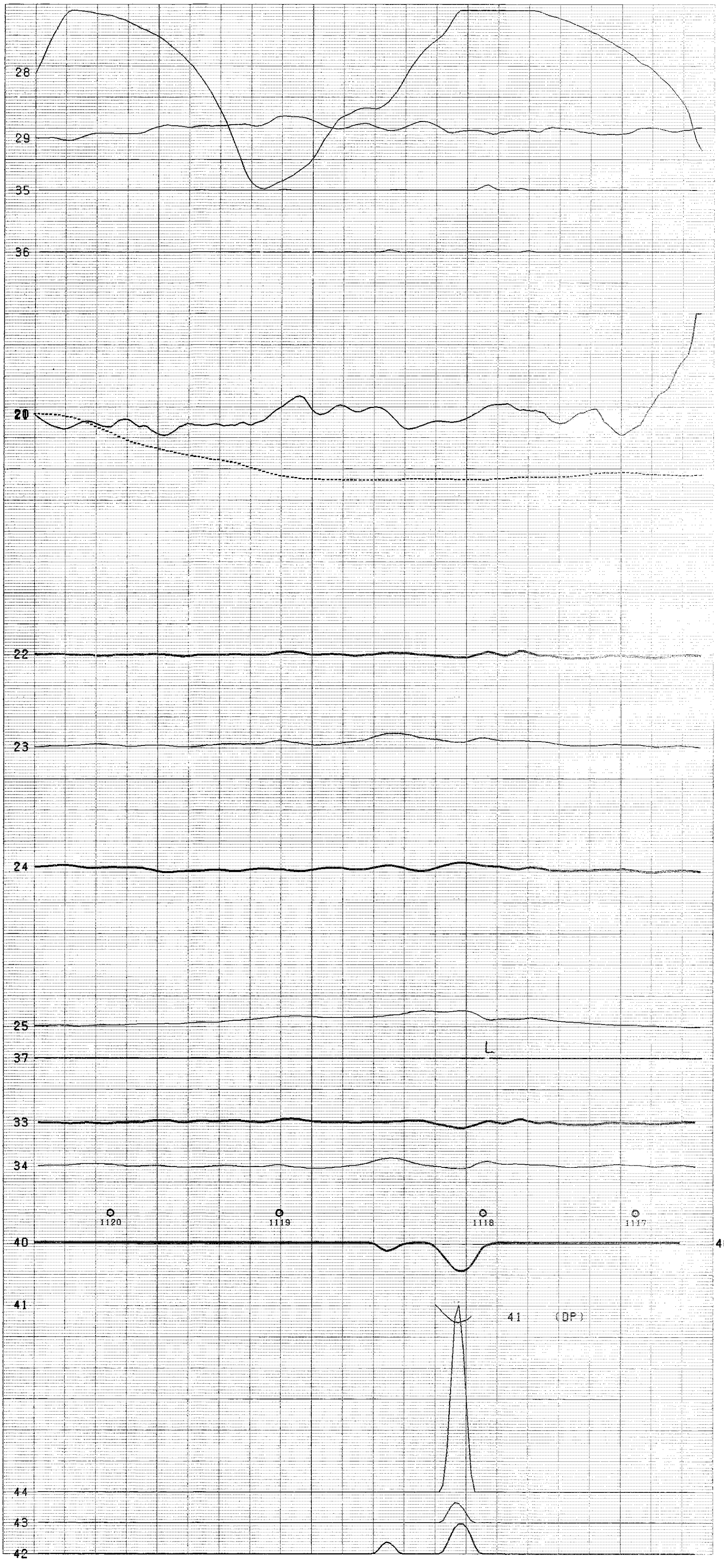


LINE 28 JOB: 326 SH4 1: 10000 LINE 28



LINE -29 JOB: 326 SH4 1: 10000

LINE -29


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1118
1117
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29 (CPS)
28 (CXS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE -2900 JOB: 326 SH4 1: 10000
5 cm

11k


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A
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C
x steam
x steam
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE 30
JOB: 326 SH4
1: 10000
5 cm
LINE 30

82_1738



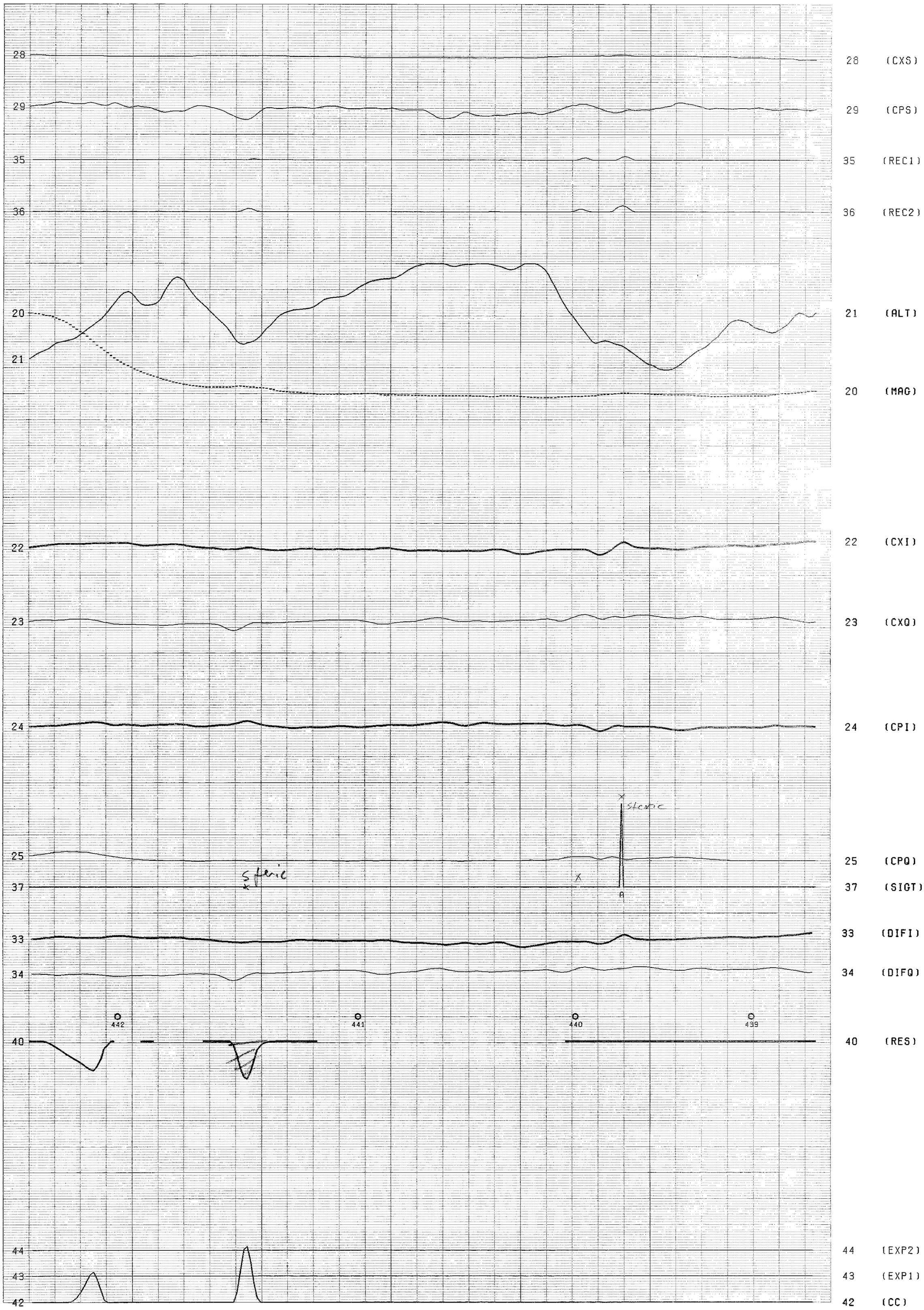
LINE -31 JOB: 326 SH4 1: 10000 5 cm LINE -31

12 of 24

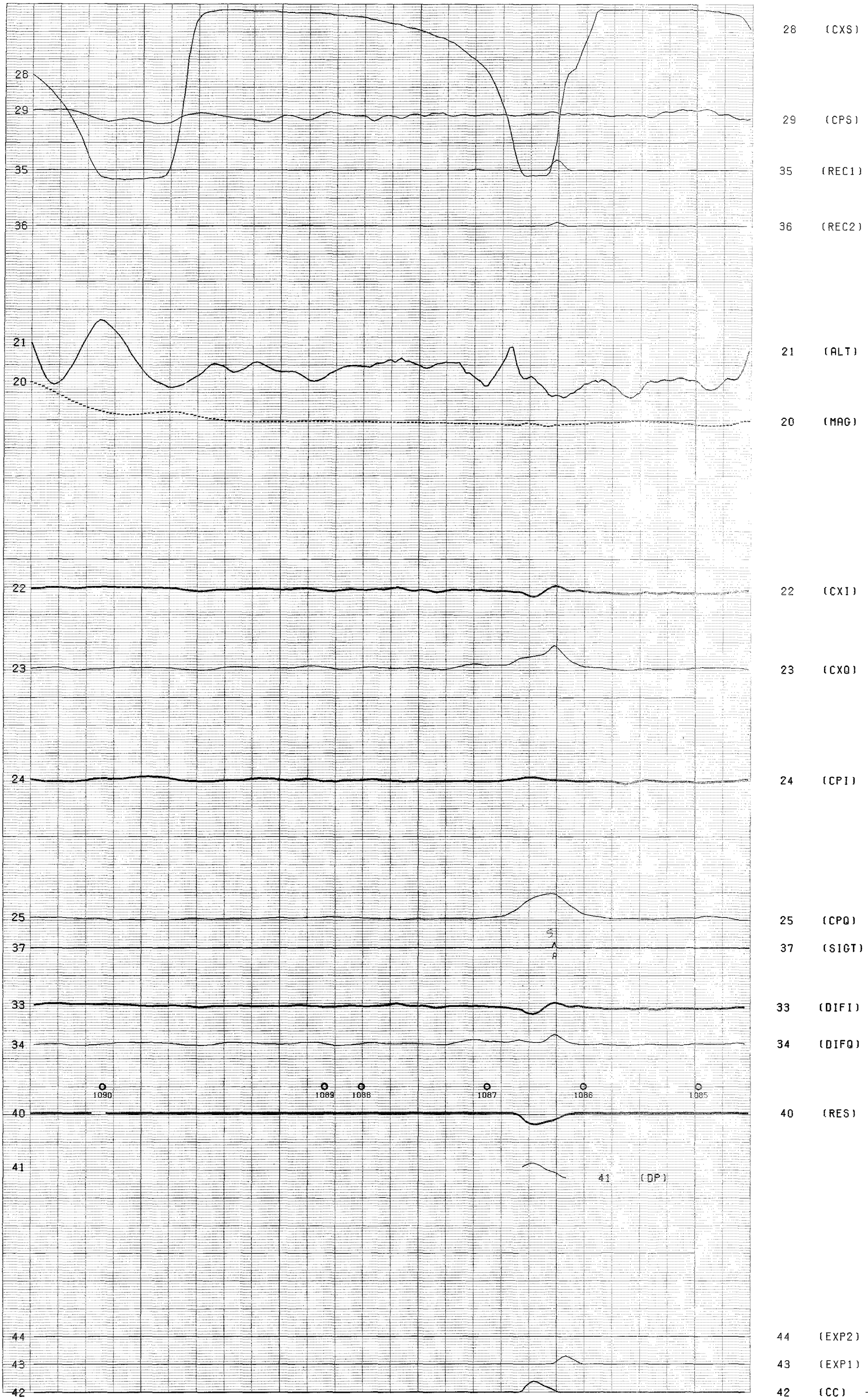


LINE 32 JOB: 326 SH4 1: 10000

12a

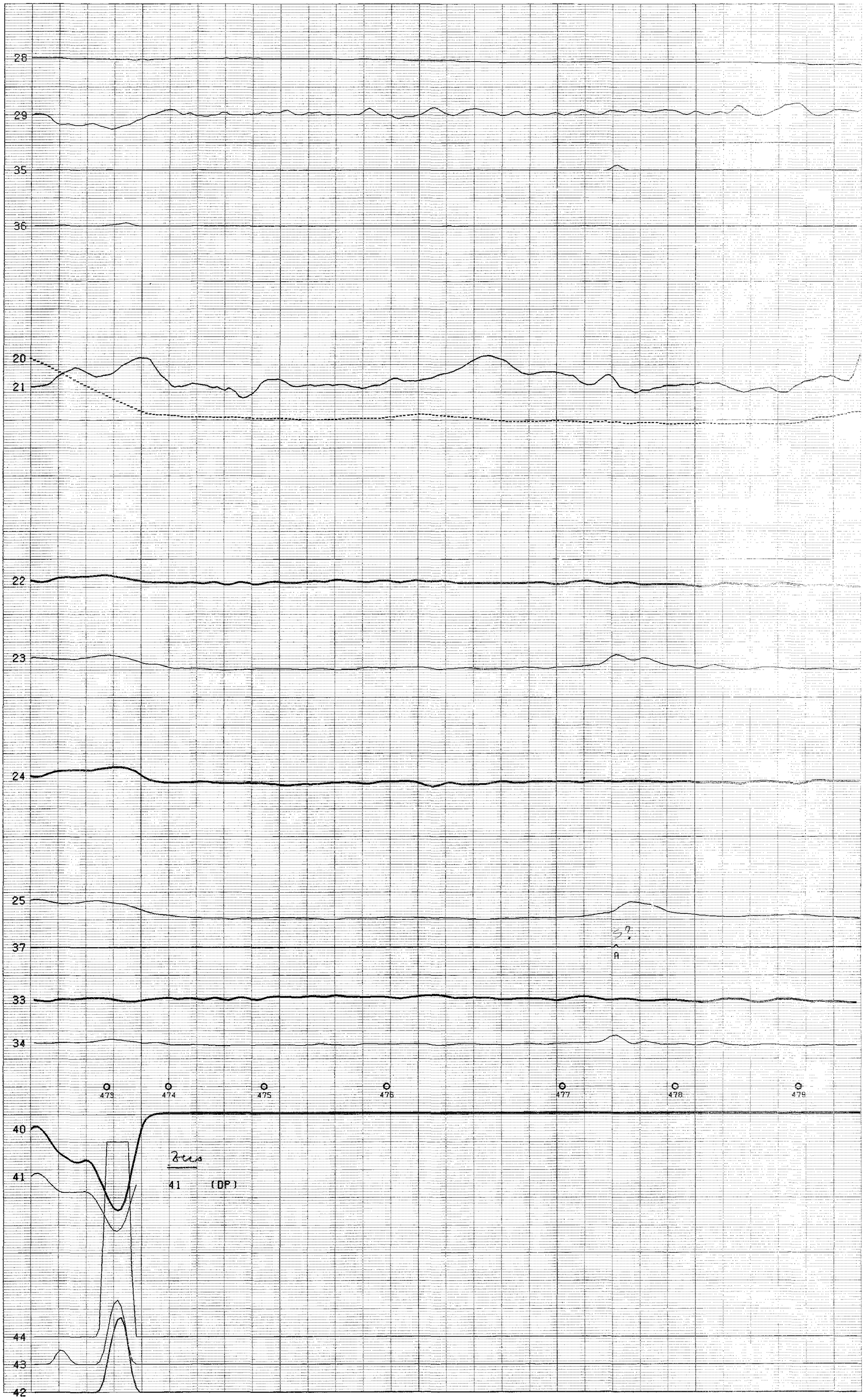

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28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
44 (EXP2)
43 (EXP1)
42 (CC)
442
441
440
439
steric
steric
LINE -33
JOB: 326 SH4
1: 10000
5 cm

12b



LINE -3300 JOB: 326 SH4 1: 10000

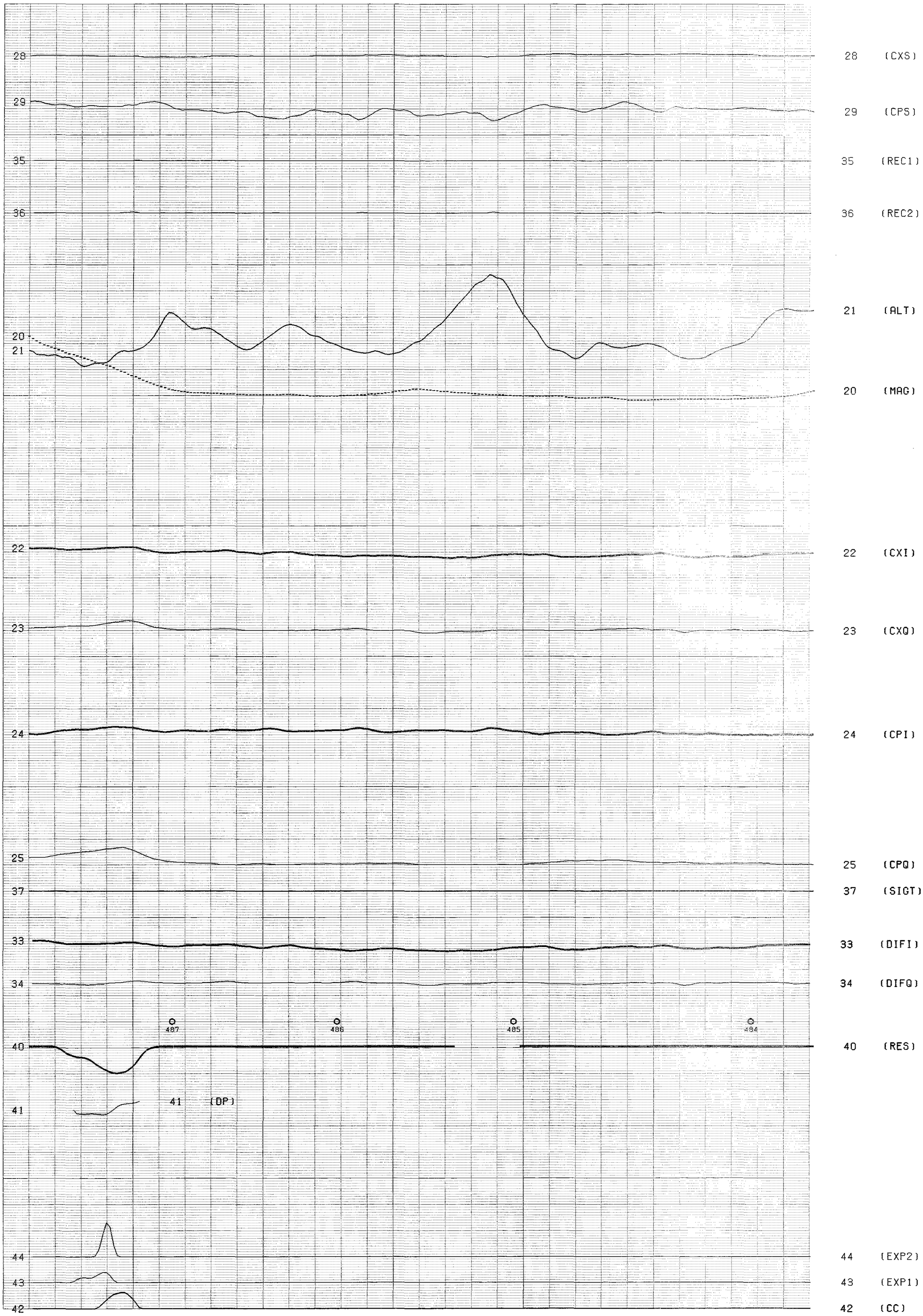
12C



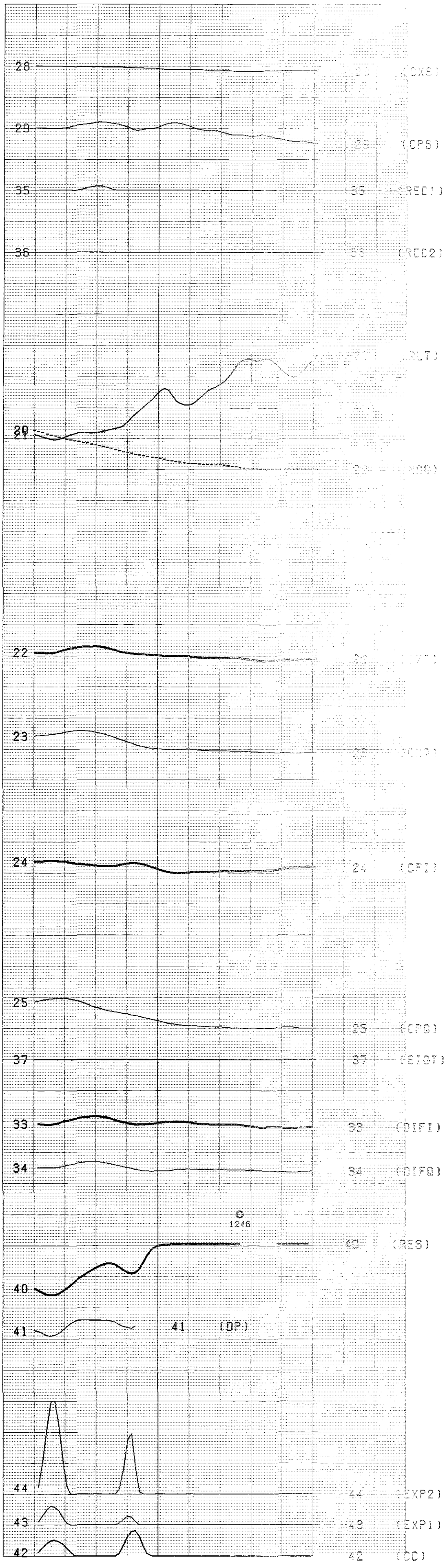
LINE 34 JOB: 326 SH4 1: 10000

5 cm

12d


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28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE -35 JOB: 326 SH4 1: 10000
5 cm
5 cm

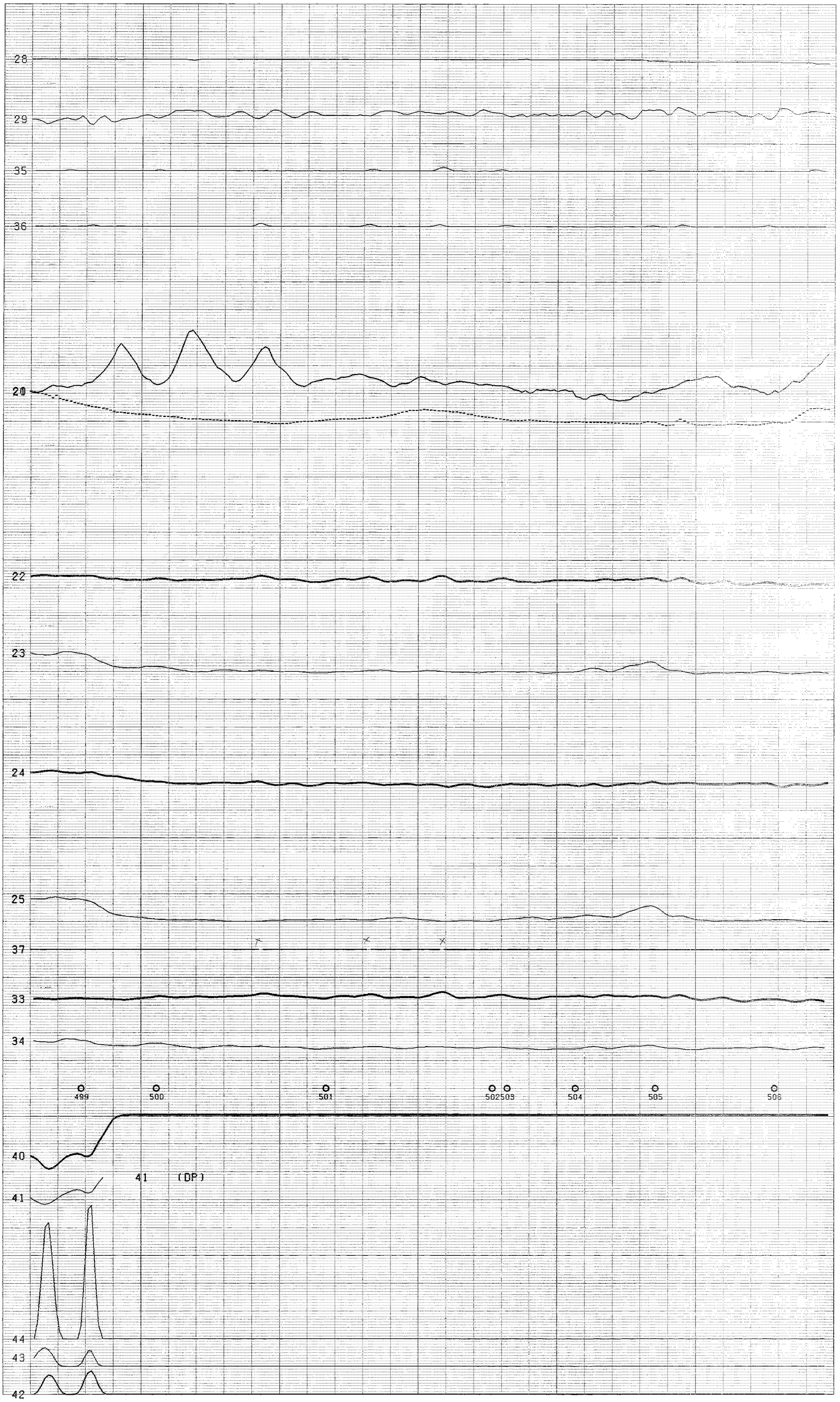
12e



LINE -3500 JOB: 326 SH4 1: 10000

5 cm

12f



LINE 36 JOB: 326 SH4 1: 10000

5 cm

12g



LINE -37 JOB: 326 SH4 1: 10000 LINE -37

12h


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28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE 38 JOB: 326 SH4 1: 10000
5 cm
LINE 38

28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
44 (EXP2)
43 (EXP1)
42 (CC)

550 549 548 546 545 544

LINE -39 JOB: 326 SH4 1: 10000

5 cm

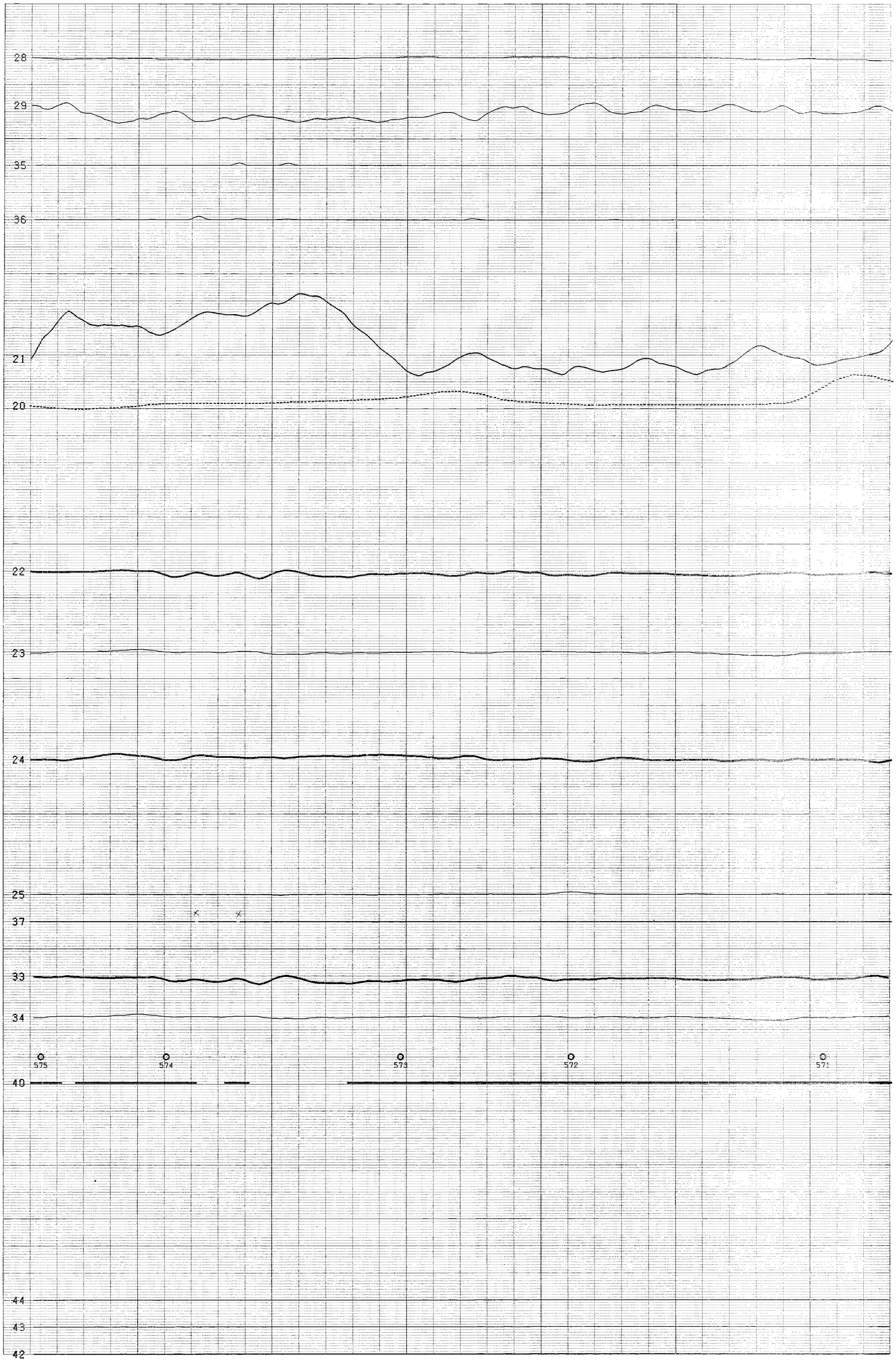
LINE -39

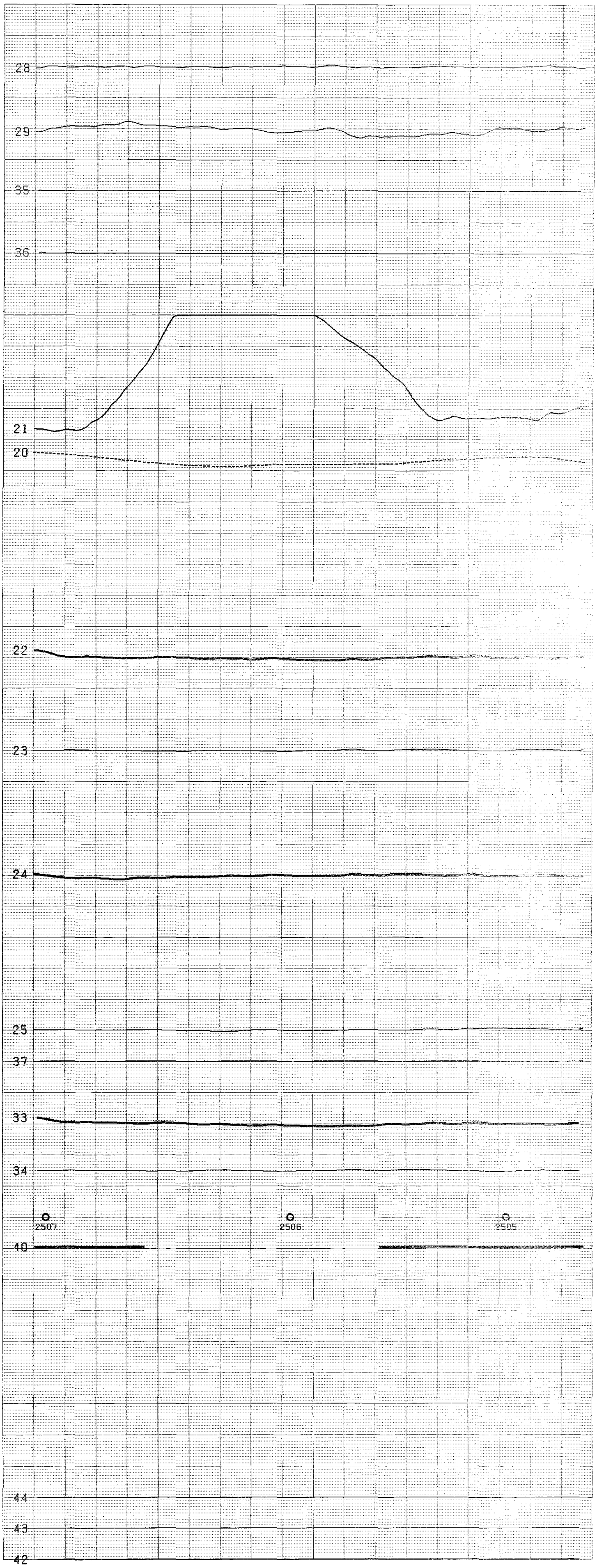


LINE 40 JOB: 326 SH4 1: 10000

12k

82-1738


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28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE -41 JOB: 326 SH4 1: 10000
5 cm
LINE -41



LINE -4100 JOB: 326 SH4 1: 10000

5 cm

13a

28 — 28 (CXS)

29 — 29 (CPS)

35 — 35 (REC1)

36 — 36 (REC2)

21 — 21 (ALT)

20 — 20 (MAG)

22 — 22 (CXI)

23 — 23 (CXQ)

24 — 24 (CPI)

25 — 25 (CPQ)

37 — 37 (SIGT)

33 — 33 (DIFI)

34 — 34 (DIFQ)

587 588 589 590 591 592 593

40 — 40 (RES)

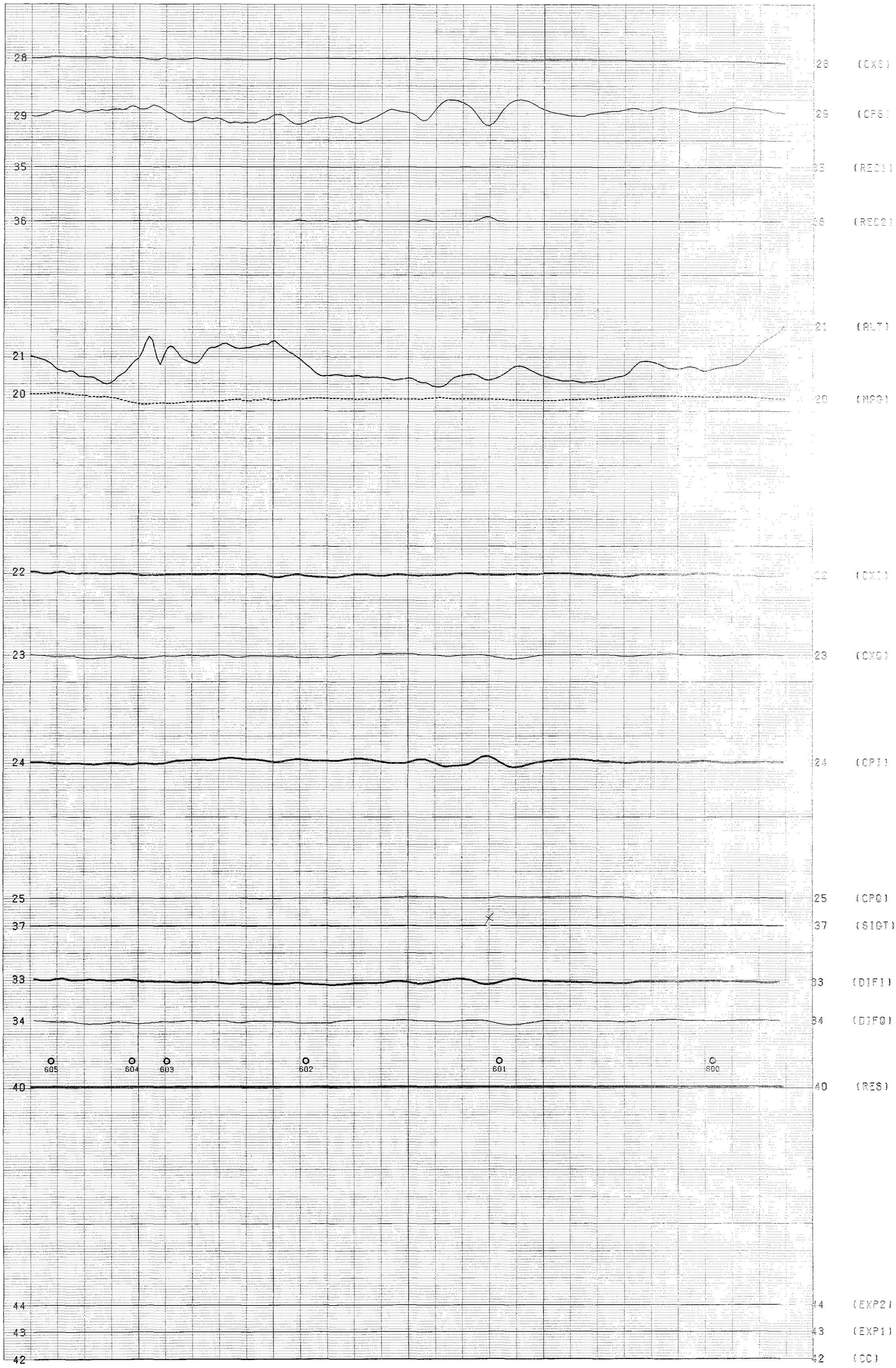
44 — 44 (EXP2)

43 — 43 (EXP1)

42 — 42 (CC)

LINE 42 JOB: 326 SH4 1: 10000

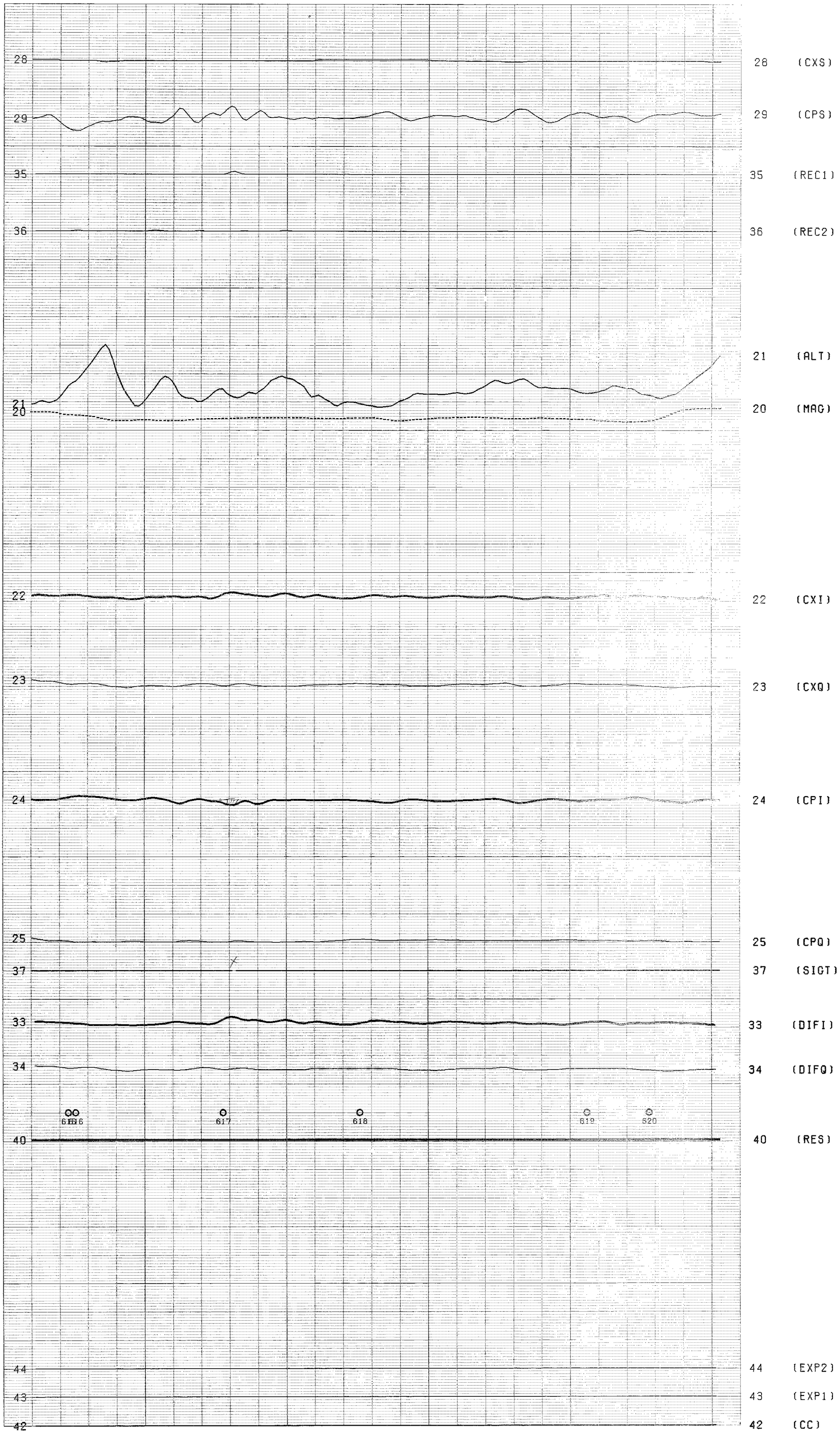
5 cm



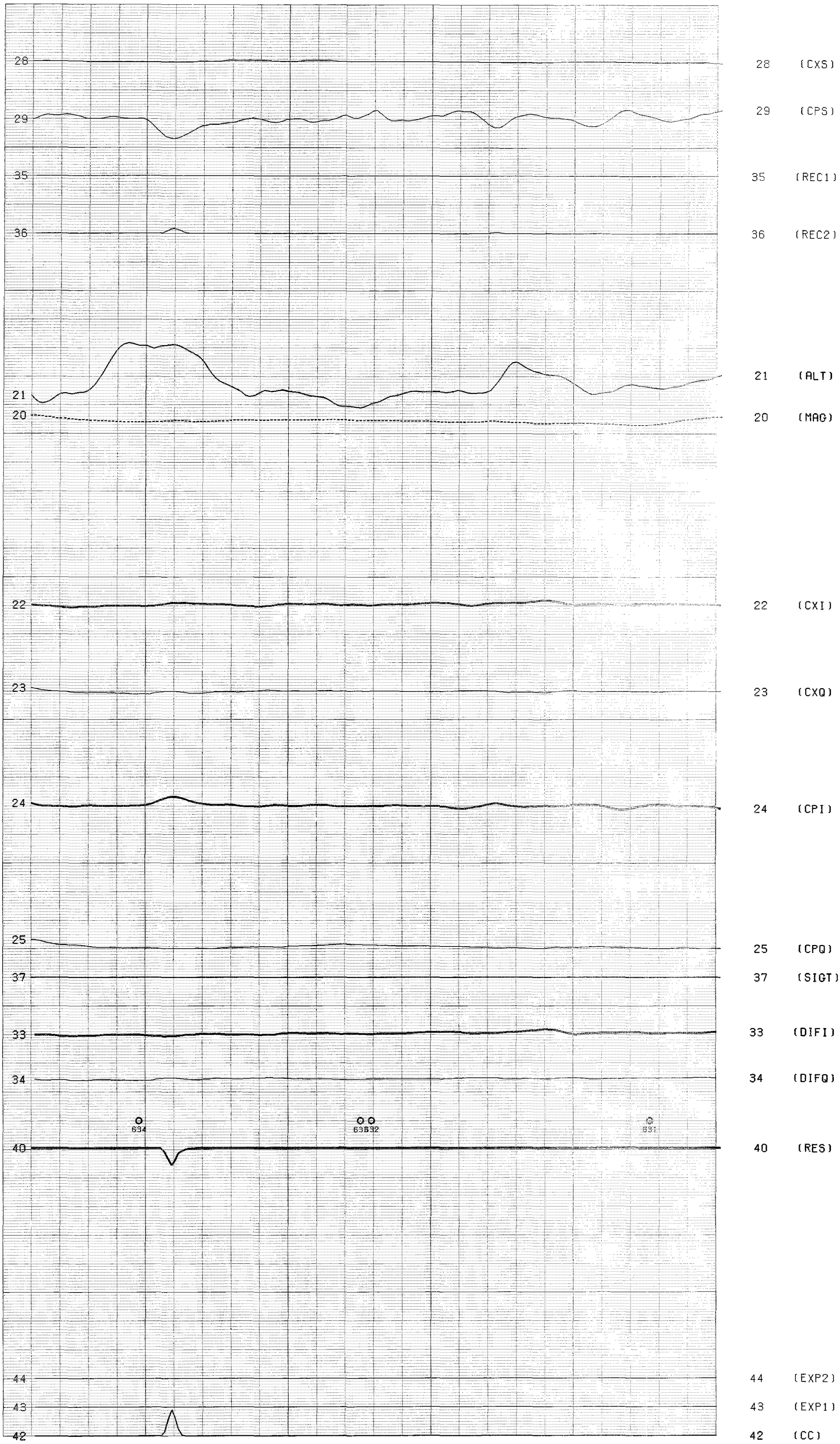
LINE -43 JOB: 326 SH4 1: 10000

5 cm

13C



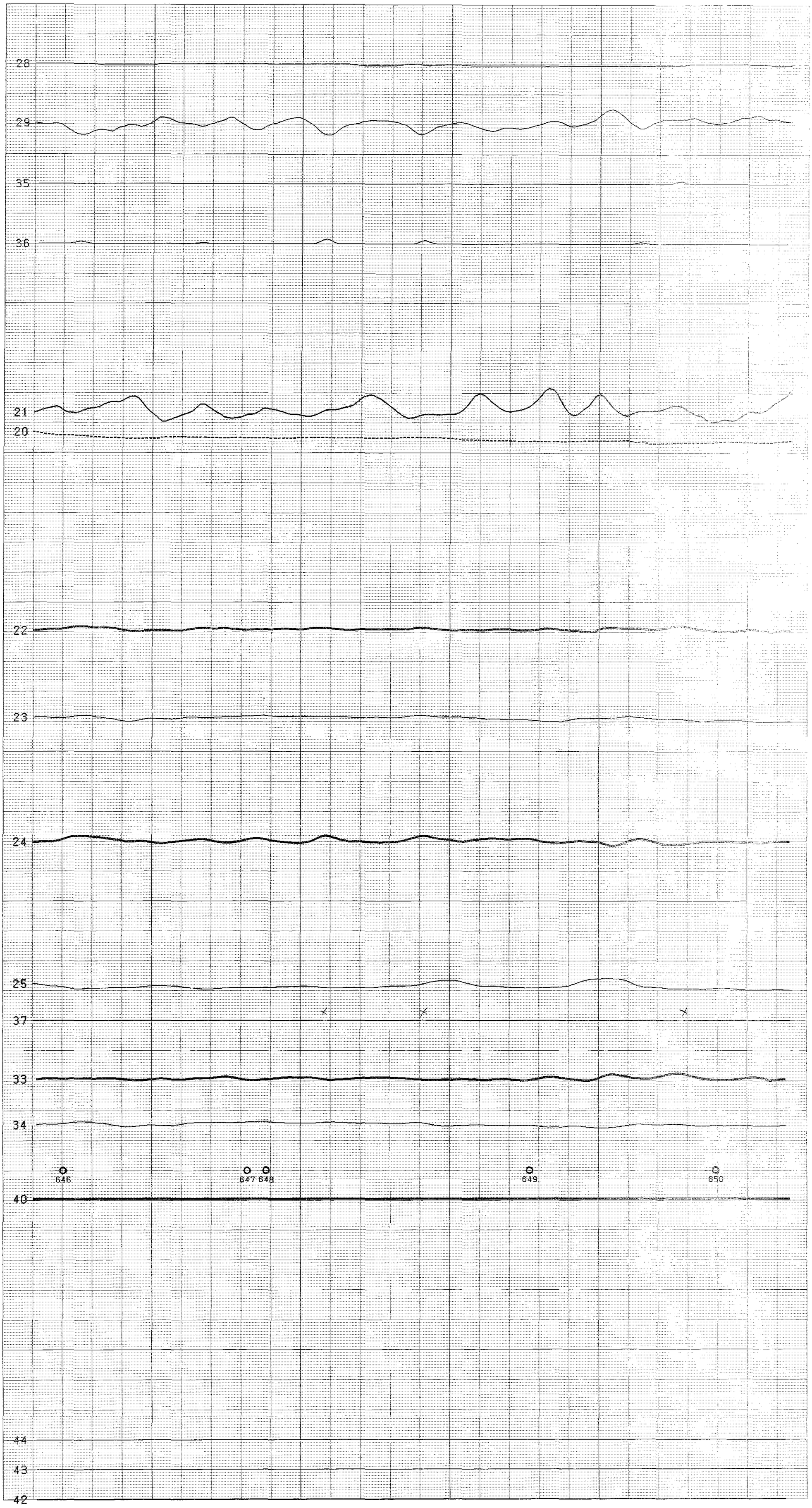
LINE 44 JOB: 326 SH4 1: 10000



LINE -45 JOB: 326 SH4 1: 10000

5 cm

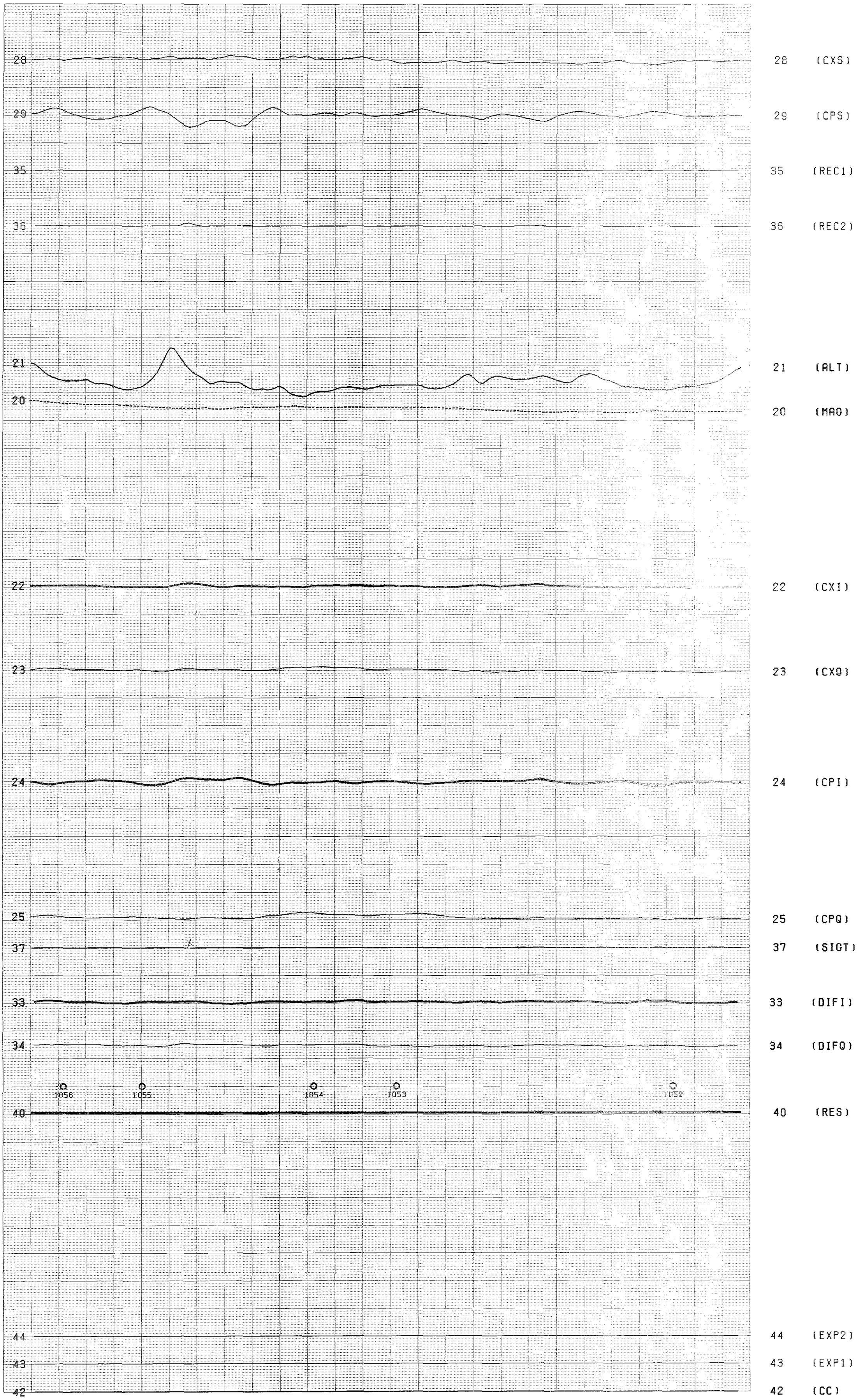
18e



LINE 46 JOB: 326 SH4 1: 10000

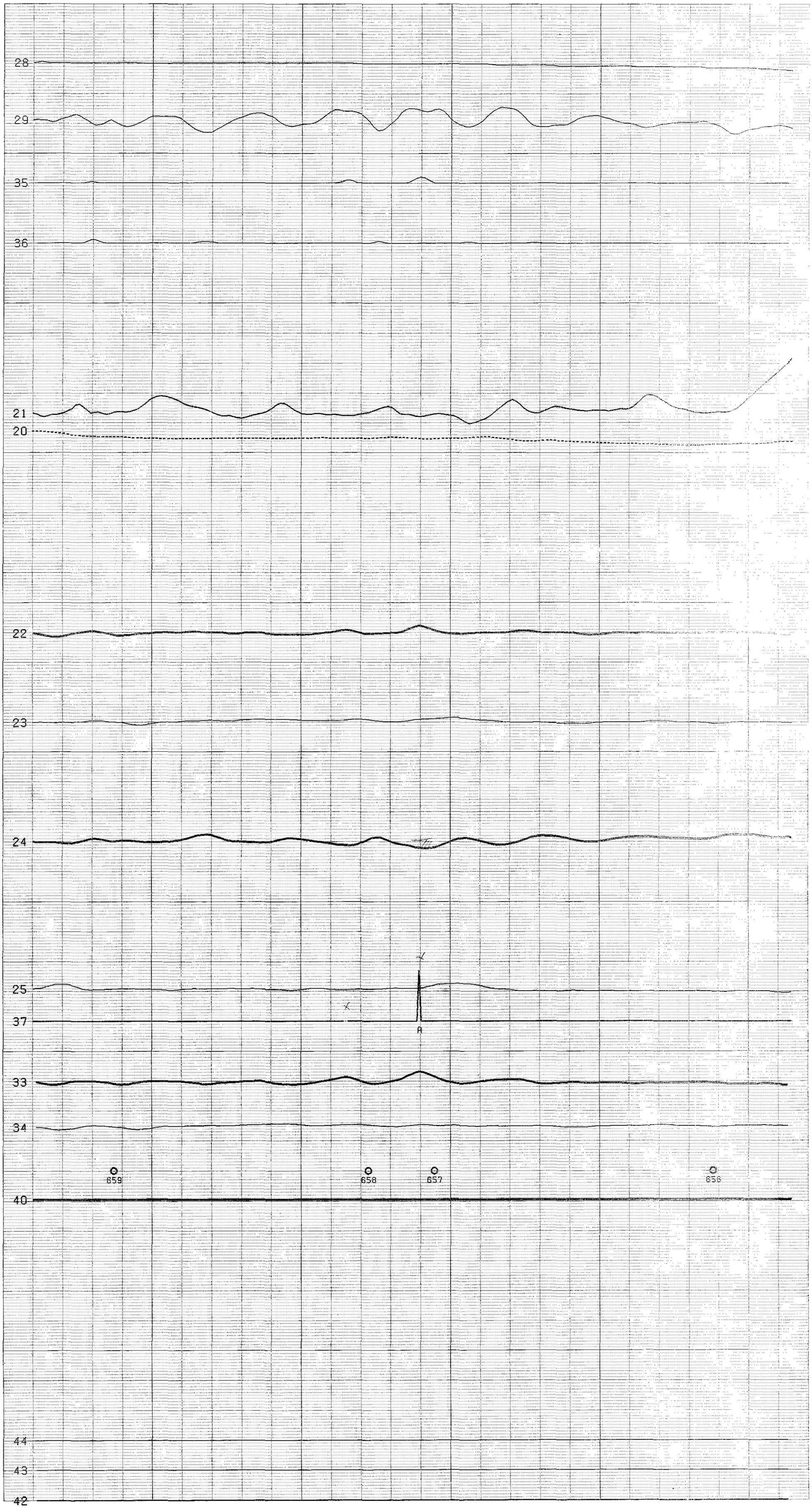
5 cm

18F



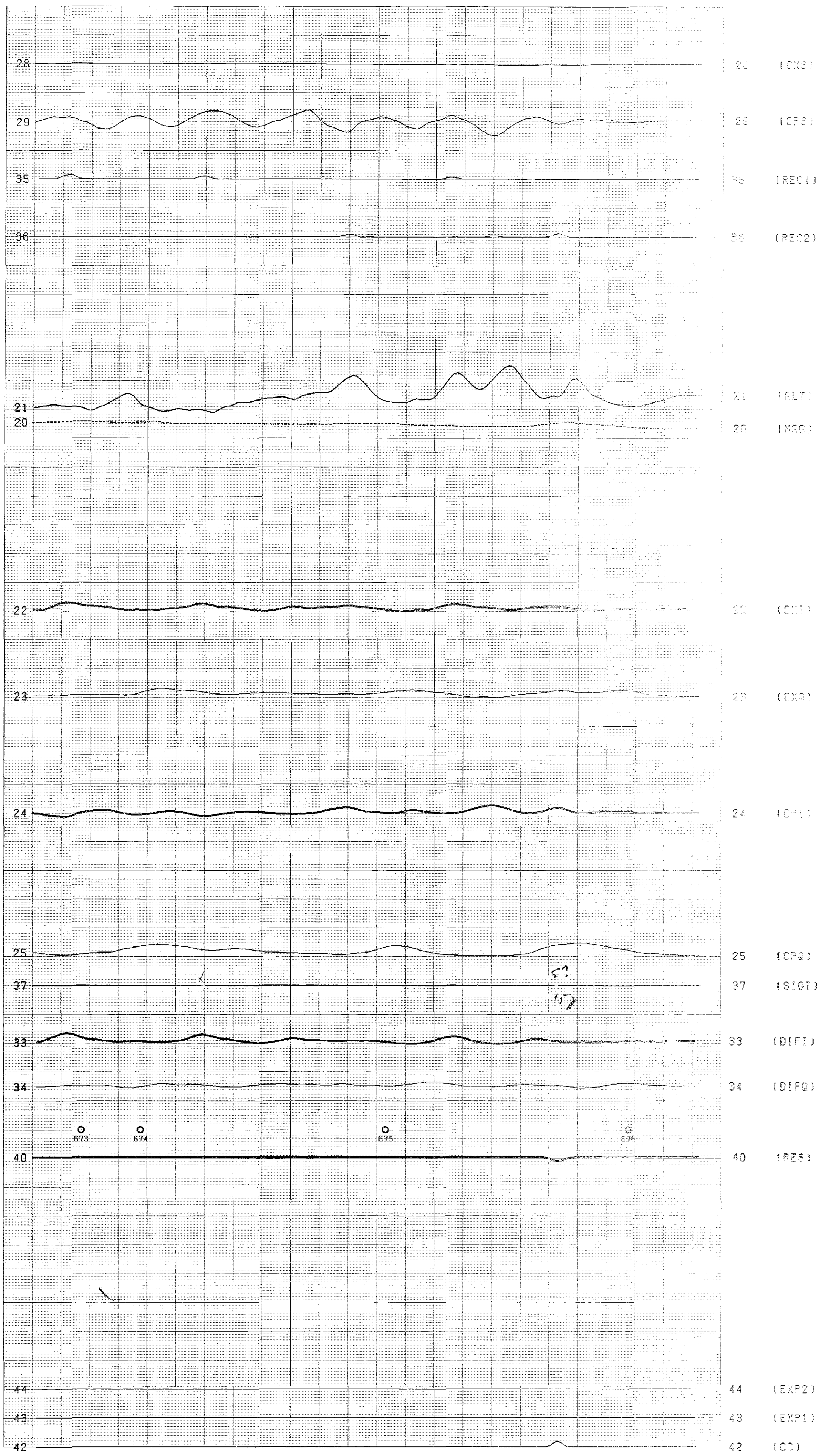
LINE -4600 JOB: 326 SH4 1: 10000

5 cm



LINE -47 JOB: 326 SH4 1: 10000

13h



LINE 48 JOB: 326 SH4 1: 10000

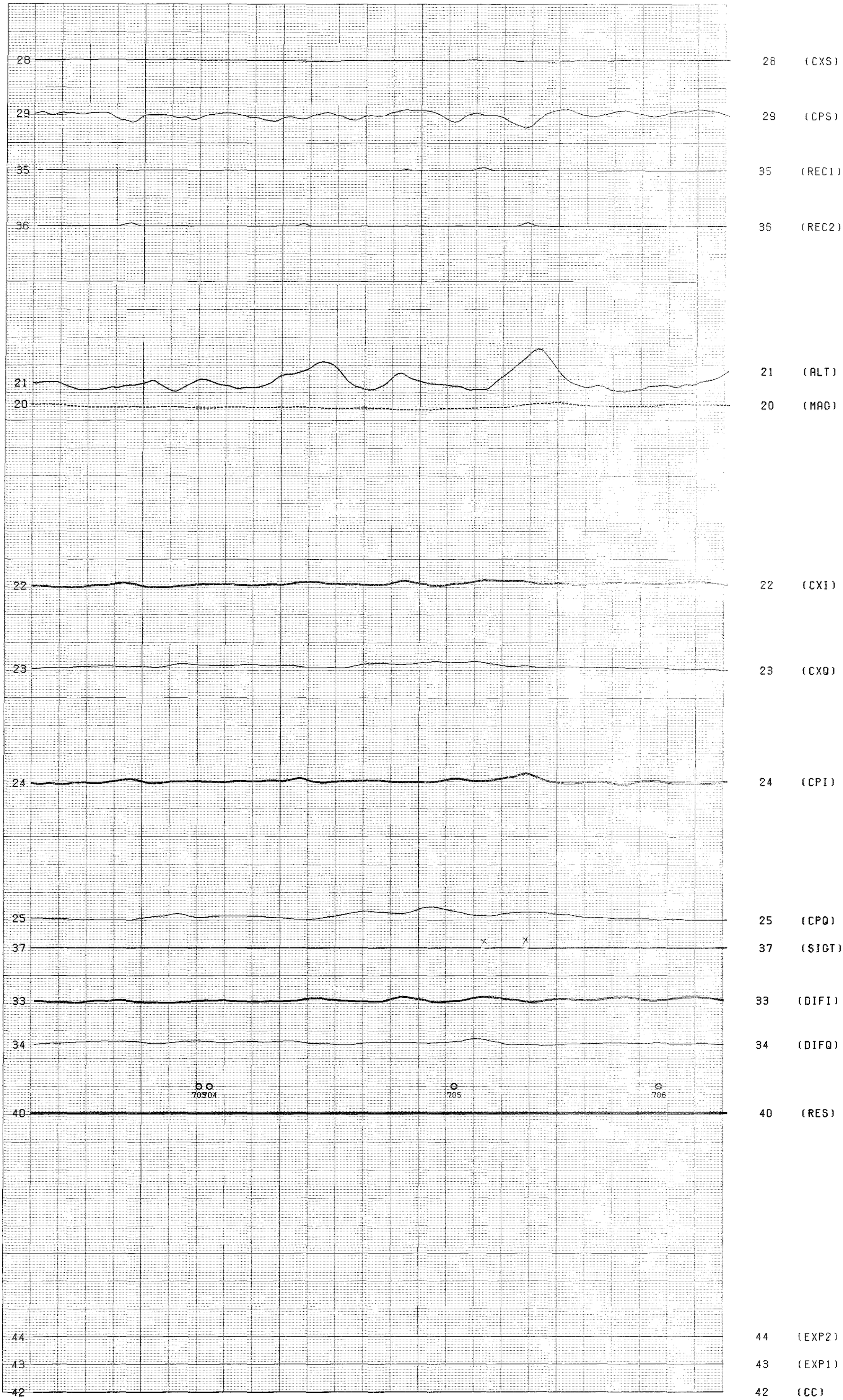
5 cm

AV

13i

LINE -49 JOB: 326 SH4 1: 10000

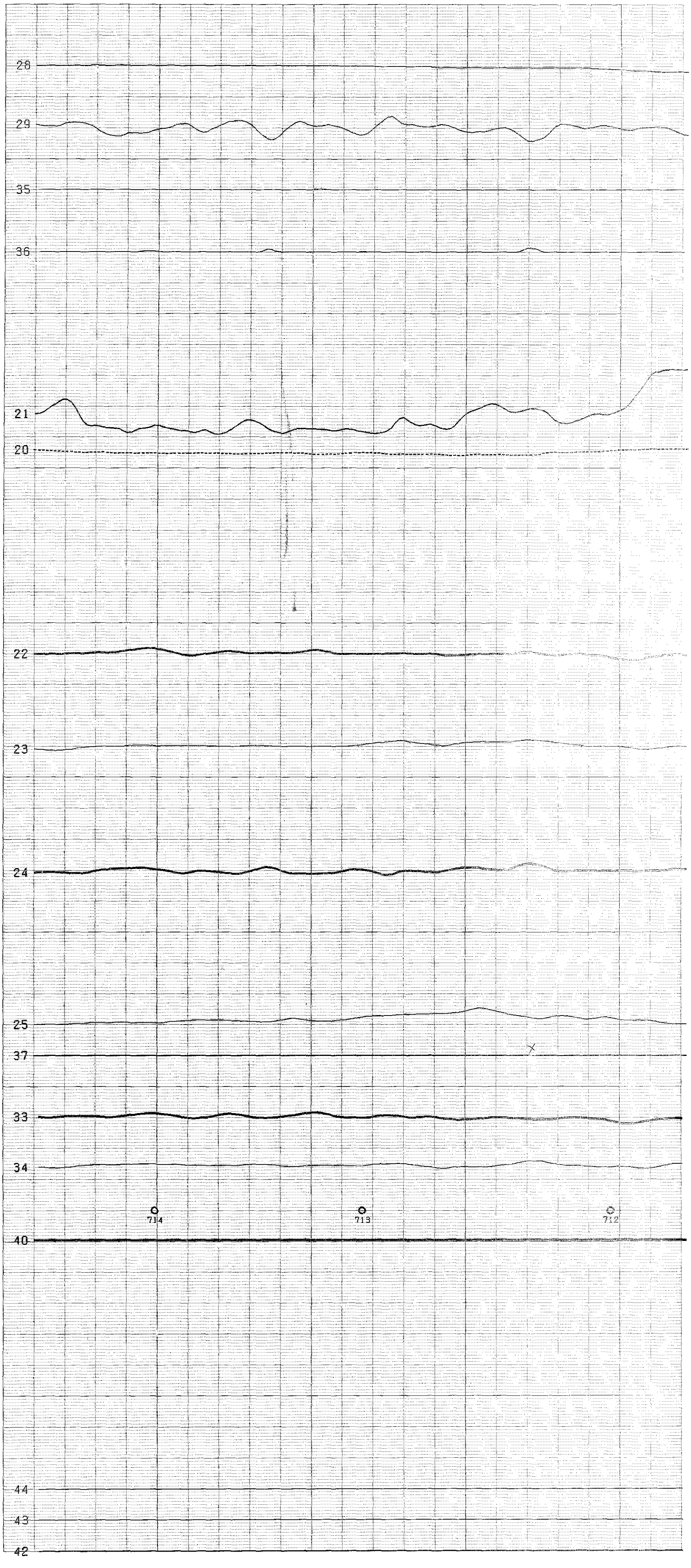
5 cm



LINE 50 JOB: 326 SH4 1: 10000 5 cm

13k

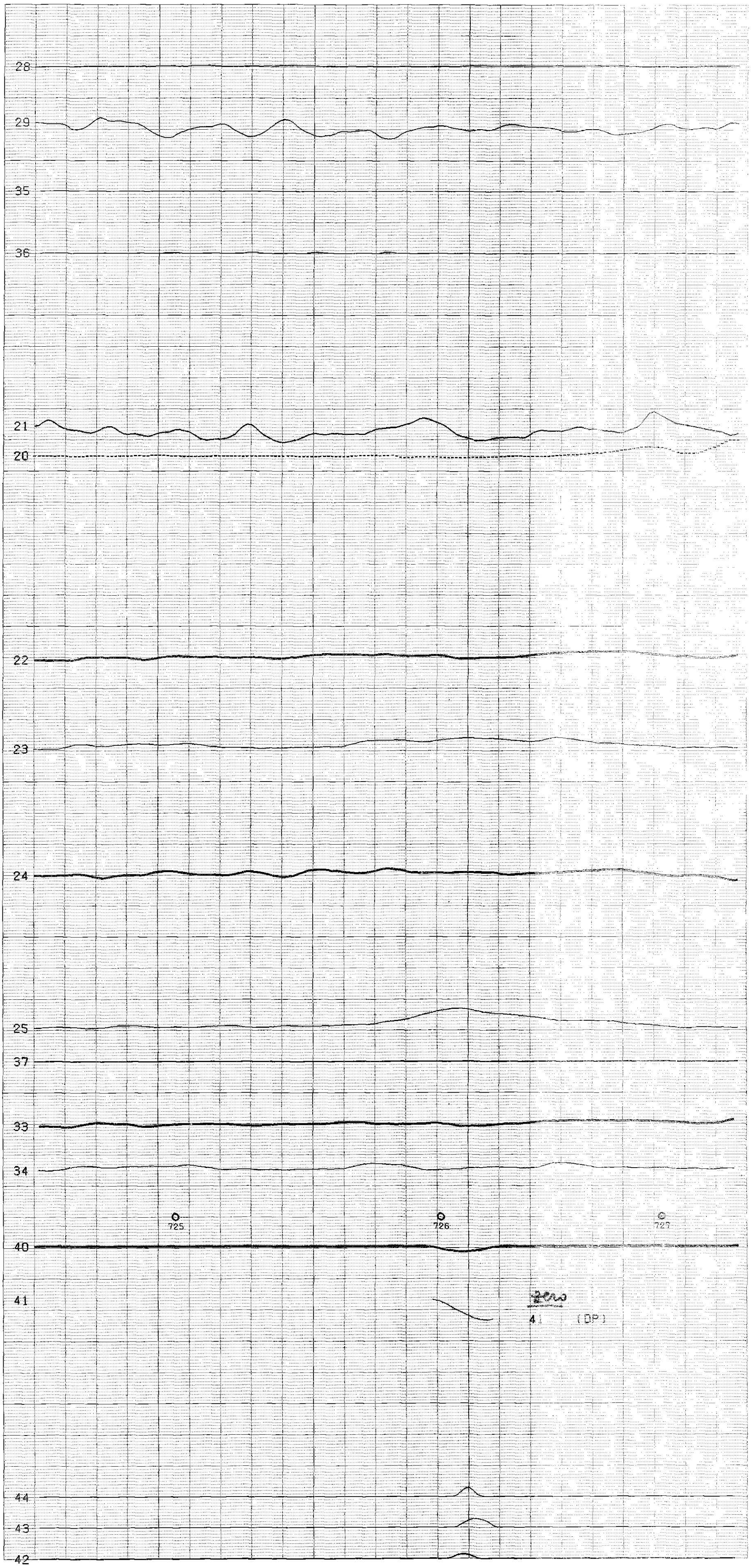
82.1738

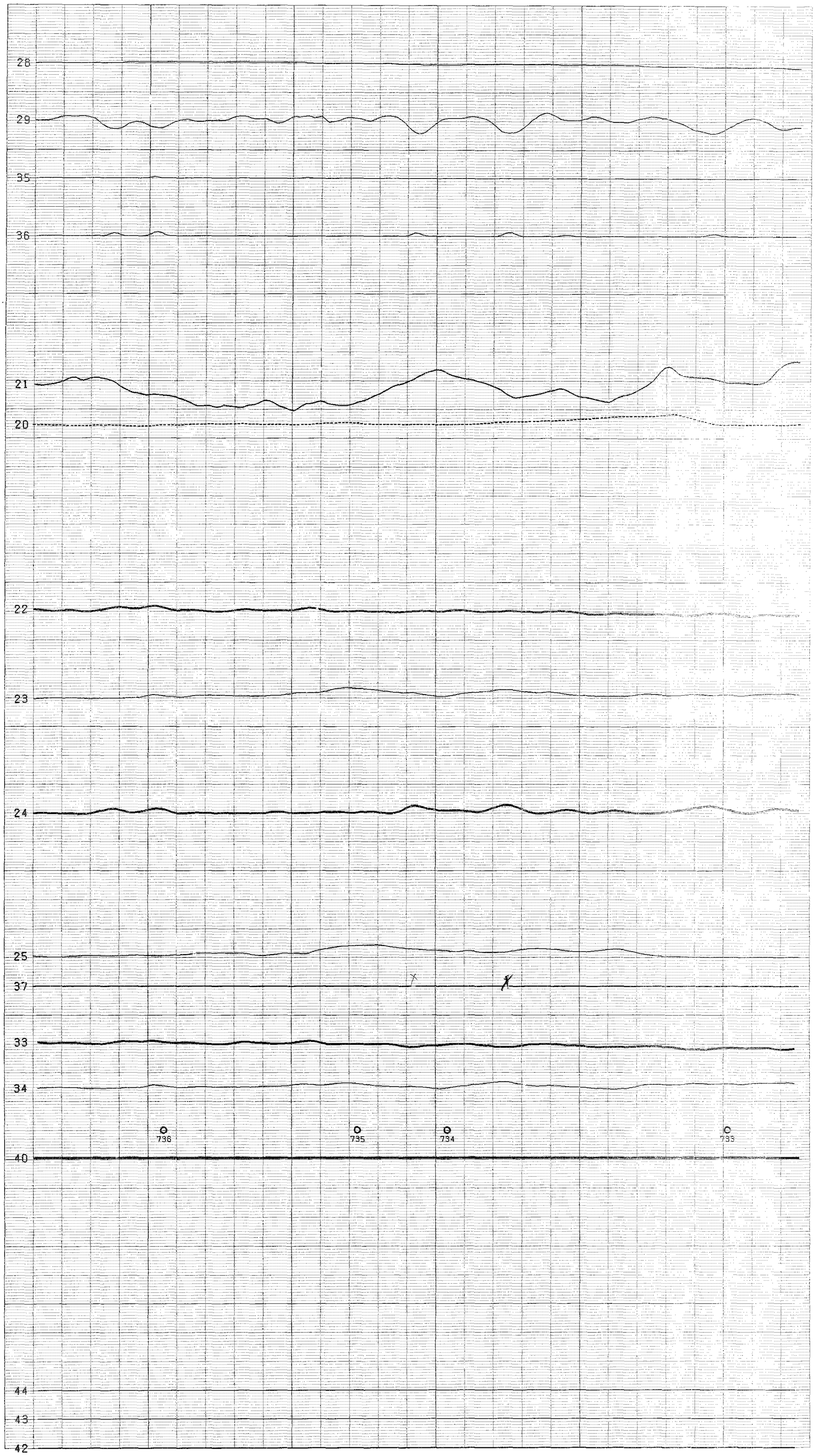


LINE -51 JOB: 326 SH4 1: 10000

5 cm

14 of 25


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725
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727
28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
4 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE 52
JOB: 326 SH4
1: 10000
5 cm

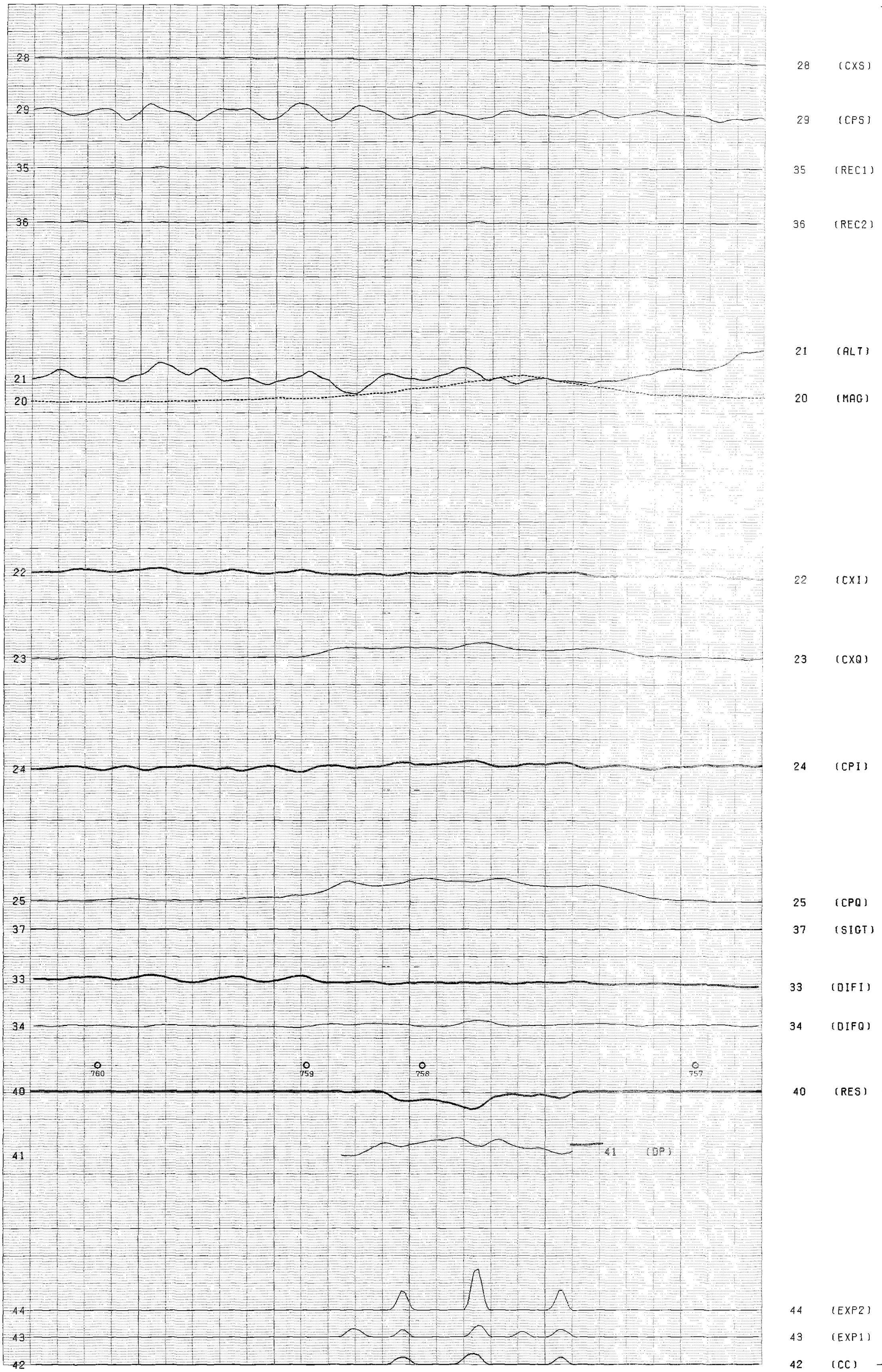


LINE -53 JOB: 326 SH4 1: 10000

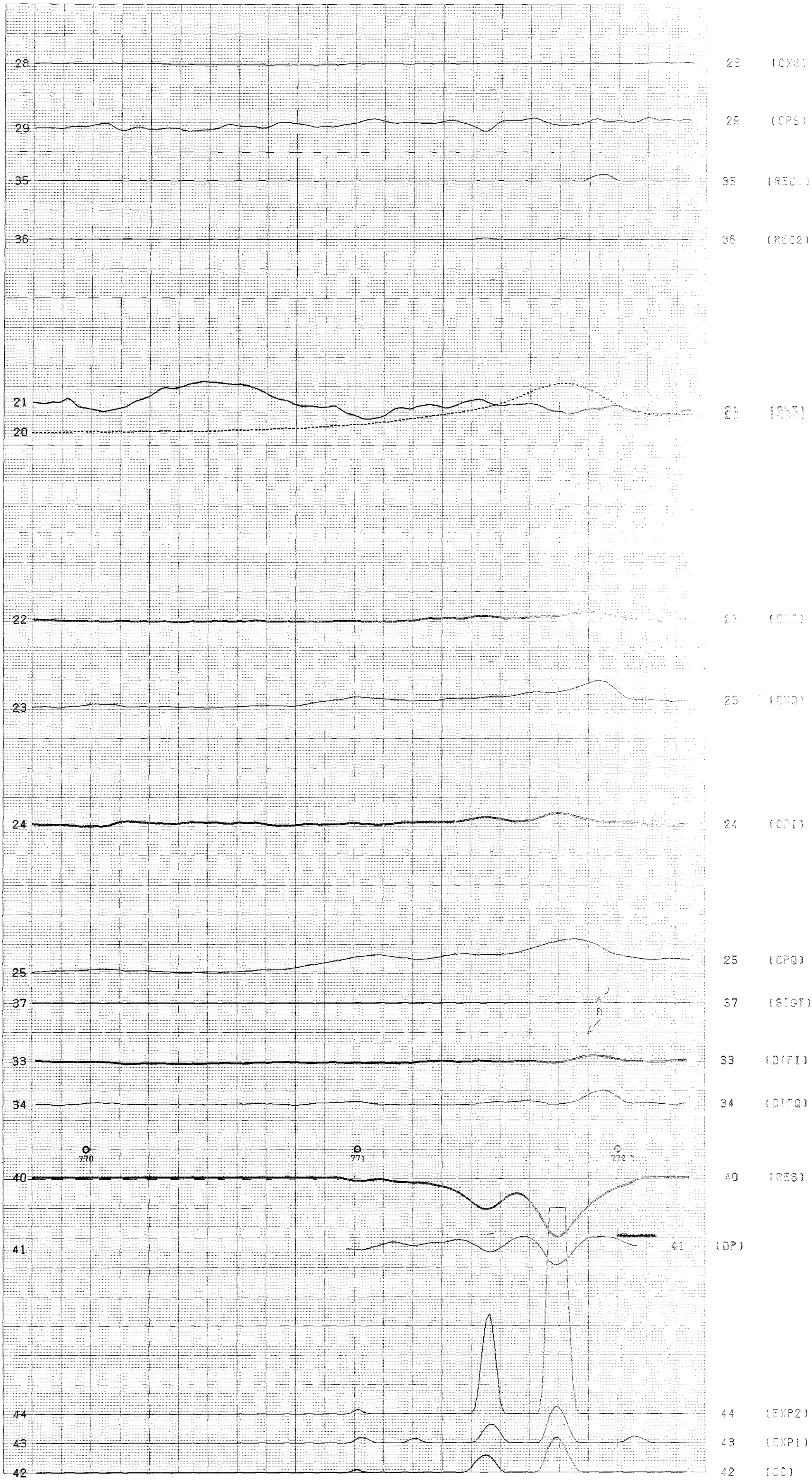


LINE 54 JOB: 326 SH4 1: 10000

14c

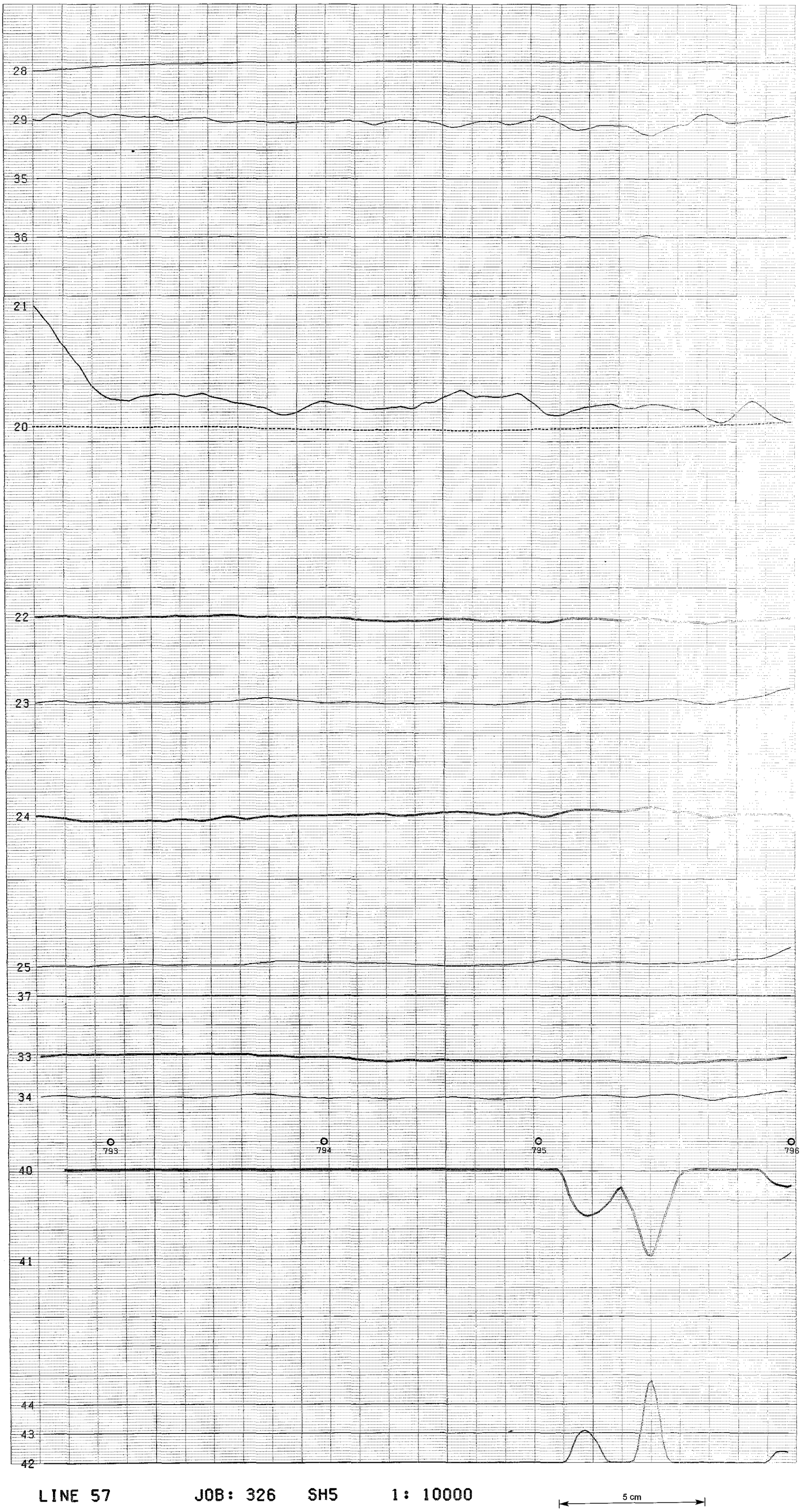


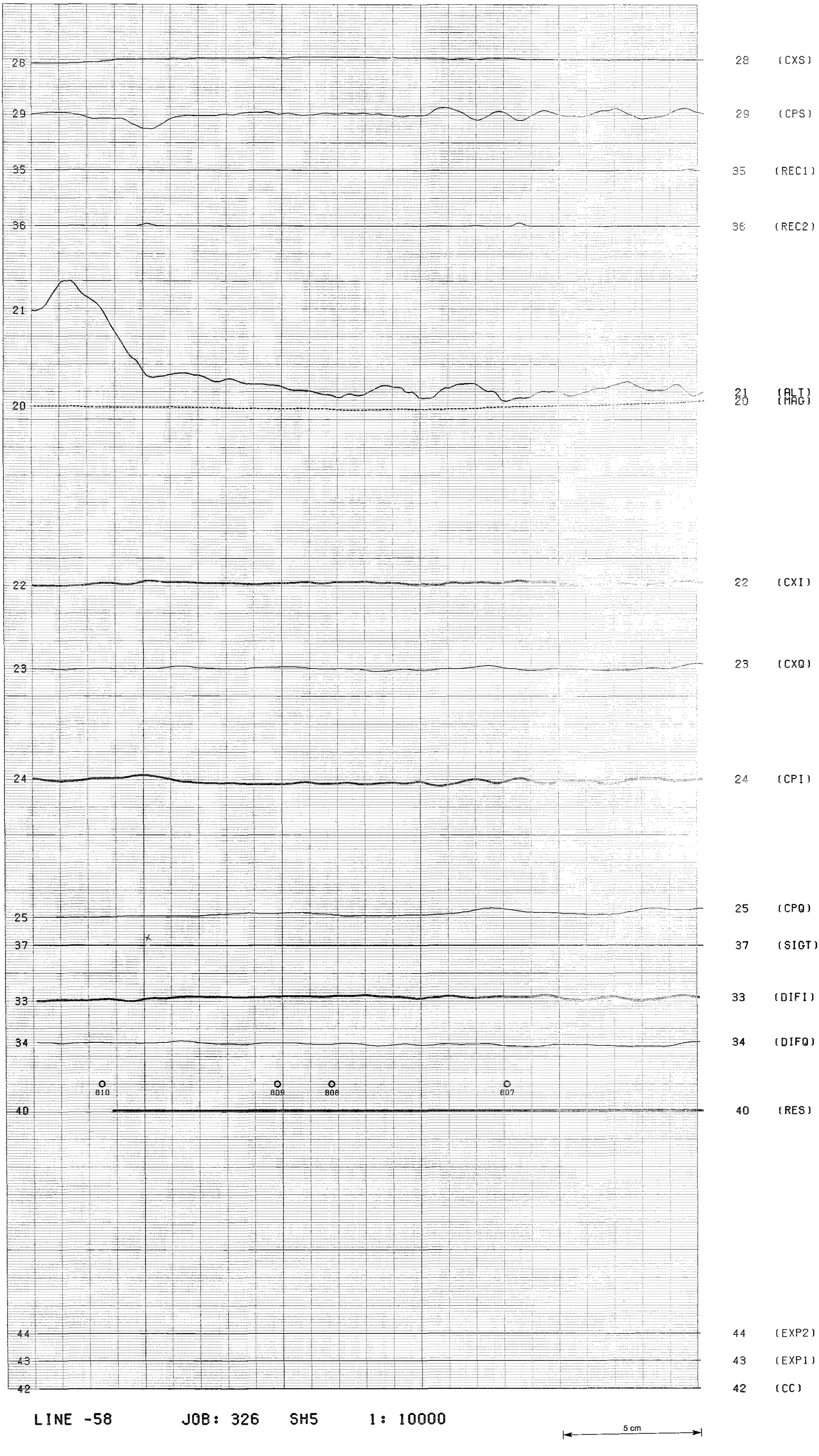
LINE -55 JOB: 326 SH4 1: 10000


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28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (SHS)
22 (CSD)
23 (SXD)
24 (CPD)
25 (CPD)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE 56
JOB: 326 SH4
1: 10000
5 cm

14e

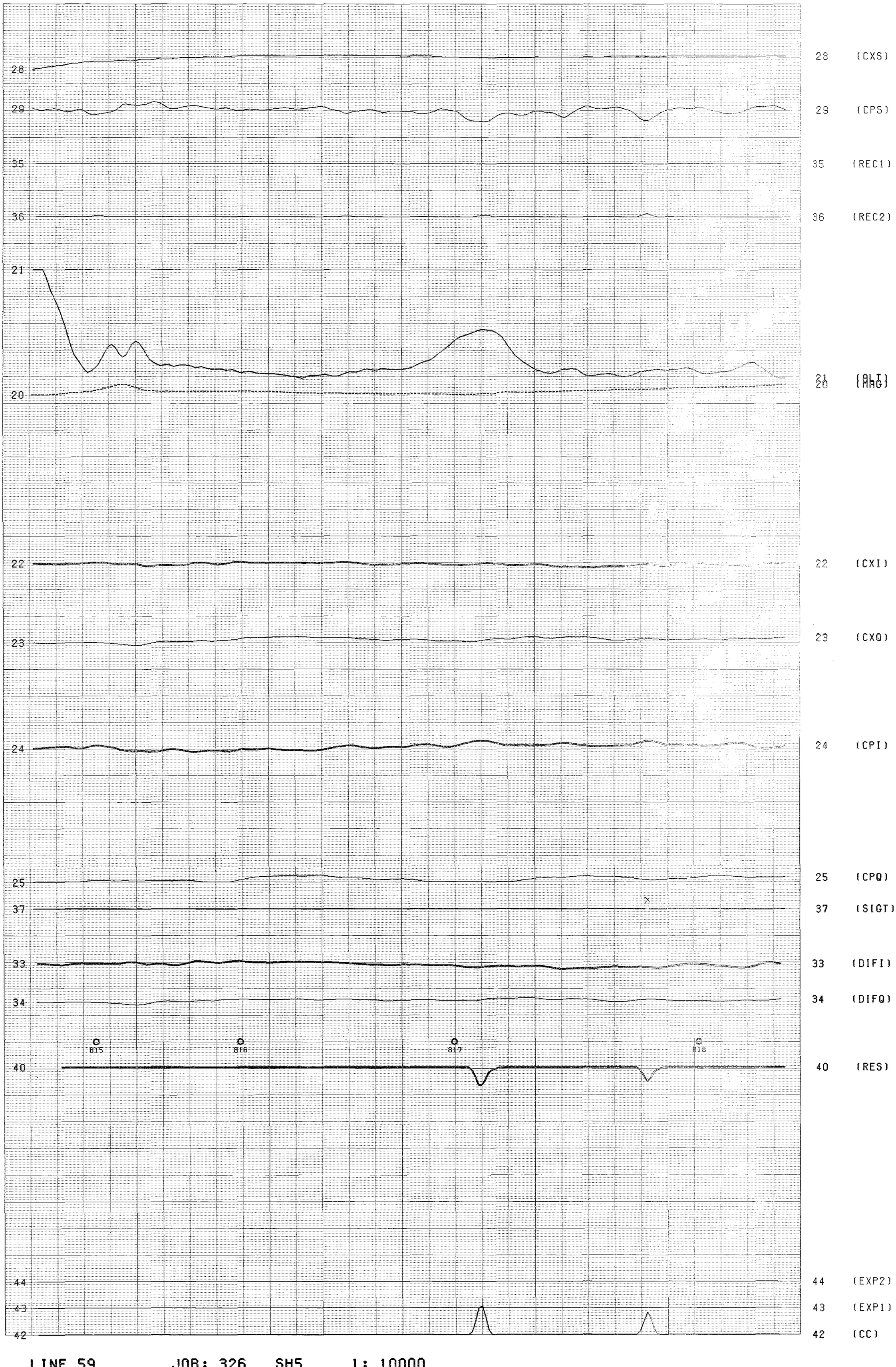
82-1738


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28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE 57 JOB: 326 SH5 1: 10000
5 cm



LINE -58 JOB: 326 SH5 1: 10000

15a



LINE 59 JOB: 326 SH5 1: 10000

28 — 28 (CXS)

29 — 29 (CPS)

35 — 35 (REC1)

36 — 36 (REC2)

21 — 21 (ALT)

20 — 20 (MAG)

22 — 22 (CXI)

23 — 23 (CXQ)

24 — 24 (CPI)

25 — 25 (CPQ)

37 — 37 (SIGT)

33 — 33 (DIFI)

34 — 34 (DIFQ)

1034 1033 1032

40 — 40 (RES)

44 — 44 (EXP2)

43 — 43 (EXP1)

42 — 42 (CC)

LINE -5900 JOB: 326 SH5 1: 10000

5 cm

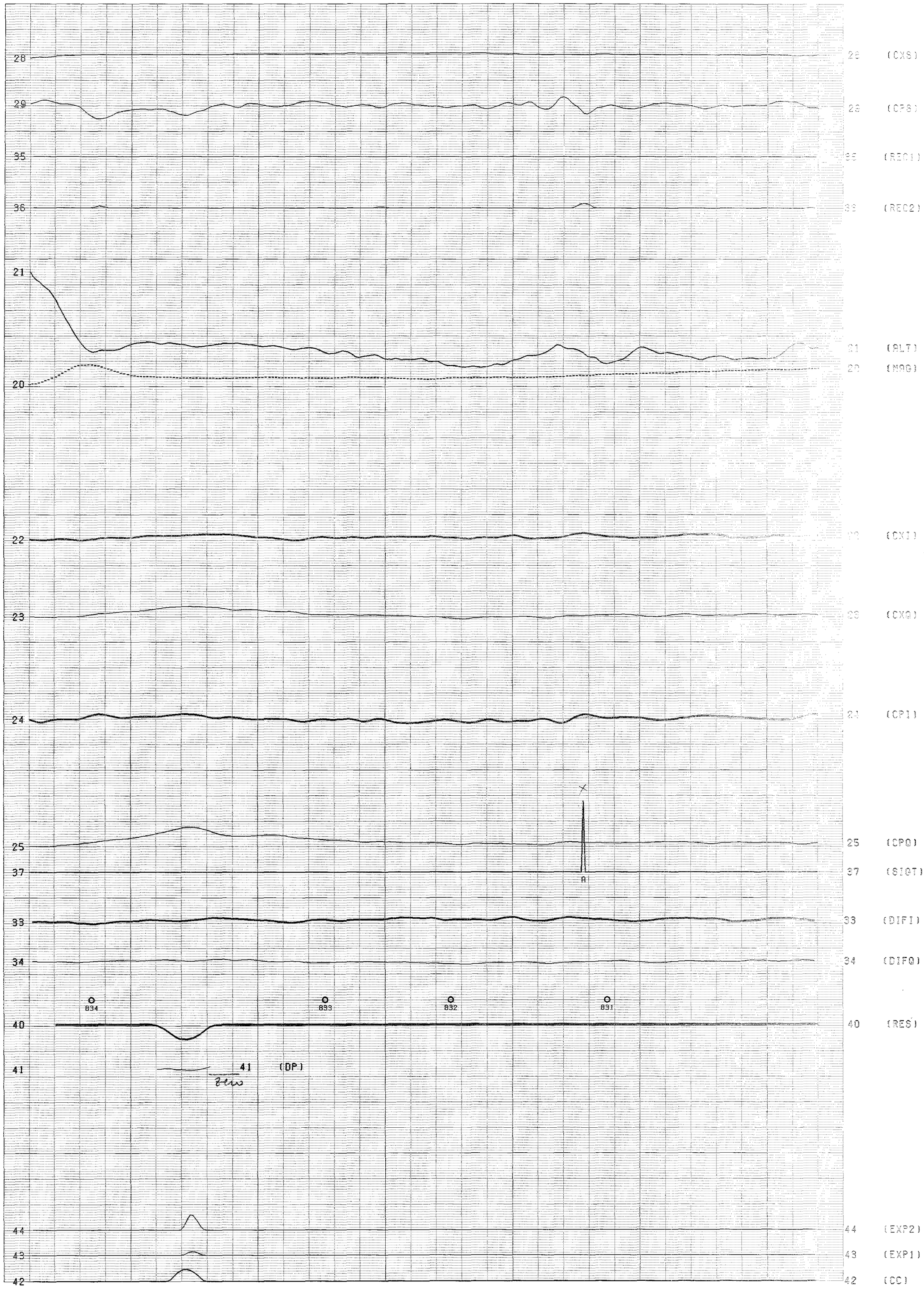
15C



LINE -5910 JOB: 326 SH5 1: 10000

5 cm

15 d



LINE -60 JOB: 326 SH5 1: 10000 LINE -60

5 cm

15e

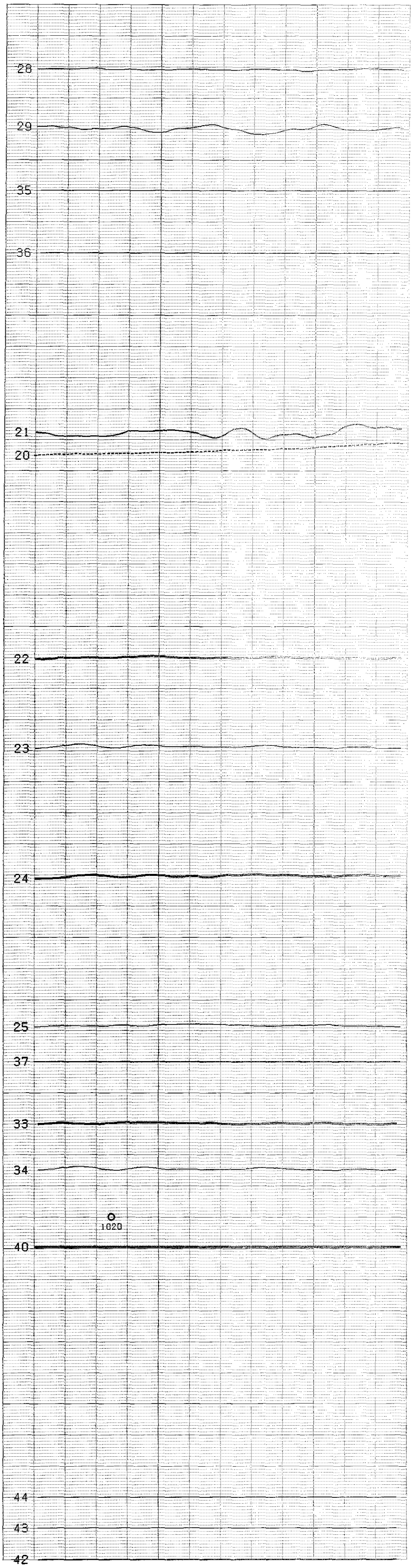
82_1735


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28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE 61 JOB: 326 SH5 1: 10000
5 cm



LINE -62 JOB: 326 SH5 1: 10000

16a



28 (CXS)

29 (CPS)

35 (REC1)

36 (REC2)

21 (ALT)
20 (MAG)

22 (CXI)

23 (CXQ)

24 (CPI)

25 (CPQ)

37 (SIGT)

33 (DIFI)

34 (DIFQ)

40 (RES)

44 (EXP2)

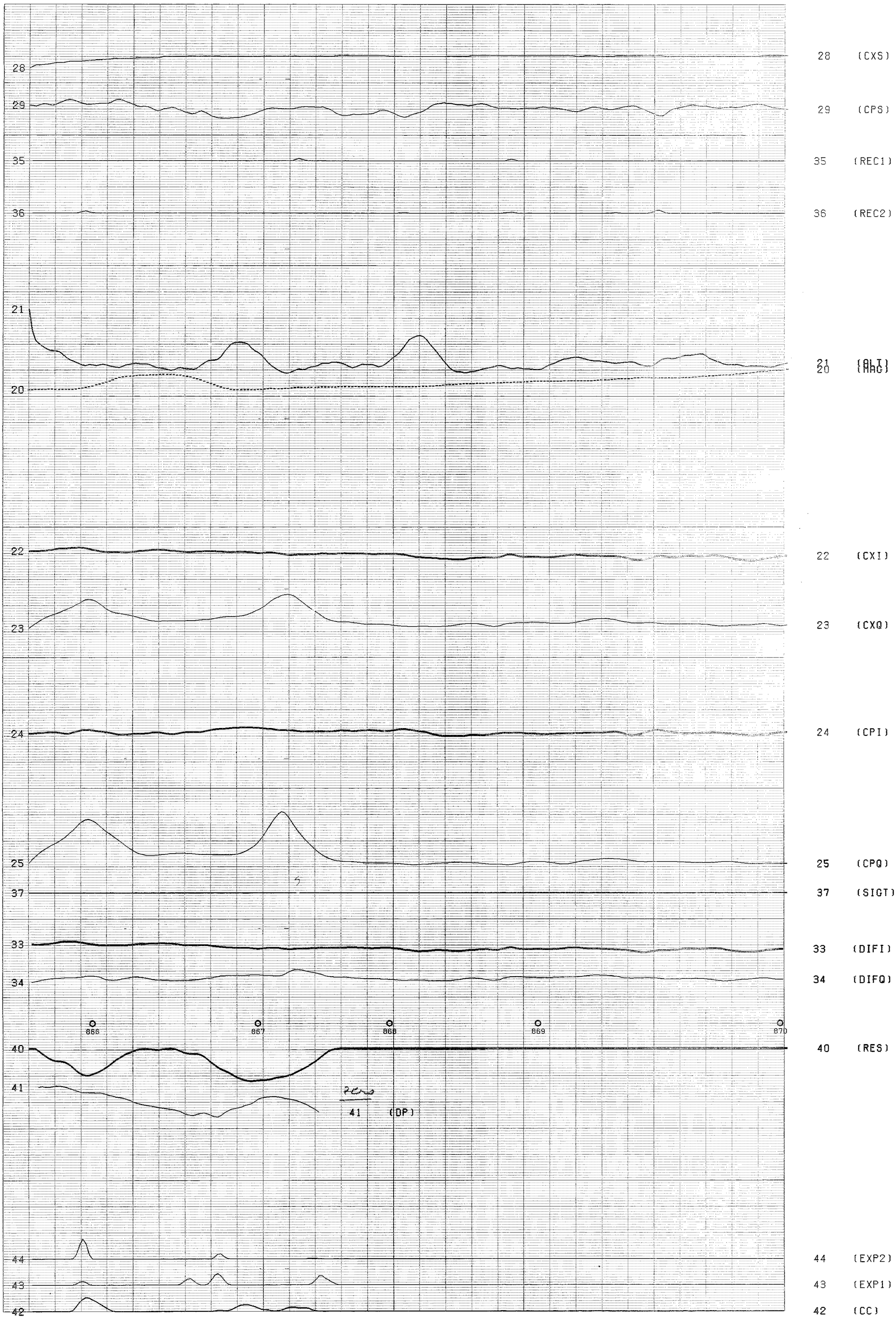
43 (EXP1)

42 (CC)

LINE 6200 JOB: 326 SH5 1: 10000

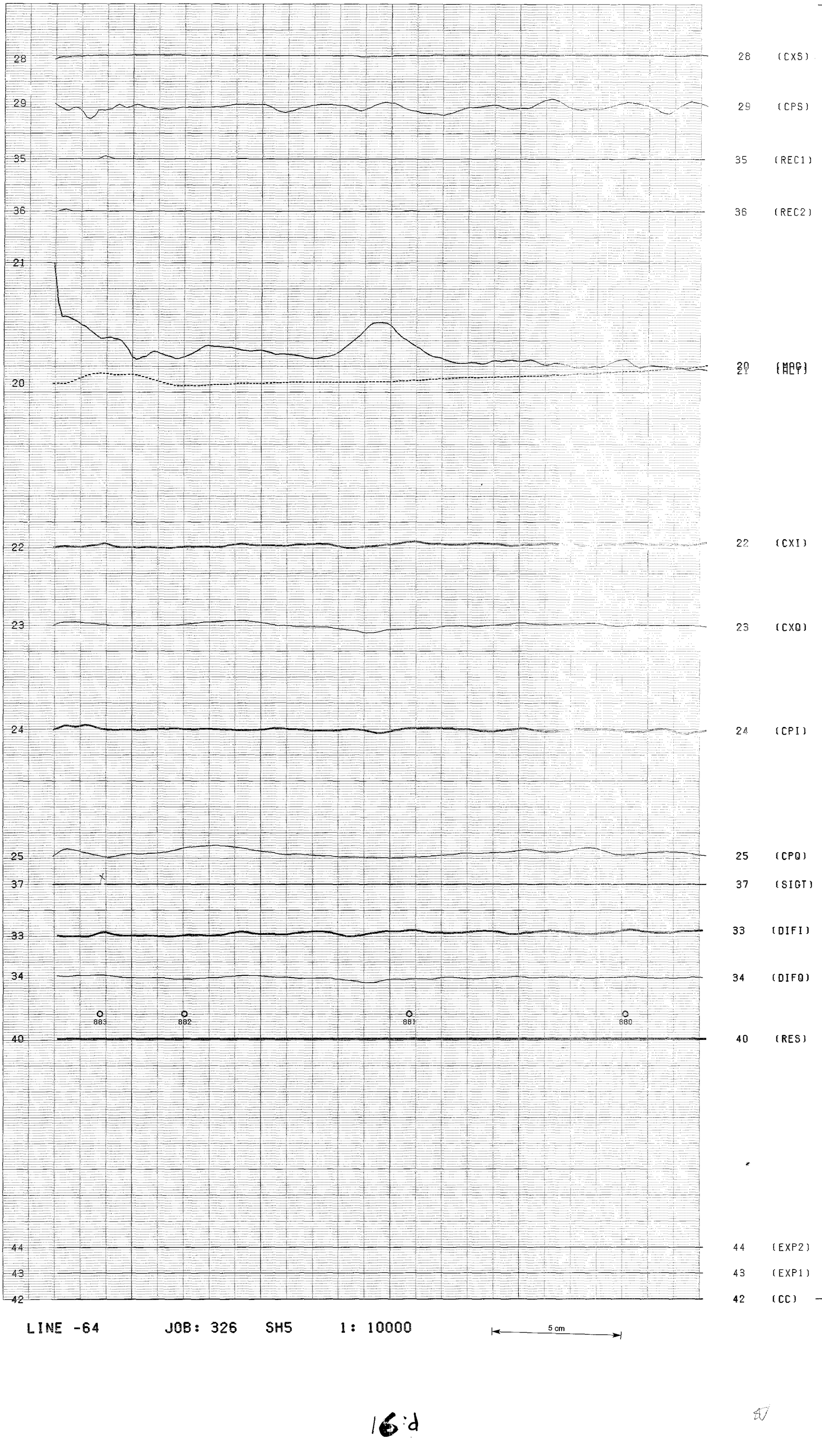
5 cm

16



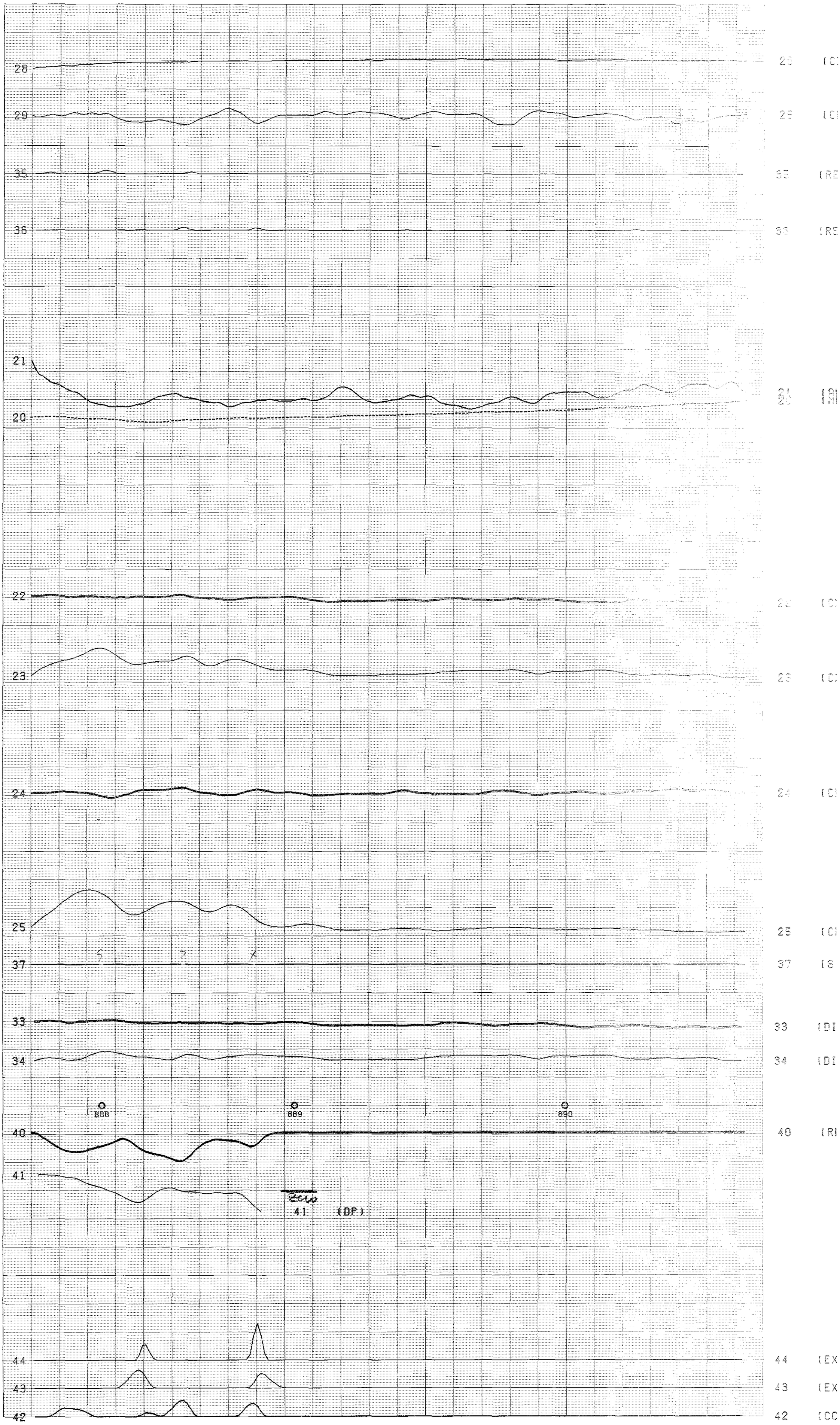
LINE 63 JOB: 326 SH5 1: 10000

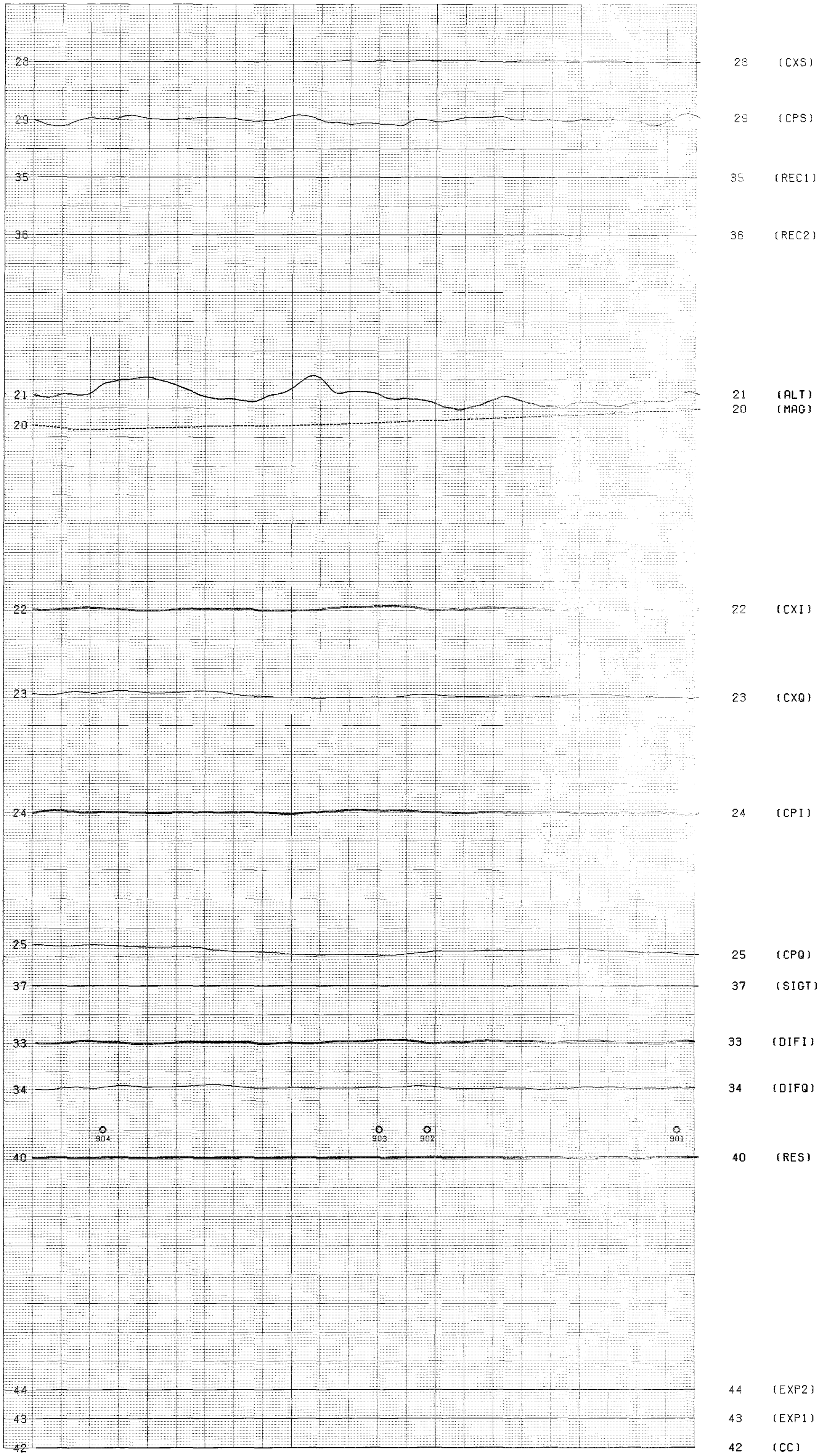
16c



LINE -64 JOB: 326 SH5 1: 10000

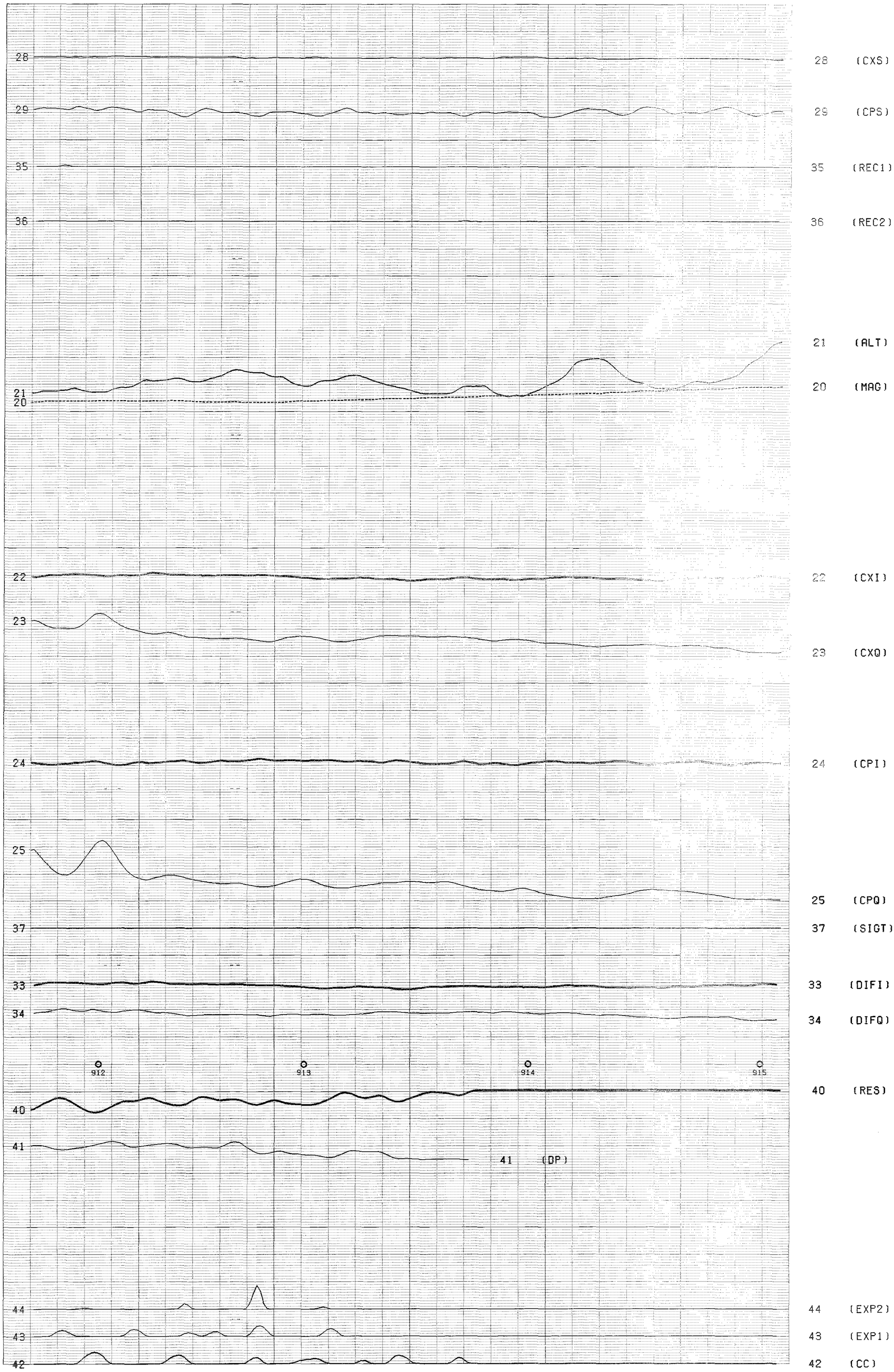
16:d

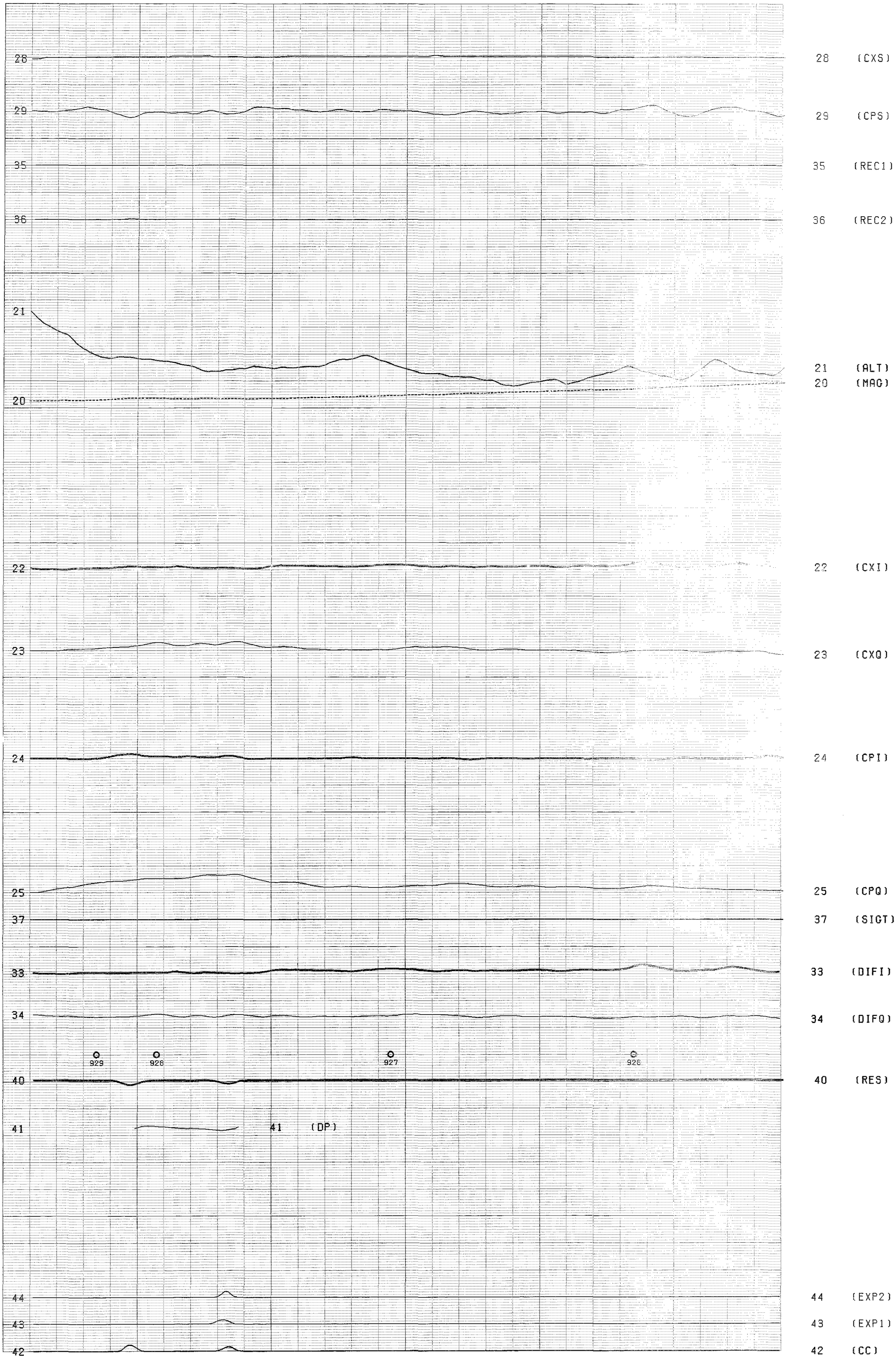

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41 (DP)
44
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42
LINE 65
JOB: 326 SH5
1: 10000
5 cm



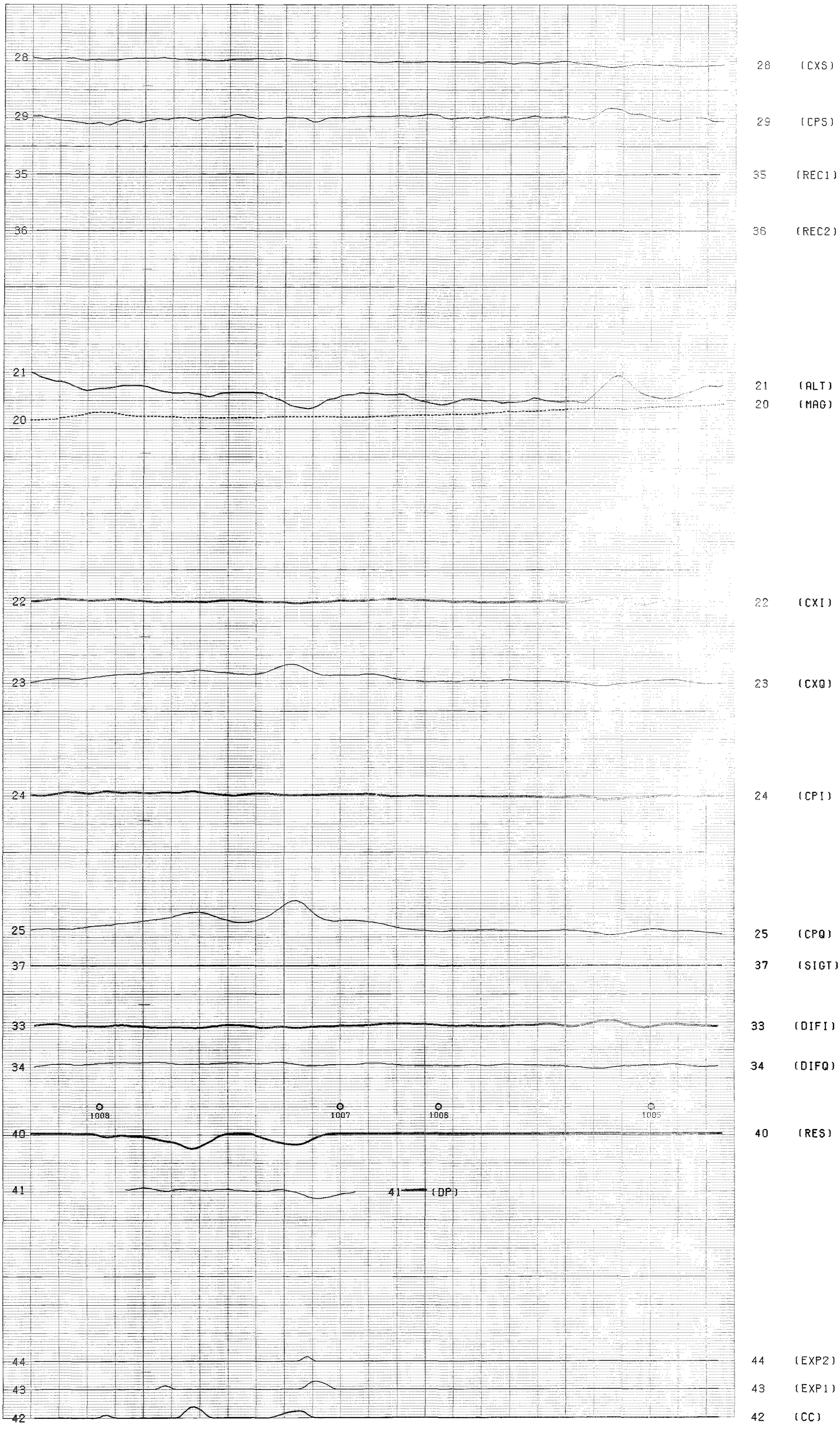
LINE -66 JOB: 326 SH5 1: 10000

16F

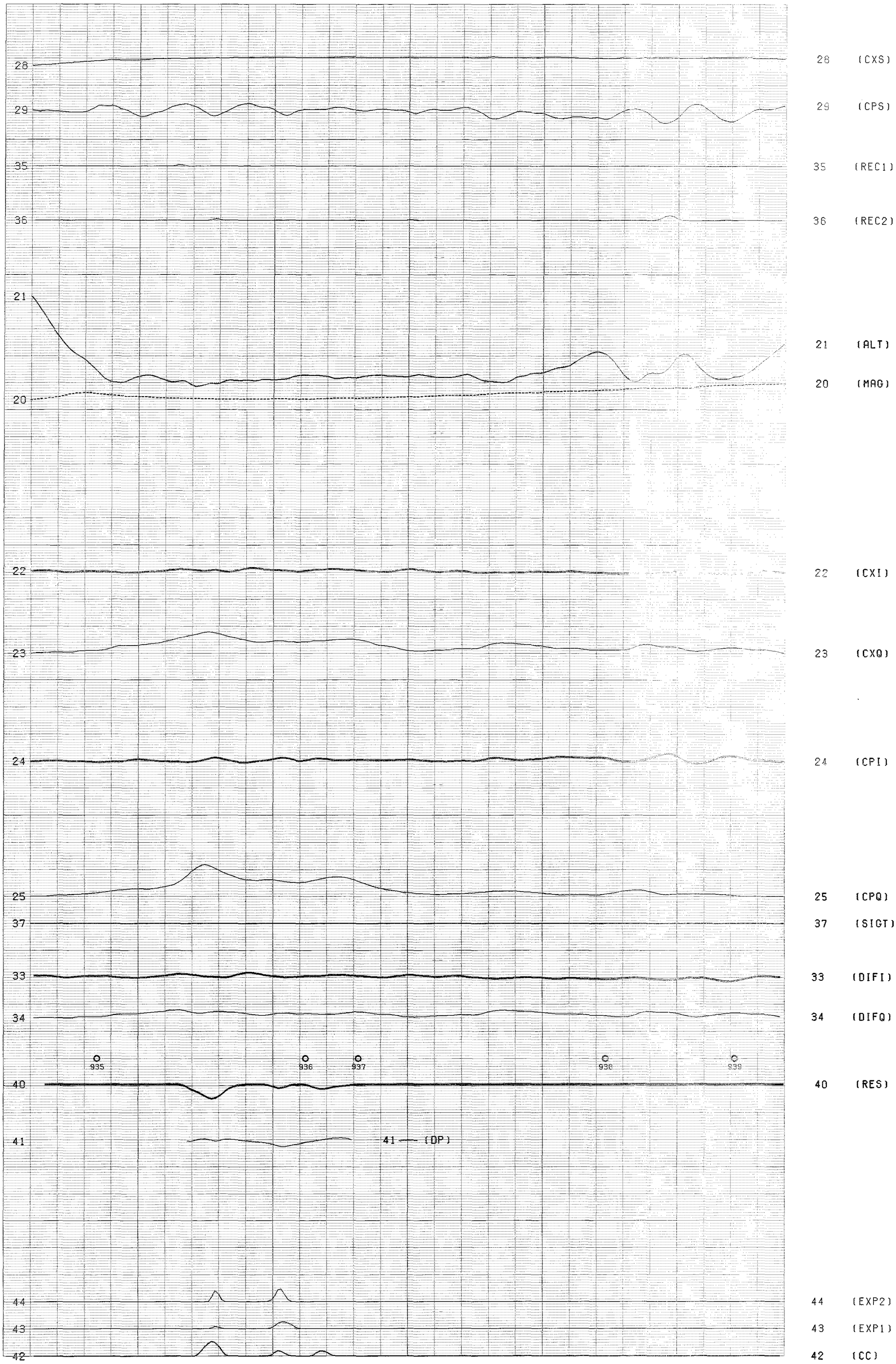

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28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE 67 JOB: 326 SH5 1: 10000
5 cm


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28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE -68
JOB: 326
SH5
1: 10000
5 cm

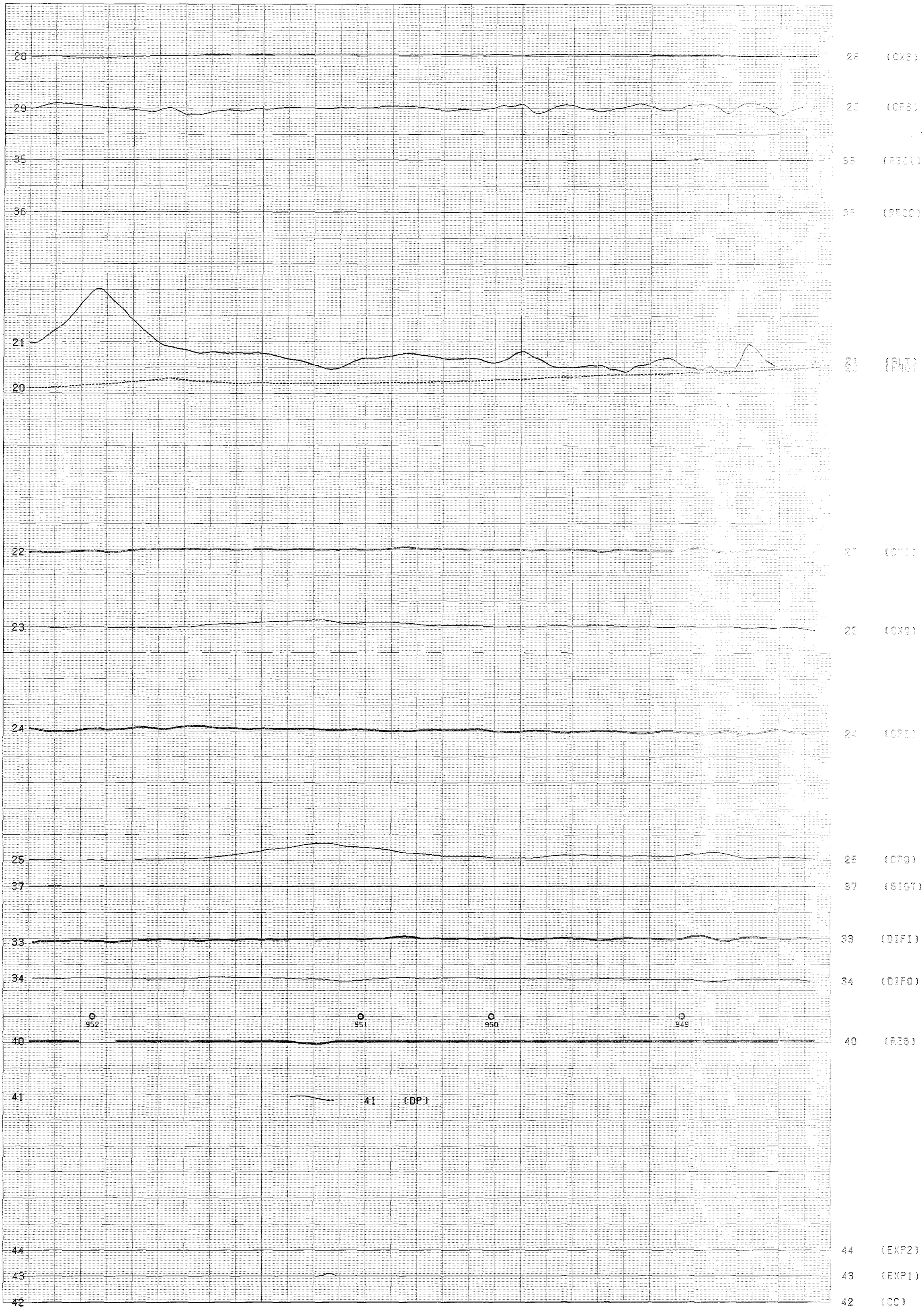
16 h


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28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE -6800 JOB: 326 SH5 1: 10000
5 cm

16i


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28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
41 (DP)
44 (EXP2)
43 (EXP1)
42 (CC)
LINE 69 JOB: 326 SH5 1: 10000
5 cm

16



LINE -70 JOB: 326 SH5 1: 10000

5 cm

16k

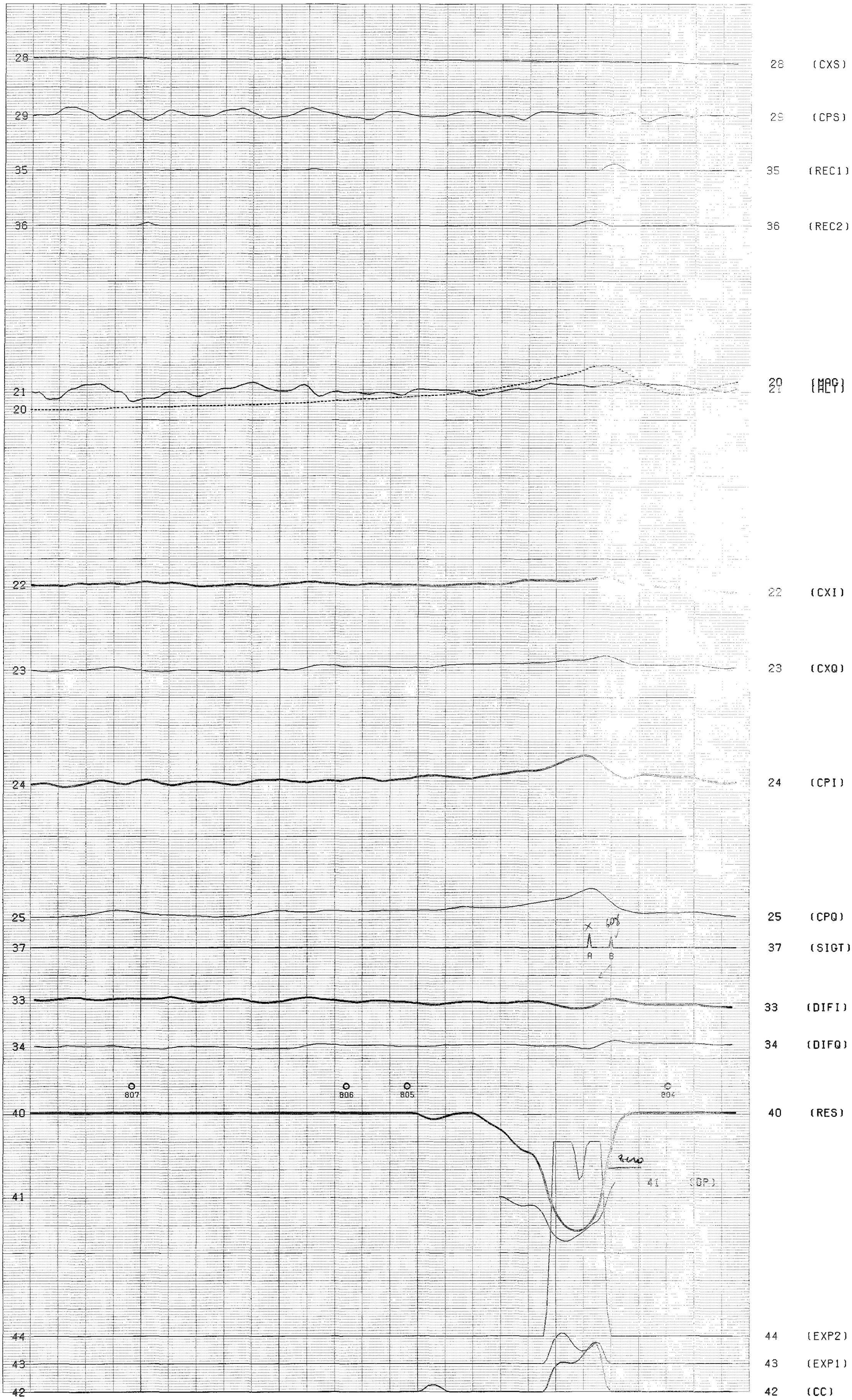
82_1738



LINE 57 JOB: 326 SH6 1: 10000

5 cm

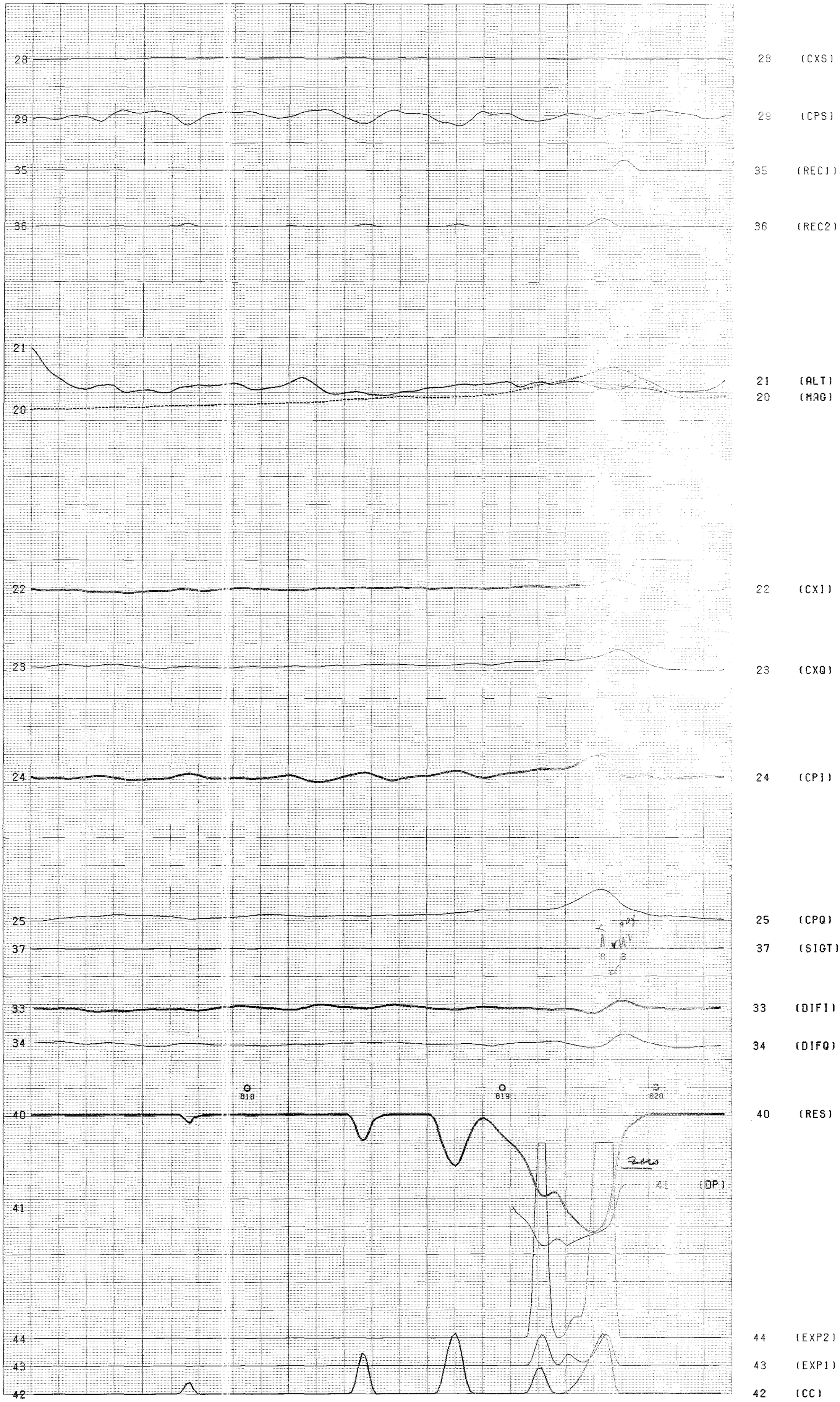
17 of 24



LINE -58 JOB: 326 SH6 1: 10000

5 cm

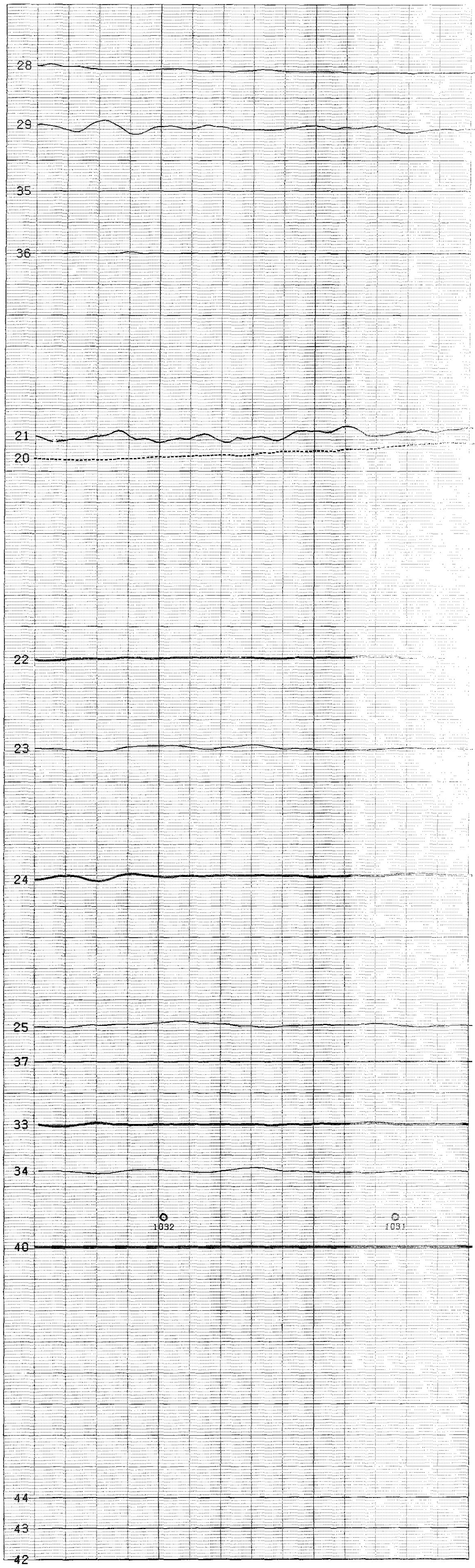
17a



LINE 59 JOB: 326 SH6 1: 10000

5 cm

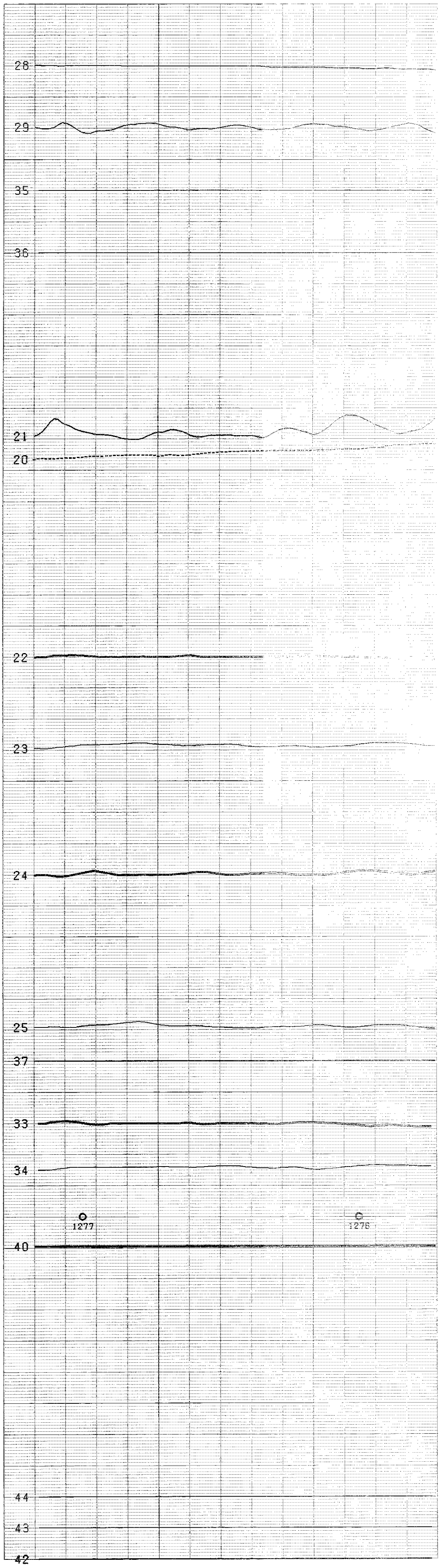
176



LINE -5900 JOB: 326 SH6 1: 10000

5 cm

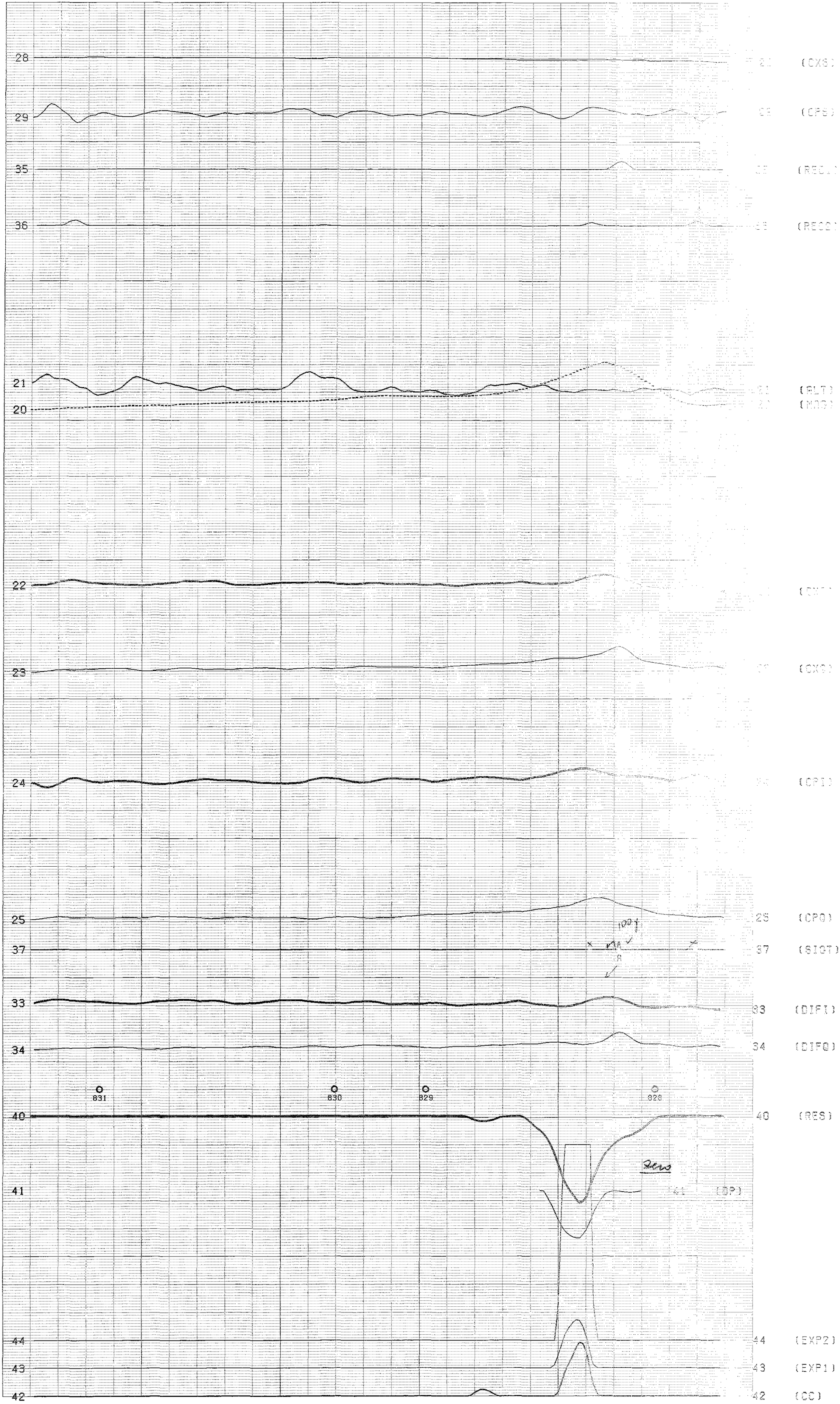
1.1c



LINE -5910 JOB: 326 SH6 1: 10000

5 cm

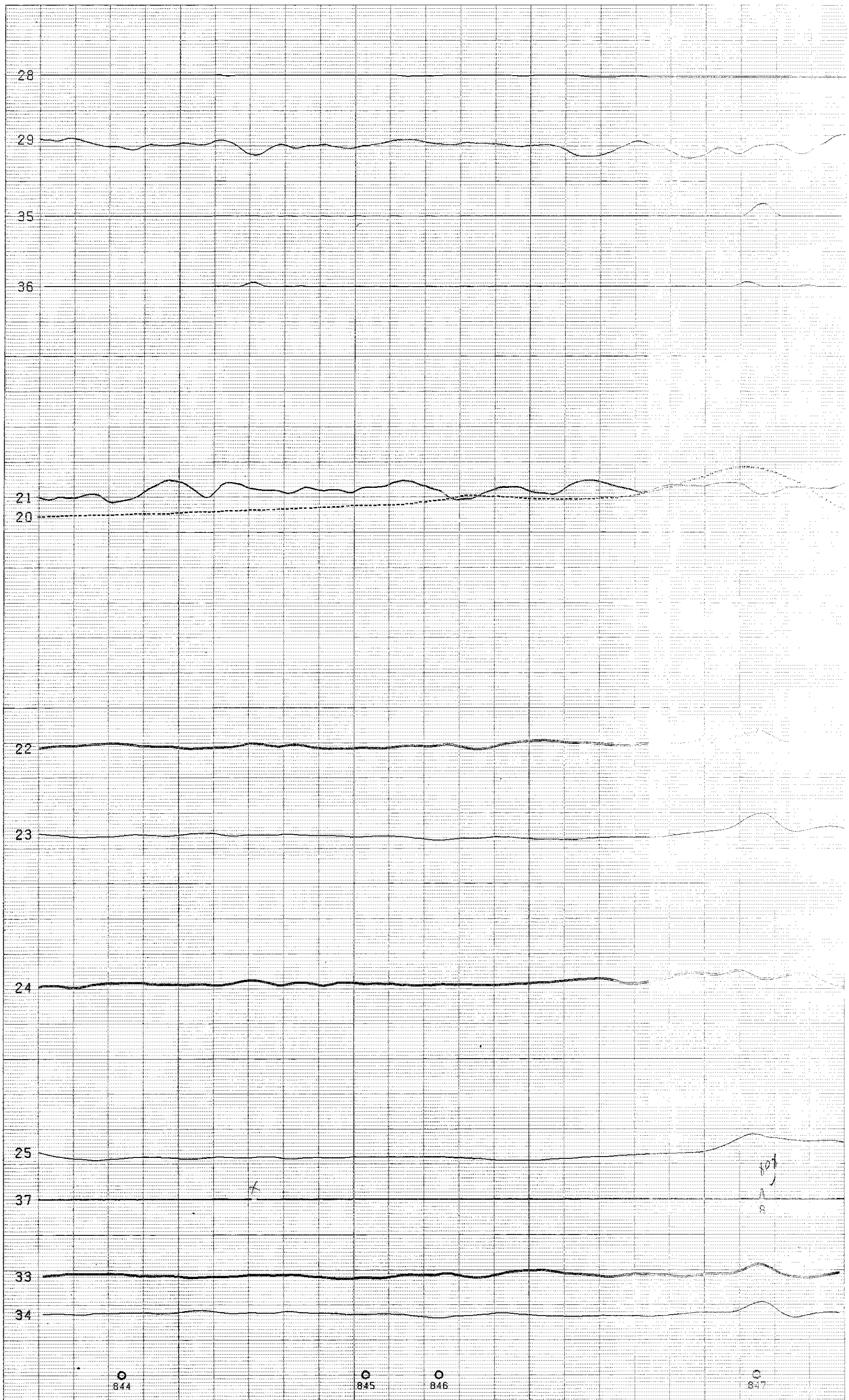
17d



LINE -60 JOB: 326 SH6 1: 10000

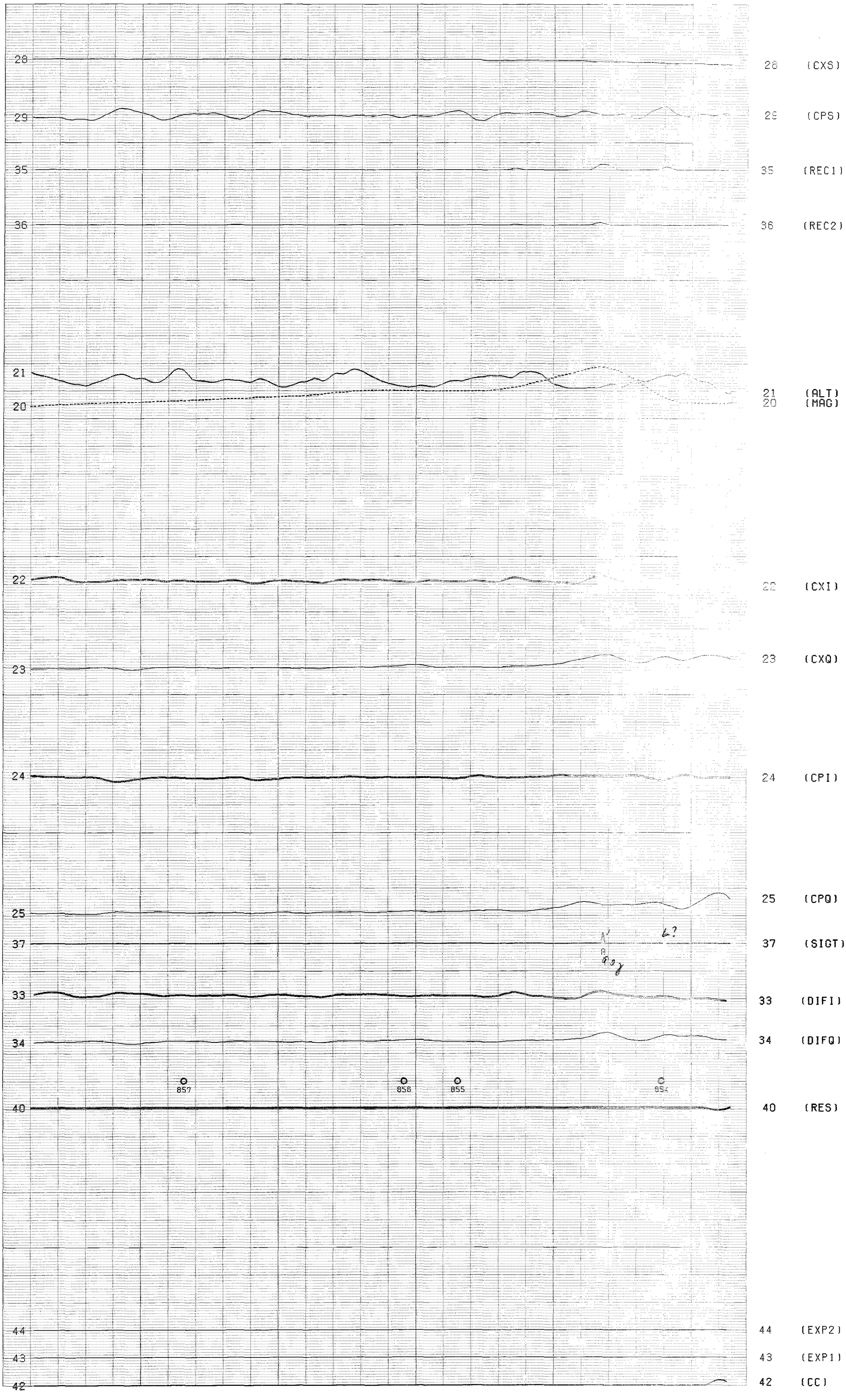
17e

82-1738



LINE 61 JOB: 326 SH6 1: 10000

5 cm



LINE -62 JOB: 326 SH6 1: 10000

5 cm

18a

28 (CXS)
29 (CPS)
35 (REC1)
36 (REC2)
21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
37 (SIGT)
33 (DIFI)
34 (DIFQ)
40 (RES)
44 (EXP2)
43 (EXP1)
42 (CC)

1020 1021 1022 023

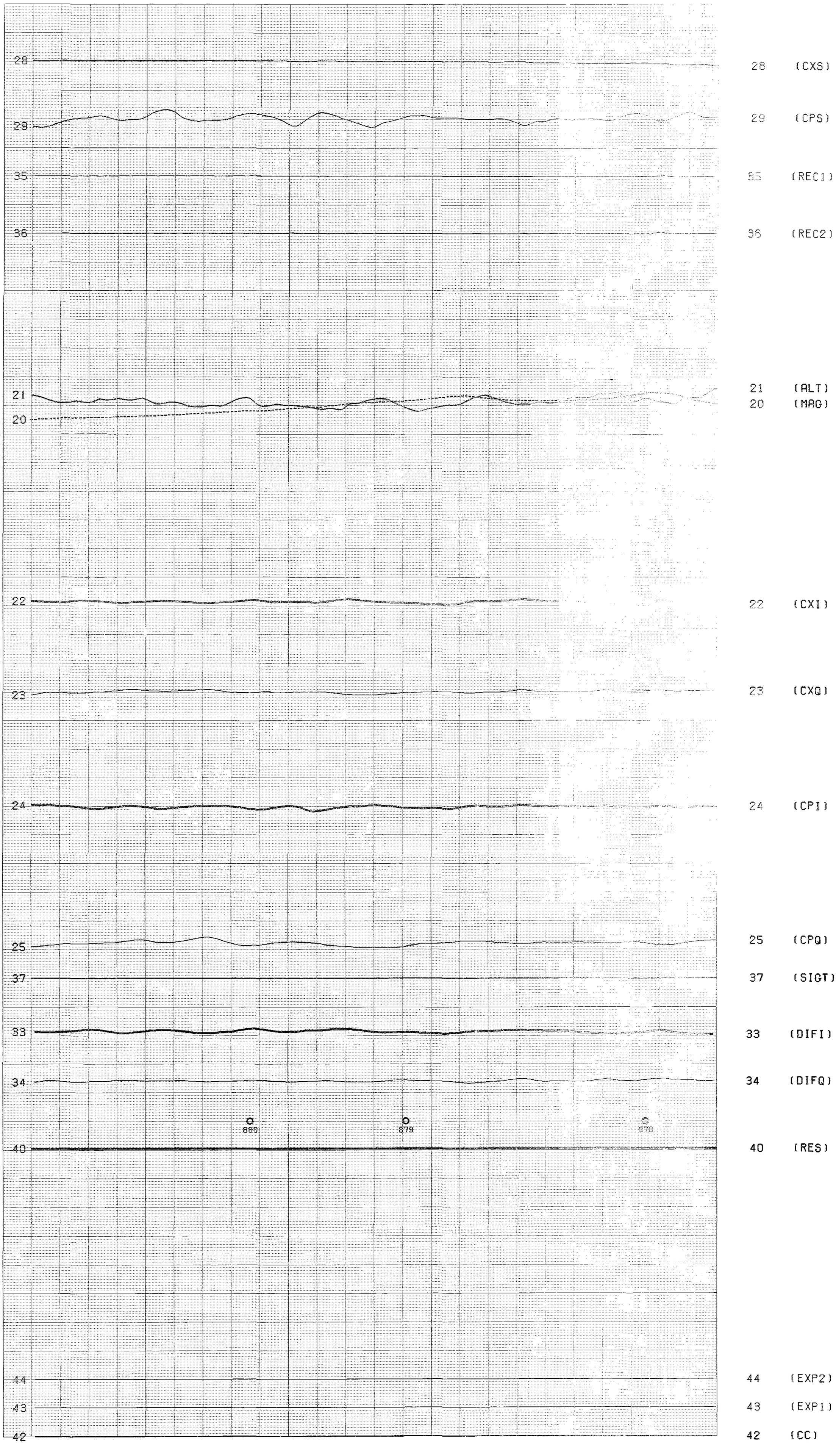
LINE 6200 JOB: 326 SH6 1: 10000

5 cm

18b

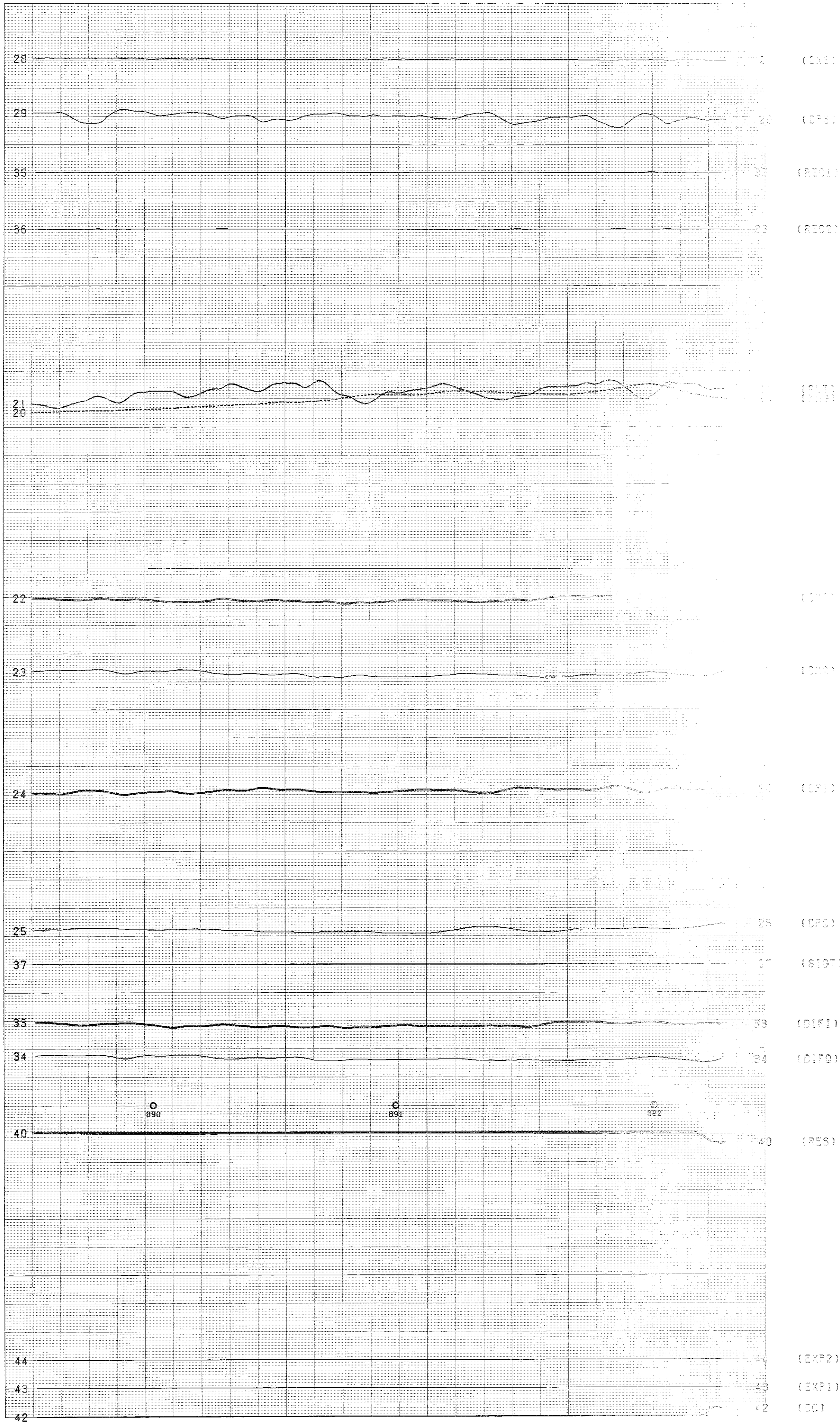
LINE 63 JOB: 326 SH6 1: 10000

18 C



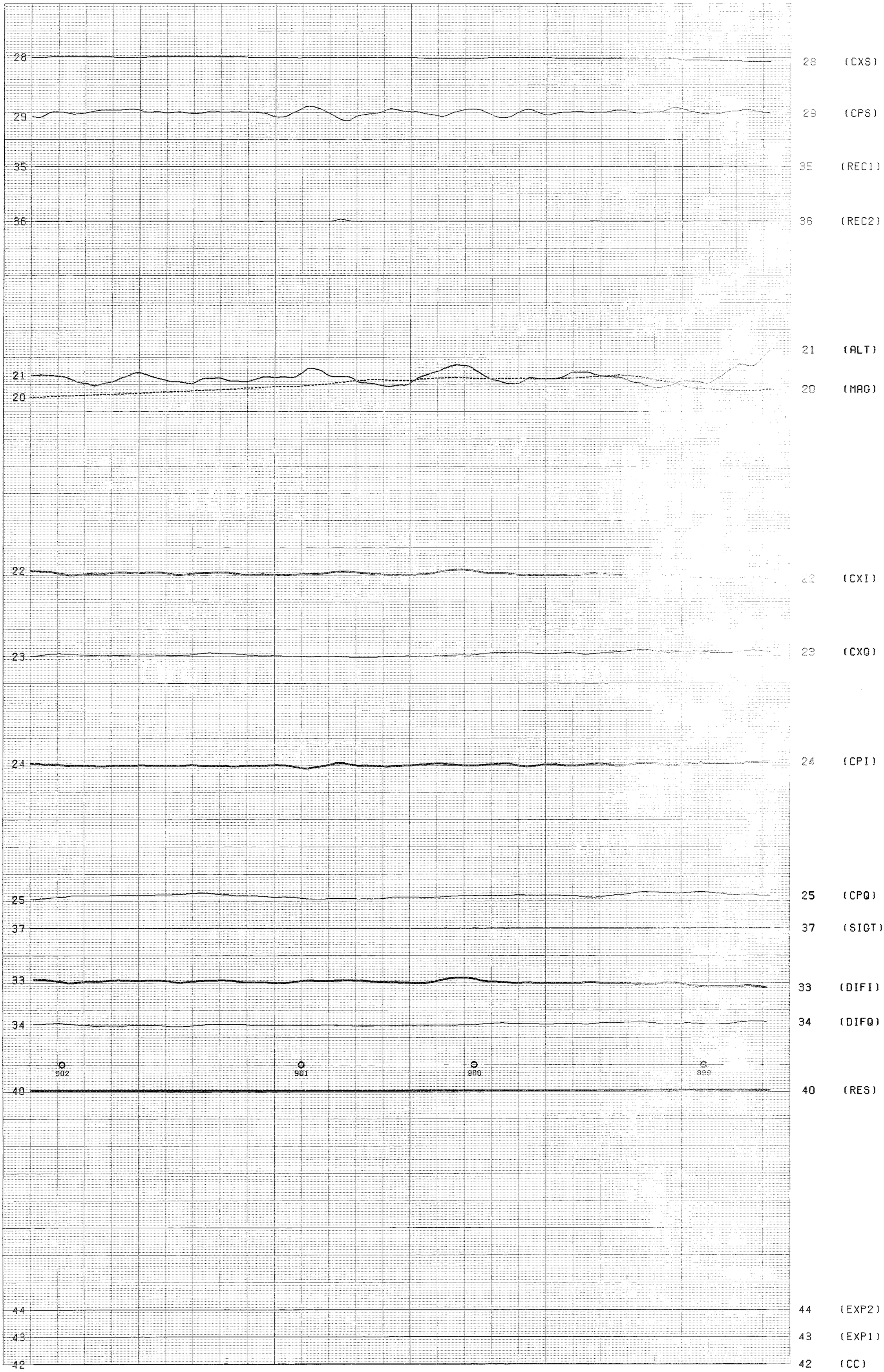
LINE -64 JOB: 326 SH6 1: 10000

5 cm



LINE 65 JOB: 326 SH6 1: 10000

18e



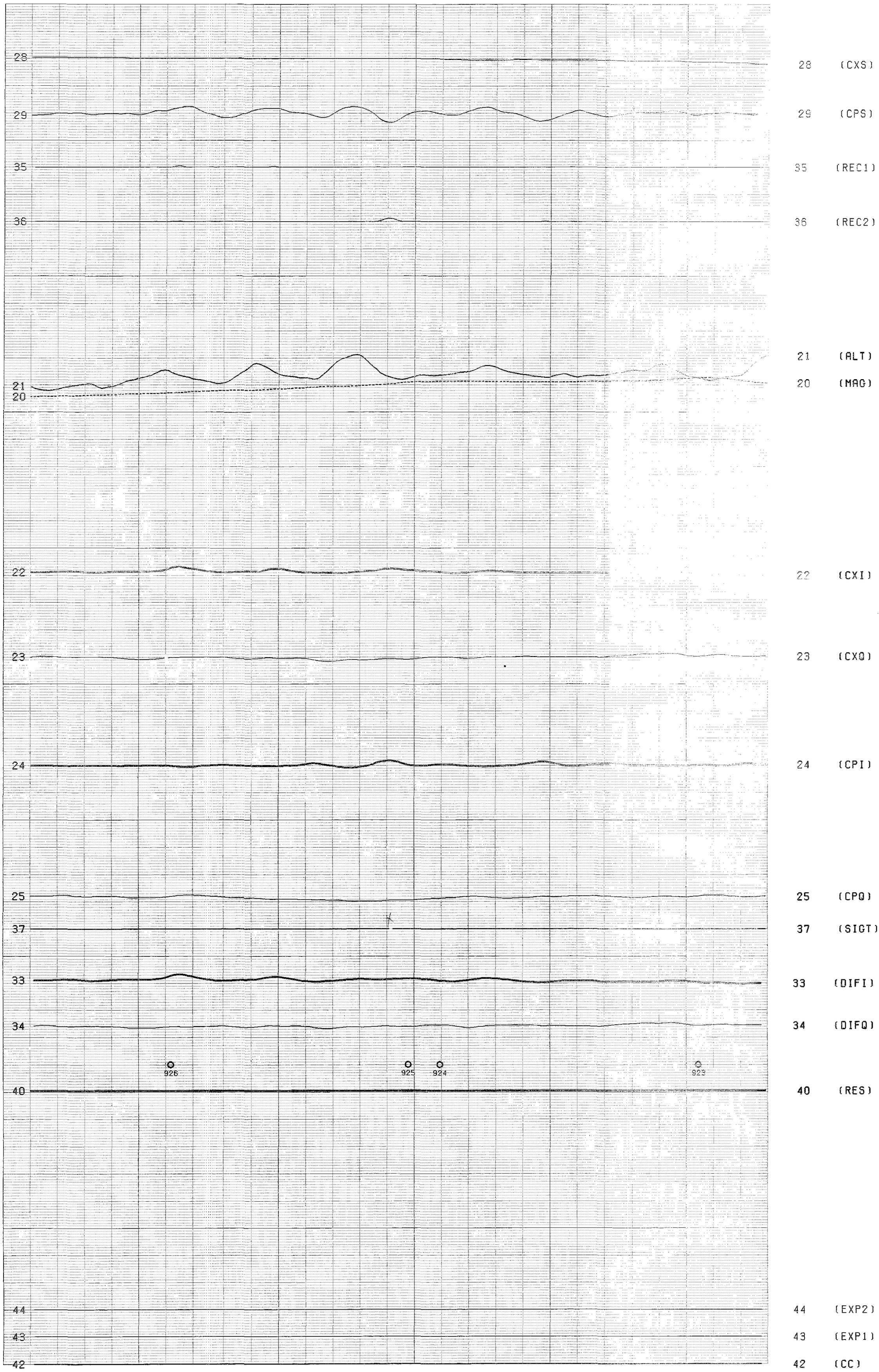
LINE -66 JOB: 326 SH6 1: 10000

5 cm

18 f

LINE 67 JOB: 326 SH6 1: 10000

5 cm



LINE -68 JOB: 326 SH6 1: 10000

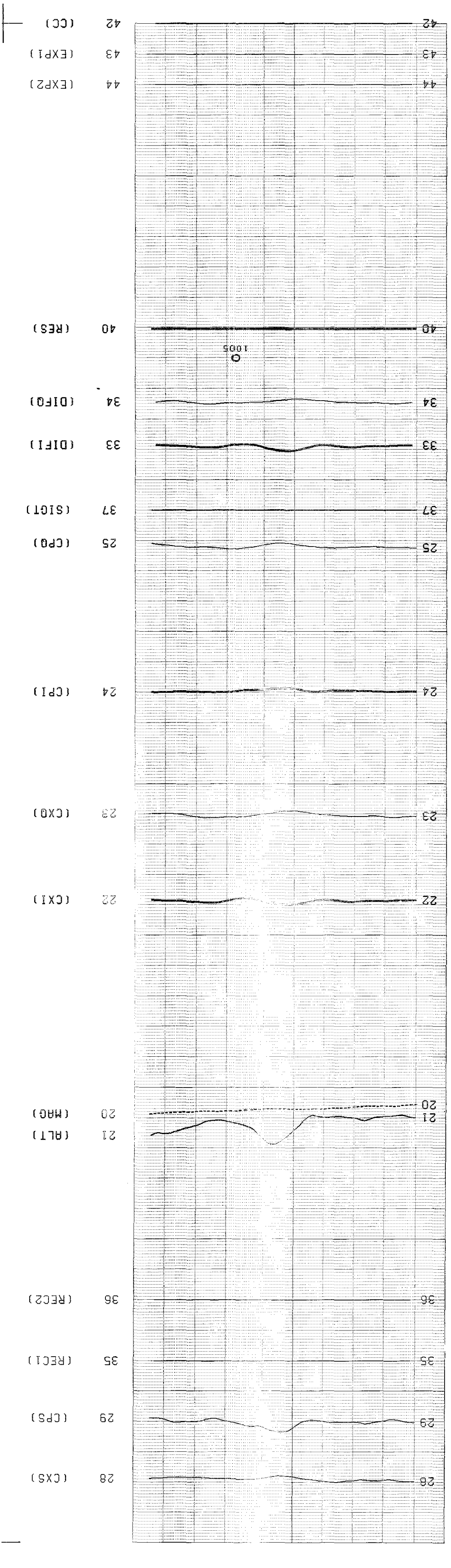
5 cm

18 h

181

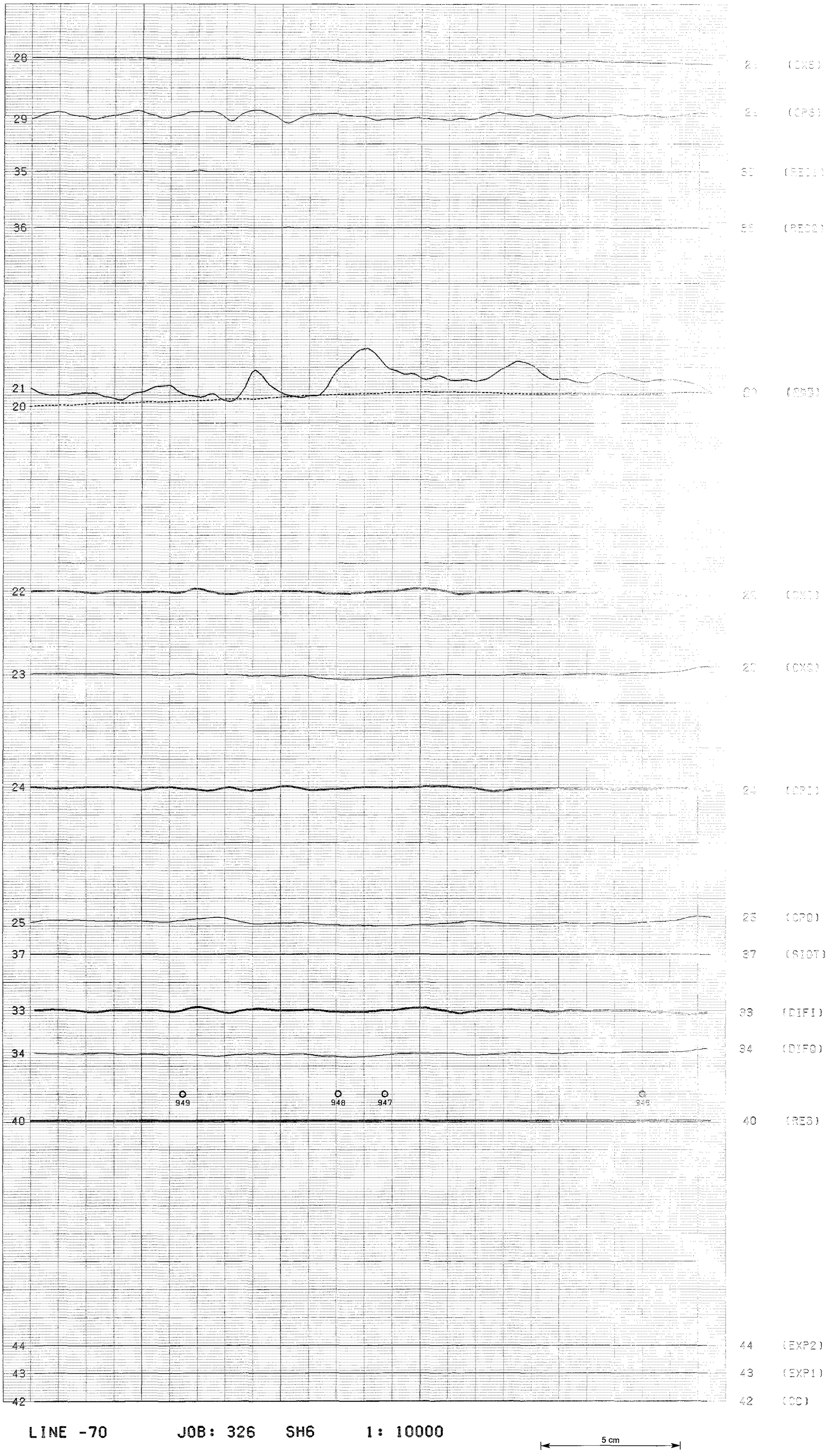
5 cm

LINE -6800 JOB: 326 SH6 1 : 1



0000 LINE 69 JOB: 326 SH6 1: 10000 5 cm

18j

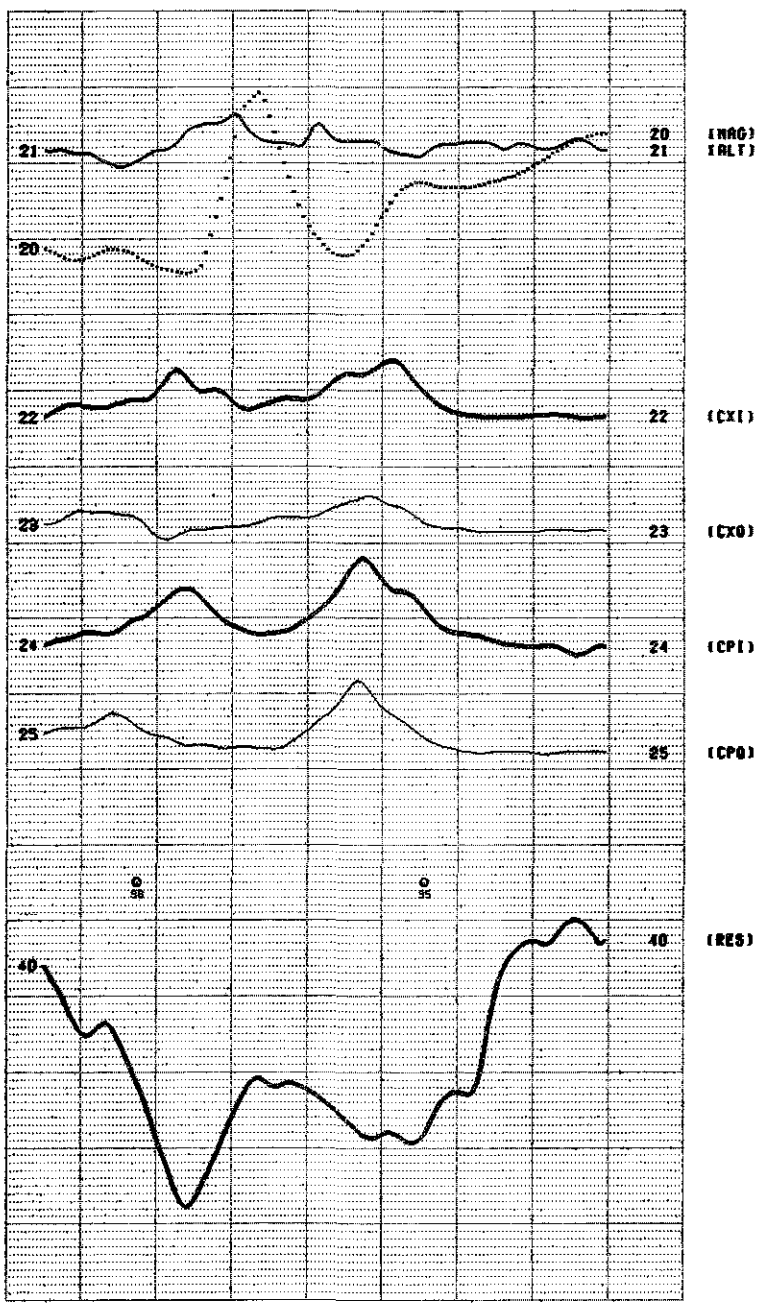


LINE -70 JOB: 326 SH6 1: 10000

5 cm

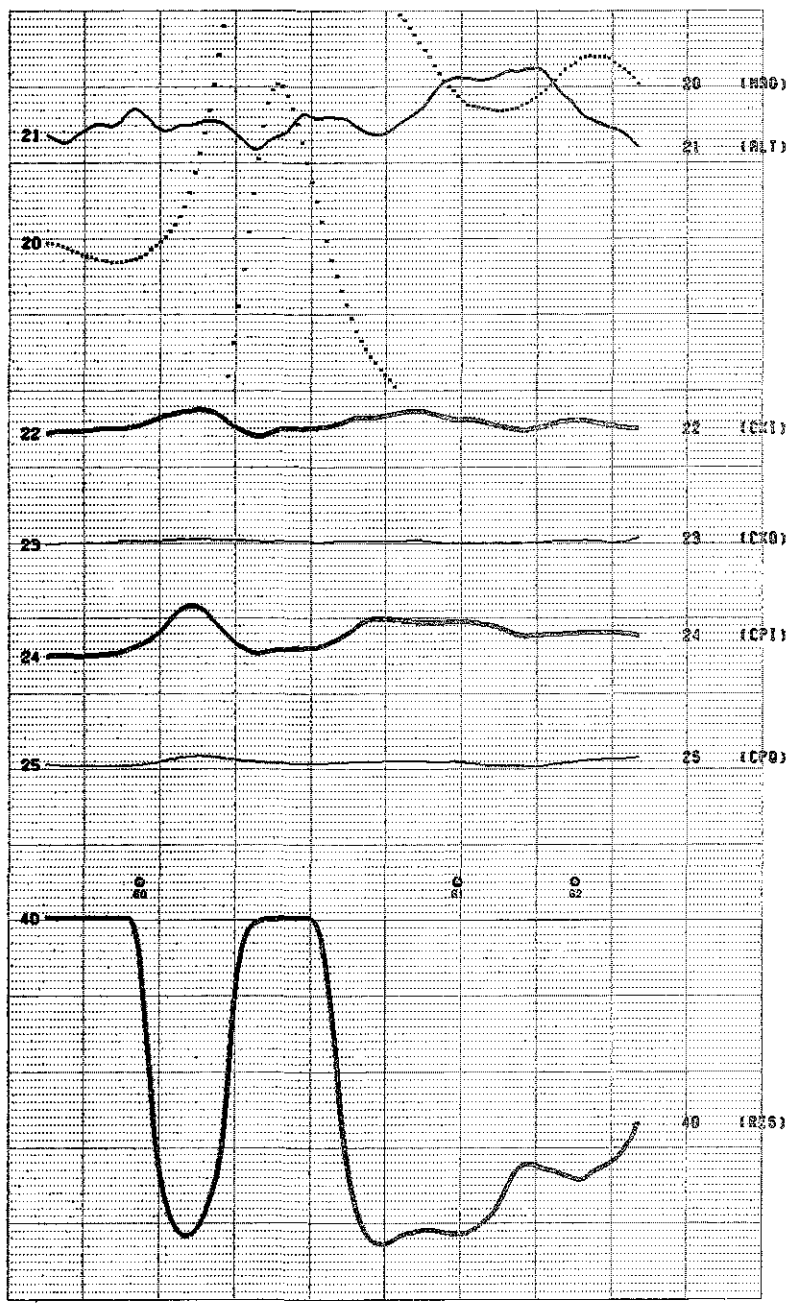
18k

82.1738



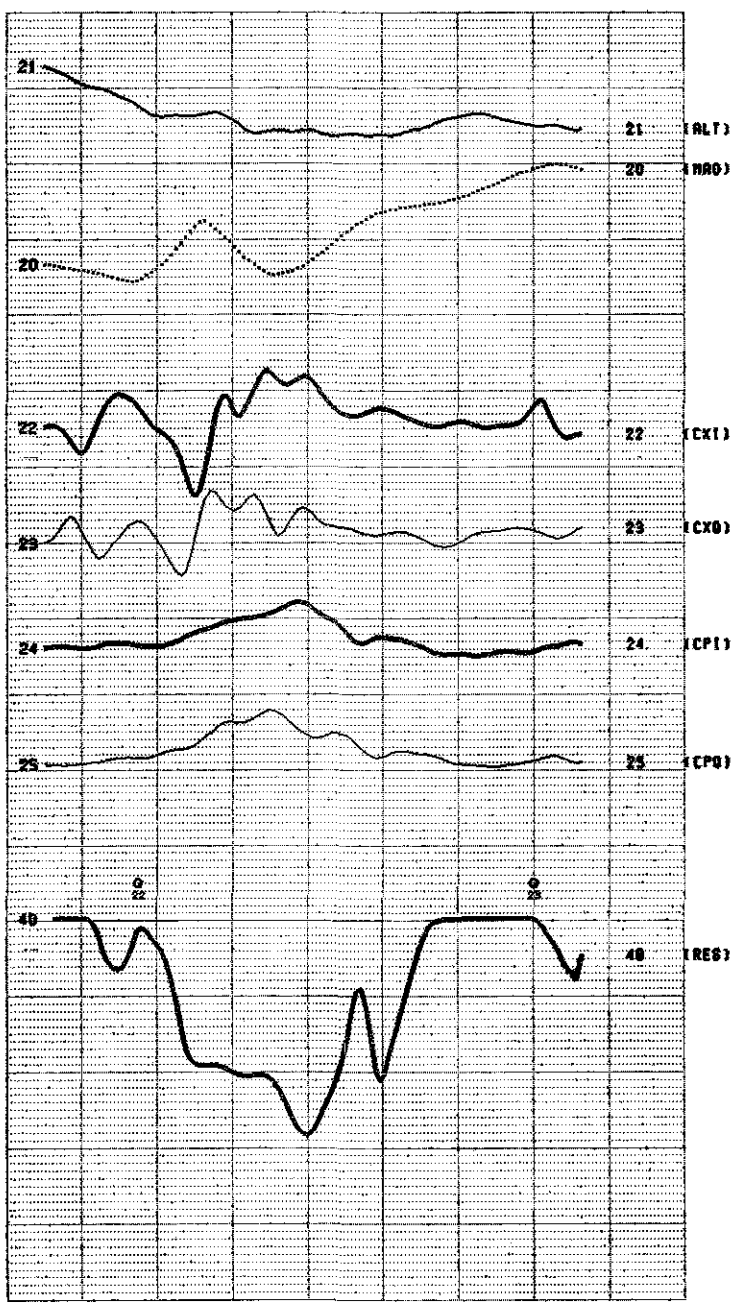
LINE -3 JOB: 326 SH1 1: 20000

PRELIMINARY



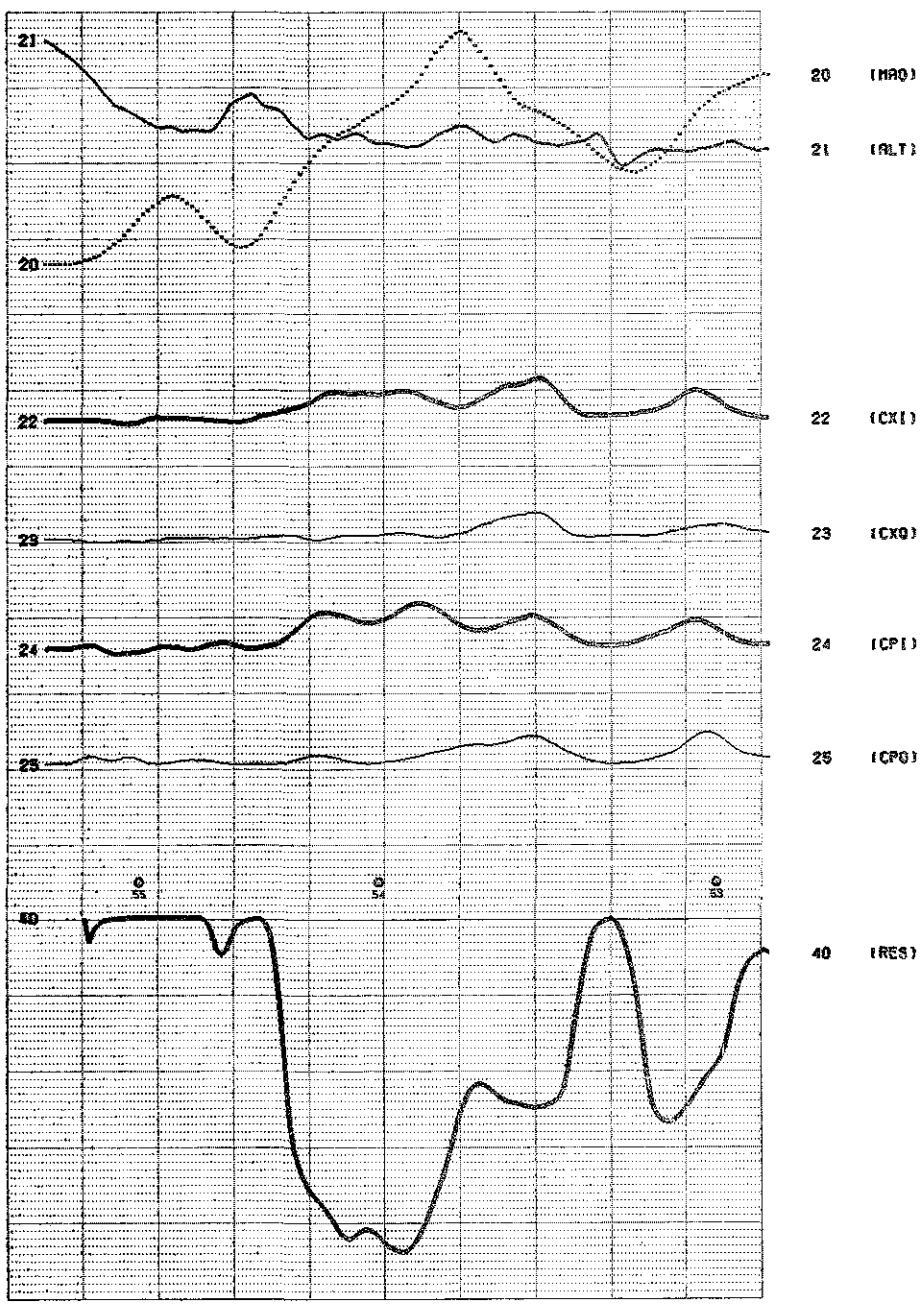
LINE 6 JOB: 326 SH1 1: 20000

PRELIMINARY



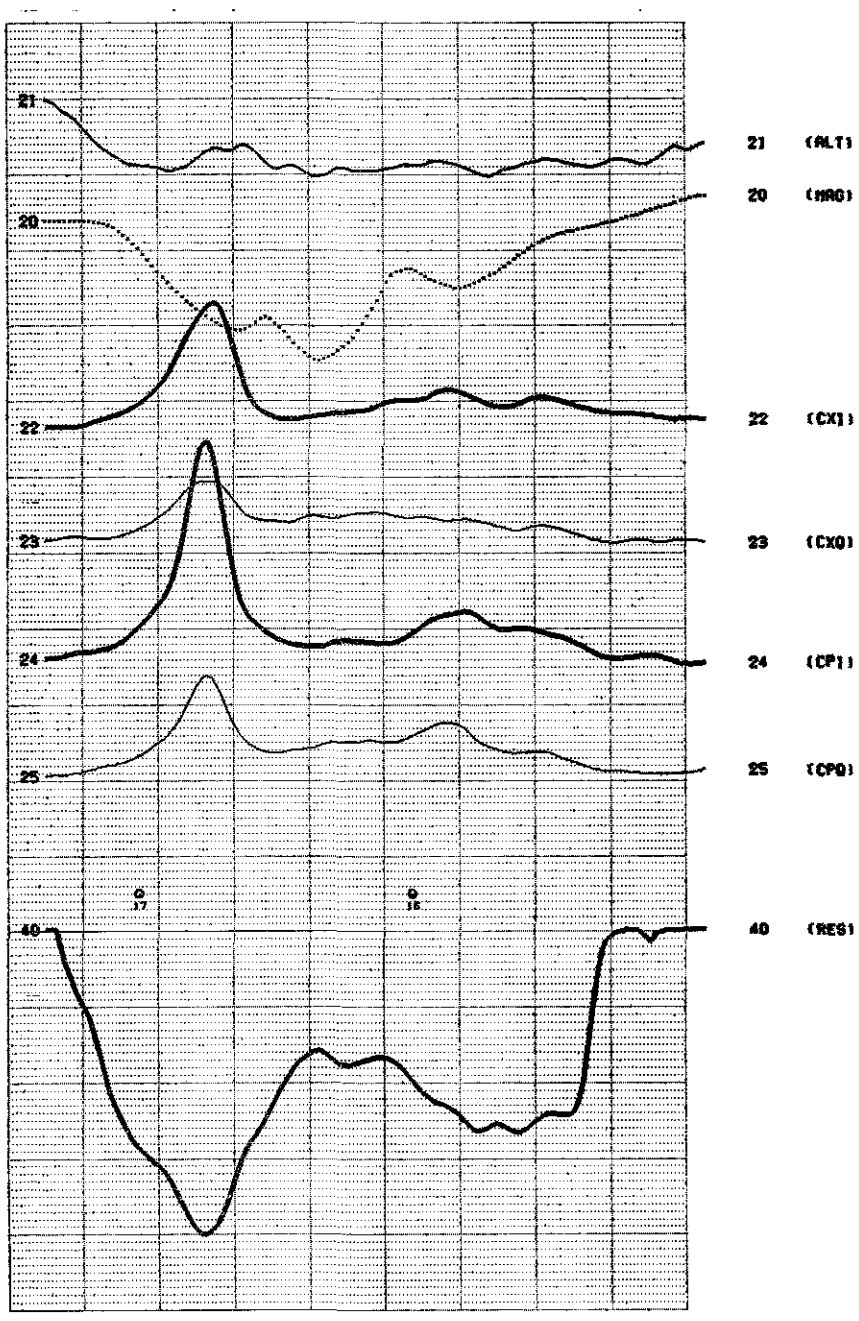
LINE 2 JOB: 326 SH1 1: 20000

PRELIMINARY



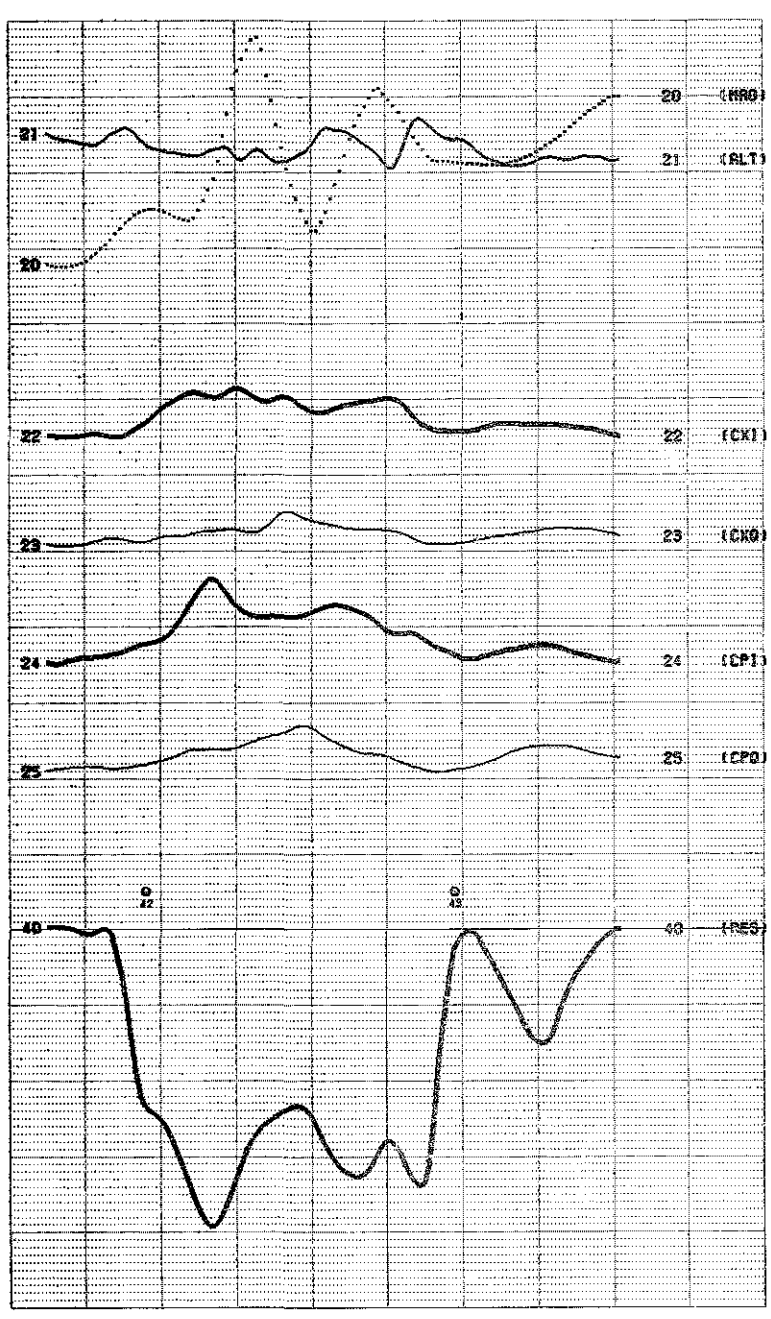
LINE -5 JOB: 326 SH1 1: 20000

PRELIMINARY



LINE -1 JOB: 326 SH1 1: 20000

PRELIMINARY

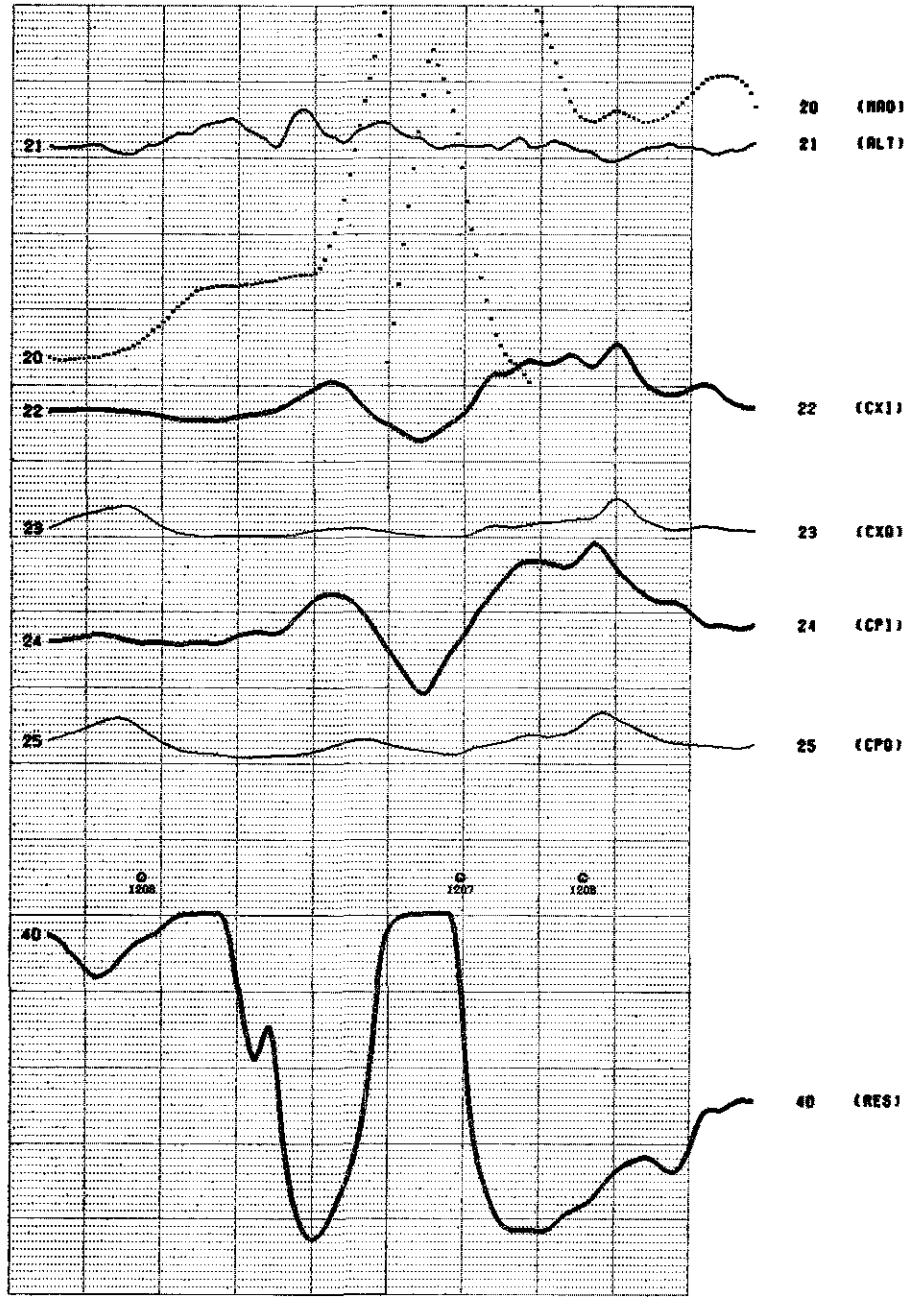


LINE 4 JOB: 326 SH1 1: 20000

PRELIMINARY

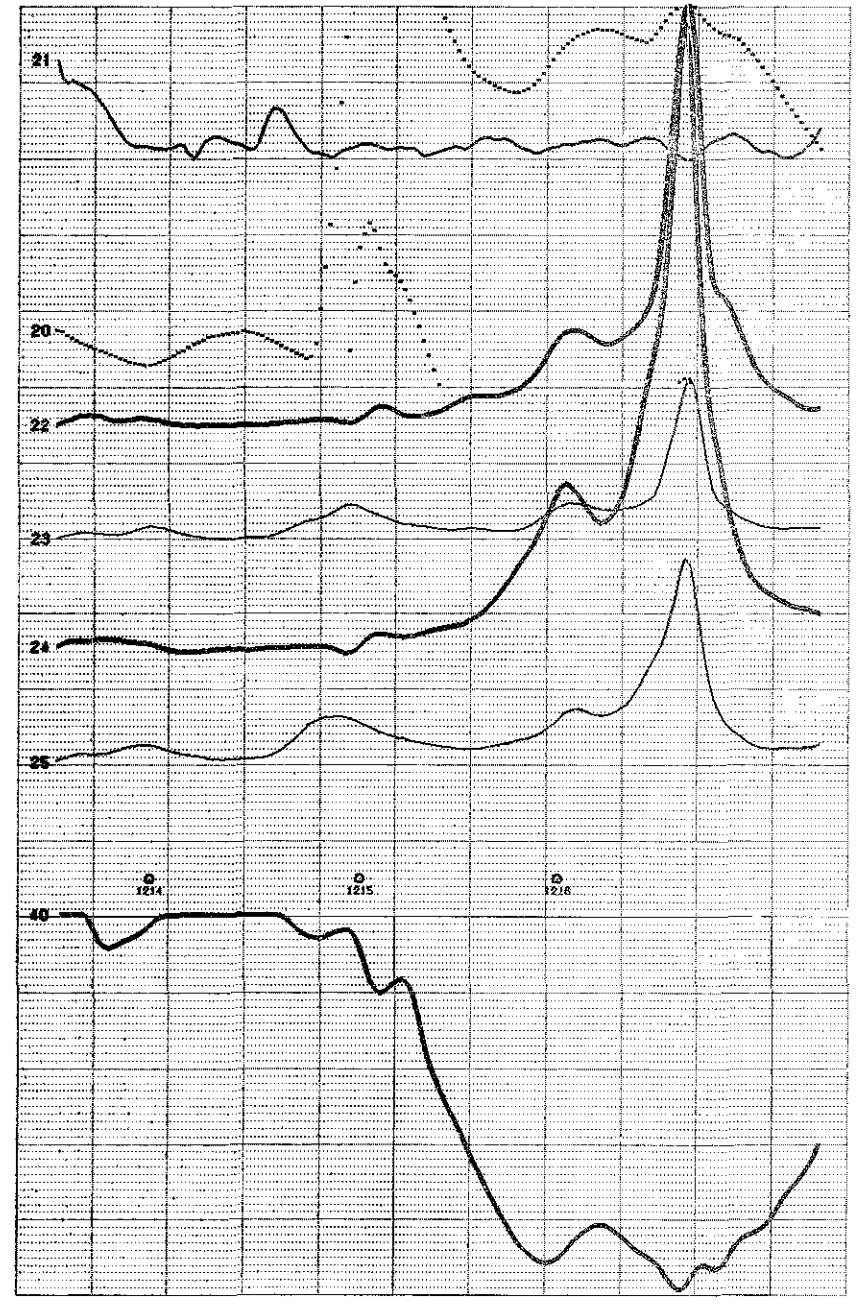
19 of 243

5 cm



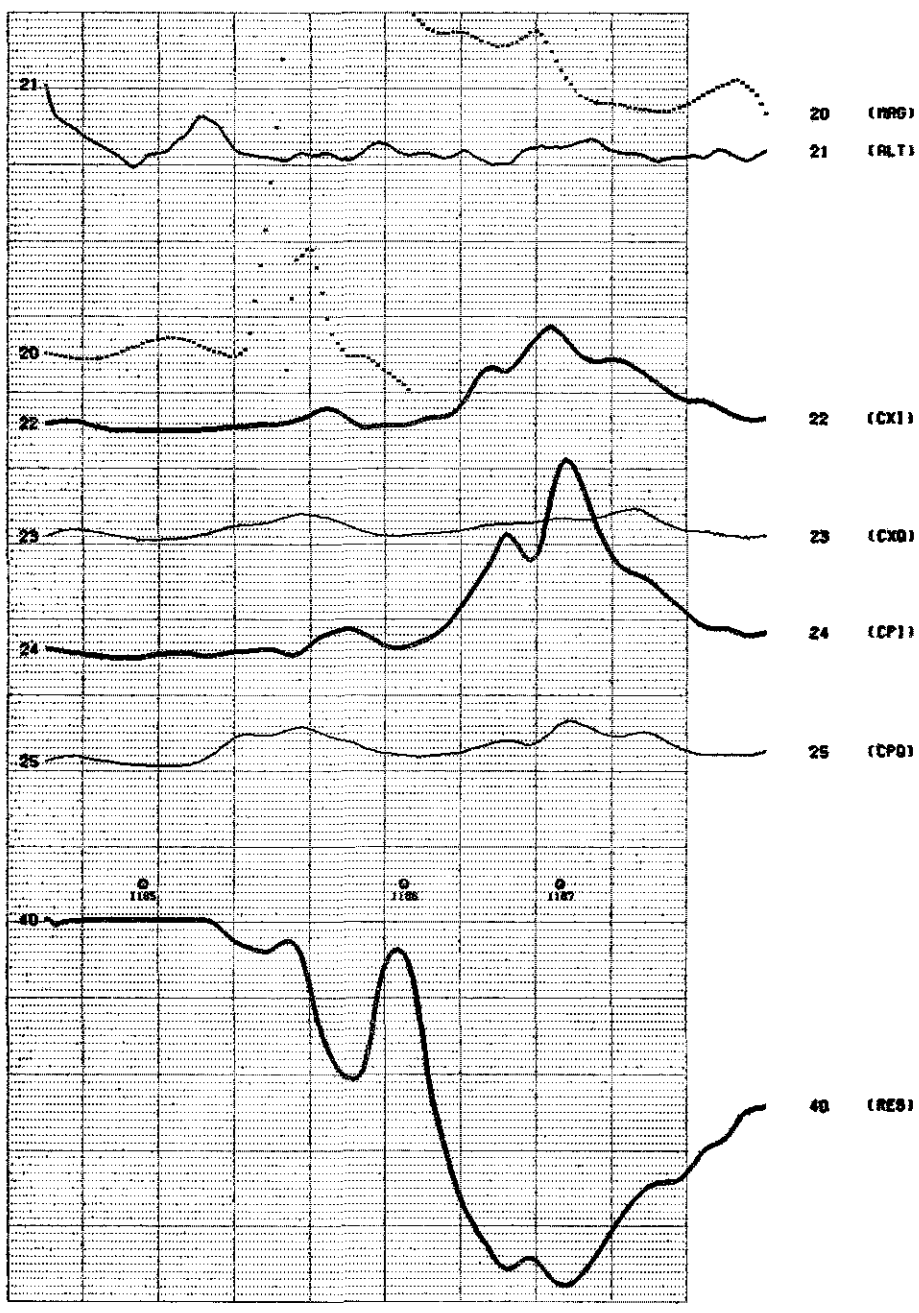
LINE -710 JOB: 326 SH1 1: 20000

PRELIMINARY



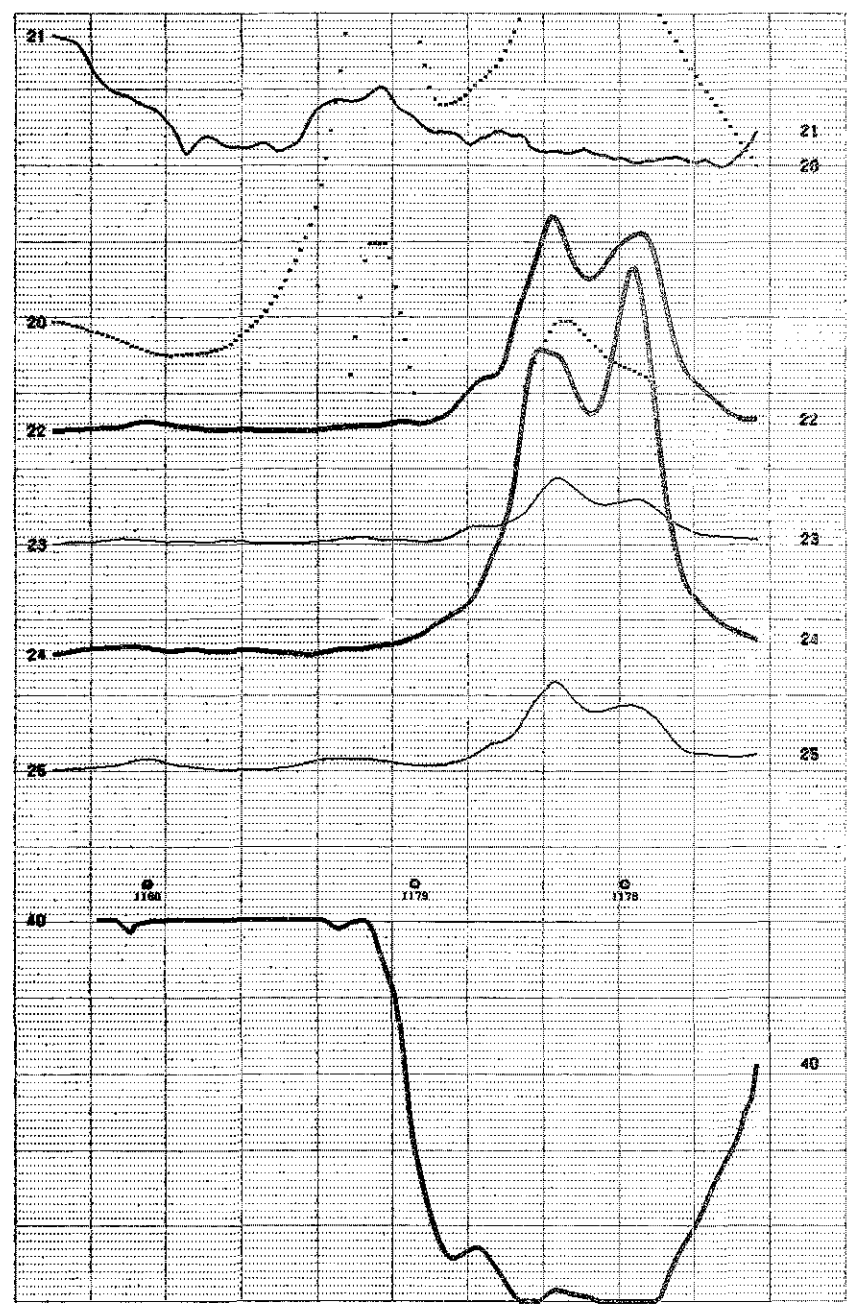
LINE 810 JOB: 326 SH1 1: 20000

PRELIMINARY



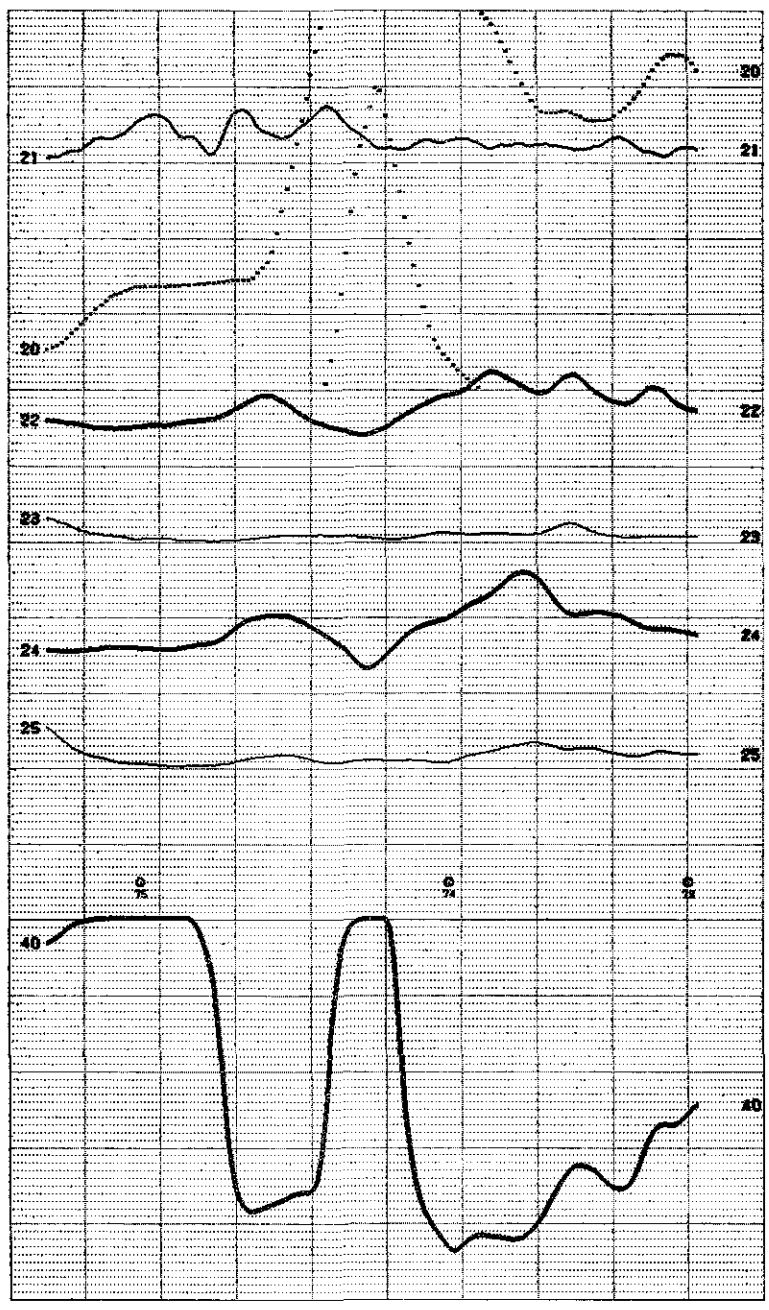
LINE 700 JOB: 326 SH1 1: 20000

PRELIMINARY



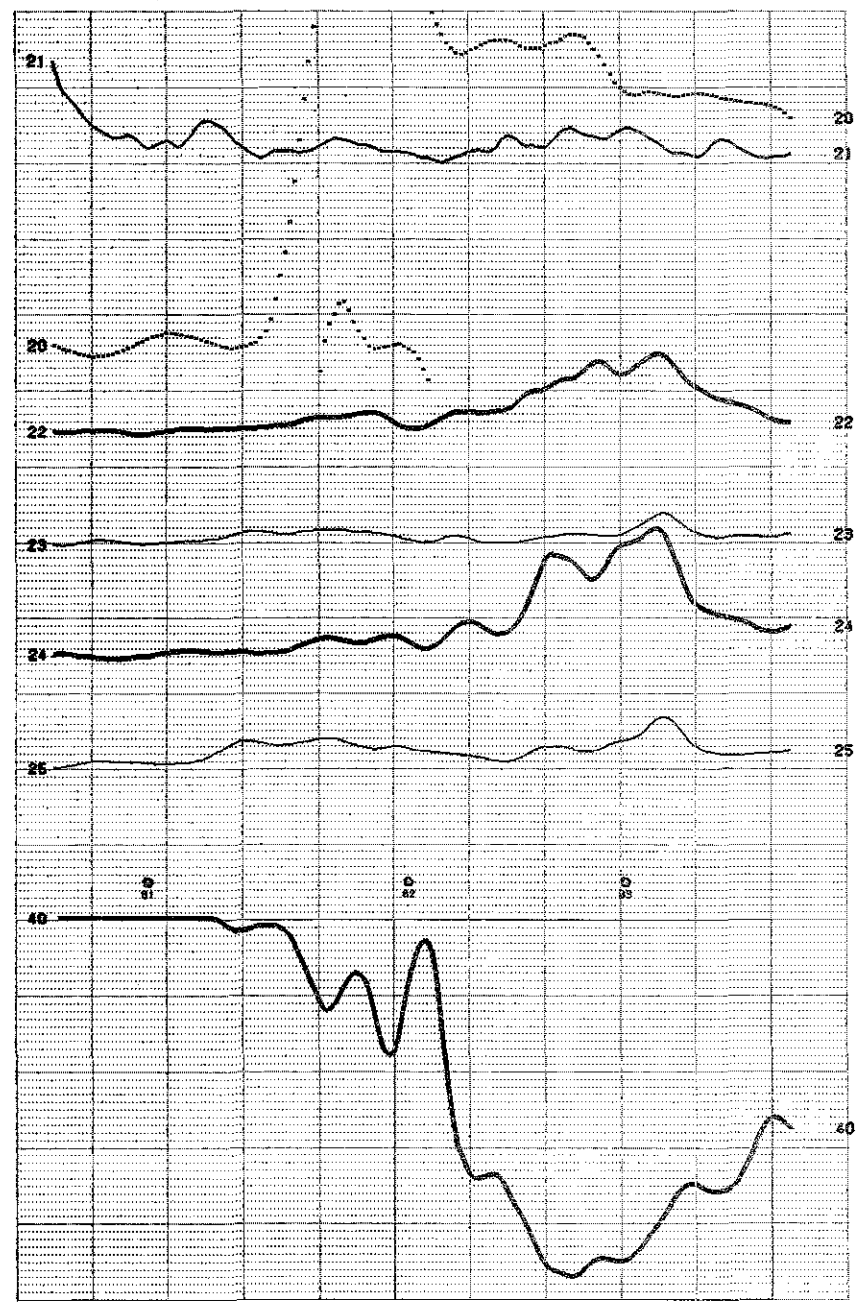
LINE -800 JOB: 326 SH1 1: 20000

PRELIMINARY



LINE -7 JOB: 326 SH1 1: 20000

PRELIMINARY



LINE 8 JOB: 326 SH1 1: 20000

PRELIMINARY

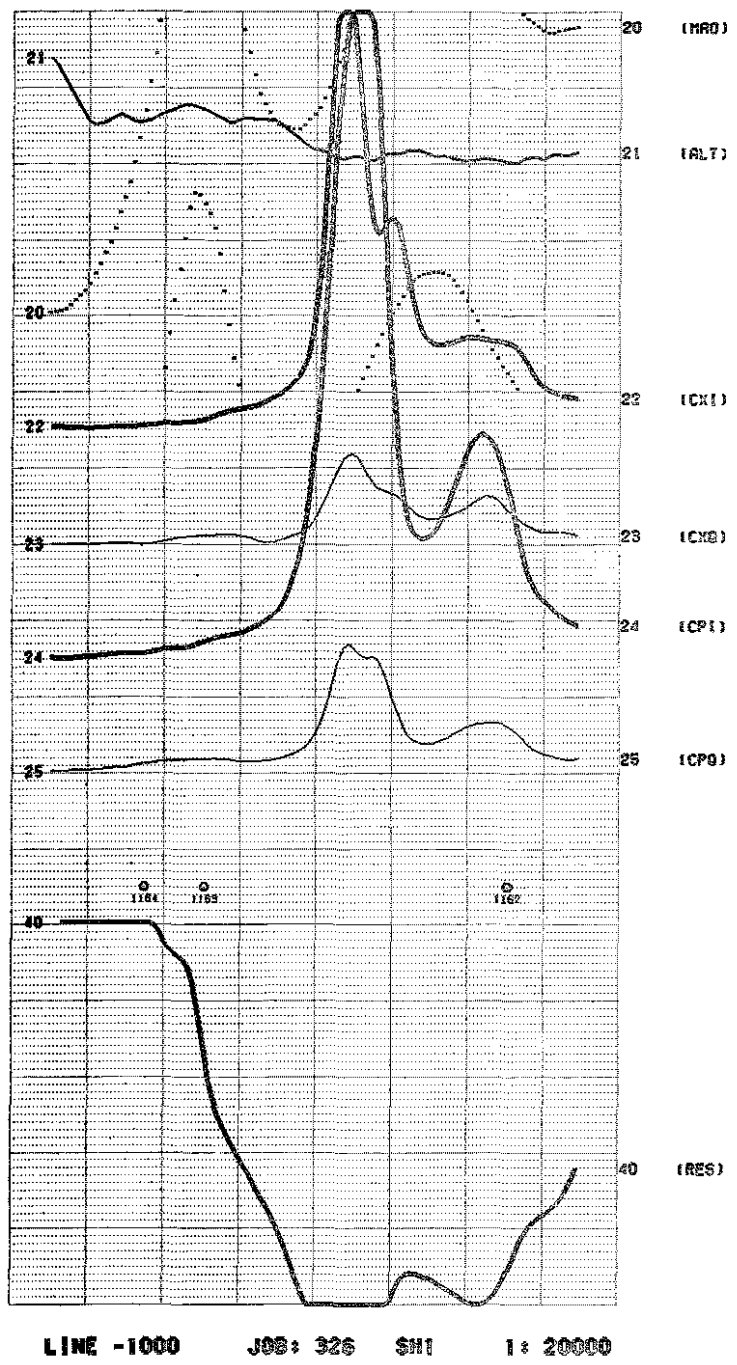
19.a

5 cm



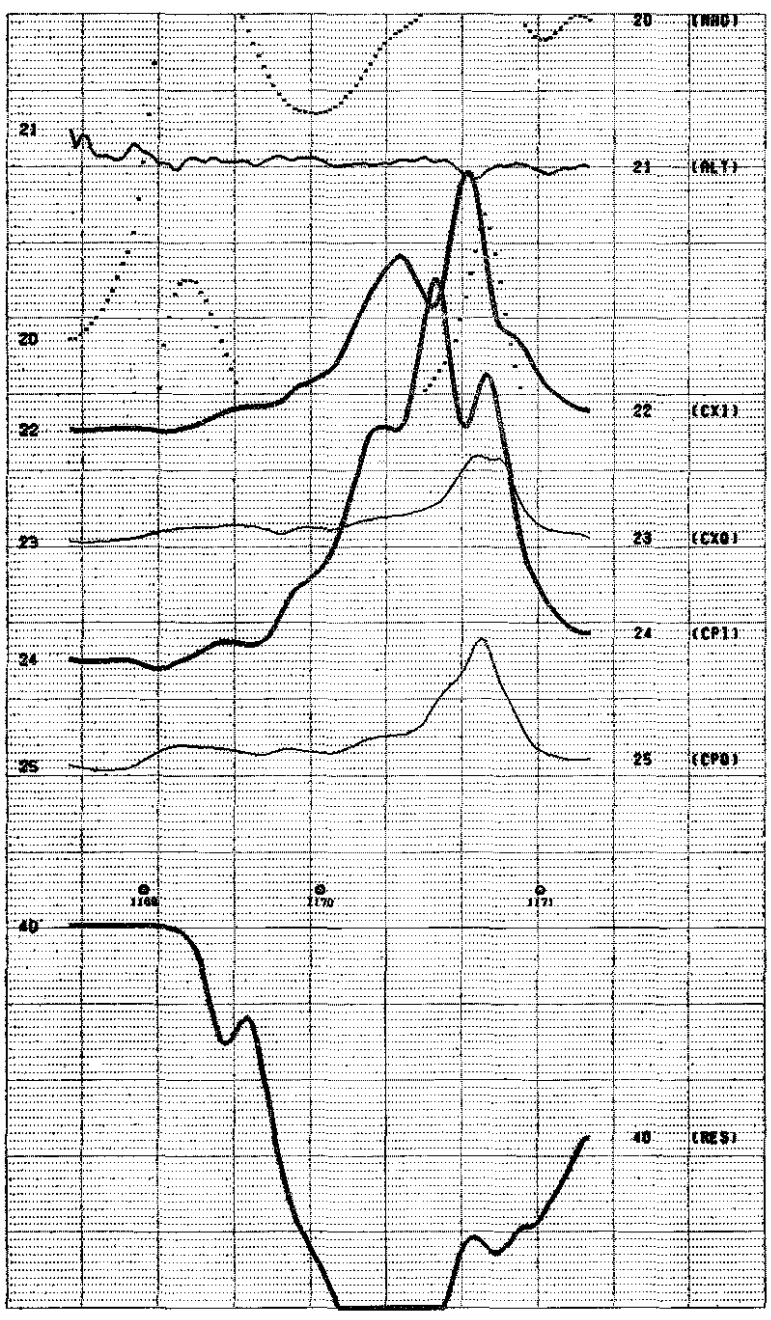
LINE -910 JOB: 326 SH1 1: 20000

PRELIMINARY



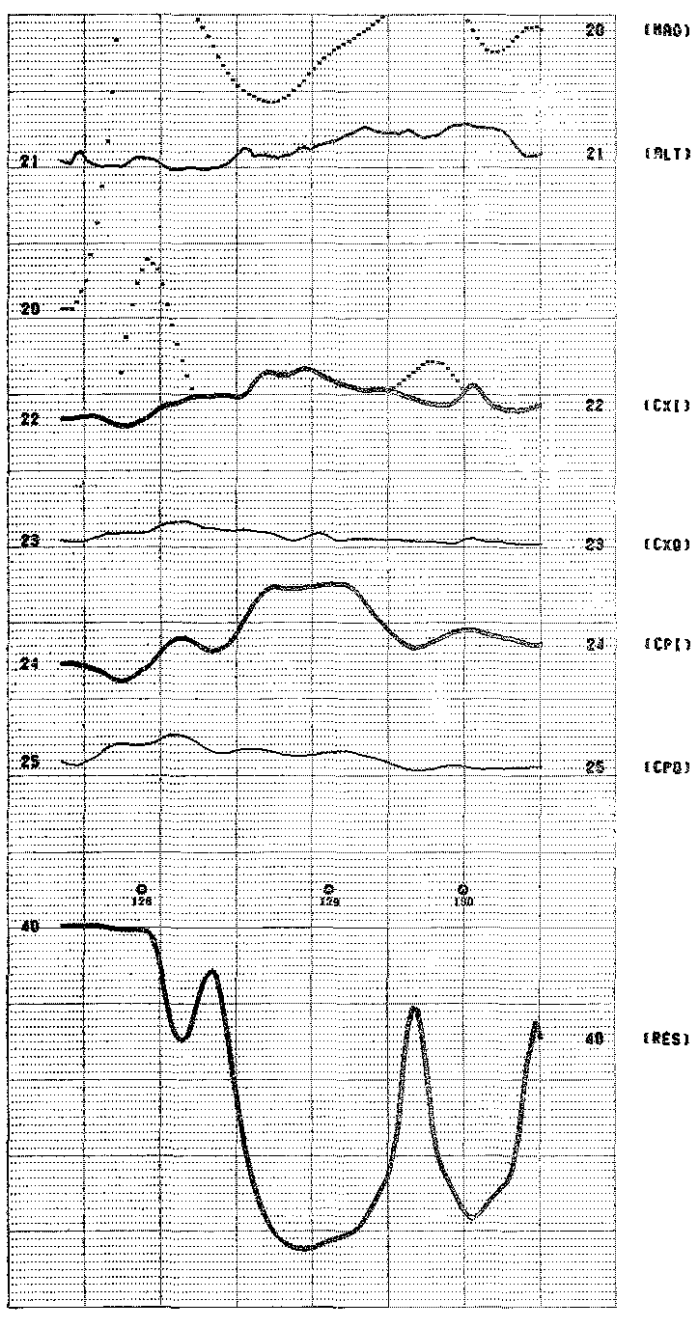
LINE -1000 JOB: 326 SH1 1: 20000

PRELIMINARY



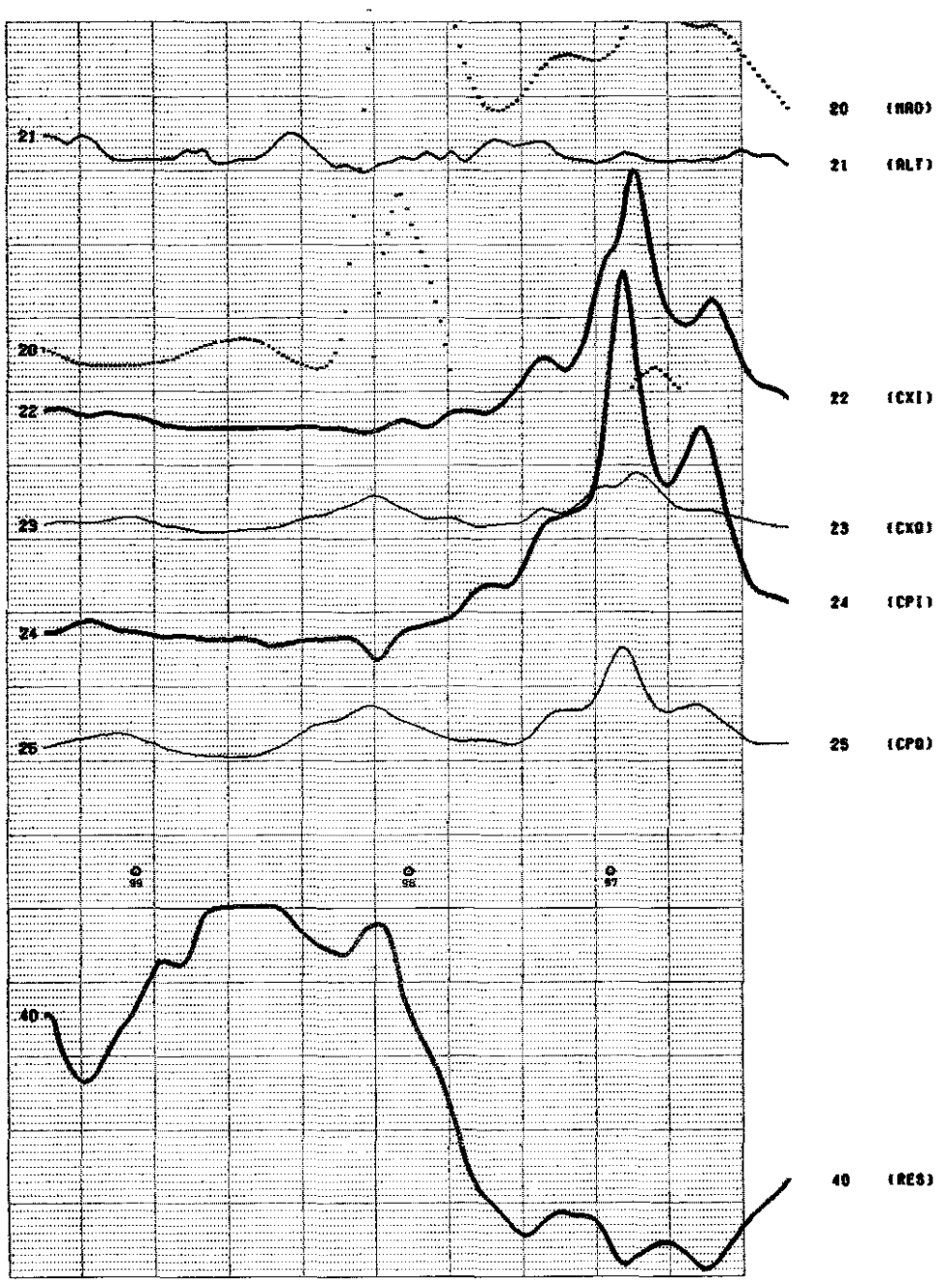
LINE 900 JOB: 326 SH1 1: 20000

PRELIMINARY



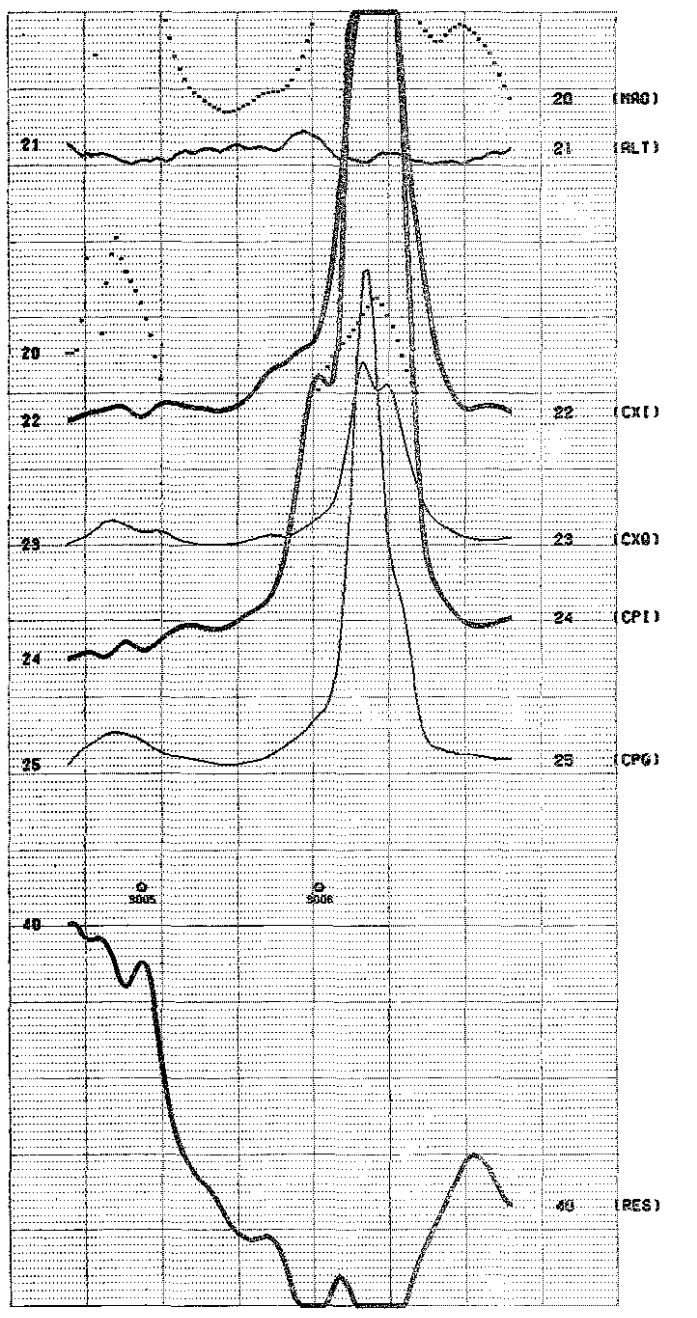
LINE 10 JOB: 326 SH1 1: 20000

PRELIMINARY



LINE -9 JOB: 326 SH1 1: 20000

PRELIMINARY

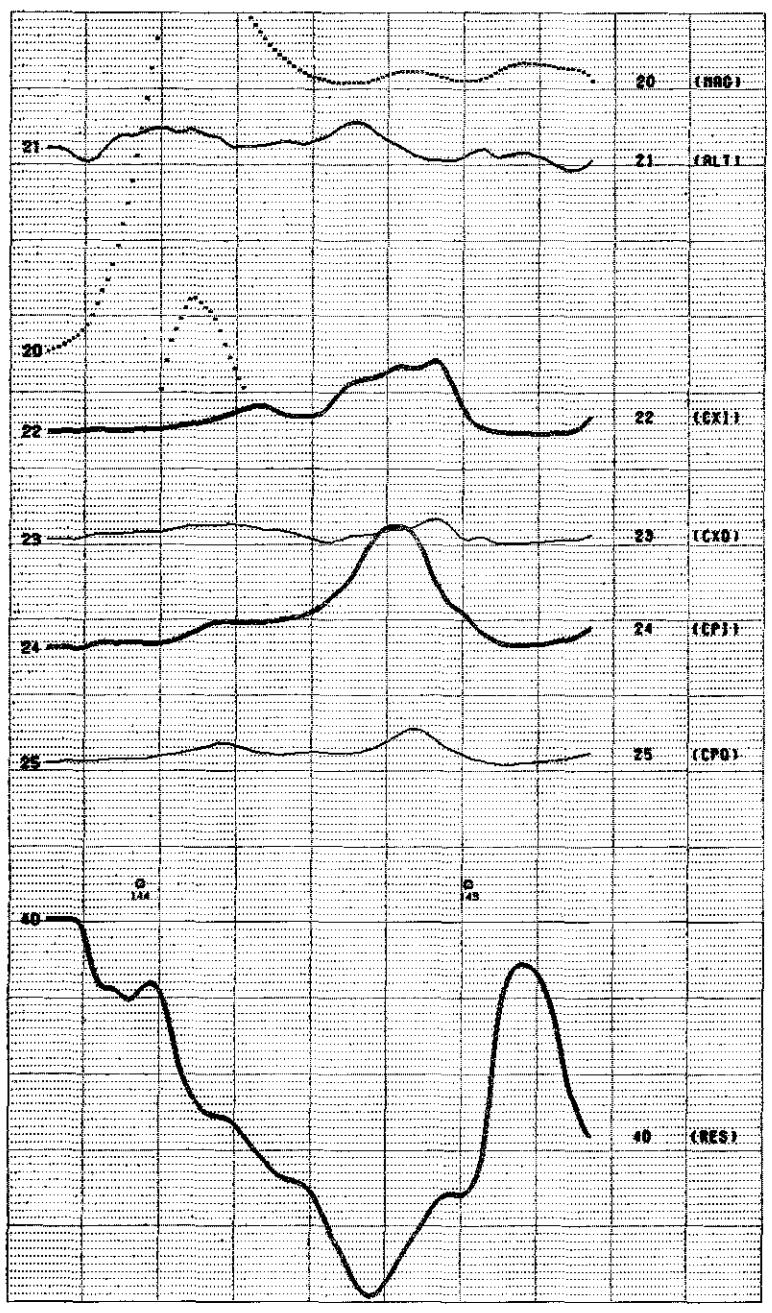


LINE 920 JOB: 326 SH1 1: 20000

PRELIMINARY

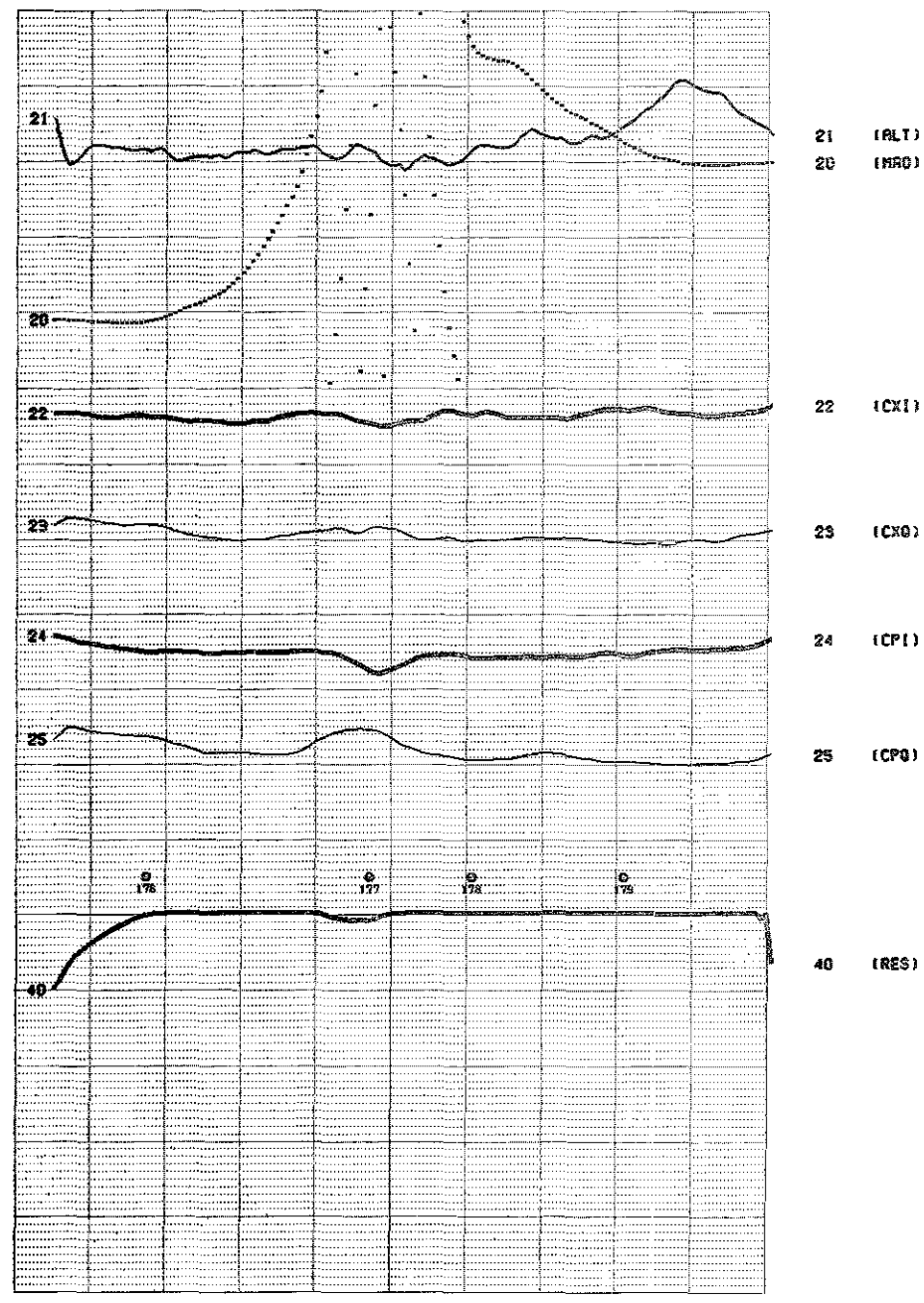
19.6

5 cm



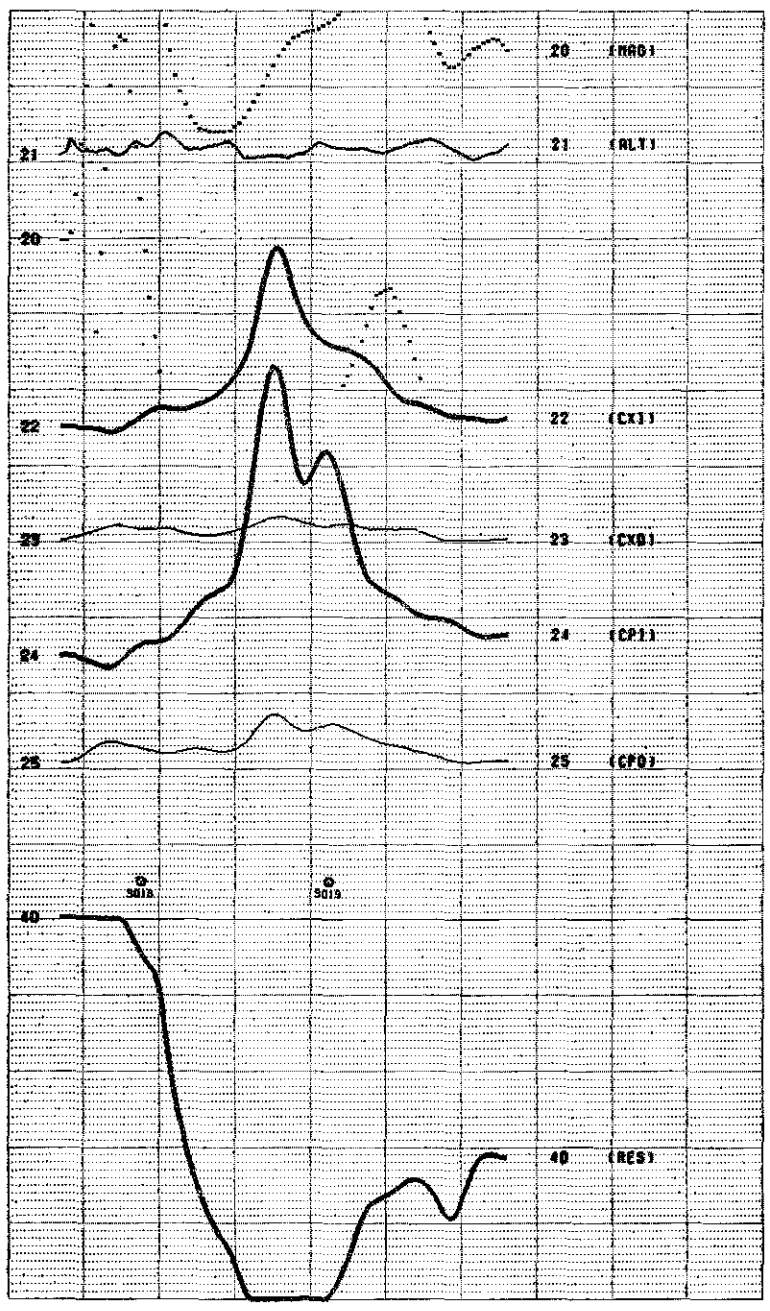
LINE -11 JOB: 326 SH1 1: 20000

PRELIMINARY



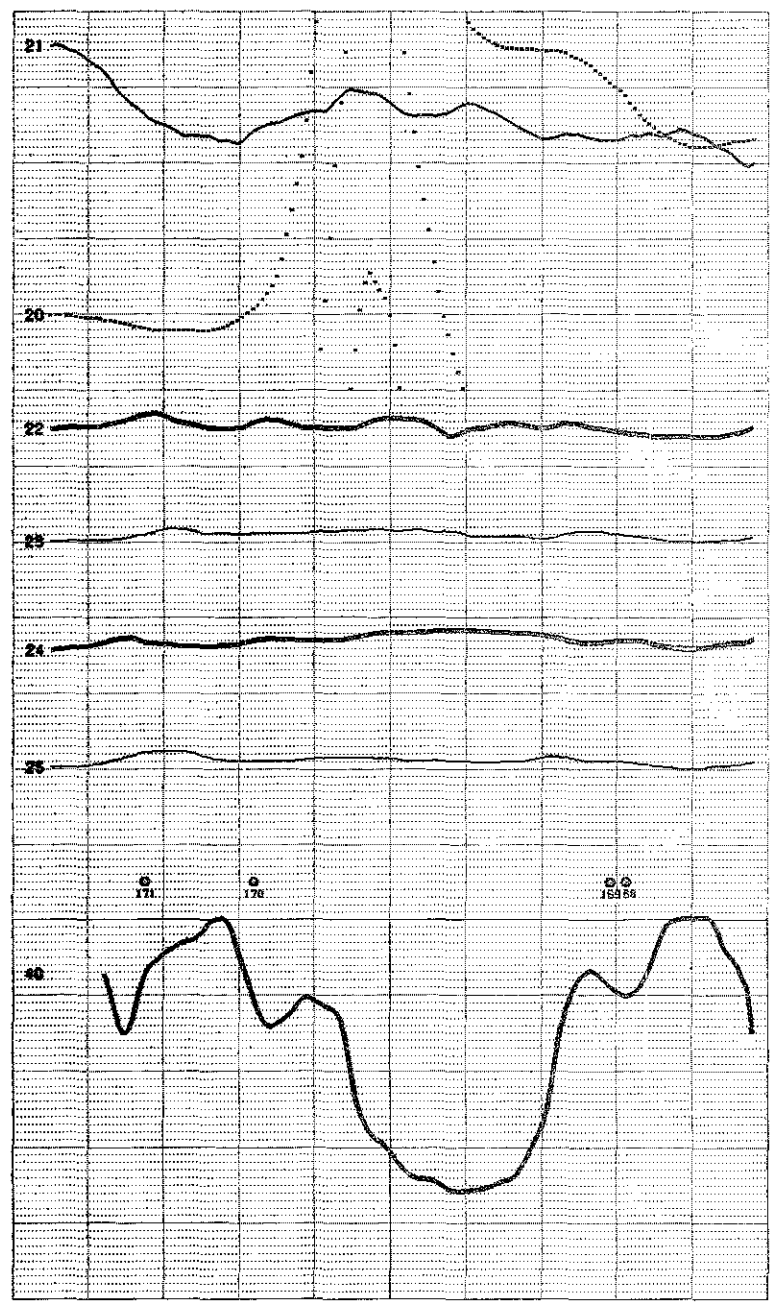
LINE 14 JOB: 326 SH1 1: 20000

PRELIMINARY



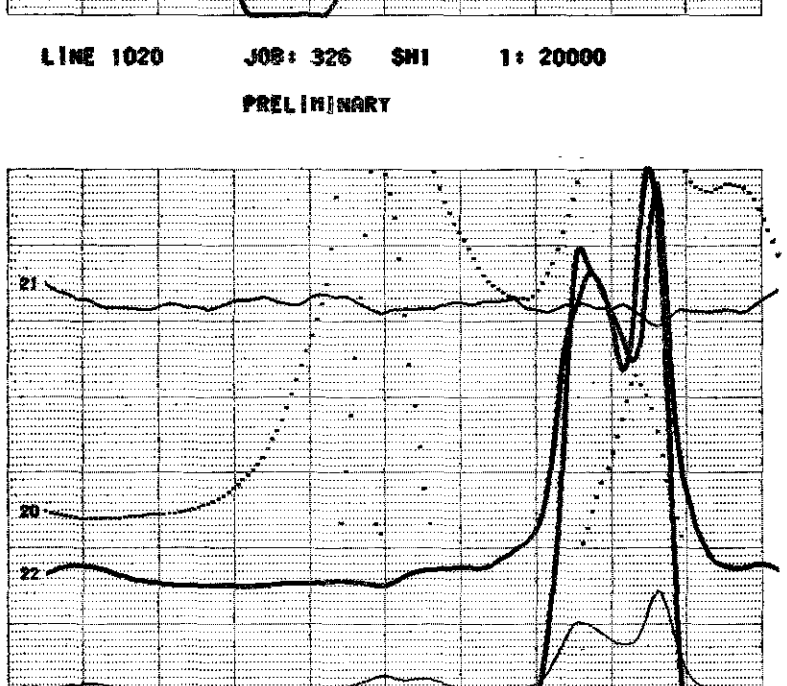
LINE 1020 JOB: 326 SH1 1: 20000

PRELIMINARY



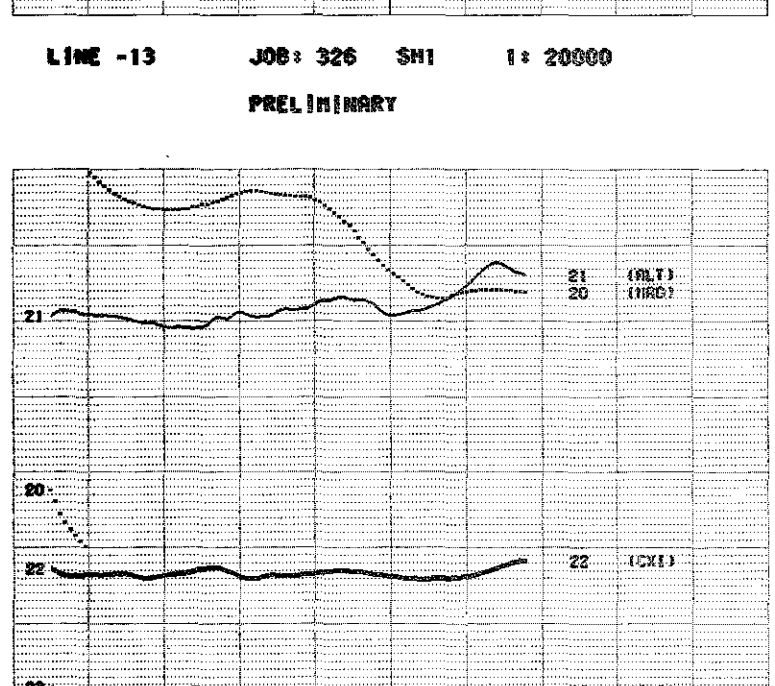
LINE -13 JOB: 326 SH1 1: 20000

PRELIMINARY



LINE 1010 JOB: 326 SH1 1: 20000

PRELIMINARY

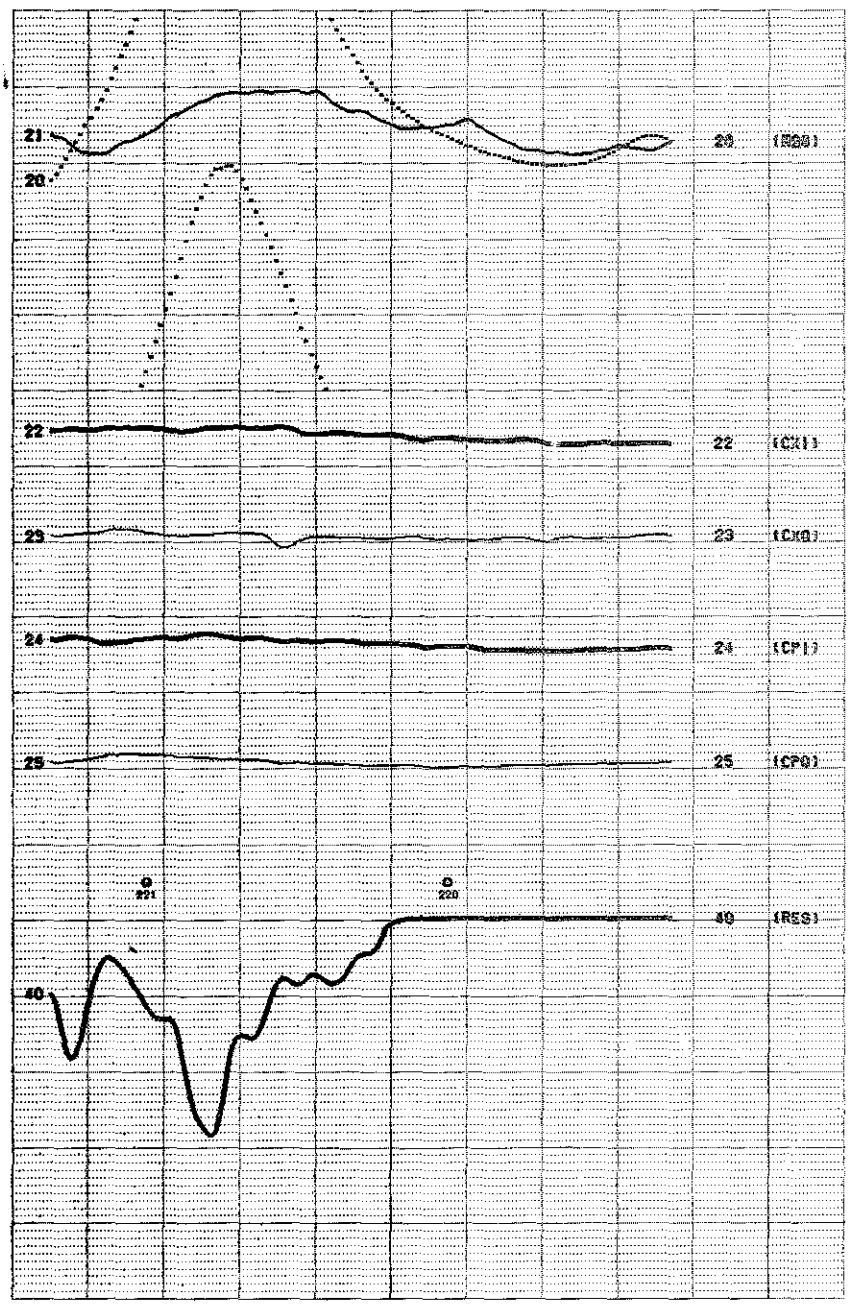


LINE 12 JOB: 326 SH1 1: 20000

PRELIMINARY

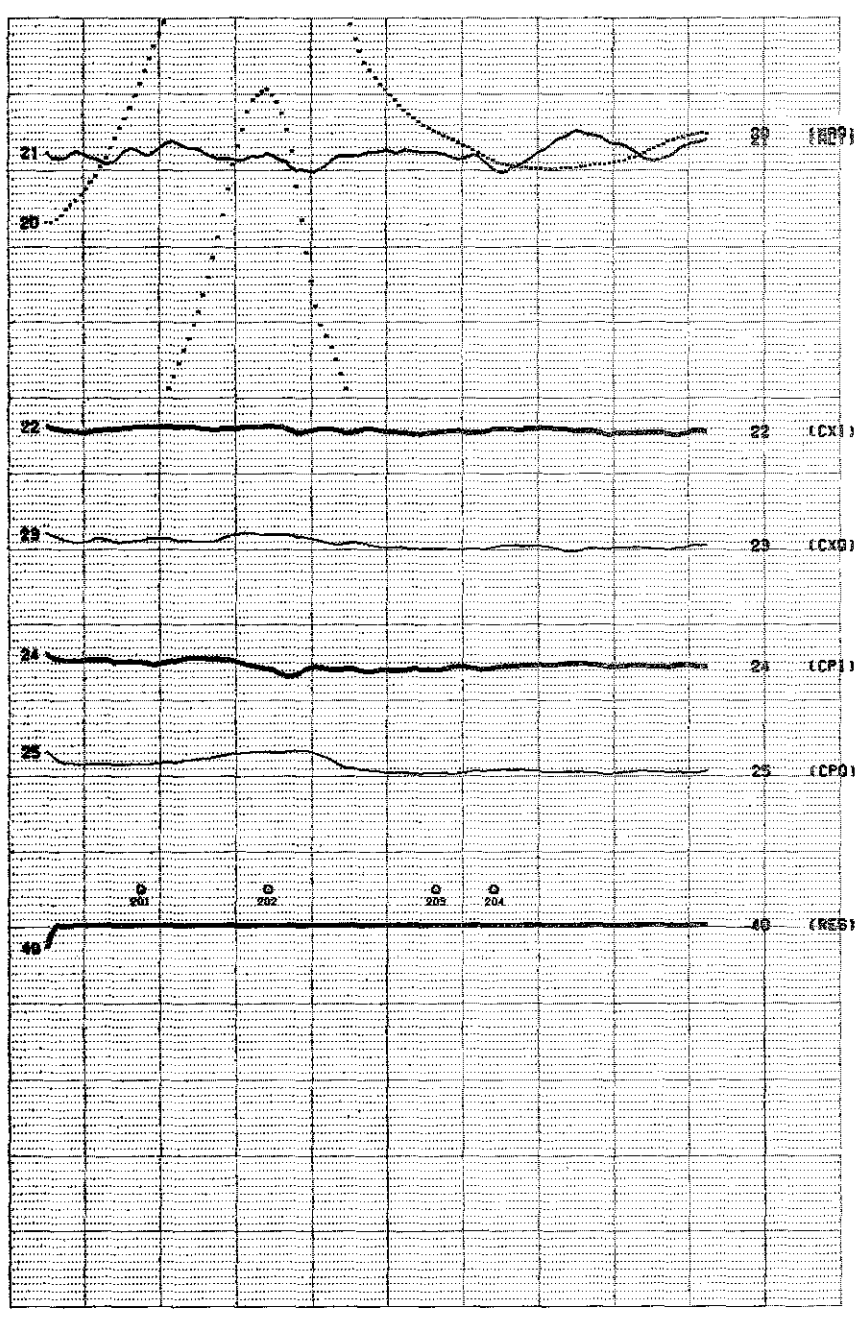
19c

5 cm



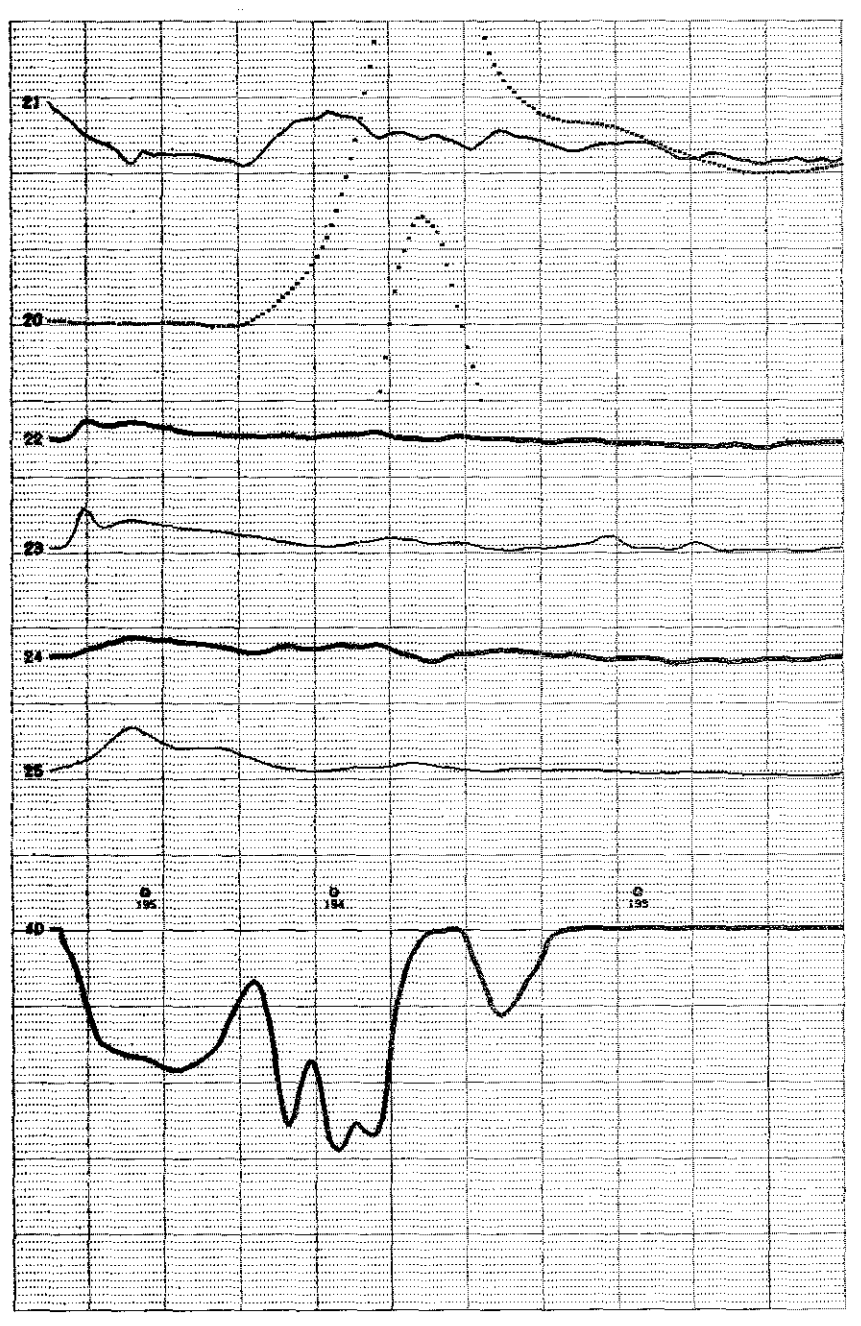
LINE -17 JOB: 326 SH1 1: 20000

PRELIMINARY



LINE 16 JOB: 326 SH1 1: 20000

PRELIMINARY



LINE -15 JOB: 326 SH1 1: 20000

PRELIMINARY

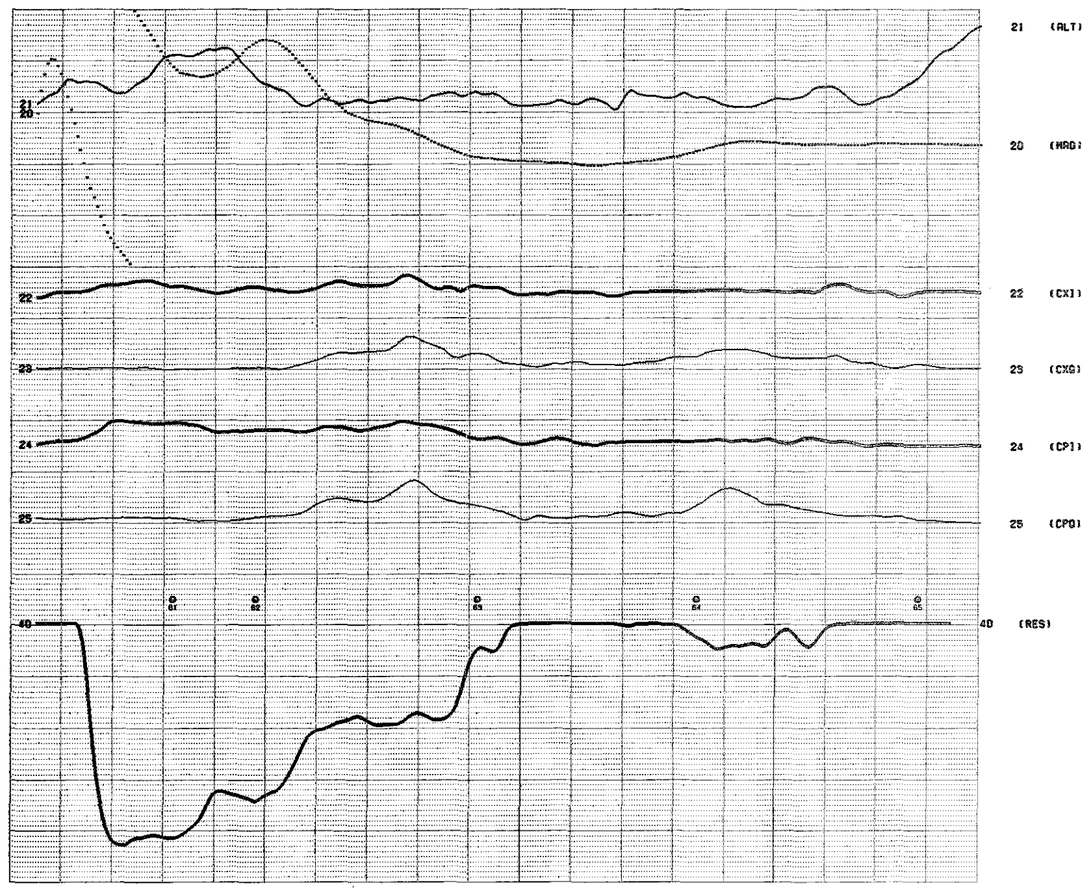
5 cm

19d

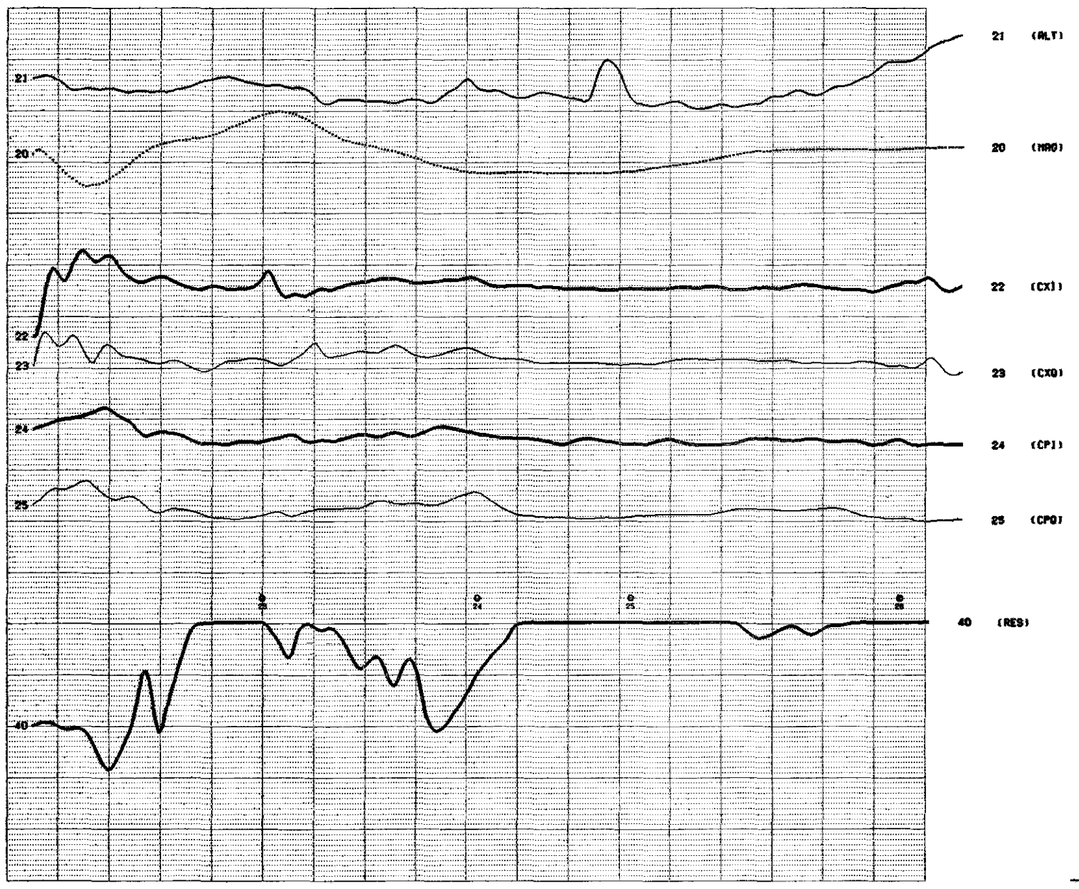
82.1738



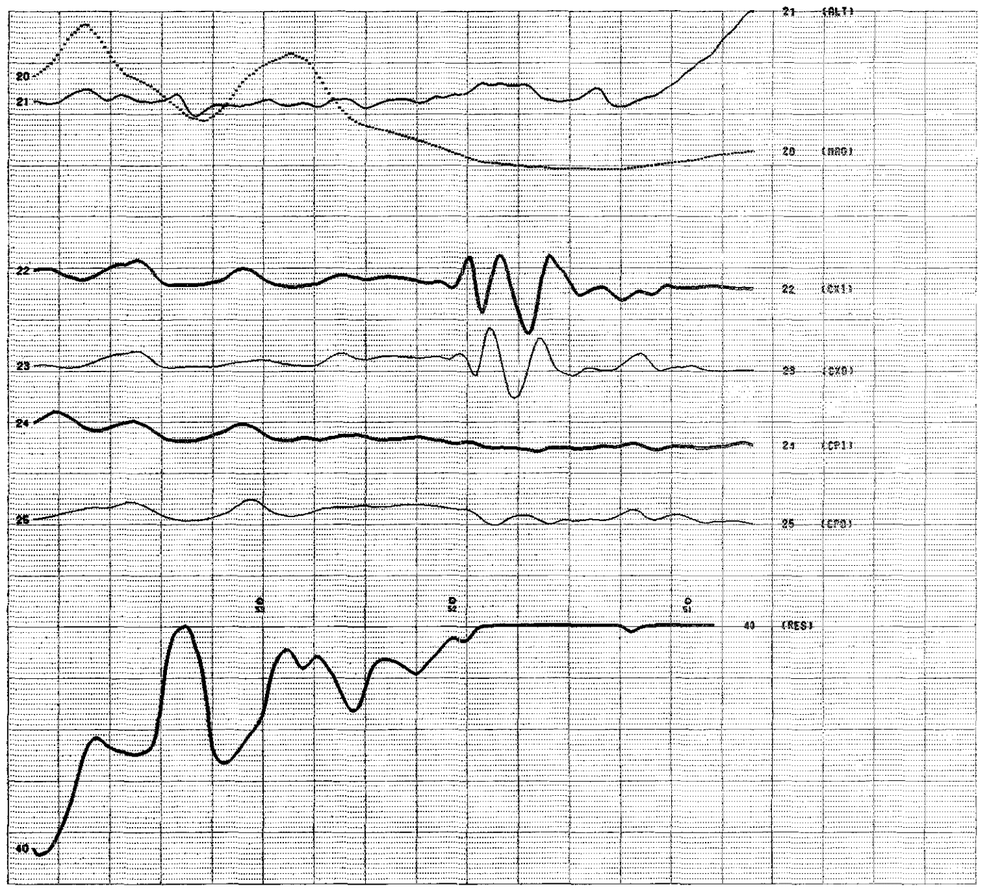
LINE -3 JOB: 326 SH2 1: 20000 LINE -3
PRELIMINARY



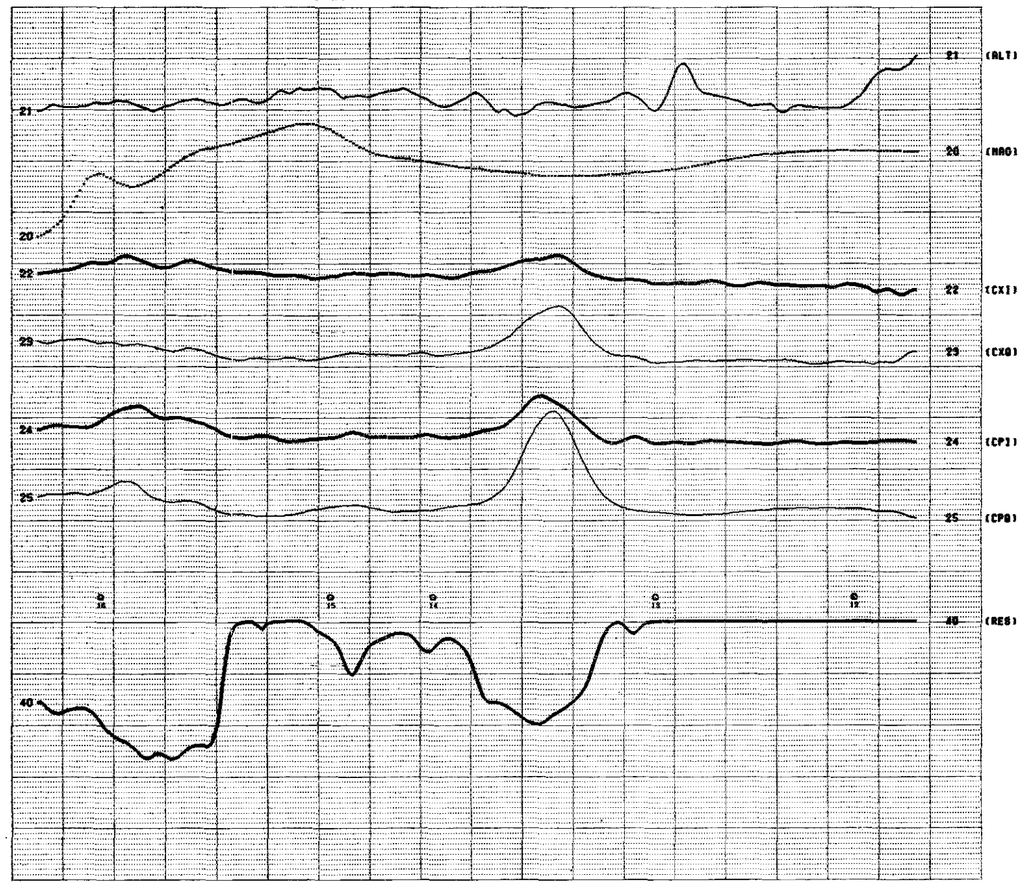
LINE 6 JOB: 326 SH2 1: 20000 LINE 6
PRELIMINARY



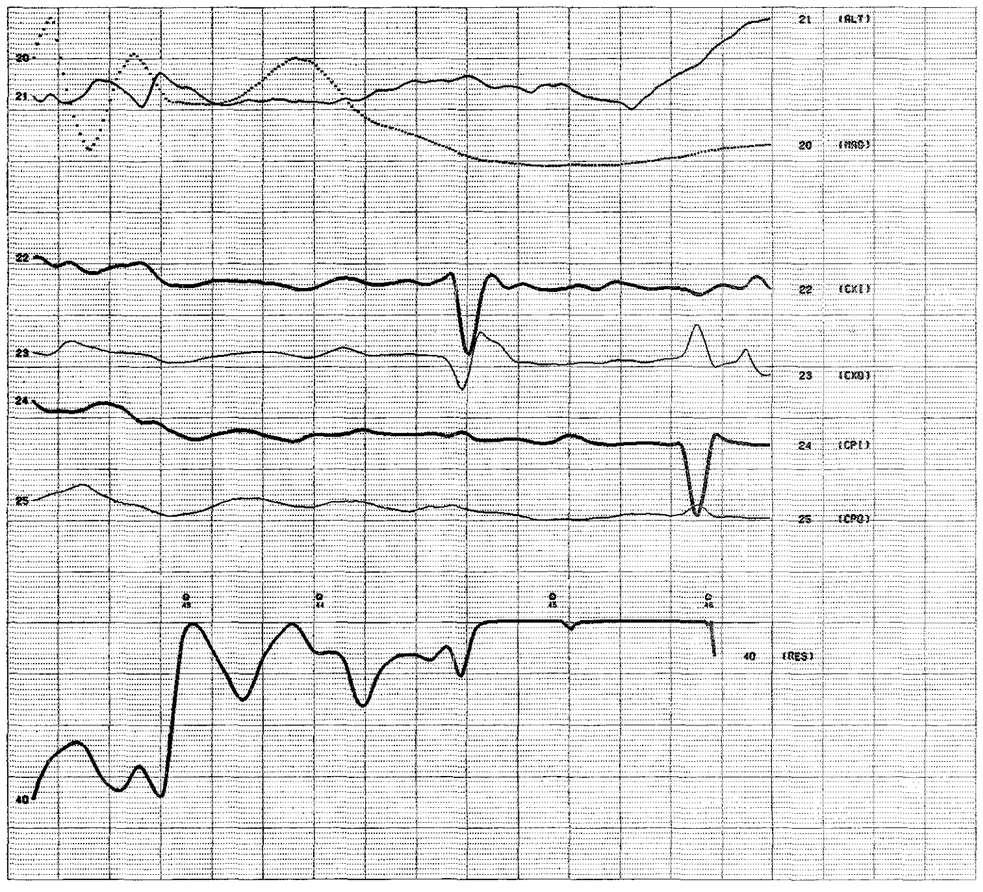
LINE 2 JOB: 326 SH2 1: 20000 LINE 2
PRELIMINARY



LINE -5 JOB: 326 SH2 1: 20000
PRELIMINARY

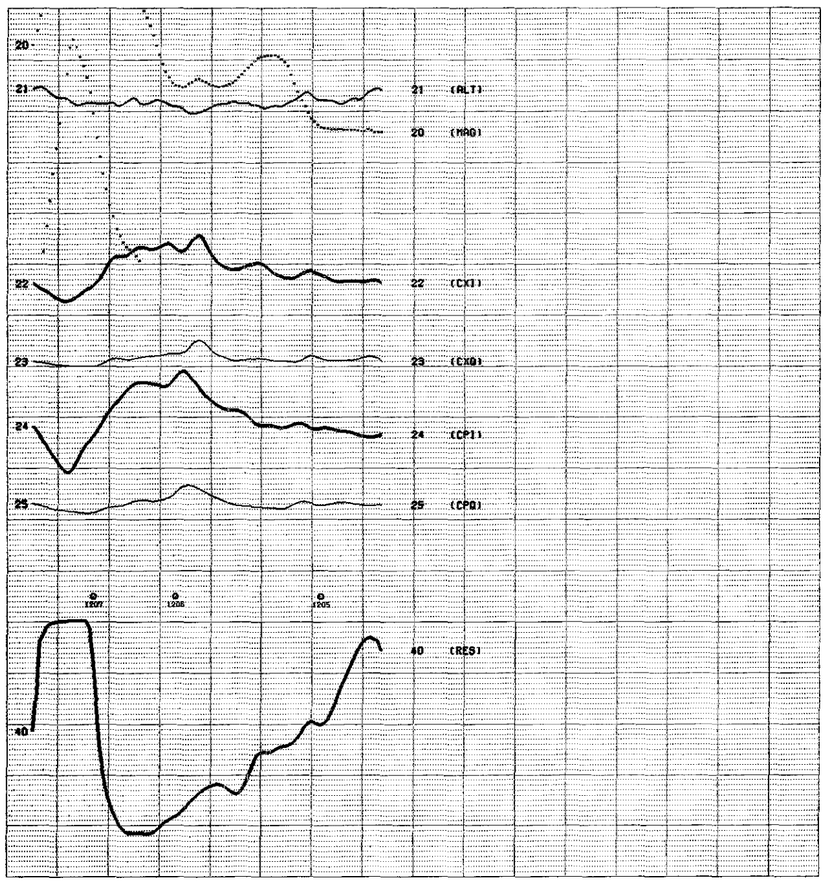


LINE -1 JOB: 326 SH2 1: 20000 LINE -1
PRELIMINARY

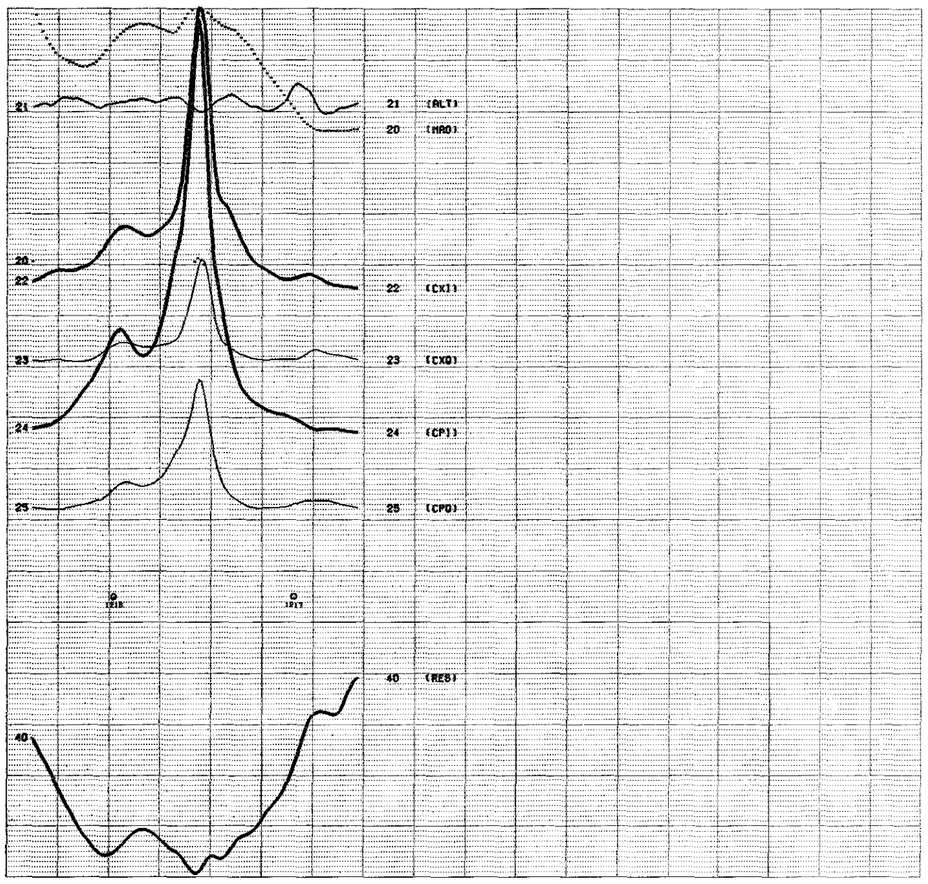


LINE 4 JOB: 326 SH2 1: 20000
PRELIMINARY

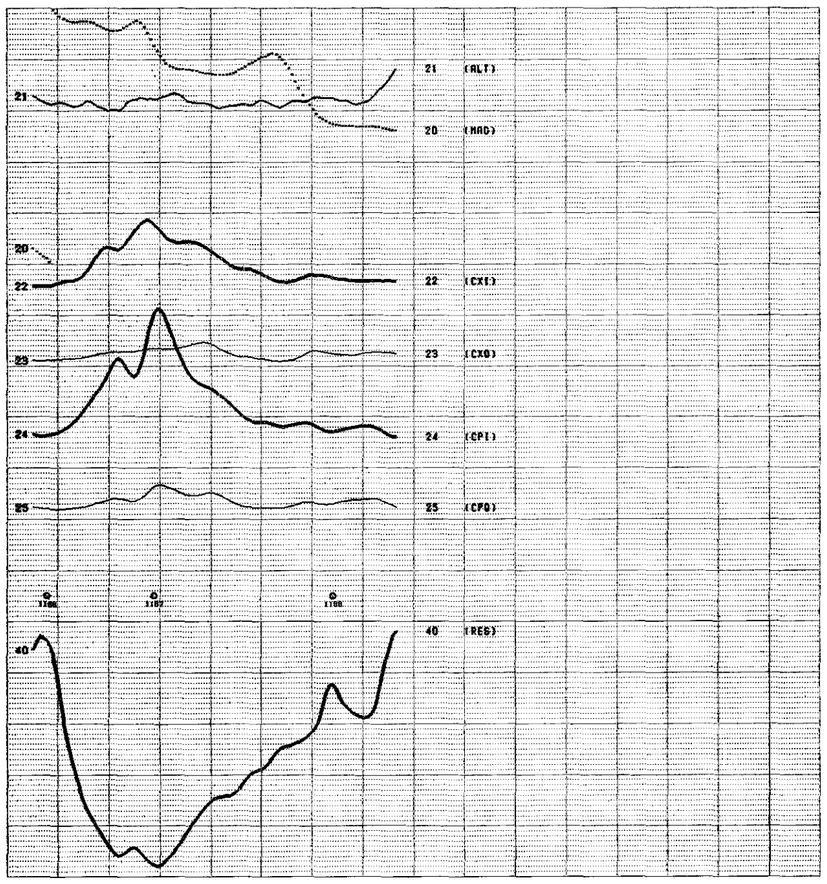
5 cm



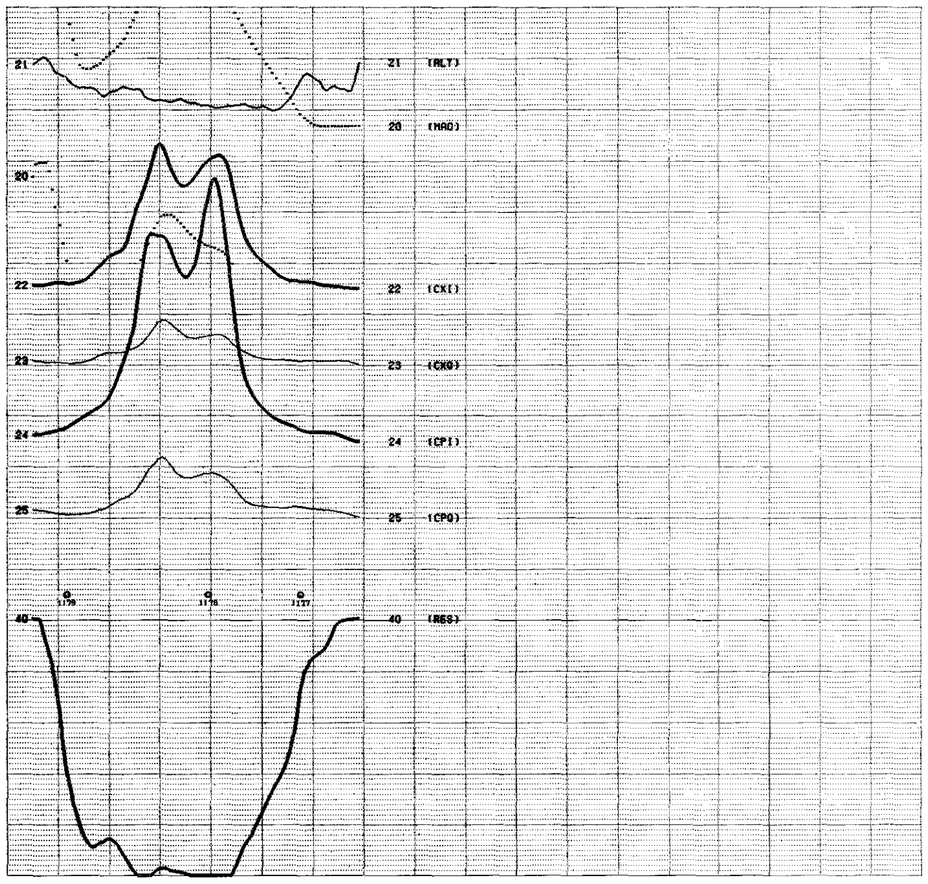
LINE -710 JOB: 326 SM2 1: 20000
PRELIMINARY



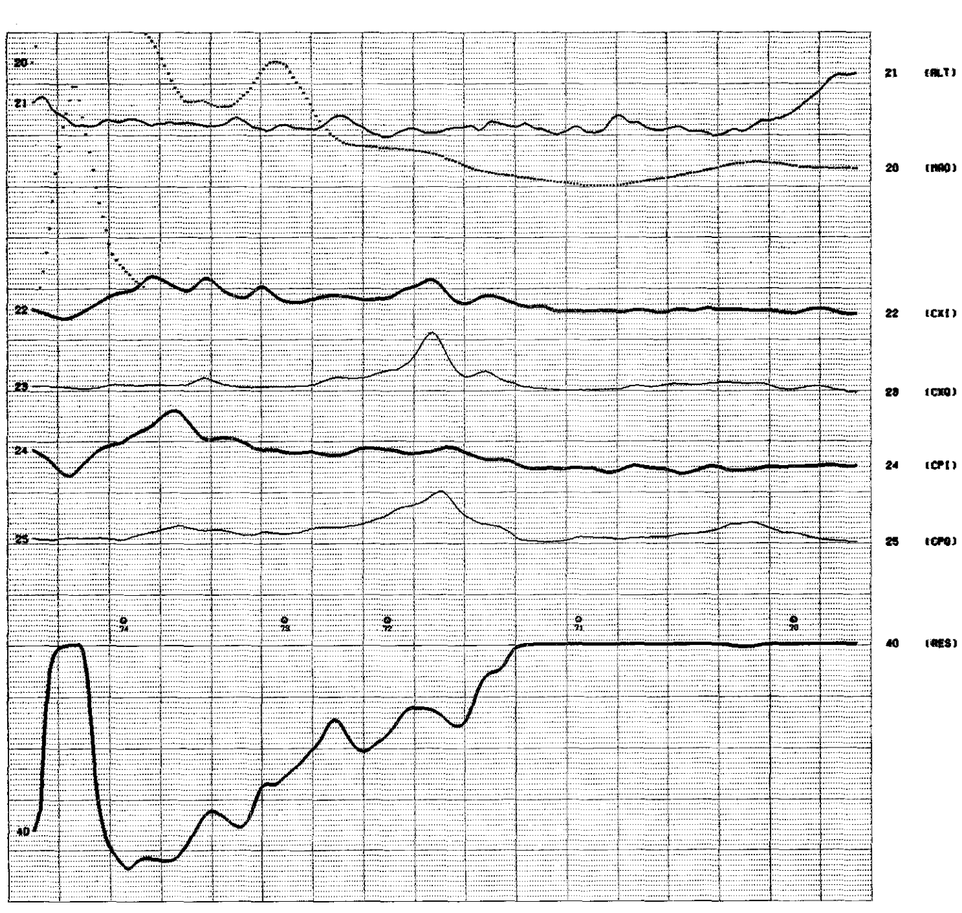
LINE 810 JOB: 326 SM2 1: 20000
PRELIMINARY



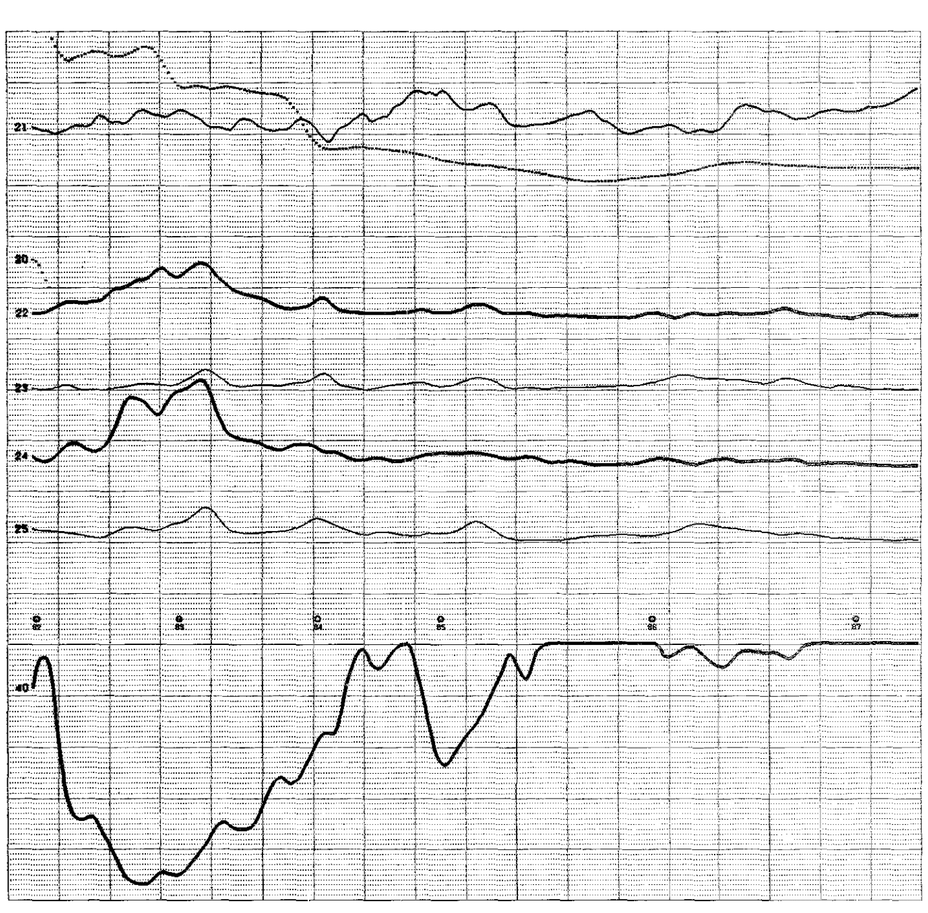
LINE 700 JOB: 326 SM2 1: 20000
PRELIMINARY



LINE -800 JOB: 326 SM2 1: 20000
PRELIMINARY



LINE -7 JOB: 326 SM2 1: 20000 LINE -7
PRELIMINARY



LINE 8 JOB: 326 SM2 1: 20000 LINE 8
PRELIMINARY

5 cm

20.0

5 cm

PRELIMINARY

LINE 920 JOB: 326 SH2 1: 20000

PRELIMINARY

LINE -9 JOB: 326 SH2 1: 20000

PRELIMINARY

LINE 10 JOB: 326 SH2 1: 20000

PRELIMINARY

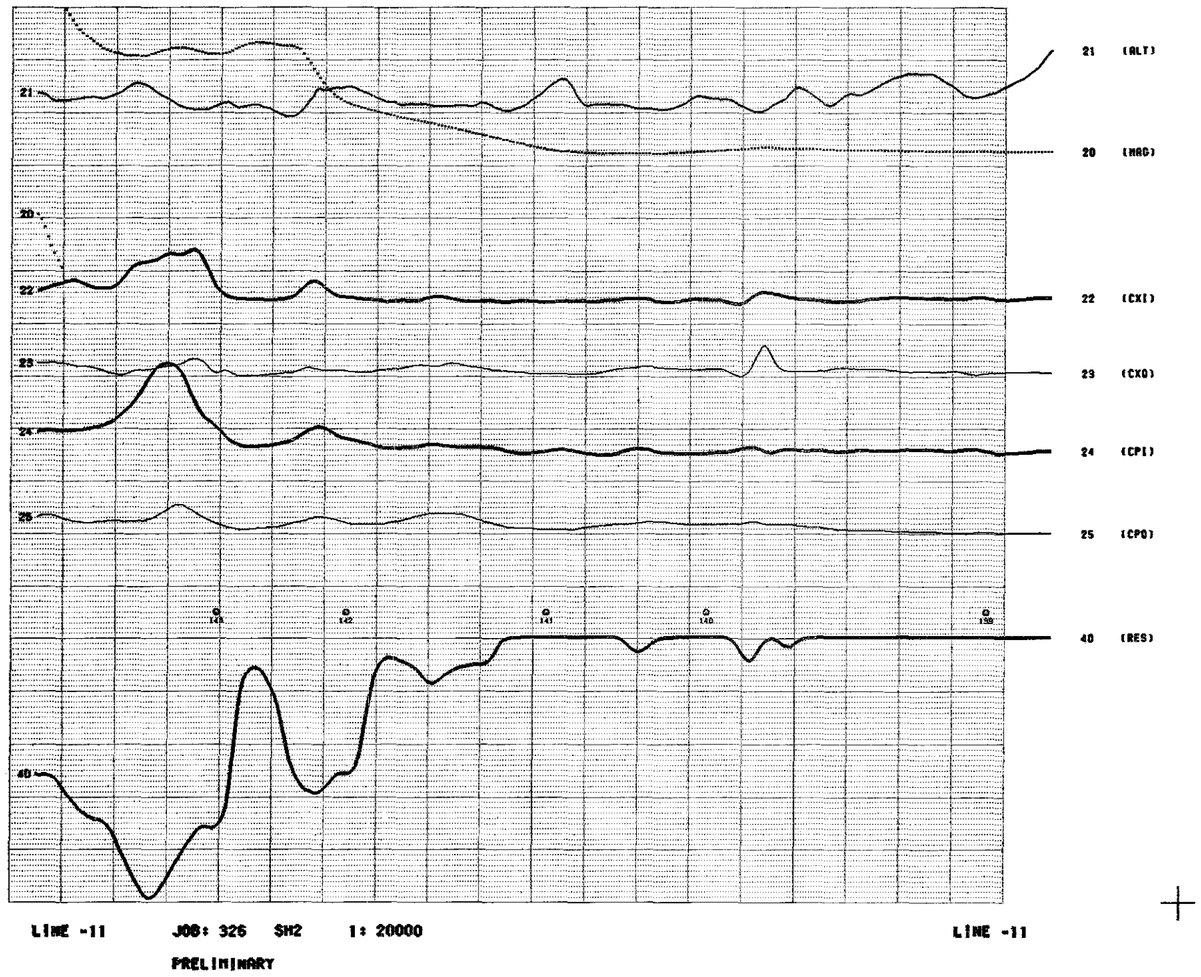
LINE 900 JOB: 326 SH2 1: 20000

PRELIMINARY

LINE -1000 JOB: 326 SH2 1: 20000

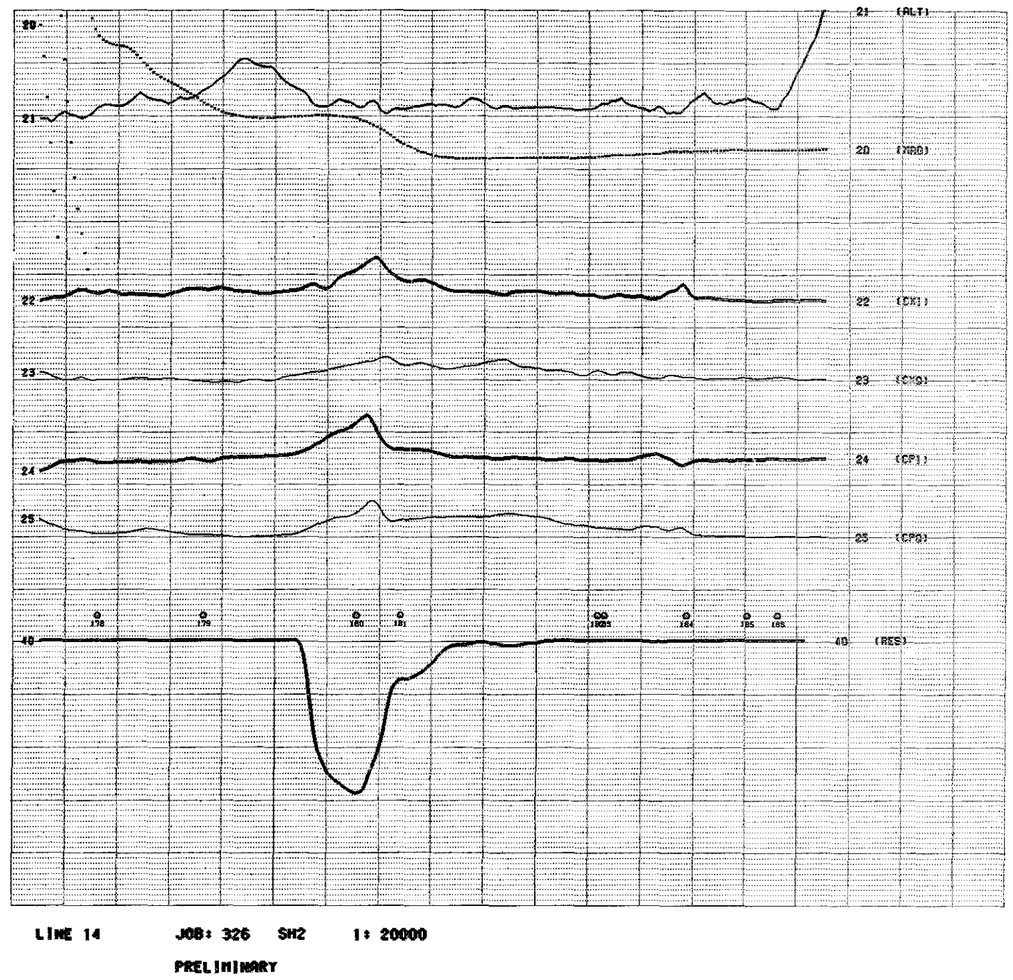
PRELIMINARY

LINE -910 JOB: 326 SH2 1: 20000



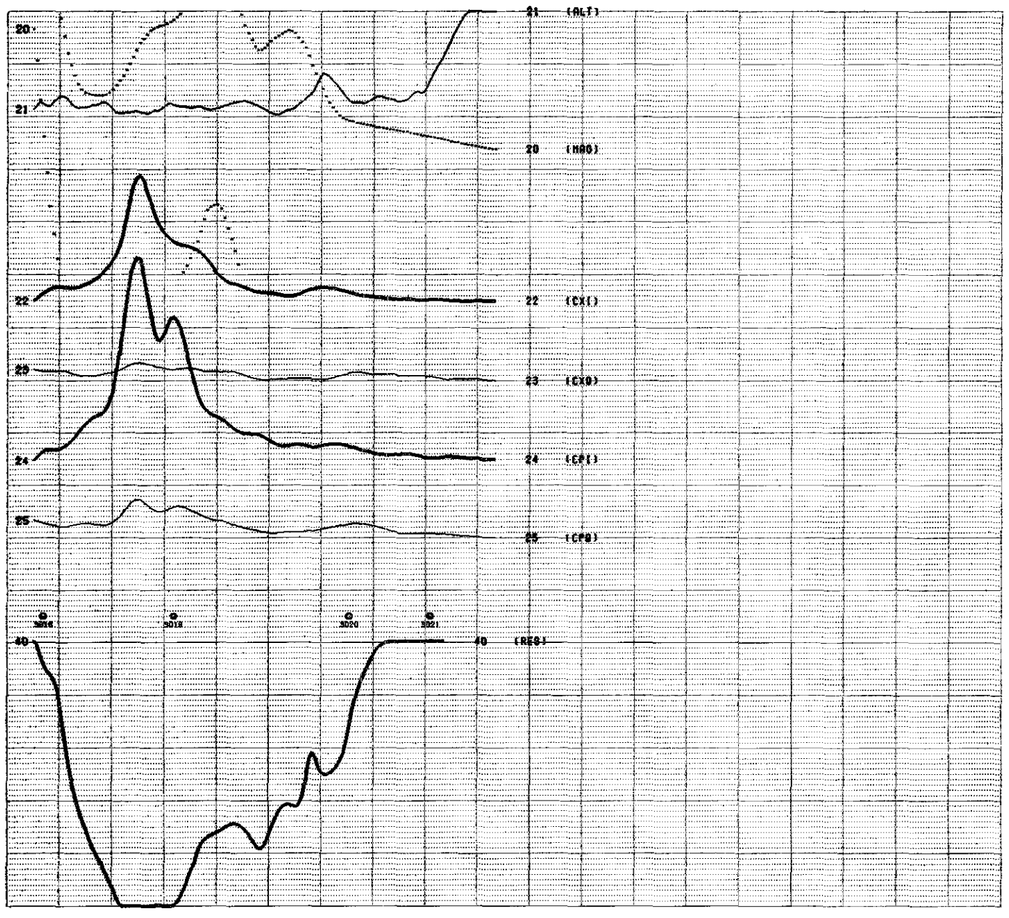
LINE -11 JOB: 326 SH2 1: 20000 LINE -11

PRELIMINARY



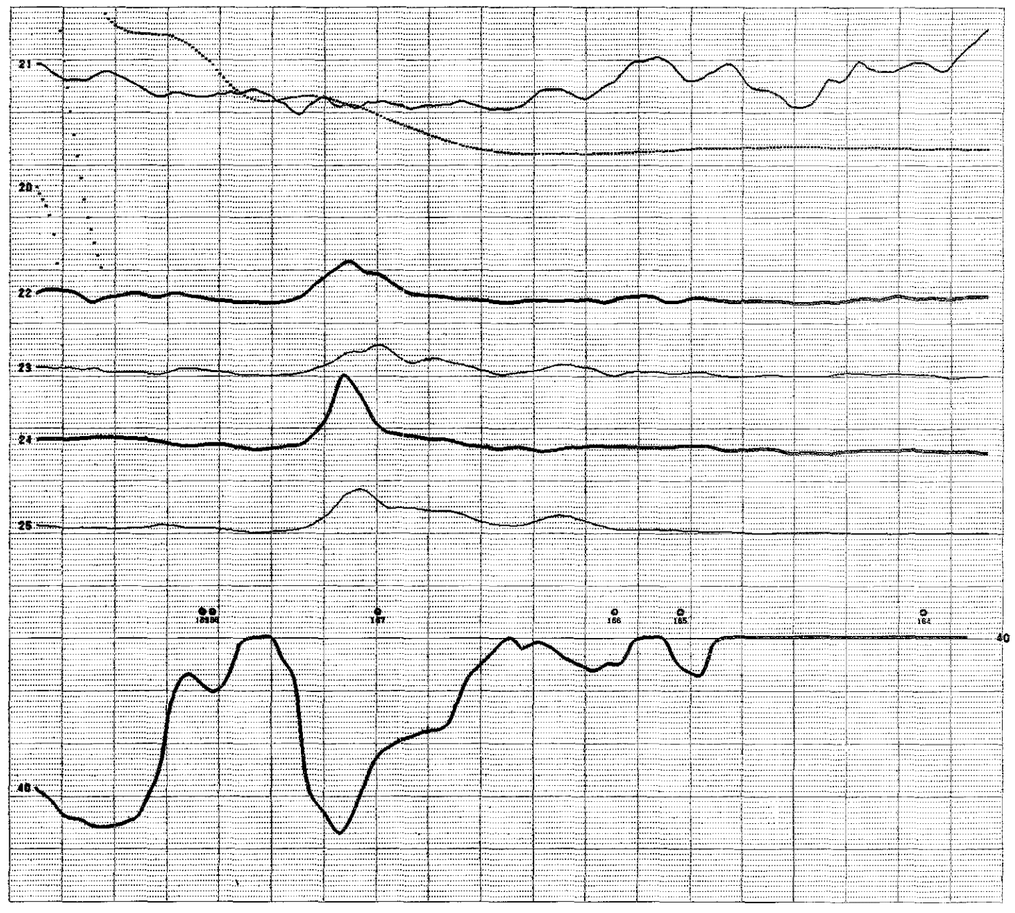
LINE 14 JOB: 326 SH2 1: 20000

PRELIMINARY



LINE 1020 JOB: 326 SH2 1: 20000

PRELIMINARY



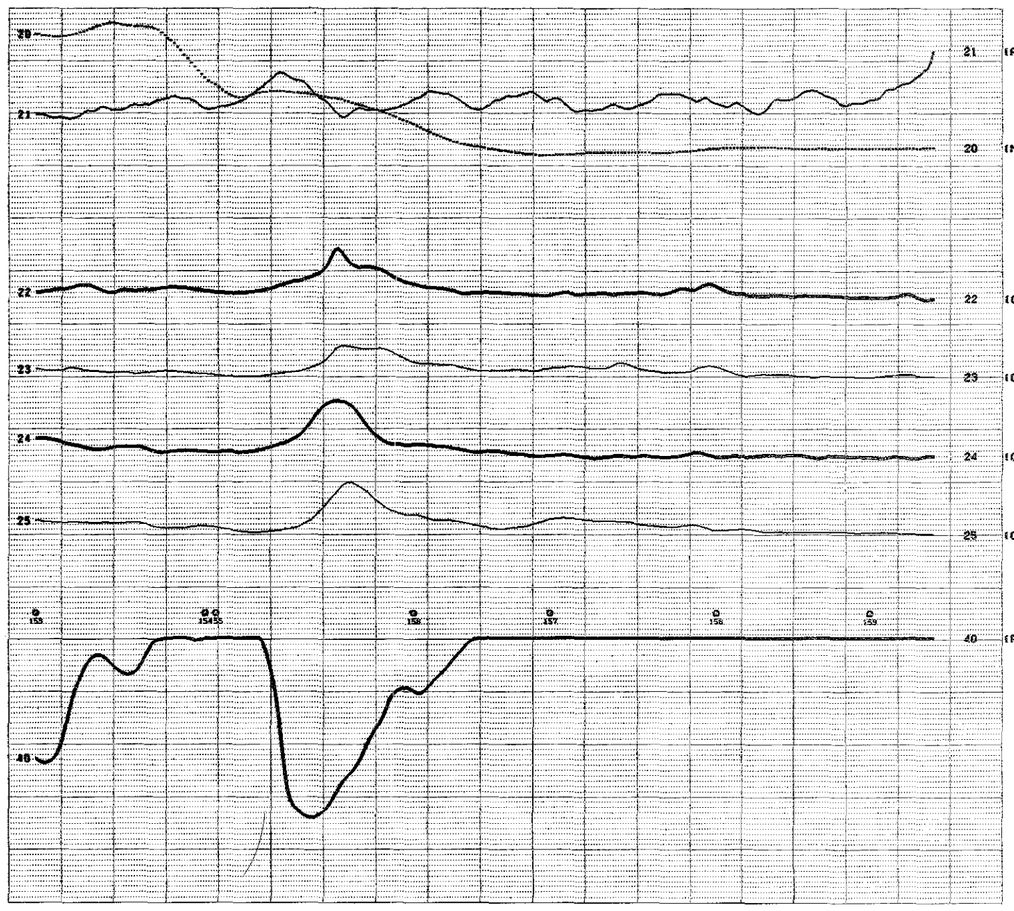
LINE -13 JOB: 326 SH2 1: 20000 LINE -13

PRELIMINARY



LINE 1010 JOB: 326 SH2 1: 20000

PRELIMINARY

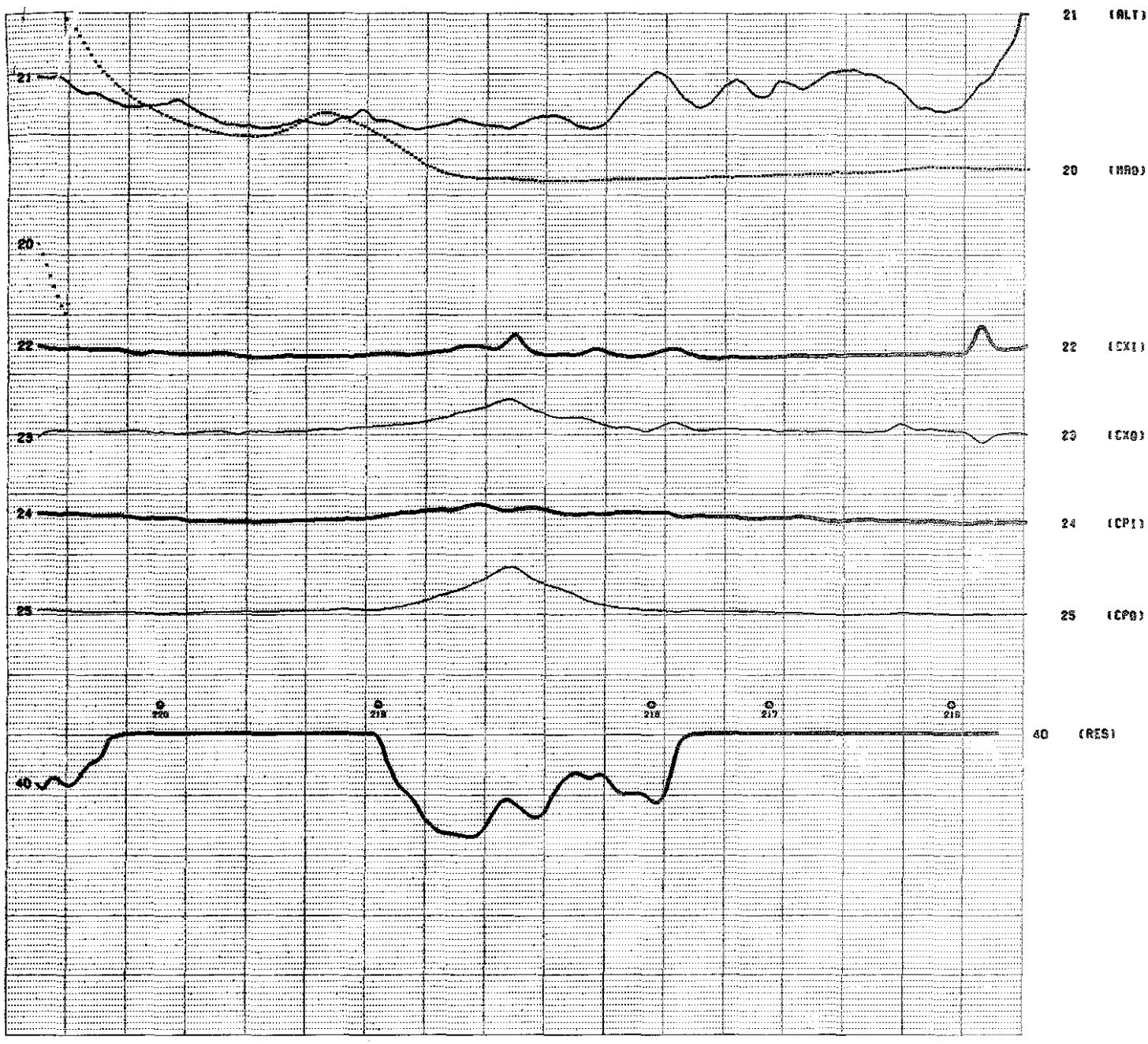


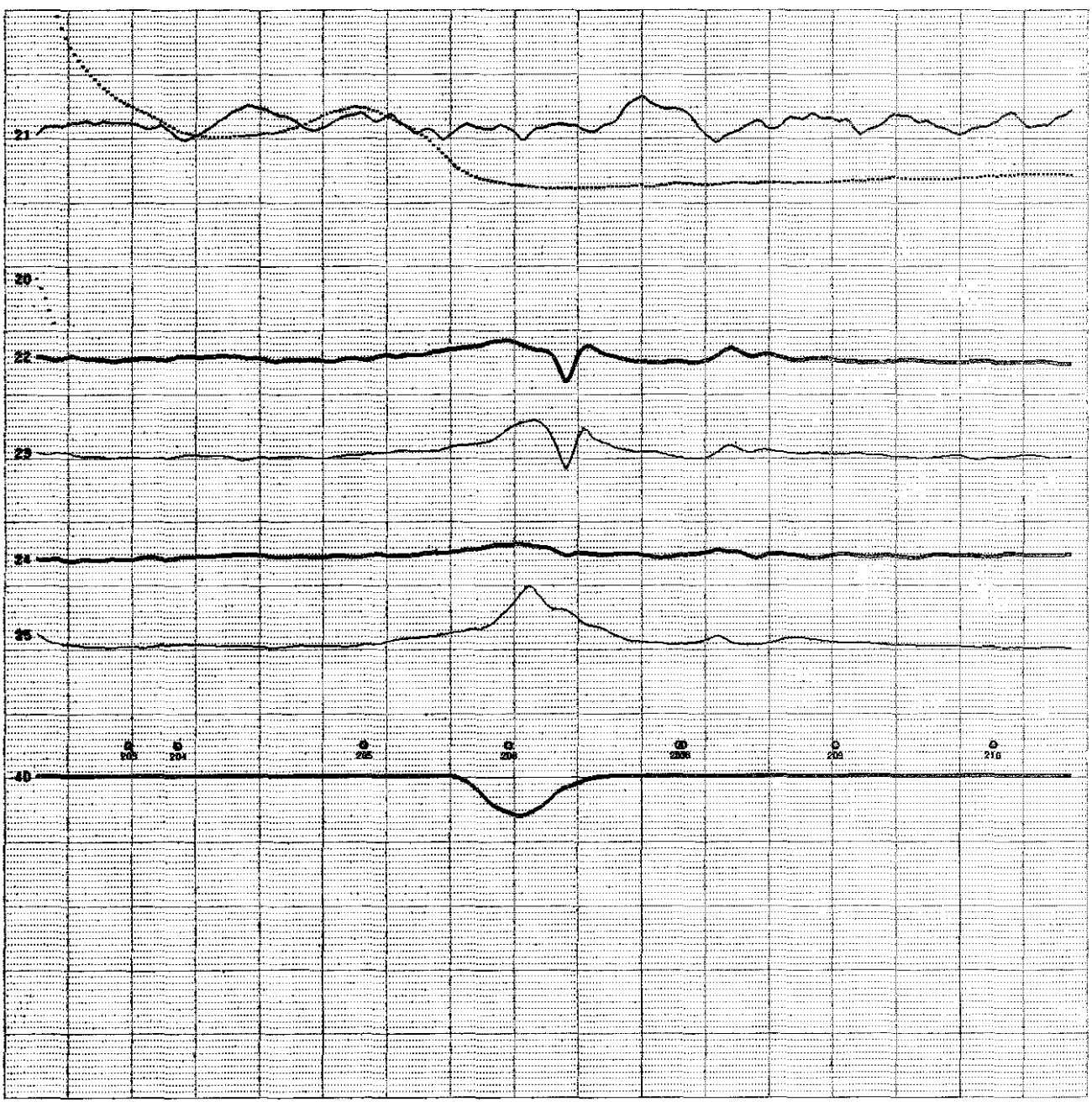
LINE 12 JOB: 326 SH2 1: 20000 LINE 12

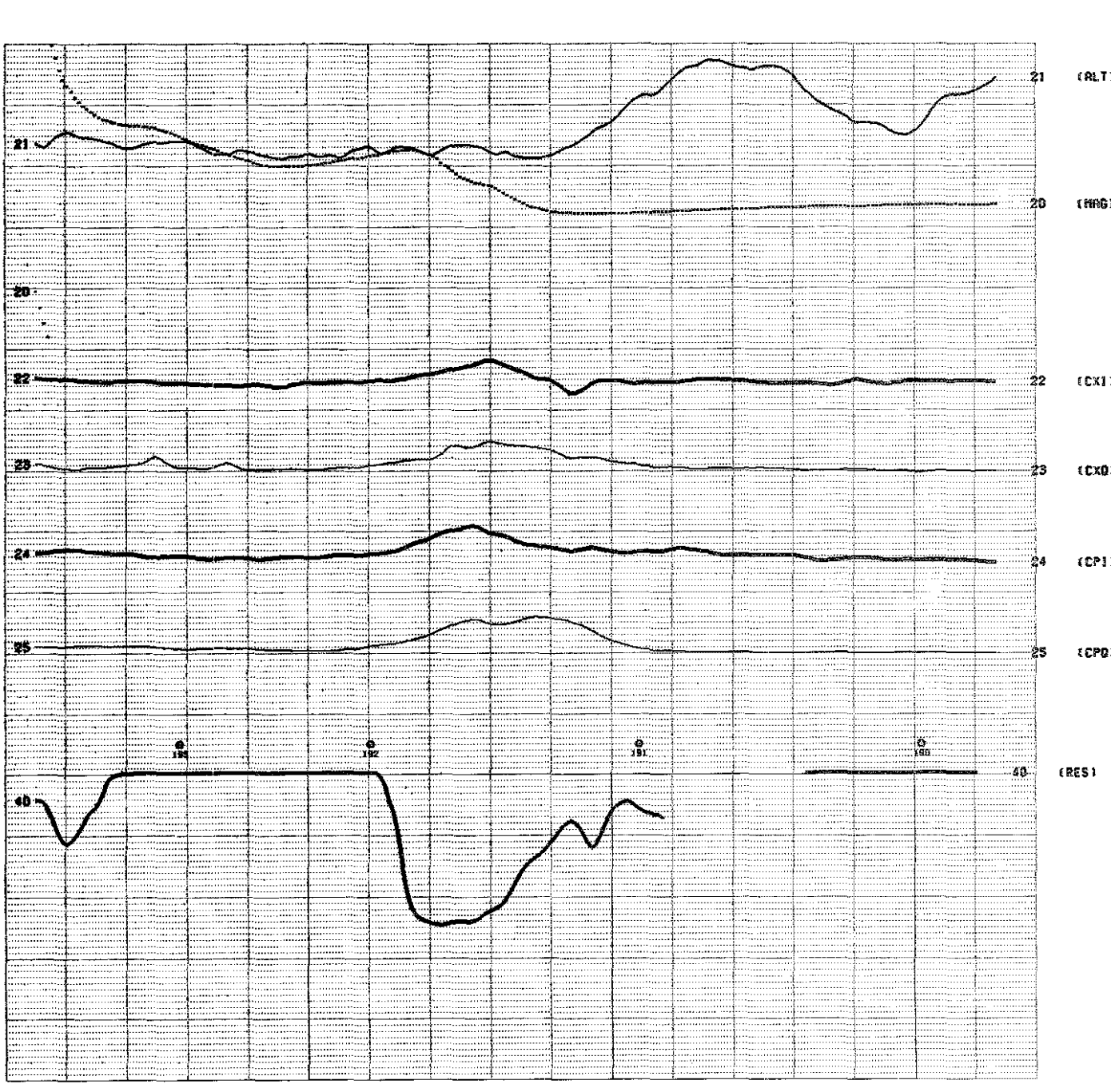
PRELIMINARY

11c 20c

5 cm

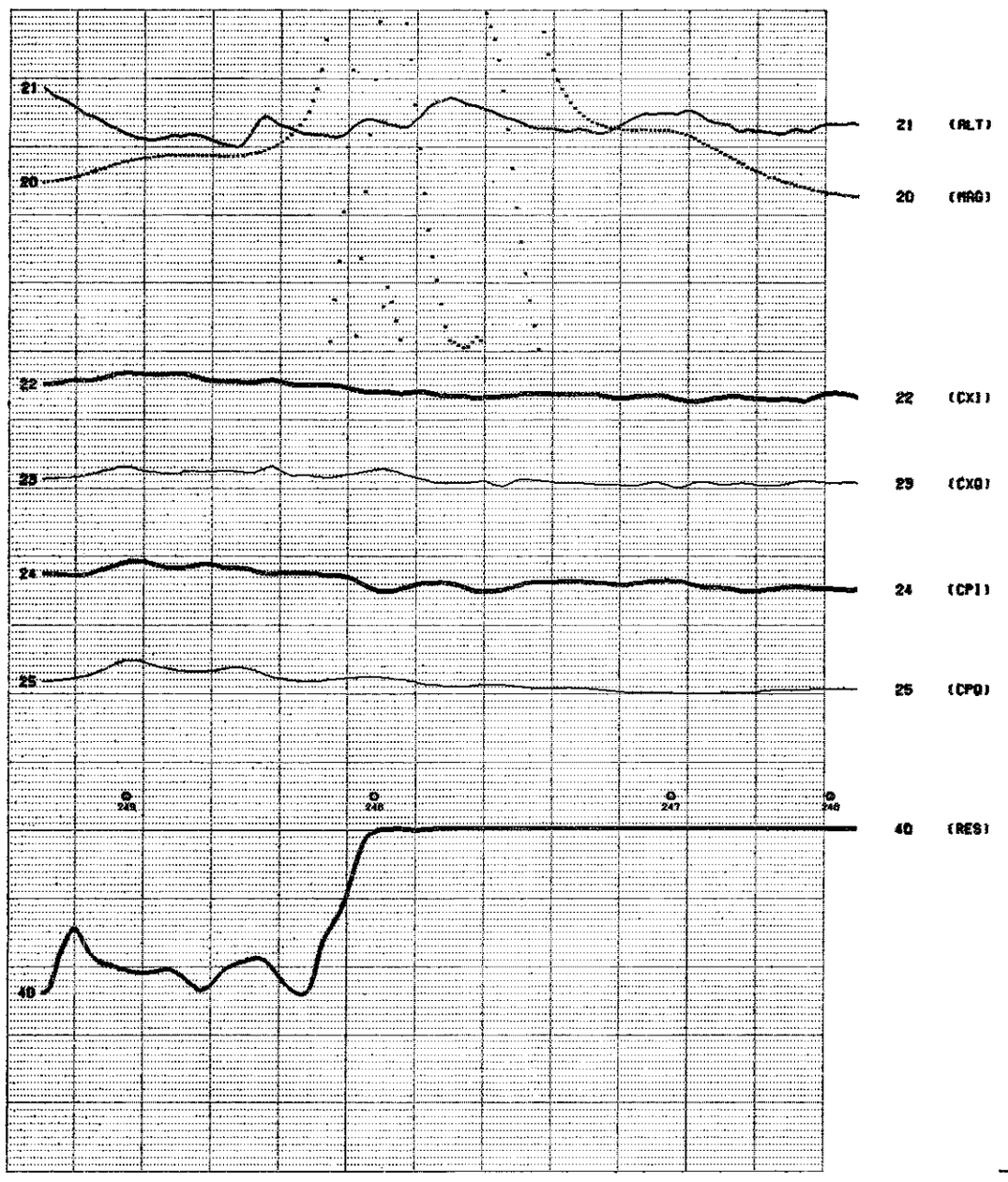

21 (ALT)
20 (HRG)
22 (CXI)
23 (CXO)
24 (CPI)
25 (CPO)
40 (RES)
220
219
218
217
215
LINE -17 JOB: 326 SH2 1: 20000 LINE -17
PRELIMINARY


21 (ALT)
20 (HRG)
22 (CXI)
23 (CXO)
24 (CPI)
25 (CPO)
40 (RES)
LINE 16 JOB: 326 SH2 1: 20000 LINE 16
PRELIMINARY

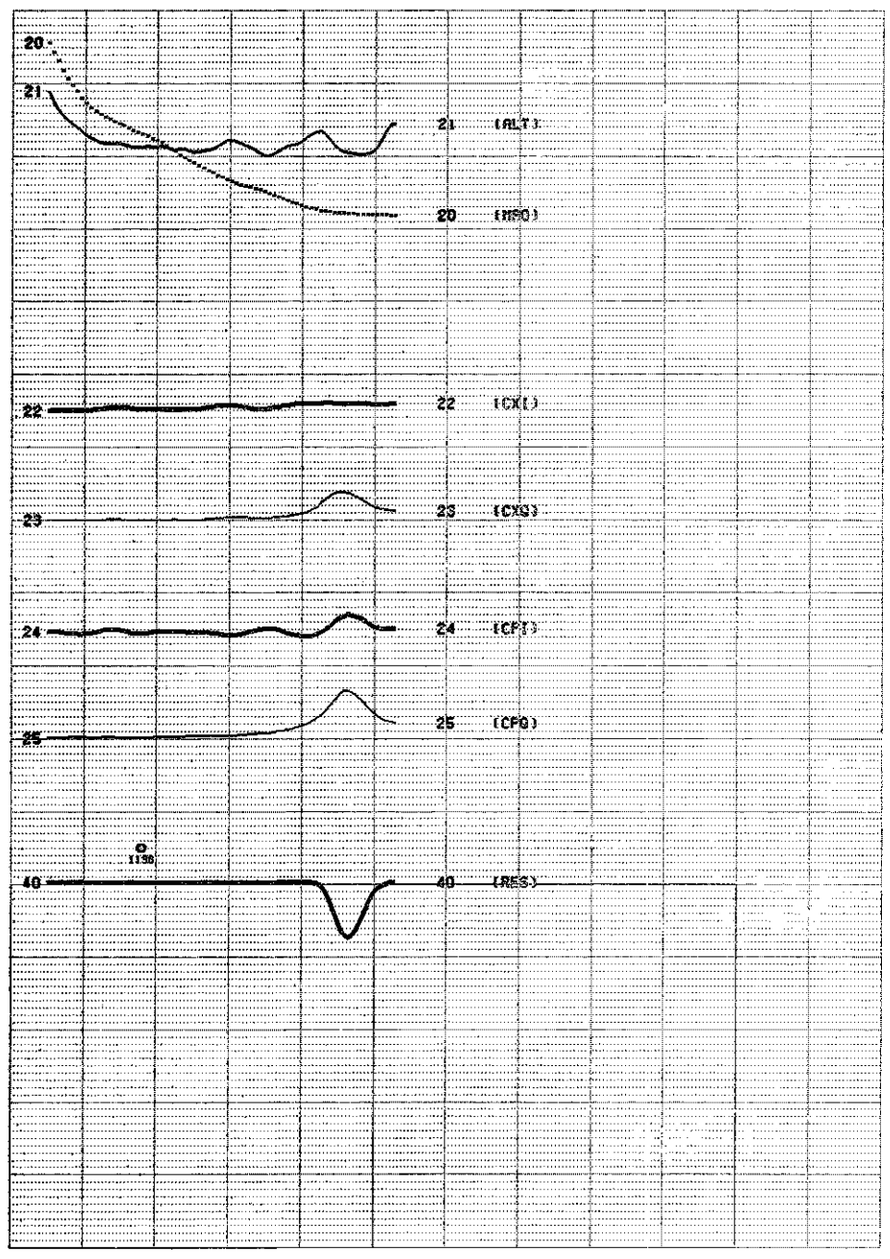

21 (ALT)
20 (HRG)
22 (CXI)
23 (CXO)
24 (CPI)
25 (CPO)
40 (RES)
LINE -15 JOB: 326 SH2 1: 20000 LINE -15
PRELIMINARY
5 cm

20d

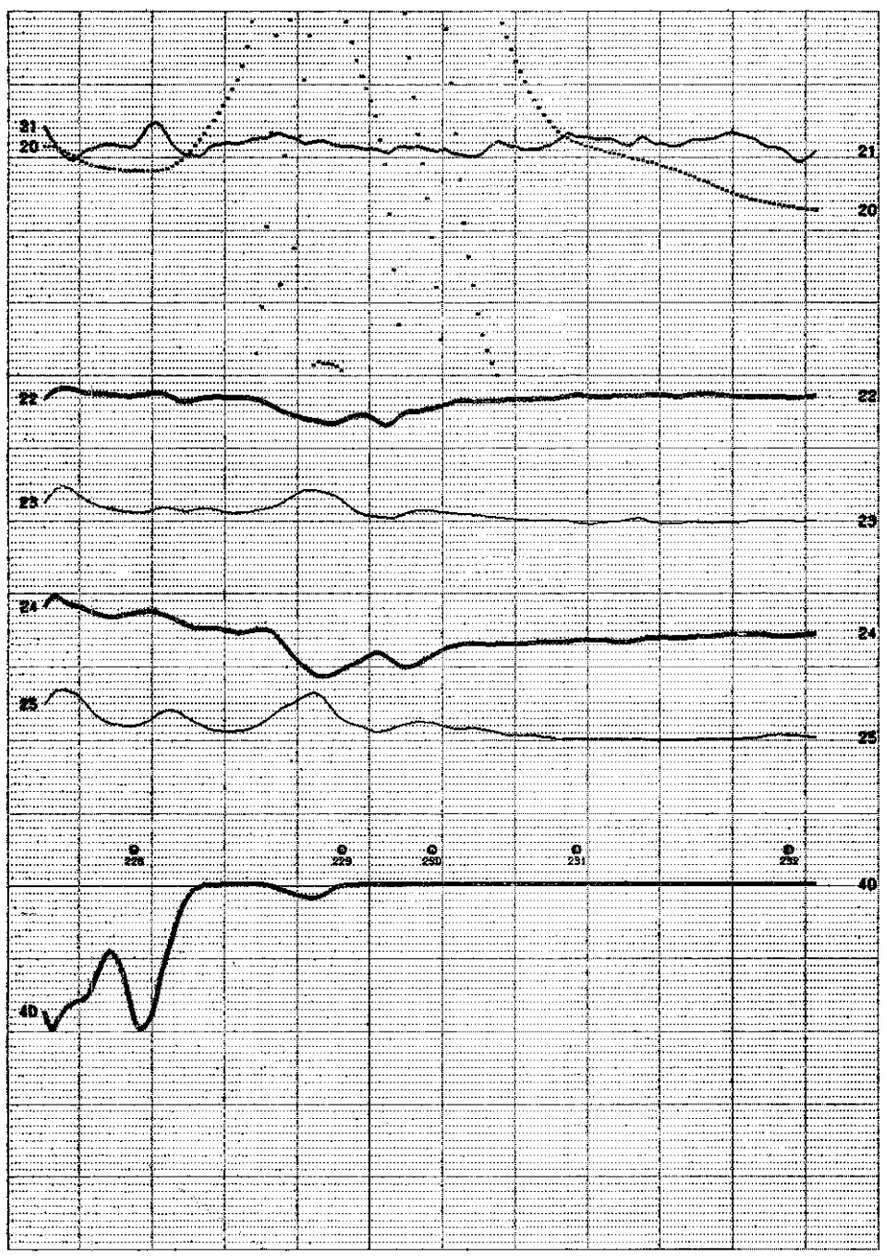
82_1738



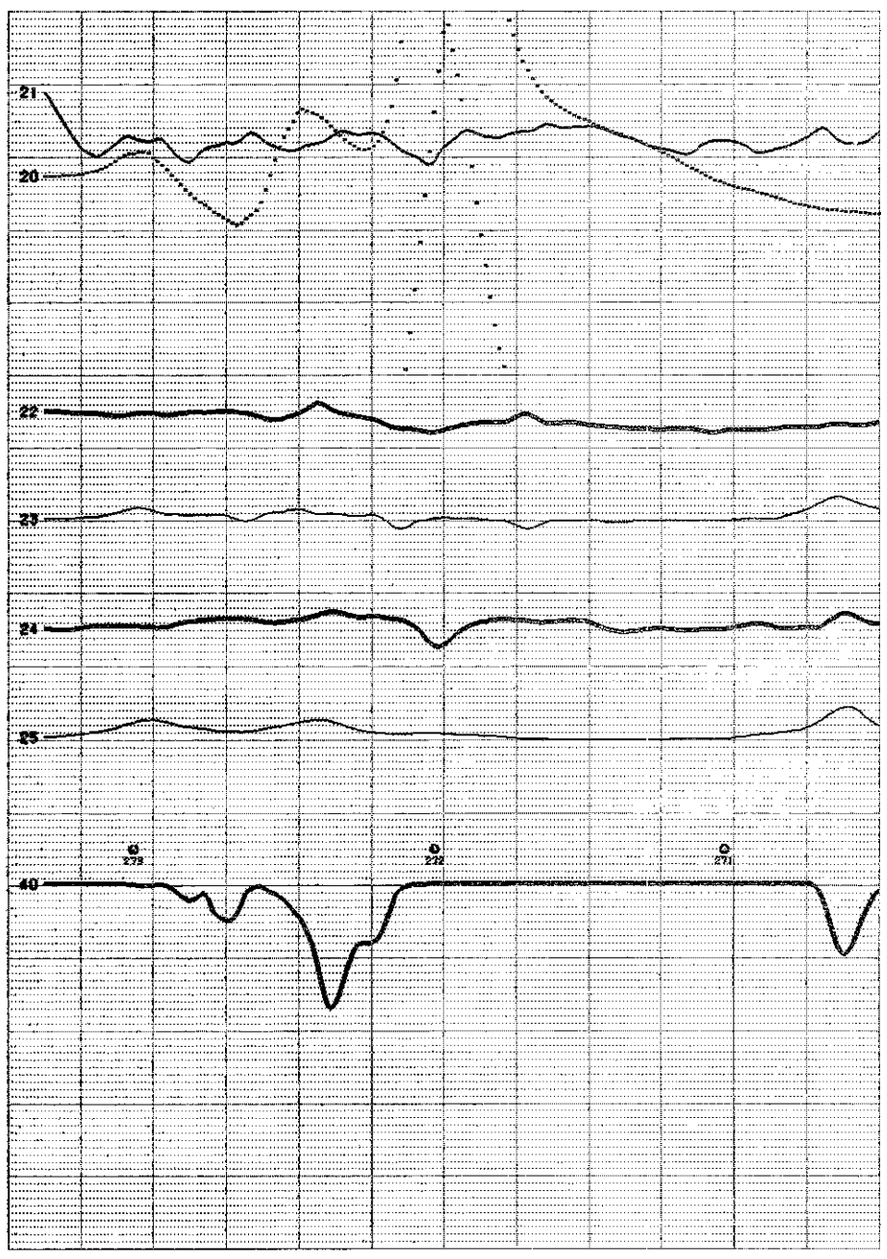
LINE -19 JOB: 326 SH3 1: 20000
PRELIMINARY



LINE -2100 JOB: 326 SH3 1: 20000
PRELIMINARY



LINE 18 JOB: 326 SH3 1: 20000
PRELIMINARY

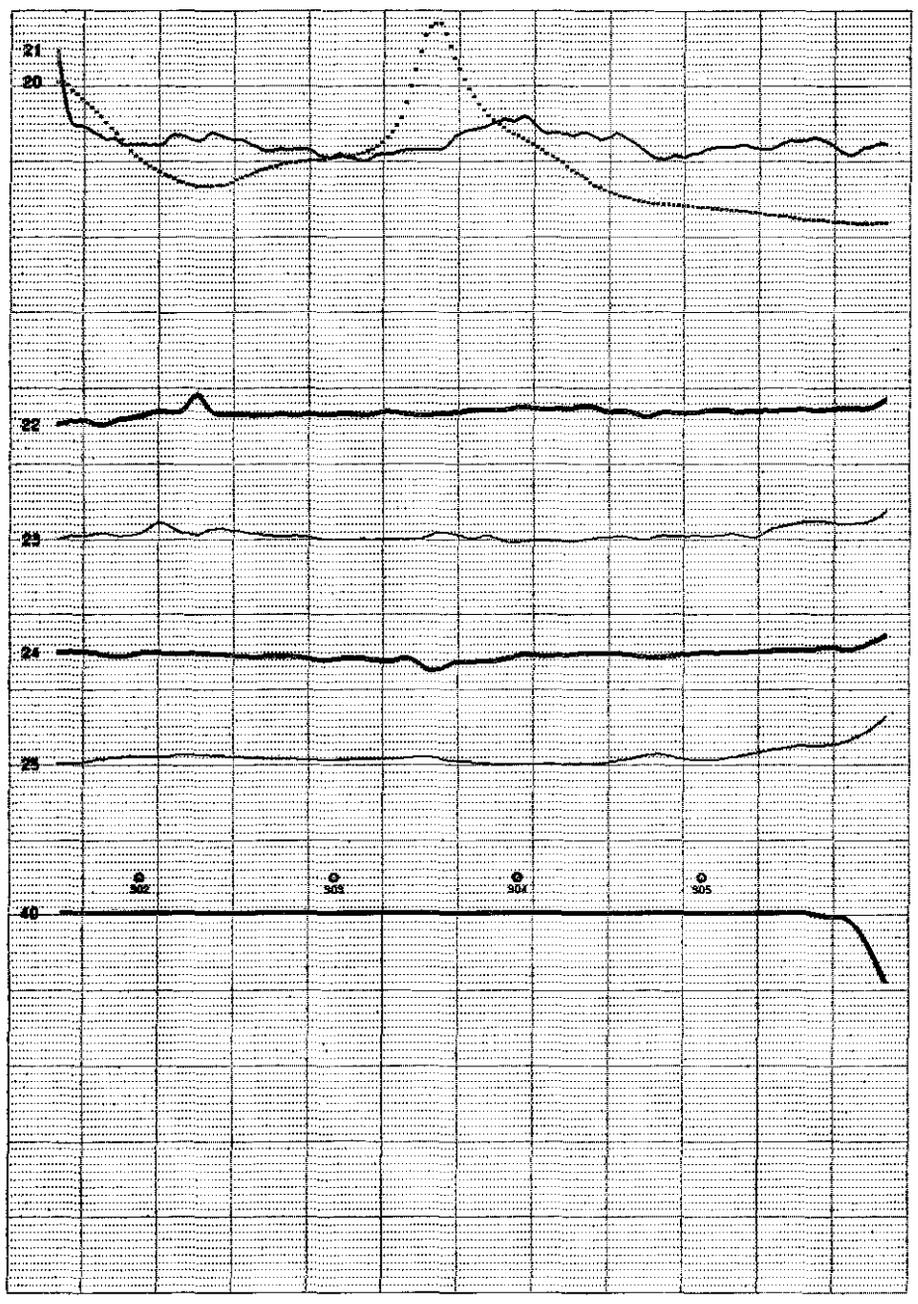


LINE -21 JOB: 326 SH3 1: 20000
PRELIMINARY

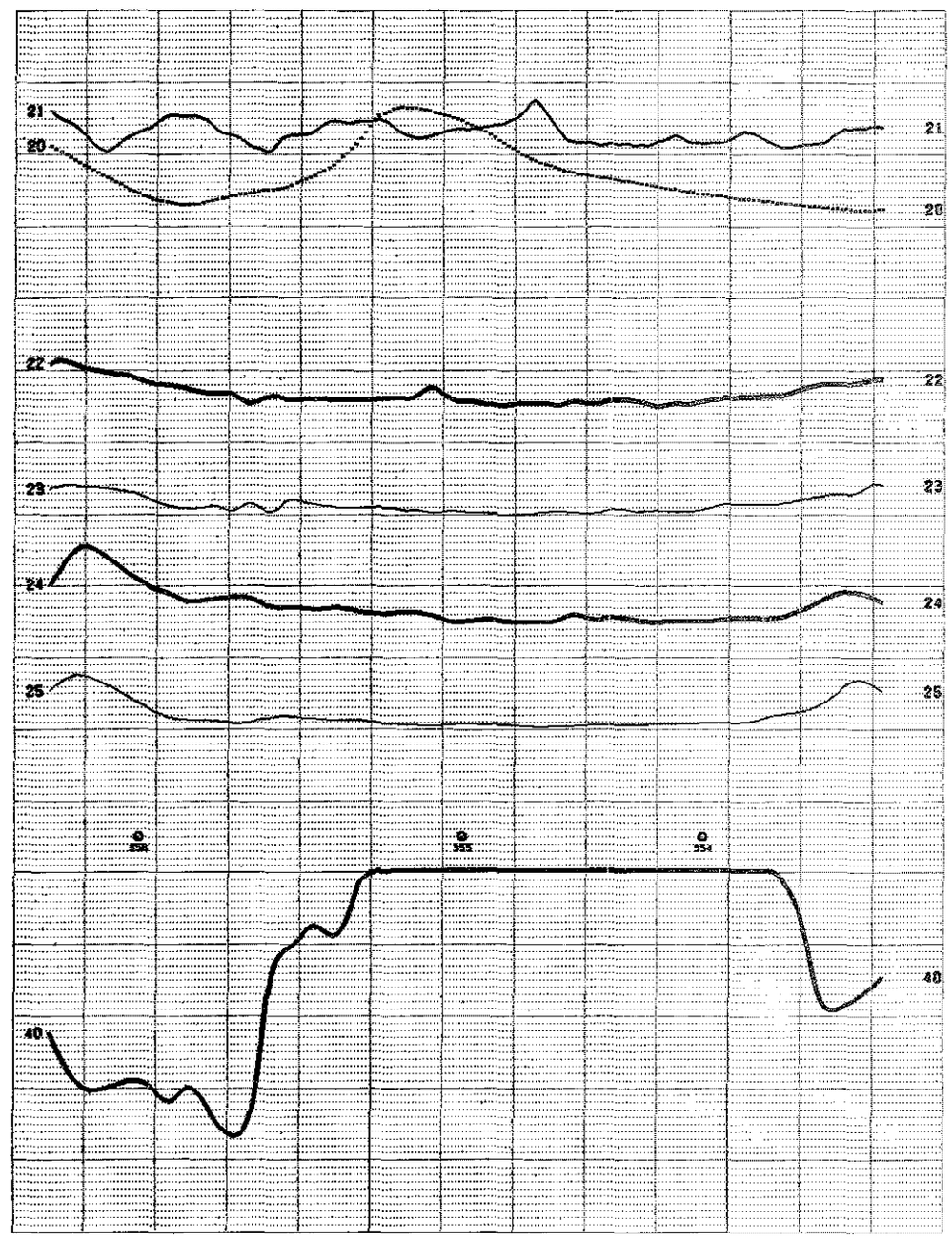
LINE 1700 JOB: 326 SH3 1: 20000
PRELIMINARY

LINE 20 JOB: 326 SH3 1: 20000
PRELIMINARY

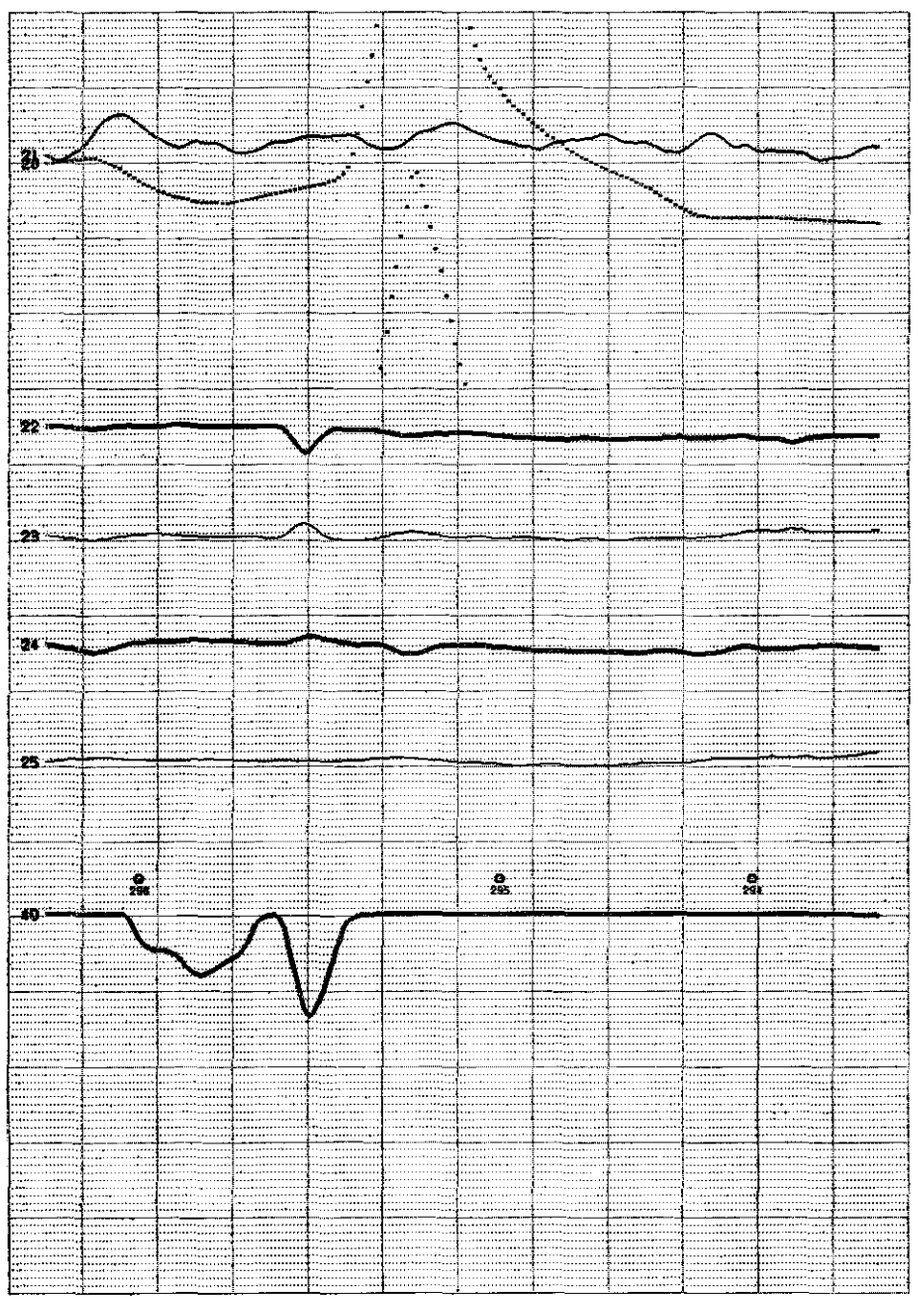
5 cm



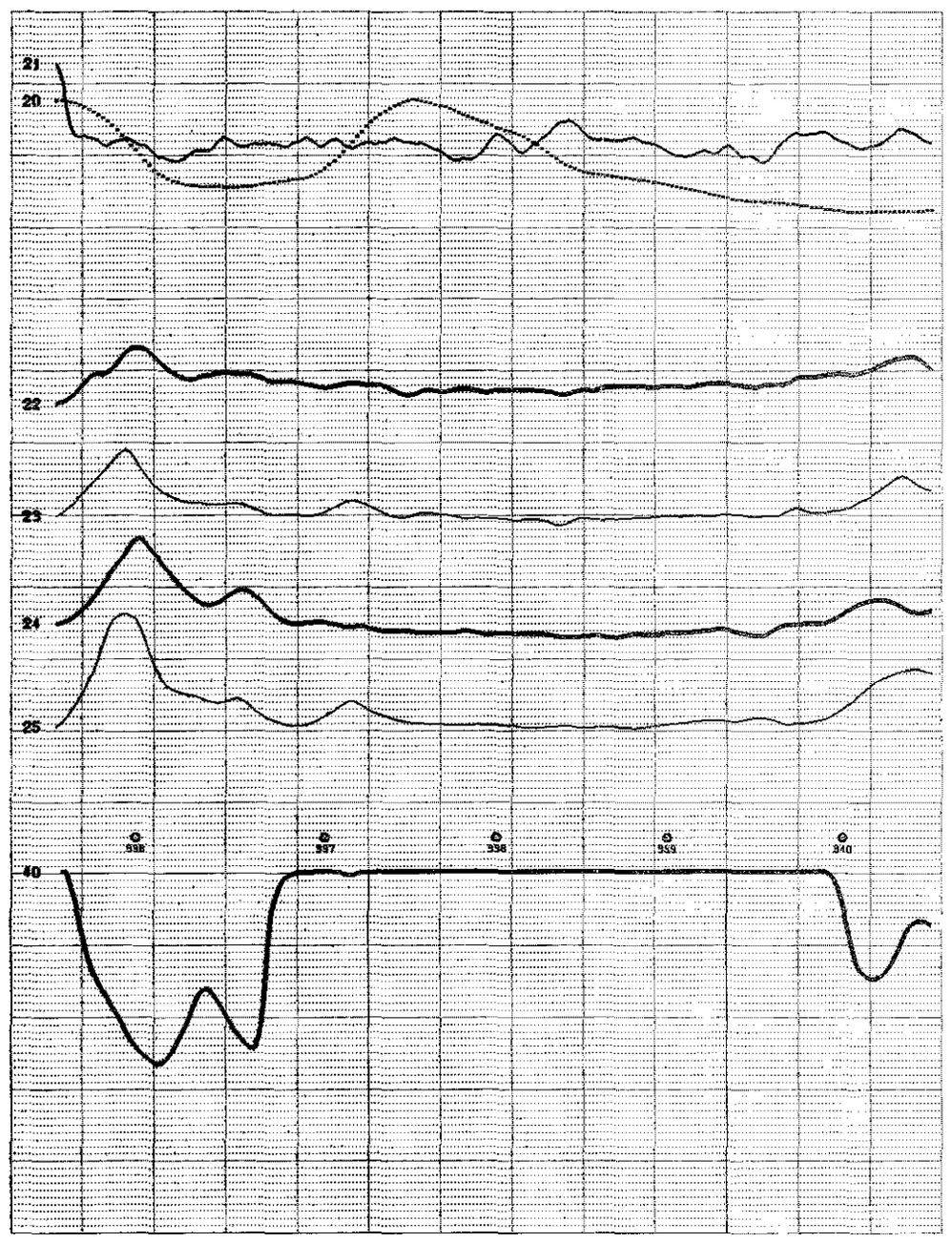
LINE 24 JOB: 326 SH3 1: 20000
PRELIMINARY



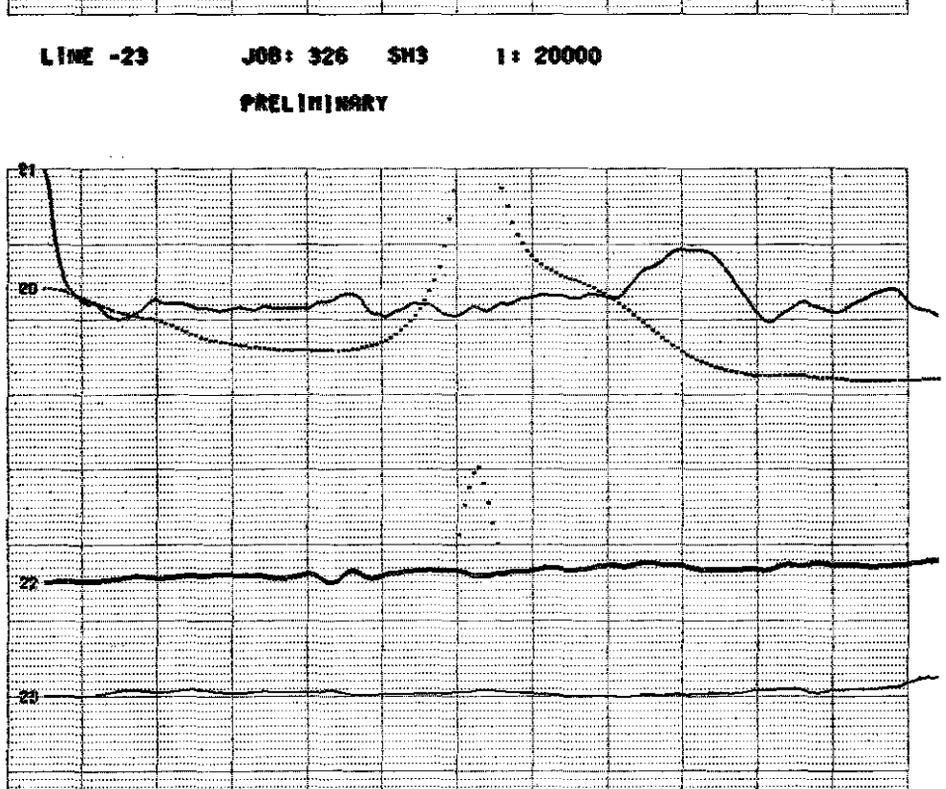
LINE -27 JOB: 326 SH3 1: 20000
PRELIMINARY



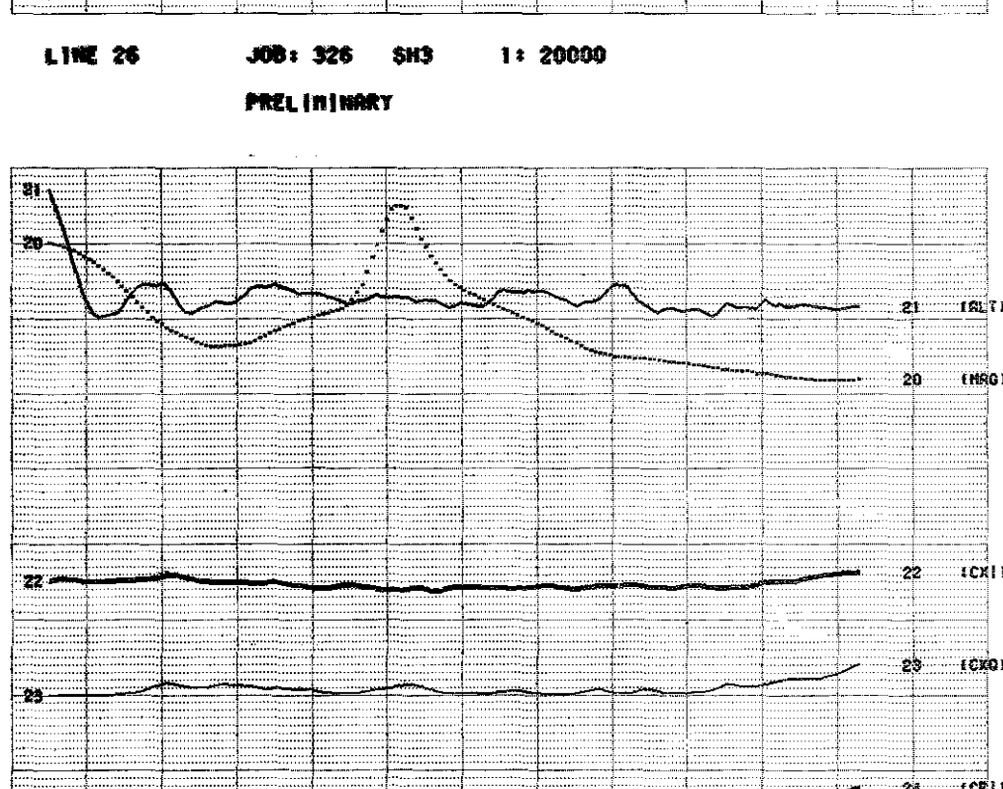
LINE -23 JOB: 326 SH3 1: 20000
PRELIMINARY



LINE 26 JOB: 326 SH3 1: 20000
PRELIMINARY



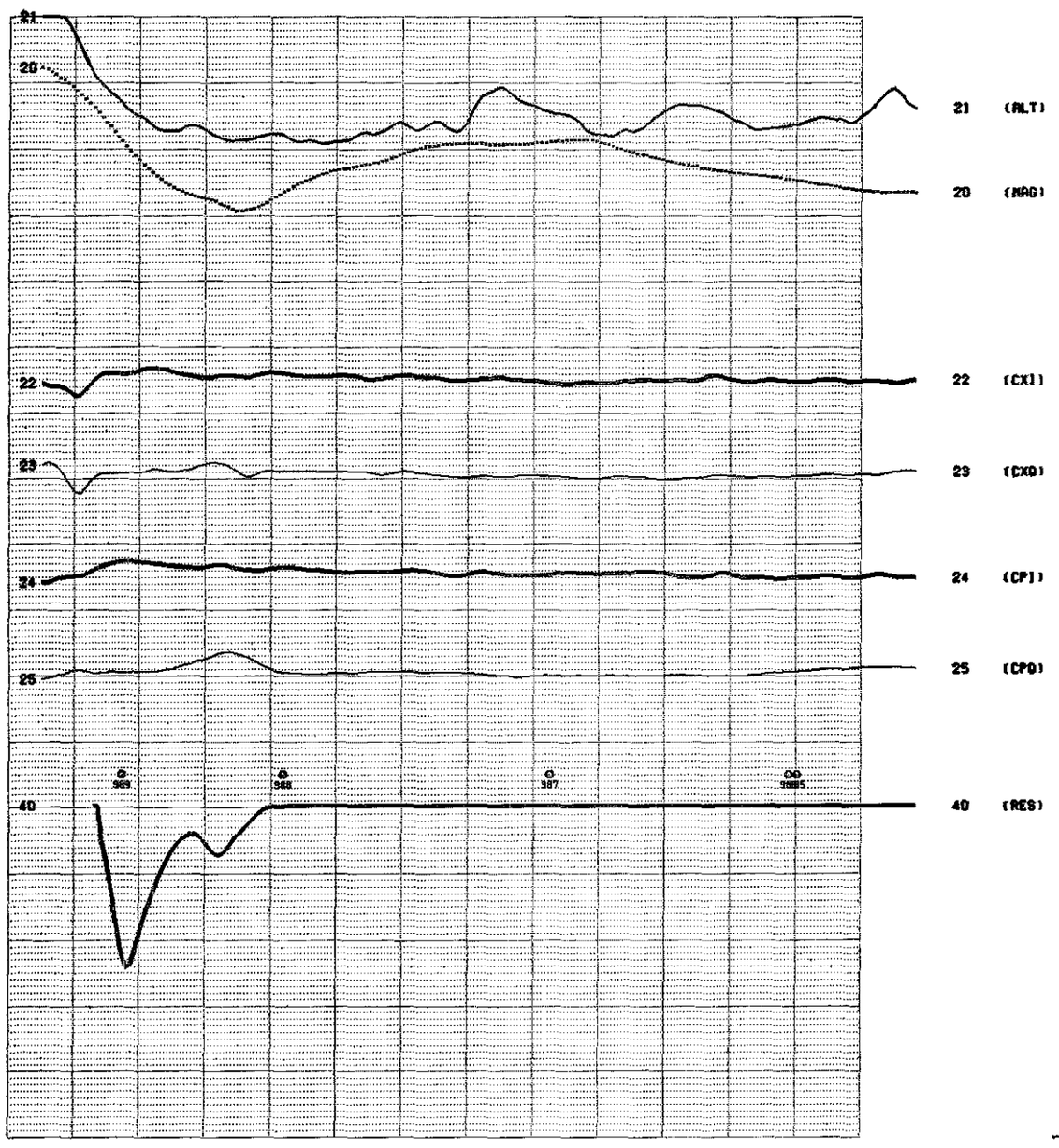
LINE 22 JOB: 326 SH3 1: 20000
PRELIMINARY



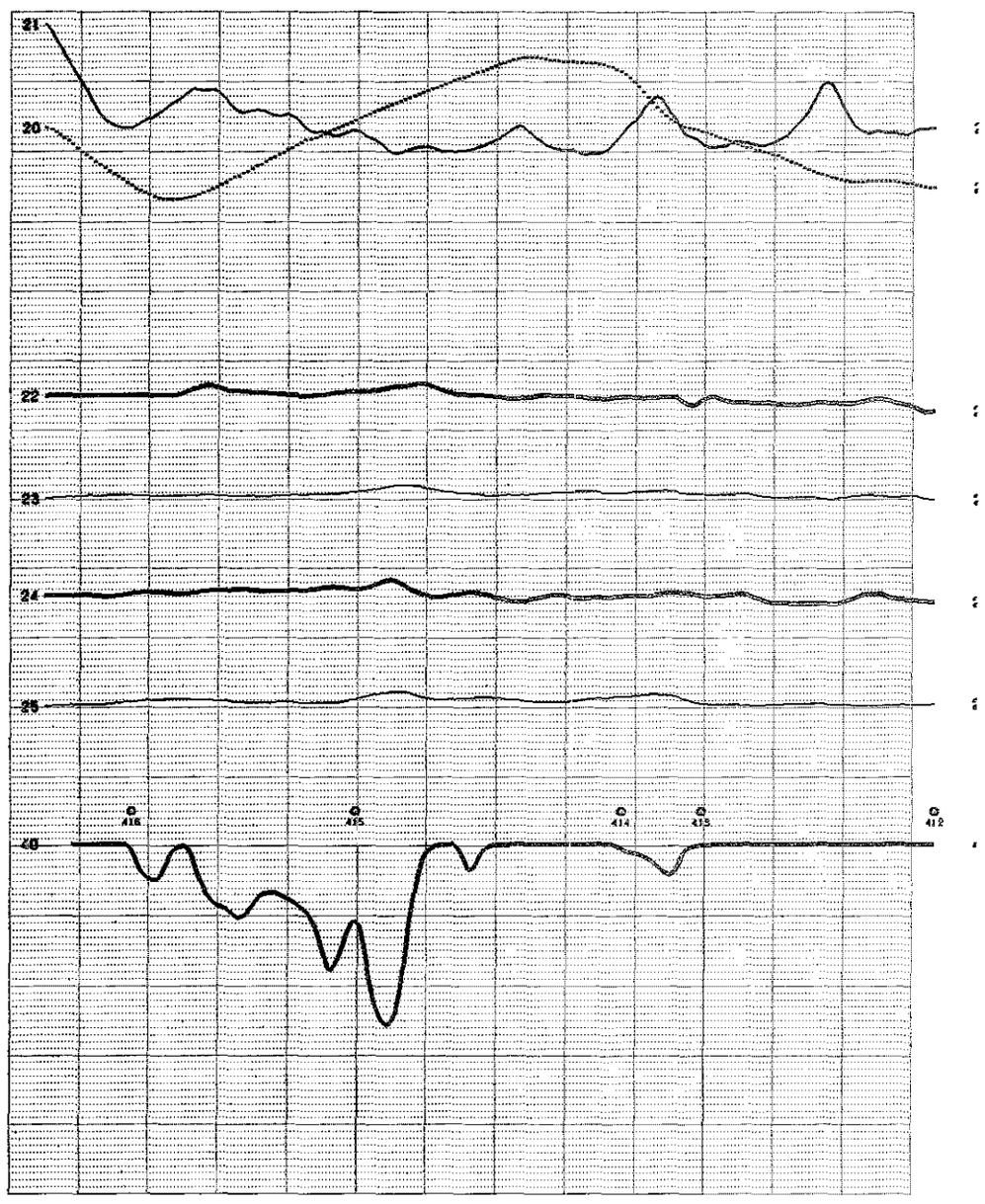
LINE -25 JOB: 326 SH3 1: 20000
PRELIMINARY

5 cm

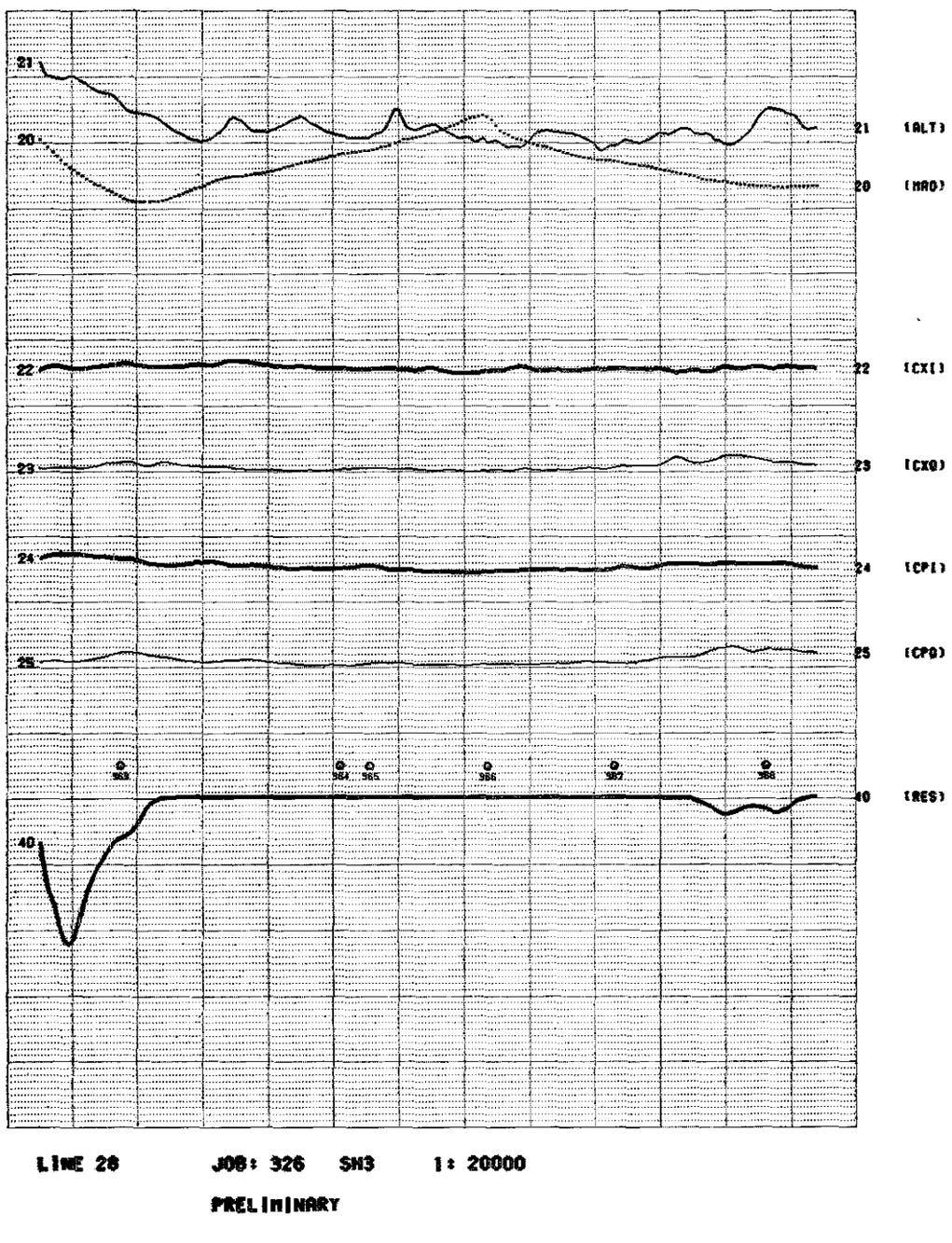
21a



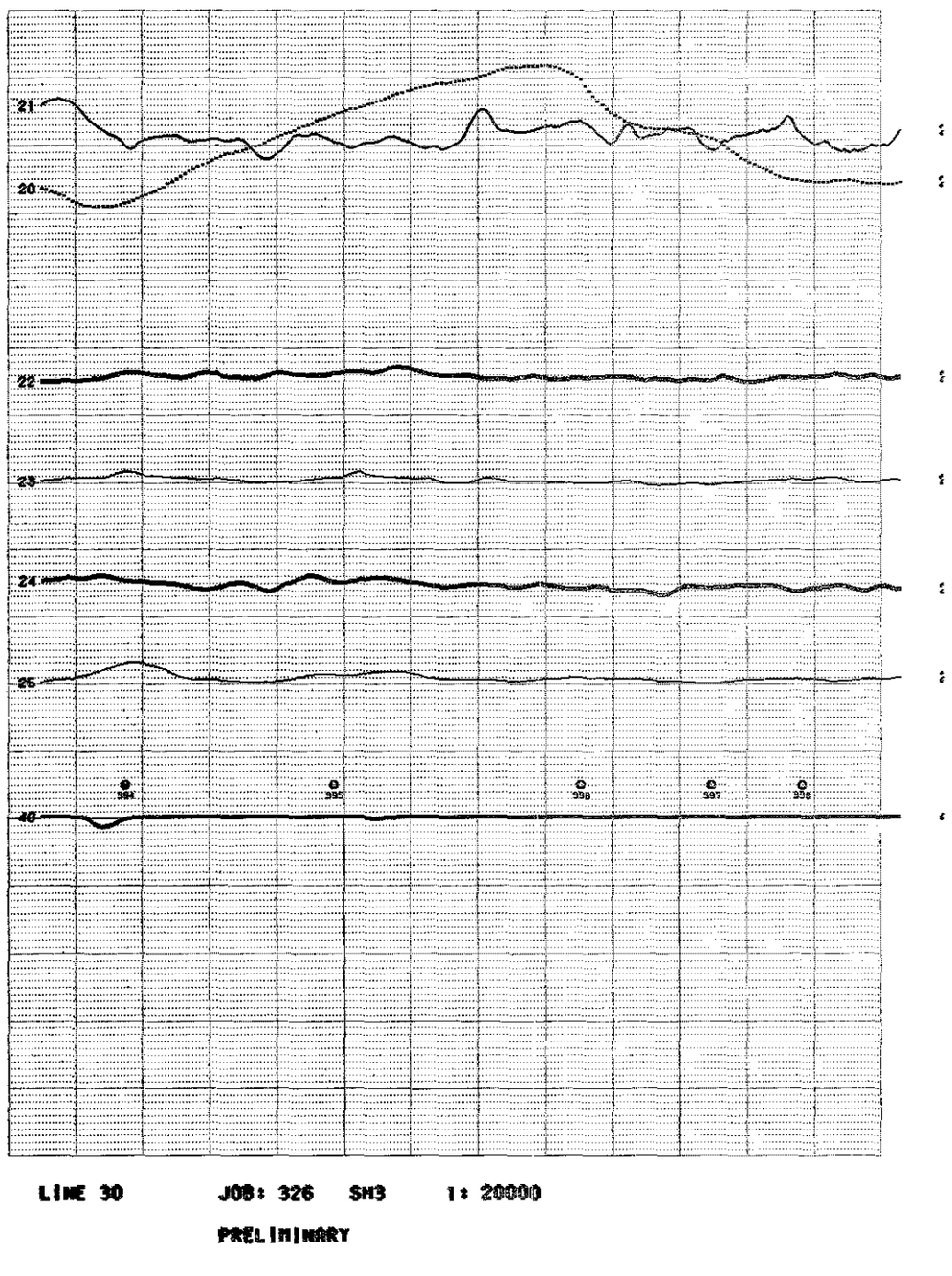
LINE -29 JOB: 326 SH3 1: 20000
PRELIMINARY



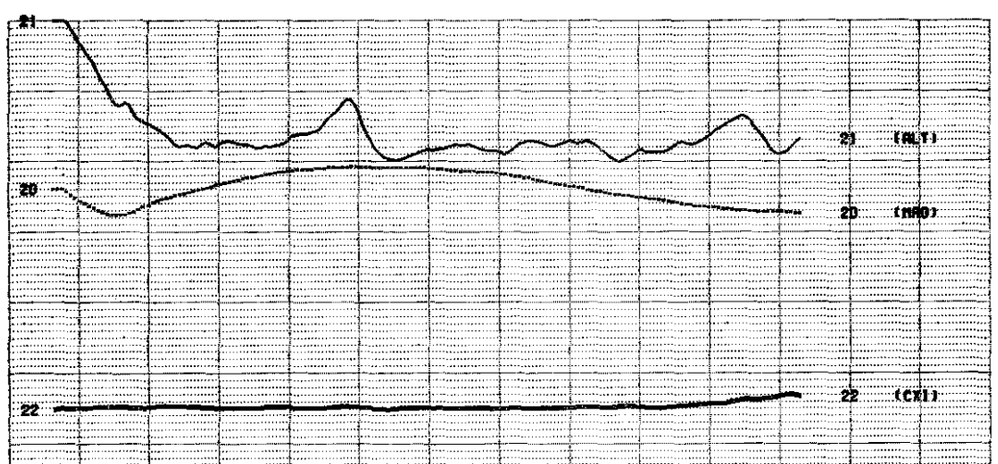
LINE -31 JOB: 326 SH3 1: 20000
PRELIMINARY



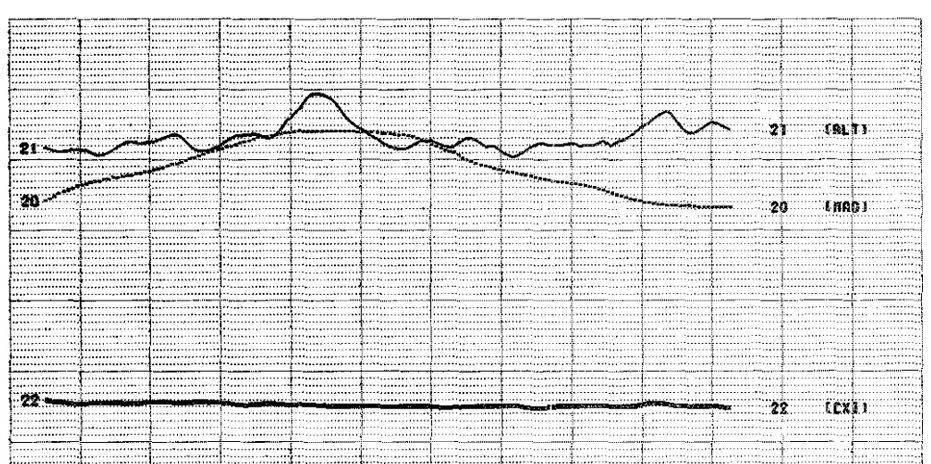
LINE 28 JOB: 326 SH3 1: 20000
PRELIMINARY



LINE 30 JOB: 326 SH3 1: 20000
PRELIMINARY



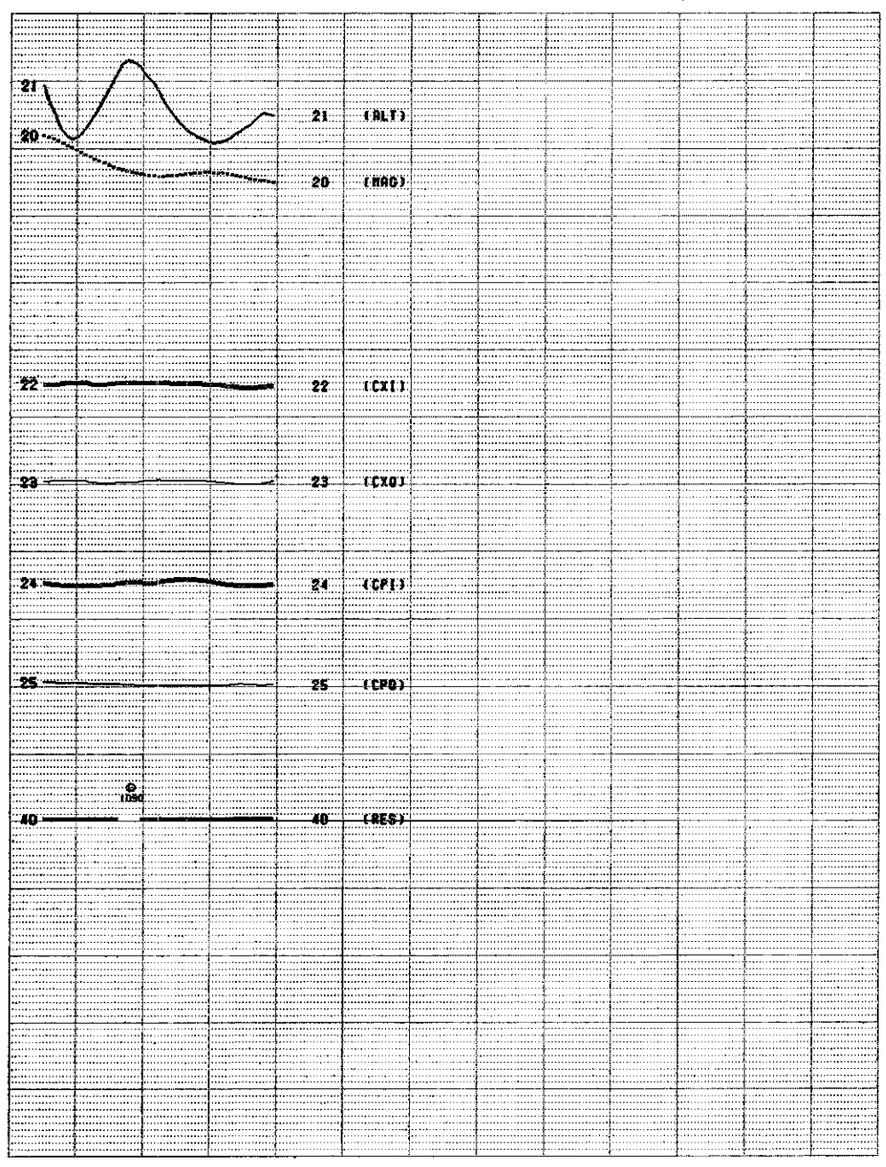
LINE 2700 JOB: 326 SH3 1: 20000
PRELIMINARY

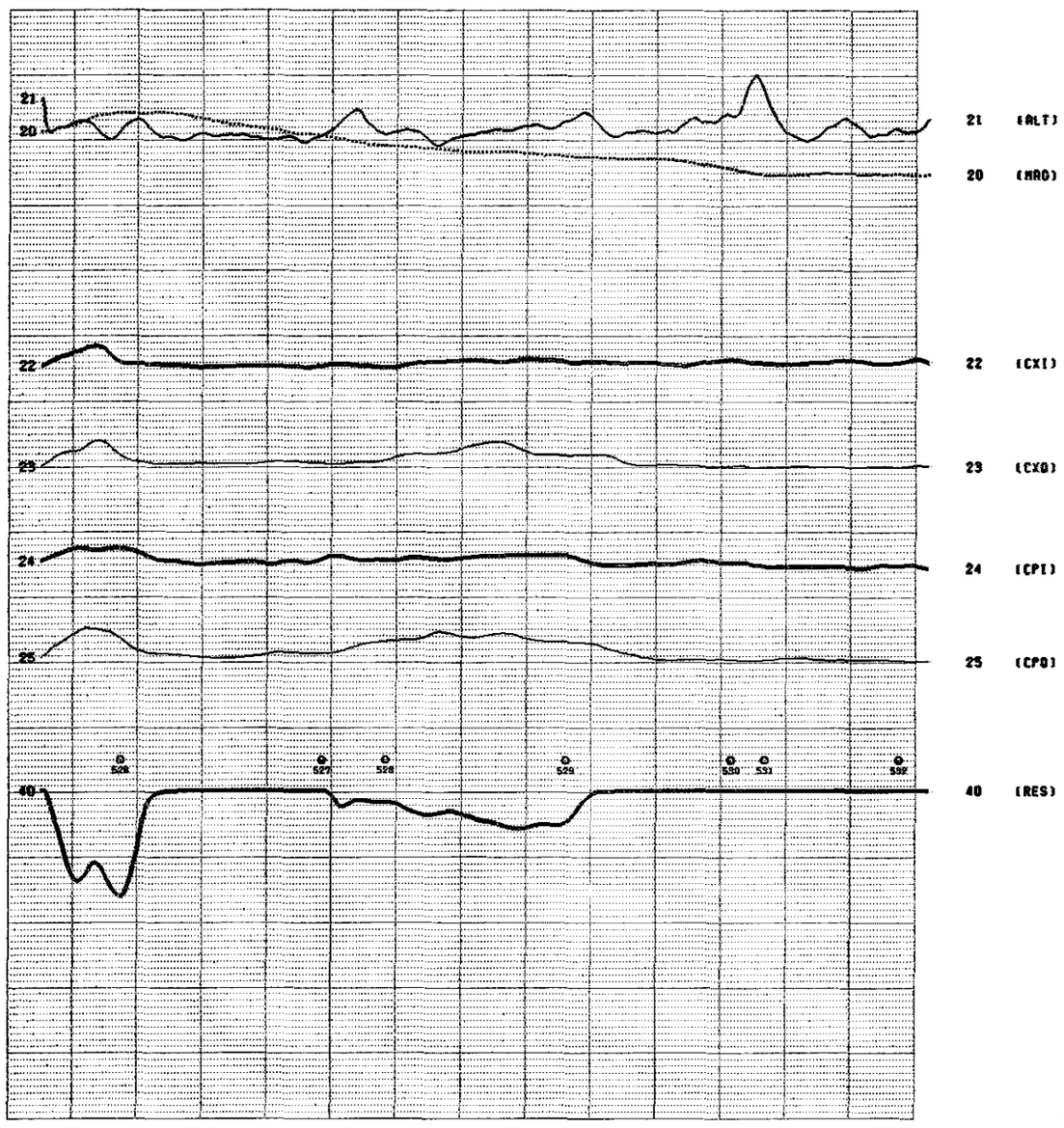


LINE -2900 JOB: 326 SH3 1: 20000
PRELIMINARY

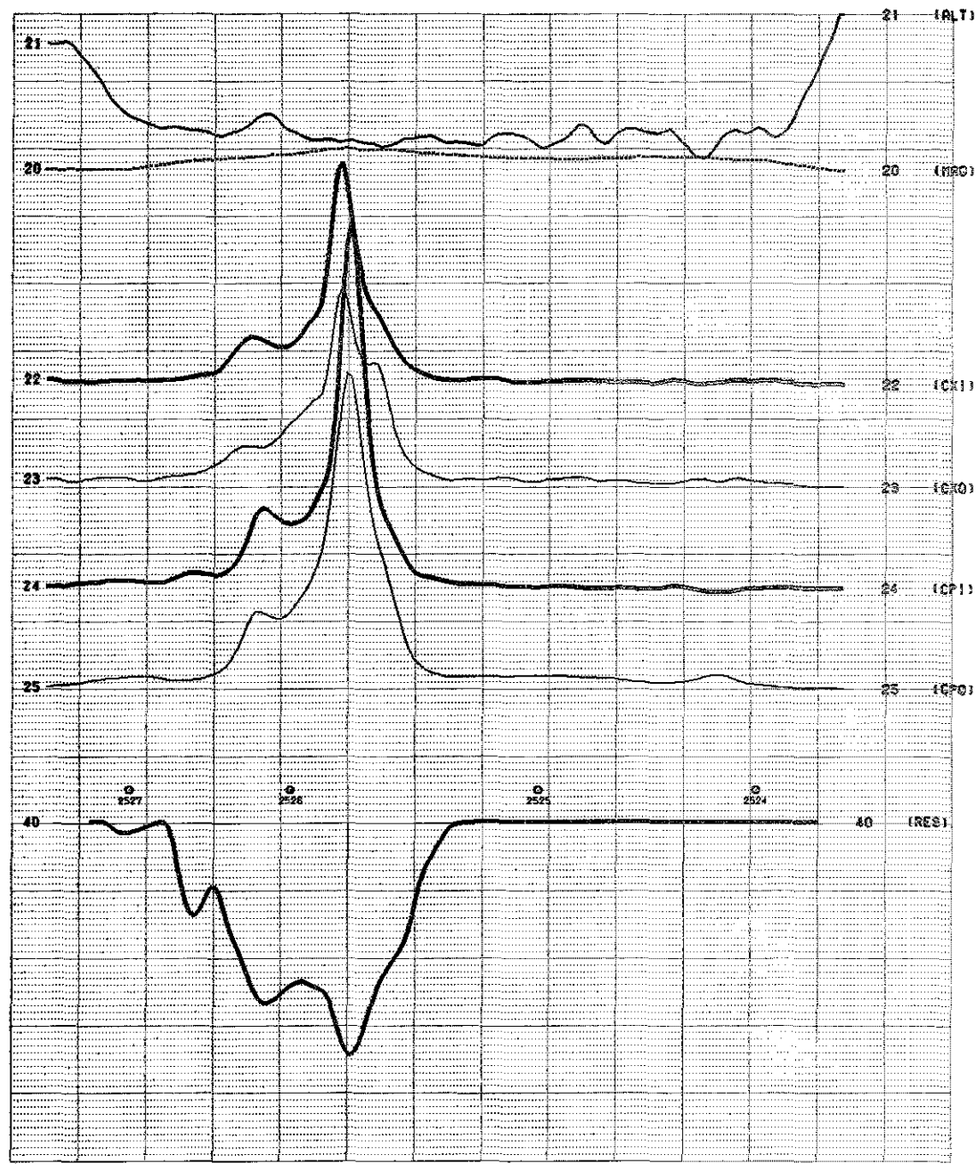
5 cm

2216

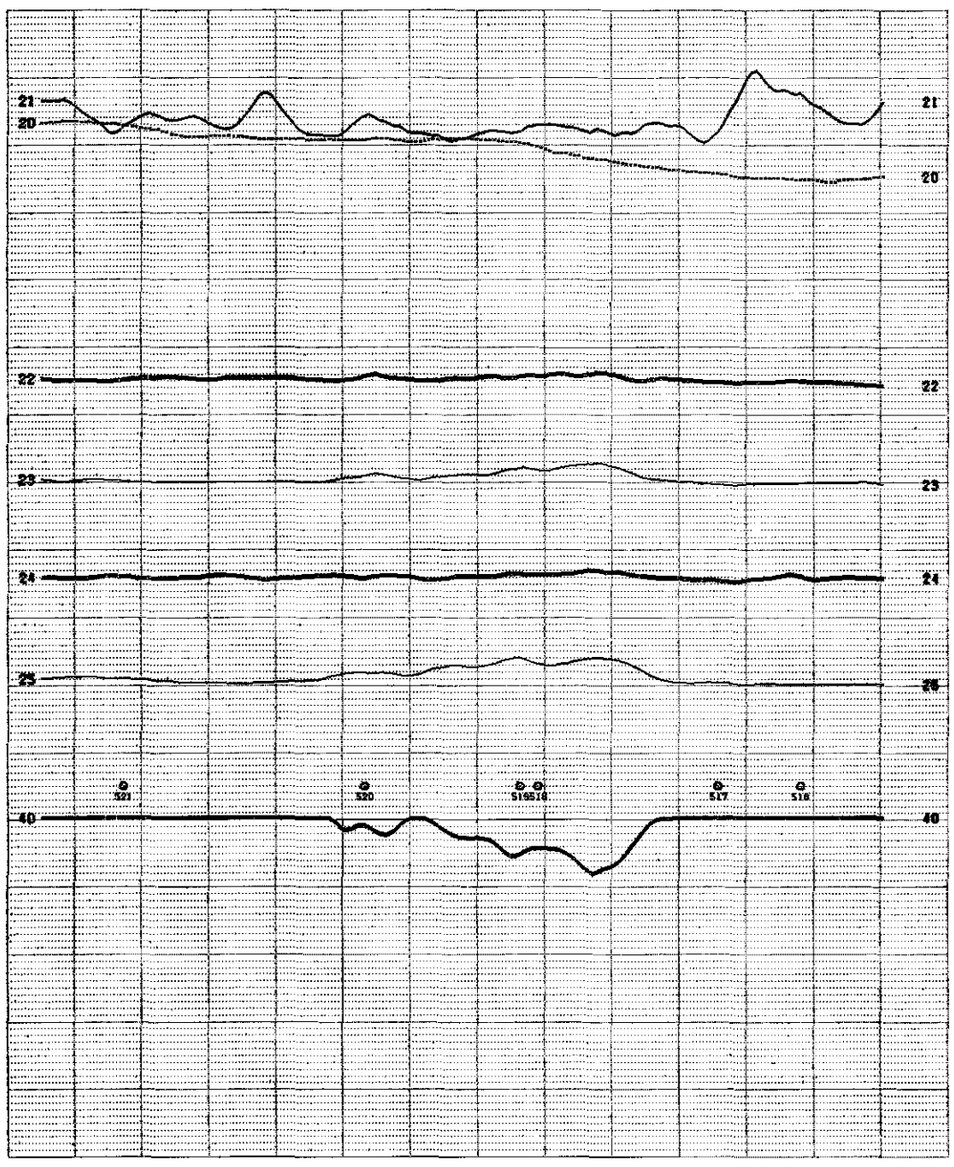

21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
40 (RES)
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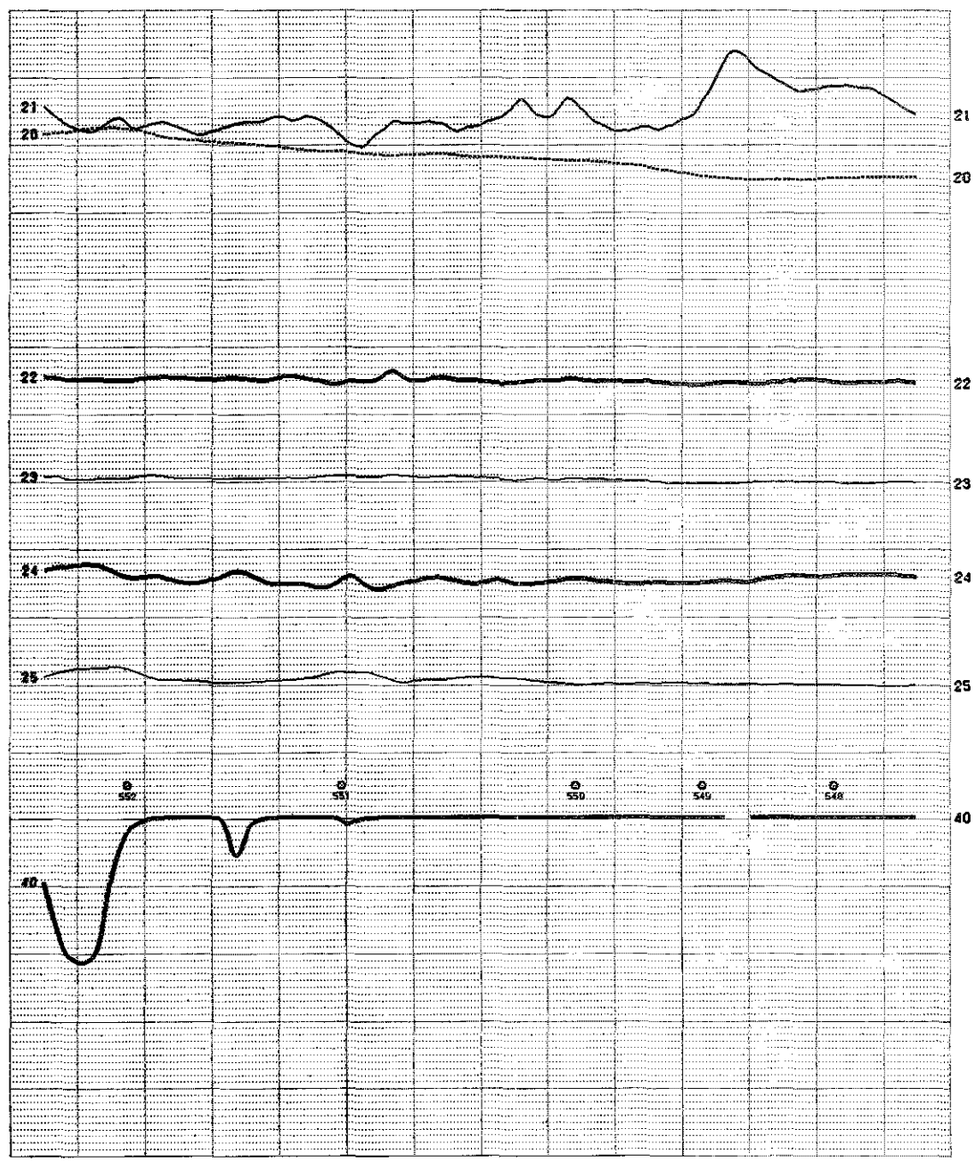
LINE 38 JOB: 326 SH3 1: 20000
PRELIMINARY



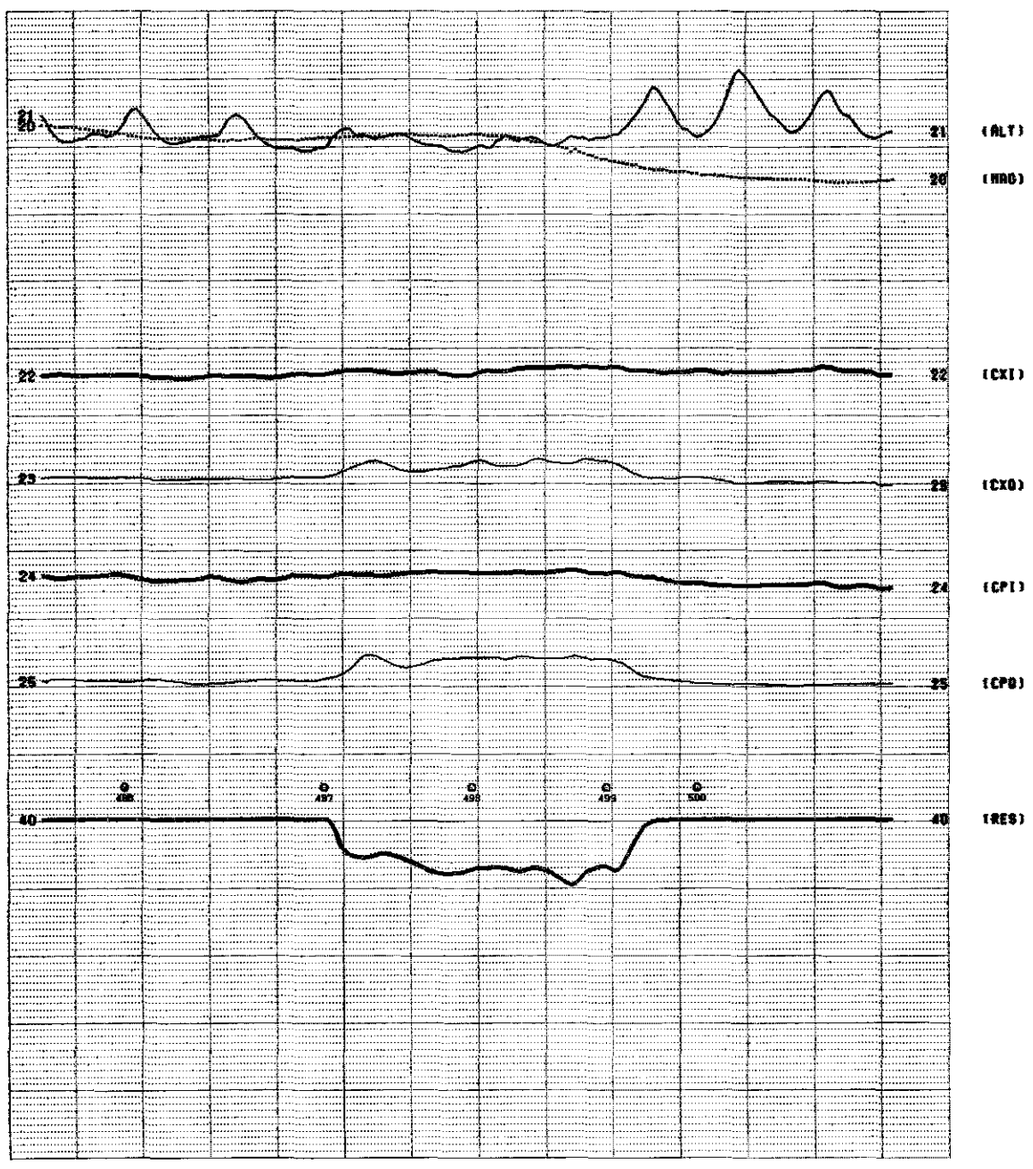
LINE -3900 JOB: 326 SH3 1: 20000
PRELIMINARY



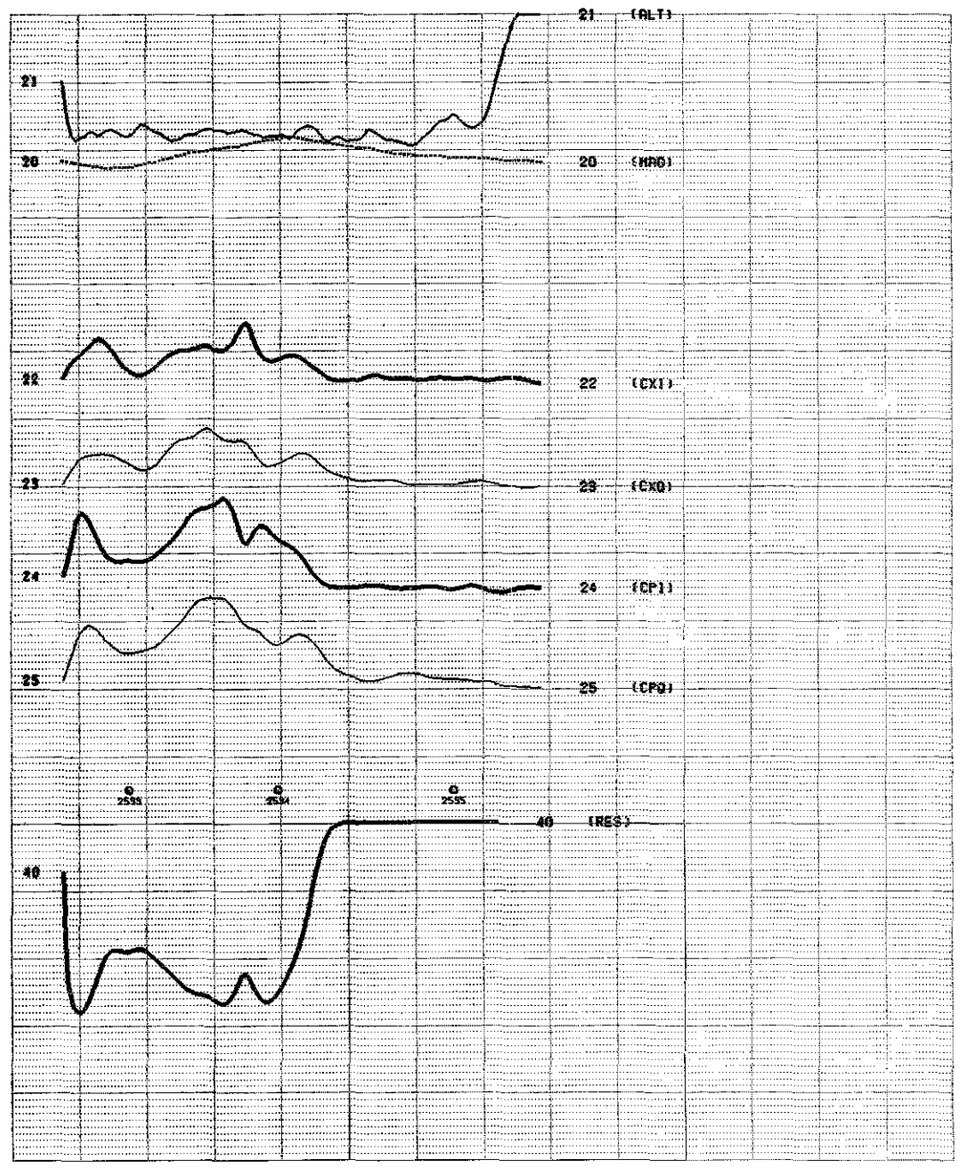
LINE -37 JOB: 326 SH3 1: 20000
PRELIMINARY



LINE -39 JOB: 326 SH3 1: 20000
PRELIMINARY



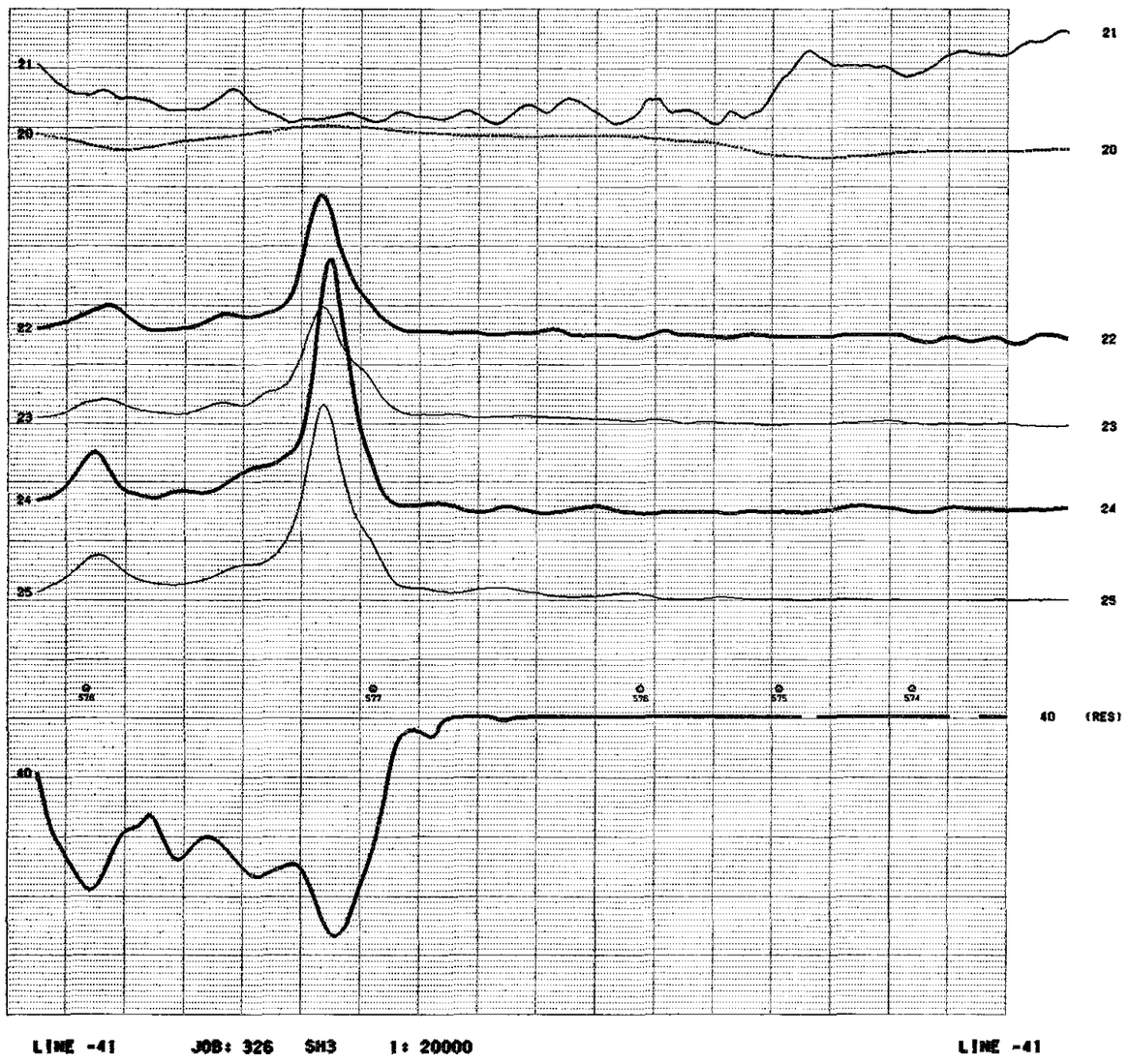
LINE 36 JOB: 326 SH3 1: 20000
PRELIMINARY



LINE 3800 JOB: 326 SH3 1: 20000
PRELIMINARY

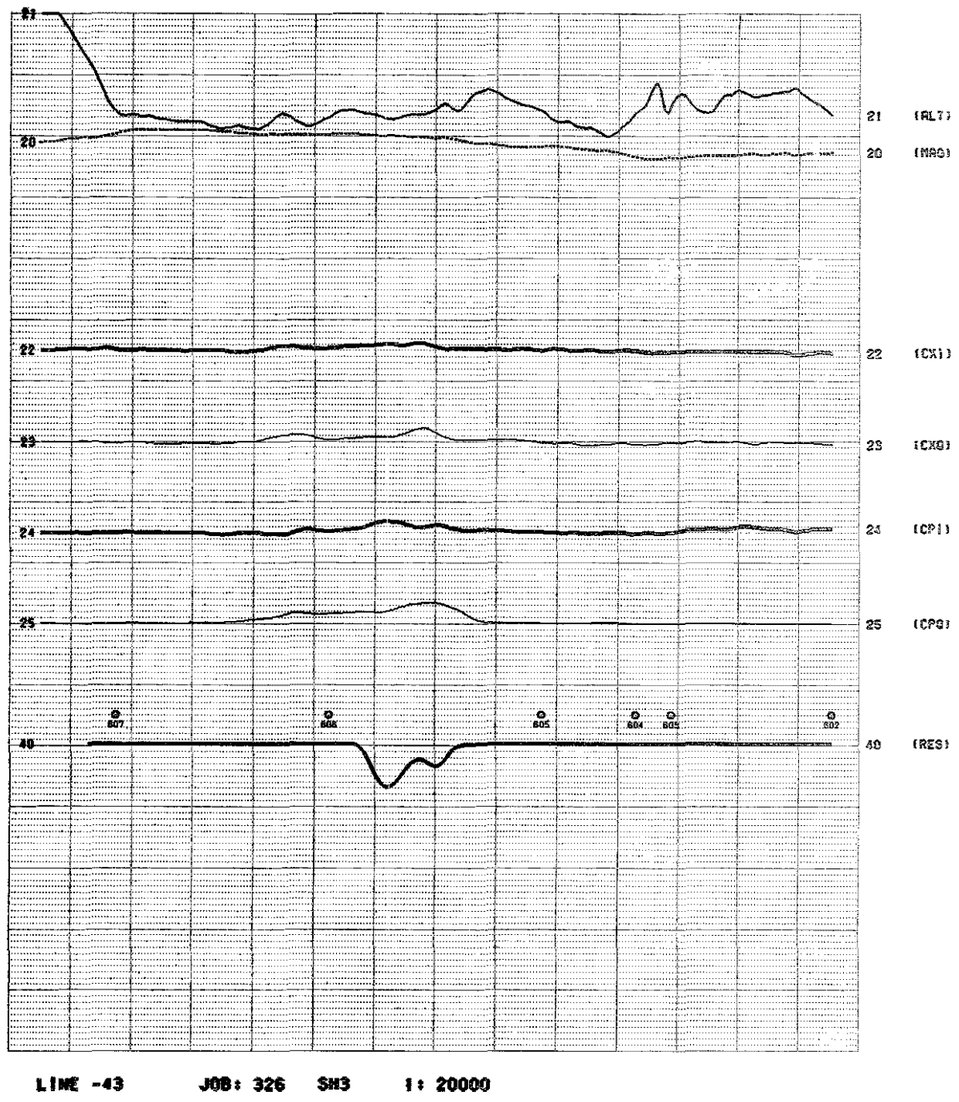
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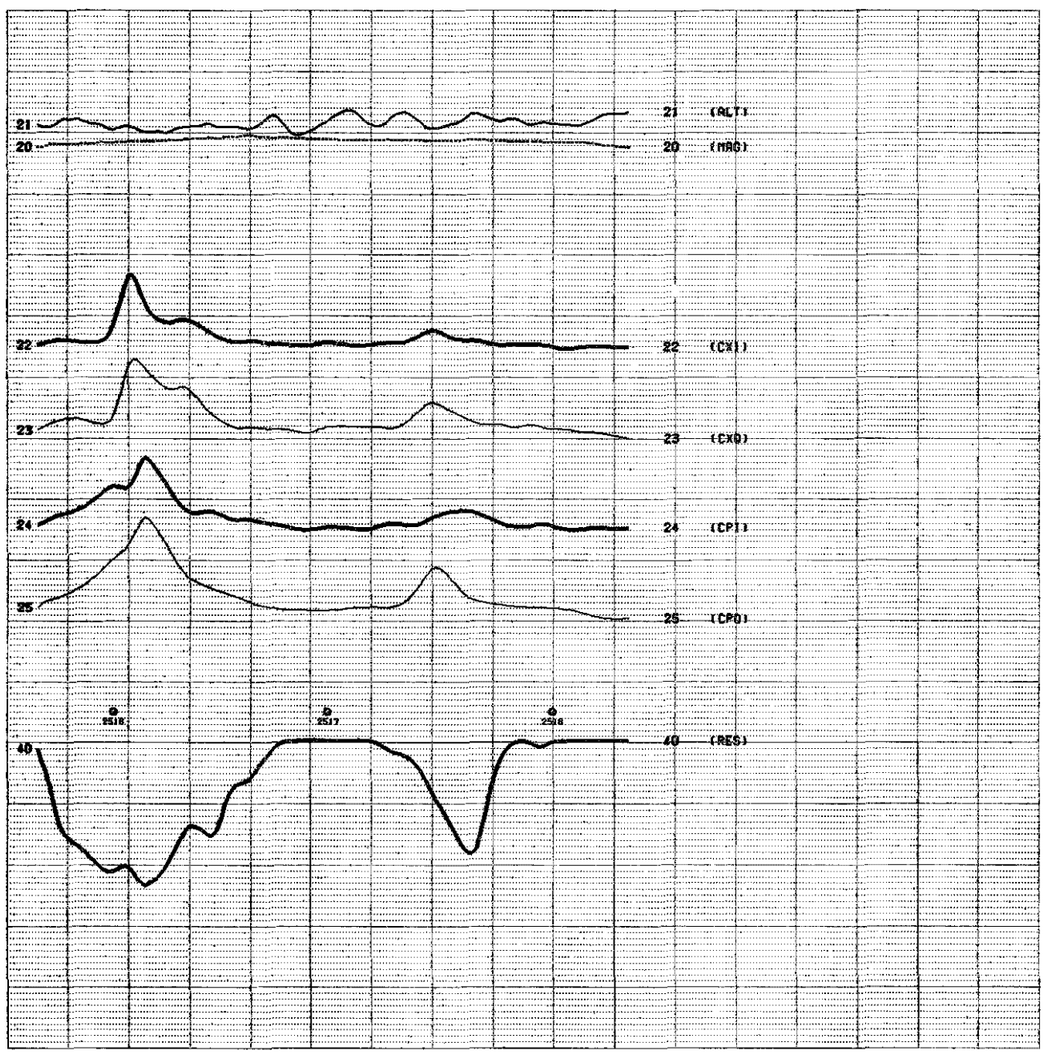


LINE -41 JOB: 326 SH3 1: 20000
PRELIMINARY

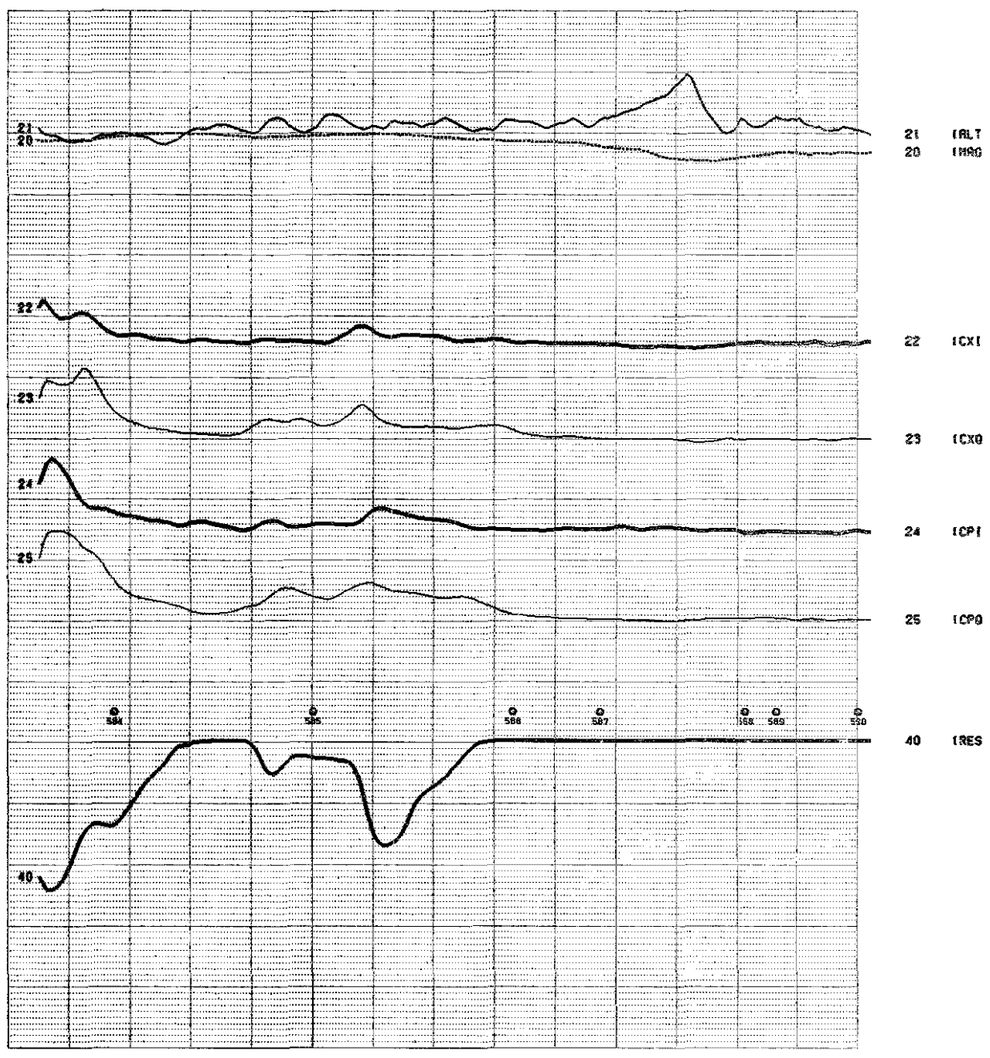
LINE -41



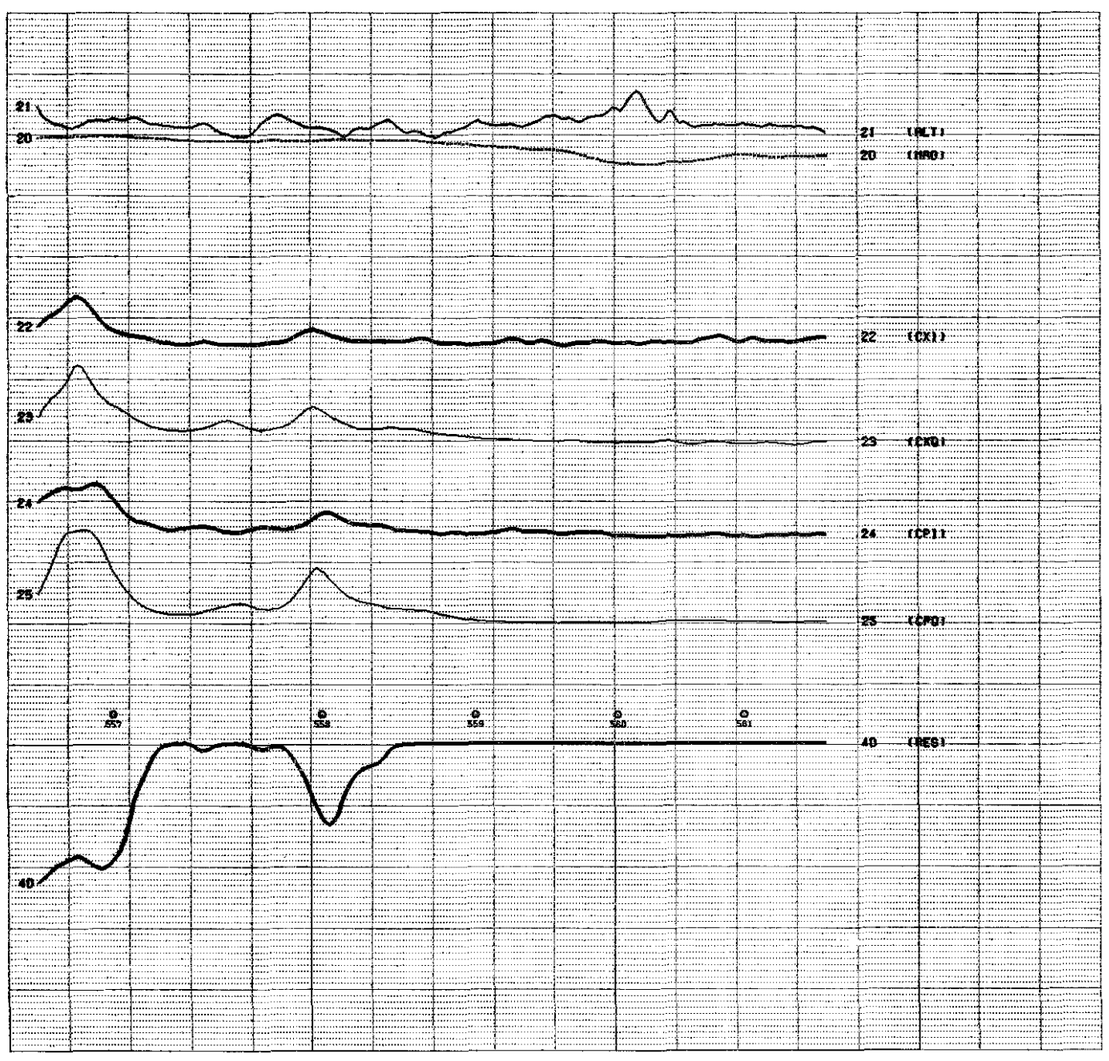
LINE -43 JOB: 326 SH3 1: 20000
PRELIMINARY



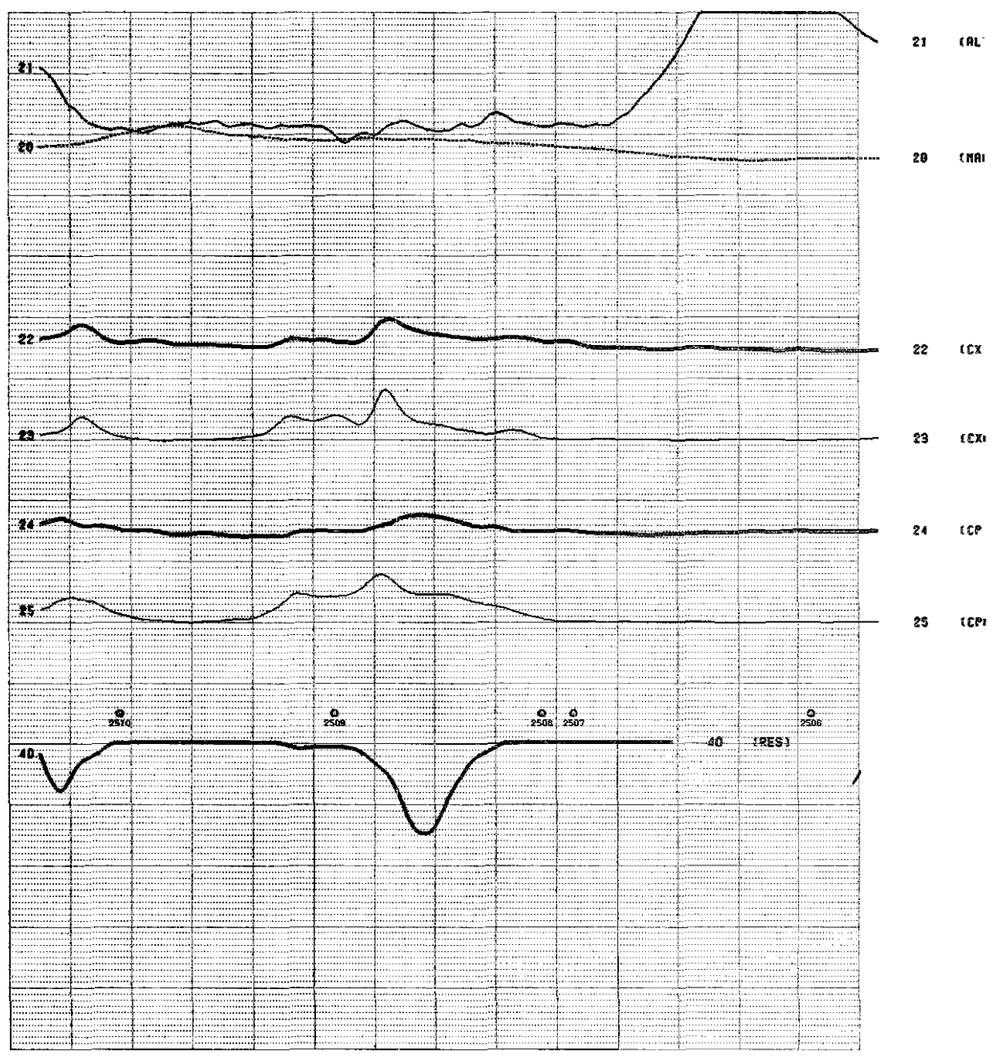
LINE 4000 JOB: 326 SH3 1: 20000
PRELIMINARY



LINE 42 JOB: 326 SH3 1: 20000
PRELIMINARY



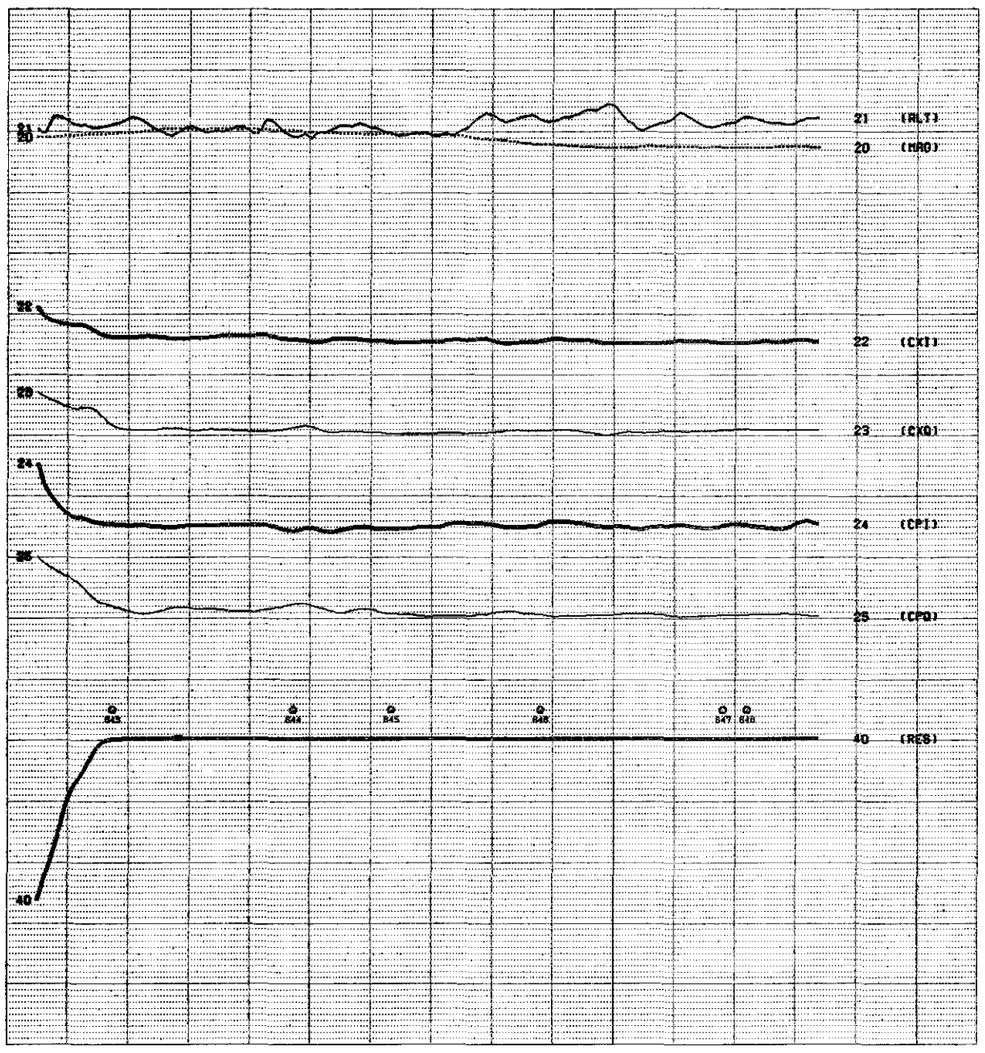
LINE 40 JOB: 326 SH3 1: 20000
PRELIMINARY

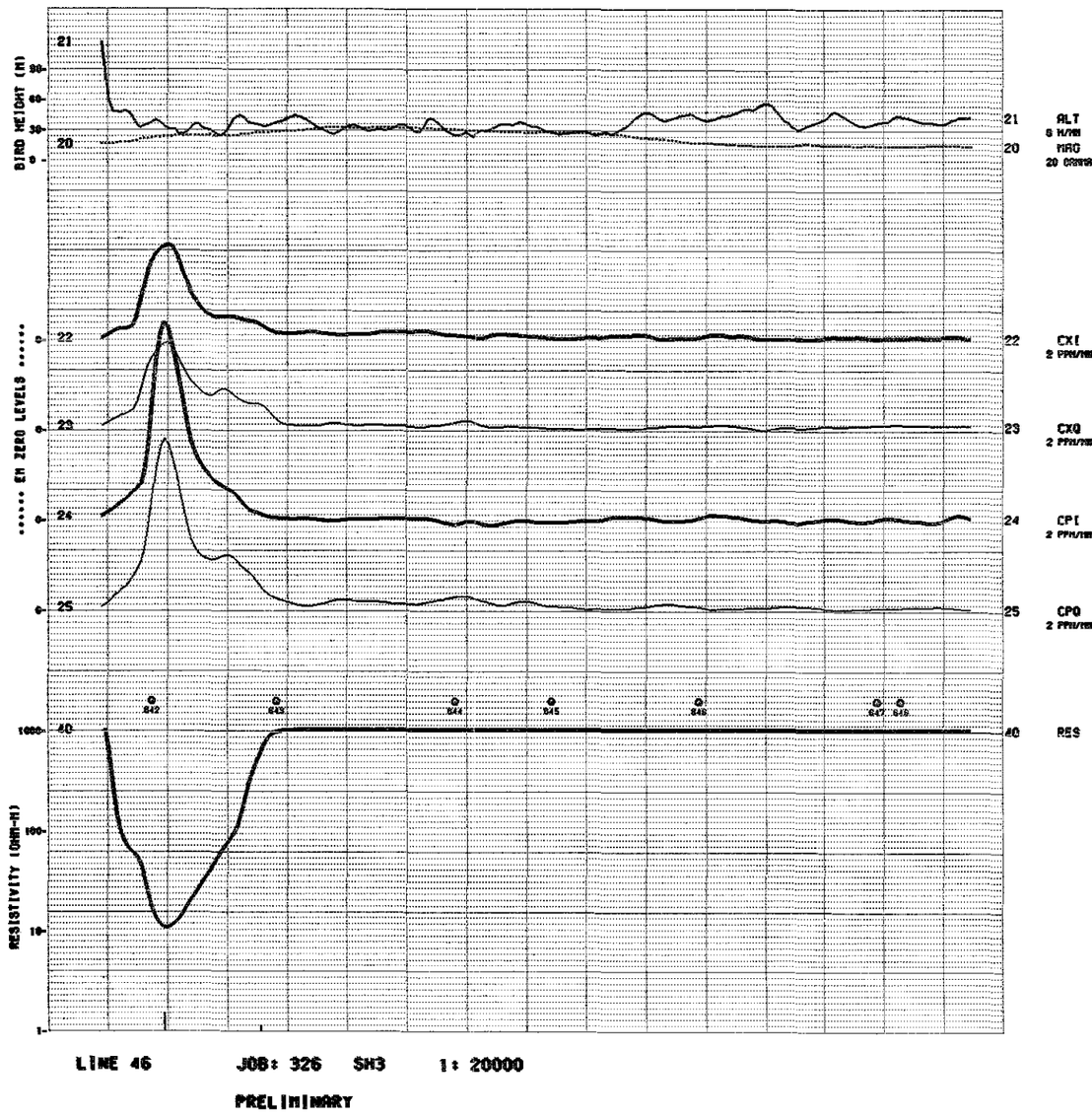


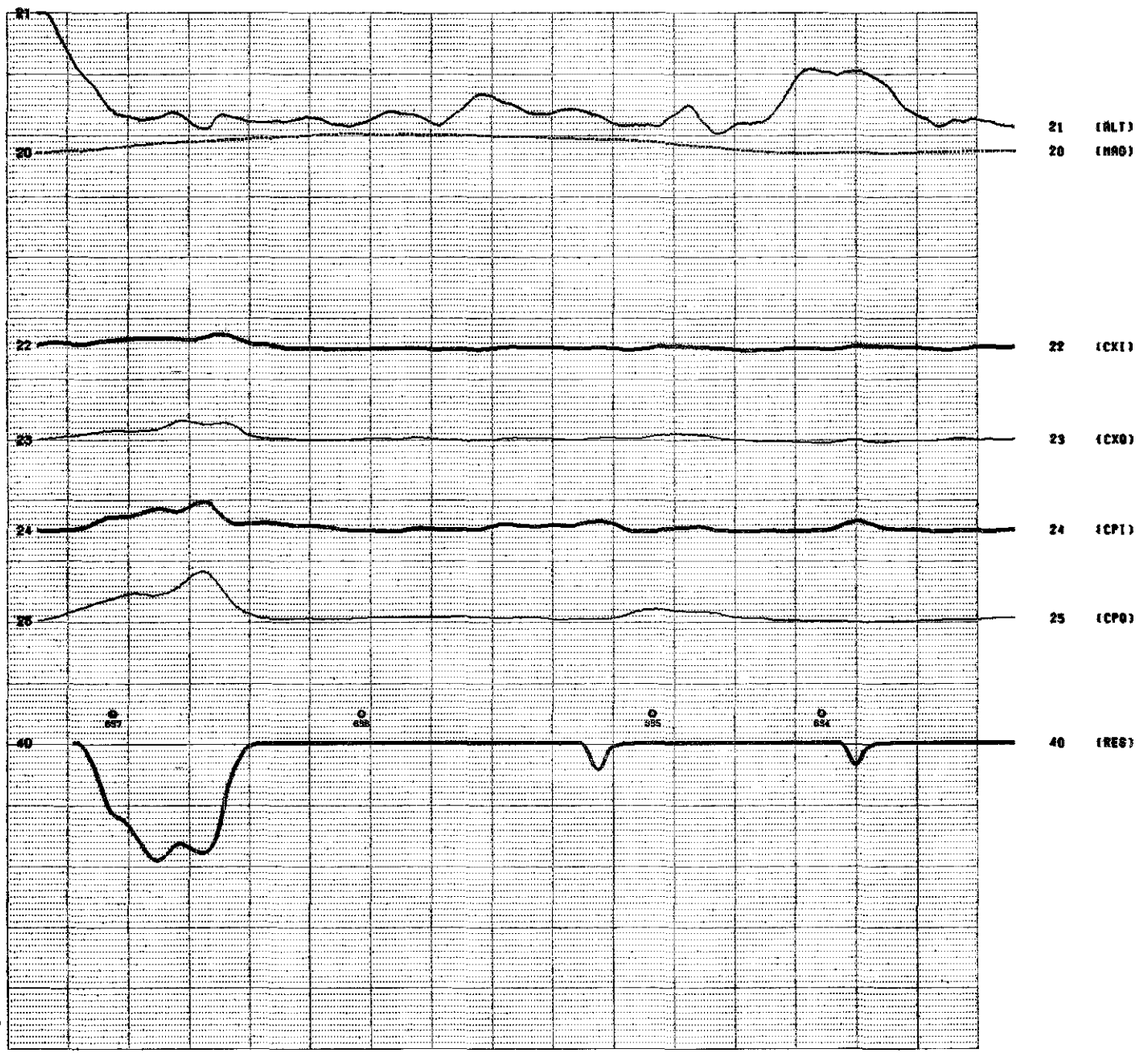
LINE -4100 JOB: 326 SH3 1: 20000
PRELIMINARY

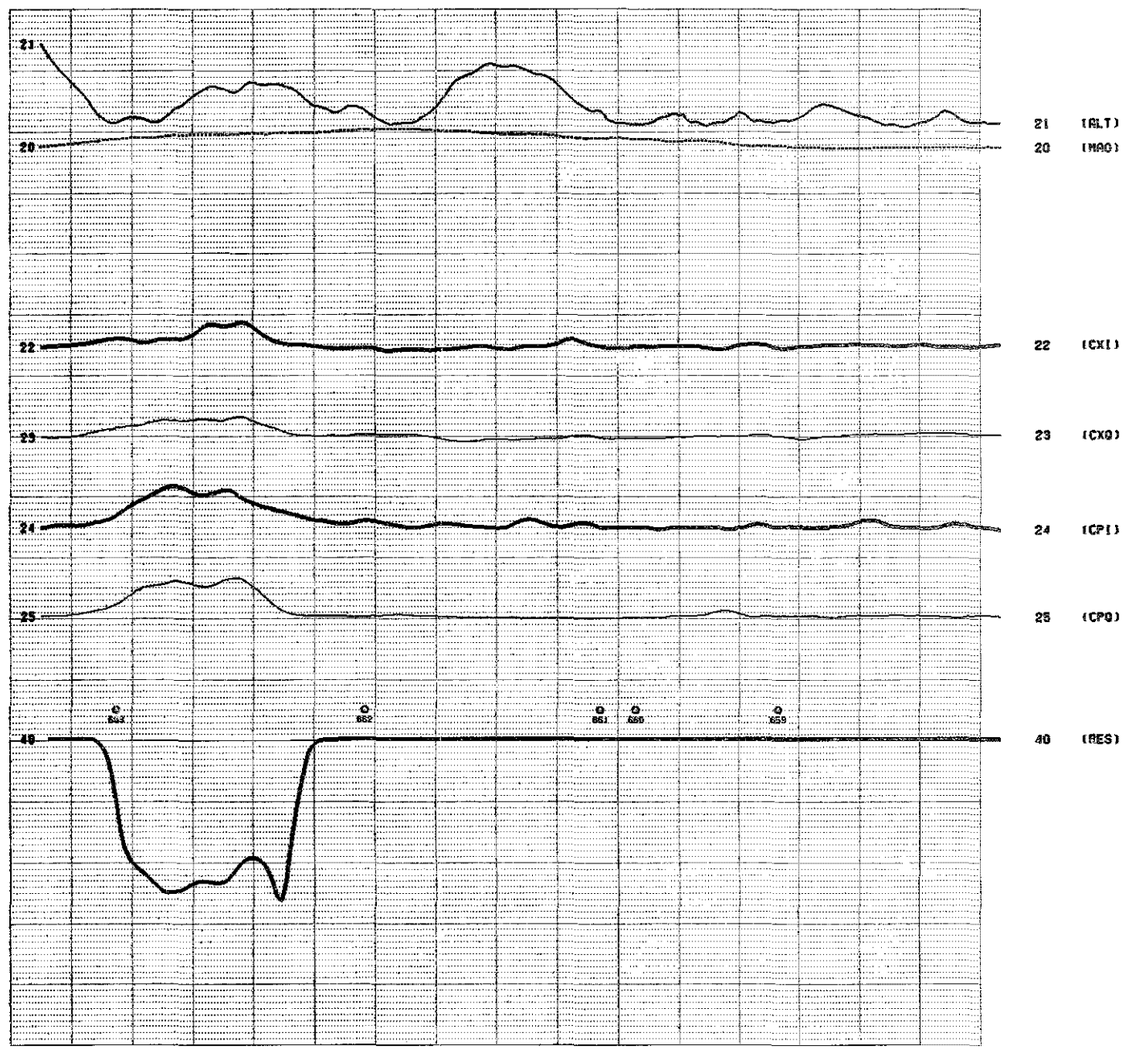
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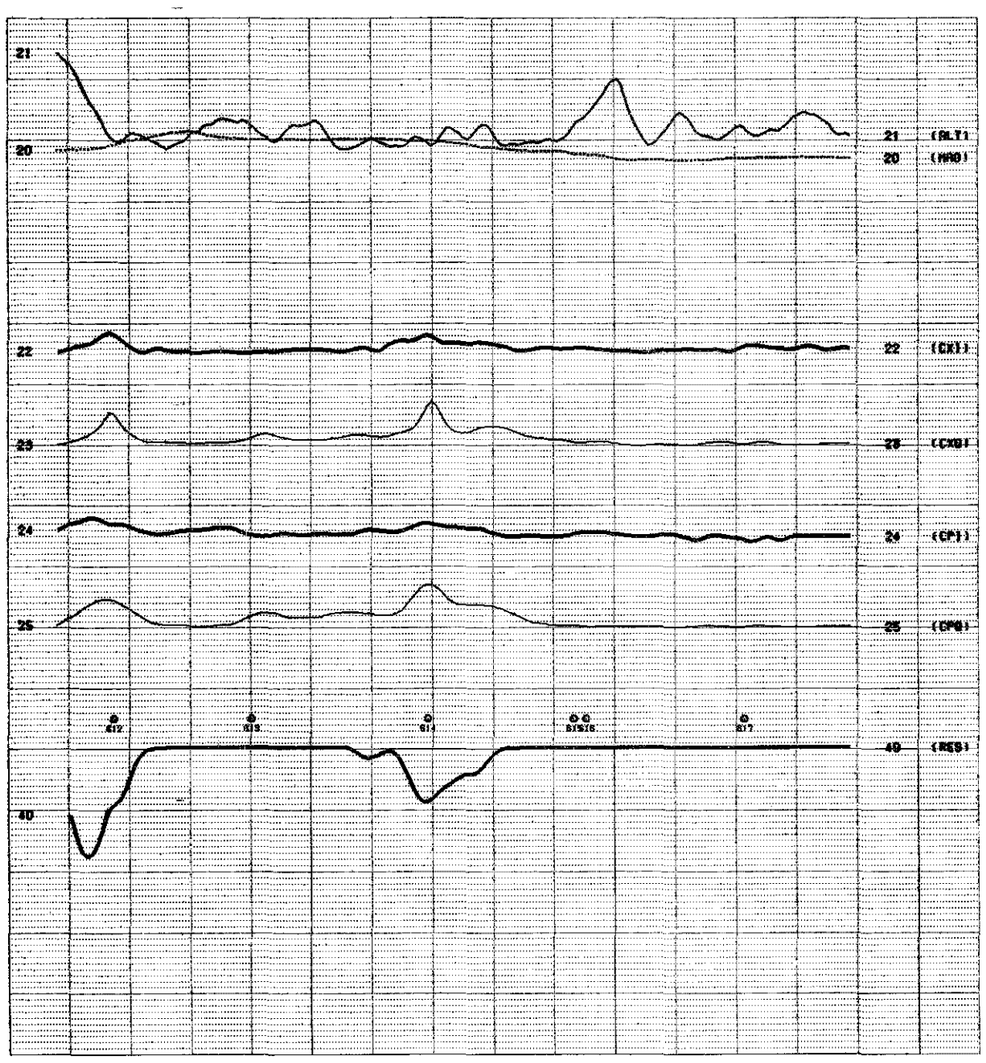
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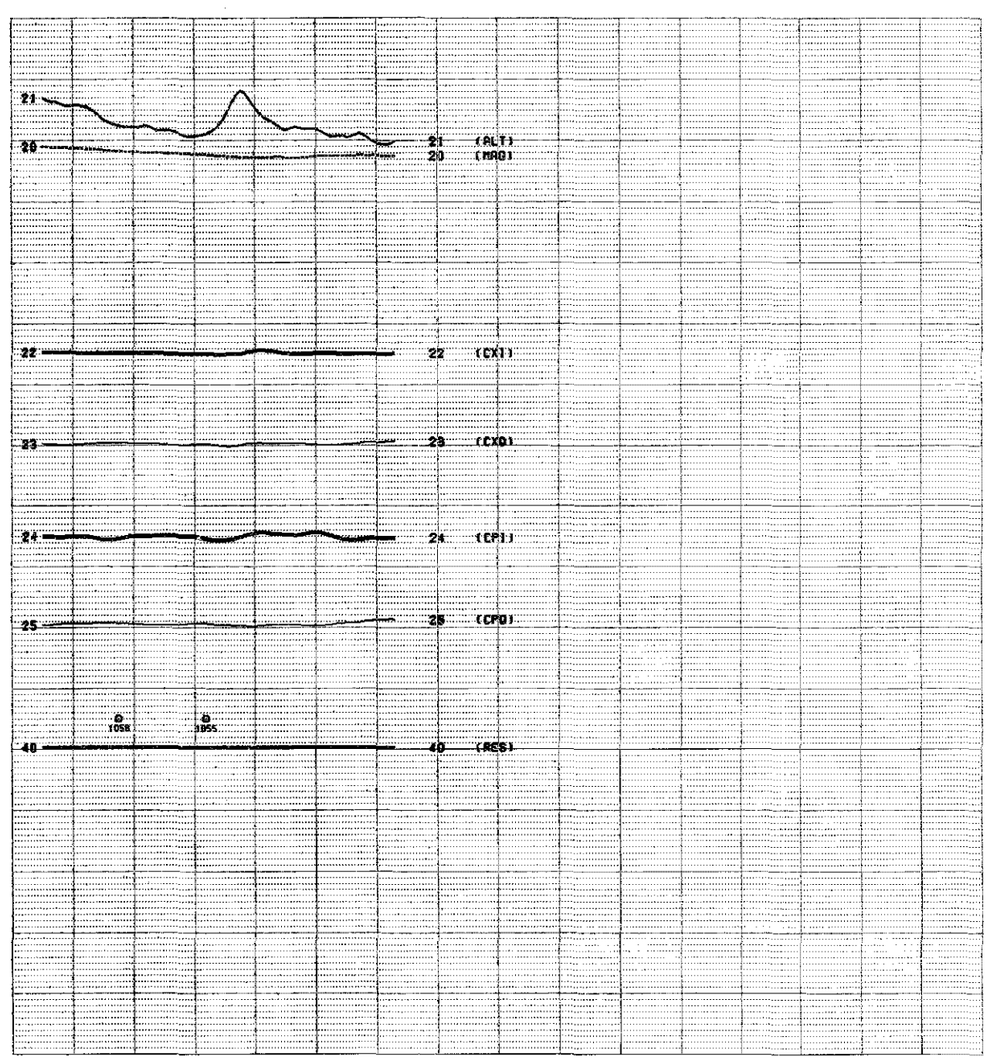

21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
40 (RES)
LINE 46 JOB: 326 SH3 1: 20000
PRELIMINARY


BIRD HEIGHT (M)
..... EM ZERO LEVELS .....
RESISTIVITY (OHM-M)
21 ALT 6 M/MM
20 MAG 20 GAMMAS/MM
22 CXI 2 PPM/MM
23 CXQ 2 PPM/MM
24 CPI 2 PPM/MM
25 CPQ 2 PPM/MM
40 RES
LINE 46 JOB: 326 SH3 1: 20000
PRELIMINARY

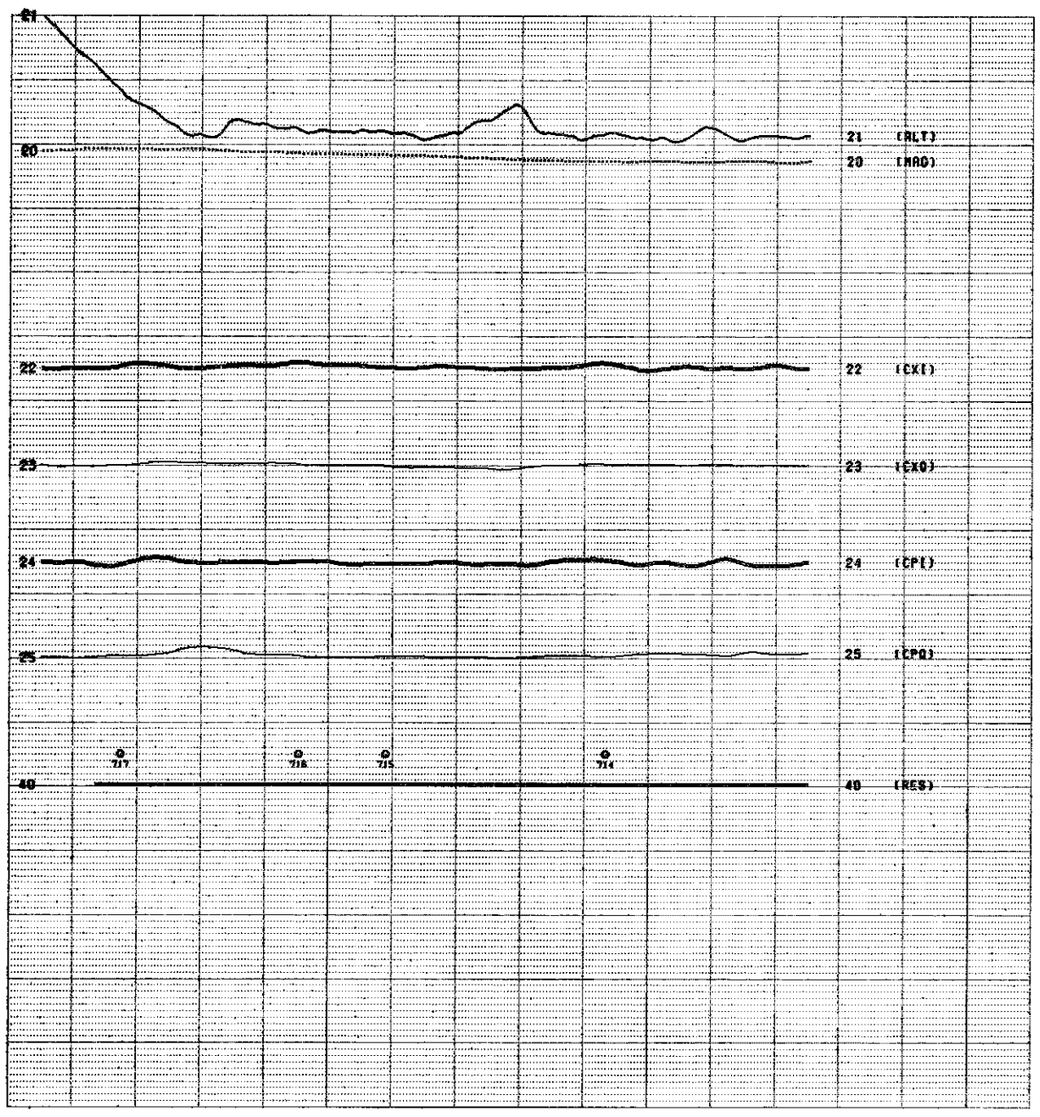

21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
40 (RES)
LINE -45 JOB: 326 SH3 1: 20000 LINE -45
PRELIMINARY


21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
40 (RES)
LINE -47 JOB: 326 SH3 1: 20000 LINE -47
PRELIMINARY

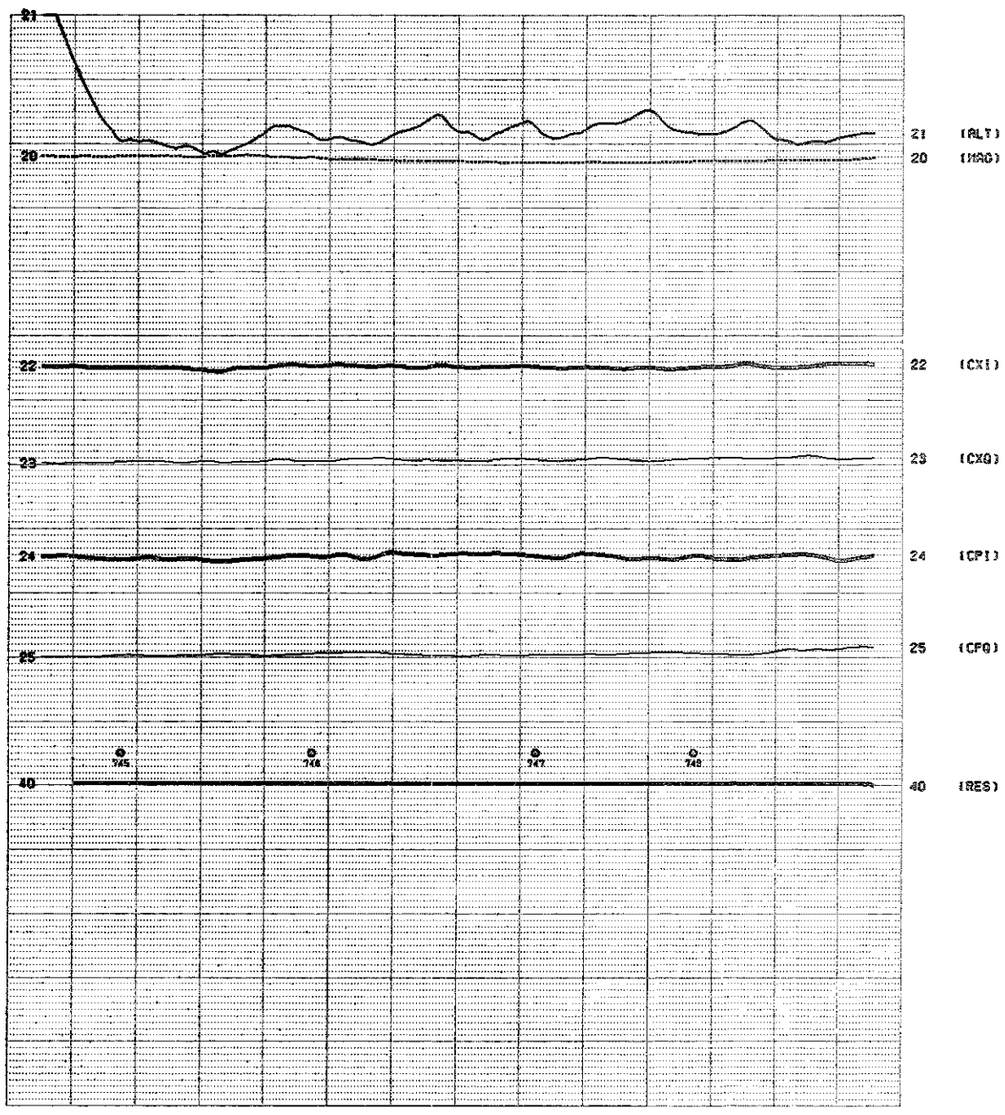

21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
40 (RES)
LINE 44 JOB: 326 SH3 1: 20000
PRELIMINARY


21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
40 (RES)
LINE -4600 JOB: 326 SH3 1: 20000
PRELIMINARY
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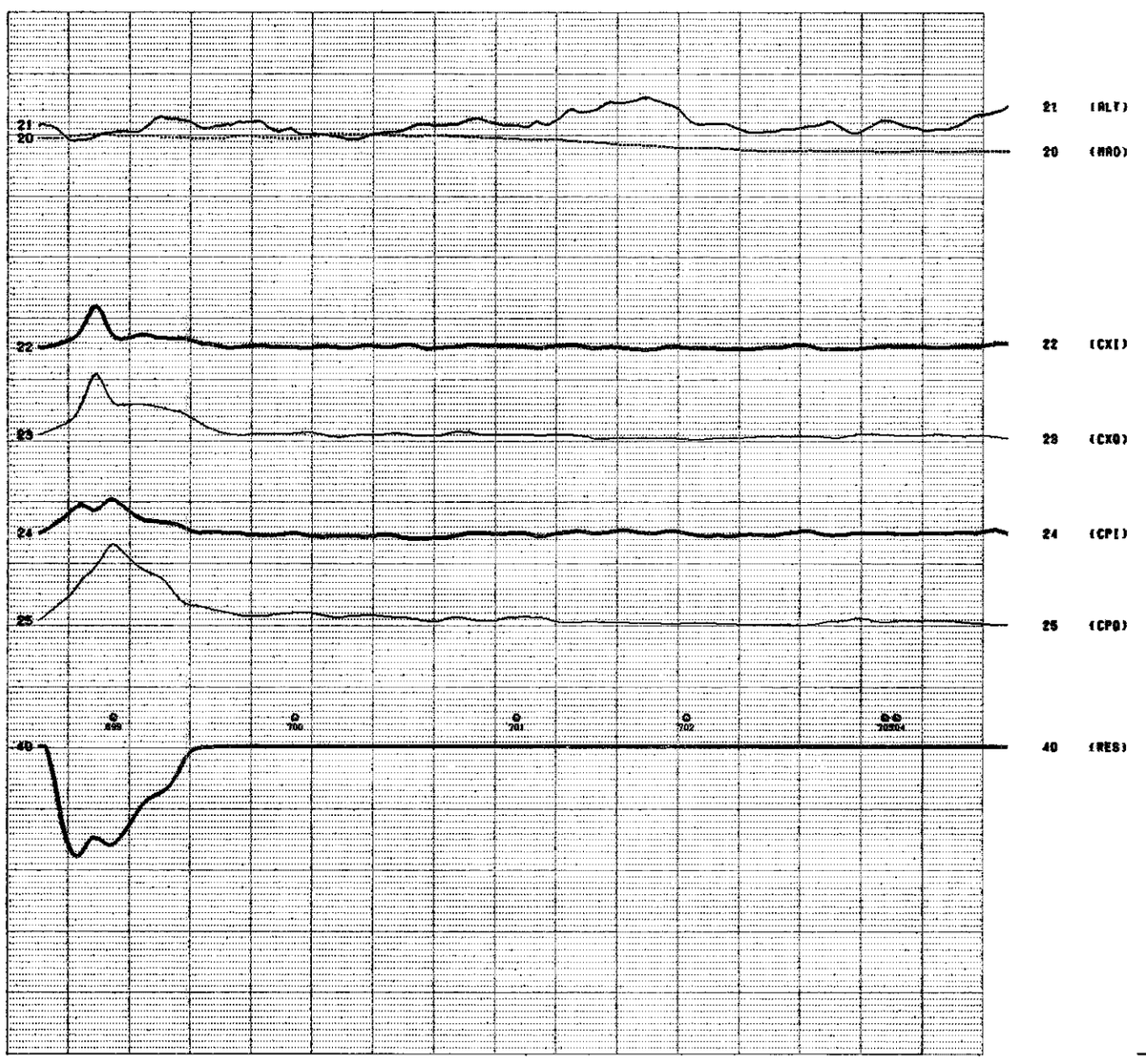
21f



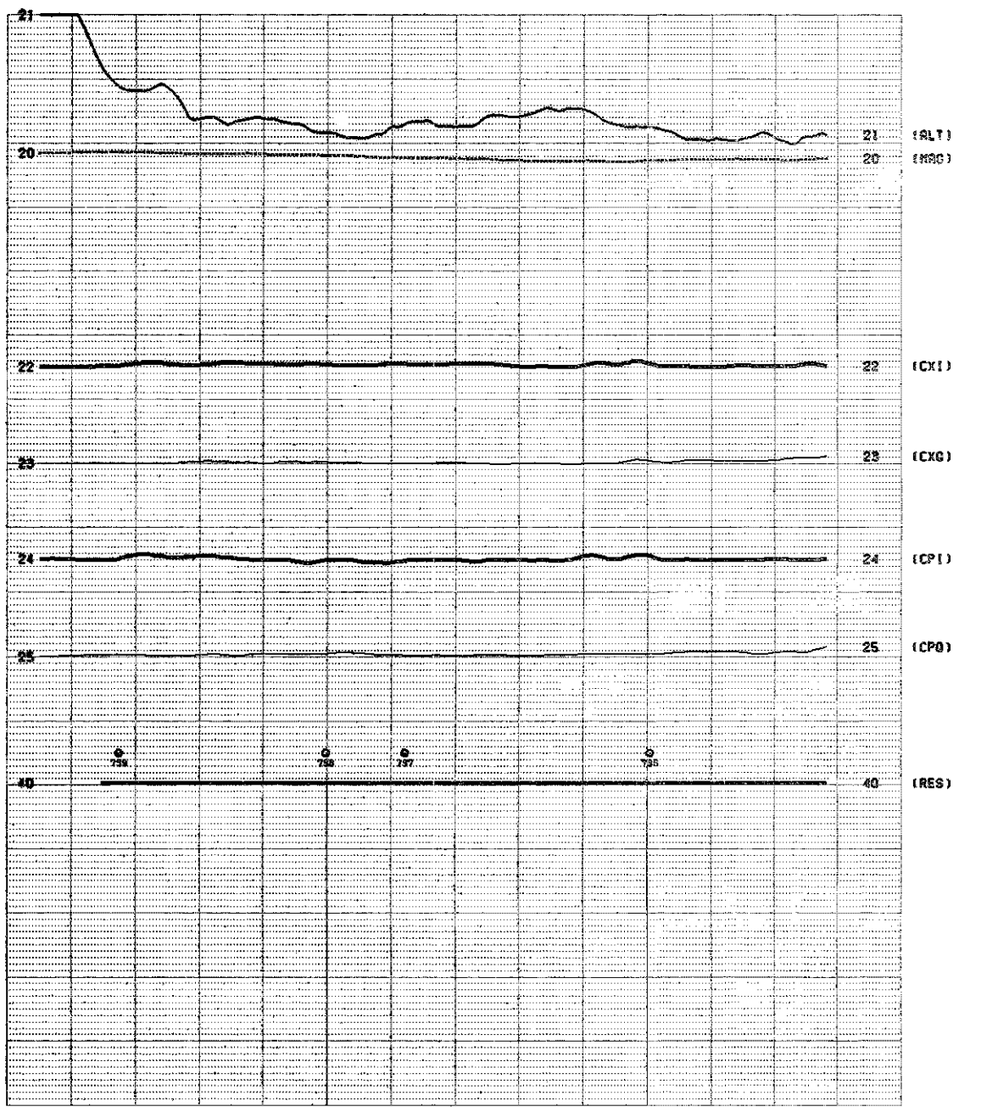
LINE -51 JOB: 326 SH3 1: 20000
PRELIMINARY



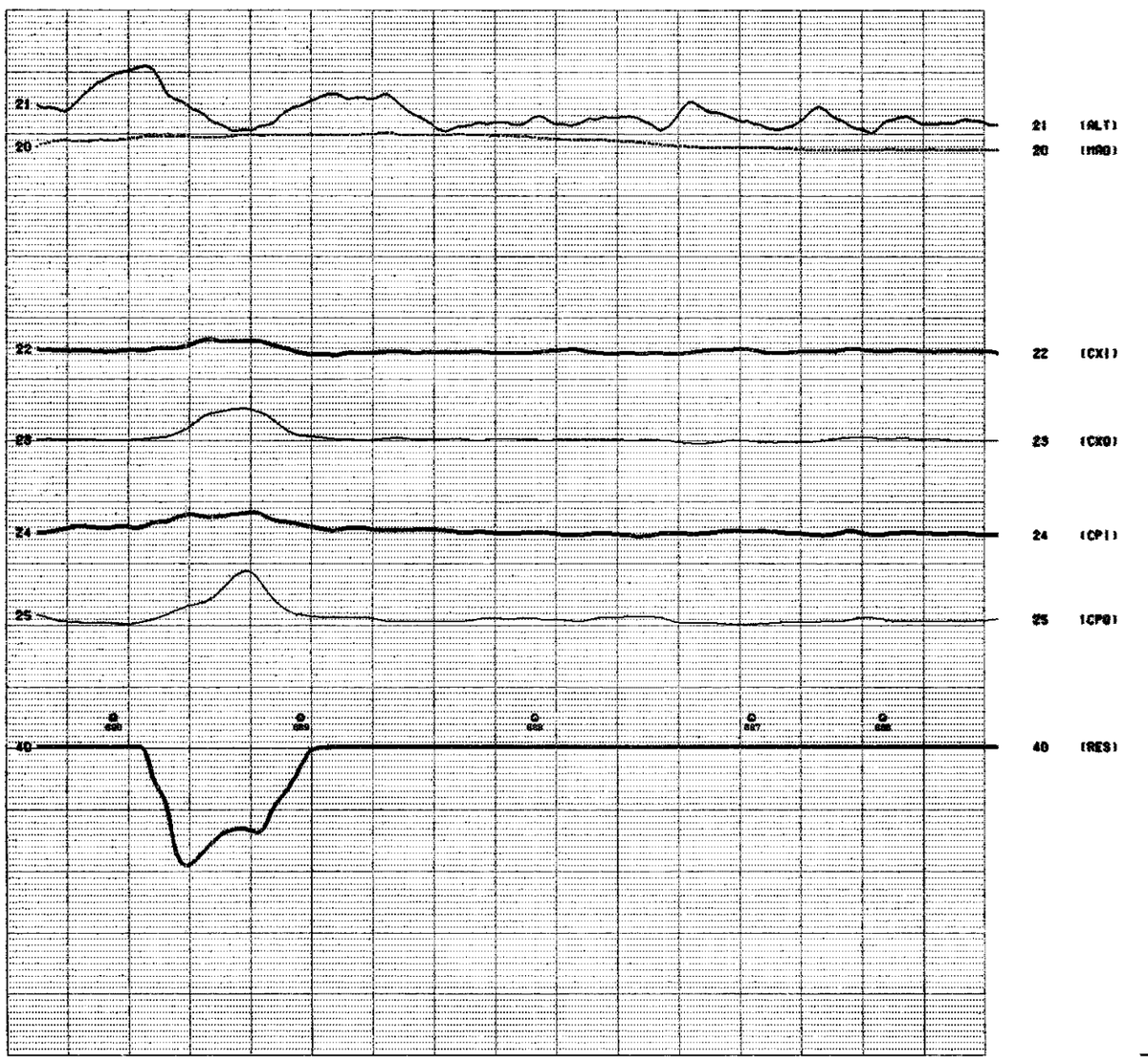
LINE 54 JOB: 326 SH3 1: 20000
PRELIMINARY



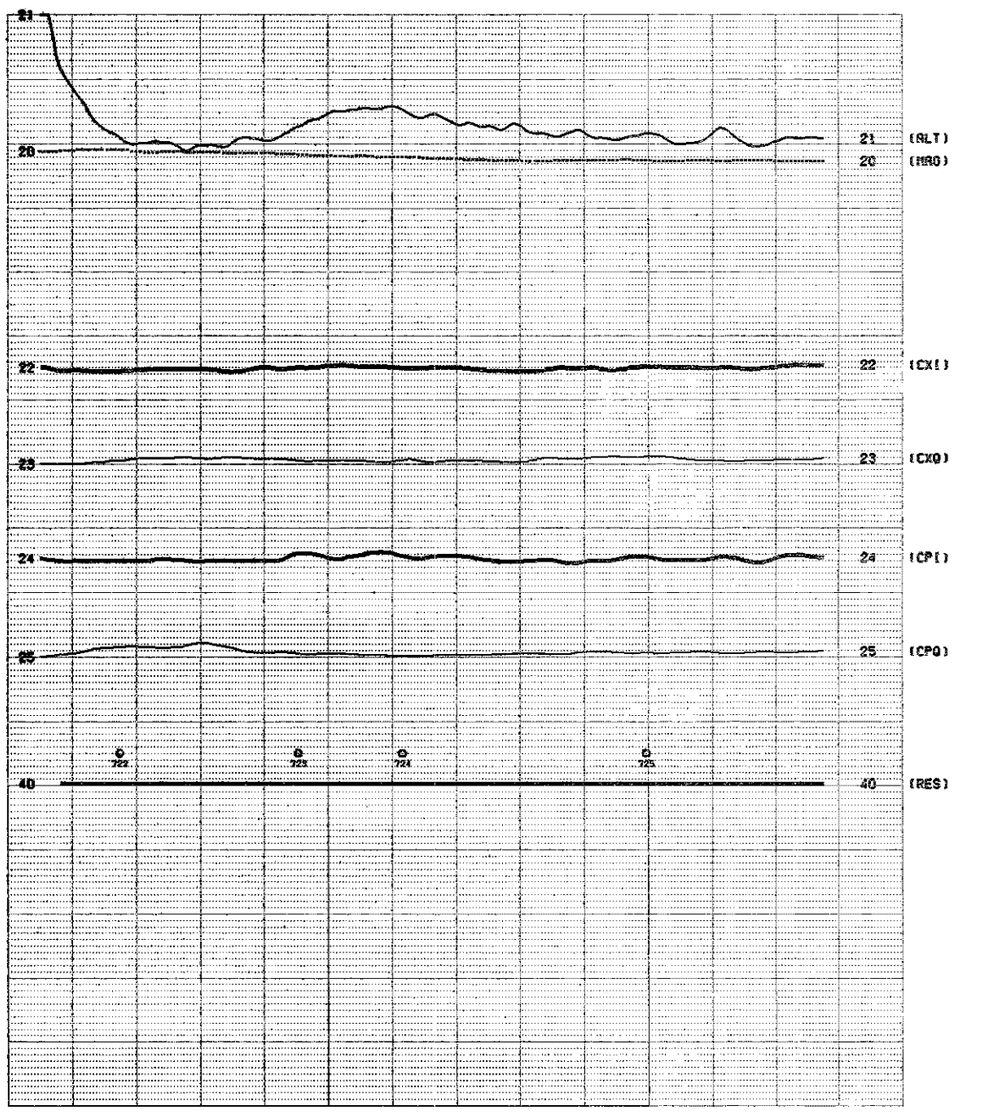
LINE 50 JOB: 326 SH3 1: 20000 LINE 50
PRELIMINARY



LINE -53 JOB: 326 SH3 1: 20000
PRELIMINARY

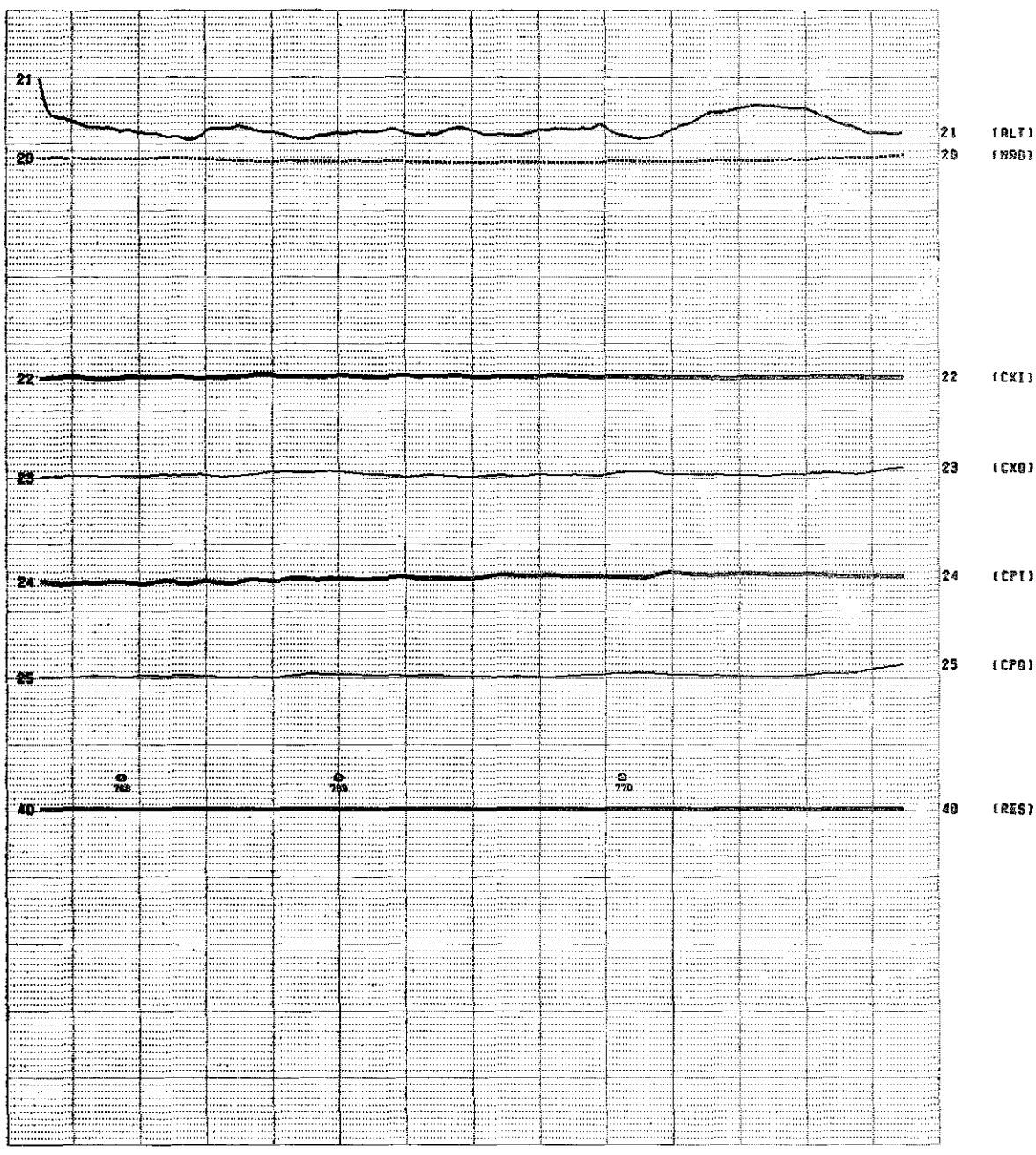


LINE -49 JOB: 326 SH3 1: 20000 LINE -49
PRELIMINARY



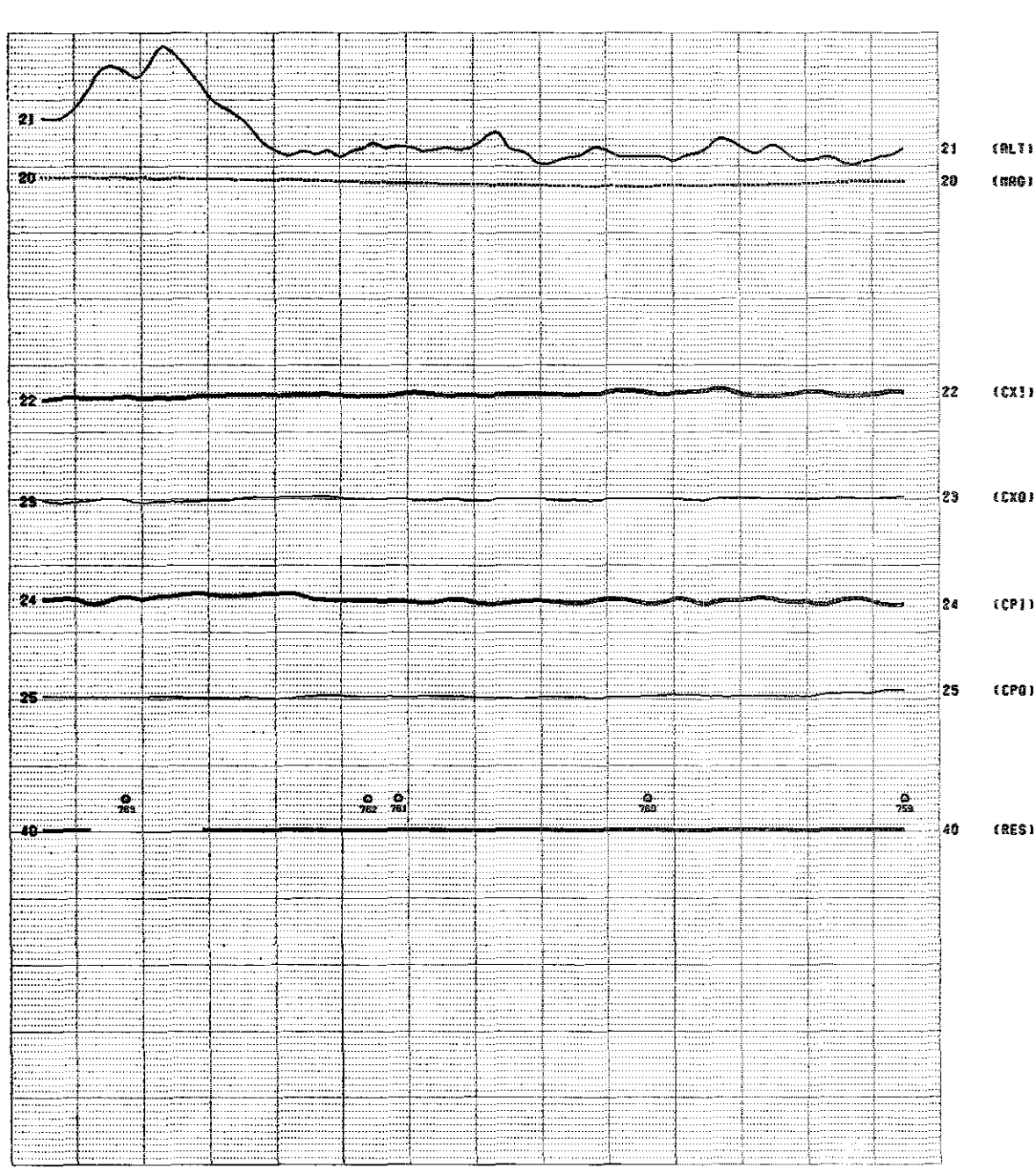
LINE 52 JOB: 326 SH3 1: 20000
PRELIMINARY

5 cm



LINE 56 JOB: 326 SH3 1: 20000

PRELIMINARY



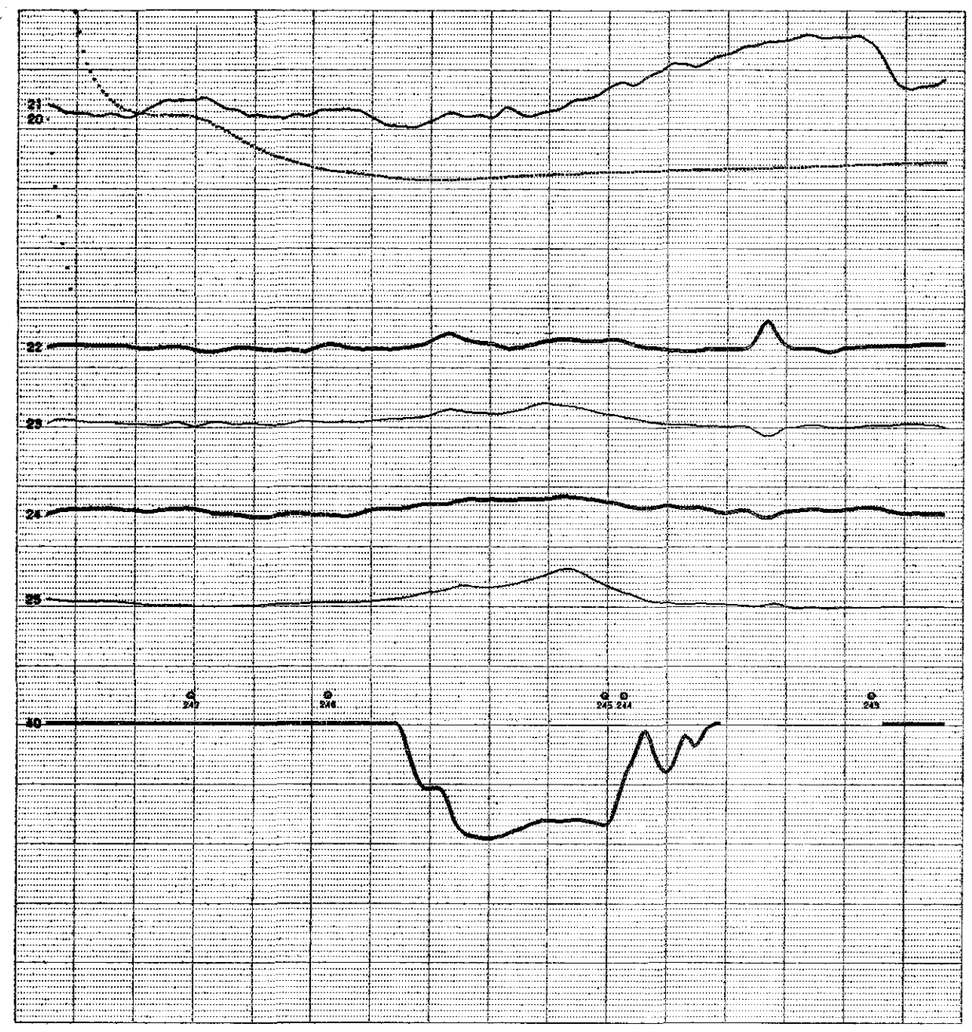
LINE -55 JOB: 326 SH3 1: 20000

PRELIMINARY

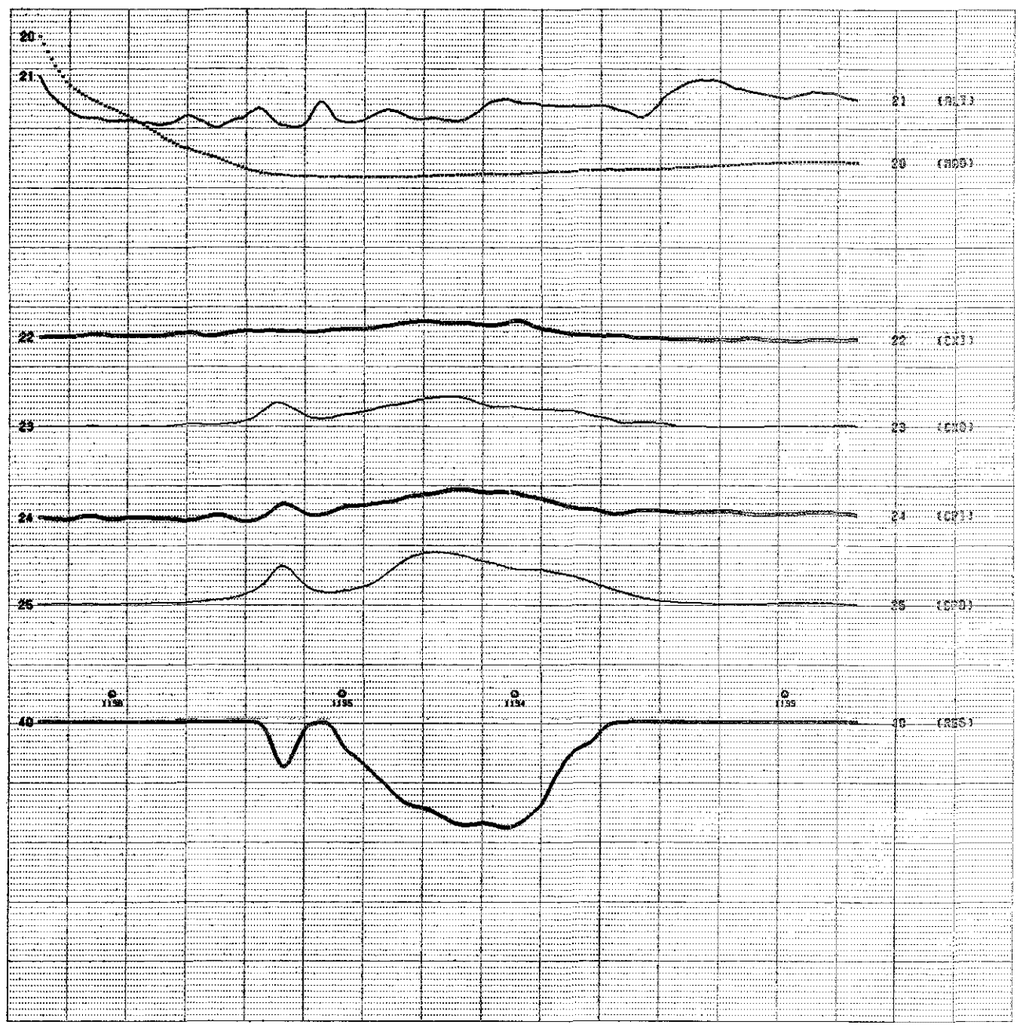
5 cm

21h

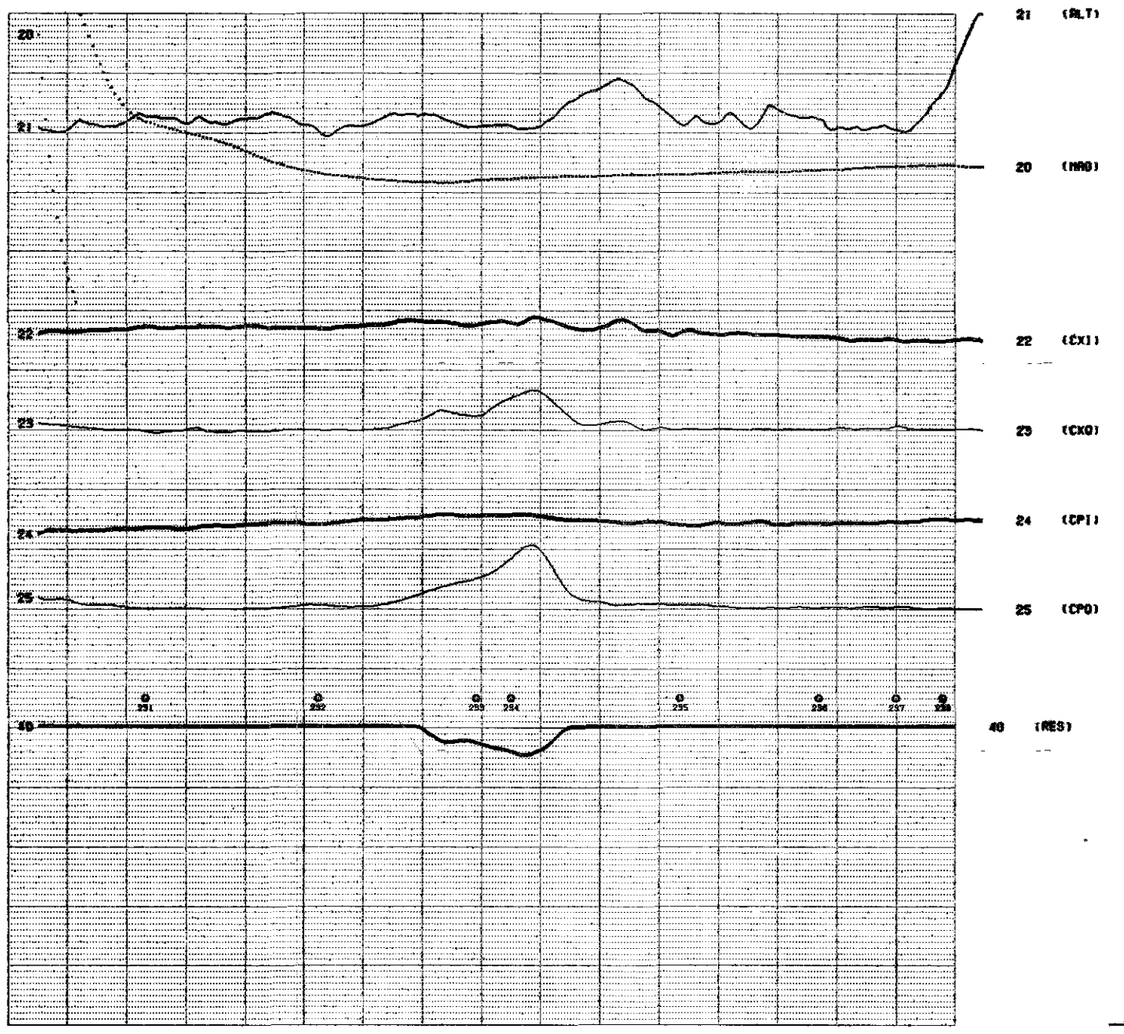
82-1738



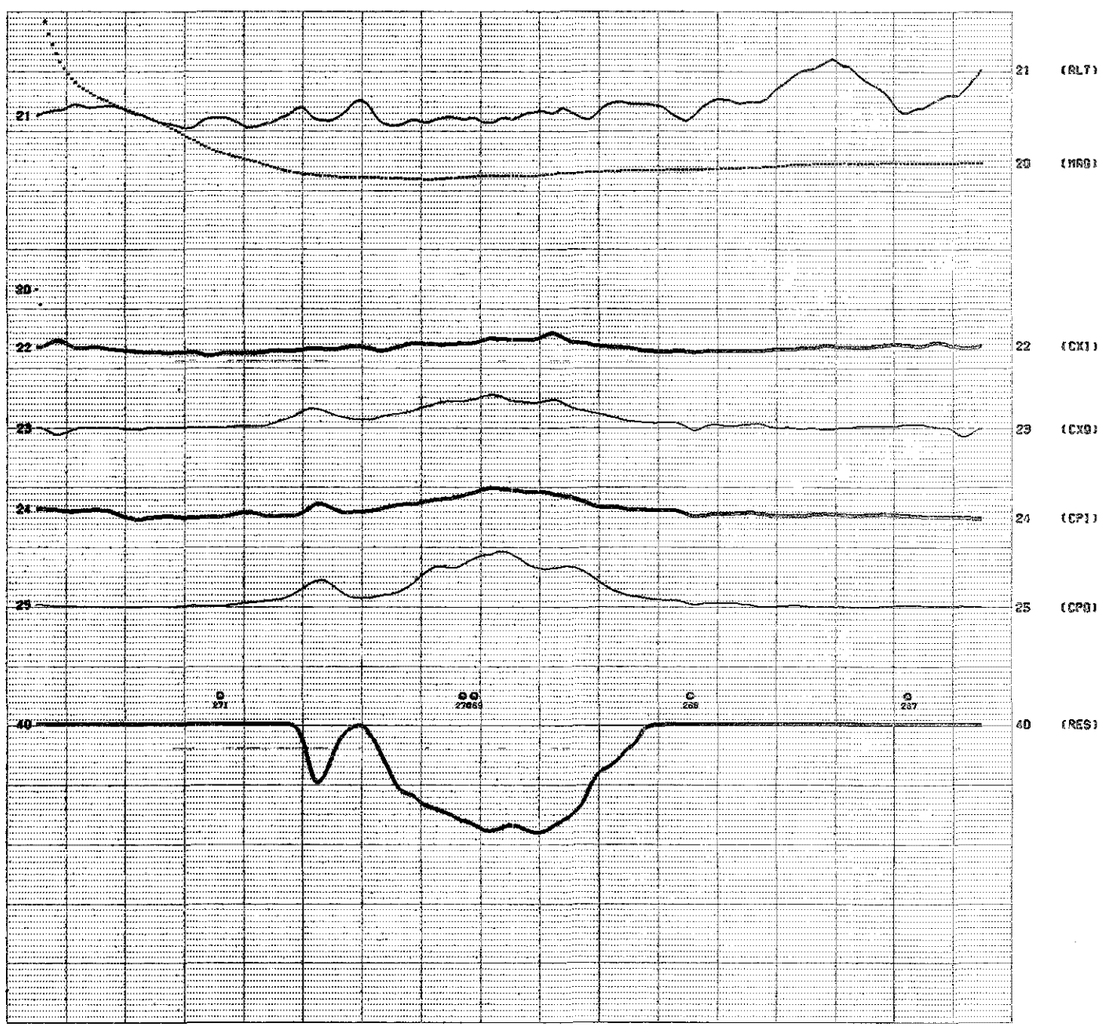
LINE -19 JOB: 326 SH4 1: 20000
PRELIMINARY



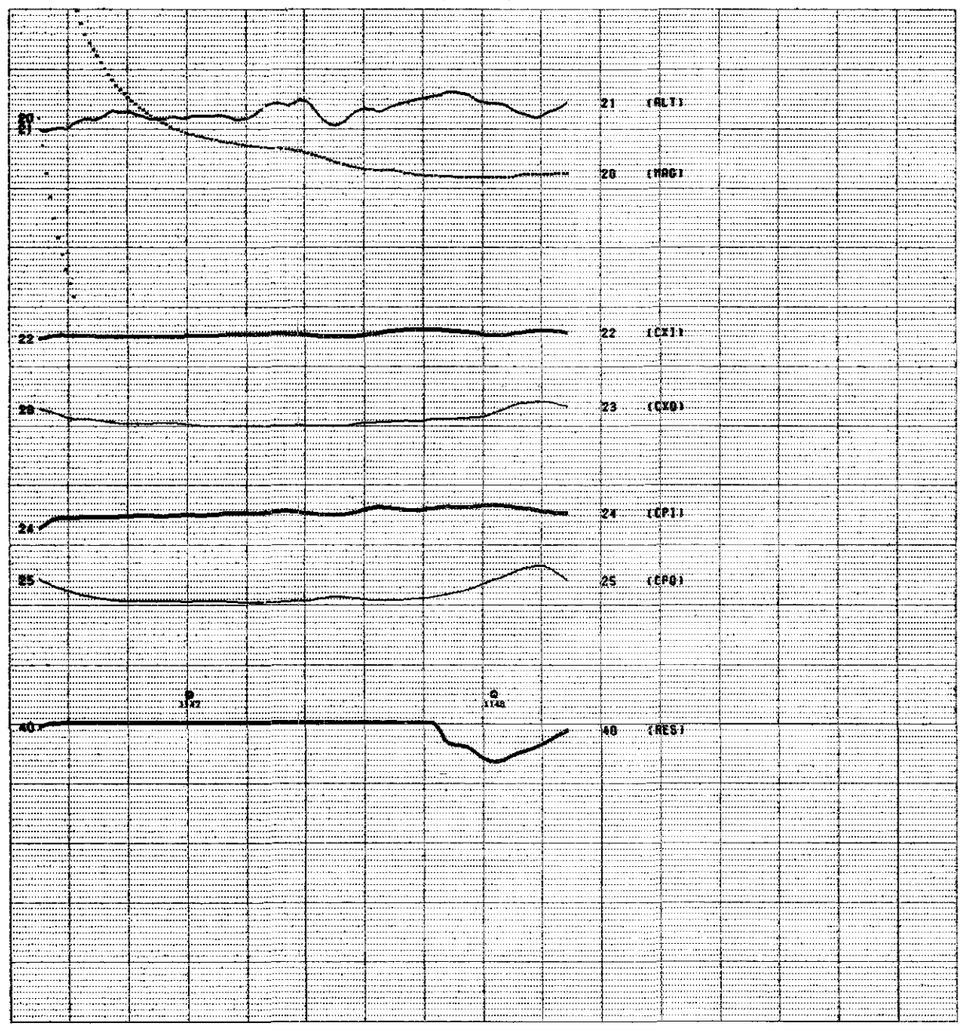
LINE -2100 JOB: 326 SH4 1: 20000
PRELIMINARY



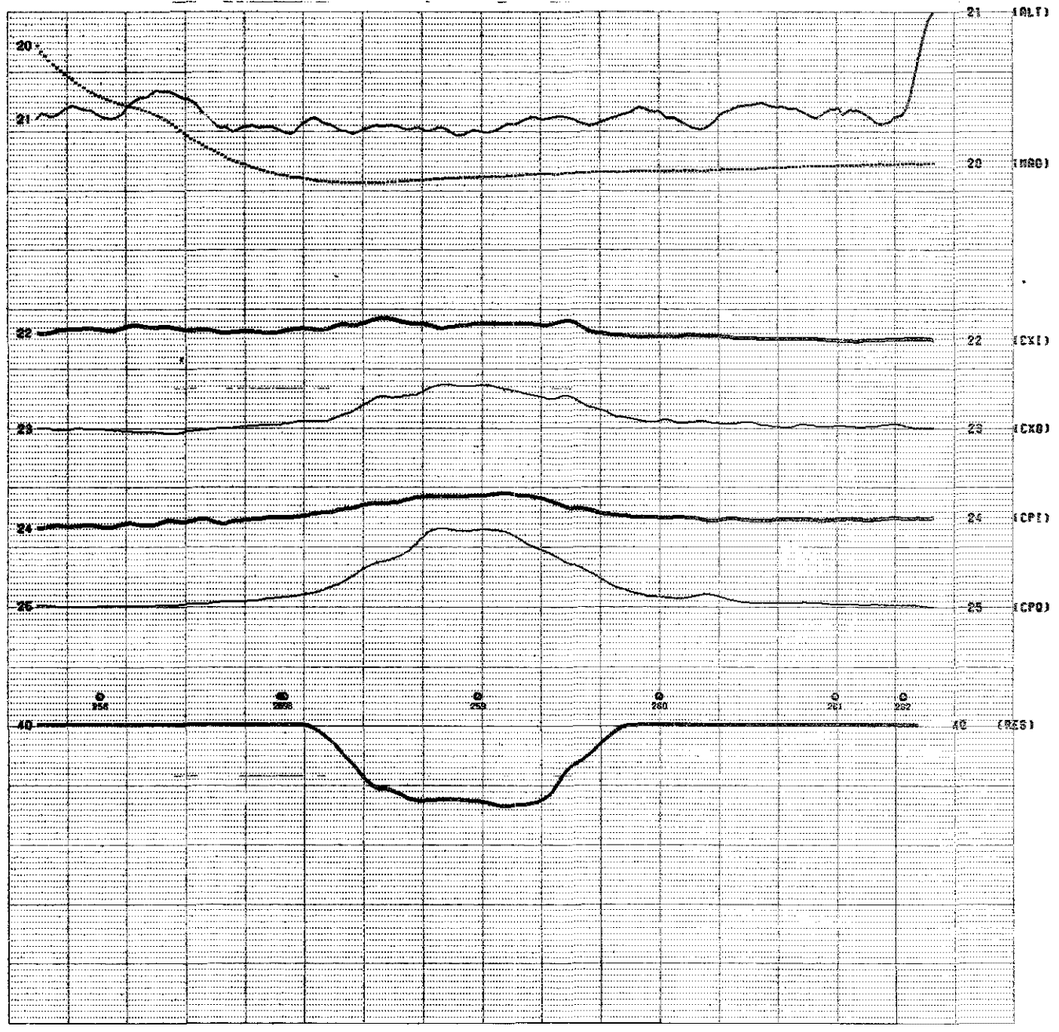
LINE 18 JOB: 326 SH4 1: 20000 LINE 18
PRELIMINARY



LINE -21 JOB: 326 SH4 1: 20000 LINE -21
PRELIMINARY

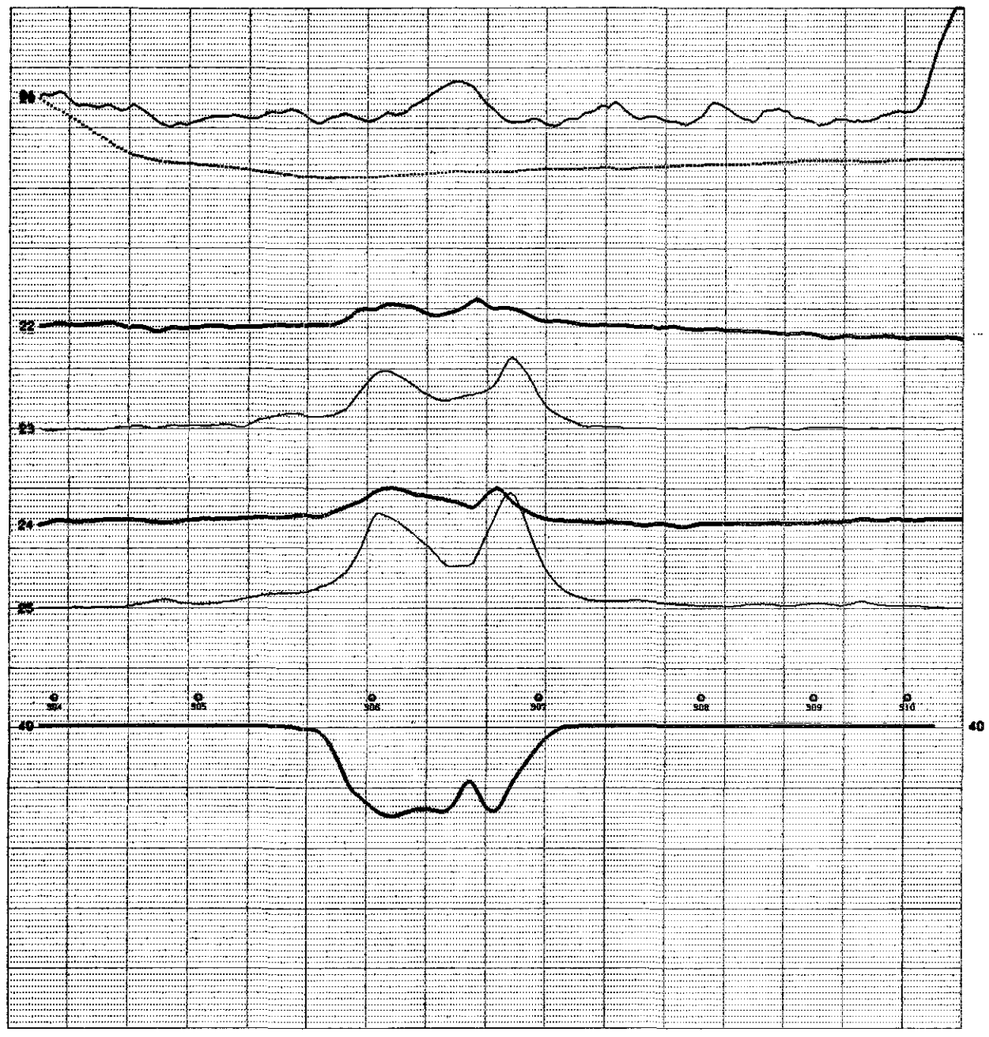


LINE 1700 JOB: 326 SH4 1: 20000
PRELIMINARY



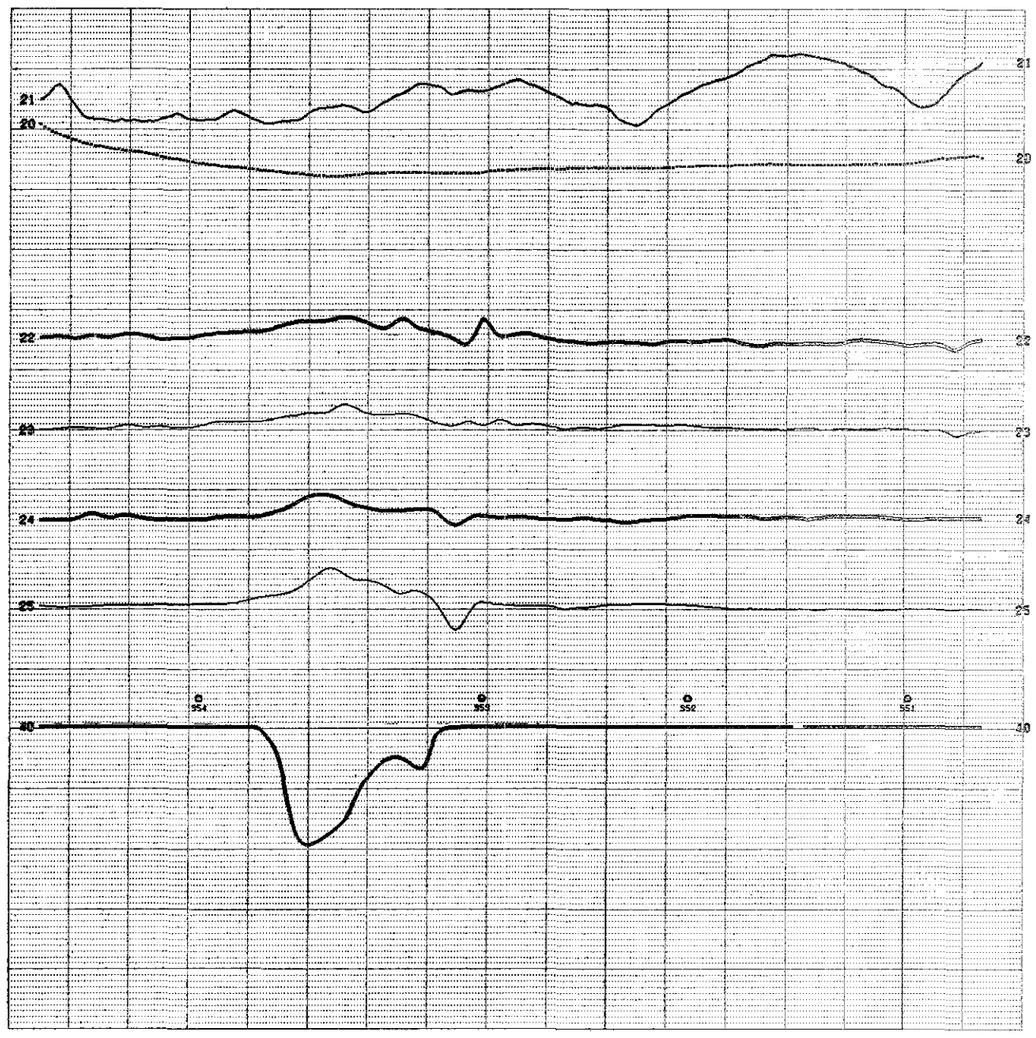
LINE 20 JOB: 326 SH4 1: 20000
PRELIMINARY

5 cm



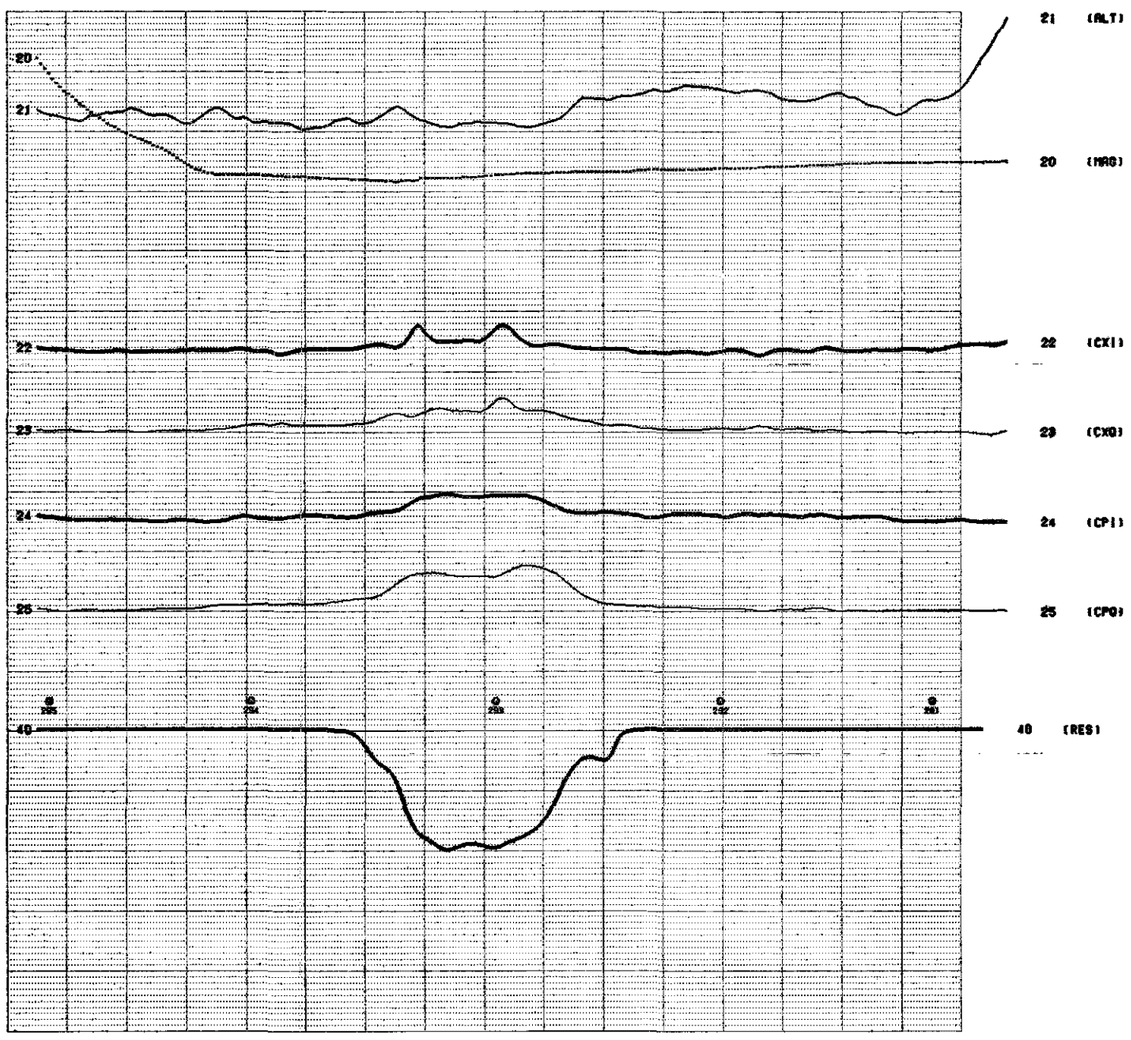
LINE 24 JOB: 326 SH4 1: 20000 LINE 24

PRELIMINARY



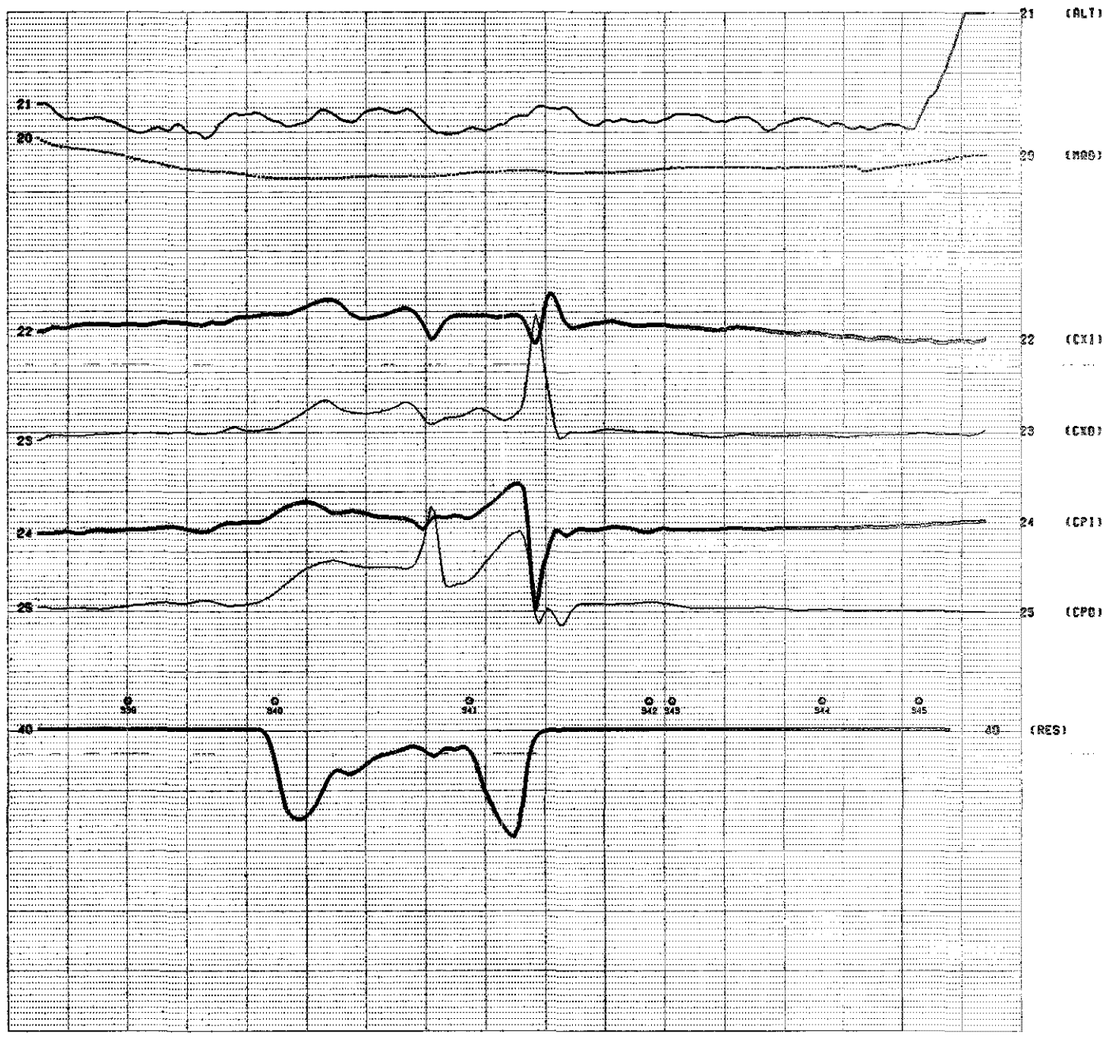
LINE -27 JOB: 326 SH4 1: 20000 LINE -27

PRELIMINARY



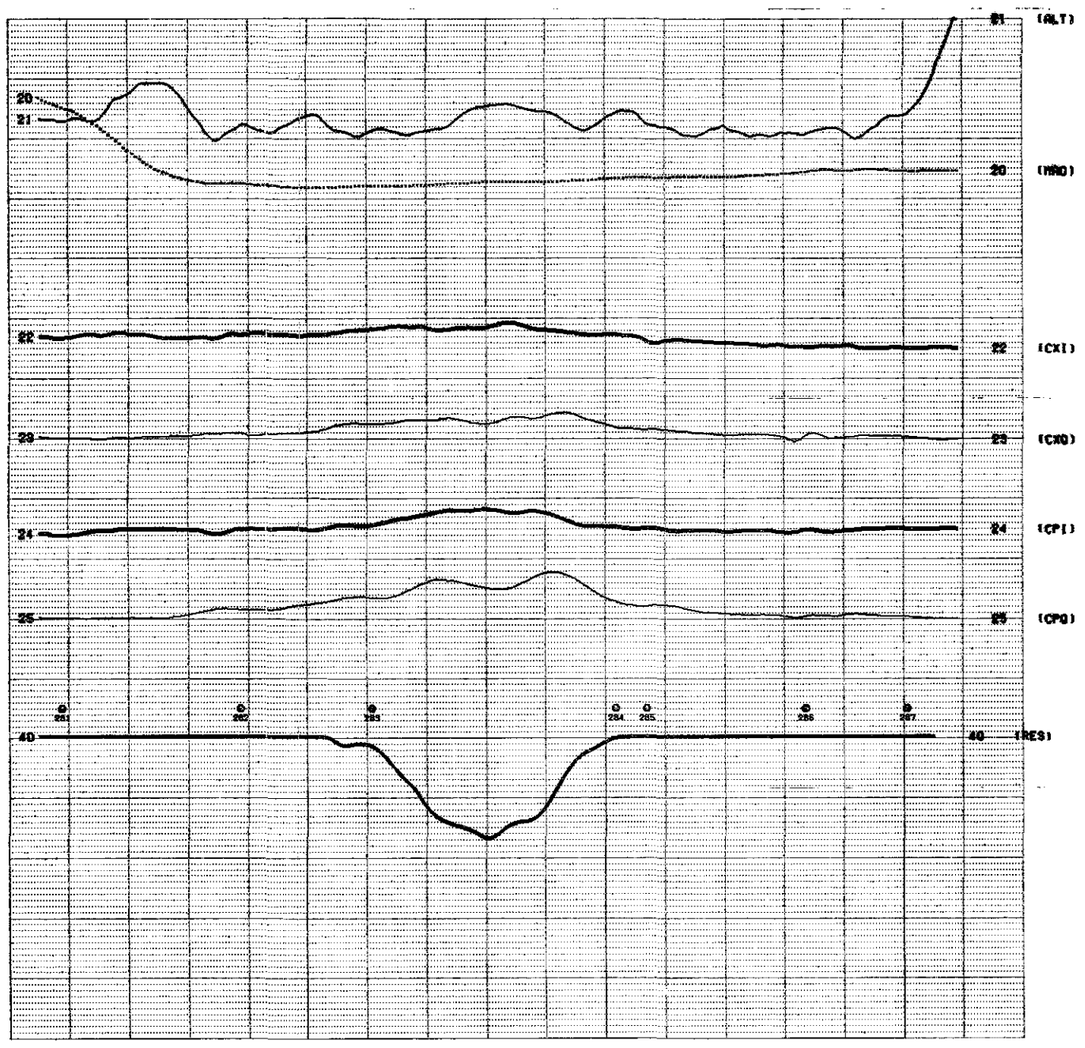
LINE -23 JOB: 326 SH4 1: 20000 LINE -23

PRELIMINARY



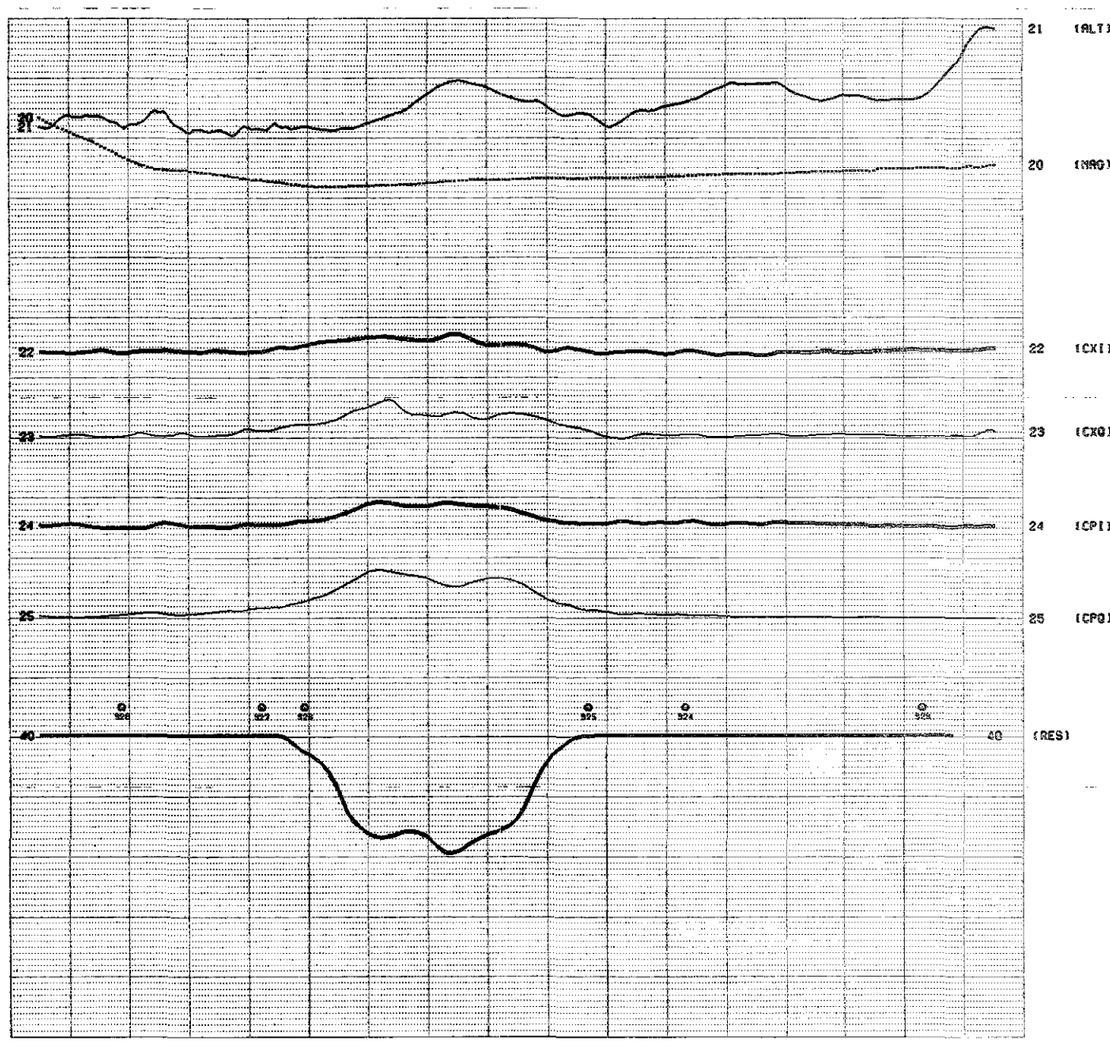
LINE 26 JOB: 326 SH4 1: 20000 LINE 26

PRELIMINARY



LINE 22 JOB: 326 SH4 1: 20000 LINE 22

PRELIMINARY

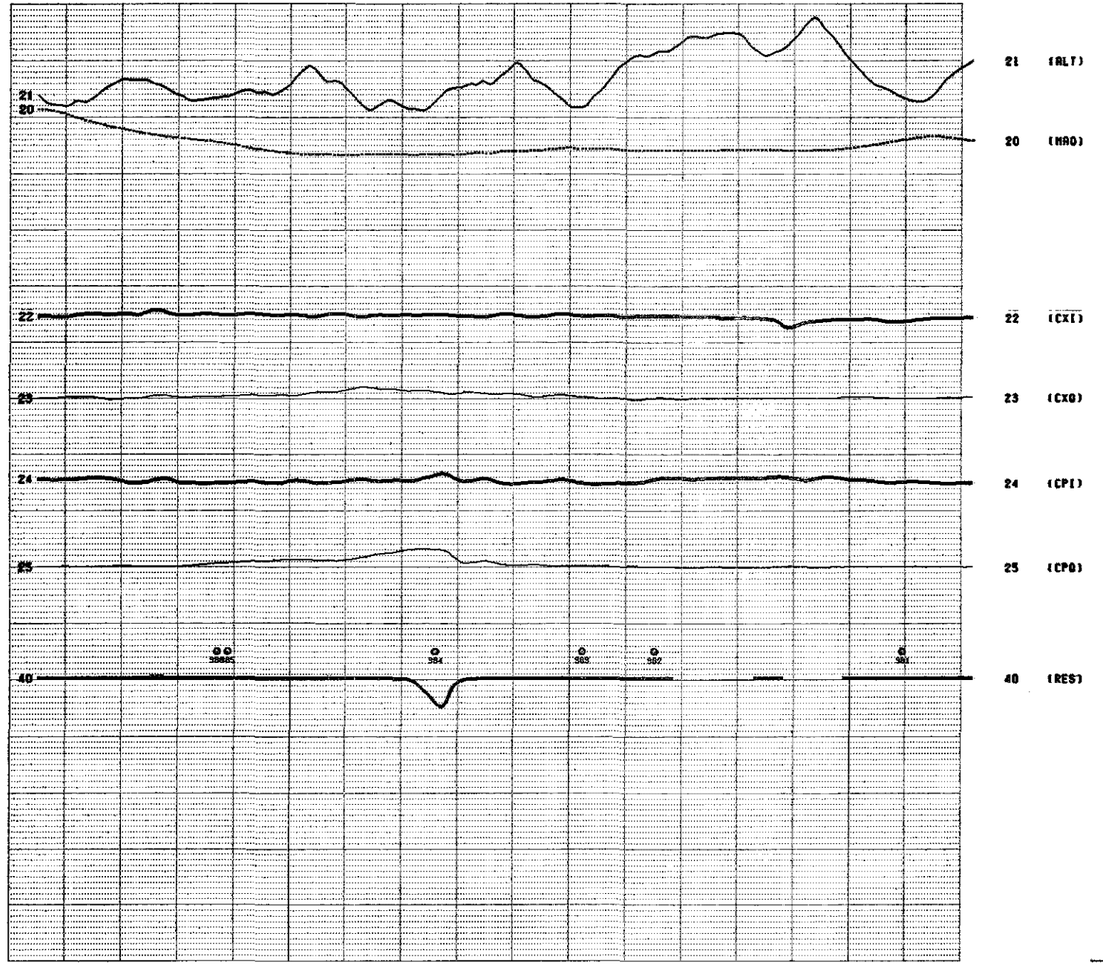


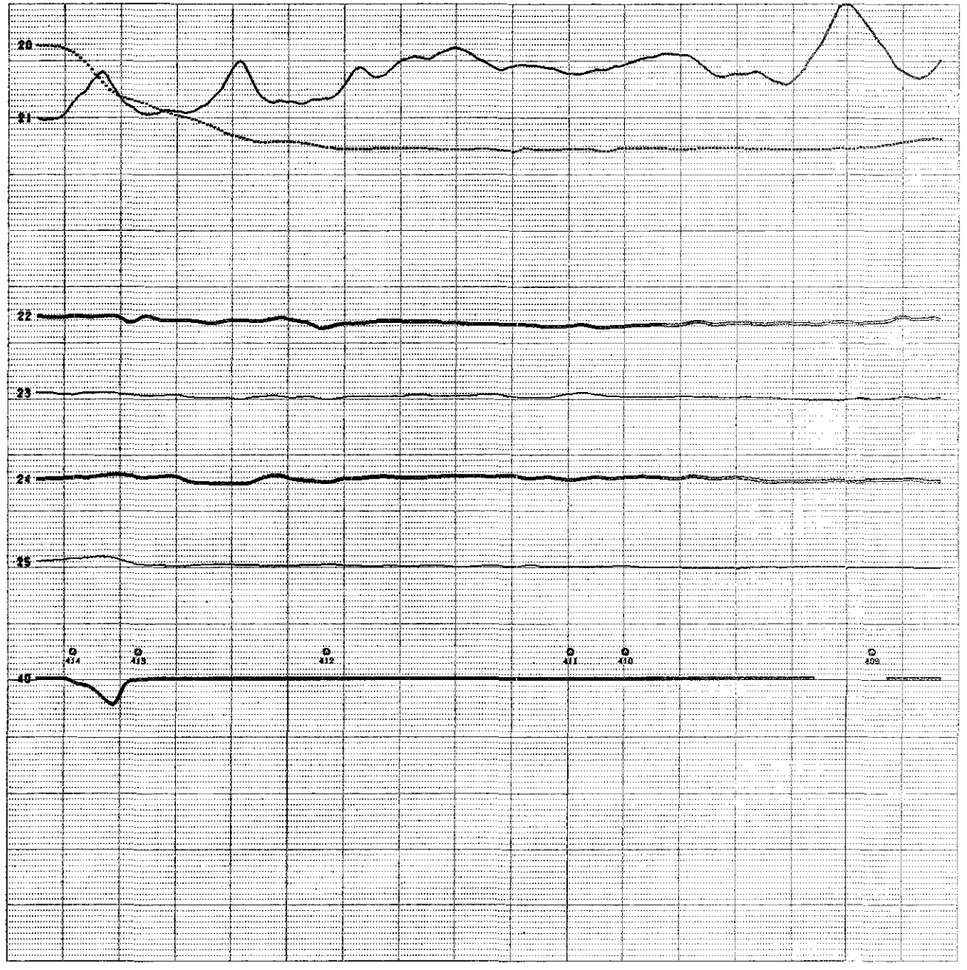
LINE -25 JOB: 326 SH4 1: 20000 LINE -25

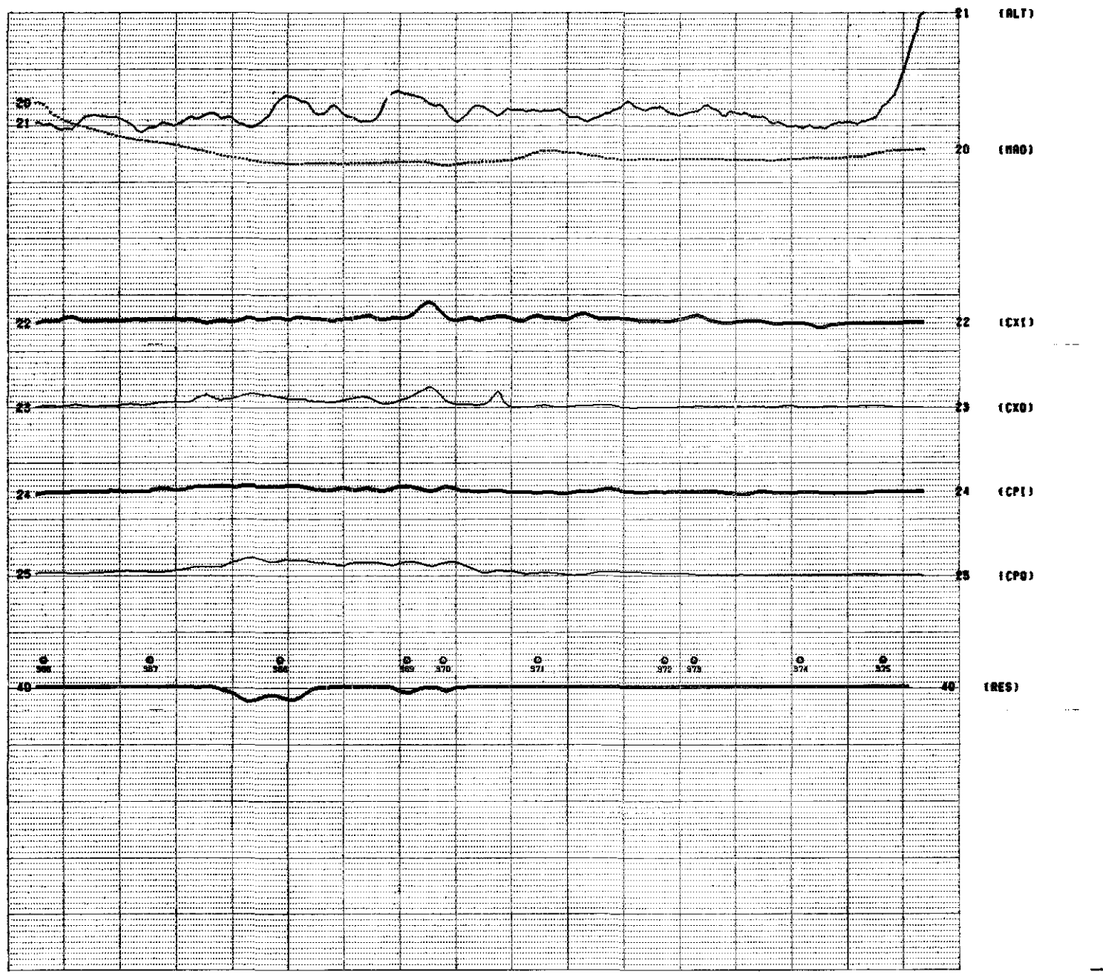
PRELIMINARY

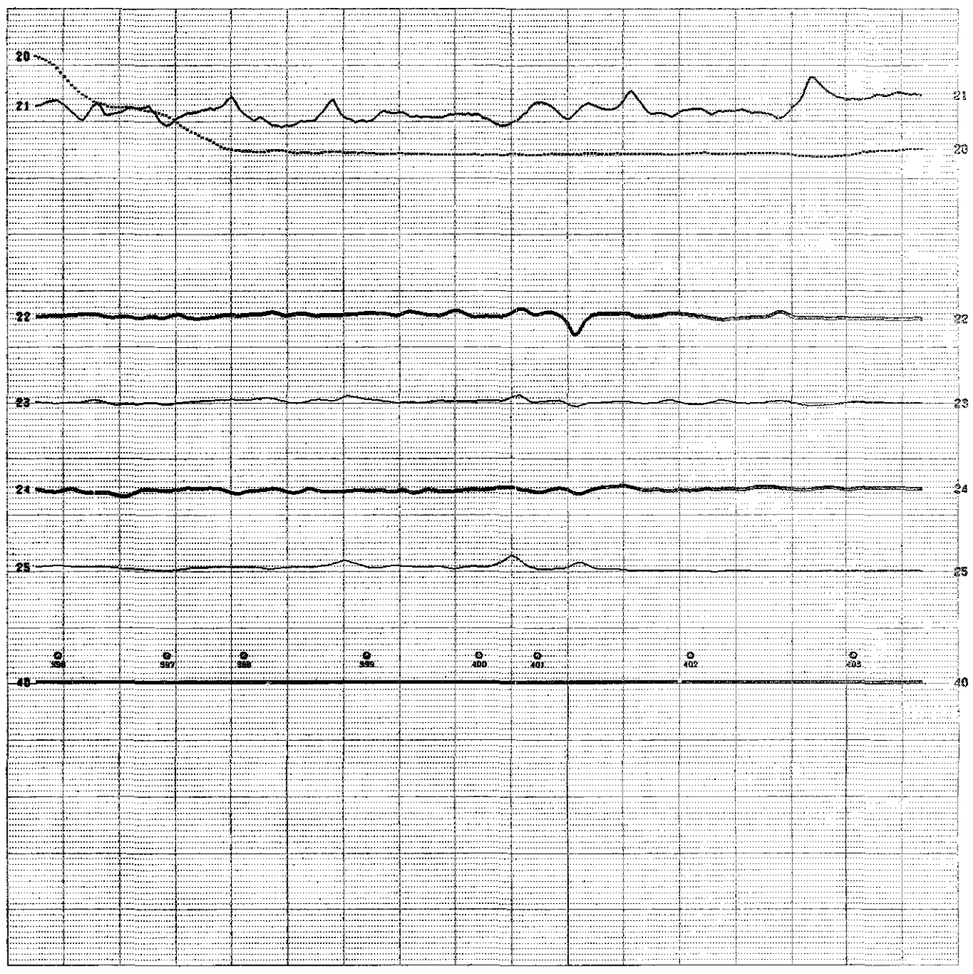
5 cm

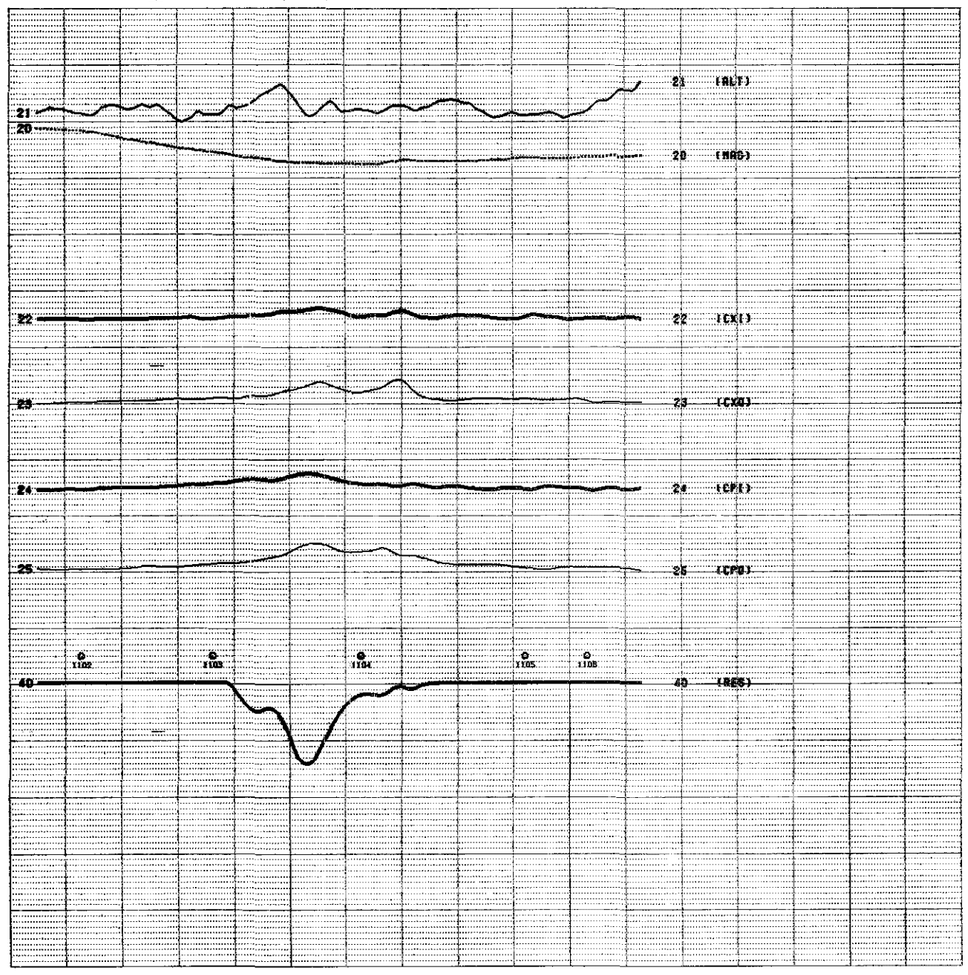
12.a


21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
40 (RES)
LINE -29 JOB: 326 SH4 1: 20000 LINE -29
PRELIMINARY


21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
40 (RES)
LINE -31 JOB: 326 SH4 1: 20000 LINE -31
PRELIMINARY

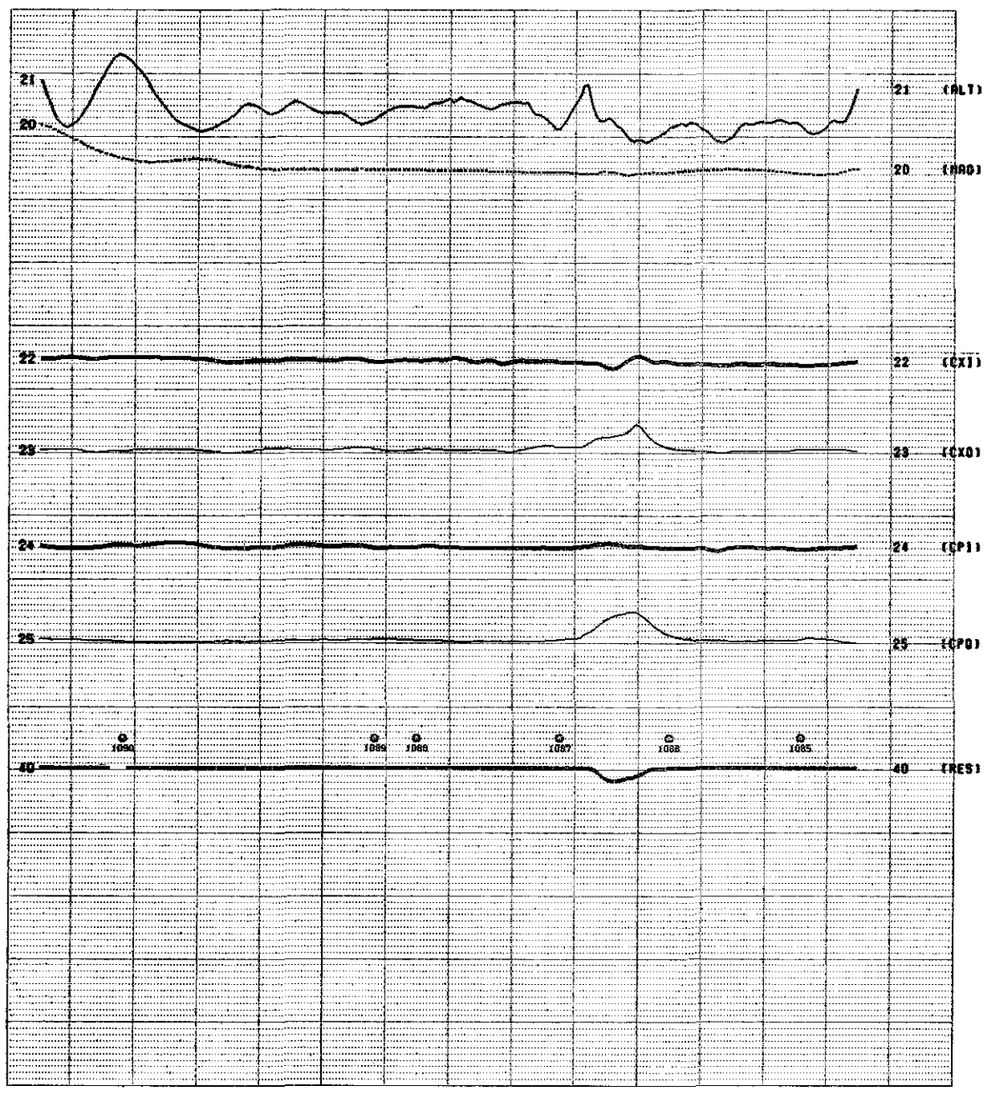

21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
40 (RES)
LINE 28 JOB: 326 SH4 1: 20000 LINE 28
PRELIMINARY


21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
40 (RES)
LINE 30 JOB: 326 SH4 1: 20000 LINE 30
PRELIMINARY

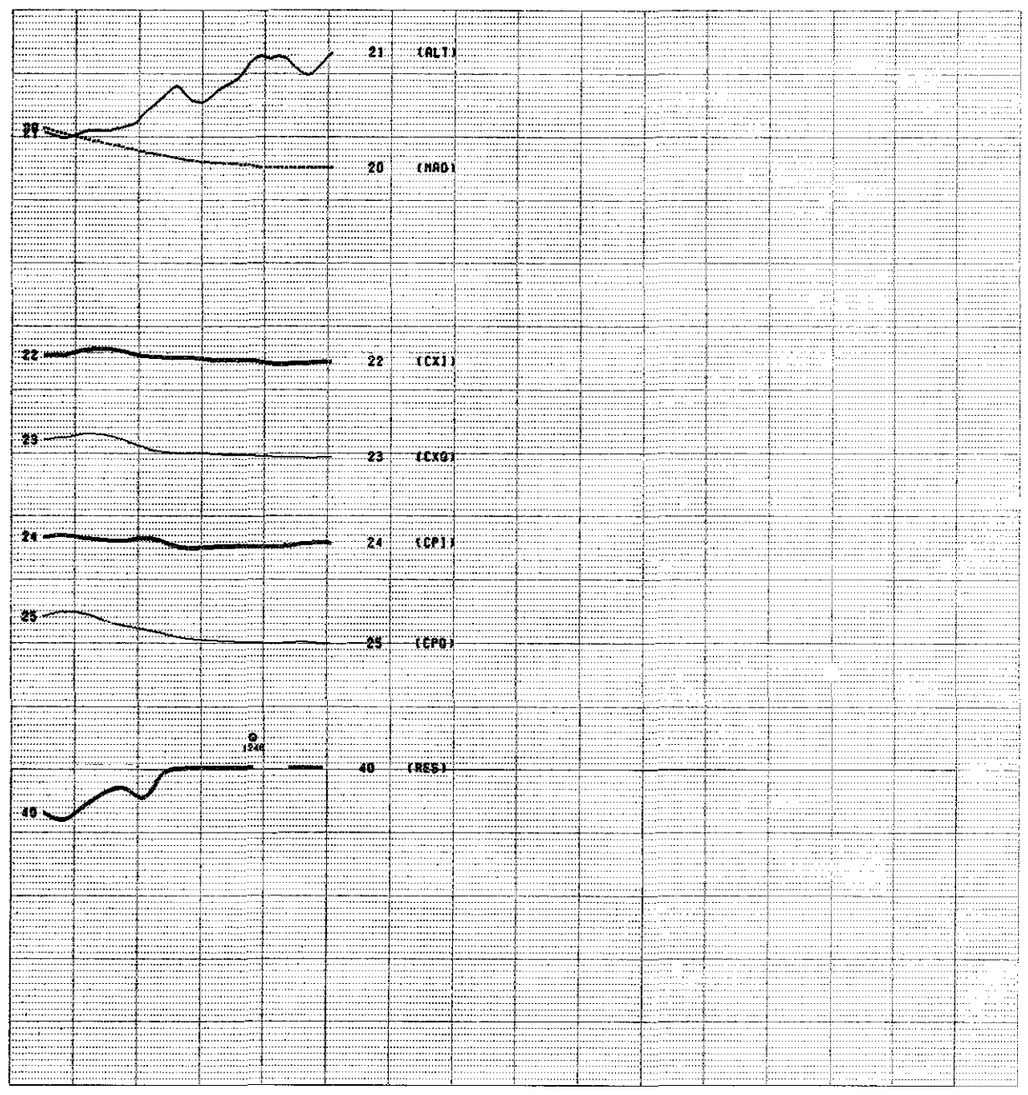

21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
40 (RES)
LINE 2700 JOB: 326 SH4 1: 20000
PRELIMINARY


21 (ALT)
20 (MAG)
22 (CXI)
23 (CXQ)
24 (CPI)
25 (CPQ)
40 (RES)
LINE -2900 JOB: 326 SH4 1: 20000
PRELIMINARY
5 cm

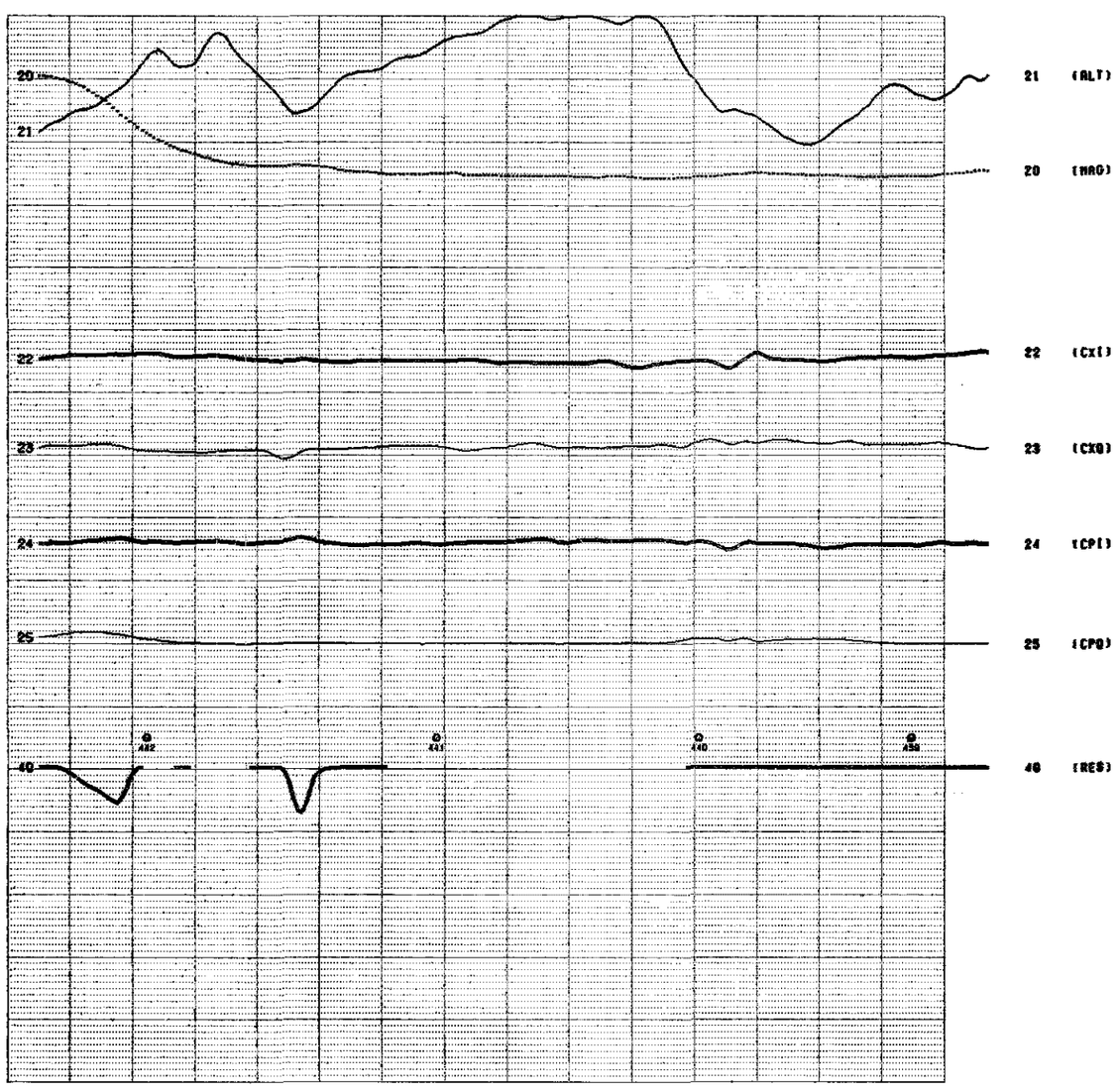
'22b



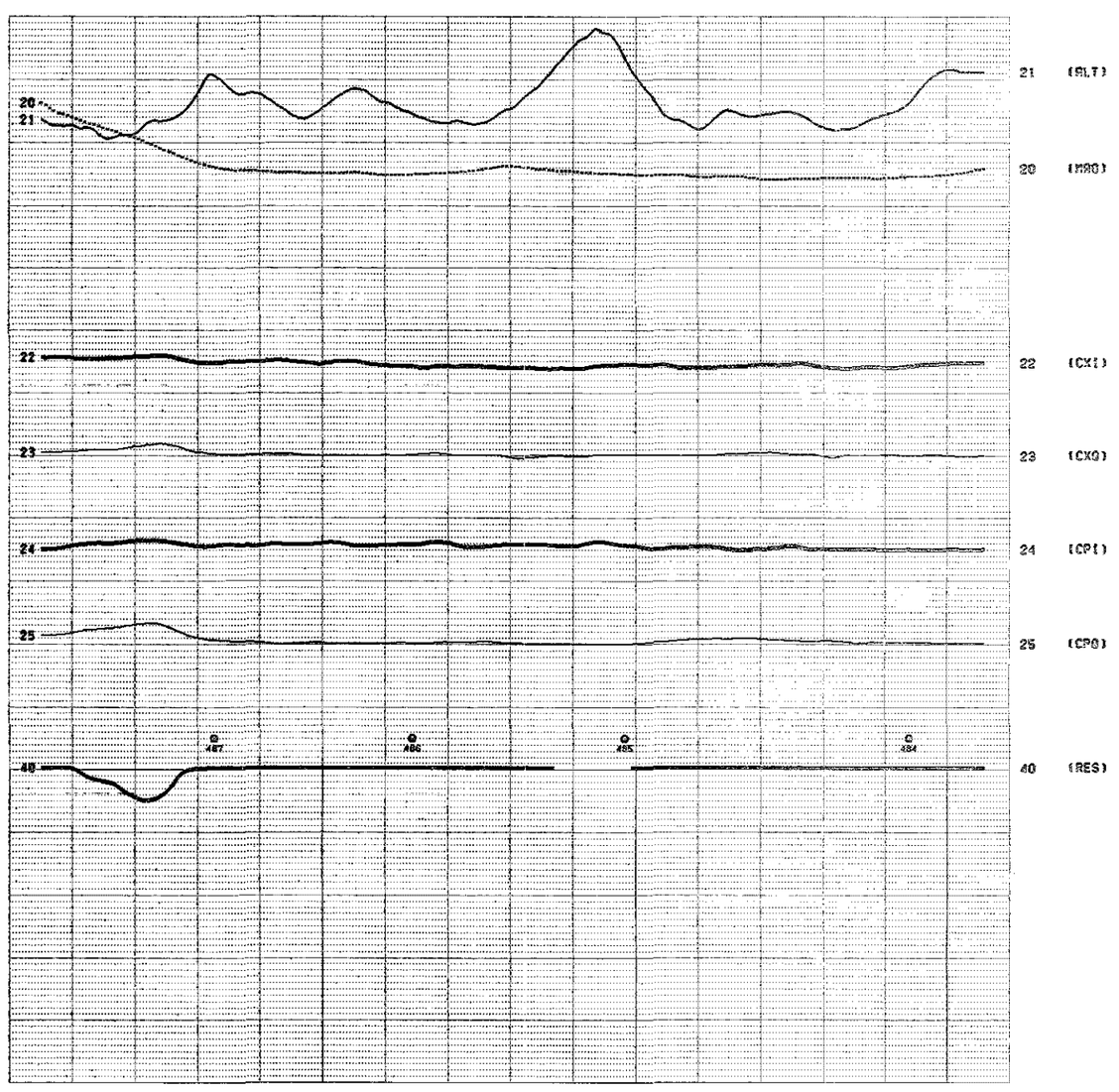
LINE -3300 JOB: 326 SH4 1: 20000
PRELIMINARY



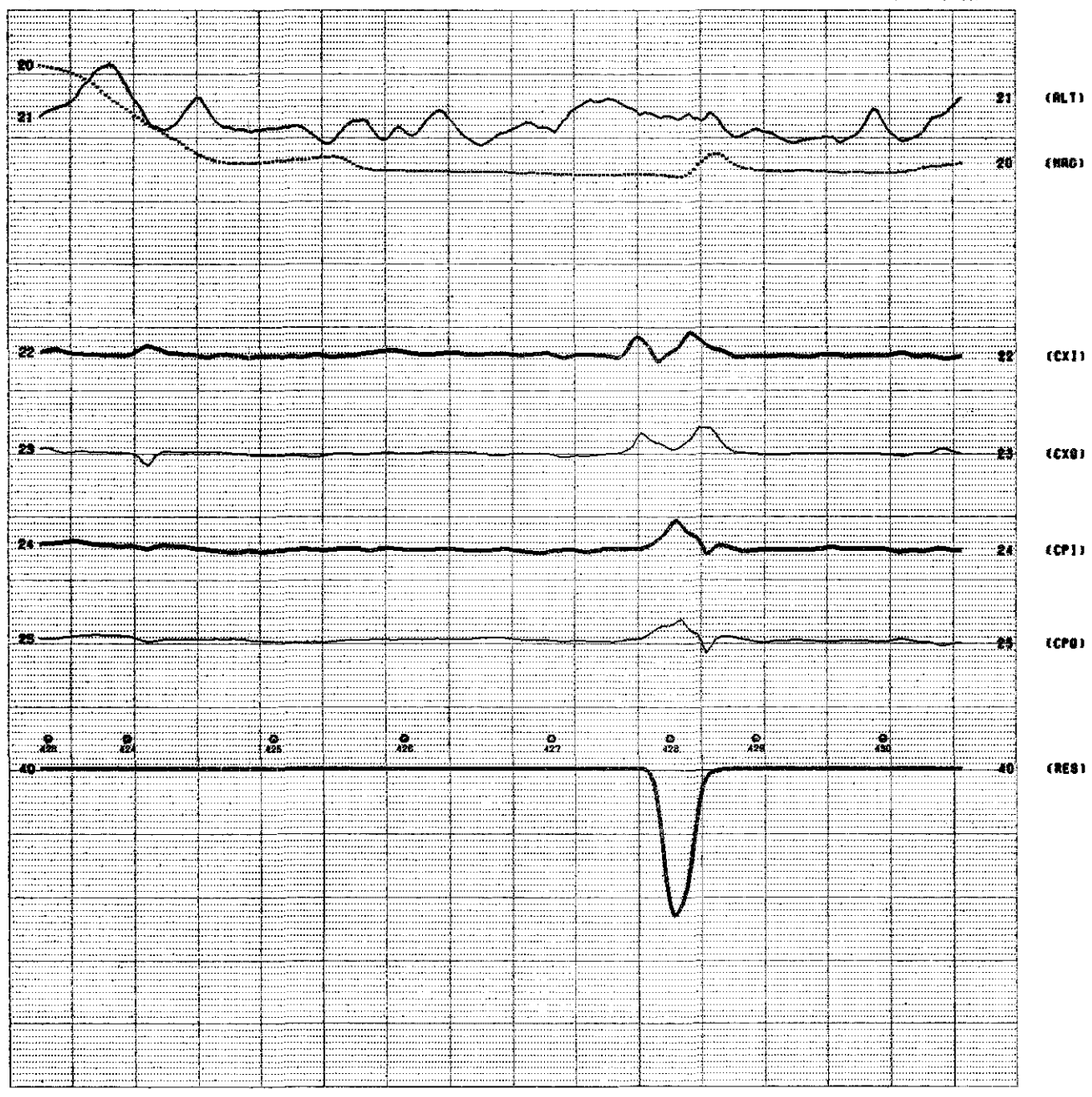
LINE -3500 JOB: 326 SH4 1: 20000
PRELIMINARY



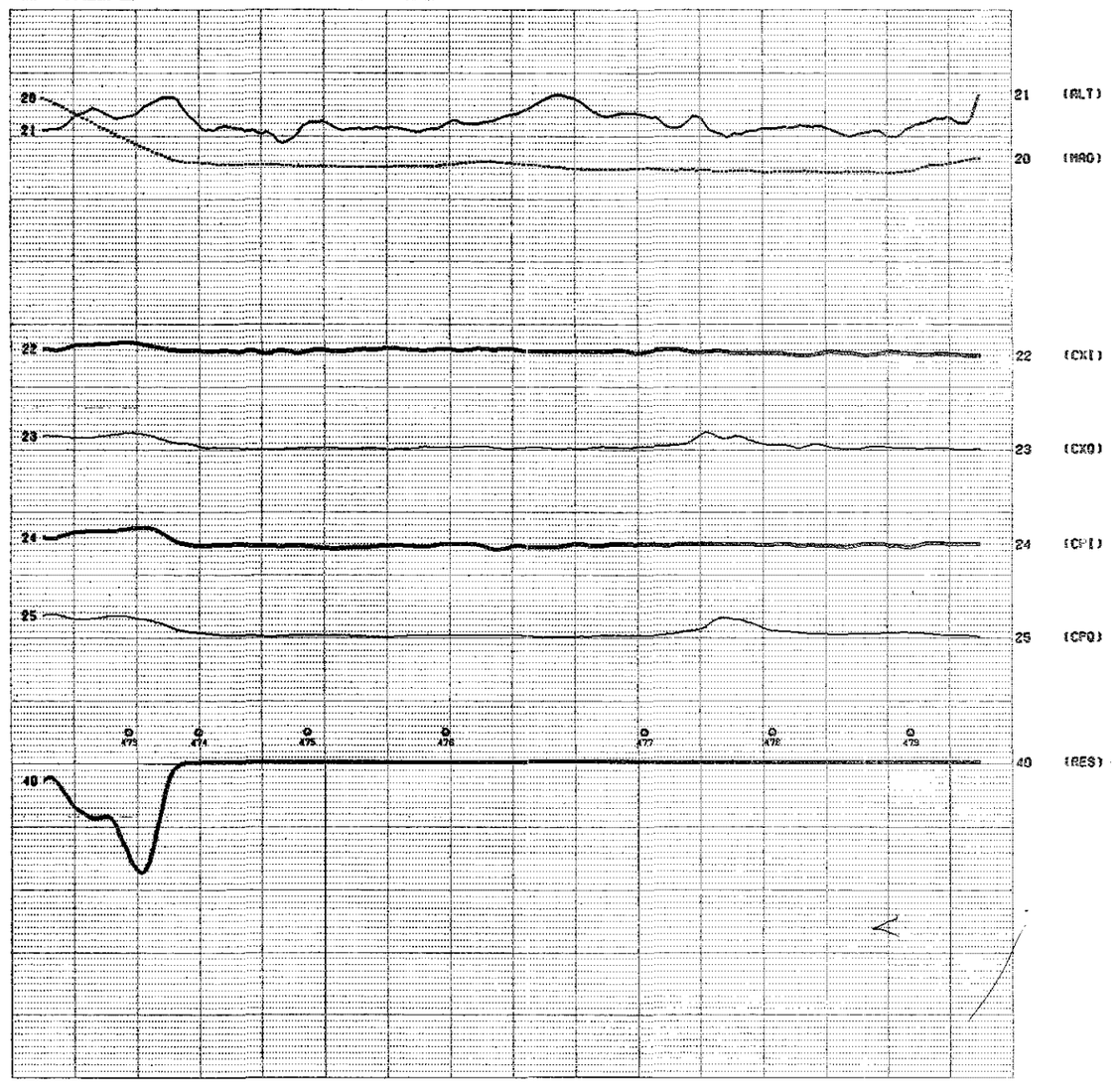
LINE -33 JOB: 326 SH4 1: 20000
PRELIMINARY



LINE -35 JOB: 326 SH4 1: 20000
PRELIMINARY



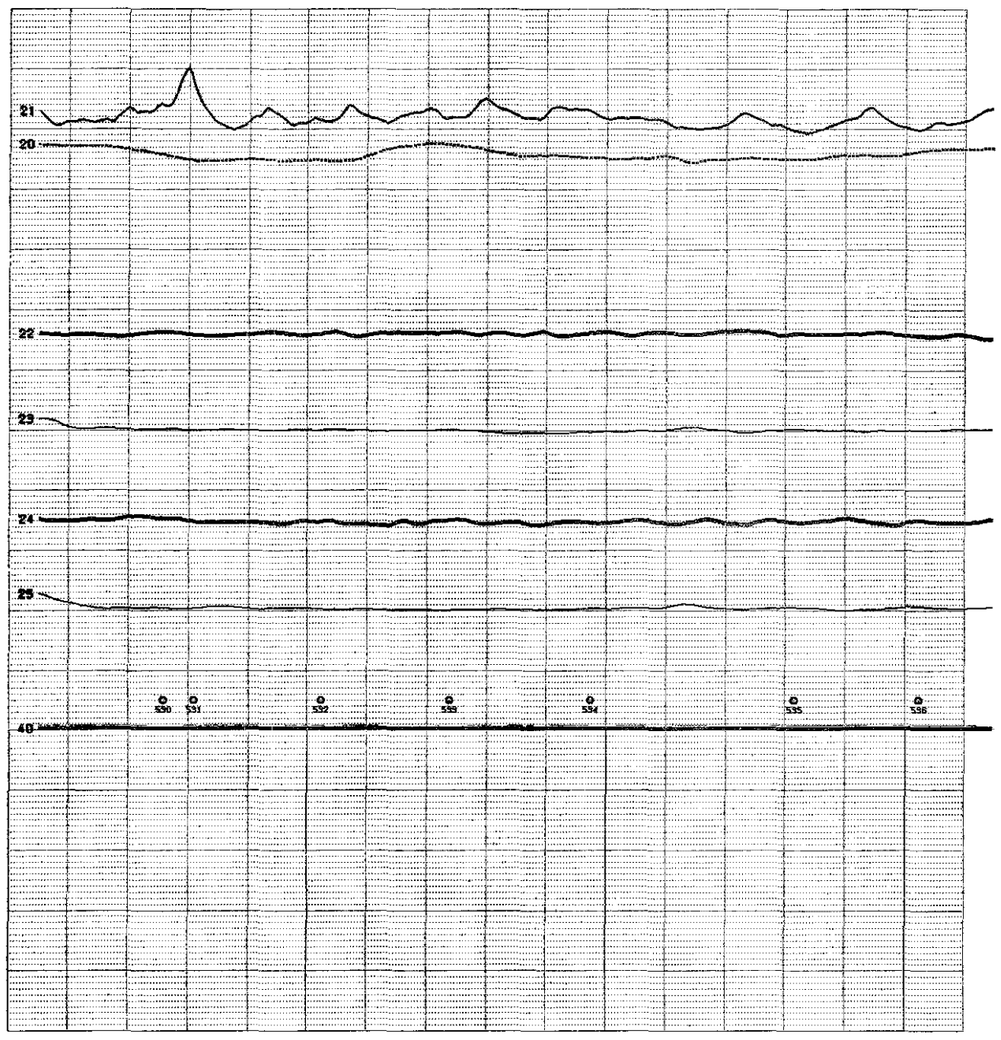
LINE 32 JOB: 326 SH4 1: 20000
PRELIMINARY

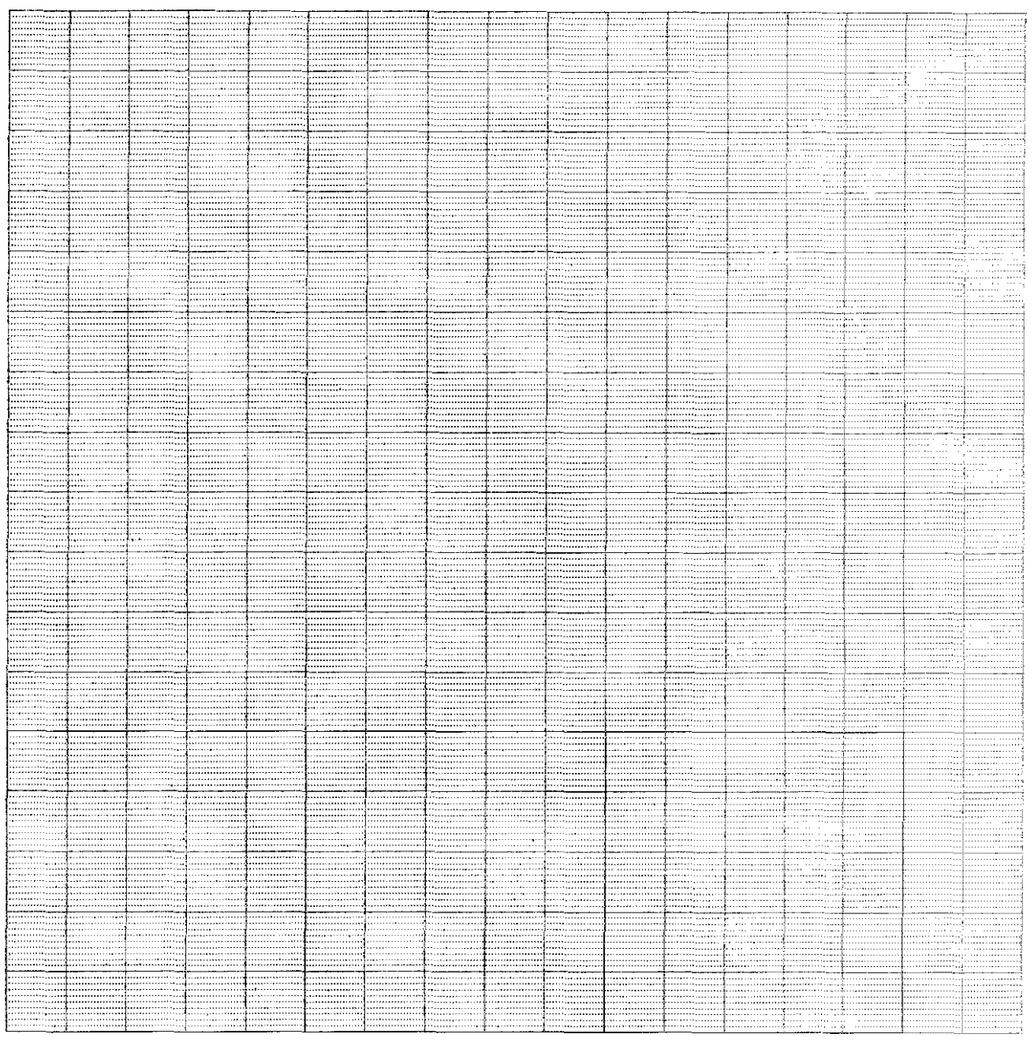


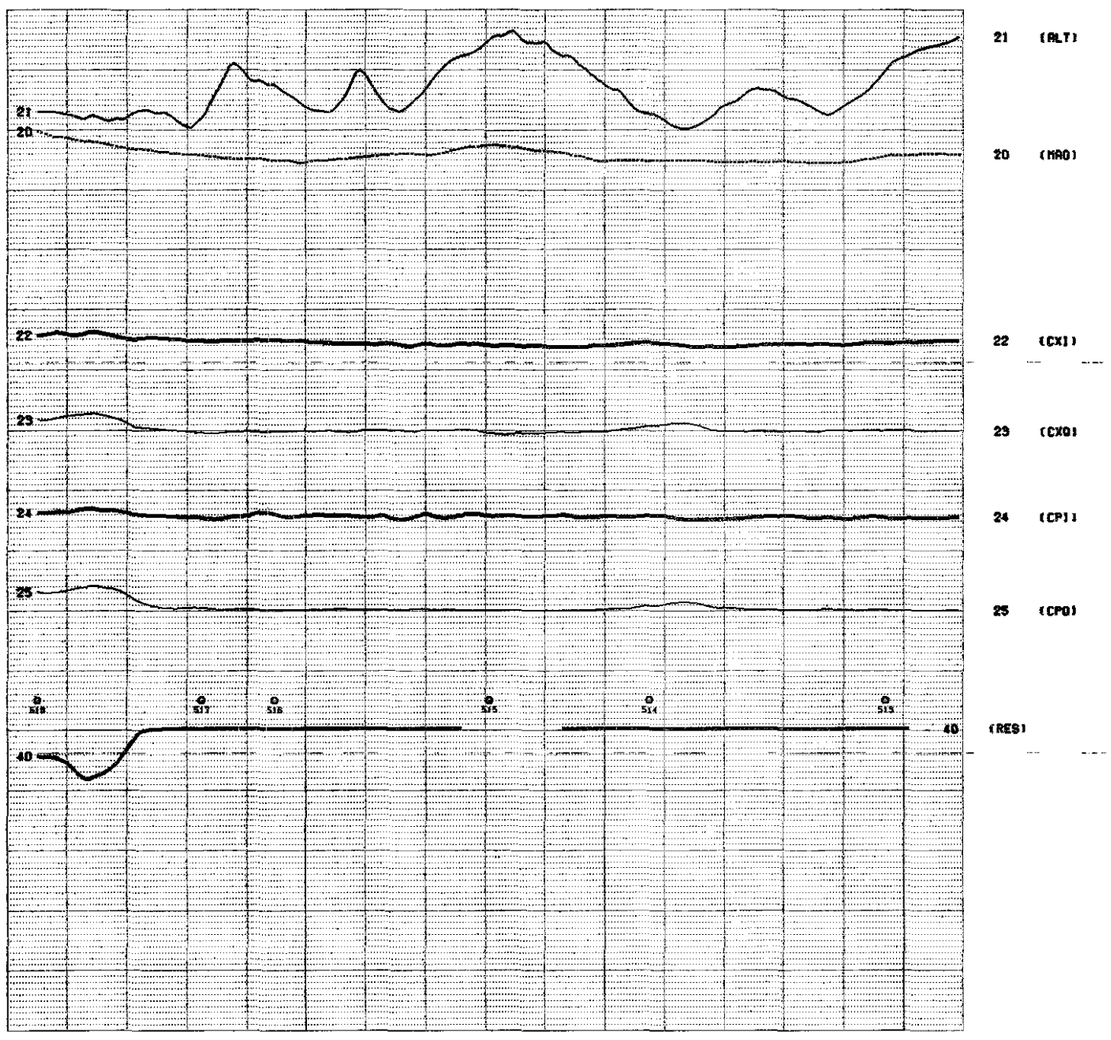
LINE 34 JOB: 326 SH4 1: 20000
PRELIMINARY

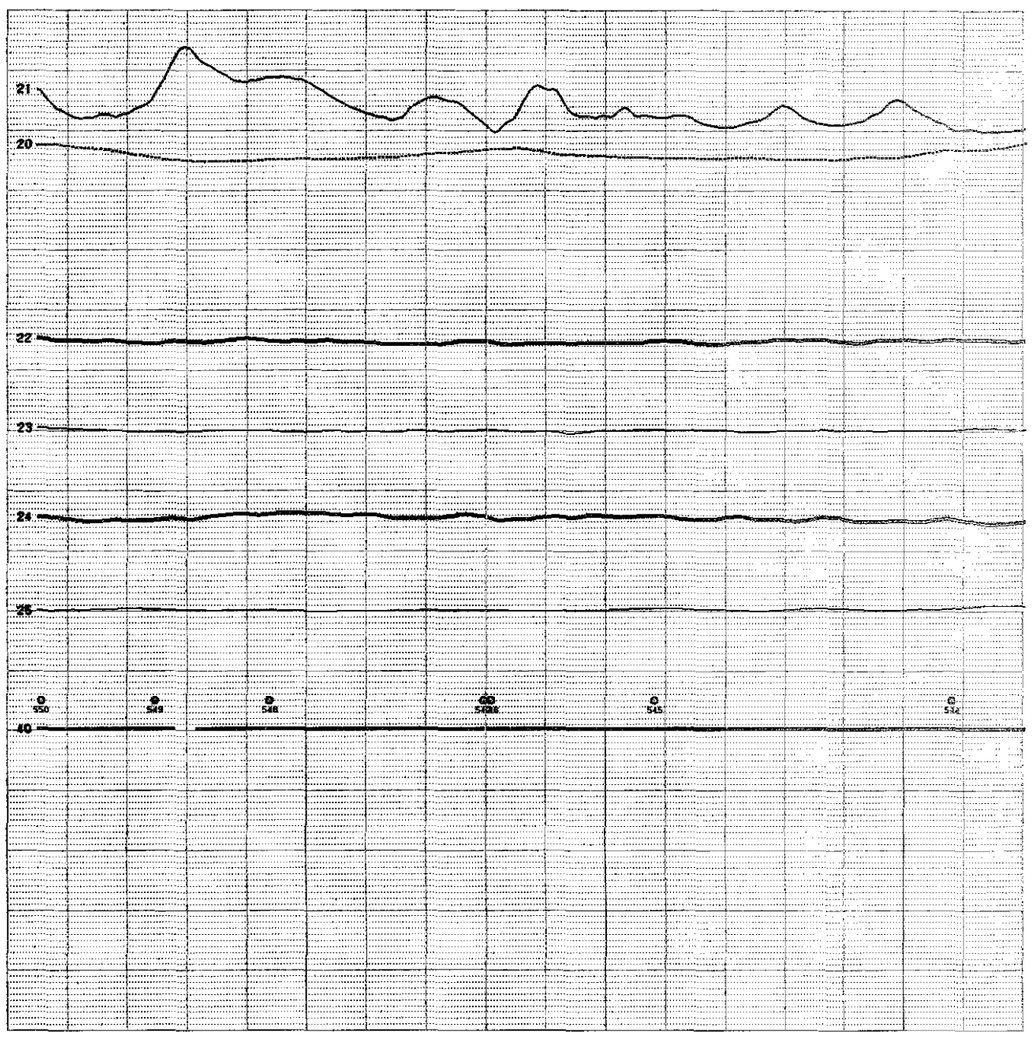
5 cm

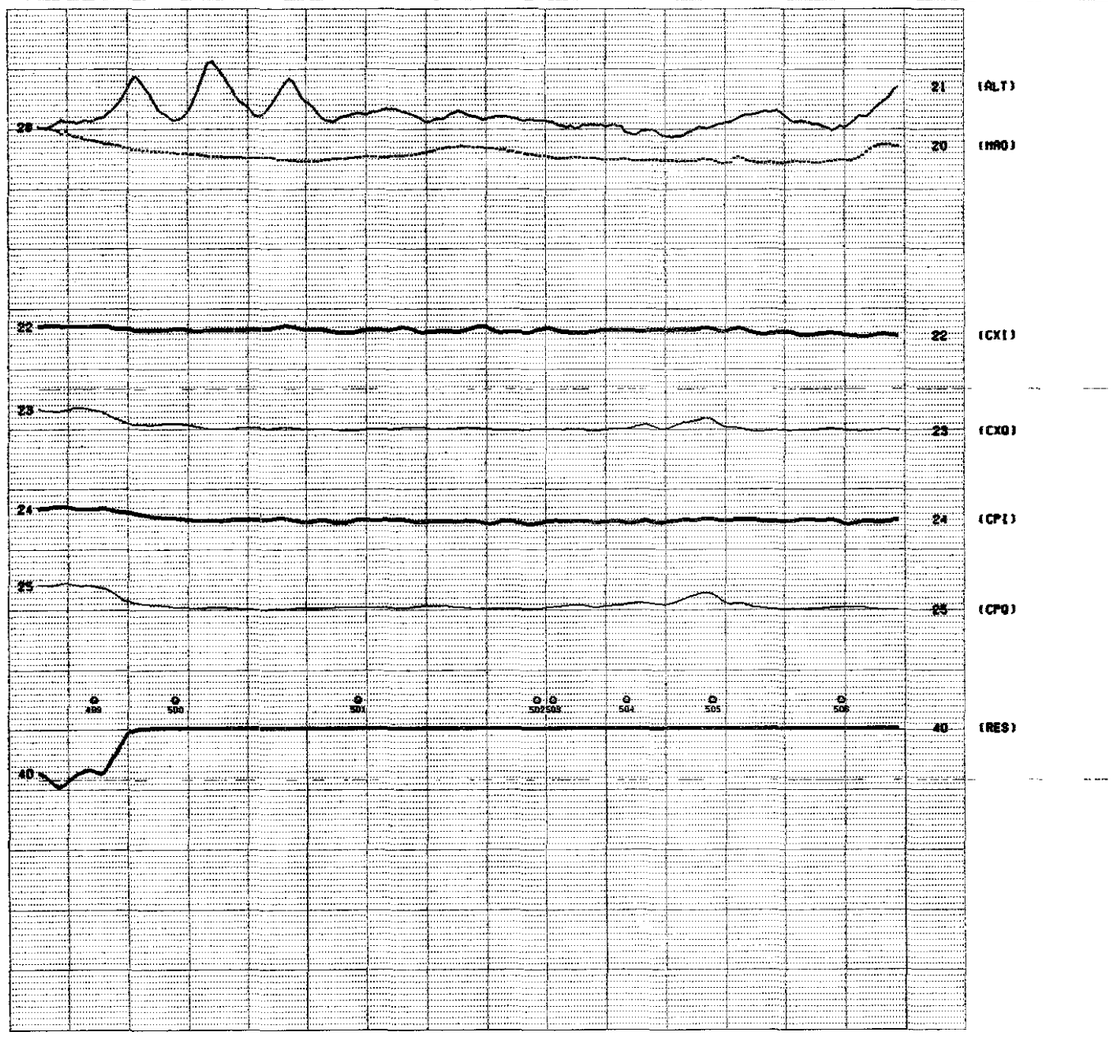
22c

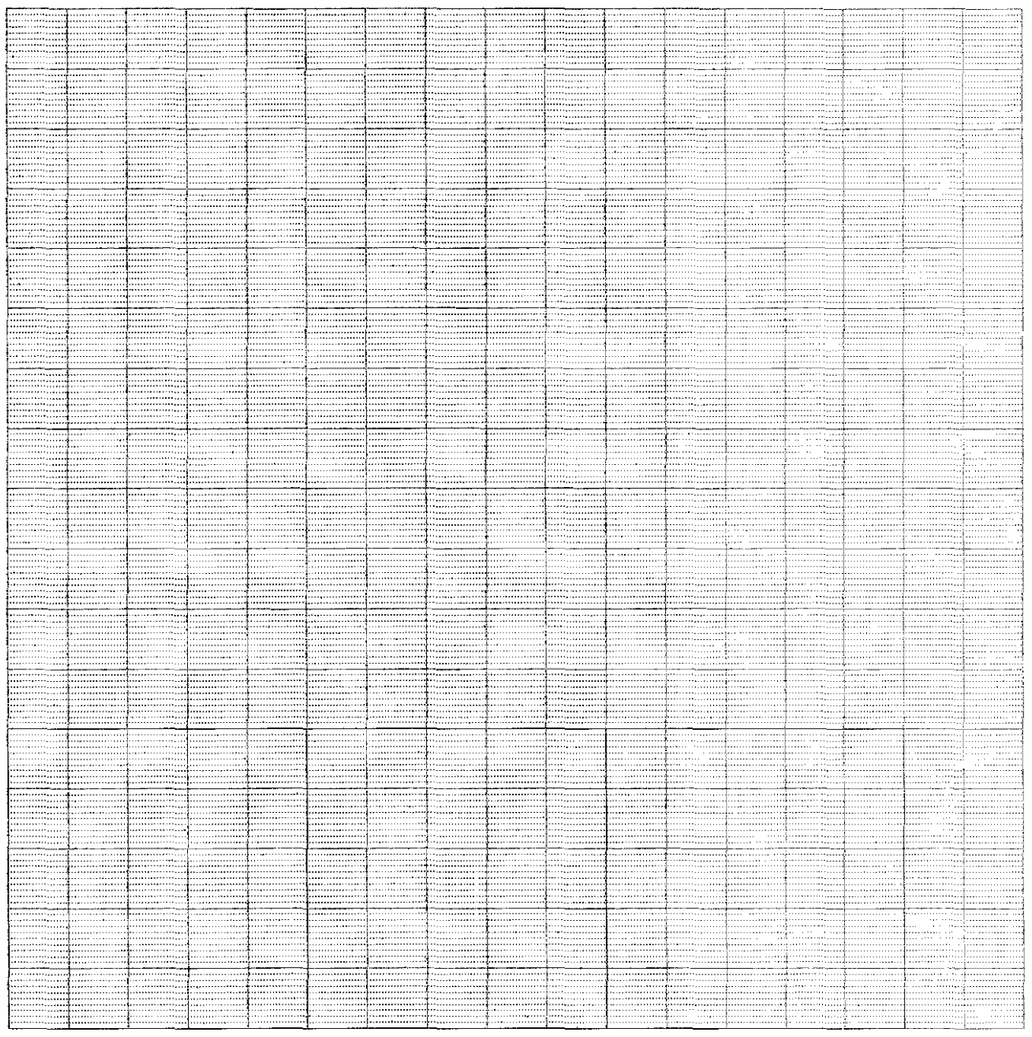

21 (ALT)
20 (MAO)
22 (CXI)
23 (CXO)
24 (CPI)
25 (CPO)
40 (RES)
LINE 38 JOB: 326 SH4 1: 20000 LINE 38
PRELIMINARY


LINE -3900

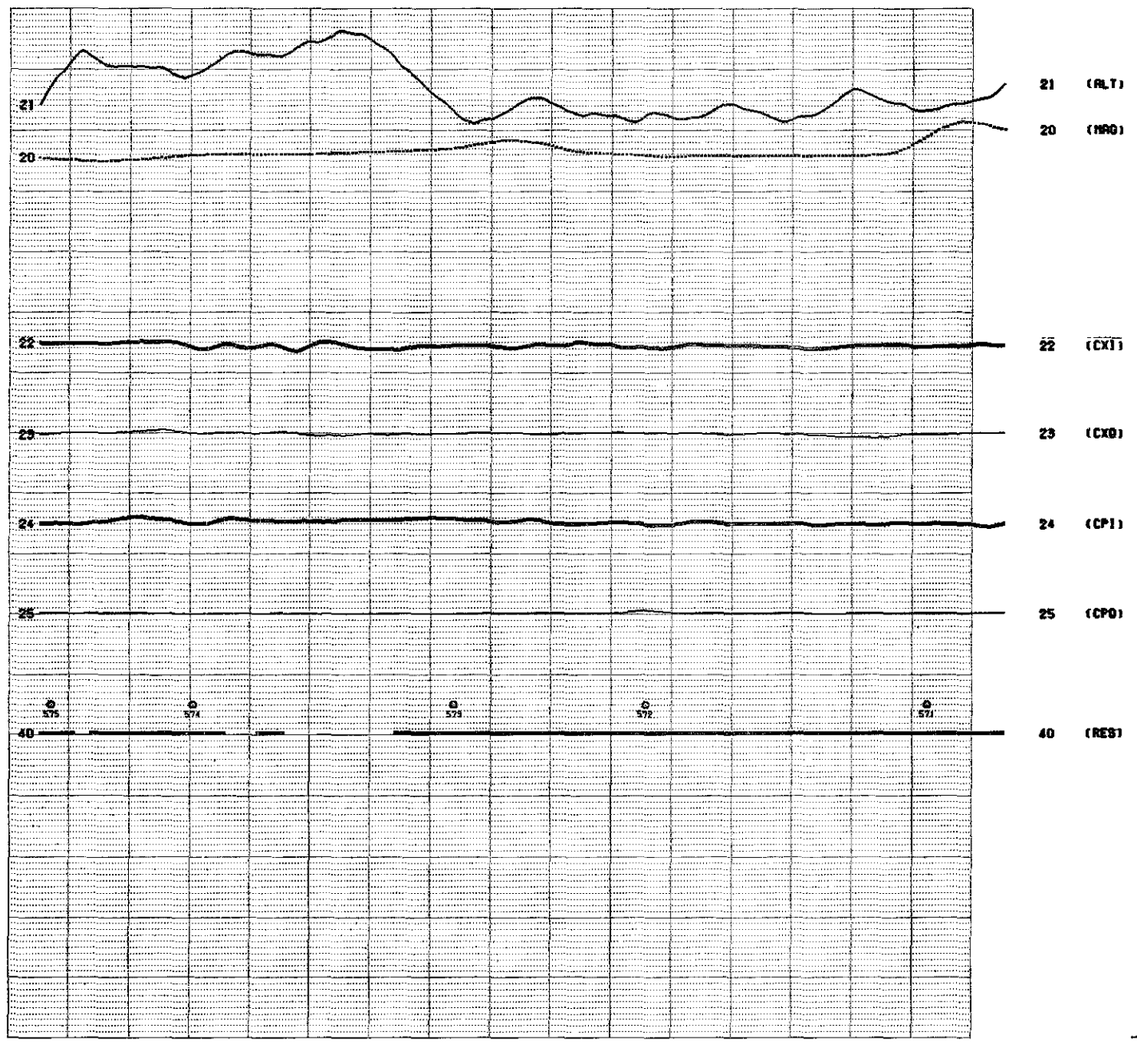

21 (ALT)
20 (MAO)
22 (CXI)
23 (CXO)
24 (CPI)
25 (CPO)
40 (RES)
LINE -37 JOB: 326 SH4 1: 20000 LINE -37
PRELIMINARY


21 (ALT)
20 (MAO)
22 (CXI)
23 (CXO)
24 (CPI)
25 (CPO)
40 (RES)
LINE -39 JOB: 326 SH4 1: 20000 LINE -39
PRELIMINARY


21 (ALT)
20 (MAO)
22 (CXI)
23 (CXO)
24 (CPI)
25 (CPO)
40 (RES)
LINE 36 JOB: 326 SH4 1: 20000
PRELIMINARY

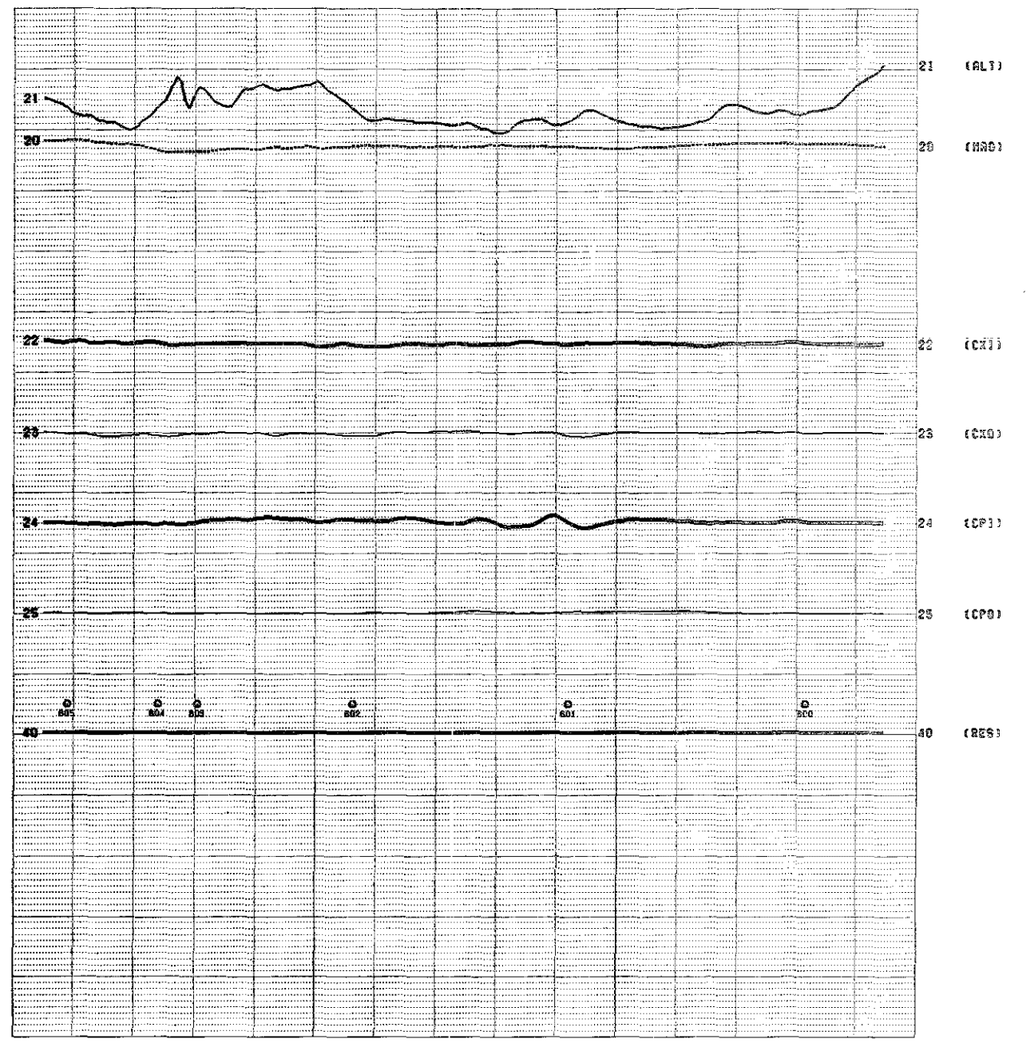

LINE 3900
5 cm

22.d



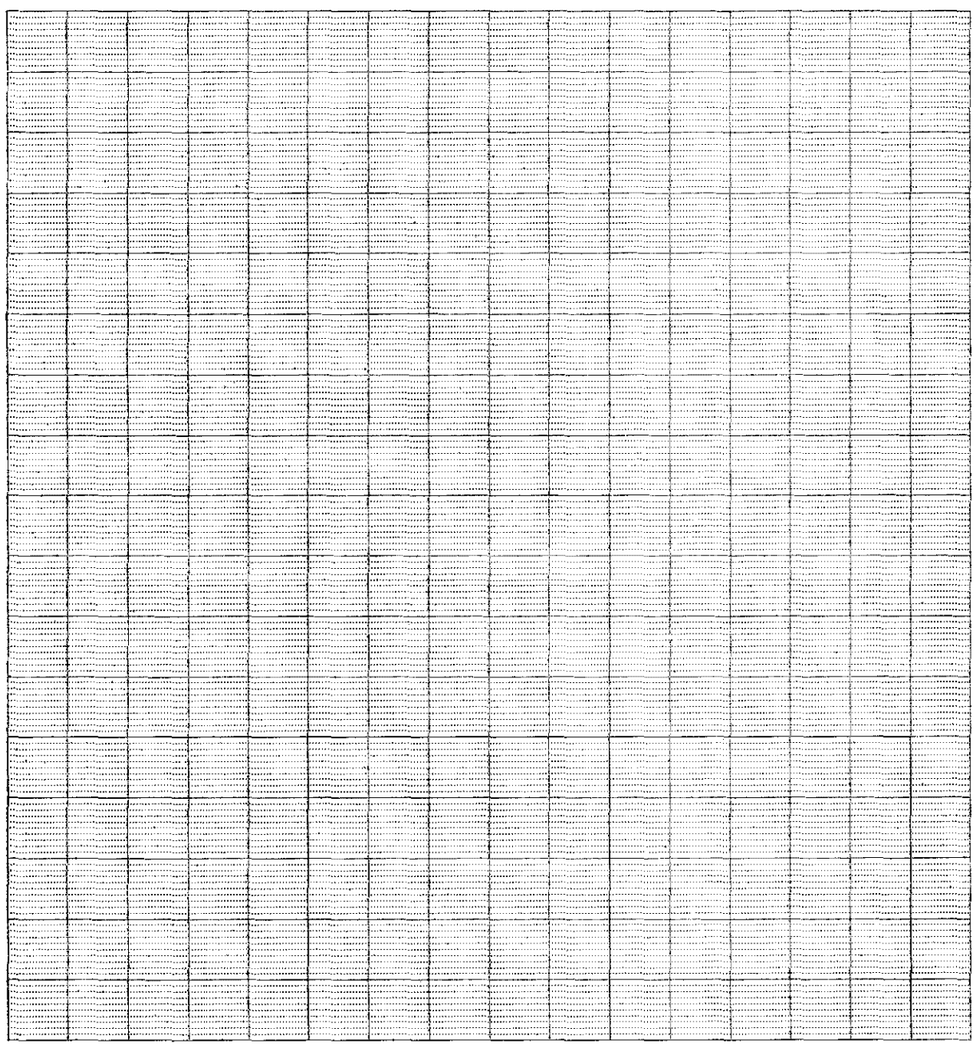
LINE -41 JOB: 326 SH4 1: 20000 LINE -41

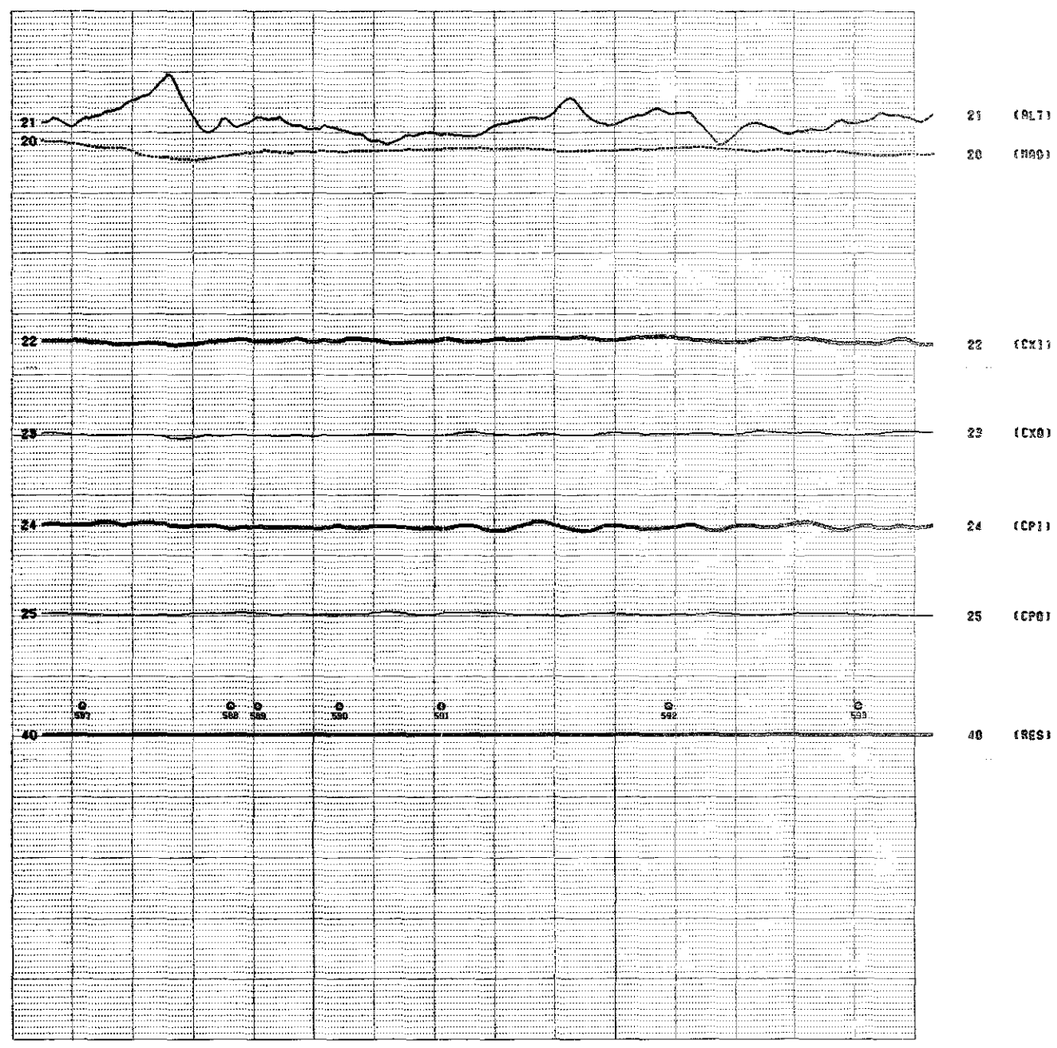
PRELIMINARY



LINE -43 JOB: 326 SH4 1: 20000

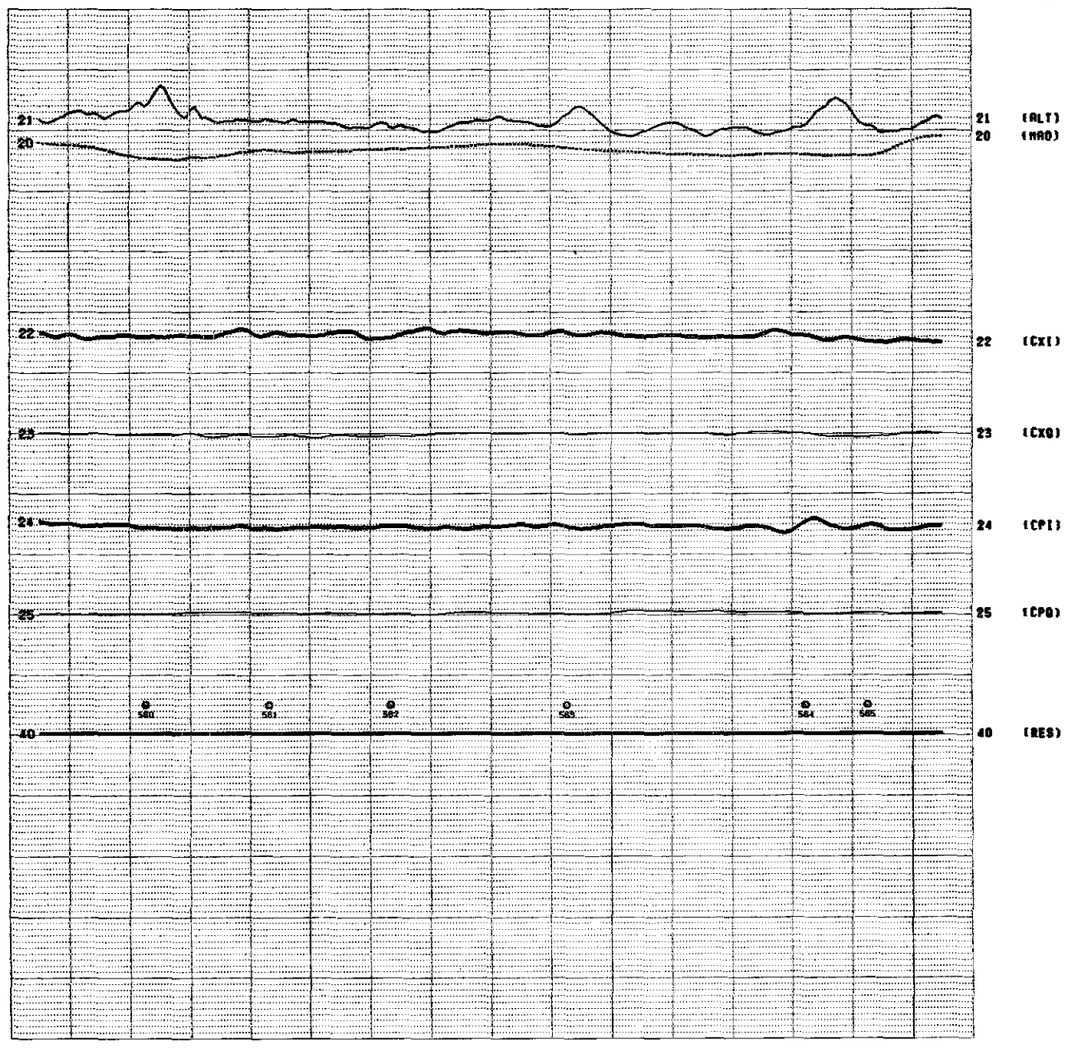
PRELIMINARY





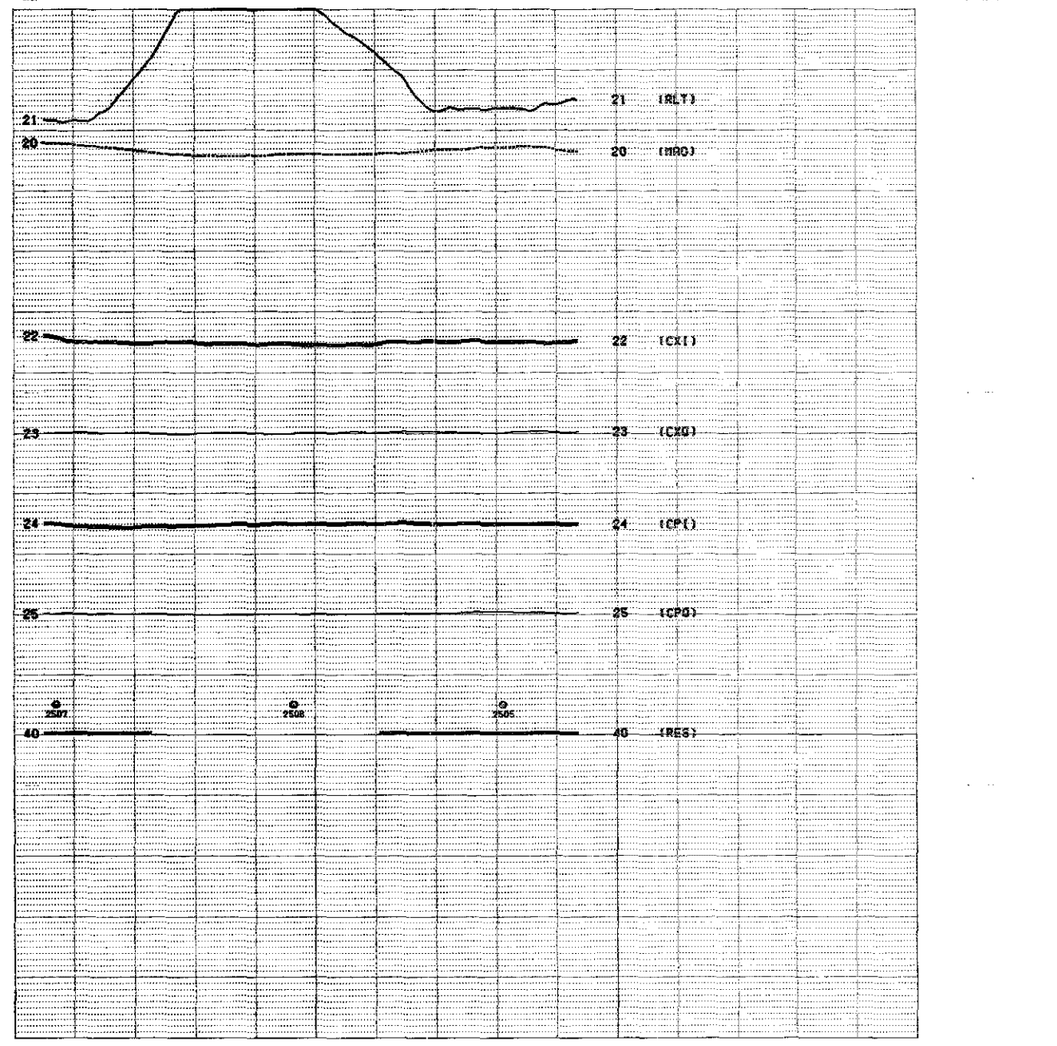
LINE 42 JOB: 326 SH4 1: 20000

PRELIMINARY



LINE 40 JOB: 326 SH4 1: 20000

PRELIMINARY

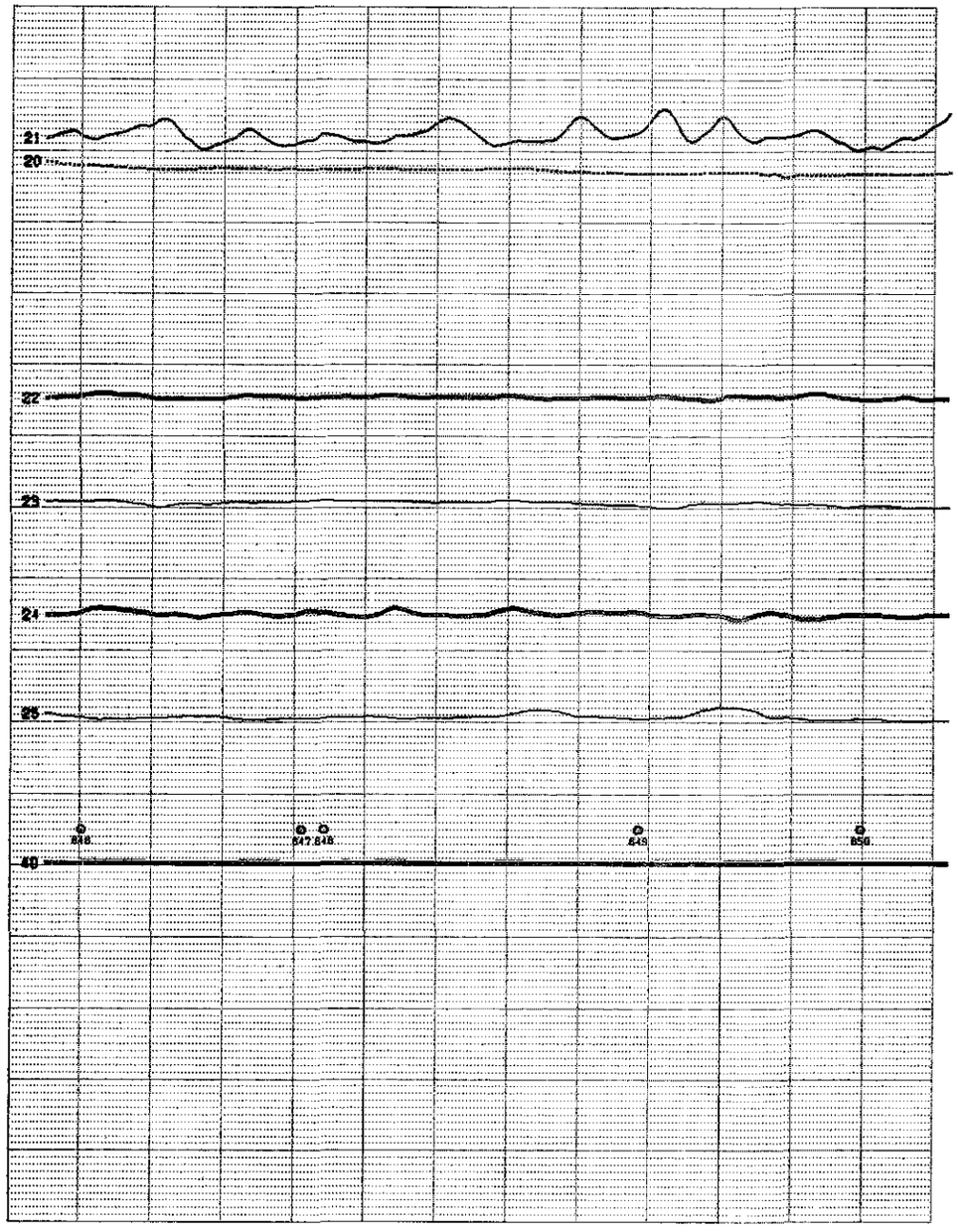


LINE -4100 JOB: 326 SH4 1: 20000

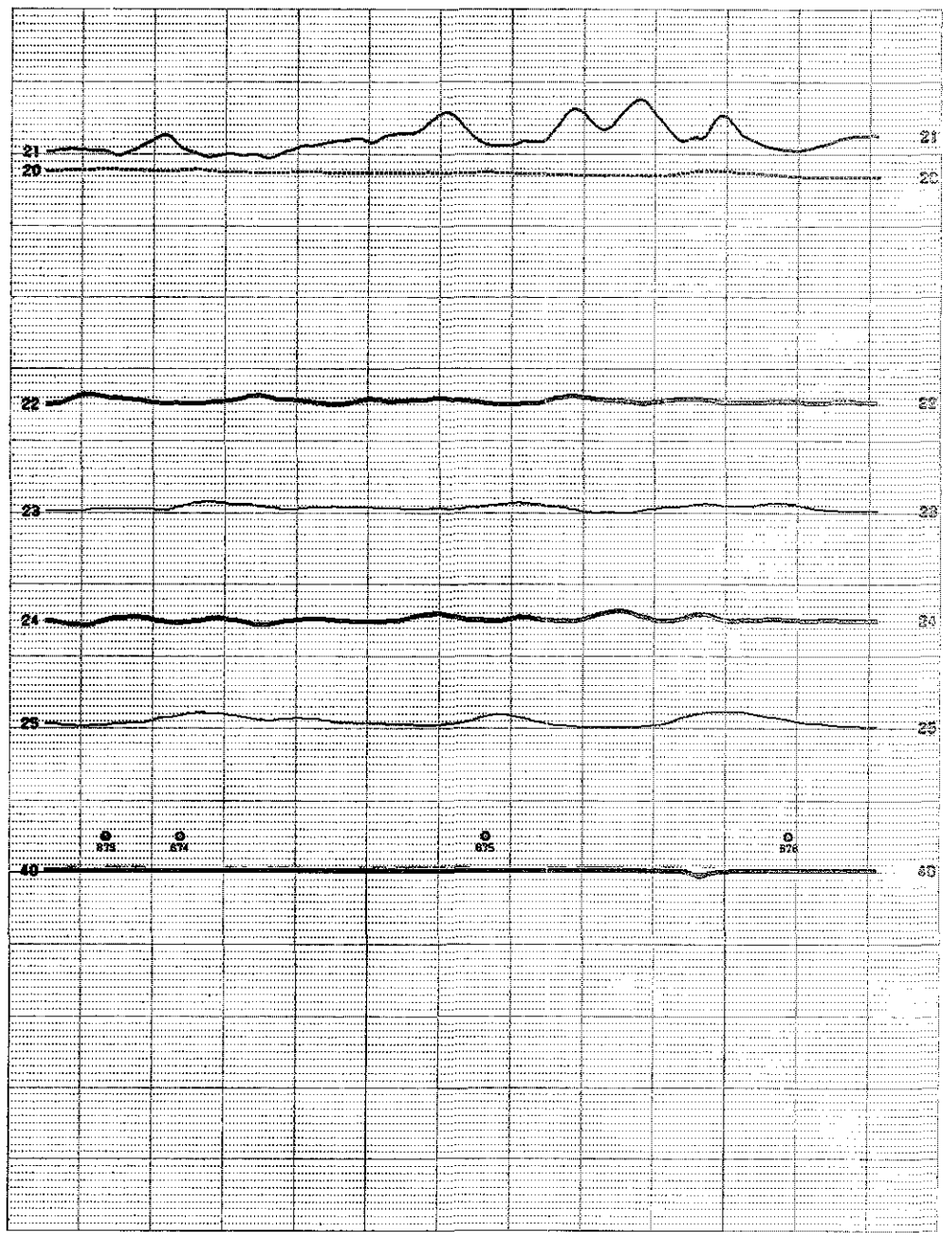
PRELIMINARY

5 cm

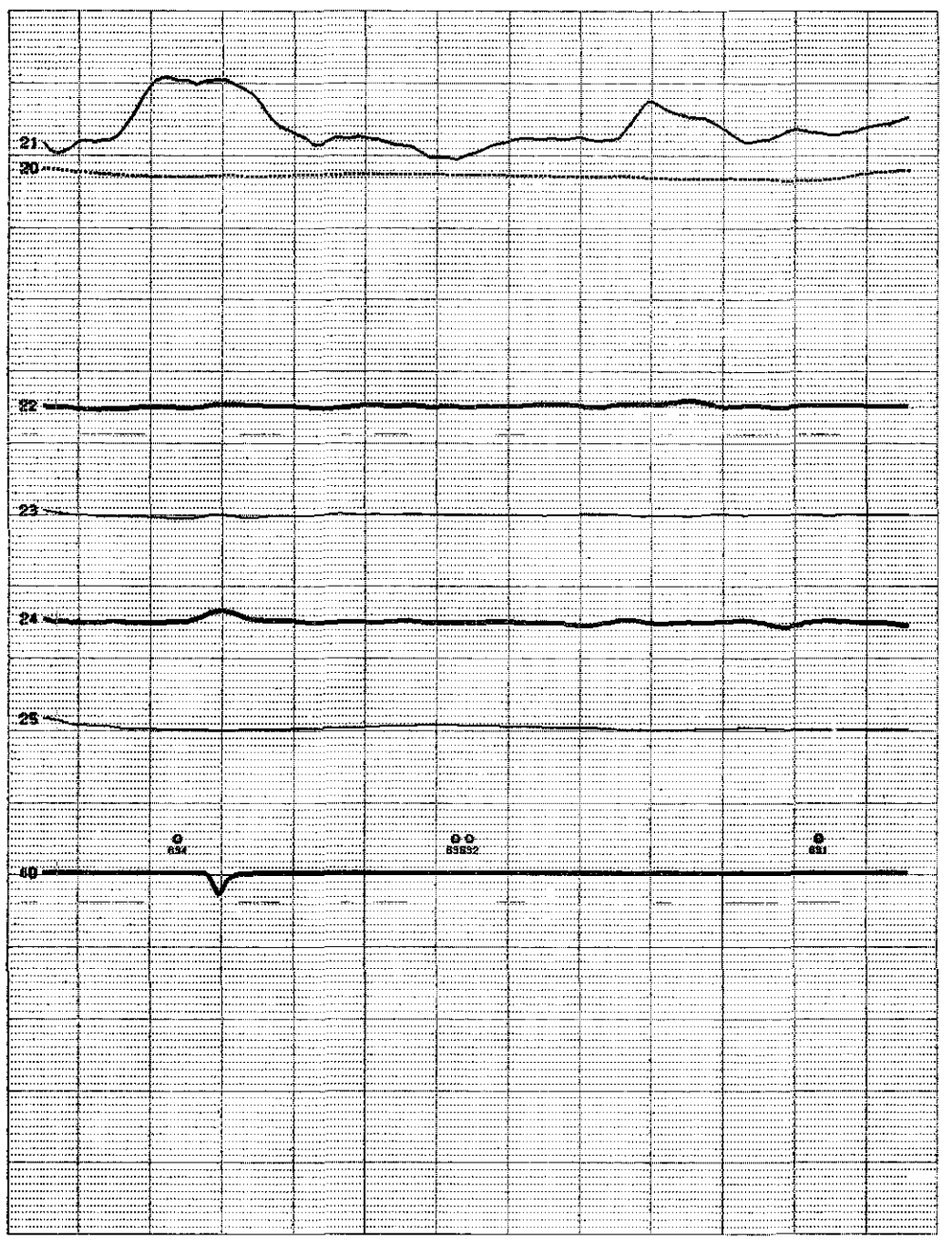
22e



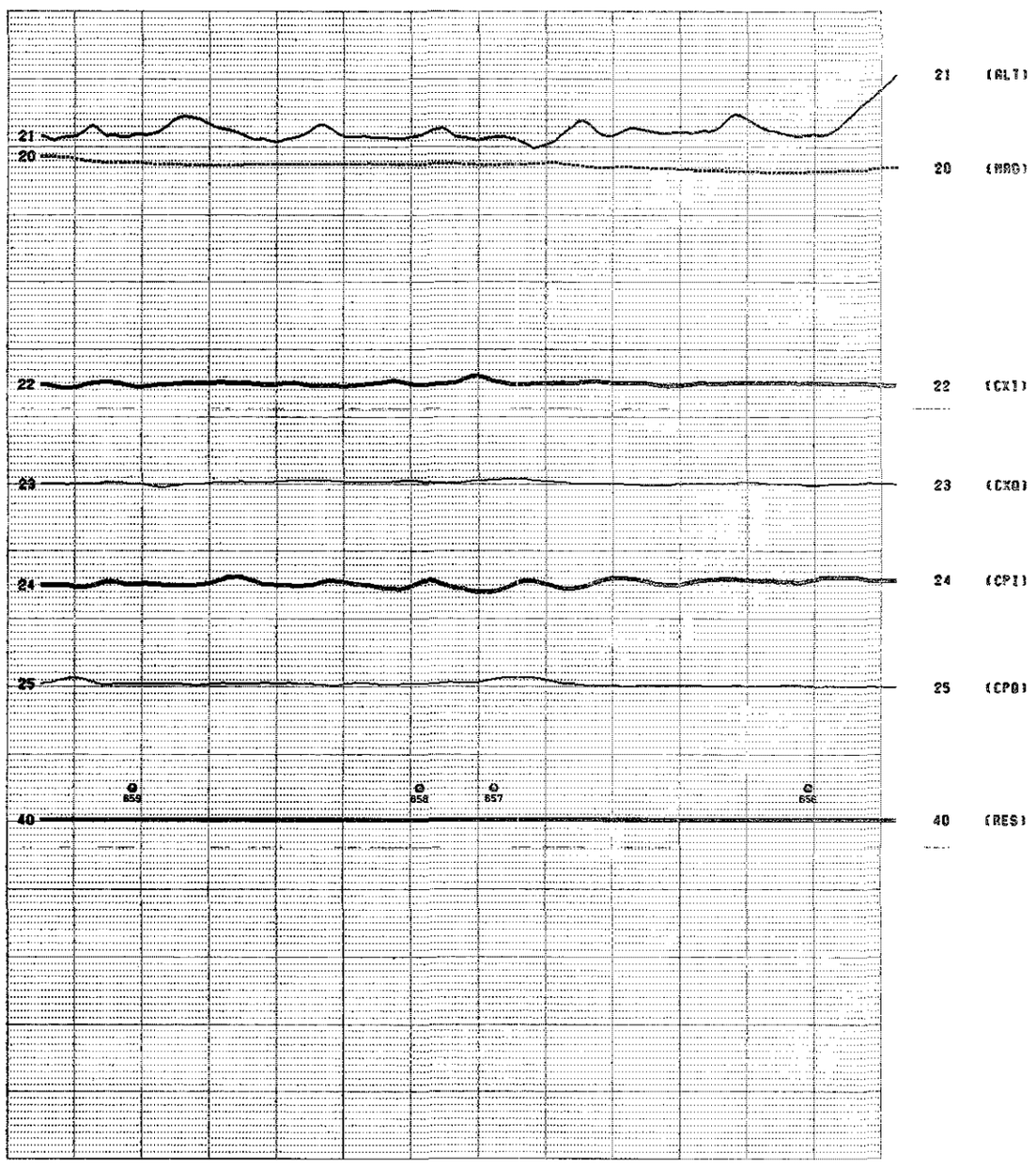
LINE 46 JOB: 326 SH4 1: 20000
PRELIMINARY



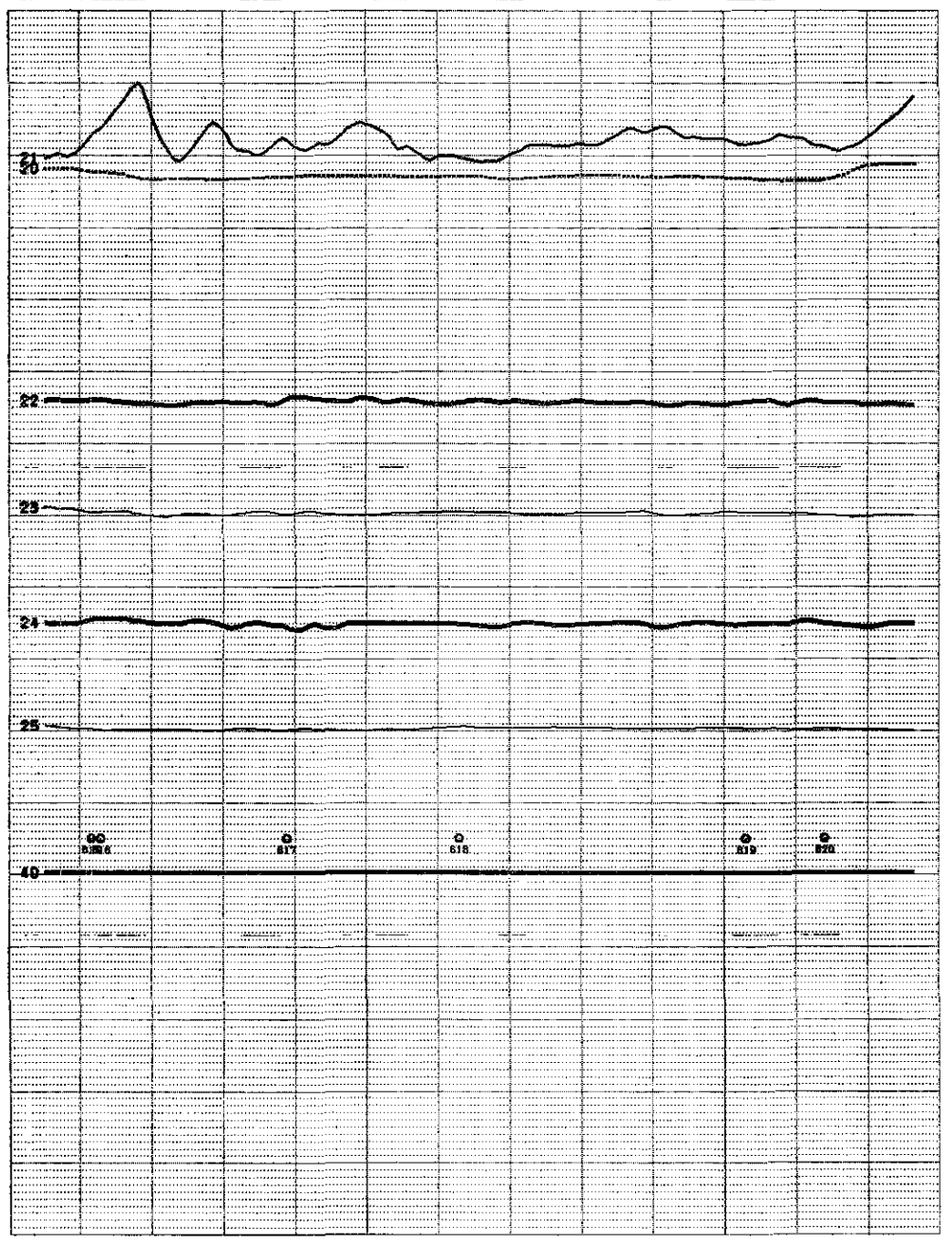
LINE 48 JOB: 326 SH4 1: 20000
PRELIMINARY



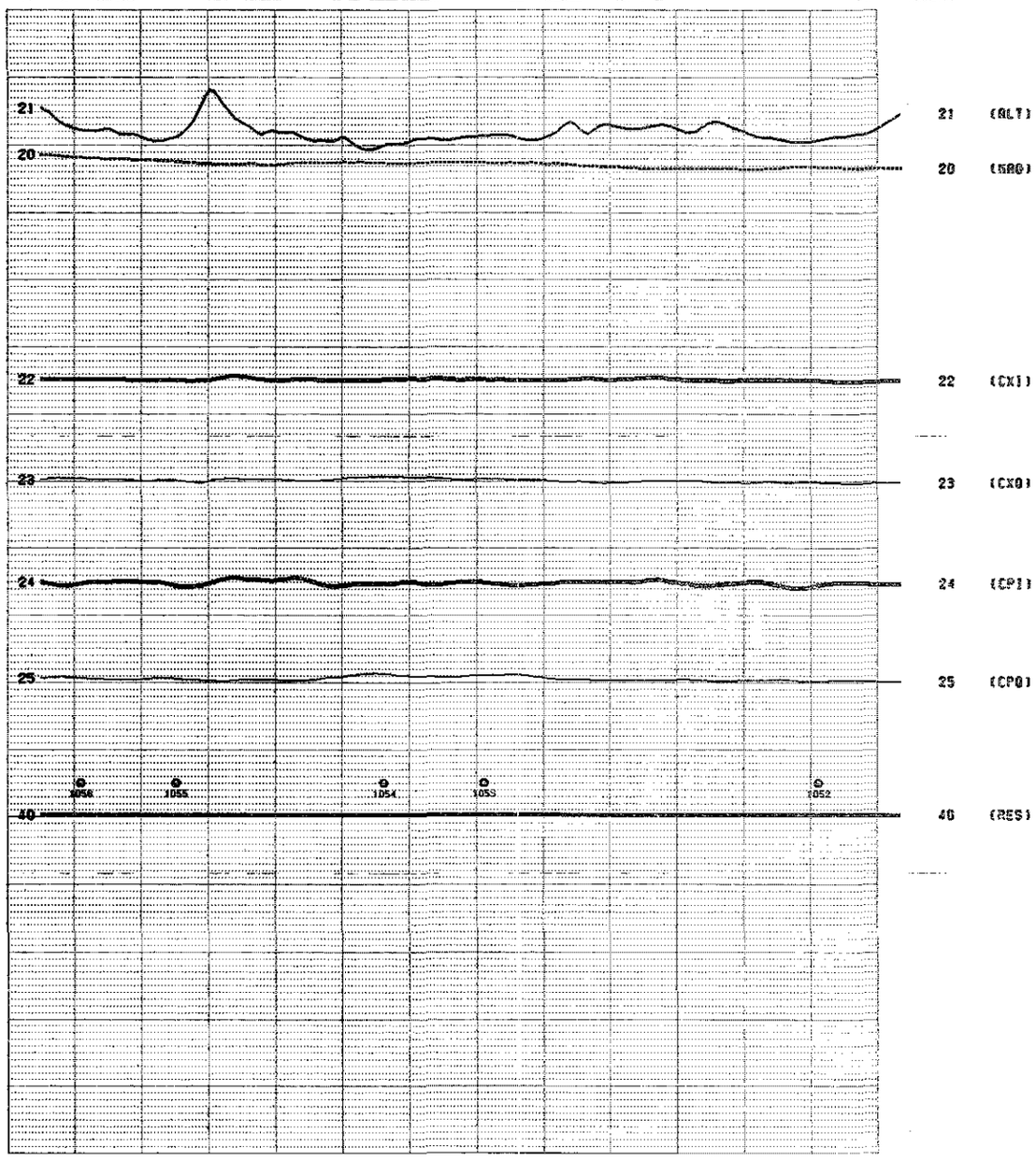
LINE -45 JOB: 326 SH4 1: 20000
PRELIMINARY



LINE -47 JOB: 326 SH4 1: 20000
PRELIMINARY



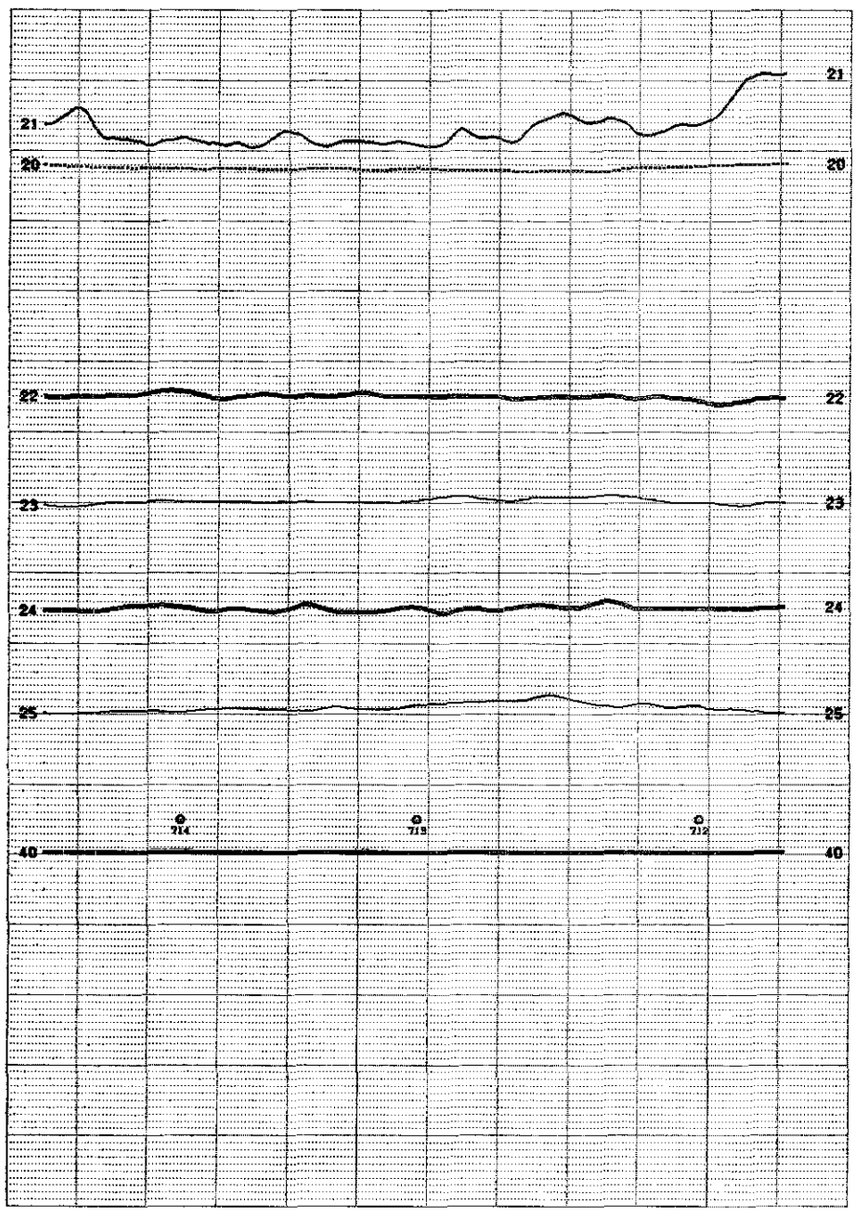
LINE 44 JOB: 326 SH4 1: 20000
PRELIMINARY



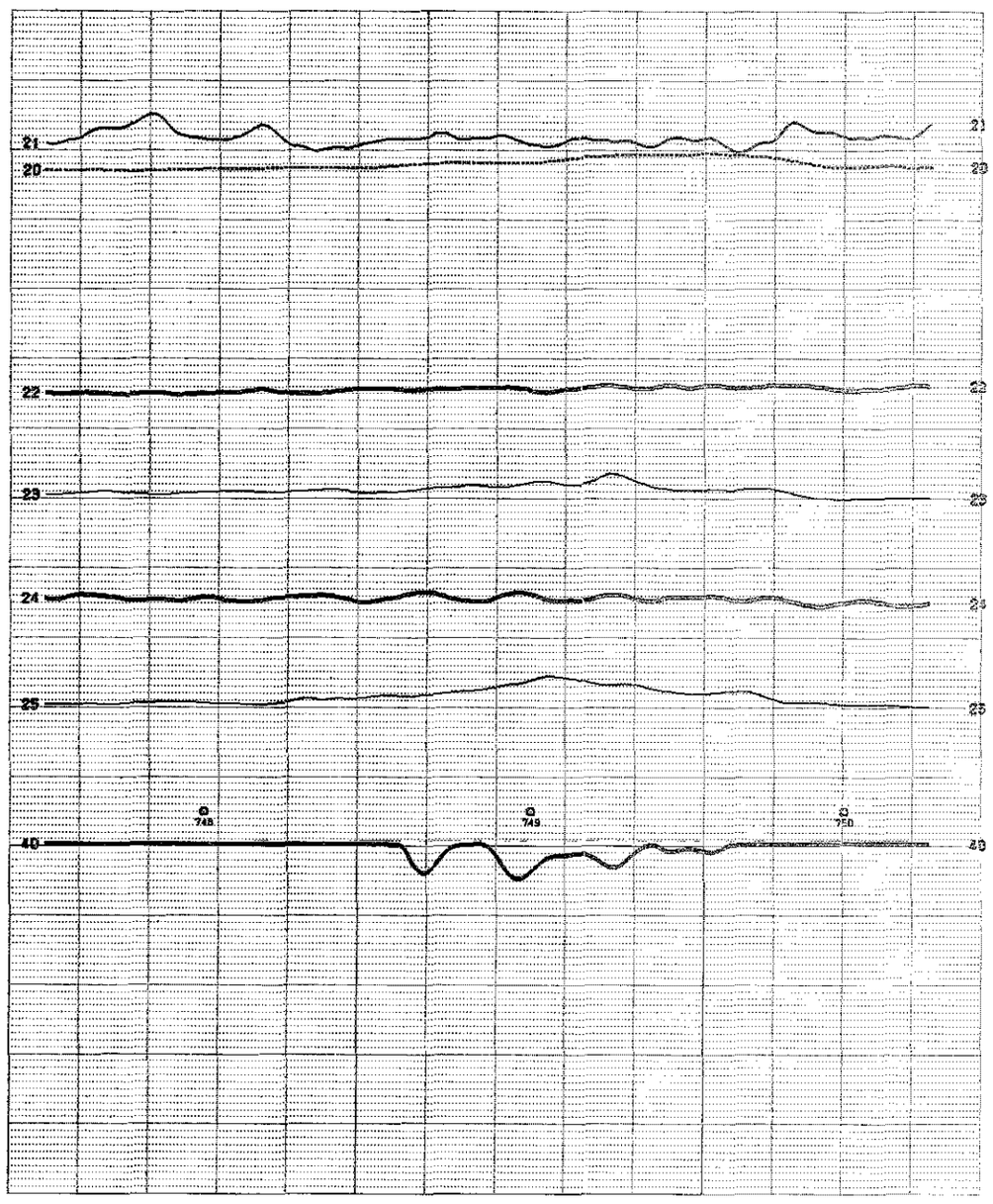
LINE -4600 JOB: 326 SH4 1: 20000
PRELIMINARY

5 cm

22f



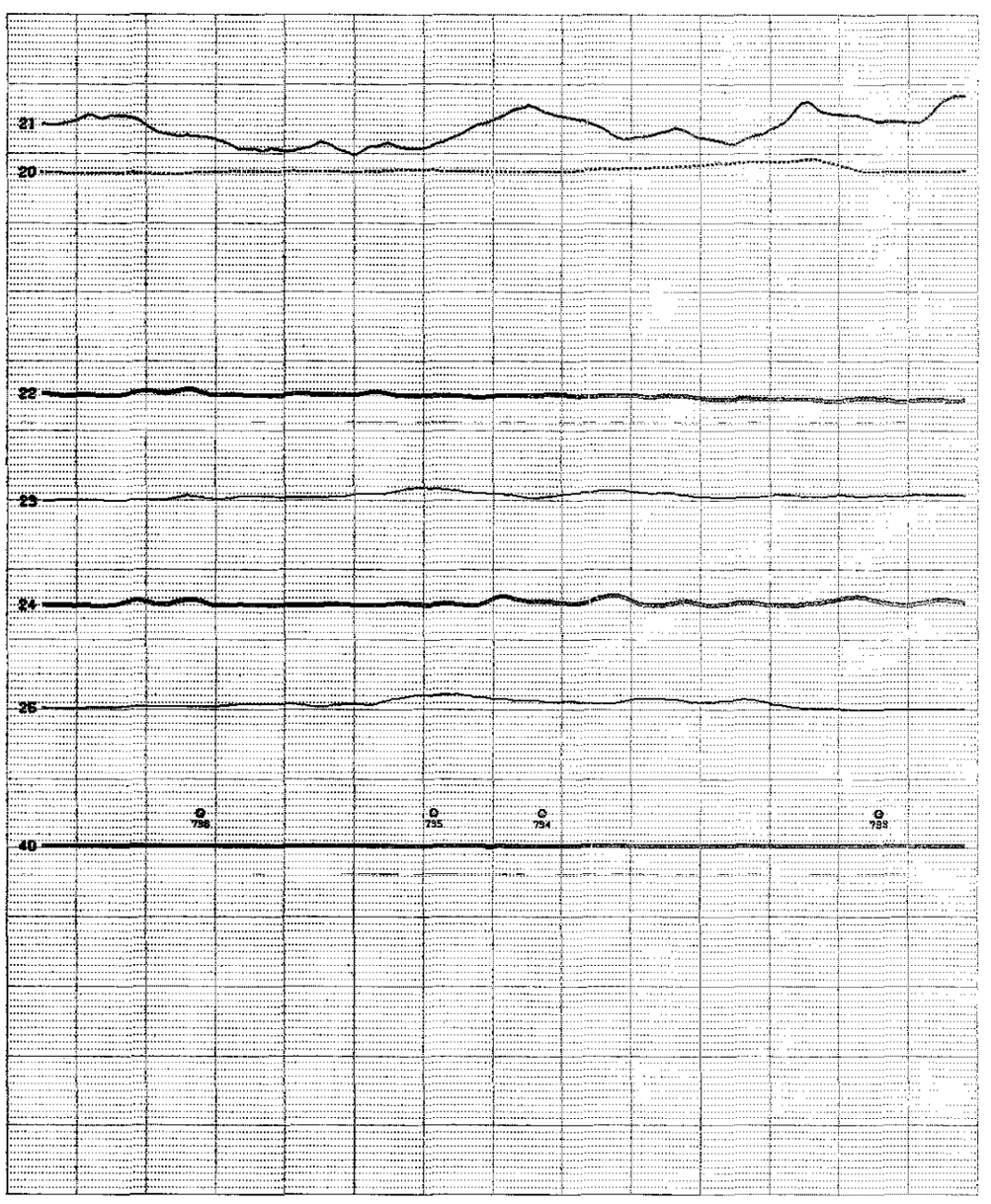
LINE -51 JOB: 326 SH4 1: 20000
PRELIMINARY



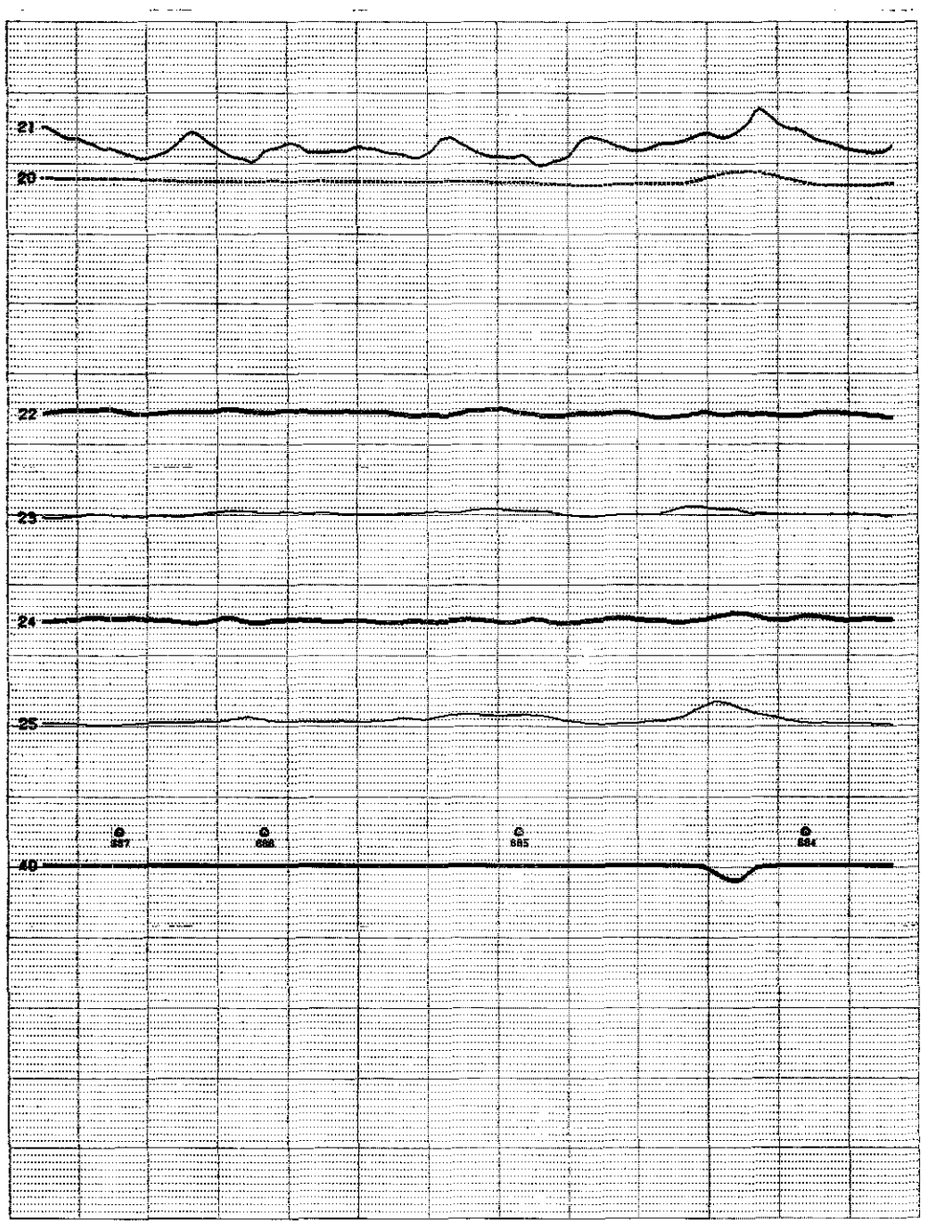
LINE 54 JOB: 326 SH4 1: 20000
PRELIMINARY



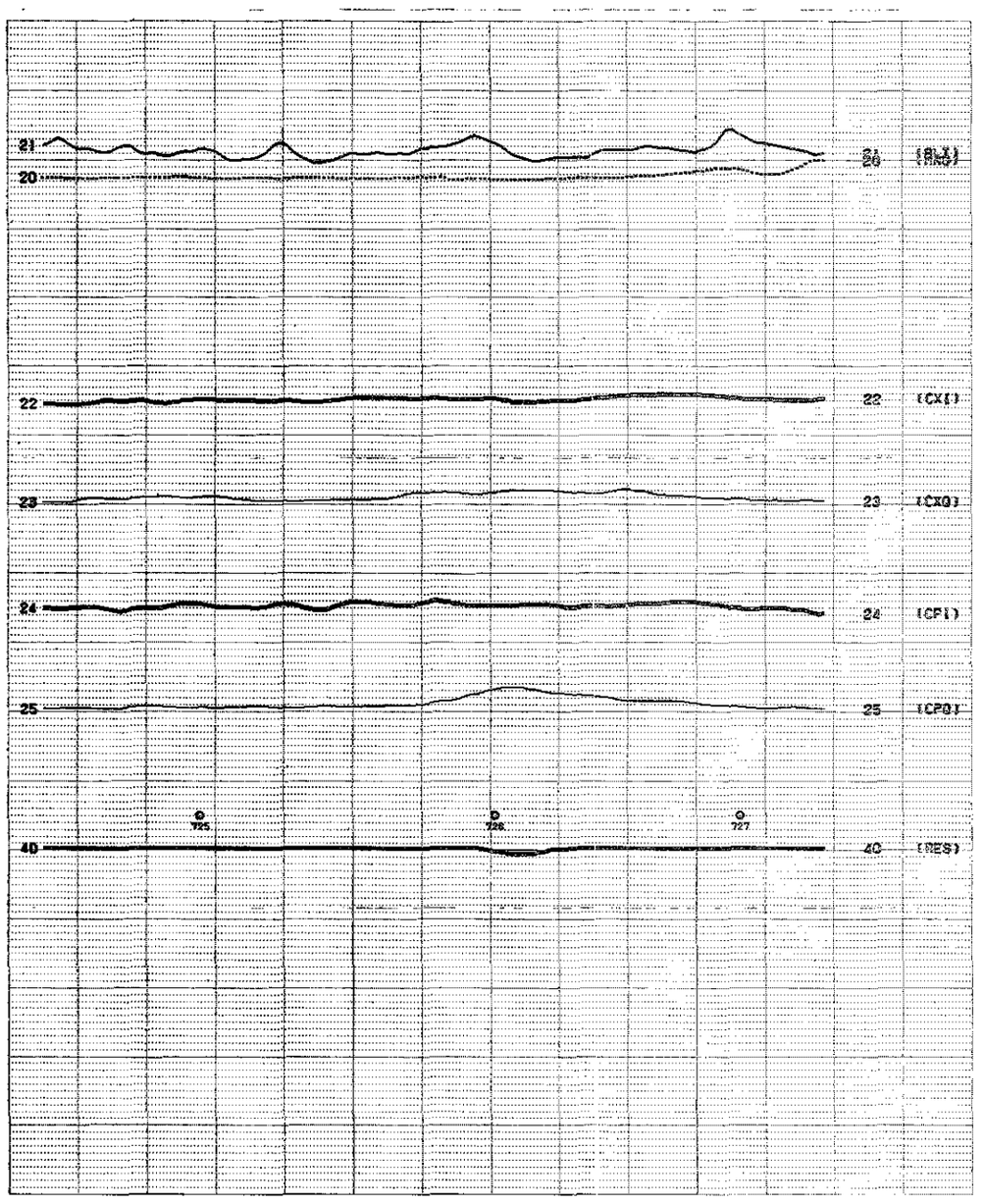
LINE 50 JOB: 326 SH4 1: 20000
PRELIMINARY



LINE -53 JOB: 326 SH4 1: 20000
PRELIMINARY



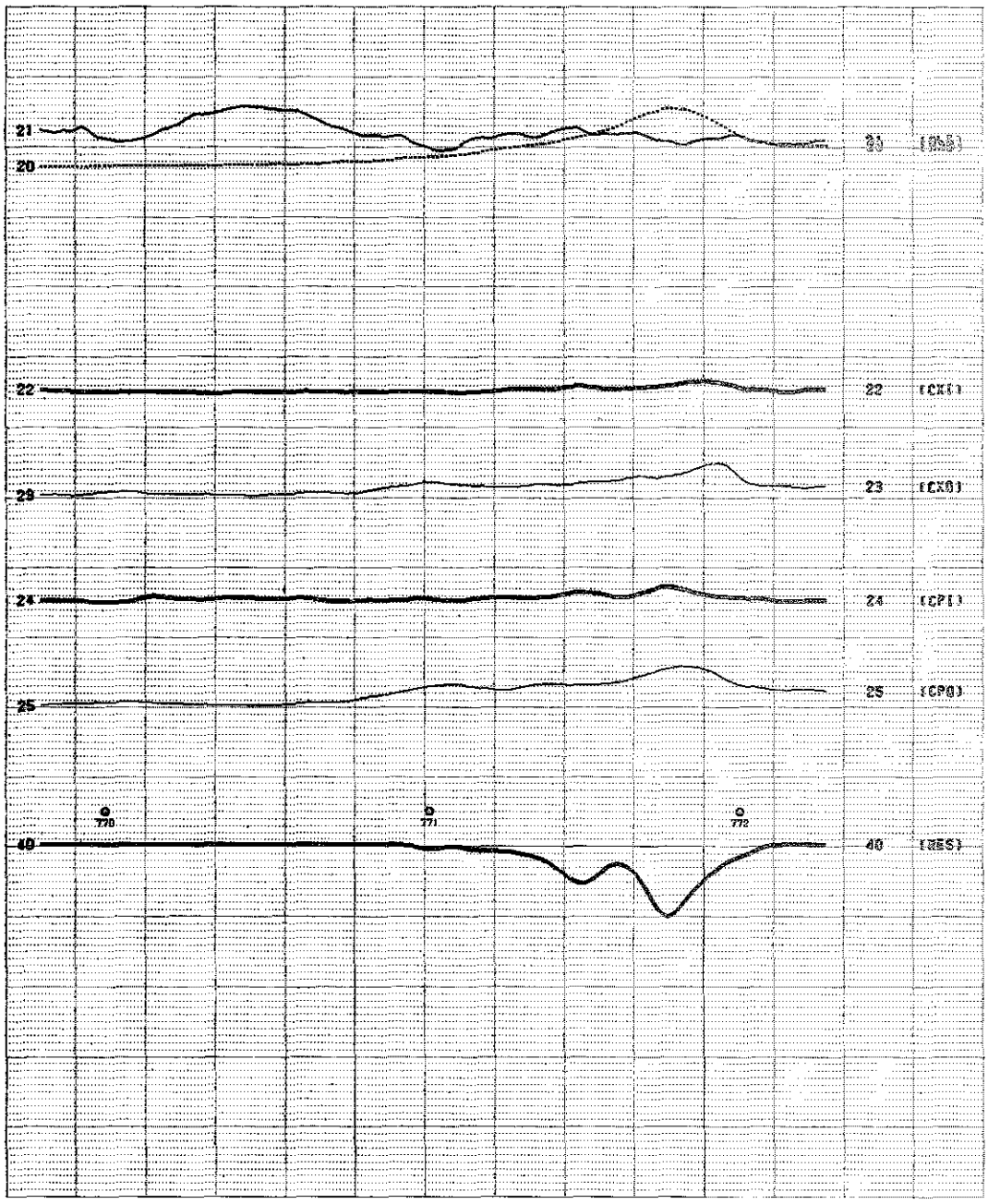
LINE -49 JOB: 326 SH4 1: 20000
PRELIMINARY



LINE 52 JOB: 326 SH4 1: 20000
PRELIMINARY

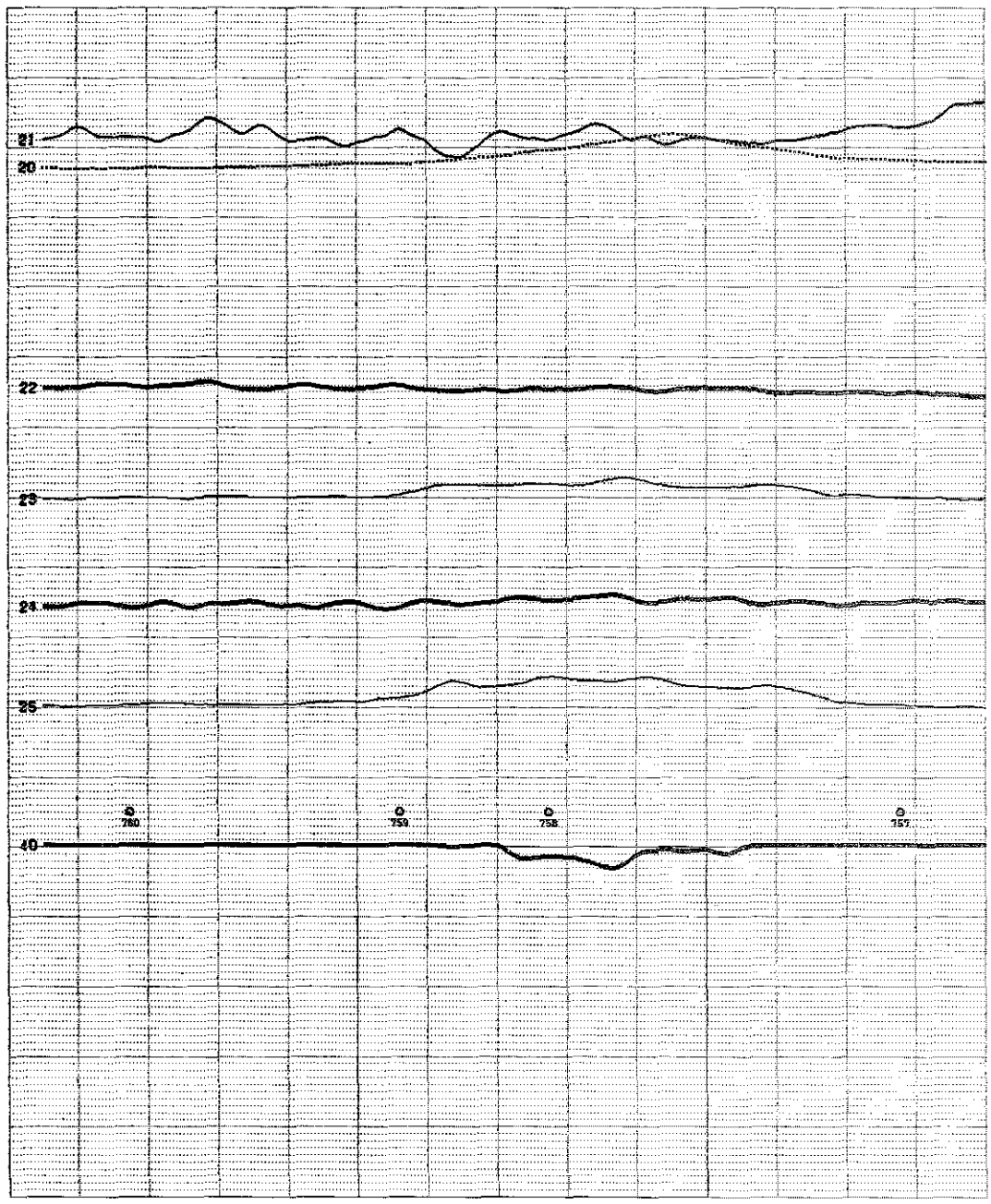
5 cm

229



LINE 56 JOB: 326 SH4 1: 20000

PRELIMINARY



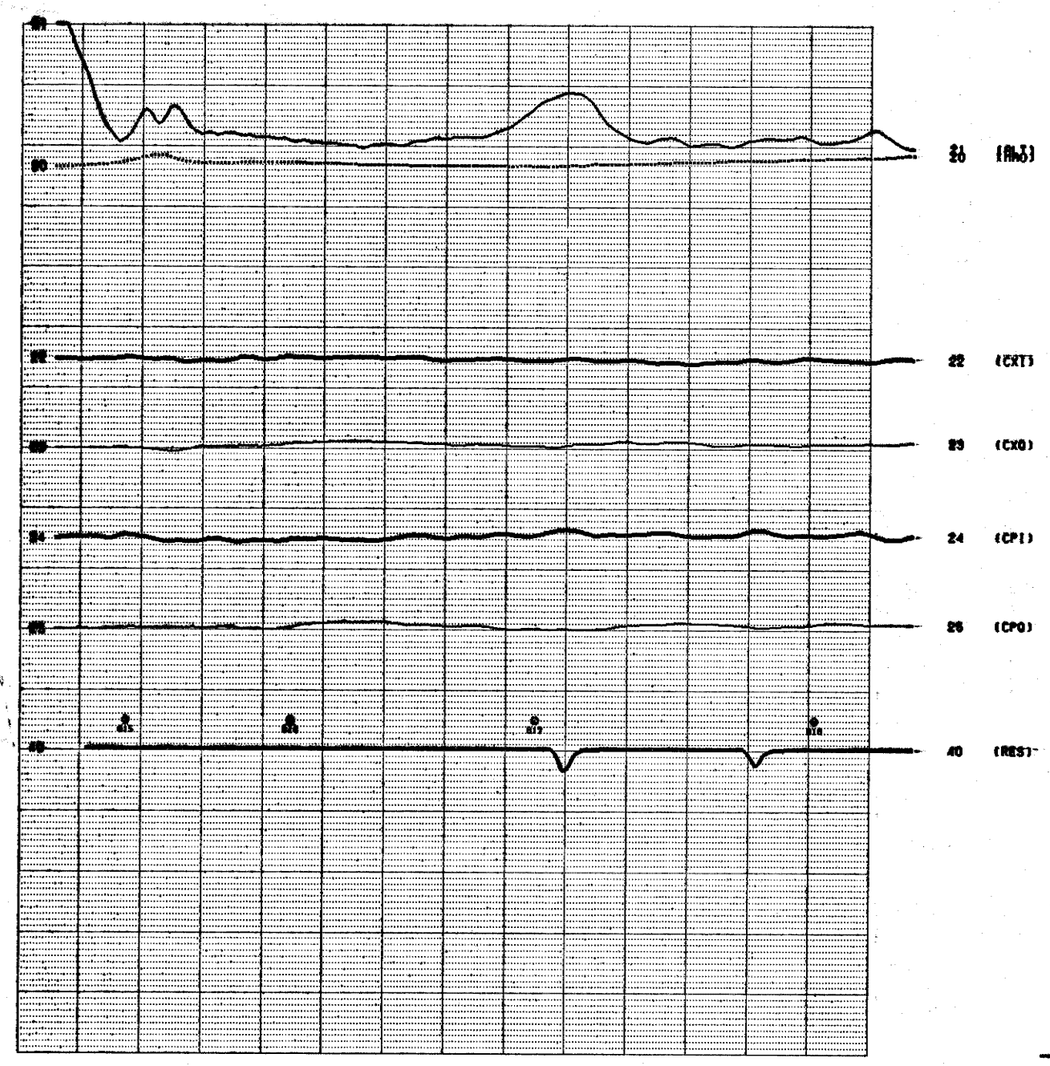
LINE -55 JOB: 326 SH4 1: 20000

PRELIMINARY

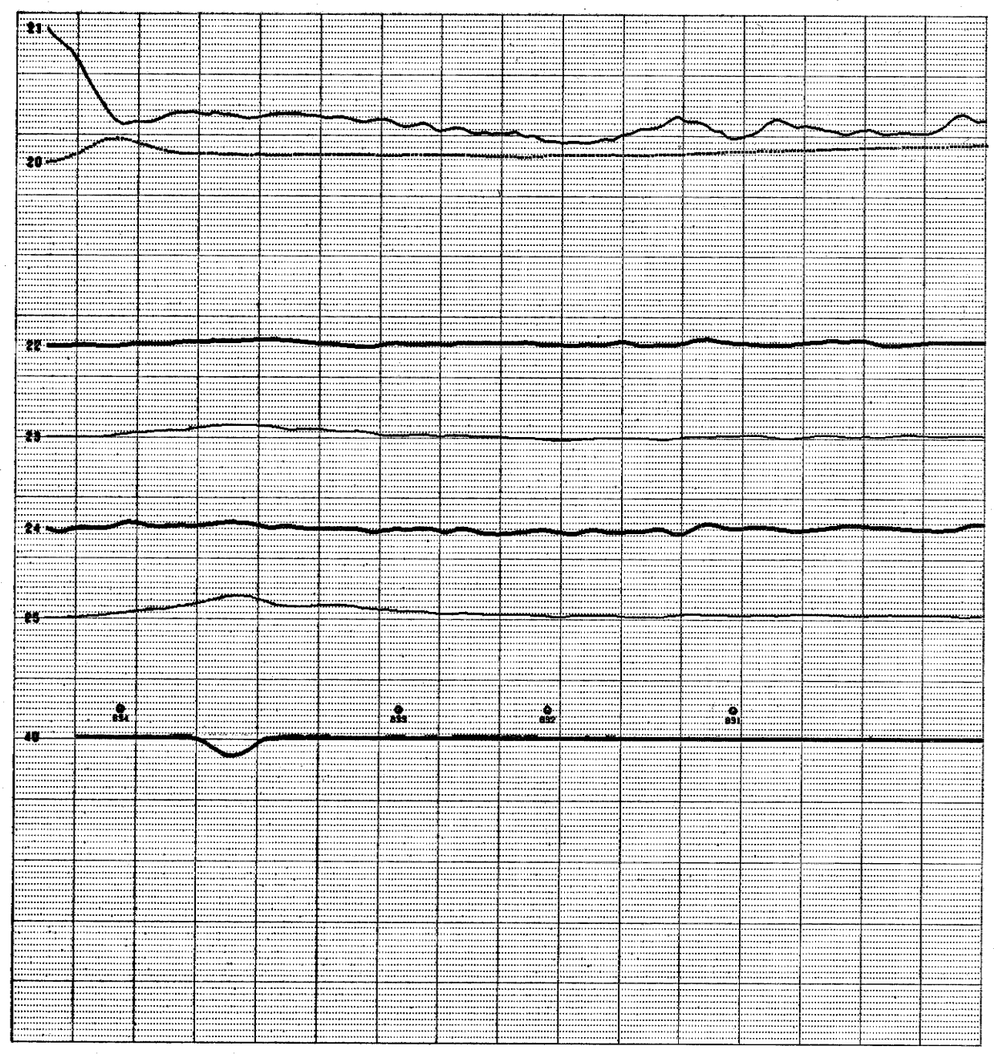
5 cm

22h

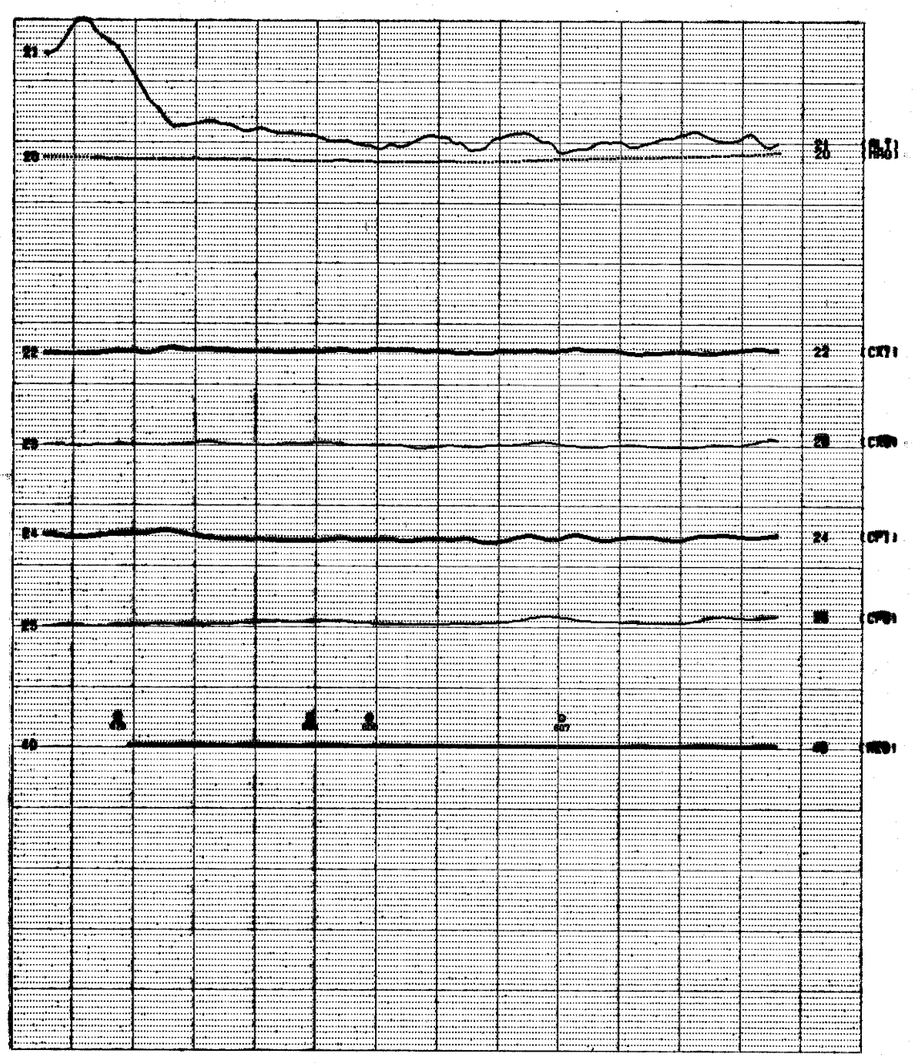
82-1738



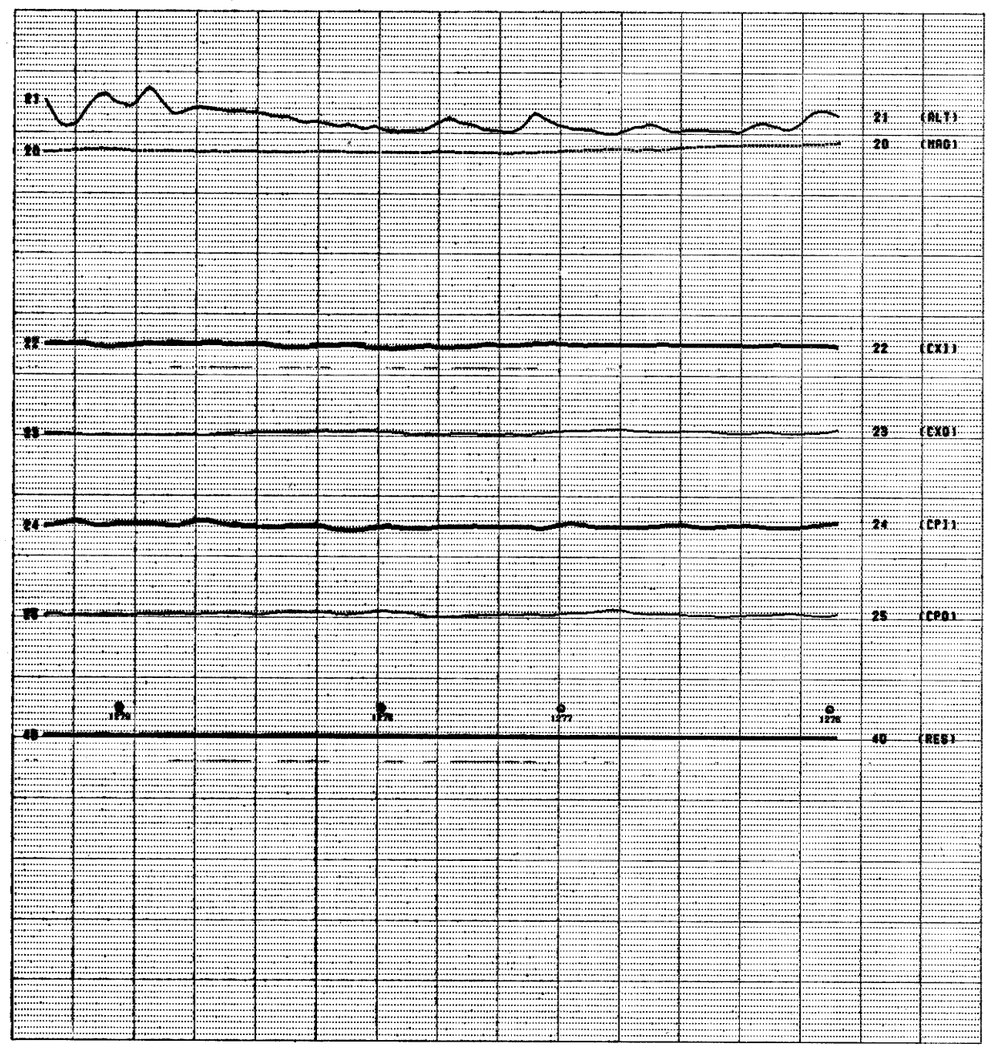
LINE 90 JOB: 326, SHS 1: 20000
PRELIMINARY



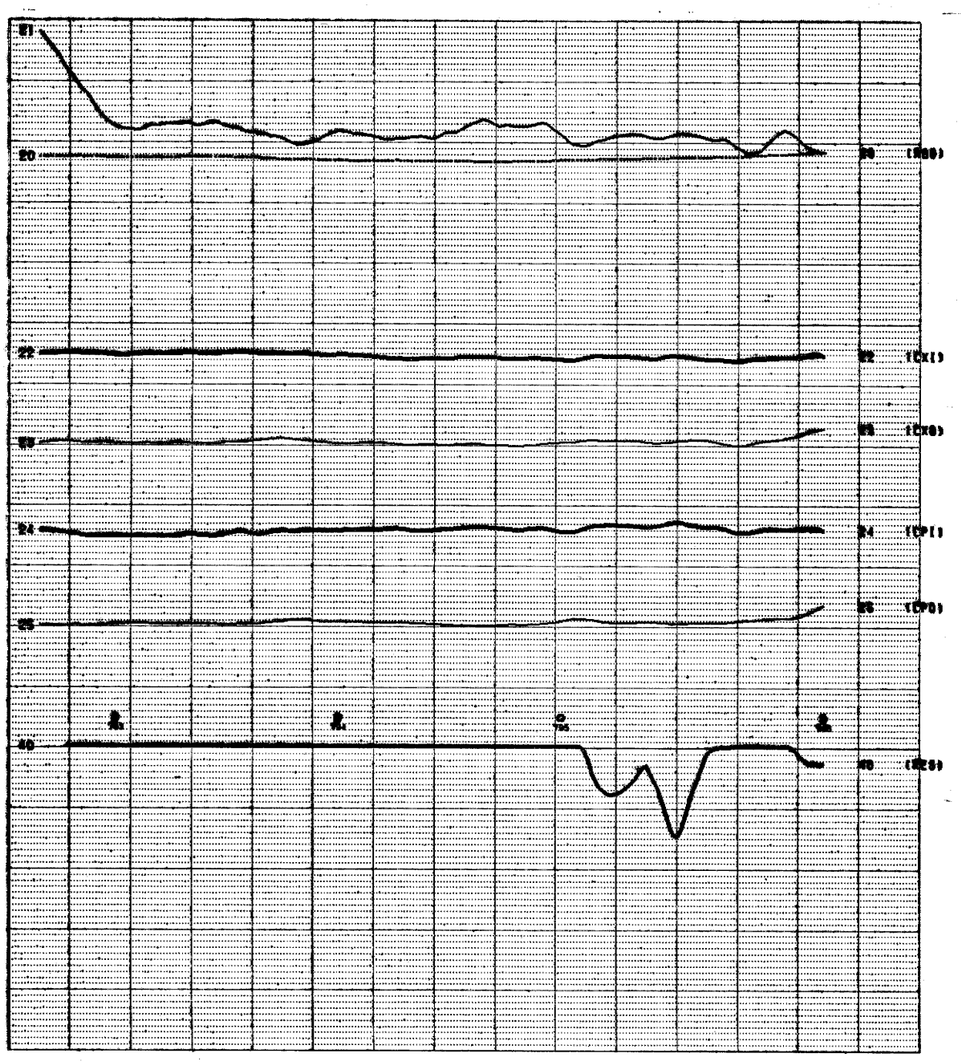
LINE -60 JOB: 326 SHS 1: 20000 LINE -60
PRELIMINARY



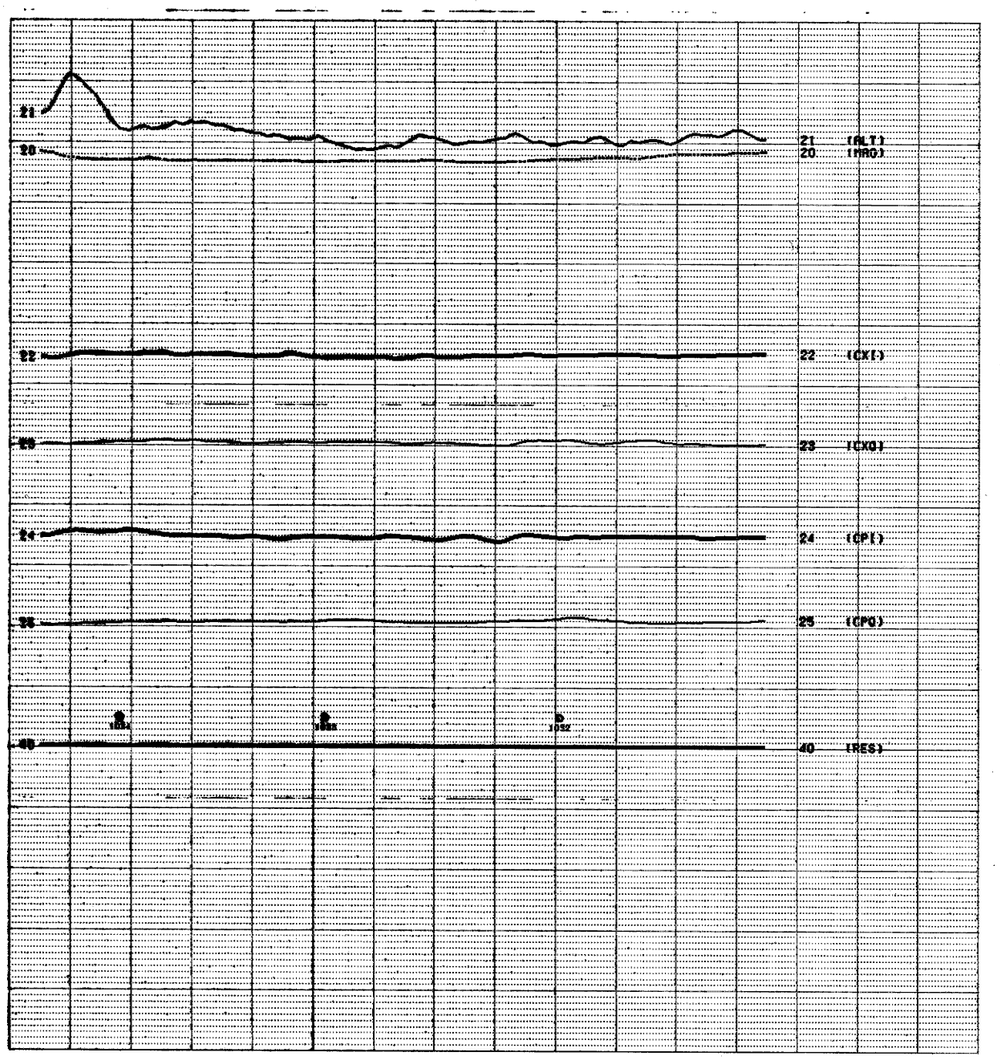
LINE -90 JOB: 326 SHS 1: 20000
PRELIMINARY



LINE -6910 JOB: 326 SHS 1: 20000
PRELIMINARY



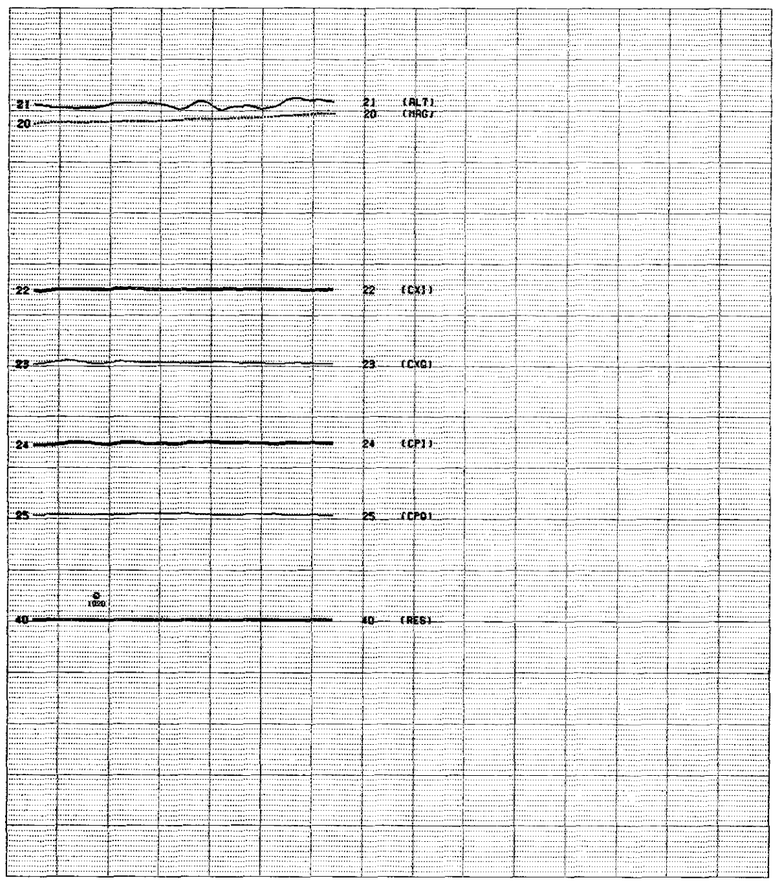
LINE 97 JOB: 326 SHS 1: 20000
PRELIMINARY



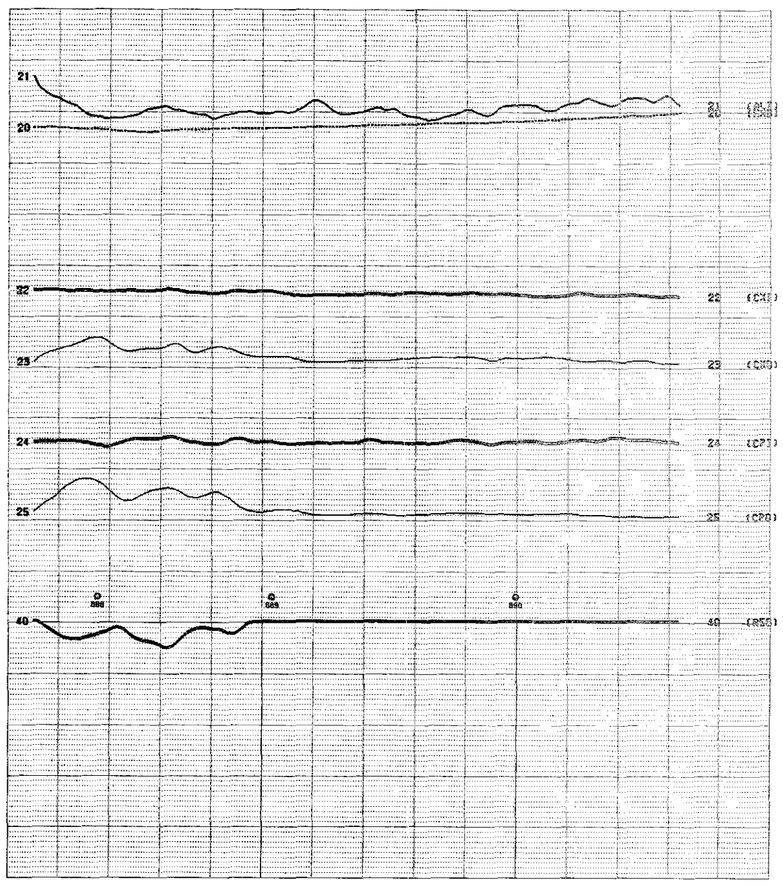
LINE -6900 JOB: 326 SHS 1: 20000
PRELIMINARY

5 cm

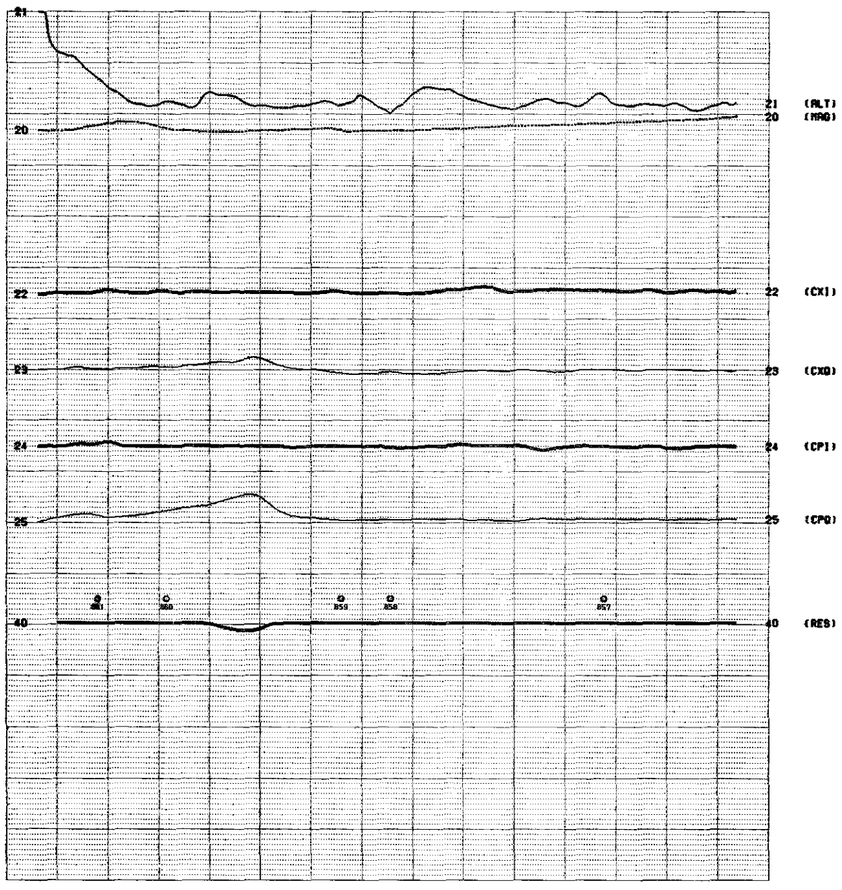
23 of 23
123 of 24



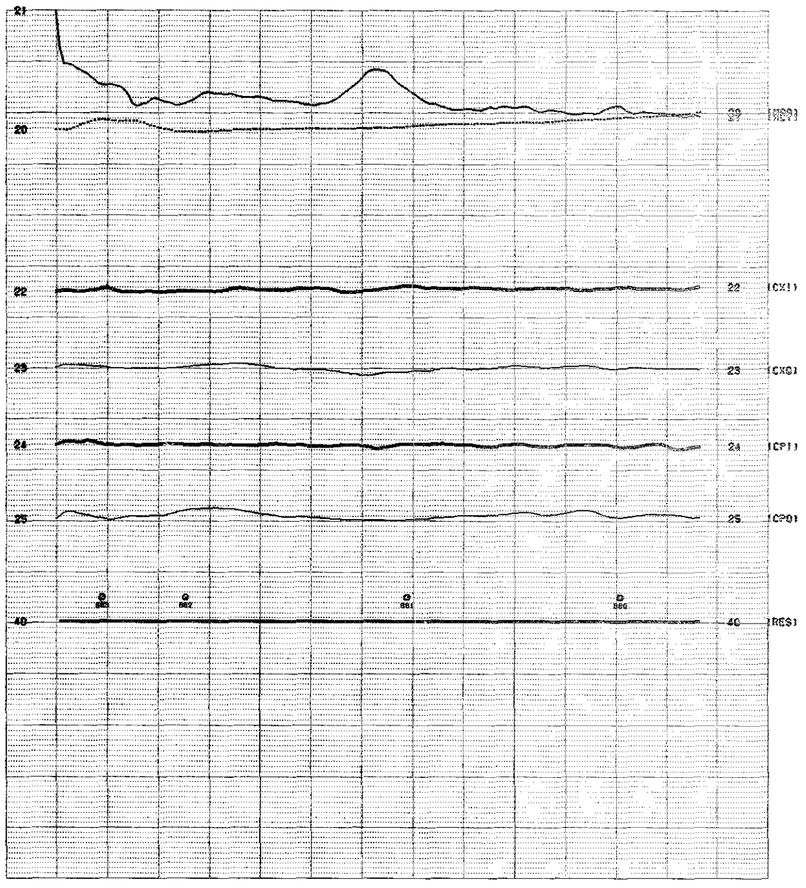
LINE 6200 JOB: 326 SH5 1: 20000
PRELIMINARY



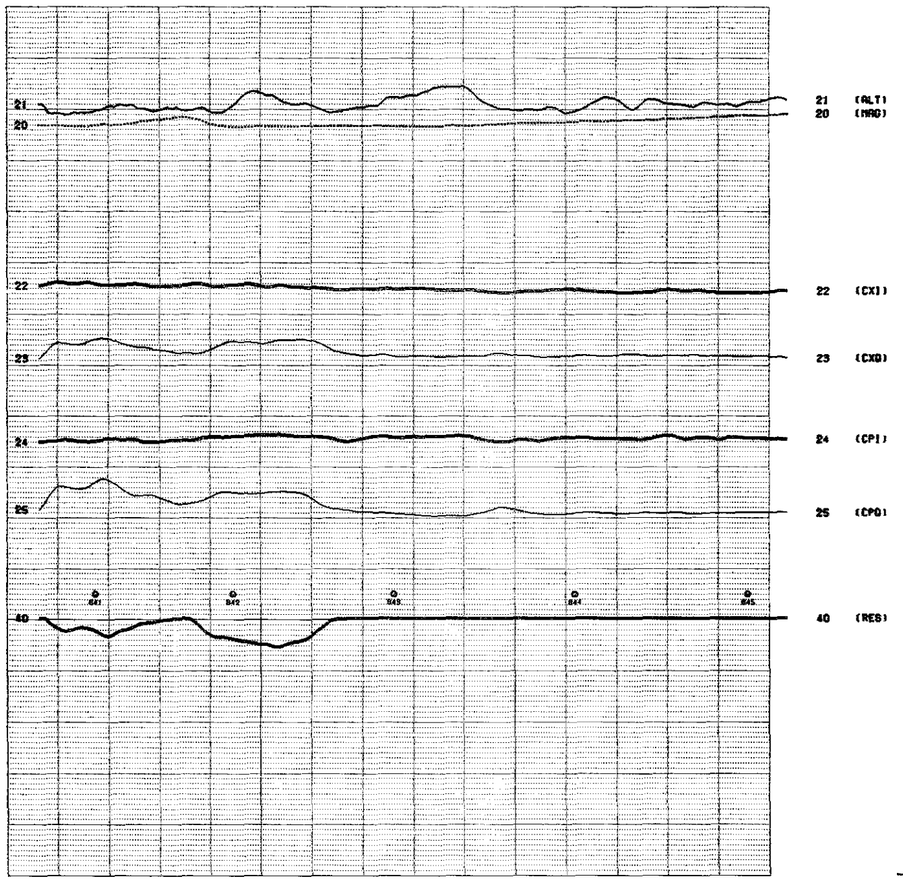
LINE 65 JOB: 326 SH5 1: 20000
PRELIMINARY



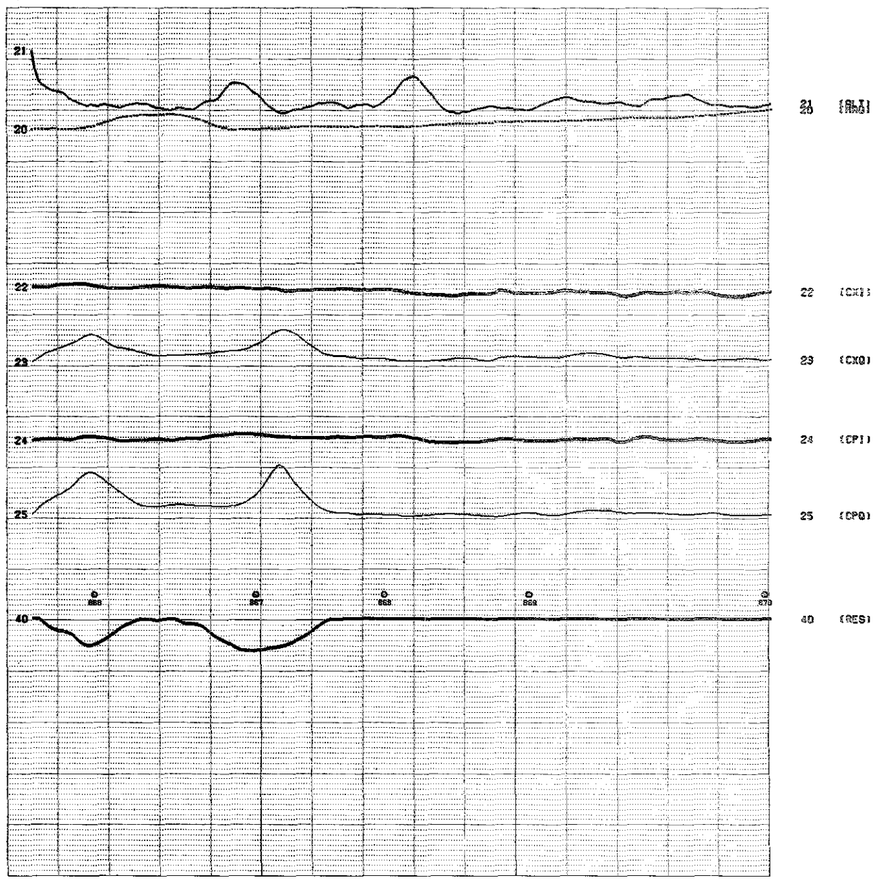
LINE -62 JOB: 326 SH5 1: 20000
PRELIMINARY



LINE -64 JOB: 326 SH5 1: 20000
PRELIMINARY



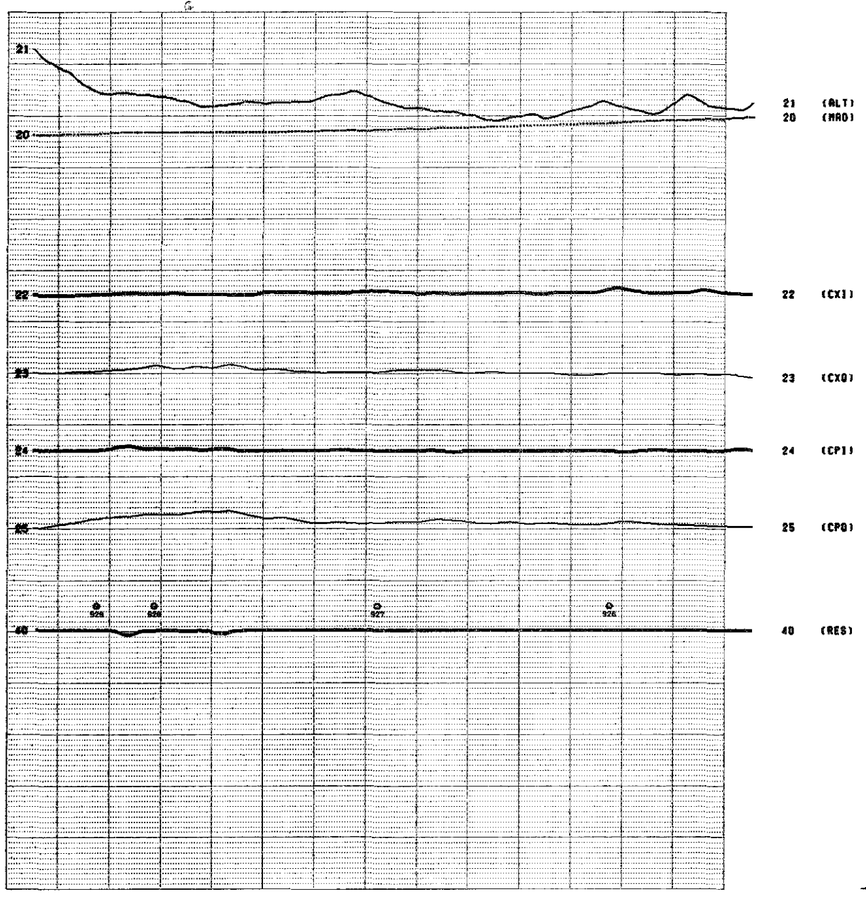
LINE 61 JOB: 326 SH5 1: 20000
PRELIMINARY



LINE 63 JOB: 326 SH5 1: 20000
PRELIMINARY

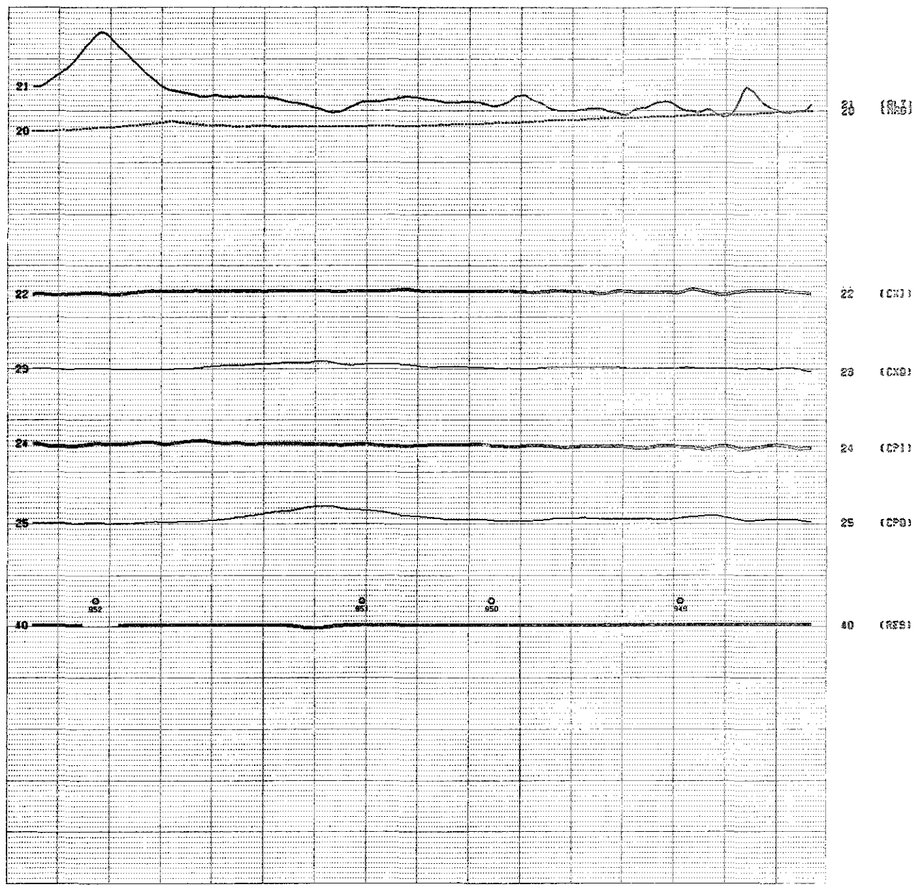
23a

5 cm



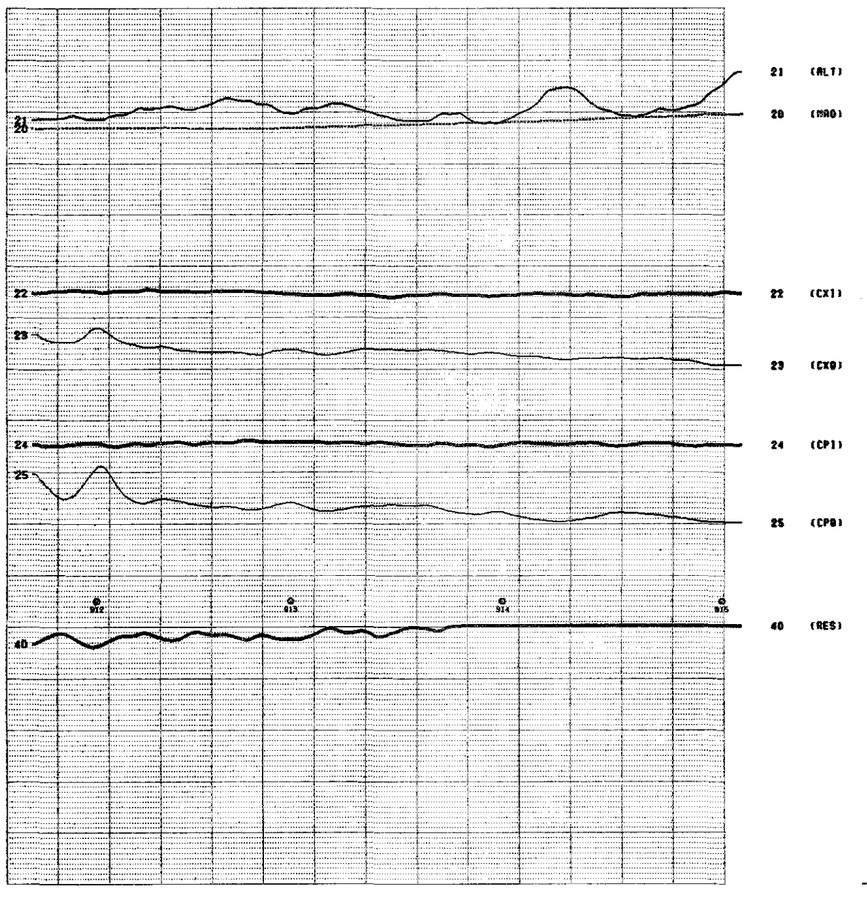
LINE -68 JOB: 326 SH5 1: 20000

PRELIMINARY



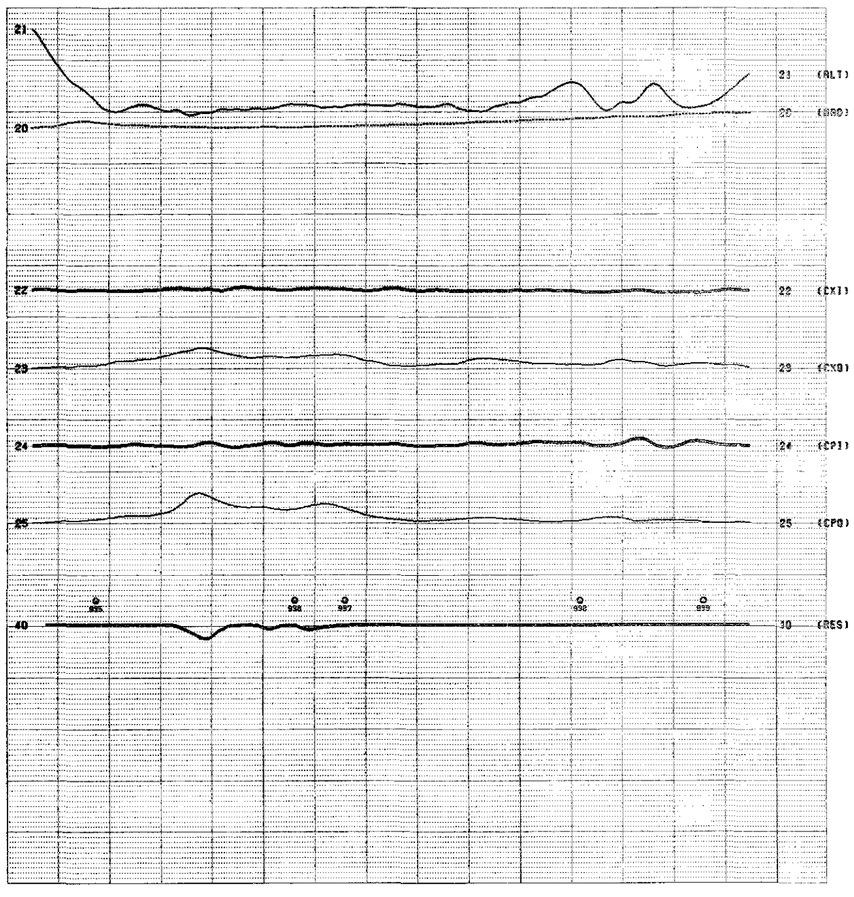
LINE -70 JOB: 326 SH5 1: 20000

PRELIMINARY



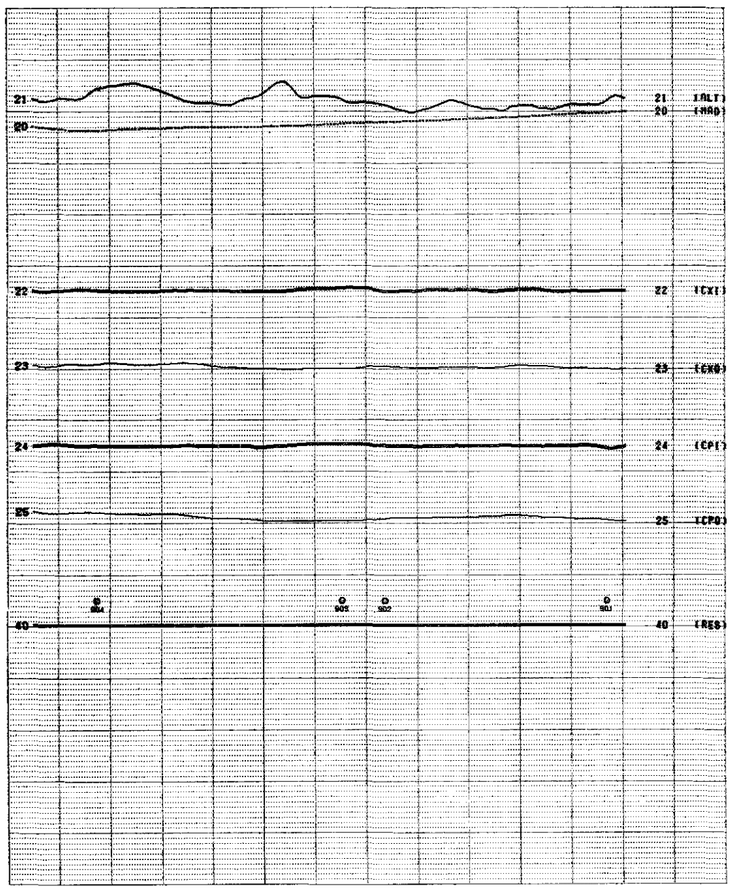
LINE 67 JOB: 326 SH5 1: 20000

PRELIMINARY



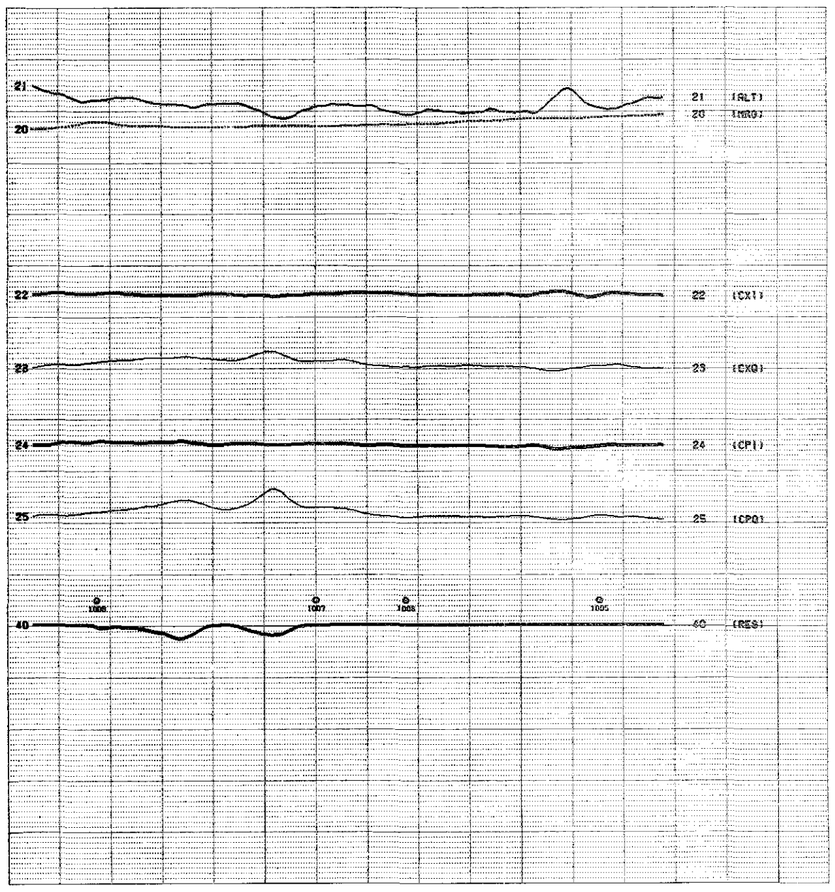
LINE 69 JOB: 326 SH5 1: 20000

PRELIMINARY



LINE -66 JOB: 326 SH5 1: 20000

PRELIMINARY



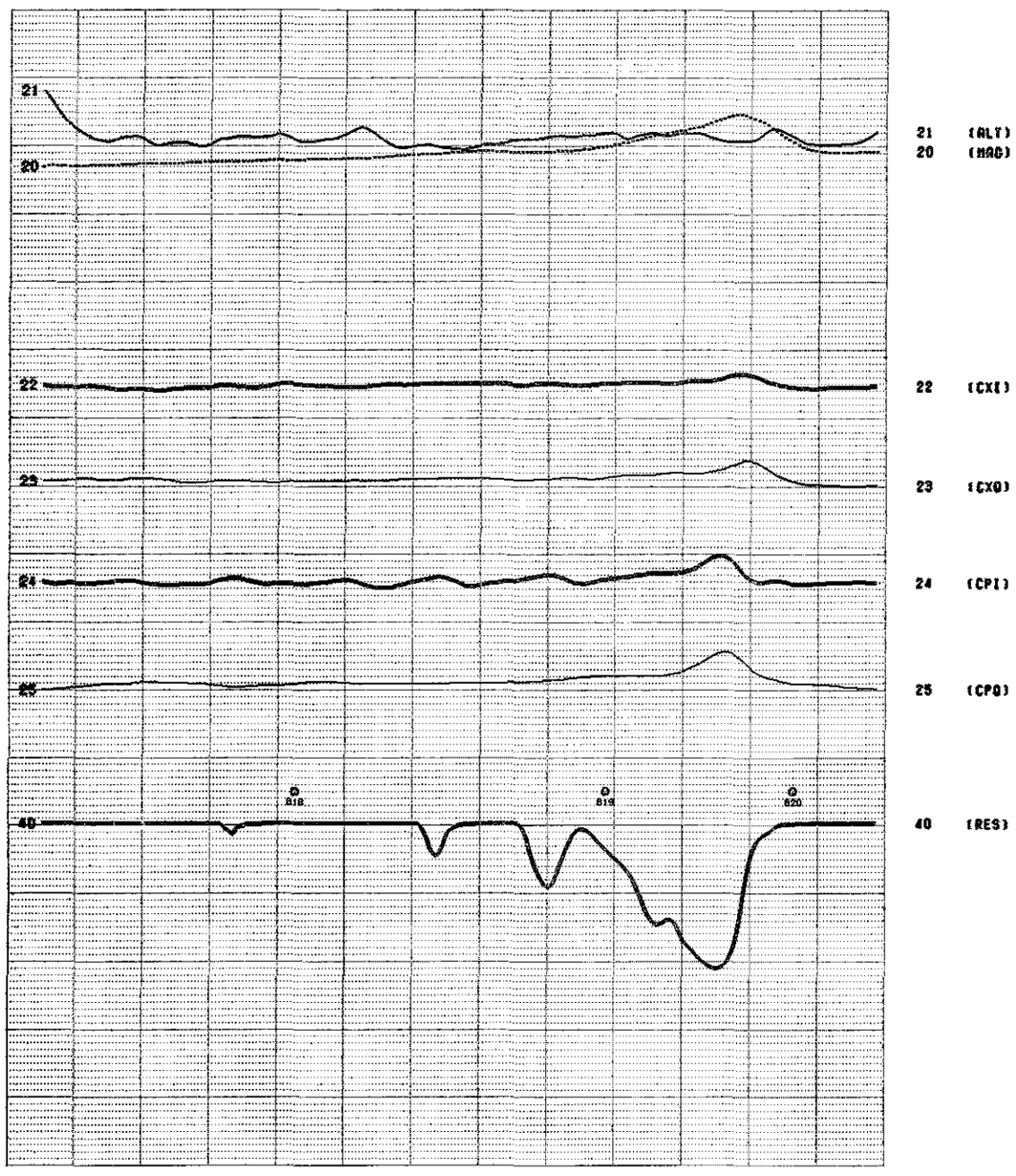
LINE -6800 JOB: 326 SH5 1: 20000

PRELIMINARY

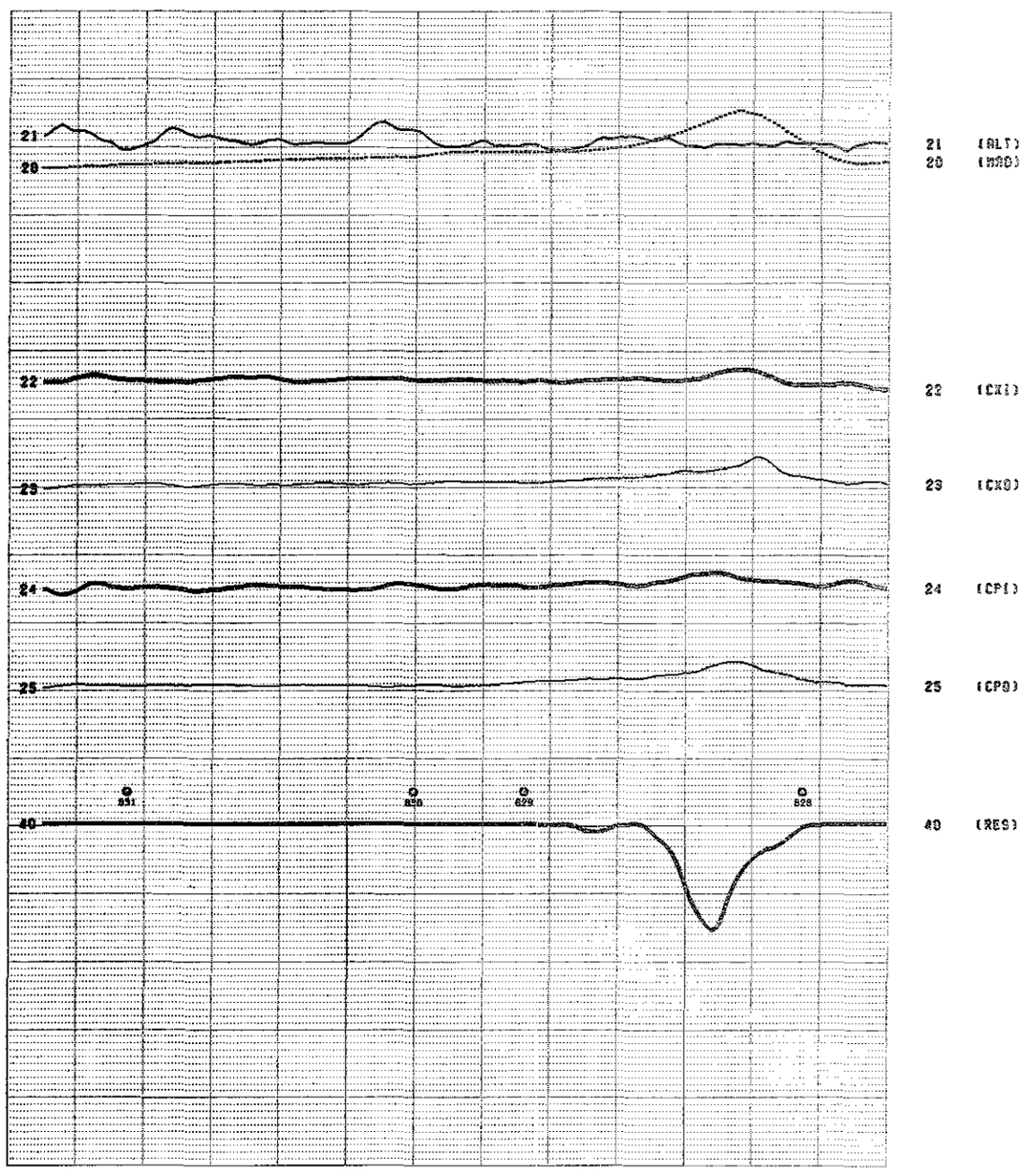
23.6

5 cm

82-1738



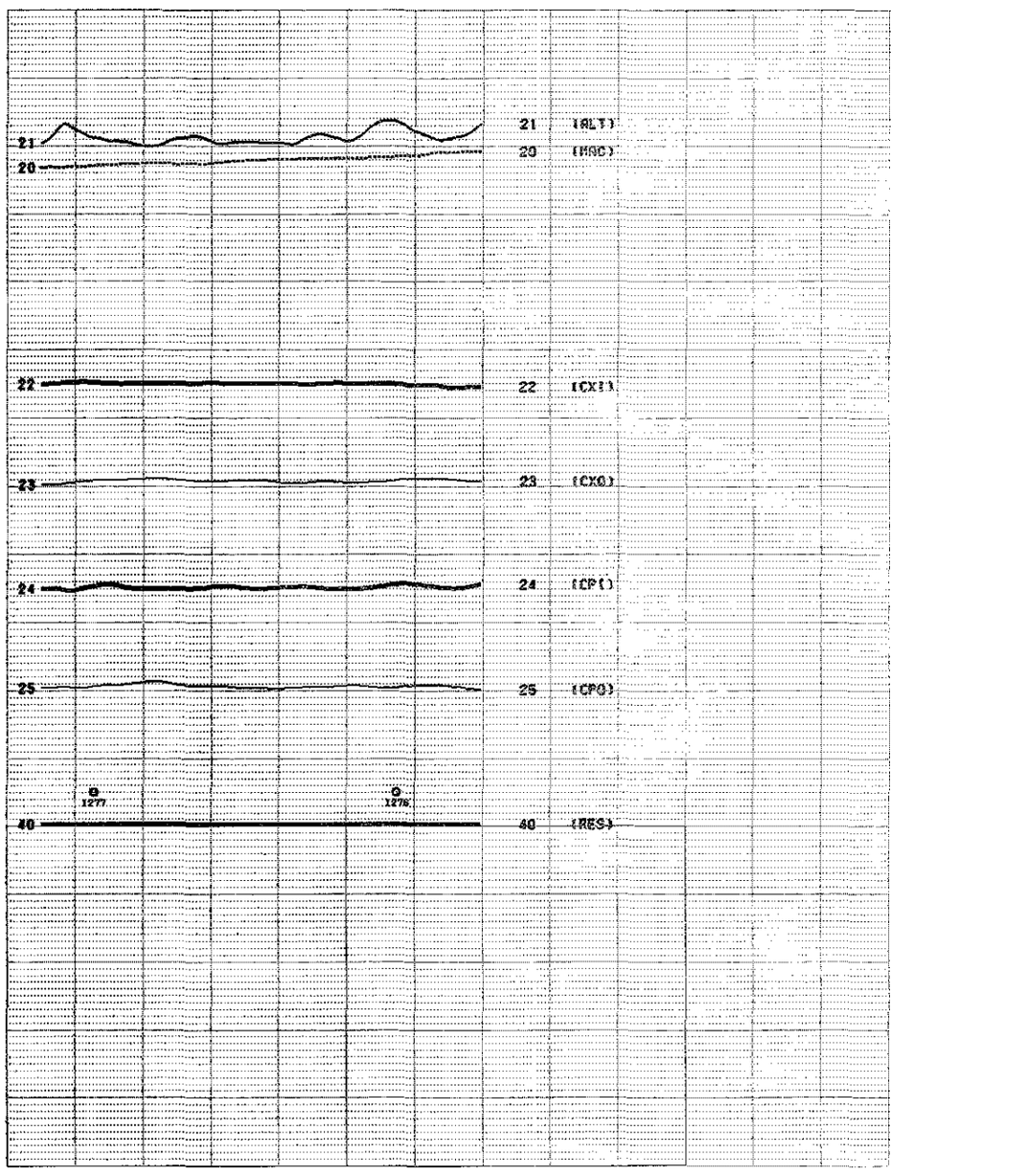
LINE 59 JOB: 326 SH6 1: 20000
PRELIMINARY



LINE -60 JOB: 326 SH6 1: 20000
PRELIMINARY



LINE -58 JOB: 326 SH6 1: 20000
PRELIMINARY

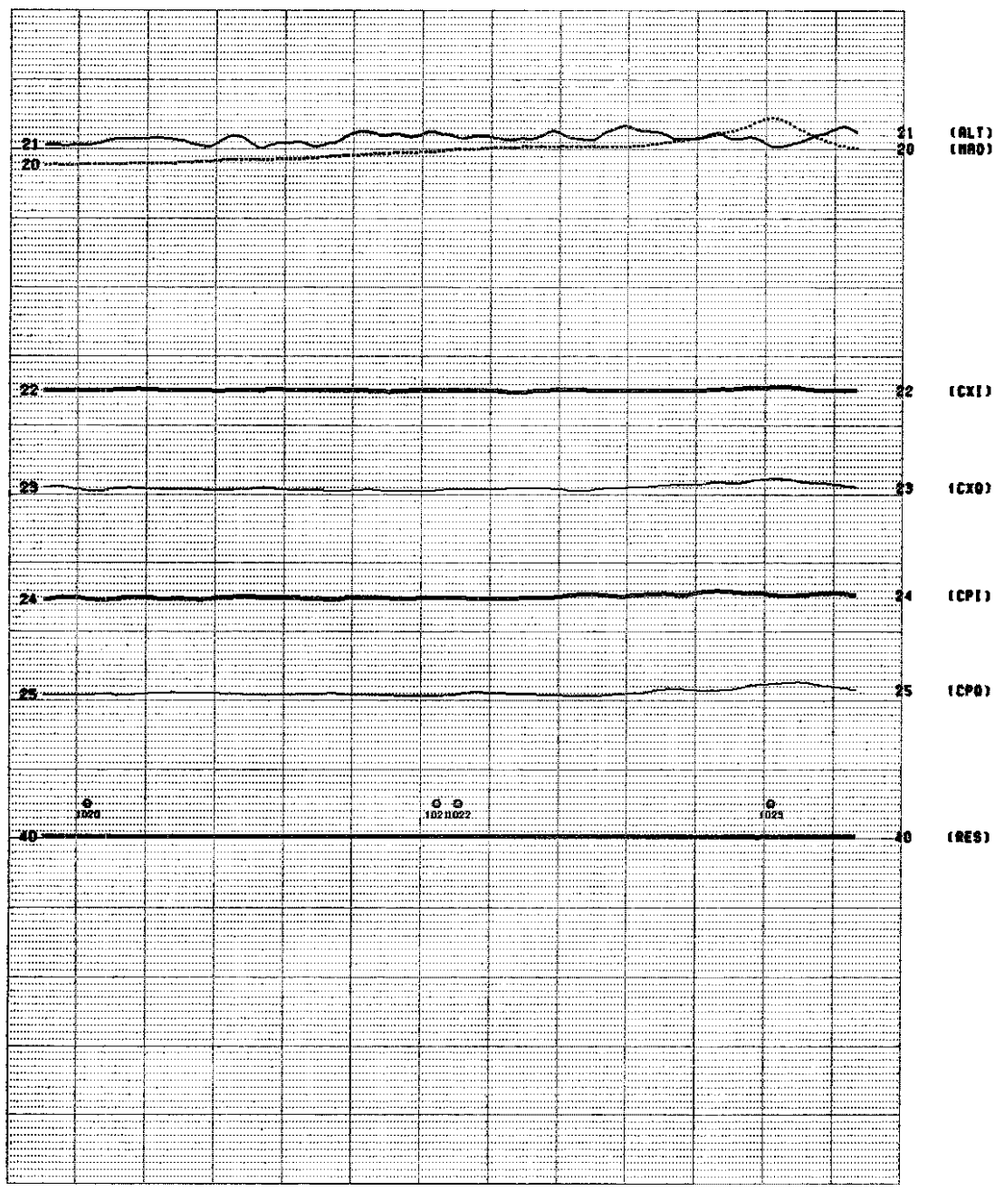


LINE -5910 JOB: 326 SH6 1: 20000
PRELIMINARY

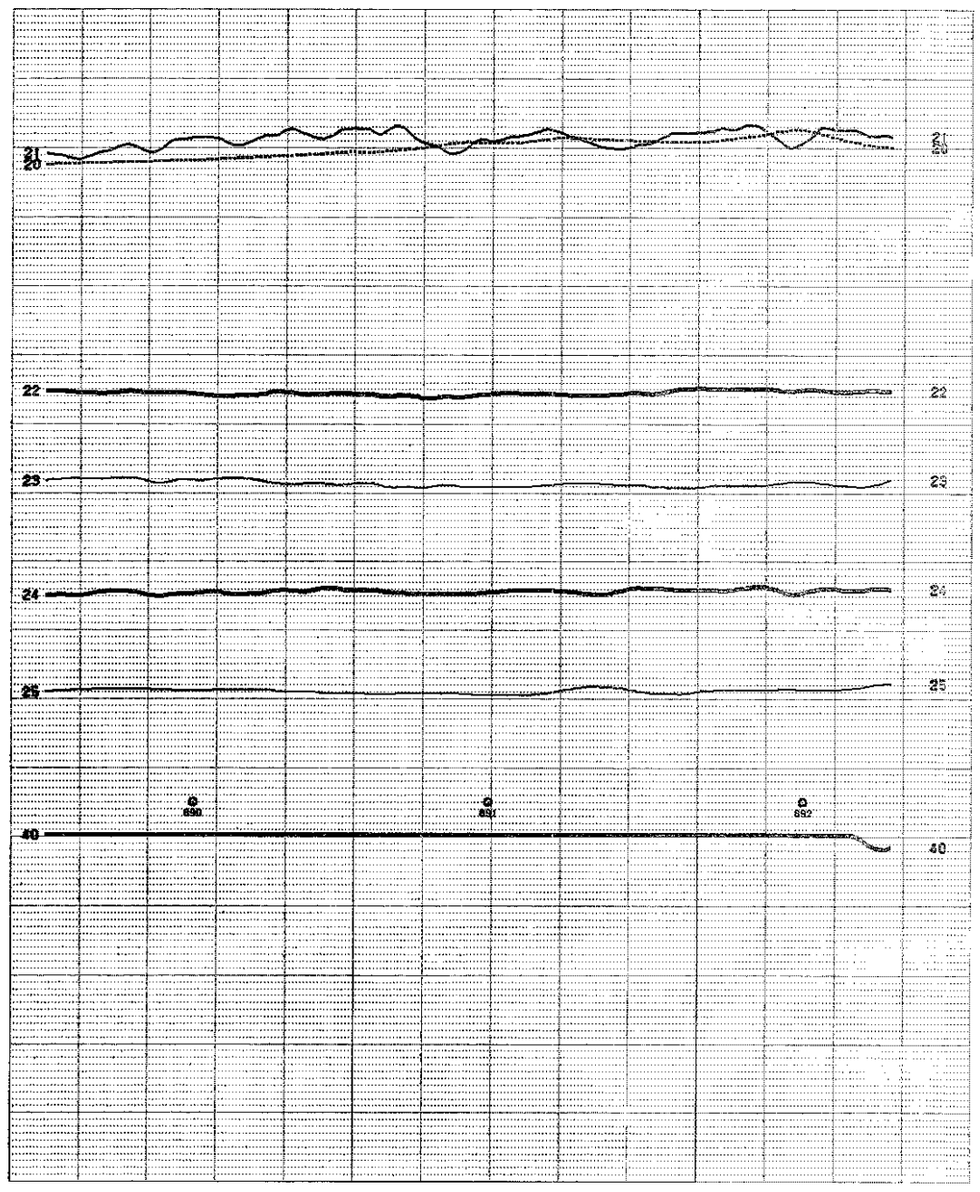
LINE 57 JOB: 326 SH6 1: 20000
PRELIMINARY

LINE -5900 JOB: 326 SH6 1: 20000
PRELIMINARY

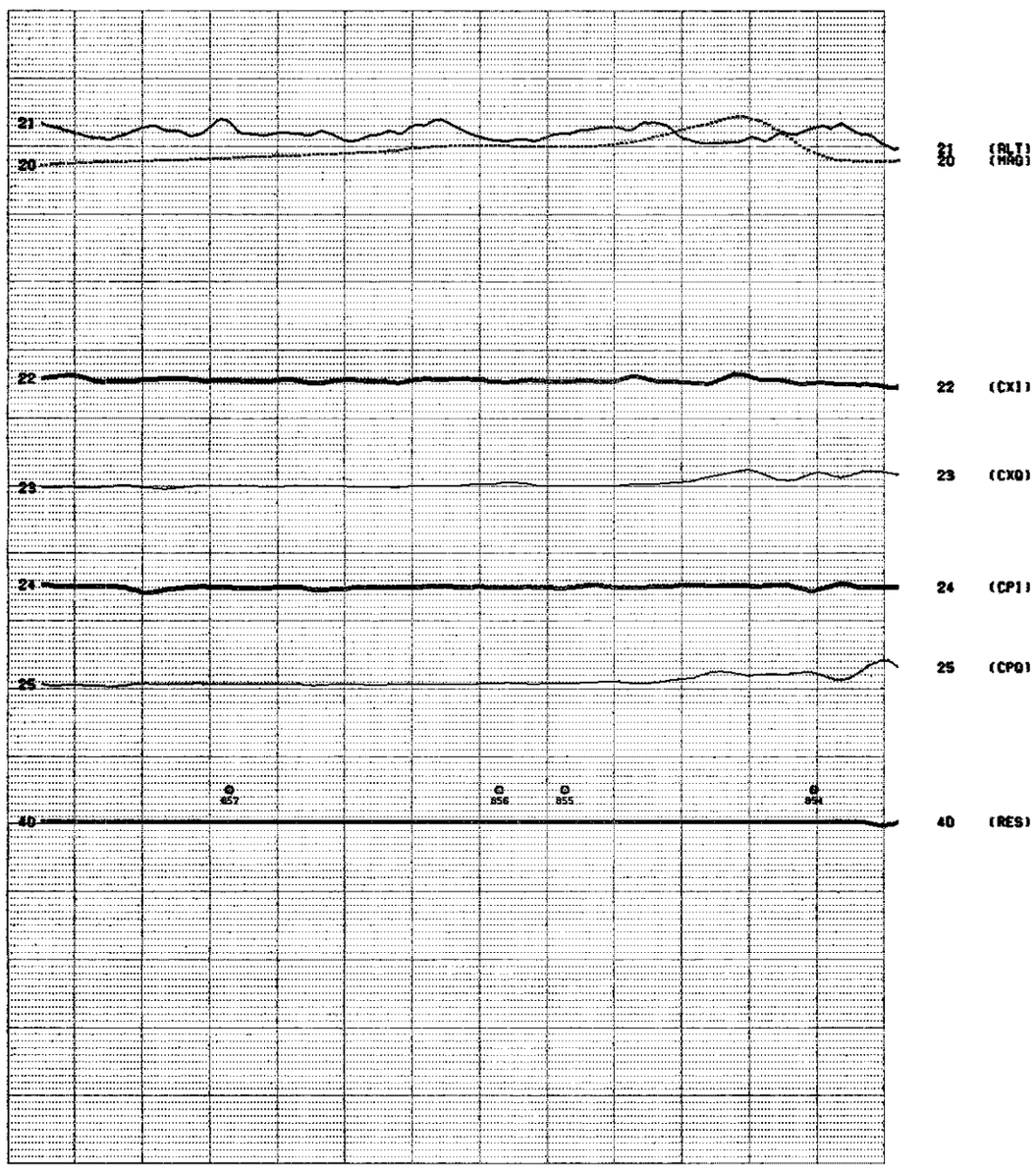
'24 of 24'



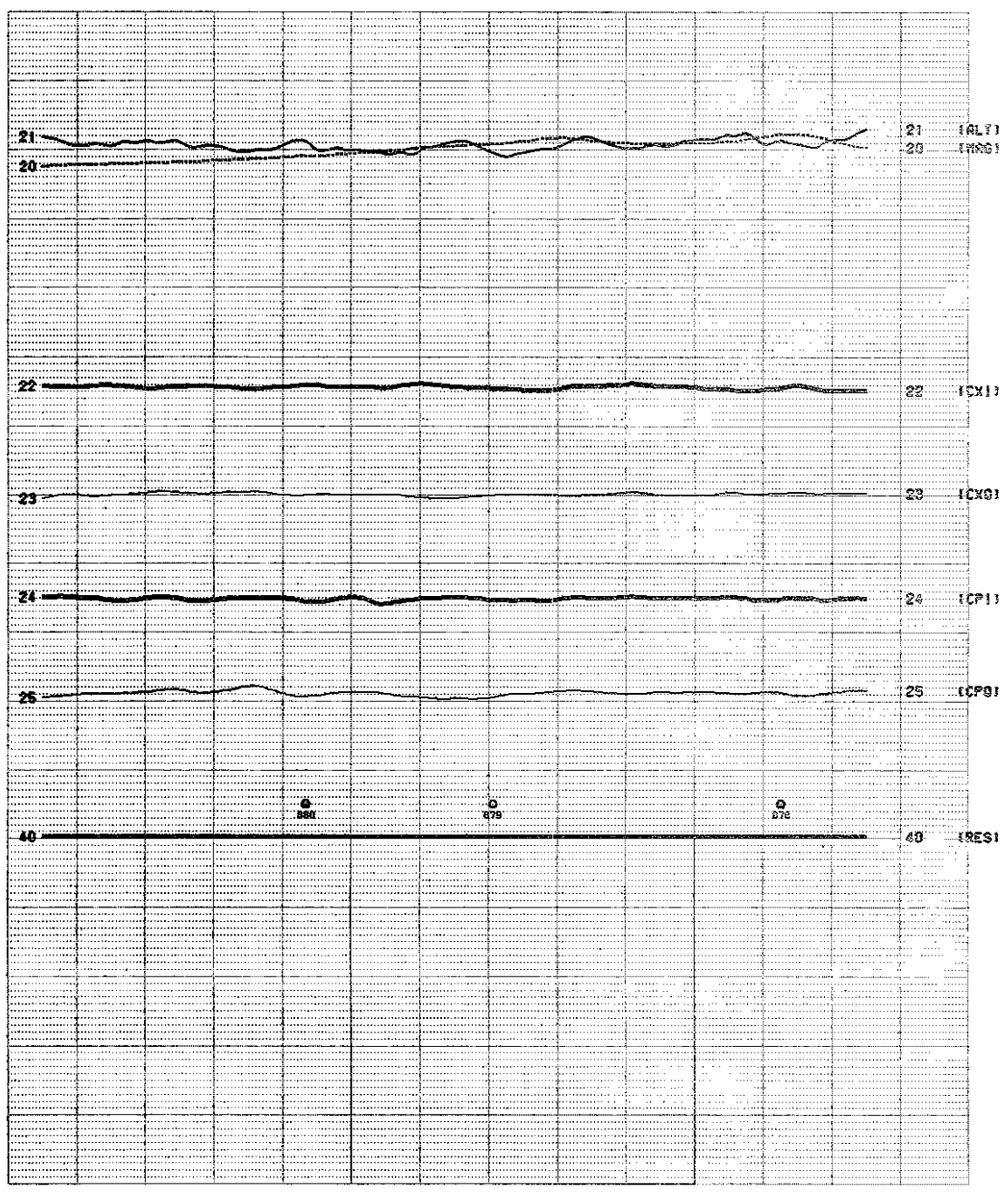
LINE 6200 JOB: 326 SH6 1: 20000
PRELIMINARY



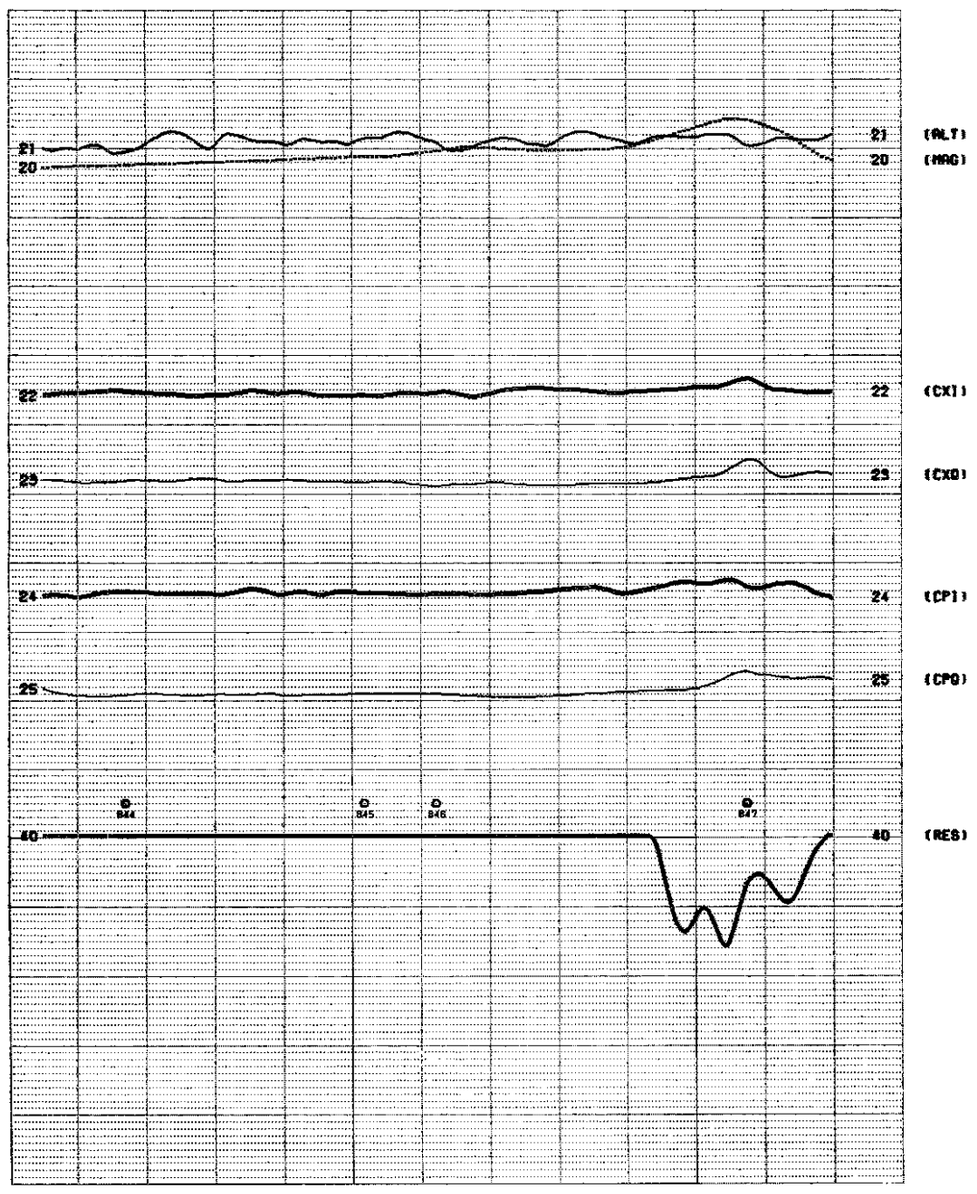
LINE 65 JOB: 326 SH6 1: 20000
PRELIMINARY



LINE -62 JOB: 326 SH6 1: 20000
PRELIMINARY



LINE -64 JOB: 326 SH6 1: 20000
PRELIMINARY

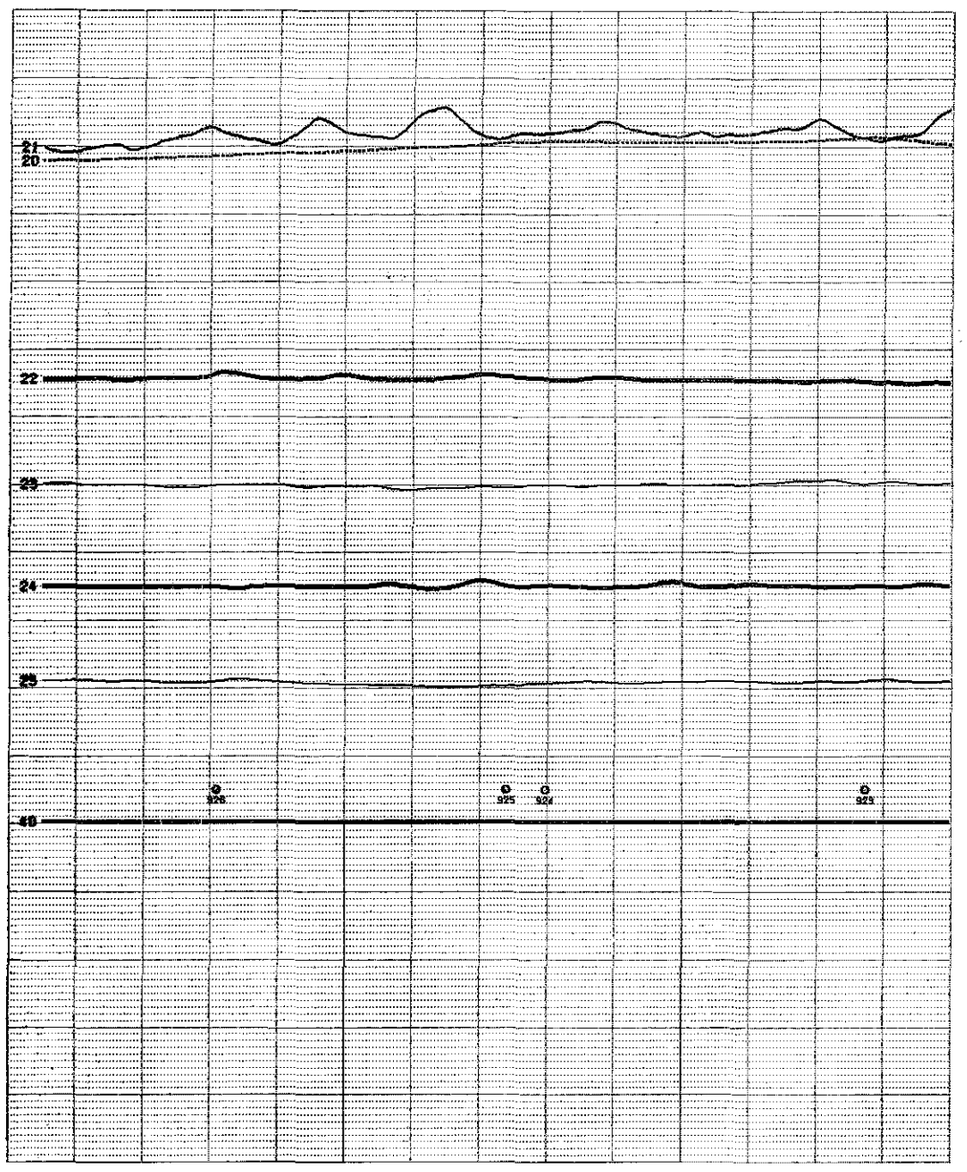


LINE 61 JOB: 326 SH6 1: 20000
PRELIMINARY

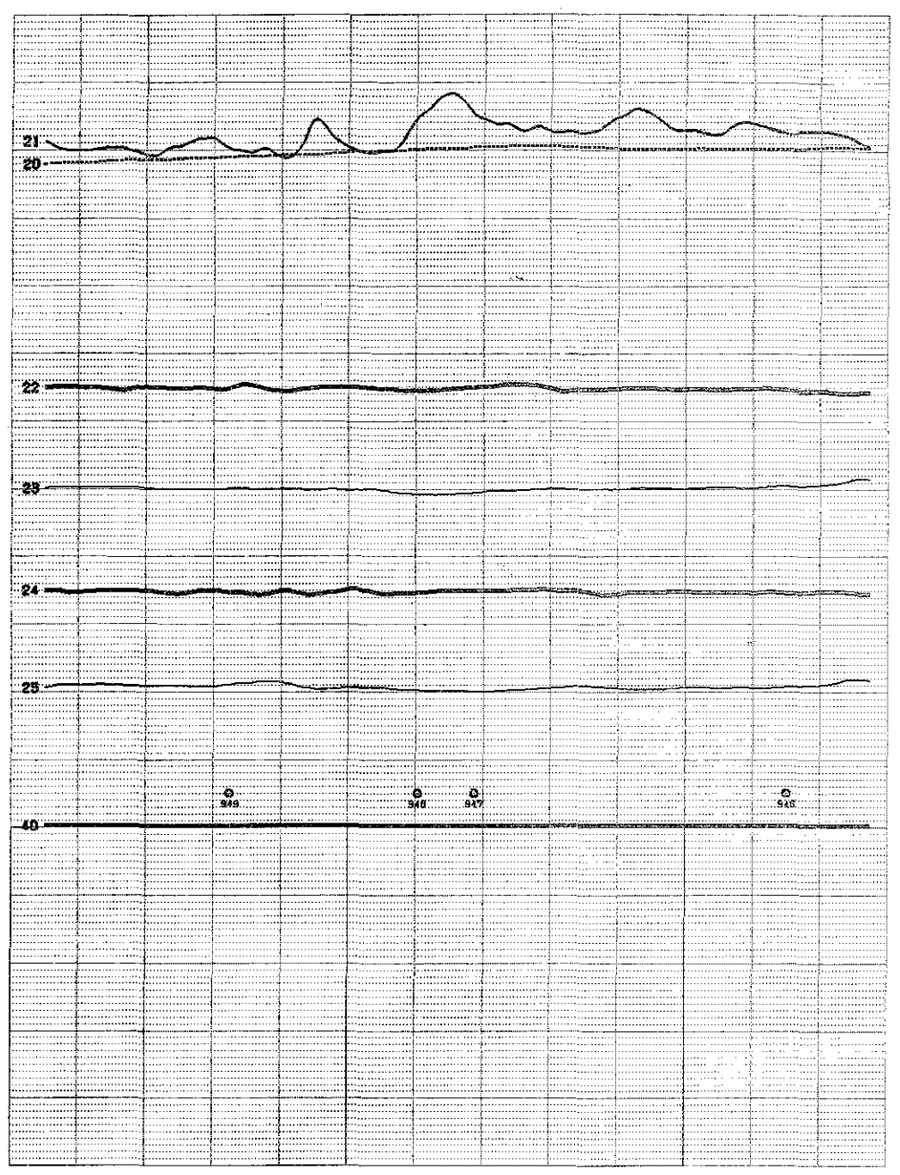


LINE 63 JOB: 326 SH6 1: 20000
PRELIMINARY

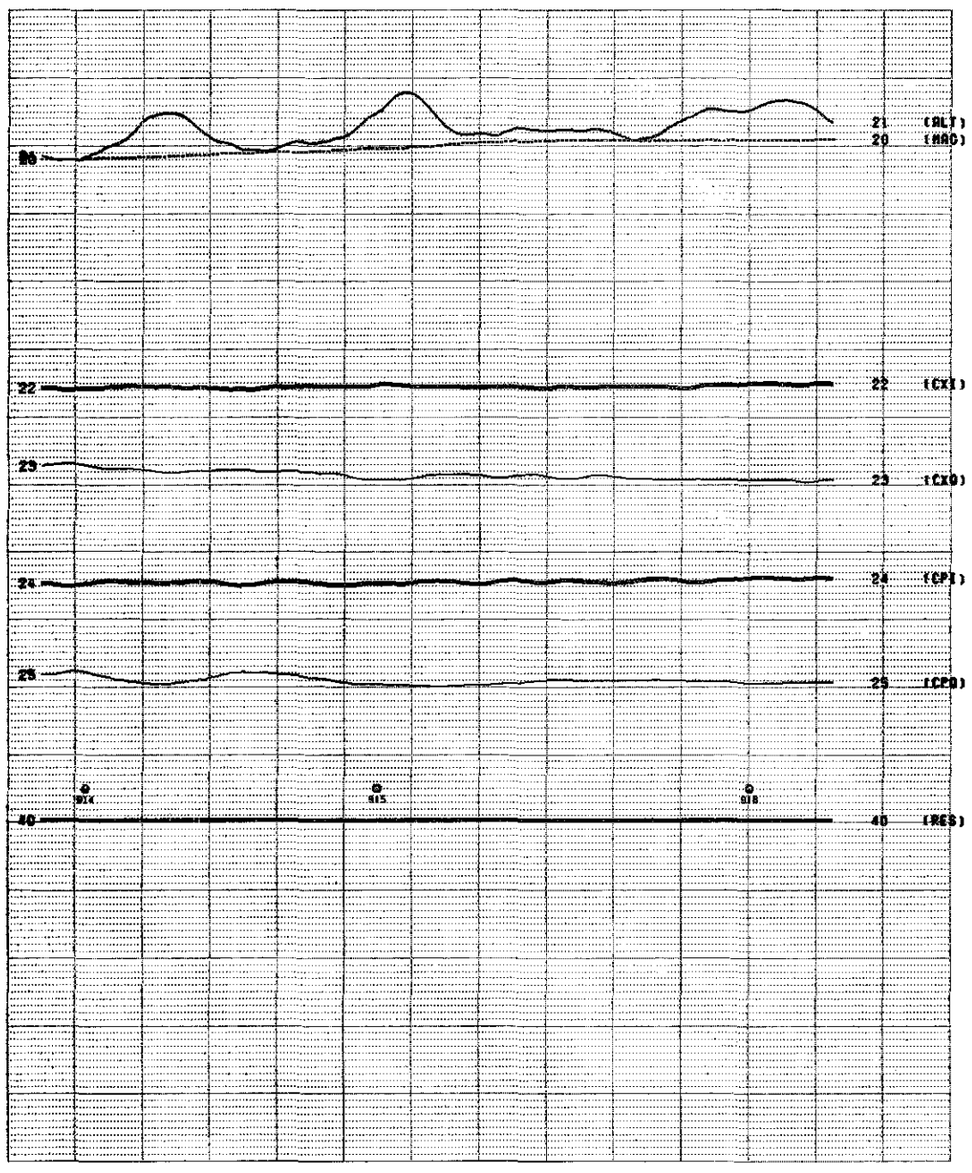
2·4a



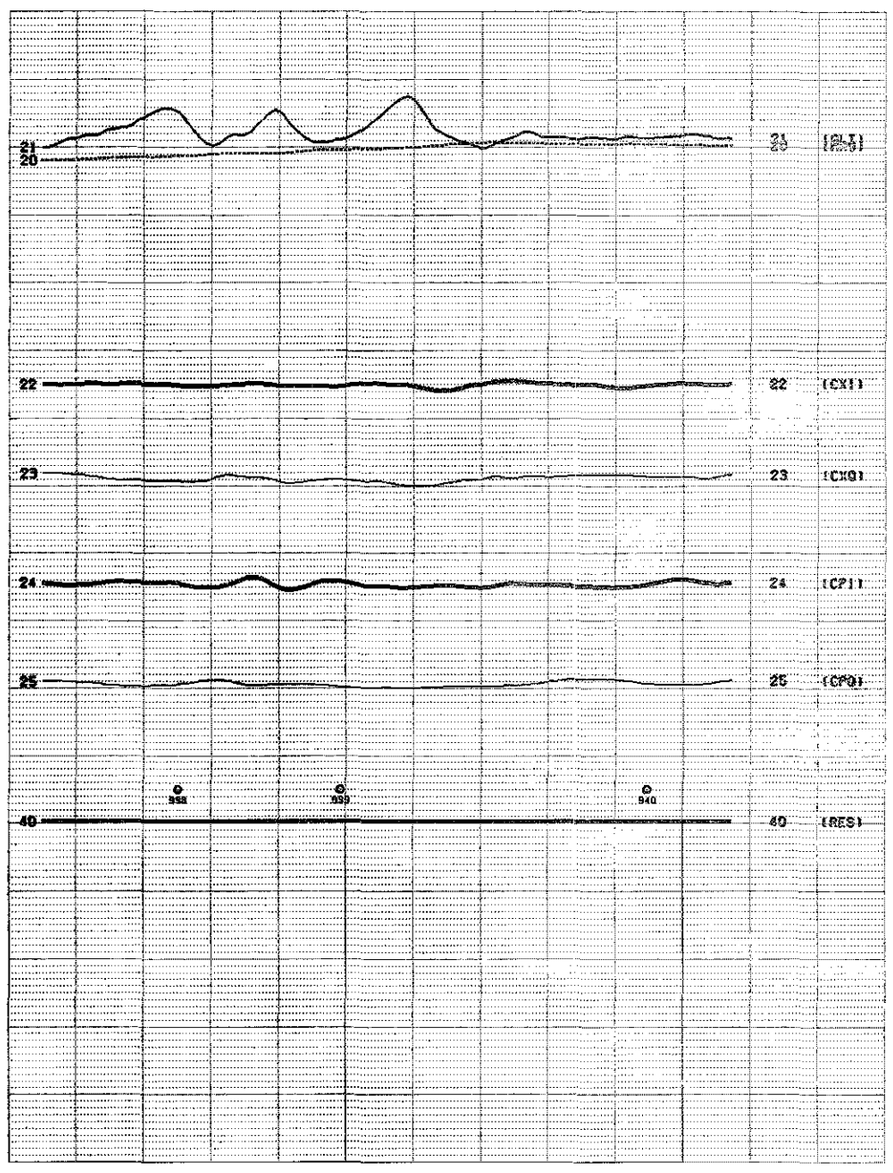
LINE -68 JOB: 326 SH6 1: 20000
PRELIMINARY



LINE -70 JOB: 326 SH6 1: 20000
PRELIMINARY



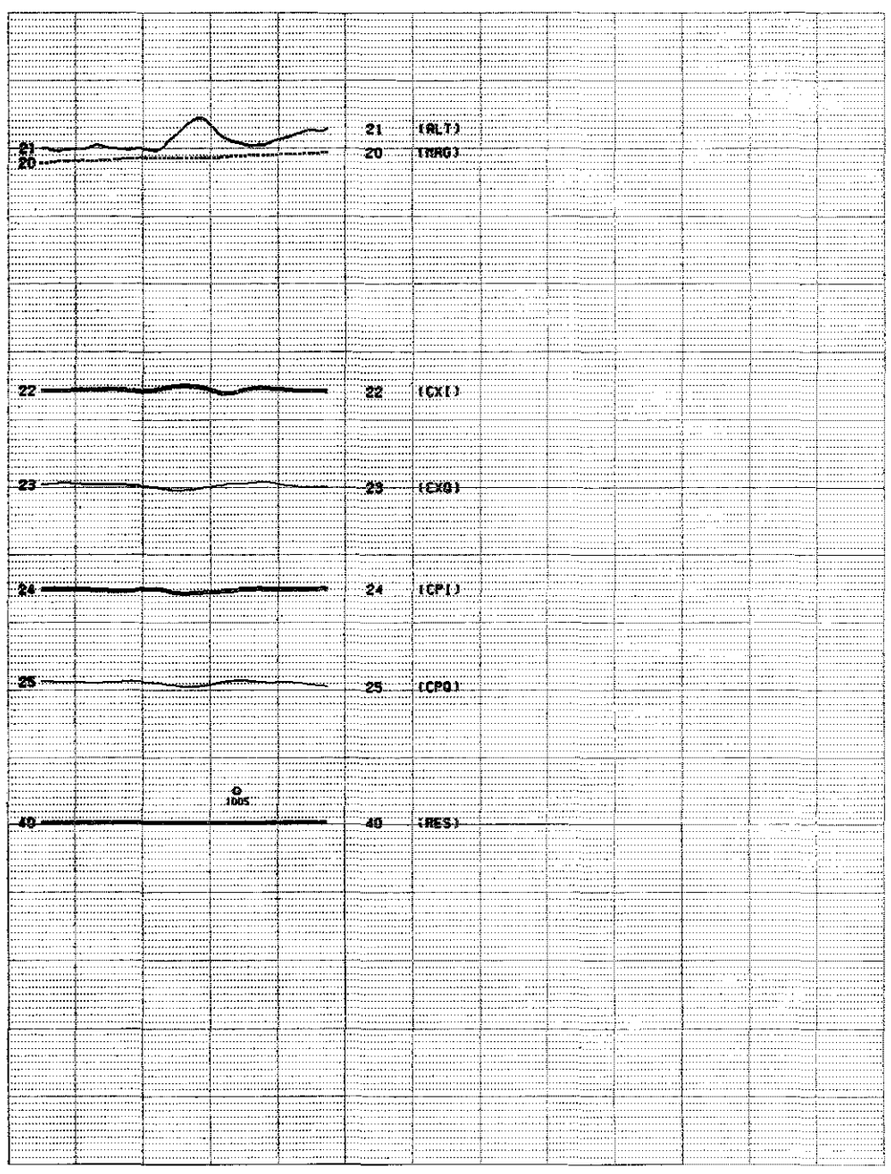
LINE 67 JOB: 326 SH6 1: 20000
PRELIMINARY



LINE 69 JOB: 326 SH6 1: 20000
PRELIMINARY



LINE -66 JOB: 326 SH6 1: 20000
PRELIMINARY



LINE -6800 JOB: 326 SH6 1: 20000
PRELIMINARY