

50

72-853

776001

GEOPEKO LIMITED
KING ISLAND

MICROFILMED

PROGRESS REPORT
EXPLORATION LICENCE 5/69

by

P. COTTAM

KING ISLAND

MARCH, 1972

ISG COORDINATES
REFER REPORT 70-0676

CONTENTS

INTRODUCTION

SUMMARY

CONCLUSIONS

RECOMMENDATIONS

TENURE

PHYSIOGRAPHY

GEOLOGY

- (1) The West Coast Granite
- (2) West Coast Meta-Sediments
- (3) East Coast Sediments and Meta-Sediments
- (4) Other Rock Types

ECONOMIC GEOLOGY

- (1) West Coast Granite
- (2) West Coast Meta-Sediments
- (3) East Coast Meta-Sediments
- (4) Other Rock Types
- (5) Beach Sands

GEOCHEMISTRY

A. Regional Sampling

- (1) West Coast Granite Contact
- (2) Zone of Aeromagnetic Contrast
- (3) Other Areas

B. Prospects

- (1) INVESTIGATOR 11
 - (i) Discussion of Previous Work
 - (ii) Stream Sampling
 - (iii) Gemco Auger Sampling

(2) INVESTIGATOR 12

C. Sampling Procedure

D. Analytical Method

GEOPHYSICS

REFERENCES

LIST OF PLANS:

- 8 1 inch to 1 mile plans relating to geological interpretation, Ni, Cu, Pb, Zn, Cr, W Geochemical Results and Geochemical sample type.
- 6 1:12000 Geological Plans covering Pearshape, Ettrick, Currie, Loozana, Reekara and Yellow Rock Areas.
(SHEETS 3 TO 8)
- 3 Geochemical frequency distribution graphs covering Investigator 11 and E.L. 5/69 results.
- 4 1:6000 plans of Investigator 11 area relating to rock chip geology, Pb, Zn, W Geochemical results.

INTRODUCTION

Exploration licence 5/69 covers approximately 88.5 square miles of the central western portion of King Island. The licence expired on 14th March, 1972. A further area of 27.5 square miles to the south, previously covered by the licence, was relinquished on 14th September, 1971.

For future exploration an area of 19 square miles in the north has been retained and this expires on the 14th September, 1972.

The exploration licence to the area was granted to King Island Scheelite Ltd., in March, 1969 and Anthony Mc Kenna and Partners Pty Ltd, consulting geologists, were commissioned to explore the areas in April 1969. A three stage programme of regional geological mapping, stream sediment sampling and geochemical sampling of selected areas was undertaken and subsequently reported on (4). In November, 1970 exploration of the area was largely taken over by the staff of Geopeko Limited, who worked in conjunction with Anthony Mc Kenna and Partners for a number of months before taking over the exploration completely.

Two prime areas of interest, designated INVESTIGATOR 11 and 12 were located during this original work and were the focus of most activity in the licence area during the early months of 1971. Further to this work photo-controlled regional mapping of the whole licence area was carried out, this was followed up by Gemco auger drilling to cover the areas of geological interest and obtain information in the extensive areas where little or no outcrop occurs. Gemco work was initially carried out in the vicinity of the west coast granite - meta - sediment contact but with few encouraging results. Later work was carried out across a north - south trending zone of aeromagnetic contrast located to the east of the granite contact. Little economic potential is indicated in the major part of the licence area. An area of anomalous zinc values has been located in the north of the licence area and requires further exploration to elucidate the significance of these high values.

The purpose of this report is to detail the exploration carried out in the licence area, to consolidate all knowledge within the licence area and to provide an assessment of the economic potential of the area.

SUMMARY

Recent work within the licence area, not previously reported on, can be divided into six categories:

- (1) Regional photo-controlled geological mapping at an approximate scale of 1:12000 with detailed follow-up mapping of areas of interest or confusion.
- (2) Close spaced Geochemical soil sampling with the Gemco auger on the roads around the Investigator 11 area as well as recheck geochemical stream sampling in the same area.
- (3) Close space Geochemical soil sampling with a hand auger over a grid system covering an area of high magnetic relief and geology anomalous to the local environment located near the central eastern boundary of E.L. 5/69. This area was designated Investigator 12.
- (4) Broad spaced geochemical soil sampling using the Gemco auger along roads and tracks in the locale of the west coast granite-meta-sediment contact.
- (5) Broad spaced geochemical soil sampling with the Gemco auger along roads and tracks in the locale of the well defined north-south trending zone of aeromagnetic contrast.
- (6) Limited hand auger, grab sample, and rock geochemical sampling in the area of pegmatite, aplite and basic dyke outcrop located south of Reekara Road and east of the Reekara Granite Quarry.
- (7) High anomalous geochemical values of 750, 800 and 1400 ppm zinc were located in a small area in the north of the licence. No other areas of strongly anomalous geochemical values were located.

004.

CONCLUSIONS

- (1) Geologically the environment appears very unfavourable with no economic minerals having been identified in any concentrations. Little encouragement has been received in the major part of the exploration licence to justify further exploration.
- (2) All anomalous geochemical values, except in one small area, appear to be localised erratic highs.
- (3) Some potential for zinc mineralisation is indicated by highly anomalous geochemical values in a small area north of Wood Road.

RECOMMENDATIONS

- (1) That the licence area south of Woods Road be relinquished, and the area of approximately 19 square miles to the north be retained.
- (2) That further geochemical sampling with the Gemco auger be carried out to define the zinc geochemical anomaly located on the Main North Road.
- (3) That further geochemical sampling be carried out to test for the possible presence of tin in the area south of Reekara Road and east of the Reekara quarry.

006

TENURE

The present area of the exploration licence is approximately 88.5 square miles. This area is described as commencing at the south west corner of the area and being south of the Badger Box Creek and the south west corner of 128 acres, 2 roods, 3 perches purchased by A.E. Hardy thence northerly by the inland boundary of a crown reservation facing along the west coast of King Island to the mouth of the Pass River thence in a general easterly direction along the Crown reservation on the left bank of the Pass River aforesaid to a point thereon which is the south east corner of 319 acres, 3 roods purchased by E. Cooper thence in a general northerly and north westerly direction by the Yellow Rock Road which is also an eastern boundary of E.L. 54/70 to a point thereon which is the south east corner of 35 acres, 2 roods, 19 perches purchased by H. Grave thence easterly to a point within a Crown land lot containing 499 acres, 2 roods, 37 perches and being the north west corner of E.L. 4/68 thence southerly and easterly by the western and part of the southern boundaries of E.L. 4/68 aforesaid to a point thereon the western boundary 47 acres, 3 roods purchased by H.K. Symons and others thence southerly by that western boundary to the south west corner of 47 acres, 3 roods aforesaid which is also a north west corner of E.L. 15/66 thence in a general southerly direction by the western boundary of E.L. 15/66 to a point that is on the northern boundary of 500 acres purchased by George Percy Bryden then westerly to the north west corner of the aforesaid thence southerly to the south east corner of 500 acres purchased by Lily Evelyn Salmon thence westerly to the south west corner of another 500 acres purchased by Lily Evelyn Salmon thence northerly to the south east corner of 118 acres, 3 roods, 13 perches purchased by D.R. Dossetor thence westerly to the south west corner lot 32/22 133 acres, 3 roods, 13 perches thence southerly to the south east corner of 137 acres purchased by R. Cleveland thence westerly to the south west corner of the aforesaid thence northerly to the north east corner of 312 acres, 2 roods, 31 perches purchased by D.C. Atkinson thence westerly to the north west of the aforesaid thence to the north west corner of 99 acres, 1 rood, 31 perches purchased by W.H. Atkinson thence westerly to the north west corner of the aforesaid thence southerly to the south west corner this same block thence westerly to the point of commencement.

Previous to September, 1971 the licence area covered a further 27.5 square miles extending north of Fitzmaurice Bay and commencing at the south west corner of 49 acres and 5 perches purchased by A.F. Atkinson.

Exploration licence 5/69 expired on the 14th March, 1972 and the southern 70 square miles of the licence has been relinquished. The area retained covers approximately 19 square miles. The licence to this area expires on the 14th September, 1972.

PHYSIOGRAPHY

The exploration licence is located in the central western part of King Island, and, as with the rest of the island, its topography is characterised by a very flat, low-relief, often swampy, depressed central plateau, surrounded by a coastal rim of Quaternary dune sands. The west coast has a rugged, almost continuous outcrop of rock but inland rock outcrop is very sparse.

The most recent dunes, still under movement, form a narrow strip directly in from the coast and are characterised by their relatively high relief and lack of vegetation. Behind these most recent dunes are a set of vegetation covered dunes again of high relief forming a broad band often up to 4000 metres wide but as narrow as 100 metres. The boundary of these dunes is sharply defined and often acts as a barrier to drainage causing the formation of swamps and occasional lagoons in the lower areas, particularly the south. A set of older, less prominent, more sporadically distributed dunes flank the well defined younger dunes in a number of areas, most particularly immediately south of Currie and north of Porky Creek. Calcite cemented layers, impenetrable with the Gemco auger, are most often associated with these older dunes.

South of Currie little land has been cleared and the margin of the younger dunes frequently marks the boundary of an area of thick scrub, often swampy in which rock or float outcrop is negligible. This includes the area now relinquished in which the only good rock outcrop, other than the coastal sequence, was the fairly continuous sequence exposed along the Ettrick River.

The Currie area provides the best rock and float exposure in the whole of the licence area as well as the greatest proportion of cleared land. North of the Airport road float occurrence is comparatively rare and most of the eastern portion of the licence area is scrub covered; float occurrence becomes more common north of Woods Road but is still largely restricted to the vicinity of dam excavations.

Road access to most parts of the licence area is good, with the major part of the area serviced by two north-south roads interlinked by a number of east-west roads and tracks. Gemco work along these enables good coverage across the strike of the country rocks. The southern area, now relinquished, had poor access and road coverage as does the area north of the Pass River. All major roads and tracks are easily passable in the winter but vehicle access away from the major roads and tracks is very difficult in the winter months.

GEOLOGY

Photo-controlled regional sheets were drawn up at an approximate scale of 1:12000 to allow for more accurate mapping of the area. Previous mapping had been plotted on uncontrolled photo-laydowns which resulted in large inaccuracies in positioning. The entire licence area is covered in six regional sheets (attached).

Due to the very sparse outcrop over the whole area little structural information is available except for that obtained from the coastal sequence. Mapping was carried out principally on rock float so that much of the regional interpretation is based on correlations between float occurrences which in many areas are restricted principally to dam and drain excavations. Areas with thick scrub cover and lack of road access were not covered other than by traverses of the better developed, accessible creeks. A good coverage was obtained in this way along the Ettrick River.

The rock types can be broken down into four broad units, as follows:

- (1) The West Coast Granite N.B. The term "granite" is used "sensu lato".

This is a fine to medium grained inhomogeneous body ranging in composition from adamellite to granodiorite (2). In thin section the texture usually shows signs of deformation and strain in such features as undulose extinction of quartz and bending of micas. The age is considered to be Pre-cambrian with a minimum age of emplacement stated as 715 million years (2) based on potassium argon dating of the micas within the granites.

The granite outcrops over approximately two thirds of the licence area coastline. It outcrops from approximately half a mile south of Badger Box Creek northwards to the south side of Currie Harbour, within Currie Harbour, and then outcrops continuously from a point approximately 1 mile south of Porky Creek. The granite has been described by a number of authors. The main characteristics are the heterogeneous nature of the granite and the frequent occurrence of lenticular xenoliths of basic material. Within E.L. 5/69 the granite is most commonly weak foliated, light grey, medium grain, generally poor in mafic minerals and composed principally of granular quartz and feldspar. More mafic rich, and porphyritic phases with weakly lineated euhedral feldspars have been noted (2). The granite trends approximately north-south and its contacts, within E.L. 5/69, appear conformable with the associated meta-sediments.

A. Jannink (4) suggested that the granite in the Porky Creek area was of a different age to the other granites on the western side of King Island and related to the Devonian granites with which mineralisation is associated. The tenuous arguments for this theory are made in a previous report (4 (iii)). However the location, texture, colour, mineral assemblage and deformation features of the granite in this area correlate much closer with the Pre-Cambrian west coast granites than the much fresher, homogeneous Devonian granites. The writer believes that any correlation with the Devonian granites is purely speculative and not correct.

GEOLOGY (Cont.)(2) West Coast Meta - Sediments (Pre-Cambrian)

These are intruded by and regionally conformable with the west coast granite. Within the licence area they are seen in outcrop along the coast for approximately two miles north of Currie and in continuous outcrop from south of Badger Box Creek to Fitzmaurice Bay. They consist of a monotonous north-south striking sequence of medium to coarse grained massive quartzites and micaceous quartzites interbedded with finely laminated quartz-muscovite schists and muscovite-quartz schists that dip to the west at high angles (65 - 80°) in the north and to the west at lesser angles (30 - 50°) farther south. Occasional beds, particularly in the south of the area, contain small garnets and staurolites.

The beds are occasionally intruded by quartz-feldspar-muscovite-tourmaline pegmatites of up to 20 feet in width. These pegmatites, which become much more frequent closer to the granite, are occasionally conformable with the bedding but more often cut across it at low angles. South of Badger Box Creek a broad contact zone exists in which the pegmatites, and a number of aplites, become intimately intermixed with the sediments so that an almost continual gradation exists between the granite and meta-sediments.

The meta-sediments are also frequently intruded by fine grain basic dykes. These are usually unconformable to the bedding and display no visible contact effects. A variety of types exist most having a very fine grain-green-black amphibole rich matrix often characterised by evenly distributed, aligned porphyroblastic laths of plagioclase.

The strike of the rocks is very regular along the coast with only slight small scale folding along the direction of strike. Small scale crenulations, boundinage structures and other small scale features indicative of plastic deformation are common.

A broad coverage of the sequence is fairly well exposed, with only a few short breaks, along the Ettrick River. This was mapped in April, 1971 by W. Mayer. The sequence exposed can be broadly correlated with those exposed in small outcrops and float occurrence in the Currie area, this indicates that no major facies changes occur over this area.

A distinct difference in strike between the slates and shales of the "east coast" sequence exposed in the Ettrick and the quartzites and schists of the west coast sequence exposed a few hundred yards farther west suggest an angular unconformity between the two sequences.

(3) East Coast Sediments and Meta-Sediments

These are considered to have an angular unconformable relation to the underlying west coast meta-sediments. The sequence is composed of fine bedded siltstones and shales with occasional fine sandstones grading to the west and north into regionally metamorphosed fine grained quartzites, fine grain muscovite schists, quartz muscovite schists and muscovite sericite schists.

GEOLOGY (Cont)

In the Loorana - Reekara areas garnets and staurolites are occasional accessories in the schists. This gradational regional metamorphism is considered to be related to the depth of burial within the sediment pile. Low grade pelitic semi-schists and slates are characteristic of the transitional zone.

Structural information on these rocks is poor within the licence area excepting restricted areas of outcrop. The strike appears to change from north east-south west near the unconformable contact in the west to a north-south direction in the eastern half of the licence area. Local folding is common and considerable variation in dip occurs though it is generally between 20 and 40° to the west. Local changes in strike are only slight.

The fine grained schists are dominant within eastern E.L. 5/69 with siltstones and shales only outcropping in a narrow strip, widening to the south, but pinching out in the north near the Sea Elephant River. In the southern relinquished area the regional metamorphic effects are weak and the schists appear to be absent from the sequence; outcrop is however very poor in this area. In the northern one third of the exploration licence the silver grey fine grain muscovite schists, considered the type rock of the Reekara area, are dominant and appear fairly uniform in character over a wide extent of suboutcrop. Soft silver grey micaceous clay is characteristic of this underlying rock type. In the north of the E.L. the west coast meta-sediments are absent from the sequence and the fine grain schist directly abuts the West Coast granite.

(4) Other Rock Types

A number of basic dyke bodies outcrop both along the coast and inland. Though often unconformable in coastal outcrop the structure of the dykes outcropping inland suggests they are regionally conformable or nearly so. They range in texture from fine grain dark green porphyritic bodies to coarsely crystalline gabbroic bodies. Their resistance to weathering has made them more likely to outcrop than other rock types in the region.

A sharp local aeromagnetic anomaly brought attention to a distinct outcrop of olivine rich basalt. The outcrop is located near the central eastern boundary of E.L. 5/69, north of Adams Road. This area is designated Investigator 12. The rock consists of a fine grain dark green-black crystalline matrix with evenly disseminated small clusters of olivine; surrounding this basalt outcrop is extensive float of weathered yellow brown breccia. The outcrop is suggested to be that of a volcanic neck: the features of an isolated basaltic plug with associated breccia correspond with this. Because of the fresh nature and lack of alteration of the rock it is thought that this basalt may be Tertiary or Mesozoic in age as against the Cambrian age assigned to the spilite and picrite basalts of the east coast.

Pisolitic lateritic ironstone, common throughout the island is a common float material in the licence area as well as often forming a hard ironpan layer in the soil profile. The iron content is as high as 55% but no significant concentrations of any other element have been noted in any ironstone analysed.

Recent fossiliferous limestone and limonite stained medium grained sandstone, the product of calcite cementation of dune sand, often form layers within the dunes, which prove impenetrable with the Gemco auger. These layers are most commonly encountered in the Browns Road, Munro Road areas.

ECONOMIC GEOLOGY

There is no known economic mineralisation within the licence area. In the whole of the sequence exposed on the coast the only mineralisation of interest, observed or reported was the presence of small amounts of galena in a quartzite adjacent to the granite contact, north of Currie, mentioned in a Mount Costigan Mines Report of 29-2-1968 (4).

(1) West Coast Granite

An assessment of the tin bearing potential of the granites of King Island was made by J.J. Gresham and the author using "remote sensing" techniques in order to elucidate whether the cassiterite - scheelite bearing quartz-tourmaline veins at Reekara (to the east of the licence area) were derived from the Devonian Mount Council granite or the Pre-Cambrian west coast granites. Geochemical investigations were based on the assumption that certain parameters of granite chemical composition were related directly to the ability of the granite to act as a source of tin mineralisation. In relation to this, silicate analysis of a number of samples of King Island granites were carried out. The conclusion of the investigations was that the west coast granites were the most geochemically favourable of the King Island granites but still lay outside the geochemical parameters based on analyses of most of the tin bearing granites of the world. The problem was not elucidated but the fact that the tin bearing granites of Tasmania are also Devonian in age would make the Mount Council granite the more likely but not definite source of the mineralisation. (1)

No mineralisation has been seen in any of the pegmatites or aplites inspected in the licence area. Samples of aplite and pegmatite found in abundant float to the south of Reekara Road and east of Reekara quarry were sent for analysis for tin, tungsten and molybdenum but results were negative. A narrow vein of graphite was noted in a piece of quartz float in this area.

Small amounts of scheelite have been observed in non-zoned quartz-clinzoisite pegmatites intruding the west coast granites at the northern end of the island (5). Pegmatites of this type were not however observed in E.L. 5/69.

Outcrop observation suggests that prospects for economic mineralisation adjacent to and within the granite are very poor.

(2) West Coast Meta-Sediments

Small amounts of galena in a massive quartzite (4), a small percentage of pyrite in other quartzites and quartzite rock chip from Hills Road containing abundant pyrite and pyrrhottite are the only observed mineralisation within the west coast meta-sediments in E.L. 5/69.

012

ECONOMIC GEOLOGY (Cont.)

To test for the possible presence of economic mineralisation adjacent to the granite contact over the large inland area over which it was not exposed and to locate it more accurately, Gemco auger holes were drilled to bedrock wherever access was possible and dune cover not too thick. The contact was located on Currie, Frasers, Airport, Hills, Woods and the Main North Roads to within approximately 100 metres as well as being located with lesser accuracy on Munro Road. A layer of impenetrable recent fossiliferous limestone and sandstone prevented the accurate location or basement derived soil samples being obtained on Browns, Heddle and Munro Roads. No mineralisation or anomalous types were seen in any of the rock chip recovered other than the presence of abundant pyrite and pyrrhottite in quartzite in one hole on Hills Road.

Gemco drilling was carried out a few hundred metres to the east of the contact in order to cover a linear zone of aeromagnetic contrast. Rock chip recovered was mostly micaceous quartzite and quartz mica schist. A number of holes on Browns and Frasers Roads defined a narrow zone of dark grey spotted quartz-muscovite schist which was shown in thin section to contain abundant opaque minerals, probably magnetite and pyrite. This unit is the most likely cause of the aeromagnetic contrast. No mineralisation of economic significance was noted in drilling over this area.

The lack of observance of a suitable host rock for epigenetic or metasomatic economic mineralisations and the lack of observance of the presence of any mineralisation of interest within the west coast meta-sediments makes the presence of an economic body of ore within them highly unlikely.

(3) East Coast Meta-Sediments

Cassiterite and scheelite bearing quartz-tourmaline veins intruding fine grain muscovite quartz (garnet) schists are found at Reekara, to the east of northern E.L. 5/69. There is thus a possibility of further similar mineralisation within the same rock type which extends into and covers the greater part of northern E.L. 5/69. This possibility must be regarded as negligible if the Mount Council granite is considered the source of the Reekara mineralisation. Regional mapping has shown the presence of large amounts of smokey blue to white quartz which is common in the Reekara area, but no mineralisation was noted within the quartz. Previous extensive work around the mineralised veins at Reekara had indicated that they were very restricted and localised bodies (6).

Stream sediment sampling by A. Mc Kenna and Partners Pty Ltd., consultant geologists, over the fine grain schists within E.L. 5/69 revealed high tin values (up to 180 ppm) close to the west coast granite contact around the area of pegmatite and basic dyke rock, south of Reekara Road (4). Little mention of these were made in subsequent reports (4) and consequently the results were overlooked until recently. Follow up geochemical sampling has been carried out and results have only partially substantiated the original work. The possibility of tin mineralisation in this area must be regarded as doubtful but needs to be elucidated by further exploration.

Three highly anomalous zinc values in soil samples obtained over a limited area close to the granite contact approximately midway between Woods Road and the Reekara granite quarry mark this northern area of E.L. 5/69 as the one of prime interest in the exploration licence. In this area the west coast meta-sediments rapidly pinch out so that the west coast granite is in contact with the lower grade fine grain muscovite schists.

ECONOMIC GEOLOGY (Cont)

The presence of abundant float occurrences of pegmatite, aplite and basic dyke also marks this area as one of interest though limited rock samples taken have not registered any significant values, nor has mineralisation been noted. It is possible that the unconformable contact has made a more favourable environment for mineralisation, though it is considered unlikely that any sizeable bodies of economic mineralisation are present due to the lack of suitable host rock.

(4) Other Rock Types

The neck of green-black olivine basalt and surrounding breccia intruded into shales and siltstones of central eastern F.L. 5/69 is near the focus of a sharp aeromagnetic anomaly. The possible association with base metal mineralisation or a relation to the mine series rocks at Grassy which are associated with basaltic volcanics was considered. A grid was laid over the area and geochemical samples obtained with the hand auger. A very close correlation of geochemistry with geology was obtained and the neck was well delineated. No anomalous geochemical values were registered so it must be assumed no economic mineralisation is associated with the volcanic neck.

(5) Beach Sands

No work has been done in the recent programme on the search for heavy mineral concentrations within the exploration licence. Previous limited work in the southern half of the licence area has located only slight localised concentrations at Badger Box Creek (4). Economic concentrations of heavy minerals within the licence area are unlikely.

014

GEOCHEMISTRY

Geochemical sampling has been the main tool of exploration in the licence area. Bedrock sampling with the Gemco auger drill has been the main geochemical sampling method with lesser amounts of stream sampling and hand auger sampling having been carried out. The recent work can be divided into two groups: regional projects of broad spaced geochemical sampling, and localised, concentrated sampling in specific areas of interest (Investigators 11 and 12).

A. Regional Sampling:

Two major areas were sampled with the Gemco auger drill. The nature of these projects was such as to give a fairly broad coverage of the whole licence area.

(1) The West Coast Granite Contact

Previous to recent work the position of the granite contact with the meta-sediments was not known with any accuracy except for exposures on the coast and a few localised inland areas. Little knowledge existed as to the possibility of economic mineralisation close to this contact. To test this possibility and assess the position of the contact Gemco augering was carried out across the contact along all accessible roads which cut across it. The limits of this drilling were lack of access south of Currie Road and the licence boundary in the north.

The drilling was done at approximately 50 metre intervals along Frasers Road and at approximately 200-300 metre intervals along all other roads which were Currie, Airport, Munro, Browns, Hills, Heddle, Woods and Main North Roads. The contact position was not established on Browns or Munro Road due to the presence of impenetrable fossiliferous limestone or sandstone. The contact was located on all other roads, but a number of holes drilled finished in dune sand or at an impenetrable limestone layer.

A total of 54 holes were sampled in this programme. 14 of these were on the Main North Road. In only one of the fifty four samples analysed were strongly anomalous geochemical values received and the only elements showing notable variance in the other samples were tin and tungsten.

Low anomalous values of 20 and 40 ppm tin were received over the granite rock types along Frasers Road. These are the only measurable tin assays received from over the west coast granite and suggest a weak concentration close to the contact in this area. Other values of up to 40 ppm tin were received along Heddle Road but these are a reflection of small amounts of tin in the recent dune deposits as the hole finished in sand.

Low anomalous tungsten values of between 10 and 30 ppm were received from five unrelated holes. One anomalous value of 60 ppm from a hole in Heddle Road is again a reflection of small amounts of tungsten in the recent dune deposits.

A highly anomalous value of 750 ppm zinc with associated high lead (240 ppm) was registered in a sample taken on the Main North Road 300 metres north of Woods Road and recovering microgranite rock chip. A duplicate sample confirmed these results. Two holes drilled at 50 metre intervals south of this only assayed 30 and 35 ppm zinc in their soil samples.

015

GEOCHEMISTRY (Cont)

However two recent holes drilled 20 and 40 metres to the north showed an extension of the anomalous zinc area with their samples registering 800 and 1400 ppm zinc. Lead values have not yet been received for these samples. Values of this order are usually indicative of mineralisation and are much higher than normal soil range (3).

Geochemical soil sampling is one of the most successful methods in prospecting for zinc due to its fixation in the clays of residual soil (3). Due to its moderately high mobility it forms fairly broad dispersion patterns so that a small pocket of zinc mineralisation could cause the anomaly as so far revealed. The cause of the anomaly can only be elucidated by further exploration but on the basis of evidence in the rest of the licence area it would appear that the potential for economic mineralisation is poor.

A noticeable feature of the lead distribution is that values are slightly higher in the north where the west coast granite abuts the fine grain schists. Lead values to the south are generally 20 ppm, in the north of the licence area they lie in the range 20 - 60 ppm. This is probably a simple reflection of a higher lead content in the fine grain schists than in the higher grade west coast schists.

A slight relative concentration of chromium is noted close to the contact on Frasers Road but the values obtained of 200 - 250 ppm cannot be regarded as indicative of mineralisation. Except for the one high there is no revealed concentration of zinc, copper or nickel close to the contact at any point. Except for irregular spot highs which fall within the normal ranges for the rock types observed (3) the values are low and in a narrow range.

Results from the geochemical work across the contact indicates the west coast granite meta-sediments contact is barren of mineralisation but indicates the possible presence of zinc - lead mineralisation where the granite contacts the east coast meta-sediments. Overall the results were very disappointing but to be expected considering coastal and other outcrops observed.

(2) Zone of Aeromagnetic Contrast

The aeromagnetic map of King Island shows a marked, north south trending, narrow zone of contrast with its axis approximately 1000 metres east of the west coast granite contact and overlying the west coast meta-sediments. To test the possibility that this represented a mineralised zone and also to obtain general regional information, a series of Gemco holes were drilled to give broad coverage of this zone. Drilling was limited in the south by thick dune cover which prevented penetration to bedrock and limited in the north by the loss of definition of the contrast north of Hills Road.

A total of 36 holes were drilled approximately 200 metres apart along Frasers, Marshalls, Browns, the Old Tin Mine and Hills Roads. The values received for the elements analysed could not be regarded as anomalous except for a few spot highs which did not relate to any observed mineralisation nor were high enough to justify further sampling. The strata causing the aeromagnetic contrast is believed to be a magnetite rich quartz-mica schist recovered from a number of holes on Browns and Frasers Roads. No anomalous geochemical values were related to this strata.

GEOCHEMISTRY (Cont)

Spot highs received were one of 580 ppm copper over micaceous quartzite on Frasers Road just east of Marshalls Road junction, and one of 280 ppm lead, 150 ppm zinc over Reekara-type fine grain muscovite schist on the Old Tin Mine Road.

The lack of observance of any mineralisation in the rock chip recovered and the spot high nature of these values makes it unlikely that their source is an economic mineralisation.

(3) Other Areas

Anomalous tin values of up to 180 ppm were obtained by Anthony Mc Kenna and Partners Pty Ltd, in stream samples taken near the west coast granite to the south of Reekara Road. Recently nine short hand auger hole samples and five dam-side grab samples were taken to give a broad coverage of the area. Preliminary results have failed to substantiate those of Anthony Mc Kenna and Partners Pty Ltd, with all samples returning 5 or <5 ppm tin excepting two from Reekara Road registering 30 and 35 ppm. These are still considered slightly anomalous. Further geochemical sampling with the Gemco wherever possible, is recommended in this area to test for the presence of tin.

B. Prospects

Two areas, designated Investigator 11 and 12, were covered by detailed geochemical sampling. Previous sampling in the Investigator 11 area was by hand auger, results from this work (previously reported on) (4) are discussed below. Hand augering was not employed in recent work on this area.

1. INVESTIGATOR 11(i) Discussion of Previous Work

(Plans and reports on work over the grid in this area being previously presented by Anthony Mc Kenna and Partners Pty Ltd (4)).

387 hand auger samples were taken at a depth of one foot over the Investigator 11 grid. The samples were logged as whether sand or soil and analysed by Minex Laboratories for lead, zinc, tungsten and molybdenum. Values obtained were interpreted as high anomalous (4). Unfortunately no checks were made on the reliability or analytical procedures of the laboratory (Minex Analytical Labs).

Inspection of contour plans (4) reveals the anomalous areas were strongly related to the sample being soil thus strongly biasing the calculation of background. Sand to soil sample ratio was 3.1 : 1. Frequency distribution curves presented (4) showed both soil only and total sample distributions. Bearing in mind the limitations of frequency distribution curves in interpreting statistical data it appears that only one W - Mo population is represented. Two populations of lead and zinc are clear but the author suggests that this is purely a distinction between granite derived and meta-sediment derived samples. Many samples were taken over granite and gave low lead, zinc values so providing a low population. Maximum values obtained were 51 ppm W, 165 ppm Pb, and 375 ppm Zn.

GEOCHEMISTRY (Cont)

Gemco auger bottom-hole samples were taken along Munro Road in recent work and gave good coverage close to the high values obtained in hand augering. Only zinc values obtained over the Investigator 11 grid exceed the general range of values obtained in other areas (excepting highly anomalous values north of Woods Road). Some doubt is cast on these values by the much lower Zn values obtained in Gemco work along the road. The geochemical values at Investigator 11 cannot therefore be considered highly anomalous with respect to other areas of E.L. 5/69. Rock chip geology has shown the meta-sediments in this area to be similar to other west coast meta-sediments. It is suggested that any high geochemical values are due to slight mineral concentrations in the region of the granite contact and that they are not due to any economic concentrations.

(ii) Stream Sampling

Stream sampling was the major method of geochemical reconnaissance employed by Anthony Mc Kenna and Partners Pty Ltd., (4). A wide coverage of the Porky Creek and Reekara Road areas was made by this method. This covered approximately half of the exploration licence. Low anomalous lead zinc and tungsten values in the eastern Porky Creek area north east of the airport, now designated Investigator 11, instigated extensive hand auger sampling over a grid covering approximately half a square mile. All analyses on this programme were made by Minex Ltd., and values were stated with a precision of 1 ppm which the author feels was not justified on the accuracy of analysis and sample control.

Late in 1971 the streams in this area were again sampled at the approximate positions sampled in the original programme. Low anomalous tungsten values of 15 and 30 ppm were obtained in the east of the area but the original work was only partly substantiated as values of this order were also previously obtained in the west of the area (4). This casts doubt on the accuracy of the original analyses. It is felt that these original values were hardly of such anomalous character to warrant the extensive work carried out with them as its basis of justification.

(iii) Gemco Auger Sampling

To check the accuracy and significance of hand auger sample results from the Investigator 11 grid and also to obtain rock chip, Gemco holes, spaced at approximately 50 metre intervals, were drilled along Munro Road slightly to the east and north of the defined anomalous area (4). A total of 47 holes were drilled but only 30 of these reached bedrock, the others finished in ironstone, recent sandstone or recent fossiliferous limestone.

Tungsten values obtained were in the range 0 - 20 ppm except for two unconnected spot highs of 40 and 80 ppm. Anomalous lead values obtained in stream sampling and near surface hand augering do not appear to be a reflection of bedrock geochemistry as nearly all values obtained in Gemco work were in the range 0 - 20 ppm. The high values are therefore either a reflection of surface contamination or some chemical concentrating mechanism.

GEOCHEMISTRY (Cont)

Contamination by fertilizers and burnt aircraft fuel has previously been ruled out (4). Zinc values lie within the expected values for the rock types concerned but do show a weak anomalous trend in the vicinity of the grid-established anomaly. Ironstone is very common in this area both as surface float and as a layer in the soil profile: analysis of soil samples taken from the ironstone layer do not show any significant concentration of elements in this layer.

The lack of any distinctly anomalous values from the Gemco sampling and the doubt cast on the reliability of previous results leads to the conclusion that it is doubtful that any economic mineralisation occurs in this area. The area shows little more potential than any other adjacent to the west coast granite - west coast meta-sediment contact.

2. INVESTIGATOR 12

Hand auger sampling was the main tool of exploration in the Investigator 12 area. Samples were taken at 50 metre intervals over a grid 450 metres in a north-south direction and 300 metres in an east-west direction. This gave complete coverage of the outcrop and float occurrence of the olivine basalt and its associated breccia. A total of 68 holes were sampled at 10 feet where possible but otherwise at the limit of penetration. The majority of holes reached 8 - 9 feet. All samples were analysed for copper, lead, zinc, nickel and chromium.

Strong correlations with geology were obtained for all results and all values received lay within the range of values present in the rock types as indicated by analyses on six rock samples from the area. The immobility of lead in the iron rich soil was illustrated in that the basalt contained on average 200 ppm lead, high for the rock type concerned but few soil samples contained more than 20 ppm lead. Presumably the lead was fixed in the limonite of the lateritic ironstone (3), common in the area, samples of which assayed up to 400 ppm lead.

Nickel and chromium values showed the strongest correlation with geology, there existing a fairly sharp boundary on high values all around the float boundaries of the basalt and breccia.

Three populations of values are well illustrated in all contour plans of values; these are highest over the volcanic, lower over the breccia and lowest over the surrounding sandstones and siltstones. Geochemical evidence suggests a possible slight extension of the body to the north as high values are not completely closed off in this direction,

The strong correlation of geochemical soil values with the mapped geology and range of values in the observed rock types indicates that no economic mineralisation is likely to be closely associated with this basalt plug.

C. Sampling Procedure

Each auger hole drilled has three soil samples taken. Enough soil is taken off the end of the bit or hand auger to fill two small Kraft sample bags which are then sealed in the field, to prevent contamination. The remaining soil is then used to fill a plastic sample bag: a sample of this may be sieved for rock chips, used for pH measurement or other general purpose.

GEOCHEMISTRY (Cont)

The samples in the Kraft bags are one sample for initial analysis and a duplicate if rechecks or extra analysis are later required. For every 10 or so holes drilled a third Kraft sample bag is filled : two of these are sent in the batch for analysis to act as a check on the reproducibility of the laboratories analysis.

Simple drill logs are recorded for all holes, these include brief descriptions on drilling progress, a brief soil log and any remarks on unusual features.

After each hole the Gemco bit and the rod attached to it are cleaned to prevent contamination of one soil sample by another. Gemco holes are normally drilled to an impenetrable layer or to the extent of the rods available which is usually 50 - 60 feet. Hand auger holes are usually drilled to 10 feet where possible.

D. Analytical Method

All geochemical samples, except two, taken in the recent exploration programme were analysed by Mc Phar Geophysics Ltd. The other two samples were analysed by King Island Scheelite Ltd, assay laboratory for zinc only.

Copper, lead, zinc, nickel and bismuth were analysed by atomic absorption spectroscopy following leaching of a 0.25 gm. sample by conc. HCl and a conc. HCl-conc. HNO₃ mixture for 1 hour. Chromium was analysed by atomic absorption spectroscopy following potassium pyrosulphate fusion on a 0.1 gm. sample.

Tin was analysed by a method based on the colorimetry of the Sn-Gallein complex following ammonium iodide sublimation of 0.5 gm. sample.

Molybdenum is analysed by a method based on the colorimetry of the Mo - Dithiol complex in 6N HCl following a potassium bisulphate fusion on a 0.2 gm. sample. A similar method, based on the W - Dithiol complex, is used for tungsten.

Duplicate samples as well as check samples incorporated in later batches of geochemical soil samples showed the reproducibility and reliability of the laboratory to be good.

GEOPHYSICS

All geophysical work in the area was conducted by L.A. Richardson and Associates Ltd., geophysical consultants to Geopeko Limited.

The following work was carried out:

- (1) The Investigator 11 grid was read with a ground magnetometer but no features of geophysical significance were noted.
- (2) The Investigator 12 grid was read with a ground magnetometer and the main anomaly was found not to occur over the main occurrence of the basalt but along the western margin of it. The amount of magnetite in the olivine basalt was considered sufficient to account for the sharpness of the magnetic anomaly.
- (3) A regional traverse with the ground magnetometer was made along Currie Road. A notable contrast was observed in the same vicinity as the zone of contrast noted on the aeromagnetic map.

No reports have been presented by the geophysicists on any of the geophysical work carried out in the licence area.

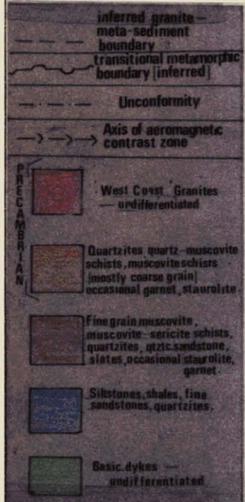
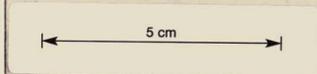
REFERENCES

- (6) Cottam P. Final report on Exploration Licence 4/68
Unpublished Geopeko Ltd., Company Report.
- (2) Gray D. February, 1970.
Granites on west coast of King Island
Geopeko Technical Seminar Paper
- (1) Gresham J.J & Cottam P. 1971
Criteria for the assessment of the Mineral
Potential of the Mount Council Granitic Body.
Geopeko Technical Seminar Report.
- (3) Hawkes H.E. & Webb J.S. 1962.
Geochemistry in Mineral Exploration.
Harper and Rowe Publishers
- (4) Jannink A. September, 1969
(i) Report on Exploration Licences 4/69 and 5/69
Stage 1.
(ii) March, 1970
Report on Exploration Licences 4/69 and 5/69
Stage 2.
*Not
Received* (iii) September, 1970.
Report on Exploration Licences 4/69 and 5/69
Stage 3.
Unpublished Reports of Anthony Mc Kenna and Partners Pty Ltd
plus Appendices.
- (5) Mayer W. March, 1971
Geological Progress Report : Exploration
Licences 4/69 and 23/69.
Unpublished Geopeko Ltd., Company Report.

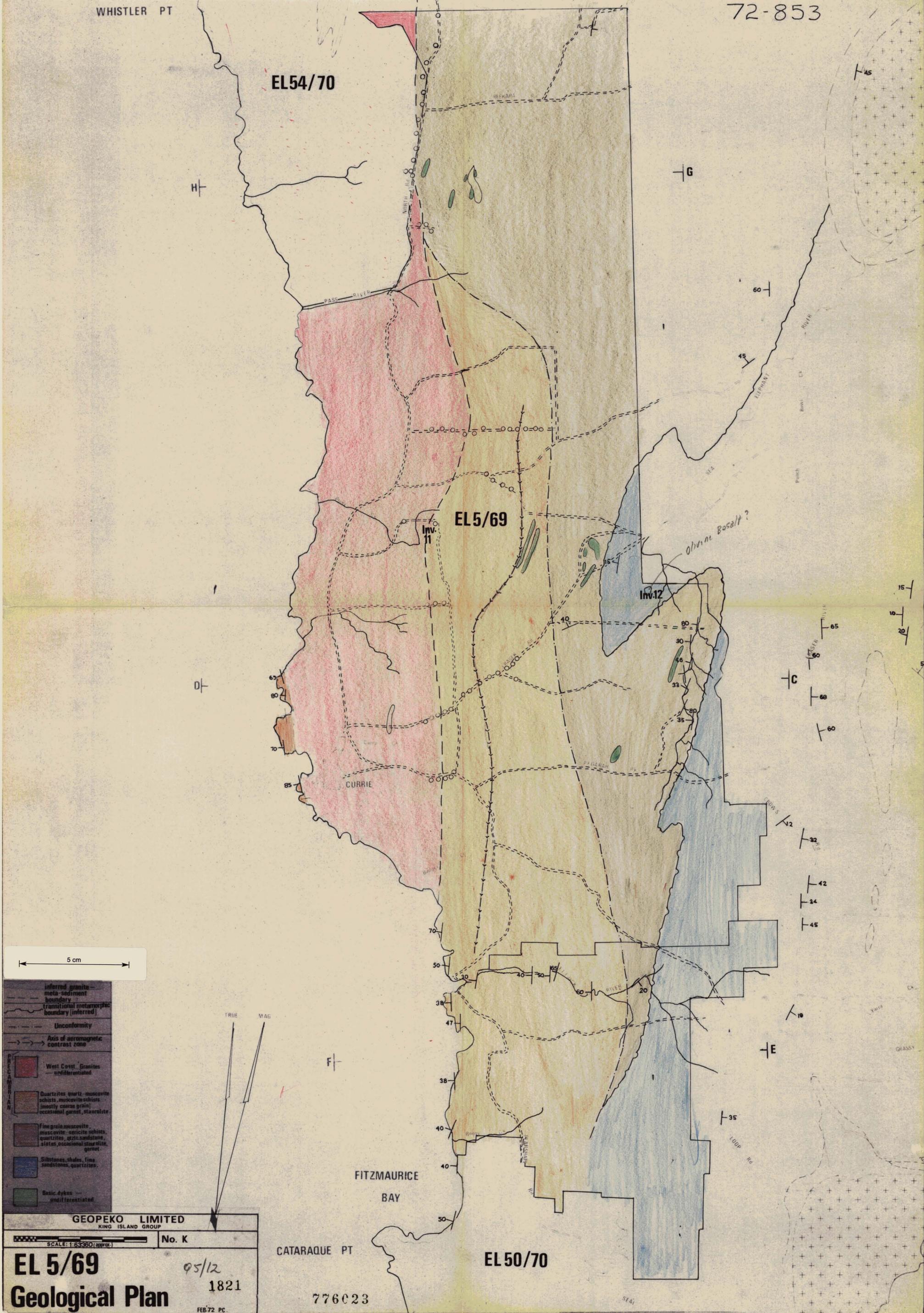
EL54/70

EL5/69

EL50/70



GEOPEKO LIMITED KING ISLAND GROUP No. K 95/12 1821 EL 5/69 Geological Plan FEB 72 PC 776023



Ohine Basalt?

EL54/70

REEKAAH Rd

WOODS Ad

HADDIE Rd

HILLS Rd

EL5/69

AIRPORT Rd

CRAZEN Rd

CURRY Rd

CURRIE

FARRENS Ad

MARSHALLS Ad

PEGARRAH Rd
(DUMBOYS Rd)

GRASSY Rd

FITZMAURICE BAY

CATARAQUE PT

EL50/70

776024

H

G

60

45

45

15

5

20

65

60

60

60

60

C

32

42

34

45

E

35

5 cm

- EL 5/69 boundary
- Gemco auger hole, finished at bedrock
- finished in soil (bedrock not reached)
- finished in sand (geochemistry not reflective of bedrock)

GEOPEKO LIMITED

KING ISLAND GROUP

No. K

EL 5/69

1822

05/12

Geochemical Results

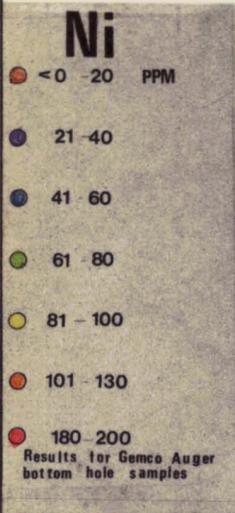
FEB-72 PC

EL54/70

EL5/69

EL50/70

5 cm



GEOPEKO LIMITED
KING ISLAND GROUP

SCALE: 1:62500 (approx)

No. K

EL 5/69 1829 ϕ 5/12

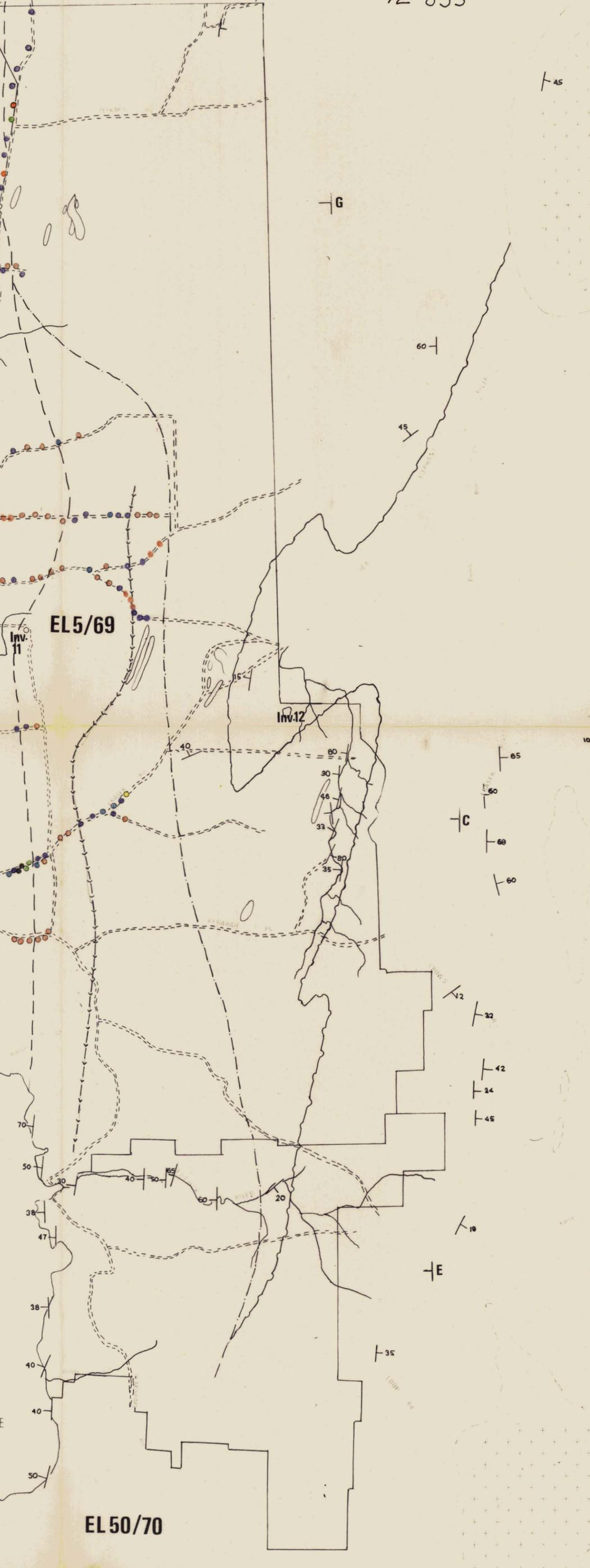
Geochemical Results

CATARAQUE PT

776025

FITZMAURICE BAY

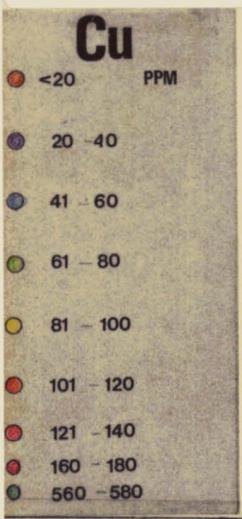
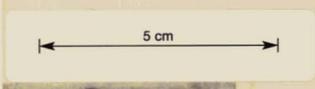
CURRIE



EL54/70

EL5/69

EL50/70



GEOPEKO LIMITED
KING ISLAND GROUP

SCALE: 1:63500 (1:25000)

No. K

EL 5/69 1824 Q5/12

Geochemical Results

FEB 72 PC.

CATARAUQUE PT

776026

FITZMAURICE BAY

CURRIE

Inv. 11

Inv. 12

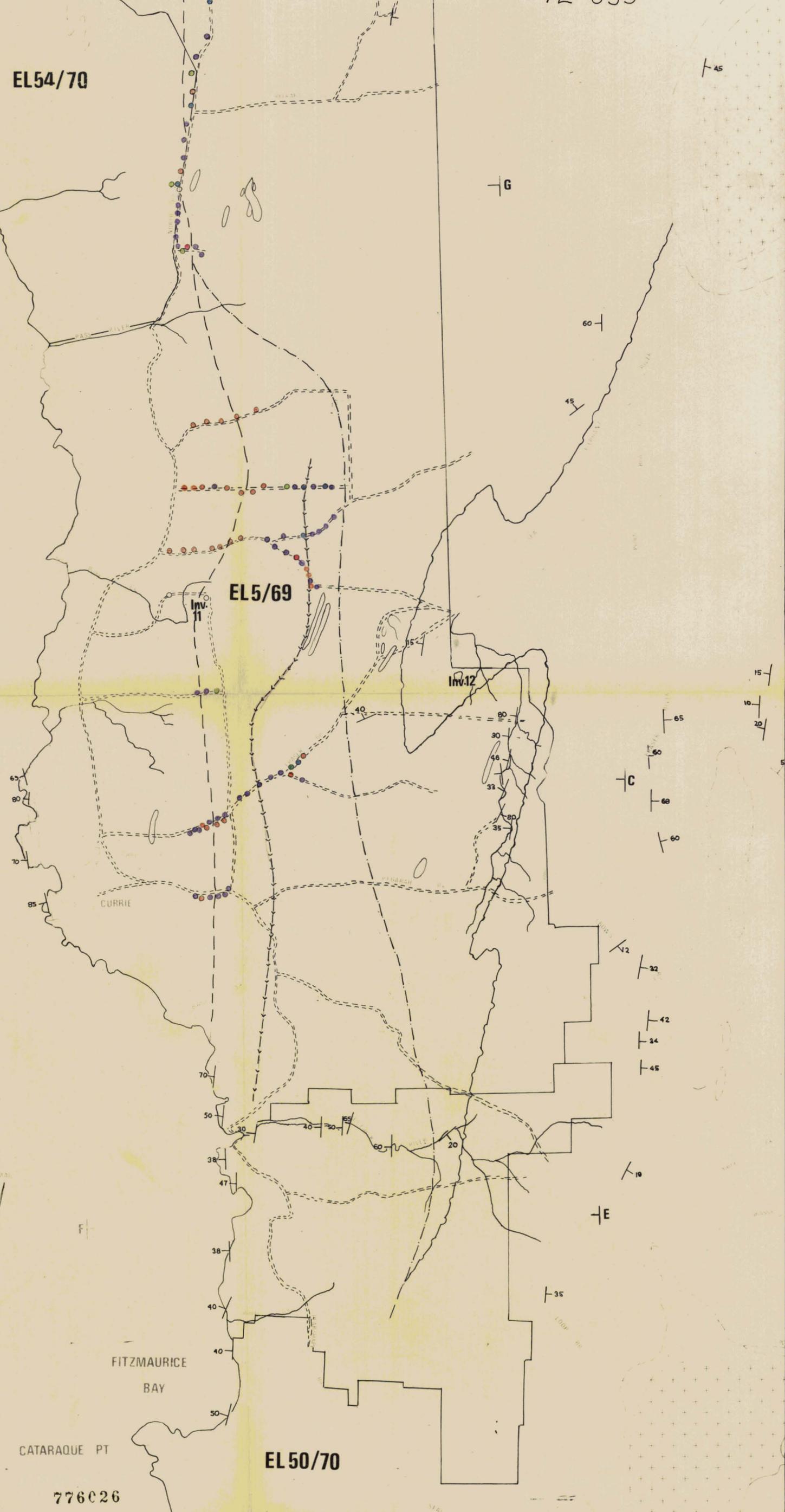
H

G

D

C

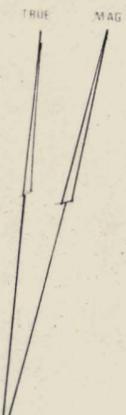
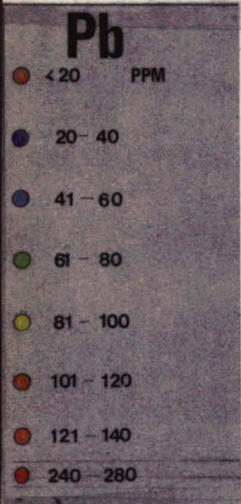
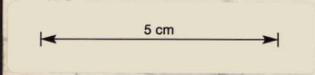
E



EL54/70

EL5/69

EL50/70



GEOPEKO LIMITED
KING ISLAND GROUP

SCALE: 1:63360 (approx) No. K

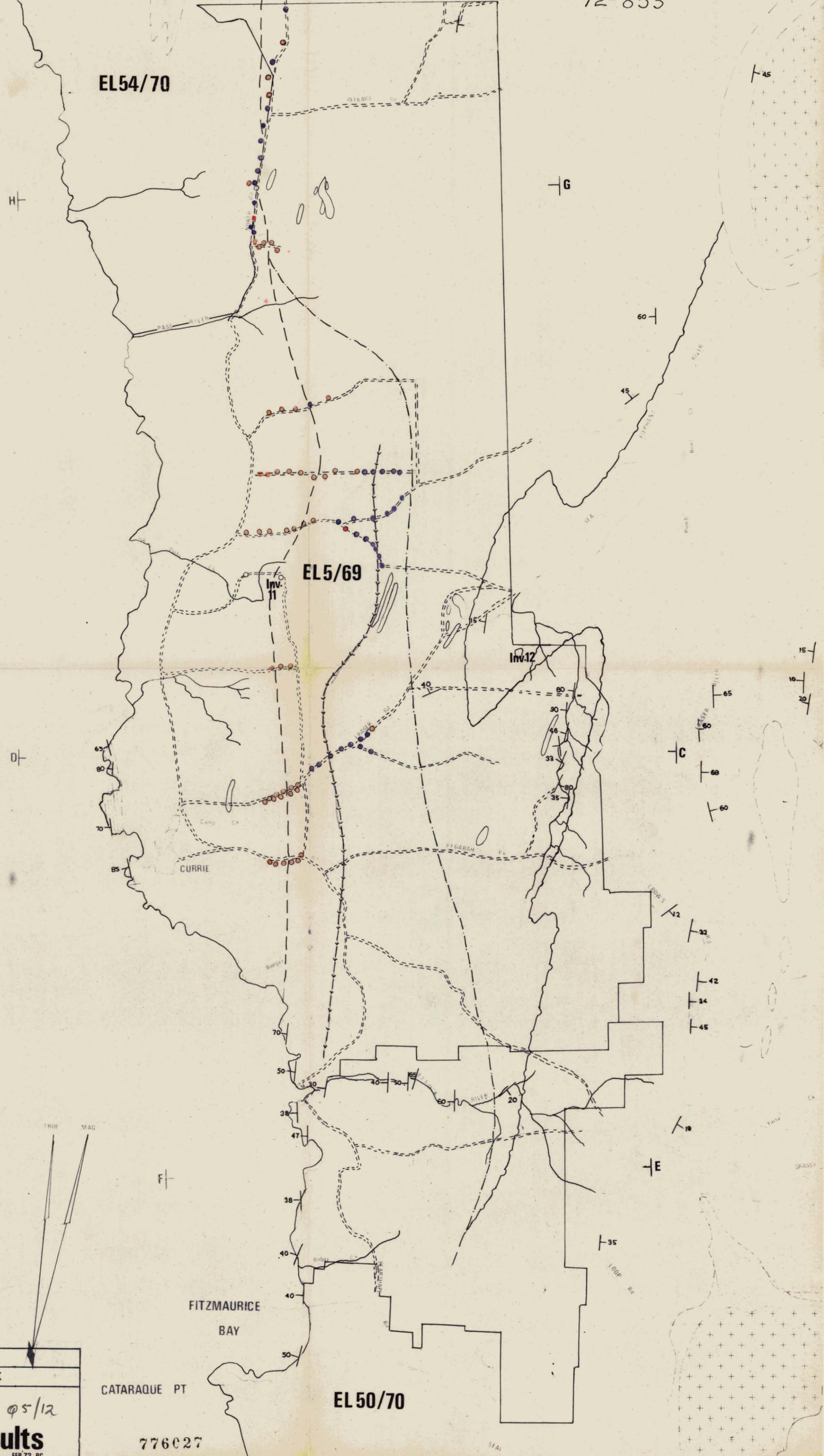
EL 5/69 1825 @5/12

Geochemical Results

FEB 72 PC.

CATARAQUE PT

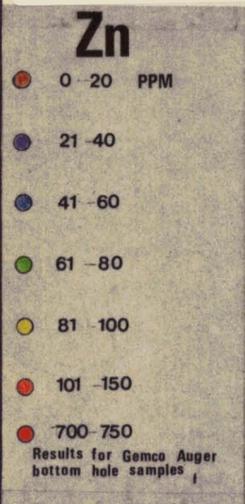
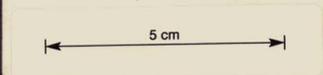
776027



EL54/70

EL5/69

EL50/70



GEOPEKO LIMITED
KING ISLAND GROUP

SCALE: 1:63,900 (approx.)

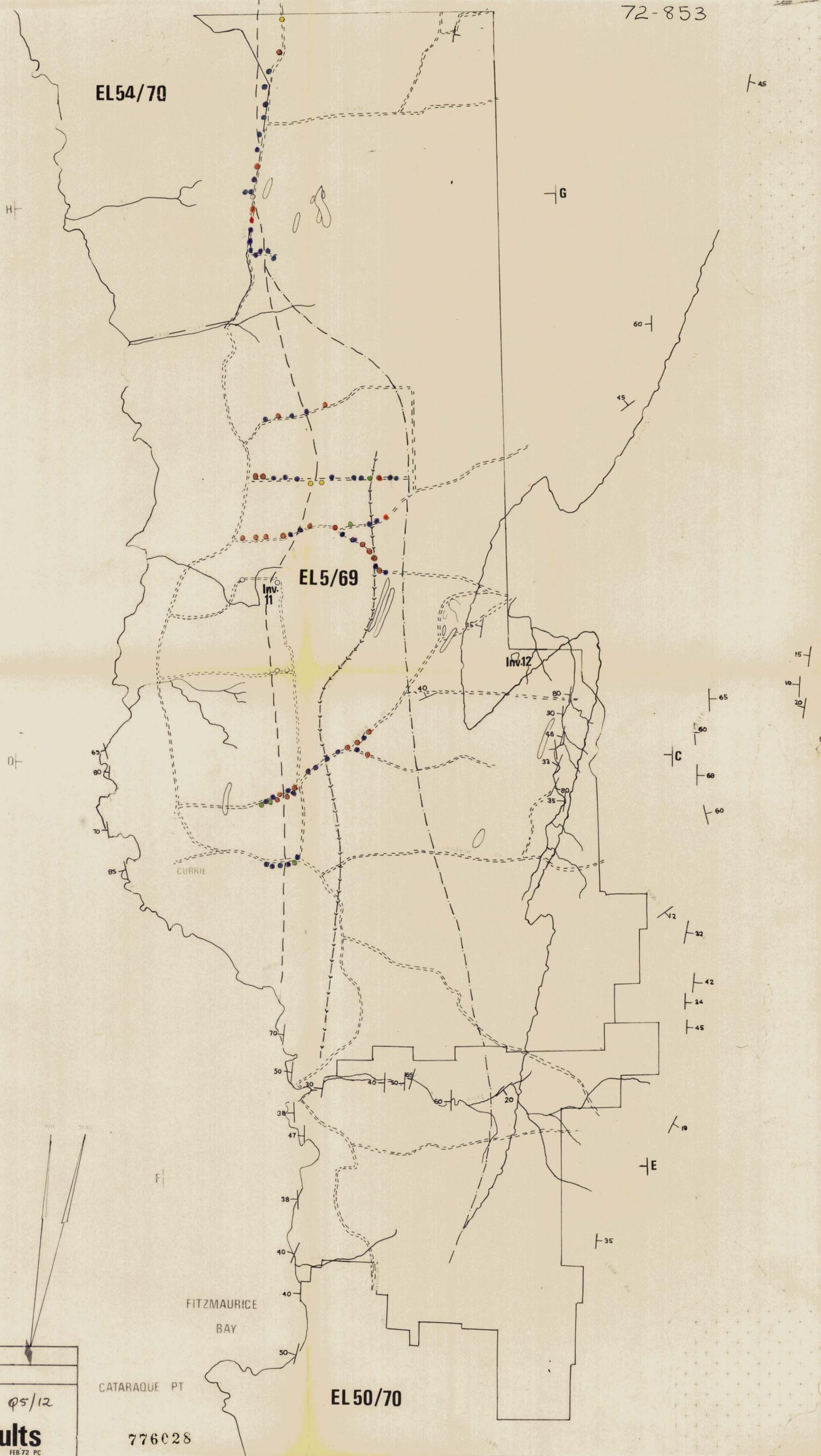
No. K

EL 5/69 1826 05/12

Geochemical Results

FEB 72 PC

776028



EL54/70

EL5/69

EL50/70

H

G

45

60

45

15

10

20

D

65

80

70

85

CURRIE

70

50

38

47

38

40

40

40

50

FITZMAURICE BAY

CATARAQUE PT

776029

Inv.12

Inv.11

C

65

60

60

60

60

60

V2

32

42

34

45

10

E

35

5 cm

Cr

- 0-50 PPM
- 51-100
- 101-150
- 151-200
- 201-250
- 251-300

Results for Gemini Auger bottom hole samples

GEOPEKO LIMITED KING ISLAND GROUP

No. K

SCALE: 1:63360 (approx)

EL 5/69

1827 95/12

Geochemical Results

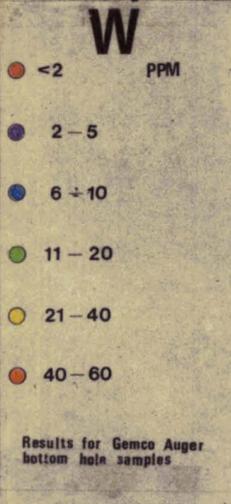
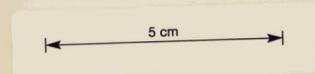
FEB 72 PC

M

EL54/70

EL5/69

EL50/70



GEOPEKO LIMITED
KING ISLAND GROUP

SCALE: 1:63360 (approx)

No. K

EL 5/69 1828 Q5/12

Geochemical Results

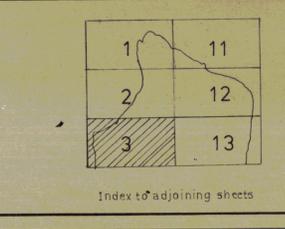
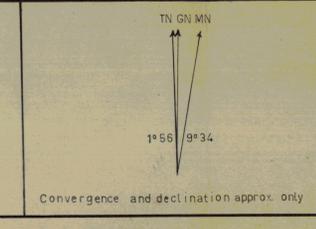
FEB 72 PC





a	Sandstone	g	Black Shale	o	Porphyry and Basic Dyke
b	Limestone	h	Slate	p	Mic. quartzite - qtz. micaschist
c	Laterite of Ironstone	i	Breccia	q	Quartzite
v	Volcanics	j	Actinolite Hornfels	r	Mica Schists and muscovite sillimanite schists
hatched	Altered Volcanics	k	Biotite Actinolite Hornfels	s	Siltstone
d	Agglomerate and Tuffs	l	Biotite Hornfels	t	Aplite
e	Shale	m	Pyroxene Hornfels	u	Granite
f	Spotted Shale	n	Pyroxene Garnet Hornfels	v	Sand dune development boundary
g	Grey mudstone		Quartz	w	Formed Roads

-----	Unformed Roads	---	Geological boundary observed	---	inferred
---	Fault observed	---	Fault inferred	---	Anticlinal axis
---	" inferred	---	Synclinal axis	---	Horizontal Dip and Strike
---	Vertical	---	Inclined Dip and Strike	---	Scout bore for mineral beach sands
---	Submarine bar	---	Sand beach shore reef	---	Sand cliff
---	Vegetated sand cliff	---	New stranded shorelines	---	New dunes
---	Old stranded shorelines	---	Old dunes	---	Lagoon Stream
---	Intermittent	---	Swamp	---	Slope in bedrock
---	Conical dunes	---	Direction of younging	---	Sand hills
---	Drains	---	Exploration Licence Boundaries		



GEOPEKO LIMITED.
RING ISLAND GROUP

SCALE 1:50,000 METRIC GRID

N° KCR 3

72-853

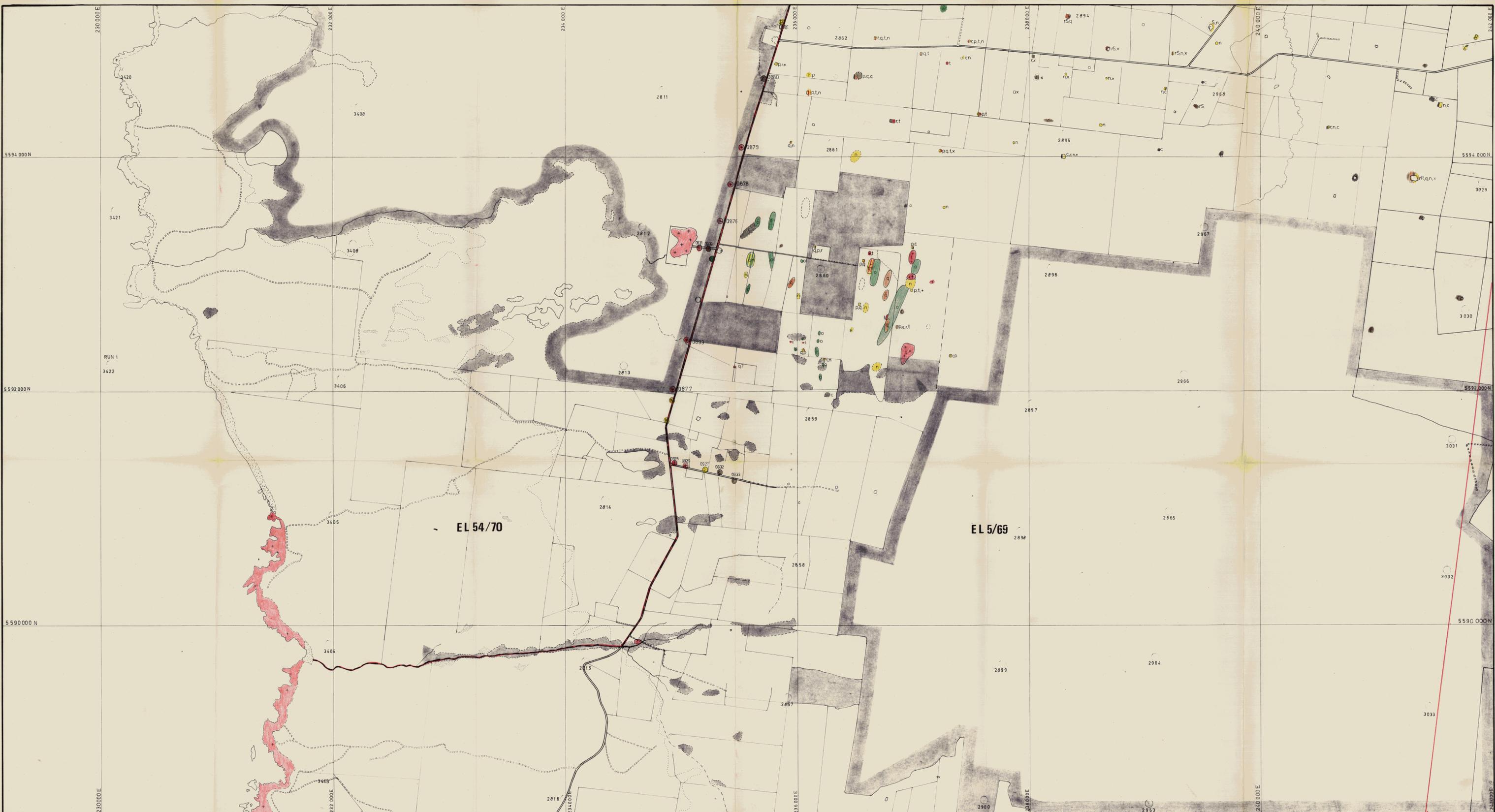
YELLOW ROCK

SHEET 3
776031

05/12 1830

DATE: _____
GEOLOGIST: _____
DRAWN J.J.G.
CHECKED: _____

ISG COORDINATES
REFER REPORT 70-0676



a Sand stone	g Black Shale	p Basic dykes, undiff	Geological boundary	Inclined Dip and Strike	Old dunes
b Limestone	h Slate	q Mic quartzite - qtc. micaschist	Outcrop	Road	Lagoon stream
v Laterite or Ironstone	i Breccia	r Quartzite (-schist) - qtc. sdst.	Float	Track	Intermittent stream
v Volcanics	j Actinolite Hornfels	s Micaschist with staurolite finegrained seriate schist	Fault observed	Sand beach shore reef	Swamp
d Altered Volcanics	k Biotite Actinolite Hornfels	t Siltstone	Fault inferred	Sandblow	Forest, scrub
d Agglomerate and Tufts	l Biotite Hornfels	u Aplite, pegmatite	Anticlinal axis	Sand dune boundary	Conical dunes
e Shale	m Pyroxene Hornfels	v Granite	Synclinal axis	New stranded shorelines	Direction of younging
f Spotted Shale	n Pyroxene Garnet Hornfels	w Dam showing only sand or/and soil	Horizontal Dip and Strike	New dunes	Sandhills
f Grey mudstone	o Quartz		Vertical	Old stranded shorelines	Drains
				Exploration Licence Boundaries	

TNGN MN

Convergence and declination approx only

3	13
4	14
5	15

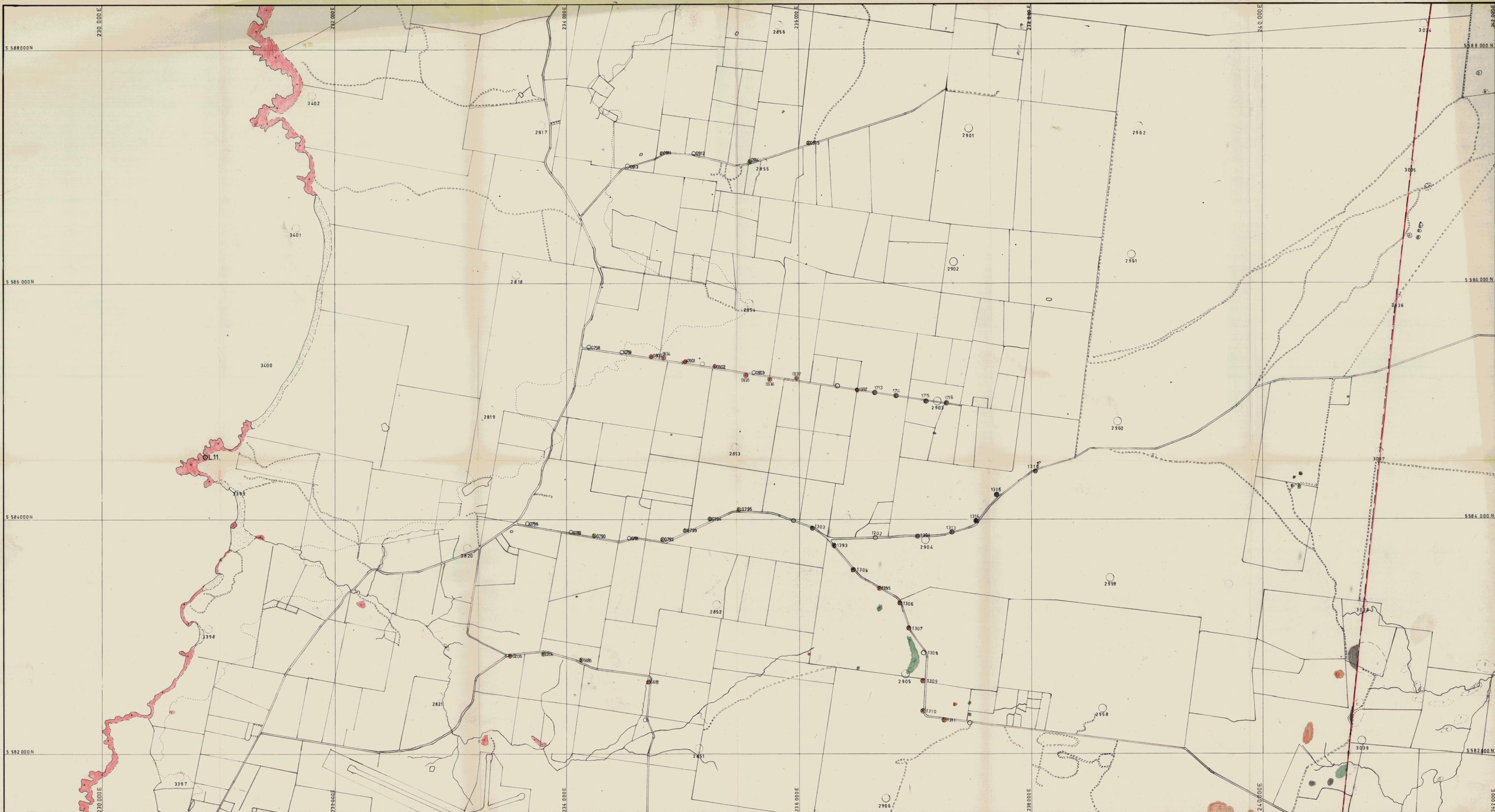
Index to adjoining sheets

GEOPEKO LIMITED
KING ISLAND GROUP
No KGR 4
776032 72-853
REEKARA ROAD

SCALE 1:12000 METRIC GRID

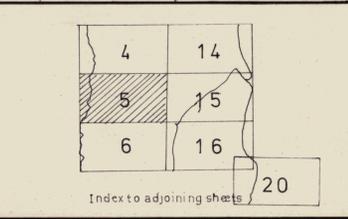
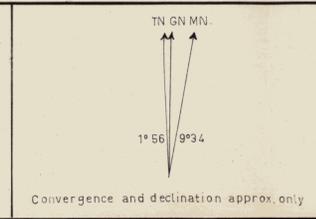
5 cm

1831
SHEET 4
ISG COORDINATES REFER REPORT 70-0676
05/12



a	Sandstone	g	Black Shale	h	Micaeous Quartzite - Qtz. Mica Schist
b	Limestone	h	Slate	h	Quartzite
c	Laterite or Ironstone	i	Breccia	i	Mica Schists and muscovite sillimanite schists
v	Volcanics	j	Actinolite Hornfels	j	Siltstone
v	Altered Volcanics	j	Biotite Actinolite Hornfels	k	Aplite
d	Agglomerate and Tuffs	k	Biotite Hornfels	k	Granite
e	Shale	l	Pyroxene Hornfels	l	Sand dune development boundary
f	Spotted Shale	l	Pyroxene Garnet Hornfels	m	Formed Roads
f	Grey mudstone	n	Quartz		

---	Unformed Roads	---	Inclined Dip and Strike	---	Old dunes
---	Geological boundary observed	---	Scout bore for mineral beach sands	---	Lagoon stream
---	inferred	---	Submarine bar	---	Intermittent stream
---	Fault observed	---	Sand beach, shore reef	---	Swamp
---	inferred	---	Sand cliff	---	Slope in bedrock
---	Anticlinal axis	---	Vegetated sand cliff	---	Conical dunes
---	Synclinal axis	---	New stranded shorelines	---	Direction of younging
---	Horizontal Dip and Strike	---	New dunes	---	Sandhills
---	Vertical	---	Old stranded shorelines	---	Drains
---	Exploration Licence Boundaries				



GEOPEKO LIMITED
KING ISLAND GROUP

SCALE 1:12000 METRIC GRID

776033 72-853
LOORANA

SHEET 5

ISG COORDINATES
REFER REPORT 70-0676
1832
05/12

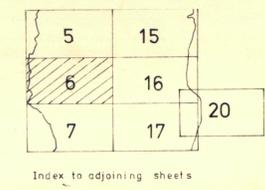
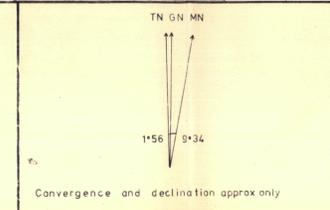
Date: _____
Geologist: _____
Drawn: J.J.G.
Checked: _____



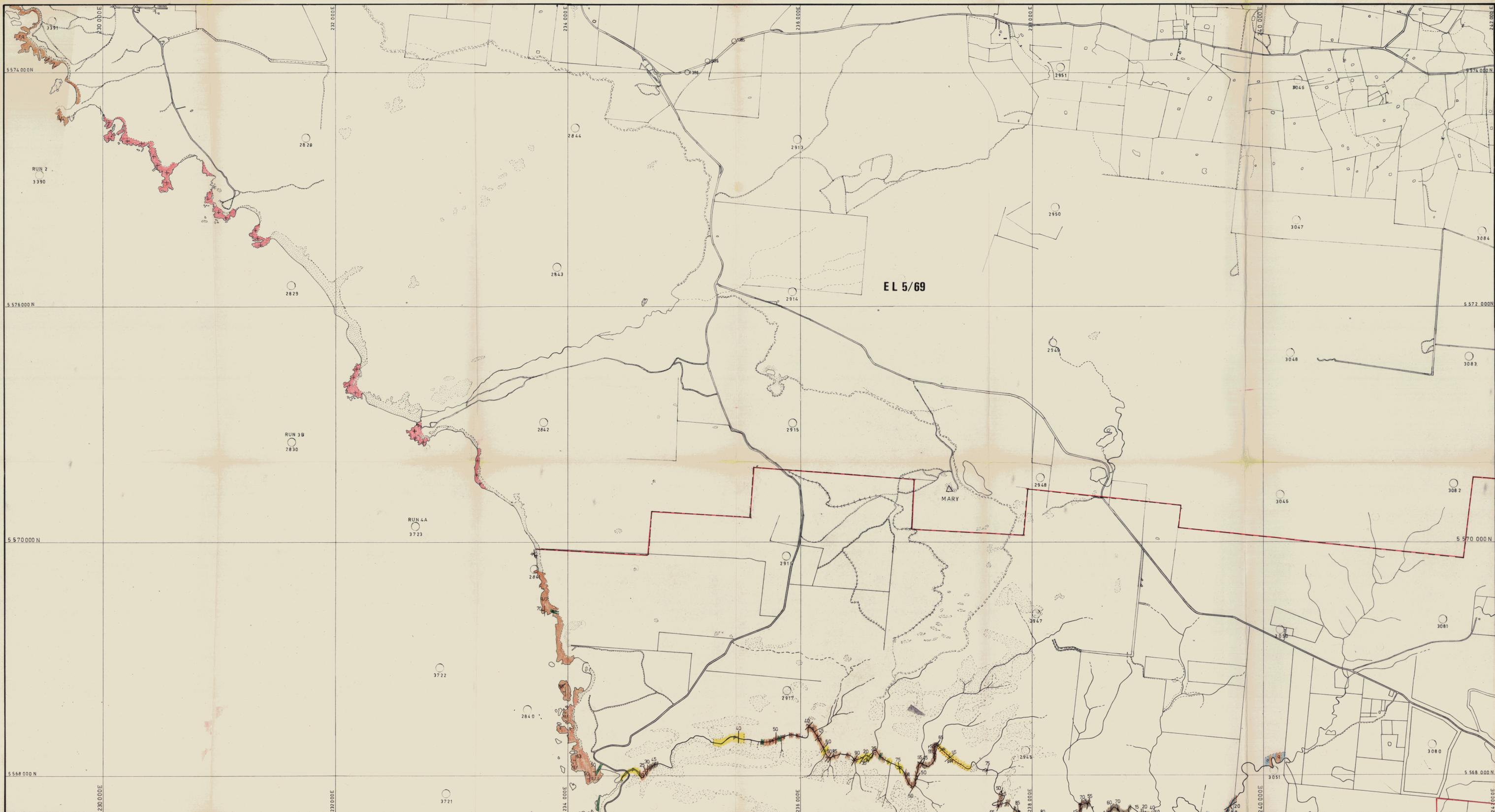
EL 5/69

a	Sandstone	g	Black Shale	o	Basic Dykes - undiff	—	Geological boundary	—	Inclined Dip and Strike	—	Old dunes
b	Limestone	h	Slate	p	Mic quartzite - qt. micascist	—	Outcrop	—	Road	—	Lagoon stream
c	Laterite or Ironstone	i	Breccia	q	Quartzite - qtz. sandstone	—	Flot	—	Track	—	Intermittent stream
v	Volcanics	j	Actinolite Hornfels	r	Micaschist	—	Fault observed	—	Sand beach shore reef	—	Swamp
v	Altered Volcanics	k	Biotite Actinolite Hornfels	s	Siltstone	—	inferred	—	Sand cliff	—	Sand dune boundary
d	Agglomerate and Tuffs	l	Biotite Hornfels	t	Aplite	—	Anticlinal axis	—	Vegetated sand cliff	—	Conical dunes
e	Shale	m	Pyroxene Hornfels	u	Granite	—	Synclinal axis	—	New stranded shorelines	—	Direction of younging
f	Spotted Shale	n	Pyroxene Garnet Hornfels	v	Sand, soil at dam	—	Horizontal Dip and Strike	—	New dunes	—	Sand hills
f	Greywacke		Quartz	w	Forest, scrub	—	Vertical	—	Old stranded shorelines	—	Drains

—	Geological boundary	—	Inclined Dip and Strike
—	Outcrop	—	Road
—	Flot	—	Track
—	Fault observed	—	Sand beach shore reef
—	inferred	—	Sand cliff
—	Anticlinal axis	—	Vegetated sand cliff
—	Synclinal axis	—	New stranded shorelines
—	Horizontal Dip and Strike	—	New dunes
—	Vertical	—	Old stranded shorelines



GEOPEKO LIMITED
KING ISLAND GROUP
SCALE 1:12,000 METRIC GRIP
N^o KCR 6
72-853
776034
CURRIE 1833
SHEET 6
DATE
GEOLOGIST
DRAWN
CHECKED
ISG COORDINATES REFER REPORT 70-0676
05/12

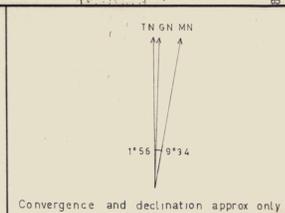


EL 5/69

MARY

a	Sandstone	g	Black Shale	o	Porphyry and Basic Dyke
b	Limestone	h	Slate	p	Mic. quartzite - qtz, micaschist, with garnets and staurolite
c	Laterite or Ironstone	▲	Breccia	q	Quartzite
v	Volcanics	i	Actinolite Hornfels	r	Mica Schists with garnets and staurolite
v	Altered Volcanics	j	Biotite Actinolite Hornfels	s	Siltstone
d	Agglomerate and Tuffs	k	Biotite Hornfels	t	Aplite
e	Shale	l	Pyroxene Hornfels	u	Granite
f	Spotted Shale	m	Pyroxene Garnet Hornfels	v	Sand dune development boundary
f	Grey mudstone	n	Quartz	w	Formed roads

-----	Unformed Roads	—+—	Inclined Dip and Strike
—	Geological boundary observed	○	Scout bore for mineral beach sands
---	inferred	—	Submarine bar
---	Fault observed	—	Sand beach shore reef
---	inferred	—	Sand cliff
—+—	Anticlinal axis	▲▲▲	Vegetated sand cliff
—+—	Synclinal axis	—	New stranded shorelines
—+—	Horizontal Dip and Strike	—	New dunes
—+—	Schistosity Dip and Strike	—	Old stranded shorelines



6	16	20
7	17	
8	18	

Index to adjoining sheets

Date:
Geologist:
Drawn: PC, WM
Checked:

GEOPEKO LIMITED
KING ISLAND GROUP

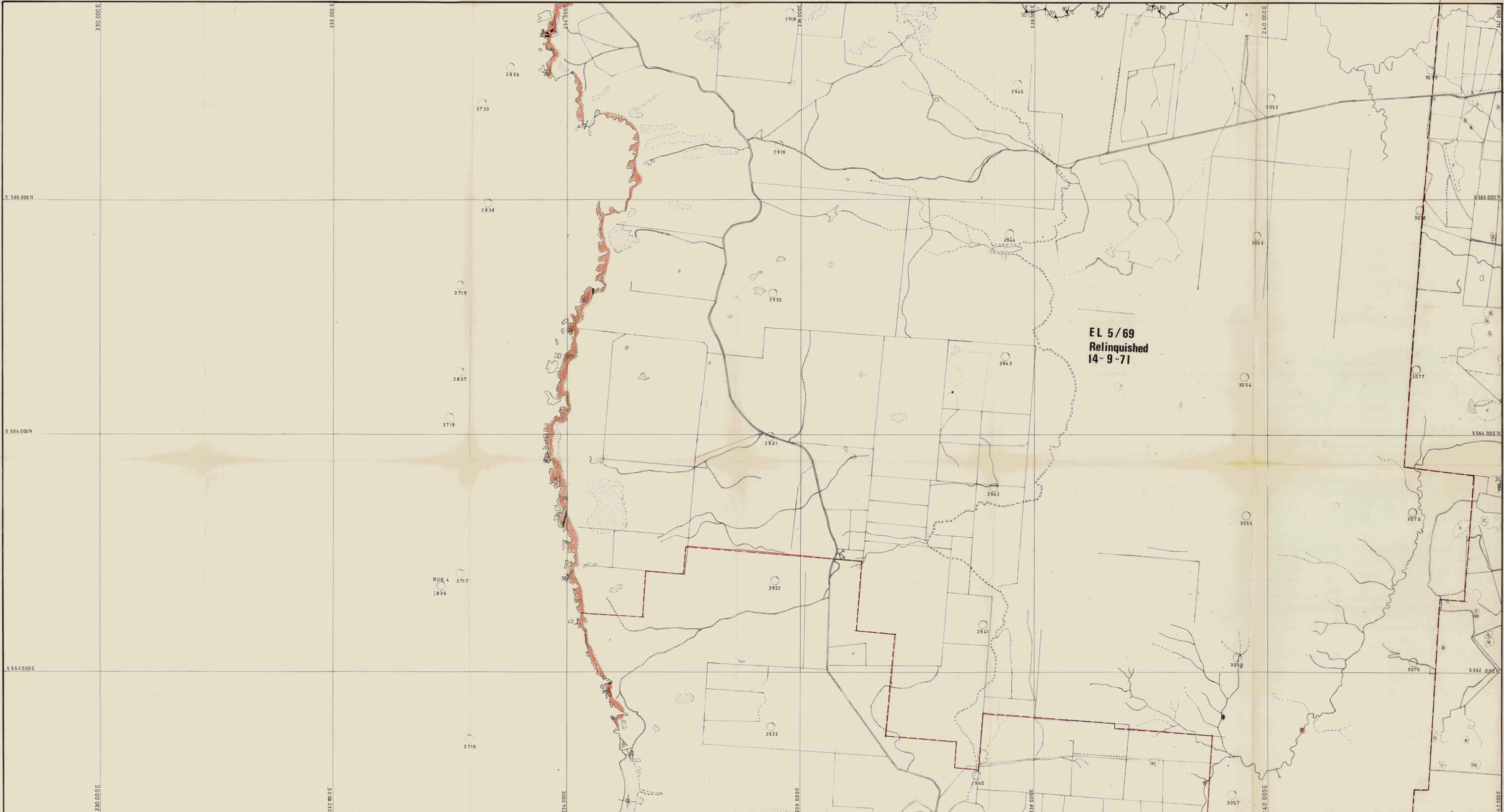
SCALE 1:12000 METRIC GRID

N^o KCR 7
776035
72-853

ETTRICK
SHEET 7

ISG COORDINATES REFER REPORT 70-0676 1834

95/12



EL 5/69
Relinquished
14-9-71

a Sandstone	g Black Shale	o Porphyry and Basic Dyke	--- Unformed Roads	⊕ Bedding Dip and Strike	⊙ Old dunes
b Limestone	h Slate	p Micaceous Gtze - Qtz. Micro Schist	— Geological boundary observed	○ Scout bore for mineral beach sands	⊙ Lagoon stream
c Laterite of Ironstone	i Breccia	q Quartzite	- - - - - inferred	⊙ Submarine bar	⊙ Intermittent stream
d Volcanics	j Actinolite Hornfels	r Mica Schists with garnets and staurolite	— Fault observed	⊙ Sand beach, shore reef	⊙ Swamp
e Altered Volcanics	k Biotite Actinolite Hornfels	s Siltstone	- - - - - inferred	⊙ Sand cliff	⊙ Slope in bedrock
f Agglomerate and Tuffs	l Biotite Hornfels	t Aplite	⊕ Anticlinal axis	⊙ Vegetated sand cliff	⊙ Conical dunes
g Shale	m Pyroxene Hornfels	u Granite	⊖ Synclinal axis	⊙ New stranded shorelines	⊙ Direction of younging
h Spotted Shale	n Pyroxene Garnet Hornfels	v Sand dune development boundary	⊕ Horizontal Dip and Strike	⊙ New dunes	⊙ Sandhills
i Grey mudstone	o Quartz	w Formed Roads	⊖ Vertical	⊙ Old stranded shorelines	⊙ Drains
					⊙ Exploration Licence Boundaries

TN GN MN

1°56' 9"34"

Convergence and declination approx. only

7	17
8	18
9	19

Index to adjoining sheets

GEOPEKO LIMITED.
KING ISLAND GROUP

SCALE 1:12000 METRIC GRID

776036

PEARSHAPE

5cm

SHEET 8

Date: AUGUST 70
Geologist:
Drawn: P.C.
Checked:

N° KGR 8
72-853

ISG COORDINATES
REFER REPORT 70-6676 1835

05/12

5 cm

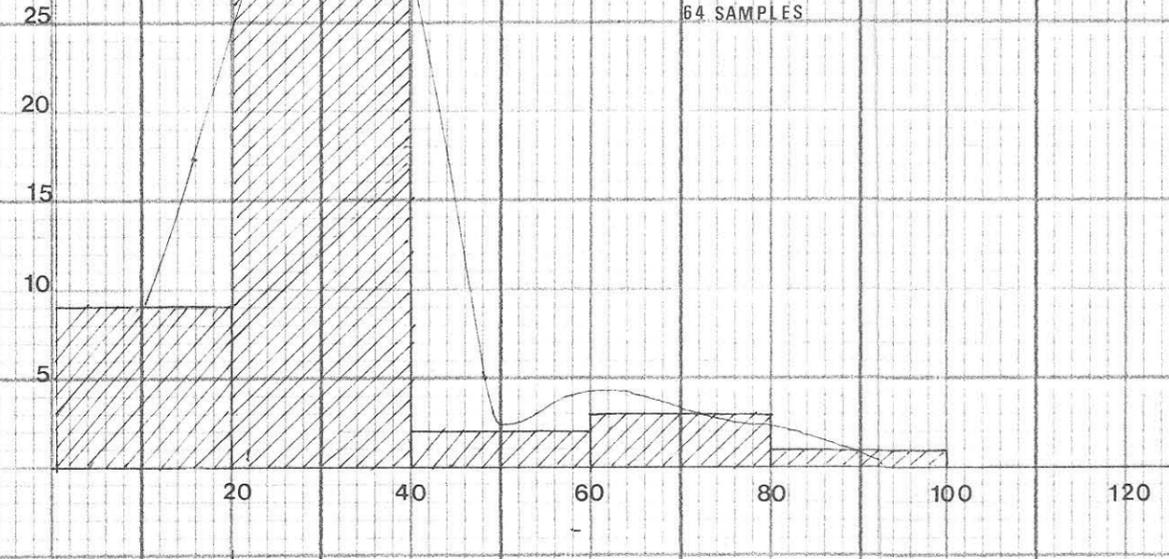
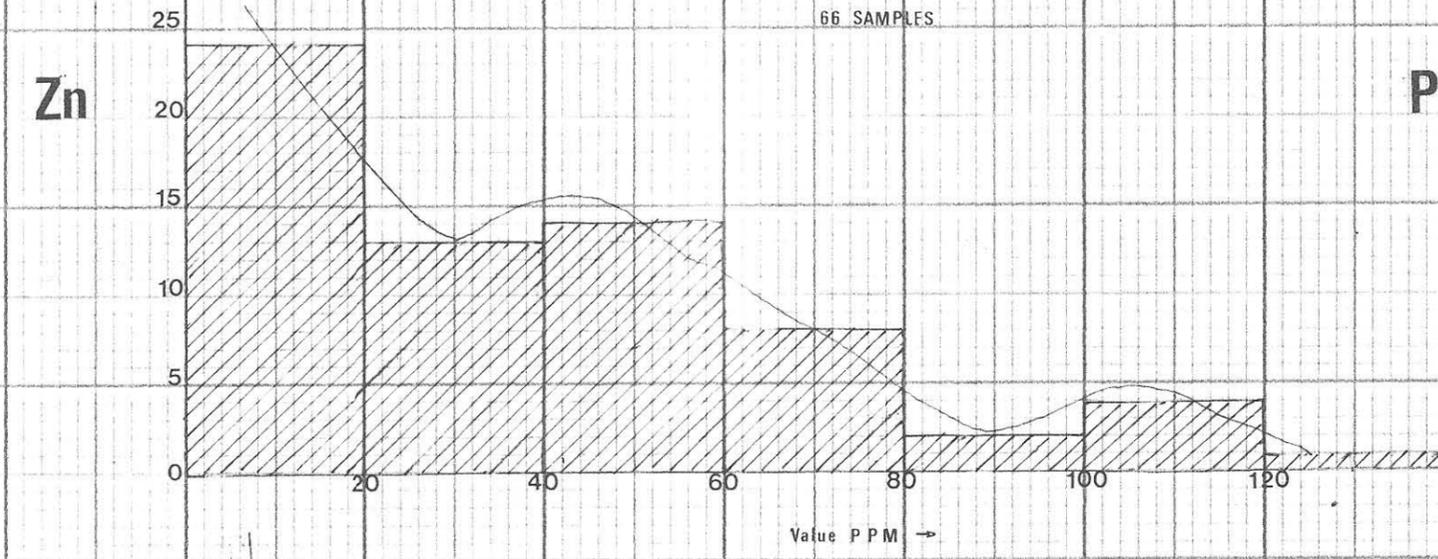
INVESTIGATOR 11 Frequency distribution analyses

Number of Samples

Number of samples 45

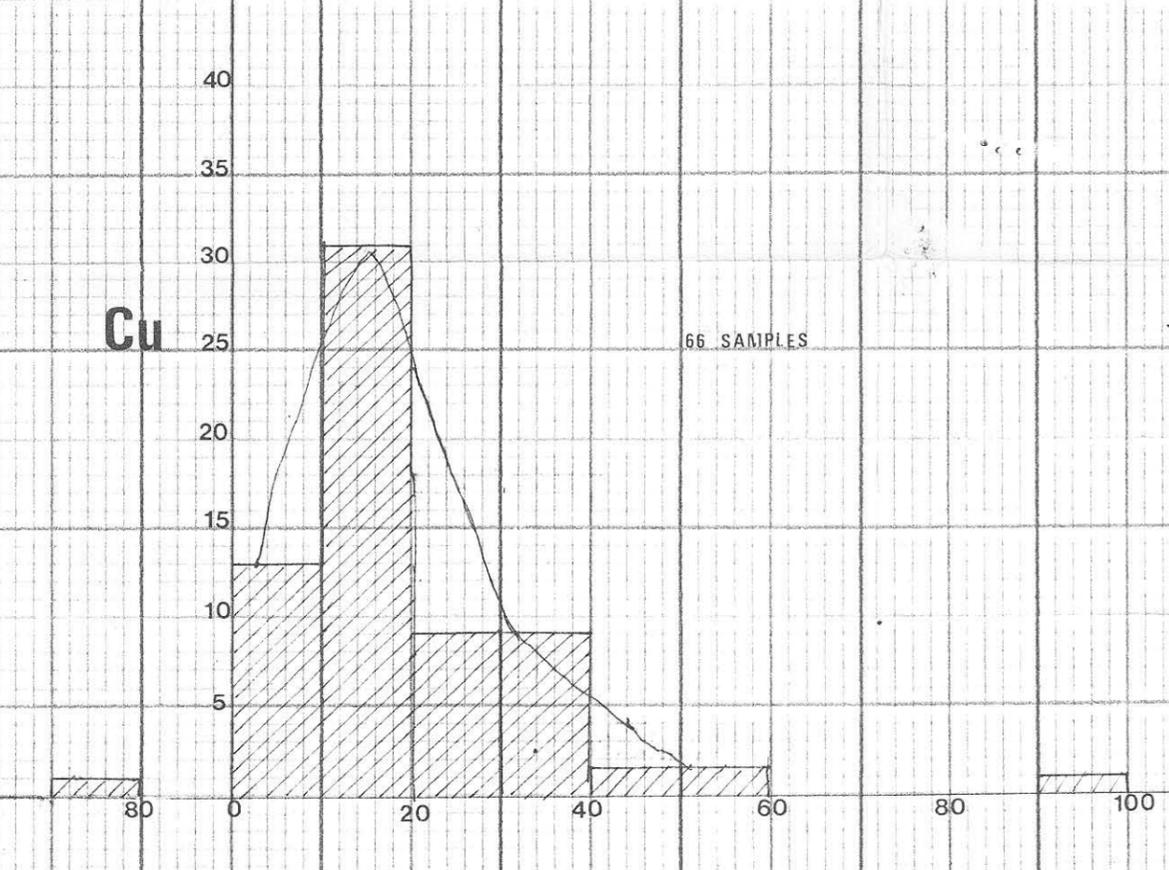
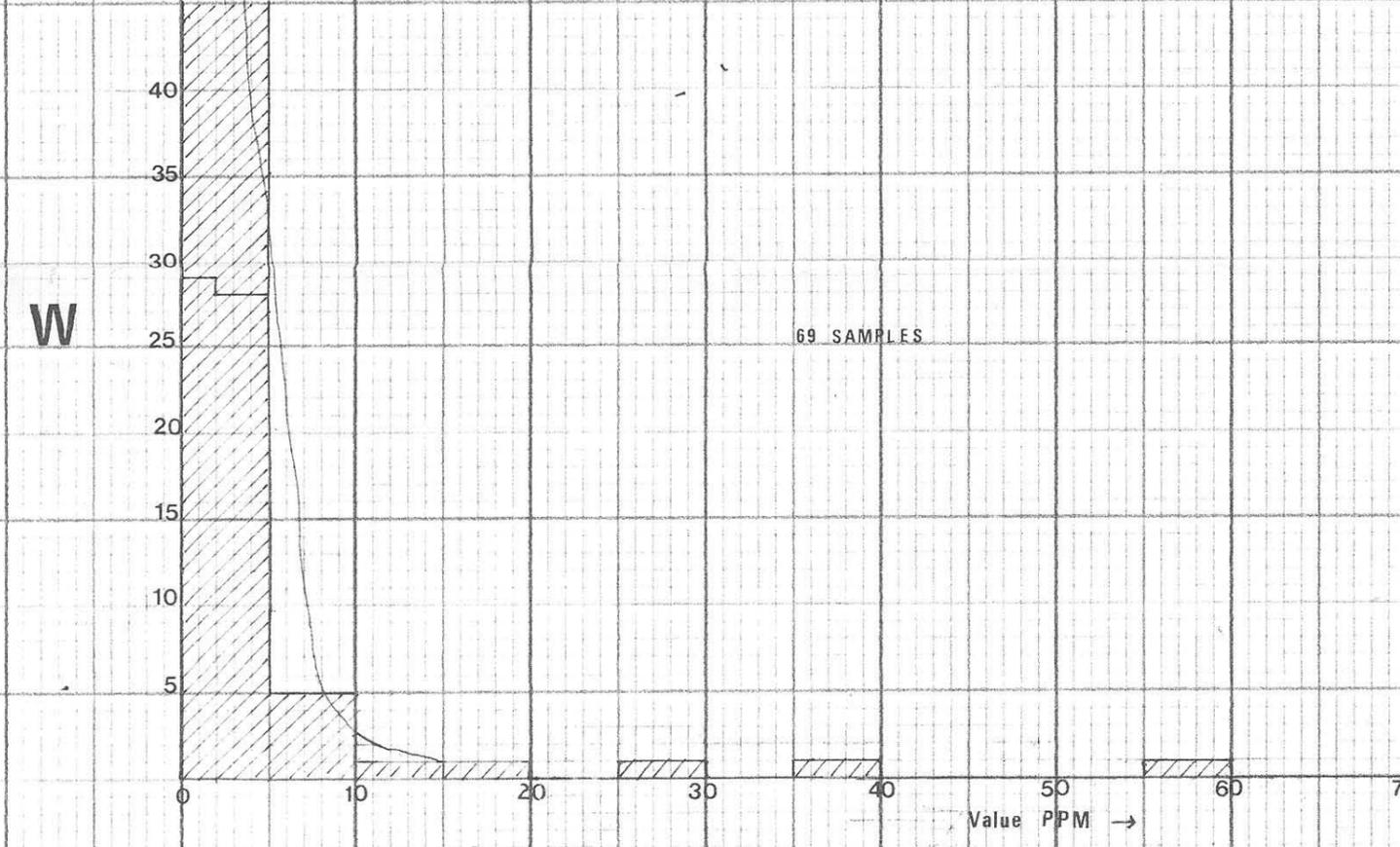
Zn

Pb



W

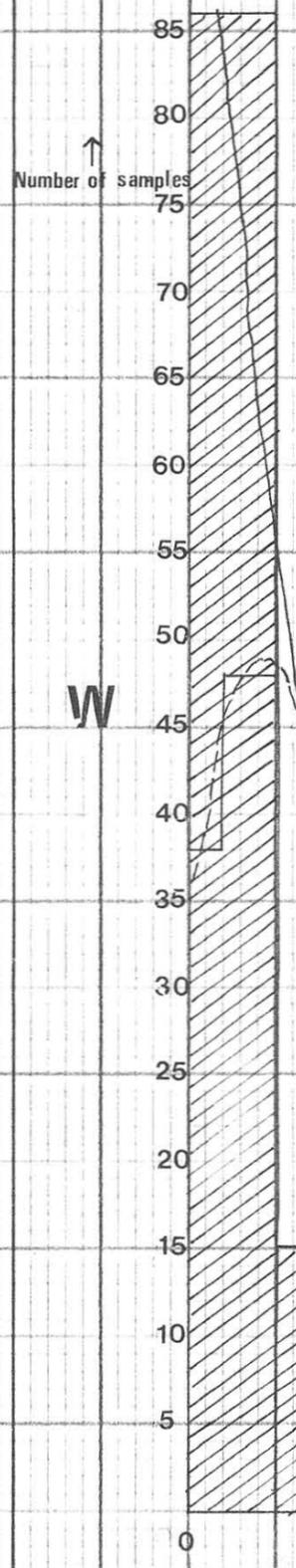
Cu



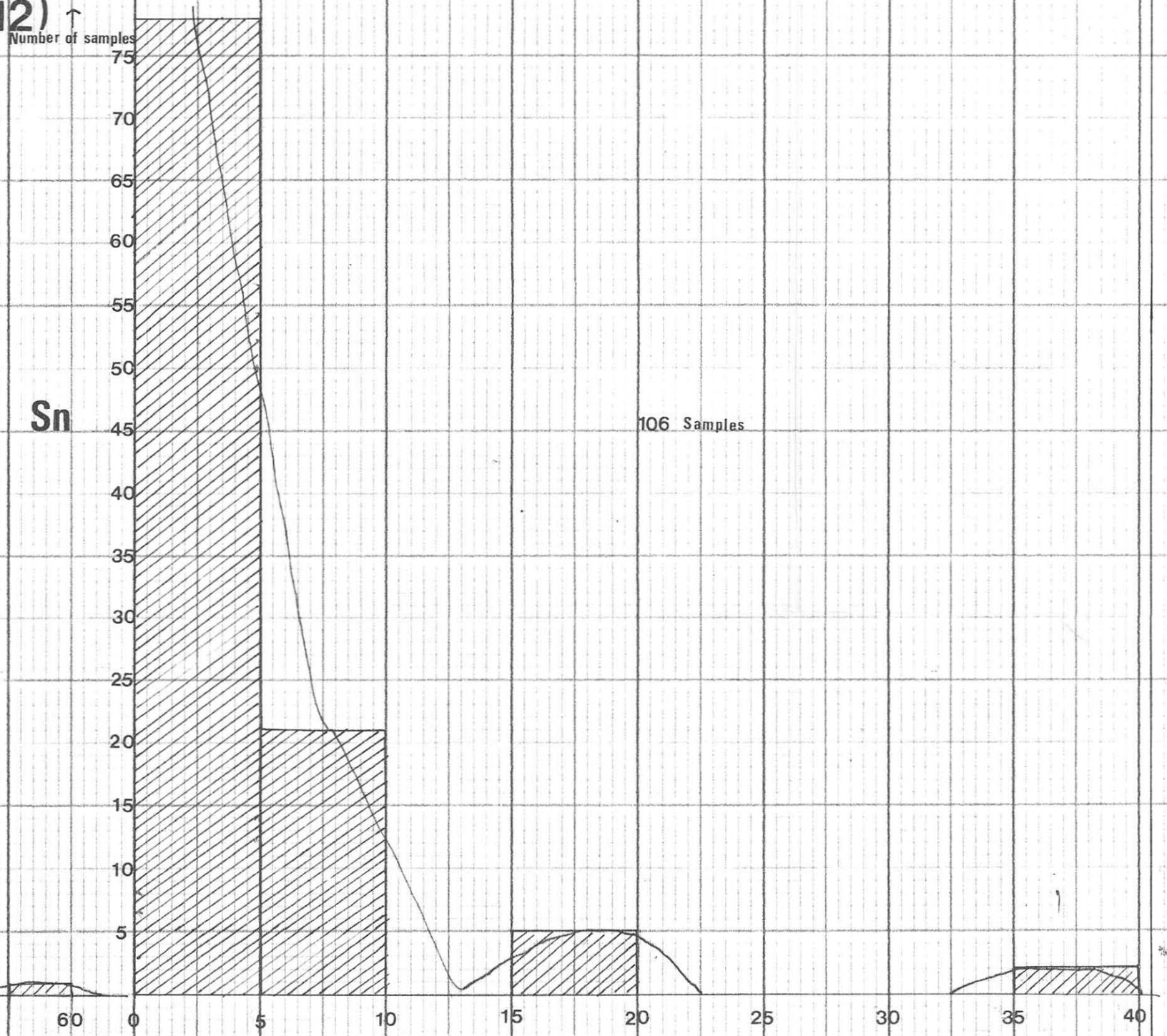
All analyses by MCPhar on Gemco Auger bottom hole samples

5 cm

776038
EL 5/69 05/12
Frequency distribution analyses
(except Inv. I & II)



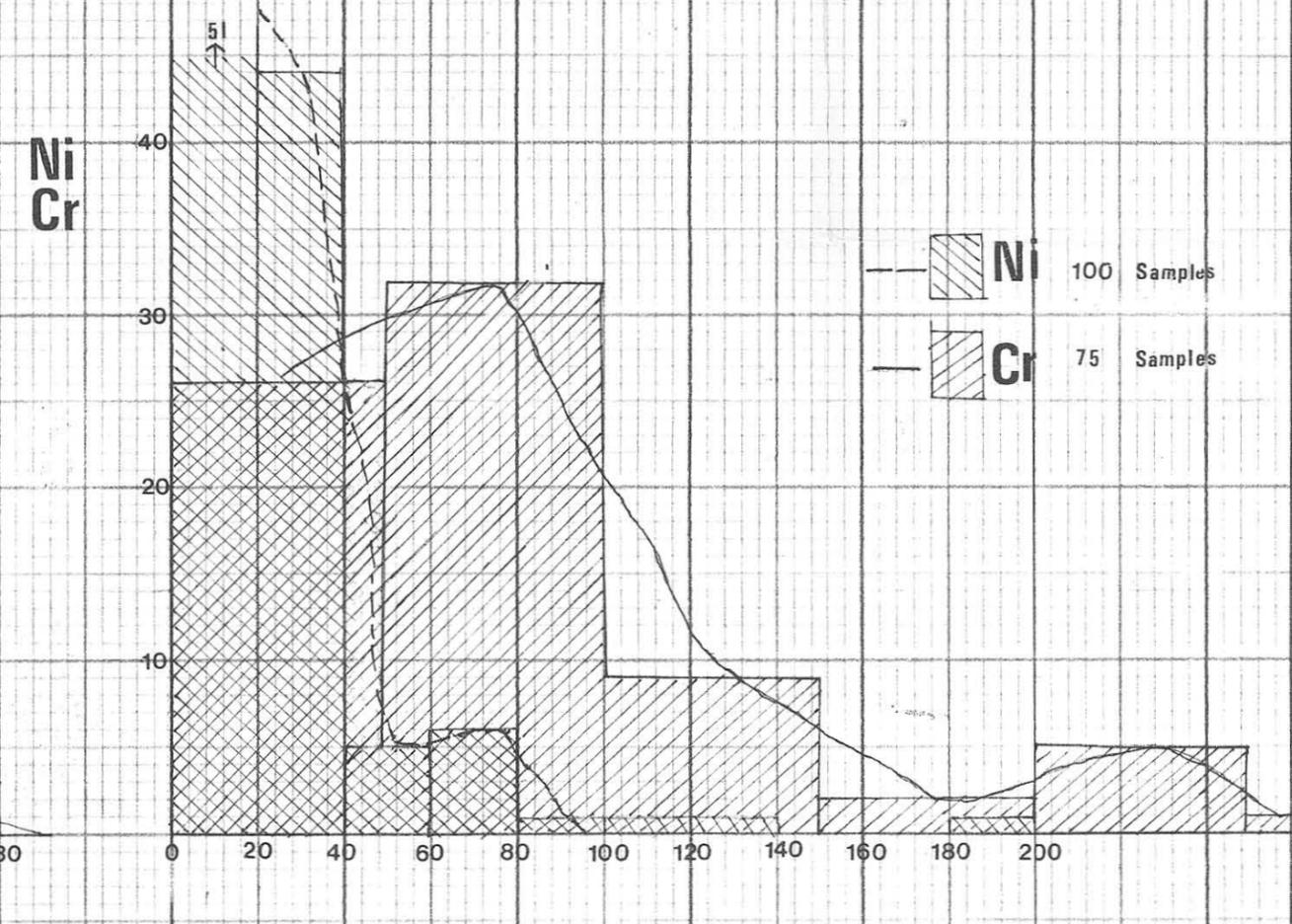
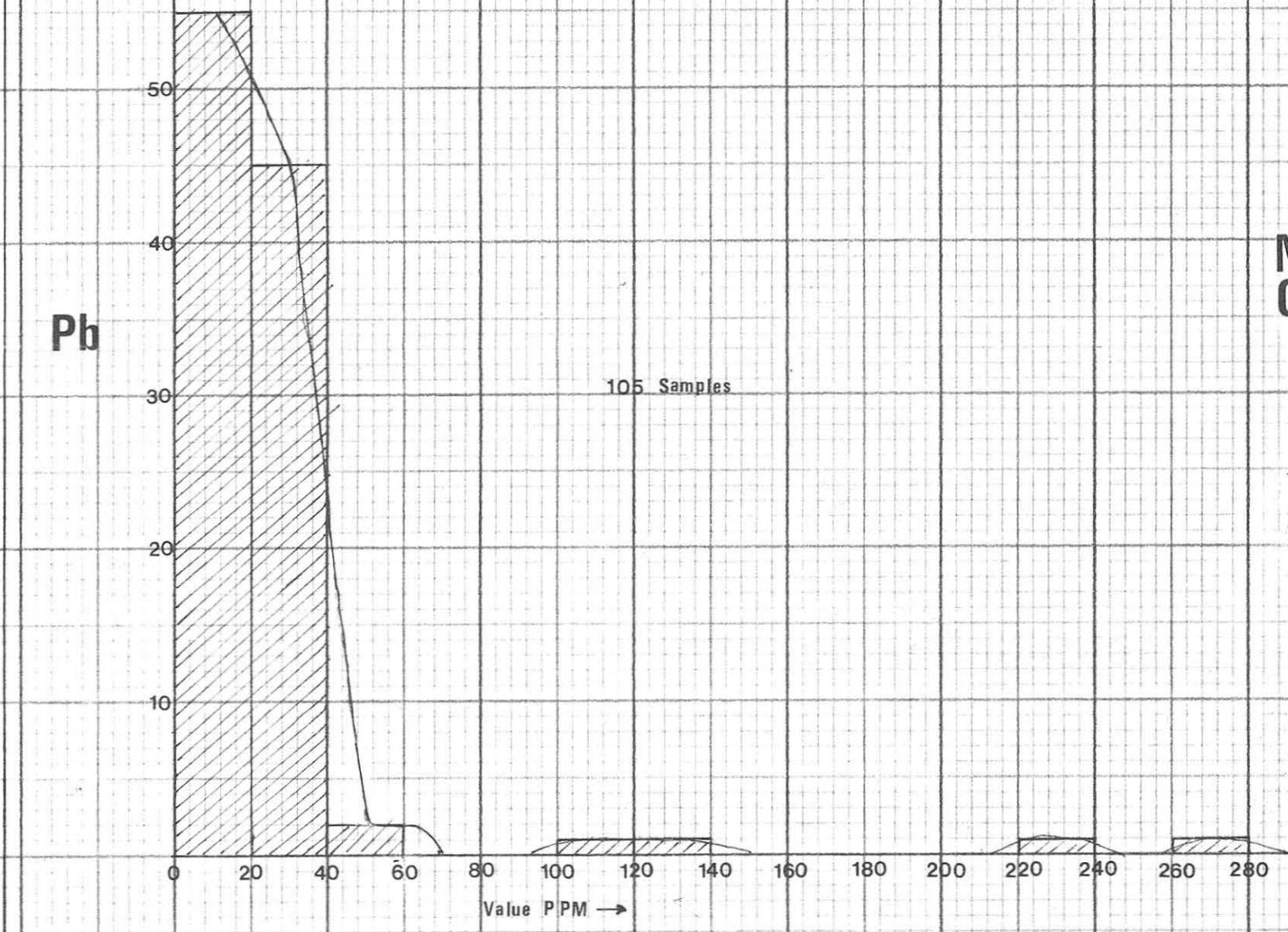
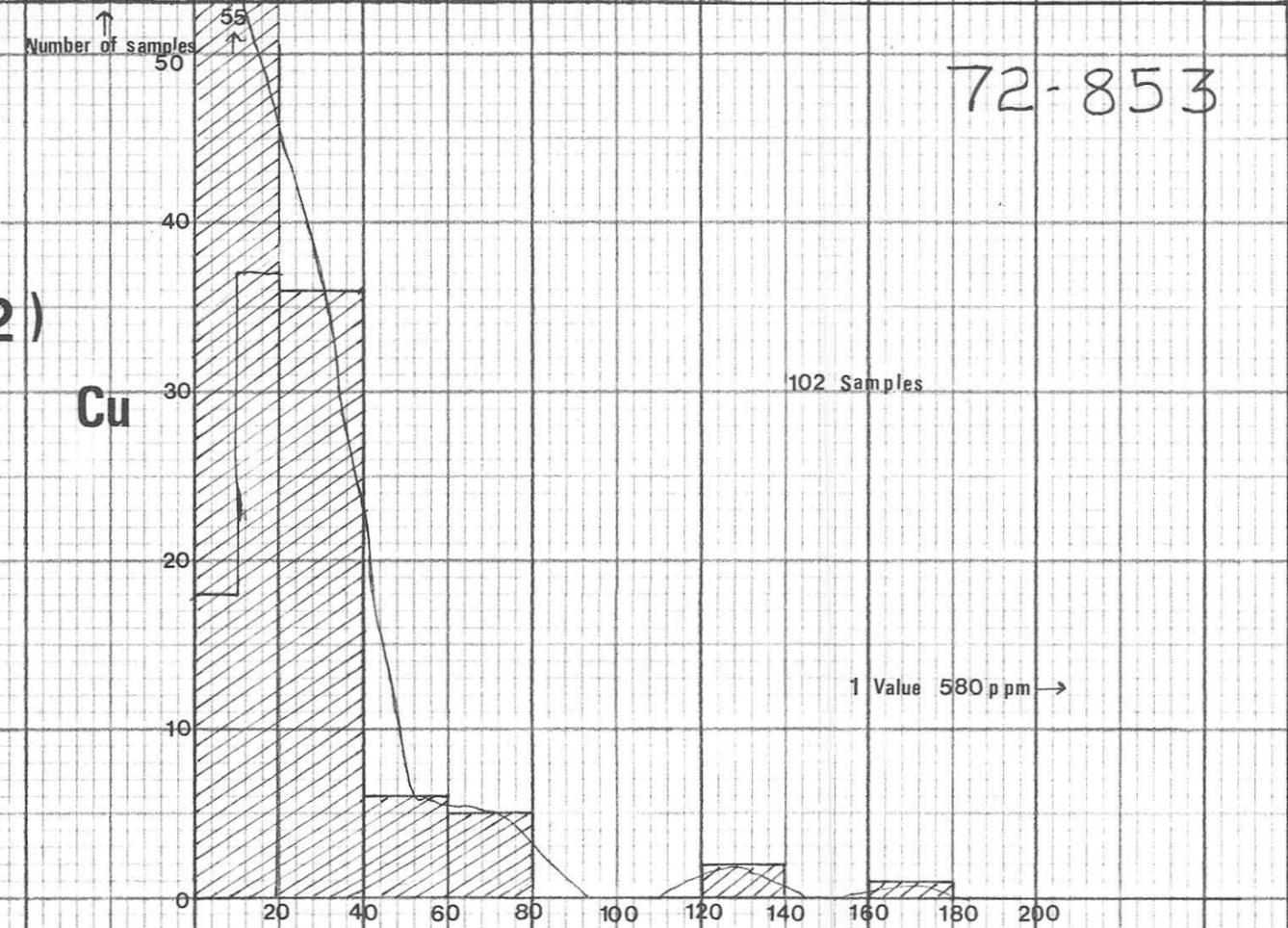
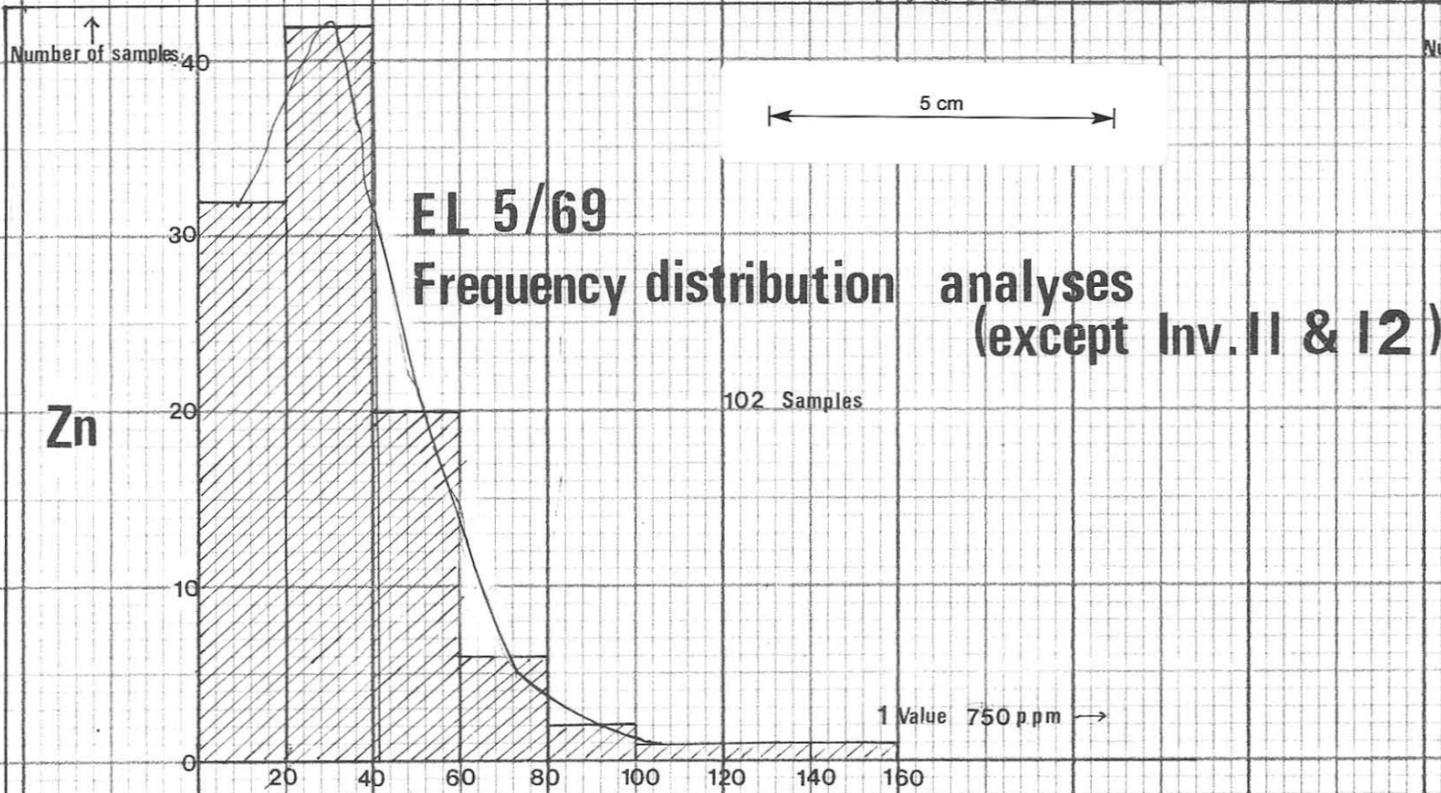
107 Samples

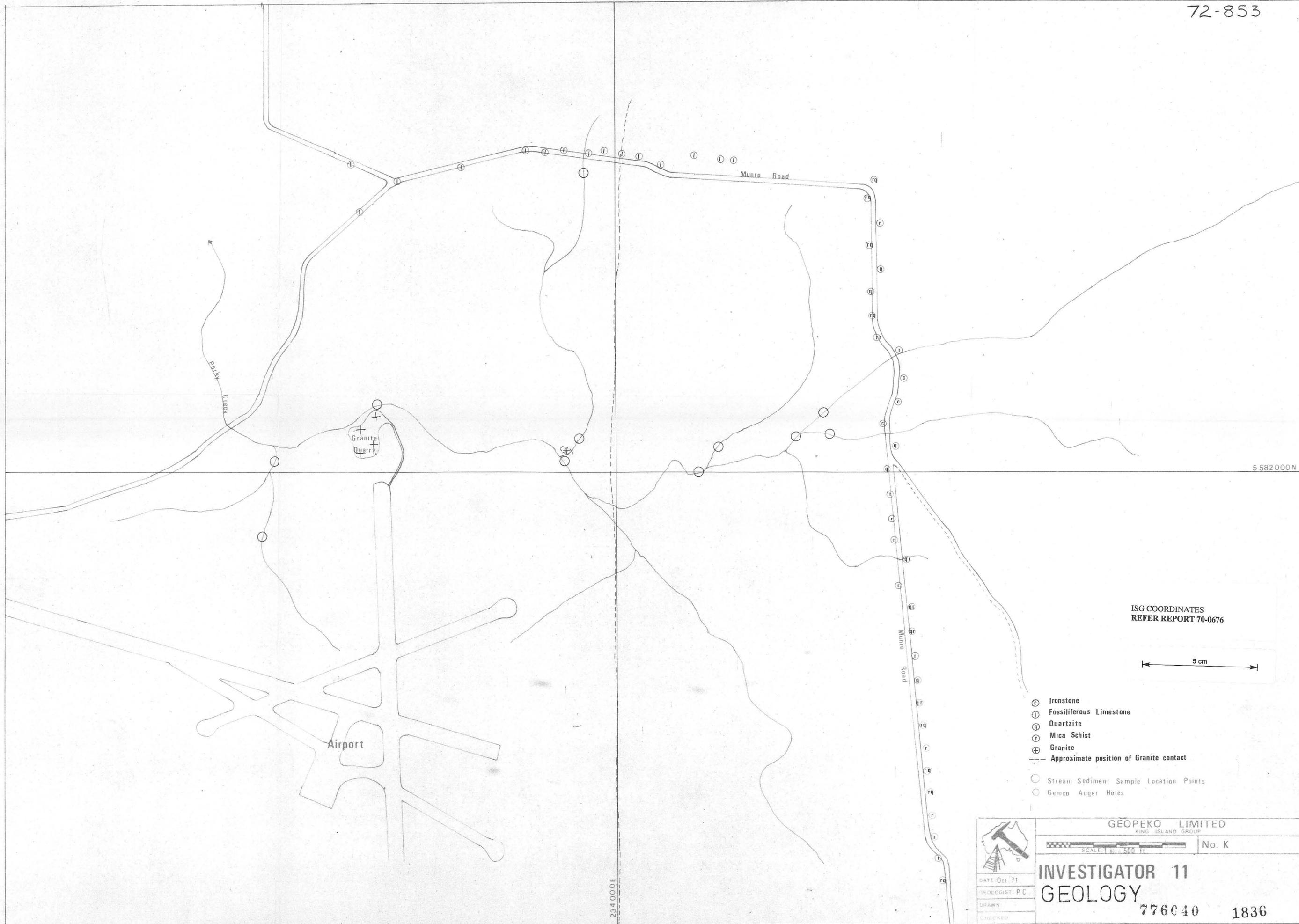


106 Samples

Value PPM →

72-853





ISG COORDINATES
REFER REPORT 70-0676

5 cm

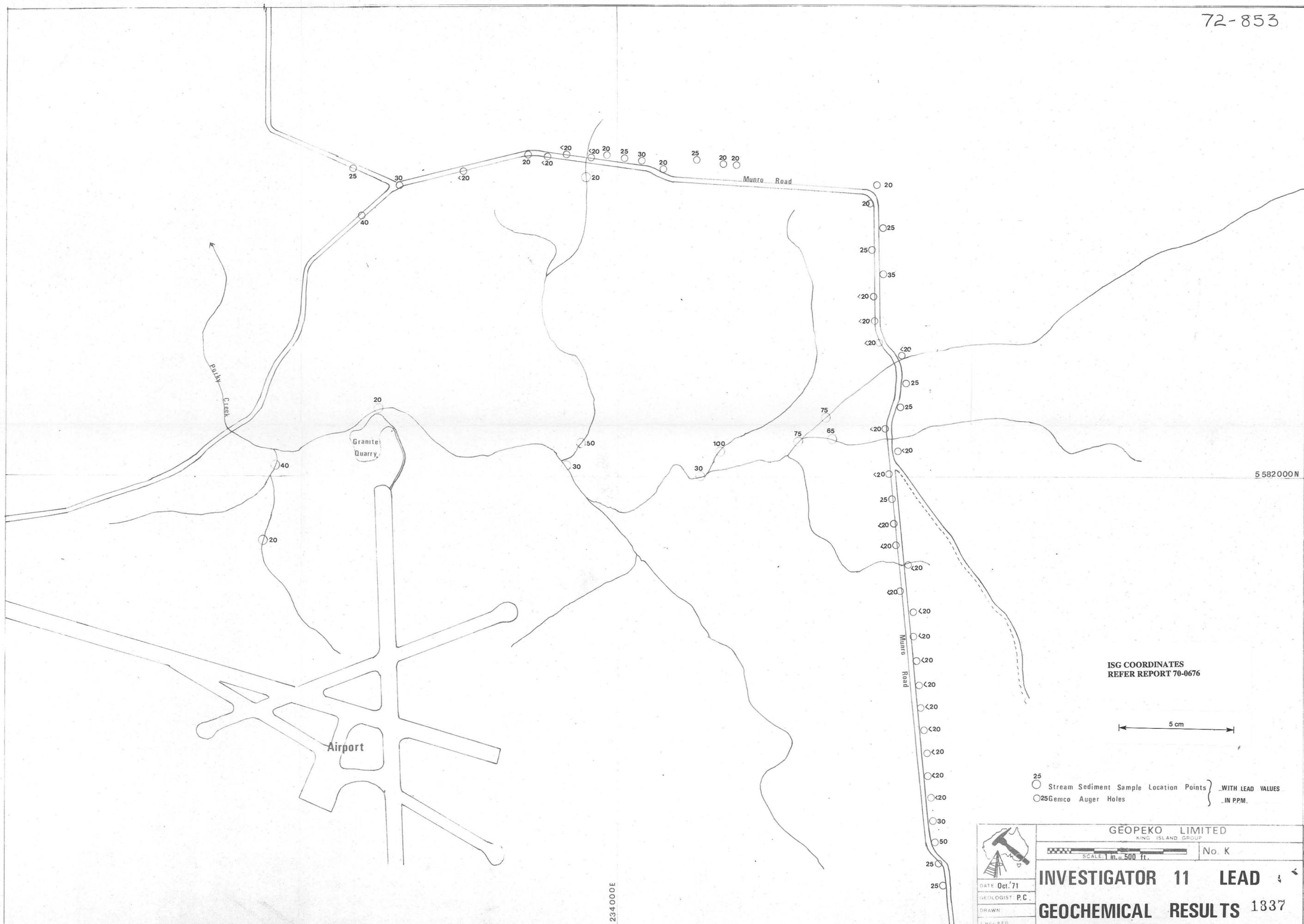
- ⊙ Ironstone
- ⊙ Fossiliferous Limestone
- ⊙ Quartzite
- ⊙ Mica Schist
- ⊙ Granite
- - - Approximate position of Granite contact
- Stream Sediment Sample Location Points
- Gemco Auger Holes



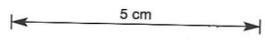
DATE Oct '71
GEOLOGIST P.C.
DRAWN
CHECKED

GEOPEKO LIMITED <small>KING ISLAND GROUP</small>	
SCALE 1 in = 500 ft	No. K
INVESTIGATOR 11	
GEOLOGY	
776040	1836

95/12



ISG COORDINATES
REFER REPORT 70-0676



- 25 Stream Sediment Sample Location Points } WITH LEAD VALUES
- 25 Gemco Auger Holes } IN PPM.

	GEOPEKO LIMITED <small>KING ISLAND GROUP</small>	
		No. K
DATE Oct. '71	INVESTIGATOR 11 LEAD	
GEOLOGIST P.C.	GEOCHEMICAL RESULTS 1837	
DRAWN		
CHECKED		

776041 95/12



ISG COORDINATES
REFER REPORT 70-0676

5 cm

45 Stream Sediment Sample Location Points } WITH ZINC VALUE IN PPM.
 45 Gemco Auger Holes }

	GEOPEKO LIMITED	
	KING ISLAND GROUP	
DATE: Oct. '71	No. K	
DRAWN: P.C.	SCALE 1 in. = 500 ft.	
INVESTIGATOR 11 ZINC		1838
GEOCHEMICAL RESULTS		
776042		05/12

234000E

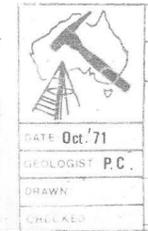
5 582000N



ISG COORDINATES
REFER REPORT 70-0676

5 cm

⑤ Stream Sediment Sample Location Points } Showing Tungsten
 ○ Gemco Auger Holes } Values in P.P.M.



GEOPEKO LIMITED
 KING ISLAND GROUP
 SCALE 1 m. = 500 ft. No. K
INVESTIGATOR 11
TUNGSTEN GEOCHEMICAL
RESULTS 1823

DATE Oct. 71
 GEOLOGIST P.C.
 DRAWN
 CHECKED

776043 05/12

234000E

558200N