EXPLORATION LICENCE NO. 120

NORTHERN TERRITORY

REPORT ON 1976 INVESTIGATIONS

Report No. 260

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1 INTRODUCTION

This report outlined investigations carried out within the area of Exploration Licence No. 120 (referred also as EL 120) during the year 1st January 1976 to 31st December 1976.

Exploration Licence No. 120 was comprised of two separate sections with a total area of 51.72 square miles. This represented the portion of the Exploration Licence retained after the reduction in area required at the end of 1975 as a condition under the Northern Territory Mining Ordinance for renewal of Exploration Licences. The areas of the 1976 renewal were designated A and B, and were shown on Plate 1 in relation to prominent cultural features.

Access to these areas was via the Oenpelli/Pine Creek road. Area A extended partially across this road between the South Alligator River and Barramundie Creek, access to other parts of Area A was via baseline tracks and drill access tracks. Area B was reached by turning off the Oenpelli Road towards Goodparla Homestead and thence via the track parallel to Goodparla Creek through Coirwong Gorge.

The area was at the transition between black soil plains in the north and dissected plateau country to the south. A central sandstone mass gave an area of prominent hills to the east of the South Alligator River, whilst the rest of the area was of low relief with swampy drainage and occasional "strike ridges" and low hills.

Previous work carried out within the area under discussion had consisted of :-

(a) Airborne radiometric and magnetic surveys.

(b) Ground radiometric follow-up, including geological mapping and geochemistry.

(c) Investigation of a base metal anomaly north of the South Alligator River.

(d) Auger drill geology and geochemistry, with associated geological mapping, on a regional scale in E.L.120, extending into E.L.123.

(e) A regional scale Track Etch Survey.

(f) Percussion drilling at Anomaly 5D, Anomaly 5P and Anomaly 77

No bedrock uranium mineralization was found during these investigations.

Following the broad scale investigations of the 1975 season a number of specific follow-up targets were outlined. Investigations in 1976 were geared to elicit more detail from the outlined areas. The techniques applied during the 1976 programme were detailed grid soil and radiometric surveys, geological mapping, rock chip geochemistry and percussion drilling.

The field programme in Exploration Licence No. 120 was commenced on 1st May and was terminated at the conclusion of the drilling programme on 5th October.

The remainder of this report was devoted to the description of 1976 programmes.

No economically significant uranium or base metal mineralization was encountered during 1976.

2 CONCLUSIONS

1. Uranium anomalies at Anomaly 77 South were shown to result from a concentration of metals within porcellaneous calcite which developed at the top of the weathering zone.

2. Drilling indicated that concentrations of uranium existed below the carbonate zone at anomaly 77 south in a shallow syncline of shales. This uranium occurred in association with strong ferruginization in very weathered shale, but values present were less than 0.33 lbs/short ton. Circulation of near surface solutions and changes in Eh/pH conditions from the sandstone into shale facies were the mechanisms of concentration.

3. The shallow syncline of rocks hosting uranium mineralization was overlain by an overthrust conglomerate/sandstone unit. Thrusting and folding were most probably related, with a displacement in the order of 100 to 200 metres indicated, top to the west.

4. Surface and subsurface base metal geochemical anomalies at 9000E 4000N were the result of co-precipitation with grain fringing limonite in a coarse grained sandstone. Very little sulphide was indicated to be present.

5. Uranium and metals dispersing from a fault structure at Track Etch Anomaly I were shown to be derived from an above water table concentration in clay weathering products and porous zones near the fault plane.

6. At Anomaly 8500E 5500N percussion drilling confirmed the surface mapping and geochemical interpretation that a N.W. to S.E. linear anomaly was due to metal concentrations near the contact between dolerite and sediments. No significant metal values were intersected on the percussion drilling section.

7. Track Etch Anomaly II - the geochemical and laterite anomalies. Surface geochemical anomalies were associated with the development of a ferruginous surface layer and not to metal rich basement. A possible correlation existed between laterite development, high laterite geochemistry and 'basement' carbonate facies.

8. Traversing on basal Koolpin interbedded shales and cherts showed that iron sulphides were present and, in part, quite common within the sequence. Minor amounts of base metal sulphides were interpreted as being present with the pyrite.

9. Ferruginization and iron redistribution within the near surface zone of the lower Koolpin shale/chert units was extensive. Limonite/hematite replacement and accumulation had been accompanied by precipitation of the more mobile metals zinc, nickel and copper.

10. No potential for the development of economic metal concentrations was seen in areas considered during the 1976 work programme.

3 RECOMMENDATIONS.

Based on work completed within the present area in 1976 and for preceding years no suitable potential was indicated to exist for the location of large bodies of metal mineralization. No further work on this exploration licence was warranted.

4 GEOLOGY

4.1 Regional Setting.

This is a synthesis of available published and unpublished information for the area north of the South Alligator Valley uranium deposits and north east of the South Alligator River system to the Jim Jim Creek/Barramundie Creek watershed.

A series of dolerite bodies intruded a sequence of psammitic through to pelitic/chemical sediments of the Lower Proterozoic Agicondian System. The sediments of this system, and possibly in part the dolerite bodies, have been folded and slightly metamorphosed and were overlain unconformably by an unmetamorphosed, generally gently dipping, sequence of psammitic and rudaceous sediments with some localized developments of volcanic rock.

Rocks of the Agicondian System have been divided into two distinctive groups, the Goodparla Group and the overlying South Alligator Group.

Goodparla Group rocks in this area consisted of a basal unit of Stag Creek Volcanics (Upper part of Masson Formation) overlain by a local facies unit of conglomerate, quartzite and sandstone, the Mundogie Sandstone Member. This was in turn overlain by a sequence of conglomerate, arkose, quartzite, siltstone and shale known as the Mt. Partridge Formation.

The fine grained rocks of the South Alligator Group overlay both the Mundogie and Mt. Partridge units. They consisted of shales, with iron rich carbonaceous facies, siltstone and interbedded poddy chert and silicified limestone/dolomite of the Koolpin Formation which were overlain by siltstone of the Fisher Creek Siltstone.

Substantial bodies of dolerite formed intrusive dykes and sills within rocks of the South Alligator Group and, to a much lesser extent, in the Goodparla Group.

To the south, unconformably overlying rocks of the Agicondian System, were units of unmetamorphosed Katherine River Group. These consisted of sandstone and conglomerate with interbedded, but lensoid, basaltic and rhyolitic volcanics. This Group was assigned a Middle Proterozoic or Carpentarian age.

The very tight, elongate, north west/south east folding west of the South Alligator River died away towards the east. Important

manifestations of this folding system were seen in the central and southern portions of the area described, both as a south east plunging syclinorium of South Alligator Group rocks and as over-printing on north/south folding within the Goodparla Group. A possible later east/west fold affected both the Mundogie Sandstone Member and the Koolpin Formation on an axis through the southern outcrop of the Mundogie Member. The interference effect of this fold with either the north south or north west/south east folding systems had produced the domal structure which exposed Stag Creek Volcanics in the west of this area.

Faulting was suggested as an important element of structure within the area described and examples of various interpreted faults exist in the literature. However, evidence forwarded as to the positions and possible displacements of a number of these faults appeared open to a degree of interpretational latitude.

4.2 Geology of the Barramundie Creek Area.

A rapid, broad scale, geological mapping programme was carried out in the central and southern portions of area A in 1975 and minor modifications were made following 1976 investigations. Plate 3,

The original mapping was carried out by means of a series of traverses across areas of interest as defined by photographic inspection, traversing in areas of extensive recent cover deposits, auger drilling and compilation of information gained from previous geological mapping in the area shown on Plate 3. Information was plotted at photoscale and an overall photo interpretation was carried out. The final presentation at 1:25,000 scale was obtained by reduction from photoscale, approximately 1:16,670.

The degree of geological reliability across the map showed a marked variation. Northern and eastern sections of the map had a large measure of ground control on the final interpretation. In the south western section of the map area ground visits were curtailed by wet weather and interpretation was based mainly on photo inspection and auger drilling information.

4.2.1 Stratigraphy.

Lower Proterozoic rocks within the mapped area fell conveniently into three lithologically based sedimentary units; these have been equated with the previously named Mundogie Sandstone Member, Mt. Partridge Formation and Koolpin Formation.

The Mundogie Sandstone Member was the oldest unit mapped, being overlain with apparent disconformity by the Mt. Partridge Formation and apparent unconformity by the Koolpin Formation. This Member outcropped along the western boundary of Exploration Licence No. 120 thence swinging to the north east at the northern end of the mapped area. The unit consisted of hard quartzite, sandstone and minor coarse grained clastics. It formed a topographically upstanding "wrinkled" sheet extending to the South Alligator River in the west and dipped below younger formations in the east.

The base of the Mt. Partridge Formation lithologies was taken at the prominent conglomerate horizon which appeared to disconformably overlie the eastern margin of the Mundogie Sandstone outcrop in the northern part of the mapped area. This conglomerate consisted mainly of quartz pebbles and cobbles with sandy or chloritic matrix, but also contained a small percentage of rock fragments e.g. chlorite schist, chert, carbonaceous sediments and sandstone. The conglomerate was radiometrically anomalous and probably contained detrital urano-thorium minerals. Outcrop and drill information indicated the succession above the conglomerate to be :-

Coarse grained arkose

Sandstone and siltstone

Thick shale with minor sandstone and arkose

Quartzite - possibly 200 - 400 metres thick.

Shale - lensing out to south

In the central part of this mapped area (i.e. approximately 10000 N) the conglomerate horizon took on a more sandy and arkosic aspect, although characteristic radioactive measurements were still present. The ridge of sandstone and quartzite extending from 2650E 9400N to 6000E 5250N had this same conglomerate horizon at the base of the eastern slope, with an apparent west dip to the bedding. On this basis, taking the relationship observed at 10000N into account, the quartzites, feldspathic quartzites and sandstones of this ridge were interpreted as being of the Mt. Partridge Formation. This interpretation was selected as the most favoured on present information, but a

distinct possibility exists that these quartzites may in fact be of the Mundogie Member.

In the area of the 8000E base line from 6000N to approximately 8000N the Mt. Partridge sequence included, besides quartzite and arkose, shales, silicified shale and dolomite (carbonate horizons were noted in 5P drilling - see 1973 report) and siltstone. A sequence, in fact, not unlike lower parts of the Koolpin Formation of the area.

The most easterly outcropping and youngest of the assigned Mt. Partridge rocks were a series of conglomerate arkose, quartz pebble arkose and coarse to fine grained arkose. The boundary of this unit, as interpreted from exposure and drill holes, suggested strongly an overlap relationship to older units. It was entirely possible that this, rather than the conglomerate unit selected, should have been considered as the base of the Mt. Partridge Formation. If this in fact was the case, the relationship between Mt. Partridge and Koolpin Formations became less certain.

Rocks assigned to the Koolpin Formation consisted of shale with interbedded chert and siltstone with lenses of massive chert, silicified dolomite and ortho quartzite. Substantial portions of the lower shaley facies of this unit were hematite/limonite rich dark shale/chert interbeds, possibly representing pyritic carbonaceous units at depth.

In the central eastern and south eastern sections of the Koolpin outcrop, where more detailed mapping had been carried out, this unit clearly overlay the arenaceous units, where it could be established that the contact was not tectonically disturbed. The sequence appeared to be :-

Koolpin Formation	(Massive chert
	(Silicified dolomite/limestone
	(Shale with massive chert and minor (ortho quartzite
	(Silicified dolomite/limestone with cherty (breccia and ortho quartzite lenses
	(Shale and hematite rich shale with chert
	(Ortho quartzite or shale/chert units

Mt. Partridge Formation. (Quartzite and sandstone (plus mixed finer grained (sediments

The occurrence of ortho quartzite within the lower part of the Koolpin shales may indicate pauses in general detrital sedimentation, but the apparent association of ortho quartzite with silicified carbonate rocks suggested contemporaneous chemical or biological sediment accumulation. Facies interfingering of Koolpin with Partridge formation would also explain the observed relations.

Auger drilling and mapping indicated that the shaley facies of lower Koolpin units apparently gave way to a more silty facies with minor thin bedded fine grained sandstones, towards the central south area near the Pine Creek/Oenpelli Road.

Dolerite dykes and sills intruded the Koolpin and Mt. Partridge Formations. The dolerites were recognised at surface by dark red residual clayey soils, sometimes containing black secondary minerals from the dolerite, heavy tree cover and very dark photographic tones. Numerous auger drill confirmations were obtained for this correlation of surface features and rock type. The prominent body of dolerite extending north from Anomaly 5P (approximately 7500E 7000N) had a distinct sill like form in its surface disposition and where drilled at Anomaly 5P the apparent dip of the top dolerite surface was very near to horizontal.

Quarternary deposits consisted of scree, residual and transported rubble, sand, pisolitic laterite, transported and residual soils, alluvial silts and organic muds.

4.2.2 Structure.

Detailed study was insufficient to allow a micro structural analysis to be attempted. All comment has been confined to the interpretation of gross structure as perceived.

4.2.2.1 Folding.

A number of fold directions can be interpreted from the geological map.

The Mundogie Sandstone Member outcropped along the western boundary of the reduced Exploration Licence as the core of a north south trending fold system. In the south of the Mundogie outcrop a broad domal type uplift occurred as a response to cross folding on north west/south east and/or east/west to east north east/west south west axes. The latter fold system appeared to be a fairly late development in the tectonic history of the area and affected the Mundogie and Koolpin rocks in the south.

Folding in the Mt. Partridge and Koolpin Formations was of four types :-

The initial north/south folding which gave rise to the general distribution of Mt. Partridge Formation and the Mundogie Sandstone Member in this area.

North west/south east folding in the Koolpin Formation and the central outcrop of Mt. Partridge Formation producing tight and locally overturned folds. This was clearly illustrated by the Koolpin Formation outcrop distribution in the central area. Eastern margins of the infaulted/infolded Koolpin Formation showed every indication of being overturned and exhibited tectonic disturbance sub-parallel to strike. These tectonic dislocations could be construed as bedding slides in response to folding or reverse faults.

The broad distribution of Koolpin Formation outcrop appeared to reflect a generally south east plunging basin or synclinorium.

North east/south west and East/west to east north east/west south west folding was evident in Koolpin and Mt. Partridge Formations and the latter type affected the Mundogie Sandstone Member in the south.

Possibly related to these cross folding episodes, but more likely to reflect earlier north/south folding, were folds which became apparent on a large scale by tracing the outcrop of the Mt. Partridge Formation basal conglomerate. The general north or north west outcrop orientation of this unit was disturbed by a series of sharp asymmetric folds with east to south dipping axial planes, one limb of the fold being overturned or steepened. This pattern of folding was very suggestive of relative lateral movement between Mundogie Sandstone and Mt. Partridge Formation in a sinistral sense producing a drag folding effect, possibly also developing the strong north or north north west striking fracture cleavage which was prevalent in this area.

The eastern margin of the Exploration Licence was occupied by moderate to shallow easterly dipping arkosic units.

4.2.2.2 Faulting.

Numerous faults have been interpreted on Plate 3. These were mainly photo interpreted lineaments notable by their prominence and/or displacement of geological units.

Interpreted faults with an approximate north west/south east orientation predominated in the central and south eastern sections of the mapped area. In addition, lineaments with approximate north north west/south south east and north east/south west orientations were also present. The contact between Mt. Partridge and Koolpin Formation rocks west of the 5000E line was considerably modified by manifestations of relative movement between the two units. This feature can be postulated with a fair degree of certainty, to continue to the end of the

prominent Mt. Partridge Formation north west/south east ridge. Beyond that point the natural continuation of the structure was apparently overlain by Mt. Partridge Formation rocks, suggesting either non-continuance of the structure north westward or an, as yet, unidentified divergence in direction. In the south the probable continuation of this structure, on the other side of the prominent break in outcrop between 5000E and 5500E, was marked by a clearly established fault; the folded section of Mt. Partridge Formation and lower members of the Koolpin Formation were up faulted against a lower Koolpin Formation cherty member. Considering the close association between the folding and this fault structure, plus postulated restrictions in lateral extent, it was considered that the origin may be akin to a bedding slide developed during folding or a slide generated initially at a low angle to bedding and subsequently folded.

The "swarm" of north west oriented interpreted faults in the area bounded by lines 5000E and 8000N showed a progressive apparent displacement of the dolerite contact north westward in a northern direction, whilst the general sense of lateral displacement of the arkose unit in the same area was in an opposite direction. This may have been a reflection of a divergence of dip between the arkose band and the dolerite contact. Vertical displacement indicated by the east dipping arkose band was in general small, up to 200 metres. The southern most interpreted fault of this group appeared to be a much more substantial structure with marked displacement and development of planar fabrics in arkosic rocks.

North west/south east oriented faulting in the south east corner of the mapped area showed progressive, but small, displacement of the steep southerly dipping shale unit in a north westerly direction when going towards the west, i.e. the faults were stepped down towards the west.

The interpreted north north west/south south east fault in the Mt. Partridge Formation of the central area appeared as a distinct clear break with downthrow on the eastern side, displacement unknown but possibly substantial.

In the northern portion of the mapped area interpreted fault lineaments had a general north east or north north east orientation. The latter showed small apparent dextral outcrop displacements whilst the former had a less easily interpretable sense of movement, but which was considered to be of the same order and sense as for the north north east faults.

Finally a north south trending fault has been interpreted to pass through the mapped area in the strip of ground between the 5000E and 6000E lines. The basis of this interpretation was the following series of observations :-

(a) Changes in geology across a depressed topographic feature.

(b) Photo interpreted lineament continuation from a known fault to the south.

(c) A marked discontinuity in relative background values in the Track Etch regional survey coinciding with the photo and geologically interpreted line.

Occurrences of schist within the arkosic upper units of the Mt. Partridge Formation appeared to be the physical expression of shear deformation impinging on this unit in the general area.

Sheared and brecciated zones, especially in axial regions of folding in brittle rock, contained locally substantial amounts of quartz vein material.

In addition to silica injection, and/or secretion, silicification of shale and dolomitic rocks had taken place. The timing of those silicification events was not clear.

The grade of metamorphism of rocks in this area was very low but highly deformed rock fabrics were present as localised features.

5 DETAILED GRID RADIOMETRICS, GEOCHEMISTRY AND GEOLOGY.

Two areas, indicated by 1975 regional investigations and designated Anomaly 9000E 4000N and Anomaly 8500E 5500N, were gridded on a 100m. square pattern. Soil samples were taken from the bottom of hand augered holes and analysed for Cu, Ni, Co, Pb, Zn and U_3O_8. A Scintrex GIS-3 spectrometer was used to measure gamma radiation at each site. The area gridded was mapped for bedrock geology and soil type whilst sampling was being carried out. Results of these investigations were presented on Plates 4, 5 and 6.

5.1 Anomaly 9000E 4000N.

An undefined base metal anomaly was indicated by 1975 regional soil and auger programmes as being present at location 9000E 4000N.

In 1976 an area of approximately 800 metres by 500 metres was gridded at 100 metre line spacing and geochemical soil samples were collected.

5.1.1 Geology.

The gridded area covered a low featureless topographic "swell" in its central and eastern portions. This area was covered by sandy and silty soils and contained occasional exposures of arenaceous, ferruginous arenaceous and rudaceous sediments of the Lower Proterozoic Mt. Partridge Formation. The attitude of Lower Proterozoic rocks found on this grid was not determinable but dip was suspected, on a regional basis, to be in an east to north east direction. Scattered, localized, developments of ferruginous pisolite laterite were found in this area. Between this area and the quartzite scree in the south west corner of the grid were areas of swampy drainage with black organic sandy soil and no rock exposure. In the north east corner of the grid, orange soil with possible 'collapse' depressions was encountered.

5.1.2 Geochemistry.

The distribution of metal values on the grid indicated three anomaly types i.e. anomaly over metal rich Lower Proterozoic rocks, dispersion to drainage from the area of the bedrock anomaly and anomaly associated with thick orange soils.

A strong bedrock related copper/lead anomaly extended in a N.N.W. direction from 9000E 3800N. The zone crossed the topographically highest part of the area and ran for part of its length across the main zone containing scattered and partly ferruginous arenaceous exposure. Copper values up to 120 ppm (median value 14 ppm) and lead values to 400 ppm (median value 36 ppm) were encountered in this anomaly. The zinc high zone appeared on either side of the main copper lead zone and had a contoured strike of WNW/ESE.

Copper, lead and zinc dispersion leading from the main bedrock related anomaly to the swampy drainage area and the ferruginous nodular laterite, which bounded it on the N.E. side, probably represented a train of solid ferruginous rock particles.

Anomalous geochemical values were obtained from a sample of iron rich silty to sandy soils taken from the bottom of a six foot collapse depression. These soils and their related structures could possibly have been partly derived from the residual fraction after dissolution of a carbonate rock.

Uranium assays were very low both in soils and in rock samples collected on this grid.

Metal values in the six ferruginous arenite rock chip samples collected on this grid were relatively high.

Value ranges were :-

42 to 130 ppm Copper
90 to 160 ppm Nickel
22 to 210 ppm Lead
420 to 840 ppm Zinc

5.1.3 Radiometrics.

Spectrometer count rates were generally at a level considered to be background for the geology present. Minor anomalies at 2x the general background were found in areas of ferruginous 'pisolite laterite' and at one sample site in the orange soil area in the N.E. portion of the grid.

5.1.4 Assessment.

The bedrock related geochemical anomaly, associated with observed manganiferous and ferruginous surface exposure, was thought to constitute a target for

exploratory percussion drilling. The concluding phase of the exploration of this area has been dealt with in section 6.2 of this report.

5.2 Anomaly 8500E 5500N

Undefined surface auger and soil sample metal anomalies were located in the area of grid point 8500E 5500N during the 1975 programme.

In 1976 an area of approximately 0.4 sq.km. was gridded at 100m. spacing to cover the area indicated as being anomalous by 1975 work.

5.2.1 Geology.

Exposure of a folded and faulted Lower Proterozoic quartzite horizon in the north west section and cherty breccias in the central section were the only Lower Proterozoic rocks visible on the gridded area, these were tentatively assigned to the Mt. Partridge formation. Scree dispersing from these ridges of exposure and from cherts to the south west of the gridded area formed the bulk of surficial deposits on the western portion of the gridded area.

Eastern portions of the gridded area were flat lying with swampy drainage and sandy soils. An area of sandy soil with ferruginous nodules was outlined at the northern margin of the main swamp. Swampy drainage, with associated sandy soils, also bisected the scree areas of the western portion of the map. This drainage zone was very straight and had a N.W./S.E. orientation.

Red clay soils, usually indicative of a dolerite bedrock within this general area, were found as a wedge shaped body between the zone of Lower Proterozoic exposure/ scree and the low lying sandy and swampy areas.

Lower Proterozoic bedrock structures, as deduced from outcrop and surficial unit distributions, showed three clearly interpretable features :-

(a) A NNW or NW trending anticlinal fold as outlined by the quartzite exposure.

(b) N.W./S.E trending faults as evidenced by a small linear swampy zone, by displacement of quartzite outcrop at 8400E 5900N and the possible termination of dolerite against the suspected fracture trace.

(c) A zone of cherty and slightly ferruginous breccias extended in a N.N.W. direction along the northern side of the small cross cutting swampy area.

5.2.2. Geochemistry.

Metal value distribution on this grid showed a number of anomaly situations :-

(a) Strong linear anomaly in Pb, Zn, Co and U_3O_8 parallel and possibly coincident with an interpreted N.W. fault structure which cut the folded quartzite unit. This anomaly was strongest where interpreted dolerite came in fault contact with, presumed, sedimentary units to the S.E. of the main quartzite exposure. Mineral enrichment along, or adjacent to, a faulted contact between dolerite and sediments was strongly indicated.

(b) A small lead/zinc anomaly was outlined in scree downslope of the mapped exposures of cherty breccia. A rock chip sample from the breccias (ESR 2538) showed no marked anomalism for these two metals, but the most credible explanation for the anomaly was considered to be dispersion from the area of the breccias with possible value enhancement by a natural separation of ferruginous and cherty components. No further work was considered necessary.

(c) Cu, Co, U_3O_8 anomalies associated with ferruginous nodules and ferruginous laterite of surficial origin.

(d) Composite anomalies of Co, Zn, Cu and U_3O_8 associated with areas near the base of the scree slopes and at the margins of the main swampy area. These were considered to result from the local metal concentrating environment consequent of the charge in chemical and dispersion regimes and no further work was recommended.

5.2.3 Radiometrics.

Spectrometer backgrounds on this grid were very low (15 to 20 counts per second).

A spot high of approximately $4\frac{1}{2}$ x background occurred over laterite at 8530E 2670N. The faulted zone, approximately 100 metres to the N.E. of the above high, had a radiometric response of approximately $1\frac{1}{2}$ to 2x background.

Another spot high, of approximately 2x background, occurred at 8500E 5200N at the base of a cherty scree slope. Geochemistry did not reveal anomalous U_3O_8 in this area.

5.2.4 Assessment.

The fault related anomaly in the central northern area of this grid was considered worthy of follow-up drilling. This phase of the investigation has been dealt with in section 6.4 of this report.

6 PERCUSSION DRILLING.

Following recommendations made at the end of 1975 and follow up work completed in 1976 (See Section 5) six areas were selected for investigation by percussion drilling in mid 1976.

A contract for the required drilling was let out to Afrac Drilling Pty. Ltd. of Brisbane. A Mayhew 1500 air blast rig and a 250 psi Holman air compressor were used to complete the contract.

Fifteen miles of access tracks were graded into the drill sites.

Locations of the six areas for drilling were shown on Plates 2 and 3. Drill site locations wereshown on Plates 4, 13, 16 and 20.

6.1 Anomaly 77 South.

Drilling here was in two phases, the initial cross strike traverse, holes BDH 38 to 42 inclusive, and a follow-up programme of three holes, BDH 47 to 49 inclusive, drilled at a later date.

Eight holes were drilled in this location for a total drilled length of 327 metres. Hole locations were shown on Plates 2, 3 and 13 and drill section information was shown on Plates 11 and 12.

6.1.1 Section 17840N.

Initial drilling on this section was undertaken to test an area of surface radiometric anomaly and auger drill geochemical anomaly outlined in the 1975 programme.

6.1.1.1 Geology.

The lithological sequence intersected by these holes was (oldest at Base) :-

Shale and limonitic shale

Sericitic sandstone

Quartzite

Alternating conglomerate, arkose and phyllite

Chloritic and carbonaceous phyllite

Quartz - chlorite schist.

These rocks were assigned to the lower part of the Mt. Partridge Formation in the 1975 regional mapping, but could be part of the Mundogie Sandstone Member depending on the selection of a base to the Mt. Partridge formation.

Conglomerate outcrops form two sub-parallel zones, one on either side of the surface radioactive anomaly, with eastward dips for both units indicated. Results of drilling showed that the western outcrop of conglomerate was correlatable with the interpreted conglomerate unit intersected in the mid to lower portions of holes BDH 38, 39, 40 and 41. The western outcrop was correlatable with intersections of conglomerate in the top of holes BDH 41 and 47. The latter unit overlay a shallow syncline of schist, conglomerate, arkose and shale/phyllite with apparent disconformity, unconformity, suggesting two separate conglomerate units were present within the sequence. An alternative, and more probably, interpretation of this relationship was that the two conglomerates were of the same horizon with the upper portion thrust over the lower. This proposition would be supported by steep apparent dips at some points along the eastern outcrop and by shearing parallel to bedding.

The water table level was related closely to the arkosic sandstone member in the middle of the drilled section. Porosity and permeability within this unit appeared to be high.

A small amount of malachite and chrysocolla was noted in the chips from the upper portion of the quartz-chlorite schist unit in BDH 38. This was associated with quartz limonite veins, suggesting derivation from a local sulphide source.

6.1.1.2 Radiometric Monitoring of Percussion Samples

Distinctly anomalous sample readings were encountered in holes BDH 40, 42 and 47.

The high readings were near the top of these holes, with the highest values being in red/orange, limonitic, highly decomposed, shale or phyllite. A positive correlation existed between the darkest orange/red colours (related to limonite content) and the high radiometrics.

6.1.1.3 Assay Results.

High U_3O_8 values were obtained from the radioactive ferruginous shale section mentioned above. Values ranged up to 165ppm U_3O_8 and the zone of highest values occurred just above the contact between the shale and underlying porous arkose and on the western limb of the shallow syncline. The U_3O_8 values decreased to surface, cut off sharply within the shale unit approximately 5 metres below the upper conglomerate unit and 'fingered out' westwards into the porous arkose. This latter distribution was clearly related to water table and water table movements.

Assay of selected white porcellaneous carbonate from near surface samples, under the peak of the surface radiometric high, showed that surface responses must, to a great extent, be due to metal concentration within a form of calcrete material (ESR 2611 - 177 ppm U_3O_8, 460 ppm Cu, 330 ppm Ni, 190 ppm Co and 4300 ppm Zn)

The possible Ni/U_3O_8 correlation suggested by 1975 work was not confirmed. High nickel and U_3O_8 values in the calcrete at surface probably contributed to the impression of a correlation, but inspection of assay results indicated that the nickel high zone cut across the anomaly trend for U_3O_8 at a high angle.

Copper values in the U_3O_8 anomalous area had a marked positive correlation with U_3O_8 values, but value levels were quite low. High copper geochemistry was associated with the lower chlorite phyllites and schists, the peak value of 550 ppm being where copper carbonates were observed in drill cuttings.

6.1.2 Section 17890N

Following the geochemical confirmation of the presence of 'abnormal' uranium values on section 17840N, it was decided to drill down the plunge of the synclinal structure on the section 17890N. Two holes BDH 48 and 49 were drilled.

6.1.2.1 Geology.

A shallow east dipping sequence of shale and arkose/conglomerate was intersected.

The 'upper' conglomerate horizon on this section was overlain by an arkosic sandstone. The aggregate thickness of these two units was much larger than for the upper arenite/rudite unit on section 17840N. A north east dip at approximately 15° was indicated for the base of this unit.

Underlying the upper conglomerate was a shale and ferruginous weathered shale unit, equatable with that carrying the high U_3O_8 geochemistry on section 17840. The unit appeared to thicken with depth towards the axis of the shallow fold.

Both BDH 48 and 49 were terminated in the sericitic arkose, which was found directly above the 'lower' conglomerate unit of section 17840.

Interpretive structural contours placed the axis of the synclinal structure approximately 10 metres to the east of BDH 48.

The water table surface appeared to reflect the contact zone of porous arkosic and shales, its surface inclination being in the same direction as this contact.

6.1.2.2 Assay Results.

Drilling on section 17890N was interpreted to have taken place at an equivalent structural position as that in which the abnormal U_3O_8 values were obtained from section 17840N. The rock types,

succession and ferruginous alteration were comparable but assay and radiometric responses were much lower.

U_3O_8 high values, to a maximum of 59 ppm, again occurred within the middle and lower portion of the shale unit with low order high values extending partly into the arkosic unit.

Nickel (up to 220 ppm) again showed a marked cross cutting anomaly zone whilst copper (up to 120 ppm) was within, and close to, the zone of anomalous U_3O_8.

6.1.3 Assessment.

Anomalous U_3O_8 values occurred within the lower portion of a highly weathered and partially ferruginized shale. A strong correlation existed between iron content, U_3O_8 value, water table and underlying arkose contact. U_3O_8 values did not appear to increase with depth and surface values, which give rise to surface radiometric anomaly, were related to the content of calcrete like carbonate.

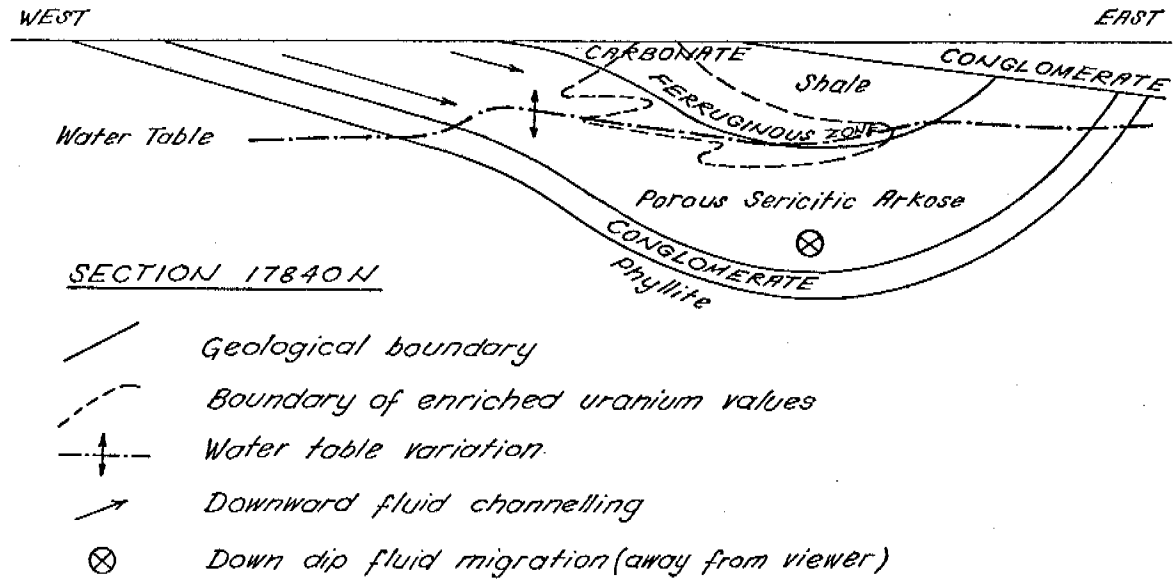
Surficial weathering and groundwater condition were considered to be the agents by which the anomalous values of U_3O_8 had developed in the shale unit. The lower conglomerate, which was known to be radioactive at surface and to contain minor amounts of uranium, was the source of the U_3O_8 and water flowing in the overlying arkose the carrier. Separation had been effected in the shale host, mainly in the area of water table oscillation, along with iron and copper (see sketch below). Uranium in the shales did not show any potential to develop ore grade values.

Interpretive structural contours, based on limited information from surface outcrop distribution, auger drilling and percussion drilling, suggested that the shallow N.NE plunging shale unit was progressively thinning to the north, truncated by the N.E. dipping 'upper' conglomerate/arkose unit.

The potential for ore grade development was very low and the gross bulk of the host shales was considered very small (estimated 250x100 metres x 15 metres thickness). No further work was warranted.

Anomaly 77 South

Sketch showing relationship of uranium, geology and interpreted fluid system.



6.2 Anomaly 9000E 4000N.

This base metal anomaly was first located during the regional soil sampling programme completed in 1975. It was subsequently drilled with three shallow auger holes late in 1975 and interesting copper, lead and zinc assays were recorded. In 1976 the local area around the original discovery was gridded and soil samples were taken. Results of this survey were presented in Section 5.1 of this report.

A recommendation for percussion drilling was made and five holes (BDH 29 to 33 inclusive) were laid out to cross the area of geochemical anomaly. Subsequent to the initial five holes, two follow-up holes were drilled (BDH 50 and 51).

Drill hole locations were shown on Plate 4 and the drilling section on Plate 14.

6.2.1 Geology.

Percussion drilling in this area encountered a sequence of arenaceous rocks, mainly coarse grained sandstone and arkose with minor amounts of fine grained quartzite. The attitude of the sequence was difficult to ascertain as there were no unique marker horizons or sequences, but a tentative correlation of hard, fine grained, quartzite at the east of the section suggested a shallow, 10° to 12°, apparent dip to the N.E.

At various levels within the sequence manganiferous sandstones were encountered, these being coarse sandstones containing coarse to fine nodules of manganese. Also within the sequence, but in greater proportions than the manganiferous variety, were ferruginous and jaspery coarse grained sandstones. In some samples this material had a gossanous appearance, but, in the main, limonite appeared to be interstitial and exotic.

Descriptions of rock samples ESR 2631 and ESR 9435 by Delta tended to suggest an interstitial exotic accumulation. Complex depositional textures probably account for the 'almost like boxwork' texture described in the appended petrological reports for these rock samples (Appendix 3).

A very pronounced colour differentiation was noted between drill holes. Products from drill holes BDH 29, 30 and 51 were predominantly yellow, from BDH 31 they were red and from BDH 32, 33 and 50 orange to red products dominated. This gross variation seems to reflect zonation of the oxidation state of iron within the weathered zone, the hematite zone being found in what was suspected, from tentative geological and geochemical correlations, to be a fractured zone.

6.2.2 Assay Results.

Copper, lead, zinc and nickel values exhibited very marked anomaly above the interpreted band of fine grained non-porous quartzite in areas above the water table. Some anomalously high values of copper, lead and zinc extend into areas below the water table without appreciable change in value level, but the main group of highest values was above the water table.

Copper values ranged up to 350 ppm, lead to 2600 ppm and zinc to 900 ppm and high values showed a general relationship to limonite cemented coarse grained sandstone and arkose rather than to the presence of hematite or manganese. (Appendix 2 - ESR 2609, 2610, 2626, 2627, 2628, 2629)

Spotty U_3O_8 high values, to 38 ppm, were also associated with the limonitic zones. In the bottom of BDH 33 the U_3O_8 high values were located in jaspery limonite which gave anomalous, but not extremely high, metal

values. 'Moderate' (13 and 14 ppm) U_3O_8 values accompanied copper high zone in the main base metal anomalous zone.

BDH 31 differed from the other holes drilled on this section in that it intersected a zone in which the predominant oxide iron was hematite rather than limonite. Contour correlation of metal value zones and some continuance of a possible marker indicated that BDH 31 may have penetrated a fractured zone. The distribution of iron minerals suggested an oxidation/reduction boundary condition, but there was no discernible relationship of this feature with uranium values.

6.2.3 Assessment.

A sequence of coarse grained porous sandstone and arkose contained zones of limonite and manganese. The limonite and manganese appeared mutually exclusive and not strictly of a bedded nature. Recorded manganese was confined to uncorrelateable 'blobs' whilst the limonite zones appeared to parallel the band of fine grained impermeable quartzite and to form sub-horizontal/ 'fingers' within the porous weathered arenites.

High geochemistry was associated with the limonite which had been described as interstitial and in hand specimen had a textural appearance indicating an exotic origin (exhibits grain coating, pore fill, botryoidal habit and structureless varieties).

It was considered that the origin of metal values was, like the limonite rich zones and possibly the manganese, exotic and was not related to in situ weathering of original base metal sulphide minerals within the sandstone units.

It was recommended that no further work be done.

6.3 Track Etch Anomaly I.

This anomaly was located during the regional Track Etch survey completed during 1975. A follow-up grid sample programme in 1975, using closer spaced Track Etch radon measurement and soil geochemistry, indicated that radon, zinc and nickel were dispersing from a suspected east west fault zone between orthoquartzite and shale of the Koolpin Formation. The faulted zone itself, as indicated by soil sampling of the scree slope above, contained high U_3O_8 values compared with the rest of the grid.

It was recommended to percussion drill across the suspected mineralised fault zone to investigate the source of metal dispersion.

Location of the 1976 percussion holes was shown on Plate 16 and the sectional information on Plate 15.

6.3.1 Geology.

Drilling intersected two rock units, an orthoquartzite in the north and a sequence of dark shales and carbonaceous shales, with a tuff band, in the south. The contact between the two units was apparently sharp and dipped at approximately 78° south on section. Surface relationships suggested that this contact was a fault. The contact intersected in BDH 36, was preceded by a 10 metre section of yellow clays and a zone of fractured chert/orthoquartzite. In BDH 35, where the contact was fairly sharp between the unweathered dark shale and orthoquartzite, slickensides on some fragments indicated shearing near the contact.

Pyrite was common within the shale units as veins, films and disseminations, but no base metal sulphides were identified.

6.3.2 Assay Results.

High U_3O_8 and base metal values were obtained from the clay zone and from the fractured region around the contact in BDH 36.

Range ppm of :-	U_3O_8	Cu	Pb	Zn	Ni	Co
Clay	18-34	140-220	28-56	240-380	180-250	210-330
Fractured contact zone	14-24	86-150	40-64	190-390	66-120	70-180

High background metal values were obtained within the shale unit in general, but no enrichment was obtained for samples at the shale/orthoquartzite boundary in BDH 35. Copper and zinc values showed a general decrease with depth in the shale unit.

6.3.3 Assessment.

High metal values in the permeable faulted zone at surface were clearly related to accumulations within the clay weathering products associated with a permeable

solution channel structure. The process of formation was surficial and not of any significance as an indicator of the presence of economic concentrations of metals. No further work was warranted.

6.4 Anomaly 8500E 5500N

A percussion drilling traverse, consisting of four holes BDH 43 and 46 inclusive, was completed at this locality following recommendations made as a result of the soil sampling and geological programme described in section 5.2 of this report.

Locations of the drill holes were shown on Plate 14 and sectional drilling information on Plate 17.

6.4.1 Geology.

Drilling confirmed that arenaceous, argillaceous and possibly carbonate sediments were in contact with a dolerite body. Drill holes BDH 43 and 44 intersected mainly dolerite or the clay weathering products from dolerite decomposition. In drill hole BDH 44 a contact with phyllite appeared to have been intersected at the bottom of the hole.

Holes BDH 45 and 46 intersected mainly arenaceous sediments, some containing small amounts of manganese. No correlation of rock units was made and the attitude of the succession was unknown.

6.4.2 Assay Results.

The assay results from this drilling were of geochemical interest only and they could not be taken as indicators of the presence of possible ore grade mineralisation.

U_3O_8 results show a low value anomaly zone dipping to the S.W. at approximately 40-75°, possibly the fault zone?

Copper high zones occur in the sediments above the water table, values up to 190 ppm were noted.

Zinc values to 580 ppm were present but not considered unusual. Other elements measured showed no significantly anomalous values.

6.4.3 Assessment.

As with other anomalies drilled in this area, i.e. the 5P area and auger drilling on dolerite N. of the main Oenpelli Road, this enrichment of metals at a sediment/dolerite contact had no significance as a guide to possible economic metals concentrations.

6.5 Track Etch Anomaly II - Geochemical.

An eight hole percussion drill traverse was completed across the strike of a geochemical anomaly outlined by the 1975 programme.

Radon anomalies were obtained in this area in the 1975 regional programme. In follow-up Track Etch and soil geochemical sampling a N.E./S.W. zone of U_3O_8, Pb, Cu, Zn, and Co anomalies and associated 'flanking' radon and radiometric anomalies was outlined. A sedimentary unit or mineralized fault were interpreted as possible sources.

Drill hole locations were shown on Plate 20 and drill section information was shown on Plate 18.

6.5.1 Geology.

Drilling intersected shales, carbonaceous shale, siltstone and dolomitic shales of the Koolpin formation. These rocks were veined with quartz and, near carbonate rich rocks, calcite. Pyrite was common both in veins and as disseminations within the rock mass. No base metal sulphides were identified, but geochemistry suggests some very minor concentration of chalcopyrite or cupriferous pyrite.

Surface deposits of ferruginous clay with ferruginous nodules formed an almost continuous cover on the drilled section. This was underlain by a clay weathered zone which contained white porcellaneous carbonate and possibly gypsum.

The projected position of the geochemical anomaly onto this section coincided with the centre of the section where 'dolomitic' shales existed.

6.5.2 Assay Results.

No assay value measured on this section was in any way of interest with regards the location of economic metal concentration.

The soil sample anomaly of 1975 appeared to reflect variation of metal concentration in the ferruginous clay layer. Metal concentrations within the ferruginous surface deposits may be related to the carbonate content of underlying bedrock, hence the strike extent of the geochemical anomaly.

6.5.3 Assessment.

Further work was not warranted.

6.6 Track Etch Anomaly II - Laterite.

Radon, radiometric and geochemical soil anomalies occurred in a proximal relationship to a nodular ferruginous 'laterite' body alongside the Pine Creek/Oenpelli road.

Three short drill holes were planned to test if these anomalies were related to the presence of laterite or represented a valid bedrock anomaly.

Drill hole locations were shown on Plate 20 and sectional drill information was shown on Plate 19.

6.6.1 Geology.

Thin but hard nodular 'laterite' occured on the western flank of a hill of Koolpin formation rocks. Exposures to the east of the laterite body were of the cherty ferruginous type i.e. interbedded chert and hematite/limonite shales. Drill hole logging and exposures in works department 'borrow pits' indicated that the laterite was underlain by a more normal shale facies, BDH 27, drilled at the centre of this laterite, intersected 'dolomitic' shales. The possible correlation of laterite, metal values and a carbonate bedrock could be interpreted as for Track Etch Anomaly II - geochemical.

6.6.2 Assay Results.

No depth improvement of metal values was noted in the samples assayed. The surface geochemical values were attributed to a surficial concentration process both within the 'laterite' and at the margin of a nearby swampy drainage.

6.6.3 Assessment.

No further work was warranted.

7 BASAL KOOLPIN TRAVERSES.

Following geological and geochemical reconnaissance in 1975 a recommendation was made to further investigate the metal values and sulphides of the basal Koolpin formation member exposed in E.L. 120.

A rapid investigation of these units was carried out early in 1976. Rock chip sampling and geochemistry of visually assessed outcrop, located during photo controlled foot traverses, was the technique adopted for evaluation.

Results of sampling were shown on Plates 7, 8, 9 and 10 and the index to general location was shown on Plate 2.

7.1 Geology.

Basal units of the Koolpin formation over the area of E.L. 120 consisted of a sequence of shales, ferruginous shales, cherts and silicified limestone. Sampling of the topographically upstanding cherty ferruginous shale facies rocks in 1975 revealed high, but spotty, metal values.

Rocks of this horizon consisted mainly of interbedded shale and chert, the shale and, to a limited extent, the chert containing a high proportion of iron. Iron in the cherts was mainly limonite and occured in fractures or vugs, a result of migration from the iron rich shale portions of the sequence. In shale, iron rich horizons were common and both hematite and limonite were present. Pseudomorphs after pyrite were common. Textures related to primary sulphides within the original shale portion of this unit included bedded layering, disseminations, bedded and crosscutting breccia zones and vein forms. The primary textural relationships had undergone modification due to the longstanding exposure to the surface process. Redistribution of iron into rock 'free space' and the progressive formation of massive 'exotic' limonite and hematite jaspers obscured primary textural relationships to a considerable extent.

The closely interbedded chert and shale unit had proved highly mobile, small scale folding and brecciation were common and large scale structures showed an 'extravagance' not apparent in more competent units.

No large body of rock investigated gave the appearance of containing a significant concentration of base metal sulphides. Localised concentration of metals within this unit appeared highly likely.

7.2 Geochemistry.

Four traverses were completed on known outcropping zones.

7.2.1 Traverse 1

Exposed Koolpin formation rocks were sampled on two parallel east west ridges in the south east corner of EL 120, west of the Barramundie Creek.

On the northern outcrop zone three samples ESR 2453, 2544 and 2545 exhibited anomalous metal values from what was originally disseminated sulphide in shale and chert. Textures suggested that pyrite was the dominant sulphide.

On the southern outcrop zone four samples of predominantly 'exotic' limonite exhibited high copper values. A high lead value (1610 ppm) was obtained from limonite veined quartz breccia at sample site ESR 2554.

None of the anomalous situations located here gave reason to expect large bodies of base metal mineralization. Although the presence of sulphide in significant proportions in part of the sequence was apparent, form and geochemistry suggest that this was mainly pyrite.

7.2.2 Traverse 2

This traverse, completed on a large block of mega-folded Koolpin produced very little in the way of sulphide indication. Samples taken show some minor high values, but nothing substantial enough to warrant the interpretation of significant base metal sulphides. As for traverse 1, a high lead value (760 ppm) was found in a brecciated siliceous rock with limonite veining.

7.2.3 Traverse 3

A NW/SE ridge of Koolpin cherty ferruginous shale units in the central eastern area of EL120 was sampled. The strike of the Koolpin formation crossed the ridge at an acute angle in the north west but was sub-parallel in the south east.

Two groups of anomalous rock chip samples were located.

(i) Spotty and low copper (to 390 ppm), zinc (to 470 ppm) and minor lead (to 220 ppm) values at the north west end of the ridge. The distribution of values, amount of 'exotic' iron and topography were considered to favour the proposition that the scavenging effect of a limonite forming surface process in an area of high background rock metal values caused the build up of local metal concentrations.

(ii) A group of high zinc (to 6400 ppm) and nickel (to 900 ppm) $\pm$ copper (to 190 ppm) values within brecciated shale and chert. Botryoidal and massive limonites formed veins and structural cavity fillings, the limonite being 'exotic'.

Auger holes drilled in 1975 (line 1B) intersected dolerite bodies to the south east of this anomalous zone and geochemistry from soil sampling of the follow-up grid at track etch anomaly II outlined NW/SE striking dykes of dolerite with high cobalt, nickel, copper, lead and zinc values. Dispersions of nickel, zinc and copper from shale outcrop were also found to occur on the latter grid. This anomaly was thus interpreted to result from the deposition of mobile nickel, zinc and copper with the exotic limonite, the elements being derived from a dolerite source or from 'high background' shale.

7.2.4 Traverse 4

A 'loop' of Koolpin outcrop was traversed in the central western part of EL120. In addition to selected rock chipping, a more detailed rock sampling traverse was completed across the strike of the Koolpin sequence.

As for traverse 3 above two anomaly groupings were apparent.

(i) Copper (to 170 ppm), lead (to 270 ppm) and zinc (to 1300 ppm) high values. These occured either in brecciated limonitic chert or limonite specked chert and were presumed to result from the presence of a small amount of base metal sulphide within a predominantly pyrite rich cherty facies.

(ii) The association of massive, sometime vuggy, limonite and high zinc/nickel values. Again it was considered most likely that the association of limonite and the geochemically mobile elements was of surficial derivation. These limonites did not occur on the tops of the outcrop ridge but on the flanks of the exposed shales. Iron, nickel and zinc were probably derived from the surrounding shale units and moved in solution to be concentrated at Eh/pH 'barriers'.

7.3 Assessment.

Sulphides were present as disseminations, veins and bands within chert and shale. The majority of the sulphide appears to have been pyrite but scattered occurrence of base metal sulphides was also indicated. Surface redistribution/concentration processes involving iron and traces of zinc, nickel and copper produced local concentrations of high geochemical metal values.

No further work was warranted.

8 STATEMENT OF EXPENDITURE

Expenditure on the area the subject of Exploration Licence No. 120 for the year ended December 31, 1976 was :-

	$
Geology	13,789
Geophysics	5,707
Geochemistry	13,850
Drilling	27,525
Claims	477
	61,348

APPENDIX 2

ROCK SAMPLES

APPENDIX 2

ROCK SAMPLES - BARRAMUNDIE

COLLECTED - J.H.WRIGHT

BARRAMUNDIE

Samples from Follow-Up Grids 9000E 4000N and 8500E 5500N

Sample number ESR	Barramundie Grid Easting	Northing	Field Description	Assay in ppm U_3O_8	Cu	Ni	Co	Pb	Zn
2533	8980	3870	Ferruginized quartzite.	4	66	160	116	150	500
2534	8970	3865	Ferruginous quartz.	6	130	150	42	140	580
2535	8900	4000	Ferruginous siltstone	6	48	90	66	240	510
2536	8700	4000	Ferruginous sandstone	4	100	94	30	170	840
2537	9070	4300	Ferruginous sandstone	8	42	98	70	22	420
2538	8570	5400	Ferruginous breccia	13	66	58	28	80	140
2539	8475	5800	Ferruginous quartzite	14	22	70	60	160	280

Basal Koolpin Traverses - Location and Assay as per Plates 7, 8, 9, 10

Sample Number ESR	
2540	Cherty siltstone with limonite cubes after pyrite (30%).
2541	Red to orange vuggy limonite - lateritized? shale.
2542	Fractured desilicified chert with red limonite flecks.
2543	As above.
2544	As for ESR 2540.
2545	Weathered shale with limonite flecks.
2546	Fractured quartz with red limonite.
2547	Partly silicified shale with limonite replacements.
2548	Massive limonitic Jasper.
2549	Quartz fragments, vuggy, partly botryoidal, limonite.
2550	Vuggy nodular limonite - variable colour banding.
2551	Vuggy yellow brown limonite, possibly lateritized? shale.
2552	As above.
2553	Smooth, hard, red limonite with conchoidal fracture.

2554 Brecciated quartz with limonitic jasper.

2555 Laterite, nodular soil from 15" depth (Barramundie Grid 3270E/3145N).

2556 Massive red limonite with platey limonite? patches

2557 Brecciated chert with red limonite matrix.

2558 Brecciated chert with vuggy red limonite - possibly sulphide boxwork?

2559 Brecciated chert with limonitic matrix.

2560 Red, vuggy (solution pipes?) limonite, possibly laterite.

2561 Brecciated quartz with hard and vuggy limonite veins.

2562 Brecciated quartz (chert?) with limonitic veins.

2563 Brecciated, banded, silicified shale - "pseudo" gossan.

2564 Brecciated quartz vein with vuggy limonite.

2565 Spotted altered shale - limonite spotting approx. 40% of rock.

2566 Sheared and shattered chert with limonite in shear planes.

2567 Banded chert and limonite.

2568 Banded chert and shale with limonite layers and patches.

2569 As above.

2570 As above.

2571 Cherty shale with thin limonite bands.

2572 Chert bands within limonite replacement of shale.

2573 Limonite speckled and banded shale.

2574 Brecciated pyritic (limonite cubes) chert with limonite matrix.

2575 Brecciated chert with vuggy limonite.

2576 Banded chert and limonite/haematite replacement of shale.

2577 Limonite spotted and banded "altered" shale.

2578 Chert/limonite/quartz breccia.

2579 Cleaved chert with limonite vugs and replacement.

2580 Massive vuggy limonite - areas of botryoidal limonite with spongey cores.

2581 Crystalline quartz in massive vuggy limonite.

2582 Porous and vuggy red limonite with fractured quartz veins.

2583 Desilicified chert with vuggy replacement? limonite.

2584 Leached, partially replaced, brecciated limonitic chert.

2585 Massive, slightly vuggy, limonitic jasper.

2586	Limonite speckled "altered" chert (50% limonite).
2587	Limonite replacement of brecciated chert.
2588	Vuggy limonite with secondary quartz.
2589	Fractured chert with limonitic veins (vuggy and banded).
2590	Fractured chert with limonitic sponge.
2591	Chert/limonite bands.
2592	Massive limonitic jasper.
2593	Chert with red, vuggy, botryoidal limonite/haematite.
2594	Quartz/limonite breccia.
2595	Red "limonitic" replacement of shales.
2596	Friable quartz/chert/limonite breccia.
2597	Quartz/limonite breccia.
2598	Vuggy botryoidal limonite.
2599	As above.
2600	Limonite stained shale breccia.
2601	Massive botryoidal limonite.

2602 As above.

2603 Chert?/limonite breccia.

2604 Massive botryoidal limonite.

2605 Brecciated shale with irridescent botryoidal limonite.

2606 Massive limonite.

2607 Chert/botryoidal limonite - replacement or vein fill limonite?

	Location	Field Description	Assay ppm					
			U_3O_8	Cu	Ni	Co	Pb	Zn
Barramundie Drilling								
2609	BDH-31. 18 to 20 metres	Hard ferruginous jasper	8	240	40	30	675	865
2610	BDH-33. 20 to 22 metres	As above	5	10	30	10	40	40
2611	BDH-39. 2 to 4 metres	White porcellaneous carbonate	177	460	330	190	50	4300

Sample Number ESR	Location	Field Description	Assay in ppm					
			U_3O_8	Cu	Ni	Co	Pb	Zn
2626	BDH-51. 18 to 20 metres	Selected chips of manganese and manganiferous sandstone	2	18	30	20	750	66
2627	BDH-51. 26 to 28 metres	Selected chips of hard limonitic replacement material	27	360	390	120	470	2000
2628	BDH-51. 38 to 40 metres	Manganese speckled sandstone	1	6	24	24	10	36
2629	BDH-51. 40 to 42 metres	Manganese speckled sandstone	3	20	50	50	10	66
			Delta Petrological Description					
2630	BDH-51. 24 to 26 metres	Fine grained banded quartzite	Silicified fine grained sediment.					
2631	BDH-51. 24 to 26 metres	Limonite replaced sediment 'Exotic limonite'?	Fault Breccia.					
9435	BDH-31. 18 to 20 metres	Coarse grained limonitic quartzite.	Limonitic sandstone/siltstone					
9513	BDH-36. 28 to 30 metres	Black chert and fine grained quartzite.	Recrystallised chert.					
9535	BDH-38. 38 to 40 metres	Feldspar-chlorite "schist"	Quartz-chlorite schist.					
9564	BDH-39. 46 to 48 metres	As above	Quartz-chlorite schist.					
9618	BDH-41. 54 to 56 metres	Conglomerate Matrix	Meta calcareous sandstone.					
9639	BDH-35. 38 to 40 metres	Grey Tuff/greywacke?	Basic to Intermediate Meta-Volcanic.					
9679	BDH-43. 28 to 30 metres	Dolerite	Altered Dolerite					

APPENDIX 3

PETROLOGICAL DESCRIPTIONS

DELTA PETROLOGICAL SERVICES

SPECIALISTS IN PETROLOGY, MINERALOGY, MINERAGRAPHY, BEACH SANDS.

G.D. BARTRAM. B.Sc., Ph.D.
R.C. MORRIS. B.Sc.
R.K. REYNOLDS.

THIN SECTIONS POLISHED MOUNTS

[redacted]
316 CHURCHILL AVENUE,
SUBIACO, W.A., 6008

Tel: 816326

4th November, 1976

NORANDA AUSTRALIA LTD,
P.O. Pine Creek,
N.T. 5782

REPORT NO. 2880

12 brief petrological descriptions - category B - of samples ESR / 2630-2631

Reference: 414/C/20
J.H. Wright

G. D. Bartram.

G.D. Bartram

ESR 2630 : Silicified Fine-Grained Sediment

The rock consists now of quartz plus around 25% clay, limonite and voids. A few small flecks of muscovite are preserved in the quartz. The limonite and clay appear to be after fine-grained carbonate, and are concentrated in thin layers (laminae?). These layers trace out complex patterns which are difficult to interpret but which could represent original chevron folding patterns.

Occasional quartz grains, averaging around 0.5mm in size and totalling around 2% of the rock, are scattered through the sample.

This rock was probably a laminated fine-grained argillaceous sandstone with occasional larger quartz clasts, tightly folded in a chevron pattern.

ESR 2631 : Fault Breccia ?

The rock consists of irregular areas of granular quartz (ranging up to 3mm) alternating with and often marginally intergrown with limonite.

At first glance this sample looks rather like surface clastic material heavily cemented by limonite. However the limonite has a rather complex texture which in places looks almost like boxwork. While not identifiable with confidence this rock is probably best interpreted as a fault breccia, the matrix containing some carbonate and possibly sulphide (see however ESR 2632).

DELTA PETROLOGICAL SERVICES

SPECIALISTS IN PETROLOGY, MINERALOGY, MINERAGRAPHY, BEACH SANDS.

G.D. BARTRAM. B.Sc., Ph.D.
R.C. MORRIS. B.Sc.
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THIN SECTIONS POLISHED MOUNTS

[redacted]
316 CHURCHILL AVENUE,
SUBIACO, W.A., 6008

Tel : 81 6326

10th September, 1976

NORANDA AUSTRALIA LIMITED,
EL SHARANA CAMP,
PINE CREEK, N.T.

REPORT NO. 2839

Petrographic examination of samples ESR 9435, 9513, 9535, 9564, 9618, 9639 and 9679.

Reference : J. H. Wright

C.I. Mathison

C. I. MATHISON

ESR 9435 : Limonitic Sandstone/Siltstone

The main constituents are quartz and limonite, possibly with minor hematite, and smaller amounts of sericite. One grain of detrital tourmaline was observed.

Quartz grains vary from 0.05 to 1mm in size, and are generally angular with low sphericity. Some grains are polycrystalline granular aggregates, usually with sutured grain boundaries and other strain effects. Some of the grains thus probably represent metaquartzite rock fragments. Rare flakes of sericite or muscovite, or small rock fragments of muscovite schist also occur as clastics. All the clastic grains are completely surrounded and probably partly replaced by interstitial limonitic matrix or cement, increasing the angularity of the grains as a result.

The rock probably represents a poorly sorted silty to sandy sediment derived largely from metamorphic source rocks. The original matrix and some of the clastic components appear to have been replaced by limonite introduced during or after diagenesis, or during subsequent weathering. Metamorphism appears to have been slight.

ESR 9513 : Recrystallised Chert

Quartz is the major constituent (more than 90-95%) and the only other constituents are small amounts of limonite and clay, and traces of graphite or ?magnetite.

Quartz occurs in two forms : mainly as very fine granular areas (av. grainsize 0.03-0.1mm) with traces of interstitial opaque material, and also as coarser grained more recrystallised areas (0.1-0.5mm) occurring as veinlike patches cutting across the finer grained areas. Obvious relict textures or structures are lacking. Limonite and clay occur in irregular patches.

The original rock was probably some sort of cherty sediment which has been recrystallised during very low grade metamorphism, and weakly fractured and veined with slightly more recrystallised quartz.

ESR 9535 : Quartz-Chlorite Schist

Chlorite and quartz are the main constituents, and minor albite may be present as well. Rutile is a prominent trace constituent.

Chlorite occurs as aligned flakes (0.1mm) defining a schistose structure, and quartz and possibly minor ?albite occur interstitially as fine granular material. Weak layering is sometimes present. Rutile occurs as very fine granular clots and as minute isolated prisms. One fragment shows outlines of lath shaped ?porphyroblasts aligned mainly across the schistosity, but these are now recrystallised to granular quartz. No other relict features are visible. In this and other respects, ESR 9535 is quite similar to ESR 9564. The porphyroblasts do not have a unique interpretation and may be relict phenocrysts.

The original rock may have been a chlorite-rich shale which has suffered greenschist metamorphism, and retrogressive metamorphism involving the recrystallisation of ?albite porphyroblasts. Alternatively the relict ?porphyroblast outlines may be interpreted as relict phenocrysts so that the pre-metamorphic rock would then be volcanic.

ESR 9564 : Quartz-Chlorite Schist

Chlorite is the main component, with minor quartz and possibly a little albite, and traces of rutile.

The texture is fine grained schistose with aligned flaky chlorite (showing some small-scale warping of foliation planes) and granular quartz. Subhedral equant to lath-like relict outlines of pre-existing ?feldspar phenocrysts or alternately, ?albite porphyroblasts are now represented by decussate to granular areas of quartz, chlorite, and minor ?albite. This rock is very similar to ESR 9535, except that it contains less rutile and better developed relict outlines of these recrystallised porphyroblasts.

Owing to the uncertain interpretation of the relict ?porphyroblasts, either a metasedimentary or a volcanic origin is possible, as outlined for ESR 9535. The former possibility is favoured, but this origin requires a second, retrogressive metamorphism.

ESR 9618 : Meta Calcareous Sandstone

The main constituents are quartz and carbonate (? calcite), with minor sericite and chlorite, and traces of pyrite.

Quartz occurs as larger relict clasts (av. 1mm) in a finer grained granular matrix of quartz (0.1-0.3mm) and carbonate. Both the matrix and the outer margins of the clasts have been modified by metamorphic recrystallisation so that the dominant texture is granoblastic. Chlorite and sericite show a moderate schistose alignment. Pyrite occurs as rare isolated cubic grains (1-2mm) and also as granular clusters of small subhedral grains. One of the rock fragments is a carbonate-rich slaty metasediment and this contains abundant pyrite.

The original rock was probably some sort of clastic sediment which has been recrystallised during low grade metamorphism (greenschist facies). The carbonate may have been an original constituent of the sediment or a cement rather than being introduced later.

ESR 9639 : Basic to Intermediate Meta-Volcanic

The most obvious constituent is plagioclase, occurring in an altered chloritic groundmass containing minor biotite, quartz, and leucoxene, and traces of ?pyrite.

Plagioclase occurs generally as randomly arranged laths (av. 0.1-0.2mm) in a very fine grained altered groundmass in which most of the constituents are not distinguishable. The plagioclase laths show a weak flow alignment in some fragments. Randomly arranged biotite occurs in the groundmass and may be the product of weak thermal metamorphism. Traces of ?pyrite occur irregularly disseminated in some of the fragments, and also in rare quartz veinlets.

The rock represents a basic to intermediate lava which has been altered and slightly recrystallised, possibly during weak thermal metamorphism.

ESR 9679 : Altered Dolerite

The main constituents are plagioclase and pyroxene (augite), with altered pyroxene and chlorite, and minor ilmenite and traces of ?pyrite and carbonate. The altered pyroxene appears to be represented by very fine decussate actinolite.

The original doleritic texture is well preserved, and laths of plagioclase occur with subophitic, partly interstitial pyroxene and altered pyroxene, and plates of ilmenite. The rock is structureless. ?Pyrite occurs locally as irregular patches apparently replacing silicates and also in rare, minute carbonate veinlets. One of the chips represents a basic lava showing flow-aligned laths of plagioclase in a glassy groundmass.

The rock represents a minor, near-surface intrusive basic igneous rock, probably of tholeiitic character. This doleritic rock has been partly altered, but is virtually unmetamorphosed.

APPENDIX 4

PERCUSSION DRILL LOGS

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery %	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade
Metres		Metres		ESR									Instrument: Spectrometer GIS-3 No. 208-198
												Back-ground c.p.s.	Sample Reading c.p.s. / Sample Minus Back-ground
0	2	2		9246	8	54	40	26	58	30	Ferruginous clay with fragments of quartz, shale, laterite nodules and very minor quartzite.	58	68 / 10
2	4	2		9247							Grey, yellow and iron rich brown clay with white calcareous nodules.	70	55 / -15
4	6	2		9248							As above with possible crystal gypsum, minor quartz and weathered shale.	65	63 / - 2
6	8	2		9249	8	74	68	30	18	102	Grey shale with minor calcareous nodules, quartz and clay.	64	58 / - 6
8	10	2		9250							Dark grey cleaved shale with quartz and buff clay fragments.	70	58 / -12
10	12	2		9251							Black shale and dark grey phyllitic shale with quartz veins.	70	64 / - 6
12	14	2		9252	9	60	58	28	16	60	Hard dark uncleaved siltstone with quartz veins, shale and soft opalescent pale green mineral (possibly clay).	64	64 / 0
14	16	2		9253							As above.	68	60 / - 8

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 7.8.76 Date Completed 7.8.76 Depth of Hole 30m ft. Record Completed

Logged by J.H. Wright Sampled by M.K. & P.P. R.L. of Collar Core Recovery % NO. OF HOLE BDH - 18

Co-ords. of Collar Approx. 6400E/3200N Bearing Inclination Vertical LOCATION TE Anomaly II - Geochem.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
16	18	2			9254							As above.	65	64	-1
18	20	2			9255							Black/grey shale with quartz and minor dark siltstone.	64	63	-1
20	22	2			9256	7	64	48	24	10	94	Black hard siltstone and shale with quartz and green mineral (clay?).	52	62	10
22	24	2			9257	6	68	80	30	14	120	Black shale with minor black siltstone, quartz and green mineral (clay?).	60	60	0
24	26	2			9258	7	52	64	32	16	310	As above.	62	65	3
26	28	2			9259							Black, slightly carbonaceous shale (micro crenulations) with very minor pyrite.	66	54	-12
28	30	2			9260	9	68	64	30	16	150	As above (plus thin pyrite veins).	62	52	-10
												End of Hole.			
												Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 30m $6\frac{1}{2}$" Mission Cross Hammer.			
												Casing Record: Collar piece.			
												Water Record: Depth : 26m Flow : less than 500 gal/hr.			

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 7.8.76 Date Completed 7.8.76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 18

Co-ords. of Collar Approx. 6400E/3200N Bearing Inclination Vertical LOCATION TE Anomaly II - Geochem.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR									Instrument: Spectrometer GIS-3 No.	208-198
													Back-ground c.p.s.	Sample Reading. c.p.s.	Sample Minus Back-ground.
0	2	2			9261	6	66	72	36	30	210	Pale greeny/white clay with quartz grains and dark shale fragments - minor limonite only.	55	53	- 2
2	4	2			9262							Pale grey clay with white carbonate nodules, plus dark weathered, quartz veined, shale (phyllitic?).	54	50	- 4
4	6	2			9263							Grey shale (phyllitic?) with quartz, clay, ferruginized shale and greeny clay.	50	51	1
6	8	2			9264	5	86	38	28	34	130	As above.	50	55	5
8	10	2			9265							Quartz injected phyllitic grey shale with fragments of quartz, ferruginous clay and clay from above.	48	43	- 5
10	12	2			9266							As above.	42	44	2
12	14	2			9267	6	52	52	36	24	220	Quartz injected grey to green phyllitic shale with minor ferruginous weathered shale.	42	48	6
14	16	2			9268	7	70	60	40	26	290	Quartz injected grey phyllitic shale.	45	53	8

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 7.8.76 Date Completed 7.8.76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 19

Co-ords. of Collar Approx. 6360 E / 3280 N Bearing Inclination Vertical LOCATION TE anomaly II - Geochem.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
16	18	2			9269							As above and minor calcite? veining.	65	53	-12
18	20	2			9270							As for 16 - 18m.	58	54	- 4
20	22	2			9271	8	130	40	26	46	150	Pale grey to black, cleaved and crenulated shale and quartz.	58	66	8
22	24	2			9272							Grey to black crenulated shale with abundant quartz fragments.	55	55	0
24	26	2			9273		190	76	34	50	240	Black, crenulated carbonaceous shale with thin veins of pyrite, approx. 5%, and quartz.	55	52	- 3
26	28	2			9274		170	116	40	78	250	Grey to black shale, carbonaceous in part, with pyrite, approx. 5%, quartz and pyritic quartz.	51	48	- 3
28	30	2			9275	9	170	80	42	64	280	As above.	46	45	- 1
												End of Hole.			
												Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 30m $6\frac{1}{2}$" Mission Cross Hammer.			
												Casing Record: Collar piece : recovered			
												Water Record: Depth: 26m Flow: less than 500 gal/hr.			

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 7.8.76 Date Completed 7.8.76 Depth of Hole 30m ft. Record Completed A.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 19

Co-ords. of Collar Approx. 6360 E / 3280 N Bearing Inclination Vertical LOCATION TE Anomaly II - Geochem.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assay (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR									Instrument: Spectrometer GIS-3 No. 208-198.	
													Back-ground c.p.s.	Sample Reading c.p.s.	Sample Minus Back-ground.
0	2	2			9276	8	50	40	28	60	62	Sticky orange (iron rich) clay with laterite nodules and quartz grains.	51	52	1
2	4	2			9277							Sticky orange/yellow/grey clay (smooth almost soapy texture) with laterite nodules, quartz and clay with relict shale appearance.	50	44	- 6
4	6	2			9278							Hard dark grey cleaved? shale with white/red clay, quartz and white carbonate nodules.	52	44	- 8
6	8	2			9279	6	48	44	24	24	270	Pale to dark grey phyllitic shale, quartz and white carbonate (hard grey banded dolomite?)	50	40	-10
8	10	2			9280							As above.	52	46	- 6
10	12	2			9281	7	66	70	28	28	240	As above, minor limonite in some shale.	48	52	4
12	14	2			9282							Grey to dark grey phyllite and limonitic phyllite.	50	46	- 4
14	16	2			9283							Grey to black phyllite, quartz and pale grey dolomitic phyllite.	48	47	- 1

Drilled by Afrac Drilling Type of Drilling Rot/Perc Date Started 7.8.76 Date Completed 7.8.76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 20

Co-ords. of Collar Approx. 6330 E/ 3270 N Bearing Inclination Vertical LOCATION TE Anomaly II - Geochem.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
16	18	2			9284							As above.	52	48	- 4
18	20	2			9285							Grey to dark grey quartz injected phyllite, quartz and minor grey banded dolomitic rock.	52	47	- 5
20	22	2			9286	8	88	66	26	30	180	Grey to black quartz injected phyllite, quartz and grey dolomitic shale.	52	48	- 4
22	24	2			9287							Black to grey phyllite and dolomitic phyllite with quartz and calcite vein material.	50	46	- 4
24	26	2			9288							Black shales, slightly carbonaceous, with minor dolomitic phyllite and quartz.	50	45	- 5
26	28	2			9289							Black carbonaceous shale with quartz veining and pyrite (much less than 5%).	48	44	- 4
28	30	2			9290	6	80	52	26	24	140	Black carbonaceous shale with calcite vein material (cross cutting).	48	46	- 2
												End of Hole.			
												Drilling Record : 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 30m $6\frac{1}{2}$" Mission Cross Hammer.			
												Casing Record: Collar piece : recovered.			
												Water Record: Slight water 27m - dry bottom hole.			

Drilled by Afrac Drilling Type of Drilling Rot/ Perc Date Started 7.8.76 Date Completed 7.8.76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J. H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 20

Co-ords. of Collar Approx. 6330 E/ 3270 N Bearing Inclination Vertical LOCATION TE Anomaly II - Geochem.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR									Instrument: Spectrometer GIS-3 No. 208-198	
													Back-ground c.p.s.	Sample Reading c.p.s.	Sample Minus Back-ground
0	2	2			9291	12	60	44	28	62	80	Buff to yellow clay with limonite pipes and diffuse blebs with hard limonitic nodules.	48	52	6
2	4	2			9292	9	78	72	30	30	170	Soft weathered grey shale and grey clay plus quartz, limonitic nodules and banded dolomitic rock.	43	52	9
4	6	2			9293							Grey to black weathered shale, minor limonite and quartz.	47	45	-2
6	8	2			9294	6	72	60	30	30	180	As above.	48	44	-4
8	10	2			9295							As above with white porcellaneous calcareous fragments.	38	40	2
10	12	2			9296	9	96	70	30	28	230	Black shale with limonite, quartz and pale green soapy mineral as for BDH - 18 (clay?).	42	48	6
12	14	2			9297							Pale to dark grey shale, with quartz and minor white/grey/green banded carbonate (possibly vein).	45	45	0
14	16	2			9298							Grey shale (crenulated) plus dark grey calcite/quartz veined siltstone/dolomitic shale.	44	44	0

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 9.8.76 Date Completed 9.8.76 Depth of Hole 30m ft. Record Completed 9.8.76

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 21

Co-ords. of Collar Approx. 6310E/3290N Bearing Inclination Vertical LOCATION TE Anomaly II - Geochem.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
16	18	2			9299	6	72	68	20	20	150	As above.	42	48	6
18	20	2			9300							Grey to black crenulated shale with quartz and carbonate veins.	43	40	-3
20	22	2			9301							As above but very quartz rich.	40	38	-2
22	24	2			9302	14	64	72	28	24	170	Black slightly carbonaceous shale and dolomitic shales with carbonate veining and thin pyrite stringers, less than 5% pyrite.	40	40	0
24	26	2			9303							As above but only minor dolomitic shale and pyrite.	40	40	0
26	28	2			9304		74	74	28	52	270	As for 22 - 24m (contains 5% pyrite, part as stringers, partly as cubes).	40	40	0
28	30	2			9305	7	102	100	32	40	170	As for 22 - 24m, pyrite as stringers, veins and accumulations on the margins of thin quartz veins, approx. 5% pyrite and minor quartz.	38	40	2
												End of Hole.			
												Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 30m $6\frac{1}{2}$" Mission Cross Hammer.			
												Casing Record: Collar piece : recovered.			
												Water Record: Depth: 20m Flow: Approx. 500 gal/hr.			

Drilled by Afrac Drilling Type of Drilling Rot/ Perc Date Started 9.8.76 Date Completed 9.8.76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 21

Co-ords. of Collar Approx. 6310 E/ 3290 N Bearing Inclination Vertical LOCATION TE Anomaly II - Geochem.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade
Metres		Metres			ESR									Instrument: Spectrometer GIS-3 No. 208-198.
													Back-ground c.p.s.	Sample Reading. c.p.s.	Sample Minus Back-ground.
0	2	2			9306	9	62	56	36	70	74	Yellow to orange clay with quartz fragments and ferruginous nodules and patches.	35	40	5
2	4	2			9307							Grey to white weathered crenulated shale and calcite nodules with minor fraction as above (0 - 2m).	35	35	0
4	6	2			9308	6	48	52	24	24	110	White to grey crenulated shale, white clay, carbonate nodules and quartz fragments.	35	33	-2
6	8	2			9309							Pale to dark grey crenulated phyllitic shale with minor limonite in part, calcite nodules and minor quartz.	35	40	5
8	10	2			9310							As above, some cross crenulation.	38	45	7
10	12	2			9311							As for 6 - 8m, some calcite with quartz.	34	42	8
12	14	2			9312	5	60	70	28	30	160	As for 6 - 8m but more and larger fragments of quartz with calcite, possibly of vein origin.	36	45	9
14	16	2			9313							Grey, quartz injected, crenulated phyllitic shale with minor calcite.	40	43	3

Drilled by Afrac Drilling Type of Drilling Rot/Perc Date Started 9.8.76 Date Completed 9.8.76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 22

Co-ords. of Collar Approx. 6290 E / 3310 N Bearing Inclination Vertical LOCATION TE Anomaly II - Geochem.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
16	18	2			9314							Pale to dark grey crenulated phyllitic shale with quartz and calcite veining plus minor calcitic phyllite.	35	35	0
18	20	2			9315							Pale grey to black crenulated phyllitic shale with calcitic (dolomitic?) phyllite and quartz plus calcite vein material.	37	43	6
20	22	2			9316	6	68	70	26	26	160	Dark grey crenulated phyllite with quartz/calcite vein material.	34	46	12
22	24	2			9317							Black dolomitic shale? and black, slightly carbonaceous, shale with vein calcite/dolomite.	35	40	5
24	26	2			9318							Black, slightly carbonaceous, shale with pronounced crenulation cleavage, quartz and white carbonate. Pyrite content of shales and vein margins less than 5%.	38	43	5
26	28	2			9319	7	78	68	24	30	280	As above with pyrite in thin bands and as cubes within the shale.	37	35	-2
28	30	2			9320		86	76	30	28	200	As for 24-26m, 5% pyrite as veins, cubes and well crystallized aggregates in thin quartz.	35	35	0
												End of Hole.			
												Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 30m $6\frac{1}{2}$" Mission Cross Hammer.			
												Casing Record: Collar piece : recovered.			
												Water Record: Depth : 29m Flow : less than 500 gal/hr.			

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 9.8.76 Date Completed 9.8.76 Depth of Hole 30m f/. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 22

Co-ords. of Collar Approx. 6290E/3310N Bearing Inclination Vertical LOCATION TE Anomaly II - Geochem.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR									Instrument: Spectrometer GIS-3 No. 208-198	
													Back-ground c.p.s.	Sample Reading c.p.s.	Sample Minus Back-ground
0	2	2			9321	6	46	50	26	28	62	Red to orange ferruginous clay with quartz fragments and laterite nodules.	28	32	4
2	4	2			9322							Grey to red clay with grey phyllitic shale chips.	26	30	4
4	6	2			9323							Grey to white crenulated shale with calcite fragments, ferruginous clay and quartz.	27	30	3
6	8	2			9324	6	96	70	34	20	160	Grey to dark grey crenulated phyllitic shale (cross crenulated in part) with fragments of quartz, porcellaneous calcite and ferruginous material from up hole.	27	31	4
8	10	2			9325							Black siltstone plus black to grey crenulated shale with minor porcellaneous calcite.	26	35	9
10	12	2			9326							Black siltstone, grey to black crenulated shale, banded calcite/dolomite rock (limestone?) plus calcareous clay and minor quartz.	29	38	9
12	14	2			9327							Black shale with crenulation cleavage.	32	42	10

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 9.8.76 Date Completed 9.8.76 Depth of Hole 30m ft. Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 23

Co-ords. of Collar Approx. 6275E/3325N Bearing Inclination Vertical LOCATION TE Anomaly II - Geochem.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
14	16	2			9328	9	94	100	36	38	240	Dark grey to black, silty in parts, crenulated shale with calcite vein material and minor quartz.	29	46	17
16	18	2			9329							Pale to dark grey crenulated phyllitic shale and quartz.	30	41	11
18	20	2			9330							As above.	30	41	11
20	22	2			9331	9	88	92	38	24	160	As above.	26	38	12
22	24	2			9332							Black, slightly carbonaceous, crenulated shales plus quartz and carbonate.	27	39	12
24	26	2			9333							As above plus dolomitic shale (minor) and pyrite in quartz veins.	30	35	5
26	28	2			9334		74	80	32	24	150	Black, slightly carbonaceous, phyllitic shales, thin bedded dolomitic shale, calcite and quartz. Pyrite is present in the shale as scattered thin bands and in thin quartz veins.	31	38	7
28	30	2			9335	35	62	70	26	24	110	As for 26 - 28m but dolomitic shale minor only.	30	36	6
												End of Hole.			

Drilled by Afrac Drilling Type of Drilling Rot/Perc Date Started 9.8.76 Date Completed 9.8.76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 23

Co-ords. of Collar Approx. 6275 E / 3325 N Bearing Inclination Vertical LOCATION TE Anomaly II - Geochem.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays	Geological Log	Angle to core	Estimated Grade
							Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 30m $6\frac{1}{2}$" Mission Cross Hammer.		
							Casing Record: Collar piece : recovered.		
							Water Record: Depth : 30m Flow: less than 500 gal/hr.		

Drilled by Afrac Drilling Type of Drilling Rot/ Perc Date Started 9.8.76 Date Completed 9.8.76 Depth of Hole 30m ft. Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 23

Co-ords. of Collar Approx. 6275 E/ 3325 N Bearing Inclination Vertical LOCATION TE Anomaly II - Geochem.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade: Instrument: Spectrometer GIS-3 No. 208-198. Background c.p.s.	Sample Reading c.p.s.	Sample Minus Background.
Metres		Metres			ESR											
0	2	2			9336	11	70	76	34	64	86	Orange to red clay with ferruginous patches, quartz fragments and hard limonitic nodules plus weathered bedrock clay with a white mica sheen.	40	47	7
2	4	2			9337							Grey clay with calcareous nodules and white to grey phyllitic shale.	41	42	1
4	6	2			9338							As above.	40	38	-2
6	8	2			9339	5	52	60	26	18	72	Grey clay, pale to dark grey phyllitic shale, granular calcite and quartz.	42	45	3
8	10	2			9340							Pale to dark grey phyllitic shale, granular and banded calcite/dolomite material and quartz.	39	39	0
10	12	2			9341							Grey to dark grey dolomitic shale and crenulated shale with calcite and quartz vein material.	41	40	-1
12	14	2			9342	6	80	70	30	22	94	Grey to dark grey crenulated shale plus dolomitic shale and minor quartz.	38	45	7

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 9.8.76 Date Completed 9.8.76 Depth of Hole 30m ft. Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 24

Co-ords. of Collar Approx. 6255 E / 3345 N Bearing Inclination Vertical LOCATION TE Anomaly II - Geochem.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade
Metres		Metres			ESR									
												Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 30 m $6\frac{1}{2}$" Mission Cross Hammer.		
												Casing Record: Collar piece: recovered.		
												Water Record: Depth: 26m Flow : less than 500 gal/hr.		

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 9.8.76 Date Completed 9.8.76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M.Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 24

Co-ords. of Collar Approx. 6255 E/ 3345 N Bearing Inclination Vertical LOCATION TE Anomaly II - Geochem,

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade Instrument: Spectrometer GIS-3 No. 208-198 Background c.p.s.	Sample Reading c.p.s.	Sample Minus Background
Metres		Metres			ESR											
0	2	2			9351	7	58	56	28	60	72	Red to orange ferruginous clay with quartz and hard limonitic pellets passing into yellow to grey clay.	39		46	7
2	4	2			9352							Yellow to grey clay with fragments of quartz, porcellaneous carbonate, quartz injected phyllite and phyllitic shale, (weathered and partly ferruginized).	35		40	5
4	6	2			9353							Pale weathered crenulated shale, porcellaneous carbonate and orange clay.	38		44	6
6	8	2			9354							Pale, slightly limonitic, weathered shale, grey clay and white calcareous material.	37		42	5
8	10	2			9355	7	68	68	26	20	120	As above (minor manganese).	34		45	11
10	12	2			9356							Pale to dark grey, weathered and limonitic shale plus minor white calcareous material (manganese dendrites).	40		43	3
12	14	2			9357							As above but with considerable amount of carbonate and quartz vein material.	40		40	0

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 9.8.76 Date Completed 9.8.76 Depth of Hole 30m ft. Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 25

Co-ords. of Collar Approx. 6240E/3360N Bearing Inclination Vertical LOCATION TE Anomaly II - Geochem.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U3O8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
14	16	2			9358							As for 10 - 12m (shale slightly crenulated).	41	47	6
16	18	2			9359	7	80	70	24	16	114	Dark , partly bleached, phyllitic shale with quartz and carbonate.	39	46	7
18	20	2			9360							As above.	39	41	2
20	22	2			9361							As above , (very little vein material).	40	47	7
22	24	2			9362	13	72	70	26	16	120	Black, micro crenulated, phyllitic shale, slightly carbonaceous in part, plus quartz vein material.	39	48	9
24	26	2			9363		72	70	28	20	120	Black, carbonaceous, phyllite (cross crenulation) with some (approx. 5%) " bedded" pyrite.	40	41	1
26	28	2			9364							Black, carbonaceous, phyllitic shale and grey phyllitic shale with quartz vein material and minor pyrite.	37	38	1
28	30	2			9365	7	72	76	28	20	120	Black, carbonaceous phyllitic shale with "bedded" pyrite seams.	37	39	2
												End of Hole.			
												Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 30m $6\frac{1}{2}$" Mission Cross Hammer.			
												Casing Record: Collar piece : recovered.			
												Water Record: Depth: Minor water at 30m.			

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 9.8.76 Date Completed 9.8.76 Depth of Hole 30m ft Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 25

Co-ords. of Collar Approx. 6240 E / 3360 N Bearing Inclination Vertical LOCATION TE Anomaly II - Geochem.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery %	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres		ESR									Instrument: Spectrometer GIS-3 No. 208-198.	
												Back-ground c.p.s.	Sample Reading c.p.s.	Sample Minus Back-ground.
0	2	2		9366	11	68	42	24	30	80	Orange to red ferruginous clay with quartz pebbles, ferruginous shale pebbles and laterite nodules.	43	52	9
2	4	2		9367							Pale greeny grey to red, weathered, crenulated phyllitic shale with fragments as for 0 - 2m.	43	52	9
4	6	2		9368							Pale greeny grey to red, weathered, crenulated phyllitic shale with grey to white clay and white porcellaneous. carbonate clays ?	41	46	5
6	8	2		9369							As above.	42	52	10
8	10	2		9370	6	98	30	16	18	78	As above.	40	52	12
10	12	2		9371							As for 4 - 6m but without the white carbonate clays.	44	53	9
12	14	2		9372							As for 10 - 12m.	45	53	8
14	16	2		9373	5	120	38	22	22	54	Black crenulated shale with red hematitic replacement in part.	43	57	14

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 10.8.76 Date Completed 10.8.76 Depth of Hole 20m f/. Record Completed 10.8.76

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 26

Co-ords. of Collar Approx. 7460 E/ 2600 N Bearing Inclination Vertical LOCATION TE Anomaly II - Laterite.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
16	18	2			9374							As for 14 - 16m plus quartz fragments.	42	56	14
18	20	2			9375	5	116	64	22	26	150	Greenish to dark grey, crenulated (cross crenulated in part) shale(slightly phyllitic appearance to shales in this hole, with abundant quartz vein material and some hematite replacement of darker shale varieties.	40	52	12
												End of Hole.			
												Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1- 20m $6\frac{1}{2}$" Mission Cross Hammer.			
												Casing Record: Collar piece : recovered.			
												Water Record: No water encountered.			

Drilled by Afrac Drilling Type of Drilling Rot/ Perc. Date Started 10.8.76 Date Completed 10.8.76 Depth of Hole 20m ft. Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 26

Co-ords. of Collar Approx. 7460 E/2600 N Bearing Inclination Vertical LOCATION TE Anomaly II - Laterite.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR									Instrument: Spectrometer GIS-3 No. 208-198	
													Back-ground c.p.s.	Sample Reading c.p.s.	Sample Minus Back-ground.
0	2	2			9376	7	104	38	20	26	56	Ferruginous weathered red-grey phyllitic shale, grey clay and quartz.	54	75 U-Th-K 11 U-Th 5 Th less than 1	21
2	4	2			9377							As above.	51	61	10
4	6	2			9378							As above with minor white calcareous clay ?	50	60	10
6	8	2			9379	5	106	34	20	24	60	As for 4 - 6m.	50	60	10
8	10	2			9380							As for 4 - 6m.	50	61	11
10	12	2			9381							Purple to red ferruginous phyllitic shale with minor quartz and calcite.	53	64	11
12	14	2			9382	5	150	50	24	28	92	As above.	52	62	10
14	16	2			9383							Grey to dark grey phyllite with quartz and minor ferruginous phyllite.	50	58	8

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 10.8.76 Date Completed 10.8.76 Depth of Hole 20m ft. Record Completed A.W.S.

Logged by J.H. Wright Sampled by M.Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 27

Co-ords. of Collar Approx. 7425 E/ 2600 N Bearing Inclination Vertical LOCATION TE Anomaly II - Laterite.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery %	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres		ESR										
16	18	2		9384							Hematite and limonite stained, yellow to grey phyllitic shale with dolomitic shale or carbonate veined phyllite plus quartz and carbonate vein material.	46	55	9
18	20	2		9385	9	78	78	24	24	280	Red to dark grey phyllitic shale.	45	52	7
											End of Hole.			
											Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 20m $6\frac{1}{2}$" Mission Cross Hammer.			
											Casing Record: Collar piece: recovered.			
											Water Record: No water encountered.			

Drilled by Afrac Drilling Type of Drilling Rot/ Perc. Date Started 10.8.76 Date Completed 10.8.76 Depth of Hole 20m ft. Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 27

Co-ords. of Collar Approx. 7425 E / 2600 N Bearing Inclination Vertical LOCATION TE AnomalyII - Laterite.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR									Instrument: Spectrometer GIS-3 No. 208-198.	
													Back-ground c.p.s.	Sample Reading c.p.s.	Sample Minus Back-ground.
0	2	2			9386	7	58	40	30	36	90	Grey clay, dark red to brown limonite rich nodules, quartz and weathered shale.	64	72	8
2	4	2			9387							Grey to pale green crenulated shale with quartz and white porcellaneous carbonate nodules.	67	59	-8
4	6	2			9388							As above with phyllitic appearance and cross crenulation.	69	57	-12
6	8	2			9389	4	20	44	26	18	140	Grey to dark grey crenulated phyllite with quartz.	64	60	-4
8	10	2			9390							Grey to pale green crenulated phyllite with quartz and minor carbonate.	65	55	-10
10	12	2			9391							Grey to pale green to red, cross crenulated, phyllite with quartz.	73	64	-9
12	14	2			9392	5	84	44	32	16	120	Grey to greenish cross crenulated phyllite with quartz.	68	62	-6
14	16	2			9393							As above.	70	66	-4

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 10.8.76 Date Completed 10.8.76 Depth of Hole 20m ft. Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 28

Co-ords. of Collar Approx. 7345 E/ 2600 N Bearing Inclination Vertical LOCATION TE Anomaly H - Laterite.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery %	Sample No.	Assays (ppm) U3O8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres		ESR										
16	18	2		9394							As above.	68	65	-3
18	20	2		9395	4	60	50	26	20	108	Grey to greenish phyllite and phyllitic shale, cross crenulation is present, one crenulation set being the result of a very strong crenulation cleavage, quartz and minor calcitic phyllite material.	68	64	-4
											End of Hole.			
											Drilling Record: 0 - 1 m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 20m $6\frac{1}{2}$" Mission Cross Hammer.			
											Casing Record: Collar Piece: recovered.			
											Water Record: No water encountered.			

Drilled by Afrac Drilling Type of Drilling Rot/Perc Date Started 10.8.76 Date Completed 10.8.76 Depth of Hole 20m ft. Record Completed

Logged by J.H Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 28

Co-ords. of Collar Approx. 7345 E/ 2600 N Bearing Inclination Vertical LOCATION TE Anomaly II - laterite.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery %	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade
Metres		Metres		ESR									Instrument: Spectrometer GIS-3 No. 208-198
												Back-ground c.p.s.	Sample Reading c.p.s. / Sample Minus Back-ground
0	2	2		9396	24	50	20	20	130	120	Quartz fragments, red limonitic dust, brown sandy ferruginous fragments and ferruginous quartzite.	30	28 / -2
2	4	2		9397		42	18	12	330	220	Yellow sandy dust with fragments as above plus minor grey clay.	27	27 / 0
4	6	2		9398		46	18	8	270	170	Yellow sandy dust, quartz fragments, yellow to white clay, ferruginous quartzite fragments and quartzite?	28	30 / 2
6	8	2		9399	6	76	20	22	280	390	Yellow sandy dust, brown ferruginous quartzite, quartz and minor white clay.	30	31 / 1
8	10	2		9400		88	12	10	280	210	Yellow sandy dust, rounded quartz grains (2 - 3 mm) with high sphericity, brown ferruginous sandstone and white clay. (coarse sandstone?).	32	29 / -3
10	12	2		9401		130	30	20	800	270	Yellow sandy dust, brown ferruginous sandstone, with minor sandstone, quartz and quartz sand grains.	31	28 / -3

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 10.8.76 Date Completed 10.8.76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 29

Co-ords. of Collar Approx. 9036E/4035N Bearing Inclination Vertical LOCATION 9000E/4000N Anomaly

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
12	14	2			9402	7	86	12	18	360	270	Yellow sandy clay with quartz grains (as for 8-10m), brown ferruginous sandstone and quartz vein material.	29	30	1
14	16	2			9403		38	14	6	360	60	Fine grained yellow sand with quartz vein material, quartz grains (2-3mm) and white shale .	29	25	-4
16	18	2			9404	7	106	30	18	320	220	Fine grained yellow sand with quartz grains (2-3mm), quartz, ferruginous sandstone and white clay.	31	35	4
18	20	2			9405		120	18	10	280	180	Fine grained yellow to orange sand with quartz grains (2-3mm), sandstone chips, ferruginous sandstone chips and clay with quartz grains (2-3mm).	28	30	2
20	22	2			9406		120	18	10	420	150	Yellow to orange sandy clay with quartz grains (2-3mm), coarse grained arkosic sandstone chips, ferruginous sandy claystone with very minor white shale .	28	29	1
22	24	2			9407		86	18	10	390	114	Yellow sandy sludge with fragments of quartzite, quartz and ferruginous quartzite ? plus 2-3mm sand grains.	30	29	-1
24	26	2			9408	7	170	30	16	460	230	As above plus minor white phyllitic shale (weathered).	29	35	7
26	28	2			9409		170	20	18	500	250	As for 22-24m, quartzite chips abundant and have white mica sheen in part.	29	31	2
28	30	2			9410		180	20	18	540	230	Yellow sandy sludge with abundant fragments of coarse sandstone, ferruginous sandstone, quartz grains (2-3mm) and minor vein quartz.	30	30	0

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 10.8.76 Date Completed 10.8.76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 29

Co-ords. of Collar Approx. 9036 E / 4035 N Bearing Inclination Vertical LOCATION 9000 E/4000 N Anomaly.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays	Geological Log	Angle to core	Estimated Grade
							Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 30m $6\frac{1}{2}$" Mission Cross Hammer.		
							Casing Record: Collar piece : recovered.		
							Water Record: Depth - Approx. 23m. Flow - Minor.		

Drilled by AfracDrilling Type of Drilling Rot/Perc Date Started 10.8.76 Date Completed 10.8.76 Depth of Hole 30m /ft. Record Completed

Logged by J H Wright Sampled by M Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH- 29

Co-ords. of Collar Approx. 9036 E/ 4035 N Bearing Inclination Vertical LOCATION 9000 E/ 4000 N Anomaly.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade: Instrument: Spectrometer GIS-3 No. 208-198. Background c.p.s.	Sample Reading c.p.s.	Sample Minus Background.
Metres		Metres			ESR											
0	2	2			9411	7	86	30	20	170	180	Red to orange sandy clay, very large lumps of quartz, quartzite and ferruginous sandstone, chips of ferruginous sandstone, quartz and laterite nodules.	23	27	4
2	4	2			9412		90	20	14	320	260	Coarse grained quartzite chips.	25	25	0
4	6	2			9413		68	24	18	340	270	As above.	28	27	-1
6	8	2			9414	6	130	38	24	330	380	Yellow sandy clay, brown ferruginous sandstone, coarse grained quartzite, white saccharoidal quartz, red ferruginous clayey sandstone and quartz.	25	27	2
8	10	2			9415		54	18	12	510	200	Yellow sand with coarse grained quartzite, white sericitic shale (phyllite ?) and quartz chips.	26	27	1
10	12	2			9416		106	18	20	850	240	Yellow sand containing quartz grains (2-3mm), coarse sandstone, quartz and limonitic sandstone.	27	27	0
12	14	2			9417		270	50	54	1500	450	Yellow/brown sand containing brown quartzite and quartz.	26	25	-1

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 10.8.76 Date Completed 10.8.76 Depth of Hole 30m ft. Record Completed J.H. Wright

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 30

Co-ords. of Collar Approx. 9019 E/ 4019 N Bearing Inclination Vertical LOCATION 9000 E/ 4000 N Anomaly.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
14	16	2			9418	6	130	34	20	370	320	Dark yellow sand with white clay containing chips of brown limonitic quartzite, quartz and quartz grains (2-3mm).	22	29	7
16	18	2			9419		62	20	10	380	112	Dark yellow sand with chips of fine grained, conchoidal fracture, quartzite, quartz and minor coarse grained sandstone. (cont.?)	26	26	0
18	20	2			9420		112	24	16	330	160	Yellow sandy/silty clay containing chips of coarse grained, possibly arkosic, quartzite, quartzite, ferruginous banded quartzite and quartz.	26	25	-1
20	22	2			9421	5	170	38	18	230	330	Yellow silty clay containing chips of coarse grained quartzite (possibly arkosic) with minor content sericite and quartz.	27	28	1
22	24	2			9422		120	30	18	350	190	Yellow silty clay containing chips of fine grained quartzite with manganese globules and thin veins plus brown quartzite and quartz chips.	26	25	1
24	26	2			9423		88	20	10	270	0140	As above and minor coarse grained Arkosic quartzite.	25	26	1
26	28	2			9424		78	20	12	180	92	Yellow clayey sand with minor fragments of manganiferous sandstone, ferruginous quartzite and quartzite. 2-3mm sand (quartz) grains are also present.	25	24	-1
28	30	2			9425	6	72	24	12	180	92	As above.	25	26	1

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 10.8.76 Date Completed 10.8.76 Depth of Hole 30m ft. Record Completed J.H. Wright

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 30

Co-ords. of Collar Approx. 9019 E/ 4019 N Bearing Inclination Vertical LOCATION 9000E/4000N Anomaly.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade
												Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 30m $6\frac{1}{2}$" Mission Cross Hammer.		
												Casing Record: Collar piece; recovered.		
												Water Record: Depth: 27m Flow: less than 500 gal/hr.		

Drilled by Afrac Drilling Type of Drilling Rot/Perc Date Started 10.8.76 Date Completed 10.8.76 Depth of Hole 30m ft. Record Completed J.H. Wright

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH- 30

Co-ords. of Collar Approx. 9019 E/ 4019 N Bearing Inclination Vertical LOCATION 9000 E/ 4000N Anomaly.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR									Instrument: Spectrometer GIS-3 No.	208-198
													Back-ground c.p.s.	Sample Reading c.p.s.	Sample Minus Back-ground
0	2	2			9426	6	190	36	28	310	180	Brown ferruginous quartzite, white chalcedonic quartz, yellow clay and limonite nodules.	28	26	-2
2	4	2			9427		114	30	24	300	190	Coarse grained quartzite, ferruginous quartzite, quartz and limonitic sandy clay.	25	22	-3
4	6	2			9428		74	30	32	480	220	Coarse grained quartzite, with red limonitic quartzite and cherty quartz (or fine grained quartzite), with black mineral (manganese ?).	27	24	-3
6	8	2			9429	6	54	30	14	170	70	Orange/red sand, white clay plus chips as above (4-6m).	22	27	5
8	10	2			9430		72	24	18	270	130	As for 6-8m .	21	26	5
10	12	2			9431		64	24	14	210	170	Red sand, containing coarse grained quartzite, ferruginous fine grained sandstone with brown jaspery veins, quartz grains (2-3mm) and minor vein quartz.	24	21	-3
12	14	2			9432	5	50	28	10	220	78	Red sand, fine grained, conchoidal fracture, quartzite, coarse grained quartzite with minor white clay and ferruginous quartzite.	22	24	2

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 10.8.76 Date Completed 10.8.76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J H Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH-31

Co-ords. of Collar Approx. 9000E/4000N Bearing Inclination Vertical LOCATION 9000E/4000N Anomaly.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
14	16	2			9433		42	40	16	250	98	Red hematite rich sand containing brown ferruginous quartzite, fine grained and coarse grained quartzite varieties, vein quartz and white clay.	22	20	-2
16	18	2			9434		98	30	24	150	330	Red hematitic sand, with brown to red fine grained ferruginous, jaspery , quartzite, coarse grained sandstone, quartz vein material and minor massive specular hematite .	25	22	-3
18	20	2			9435	4	94	40	20	230	260	Red to orange clayey sand, brown fine grained, jaspery, quartzite, limonitic micaceous siltstone, coarse grained sandstone, quartz and fine grained quartzite.	24	24	0
20	22	2			9436		64	40	18	240	88	Red clay with small pellets of white clay and containing fragments of coarse to fine grained quartzite and quartz.	23	27	4
22	24	2			9437		80	18	20	270	140	Red clay containing fragments of fine grained brown ferruginous quartzite, coarse to fine grained quartzite, hematite and quartz.	22	26	4
24	26	2			9438	7	48	30	16	180	86	As above.	21	25	4
26	28	2			9439		50	50	14	120	90	Red clay with coarse grained arkosic sandstone, quartz and brown fine grained ferruginous quartzite.	24	25	1
28	30	2			9440		42	50	10	54	46	Pale orange to yellow silty clay containing fragments of coarse grained arkosic sandstone, quartz and fine grained ferruginous quartzite.	24	22	-2
												End of Hole.			

Drilled by Afrac Drilling Type of Drilling Rot/Perc Date Started 10.8.76 Date Completed 10.8.76 Depth of Hole 30m ft. Record Completed

Logged by J. H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH- 31

Co-ords. of Collar Approx. 9000E/4000N Bearing Inclination Vertical LOCATION 9000E/4000N Anomaly.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays	Geological Log	Angle to core	Estimated Grade
							Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 30m $6\frac{1}{2}$" Mission Cross Hammer.		
							Casing Record: Collar piece: recovered.		
							Water Record: Depth; 24m Flow: less than 500 gal/hr.		
							PETROLOGY: ESR 9435 Report No. 2839		

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 10.8.76 Date Completed 10.8.76 Depth of Hole 30m ft. Record Completed

Logged by J.H Wright Sampled by M Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH-31

Co-ords. of Collar Approx. 9000E/4000N Bearing Inclination Vertical LOCATION 9000E/4000N Anomaly.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U3O8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR									Instrument: Spectrometer GIS-3 Bo. 208-198	
													Back-ground c.p.s.	Sample Reading c.p.s.	Sample Minus Back-ground
0	2	2			9441	14	118	88	108	2600	700	Brown hard limonitic quartzite, coarse grained quartzite, quartz and massive limonitic fragments.	35	35	0
2	4	2			9442		72	52	18	190	200	Orange sand, coarse grained quartzite, vein quartz and minor brown limonitic quartzite.	34	33	-1
4	6	2			9443		112	60	22	380	330	Red/orange sandy clay, white clay plus chips of quartzite, coarse grained ferruginous quartzite and quartz.	34	35	1
6	8	2			9444	9	110	50	36	410	340	Orange/brown sandy clay, coarse grained quartzite chips with ferruginous quartzite, white clay and sand grains (2 - 3 mm).	30	35	5
8	10	2			9445		150	48	40	470	540	Coarse grained quartzite chips with ferruginous quartzite and minor quartz.	30	38	8
10	12	2			9446	9	230	52	36	750	500	Brown ferruginous sandstone chips, white clay, sand grains (2-3mm), quartz and minor quartzite (note: speckled manganiferous variety present - see 4-6m BDH-31).	30	45	15

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 11.8.76 Date Completed 11.8.76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 32

Co-ords. of Collar Approx. 8981E/3981N Bearing Inclination Vertical LOCATION 9000E/4000N Anomaly

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery		Sample No.	Assays (ppm)						Geological Log	Angle to core	Estimated Grade	
				%		U_3O_8	Cu	Ni	Co	Pb	Zn				
Metres		Metres			ESR										
12	14	2			9447	14	350	58	40	900	500	Yellow clayey sand containing fragments of coarse grained quartzite, white sericitic clay, brown ferruginous quartzite and quartzite.	28	38	10
14	16	2			9448		86	50	18	650	64	As above plus sand grains (2-3mm).	25	33	8
16	18	2			9449		78	50	18	470	48	Yellow clayey sand with coarse grained arkosic sandstone.	30	26	-4
18	20	2			9450	6	160	48	24	470	230	Pale clayey sand with white clay pellets and coarse grained arkosic sandstone.	34	30	-4
20	22	2			9451		140	80	22	200	250	Yellow clayey silt with large fragments of coarse grained arkosic sandstone and small fragments of fine grained brown ferruginous, jaspery, quartzite and quartz.	26	30	4
22	24	2			9452		40	56	10	80	48	Pale pinky to pale yellow clayey silt and fragments as for 20-22m.	32	25	-7
24	26	2			9453		38	56	10	102	52	As for 22-24m, Arkosic sandstone finer grained and harder (quartzite).	28	25	-3
26	28	2			9454	4	66	34	12	180	78	Pink silty clay with fragments of coarse to fine grained arkosic quartzite and sandstone, quartz and ferruginous sandstone.	25	23	-2
28	30	2			9455		26	62	8	40	46	As above.	23	20	-3

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 11.8.76 Date Completed 11.8.76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH-32

Co-ords. of Collar Approx. 8981 E/ 3981 N Bearing Inclination Vertical LOCATION 9000E/4000N Anomaly.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays	Geological Log	Angle to core	Estimated Grade
							Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 30m $6\frac{1}{2}$" Mission Cross Hammer Casing Record: Collar piece : recovered. Water Record: Depth: 20m Flow : approx. 1,000 gal/hr.		

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 11.8.76 Date Completed 11.8.76 Depth of Hole 30m ft. Record Completed 9.11.76.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 32

Co-ords. of Collar Approx. 8981 E/ 3981 N Bearing Inclination Vertical LOCATION 9000E/4000N Anomaly.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade: Instrument: Spectrometer GIS-3 No. 208-198 Background c.p.s.	Sample Reading c.p.s.	Sample Minus Background
Metres		Metres			ESR											
0	2	2			9456	7	150	60	42	190	390	Fine grained limonite veined white saccharoidal quartz (quartzite?), coarse grained ferruginous quartzite, quartz and laterite nodules.	31	31	31	0
2	4	2			9457		100	76	22	230	330	Brown to yellow quartzite, quartz vein material and quartz grains.	30	31	31	1
4	6	2			9458		42	64	12	120	98	Saccharoidal quartz with limonite veins, quartz grains, quartz vein material and quartzite.	30	28	28	-2
6	8	2			9459	5	68	84	36	230	380	Brown quartzite, fine grained white quartzite and vein quartz.	32	32	32	0
8	10	2			9460		42	92	26	270	380	Fine grained quartzite, saccharoidal quartz with limonite veins (contamination?) and quartz.	31	34	34	3
10	12	2			9461		26	72	18	78	250	Coarse grained (arkosic) quartzite, quartzite, vein quartz and white clay.	33	35	35	2
12	14	2			9462	5	40	24	24	70	250	As above.	33	31	31	-2

Drilled by Afrac Drilling Type of Drilling Rot./Perc. Date Started 11.8.76 Date Completed 11.8.76 Depth of Hole 26m Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 33

Co-ords. of Collar Approx. 8660E/9640N Bearing Inclination Vertical LOCATION 9000E/4000N Anomaly

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
14	16	2			9463		36	80	40	48	340	Green to yellow silty clay with fragments of coarse grained sandstone, white clay with quartz grains (decomposed arkose?), limonitic arkose, quartzite and quartz.	32	35	3
16	18	2			9464		36	80	30	60	250	Greenish clayey silt with fragments of hard coarse grained arkosic quartzite, coarse grained arkosic sandstone, quartzite, quartz grains, friable earthy limonite and quartz.	31	31	0
18	20	2			9465		60	28	34	76	320	As above with jaspery limonite.	29	32	3
20	22	2			9466	38	150	104	140	40	1500	Greenish clayey silt with fragments of Botriodal and massive jaspery limonite, coarse grained arkosic quartzite, quartzite and minor quartz.	33	54	21
22	24	2			9467		74	40	46	190	490	Greenish sandy silt with large fragments of coarse grained arkosic quartzite, massive jaspery limonite, arkosic sandstone, quartz and granular hematite/quartz rock.	32	38	6
24	26	2			9468	31	104	66	84	360	820	24-25m as above, 25-26m water washed cave material containing fragments as above plus some black, banded pelitic rocks, possibly shale/siltstone.	28	36	8
												End of Hole.			

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 11.8.76 Date Completed 11.8.76 Depth of Hole 26m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 33

Co-ords. of Collar Approx. 8660 E/ 9640N Bearing Inclination Vertical LOCATION 9000E/4000N Anomaly.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays	Geological Log	Angle to core	Estimated Grade
							Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 26m $6\frac{1}{2}$" Mission Cross Hammer.		
							Casing Record: Collar piece: recovered.		
							Water Record: Depth : 14 m Flow: 1,000 to 5000gal/hr.		

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 11.8.76 Date Completed 11.8.76 Depth of Hole 26m ft. Record Completed 9.A.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 33

Co-ords. of Collar Approx. 8660 E/ 9640 N Bearing Inclination Vertical LOCATION 9000E/ 4000N Anomaly.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade
Metres		Metres			ESR									Instrument: Spectrometer GIS-3 No. 208-198
													Back-ground c.p.s.	Sample Reading c.p.s. / Sample Minus Back-ground
0	2	2			9469	8	58	62	30	60	130	Quartzite rubble with ferruginous quartzite, limonite nodules and grey silty material.	35	45 / 10
2	4	2			9470							Greenish grey to red, quartz injected, partly limonitic, crenulated phyllitic shale, grey clay and sandstone fragments with minor laterite nodules.	35	40 / 5
4	6	2			9471							Grey to dark grey phyllitic shale with crenulation cleavage, grey clay and minor limonite nodules from above.	32	40 / 8
6	8	2			9472	5	86	86	52	28	250	Limonitic shale, grey clay and quartz.	36	44 / 8
8	10	2			9473							Grey cleaved shale (phyllitic) with limonitized variety, grey to red clay and porcellaneous carbonate nodules.	35	42 / 7
10	12	2			9474							Grey phyllitic shale (crenulated) with minor grey clay.	36	48 / 12
12	14	2			9475							Red to greeny grey crenulated phyllitic shale.	35	48 / 13

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 11.8.76 Date Completed 11.8.76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 34

Co-ords. of Collar Approx. 6900E/6468N Bearing Inclination Vertical LOCATION TE Anomaly I

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
14	16	2			9476	7	72	76	32	20	340	As above plus hard silty phyllite, (phyllitic siltstone.)	32	47	15
16	18	2			9477							As for 14-16m with minor vein quartz.	32	48	16
18	20	2			9478							As for 12-14m plus minor green talcy phyllite.	29	42	13
20	22	2			9479	6	28	30	16	20	90	Black, graphitic, crenulated shale with pyrite .	32	46	14
22	24	2			9480							As above.	33	50	17
24	26	2			9481		40	36	20	28	98	As above.	33	50	17
26	28	2			9482							As above.	33	41	8
28	30	2			9483	6	48	44	26	10	86	As above .	30	52	22
												End of Hole.			
												Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 30m $6\frac{1}{2}$" Mission Cross Hammer			
												Casing Record: Collar piece: recovered.			
												Water Record: Depth : 25m Flow : less than 500 gal/hr.			

Drilled by Afrac Drilling Type of Drilling Rot/Perc Date Started 11/8/76 Date Completed 11/8/76 Depth of Hole 30m ft. Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 34

Co-ords. of Collar Approx. 6900 E/ 6468 N Bearing Inclination Vertical LOCATION TE Anomaly 1

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade
Metres		Metres			ESR									Instrument: Spectrometer GIS-3 No. 208-198
													Back-ground c.p.s.	Sample Reading c.p.s. / Sample Minus Back-ground.
0	2	2			9484	18	54	92	28	28	210	Quartzite rubble with ferruginous nodules and ferruginous quartzite, white clay and chips of phyllitic shale with minor quartz.	31	44 / 13
2	4	2			9485							White porcellaneous carbonate with quartz fragments, chips of quartzite plus ferruginous clay?	34	40 / 6
4	6	2			9486							Grey to yellow, limonitic, phyllite with porcellaneous carbonate and white to red clay.	30	42 / 12
6	8	2			9487							Grey to brown shale with white clay.	32	45 / 13
8	10	2			9488							Grey shale.	28	40 / 12
10	12	2			9489	17	38	40	30	26	120	Grey to dark grey phyllitic shale.	31	46 / 15
12	14	2			9490	8	58	76	50	18	270	As above plus minor quartz.	29	52 / 23
14	16	2			9491	8	42	46	38	16	170	As for 10-12m.	26	50 / 24

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 11.8.76 Date Completed 18.8.76 Depth of Hole 90m ft. Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 35

Co-ords. of Collar Approx. 6900 E/ 6488 N Bearing Inclination Vertical LOCATION TE anomaly I.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
16	18	2			9492	8	36	70	38	18	270	As for 10-12m.	35	52	17
18	20	2			9493	7	50	70	32	40	260	As for 10-12m.	30	48	18
20	22	2			9494							Grey to black crenulated phyllitic shale.	31	41	10
22	24	2			9495							Black shale and silty shale, crenulated, phyllitic and slightly graphitic.	32	37	5
24	26	2			9496	5	24	30	16	20	120	Grey to black phyllitic shale, possibly graphitic.	32	41	9
26	28	2			9497							Black phyllitic, cross crenulated, shale, graphitic.	32	35	3
28	30	2			9498							As above with minor pyrite layers.	33	46	3
31	33	2			9635							Black, crenulated, graphitic, phyllitic shale, with minor quartz/pyrite veins.	33	41	8
33	35	2			9636	7	44	80	34	16	260	As above plus black chert.	29	47	18
35	37	2			9637	7	50	90	30	14	130	As for 31-33, much more quartz (thicker and more veins)/ pyrite veins, some pyrite in shale.	25	48	23
37	39	2			9638	6	54	64	28	20	120	As for 31-33, approx. 5% pyrite in veins and shale.	28	46	18

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 11.8.76 Date Completed 18.8.76 Depth of Hole 90m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 35

Co-ords. of Collar Approx. 6900 E/ 6488 N Bearing Inclination Vertical LOCATION TE Anomaly I

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
39	41	2			9639	7	54	60	26	10	130	Black, graphitic, shale with pyrite, pyrite/quartz, minor thin quartz/orthoclase veins and grey to greeny grey greywacke sandstone with green chloritic specks, minor pyrite and approx. 10% large quartz grains (Tuff?).	28	46	18
41	43	2			9640	7	44	60	22	10	130	Black, graphitic, crenulated, phyllitic shale with pyrite blebs, smears and veins, (possibly also silvery sulphide - arsenopyrite?), plus minor grey greywacke sandstone, (Tuff?).	28	48	20
43	45	2			9641	5	48	70	28	12	90	Dark grey to black, very minor graphite , phyllitic shale with pyrite cubes, blebs and stringers and quartz vein material.	28	42	14
45	47	2			9642							As above, approx. 5% pyrite.	30	38	8
47	49	2			9643		28	50	22	4	96	As for 45-47m , 0.3-0.5cm pyrite veins.	31	36	5
49	51	2			9644	7	42	72	34	26	130	As for 43-45m, minor pyrite.	26	32	6
51	53	2			9645	5	50	78	34	30	140	As for 47-49m.	28	35	7
53	55	2			9646							Black, graphitic, crenulated, phyllitic shale with minor quartz and pyrite.	32	35	3

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 11.8.76 Date Completed 18.8.76 Depth of Hole 90m ft. Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 35

Co-ords. of Collar Approx. 6900 E/ 6488 N Bearing Inclination Vertical LOCATION TE Anomaly I.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery %	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres		ESR										
55	57	2		9647	5	50	78	34	30	140	Black, graphitic, crenulated, phyllitic shale with approx. 5% pyrite and minor quartz. Sample also contains pale green phyllitic shale and pale brown ferruginous phyllitic siltstone/shale, contamination from above to 61m.	29	34	5
57	59	2		9648							As for 55-57m.	32	40	8
59	61	2		9649							As for 55-57m.	32	37	7
61	63	2		9650							As for 55-57m.	30	39	9
63	65	2		9651	4	26	64	36	32	140	As for 55-57m.	28	42	14
65	67	2		9652	6	46	44	18	10	56	As for 55-57m, minor quartz in pyrite veins.	32	46	14
67	69	2		9653	14	44	58	30	14	52	As for 55-57m, banding in pyrite veins.	31	54	23
69	71	2		9654	15	28	36	22	8	46	Black, graphitic shale with poorly developed crenulation and containing approx. 5% pyrite as veins, smears and cubes in shale plus very minor quartz (thin veins).	32	45	13
71	73	2		9655	5	36	44	24	8	56	As above but crenulation better developed.	30	48	18
73	75	2		9656							As for 71-73m.	34	44	10
75	77	2		9657							As for 71-73m.	32	37	5

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 11.8.76 Date Completed 18.8.76 Depth of Hole 90m. /ft. Record Completed

Logged by J. H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 35

Co-ords. of Collar Approx. 6900 E/ 6488 N Bearing Inclination Vertical LOCATION TE Anomaly I

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery %	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres		ESR										
77	79	2		9658							As for 71-73m.	30	44	14
79	81	2		9659	5	38	48	32	14	84	As for 71-73m , minor calcite veining in association with pyrite veins.	29	48	19
81	83	2		9660	4	30	46	26	16	46	As for 71-73m , with increased white vein quartz.	30	41	11
83	85	2		9661	5	24	40	26	10	40	As for 71-73m , plus minor green phyllite (contamination?) and black orthoquartzite. (Contact 84.5m - drilling change).	30	49	19
85	87	2		9662							Sheared black orthoquartzite with quartz and minor pyrite.	31	30	-1
87	89	2		9663		14	60	14	38	20	Partly sheared dark grey, coarse to fine grained, orthoquartzite with pyrite, minor quartz vein material.	32	32	0
89	90	1		9664	4	14	30	20	10	34	As for 87-89m , plus minor shaley material.	29	33	4
											End of Hole.			

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 11.8.76 Date Completed 18.8.76 Depth of Hole 90m ft. Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 35

Co-ords. of Collar Approx. 6900 E/ 6488 N Bearing Inclination Vertical LOCATION TE Anomaly I

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays	Geological Log	Angle to core	Estimated Grade
							Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit.		
							1 - 30m $6\frac{1}{2}$" Mission Cross Hammer.		
							0 - 12m $8\frac{3}{4}$" Rotary Blade Bit - (Reamed for PVC casing).		
							30 - 60m $5\frac{1}{2}$" Mega Cross Hammer.		
							0 - 60m $6\frac{3}{4}$" Rotary Rock Bit - (Reamed for $6\frac{1}{2}$" Hammer).		
							60 - 90m $6\frac{1}{2}$" Button Bit Hammer.		
							Casing Record: Collar piece - recovered.		
							0 - 12m of $8\frac{3}{4}$" PVC Casing (Not Recovered).		
							0 - 12m length PVC recovered before reaming to 60m (written off as unuseable).		
							Water Record: Depth - 27m.		
							Flow - 1,000 to 2,000 gal/hr.		
							Note: Hole drilled 0 - 30m 11/8/76.		
							Hole extended from 30m to 90m 17/8/76 to 18/8/76.		
							Interval 30 to 31m not sampled.		
							PETROLOGY: ESR 9639 Report No. 2839		

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 11.8.76 Date Completed 18.8.76 Depth of Hole 90m ft. Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 35

Co-ords. of Collar Approx. 6900 E/6488 N Bearing Inclination Vertical LOCATION TE Anomaly I

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery %	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres		ESR									Instrument: Spectrometer GIS-3 No. 208-198	
												Back-ground c.p.s.	Sample Reading c.p.s.	Sample Minus Back-ground.
0	2	2		9499	7	28	44	18	18	130	Orthoquartzite rubble and chips of pale green, slightly phyllitic shale.	32	39	7
2	4	2		9500	8	50	44	26	40	130	Pale green to grey, slightly phyllitic, weathered shale.	27	38	11
4	6	2		9501	5	54	44	28	38	120	As above.	31	42	11
6	8	2		9502	7	46	58	28	16	160	As above plus grey clay.	28	39	11
8	10	2		9503	7	34	38	26	8	106	As for 2-4m plus hard, black siltstone.	33	35	2
10	12	2		9504	7	104	140	230	16	260	As for 8-10m.	26	40	14
12	14	2		9505	24	140	200	210	40	360	Yellow clay with minor fragments of pale greenish shale.	32	54	22
													U-K-Th	12.5
14	16	2		9506	18	180	180	230	56	290	As for 12-14m.	29	82 U-Th	7 53
													Th	1.5
16	18	2		9507	34	220	250	330	32	380	As above.	33	90	57
18	20	2		9508	27	190	220	270	34	360	As above.	39	100	61

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 11.8.76 Date Completed 11.8.76 Depth of Hole 34m ft Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 36

Co-ords. of Collar Approx. 6900 E/ 6500N Bearing True North Inclination Apprx. 85° North LOCATION TE Anomaly I.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
20	22	2			9509	28	170	200	290	28	300	As above.	36	64	28
22	24	2			9510	4	190	140	310	32	240	Grey, slightly phyllitic shale.	32	60	28
24	26	2			9511	14	140	120	130	64	340	As above plus orthoquartzite fragments.	35	49	14
26	28	2			9512	24	150	108	180	40	300	Grey to black micaceous shale, siltstone and dark siliceous rock, chert?/orthoquartzite?	32	43	11
28	30	2			9513	20	86	66	80	50	190	Black siliceous rock, very fine grained, chert?/orthoquartzite (slide), fine grained grey quartzite and grey/green phyllitic shale and minor quartz.	34	61	27
30	32	2			9514	24	92	70	70	50	390	Grey, fine grained quartz injected quartzite with grey and black shale fragments.	30	52	22
32	34	2			9515	18	90	70	90	50	310	As above plus black chert fragments. (Caved ground).	30	51	21
												End of Hole.			
												Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 34m $6\frac{1}{2}$" Mission Cross Hammer.			
												Casing Record: Collar piece : recovered.			
												Water Record: Depth: 19m Flow: greater than 500 gal/hr.			
												PETROLOGY: ESR 9513 Report No. 2839.			

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 11.8.76 Date Completed 11.8.76 Depth of Hole 34m ft. Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 36

Co-ords. of Collar Approx. 6900 E/6500 N Bearing True North Inclination Approx. 85° North LOCATION TE Anomaly I

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade
Metres		Metres			ESR									
0	1	1			No Sample							Dark grey orthoquartzite. Drilled for standpipe only - hole stopped following identification of quartzite in the bottom of BDH-36. Drilling Record: 0 - 1m $6\frac{1}{2}$" Mission Cross Hammer. 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. (Reaming) Casing Record: Collar piece - recovered.		

Drilled by Afrac Drilling Type of Drilling Perc. Date Started 11.8.76 Date Completed 11.8.76 Depth of Hole 1m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by No sample taken R.L. of Collar Core Recovery % NO. OF HOLE BDH - 37

Co-ords. of Collar Approx. 6900 E/6550 N Bearing Inclination Vertical LOCATION TE Anomaly I

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR									Instrument: Spectrometer GIS-3 No.	208-198
													Back-ground c.p.s.	Sample Reading c.p.s.	Sample Minus Back-ground
0	2	2			9516	53	20	34	22	10	26	Buff clay with fragments of ferruginized shale, ferruginized sandstone, quartz, quartzite and grey shale.	120	115	- 5
2	4	2			9517	18	30	68	32	4	38	Pale yellow to pink sericitic sandstone, quartz vein material and minor phyllite.	121	102	-19
4	6	2			9518	9	18	50	16	4	30	Coarse grained sericitic sandstone, with greenish crenulated phyllitic shale, white clay and vein quartz.	115	85	-30
6	8	2			9519	25	24	74	26	4	42	As above.	98	75	-23
8	10	2			9520	20	24	32	38	4	30	As above.	100	90	-10
10	12	2			9521	19	10	52	22	6	36	Pale sericitic sandstone, white clay with sericite and vein quartz.	90	90	0
12	14	2			9522	35	10	70	22	4	40	As for 10 - 12m, plus grey to white banded cherty rock and minor dark grey phyllitic shale. Minor surface contamination.	80	83	3
14	16	2			9523							Sericitic sandstone and quartz with white sericitic clay.	82	70	-12

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 12.8.76 Date Completed 13.8.76 Depth of Hole 50m ft. Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 38

Co-ords. of Collar Approx. 3480 E/17840 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
16	18	2			9524							Quartzite, sericitic quartzite and quartz.	78	64	-14
18	20	2			9525	11	22	110	20	4	54	As above, plus fine grained grey banded quartzite.	71	55	-16
20	22	2			9526		12	80	18	6	36	Banded grey, very fine grained quartzite, white quartzite, sericitic quartzite (some feldspar) , vein quartz and sericitic clay.	65	65	0
22	24	2			9527	12	22	94	38	8	42	As above.	130	135	5
24	26	2			9528		30	104	40	10	54	As above, plus minor pale green shale , (collapse from above?).	120	95	-25
26	28	2			9529		14	44	14	6	24	As for 24-26m.	118	75	-43
28	30	2			9530	7	16	40	14	2	14	As for 24-26m.	98	60	-38
30	32	2			9531		40	48	18	8	24	Grey to light grey cherty quartzite, white porous quartzite, pale green shale (phyllite?) with arkosic sericitic sandstone and quartz.	95	79	-16
32	34	2			9532		62	42	14	10	30	As above.	82	62	-20
34	36	2			9533	4	116	80	42	8	60	Fine to coarse grained,arkosic in part, quartzite with green crenulated phyllite and hard grey banded, fine grained cherty quartzite (interbedded phyllite/quartzite - hard/soft drilling).	89	66	-23
36	38	2			9534							Dark green to black crenulated phyllite, quartz and quartzite.	87	65	-22

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 12/8/76 Date Completed 13/8/76 Depth of Hole 50m ft. Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 38

Co-ords. of Collar Approx. 3480 E / 17840 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
38	40	2			9535		550	130	72	10	112	Hard quartz-chlorite-feldspar rock, banded in part, chloritic phyllite, quartz and minor very fine grained quartz (possibly quartzite), note - small chips with green to bluey green mineral coatings(Malachite and Chrysocolla).	80	60	-20
40	42	2			9536	3	430	112	76	x	98	Hard quartz-chlorite-feldspar rock, with incipient schistocity.	76	50	-26
42	44	2			9537		220	160	96	8	102	As above, (approx. 10% contamination - slow, hard, drilling).	65	52	-13
44	46	2			9538		180	108	66	x	78	As above.	70	40	-30
46	48	2			9539		150	94	66	2	84	As above plus minor green chloritic phyllite.	63	58	-5
48	50	2			9540	6	80	150	68	4	86	Hard quartz-chlorite-feldspar rock and green chloritic phyllite.	64	58	-6
												End of Hole.			

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 12.8.76 Date Completed 13.8.76 Depth of Hole 50m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 38

Co-ords. of Collar Approx. 3480 E/ 17840 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays	Geological Log	Angle to core	Estimated Grade
							Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 30m $6\frac{1}{2}$" Mission Cross Hammer. 0 - 31m $6\frac{3}{4}$" Rotary Rock Bit, (reaming). 31 - 50m $5\frac{1}{2}$" Mega Cross Hammer.		
							Casing Record: Collar piece - recovered. 23m of 6" casing - recovered.		
							Water Record: Depth : 18m Flow : approx. 5,000 gal/hr.		
							PETROLOGY: ESR 2535 Report No. 2839		

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 12.8.76 Date Completed 13.8.76 Depth of Hole 50m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 38

Co-ords. of Collar Approx. 3480 E / 17840 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR									Instrument: Spectrometer GIS-3 No.	208-198
													Back-ground c.p.s.	Sample Reading c.p.s.	Sample Minus Back-ground.
0	2	2			9541	17	18	170	68	8	116	Brown coated (limonite) sandstone and quartz pebbles, clay and ferruginized shale (surface rubble), fragments of yellow limonitic shale.	155	172	17
2	4	2			9542	33	10	280	88	8	170	Yellow sericitic clay, abundant chips of yellow to pale brown limonitic phyllite and white, black speckled, porcellaneous carbonate.	153	148	-5
4	6	2			9543	41	8	150	42	4	112	Yellow sericitic clay, sericitic quartzite (possibly slightly arkosic) and limonitic phyllite.	158	139	-19
6	8	2			9544	33	8	80	26	8	56	Yellow sericitic clay and sheared, arkosic, sericitic quartzite.	160	132	-28
8	10	2			9545	31	16	72	26	10	50	Yellow sericitic sandy clay, sheared, arkosic, sericitic quartzite and minor yellow limonitic silty shales with manganese coatings.	155	146	-9
10	12	2			9546	60	32	86	32	6	74	Yellow sericitic clay, sheared, arkosic, sericitic quartzite and pale green shale.	136	155	19

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 14.8.76 Date Completed 14.8.76 Depth of Hole 50m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 39

Co-ords. of Collar Approx. 3495 E / 17840 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
12	14	2			9547	53	28	114	40	x	76	Yellow sericitic clay, sheared, arkosic, sericitic quartzite, yellow silty shale with manganese dendrites, manganese 'balls' and quartz.	148	163	15
14	16	2			9548	35	32	80	28	12	60	As above, poor recovery.	140	145	5
16	18	2			9549	55	34	60	32	10	46	Sericitic, arkosic? quartzite and quartz with minor green phyllitic shale.	135	135	0
18	20	2			9550	24	14	30	22	4	26	Sericitic, slightly arkosic, quartzite and quartz, minor limonite specks in quartzite.	135	135	0
20	22	2			9551	11	8	22	18	2	26	Pink sericitc, arkosic, quartzite and quartz.	122	122	0
22	24	2			9552	5	10	20	28	4	18	As above.	138	85	-53
24	26	2			9553		12	24	16	x	26	Pink sericitic arkose, quartz and siliceous grey/white banded rock, possibly quartzite. (Top conglomerate?)	170	165	-5
26	28	2			9554		8	22	16	x	16	Pink sericitic arkose, quartz and grey/white speckled and banded quartzite?	148	110	-38
28	30	2			9555	4	8	58	20	4	18	As above with white quartzite.	152	98	-54
30	32	2			9556		10	32	18	x	24	As for 28-30m.	154	105	-49

Drilled by Afrac Drilling Type of Drilling Rot/Perc Date Started 14.8.76 Date Completed 14.8.76 Depth of Hole 50m /t. Record Completed 9.4.77

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 39

Co-ords. of Collar Approx. 3495 E / 17840 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
32	34	2			9557		12	24	16	x	18	As for 28-30m.	152	118	-34
34	36	2			9558	7	10	60	20	6	18	Pink sericitic arkose, pale green crenulated phyllite and quartz.	148	105	-43
36	38	2			9559							As above and minor fine grained grey quartzite.	150	130	-20
38	40	2			9560							As for 34-36m.	154	115	-39
40	42	2			9561	8	44	78	30	2	46	Dark to pale green chloritic crenulated phyllite with sericitic arkose and quartz fragments.	142	111	-31
42	44	2			9562							As above.	139	102	-37
44	46	2			9563							Dark green, crenulated, chloritic phyllite with quartz and contamination from hole above.	156	120	-36
46	48	2			9564		210	76	42	8	76	Dark green sheared, hard, chlorite-orthoclase-quartz rock, chloritic phyllite, quartz and up hole contamination.	145	115	-30
48	50	2			9565	6	38	96	112	4	60	Dark green sheared, hard, chlorite-orthoclase-quartz rock and above hole contamination.	144	120	-24

Drilled by Afrac Drilling Type of Drilling Rot/Perc Date Started 14.8.76 Date Completed 14.8.76 Depth of Hole 50m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 39

Co-ords. of Collar Approx. 3495 E/ 17840 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U3O8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade
												Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 50m $6\frac{1}{2}$" Mission Cross Hammer.		
												Casing Record: Collar piece; recovered.		
												Water Record: Depth: 15m Flow : approximately 5000 gal/hr.		
												PETROLOGY: ESR 9564 Report No. 2839		

Drilled by Afrac Drilling Type of Drilling Rot/Perc Date Started 14.8.76 Date Completed 14.8.76 Depth of Hole 50m ft. Record Completed 9.11.76

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 39

Co-ords. of Collar Approx. 3495 E / 17840 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR									Instrument: Spectrometer GIS-3 No.	208-198
													Back-ground c.p.s.	Sample Reading c.p.s.	Sample Minus Back-ground.
0	2	2			9566	83	32	58	22	4	22	Limonitic sandstone, limonitic red shale and limonitic quartz, surface rubble and shale?	68	95	27
2	4	2			9567	32	36	56	20	x	30	Red siltstone, quartz and white porcellaneous carbonate.	65	112	47
4	6	2			9568	73	38	64	24	2	44	Orange sericitic clay, red to orange silty shale and quartz.	75	140	65
6	8	2			9569	67	28	60	24	2	44	Red to orange sericitic clay, red to orange clayey siltstone (phyllitic?) and minor quartz.	80	155	75
8	10	2			9570	71	34	66	28	2	54	As above with white clay.	75	150	78
10	12	2			9571	121	34	76	28	x	70	As for 8 - 10m.	100	215 (K-Th-U 28) (Th-U 13) (Th 2)	115
12	14	2			9572	42	22	50	18	4	36	Orange to yellow clay with small chips of clayey siltstone and sericitic quartzite.	95	132	37

Drilled by AfracDrilling Type of Drilling Rot/Perc. Date Started 14.8.76 Date Completed 14.8.76 Depth of Hole 50m ft. Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 40

Co-ords. of Collar Approx. 3510 E/ 17840 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
14	16	2			9573	33	14	42	18	6	36	Pale yellow sericitic clay with small chips of sericitic quartzite.	94	115	21
16	18	2			9574	34	20	50	18	2	40	As above plus chips of pale green phyllite.	80	105	25
18	20	2			9575	66	46	66	24	2	56	Pale yellow sericitic clay with green chloritic phyllite and sericitic arkosic chips, (small).	55	75	20
20	22	2			9576	46	50	62	18	10	48	Yellow clayey sludge with sericitic, arkosic, quartzite fragments.	62	66	4
22	24	2			9577							As above.	78	70	-8
24	26	2			9578							As above with quartz and pale silty phyllite.	70	68	-2
26	28	2			9579	4	14	54	12	6	20	Quartzite, sericitic arkosic quartzite and large number of quartz fragments.	72	62	-10
28	30	2			9580		16	18	10	4	28	Sericitic, arkosic, quartzite and quartz with very minor green shale fragments.	82	58	-24
30	32	2			9581		12	40	14	4	12	As above.	90	60	-30
32	34	2			9582	11	14	16	16	x	12	Quartzite, sericitic, arkosic, quartzite, quartz and grey fine grained banded quartzite.	88	80	-8

Drilled by AfracDrilling Type of Drilling Rot/Perc Date Started 14.8.76 Date Completed 14.8.76 Depth of Hole 50m. ft. Record Completed 9.8.76.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 40

Co-ords. of Collar Approx. 3510 E/ 17840 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
34	36	2			9583							As above, very minor buff phyllite.	88	68	-20
36	38	2			9584							Quartzite, sericitic, arkosic, quartzite, fine grained grey quartzite and buff to pale green phyllite.	50	45	-5
38	40	2			9585	3	12	30	12	4	12	As above but very little of the grey quartzite.	50	45	-5
40	42	2			9586							Pale green chloritic phyllite, sericitic, arkosic, quartzite, quartzite and quartz.	58	45	-13
42	44	2			9587							As above.	60	51	-9
44	46	2			9588	5	76	56	28	14	54	Green chloritic phyllite and quartz, with very minor hard, black siltstone &fine grained sandstone.	66	52	-14
46	48	2			9589							Green chloritic phyllite and quartz.	72	60	-12
48	50	2			9590	5	170	80	40	18	70	Green chloritic and dark grey phyllites and quartz with minor massive chlorite rock (phyllite still ?)	90	70	-20
												End of Hole.			

Drilled by Afrac Drilling Type of Drilling Rot/Perc Date Started 14.8.76 Date Completed 14.8.76 Depth of Hole 50m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 40

Co-ords. of Collar Approx. 3510 E/ 17840 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays	Geological Log	Angle to core	Estimated Grade
							Drilling Record: 0 - 32m $6\frac{1}{2}$" Mission Cross Hammer 0 - 30m $6\frac{3}{4}$" Rotary Rock Bit (reaming) 32 - 50m $5\frac{1}{2}$" Mega Cross Hammer. Casing Record: Collar piece - recovered. 28metres of 6" casing - recovered. Water Record: Depth : 20m Flow : 5,000 to 10,000 gal/hr.		

Drilled by Afrac Drilling Type of Drilling Rot/Perc Date Started 14.8.76 Date Completed 14.8.76 Depth of Hole 50m ft. Record Completed J.H.W

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 40

Co-ords. of Collar Approx. 3510 E/ 17840 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR									Instrument: Spectrometer GIS -3 No. 208-198.	
													Back-ground c.p.s.	Sample Reading c.p.s.	Sample Minus Back-ground.
0	2	2			9591	1	8	26	6	x	6	Pale yellow sandy clay, quartzite and quartz.	33	34	1
2	4	2			9592	4	8	10	6	x	12	Very coarse grained, conglomeratic, sandstone with sheared sericitic portions.	26	33	7
4	6	2			9593	7	14	26	14	10	20	Pale greeny grey, crenulated, phyllitic shale, quartz boulders from the conglomerate of 2-4m, and quartz.	25	50	25
6	8	2			9594	4	14	54	12	4	28	As above with phyllitic shales, partly limonitic.	28	37	9
8	10	2			9595	8	24	74	26	4	48	Orange sericitic clay with greeny to pale brown phyllitic shale and quartz.	26	28	2
10	12	2			9596	5	68	80	28	4	50	As above plus minor chips black to brown quartzite.	28	30	2
12	14	2			9597	17	66	80	28	10	50	As for 10-12m, quartzite has minor sericite.	27	32	5
14	16	2			9598							Pale buff sericitic clay and fragments of sericitic quartzite plus minor shale and quartz.	28	31	3

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 16.8.76 Date Completed 16.8.76 Depth of Hole 60m ft. Record Completed 9.8.76

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 41

Co-ords. of Collar Approx. 3578 E/ 17840 N Bearing Inclination Vertical LOCATION Anomaly 77 South

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
16	18	2			9599							Pale yellow, sericitic, arkosic?, sandstone, grey phyllitic shale and quartz.	29	32	3
18	20	2			9600							As above.	30	36	6
20	22	2			9601							As above.	32	39	7
22	24	2			9602	17	26	30	14	x	40	As above.	32	43	11
24	26	2			9603	12	34	38	14	16	46	As above - note: pale greeny phyllitic shale occurs as thin bands and structually disconnected blebs within yellow coarse grained, arkosic?, sandstone.	32	47	15
26	28	2			9604							Fine grained, yellow to brown quartzite with pale green phyllitic shale and quartz. (Note, quartzite is banded and may be cross bedded).	29	32	3
28	30	2			9605							As above but very minor shale with minor sericitic sandstone.	30	30	0
30	32	2			9606	8	16	48	8	6	20	Yellow fine grained quartzite, sheared sericitic, arkosic?, sandstone, pale grey, spotted (manganese?), phyllitic shale and quartz.	30	25	-5
32	34	2			9607							Coarse to fine grained sericitic, arkosic?, sandstone, (sandstone pores are stained yellow with limonite-sulphide?) minor white to pale green sericitic phyllite and quartz.	30	28	-2
34	36	2			9608							As above.	29	25	-4

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 16.8.76 Date Completed 16.8.76 Depth of Hole 60m ft. Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 41

Co-ords. of Collar Approx. 3578 E/ 17840 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
36	38	2			9609	6	16	32	8	10	22	As above.	29	29	0
38	40	2			9610							As above plus quartzite.	29	29	0
40	42	2			9611							As for 32-34m.	28	26	-2
42	44	2			9612	5	12	30	10	14	24	As for 38-40m.	31	28	-3
44	46	2			9613							As for 38-40m , plus quartz fragments, possibly conglomerate cobbles?	30	27	-3
46	48	2			9614							As for 32-34m , greatly increased pale green phyllitic shale.	30	30	0
48	50	2			9615							As for 46-48m.	25	25	0
50	52	2			9616	8	14	18	8	18	20	Pale green, crenulated phyllitic shale, with quartzite and coarse grained chloritic, arkosic,quartzite (alternate hard/soft bands).	33	37	4
52	54	2			9617		14	34	10	26	24	Pale green, crenulated, manganese spotted, phyllitic shale, sericitic sandstone, quartz and minor quartzite, (hard/soft bands).	37	37	0
54	56	2			9618		12	40	10	20	20	Pale green, crenulated, phyllitic shale, pale greenish to white quartzite with green chloritic specks and minor pyrite and minor dark grey phyllite, grey to white dolomite & quartz.	30	32	2

Drilled by Afrac Drilling Type of Drilling Rot/Perc Date Started 16.8.76 Date Completed 16.8.76 Depth of Hole 60m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 41

Co-ords. of Collar Approx. 3578 E/ 17840 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
56	58	2			9619							Pale green to green to dark grey, chloritic phyllite with minor quartz and quartzite.	33	31	-2
58	60	2			9620	4	40	60	32	26	88	Dark green to black (slightly graphitic), crenulated phyllite.	33	31	-2
												End of Hole.			
												Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 37m $6\frac{1}{2}$" Mission Cross Hammer. 0 - 37m $6\frac{3}{4}$" Rotary Rock Bit (Reaming). 0 - 60m $5\frac{1}{2}$" Mega Cross Hammer.			
												Casing Record: Collar piece - recovered. 36m of 6" casing - recovered.			
												Water Record: Depth: 14m Flow : 5,000 to 10,000 gal/hr.			
												PETROLOGY: ESR 9618 Report No. 2839			

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 16.8.76 Date Completed 16.8.76 Depth of Hole 60m ft. Record Completed 9.8.76

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 41

Co-ords. of Collar Approx. 3578 E/ 17840 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR									Instrument: Spectrometer GIS-3 No.	208-198.
													Back-ground c.p.s.	Sample Reading c.p.s.	Sample Minus Back-ground.
0	2	2			9621	11	10	30	16	14	14	Red to pale brown to grey phyllitic shale plus quartzite and quartz rubble.	35	40	5
2	4	2			9622	25	20	44	20	4	26	Pale orange to buff sericitic clay, weathered phyllitic shale, hard, brown , limonitic phyllite and minor quartz.	34	46	12
4	6	2			9623	51	34	60	22	4	38	Bright orange/red sericitic clay with minor limonitic phyllite fragments.	40	67	27
6	8	2			9624	72	44	64	22	4	46	As above plus grey clay and very minor sand particles.	43	110	67
8	10	2			9625	117	66	66	20	2	52	As for 6-8m.	41	158	117
10	12	2			9626	165	58	58	20	2	46	Bright orange/red sericitic clay with fragments of phyllitic shale and sericitic siltstone (both limonitic).	54	176	122
12	14	2			9627	106	56	74	24	x	46	As above.	70	148	78

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 17.8.76 Date Completed 17.8.76 Depth of Hole 27m ft. Record Completed

Logged by J.H. Wright Sampled by M.Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 42

Co-ords. of Collar Approx. 3522 E/ 17840 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
14	16	2			9628	38	38	46	18	6	38	Pale orange to buff sericitic clay with fragments of phyllitic shale (grey to red) and minor hard phyllitic siltstone.	51	104	53
16	18	2			9629	46	36	44	16	10	38	Pale greeny buff sericitic clay with sericitic sandstone and grey phyllitic shale fragments.	53	90	37
18	20	2			9630	75	44	46	16	10	40	As above but very minor shale.	50	101	51
20	22	2			9631	54	44	44	16	10	40	Pale yellow to buff sericitic clay with fragments of sericitic sandstone and quartz with minor fragments of pale grey phyllitic shale.	30	53	23
22	24	2			9632	21	44	42	14	10	40	As above.	40	68	28
24	26	2			9633	31	48	46	10	8	36	As above.	40	55	15
26	27	1			9634	29	32	20	10	10	30	As above, plus minor hard quartzite.	49	50	1
												End of Hole.			
												Drilling Record: 0 - 27m $6\frac{1}{2}$" Mission Cross Hammer.			
												Casing Record: Collar piece - recovered.			
												Water Record: Depth : 20m Flow : 500 to 1,000 gal/hr.			

Drilled by Afrac Drilling Type of Drilling Rot/Perc Date Started 17.8.76 Date Completed 17.8.76 Depth of Hole 27m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 42

Co-ords. of Collar Approx. 3522 E/ 17840 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR									Instrument: Spectrometer GIS-3 No. 208-198.	
													Back-ground c.p.s.	Sample Reading c.p.s.	Sample Minus Back-ground.
0	2	2			9665	9	38	52	30	76	100	Pale yellow silty material with fragments of ferruginized quartzite, ferruginized arkose, arkose and quartz, (surface rubble). Red silty clay with fragments of quartz and red ferruginous sandstone.	39	48	9
2	4	2			9666							Red silty clay with fragments of quartz, quartzite and hard dark brown limonite.	38	42	4
4	6	2			9667							Pink to white clay with fragments of quartz, fine grained quartzite and hard dark brown limonite.	39	38	-1
6	8	2			9668	8	70	80	24	260	580	Grey to yellow to red mottled clay with slightly limonitic sandstone, quartz, dark brown limonitic jasper and red platey textured clay - decomposed bedrock?	38	36	-2
8	10	2			9669							Mottled pale grey to yellow to red clay.	38	30	-8
10	12	2			9670							As above with quartz fragments.	36	30	-6
12	14	2			9671	5	40	44	12	50	260	Pale green to white sticky clay and possibly weathered dolerite.	33	28	-5

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 19.8.76 Date Completed 19.8.76 Depth of Hole 30m ft. Record Completed 9.8.76

Logged by J.H. Wright Sampled by M Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 43

Co-ords. of Collar Approx. 8616 E/ 5717 N Bearing 225° True Inclination Approx. 83° LOCATION 8500 E/5500 N Anomaly.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
14	16	2			9672							Pale to dark green mottled clay with fragments of hard fine grained quartzite and pale grey decomposed feldspathic rock.	36	30	-6
16	18	2			9673							As above plus sheared green decomposed feldspathic rock.	34	28	-6
18	20	2			9674	6	26	30	12	14	140	Pale green to yellow clay with fragments as for 14-16m.	36	29	-7
20	22	2			9675							Greeny yellow clay with fragments of manganese spotted decomposed clayey, partly chloritic, phyllite, quartz and green massive claystone.	35	30	-5
22	24	2			9676							Green spotted, decomposed and clayey, phyllite, hard grey to yellow fine grained quartzite? decomposed dolerite, green claystone and quartz.	34	32	-2
24	26	2			9677	6	60	36	32	50	300	Black to dark brown iron stained dolerite with fragments of decomposed clayey dolerite, claystone, quartzite, quartz and limonitic jasper.	32	32	0
26	28	2			9678		38	68	38	32	290	Dark green dolerite with pyrite dissemination and thin quartz pyrite veining, other chips as per 24-26m.	32	28	-4
28	30	2			9679							Dark green dolerite with pyrite dissemination and thin veining, very fine grained dolerite ("chilled margin") and above hole contamination. (note some fine grained decomposed clayey rock possibly decomposed fine grained			

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 19.8.76 Date Completed 19.8.76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 43

Co-ords. of Collar Approx. 8616 E/ 5717 N Bearing 225° True Inclination Approx. 83° LOCATION 8500 E/ 5500 N Anomaly.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
28	30	2			9679 (cont')							chilled margin type dolerite).	34	31	-3
												End of Hole			
												Drilling Record: 0 - 30m $6\frac{1}{2}$" Mission Cross Hammer.			
												Casing Record: Collar piece - recovered.			
												Water Record: Depth : 19m Flow : 1,000 to 2,000 gal/hr.			
												PETROLOGY: ESR 9679 Report No. 2839			

Drilled by Afrac Drilling Type of Drilling Rot/Perc Date Started 19.8.76 Date Completed 19.8.76 Depth of Hole 30m ft. Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 43

Co-ords. of Collar Approx. 8616 E/ 5717 N Bearing 225° True Inclination Approx. 83° LOCATION 8500 E/ 5500 N Anomaly.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR									Instrument: Spectrometer GIS-3 No. 208-198	
													Back-ground c.p.s.	Sample Reading c.p.s.	Sample Minus Back-ground
0	2	2			9680	19	56	62	36	210	160	Grey fine grained silty sand with ferruginous quartzite and quartz fragments, (surface rubble). Red silty clay with ferruginous sandstone and quartzite plus quartz.	35	45	10
2	4	2			9681	15	40	44	36	130	130	Orange silty clay with large angular cobbles of coarse grained arkose and ferruginous arkose plus small chips of quartzite, ferruginous quartzite and quartz.	39	52	13
4	6	2			9682	31	52	62	50	80	240	Orange to red clay, red to grey mottled clay with ferruginous quartzite, quartzite and quartz fragments.	42	55	13
6	8	2			9683							Red sticky clay and grey to white mottled sticky clay plus contaminant sandstone fragments from above.	39	41	2
8	10	2			9684							Red to yellow to grey to white mottled sticky clay and contaminants from top hole and red lateritic sandy clay fragments.	38	44	6
10	12	2			9685	14	50	72	68	24	450	Grey to pale brown sticky clay.	35	45	10
12	14	2			9686							Browny yellow clay with minor small quartz and siliceous fragments.	41	38	-3

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 19.8.76 Date Completed 19.8.76 Depth of Hole 31m ft. Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 44

Co-ords. of Collar Approx. 8600 E/ 5700 N Bearing Inclination Vertical LOCATION 8500 E/ 5500 N Anomaly.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
14	16	2			9687							As above, sample not collected consequent of drilling difficulties, i.e. clay building up in hole - no return.			
16	18	2			9688	13	50	78	80	20	480	Yellow clay with chips of decomposed dolerite.	40	41	1
18	20	2			9689							Green to yellow clay with large fragments of decomposed medium to fine grained dolerite.	39	38	-1
20	22	2			9690							Greeny to yellow clay with fragments of medium to fine grained dolerite.	40	37	-3
22	24	2			9691	8	44	64	50	26	400	As above.	40	40	0
24	26	2			9692							As above - black joint coating, possibly manganese.	40	42	2
26	30	4			9693							As for 24 - 26m.	45	41	-4
30	31	1			9694	7	42	42	36	44	280	Decomposed medium to fine grained dolerite and large fragments of pale green, manganese spotted, decomposed phyllite. (contact zone, dolerite/sediment).	38	37	-1
												End of Hole.			
												Drilling Record: 0 - 31m $6\frac{1}{2}$" Mission Cross Hammer.			
												Casing Record: Collar piece - recovered.			
												Water Record: Depth: 14m Flow: less than 500 gal/hr.			

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 19.8.76 Date Completed 19.8.76 Depth of Hole 31m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 44

Co-ords. of Collar Approx. 8600 E/5700 N Bearing Inclination Vertical LOCATION 8500 E/5500N Anomaly

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR									Instrument: Spectrometer GIS-3 No. 208-198	
													Back-ground c.p.s.	Sample Reading c.p.s.	Sample Minus Back-ground
0	2	2			9695	7	52	42	26	80	110	Pale fine grained sand plus ferruginous sandstone, quartz, quartzite, arkose and limonite fragments (surface rubble). Pale pink clayey silt with fragments as above plus chips of grey to white partly banded chert or very fine grained quartzite.	40	42	2
2	4	2			9696	11	104	40	26	290	180	Yellow, clayey, silty sand with fragments of limonitic fine grained quartzite or chert and quartz fragments.	40	46	6
4	6	2			9697							Greeny yellow sand with fragments of granular chert/fine grained quartzite?, quartz, sandstone, red clay and manganese nodules.	42	38	-4
6	8	2			9698							Green to buff clayey sericitic sand with fragments of quartz, phyllite (ferruginized), medium to coarse grained sandstone, red clay and limonite, (jaspery in part).	41	43	2
8	10	2			9699	9	46	38	26	40	130	Yellow to dark (manganese?) greeny brown clay with chips of granular surfaced quartz vein? material, manganese, quartz and possibly sandstone.	38	51	13
10	12	2			9700							Greeny yellow damp clay with fragments of sandstone, phyllitic sandstone and quartz.	42	49	7

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 19.8.76 Date Completed 19.8.76 Depth of Hole 30m ft. Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 45

Co-ords. of Collar Approx. 8585 E/5679 N Bearing Inclination Vertical LOCATION 8500 E/5500 N Anomaly

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery %	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres		ESR										
12	14	2		9701	15	38	48	24	28	180	Greeny yellow damp clay with fragments of sandstone, phyllitic sandstone, quartz, phyllite and limonite.	42	53	11
14	16	2		9702	16	36	64	40	30	250	Dark brown clay with fragments of banded phyllite, quartz vein material with sandy outer texture, quartz, sand grains and limonite.	41	56	15
16	18	2		9703							Dark brown clay with phyllite, phyllitic sandstone, sandstone and quartz fragments. (limonitic phyllite.)	42	49	7
18	20	2		9704	12	44	70	48	34	260	Brown clay with granular quartz (sandstone?), limonitic phyllite and sandstone plus quartz and quartz grains.	39	51	12
20	22	2		9705							As above.	42	43	1
22	24	2		9706	19	28	84	36	10	220	As above plus friable limonitic and manganiferous? sandstone.	34	52	18
24	26	2		9707							Brown clay and friable limonite, spotted sericitic (partly sheared) arkosic, sandstone and quartz.	42	49	7
26	28	2		9708							As above.	40	49	9
28	30	2		9709	15	24	90	28	20	200	As above, some limonitic sandstone, very close to being psammitic schist.	40	45	5
											End of Hole.			

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 19.8.76 Date Completed 19.8.76 Depth of Hole 30m /t. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 45

Co-ords. of Collar Approx. 8585 E/ 5679 N Bearing Inclination Vertical LOCATION 3500 E/ 5500 N Anomaly.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays	Geological Log	Angle to core	Estimated Grade	
							Drilling Record: 0 - 30m $6\frac{1}{2}$" Mission Cross Hammer.			
							Casing Record: Collar piece - recovered.			
							Water Record: Depth : 15m Flow : less than 500 gal/hr.			

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 19.8.76 Date Completed 19.8.76 Depth of Hole 30m ft Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 45

Co-ords. of Collar Approx. 8585 E/ 5679 N Bearing Inclination Vertical LOCATION 8500 E/ 5500 N Anomaly .

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade Instrument: Spectrometer GIS-3 No. 208-198 Background c.p.s.	Sample Reading c.p.s.	Sample Minus Background
Metres		Metres			ESR											
0	2	2			9710	7	94	60	38	22	106	Pink silty clay with fragments of quartzite, fine grained quartzite, quartz and hematitic quartzite.	51		48	-3
2	4	2			9711							As above with white cherty rock for 1m, then green clayey sand with fragments of hard, fine grained cherty rock (possibly quartzite), quartzite with manganese? spotting, and brown limonitic jasper.	48		43	-5
4	6	2			9712							Pink silty clay with fragments of fine grained quartzite with limonite veins and manganese? spotting, quartz and manganese.	53		47	-6
6	8	2			9713	6	190	64	24	10	102	Yellow silty clay with fragments as above.	40		42	2
8	10	2			9714	12	150	58	38	10	100	Red clay with fragments of very fine grained cherty? quartzite, ferruginous sandstone and quartz.	47		56	9
10	12	2			9715							Pink to pale yellow clay, with white clay, very fine grained cherty? quartzite with limonite banding, ferruginous (limonitic) sandstone and quartz.	51		50	-1

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 19.8.76 Date Completed 19.8.76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 46

Co-ords. of Collar Approx. 8570 E/5659 N Bearing Inclination Vertical LOCATION 8500 E/5500N Anomaly

NORANDA AUSTRALIA LIMITED
FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
12	14	2			9716							As above.	51	51	0
14	16	2			9717	6	44	48	16	38	106	Grey to green to yellow sand with fragments of grey to white granular quartz (quartzite?), small manganese nodules, white phyllitic siltstone, quartz grains and quartz.	50	42	-8
16	18	2			9718							Green silt with fragments of hard limonite, quartz, banded cherty material and quartz grains?	52	46	-6
18	20	2			9719							Green silt with fragments of pale grey, sheared, hard, claystone, quartz, medium to coarse grained sandstone, very fine grained banded quartzite? and minor limonitic sandstone ?	51	44	-7
20	22	2			9720	7	78	70	24	40	160	Yellow to green silt with fragments of grey to white , fine grained , banded quartzite, limonitic phyllitic siltstone, sandstone, quartz grains and quartz.	52	47	-5
22	24	2			9721							As above.	51	46	-5
24	26	2			9722							As above.	51	44	-7
26	28	2			9723							As above.	51	47	-4
28	30	2			9724	6	60	52	26	26	160	As above.	51	45	-6

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 19.8.76 Date Completed 19.8.76 Depth of Hole 30m ft. Record Completed J.H.W.
Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 46
Co-ords. of Collar Approx. 8570 E/ 5659 N Bearing Inclination Vertical LOCATION 8500 E/ 5500 N Anomaly.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays	Geological Log	Angle to core	Estimated Grade
							Drilling Record: 0 - 30m $6\frac{1}{2}$" Mission Cross Hammer		
							Casing Record: Collar piece - recovered.		
							Water Record: Depth : Approximately 25m. Flow : Tacky clay.		

Drilled by Afrac Drilling Type of Drilling Rot/Perc Date Started 19.8.76 Date Completed 19.8.76 Depth of Hole 30m ft. Record Completed

Logged by J.H. Wright Sampled by M. Kilkelly R.L. of Collar Core Recovery % NO. OF HOLE BDH - 46

Co-ords. of Collar Approx. 8570 E/ 5659 N Bearing Inclination Vertical LOCATION 8500 E/ 5500 N Anomaly.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR									Instrument : Spectrometer GIS-3 No. 208-198.	
													Back-ground c.p.s.	Sample Reading c.p.s.	Sample Minus Back-ground.
0	2	2			9725	5	4	26	4	6	8	Pale silty dust with large quartz and quartzite pebbles and pebble fragments, some white clay and dark fragments of unweathered quartz-biotite schist with pyrite (contamination?	42	50	8
2	4	2			9726	4	2	30	2	4	8	As above but without contaminants.	45	62	17
4	6	2			9727	2	2	30	6	6	8	Pale yellow sericitic clay and tacky clay plus quartz fragments and clasts from conglomerate horizon.	39	47	8
6	8	2			9728	2	2	28	4	x	10	Pale sericitic clay with fragments and clasts of quartz, sandstone, granular quartz with hematite, hard black cherty material, arkosic and sericitic sandstone.	34	60	26
8	10	2			9729	9	18	34	10	8	20	Pale to orange sericitic clay, white clay lumps, decomposed white to yellow shale and vein quartz.	33	61	28
10	12	2			9730	44	60	48	22	10	38	Mottled orange to red clay with sericite and fragments of decomposed limonitic, sericitic, shale (phyllite) and quartz vein material.	36	84	48

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 2/10/76 Date Completed 2/10/76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by C. Knox R.L. of Collar Core Recovery % NO. OF HOLE BDH - 47

Co-ords. of Collar Approx. 3550E/ 17840 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
12	14	2			9731	77	66	58	28	8	56	Orange clay with soft highly decomposed shale (minor manganese? spotting) plus thin grey quartz vein material.	52	145	93
14	16	2			9732	112	88	62	32	10	64	As above , shale limonitic and sericitic.	44	180	136
16	18	2			9733	64	68	68	22	4	48	Orange clay with grey/yellow decomposed shale fragments.	44	160	116
18	20	2			9734	45	56	58	18	10	44	Orange sericitic clay with fragments of limonitic siltstone, quartz and sericitic sandstone.	40	100	60
20	22	2			9735	42	28	50	12	10	32	Yellow/orange clay with sericitic sandstone and quartz fragments.	30	60	30
22	24	2			9736	35	30	38	12	10	38	As above.	31	50	19
24	26	2			9737	34	36	40	12	12	40	Pale sericitic clay with fragments of sericitic sandstone and quartz.	22	60	38
26	28	2			9738	5	20	42	4	8	22	As above plus quartzite and minor sericitic phyllite.	26	54	28
28	30	2			9739	6	14	38	4	10	16	As above plus quartzite and sericitic phyllite.	25	32	7
												End of Hole.			

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 2/10/76 Date Completed 2/10/76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by C. Knox R.L. of Collar Core Recovery % NO. OF HOLE BDH - 47

Co-ords. of Collar Approx. 3550 E/ 17840 N Bearing Inclination Vertical LOCATION Anomaly 77 South/

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays	Geological Log	Angle to core	Estimated Grade
							Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 30m $7\frac{1}{2}$" Mission Cross Hammer.		
							Casing Record: Collar piece.		
							Water Record: Depth - 18m Flow - less than 1000 gal/hr.		

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 2/10/76 Date Completed 2/10/76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by C. Knox R.L. of Collar Core Recovery % NO. OF HOLE BDH - 47

Co-ords. of Collar Approx. 3550 E/ 17840 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery %	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade
Metres		Metres		ESR									Instrument: Spectrometer GIS-3 No. 208-198.
												Back-ground c.p.s.	Sample Reading c.p.s. / Sample Minus Back-ground.
0	2	2		9740	8	4	24	8	10	8	Yellow silt with fragments of quartz, sandstone, ferruginous sandstone, ferruginous shale and quartzite.	24	48 / 24
2	4	2		9741	5	2	28	4	10	10	Yellow sericitic silt, small quartz pebbles, sericitic sandstone, decomposed arkosic sandstone.	25	52 / 27
4	6	2		9742	2	2	30	6	10	10	As above with much larger quartz pebbles and white clay.	27	42 / 15
6	8	2		9743	2	2	36	6	10	8	Pale greenish sericitic clay, coarse grained sericitic sandstone, small quartz pebbles and fine grained quartzite, (few small chips of hard fine grained black material - tourmaline?).	26	37 / 11
8	10	2		9744	2	4	34	4	2	8	Pale sericitic clay, fine grained quartzite, sericitic sandstone, quartz vein material (end run thick quartz vein), plus fine grained hard, black material (tourmaline?).	26	47 / 21
10	12	2		9745	5	4	30	4	10	10	Yellow sericitic clay, sericitic sandstone, quartz fragments and small to medium pebbles, plus arkose.	29	50 / 21

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 2/10/76 Date Completed 2/10/76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by C. KNOX R.L. of Collar Core Recovery % NO. OF HOLE BDH - 48

Co-ords of Collar Approx. 3555 E/ 17890 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
12	14	2			9746	13	32	64	24	4	40	12-13m, grey, speckled, phyllitic shale, white clay, quartz 13-14m, orange sericitic clay with fragments of ferruginous phyllitic shale and quartz.	30	75	45
14	16	2			9747	21	48	82	28	2	58	Yellow/orange clay with yellow limonitic phyllitic shale, (decomposed), siltstone and fine grained sandstone.	30	51	21
16	18	2			9748	12	84	108	40	2	68	Yellow/orange clay with yellow limonitic phyllitic shale, siltstone and quartz injected shale.	27	42	15
18	20	2			9749	14	92	110	44	2	76	As above.	26	30	4
20	22	2			9750	48	106	112	44	4	94	As above.	30	56	26
22	24	2			9751	20	38	64	20	6	50	Yellow to grey sericitic clay with grey shale fragments.	28	45	17
24	26	2			9752	22	50	66	22	8	66	Yellow to grey sericitic clay with grey shale fragments.	26	61	35
26	28	2			9753	17	44	60	20	34	76	Yellow to orange clay with fragments of sericitic sandstone, quartz and greeny white sericitic shale.	26	54	28
28	30	2			9754	13	22	40	8	16	34	Massive lumps of porous sericitic sandstone, minor white sericitic shale and quartz.	26	40	14
												End of Hole.			

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 2/10/76 Date Completed 2/10/76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by C. Knox R.L. of Collar Core Recovery % NO. OF HOLE BDH - 48

Co-ords. of Collar Approx. 3555 E/ 17890 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm)	Geological Log	Angle to core	Estimated Grade
							Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 30m $7\frac{1}{2}$" Mission Cross Hammer.		
							Casing Record: Collar piece.		
							Water Record; Depth - 23m. Flow - less than 1000 gal/hr.		

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 2/10/76 Date Completed 2/10/76 Depth of Hole 30m ft. Record Completed J. H. W

Logged by J.H. Wright Sampled by C. Knox. R.L. of Collar Core Recovery % NO. OF HOLE BDH - 48

Coords of Collar Approx 3655 E/ 17890 N Bearing Inclination Vertical LOCATION Anomaly 77 South

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade
Metres		Metres			ESR									Instrument: Spectrometer GIS-3 No. 208-198
													Back-ground c.p.s.	Sample Reading c.p.s.	Sample Minus Back-ground.
0	2	2			9755	18	8	26	10	10	12	Orange silty material with quartz and minor ferruginous sandstone fragments - surface rubble.	22	50	28
2	4	2			9756	4	4	32	6	6	12	Pale sericitic clay with sericitic sandstone, arkose, fine grained quartzite and quartz.	27	42	15
4	6	2			9757	2	2	36	4	4	12	Pale sericitic silt with green to brown sericitic sandstone, quartz vein material, arkose and fine grained hard black fragments (possibly quartz tourmaline rock).	28	55	27
6	8	2			9758	4	4	28	4	6	10	Grey sericitic, arkosic, conglomerate, sericitic sandstone and quartz (possibly in part clasts) .	24	52	28
8	10	2			9759	25	42	72	22	x	46	Brown sericitic sandstone, quartz, fine grained quartzite, minor coarse grained arkose and quartz. Approx. last 30cm orange clay with yellow decomposed shale fragments.	26	70	44
10	12	2			9760	11	94	180	58	x	140	Orange to purple (hematitic) clay with quartz and limonitic decomposed shale.	24	36	12

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 2/10/76 Date Completed 2/10/76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by C. Knox R.L. of Collar Core Recovery % NO. OF HOLE BDH - 49

Co-ords of Collar Approx 9535 E/ 17890 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
12	14	2			9761	7	82	200	52	x	180	Orange clay with limonitic decomposed shale and minor quartz.	23	28	5
14	16	2			9762	2	120	200	60	x	140	As above.	21	19	-2
16	18	2			9763	33	104	150	54	4	94	As above.	22	24	2
18	20	2			9764	59	84	150	46	x	116	Yellow to orange clay with yellow to grey decomposed limonitic shale.	24	72	48
20	22	2			9765	33	54	96	24	10	94	Yellow clay with decomposed shale - last metre of run in sericitic sandstone.	24	40	16
22	24	2			9766	27	36	56	20	x	74	Yellow/white clay with sericite, sericitic siltstone, sericitic sandstone and quartz.	22	66	44
24	26	2			9767	6	8	38	4	6	26	Sericitic sandstone, quartzite and quartz with minor sericitic shale and a limonitic pseudomorph after pyrite (0.4mm).	25	41	16
26	28	2			9768	35	24	36	10	30	46	Sericitic sandstone, quartz, quartzite and pale sericitic shale.	25	39	14
28	30	2			9769	8	8	36	6	6	24	Sericitic sandstone with minor quartz and white sericitic shale.	27	32	5
												End of Hole.			

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 2/10/76 Date Completed 2/10/76 Depth of Hole 30m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by C. Knox R.L. of Collar Core Recovery % NO. OF HOLE BDH - 49

Co-ords. of Collar Approx. 3535 E/ 17890 N Bearing Inclination Vertical LOCATION Anomaly 77 South.

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays	Geological Log	Angle to core	Estimated Grade
							Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 30m $7\frac{1}{2}$" Mission Cross Hammer.		
							Casing Record: Collar piece.		
							Water Record: Depth - 20 m Flow - less than 1000 gal/hr.		

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 2/10/76 Date Completed 2/10/76 Depth of Hole 30m ft. Record Completed A.H.S.

Logged by J.H. Wright Sampled by C. Knox R.L. of Collar Core Recovery % NO. OF HOLE BDH - 49

Co-ords of Collar Approx . 3535 E/ 17890 N Bearing Inclination Vertical LOCATION Anomaly 77 South

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade
Metres		Metres			ESR									Instrument: Spectrometer GIS-3 No. 208-198.
													Back-ground c.p.s.	Sample Reading c.p.s. / Sample Minus Back-ground
0	2	2			9770	4	120	32	20	140	240	Yellow to orange silt with ferruginous sandstone, quartz, quartzite and very fine grained cherty siliceous rock.	27	24 / -3
2	4	2			9771		120	50	26	270	420	Orange silt with ferruginous (limonitic) sandstone and phyllite, quartz and quartzite.	27	28 / 1
4	6	2			9772		90	30	12	150	190	Pale sericitic silt with fragments of ferruginous phyllite, quartz and medium to coarse grained arkosic sandstone with minor white phyllitic shale and white clay.	30	35 / 5
6	8	2			9773	4	52	34	8	106	300	Pale yellow silt with fine grained quartzite (granular quartz?), medium to coarse grained ferruginous sandstone and white clay plus minor sand grains and ferruginous phyllite.	25	36 / 11
8	10	2			9774		40	30	12	60	260	Orange to red, coarse grained sand, coarse milky quartz grains, white clay and coarse grained sandstone.	28	37 / 9
10	12	2			9775		22	30	8	50	90	Orange to red clayey coarse grained sand with fragments of coarse grained sandstone, white clay, limonitic phyllite and quartz.	31	35 / 4

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 2/10/76 Date Completed 4/10/76 Depth of Hole 25m ft. Record Completed

Logged by J.H. Wright Sampled by C. Knox R.L. of Collar Core Recovery % NO. OF HOLE BDH - 50

Co-ords. of Collar Approx. 8950 E/ 3957 N Bearing Inclination Vertical LOCATION Anomaly 9000E/4000N

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
12	14	2			9776		12	20	8	34	56	Pink clayey sand, medium to coarse sand grains and white clay.	29	36	7
14	16	2			9777	4	36	26	14	40	140	Pink clayey sericitic sand, medium to coarse sand grains, friable coarse grained sandstone, arkosic in part, with ferruginized coarse grained sandstone.	25	38	13
16	18	2			9778		24	28	10	48	104	As above with some sheared? sericitic coarse grained sandstone.	26	33	6
18	20	2			9779		28	28	8	32	98	As for 14-16m.	25	29	4
20	24	4			9780	5	20	40	14	42	170	Coarse grained poorly sorted sandstone with manganese? spotting, siliceous veining, claystone, and sericite after feldspar?	26	27	1
24	25	1			9781		14	30	10	32	92	As above.	32	28	-4
												Hole Abandoned			

Drilled by Afrac Drilling Type of Drilling Rot/Perc Date Started 2/10/76 Date Completed 4/10/76 Depth of Hole 25m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by C. Knox R.L. of Collar Core Recovery % NO. OF HOLE BDH - 50

Co-ords. of Collar Approx. 8950 E/ 3957 N Bearing Inclination Vertical LOCATION Anomaly 9000 E/ 4000N

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays	Geological Log	Angle to core	Estimated Grade
							Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 25m $7\frac{1}{2}$" Hammer with Button Bit. 0 - 24m $6\frac{1}{2}$" Rotary Rock Bit run with mud in attempt to restore circulation and clear hole. Hole abandoned 25m, continual hole collapse. **Casing Record:** Collar piece. **Water Record:** Depth - 13m. Flow - greater than 1000 gal/hr.		

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 2/10/76 Date Completed 4/10/76 Depth of Hole 25m ft. Record Completed J.H.W.

Logged by J.H. Wright Sampled by C. Knox R.L. of Collar Core Recovery % NO. OF HOLE BDH - 50

Co-ords of Collar Approx 8950 E/ 3957 N Bearing Inclination Vertical LOCATION Anomaly 9000E/4000N

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR									Instrument: Spectrometer GIS-3 No. 208-198	
													Back-ground c.p.s.	Sample Reading c.p.s.	Sample Minus Back-ground
0	2	2			9782	6	34	20	10	48	62	Orange clay with quartz, decomposed ferruginous shale and ferruginous quartz vein material.	23	23	0
2	4	2			9783		20	16	10	28	54	Yellow clay with quartz vein fragments.	24	28	4
4	6	2			9784		14	14	8	26	34	Yellow clay with fragments of vein quartz and decomposed friable medium to coarse grained "dirty" sandstone.	25	26	1
6	8	2			9785		14	24	10	30	48	Dark yellow clayey sand with fragments of coarse grained arkosic sandstone, coarse grained sandstone, coarse grained ferruginous sandstone and quartz.	26	26	0
8	10	2			9786	2	4	20	4	40	18	Yellow/white clayey sand, coarse grained arkosic sandstone and quartz.	25	29	4
10	12	2			9787		20	28	8	42	46	Yellow to white clayey sand with coarse grained arkosic sandstone, coarse grained sandstone, quartz and minor sandstone with clay partings.	26	23	-3

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 4/10/76 Date Completed 5/10/76 Depth of Hole 43m ft. Record Completed 9.11.76

Logged by J.H. Wright Sampled by C. Knox R.L. of Collar ..... Core Recovery ..... % NO. OF HOLE BDH - 51

Co-ords. of Collar Approx 9105 E/4105 N Bearing ..... Inclination Vertical LOCATION Anomaly 9000E/4000N

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
12	14	2			9788		56	60	38	180	340	Green-yellow clayey sand with:- to 13m, coarse grained sandstone and arkosic sandstone with greeny white decomposed shale? 13-14m, fragments of brown limonitic coarse grained sandstone and massive jaspery limonite.	23	30	7
14	16	2			9789		64	74	44	400	350	Brown limonitic sludge and limonitic coarse grained sandstone, massive jaspery limonite, coarse grained sandstone.	25	28	3
16	18	2			9790	9	84	76	42	340	340	As above.	25	39	14
18	20	2			9791		92	44	26	290	260	Copious water - fragments of limonite, lumps of manganese, coarse grained sandstone, ferruginous sandstone and manganiferous sandstone.	23	32	9
20	22	2			9792		120	62	48	440	520	Chips of fine grained banded quartzite with probable cave material of limonite, quartz, ferruginous phyllite and quartz.	25	32	7
22	24	2			9793		260	180	58	400	560	Coarse quartz fragments, pale yellow to red banded fine grained quartz rock (quartzite? bands in form of folds or pseudo folds partly looks like banded chalcedonic quartz), fragments of ferruginous sandstone, massive hard limonite, white fine grained quartzite, friable medium to coarse grained sandstone.	30	27	-3
24	26	2			9794	13	250	250	80	420	900	Massive hard limonite, fine grained banded quartzite (see above), quartz and minor coarse grained sandstone	24	42	18

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 4/10/76 Date Completed 5/10/76 Depth of Hole 43m. ft. Record Completed

Logged by J.H. Wright Sampled by C. Knox. R.L. of Collar Core Recovery % NO. OF HOLE BDH - 51

Co-ords. of Collar Approx. 9105 E/ 4105 N Bearing Inclination Vertical LOCATION Anomaly 9000E/4000N

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
26	28	2			9795		110	120	52	310	490	As above, slightly more coarse grained sandstone and sand.	24	24	0
28	30	2			9796		104	92	38	220	330	Sand, white coarse grained sandstone, hard limonite, limonite replacement of coarse grained sandstone and contaminants from bottom casing area.	26	25	-1
30	32	2			9797		110	100	52	170	430	As above, (sandy material predominates).	23	32	9
32	34	2			9798		140	90	48	140	450	As above with minor phyllite and weathered material from behind the casing (sandy material predominates).	24	29	5
34	36	2			9799	7	220	140	70	40	720	As for 28-30m, with pink arkosic coarse grained sandstone (hard limonitic material predominates).	28	45	17
36	38	2			9800		70	52	40	80	220	Coarse grained sand, coarse grained, vuggy, slightly arkosic sandstone with manganese and manganiferous sandstone, approx. 15% contamination of hard limonite and red clay.	25	27	2
38	40	2			9801		66	50	32	40	220	Coarse grained sand, coarse grained slightly arkosic sandstone, manganiferous sandstone and 10 - 15% contamination of hard limonite and limonitic phyllite.	24	26	2
40	42	2			9802		28	36	24	24	104	Coarse grained sand, coarse grained slightly arkosic sandstone, manganiferous coarse grained sandstone, very fine grained banded quartzite, quartz - 10% hard limonite, contamination?	24	21	-3

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 4/10/76 Date Completed 5/10/76 Depth of Hole 43m ft Record Completed

Logged by J.H. Wright Sampled by C. Knox R.L. of Collar Core Recovery % NO. OF HOLE BDH - 51

Co-ords of Collar Approx 9105E/4105N Bearing Inclination Vertical LOCATION Anomaly 9000E/4000N

NORANDA AUSTRALIA LIMITED

FIELD DRILL RECORD

From	To	Sample Length	Recovery	%	Sample No.	Assays (ppm) U_3O_8	Cu	Ni	Co	Pb	Zn	Geological Log	Angle to core	Estimated Grade	
Metres		Metres			ESR										
42	43	1			9803	6	36	40	24	46	140	As above.	21	22	1
												End of Hole.			
												Drilling Record: 0 - 1m $8\frac{3}{4}$" Rotary Blade Bit. 1 - 25m $7\frac{1}{2}$" Hammer with Button Bit. 25-43m $5\frac{1}{2}$" Hammer Mission Cross Bit.			
												Casing Record: Collar piece - Recovered 25m of 6" metal casing - not recovered.			
												Water Record: Depth - 13m. Flow - less than 5000 gal/hr.			
												PETROLOGY: ESR 2630 } 24 - 26m. ESR 2631) Report No. 2880			

Drilled by Afrac Drilling Type of Drilling Rot/Perc. Date Started 4/10/76 Date Completed 5/10/76 Depth of Hole 43m Record Completed J.H.W.

Logged by J.H. Wright Sampled by C. Knox R.L. of Collar Core Recovery % NO. OF HOLE BDH - 51

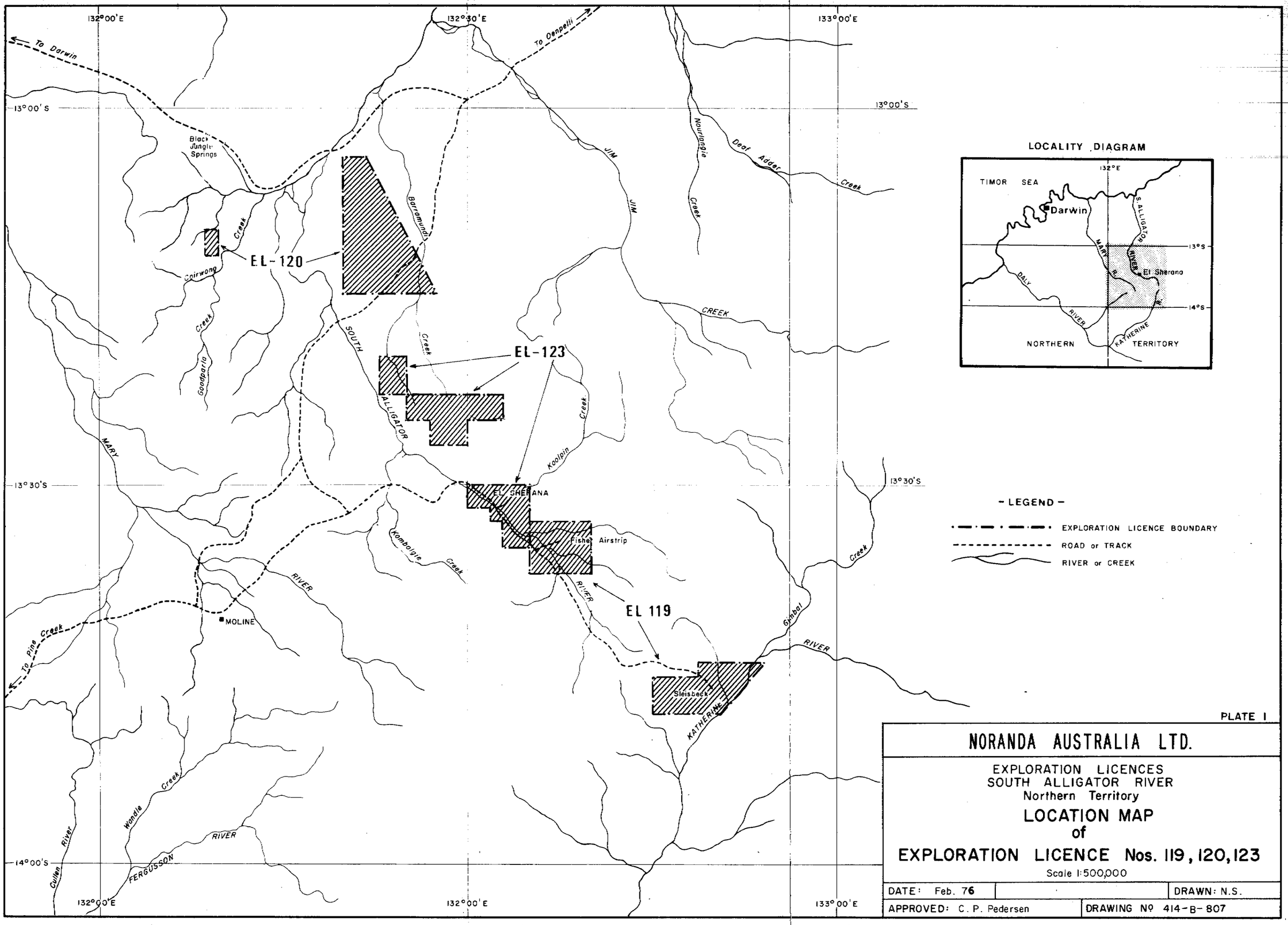
Approx 9105 E/ 4105 N Bearing Inclination Vertical LOCATION Anomaly 9000E/4000N

EXPLORATION LICENCE NO. 120

NORTHERN TERRITORY

APPENDIX NO. 1

Maps to Accompany
Report No. 260



LOCALITY DIAGRAM

- LEGEND -

- EXPLORATION LICENCE BOUNDARY
- ROAD or TRACK
- RIVER or CREEK

PLATE I

NORANDA AUSTRALIA LTD.

EXPLORATION LICENCES
SOUTH ALLIGATOR RIVER
Northern Territory

LOCATION MAP of EXPLORATION LICENCE Nos. 119, 120, 123

Scale 1:500,000

DATE: Feb. 76		DRAWN: N.S.
APPROVED: C. P. Pedersen		DRAWING Nº 414-B-807

132°20'00"E

5000 E

10000 E

20000 N

15000 N

10000 N

5000 N

00 N

13°15'00"S

South Alligator River

ANOMALY 77 SOUTH

KOOLPIN TRAVERSE No 4

KOOLPIN TRAVERSE No 2

KOOLPIN TRAVERSE No 3

KOOLPIN TRAVERSE No 1

TRACK ETCH ANOMALY I

TRACK ETCH ANOMALY II GEOCHEMICAL

TRACK ETCH ANOMALY II LATERITE

ANOMALY 8500 E 5500 N

ANOMALY 9000 E 4000 N

TO MUDGINBERRI

TO GOODPARLA

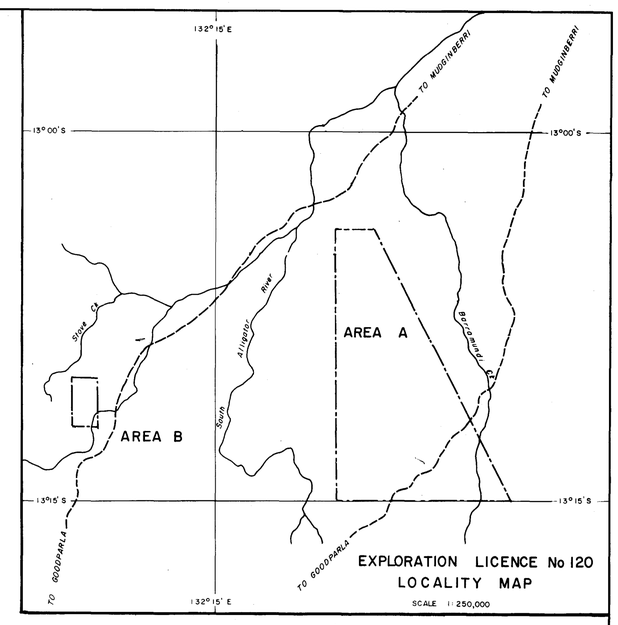
Old Road

New Road

Barramundi Creek

—LEGEND—

- Tracks
- Outline of traverse areas
- Outline of main 'cherty ferruginous silstone facies'
- Outline of gridded areas
- Percussion drill section



EXPLORATION LICENCE No 120
LOCALITY MAP
SCALE 1:250,000

PLATE 2

NORANDA AUSTRALIA LTD.

EXPLORATION LICENCE No 120
SOUTH ALLIGATOR RIVER
Northern Territory

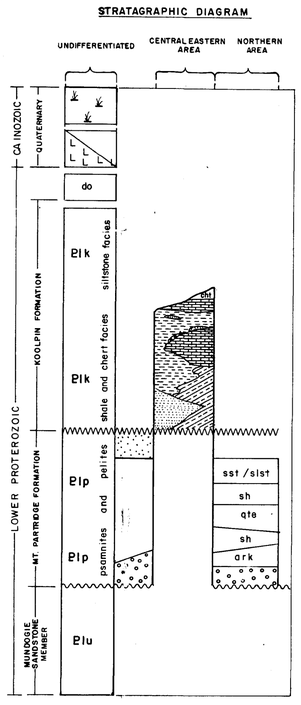
LOCATION MAP - FIELD ACTIVITIES 1976

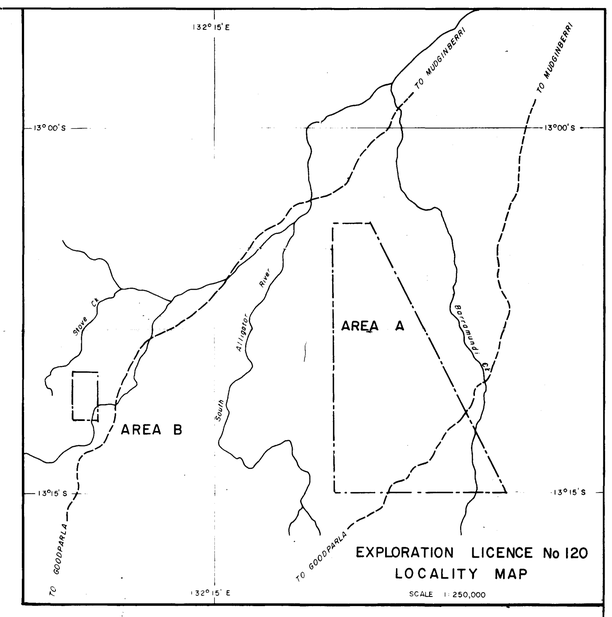
SCALE - 1: 25000

500 0 500 1000 1500 2000 2500 metres
2000 1000 0 2000 4000 6000 8000 feet

DATE: Nov 18, 1976	COMPILED: N.Sheringham.	DRAWN: N.S
APPROVED: C. P. Pedersen		DRAWING No. 414-C-806

STRATAGRAPHIC DIAGRAM





LEGEND

LITHOLOGY

- Intermittent swamp. Organic rich black clay, sand and stream alluvium
- Undifferentiated soil, scree, eluvial and alluvial rubble and sand. Laterite (generally pisolitic)
  - qtz.ft : Quartz float
  - qte.ft : Quartzite float
  - sst.ft : Sandstone float
  - sh.ft : Shale float
- do — Intrusive dolerite

Koolpin Formation

- Plk — Undifferentiated
  - with :- sil.dl. : Silicified dolomite
  - sh : Shale
- Undifferentiated shales — central eastern area
  - with :- cht : Massive chert bands
  - sil.sh : Silicified shales
  - : Minor orthoquartzite lens
- Silicified dolomite / limestone
  - cht : Massive chert bands
  - ▲▲▲▲ : Chert breccia
  - : Orthoquartzite
- Interbedded shale and chert (hematite rich)
- Orthoquartzite
- UNCONFORMITY

Mt. Partridge Formation

- Plp — Undifferentiated
  - with :- fe.sst : Ferruginous sandstone
  - sst : Sandstone
  - sh : Shale
  - slst : Siltstone
  - qte : Quartzite
  - ▼▼▼▼ : Ferruginous chert breccia
- Quartzite, ferruginous (limonitic) sandstone, siltstone, ferruginised chert rubble
- Coarse to medium grained arkose and conglomeratic arkose.
- Polymict conglomerate
- DISCONFORMITY

Mundogie Sandstone Member

- Plu — Undifferentiated — sandstone, feldspathic sandstone, quartzite
  - with :- ▲▲▲▲ : Quartz siderite (jasper) breccia

TEXTURES, COLOURS ETC.

cg.	Coarse grained
fg.	Fine grained
cr.	Crenulated
shd.	Sheared
inj.	Injected
mr.	Minor
bl.	Black
cl	Cleavage.

AUGER HOLE GEOLOGY

br	Breccia
qtz	Quartz
ft	Float
got	Goethic
lim	Limonite
lat	Laterite
c	Clay
s	Sand
ka	Kaolin
dl	Dolomite
lmst	Limestone
cht	Chert
sh	Shale
slst	Siltstone
ark	Arkose
sst	Sandstone
grw	Greywacke
qte	Quartzite
con	Conglomerate
ph	Phyllite
sch	Schist
do	Dolerite
meta-vol	Meta-volcanics

ALTERATION, MINERALISATION ETC

pyc.	Pyritic
ser.	Sericitic
chc.	Chloritic
fe.	Ferruginous
f.	Feldspathic
slt.	Silty
s.	Sandy
cht.	Cherty
sil.	Siliceous
phc.	Phyllitic

STRUCTURE and TOPOGRAPHY

- Outcrop boundary
- Outcrop boundary inferred, position approx.
- Swamp margin
- Rock unit boundary
- Rock unit boundary position approx.
- Photo lineament — faults and strike trace of lithological boundary.
- F — Fault showing down-thrown side
- F — Fault position approximate
- Geological trend lines with dip direction.
- Fold axis, Fold axis with direction of plunge
- Minor fold axis
- Antiform , synform
- 20 — Dip and strike of bedding
- 25 — Dip and strike of schistosity
- 66 — Dip and strike of cleavage
- Facing (direction of 'younging')
- 60 — Dip of crenulated, contorted bedding
- Qv — Quartz vein
- Quartz injection zone
- Topographic contour
- River, creek
- Roads, tracks
- x ESR2529 — Sample location and number
- o qrk — Auger hole collar with bottom of hole geology
- Percussion drill hole Section Lines-1976

PLATE 3

REVISED - Oct 4, 1976

NORANDA AUSTRALIA LTD.

EXPLORATION LICENCE No 120 (CR 77/338)

SOUTH ALLIGATOR RIVER

Northern Territory

BARRAMUNDIE CREEK

GEOLOGICAL FACT & INTERPRETATION

SCALE - 1: 25000

500 0 500 1000 1500 2000 2500 metres

2000 1000 0 2000 4000 6000 8000 feet

DATE: Feb., 1976	GEOLOGY: J. Wright	DRAWN: E.A.B
APPROVED: C. P. Pedersen	DRAWING No. 414-C-789	

8000 E

8500 E

9000 E

6000 N

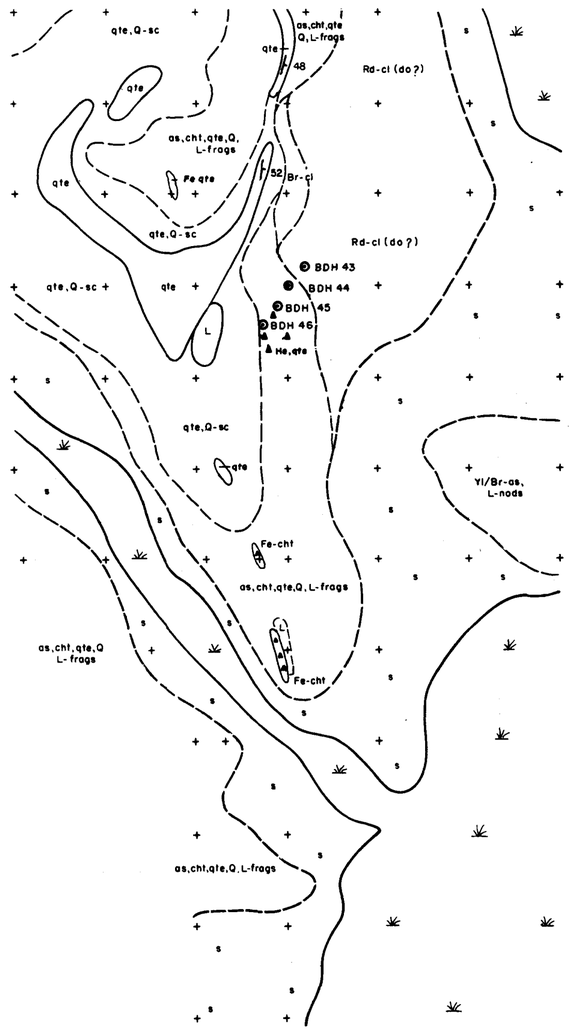
5500 N

5000 N

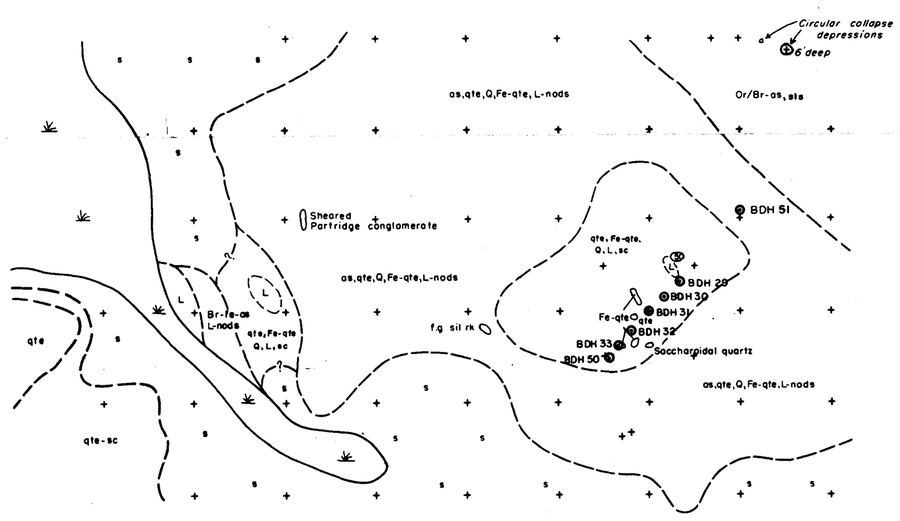
4500 N

4000 N

ANOMALY 8500 E - 5500 N



ANOMALY 9000 E - 4000 N



—LEGEND—

SOILS and ROCK TYPES

s	Sand
as	Sandy soil
sls	Silty soil
cl	Clay
sc	Scree
L	Laterite

qte	Quartzite
Q	Quartz
cht	Chert
Fe	Ferruginous
fe	Iron
He	Hematite
do	Dolerite

COLOURS and ABBREVIATIONS

Yl	Yellow
Br	Brown
Rd	Red
Or	Orange

Br	Breccia
frags	Fragments
nods	Nodules
f.g	Fine grained
sil	Siliceous
rk	Rock

BOUNDARIES etc

- Geological boundary
- Geological boundary approx
- Outcrop boundary
- Breccia
- Swamp, Sample location
- Radiometric spot high in cps
- BDH 31 - Percussion drill hole location and number

PLATE 4

NORANDA AUSTRALIA LTD.

EXPLORATION LICENCE No. 120
SOUTH ALLIGATOR RIVER
Northern Territory
BARRAMUNDIE CREEK
GEOLOGICAL MAP - 1976 FOLLOW UP GRIDS

SCALE 1:5000

100 50 0 100 200 300 400 500 metres

500 250 0 500 1000 1500 feet

DATE Oct 27, 1973	GEOLOGY: J.H. Wright	DRAWN N.S.
APPROVED C.P. Pedersen	DRAWING No 414-C-796	

8000 E

8500 E

9000 E

N

ANOMALY 8500 E - 5500 N

6000 N

+23 +14 +14 +25 +14

+18 +16 +14 +13 +15 +18

+16 +25 +31 +19 +14 +19 +28

+16 +21 +21 +38 +12 +19 +25

+14 +16 +30 +34 +26 +14 +19

5500 N

+20 +18 +20 +12 +20 +16

+22 +21 +18 +23 +10 +20

+10 +24 +20 +10

+38 +17 +12

+28 +20

5000 N

+18 +26

+20 +20

4500 N

ANOMALY 9000 E - 4000 N

+14 +15 +15 +16 +23 +50 +26 +15

+14 +18 +22 +22 +21 +8 +11 +18

+13 +23 +23 +22 +19 +20 +18 +16

+26 +26 +50

4000 N

+7 +40 +24 +14 +15 +18 +25 +11 +16

+20 +16

+13 +20 +14 +13 +15 +24 +13 +20

+12 +12 +8 +10 +22 +14 +15 +10 +10

—LEGEND—

+23 Radiometric station and reading in cps

Instrument : Spectrometer GIS-3 No 208/198

PLATE 5

NORANDA AUSTRALIA LTD.

EXPLORATION LICENCE No 120
SOUTH ALLIGATOR RIVER
Northern Territory
BARRAMUNDIE CREEK
RADIOMETRIC MAP - 1976 FOLLOW UP GRIDS

SCALE 1:5000

100 50 0 100 200 300 400 500 metres

500 250 0 500 1000 1500 feet

DATE: Oct 26, 1976	COMPILED: J.H. Wright	DRAWN N.S.
APPROVED C.P. Pedersen	DRAWING No 414-D-798	

8000 E

8500 E

9000 E

N

6000 N

5500 N

5000 N

4500 N

4000 N

ANOMALY 8500E - 5500N

1975 AUGER TRAVERSE LINE 18

50806 + 28,20,28 / 34,20 / 4
50807 + 6,10.8 / 24,10 / 1
50808 + 10,8,20 / 30,12 / 2
50809 + 20,54,70 / 70,28 / 5
50810 + 40,20,32 / 36,20 / X

50805 + 28,36,34 / 36,16 / 5
50804 + 6,14,18 / 18,8 / X
50803 + 6,10,16 / 20,10 / 1
50802 + 20,8,32 / 30,24 / 1
50801 + 20,16,28 / 28,20 / 2
50800 + 26,46,36 / 42,30 / 5

ESR 2539 - 22,160,280 / 70,60 / 14

50793 + 20,60,54 / 40,10 / 6
50794 + 14,66,26 / 36,8 / 2
50795 + 32,80,140 / 70,28 / 14
50796 + 8,14,22 / 36,12 / 4
50797 + 20,22,22 / 32,26 / 2
50798 + 26,20,26 / 40,24 / 4
50799 + 58,70,30 / 58,48 / 13

BAH 284

50792 + 18,80,24 / 42,16 / 4
50791 + 14,82,24 / 40,10 / 5
50790 + 24,54,94 / 62,18 / 8
50789 + 32,210,140 / 74,50 / 18
50788 + 28,26,28 / 60,22 / 5
50787 + 40,80,32 / 64,40 / 7
50786 + 54,56,22 / 64,60 / 9

50779 + 22,34,16 / 36,18 / 6
50780 + 16,34,36 / 34,14 / 8
50781 + 170,30,38 / 40,18 / 11
50782 + 36,38,66 / 44,20 / 7
50783 + 30,88,60 / 60,60 / 4
50784 + 28,46,36 / 60,34 / 4
50785 + 40,38,22 / 56,44 / 7

50778 + 36,60,74 / 40,24 / 7
50777 + 38,38,36 / 32,14 / 5
50776 + 28,8,26 / 32,20 / 4
50775 + 68,34,50 / 40,42 / 7
50774 + 56,68,28 / 40,76 / 11
50773 + 78,52,26 / 40,70 / 7

ESR 2538 - 66,80,140 / 58,28 / 13

50766 + 62,80,120 / 74,32 / 4
50767 + 54,74,44 / 66,40 / 7
50768 + 38,240,130 / 60,56 / 4
50769 + 84,26,72 / 60,170 / 14
50770 + 42,30,24 / 42,30 / 4
50771 + 74,140,38 / 52,112 / 12
50772 + 120,44,26 / 58,140 / 14

50765 + 36,26,30 / 46,20 / 2
50764 + 82,140,58 / 50,62 / 8
50763 + 42,28,22 / 60,36 / 5

50760 + 48,210,82 / 62,60 / 3
50761 + 32,34,22 / 44,28 / 5
50762 + 38,50,44 / 56,28 / 8

50759 + 28,50,78 / 52,34 / 5
50758 + 56,48,52 / 54,52 / 11

50756 + 26,32,22 / 40,30 / 1
50757 + 46,48,26 / 50,54 / 6

50755 + 26,24,24 / 42,28 / 2
50754 + 40,62,36 / 64,52 / 5

1975 REGIONAL TRAVERSE LINE 8500 E

ANOMALY 9000 E - 4000 N

1975 AUGER TRAVERSE LINE 11B

50747 + 16,20,10 / 30,14 / 1
50748 + 14,26,10 / 32,20 / 2
50749 + 22,58,50 / 32,20 / 4
50750 + 10,28,36 / 58,12 / 2
50751 + 12,20,32 / 66,30 / 2
50752 + 14,24,32 / 68,28 / 4
50753 + 28,200,64 / 78,70 / 8

ESR 2537 - 42,22,420 / 98,70 / 8

50746 + 4,10,10 / 22,10 / 1
50745 + 6,4,12 / 58,12 / X
50744 + 32,60,38 / 66,28 / 4
50743 + 30,88,60 / 60,20 / 1
50742 + 50,290,180 / 58,20 / 1
50741 + 8,50,16 / 70,10 / X
50740 + 12,14,18 / 54,10 / X
50739 + 14,28,22 / 54,20 / 1

50731 + 10,10,12 / 78,18 / X
50732 + 4,6,12 / 70,8 / X
50733 + 40,36,64 / 68,34 / 7
50734 + 50,56,160 / 78,28 / 2
50735 + 48,70,140 / 70,20 / 9
50736 + 34,140,116 / 64,22 / X
50737 + 22,60,80 / 70,18 / 1
50738 + 16,20,20 / 46,16 / 2

ESR 2536 - 100,170,840 / 94,30 / 4

50702 + 110,170,150 / 56,20 / 2
50703 + 46,180,130 / 56,24 / 4

50730 + 6,10,12 / 74,8 / X
50729 + 32,64,56 / 78,38 / 9
50728 + 16,36,62 / 96,22 / 6
50727 + 26,58,90 / 80,12 / 1
50726 + 20,40,210 / 48,16 / 1
50725 + 28,94,88 / 60,16 / X
50701 + 120,150,94 / 54,24 / 1
50724 + 14,50,36 / 30,10 / X
50723 + 36,110,300 / 40,20 / 4

48,240,510 - ESR 2535 / 90,66 / 8

50705 + 56,130,220 / 66,34 / 5
50704 + 22,64,28 / 70,14 / 1

50715 + 6,8,12 / 50,10 / X
50716 + 10,28,12 / 48,10 / 2
50717 + 26,170,120 / 96,16 / 5
50718 + 20,120,92 / 76,12 / 2
50719 + 12,74,16 / 62,10 / 1
50720 + 20,72,116 / 64,20 / 2
50706 + 100,400,120 / 64,30 / 6
50721 + 20,66,14 / 80,10 / 2
50722 + 28,86,140 / 50,20 / 2

130,140,580 - ESR 2534 / 150,42 / 6
ESR 2533 - 66,150,500 / 160,116 / 4

50714 + 8,24,20 / 50,8 / 1
50713 + 10,64,10 / 50,8 / X
50712 + 10,38,12 / 44,10 / 4
50711 + 8,22,10 / 48,10 / 1
50710 + 10,30,10 / 40,10 / X
50707 + 24,150,24 / 48,20 / 5
50708 + 12,26,10 / 40,10 / 1
50709 + 14,32,14 / 42,10 / X

1975 REGIONAL TRAVERSE LINE 8500 E

— LEGEND —

50753 + — Soil sample location and number (all numbers prefixed by ESS)

● ESR 2536 — Rock chip sample location and number

⊕ — Track etch / soil sample location - 1975 survey

O BAH 284 — Auger drill hole location and number - 1975 survey

16,20,20 / 46,16 / 2 — Assay results in ppm arranged as follows-
Cu, Pb, Zn
Ni, Co
U_3O_8

PLATE 6

NORANDA AUSTRALIA LTD.

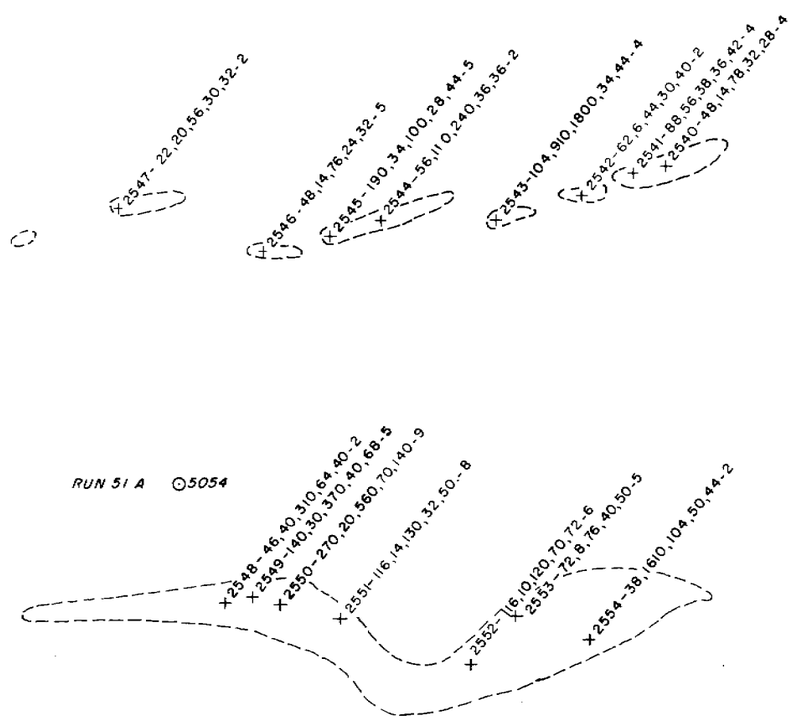
EXPLORATION LICENCE No 120
SOUTH ALLIGATOR RIVER
Northern Territory
BARRAMUNDIE CREEK

SAMPLE LOCATIONS and ASSAY RESULTS - 1976 FOLLOW UP GRIDS

SCALE 1:5000

100 50 0 100 200 300 400 500 metres
500 250 0 500 1000 1500 feet

DATE: Oct 27, 1976	COMPILED: J. H. Wright	DRAWN: N.S.
APPROVED: C.P. Pedersen	DRAWING No 414-E-797	



— LEGEND —

Outcrop boundary - Basal Koolpin shale, siltstone and chert

+2545 Rock chip sample location and number (All numbers prefixed by ESR)

-38,16,120,40,10-2 Assay results in ppm arranged as follows- -Cu, Pb, Zn, Ni, Co - U_3O_8

⊙5054 Photo principle point and number

PLATE 7

NORANDA AUSTRALIA LTD.

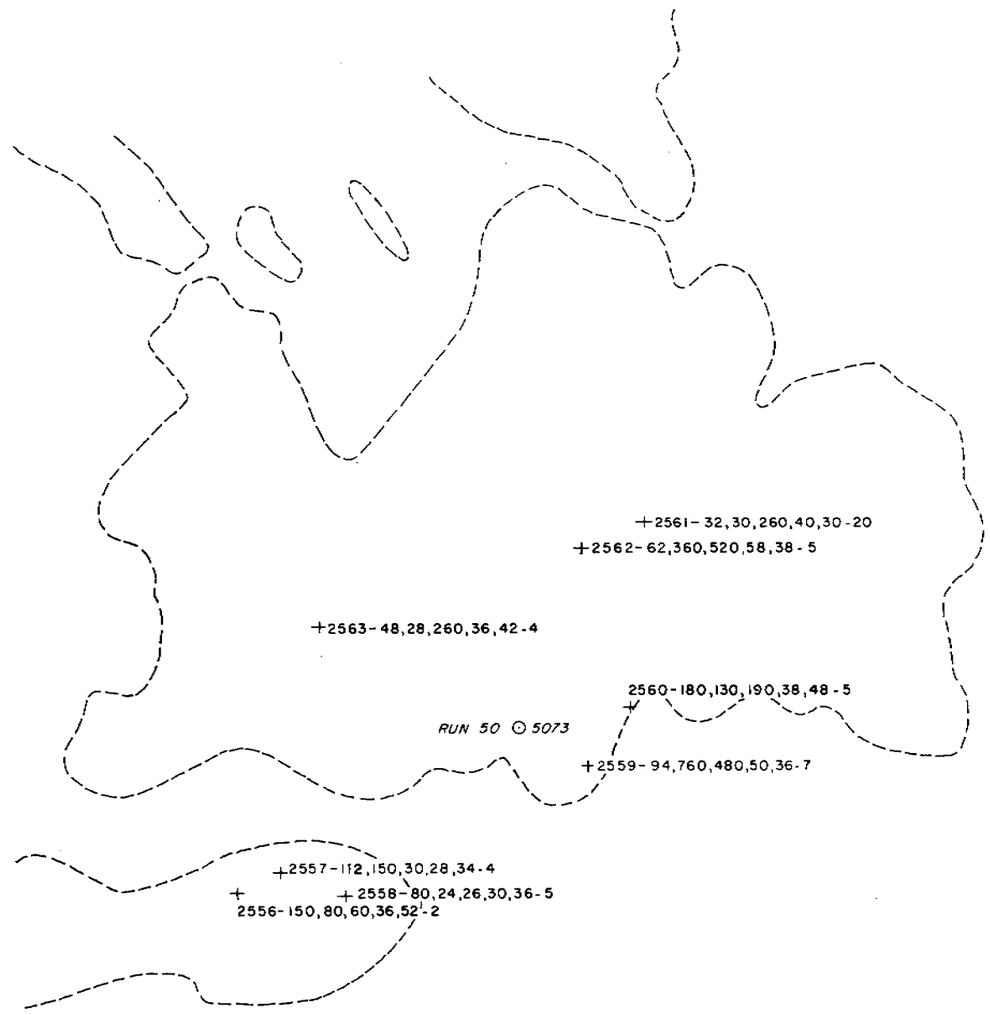
EXPLORATION LICENCE No120
South Alligator River
Northern Territory

BASAL KOOLPIN TRAVERSE No 1

ROCK CHIP SAMPLE LOCATIONS and ASSAY RESULTS

PHOTO SCALE - 1:16700 approx.

DATE: May, 1976	COMPILED: J. H. Wright	DRAWN: N.S.
APPROVED: C. P. Pedersen	DRAWING No. 414-E-792	



N

— LEGEND —

Outcrop boundary - Basal Koolpin shale, siltstone and chert

x2542 Rock chip sample location and number (All numbers prefixed by ECR)

-62,36,57,20,17-5 Assay results in ppm arranged as follows - -Cu, Pb, Zn, Ni, Co - U_3O_8

⊙5054 Photo principle point and number

PLATE 8

NORANDA AUSTRALIA LTD.

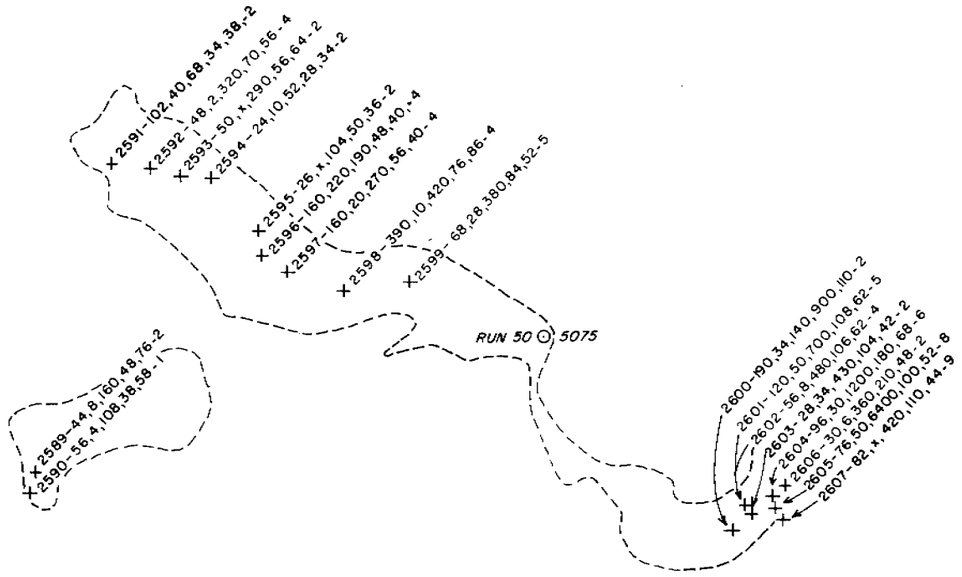
EXPLORATION LICENCE No120
South Alligator River
Northern Territory

BASAL KOOLPIN TRAVERSE No. 2

ROCK CHIP SAMPLE LOCATIONS and ASSAY RESULTS

PHOTO SCALE - 1:16700 approx

DATE: May 1976	COMPILED: J H Wright	DRAWN: N S
APPROVED: C P Pedersen	DRAWING No 414-E-793	



N

— LEGEND —

Outcrop boundary - Basal Koolpin shale, siltstone and chert

+2599 Rock chip sample location and number (All numbers prefixed by ESR)

-82,x,34,10,16-1 Assay results in ppm arranged as follows- -Cu,Pb,Zn,Ni,Co-U_3O_8

⊙5075 Photo principle point and number

PLATE 9

NORANDA AUSTRALIA LTD.

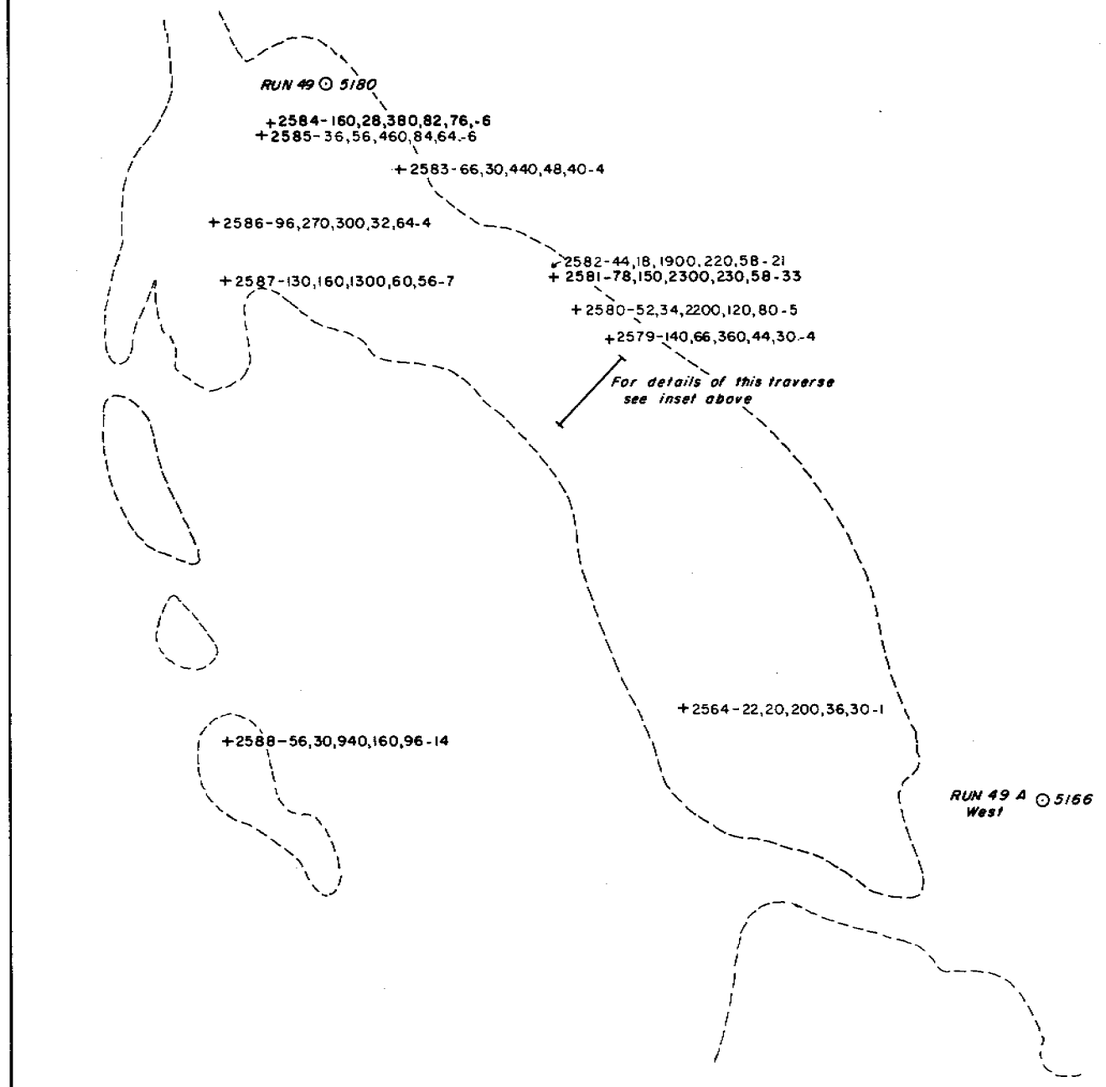
EXPLORATION LICENCE No120
South Alligator River
Northern Territory

BASAL KOOLPIN TRAVERSE No 3

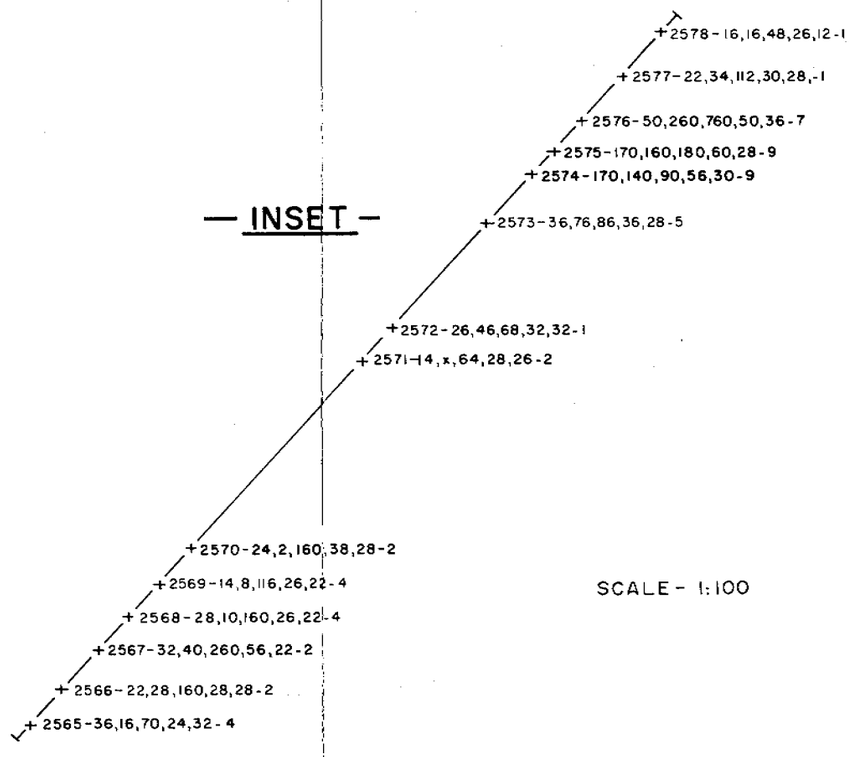
ROCK CHIP SAMPLE LOCATIONS and ASSAY RESULTS

PHOTO SCALE - 1:16700 approx.

DATE : May , 1976	COMPILED: J.H. Wright	DRAWN : N.S.
APPROVED: C.P. Pedersen	DRAWING No. 414-E-794	



— INSET —



SCALE - 1:100

— LEGEND —

Outcrop boundary - Basal Koolpin shale, siltstone and chert

x2542 Rock chip sample location and number

-36,16,70,24,32-4 Assay results in ppm arranged as follows- -Cu, Pb, Zn, Ni, Co- U_3O_8

⊙5054 Photo principle point and number

PLATE 10

NORANDA AUSTRALIA LTD.

EXPLORATION LICENCE No120
South Alligator River
Northern Territory

BASAL KOOLPIN TRAVERSE No. 4

ROCK CHIP SAMPLE LOCATIONS and ASSAY RESULTS

PHOTO SCALE - 1:6700 approx

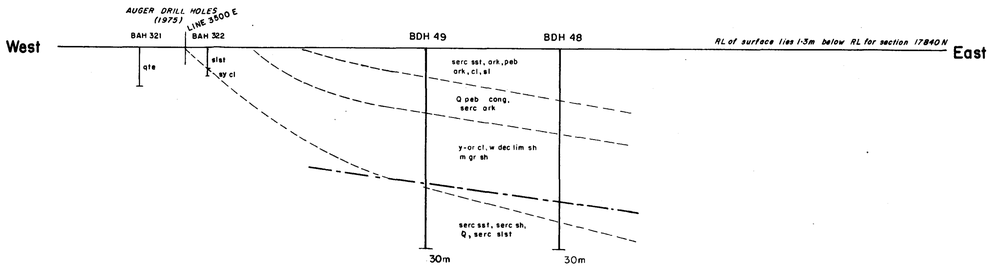
DATE May 1976	COMPILED: J H Wright	DRAWN: N S
APPROVED C P Pedersen	DRAWING No. 414-E-795	

BARRAMUNDIE AREA

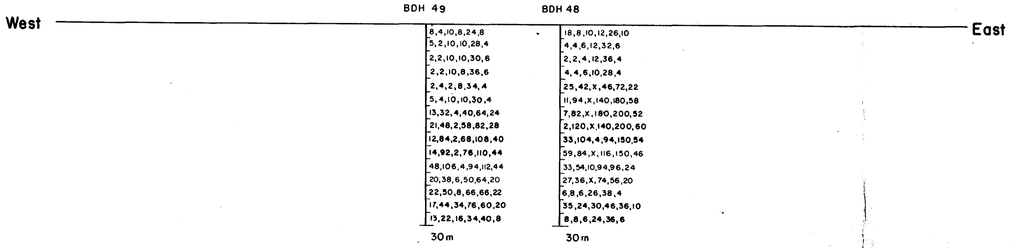
ANOMALY 77 SOUTH - SECTION 17890N

PERCUSSION DRILLING

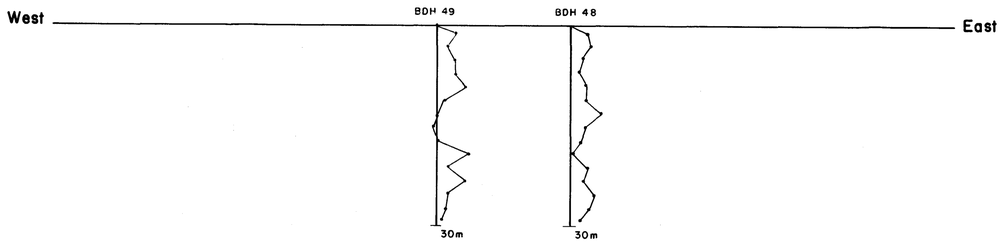
— GEOLOGICAL SECTION —



—ASSAY SECTION—



— RADIOMETRIC SECTION —



— LEGEND —

Soil and Rock Types

cl, clst	Clay, claystone
sd, sy	Sand, sandy
sl, sly	Silt, silty
slst	Siltstone
sh	Shale
ark, arkc	Arkose, arkosic
cong	Conglomerate
qte, O-qte	Quartzite, ortho-quartzite
sst	Sandstone

Textures

peb	Pebble/s

Colours

gr	Grey
or	Orange
y	Yellow

Minerals

lim	Limonite
Q	Quartz

Alteration

dec	Decomposed
serc	Sericitic

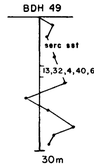
Miscellaneous

m	Minor
w	With

Boundaries etc

— — —	Geological interpretation
—·—	Approx. water table

DRILL HOLE DATA



Drill hole location and number

Geology

Assay results in ppm arranged in the following order- U_3O_8, Cu, Pb, Zn, Ni, Co

Radiometric reading below background

Radiometric reading above background

Depth of hole in metres

NOTE: *Radiometric value plotted is bulk sample reading on the ground minus background reading in cps*

Scale- 1cm = 10 cps

INSTRUMENT: GIS-3 Spectrometer N° 208-198

PLATE II

NORANDA AUSTRALIA LTD.

EXPLORATION LICENCE N° 120
Northern Territory

ANOMALY 77 SOUTH - SECTION 17890 N

GEOLOGY, ASSAYS and RADIOMETRICS

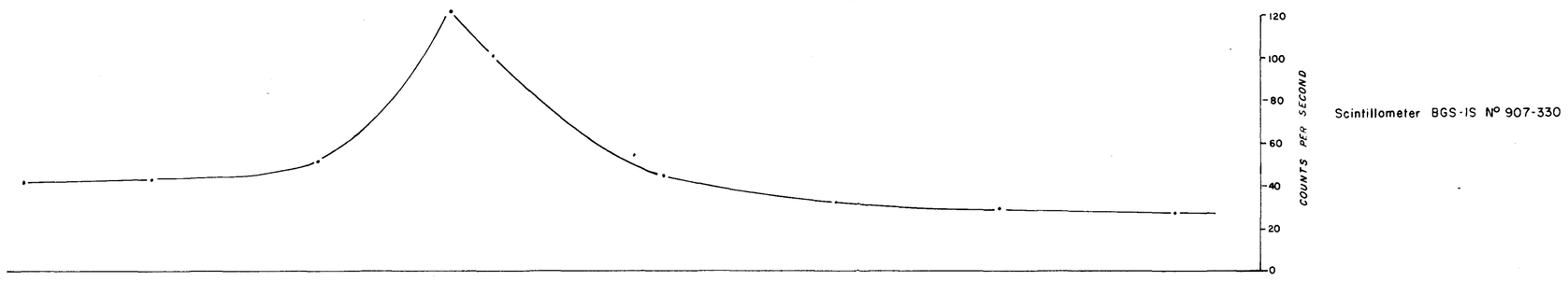
SCALE 1:500

10 5 0 10 20 30 40 metres
50 25 0 50 100 feet

DATE : Nov 9, 1976	GEOLOGY : J.H. Wright	DRAWN: N.S.
APPROVED : C.P. Pedersen	DRAWING N° 414-C-801	

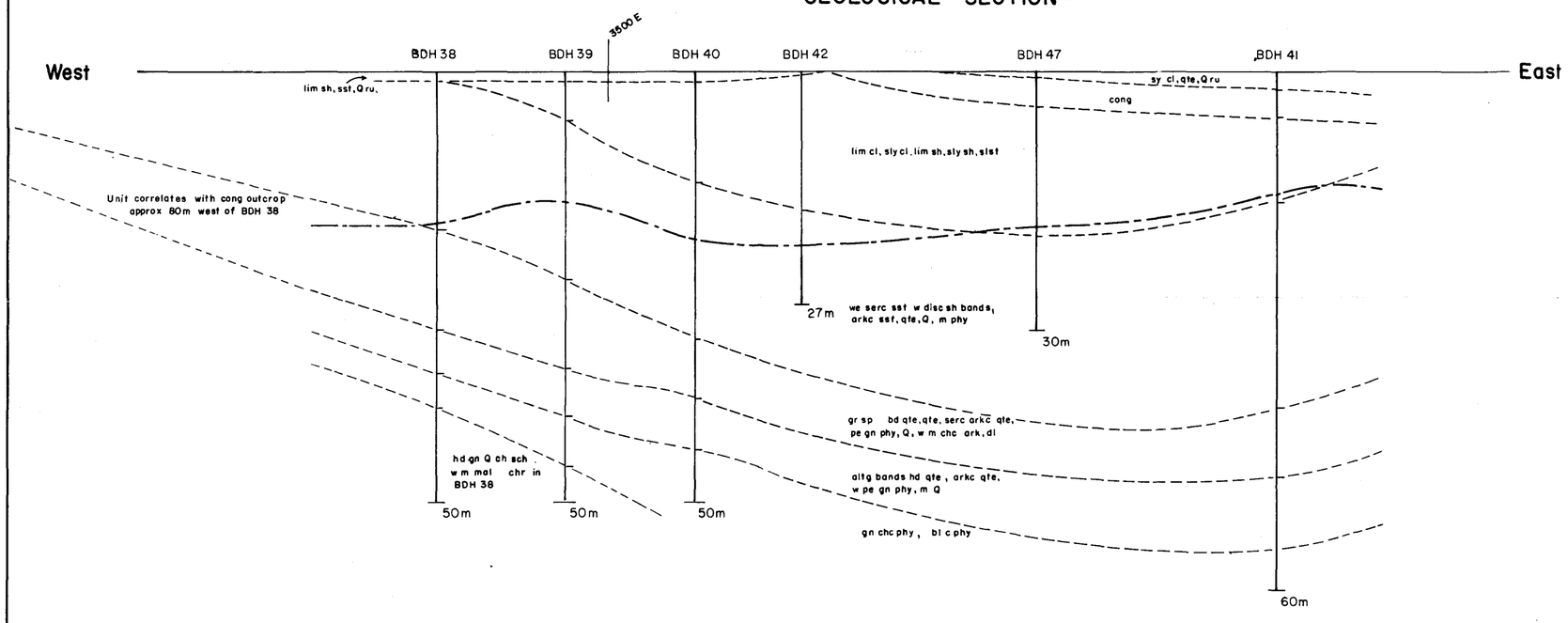
BARRAMUNDIE AREA
ANOMALY 77 SOUTH - SECTION 17840 N
PERCUSSION DRILLING

SURFACE RADIOMETRIC — PROFILE —

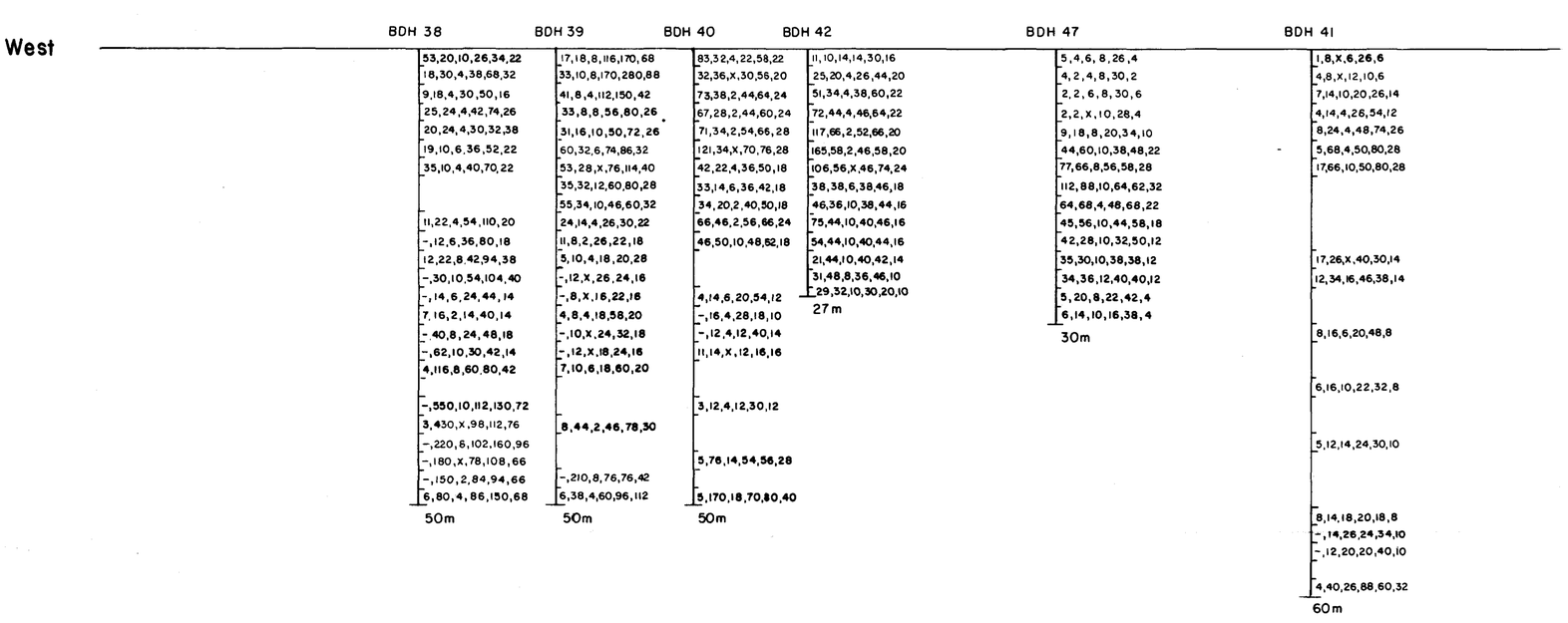


Scintillometer BGS-IS Nº 907-330

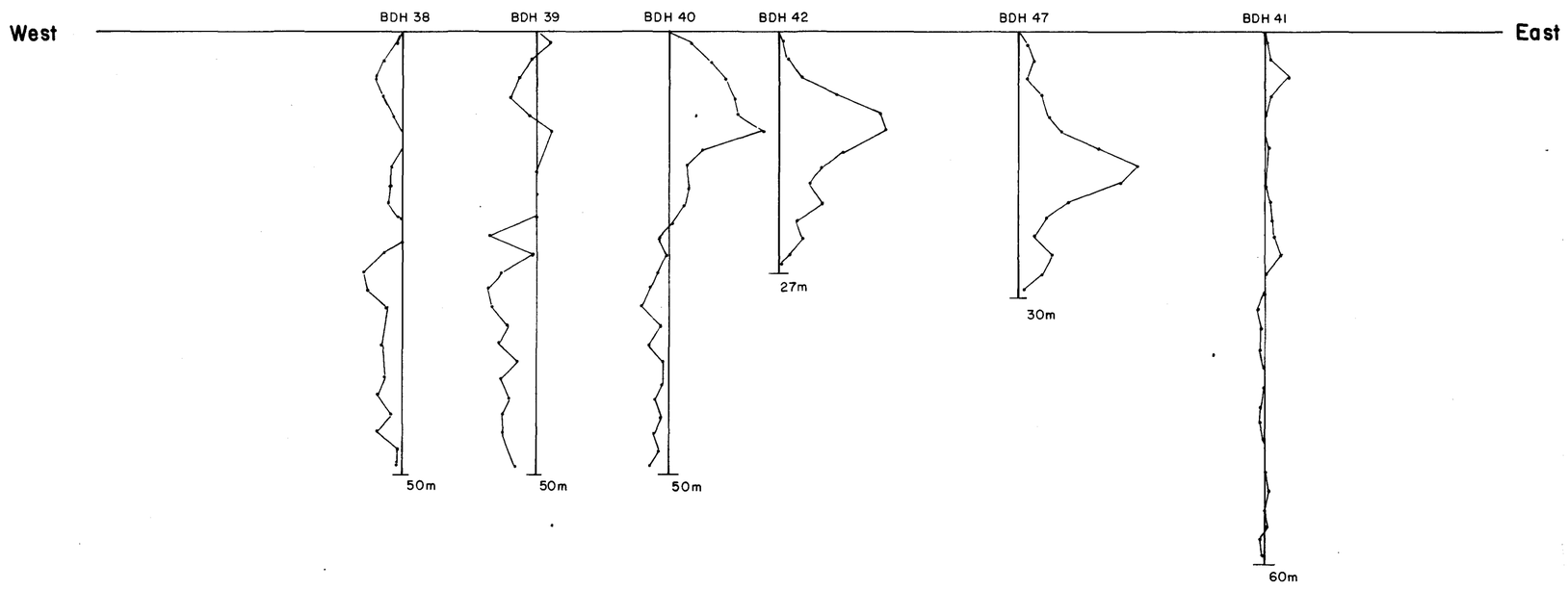
— GEOLOGICAL SECTION —



— ASSAY SECTION —



— RADIOMETRIC SECTION —



— LEGEND —

Soil and Rock Types	
cl, clst	Clay, claystone
sd, sy	Sand, sandy
sl, sly	Silt, silty
c	Carbonaceous
chc	Chloritic
phy	Phyllite
sch	Schist
slst	Siltstone
sh	Shale
ark, arkc	Arkose, arkosic
cong	Conglomerate
qte, O-qte	Quartzite, ortho-quartzite
sst	Sandstone

Minerals	
ch	Chlorite
feld	Feldspar
lim	Limonite
Q	Quartz
dl	Dolomite
chr, mal	Chrysocolla, malachite

Alteration	
serc	Sericitic
we	Weathered

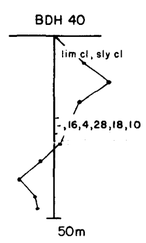
Miscellaneous	
altg	Alternating
disc	Discontinuous
hd	Hard
m	Minor
rk	Rock
w	With

Textures	
bd	Banded
ru	Rubble
sp	Spotted

Colours	
bl	Black
gn, gr	Green, grey
pe	Pale

Boundaries etc	
— — —	Geological interpretation
—— - ——	Approx water table

DRILL HOLE DATA



Drill hole location and number

Geology

Radiometric reading above background

Assay results in ppm arranged in the following order U_3O_8, Cu, Pb, Zn, Ni, Co (- means element not assayed)

Radiometric reading below background

Depth of hole in metres

NOTE : *Radiometric value plotted is bulk sample reading on the ground minus background reading in cps*
Scale - 1cm = 50cps

INSTRUMENT : GIS-3 Spectrometer Nº 208-198

PLATE 12

NORANDA AUSTRALIA LTD.

EXPLORATION LICENCE Nº 120
Northern Territory

ANOMALY 77 SOUTH - SECTION 17840 N
GEOLOGY, ASSAYS and RADIOMETRICS

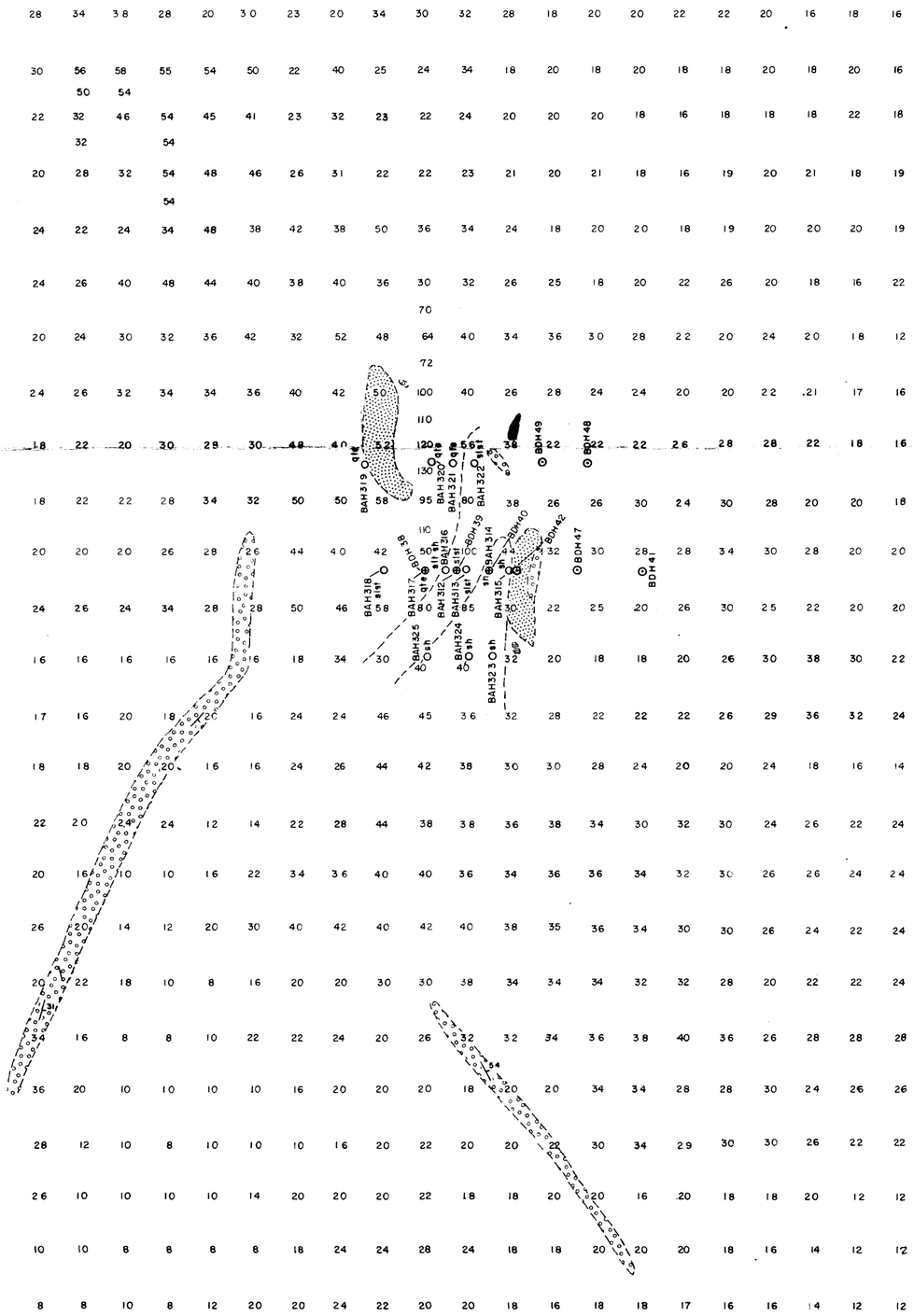
SCALE 1:500
10 5 0 10 20 30 40 metres
50 25 0 50 100 feet

DATE : Nov 9, 1976	GEOLOGY : J.H. Wright	DRAWN : N.S
APPROVED : C. P. Pedersen	DRAWING Nº 414-C-800	

3500E

1800N

17500N



N

LEGEND

- Quartzite rubble
- Conglomerate
- Siltstone
- Quartz vein material
- Geological boundary
- sh OBAH212 — Auger hole location with number and geology
- 46 — Radiometric readings in c.p.s. Instrument – Spectrometer BGS – IS No 907-330
- Dip and strike of bedding

AUGER HOLE GEOLOGY

sh	Shale
slt sh	Silty shale
slst	Siltstone
qte	Quartzite

BAH 317 ⊕ BDH 38 — Percussion and Auger drill hole location and number (Percussion drilling 1976)

⊙ BDH 41 — Percussion drill hole location and number

PLATE 13

NORANDA AUSTRALIA LTD.

EXPLORATION LICENCE No. 120
SOUTH ALLIGATOR RIVER
Northern Territory
ANOMALY 77 SOUTH
GEOLOGY, RADIOMETRICS & AUGER HOLE LOCATIONS

SCALE – 1:2000

25 0 50 100 150 metres
100 0 100 200 300 400 500 feet

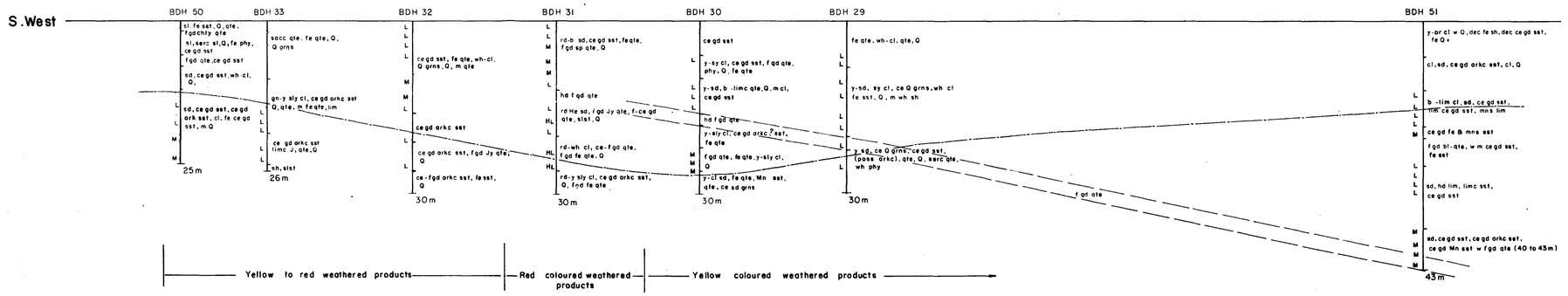
DATE: Jan., 1976	COMPILED: J Wright	DRAWN: E.A.B
APPROVED: C.P. Pedersen	DRAWING No: 414-C-772	

BARRAMUNDIE AREA

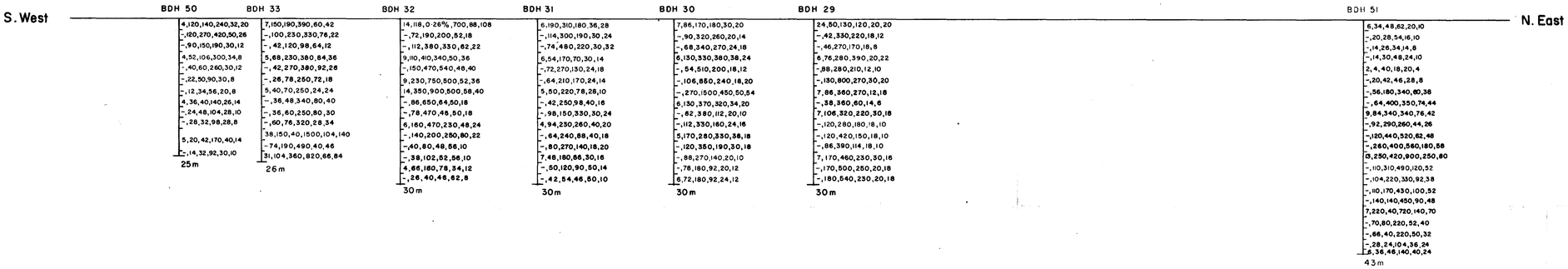
ANOMALY 9000E 4000N

PERCUSSION DRILLING

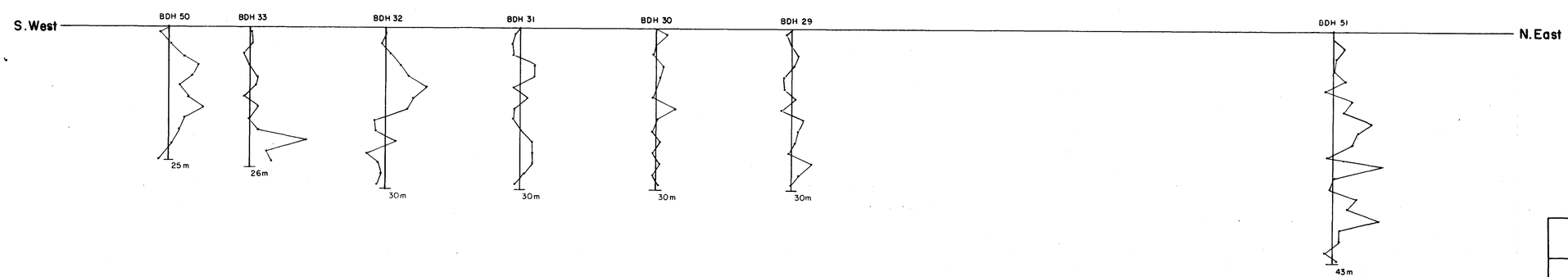
— GEOLOGICAL SECTION —



ASSAY SECTION



RADIOMETRIC SECTION



— LEGEND —

Soil and Rock Types

cl, clst	Clay, claystone
sd, sy	Sand, sandy
sl, sty	Silt, silty
cht, chty	Chert, cherty
phy	Phyllite
slst	Siltstone
sh	Shale
ark, arkc	Arkose, arkosic
mns	Manganiferous
qte, Q-qte	Quartzite, Ortho-quartzite
sst	Sandstone

Textures

gd, grns	Grained, grains
sacc	Sachoroidal
sp	Spotted

Colours

b, bl	Brown, black
gn	Green
or	Orange
r, rd	Red
wh	White
y	Yellow

Minerals

ch	Chlorite
lim	Limonite
Mn	Manganese
Q	Quartz

Structure

v	Vein / s

Alteration

dec	Deconposed
fe	Ferruginous
He	Hematitic
J, Jy	Jasper, Jaspery
limc	Limonitic
serc	Sericitic

Miscellaneous

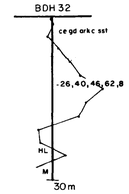
ce	Coarse
f	Fine
hd	Hard
m	Minor
poss	Possibly
w	With

Boundaries etc

— — — Geological interpretation

——·—— Water table approx

DRILL HOLE DATA



Drill hole location and number

Geology

Radiometric reading above background

Assay results in ppm arranged in the following order U_3O_8, Cu, Pb, Zn, Ni, Co (- means element not assayed)

Radiometric reading below background

Zone containing Hematite and Limonite

Zone containing Manganese

Depth of hole in meters

NOTE : *Radiometric value plotted is bulk sample reading on the ground minus background reading in cps*

Scale : 1cm = 50 cps

INSTRUMENT : GIS - 3 Spectrometer N° 208-198

PLATE 14

NORANDA AUSTRALIA LTD.

EXPLORATION LICENCE N° 120
Northern Territory

ANOMALY 9000 E — 4000 N
GEOLOGICAL, ASSAY and RADIOMETRIC SECTION

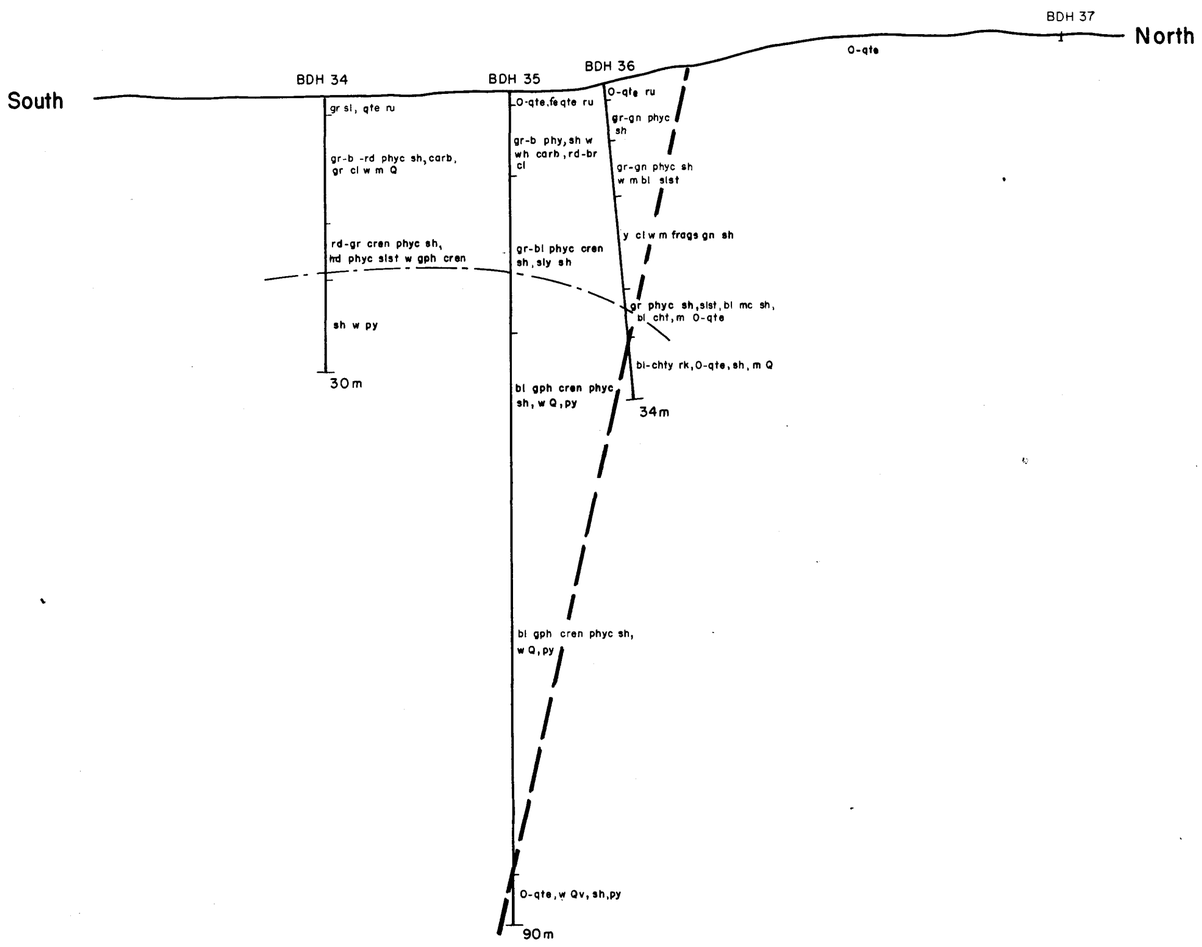
SCALE 1:500

10 5 0 10 20 30 40 metres
50 25 0 50 100 feet

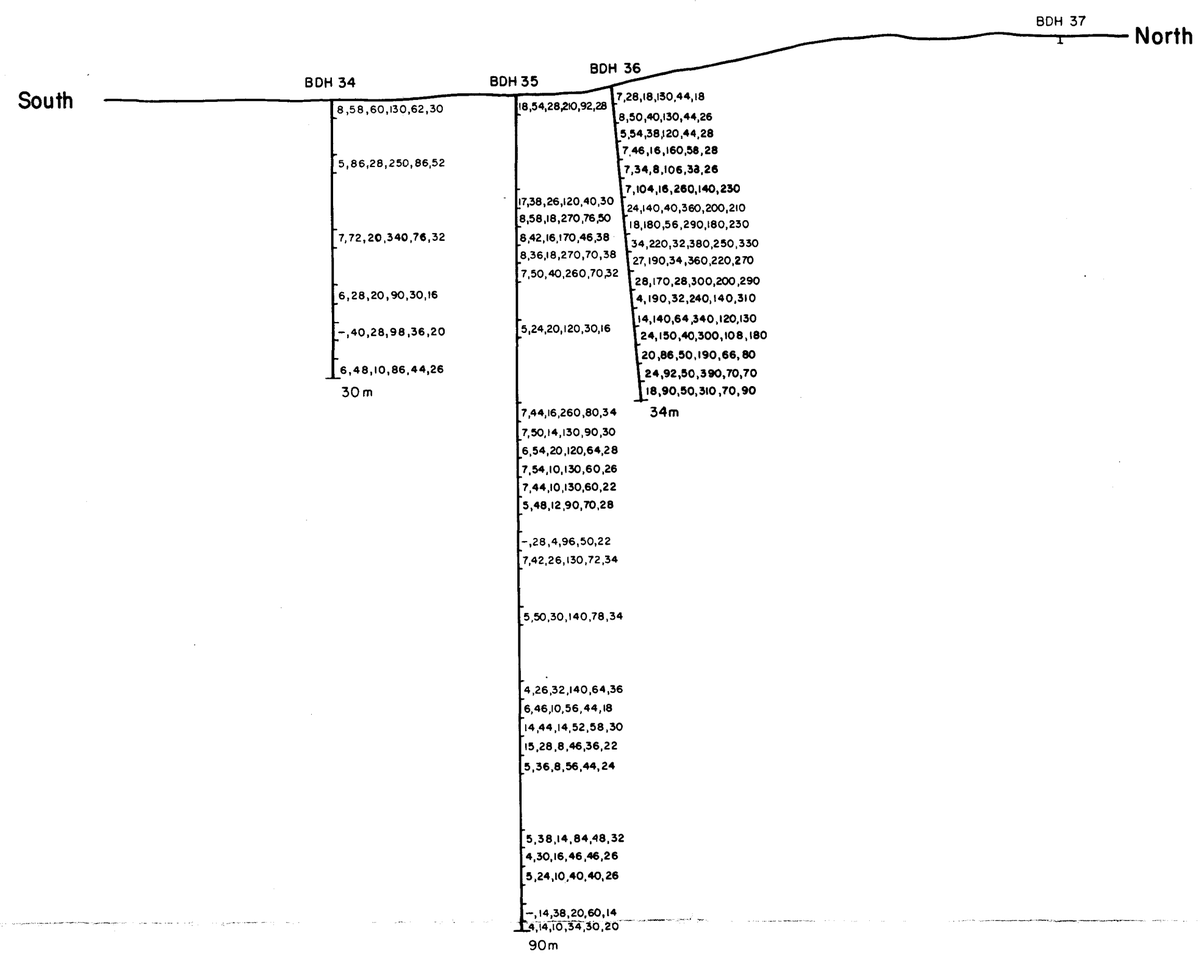
DATE : Nov 9, 1976	GEOLOGY : J.H. Wright	DRAWN : N.S.
APPROVED : C.P. Pedersen	DRAWING N° 414-C-799	

BARRAMUNDIE AREA
TRACK ETCH ANOMALY No I
PERCUSSION DRILLING

—GEOLOGICAL SECTION—



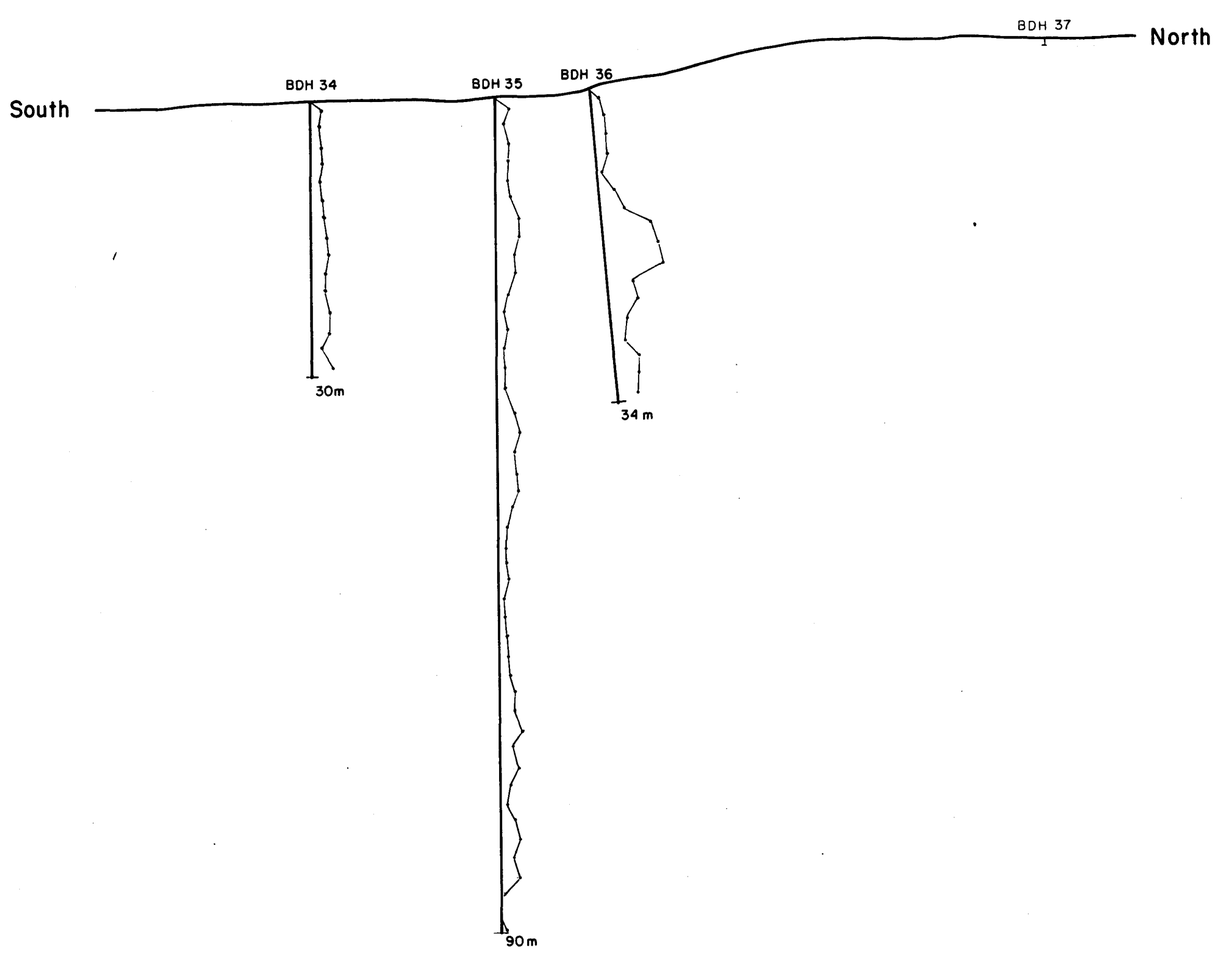
— ASSAY SECTION —



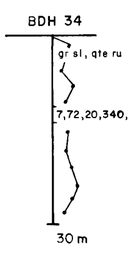
—LEGEND—

Soil and Rock Types		Minerals	
carb	Carbonate	py	Pyrite
cl, clst	Clay, claystone	Q	Quartz
sl, sly	Silt, silty		
cht, chty	Chert, cherty	**Structure**	
gph	Graphitic	cren	Crenulated
phy	Phyllite	phyc	Phyllitic
slst	Siltstone	v	Vein/s
sh	Shale		
mc	Micaceous	**Alteration**	
qte, O-qte	Quartzite, ortho-quartzite	fe	Ferruginous
Textures		**Miscellaneous**	
frags	Fragments	hd	Hard
ru	Rubble	m	Minor
		w	With
Colours		**Boundaries**	
b, bl	Brown, black	—·—	Approx water table
gn, gr	Green, grey	———	Fault
rd	Red		
wh	White		

— RADIOMETRIC SECTION —



DRILL HOLE DATA



Drill hole location and number

Geology

Assay results in ppm arranged in the following order U_3O_8, Cu, Pb, Zn, Ni, Co

Radiometric reading above background

Depth of hole in metres

NOTE: *Radiometric value plotted is bulk sample reading on the ground minus background reading in cps*

Scale - 1cm = 50 cps

INSTRUMENT : GIS-3 Spectrometer N° 208-198

PLATE 15

NORANDA AUSTRALIA LTD.

EXPLORATION LICENCE N°120
Northern Territory

TRACK ETCH ANOMALY No I

GEOLOGICAL, ASSAY and RADIOMETRIC SECTION

SCALE 1:500

10 5 0 10 20 30 40 metres

50 25 0 50 100 feet

DATE: Nov 9, 1976	GEOLOGY: J.H. Wright	DRAWN: N.S.
APPROVED: C.P. Pedersen	DRAWING N° 414-C-803	

7000E

N

6000N

6000N

7000E

LEGEND

bn,cl.s	Brown clay soil	bl.sh	Black shale		Geological boundary
rd,cl.s	Red clay soil (dolerite ?)	fe.sh	Ferruginous shale, shale and lateritic nodule float		Dry stream bed
ss.as	Grey to yellow sandy, silty alluvial soil	LLLL	Hard nodular laterite with shale fragments	BAH292 bl.sh	Auger hole location with number and bottom of hole geology
qte.sc	Quartzite scree	do	Dolerite	22	Radiometric readings in c.p.s Instrument–Spectrometer GIS-3 208-198
slt.sh	Silty shale	f qte(o/c)	Feldspathic quartzite outcrop	25	Radiometric contour and interval
				BDH36	Percussion drill hole location and number (1976)

PLATE 16

NORANDA AUSTRALIA LTD.

EXPLORATION LICENCE Nº 120
SOUTH ALLIGATOR RIVER
Northern Territory
BARRAMUNDIE CREEK AREA – ANOMALY I
GEOLOGY & RADIOMETRICS

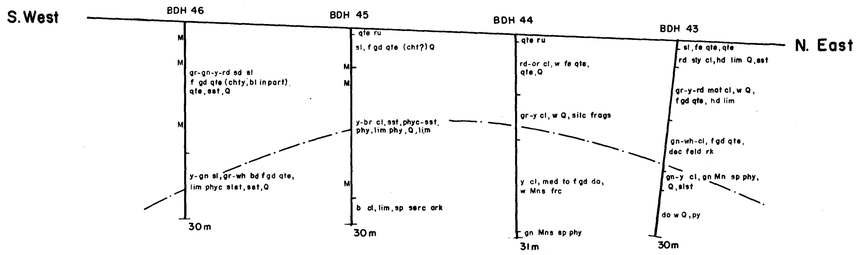
SCALE – 1: 5000

50 0 100 200 300 400 metres
250 0 500 1000 1500 ft

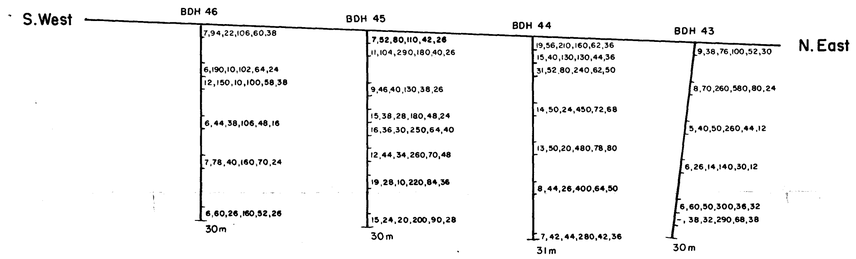
DATE: Dec., 1975	COMPILED: J.H. Wright	DRAWN: E.A.B
APPROVED: C.P. Pedersen	DRAWING Nº 414-C-768	

BARRAMUNDIE AREA
ANOMALY 8500E-5500N
PERCUSSION DRILLING

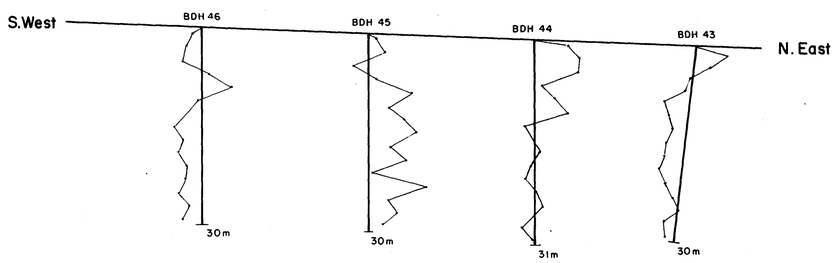
— GEOLOGICAL SECTION —



— ASSAY SECTION —



— RADIOMETRIC SECTION —



NOTE: *Radiometric value plotted is bulk sample reading on the ground minus background reading in cps*

Scale- 1cm = 10 cps

INSTRUMENT: GIS-3 Spectrometer N° 208-198

—LEGEND—

Soil and Rock Types

cl, clst	Clay, claystone
sd, sy	Sand, sandy
sl, sly	Silt, silty
do	Dolerite
cht, chty	Chert, cherty
phy	Phyllite
slst	Siltstone
ark, arkc	Arkose, arkosic
Mns	Manganiferous
qte, O-qte	Quartzite, ortho-quartzite
sst	Sandstone.

Textures

bd	Banded
frags	Fragments
gd, grns	Grained, grains
ru	Rubble
sp	Spotted

Colours

b, bl	Brown, black
gn, gr	Green, grey
rd	Red
y	Yellow

Minerals

feld	Feldspar
lim	Limonite
py	Pyrite
Q	Quartz
Mn	Manganese

Structure

frc	Fractures
phyc	Phyllitic

Alteration

fe	Ferruginous
serc	Sericitic
dec	Decomposed

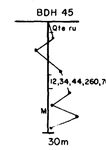
Miscellaneous

f	Fine
med	Medium
rk	Rock
w	With

Boundaries etc

Approx. water table

DRILL HOLE DATA



Drill hole location and number

Geology

Radiometric reading below background

Assay results in ppm arranged in the following order U_3O_8, Cu, Pb, Zn, Ni, Co

Radiometric reading above background

Zone containing Manganese

Depth of hole in metres

PLATE 17

NORANDA AUSTRALIA LTD.

EXPLORATION LICENCE N°120
Northern Territory

ANOMALY 8500E-5500 N

GEOLOGICAL, ASSAY and RADIOMETRIC SECTION

SCALE 1:500

10 5 0 10 20 30 40 metres
50 25 0 50 100 feet

DATE: Nov 9, 1976	GEOLOGY: J.H. Wright	DRAWN: N.S.
APPROVED: C.P. Pedersen	DRAWING N° 414-C-802	

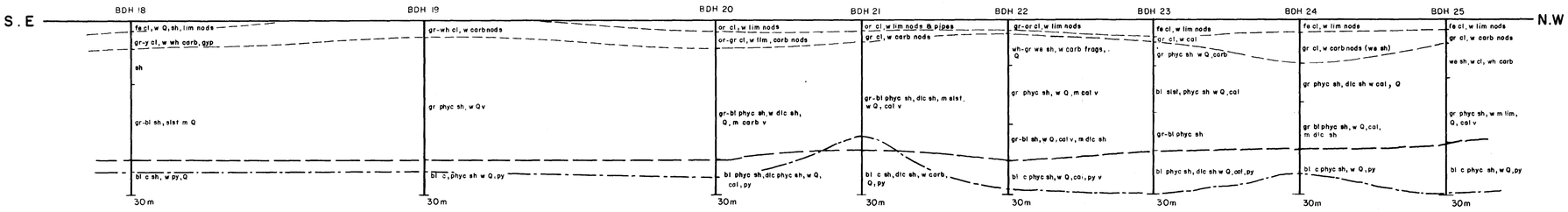
BARRAMUNDIE AREA

TRACK ETCH ANOMALY No II

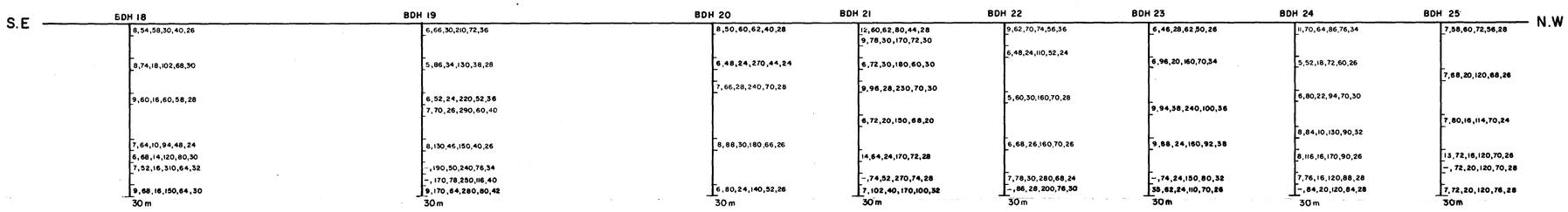
—GEOCHEMICAL—

PERCUSSION DRILLING

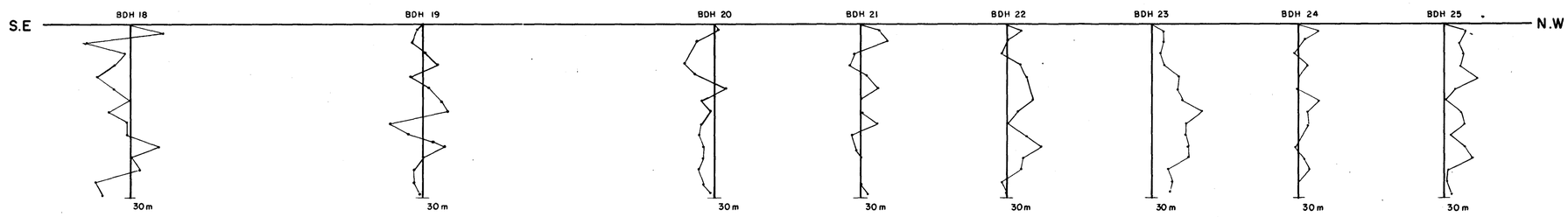
— GEOLOGICAL SECTION —



—ASSAY SECTION—



—RADIOMETRIC SECTION—



—LEGEND—

Soil and Rock Types

carb	Carbonate
cl, clst	Clay, claystone
c	Carbonaceous
dlc	Dolomitic
slst	Siltstone
sh	Shale

Textures

frags	Fragments
nods	Nodules

Colours

bl	Black
gn, gr	Green, grey
or	Orange
wh	White
y	Yellow

Minerals

cal	Calcite
gyp	Gypsum
lim	Limonite
py	Pyrite
Q	Quartz

Structure

phyc	Phyllitic
v	Vein/s

Alteration

fe	Ferruginous
we	Weathered

Miscellaneous

m	Minor
w	With

Boundaries etc

- ———— Geological interpretation
- ——·—— Approx water table
- —— —— Lower limit of bleached shale

DRILL HOLE DATA

- Drill hole location and number
- Geology
- Radiometric reading above background
- Assay results in ppm arranged in the following order U_3O_8, Cu, Pb, Zn, Ni, Co (- means element not assayed)
- Radiometric reading below background
- Depth of hole in metres

NOTE: *Radiometric value plotted is bulk sample reading on the ground minus background reading in cps*

Scale- 1cm = 50 cps

INSTRUMENT: GIS-3 Spectrometer N° 208-198

PLATE 18

NORANDA AUSTRALIA LTD.

EXPLORATION LICENCE N° 120

Northern Territory

TRACK ETCH ANOMALY No II- GEOCHEMICAL

GEOLOGICAL, ASSAY and RADIOMETRIC SECTION

SCALE 1:500

10 5 0 10 20 30 40 metres

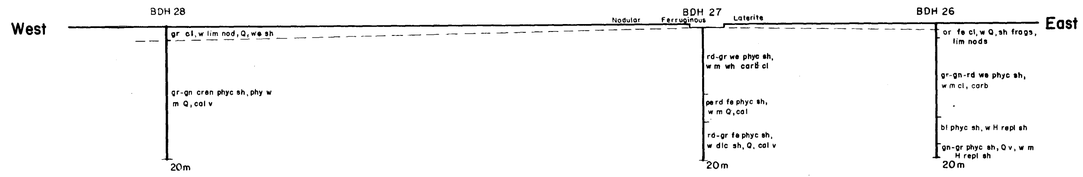
50 25 0 50 100

DATE: Nov 9, 1976	GEOLOGY: J.H. Wright	DRAWN: N.S.
APPROVED: C.P. Pedersen	DRAWING N° 414-C-805	

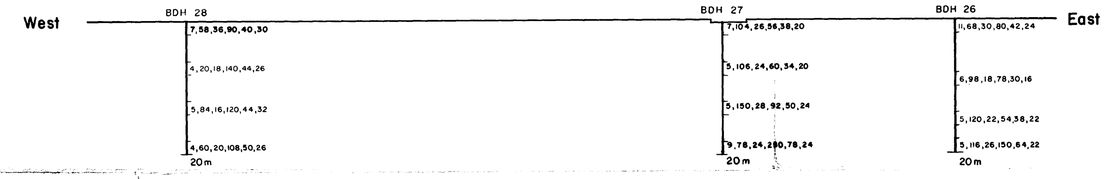
BARRAMUNDIE AREA

TRACK ETCH ANOMALY No II — LATERITE
PERCUSSION DRILLING

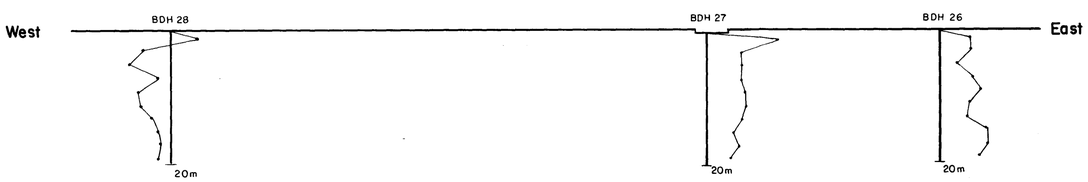
—GEOLOGICAL SECTION—



— ASSAY SECTION —



—RADIOMETRIC SECTION —



—LEGEND—

Soil and Rock Types

carb	Carbonate
cl, clst	Clay, claystone
dlc	Dolomitic
phy	Phyllite
sh	Shale

Minerals

cal	Calcite
H	Hematite
lim	Limonite
Q	Quartz

Textures

frags	Fragments
nods	Nodules

Structure

cren	Crenulated
phyc	Phyllitic
v	Vein/s

Colours

gn, gr	Green, grey
or	Orange
pe	Pale
rd	Red
wh	White

Alteration

fe	Ferruginous
repl	Replacement
we	Weathered

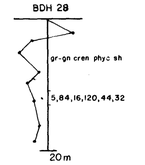
Miscellaneous

m	Minor
w	With

Boundaries etc

———— Geological interpretation

DRILL HOLE DATA



Drill hole location and number

Radiometric reading above background

Geology

Assay results in ppm arranged in the following order- U_3O_8, Cu, Pb, Zn, Ni, Co

Radiometric reading below background

Depth of hole in metres

NOTE: *Radiometric value plotted is the bulk sample reading on the ground minus background in cps*

Scale - 1cm = 10 cps

INSTRUMENT: GIS-3 Spectrometer No 208-198

PLATE 19

NORANDA AUSTRALIA LTD.

EXPLORATION LICENCE N° 120
Northern Territory

TRACK ETCH ANOMALY No II - LATERITE
GEOLOGICAL, ASSAY and RADIOMETRIC SECTION

SCALE 1:500

10 5 0 10 20 30 40 metres
50 25 0 50 100 feet

DATE: Nov 9, 1976	GEOLOGY: J.H. Wright	DRAWN: N.S.
APPROVED: C.P. Pedersen	DRAWING N° 414-C-804	

6000E

7000 E

8000 E

5000N

4000N

3000N

N

— LEGEND —

Undifferentiated soil and scree, rubble and sand

Swamp – drainage

Lp Pisolitic laterite outcrop

sh Shale
hem.sh : Hematitic shale exposure

cht.br Chert breccia

Plp Mt Partridge Formation
sst : Sandstone

20 Radiometric reading in c.p.s
Instrument- Spectrometer GIS-3 No. 208-198

Radiometric contour

Geological boundary

BDH25 Percussion drill hole location and number (1976)

PLATE 20

NORANDA AUSTRALIA LTD.

EXPLORATION LICENCE No. 120
SOUTH ALLIGATOR RIVER
Northern Territory

BARRAMUNDIE CREEK AREA - ANOMALY II
GEOLOGY & RADIOMETRICS

SCALE – 1 : 10 000

100 0 200 400 600 800 m.

500 0 1000 2000 3000 ft.

DATE: Jan. 1976	COMPILED: J.H. Wright	DRAWN E.A.B
APPROVED C. P. Pedersen	DRAWING No 414-D-770	