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ANNUAL REPORT E.L. 1768

6th December, 1980

to

5th December, 1981

Submitted to: Department of Mines and Energy,
Mineral House,
Darwin.

On Behalf of: Euralba Mining Limited.

ASHTON MINING LIMITED,
83-89 Eagle Street,
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March, 1982.

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ABSTRACT

During the period 6th December, 1980 to 5th December, 1981, Ashton Mining Limited carried out a program of drilling aimed at testing the Dorisvale Pault Zone for the development of stratabound sulphide mineralization.

In addition the company undertook a follow-up gravel sampling program within Exploration 1768. The samples were collected in the vicinity of the most promising regional gravel sample sites, at a decreased sampling interval. The samples were processed by the Company's laboratory in Perth.

One sample was found to contain a diamond, while chromite and prycpe were identified in another two samples.

1.00 INTRODUCTION

Exploration Licence 1768 covers an area of 244.52 square miles (633.17 square kilometres) and is located on the Fergusson River 1:250,000 geological sheet.

The licence was initially granted to Secured Loans and Development Limited on the 6th December, 1978, and was renewed for a further twelve months from 6th December, 1979. The licence was renewed for a third term from 6th December, 1980, over a reduced area in accordance with Section 38B(11) of the Mining Act. An application for renewal of the licence for a further twelve months has been lodged with the Department of Mines and Energy.

Exploration Licence 1768 is the subject of a Joint Venture Agreement between Euralba Mining Limited (formerly Secured Loans and Development Limited) and A.O. (Australia) Pty. Ltd. concluded on 31st May, 1979. A.O. (Australia) Pty. Ltd. is wholly owned by Ashton Mining Limited, who is the Manager of the Joint Venture.

A two phase exploration program was undertaken within the licence, one phase directed towards a base metal search associated with the Dorisvale Fault and the second phase aimed at locating possible kimberlite intrusive bodies. Mapping, stream sediment sampling, rock chip sampling, Input and I.P. surveys and drilling were the techniques employed in the base metal investigation. Regional gravel sampling was applied to the kimberlite search.

This report gives a summary of the work carried out in

E.L. 1768 during the period 6th December, 1980 to 5th December, 1981. A statement of expenditure covering this period is included in the report.

E.L. 1768
SECURED LOANS AND DEVELOPMENTS LTD.

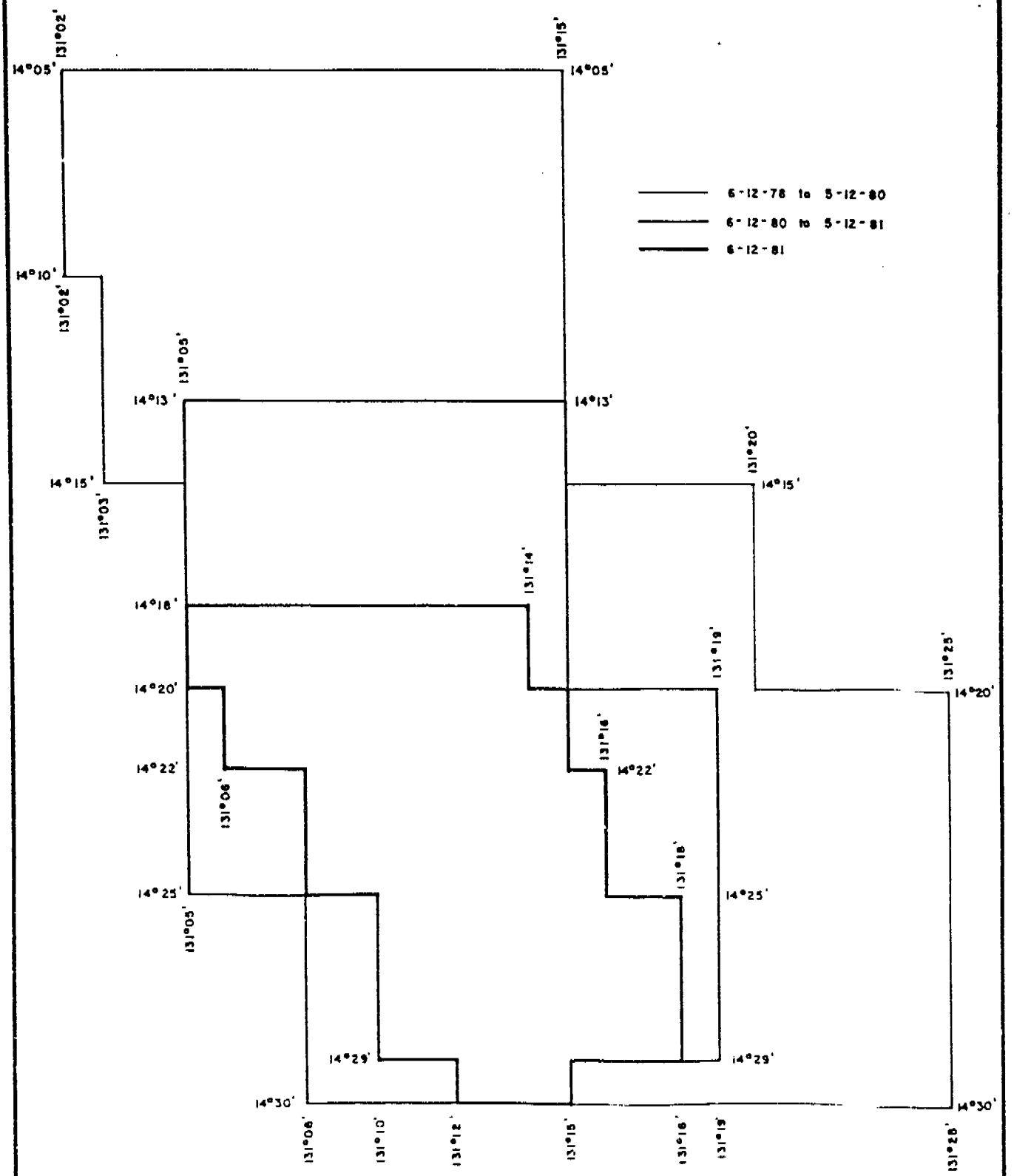

FIGURE 1

ASHTON MINING LIMITED Scale 1:250 000 Date MARCH, 1982

2.00 TENURE

Exploration Licence 1768 initially covering 1276.275 square kilometres is held by Euralba Mining Limited and was granted on 6th December, 1978. An outline of the licence is given in Figure 1; and its boundaries described below:

> Commencing at the intersection of latitude 14 degrees 05 minutes with longitude 131 degrees 02 minutes thence proceeding to the intersection of latitude 14 degrees 05 minutes with longitude 131 degrees 15 minutes thence proceeding to the intersection of latitude 14 degrees 15 minutes with longitude 131 degrees 15 minutes thence proceeding to the intersection of latitude 14 degrees 15 minutes with longitude 131 degrees 20 minutes thence proceeding to the intersection of latitude 14 degrees 20 minutes with longitude 131 degrees 20 minutes thence proceeding to the intersection of latitude 14 degrees 20 minutes with longitude 131 degrees 25 minutes thence proceeding to the intersection of latitude 14 degrees 30 minutes with longitude 131 degrees 25 minutes thence proceeding to the intersection of latitude 14 degrees 30 minutes with longitude 131 degrees 08 minutes thence proceeding to the intersection of latitude 14 degrees 25 minutes with longitude 131 degrees 08 minutes thence proceeding to the intersection of latitude 14 degrees 25 minutes with longitude 131 degrees 05 minutes thence proceeding to the intersection of latitude 14 degrees 15 minutes with longitude 131 degrees 05 minutes thence proceeding to the intersection of latitude 14 degrees 15 minutes with longitude 131 degrees 03 minutes thence proceeding to the intersection of latitude 14 degrees 10 minutes with longitude 131 degrees 03 minutes thence proceeding to the intersection of latitude 14 degrees 10 minutes with longitude 131 degrees 02 minutes thence proceeding to the intersection of latitude 14 degrees 05 minutes with longitude 131 degrees 02 minutes subject to all applications for mining tenements and excluding therefrom all mining tenements granted or registered and all reserves included within the definition of "reserve" in section 7 of the Mining Act.

The licence was renewed for a further twelve months from 6th December, 1979; and was then renewed for a third term from 6th December, 1980. The renewal of the licence for the third term was over an area of 631.17 square kilometres, in accordance with the provisions of section 38B(11) of the

Mining Act. The outline of this area is shown in Figure 1. An application for renewal of the licence for a further twelve months has been lodged with the Department of Mines and Energy.

3.00 THE 1981 DRILLING PROGRAM

This report presents a preliminary assessment of the results of a percussion/diamond drilling program in the Witchbinya - Moon Boon Creek area, Dorisvale, which commenced late June and was completed early August 1981. A total of 1031 metres comprising 462 metres percussion and 569 metres diamond drilling was completed in 10 holes, with the maximum depth recorded being 198.35 metres.

Previous extensive sampling within this area returned consistently anomalous zinc geochemistry with fewer, although several remarkably high, lead values. These results prompted drilling, initially designed to test unweathered rocks at depth, particularly those representing geochemically active horizons at the surface.

A major lineament feature characteristic of the Dorisvale area was originally described by the B.M.R. as a fault. Ashton Mining geologists have since mapped this structure as a stratigraphically controlled feature. This interpretation suggested a monocline perhaps reflecting a fault at depth.

The drilling program was thus structured with a view to marginal basin type mineralization - an example being a 'Mississippi Valley type' ore deposit which may conceivably be responsible for the elevated surface geochemistry.

Results are discussed with reference to drill hole log data and plotted geochemical values illustrated in Plans 1 to 10. Detailed drill logs and geochemical results for drill holes Witchbinya No. 1 to Witchbinya No. 10 are given in Appendices 1 to 10 respectively. Drill hole locations are shown on Map 1.

4.00 STRATIGRAPHY

4.10 Stratigraphy Based on the 1980 Mapping Program

A previously unrecognized sequence of Early Cambrian age was originally proposed by Ashton Mining geologists to encompass poorly outcropping silica and weathered fossiliferous dolomite-silt and nodular chert beds underlying the Middle Cambrian Tindall Limestone. Stratigraphic relationships with the Antrim Plateau Volcanics (Lower Cambrian), remained uncertain although mapping suggested that the Volcanics may be a lateral correlative of the sequence.

Two stratigraphic horizons were recognized in the sequence. For mapping purposes these were referred to by Shannon* as the 'Nodular Marker' and the 'Lead Horizon'. The geology as mapped by Shannon is reproduced in the present report (refer to Map 1).

4.20 Stratigraphy Based on the 1981 Drilling Program

Drill holes Witchbinya No. 1 to 10 provide sufficient evidence that the succession below the recognized Tindall Limestone is not a correlative of the Antrim Plateau Volcanics, but in fact overlies the Volcanics with little or no discordance.

4.21 Antrim Plateau Volcanics and Units Stratigraphically Below

Witchbinya D.D.H. No. 2 intersected 85 metres of the Antrim Plateau Volcanics between 83.15 - 167.95 metres.

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* *Zulasink, H.E. and Shannon C.H.C., 1981. Dorisvale Lead-Zinc and Uranium Prospect. Ashton Mining Limited Company Report.*

A thin 1-2 metre conglomerate bed with associated weathered clay tentatively assigned to the Jarong Conglomerate (Lower Cambrian), underlies the Antrim Volcanics with evidence of an erosional break. Below this a characteristically mottled 'brick red' micaceous siltstone, gradationally dolomitic, continues to the base and is thought to represent part of the Adelaidian - Carpentarian (Banyan Formation) sequence. This part of the unit appears to be non exposed in the mapped area.

4.22 Sequence above the Antrim Plateau Volcanics

Witchbinya D.D.H. No. 4, collared in the recognized Tindall Limestone, provides a stratigraphic measure of the sequence above the Antrim Plateau Volcanics.

The Tindall Limestone characterized by a two phase, nodular bedded, fossiliferous, grey weathering limestone in outcrop, is comprised of alternating pure - impure limestone beds, thought to be plastically deformed during lithification into distinct nodular - matrix phases.

Alternating mudstone - limestone cycles occur consistently throughout most drillholes particularly whenever the depth and degree of weathering permits sufficient preservation.

Examination of drill core limestone sequences indicates that the limestones exhibit remarkably similar lithological textures to the recognized Tindall outcropping limestone. Witchbinya D.D.H. No. 5, 26.7 - 34.7 metres, has since been reliably correlated with recognized outcropping Tindall Limestone (see Plan 5), and an equivalent sequence has been

LEGEND FOR WITCHBINYA DRILLHOLES

T	REDDISH PURPLE & PALE YELLOWISH LEACHED SHALE, MUDSTONE & SILTSTONE. Fe OXIDE STAINING, BANDING COMMON. THIN NODULAR CHERT BED NEAR BASE.
U	GRADATIONAL FROM UNIT ABOVE IF INTERSECTION TOTAL, TO MEDIUM LIGHT GREY BRECCIATED AND NODULAR BEDDED FOSSILIFEROUS & ALGAL LIMESTONE. MATRIX OR IMPURE LIMESTONE PHASE INVARIABLY LEACHED OR POROUS.
V	YELLOW, GREYISH RED & BROWN MUDSTONE & SILTSTONE. PREDOMINATELY WEATHERED. THIN LIMESTONE LENS OR BED OCCASIONALLY PRESENT. LIMONITE STAINING & BLACK ?CARBONIFEROUS ?EX SULPHIDE CLOTS MAY BE PRESENT.
W	LIGHT GREY-BROWN BRECCIATED OR NODULAR BEDDED FOSSILIFEROUS & ALGAL LIMESTONE. MATRIX OR IMPURE LIMESTONE PHASE INVARIABLY LEACHED OR POROUS. THICKER SEQUENCES MAY HAVE MINOR PYRITE ASSOCIATED WITH A THIN GRANULE SIZE CLAST HORIZON NEAR BASE. NODULAR CHERT BEDS COMMONLY RECOGNISED AT TOP OF UNIT, WITH AN UNDERLYING MUDSTONE INTERVAL OVER SEVERAL METRES.
X	MULTICOLOURED BUT PREDOMINATELY GREYISH RED PURPLE MUDSTONE, SILTY MUDSTONE, SILTSTONE, DOLOMITE & MINOR SANDSTONE. SUBHORIZONTAL CALCITE VEINING OVER 1-2 METRES. PYRITIC OVER SOME INTERVALS. CONSPICUOUS OVOID REDDISH ORANGE & GREY CHERT NODULES ALWAYS WITHIN SEVERAL LAYERS.
Y	c.f. U. BASAL NODULAR CHERT BEDS & BOUDINAGE LAYERS — ASSOCIATED MEDIUM TO DARK GREY DOLOMITE OR LIMESTONE. INTERBEDDED DOLOMITIC SILTSTONE & MUDSTONE
Z	GREYISH RED PURPLE & GREYISH RED DISRUPTED OFTEN BRECCIATED SILTY MUDSTONE & SILTSTONE DETRITAL SUBROUNDED QUARTZ GRAINS OFTEN V[illegible]. PALE GREENISH MOTTLED WEATHERING STAINS. VEINLETS INFILLED WITH PALE BROWN ORANGE CRYSTALLINE MINERAL OR AS ISOLATED CRYSTALS. METALLIC MINERAL (?MAGNETITE) EVIDENT WITHIN SEVERAL DISTINCT INTERVALS CONSPICUOUS CALCITE VEINING PRESENT OVER BASAL SECTION.
	PORPHYRITIC ANDESITE OR BASALT. AMYGDULES — VESICLES COMMON WITHIN FLOW BOUNDARY ZONES. MINOR PYRITE, PITCH, ?PREHNITE, CALCITE & QUARTZ AS CAVITY INFILL MINERALS
	WITCHBINYA D.D.H. No. 2 CONGLOMERATE — SANDSTONE, CHERT CLASTS ASSOCIATED SOFT CLAYEY ?FOSSIL SOIL.
	WITCHBINYA D.D.H. No. 2 REDDISH ORANGE ("BRICK RED") SILTSTONE DISTINCTIVE MOTTLED PIGMENTATION GRADATIONALLY DOLOMITIC TOWARDS THE BASE WITH ASSOCIATED GREYISH GREEN PHASES
f	FOSSIL — BRACHIOPODS, TENTACULITES. ONCOLITIC AND ALGAL LAMINAE.
m	MICACEOUS (SPECULAR) HEMATITE
c	CALCITE VEINING PROMINENT
ms	SILICEOUS EX LIMESTONE
o	REDDISH ORANGE & GREY OVOID CHERT NODULES
—	LIGHT GREY NODULAR CHERT LAYERS OR NODULES

FIGURE 2

percussion drilled in D.D.H's No. 2 and No. 4.

Two other major limestone horizons are present below the recognized outcropping Tindall. Both retain very similar textural features with distinctive nodular chert bands.

Drilling has established that the anomalous target rocks below the recognized outcropping Tindall, probably represent the lower part of the Middle Cambrian Tindall Limestone.

Witchbinya D.D.H. No. 5 also intersected weathered mudstone and shales between 3 - 26.5 metres with leached limestone, interbedded shales and a thin basal nodular chert horizon occuring above a limestone correlated as the outcropping Tindall.

These weathered shales and mudstones are similar in aspect to mudstones throughout all D.D.H's, and although red and purple shales have been mapped as Jinduckin Formation east of D.D.H's No's 4 and 8, they are now considered most likely to represent part of the Tindall Limestone.

4.30 Drill Hole Correlation

Witchbinya D.D.H. No. 5, displays the most complete section (c.f. log diagrams) down to the top of the Antrim Plateau Volcanics. As mentioned previously, nodular chert horizons are distinctive as two thin bands associated with limestone units and invariably occur close to or at mudstone - limestone sequence boundaries. A third chert unit has been revealed in Witchbinya D.D.H. No. 5. It occurs at the top of a major limestone unit correlated as equivalent to the recognized

outcropping Tindall Limestone.

Marker beds of remarkable persistence, with minor lithological and textural features reoccurring always, within diamond drill holes, have been located and provide excellent correlation pegs especially essential throughout percussion holes and strongly weathered intervals within diamond drill holes.

A fence diagram depicting the correlation between the drill holes is given in Plan 11.

4.31 The 'Correlation Marker'

A most prominent marker horizon, (for convenience within this report termed 'The Correlation Marker') is readily identified in all drill holes except Witchbinya D.D.H. No. 1.

The 'Correlation Marker' contains conspicuous ovoid and discoidal reddish orange (volcanic) and pale greenish grey chert nodules in a greyish green and reddish purple mudstone. Interbedded siltstone and dolomite with subhorizontal calcite or dolomite layers and minor wisps and blebs of pyrite over a 1-2 metre mudstone interval are characteristic of the marker in cored unweathered material.

The chert nodules are distinct from other nodular chert occurrences within all diamond drill holes. Depending on both colour (commonly purplish - greyish red) and composition of percussion material, especially when reddish orange and grey chert fragments are recovered, this horizon can be reliably identified.

4.32 Beds Directly Overlying the Antrim Plateau Volcanics

For purposes of determining relationships of geochemically anomalous surface rocks to the Antrim Plateau Volcanics, almost all diamond drill holes probed at least the upper four metres of the basalt/andesitic flows. This measure allowed a precise knowledge of beds directly overlying the Antrims.

A distinctive greyish red-purple and greyish red mudstone/siltstone unit, predominantly unweathered occurs as a thick interval (maximum 31 metres, Witchbinya D.D.H. No. 4) overlying the Antrims. This unit exhibits consistently correlatable sub-horizons.

A thin greenish grey ?dolomitic mudstone ?tuff band occurs in all core holes, intersecting this interval and supporting the positioning of other correlation horizons.

Essentially four useful zones have been noted:

(a) Pale lavender zone containing small metallic crystals (?hematite) with associated pale brown-orange ?resinous crystals.

(b) A graded breccia with mudstone/siltstone and sandstone clasts near the base.

(c) Distinctive irregular calcite veining over 5 - 8 metres, imparting 'lace like' appearance.

(d) Basal arenite breccia comprising granule sized carbonate, siltstone and ?andesite cherts poorly packed in mudstone/siltstone matrix.

Percussion drilling within this interval can be identified by colouration/composition and marker horizons higher in the hole.

4.33 'Nodular' and 'Lead' Horizons

Two other intervals are considered of significant importance for the following reasons. Both:

(a) are of similar composition
(b) contain thin nodular chert intervals
(c) exhibit geochemically active components
(d) appear extremely susceptible to silicification within weathered drill hole zones.

These two intervals have been identified as the 'Nodular' and 'Lead' horizons of Shannon (refer to Section 4.10).

4.331 The 'Lead Horizon' The 'Lead Horizon' is a predominantly carbonate unit and invariably comprises a similar two phase, fossiliferous limestone assemblage as the 'Nodular' and recognized Tindall outcropping beds.

As in surface geology, silicification is pronounced in weathered zones with poorly preserved, leached, occasionally limonitic material as interbedded (? leached impure limestone) or desilicified cavity or matrix material.

A distinctive nodular chert horizon, on average between 5 - 6 metres thick is particularly conspicuous in predominantly unweathered drill holes (e.g. 135.10 - 140.66 metres, Witchbinya D.D.H. No. 5). This horizon is present at the basal greyish red mudstone/limestone boundary (c.f. Section 4.32).

The base of the 'Correlation Marker' unit demarcates the top of the 'Lead Horizon' and thus supports surface exposure of this section.

The nodular chert beds within the 'Lead Horizon' may be correlated bed to bed over most drill holes.

Three distinctive bands comprise pale yellow-brown porous, and medium to dark grey crystalline, limestone with dark grey chert layers and boudinage-bedded, nodular layers.

Interbedded disrupted siltstone and mudstone, and minor pyritic shale occur between each limestone - chert unit.

4.332 The 'Nodular Beds' The 'Nodular Beds' have been variously described in surface geology as a dolomite - silt, chert nodular rock. Poorly outcropping reddish brown and purplish shales or mudstones overlie and underlie the 'Nodular Beds'. The latter, the 'Correlation Marker', commonly occurs as float with abundant ovoids of more resistant material. (c.f. Section 4.31).

The 'Nodular Beds' have been identified within all drill holes - although extremely variable compositions are apparent between weathered and/or silicified, and unweathered core material.

Descriptions of this predominantly carbonate unit in drill core suggest a distinct similarity to the nodular bedded, two phase (impure - pure), fossiliferous limestone, presently recognized as the mapped Tindall Beds.

As illustrated (see log diagrams) a nodular chert horizon occurs as irregular light grey chert layers and nodules within a sequence containing a typically mottled/nodular,

bedded, semi-leached, porous limestone phase and a predominantly unweathered medium grey limestone phase.

This nodular chert/limestone horizon is presumed to lie near the top of the 'Nodular Beds' unit.

Doubt remains as to the top of the 'Nodular Beds' which may include a shale-mudstone sequence. It has only been cored in an extremely weathered state.

Limonite and black ?carbonaceous clots have been noted; viz., Witchbinya D.D.H. No. 5, 64.65 - 65.40 metres and several similar, although less distinctive, occurrences in other holes.

Geological mapping by Shannon revealed a limonite-rich capping, described as the top of the 'Nodular Beds'. It is conceivable that the limonite - shale zone represented in Witchbinya D.D.H. No. 5 is equivalent to the limonite capping horizon.

Weathering of the 'Nodular Beds' may be severe, in which case silicification, often still revealing relict or well defined fossil moulds, is a predominant feature. Poor drill core recovery (viz., Witchbinya D.D.H's No's 1, 2, 4, 6 and [illegible], or loss of percussion sample material is high in weathered zones. Very leached silty limonitic material or yellowish coloured weathered limestone is associated with highly siliceous units.

4.34 Conclusions

The evidence presented in the preceding sections and illustrated in Plan 11 clearly infers that the mapped 'Beds above the Nodular Beds' of Shannon are in fact weathered equivalents of the mapped or recognized Tindall Limestone.

COMPARISON OF AVERAGE COPPER VALUES (p.p.m.)— WITCHBINYA D.D.H.'s 5 & 8

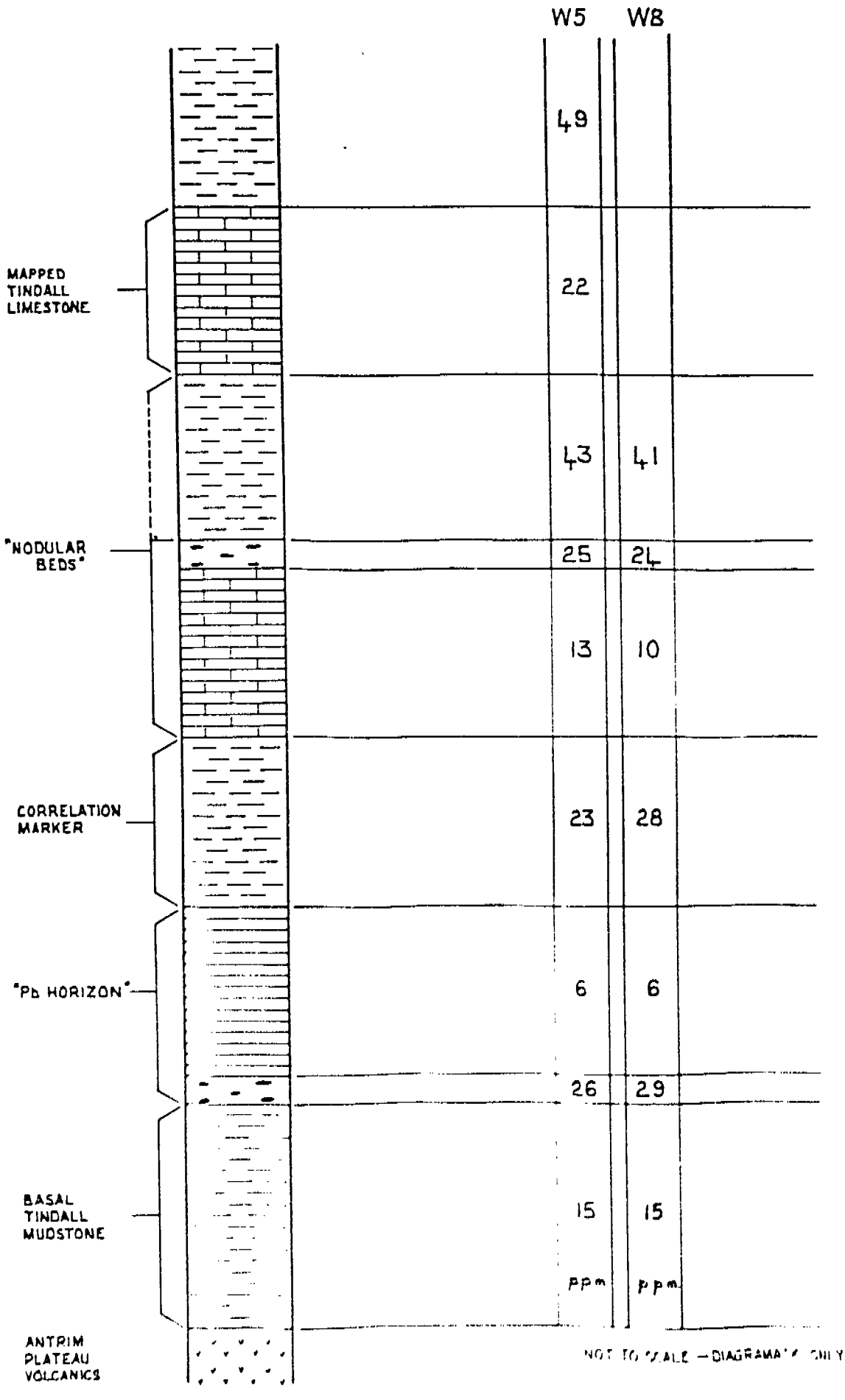

FIGURE 3

5.00 GEOCHEMISTRY

5.10 General

Surface rock chip samples reveal significantly high lead geochemistry in the vicinity of drill sites No's 1, 2 and 10. Elevated zinc values persist over a much wider area.

Samples were taken over strongly weathered silica and leached silt carbonate rocks exposed in poorly outcropping, undulating strata.

These anomalous surface rocks are now considered to represent lower, to possibly middle Tindall Limestone.

The 'Nodular and Lead Horizons' discussed previously appear to reflect a higher geochemistry than would normally be expected through surface enrichment.

Discussion of geochemical assay results for elements Cu, Pb, Zn and U may give some clue to this dilemma.

5.20 Copper

Although copper assay results are invariably of low order (viz $\leq$ 60ppm) they do provide, in non-contaminated samples, a very consistent geochemical correlation between lithologies as evidence in Figure 3, where average copper values are given for two drill holes alongside known lithological intervals.

The generally low copper results obtained give little encouragement for the prospectiveness of copper mineralization within the intersected Tindall Limestone; however Figure 3 suggests strong geochemical stability which may aid the

interpretation of other more complex results.

Several metres of the uppermost andesite - basalt flow of the Antrim Plateau Volcanics have been assayed in several drill holes. This upper flow boundary always comprises slightly altered amygdaloidal - vesicular andesite with minor pyrite and other cavity infill minerals. Mildly elevated copper values were recorded (e.g. average 271ppm over 2.5m sampled).

Sludge samples recovered from Witchbinya D.D.H's No's 1 and 2 returned elevated copper and, although somewhat spurious, may represent non-cored material. The maximum values for these two holes were 1200ppm Cu and 265 ppm Cu respectively. Core sample intervals in the same holes did not return corresponding geochemistry.

5.30 Uranium

Uranium content remained low throughout, with the maximum value recorded being 47ppm in poorly recovered, sulphide-bearing silica rock near the base of Witchbinya D.D.H. No. 1.

The average uranium content from core sample between 38.8 - 47.0m in Witchbinya D.D.H. No. 1 is 26ppm and between 43 - 46m in Witchbinya D.D.H. No. 7 is 11ppm. These two intervals have been correlated within the 'Lead Horizon' in both holes. Equivalent horizons throughout the remaining drill holes are not anomalous in uranium.

Chip sample uranium geochemistry is considered due to surface enrichment.

5.40 Lead and Zinc

Lead and zinc assay results obtained from one metre split core and percussion material have been plotted against log diagrams (refer to Plans 1 to 10).

The bulk of elevated va ues are confined to weathered carbonate-mudstone units above the basal greyish red mudstone/ siltstone overlying the Antrim Plateau Volcanics.

This lower mudstone unit displays consistently low lead and zinc geochemistry and provides a valuable geochemical signature traceable in core-drilled holes.

Reference to Plans 1 to 10 illustrate the presence of geochemically favourable horizons. Appreciable zinc and accompanying lead values occur within:

(a) mudstones and shales above the limestone horizon of the 'Nodular Beds'

(b) nodular chert and limestones of the 'Nodular Beds'

(c) nodular chert and limestones of the 'Lead Horizon'.

Although these values appear to be enhanced within weathered and silicified (?gossanous) zones, some persistence of lead and zinc remains in unweathered horizons (c.f. Witchbinya D.D.H's No's 5 and 4).

The above geochemically favourable horizons generally exhibit in all drill holes, a correlation (in some cases perhaps diminished through poor recovery or contamination) with sharply increasing zinc, and to a lesser extent lead values.

6.00 KIMBERLITE INVESTIGATIONS

During the period under review, a field program involving the collection of twenty follow-up gravel samples was undertaken.

Prior to the commencement of field work, the follow-up gravel sample locations were plotted in the office on the Jinduckin 1:100,000 sheet so that the sample sites were at a decreased interval and adequately tested the selected drainages.

During the field program, individual sample sites were selected on the basis of the quality of the available heavy mineral traps in the vicinity of the preselected site, care being taken to sample the most suitable trap site. Helicopter was the most practical mode of transport as it had the advantages of ease of access and navigation and enabled the geologist to scan the area for suitable trap sites.

Once a suitable sample site was located, approximately 40 kg of gravel were gathered, sieved and the minus 4mm fraction collected for laboratory examination. Generally the minus 4mm samples weighed 25-30 kg. The sample sites were accurately plotted in the field on a preapred 1:100,000 base plan. Within E.L. 1768, a total of twenty follow-up gravel samples were collected. The samples tested selected drainages at an interval of approximately one kilometre. Sample locations are shown on Map 2.

The samples were processed at the Ashton Mining Limited laboratory in Perth where they were concentrated by

Wilfley Table and heavy liquid separation techniques.

The heavy liquid used was tetrabromoethane with a specific gravity of 2.96. The concentrates were then screened into various size fractions, further concentrated, where required, by magnetic and electrostatic separation techniques and a comprehensive grain by grain examination carried out on the appropriate fractions.

Of the 20 follow-up samples collected within the licence, 17 contained no detectable kimberlite indicator minerals. Chromite, pyrope and a diamond were found in the remaining three samples. Results are tabulated in Appendix 11.

7.00 CONCLUSIONS

Correlation between drill hole data and surface outcrop has established that the inferred target rocks belong to the lower and possibly middle Tindall Limestone. No drill hole evidence suggests the complete Tindall Limestone sequence has been intersected.

Although surface lead-zinc geochemistry is anomalous over a narrow zone along a strike length of up to 15km, no significant lead or zinc mineralization is present in unweathered form in drill holes within a 8.5km strike length close to the Dorisvale structure.

Obvious enhancement of both lead and zinc content has occurred in weathered zones, however anomalous zinc, with accompanying lead, exhibit a preferential association with several distinct lithological units. These lithologies include limonite-stained mudstones and shales, but stronger anomalous values tend to be associated with nodular, fossiliferous limestone and chert nodule layers. The limestone contains a very porous matrix component considered to represent a second phase impure carbonate component.

The intergranular porosity suggests a possible host rock for 'Mississippi Valley type' ore deposits. The concept is especially tenable in view of the regional structure in this area (see Walpole et al, 1968*).

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* Walpole, B.P., Crohn, P.W., Dunn, P.R., and Randal, M.A., 1968. Geology of the Katherine Darwin Region, Northern Territory. Bur. Mineral. Resour. Aust. Bull. 82.

Barite and fluorite with minor amounts of sphalerite and galena have been discovered north of the Dorisvale target area, several kilometres inside the inferred western edge of the Daly River Basin. (N.T. Geol. Survey Rec. 1977/4). The host formation has been identified as the middle and upper part of the Tindall Limestone.

Witchbinya D.D.H. No. 4 shows elevated zinc values up to 4.8% and accompanying lead values (maximum 530ppm) over an interval approximately 45m thick.

Witchbinya D.D.H. No. 5 also records spot lead values of up to 1750 ppm and anomalous zinc in a sequence extending higher in the Tindall Limestone.

Both drill holes were collared approximately 2km down dip from the inferred monoclinal structure.

It is difficult to contemplate consistently high geochemistry and minor visible sulphides encountered throughout some rocks in the area, as only a surface enrichment phenomenon.

Anomalous zinc at depth suggests some sort of dispersion perhaps associated with the porous limestone units higher in the Tindall sequence or a lateral halo effect along strike.

If a 'Mississippi Valley type' of mineralization has occurred in the similar carbonate rocks higher in the Tindall as recorded by the N.T. Geological Survey, then insufficient drilling intersection during this program must initiate further

exploration down dip, possibly 2-3km east of Witchbinya D.D.H. No. 4.

Certainly a partially concealed, west-side-down fault (1:250,000 geol. series Fergusson River) 5-7km east of, and trending parallel to the Dorisvale structure, must be viewed as an important structural element with respect to a favourable depositional setting.

The drilling program completed last year, although concentrated within a small area, has gained valuable insight into an extremely interesting carbonate-shale sequence.

With regards to the kimberlite investigations, the presence of a diamond and a pyrope grain are considered encouraging. Accordingly, further detailed follow-up gravel sampling around the two sites is being planned for the coming term.

In conclusion the Company recommends future exploration both along strike and further into the Daly River Basin.

APPENDIX 1.

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 1
Mine/Prospect:	Name: DDH Witchbinya No. 1	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline: Vertical	Length: 48.40m	Started: 1.7.81 / Finished: 4.7.81
Hole/Core size:	HQ: NQ: BQ	Intervals assayed:	
	Down Hole Survey - Method:	date:	by: / Logged by:

Interval from	to	length	Recovery M/kg	DESCRIPTION
0	21			Percussion drilling.
0	2			Moderate reddish brown and orange powdered soil and chipped clayey subsoil. Minor lateritic pebbles.
2	5			Chipped grey chert, reddish brown silt rock and abundant lateritic pebbles, sandstone pebbles/gravel.
5	7			Powdered and chipped reddish brown mudstone/siltstone - Continuation from above.
7	8			Pale yellowish - yellow orange powdered and granulated ?ex carbonate clay rock. Minor reddish brown mudstone chips.
8	21			Pale yellowish and yellowish orange powdered clay rock. Rare small chert chips especially evident with increasing depth.
				CORE DRILLING 21 - 48.40m
21.00	21.50	0.50	0.15	0.06m dark and pale yellowish orange siltstone with interbedded sandy arenite. C.B.A. 40° Remainder represent pebbles from above interval.
21.50	25.43	3.93	3.90	Pale yellowish orange and greyish orange leached shale and thin interbedded siltstone. Moderate to strong soft sediment deformation and minor brecciation. Orange brown limonite as irregular disrupted bands and isolated clots. (22.60 - 22.90), Predominantly leached, thin bedded very pale orange siltstone and shale exhibiting small cherty clusters - ?nodules. C.B.A. variable 55-80°.

[redacted]

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 2
Mine/Prospect:	Name:	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ:	NQ: BQ	Intervals assayed:	

Interval			Recov.y	Down Hole Survey - Method:	date:	by:	Logged by:
from	to	length	M/kg	DESCRIPTION			
25.43	27.40	1.97	0.75	Unconsolidated leached pale yellowish orange silt/mud.			
27.40	29.30	1.90	1.60	Very pale orange and greyish yellow leached porous ?ex carbonate rock. Disrupted bedding. Abundant cavities, ?fossil fragment moulds. (27.65 - 28.03) Leached pale and dark yellowish orange shale. Thin, wavey discontinuous greyish red interbeds evident. C.B.A. approx. 85°			
29.30	31.00	1.70	0.50	Light grey and light brownish grey poorly cored silica excarbonate rock. Minor yellowish orange leached patches and soft clayey material along fracture surfaces. Fossil cavities (cylindrical cross section).			
31.00	32.70	1.70	1.70	Light Fe oxide stained and vaguely leisegang banded greyish orange and dark yellowish orange, leached shale. Soft sediment deformation and fracturing. Indistinct dendritic structures. (32.68 - 32.70), small cherty 'clasts' in shale matrix. C.B.A. variable 65-75°			
32.70	36.10	3.40	0.13	(32.70 - 34.20), 0.08m dark to moderate yellowish orange silica ex-carbonate core fragments - minor grey chert component - ?nodules. Cylindrical fossil moulds present. (34.20 - 36.10) Drill water colour dark reddish brown. Minor chert, mudstone.			
36.10	37.80	2.15	2.13	Greyish orange and dark yellowish orange, thin bedded porous leached ex carbonate rock and mudstone. Bedding disrupted and microfaulted. Dark reddish brown mudstone between 37.10 - 37.68. C.B.A. approx. 75° at base.			
37.80	38.63	0.83	0.77	Mottled and brecciated siliceous ?ex carbonate rock. Cavities throughout and soft leached porous patches. Core broken and poorly recovered towards base. Contact with above interval over 0.20m with moderate to pale yellowish orange silt/shale matrix and fracture infill.			
38.63	40.25	2.62	1.35	(38.63 - 39.35), Very pale orange and pale yellowish orange leached siltstone or silty mudstone. Rare grey cherty nodules and broken fragments. Leached material recognisably			

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 3
line/Prospect:	Name:	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ: NQ: BQ	Intervals assayed:		
Interval	Recov.y	Down Hole Survey - Method:	date: / by: / Logged by:

from	to	length	M/kg	DESCRIPTION
38.63	40.25	2.62	1.35 (contd.)	denser than underlying interval. (39.35 - 40.25), Dark yellowish orange and reddish brown leached shale. Brecciation and slumping evident. Minor cherty ?cherts.
40.25	42.10	2.75	1.20	(40.25 - 41.05), transitional from above to very pale orange leached silica ex carbonate rock with light grey chert clasts. (41.05 - 42.10), greyish and dark yellowish orange silica ex carbonate rock - brecciated. Silica veining and cavity fill. Orange Fe oxide fracture coatings.
42.10	46.90	4.80	4.15	(42.10 - 43.90), moderate yellowish brown and dark yellowish orange, limonitic, very leached silt or shale rock, with abundant mottled chert nodules, less fragment with depth. Between 43.54 - 43.90, dark sooty black manganiferous or carbonaceous stained shale or mudstone, with rare solid black ?Fe oxide nodules. (43.90 - 44.52). Pale yellowish and greyish orange leached shale or silty mudstone. Poorly bedded slump structures prominent throughout often outlined in wispy dark grey ?carbonaceous/ manganiferous smears and small isolated clots. (44.52 - 45.90), greyish and pale yellowish orange leached, laminated to thin bedded, plastically deformed ?mudstone. Conspicuous light grey discoidal nodular and irregular shaped cherty clusters evident. Rare clindrical fossil moulds. Moderate Fe-oxide staining throughout. (45.90 - 46.90) Continuation of above with increased chert components and loss of core. Fe oxide staining intensifying and especially associated with chert 'clast', chert fracture, matrix material. C.B.A. where detectable between 75-85°.

[redacted] ASHTON MINING LIMITED [redacted]

GEOLOGICAL LOG	Mine Code	Ms Code	Page 4
Mine/Prospect:	Name: DDH 1		core
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ:	NQ:	BQ	Intervals assayed:

Interval			Recov.y	Down Hole Survey - Method:	date:	by:	Logged by:
from	to	length	M/Kg	DESCRIPTION			
46.90	48.40	1.50	0.70	(46.90 - 47.10), zero core recovered.			
				(47.10 - 47.65), Poorly cored fractured siliceous, cherty ex carbonate rock. Variable colour range from moderate brown to dark yellowish orange. Limonitic and dark reddish oxidation fracture coatings throughout.			
				Abundant fossil fragment and exposed cylindrical moulds (?Hyalithid).			
				(47.65 - 47.75), zero core recovered			
				(47.75 - 48.10), c.f. 47.10 - 47.65			
				Fractured silicified fossiliferous ex carbonate rock (?limestone). Intense bright orange, reddish brown oxidation fracture coatings.			
				Between 47.75 - 47.90, irredescent, tarnished coatings (?ex-sulphide)			
				48.10 - 48.40), zero core recovered.			
				END OF HOLE 48.40m			

GEOCHEMICAL ASSAY RESULTS

WITCHBINYA D.D.H. No. 1

Interval (metres) From	To	Cu	Pb	Zn	U	Sample Type
0	1	20	50	70	3	Percussion
1	2	20	60	65	X	"
2	3	20	100	115	2	"
3	4	25	250	170	X	"
4	5	25	110	210	2	"
5	6	25	1600	170	X	"
6	7	20	60	75	X	"
7	8	120	170	140	5	"
8	9	90	100	180	5	"
9	10	85	160	200	2	"
10	11	105	400	640		"
11	12	60	220	390	-	"
12	13	75	225	1000	5	"
13	14	120	250	1800	5	"
14	15	90	200	1300	4	"
15	16	60	130	365	2	"
16	17	45	125	660	7	"
17	18	65	350	1400	6	"
18	19	30	145	835	4	"
19	20	50	690	1500	8	"
20	21	40	390	950	4	"
21.50	22.50	85	3050	2000	8	Split Core
22.50	23.60	40	1600	640	6	"
23.60	24.50	60	710	900	2	"
24.50	25.40	60	170	920	4	"
25.40	27.40	55	650	1150	4	"
27.40	28.05	20	1850	290	4	"
28.05	29.30	20	2.0%	75	8	"
29.30	30.95	20	650	75	X	"
30.95	32.00	35	900	420	7	"
32.00	32.70	75	730	980	11	"
32.70	36.50	30	120	195	X	"
36.50	36.80	25	330	260	7	"
36.80	37.80	35	230	430	5	"
37.80	38.80	30	105	170	X	"
38.80	39.80	60	305	640	11	"
39.80	40.50	45	490	950	28	"
40.50	41.85	25	170	190	X	"
41.85	42.85	65	450	4000	14	"
42.85	43.95	40	380	4800	26	"
43.95	45.00	40	530	2100	26	"
45.00	46.00	35	980	1850	31	"
46.00	47.00	45	2000	2050	47	"
47.00	48.40	25	900	430	6	"

GEOCHEMICAL ASSAY RESULTS

WITCHBINYA D.D.H. No. 1

Interval (metres) From	To	Cu	Pb	Zn	U	Sample Type
22.5		45	70	110	X	Sludge
24.0		25	160	160	2	"
25.5		30	240	210	X	"
27.0		25	130	150	X	"
28.5		30	160	550	2	"
30.0		20	80	140	X	"
30.25		60	625	190	X	"
35.0		150	490	360	5	"
38.25		140	480	350	3	"
39.00		380	450	370	3	"
41.00		550	480	350	5	"
41.85		435	380	310	2	"
45.00		430	440	960	4	"
46.00		450	940	1700	22	"
47.50		1200	3100	1600	14	"
48.35		820	2000	1300	12	"

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection level
- = element not determined

APPENDIX 2.

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 1
Mine/Prospect:	Name: WITCHBINYA D.D.H. No. 2		core
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline: Vertical	Length: 198.35	Started: 26.6.81 / Finished: 3.7.81
Hole/Core size: HQ:	NQ: BQ	Intervals assayed:	
Interval	Recov.y	Down Hole Survey - Method:	date: / by: / Logged by:

from	to	length	M/kg	DESCRIPTION
0	27.0			NON-CORE DRILLING Dry hammer chip samples at 1.0m intervals
0	3.0			Dark yellowish brown soil and dark yellowish brown subsoil with moderate reddish brown pisolites.
3.0	4.0			Greyish orange silt. (soil) and leached siltstone with moderate brown pisolites to z cm.
4.0	18.0			Pale to dark yellowish orange silt. (leached siltstone). Minor orange pink silt, ex siltstone.
18.0	21.0			Moderate yellowish orange to dark yellowish orange silt. (ex siltstone).
21.0	25.0			Moderate red to reddish brown silt (ex siltstone) and mudstone.
25.0	27.0			Dark reddish brown silt/mudstone.
				CORE DRILLING
27.0	30.0	3.00	0.85	Dark reddish brown, very soft clay - silt material and slurry material. Minor dark yellowish orange siltstone masses in cored material. Occasional lumps of hard dark reddish brown ironstone not necessarily from this interval.
30.0	31.80	1.80	0.95	Continuation of above interval. Slight increase in preservation of core exhibiting predominantly disrupted bedding structures. Rare planar fractures, 55^0 to core in mudstone.
				Basal 5cm, brecciated grey/light grey chert - chert in hard (siliceous) orange matrix.
31.80	32.10	0.30		Zero core recovered.
32.10	33.40	1.30	0.10	Broken core fragments, grey/lighter grey coloured chert. Brecciation evident with cavities retaining minor yellowish orange leached material.

GEOLOGICAL LOG				Mine Code	Ms Code	Page 2
ine/Prospect:		Name: D.D.H. No. 2			core	
evel:	Northing:	Easting:		Collar R.L. ground/pipe:		
earing M/T/G:	Incline:	Length:	Started:	Finished:		
ole/Core size: NQ:		NQ:	BQ	Intervals assayed:		

Interval			Recov.y	Down Hole Survey - Method:	date:	by:	Logged by:
from	to	length	M/kg	DESCRIPTION			
33.40	36.35	3.25	0.58	0.16m. Similar to above intervals - light grey chert fragments, with minor leached mottled dark yellowish orange/dark reddish brown ?siltstone/shale. Remainder strongly weathered crumbly dark yellowish brown, Fe stained, limonitic rock.			
36.35	39.35	3.00	1.55	0.48m. Resembles limonitic material above but Fe content decreasing with depth. Moderate brown, dark brown limonitic veining irregular masses. Evidence of fracturing and deformation throughout leached yellowish orange silt, ?ex carbonate rock. Remainder as above with small (up to 1cm) isolated elongated to irregular siliceous, pale yellow nodules or clasts. Siliceous masses occasionally align along disrupted bedding and may represent ex-carbonate (?limestone) nodules or original nodular bedding. Increase clay component near 39.35.			
39.35	42.35	3.00	2.36	39.35 - 41.70. Pale-dark yellowish orange, light brown and greyish red purple leached mudstone and siltstone. Minor limonite filled fractures and oxide Fe, and manganese flecked throughout. A thin band near 40.10 exhibits mildly denser limonite material with small brick red cherty lumps - ?nodules. C.B.A. 87 - 90°. 41.70 - 42.35. Dark reddish brown , soft, weathered mudstone and siltstone. Minor mottled patches and cherty clusters.			
42.35	43.45	1.10	0.80	42.35 - 43.00. Lost core. Dusky yellow to greyish orange leached, lightly Fe, oxide stained sandstone or muddy siltstone. Moderate dark reddish brown mottling and small cherty clusters - ?nodules Nodular character of chert exhibited where adjacent mudstone laminae deformed. C.B.A. 75°.			

ASHTON MINING LIMITED

GEOLOGICAL LOG			Mine Code	Ms Code	Page 3
Mine/Prospect:		Name: D.D.H. No. 2		core	
Level:	Northing:	Easting:		Collar R.L. ground/pipe:	
Bearing M/T/G:	Incline:	Length:	Started:	Finished:	
Hole/Core size:	HQ:	NQ:	BQ	Intervals assayed:	

Interval			Recov.y	Down Hole Survey - Method:	date:	by:	Logged by:
from	to	length	M/kg	DESCRIPTION			
				43.00 - 43.45. Dark reddish brown, leached and mottled mudstone and siltstone. Occasional			
				grey chert layers or nodular bands.			
43.45	43.95	0.50	0.50	Yellowish grey and very pale orange leached rather hard ?ex carbonate rock. Limonitic			
				outlines rare fracture or quartz filled cavities.			
				Rare reddish orange nodular chert masses. C.B.A. 80°.			
43.95	46.90	3.02	2.95	43.95 - 45.35. Dark reddish brown, gradational to greyish red purple silty mudstone. Pale			
				greyish yellow mottled patches evident. Disrupted or deformed lighter coloured carbonate			
				often from elongate to small granule sized "clasts" aligned parallel to bedding, especially			
				between 43.95 - 44.35. Slickenside planar fractures 60 - 70° to core.			
				45.35 - 46.90. Greyish red purple/dusky red mudstone with pale yellow grey components			
				exhibiting moderate structuron or brecciation. Majority of bedding indicates soft sediment			
				deformation. Local C.B.A.'s to 45°, generally 80-90°.			
46.90	47.73	0.83	0.40	BROKEN CORE. Greyish orange and pale yellowish orange leached laminated to thin bedded			
				mudstone and siltstone. Broken discoidal orange red chert nodules. Mild orange Fe oxide			
				staining and ?pyrolusite.			
47.73	48.55	0.82	0.80	c.f. 39.35 - 41.70. Pale to dark yellowish orange, light brown and mottled greyish red			
				purple, lightly Fe oxide stained leached mudstone.			
				48.00 - 48.35. Thin bedded, contracted with light Fe colour banding.			
				48.35 - 48.55. Rare discoidal grey chert nodules (up to 5cm long axis) C.B.A. 80-85°.			
48.55	51.35	2.80	0.10	Broken fragments of cavitied siliceous, cherty material (?ex carbonate rock).			
51.35	51.75	0.40	0.40	At 51.35 an irregular cored contact evident between silicified ?ex carbonate rock and			
				strongly leached crumbly dark yellowish, to orange brown, porous material, occupying			

[redacted]

GEOLOGICAL LOG			Mine Code	Ms Code	Page 4
.ne/Prospect:		Name: D.D.H. No. 2		core	
vel:	Northing:	Easting:		Collar R.L. ground/pipe:	
aring M/T/G:		Incline:	Length:	Started:	Finished:
ole/Core size:	HQ:	NQ:	BQ	Intervals assayed:	

Interval			Recov.y	Down Hole Survey - Method:	date:	by:	Logged by:
from	to	length	M/kg	DESCRIPTION			
				remainder of interval. Minor cherty lumps near base.			
51.75	54.35	2.60	0.55	Dark and pale yellowish orange leached silty rock. Fe oxide banding/stains and minor			
				limonitic components as above. Core soft and crumbly. Minor chert in core rubble.			
54.35	56.80	2.45	0.10	Grey and light grey angular siliceous cherty fragments. Remainder soft clayey, dark reddish			
				brown mud and slurry.			
56.80	60.47	3.67	3.60	Moderate and dark reddish brown and greyish red disrupted and plastically deformed			
				interbedded mudstone and siltstone. Bedding poorly defined - alternating colour and grain			
				size boundaries, but invariably brecciated and slumped throughout. Minor fine sandstone and			
				very pale green, mottle thin carbonate layers evident.			
				Broken surfaces expecially along pale greenish zones, leached with minor orange oxidation			
				and clayey coatings.			
				BASE OF WEATHERING GRADATIONAL FROM 56.80 - 60.47			
60.47	71.98	11.51	11.28	Greyish red purple and greyish red interbedded mudstone and siltstone. Continuation from			
				above exhibiting prevalent soft sediment deformation and brecciation. Pale greenish			
				weathering pigmentation staining often associated with fractures, outlined in both white			
				carbonate and small pinkish brown crystals, especially prominent between 65.10 - 66.34 and			
				71.03 - 71.35. Minor calcite blebs, veining.			
71.98	74.95	2.97	2.97	Greyish red purple and greyish red mudstone and siltstone continuing from above, but			
				exhibiting light lavender tint with pale greenish mottled appearance.			
				Increased contents of pinkish brown crystals (?sulphate mineral) associated with fine wispy			

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 5
.ne/Prospect:	Name: D.D.H. No. 2	core	
:vel:	Northing:	Easting:	Collar R.L. ground/pipe:
aring M/T/G:	Incline:	Length:	Started: / Finished:
ole/Core size: HQ: NQ: BQ	Intervals assayed:		
Interval	Recov.y	Down Hole Survey - Method:	date: / by: / Logged by:

from	to	length	M/kg	DESCRIPTION
				cracks or veining. Rare metallic lustred mineral, occasionally concentrated up to 2% on
				broken core surfaces - possible octahedrons and magnetic - ?magnetite.
74.95	76.08	1.13	1.10	74.95 - 75.30. c.f. 60.47 - 71.98.
				75.30 - 76.08. Greyish red purple and greyish red brecciated mudstone and siltstone -
				graded bed. Clasts predominantly mudstone and siltstone with minor light grey fine
				sandstone clasts between 1.0 - 1.5cm predominant towards the base. Conspicuous greenish
				grey mudstone zone underlying the above.
76.08	81.65	5.57	5.60	Greyish red purple and greyish red and brownish grey plastically deformed, disrupted and
				brecciated mudstone and siltstone. c.f. from 56.80.
				Prominent wispy clacite veining imparts lace-like appearance throughout, less abundant with
				depth. Distinctive pale green mudstone/breccia between 76.56 - 76.76.
81.65	82.85	1.20	1.20	c.f. 60.47 - 71.98. Granule size isolated carbonate and andesite "clasts" evident
				throughout, as minor components.
				Disrupted bedding preserved sufficiently to give C.B.A. between 80 - 85°.
82.85	83.15	0.30	0.30	Brownish grey to greyish red purple siltstone and mudstone with sandy components,
				incorporating altered amygdaloidal andesite blocks from 7cm across to granule sized.
83.15	83.62	0.47	0.47	Continuation of above but predominantly porphyritic amygdaloidal vesicular andesite.
				Reddish brown sandy and silty ?mudstone within fracture or as matrix. Minor coarse grained
				pyrite, talc filled vesicules.
83.62	118.37	34.75	34.80	83.62 - 88.70. Porphyritic amygdaloidal and vesicular andesite, altered near top of interval
				Vesicles, amygdules invariably infilled with soft green talc, translucent pale green -
				?prehnite, white calcite and open quartz lined cavities, minor pitch and coarse grained

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 6
ine, Prospect:	Name: D.D.H. No. 2	core	
evel:	Northing:	Easting:	Collar R.L. ground/pipe:
earing M/T/G:	Incline:	Length:	Started: / Finished:
ole/Core size: HQ: NQ: BQ	Intervals assayed:		
Interval	Recov.y	Down Hole Survey - Method:	date: / by: / Logged by:

from	to	length	M/kg	DESCRIPTION
				pyrite within cavities and trace recrystallization over fracture surfaces.
				88.70 - 118.37. Andesite, minor grain size variations and occasional thin bands exhibit
				talc filled amygdules, minor calcite. Andesite slightly altered between 118.03 - 118.37,
				(base of flow), and talc/prehnite, trace pyrite filled vesicles abundant with depth
				increase.
118.37	167.95	49.58	50.00	118.37 - 120.90. Altered porphyritic amygdaloidal/vesicular andesite (top of flow)
				Abundant cavities containing infill minerals with minor pitch and pyrite.
				120.90 - 167.95. Porphyritic andesite predominantly finer grained with depth. Multiple
				flows. Flow chill boundaries 125.57 - 125.68, 127.31 -127.41, 128.71 - 128.85, 130.82 -
				130.98, 131.58 - 131.66, 133.62 - 133.76 and 137.39 - 137.69, including several thin minor
				zones. Reddish alternative zones containing small laths of ?plagioclase/?zeolites in
				aphanitic groundmass. Remainder andesite. Major fracture zones subparallel to core,
				infilled with calcite and talc. Minor pitch. Altered towards the base with abundant
				vesicles/amygdules.
167.95	168.24	0.29	0.29	Predominantly grey, discoloured medium grained sandstone with small conglomeratic clasts of
				chert, mudstone and siltstone. C.B.A. = 80 - 83°.
				Conspicuous conglomeratic band between 168.10 - 168.19.
168.24	168.35	0.11	0.10	Dark reddish brown fragmented mudstone rock - ?follsil soil.
168.35	171.48	3.13	3.22	Greyish red and greyish red purple mudstone grading to siltstone with depth. Medium
				coarse grained friable sandstone between 168.89 - 168.94. C.B.A. 45°.
				Abundant calcite gash veining criss-crossing throughout and small concretioary
				weathering stains characteristic.

[redacted]

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 7
Mine/Prospect:	Name: D.D.H. No. 2	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ:	NQ:	BQ	Intervals assayed:
Down Hole Survey - Method:	date:	by:	Logged by:

Interval			Recov.y	DESCRIPTION
from	to	length	M/kg	
				Weathering decreasing with depth. C.B.A. approx. 80 - 90°.
171.48	173.35	1.87	1.87	Moderate reddish brown (brick red) siltstone. Greenish grey subsperical weathering stains and moderate patches. Abundant subhorizontal calcite veining and minor blebs. Indistinct bedding. Rare dark red ?mudstone flakes.
173.35	181.06	7.71	7.70	Moderate reddish brown (brick red) siltstone exhibiting minor calcite veining. Characteristic greenish grey subpherical weathering stains and associated calcite filled fractures.
181.06	198.35	17.29	17.35	Continuation of above interval - intermittent intervals of "brick red" and greenish grey siltstone. Greenish grey siltstone common with increasing depth and slightly more dolomitic. Rare interbedded grained sandstone expecially near base. Occasional siltstone bands exhibit intraformational brecciatior.. Rare mudcrack and possible hairline dewatering structures particularly within greenish grey zones. C.B.A. 78 - 80°.
				END OF HOLE 198.35.

GEOCHEMICAL ASSAY RESULTS

WITCHBINYA D.D.H. No. 2

Interval (metres) From	To	Cu	Pb	Zn	U	Sample Type
0	1	25	25	55	X	Percussion
1	2	35	80	125	X	"
2	3	55	230	330	3	"
3	4	80	140	575	4	"
4	5	55	165	350	X	"
5	6	65	115	450	3	"
6	7	45	65	420	3	"
7	8	55	120	460	X	"
8	9	40	60	310	3	"
9	10	40	35	350	X	"
10	11	50	55	380	X	"
11	12	40	65	465	2	"
12	13	45	80	400	4	"
13	14	40	70	490	2	"
14	15	50	75	490	3	"
15	16	40	75	425	3	"
16	17	50	75	490	5	"
17	18	45	50	490	X	"
18	19	40	45	530	X	"
19	20	55	140	710	3	"
20	21	45	90	620	4	"
21	22	50	140	480	X	"
22	23	80	175	920	4	"
23	24	80	125	615	X	"
24	25	60	95	540	X	"
25	26	35	85	410	3	"
26	27	25	90	205	3	"
27.10	30.00	40	160	400	3	Split Core
30.00	30.95	45	170	520	3	"
30.95	33.50	25	50	130	2	"
33.50	36.35	40	85	6500	5	"
36.35	37.50	35	100	2800	7	"
37.50	39.35	30	85	1450	10	"
39.35	40.30	50	35	1700	X	"
40.30	41.00	20	35	880	3	"
41.00	42.35	30	35	570	X	"
42.35	43.30	35	40	135	X	"
43.30	44.30	45	45	60	3	"
44.30	45.35	25	35	240	3	"
45.35	46.40	35	35	860	6	"
46.40	47.35	75	35	1500	X	"
47.35	48.35	70	30	3600	X	"
48.35	51.35	30	35	3900	5	"
51.35	54.35	30	195	7900	11	"
54.35	57.60	35	60	1200	9	"
57.00	58.00	10	40	760	X	"
58.00	59.00	15	40	400	X	"
59.00	60.00	15	35	120	4	"
60.00	61.00	15	40	45	X	"
61.00	62.30	20	35	50	X	"
62.30	63.15	20	35	55	X	"
63.15	64.15	25	35	50	X	"
64.15	65.15	25	30	40	X	"

.(11)/

GEOCHEMICAL ASSAY RESULTS

WITCHBINYA D.D.H. No. 2

Interval (metres) From	To	Cu	Pb	Zn	U	Sample Type
65.15	66.10	20	35	40	-	Split Core
66.10	67.10	25	30	40	X	"
67.10	68.10	20	30	45	X	"
68.10	69.20	30	30	55	X	"
69.20	70.20	25	30	45	2	"
70.20	71.20	40	30	40	2	"
71.20	72.30	35	25	40	X	"
72.30	73.30	25	20	45	X	"
73.30	74.30	25	25	45	X	"
74.30	75.35	25	25	50	X	"
75.35	76.35	35	30	40	X	"
76.35	77.35	20	30	45	X	"
77.35	78.35	25	35	50	X	"
78.35	79.35	30	40	55	X	"
79.35	80.35	30	40	60	X	"
80.35	81.35	25	30	55	X	"
81.35	82.35	25	30	75	X	"
82.35	83.35	55	35	75	X	"
83.35	84.35	345	30	185	X	"
Andersite interval not assayed						
168.00	168.35	25	15	20	X	"
168.35	169.35	20	30	40	2	"
169.35	170.35	540	35	40	2	"
170.35	171.35	200	25	45	X	"
171.35	172.35	110	30	40	X	"
172.35	173.35	60	25	35	X	"
173.35	174.35	70	30	35	X	"
174.35	175.35	65	20	40	6	"
175.35	176.35	65	25	40	X	"
176.35	177.35	65	25	40	X	"
177.35	178.35	70	20	40	X	"
178.35	179.35	55	20	40	X	"
179.35	180.35	35	40	35	X	"
180.35	181.35	25	35	40	X	"
181.35	182.35	45	30	35	10	"
182.35	183.35	25	35	30	6	"
183.35	184.35	20	35	35	X	"
184.35	185.35	20	30	40	X	"
185.35	186.35	25	35	40	X	"
186.35	187.35	20	35	35	X	"
187.35	188.35	20	35	35	X	"
188.35	189.35	20	30	35	X	"
189.35	190.35	15	30	30	X	"
190.35	191.35	10	25	25	X	"
191.35	192.35	15	30	35	X	"
192.35	193.35	15	25	40	X	"
193.35	194.35	10	45	25	X	"
194.35	195.35	10	35	30	2	"
195.35	196.35	15	30	35	X	"
196.35	197.35	15	30	40	X	"
197.35	198.35	15	25	55	3	"

/(iii)/

GEOCHEMICAL ASSAY RESULTS

WITCHBINYA D.D.H. No. 2

Interval (metres) From	To	Cu	Pb	Zn	U	Sample Type
36.3	37.8	265	110	2050	X	Sludge
37.8	39.3	175	105	1900	4	"
39.3	40.8	120	65	830	3	"
55.3	56.8	220	70	410	5	"
56.8	58.3	140	65	1700	5	"
58.3	59.8	125	50	1600	4	"

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection level
- = element not determined

APPENDIX 3.

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 1
Mine/Prospect: Dorisvale Prospect	Name: PERCUSSION DRILL HOLE Witchbinya No. 3A	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline: Vertical	Length: 9.0m	Started: 20.7.81 / Finished: 21.7.81
Hole/Core size: HQ:	NQ: BQ	Intervals assayed:	
Interval (metres)	Recov.y	Down Hole Survey - Method:	date: / by: / Logged by: R.St. Georg

from	to	length	M/kg	DESCRIPTION
0	1			Pale red to moderate brown sandy soil. Lateritic pebbles.
1	3			Moderate brown to moderate yellowish brown silt material. Lateritic pebbles. Abundant light brown cherty fragments.
3	6			Moderate yellowish brown, yellowish orange granulated silt/clay rock (?ex limestone). Abundant pale brown - grey chert and siliceous ex limestone, fragments. Contamination evident from above.
6	9			REDUCED SAMPLE RECOVERY Continuation of above with reddish brown component between 8-9m Cave in contamination - large broken chert and grey limestone fragments.
				END OF HOLE 9.0m.

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 1
Mine Prospect: DORISVALE PROSPECT	Name: PERCUSSION DRILL HOLE WITCHBINYA NO. 3B		core
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline: Vertical	Length: 53.0m	Started: 21.7.81	Finished: 23.7.81
Hole/Core size: BQ:	NQ: BQ	Intervals assayed:		
Interval (metres)	Recov.y	Down Hole Survey - Method:	date:	by:	Logged by: R.St.George

from	to	length	M/kg	DESCRIPTION
0	5			Greyish orange and moderate reddish brown soil and subsoil. Abundant siltstone and minor chert chips. Quartz sand grains/lateritic pebbles. Between 4-6m probable leached ex limestone material.
5	6			Yellowish orange granulated and powdered silt/clay rock. Abundant grey chert chips. Pisolitic/lateritic pebble contamination evident from above interval.
6	8			Dusky yellow and dark yellowish orange leached ?ex limestone. Some contamination, but conspicuous slightly siliceous limonitic chips evident throughout. Minor translucent chert fragments.
8	11			Moderate yellowish brown and moderate reddish brown mudstone/siltstone chips and pebble sized clayey siltstone rock. Conspicuous chert and limonitic cherty material.
11	17			REDUCED SAMPLE RECOVERY Moderate reddish brown mudstone, siltstone. Minor increased chert with depth. Granulated material comprising quartz sand grains, mudstone and siltstone and minor brownish grey Fe-stone and chert. Very rare dark grey crystalline ?limestone fragments.
17	18			Yellowish grey and greyish orange leached siltstone clay rock (?ex limestone). Minor chert fragments but contamination evident with conspicuous pebble sized 'rolled' reddish brown mud/silt from above interval.
18	24			Powdered dusky yellow and greyish orange leached ?ex limestone. Minor contamination - pebble sized 'rolled' reddish mudstone/chert.

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 2
Mine, Prospect: DORISVALE PROSPECT	Name: PERCUSSION DRILL HOLE WITCHBINYA NO. 3B	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ: NQ: BQ	Intervals assayed:		
Interval (metres)	Recov.y	Down Hole Survey - Method:	date: / by: / Logged by: R.St.George

from	to	length	M/kg	DESCRIPTION
24	32			Continuation of previous interval.
				Predominantly powdered dark yellowish orange clay rock (?ex limestone).
32	35			Powdered dusky yellow to light greyish red mudstone or clay rock. Gradational increase in pale red component with depth.
35	43			Pale to dark reddish brown powdered mudstone. Between 36-37m, gradational to 38m of moderate yellowish brown component.
				Small grey/light grey cherty chips evident throughout and abundant between 36-37m and 42-43m. Dark grey crystalline ?limestone chips exhibit small cavities especially towards base.
43	45			Continuation of above.
				Moderate reddish brown, powdered ?mudstone. Abundant chert as above.
45	51			Reduced sample recovery.
				Light olive brown to moderate orange brown ?leached powdered and granulated silt/mud rock.
				Moderately abundant chert, dark grey and pale orange crystalline limestone fragments and rare siliceous limonitic chips.
51	53			Reduced sample recovery.
				Ground water affecting recovery - major contamination from intervals above.
				Sample constituents include lateritic pebbles, chert, mudstone and siltstone chips in pale red to reddish brown mud.
				END OF HOLE 53.0m

GEOCHEMICAL ASSAY RESULTS

WITCHBINYA P.D.H. No. 3A

Interval (metres) From	To	Cu	Pb	Zn	U	Sample Type
0	1	35	35	150	2	Percussion
1	2	55	65	340	8	"
2	3	50	80	430	9	"
3	4	45	70	300	8	"
4	5	45	55	245	6	"
5	6	55	75	510	8	"
6	7	45	55	405	8	"
7	8	45	50	315	7	"
8	9	45	50	240	4	"

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection level
- = element not determined

GEOCHEMICAL ASSAY RESULTS

WITCHBINYA P.D.H. No. 3B

Interval (metres) From	To	Cu	Pb	Zn	U	Sample Type
0	1	40	55	290	9	Percussion
1	2	40	45	240	9	"
2	3	30	35	165	6	"
3	4	35	45	190	7	"
4	5	40	55	330	8	"
5	6	45	65	505	7	"
6	7	40	60	425	5	"
7	8	35	55	295	3	"
8	9	35	55	230	7	"
9	10	40	70	290	4	"
10	11	45	75	465	8	"
11	12	30	60	305	2	"
12	13	30	55	195	6	"
13	14	50	75	460	X	"
14	15	50	90	420	6	"
15	16	40	70	305	4	"
16	17	55	75	410	5	"
17	18	70	180	390	3	"
18	19	80	120	325	4	"
19	20	105	205	315	7	"
20	21	85	135	505	6	"
21	22	70	95	385	5	"
22	23	65	90	470	5	"
23	24	45	55	410	6	"
24	25	40	55	325	4	"
25	26	40	60	310	4	"
26	27	35	75	330	4	"
27	28	30	50	315	6	"
28	29	45	50	365	9	"
29	30	45	60	420	6	"
30	31	40	60	395	4	"
31	32	40	50	580	4	"
32	33	45	55	590	4	"
33	34	55	60	550	2	"
34	35	95	250	1800	8	"
35	36	55	85	475	4	"
36	37	50	90	465	X	"
37	38	55	70	440	2	"
38	39	45	55	365	X	"
39	40	35	45	320	X	"
40	41	35	65	380	3	"
41	42	30	65	320	3	"
42	43	30	60	290	X	"
43	44	30	125	490	2	"
44	45	30	590	690	X	"
45	46	35	890	2000	X	"
46	47	30	760	1500	4	"
47	48	30	1000	1500	3	"
48	49	30	540	865	2	"
49	50	45	540	1550	6	"
50	51	50	460	2050	3	"
51	52	40	320	800	7	"
52	53	35	195	735	3	"

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection level

APPENDIX 4.

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 1.
Mine/Prospect:	Name: WITCHBINYA D.D.H. No. 4 (site H)		core
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline: Vertical	Length: 141.00	Started: 5/7/81 Finished: 9/7/81
Hole/Core size: HQ:	NQ: BQ	Intervals assayed:	
Interval	Recov.y	Down Hole Survey - Method:	date: by: Logged by:

from	to	length	M/kg	DESCRIPTION
				0 - 36.0 NON-CORE DRILLING
0	1.0			Red brown soil, pebbles, pisolites.
1.0	2.0			Dark yellow, red clayey subsoil - pebbles.
2.0	3.0			Pale greens, yellowish orange clay.
3.0	22.0			Predominantly unweathered light grey fine to medium crystalline limestone. Occasional cavity zones especially over basal 8.0m.
22.0	24.0			Dark reddish brown soft clay/silt, with yellow ?siltstone chips/?pebbles.
24.0	28.0			Pale purplish soft clay/silt and greenish yellow clay/siltstone chips. Minor light grey limestone chips.
28.0	31.0			Dark reddish brown and pale purple silt. Minor grey limestone and yellow orange siltstone chips.
31.0	33.0			Dark and moderate reddish brown silt/mudstone.
33.0	35.0			Dark reddish brown soft silt/mudstone.
35.0	36.0			Slightly harder/compacted dark reddish brown silt/mudstone-small harder yellowish siltstone chips and rare limestone chips.
				CORE DRILLING
36.0	40.65	4.65	4.28	Moderate to dark reddish brown mudstone and siltstone exhibiting intense preconsolidation deformation features. Conspicuous black ?manganese oxide or carbonaceous material as small blebs and elongate discontinuous wispy streaks throughout.

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 2
Mine/Prospect:	Name: D.D.H. No. 4	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: BQ:	NQ:	BQ	Intervals assayed:

Interval			Recov.y	Down Hole Survey - Method:	date:	by:	Logged by:

from	to	length	M/kg	DESCRIPTION
				Minor calcite fracture filling and associated bleached greyish orange colouration
				throughout adjacent rock.
				Basal 0.20m poorly cored soft mud/silt.
40.65	42.0	1.35	1.12	Light olive and medium light grey, silty or fine sandy limestone. Bedding between 1.0 -
				4.0cm thick. Distinctive very light grey, bluish white chert bands to 1.0cm thick and
				abundant disoidal and irregular shapes chert nodules. Limestone weathered to soft silty
				material along fractures. C.B.A. 80 - 85°.
42.00	43.00	1.00	0.40	Greyish yellow and orange leached plastically deformed siltstone. Abundant light grey
				cherty fragments often nodular - ?continuation from above. Grey black manganese oxide
				smears characteristic throughout.
43.00	47.35	4.35	1.75	43.00 - 45.40, 2.40. 1.00)
				45.40 - 47.35, 1.95. 0.90) RECOVERY
				c.f. 36.00 - 40.65. Weathered moderate to dark reddish brown mudstone and siltstone - cored
				in soft plastic state.
				Recognisable preconsolidation soft sediment deformation throughout.
				Cored sections exhibit cavities and occasional greyish yellow and orange rather resistant
				?ex carbonate rock.
47.35	52.70	5.35	1.00	47.35 - 47.90, 0.55, 0.55)
				47.90 - 51.40, 3.50, 0.25) RECOVERY
				51.40 - 52.70, 1.30, 0.25)
				Broken core. Fractured silica chert rock. Red to limonite brown mottled patches and
				conspicuous Fe oxide coatings along fracture surfaces.

[redacted]

GEOLOGICAL LOG		Mine Code	Ms Code	Page 3
ne/Prospect:	Name: D.D.H. No. 4		core	
vel:	Northing:	Easting:	Collar R.L. ground/pipe:	
aring M/T/G:	Incline:	Length:	Started:	Finished:
le/Core size: HQ: NQ: BQ		Intervals assayed:		
Interval / Recov.y	Down Hole Survey - Method:	date:	by:	Logged by:

from	to	length	M/kg	DESCRIPTION
				Cavities abundant throughout occasionally retaining remnant silty material and minor recovered reddish brown mud.
52.70	61.30	8.60	8.55	Light brownish grey mottled disrupted nodular bedded limestone with greyish orange and moderate orange pink leached porous silty carbonate ?interbeds. Stylolites abundant throughout often delineating boundaries between leached and non-leached material. Vague Fe stain leisegang banding decreasing as leaching declines with depth. Nodular or characteristic concretionary, patchy appearance particulary evident in strongly leached sections. Fragmentary brecciated appearance within grey limestone components with poorly defined medium grey wavey laminae rarely evident. Minor blebs, chert , calcite and veining. Rare small blebs of phrite and fracture fill.
				BASE OF WEATHERING 61.30
.30	66.29	4.99	4.89	Light grey-brownish grey and medium light grey limestone with medium grey and dark grey disrupted wavey shaley interbeds and wispy stylolaminae. Shaley components increasing with depth. Nodular appearance throughout. Well developed stylolites moderately abundant and outlined in black carbonaceous pyritic material. Calcite and silica filled blebs, rare pyrite blebs.
				Pale brown mineral (carbonate) as distinctly cleaved small crystals evident on broken surfaces between approximately 61.00 - 63.40.
.29	69.13	2.84	2.82	Continuation of above. Conspicuous calc-avenite in nodular or irregular bands comprising

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 4
Line/Prospect:	Name: D.D.H. No. 4	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ: NQ: BQ	Intervals assayed:		

Interval			Recovy	Down Hole Survey - Method:	date:	by:	Logged by:
from	to	length	M/kg	DESCRIPTION			
				scattered very fine sand sized to clasts 3-4mm across - less abundant with depth.			
				Between 66.29 - 66.40 granules of soft green ?talc mineral. Minor pyrite associated with			
				green mineral and as rare small blebs. Rare cylindrical shaped fossils (?Hyalithid).			
69.13	71.16	2.03	2.00	Fossiliferous limestone. Cylindrical shaped fossils particularly abundant between 69.13 -			
				69.61. Fewer recognisable fossil outlines with increasing depth.			
				Well developed stylolites numerous with shale components decreasing with depth. Calcite			
				blebs and minor veining throughout. Trace possible sphalerite associated with crystalline			
				carbonate.			
71.16	72.40	1.24	1.30	Medium grey limestone with conspicuous hair thin to 2mm wide black poorly pyritic			
				carbonaceous laminae. Rare 3 - 6mm thick breccia beds and massive limestone exhibiting			
				interformational brecciation and incipient fracturing. Minor calcite veining and blebs			
				with associated pyrite. Stylolites present but rare. C.B.A. approx. 80 - 85° and			
				probably representative from 52.70.			
72.40	84.09	11.69	11.55	Predominantly greyish green, dusky yellow green, greyish red and greyish red purple			
				mudstone, silty mudstone, ?dolomitic siltstone and minor sandy components. Dolomite or			
				carbonate present throughout but gradational to pure mudstone rock.			
				Mild to moderate subhorizontal ?dolomite or calcite veining or ?primary beds to 2 mm thick -			
				??sphalerite.			
				Pyrite finely disseminated throughout and evident as fine discontinuous streaks and minor			
				blebs especially between 72.40 - 73.20. Possible trace chalcopyrite brecciation or			
				mudcrack style disruption within mottled silty mudstone units; white carbonate rich layers			

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 5
Mine/Prospect:	Name: D.D.H. No. 4	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole, Core size: HQ:	NQ:	BQ	Intervals assayed:
Down Hole Survey - Method:	date:	by:	Logged by:

Interval from	Interval to	Interval length	Recov.y M/kg	DESCRIPTION
				both plastically deformed and elongate floated clasts.
				78.00 - 80.50. Conspicuous discoidal flat brick red (?volcanic) siliceous nodules noted
				also as fragmented clusters throughout carbonate rich zones or within dark grey contorted
				soft carbonaceous mudstone bands.
				81.80 - 82.02. Conspicuous oblate, discoidal shaped, olive green grey chert nodules.
				C.B.A. 85°.
84.09	85.30	1.21	1.20	Light brownish and olive grey slightly porous (?leached) ex carbonate (?dolomite, ?limestone
				Minor mudstone and fine siltstone bands exhibit characteristic disrupted bedding.
				Occasional thin (1cm) bedding with distinctive stylolite laminae and bedding abundant toward
				the base. Calcite and minor silica blebs and rare concretionary chert masses.
				Minor pyritic blebs and finely disseminated pyrite following fractures or minor carbonate
				laminae.
85.30	99.36	14.06	14.18	Pale yellowish brown and medium grey limestone. Leached porous pale yellowish brown
				(?ex carbonate) patchy matrix, often comprising slightly siliceous ?residual limestone
				clasts or nodules. Between 88.84 - 91.85, abundant subspherical cavities. Brecciation/
				plastic deformation structures evident, with porous material occasionally stylolite banded
				and mottled yellowish/yellowish brown. Wispy, wavey grey streaks may indicate original
				bedding attitudes.
				93.43 - 93.50. Predominantly leached. Vague circular structures - ?fossil.
				93.50 - 99.36. Leaching less pronounced with increased depth; pale yellow mottling
				throughout. Calcite major vein material or as abundant small blebs. Minor pyrite coarsely

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 6
Mine/Prospect:	Name: D.D.H. No. 4.		core
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M.T.G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ:	NQ:	BQ	Intervals assayed:
Down Hole Survey - Method:	date:	by:	Logged by:

Interval from	Interval to	Interval length	Recov.y M/kg	DESCRIPTION
				crystalline associated with carbonate and fine grained within dark grey stylolitic material.
99.36	105.20	5.84	5.76	99.36 - 100.48. Light brownish grey, medium light grey, thin bedded (2 - 5mm), cherty limestone. Rare well developed stylolites and numerous stylolaminae throughout. Basal 0.3m, mottled, pale yellow grey, medium grey ?dolomite limestone, disrupted bands evident and brecciated at base. Clasts to 6mm in granule arenitic matrix. 100.48 - 105.20. Intermittent bands to 0.5m of greenish grey, moderate reddish brown to pale pink plastically deformed mudstone/?dolomitic siltstone and ?dolomite, with occasional thin well defined dark grey shaley beds. Minor pyritic blebs. Remainder between 100.95 - 101.33; 102.51 - 103.02; 103.84 - 104.60, comprises thin bedded and finely laminated pale brown ?leached, slightly porous and fresh medium grey/medium dark grey ?recrystallized limestone. Abundant pale yellow and dark grey chert beds and isolated/disrupted nodular masses. Bedding commonly pinched or disrupted. Calcite blebs and minor silica in small cavities, fractures, minor pyritic blebs, fracture fill.
105.20	127.83	22.63	22.70	Greyish red purple and greyish red thinly interbedded mudstone and siltstone/silty mudstone/ Preconsolidation slumping, disruption, brecciation prevalent throughout. Pale greenish weathering pigmentation staining associated with fractures often with associated resinous lustred, orange brown crystals (?sulphate). Calcite veining. (121.20 - 121.55, 123.05 - 126.52), mudstone/siltstone exhibiting pale greenish mottled zones with remainder reddish lavender in colour. Strongly metallic, small magnetic crystals isolated throughout with conspicuous associated increased incidence of orange brown (?sulphate) crystals.

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 7
Mine/Prospect:	Name: D.D.H. No. 4	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ:	NQ:	BQ	Intervals assayed:
Interval	Recov.y	Down Hole Survey - Method:	date: / by: / Logged by:

from	to	length	M/kg	DESCRIPTION
				(127.23 - 127.83), 0.33m brecciated ?graded mudstone.siltstone with larger medium light grey fine sandstone clasts (up to 2cm across) evident near base. Contact with carbonate rich/dolomitic material and pale green talc, mottled mudstone transitional to laminated ?dolomite to 127.83. Local C.B.A. 65 - 70° at base.
127.83	135.35	7.52	7.55	Continuation of above. Greyish red purple/greyish red mudstone and siltstone. Conspicuous interweaving "lace" calcite veining evident throughout, but declining with depth.
135.35	136.21	0.86	0.85	Continuation of above. Fine sandy arenitic commonly disrupted with small ?carbonate and blue grey ?altered, volcanic material (?andesite), abundant with depth.
136.21	137.67	1.46	1.25	Broken core. Dark greenish grey altered, porphyritic amygdaloidal andesite or basalt. Strong fracturing with white crystalline calcite fracture fills and irregular slightly weathered contact with greyish red fine grained sandstone. Minor pyrite.
137.67	141.00	3.33	3.30	Dark greenish grey, ?altered, amygdaloidal andesite. Amygdules infilled with soft chloritic talc mineral and white crystalline clacite. Minor pyrite throughout as small isolated grains as associated with fractures. Pitch evident as seepage from fine fractures.
				END OF HOLE 141.00.

GEOCHEMICAL ASSAY RESULTS

WITCHBINYA D.D.H. No. 4

Interval (metres) From	To	Cu	Pb	Zn	U	Sample Type
0	1	80	240	210	X	Percussion
1	2	80	200	335	X	"
2	3	50	70	120	2	"
3	4	20	65	60	X	"
4	5	20	60	55	X	"
5	6	20	60	130	X	"
6	7	20	50	60	2	"
7	8	20	55	55	X	"
8	9	20	60	60	X	"
9	10	25	60	80	X	"
10	11	20	60	50	X	"
11	12	15	60	60	X	"
12	13	15	60	50	X	"
13	14	20	55	100	X	"
14	15	20	60	75	X	"
15	16	10	50	70	X	"
16	17	20	50	40	X	"
17	18	20	50	60	X	"
18	19	20	40	125	X	"
19	20	20	50	80	24	"
20	21	10	50	60	X	"
21	22	20	50	90	X	"
22	23	50	75	270	X	"
23	24	50	70	210	2	"
24	25	30	70	190	2	"
25	26	20	50	110	X	"
26	27	30	60	130	X	"
27	28	30	60	95	X	"
28	29	35	70	255	X	"
29	30	30	150	285	X	"
30	31	45	540	770	X	"
31	32	50	360	650	X	"
32	33	50	190	450	X	"
33	34	70	325	700	X	"
34	35	70	300	650	2	"
35	36	60	280	630	4	"
36.00	37.60	15	30	125	2	Split Core
37.60	39.10	20	40	205	X	"
39.10	40.50	25	40	225	X	"
40.50	42.00	25	60	260	X	"
42.00	43.00	35	65	560	2	"
43.00	44.20	30	35	350	X	"
44.20	45.40	15	40	370	X	"
45.40	46.65	25	75	700	X	"
46.65	47.50	35	250	1150	X	"
47.50	47.90	20	325	9250	X	"
47.90	51.40	55	930	4.8%	X	"
51.40	52.70	15	180	1400	X	"
52.70	53.50	10	210	1150	X	"
53.50	54.20	10	105	725	X	"
54.20	55.05	10	95	530	X	"
55.05	56.25	10	105	800	X	"

GEOCHEMICAL ASSAY RESULTS

WITCHBINYA D.D.H. No. 4

Interval (metres) From	To	Cu	Pb	Zn	U	Sample Type
56.25	57.40	15	85	695	X	Split Core
57.40	58.50	10	70	240	X	"
58.50	59.50	10	70	265	X	"
59.50	60.40	15	65	180	X	"
60.40	61.40	15	65	210	X	"
61.40	62.40	10	65	160	3	"
62.40	63.40	15	70	125	-	
63.40	64.40	15	60	105	-	"
64.40	65.40	10	65	130	2	"
65.40	66.40	10	65	60	X	"
66.40	67.45	15	60	50	2	"
67.45	68.45	15	70	85	-	"
68.45	69.40	15	80	90	X	"
69.40	70.40	10	65	45	X	"
70.40	71.40	10	70	55	X	"
71.40	72.40	15	70	30	X	"
72.40	73.46	50	50	45	4	"
73.46	74.50	20	35	45	4	"
74.50	75.40	20	40	45	3	"
75.40	76.40	20	40	50	2	"
76.40	77.40	25	45	30	3	"
77.40	78.48	20	45	35	2	"
78.40	79.40	15	35	50	2	"
79.40	80.45	65	40	45	3	"
80.45	81.45	35	45	35	2	"
81.45	82.40	60	40	35	3	"
82.40	83.40	30	45	35	X	"
83.70	84.04	21	26	56		"
84.04	85.00	22	49	68		"
85.00	86.00	31	64	212		"
86.00	86.94	8	80	29		"
86.94	87.40	7	43	20		"
87.40	88.04	5	42	20		"
88.04	89.00	5	46	20		"
89.00	89.95	4	50	17		"
89.95	90.95	5	46	20		"
90.95	91.82	6	43	24		"
91.82	92.70	4	39	26		"
92.70	93.68	3	31	41		"
93.68	94.70	6	37	32		"
94.70	95.65	5	42	27		"
95.65	96.40	6	37	23		"
96.40	97.35	5	40	27		"
97.35	98.30	4	46	22		"
98.30	99.25	4	43	27		"
99.25	100.15	5	56	30		"
100.15	101.06	22	53	61		"
101.06	101.97	20	35	29		"
101.47	102.82	21	36	40		"
102.82	103.73	15	31	31		"
103.73	104.67	8	44	311		"
104.67	105.40	206	39	67		"
105.40	106.20	16	28	41		"

GEOCHEMICAL ASSAY RESULTS

WITCHBINYA D.D.H. No 4

Interval (metres) From	To	Cu	Pb	Zn	U	Sample Type
106.40	107.40	15	40	30	2	Split Core
107.40	108.40	25	40	35	2	"
108.40	109.40	15	45	30	X	"
109.40	110.40	20	40	95	X	"
110.40	111.40	30	40	45	X	"
111.40	112.40	30	40	40	C	"
112.40	113.40	30	35	40	X	"
113.40	114.40	20	30	35	X	"
114.40	115.40	25	40	35	X	"
115.40	116.40	25	40	35	X	"
116.40	117.40	30	40	30	X	"
117.40	118.40	30	40	35	X	"
118.40	119.40	25	35	35	X	"
119.40	120.40	25	30	35	X	"
120.40	121.40	25	25	40	X	"
121.40	122.40	30	30	30	X	"
122.40	123.40	35	35	40	X	"
123.40	124.40	30	35	45	X	"
124.40	125.40	20	25	45	X	"
125.40	126.40	15	25	45	X	"
126.40	127.10	15	20	40	X	"
127.10	128.10	100	25	40	X	"
128.20	129.20	20	40	50	X	"
129.20	130.20	15	30	60	X	"
130.20	131.20	15	30	50	X	"
131.20	132.20	20	35	55	4	"
132.20	133.30	20	35	55	2	"
133.30	134.30	20	35	60	X	"
134.40	135.40	15	30	70	2	"
135.40	136.40	35	35	65	X	"
136.40	137.45	135	30	600	X	"
137.45	138.40	320	30	410	X	"
138.40	139.90	340	30	330	X	"
139.90	141.00	290	30	110	X	"

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection level
- = element not determined

APPENDIX 5.

[redacted] ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 1
ine Prospect:	Name: WITCHBINYA D.D.H. No. 5 (Site A)	core	
evel:	Northing:	Easting:	Collar R.L. ground/pipe:
earing M/T/G:	Incline: Vertical	Length: 169.10	Started: 10.7.81 / Finished: 16.7.81
ole/Core size:	HQ: NQ: BQ	Intervals assayed:	
	Down Hole Survey - Method:	date:	by: / Logged by:

Interval			Recovery	DESCRIPTION
from	to	length	M/kg	
0	3.00			0 - 9.00 NON-CORE DRILLING Moderate reddish brown pisolitic soil and subsoil. Abundant quartz fragments - angular to subrounded grains throughout.
3.00	9.00			Granulated reddish brown silt/mudstone rock with associated small cherty chips. Lateritic pebbles from above interval.
9.00	19.90	10.90	8.80	9.00 - 11.45, 2.45, 1.80) 11.45 - 14.50, 3.05, 3.00) 14.50 - 16.50, 2.00, 1.80) 16.50 - 18.40, 1.90, 1.55) RECOVERY 18.40 - 19.80, 1.40, 0.65)
				Moderate - dark reddish brown, pale and greyish red purple mudstone. Core predominantly poorly preserved but sections exhibit soft sediment deformation and mudcrack structures. Pale green mottling. Minor thin interbedded mudstone and carbonate rich siltstone bands. C.B.A.2-83°.
19.90	21.50	1.60	1.15	Pale olive brown mudstone with harder slightly siliceous ?ex-dolomitic siltstone, as thin bedded, disrupted, brecciated sections. Liesegang banding and Fe oxide staining conspicuous.
21.50	26.50	5.00	4.50	Pale greenish yellow, lightly Fe stained, fractured and predominantly thin bedded, leached shale and mudstone. Occasional thin (up to 1cm) resistant (slightly silica rich) siltstone interbeds. 23.15 - 25.10. Significant liesegang and Fe staining throughout. Rare thin grey cherty

[redacted]

GEOLOGICAL LOG	Mine Code	Ms Code	Page 2
ine/Prospect:	Name: D.D.H. No. 5	core	
evel:	Northing:	Easting:	Collar R.L. ground/pipe:
earing M/T/G:	Incline:	Length:	Started: / Finished:
ole/Core size. HQ:	NQ:	BQ	Intervals assayed:
Down Hole Survey - Method:	date:	by:	Logged by:

Interval			Recov.	DESCRIPTION
from	to	length	M/kg	
				bands - occasionally nodular.
				25.10 - 26.50. Pale yellow orange leached siltstone and interbedded shale. Light grey/
				white vuggy ex-carbonate layers becoming prominent with depth. Manganese exide staining
				and dendrites evident on bedding and fracture surfaces. C.B.A. 80°.
26.50	28.00	1.50	1.06	Pale yellowish orange and greyish orange leached ex-carbonate rock (?limestone) with thin
				pale yellowish, leached siltstone and shale interbeds.
				Limestone with mottled fragmentary appearance (?brecciated) and minor silica replacement -
				white ?calcite blebs and veining. Abundant small leached cavities throughout. Dull grey
				manganese oxide smears common.
28.00	33.20	5.20	4.00	Continuation of above. Medium light grey, light grey brecciated or nodular poorly bedded
				?algal ex-carbonate rock (?limestone) and leached pale yellowish orange, greyish orange
				?siltstone or ex-carbonate material as matrix or leached porous disrupted interbeds.
				Detectable bedding absent, with brecciated and patchy appearance throughout.
				Beds up to 1.50m thick contain distinctive, ovoid, to subcircular shaped ?algal masses -
				?Oncolites up to 2cm diameter.
				Cavities in porous leached material as above.
33.20	36.75	3.15	2.90	Pale yellowish orange, greyish orange leached ?algal (?Oncolitic) carbonate rock (limestone)
				Similar to above intervals but with increased leached porous component. Patchy mottled,
				medium to coarsely crystalline (?ankerite) carbonate nodules.
				Structure obliterated over balal 1.00m - abundant manganese oxide smears, streaks, calcite
				and small carbonate rich, silty ?clasts.

[redacted] ASHTON MINING [redacted]

GEOLOGICAL LOG	Mine Code	Ms Code	Page 3
Line/Prospect:	Name: DDH. No. 5	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ: NQ: BQ	Intervals assayed:		
Interval	Recov.y	Down Hole Survey - Method:	date: / by: / Logged by:

from	to	length	M/kg	DESCRIPTION
36.75	37.70	1.35	1.25	Slightly fresher greyish orange, yellowish grey poorly bedded, fossiliferous limestone with disrupted yellow orange leached shale and ex-carbonate interbeds or "matrix". Brecciated to nodular appearance throughout. Abundant cylindrical shaped fossil and fossil fragment moulds. Silica replacement with rare intact recognisable brachoipods, cylindrical ?Hyalithids exposed on weathered fracture surfaces. Leaching prominent with depth.
37.70	44.30	6.50	3.40	37.70 - 40.25, 2.55, 1.15) 40.25 - 43.55, 3.30, 1.50) RECOVERY 43.55 - 44.30, 0.75, 0.75)
				Continuation of above. Leached soft greyish orange to moderate reddish orange fossiliferous limestone. Typical leached siltstone/shale with bands of nodular light grey predominantly unweathered limestone. Significant leached component throughout. Light Fe oxide staining and vague liesegang banding evident. Abundant-hollow cylindrical shaped fossils.
44.30	54.65	10.35	10.15	Continuation of above. Light grey, greyish orange predominantly unweathered fossiliferous limestone. Wavey leached, moderate reddish orange interbeds imparting "matrix" appearance and comprising "floating" elongate limestone nodules. 49.65 - 50.15. Unweathered limestone. Disrupted, vaguely nodular bedded, grey medium crystalline limestone with wavey, dark grey shaley interbeds, wispy stylo-laminae and "matrix". Residual weathered limestone nodular cores within strongly leached orange Fe stained ?shale

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ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 4
Mine/Prospect:	Name: D.D.H. No. 5		core
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ:	NQ:	BQ	Intervals assayed:
Down Hole Survey - Method:	date:	by:	Logged by:

Interval			Recov.y	DESCRIPTION
from	to	length	M/kg	
				prominent with increasing depth. C.B.A. 83^0.
54.65	65.40	10.75	8.95	54.65 - 57.05, 2.40, 2.35
				57.05 - 60.20, 3.15, 3.10
				60.20 - 62.60, 2.40, 1.15
				62.60 - 65.40, 2.80, 2.35
				Dusky yellow to moderate reddish orange soft leached ex-mudstone or shale. Abundant dull-grey manganese oxide smears throughout. Bedding only rarely detectable as fine silty laminae or orientation of fine wispy shale laminae.
				Moderate to strong, dark yellowish orange, limonite brown Fe oxide staining between 62.60 - 65.00.
				62.60 - 62.80. Contains broken bands or isolated clots of soft, low specific gravity, dark black very carbonaceous material.
65.40	66.98	1.58	1.28	Gradationally leached from yellowish orange to slightly cherty, grey silica ?ex-carbonate rock (limestone).
				Trace pyrite and minor carbonate veining. Occasional well-developed stylolitic fractures.
				Bedding not evident but rare small medium dark grey cherty "clasts".
66.98	73.06	6.08	6.05	Greyish red, reddish brown, micaceous and bedded silty mudstone and siltstone.
				Brecciation evident expecially near base with remainder exhibiting soft plastic deformation throughout. Minor carbonate fracture fillings, veining and pale yellow mottled weathering stains. C.B.A. 85^o.
73.06	76.38	3.32	3.40	Unweathered medium grey and mottled porous semi-leached greyish orange ?recrystallized

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 5
ne/Prospect:	Name: D.D.H. No. 5	core	
evel:	Northing:	Easting:	Collar R.L. ground/pipe:
earing M/T/G:	Incline:	Length:	Started: / Finished:
ole/Core size: HQ:	NQ:	BQ	Intervals assayed:
Interval	Recov.%	Down Hole Survey - Method:	date: / by: / Logged by:

from	to	length	M/kg	DESCRIPTION
				limestone, rarely thin bedded with conspicuous medium light grey nodular chert bands and
				isolated irregular elongate chert nodules.
				74.35 - 74.85. Large crystalline carbonate filled fracture and associated oxidized pyrite
				clots. Abundant coarse grained pyrite blebs. Trace possible sphalerite as small isolated
				scattered grains in chert at 73.96.
				75.00 - 75.52, 75.92 - 76.38. Pale yellowish, bluish grey and orange and reddish brown
				mudstone, ?dolomitic siltstone. Bedding disrupted/deformed throughout exhibiting dull-grey
				manganese oxide smears.
				Minor fine cavities evident in bluish grey ?dolomitic mudstone.
76.38	80.78	4.40	1.20	Core loss between 78.40 - 80.78.
				Greyish red, reddish brown mudstone and siltstone. Soft sediment slumping, deformation
				prevalent. Minor mottled yellowish weathering.
				78.40 - 80.78. Soft unconsolidated reddish brown silt/mud.
80.78	94.94	14.16	14.30	Light brownish grey mottled disrupted nodular bedded limestone with greyish orange and
				moderate orange pink leached porous ?silty carbonate interbeds. Vague Fe oxide staining
				and liesegang banding with abundant stylolitic fractures throughout.
				Characteristic patchy or nodular concretionary appearance evident in strongly leached sections
				Brecciated appearance within non-leached limestone - small dark grey cherty blebs (?clasts)
				often subcircular in shape (up to 1cm diameter) - ?fossil oncolite material.
				Occasional small pyritic blebs, calcite veining and leached cavities.
94.94	107.44	12.50	12.60	Continuation of above.

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 6
ine/Prospect:	Name: D.D.H. No. 5	core	
evel:	Northing:	Easting:	Collar R.L. ground/pipe:
earing M/T/G:	Incline:	Length:	Started: / Finished:
ole/Core size: HQ: NQ: BQ	Intervals assayed:		
Interval	Recov.y	Down Hole Survey - Method:	date: / by: / Logged by:

from	to	length	M/kg	DESCRIPTION
				94.94 - 101.66. Light grey-brownish grey and medium light grey limestone with medium and dark grey disrupted wavey shaley interbeds and discontinuous wispy stylo laminae. Shale component increasing with depth - turbidite structures evident. Well developed stylolites moderately abundant and outlined in black carbonaceous material. Minor calcite veining. Leaching gradational from above interval with minor orange oxidation fracture coatings. Pale brown mineral (carbonate) exhibiting distinctive cleavage as abundant small crystals especially visible over broken surfaces from approximately 96.00 - 98.40. Distinctive oblate cherty/siliceous masses (?nodules/oncolites) over basal 2 metres.
				101.66 - 104.10. Numerous scattered angular, subrounded "clasts" - ?fossil fragments, sand sized chert and limestone. Small clusters of greenish soft chloritic ?talc mineral with associated pyritic rims and throughout. Rare cylindrical fossils.
				104.10 - 107.44. Abundant cylindrical shaped fossils (external circular section commonly visible). Well developed stylolites especially in sections with decreased shall component; and calcite blebs. Limestone more massive near base and exhibiting rare pyritic black carbonaceous laminae and typical wispy stylolaminae. C.B.A. 86 - 88°.
107.44	119.45	12.00	12.00	Predominantly greyish green, dusky yellow green, greyish red and greyish red purple, mudstone, silty mudstone, ?dolomitic siltstone and fine sandstone as minor component. Light grey, white carbonate rich bands, invariably ?mudcracked, brecciated, with elongate "clasts" floating in mudstone matrix. ?Calcite or dolomite subhorizontal veining (primary layers) with minor silica. Greyish green mudstone/?dolomite - siltstone exhibits pyrite as fine discontinuous streaks, small

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GEOLOGICAL LOG	Mine Code	Ms Code	Page 7
Mine/Prospect:	Name: D.D.H. No. 5	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ:	NQ:	BQ	Intervals assayed:
Down Hole Survey - Method:	date:	by:	Logged by:

Interval from	Interval to	Interval length	Recov.y M/kg	DESCRIPTION
				blebs and finely disseminated throughout. Characteristic purple red and greenish mottling
				throughout exhibiting soft sediment mudcrack and slump features.
				112.70 - 112.84, 115.00 - 115.10. Conspicuous discoidal flattened "brick red" siliceous
				(?volcanic) nodules, in mudstone, minor disrupted cherty clusters, commonly throughout
				carbonate rich bands.
				116.50 - 116.90. Conspicuous medium grey, dusky brown oblate chert nodules C.B.A. 82 - 84°
119.45	123.25	3.80		Zero core recovery.
123.25	123.55	0.30	0.12	Unconsolidated reddish brown micaceous mudstone/siltstone.
123.55	135.10	11.55	10.45	123.55 - 126.45. Pale yellowish brown and medium light grey limestone ?breccia. Leached
				porous yellowish brown ?ex-carbonate material as irregular patchy matrix or deformed interbe
				Small subspherical cavities common throughout. Stylolites.
				126.45 - 135.10. Leached porous, yellowish brown mottled ex-carbonate (?limestone) material
				with only residual medium light grey limestone nodular masses or interbeds, especially
				between 127.20 - 129.40. Probable cylindrical shaped fossils and fragments exposed as
				distinct circular and elongate outlines.
				Limestone slightly less leached and exhibiting medium crystalline cores near base. Abundant
				cavities and carbonate (calcite) vein material.
135.10	140.66	5.56	5.15	135.10 - 135.40. Light brownish grey, medium light grey thin bedded cherty limestone.
				135.40 - 140.66. Intermittent greenish grey ?dolomitic siltstone and mudstone, pale
				yellowish grey dolomitic siltstone and reddish brown siltstone and mudstone. Significant
				lithology change between 135.95 - 136.44, 137.88 - 138.22, 139.34 - 140.28; comprising
				disrupted to thin bedded pale brown, pale yellowish brown porous (?leached) and mottled

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 8
Mine/Prospect:	Name: D.D.H. No. 5	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ:	NQ: BQ	Intervals assayed:	
Down Hole Survey - Method:	date:	by:	Logged by:

Interval from	Interval to	length	Recov. M/kg	DESCRIPTION
				medium to dark grey recrystallized limestone with conspicuous pale yellow and dark grey
				chert layers and deformed nodular beds. Minor pyrite and calcite vein material.
140.66	167.12	26.46	26.50	Greyish red purple and greyish red disrupted and plastically deformed interbedded mudstone
				and siltstone.
				Pale greenish weathering pigmentation staining, mottling commonly associated with fractures.
				Calcite veining and abundant small isolated and fine discontinuous wispy veins, clots of
				small pinkish brown crystals (?sulphate mineral).
				155.00 - 155.20, 155.41 - 157.40. Continuation of above, but exhibiting light lavender
				tint with increased pale greenish mottling.
				Marked increase of pinkish brown crystals and expecially visible on broken core surfaces.
				Rare metallic mineral, minor concentration over 5cm in places - ?magnetite.
				157.40 - 158.20. Brecciated (possibly graded) greyish red purple and greyish red mudstone
				and siltstone. Clasts predominantly exhibit soft sediment deformation with minor distinctive
				medium light grey fine grained sandstone clasts up to 1.5cm across commonly within basal
				section.
				Conspicuous greenish grey mudstone and bedded carbonate underlying the above.
				158.20 - 167.12. Plastically deformed mudstone/siltstone as above, but abundant wispy
				calcite veining especially between 158.20 - 161.08 and declining with depth. Small floating
				?andesite and carbonate clasts abundant towards the base.
167.12	169.10	1.98	1.98	Altered dark greenish amygdaloidal andesite. Minor incorporated silty or sandy mudstone.
				Cavities commonly infilled with soft talc mineral, and white crystalline carbonate. Core
				invariably fractured, broken and ?talc, calcite exposed over surfaces. Minor pyrite.

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GEOLOGICAL LOG	Mine Code	Ms Code	Page 9
Mine/Prospect:	Name: D.D.H. No. 5		core
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ:	NQ:	BQ	Intervals assayed:
Down Hole Survey - Method:	date:	by:	Logged by:

Interval			Recov.y	DESCRIPTION
from	to	length	M/kg	
				END OF HOLE 169.10

GEOCHEMICAL ASSAY RESULTS

WITCHBINYA D.D.H. No. 5

Interval (metres) From	To	Cu	Pb	Zn	U	Sample Type
9.00	11.45	75	30	50	2	Split Core
11.45	13.10	70	25	260	3	"
13.10	14.50	50	30	95	X	"
14.50	16.50	25	30	65	4	"
16.50	19.80	15	35	50	X	"
19.80	21.50	110	40	45	4	"
21.50	22.60	75	80	55	X	"
22.60	23.50	65	135	65	3	"
23.50	24.40	75	165	105	2	"
24.40	26.30	45	150	460	X	"
26.30	27.40	20	80	550	2	"
27.40	29.30	15	75	330	X	"
29.30	32.00	10	130	330	X	"
32.00	33.00	20	150	290	X	"
33.00	34.00	20	140	350	X	"
34.00	35.00	15	65	170	2	"
35.00	36.00	15	130	170	X	"
36.00	37.00	15	65	125	X	"
37.00	37.80	25	50	200	X	"
37.80	40.25	25	55	205	X	"
40.25	42.50	20	55	140	X	"
42.50	43.55	25	50	190	X	"
43.55	44.25	25	50	165	X	"
44.25	45.00	20	60	85	X	"
45.00	46.00	20	45	85	X	"
46.00	47.00	15	50	45	X	"
47.00	48.90	15	50	60	X	"
48.90	50.00	20	55	115	X	"
50.00	51.00	15	50	60	X	"
51.00	52.30	25	55	95	X	"
52.30	53.30	30	35	90	X	"
53.30	54.30	30	30	95	X	"
54.30	55.30	35	30	205	X	"
55.30	56.30	40	45	560	X	"
56.30	57.05	50	40	590	X	"
57.05	58.20	35	35	290	X	"
58.20	59.20	40	65	230	-	"
59.20	60.20	35	75	280	4	"
60.20	61.40	35	100	180	2	"
61.40	62.60	80	1750	1200	2	"
62.60	63.30	75	80	850	3	"
63.40	64.30	20	70	60	3	"
64.30	65.30	90	160	1050	X	"
65.30	66.40	55	80	260	2	"
66.40	67.40	100	35	50	X	"
67.40	68.40	20	35	40	X	"
68.40	69.40	20	35	45	X	"
69.40	70.40	15	30	40	X	"
70.40	71.40	15	25	35	X	"
71.40	72.40	25	30	35	X	"
72.40	73.40	30	50	280	X	"
73.40	75.40	20	65	135	X	"
75.40	76.30	25	80	95	X	"

..(ii)/

GEOCHEMICAL ASSAY RESULTS

WITCHBINYA D.D.H. No. 5

Interval (metres) From	To	Cu	Pb	Zn	U	Sample Type
76.30	77.20	60	45	75	X	Split Core
77.20	78.40	20	40	100	X	"
78.40	80.75	30	85	540	2	"
80.75	81.75	15	65	235	X	"
81.75	82.75	10	55	160	X	"
82.75	83.50	15	55	140	X	"
83.50	84.40	10	55	150	X	"
84.40	85.40	10	60	185	X	"
85.40	86.40	15	55	195	X	"
86.40	87.40	15	55	265	X	"
87.40	88.00	15	65	290	X	"
88.00	89.00	10	40	340	X	"
89.00	90.00	10	40	350	X	"
90.00	91.00	10	40	280	-	"
91.00	92.00	5	30	190	X	"
92.00	93.00	5	40	150	X	"
93.00	94.00	10	40	120	X	"
94.00	95.00	10	35	90	X	"
95.00	96.00	10	40	70	X	"
96.00	97.00	10	40	160	3	"
97.00	98.00	10	40	110	X	"
98.00	99.00	10	40	125	3	"
99.00	100.00	10	35	180	2	"
100.00	101.00	10	35	40	X	"
101.00	102.00	10	40	40	X	"
102.00	103.00	10	40	50	-	"
103.00	104.20	10	50	45	X	"
104.20	105.20	10	40	25	X	"
105.20	105.95	10	40	30	X	"
105.95	106.95	10	45	100	X	"
106.95	107.90	15	50	35	X	"
107.90	108.75	40	20	45	3	"
108.75	109.70	10	20	40	3	"
109.70	110.70	30	15	45	2	"
110.70	111.80	15	20	40	2	"
111.80	112.80	20	20	35	2	"
112.80	113.80	20	10	40	3	"
113.80	114.55	10	10	45	2	"
114.55	115.55	30	40	40	4	"
115.55	116.45	20	20	35	3	"
116.45	117.45	50	20	40	2	"
117.45	118.45	10	20	35	2	"
118.45	119.45	15	50	60	X	"
119.45	123.45	20	60	270	-	"
123.45	124.35	5	35	75	X	"
124.45	125.45	5	35	25	X	"
125.45	126.45	5	30	25	X	"
126.45	127.40	5	40	30	X	"
127.40	128.40	5	30	35	X	"
128.40	129.40	5	30	30	X	"
129.40	130.40	5	30	60	2	"
130.40	131.40	10	25	30	X	"
131.40	132.40	10	40	30	2	"

..(iii)/

GEOCHEMICAL ASSAY RESULTS

WITCHBINYA D.D.H. No. 5

Interval (metres) From	To	Cu	Pb	Zn	U	Sample Type
132.40	134.00	10	100	170	2	Split Core
134.00	135.00	5	40	20	X	"
135.00	136.00	10	40	20	4	"
136.00	137.00	20	40	35	X	"
137.00	138.00	20	20	20	X	"
138.00	139.00	30	25	15	X	"
139.00	140.00	10	25	130	X	"
140.00	141.00	90	30	100	4	"
141.00	142.00	10	15	20	X	"
142.00	143.90	10	20	20	3	"
143.90	144.50	10	20	25	X	"
144.50	145.00	10	15	20	X	"
145.00	146.00	10	20	25	2	"
146.00	147.40	10	20	25	X	"
147.40	148.40	10	20	25	2	"
148.40	149.40	10	10	30	3	"
149.40	150.40	10	20	30	X	"
150.40	151.40	10	10	30	3	"
151.40	152.30	10	10	30	2	"
152.30	153.30	10	10	30	3	"
153.30	154.40	15	10	30	2	"
154.40	155.00	15	10	40	X	"
155.00	156.00	20	10	30	2	"
156.00	157.00	20	10	30		"
157.00	158.00	60	10	30	X	"
158.00	159.00	20	15	45	X	"
159.00	160.00	20	15	50	X	"
160.00	161.00	15	15	40	X	"
162.00	163.12	15	30	50	X	"
163.12	164.12	15	15	50	X	"
164.12	165.15	20	10	45	3	"
165.15	166.15	15	10	60	2	"
166.15	167.60	140	10	70	X	"
0	1	30	40	40	X	Percussion
1	2	30	30	70	X	"
2	3	30	30	30	X	"
3	4	40	30	30	2	"
4	5	35	30	30	3	"
5	6	30	20	40	3	"
6	7	30	25	20	3	"
7	8	35	40	25	X	"
8	9	35	45	30	X	"

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection level
- = element not determined

APPENDIX 6.

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 1
Mine/Prospect:	Name: DIAMOND CORE HOLE 6 (Site 9)	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline: Vertical	Length: 75.00	Started: 17.7.81 / Finished: 18.7.81
Hole/Core size: HQ: NQ: BQ	Intervals assayed:		
Interval	Recov.y	Down Hole Survey - Method:	date: / by: / Logged by:

from	to	length	M/kg	DESCRIPTION
				First 9 metres percussion drilled
0	1.00			Light brown chips of femingenous material - appears to be heavily oxidised siltstone.
1.00	2.00			Powdered greyish-orange siltstone with small pebbles of light brown limonite.
2.00	3.00			Grey-orange mudstone - fine powder, with a few small iron-oxide chips.
3.00	4.00			Moderate-brown powdered mudstone and minor amount of iron oxide chips.
4.00	5.00			Light brown powdered mudstone/siltstone containing a few angular chips of greyish orange
				pink silicified limestone.
5.00	6.00			Moderate reddish brown with chips of limestone as in 4.00 - 5.00.
6.00	7.00			Moderate red brown powdered mudstone/siltstone.
7.00	8.00			Moderate red brown powdered mudstone/siltstone.
8.00	9.00			Moderate red brown powdered mudstone/siltstone.
9.00	12.15	3.15	3.15	*Predominantly a moderate red brown weathered fine siltstone - disseminated mica (?)
				throughout. Fragmented and previously wet core - no structure discernable.
				9.00 - 10.1. As above with yellow brown 1cm thick beds of slightly coarser siltstone at
				9.6 and 9.75m.
				10.1 - 10.25. Moderate yellowish brown silty mudstone.
				10.25 - 10.8. As above.
				10.8 - 11.5. Light brown siltstone with joint? or bedding plane of white grey and
				manganese stained siltstone at 11.2m C.B.A. $\sim 45^{\circ}$.
				11.5 - 12.0. As Above. *

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 2

Mine/Prospect:	Name: D.C.H. No. 6	core

Level:	Northing:	Easting:	Collar R.L. ground/pipe:

Bearing M/T/G:	Incline:	Length:	Started:	Finished:

Hole/Core size: HQ: NQ: BQ	Intervals assayed:

Interval			Recov.y	Down Hole Survey - Method:	date:	by:	Logged by:
from	to	length	M/kg	DESCRIPTION			
				12.00 - 12.15. Greyish pink siltstone red-mottled.			
12.15	15.40	3.25	.05	Angular grey chips of repeatedly drilled chert and argillaceous limestone fragments.			
15.40	17.8	2.00	.30	Very discontinuous core but contains about 12 cm of slightly vesicular white/grey fine grained siliceous limestone.			
				- above the limestone = 6cm of welded dusky brown, leached, ferruginous material - quite heavy - magnetite? 8cm of chert fragment and cloggy yellow and			
				- below the limestone - 4cm of limestone breccia in femingenous siltstone matrix.			
				17.4 - 17.8. Probably cave in material chert and limestone fragments.			
				At some point between 17.8 - 20.00. Percussion drilling commenced. No samples recovered before 26m as country rock (mud?) dissolved or escaped.			
26.00	37.00			26.00 - 27.00. Assortment of subrounded small pebbles of dark reddish brown siltstone, white grey limestone, light-medium brown silty mudstone.			
				27.00 - 28.00. Majority of the sub-spherical pellets are of moderate orange pink silty mudstone. A few pellets pale red and dark reddish brown siltstone/mudstone.			
				28.00 - 29.00. Greyish red mudstone pellets and a few pale red pellets.			
				29.00 - 30.00. Greyish red mudstone pellets and a few moderate brown pellets.			
				30.00 - 31.00. Moderate pink and grey orange pink pellets of mudstone.			
				31.00 - 32.00. Predominantly greyish orange pink mudstone pellets.			
				32.00 - 33.00. Pale greyish brown chert fragments and a large fragment of laminated (carbonaceous?) light grey shale. Otherwise mixed pellets of red brown and moderate brown mudstone.			

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 3
Mine/Prospect:	Name: D.C.H. No. 6		core
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ: NQ: BQ	Intervals assayed:		
Interval	Recov.y	Down Hole Survey - Method:	date: / by: / Logged by:

from	to	length	M/kg	DESCRIPTION
				33.00 - 34.00. Pale-moderate reddish brown mudstone pellets occasionally banded by 0.1 - 0.5 white grey (carbonaceous) layers.
				34.00 - 35.00. Greyish pink, light brown mudstone pellets with similar banding to 33.00 - 34.00.
				35.00 - 36.00. See 34.00 - 35.00, also greyish red pellets.
				36.00 - 37.00. Moderate brown, pale red and white pellets.
				CORE DRILLING
37.00	42.00	5.4	3.15	Weathered mudstone containing finely disseminated mica - no structures discernable other than near the base of this section where weathering decreases.
				37.00 - 39.20, 2.2, 0.6. Greyish orange, heavily weathered mudstone with 3cm of chips of white grey limestone and chert at the top (cave in?).
				Irregular banding of pale orange limonite staining and smears of manganese along fractures (irregular). Red colouration increases with depth.
				39.2 - 42.2. Moderate to dark reddish brown mudstone becoming less weathered with depth.
				By 42.00m, two thin bands of light grey siltstone occur and the mudstone becomes a matrix of mudstone/siltstone sequence.
				WEATHERED limestone beds highly dissrupted and brecciated in places
				FRESH
42.40	51.4	9.0	9.0	Very disrupted dark reddish brown mudstone and pale red siltstone. Appears to be

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 4
Mine/Prospect:	Name: D.C.H. No. 6	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: Finished:
Hole Core Size:	HQ: NQ: BQ	Intervals assayed:	

Interval			Recov.y	Down Hole Survey - Method:	date:	by:	Logged by:
from	to	length	M/kg	DESCRIPTION			

preconsolidation disruption - disrupted, slumped siltstone bands are brecciated in many places. Irregular blebs of white (carbonate?) material appear throughout this section and contacts between siltstone eyes and the matrix are often filled with this material - possibly calcite.

48.10 - 48.40. Distinctive band of mottled pale red brown mudstone and light and medium light grey carbonaceous siltstone. Similar disruption to above (though less brecciation) but greater carbonate content. Siltstone dominates.

54.00 - 56.40. Limestone fraction increases significantly in the last 40cm of this section. Considerable brecciation in the basal 10cm. Also greyish green silty blebs occur amongst sand sized quartz grains in the 4 - 5cm above the basalt.

54.40	75.00	21.6	21.6	Basalt - porphyritic limestone 4m then becomes equigranular.

54.40 - 54.75, .75. Top section includes 2 - 3, 1 - 2cm bands of red brown mudstone - very distorted.

54.75 - 58.00. Medium grey groundmass with evenly distributed crystals of pink feldspar irregularly spaced and shaped globs of greenish black chlorite (contains some talc perhaps). Similar globs of white grey calcite and occasional calcite vein.

58.00 - 75.00. Basalt becomes increasingly equigranular and takes on a fine grained texture at the base of the hole. Brownish and dark greenish grey. Occasional patch of calcite growths in vesicles and at 71.80 a 1.5cm wide vein at 15° to core.

END OF HOLE 75.00.

GEOCHEMICAL ASSAY RESULTS

WITCHBINYA D.D.H. No. 6

Interval (metres) From	To	Cu	Pb	Zn	U	Sample Type
0	1	95	60	335	7	Percussion
1	2	75	50	300	2	"
2	3	80	60	220	X	"
3	4	95	30	190	X	"
4	5	85	40	170	X	"
5	6	60	25	160	3	"
6	7	30	20	110	X	"
7	8	40	20	120	X	"
8	9	50	20	140	X	"
9.00	10.00	30	20	170	2	Split Core
10.00	11.00	40	25	240	2	"
11.00	12.10	60	25	360	X	"
12.10	15.40	60	50	300	2	"
15.40	17.80	30	40	1200	12	"
25	26	45	40	390	8	Percussion
26	27	40	20	260	8	"
27	28	50	20	250	6	"
28	29	60	20	270	8	"
29	30	55	25	250	6	"
30	31	60	35	350	4	"
31	32	60	30	280	7	"
32	33	50	40	360	9	"
33	34	50	45	370	7	"
34	35	50	55	360	10	"
35	36	50	80	380	20	"
36.00	39.40	50	25	185	7	Split Core
39.40	40.50	80	20	345	5	"
40.50	41.50	50	20	375	2	"
41.50	42.40	15	10	180	X	"
42.40	43.40	15	10	40	X	"
43.40	44.40	15	10	35	X	"
44.40	45.40	10	15	35	X	"
45.40	46.40	15	20	40	X	"
46.40	47.40	20	10	40	X	"
47.40	48.40	90	15	45	X	"
48.40	49.40	20	15	50	X	"
49.40	50.40	20	15	50	X	"
50.40	51.40	20	20	50	X	"
51.40	52.40	20	10	60	X	"
52.40	53.40	20	10	60	X	"
53.40	54.40	40	10	70	X	"
54.40	54.90	520	20	160	X	"

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
x = element concentration is below detection level
- = element not determined

APPENDIX 7.

[redacted]

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 1
Line/Prospect: DORISVALE PROSPECT	Name: PERCUSSION DRILL HOLE WITCHBINYA NO. 7		core
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline: Vertical	Length: 97m	Started: 23.7.81	Finished: 26.7.81
Hole/Core size: HQ:	NQ:	BQ	Intervals assayed:	
Down Hole Survey - Method:	date:	by:	Logged by: R.St.George	

Interval (metres) from	to	length	Recov.y M/kg	DESCRIPTION
0	1			Red soil
1	5			Moderate reddish orange, pale to greyish red hard chipped siltstone/clay. Minor pisolites and red soil.
5	9			Dusky yellow, dark yellowish orange and pale reddish brown leached siltstone or limestone. Abundant very light grey/dark grey chert chips, prominent especially from 7 metres. Fe stone, hematitic sandstone, pisolites probably from higher intervals.
9	10			Moderate to dark reddish brown and orange leached mudstone/siltstone rock. Laminated and unlaminated chert, minor Fe rich, pisolitic material present ?from higher in hole.
10	11			Moderate reddish brown, and orange coarse sand sized material comprising abundant quartz sand grains, leached siltstone and possible clay (?ex-limestone). Larger pebble sized chips of chert, laterite and mud/silt rock material.
11	12			Dark reddish brown powdered and finely granulated mudstone/siltstone. Quartz grains, large pebble sized chert and pisolitic chips throughout.
12	13			Very leached, powdered and chipped, greyish and dusky yellow clay/silt material (?ex limestone
13	14			Light olive brown, powdered clay rock. Minor pale yellowish orange silstone or leached shale chips.
14	24			Dark yellowish orange and dusky yellow powdered clay rock (?leached limestone), with characteristic "talc" powder consistency throughout. Minor slight colour variations from pale yellow to dark greyish orange. Between 16 - 18m, small leached siltstone/clay chips evident.

[redacted] ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 2
Mine Prospect: DORISVALE PROSPECT	Name: PERCUSSION DRILL HOLE WITCHBUNYA NO. 7		core
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: Finished:
Hole Core Size: BQ: NQ: BQ	Intervals assayed:		
Interval (metres)	Recov.y	Down Hole Survey - Method:	date: by: Logged by:

from	to	length	M/kg	DESCRIPTION
24	27			Greyish orange and moderate yellowish brown powdered ?mudstone.
27	31			Continuation of above, but with a greyish red and greyish red purple component becoming prominent with increasing depth.
31	37			Greyish red and greyish red purple powdered ?mudstone. Reddish purple colouration intensifying with increasing depth. Minor small grey/yellow chert chips.
37	38			Continuation of above. Powdered material less prominent. Abundant granule to small pebble sized, grey chert chips throughout.
38	39			Moderate yellowish brown to dark yellowish orange powdered silt/clay rock (?ex carbonate rock). Abundant pebble sized dark grey - light grey chert chips often exhibiting associated bleached, yellowish white, leached siltstone/?shale component.
39	40			Moderate yellowish brown and greyish red purple powdered ?mudstone. Abundant orange ?ex limestone chips. Very rare dark grey ?carbonaceous limestone chips exhibiting very fine grained orange-brown, resinous mineral (?sphalerite). No pyrite evident.
40	42			REDUCED SAMPLE RECOVERY Moderate brown to yellowish brown powdered silt material. Abundant granule to small pebble sized grey and light grey chert and leached yellowish siltstone chips. Rare but conspicuous dark grey ?carbonaceous limestone chips exhibiting very fine grained mineral c.f. 39 - 40, ?sphalerite.

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 3
Mine/Prospect: DORISVALE PROSPECT	Name: PERCUSSION DRILL HOLE WITCHBUNYA NO. 7	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ: NQ: BQ	Intervals assayed:		
Down Hole Survey - Method:	date:	by:	Logged by:

Interval (metres) from	to	length	Recov.y M/kg	DESCRIPTION
				Larger fragments indicate extremely fine discontinuous layering. Minor siliceous limonitic chips. No pyrite evident.
42	45			REDUCED SAMPLE RECOVERY Greyish orange and moderate brown powdered silt material. Minor chips as above.
45	46			REDUCED SAMPLE RECOVERY Continuation of above with introduction of pale red mudstone component.
46	49			Greyish red to moderate reddish brown powdered mudstone. Probable contamination from interval above. Minor dark and medium grey chert chips and exceptionally rare dark grey ?carbonaceous limestone chips exhibiting possible sphalerite.
49	52			REDUCED SAMPLE RECOVERY Continuation of above. Greyish red powdered ?mudstone. Minor chert and ?carbonaceous limestone chips evident (?contamination from intervals above).
52	72			Moderate reddish brown, greyish red purple mudstone/mud. Very rare carbonaceous limestone chips c.f. 39 - 52, noted to 58 metres. Ground water volume affecting recovery and causing obvious major contamination throughout. Conspicuous dark grey chert chips, occasional nodular chert fragments, yellowish orange siltstone and lateritic material.
72	84			Continuation of above. Reddish colouration/mud, consistent with above interval - increased proportion of large lateritic/pisolitic, sandstone, siltstone, chert pebbles from upper intervals.

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 4
Mine/Prospect: DORISVALE PROSPECT	Name: PERCUSSION DRILL HOLE WITCHBUNYA NO. 7	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ: NQ: BQ	Intervals assayed:		
Interval (metres)	Recov.y	Down Hole Survey - Method:	date: / by: / Logged by:

from	to	length	M/kg	DESCRIPTION
84	97			REDUCED SAMPLE RECOVERY
				Small pisolitic/lateritic, chert and purple/green ?mudstone (?volcanic) chips recovered.
				Evidence for intersection of volcanics dependent on poorly recovered, strongly
				contaminated material from 72 - 97.
				Minor quartz, small pale orange ?feldspar grains - ?phenocrysts, noted over basal several
				metres.
				END OF HOLE 97.0 m

GEOCHEMICAL ASSAY RESULTS

WITCHBINYA P.D.H. No. 7.

Interval (metres) From	To	Cu	Pb	Zn	U	Sample Type
0	1	40	80	160	X	Percussion
1	2	35	85	150	X	"
2	3	40	60	145	2	"
3	4	40	65	200	4	"
4	5	40	65	110	2	"
5	6	35	65	165	X	"
6	7	40	90	245	X	"
7	8	35	90	175	2	"
8	9	35	65	100	2	"
9	10	30	85	225	X	"
10	11	30	90	160	2	"
11	12	40	90	170	X	"
12	13	85	205	480	5	"
13	14	80	180	1400	4	"
14	15	65	335	1300	4	"
15	16	70	150	920	4	"
16	17	75	125	760	3	"
17	18	70	130	760	4	"
18	19	55	60	660	2	"
19	20	35	50	400	2	"
20	21	35	50	420	5	"
21	22	35	50	425	4	"
22	23	35	60	560	6	"
23	24	40	65	580	3	"
24	25	45	60	650	7	"
25	26	40	65	680	4	"
26	27	40	70	705	4	"
27	28	50	45	730	4	"
28	29	35	40	805	4	"
29	30	50	85	1400	10	"
30	31	60	50	770	3	"
31	32	75	50	745	3	"
32	33	85	45	700	6	"
33	34	65	45	560	2	"
34	35	50	40	625	X	"
35	36	50	45	715	2	"
36	37	40	50	485	4	"
37	38	35	55	490	3	"
38	39	30	50	325	2	"
39	40	35	55	405	4	"
40	41	40	120	1450	6	"
41	42	45	135	1600	9	"
42	43	50	120	1600	14	"
43	44	50	140	1800	15	"
44	45	60	110	1100	7	"
45	46	55	75	730	10	"
46	47	50	70	720	7	"
47	48	45	75	750	7	"
48	49	40	75	810	8	"
49	50	40	80	715	8	"
50	51	35	40	825	6	"
51	52	40	45	840	8	"
52	53	50	35	960	8	"

GEOCHEMICAL ASSAY RESULTS

WITCHBINYA P.D.H. No. 7.

Interval (metres) From	To	Cu	Pb	Zn	U	Sample Type
53	54	60	30	890	7	Percussion
54	55	45	45	850	9	"
55	56	50	30	790	3	"
56	57	45	60	820	7	"
57	58	45	30	825	4	"
58	59	55	45	780	5	"
59	60	65	55	730	3	"
60	61	55	80	830	2	"
61	62	60	105	1200	2	"
62	63	60	140	1300	5	"
63	64	50	115	1100	4	"
64	65	55	105	910	3	"
65	66	70	85	790	6	"
66	67	65	80	710	X	"
67	68	85	75	600	4	"
68	69	45	60	510	4	"
69	70	75	70	740	X	"
70	71	55	60	500	3	"
71	72	55	55	465	X	"
72	73	50	60	445	2	"
73	74	55	60	530	4	"
74	75	50	65	525	X	"
74	76	60	65	530	3	"
76	77	65	60	510	X	"
77	78	50	55	560	5	"
78	79	50	65	505	5	"
79	80	65	75	515	X	"
80	81	45	95	420	X	"
81	82	55	100	365	2	"
82	83	60	165	540	4	"
83	84	50	90	440	3	"
84	85	60	100	580	2	"
85	86	65	130	590	3	"
86	87	65	130	430	4	"
87	88	70	85	410	4	"
88	89	55	105	390	X	"
89	90	65	95	405	3	"
90	91	55	95	415	X	"
91	92	65	100	325	2	"
92	93	70	90	400	3	"
93	94	60	75	385	X	"
94	95	60	100	475	3	"
95	96	65	110	510	5	"
96	97	70	160	635	2	"

Results in ppm unless otherwise specified
T = element present, but concentration too low to measure
X = element concentration is below detection level
- = element not determined

APPENDIX 8.

[redacted] ASHTON MINING LIMITED

GEOLOGICAL LOG				Mine Code	Ms Code	Page 1
Mine/Prospect:			Name: P.D.D.H. No. 8 (Site I)		core	
Level:	Northing:		Easting:		Collar R.L. ground/pipe:	
Bearing M/T/S:		Incline: Vertical	Length: 107.50	Started: 26.7.81	Finished: 29.7.81	
Hole/Core size:	HQ:	NQ:	BQ	Intervals assayed:		

Interval			Recov.y	Down Hole Survey - Method:	date:	by:	Logged by:
from	to	length	M/kg	DESCRIPTION			
				PERCUSSION FROM 0 - 66.25			
0	1.00			Dark reddish brown silt rock, Fe stone and minor pisolitic pebbles.			
1.00	2.00			Greyish, reddish and yellowish orange clayey silt and siltstone chips, hematitic sandstone and pisolitic pebbles.			
2.00	3.00			Pale red and chipped reddish brown and yellowish orange siltstone/mudstone rock.			
3.00	4.00			Dark reddish brown, chipped and powdered siltstone/mudstone rock.			
4.00	5.00			Pale red and reddish brown chipped and powdered siltstone/mudstone.			
5.00	6.00			Predominantly powdered pale red mudstone and pale yellow/reddish brown siltstone/mudstone chips.			
6.00	11.00			Pale to moderate reddish brown, chipped and powdered siltstone/mudstone. Minor yellowish orange siltstone chips.			
11.00	12.00			Powdered very pale orange and greyish pink clay, continuation of reddish brown component from above. Fresh (unweathered), fine to medium crystalline, grey limestone chips. Minor cherty limestone and pale grey chert.			
12.00	13.00			Similar to above - increased limestone, chert components, with predominantly very pale purplish grey powdered clayey silt.			
13.00	14.00			Very poorly recovered. Limestone as above and reddish brown siltstone/mudstone chips.			
14.00	15.00			c.f. 11 - 13.			
15.00	16.00			Pale moderate reddish brown and purplish red chipped and powdered mudstone/siltstone. Minor			
16.00	33.00			contamination of grey limestone chips. (?1st & leached clayey chips.			
33.00	34.00			Grey orange & yellow,yellowish grey very finely powdered ?leached lst. Abundant crystalline Continuation of above.			
				Limestone and leached ?limestone/clayey chips, less abundant in pale red powdered mudstone			

ASHTON MINING LIMITED

GEOLOGICAL LOG | Mine Code | Ms Code | Page 2

Mine/Prospect: | Name: P.D.D.H. No. 8 | core

Level: | Northing: | Easting: | Collar R.L. ground/pipe:

Bearing M/T/G: | Incline: | Length: | Started: | Finished:

Hole/Core size: HQ: NQ: BQ | Intervals assayed:

Down Hole Survey - Method: | date: | by: | Logged by:

Interval			Recov.y	
from	to	length	M/kg	DESCRIPTION
				rock - purplish tinge noticeable.
34.00	38.00			Ground-water causing heavy contamination - sample recoverd predominantly reddish brown mud.
				Minor light grey medium crystalline limestone chips.
38.00	45.00			Continuation of above.
				Limestone chips increasingly abundant with depth. Possible mudstone or siltstone component
				as blue grey chips. Limestone exhibit white crystalline calcite vein material and very
				minor associated pyrite.
45.00	55.00			Pale red purple mud with poorly recovered reddish brown, greyish red purple and dark
				greenish grey siltstone, mudstone and fine-grained limestone. Minor small orange red cherty
				chips and grey/medium grey chert fragments evident.
55.00	63.00			Poorly recovered material, predominantly moderate reddish brown mud and obvious
				contaminants from higher in hole. Occasional large broken discoidal chert nodules from
				interval above. Remainder chips and pebbles of purple red and reddish brown mudstone.
63.00	66.25			Predominantly cave-in material - quartz sand. Large angular fragments of limestone, chert
				and mudstone. Conspicuous mud colour change to kahki, green from 65 metres.
				END OF PERCUSSION DRILLING.
				0.12 m. rubble cored from 66.13 comprising greyish red/moderate reddish brown siltstone/
				mudstone and greenish grey chert, nodules and carbonate veined limestone.
66.25	71.30	5.05	4.98	Predominantly light grey mottled, disrupted or poorly bedded limestone. Conspicuous
				moderate orange to greyish orange leached component as isolated mottled patches and
				irregular, wavey, discontinuous beds throughout.

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 3
Mine/Prospect:	Name: P.D.D.H. No. 8	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ: NQ: BQ	Intervals assayed:		

Interval			Recov.y	Down Hole Survey - Method:	date:	by:	Logged by:
from	to	length	M/kg	DESCRIPTION			
				Occasional stylolites evident, commonly with orange oxidation outlining fractures.			
				Between 70.80 - 71.30, limestone gradationally fresher and exhibing mottled to brecciated			
				appearance, with interbedded, disrupted medium grey shaley limestone.			
71.30	72.10	0.80	0.80	Continuation of above.			
				Limestone fracture along length. Small calcite filled cavities abundant.			
				Pyrite and minor?chalcopyrite in anhedral-euhedral crystals or solid pyrite blebs. Content			
				1-2%. Limestone darker grey than above, exhibits intensely disrupted/brecciated mottled			
				appearance - calcite veining/matrix.			
72.10	72.82	0.72	0.70	Medium to light grey slightly cherty dolomitic or limestone. Abundant fine wavey			
				stylolaminae and stylolites. Brecciation evident over basal 0.10m. Minor pyrite as			
				fracture/stylolite fill and small blebs.			
72.82	73.66	0.84	0.85	Pale to greyish green ?dolomitic siltstone and mudstone. Bedding as disrupted fine ?muddy			
				laminae. Large fracture with associated minor pyrite and dolomite.			
73.66	74.18	0.52	0.50	Olive grey slightly porous mottled yellowish grey and medium crystalline darker grey			
				limestone. Abundant conspicuous pinkish to grey nodular chert beds, commonly exhibiting			
				small cross cutting veinlets, orientated normal to bedding. Laminated, medium dark grey			
				pyritic shale as adjacent material, exhibiting soft sediment deformation features, often			
				enclosing nodular chert beds.			
74.18	74.95	0.77	0.77	Greyish green and dark greenish grey ?dolomitic mudstone. Bedding characteristically			
				disrupted (?through dewatering or mudcrack mechanism). White crystalline carbonate in			
				streaky discontinuous lenses or blebs.			

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 4
Line/Prospect:	Name: P.D.D.H. No. 8	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ: NQ: BQ	Intervals assayed:		

Interval			Recov.y	Down Hole Survey - Method:	date:	by:	Logged by:
from	to	length	M/kg	DESCRIPTION			
74.95	75.30	0.35	0.35	Moderate reddish brown mudstone. Abundant calcite veining, imparting irregular "lace-like" appearance throughout.			
75.30	75.72	0.42	0.40	Medium dark grey, medium crystalline limestone exhibiting bedding to 1.0cm thick, with abundant fine dark grey stylolaminae and well developed stylolites. Occasional brown mottled porous bands. Conspicuous pale pink to grey nodular chert bands and adjacent disrupted and plastically deformed bedding.			
75.72	76.70	0.98	0.98	Greenish grey, reddish brown and olive green, strongly disrupted, brecciated mudstone and ?dolomitic siltstone. Clasts often distorted and isolated. aligned along vague bedding planes. Minor crystalline limestone/dolomite near base.			
76.70	77.65	0.95	0.95	c.f. 75.30 - 75.72. Leached reddish brown porous/pitted bands exhbiiting residual, fresher medium grey crystalline limestone, grey nodular chert bands and occasional discoidal shaped chert nodules			
77.65	78.00	0.45	0.45	c.f. 75.72 - 76.70. Intensely disrupted/brecciated caleaveous mudstone.			
78.00	104.00	26.00	26.10	Greyish red purple and greyish red thinly interbedded mudstone and siltstone and minor sandy mudstone. Prevalent soft sediment deformation/brecciation throughout. Pale greenish ?weathering pigmentation staining often associated with fractures and euherdal resinous orange-brown crystals. Calcite veining/fracture fill. 91.17 - 91.32; 92.65-95.60. Mudstone/siltstone as above, exhibiting distinctive pale greenish mottled zones with remainder reddish lavender in colour. Distinctive strongly metallic lustured ?hematite crystals as very minor component			

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 5
Mine/Prospect:	Name: P.D.D.H. No. 8	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ: NQ: BQ	Intervals assayed:		

Interval			Recov.y	Down Hole Survey - Method:	date:	by:	Logged by:
from	to	length	M/kg	DESCRIPTION			
				associated with an increased incidence of resinous, orange brown crystals as above.			
				95.60 - 96.47. Brecciated mudstone/siltstone exhibiting probable grading, with larger			
				deformed fine ?sandstone clasts near base.			
				Between 96.35 - 96.47, distinctive greyish green ?dolomite/mudstone (?tuff).			
				96.47 - 103.40. Characteristic interweaving fine white calcite veining imparting "lace-like"			
				appearance troughout and declining in abundance towards the base.			
				103.40 - 104.00. Greyish red purple mudstone/siltstone as above, with increasing sandy			
				component and exhibiting small isolated elongate carbonate and probable volcanic clasts,			
				especially abundant with increasing depth.			
104.00	104.80	0.80	0.75	Greenish grey vesicular andesite "blocks" with reddish brown purple siltstone possibly			
				altered and with a baked, grainy appearance, as minor "matrix" component. Minor sandy			
				siltstone and sandstone.			
104.80	107.50	2.70	2.65	Dark greenish grey, "altered" vesicular/amygdaloidal basalt or andesite. Soft chloritic			
				talc, white crystalline calcite as cavity infill minerals. Minor pyrite, pitch.			
				END OF HOLE 107.50.			

GEOCHEMICAL ASSAY RESULTS

WITCHBTNYA D.D.H. No. 8

Interval From	(metres) To	Cu	Pb	Zn	U	Sample Type
0	1	70	65	95	X	Percussion
1	2	45	60	95	3	"
2	3	70	35	50	X	"
3	4	55	40	60	X	"
4	5	85	45	80	X	"
5	6	65	45	60	X	"
6	7	20	30	50	X	"
7	8	15	30	40	X	"
8	9	10	30	45	X	"
9	10	10	35	45	X	"
10	11	10	30	45	X	"
11	12	25	45	220	X	"
12	13	15	50	170	X	"
13	14	30	65	150	X	"
14	15	35	50	85	X	"
15	16	15	25	45	X	"
16	17	10	50	115	X	"
17	18	15	55	165	X	"
18	19	5	55	180	X	"
19	20	T	60	150	X	"
20	21	5	50	290	X	"
21	22	5	45	330	X	"
22	23	10	55	320	X	"
23	24	5	70	380	X	"
24	25	5	45	250	X	"
25	26	5	45	295	X	"
26	27	5	45	265	X	"
27	28	5	55	255	X	"
28	29	5	50	235	X	"
29	30	5	40	215	X	"
30	31	T	45	140	X	"
31	32	5	45	215	X	"
32	33	5	45	120	X	"
33	34	10	50	175	X	"
34	35	20	80	340	X	"
35	36	20	85	365	X	"
36	37	15	75	195	X	"
37	38	25	75	285	X	"
38	39	20	55	110	X	"
39	40	20	50	90	X	"
40	41	15	55	80	3	"
41	42	10	60	70	X	"
42	43	10	60	50	X	"
43	44	15	60	100	X	"
44	45	10	65	130	X	"
45	46	25	65	70	X	"
46	47	45	45	135	X	"
47	48	35	55	190	X	"
48	49	25	45	180	X	"
49	50	20	40	160	4	"
50	51	20	50	215	2	"
51	52	15	40	185	3	"
52	53	20	50	200	4	"

GEOCHEMICAL ASSAY RESULTS

WITCHBINYA D.D.H. No. 8

Interval (metres) From	To	Cu	Pb	Zn	U	Sample Type
53	54	40	40	140	4	Percussion
54	55	35	35	105	X	"
55	56	40	45	95	5	"
56	57	25	35	235	X	"
57	58	25	35	180	X	"
58	59	35	60	440	X	"
59	60	30	50	435	X	"
60	61	30	55	455	X	"
61	62	15	40	360	X	"
62	63	25	55	340	2	"
63	64	20	40	285	X	"
64	65	20	45	590	4	"
65	66	15	60	585	X	"
66	66.25	15	55	430	X	"
66.43	67.50	10	40	110	X	Split Core
67.50	68.50	5	45	30	X	"
68.50	69.52	5	45	50	X	"
69.52	70.50	5	45	80	X	"
70.50	71.50	5	40	30	X	"
71.50	72.30	5	60	920	X	"
72.30	73.30	10	50	170	X	"
73.30	74.30	20	30	100	3	"
74.30	75.30	30	30	40	2	"
75.30	76.24	10	40	40	2	"
76.24	77.16	10	40	80	X	"
77.16	78.30	120	50	180	X	"
78.30	79.30	10	30	30	X	"
79.30	80.30	10	20	30	2	"
80.30	81.30	10	20	25	X	"
81.30	82.30	5	20	30	X	"
82.30	83.30	5	20	20	X	"
83.30	84.30	10	20	25	X	"
84.30	85.30	10	20	30	X	"
85.30	86.30	10	15	30	X	"
86.30	87.30	10	10	30	X	"
87.30	88.30	15	10	30	X	"
88.30	89.30	15	15	30	2	"
89.30	90.30	20	10	35	X	"
90.30	91.30	10	15	30	2	"
91.30	92.50	10	10	40	X	"
92.50	93.50	20	10	35	2	"
93.50	94.50	20	10	50	4	"
94.50	95.60	10	10	50	2	"
95.60	96.60	80	15	50	X	"
96.60	97.60	10	15	45	X	"
97.60	98.60	10	15	50	X	"
98.60	99.60	10	15	50	X	"
99.60	100.50	15	20	50	X	"
100.50	101.40	20	20	50	2	"
101.40	102.30	10	15	50	X	"
102.30	103.30	20	10	65	4	"
103.30	104.80	220	10	110	4	"

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection level

APPENDIX 9.

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 1
ine/Prospect: DORISVALE PROSPECT	Name: PERCUSSION DRILL HOLE WITCHBINYA NO. 9	core	
evel:	Northing:	Easting:	Collar R.L. ground/pipe:
earing M/T/G:	Incline: Vertical	Length: 92.5	Started: 31.7.81 / Finished: 1.8.81
ole/Core size: HQ: NQ: BQ	Intervals assayed:		
Down Hole Survey - Method:	date:	by:	Logged by: R.St.George

Interval (metres) from	to	length	Recov.y M/kg	DESCRIPTION
0	5			Moderate reddish brown soil and subsoil and compacted clayey silt material. Minor pisolites, lateritic fragments.
5	10			Dusky yellow, pale reddish brown-orange leached and mottled siltstone/and lateritized clayey silt rock. Coarse to medium grained quartz particles and minor small charty fragments evident between 9 - 10 m.
10	18			Moderate orange pink and moderate pink granulated sandstone ?(friable) in silty clay material. Minor dark grey chert, lateritic sandstone.
18	22			Light olive grey, pale yellowish brown and greyish orange powdered and chipped ?mudstone/ silt rock. Fragments of leached purple to white shale or mudstone abundant throughout. Minor dark yellowish orange powder and hard small dark brown limonitic chips evident especially within intervals 19m and 22m.
22	23			Dark yellowish orange powdered and chipped ?mudstone rock. Small rounded pale purple/ brown shaly mudstone chips abundant.
23	24			Continuation of above. Moderate pink to light red, powdered component evident and combined with above powdered mudstone.
24	26			Pale olive brown and moderate yellowish brown powdered leached clay/silt material (?ex limestone). Small rounded limonitic fragments noted. 26m interval slightly richer in colour with increased granulated component.

[redacted]

GEOLOGICAL LOG	Mine Code	Ms Code	Page 2

Mine/Prospect: DORISVALE PROSPECT	Name: PERCUSSION DRILL HOLE WITCHBINYA NO. 9	core

Level:	Northing:	Easting:	Collar R.L. ground/pipe:

Bearing M/T/G:	Incline:	Length:	Started:	Finished:

Hole/Core size:	HQ:	NQ:	BQ	Intervals assayed:

Interval (metres)			Recov.y	Down Hole Survey - Method:	date:	by:	Logged by:

from	to	length	M/kg	DESCRIPTION
26	30			Dusky yellow and dark yellowish orange powdered clay/silt rock. Increased granulation with depth, comprising abundant clayey and harder pale cream partially leached, cavitied ?ex carbonate rock fragments.
30	41			Continuation of above.
				Dark yellowish orange leached ex carbonate clay rock. Intermittent slightly coarser silty, olive brown/yellow orange intervals.
				Only very rare chipped clay fragments throughout. Purplish powdered mudstone component noted as faint tinge throughout interval 38 - 39m.
41	45			Light olive brown and greyish yellowish orange powdered clay/silt rock. Rare small hard limonitic chips throughout.
				Reduced sample recovery from 44-45.
45	51			REDUCED SAMPLE RECOVERY.
				Greyish red purple and moderate reddish brown powdered mudstone. Rare conspicuous dark grey chert fragments - ?broken nodules.
51	58			REDUCED SAMPLE RECOVERY.
				Moderate yellowish brown and light brown powdered and chipped silt/clay rock. Abundant dark grey and white rimmed chert fragments.
				Distinctive orange brown (limonite) slightly siliceous ?limestone chips exhibiting micro-scopic orange brown crystalline mineral (?sphalerite).
58	61			Similar to above with reddish brown granulated/powdered ?mudstone rock.
				Contamination likely with abundant orange red and dark grey chert fragments - (?resistant

[redacted] ASHTON MINING LIMITED [redacted]

GEOLOGICAL LOG	Mine Code	Ms Code	Page 3
Mine/Prospect: DORISVALE PROSPECT	Name: PERCUSSION DRILL HOLE WITCHBINYA NO. 9	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ: NQ: BQ	Intervals assayed:		

Interval (metres)			Recov.y	Down Hole Survey - Method:	date:	by:	Logged by:
from	to	length	M/kg	DESCRIPTION			
				chert nodular beds between 45-51m).			
61	68			DRILLING FLUSH WATER REQUIRED.			
				Moderate reddish brown mudstone/siltstone mud slurry - large chert fragments from higher			
				intervals.			
68	69			GROUND WATER VOLUME INCREASE.			
				Sample contaminated.			
				Dusky brown, moderate brown mud. Abundant dark grey and red chert chips.			
69	92.5			Sample contaminated.			
				Moderate brown, pale red mud with rock components comprising large broken chert fragments			
				exhibiting original discoidal nodular structure, small purple mudstone/siltstone chips,			
				medium to coarse grained quartz sand as dominant component throughout. (?Friable sandstone			
				from between 5-18m). No volcanic chips recognized.			
				END OF HOLE 92.5m			

GEOCHEMICAL ASSAY RESULTS

WITCHBINYA P.D.H. No. 9

Interval (metres) From	To	Cu	Pb	Zn	U	Sample Type
0	1	15	25	65	X	Percussion
1	2	15	30	60	3	"
2	3	15	30	25	3	"
3	4	15	30	25	2	"
4	5	10	25	20	2	"
5	6	10	25	15	X	"
6	7	10	25	20	X	"
7	8	10	30	20	2	"
8	9	10	40	20	X	"
9	10	5	40	20	X	"
10	11	10	30	20	X	"
11	12	T	20	20	X	"
12	13	5	35	30	X	"
13	14	T	20	15	X	"
14	15	10	20	10	X	"
15	16	10	20	10	X	"
16	17	10	20	10	X	"
17	18	10	20	10	X	"
18	19	50	40	60	3	"
19	20	10	130	10	4	"
20	21	30	380	350	7	"
21	22	35	125	500	2	"
22	23	30	300	60	6	"
23	24	30	250	110	8	"
24	25	30	70	210	11	"
25	26	30	50	250	4	"
26	27	40	50	160	5	"
27	28	30	50	100	5	"
28	29	35	50	100	7	"
29	30	30	70	80	6	"
30	31	35	50	80	7	"
31	32	40	50	100	7	"
32	33	30	45	90	4	"
33	34	40	35	80	4	"
34	35	30	35	75	3	"
35	36	40	30	110	2	"
36	37	40	30	100	4	"
37	38	50	40	110	2	"
38	39	50	40	110	2	"
39	40	50	50	100	4	"
40	41	50	280	240	5	"
41	42	60	340	495	6	"
42	43	65	240	475	6	"
43	44	60	250	410	7	"
44	45	50	180	330	7	"
45	46	45	145	220	4	"
46	47	40	140	210	5	"
47	48	40	150	220	3	"
48	49	40	120	200	5	"
49	50	30	100	130	2	"
50	51	40	190	250	X	"
51	52	35	240	280	2	"
52	53	40	185	300	4	"
53	54	40	250	400	2	"

..(1)/

GEOCHEMICAL ASSAY RESULTS

WITCHBINYA P.D.H. No. 9

Interval (metres) From	To	Cu	Pb	Zn	U	Sample Type
54	55	30	325	490	6	Percussion
55	56	30	225	260	2	"
56	57	40	330	500	9	"
57	58	45	380	590	9	"
58	59	40	290	530	8	"
59	60	35	220	780	9	"
60	61	40	240	760	7	"
61	62	35	200	820	8	"
62	63	40	230	810	9	"
63	64	40	260	735	10	"
64	65	35	210	670	6	"
65	66	30	190	650	4	"
66	67	30	220	675	8	"
67	68	35	250	810	8	"
68	69	20	110	450	2	"
69	70	25	145	540	3	"
70	71	40	250	1300	6	"
71	72	20	130	900	3	"
72	73	20	140	740	2	"
73	74	30	260	670	2	"
74	75	35	550	1400	2	"
75	76	30	190	685	3	"
76	77	25	160	790	2	
77	78	30	160	790	7	"
78	79	30	200	800	4	"
79	80	30	140	550	8	"
80	81	25	145	480	5	"
81	82	30	200	670	7	"
82	83	20	130	380	5	"
83	84	20	90	380	2	"
84	85	15	120	360	2	"
85	86	30	190	510	5	"
86	87	20	130	430	3	"
87	88	30	200	700	6	"
88	89	35	190	480	9	"
89	90	20	120	415	2	"
90	91	20	170	510	6	"
91	92	35	175	575	4	"
92	92.50	30	160	510	2	"

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
- = element not determined

APPENDIX 10.

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 1
ane/Prospect: Dorisvale Prospect	Name: Witchbinya D.D.H. No. 10	core	
evel:	Northing:	Easting:	Collar R.L. ground/pipe:
earing M/T/G:	Incline: Vertical	Length: 49.50	Started: 1.8.81 / Finished: 3.8.81
ole/Core size: BQ:	NQ: BQ	Intervals assayed:	
Interval (metres)	Recov.y	Down Hole Survey - Method:	date: / by: / Logged by: R.St. George

from	to	length	M/kg	DESCRIPTION
				PERCUSSION FROM 0 - 23 metres.
0	3			Greyish orange and pale yellowish brown chipped silica ?ex carbonate rock, chert chips and leached powdered silt/clay. Limonitic chips especially between 0 - 1. Minor pale reddish brown mud component.
3	5			Dark yellowish orange and moderate orange pink granulated and powdered clay material. Grey silica ?ex carbonate chips abundant with similar but darker grey chips. Between 4 - 5m chert and siliceous material decrease with increased content of dark yellowish powdered clay/silt material. Minor reddish brown silt/mudstone chips.
5	6			Pale yellowish brown and greyish orange pink powdered and granulated silt/clay rock. Abundant dark grey carbonate chips, brownish orange ?limonitic siltstone chips and white porous leached cherty ex limestone.
6	7			Similar to above and c.f. 0 - 3. Yellowish orange leached (hard) siltstone, dark grey carbonate rock and grey chert chips. Minor pale yellowish clay component.
7	8			Predominantly powdered very pale to moderate yellowish orange clay rock. Small clayey silt chips. Minor dark yellowish orange siltstone chips.
8	10			Continuation of above. Yellowish orange colouration increasing with minor (?contaminated) cherty and orange siltston chips.
10	12			Dark yellowish orange granulated to powdered (damp) clayey material. Minor grey chert.
12	14			REDUCED SAMPLE RECOVERY. Pale red, reddish purple colouration throughout predominantly yellow orange clay/mudstone

[redacted] ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 2
Mine/Prospect: Dorisvale Prospect	Name: Witchbinya D.D.H. No. 10	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ: NQ: BQ	Intervals assayed:		
Interval (metres)	Recov.y	Down Hole Survey - Method: / date: / by:	Logged by:

from	to	length	M/kg	DESCRIPTION
				rock. Minor chert.
14	15			Probably continuation of above.
				Difficulty in sample recovery. Clayey, wet material.
15	21			Moderate reddish orange and dark yellowish orange (damp) powdered clay rock. (?ex limestone).
				Minor moderate reddish brown component (?mudstone).
21	23.10			ATTEMPT TO WATER FLUSH
				Very pale red mud. Abundant grey chert chips including recognisable contaminants from above.
				END OF PERCUSSION DRILLING 23.10
				0.15m cave in material, comprising grey silica ?ex carbonate chips, pale pink and yellowish orange mudstone/mud.
23.10	27.10	4.00	1.20	No water return. Medium grey to medium dark grey and orange brown silica ex carbonate rock (?limestone). Abundant broken fragments and short recovered sections exhibit numerous quartz filled cavities. Light yellowish brown and moderate orange brown leached (limonitic) silt material adhering to broken siliceous fragments - rarely cored and exhibiting C.B.A. to 50°. Residual siliceous "clasts" evident in limonitic matrix.
27.10	28.50	1.40	0.45	Predominantly poorly cored pale yellow and reddish brown leached mudstone/siltstone. Dark greenish grey chert recovered in short fractured sections. Minor pinkish orange to dark grey chert and probable broken chert nodular material.
28.50	32.83	4.33		Reddish brown weathered mudstone/siltstone rock. Poorly cored between 28.50 - 30.80.
				Minor chert.

ASHTON MINING LIMITED

GEOLOGICAL LOG	Mine Code	Ms Code	Page 3
Line/Prospect: Dorisvale Prospect	Name: Witchbinya D.D.H. No. 10	core	
Level:	Northing:	Easting:	Collar R.L. ground/pipe:
Bearing M/T/G:	Incline:	Length:	Started: / Finished:
Hole/Core size: HQ:	NQ:	BQ	Intervals assayed:
Interval (metres)	Recov.y	Down Hole Survey - Method:	date: / by: / Logged by:

from	to	length	M/kg	DESCRIPTION
32.83	48.90	16.07	16.00	Greyish red purple and greyish red thinly interbedded mudstone and siltstone. Minor detrital quartz component. Soft sediment deformation/brecciation prevalent throughout. Pale greenish weathering stains/patches often associated with fractures and small tabular and probable hexagonal, orange brown crystals. Calcite conspicuous as vein fracture fill. 39.40 - 40.95. Mudstone/siltstone as above, exhibiting distinctive pale greenish mottled zones with remainder pale lavender. Rare although readily visible metallic lustred ?hematite crystals to 0.5mm. Associated development of orange brown crystals as above. 40.95 - 41.70. Brecciated mudstone/siltstone exhibiting probable grading with larger deformed fine grained sandstone clasts near base. Between 41.55 - 41.70. Conspicuous greyish green thin bedded ?dolomitic/mudstone (?tuff) 41.70 - 47.25. Characteristic interweaving fine white calcite veining imparts "lace-like" appearance, intermittent and declining with depth. Minor pyrite between 46.65 - 47.20. 47.25 - 48.90. Greyish red purple mudstone/siltstone as above exhibiting arenite breccia, with small isolated light grey carbonate and probable micro volcanic clasts, especially abundant with increasing depth.
48.90	49.50	0.60	0.50	Dark greenish grey, "altered" vesicular and amygdaloidal basalt or andesite. Soft chloritic talc, white calcite/quartz as cavity infill minerals.
				END OF HOLE 49.50.

GEOCHEMICAL ASSAY RESULTS

WITCHBINYA D.D.H. NO. 10

Interval (metres) From	To	Cu	Pb	Zn	U	Sample Type
0	1	35	100	410	7	Percussion
1	2	15	30	70	X	"
2	3	20	45	100	3	"
3	4	15	60	50	2	"
4	5	30	70	130	8	"
5	6	20	50	310	7	"
6	7	25	40	165	8	"
7	8	60	35	170	2	"
8	9	20	60	120	14	"
9	10	25	60	170	18	"
10	11	40	120	250	20	"
11	12	50	60	375	11	"
12	13	65	60	440	13	"
13	14	50	50	780	7	"
14	15	60	50	500	9	"
15	16	60	50	425	9	"
16	17	50	50	420	7	"
17	18	50	40	410	12	"
18	19	50	40	375	8	"
19	20	55	40	400	11	"
20	21	60	40	480	10	"
21	22	40	650	850	6	"
22	23	40	1550	650	3	
23.10	24.10	60	2100	850	6	Split Core
24.10	27.10	20	140	620	7	"
27.10	28.50	60	40	330	X	"
28.50	30.10	90	10	1200	X	"
30.10	31.10	20	10	735	X	"
31.10	32.00	10	20	280	X	"
32.00	32.80	10	10	130	X	"
32.80	33.85	10	20	60	2	"
33.85	34.85	15	10	40	X	"
34.85	35.40	10	10	30	X	"
35.40	36.40	20	20	40	X	"
36.40	37.40	15	15	40	X	"
37.40	38.50	10	10	35	X	"
39.50	39.50	15	10	30	2	"
39.50	40.50	20	10	35	2	"
40.50	41.55	60	10	35	4	"
41.55	42.50	30	20	50	X	"
42.50	43.40	30	15	60	X	"
43.40	44.45	15	20	45	X	"
44.45	45.40	20	15	50	X	"
45.40	46.40	20	10	50	4	"
46.40	47.40	20	15	60	X	"
47.40	48.45	10	20	50	2	"
48.45	49.50	450	10	125	2	"

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
- = element not determined

APPENDIX 11

RESULTS OF LABORATORY EXAMINATION

The following fractions of each sample were studied:
-1.0mm to +0.8mm ; denoted by +0.8
-0.8mm to +0.5mm ; denoted by +0.5
-0.5mm to +0.425mm; denoted by +0.425

Sample No.	Results	Comments
WIN 657	Nil	
WIN 658	Nil	
WIN 659	Nil	
WIN 660	1 +0.425	Chromite, anhedral, irregular surfaces, granular interior. Magnetite intergrowths in sample.
WIN 661	Nil	
WIN 662	Nil	
WIN 663	Nil	
WIN 664	1 +0.5	Diamond, white, clear. Anhedral, mostly rough, hackly surface. Some smooth, striated surfaces.
WIN 665	Nil	
WIN 666	Nil	
WIN 667	Nil	
WIN 668	Nil	
WIN 669	Nil	
WIN 670	1 +0.425	Pyrope, pale pink ragged surface.
WIN 671	Nil	
WIN 672	Nil	
WIN 673	Nil	
WIN 674	Nil	
WIN 675	Nil	
WIN 676	Nil	

APPENDIX 12

TOLMER & ASSOCIATED JOINT VENTURE

EXPLORATION LICENCE NO. 1768

EXPENDITURE for year ended 5th December 1981

	$
Salaries	10,835
Field & Laboratory Expenses	101,932
Miscellaneous	4,689
Expenditure for year	117,456

Date Licence Granted: 6th December 1978

JPC: 2/3/82

7L2

	GEOLOGICAL BOUNDARY—DEFINITE
	—APPROXIMATE
	—INFERRED
	ANTICLINE
	SYNCLINE
	MONOCLINE
2077-2086	LINE OF ROCK SAMPLES, NUMBERS & RESULTS
•2079	ROCK SAMPLE LOCATION, NUMBER & RESULT
	WATERCOURSE
	VEHICULAR TRACK
	EXPLORATION LICENCE BOUNDARY
	I.P. LINE
	"DORISVALE FAULT", AS INTERPRETED BY B.M.R.
	LINE OF SECTION
⊙ DDH 2	WITCHBINYA DIAMOND DRILLHOLE
⊙ PDH 7	WITCHBINYA PERCUSSION DRILLHOLE

MULLAMAN BEDS	T/K	LATERITE CAPPING OVER SANDSTONE, SILTSTONE AND PORCELLANITE
JINDUCKIN FORMATION	€0j	RED AND PURPLE SHALE/SILTSTONE/FINE SANDSTONE MINOR MARL, DOLOMITE, CHERT
TINDALL LIMESTONE	€mt	LIMESTONE, MARL
ANTRIM PLATEAU VOLCANICS	€la	PORPHYRITIC BASALT, MINOR VESICULAR BASALT MINOR SANDSTONE
BEDS ABOVE "NODULAR MARKER"		SILICEOUS NEAR MAJOR MONOCLINE STRUCTURE OTHERWISE RED SILTSTONE WITH MINOR CHERT
"NODULAR MARKER"		LIMONITE OVER NODULAR SILT-DOLOMITE ROCK (INVARIABLY LEACHED). MAY INCLUDE SOME OVERLYING STRATA.
"LEAD HORIZON"		SILICEOUS ROCK; FREQUENTLY BRECCIATED (ENCLOSED IN PURPLE SHALE, NOT SHOWN ON MAP)
"UNDIFFERENTIATED UPPERMOST TOLMER GROUP"	₽	ARENACEOUS, STROMATOLITIC AND LAMINATED CARBONATE ROCK (DOLOMITE OR LIMESTONE) SANDSTONE, CHERT

1 0·5 0 1 2 km

1 : 25000

ASHTON MINING LIMITED

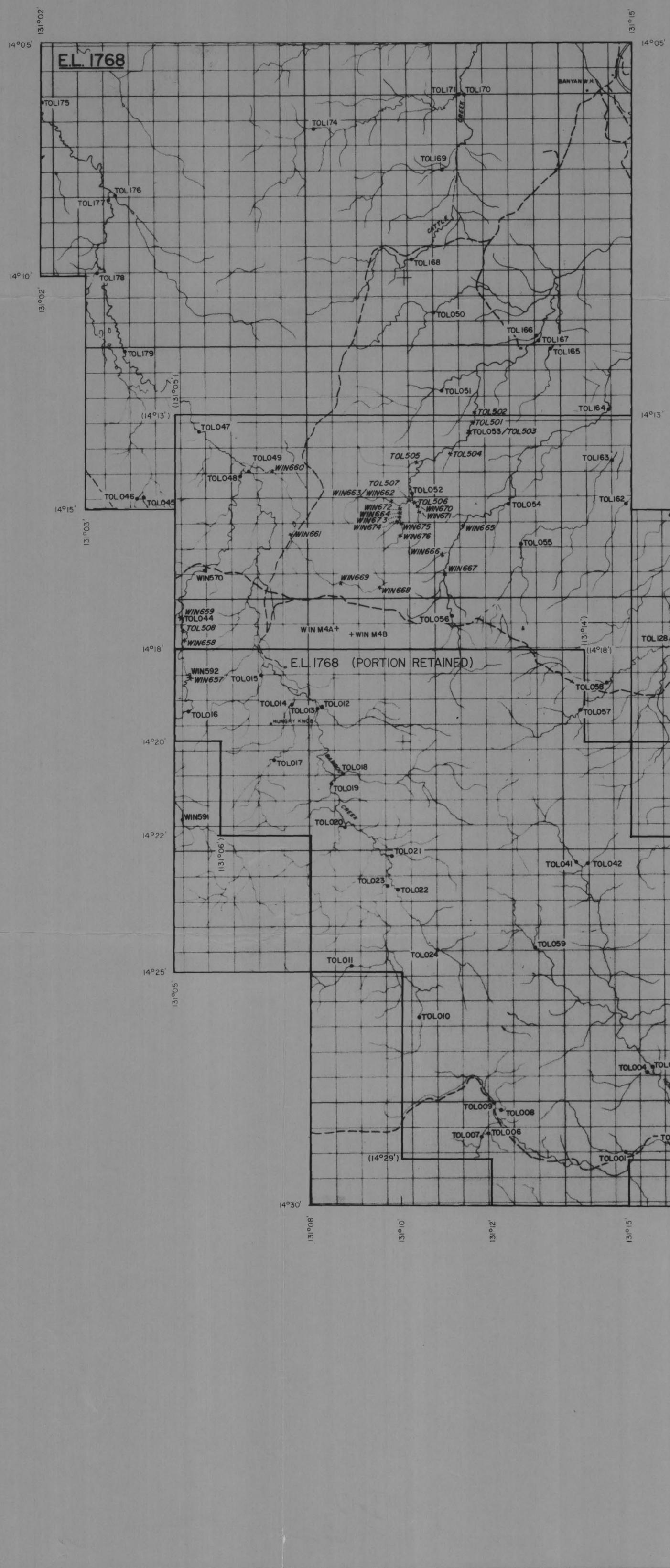
DORISVALE PROSPECT AREA — E.L.1768

DRILLHOLE LOCATIONS

MAP 1

Geology : C.H.C. SHANNON (MARCH, 81)		Date: MARCH, 1982

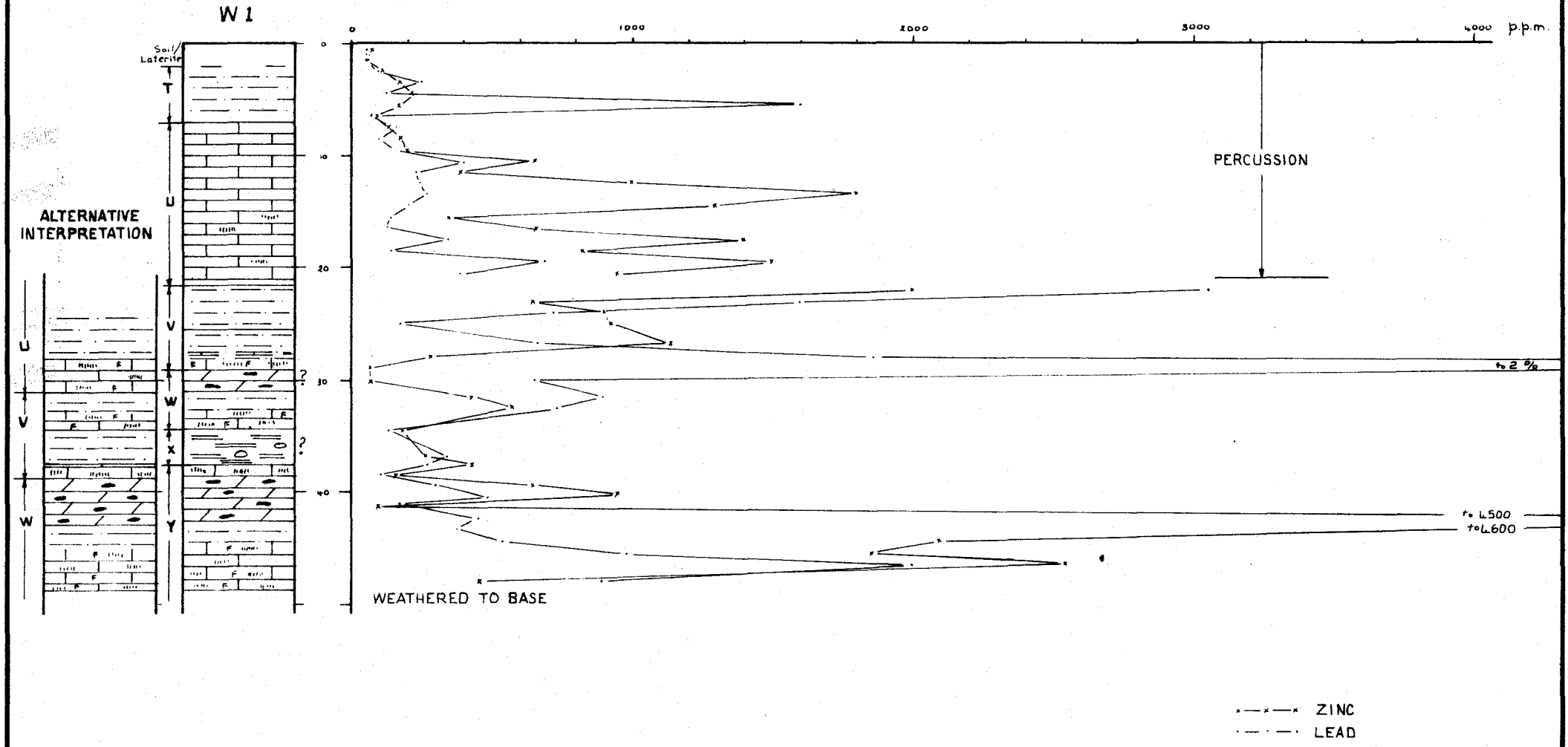
CR 82/125



SECURED LOANS AND DEVELOPMENTS LTD.
REGIONAL GRAVEL SAMPLING
E.L. 1768 SAMPLE LOCATIONS MAP 2 0 1 2 3 4 5 km. SCALE 1:100 000 Date:– MARCH, 1982

CR 82/125

WITCHBINYA D.D.H. No. 1



PLAN 1

CR 82/185

WITCHBINYA D.D.H. No. 2

W2

0 500 1000 1500 2000 p.p.m.

U

V

W

X

Y

Z

Soil/laterite

RECOGNISED TINDALL LIMESTONE

PERCUSSION

'NODULAR BEDS'

6500

2800

'THE CORRELATION MARKER'

TINDALL LIMESTONE
(MIDDLE CAMBRIAN)

3600

3900

LEAD HORIZON

7900

BASE OF WEATHERING

ANTRIM PLATEAU VOLCANICS
(LOWER CAMBRIAN)

ANDESITE
INTERVAL
NOT
ASSAYED

JARONG CONGLOMERATE
(LOWER CAMBRIAN)

?BANYAN FORMATION
(ADELAIDEAN - CARPENTARIAN)

ZINC

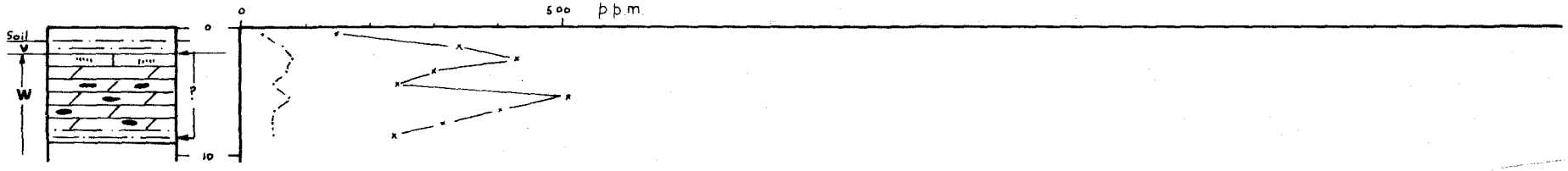
LEAD

PLAN 2

CR 82/125

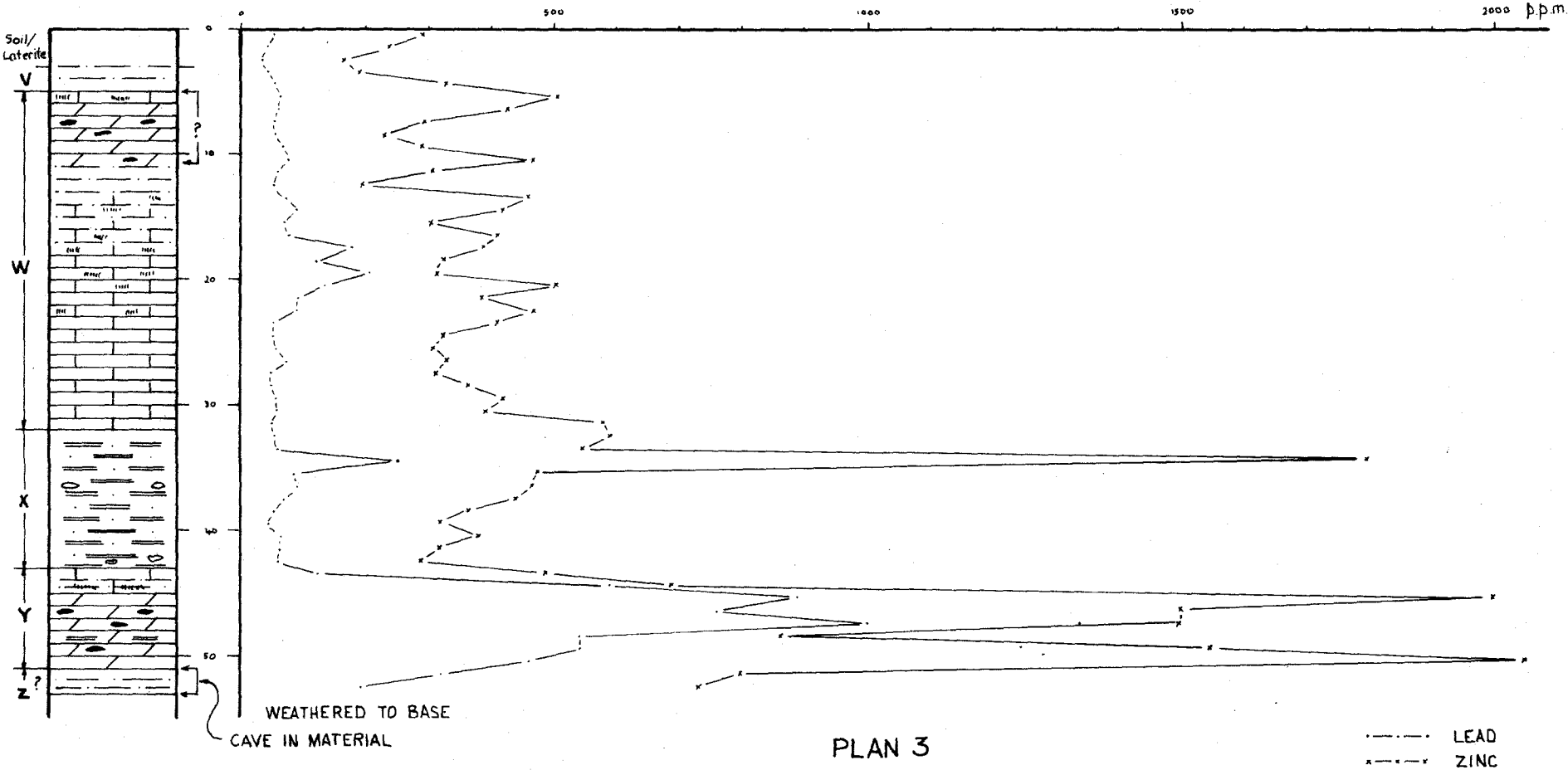
WITCHBINYA P.D.H. No.3A

WP3A



WITCHBINYA P.D.H. No.3B

WP3B



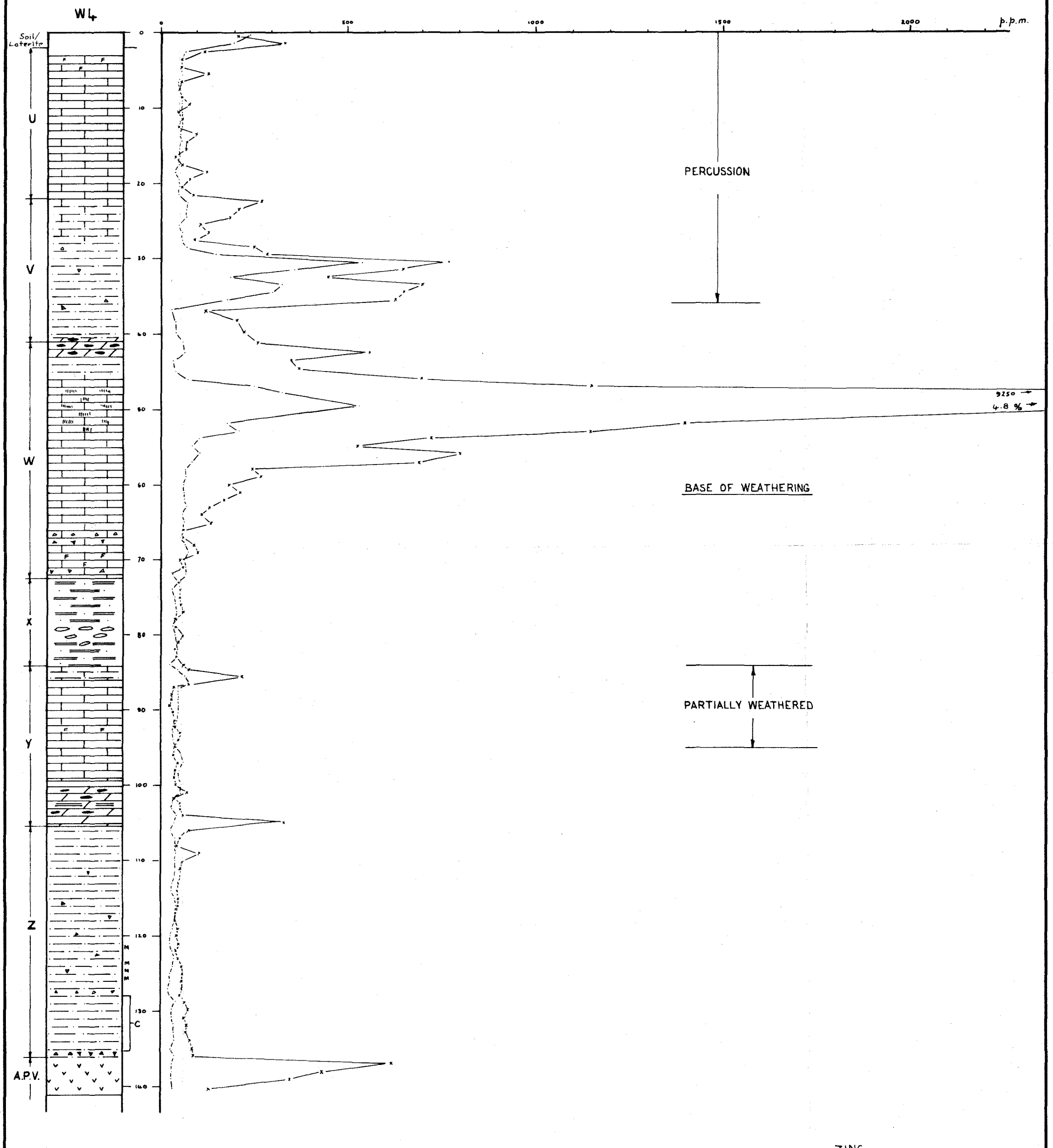
PLAN 3

LEAD

ZINC

CR 82/125

WITCHBINYA D.D.H. No. 4

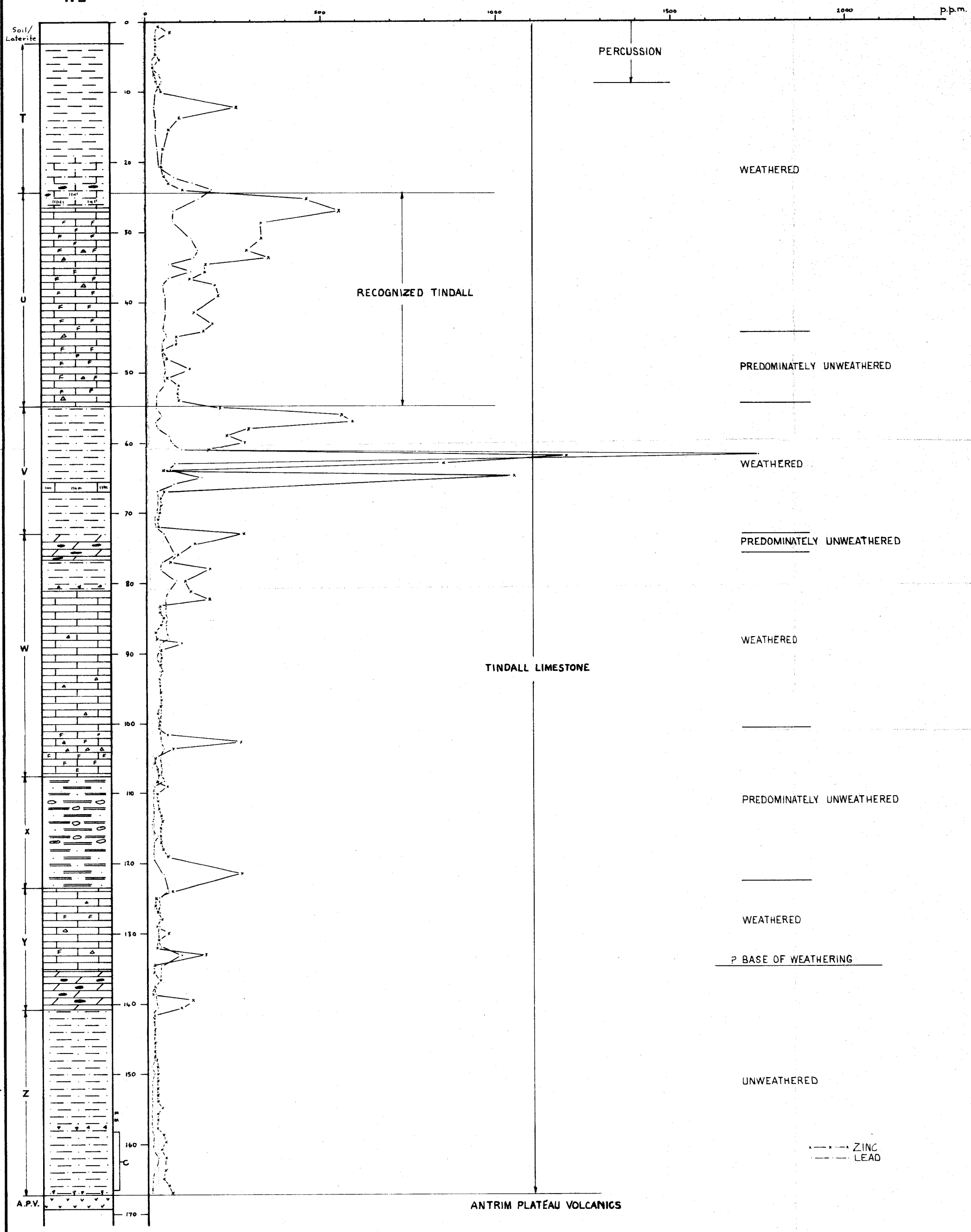


CR 82/125

PLAN 4

WITCHBINYA D.D.H. No.5

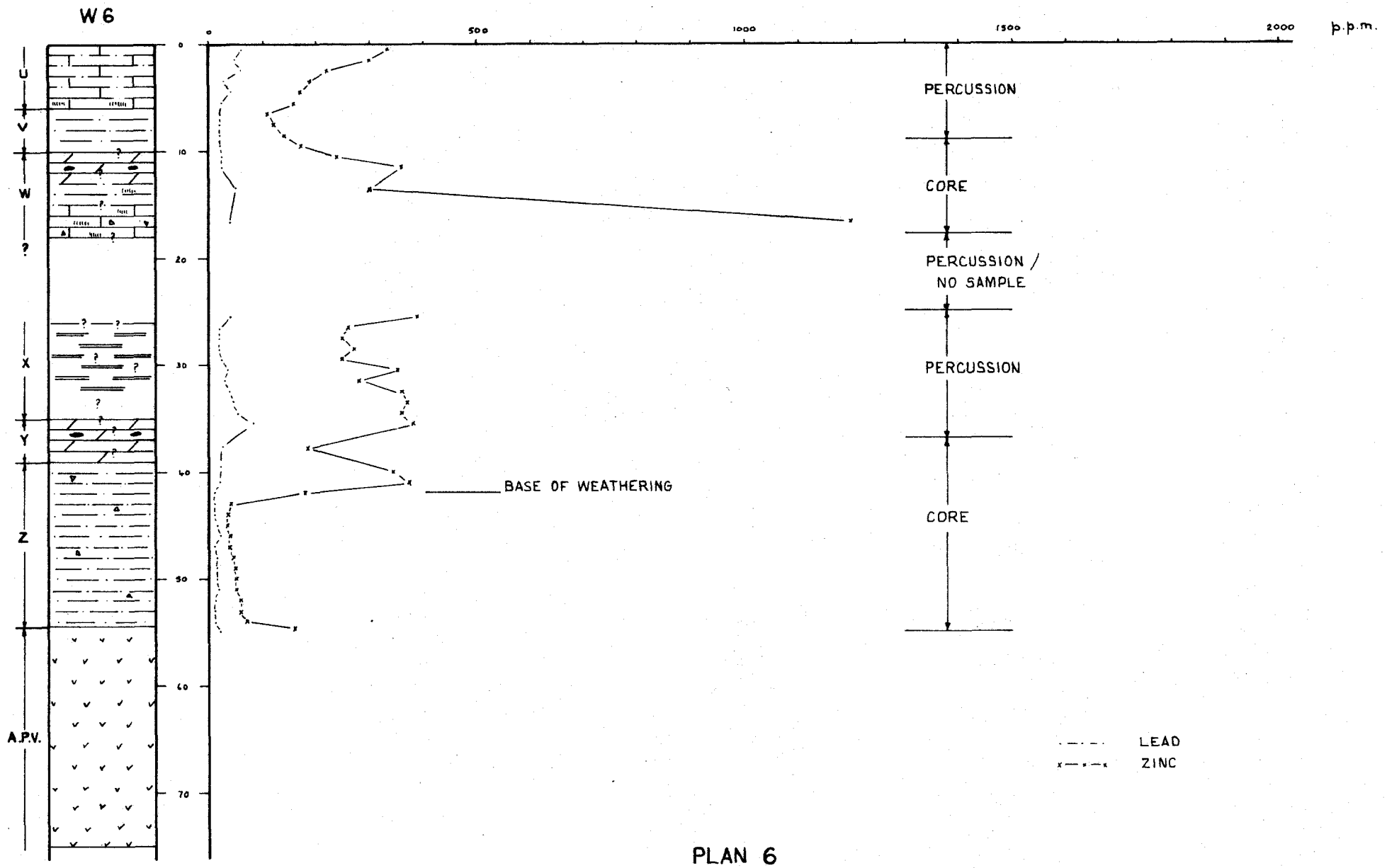
W5



CR 82/125

PLAN 5

WITCHBINYA D.D.H. No. 6

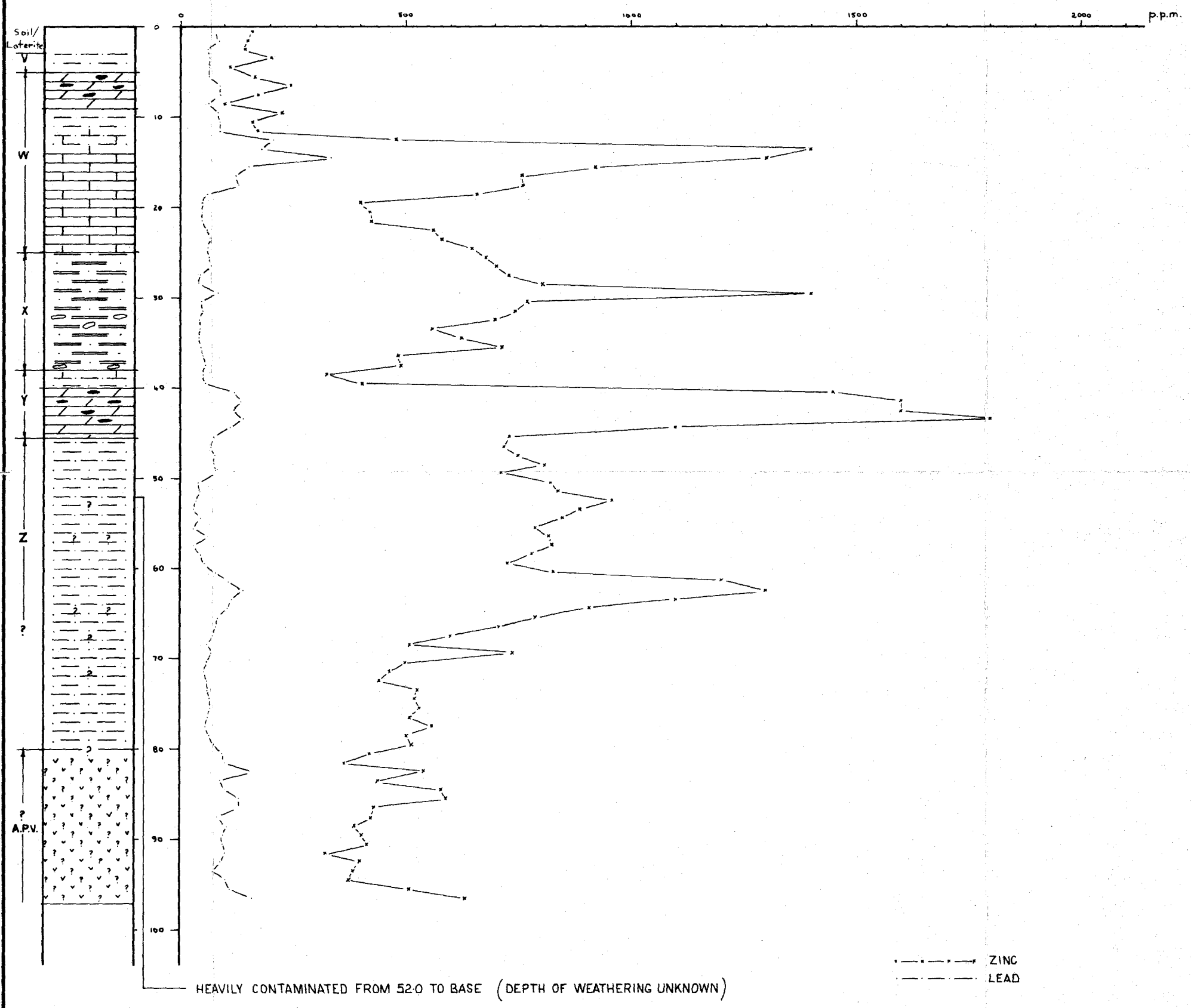


PLAN 6

CR 82/125

WITCHBINYA P.D.H. No.7

WP7

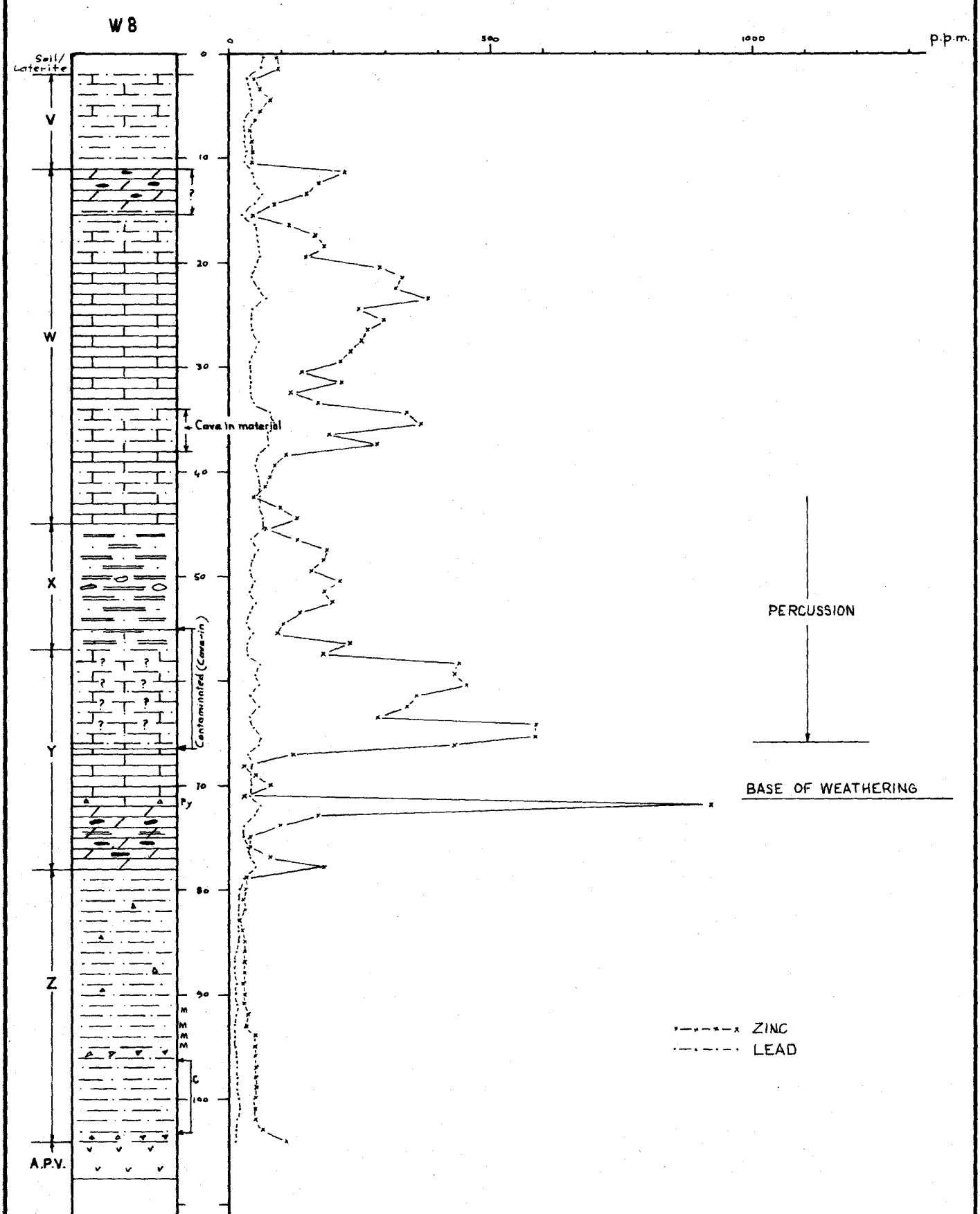


HEAVILY CONTAMINATED FROM 52·0 TO BASE (DEPTH OF WEATHERING UNKNOWN)

PLAN 7

CR 82/185

WITCHBINYA D.D.H. No. 8

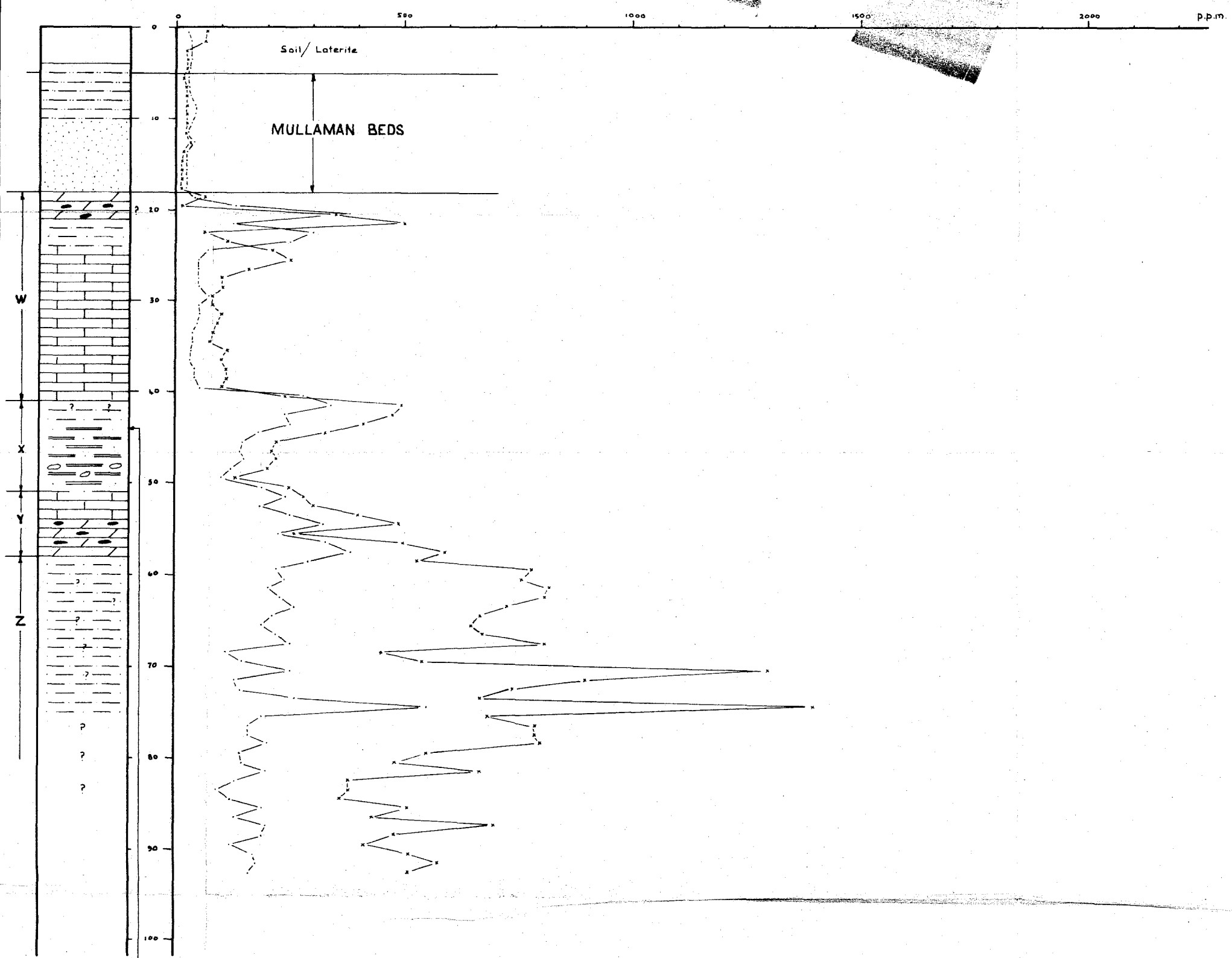


PLAN 8

CR 82/125

WITCHBINYA P.D.H. No. 9

WP9



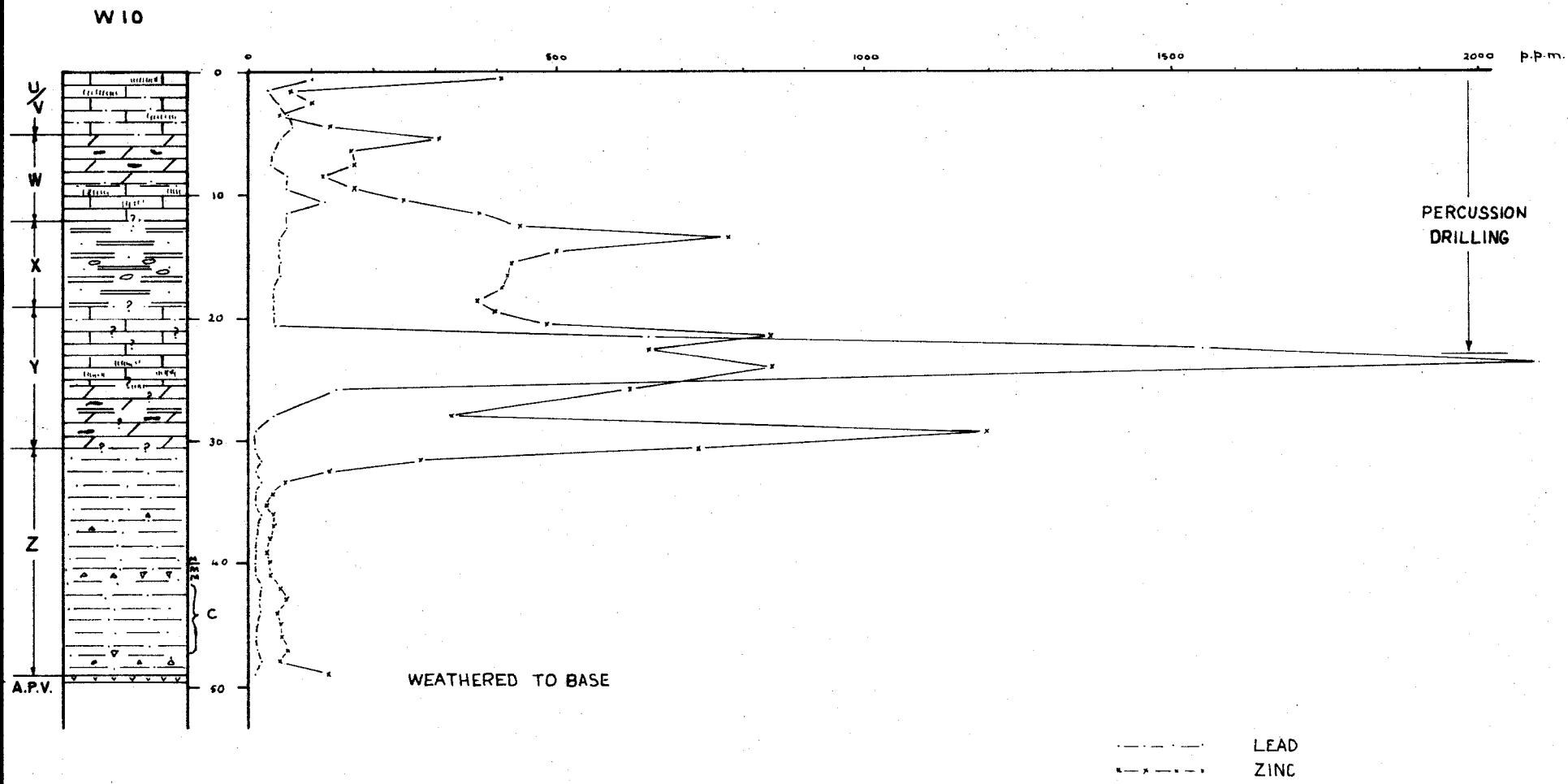
REDUCED SAMPLE RECOVERY/CAVE IN MATERIAL FROM 44.0 TO BASE
DEPTH OF WEATHERING UNKNOWN BELOW 45.0

x——x ZINC
·– –· LEAD

CR 82/125

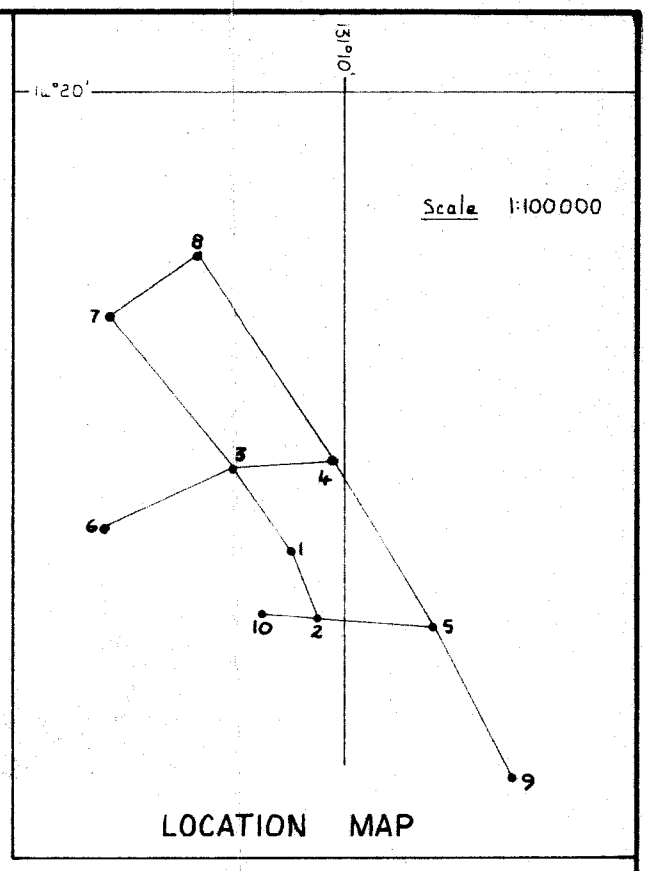
PLAN 9

WITCHBINYA D.D.H. No. 10

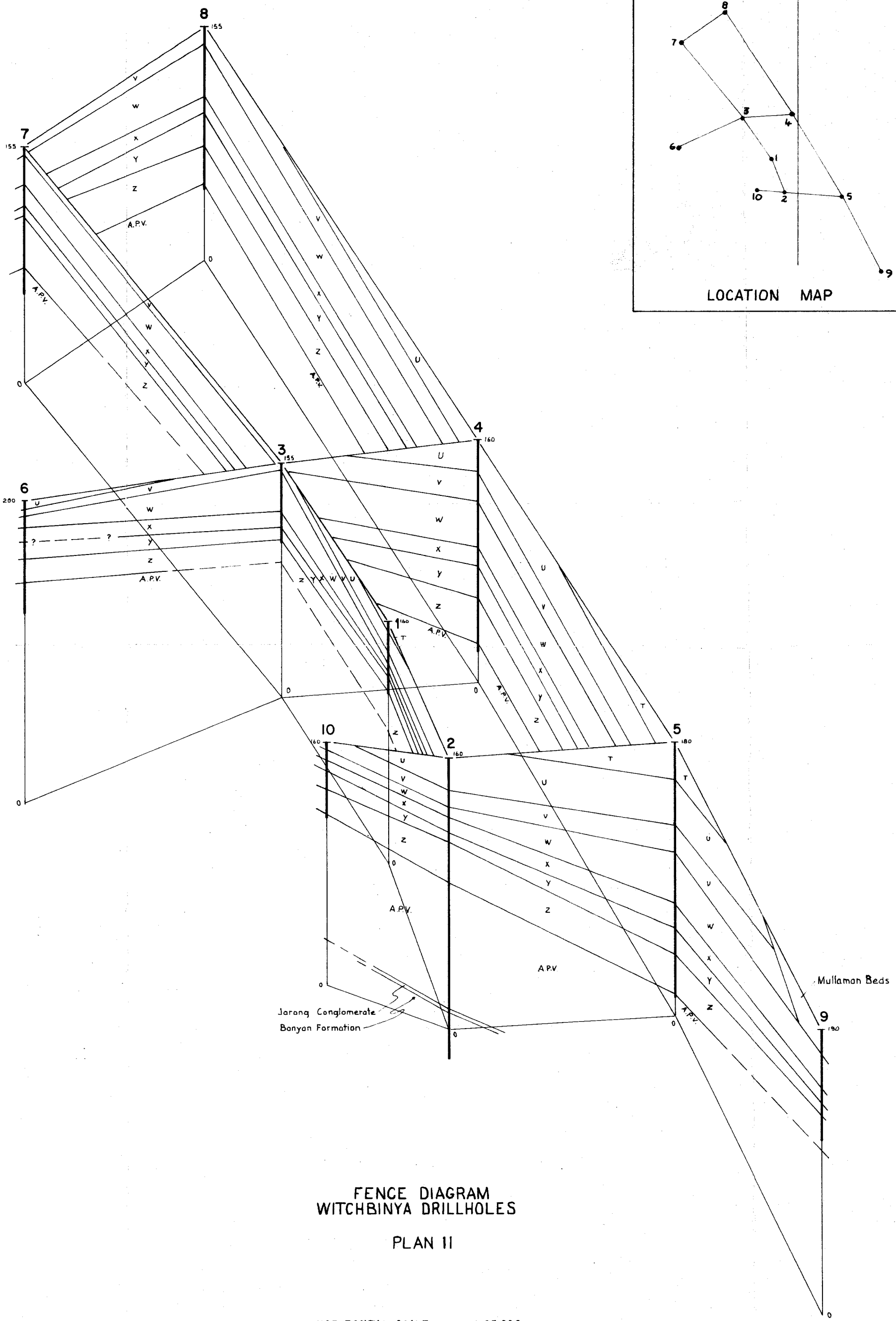


CR 82/125

PLAN 10



LOCATION MAP



FENCE DIAGRAM
WITCHBINYA DRILLHOLES

PLAN 11

HORIZONTAL SCALE	1:25 000
VERTICAL SCALE	1: 2 500
VERTICAL EXAGGERATION	10

OCTOBER, 1981

CR 82/125