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ZEEHAN No. 4 EL 38/89, TASMANIA

REPORT ON EXPLORATION FOR THE

FOURTH YEAR OF TENURE, 1/3/93 TO 28/2/94

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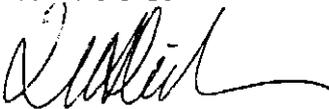
**AUTHOR:** R.G. Parkinson

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**LICENCE HOLDER:** CRA EXPLORATION PTY. LIMITED  
ALLEGIANCE MINING NL

**SUBMITTED TO:** T. W. Dickson

**ACCEPTED BY:**



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## 1. SUMMARY

CRA Exploration Pty. Limited (CRAE) is exploring EL38/89 for surficial secondary Zn deposits derived from the decomposition of Ordovician Gordon Limestone and underlying primary stratiform/stratabound carbonate-hosted Zn mineralisation.

Zinc (and Pb) is being enriched at the surface by dissolution of the carbonate. This decarbonatisation has left a layer of black sulphidic pug sitting above fresh limestone in which Zn has been retained and concentrated. The black pug is sporadically developed at surface over virtually all areas of Gordon Limestone, although it reaches greatest thickness and highest metal content over primary mineralised carbonate. The degree of upgrading is such that surface Zn concentrations may reach ore-grade.

One target was selected for work during 1993/94; Grieves prospect. Activities included reverse-circulation air-core drilling, diamond drilling and mineralogical studies.

Surficial and stratabound Zn mineralisation are developed at the lower contact of the Ordovician Gordon Limestone with the Moina Sandstone. Air-core drilling has located a near-surface mineralised zone of 500m strike length between 47750N and 48250N. This "black-pug" style of mineralisation is characterised by low Fe-Mn. Best air-core results include:-

48200N	ZG115	2.8m to 28.5m EOH	25.7m @ 4.8% Zn
48000N	ZG153	18m to 44m EOH	26.0m @ 2.0% Zn
47800N	ZG54	6.0m to 22.0m	16.0m @ 13.7% Zn

Diamond drilling has confirmed the surface zone is the manifestation of underlying primary stratabound Zn mineralisation. This stratabound zone is characterised by intense Fe carbonate alteration above a stratabound clay layer at the contact with underlying sandstone. The stratabound zone shows a clear alteration trend of elevated Zn-Fe-Mn-As that coincides with the visually identified alteration zone. Within the alteration zone, Zn mineralisation is apparently erratic, although additional work is required to determine whether there is a sedimentological or structural control to Zn grade. The best diamond hole to date returned:-

48000N	ZG107	123.95m to 139.1m	15.15m @ 10.4% Zn
		154.55m to 162.9m	8.35m @ 13.9% Zn, 8.5% Pb

Mineralogy is still largely unresolved. Limited testwork by ATD showed the Zn-clay fraipontite may be a major Zn species. Sulphur analyses suggest sphalerite could be present in many cases. Zn-rich intensely altered carbonate containing neither clay nor sulphide may be an Fe-Mn-Zn carbonate mineral not yet identified by XRD studies.

From an engineering point of view, the altered/mineralised zone is structurally incompetent, with no formations below the unaltered limestone down to the Moina Sandstone capable of forming a sound hangingwall.

There are insufficient results to hand to calculate a resource for Grieves. Surficial mineralisation exceeding 1% Zn extends for 500m strike length although is rarely more than 50m wide and has a depth extent of under 20m. Additional resources may be contributed by the underlying stratabound zone, although at this stage additional assay results and further drilling are required to quantify this.

Additional work should involve evaluation and reconnaissance drilling of the limestone-sandstone contact, and further mineralogical studies to define the form of the Zn mineralisation.

## 2. INTRODUCTION

EL38/89 was granted to Major Mining Ltd on 30th March 1990. CRA Exploration Pty. Limited entered into a joint venture agreement with Major to explore EL38/89, commencing on 23rd April 1991. In late 1993, Major Mining Ltd divested its interest in the joint venture to Allegiance Mining NL, with the exploration tenements being transferred to CRAE (90%) and Allegiance (10%) as tenants in common.

EL38/89 covers 9 sqkm located S of Zeehan on the Tasmanian W coast (Plan Tv431). During the period under review, the fourth year of tenure, CRAE has a statutory obligation to spend \$5000.

CRAE's principal commodity of interest in the Zeehan area is Zn-Pb. An exhaustive review of Amoco-EZ open-file data for the Myrtle to Rose Valley areas highlighted the importance of secondary surficial mineralisation derived from the decomposition of Ordovician Gordon Limestone. CRAE's activities focussed on potential for Zn-Pb deposits developed within this surficial residual black pug, and on primary stratabound targets existing beneath areas of surface enrichment.

One target was selected for fieldwork during 1992; Grieves prospect. During the period, reverse-circulation air-core drilling traverses were completed in an effort to identify areas of substantial secondary near-surface mineralisation. This was followed by a series of mineralogical studies on anomalous air-core samples. Two shallow diamond holes were drilled beneath areas of anomalous air-core traverses. Encouraging results from the initial air-core program led to a large campaign of air-core drilling to enable preliminary resource estimates to be made. Continued shallow and deep diamond drilling is aiming to identify underlying stratabound Zn accumulations.

This report details all exploration activities conducted within EL38/89 by CRAE during 1993/94.

### 3. CONCLUSIONS

Diamond and air-core drilling completed during the period indicate potential for both surficial and stratabound Zn mineralisation at the lower contact of the Ordovician Gordon Limestone with the Moina Sandstone. Air-core drilling has located a near-surface mineralised zone of 500m strike length between 47750N and 48250N. Weaker surficial mineralisation extends further N. This "black-pug" style of mineralisation is related to geochemical dispersion and enrichment by near-surface processes and is characterised by low Fe-Mn. Best air-core results include:-

48200N	ZG115	2.8m to 28.5m EOH	25.7m @ 4.8% Zn
48000N	ZG153	18m to 44m EOH	26.0m @ 2.0% Zn
47800N	ZG54	6.0m to 22.0m	16.0m @ 13.7% Zn

Diamond drilling has confirmed that this surface zone is the manifestation of underlying primary stratabound Zn mineralisation. This stratabound zone is characterised by intense Fe carbonate alteration above a stratabound clay layer at the contact with the underlying sandstone. Within the alteration zone, Zn mineralisation is apparently erratic, although additional work is required to determine whether there is a sedimentological or structural control to Zn grade. The stratabound zone shows a clear alteration trend of elevated Zn-Fe-Mn-As that coincides with the visually identified alteration zone. Zinc has the widest dispersion, averaging 150ppm to 300ppm in visually unaltered limestone. The best diamond hole to date returned:-

48000N	ZG107	123.95m to 139.1m	15.15m @ 10.4% Zn
		154.55m to 162.9m	8.35m @ 13.9% Zn, 8.5% Pb

Mineralogy is still largely unresolved. Limited testwork by ATD indicates Zn-clays to be a major Zn species, although with the benefit of substantial extra drilling it is uncertain how representative the sample studied may have been. Sulphur analyses suggest sphalerite could be present in many cases. Zn-rich intensely altered carbonate containing neither clay nor sulphide may be an Fe-Mn-Zn carbonate mineral not yet identified by XRD studies.

From an engineering point of view, the altered/mineralised zone is structurally incompetent, with no formations below the unaltered limestone down to the Moina Sandstone capable of forming a sound hangingwall.

There are insufficient results to hand to calculate a resource for Grieves. Surficial mineralisation exceeding 1% Zn extends for 500m strike length between 47750N and 48250N. Mineralisation is rarely more than 50m wide and has a depth extent of under 20m. Additional resources may be contributed by the underlying stratabound zone, although at this stage additional assay results and further drilling are required to quantify this poorly tested zone.

#### 4. RECOMMENDATIONS

Immediate requirements are to collate and interpret all geological and geochemical information amassed during the current drilling program. It may take until April 1994 before all results are available.

If analyses from the latest diamond drilling are encouraging, detailed evaluation drilling should commence without delay. Due to variable Zn distribution, 50m drill spacings are required.

Simultaneously, widely spaced (400m) reconnaissance diamond drilling of the Gordon Limestone - Moina Sandstone contact should be conducted extending away from Grieves to define any other major alteration zones.

Additional mineralogical work on a selection of sample pulps is required to adequately define Zn species. Geochemical data can be used to identify the major mineralisation sub-populations from which samples can be selected for XRD and/or optical study.

#### 5. REGIONAL GEOLOGY

Zeehan and its surrounding districts have seen almost continuous sedimentation, igneous activity and deformation from the Late Proterozoic to the Quaternary. Consequently the picture of geological evolution is a complex one. Recent mapping by the Tas Dept of Mines is helping to solve old puzzles, but also continues to open new cans of worms. Corbett (1989) gives a good summary of possible tectonic models to account for the early palaeozoic geology of NW Tasmania. Some interesting new concepts are summarised informally in Turner (1992). For CRAE staff, Parkinson (1992a) attempts to pull together a few loose threads. Regional geology is summarised on Plan Tv628.

The Rocky Cape Association forms basement in NW Tasmania. This association is not represented on the Zeehan 1:63360 sheet. In the late Precambrian, around 700Ma, a shallow basin was forming in the stretched intracratonic area between the Rocky Cape and Tyennan Regions. Coarse clastic sediments (conglomerates and sandstones) of the Forest Conglomerate, Donaldson Fm and base of the Timbs Gp were deposited.

Turbidite sequences of interbedded sands and silts of upper Donaldson Fm, Timbs Gp and Oonah Fm were laid down as the intracratonic basin deepened.

As the rift phase drew to a close, sag phase Black River Dolomite, Savage Dolomite, ?Timbs Gp magnesite horizons, and Success Creek Gp limestones were deposited. Rift tholeiites and associated sediments of the Smithton Volcanics, Bernafai Volcanics, Timbs Gp and Crimson Creek Fm erupted over the now filled basin.

During the mid to late Cambrian, an arc-continent collision caused overthrusting of ultramafic-mafic rocks and related sediments, possibly from a subduction complex some distance E of the Tyennan Block. The gabbros and basalts between Trial Harbour and Zeehan are of Boninitic composition - present understandings of basalt chemistry require that these Boninites derive from a fore-arc wedge (Brown and Jenner, 1989).

Post-collision extension tectonics then produced troughs into which the Dundas Gp sediments and Mount Read Volcanics were deposited. A local metamorphic event dated at 500Ma (Penguin Orogeny), possibly contemporaneous with eruption of the MRV, affected the rift sediments in the area of the present-day Arthur Lineament. This event probably affected the formations over a broader area than seen today.

Latest Cambrian to Ordovician times saw tectonic uplift of the Tyennan Block. Rapid stripping of this nucleus produced the coarse clastics of the Owen Conglomerate and correlates. As the rate of erosion slowed, sequences became finer (e.g. Moina Sandstone). Finally, in a short period of quiescence, limestones of the Gordon Group were deposited.

A second phase of uplift introduced sands and silts into a shallow marine environment to form the Eldon Group. This event took place from the early Silurian until the early Devonian, when the first rumblings of the Tabberabberan Orogeny were being felt.

Earliest of events forming part of the Tabberabberan Orogeny was a period of thrusting, possibly induced by compressive stresses caused by the rising plutons of the Heemskirk, Meredith and Housetop Granites.

To the NW of the granites, this compression thrust imbricate slices of the Timbs Gp over one another to produce the rapid, apparently quantum jumps in metamorphic grade seen in the Arthur Lineament. To the S, the Tenth Legion Thrust within the EL area is the clearest evidence of the early Devonian thrust event (Findlay and Brown, 1992). Other thrusts are likely to have developed, perhaps along the Little Henty and Firewood Siding Faults, to "poke the tongue" of Zeehan area geology southward into the Henty Basin.

Continued Tabberabberan deformation folded the Zeehan Basin formations about NNW-trending axes.

Geological events subsequent to the Tabberabberan Orogeny do not capture the imagination of mineral explorers. Terrestrial sedimentation continued in the Permian. Jurassic dolerite sills intruded the Zeehan area. Tertiary basalts flooded much of NW Tasmania, with remnants preserved near Granville Harbour.

Tertiary and Quaternary erosion and deposition continue to modify the ancient landsurface.

## 6. MINERALISATION

Several periods, styles and commodities of mineralisation are recognised in the Zeehan area. In summary these are:-

PERIOD	STYLE	EXAMPLE
Proterozoic	Stratiform syn-depositional pyrite in black shale.	Oonah Fm
Cambrian	Stratiform? magmatic Ni-sulphides in ultramafics	Cuni
Ordovician	Stratabound sphalerite-galena in limestone.	Oceana
Devonian	Stratabound replacement cassiterite-pyrrhotite in carbonates	Renison Bell
Devonian	Discordant lode-style pyrite-galena-sphalerite	Spray, Comstock
Devonian	Discordant vein-style pyrite-galena-sphalerite	Comet
Devonian	Skarn magnetite (+sphalerite-cassiterite)	Saint Dizier
Devonian	Skarn pyrrhotite (+sphalerite-galena)	Sylvester
Quaternary	Residual Pb-Zn in surficial decomposed limestone	Myrtle, Grieves

Historically it has been the lode and vein-style Pb-Ag mineralisation of the Zeehan and Dundas fields that have dominated interest. Lode-style mineralisation at Zeehan is usually hosted within graphitic shears in Oonah or Crimson Creek Fms. These deposits are high grade, but narrow (typically 0.3m) and with short strike and depth extent (usually less than 100m). In the context of modern large-scale mining practises, it is unlikely that such a target could be of economic interest on its own.

In the last 20 years or so, replacement-style Sn deposits have been given considerable attention. West Tasmania is well endowed with these deposits, which include Renison Bell, Queen Hill, Mt Bischoff and Cleveland. At Renison Bell, most ore occurs as massive pyrrhotite replacement of carbonate horizons, although a substantial quantity of ore occurs within the Federal-Bassett feeder zone. Source of the mineralisation is believed to be from Sn-rich fluids emanating from the underlying Devonian granite. A pre-mining resource is estimated at 42Mt @ 1.1% Sn (Collins, 1989).

Queen Hill is similar in style to Renison Bell, with a resource of 4Mt @1% Sn. Given the world oversupply of Sn, and the inherent low grade and metallurgical difficulties of these deposits, a replacement style Sn deposit is probably not a valid exploration target for a company without an existing Sn portfolio.

Magnetite skarn deposits such as Saint Dizier and Tenth legion have formed in carbonate lithologies adjacent to the Heemskirk Granite. St Dizier contains 5Mt @ 0.5% Sn, whilst the skarn at Tenth Legion contains low percent levels of Zn as sphalerite.

Zinc mineralisation in a pyrrhotite-serpentine skarn within Oonah Fm carbonates was discovered by RGC at Sylvester prospect, W of Zeehan in 1992. Resources are estimated to be 6Mt @ 5.5% Zn, 3.3% Pb and 40ppm Ag, The sphalerite is reported to be very high in Fe (around 18% Fe) which substantially lowers the quality of this style of mineralisation.

Nickel mineralisation as magmatic segregations within the ultramafics appears to be insignificant in quantity, although the grade of individual occurrences sounds impressive. Deposits are generally less than 50m long and of the order of 1m wide, with several percent of Ni and Cu (Blissett, 1962). Although some drilling has been carried out, there is no clear understanding of the geometry of the deposits with depth. This style of mineralisation should be considered incompletely explored.

Stratabound Pb-Zn in limestone is exemplified by the Oceana deposit where Amoco outlined a resource of 4Mt @ 19.4% Pb, 4% Zn and 106 ppm Ag (Taylor and Mathison, 1990). Mineralisation is described as syndiagenetic replacement, broadly equivalent to Irish-type deposits. Indications of other stratabound carbonate-hosted Pb-Zn mineralisation is recorded in Amoco-EZ diamond drilling from Myrtle and Grieves prospects. Despite intensive but fruitless exploration by Amoco-EZ, the Gordon Limestone still holds potential for base-metal discoveries.

Perhaps more significant than potential within the limestone is near-surface enrichment of Zn by the dissolution of the carbonate. This decarbonisation has left a layer of black sulphidic pug sitting above fresh limestone, beneath a veneer of glacial gravels. Zinc and Pb have been retained and concentrated in this pug layer. The mechanism for this process is unclear, but it is suggested that low pH, strongly reducing conditions have acted to remove carbonate, but preserve sulphides near the surface. The black pug is extensively developed over virtually all areas of near-surface Gordon Limestone.

The degree of upgrading is such that surface Zn concentrations can reach ore-grade. This fact, combined with likely favourable mining characteristics of low ore:waste ratio, ease of excavation, and close proximity to established infrastructure, significantly upgrades the prospectivity of this style of mineralisation. Potential of this target is currently being evaluated by CRAE.

Stratiform syngenetic sulphides in Proterozoic black shale was CRAE's principal focus in the Zeehan area prior to 1993. To date, no economic occurrences of base-metals in this deposit type are known in Tasmania. Gross similarities can be drawn between Zeehan and the Mt Isa and Lawn Hill areas, and on that basis some potential exists for discovery of another Century-type deposit.

The best reference for brief descriptions of all deposits of the Zeehan field, although somewhat dated now, is Blissett (1962). Early Geological Survey bulletins from between 1890 and 1910 are important historical references. A new 1:50000 geological map of the Zeehan quadrangle is soon to be published.

## 7. PREVIOUS EXPLORATION BY COMPETITORS

Relevant exploration activities by competitors prior to the granting of EL38/89 is restricted to the program on EL4/78 by Amoco, followed by EZ in joint venture, best summarised by Mathison and Taylor (1987).

During the period 1978-1987, Amoco-EZ, collected a large body of data over the Gordon Limestone as part of their Zn-Pb exploration activities on EL4/78. Amoco-EZ focussed on an Irish-type exploration model, based on their success in delineating the sub-economic Oceana deposit. Data amassed by the joint venture includes:-

- geological mapping
- wacker geochemistry
- costean geochemistry
- ground magnetics
- gravity
- IP and EM surveys
- drilling logs and assays

Although the program was unsuccessful in delineating a bedrock carbonate-hosted resource (apart from the sub-economic Oceana deposit), numerous drill-holes intersected sub-economic and patchy Zn-Pb mineralisation.

It also became clear that significant enrichment of Pb and Zn was occurring in the decarbonated black pug developing in the weathering profile above the limestone. After so many frustrating years of searching for the hardrock source to these anomalies, Amoco-EZ failed to perceive the black pug as a target in itself.

At Grieves prospect, wacker sampling revealed several areas of highly anomalous Zn-Pb mineralisation in weathered limestone, up to 19.5% Zn and 2.4% Pb. Costeans dug over selected wacker anomalies returned best results of 20m @ 7.0% Zn, and 8m @ 10.2% Zn, further upgrading the prospect. Costeans reporting % levels of Zn often failed to reach bedrock, providing the first clues to the presence of secondary surficial metal accumulations.

Diamond drilling at Grieves proved the existence of low-grade stratiform Zn mineralisation at the base of the Gordon Limestone. Holes testing 700m of strike length intersected up to 5.3m @ 6.1% Zn, although the mineralisation was discontinuous. A second target in the middle of the limestone returned up to 6.8m @ 8.5% Zn in shallow diamond holes. The Zn mineralisation was thought to be dominated by smithsonite.

## 8. EXPLORATION BY MAJOR MINING LTD / CRAE PRIOR TO 1/3/92

**Year 1:** Activities by Major Mining prior to CRAE's involvement are detailed in the relevant statutory reports.

**Year 2:** Exploration by CRAE on EL38/89 prior to 1/3/92 focussed on a compilation and review of existing open-file data. These initial activities led to a concentration of effort on adjacent tenements EL28/88 and EL34/88, at that time considered to be more prospective.

**Year 3:** Compilation of open-file wacker and costean geochemistry led to the recognition that significant amounts of Zn were accumulating in surficial black pug (decomposed limestone), above apparently weakly mineralised carbonates at Grieves prospect. Wacker sampling defined three separate targets; an 1100m linear zone at the upper contact of the limestone, a 700m linear trend at the base of the limestone, and a highly conspicuous single point anomaly in the middle of the limestone (Parkinson, 1993).

It was thought that there may be potential for sufficient metal accumulations to justify evaluation. Rock sampling of infilled costeans, mineralogical studies, and reverse-circulation air-core drilling traverses were completed in an effort to identify areas of substantial secondary near-surface mineralisation.

## 9. EXPLORATION ACTIVITIES FOR THE PERIOD 1/3/93 TO 28/2/94.

### 9.1 Exploration Philosophy

CRAE's principal commodity of interest in the Zeehan area is Zn-Pb. CRAE's initial interest in EL38/89 focussed on potential for carbonate-hosted Zn-Pb deposits within Ordovician Gordon Limestone. Following an exhaustive review of Amoco-EZ open-file data for the Myrtle to Rose Valley areas, secondary surficial deposits derived from the decomposition of the carbonate was perceived to be a more desirable target. Zinc and Pb are being enriched at the surface by dissolution of the carbonate. This decarbonatisation has left a layer of black sulphidic pug sitting above fresh limestone, beneath a veneer of glacial gravels. Zinc and Pb have been retained and concentrated in this pug layer. The mechanism for this process is unclear, but it is suggested based on studies by Amoco (Wall, 1984) that low pH, strongly reducing conditions have acted to remove carbonate, but preserve sulphides near the surface. Wall (1984) has suggested a four-fold increase in grade above that of underlying primary mineralisation. The black pug is sporadically developed at-surface over virtually all areas of Gordon Limestone, although it reaches greatest thickness and highest metal content over primary mineralised carbonate.

The rationale behind the pursuit of the secondary surficial targets rests on a number of features of the mineralisation already defined in open-file literature. These features are:-

- Zn mineralisation at % levels is defined at several prospects
- The deposit style has not been previously evaluated
- Mineralisation is shallow, thereby offering low stripping ratios for mining
- Sediments are soft, capable of being mined without drilling and blasting
- Sealed roads run adjacent to all targets

The latter three factors theoretically may translate to lower capital and operating costs for a mine, which in turn may allow lower grades to be mined, thereby maximising the resource.

## 9.2 Grievess Prospect

### 9.2.1 Introduction

Grievess prospect is 12km S of Zeehan, adjacent to the Zeehan-Strahan road (Plan Tv542). The prospect sits in a synform of Gordon Limestone. Quaternary gravels obscure the limestone, which has eroded to form the Badger River valley between ridges of Moina Sandstone and Crotty Quartzite.

Grievess was selected based on highly anomalous open-file wacker and costean geochemistry suggesting potential for sufficient Zn accumulations to justify CRAE's interest.

During the period, reverse-circulation air-core drilling traverses were completed in an effort to identify areas of substantial secondary near-surface mineralisation. This was followed by a series of mineralogical studies on anomalous air-core samples. Two shallow diamond holes were drilled beneath areas of anomalous air-core traverses. Encouraging results from the initial air-core program led to a large campaign of air-core drilling to enable preliminary resource estimates to be made. Continued shallow and deep diamond drilling is aiming to identify underlying stratabound Zn accumulations.

### 9.2.2 Geology

Grievess prospect is hosted in Ordovician Gordon Limestone. Conformably underlying the limestone is Ordovician Moina Sandstone. Crotty Quartzite, of Silurian age, conformably overlies the limestone. At Grievess the Gordon Limestone is approximately 400m-500m thick. The sequence was folded during the Devonian Tabberaberan Orogeny to produce an open NNW-plunging synform. Measured dips at Grievess are generally between 45deg and 55deg.

At present it is not possible to subdivide the Gordon Limestone in the Grievess area. One stratigraphic hole has been drilled at Grievess through the entire sequence (ZG1007), but the core cannot be located at either the Pasminco Tullah core store or at Mineral Resources Tasmania.

The base of the limestone, drilled in some detail during the period under review, appears to have a predictable stratigraphy. At the base is massive white to light grey quartzite of the Moina Sandstone. Above this is a mixed zone up to 4m thick of unconsolidated to poorly lithified sands and silts, also belonging to the Moina Sandstone.

Overlying this is a sequence of clays up to 40m thick, locally containing sandy beds near the base, but becoming more plastic higher in the sequence. The clays are highly variable from yellow-brown, through grey to almost black, reflecting variable Fe and C contents. Sulphide is locally important, and portions of this clay, particularly the sulphidic and carbonaceous sections, host significant Zn mineralisation. In this report these clays are considered the base of the Gordon Limestone. Above the clays is a stratabound zone of moderate to totally ankerite altered carbonate, intermixed with varying proportions of carbonate and quartz sand, worn carbonate fragments and clay up to 25m thick. The ankerite altered carbonate may be massive and grey to honeycombed and yellow. Relict primary sedimentary features are almost always destroyed, although rarely some oolites or skeletal material may remain. This zone probably overprints the primary stratigraphic elements (i.e. not stratiform) and is considered prospective for Zn mineralisation.

Occupying a similar position to the stratabound ankerite altered carbonate is an irregular but highly distinctive oolitic carbonate up to 25m thick. This unit, where present, is always within or immediately adjacent to the altered/mineralised zones, however its distribution is highly variable, and is often absent entirely. It is unclear whether the oolitic unit is preferentially replaced by the alteration assemblage, or is acting as an impervious buffer.

Above the oolitic unit and ankerite altered carbonate is an irregularly banded lime mudstone. This sub-unit consists of grey very fine grained calcareous mud with wisps, wormy or irregularly banded patches of crystalline dark grey carbonate. This crystalline carbonate appears to be infilling cavities, possibly formed by synerectic contraction of dehydrating lime mud. The crystalline carbonate is calcite away from the altered zones, but is preferentially replaced by dolomite and then ankerite as the altered zone is approached. All CRAE diamond holes have been collared in this material.

Locally some other sub-units are present, including bioclastic limestones and algal laminites, however they are volumetrically insignificant and presently are uncorrelatable between holes.

Bedrock specimens collected during air-core drilling will be used to further define local carbonate facies variations and alteration trends, however this work has not yet commenced.

A locally major fault, Grieves Fault, cuts the Moina Sandstone and Gordon Limestone. The fault shows a horizontal displacement of 200m, although the true sense of movement is not known. Mineralisation intersected in wacker samples and drill holes extends grid N and S from this fault, but it is unclear what role the fault may have had in controlling the location of mineralisation. The fault itself has not been tested for mineralisation.

Timing of Grieves Fault is also unresolved. The Crotty Quartzite is unaffected by the structure, possibly indicating movement was Ordovician, perhaps related to syn-sedimentary growth faulting. Alternatively, the fault may be accommodating stress related to Devonian folding, and that its absence from the Crotty Quartzite may reflect differential strain between the units.

Erosion has reduced the limestone to rare outcrops in Quaternary gravel-covered valleys between ridges of sandstone and quartzite. Gravels may be up to 5m thick. In-situ weathering has further degraded the limestone to a black decarbonated clay. This weathering surface is variable in depth but may locally reach 30m, averaging 3-10m.

### 9.2.3 Air-core Drilling

Wallis Drilling Pty. Ltd. of Western Australia were contracted to drill a series of shallow reverse-circulation air-core holes at Grieves to test the thickness and lateral extent of Zn mineralisation within surficial decomposed limestone. The rig used is a small system mounted on a Bombardier Muskeg snowmobile. The fully operational rig has a total weight of eight tonnes, with a ground pressure of less than 4psi, slightly greater than a human footprint. Air-core drilling relies on compressed air to return drill cuttings to the surface. No water (except natural groundwater) or muds are circulated and all cuttings are collected via a cyclone into bags. This rig and drilling system are ideal for testing soft formations in areas where vegetation is sensitive to disturbance.

Air-core drilling was selected as it is one of the only methods capable of obtaining accurate uncontaminated samples in wet, clay-rich and unconsolidated ground. With hindsight, it has been shown the rig was ideally suited to the task, being able to hammer through quartzite boulders, easily drill the clays and broken ground, then finally obtaining a small core of fresh bedrock.

The initial air-core program was undertaken in January 1993. Nine 300m traverses with a hole spacing of 25m were completed to test the three wacker anomalies. In total, 103 holes for a total metreage of 1070m were completed (ZG1 to ZG103). Analytical results were not available in time for inclusion in the previous statutory report.

Encouraging results from this initial program led to a large campaign of air-core drilling in November-December 1993, with the aim of acquiring sufficient information to prepare a preliminary resource estimate. Areas of greatest potential, particularly the basal limestone contact, were tested at 50m x 10m spacing. A total of 249 holes for a total metreage of 3803m were completed in the second phase (ZG108 to ZG208, ZG210 to ZG357).

A further 35 holes for a total metreage of 312m were completed in February 1994 targetting the S end of the basal limestone anomaly, and the middle portion of the limestone on section 47100N (ZG366 to ZG400), however results are not available for inclusion in this report.

Cuttings were collected at 2m intervals, with a wet 1-2kg sample "snatched" by hand for analysis. Samples were assayed at Analabs Burnie by AAS (aqua regia-perchloric acid digest) for Ag-Cu-Pb-Zn-Fe-Mn. Numerous samples were over-range for this method, and were subsequently redetermined by AAS (aqua regia-perchloric acid-hydrofluoric acid digest). In the second campaign, samples exceeding 1% Zn were analysed for S by leco furnace.

Drill-hole locations are shown on Plan Tv647. Collar information and down-hole logs and assays are tabulated in Appendices 1 and 2.

A typical drillhole encountered a profile of transported quartzite pebble to boulder gravels, followed by surficial clays, finally bottoming in fresh limestone. Detailed drilling of the anomaly at the base of the limestone revealed a stratabound zone of ankerite altered carbonate beneath the surficial clays, followed by stratabound clays immediately above the Moina Sandstone contact. Often it was not possible to penetrate through the ankerite alteration zone, with holes stopping in mineralisation. Shallow diamond drilling was undertaken to resolve this problem (see below).

The gravel layer consisted of transported pebble to boulder-sized gravels derived from the adjacent Moina Sandstone. Thickness of the gravel layer ranged from absent to 8m, averaging 2m. Gravels were generally developed to similar depths through the entire prospect, although the size of the gravel pieces decreased toward the Crotty Quartzite.

Clays are most strongly developed at the contact with the Moina Sandstone, where there are both surficial and stratabound clays. Up to 50m of clays were intersected in some holes. The clay varied in character from light brown or light grey through to black, strongly carbonaceous and sulphidic. The majority were dark grey carbonaceous clays. Both surficial and stratabound clays contain Zn mineralisation.

Also observed near the Moina Sandstone contact is a stratabound zone of yellow, spongy to massive ankerite-siderite altered carbonate. This zone contains the primary Zn mineralisation, although the alteration zone appears more extensive than the strongly elevated Zn values.

The limestone itself displayed a range of facies types, from massive cherty limestone through fine grained bioturbated (?) mudstones, to coarse oolitic limestones. Bivalve and coral fossils were occasionally seen. Calcite veining was common, pyrite mineralisation rare, but no Pb or Zn sulphides were observed.

Reference samples of fresh bedrock were retained to aid geological mapping of the limestone facies and to define alteration trends. Study of these samples was in progress at time of writing.

**Moina Sandstone - Gordon Limestone contact:**

Significant Zn intersections have been made over a 500m strike length between 47750N and 48250N at the Moina Sandstone - Gordon Limestone contact, including:-

48250N	ZG123	5.5m to 24m EOH	18.5m @ 4.5% Zn
48200N	ZG115	2.8m to 28.5m EOH	25.7m @ 4.8% Zn
48150N	ZG352	8.0m to 28.7m EOH	20.7m @ 3.6% Zn
48100N	ZG129	0.0m to 6.0m	6.0m @ 2.2% Zn
48050N	ZG357	26.0m to 30.0m	4.0m @ 3.7% Zn
48000N	ZG153	18m to 44m EOH	26.0m @ 2.0% Zn
47950N	old mine workings, no drilling		
47900N	old mine workings, no drilling		
47850N	ZG180	2.5m to 16.0m	13.5m @ 8.5% Zn
47800N	ZG54	6.0m to 22.0m	16.0m @ 13.7% Zn
47750N	ZG181	1.5m to 20.0m	18.5m @ 3.4% Zn

Drilling further N between 48300N and 48400N produced sporadic 2m intervals exceeding 1% Zn, open to the N. Drilling to the S between 47300N and 47600N detected weak Zn mineralisation (best result ZG228 - 6m @ 2.1% Zn) within a zone of strong Fe alteration on S-most lines 47350N and 47280N. Additional drilling on section 47700N (holes ZG366 to ZG372) has been completed, however results were not available for inclusion in this report. A complete list of all intervals exceeding 1% are shown in Table 1.

Initial interpretations of results to hand show the mineralisation has several components. A portion of the mineralisation is surficial, related to geochemical dispersion and enrichment by near-surface processes. This is the "black-pug" style of mineralisation and is characterised by low Fe-Mn. Two types of stratabound mineralisation are seen. One is associated with ankerite alteration of carbonates while the second is within stratabound clays adjacent to the ankerite alteration zone. Both stratabound styles seem to be high in Fe-Mn.

Sulphur analyses indicate that some of the mineralisation will be in a form other than sphalerite.

Further interpretation and additional testwork are required to determine mineralogies.

A number of air-core holes stopped in mineralisation suggesting the enrichment zone continues below the depth capacity of the air-core rig. Additional shallow diamond drilling was completed to test the depth of enrichment (see below).

**Middle portion of the limestone:**

Drilling around the costean and wacker anomaly in the middle portion of the limestone on section 47100N returned a best result of:-

47100N	ZG36	6.0m to 12.2m EOH	6.2m @ 5.3% Zn
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Other holes 25m away on this section were not anomalous, nor were holes on lines 100m away. Additional drilling at 50m x 10m spacings has been completed centred on hole ZG36 (holes ZG373 to ZG400), however results were not available for inclusion in this report.

TABLE 1: GRIEVES PROSPECT						
AIR-CORE DRILLING - ZINC GRADE AND THICKNESS						
1.0% ZN CUTOFF						
HOLE	DFROM	DTO	EOH?	WIDTH	ZINC%	TH x Zn%
ZG36	6.0	12.2	EOH	6.2	5.4	33.2
ZG40	8.0	9.8	EOH	1.8	1.3	2.3
ZG51	50.0	52.0		2.0	1.3	2.6
ZG54	6.0	22.0		16.0	13.7	218.5
ZG55	2.0	16.0		14.0	1.2	16.8
ZG74	2.0	14.5	EOH	12.5	2.6	32.5
ZG75	12.0	14.0	EOH	2.0	3.4	6.9
ZG84	6.0	8.0		2.0	1.5	3.1
ZG92	2.0	6.0		4.0	1.2	4.7
ZG108	4.0	14.0		10.0	4.0	40.0
	28.0	31.0	EOH	3.0	1.5	4.5
ZG115	2.8	28.5	EOH	25.7	4.8	123.4
ZG116	3.5	14.0		10.5	5.9	62.0
ZG117	4.0	18.0		14.0	4.6	64.4
ZG123	5.5	24.0	EOH	18.5	4.5	83.3
ZG129	0.0	6.0		6.0	2.2	13.2
ZG149	8.0	16.0	EOH	8.0	3.7	29.6
ZG150	4.0	10.0		6.0	1.2	7.2
ZG152	18.0	20.0	EOH	2.0	6.0	12.0
ZG153	5.0	6.0		1.0	1.8	1.8
	18.0	44.0	EOH	26.0	2.0	52.0
ZG154	4.5	6.0		1.5	2.0	3.0
	22.0	30.0		8.0	1.2	9.6
ZG155	3.0	6.0		3.0	1.5	4.5
	18.0	39.0	EOH	21.0	1.4	29.4
ZG156	18.0	26.0		8.0	1.7	13.6
ZG157	1.5	3.0	EOH	1.5	2.3	3.5
ZG169	4.0	6.0		2.0	3.3	6.6
ZG170	2.0	7.0	EOH	5.0	4.8	24.0
ZG171	4.0	22.0	EOH	18.0	3.5	63.0
ZG172	4.0	22.0	EOH	18.0	1.3	23.4
ZG173	12.0	18.0		6.0	1.2	7.2
ZG174	4.0	6.0		2.0	1.0	2.0
	16.0	18.0		2.0	1.5	3.0
	26.0	28.0		2.0	1.1	2.2
ZG175	3.0	8.0		5.0	1.4	7.0
	40.0	42.0		2.0	1.4	2.8
ZG177	20.0	24.0		4.0	1.1	4.4
	48.0	57.0	EOH	9.0	2.4	21.6
ZG178	2.0	17.5	EOH	15.5	3.2	49.6
ZG179	2.0	5.0	EOH	3.0	1.2	3.6
ZG180	2.5	16.0		13.5	8.5	114.8

TABLE 1: GRIEVES PROSPECT						
AIR-CORE DRILLING - ZINC GRADE AND THICKNESS						
1.0% ZN CUTOFF						
HOLE	DFROM	DTO	EOH?	WIDTH	ZINC%	TH x Zn%
ZG181	1.5	6.0		4.5	5.7	25.7
	14.0	20.0		6.0	4.5	27.0
ZG182	4.0	13.0	EOH	9.0	5.2	46.8
ZG183	2.5	21.0	EOH	18.5	2.6	48.1
ZG184	2.0	6.0		4.0	1.6	6.4
	22.0	39.0	EOH	17.0	1.7	28.9
ZG185	8.0	12.0		4.0	1.1	4.4
	54.0	60.0	EOH	6.0	1.1	6.6
ZG228	6.0	12.0		6.0	2.1	12.6
ZG230	8.0	12.2	EOH	4.2	1.4	5.9
ZG264	3.0	6.0		3.0	3.6	10.8
	12.0	18.0		6.0	1.8	10.8
ZG265	4.0	6.0		2.0	1.7	3.4
	12.0	14.0		2.0	3.2	6.4
ZG273	6.0	10.0		4.0	2.0	8.0
ZG277	2.0	8.0		6.0	1.4	8.4
ZG278	0.0	2.0		2.0	1.0	2.0
ZG279	2.0	6.0		4.0	1.4	5.6
ZG280	2.0	4.0		2.0	1.1	2.2
ZG300	0.0	2.0		2.0	1.3	2.6
	6.0	8.0		2.0	1.1	2.2
ZG317	2.0	4.0	EOH	2.0	3.3	6.6
ZG346	6.0	8.0		2.0	1.0	2.0
ZG348	10.0	12.0		2.0	1.4	2.8
	20.0	31.0	EOH	11.0	2.7	29.7
ZG349	4.4	6.0		1.6	1.5	2.4
ZG350	4.5	10.0	EOH	5.5	6.3	34.7
ZG351	4.6	5.5	EOH	0.9	6.7	6.0
ZG352	8.0	28.7	EOH	20.7	3.6	74.5
ZG356	18.0	24.0		6.0	1.7	10.2
ZG357	16.0	18.0		2.0	1.0	2.0
	26.0	30.0		4.0	3.5	14.0
	52.0	55.8	EOH	3.8	2.5	9.5

**Gordon Limestone - Crotty Quartzite contact:**

Drilling near the upper Gordon Limestone - Crotty Quartzite contact failed to define any significant anomalies, although low-level Zn anomalism in the 0.1% to 1.0% range was widespread. Best values include:-

47600N	ZG84	6.0m to 8.0m	2.0m @ 1.5% Zn
47700N	ZG317	2.0m to 4.0m EOH	2.0m @ 3.3% Zn
47800N	ZG92	2.0m to 6.0m	4.0m @ 1.2% Zn

Selected cross sections 47800N, 48000N and 48200N for the Moina Sandstone - Gordon Limestone contact showing geology and Zn, Fe and S analyses are plotted on Plans Tv652 to Tv663, and summaries of these sections are shown in Plans Tv 649 to 651. Plan Tv 648 shows the distribution of air-core holes testing the Moina Sandstone - Gordon Limestone contact with over 2m at 1% Zn.

**9.2.4 Diamond Drilling**

Significant intersections for all diamond drilling (open-file and current work) testing the lower limestone-sandstone contact are (1% Zn cut-off grade):-

48400N	ZG1015	EZ hole. Suphidic clays 109.6m to 119.5m - assays awaited	
48350N		untested	
48300N	ZG1014	EZ hole. No zones >1% Zn	
48250N	ZG1013	EZ hole. 105.5m to 110.8m	5.3m @ 6.1% Zn
48200N	ZG104	9.5m to 14.35m	4.85m @ 2.35% Zn
		27.3m to 36.7m EOH	9.4m @ 8.6% Zn
	ZG106	128.2m to 130.2m	2.0m @ 1.4% Zn
		138.1m to 140.5m	2.4m @ 1.5% Zn
	ZG364	assays awaited	
	ZG365	assays awaited	
48150N	ZG1016	EZ hole. No zones >1% Zn	
48100N		untested	
48050N		untested	
48000N	ZG107	123.95m to 139.1m	15.15m @ 10.4% Zn
		154.55m to 162.9m	8.35m @ 13.9% Zn, 8.5% Pt
	ZG362	assays awaited	
	ZG363	assays awaited	
47950N		untested	
47900N	ZG361	assays awaited	
	ZG1002	106.4m to 110.2m	3.8m @ 3.2% Zn
47850N		untested	
47800N	ZG105	3.2m to 8.3m	5.1m @ 1.9% Zn
		10.3m to 20.3m	10.0m @ 2.0% Zn
	ZG209	109.5m to 111.8m	2.3m @ 1.4% Zn
	ZG359	assays awaited	
	ZG360	assays awaited	
47750N		untested	
47700N	ZG358	No zones >1% Zn	

Zn were also analysed for S by leco furnace.

All diamond holes passed through a generally similar sequence of fresh limestone, followed by an altered zone of carbonaceous, dolomitic and ankeritic material, then plastic clays, before terminating in massive quartz sandstone. Some holes have intersected a distinctive oolitic carbonate unit. This unit, where present, is always within or immediately adjacent to the altered/mineralised zones, however its distribution is highly variable, and is often absent entirely. It is unclear whether the oolitic unit is preferentially replaced by the alteration assemblage, or is acting as an impervious buffer.

Analyses of the stratabound clay zone in DD93ZG106 on section 48200N averaged 0.67% Zn over 22m between 127.1m and 149.1m. Sulphur analyses indicate that sphalerite may be only a minor component of the mineralisation. There is a clear alteration trend of elevated Zn-Fe-Mn-As that coincides with the visually identified alteration zone. The Fe carbonate alteration zone is strongest between 122.7m and 127.1m. Zinc has the widest dispersion, averaging 150ppm to 300ppm in visually unaltered limestone.

Results from ZG106 are disappointing considering the substantial surficial enrichment intersected in air-core holes on this section. Additional diamond holes ZG364 and ZG365 (in progress) may help clarify the Zn distribution between the surface and 100m depth.

Hole DD93ZG107 (section 48000N) made two substantial intersections. The upper intersection is within ankerite altered carbonate and clays, and contains a high level of sulphur, possibly indicative of sphalerite. The lower zone is within stratabound clays and is sulphur-poor, suggesting sphalerite is not a major constituent.

In the converse of 48200N, this section was not well mineralised in the surface zone. Shallow diamond holes ZG362 and ZG363 were drilled above ZG107 in an attempt to trace the substantial intersections in that hole toward the surface. Hole ZG363 intersected approximately 25m true width of intense ankerite alteration. ZG362 intersected about 15m of ankerite alteration before passing into weakly altered oolitic carbonate. No assays are yet available.

On section 47900N, hole ZG361 tested beneath the old mine workings. A thickness of 6.4m of ankerite altered carbonate was intersected sitting below the oolitic carbonate. No assays are yet available.

Section 47800N has been drilled in detail. The deepest hole, ZG209 was disappointing, intersecting only 5m of unmineralised ankerite alteration. Holes ZG359 and ZG360, drilled above ZG209, intersected approximately 20m of Fe carbonate alteration (assays awaited). Oolitic carbonate, commonly observed on the coast and in air-core holes on this section, was only seen in a small section of altered core in ZG359, and was absent from the deeper holes.

The most S section diamond drilled, 47700N, was not mineralised. Hole ZG358 intersected decomposed and partly ankeritic carbonate over a wide zone, but Zn assays were mostly less than 0.1%.

Initial interpretations of results to hand show the mineralisation has several components. A portion of the mineralisation is surficial, related to geochemical dispersion and enrichment by near-surface processes. This is the "black-pug" style of mineralisation and is characterised by low Fe-Mn. Two types of stratabound mineralisation are seen in diamond drilling. One is associated with ankerite alteration of carbonates while the second is within stratabound clays adjacent to the ankerite alteration zone. Both stratabound styles seem to be high in Fe-Mn.

At present it is not known which style is dominated by sphalerite, or to what depth the enrichment process is active. Additional shallow diamond drilling currently underway will hopefully define the depth of enrichment.

The apparent patchy nature of the Zn distribution needs further study. The Fe carbonate alteration, and the deep clays are clearly stratabound, however, within that halo the Zn currently appears erratically distributed. Zinc grade may be controlled by a number of factors such as primary sedimentological features, or structural elements of either Devonian or Ordovician age.

A considerable amount of geological and geochemical information has been collected in the current program which still remains to be studied and interpreted.

Drillhole collar information is listed in Appendix 1. Drill logs up to hole ZG363 (incomplete for ZG361-363), and assays to ZG358 are reported in Appendix 3. Drill-hole locations are shown on Plan Tv647. Selected cross sections for 47800N, 48000N and 48200N showing geology and Zn, Fe and S analyses are plotted on Plans Tv652 to Tv663, and summaries of these sections are shown in Plans Tv 649 to 651.

#### 9.2.5 Resampling of EZ Diamond Drill Holes

Pasminco have retained all drill core from Grieves prospect at their Tullah core shed, and were kind enough to allow CRAE to make use of their facilities to relog and sample selected portions of this core. Unfortunately stratigraphic diamond hole ZG1007, deepened by the Mines Department, is not held by Pasminco, and Mineral Resources Tasmania apparently have no record of this hole being stored by themselves.

All altered and mineralised sections from Grieves drillholes were relogged by Tim Moody, seconded from CRAE Mount Isa (Appendix 4). Any altered, mineralised or clay zones not previously sampled by EZ were resampled, although at time of writing, no assays were available.

Most striking from this exercise was the frugal approach to assaying. Clay zones were generally not submitted for analysis. In one case from ZG1015, which was reportedly unmineralised, two entire trays of highly sulphidic carbonaceous clays had been left unsampled (109.6m to 119.5m). Also, in holes where percent levels of Zn had been detected in the intervals sampled, there had been no assaying of adjacent zones.

With the benefit of a few years oxidation, the Fe carbonate alteration zones are now clearly distinguished by a rusty orange-brown colour. Freshly cut faces show the inconspicuous dark grey carbonate colour. The Fe carbonate alteration is still identifiable in fresh core by the lack of response to HCl. The identification of limestone, dolomite and weaker Fe-carbonate zones in EZ logging is, in some cases, dubious.

#### 9.2.6 Mineralogical Studies

**XRD and SEM/EDX:** Advanced Technical Development (ATD), of Bundoora, Victoria, were commissioned to study the mineralogy of selected Zn-anomalous air-core samples. Initial investigations involved detailed XRD, optical microscopy and SEM/EDX studies.

XRD and SEM scans of an air-core sample pulp containing 28% Zn from hole ZG54 drilled at the Moina Sandstone - Gordon Limestone contact showed two-thirds of the Zn present is as sphalerite, with the remainder in a Zn-clay - fraipontite. This is a true Zn-clay, containing 25% Zn as part of its structure, not as adsorbed cations. Sphalerite is very low Fe, less than 0.5%. No smithsonite was observed.

XRD and SEM scans of a sample pulp containing 9.3% Zn from hole ZG36, testing the middle of the limestone sequence, showed virtually all of the Zn present is as sphalerite, with rare grains of Zn-clays fraipontite and kegelite observed. SEM/EDX probing of four sphalerite grains showed an Fe content of between 0.5 and 1.1 wt%.

Results of the XRD and SEM studies are presented in Appendix 5.

**"Size-by-grade" mineralogical and chemical studies:** One composite sample of Zn mineralisation in carbonaceous "mud" from hole ZG54 (10m @ 21% Zn) was submitted to ATD for detailed "size-by-grade" mineralogical and chemical studies. The sample was gently disagglomerated without crushing or grinding. Sizing of the sample indicates 50% of the material is less than 38µm, with only 5% being over 1mm.

Other results show that:-

- 35% of the sample is sized less than 10µm
- Zn is evenly distributed in all size fractions
- Zn-clay fraipontite is the dominant Zn species
- sphalerite is subordinate
- sphalerite generally occurs as clean monomineralic grains although

some is very finely and irregularly intergrown with pyrite

With the exception of the final point, these characteristics are generally unfavourable in terms of mineral processing. Additional work is required to determine how representative these findings are.

Fraipontite is apparently soluble in nitric acid. Dissolution tests should be trialled to determine whether Zn can be economically extracted from this mineral.

Results of the "Size-by-grade" studies are presented in Appendix 6.

**Multi-element geochemistry:** Air-core sample pulps with over 1% Zn were submitted for multi-element analyses by ICP-EOS at Analabs, Perth. Results show:-

- Au assays were generally below 8ppb, with a maximum of 50ppb.
- Ca and Mg values are low, indicating that virtually no limestone remains in the weathered pug layer.
- K and Al values are quite high, indicative of the development of clays
- As and Cd average less than 100ppm
- Sn, Bi, Mo and Au are very low to below detection
- Ba is also low, suggesting no barite alteration
- C values range up to 13%, reflecting the carbonaceous character of the pug

Principal components analysis reveals a number of associations including:-

- Ca-Mg-C reflecting limestone-dolomite hosted mineralisation
- Cu-Pb-Ag-Cd sulphide association
- Al-K indicative of strong clay development
- Fe-Mn correlative with siderite alteration

Specialised geochemical studies are presented in Appendix 7.

**Carbon analyses:** Carbon analyses of surface samples of carbonaceous "mud" show that almost all C is elemental. Only minor amounts of C occur as carbonate, and organic C content is negligible. This may imply that the C is the result of decarbonisation of carbonate, rather than the accumulation of surficial organic material (Appendix 7).

**Petrology:** Petrological observations of samples from shallow diamond holes ZG104 and ZG105 show that the carbonates are totally altered to ankerite and/or siderite, with no primary carbonate mineralogy or textures preserved (Appendix 8).

### 9.2.7 Resource Considerations

There are insufficient results to hand to calculate a resource for Grieves. Surficial mineralisation exceeding 1% Zn extends for 500m strike length between 47750N and 48250N, with possible extensions to the N, and a second zone coming in to the S at 47350N. Mineralisation is rarely more than 50m wide and has a depth extent of under 20m.

Additional resources may be contributed by the underlying stratabound zone, although at this stage additional assâys results and further drilling are required to quantify this poorly tested zone.

From an engineering point of view, the altered/mineralised zone is structurally incompetent, with no formations from the unaltered limestone down to the Moina Sandstone capable of forming a sound hangingwall. This effectively rules out underground mining of the stratabound zone unless substantially higher grades capable of supporting a high-cost operation can be found.

Conversely, ground conditions may be conducive to a low-cost bulk open-cut operation, with no drilling and blasting needed in the friable mineralised zone. The footwall would be in competent Moina Sandstone, with the highwall in fresh limestone.

Mineralogy is still largely unresolved. Limited testwork by ATD indicates Zn-clays to be a major Zn species, although with the benefit of substantial extra drilling it is uncertain how representative the sample studied may have been. Sulphur analyses suggest sphalerite could be present in many cases. Zn-rich intensely altered carbonate containing neither clay nor sulphide may be an Fe-Mn-Zn carbonate mineral not yet identified by XRD studies. Further work is required.

## 10. ENVIRONMENT AND REHABILITATION

The past year has seen a substantial amount of exploration work completed in a relatively small area. A total of 400 air-core and diamond holes have been drilled in an area not much greater than 1sqkm.

*The air-core rig was chosen to minimise impact on the button grass. Most tracks will recover and disappear in one season, evidenced by the difficulty in locating drill sites from the Feb 1993 program. Some softer areas will take longer to naturally recover, however no lasting impact is expected.*

All drill cuttings from the air-core program were bagged to enable the samples to be easily returned to the holes or removed from site. This is currently in progress as and when time is available. Bags used are photo-degradable, and will rapidly break down in disposal sites.

Diamond drilling was conducted by a skid-mounted Longyear 38, towed by an excavator. The excavator was fitted with extra-wide swamp tracks to reduce ground pressure. It is unavoidable that such heavy machinery will cause significant ground disturbance. Tracks were kept to a minimum, and were positioned where possible to take advantage of naturally firm, gravelly areas. No formal tracks were constructed. All access tracks were progressively rehabilitated by filling in ruts, breaking in windrows and re-establishing drainage. Currently no seeding or fertilising has been done. It is expected that parts of these tracks will take several seasons to regenerate.

Minimal preparation was completed on diamond drill sites. No vegetation was cleared as often this was the only firm working surface. Some holes were positioned in an old gravel quarry where disruption is already severe. Sumps were dug to contain drill cuttings, although due to the flat topography and high water table (often at-surface) they were often marginally effective. Sumps were refilled on completion of the hole and the site ripped to loosen compacted ground.

Holes making water were plugged at depth, then cemented. Due to high water flows in some holes, and the poor ground conditions to hold plugs and cement, these may not be permanently effective.

The old EZ costean on line 47800N, totally devoid of vegetation and a scar on the side of the hills visible from the highway, was repaired. Toxic black muds were pulled back from the sides as much as possible, locally exposing the old button-grass surface. The surface was reshaped to the original contour where feasible, and drains were dug across the costean.

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#### KEYWORDS

TASMANIA, ORDOVICIAN, CARBONATE-HOSTED, GORDON LIMESTONE, MINERALOGY, PETROLOGY, AIR-CORE DRILLING, DIAMOND DRILLING, ZINC.

#### LOCATION

QUEENSTOWN	SK55-5	1:250000
PIEMAN	7914	1:100000
ZEEHAN	7914-S	1:50000

LIST OF DPOs

71531 AC, 71532 AC, 71542 AC, 71546 PT, 77101 PT, 77105 PT,  
 77107 AC, 77109 PT, 77110 DD, 77112 PT, 77113 RK, 77119 DD,  
 77120 AC, 77121 AC, 77122 AC, 77123 AC, 77124 AC, 77125 AC,  
 77126 AC, 77127 DD, 77128 DD, 77129 AC, 77130 AC, 77131 AC  
 77134 DD, 77138 DD

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 APPENDIX 2: CRAE air-core drill logs and geochemistry  
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LIST OF PLANS

<u>Plan no.</u>	<u>Title</u>	<u>Scale</u>
Tv 431	Zeehan area West Tasmania Zeehan Joint Venture Tenement Plan	1:250,000 ✓
Tv 628	Zeehan Project - Regional Geology	1:100,000 ✓
Tv 542	Zeehan project - Gordon Limestone Prospect location plan	1:50,000 ✓
Tv 647	Zeehan 4 EL 38/89 - Grieves Prospect Drillhole location plan	1:2,500 ✓

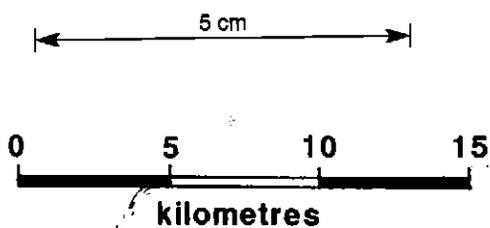
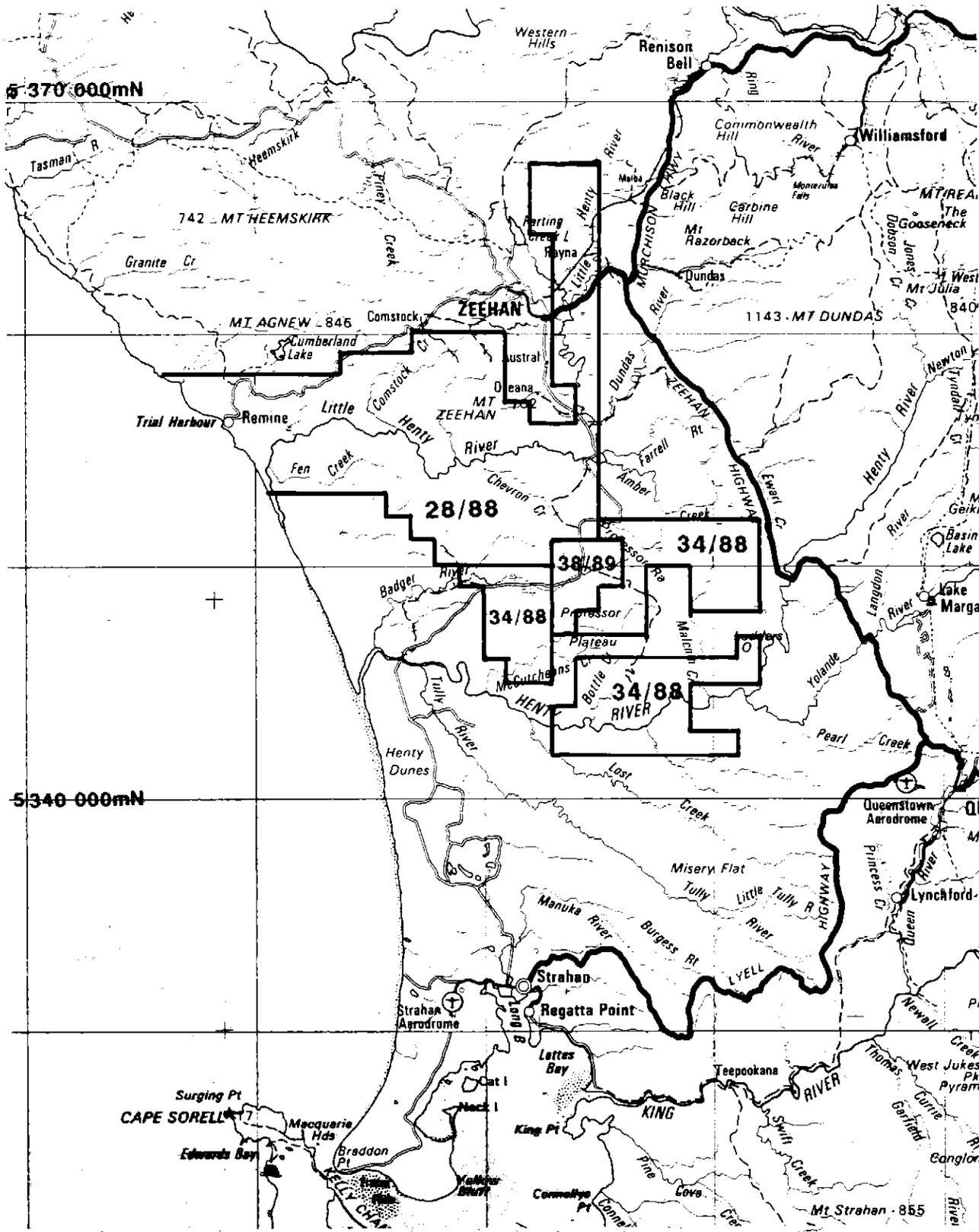
Tv 648	Zeehan 4 EL 38/89 - Grieves Prospect Drillhole location plan summary	1:2,500	✓
Tv 649	Zeehan 4 EL 38/89 - Grieves Prospect Drillhole location plan section 47800N	1:1,000	✓
Tv 650	Zeehan 4 EL 38/89 - Grieves Prospect Drillhole location plan section 47800N	1:1,000	✓
Tv 651	Zeehan 4 EL 38/89 - Grieves Prospect Drillhole location plan section 47800N	1:1,000	✓
Tv 652	Zeehan 4 EL 38/89 Grieves Prospect Section 47800N FE Geochemistry (%)	1:1,000	✓
Tv 653	Zeehan 4 EL 38/89 Grieves Prospect Section 47800N S Geochemistry (%)	1:1,000	✓
Tv 654	Zeehan 4 EL 38/89 Grieves Prospect Section 47800N Zn Geochemistry PPM	1:1,000	✓
Tv 655	Zeehan 4 EL 38/89 Grieves Prospect Section 47800N Lithology	1:1,000	✓
Tv 656	Zeehan 4 EL 38/89 Grieves Prospect Section 47800N FE Geochemistry (%)	1:1,000	✓
Tv 657	Zeehan 4 EL 38/89 Grieves Prospect Section 47800N S Geochemistry (%)	1:1,000	✓
Tv 658	Zeehan 4 EL 38/89 Grieves Prospect Section 47800N Zn Geochemistry PPM	1:1,000	✓
Tv 659	Zeehan 4 EL 38/89 Grieves Prospect Section 47800N Lithology	1:1,000	✓
Tv 660	Zeehan 4 EL 38/89 Grieves Prospect Section 47800N FE Geochemistry (%)	1:1,000	✓
Tv 661	Zeehan 4 EL 38/89 Grieves Prospect Section 47800N S Geochemistry (%)	1:1,000	✓
Tv 662	Zeehan 4 EL 38/89 Grieves Prospect Section 47800N Zn Geochemistry PPM	1:1,000	✓
Tv 663	Zeehan 4 EL 38/89 Grieves Prospect Section 47800N Lithology	1:1,000	✓

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5 340 000mN

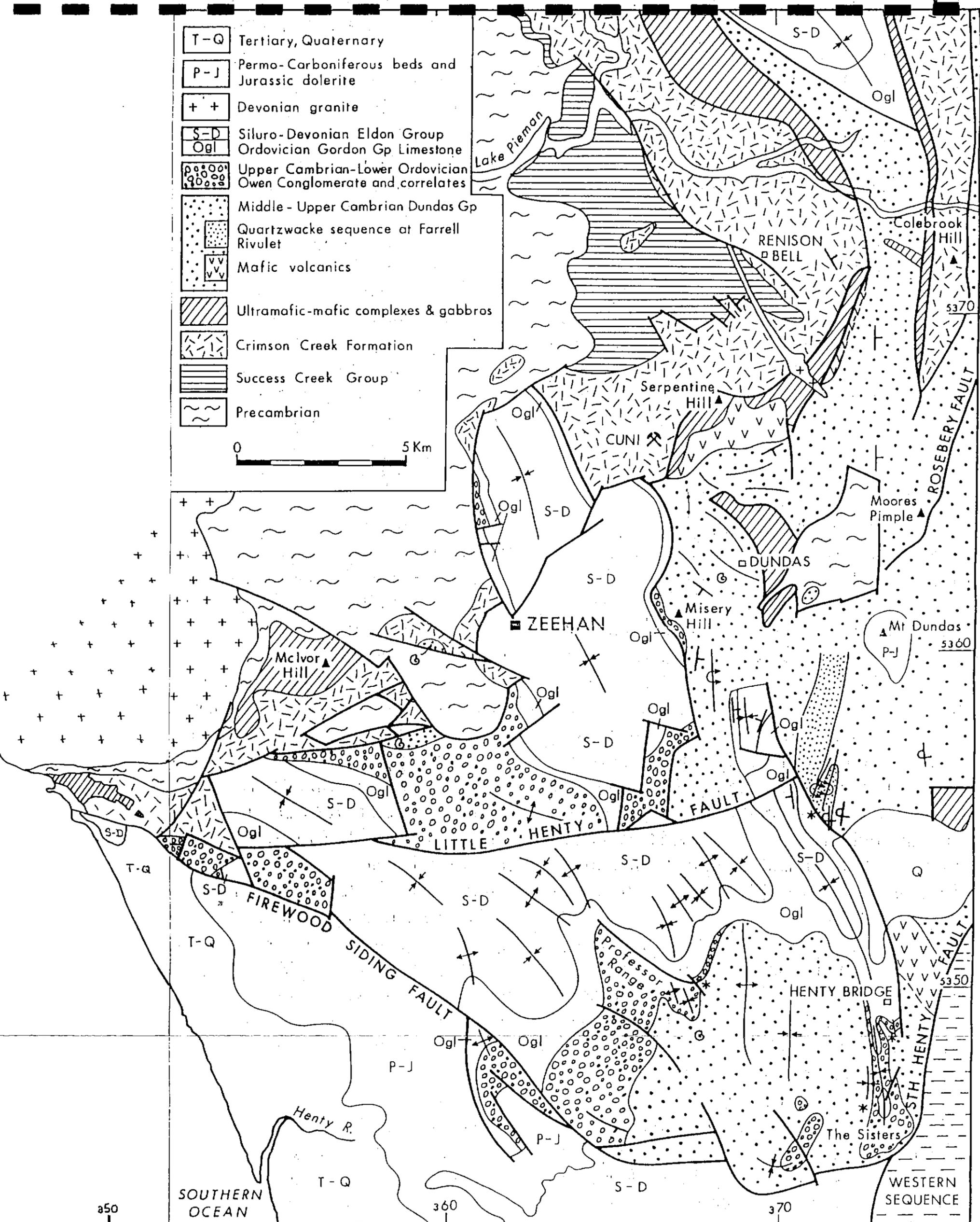
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370 000mE



CRA EXPLORATION PTY. LIMITED	
<b>ZEEHAN JOINT VENTURES</b>	
<b>LOCALITY DIAGRAM</b>	
Ref.: SK 55 - 5	Scale: 1:250 000
Author: T. Summons	Report No.: 19635
Nov. 1991	Drawn: R. Traverso
	Plan No.: TV 431

- T-Q Tertiary, Quaternary
- P-J Permo-Carboniferous beds and Jurassic dolerite
- + + Devonian granite
- S-D Siluro-Devonian Eldon Group
- Ogl Ordovician Gordon Gp Limestone
- Upper Cambrian-Lower Ordovician Owen Conglomerate and correlates
- Middle - Upper Cambrian Dundas Gp
- Quartzwacke sequence at Farrell Rivulet
- VVVV Mafic volcanics
- ▨▨▨▨ Ultramafic-mafic complexes & gabbros
- ▧▧▧▧ Crimson Creek Formation
- ▩▩▩▩ Success Creek Group
- ~~~~ Precambrian



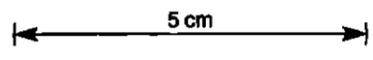
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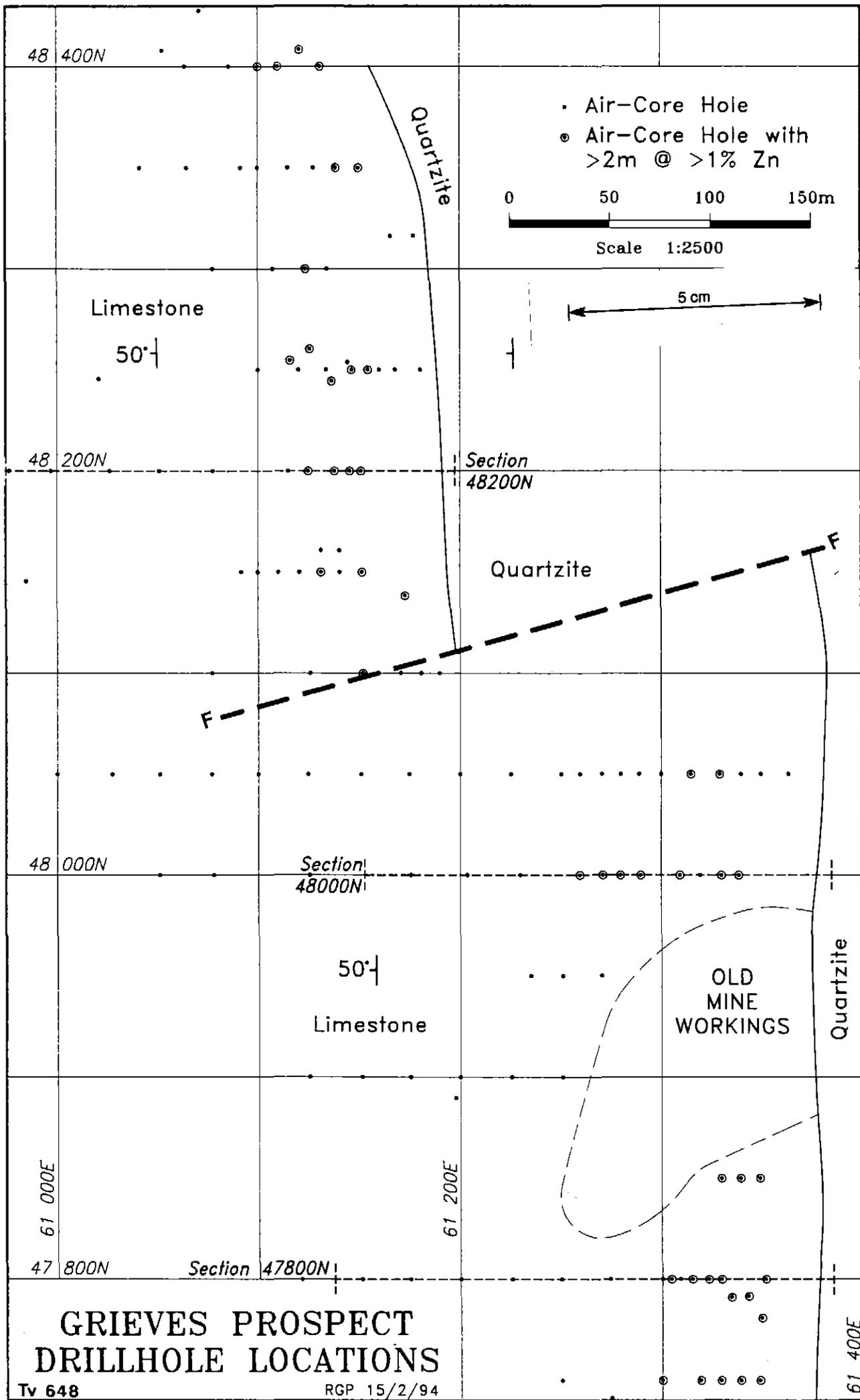
SOUTHERN OCEAN

WESTERN SEQUENCE



032029

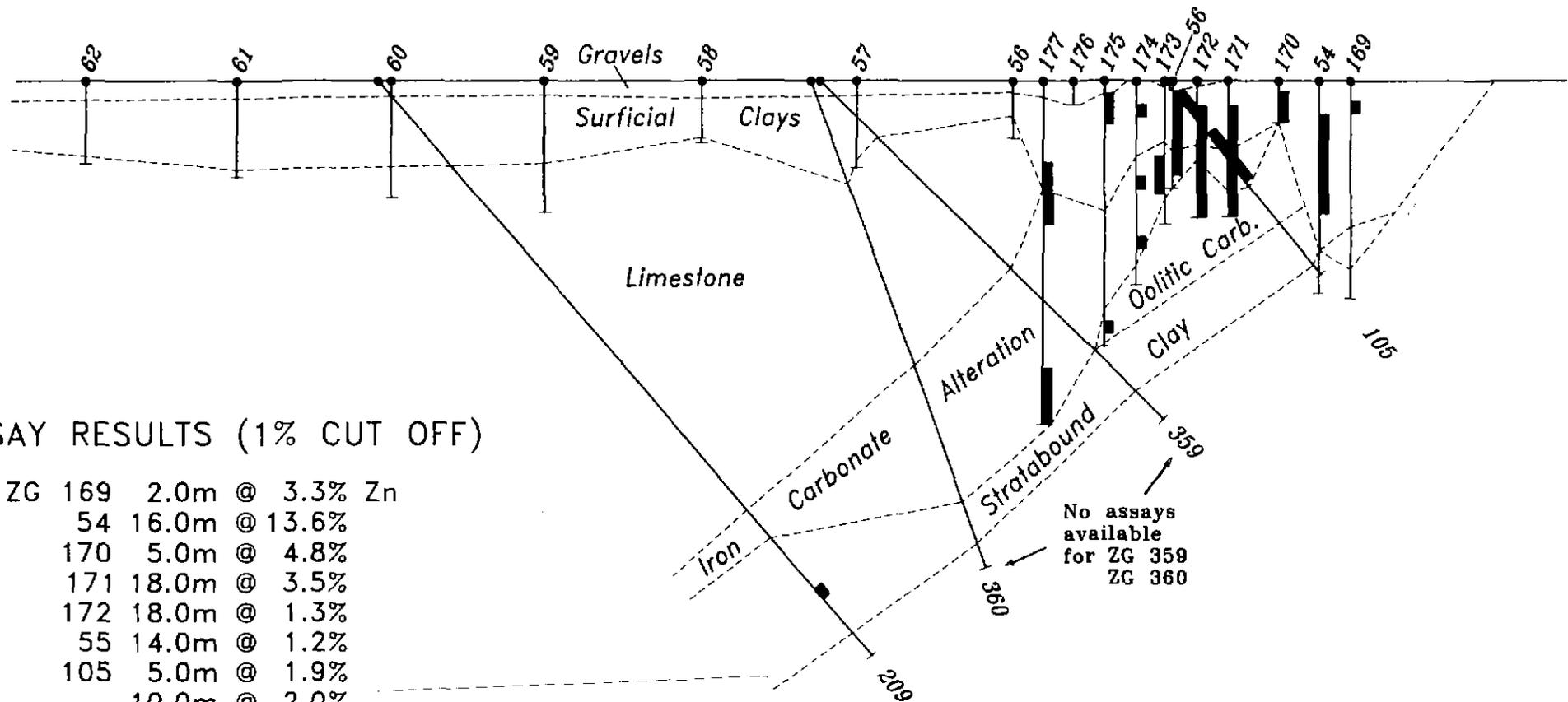
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ZEEHAN PROJECT	
REGIONAL GEOLOGY	
Ref.: SK55-5	Scale: 1:100 000
Author: RGP	Report No.: 19635
Drawn: RGP	Plan No.: TV 628



**GRIEVES PROSPECT  
DRILLHOLE LOCATIONS**

Tv 648

RGP 15/2/94

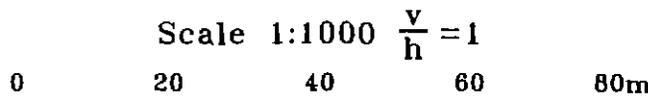


ASSAY RESULTS (1% CUT OFF)

ZG 169	2.0m	@	3.3%	Zn
54	16.0m	@	13.6%	
170	5.0m	@	4.8%	
171	18.0m	@	3.5%	
172	18.0m	@	1.3%	
55	14.0m	@	1.2%	
105	5.0m	@	1.9%	
	10.0m	@	2.0%	
173	6.0m	@	1.2%	
174	2.0m	@	1.0%	
	2.0m	@	1.5%	
	2.0m	@	1.1%	
175	5.0m	@	1.4%	
	2.0m	@	1.4%	
177	10.0m	@	1.0%	
	9.0m	@	2.4%	
209	2.3m	@	1.4%	

No assays available for ZG 359 ZG 360

5 cm



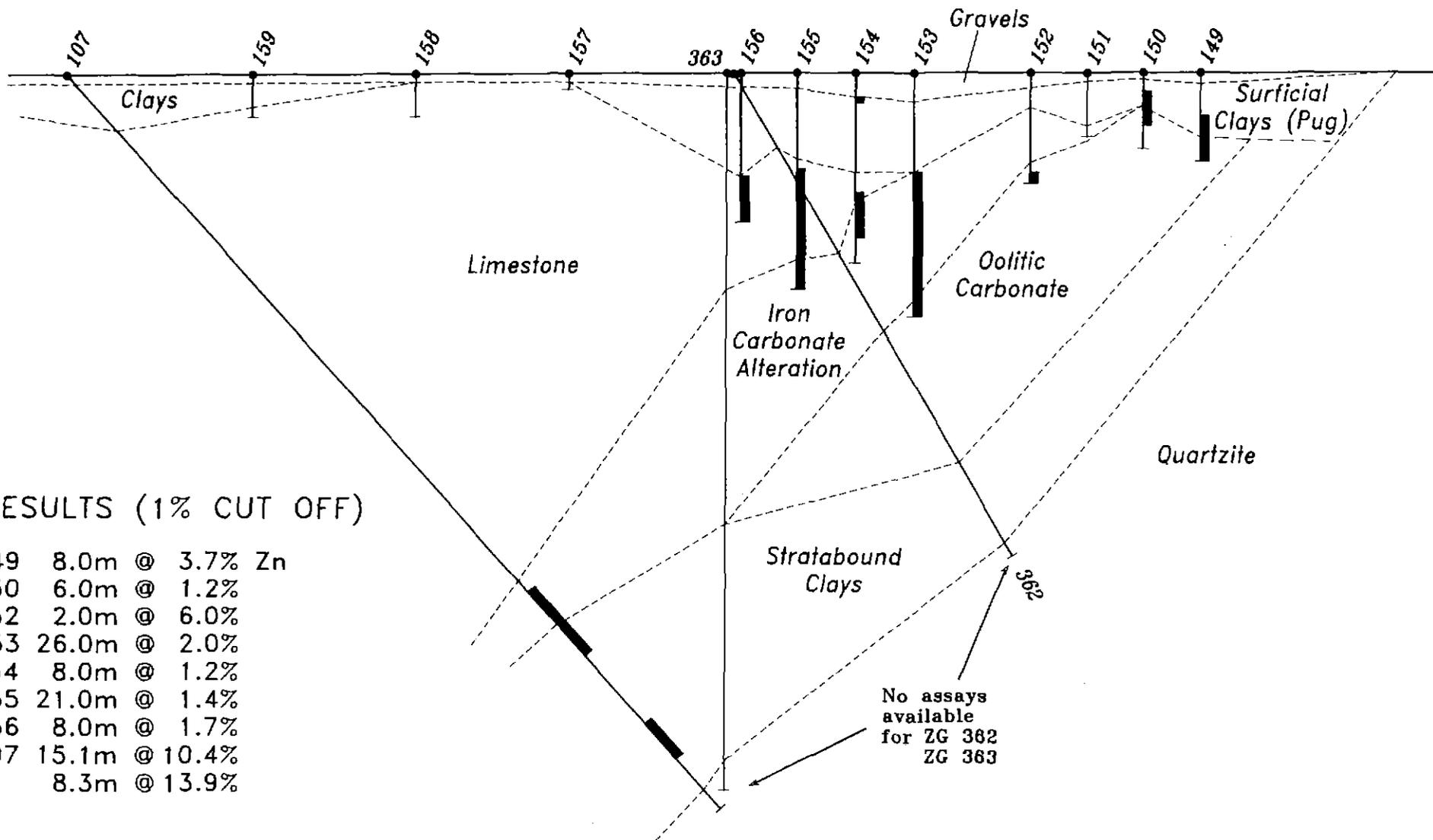
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Section 47800N

932031

61200E

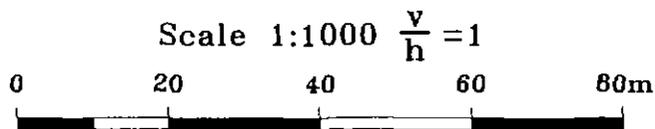
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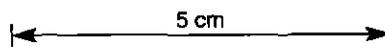
ASSAY RESULTS (1% CUT OFF)

ZG 149	8.0m	@	3.7% Zn
150	6.0m	@	1.2%
152	2.0m	@	6.0%
153	26.0m	@	2.0%
154	8.0m	@	1.2%
155	21.0m	@	1.4%
156	8.0m	@	1.7%
107	15.1m	@	10.4%
	8.3m	@	13.9%

No assays available for ZG 362 ZG 363

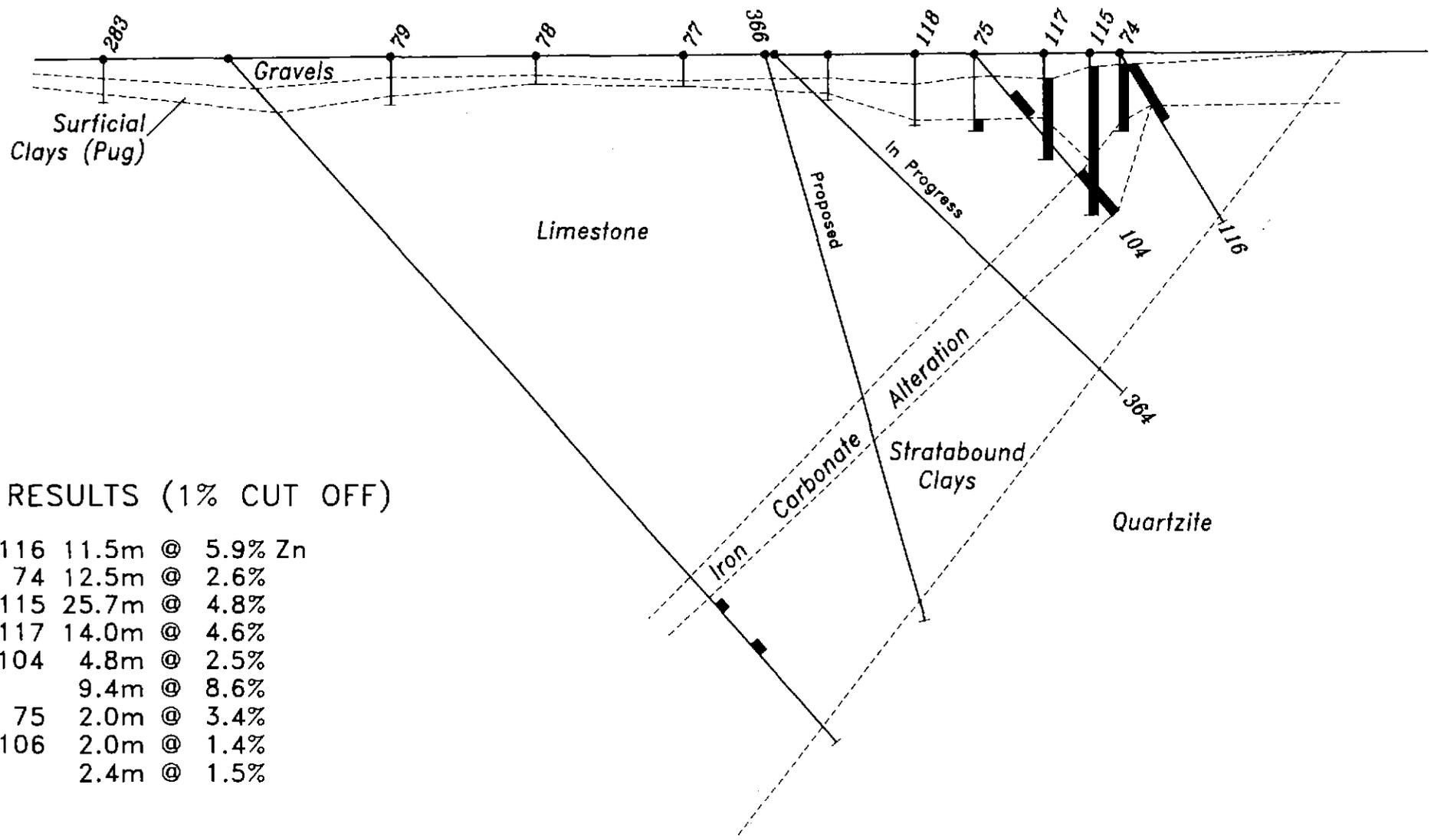


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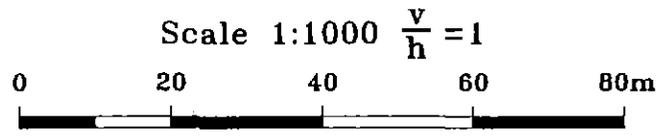
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GRIEVES PROSPECT  
Section 48000N

932032

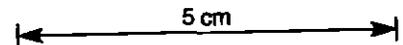


ASSAY RESULTS (1% CUT OFF)

ZG	116	11.5m @	5.9% Zn
	74	12.5m @	2.6%
	115	25.7m @	4.8%
	117	14.0m @	4.6%
	104	4.8m @	2.5%
		9.4m @	8.6%
	75	2.0m @	3.4%
	106	2.0m @	1.4%
		2.4m @	1.5%

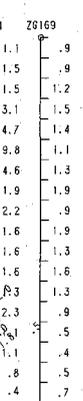
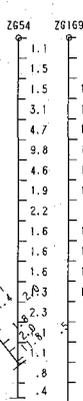
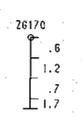
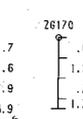
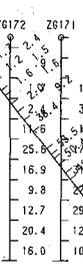
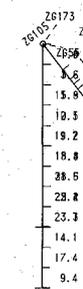
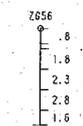
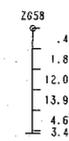
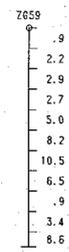
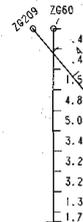
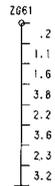
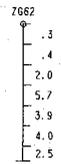


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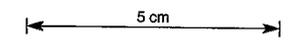
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932034



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Scale: 1 : 500	Date: February 1994
Author: R.G. Parkinson	Report No.: 19635
Drawn: R. Traverso	Plan No.: Tv 652

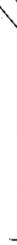
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Z660



Z659

Z659



Z658



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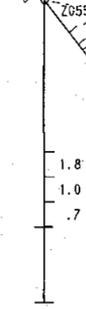


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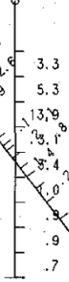
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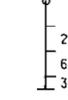
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Z6170



Z654



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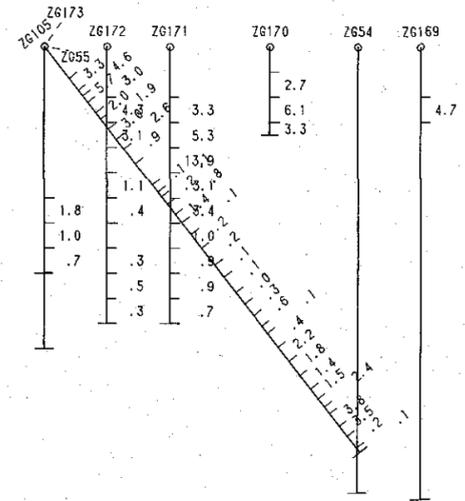
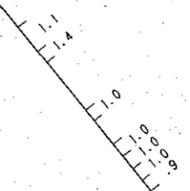
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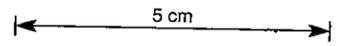
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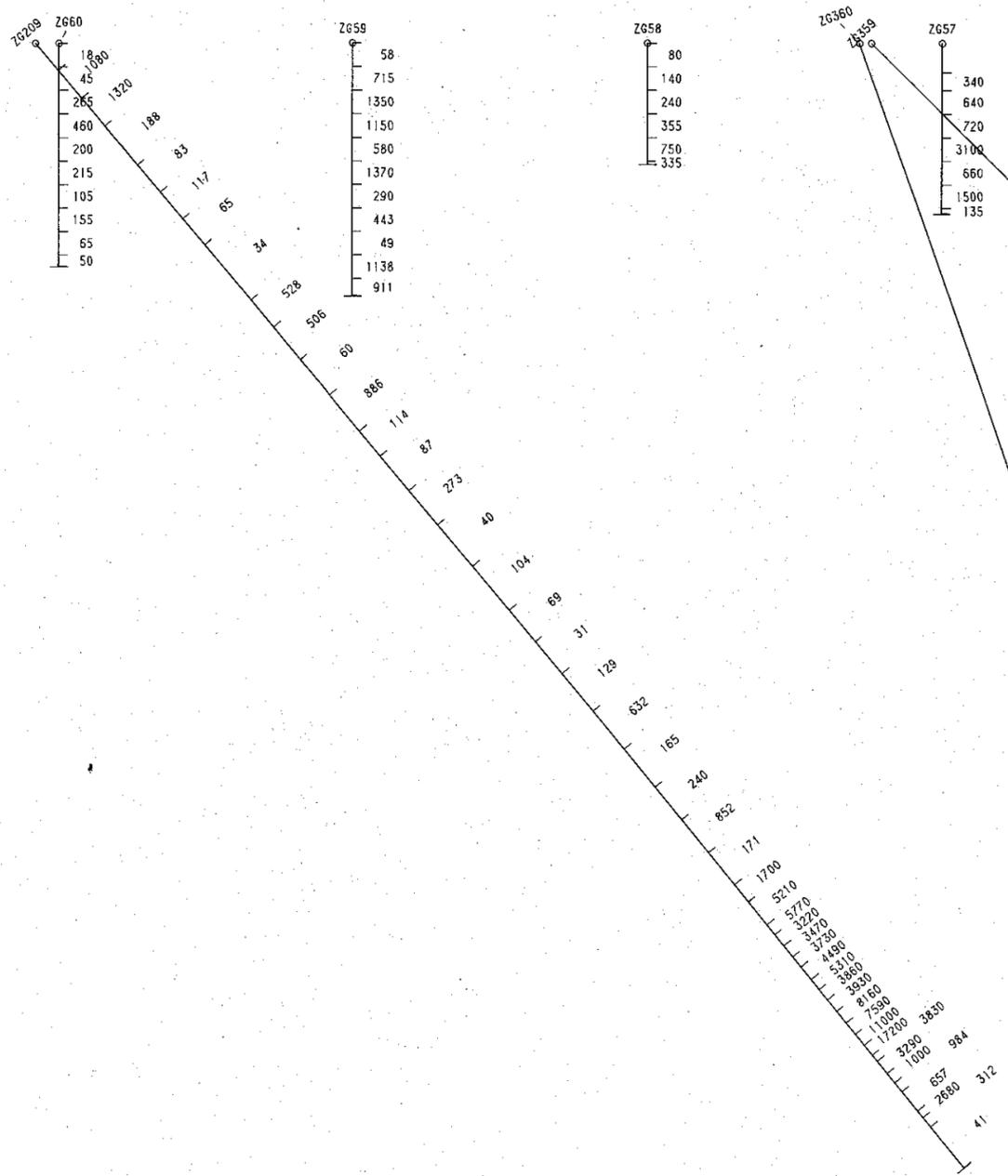
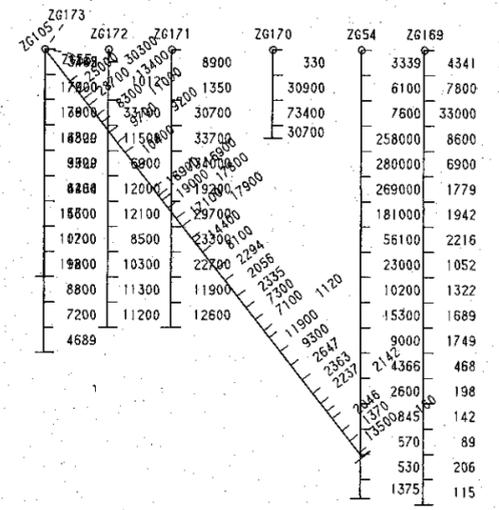
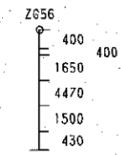
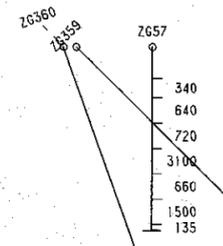
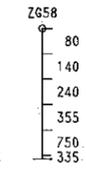
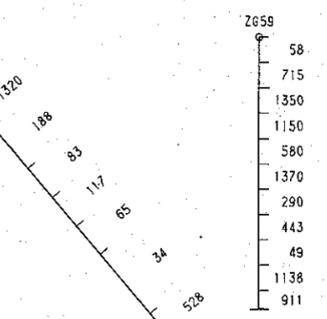
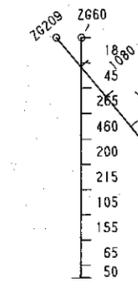
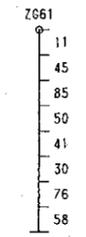
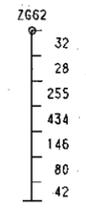
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CRA EXPLORATION PTY. LIMITED

ZEEHAN EL 38/89  
Grieves Prospect  
Section 47800N  
Sulphur Geochemistry (%)

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Scale: 1 : 500	Date: February 1994
Author: R.G. Parkinson	Report No.: 19635
Drawn: R. Travieso	Plan No.: Tv 653



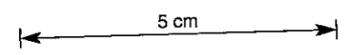
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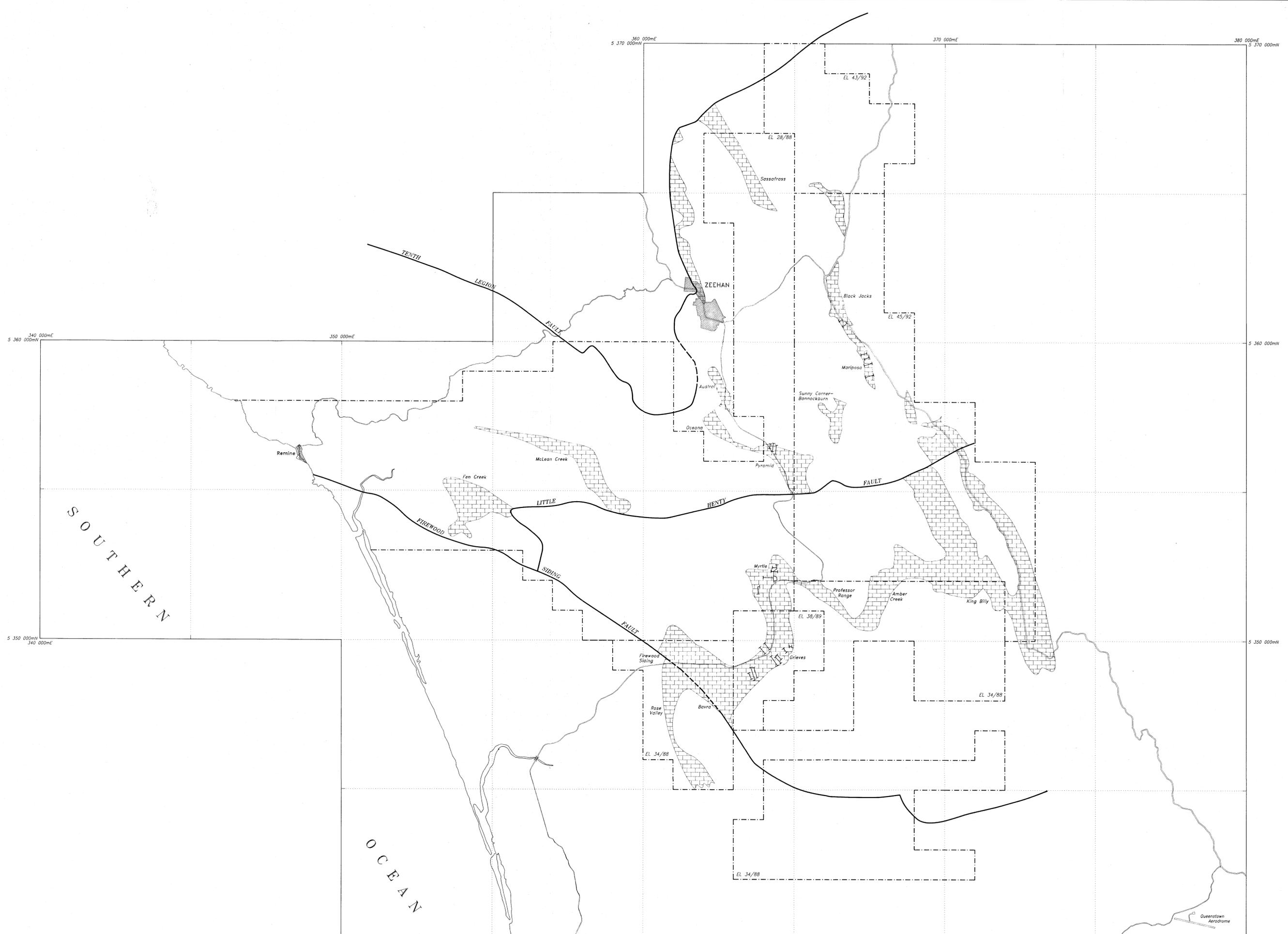
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Grieves Prospect	
Section 47800N	
Zinc Geochemistry (ppm)	
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Scale: 1 : 500	Date: February 1994
Author: R.G. Parkinson	Report No.: 19635
Drawn: R. Travieso	Plan No.: Tv 654

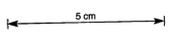




-  Ordovician Gordon Limestone (usually covered by peat and gravels)
-  Major Faults
-  Air-Core Drilling Traverse
-  CRAE Tenement Boundaries

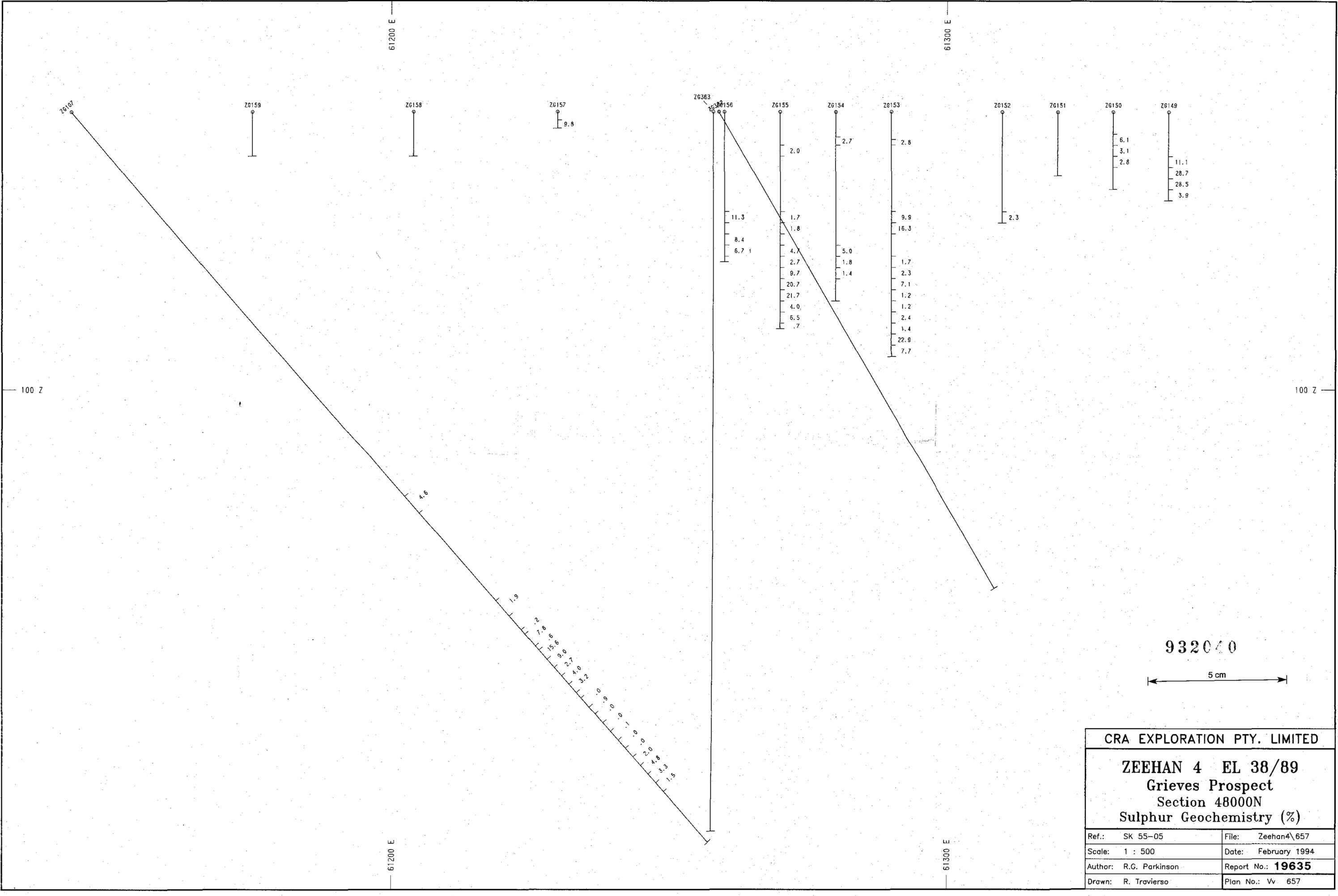


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<b>CRA EXPLORATION PTY. LIMITED</b>	
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Scale: 1 : 50000	Date: November 1991
Author: T.W. Dickson	Report No.: 19635
Drawn: R. Troviero	Plan No.: Tv 542

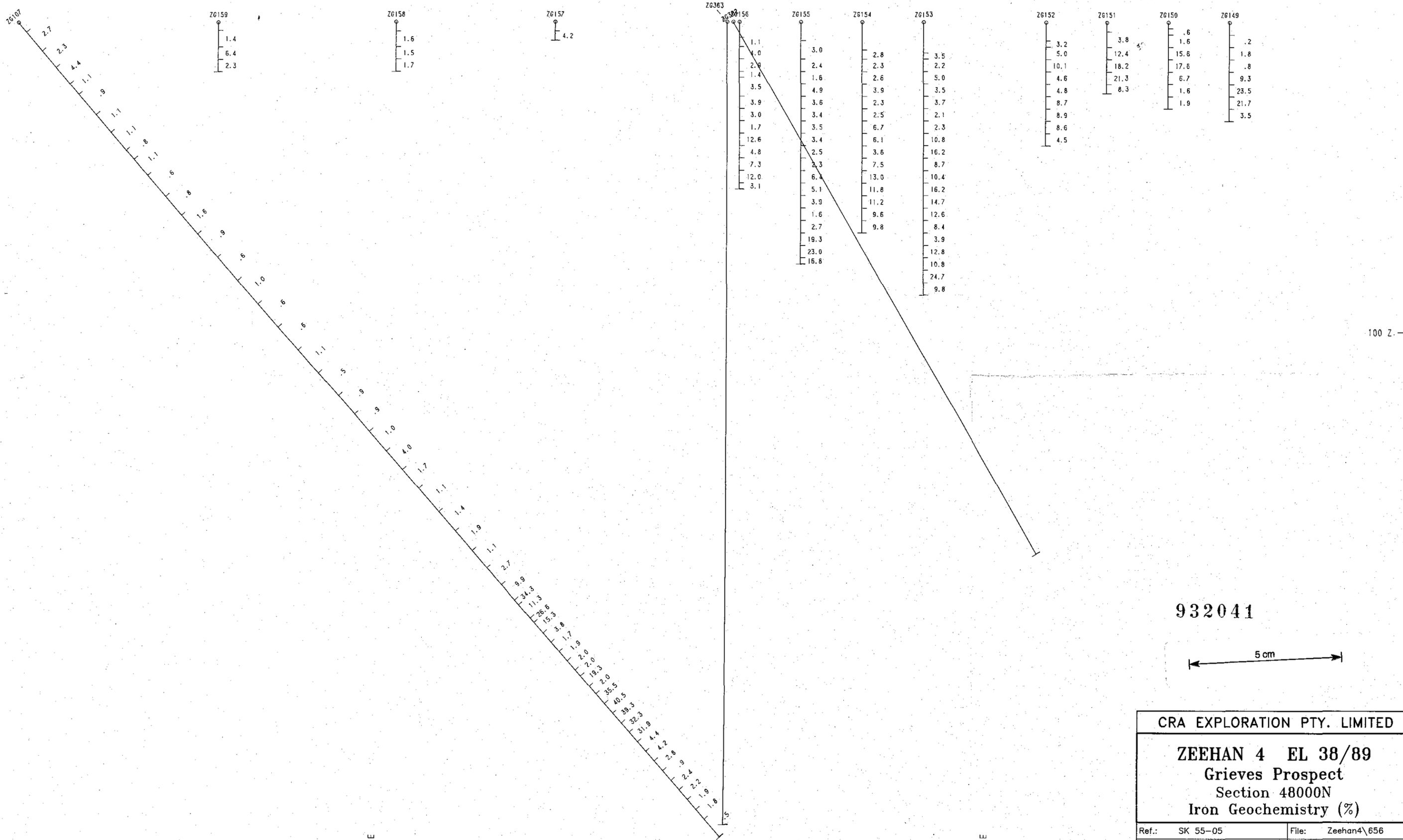




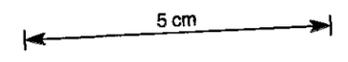
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5 cm

CRA EXPLORATION PTY. LIMITED	
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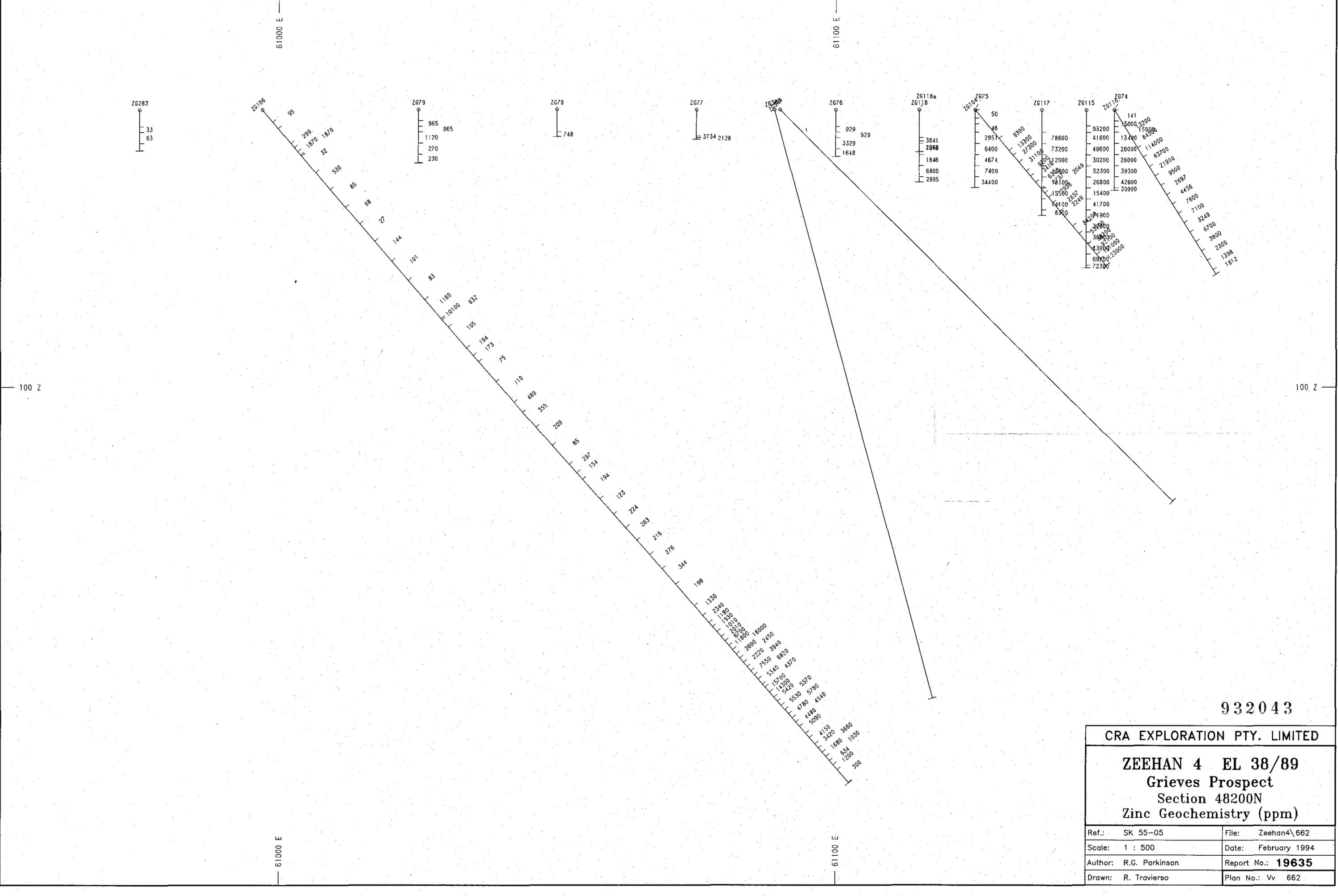


932041



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Scale: 1 : 500	Date: February 1994
Author: R.G. Parkinson	Report No.: <b>19635</b>
Drawn: R. Travieso	Plan No.: Vv 656

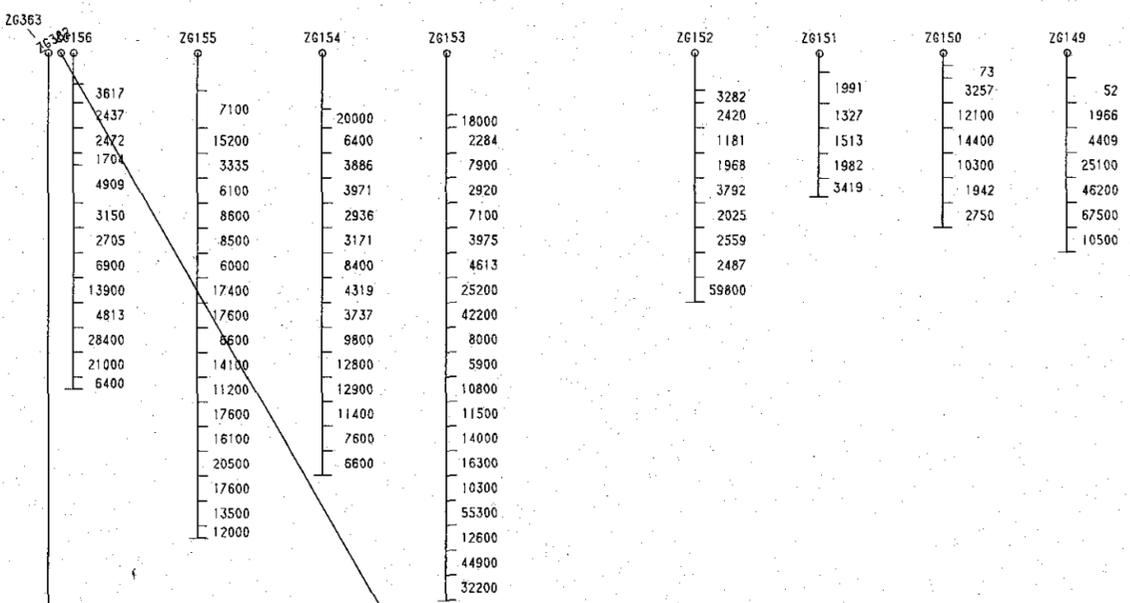
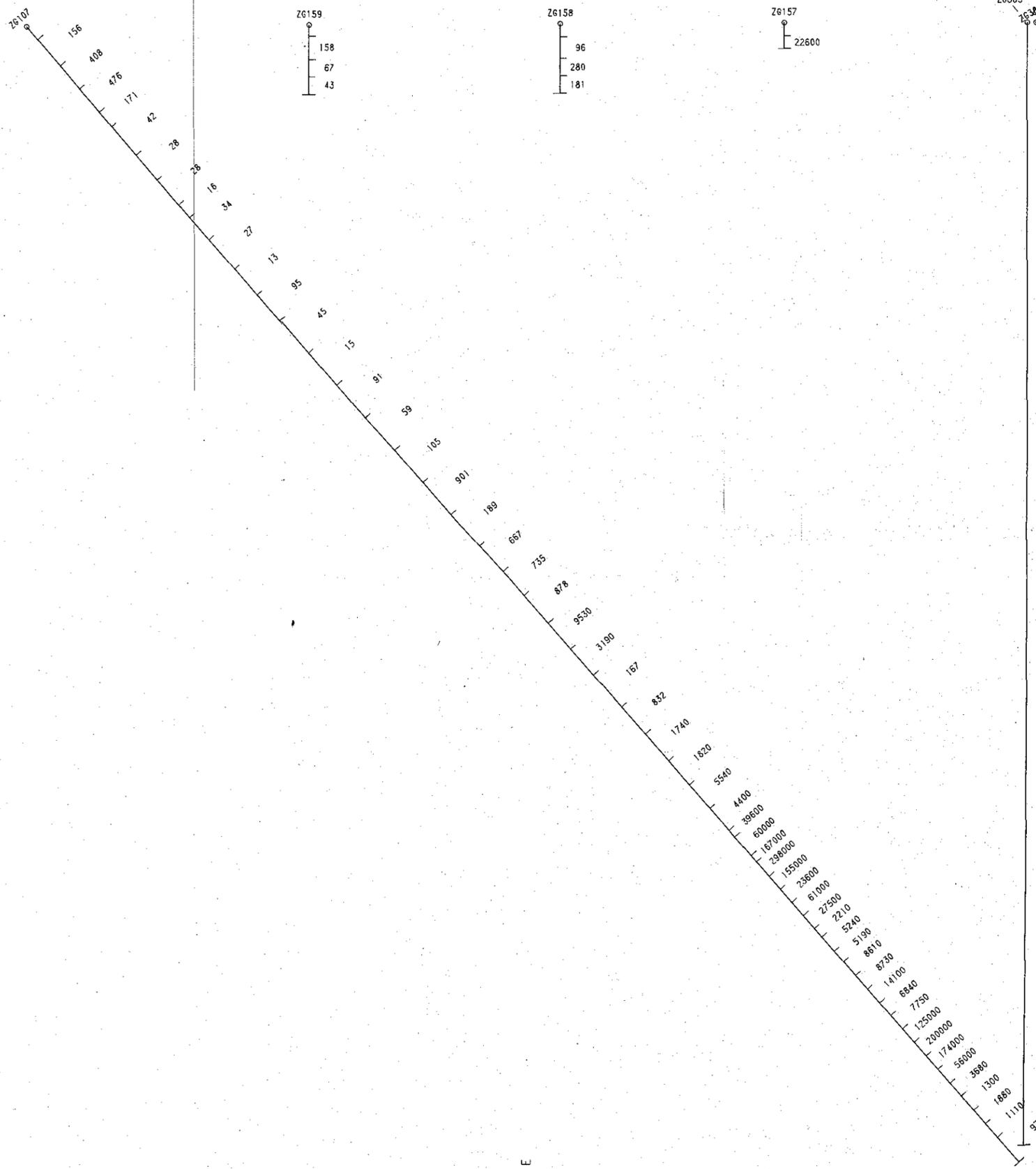




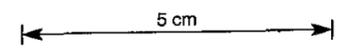
932043

CRA EXPLORATION PTY. LIMITED	
ZEEHAN 4 EL 38/89	
Grieves Prospect	
Section 48200N	
Zinc Geochemistry (ppm)	
Ref.: SK 55-05	File: Zeehan4\662
Scale: 1 : 500	Date: February 1994
Author: R.G. Parkinson	Report No.: 19635
Drawn: R. Travieso	Plan No.: Vv 662





932045



CRA EXPLORATION PTY. LIMITED	
<b>ZEEHAN 4 EL 38/89</b> <b>Grieves Prospect</b> <b>Section 48000N</b> <b>Zinc Geochemistry (ppm)</b>	
Ref.: SK 55-05	File: Zeehan4\658
Scale: 1 : 500	Date: February 1994
Author: R.G. Parkinson	Report No.: <b>19635</b>
Drawn: R. Travieso	Plan No.: Vv 658

61200 E

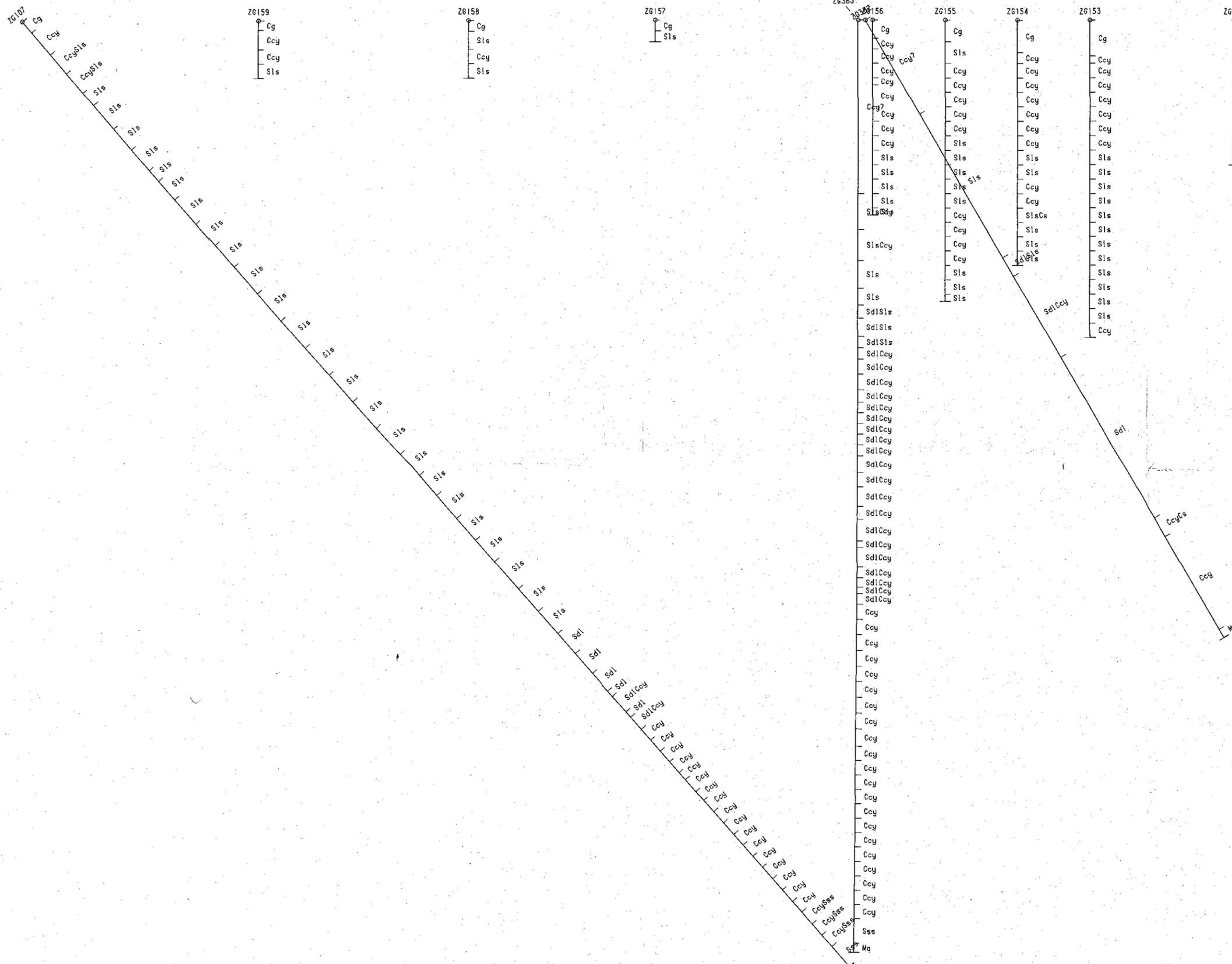
61300 E

61200 E

61300 E

100 Z

100 Z

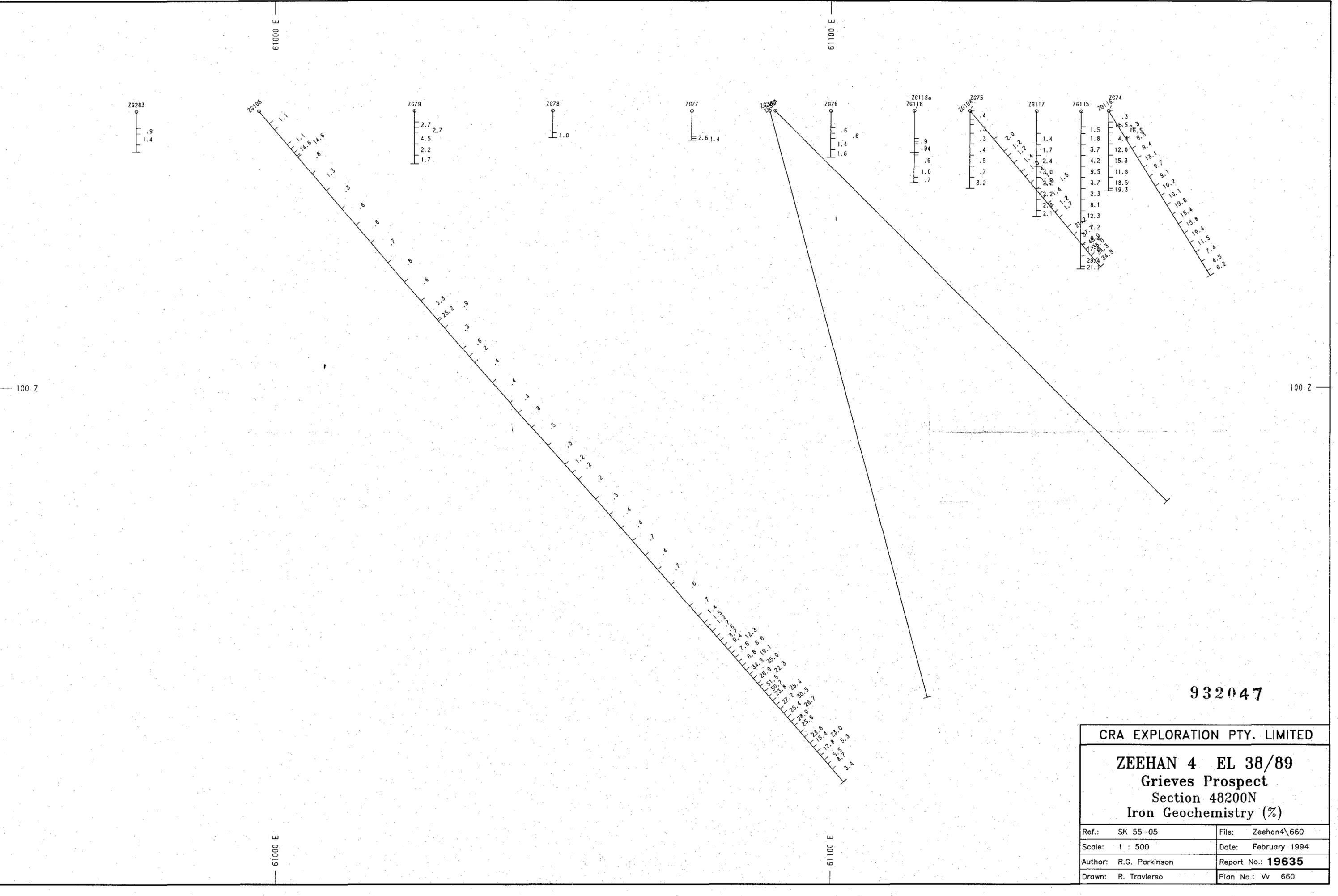


932046

CRA EXPLORATION PTY. LIMITED

ZEEHAN 4 EL 38/89  
 Grieves Prospect  
 Section 48000N  
 Lithology

Ref.: SK 55-05	File: Zeehan4\659
Scale: 1 : 500	Date: February 1994
Author: R.G. Parkinson	Report No.: 19635
Drawn: R. Travieso	Plan No.: Vv 659



932047

CRA EXPLORATION PTY. LIMITED	
<b>ZEEHAN 4 EL 38/89</b> <b>Grieves Prospect</b> <b>Section 48200N</b> <b>Iron Geochemistry (%)</b>	
Ref.: SK 55-05	File: Zeehan4\660
Scale: 1 : 500	Date: February 1994
Author: R.G. Parkinson	Report No.: <b>19635</b>
Drawn: R. Traverso	Plan No.: Wv 660

932048

APPENDIX 1:

DRILLHOLE LOCATIONAL DATA

APPENDIX 1: GRIEVES PROSPECT. ALL EZ AND CRAE DRILLHOLE COLLAR LOCATIONS									
FULL	SHORT							AZIM	
HOLE NAME	NAME	LOCALE	LOCALN	AMG EAST	AMG NORTH	RL	DEPTH	(AMG)	DIP
ZG1001 /	ZG1001	61066	47066	363532.9	5349111.6	149.5	149.4	144	-50
ZG1002 /	ZG1002	61198	47891	364508.2	5349445.4	153.3	150	142	-50
ZG1007 /	ZG1007	60460	47603	363826.9	5349849.6		737.3	147	-70
ZG1009 /	ZG1009	60805	47799	364193.7	5349698.4	150	151	142	-60
ZG1010 /	ZG1010	60815	47565	364015.5	5349546.5	150	170	137	-60
ZG1011 /	ZG1011	60871	47310	363700.1	5349375.4	151	300	140	-60
ZG1012 /	ZG1012	60604	47606	363917.9	5349738.0	151.5	348.9	142	-70
ZG1013 /	ZG1013	61020	48245	364677.6	5349803.6		138.5	127	-60
ZG1014 /	ZG1014	60900	48315	364658.8	5349941.2	150	292.3	142	-60
ZG1015 /	ZG1015	60975	48399	364771.2	5349933.8		177.6	122	-60
ZG1016 /	ZG1016	60985	48145	364577.2	5349769.6		187.5	142	-60
ZWG1 /	ZWG1	61160	47102	363597.5	5349034.5		22.75	142	-60
ZWG2 /	ZWG2	61150	47103	363595.2	5349044.2		30.7	142	-70
ZWG3 /	ZWG3	61162	47075	363572.6	5349023.8		17	142	-60
ZWG4 /	ZWG4	61172	47075	363575.9	5349014.3		18.8	142	-60
ZWG5 /	ZWG5	61192	47000	363511.5	5348971.0		33.55	142	-60
ZWG6 /	ZWG6	61162	47000	363501.7	5348999.4		13.95	142	-60
ZWG7 /	ZWG7	61175	47000	363505.9	5348987.1		31.4	142	-60
ZWG8 /	ZWG8	61225	47200	363711.3	5349004.9		29.25	142	-60
ZWG9 /	ZWG9	60775	47300	363659.4	5349463.0		19.55	142	-60
ZWG10 /	ZWG10	60792	47300	363664.9	5349446.9		16	142	-60
ZWG11 /	ZWG11	61125	47300.1	363918.7	5349077.5		26.65	142	-60
ZWG12 /	ZWG12	61150	47300.1	363934.1	5349057.8		15.7	142	-60
ZWG20 /	ZWG20	61125	47150	363631.5	5349083.2		14.9	161	-60
ZWG21 /	ZWG21	61140	47150	363636.4	5349069.0		35.6	161	-80
ZWG22 /	ZWG22	61170	47150	363646.1	5349040.6		16	161	-80
ZWG23 /	ZWG23	61275	47300	363822.2	5348990.2		29.4	161	-70
ZWG24 /	ZWG24	61290	47300	363827.0	5348976.0		13	161	-70
ZWG25 /	ZWG25	61305	47300	363831.9	5348961.8		24.2	0	-90
ZWG26 /	ZWG26	61185	47150	363651.0	5349026.5		22.4	0	-90
AC93ZG1	ZG1	61250	47000	363530.4	5348916.2		0.9	0	-90
AC93ZG2	ZG2	61275	47000	363538.5	5348892.5		1.2	0	-90
AC93ZG3	ZG3	61300	47000	363546.6	5348868.9		6.1	0	-90
AC93ZG4	ZG4	61325	47000	363554.8	5348845.3		5.8	0	-90
AC93ZG5	ZG5	61350	47000	363562.9	5348821.6		11.0	0	-90
AC93ZG6	ZG6	61375	47000	363571.1	5348798.0		16.0	0	-90
AC93ZG7	ZG7	61400	47000	363579.2	5348774.3		13.0	0	-90
AC93ZG8	ZG8	61425	47000	363587.3	5348750.7		15.0	0	-90
AC93ZG9	ZG9	61375	47100	363665.6	5348830.5		17.0	0	-90
AC93ZG10	ZG10	61400	47100	363673.8	5348806.9		7.4	0	-90
AC93ZG11	ZG11	61425	47100	363681.9	5348783.3		4.0	0	-90
AC93ZG12	ZG12	61350	47100	363657.5	5348854.2		14.0	0	-90
AC93ZG13	ZG13	61325	47100	363649.3	5348877.8		7.0	0	-90
AC93ZG14	ZG14	61300	47100	363641.2	5348901.4		15.5	0	-90
AC93ZG15	ZG15	61500	47100	363706.3	5348712.3		18.0	0	-90
AC93ZG16	ZG16	61475	47200	363792.7	5348768.5		15.0	0	-90
AC93ZG17	ZG17	61450	47200	363784.6	5348792.2		8.0	0	-90
AC93ZG18	ZG18	61425	47200	363776.4	5348815.8		10.0	0	-90
AC93ZG19	ZG19	61400	47200	363768.3	5348839.5		10.0	0	-90
AC93ZG20	ZG20	61375	47200	363760.2	5348863.1		7.0	0	-90
AC93ZG21	ZG21	61350	47200	363752.0	5348886.7		2.5	0	-90
AC93ZG22	ZG22	61325	47200	363743.9	5348910.4		6.0	0	-90
AC93ZG23	ZG23	61300	47200	363735.7	5348934.0		6.0	0	-90
AC93ZG24	ZG24	61275	47200	363727.6	5348957.6		4.5	0	-90
AC93ZG25	ZG25	61250	47200	363719.5	5348981.3		3.5	0	-90
AC93ZG26	ZG26	61225	47200	363711.3	5349004.9		4.5	0	-90
AC93ZG27	ZG27	61200	47200	363703.2	5349028.6		3.0	0	-90
AC93ZG28	ZG28	61175	47200	363695.1	5349052.2		3.0	0	-90

FULL	SHORT							AZIM	
HOLE NAME	NAME	LOCALE	LOCALN	AMG EAST	AMG NORTH	RL	DEPTH	(AMG)	DIP
AC93ZG29	ZG29	61150	47200	363686.9	5349075.8		2.5	0	-90
AC93ZG30	ZG30	61125	47200	363678.8	5349099.5		2.1	0	-90
AC93ZG31	ZG31	61100	47200	363670.6	5349123.1		1.8	0	-90
AC93ZG32	ZG32	61075	47120	363586.9	5349120.7		2.3	0	-90
AC93ZG33	ZG33	61100	47120	363595.0	5349097.1		1.8	0	-90
AC93ZG34	ZG34	61125	47120	363603.1	5349073.4		2.2	0	-90
AC93ZG35	ZG35	61150	47120	363611.3	5349049.8		3.0	0	-90
AC93ZG36	ZG36	61175	47120	363619.4	5349026.1		12.2	0	-90
AC93ZG37	ZG37	61200	47110	363618.1	5348999.3		3.0	0	-90
AC93ZG38	ZG38	61225	47100	363616.8	5348972.4		9.0	0	-90
AC93ZG39	ZG39	61250	47100	363624.9	5348948.7		7.5	0	-90
AC93ZG40	ZG40	61275	47100	363633.1	5348925.1		9.8	0	-90
AC93ZG41	ZG41	61100	47700	364297.3	5349405.0		21.3	0	-90
AC93ZG42	ZG42	61075	47700	364282.0	5349424.7		19.5	0	-90
AC93ZG43	ZG43	61050	47700	364266.6	5349444.4		13.5	0	-90
AC93ZG44	ZG44	61125	47700	364312.7	5349385.3		9.0	0	-90
AC93ZG45	ZG45	61150	47700	364328.1	5349365.6		18.5	0	-90
AC93ZG46	ZG46	61175	47700	364343.5	5349345.9		15.0	0	-90
AC93ZG47	ZG47	61200	47700	364358.9	5349326.2		16.5	0	-90
AC93ZG48	ZG48	61225	47700	364374.3	5349306.5		2.0	0	-90
AC93ZG49	ZG49	61250	47700	364389.7	5349286.8		15.8	0	-90
AC93ZG50	ZG50	61275	47700	364405.1	5349267.1		20.0	0	-90
AC93ZG51	ZG51	61300	47700	364420.5	5349247.4		54.0	0	-90
AC93ZG52	ZG52	61325	47670	364412.2	5349209.2		4.0	0	-90
AC93ZG53	ZG53	61350	47670	364427.6	5349189.5		3.0	0	-90
AC93ZG54	ZG54	61350	47785	364518.2	5349260.3		35.5	0	-90
AC93ZG55	ZG55	61325	47800	364514.7	5349289.3		18.0	0	-90
AC93ZG56	ZG56	61300	47800	364499.3	5349309.0		9.5	0	-90
AC93ZG57	ZG57	61275	47800	364483.9	5349328.7		14.5	0	-90
AC93ZG58	ZG58	61250	47800	364468.5	5349348.4		10.3	0	-90
AC93ZG59	ZG59	61225	47800	364453.1	5349368.1		21.5	0	-90
AC93ZG60	ZG60	61200	47800	364437.7	5349387.8		19.0	0	-90
AC93ZG61	ZG61	61175	47800	364422.3	5349407.5		16.0	0	-90
AC93ZG62	ZG62	61150	47800	364406.9	5349427.2		13.5	0	-90
AC93ZG63	ZG63	61120	47800	364388.5	5349450.8		11.5	0	-90
AC93ZG64	ZG64	61100	47800	364376.1	5349466.6		5.5	0	-90
AC93ZG65	ZG65	61025	47700	364251.2	5349464.1		3.0	0	-90
AC93ZG66	ZG66	61000	47700	364235.8	5349483.8		3.7	0	-90
AC93ZG67	ZG67	61100	47900	364454.9	5349528.1		6.8	0	-90
AC93ZG68	ZG68	61125	47900	364470.3	5349508.4		8.5	0	-90
AC93ZG69	ZG69	61150	47900	364485.7	5349488.7		4.1	0	-90
AC93ZG70	ZG70	61175	47900	364501.1	5349469.0		7.0	0	-90
AC93ZG71	ZG71	61200	47900	364516.5	5349449.3		7.0	0	-90
AC93ZG72	ZG72	61225	47900	364531.9	5349429.6		4.8	0	-90
AC93ZG73	ZG73	61250	47900	364547.3	5349409.9		12.8	0	-90
AC93ZG74	ZG74	61150	48200	364722.1	5349673.4		14.5	0	-90
AC93ZG75	ZG75	61125	48200	364706.7	5349693.1		14.0	0	-90
AC93ZG76	ZG76	61100	48200	364691.4	5349712.8		8.4	0	-90
AC93ZG77	ZG77	61075	48200	364676.0	5349732.5		5.3	0	-90
AC93ZG78	ZG78	61050	48200	364660.6	5349752.2		4.9	0	-90
AC93ZG79	ZG79	61025	48200	364645.2	5349771.9		9.6	0	-90
AC93ZG80	ZG80	60550	47600	363879.9	5349776.8		19.7	0	-90
AC93ZG81	ZG81	60575	47600	363895.3	5349757.1		9.5	0	-90
AC93ZG82	ZG82	60600	47600	363910.7	5349737.4		9.5	0	-90
AC93ZG83	ZG83	60625	47600	363926.1	5349717.7		2.5	0	-90
AC93ZG84	ZG84	60650	47600	363941.5	5349698.0		10.5	0	-90
AC93ZG85	ZG85	60675	47600	363956.9	5349678.3		6.4	0	-90
AC93ZG86	ZG86	60700	47600	363972.3	5349658.6		12.0	0	-90
AC93ZG87	ZG87	60725	47600	363987.7	5349638.9		9.3	0	-90
AC93ZG88	ZG88	60750	47600	364003.1	5349619.2		16.0	0	-90

FULL	SHORT	LOCALE	LOCALN	AMG EAST	AMG NORTH	RL	DEPTH	AZIM	DIP
HOLE NAME	NAME						(AMG)		
AC93ZG89	ZG89	60775	47600	364018.5	5349599.5		34.0	0	-90
AC93ZG90	ZG90	60800	47600	364033.8	5349579.8		10.3	0	-90
AC93ZG91	ZG91	60530	47790	364017.3	5349909.6		18.0	0	-90
AC93ZG92	ZG92	60575	47800	364052.9	5349880.3		9.0	0	-90
AC93ZG93	ZG93	60600	47800	364068.3	5349860.6		4.5	0	-90
AC93ZG94	ZG94	60625	47800	364083.7	5349840.9		1.8	0	-90
AC93ZG95	ZG95	60650	47800	364099.1	5349821.2		3.0	0	-90
AC93ZG96	ZG96	60675	47800	364114.5	5349801.5		8.0	0	-90
AC93ZG97	ZG97	60700	47800	364129.9	5349781.8		13.0	0	-90
AC93ZG98	ZG98	60725	47800	364145.3	5349762.1		25.8	0	-90
AC93ZG99	ZG99	60750	47800	364160.7	5349742.4		23.8	0	-90
AC93ZG100	ZG100	60775	47800	364176.1	5349722.7		2.4	0	-90
AC93ZG101	ZG101	60800	47800	364191.4	5349703.0		3.5	0	-90
AC93ZG102	ZG102	61071	48426	364851.6	5349874.8		20.0	0	-90
AC93ZG103	ZG103	61052	48407	364824.9	5349878.1		4.7	0	-90
DD93ZG104	ZG104	61125	48200	364706.7	5349693.1		36.7	142	-50
DD93ZG105	ZG105	61325	47800	364514.7	5349289.3		40.9	142	-52
DD93ZG106	ZG106	60997	48200	364627.9	5349794.0		161.0	142	-50
DD93ZG107	ZG107	61142.5	48000	364559.9	5349556.2		175.0	145	-50
AC93ZG108	ZG108	61150	48150	364682.7	5349642.6		31	0	-90
AC93ZG109	ZG109	61140	48150	364676.6	5349650.5		6	0	-90
AC93ZG109a	ZG109a	61140	48160	364684.5	5349656.7		5	0	-90
AC93ZG110	ZG110	61130	48150	364670.4	5349658.4		13	0	-90
AC93ZG111	ZG111	61120	48150	364664.3	5349666.3		8.5	0	-90
AC93ZG112	ZG112	61110	48150	364658.1	5349674.2		4	0	-90
AC93ZG113	ZG113	61100	48150	364652.0	5349682.0		12.5	0	-90
AC93ZG114	ZG114	61090	48150	364645.8	5349689.9		9	0	-90
AC93ZG115	ZG115	61145	48200	364719.1	5349677.4		28.5	0	-90
AC93ZG116	ZG116	61150	48200	364722.1	5349673.4		35	135	-58
AC93ZG117	ZG117	61137	48200	364714.1	5349683.7		19	0	-90
AC93ZG118	ZG118	61115	48200	364700.6	5349701.0		7.5	0	-90
AC93ZG118a	ZG118a	61115	48200	364700.6	5349701.0		13	0	-90
AC93ZG119	ZG119	61180	48250	364780.0	5349680.6		7.5	142	-60
AC93ZG120	ZG120	61167	48250	364772.0	5349690.8		24	0	-90
AC93ZG121	ZG121	61160	48250	364767.7	5349696.3		4	0	-90
AC93ZG122	ZG122	61146	48250	364759.1	5349707.4		4	0	-90
AC93ZG123	ZG123	61125	48260	364754.0	5349730.1		24	0	-90
AC93ZG124	ZG124	61100	48250	364730.8	5349743.6		6	0	-90
AC93ZG125	ZG125	61190	48100	364668.0	5349580.3		16	0	-90
AC93ZG126	ZG126	61180	48100	364661.8	5349588.2		8	0	-90
AC93ZG127	ZG127	61170	48100	364655.6	5349596.1		23	0	-90
AC93ZG128	ZG128	61160	48100	364649.5	5349604.0		10	0	-90
AC93ZG129	ZG129	61150	48100	364643.3	5349611.9		12	0	-90
AC93ZG130	ZG130	61125	48100	364627.9	5349631.6		14	0	-90
AC93ZG131	ZG131	61100	48100	364612.6	5349651.3		6.5	0	-90
AC93ZG132	ZG132	61075	48100	364597.2	5349671.0		6	0	-90
AC93ZG133	ZG133	61300	48050	364696.3	5349462.9		28	0	-90
AC93ZG134	ZG134	61290	48050	364690.1	5349470.8		15	0	-90
AC93ZG135	ZG135	61280	48050	364684.0	5349478.6		10	0	-90
AC93ZG136	ZG136	61270	48050	364677.8	5349486.5		7	0	-90
AC93ZG137	ZG137	61260	48050	364671.7	5349494.4		7	0	-90
AC93ZG138	ZG138	61250	48050	364665.5	5349502.3		1.7	0	-90
AC93ZG139	ZG139	61225	48050	364650.1	5349522.0		8	0	-90
AC93ZG140	ZG140	61200	48050	364634.7	5349541.7		8	0	-90
AC93ZG141	ZG141	61175	48050	364619.3	5349561.4		13	0	-90
AC93ZG142	ZG142	61150	48050	364603.9	5349581.1		11	0	-90
AC93ZG143	ZG143	61125	48050	364588.5	5349600.8		3.5	0	-90
AC93ZG144	ZG144	61100	48050	364573.2	5349620.5		6	0	-90
AC93ZG145	ZG145	61075	48050	364557.8	5349640.2		4	0	-90
AC93ZG146	ZG146	61050	48050	364542.4	5349659.9		4	0	-90

FULL	SHORT							AZIM	
HOLE NAME	NAME	LOCALE	LOCALN	AMG EAST	AMG NORTH	RL	DEPTH	(AMG)	DIP
AC93ZG147	ZG147	61025	48050	364527.0	5349679.6		3.5	0	-90
AC93ZG148	ZG148	61000	48050	364511.6	5349699.3		4	0	-90
AC93ZG149	ZG149	61340	48000	364681.5	5349400.6		16	0	-90
AC93ZG150	ZG150	61330	48000	364675.4	5349408.5		14	0	-90
AC93ZG151	ZG151	61320	48000	364669.2	5349416.3		11.5	0	-90
AC93ZG152	ZG152	61310	48000	364663.0	5349424.2		20	0	-90
AC93ZG153	ZG153	61290	48000	364650.7	5349440.0		44	0	-90
AC93ZG154	ZG154	61280	48000	364644.6	5349447.9		34	0	-90
AC93ZG155	ZG155	61270	48000	364638.4	5349455.7		39	0	-90
AC93ZG156	ZG156	61260	48000	364632.3	5349463.6		27	0	-90
AC93ZG157	ZG157	61230	48000	364613.8	5349487.3		3	0	-90
AC93ZG158	ZG158	61204	48000	364597.8	5349507.7		8	0	-90
AC93ZG159	ZG159	61175	48000	364579.9	5349530.6		8	0	-90
AC93ZG160	ZG160	61125	48000	364549.1	5349570.0		9	0	-90
AC93ZG161	ZG161	61100	48000	364533.8	5349589.7		13	0	-90
AC93ZG162	ZG162	61075	48000	364518.4	5349609.4		3.2	0	-90
AC93ZG163	ZG163	61050	48000	364503.0	5349629.1		7	0	-90
AC93ZG164	ZG164	61025	48000	364487.6	5349648.8		10	0	-90
AC93ZG165	ZG165	61000	48000	364472.2	5349668.5		8	0	-90
AC93ZG166	ZG166	61270	47950	364599.0	5349425.0		6	0	-90
AC93ZG167	ZG167	61250	47950	364586.7	5349440.7		5	0	-90
AC93ZG168	ZG168	61235	47950	364577.5	5349452.5		12	0	-90
AC93ZG169	ZG169	61355	47800	364533.1	5349265.6		36	0	-90
AC93ZG170	ZG170	61343	47795	364521.8	5349272.0		7	0	-90
AC93ZG171	ZG171	61335	47795	364516.9	5349278.3		22	0	-90
AC93ZG172	ZG172	61330	47800	364517.8	5349285.3		22	0	-90
AC93ZG173	ZG173	61325	47800	364514.7	5349289.3		24	0	-90
AC93ZG174	ZG174	61320	47800	364511.6	5349293.2		34	0	-90
AC93ZG175	ZG175	61315	47800	364508.5	5349297.1		44	0	-90
AC93ZG176	ZG176	61310	47800	364505.4	5349301.1		4	0	-90
AC93ZG177	ZG177	61305	47800	364502.4	5349305.0		57	0	-90
AC93ZG178	ZG178	61330	47850	364557.2	5349316.1		17.5	0	-90
AC93ZG179	ZG179	61340	47850	364563.3	5349308.2		5	0	-90
AC93ZG180	ZG180	61350	47850	364569.5	5349300.3		29.5	0	-90
AC93ZG181	ZG181	61350	47750	364490.7	5349238.8		31.5	0	-90
AC93ZG182	ZG182	61340	47750	364484.5	5349246.7		13	0	-90
AC93ZG183	ZG183	61330	47750	364478.4	5349254.5		21	0	-90
AC93ZG184	ZG184	61320	47750	364472.2	5349262.4		39	0	-90
AC93ZG185	ZG185	61300	47750	364459.9	5349278.2		60	0	-90
AC93ZG186	ZG186	61275	47745	364440.5	5349294.8		42	0	-90
AC93ZG187	ZG187	61250	47750	364429.1	5349317.6		14	0	-90
AC93ZG188	ZG188	61360	47680	364441.7	5349187.8		4	0	-90
AC93ZG189	ZG189	61340	47680	364429.3	5349203.6		3	0	-90
AC93ZG190	ZG190	61315	47690	364421.8	5349229.4		9	0	-90
AC93ZG191	ZG191	61290	47595	364331.6	5349190.6		36	0	-90
AC93ZG192	ZG192	61280	47595	364325.4	5349198.5		41	0	-90
AC93ZG193	ZG193	61270	47595	364319.3	5349206.4		30	0	-90
AC93ZG194	ZG194	61260	47595	364313.1	5349214.3		4	0	-90
AC93ZG195	ZG195	61315	47650	364390.3	5349204.8		48	0	-90
AC93ZG196	ZG196	61300	47645	364377.1	5349213.5		32	0	-90
AC93ZG197	ZG197	61277	47550	364288.1	5349173.2		32	0	-90
AC93ZG198	ZG198	61270	47550	364283.8	5349178.7		32.5	0	-90
AC93ZG199	ZG199	61280	47495	364246.6	5349136.9		20	0	-90
AC93ZG200	ZG200	61270	47495	364240.5	5349144.8		30	0	-90
AC93ZG201	ZG201	61260	47500	364238.3	5349155.8		36	0	-90
AC93ZG202	ZG202	61250	47500	364232.1	5349163.7		30	0	-90
AC93ZG203	ZG203	61310	47450	364229.6	5349085.6		4	0	-90
AC93ZG204	ZG204	61320	47450	364235.8	5349077.7		3	0	-90
AC93ZG205	ZG205	61300	47450	364223.5	5349093.5		23	0	-90
AC93ZG206	ZG206	61250	47590	364303.0	5349219.1		5.5	0	-90

FULL	SHORT	LOCALE	LOCALN	AMG EAST	AMG NORTH	RL	DEPTH	AZIM (AMG)	DIP
AC93ZG207	ZG207	61215	47590	364281.5	5349246.7		12	0	-90
AC93ZG208	ZG208	61260	47540	364269.8	5349180.4		3.7	0	-90
DD93ZG209	ZG209	61198	47802	364438.1	5349390.6		124.2	145	-50
AC93ZG210	ZG210	61245	47550	364268.4	5349198.4		23	0	-90
AC93ZG211	ZG211	61225	47550	364256.1	5349214.1		4	0	-90
AC93ZG212	ZG212	61200	47550	364240.7	5349233.8		4.9	0	-90
AC93ZG213	ZG213	61240	47500	364225.9	5349171.5		32.8	0	-90
AC93ZG214	ZG214	61230	47500	364219.8	5349179.4		50	0	-90
AC93ZG215	ZG215	61200	47500	364201.3	5349203.1		18.9	0	-90
AC93ZG216	ZG216	61175	47500	364185.9	5349222.8		16.8	0	-90
AC93ZG217	ZG217	61290	47450	364217.3	5349101.4		21.2	0	-90
AC93ZG218	ZG218	61280	47450	364211.2	5349109.2		30	0	-90
AC93ZG219	ZG219	61255	47450	364195.8	5349128.9		30	0	-90
AC93ZG220	ZG220	61230	47450	364180.4	5349148.6		10.7	0	-90
AC93ZG221	ZG221	61308	47400	364189.0	5349056.4		23.7	142	-80
AC93ZG222	ZG222	61300	47400	364184.1	5349062.7		24.2	0	-90
AC93ZG223	ZG223	61290	47400	364177.9	5349070.6		28	0	-90
AC93ZG224	ZG224	61280	47400	364171.8	5349078.5		38	0	-90
AC93ZG225	ZG225	61270	47400	364165.6	5349086.3		36	0	-90
AC93ZG226	ZG226	61250	47400	364153.3	5349102.1		16.2	0	-90
AC93ZG227	ZG227	61225	47400	364137.9	5349121.8		20.8	0	-90
AC93ZG228	ZG228	61307	47350	364149.0	5349026.4		16.8	0	-90
AC93ZG229	ZG229	61317	47350	364155.1	5349018.5		32.7	0	-90
AC93ZG230	ZG230	61299	47350	364144.1	5349032.7		12.2	0	-90
AC93ZG231	ZG231	61286	47350	364136.1	5349042.9		18.7	0	-90
AC93ZG232	ZG232	61275	47350	364129.3	5349051.6		24.5	0	-90
AC93ZG233	ZG233	61250	47350	364113.9	5349071.3		28.8	0	-90
AC93ZG234	ZG234	61225	47350	364098.5	5349091.0		8	0	-90
AC93ZG235	ZG235	61280	47280	364077.2	5349004.6		9.7	0	-90
AC93ZG236	ZG236	61270	47280	364071.0	5349012.5		17.6	0	-90
AC93ZG237	ZG237	61260	47280	364064.9	5349020.3		22.2	0	-90
AC93ZG238	ZG238	61250	47280	364058.7	5349028.2		3	0	-90
AC93ZG239	ZG239	61225	47280	364043.3	5349047.9		2.5	0	-90
AC93ZG240	ZG240	61200	47280	364027.9	5349067.6		3.5	0	-90
AC93ZG241	ZG241	61200	47400	364122.5	5349141.5		7.2	0	-90
AC93ZG242	ZG242	61175	47400	364107.1	5349161.2		3.9	0	-90
AC93ZG243	ZG243	61150	47400	364091.7	5349180.9		17.8	0	-90
AC93ZG244	ZG244	61125	47400	364076.3	5349200.6		3.9	0	-90
AC93ZG245	ZG245	61100	47400	364060.9	5349220.3		13.7	0	-90
AC93ZG246	ZG246	61075	47400	364045.6	5349240.0		8.2	0	-90
AC93ZG247	ZG247	61050	47400	364030.2	5349259.7		6.5	0	-90
AC93ZG248	ZG248	61025	47400	364014.8	5349279.4		3.7	0	-90
AC93ZG249	ZG249	61000	47400	363999.4	5349299.1		14.8	0	-90
AC93ZG250	ZG250	60975	47400	363984.0	5349318.8		5.5	0	-90
AC93ZG251	ZG251	60950	47400	363968.6	5349338.5		2.9	0	-90
AC93ZG252	ZG252	60925	47400	363953.2	5349358.2		4.9	0	-90
AC93ZG253	ZG253	60900	47400	363937.8	5349377.9		16.6	0	-90
AC93ZG254	ZG254	60875	47400	363922.4	5349397.6		26.1	0	-90
AC93ZG255	ZG255	60850	47400	363907.0	5349417.3		14.5	0	-90
AC93ZG256	ZG256	60825	47400	363891.6	5349437.0		4.2	0	-90
AC93ZG257	ZG257	60800	47400	363876.2	5349456.7		18	0	-90
AC93ZG258	ZG258	60975	47700	364220.4	5349503.5		3.1	0	-90
AC93ZG259	ZG259	60950	47700	364205.0	5349523.2		3.5	0	-90
AC93ZG260	ZG260	60925	47700	364189.6	5349542.9		4.1	0	-90
AC93ZG261	ZG261	60900	47700	364174.2	5349562.6		2.1	0	-90
AC93ZG262	ZG262	61177	48315	364829.4	5349723.0		8.9	0	-90
AC93ZG263	ZG263	61165	48315	364822.0	5349732.4		12.2	0	-90
AC93ZG264	ZG264	61150	48350	364840.3	5349765.8		39	0	-90
AC93ZG265	ZG265	61138	48350	364832.9	5349775.2		20.8	0	-90
AC93ZG266	ZG266	61127	48350	364826.2	5349783.9		12	0	-90

FULL	SHORT							AZIM		
HOLE NAME	NAME	LOCALE	LOCALN	AMG EAST	AMG NORTH	RL	DEPTH	(AMG)	DIP	
AC93ZG267	ZG267	61115	48350	364818.8	5349793.4		14.1	0	-90	
AC93ZG268	ZG268	61100	48350	364809.6	5349805.2		3.5	0	-90	
AC93ZG269	ZG269	61090	48350	364803.4	5349813.1		8.7	0	-90	
AC93ZG270	ZG270	61065	48350	364788.0	5349832.8		5.1	0	-90	
AC93ZG271	ZG271	61040	48350	364772.6	5349852.5		10.9	0	-90	
AC93ZG272	ZG272	61134	48300	364791.1	5349747.6		4	0	-90	
AC93ZG273	ZG273	61124	48300	364784.9	5349755.5		12.7	0	-90	
AC93ZG274	ZG274	61107	48300	364774.5	5349768.9		5.5	0	-90	
AC93ZG275	ZG275	61100	48300	364770.2	5349774.4		4	0	-90	
AC93ZG276	ZG276	61075	48300	364754.8	5349794.1		6	0	-90	
AC93ZG277	ZG277	61130	48400	364867.4	5349812.3		8.5	0	-90	
AC93ZG278	ZG278	61120	48407	364866.8	5349824.5		6	0	-90	
AC93ZG279	ZG279	61110	48400	364855.1	5349828.1		7	0	-90	
AC93ZG280	ZG280	61100	48400	364849.0	5349836.0		10.2	0	-90	
AC93ZG281	ZG281	61085	48400	364839.7	5349847.8		2.4	0	-90	
AC93ZG282	ZG282	61064	48400	364826.8	5349864.3		10.8	0	-90	
AC93ZG283	ZG283	60975	48200	364614.4	5349811.3		7.3	0	-90	
AC93ZG284	ZG284	60950	48200	364599.0	5349831.0		2.3	0	-90	
AC93ZG285	ZG285	60900	48200	364568.2	5349870.4		2.5	0	-90	
AC93ZG286	ZG286	60875	48200	364552.8	5349890.1		3.1	0	-90	
AC93ZG287	ZG287	60850	48200	364537.4	5349909.8		3.1	0	-90	
AC93ZG288	ZG288	60825	48200	364522.0	5349929.5		1.1	0	-90	
AC93ZG289	ZG289	60800	48200	364506.7	5349949.2		3.6	0	-90	
AC93ZG290	ZG290	60775	48200	364491.3	5349968.9		10.9	0	-90	
AC93ZG291	ZG291	60750	48200	364475.9	5349988.6		4.3	0	-90	
AC93ZG292	ZG292	60725	48200	364460.5	5350008.3		8.1	0	-90	
AC93ZG293	ZG293	60700	48200	364445.1	5350028.0		4.1	0	-90	
AC93ZG294	ZG294	60681	48184	364420.8	5350033.2		3.4	0	-90	
AC93ZG295	ZG295	60662	48168	364396.5	5350038.3		4	0	-90	
AC93ZG296	ZG296	60643	48152	364372.2	5350043.4		5	0	-90	
AC93ZG297	ZG297	60624	48136	364347.9	5350048.5		2.5	0	-90	
AC93ZG298	ZG298	60725	47400	363830.1	5349515.8		6.1	0	-90	
AC93ZG299	ZG299	60700	47400	363814.7	5349535.5		5.5	0	-90	
AC93ZG300	ZG300	60675	47400	363799.3	5349555.2		13.1	0	-90	
AC93ZG301	ZG301	60660	47400	363790.1	5349567.0		4.8	0	-90	
AC93ZG302	ZG302	60750	47500	363924.3	5349557.7		22	0	-90	
AC93ZG303	ZG303	60725	47500	363908.9	5349577.4		4	0	-90	
AC93ZG304	ZG304	60700	47500	363893.5	5349597.1		1.5	0	-90	
AC93ZG305	ZG305	60650	47400	363783.9	5349574.9		4.1	0	-90	
AC93ZG306	ZG306	60625	47400	363768.5	5349594.6		1.5	0	-90	
AC93ZG307	ZG307	60615	47400	363762.3	5349602.5		5.2	0	-90	
AC93ZG308	ZG308	60600	47400	363753.1	5349614.3		10.6	0	-90	
AC93ZG309	ZG309	60675	47500	363878.1	5349616.8		6.5	0	-90	
AC93ZG310	ZG310	60650	47500	363862.7	5349636.5		8.9	0	-90	
AC93ZG311	ZG311	60625	47500	363847.3	5349656.2		0	0	-90	
AC93ZG312	ZG312	60600	47500	363831.9	5349675.9		7	0	-90	
AC93ZG313	ZG313	60625	47700	364004.9	5349779.3		3	0	-90	
AC93ZG314	ZG314	60600	47700	363989.5	5349799.0		6	0	-90	
AC93ZG315	ZG315	60575	47700	363974.1	5349818.7		6	0	-90	
AC93ZG316	ZG316	60550	47700	363958.7	5349838.4		12	0	-90	
AC93ZG317	ZG317	60650	47700	364020.3	5349759.6		4	0	-90	
AC93ZG318	ZG318	60675	47700	364035.7	5349739.9		4.2	0	-90	
AC93ZG319	ZG319	60700	47700	364051.1	5349720.2		4	0	-90	
AC93ZG320	ZG320	60725	47700	364066.5	5349700.5		13.5	0	-90	
AC93ZG321	ZG321	60750	47700	364081.9	5349680.8		2.4	0	-90	
AC93ZG322	ZG322	60775	47700	364097.3	5349661.1		8.4	0	-90	
AC93ZG323	ZG323	60800	47700	364112.6	5349641.4		15.5	0	-90	
AC93ZG324	ZG324	60825	47700	364128.0	5349621.7		13.2	0	-90	
AC93ZG325	ZG325	60650	47900	364177.9	5349882.7		6	0	-90	
AC93ZG326	ZG326	60625	47900	364162.5	5349902.4		26.2	0	-90	

FULL HOLE NAME	SHORT NAME	LOCALE	LOCALN	AMG EAST	AMG NORTH	RL	DEPTH	AZIM (AMG)	DIP
AC93ZG327	ZG327	60600	47900	364147.1	5349922.1		11.2	0	-90
AC93ZG328	ZG328	60608	48000	364230.8	5349977.4		6.5	0	-90
AC93ZG329	ZG329	60575	48000	364210.5	5350003.4		28	0	-90
AC93ZG330	ZG330	60580	47900	364134.8	5349937.9		27.6	0	-90
AC93ZG331	ZG331	60550	47900	364116.3	5349961.5		19.1	0	-90
AC93ZG332	ZG332	60525	47900	364100.9	5349981.2		21.3	0	-90
AC93ZG333	ZG333	60500	47900	364085.6	5350000.9		16.2	0	-90
AC93ZG334	ZG334	60475	47900	364070.2	5350020.6		11.5	0	-90
AC93ZG335	ZG335	60442	47900	364049.8	5350046.6		24.5	0	-90
AC93ZG336	ZG336	60525	48000	364179.7	5350042.8		6.5	0	-90
AC93ZG337	ZG337	60500	48000	364164.4	5350062.5		18.7	0	-90
AC93ZG338	ZG338	60475	48000	364149.0	5350082.2		14.8	0	-90
AC93ZG339	ZG339	60450	48000	364133.6	5350101.9		11	0	-90
AC93ZG340	ZG340	60425	48000	364118.2	5350121.6		19	320	-73
AC93ZG341	ZG341	60275	48600	364222.9	5350416.5		13.9	0	-90
AC93ZG342	ZG342	60300	48600	364247.9	5350417.0		10.6	0	-90
AC93ZG343	ZG343	60325	48600	364272.9	5350417.4		11.7	0	-90
AC93ZG344	ZG344	60350	48600	364297.9	5350417.8		43.2	0	-90
AC93ZG345	ZG345	60375	48600	364322.9	5350418.3		19	0	-90
AC93ZG346	ZG346	61130	48160	364678.3	5349664.6		9	0	-90
AC93ZG347	ZG347	61133	48250	364751.1	5349717.6		4	0	-90
AC93ZG348	ZG348	61115	48255	364743.9	5349734.9		31	0	-90
AC93ZG349	ZG349	61144	48253	364760.2	5349710.8		7	0	-90
AC93ZG350	ZG350	61155	48251	364765.4	5349700.9		10	0	-90
AC93ZG351	ZG351	61135	48245	364748.4	5349713.0		5.5	0	-90
AC93ZG352	ZG352	61172	48138	364686.8	5349617.9		28.7	0	-90
AC93ZG353	ZG353	61365	48050	364736.3	5349411.7		25	142	-80
AC93ZG354	ZG354	61350	48050	364727.1	5349423.5		29.3	142	-80
AC93ZG355	ZG355	61340	48050	364720.9	5349431.4		39.2	142	-85
AC93ZG356	ZG356	61330	48050	364714.8	5349439.2		51	0	-90
AC93ZG357	ZG357	61317	48050	364706.7	5349449.5		56.8	0	-90
DD93ZG358	ZG358	61200	47690	364351.0	5349320.0		121.5	142	-50
DD93ZG359	ZG359	61269	47805	364484.1	5349336.5		79	143	-45
DD93ZG360	ZG360	61268	47805	364483.5	5349337.3		85.3	143	-70
DD93ZG361	ZG361	61253	47914	364560.2	5349416.2		99	142	-45
DD93ZG362	ZG362	61259	48008	364637.9	5349469.3		99.2	142	-60
DD93ZG363	ZG363	61258	48008	364637.3	5349470.1		129.6	0	-90
DD93ZG364	ZG364	61090	48200	364685.2	5349720.7			142	-45
DD93ZG365	ZG365	61089	48200	364684.6	5349721.5			142	-75
AC94ZG366	ZG366	61371	47719	364479.2	5349203.1		7.5	0	-90
AC94ZG367	ZG367	61361	47719	364473.0	5349211.0		16.5	0	-90
AC94ZG368	ZG368	61350	47719	364466.2	5349219.7		12.1	0	-90
AC94ZG369	ZG369	61340	47719	364460.1	5349227.6		3.5	0	-90
AC94ZG370	ZG370	61330	47700	364438.9	5349223.8		46.5	0	-90
AC94ZG371	ZG371	61320	47700	364432.8	5349231.6		30.5	0	-90
AC94ZG372	ZG372	61310	47700	364426.6	5349239.5		39.6	0	-90
AC94ZG373	ZG373	61160	47100	363595.6	5349033.8		2.1	0	-90
AC94ZG374	ZG374	61170	47100	363598.9	5349024.4		4.8	0	-90
AC94ZG375	ZG375	61180	47100	363602.1	5349014.9		2.5	0	-90
AC94ZG376	ZG376	61190	47100	363605.4	5349005.5		3	0	-90
AC94ZG377	ZG377	61200	47100	363608.6	5348996.0		2.5	0	-90
AC94ZG378	ZG378	61210	47100	363611.9	5348986.5		2.1	0	-90
AC94ZG379	ZG379	61220	47100	363615.2	5348977.1		8.7	0	-90
AC94ZG380	ZG380	61235	47100	363620.0	5348962.9		4	0	-90
AC94ZG381	ZG381	61250	47060	363587.1	5348935.7		5.5	0	-90
AC94ZG382	ZG382	61240	47060	363583.8	5348945.2		5.1	0	-90
AC94ZG383	ZG383	61230	47060	363580.6	5348954.6		8.1	0	-90
AC94ZG384	ZG384	61220	47060	363577.3	5348964.1		5.2	0	-90
AC94ZG385	ZG385	61210	47060	363574.1	5348973.5		13.8	0	-90
AC94ZG386	ZG386	61200	47060	363570.8	5348983.0		2.4	0	-90

DDH

FULL	SHORT							AZIM	
HOLE NAME	NAME	LOCALE	LOCALN	AMG EAST	AMG NORTH	RL	DEPTH	(AMG)	DIP
AC94ZG387	ZG387	61190	47060	363567.6	5348992.4		1.2	0	-90
AC94ZG388	ZG388	61180	47060	363564.3	5349001.9		1.8	0	-90
AC94ZG389	ZG389	61275	47060	363595.2	5348912.1		14.8	0	-90
AC94ZG390	ZG390	61225	47150	363664.1	5348988.6		7.4	0	-90
AC94ZG391	ZG391	61210	47150	363659.2	5349002.8		5.9	0	-90
AC94ZG392	ZG392	61200	47150	363655.9	5349012.3		7.8	0	-90
AC94ZG393	ZG393	61190	47150	363652.7	5349021.7		7.5	0	-90
AC94ZG394	ZG394	61180	47150	363649.4	5349031.2		4.8	0	-90
AC94ZG395	ZG395	61170	47150	363646.1	5349040.6		12.3	0	-90
AC94ZG396	ZG396	61160	47150	363642.9	5349050.1		9.3	0	-90
AC94ZG397	ZG397	61150	47150	363639.6	5349059.6		5.7	0	-90
AC94ZG398	ZG398	61140	47150	363636.4	5349069.0		2.5	0	-90
AC94ZG399	ZG399	61130	47150	363633.1	5349078.5		2.6	0	-90
AC94ZG400	ZG400	61120	47150	363629.9	5349087.9		2.3	0	-90

APPENDIX 2:

CRAE AIR-CORE DRILL LOGS AND GEOCHEMISTRY

## ROCKCHIP AND DRILLING CODES

22/2/1994

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BMRLITH

Rock code as per published geological map  
For time designation use:-

Q	Quaternary	M	Permian	P	Proterozoic
T	Tertiary	C	Carboniferous	A	Archaean
		S	Silurian		
K	Cretaceous	D	Devonian		
R	Triassic	O	Ordovician		
J	Jurassic	E	Cambrian		

## FIELD ID

Field term for rock type  
Broad groupings are:-

S	Sedimentary	I	Intrusive	C	Surficial
M	Metamorphic	E	Extrusive	O	Others

## SEDIMENTARY

Sqg	Conglomerate	Sls	Limestone	Sw	Wacke
Sss	Sandstone	Sdl	Dolomite	Sag	Agglomerate/mixtite
Ssi	Siltstone				
Ssh	Shale	Sch	Chert	Sbx	Breccia
Sbs	Black shale	Sif	BF		

## METAMORPHIC

Msl	Slate	Mq	Quartzite	Mmg	Migmatite
Mph	Phyllite	Mm	Marble		
Msc	Schist	Ma	Amphibolite	Msk	Skam
Mbs	Graphitic schist	Mcs	Calcsilicate		
Mgn	Gneiss	Mh	Hornfels		

## INTRUSIVE IGNEOUS

If	Felsic undiff.	li	Intermed undiff.	Iu	Ultramafic
Itp	Felsic porphyry	lip	Intermed porph	Ius	Serpentinite
Iap	Aplite	Im	Mafic undiff.	Ipg	Pegmatite
Igr	Granite	Ido	Dolente		
Igd	Granodiorite	Igb	Gabbro		

## EXTRUSIVE IGNEOUS

Ery	Rhyolite	Ean	Andesite	Et	Tuff undiff
Edc	Dacite	Eb	Basalt	Eft	Felsic tuff
				Emt	Mafic tuff

## SURFICIAL (COVER) MATERIAL

Ca	Alluvium	Clt	Laterite	Csg	Gossan
Coo	Colluvium	Csp	Pisolites	Ccy	Clay
Cs	Sand	Csf	Ironstone	Cv	Vegetation/peat
Cbs	Black soil	Csi	Silcrete		
Cg	Gravel	Cd	Calcrete		

## OTHERS

Ovq	Vein quartz	Omy	Mylonite	Oms	Massive sulphide
Ovc	Vein carbonate	Obx	Breccia	Oxc	Contamination
Ovs	Vein sulphide	Of	Fault gouge	Ox	Unknown

## TEXTURAL CODES

## WEATHERING/SURFICIAL FEATURES

We	Weathered	Fa	Ferruginous
Bl	Bleached	Fo	Fe ox in fract
Le	Leached		

## MINERALISATION/ALTERATION FEATURES

Gs	Gossanous	Va	Vein sulphide	Al	Altered
Vn	Veined	Ds	Dissem sulph	S	Silicified
Vc	Vein carbonate	Fs	Fracture sulph		
Vq	Vein quartz	Bs	Banded sulph	Di	Disseminated

## GEOLOGICAL FEATURES

Bd	Bedded	Fr	Fractured	Po	Porphyritic
Bn	Banded	lb	Interbedded	Sc	Schistose
Bx	Brecciated	Lm	Laminated	Sn	Sheared
Fi	Fissile (slaty)	Ma	Massive	Vu	Vuggy

## DIAGNOSTIC MINERALOGY

## PRIMARY MINERALISATION

Ga	Galena	Py	Pyrite	Ni	Ni sulphides
Sp	Sphalerite	Po	Pyrrhotite		
Cp	Chalcopyrite	Su	Unknown sulph		

## SECONDARY MINERALISATION

Ls	Lead secondaries	Cs	Copper sec.	Ni	Ni secondaries
Zs	Zinc	Us	Uranium		

## ALTERATION/DIAGNOSTIC MINERALS

Cy	Clay	He	Haematite	Gt	Garnet
Ep	Epidote	Mt	Magnetite	Ky	Kyanite
Cc	Carbonate	Js	Jarosite	To	Tourmaline
Sd	Siderite/Ankerite	Mn	Manganese mins	C	Chlorite
Di	Dolomite				

## COLOUR CODES

L	Light	A	Banded	M	Mottled
D	Dark				
N	Black	P	Purple	V	Green
G	Grey	R	Red	K	Pink
B	Brown	O	Orange	E	Blue
W	White	Y	Yellow	S	Silver

APPENDIX 2: Grieves Prospect - CRAE air-core drillhole logs and assays

APPENDIX 2: GRIEVES PROSPECT - CRAE AIR-CORE DRILLING LOGS AND ASSAYS																	
Results in ppm (Fe, S in %)																	
HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG1	0.0	0.9	3523301	71531	Og	SlS			DG		16	68	337	-1	0.98	326	
ZG2	0.0	1.2	3523302	71531	QhaOg	CvCgSlS			DG		9	49	295	-1	0.96	144	
ZG3	0.0	2.0	3523303	71531	Qha	CvCcy			B		8	92	226	-1	0.65	77	
ZG3	2.0	4.0	3523304	71531	Og	Ccy			DGB		19	100	119	-1	0.35	23	
ZG3	4.0	6.1	3523305	71531	Og	Ccy			DGB	EOH in cc veined lst.	17	250	480	-1	1.33	28	
ZG4	0.0	2.0	3523306	71531	Qha	CvCg			LB		9	18	20	-1	0.39	28	
ZG4	2.0	4.0	3523307	71531	Og	SlS	We	Cy	LBG		22	69	53	-1	0.39	17	
ZG4	4.0	5.8	3523308	71531	Og	SlS	We	Cy	DG	EOH in cc veined lst.	40	103	56	-1	0.69	40	
ZG5	0.0	2.0	3523309	71531	Qha	CvCg			LB		3	7	19	-1	0.25	18	
ZG5	2.0	4.0	3523310	71531	QhaOg	CgCcy			LBDG		11	51	21	-1	0.37	25	
ZG5	4.0	6.0	3523311	71531	Og	SlS	We	Cy	DB		12	98	31	-1	0.22	14	
ZG5	6.0	8.0	3523312	71531	Og	SlS	WeDs	CyPy	DG		20	175	240	-1	1.20	22	
ZG5	8.0	10.0	3523313	71531	Og	SlS	WeDs	CyPy	DG		19	104	120	-1	1.52	22	
ZG5	10.0	11.0	3523314	71531	Og	SlS	WeDs	CyPy	DG	EOH in LGB lst	16	69	137	-1	1.70	42	
ZG6	0.0	2.0	3523315	71531	Qha	CvCcy			N		16	73	282	-1	1.24	66	
ZG6	2.0	4.0	3523316	71531	QhaOg	CgCcy			LBN		5	13	36	-1	0.50	34	
ZG6	4.0	6.0	3523317	71531	QhaOg	CgCcy			LBN		5	21	12	-1	0.27	14	
ZG6	6.0	8.0	3523318	71531	Og	SlS	WeDs	Py	DG		11	101	60	-1	0.47	25	
ZG6	8.0	10.0	3523319	71531	Og	SlS	We	Cy	DG		11	170	142	-1	0.42	17	
ZG6	10.0	12.0	3523320	71531	Og	SlS	WeDs	Py	DG		16	693	680	-1	1.53	33	
ZG6	12.0	14.0	3523321	71531	Og	SlS	Vu		LG		6	94	94	-1	0.37	109	
ZG6	14.0	16.0	3523322	71531	Og	SlS			G		5	42	69	-1	0.35	92	
ZG7	0.0	2.0	3523323	71531	Qha	Cg			LBK		4	4	15	-1	0.37	30	
ZG7	2.0	4.0	3523324	71531	Qha	Cg			LBK		5	6	8	-1	0.42	31	
ZG7	4.0	6.0	3523325	71531	Qha	Cg			LBK		2	4	8	-1	0.27	20	
ZG7	6.0	8.0	3523326	71531	Qha	Cg			LBK		4	6	20	-1	0.39	28	
ZG7	8.0	10.0	3523327	71531	QhaOg	CgSlS	We		LBKB		12	33	57	-1	0.43	14	
ZG7	10.0	12.0	3523328	71531	Og	SlS	We	Cy	B		20	69	236	-1	1.22	20	
ZG7	12.0	13.0	3523329	71531	Og	SlS			G		9	30	119	-1	0.60	42	
ZG8	0.0	10.0	3523330	71531	Qha	Cg			LK		5	6	26	-1	0.43	30	
ZG8	10.0	12.0	3523331	71531	Qha	CgCcy			LKB		2	5	17	-1	0.25	17	
ZG8	12.0	14.0	3523332	71531	OgQha	CcySlS	We		DGN		14	22	42	-1	0.91	42	
ZG8	14.0	15.0	3523333	71531	Og	SlS			G		6	41	77	-1	2.07	37	
ZG9	0.0	2.0	3523334	71531	Qha	Cg			LK		10	7	25	-1	0.70	42	
ZG9	2.0	4.0	3523335	71531	Og	Ccy			B		13	34	51	-1	0.47	24	
ZG9	4.0	6.0	3523336	71531	Og	CcySlS			B DG		38	103	109	-1	1.11	17	
ZG9	6.0	8.0	3523337	71531	Og	SlS	We	Cy	DG		31	242	304	-1	1.17	17	
ZG9	8.0	12.0	3523338	71531	Og	SlS	We	Cy	DG	Cavity -2m.	30	242	323	-1	1.36	19	
ZG9	12.0	14.0	3523339	71531	Og	SlS	We	Cy	DG		24	209	319	-1	1.63	45	
ZG9	14.0	16.0	3523340	71531	Og	SlS	Ds	Py	DG		16	83	409	-1	1.62	108	
ZG9	16.0	17.0	3523341	71531	Og	SlS	Ds	Py	DG		20	115	700	-1	1.58	242	
ZG10	0.0	2.0	3523342	71531	Qha	Cg			LK		5	6	25	-1	0.31	20	
ZG10	2.0	4.0	3523343	71531	Og	Ccy			DBN		18	125	127	-1	0.62	13	
ZG10	4.0	6.0	3523344	71531	Og	Ccy			N		21	71	283	-1	1.51	34	
ZG10	6.0	7.4	3523345	71531	Og	SlS	We	Cy	N		17	60	540	-1	1.62	53	
ZG11	0.0	2.0	3523346	71531	Qha	Cg			LK		8	6	16	-1	0.45	33	
ZG11	2.0	4.0	3523347	71531	QhaOg	CgCcy			LKDG		7	18	125	-1	0.57	28	
ZG12	0.0	2.0	3523348	71531	QhaOg	CgCcy			LKN		6	4	26	-1	0.40	27	
ZG12	2.0	4.0	3523349	71531	Og	Ccy			DB		10	23	34	-1	0.24	14	
ZG12	4.0	6.0	3523350	71531	Og	Ccy			DB		18	138	98	-1	0.30	15	

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APPENDIX 2: Grievess Prospect - CRAE air-core drillhole logs and assays

HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Qu	Pb	Zn	Ag	Fe%	Mn	S%
ZG12	8.0	8.0	3523351	71531	Og	Ccy			DBG		26	109	300	-1	0.82	16	
ZG12	8.0	10.0	3523352	71531	Og	Ccy			DBG		20	54	356	-1	1.88	25	
ZG12	10.0	12.0	3523353	71531	Og	Ccy			DBG		17	43	306	-1	2.16	26	
ZG12	12.0	14.0	3523354	71531	Og	CcySls			DBG	EOH in fresh lst	14	33	236	-1	2.33	66	
ZG13	0.0	2.0	3523355	71531	Oha	Cg			LK		3	7	15	-1	0.33	20	
ZG13	2.0	4.0	3523356	71531	Og	Ccy			DB		11	17	22	-1	0.47	23	
ZG13	4.0	6.0	3523357	71531	Og	Ccy			DBG		20	37	67	-1	0.44	15	
ZG13	6.0	7.0	3523358	71531	Og	Ccy			DG	EOH in DG fine g/s lst	25	52	120	-1	0.55	24	
ZG15	0.0	2.0	3523359	71531	Oha	Cg			LK		3	9	32	-1	0.40	31	
ZG15	2.0	4.0	3523360	71531	Oha	Cg			LK		7	7	22	-1	0.54	40	
ZG15	4.0	6.0	3523361	71531	Og	Ccy			DG		12	58	92	-1	1.97	42	
ZG15	6.0	8.0	3523362	71531	Og	Ccy			DBG		21	89	280	-1	65300.00	620	
ZG15	8.0	10.0	3523363	71531	OgOm	CcyMq			GB		6	45	224	-1	3.72	1060	
ZG15	10.0	12.0	3523364	71531	Og	CcySls			DBG		8	102	359	-1	3.02	760	
ZG15	12.0	14.0	3523365	71531	Og	Sls			DBG		4	36	181	-1	2.92	760	
ZG15	14.0	16.0	3523366	71531	Og	Sls			DG		3	43	211	-1	4.09	1220	
ZG15	16.0	18.0	3523367	71531	Og	Sls			DG		11	359	630	-1	3.93	1110	
ZG16	0.0	2.0	3523368	71531	Oha	CvCg			BLK		4	11	24	-1	0.27	29	
ZG16	2.0	3.0	3523369	71531	Oha	Cg			LK		10	38	115	-1	1.12	33	
ZG16	3.0	4.0	3523369	71531	Og	Ccy			GB		10	38	115	-1	1.12	33	
ZG16	4.0	6.0	3523370	71531	Og	Ccy			GB		12	108	383	-1	2.91	40	
ZG16	6.0	8.0	3523371	71531	Og	Ccy			GB		17	197	600	-1	3.70	112	
ZG16	8.0	10.0	3523372	71531	Og	Sls			DB	Fossiliferous muddy lst	6	76	240	-1	1.28	195	
ZG16	10.0	12.0	3523373	71531	Og	Sls			DB	Fossiliferous muddy lst	6	23	70	-1	2.83	1160	
ZG16	12.0	14.0	3523374	71531	Og	Sls				Oolitic lst	4	54	262	-1	2.65	1170	
ZG16	14.0	15.0	3523375	71531	Og	Sls				Oolitic lst	3	33	183	-1	1.14	248	
ZG17	0.0	2.0	3523376	71531	Og	Ccy			B		8	18	8	-1	0.29	20	
ZG17	2.0	4.0	3523377	71531	Og	Ccy			GB		120	504	465	-1	0.90	12	
ZG17	4.0	6.0	3523378	71531	Og	Ccy			GB		33	224	2040	-1	60600.00	30	
ZG17	6.0	8.0	3523379	71531	Og	CcySls			GN		13	56	630	-1	3.85	170	
ZG18	0.0	2.0	3523380	71531	Oha	CvCg			BLK		5	6	16	-1	0.67	36	
ZG18	2.0	4.0	3523381	71531	Og	Ccy			DCB		19	42	316	-1	2.62	28	
ZG18	4.0	6.0	3523382	71531	Og	Ccy			DCB		22	55	265	-1	2.88	179	
ZG18	6.0	8.0	3523383	71531	Og	Ccy			DCB		16	64	184	-1	3.80	224	
ZG18	8.0	10.0	3523384	71531	Og	Sls			N		9	21	49	-1	2.11	292	
ZG19	0.0	2.0	3523385	71531	Oha	Cg			LK		-2	5	6	-1	0.21	16	
ZG19	2.0	4.0	3523386	71531	Oha	Cg			LK		5	4	20	-1	0.51	36	
ZG19	4.0	6.0	3523387	71531	Og	Sls	We	Cy	B	Fossiliferous	3	15	401	-1	0.38	45	
ZG19	6.0	8.0	3523388	71531	Og	Sls	Vn	Cy	DG	Fossiliferous	-2	20	96	-1	0.45	150	
ZG19	8.0	10.0	3523389	71531	Og	Sls					3	12	65	-1	0.61	72	
ZG20	0.0	2.0	3523390	71531	Oha	Cg			LK		5	3	6	-1	0.45	31	
ZG20	2.0	4.0	3523391	71531	Og	Ccy			GB		14	57	1100	-1	4.16	26	
ZG20	4.0	6.0	3523392	71531	Og	Ccy			GB		15	64	178	-1	2.01	29	
ZG20	6.0	7.0	3523393	71531	Og	Sls	Ds	Py	KN		12	44	189	-1	1.59	54	
ZG21	0.0	2.0	3523394	71531	Oha	Cg			LK		-2	4	12	-1	0.22	13	
ZG21	2.0	2.5	3523395	71531	Og	Sls			BK		2	5	16	-1	0.43	34	
ZG22	0.0	2.0	3523396	71531	Oha	CvCg			BLK		3	5	8	-1	0.39	26	
ZG22	2.0	4.0	3523397	71531	Og	CcySls	We		GB		7	36	426	-1	0.65	47	
ZG22	4.0	6.0	3523398	71531	Og	Sls			KN		3	39	481	-1	0.55	91	
ZG23	0.0	2.0	3523399	71531	Oha	CvCg			DBLK		2	5	11	-1	0.37	23	
ZG23	2.0	4.0	3523400	71531	Og	Ccy			DB		4	14	40	-1	0.53	24	
ZG23	4.0	6.0	3523401	71531	Og	Sls	We	Cy	DG	EOH in G lst	3	10	18	-1	0.83	72	
ZG24	0.0	2.0	3523402	71531	Oha	Cg			LK		-2	3	11	-1	0.20	12	

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APPENDIX 2: Grieves Prospect - CRAE air-core drillhole logs and assays

HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG24	2.0	4.0	3523403	71531	QhaOg	CgCcy			LKB		3	15	67	-1	0.46	28	
ZG24	4.0	4.5	3523404	71531	Og	Sis			G	Oolitic lst	3	64	484	-1	0.51	35	
ZG25	0.0	2.0	3523405	71531	Qha	Og			LK		2	-3	7	-1	0.36	23	
ZG25	2.0	3.5	3523406	71531	QhaOg	CgCoySis				EOH in G fine g/s lst	2	62	155	-1	0.38	24	
ZG26	0.0	2.0	3523407	71531	Qha	Og			LK		3	3	8	-1	0.42	27	
ZG26	2.0	4.0	3523408	71531	Og	Ccy			N		3	48	427	-1	0.55	25	
ZG26	4.0	4.5	3523409	71531	Og	Ccy			N	EOH in LG fine g/s lst	5	59	1540	-1	1.47	53	
ZG27	0.0	2.0	3523410	71531	QhaOg	CgCcy			LKN		-2	-3	20	-1	0.25	17	
ZG27	2.0	3.0	3523411	71531	Og	Ccy			N	EOH in cc veined fine g/s lst. Caving gravels	7	9	55	-1	0.94	87	
ZG28	0.0	2.0	3523412	71531	Qha	Og			LK		-2	3	7	-1	0.26	18	
ZG28	2.0	3.0	3523413	71531	Og	Ccy			DGN	EOH in G fine g/s lst	10	69	510	-1	0.82	49	
ZG29	0.0	2.0	3523414	71531	Qha	CvCgCs					-2	3	10	-1	0.27	18	
ZG29	2.0	2.5	3523415	71531	Og	Sis			LB		3	20	47	-1	0.38	63	
ZG30	0.0	2.0	3523416	71531	Qha	CvCgCs					-2	5	7	-1	0.28	20	
ZG30	2.0	2.1	3523417	71531	Og	Sis			DG		11	16	42	-1	0.62	58	
ZG31	0.0	1.7	3523418	71531	QhaOg	CvCgCoySis					-2	3	10	-1	0.35	57	
ZG31	1.7	1.8	3523419	71531	Og	Sis			G		17	13	64	-1	0.51	195	
ZG32	0.0	2.0	3523420	71531	QhaOg	CsCgCcy			LKB		2	7	17	-1	0.49	62	
ZG32	2.0	2.3	3523421	71531	Og	CoySis			DG		3	14	22	-1	1.04	139	
ZG33	0.0	1.8	3523422	71531	QhaOg	CvCgCoySis					2	7	18	-1	0.49	47	
ZG34	0.0	2.0	3523423	71531	Qha	Og			LKB		-2	12	23	-1	0.27	18	
ZG34	2.0	2.2	3523424	71531	Og	CoySis			DGN		4	12	29	-1	0.49	51	
ZG35	0.0	2.0	3523425	71531	QhaOg	CvCgCoy			LKB		12	348	107	-1	0.61	14	
ZG35	2.0	3.0	3523426	71531	Og	Ccy			N	EOH in DG fine g/s lst	12	1800	810	-1	0.39	79	
ZG36	0.0	2.0	3523427	71531	QhaOg	CgCcy			LKB		-2	63	78	-1	0.31	26	
ZG36	2.0	4.0	3523428	71531	Og	Ccy			DB		9	800	6700	1	0.59	44	
ZG36	4.0	6.0	3523429	71531	Ox					Cavity + minor clay and gravel	11	1400	5500	1	0.45	36	
ZG36	6.0	8.0	3523430	71531	Og	Ccy			LBG		20	15400	93500	5	81800.00	59	
ZG36	8.0	10.0	3523431	71531	Og	Sis	We	Cy	DG		12	3100	6800	1	1.83	179	
ZG36	10.0	12.0	3523432	71531	Og	Sis	WeDs	Py	DG		8	11100	56500	3	65200.00	1420	
ZG36	12.0	12.2	3523433	71531	Og	Sis	Ds	Fy	DG	Bioturbated lime mudstone	9	20400	90000	6	82700.00	2180	
ZG37	0.0	2.0	3523434	71531	Qha	CgCv			LKB		5	1550	6000	1	0.57	30	
ZG37	2.0	3.0	3523435	71531	Og	Ccy			DGB	EOH in DG fine g/s lst	7	266	2750	-1	0.85	138	
ZG38	0.0	2.0	3523436	71531	Og	Coy			LDBG		12	101	368	-1	0.41	37	
ZG38	2.0	4.0	3523437	71531	Og	Ccy			DG		24	186	620	-1	0.69	15	
ZG38	4.0	6.0	3523438	71531	Og	Ccy			DG		18	327	1750	-1	1.89	50	
ZG38	6.0	8.0	3523439	71531	Og	CoySis			DG		21	107	530	-1	2.87	27	
ZG38	8.0	9.0	3523440	71531	Og	Sis			DG	EOH in G med g/s lst	17	62	1260	-1	1.85	50	
ZG39	0.0	2.0	3523441	71531	Qha	CvCg			DBLK		4	3	36	-1	0.32	16	
ZG39	2.0	4.0	3523442	71531	Og	Ccy			DB		5	30	18	-1	0.18	7	
ZG39	4.0	6.0	3523443	71531	Og	Ccy			DG		17	109	550	-1	0.49	13	
ZG39	6.0	7.5	3523444	71531	Og	Ccy			DG	EOH in G med g/s lst	12	223	1160	-1	1.78	20	
ZG40	0.0	2.0	3523445	71531	Qha	CgCs			LB		4	-3	8	-1	0.45	28	
ZG40	2.0	4.0	3523446	71531	Og	Coy			DB		12	384	325	-1	0.25	10	
ZG40	4.0	6.0	3523447	71531	Og	Coy			DB		27	259	1190	-1	1.04	19	
ZG40	6.0	8.0	3523448	71531	Og	Ccy			DB		17	309	3220	-1	1.84	23	
ZG40	8.0	9.8	3523449	71531	Og	Ccy			DB		15	2500	12900	1	2.52	34	
ZG14	0.0	2.0	3523450	71531	Qha	CsCv					2	76	506	-1	0.44	25	
ZG14	2.0	4.0	3523451	71531	Qha	CgCs			B		3	13	83	-1	0.37	23	
ZG14	4.0	6.0	3523452	71531	QhaOg	CsCcy			DB		4	43	100	-1	0.25	11	
ZG14	6.0	8.0	3523453	71531	Og	Ccy			LB		13	138	119	1	0.46	20	
ZG14	8.0	10.0	3523454	71531	Og	Ccy			DBG		21	273	1200	-1	0.46	12	
ZG14	10.0	12.0	3523455	71531	Og	Ccy			DBG		16	156	700	-1	1.34	30	

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APPENDIX 2: Grievas Prospect - CRAE air-core drillhole logs and assays

HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG14	12.0	14.0	3523456	71531	Og	Coy			DBG		16	274	2160	-1	1.72	23	
ZG14	14.0	15.5	3523457	71531	Og	Sta	We	Cy	DG	EOH in laminated shaley lst	12	135	1230	-1	1.43	40	
ZG41	0.0	2.0	3523458	71531	Cha	Cg			LK		4	4	10	-1	0.30	19	
ZG41	2.0	4.0	3523459	71531	Og	Coy			DBN		12	21	30	-1	0.35	17	
ZG41	4.0	6.0	3523460	71531	Og	Coy			DGN		15	20	94	-1	0.78	18	
ZG41	6.0	8.0	3523461	71531	Og	Coy			DGN		17	20	81	-1	2.84	25	
ZG41	8.0	10.0	3523462	71531	Og	Coy			DGN		15	19	41	-1	1.97	24	
ZG41	10.0	12.0	3523463	71531	Og	Coy			DGN		14	20	1610	-1	3.04	25	
ZG41	12.0	14.0	3523464	71531	Og	Coy			DGN		12	19	78	-1	1.32	21	
ZG41	14.0	16.0	3523465	71531	Og	CoySls			DGN		9	13	163	-1	1.43	85	
ZG41	16.0	18.0	3523466	71531	Og	CoySls			G		5	9	102	-1	0.91	93	
ZG41	18.0	20.0	3523467	71531	Og	CoySls			G		7	8	91	-1	2.28	76	
ZG41	20.0	21.3	3523468	71531	Og	CoySls			G	EOH in G lime mudstone	5	6	32	-1	1.26	107	
ZG42	0.0	2.0	3523469	71531	Og	Coy			B		5	9	20	-1	0.64	41	
ZG42	2.0	4.0	3523470	71531	Og	Coy			DBG		22	31	13	-1	0.29	12	
ZG42	4.0	6.0	3523471	71531	Og	Coy			DGN		28	23	37	-1	0.40	19	
ZG42	6.0	8.0	3523472	71531	Og	Coy			N		28	27	404	-1	2.77	17	
ZG42	8.0	10.0	3523473	71531	Og	Coy			DGN		22	22	239	-1	3.09	24	
ZG42	10.0	12.0	3523474	71531	Og	Sls	We	Cy	DG		18	18	35	-1	2.92	19	
ZG42	12.0	14.0	3523475	71531	Og	Sls	We	Cy	DG		20	15	18	-1	2.21	88	
ZG42	14.0	16.0	3523476	71531	Og	Sls	We	Cy	DG		24	17	164	-1	2.25	74	
ZG42	16.0	18.0	3523477	71531	Og	Sls	We	Cy	DG		19	15	259	-1	4.47	49	
ZG42	18.0	19.5	3523478	71531	Og	Sls	We	Cy	DG	EOH in G cc veined lst	15	13	147	-1	4.77	112	
ZG43	0.0	2.0	3523479	71531	Cha	CvCg			BLK		6	-3	18	-1	0.77	54	
ZG43	2.0	4.0	3523480	71531	ChaOg	CgCoy			B		3	5	35	-1	0.44	31	
ZG43	4.0	6.0	3523481	71531	Og	Coy			DG		22	28	140	-1	1.42	23	
ZG43	6.0	8.0	3523482	71531	Og	Coy			DG		24	21	57	-1	2.07	23	
ZG43	8.0	10.0	3523483	71531	Og	Coy			DG		16	14	62	-1	2.28	58	
ZG43	10.0	12.0	3523484	71531	Og	Sls	We	Cy	LG		6	8	120	-1	1.18	100	
ZG43	12.0	13.5	3523485	71531	Og	Sls	Vn	Cy	LG		6	4	32	-1	0.80	225	
ZG44	0.0	2.0	3523486	71531	Cha	Cg			LK		4	-3	5	-1	0.39	29	
ZG44	2.0	4.0	3523487	71531	Og	Coy			DB		6	-3	12	-1	0.42	22	
ZG44	4.0	6.0	3523488	71531	Og	Coy			DBG		16	18	70	-1	1.67	17	
ZG44	6.0	8.0	3523489	71531	Og	Coy			DG		22	23	68	-1	2.37	29	
ZG44	8.0	9.0	3523490	71531	Og	CoySls			DG		18	15	36	-1	2.78	57	
ZG45	0.0	2.0	3523491	71531	Cha	CgCs			LK		5	-3	5	-1	0.49	32	
ZG45	2.0	4.0	3523492	71531	Og	Coy			DB		23	56	191	-1	1.31	27	
ZG45	4.0	6.0	3523493	71531	Og	Coy			DBG		18	36	660	-1	2.45	23	
ZG45	6.0	8.0	3523494	71531	Og	Coy			DG		13	22	202	-1	1.84	25	
ZG45	8.0	10.0	3523495	71531	Og	Coy			DG		16	23	168	-1	2.10	23	
ZG45	10.0	12.0	3523496	71531	Og	Coy			DG		21	28	76	-1	2.87	32	
ZG45	12.0	14.0	3523497	71531	Og	Coy			DBG		19	23	104	-1	2.45	29	
ZG45	14.0	16.0	3523498	71531	Og	Coy			DB		17	17	268	-1	3.73	26	
ZG45	16.0	18.0	3523499	71531	Og	CoyCs			BG	Caving sands	12	10	31	-1	1.61	43	
ZG45	18.0	18.5	3523500	71531	Og	SlsCs			G	Lst + caving sands	5	3	13	-1	0.92	48	
ZG46	0.0	2.0	3523501	71531	Cha	Cg			LK		10	-3	11	-1	0.40	35	
ZG46	2.0	4.0	3523502	71531	Cha	Cg			LK		6	9	18	-1	0.43	24	
ZG46	4.0	6.0	3523503	71531	Og	Coy			DBG		13	19	61	-1	1.34	29	
ZG46	6.0	8.0	3523504	71531	Og	Coy			DBG		18	20	97	-1	1.51	19	
ZG46	8.0	10.0	3523505	71531	Og	Sls	We	Cy	DG		22	22	595	-1	3.25	37	
ZG46	10.0	12.0	3523506	71531	Og	Sls	We	Cy	G		19	17	68	-1	2.43	34	
ZG46	12.0	14.0	3523507	71531	Og	Coy			DG		15	25	83	-1	3.30	134	
ZG46	14.0	15.0	3523508	71531	Og	Sls			MLDG		6	9	21	-1	1.80	335	

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APPENDIX 2: Greaves Prospect - CRAE air-core drillhole logs and assays

HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG47	0.0	1.0	3523509	71531	Qha	Cq			LK		12	9	260	-1	1.14	33	
ZG47	1.0	2.0	3523509	71531	Og	Ccy			DBN								
ZG47	2.0	4.0	3523510	71531	Og	Ccy			DEG		22	25	450	-1	2.71	35	
ZG47	4.0	6.0	3523511	71531	Og	Ccy			DG		17	22	445	-1	2.13	28	
ZG47	6.0	8.0	3523512	71542	Og	Ccy			DG								
ZG47	8.0	10.0	3523513	71531	Og	Ccy			DEG		17	33	290	-1	3.34	40	
ZG47	10.0	12.0	3523514	71531	Og	CcySch			DG		16	20	265	-1	3.43	48	
ZG47	12.0	14.0	3523515	71531	Og	CcySch			BDG		10	31	2350	-1	7.41	38	
ZG47	14.0	16.0	3523516	71531	Og	Sls			MDG		5	9	640	-1	3.77	471	
ZG47	16.0	16.5	3523517	71531	Og	Sls			G		6	7	490	-1	4.78	1218	
ZG48	0.0	2.0			Qha	Cq				Abandoned due to gravels							
ZG49	0.0	4.0			Qha	Cq			LK								
ZG49	4.0	6.0	3523518	71531	Og	Ccy			B		6	22	77	-1	0.32	30	
ZG49	6.0	8.0	3523519	71531	Og	Ccy			DB		8	16	300	-1	0.83	26	
ZG49	8.0	10.0	3523520	71531	Og	Ccy			DB		10	24	160	-1	0.95	19	
ZG49	10.0	12.0	3523521	71531	Og	Ccy			DG		20	52	975	-1	2.92	34	
ZG49	12.0	14.0	3523522	71531	Og	Ccy			DG		13	36	575	-1	3.90	48	
ZG49	14.0	15.8	3523523	71531	Og	CcySls	We	Cy	DEG	EOH in sandy lst + bivalve fossil	8	46	215	-1	3.50	164	
ZG50	0.0	3.0			Qha	Cq			LK								
ZG50	3.0	5.0	3523524	71531	Og	Ccy			DE		13	44	735	-1	0.94	16	
ZG50	5.0	7.0	3523525	71531	Og	Ccy			DB		13	85	2350	-1	1.29	10	
ZG50	7.0	9.0	3523526	71531	Og	Ccy			DGB		14	62	3366	-1	2.00	15	
ZG50	9.0	11.0	3523527	71531	Og	Ccy			DEG		10	42	855	-1	2.55	13	
ZG50	11.0	13.0	3523528	71531	Og	Ccy			DEG		16	50	540	-1	3.45	31	
ZG50	13.0	15.0	3523529	71531	Og	Ccy			DB		17	38	885	-1	4.49	56	
ZG50	15.0	17.0	3523530	71531	Og	Ccy			DFG		13	40	1220	-1	3.81	52	
ZG50	17.0	19.0	3523531	71531	Og	Ccy			DFG		7	37	840	-1	2.38	45	
ZG50	19.0	20.0	3523532	71531	Og	CcySls			MLDG		4	10	130	-1	1.03	147	
ZG51	0.0	4.0			Qha	Cq			LK								
ZG51	4.0	8.0	3523533	71531	Og	Ccy			DG		19	32	620	-1	3.26	35	
ZG51	6.0	8.0	3523534	71531	Og	Ccy			DG		20	28	315	-1	3.15	48	
ZG51	8.0	10.0	3523535	71531	Og	Ccy			N		24	30	180	-1	2.55	60	
ZG51	10.0	12.0	3523536	71531	Og	Ccy			DG		17	20	67	-1	3.62	611	
ZG51	12.0	14.0	3523537	71531	Og	Ccy			DGN		9	12	69	-1	4.82	1479	
ZG51	14.0	16.0	3523538	71531	Og	Ccy			DCB		10	15	73	-1	4.47	985	
ZG51	16.0	18.0	3523539	71531	Og	Ccy			DGB		11	21	280	-1	5.00	705	
ZG51	18.0	20.0	3523540	71531	Og	CcySls			DG		6	11	76	-1	15.30	5500	
ZG51	20.0	22.0	3523541	71531	Og	CcySls			DG		8	13	160	-1	11.20	3646	
ZG51	22.0	24.0	3523542	71531	Og	Sls			G	Med g/s oolitic lst?	4	3	315	-1	4.96	1771	
ZG51	24.0	26.0	3523543	71531	Og	CcySls			GRB		4	13	590	-1	7.02	2148	
ZG51	26.0	28.0	3523544	71531	Og	Ccy			DGLBR		9	48	1350	-1	12.60	4449	
ZG51	28.0	30.0	3523545	71531	Og	Ccy			DG		10	27	2000	-1	20.08	6700	
ZG51	30.0	32.0	3523546	71531	Og	CcySls			DG		4	13	3323	-1	20.18	5500	
ZG51	32.0	34.0	3523547	71531	Og	Sls			DG	Carbonate sand	4	13	2250	-1	13.39	4202	
ZG51	34.0	36.0	3523548	71531	Og	Sls	We	Cy	G		5	19	3588	-1	16.29	6000	
ZG51	36.0	38.0	3523549	71531	Og	Sls			G	Sandy lst with bivariate fossil	3	13	1750	-1	14.20	5600	
ZG51	38.0	40.0	3523550	71531	Og	Ccy			DGLBRB		10	38	2150	-1	18.13	6500	
ZG51	40.0	42.0	3523551	71531	Og	Sls			G	Carbonate sand	4	21	1950	-1	14.13	5500	
ZG51	42.0	44.0	3523552	71531	Og	Sls	VuAl	Sd	G	Siderite alln	3	15	1550	-1	12.65	4760	
ZG51	44.0	46.0	3523553	71531	Og	Sls	VuAl	Sr	G	Siderite alln	2	8	1600	-1	8.74	3205	
ZG51	46.0	48.0	3523554	71531	Og	Sls	VuAl	Sr	LOG	Siderite alln	2	7	1750	-1	16.64	6900	
ZG51	48.0	50.0	3523555	71531	Og	Sls	VuAl	Sr	G	Siderite alln	2	6	1700	-1	18.79	7300	
ZG51	50.0	52.0	3523556	71531	Og	Sls	VuAl	Sr	BG	Siderite alln	2	26	12900	-1	26.92	9700	

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APPENDIX 2: Grievess Prospect - CRAE air-core drillhole logs and assays

HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	%
ZG51	52.0	54.0	3523557	71531	Og	Sls	Al	Sd	YG	Siderite aln	3	16	3755	-1	15.68	6500	
ZG52	0.0	3.0			Oha	Cg			LK								
ZG52	3.0	4.0	3523558	71531	Og	Sls			G		3	25	375	-1	1.87	883	
ZG53	0.0	3.0			Oha	Cg			LK	EOH in quartzite?							
ZG54	0.0	2.0	3523559	71531	Og	Ccy			DG		24	795	3339	1	1.06	45	
ZG54	2.0	4.0	3523560	71531	Og	Ccy	Ds	Py	DG		39	2250	6100	1	1.47	42	
ZG54	4.0	6.0	3523561	71531	Og	Ccy			DG		23	805	7600	1	1.45	39	
ZG54	6.0	8.0	3523562	71531	Og	Ccy			LOB		28	21900	258000	26	3.06	16	
ZG54	8.0	10.0	3523563	71531	Og	Ccy			LOBOG		30	26100	280000	28	4.66	20	
ZG54	10.0	12.0	3523564	71531	Og	Sls	We	Cy	LOG		14	11000	269000	22	9.82	27	
ZG54	12.0	14.0	3523565	71531	Og	Ccy			G		270	31600	181000	41	4.64	25	
ZG54	14.0	16.0	3523566	71531	Og	Sls	We	Cy	LGDG		44	7700	56100	2	1.90	37	
ZG54	16.0	18.0	3523567	71531	Og	Sls	We	Cy	DG		20	760	23000	-1	2.23	48	
ZG54	18.0	20.0	3523568	71531	Og	Ccy			N		32	1300	10200	-1	1.65	38	
ZG54	20.0	22.0	3523569	71531	Og	Ccy			G		20	251	15300	-1	1.56	42	
ZG54	22.0	24.0	3523570	71531	Og	Sls	We	Cy	DG		17	97	9000	-1	1.64	39	
ZG54	24.0	26.0	3523571	71531	Og	Sls	We	Cy	DG		19	279	4366	-1	1.27	41	
ZG54	26.0	28.0	3523572	71531	Og	Ccy			N		20	580	2600	2	2.30	56	
ZG54	28.0	30.0	3523573	71531	Om	MgCcy			WG		9	426	845	-1	1.13	39	
ZG54	30.0	32.0	3523574	71531	Om	MgSlsCcy			WG		18	180	570	-1	1.07	36	
ZG54	32.0	34.0	3523575	71531	Om	MgCcy			LG		125	545	530	7	0.81	26	
ZG54	34.0	35.5	3523576	71531	Om	Mg	Ds	Py	LG		15	438	1375	8	0.40	27	
ZG55	0.0	2.0	3523577	71531	OhaOg	CgCcy			LKB		11	1300	3442	2	1.00	169	
ZG55	2.0	4.0	3523578	71531	OgOha	CcyCg			DBLK		24	1700	17900	12	1.60	52	
ZG55	4.0	6.0	3523579	71531	Og	Ccy			DG		31	1100	13900	1	1.88	72	
ZG55	6.0	8.0	3523580	71542	Og	Ccy			DG								
ZG55	8.0	10.0	3523581	71531	Og	Ccy			DG		26	590	9300	-1	9.19	2400	
ZG55	10.0	12.0	3523582	71531	Og	CcySls	We	Cy	DGLG		15	220	6200	-1	15.42	4922	
ZG55	12.0	14.0	3523583	71531	Og	Sls	VuAlDs	SdPy	YG		6	131	15300	-1	31.60	8900	
ZG55	14.0	16.0	3523584	71531	Og	Sls	VuAl	Sd	YG		11	156	11200	-1	22.43	6600	
ZG55	16.0	18.0	3523585	71531	Og	Sls	VuAl	Sd	DYG		6	131	9200	-1	23.29	7100	
ZG56	0.0	1.5	3523586	71531	Oha	Cg			LK		12	16	400	-1	0.77	72	
ZG56	1.5	2.0	3523586	71531	Og	Ccy			B		12	16	400	-1	0.77	72	
ZG56	2.0	4.0	3523587	71531	Og	Ccy			DB		20	64	1650	-1	1.75	40	
ZG56	4.0	6.0	3523588	71531	Og	Ccy			DG		16	95	4470	-1	2.26	104	
ZG56	6.0	8.0	3523589	71531	Og	Sls			DG		5	26	1500	-1	2.85	576	
ZG56	8.0	9.5	3523590	71531	Og	Sls			DG		4	19	430	-1	1.56	414	
ZG57	0.0	2.5			Oha	Cg			LK								
ZG57	2.5	4.0	3523591	71531	Og	Ccy			DGN		17	98	340	-1	2.36	44	
ZG57	4.0	6.0	3523592	71531	Og	CcySls			DG		12	87	640	-1	2.56	30	
ZG57	6.0	8.0	3523593	71531	Og	Sls			DG	Sandy lst	12	64	720	-1	8.69	28	
ZG57	8.0	10.0	3523594	71531	Og	Ccy			DG		14	40	3100	-1	8.40	34	
ZG57	10.0	12.0	3523595	71531	Og	Ccy			DG		20	39	660	-1	4.11	39	
ZG57	12.0	14.0	3523596	71531	Og	Ccy			DG		18	84	1500	-1	3.76	69	
ZG57	14.0	14.5	3523597	71531	Og	Sls			LGDG	Fine g/s lst with shaley wisps	4	12	135	-1	1.15	135	
ZG58	0.0	2.0	3523598	71531	Oha	Cg			LK		5	3	80	-1	0.38	33	
ZG58	2.0	4.0	3523599	71531	OhaOg	CgCcy			LKDB		16	27	140	-1	1.81	27	
ZG58	4.0	6.0	3523600	71531	Og	Ccy			DG		16	30	240	-1	12.01	24	
ZG58	6.0	8.0	3523601	71531	Og	Ccy			DG		16	41	355	-1	13.89	24	
ZG58	8.0	10.0	3523602	71531	Og	Ccy			DGLOB		21	73	750	-1	4.58	35	
ZG58	10.0	10.3	3523603	71531	Og	Sls	Ma		LG	Fine g/s lst	9	38	335	-1	3.36	51	
ZG59	0.0	2.0	3523604	71531	OhaOg	CgCcy			LKDB		10	9	58	-1	0.95	32	
ZG59	2.0	4.0	3523605	71531	Og	Sls	We	Cy	DB		13	28	715	-1	2.24	15	

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cr	Pb	Zn	Ag	Fe%	Mn	SP%
ZG59	4.0	6.0	3523606	71531	Og	Sls	We	Cy	DBG		21	32	1350	-1	2.88	20	
ZG59	6.0	8.0	3523607	71531	Og	Sls	We	Cy	DB		18	33	1150	-1	2.74	22	
ZG59	8.0	10.0	3523608	71531	Og	Sls	We	Cy	DBG		21	26	580	-1	4.99	27	
ZG59	10.0	12.0	3523609	71531	Og	Sls	We	Cy	DBG		21	30	1370	-1	8.17	27	
ZG59	12.0	14.0	3523610	71531	Og	Ccy			DBG		15	26	290	-1	10.46	19	
ZG59	14.0	16.0	3523611	71531	Og	CcySls	Al	Sd	GyB		13	28	443	-1	6.53	45	
ZG59	16.0	18.0	3523612	71531	Og	Sls			DG		10	5	49	-1	0.86	122	
ZG59	18.0	20.0	3523613	71531	Og	Sls			DG		12	20	1138	-1	3.36	83	
ZG59	20.0	21.5	3523614	71531	Og	Sls			DG		15	28	911	-1	8.61	83	
ZG60	0.0	2.0	3523615	71531	Oha	Cg			LK		5	-3	18	-1	0.37	32	
ZG60	2.0	4.0	3523616	71531	Og	Sls	We	Cy	DB		21	21	45	-1	0.42	28	
ZG60	4.0	6.0	3523617	71531	Og	Sls	We		DB		23	44	265	-1	1.51	19	
ZG60	6.0	8.0	3523618	71531	Og	SlsCcy	We		DBG		18	23	460	-1	4.80	34	
ZG60	8.0	10.0	3523619	71531	Og	Ccy			DGP		15	18	200	-1	4.99	26	
ZG60	10.0	12.0	3523620	71531	Og	Ccy			DGB		18	23	215	-1	3.40	41	
ZG60	12.0	14.0	3523621	71531	Og	Ccy			DGB		18	18	105	-1	3.20	40	
ZG60	14.0	16.0	3523622	71531	Og	Sls			G		15	15	155	-1	3.23	40	
ZG60	16.0	18.0	3523623	71531	Og	CcySls			G	Bioturbated 1st	8	7	65	-1	1.25	245	
ZG60	18.0	19.0	3523624	71531	Og	Sls			LG	Bioturbated 1st	7	7	50	-1	1.67	219	
ZG61	0.0	2.0	3523625	71531	Oha	Cg			LK		3	-3	11	-1	0.25	22	
ZG61	2.0	4.0	3523626	71531	OhaOg	CsCcy			DB		73	96	45	-1	1.14	27	
ZG61	4.0	6.0	3523627	71531	Og	Ccy			G	Plus caving sands	13	10	85	-1	1.64	29	
ZG61	6.0	8.0	3523628	71531	Og	Ccy			DGDB	Plus caving sands	24	10	50	-1	3.79	47	
ZG61	8.0	10.0	3523629	71531	Og	Ccy			DGDB	Plus caving sands	13	13	41	-1	2.23	38	
ZG61	10.0	12.0	3523630	71531	Og	Ccy			DFG	Plus caving sands	14	12	30	-1	3.59	48	
ZG61	12.0	14.0	3523631	71531	Og	Ccy			DFG	Plus caving sands	16	16	76	-1	2.35	31	
ZG61	14.0	16.0	3523632	71531	Og	CcySls			DG	EOH in Bioturbated 1st	17	19	58	-1	3.20	76	
ZG62	0.0	2.0	3523633	71542	Oha	Cg			LK								
ZG62	2.0	4.0	3523634	71542	OhaOg	CsCcy			DB								
ZG62	4.0	6.0	3523635	71542	Og	Ccy			DG								
ZG62	6.0	8.0	3523636	71542	Og	Ccy			DG								
ZG62	8.0	10.0	3523637	71542	Og	Ccy			DG								
ZG62	10.0	12.0	3523638	71542	Og	Ccy			DG								
ZG62	12.0	13.5	3523639	71542	Og	Sls			DG	Bioturbated 1st							
ZG63	0.0	2.0	3523640	71531	Og	Ccy			DBN	base of gravel pit	18	25	35	-1	0.31	18	
ZG63	2.0	4.0	3523641	71531	Og	Ccy			DB		13	24	365	-1	2.31	19	
ZG63	4.0	6.0	3523642	71531	Og	Ccy			DG		15	20	295	-1	4.71	21	
ZG63	6.0	8.0	3523643	71531	Og	Ccy			DGB		17	20	235	-1	2.27	27	
ZG63	8.0	10.0	3523644	71531	Og	Ccy			DGN		16	19	290	-1	3.51	27	
ZG63	10.0	11.5	3523645	71531	Og	CcySls	Ma		DG	Fine g/s 1st	17	16	53	-1	2.40	182	
ZG64	0.0	2.0	3523646	71531	Oha	CsCg			LK		3	-3	20	-1	0.27	24	
ZG64	2.0	4.0	3523647	71531	Og	Ccy			DG	Soupy	18	6	46	-1	0.64	20	
ZG64	4.0	5.5	3523648	71531	Og	CcySls			DG		14	10	125	-1	3.17	36	
ZG65	0.0	2.0	3523649	71531	OhaOg	CgCvCcy			B		7	9	28	-1	0.39	28	
ZG65	2.0	3.0	3523650	71531	Og	CcySls			DG		23	33	170	-1	1.24	30	
ZG66	0.0	2.0	3523651	71531	OgOha	CcyCg			DGB		11	11	58	-1	0.73	31	
ZG66	2.0	3.7	3523652	71531	Og	CcySls			DGN		24	17	895	-1	2.13	54	
ZG67	0.0	2.0	3523653	71531	OgOha	CcyCg			LB		2	-3	18	-1	0.29	19	
ZG67	2.0	4.0	3523654	71531	Og	Ccy			DG		21	22	105	-1	2.03	32	
ZG67	4.0	6.0	3523655	71531	Og	Ccy			DGB		18	19	495	-1	3.36	37	
ZG67	6.0	6.8	3523656	71531	Og	Sls	Vn	Cc	G		9	9	320	-1	2.68	66	
ZG68	0.0	1.0	3523657	71531	Oha	Cg			LK		6	-3	25	-1	1.81	37	
ZG68	1.0	2.0	3523657	71531	Og	Ccy			B		6	-3	25	-1	1.81	37	

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLJTH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG68	2.0	4.0	3523658	71531	Og	Coy			DB		12	14	54	-1	7.37	35	
ZG68	4.0	6.0	3523659	71531	Og	Coy			DB		19	38	995	-1	4.74	28	
ZG68	6.0	8.0	3523660	71531	Og	Coy			DG		12	22	465	-1	2.77	66	
ZG68	8.0	8.5	3523661	71531	Og	Coy			LG	Coarse sandy lst	6	4	1507	-1	13.16	81	
ZG69	0.0	2.0	3523662	71531	Oha	Cg			LK		3	-3	30	-1	0.35	27	
ZG69	2.0	4.0	3523663	71531	Og	Coy			DB		6	6	53	-1	8.45	27	
ZG69	4.0	4.1	3523664	71531	Og	Coy			DBG	EOH in cherty lst	10	21	46	-1	2.36	43	
ZG70	0.0	1.0	3523665	71531	Oha	Cg			LK		7	4	21	-1	0.54	24	
ZG70	1.0	2.0	3523665	71531	Og	Coy			DB		7	4	21	-1	0.54	24	
ZG70	2.0	4.0	3523666	71531	Og	Coy			DBG		16	25	675	-1	9.37	32	
ZG70	4.0	6.0	3523667	71531	Og	Coy			DG		22	21	165	-1	4.15	37	
ZG70	6.0	7.0	3523668	71531	Og	Sls			LG	Lime mudstone with shaley wlsps	8	7	35	-1	2.93	109	
ZG71	0.0	1.0	3523669	71531	Oha	Cg			LK		12	12	110	-1	1.16	22	
ZG71	1.0	2.0	3523669	71531	Og	Coy			DB		12	12	110	-1	1.16	22	
ZG71	2.0	4.0	3523670	71531	Og	Coy			DG		18	19	175	-1	3.60	27	
ZG71	4.0	6.0	3523671	71531	Og	Coy			DG		20	14	73	-1	8.75	31	
ZG71	6.0	7.0	3523672	71531	Og	Coy			DG	EOH in DG fine g/s lst	10	9	93	-1	6.65	82	
ZG72	0.0	2.0	3523673	71531	Oha	Cs			LB		7	16	625	-1	2.51	25	
ZG72	2.0	4.0	3523674	71531	Og	Coy			DB	Minor sand	17	74	3830	-1	4.66	21	
ZG72	4.0	4.8	3523675	71531	Og	CoySls			BLG	Coarse g/s lst	15	155	2200	-1	2.67	81	
ZG73	0.0	3.0			Oha	Cg			LK								
ZG73	3.0	5.0	3523676	71531	OgOha	CoyCs			DBG	Minor sand	14	40	200	-1	1.97	30	
ZG73	5.0	7.0	3523677	71531	Og	Coy			DG	Minor caving sand	19	38	260	-1	3.49	44	
ZG73	7.0	9.0	3523678	71531	Og	Sls	We	Cy	DB		16	62	720	-1	3.42	36	
ZG73	9.0	11.0	3523679	71531	Og	Coy			G		15	55	1325	-1	4.19	39	
ZG73	11.0	12.8	3523680	71531	Og	CoySls	Ma		G	Fine g/s massive lst	21	24	590	-1	2.67	49	
ZG74	0.0	2.0	3523681	71531	Oha	Cg			LK		3	15	141	-1	0.35	27	
ZG74	2.0	3.0	3523682	71531	Oha	Cg			LK		15	331	15000	-1	16.54	2002	
ZG74	3.0	4.0	3523682	71531	Og	Coy			G		15	331	15000	-1	16.54	2002	
ZG74	4.0	6.0	3523683	71531	Og	Coy			G		24	670	13400	1	4.39	501	
ZG74	6.0	8.0	3523684	71531	Og	Coy			G		29	750	26000	1	12.00	1082	
ZG74	8.0	10.0	3523685	71531	Og	Coy			G		19	257	26000	1	15.32	1794	
ZG74	10.0	12.0	3523686	71531	Og	Coy			G		28	840	39300	1	11.84	1431	
ZG74	12.0	14.0	3523687	71531	Og	CoySls			G	Minor sandy lst	170	2150	42600	5	18.46	2615	
ZG74	14.0	14.5	3523688	71531	Og	Sls	Ma		G	Massive sandy lst + minor clay	29	990	30900	1	19.33	1761	
ZG75	0.0	1.5	3523689	71532	Oha	Cg			LK		2	-3	50	-1	0.37	31	
ZG75	1.5	2.5			Oha	Cg			LK								
ZG75	2.5	4.0	3523690	71532	Oha	Cg			LK		4	-3	48	-1	0.29	24	
ZG75	4.0	6.0	3523691	71532	OgOha	CoyCs			EG	Lot of caving sand	6	72	2951	-1	0.34	27	
ZG75	6.0	8.0	3523692	71532	OgOha	CoyCs			EG	Lot of caving sand	8	79	6400	-1	0.42	32	
ZG75	8.0	10.0	3523693	71532	OgOha	CoyCs			EG	Lot of caving sand	6	56	4674	1	0.49	34	
ZG75	10.0	12.0	3523694	71532	Og	Coy			EG	Minor caving sand	9	168	7400	-1	0.70	48	
ZG75	12.0	14.0	3523695	71532	Og	CoySls			BLG	Fine g/s massive lst	20	236	34400	-1	3.18	676	
ZG76	0.0	3.0			Oha	Cg			LK								
ZG76	3.0	4.0	3523696	71532	Oha	Cg			LK		10	38	929	-1	0.62	37	
ZG76	4.0	5.0	3523696	71532	Og	Coy			EG		10	38	929	-1	0.62	37	
ZG76	5.0	7.0	3523697	71532	OgOha	CoyCs			LBDG	Caving sand and grit	12	88	3329	-1	1.37	367	
ZG76	7.0	8.4	3523698	71532	Og	CoySls			BLG	Fine g/s massive lst	5	15	1648	-1	1.60	533	
ZG77	0.0	4.7			Oha	Cg			LK								
ZG77	4.7	5.0	3523699	71532	Og	Coy			DBG		19	246	3734	1	2.59	91	
ZG77	5.0	5.3	3523700	71532	Og	CoySls			G	Minor massive med g/s lst	11	211	2128	1	1.40	158	
ZG78	0.0	4.0			Oha	Cg			LK								
ZG78	4.0	4.9	3523701	71532	Og	CoySls			G	G fine g/s lst	9	19	748	-1	1.03	100	

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG79	0.0	2.0			Qha	Cg			LK								
ZG79	2.0	3.0	3523702	71532	Qha	Cg			LK		13	131	965	-1	2.75	30	
ZG79	3.0	4.0	3523702	71532	Og	Coy			DG		13	131	965	-1	2.75	30	
ZG79	4.0	6.0	3523703	71532	Og	Coy			DG		18	67	1120	-1	4.49	53	
ZG79	6.0	8.0	3523704	71532	Og	CoySls			GLO	DG fine g/s lst	17	38	270	-1	2.19	56	
ZG79	8.0	9.6	3523705	71532	Og	Sls	Ma		DG	DG fine g/s lst	9	21	230	-1	1.72	124	
ZG80	0.0	2.0	3523706	71532	Og	CoyCv			LGB	Minor veg/peat	47	695	41	-1	0.41	24	
ZG80	2.0	4.0	3523707	71532	Og	Coy			DGOBLB		140	815	81	1	2.23	32	
ZG80	4.0	6.0	3523708	71532	Og	CoySls			LG	WG sandy lst	11	690	28	-1	0.46	23	
ZG80	6.0	8.0	3523709	71532	Og	Sls			LGDG	Sandy lst	37	356	41	1	0.49	26	
ZG80	8.0	10.0	3523710	71532	Og	SlsCoy			LGDG	Sandy lst	77	695	861	2	1.43	34	
ZG80	10.0	12.0	3523711	71532	Og	Coy			N		31	423	3040	1	3.06	50	
ZG80	12.0	14.0	3523712	71532	Og	Coy	Ds	Py	N	Abundant Py	23	464	4280	1	11.34	45	
ZG80	14.0	16.0	3523713	71532	Og	Coy	Ds	Py	G	Abundant Py	30	715	2299	2	23.95	30	
ZG80	16.0	18.0	3523714	71532	Og	Sls	Ds	Py	G	Sandy lst + Py washing in?	20	510	706	-1	17.64	102	
ZG80	18.0	19.7	3523715	71532	Og	Sls	Ds	Py	G	Sandy lst + Py washing in?	7	487	682	-1	2.52	160	
ZG81	0.0	2.0	3523716	71532	QhaOg	CoyCvCg			EG		8	46	35	-1	0.52	33	
ZG81	2.0	4.0	3523717	71532	OgQha	CoyCg			LB	Minor gravel	3	39	25	-1	0.35	26	
ZG81	4.0	6.0	3523718	71532	Og	Coy			EG		27	300	3378	-1	3.64	30	
ZG81	6.0	8.0	3523719	71532	Og	Sls			G	Sandy lst	16	84	460	-1	3.89	236	
ZG81	8.0	9.5	3523720	71532	Og	Sls			G	Med-fine g/s lst	9	44	215	-1	2.02	378	
ZG82	0.0	2.0	3523721	71532	Qha	Cg			LK		5	32	85	-1	0.53	37	
ZG82	2.0	4.0	3523722	71532	QhaOg	CgCoy			LKGB		12	68	623	-1	1.28	47	
ZG82	4.0	6.0	3523723	71532	Og	Coy			DGB		26	123	2186	-1	3.79	43	
ZG82	6.0	8.0	3523724	71532	Og	Sls			G		10	344	1464	-1	2.03	288	
ZG82	8.0	9.5	3523725	71532	Og	Sls	Vn	Sd	G		3	276	911	-1	1.07	328	
ZG83	0.0	2.0	3523726	71532	Qha	CvCg			B		16	321	2461	1	1.28	56	
ZG83	2.0	2.5	3523727	71532	Og	Sls	We	Cy	DGOB		14	1700	7000	-1	0.99	163	
ZG84	0.0	2.0	3523728	71532	QhaOg	CvCoyCg			B		7	92	140	-1	0.45	34	
ZG84	2.0	4.0	3523729	71532	Og	Coy			DB		20	505	3266	-1	2.34	35	
ZG84	4.0	6.0	3523730	71532	Og	Coy			DBG		21	1950	4412	1	3.68	56	
ZG84	6.0	8.0	3523731	71532	Og	Coy			DB		30	3600	15400	2	4.87	105	
ZG84	8.0	10.0	3523732	71532	Og	Sls	We	Cy	DB		20	1800	7200	1	4.91	140	
ZG84	10.0	10.5	3523733	71532	Og	Sls	Ma		G	Med g/s lst	7	335	1370	-1	2.99	210	
ZG85	0.0	2.0	3523734	71532	QhaOg	CgCoy			LKB		10	289	471	-1	0.76	37	
ZG85	2.0	4.0	3523735	71532	Og	Coy			DB		29	2250	4117	1	1.70	38	
ZG85	4.0	6.0	3523736	71532	Og	Sls	Ma		G		7	409	535	-1	0.99	244	
ZG85	6.0	6.4	3523737	71532	Og	Sls	Ma		G	Med g/s lst	7	209	370	-1	1.08	202	
ZG86	0.0	8.0	3523738	71532	Qha	CgCs			LK		6	18	34	-1	0.43	31	
ZG86	8.0	8.5	3523739	71532	Qha	Cg			LK		75	5400	2547	4	2.30	51	
ZG86	8.5	10.0	3523739	71532	Og	Coy			DG	Minor caving sand	75	5400	2547	4	2.30	51	
ZG86	10.0	12.0	3523740	71532	Og	Coy			DG	EOH in med-fine g/s massive lst	46	5700	1303	5	1.36	63	
ZG87	0.0	2.0	3523741	71532	QhaOg	CvCoyCg			B		5	20	22	-1	0.53	31	
ZG87	2.0	4.0	3523742	71532	OgQha	CoyCg			DB	Minor gravels	17	555	855	-1	2.35	28	
ZG87	4.0	6.0	3523743	71532	Og	SlsCoy	Al	Sd	BYG		12	94	430	-1	1.78	39	
ZG87	6.0	8.0	3523744	71532	Og	Coy			DB		16	174	676	-1	3.01	36	
ZG87	8.0	9.3	3523745	71532	Og	Sls	Ma		G	Minor G clay	17	97	822	-1	2.88	41	
ZG88	0.0	2.0	3523746	71532	QhaOg	CgCoy			LKGB		13	70	32	-1	0.47	28	
ZG88	2.0	4.0	3523747	71532	Og	CoySls			GBN		36	645	295	-1	1.57	28	
ZG88	4.0	6.0	3523748	71532	Og	CoySls			GBN		20	240	873	-1	2.92	35	
ZG88	6.0	8.0	3523749	71532	Og	CoySls			GBN		15	426	705	1	2.22	39	
ZG88	8.0	10.0	3523750	71532	Og	CoySls			GB		18	227	300	-1	1.28	34	
ZG88	10.0	12.0	3523751	71532	Og	SlsCoy			GBLB		14	70	150	-1	0.63	26	

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG88	12.0	14.0	3523752	71532	Og	SisCcy			GB		18	73	130	-1	0.87	31	
ZG88	14.0	16.0	3523753	71532	Og	Sis			N		20	61	160	-1	1.35	47	
ZG89	0.0	2.0	3523754	71532	Qha	Cg			LK		9	11	23	-1	0.67	30	
ZG89	2.0	4.0	3523755	71532	Og	CcySis			LBG		8	19	31	-1	0.74	29	
ZG89	4.0	6.0	3523756	71532	Og	CcySis			LBG		11	31	27	-1	0.79	28	
ZG89	6.0	8.0	3523757	71532	Og	CcySis			LBG		10	12	27	-1	0.81	29	
ZG89	8.0	10.0	3523758	71532	Og	SisCcy			GB		62	10	130	-1	1.40	31	
ZG89	10.0	12.0	3523759	71532	Og	SisCcy			GBLG		26	6	79	-1	1.81	29	
ZG89	12.0	14.0	3523760	71532	Og	SisCcy			GB		25	10	42	-1	2.53	36	
ZG89	14.0	16.0	3523761	71532	Og	SisCcy			GB		16	10	33	-1	1.26	33	
ZG89	16.0	18.0	3523762	71532	Og	SisCcy			GB		40	25	63	-1	2.58	41	
ZG89	18.0	20.0	3523763	71532	Og	SisCcy			GB		49	44	1054	-1	4.79	50	
ZG89	20.0	22.0	3523764	71532	Og	SisCcy			GB		21	52	285	-1	2.63	51	
ZG89	22.0	24.0	3523765	71532	Og	SisCcy			GB		20	51	110	-1	2.36	48	
ZG89	24.0	26.0	3523766	71532	Og	SisCcy			GB		25	63	145	-1	3.12	44	
ZG89	26.0	28.0	3523767	71532	Og	Ccy			G		26	92	175	-1	3.99	46	
ZG89	28.0	30.0	3523768	71532	Og	Ccy	Ds	Py	G		15	118	540	-1	26.17	66	
ZG89	30.0	32.0	3523769	71532	Og	SisCcy	Ds	Py	GB		7	68	425	-1	22.77	129	
ZG89	32.0	34.0	3523770	71532	Og?	Mq					6	31	230	-1	8.78	288	
ZG90	0.0	2.0	3523771	71532	Qha	Cg			LK		5	-3	16	-1	0.58	38	
ZG90	2.0	4.0	3523772	71532	Og	Ccy			GB		20	84	652	-1	2.55	36	
ZG90	4.0	6.0	3523773	71532	Og	Ccy			GB		19	203	950	-1	3.20	52	
ZG90	6.0	8.0	3523774	71532	Og	SisCcy			EG	Fossiliferous	8	38	450	-1	1.73	492	
ZG90	8.0	10.0	3523775	71532	Og	Sis			LGB		5	24	200	-1	1.93	552	
ZG90	10.0	10.3	3523776	71532	Og	Sis			LGB		5	24	215	-1	1.39	563	
ZG91	0.0	2.0	3523777	71532	Qha	CgCv			B		5	11	27	-1	0.64	39	
ZG91	2.0	4.0	3523778	71532	Og	Ccy			GB		20	315	1844	-1	2.30	47	
ZG91	4.0	6.0	3523779	71532	Og	Ccy			GB		22	187	4921	-1	9.05	57	
ZG91	6.0	8.0	3523780	71532	Og	Ccy			GB		27	1200	5300	-1	12.14	52	
ZG91	8.0	10.0	3523781	71532	Og	SisCcy			GB		11	850	1691	-1	13.20	178	
ZG91	10.0	12.0	3523782	71532	Og	SisCcy	Ds	Py	GB		5	370	695	-1	0.76	319	
ZG91	12.0	14.0	3523783	71532	Og	Sis			GB		3	246	195	-1	0.50	271	
ZG91	14.0	16.0	3523784	71532	Og	Sis			GN		4	416	285	-1	0.61	293	
ZG91	16.0	18.0	3523785	71532	Og	Sis			GN		4	464	270	-1	0.83	313	
ZG92	0.0	2.0	3523786	71532	QhaOg	CgCvCcy			B		9	432	603	-1	1.09	36	
ZG92	2.0	4.0	3523787	71532	Og	Ccy			GB		34	15200	12900	-1	8.97	51	
ZG92	4.0	6.0	3523788	71532	Og	Ccy			GB		41	13100	10600	-1	10.66	62	
ZG92	6.0	8.0	3523789	71532	Og	SisCcy			GB		13	2400	2335	-1	2.05	151	
ZG92	8.0	9.0	3523790	71532	Og	Sis			G		5	550	460	-1	0.91	151	
ZG93	0.0	2.0	3523791	71532	QhaOg	CgCvCcy			B		4	59	55	-1	0.34	23	
ZG93	2.0	4.0	3523792	71532	Og	Ccy			VB		12	378	793	-1	3.87	51	
ZG93	4.0	4.5	3523793	71532	Og	Sis			G		3	40	94	-1	0.34	139	
ZG94	0.0	1.8	3523794	71532	QhaOg	CgCcySis			EG		6	26	57	-1	0.49	37	
ZG95	0.0	2.0	3523795	71532	QhaOg	CgCvCcy			B		7	190	165	-1	0.31	21	
ZG95	2.0	3.0	3523796	71532	Og	Sis			G		9	775	707	-1	1.18	111	
ZG96	0.0	2.0	3523797	71532	QhaOg	CgCcy			LKB		8	161	270	-1	0.77	23	
ZG96	2.0	4.0	3523798	71532	Og	SisCcy			DCB		9	338	1007	-1	15.42	25	
ZG96	4.0	6.0	3523799	71532	Og	SisCcy			DCB		13	640	800	-1	4.48	30	
ZG96	6.0	8.0	3523800	71532	Og	Sis			GN		10	60	1373	-1	2.28	74	
ZG97	0.0	2.0	3523801	71532	QhaOg	CgCcy			B		4	32	20	-1	0.46	25	
ZG97	2.0	4.0	3523802	71532	Og	Ccy			LB		9	70	150	-1	0.79	22	
ZG97	4.0	6.0	3523803	71532	Og	Ccy			LB		14	36	799	-1	1.57	30	
ZG97	6.0	8.0	3523804	71532	Og	SisCcy			GNGB		14	27	395	-1	1.74	48	

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG97	8.0	10.0	3523805	71532	Og	SlsCcy			GNGB		14	16	98	1	1.68	57	
ZG97	10.0	12.0	3523806	71532	Og	SlsCcy			GNLG		12	14	145	1	1.42	56	
ZG97	12.0	13.0	3523807	71532	Og	Sls			GN		11	13	94	1	1.97	193	
ZG98	0.0	2.0	3523808	71532	QhaOg	CgCcy			LKB		4	11	37	1	0.80	39	
ZG98	2.0	4.0	3523809	71532	Og	Ccy			G		23	11	32	-1	0.85	35	
ZG98	4.0	6.0	3523810	71532	Og	Ccy			G		33	9	55	-1	1.00	38	
ZG98	6.0	8.0	3523811	71532	Og	SlsCcy			G		21	12	105	-1	1.29	39	
ZG98	8.0	10.0	3523812	71532	Og	SlsCcy			G		17	20	100	-1	1.58	39	
ZG98	10.0	12.0	3523813	71532	Og	SlsCcy			G		19	20	130	-1	1.67	36	
ZG98	12.0	14.0	3523814	71532	Og	SlsCcy			G		17	22	110	-1	1.51	40	
ZG98	14.0	16.0	3523815	71532	Og	SlsCcy			G		15	47	170	-1	1.76	48	
ZG98	16.0	18.0	3523816	71532	Og	SlsCcy			G		20	49	300	-1	2.04	55	
ZG98	18.0	20.0	3523817	71532	Og	SlsCcy			G		21	80	732	-1	2.04	49	
ZG98	20.0	22.0	3523818	71532	Og	Ccy			LBG		22	119	390	-1	1.96	137	
ZG98	22.0	24.0	3523819	71532	Og	Ccy			LB		18	71	450	-1	1.57	70	
ZG98	24.0	25.8	3523820	71532	Og	CcySls			LBN		12	100	485	-1	10.13	174	
ZG99	0.0	2.0	3523821	71532	Qha	Cg			LK		9	26	100	-1	1.43	37	
ZG99	2.0	4.0	3523822	71532	Og	Ccy			GB		16	65	505	-1	2.22	36	
ZG99	4.0	6.0	3523823	71532	Og	Ccy			VB		24	429	1641	1	6.59	83	
ZG99	6.0	8.0	3523824	71532	Og	Ccy			VB		6	269	370	-1	2.22	455	
ZG99	8.0	10.0	3523825	71532	Og	SlsCcy			GB		4	79	160	-1	2.29	664	
ZG99	10.0	12.0	3523826	71532	Og	SlsCcy			GVB		4	92	150	-1	0.94	342	
ZG99	12.0	14.0	3523827	71532	Og	SlsCcy			GVB		6	84	130	-1	0.97	307	
ZG99	14.0	16.0	3523828	71532	Og	SlsCcy	Ds	Py	GB		5	107	99	-1	1.47	345	
ZG99	16.0	18.0	3523829	71532	Og	SlsCcy	Ds	Py	GB		12	248	240	-1	2.82	369	
ZG99	18.0	20.0	3523830	71532	Og	Ccy			LGB		25	489	769	-1	3.83	173	
ZG99	20.0	22.0	3523831	71532	Og	Ccy			LB		14	275	815	-1	3.05	166	
ZG99	22.0	23.8	3523832	71532	Og	Sls			G		3	51	195	-1	2.81	212	
ZG100	0.0	2.0	3523833	71532	Qha	CgCv			B		5	27	150	-1	0.43	29	
ZG100	2.0	2.4	3523834	71532	Og	CcySls			B		6	27	150	-1	0.73	85	
ZG101	0.0	2.0	3523835	71532	Qha	Cg			LK		3	3	8	-1	0.35	28	
ZG101	2.0	3.5	3523836	71532	Og	CcySls			B		11	16	49	-1	0.85	38	
ZG102	0.0	2.0	3523837	71532	Og	SshCcy	We		B		14	271	205	1	1.17	12	
ZG102	2.0	4.0	3523838	71532	Og	SshCcy	We		B		10	92	445	-1	4.59	21	
ZG102	4.0	6.0	3523839	71532	Og	SshCcy	We		B		18	150	885	-1	2.53	23	
ZG102	6.0	8.0	3523840	71532	Og	SshCcy	We		B		29	130	375	-1	1.73	40	
ZG102	8.0	10.0	3523841	71532	Og	Ccy			VB		22	282	1003	1	4.83	108	
ZG102	10.0	12.0	3523842	71532	Og	Ccy			VB		21	397	1095	1	2.69	167	
ZG102	12.0	14.0	3523843	71532	Og	Ccy			VB		31	530	1115	1	8.93	148	
ZG102	14.0	16.0	3523844	71532	Og	Ccy			VB		18	500	857	1	8.40	147	
ZG102	16.0	18.0	3523845	71532	Og	Sls	Vn	Cc	B		2	30	98	-1	0.45	238	
ZG102	18.0	20.0	3523846	71532	Og	Sls	Vn	Cc	B		5	105	230	-1	1.01	696	
ZG103	0.0	2.0	3523847	71532	QhaOg	CgCcy			LKB		12	65	155	-1	1.00	59	
ZG103	2.0	4.0	3523848	71532	Og	Ccy			GB		16	53	155	-1	2.93	45	
ZG103	4.0	4.7	3523849	71532	Og	CcySls			GB		12	44	250	-1	3.43	121	
ZG108	0.0	2.0			Qha	Cg											
ZG108	2.0	4.0	3758001	77120	Og	Ccy			MDGB	gritty	129	2473	4109	1	0.54	25	
ZG108	4.0	6.0	3758002	77120	Og	Ccy			DB	decomposed Sls frags	124	2200	21100	1	1.09	29	2.50
ZG108	6.0	8.0	3758003	77120	Og	Ccy			DG	gritty	90	1500	11700	1	0.91	22	1.55
ZG108	8.0	10.0	3758004	77120	Og	Sls			LB	decomposed	28	600	103000	1	3.43	24	9.40
ZG108	10.0	12.0	3758005	77120	Og	Ccy			DB	decomposed Sls frags	26	500	53800	1	2.55	135	5.50
ZG108	12.0	14.0	3758006	77120	Og	Ccy			B	Sls frags	9	200	10700	1	0.96	212	1.20
ZG108	14.0	16.0	3758007	77120	Og	Ccy			DG	calc arenite Sls frags	8	28	1621	-1	0.61	183	

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HOLE	DFROM	DTO	SAMPNO	DPO	BMLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG108	16.0	18.0	3758008	77120	Og	Ccy			DG	W-G carbonaceous Sls frags	7	37	1796	-1	1.25	366	
ZG108	18.0	20.0	3758009	77120	Og	Sls			LG	with qtz, + vein calcite - fault?	6	81	4794	-1	1.34	273	
ZG108	20.0	21.0	3758010	77120	Og	Sls			LG	with qtz, + vein calcite - fault?	6	78	3105	-1	0.88	196	
ZG108	21.0	24.0	3758011	77120	Og	Sls				broken, prominent calcite + qtz veining	5	60	3334	-1	1.90	824	
ZG108	24.0	26.0	3758012	77120	Og	Sls				broken, prominent calcite + qtz veining	4	221	3001	-1	0.72	201	
ZG108	26.0	28.0	3758013	77120	Og	Sls	Ds	Py	DG	prominent vein calcite, minor clay	52	2500	7200	2	0.94	380	
ZG108	28.0	30.0	3758014	77120	Og	Ccy			DG	lesser Sls with prominent calcite & qtz veining	9	300	17300	1	4.25	1205	0.57
ZG108	30.0	31.0	3758015	77120	Og	Sls			DG	foliated, calcite veined	9	200	10900	-1	2.86	947	0.69
ZG109a	0.0	3.0			Qha	Cg											
ZG109a	3.0	4.0			Og	Ccy			B								
ZG109a	4.0	5.0	3909067	77130	Og	Sls			G	calc-arenite	3	38	3573	-1	0.68	188	
ZG109	0.0	6.0			Qha	Cg											
ZG110	0.0	12.0			Qha	Cg											
ZG110	12.0	13.0	3758016	77120	Og	Sls			C	calcite veined, lesser B Ccy	3	51	5800	-1	2.41	113	
ZG111	0.0	3.0			Qha	Cg											
ZG111	3.0	4.0	3758017	77120	Og	Ccy			B		10	34	544	-1	1.29	42	
ZG111	4.0	6.0	3758018	77120	Og	Ccy			BN	minor Sls frags	10	68	1313	-1	1.35	117	
ZG111	6.0	8.0	3758019	77120	Og	Ccy			DG	prominent vein calcite + Sls	4	16	325	1	0.56	87	
ZG111	8.0	8.5	3758020	77120	Og	Sls			DG	prominent calcite veining	6	27	829	-1	0.80	108	
ZG112	0.0	4.0			Qha	Cg											
ZG113	0.0	4.3			Qha	Cg											
ZG113	4.3	6.0	3758021	77120	Og	Ccy			DB		10	58	1789	-1	1.38	29	
ZG113	6.0	8.0	3758022	77120	Og	Ccy			DB		10	43	1402	1	2.58	41	
ZG113	8.0	10.0	3758023	77120	Og	Ccy			DB		17	70	2192	-1	3.13	41	
ZG113	10.0	12.0	3758024	77120	Og	Ccy			DB		19	128	5600	1	6.36	50	
ZG113	12.0	12.5	3758025	77120	Og	Ccy			DB	bottomed in oolitic Sls with calcite veining	7	25	964	1	2.26	51	
ZG114	0.0	6.0			Qha	Cg											
ZG114	6.0	8.0	3758026	77120	Og	Ccy			DCB	DG calcite veined calc-arenite frags	21	112	7400	2	4.98	69	
ZG114	8.0	9.0	3758027	77120	Og	Ccy			NDB	hole finished when rod string parted	15	57	1632	-1	2.58	86	
ZG115	0.0	2.8			Qha	Cg											
ZG115	2.8	4.0	3758028	77120	Og	Ccy			LGLB		41	2300	93200	2	1.48	131	4.60
ZG115	4.0	6.0	3758029	77120	Og	Ccy			LB		65	4400	41600	3	1.84	83	2.25
ZG115	6.0	8.0	3758030	77120	Og	Ccy			LGLB		72	3200	49600	3	3.67	493	2.55
ZG115	8.0	10.0	3758031	77120	Og	Ccy			LBLG	lesser sandy Sls	21	600	30200	1	4.24	1427	2.50
ZG115	10.0	12.0	3758032	77120	Og	Sls				minor G-B clay	7	172	52300	1	9.53	5300	0.90
ZG115	12.0	14.0	3758033	77120	Og	Ccy			DG	lesser sandy Sls	21	600	26800	1	3.75	910	2.90
ZG115	14.0	16.0	3758034	77120	Og	Ccy			DG	lesser sandy Sls	25	4400	15400	3	2.35	507	1.55
ZG115	16.0	18.0	3758035	77120	Og	Ccy			DG	lesser sandy Sls	1369	4200	41700	24	8.06	2092	1.80
ZG115	18.0	20.0	3758036	77120	Og	Ccy	AI	Sd	DG	minor bands of YG sideritic carbonate	2623	24100	71900	69	12.30	1829	3.50
ZG115	20.0	22.0	3758037	77120	Og	Ccy	AI	Sd	LGDG	rare YB carbonate with Sd	167	6100	32000	7	7.25	620	3.00
ZG115	22.0	24.0	3758038	77120	Og	Ccy	AI	Sd	G	minor Sd carbonate frag.	53	4300	35800	4	9.37	2872	2.45
ZG115	24.0	26.0	3758039	77120	Og	Sls			DG	sandy, lesser DG clay	23	400	43900	1	17.80	5500	2.80
ZG115	26.0	28.0	3758040	77120	Og	Sls	AI	SdSu?		honeycombed, heavy, broken, lesser N clay	33	300	69700	1	29.40	8800	1.05
ZG115	28.0	28.5	3758041	77120	Og	Sls	AI	SdSu?		honeycombed, heavy, broken, lesser N clay	82	700	72300	2	21.10	8600	0.83
ZG116	0.0	3.1			Qha	Cg											
ZG116	3.1	3.5			Og	Ccy											
ZG116	3.5	6.0	3758042	77120	Og	Ccy			MDGLB		56	2000	13200	2	3.33	602	1.15
ZG116	6.0	8.0	3758043	77120	Og	Ccy	AID5	SdPy	DG	lesser Sls	35	1200	84500	1	8.29	3982	1.80
ZG116	8.0	10.0	3758044	77120	Og	Ccy	AID5	SdPy	MG	lesser Sls	27	900	114000	1	9.39	6200	1.65
ZG116	10.0	12.0	3758045	77120	Og	Ccy			MGO	lesser Sls	228	13000	63700	4	13.10	4839	1.35
ZG116	12.0	14.0	3758046	77120	Og	Ccy			MRLB	sim. to clays in DDH106 at same strat. level	60	2500	21900	3	9.71	2010	0.09
ZG116	14.0	16.0	3758047	77120	Og	Ccy			MBR	with qtz	47	5900	9500	1	9.14	659	
ZG116	16.0	18.0	3758048	77120	Og	Ccy			O	trace highly reflective W banding	56	3520	2697	1	10.20	221	

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HOLE	DFROM	DTO	SAMPNO	DPO/BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG116	18.0	20.0	3758049	77120	Og	Ccy		O	trace highly reflective W banding	50	2008	4456	1	10.10	362	
ZG116	20.0	22.0	3758050	77120	Og	Ccy		FB		69	2000	7600	1	19.80	993	
ZG116	22.0	24.0	3758051	77120	Og	Ccy		FB		73	1700	7100	1	15.40	1010	
ZG116	24.0	26.0	3758052	77120	Og	Ccy		FB	heamaltitic	40	834	3249	1	15.80	583	
ZG116	26.0	28.0	3758053	77120	Og	Ccy		FB	heamaltitic	82	6700	6700	1	19.40	858	
ZG116	28.0	30.0	3758054	77120	Og	Ccy		LB		66	10400	3800	-1	11.50	378	
ZG116	30.0	32.0	3758055	77120	Og	Ccy		LB	lesser chert (Om)	40	6700	2300	1	7.36	231	
ZG116	32.0	34.0	3758056	77120	Og	Ccy		LB	lesser chert (Om)	25	2803	1398	1	4.53	178	
ZG116	34.0	35.0	3758057	77120	Om	Sch			prominent LB clay	34	3625	1812	1	6.16	226	
ZG117	0.0	4.0			Qha	Cg										
ZG117	4.0	6.0	3908998	77129	Og	Ccy		B	peaty	68	3500	78600	-1	1.39	52	5.68
ZG117	6.0	8.0	3908999	77129	Og	Ccy		MLBDG		15	162	73200	-1	1.70	110	5.47
ZG117	8.0	10.0	3909000	77129	Og	Ccy		MLBDG		22	600	112000	-1	2.39	110	8.09
ZG117	10.0	12.0	3909058	77129	Og	Ccy		DG	lesser K fine Sst	66	9400	13800	2	2.95	351	0.91
ZG117	12.0	14.0	3909059	77129	Og	Sls		DG	calc-arenite, lesser K fine Sst + DG clay	15	516	18100	-1	2.23	421	1.56
ZG117	14.0	16.0	3909060	77129	Og	Sls		DG	granular calc-arenite, lesser DG clay	10	238	15500	-1	2.19	336	1.75
ZG117	16.0	18.0	3909061	77129	Og	Sls	Vn	DG	granular calc-arenite, lesser DG clay	11	333	14100	1	1.97	705	1.20
ZG117	18.0	19.0	3909062	77129	Og	Sls	Fa	DG	granular calc-arenite, lesser DG clay	12	179	8300	-1	2.09	626	
ZG118a	0.0	5.6			Qha	Cg										
ZG118a	5.6	8.0	3909063	77129	Og	Ccy		B		10	41	1212	-1	0.38	25	
ZG118a	8.0	10.0	3909064	77129	Og	Ccy		B	prominent qtzite gravel redrill	8	37	1848	-1	0.61	38	
ZG118a	10.0	12.0	3909065	77129	Og	Ccy		B	lesser LG Sls	11	63	6800	-1	1.04	72	
ZG118a	12.0	13.0	3909066	77129	Og	Sls		MDLG	coarse-line calc-arenite	7	18	2695	-1	0.66	102	
ZG118	0.0	5.0			Qha	Cg										
ZG118	5.0	6.0	3758058	77121	Og	Ccy		DB		8	113	3641	-1	0.85	61	
ZG118	6.0	7.5	3758059	77121	Og	Sls			broken + cored calc-arenite, calcite veins, minor Ccy	2	32	2068	-1	0.93	365	
ZG119	0.0	3.5			Qha	Cg										
ZG119	3.5	5.0	3758060	77121	Og	Sls			qtzite chips from Om?	40	42	428	-1	0.85	32	
ZG119	5.0	7.5	3758061	77121	Om	Mq			lesser Sls	25	31	145	-1	0.29	18	
ZG120	0.0	4.0			Qha	Cg										
ZG120	4.0	6.0	3758062	77121	Og	Ccy		EDG		65	7800	2900	1	4.53	118	
ZG120	6.0	8.0	3758063	77121	Og	Ccy	Ds	DGB		89	3419	1414	3	4.68	181	
ZG120	8.0	10.0	3758064	77121	Og	Ccy		MFO	heamitic, minor qtzite ? (Om)	867	7200	7200	6	13.10	491	
ZG120	10.0	12.0	3758065	77121	Og	Ccy		LB		35	3342	2446	-1	7.94	321	
ZG120	12.0	14.0	3758066	77121	Og	Ccy		LB		65	2901	2220	-1	9.41	405	
ZG120	14.0	16.0	3758067	77121	Og	Ccy		LB	gritty	30	510	880	-1	6.96	341	
ZG120	16.0	18.0	3758068	77121	Om	Sss			decomposed, lesser LB clay, trace vein qtz	40	245	532	-1	8.15	208	
ZG120	18.0	20.0	3758069	77121	Og	Ccy		LBDG	lesser decomposed Sss (Om)	28	348	710	-1	2.25	76	
ZG120	20.0	22.0	3758070	77121	Og	Ccy		DG	lesser calc-arenite frag.	54	861	1778	1	2.62	37	
ZG120	22.0	24.0	3758071	77121	Om	Sss			qtz Sss, minor LB clay	45	182	232	-1	2.26	46	
ZG121	0.0	4.0			Qha	Cg										
ZG122	0.0	4.0			Qha	Cg										
ZG123	0.0	5.5			Qha	Cg										
ZG123	5.5	8.0	3758072	77121	Og	Ccy		DB	gritty	7	48	4811	-1	1.75	50	
ZG123	8.0	10.0	3758073	77121	Og	Ccy		B	lesser N decomposed Sls	16	700	60900	-1	3.90	58	7.70
ZG123	10.0	12.0	3758074	77121	Og	Ccy		B	lesser N decomposed Sls	18	200	33800	-1	4.06	498	5.10
ZG123	12.0	14.0	3758075	77121	Og	Sls			prominent vein dol, lesser DG clay	4	57	4005	-1	1.03	995	
ZG123	14.0	16.0	3758076	77121	Og	Ccy		MBG		23	300	27600	1	3.24	534	1.95
ZG123	16.0	18.0	3758077	77121	Og	Ccy		DGB	lesser DG Sss	9	137	28100	-1	15.50	3581	1.90
ZG123	18.0	20.0	3758078	77121	Og	Sls			hard with prominent calcite veining, lesser G clay	5	97	37500	-1	24.70	6000	1.35
ZG123	20.0	22.0	3758079	77121	Og	Ccy		DG	lesser hard Sss with prominent calcite veining	16	4100	68500	1	13.90	2987	2.50
ZG123	22.0	24.0	3758080	77121	Og	Ccy	Ds	MBG	lesser hard, silicified? Sls	19	1500	97800	1	18.10	9600	2.95
ZG124	0.0	4.0			Qha	Cg										

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG124	4.0	6.0	3758081	77121	Og	Ccy			B	hole ended in DG calc-arenite	11	37	1880	-1	1.16	216	
ZG125	0.0	2.0			Qha	Cg											
ZG125	2.0	4.0	3758082	77121	Og	Ccy			B	gritty	26	300	8400	-1	1.38	33	
ZG125	4.0	6.0	3758083	77121	Og	Ccy			MWLB	calc-arenite frags with prominent dol veining	17	100	4377	-1	1.30	67	
ZG125	6.0	8.0	3758084	77121	Og	Sls				brecciated + dol veined, lesser kaki clay	7	41	1146	-1	0.74	131	
ZG125	8.0	10.0	3758085	77121	Og	Sls				brecciated + dol veined, lesser kaki clay	7	52	1143	-1	0.67	139	
ZG125	10.0	12.0	3758086	77121	Og	Sls				brecciated + dol veined, lesser kaki clay	7	74	1029	-1	0.57	160	
ZG125	12.0	14.0	3758087	77121	Og	Sls				brecciated + dol veined, minor kaki clay	4	36	577	-1	0.26	171	
ZG125	14.0	16.0	3758088	77121	Og	Sls				broken micritic lst with prominent calcite veining	2	27	665	-1	0.13	146	
ZG126	0.0	2.0	3758089	77121	Og	Ccy			B	peat	7	163	145	-1	0.30	35	
ZG126	2.0	4.0	3758090	77121	Og	Ccy			MGLB		24	182	3312	-1	1.40	50	
ZG126	4.0	6.0	3758091	77121	Og	Ccy			MGLB	minor altered, ankentic? calc-arenite frags	16	167	3815	-1	1.86	120	
ZG126	6.0	8.0	3758092	77121	Og	Sls	Ds	Py	G	prominent dol veining + carbonaceous partings	3	11	387	-1	0.97	236	
ZG127	0.0	2.0	3758093	77121	Og	Ccy			B	peat	26	182	327	-1	0.22	21	
ZG127	2.0	4.0	3758094	77121	Og	Ccy			B	peat	26	252	4996	-1	1.20	29	
ZG127	4.0	6.0	3758095	77121	Og	Ccy			MGW		16	36	2723	1	2.04	18	
ZG127	6.0	8.0	3758096	77121	Og	Ccy			MGLB	minor calc-arenite frags	19	103	2138	-1	1.14	83	
ZG127	8.0	10.0	3758097	77121	Og	Sls			G	prominent dol veining + lesser M beige-G clay	7	52	810	-1	0.53	153	
ZG127	10.0	12.0	3758098	77121	Og	Sls			G	prominent dol veining + lesser M beige-G clay	5	55	914	-1	0.32	225	
ZG127	12.0	14.0	3758099	77121	Og	Sls	Ds	Py	MGW	calc-arenite with prominent dol veining, lesser clay	6	46	1383	-1	0.60	117	
ZG127	14.0	16.0	3758100	77121	Og	Sls	Ds	Py	MGW	calc-arenite with prominent dol veining, lesser clay	2	32	2075	-1	0.73	108	
ZG127	16.0	18.0	3758101	77121	Og	Sls			G	calc-arenite with prominent dol veining + B clay	5	60	9500	-1	2.55	112	
ZG127	18.0	20.0	3758102	77121	Og	Sls			G	calc-arenite with prominent dol veining + B clay	7	66	1550	-1	0.74	119	
ZG127	20.0	22.0	3758103	77121	Og	Sls			G	calc-arenite with prominent dol veining + B clay	4	90	1288	-1	0.33	144	
ZG127	22.0	23.0	3758104	77121	Og	Sls			DG	calc-arenite with prominent dol veining	-2	25	1107	-1	0.34	161	
ZG128	0.0	2.0	3758105	77121	Og	Ccy			W	banded, pallid	4	25	207	-1	0.56	22	
ZG128	2.0	4.0	3758106	77121	Og	Ccy			LB	black decomposed lst frags	142	638	4120	-1	0.84	20	
ZG128	4.0	6.0	3758107	77121	Og	Ccy			LBLG	lesser LG micritic lst frags with dol veining	34	261	4885	-1	2.08	34	
ZG128	6.0	8.0	3758108	77121	Og	Sls			LG	micritic lst with prominent dol veining + lesser clay	6	60	2652	-1	1.17	106	
ZG128	8.0	10.0	3758109	77121	Og	Sls				calc-arenite with moderate foliation	4	27	1301	-1	0.84	106	
ZG129	0.0	2.0	3758110	77121	Og	Ccy			B	peat + decomposed N lst	11	147	25000	-1	1.36	15	3.50
ZG129	2.0	4.0	3758111	77121	Og	Sls			B	decomposed lst	12	100	28900	-1	3.39	24	6.55
ZG129	4.0	6.0	3758112	77121	Og	Ccy			G		28	132	11200	-1	3.70	30	4.65
ZG129	6.0	8.0	3758113	77121	Og	Ccy			MGLB		28	118	6400	-1	2.30	26	
ZG129	8.0	10.0	3758114	77121	Og	Sls			B	decomposed lst with dol veining + lesser MG-B clay	9	69	2143	-1	1.84	120	
ZG129	10.0	12.0	3758115	77121	Og	Sls			LG	micritic lst with prominent dol veining + lesser G clay	6	49	1059	-1	0.68	109	
ZG130	0.0	4.0			Qha	Og											
ZG130	4.0	6.0	3758116	77121	Og	Ccy			B	peat with decomposed lst frags	4	16	307	-1	0.30	22	
ZG130	6.0	8.0	3758117	77121	Og	Ccy			MBN		32	185	897	-1	0.99	33	
ZG130	8.0	10.0	3758118	77121	Og	Ccy			DGB		28	157	4231	-1	2.40	33	
ZG130	10.0	12.0	3758119	77121	Og	Ccy			G	lesser pallid dol veined lst	18	141	2805	-1	1.60	88	
ZG130	12.0	14.0	3758120	77121	Og	Sls				oolitic lst with prominent dol veining with stickensides	2	21	243	-1	0.17	121	
ZG131	0.0	3.0			Qha	Og											
ZG131	3.0	4.0			Og	Ccy											
ZG131	4.0	6.0	3758121	77121	Og	Ccy	Ds	Py	DGB	lesser pallid lst frags + vein dol, trace Py	16	154	3035	-1	2.47	171	
ZG131	6.0	6.5	3758122	77121	Og	Sls			W	recrystallised?	4	37	387	-1	0.80	87	
ZG132	0.0	2.0			Qha	Og											
ZG132	2.0	4.0	3758123	77121	Og	Ccy			B	peat, + calcite veined calc-arenite	9	41	1269	-1	0.58	81	
ZG132	4.0	6.0	3758124	77121	Og	Sls			G	calc-arenite + lesser DB clay	5	11	289	-1	0.30	96	
ZG133	0.0	4.0			Qha	Og											
ZG133	4.0	6.0	3758125	77121	Og	Ccy			DG		20	88	2639	-1	2.45	158	
ZG133	6.0	8.0	3758126	77121	Og	Ccy			DG		17	70	1268	-1	4.08	1201	
ZG133	8.0	10.0	3758127	77121	Og	Ccy			DG		10	142	1172	-1	7.58	571	

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG133	10.0	12.0	3758128	77121	Og	Ccy	Ds	Py	DG	minor massive Py frags	13	89	1248	-1	6.52	290	
ZG133	12.0	14.0	3758129	77121	Og	Ccy	Ds	Py	DG	massive Py, possibly Sp frags	12	73	3039	-1	15.10	633	
ZG133	14.0	16.0	3758130	77121	Og	Ccy	Da	Py	DG	minor massive Py frags + G calc-arenite frags	7	77	8100	-1	18.10	383	
ZG133	16.0	18.0	3758131	77121	Og	Ss	Da	Py	DG	Skeletal 1st + lesser DG clay with minor massive Py	5	43	3298	-1	5.55	845	
ZG133	18.0	20.0	3758132	77121	Og	Ccy			DGLB	lesser sideritic, pitted G 1st	3	19	969	-1	20.70	5409	
ZG133	20.0	22.0	3758133	77121	Og	Ccy			DGLB	lesser sideritic, pitted G 1st	15	136	6300	-1	15.90	3588	
ZG133	22.0	24.0	3758134	77121	Og	Ccy			N	lesser pitted hard cream-B 1st? frags	8	121	2883	-1	31.80	7700	
ZG133	24.0	26.0	3758135	77121	Og	Ccy	Os	Py	BDG	pitted DG 1st with trace Py, possible qlzite?	5	45	2104	-1	33.10	7100	
ZG133	26.0	28.0	3758136	77121	Og	Ss			DG	pitted, altered, yellow ankroritic? skeletal 1st	3	16	1537	-1	37.40	8500	
ZG134	0.0	2.0			Cha	Cg											
ZG134	2.0	4.0	3758137	77121	Og	Ccy			B	lesser N decomposed Sls	5	28	70	-1	0.30	41	
ZG134	4.0	6.0	3758138	77121	Og	Ccy			DG	lesser B decomposed Sls	5	17	592	-1	0.94	57	
ZG134	6.0	8.0	3758139	77121	Og	Ccy			DG	lesser B decomposed Sls	8	49	9400	-1	13.10	48	
ZG134	8.0	10.0	3758140	77121	Og	Ccy			DG	lesser B decomposed Sls	11	56	8400	-1	4.27	60	
ZG134	10.0	12.0	3758141	77121	Og	Ccy			DG	lesser LG calc-arenite	11	58	7200	-1	4.09	68	
ZG134	12.0	14.0	3758142	77121	Og	Ss			LG	broken calc-arenite	2	11	1324	-1	2.43	91	
ZG134	14.0	15.0	3758143	77121	Og	Ss				calc-arenite with prominent Sdl veining	3	9	1623	-1	3.30	156	
ZG135	0.0	1.0			Cha	Cg											
ZG135	1.0	2.0	3758144	77121	Og	Ccy			B	peaty	5	13	52	-1	0.66	47	
ZG135	2.0	4.0	3758145	77121	Og	Ccy			B	peaty	6	29	93	-1	0.28	26	
ZG135	4.0	6.0	3758146	77121	Og	Ccy			DGB	decomposed Sls	16	216	2315	-1	2.05	54	
ZG135	6.0	8.0	3758147	77121	Og	Ccy			MOB	lesser Sls	16	221	4598	-1	4.27	83	
ZG135	8.0	10.0	3758148	77121	Og	Ss			MG		3	67	611	-1	0.66	200	
ZG136	0.0	1.5			Cha	Cg											
ZG136	1.5	4.0	3758149	77121	Og	Ccy			DG		17	51	2238	-1	3.86	53	
ZG136	4.0	6.0	3758150	77121	Og	Ccy			DG		12	58	6800	-1	4.65	62	
ZG136	6.0	7.0	3758151	77121	Og	Ss	Da	Py		pitted calc-arenite	10	23	3393	-1	10.50	255	
ZG137	0.0	1.5			Cha	Cg											
ZG137	1.5	4.0	3758152	77121	Og	Ccy			DG		15	26	4013	-1	2.50	41	
ZG137	4.0	6.0	3758153	77121	Og	Ccy			DG	lesser DG Sdl	12	24	6100	-1	6.48	259	
ZG137	6.0	7.0	3758154	77121	Og	Dls	Da	Py	MDLG	calc-arenite, minor Sdl veining	3	10	2105	-1	3.65	214	
ZG138	0.0	1.0			Cha	Cg											
ZG138	1.0	1.7	3758155	77121	Og	Ss	Al	Sd	W	pallid banded (ankroritic?) Sls	4	6	691	-1	0.21	125	
ZG139	0.0	2.0	3758156	77121	Og	Ccy			DBW	peaty	12	34	892	-1	1.16	51	
ZG139	2.0	4.0	3758157	77121	Og	Ccy			MDGW		19	39	1861	-1	2.91	161	
ZG139	4.0	6.0	3758158	77121	Og	Ccy			DG	lesser G calc-arenite	8	5	921	-1	3.36	191	
ZG139	6.0	8.0	3758159	77121	Og	Ccy			DG	lesser DG calc-arenite with calcite veining	5	11	1650	-1	4.37	203	
ZG140	0.0	2.0	3758160	77121	Og	Ccy			DB	peaty	14	46	572	-1	4.78	25	
ZG140	2.0	4.0	3758161	77121	Og	Ccy			DB	peaty	24	36	2434	-1	10.20	43	
ZG140	4.0	6.0	3758162	77121	Og	Ss			G	with minor calcite veining, lesser DG clay	12	13	315	-1	2.38	156	
ZG140	6.0	8.0	3758163	77121	Og	Ss					6	14	348	-1	2.76	151	
ZG141	0.0	0.5			Cha	Cg											
ZG141	0.5	2.0	3758164	77121	Og	Ss			DG	skeletal frags, lesser DG clay	8	18	1331	-1	1.75	82	
ZG141	2.0	4.0	3758165	77121	Og	Ccy			MDGLB		22	52	1625	-1	1.66	50	
ZG141	4.0	6.0	3758166	77121	Og	Ccy			MDGLB		19	42	4684	-1	3.19	102	
ZG141	6.0	8.0	3758167	77121	Og	Ccy			LBG	lesser LB-G clay	5	15	1163	-1	3.27	272	
ZG141	8.0	10.0	3758168	77121	Og	Ss			G	calc-arenite with calcite veining, lesser DG clay	4	6	691	-1	2.33	359	
ZG141	10.0	12.0	3758169	77121	Og	Ss			G	calc-arenite with calcite veining, lesser DG clay	4	11	178	-1	0.92	213	
ZG141	12.0	13.0	3758170	77121	Og	Ss			G	calc-arenite with calcite veining, lesser DG clay	5	8	1048	-1	2.45	267	
ZG142	0.0	2.0	3758171	77121	Og	Ccy			DG		24	43	2475	-1	6.77	35	
ZG142	2.0	4.0	3758172	77121	Og	Ccy			DG		25	70	1413	-1	1.84	32	
ZG142	4.0	6.0	3758173	77121	Og	Ccy			LB		24	77	1026	-1	2.25	68	
ZG142	6.0	8.0	3758174	77121	Og	Ss			DG	prominent calcite veining, broken, minor clay	7	14	324	-1	0.73	181	

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG142	8.0	10.0	3758175	77121	Og	Sls			DG	prominent calcite veining, broken	4	7	1000	-1	1.66	246	
ZG142	10.0	11.0	3758176	77121	Og	Sls			DG	prominent calcite veining, broken	4	4	596	-1	1.38	289	
ZG143	0.0	2.0			Oha	Cg											
ZG143	2.0	3.5	3758177	77121	Og	Sls			DG	calc-arenite, lesser LB clay	19	17	887	-1	1.05	44	
ZG144	0.0	3.0			Oha	Cg											
ZG144	3.0	4.0	3758178	77121	Og	Ccy			DGB	lesser B decomposed Sls	15	20	1038	-1	2.49	41	
ZG144	4.0	6.0	3758179	77121	Og	Sls	Ds	Py	LG	calc-arenite with prominent calcite veining	6	9	293	-1	1.23	139	
ZG145	0.0	2.0			Oha	Cg											
ZG145	2.0	4.0	3758180	77121	Og	Ccy			DB	bottomed in calc-arenite	6	16	309	-1	0.98	33	
ZG146	0.0	1.5			Oha	Cg											
ZG146	1.5	4.0	3758181	77121	Og	Ccy			DGN	bottomed in calcite veined DG calc-arenite	15	52	1079	-1	0.64	76	
ZG147	0.0	3.0			Oha	Cg											
ZG147	3.0	3.5	3758182	77121	Og	Sls			LB		4	7	85	-1	0.27	30	
ZG148	0.0	2.0			Oha	Cg											
ZG148	2.0	4.0	3758183	77121	Og	Sls			DG	calc-arenite, lesser DG clay	5	4	41	-1	0.59	44	
ZG149	0.0	2.0			Oha	Cg											
ZG149	2.0	4.0	3758184	77121	Og	Sls					5	43	52	-1	0.25	28	
ZG149	4.0	6.0	3758185	77121	Og	Ccy			BDG		26	4214	1966	-1	1.83	48	
ZG149	6.0	8.0	3758186	77121	Og	Sls			N	decomposed Sls	61	3289	4409	3	0.82	31	
ZG149	8.0	10.0	3758187	77121	Og	Ccy			MMDG	lesser decomposed Sls	87	8800	25100	2	9.26	51	11.10
ZG149	10.0	12.0	3758188	77121	Og	Ccy			MDGW	W - aphanerite, lesser decomposed banded & mottled Sls	17	4600	46200	2	23.50	65	28.70
ZG149	12.0	14.0	3758189	77121	Og	Sls	Ds	Py	DG	decomposed Sls, lesser DG clay	23	5900	67500	2	21.70	145	28.50
ZG149	14.0	16.0	3758190	77121	Og	Sls				broken oolitic Sls	9	560	10500	-1	3.53	506	3.90
ZG150	0.0	1.0			Oha	Cg											
ZG150	1.0	2.0	3758191	77121	Og	Ccy			B	peat	8	96	73	-1	0.60	49	
ZG150	2.0	4.0	3758192	77121	Og	Ccy			B	peat	15	346	3257	-1	1.61	47	
ZG150	4.0	6.0	3758193	77121	Og	Ccy			DG		51	2100	12100	2	15.60	3574	6.05
ZG150	6.0	8.0	3758194	77121	Og	Sls	Ds	Py	LG	oolitic Sls, lesser DG clay	31	1400	14400	1	17.60	25200	3.10
ZG150	8.0	10.0	3758195	77121	Og	Sls			LG	oolitic Sls, broken	8	1500	10300	-1	6.70	1695	2.80
ZG150	10.0	12.0	3758196	77121	Og	Sls			LG	oolitic Sls, broken	2	303	1942	-1	1.63	560	
ZG150	12.0	14.0	3758197	77121	Og	Sls				oolitic Sls	3	356	2750	-1	1.92	522	
ZG151	0.0	1.5			Oha	Cg											
ZG151	1.5	4.0	3758198	77121	Og	Ccy			DB	peat	32	168	1991	-1	3.81	269	
ZG151	4.0	6.0	3758199	77121	Og	Ccy			DB	lesser DG Sls frags	13	56	1327	-1	12.40	4615	
ZG151	6.0	8.0	3758200	77121	Og	Ccy			BG	granular	6	27	1513	-1	18.20	7300	
ZG151	8.0	10.0	3758201	77121	Og	Ccy			BG	granular	7	32	1982	-1	21.30	7800	
ZG151	10.0	11.5	3758202	77121	Og	Sls				fine calc-arenite	4	98	3419	-1	8.31	2959	
ZG152	0.0	3.0			Oha	Cg											
ZG152	3.0	4.0	3758203	77121	Og	Ccy			B	rdd qtz - costean redrill or hole collapse?	12	86	3282	-1	3.23	119	
ZG152	4.0	6.0	3758204	77121	Og	Ccy			B		17	146	2420	-1	4.99	271	
ZG152	6.0	8.0	3758205	77121	Og	Sls				pitted, ankhoritic?, lesser LG clay + qtz pebbles	7	81	1181	-1	10.10	2495	
ZG152	8.0	10.0	3758206	77121	Og	Sls				pitted, ankhoritic?, lesser LG clay + qtz pebbles	12	149	1968	-1	4.56	1000	
ZG152	10.0	12.0	3758207	77121	Og	Sls				pitted, ankhoritic?, lesser LG clay + qtz pebbles	8	150	3792	-1	4.85	1454	
ZG152	12.0	14.0	3758208	77121	Og	Sls				pitted, ankhoritic?, lesser LG clay + qtz pebbles	6	130	2025	-1	8.68	2992	
ZG152	14.0	16.0	3758209	77121	Og	Sls				pitted, ankhoritic?, lesser clay	4	566	2559	-1	8.92	3424	
ZG152	16.0	18.0	3758210	77121	Og	Sls				oolitic, rare skeletal frags	6	138	2487	-1	8.58	3516	
ZG152	18.0	20.0	3758211	77121	Og	Sls			R	oolitic, with heamitic staining	10	7100	59800	2	4.51	1338	2.35
ZG153	0.0	5.0			Oha	Cg											
ZG153	5.0	6.0	3758212	77121	Og	Ccy			DG		18	87	18000	-1	3.46	639	2.85
ZG153	6.0	8.0	3758213	77121	Og	Ccy			DG	lesser pitted oolitic/skeletal Sls	3	26	2284	-1	2.18	196	
ZG153	8.0	10.0	3758214	77121	Og	Ccy			DG	lesser altered pitted skeletal Sls	5	38	7900	-1	5.00	1831	
ZG153	10.0	12.0	3758215	77121	Og	Ccy			DG	lesser DG granular Sls	16	34	2920	-1	3.46	480	
ZG153	12.0	14.0	3758216	77121	Og	Ccy			DG	lesser DG granular Sls	9	29	7100	-1	3.70	1117	

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG153	14.0	16.0	3758217	77121	Og	Ccy			DG	lesser DG granular Sls	7	21	3975	-1	2.14	333	
ZG153	16.0	18.0	3758218	77121	Og	Ccy			DG	lesser DG granular Sls	8	22	4613	-1	2.32	594	
ZG153	18.0	20.0	3758219	77121	Og	Sls	Ds	Py	DG	lesser DG clay, 5% Py	7	47	25200	-1	10.80	1401	9.95
ZG153	20.0	22.0	3758220	77121	Og	Sls	Ds	Py	DG	lesser DG clay, 5% Py	7	62	42200	-1	16.20	1125	16.30
ZG153	22.0	24.0	3758221	77121	Og	Sls	Ds	Py	DG	lesser DG clay, 5% Py	5	22	8000	-1	8.69	2839	
ZG153	24.0	26.0	3758222	77121	Og	Sls	Ds	Py	DG	3-5% Py	5	38	5900	-1	10.40	3981	
ZG153	26.0	28.0	3758223	77121	Og	Sls	Ds	Py	DG	3-5% Py	10	700	10800	-1	16.20	6400	1.70
ZG153	28.0	30.0	3758224	77121	Og	Sls	Ds	Py	DG	granular Sls, lesser DG clay	5	800	11500	1	14.70	5100	2.35
ZG153	30.0	32.0	3758225	77121	Og	Sls	Ms	Py	LG	R(heamatic) staining, rdd qtz pebbles	6	500	14000	1	12.60	2113	7.10
ZG153	32.0	34.0	3758226	77121	Og	Sls	Ms	Py	LG	R(heamatic) staining, rdd qtz pebbles	7	2400	16300	2	8.37	2991	1.20
ZG153	34.0	36.0	3758227	77121	Og	Sls	Ms	Py	LG	R(heamatic) staining, rdd qtz pebbles	8	800	10300	1	3.89	1383	1.20
ZG153	36.0	38.0	3758228	77121	Og	Sls	Ds	Py	LG	R(heamatic) staining, 5% Py	5	4000	55300	4	12.80	5500	2.40
ZG153	38.0	40.0	3758229	77121	Og	Sls	Ds	Py	LG	R(heamatic) staining	6	1700	12600	1	10.80	5600	1.40
ZG153	40.0	42.0	3758230	77121	Og	Sls	Ds	Py	DG	pitted, lesser DG clay	12	2400	44900	1	24.70	3050	22.90
ZG153	42.0	44.0	3758231	77121	Og	Ccy			DG	lesser R(heamatic) oolitic Sls	16	1200	32200	-1	9.77	1510	7.65
ZG154	0.0	4.5			Qha	Cq											
ZG154	4.5	6.0	3758232	77121	Og	Ccy			DG	lesser DG granular Sls	9	78	20000	-1	2.85	415	2.65
ZG154	6.0	8.0	3758233	77121	Og	Ccy			DG	lesser DG granular Sls	4	24	6400	-1	2.27	820	
ZG154	8.0	10.0	3758234	77121	Og	Ccy			DG	lesser DG granular Sls	5	12	3886	-1	2.61	731	
ZG154	10.0	12.0	3758235	77121	Og	Ccy			DG	lesser DG granular Sls	7	19	3971	-1	3.86	1092	
ZG154	12.0	14.0	3758236	77121	Og	Ccy	Ds	Py	DG	lesser DG granular Sls	10	23	2936	-1	2.27	443	
ZG154	14.0	16.0	3758237	77121	Og	Ccy	Ds	Py	DG	lesser DG granular Sls	5	21	3171	-1	2.47	857	
ZG154	16.0	18.0	3758238	77121	Og	Ccy	Ds	Py	DG	lesser DG granular Sls	9	26	8400	-1	6.68	249	
ZG154	18.0	20.0	3758239	77121	Og	Sls			DG	granular Sls, lesser clay	6	6	4319	-1	6.12	1094	
ZG154	20.0	22.0	3758240	77121	Og	Sls			DG	granular Sls	5	6	3737	-1	3.60	1285	
ZG154	22.0	24.0	3758241	77121	Og	Ccy			DG	lesser DG granular Sls	11	65	9800	-1	7.53	2697	
ZG154	24.0	26.0	3758242	77121	Og	Ccy	Ds	Py	DG	lesser DG granular Sls	9	26	12800	-1	13.00	3736	5.00
ZG154	26.0	28.0	3758243	77121	Og	SlsCa			DG	Sand, poor recovery - cavity?	7	10	12900	-1	11.80	4531	1.80
ZG154	28.0	30.0	3758244	77121	Og	Sls	Ds	Py	MG		5	20	11400	-1	11.20	4577	1.40
ZG154	30.0	32.0	3758245	77121	Og	Sls	Ds	Py	MG		5	38	7600	-1	9.65	4085	
ZG154	32.0	34.0	3758246	77121	Og	Sls			MG	granular Sls	4	44	6600	-1	9.80	4631	
ZG155	0.0	3.0			Qha	Cq											
ZG155	3.0	6.0	3758247	77122	Og	Sls			DG	granular Sls, lesser B&G clay	4	16	7100	-1	3.03	584	
ZG155	6.0	8.0	3758248	77122	Og	Ccy			DG	lesser DG granular Sls	7	2900	15200	2	2.41	522	1.95
ZG155	8.0	10.0	3758249	77122	Og	Ccy			DG	lesser DG granular Sls	4	329	3335	-1	1.57	405	
ZG155	10.0	12.0	3758250	77122	Og	Ccy			DG	lesser DG granular Sls	7	31	6100	-1	4.90	1901	
ZG155	12.0	14.0	3758251	77122	Og	Ccy			DG	lesser DG granular Sls	10	20	8600	-1	3.61	1125	
ZG155	14.0	16.0	3758252	77122	Og	Ccy	Ds	Py	DG	lesser DG granular Sls	11	52	8500	-1	3.39	579	
ZG155	16.0	18.0	3758253	77122	Og	Sls			DG	granular Sls, lesser DG clay	5	18	6000	-1	3.51	1223	
ZG155	18.0	20.0	3758254	77122	Og	Sls			MG	granular Sls	4	29	17400	-1	3.40	1163	1.70
ZG155	20.0	22.0	3758255	77122	Og	Sls			MG	granular Sls, lesser DG clay	5	48	17600	-1	2.55	806	1.75
ZG155	22.0	24.0	3758256	77122	Og	Sls			MG	granular Sls, lesser DG clay	4	20	6600	-1	2.31	683	
ZG155	24.0	26.0	3758257	77122	Og	Sls	Ds	Py	MDG	granular Sls, lesser B clay	5	83	14100	-1	6.41	1145	4.65
ZG155	26.0	28.0	3758258	77122	Og	Ccy			DG	lesser MDG granular Sls	13	900	11200	-1	5.10	1412	2.65
ZG155	28.0	30.0	3758259	77122	Og	Ccy			DG	lesser MDG granular Sls	17	74	17600	-1	3.90	1291	9.70
ZG155	30.0	32.0	3758260	77122	Og	Ccy	Ds	Py	DG	lesser MDG granular Sls, 5% Py	8	124	16100	1	1.59	3466	20.70
ZG155	32.0	34.0	3758261	77122	Og	Ccy	Ds	Py	DGB	lesser pitted, altered DG Sls	5	35	20500	-1	2.72	3024	21.70
ZG155	34.0	36.0	3758262	77122	Og	Sls	Ds	Py	MG		7	24	17600	-1	19.30	6500	4.00
ZG155	36.0	38.0	3758263	77122	Og	Sls	Ds	Py	MG	5%Py	6	9	13500	-1	23.00	7900	6.50
ZG155	38.0	39.0	3758264	77122	Og	Sls	Ds	Py	MG	pitted G Sls	6	9	12000	-1	16.80	9200	0.73
ZG156	0.0	2.5			Qha	Cq											
ZG156	2.5	4.0	3758265	77122	Og	Ccy			W	lesser W Sls chips	4	7	3617	-1	1.08	128	
ZG156	4.0	6.0	3758266	77122	Og	Ccy			W	lesser fine DG Sls	9	19	2437	-1	4.04	288	

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG156	6.0	8.0	3758267	77122	Og	Ccy			LB	lesser Sls	39	130	2472	-1	2.91	256	
ZG156	8.0	9.0	3758268	77122	Og	Ccy			LG	lesser Sls	11	93	1704	1	1.42	303	
ZG156	9.0	12.0	3758269	77122	Og	Ccy			LG	lesser Sls	12	85	4909	-1	3.47	340	
ZG156	12.0	14.0	3758270	77122	Og	Ccy	Ds	Py	G	lesser DG granular Sls	12	111	3150	-1	3.89	1040	
ZG156	14.0	16.0	3758271	77122	Og	Ccy			DG	lesser DG granular Sls with prominent calcite veining	8	85	2705	-1	2.95	1019	
ZG156	16.0	18.0	3758272	77122	Og	Ccy	Ds	Py	W	lesser W granular Sls	5	90	6900	1	1.69	256	
ZG156	18.0	20.0	3758273	77122	Og	Sls	Ds	Py		vein calcite returned only - cavity	3	108	13900	1	12.60	254	11.30
ZG156	20.0	22.0	3758274	77122	Og	Sls	Ds	Py	MG	granular Sls, calcite veined	7	65	4813	-1	4.84	328	
ZG156	22.0	24.0	3758275	77122	Og	Sls	Ds	Py	MG	granular Sls, calcite veined	4	87	28400	-1	7.28	629	8.35
ZG156	24.0	26.0	3758276	77122	Og	Sls	Ds	Py	MG	granular Sls, calcite veined	4	60	21000	-1	12.00	2930	6.70
ZG156	26.0	27.0	3758277	77122	Og	Sls	Ds	Py	LG DG	fine Sls with calcite veining	3	22	6400	-1	3.14	1081	
ZG157	0.0	1.5			Qha	Cg											
ZG157	1.5	3.0	3758278	77122	Og	Sls			LG	fine Sls, lesser peaty clay	10	38	22600	-1	4.16	121	9.80
ZG158	0.0	1.5			Qha	Cg											
ZG158	1.5	4.0	3758279	77122	Og	Sls		Su?	LDG	banded fine Sls, lesser DG clay	9	14	96	-1	1.64	119	
ZG158	4.0	6.0	3758280	77122	Og	Ccy			DG	lesser DG granular Sls	6	14	280	-1	1.50	129	
ZG158	6.0	8.0	3758281	77122	Og	Sls			DG	banded fine Sls	15	10	181	-1	1.68	161	
ZG159	0.0	1.3			Qha	Cg											
ZG159	1.3	4.0	3758282	77122	Og	Ccy			DG	lesser skeletal Sls	16	20	158	-1	1.42	82	
ZG159	4.0	6.0	3758283	77122	Og	Ccy			DG	lesser DG skeletal Sls + DB peaty clay	9	13	87	-1	6.36	130	
ZG159	6.0	8.0	3758284	77122	Og	Sls			DLG	banded skeletal Sls	5	11	43	-1	2.31	131	
ZG160	0.0	1.0			Qha	Cg											
ZG160	1.0	4.0	3758285	77122	Og	Ccy			DB	peat	13	30	389	-1	1.75	35	
ZG160	4.0	6.0	3758286	77122	Og	Ccy			DG		10	26	743	-1	3.52	84	
ZG160	6.0	8.0	3758287	77122	Og	Sls	Ds	Py	Dg		9	13	237	-1	4.37	101	
ZG160	8.0	9.0	3758288	77122	Og	Sls			DLG	calc-arenite with calcite veining	7	16	103	-1	6.22	95	
ZG161	0.0	3.0			Qha	Cg											
ZG161	3.0	6.0	3758289	77122	Og	Ccy			B	peat, lesser DG clay + DG Sls	14	16	264	-1	2.35	43	
ZG161	6.0	8.0	3758290	77122	Og	Sls			DGB	decomposed Sls	13	24	260	-1	2.50	52	
ZG161	8.0	10.0	3758291	77122	Og	Ccy			DG	lesser fine Sls	8	20	1054	-1	4.21	91	
ZG161	10.0	12.0	3758292	77122	Og	Ccy			DG	lesser fine Sls	5	5	77	-1	1.57	169	
ZG161	12.0	13.0	3758293	77122	Og	Sls			LDG	fine, lesser DG clay	6	3	63	-1	6.20	136	
ZG162	0.0	2.7			Qha	Cg											
ZG162	2.7	3.2	3758294	77122	Og	Sls			DG	fine calc-arenite, lesser DG clay	9	21	2013	-1	2.10	70	
ZG163	0.0	2.5			Qha	Cg											
ZG163	2.5	4.0	3758295	77122	Og	Ccy			B		14	28	163	1	1.10	45	
ZG163	4.0	6.0	3758296	77122	Og	Ccy			B	lesser G Sls	14	18	188	-1	2.30	54	
ZG163	6.0	7.0	3758297	77122	Og	Sls			DG	fine	3	-3	60	-1	0.60	118	
ZG164	0.0	2.0			Qha	Cg											
ZG164	2.0	4.0	3758298	77122	Og	Ccy			DG		7	7	75	-1	1.59	35	
ZG164	4.0	6.0	3758299	77122	Og	Ccy			DG		18	16	116	-1	1.60	32	
ZG164	6.0	8.0	3758300	77122	Og	Ccy			DG		24	23	732	1	1.55	44	
ZG164	8.0	10.0	3758301	77122	Og	Ccy	Ds	Py	DG	lesser granular, calcite veined Sls	12	20	852	-1	1.77	69	
ZG165	0.0	5.0			Qha	Cg											
ZG165	5.0	6.0	3758302	77122	Og	Ccy			DB	peat	5	4	20	-1	0.59	26	
ZG165	6.0	8.0	3758303	77122	Og	Sls			G	fine, calcite veined, lesser clay	7	8	48	-1	1.21	131	
ZG166	0.0	3.0			Qha	Cg											
ZG166	3.0	6.0	3758304	77122	Og	Ccy			G	lesser pallid G Sls	14	104	1152	-1	1.29	43	
ZG167	0.0	2.0			Qha	Cg											
ZG167	2.0	4.0	3758305	77122	Og	Ccy			N	lesser decomposed Sls	11	67	755	-1	1.79	62	
ZG167	4.0	5.0	3758306	77122	Og	Ccy			N	lesser G fine Sls	13	45	386	-1	1.50	78	
ZG168	0.0	2.0			Qha	Cg											
ZG168	2.0	4.0	3758307	77122	Og	Ccy			B		13	44	1554	-1	1.33	34	

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APPENDIX 2: Grieves Prospect - CRAE air-core drillhole logs and assays

HOLE	DFROM	DTO	SAMPNO	DPO	BMLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Qu	Pb	Zn	Ag	Fe%	Mn	S%
ZG168	4.0	6.0	3758308	77122	Og	Ccy			B		32	21	1234	-1	2.22	34	
ZG168	6.0	8.0	3758309	77122	Og	Sls			MLDG	calc-arenite, lesser DG clay	7	18	743	-1	3.00	60	
ZG168	8.0	10.0	3758310	77122	Og	Ccy			DG	lesser G Sls	11	39	587	-1	1.85	108	
ZG168	10.0	12.0	3758311	77122	Og	Sls			LG	prominent calcite veining	15	58	818	-1	1.95	77	
ZG169	0.0	2.0	3758312	77122	Og	Ccy			MGW		78	221	4341	1	0.85	30	
ZG169	2.0	4.0	3758313	77122	Og	Ccy			MGW		73	600	7800	1	0.93	39	
ZG169	4.0	6.0	3758314	77122	Og	Ccy			MMGB		76	1100	33000	1	1.17	42	4.75
ZG169	6.0	8.0	3758315	77122	Og	Ccy			G		34	500	8600	1	1.55	49	
ZG169	8.0	10.0	3758316	77122	Og	Ccy			MDGW		30	306	6900	1	1.35	40	
ZG169	10.0	12.0	3758317	77122	Og	Ccy			DG		23	194	1779	-1	1.12	34	
ZG169	12.0	14.0	3758318	77122	Og	Ccy			DG		19	312	1942	-1	1.30	32	
ZG169	14.0	16.0	3758319	77122	Og	Ccy			DG		21	246	2216	-1	1.86	31	
ZG169	16.0	18.0	3758320	77122	Og	Ccy			DG		28	308	1052	-1	0.87	29	
ZG169	18.0	20.0	3758321	77122	Og	Ccy			DG		21	234	1322	-1	1.90	43	
ZG169	20.0	22.0	3758322	77122	Og	Ccy			DG		23	356	1689	-1	1.28	75	
ZG169	22.0	24.0	3758323	77122	Og	Ccy			DG		22	1046	1749	1	1.57	29	
ZG169	24.0	26.0	3758324	77122	Og	Sls			DG		76	265	468	-1	1.26	28	
ZG169	26.0	28.0	3758325	77122	Og	Ccy			LB		189	103	198	1	0.92	23	
ZG169	28.0	30.0	3758326	77122	Og	Ccy			B		55	74	142	-1	0.46	20	
ZG169	30.0	32.0	3758327	77122	Og	Ccy			B	lesser coarse qtz Ss (Om)	57	53	89	-1	0.39	26	
ZG169	32.0	34.0	3758328	77122	Om	Mq			LB		19	56	206	-1	0.52	98	
ZG169	34.0	36.0	3758329	77122	Om	Mq			LB	bedded	8	46	115	-1	0.69	21	
ZG170	0.0	2.0	3758330	77122	Og	Ccy			B	pealy	10	521	330	5	0.60	30	
ZG170	2.0	4.0	3758331	77122	Og	Ccy			MBG		124	18800	30900	6	1.24	33	2.70
ZG170	4.0	6.0	3758332	77122	Og	Ccy			B	lesser decomposed Sls	44	12000	73400	2	0.73	48	6.05
ZG170	6.0	7.0	3758333	77122	Og	Sls	Ds	Py		oolitic Sls	91	28600	30700	3	1.72	197	3.30
ZG171	0.0	2.0	3758334	77122	Og	Ccy			LB		13	2000	8900	1	0.71	40	
ZG171	2.0	4.0	3758335	77122	Og	Ccy			G		30	703	1350	5	0.59	30	
ZG171	4.0	6.0	3758336	77122	Og	Ccy			MDGW		105	12100	30700	3	1.94	55	3.35
ZG171	6.0	8.0	3758337	77122	Og	Ccy			MDGW		62	1400	33700	2	3.92	585	5.30
ZG171	8.0	10.0	3758338	77122	Og	Ccy			MDGW		43	800	134000	1	1.50	1200	13.90
ZG171	10.0	12.0	3758339	77122	Og	Ccy			MDGW	lesser decomposed Sls	42	221	19200	1	17.60	4240	3.10
ZG171	12.0	14.0	3758340	77122	Og	Sls			LB	pitted	14	304	29700	1	31.50	11000	3.40
ZG171	14.0	16.0	3758341	77122	Og	Sls	Al	Sd	MWG	heavy, honeycombed skeletal Sls	5	131	23300	-1	27.80	10500	1.05
ZG171	16.0	18.0	3758342	77122	Og	Sls	Al	Sd	MWG	heavy, honeycombed skeletal Sls	5	160	22700	1	29.30	11100	0.95
ZG171	18.0	20.0	3758343	77122	Og	Sls	Al	Sd	MWG	heavy, honeycombed skeletal & oolitic Sls	10	900	11900	1	12.10	3560	0.87
ZG171	20.0	22.0	3758344	77122	Og	Sls	Al	Sd	MWG	heavy, honeycombed skeletal & oolitic Sls	9	1400	12600	2	10.90	3366	0.74
ZG172	0.0	1.0			Cha	Cg											
ZG172	1.0	4.0	3758345	77122	Og	Ccy			MCB		97	2816	1012	1	0.93	60	
ZG172	4.0	6.0	3758346	77122	Og	Ccy			MDGW		50	1300	33100	-1	1.69	46	4.30
ZG172	6.0	8.0	3758347	77122	Og	Ccy			MDGW		32	1000	11500	1	2.43	405	3.10
ZG172	8.0	10.0	3758348	77122	Og	Ccy			MDGW		19	300	6900	-1	11.60	3069	
ZG172	10.0	12.0	3758349	77122	Og	Ccy	Al	Sd	MDGW	lesser altered/ankeritic oolitic Sls	10	163	12000	-1	25.60	8000	1.10
ZG172	12.0	14.0	3758350	77122	Og	Sls	Ds	Py	MG	oolitic	9	171	12100	1	16.90	4134	0.45
ZG172	14.0	16.0	3758351	77122	Og	Sls	Ds	Py	MG	oolitic	9	179	8500	-1	9.75	2829	
ZG172	16.0	18.0	3758352	77122	Og	Sls	Ds	Py	MG	oolitic, with R hematitic staining	6	187	10300	-1	12.70	3777	0.32
ZG172	18.0	20.0	3758353	77122	Og	Sls	Al	Sd		heavy/ankeritic?, honeycombed oolitic Sls	8	169	11300	-1	20.40	6100	0.48
ZG172	20.0	22.0	3758354	77122	Og	Sls	Al	Sd		heavy/ankeritic?, honeycombed oolitic Sls	7	132	11200	-1	16.00	4593	0.33
ZG173	0.0	2.0	3758355	77122	Og	Ccy			DG		29	314	3765	-1	1.80	120	
ZG173	2.0	4.0	3758356	77122	Og	Ccy			DG		35	246	7700	-1	3.58	836	
ZG173	4.0	6.0	3758357	77122	Og	Ccy			DG		38	362	7600	1	15.80	3971	
ZG173	6.0	8.0	3758358	77122	Og	Ccy			DG		23	481	4329	-1	10.10	2714	
ZG173	8.0	10.0	3758359	77122	Og	Ccy			DG		13	2072	3929	1	11.70	3216	

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APPENDIX 2: Grievies Prospect - CRAE air-core drillhole logs and assays

HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG173	10.0	12.0	3758360	77122	Og	Sls	Ds	Py		with rdd qtz pebbles, lesser DG clay	16	554	4464	1	18.80	4245	
ZG173	12.0	14.0	3758361	77122	Og	Sls	AIDs	SdPy		honeycombed, ankoritic Sls + rdd qtz pebbles, lesser Ccy	7	208	14600	-1	28.50	10000	1.80
ZG173	14.0	16.0	3758362	77122	Og	Sls	AIDs	SdPy		honeycombed, ankoritic Sls + rdd qtz pebbles, lesser Ccy	14	151	10700	-1	25.20	8300	0.97
ZG173	16.0	18.0	3758363	77122	Og	Sls	AIDs	SdPy		honeycombed, ankoritic Sls + rdd qtz pebbles, lesser Ccy	14	127	11800	-1	23.10	7700	0.66
ZG173	18.0	20.0	3758364	77122	Og	Sls			LB	oolitic Sls	15	278	8800	-1	14.10	3668	
ZG173	20.0	22.0	3758365	77122	Og	Sls			LB	oolitic Sls	6	304	7200	-1	17.40	4900	
ZG173	22.0	24.0	3758366	77122	Og	Sls			LB	oolitic Sls	7	252	4689	-1	9.39	2692	
ZG174	0.0	2.0	3758367	77122	Og	Ccy				peaty	24	510	9300	-1	1.64	141	
ZG174	2.0	4.0	3758368	77122	Og	Ccy			DB		30	288	8200	1	1.89	81	
ZG174	4.0	6.0	3758369	77122	Og	Ccy			DG		32	370	10500	-1	1.41	88	3.40
ZG174	6.0	8.0	3758370	77122	Og	Ccy			DG		31	123	6500	-1	1.74	48	
ZG174	8.0	10.0	3758371	77122	Og	Ccy			DG		31	137	6800	1	3.50	847	
ZG174	10.0	12.0	3758372	77122	Og	Ccy			DG	lesser DG granular Sls	21	86	4876	-1	15.70	4994	
ZG174	12.0	14.0	3758373	77122	Og	Sls			DG	granular, DG clay	22	91	4591	-1	12.40	3954	
ZG174	14.0	16.0	3758374	77122	Og	Sls			DG	granular, DG clay	17	132	4775	-1	21.50	7200	
ZG174	16.0	18.0	3758375	77122	Og	Sls	AIDs	SdPy	DG		5	23	15300	-1	28.50	8800	1.85
ZG174	18.0	20.0	3758376	77122	Og	Sls	AIDs	SdPy		with rdd qtz pebbles	6	66	7800	1	22.80	7300	
ZG174	20.0	22.0	3758377	77122	Og	Sls					8	91	6500	1	17.20	4969	
ZG174	22.0	24.0	3758378	77122	Og	Sls			DG		6	54	8500	-1	22.90	7700	
ZG174	24.0	26.0	3758379	77122	Og	Sls			DG	pitted + heavy	21	260	6800	-1	16.70	4419	
ZG174	26.0	28.0	3758380	77122	Og	Sls	AI	Sd	LB	pitted + heavy	6	298	10600	-1	24.10	7600	0.34
ZG174	28.0	30.0	3758381	77122	Og	Sls	AI	Sd	LB	oolitic	5	227	8200	-1	10.70	2997	
ZG174	30.0	32.0	3758382	77122	Og	Sls			W	oolitic	5	195	4211	1	4.43	1604	
ZG174	32.0	34.0	3758383	77122	Og	Sls	AIDs	SdPy	W	heavy, oolitic Sls	13	270	7200	-1	8.92	2691	
ZG175	0.0	3.0				Cha	Cg			coastal redrill?							
ZG175	3.0	6.0	3758384	77122	Og	Ccy				lesser B decomposed Sls	22	217	14700	1	1.15	55	4.65
ZG175	6.0	8.0	3758385	77122	Og	Ccy			B		27	229	13000	1	1.08	87	5.20
ZG175	8.0	10.0	3758386	77122	Og	Ccy			DG		29	125	6800	1	1.19	77	
ZG175	10.0	12.0	3758387	77122	Og	Ccy			DG		20	130	4770	-1	15.80	4214	
ZG175	12.0	14.0	3758388	77122	Og	Ccy			DG		27	669	6500	-1	10.60	2957	
ZG175	14.0	16.0	3758389	77122	Og	Ccy			DG	lesser DG Sls	15	167	4042	-1	10.50	2923	
ZG175	16.0	18.0	3758390	77122	Og	Ccy			DG	lesser DG Sls	15	170	4693	1	10.10	2608	
ZG175	18.0	20.0	3758391	77122	Og	Ccy			DG	lesser DG Sls	14	251	8000	-1	15.90	4891	
ZG175	20.0	22.0	3758392	77122	Og	Ccy			DG	lesser DG Sls	18	174	6600	-1	12.40	3521	
ZG175	22.0	24.0	3758393	77122	Og	Sls	AIDs	SdPy	DG	pitted, lesser DG clay	11	167	6800	-1	11.90	3720	
ZG175	24.0	26.0	3758394	77122	Og	Sls	AIDs	SdPy	LB	pitted, lesser DG clay	16	157	8100	-1	16.40	5700	
ZG175	26.0	28.0	3758395	77122	Og	Sls	AIDs	SdPy	LB		16	144	6400	-1	11.30	3383	
ZG175	28.0	30.0	3758396	77122	Og	Ccy			LB		25	193	6100	-1	8.60	2200	
ZG175	30.0	32.0	3758397	77122	Og	Sls			DG	with rdd qtz pebbles, lesser DG clay	13	112	6300	-1	12.40	3590	
ZG175	32.0	34.0	3758398	77122	Og	Sls			B	with rdd qtz pebbles, lesser DG clay	7	65	3568	-1	13.10	3785	
ZG175	34.0	36.0	3758399	77122	Og	Sls			B	with rdd qtz pebbles, lesser DG clay	8	59	4067	-1	11.10	3381	
ZG175	36.0	38.0	3758400	77122	Og	Sls			B	with rdd qtz pebbles	9	52	3739	-1	10.40	2801	
ZG175	38.0	40.0	3758401	77122	Og	Ccy			B	lesser LG oolitic Sls	13	151	4991	-1	8.71	2384	
ZG175	40.0	42.0	3758402	77122	Og	Ccy			LDG	lesser LG oolitic Sls	22	281	13900	-1	17.10	4595	2.15
ZG175	42.0	44.0	3758403	77122	Og	Sls			LDG	pitted oolitic Sls	5	106	9200	-1	29.40	12000	
ZG176	0.0	4.0				Cha	Cg										
ZG177	0.0	2.5				Cha	Cg										
ZG177	2.5	4.0	3758404	77122	Og	Ccy				peaty, at 61300E peg	20	66	2513	-1	1.10	55	
ZG177	4.0	6.0	3758405	77122	Og	Ccy			N		23	154	3264	-1	1.07	67	
ZG177	6.0	8.0	3758406	77122	Og	Ccy			N		26	192	4845	1	0.94	57	
ZG177	8.0	10.0	3758407	77122	Og	Ccy			N		24	67	2244	-1	1.15	79	
ZG177	10.0	12.0	3758408	77122	Og	Ccy			DG		28	155	3937	-1	0.85	55	
ZG177	12.0	14.0	3758409	77122	Og	Ccy			DG		24	49	4816	-1	0.95	75	

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HOLE	DFROM	DTO	SAMPNO	DPO	SMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG177	14.0	18.0	3758410	77122	Og				DG		32	124	9600	-1	0.98	71	
ZG177	16.0	18.0	3758411	77122	Og				DG		34	205	9900	-1	3.91	1250	
ZG177	18.0	20.0	3758412	77122	Og				DG	foliated, lesser DG clay	10	36	9400	-1	28.90	11600	
ZG177	20.0	22.0	3758413	77122	Og				DG	foliated, lesser DG clay	17	123	10300	-1	15.50	4231	2.00
ZG177	22.0	24.0	3758414	77122	Og		Ds	Py	DG	lesser G granular Sls	9	38	12300	-1	20.70	6600	1.40
ZG177	24.0	26.0	3758415	77122	Og				DG	lesser G granular Sls	23	162	8300	-1	11.80	2761	
ZG177	26.0	28.0	3758416	77122	Og				DG	G foliated granular Sls	24	124	7800	-1	12.00	2936	
ZG177	28.0	30.0	3758417	77122	Og				DG	G foliated granular Sls	33	89	7600	-1	12.70	2932	
ZG177	30.0	32.0	3758418	77122	Og				DG	granular, lesser DG clay, pitted	16	78	6300	-1	13.90	3652	
ZG177	32.0	34.0	3758419	77122	Og				G	granular, lesser DG clay, pitted	13	105	6100	-1	11.50	2724	
ZG177	34.0	36.0	3758420	77122	Og				G	granular, lesser DG clay, pitted	10	70	7200	1	20.20	6000	
ZG177	36.0	38.0	3758421	77122	Og				G	granular, pitted	15	46	7300	-1	17.90	4665	
ZG177	38.0	40.0	3758422	77122	Og				G	granular, pitted	9	17	7500	-1	11.00	2635	
ZG177	40.0	42.0	3758423	77122	Og				G	granular, pitted	7	5	8900	-1	13.20	2834	
ZG177	42.0	44.0	3758424	77122	Og				G	granular, lesser DG clay, pitted	16	86	4896	1	11.90	2921	
ZG177	44.0	46.0	3758425	77122	Og				G	granular, lesser DG clay, pitted	13	84	8500	-1	16.50	4193	
ZG177	46.0	48.0	3758426	77122	Og				G	lesser granular Sls, pitted	15	53	7600	-1	17.10	3855	
ZG177	48.0	50.0	3758427	77122	Og				DG	granular, lesser DG clay, pitted	9	98	12000	-1	25.50	7800	1.05
ZG177	50.0	52.0	3758428	77122	Og		Ds	Py	LG	lesser DG Sls	20	700	10500	1	19.10	4288	1.00
ZG177	52.0	54.0	3758429	77122	Og				LBG	lesser pitted LB Sls	10	141	27400	-1	31.30	10900	1.05
ZG177	54.0	56.0	3758430	77122	Og		Al	Sd	DG	honeycombed	8	343	39000	-1	39.60	16200	0.32
ZG177	56.0	57.0	3758431	77122	Og		Al	Sd	LB	honeycombed	28	1000	41800	1	34.40	13700	1.70
ZG178	0.0	2.0			Oha				Og								
ZG178	2.0	4.0	3758432	77122	Og				Ccy		20	426	32700	1	1.34	49	3.45
ZG178	4.0	6.0	3758433	77122	Og				Ccy		24	122	43200	-1	1.01	139	5.30
ZG178	6.0	8.0	3758434	77122	Og				Ccy		24	145	29900	-1	22.00	6500	3.60
ZG178	8.0	10.0	3758435	77122	Og				Sls		4	40	29800	-1	39.50	14800	1.15
ZG178	10.0	12.0	3758436	77122	Og				DG	granular Sls	4	119	29900	-1	35.50	12900	1.40
ZG178	12.0	14.0	3758437	77122	Og		Al	Sd	MWG	oolitic Sls	7	259	36300	-1	29.20	9900	3.20
ZG178	14.0	16.0	3758438	77122	Og		Al	Sd	MWG	oolitic Sls, lesser B clay	6	198	31300	-1	29.00	9300	2.60
ZG178	16.0	17.5	3758439	77122	Og		Al	Sd	MWG	oolitic, heavy	4	75	22100	-1	29.90	10700	1.00
ZG179	0.0	2.0			Oha				Og								
ZG179	2.0	4.0	3758440	77122	Og				Ccy	peaty	16	1300	10600	1	1.19	65	1.70
ZG179	4.0	5.0	3758441	77122	Og				Sls	oolitic, hematite stained	3	300	13300	-1	3.08	977	1.80
ZG180	0.0	2.5			Oha				Og								
ZG180	2.5	4.0	3758442	77122	Og				Ccy		20	1700	26200	1	1.01	47	2.85
ZG180	4.0	6.0	3758443	77122	Og				Ccy	peaty	18	1500	78400	1	0.67	60	6.00
ZG180	6.0	8.0	3758444	77122	Og				Ccy	peaty	15	1100	66900	1	0.68	78	5.60
ZG180	8.0	10.0	3758445	77122	Og				Ccy	peaty	16	1800	135000	1	1.03	727	9.55
ZG180	10.0	12.0	3758446	77122	Og				Ccy		20	800	146000	1	18.70	3773	9.80
ZG180	12.0	14.0	3758447	77122	Og				B		14	700	108000	1	22.30	5800	6.70
ZG180	14.0	16.0	3758448	77122	Og				Ccy	lesser R(hematitic) oolitic Sls	20	400	33100	1	34.10	10500	3.40
ZG180	16.0	18.0	3758449	77122	Og				Ccy		24	400	7300	-1	2.91	333	
ZG180	18.0	20.0	3758450	77122	Og		Ds	Py	DG		23	247	3263	-1	2.39	316	
ZG180	20.0	22.0	3758451	77122	Og				DGW		22	294	1354	-1	1.74	70	
ZG180	22.0	24.0	3758452	77122	Og				DG	lesser DG Sls with rdd qtz pebbles	37	95	711	-1	1.84	33	
ZG180	24.0	26.0	3758453	77122	Og				DG	lesser DG Sls with rdd qtz pebbles	67	86	284	-1	1.25	28	
ZG180	26.0	28.0	3758454	77122	Om				DG	lesser DG Sls	37	61	201	-1	0.61	39	
ZG180	28.0	29.5	3758455	77122	Om				LB	with rdd qtz pebbles, lesser B decomposed Sls	18	56	70	-1	0.52	40	
ZG181	0.0	1.5			Oha				Og								
ZG181	1.5	4.0	3758456	77123	Og				B	peaty	52	20200	78100	2	2.90	24	7.60
ZG181	4.0	6.0	3758457	77123	Og				DG		51	8500	29600	3	2.34	47	4.10
ZG181	6.0	8.0	3758458	77123	Og				DG		61	4300	7600	2	1.65	32	

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APPENDIX 2: Grieves Prospect - CRAE air-core drillhole logs and assays

HOLE	DFROM	DTO	SAMPNO	DPO	BMR/LITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Qz	Pb	Zn	Ag	Fe%	Mn	S%
ZG181	8.0	10.0	3758459	77123	Og	Ccy			DG	friable	44	2246	4605	1	2.26	38	
ZG181	10.0	12.0	3758460	77123	Og	Ccy			DG		73	4000	9900	2	1.65	32	
ZG181	12.0	14.0	3758461	77123	Og	Ccy			DG		62	6900	12000	3	1.62	36	2.20
ZG181	14.0	16.0	3758462	77123	Og	Ccy			DG		45	4400	11700	2	1.69	32	2.40
ZG181	16.0	18.0	3758463	77123	Og	Ccy			DG		44	4800	67900	3	9.88	35	13.60
ZG181	18.0	20.0	3758464	77123	Og	Ccy			MOGLB		83	17200	88600	5	6.13	33	9.65
ZG181	20.0	22.0	3758465	77123	Og	Ccy			DG		20	1000	6900	-1	2.15	44	
ZG181	22.0	24.0	3758466	77123	Og	Ccy			DG		18	674	3257	-1	1.51	31	
ZG181	24.0	26.0	3758467	77123	Og	Ccy			DG		15	453	3631	-1	1.53	38	
ZG181	26.0	28.0	3758468	77123	Og	Ccy			DG	lesser DG granular Sls	22	1000	7400	-1	2.22	38	
ZG181	28.0	30.0	3758469	77123	Og	Ccy			DG	lesser DG granular Sls	18	408	3079	-1	2.47	30	
ZG181	30.0	31.5	3758470	77123	Og	Sls			DG	granular Sls + rdd qtz pebbles, lesser Ccy + Moins Sst	53	355	3608	-1	1.88	26	
ZG182	0.0	4.0			Qha	Og											
ZG182	4.0	6.0	3758471	77123	Og	Ccy			B	peaty	22	714	50000	1	0.52	63	9.10
ZG182	6.0	8.0	3758472	77123	Og	Ccy			B	peaty, lesser N decomposed Sls	14	418	74300	-1	0.57	68	9.40
ZG182	8.0	10.0	3758473	77123	Og	Ccy			B	peaty, lesser N decomposed Sls	19	1100	103000	1	4.70	92	10.60
ZG182	10.0	12.0	3758474	77123	Og	Sls			B	oolitic	8	110	16500	-1	1.34	560	1.35
ZG182	12.0	13.0	3758475	77123	Og	Sls			B	oolitic	6	163	16700	-1	1.55	351	1.90
ZG183	0.0	2.5			Qha	Og											
ZG183	2.5	6.0	3758476	77123	Og	Ccy			B	peaty	20	85	19100	-1	2.75	123	3.80
ZG183	6.0	8.0	3758477	77123	Og	Ccy			GB		19	77	19700	-1	2.46	123	3.50
ZG183	8.0	10.0	3758478	77123	Og	Ccy			GB		24	217	26200	-1	4.37	608	3.80
ZG183	10.0	12.0	3758479	77123	Og	Ccy			GB		13	123	29200	-1	25.40	8500	2.85
ZG183	12.0	14.0	3758480	77123	Og	Sls			B	granular, lesser GB clay, pitted	9	269	21900	-1	33.30	11200	1.85
ZG183	14.0	16.0	3758481	77123	Og	Sls			B	granular, lesser GB clay, pitted	23	949	35300	-1	23.20	6900	4.10
ZG183	16.0	18.0	3758482	77123	Og	Sls				poor recovery, cavity?	7	233	19100	-1	38.30	13200	1.80
ZG183	18.0	20.0	3758483	77123	Og	Sls			LB	lesser B clay, honeycombed	8	370	37300	-1	34.70	11300	6.00
ZG183	20.0	21.0	3758484	77123	Og	Sls			MWG	oolitic	4	220	23600	-1	20.70	6800	3.55
ZG184	0.0	2.0			Qha	Og											
ZG184	2.0	4.0	3758485	77123	Og	Ccy			DG		23	1000	20700	-1	2.52	154	3.40
ZG184	4.0	6.0	3758486	77123	Og	Ccy			DG	lesser LB pitted Sls	17	212	11000	-1	20.40	7300	1.75
ZG184	6.0	8.0	3758487	77123	Og	Ccy			DG	lesser LB pitted Sls	14	690	7900	-1	10.00	3159	
ZG184	8.0	10.0	3758488	77123	Og	Ccy			DG	lesser LB pitted Sls	35	500	4541	-1	16.30	4136	
ZG184	10.0	12.0	3758489	77123	Og	Ccy			DG		30	184	4026	-1	18.80	4325	
ZG184	12.0	14.0	3758490	77123	Og	Ccy			DG	lesser pitted LB + DG granular Sls	24	229	3177	-1	10.80	2729	
ZG184	14.0	16.0	3758491	77123	Og	Sls	Ds	Py	DG	granular with sulphidic vein qtz, lesser DG clay	17	290	4659	-1	18.60	6400	
ZG184	16.0	18.0	3758492	77123	Og	Sls			DG	granular, lesser DG clay	9	371	8400	-1	18.50	6200	
ZG184	18.0	20.0	3758493	77123	Og	Sls			MG	pitted, granular	4	113	8100	-1	12.50	3817	
ZG184	20.0	22.0	3758494	77123	Og	Sls			MG	pitted oolitic Sls	4	130	7500	-1	13.10	3877	
ZG184	22.0	24.0	3758495	77123	Og	Sls			MG	pitted oolitic Sls	6	147	9600	-1	13.90	3938	
ZG184	24.0	26.0	3758496	77123	Og	Sls	Ds	Py	MG	pitted oolitic Sls, lesser DG clay	8	46	11600	-1	22.10	6700	1.30
ZG184	26.0	28.0	3758497	77123	Og	Sls			MG	pitted oolitic Sls, lesser DG clay	13	54	17000	-1	30.50	10200	0.88
ZG184	28.0	30.0	3758498	77123	Og	Sls			MG	pitted oolitic Sls, lesser G clay	7	140	16700	-1	29.10	10200	1.20
ZG184	30.0	32.0	3758499	77123	Og	Sls			MG	pitted oolitic Sls, lesser G clay	10	113	11900	-1	23.80	7900	1.15
ZG184	32.0	34.0	3758500	77123	Og	Sls			MLB	pitted, lesser B-G clay	5	72	15700	-1	21.60	7400	1.15
ZG184	34.0	36.0	3758501	77123	Og	Sls			MLB	pitted, lesser B-G clay	13	300	34100	-1	15.50	4455	3.30
ZG184	36.0	38.0	3758502	77123	Og	Sls			MWG	oolitic	6	75	11000	-1	12.90	3941	0.89
ZG184	38.0	39.0	3758503	77123	Og	Sls			MWG	pitted oolitic Sls	13	93	21400	-1	13.10	3991	1.75
ZG185	0.0	4.0			Qha	Og											
ZG185	4.0	6.0	3758504	77123	Og	Sls			N	decomposed	12	56	10000	-1	7.62	22	9.20
ZG185	6.0	8.0	3758505	77123	Og	Ccy			DG	lesser N decomposed Sls	18	62	9100	-1	11.60	45	
ZG185	8.0	10.0	3758506	77123	Og	Ccy			N		16	73	12200	-1	9.22	46	10.30
ZG185	10.0	12.0	3758507	77123	Og	Ccy			N		16	140	10700	-1	8.56	72	9.40

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APPENDIX 2: Grievs Prospect - CRAE air-core drillhole logs and assays

HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG185	12.0	14.0	3758508	77123	Og	Ccy			N		17	98	8900	-1	10.00	153	
ZG185	14.0	16.0	3758509	77123	Og	Sls			MG	granular	8	11	774	-1	1.69	196	
ZG185	16.0	18.0	3758510	77123	Og	Sls	Ds	Py	MG	granular	5	4	2109	-1	3.90	189	
ZG185	18.0	20.0	3758511	77123	Og	Ccy			DG	lesser MG granular Ssl	15	21	3938	-1	4.14	375	
ZG185	20.0	22.0	3758512	77123	Og	Sls			G	granular	6	8	1111	-1	4.35	1350	
ZG185	22.0	24.0	3758513	77123	Og	Sls			G	granular	6	4	1897	-1	8.21	2530	
ZG185	24.0	26.0	3758514	77123	Og	Sls			G	granular	6	-3	3000	-1	6.72	1779	
ZG185	26.0	28.0	3758515	77123	Og	Sls			G	granular, lesser DG clay	9	-3	3293	-1	13.60	4354	
ZG185	28.0	30.0	3758516	77123	Og	Ccy			DG	lesser foliated G granular Sls	12	21	4871	-1	19.90	7000	
ZG185	30.0	32.0	3758517	77123	Og	Ccy			DG		24	28	2424	-1	7.45	1605	
ZG185	32.0	34.0	3758518	77123	Og	Ccy			DG		21	26	2845	-1	10.30	2622	
ZG185	34.0	36.0	3758519	77123	Og	Ccy			DG	poor recovery	12	20	2769	-1	11.10	2996	
ZG185	36.0	38.0	3758520	77123	Og	Ccy			DG	lesser MG Sls	12	19	3244	-1	11.30	2907	
ZG185	38.0	40.0	3758521	77123	Og	Sls			MG	fossilif.	7	-3	2239	-1	7.42	2131	
ZG185	40.0	42.0	3758522	77123	Og	Sls			MG	fossilif.	5	-3	6100	-1	20.00	6900	
ZG185	42.0	44.0	3758523	77123	Og	Sls			LG	granular	6	6	4712	-1	14.95	4928	
ZG185	44.0	46.0	3758524	77123	Og	Sls			MG	granular, lesser DG clay	8	10	4086	-1	14.47	4301	
ZG185	46.0	48.0	3758525	77123	Og	Sls			MG	granular	5	8	3524	-1	13.30	3728	
ZG185	48.0	50.0	3758526	77123	Og	Sls			MG	fossilif.	10	13	7100	-1	19.90	6700	
ZG185	50.0	52.0	3758527	77123	Og	Sls			MG	with rdd qtz pebbles	4	14	4539	-1	17.00	4454	
ZG185	52.0	54.0	3758528	77123	Og	Sls			MG	with rdd qtz pebbles, fossilif.	5	25	3962	-1	19.20	5900	
ZG185	54.0	56.0	3758529	77123	Og	Sls			MG	with rdd qtz pebbles, fossilif., lesser MDG-W clay	10	73	10600	-1	25.60	8400	1.30
ZG185	56.0	58.0	3758530	77123	Og	Sls			LB	with rdd qtz pebbles, fossilif., lesser MDG-W clay	18	48	8600	-1	14.70	3545	
ZG185	58.0	60.0	3758531	77123	Og	Sls	Al	Sd	LB	honeycombed, with rdd qtz pebbles, lesser DG clay	11	56	13500	-1	27.70	9500	1.70
ZG186	0.0	2.0			Qha	Cg											
ZG186	2.0	4.0	3758532	77123	Og	Ccy			DB	peaty	16	89	2310	-1	6.95	51	
ZG186	4.0	6.0	3758533	77123	Og	Ccy			DB	peaty	13	46	2368	-1	5.90	65	
ZG186	6.0	8.0	3758534	77123	Og	Ccy			DB	peaty	12	34	3256	-1	6.09	57	
ZG186	8.0	10.0	3758535	77123	Og	Ccy			DG	lesser B decomposed Sls	12	28	1616	-1	6.45	93	
ZG186	10.0	12.0	3758536	77123	Og	Ccy			DG		20	25	1987	-1	4.58	49	
ZG186	12.0	14.0	3758537	77123	Og	Ccy			DB		17	45	1125	-1	9.64	72	
ZG186	14.0	16.0	3758538	77123	Og	Sls			MG	calc-arenite, lesser B clay	13	53	8200	-1	2.81	104	
ZG186	16.0	18.0	3758539	77123	Og	Sls			MG	calc-arenite, lesser B clay	7	10	313	-1	1.24	213	
ZG186	18.0	20.0	3758540	77123	Og	Sls			MG	calc-arenite, lesser B clay	9	15	2419	-1	4.29	112	
ZG186	20.0	22.0	3758541	77123	Og	Ccy			B		8	36	3770	-1	9.23	134	
ZG186	22.0	24.0	3758542	77123	Og	Sls			B	decomposed	9	108	3799	-1	0.91	63	
ZG186	24.0	26.0	3758543	77123	Og	Sls			MG	skeletal	7	14	997	-1	3.03	301	
ZG186	26.0	28.0	3758544	77123	Og	Sls			MG	skeletal	5	15	1094	-1	2.72	351	
ZG186	28.0	30.0	3758545	77123	Og	Sls			W	lesser B clay	21	81	1201	-1	2.38	239	
ZG186	30.0	32.0	3758546	77123	Og	Ccy			MBW		11	54	2305	-1	3.76	228	
ZG186	32.0	34.0	3758547	77123	Og	Sls			LG	fine	6	9	1201	-1	2.74	151	
ZG186	34.0	36.0	3758548	77123	Og	Sls	Ds	Py	LG		5	6	559	-1	3.38	294	
ZG186	36.0	38.0	3758549	77123	Og	Sls			LG	with rdd qtz + N decomposed Sls	9	76	2393	-1	4.10	182	
ZG186	38.0	40.0	3758550	77123	Og	Sls			LG	with rdd qtz + N decomposed Sls	7	12	1972	-1	5.10	776	
ZG186	40.0	42.0	3758551	77123	Og	Sls			DG	granular	5	-3	972	-1	5.49	1525	
ZG187	0.0	3.0			Qha	Cg											
ZG187	3.0	6.0	3758552	77123	Og	Ccy			B	peaty	18	155	301	-1	0.60	30	
ZG187	6.0	8.0	3758553	77123	Og	Ccy			DG		19	43	1802	-1	0.61	49	
ZG187	8.0	10.0	3758554	77123	Og	Ccy			LB		10	5	239	-1	7.35	88	
ZG187	10.0	12.0	3758555	77123	Og	Ccy			LB		11	10	394	-1	6.59	168	
ZG187	12.0	14.0	3758556	77123	Og	Ccy			G	lesser LG skeletal Sls	7	10	462	-1	0.51	26	
ZG188	0.0	4.0			Qha	Cg											
ZG189	0.0	3.0			Qha	Cg											

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Qu	Pb	Zn	Ag	Fe%	Mn	S%
ZG190	0.0	4.0			Oha	Cg											
ZG190	4.0	6.0	3758557	77123	Og	Ccy			DG	lesser DG granular Sis	21	83	1114	4	14.60	4156	
ZG190	6.0	8.0	3758558	77123	Og	Sis			MLDG	pitted, granular Sis	8	75	731	-1	17.50	7900	
ZG190	8.0	9.0	3758559	77123	Og	Sis			MG	oolitic Sis	7	248	1556	-1	15.80	7000	
ZG191	0.0	2.0			Oha	Cg											
ZG191	2.0	4.0	3758560	77123	Og	Ccy			B	peaty	26	324	561	-1	1.35	48	
ZG191	4.0	6.0	3758561	77123	Og	Ccy			B	peaty	26	263	1003	1	1.61	35	
ZG191	6.0	8.0	3758562	77123	Og	Ccy			B		23	151	2667	-1	0.88	23	
ZG191	8.0	10.0	3758563	77123	Og	Ccy			B		38	356	1840	1	1.07	26	
ZG191	10.0	12.0	3758564	77123	Og	Ccy			B		22	147	986	-1	0.86	23	
ZG191	12.0	14.0	3758565	77123	Og	Ccy			MNG		40	308	3578	1	0.60	51	
ZG191	14.0	16.0	3758566	77123	Og	Ccy			MNLB		25	611	2445	-1	0.80	381	
ZG191	16.0	18.0	3758567	77123	Og	Ccy			MNLB		16	924	2854	2	1.41	668	
ZG191	18.0	20.0	3758568	77123	Og	Ccy			B		22	973	3383	1	1.03	173	
ZG191	20.0	22.0	3758569	77123	Og	Ccy			DB	"oily"	41	808	3351	1	0.75	130	
ZG191	22.0	24.0	3758570	77123	Og	Ccy			DB	"oily"	27	642	3287	1	0.53	155	
ZG191	24.0	26.0	3758571	77123	Og	Ccy			DB	"oily"	28	782	4579	1	0.51	90	
ZG191	26.0	28.0	3758572	77123	Og	Ccy			DG		32	1900	6100	1	0.44	80	
ZG191	28.0	30.0	3758573	77123	Og	Ccy	DS	Py	DG	with massive Py sheets	12	746	720	-1	0.95	7	
ZG191	30.0	32.0	3758574	77123	Og	Sis	DS	Py	MG	oolitic Sis, broken	10	99	448	-1	1.58	288	
ZG191	32.0	34.0	3758575	77123	Og	Sis	DS	Py	MG	oolitic Sis, broken	9	57	253	-1	3.34	510	
ZG191	34.0	36.0	3758576	77123	Og	Sis	DS	Py	MG	oolitic Sis, broken	5	31	159	-1	2.89	864	
ZG192	0.0	3.5			Oha	Cg											
ZG192	3.5	6.0	3758601	77124	Og	Ccy			B		16	88	893	-1	0.77	44	
ZG192	8.0	8.0	3758602	77124	Og	Ccy			B		16	88	1199	-1	1.36	29	
ZG192	8.0	10.0	3758603	77124	Og	Ccy			B		14	79	924	-1	0.78	41	
ZG192	10.0	12.0	3758604	77124	Og	Ccy			N		15	227	988	-1	1.04	76	
ZG192	12.0	14.0	3758605	77124	Og	Ccy			G		23	334	682	-1	1.07	238	
ZG192	14.0	16.0	3758606	77124	Og	Ccy			DG	lesser MG Sis	13	110	290	-1	9.81	2455	
ZG192	16.0	18.0	3758607	77124	Og	Sis			MG	oolitic, lesser DG clay	9	571	1819	-1	8.89	1955	
ZG192	18.0	20.0	3758608	77124	Og	Sis			MG	oolitic	7	234	413	-1	4.66	1607	
ZG192	20.0	22.0	3758609	77124	Og	Ccy			MGLB	minor MG oolitic Sis	20	194	882	-1	10.60	2656	
ZG192	22.0	24.0	3758610	77124	Og	Ccy			MG	lesser G granular Sis	12	151	619	-1	9.03	2115	
ZG192	24.0	26.0	3758611	77124	Og	Sis			MG	sketetal?	3	21	91	-1	2.41	732	
ZG192	26.0	28.0	3758612	77124	Og	Ccy			MGLB	lesser MLG pitted Sis	18	154	661	1	14.30	3804	
ZG192	28.0	30.0	3758613	77124	Og	Sis			MLG	oolitic, lesser B clay	5	173	350	-1	3.60	1106	
ZG192	30.0	32.0	3758614	77124	Og	Sis			MG	broken, oolitic	3	39	148	-1	1.57	650	
ZG192	32.0	34.0	3758615	77124	Og	Sis	DS	Py	MG	oolitic, trace rdd qtz, lesser B clay	3	95	290	-1	2.82	778	
ZG192	34.0	36.0	3758616	77124	Og	Sis			MG	oolitic	2	38	174	-1	1.85	569	
ZG192	36.0	38.0	3758617	77124	Og	Sis			MG	oolitic, minor B clay	3	36	160	-1	3.40	1237	
ZG192	38.0	40.0	3758618	77124	Og	Sis			MG	oolitic, minor B clay	8	59	250	-1	3.47	1226	
ZG192	40.0	41.0	3758619	77124	Og	Sis	BxAl	Sd	MG	brecc. oolitic Sis, ankaritic, Minor Ccy	2	22	120	-1	7.05	2805	
ZG193	0.0	4.0			Oha	Cg											
ZG193	4.0	6.0	3758620	77124	Og	Ccy			B		16	21	14	-1	0.23	19	
ZG193	6.0	8.0	3758621	77124	Og	Ccy			N		23	73	94	-1	0.69	39	
ZG193	8.0	10.0	3758622	77124	Og	Ccy			N		23	47	205	-1	1.31	35	
ZG193	10.0	12.0	3758623	77124	Og	Ccy			N		24	50	660	-1	0.66	44	
ZG193	12.0	14.0	3758624	77124	Og	Ccy			DG		19	103	1084	-1	2.12	449	
ZG193	14.0	16.0	3758625	77124	Og	Ccy			MWLB	minor MG granular Sis	50	49	258	-1	4.10	1256	
ZG193	16.0	18.0	3758626	77124	Og	Ccy			B	lesser DG Sis	7	26	114	-1	3.64	1205	
ZG193	18.0	20.0	3758627	77124	Og	Sis			MG	granular with rdd qtz pebbles, lesser B clay	6	15	66	-1	4.46	1552	
ZG193	20.0	22.0	3758628	77124	Og	Sis			MG	granular with rdd qtz pebbles, lesser B clay	6	17	88	-1	5.74	1807	
ZG193	22.0	24.0	3758629	77124	Og	Sis			MG	granular with rdd qtz pebbles, lesser B clay	8	10	40	-1	19.10	8200	

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG193	24.0	26.0	3758630	77124	Og	Ccy			MB		10	80	290	-1	21.70	8500	
ZG193	26.0	28.0	3758631	77124	Og	Ccy			DG	lesser oolitic Sls	21	103	414	-1	17.50	6400	
ZG193	28.0	30.0	3758632	77124	Og	Sls			LGW	oolitic	6	30	216	-1	13.40	4986	
ZG194	0.0	4.0			Qha	Cg											
ZG195	0.0	3.5			Qha	Cg											
ZG195	3.5	6.0	3758577	77124	Og	Sls			MG	oolitic, commonly R (hematite) stained	8	63	860	-1	3.04	1433	
ZG195	6.0	8.0	3758578	77124	Og	Sls	Ds	Py	MG	oolitic, broken	7	107	1100	-1	6.04	2676	
ZG195	8.0	10.0	3758579	77124	Og	Sls	Ds	Py	MG	oolitic, broken, minor black clay	6	70	567	-1	4.60	2041	
ZG195	10.0	12.0	3758580	77124	Og	Sls	Ds	Py	MG	oolitic, broken, minor qtzite (Om)	4	49	398	-1	2.30	1025	
ZG195	12.0	14.0	3758581	77124	Og	Sls	Ds	Py	MG	oolitic, broken, minor qtzite (Om)	4	23	221	-1	1.32	578	
ZG195	14.0	16.0	3758582	77124	Og	Sls	Ds	Py	MG	oolitic Sls	4	23	212	-1	1.22	621	
ZG195	16.0	18.0	3758583	77124	Og	Sls	Ds	Py	MG	oolitic Sls, weak Y&R Fe alteration, minor B clay	3	40	279	-1	1.92	511	
ZG195	18.0	20.0	3758584	77124	Og	Sls	Ds	Py	MG	oolitic Sls, weak Y&R Fe alteration, minor B clay	3	42	324	-1	1.41	550	
ZG195	20.0	22.0	3758585	77124	Og	Sls			MG	oolitic, minor clay	4	25	157	-1	1.02	500	
ZG195	22.0	24.0	3758586	77124	Og	Sls			MG		11	29	209	-1	1.01	559	
ZG195	24.0	26.0	3758587	77124	Og	Sls			MG	broken	3	33	226	-1	1.52	793	
ZG195	26.0	28.0	3758588	77124	Og	Sls			MG	broken	3	72	302	-1	1.79	882	
ZG195	28.0	30.0	3758589	77124	Og	Sls			MG	oolitic, minor clay	6	92	538	-1	12.30	5500	
ZG195	30.0	32.0	3758590	77124	Og	Sls				decomposed oolitic Sls, lesser B clay	9	67	247	-1	9.44	3433	
ZG195	32.0	34.0	3758591	77124	Og	Sls	AI	Sd	W	oolitic ankortitic Sls	6	43	169	-1	14.40	6800	
ZG195	34.0	36.0	3758592	77124	Og	Sls	AI	Sd	W	oolitic ankortitic Sls, minor B clay	5	34	139	-1	22.80	10900	
ZG195	36.0	38.0	3758593	77124	Og	Ccy			LG	lesser MG pitted oolitic Sls	8	52	371	-1	9.94	3956	
ZG195	38.0	40.0	3758594	77124	Og	Sls	AI	Sd	MWLB	ankortitic heavy oolitic Sls	4	35	86	-1	19.80	10000	
ZG195	40.0	42.0	3758595	77124	Og	Sls	AI	Sd	MWLB	ankortitic heavy oolitic Sls	8	47	108	-1	28.30	13800	
ZG195	42.0	44.0	3758596	77124	Og	Sls	AI	Sd	MWLB	ankortitic heavy oolitic Sls, lesser DG skeletal? Sls	12	104	147	-1	40.10	18400	
ZG195	44.0	46.0	3758597	77124	Og	Sls	AI	Sd	Y	ankortitic Sls, lesser DG Sls + DG clay	6	44	141	-1	41.40	19500	
ZG195	46.0	48.0	3758598	77124	Og	Ccy	Ds	Py	DG	lesser LB ankortitic Sls	16	84	299	-1	22.50	10000	
ZG196	0.0	3.0			Qha	Cg											
ZG196	3.0	6.0	3758599	77124	Og	Ccy			DG	lesser DG Sls	20	79	172	-1	17.40	7000	
ZG196	6.0	8.0	3758600	77124	Og	Ccy			DG	lesser DG Sls + R fine sediment	13	88	261	-1	18.80	3177	
ZG196	8.0	10.0	3758633	77124	Og	Ccy			R	lesser R fine sandstone + DG granular Sls	11	60	209	-1	15.30	6400	
ZG196	10.0	12.0	3758634	77124	Og	Ccy			MLBG	lesser granular Sls	9	51	232	-1	10.60	3600	
ZG196	12.0	14.0	3758635	77124	Og	Sls	AI	Sd	LB	lesser DG&LB clay	10	76	200	-1	19.10	8700	
ZG196	14.0	16.0	3758636	77124	Og	Sls			DGLB	granular Sls, lesser B clay	6	27	122	-1	19.80	9500	
ZG196	16.0	18.0	3758637	77124	Og	Sls	AI	Sd	LB	ankortitic Sls, lesser LB clay	14	32	120	-1	20.80	9100	
ZG196	18.0	20.0	3758638	77124	Og	Sls	AI	Sd	DGY	heavy, strongly ankortitic Sls, lesser DG clay	21	61	202	-1	12.20	3472	
ZG196	20.0	22.0	3758639	77124	Og	Sss		Py	FG	bedded, graded, fine Sss, lesser R clay	35	40	335	-1	8.06	2835	
ZG196	22.0	24.0	3758640	77124	Og	Ccy			G		29	41	189	-1	4.58	1524	
ZG196	24.0	26.0	3758641	77124	Og	Sls			Sd	very broken	7	13	72	-1	12.10	6000	
ZG196	26.0	28.0	3758642	77124	Og	Sls			DG	granular Sls	5	18	89	-1	9.91	4699	
ZG196	28.0	30.0	3758643	77124	Og	Sls	AI	Sd	MLBG	honeycombed heavy, ankortitic Sls	5	48	236	-1	6.85	2989	
ZG196	30.0	32.0	3758644	77124	Og	Sls				oolitic	4	62	339	-1	4.78	2010	
ZG197	0.0	3.0			Qha	Cg											
ZG197	3.0	6.0	3758645	77124	Og	Ccy			N	friable	22	44	42	-1	1.18	56	
ZG197	6.0	8.0	3758646	77124	Og	Ccy			N	friable	19	46	133	-1	0.52	44	
ZG197	8.0	10.0	3758647	77124	Og	Ccy			N	friable	18	61	263	-1	0.56	38	
ZG197	10.0	12.0	3758648	77124	Og	Ccy			NG		66	78	316	-1	1.10	32	
ZG197	12.0	14.0	3758649	77124	Og	Ccy			N	friable	23	43	257	-1	0.84	40	
ZG197	14.0	16.0	3758650	77124	Og	Ccy			N	friable	17	51	629	-1	0.87	43	
ZG197	16.0	18.0	3758651	77124	Og	Ccy			N	friable	25	68	332	-1	0.87	289	
ZG197	18.0	20.0	3758652	77124	Og	Ccy			N	friable	10	45	145	-1	3.77	618	
ZG197	20.0	22.0	3758653	77124	Og	Ccy			N	friable	16	64	135	-1	1.70	1286	
ZG197	22.0	24.0	3758654	77124	Og	Sls			DG	granular	6	14	46	-1	3.37	1135	

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Qu	Pb	Zn	Ag	Fe%	Mn	S%
ZG197	24.0	26.0	3758655	77124	Og	Sls			DG	granular	11	51	598	-1	7.26	2396	
ZG197	26.0	28.0	3758656	77124	Og	Ccy	Al	Sd	N	minor Y ankortitic Ssl	12	78	518	-1	3.24	1832	
ZG197	28.0	30.0	3758657	77124	Og	Sls	Al	Sd	MDGY		7	15	97	-1	4.03	1367	
ZG197	30.0	32.0	3758658	77124	Og	Sls			MG	oolitic	6	30	4981	-1	2.96	1000	
ZG198	0.0	2.8			Qha	Cg											
ZG198	2.8	6.0	3758659	77124	Og	Ccy			N	friable	29	58	67	-1	1.40	36	
ZG198	6.0	8.0	3758660	77124	Og	Ccy			N	friable	26	61	39	-1	1.14	44	
ZG198	8.0	10.0	3758661	77124	Og	Ccy			N	friable	22	38	120	-1	1.34	73	
ZG198	10.0	12.0	3758662	77124	Og	Ccy			N		25	39	322	-1	2.31	64	
ZG198	12.0	14.0	3758663	77124	Og	Ccy			N		25	68	381	-1	0.96	53	
ZG198	14.0	16.0	3758664	77124	Og	Ccy			N		25	55	249	-1	0.75	50	
ZG198	16.0	18.0	3758665	77124	Og	Ccy			N		23	41	301	-1	0.60	49	
ZG198	18.0	20.0	3758666	77124	Og	Ccy			N		24	122	641	1	0.51	50	
ZG198	20.0	22.0	3758667	77124	Og	Sls			DG	granular, lesser DG clay	12	62	348	-1	1.35	213	
ZG198	22.0	24.0	3758668	77124	Og	Sls			DG	granular, lesser DG clay	10	112	446	-1	3.30	307	
ZG198	24.0	26.0	3758669	77124	Og	Sls			DG	granular, lesser DG clay	7	43	166	-1	2.89	496	
ZG198	26.0	28.0	3758670	77124	Og	Sls			MDG		13	16	61	-1	4.73	1603	
ZG198	28.0	30.0	3758671	77124	Og	Ccy			DG		14	47	225	-1	2.54	557	
ZG198	30.0	32.0	3758672	77124	Og	Ccy			B	minor ankortitic Sls	11	24	117	-1	3.38	498	
ZG198	32.0	32.5	3758673	77124	Og	Sls			MG		7	14	77	-1	2.33	528	
ZG199	0.0	1.0			Qha	Cg											
ZG199	1.0	2.0	3758674	77124	Og	Ccy			N	friable	32	127	33	-1	2.20	36	
ZG199	2.0	4.0	3758675	77124	Og	Ccy			N	friable	31	140	403	-1	2.53	35	
ZG199	4.0	6.0	3758676	77124	Og	Ccy			N	friable	41	116	778	-1	0.95	44	
ZG199	6.0	8.0	3758677	77124	Og	Ccy			N		22	163	683	-1	3.08	40	
ZG199	8.0	10.0	3758678	77124	Og	Ccy			N		15	102	265	-1	0.76	158	
ZG199	10.0	12.0	3758679	77124	Og	Ccy			N		18	153	252	-1	0.66	248	
ZG199	12.0	14.0	3758680	77124	Og	Ccy			N		16	113	397	1	14.80	3511	
ZG199	14.0	16.0	3758681	77124	Og	Ccy			N	minor DG granular Sls	15	98	273	-1	16.70	5600	
ZG199	16.0	18.0	3758682	77124	Og	Ccy			N	lesser DG granular Sls	13	66	230	-1	24.60	9100	
ZG199	18.0	20.0	3758683	77124	Og	Sls	Al	Sd	Y	strongly altered/ankortitic Sls	7	42	535	-1	4.51	1575	
ZG200	0.0	2.0			Qha	Cg											
ZG200	2.0	4.0	3758684	77124	Og	Ccy			DG	friable	83	216	113	-1	1.82	94	
ZG200	4.0	6.0	3758685	77124	Og	Ccy			DG	friable	24	130	311	-1	2.14	56	
ZG200	6.0	8.0	3758686	77124	Og	Sls			DG	granular	14	27	325	-1	0.66	54	
ZG200	8.0	10.0	3758687	77124	Og	Sls			DG	granular	14	18	315	-1	1.16	76	
ZG200	10.0	12.0	3758688	77124	Og	Ccy			DG		19	23	126	-1	0.73	62	
ZG200	12.0	14.0	3758689	77124	Og	Ccy			DG		19	32	139	-1	0.75	85	
ZG200	14.0	16.0	3758690	77124	Og	Ccy			DG		24	62	157	-1	2.34	64	
ZG200	16.0	18.0	3758691	77124	Og	Ccy			DG		19	101	207	-1	0.78	81	
ZG200	18.0	20.0	3758692	77124	Og	Ccy			DG		12	92	245	-1	0.97	570	
ZG200	20.0	22.0	3758693	77124	Og	Sls			DG	very fine, poor recovery	6	19	60	-1	13.80	4452	
ZG200	22.0	24.0	3758694	77124	Og	Sls	Al	Sd	Y	strongly altered, ankortitic Sls, minor clay	11	55	194	-1	16.90	6000	
ZG200	24.0	26.0	3758695	77124	Og	Sls	Al	Sd	Y	strongly altered, ankortitic Sls, minor clay	7	18	63	-1	10.20	3524	
ZG200	26.0	28.0	3758696	77124	Og	Sls	Al	Sd	Y	strongly altered, ankortitic Sls, minor clay	11	53	244	-1	12.50	3709	
ZG200	28.0	30.0	3758697	77124	Og	Sls	Al	Sd	Y	strongly altered, ankortitic Sls, minor clay	11	144	583	-1	2.94	902	
ZG201	0.0	2.0			Qha	Cg											
ZG201	2.0	4.0	3758698	77124	Og	Ccy			LG		35	10	11	-1	1.66	16	
ZG201	4.0	6.0	3758699	77124	Og	Ccy			LG		26	31	7	-1	0.68	37	
ZG201	6.0	8.0	3758700	77124	Og	Ccy			DG		47	234	109	-1	2.66	68	
ZG201	8.0	10.0	3908301	77124	Og	Ccy			DG		23	45	206	-1	1.17	67	
ZG201	10.0	12.0	3908302	77124	Og	Ccy			DG	minor DG clay	18	35	104	-1	0.55	68	
ZG201	12.0	14.0	3908303	77124	Og	Ccy			DG		16	38	421	-1	2.20	1375	

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APPENDIX 2: Grieves Prospect - CRAE air-core drillhole logs and assays

HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG201	14.0	16.0	3908304	77124	Og	Ccy			DG	minor DG granular Sis	16	21	99	-1	4.99	2317	
ZG201	16.0	18.0	3908305	77124	Og	Sis			DG	granular, lesser DG clay	8	12	32	-1	2.77	757	
ZG201	18.0	20.0	3908306	77124	Og	Sis			DG	granular, lesser DG clay	10	32	253	-1	3.59	919	
ZG201	20.0	22.0	3908307	77124	Og	Sis			DG	granular	8	42	161	-1	6.68	1558	
ZG201	22.0	24.0	3908308	77124	Og	Sis			DG	granular	6	42	124	-1	3.64	555	
ZG201	24.0	26.0	3908309	77124	Og	Sis			DG	granular	13	74	275	-1	4.09	670	
ZG201	26.0	28.0	3908310	77124	Og	Sis	Al	Sd	MG	granular	6	33	88	-1	3.36	976	
ZG201	28.0	30.0	3908311	77124	Og	Ccy			DG	DG granular Sis	18	56	133	-1	11.60	2904	
ZG201	30.0	32.0	3908312	77124	Og	Ccy			DG	minor strongly Sd altered Sis	25	170	464	-1	20.00	4065	
ZG201	32.0	34.0	3908313	77124	Og	Ccy			DG	minor strongly Sd altered Sis	28	104	620	-1	20.20	5900	
ZG201	34.0	36.0	3908314	77124	Og	Sis	Al	Sd	MG	oolitic	10	35	273	-1	19.60	7500	
ZG202	0.0	2.0			Qha	Cg											
ZG202	2.0	4.0	3908315	77124	Og	Ccy			MB		3	6	17	-1	0.34	45	
ZG202	4.0	6.0	3908316	77124	Og	Ccy			MG		17	15	29	-1	0.52	14	
ZG202	6.0	8.0	3908317	77124	Og	Ccy			MG		31	29	16	-1	0.64	17	
ZG202	8.0	10.0	3908318	77124	Og	Ccy			DG		112	93	385	-1	2.48	29	
ZG202	10.0	12.0	3908319	77124	Og	Ccy			DG		21	36	300	-1	2.78	61	
ZG202	12.0	14.0	3908320	77124	Og	Ccy	Da	Py	DG		19	28	324	-1	1.19	65	
ZG202	14.0	16.0	3908321	77124	Og	Sis			DG	decomposed, granular, lesser DG clay	15	23	220	-1	1.64	59	
ZG202	16.0	18.0	3908322	77124	Og	Ccy			DG		17	21	100	-1	0.89	57	
ZG202	18.0	20.0	3908323	77124	Og	Ccy			DG		12	32	228	-1	3.50	42	
ZG202	20.0	22.0	3908324	77124	Og	Sis			DG	granular, trace fossil material	13	21	36	-1	2.93	206	
ZG202	22.0	24.0	3908325	77124	Og	Sis	Ds	Py	DG	granular	6	8	13	-1	1.88	370	
ZG202	24.0	26.0	3908326	77124	Og	Sis			DG	granular, minor DG clay	5	9	107	-1	2.28	518	
ZG202	26.0	28.0	3908327	77124	Og	Sis			DG	granular, minor DG clay, calcite veined	6	18	89	-1	3.87	1027	
ZG202	28.0	30.0	3908328	77124	Og	Sis			MG	oolitic, calcite veined	5	19	102	-1	3.18	797	
ZG203	0.0	1.5			Qha	Cg											
ZG203	1.5	4.0	3908329	77124	Og	Sis				oolitic Sis, lesser B decomposed Sis	13	174	2230	1	1.89	94	
ZG204	0.0	1.5			Qha	Cg											
ZG204	1.5	3.0	3908330	77124	Og	Sis			MG	oolitic	2	17	117	-1	1.02	430	
ZG205	0.0	1.5			Qha	Cg											
ZG205	1.5	4.0	3908331	77124	Og	Ccy			DG		14	178	317	-1	1.70	46	
ZG205	4.0	6.0	3908332	77124	Og	Ccy			DG	decomposed Sis	13	117	540	-1	1.44	39	
ZG205	6.0	8.0	3908333	77124	Og	Ccy			DGB		12	143	537	-1	2.27	49	
ZG205	8.0	10.0	3908334	77124	Og	Ccy			DGB		25	174	547	-1	1.00	41	
ZG205	10.0	12.0	3908335	77124	Og	Ccy			DG	plastic	20	143	438	-1	2.38	74	
ZG205	12.0	14.0	3908336	77124	Og	Ccy			DG	plastic	18	167	694	-1	11.90	2317	
ZG205	14.0	16.0	3908337	77124	Og	Ccy			LB	lesser MG granular Sis	17	161	483	-1	7.00	1780	
ZG205	16.0	18.0	3908338	77124	Og	Ccy			LB		22	179	524	-1	3.57	725	
ZG205	18.0	20.0	3908339	77124	Og	Ccy			LB		28	237	700	-1	2.42	250	
ZG205	20.0	22.0	3908340	77124	Og	Ccy	Ds	Py	LB	lesser oolitic Sis	11	98	333	-1	17.40	8200	
ZG205	22.0	23.0	3908341	77124	Og	Ccy	Ds	Py	LB	sand, minor LB clay	5	44	216	-1	18.30	8900	
ZG206	0.0	5.5			Qha	Cg											
ZG207	0.0	3.5			Qha	Cg											
ZG207	3.5	6.0	3908342	77124	Og	Ccy			N		14	47	24	-1	0.29	29	
ZG207	6.0	8.0	3908343	77124	Og	Ccy			DGB		18	66	416	-1	1.14	23	
ZG207	8.0	10.0	3908344	77124	Og	Ccy			DGB		14	49	694	-1	0.93	42	
ZG207	10.0	12.0	3908345	77124	Og	Ccy	Ds	Py	DG	lesser fine G Sis	17	26	283	-1	1.86	37	
ZG208	0.0	3.7			Qha	Cg											
ZG210	0.0	4.0			Qha	Cg											
ZG210	4.0	6.0	3908346	77124	Og	Ccy			B	Pealy	4	9	13	-1	0.40	37	
ZG210	6.0	8.0	3908347	77124	Og	Ccy			DG	gritty	28	37	18	-1	0.50	35	
ZG210	8.0	10.0	3908348	77124	Og	Ccy			DG	gritty	31	71	253	-1	2.08	48	

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APPENDIX 2: Gneves Prospect - CRAE air-core drillhole logs and assays

HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG210	10.0	12.0	3908349	77124	Og	Ccy			DG	gritty	22	30	563	-1	1.07	41	
ZG210	12.0	14.0	3908350	77124	Og	Ccy			DG	gritty	18	21	1396	-1	1.62	36	
ZG210	14.0	16.0	3908351	77124	Og	Ccy	Da	Py	DG	gritty	17	23	548	-1	2.23	39	
ZG210	16.0	18.0	3908352	77124	Og	Ccy			DG	Plastic	18	27	36	-1	1.59	66	
ZG210	18.0	20.0	3908353	77124	Og	Ccy			DG	Plastic	19	23	53	-1	2.02	579	
ZG210	20.0	22.0	3908354	77124	Og	Ccy			DG	Plastic	14	23	53	-1	4.50	714	
ZG210	22.0	23.0	3908355	77124	Og	Sls	Al	Sd?	MG		10	19	116	-1	8.90	1954	
ZG211	0.0	4.0			Qha	Cg											
ZG212	0.0	4.9			Qha	Cg											
ZG213	0.0	4.0			Qha	Cg											
ZG213	4.0	6.0	3908356	77125	Og	Sls	We		DGB	Decomposed + carbonaceous	65	123	150	-1	1.56	29	
ZG213	6.0	8.0	3908357	77125	Og	Sls	We		DGB	Decomposed + carbonaceous	22	79	337	-1	3.53	32	
ZG213	8.0	10.0	3908358	77125	Og	Sls	We		DGB	Decomposed + carbonaceous	17	53	609	-1	4.25	39	
ZG213	10.0	12.0	3908359	77125	Og	Sls	We		DG	Decomposed + carbonaceous	17	27	542	-1	3.03	44	
ZG213	12.0	14.0	3908360	77125	Og	Sls	We		DG	Decomposed + carbonaceous	21	25	447	-1	5.97	41	
ZG213	14.0	16.0	3908361	77125	Og	Sls	We		DG	Decomposed + carbonaceous	20	26	471	-1	4.26	44	
ZG213	16.0	18.0	3908362	77125	Og	Sls	We		DG	Decomposed + carbonaceous	18	71	602	-1	3.25	35	
ZG213	18.0	20.0	3908363	77125	Og	Sls	We		DG	Decomposed + carbonaceous	19	25	325	-1	6.88	68	
ZG213	20.0	22.0	3908364	77125	Og	Ccy			DG	Plastic	19	35	103	-1	4.69	54	
ZG213	22.0	24.0	3908365	77125	Og	Sls	We		DG	Decomposed + carbonaceous	15	19	95	-1	2.72	44	
ZG213	24.0	26.0	3908366	77125	Og	Sls	We		DG	Decomposed + carbonaceous	18	17	80	-1	3.63	49	
ZG213	26.0	28.0	3908367	77125	Og	Sls	We		DG	Decomposed + carbonaceous	19	21	88	-1	8.11	50	
ZG213	28.0	30.0	3908368	77125	Og	SlsCcy	WeVu		DG	Decomposed + carbonaceous	11	22	234	-1	12.90	881	
ZG213	30.0	32.0	3908369	77125	Og	Sls			DG	Granular	4	6	103	-1	1.93	465	
ZG213	32.0	32.8	3908370	77125	Og	Sls			DG	Granular	5	5	68	-1	1.42	355	
ZG214	0.0	4.0			Qha	Cg											
ZG214	4.0	6.0	3908371	77125	Og	Ccy			OBDG		10	11	54	-1	0.26	19	
ZG214	6.0	8.0	3908372	77125	Og	Ccy			DG		26	34	50	-1	0.37	21	
ZG214	8.0	10.0	3908373	77125	Og	Ccy			DG		42	68	56	-1	0.26	12	
ZG214	10.0	12.0	3908374	77125	Og	Sls	We		DG	Decomposed + carbonaceous	31	65	761	-1	1.44	15	
ZG214	12.0	14.0	3908375	77125	Og	Sls	We		DG	Decomposed + carbonaceous	17	34	315	-1	1.32	12	
ZG214	14.0	16.0	3908376	77125	Og	CcySls	We		DG	Decomposed + carbonaceous	18	33	692	-1	1.97	18	
ZG214	16.0	18.0	3908377	77125	Og	Ccy			DG		13	30	1151	-1	6.17	34	
ZG214	18.0	20.0	3908378	77125	Og	Sls	We		DG	Decomposed + carbonaceous	13	23	185	-1	8.80	29	
ZG214	20.0	22.0	3908379	77125	Og	Sls	We		DG	Decomposed + carbonaceous	27	26	87	-1	3.90	43	
ZG214	22.0	24.0	3908380	77125	Og	Ccy			DG		22	22	56	-1	3.21	154	
ZG214	24.0	26.0	3908381	77125	Og	Sls			DG	Granular. Minor Ccy	13	12	61	-1	9.65	2315	
ZG214	26.0	28.0	3908382	77125	Og	Sls	Fr		DG	Granular	7	6	43	-1	6.02	2003	
ZG214	28.0	30.0	3908383	77125	Og	Sls	Fr		DG	Granular, fresh	10	6	40	-1	3.26	838	
ZG214	30.0	32.0	3908384	77125	Og	Sls	Fr		G	Granular, fresh	7	5	35	-1	2.31	602	
ZG214	32.0	34.0	3908385	77125	Og	Sls	Fr		G	Granular, fresh	11	4	39	-1	2.32	787	
ZG214	34.0	36.0	3908386	77125	Og	SlsCcy			GLOB	Minor LOB clay	10	45	154	-1	4.33	1370	
ZG214	36.0	38.0	3908387	77125	Og	Sls	VuVn		LB		12	22	138	-1	2.43	621	
ZG214	38.0	40.0	3908388	77125	Og	Sls	Vu		LCB		4	6	56	-1	6.13	2233	
ZG214	40.0	42.0	3908389	77125	Og	SlsCcy			G	Granular. Minor Ccy	12	55	201	-1	2.25	755	
ZG214	42.0	44.0	3908390	77125	Og	Ccy			LB	Coarse cc	12	36	159	-1	1.09	377	
ZG214	44.0	46.0	3908391	77125	Og	Sls			DG	Granular	7	5	41	-1	3.02	1079	
ZG214	46.0	48.0	3908392	77125	Og	Sls	Vn		DG	Granular. Coarse cc	5	4	40	-1	1.02	365	
ZG214	48.0	50.0	3908393	77125	Og	Sls			DG	Granular. Could have continued	5	5	42	-1	1.40	571	
ZG215	0.0	6.0			Qha	Cg											
ZG215	6.0	8.0	3908394	77125	Og	Ccy			DB		19	44	86	-1	2.10	23	
ZG215	8.0	10.0	3908395	77125	Og	CcySls	We		DG	Decomposed + carbonaceous	22	52	86	-1	2.88	42	
ZG215	10.0	12.0	3908396	77125	Og	Ccy			DGB		22	30	86	-1	2.37	32	

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG215	12.0	14.0	3908397	77125	Og	Ccy			DGB	Plastic clay	21	28	88	-1	3.89	37	
ZG215	14.0	16.0	3908398	77125	Og	Ccy			DGB	Plastic clay	19	32	161	-1	7.23	32	
ZG215	16.0	18.0	3908399	77125	Og	Ccy			DGB	Plastic clay	24	33	187	-1	7.97	34	
ZG215	18.0	18.9	3908400	77125	Og	Ccy			GDG	Sudden stop on hard bedrock	11	16	98	-1	3.99	75	
ZG216	0.0	4.0			Qha	Cg											
ZG216	4.0	6.0	3908401	77125	Og	Ccy			DB	Peaty	55	41	40	-1	0.27	18	
ZG216	6.0	8.0	3908402	77125	Og	Ccy			DB		42	43	56	-1	0.27	12	
ZG216	8.0	10.0	3908403	77125	Og	Ccy			MGB		40	62	110	-1	0.34	10	
ZG216	10.0	12.0	3908404	77125	Og	SlsCcy	We		DBG	Decomposed lst	29	48	232	-1	1.14	26	
ZG216	12.0	14.0	3908405	77125	Og	CcySls	We		DG	Decomposed lst	21	32	229	-1	6.99	24	
ZG216	14.0	16.0	3908406	77125	Og	CcySls			DG	Coralline lst?	19	31	167	-1	6.34	32	
ZG216	16.0	16.8	3908407	77125	Og	SlsCcy			G	Coralline lst?	10	22	53	-1	3.31	89	
ZG217	0.0	3.0			Qha	Cg											
ZG217	3.0	6.0	3908408	77125	Og	Ccy			DB	Peaty	16	37	477	-1	6.65	38	
ZG217	6.0	8.0	3908409	77125	Og	Ccy			DGB		19	60	448	-1	3.98	35	
ZG217	8.0	10.0	3908410	77125	Og	Ccy			DGB		20	128	674	-1	5.09	32	
ZG217	10.0	12.0	3908411	77125	Og	Ccy			KG		20	233	498	-1	6.69	1494	
ZG217	12.0	14.0	3908412	77125	Og	CcySls			DG	Med g/s granular lst	13	127	334	-1	6.98	1872	
ZG217	14.0	16.0	3908413	77125	Og	SlsCcy			DG	Med g/s granular lst	18	192	510	-1	8.14	2681	
ZG217	16.0	18.0	3908414	77125	Og	SlsCcy	Vu		LB	"Spongey" lst	13	107	359	-1	17.40	7600	
ZG217	18.0	20.0	3908415	77125	Og	Sls			LBG	Oolitic	5	38	229	-1	3.57	1512	
ZG217	20.0	21.2	3908416	77125	Og	Sls			G	Oolitic	4	30	229	-1	3.74	1449	
ZG218	0.0	4.0			Qha	Cg											
ZG218	4.0	6.0	3908417	77125	Og	SlsCcy	We		GB		11	22	465	-1	2.95	31	
ZG218	6.0	8.0	3908418	77125	Og	SlsCcy	We		GB		25	114	343	-1	1.28	23	
ZG218	8.0	10.0	3908419	77125	Og	SlsCcy	We		GB	Decomposed lst	31	201	651	-1	1.22	27	
ZG218	10.0	12.0	3908420	77125	Og	SlsCcy	We		DGB	Decomposed lst	23	130	1259	-1	3.06	43	
ZG218	12.0	14.0	3908421	77125	Og	Ccy			DG		29	112	783	-1	4.24	100	
ZG218	14.0	16.0	3908422	77125	Og	CcySls			DGOB	Shaley lst	27	180	633	-1	4.26	69	
ZG218	16.0	18.0	3908423	77125	Og	SlsCcy			DGOB	Shaley lst	18	161	489	-1	7.56	311	
ZG218	18.0	20.0	3908424	77125	Og	CcySls			LGB	"Spongey" lst	18	265	503	-1	3.20	516	
ZG218	20.0	22.0	3908425	77125	Og	SlsCcy			LGB	"Spongey" lst	11	242	348	-1	8.37	3314	
ZG218	22.0	24.0	3908426	77125	Og	Sls			LB	Oolitic?	22	582	768	-1	8.43	3537	
ZG218	24.0	26.0	3908427	77125	Og	Sls	Fr		LGB	Oolitic	4	42	131	-1	2.22	1101	
ZG218	26.0	28.0	3908428	77125	Og	Sls	Fr		LGB	Oolitic	3	67	263	-1	3.14	1599	
ZG218	28.0	30.0	3908429	77125	Og	Sls			G	Oolitic	2	144	324	-1	4.76	2256	
ZG219	0.0	4.0			Qha	Cg											
ZG219	4.0	6.0	3908430	77125	Og	Ccy			B	Peaty	6	14	38	-1	0.50	27	
ZG219	6.0	8.0	3908431	77125	Og	Ccy			B	Peaty	24	19	53	-1	0.34	27	
ZG219	8.0	10.0	3908432	77125	Og	Ccy			B	Peaty	36	91	325	-1	2.16	38	
ZG219	10.0	12.0	3908433	77125	Og	Ccy			DGLB		29	84	267	-1	1.42	29	
ZG219	12.0	14.0	3908434	77125	Og	CcySls	We		DG	Decomposed + carbonaceous	29	100	533	-1	4.40	42	
ZG219	14.0	16.0	3908435	77125	Og	Sls			DGLG		29	59	216	-1	3.81	33	
ZG219	16.0	18.0	3908436	77125	Og	Sls			DG	Carbonaceous	16	47	192	-1	4.05	908	
ZG219	18.0	20.0	3908437	77125	Og	Sls			DG	Fine g/s	18	34	170	-1	5.14	687	
ZG219	20.0	22.0	3908438	77125	Og	Sls			DG	Fine g/s	28	83	280	-1	4.25	210	
ZG219	22.0	24.0	3908439	77125	Og	Sls			DG	Fine g/s. Minor vuggy lst	15	77	510	-1	8.28	414	
ZG219	24.0	26.0	3908440	77125	Og	Sls			G	fossilif.?	4	16	130	-1	2.47	391	
ZG219	26.0	28.0	3908441	77125	Og	Sls			DGLG		5	13	57	-1	3.17	509	
ZG219	28.0	30.0	3908442	77125	Og	Sls	Fr		DG	Could have old drifting	4	6	38	-1	2.56	856	
ZG220	0.0	3.0			Qha	Cg											
ZG220	3.0	6.0	3908443	77125	Og	SlsCcy	Fe		DBR	Ferrug lst frags	25	261	453	-1	1.03	28	
ZG220	6.0	8.0	3908444	77125	Og	Ccy			MGLB		34	131	362	-1	1.61	53	

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG220	8.0	10.0	3908445	77125	Og	Ccy			G		33	119	402	-1	2.03	42	
ZG220	10.0	10.7	3908446	77125	Og	CcySls			DGLBG	Plastic clay, massive 1st	28	100	374	-1	2.60	65	
ZG221	0.0	2.0			Oha	Cg											
ZG221	2.0	4.0	3908447	77125	Og	Ccy			MLDB	Peaty	9	26	38	-1	0.36	18	
ZG221	4.0	6.0	3908448	77125	Og	Ccy			MLDB	Peaty	48	302	1525	-1	2.38	18	
ZG221	6.0	8.0	3908449	77125	Og	SlsCcy			LYG	Oolitic	9	524	2543	-1	4.35	1100	
ZG221	8.0	10.0	3908450	77125	Og	Sls			LYG	Oolitic	3	34	350	-1	1.34	424	
ZG221	10.0	12.0	3908451	77125	Og	Sls			LYG	Oolitic	6	73	749	-1	1.96	488	
ZG221	12.0	14.0	3908452	77125	Og	Ccy			MLDG	Plastic clay	18	181	1850	-1	5.10	407	
ZG221	14.0	16.0	3908453	77125	Og	Ccy			MGLB	Plastic clay	37	370	2342	-1	4.32	142	
ZG221	16.0	18.0	3908454	77125	OgQha	CcyCg			MGLB	Plastic clay + minor caving gravels	43	506	718	-1	2.32	41	
ZG221	18.0	20.0	3908455	77125	OgQha	CcyCg			MGLB	Plastic clay + minor caving gravels	39	421	1755	-1	4.15	113	
ZG221	20.0	22.0	3908456	77125	Og	Ccy			LKG	Plastic clay	23	133	852	-1	1.45	42	
ZG221	22.0	23.7	3908457	77125	Og	SlsCcy			LYG	Oolitic, minor clay	9	59	342	-1	1.32	326	
ZG222	0.0	2.0			Oha	Cg											
ZG222	2.0	4.0	3908458	77125	Og	Sls	We		DG	Decomposed + carbonaceous	14	167	705	-1	1.47	24	
ZG222	4.0	6.0	3908459	77125	Og	SlsCcy	We		DG	Decomposed + carbonaceous	45	165	988	-1	5.08	31	
ZG222	6.0	8.0	3908460	77125	Og	Ccy			DG		41	217	834	-1	2.39	39	
ZG222	8.0	10.0	3908461	77125	Og	Ccy			MLDG	Plastic clay	32	415	2334	-1	4.70	481	
ZG222	10.0	12.0	3908462	77125	Og	Ccy			MLDBG		17	233	1461	-1	6.00	586	
ZG222	12.0	14.0	3908463	77125	Og	CcySls			MLDG	Oolitic	15	238	834	-1	6.50	1288	
ZG222	14.0	16.0	3908464	77125	Og	Sls			LYG	Oolitic	4	44	228	-1	1.29	570	
ZG222	16.0	18.0	3908465	77125	Og	Sls			LYG	Oolitic	3	41	336	-1	0.71	446	
ZG222	18.0	20.0	3908466	77125	Og	Sls			LYG	Oolitic	2	34	466	-1	1.06	513	
ZG222	20.0	22.0	3908467	77125	Og	Sls			LYG	Oolitic	2	46	229	-1	0.69	396	
ZG222	22.0	24.2	3908468	77125	Og	Sls			LYG	Oolitic	2	110	268	-1	1.04	557	
ZG223	0.0	2.0			Oha	Cg											
ZG223	2.0	4.0	3908469	77125	Og	Ccy			DBG	Peaty	30	121	605	-1	2.96	36	
ZG223	4.0	6.0	3908470	77125	Og	Ccy			MDBG		37	154	1028	-1	4.02	35	
ZG223	6.0	8.0	3908471	77125	Og	Ccy			MLDG	Minor veg contam.	27	151	641	-1	2.44	31	
ZG223	8.0	10.0	3908472	77125	Og	Ccy			LGB	Plastic clay	28	45	344	-1	3.26	31	
ZG223	10.0	12.0	3908473	77125	Og	CcySls	Vu		DG		20	202	964	-1	4.17	350	
ZG223	12.0	14.0	3908474	77125	Og	SlsCcy	Vu		LG	"Spongy" 1st	10	66	315	-1	4.45	1482	
ZG223	14.0	16.0	3908475	77125	Og	SlsCcy	Vu		LG	"Spongy" 1st	9	66	355	-1	4.57	1331	
ZG223	16.0	18.0	3908476	77125	Og	Ccy			MGB		14	127	696	-1	5.55	1296	
ZG223	18.0	20.0	3908477	77125	Og	Ccy			MLDB		17	156	583	-1	5.11	1010	
ZG223	20.0	22.0	3908478	77125	Og	SlsCcy			YG	Oolitic	8	127	309	-1	7.03	2340	
ZG223	22.0	24.0	3908479	77125	Og	Sls			LG	Oolitic	6	91	434	-1	3.04	1213	
ZG223	24.0	26.0	3908480	77125	Og	Sls			LG	Oolitic	6	135	402	-1	2.23	973	
ZG223	26.0	28.0	3908481	77125	Og	Sls			LG	Oolitic	3	137	437	-1	1.15	579	
ZG224	0.0	2.0			Oha	Cg											
ZG224	2.0	4.0	3908482	77125	Og	Ccy			DG		22	71	192	-1	2.23	41	
ZG224	4.0	6.0	3908483	77125	Og	Ccy			DGN		24	59	316	-1	3.15	53	
ZG224	6.0	8.0	3908484	77125	Og	Ccy			DG		23	54	417	-1	4.27	60	
ZG224	8.0	10.0	3908485	77125	Og	Ccy			DG		25	121	957	-1	4.60	55	
ZG224	10.0	12.0	3908486	77125	Og	Ccy			DG		34	164	981	-1	4.45	62	
ZG224	12.0	14.0	3908487	77125	Og	Ccy			DGB		19	45	269	-1	6.45	1192	
ZG224	14.0	16.0	3908488	77125	Og	Ccy			DG		21	43	180	-1	5.90	1038	
ZG224	16.0	18.0	3908489	77125	Og	CcySls			MLDG	Shaley 1st	32	140	560	-1	6.37	1278	
ZG224	18.0	20.0	3908490	77125	Og	Sls			LG	Shaley + "spongy" 1st	12	36	255	-1	5.06	1314	
ZG224	20.0	22.0	3908491	77125	Og	Ccy			MDBG		8	71	281	-1	5.30	779	
ZG224	22.0	24.0	3908492	77125	Og	CcySls			MDBG	"spongy" 1st	9	66	333	-1	4.49	1064	
ZG224	24.0	26.0	3908493	77125	Og	CcySls	Ds	Py	DG	"spongy" 1st, Trace py.	18	162	447	-1	6.80	1386	

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APPENDIX 2: Grievas Prospect - CRAE air-core drillhole logs and assays

HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG224	26.0	28.0	3908494	77125	Og	CcySls			MDBG	Granular + oolitic? lsts	20	111	459	-1	6.24	2255	
ZG224	28.0	30.0	3908495	77125	Og	SlsCcy			LGLB	Oolitic?	11	236	344	-1	7.02	2510	
ZG224	30.0	32.0	3908496	77125	Og	Sls	We		LYG	Oolitic	7	113	405	-1	2.80	1354	
ZG224	32.0	34.0	3908497	77125	Og	Sls	AI?	Ha	KG	Oolitic	4	84	242	-1	2.19	1012	
ZG224	34.0	36.0	3908498	77125	Og	Sls			LYG	Oolitic. Minor clay	9	83	366	-1	1.76	725	
ZG224	36.0	38.0	3908499	77125	Og	Sls	Fr		G	Oolitic	4	46	252	-1	1.85	646	
ZG225	0.0	1.0	3908500	77125	Qha	Cg					8	9	14	-1	0.28	21	
ZG225	1.0	2.0	3908500	77125	Og	Ccy			B	Peaty	8	9	14	-1	0.28	21	
ZG225	2.0	4.0	3908501	77125	Og	Ccy			DGN		34	45	94	-1	1.72	27	
ZG225	4.0	6.0	3908502	77125	Og	Ccy			DGN		26	45	663	-1	3.61	32	
ZG225	6.0	8.0	3908503	77125	Og	Ccy			DGN		42	86	611	-1	4.18	29	
ZG225	8.0	10.0	3908504	77125	Og	Ccy			MDGLB	Plastic clays	23	91	509	-1	3.78	44	
ZG225	10.0	12.0	3908505	77125	Og	Ccy			MDGLB	Plastic clays	32	91	337	-1	3.85	56	
ZG225	12.0	14.0	3908506	77125	Og	CcySsh			DGP	Purple shale?	37	43	172	-1	2.98	151	
ZG225	14.0	16.0	3908507	77125	Og	Ccy			FG		16	73	324	-1	3.76	520	
ZG225	16.0	18.0	3908508	77125	Og	SlsCcy			DG	Minor clay	9	26	86	-1	2.54	697	
ZG225	18.0	20.0	3908509	77125	Og	Sls			DG		11	87	145	-1	4.63	1428	
ZG225	20.0	22.0	3908510	77125	Og	Sls			DG		9	47	137	-1	3.52	1165	
ZG225	22.0	24.0	3908511	77125	Og	Ccy			LVB		15	93	301	-1	2.50	646	
ZG225	24.0	26.0	3908512	77125	Og	Sls			DG	Granular	8	14	65	-1	8.16	2993	
ZG225	26.0	28.0	3908513	77125	Og	Sls			DG	Granular	6	8	39	-1	12.40	4203	
ZG225	28.0	36.0			Og	Ox				Cavity. Bottom not reached.							
ZG226	0.0	2.0			Qha	Cg											
ZG226	2.0	4.0	3908514	77125	Og	Ccy			DBG		20	54	851	-1	3.19	60	
ZG226	4.0	6.0	3908515	77125	Og	Ccy			DBG		19	57	724	-1	4.78	38	
ZG226	6.0	8.0	3908516	77125	Og	Ccy			DBG		16	43	445	-1	4.22	88	
ZG226	8.0	10.0	3908517	77125	Og	Ccy			DBG		19	31	153	-1	6.21	52	
ZG226	10.0	12.0	3908518	77125	Og	CcySls	Fe		DGOB	Shaley lst?	21	35	256	-1	4.48	56	
ZG226	12.0	14.0	3908519	77125	Og	Ccy			DG	Plastic clays	24	50	235	-1	5.51	61	
ZG226	14.0	16.2	3908520	77125	Og	Sls	Ma		DG		9	14	42	-1	2.31	490	
ZG227	0.0	5.2			Qha	Cg											
ZG227	5.2	8.0	3908521	77125	Og	Ccy			DB		15	50	192	-1	0.97	22	
ZG227	8.0	10.0	3908522	77125	Og	Ccy			DB		54	178	228	-1	1.81	29	
ZG227	10.0	12.0	3908523	77125	Og	CcySls	We		DB		30	220	644	-1	3.78	27	
ZG227	12.0	14.0	3908524	77125	Og	SlsCcy			G	Granular. Minor clay	11	25	145	-1	2.50	114	
ZG227	14.0	16.0	3908525	77125	Og	Sls			G	Granular lst	8	10	69	-1	1.02	142	
ZG227	16.0	18.0	3908526	77125	Og	Ccy			DGB		24	57	205	-1	2.40	56	
ZG227	18.0	20.0	3908527	77125	Og	Ccy			DGB		18	42	125	-1	4.33	71	
ZG227	20.0	20.8	3908528	77125	Og	Ccy			G	Lime mudstone	9	12	56	-1	2.35	269	
ZG228	0.0	2.0	3908529	77125	Og	Ccy			LG	Clay + veg	16	132	123	-1	0.27	16	
ZG228	2.0	4.0	3908530	77125	Og	Ccy			LB		25	727	2247	-1	3.40	27	
ZG228	4.0	6.0	3908531	77125	Og	Ccy			BLB	Plastic clays	38	1363	593	2	1.39	29	
ZG228	6.0	8.0	3908532	77125	Og	Ccy			MLDB		59	3300	21900	2	10.80	28	14.70
ZG228	8.0	10.0	3908533	77125	Og	CcySls	Fe		MBG	Plastic clays. Minor ferrug lst	26	510	15900	1	9.43	125	10.80
ZG228	10.0	12.0	3908534	77125	Og	CcySls	Fe		G	Plastic clays. Minor ferrug lst	25	365	24500	1	13.20	140	14.60
ZG228	12.0	14.0	3908535	77125	Og	Sls	AI?	He	G	Oolitic	5	64	7200	-1	2.86	423	
ZG228	14.0	16.0	3908536	77125	Og	Sls	AI	He	KG	Oolitic. Weak haem atln.	8	47	3627	-1	1.89	529	
ZG228	16.0	16.8	3908537	77125	Og	Sls	AI	He	KG	Oolitic. Weak haem atln.	10	49	2727	-1	1.94	496	
ZG229	0.0	2.0	3908538	77125	Og	Ccy			LGW	Clay + veg	12	218	210	-1	0.57	23	
ZG229	2.0	4.0	3908539	77125	Og	Ccy			G	Plastic clays. Minor lst	27	1859	1332	2	1.04	27	
ZG229	4.0	6.0	3908540	77125	Og	Ccy			DG	Plastic clays	45	1281	3717	1	4.07	37	
ZG229	6.0	8.0	3908541	77125	Og	Ccy			MWDGN	Plastic clays	44	723	2702	1	3.08	61	
ZG229	8.0	10.0	3908542	77125	Og	Ccy			MLDBG	Plastic clays	51	1900	6200	2	8.86	88	

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APPENDIX 2: Grleves Prospect - CRAE air-core drillhole logs and assays

HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG229	10.0	12.0	3908543	77125	Og	Ccy			MLDBG	Plastic clays	66	3700	7500	3	9.70	80	
ZG229	12.0	14.0	3908544	77125	Og	Ccy			MLDBG	Plastic clays	58	2500	7600	2	12.00	78	
ZG229	14.0	16.0	3908545	77125	Og	CcySls			MLDBG	Plastic clays. Minor oolitic lst	35	801	3399	2	16.50	1228	
ZG229	16.0	18.0	3908546	77125	Og	CcySls			MLBKG	Plastic clays. Minor lst	23	246	2640	1	11.30	3939	
ZG229	18.0	20.0	3908547	77125	Og	Ccy			MLDBG	Plastic clays	38	328	1470	-1	3.88	1207	
ZG229	20.0	22.0	3908548	77125	Og	Ccy			MLDBG	Plastic clays	24	259	2464	-1	0.84	82	
ZG229	22.0	24.0	3908549	77125	Og	Ccy			MLDBG	Plastic clays	19	210	1920	-1	1.32	56	
ZG229	24.0	26.0	3908550	77125	Og	CcySls			MLBKG	Plastic clays. Minor carbonaceous lst	20	222	2901	-1	1.53	72	
ZG229	26.0	28.0	3908551	77125	Og	CcySls			DG	Plastic clays. Minor carbonaceous lst	22	206	2622	-1	2.17	94	
ZG229	28.0	30.0	3908552	77125	Og	SlsCcy			DG	Minor plastic clays. carbonaceous lst	20	126	1114	-1	2.23	188	
ZG229	30.0	32.0	3908553	77125	Og	SlsCcy			DG	Minor plastic clays. carbonaceous lst	22	137	826	-1	2.19	141	
ZG229	32.0	32.7	3908554	77125	Og	Ccy			DG	Bottom in Moira sst.	24	127	1856	-1	3.56	61	
ZG230	0.0	2.0	3908555	77125	Og	Ccy			LG	Clay + veg	5	92	51	-1	0.32	22	
ZG230	2.0	4.0	3908556	77125	Og	CcySls	Fe		G	Minor ferrug lst	18	658	157	2	0.53	21	
ZG230	4.0	6.0	3908557	77125	Og	Ccy			LYG	Plastic clays	32	631	671	1	2.36	64	
ZG230	6.0	8.0	3908558	77125	Og	Ccy			LMBG	Plastic clays	44	974	3925	1	4.81	899	
ZG230	8.0	10.0	3908559	77125	Og	Ccy			DMEG	Plastic clays	31	1600	15500	1	16.70	3740	6.88
ZG230	10.0	12.2	3908560	77125	Og	SlsCcy	We		LG	Oolitic. Minor clay	9	310	11700	-1	6.90	817	5.68
ZG231	0.0	2.0	3908561	77125	Og	Ccy			BG	Clay + veg	27	323	124	2	0.65	27	
ZG231	2.0	4.0	3908562	77125	Og	Ccy			MDGLB		62	1758	553	1	2.18	30	
ZG231	4.0	6.0	3908563	77125	Og	Ccy			MDGLB		25	1768	1455	-1	14.80	5400	
ZG231	6.0	8.0	3908564	77125	Og	Sls	Al?	Sd?	LYG	Granular lst	7	24	853	-1	36.80	15000	
ZG231	8.0	10.0	3908565	77125	Og	Sls			G	"spongy" lst	6	37	1155	-1	35.30	13800	
ZG231	10.0	12.0	3908566	77125	Og	SlsCcy			DG	"spongy" lst	7	35	886	-1	28.60	11100	
ZG231	12.0	14.0	3908567	77125	Og	Sls			G	Granular + "spongy" lst	5	19	667	-1	33.30	13300	
ZG231	14.0	16.0	3908568	77125	Og	Sls	Al?	Sd?	G	Minor altn?	10	54	612	-1	29.10	11000	
ZG231	16.0	18.0	3908569	77125	Og	Sls	Al	Sd	MDGY	Minor altn/replacement	10	50	429	-1	24.90	11100	
ZG231	18.0	20.0	3908570	77125	Og	Sls	Al	Sd	LYG		8	48	412	-1	24.40	11000	
ZG232	0.0	2.0			Qha	Cg											
ZG232	2.0	4.0	3908571	77125	Og	Ccy			DGB	Peaty?	31	633	2325	-1	2.96	91	
ZG232	4.0	6.0	3908572	77125	Og	Ccy			DG		32	499	2277	-1	3.25	69	
ZG232	6.0	8.0	3908573	77125	Og	Ccy			DG	Plastic clays	24	95	1088	-1	5.68	84	
ZG232	8.0	10.0	3908574	77125	Og	Ccy			DGB	Plastic clays	19	111	963	-1	16.30	6700	
ZG232	10.0	12.0	3908575	77125	Og	SlsCcy	Al	Sd	YG	"spongy" lst	7	59	679	-1	34.00	14500	
ZG232	12.0	14.0	3908576	77125	Og	SlsCcy			G	"spongy" lst	9	15	506	-1	34.50	15200	
ZG232	14.0	16.0	3908577	77125	Og	CcySls			DG	Plastic clays, spongy lst	15	59	662	-1	23.20	11100	
ZG232	16.0	18.0	3908578	77125	Og	CcySls			MDGLB	Plastic clays, granular lst	24	221	3433	-1	18.90	8100	
ZG232	18.0	20.0	3908579	77125	Og	SlsCcy			G	Granular lst, minor clay	13	125	2138	-1	21.80	9100	
ZG232	20.0	22.0	3908580	77125	Og	Sls			WLG	"spongy" lst	5	29	708	-1	10.20	2679	
ZG232	22.0	24.0	3908581	77125	Og	Sls			G	Oolitic?	5	668	989	-1	8.03	2414	
ZG232	24.0	24.5	3908582	77125	Og	Sls	Al?	Sd?	YG	Minor ankerite altn? Oolitic?	6	195	602	-1	6.61	2120	
ZG233	0.0	3.0			Qha	Cg											
ZG233	3.0	6.0	3908583	77125	Og	Ccy			DB	Peaty	48	93	132	-1	1.29	37	
ZG233	6.0	8.0	3908584	77125	Og	Ccy			DB	Peaty	24	31	157	-1	2.84	53	
ZG233	8.0	10.0	3908585	77125	Og	Ccy			DGB		23	39	241	-1	2.12	37	
ZG233	10.0	12.0	3908586	77125	Og	Ccy			DGB		23	42	197	-1	2.73	54	
ZG233	12.0	14.0	3908587	77125	Og	Sls?	We		DGB	Decomposed lst?	22	26	194	-1	2.00	58	
ZG233	14.0	16.0	3908588	77125	Og	Sls?	We		DB	Decomposed lst?	23	30	264	-1	1.67	97	
ZG233	16.0	18.0	3908589	77125	Og	Sls?	We		DB	Decomposed lst?	22	52	230	-1	1.27	126	
ZG233	18.0	20.0	3908590	77125	Og	Sls?	We		DGB	Decomposed lst?	23	37	387	-1	2.28	212	
ZG233	20.0	22.0	3908591	77125	Og	Sls?	We		DG	Decomposed lst?	27	46	301	-1	1.00	118	
ZG233	22.0	24.0	3908592	77125	Og	CcySls	We		DB	Decomposed lst?	20	38	326	-1	1.30	142	
ZG233	24.0	26.0	3908593	77125	Og	CcySls	We		DB	Decomposed lst?	19	51	413	-1	0.94	178	

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APPENDIX 2: Grievas Prospect - CRAE air-core drillhole logs and assays

HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG233	26.0	28.0	3908594	77125	Og	Ccy			DOB		20	65	487	-1	0.63	173	
ZG233	28.0	28.8	3908595	77125	Og	Sls			G	Granular lst	8	17	129	-1	3.01	312	
ZG234	0.0	3.0			Qha	Cg											
ZG234	3.0	6.0	3908596	77125	Og	Ccy			DB	Peaty	12	14	55	-1	0.54	39	
ZG234	6.0	8.0	3908597	77125	Og	Ccy			DB		13	29	200	-1	0.95	31	
ZG235	0.0	2.0	3908598	77125	Og	Ccy			DG	Plastic clays, minor veg	17	20	66	-1	18.70	8800	
ZG235	2.0	4.0	3908599	77125	Og	CcySls			DG	Plastic clays, carbonaceous lst	18	36	150	-1	20.60	9700	
ZG235	4.0	6.0	3908600	77125	Og	CcySls			DG	Plastic clays, carbonaceous lst	12	41	245	-1	30.60	14100	
ZG235	6.0	8.0	3908601	77125	Og	SlsCcy	We		DG		16	41	243	-1	21.30	10000	
ZG235	8.0	9.7	3908602	77125	Og	Sls	Vn	Sd	DG	Granular lst, minor ankerite veins	11	12	148	-1	38.20	16000	
ZG236	0.0	2.0	3908603	77125	Og	Ccy			DG	Clay + veg	15	130	840	-1	1.88	263	
ZG236	2.0	4.0	3908604	77125	Og	Ccy			DBG		16	88	589	-1	1.39	93	
ZG236	4.0	6.0	3908605	77125	Og	Ccy			DBG	Plastic clays	19	69	647	-1	4.61	2445	
ZG236	6.0	8.0	3908606	77125	Og	CcySls			DG	Granular lst	10	30	209	-1	28.80	11800	
ZG236	8.0	10.0	3908607	77125	Og	SlsCcy			DG	Granular lst	8	29	175	-1	34.50	13700	
ZG236	10.0	12.0	3908608	77125	Og	CcySls			DG	Granular lst	10	13	104	-1	32.00	13700	
ZG236	12.0	14.0	3908609	77125	Og	CcySls			DG	Granular lst	21	47	212	-1	19.00	8200	
ZG236	14.0	16.0	3908610	77125	Og	SlsCcy			DG	Granular, carbonaceous lst	12	35	275	-1	28.40	12300	
ZG236	16.0	17.6	3908611	77125	Og	SlsCcy			DG	Granular, carbonaceous lst	13	124	607	-1	33.10	15600	
ZG237	0.0	2.0	3908612	77125	Og	Ccy			DB	Peaty	12	103	875	-1	9.74	3124	
ZG237	2.0	4.0	3908613	77125	Og	Ccy			DB		13	113	1167	-1	2.44	963	
ZG237	4.0	6.0	3908614	77125	Og	Ccy			DB		17	109	1394	-1	1.90	601	
ZG237	6.0	8.0	3908615	77125	Og	Ccy			DBG		26	539	2996	3	4.54	439	
ZG237	8.0	10.0	3908616	77125	Og	CcySls	Vu		DGLG	Vuggy lst	16	326	1702	1	16.30	6400	
ZG237	10.0	12.0	3908617	77125	Og	CcySls			DGLG		13	83	610	-1	13.80	4757	
ZG237	12.0	14.0	3908618	77125	Og	SlsCcy			G	Granular lst	9	68	506	-1	23.30	9800	
ZG237	14.0	16.0	3908619	77125	Og	SlsCcy			G	Granular lst	10	65	572	-1	32.50	10800	
ZG237	16.0	18.0	3908620	77125	Og	CcySls	Ma		G	Plastic clays, granular lst	15	19	73	-1	23.50	8800	
ZG237	18.0	20.0	3908621	77125	Og	CcySls	Ma		G	Plastic clays, granular lst	22	57	100	-1	15.40	4562	
ZG237	20.0	22.2	3908622	77125	Og	Sls	MaDs	Py	DG	Granular lst, py 2%	18	34	173	-1	23.60	9700	
ZG238	0.0	2.0	3908623	77125	QhaOg	CcyCg			DB	Peaty clay, gravel, veg	13	59	252	-1	1.23	242	
ZG238	2.0	3.0	3908624	77125	Og	Sls			LG	Fine gs carbonate mudstone	5	5	36	-1	1.84	520	
ZG239	0.0	2.0	3908625	77125	QhaOg	CgCcySls					12	33	94	-1	0.94	102	
ZG239	2.0	2.5	3908626	77125	QhaOg	CgCcySls					7	17	68	-1	1.17	252	
ZG240	0.0	2.5			Qha	Cg											
ZG240	2.5	3.5	3908627	77125	Og	CcySls			MLDB	Massive lst	17	83	428	-1	1.16	130	
ZG241	0.0	2.3			Qha	Cg											
ZG241	2.3	4.0	3908628	77125	Og	Ccy			DB	Peaty	11	55	97	-1	0.51	39	
ZG241	4.0	6.0	3908629	77125	Og	Ccy			DB	Peaty	17	56	156	-1	1.66	63	
ZG241	6.0	7.2	3908630	77125	Og	CcySls	Ma		MLDB	Fine gs massive lst	14	69	214	-1	1.39	205	
ZG242	0.0	2.5			Qha	Cg											
ZG242	2.5	3.9	3908631	77125	Og	Sls	Ma		LLG	Fine gs massive lst	6	3	25	-1	0.67	60	
ZG243	0.0	2.5			Qha	Cg											
ZG243	3.0	6.0	3908632	77125	Og	Ccy			DB	Peaty	42	99	122	-1	0.87	22	
ZG243	6.0	8.0	3908633	77125	Og	Sls	We		DGYB	Granular lst	196	519	682	-1	0.71	23	
ZG243	8.0	10.0	3908634	77125	Og	Sls	We		DG	Carbonaceous	32	117	884	-1	1.34	24	
ZG243	10.0	12.0	3908635	77125	Og	Sls	We		DG	Carbonaceous	23	22	917	-1	2.52	37	
ZG243	12.0	14.0	3908636	77125	Og	Ccy			DBG	Plastic clays	23	28	605	-1	2.70	31	
ZG243	14.0	16.0	3908637	77125	Og	Ccy			DBG	Plastic clays	22	23	326	-1	3.63	40	
ZG243	16.0	17.8	3908638	77125	Og	CcySls	Lm		DG	Banded carbonate mudstone	19	16	247	-1	2.40	69	
ZG244	0.0	3.9			Qha	Cg				Could not get through gravel							
ZG245	0.0	6.0			Qha	Cg											
ZG245	6.0	8.0	3908639	77125	Og	SlsOrms	WeFeBs	Py	DG	Abundant Py	19	31	146	-1	1.30	35	

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG245	8.0	10.0	3908640	77125	Og	CcySls	WeFeDs	Py	DG		16	15	125	-1	1.65	22	
ZG245	10.0	12.0	3908641	77125	Og	Ccy			G	Plastic clays	24	18	61	-1	2.28	39	
ZG245	12.0	13.7	3908642	77125	Og	Ccy			DG	Plastic clays, rare carbonate mudstone	16	25	133	-1	1.12	137	
ZG246	0.0	4.0			Qha	Cg											
ZG246	4.0	6.0	3908643	77125	Og	CcySls			DBG	Minor carbonate mudstone	14	19	147	-1	0.79	46	
ZG246	6.0	8.2	3908644	77125	Og	Sls			ALDG	Carbonate mudstone	7	9	32	-1	1.15	132	
ZG247	0.0	4.0			Qha	Cg											
ZG247	4.0	6.5	3908645	77125	Og	SlsCcy			MCDG	Carbonate mudstone	6	15	85	-1	1.39	266	
ZG248	0.0	2.7			Qha	Cg											
ZG248	2.7	3.7	3908646	77125	Og	CcySls			DBG	Carbonate mudstone	62	7	101	-1	1.36	94	
ZG249	0.0				Qha	Cg											
ZG249	3.5	6.0	3908647	77125	Og	Ccy					25	39	524	-1	2.13	38	
ZG249	6.0	8.0	3908648	77125	Og	Ccy					24	25	317	-1	1.27	31	
ZG249	8.0	10.0	3908649	77125	Og	Ccy					23	34	280	-1	2.08	36	
ZG249	10.0	12.0	3908650	77125	Og	Ccy					13	15	350	-1	2.73	194	
ZG249	12.0	14.0	3908651	77125	Og	Ccy					27	25	248	-1	1.88	90	
ZG249	14.0	14.8	3908652	77125	Og	Ccy					11	10	55	-1	1.71	158	
ZG250	3.5	5.5	3908653	77125	Og	Sls					16	20	144	-1	1.54	49	
ZG252	1.8	4.0	3908654	77125	Og	Ccy				Mottled clay	17	45	67	-1	0.59	146	
ZG252	4.0	4.9	3908655	77125	Og	Sls	Vn	Cc	GW	Coral lst	10	32	79	-1	0.82	3474	
ZG253	0.0	2.0	3908656	77125	Og	Ccy			W		4	40	23	-1	0.32	407	
ZG253	2.0	4.0	3908657	77125	Og	Ccy			LG		10	141	25	-1	0.67	47	
ZG253	4.0	6.0	3908658	77125	Og	Ccy			BK		56	30	125	-1	1.20	25	
ZG253	6.0	8.0	3908659	77125	Og	Ccy			DG		63	24	40	-1	0.50	20	
ZG253	8.0	10.0	3908660	77125	Og	Ccy			DG		113	135	445	-1	1.45	30	
ZG253	10.0	12.0	3908661	77125	Og	Ccy			GB	Ferruginous clay	33	47	696	-1	3.56	40	
ZG253	12.0	14.0	3908662	77125	Og	Ccy	Ds	Py	DG		24	31	135	-1	3.20	41	
ZG253	14.0	16.0	3908663	77125	Og	SlsSsl	We		DG		17	20	117	-1	1.58	65	
ZG254	0.0	2.0	3908664	77125	Og	Ccy			W		2	44	21	-1	0.28	15	
ZG254	2.0	4.0	3908665	77125	Og	Ccy			LB		9	46	30	-1	0.42	19	
ZG254	4.0	6.0	3908666	77125	Og	SlsCcy				CO3 Lst.	18	64	41	-1	0.55	21	
ZG254	6.0	8.0	3908667	77125	Og	CcySls			DB		15	37	61	-1	0.60	27	
ZG254	8.0	10.0	3908668	77125	Og	Sls			DG		14	32	151	-1	1.20	63	
ZG254	10.0	12.0	3908669	77125	Og	Ccy			DG	Carbonaceous clay	N/L						
ZG254	12.0	14.0	3908670	77125	Og	Ccy			DG	Carbonaceous clay	20	41	162	-1	1.46	36	
ZG254	14.0	16.0	3908671	77125	Og	Ccy			DG	Carbonaceous clay	19	25	86	-1	1.74	167	
ZG254	16.0	18.0	3908672	77125	Og	Ccy			DG	Carbonaceous clay	14	21	66	-1	1.78	339	
ZG254	18.0	20.0	3908673	77125	Og	CcySls			DG		10	18	138	-1	1.54	214	
ZG254	20.0	22.0	3908674	77125	Og	SlsOvc			LG		8	14	134	-1	1.66	390	
ZG254	22.0	24.0	3908675	77125	Og	CcyOvc			G	Calcite frags within carbonaceous clay	7	12	157	-1	1.37	415	
ZG254	24.0	26.0	3908676	77125	Og	Sls			DG	Calcite veined Carb. mudstone	8	16	198	-1	2.02	429	
ZG255	0.0	2.0			Qha	Cg											
ZG255	2.0	4.0	3908677	77125	Og	Ccy			W		11	51	291	-1	0.39	21	
ZG255	4.0	6.0	3908678	77125	Og	Ccy			LB		49	212	1326	1	1.49	38	
ZG255	6.0	8.0	3908679	77125	Og	Ccy			M	Mottled clay	36	199	1367	1	1.97	29	
ZG255	8.0	10.0	3908680	77125	Og	Ccy			M		35	187	1667	-1	1.47	29	
ZG255	10.0	12.0	3908681	77125	Og	Ccy			M		35	142	639	-1	1.38	17	
ZG255	12.0	14.0	3908682	77125	Og	Ccy			LG		29	83	686	-1	1.66	42	
ZG255	14.0	14.5	3908683	77125	Og	SlsCcy			DG		13	75	749	-1	1.20	82	
ZG256	0.0	2.0			Qha	Cg											
ZG256	2.0	4.0	3908684	77125	Og	Ccy			M		32	199	2605	-1	1.04	36	
ZG256	4.0	4.2	3908685	77125	Og	Sls	Le		LG	Porous lst	20	98	2204	-1	2.33	231	
ZG257	0.0	2.0			Qha	Cg											

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HOLE	DFROM	DTO	SAMPNO	DPO	BMR/LITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG257	2.0	4.0	3908686	77125	Og	CcyCg					12	35	775	-1	1.07	38	
ZG257	4.0	6.0	3908687	77125	Og	Sls			DG	Carbonaceous lst	16	18	95	-1	1.27	35	
ZG257	6.0	8.0	3908688	77125	Og	CcySls			WG		21	53	301	-1	0.77	30	
ZG257	8.0	10.0	3908689	77125	Og	Ccy			M		40	180	2044	-1	1.26	48	
ZG257	10.0	12.0	3908690	77125	Og	Sls	Ds	Py	DG		17	73	765	-1	2.83	442	
ZG257	12.0	14.0	3908691	77125	Og	Sls			DG		7	38	269	-1	3.24	703	
ZG257	14.0	16.0	3908692	77125	Og	Sls			LG		5	31	153	-1	1.55	318	
ZG257	16.0	18.0	3908693	77125	Og	Sls	Bx		DG	Angular clasts set in FG. carb. matrix	3	30	148	-1	1.59	551	
ZG258	0.0	2.0			Qha	Cg											
ZG258	2.0	3.1	3908694	77126	Og	Sls			DG		4	3	23	-1	0.50	40	
ZG259	0.0	2.0			Qha	Cg											
ZG259	2.0	3.5	3908695	77126	Og	Sls			DG		6	6	13	-1	0.89	115	
ZG260	0.0	2.0	3908696	77126	Og	Ccy			DB		4	7	15	-1	0.51	36	
ZG260	2.0	4.1	3908697	77126	Og	Sls	Ds	Py	DG	Abundant pyrite	15	17	95	-1	4.48	82	
ZG261	0.0	2.1	3908698	77126	Og	Sls			DG		3	-3	7	-1	0.35	23	
ZG262	0.0	4.0			Og	Sls											
ZG262	4.0	6.0	3908699	77126	Og	SlsCcy			WG	Coarse grained carbonate sst.	51	20	69	-1	4.53	37	
ZG262	6.0	8.0	3908700	77126	Og	Sls			GW		28	8	43	-1	2.98	19	
ZG262	8.0	8.9	3908701	77126	Om	Sss	Ma		W	Medium grained Moena Sst	20	38	12	-1	0.65	13	
ZG263	0.0	4.5			Qha	Cg											
ZG263	4.5	6.0	3908702	77126	Og	Ccy			M		25	378	1346	-1	7.57	278	
ZG263	6.0	8.0	3908703	77126	Og	Ccy			M	Pale mottled clay with remnant granular texture	20	214	401	-1	4.29	210	
ZG263	8.0	10.0	3908704	77126	Og	Ccy			M		16	66	211	-1	2.36	77	
ZG263	10.0	12.2	3908705	77126	Om	SssCcy			YB	Weathered Sst.	31	69	159	-1	5.41	59	
ZG264	0.0	3.0			Qha	Cg											
ZG264	3.0	6.0	3908706	77126	OgQha	CcyCg					13	700	35800	-1	1.87	201	3.20
ZG264	6.0	8.0	3908707	77126	Om	Sss			YW	Feldspathic Sst.	4	47	2864	-1	0.82	336	
ZG264	8.0	10.0	3908708	77126	Og	SssCcy			YW		4	102	6700	-1	1.38	856	
ZG264	10.0	12.0	3908709	77126	Om	Sss			W		3	129	4780	-1	1.15	745	
ZG264	12.0	14.0	3908710	77126	Og	Ccy			GB		38	5700	31700	5	6.60	927	2.12
ZG264	14.0	16.0	3908711	77126	Og	Ccy			GB		90	3800	10700	27	7.83	104	0.86
ZG264	16.0	18.0	3908712	77126	Og	Ccy			GB		242	5600	10800	29	11.10	240	0.53
ZG264	18.0	20.0	3908713	77126	Om	CcySss			LG		19	378	1170	-1	2.90	181	
ZG264	20.0	22.0	3908714	77126	Og	Ccy			M		16	386	675	-1	2.90	186	
ZG264	22.0	24.0	3908715	77126	Og	Ccy			LB		16	666	846	-1	3.24	256	
ZG264	24.0	26.0	3908716	77126	Og	Ccy			M		18	400	1114	-1	4.63	240	
ZG264	26.0	28.0	3908717	77126	Og	CcySss			YW		18	368	2119	-1	9.05	250	
ZG264	28.0	30.0	3908718	77126	Om	Sss			YW		19	201	1725	-1	1.82	112	
ZG264	30.0	32.0	3908719	77126	Og	CcySss			BW		18	182	2211	-1	0.79	55	
ZG264	32.0	34.0	3908720	77126	Og	CcySss			M		26	117	498	-1	1.32	31	
ZG264	34.0	36.0	3908721	77126	Om	Sss			LB		36	133	1001	-1	0.66	18	
ZG264	36.0	38.0	3908722	77126	Om	Sss			G		24	18	187	-1	0.50	20	
ZG264	38.0	39.0	3908723	77126	Om	Sss			LB	Massive coarse grained Sst.	19	18	192	-1	0.41	13	
ZG265	0.0	4.0			Qha	Cg											
ZG265	4.0	6.0	3908724	77126	Og	Ccy			DB		13	700	17100	-1	3.39	284	4.22
ZG265	6.0	8.0	3908725	77126	Og	CcySss			DB		5	110	7700	-1	1.56	300	
ZG265	8.0	10.0	3908726	77126	Om	Sss			LG		3	35	1456	-1	0.66	299	
ZG265	10.0	12.0	3908727	77126	Om	Sss			LG		3	65	1171	-1	0.65	344	
ZG265	12.0	14.0	3908728	77126	Og	CcySss			LB		22	1400	31900	-1	7.19	1871	5.77
ZG265	14.0	16.0	3908729	77126	Om	Sss			LG		4	268	2703	-1	1.51	778	
ZG265	16.0	18.0	3908730	77126	Om	Sss			LG		4	161	4027	-1	2.99	1525	
ZG265	18.0	20.0	3908731	77126	Om	Sss	We		LG		3	127	3690	-1	0.87	516	
ZG265	20.0	20.8	3908732	77126	Og	Sls			LG		3	223	3321	-1	0.99	535	

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HOLE	DFROM	DTO	SAMPNO	DPO	BMR/LITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG266	0.0	4.0			Oha	Cg											
ZG266	4.0	6.0	3908733	77126	Og	Sls			LG		3	100	883	-1	1.19	727	
ZG266	6.0	8.0	3908734	77126	Og	SlsSss			WP		2	37	1155	-1	1.41	900	
ZG266	8.0	10.0	3908735	77126	Og	SssCcy			BW		2	78	2321	-1	2.10	1122	
ZG266	10.0	12.0	3908736	77126	Og	Sls			LG	Oolitic lst	2	49	1723	-1	1.43	858	
ZG267	0.0	3.5			OhaOg	CgCcy											
ZG267	3.5	6.0	3908737	77126	Og	Sls			LG		16	178	7000	-1	3.53	1374	
ZG267	6.0	8.0	3908738	77126	Og	SlsCcy			GW		15	1102	3058	-1	4.78	1790	
ZG267	8.0	10.0	3908739	77126	Og	Sls			GW	Minor coral content	9	987	2696	-1	5.39	1686	
ZG267	10.0	12.0	3908740	77126	Og	Sls			LG		5	533	2706	-1	5.56	1781	
ZG267	12.0	14.1	3908741	77126	Og	Sls			LG	Minor oolite content	5	257	1499	-1	3.65	1335	
ZG269	0.0	3.5	3908742	77126	Og	SlsOvc			DG		8	36	323	-1	1.52	641	
ZG269	0.0	2.0			Oha	Cg											
ZG269	2.0	4.0	3908743	77126	Og	Ccy			DB		37	510	2693	-1	1.62	47	
ZG269	4.0	6.0	3908744	77126	Og	SlsCcy			LG		9	113	1389	-1	0.65	332	
ZG269	6.0	8.0	3908745	77126	Og	Sls			LG	Fine grained pale grey CO3 mudstone.	8	33	441	-1	0.30	358	
ZG269	8.0	8.7	3908746	77126	Og	Sls			LG		4	24	431	-1	0.27	315	
ZG270	0.0	2.5			Oha	Cg											
ZG270	2.5	4.0	3908747	77126	Og	Ccy			DB		6	19	39	-1	0.91	23	
ZG270	4.0	5.1	3908748	77126	Og	Sls			DG	Fine grained dark grey CO3 mudstone.	10	17	35	-1	1.32	153	
ZG271	0.0	2.0			Og	Cg											
ZG271	2.0	4.0	3908749	77126	Og	Ccy			DB		13	63	247	-1	0.58	22	
ZG271	4.0	6.0	3908750	77126	Og	Ccy			NB		29	80	484	-1	4.25	38	
ZG271	6.0	8.0	3908751	77126	Og	Sls			LG		11	52	252	-1	1.08	293	
ZG271	8.0	10.0	3908752	77126	Og	Sls	Ds	Py	DG		9	28	140	-1	0.72	386	
ZG271	10.0	10.9	3908753	77126	Og	Sls			DG		7	27	96	-1	0.85	234	
ZG272	0.0	4.0			Oha					Hole abandoned, could not penetrate clays.							
ZG273	0.0	4.5			Oha	Cg											
ZG273	4.5	6.0	3908754	77126	Og	Ccy			DB		11	20	1676	-1	0.68	40	
ZG273	6.0	8.0	3908755	77126	Og	Ccy			DB		41	100	28900	-1	2.50	43	5.58
ZG273	8.0	10.0	3908756	77126	Og	Sls			LG		5	45	10900	-1	1.31	454	1.58
ZG273	10.0	12.0	3908757	77126	Og	SlsOvc			LG		3	11	1939	-1	0.92	510	
ZG273	12.0	12.7	3908758	77126	Og	SlsOvc			LG		5	21	4027	-1	0.93	354	
ZG274	0.0	3.5			Oha	Cg											
ZG274	3.5	4.0	3908759	77126	Og	Ccy			NB		5	24	305	-1	0.28	23	
ZG274	4.0	5.5	3908760	77126	Og	Sls			DG		15	69	3385	-1	2.18	69	
ZG275	0.0	2.0			Oha	Cg											
ZG275	2.0	4.0			Og	Sls			LG	Not sampled, hammered to 4m.							
ZG276	0.0	4.0			Oha	CgObs											
ZG276	4.0	6.0	3908761	77126	Og	Sls			LG		5	43	771	-1	0.33	287	
ZG277	0.0	2.0	3908762	77126	Oha	CgObs					35	221	165	-1	0.42	33	
ZG277	2.0	4.0	3908763	77126	Og	Ccy			NB		192	2700	10600	-1	1.90	28	3.59
ZG277	4.0	6.0	3908764	77126	Og	Ccy			NB		30	397	19600	-1	3.73	52	5.67
ZG277	6.0	8.0	3908765	77126	Og	Ccy			NB		38	1100	10700	-1	3.29	85	4.95
ZG277	8.0	8.5	3908766	77126	Og	Sls			LG	Oolitic brecciated lst.	4	260	1327	-1	1.41	428	
ZG278	0.0	2.0	3908767	77126	OgOha	CcyCg			DB		17	1037	10500	-1	2.24	775	1.58
ZG278	2.0	4.0	3908768	77126	Og	Sls			LG	Oolitic lst, minor CO3 sst.	3	66	1202	-1	1.14	586	
ZG278	4.0	6.0	3908769	77126	Og	Sls			LG		3	58	1168	-1	0.94	417	
ZG279	0.0	2.0	3908770	77126	Og	Ccy			M		73	1239	207	-1	0.48	21	
ZG279	2.0	4.0	3908771	77126	Og	Ccy			NDB		68	5500	13600	-1	1.59	32	1.58
ZG279	4.0	6.0	3908772	77126	Og	Ccy			B		33	1600	13500	-1	6.26	1378	4.04
ZG279	6.0	7.0	3908773	77126	Og	Sls			DG		6	189	1379	-1	3.65	1461	
ZG280	0.0	2.0	3908774	77126	OgOha	CcyCg			DB	Peaty dark brown clay, minor gravel	9	69	1343	-1	1.07	28	

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG280	2.0	4.0	3908775	77126	Og	Ccy			NDB		15	103	10900	-1	4.16	52	5.26
ZG280	4.0	6.0	3908776	77126	Og	CcySls			N		7	43	1901	-1	2.10	599	
ZG280	6.0	8.0	3908777	77126	Og	SlsCcy			DG		6	24	279	-1	1.47	425	
ZG280	8.0	10.2	3908778	77126	Og	SlsCcy			DG	Coral frags present.	5	20	343	-1	1.23	433	
ZG281	0.0	2.0	3908779	77126	Og	CcyCbs			N		22	457	1675	2	3.07	47	
ZG281	2.0	2.4			Og	Sls			LG								
ZG282	0.0	4.0			Qha	CgCbs											
ZG282	4.0	6.0	3908780	77126	OgQha	CgCcy			DB		3	6	40	-1	0.24	15	
ZG282	6.0	8.0	3908781	77126	OgQha	CgCcy			DB		5	-3	71	-1	0.39	22	
ZG282	8.0	10.0	3908782	77126	Og	Ccy			DBN		13	50	667	-1	4.79	55	
ZG282	10.0	10.8	3908783	77126	Og	Sls			LG	Minor interstitial clays.	11	28	182	-1	2.94	220	
ZG283	0.0	3.0			Qha	Cg											
ZG283	3.0	4.0	3908784	77126	Og	Ccy			DB		11	8	33	-1	0.87	22	
ZG283	4.0	6.0	3908785	77126	Og	Ccy			N		19	27	63	-1	1.37	27	
ZG283	6.0	7.3			Og	Sls			LG								
ZG284	0.0	2.0			Qha	Cg				Hammered into basement							
ZG284	2.0	2.3			Og	Sls			LG	No clay.							
ZG285	0.0	2.2			Qha	Cg											
ZG285	2.2	2.5			Og	Sls			DG	No clay.							
ZG286	0.0	2.0			Qha	Cg											
ZG286	2.0	3.0	3908786	77126	Og	Ccy			N		9	10	24	-1	0.98	31	
ZG286	3.0	3.1			Og	Sls			LG								
ZG287	0.0	2.0			Qha	Cg											
ZG287	2.0	3.1	3908787	77126	Og	Sls			DG		26	19	48	-1	1.59	40	
ZG288	0.0	1.0			Qha	Cg											
ZG288	1.0	1.1			Og	Sls			DG	No clay.							
ZG289	0.0	2.0			Qha	Cg											
ZG289	2.0	3.5	3908788	77126	Og	Ccy					21	403	438	-1	1.01	18	
ZG289	3.5	3.6			Og	Sls			DG								
ZG290	0.0	2.5			Qha	Cg											
ZG290	2.5	4.0	3908789	77126	Og	Ccy			DG		34	260	570	-1	2.59	28	
ZG290	4.0	6.0	3908790	77126	Og	SlsCcy			DG		19	69	40	-1	1.75	31	
ZG290	6.0	8.0	3908791	77126	Og	Sls	We		DG		37	299	191	-1	2.10	43	
ZG290	8.0	10.0	3908792	77126	Og	Sls			DG		10	21	55	-1	1.79	182	
ZG290	10.0	10.9	3908793	77126	Og	SlsOvc	Bx		LG		15	26	58	-1	2.39	152	
ZG291	0.0	2.0			Qha	Cg											
ZG291	2.0	4.0	3908794	77126	Og	Ccy			DGB		15	33	156	-1	1.59	25	
ZG291	4.0	4.3			Og	SlsOvc			DG								
ZG292	0.0	2.0			Qha	Cg											
ZG292	2.0	4.0	3908795	77126	Og	Ccy			DGN		12	8	164	-1	0.94	51	
ZG292	4.0	6.0	3908796	77126	Og	Ccy			DG		17	22	91	-1	1.16	20	
ZG292	6.0	8.0	3908797	77126	Og	Ccy			DGB		19	27	81	-1	3.35	29	
ZG292	8.0	8.1			Og	Sls			DG								
ZG293	0.0	2.0	3908798	77126	Qha	CbsCg			DB		6	7	15	-1	0.51	21	
ZG293	2.0	4.0	3908799	77126	Og	Ccy			DGB		20	246	1733	-1	2.41	41	
ZG293	4.0	4.1			Og	Sls			DG								
ZG294	0.0	2.0			Qha	Cg											
ZG294	2.0	3.3	3908800	77126	Og	Ccy			DG		10	78	1937	-1	2.56	54	
ZG294	3.3	3.4			Og	Sls			DG								
ZG295	0.0	2.0			Qha	Cg											
ZG295	2.0	3.9	3908801	77126	Og	Ccy			DG		16	11	57	-1	1.23	33	
ZG295	3.9	4.0			Og	Sls			DG								
ZG296	0.0	2.0	3908802	77126	Qha	CbsCg					19	24	49	-1	1.24	27	

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLUTH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG296	2.0	4.0	3908803	77126	Og	Ccy			BN		17	16	86	-1	3.63	37	
ZG296	4.0	5.0	3908804	77126	Og	Sls			DG		12	15	68	-1	7.26	89	
ZG297	0.0	2.0			Qha	Cg											
ZG297	2.0	2.5	3908805	77126	Og	Sls			DG		10	4	17	-1	0.95	71	
ZG298	0.0	2.0			Qha	CgObs											
ZG298	2.0	4.0	3908806	77126	Og	Sls	We				17	37	183	-1	1.33	37	
ZG298	4.0	6.0	3908807	77126	Og	Sls			DG		11	262	346	-1	2.29	78	
ZG298	6.0	6.1			Og	Sls			DG								
ZG299	0.0	2.0	3908808	77126	OgQha	CgCcy			LB		9	356	326	-1	0.67	19	
ZG299	2.0	4.0	3908809	77126	Og	Ccy			DG		19	316	1974	-1	4.18	49	
ZG299	4.0	5.5	3908810	77126	Og	SlsOvc			DG		15	199	2611	-1	4.98	50	
ZG300	0.0	2.0	3908811	77126	Og	Ccy			DG		21	145	13400	-1	7.40	31	8.36
ZG300	2.0	4.0	3908812	77126	Og	Ccy			DB		19	59	1303	-1	4.22	53	
ZG300	4.0	6.0	3908813	77126	Og	Ccy			N		20	60	588	-1	3.19	69	
ZG300	6.0	8.0	3908814	77126	Og	Ccy			NB		14	1100	10800	2	1.70	102	2.37
ZG300	8.0	10.0	3908815	77126	Og	Ccy			BN		15	327	2738	-1	2.49	82	
ZG300	10.0	12.0	3908816	77126	Og	Ccy			DB		19	409	2244	-1	1.86	64	
ZG300	12.0	13.0	3908817	77126	Og	CcySls			DB		14	88	981	-1	2.47	78	
ZG300	13.0	13.1			Og	Sls											
ZG301	0.0	2.0	3908818	77126	OgQha	CcyCg			DG		20	121	1496	-1	2.20	49	
ZG301	2.0	4.0	3908819	77126	Og	Ccy			DGN		20	191	1055	-1	3.80	47	
ZG301	4.0	4.8	3908820	77126	Og	Sls			DG		16	294	1094	-1	3.28	83	
ZG302	0.0	2.0			Qha	CgObs			B								
ZG302	2.0	4.0	3908821	77126	Og	CcyCg			YB		10	21	277	-1	2.10	19	
ZG302	4.0	6.0	3908822	77126	Og	Ccy			M	Pale mottled clay.	14	25	381	-1	1.81	30	
ZG302	6.0	8.0	3908823	77126	Og	Ccy			DG								
ZG302	8.0	10.0	3908824	77126	Og	Ccy			DG		14	23	903	-1	5.88	33	
ZG302	10.0	12.0	3908825	77126	Og	Ccy			DG		13	24	774	-1	6.60	30	
ZG302	12.0	14.0	3908826	77126	Og	Ccy			DG		14	24	300	-1	6.58	28	
ZG302	14.0	16.0	3908827	77126	Og	Ccy			DG		17	31	251	-1	6.95	34	
ZG302	16.0	18.0	3908828	77126	Og	Sls			DG		16	19	142	-1	1.43	40	
ZG302	18.0	20.0	3908829	77126	Og	Sls			DG		18	38	1124	-1	1.73	39	
ZG302	20.0	22.0	3908830	77126	Og	Sls			DG		18	28	413	-1	1.96	33	
ZG303	0.0	2.0			Qha	Cg											
ZG303	2.0	4.0	3908831	77126	Og	Sls			DG		25	29	190	-1	1.59	49	
ZG304	0.0	1.5			Og	Sls			DG	No clay.							
ZG305	0.0	2.0			Og	Obs											
ZG305	2.0	4.0	3908832	77126	Og	Ccy			DG		19	118	301	-1	1.64	38	
ZG305	4.0	4.1			Og	Sls			LG								
ZG306	0.0	1.5			Og	Sls			DG	Clay < 20cm thick.							
ZG307	0.0	2.0			Qha	Cg											
ZG307	2.0	4.0	3908833	77126	Og	CcySls			DG		22	133	888	-1	3.42	52	
ZG307	4.0	5.2	3908834	77126	Og	Sls	Ds	Py		Carbonaceous, pyritic lst.	13	86	152	-1	9.03	236	
ZG308	0.0	2.0			Qha	CgObs											
ZG308	2.0	4.0	3908835	77126	Og	Ccy			M		10	19	40	-1	0.64	45	
ZG308	4.0	6.0	3908836	77126	Og	Ccy			DB		23	604	267	-1	0.57	31	
ZG308	6.0	8.0	3908837	77126	Og	Ccy			DG		24	616	1780	-1	7.00	37	
ZG308	8.0	10.5	3908838	77126	Og	Ccy			DG		22	143	563	-1	5.84	50	
ZG308	10.5	10.6			Og	Sls			DG								
ZG309	0.0	2.0			Qha	CgObs											
ZG309	2.0	4.0	3908839	77126	Og	Ccy			G		21	176	1293	-1	5.26	40	
ZG309	4.0	6.0	3908840	77126	Og	Ccy			DG		25	130	1629	-1	5.43	48	
ZG309	6.0	8.5			Og	Sls			DG								

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Qu	Pb	Zn	Ag	Fe%	Mn	S%
ZG310	0.0	2.0			Qha	Cg											
ZG310	2.0	4.0	3908841	77126	Og	Ccy			DG		20	327	2137	-1	2.17	53	
ZG310	4.0	6.0	3908842	77126	Og	Ccy			DG		18	171	1264	-1	5.10	64	
ZG310	6.0	8.8	3908843	77126	Og	Ccy			DG		20	843	2895	-1	4.08	58	
ZG310	8.8	8.9			Og	Sls			DG								
ZG311	0.0	0.0			Qha	Cg				Hole abandoned - could not penetrate gravel.							
ZG312	0.0	2.0			Qha	Cg											
ZG312	2.0	4.0	3908844	77126	Og	Sls			DG		12	251	1054	-1	22.20	50	
ZG312	4.0	6.0	3908845	77126	Og	Sls	Ds	Py	DG		7	144	1476	-1	1.84	170	
ZG312	6.0	7.0	3908846	77126	Og	Sls			DG		6	42	1044	-1	1.85	231	
ZG313	0.0	2.0			Qha	Cg											
ZG313	2.0	3.0	3908847	77126	Og	Sls			LG		4	878	513	-1	0.54	256	
ZG314	0.0	4.0			Og	Sls			LG	lst at surface.							
ZG314	4.0	6.0	3908848	77126	Og	Sls			G		3	150	221	-1	0.38	213	
ZG315	0.0	2.0			Qha	Cg											
ZG315	2.0	4.0	3908849	77126	Og	Ccy			DG		17	897	1747	-1	4.07	54	
ZG315	4.0	6.0	3908850	77126	Og	Sls			LG		8	275	569	-1	1.54	252	
ZG316	0.0	1.5			Qha	Cg											
ZG316	1.5	4.0	3908851	77126	Og	CcySls			DG		24	213	905	-1	3.32	38	
ZG316	4.0	6.0	3908852	77126	Og	Sls			G		22	277	2001	-1	4.37	54	
ZG316	6.0	8.0	3908853	77126	Og	Sls	We		DG		20	174	2117	-1	6.31	55	
ZG316	8.0	10.0	3908854	77126	Og	Sls			DG		13	222	678	-1	4.05	124	
ZG316	10.0	12.0	3908855	77126	Og	Sls			DG		18	9900	6000	2	5.61	153	
ZG317	0.0	2.0			Qha	Cg											
ZG317	2.0	4.0	3908856	77126	Og	Sls	Ds	Py	LG	Pyritic Isl.	25	3800	33200	9	1.79	72	3.77
ZG318	0.0	2.0	3908857	77126	Og	Cbs					14	286	2203	-1	1.64	23	
ZG318	2.0	4.0	3908858	77126	Og	Ccy			M		26	433	4151	-1	4.77	67	
ZG318	4.0	4.2			Og	Sls			LG								
ZG319	0.0	4.0			Qha	Cg				Hole abandoned - could not penetrate gravel.							
ZG320	0.0	2.5	3908859	77126	QhaOg	CgCcy					14	129	1044	-1	1.36	45	
ZG320	2.5	4.0	3908860	77126	Og	Ccy			M		17	130	1462	-1	1.34	27	
ZG320	4.0	6.0	3908861	77126	Og	Ccy			M	Light-coloured mottled clays.	19	44	824	-1	1.20	30	
ZG320	6.0	8.0	3908862	77126	Og	Ccy			LB		16	19	349	-1	1.24	42	
ZG320	8.0	10.0	3908863	77126	Og	Ccy			M		16	19	385	-1	1.24	40	
ZG320	10.0	12.0	3908864	77126	Og	Ccy			M		18	92	989	-1	1.18	40	
ZG320	12.0	13.5	3908865	77126	Og	Sls			LG		14	11	226	-1	1.53	44	
ZG321	0.0	2.0			Qha	Cg											
ZG321	2.0	2.4	3908866	77126	Og	Sls			LG		11	7	48	-1	1.04	43	
ZG322	0.0	2.0			Qha	Cg											
ZG322	2.0	4.0	3908867	77126	Og	SlsCcy	We		DV		17	19	177	-1	2.58	33	
ZG322	4.0	6.0	3908868	77126	Og	Ccy			DGB		32	163	855	-1	15.20	29	
ZG322	6.0	8.0	3908869	77126	Og	Ccy			DB		30	218	781	-1	14.70	45	
ZG322	8.0	8.4			Og	Sls	Bx		WG	W calcareous angular clasts in a G silty matrix.							
ZG323	0.0	4.0	3908870	77126	QhaOg	CgCcy			N								
ZG323	4.0	6.0	3908871	77126	QhaOg	CcyCg			DG		20	65	1108	-1	4.22	34	
ZG323	6.0	8.0	3908872	77129	Og	SlsCcy			DG		29	46	651	-1	7.16	26	
ZG323	8.0	10.0	3908873	77129	Og	SlsCcy	We		DG		19	35	373	-1	7.39	53	
ZG323	10.0	12.0	3908874	77129	Og	CcySls			M		10	16	119	-1	1.63	83	
ZG323	12.0	14.0	3908875	77129	Og	CcySls			DB		15	35	160	-1	2.75	61	
ZG323	14.0	15.5	3908876	77129	Og	CcySls			DB		12	32	229	-1	3.93	84	
ZG323	15.5	16.0			Og	Sls			WG								
ZG324	0.0	2.0			Qha	Cg											
ZG324	2.0	4.0	3908877	77129	Og	Ccy			BN		17	81	2601	-1	3.41	23	

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG324	4.0	6.0	3908878	77129	Og	Ccy			DG		26	40	1651	-1	5.77	34	
ZG324	6.0	8.0	3908879	77129	Og	Ccy			M	Pale mottled clay	10	17	98	-1	2.00	136	
ZG324	8.0	10.0	3908880	77129	Og	Sls			DG		8	14	37	-1	1.73	208	
ZG324	10.0	12.0	3908881	77129	Og	Sls			DG		6	15	48	-1	2.05	192	
ZG324	12.0	13.2	3908882	77129	Og	SlsOvc			LG		6	10	27	-1	1.76	249	
ZG325	0.0	2.0			Qha	CgCbs											
ZG325	2.0	4.0	3908883	77129	Og	CcySls			M		9	86	27	-1	1.60	38	
ZG325	4.0	5.5	3908884	77129	Og	Ccy			LG		10	6	36	-1	1.65	56	
ZG325	5.5	6.0			Og	Sls			DG								
ZG326	0.0	2.0	3908885	77129	QhaOg	CbsCgCcy			GB		3	3	19	-1	0.65	24	
ZG326	2.0	4.0	3908886	77129	Og	SlsCcy	We		DG		10	29	85	-1	1.12	42	
ZG326	4.0	6.0	3908887	77129	Og	SlsCcy			DG		12	28	256	-1	1.78	46	
ZG326	6.0	8.0	3908888	77129	Og	SlsCcy	We		DG		10	26	199	-1	2.11	30	
ZG326	8.0	10.0	3908889	77129	Og	CcySls			NB		15	50	190	-1	2.24	28	
ZG326	10.0	12.0	3908890	77129	Og	Ccy			M		7	86	212	-1	2.12	23	
ZG326	12.0	14.0	3908891	77129	Og	Ccy			NB		12	118	775	-1	10.50	29	
ZG326	14.0	16.0	3908892	77129	Og	Ccy			N		11	352	1184	1	9.92	19	
ZG326	16.0	18.0	3908893	77129	Og	Ccy			M		16	418	1031	1	1.76	23	
ZG326	18.0	20.0	3908894	77129	Og	Sls			DG	Laminated dark grey CO3 siltstone	11	14	123	-1	1.22	29	
ZG326	20.0	22.0	3908895	77129	Og	Sls	We		DG		12	75	618	2	1.52	29	
ZG326	22.0	24.0	3908896	77129	Og	Sls	We		DG		13	37	497	-1	1.95	35	
ZG326	24.0	26.0	3908897	77129	Og	Sls			DG		17	29	241	-1	1.99	47	
ZG326	26.0	26.2			Og	Sls			DG								
ZG327	0.0	2.0			Qha	CbsCg											
ZG327	2.0	4.0	3908898	77129	QhaOg	CcyCg			B		2	15	19	-1	0.30	15	
ZG327	4.0	6.0	3908899	77129	Og	Ccy			M		14	47	61	-1	0.39	20	
ZG327	6.0	8.0	3908900	77129	Og	Ccy			N		22	161	9400	-1	4.10	38	
ZG327	8.0	10.0	3908901	77129	Og	Ccy			NB		15	150	2935	-1	10.00	51	
ZG327	10.0	11.0	3908902	77129	Og	Ccy			B		9	89	636	-1	1.25	94	
ZG327	11.0	11.2			Og	Sls			QW								
ZG328	0.0	2.5			Qha	Cg											
ZG328	2.5	4.0	3908903	77129	Og						19	10	43	-1	1.26	40	
ZG328	4.0	6.0	3908904	77129	Og	OvcSls			LG		29	24	55	-1	1.16	41	
ZG328	6.0	6.5	3908905	77129	Og	Sls			LG		35	33	78	-1	1.38	49	
ZG329	0.0	2.0			Qha	CbsCg											
ZG329	2.0	4.0	3908906	77129	Og	SlsCcy			LG	Fine grained light grey silty carbonate.	10	12	291	-1	1.11	26	
ZG329	4.0	6.0	3908907	77129	Og	SlsCcy	We		DG		13	17	941	-1	2.57	34	
ZG329	6.0	8.0	3908908	77129	Og	Ccy			NB		13	12	1598	-1	4.79	27	
ZG329	8.0	10.0	3908909	77129	Og	Sls	We		DG		16	55	1972	-1	2.55	28	
ZG329	10.0	12.0	3908910	77129	Og	Sls	We		DG		74	228	1399	-1	3.05	28	
ZG329	12.0	14.0	3908911	77129	Og	Sls	We		LG		641	75	198	2	9.59	24	
ZG329	14.0	16.0	3908912	77129	Og	Sls	We		LG		276	64	284	1	3.28	25	
ZG329	16.0	18.0	3908913	77129	Og	CcySls			M		42	28	542	-1	2.92	24	
ZG329	18.0	20.0	3908914	77129	Og	Ccy			DG		22	12	247	-1	3.57	34	
ZG329	20.0	22.0	3908915	77129	Og	Sls			DG		24	6	90	-1	1.60	40	
ZG329	22.0	24.0	3908916	77129	Og	SlsCcy			DG	Minor interstitial clays.	17	3	113	-1	1.57	36	
ZG329	24.0	26.0	3908917	77129	Og	Sls			LG		23	17	93	-1	2.58	62	
ZG329	26.0	28.0	3908918	77129	Og	Sls			DG	Massive, monotonous silty carbonate.	22	24	68	-1	2.45	61	
ZG330	0.0	2.0			Qha	CbsCg											
ZG330	2.0	4.0			Qha	Cg											
ZG330	4.0	6.0			Qha	Cg											
ZG330	6.0	8.0	3908919	77129	QhaOg	CgCcy			LB		4	28	9	-1	0.28	13	
ZG330	8.0	10.0	3908920	77129	QhaOg	CgCcy				Sandy gravel with minor clay.	4	14	7	-1	0.34	19	

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	CU	Pb	Zn	Ag	Fe%	Mn	S%
ZG330	10.0	12.0	3908921	77129	Og	Ccy			LB		23	31	27	-1	0.37	18	
ZG330	12.0	14.0	3908922	77129	Og	Ccy			DBLB		68	206	829	1	1.47	31	
ZG330	14.0	16.0	3908923	77129	Og	Ccy			DB		20	536	2420	-1	3.41	39	
ZG330	16.0	18.0	3908924	77129	Og	Ccy			N		24	494	1729	1	6.78	50	
ZG330	18.0	20.0	3908925	77129	Og	Ccy			DGN		23	861	1638	2	6.64	95	
ZG330	20.0	22.0	3908926	77129	Og	Sls			LG	Carbonate sand (degraded Sls).	3	338	440	-1	1.16	204	
ZG330	22.0	24.0	3908927	77129	Og	Sls			DG	As above	3	119	224	-1	0.81	192	
ZG330	24.0	26.0	3908928	77129	Og	Sls	We		DG		2	126	143	-1	0.73	220	
ZG330	26.0	27.6	3908929	77129	Og	Sls			DG		3	125	243	-1	0.98	170	
ZG331	0.0	4.0			Qha	Og											
ZG331	4.0	6.0	3908930	77129	QhaOg	CgCcy			N								
ZG331	6.0	8.0	3908931	77129	Og	SlsCcy	We		N								
ZG331	8.0	10.0	3908932	77129	Og	Ccy			DBN								
ZG331	10.0	12.0	3908933	77129	Og	Ccy			DB								
ZG331	12.0	14.0	3908934	77129	Og	Ccy			B								
ZG331	14.0	16.0	3908935	77129	Og	Ccy			DGN								
ZG331	16.0	18.0	3908936	77129	Og	Ccy			DBN								
ZG331	18.0	19.1	3908937	77129	Og	Sls			DG								
ZG332	0.0	4.0			Qha	Og											
ZG332	4.0	6.0	3908938	77129	Og	Ccy			M		22	261	41	-1	0.53	22	
ZG332	6.0	8.0	3908939	77129	Og	Ccy			N		126	1646	2158	1	1.88	25	
ZG332	8.0	10.0	3908940	77129	Og	Ccy			M		46	1121	3323	-1	2.64	46	
ZG332	10.0	12.0	3908941	77129	Og	Ccy			NB		18	590	2712	-1	3.20	20	
ZG332	12.0	14.0	3908942	77129	Og	Ccy			N		23	239	4843	-1	7.17	49	
ZG332	14.0	16.0	3908943	77129	Og	SlsCcy			DGN		9	30	240	-1	2.10	134	
ZG332	16.0	18.0	3908944	77129	Og	Sls	We		DG		6	21	231	-1	1.67	169	
ZG332	18.0	20.0	3908945	77129	Og	CcySls			DB		10	102	552	-1	2.16	127	
ZG332	20.0	21.3	3908946	77129	Og	Sls			LG		6	41	119	-1	1.60	104	
ZG333	0.0	5.5			Qha	Og											
ZG333	5.5	8.0	3908947	77129	Og	Ccy			DBN		53	213	61	-1	0.52	20	
ZG333	8.0	10.0	3908948	77129	Og	Ccy			DB		48	490	230	-1	0.60	25	
ZG333	10.0	12.0	3908949	77129	Og	Ccy			DBN		27	477	933	-1	1.42	35	
ZG333	12.0	14.0	3908950	77129	Og	Ccy			DBN		28	827	4601	-1	3.33	33	
ZG333	14.0	16.0	3908951	77129	Og	Ccy			DB		27	919	3358	-1	2.96	37	
ZG333	16.0	16.2			Og	SlsOvc			LG								
ZG334	0.0	3.5			Qha	Og											
ZG334	3.5	4.0	3908952	77129	Og	Ccy			M		16	479	35	-1	0.57	22	
ZG334	4.0	6.0	3908953	77129	Og	Ccy			M		36	868	83	1	0.69	23	
ZG334	6.0	8.0	3908954	77129	Og	Ccy			M								
ZG334	8.0	10.0	3908955	77129	Og	Ccy			M		95	309	69	-1	0.42	18	
ZG334	10.0	11.5	3908956	77129	Og	Sls			DGN		76	266	287	-1	1.69	35	
ZG335	0.0	4.0			Qha	Og											
ZG335	4.0	6.0	3908957	77129	Og	Ccy			W	White clay, minor unconsolidated sand.	49	244	19	-1	2.35	13	
ZG335	6.0	8.0	3908958	77129	Og	CsCcy			W		14	73	18	-1	0.78	18	
ZG335	8.0	10.0	3908959	77129	Og	CcyCs			WY		41	183	22	-1	2.44	20	
ZG335	10.0	12.0	3908960	77129	Og	Ccy			M	Pale mottled clay	88	372	69	2	3.09	23	
ZG335	12.0	14.0	3908961	77129	Og	Ccy			N		20	97	799	-1	2.31	27	
ZG335	14.0	16.0	3908962	77129	Og	Ccy			M		22	72	341	-1	3.02	33	
ZG335	16.0	18.0	3908963	77129	Og	Ccy			M		27	33	259	-1	1.58	38	
ZG335	18.0	20.0	3908964	77129	Og	Ccy			DG		39	89	693	-1	2.08	29	
ZG335	20.0	22.0	3908965	77129	Og	Ccy			DG		27	161	2132	-1	7.39	40	
ZG335	22.0	24.5	3908966	77129	Og	SlsSss			DG	F.G. Dark grey CO3 Sst. sandy interbeds.	4	35	115	-1	0.52	178	
ZG336	0.0	2.0	3908967	77129	QhaOg	CcyCbs			B		3	17	26	-1	0.25	12	

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HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG336	2.0	4.0	3908968	77129	QhaOg	CgCcy					5	-3	8	-1	0.38	22	
ZG336	4.0	6.0	3908969	77129	Og	Ccy			DBN		24	567	1303	1	3.06	39	
ZG336	6.0	6.5	3908970	77129	Og	Sls			DG	Could not penetrate further.	10	35	102	-1	1.89	82	
ZG337	0.0	2.0			Qha	Cg											
ZG337	2.0	4.0	3908971	77129	Og	Ccy			N		41	569	778	-1	2.36	25	
ZG337	4.0	6.0	3908972	77129	Og	Ccy			N		23	510	2604	-1	6.59	46	
ZG337	6.0	8.0	3908973	77129	Og	Ccy			DBN		15	104	250	-1	3.30	106	
ZG337	8.0	10.0	3908974	77129	Og	Ccy			N		21	224	730	-1	3.57	98	
ZG337	10.0	12.0	3908975	77129	Og	SlsOvc			DG		5	9	51	-1	1.44	183	
ZG337	12.0	14.0	3908976	77129	Og	Ccy			M		16	163	709	-1	3.12	46	
ZG337	14.0	16.0	3908977	77129	Og	SlsCcy			DBG	Interbedded lst + clay.	14	70	210	-1	1.90	107	
ZG337	16.0	18.0	3908978	77129	Og	SlsCcy			LG		4	30	119	-1	1.70	108	
ZG337	18.0	18.7	3908979	77129	Og	OvcSls			LG		3	25	65	-1	1.15	113	
ZG338	0.0	2.0	3908980	77129	QhaOg	CbsCcy					3	25	18	-1	0.36	22	
ZG338	2.0	4.0	3908981	77129	Og	Ccy			N		15	105	1095	-1	2.99	29	
ZG338	4.0	6.0	3908982	77129	Og	Ccy			N		17	52	448	-1	4.31	48	
ZG338	6.0	8.0	3908983	77129	Og	Ccy			M		17	97	298	-1	2.70	33	
ZG338	8.0	10.0	3908984	77129	Og	Ccy			M		20	94	380	-1	2.77	49	
ZG338	10.0	12.0	3908985	77129	Og	Ccy			DGN		10	117	953	-1	2.74	70	
ZG338	12.0	14.0	3908986	77129	Og	SlsCcy			DG		3	16	101	-1	0.95	127	
ZG338	14.0	14.8	3908987	77129	Og	SlsOvc			DG		3	30	155	-1	0.84	148	
ZG339	0.0	2.0	3909001	77129	Og	Ccy			wg	minor organics	5	160	201	-1	0.29	13	
ZG339	2.0	4.0	3909002	77129	Og	Ccy			mgg	plastic	39	311	299	-1	0.51	17	
ZG339	4.0	6.0	3909003	77129	Og	Ccy			mgg	plastic	30	437	446	-1	0.48	15	
ZG339	6.0	8.0	3909004	77129	Og	Ccy			dgn	plastic	45	729	4685	-1	4.60	37	
ZG339	8.0	10.0	3909005	77129	Og	Ccy			mdbg	plastic	39	770	4492	1	6.34	37	
ZG339	10.0	11.0	3909006	77129	Og	Sls				calc-arenite, heavily veined, minor LB clay	16	338	969	1	1.59	177	
ZG340	0.0	2.0	3909007	77129	Qha	Cg				lesser gritty clay, organic material	8	84	56	-1	0.29	14	
ZG340	2.0	4.0	3909008	77129	Og	Ccy			G		59	559	217	1	1.50	31	
ZG340	4.0	6.0	3909009	77129	Og	Ccy			DG	plastic	68	777	682	-1	3.28	34	
ZG340	6.0	8.0	3909010	77129	Og	Ccy			MLGOG	plastic	171	923	773	2	2.21	23	
ZG340	8.0	10.0	3909011	77129	Og	Ccy			MGDG	plastic	63	317	623	1	0.56	13	
ZG340	10.0	12.0	3909012	77129	Og	Ccy			MLBDG	plastic	27	405	3606	-1	3.55	25	
ZG340	12.0	14.0	3909013	77129	Og	Ccy			MLBDG	plastic, rare DG weathered calc-arenite	26	201	1741	-1	2.72	39	
ZG340	14.0	16.0	3909014	77129	Og	Sls			DG	granular carbonate, rare DG clay	6	43	708	-1	1.79	120	
ZG340	16.0	18.0	3909015	77129	Og	Ccy			DG	lesser DG granular carbonate	12	122	1634	-1	3.13	98	
ZG340	18.0	19.0	3909016	77129	Og	Sls			DG	massive med. grained carbonate, minor DG clay	7	35	588	-1	2.01	123	
ZG341	0.0	2.0	3909017	77129	Og	Ccy			DB	peaty	5	16	155	-1	0.62	20	
ZG341	2.0	4.0	3909018	77129	Og	Sls			DBG	weathered	14	19	681	-1	1.86	42	
ZG341	4.0	6.0	3909019	77129	Og	Sls			DG	weathered, minor B clay	17	24	263	-1	2.37	50	
ZG341	6.0	8.0	3909020	77129	Og	Ccy			BG	minor DG granular carbonate	17	49	561	-1	2.06	37	
ZG341	8.0	10.0	3909021	77129	Og	Ccy			DG	minor DG carbonate frags	24	92	761	-1	4.97	46	
ZG341	10.0	12.0	3909022	77129	Og	Ccy			DG	plastic	26	122	803	-1	6.38	49	
ZG341	12.0	13.9	3909023	77129	Og	Ccy			DG	lesser G med. massive carbonate	12	47	194	-1	2.54	155	
ZG342	0.0	2.0	3909024	77129	Qha	Cg				organic material	4	12	28	-1	0.41	21	
ZG342	2.0	4.0	3909025	77129	Qha	Cg				lesser B clay	13	142	696	-1	2.55	31	
ZG342	4.0	6.0	3909026	77129	Og	Ccy			G		21	710	2603	-1	4.85	28	
ZG342	6.0	8.0	3909027	77129	Og	Ccy			DG	plastic	21	180	1295	-1	7.36	44	
ZG342	8.0	10.0	3909028	77129	Og	Ccy			DG	plastic, minor DG decomposed carbonate	18	203	1222	-1	4.41	46	
ZG342	10.0	10.8	3909029	77129	Og	Sls			G	med-coarse, minor DG clay	7	46	221	-1	2.00	89	
ZG343	0.0	2.0	3909030	77129	Og	Ccy			B	peaty, minor Cg + organics	3	24	22	-1	0.32	17	
ZG343	2.0	4.0	3909031	77129	Og	Ccy			B+G	minor DG decomposed carbonate	16	311	1977	-1	2.98	53	
ZG343	4.0	6.0	3909032	77129	Og	Ccy			DG	plastic	20	601	1714	1	4.02	45	

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APPENDIX 2: Grieves Prospect - CRAE air-core drillhole logs and assays

HOLE	DFROM	DTO	SAMPNO	DPO	BMR/LITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG343	6.0	8.0	3909033	77129	Og	Ccy		Py	MOBG	plastic	18	228	983	-1	9.86	51	
ZG343	8.0	10.0	3909034	77129	Og	Ccy			DG	minor DG granular carbonate	12	214	440	-1	6.79	63	
ZG343	10.0	11.7	3909035	77129	Og	Sls			MLGDG	fine-medium carbonate	6	103	739	-1	1.42	80	
ZG344	0.0	2.0	3909036	77129	Qha	Cg				lesser B peaty clay + organics							
ZG344	2.0	4.0	3909037	77129	Og	Sls			G	granular, lesser B clay							
ZG344	4.0	6.0	3909038	77129	Og	Sls			DG	granular							
ZG344	6.0	8.0	3909039	77129	Og	Ccy		Py	G	lesser granular carbonate							
ZG344	8.0	10.0	3909040	77129	Og	Sls				weathered/decomposed							
ZG344	10.0	12.0	3909041	77129	Og	Sls				weathered/decomposed, minor clay							
ZG344	12.0	14.0	3909042	77129	Og	Ccy			MLG	lesser MG carbonate							
ZG344	14.0	16.0	3909043	77129	Og	Ccy			MGLG								
ZG344	16.0	18.0	3909044	77129	Og	Ccy			G	plastic							
ZG344	18.0	20.0	3909045	77129	Og	Ccy			MGLG	lesser DG granular carbonate							
ZG344	20.0	22.0	3909046	77129	Og	Sls			G	medium, minor G clay							
ZG344	22.0	24.0	3909047	77129	Og	Sls			G	granular							
ZG344	24.0	26.0	3909048	77129	Og	Sls			G	medium, massive, granular							
ZG344	26.0	28.0	3909049	77129	Og	Sls			G	medium, massive, granular							
ZG344	28.0	30.0	3909050	77129	Og	Ccy		Py	DG								
ZG344	30.0	32.0	3909051	77129	Og	Ccy		Py	DG	plastic	14	3300	6700	15	6.77	18	
ZG344	32.0	34.0	3909052	77129	Og	Sls			DG	carbonaceous decomposed Sls	13	2996	3466	36	3.24	36	
ZG344	34.0	36.0	3909053	77129	Og	Ccy			LG	minor decomposed carbonate	16	882	1089	-1	4.56	65	
ZG344	36.0	38.0	3909054	77129	Og	Sls			G	medium granular calc-arenite, bedded 40 to CLA	18	149	396	-1	1.78	42	
ZG344	38.0	40.0	3909055	77129	Og	Sls			G	laminated fine-medium carbonate	10	25	70	-1	2.18	49	
ZG344	40.0	42.0	3909056	77129	Og	Sls			G	laminated carbonate	15	16	159	-1	3.67	175	
ZG344	42.0	43.2	3909057	77129	Og	Sls			DG	massive, medium calc-arenite	22	34	764	-1	3.33	171	
ZG345	0.0	2.0	3908988	77129	Og	Ccy					12	61	44	-1	0.57	15	
ZG345	2.0	4.0	3908989	77129	Og	Ccy			MDG		15	52	576	-1	3.12	20	
ZG345	4.0	6.0	3908990	77129	Og	Sls			DG	Trilobitic?! Ist.	15	28	73	-1	1.97	24	
ZG345	6.0	8.0	3908991	77129	Og	Sls			DG		14	28	180	-1	1.95	21	
ZG345	8.0	10.0	3908992	77129	Og	Sls			DG	fine	11	39	234	-1	1.25	18	
ZG345	10.0	12.0	3908993	77129	Og	Sls			DG	fine	14	24	113	-1	1.28	17	
ZG345	12.0	14.0	3908994	77129	Og	Sls			DG	fine	13	10	70	-1	1.50	20	
ZG345	14.0	16.0	3908995	77129	Og	Sls			DG	fine	17	15	60	-1	1.81	29	
ZG345	16.0	18.0	3908996	77129	Og	Sls			DG	lesser LB clay	14	13	81	-1	1.48	27	
ZG345	18.0	19.0	3908997	77129	Og	Sls			LG	fine	12	20	101	-1	2.99	209	
ZG346	0.0	4.0			Qha	Cg											
ZG346	4.0	6.0	3909068	77130	Og	Og			B		20	107	8300	-1	1.89	25	
ZG346	6.0	8.0	3909069	77130	Og	Og			B		23	160	10200	-1	2.49	41	3.00
ZG346	8.0	9.0	3909070	77130	Og	Sls			LG	calc-arenite	4	13	1388	-1	0.71	102	
ZG347	0.0	4.0			Qha	Cg											
ZG348	0.0	5.0			Qha	Cg											
ZG348	5.0	8.0	3909071	77130	Og	Ccy		Py	B	prominent/massive Py, very poor recovery	11	103	5600	-1	11.31	61	
ZG348	8.0	10.0	3909072	77130	Og	Ccy		Py	B	prominent/massive Py, very poor recovery	28	181	8700	-1	3.79	52	
ZG348	10.0	12.0	3909073	77130	Og	Sls			N	decomposed Sls	20	180	13600	-1	3.70	47	4.70
ZG348	12.0	14.0	3909074	77130	Og	Sls	Vc			calc-arenite, prominent carbonate veining	4	30	1481	-1	0.62	990	
ZG348	14.0	16.0	3909075	77130	Og	Sls	Vc			calc-arenite, prominent Vc, lesser MG clay	75	208	7800	-1	1.88	284	
ZG348	16.0	18.0	3909076	77130	Og	Ccy			MG	lesser calc-arenite with prominent Vc	84	114	4778	-1	1.34	387	
ZG348	18.0	20.0	3909077	77130	Og	Sls	Vc		DG	carbonate veined granular Sls, lesser MG clay	33	96	4531	-1	1.81	745	
ZG348	20.0	22.0	3909078	77130	Og	Ccy	Vc		MG	lesser carbonate veined granular DG Sls	36	105	11500	-1	2.00	437	2.90
ZG348	22.0	24.0	3909079	77130	Og	Sls		Py	DG	granular Sls with 30% massive Py, minor MG clay	8	65	17000	-1	13.02	1598	9.65
ZG348	24.0	26.0	3909080	77130	Og	Sls		Py	DG	granular Sls with 30% massive Py	4	45	17600	-1	14.41	2080	10.90
ZG348	26.0	28.0	3909081	77130	Og	Sls		Py	DG	granular Sls with 2% massive Py	3	15	25700	-1	24.04	7400	4.30
ZG348	28.0	30.0	3909082	77130	Og	Sls		Py	DG	granular Sls with 30% massive Py, lesser GW clay	9	128	58000	-1	29.05	8000	15.90

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APPENDIX 2: Grievs Prospect - CRAE air-core drillhole logs and assays

HOLE	DFROM	DTO	SAMPNO	DPO	BMLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG348	30.0	31.0	3909083	77130	Og	Sts		Py	DG	granular calc-arenite with 2% PY, lesser MG-W clay	13	124	34400	-1	24.59	11000	3.10
ZG349	0.0	4.4			Qha	Cg											
ZG349	4.4	6.0	3909084	77130	Og	Sts		He	MGK	oolitic Sls, minor clay	8	211	15400	-1	5.22	2126	0.27
ZG349	6.0	7.0	3909085	77130	Og	Sts		He	MLGLYK	oolitic Sls, heamilitite stained - K, minor clay	5	129	4078	-1	2.04	948	
ZG350	0.0	4.5			Qha	Cg											
ZG350	4.5	6.0	3909086	77130	Og	Sts	AIVu	Sd	LY	Spongy	25	2817	115300	-1	4.15	2087	0.74
ZG350	6.0	8.0	3909087	77130	Og	Sts	Al	SdHe	YFG	Altered oolitic carbonate	5	663	16000	-1	1.35	800	0.11
ZG350	8.0	10.0	3909088	77130	Og	SlsCcy	Al	Sd	LY+B	Altered oolitic carbonate	7	1654	69500	-1	6.42	834	3.10
ZG351	0.0	4.6			Qha	Cg											
ZG351	4.6	5.5	3909089	77130	Og	Sts	Ma		DG	Granular carbonate	4	30	67100	-1	16.78	7400	0.64
ZG352	0.0	2.0	3909090	77130	QhaOg	CgCcy			B		4	66	109	-1	0.30	43	
ZG352	2.0	4.0	3909091	77130	Og	Ccy			B		11	84	248	-1	0.36	32	
ZG352	4.0	6.0	3909092	77130	Og	Ccy			B		45	379	328	1	0.52	30	
ZG352	6.0	8.0	3909093	77130	Og	Ccy			B		38	912	3337	1	0.78	33	
ZG352	8.0	10.0	3909094	77130	Og	Ccy			MBDG	Gritty	27	1045	49700	1	4.38	27	7.50
ZG352	10.0	12.0	3909095	77130	Og	CcySls	Fe		B	Minor ferrug carbonate	20	1868	61500	-1	5.90	24	10.00
ZG352	12.0	14.0	3909096	77130	Og	CcySls	Fe		B	Minor ferrug carbonate	24	747	55100	1	4.98	37	8.60
ZG352	14.0	16.0	3909097	77130	Og	SlsCcy	FeWe		G+DG	Ferrug carbonate	12	999	112700	-1	5.70	59	12.20
ZG352	16.0	18.0	3909098	77130	Og	Ccy			MLBDG		40	1281	40500	1	2.74	60	3.45
ZG352	18.0	20.0	3909099	77130	Og	Ccy			MLGDG	Plastic clay	26	841	15800	1	1.13	38	1.50
ZG352	20.0	22.0	3909100	77130	Og	SlsCcy	Ma		DG+LG	Granular carbonate	35	1563	25800	1	2.98	242	1.65
ZG352	22.0	24.0	3909101	77130	Og	SlsCcy	Vn		DG+LG	Granular carbonate	11	603	10600	-1	1.03	344	0.43
ZG352	24.0	26.0	3909102	77130	Og	SlsCcy	Vn		DG+V	Granular carbonate + green clay	18	749	12500	-1	1.37	373	0.31
ZG352	26.0	28.0	3909103	77130	Og	SlsCcy	Vn		DG+V	Granular carbonate + green clay	20	881	11600	1	2.37	858	0.46
ZG352	28.0	28.7	3909104	77130	Og	SlsCcy	Vn		DG+V	Granular carbonate + green clay	12	547	10300	1	1.25	498	0.31
ZG353	0.0	2.0			Qha	Cg											
ZG353	2.0	4.0	3909105	77130	Og	Ccy			DB	Peaty	22	129	568	-1	3.19	32	
ZG353	4.0	6.0	3909106	77130	Og	Ccy			DB	Peaty	22	100	657	-1	4.19	35	
ZG353	6.0	8.0	3909107	77130	Og	Ccy			G		26	201	1384	1	6.40	36	
ZG353	8.0	10.0	3909108	77130	Og	Ccy			MGLG		21	146	454	1	1.92	33	
ZG353	10.0	12.0	3909109	77130	Og	Ccy			LGW	Plastic	16	72	84	-1	0.77	35	
ZG353	12.0	14.0	3909110	77130	Og	Ccy			LGW	Plastic	14	54	32	-1	0.55	37	
ZG353	14.0	16.0	3909111	77130	Og	Ccy			LGW	Plastic	17	53	27	-1	0.41	32	
ZG353	16.0	18.0	3909112	77130	Og	Ccy			LGW+LB	Plastic	21	54	92	-1	0.28	16	
ZG353	18.0	20.0	3909113	77130	Og	Ccy			W	Plastic	13	59	211	-1	0.23	11	
ZG353	20.0	22.0	3909114	77130	Og	Ccy			W	Plastic	17	46	40	-1	0.27	13	
ZG353	22.0	24.0	3909115	77130	Og	Ccy			LGW	Plastic clay + qtz grit	25	198	212	-1	0.68	19	
ZG353	24.0	25.0	3909116	77130	OmOg	SssCcy			G+LB		16	108	494	-1	0.65	40	
ZG354	0.0	4.0			Qha	Cg											
ZG354	4.0	6.0	3909117	77130	Og	Ccy			B	decomposed Sls	19	78	660	-1	2.62	66	
ZG354	6.0	8.0	3909118	77130	Og	Ccy			N		40	111	572	-1	5.64	531	
ZG354	8.0	10.0	3909119	77130	Og	Ccy			MBN		16	65	354	-1	19.30	3539	
ZG354	10.0	12.0	3909120	77130	Og	Ccy			DB	plastic	25	87	432	-1	6.80	515	
ZG354	12.0	14.0	3909121	77130	Og	Ccy			DB	plastic	26	100	567	-1	6.62	176	
ZG354	14.0	16.0	3909122	77130	Og	Ccy			DB	plastic	34	415	3042	1	4.63	74	
ZG354	16.0	18.0	3909123	77130	Og	Ccy			YG	plastic	27	177	528	1	3.73	90	
ZG354	18.0	20.0	3909124	77130	Og	Ccy			LB	plastic	15	104	155	-1	1.77	109	
ZG354	20.0	22.0	3909125	77130	Og	Ccy			LBLGW		16	103	134	-1	1.33	84	
ZG354	22.0	24.0	3909126	77130	Og	Ccy			LGW	minor chert frags	20	56	338	-1	0.34	23	
ZG354	24.0	26.0	3909127	77130	Og	Ccy			W		12	90	98	-1	0.29	14	
ZG354	26.0	28.0	3909128	77130	Og	Ccy			LB	plastic	16	82	56	-1	0.38	17	
ZG354	28.0	29.3	3909129	77130	Og	Ccy			LBW	minor coarse qtzite (Om)	32	112	300	1	3.24	25	
ZG355	0.0	4.2			Qha	Cg											

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APPENDIX 2: Grieves Prospect - CRAE air-core drillhole logs and assays

HOLE	DFROM	DTO	SAMPNO	DPO	BMLLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Qz	Pb	Zn	Ag	Fe%	Mn	S%
ZG355	4.2	6.0	3909130	77130	Og	Ccy			N	pealy	24	98	630	-1	9.64	2637	
ZG355	6.0	8.0	3909131	77130	Og	Ccy			N		24	96	684	1	18.35	5400	
ZG355	8.0	10.0	3909132	77130	Og	Ccy			N	lesser LG medium granular Sls	26	105	819	-1	18.10	4085	
ZG355	10.0	12.0	3909133	77130	Og	Ccy			N	lesser LG medium granular Sls	31	111	732	-1	5.59	475	
ZG355	12.0	14.0	3909134	77130	Og	Ccy			DG		30	76	652	-1	4.87	365	
ZG355	14.0	16.0	3909135	77130	Og	Ccy			DG		28	72	382	-1	6.01	70	
ZG355	16.0	18.0	3909136	77130	Og	Ccy		Py	DG	with rdd qtz pebbles, prominent Py	24	81	535	-1	3.33	74	
ZG355	18.0	20.0	3909137	77130	Og	Ccy		Py	DG	with rdd qtz pebbles, prominent Py	22	114	786	1	4.56	51	
ZG355	20.0	22.0	3909138	77130	Og	Ccy		Py	DG	prominent Py	28	137	877	1	4.54	57	
ZG355	22.0	24.0	3909139	77130	Og	Ccy			DGO		31	192	675	1	3.50	89	
ZG355	24.0	26.0	3909140	77130	Og	Ccy			DGO		36	128	482	1	4.48	122	
ZG355	26.0	28.0	3909141	77130	Og	Ccy			DGO		27	87	499	-1	4.83	262	
ZG355	28.0	30.0	3909142	77130	Og	Ccy			ODG		30	163	475	1	4.82	259	
ZG355	30.0	32.0	3909143	77130	Og	Ccy			W		19	157	213	-1	1.43	122	
ZG355	32.0	34.0	3909144	77130	Og	Ccy			W		19	146	509	1	0.88	34	
ZG355	34.0	36.0	3909145	77130	Og	Ccy			W	minor chert	18	90	381	-1	0.86	109	
ZG355	36.0	38.0	3909146	77130	Og	Ccy			W	minor chert	17	66	86	-1	0.61	40	
ZG355	38.0	39.2	3909147	77130	Om	Mq				coarse with rdd qtz pebbles, lesser DG clay	28	176	109	-1	2.27	39	
ZG356	0.0	5.2			Cha	Og											
ZG356	5.2	8.0	3909148	77130	Og	Ccy			N	lesser DG granular Sls	15	44	3380	-1	9.39	2545	
ZG356	8.0	10.0	3909149	77130	Og	Ccy			N	lesser DG granular Sls	19	35	1611	-1	17.85	6800	
ZG356	10.0	12.0	3909150	77130	Og	Ccy			DG		33	154	1155	-1	9.33	2843	
ZG356	12.0	14.0	3909151	77130	Og	Sls				granular Sls, minor DG clay	15	66	3076	-1	5.99	1907	
ZG356	14.0	16.0	3909152	77130	Og	Sls				oolitic Sls, lesser DG clay	18	318	3031	1	6.92	1596	
ZG356	16.0	18.0	3909153	77130	Og	Ccy			DG	gritty	57	1279	6600	2	11.50	360	
ZG356	18.0	20.0	3909154	77130	Og	Ccy		Py	DG	prominent Py	93	4000	14400	5	11.33	236	12.00
ZG356	20.0	22.0	3909155	77130	Og	Ccy		Py	DG	prominent Py, gritty	171	4400	23600	11	12.01	90	13.60
ZG356	22.0	24.0	3909156	77130	Og	Ccy		Py	DG	carbonaceous, trace Py	69	3600	11800	4	7.58	68	8.90
ZG356	24.0	26.0	3909157	77130	Og	Ccy		Py	DG	carbonaceous, trace Py	51	1348	4392	2	7.14	82	
ZG356	26.0	28.0	3909158	77130	Og	Ccy		Py	DG	carbonaceous, prominent Py	50	1709	4659	2	8.14	50	
ZG356	28.0	30.0	3909159	77130	Og	Ccy		Py	DG	carbonaceous, prominent Py	32	278	718	1	3.79	44	
ZG356	30.0	32.0	3909160	77130	Og	Ccy		Py	DG	carbonaceous, trace Py	38	715	2565	1	4.92	42	
ZG356	32.0	34.0	3909161	77130	Og	Ccy			WK+DG		53	666	1776	1	4.48	33	
ZG356	34.0	36.0	3909162	77130	Og	Ccy			WK+DG		36	250	789	1	3.14	29	
ZG356	36.0	38.0	3909163	77130	Og	Ccy		Py	WK+DG	trace Py	40	467	2237	-1	2.86	33	
ZG356	38.0	40.0	3909164	77130	Og	Ccy		Py	MGWK	pyrite nodules	37	483	1331	-1	2.80	34	
ZG356	40.0	42.0	3909165	77130	Og	Ccy		Py	MGWK		32	207	326	1	2.53	33	
ZG356	42.0	44.0	3909166	77130	Og	Ccy		Py	MGWK		60	125	87	1	2.54	31	
ZG356	44.0	46.0	3909167	77130	Og	Ccy			DG	minor chert	55	220	486	1	2.78	33	
ZG356	46.0	48.0	3909168	77130	Og	Ccy		Py	MG	minor chert, trace Py	34	91	355	-1	1.25	34	
ZG356	48.0	50.0	3909169	77130	Og	Ccy		Py	MG	minor chert, trace Py	24	105	287	-1	1.32	38	
ZG356	50.0	51.0	3909170	77130	Og	Ccy		Py	DG	minor chert, trace pyrite	22	107	205	-1	1.41	34	
ZG357	0.0	5.3			Cha	Og											
ZG357	5.3	8.0	3909171	77130	Og	Ccy			DB	gritty	16	80	2043	-1	1.86	85	
ZG357	8.0	10.0	3909172	77130	Og	Ccy			DB	gritty, lesser DG fine skeletal? Sls	11	62	2656	-1	9.43	418	
ZG357	10.0	12.0	3909173	77130	Og	Ccy			DB	gritty, lesser DG fine skeletal? Sls	12	40	1684	-1	7.62	1499	
ZG357	12.0	14.0	3909174	77130	Og	Ccy		Sd	DB	lesser fine granular ankortitic Sls	7	10	2233	-1	22.99	4438	
ZG357	14.0	16.0	3909175	77130	Og	Ccy			DB	lesser fine granular Sls	10	24	3791	-1	21.38	4609	
ZG357	16.0	18.0	3909176	77130	Og	Ccy			B	lesser fine granular Sls	17	106	10200	-1	14.51	1550	8.65
ZG357	18.0	20.0	3909177	77130	Og	Sls				fine, granular, lesser B clay							
ZG357	20.0	22.0	3909178	77130	Og	Sls			MG	granular, minor B-LG clay	8	34	1360	-1	12.20	5500	
ZG357	22.0	24.0	3909179	77130	Og	Sls			MMG		8	54	2664	-1	12.95	1349	
ZG357	24.0	26.0	3909180	77130	Og	Sls		Py		granular	7	62	934	-1	24.59	11100	

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APPENDIX 2: Grievs Prospect - CRAE air-core drillhole logs and assays

HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	CU	Pb	Zn	Ag	Fe%	Mn	S%
ZG357	26.0	28.0	3909181	77130	Og	Ccy		Py	GB	minor Py	50	1853	14200	3	12.22	2252	9.70
ZG357	28.0	30.0	3909182	77130	Og	Ccy		Py	FDG	trace Py	186	2100	56100	8	15.99	921	14.50
ZG357	30.0	32.0	3909183	77130	Og	Ccy			MOY	minor Sss frags	334	450	1687	-1	27.09	924	
ZG357	32.0	34.0	3909184	77130	Og	Ccy			MGOR		1626	1179	1285	12	21.55	676	
ZG357	34.0	36.0	3909185	77130	Og	Ccy			O	minor rock frags	54	769	1877	1	14.31	907	
ZG357	36.0	38.0	3909186	77130	Og	Ccy			O	minor rock frags	37	339	1084	-1	10.30	767	
ZG357	38.0	40.0	3909187	77130	Og	Ccy			MFO		62	1316	3406	-1	22.74	1072	
ZG357	40.0	42.0	3909188	77130	Og	Ccy			MD	gritty	47	167	771	-1	8.02	447	
ZG357	42.0	44.0	3909189	77130	Og	Ccy			MYR	lesser rock frags	133	1746	1503	1	19.07	477	
ZG357	44.0	46.0	3909190	77130	Og	Ccy			MYFDG		358	6700	1459	7	17.71	235	
ZG357	46.0	48.0	3909191	77130	Og	Ccy			MYR		110	3056	4111	-1	28.91	1206	
ZG357	48.0	50.0	3909192	77130	Og	Ccy			MYR		121	5000	7100	-1	34.43	1527	
ZG357	50.0	52.0	3909193	77130	Og	Ccy			MYR	lesser rock frags	123	1748	4410	-1	29.04	949	
ZG357	52.0	54.0	3909194	77130	Og	Ccy			DG+R	lesser rock frags	469	3500	28900	6	14.64	423	6.15
ZG357	54.0	55.8	3909195	77130	Og	Ccy			MGY	drilling abandoned, rods tight	255	5200	20900	11	20.01	548	8.85
ZG366	0.0	1.0			Qha	Cg			K+W	qtzite gravel, no sample							
ZG366	1.0	4.0	3983870	77148	Og	Sls	Fe		G	ferrug on fractures							
ZG366	4.0	6.0	3983871	77148	Qha	SlsMq	Fe	Py	DB+K	trace Py							
ZG366	6.0	7.5	3983872	77148	Qha	Mq			LGK								
ZG367	0.0	2.0			Qha	Cg			K+W	qtzite scree, no sample							
ZG367	2.0	4.0	3983873	77148	Og	Ccy	Fe		DBN	hard clay							
ZG367	4.0	6.0	3983874	77148	Og	Ccy			DGB	plastic							
ZG367	6.0	8.0	3983875	77148	Og	Ccy			DGB	silty							
ZG367	8.0	10.0	3983876	77148	Og	Ccy			DG	hard clay chips, carbonaceous							
ZG367	10.0	12.0	3983877	77148	Og	SlsSsh	Vq	Py	DG	some alteration, vein Py							
ZG367	12.0	14.0	3983878	77148	Og	CcySls		Sd	DG	abund free qtz							
ZG367	14.0	16.5	3983879	77148	Og	Sls	VqFe		LG	abund free qtz, hard drilling							
ZG368	0.0	2.0			Qha	Cg			DG	qtzite scree, no sample							
ZG368	2.0	4.0	3983880	77148	Og	Ccy			DB+N	sandy & carbonaceous clays							
ZG368	4.0	6.0	3983881	77148	Og	Ccy			LB								
ZG368	6.0	8.0	3983882	77148	Og	Ccy			LB+DG								
ZG368	8.0	10.0	3983883	77148	Og	Ccy			DG	plastic, smooth							
ZG368	10.0	12.1	3983884	77148	Og	CcySls	VcFe		DG+G	hematite staining							
ZG369	0.0	2.5			Qha	Cg			K+W	qtzite scree, no sample							
ZG369	2.5	3.5	3983885	77148	Og	CcySls		Sd?	DB+N	hard altered oolitic sls							
ZG370	0.0	2.5			Qha	Cg			K+W	qtzite scree, no sample							
ZG370	2.5	4.0	3983886	77148	Og	Ccy	Fe		B+BN	carbonaceous							
ZG370	4.0	6.0	3983887	77148	Og	Ccy	FeVq		LB	ferrug qtz, limonite veins							
ZG370	6.0	8.0	3983888	77148	Og	CcySls			DB	creamy sls - altered?							
ZG370	8.0	10.0	3983889	77148	Og	Ccy			B+N	gritty brn & smooth black							
ZG370	10.0	12.0	3983890	77148	Og	Ccy			DB	hard carbonaceous chips							
ZG370	12.0	14.0	3983891	77148	Og	Ccy	Fe		LB	ferrug veins							
ZG370	14.0	16.0	3983892	77148	Og	Sls		Sd	LYG	oolitic CO3, weakly sideritic							
ZG370	16.0	18.0	3983893	77148	Og	Sls		Sd	LYG	oolitic CO3, weakly ankeritic							
ZG370	18.0	20.0	3983894	77148	Og	Sls		Sd	LYG	oolitic CO3, weakly ankeritic							
ZG370	20.0	22.0	3983895	77148	Og	Sls		Sd	B+YG	oolitic CO3							
ZG370	22.0	24.0	3983896	77148	Og	Sls		Sd	B+YG	oolitic CO3, possibly oolitic cave in							
ZG370	24.0	26.0	3983897	77148	Og	Ccy			MB								
ZG370	26.0	28.0	3983898	77148	Og	Ccy			G+LB								
ZG370	28.0	30.0	3983899	77148	Og	SlsCcy	Fe	Sd	YG	altered CO3							
ZG370	30.0	32.0	3983900	77148	Og	SlsCcy		Sd	DG+LRB	strongly altered?							
ZG370	32.0	34.0	3984001	77148	Og	SlsOx	Fe	Sd	DG+LB	altered, veined with lt brn FeCO3?							
ZG370	34.0	36.0	3984002	77148	Og	SlsCcy	Vc		DG	carbonaceous							

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APPENDIX 2: Grievas Prospect - CRAE air-core drillhole logs and assays

HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG370	36.0	38.0	3984003	77148	Og	Ccy			DG	carbonaceous, greasy							
ZG370	38.0	40.0	3984004	77148	Og	Ccy			SDG	carbonaceous							
ZG370	40.0	42.0	3984005	77148	Og	Ccy			SDG								
ZG370	42.0	44.0	3984006	77148	Og	Ccy		Py	SG	gritty							
ZG370	44.0	46.0	3984007	77148	Og	SlsCcy			SG								
ZG370	46.0	46.5	3984008	77148	Cha	MgCcy			G	breccia with clay matrix							
ZG371	0.0	2.0			Cha	Cg			K+W	qtzite scree, no sample							
ZG371	2.0	4.0	3984009	77148	Og	Ccy	Fe		DB+N	ferrug veins							
ZG371	4.0	6.0	3984010	77148	Og	Ccy			EG	gritty							
ZG371	6.0	8.0	3984011	77148	Og	Ccy			EG								
ZG371	8.0	10.0	3984012	77148	Og	Sls		Sd?	LG	spongy looking CO3 (altered?), skeletal CO3							
ZG371	10.0	12.0	3984013	77148	Og	Sls			G	spongy looking CO3, minor Sd alteration							
ZG371	12.0	14.0	3984014	77148	Og	CcySls		Sd	DG	spongy CO3							
ZG371	14.0	16.0	3984015	77148	Og	CcySls	Fe		DG	minor Fe							
ZG371	16.0	18.0	3984016	77148	Og	Sls	Fe		G+DG	minor clay							
ZG371	18.0	20.0	3984017	77148	Og	Sls		Sd	G+DG								
ZG371	20.0	22.0	3984018	77148	Og	Sls	Fe	Sd	YG	spongy CO3							
ZG371	22.0	24.0	3984019	77148	Og	Sls		Sd	LYG	oolitic CO3							
ZG371	24.0	26.0	3984020	77148	Og	Sls		Sd	LYG	oolitic CO3							
ZG371	26.0	28.0	3984021	77148	Og	SlsCcy		Sd	LYG+LB	oolitic CO3							
ZG371	28.0	30.0	3984022	77148	Og	Sls	Fe	Sd	LYG	oolitic CO3							
ZG371	30.0	30.5	3984023	77148	Og	Sls	Fe	Sd	LYG	hard oolitic CO3							
ZG372	0.0	2.0			Cha	Cg			K+W	qtzite scree, no sample							
ZG372	2.0	4.0	3984024	77148	Og	Ccy			DB								
ZG372	4.0	6.0	3984025	77148	Og	Ccy			DG+B	hard							
ZG372	8.0	8.0	3984026	77148	Og	Ccy			DG+B	plastic							
ZG372	8.0	10.0	3984027	77148	Og	Ccy			EG	minor grit & brn clay							
ZG372	10.0	12.0	3984028	77148	Og	Ccy			EG								
ZG372	12.0	14.0	3984029	77148	Og	CcySls	Fe		DG+B	ferrug CO3 or veins							
ZG372	14.0	16.0	3984030	77148	Og	Sls		Sd	G+YG	minor Sd alteration							
ZG372	16.0	18.0	3984031	77148	Og	Ccy			EG	minor grit							
ZG372	18.0	20.0	3984032	77148	Og	SlsCcy		Sd	G+YG	skeletal CO3 (coral/shells)							
ZG372	20.0	22.0	3984033	77148	Og	SlsCcy		Sd	G+YG	skeletal CO3 (coral/shells)							
ZG372	22.0	24.0	3984034	77148	Og	CcySls			DG+G	spongy CO3, gritty clay							
ZG372	24.0	26.0	3984035	77148	Og	Sls	Fe	Sd	DG+YG								
ZG372	26.0	28.0	3984036	77148	Og	Sls		Sd	LYG+G	skeletal CO3							
ZG372	28.0	30.0	3984037	77148	Og	Sls	Fe	Sd	DG+LYG	oolitic CO3							
ZG372	30.0	32.0	3984038	77148	Og	Sls	Fe	Sd	LYG+K	strongly altered, hematite stained							
ZG372	32.0	34.0	3984039	77148	Og	Sls	Fe	Sd	LYG+K	oolitic, altered, hematite stained							
ZG372	34.0	36.0	3984040	77148	Og	Sls	Fe	Sd	LYG+K	oolitic, strongly altered							
ZG372	36.0	38.0	3984041	77148	Og	Sls	Fe	Sd	LYG+DG	oolitic, hematite							
ZG372	38.0	39.6	3984042	77148	Og	Sls	Fe	Sd	LYG	oolitic, hematite, ferrug veins							
ZG373	0.0	2.1	3984043	77148	Og	CcySls			DBG	silty textured							
ZG374	0.0	2.0	3984044	77148	Cha	CgCcy		Sd	DB	weakly ankeritic							
ZG374	2.0	4.0	3984045	77148	Og	Sls	Di	SdPy	YG	5% Py							
ZG374	4.0	4.8	3984046	77148	Og	SlsOvc		PySd	DG	strongly altered							
ZG375	0.0	2.0	3984047	77148	Cha	CgCcy			B	Mq gravel & sandy clay							
ZG375	2.0	2.5	3984048	77148	Og	Sls	Vc		LG+G	shaley CO3							
ZG376	0.0	2.0	3984049	77148	Og	CcyCv			SG+B								
ZG376	2.0	3.0	3984050	77148	Og	CcySls		Py	MLGGG	veg							
ZG377	0.0	2.0	3984051	77148	Og	CcyCv			DG+N								
ZG377	2.0	2.5	3984052	77148	Og	Sls		Py	DG	hard CO3							
ZG378	0.0	2.1	3984053	77148	Og	CvCcy			DB+G	minor CO3							

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APPENDIX 2: Grievies Prospect - CRAE air-core drillhole logs and assays

HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Cu	Pb	Zn	Ag	Fe%	Mn	S%
ZG379	0.0	2.0	3984054	77148	Og	CvCcy			DB								
ZG379	2.0	4.0	3984055	77148	Og	Ccy			DB								
ZG379	4.0	6.0	3984056	77148	Og	Ccy			DB	hard clay & grit							
ZG379	6.0	8.0	3984057	77148	Og	Sls	Fe	Sd	DG								
ZG379	8.0	8.7	3984058	77148	Og	SlsOvc		PySd	DG	some alteration							
ZG380	0.0	2.0	3984059	77148	Og	CvCcy			MLBDB								
ZG380	2.0	4.0	3984060	77148	Og	CcySls			LG+B	gritty, minor sls, no E.O.H sample							
ZG381	0.0	2.0	3984062	77148	Og	CvCcy			B								
ZG381	2.0	4.0	3984063	77148	Og	Ccy			MBCG	vega							
ZG381	4.0	5.5	3984064	77148	Og	SlsCcy	Vc		G+DG								
ZG382	0.0	2.0	3984065	77148	Qha	Cg			LB+DB	silty, some gtzite							
ZG382	2.0	4.0	3984066	77148	Og	Ccy			DB								
ZG382	4.0	5.1	3984067	77148	Og	CcySls	Vc		DG								
ZG383	0.0	2.0	3984068	77148	Qha	Cg			B+LB	silty, some gtzite							
ZG383	2.0	4.0	3984069	77148	Og	Ccy			DB	gritty							
ZG383	4.0	6.0	3984070	77148	Og	Ccy			DB	gritty							
ZG383	6.0	8.0	3984071	77148	Og	CcySls			DB+DG	minor CO3							
ZG383	8.0	8.1			Og	Sls	Vc	Py	DG	E.O.H. sample only							
ZG384	0.0	2.0	3984072	77148	Qha	CgCcy			DB	minor gtzite							
ZG384	2.0	4.0	3984073	77148	Og	CcySls			DG	graphitic							
ZG384	4.0	5.2	3984074	77148	Og	SlsCcy	Vc	Sd	G+DG								
ZG385	0.0	2.0	3984075	77148	Og	CcyCv			DB+DG	silty, grit							
ZG385	2.0	4.0	3984076	77148	Og	CcySls	Fe		DB+DG								
ZG385	4.0	6.0	3984077	77148	Og	CcySls			DG	med-grained CO3							
ZG385	6.0	8.0	3984078	77148	Og	CcySls			DG	carbonaceous							
ZG385	8.0	10.0	3984079	77148	Og	Sls	Vc		SDG								
ZG385	10.0	12.0	3984080	77148	Og	Sls	Vc		DG+LG	shaley CO3							
ZG385	12.0	13.8	3984081	77148	Og	Sls	Vc	PySd	DG+LG	shaley CO3							
ZG386	0.0	2.0	3984082	77148	Qha	CgCcy			DB								
ZG386	2.0	2.4			Og	Sls	Vc		DG	E.O.H. sample only							
ZG387	0.0	1.2			Og	SlsOvc			DG	veg, E.O.H. sample only							
ZG388	0.0	1.8	3984083	77148	Og	CvCcySls	Vc		GB+WK								
ZG389	0.0	2.0	3984084	77148	Og	CvCcy			B								
ZG389	2.0	4.0	3984085	77148	Og	Ccy			DB	gritty, hard clay chips							
ZG389	4.0	6.0	3984086	77148	Og	CcySls	Fe		DB	ferrug clay chips							
ZG389	6.0	8.0	3984087	77148	Og	Ccy			DGB	hard							
ZG389	8.0	10.0	3984088	77148	Og	Ccy			DGB	hard							
ZG389	10.0	12.0	3984089	77148	Og	SlsCcy	Vc		LG+DB								
ZG389	12.0	14.0	3984090	77148	Og	SlsOvc			G+LG	slightly shaley CO3, altered?							
ZG389	14.0	14.8	3984091	77148	Og	Sls	Vc	Sd	G								
ZG390	0.0	2.0	3984092	77148	Qha	CgCcy			LB+B								
ZG390	2.0	4.0	3984093	77148	Og	Ccy			LB+DB	gritty							
ZG390	4.0	6.0	3984094	77148	Og	Ccy			DB	small hard clay chips							
ZG390	6.0	7.4	3984095	77148	Og	CcySls	Vc		DG+B								
ZG391	0.0	2.0	3984096	77148	Qha	CgCcy			DB	gravels & clays							
ZG391	2.0	4.0	3984097	77148	Og	Ccy			DGB								
ZG391	4.0	5.9	3984098	77148	Og	Sls	Vc	Py	DG								
ZG392	0.0	2.0	3984099	77148	Qha	Cg			B	silty with Mq gravel							
ZG392	2.0	4.0	3984100	77148	Og	Ccy			B+LB	sandy							
ZG392	4.0	6.0	3984101	77148	Og	Ccy			DGB								
ZG392	6.0	7.8	3984102	77148	Og	Sls	VcVs?	Ca?	DG								
ZG393	0.0	2.0	3984103	77148	QhaOg	CvCcy			DB								
ZG393	2.0	4.0	3984104	77148	Og	Ccy			DB	Gritty							

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APPENDIX 2: Grieves Prospect - CRAE air-core drillhole logs and assays

HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS	Qu	Pb	Zn	Ag	Fe%	Mn	S%
ZG393	4.0	6.0	3984105	77148	Og	Coy			DEG								
ZG393	6.0	7.5	3984106	77148	Og	SlsCoy	Vc		G+DG								
ZG394	0.0	2.0	3984107	77148	OhaOg	CgCoy			DB								
ZG394	2.0	4.0	3984108	77148	Og	Coy			MDEG								
ZG394	4.0	4.8	3984109	77148	Og	Sls	VcFeDs	Py	DG								
ZG395	0.0	4.0			Oha	Cg			K+B	qtzite gravels, no sample							
ZG395	4.0	6.0	3984113	77148	Og	Coy			DB								
ZG395	6.0	8.0	3984114	77148	Og	Coy	Fe		DB								
ZG395	8.0	10.0	3984115	77148	Og	CoySls	Vc		DG+G								
ZG395	10.0	12.0	3984116	77148	Og	CoySls			DG								
ZG395	12.0	12.3			Og	Sls	VcFe		LG+DG								
ZG396	0.0	2.0	3984110	77148	Oha	CgCoy			K+B	qtzite gravels, no sample							
ZG396	2.0	4.0			Oha	Cg			K+B	qtzite gravels, no sample							
ZG396	4.0	6.0			Oha	Cg			K+B	qtzite gravels, no sample							
ZG396	6.0	8.0	3984111	77148	Og	Coy			DB								
ZG396	8.0	9.3	3984112	77148	Og	Sls	Vc		DG	cave in, poor sample							
ZG397	0.0	3.5			Oha	Cg			K+B	qtzite gravels, no sample							
ZG397	3.5	5.7	3984117	77148	Og	Sls	VcFe		DG								
ZG398	0.0	2.0			Oha	Cg			K+B	qtzite gravels, no sample							
ZG398	2.0	2.5	3984118	77148	Og	Sls	Vc		DG								
ZG399	0.0	2.0			Oha	CyCg			K+B	qtzite gravels, no sample							
ZG399	2.0	2.6	3984119	77148	Og	Sls			DG								
ZG400	0.0	2.0			Oha	Cg			K+B	qtzite gravels, no sample							
ZG400	2.0	2.3	3984120	77148	Og	Sls	Vc		DG								

APPENDIX 3:

CRAE DIAMOND DRILL LOGS AND GEOCHEMISTRY

## ROCKCHIP AND DRILLING CODES

22/2/1994

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BMLITHRock code as per published geological map  
For time designation use:-

Q	Quaternary	M	Permian	P	Proterozoic
T	Tertiary	C	Carboniferous	A	Archaean
		S	Silurian		
K	Cretaceous	D	Devonian		
R	Triassic	O	Ordovician		
J	Jurassic	E	Cambrian		

## FIELD ID

Field term for rock type  
Broad groupings are:-

S	Sedimentary	I	Intrusive	C	Surficial
M	Metamorphic	E	Extrusive	O	Others

## SEDIMENTARY

Sog	Conglomerate	Sls	Limestone	Sw	Wacke
Sss	Sandstone	Sdl	Dolomite	Sag	Agglomerate/mixtite
Ssi	Siltstone				
Ssh	Shale	Sch	Chert	Sbx	Breccia
Sbs	Black shale	Sif	BF		

## METAMORPHIC

Msl	Slate	Mq	Quartzite	Mmg	Migmatite
Mph	Phyllite	Mm	Marble		
Msc	Schist	Ma	Amphibolite		
Mbs	Graphitic schist	Mcs	Calcsilicate	Msk	Skarn
Mgn	Gneiss	Mtr	Hornfels		

## INTRUSIVE IGNEOUS

If	Felsic undiff.	li	Intermed undiff.	lu	Ultramafic
Ifp	Felsic porphyry	lip	Intermed porph	lus	Serpentinite
lap	Aplite	lm	Mafic undiff.		
Igr	Granite	ldo	Dolerite	lpg	Pegmatite
Igd	Granodiorite	lgb	Gabbro		

## EXTRUSIVE IGNEOUS

Ery	Rhyolite	Ean	Andesite	Et	Tuff undiff
Edc	Dacite	Eb	Basalt	Elt	Felsic tuff
				Emt	Mafic tuff

## SURFICIAL (COVER) MATERIAL

Ca	Alluvium	Clt	Laterite	Csg	Gossan
Coo	Colluvium	Csp	Pisolites	Ccy	Clay
Cs	Sand	Csf	Ironstone		
Cbs	Black soil	Csr	Silcrete	Cv	Vegetation/peat
Cg	Gravel	Ccl	Calcrete		

## OTHERS

Ovq	Vein quartz	Omy	Mylonite	Oms	Massive sulphide
Ovc	Vein carbonate	Obx	Breccia	Oxc	Contamination
Ovs	Vein sulphide	Oif	Fault gouge	Ox	Unknown

## TEXTURAL CODES

## WEATHERING/SURFICIAL FEATURES

We	Weathered	Fe	Ferruginous
Bl	Bleached	Fo	Fe ox in fract
Le	Leached		

## MINERALISATION/ALTERATION FEATURES

Gs	Gossanous	Vs	Vein sulphide	Al	Altered
Vn	Veined	Ds	Dissem sulph	S	Silicified
Vc	Vein carbonate	Fs	Fracture sulph		
Vq	Vein quartz	Bs	Banded sulph	Di	Disseminated

## GEOLOGICAL FEATURES

Bd	Bedded	Fr	Fractured	Po	Porphyritic
Bn	Banded	Ib	Interbedded	Sc	Schistose
Bx	Brecciated	Lm	Laminated	Sh	Sheared
Fi	Fissile (slaty)	Ma	Massive	Vu	Vuggy

## DIAGNOSTIC MINERALOGY

## PRIMARY MINERALISATION

Ga	Galena	Py	Pyrite	Ni	Ni sulphides
Sp	Sphalerite	Po	Pyrrhotite		
Op	Chalcopyrite	Su	Unknown sulph		

## SECONDARY MINERALISATION

Ls	Lead secondaries	Cs	Copper sec.	Ni	Ni secondaries
Zs	Zinc "	Us	Uranium "		

## ALTERATION/DIAGNOSTIC MINERALS

Cy	Clay	He	Haematite	Gt	Garnet
Ep	Epidote	Mt	Magnetite	Ky	Kyanite
Cc	Carbonate	Ja	Jarosite	To	Tourmaline
Sd	Siderite/Ankerite	Mn	Manganese mins	Cl	Chlorite
Dl	Dolomite				

## COLOUR CODES

L	Light	A	Banded	M	Mottled
D	Dark				
N	Black	P	Purple	V	Green
G	Grey	R	Red	K	Pink
B	Brown	O	Orange	E	Blue
W	White	Y	Yellow	S	Silver

Appendix 3: Grievés prospect. CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS										
Results in ppm unless shown otherwise.										
HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS
ZG104	0.00	5.35			Qha	Cg				
ZG104	5.35	6.70			Og	Ccy				No Rec.
ZG104	6.70	9.50	3753647	77110	Og	Sls			G	Poor Rec
ZG104	9.50	10.60	3753648	77110	Og	Ccy			DG	Poor Rec
ZG104	10.60	12.25	3753649	77110	Og	Ccy			DG	Poor Rec
ZG104	12.25	14.35	3753650	77110	Og	Ccy			DG	Poor Rec
ZG104	14.35	15.50	3753651	77110	Og	CcySls			DGN	Poor Rec
ZG104	15.50	16.95	3753652	77110	Og	SlsCcy			NV	
ZG104	16.95	18.55	3753653	77110	Og	SlsCcy			DG	Poor Rec
ZG104	18.55	19.50	3753654	77110	Og	SlsCcy			DG	Poor Rec
ZG104	19.50	20.50	3753655	77110	Og	Sls			DG	
ZG104	20.50	21.80	3753656	77110	Og	Sls			DG	
ZG104	21.80	22.60			Og	Ccy?				No Rec.
ZG104	22.60	23.80	3753657	77110	Og	SlsCcy			DG	
ZG104	23.80	25.05	3753658	77110	Og	SlsCcy			DG	Poor Rec
ZG104	25.05	27.30			Og	Ccy?				No Rec.
ZG104	27.30	29.10	3753659	77110	Og	Sls	Al	Sd	YB	Poor Rec
ZG104	29.10	31.50	3753660	77110	Og	Sls	Al	Sd	YB	Poor Rec
ZG104	31.50	32.60	3753661	77110	Og	Sls	Al	Sd	YB	Poor Rec
ZG104	32.60	34.00	3753662	77110	Og	Sls	Al	Sd	YB	Poor Rec
ZG104	34.00	35.10	3753663	77110	Og	Sls	Al	Sd	YB	Poor Rec
ZG104	35.10	36.70	3753664	77110	Og	Sls	Al	Sd	YB	Poor Rec

Appendix 3: Grieves prospect. CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS																	
Results in ppm unless shown otherwise.																	
HOLE	DFROM	DTO	SAMPNO	Ag	Al%	As	Ba	C%	Ca%	Cu	Fe%	K%	Mg%	Mn	Pb	S%	Zn
ZG104	0.00	5.35															
ZG104	5.35	6.70															
ZG104	6.70	9.50	3753647	-1				10.8		3	2.02			856	8	0.05	9300
ZG104	9.50	10.60	3753648	2				8.9		71	1.22			58	752	1.5	13300
ZG104	10.60	12.25	3753649	-1				13.1		78	1.22			91	3800	2.55	27300
ZG104	12.25	14.35	3753650	-1				11.8		81	1.41			97	3000	2.8	31100
ZG104	14.35	15.50	3753651	-1				11.9		8	0.99			393	177	0.97	9200
ZG104	15.50	16.95	3753652	-1				11.3		5	0.38			119	71	0.42	3416
ZG104	16.95	18.55	3753653	-1				9.8		11	1.07			355	1900	0.26	6300
ZG104	18.55	19.50	3753654	-1				11.2		7	1.85			415	311	0.44	2737
ZG104	19.50	20.50	3753655	-1				11.2		6	1.62			550	238	0.36	2049
ZG104	20.50	21.80	3753656	-1				9.2		11	1.39			368	384	0.66	2956
ZG104	21.80	22.60															
ZG104	22.60	23.80	3753657	-1				6.75		19	1.17			180	255	0.62	2857
ZG104	23.80	25.05	3753658	-1				9.15		13	1.66			508	834	1.1	3249
ZG104	25.05	27.30															
ZG104	27.30	29.10	3753659	-1				7.35		26	21.2			5600	819	7.6	84200
ZG104	29.10	31.50	3753660	-1				8.85		13	37.7			3268	510	2.9	53100
ZG104	31.50	32.60	3753661	-1				9		9	45			4749	163	1.4	36200
ZG104	32.60	34.00	3753662	-1				8.85		6	38			13800	40	0.39	92100
ZG104	34.00	35.10	3753663	-1				9		4	34.3			20300	38	0.23	151000
ZG104	35.10	36.70	3753664	-1				8.85		5	34.9			15200	49	0.28	123000

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Appendix 3: Grieves prospect. CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS										
Results in ppm unless shown otherwise.										
HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS
ZG105	0.00	2.80			Qha	Cg				No rec.
ZG105	2.80	3.20			Og	Ccy				Poor Rec
ZG105	3.20	4.40	3753665	77110	Og	Ccy			DG	
ZG105	4.40	4.95	3753666	77110	Og	Ccy			DG	
ZG105	4.95	5.60	3753667	77110	Og	Ccy			DG	Poor Rec
ZG105	5.60	6.65	3753668	77110	Og	Ccy			DG	Poor Rec
ZG105	6.65	7.30	3753669	77110	Og	Ccy			DG	Poor Rec
ZG105	7.30	8.30	3753670	77110	Og	Ccy	Al	Sd	YB	Poor Rec
ZG105	8.30	9.30	3753671	77110	Og	CcySlS			DG	
ZG105	9.30	10.30	3753672	77110	Og	CcySlS	Al	Sd	DGY	
ZG105	10.30	11.80	3753673	77110	Og	CcySlS			DG	Poor Rec
ZG105	11.80	13.90			Og	CcySlS?				No rec.
ZG105	13.90	14.60	3753676	77110	Og	CcySlS			DG	Poor Rec
ZG105	14.60	15.10	3753676	77110	Og	SlS	Al	Sd	YB	Poor Rec
ZG105	15.10	15.85	3753677	77110	Og	SlS	Al	Sd	YB	Poor Rec
ZG105	15.85	16.90	3753679	77110	Og	SlS	Al	Sd	YB	Poor Rec
ZG105	16.90	17.70	3753681	77110	Og	SlS	Al	Sd	YB	Poor Rec
ZG105	17.70	18.90	3753683	77110	Og	SlS	Al	Sd	YB	Poor Rec
ZG105	18.90	20.30	3753685	77110	Og	SlS	AIDs	SdGa	YB	Poor Rec
ZG105	20.30	22.00	3753687	77110	Og	SlS	AIDs	SdGa	YB	
ZG105	22.00	23.20	3753689	77110	Og	SlS			LG	Oolitic
ZG105	23.20	24.75	3753691	77110	Og	SlS			LG	Oolitic
ZG105	24.75	25.90	3753693	77110	Og	SlS			LG	Oolitic
ZG105	25.90	27.10	3753695	77110	Og	SlS			LG	Oolitic
ZG105	27.10	28.20	3753697	77110	Og	SlS			LG	Oolitic
ZG105	28.20	28.90	3753699	77110	Og	SlS			LG	Oolitic
ZG105	28.90	30.30	3753701	77110	Og	SlS			LG	Oolitic
ZG105	30.30	31.70	3753703	77110	Og	Ccy			DG	
ZG105	31.70	33.15	3753704	77110	Og	Ccy			DG	
ZG105	33.15	34.50	3753706	77110	Og	Ccy			DG	
ZG105	34.50	35.50	3753708	77110	Og	Ccy			DG	Poor Rec
ZG105	35.50	36.30	3753710	77110	Og	Ccy			DG	
ZG105	36.30	37.00			Og	Ccy?				No rec.
ZG105	37.00	38.25	3753713	77110	Og	Ccy			DG	Poor Rec
ZG105	38.25	39.25	3753715	77110	Og	Ccy			DG	Poor Rec
ZG105	39.25	40.45	3753717	77110	Og	SlS			LG	Poor Rec
ZG105	40.45	40.90	3753719	77110	Om?	Mq?			LG	

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Appendix 3: Grieves prospect. CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS																	
Results in ppm unless shown otherwise.																	
HOLE	DFROM	DTO	SAMPNO	Ag	Al%	As	Ba	C%	Ca%	Cu	Fe%	K%	Mg%	Mn	Pb	S%	Zn
ZG105	0.00	2.80															
ZG105	2.80	3.20															
ZG105	3.20	4.40	3753665	-1				3.8		36	1.74			67	9300	3.35	25000
ZG105	4.40	4.95	3753666	-1				5.8		30	2.43			45	14500	4.55	30300
ZG105	4.95	5.60	3753667	-1				5.75		26	1.16			44	39300	5.65	28700
ZG105	5.60	6.65	3753668	-1				3.8		25	1.52			42	6100	3	13400
ZG105	6.65	7.30	3753669	-1				2.55		20	1.65			40	8900	2	8300
ZG105	7.30	8.30	3753670	-1				2.3		22	1.61			38	451	1.9	11000
ZG105	8.30	9.30	3753671	-1				0.89		26	2.03			39	509	3	9700
ZG105	9.30	10.30	3753672	-1				2.05		22	9.16			2103	549	2.6	9200
ZG105	10.30	11.80	3753673	-1				7.4		13	38.4			12000	299	0.95	10400
ZG105	11.80	13.90															
ZG105	13.90	14.60	3753676	-1				10.2		4	53.5			16700	4	0.11	16900
ZG105	14.60	15.10	3753676	-1				10.2		4	53.5			16700	4	0.11	16900
ZG105	15.10	15.85	3753677	-1				9.25		42	50.4			13700	115	0.25	19000
ZG105	15.85	16.90	3753679	-1				10.5		7	48.6			13600	198	0.83	17800
ZG105	16.90	17.70	3753681	-1				11.6		7	48.1			14000	313	1.4	17100
ZG105	17.70	18.90	3753683	-1				9.5		4	51.7			14500	131	0.12	17900
ZG105	18.90	20.30	3753685	4				11.3		6	28.4			8800	4500	0.25	14400
ZG105	20.30	22.00	3753687	-1				12.4		8	9.98			3172	1200	0.23	8100
ZG105	22.00	23.20	3753689	-1				12.6		5	4.01			1383	166	0.07	2294
ZG105	23.20	24.75	3753691	-1				12.9		4	1.2			547	69	0.14	2056
ZG105	24.75	25.90	3753693	-1				12.6		7	1.41			604	46	0.03	2335
ZG105	25.90	27.10	3753695	-1				12		7	7.5			1816	162	0.31	7300
ZG105	27.10	28.20	3753697	-1				12.4		7	1.45			552	217	0.55	7100
ZG105	28.20	28.90	3753699	-1				12.9		6	1.47			606	177	0.05	1120
ZG105	28.90	30.30	3753701	-1				11.6		10	13			4050	1500	0.38	11900
ZG105	30.30	31.70	3753703	-1				1		35	1.67			54	810	2.15	9300
ZG105	31.70	33.15	3753704	-1				0.87		30	1.57			40	1028	1.8	2647
ZG105	33.15	34.50	3753706	-1				0.5		24	1.14			32	417	1.35	2363
ZG105	34.50	35.50	3753708	-1				0.59		24	1.4			48	1288	1.55	2237
ZG105	35.50	36.30	3753710	-1				0.84		97	2.02			47	620	2.4	2142
ZG105	36.30	37.00															
ZG105	37.00	38.25	3753713	-1				0.41		20	1.78			43	215	3.8	2046
ZG105	38.25	39.25	3753715	-1				0.46		43	2.03			69	281	3.5	1370
ZG105	39.25	40.45	3753717	-1				2.6		14	11.8			3185	800	0.22	13500
ZG105	40.45	40.90	3753719	-1				0.12		12	0.54			20	37	0.14	160

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Appendix 3: Grieves prospect, CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS										
Results in ppm unless shown otherwise.										
HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS
ZG106	0.00	2.90			Qha	Cg				Peat and gravel
ZG106	2.90	4.40	3757901	77119	Og	Sls			G	In situ?
ZG106	4.40	5.90			QhaOg	CgSls				
ZG106	5.90	7.90								No rec.
ZG106	7.90	8.90	3757902	77119	Og	Ccy			DB	No rec.
ZG106	8.90	9.80								
ZG106	9.80	10.60	3757903	77119	QhaOg	CgCcy				
ZG106	10.60	10.85	3757903	77119	Og	CcyOms		Py	DB	Massive Py in clay
ZG106	10.85	14.80	3757904	77119	Og	Sls			G	Lime mudstone
ZG106	14.80	18.80	3757905	77119	Og	CcySls	WeVnFr	Cc	DGDB	
ZG106	18.80	23.00	3757906	77119	Og	Sls			G	Lime mudstone
ZG106	23.00	27.00	3757907	77119	Og	Sls			G	Lime mudstone
ZG106	27.00	31.15	3757908	77119	Og	Sls			G	Lime mudstone
ZG106	31.15	35.90	3757909	77119	Og	Sls	Fr		G	Lime mudstone
ZG106	35.90	40.50	3757910	77119	Og	Sls	Fr		G	Lime mudstone
ZG106	40.50	45.00	3757911	77119	Og	Sls	Fr		G	Lime mudstone
ZG106	45.00	49.50	3757912	77119	Og	SlsObx	BxVn	DI	G	Low angle fault
ZG106	49.50	49.80	3757913	77119	Og	Oms		Py	YB	Low angle fault
ZG106	49.80	51.50	3757914	77119	Og	SlsObx	BxVn	DI	G	Low angle fault
ZG106	51.50	56.50	3757915	77119	Og	Sls	Fr		LG	Lime mudstone
ZG106	56.50	58.30	3757916	77119	Og	Sls	Fr		AGDG	Lime mudstone
ZG106	58.30	59.75	3757917	77119	Og	Sdl	BxVn	DI	LG	
ZG106	59.75	64.55	3757918	77119	Og	Sls	Fr		G	Calcarenite
ZG106	64.55	69.45	3757919	77119	Og	Sls	Fr		G	Calcarenite
ZG106	69.45	71.90	3757920	77119	Og	Ovc		DI	W	Dolomite vein
ZG106	71.90	75.50	3757921	77119	Og	Sls			AGDG	Lime mudstone
ZG106	75.50	80.00	3757922	77119	Og	Sls	Ma		LG	Lime mudstone
ZG106	80.00	84.60	3757923	77119	Og	Sls	Ma		LG	Lime mudstone
ZG106	84.60	86.65	3757924	77119	Og	Sls			AGDG	Lime mudstone
ZG106	86.65	88.25	3757925	77119	Og	Sdl	Lm		LG	Dolomite mudstone
ZG106	88.25	93.00	3757926	77119	Og	Sdl			LG	Dolomite mudstone
ZG106	93.00	96.75	3757927	77119	Og	SlsSdl			AGDG	Partly dolomitised lime mudstone
ZG106	96.75	100.00	3757928	77119	Og	SlsSdl	Fr		AGDG	Partly dolomitised lime mudstone
ZG106	100.00	103.00	3757929	77119	Og	OI			DG	Fault zone, high angle to C.A.
ZG106	103.00	106.50	3757930	77119	Og	Sls	Vn	DI	AGDG	Lime mudstone
ZG106	106.50	109.90	3757931	77119	Og	Sls	Vn	DI	AGDG	Lime mudstone
ZG106	109.90	113.60	3757932	77119	Og	SlsSbs	Fs		DG	Carbonaceous lst
ZG106	113.60	118.65	3757933	77119	Og	Sls	Ma		G	Calcarenite

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Appendix 3: Grievs prospect. CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS																	
Results in ppm unless shown otherwise.																	
HOLE	DFROM	DTO	SAMPNO	Ag	Al%	As	Ba	C%	Ca%	Cu	Fe%	K%	Mg%	Mn	Pb	S%	Zn
ZG106	0.00	2.90															
ZG106	2.90	4.40	3757901	-5	1.85	-25	98		23.5	17	1.15	0.841	4.27	168	-50		95
ZG106	4.40	5.90															
ZG106	5.90	7.90															
ZG106	7.90	8.90	3757902	-5	2.25	-25	184		1.23	10	1.09	1.53	0.304	25	-50		299
ZG106	8.90	9.80															
ZG106	9.80	10.60	3757903	-5	1.16	138	54		0.917	-5	14.6	0.422	0.133	28	-50		1870
ZG106	10.60	10.85	3757903	-5	1.16	138	54		0.917	-5	14.6	0.422	0.133	28	-50		1870
ZG106	10.85	14.80	3757904	-5	1.02	-25	56		27.7	17	0.62	0.465	2.47	117	-50		32
ZG106	14.80	18.80	3757905	-5	1.83	-25	94		22.8	19	1.28	0.789	2.59	143	-50		530
ZG106	18.80	23.00	3757906	-5	0.645	-25	37		28.9	20	0.35	0.294	1.23	121	-50		85
ZG106	23.00	27.00	3757907	-5	0.985	-25	55		27.4	16	0.6	0.44	2.25	146	-50		68
ZG106	27.00	31.15	3757908	-5	0.966	-25	56		26.8	16	0.57	0.43	2.03	160	-50		27
ZG106	31.15	35.90	3757909	-5	1.53	-25	84		22.8	16	0.72	0.694	2.59	177	-50		144
ZG106	35.90	40.50	3757910	-5	1.68	-25	91		23.4	17	0.84	0.768	2.39	187	-50		101
ZG106	40.50	45.00	3757911	-5	1.67	-25	91		24.9	17	0.62	0.772	1.2	150	-50		83
ZG106	45.00	49.50	3757912	-5	0.768	47	39		28.2	16	2.27	0.336	1.08	992	-50		1160
ZG106	49.50	49.80	3757913	-5	0.188	713	10		12.6	-5	25.2	0.0575	0.401	60	-50	29.2	10100
ZG106	49.80	51.50	3757914	-5	0.497	-25	24		31.2	26	0.93	0.216	0.484	1200	-50		632
ZG106	51.50	56.50	3757915	-5	0.575	-25	29		31.1	25	0.33	0.266	0.758	104	-50		105
ZG106	56.50	58.30	3757916	-5	0.924	-25	45		28.8	23	0.62	0.418	1.16	319	-50		194
ZG106	58.30	59.75	3757917	-5	0.454	-25	29		32.1	25	0.25	0.163	0.418	558	-50		173
ZG106	59.75	64.55	3757918	-5	0.559	-25	30		29.7	22	0.44	0.234	1.3	126	-50		75
ZG106	64.55	69.45	3757919	-5	0.942	-25	44		28.9	22	0.43	0.392	0.783	107	-50		110
ZG106	69.45	71.90	3757920	-5	0.446	-25	17		31.2	22	0.39	0.158	0.599	74	-50		489
ZG106	71.90	75.50	3757921	-5	0.971	-25	46		28	23	0.76	0.41	1.9	335	-50		355
ZG106	75.50	80.00	3757922	-5	0.816	-25	40		30	25	0.46	0.342	0.92	141	-50		209
ZG106	80.00	84.60	3757923	-5	0.469	-25	19		31.6	21	0.27	0.193	1.05	69	-50		85
ZG106	84.60	86.65	3757924	-5	0.835	-25	32		27.7	20	1.22	0.332	2.17	167	-50		297
ZG106	86.65	88.25	3757925	-5	0.258	-25	11		32.7	22	0.15	0.102	0.578	60	-50		154
ZG106	88.25	93.00	3757926	-5	0.295	-25	11		31.9	21	0.16	0.112	0.64	52	-50		194
ZG106	93.00	96.75	3757927	-5	0.374	-25	15		28.7	19	0.35	0.144	3.28	95	-50		123
ZG106	96.75	100.00	3757928	-5	0.552	-25	28		29.3	18	0.37	0.208	2.88	91	-50		224
ZG106	100.00	103.00	3757929	-5	0.963	-25	52		28.4	24	0.37	0.386	0.293	97	-50		263
ZG106	103.00	106.50	3757930	-5	0.995	-25	44		25.9	17	0.67	0.426	3.45	271	-50		216
ZG106	106.50	109.90	3757931	-5	0.856	-25	40		29.1	20	0.41	0.389	1.52	134	-50		276
ZG106	109.90	113.60	3757932	-5	2.03	-25	101		25.9	22	0.73	0.963	1.13	147	-50		344
ZG106	113.60	118.65	3757933	-5	0.716	-25	32		29.2	20	0.63	0.334	1.5	207	107		198

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Appendix 3: Grieves prospect. CRAE diamond drilling logs and geochemistry

ZG106	118.65	121.00	3757934	77119	Og	Sls	Fr		G	Bioclastic Ist
ZG106	121.00	122.70	3757935	77119	Og	SlsSbs	Fs		DG	Carbonaceous Ist
ZG106	122.70	123.70	3757936	77119	Og	Sdl	AIBx	SdHe	LG	Ankerite/haematite altered skeletal dolomite
ZG106	123.70	124.90	3757937	77119	Og	Sdl	AIBx	SdHe	LG	Ankerite/haematite altered skeletal dolomite
ZG106	124.90	126.10	3757938	77119	Og	Sdl	AIBx	SdHe	LG	Ankerite/haematite altered skeletal dolomite
ZG106	126.10	127.10	3757939	77119	Og	Sdl	AIBx	SdHe	LG	Ankerite/haematite altered skeletal dolomite
ZG106	127.10	128.20	3757940	77119	Og	Ccy			LG	
ZG106	128.20	129.20	3757941	77119	Og	Ccy			LGFDG	
ZG106	129.20	130.20	3757942	77119	Og	Ccy			LGFDG	
ZG106	130.20	131.20	3757943	77119	Og	Ccy			YOBR	
ZG106	131.20	132.20	3757944	77119	Og	Ccy			YOBR	
ZG106	132.20	133.20	3757945	77119	Og	Ccy			YOBR	
ZG106	133.20	134.20	3757946	77119	Og	Ccy			YOBR	
ZG106	134.20	135.20	3757947	77119	Og	Ccy			YOBR	
ZG106	135.20	136.20	3757948	77119	Og	Ccy			YOBR	
ZG106	136.20	137.40	3757949	77119	Og	Ccy			YOBR	
ZG106	137.40	138.10	3757950	77119	Og	Ccy			YOBR	
ZG106	138.10	139.30	3757951	77119	Og	CcyCsg	VuBn		AYB	
ZG106	139.30	140.50	3757952	77119	Og	CcyCsg	VuBn		AYB	
ZG106	140.50	141.50	3757953	77119	Og	Ccy			YO	
ZG106	141.50	142.50	3757954	77119	Og	Ccy			YO	
ZG106	142.50	143.50	3757955	77119	Og	Ccy			YO	
ZG106	143.50	144.50	3757956	77119	Og	Ccy			YO	
ZG106	144.50	145.50	3757957	77119	Og	Ccy			YO	
ZG106	145.50	146.50	3757958	77119	Og	Ccy			YO	
ZG106	146.50	147.50	3757959	77119	Og	Ccy			YO	
ZG106	147.50	149.15	3757960	77119	Og	Ccy			YO	
ZG106	149.15	150.20			Og	Ccy?				No rec. Clay?
ZG106	150.20	151.70	3757961	77127	Og	Ccy		He	DRP	
ZG106	151.70	152.70	3757962	77127	Og	Ccy			YB	
ZG106	152.70	153.70	3757963	77127	Og	Ccy			YB	
ZG106	153.70	154.70	3757964	77127	Og	Ccy			YB	
ZG106	154.70	155.70	3757965	77127	Og	Ccy			YB	
ZG106	155.70	156.70	3757966	77127	Og	Ccy			YB	
ZG106	156.70	157.90	3757967	77127	Og	Ccy			YB	
ZG106	157.90	161.00	3757968	77127	Om	Sss			LLG	

Appendix 3: Grieves prospect. CRAE diamond drilling logs and geochemistry

ZG106	118.65	121.00	3757934	-5	0.855	-25	33		28.4	26	0.67	0.375	1.33	225	2200		1330
ZG106	121.00	122.70	3757935	-5	1.82	-25	76		27.1	54	1.39	0.81	1.57	779	1890		2340
ZG106	122.70	123.70	3757936	-5	3.38	-25	133		25.1	58	1.53	1.09	0.68	631	578		1180
ZG106	123.70	124.90	3757937	-5	3.64	-25	126		24.5	319	1.24	1.29	0.434	546	2250		1930
ZG106	124.90	126.10	3757938	-5	2.32	-25	71		28.6	134	0.69	0.756	0.341	325	754		1010
ZG106	126.10	127.10	3757939	-5	1.4	-25	50		30.4	47	0.58	0.573	0.499	337	471		2010
ZG106	127.10	128.20	3757940	-5	1.44	-25	52		24.3	31	3.67	0.61	1.49	5200	366	0.54	6700
ZG106	128.20	129.20	3757941	-5	10.8	67	320		0.587	91	9.4	3.63	0.872	505	2340	1.15	11800
ZG106	129.20	130.20	3757942	11	12.3	46	331		1.01	123	12.3	3.75	0.809	30600	3540	1.9	16000
ZG106	130.20	131.20	3757943	11	16	-25	386		0.179	98	7.59	3.89	0.709	185	1360		2690
ZG106	131.20	132.20	3757944	-5	15.7	47	383		0.257	81	6.62	3.87	0.647	364	1220		2450
ZG106	132.20	133.20	3757945	-5	13.1	74	346		0.0921	81	6.79	3.45	0.557	499	1140		2220
ZG106	133.20	134.20	3757946	-5	12.8	128	328		0.0746	113	19.1	2.73	0.473	942	2900		3940
ZG106	134.20	135.20	3757947	-5	7.52	139	275		0.0494	210	34.3	2.61	0.379	1180	4530	0.015	7550
ZG106	135.20	136.20	3757948	-5	7.16	200	258		0.0287	198	35	2.35	0.32	840	6490	0.023	6820
ZG106	136.20	137.40	3757949	-5	6.82	136	209		0.159	348	26	1.77	0.302	27300	2860	0.09	5340
ZG106	137.40	138.10	3757950	-5	8.43	146	367		0.0513	116	22.3	2.96	0.463	1700	2760		4370
ZG106	138.10	139.30	3757951	-5	2.15	158	38		0.0337	255	51.5	0.31	0.109	3410	5340	0.016	15700
ZG106	139.30	140.50	3757952	-5	2.48	158	38		0.0319	523	50.7	0.361	0.105	4330	7380	0.023	14300
ZG106	140.50	141.50	3757953	-5	10.5	49	451		0.0246	110	23.8	4.07	0.544	1890	3360	0.012	5420
ZG106	141.50	142.50	3757954	-5	8.32	85	305		0.0255	134	28.4	3.36	0.545	2180	2500	0.018	5570
ZG106	142.50	143.50	3757955	-5	7.41	83	277		0.0209	53	27.2	2.95	0.501	2110	2760	0.021	5530
ZG106	143.50	144.50	3757956	-5	11.2	72	323		0.0289	98	30.5	3.07	0.541	2490	2800	0.018	5780
ZG106	144.50	145.50	3757957	-5	11.1	87	371		0.0224	53	25.4	4.09	0.612	2000	2160		4780
ZG106	145.50	146.50	3757958	-5	9.89	90	334		0.0281	55	26.7	3.82	0.597	2310	1910		4540
ZG106	146.50	147.50	3757959	-5	9.49	93	323		0.0339	36	28.9	3.64	0.553	2020	2040		4480
ZG106	147.50	149.15	3757960	-5	10.1	91	356		0.0209	74	25.6	3.97	0.584	2230	2700	0.012	5090
ZG106	149.15	150.20															
ZG106	150.20	151.70	3757961	-5	7.91	78	361		0.08	260	23.63	3.85	0.47	1044	3190		4150
ZG106	151.70	152.70	3757962	-5	10.6	42	439		0.14	75	15.44	5.17	0.56	524	3900		3420
ZG106	152.70	153.70	3757963	-5	8.59	135	362		0.12	125	23	3.21	0.44	1595	6320		3660
ZG106	153.70	154.70	3757964	5	6.51	50	247		0.06	123	12.81	2.6	0.35	1210	631		1680
ZG106	154.70	155.70	3757965	-5	6.02	21	253		0.04	22	5.31	2.56	0.29	286	402		1030
ZG106	155.70	156.70	3757966	-5	5.18	-20	239		0.03	22	5.49	2.27	0.31	216	172		634
ZG106	156.70	157.90	3757967	-5	6.67	26	298		0.05	32	8.69	2.94	0.36	298	227		1200
ZG106	157.90	161.00	3757968	-5	2.78	-20	98		0.06	15	3.44	0.86	0.11	64	227		300

Appendix 3: Grieves prospect. CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS										
Results in ppm unless shown otherwise.										
HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS
ZG107	0.00	2.00			Qha	Cg				Peat and gravel
ZG107	2.00	6.00	3757969	77127	Og	Ccy	We		DG	Carbonaceous
ZG107	6.00	9.50	3757970	77127	Og	CcySls	WeFr		DG	Carbonaceous
ZG107	9.50	13.00	3757971	77127	Og	CcySls	WeFr		DG	Carbonaceous
ZG107	13.00	15.20	3757972	77127	Og	Sls			LG	
ZG107	15.20	19.50	3757973	77127	Og	Sls			DG	
ZG107	19.50	23.30	3757974	77127	Og	Sls			GDG	
ZG107	23.30	27.15	3757975	77127	Og	Sls			GDG	
ZG107	27.15	29.10	3757976	77127	Og	Sls			DGB	
ZG107	29.10	32.50	3757977	77127	Og	Sls	Fr		DB	Algal lst?
ZG107	32.50	37.00	3757978	77127	Og	Sls			GDG	Wispy banded lime mudstone
ZG107	37.00	41.00	3757979	77127	Og	Sls			GDG	Wispy banded lime mudstone
ZG107	41.00	45.00	3757980	77127	Og	Sls	Bs	Py	GDG	Wispy banded lime mudstone
ZG107	45.00	50.00	3757981	77127	Og	Sls			GDG	Wispy banded lime mudstone
ZG107	50.00	55.00	3757982	77127	Og	Sls			GDG	Wispy banded lime mudstone
ZG107	55.00	60.00	3757983	77127	Og	Sls	Lm		LG	Finely laminated lime mud
ZG107	60.00	65.00	3757984	77127	Og	Sls	Lm		LG	Finely laminated lime mud
ZG107	65.00	70.00	3757985	77127	Og	Sls	Lm		LG	Finely laminated lime mud
ZG107	70.00	75.00	3757986	77127	Og	Sls	LmBs	Py	LG	Finely laminated lime mud
ZG107	75.00	80.00	3757987	77127	Og	Sls	Lm		LG	Finely laminated lime mud
ZG107	80.00	84.00	3757988	77127	Og	Sls	Lm		LG	Finely laminated lime mud
ZG107	84.00	87.75	3757989	77127	Og	Sls	Lm		LG	Finely laminated lime mud
ZG107	87.75	92.00	3757990	77127	Og	Sls			G	
ZG107	92.00	96.00	3757991	77127	Og	Sls			G	
ZG107	96.00	100.00	3757992	77127	Og	Sls			G	
ZG107	100.00	105.00	3757993	77127	Og	Sls			G	
ZG107	105.00	109.15	3757994	77127	Og	Sls			DG	Wispy banded lime mudstone?
ZG107	109.15	113.30	3757995	77127	Og	Sls			DG	Wispy banded lime mudstone?
ZG107	113.30	117.00	3757996	77127	Og	Sdl	Al	He	LG	Dolomitised carbonate mudstone
ZG107	117.00	120.60	3757997	77127	Og	Sdl	Al	He	LG	Dolomitised carbonate mudstone
ZG107	120.60	123.95	3757998	77127	Og	Sdl	Al	Sd	LYG	Weakly ankerite altered
ZG107	123.95	125.00	3757999	77127	Og	Sdl	Al	Sd	YG	Strongly ankerite altered
ZG107	125.00	127.90	3758000	77127	Og	SdlCcy	AIBx	Sd	DGY	Ankeritic breccia frags in sandy clay
ZG107	127.90	128.85	3908229	77127	Og	Sdl	Al	Sd	YG	Strongly ankerite altered
ZG107	128.85	131.10	3908230	77127	Og	SdlCcy	AIBx	Sd	DGY	Ankeritic breccia frags in sandy clay
ZG107	131.10	133.10	3908231	77127	Og	Ccy			DG	
ZG107	133.10	135.10	3908232	77127	Og	Ccy			DG	
ZG107	135.10	137.10	3908233	77127	Og	Ccy			DG	

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Appendix 3: Grievess prospect. CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS																	
Results in ppm unless shown otherwise.																	
HOLE	DFROM	DTO	SAMPNO	Ag	Al%	As	Ba	C%	Ca%	Cu	Fe%	K%	Mg%	Mn	Pb	S%	Zn
ZG107	0.00	2.00															
ZG107	2.00	6.00	3757969	-5	3.8	22	150		8.77	10	2.68	1.48	3.09	386	-50		156
ZG107	6.00	9.50	3757970	-5	2.33	-20	107		22.7	6	2.31	1.03	4.08	798	-50		408
ZG107	9.50	13.00	3757971	-5	1.84	34	69		20.4	9	4.41	0.69	4.57	1088	-50		476
ZG107	13.00	15.20	3757972	-5	1.04	-20	47		33.7	-5	1.07	0.43	0.85	204	-50		171
ZG107	15.20	19.50	3757973	-5	0.67	-20	32		36.1	-5	0.93	0.26	0.95	129	-50		42
ZG107	19.50	23.30	3757974	-5	1.07	-20	52		33.2	-5	1.09	0.47	2.89	141	-50		28
ZG107	23.30	27.15	3757975	-5	1.73	-20	84		32	6	1.1	0.81	2.51	162	-50		28
ZG107	27.15	29.10	3757976	-5	1	-20	47		36.3	-5	0.76	0.42	1.63	78	-50		16
ZG107	29.10	32.50	3757977	-5	1.04	-20	51		31.9	-5	1.11	0.45	3.5	95	-50		34
ZG107	32.50	37.00	3757978	-5	0.93	-20	47		35.7	-5	0.61	0.38	1.69	78	-50		27
ZG107	37.00	41.00	3757979	-5	1.08	-20	58		30.9	-5	0.83	0.45	2.77	154	-50		13
ZG107	41.00	45.00	3757980	-5	1.38	-20	66		28.7	-5	1.59	0.58	2.11	140	-50		95
ZG107	45.00	50.00	3757981	-5	2.13	-20	89		29.3	7	0.89	0.83	2.02	124	-50		45
ZG107	50.00	55.00	3757982	-5	1.49	-20	72		33.2	-5	0.61	0.66	1.06	90	-50		15
ZG107	55.00	60.00	3757983	-5	1.01	-20	52		32.8	-5	0.96	0.43	3.7	116	-50		91
ZG107	60.00	65.00	3757984	-5	1.05	-20	53		35.9	-5	0.61	0.45	1.93	83	-50		59
ZG107	65.00	70.00	3757985	-5	0.67	-20	36		36.2	-5	0.62	0.3	1.97	54	-50		105
ZG107	70.00	75.00	3757986	-5	0.79	-20	42		38.8	-5	1.1	0.32	0.82	32	-50		901
ZG107	75.00	80.00	3757987	-5	0.51	-20	31		41	-5	0.54	0.19	0.82	75	-50		189
ZG107	80.00	84.00	3757988	-5	1.16	30	60		37.6	-5	0.92	0.51	0.96	57	-50		667
ZG107	84.00	87.75	3757989	-5	0.91	-20	46		38.4	-5	0.85	0.37	0.97	95	-50		735
ZG107	87.75	92.00	3757990	-5	1.08	-20	51		36.3	7	1.01	0.47	1.51	200	-50		878
ZG107	92.00	96.00	3757991	-5	0.68	121	31		34.7	-5	4.03	0.26	1.53	84	-50	4.62	9530
ZG107	96.00	100.00	3757992	-5	0.76	37	40		35.4	-5	1.69	0.31	1.95	355	-50		3190
ZG107	100.00	105.00	3757993	-5	0.73	-20	34		36.3	-5	1.13	0.27	1.87	385	-50		167
ZG107	105.00	109.15	3757994	-5	1.17	-20	51		33.5	-5	1.41	0.47	0.91	567	-50		832
ZG107	109.15	113.30	3757995	-5	1.3	-20	55		32.4	-5	1.85	0.51	2.58	583	-50		1740
ZG107	113.30	117.00	3757996	-5	1.53	-20	62		35.5	9	1.11	0.59	0.68	204	-50		1820
ZG107	117.00	120.60	3757997	-5	0.81	41	31		36.3	-5	2.65	0.27	1.25	448	-50	1.88	5540
ZG107	120.60	123.95	3757998	-5	2.37	-20	92		22.1	10	9.86	0.77	2.06	3366	55		4400
ZG107	123.95	125.00	3757999	-5	0.33	-20	18		2.03	-5	34.34	0.09	0.27	17710	-50	0.25	39600
ZG107	125.00	127.90	3758000	-5	1.65	164	60		12.8	8	11.34	0.5	3.36	1969	1520	7.77	60000
ZG107	127.90	128.85	3908229	-5	0.72	-20	37		1.33	-5	26.57	0.16	0.5	61000	522	0.65	167000
ZG107	128.85	131.10	3908230	7	4.06	94	133		0.27	74	15.33	0.68	0.6	7128	20000	15.6	298000
ZG107	131.10	133.10	3908231	6	5.8	47	185		0.08	74	3.78	2.04	0.41	239	9640	8.97	155000
ZG107	133.10	135.10	3908232	-5	4.52	-20	338		0.08	21	1.68	3.32	0.42	45	1250	2.71	23600
ZG107	135.10	137.10	3908233	7	3.55	-20	226		0.04	23	1.87	2.63	0.32	42	13800	4.02	61000

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Appendix 3: Grieves prospect. CRAE diamond drilling logs and geochemistry

ZG107	137.10	139.10	3908234	77127	Og	Ccy				DG	
ZG107	139.10	140.40	3908235	77127	Og	Ccy				DG	
ZG107	140.40	142.60	3908236	77127	Og	Ccy	GsBxFe			MYRP	Gossanous clay breccia
ZG107	142.60	144.20	3908237	77127	Og	Ccy	Bx			MLGDG	Clay breccia
ZG107	144.20	146.30	3908238	77127	Og	Ccy	GsBxFe			MYRP	Gossanous clay breccia
ZG107	146.30	148.40	3908239	77127	Og	Ccy	GsBxFe			MYRP	Gossanous clay breccia
ZG107	148.40	150.50	3908240	77127	Og	Ccy	GsBxFe			MYRP	Gossanous clay breccia
ZG107	150.50	152.50	3908241	77127	Og	Ccy	GsBxFe			MYRP	Gossanous clay breccia
ZG107	152.50	154.55	3908242	77127	Og	Ccy	GsBxFe			MYRP	Gossanous clay breccia
ZG107	154.55	156.60	3908243	77127	Og	Ccy				DGN	Carbonaceous
ZG107	156.60	158.70	3908244	77127	Og	Ccy				DGN	Carbonaceous
ZG107	158.70	160.80	3908245	77127	Og	Ccy				DGN	Carbonaceous
ZG107	160.80	162.90	3908246	77127	Og	Ccy				DGN	Carbonaceous
ZG107	162.90	164.90	3908247	77127	Og	Ccy				DGN	Carbonaceous
ZG107	164.90	167.00	3908248	77127	OgOm	CcySss	Ds	Py		DG	Transition to Moina Sst
ZG107	167.00	169.10	3908249	77127	OgOm	CcySss	Ds	Py		DG	Transition to Moina Sst
ZG107	169.10	171.20	3908250	77127	OgOm	CcySss	Ds	Py		DG	Transition to Moina Sst
ZG107	171.20	175.00	3908251	77127	Om	Sss	Ma			LLG	Moina Sst

Appendix 3: Grieves prospect. CRAE diamond drilling logs and geochemistry

ZG107	137.10	139.10	3908234	-5	3.02	-20	276		0.02	27	2.01	2.86	0.36	41	1420	3.22	27500
ZG107	139.10	140.40	3908235	-5	3.29	21	241		0.02	95	2	2.19	0.29	34	17000		2210
ZG107	140.40	142.60	3908236	-5	4.61	37	152		0.04	43	19.32	1.19	0.17	187	1160	0.035	5240
ZG107	142.60	144.20	3908237	-5	6.06	32	400		0.02	65	2	2.67	0.26	35	6080	0.88	5190
ZG107	144.20	146.30	3908238	-5	6.25	89	205		0.18	124	35.49	1.4	0.21	847	4420	0.02	8610
ZG107	146.30	148.40	3908239	-5	5.12	112	144		0.02	182	40.53	0.93	0.12	1188	6230	0.035	8730
ZG107	148.40	150.50	3908240	-5	5.41	86	147		0.02	216	39.27	0.89	0.13	2332	6350	0.135	14100
ZG107	150.50	152.50	3908241	-5	8.24	72	213		0.12	219	32.34	1.39	0.18	771	15500	0.028	6840
ZG107	152.50	154.55	3908242	6	8.11	48	199		0.07	387	31.92	1.3	0.18	661	17800	0.028	7750
ZG107	154.55	156.60	3908243	30	10.1	-20	142		0.02	434	4.38	1.12	0.89	20	79000	2	125000
ZG107	156.60	158.70	3908244	46	9.4	-20	108		0.02	479	4.19	0.99	0.81	-15	95000	4.8	200000
ZG107	158.70	160.80	3908245	30	8.71	27	179		0.03	249	2.85	1.34	0.53	18	122000	3.28	174000
ZG107	160.80	162.90	3908246	12	4.1	-20	226		0.01	57	0.85	1.49	0.2	15	43000	1.51	56000
ZG107	162.90	164.90	3908247	-5	4.67	54	306		0.04	25	2.36	2.35	0.29	117	3470		3680
ZG107	164.90	167.00	3908248	-5	4.08	29	269		0.04	26	2.23	1.86	0.23	63	566		1300
ZG107	167.00	169.10	3908249	-5	3.44	35	221		0.03	22	1.86	2.05	0.24	25	131		1880
ZG107	169.10	171.20	3908250	-5	3.76	38	323		0.06	85	1.83	3.19	0.32	37	121		1110
ZG107	171.20	175.00	3908251	-5	1.88	-20	91		0.02	6	0.47	0.8	0.09	34	66		97

Appendix 3: Grieveş prospect. CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS										
Results in ppm unless shown otherwise.										
HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS
ZG209	0.00	3.00			Qha	Cg?				Precollar, no core
ZG209	3.00	6.10	3908252	77128	Og	Ccy	FeGs?		YG	Light and spongy. Looks gossanous?
ZG209	6.10	9.20	3908253	77128	Og	Ccy	FeGs?		YG	Light and spongy. Looks gossanous?
ZG209	9.20	13.50	3908254	77128	Og	Ccy	De	Py	GLG	Py 2%
ZG209	13.50	16.50	3908255	77128	Og	Ccy			DGN	Carbonaceous
ZG209	16.50	19.50	3908256	77128	Og	Ccy			DGN	Carbonaceous
ZG209	19.50	22.40	3908257	77128	Og	Ccy			DGN	Carbonaceous
ZG209	22.40	28.50	3908258	77128	Og	Sls			LGDG	Lime mudstone
ZG209	28.50	31.50	3908259	77128	Og	Ccy			DBG	
ZG209	31.50	35.10	3908260	77128	Og	Ccy			DBG	
ZG209	35.10	39.00	3908261	77128	Og	Sls			LG	Lime mudstone
ZG209	39.00	43.00	3908262	77128	Og	Sls			LG	Lime mudstone
ZG209	43.00	45.80	3908263	77128	Og	Sls	Lm		LG	Very fine g/s lime mudstone
ZG209	45.80	49.60	3908264	77128	Og	Sls			AGDG	wispy banded lime mudstone
ZG209	49.60	53.40	3908265	77128	Og	Sls			AGDG	wispy banded lime mudstone
ZG209	53.40	58.00	3908266	77128	Og	Sls			G	Calcarenite
ZG209	58.00	62.90	3908267	77128	Og	Sls			G	Calcarenite
ZG209	62.90	66.40	3908268	77128	Og	Sls			AGDG	wispy banded lime mudstone
ZG209	66.40	69.95	3908269	77128	Og	Sls			AGDG	wispy banded lime mudstone
ZG209	69.95	74.10	3908270	77128	Og	Sls	LmFr		LG	Very fine g/s lime mudstone
ZG209	74.10	78.25	3908271	77128	Og	Sls	LmFr		LG	Very fine g/s lime mudstone
ZG209	78.25	82.40	3908272	77128	Og	Sls	LmFr		LG	Very fine g/s lime mudstone
ZG209	82.40	86.00	3908273	77128	Og	Sls			AGDG	wispy banded lime mudstone
ZG209	86.00	89.60	3908274	77128	Og	Sls			AGDG	wispy banded lime mudstone
ZG209	89.60	93.10	3908275	77128	Og	Sls			AGDG	wispy banded lime mudstone
ZG209	93.10	95.00	3908276	77128	Og	Sdl	AIBx	Sd	DG	Patchy weak ankerite alteration
ZG209	95.00	97.50	3908277	77128	Og	Sdl	AIBx	Sd	DG	Patchy weak ankerite alteration
ZG209	97.50	98.60	3908278	77128	Og	Sdl	AIBx	Sd	DG	Patchy weak ankerite alteration
ZG209	98.60	99.80	3908279	77128	Og	Ccy			N	Carbonaceous
ZG209	99.80	101.00	3908280	77128	Og	Ccy			N	Carbonaceous
ZG209	101.00	102.10	3908281	77128	Og	Ccy			N	Carbonaceous
ZG209	102.10	103.50	3908282	77128	Og	CcySdl	AIVuBx	Sd	DGY	Carbonaceous clay + brecciated ankerite rock
ZG209	103.50	104.60	3908283	77128	Og	CcySdl	AIVuBx	Sd	DGY	Carbonaceous clay + brecciated ankerite rock
ZG209	104.60	105.70	3908284	77128	Og	CcySdl	AIVuBx	Sd	DGY	Carbonaceous clay + brecciated ankerite rock
ZG209	105.70	107.00	3908285	77128	Og	CcySdl	AIVuBx	Sd	DGY	Carbonaceous clay + brecciated ankerite rock
ZG209	107.00	108.25	3908286	77128	Og	CcySdl	AIVuBx	Sd	DGY	Carbonaceous clay + brecciated ankerite rock
ZG209	108.25	109.50	3908287	77128	Og	CcySdl	AIVuBx	Sd	DGY	Carbonaceous clay + brecciated ankerite rock
ZG209	109.50	110.70	3908288	77128	Og	CcySdl	AIVuBx	Sd	DGY	Carbonaceous clay + brecciated ankerite rock

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Appendix 3: Grievs prospect. CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS																	
Results in ppm unless shown otherwise.																	
HOLE	DFROM	DTO	SAMPNO	Ag	Al%	As	Ba	C%	Ca%	Cu	Fe%	K%	Mg%	Mn	Pb	S%	Zn
ZG209	0.00	3.00															
ZG209	3.00	6.10	3908252	-5	2.16	169	126		0.04	10	4.32	1.09	0.25	-15	-50		1080
ZG209	6.10	9.20	3908253	-5	4.57	132	221		0.02	15	4.22	2.13	0.47	19	-50		1320
ZG209	9.20	13.50	3908254	-5	3.36	78	187		0.04	17	6.58	2.2	0.5	17	-50		188
ZG209	13.50	16.50	3908255	-5	3.44	-20	351		0.08	19	2.09	3.03	0.73	23	-50		83
ZG209	16.50	19.50	3908256	-5	3.63	-20	352		0.1	22	2.4	2.98	0.76	19	-50		117
ZG209	19.50	22.40	3908257	-5	3.25	-20	151		15.5	8	2.23	1.35	3.47	124	-50		65
ZG209	22.40	28.50	3908258	-5	0.91	-20	42		30.4	-5	1.1	0.35	2.16	79	-50		34
ZG209	28.50	31.50	3908259	-5	2.89	37	116		12.8	15	2.65	1.1	0.75	56	-50		528
ZG209	31.50	35.10	3908260	-5	4.77	98	212		6.13	16	4.21	2.06	0.68	32	-50		506
ZG209	35.10	39.00	3908261	-5	0.64	-20	28		36.1	-5	0.57	0.24	0.95	37	-50		60
ZG209	39.00	43.00	3908262	-5	0.89	28	45		34.2	-5	0.97	0.36	0.71	28	-50		886
ZG209	43.00	45.80	3908263	-5	1.69	-20	81		31.2	5	0.97	0.82	1	100	-50		114
ZG209	45.80	49.60	3908264	-5	0.95	-20	38		34.2	5	0.9	0.39	1.36	122	-50		87
ZG209	49.60	53.40	3908265	-5	0.79	-20	33		32.5	7	0.7	0.31	1.1	63	-50		273
ZG209	53.40	58.00	3908266	-5	0.74	-20	33		30.2	-5	1.23	0.28	2.48	109	-50		40
ZG209	58.00	62.90	3908267	-5	0.64	-20	26		32.4	6	0.72	0.26	1.39	71	-50		104
ZG209	62.90	66.40	3908268	-5	1.39	-20	58		30.9	12	0.76	0.57	1.05	79	-50		69
ZG209	66.40	69.95	3908269	-5	0.85	-20	38		32.4	-5	0.67	0.35	2.05	114	-50		31
ZG209	69.95	74.10	3908270	-5	0.91	22	40		33.6	6	1.17	0.37	1.14	75	-50		129
ZG209	74.10	78.25	3908271	-5	0.76	-20	28		34.2	5	1.04	0.27	1.99	182	-50		632
ZG209	78.25	82.40	3908272	-5	0.41	-20	16		38.4	-5	0.4	0.13	0.65	33	-50		165
ZG209	82.40	86.00	3908273	-5	0.33	-20	16		37.2	-5	0.64	0.07	1.03	59	-50		240
ZG209	86.00	89.60	3908274	-5	0.5	-20	23		31.9	-5	1.07	0.14	4.76	169	-50		852
ZG209	89.60	93.10	3908275	-5	0.71	-20	36		34.4	-5	1.27	0.25	2.49	263	-50		171
ZG209	93.10	95.00	3908276	-5	1.08	-20	50		22.6	-5	6.61	0.42	5.39	1760	-50		1700
ZG209	95.00	97.50	3908277	-5	1.48	20	68		11.2	-5	12.3	0.67	5.72	9520	-50	1.13	5210
ZG209	97.50	98.60	3908278	-5	2.59	36	121		3.53	17	23.9	1.14	1.78	7200	-50	1.42	5770
ZG209	98.60	99.80	3908279	-5	4.25	116	209		2.53	12	18.8	1.96	1.4	5460	-50		3220
ZG209	99.80	101.00	3908280	-5	4.58	32	232		2.15	12	18.8	2.1	1.24	5180	-50		3470
ZG209	101.00	102.10	3908281	-5	4.83	29	272		1.83	15	12.1	2.59	1.65	3140	-50		3730
ZG209	102.10	103.50	3908282	-5	2.37	-20	108		6.49	5	17.2	1	3.58	4760	-50		4490
ZG209	103.50	104.60	3908283	-5	2.38	-20	101		2.38	6	21.2	1.02	1.26	6460	-50	1	5310
ZG209	104.60	105.70	3908284	-5	2.63	-20	107		6.49	8	15	1.1	3.5	4810	-50		3860
ZG209	105.70	107.00	3908285	-5	1.91	-20	71		10.9	9	11.7	0.8	6.03	3560	-50		3930
ZG209	107.00	108.25	3908286	-5	1.93	-20	72		5.05	9	23.2	0.76	2.79	7780	-50	1.04	8160
ZG209	108.25	109.50	3908287	-5	2.47	-20	86		2.26	7	25.9	0.93	1.18	8770	-50	0.96	7590
ZG209	109.50	110.70	3908288	-5	1.19	-20	45		0.99	12	27.3	0.37	0.26	9540	61	0.96	11000

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Appendix 3: Grieves prospect. CRAE diamond drilling logs and geochemistry

ZG209	110.70	111.80	3908289	77128	Og	CcySdl	AlVuBx	Sd	DGY	Carbonaceous clay + brecciated ankerite rock
ZG209	111.80	112.45	3908290	77128	Og	CcySdl	AlVuBx	Sd	DGY	Carbonaceous clay + brecciated ankerite rock
ZG209	112.45	113.80	3908291	77128	Og	Ccy	GsFe		MOBG	Gossanous clay
ZG209	113.80	114.80	3908292	77128	Og	Ccy	GsFe		MOBG	Gossanous clay
ZG209	114.80	115.80	3908293	77128	Og	Ccy	GsFe		MOBG	Gossanous clay
ZG209	115.80	117.90	3908294	77128	Og	Ccy			LLG	Plastic
ZG209	117.90	118.65	3908295	77128	Og	Ccy				Carbonaceous and plastic
ZG209	118.65	119.65	3908296	77128	OgOm	CcySss			DG	Transition to Moina Sst
ZG209	119.65	124.20	3908297	77128	Om	Sss	Fr		WLG	Moina Sst

Appendix 3: Grieves prospect. CRAE diamond drilling logs and geochemistry

ZG209	110.70	111.80	3908289	-5	0.66	-20	26		0.91	7	31.3	0.24	0.2	10500	-50	0.9	17200
ZG209	111.80	112.45	3908290	-5	2.48	37	229		0.08	43	3.19	2.43	0.33	308	1140		3830
ZG209	112.45	113.80	3908291	-5	3.8	37	196		0.19	177	9.36	2.06	0.33	1670	553		3290
ZG209	113.80	114.80	3908292	-5	5.52	23	225		0.05	146	12.2	2.44	0.35	259	172		1000
ZG209	114.80	115.80	3908293	-5	11.52	21	322		0.03	105	6.49	2.75	0.38	81	145		984
ZG209	115.80	117.90	3908294	5	4.43	-20	226		0.06	140	1	1.91	0.26	189	236		657
ZG209	117.90	118.65	3908295	-5	3.28	66	280		0.08	62	2.08	2.89	0.37	43	3200		2680
ZG209	118.65	119.65	3908296	-5	3.07	30	247		0.04	54	1.75	2.53	0.29	45	1180		312
ZG209	119.65	124.20	3908297	-5	2.76	-20	143		0.02	35	0.46	1.46	0.19	17	-50		41

Appendix 3: Grieves prospect. CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS										
Results in ppm unless shown otherwise.										
HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS
ZG358	0.00	44.00			Og?	Ox				Roller bit, no core
ZG358	44.00	49.50	3908298	77134	Og	Sls			GLG	Calcarene and oolitic carbonate
ZG358	49.50	54.50	3908299	77134	Og	Sls			AGDG	Wispy banded lime mudstone
ZG358	54.50	59.50	3908300	77134	Og	Sls			AGDG	Wispy banded lime mudstone
ZG358	59.50	64.50	3914601	77134	Og	Sls			AGDG	Wispy banded lime mudstone
ZG358	64.50	69.50	3914602	77134	Og	Sls	We?		ALGB	Partly decomposed lime mudstone
ZG358	69.50	72.50	3914603	77134	Og	Sls	We?		ALGB	Partly decomposed lime mudstone
ZG358	72.50	74.60	3914604	77134	Og	Sls	We?		ALGB	Partly decomposed lime mudstone
ZG358	74.60	75.60	3914605	77134	Og	Sls	We?AI	Sd	LG	Weak ankerite altn in lime mudstone
ZG358	75.60	76.60	3914606	77134	Og	Sls	We?AI	Sd	LG	Weak ankerite altn in lime mudstone
ZG358	76.60	77.60	3914607	77134	Og	Sls	We?AI	Sd	LG	Weak ankerite altn in lime mudstone
ZG358	77.60	79.30	3914608	77134	Og	Sls	We?AI	Sd	LG	Weak ankerite altn in lime mudstone
ZG358	79.30	80.00	3914609	77134	Og	Sls	We?AI	Sd	LG	Weak ankerite altn in lime mudstone
ZG358	80.00	82.50	3914610	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	82.50	84.00	3914611	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	84.00	85.50	3914612	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	85.50	86.70	3914613	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	86.70	88.50	3914614	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	88.50	89.50	3914615	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	89.50	90.50	3914616	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	90.50	91.50	3914617	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	91.50	92.50	3914618	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	92.50	93.30	3914619	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	93.30	94.30	3914620	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	94.30	95.30	3914621	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	95.30	96.30	3914622	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	96.30	98.10	3914623	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	98.10	99.10	3914624	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	99.10	100.10	3914625	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	100.10	101.10	3914626	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	101.10	102.10	3914627	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	102.10	103.00	3914628	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	103.00	104.00	3914629	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	104.00	105.60	3914630	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	105.60	106.50	3914631	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	106.50	107.50	3914632	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	107.50	108.50	3914634	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	108.50	109.50	3914635	77134	Og	CcySdl	We?AI?	Sd?	DG	Carbonaceous clay + minor ankeritic rock

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Appendix 3: Grievs prospect. CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS																	
Results in ppm unless shown otherwise.																	
HOLE	DFROM	DTO	SAMPNO	Ag	Al%	As	Ba	C%	Ca%	Cu	Fe%	K%	Mg%	Mn	Pb	S%	Zn
ZG358	0.00	44.00															
ZG358	44.00	49.50	3908298	-5	0.6	-25	30		33.2	20	0.68	0.26	1.58	165	-50		16
ZG358	49.50	54.50	3908299	-5	1.41	-25	63		28.9	22	0.98	0.61	1.34	180	-50		36
ZG358	54.50	59.50	3908300	-5	1.24	-25	56		27	19	1.51	0.55	2.61	412	-50		38
ZG358	59.50	64.50	3914601	-5	0.46	-25	22		32.9	20	0.96	0.2	1.85	245	-50		151
ZG358	64.50	69.50	3914602	-5	0.76	-25	36		32.3	23	1.82	0.31	1.48	618	-50		217
ZG358	69.50	72.50	3914603	-5	0.48	40	24		32.9	22	1.56	0.19	1.65	354	-50		123
ZG358	72.50	74.60	3914604	-5	0.52	25	25		28.2	19	1.96	0.2	4.31	584	-50		49
ZG358	74.60	75.60	3914605	-5	0.52	-25	24		24.9	16	2.69	0.19	6.59	1020	-50		39
ZG358	75.60	76.60	3914606	-5	0.56	-25	24		24.4	15	2.17	0.18	7.23	681	-50		32
ZG358	76.60	77.60	3914607	-5	1.03	122	50		24	18	4.05	0.41	3.92	1070	-50		81
ZG358	77.60	79.30	3914608	-5	1.29	54	62		17.6	15	7.74	0.53	5.88	2730	-50		63
ZG358	79.30	80.00	3914609	-5	1.24	32	59		16.2	16	7.02	0.54	7.89	2250	-50		25
ZG358	80.00	82.50	3914610	-5	1.77	-25	87		14.8	16	7.35	0.82	7.54	2250	-50		19
ZG358	82.50	84.00	3914611	-5	6.3	43	300		4.76	27	7.61	2.83	3.03	2240	-50		32
ZG358	84.00	85.50	3914612	-5	6.06	83	286		4.23	25	7.02	2.8	2.68	1970	-50		44
ZG358	85.50	86.70	3914613	-5	2.61	27	120		12.6	16	7.15	1.17	6.47	2180	-50		20
ZG358	86.70	88.50	3914614	-5	2.38	63	102		11.3	18	8.14	1.05	4.77	2560	-50		38
ZG358	88.50	89.50	3914615	-5	3.46	77	139		6.34	17	8.64	1.5	3.22	2790	-50		55
ZG358	89.50	90.50	3914616	-5	2.69	55	108		8.75	16	6.36	1.18	4.37	2090	-50		47
ZG358	90.50	91.50	3914617	-5	2.18	27	88		13.3	18	6.02	0.96	6.69	2500	-50		26
ZG358	91.50	92.50	3914618	-5	1.76	46	70		12.8	17	11.4	0.74	6.43	5360	-50		23
ZG358	92.50	93.30	3914619	-5	1.49	-25	60		14.2	16	9.91	0.64	7.31	4370	-50		22
ZG358	93.30	94.30	3914620	-5	1.46	-25	60		13.5	16	10.2	0.63	7.06	4350	-50		16
ZG358	94.30	95.30	3914621	-5	2.24	38	93		14.2	20	6.27	0.99	7.27	2480	-50		14
ZG358	95.30	96.30	3914622	-5	2.17	38	89		8.75	19	15.7	0.88	4.23	6730	-50		60
ZG358	96.30	98.10	3914623	-5	3.1	37	118		6.79	19	20.2	1.27	3.3	8610	-50		42
ZG358	98.10	99.10	3914624	-5	0.96	48	44		10	16	21.3	0.39	4.99	9820	-50		440
ZG358	99.10	100.10	3914625	-5	0.75	50	36		6.13	11	29.1	0.29	2.1	14100	-50		105
ZG358	100.10	101.10	3914626	-5	0.91	32	39		9.14	14	19.6	0.37	4.4	9610	-50		219
ZG358	101.10	102.10	3914627	-5	0.97	35	42		10.4	14	14.8	0.41	5.58	6930	-50		234
ZG358	102.10	103.00	3914628	-5	1.02	52	45		9.79	14	15.8	0.41	5.1	7290	-50		250
ZG358	103.00	104.00	3914629	-5	0.83	82	37		10.2	16	18.3	0.35	5.1	8830	-50		267
ZG358	104.00	105.60	3914630	-5	0.88	25	39		10.2	15	16.7	0.38	5.38	7670	-50		241
ZG358	105.60	106.50	3914631	-5	0.87	25	47		6.2	12	28.4	0.34	1.49	13400	-50		355
ZG358	106.50	107.50	3914632	-5	1.1	32	61		4.82	13	29.9	0.46	0.224	15100	-50		284
ZG358	107.50	108.50	3914634	-5	2.06	44	91		3.37	16	27.6	0.86	0.301	13100	-50		172
ZG358	108.50	109.50	3914635	-5	3.93	37	150		1.87	20	23.1	1.66	0.411	11000	-50		98

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Appendix 3: Grieves prospect. CRAE diamond drilling logs and geochemistry

ZG358	109.50	110.50	3914636	77134	Og	CcySdl	We?Al?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	110.50	112.50	3914637	77134	Og	CcySdl	We?Al?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	112.50	114.50	3914638	77134	Og	CcySdl	We?Al?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	114.50	117.45	3914639	77134	Og	CcySdl	We?Al?	Sd?	DG	Carbonaceous clay + minor ankeritic rock
ZG358	117.45	118.60	3914640	77134	Og	Ccy			AWDG	Minor sst interbeds
ZG358	118.60	120.20	3914641	77134	Og	Ccy			AWDG	Minor sst interbeds
ZG358	120.20	121.50	3914642	77134	Om	Sss				Moina Sandstone

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Appendix 3: Grievies prospect. CRAE diamond drilling logs and geochemistry

ZG358	109.50	110.50	3914636	-5	3.27	80	126		3.2	27	26.9	1.37	0.337	12000	55		262
ZG358	110.50	112.50	3914637	-5	2	70	73		2.24	14	32.6	0.85	0.259	15300	-50		183
ZG358	112.50	114.50	3914638	-5	1.92	171	72		2.32	14	36	0.75	0.302	18400	-50		290
ZG358	114.50	117.45	3914639	-5	3.52	65	138		2.28	21	30.9	1.29	0.48	17200	132		526
ZG358	117.45	118.60	3914640	7	4.85	103	386		0.378	50	3.95	4.32	0.841	312	305		1250
ZG358	118.60	120.20	3914641	7	2.92	42	181		0.079	28	2.07	1.98	0.3	74	248		557
ZG358	120.20	121.50	3914642	8	1.41	28	66		0.42	15	1.53	0.58	0.191	55	-50		83

Appendix 3: Grieves prospect. CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS										
Results in ppm unless shown otherwise.										
HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS
ZG359	0.00	13.00			Og?	Ccy?				Roller bit, no core
ZG359	13.00	15.00	3914643		Og	Ssh	We		FP	
ZG359	15.00	17.60	3914644		Og	Ssh	WeFr		LB	
ZG359	17.60	21.50	3914645		Og	Sls	Bx		AGLG	Lime mudstone
ZG359	21.50	25.50	3914646		Og	Sls			AGLG	Lime mudstone
ZG359	25.50	27.50	3914647		Og	Ssh?Sls?	FiWe?		DGN	Carbonaceous decomposed carbonate?
ZG359	27.50	29.50	3914648		Og	Ssh?Sls?	FiWe?		DGN	Carbonaceous decomposed carbonate?
ZG359	29.50	31.50	3914649	77138	Og	Ssh?Sls?	FiWe?		DGN	Carbonaceous decomposed carbonate?
ZG359	31.50	33.50	3914650	77138	Og	Ssh?Sls?	FiWe?		DGN	Carbonaceous decomposed carbonate?
ZG359	33.50	35.50	3914651	77138	Og	Ssh?Sls?	We?		DGN	Carbonaceous decomposed carbonate?
ZG359	35.50	37.50	3914652	77138	Og	Ssh?Sls?	We?		DGN	Carbonaceous decomposed carbonate?
ZG359	37.50	39.50	3914653	77138	Og	Ssh?Sls?	We?		DGN	Carbonaceous decomposed carbonate?
ZG359	39.50	41.50	3914654	77138	Og	Ssh?Sls?	We?		DGN	Carbonaceous decomposed carbonate?
ZG359	41.50	43.50	3914655	77138	Og	Ssh?Sls?	We?		DGN	Carbonaceous decomposed carbonate?
ZG359	43.50	45.00	3914656	77138	Og	Ssh?Sls?	We?		DGN	Carbonaceous decomposed carbonate?
ZG359	45.00	46.50	3914657	77138	Og	SdlCcy	AIBx	Sd	Y+DG	Clay and ankerite altered carbonate
ZG359	46.50	49.50	3914658	77138	Og	SdlCcy	AIBx	Sd	Y+DG	Clay and ankerite altered carbonate
ZG359	49.50	52.75	3914659	77138	Og	SdlCcy	AIBx	Sd	Y+DG	Clay and ankerite altered carbonate
ZG359	52.75	53.60	3914660	77138	Og	Sdl	AIVuBx	Sd	YB	Ankerite altered. Oolites locally visible
ZG359	53.60	55.50	3914661	77138	Og	Sdl	AIVuBx	Sd	YB	Ankerite altered. Oolites locally visible
ZG359	55.50	56.80	3914662	77138	Og	Sdl	AIVuBx	Sd	YB	Ankerite altered. Oolites locally visible
ZG359	56.80	58.50	3914663	77138	Og	Sdl	AIVuBx	Sd	YB	Ankerite altered. Oolites locally visible
ZG359	58.50	59.90	3914664	77138	Og	Sdl	AIVuBx	Sd	YB	Ankerite altered. Oolites locally visible
ZG359	59.90	61.50	3914665	77138	Og	CcyCs	AI	Sd	MYLBDB	Clay and ankeritic sand
ZG359	61.50	63.50	3914666	77138	Og	CcyCs	AI	Sd	MYLBDB	Clay and ankeritic sand
ZG359	63.50	65.50	3914667	77138	Og	Ccy			DG	Carbonaceous clay + cherty bands
ZG359	65.50	67.50	3914668	77138	Og	Ccy			DG	Carbonaceous clay + cherty bands
ZG359	67.50	70.50	3914669	77138	Og	Ccy			DG	Carbonaceous clay + cherty bands
ZG359	70.50	73.50	3914670	77138	Og	Ccy			DG	Carbonaceous clay + cherty bands
ZG359	73.50	76.90	3914671		Om	Ssi	Lm		AWG	
ZG359	76.90	79.00	3914672		Om	Sss	Ma		LGW	

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Appendix 3: Grieves prospect, CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS																	
Results in ppm unless shown otherwise.																	
HOLE	DFROM	DTO	SAMPNO	Ag	Al%	As	Ba	C%	Ca%	Cu	Fe%	K%	Mg%	Mn	Pb	S%	Zn
ZG359	0.00	13.00															
ZG359	13.00	15.00	3914643														
ZG359	15.00	17.60	3914644														
ZG359	17.60	21.50	3914645														
ZG359	21.50	25.50	3914646														
ZG359	25.50	27.50	3914647														
ZG359	27.50	29.50	3914648														
ZG359	29.50	31.50	3914649														
ZG359	31.50	33.50	3914650														
ZG359	33.50	35.50	3914651														
ZG359	35.50	37.50	3914652														
ZG359	37.50	39.50	3914653														
ZG359	39.50	41.50	3914654														
ZG359	41.50	43.50	3914655														
ZG359	43.50	45.00	3914656														
ZG359	45.00	46.50	3914657														
ZG359	46.50	49.50	3914658														
ZG359	49.50	52.75	3914659														
ZG359	52.75	53.60	3914660														
ZG359	53.60	55.50	3914661														
ZG359	55.50	56.80	3914662														
ZG359	56.80	58.50	3914663														
ZG359	58.50	59.90	3914664														
ZG359	59.90	61.50	3914665														
ZG359	61.50	63.50	3914666														
ZG359	63.50	65.50	3914667														
ZG359	65.50	67.50	3914668														
ZG359	67.50	70.50	3914669														
ZG359	70.50	73.50	3914670														
ZG359	73.50	76.90	3914671														
ZG359	76.90	79.00	3914672														

Appendix 3: Grievess prospect. CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS										
Results in ppm unless shown otherwise.										
HOLE	DFROM	DTO	SAMPNO	DPO	BMLLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS
ZG360	0.00	15.00			Og?	Ccy?				Roller bit, no core
ZG360	15.00	19.10	3914673		Og	Ccy			DGB	
ZG360	19.10	24.00	3914674		Og	Sls			AGLG	Lime mudstone
ZG360	24.00	29.00	3914675		Og	Sls			AGLG	
ZG360	29.00	34.00	3914676		Og	Sls	VnFr		AGLG	Dolomite veined
ZG360	34.00	38.00	3914677		Og	Sls	Fr		AGLG	
ZG360	38.00	41.00	3914678		Og	Sls	We?		DG	Decomposed lime mudstone
ZG360	41.00	43.00	3914679	77138	Og	Ssh?Sls?	FiWe?		DGN	Carbonaceous decomposed carbonate?
ZG360	43.00	45.00	3914680	77138	Og	Ssh?Sls?	FiWe?		DGN	Carbonaceous decomposed carbonate?
ZG360	45.00	47.00	3914681	77138	Og	Ssh?Sls?	FiWe?		DGN	Carbonaceous decomposed carbonate?
ZG360	47.00	49.00	3914682	77138	Og	Ssh?Sls?	FiWe?		DGN	Carbonaceous decomposed carbonate?
ZG360	49.00	51.00	3914683	77138	Og	Ssh?Sls?	Bx?We?		DGN	Carbonaceous decomposed carbonate?
ZG360	51.00	53.00	3914684	77138	Og	Ssh?Sls?	AlBx?We?	Sd	LY+DG	Weakly ankeritic, carbonaceous, decomposed
ZG360	53.00	55.00	3914685	77138	Og	Ssh?Sls?	AlBx?We?	Sd	LY+DG	Weakly ankeritic, carbonaceous, decomposed
ZG360	55.00	57.00	3914686	77138	Og	Ssh?Sls?	AlBx?We?	Sd	LY+DG	Weakly ankeritic, carbonaceous, decomposed
ZG360	57.00	59.00	3914687	77138	Og	Ssh?Sls?	AlBx?We?	Sd	LY+DG	Weakly ankeritic, carbonaceous, decomposed
ZG360	59.00	61.00	3914688	77138	Og	Ssh?Sls?	AlBx?We?	Sd	LY+DG	Weakly ankeritic, carbonaceous, decomposed
ZG360	61.00	62.70	3914689	77138	Og	Ssh?Sls?	AlBx?We?	Sd	LY+DG	Weakly ankeritic, carbonaceous, decomposed
ZG360	62.70	65.00	3914690	77138	Og	SdlCcy	AlBx	Sd	Y+DG	Ankeritic carbonate and carbonaceous clay
ZG360	65.00	67.00	3914691	77138	Og	SdlCcy	AlBx	Sd	Y+DG	Ankeritic carbonate and carbonaceous clay
ZG360	67.00	69.00	3914692	77138	Og	SdlCcy	AlBx	Sd	Y+DG	Ankeritic carbonate and carbonaceous clay
ZG360	69.00	71.10	3914693	77138	Og	SdlCcy	AlBx	Sd	Y+DG	Ankeritic carbonate and carbonaceous clay
ZG360	71.10	73.00	3914694	77138	Og	SdlCcy	AlBx	Sd	Y+DG	Ankeritic carbonate and carbonaceous clay
ZG360	73.00	74.75	3914695	77138	Og	SdlCcy	AlBx	Sd	Y+DG	Ankeritic carbonate and carbonaceous clay
ZG360	74.75	76.80	3914696	77138	Og	Ccy			ALGDG	Minor silty/sandy bands
ZG360	76.80	79.20	3914697	77138	Og	Ccy			ALGDG	Minor silty/sandy bands
ZG360	79.20	81.60	3914698	77138	Og	Ccy			ALGDG	Minor silty/sandy bands
ZG360	81.60	84.00	3914699		Om	Ssi	Lm		LG	
ZG360	84.00	85.30	3914700		Om	Sss			WLG	

Appendix 3: Grieves prospect. CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS																	
Results in ppm unless shown otherwise.																	
HOLE	DFROM	DTO	SAMPNO	Ag	Al%	As	Ba	C%	Ca%	Cu	Fe%	K%	Mg%	Mn	Pb	S%	Zn
ZG360	0.00	15.00															
ZG360	15.00	19.10	3914673														
ZG360	19.10	24.00	3914674														
ZG360	24.00	29.00	3914675														
ZG360	29.00	34.00	3914676														
ZG360	34.00	38.00	3914677														
ZG360	38.00	41.00	3914678														
ZG360	41.00	43.00	3914679														
ZG360	43.00	45.00	3914680														
ZG360	45.00	47.00	3914681														
ZG360	47.00	49.00	3914682														
ZG360	49.00	51.00	3914683														
ZG360	51.00	53.00	3914684														
ZG360	53.00	55.00	3914685														
ZG360	55.00	57.00	3914686														
ZG360	57.00	59.00	3914687														
ZG360	59.00	61.00	3914688														
ZG360	61.00	62.70	3914689														
ZG360	62.70	65.00	3914690														
ZG360	65.00	67.00	3914691														
ZG360	67.00	69.00	3914692														
ZG360	69.00	71.10	3914693														
ZG360	71.10	73.00	3914694														
ZG360	73.00	74.75	3914695														
ZG360	74.75	76.80	3914696														
ZG360	76.80	79.20	3914697														
ZG360	79.20	81.60	3914698														
ZG360	81.60	84.00	3914699														
ZG360	84.00	85.30	3914700														

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Appendix 3: Grieves prospect. CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS										
Results in ppm unless shown otherwise.										
HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS
ZG361	0.00	16.00			Og?	Ccy?				Roller bit, no core
ZG361	16.00	41.40			Og	Sls			AGDG	Wispy banded lime mudstone
ZG361	41.40	43.40			Og	Sls	We?		DG	Decomposed carbonate
ZG361	43.40	54.50			Og	CcySdl				clay, carbonate sand and frags
ZG361	54.50	56.10			Og	Sdl				
ZG361	56.10	57.50			Og	Sdl	Al	He	R	Oolitic
ZG361	57.50	59.80								No rec
ZG361	59.80	78.60			Og	Sdl			LRY	Oolitic, weakly haem, ank altered
ZG361	78.60	85.00			Og	SdlCcy	Al	Sd		Ankerite altn, and clay
ZG361	85.00	93.10			Og	Ccy				
ZG361	93.10	94.60			Om	Sss				
ZG361	94.60	99.00			Om	Mq	Ma			
HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS
ZG362	0.00	15.00			Og?	Ccy?				Roller bit, no core
ZG362	15.00	38.00			Og	Sls	We		AGDG	Lime mudstone
ZG362	38.00	41.00			Og	SdlSls	Al	Sd	YG	Weakly ankerite altered lime mudstone
ZG362	41.00	53.90			Og	SdlCcy	AlBx	Sd	YG	Total ankerite altn, + Ccy zones
ZG362	53.90	80.00			Og	Sdl		He	LRY	Oolitic, weakly haem, ank altered
ZG362	80.00	83.00			Og	CcyCs				Very poor rec of sand and clay
ZG362	83.00	97.85			Og	Ccy			G	
ZG362	97.85	99.20			Om	Mq	Ma		LGW	

Appendix 3: Grieves prospect. CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS																	
Results in ppm unless shown otherwise.																	
HOLE	DFROM	DTO	SAMPNO	Ag	Al%	As	Ba	C%	Ca%	Cu	Fe%	K%	Mg%	Mn	Pb	S%	Zn
ZG361	0.00	16.00															
ZG361	16.00	41.40															
ZG361	41.40	43.40															
ZG361	43.40	54.50															
ZG361	54.50	56.10															
ZG361	56.10	57.50															
ZG361	57.50	59.80															
ZG361	59.80	78.60															
ZG361	78.60	85.00															
ZG361	85.00	93.10															
ZG361	93.10	94.60															
ZG361	94.60	99.00															
HOLE	DFROM	DTO	SAMPNO	Ag	Al%	As	Ba	C%	Ca%	Cu	Fe%	K%	Mg%	Mn	Pb	S%	Zn
ZG362	0.00	15.00															
ZG362	15.00	38.00															
ZG362	38.00	41.00															
ZG362	41.00	53.90															
ZG362	53.90	80.00															
ZG362	80.00	83.00															
ZG362	83.00	97.85															
ZG362	97.85	99.20															

Appendix 3: Grieves prospect. CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS										
Results in ppm unless shown otherwise.										
HOLE	DFROM	DTO	SAMPNO	DPO	BMRLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS
ZG363	0.00	24.00			Og?	Ccy?				Roller bit, no core
ZG363	24.00	29.00	3984301	77150	Og	SlsCcy	We		LG	Mixed Sls + Ccy, broken
ZG363	29.00	33.30	3984302	77150	Og	SlsCcy	We		LG	Mixed Sls + Ccy, broken
ZG363	33.30	37.20	3984303	77150	Og	Sls	We		AGDG	Lime mudstone
ZG363	37.20	39.50	3984304	77150	Og	Sls	We		AGDG	Lime mudstone
ZG363	39.50	41.30	3984305	77150	Og	SdlSls	AI	Sd	YG	Weakly ankerite altered lime mudstone
ZG363	41.30	43.80	3984306	77150	Og	SdlSls	AI	Sd	YG	Weakly ankerite altered lime mudstone
ZG363	43.80	45.40	3984307	77150	Og	SdlSls	AI	Sd	YG	Weakly ankerite altered lime mudstone
ZG363	45.40	47.00	3984308	77150	Og	SdlCcy	AIBx	Sd	YG	Total ankerite altn, + Ccy zones
ZG363	47.00	49.10	3984309	77150	Og	SdlCcy	AIBx	Sd	YG	Total ankerite altn, + Ccy zones
ZG363	49.10	51.30	3984310	77150	Og	SdlCcy	AIBx	Sd	YG	Total ankerite altn, + Ccy zones
ZG363	51.30	53.00	3984311	77150	Og	SdlCcy	AIBx	Sd	YG	Total ankerite altn, + Ccy zones
ZG363	53.00	54.50	3984312	77150	Og	SdlCcy	AIBx	Sd	YG	Total ankerite altn, + Ccy zones
ZG363	54.50	56.00	3984313	77150	Og	SdlCcy	AIBx	Sd	YG	Total ankerite altn, + Ccy zones
ZG363	56.00	57.50	3984314	77150	Og	SdlCcy	AIBx	Sd	YG	Total ankerite altn, + Ccy zones
ZG363	57.50	59.00	3984315	77150	Og	SdlCcy	AIBx	Sd	YG	Total ankerite altn, + Ccy zones
ZG363	59.00	60.60	3984316	77150	Og	SdlCcy	AIBx	Sd	YG	Total ankerite altn, + Ccy zones
ZG363	60.60	63.00	3984317	77150	Og	SdlCcy	AIBx	Sd	YG	Total ankerite altn, + Ccy zones
ZG363	63.00	65.00	3984318	77150	Og	SdlCcy	AIBx	Sd	YG	Total ankerite altn, + Ccy zones
ZG363	65.00	67.70	3984319	77150	Og	SdlCcy	AIBx	Sd	YG	Total ankerite altn, + Ccy zones
ZG363	67.70	69.50	3984320	77150	Og	SdlCcy	AIBx	Sd	YG	Total ankerite altn, + Ccy zones
ZG363	69.50	72.50	3984321	77150	Og	SdlCcy	AIBx	Sd	YG	Total ankerite altn, + Ccy zones
ZG363	72.50	73.40	3984322	77150	Og	SdlCcy	AIBx	Sd	YG	Total ankerite altn, + Ccy zones
ZG363	73.40	76.10	3984323	77150	Og	SdlCcy	AIBx	Sd	YG	Total ankerite altn, + Ccy zones
ZG363	76.10	77.60	3984324	77150	Og	SdlCcy	AIBx	Sd	YG	Total ankerite altn, + Ccy zones
ZG363	77.60	78.90	3984325	77150	Og	SdlCcy	AIBx	Sd	YG	Total ankerite altn, + Ccy zones
ZG363	78.90	79.80	3984326	77150	Og	SdlCcy	AIBx	Sd	YG	Total ankerite altn, + Ccy zones
ZG363	79.80	81.30	3984327	77150	Og	SdlCcy	AIBx	Sd	YG	Total ankerite altn, + Ccy zones
ZG363	81.30	83.40	3984328		Og	Ccy			DG	Carbonaceous clay + qtz sand
ZG363	83.40	85.50	3984329		Og	Ccy			DG	Carbonaceous clay + qtz sand
ZG363	85.50	87.70	3984330		Og	Ccy			DG	Carbonaceous clay + qtz sand
ZG363	87.70	89.85	3984331		Og	Ccy			DG	Carbonaceous clay + qtz sand
ZG363	89.85	92.00	3984332		Og	Ccy	GsFe		YR	Gossanous clay
ZG363	92.00	94.20	3984333		Og	Ccy	GsFe		YR	Gossanous clay
ZG363	94.20	96.40	3984334		Og	Ccy	GsFe		YR	Gossanous clay
ZG363	96.40	98.60	3984335		Og	Ccy	GsFe		YR	Gossanous clay
ZG363	98.60	101.00	3984336		Og	Ccy			GDG	Partly carbonaceous, sandier with depth
ZG363	101.00	103.00	3984337		Og	Ccy			GDG	Partly carbonaceous, sandier with depth

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Appendix 3: Grieves prospect. CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS																	
Results in ppm unless shown otherwise.																	
HOLE	DFROM	DTO	SAMPNO	Ag	Al%	As	Ba	C%	Ca%	Cu	Fe%	K%	Mg%	Mn	Pb	S%	Zn
ZG363	0.00	24.00															
ZG363	24.00	29.00	3984301														
ZG363	29.00	33.30	3984302														
ZG363	33.30	37.20	3984303														
ZG363	37.20	39.50	3984304														
ZG363	39.50	41.30	3984305														
ZG363	41.30	43.80	3984306														
ZG363	43.80	45.40	3984307														
ZG363	45.40	47.00	3984308														
ZG363	47.00	49.10	3984309														
ZG363	49.10	51.30	3984310														
ZG363	51.30	53.00	3984311														
ZG363	53.00	54.50	3984312														
ZG363	54.50	56.00	3984313														
ZG363	56.00	57.50	3984314														
ZG363	57.50	59.00	3984315														
ZG363	59.00	60.60	3984316														
ZG363	60.60	63.00	3984317														
ZG363	63.00	65.00	3984318														
ZG363	65.00	67.70	3984319														
ZG363	67.70	69.50	3984320														
ZG363	69.50	72.50	3984321														
ZG363	72.50	73.40	3984322														
ZG363	73.40	76.10	3984323														
ZG363	76.10	77.60	3984324														
ZG363	77.60	78.90	3984325														
ZG363	78.90	79.80	3984326														
ZG363	79.80	81.30	3984327														
ZG363	81.30	83.40	3984328														
ZG363	83.40	85.50	3984329														
ZG363	85.50	87.70	3984330														
ZG363	87.70	89.85	3984331														
ZG363	89.85	92.00	3984332														
ZG363	92.00	94.20	3984333														
ZG363	94.20	96.40	3984334														
ZG363	96.40	98.60	3984335														
ZG363	98.60	101.00	3984336														
ZG363	101.00	103.00	3984337														

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Appendix 3: Grieves prospect. CRAE diamond drilling logs and geochemistry

ZG363	103.00	105.00	3984338	Og	Ccy			G0G	Partly carbonaceous, sandier with depth
ZG363	105.00	107.00	3984339	Og	Ccy			G0G	Partly carbonaceous, sandier with depth
ZG363	107.00	109.00	3984340	Og	Ccy			G0G	Partly carbonaceous, sandier with depth
ZG363	109.00	111.00	3984341	Og	Ccy			G0G	Partly carbonaceous, sandier with depth
ZG363	111.00	113.00	3984342	Og	Ccy			G0G	Partly carbonaceous, sandier with depth
ZG363	113.00	115.00	3984343	Og	Ccy			G0G	Partly carbonaceous, sandier with depth
ZG363	115.00	117.00	3984344	Og	Ccy			G0G	Partly carbonaceous, sandier with depth
ZG363	117.00	119.00	3984345	Og	Ccy			G0G	Partly carbonaceous, sandier with depth
ZG363	119.00	121.00	3984346	Og	Ccy			G0G	Partly carbonaceous, sandier with depth
ZG363	121.00	123.00	3984347	Og	Ccy			G0G	Partly carbonaceous, sandier with depth
ZG363	123.00	124.90	3984348	Og	Ccy			G0G	Partly carbonaceous, sandier with depth
ZG363	124.90	128.30	3984349	Om	Sss			W	Friable
ZG363	128.30	129.60	3984350	Om	Mq			W	Massive, weakly bedded Moira Sst.

Appendix 3: Grievess prospect. CRAE diamond drilling logs and geochemistry

ZG363	103.00	105.00	3984338														
ZG363	105.00	107.00	3984339														
ZG363	107.00	109.00	3984340														
ZG363	109.00	111.00	3984341														
ZG363	111.00	113.00	3984342														
ZG363	113.00	115.00	3984343														
ZG363	115.00	117.00	3984344														
ZG363	117.00	119.00	3984345														
ZG363	119.00	121.00	3984346														
ZG363	121.00	123.00	3984347														
ZG363	123.00	124.90	3984348														
ZG363	124.90	128.30	3984349														
ZG363	128.30	129.60	3984350														

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Appendix 3: Grievés prospect. CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS										
Results in ppm unless shown otherwise.										
HOLE	DFROM	DTO	SAMPNO	DPO	BMLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS
ZG364	0.00	6.30			Og?	Ccy?				Roller bit, no core
ZG364	6.30	52.70			Og	Sls				lime mudstone (top) and bioclastic lst(lower)
ZG364	52.70	56.50			Og	SlsSdl				weak patchy ankerite altn
ZG364	56.50	65.70			Og	SdlCcy	Al	Sd		Ankerite altd carbonate and clay
ZG364	65.70	78.50			Og	Ccy			MYRB	
ZG364	78.50	83.70			OmOg	SssCcy			LBW	Clay and minor sandstone. Moina transition
ZG364	83.70	88.50			Om	Mq	Al?Fo	He	MYRG	
HOLE	DFROM	DTO	SAMPNO	DPO	BMLITH	FIELDID	TEXTURE	ALT/MIN	COLOUR	COMMENTS
ZG365	0.00	64.00			Og	Sls				lime mudstone (top) and bioclastic lst(lower)
ZG365	64.00	72.00			Og	SlsSdl				weak patchy ankerite altn
ZG365	72.00	76.40			Og	SdlCcy	Al	Sd		Ankerite altd carbonate and clay
										current depth

Appendix 3: Grieves prospect. CRAE diamond drilling logs and geochemistry

APPENDIX 3: GRIEVES PROSPECT - CRAE DIAMOND DRILLING LOGS AND ASSAYS																	
Results in ppm unless shown otherwise.																	
HOLE	DFROM	DTO	SAMPNO	Ag	Al%	As	Ba	C%	Ca%	Cu	Fe%	K%	Mg%	Mn	Pb	S%	Zn
ZG364	0.00	6.30															
ZG364	6.30	52.70															
ZG364	52.70	56.50															
ZG364	56.50	65.70															
ZG364	65.70	78.50															
ZG364	78.50	83.70															
ZG364	83.70	88.50															
HOLE	DFROM	DTO	SAMPNO	Ag	Al%	As	Ba	C%	Ca%	Cu	Fe%	K%	Mg%	Mn	Pb	S%	Zn
ZG365	0.00	64.00															
ZG365	64.00	72.00															
ZG365	72.00	76.40															
		current depth															

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CRA EXPLORATION PTY. LIMITED  
 DRILL-HOLE SUMMARY LOG

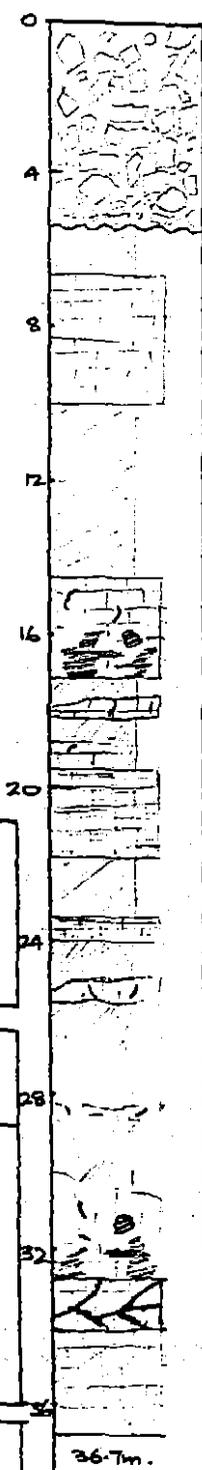
EL NAME: Zeehan No.4  
 EL NUMBER: EL: 38/89  
 DATE DRILLED: 12<sup>th</sup> July 1993  
 LOGGED BY: Simon Maher

HOLE NAME: DD932G104  
 PROSPECT: Greives

AMG EAST: 364706E  
 AMG NORTH: 5349693N  
 RL: \_\_\_\_\_

GRID EAST: 61125E  
 GRID NORTH: 48200N  
 TOTAL DEPTH: 36.7m

DEPTH            AZIM. (MAG)            INCLIN.             
 0                    -50°



OBJECTIVES OF HOLE:

LITHOLOGICAL SUMMARY:

DFROM	DTO	COMMENTS
0 m	5.85m	Quartzite gravel.
5.85m	6.7m	carbonaceous clay?
6.7m	10.7m	massive structureless calc.-arenite.
10.7m	14.6m	Black earthy clay
14.6m	17.1m	Massive skeletal? calcarenite - bioturbation increases down hole.
17.1m	19.85m	Carbonaceous clay and relic skeletal calc.-arenite.
19.85m	21.8m	Massive charcoal calc.-arenite.
21.8m	23.4m	Charcoal carbonaceous clay.
23.4m	24.0m	Massive charcoal calc.-arenite.
24.0m	32.7m	Charcoal carbonaceous clay (predom. upper) and fossiliferous? limestone (predom. lower) - bioturbation.
32.7	34.0m	Very broken calc.-arenite and carbonaceous clay.
34.0	36.7m	Skeletal calc.-arenite with weak foliation.

MINERALISATION SUMMARY:

DFFROM	DTO	COMMENTS
9.5	14.35	4.85m @ 2.35% Zn (low Fe+Mn)
27.3	36.7	9.4m @ 8.6% Zn (high Fe+Mn) (low sulphur in bituminous material) ⇒ not sp

CONCLUSIONS:

C.R.A. EXPLORATION PTY. LIMITED  
DRILL CORE LOG

SHEET No. 1 of

264706E5349692N AMG

TENEMENT NAME Zeehan 9 No. PL38/9

PLAN - MAP REFERENCE 5155 -

CO-ORDINATES 6125E 4820S AZIMUTH DRILLERS Nick Pollock Field Exploration COMMENCED 12<sup>th</sup> July 1993 DEPTH 36.7m HOLE No. D09326109

RL COLLAR INCLINATION - 50' DRILL TYPE A Back Penetrator COMPLETED 16<sup>th</sup> July 1993 CASING 100mm DPO No(s)

DEPTH		Core Rec. (M)	Core Size	Graphic Log RQ	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)								
From (M)	To (M)										Zn%	magnetic susceptibility ( $\times 10^3$ SI)							
0	5.35	1.2	TTS6 diamond Bit	4X	Quartzite gravel - up to 5cm pallid pink to white. At depth - very coarse quartz sandstone/conglomerate; and jigsaw brecciated quartzite - black clay interstitial to clasts.														
5.35	6.7	0	"	"	NO recovery - dark clay? carrying water returned.														
6.7	7.4	.35	"	4X	Includes - (upper) rounded quartz pebbles. - smoky grey dirty calc-arenite with wispy irregular thin (2mm) seams of black soft stylotised material and later crosscutting calcite veins. Trace fine pyrite (1.5mm) associated with black seams.		3753647	6.7	9.5	.7	0.93								
7.4	7.8	.4	"	4XF	Pallid earthy grey calc-arenite - fine grained, typically massive and structureless. Possible relict laminae + to core long axis (CLA) defined by faint colour variations. Stylotised veinlets of black material <1% occasionally infill into blebs <1cm. - trace associated fine pyrite (also along partings). Late thin planar tension fractures? // to CLA are filled with black material and calcite. (7.78m) dark mottled irregular blebs may represent bioturbation (1-3mm).														
7.8	8.5	.7	"	3F	'ditto - pallid fine green/yellow siderite? blebs 1-3cm (7.9m) - have depressed, less competent margins. Banding/laminae? 80° to CLA - similarly orientated zone of coarse disseminated porphyroblastic? calcite and pyrite <<1%, <1mm.														
8.5	10.6	1.05	"	3F	Drill fell through two zones (unknown widths) of		3753648	9.5	10.6	.25	1.33								

0  
5  
2  
1  
4  
0







C.R.A. EXPLORATION PTY. LIMITED  
DRILL CORE LOG

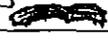
SHEET No. 5 of 6

TENEMENT NAME..... No. ....

PLAN - MAP REFERENCE.....

CO-ORDINATES..... AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH..... HOLE No. DD937610A

RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH		Core Rec. (M)	Core Size	Graphic Log RGR	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)									
From (M)	To (M)										Zn.									
25.05	27.3	0	TT46		no recovery															
27.3	29.1	.3	*	5	Recovered core is yellow (siderite) coloured very pitted fossiliferous limestone - relict calcite skeletal parts preserved. Fine disseminated cluster of pyrite (15mm) and rarer (1mm) isolated pyrite crystals 3-4%. Waxed charcoal clay residue also returned.		3753659	27.3	29.1	.3	8.42	mdg.	SUSC.	3x10 <sup>-2</sup>	SZ					
29.1	31.5	.45	*	5X	Recovered core is fossiliferous limestone as previous. Includes yellow (siderite?) stained skeletal parts i.e. scale  gastropod? - sparry skeletal remnant (light) - internally pitted micrite (dark)  Siderite/clay lined partings. Trace very fine pyrite disseminations present in upper intervals of returned core.		3753660	29.1	31.5	.45	5.31									
31.5	32.6	.7	*	3F	Dominantly fossiliferous limestone as previous - including  scale III stromatolites? Two intervals of charcoal clay - 5cm midinterval and 32.5-32.6m. Clay development not necessarily strictly controlled, parallels and is fringed by black greasy graphitic veinlets orientated // to CLA.		3753661	31.5	32.6	.7	3.62									
32.6	34.0	.4	*	5	Upper 10cm of recovered core - diffuse contact between overlying fossiliferous material and a zone of chaotic/confused micrite and sparry calc arenite 'interbeds'? - soft sediment deformed? bioturbated? ; approximate orientation ⊥ to CLA.  Lower 30cm of recovered core - very broken relict massive sparry calc arenite. Fractures lined with charcoal clay (probably responsible for high core loss). Trace disseminated fine sulphide (pyrite)		3753662	32.6	34.0	.4	9.21									

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CRA EXPLORATION PTY. LIMITED  
 DRILL-HOLE SUMMARY LOG

EL NAME: ZEEHAN 4  
 EL NUMBER: EL 38/89  
 DATE DRILLED: NOV 1993  
 LOGGED BY: RGP

HOLE NAME: DD93 ZG106  
 PROSPECT: GRIEVES

AMG EAST: 364628  
 AMG NORTH: 5349794  
 RL: \_\_\_\_\_

GRID EAST: 60997  
 GRID NORTH: 48200  
 TOTAL DEPTH: 161.0

DEPTH	AZIM. ( <del>AMG</del> )	INCLIN.
0	<del>148°</del> 148°?	-50°
80m	-	-48.5°
160m	<del>148°</del> 148°	-49°

OBJECTIVES OF HOLE: To test for stratabound primary mineralisation at base of Gordon 1st adjacent to Grievess Fault.

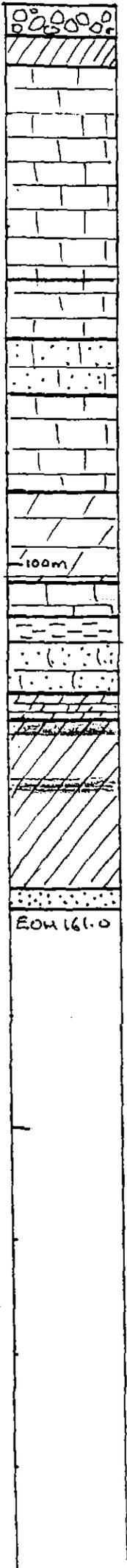
LITHOLOGICAL SUMMARY:

DFROM	DTO	COMMENTS
0	5.9	GRAVELS
5.9	10.85	CLAYS
10.85	59.75	LIME MUDSTONE (Low & fault at 47.6-51.0 m)
59.75	69.45	CALCARENITE
69.45	86.45	<del>LIME</del> MUDSTONE
86.45	103.0	DOLOMITE MUDSTONE (High & fault at 100-103m)
103.0	109.9	LIME MUDSTONE
109.9	113.6	CARBONACEOUS LIMESTONE
113.6	122.7	CALCARENITE / BIOLASTIC LS (CARB LST.)
122.7	127.1	ANKERITE-DOLOMITE ALTERED ROCK.
127.1	157.9	CLAYS
157.9	161.0	MOINA SANDSTONE

MINERALISATION SUMMARY:

DFROM	DTO	COMMENTS
49.5	49.8	0.3m @ 1.0% Zn
128.2	130.2	2.0m @ 1.4% Zn
138.1	140.5	2.4m @ 1.5% Zn

CONCLUSIONS:



EOH 161.0

AMG 364628 E  
5349794 N

032157

C.R.A. EXPLORATION PTY. LIMITED  
DRILL CORE LOG

SHEET No. 1 of 9

TENEMENT NAME ZEEHAN L4 No EL38/89

CO-ORDINATES 60997E  
48200N

AZIMUTH 142°  
AMG

DRILLERS D.D. TAYLOR

COMMENCED 26/10/93

PLAN - MAP REFERENCE

DEPTH 161.00

HOLE No. DD93 ZG-10

RL COLLAR INCLINATION -50°

DRILL TYPE LY38

COMPLETED 12/11/93

CASING LEFT

DPO No(s) 77119

DEPTH		Core Rec. (M)	Core Size	STRUCTURAL Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)				
From (M)	To (M)										Zn				From
0	2	-			PRECOLLAR - NO CORE (Peat and gravels)							0	2	-	-
													2.9	0.6	4
													4.4	0.55	4
2.0	2.9	0.6	HQ	4	QUARTZITE GRAVELS								5.9	0.1	5
													6.9	-	-
<del>4.4</del> 2.9	4.4	0.55	HQ	4	LIMESTONE, Grey. In situ?		3757901	2.9	4.4	0.55	95		7.9	-	-
													8.9	0.45	5
													9.8	-	-
4.4	5.9	0.1	HQ	5	LIMESTONE AND QUARTZITE GRAVELS Carry gravel?								10.8	0.45	5
													11.9	1.15	2V
													13.35	1.25	2F
5.9	7.9	-	HQ	-	NO RECOVERY								14.9	1.05	2F
7.9	8.9	0.45	HQ	5	CLAY Dark brown.		902	7.9	8.9	0.45	199				
8.9	9.8	-	HQ	-	NO REC.										
9.8	10.6	0.3	HQ	5	CLAY AND GRAVEL Dark brown clay, and quartzite gravels.		903	9.8	10.85	0.5	1870				
10.6	10.85	0.2	HQ	5	CLAY AND PYRITE Dark brown clay, and massive pyrite. Pyrite appears to be forming in the clay above the fresh limestone.										
10.85	14.8	3.35	HQ	2F	LIME MUDSTONE Grey fine-grained carbonate mud. Stylolites common almost giving rock a beccated appearance. Mud looks to have been fluidal displaying soft sediment features. Locally contains bivalve fossils. 1.2% fine calcite veins		904	10.85	14.8	3.35	32				

REL = REL  
QUALITY

1 = CORE >30cm  
2 = 10-30  
3 = 3-10  
4 = 1-3  
5 = 1cm

B = Bedding  
C = Cleavage  
V = Veining  
F = Fractures  
X = Beccated



932159

C.R.A. EXPLORATION PTY. LIMITED  
DRILL CORE LOG

SHEET No. 3 of 9

TENEMENT NAME..... No.....

PLAN - MAP REFERENCE.....

CO-ORDINATES..... AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH..... HOLE No. 76106

RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH		Core Rec. (M)	Core Size	Recovery Loss Rec	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)							
From (M)	To (M)										Zn				From	To	REC	RR
45.0	51.5	6.3	HQ	5X	BRECCIATED AND VEINED LIME MUDSTONE FAULT ZONE. Grey lime mudstone as for 18.8-31.5. Large white calcite-dolomite veins at low $\angle$ or parallel to S.A. Angular limestone fragments caught up in vein at margins & post lithification veining. From 47.6-51.50 m is rubble and brecciated core. Centre of fault zone? Appears ll to C.A. From 49.5-49.8 m is massive, spongy porous pyrite.		3757912	45.0	49.5	4.0	1160							
							913	49.5	49.8	0.25	1.01%				44.9	46.5	1.55	3V
							914	49.8	51.5	1.05	632				47.9	48.8	1.35	3F
															48.8	49.8	0.7	5X
															49.8	50.8	0.75	5X
															50.8	51.75	0.6	4X
															51.75	52.8	0.55	3F
															52.8	53.9	0.85	4F
															53.9	56.4	1.5	3F
															56.4	56.9	1.3	3F
															56.9	58.5	1.6	3F
51.5	56.5	4.0	HQ	4F	FRACTURED LIME MUDSTONE Light grey even-textured lime mud, cut by fine network of stylolites. Lacks the wispy banded or irregular darker mud layers common between 18.8-51.5 m. Moderately fractured along stylolites. Fracturing probably due to close proximity of fault.		915	51.5	56.5	4.0	105				58.5	59.3	0.45	4I
															59.3	59.9	0.5	4X
															59.9			
56.5	58.3	1.75	HQ	3F	FRACTURED LIME MUDSTONE. Grey lime mudstone with darker grey wisps and irregular bands of lime mud. Darker material may be infill of stromatolitic cavities. Moderately fractured as for 51.5-56.5 m.		916	56.5	58.3	1.75	194							
58.3	59.75	1.05	HQ	4X	BRECCIATED AND VEINED DOLOMITE Light grey massive dolomite cut by 20% $\phi$ 5-5 mm carbonate veins. Strongly fractured post-veining. Honey-yellow mineral in carbonate veins at 58.6 m $\Rightarrow$ sphalerite? <1% of interval.		917	58.3	59.75	1.05	173							

C.R.A. EXPLORATION PTY. LIMITED  
DRILL CORE LOG

SHEET No. 5 of 9

932160

TENEMENT NAME..... No.....

PLAN - MAP REFERENCE.....

CO-ORDINATES..... AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH..... HOLE No. ZG 106

RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH		Core Rec. (M)	Core Size	Graphic Log RCR	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....) DRILL RUNS								
From (M)	To (M)										Zn				From	To	REC	RCR	
86.45	88.25	1.4	HQ/NQ	3F	LAMINATED DOLOMITE MUDSTONE Light gray fine to very fine grained dolostone. 1-5mm regular laminations defined by grain size and colour variation. Not wispy. Contact between limestone and dolomite at 86.45m is knife-sharp. Minorankerite replacement along laminations 87.7m So - CA 7 75° 86.45 So - CA 4 75°  Reduce to NQR at 86.65m		3157925	86.65	88.25	1.4	154					86.65	87.9	1.1	3F
																	88.4	0.4	3F
																	91.3	2.3	4F
																	94.3	2.6	3F
																	97.3	2.9	2F
																	99.4	2.25	3X
88.25	93.0	3.8	NQ	3F	DOLOMITE MUDSTONE Light to mid-grey dolomite mudstone. Partly massive & even textured, and partly wispy banded (stromatactis infill?). Local 10-30mm beds containing bivalve fossils. 150mm of light brown 0.2mm grainsize clastic sediment. Core cut by minor stylolites and 1-2mm dolomite veins.		926	88.25	93.0	3.8	194								
93.0	100.0	3.85	NQ	3F	PARTLY DOLOMITISED LIME MUDSTONE. Mid-grey dolomitised mudstone with darker grey wispy banded lime mud that is undolomitised (infilling stromatactis cavities). Gradual decrease in dolomitisation from 93.0-94.0, not a sharp boundary. Unit is similar in appearance to 71.9-75.5m. 2% of 0.5-2mm dolomite veins. Moderate to strongly fractured 96.75-100.0m.		927	93.0	96.75	3.6	123								
							928	96.75	100.0	3.25	224								

EXP. Y. I. ED  
**DRILL CORE LOG**

TENEMENT NAME .....  
 PLAN - MAP REFERENCE .....

CO-ORDINATES ..... AZIMUTH ..... DRILLERS ..... COMMENCED ..... DEPTH ..... HOLE No. **ZG-106**  
 RL COLLAR ..... INCLINATION ..... DRILL TYPE ..... COMPLETED ..... CASING LEFT ..... DPO No(s) .....

DEPTH		Core Rec. (M)	Core Size	Grain Size Log RQ	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)				
om M)	To (M)										Zn	DRILL RUNS			
											From	To	REC	RQ	
3.6	118.65	<del>4.9</del>	NQ	2F	<p><b>CALCARENITE</b></p> <p>Grey 0.2mm grainsize carbonate sand. Quite massive overall, but locally with irregular patches of darker grey carbonate mud/sand.                      2-5% of 1-3mm dolomite veins</p>		375793	113.6	118.65	4.9	198	113.6	114.25	0.55	4F
		4.9					3					115.3	1.0	4F	
												118.3	2.95	1F	
												119.5	1.35	3F	
												120.5	0.9	3F	
												121.3	0.75	2F	
8.65	121.0	<del>2.3</del>	NQ	3F	<p><b>BIOLASTIC (?) LIMESTONE</b></p> <p>Grey limestone that appears to be made up of carbonate sand and fossil debris replaced by white carbonate sand.                      Core mod-strongly fractured.</p>		934	118.65	121.0	2.3	1330	123.1	1.8	2F	
		2.3										123.7	0.55	3X	
												124.3	0.55	5X	
												125.35	0.95	5X	
												126.1	0.7	4X	
												127.2	0.95	4X	
1.0	122.7	<del>1.7</del>	NQ	2F	<p><b>CARBONACEOUS LIMESTONE</b></p> <p>Similar to 109.9-113.6m, but grey to dark grey and not as carbonaceous. Moderately well developed shear (?) partings at low-mod to c.a.                      Breccia band 10mm wide at 121.1m, 15° - c.a.                      Foliation 122m 40° - c.a.                      2-5% 1-5mm irregular dolomite veins.</p>		935	121.0	122.7	1.7	2340				
2.7	127.1	<del>4.0</del>	NQ	4X	<p><b>ANKERITE</b></p> <p><b>ALTERED SKELETAL DOLomite.</b></p> <p>Light grey dolomite with elongate, almost spiny fragments of skeletal material.                      Minor patchy pervasive haematite alteration (staining of core?), 2-5% of interval.                      Pervasive replacement of dolomite by a light to honey-brown mineral. Looks like ankerite?                      ~10-15% of interval.                      Core is strongly brecciated with considerable light green clay in breccia zones. Breccia is post-haematite + ankerite (?) as there are</p>		936	122.7	123.7	0.95	1180				
		4.0					937	123.7	124.9	1.1	1930				
							938	124.9	126.1	1.1	1010				
							939	126.1	127.1	0.85	2010				

935161

CHENEX PATENT CO. LTD.  
**DRILL CORE LOG**

TENEMENT NAME.....

PLAN - MAP REFERENCE.....

CO-ORDINATES..... AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH..... HOLE No. **26106**

RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH		Core Rec. (M)	Core Size	Graphite Log Rec	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)					
From (M)	To (M)										Zn	From	To	REC	RO	
					fragments of altered and mineralised rock in breccia.											
7.1	128.2	0.7	NQ	5	CLAY Light grey clay zone with brecciated colourless gypsum (?) vein.		3757940	127.1	128.2	0.7	6700					
8.2	130.2	1.8	NQ	5	CLAY Light grey, red and dark grey to black <sup>plastic</sup> clays. Between 129.35 - 129.55 is yellow-greyankerite altered coarse grained limestone.		941	128.2	129.2	0.8	1.18%					
							942	129.2	130.2	1.0	1.6%					
0.2	138.1	6.0	NQ	5	CLAY <del>Yellow</del> plastic clay. Some foliations visible in clay, suggestive of total replacement of pre-existing rock. Yellow, orange brown - red.		943	130.2	131.2	0.7	2690					
							944	131.2	132.2	0.65	2450					
							945	132.2	133.2	0.85	2720					
							946	133.2	134.2	1.0	3940					
							947	134.2	135.2	0.90	7550					
8.1	140.5	2.25	NQ	4	GOSSANOUS CLAY ROCK, - Yellow-brown well banded rock. Bands of wuggy gossanous material interspersed with yellow clay. 138.2 banding - c.a. $\alpha$ 60°		948	135.2	136.2	1.0	6820					
							949	136.2	137.4	0.3	5340					
							950	137.4	138.1	0.6	4370					
							951	138.1	139.3	1.15	1.57%					
							952	139.3	140.5	1.1	1.43%					
0.5	149.158.9		NQ	5	CLAY. Yellow-orange plastic clay with some reddish (haematitic?) clay zones Hole lost at 149.15m due to clays closing in on rock string. Reddled with HQ		953	140.5	141.5	0.95	5420					
							954	141.5	142.5	0.95	5570					
							955	142.5	143.5	1.0	5530					
							956	143.5	144.5	1.1	5780					
							957	144.5	145.5	1.05	4780					
							958	145.5	146.5	1.05	4540					
19.15	150.2	-	NQ	5	NO RECOVERY (Presumably clay).		959	146.5	147.5	1.05	4480					
							960	147.5	149.15	1.75	5090					

932162

DRILL CORE LOG

TENEMENT NAME..... No.....

PLAN - MAP REFERENCE.....

CO-ORDINATES..... AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH..... HOLE No.....

RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH		Core Rec. (M)	Core Size	Log Rec	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)				
m	To (M)										DRILL RUNS				
1											From	To	Rec	Re	
2.2	151.7	1.5	NQ	5	CLAY Dark reddish-purple (haematitic?) plastic clay.		3757961	150.2	151.7	1.5		50.2	150.3	0.1	5
												151.3	0.9	5	
												151.8	0.6	5	
7	157.9	6.5	NQ	5	CLAY Yellow-brown plastic clay with minor sandy zones.		962	151.7	152.7	1.0		154.3	2.5	5	
							963	152.7	153.7	1.0		156.3	2.4	5	
							964	153.7	154.7	1.0		157.3	0.9	5	
							965	154.7	155.7	1.0		158.9	1.55	4F	
9	161.0	2.45	NQ	3F	SANDSTONE Light grey medium grain size quartz sandstone. Top 400 mm is reddish-grey oxidised coarse sand to grit. Contact with clay is sharp - 70° to C.A. ⇒ MOINA SANDSTONE.		966	155.7	156.7	1.0		161.0	1.5	3F	
							967	156.7	157.9	1.1					
							968	157.9	161.0	2.45					
					END OF HOLE AT 161.00 m.										

932163

CRA EXPLORATION PTY. LIMITED  
DRILL-HOLE SUMMARY LOG

EL NAME: ZEEHAN 4 HOLE NAME: DD93 ZG 107  
 EL NUMBER: EL38/89 PROSPECT: GRIEVES  
 DATE DRILLED: NOV 1993  
 LOGGED BY: RGP

AMG EAST: \_\_\_\_\_ GRID EAST: 61142.5  
 AMG NORTH: \_\_\_\_\_ GRID NORTH: 48000  
 RL: \_\_\_\_\_ TOTAL DEPTH: 175.0 m.

DEPTH	AZIM. ( <del>MAG</del> ) AMG	INCLIN.
0	<del>147</del> 147°	-50°
50 m	150°	-48.5
100 m	150°	-48.5
150 m	?	-48.5

**OBJECTIVES OF HOLE:**

To test for primary stratabound mineralisation at base of Gordon Limestone adjacent to Greaves fault.

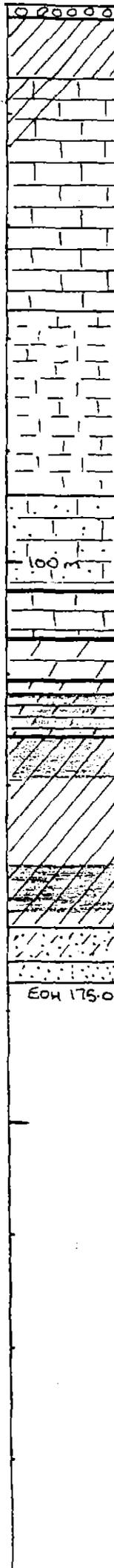
**LITHOLOGICAL SUMMARY:**

DFROM	DTO	COMMENTS
0	2.0	GRAVELS
2.0	13.0	CLAYS (1 DECOMPOSED LST)
13.0	55.0	WISPY BANDED LIME MUDSTONE
55.0	87.75	FINELY LAMINATED LIME MUDSTONE
87.75	105.0	MIXED MED HS FOSSILIFEROUS LIMESTONE
105.0	113.3	WISPY BANDED LIME MUDSTONE
113.3	120.6	DOLOMITISED MUDSTONE (START OF ALTER.)
120.6	131.1	ANKERITE ALTERED CARBONATE
131.1	164.9	CLAYS
164.9	171.2	TRANSITION TO MOINA SST
171.2	175.0	MOINA SST.

**MINERALISATION SUMMARY:**

DFROM	DTO	COMMENTS
123.95	139.1	15.15 m @ 10.4% Zn (high s ⇒ sp) (1% Zn calc)
154.55	162.9	8.35 m @ 13.9% Zn, 8.5% Pb, 30 ppm Ag (v low s) ⇒ not sp

**CONCLUSIONS:**



DRILL CORE LOG

CO-ORDINATES: 6142.5E 48000N AZIMUTH: 145° AmG DRILLERS: DDTAS COMMENCED: 15/11/93 DEPTH: 175.0 m HOLE No. DD93ZG-107  
 RL COLLAR: INCLINATION: -50° DRILL TYPE: LY38 COMPLETED: 23/11/93 CASING LEFT: NIL DPO No(s): 71127

PLAN - MAP REFERENCE: .....

DEPTH		Core Rec. (M)	Core Size	GRAB LOG RQ	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)				
From (M)	To (M)										DRILL RUNS				
												From	To	Rec	RQ
0	2.0	-			PRECOLLAR Peat + gravel.							0	2	-	
													3.5	1.0	5
													4.3	0.4	5
0	6.0	3.0	HQ	5	CLAY Dark grey clay and weathered carbonaceous rock fragments.		315969	2.0	6.0	3.0			6.0	1.6	5
													7.5	1.4	4x
													8.5	0.9	5x
													10.5	2.0	5x
0	13.0	6.4	HQ	4x	CARBONACEOUS LIMESTONE AND CLAY Dark grey weathered - decomposed carbonaceous limestone and dark grey clays. Strongly broken.		970	6.0	9.5	3.3			12.0	1.05	4x
							971	9.5	13.0	3.1			13.5	1.55	5x
													15.0	0.95	3F
													16.35	0.8	4F
													17.1	0.55	3F
3.0	15.2	1.55	HQ	3F	CLASTIC CARBONATE Light grey fine grained carbonate mud with minor beds of coarse rounded carbonate (not oolitic).		972	13.0	15.2	1.55			19.5	2.4	3F
													22.5	3.0	3F
													25.5	3.0	3F
													28.5	3.05	3F
5.2	19.5	3.65	HQ	3F	BIOCLASTIC LIMESTONE Dark grey medium grainsize limestone made up of fine fossil debris. Minor dark grey carbonate mud bands and rare larger fossil fragments.		973	15.2	19.5	3.65					
19.5	27.15	7.65	HQ	3F	LIME MUDSTONE Grey to dark grey fine to medium grained limestone with irregular almost nodular appearance. Looks partly like infilling of cavities + partly like rolled + flattened balls. Becomes more carbonaceous toward 27.15 m. Narrow bands of bivalve debris.		974	19.5	23.3	3.8					
							975	23.3	27.15	3.85					

982105

DRILL CORE LOG

TENEMENT NAME..... No.....

PLAN - MAP REFERENCE.....

CO-ORDINATES..... AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH..... HOLE No. **ZG-107**

RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH		Core Rec. (M)	Core Size	RR Geoprobe Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)				
From (M)	To (M)										DRILL RUNS				
											From	To	Rec	RR	
7-15	29-1	1-95	HQ	3F	BIOCLASTIC LIMESTONE Dark grey-brown medium to coarse g/s limestone made up of fossil fragments. As for 15-2-19-5		3757976	27-15	29-1	1-95	1-95 2-33 1-95 2-95 -35	28-5	31-5	2-9	3x
9-1	32-5	3-35	HQ	3x	ALGAL LIMESTONE Dark brown fine-med g/s limestone. Some zones are well laminated - algal mats? Bivalve fossil debris common. Strongly broken with puggy clay zones.		978	29-1	32-5	3-35	1-95 2-33 1-95 2-95 -35	43-5	46-5	2-9	4F
2-5	55-0	21-2	HQ	3F	LIME MUDSTONE Grey and dark grey nodular and wispy banded lime mudstone similar to 19-5-27-15m. Banding irregular but high $\delta$ to c.a. ( $>70^\circ$ ). Strongly fractured along carbonate veins at low $\delta$ to c.a. between 35-1-36-5m and 40-5-42-6m. Several other strongly fractured - brecciated zones. 20mm wide pyrite band in bedding parallel pug zone at 44-4m.		978	32-5	37-0	4-4	1-95 2-33 1-95 2-95 -35	61-5	64-5	2-8	4x
5-0	87-75	30-1	HQ	3F/ 4x	MICRITE Light grey fine g/s dominantly clear massive carbonate mud. locally finely laminated eg 61-8m $S_0$ $70^\circ$ - c.a. 81-3 $S_0$ $70^\circ$ - c.a. Gradational contact at 55-0 + 87-75m marked by increase in grain size. Local zones of strong fracturing - brecciation, locally with banded py, eg 58-6-61-4m. 72-2-75-0 is banded py + recemented carbonate sand at low $\delta$ to c.a. (solution cavity fill?). Also strongly broken 77-4-78-4		982	55-0	60-0	4-6	1-95 2-33 1-95 2-95 -35	82-5	85-5	2-6	4x
							984	60-0	65-0	4-55	2-95 -35	88-2		2-7	3x
							985	65-0	70-0	4-45					
							986	70-0	75-0	4-7					
							987	75-0	80-0	4-5					
							988	80-0	84-0	3-75					
							989	84-0	87-75	3-55					

031100

DRILL CORE LOG

TENEMENT NAME..... No. ....

PLAN - MAP REFERENCE.....

CO-ORDINATES..... AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH..... HOLE No. **2G107**

RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH		Core Rec. (M)	Core Size	Rd Core Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)			
From (M)	To (M)										DRILL RUNS			
										From	To	Rec	Rd	
3.0	87.75				and 82.4-86.8m.									
	CTD				Banded py at 56.6m 10mm wide, + 64.4m									
					5mm wide, 73.5m >50mm, 77.4 20mm, 86.5									
					10mm.									
17.5	105.0-15.7	HQ	2F/4X		MIXED LIMESTONE		3757990	87.75	92.0	3.65				
					Medium gls grey lst made up of a number of		991	92.0	96.0	3.5				
					irregular narrow units. Includes -		992	96.0	100.0	3.6				
					wispy banded lime mudstone		993	100.0	105.0	4.95				
					wide banded med gls carbonate sand									
					bioclastic beds, mostly bivalves, + rare corals.									
					Local zones of strong fracturing - brecciation									
					Between 94.45 - 95.0 is semi-massive spongy									
					py. Looks to be low to C.A. possibly a solution									
					cavity fill.									
25.0	113.3	7.8	HQ	3F/4X	LIME MUDSTONE		994	105.0	109.15	3.75				
					Dark grey, possibly carbonaceous fine grained		995	109.15	113.3	4.05				
					lime mudstone with irregular wispy bands of									
					darker grey carbonate									
					Locally contains bivalve fossils.									
3.3	120.6	5.1	HQ	4X	DOLomite MUDSTONE		996	113.3	117.0	3.1				
					Light grey dolomitised carbonate mudstone.		997	117.0	120.6	2.0				
					ie. as for 105.0-113.3, but now totally									
					dolomitised.									
					Strongly to totally decomposed toward 120.6m									
					where interval is light grey sandy dolomite									
					mud.									
					Contact between dolomite mudstone and									
					lime mudstone at 113.3m is sharp, marked by									

032167



DRILL CORE LOG

TENEMENT NAME..... No. ....

PLAN - MAP REFERENCE.....

CO-ORDINATES..... AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH..... HOLE No. 26-107

RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH		Core Rec. (M)	Core Size	Grain Size	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)					
om (M)	To (M)										DRILL RUNS					
										Zn%	Pb%	From	To	REC	RCR	
0.4	142.6	1.7	HQ	5	GOSSANOUS CLAY BRECCIA. Mottled yellow, red and purple gossanous clay zone, with angular ferruginous fragments and quartz grit.		3908236	140.4	142.6	1.7			139.5	142.5	2.3	5
													144.7	2.2	5x	
													145.5	0.6	5	
													148.5	3.05	5	
												REDUCED TO NQR AT 150.5	150.5	1.8	5	
2.6	144.2	1.6	HQ	5x	CLAY BRECCIA Mottled light and dark grey clay zone with angular clasts up to 50mm across of partly to totally decomposed laminated carbonate. Traces of disseminated py + one grain of galena.		237	142.6	144.2	1.6			151.5	0.85	↑	
													152.2	0.45		
													154.5	2.0		
													157.5	3.05		
													160.5	3.0		
													163.0	2.55		
+2	154.55	9.2	HQ NQR	5x	GOSSANOUS CLAY BRECCIA. As for 140.4 - 142.6 but becoming more clay dominant toward 154.55m. Reduce to NQR at 150.5m.		238	144.2	146.3	1.85			164.0	1.25		
							239	146.3	148.4	2.1			166.5	1.75		
							240	148.4	150.5	1.9			167.9	1.4		
							241	150.5	152.5	1.55			169.5	1.6	↓	
							242	152.5	154.55	1.8			172.0	2.2	5	
4.55	164.9	10.05	NQR	5	CLAY Dark grey to black strongly carbonaceous plastic clay.		243	154.55	156.6	2.0	12.5	7.9	173.8	1.9	4F	
							244	156.6	158.7	2.2	20.0	9.5	175.0	1.15	3F	
							245	158.7	160.8	2.1	17.4	12.2				
							246	160.8	162.9	2.15	5.6	4.3				
4.9	171.2	6.0	NQR	5	TRANSITION TO MOINA SANDSTONE Dark grey medium grainsize massive quartz sandstone with minor zones of dark grey carbonaceous clay. Minor disseminated py throughout, no. 5%.		247	162.9	164.9	1.6						
							248	164.9	167.0	2.0						
							249	167.0	169.1	2.1						
							250	169.1	171.2	1.9						
1.2	175.0	3.75	NQR	4F	MOINA SANDSTONE White to light grey medium grainsize, well sorted massive quartz sandstone.		251	171.2	175.0	3.75						
	EOH															
END OF HOLE 175.0 m.																

69

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CRA EXPLORATION PTY. LIMITED  
DRILL-HOLE SUMMARY LOG

EL NAME: ZEEHAN 4  
EL NUMBER: EL38/89  
DATE DRILLED: NOV 1993  
LOGGED BY: RGP

HOLE NAME: DD93 ZG 209  
PROSPECT: GRIEVES

AMG EAST: \_\_\_\_\_  
AMG NORTH: \_\_\_\_\_  
RL: \_\_\_\_\_

GRID EAST: 61198  
GRID NORTH: 47802  
TOTAL DEPTH: 124.2 m

DEPTH	AZIM. ( <del>MAG</del> ) AMG	INCLIN.
0	145°	-50°
50	143°	-50
100	146°	-51
<del>100</del>	<del>146</del>	<del>50</del>

**OBJECTIVES OF HOLE:**

To test for primary stratabound mineralisation at limestone/quartzite contact beneath well air-core hole intersected 16m @ 136% Zn.

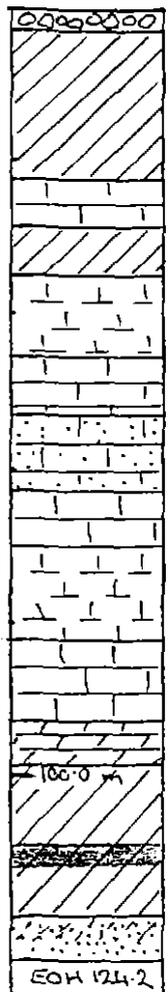
**LITHOLOGICAL SUMMARY:**

DFROM	DTO	COMMENTS
3	35.1	CLAYS
35.1	45.8	FINELY LAMINATED LIME MUD
45.8	53.4	WISPY BANDED LIME MUD
53.4	62.9	CALCARENITE
62.9	69.95	WISPY BANDED LIME MUD
69.95	82.4	FINELY LAMINATED LIME MUD
82.4	93.1	WISPY BANDED LIME MUD.
93.1	98.6	ANKERITE ALTERED CARBONATE
98.6	118.65	CLAY
118.65	124.2	MOINA SANDSTONE

**MINERALISATION SUMMARY:**

DFROM	DTO	COMMENTS
109.5	111.8	2.3m @ 1.4% Zn. <del>1.4</del>

**CONCLUSIONS:**



GRIEVES

C.R.A. EXPLORATION PTY. LIMITED  
DRILL CORE LOG

SHEET No. 1 of 5  
No. EL 38/89

TENEMENT NAME ZEEHAN 4

PLAN - MAP REFERENCE

CO-ORDINATES 61198 E 47802 N AZIMUTH 145° AMG DRILLERS D.D. TAS COMMENCED 25/11/93 DEPTH 124.2 m HOLE No DD9376209  
RL COLLAR INCLINATION -50° DRILL TYPE LY38 COMPLETED 1/12/93 CASING LEFT NIL DPO No(s)

DEPTH		Core Rec. (M)	Core Size	Rd Core Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)			
From (M)	To (M)										DRILL RECS			
										From	To	Rec	Rd	
0	3.0				PRECOLLAR - NO CORE						0	3	-	5
3.0	9.2	5.2	HQ	5	CLAY Yellow-grey ferruginous clays. Looks slightly gossanous after sulphide. Very light, friable + spongy. Weak foliation (Sp?) preserved. Dry. eg. 3.5m Fol. & CA 50° 6.5m " " 70°		390052	3.0	6.1	2.35				
							253	6.1	9.2	2.85	1.60	7.5	1.05	2.55
												10.5	2.85	
												13.5	1.55	
												16.5	2.0	
												19.5	2.5	
												22.5	2.5	5
9.2	13.5	2.8	HQ	5	CLAY Light grey to grey clays. Very light, friable and spongy, but not Fe-stained or gossanous. Minor narrow bands - disseminations of py, 2% of interval. Dry.		254	9.2	13.5	2.8				
												25.1	2.5	4F
												25.4	0.3	4F
												26.3	-	-
												28.5	0.7	4x
												31.5	~1.0	5
												34.5	~1.7	5
												37.3	~3.4	3F
13.5	22.4	~7	HQ	5	CLAY Dark grey to black carbonaceous clays. Minor 50cm light grey clay - fresh carbonate band at 20.8-21.3m. Transition to limestone at 22.4 is marked by very light weight light grey to grey clay-weathered carbonate. Wet.		255	13.5	16.5	~2				
							256	16.5	19.5	~2.5				
							257	19.5	22.4	~2.5				
22.4	28.5	3.5	HQ	4F	LIME MUDSTONE Variable unit of light grey to dark grey carbonate made up of massive grey medium grain size limestone, very fine grained light grey carbonate mud, and nodular to wispy lime mudstone.		258	22.4	28.5	3.5				
28.5	35.1	~3.5	HQ	5	CLAY Dark brownish grey wet sloppy clay.		259	28.5	31.5	~1				
							260	31.5	35.1	~2.5				

C.R.A. EXPLORATION PTY. LIMITED  
 DRILL CORE LOG

SHEET No. 2 of 5

TENEMENT NAME..... No.....

PLAN - MAP REFERENCE.....

CO-ORDINATES..... AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH..... HOLE No. ZG 209

RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH		Core Rec. (M)	Core Size	Roc. Core Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)								
From (M)	To (M)										DRILL RUNS								
											From	To	REL	REL					
35.1	43.0	7.9	HQ	3F	LIME MUDSTONE Light grey very fine grained lime mud with small (0.5-3mm) white carbonate specks (infilling contraction cavities?). Several zones of brecciated with light grey clay matrix eg 38.2-38.8, 40.5-40.8, 41.5-41.8, 42.2-42.4m.		3908261 262	35.1 39.0	39.0 43.0	3.95 3.95									
43.0	45.8	2.8	HQ	3F	LAMINATED LIME MUDSTONE Light grey very fine grained lime mudstone with 0.1-1mm (style?) laminations, approximately planar but slightly irregular.		263	43.0	45.8	2.8									
45.8	53.4	5.8	HQ	2F	WISPY BANDED LIME MUDSTONE Banded grey and dark grey. Grey medium grained limestone with irregular wispy bands of dark grey fine grained carbonate. Massive coral band at 50.0-50.4m. Light grey clay pug bands at 46.75-47.2m and 52.1-53.4m (+core loss). 49m So (fossil band) <del>2</del> $\delta$ -CA = 65°		264 265	45.8 49.6	49.6 53.4	3.1 2.7									
53.4	62.9	8.2	HQ	3F	CALCARENITE Grey medium to coarse grained calcarenite. Minor dark grey wispy bands of lime mud. Several zones of clay pug and brecciated limestone, particularly 56.5-60.0m, includes 70cm cavity. 60.6m So $\delta$ -CA = 65°		266 267	53.4 58.0	58.0 62.9	4.35 3.85									

032172



C.R.A. EXPLORATION PTY. LIMITED  
DRILL CORE LOG

SHEET No. 4 of 5

TENEMENT NAME..... No.....

PLAN - MAP REFERENCE.....

CO-ORDINATES..... AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH..... HOLE No. 2G 209

RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH		Core Rec. (M)	Core Size	RCQ Cyanide Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)									
From (M)	To (M)										Zn%				From	To	REC	RCQ		
98.6	102.1	3.5	HQ	5	CLAY		3908279	98.6	99.8	1.2										
					Black carbonaceous clay, mostly massive but locally shows foliation (relict bedding?) eg. 98.7m Fols $\delta$ -C.A = 75° Rare clumps and disseminations of pyrite ~1% of interval.		280	99.8	101.0	1.2										
							281	101.0	102.1	1.1										
102.1	112.45	9.1	HQ	5x	CLAY AND ANKERITE ALTERED CARBONATE		282	102.1	103.5	1.4										
					Dark grey with yellow tinges due to ankerite alteration.		283	103.5	104.6	1.0										
							284	104.6	105.7	1.0										
					Dominantly dark grey clay (carbonaceous) with of brecciated rubble of yellow, vuggy, totally ankerite altered carbonate.		285	105.7	107.0	1.2										
							286	107.0	108.25	0.95	1.0									
							287	108.25	109.5	1.0										
							288	109.5	110.7	1.05	1.1									
							289	110.7	111.8	1.1	1.7									
12.45	115.8	2.2	HQ	5	GROSSANOUS CLAY		290	111.8	112.45	0.35										
					Mottled orange-brown light grey and dark grey clay with irregular gatty patches of ferruginous grossanous material.		291	112.45	113.8	1.0										
							292	113.8	114.8	0.55										
							293	114.8	115.8	0.65										
115.8	117.9	1.9	HQ	5	CLAY		294	115.8	117.9	1.9										
					Light grey to white plastic clay. Appears like a clay-weathead shale?															
117.9	118.65	0.7	HQ	5	CLAY		295	117.9	118.65	0.7										
					Dark grey plastic carbonaceous clay.															
118.65	119.65	0.95	HQ	5	TRANSITION TO MOINA SANDSTONE		296	118.65	119.65	0.95										
					Dark grey carbonaceous sandy clay.															

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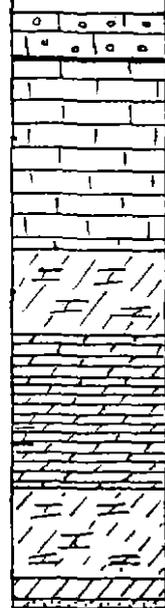
CRA EXPLORATION PTY. LIMITED  
DRILL-HOLE SUMMARY LOG

NO  
CORE

EL NAME: Zeehan 4 HOLE NAME: DD93ZG358  
EL NUMBER: EL38/89 PROSPECT: GRIEVES  
DATE DRILLED: 12/93  
LOGGED BY: Simon Maher

AMG EAST: \_\_\_\_\_ GRID EAST: 61200  
AMG NORTH: \_\_\_\_\_ GRID NORTH: 47690  
RL: \_\_\_\_\_ TOTAL DEPTH: 121.5m

DEPTH	AZIM. ( <del>MAG</del> )	INCLIN.
0	142° AMG	-50
50°	144	-49
100	144	-50



**OBJECTIVES OF HOLE:**  
Test Zinc mineralisation in the Gordon Limestone near the contact with the Moena Sandstone.  
Test for stratigraphic control on mineralisation within the Gordon Limestone in this "contact zone".

**LITHOLOGICAL SUMMARY:**

DFROM	DTO	COMMENTS
0	44	Drecollar - no core recovered.
44	49.5	Oolitic limestone.
49.5	61.5	Calc-arenite.
61.5	80.0	Decomposed calc-arenite. ] Banded lime mudstone.
80.0	85.65	Dark grey carbonaceous clay.
85.65	117.45	Dark grey "silty" and kaki (seratic?) fine sand/clay. Relict ankritic calc-arenite. } dolomitic
117.45	120.2	Banded dark grey/white carbonaceous clay. ↓
120.2	121.5	Quartzite (Moena Sandstone).

**MINERALISATION SUMMARY:**

DFROM	DTO	COMMENTS
74.6	85.65	minor ankritic alteration (rare).
85.65	98.1	weak ankritic alteration (particularly 91.5-95.35m).
98.1	105.6	minor zones of strongly ankritically altered carbonate.

**CONCLUSIONS:**

DRILL CORE LOG

TENEMENT NAME Zekora No. 12/93

CO-ORDINATES 61200  
47690 AZIMUTH 140° AMG DRILLERS DD Tas COMMENCED .....  
RL COLLAR ..... INCLINATION - 50° DRILL TYPE LY38 COMPLETED 8/12/93

PLAN - MAP REFERENCE .....  
DEPTH 121.5m HOLE No. DDA2ZG35E  
CASING LEFT nil DPO No(s) 77134

DEPTH		Core Rec. (M)	Core Size	RQ Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by .....)			
From (M)	To (M)										Drill Runs			
											From	To	REC	RQ
0	44				Pre-collar - no core recovery (Rollerbit)						0	44	-	?
74	49.5	4.65	HQ	4	Oolitic ± skeletal Limestone		3908298	44	49.5	4.65	44	46.5	1.95	2
					Proportion of oolites/micritic matrix/skeletal fragments (0-30%) vary. High oolite component between 45.0-49.5m.						46.5	49.5	2.7	4
					Nodular zones occur between 46.75-48.1m and 48.85-49.1m - Exsolution about fractures is probably responsible for nodular texture.						51.9	51.9	1.65	5
					Coarse black exsolution? seams common.						51.9	53.4	1.20	5
					44.9m ankerite blebs 1-2cm.						53.4	55.5	1.8	4
					Prominent fracturing 46.45-46.5m						55.5	58.5	2.5	4
					48.05-48.35m									
					48.65-48.85m									
19.5	57.7	6.3	"	4	Mottled light & dark grey calc-arenite		299	49.5	54.5	3.85				
					Light grey medium calc-arenite with dark grey exsolution? seams (commonly about microfractures)		300	54.5	59.5	4.45				
					Skeletal zones 52.2-52.75m									
					52.8-56.9m									
					Broken zone 49.5-53.35m									
					Strong foliation (shear) developed between 54.15-54.45m. - orientated sub ⊥ to C.I.A.									
57.7	58.5	0.8	"	4	Finely banded light and dark grey calc-arenite									
					mm. scale banding sub ⊥ to C.I.A.									

2/2/93

DRILL CORE LOG

TITLE MEN ME. No.

PLAN - MAP REFERENCE

CO-ORDINATES..... AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH..... HOLE No. DD937G358

RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH		Core Rec. (M)	Core Size	RQ Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)			
from (M)	To (M)										Drill Runs			
										From	To	REC	RQ	
8.5	61.5	2.9	HQ	4	Mottled light & dark grey calc-arenite		3914601	59.5	64.5	4.7	58.5	61.5	2.9	4
					Light grey medium calc-arenite with dark grey exsolution? seams (commonly about microfractures). Skeletal zone 59.1-59.25m						61.5	64.5	2.7	3
											64.5	67.5	2.9	4
											70.5	2.8	4	
											73.2	2.65	3	
											76.5	2.3	4	
1.5	74.6	2.36	"	4	Light grey brown decomposed calc-arenite		602	64.5	69.5	4.8	77.6	0.85	5	
					Rock is comprised of a soft fine light coloured "silty" or "hard clay" (CaCO <sub>3</sub> ) [after micrite?] material and dark grey, generally coarser crystalline seams.		603	69.5	72.5	2.85	79.3	0.85	5	
					62.1-62.7m Broken zone with black Fe? staining along partings.		604	72.5	74.6	2.1	79.8	0.3	5	
					63.4-64.5m, 65.25-65.5m, 66.0-66.4m, 73.0-73.5m Broken zones						80.5	0.5	5	
					69.0-69.15m mm scale banding - sub ⊥ to CLA.						82.5	0.3	5	
											84	1.5	5	
											85.5	1.5	5	
											88.5	2.2	5	
											"			
74.6	80.0	3.4	"	5	Weakly ankeritic decomposed calc-arenite		605	74.6	75.6	0.65				
					Light grey soft micrite (CaCO <sub>3</sub> ) with seams of dark grey coarser crystalline carbonate and minor seams/blobs of honey coloured ankerite? Micritic material frequently washed away - particularly 74.6-75.25m.		606	75.6	76.6	0.65				
							607	76.6	77.6	0.7				
							608	77.6	79.3	1.05				
							609	79.3	80.0	0.5				
30.0	85.65	3.75	"	5	Dark grey massive "sooty" fine carbonaceous "clay" with minor dark grey dolomitic calc-arenite fragments.		610	80.0	82.5	0.6				
					(no reaction with HCl - dolomite or highly carbonaceous)		611	82.5	84.0	1.5				
					80-82.5m poor recovery, predominantly rock fragments (clays washed away) - some weakly ankeritic.		612	84.0	85.5	1.5				
							613	85.5	86.7	1.0				

932178

DRILL CORE LOG

CO-ORDINATES..... AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH..... HOLE No. DD932G.358

RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH From (M)	To (M)	Core Rec. (M)	Core Size	RQ Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)							
											Drill Runs							
											From	To	REC	RQ				
5.65	98.1	10.05	HQ	S	Dark grey 'silty' clay with relict massive, medium grained, dark grey, dolomitic? calc-arenite - weakly ankaritically altered.  Prominent ankaritic alteration (heavy, honey coloured blebs/seams): 85.65-86.15m, 88.2m, 88.95m, 97.6m. 91.5-95.35m Principally calc-arenite / minor 'silty' clay. Interval is weak to moderately ankaritically altered. Minor quartz and carbonate veining; graphitic material lines partings.		614	86.7	88.5	1.45					88.5	90.9	1.85	5
								615	88.5	89.5	1.0					91.5	0.8	
								616	89.5	90.5	1.0					93.3	1.6	
								617	90.5	91.5	1.0					96.3	3.0	
									91.5	92.5	0.8					98.1	0.75	
								619	93.3	93.8	0.8					99.8	1.4	
								620	93.3	94.3	1.0					100.5	0.7	
								621	94.3	95.3	1.0					103.0	2.5	
								622	95.3	96.3	1.0					104.2	1.05	
								623	96.3	98.1	0.75					106.5	2.2	
8.1	105.6	5.95	"	S	Massive beige-kaki (senite?) and dark grey fine sand - minor relict honeycombed strongly ankaritic, dolomitic, calc-arenite.  Kaki (senite?) fine sand probably decomposed strongly ankaritic zones. Relict honeycombed, strongly ankaritic calc-arenite: 98.3m, 98.75m, 99.2m, 99.9m, 100.05m, 100.4m, 100.85m, 101.8-101.95m, 103-103.1m, 103.7-104m, 104.35m, 105.5-105.6m.		624	98.1	99.1	1.0								
								625	99.1	100.1	0.8							
								626	100.1	101.1	1.0							
								627	101.1	102.1	1.0							
								628	102.1	103.0	0.9							
								629	103.0	104.0	1.0							
								630	104.0	105.6	1.25							

932179

DRILL CORE LOG

TENEMENT NAME..... No.....

PLAN - MAP REFERENCE.....

CO-ORDINATES..... AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH..... HOLE No. DD9329358

RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH		Core Rec. (M)	Core Size	RQ Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)			
From (M)	To (M)										Drill Runs			
										From	To	REL	RG	
15.6	117.45		HQ	5	Beige-kaki massive to banded fine siltite? sand		631	105.6	106.5		106.5	109.5	3.0	5
							632	106.5	107.5			112.5	1.8	5
					108.8-111.4m carbonaceous dark grey "clay" seams		634	107.5	108.5			115.5	3.0	5
					117.0-117.45m banded carbonaceous dark grey "clay" (mm scale).		635	108.5	109.5			118.1	2.35	5
					No reaction with HCl acid		636	109.5	110.5			119.9	1.1	5
							637	110.5	112.5			121.5	1.15	5
							638	112.5	114.5					
							639	114.5	117.45					
17.45	120.2		"	5	Dark grey and white banded carbonaceous clay		640	117.45	118.6	H5				
					Banded (mm scale, sub- $\perp$ to CIA) white clay and dark grey carbonaceous (graphitic?) platy clay (aligned in banding). No reaction with HCl acid.		641	118.6	120.2	0.95				
					118.6-119.9m Broken quartzite interbeds									
20.2	121.5	0.95	"	4	Fine quartzite (Moena Sandstone)		642	120.2	121.5	0.8				
					Trace pyrite along partings, slickensides.									

032180

CRA EXPLORATION PTY. LIMITED  
 DRILL-HOLE SUMMARY LOG

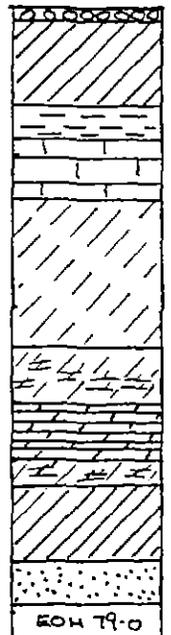
EL NAME: ZEEHAN 4  
 EL NUMBER: EL38/89  
 DATE DRILLED: Dec. 1993  
 LOGGED BY: RGP

HOLE NAME: JD93 ZG 359  
 PROSPECT: GRIEVES

AMG EAST: \_\_\_\_\_  
 AMG NORTH: \_\_\_\_\_  
 RL: \_\_\_\_\_

GRID EAST: 61269  
 GRID NORTH: 47805  
 TOTAL DEPTH: 79.0m

DEPTH	AZIM. ( <del>MAG</del> )	INCLIN.
0	143° AMG	-45
79m	148°	-44



**OBJECTIVES OF HOLE:**  
 To test for primary stratabound Zn mineralisation at 1st-ss contact.

**LITHOLOGICAL SUMMARY:**

DFROM	DTO	COMMENTS
0	13.0	PRECOLLAR (CLAYS?)
13.0	17.6	SHALE
17.6	25.5	LIME MUDSTONE
25.5	45.0	CARBONACEOUS DECOMPOSED CARBONATE
45.0	52.75	WEAKLY ANKERITE ALTERED CARBONACEOUS UNIT
52.75	59.9	ANKERITE ALTERED CARBONATE
59.9	63.5	ANKERITE ALTERED CARBONATE AND CLAY
63.5	73.5	CLAY
73.5	79.0	MOINA SANDSTONE

**MINERALISATION SUMMARY:**

DFROM	DTO	COMMENTS

**CONCLUSIONS:**

GRIEVES

DRILL CORE LOG

TENEMENT NAME... 22EH... 4... No... 8/89

CO-ORDINATES 61269E 47805N AZIMUTH 143° AMG DRILLERS DD TAS COMMENCED 10/12/93 DEPTH 79.0 m HOLE No. DD3 ZG359  
 RL COLLAR INCLINATION -45° DRILL TYPE LY38 COMPLETED CASING LEFT DPO No(s) T138

DEPTH		Core Rec. (M)	Core Size	RQ Class Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)				
From (M)	To (M)										DRILL RUNS				
											FR	TO	REC	RQ	
0	13	0			PRECOLLAR - No core.							0	13	-	-
13.0	15.0	1.3	HQ	4F	SHALE? Reddish purple fine grained, massive to weakly foliated unit. Does not fizz with HCl. Weathered		39114643	13.0	15.0	1.3		16.2	1.95	4F	
15.0	17.6	2.25	HQ	4F	SHALE? Light brown fine grained shale? (not limestone). Partly weathered. Minor carbonate bands. Core strongly broken and locally becciated.		644	15.0	17.6	2.25		19.5	3.25	4F	
17.6	25.5	7.7	HQ	3F	LIME MUDSTONE Light grey fine grs lime mud with wide irregular bands of massive med grs crystalline CaCO <sub>3</sub> . Strongly becciated to 19.5m.		645	17.6	21.5	3.85		22.5	2.9	2F	
21.5	25.5	4.0					646	21.5	25.5	3.85		24.5	1.9	3F	
25.5	45.0	17.3	HQ	5	CARBONACEOUS DECOMPOSED CARBONATE Dark grey to black. Fissile, foliated CaCO <sub>3</sub> rock that is almost decomposed to a clay. Grades toward massive clay with increasing depth. Unit has more of a gritty, crumbly texture in contrast to the plastic clays. Unit fizzes with HCl => CaCO <sub>3</sub> . Very fine dissemination throughout, although only minor. Minor beccia fragments of ankente altered carbonate.		647	25.5	27.5	1.95		26.4	1.85	4F	
							648	27.5	29.5	1.9		28.5	2.1	4	
							649	29.5	31.5	1.65		31.5	2.55	5	
							650	31.5	33.5	2.05		34.5	3.05	5	
							651	33.5	35.5	2.0		37.5	2.75	5	
							652	35.5	37.5	2.0		40.5	2.35	5	
							653	37.5	39.5	1.6		43.5	2.2	5	
							654	39.5	41.5	1.5		46.5	2.35	5x	
							655	41.5	43.5	1.45					
							656	43.5	45.0	1.2					



932184

CRA EXPLORATION PTY. LIMITED  
 DRILL-HOLE SUMMARY LOG

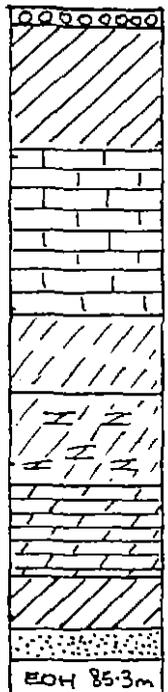
EL NAME: ZEEHAN 4  
 EL NUMBER: EL38/89  
 DATE DRILLED: DEC 1993  
 LOGGED BY: RG-P

HOLE NAME: DD93 ZG 360  
 PROSPECT: GRIEVES

AMG EAST: \_\_\_\_\_  
 AMG NORTH: \_\_\_\_\_  
 RL: \_\_\_\_\_

GRID EAST: 61268E  
 GRID NORTH: 47805N  
 TOTAL DEPTH: 85.3m

DEPTH	AZIM. ( <del>MAG</del> )	INCLIN.
0	143° <sup>AMG</sup>	-70°
85m	144°	-72.5°



**OBJECTIVES OF HOLE:**  
 To test primary - supergene secondary Zn mineralisation at the 1st-2nd contact.

**LITHOLOGICAL SUMMARY:**

DFROM	DTO	COMMENTS
0	19.1	PRECOLLAR - GRAVEL - CLAY
19.1	41.0	LIME MUDSTONE
41.0	51.0	CARBONACEOUS DECOMPOSED UNIT
51.0	62.7	DITO + WEAKLY ANKERITE ALTERED CARBONATE
62.7	74.75	ANKERITE ALTERED CARBONATE
74.75	81.6	CLAY
81.6	85.3	MOINA SANDSTONE

**MINERALISATION SUMMARY:**

DFROM	DTO	COMMENTS

**CONCLUSIONS:**

C.R.A. EXPLORATION PTY. LIMITED  
DRILL CORE LOG

GRIEVES

SHEET No. 1 of 3  
No. EL 38/8

TENEMENT NAME ZEEHAN H

PLAN - MAP REFERENCE

CO-ORDINATES 61268 E 47805 N AZIMUTH 143 AMG DRILLERS DD TAS COMMENCED 12/93

DEPTH 85.3 m HOLE No DD932626

RL COLLAR INCLINATION -70° DRILL TYPE LY38 COMPLETED 15/12/93

CASING LEFT DPO No(s) 71138

DEPTH		Core Rec. (M)	Core Size	Rd Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)			
From (M)	To (M)										DRILL RUNS			
											From	To	Rec	Rd
0	15.0	-			PRECOLLAR - No Core						0	15	-	-
15.0	19.1	2.6	HQ	5	CLAY Dark brown-grey soft wet clay.		3914673	15.0	19.1	2.6	15	20.0	2.3	5
19.1	38.0	16.2	HQ	2F/4F	LIME MUDSTONE Banded grey and dark grey. Very fine grained grey CaCO <sub>3</sub> mud with irregular bands of med g/s crystalline CaCO <sub>3</sub> . Crystalline material looks to be infilling cavities (shrinkage/dewatering?). Between 22.0-23.0 are tubes (?) 1-2mm diameter + 10mm long infilled by calcite - worm burrows or solitary corals? Very light brown dolomite vein between 29.5-31.3m. Core quite competent to 29.5m, then strongly fractured + locally brecciated to 38m. Core also becomes decomposed between 29.5-38.0m. 19.1m S <sub>0</sub> - C.A. $\angle$ 40° 22.5m S <sub>0</sub> - C.A. $\angle$ 45°		674	19.1	24.0	4.05				
							675	24.0	29.0	4.45		26	2.55	2F
							676	29.0	34.0	4.45		28.7	2.5	3F
							677	34.0	38.0	3.25		30	1.05	3F
												32	1.95	4V
												33	0.9	4F
												35	1.6	4F
												36.6	1.3	4F
												38	1.15	4F
												39.5	1.25	5
												41	1.3	
												42.1	1.0	
												42.8	0.7	
												44	1.0	
												47	1.55	
38.0	41.0	2.65	HQ	5	DECOMPOSED LIME MUDSTONE As for 19.1-38.0m but strongly decomposed to a clay rock. Relict textures still visible. Gradational boundaries.		678	38.0	41.0	2.65		50	2.85	
												51.5	1.5	5
41.0	51.0	8.0	HQ	5	DECOMPOSED CARBONACEOUS UNIT. Dark grey to black locally foliated, strongly carbonaceous rock. Reacts with acid $\Rightarrow$ CaCO <sub>3</sub> , but very shaly in appearance. Below 48m, unit has an almost brecciated appearance with harder fragments of carbonate		679	41.0	43.0	1.85				0
							680	43.0	45.0	1.85				0
							681	45.0	47.0	0.45				0
							682	47.0	49.0	1.9				0
							683	49.0	51.0	1.95				0

C.R.A. EXPLORATION PTY. LIMITED  
DRILL CORE LOG

SHEET No. 2 of 3

TENEMENT NAME..... No.....

PLAN - MAP REFERENCE.....

CO-ORDINATES..... AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH..... HOLE No. 2G360

RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH		Core Rec. (M)	Core Size	RCR Change Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....) DRILL RUNS				
From (M)	To (M)										From	To	REC	RR	
41.0	51.0				In black carbonaceous matrix. <del>Be</del> Traces of fine disseminated py throughout.							51.5	53	1.3	5
	CTD												55.5	2.2	5X
													59	3.3	1
51.0	62.7	10.65	HQ	5X	CARBONACEOUS DECOMPOSED UNIT + MINOR ANKERITIC CARBONATE		3914684	51.0	53.0	1.8			62	2.8	
					Dark grey + light yellow. Mostly dark grey to black decomposed carbonaceous material but with common brecciated fragments of light yellow-grey, massive, weakly ankeritic carbonate.		685	53.0	55.0	1.8			65	2.6	
					Gradational contact at 51m.		686	55.0	57.0	1.8			66.5	1.1	
							687	57.0	59.0	1.9			68	1.3	
							688	59.0	61.0	1.9			71.1	2.45	1
							689	61.0	62.7	1.45			74	2.6	5X
													76.8	2.7	5
													80	3.05	5
62.7	74.75	10.0	HQ	5X	ANKERITIC CARBONATE + CARBONACEOUS CLAY.		690	62.7	65.0	2.05			82.9	2.1	5
					Similar to 51.0-62.7, but brecciated fragments of ankeritic carbonate are dominant.		691	65.0	67.0	1.5			85.3	2.05	3P
					Ankerite alteration is strong to total, although altered carbonate is not spongy.		692	67.0	69.0	1.7					
					Colour is yellow and dark grey.		693	69.0	71.1	1.65					
					Grossanous banded yellow-red zone at 72.7-73.0 and 74.6-74.75		694	71.1	73.0	1.55					
					10% banded py between 74.4-74.75m.		695	73.0	74.75	1.55					
					72.7m So - C.A. $\delta$ 50°										
74.75	81.6	6.55	HQ	5	CLAY		696	74.75	76.8	2.0					
					Banded light grey + dark grey clay (plastic).		697	76.8	79.2	2.3					
					Minor narrow light grey to white sand/silt bands.		698	79.2	81.6	2.25					
81.6	84.0	1.45	HQ	4B	SILTSTONE (MOWA SANDSTONE)		699	81.6	84.0	1.45					
					Light grey well laminated silt to fine sand. Contact with clay zone is marked by disaggregated sand. Lot of core loss.										
					81.6m So - C.A. $\delta$ 65°										

932185



932188

CRA EXPLORATION PTY. LIMITED  
DRILL-HOLE SUMMARY LOG

EL NAME: ZEEHAN 4  
EL NUMBER: EL 38/89  
DATE DRILLED: JAN 94  
LOGGED BY: L.T.V

HOLE NAME: DD94ZG361  
PROSPECT: GRIEVES

AMG EAST: \_\_\_\_\_  
AMG NORTH: \_\_\_\_\_  
RL: \_\_\_\_\_

GRID EAST: 61253  
GRID NORTH: 47914  
TOTAL DEPTH: 99.0m

DEPTH	AZIM. (MAG)	INCLIN.
0	130	-45°
50	131	-45°
99	132	-44°

**OBJECTIVES OF HOLE:**

TO TEST FOR PRIMARY STRATABOUND MINERALISATION AT BASE OF GORDON LIMESTONE ADJACENT TO GRIEVES FAULT.

**LITHOLOGICAL SUMMARY:**

DFROM	DTO	COMMENTS
16	23.0	LIME MUDSTONE - SILTSTONE
23.0	28.5	LIME MUDSTONE
28.5	56.0	LIME SILTSTONE - FINE GR. CALCARENITE
56.0	59.8	HEMATITIC - DOLOMITIC CARBONATE
59.8	72.7	OOLITIC CARBONATE
72.7	73.1	CARBONATE BRECCIA
73.1	78.6	OOLITIC CALCARENITE
78.6	82.0	UNCONSOLIDATED SAND
82.0	85.0	ANKERITIC, SULPHIDIC CLAY
85.0	93.0	SANDY SULPHIDIC CLAY
93.0	94.0	INTERBEDDED CLAY - SANDSTONE
94.0	99.0	NOINA SANDSTONE

**MINERALISATION SUMMARY:**

DFROM	DTO	COMMENTS

**CONCLUSIONS:**



C.R.A. EXPLORATION PTY. LIMITED  
DRILL CORE LOG

SHEET No. 2/3

TENEMENT NAME..... No. ....

PLAN - MAP REFERENCE.....

CO-ORDINATES..... AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH..... HOLE No. 26

RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH		Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)						
From (M)	To (M)										Fr	To	REC	RC			
56.0	59.8				HEMATITIC - DOLOMITIC CARBONATE.		625	63.0	64.4								
					ORANGE/RED HEMATITIC CARBONATE. ABUNDANT WHITE		626	64.4	66.5								
					DOLOMITE RHOMBS CEMENTED BY HEMATITIC CRYSTALLINE CO <sub>2</sub> .												
					[ROCK EFFERVESCES WHEN SCRATCHED], INTERVAL CONTAINS												
					COARSE GALENA MINERALISATION PRESENT AS SPARSELY												
					DISTRIBUTED 'CLOTS'. MINOR DISSEMINATED PYRITE CUBES.												
59.8	63.0				DOLOMITIC CARBONATE		627	66.5	68.9								
					LIGHT PINK-GREY, WEAKLY HEMATITIC DOLOMITIC		628	68.9	70.1								
					CARBONATE WITH CALCITE COMPONENTS DOLOMITISED.		629	70.1	72.0								
63.0	72.7				DOLOMITIC CARBONATE (HIGHLY FRAGMENTED UNIT).		630	72.0	74.0								
					LIGHT GREY TO PINK-WHITE DOLOMITIC CARBONATE, MINOR												
					HEMATITIC ALTERATION. FRAGMENTED TO A 1-2cm												
					GRAVEL.												
72.7	73.1				CARBONATE BRECCIA												
					ANGULAR FRAGMENTS (OF ABOVE UNIT?) CEMENTED BY												
					A PARTIALLY DECOMPOSED DOLOMITIC <sup>SIDERITIC?</sup> CEMENT. POSSIBLE												
					MASS-DEBRIS FLOW - BRECCIATED MATERIAL HAS SHARP												
					CONTACT WITH MASSIVE, UNBRECCIATED MATERIAL.												
73.1	78.6				DOLOMITIC CALC-ARENITE		631	74.0	76.0								
					LIGHT GREY - PALE PINK DOLOMITIC CO <sub>2</sub> , BECOMING		632	76.0	77.3								
					PARTIALLY RECRYSTALLISED (DOLOMITES LESS DISCERNABLE)		633	77.3	78.6								
					TOWARDS BASE OF UNIT.		634	78.6	80.6								
							635	80.6	82.4								
78.6	82.0				UNCONSOLIDATED SAND		636	82.4	83.9								
					DARK GREY SAND & GRIT. DOES NOT EFFERVESCE W		637	83.9	85.4								
					PRESENCE OF DILUTE HCl.												

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C.R.A. EXPLORATION PTY. LIMITED  
DRILL CORE LOG

SHEET No. 3/3

TENEMENT NAME..... No.....

PLAN - MAP REFERENCE.....

CO-ORDINATES..... AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH..... HOLE No. 263

RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH		Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)			
From (M)	To (M)										Fr	To	REC	RO
82.0	85.0				ANKERITIC SULPHIDIC CLAY		3917637	83.9	85.4		83.9	85.4	1.3	5F
					LIGHT GREY TO YELLOW GALENA - AND PYRITE - RICH SANDY CLAY. MINERALISATION PRESENT AS DISSEM.							87.2	1.8	5F
					VERY FINE GRAINED EUBEDRA, 40cm INTERBED OF POROUS, LEACHED CREAM YELLOW-GREY CALCARENITE.							88.4	1.2	5F
												91.4	3.0	5
												93.0	1.6	5
												94.4	1.3	5
85.0	93.0				SANDY SULPHIDIC CLAY		638	85.4	87.2			95.8	1.3	2F
					DARK GREY SANDY CLAY CONTAINING V-FINE GRAINED PYRITE & GALENA DISSEMINATIONS. CLAY IS RELATIVELY COMPETENT; IE: HAS CORED WELL.		639	87.2	89.0			97.4	1.5	2B
							640	89.0	91.0			98.2	0.8	2F
							641	91.0	93.0			99.0	0.8	2
93.0	94.0				INTERBEDDED CLAY - SANDSTONE		642	93.0	94.4					
					TRANSITIONAL ZONE BETWEEN DARK GREY CLAY AND MEDIUM GRAINED WHITE SANDSTONE. INTERVAL CONTAINS 25cm ZONE OF WEATHERED DARK GREY CARBONATE SANDSTONE BEFORE GRADING INTO MOINA SANDSTONE OVER A 1m BAND.									
94.0	99.0				MOINA SANDSTONE		643	94.4	96.0					
(E.O.H)					MASSIVE, LIGHT GREY - WHITE SILT TO FINE - SANDSTONE. NARROW, 1cm MUDDY INTERBEDS OCCUR @ ~ 30-50cm SPACING. CONTAINS MINOR SOLUTION CAVITIES. TOP OF INTERVAL (94-95m) MORE WEATHERED → SEMI-CONSOLIDATED SAND. TRACE OF PYRITE (VEIN).		644	96.0	99.0					E.O.H.

161266

CRA EXPLORATION PTY. LIMITED  
DRILL-HOLE SUMMARY LOG

EL NAME: ZEEHAN 4 HOLE NAME: DD94 ZG362  
 EL NUMBER: FL 38/39 PROSPECT: GRIEVES  
 DATE DRILLED: JAN 1994  
 LOGGED BY: T.C. MOODY

AMG EAST: \_\_\_\_\_ GRID EAST: \_\_\_\_\_  
 AMG NORTH: \_\_\_\_\_ GRID NORTH: \_\_\_\_\_  
 RL: \_\_\_\_\_ TOTAL DEPTH: 99.2

DEPTH	AZIM. (MAG)	INCLIN.
0	142 AMG.	-60
50	144	-62
98	142	-63

OBJECTIVES OF HOLE:

LITHOLOGICAL SUMMARY:

DFROM	DTO	COMMENTS
0	15	NOT RECOVERED/CORED. GORDON LIMESTONE
15	26	CALCAREOUS CLAY & CALC-LUTITE-SILTITE.
26	43.2	DOLOMITIC CLAY, LUTITE-SILTITE
43.2	54.0	GRITTY CLAY & RECRYSTALLISED ANKERITIC GRANSTONE.
54.0	80.0	ANKERITIC-(DOLITIC) ALTERED LIMESTONE.
80.0	88.0	CLAY;
88	97.9	SANDY CLAY (MOINA SANDSTONE TRANSITION).
97.9	99.2	MOINA SANDSTONE.

MINERALISATION SUMMARY:

DFROM	DTO	COMMENTS
30	43.2	MOSTLY DECOMPOSED LIMESTONE LOCALLY CONTAINING UP TO 50% PYRITE. STRONGLY ALTERED - SPONGY SIDERITIC SULPHIDIC; LOCALLY PEPPERED WITH 2° FINE WHITE SMITHSONITE/CERRUSITE?
43.2	54.0	LOCALLY ANKERITIC ALTERED - DECOMPOSED L.S.
54.0	80.0	STRONGLY ANKERITE REPLACED/ALTD. COOLITIC L.S.
80.0	83.0	SULPHIDIC - ? SIDERITIC STR. DECOMPOSED ALTD L.S. ? MINERALIZED.

CONCLUSIONS:







DRILL CORE LOG

U.S. GEOLOGICAL SURVEY

PROJECT NAME: [REDACTED] 4 N 20/67

CO-ORDINATES: 61258 E 48008 N AZIMUTH: - DRILLERS: DD TAS COMMENCED: 2/2/94 DEPTH: 129.6 m HOLE NO: DD94 ZG363  
 RL COLLAR: INCLINATION: - 90° DRILL TYPE: LY38 COMPLETED: 9/2/94 CASING LEFT: - DPO No(s):

PLAN - MAP REFERENCE: [REDACTED]

DEPTH		Core Rec. (M)	Core Size	STRUCTURAL Geologic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by [REDACTED])			
From (M)	To (M)										DRILL RUNS			
										From	To	REC	RR	
0	24.0			5W	NO CORE - precollar. (Gravel - clays?)						0	24	-	-
												25.2	0.6	5W
												26.6	0.95	5W
24.0	33.3	3.55	HQ	5W	WEATHERED LIMESTONE AND CLAYS. Light grey. Mixed zone of broken, strongly weathered limestone and clay.		3984301	24.0	29.0	2.3		29	0.75	4W
							302	29.0	33.3	1.25		30.5	0.75	5W
												32	0.25	5W
												33.3	0.25	5W
33.3	39.5	2.75		5W	LIME MUDSTONE Gray wispy banded lime mudstone. Very fine grained lime mud, with darker + coarser grained crystalline CaCO <sub>3</sub> filling irregular (wispy) voids? Strongly weathered with fine gls mud preferentially weathered out leaving the wispy crystalline framework.		303	33.3	37.2	1.25		35	0.3	5W
							304	37.2	39.5	1.5		36.1	0.5	4W
												37.2	0.45	5W
												38	0.45	5W
												39.5	1.05	5W
												40.2	0.25	5W
												41	0.3	4F
												41.3	0.2	4F
39.5	45.4	2.3		LF	WEAKLY ANKERITE ALTERED LIME MUDSTONE. Yellow grey. wispy banded lime mud similar to 33.3-39.5, but with the xite wisps partly to totally replaced by yellow ankerite. Remainder of rock is partly to totally recrystallized gray to dark gray fine-med gls carbonate, mostly calcareous. Alteration increased in intensity toward 45.4m.		305	39.5	41.3	0.75		42.4	0.65	4F
							306	41.3	43.8	1.1		43.8	0.45	5X
							307	43.8	45.4	0.45		45.4	0.45	1
												47	0.55	1
												49.1	0.3	1
												51.3	0.9	1
												53	0.8	1
												54.5	1.15	1
45.4	81.3	20.75		5	TOTALLY ANKERITE ALTERED CARBONATE, ANKERITIC CLAYS AND CARBONATE SANDS, CARBONACEOUS CLAYS. Mixed zone of yellow, gray and dark gray material, variably ankeritic + carbonaceous strongly to totally altered.		308	45.4	47.0	0.55		57.5	0.7	3F
							309	47.0	49.1	0.3		59	1.45	5
							310	49.1	51.3	0.9		60.6	1.05	5
							311	51.3	53.0	0.8		62	0.55	5
							312	53.0	54.5	1.15		63	0.5	5
							313	54.5	56.0	0.2		63.8	0.7	4X
							314	56.0	57.5	0.7		65	1.1	4

000100

DRILL CORE LOG

TENEMENT NAME..... No.....

PLAN - MAP REFERENCE.....

CO-ORDINATES..... AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH..... HOLE No. **26-363**

RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH		Core Rec. (M)	Core Size	STRAIGHT Core Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)							
From (M)	To (M)										DRILL RUNS							
											FR	TO	REC	ROR				
5.4	81.3		HQ		Ankerite altered carbonate is dense, massive yellow-grey to dark grey rock. May contain visible sphalerite? especially with incr depth?		3984315	57.5	59.0	1.45					65	67.7	1.95	4
	CTD				Ankeritic clay + sand may be a decomposed version of the massive to spongy ankerite carbonate. Yellow grey.		316	59.0	60.6	1.05						69.5	1.7	4
					Carbonaceous clays, grey to dark grey, are usually partly ankeritic.		317	60.6	63.0	1.05						70.3	0.6	5
					All zones are variably intermixed with approximately equal proportions of each.		318	63.0	65.0	1.8						72.5	2.05	5
					Core is almost all incompetent with no zones structurally sound. Fractured, brecciated, rubble or clay rich.		319	65.0	67.7	1.95						73.4	0.95	5x
							320	67.7	69.5	1.7						76.1	0.9	5x
							321	69.5	72.5	2.65						77	0.4	5x
							322	72.5	73.4	0.95						77.6	0.45	4F
							323	73.4	76.1	0.9						78.4	0.7	3F
							324	76.1	77.6	0.85						78.9	0.25	4F
							325	77.6	78.9	0.95						79.8	0.9	5x
							326	78.9	79.8	0.9						80.8	0.65	3F
							327	79.8	81.3	0.85						82.3	1.2	5
																83.4	1.2	1
31.3	89.85	825	5		CARBONACEOUS CLAY.		328	81.3	83.4	2.1						84.2	0.85	
					Dark grey massive clay, with rounded + sub-rounded gtz sand fragments up to 5mm in size. Sand grains are abundant (20-40% of interval) between 81.3 to 84.0, but become finer and less common toward 89.6m.		329	83.4	85.5	2.05						85.2	0.9	
							330	85.5	87.7	2.0						88.2	2.75	
							331	87.7	89.85	2.1						90.6	2.4	
																92	1.2	
																92.3	0.3	
																95	2.65	
39.85	98.6	7.1	5		GOSSANOUS CLAY.		332	89.85	92.0	1.95						97.2	1.15	
					Yellow-red ferruginous clay, looks gossanous. Contains gzt and bands of ironstone.		333	92.0	94.2	2.15						98	0.3	
					massive		334	94.2	96.4	1.7						99.7	1.85	
							335	96.4	98.6	1.3						101	1.25	
																102.7	1.7	
18.6	124.9	21.45	5		CLAY		336	98.6	101.0	1.35						104	1.2	
					Grey to dark grey clay, partly carbonaceous. Becomes sandier with increasing depth, and included narrow dark grey sandstone bands.		337	101.0	103.0	1.95						104.3	0.15	
							338	103.0	105.0	1.9						106	1.8	
							339	105.0	107.0	1.7						108	1.35	
							340	107.0	109.0	1.6						110	1.85	5

332195



APPENDIX 4:

RELOGGED EZ DIAMOND DRILL HOLE LOGS



C.R.A. EXPLORATION PTY. LIMITED  
DRILL CORE LOG

SHEET No. 1 of 2  
No.

EZ DDH 2G1010

TENEMENT NAME.....

CO-ORDINATES 60915E/47565N AZIMUTH 125° MAG DRILLERS..... COMMENCED 19.5.88 DEPTH 170.2m HOLE No. 2G1010

RL COLLAR 150m INCLINATION 60° DRILL TYPE..... COMPLETED 25.5.88 CASING LEFT..... DPO No(s).....

DEPTH		Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)										
From (M)	To (M)																				
16.0	30.3				<p>CALC SILTITE.</p> <p>Mid-pale grey with dark grey areas, locally oxidised-decomposed. Onchalitic near base of interval &amp; possibly fossiliferous</p>	<p>Minor-irregular calcite veining weak siderite along some fractures and vugs. patchy pervasive-weakankerite Mts (21-333)</p>															
30.3	35.6				<p>CALC-LUTITE.</p> <p>Mid-pale grey with some dark grey bands: minor stylolites. Minor thin bands of dk grey calc-siltite.</p>																
35.6	38.3				<p>Onchalitic LIMESTONE.</p> <p>Dark grey partly decomposed carbonaceous with onchalites to 2cm. weakly stylolitic.</p>		3984202	37	38.3												
							203	38.3	42.0												
							204	42.0	44.4												
38.3	39.0				<p>CALC-LUTITE + SILTITE.</p> <p>Mostly mid grey decomposed sulphidic poorly indurated calcareous clay-dolomitic in part. Minor competent sections with mid grey calc siltite and lower dark grey bands and irregular bands.</p>	<p>Weakly dolomitised/decalc-onated in decomposed l-s. Minor white calcite veins.</p>	205	44.4	46.4.												
39.0	42.0				<p>CALC SILTITE-LUTITE.</p> <p>Mid grey calc/white with lesser dark grey wisps/bands. Rare fossil debris bands</p>	<p>Minor coarse sparry calcite veins.</p>															
42.0	46				<p>Moss CLAY + CALC-DOL LUTITE.</p> <p>Mostly mid-dark grey sulphidic carbonaceous clays, calcareous-dolomitic + locally brown stained calcareous + dolomitic: rare fossil debris bands (brachiopods, molluscs).</p>	<p>Brown stain due to ?kerogen/organic residue, patchy dolomitisation.</p>															

032201













C.R.A. EXPLORATION PTY. LIMITED  
DRILL CORE LOG

SHEET No. 1 of 2  
No. ....

EZ DDH ZG1015

TENEMENT NAME.....  
PLAN - MAP REFERENCE.....

CO-ORDINATES 609756/48399N AZIMUTH 110° DRILLERS..... COMMENCED 20.1.89 DEPTH 177.6m HOLE No. ZG1015  
RL COLLAR..... INCLINATION -60° DRILL TYPE..... COMPLETED 31.1.89 CASING LEFT..... DPO No(s).....

DEPTH		Core Rec. (M)	Core Size	Graphical Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)											
From (M)	To (M)																					
87.7	90.9				<p>CALC LUTITE + CALC SILTITE-ARENITE. Mid-pale grey calc lutite with irregularly banded/blebs of mid-dark grey calc siltite - fig. calc arenite (Carbonaceous). Styolitic, locally leoturbated. (? Whispy-banded unit).</p>	<p>Minor white calcite veinlets + Mn/graphitic cleavage surfaces. Weak spaced cleavage 10°-C.A. 5°-60°-C.A.</p>																
90.9	99.3				<p>CALC LUTITE Pale grey, locally banded; local calcite replacement fossil fragments. Partly recrystallised. Partly reduced to rubble of decomposed clay.</p>	<p>Minor white + locally coarse sparry calcite veins weakly sideritic (95.1-95.3); Brown Carbonaceous heterogeneous residue on fracture @ 96m.</p>																
99.3	99.45				<p>CALC SILTITE-LUTITE. Mottled dark grey + pale grey</p>																	
99.45	103				<p>CALC LUTITE-CLAY. Pale grey strongly stylitic limestone + poorly indurated calcareous-sulphidic clay; possibly fossiliferous</p>	<p>Possibly sulphidic pyritic.</p>																
103	109.4				<p>CALC LUTITE-CLAY. Pale grey, locally recrystallised/pervasively altered.</p>	<p>Locally brecciated + weak cream Ankerite/Carbonate flooding; local solution brecciation and veining.</p>																
109.4	119.5				<p>CLAY-CALCAREOUS Mid grey locally sandy and containing angular white calcite fragments; Local Siderite/Kelx nodules. 5cm band of oolitic limestone at top of interval.</p>	<p>Strongly sulphidic in part; sideritic locally; may contain Ankerite grains in sandy clay.</p>	8917692	109.6	110.8													
							693	110.8	112.7													
							694	112.7	115.7													
							695	118.2	119.5													

932208











C.R.A. EXPLORATION PTY. LIMITED  
DRILL CORE LOG

SHEET No. 1  
No.

EZ DDH ZWG 25

TENEMENT NAME.....

PLAN - MAP REFERENCE.....

CO-ORDINATES 61, 305 E 47300N AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH 24.2m HOLE No. ZWG-25

RL COLLAR..... INCLINATION -90° DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH		Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)											
From (M)	To (M)																					
13	16.85				<p>CALC-DOL LUTITE. Dark-mid grey limestone, locally dolomitic; some has a mottled appearance and carbonaceous.</p>	<p>Weakly siderite-ankerite altered (pervasive), with the core oxidising to a brown colour. (14.3-16.85m).</p>	3984224	14.3	16.85													
16.85	22.6				<p>CALC-LUTITE. Mid grey with algal lamination grading to massive stylolitic mid-dark grey carbonaceous limestone; Brecciated in part (diagenetic-solution). Large colonial corallite near base.</p>	<p>CAVITY 20.9-22.6m.</p>																
22.6	24.2				<p>CALC-LUTITE-SILTITE. Mid grey massive stylolitic calcareous mudst-siltite; locally carbonaceous or carbonaceous bands and stylolites. Carbon residues occur on some stylolite fractures.</p>	<p>Local mottling and weak siderite-ankerite flooding.</p>	3984225	22.6	24.2													

932214

APPENDIX 5:

XRD AND SEM MINERALOGICAL STUDIES

**CRA  
ADVANCED TECHNICAL DEVELOPMENT**

Melbourne

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**THE MINERALOGY OF A TASMANIAN RESOURCE**

---

**PROJECT REPORT PR93/A857A**

Author: R Walker

Copies to: T Dickson (CRAE)  
R Parkinson (CRAE)  
M Lavery (R&PD)  
J Box  
S Roden/C Halsall/minfile  
B Kelley/P O'Neill/file

Date: 18 May 1993

Ref: A857A/603ms  
DPO 71546

---

## PROJECT DETAILS

---

### BACKGROUND

CRAE commissioned ATD to identify the minerals present in two samples from a Tasmanian Resource. The primary focus for the work was to determine if the zinc present was sphalerite or smithsonite ( $\text{ZnCO}_3$ ). The two samples were 3527751 and 3523563.

The techniques used to define the mineralogy were X-ray diffraction (XRD), scanning electron microscopy with energy dispersive X-ray capabilities (SEM/EDX) and chemical assays.

### OUR RESULTS

- \* Neither sample contained smithsonite ( $\text{ZnCO}_3$ ).
- 

The sphalerite in both these samples is a low iron variety.

\* Sample 3523563 is complex.

The sulphides present are sphalerite, pyrite and galena, however only about two-thirds of the zinc assayed is present as sphalerite.

The remainder of the zinc appears to be present as the mineral 'Fraipontite'  
-  $(Zn, Al)_3(Si, Al)_2O_5(OH)_4$ .

Table 2 shows the assays, XRD and SEM results for this sample.

Table 2

Assay	28%Zn, 2.6%Pb, 4.6% Fe, 11.6% S, 5.0% C
XRD	Sphalerite (Major) Cronstedtite $(Fe_3(Si, Fe)_2O_5(OH)_4)$ Fraipontite $(Zn, Al)_3(Si, Al)_2O_5(OH)_4$ Pyrite (Trace) ; Galena (Trace) Quartz (Trace) ; Graphite (Trace)
SEM	Confirms XRD Suggest Fraipontite as the major alumina silicate

Sample 3523563

Chemical analysis of individual grains of the mineral 'Fraipontite' by SEM/EDX show a consistent chemical composition of:-

25 wt% Zn  
12 wt% Si  
10 wt% Al  
and 3 wt% Fe

suggesting a solid solution transition between the minerals 'Fraipontite' and 'Cronstedtite'.

**NEXT STEPS**

- \* Analyse a number of samples to obtain a better understanding of the zinc minerals.
- \* Conduct a comprehensive size by grade chemical and mineralogical characterisation on a suitable composite sample.

CRA-ATD powdered samples for bulk  
qualitative XRD phase analysis

La Trobe University-Geology: final XRD report

Date: 19/4/93

*CRA-ATD officer:* Rob Walker  
*Sample identification:* G1850 and G1851  
*Date sample received:* 6/4/93

*Sample information supplied:*  
*Material type:* Zinc ore

*Approximate composition:* not given

*Possible phases:* Sphalerite/Smithsonite

*Sample preparation:*

The powdered (pulverised) sample was placed into a clean agate mortar and any large lumps were broken up. The powder was poured into the XRD sample holder and flattened. A straight glass edge was dragged over the surface of the powdered material before presentation to the XRD.

*XRD information attached:*

uDPSM search/match report with graphical representation.

*Preliminary report submitted:* 8/4/93

Summary/Conclusion:

In order of abundance-

---

G1851 — 3523563

5-0566 Sphalerite ZnS 50-100%

17-0470 Cronstedtite  $\text{Fe}_3(\text{Si,Fe})_2\text{O}_5(\text{OH})_4$  5-50%

5-0592 Galena PbS ~5%

6-0710 Pyrite  $\text{FeS}_2$  ~5%

33-1161 Quartz  $\text{SiO}_2$  ~5%

25-0284 Graphite C <5%

Smithsonite ( $\text{ZnCO}_3$ ), corundum ( $\text{Al}_2\text{O}_3$ ) and the iron aluminosilicate, deerite ( $\text{Fe}_6(\text{Fe,Al})_3\text{Si}_6\text{O}_{20}(\text{OH})_5$ ) were not detected in either samples using XRD.

The scan for sample G1851 was more complex than that for G1850.

Fraipontite-2M1 ( $\text{Zn,Al})_3(\text{Si,Al})_2\text{O}_5(\text{OH})_4$  could have given rise to the reflections attributed to cronstedtite in G1851. More work is required in this area.

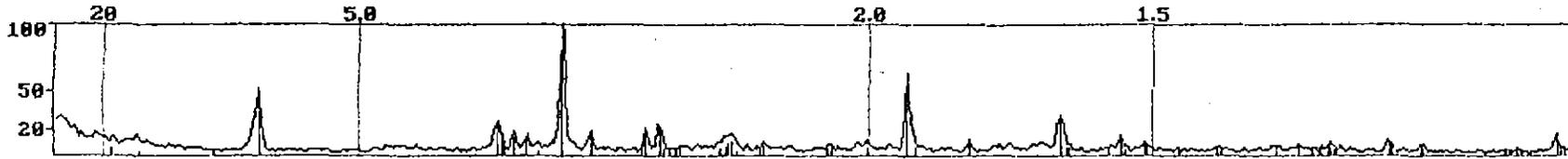
932221

LSN 99 378  
G1851  
3523563

IDENTIFIED PHASES

5-0566 17-0470 5-0592 6-0710 33-1161 25-0284

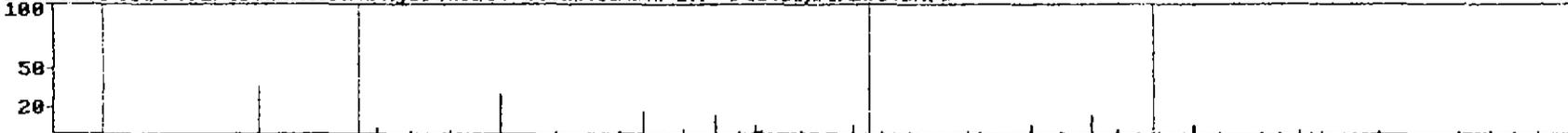
Intensities: Linear



5-0566I 0111x (171) \*Zinc Sulfide / Sphalerite,  $syn = ZnS$



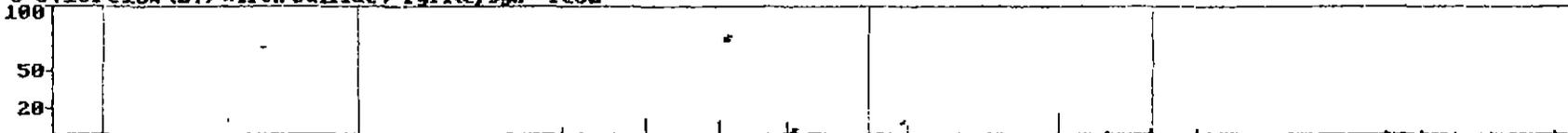
17-0470I 035x (72) Iron Silicate Hydroxide / Cronstedtite-1M =  $Fe_3(Si,Fe)_2O_5(OH)_4$



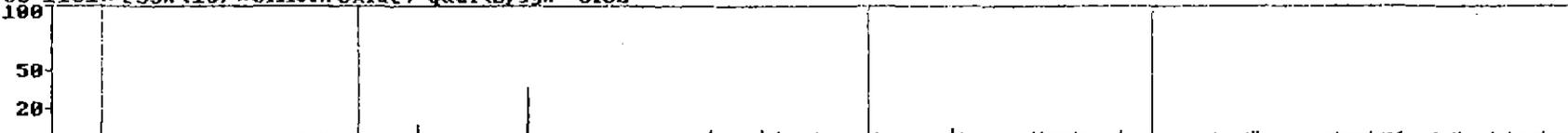
5-0592I 026x (81) \*Lead Sulfide / Galena,  $syn = PbS$



6-0710I 015x (27) \*Iron Sulfide / Pyrite,  $syn = FeS_2$



33-1161\* 035x (13) \*Silicon Oxide / Quartz,  $syn = SiO_2$



25-0284C 052x (<0) Carbon / Graphite,  $syn = C$



**CRA**  
**ADVANCED TECHNICAL DEVELOPMENT**

Melbourne

---

**THE MINERALOGY OF A FURTHER ~~SIX~~ SAMPLE  
FROM A TASMANIAN RESOURCE**

---

**PROJECT REPORT PR93/A857A**

Author: C Halsall/R Walker

Copies to: T Dickson (CRAE)  
R Parkinson (CRAE)  
M Lavery (R&PD)  
J Box  
S Roden/ minfile  
B Kelley/P O'Neill/file

Date: 18 June 1993

Ref: A857A/639ch

DPo 77101

## PROJECT SUMMARY

932223

### FOCUS

CRAE commissioned ATD to identify the minerals present in a further six samples from a Tasmanian resource. The focus of the work was to determine if the zinc was present as sphalerite or as a zinc silicate species such as fraipontite.

### FINDINGS

- The major Zn-bearing mineral in these samples is sphalerite.
- This sphalerite is a low Fe variety.
- A small amount of Zn is present in the silicate minerals fraipontite and hendricksite (samples 3523430 and 3527708).
- Some Pb may be present as the mineral kegelite (sample 3523430).

932224

## PROJECT DETAILS

### BACKGROUND

CRAE commissioned ATD to identify the minerals present in a further six samples from a Tasmanian resource. The focus of the work was to determine if the zinc was present as sphalerite or as the mineral fraipontite which had been detected previously.

The techniques used to define the mineralogy were X-ray diffraction (XRD), and scanning electron microscopy (SEM) together with energy dispersive X-ray analysis (EDX). Chemical assays were supplied with the samples.

### RESULTS

Sample 3523430 ZG36 6-8m (9.3% Zn)

Both XRD and SEM/EDX identified the main sulphide minerals as pyrite and sphalerite. Galena was also detected. The main gangue minerals are quartz and muscovite. This muscovite is likely to be a fine grained form (sericite). XRD also identified the mineral kegelite -  $Pb_{12}(Zn,Fe)_2Al_4(SO_4)_4Si_{11}O_{38}$ . Small amounts of fraipontite, calcite and dolomite were detected by SEM but no kegelite was observed (see Table 1). EDX analysis of 4 grains of sphalerite gave Fe values ranging from 0.5 to 1.1 wt%.

Assay	Cu 20ppm, Pb 15400ppm, Zn 93500ppm, Ag 5ppm, Fe 8.18%, Mn 59ppm
XRD	Quartz (major); Sphalerite (minor); Pyrite (minor); Muscovite (minor); Galena (trace); Kegelite (trace)
SEM	Confirms major and minor XRD phases. Kegelite was not observed but a grain of fraipontite was. Small amounts of carbonate were also observed.

Table 1. Assay, XRD and SEM results for sample 3523430

CRA-ATD powdered samples for bulk  
qualitative XRD phase analysis

La Trobe University-Geology: final XRD report

Date: 28/5/93

CRA-ATD officer: Carol Halsall  
Sample identification: G1884 to G1889  
Date sample received: 17/05/93

Sample information supplied:  
Material type: Zinc minerals

Approximate composition: not given

Possible phases: Dolomite, sphalerite and quartz.

Sample preparation:

The pulverised powder was poured into the XRD sample holder and flattened. A straight glass edge was dragged over the surface of the powdered material before presentation to the XRD.

XRD information attached:

uDPSM search/match report with graphical representation.

Preliminary report submitted: 21/5/93

Summary/Conclusion:

In order of abundance-

G1884

33-1161	Quartz	SiO <sub>2</sub>	50-100
5-0566	Sphalerite	ZnS	5-50%
26-080	Pyrite	FeS <sub>2</sub>	5-50%
7-0042	Muscovite-3T	(K,Na)(Al,Mg,Fe) <sub>2</sub> (Si <sub>3.1</sub> Al <sub>0.9</sub> )O <sub>10</sub> (OH) <sub>2</sub>	5-50%
5-0592	Galena	PbS	~5%
29-0790	Kegelite	Pb <sub>12</sub> Zn <sub>2</sub> Al <sub>4</sub> Si <sub>11</sub> S <sub>4</sub> O <sub>54</sub>	~5%

---

For all of the samples, the first four minerals listed account for about 95% of the intensity. After CRA personnel had checked the preliminary report it was suggested that dolomite, rutile, apatites and serpentines may be present. Although some of these minerals were possibilities in some of the samples, identification was not definite.

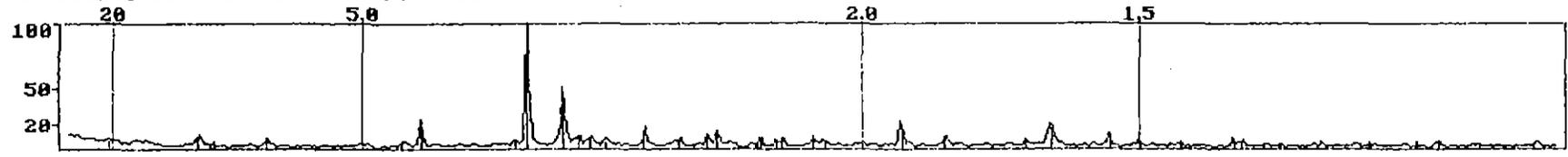
11/4/93

G1884  
3523430

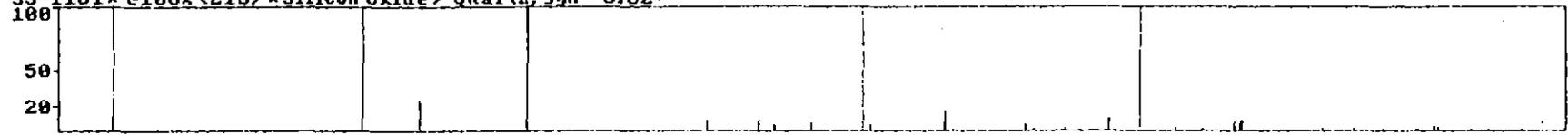
IDENTIFIED PHASES

33-1161 5-0566 26-0801 6-0263 5-0592 29-0790

Intensities: Linear



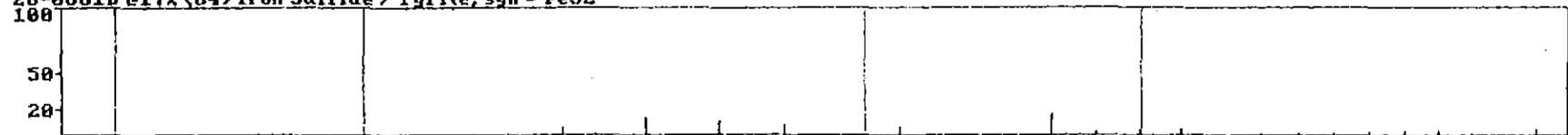
33-1161\* 0106% (213) \*Silicon Oxide / Quartz, syn = SiO2



5-05661 060% (97) \*Zinc Sulfide / Sphalerite, syn = ZnS



26-0801D 017% (64) Iron Sulfide / Pyrite, syn = FeS2



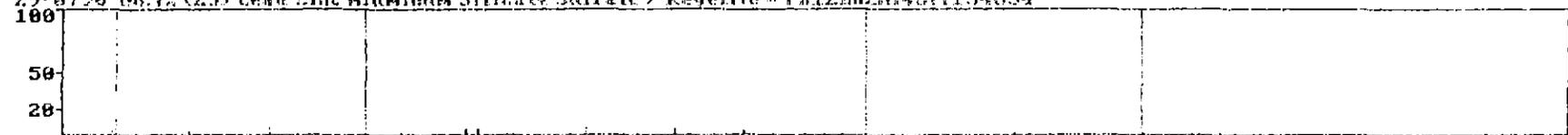
6-0263I 016% (46) \*Potassium Aluminum Silicate Hydroxide / Muscovite-2M1 = KAl2(Si3Al)O10(OH,F)2



5-0592I 06.7% (7) \*Lead Sulfide / Galena, syn = PbS



29-0790 06.7% (25) Lead Zinc Aluminum Silicate Sulfate / Kegelite = Pb12Zn2Al4Si11S4O54



932227

932228

APPENDIX 6:

SIZE-BY-GRADE MINERALOGICAL STUDIES



Advanced Technical Development  
Melbourne

932229

A Report prepared for  
CRAE, Preston

# Chemical and Mineralogical Characteristics of a Tasmanian Resource

**CONFIDENTIAL**

1 October 1993

**CONFIDENTIAL**

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Author: C E Halsall

Contributors: R Walker

Copy to: R Parkinson (CRAE, Preston)  
T Dickson (CRAE, Preston)  
M Lavery (R&PD)  
J Box  
S Roden/P Dudzinski/minfile  
B C Kelley/P A O'Neill/File

Date: 1 October 1993

Ref: A857A/756ms  
DPO 77109



## SUMMARY

### Project Focus

CRAE commissioned ATD to conduct a comprehensive size by grade chemical and mineralogical characterisation of two air-core composite samples from a Tasmanian zinc prospect. The aim of this characterisation was to establish more accurately the nature and distribution of valuable minerals in two contrasting samples.

*What are the main chemical and mineralogical features of the two samples?*

### Research Conducted

Samples were sized at ATD. All of the size fractions were submitted for chemical analysis at ATD. Selected size fractions were sent to Genalysis (Perth) for trace element determinations. Five size fractions of each sample were selected for the mineralogical study. Their mineralogy was characterised using a combination of optical microscopy, X-ray diffraction (XRD) and scanning electron microscopy with energy dispersive X-ray capabilities (SEM/EDX).

### Findings

- ~~The mineral distributions of the two samples is very different.~~

Sample 3753497 is clay rich with >30% of its mass reporting in the -10 $\mu$ m size fraction.  
~~Sample 3753498 is a sulphide rich sample with 30% of its mass reporting in the -10 $\mu$ m size fraction.~~

- Sample 3753497 GRIEVES ZG54 6-16m

This sample has the highest Zn and Pb assays. It's mineralogy is dominated by sericite, Zn-aluminosilicate, sphalerite, pyrite, quartz and galena. Up to 60% of the Zn may be contained in the Zn-aluminosilicate phase.

- ~~Sample 3753498 GRIEVES ZG54 6-16m~~

~~The mineralogy of this sample is dominated by pyrite, sphalerite, sericite, and quartz.~~

- Implications

Up to 60% of the Zn in sample 3753497 may be unrecoverable by conventional flotation.

# CONTENTS

	Page
Project Focus	1
Research Conducted	1
Findings	1
Implications	7
Appendix 1	Results of Chemical Analysis - major and trace elements.
Appendix 2	SEM Photomicrographs.
Appendix 3	Summary of Mineralogical Information and XRD Reports from La Trobe University and AMDEL.



Table 1. Percentage size distribution by weight for each sample

	3753497	
+2mm	9.3	
-2+1mm	2.2	
-1+0.5mm	11.3	
-500+212um	13.4	
-212+106um	14.9	
-106+63um	4.5	
-63+38um	5.1	
-38um		
-38+20um	0.5	
-20+10um	4.2	
-10um	34.6	

• Sample 3753497

*This sample has the highest Zn and Pb assays. Zn assays remain relatively constant through the size fractions*

Results of chemical analysis of both samples are presented in Appendix 1 (Table A1.1) together with mean values for the major elements in all size fractions. In sample 3753497, the mean values for Zn and Pb are 23.02 wt% and 2.27 wt% respectively (compared to values of 10.15 wt% and 0.11 wt% respectively for sample 3753498). Zinc values range from 15.3wt% to 34wt% but there is no consistent variation through the size fractions. The lowest zinc assay corresponds to the finest size fraction (-10µm). The highest zinc assay corresponds to the -38+20µm size fraction.

A visual estimate of mineral abundances in this sample suggests an average modal composition (by volume) of 50% fine grained aluminosilicate (mainly sericite), 25% Zn-aluminosilicate, 10% pyrite, up to 10% sphalerite, 5% quartz, and <5% galena. Attempts at image analysis and optical point counting were largely unsuccessful in the coarser size fractions due to the presence of significant proportions of relatively fine grained Zn-bearing minerals in agglomerates. If image analysis is to be used successfully on similar samples in the future then the sizing process would have to be more rigorous or a certain amount of development work would be required to ensure that the fine grained material was not overlooked.



**Sericite is the dominant K-aluminosilicate**

A fine grained K-aluminosilicate phase is present in all of the size fractions. XRD analysis by AMDEL suggests that muscovite (sericite) is the main K-aluminosilicate phase present. In the +38 $\mu$ m size fractions sericite has a grain size of <10 $\mu$ m and mainly occurs in agglomerates.

Other minor phases detected by XRD are chlorite in the -1000+500 $\mu$ m fraction and possibly in the finer fractions, and smectite in the -63+38 $\mu$ m fraction.

**The Zn-aluminosilicate contains up to 16wt% Zn**

The most abundant zinc phase by volume is a Zn-aluminosilicate (Figure 2, Appendix 2). The high Zn content of this mineral led to an initial classification as fraipontite. The results of XRD analysis suggest that structurally it is intermediate between fraipontite, baumite, and aluminian lizardite which are all members of the kaolinite-serpentine group. For the purposes of reporting, this phase will continue to be referred to as a Zn-aluminosilicate. The Zn-aluminosilicate occurs as discrete grains in all size fractions and fine grained Zn-aluminosilicate is present in agglomerates. A number of grains of Zn-aluminosilicate were analysed by microprobe at the University of Melbourne. These grains show a range of compositions from 10.1wt% Zn to 16.7wt% Zn with an average Zn content of around 13wt% (Table 2). A standard HNO<sub>3</sub> extraction performed on the -63+38 $\mu$ m size fraction removed 96% of the Zn. This implies that both the Zn-aluminosilicate and sphalerite are soluble in HNO<sub>3</sub>.

Table 2. Microprobe analyses of Zn-aluminosilicate

3753497 (-500+212 $\mu$ m)					
(wt%)					
Zn	15.476	10.107	16.674	1.084	3.342
Fe	1.79	1.287	1.883	0.41	1.35
Si	12.544	14.847	12.239	18.832	16.794
Al	11.135	13.069	10.467	16.206	16.094
O (calc)	59.056	60.69	58.736	63.468	62.42
Total	100.001	100	99.999	100	100
(wt%)					
Zn	0.335	14.975	10.942	11.994	
Fe	0.049	2.376	3.191	4.961	
Si	18.32	12.774	13.114	12.425	
Al	17.71	10.79	12.956	11.526	
O (calc)	63.587	59.085	59.796	59.094	
Total	100.001	100	99.999	100	

**Pyrite contains inclusions of zinc sulphide**

Pyrite is common in the +106 $\mu$ m size fractions and is present in all of the finer size fractions. Most of the pyrite is a mottled variety which contains disseminated inclusions of zinc sulphide (Figure 3, Appendix 2). These inclusions are generally <10 $\mu$ m in size and may represent exsolution features. Pyrite grains commonly have a thin surface coating of agglomerated material.

**Sphalerite contains <1wt% Fe** Sphalerite is present in all size fractions in this sample. In the +38 $\mu$ m fractions it is present as discrete grains and also in agglomerates. In the agglomerates it has a grain size of <20 $\mu$ m and is mostly associated with sericite and Zn-aluminosilicate. The sphalerite is relatively clean although there are occasional complex intergrowths of sphalerite with other sulphides/silicates particularly in the coarser size fractions (+63 $\mu$ m). Sphalerite grains commonly have a thin surface coating of agglomerated material. Results of microprobe analysis at the University of Melbourne indicate that the average Fe content of the sphalerite is <1wt% (Table 3).

Table 3. Microprobe analyses of sphalerite

3753497 (-500+212 $\mu$ m)					
(wt%)					
Zn	67.789	67.176	65.388	67.186	66.712
Fe	0.071	0.017	0.836	0.073	0.077
Mn	0.019	0	0	0	0
S	32.825	32.823	32.189	32.319	32.124
Total	100.704	100.016	98.413	99.578	98.913
(wt%)					
Zn	66.625	67.032	66.54	67.475	
Fe	0.071	0.051	0.178	0.066	
Mn	0.003	0	0	0.001	
S	31.977	31.967	31.997	31.89	
Total	98.676	99.05	98.715	99.432	

Discrete quartz grains are present in all of the size fractions.

Galena is much more abundant in this sample than in sample 3753498. This is reflected in the Pb assays for the two samples (Appendix 1, Table A1.1). Discrete grains of galena are present in the finest size fraction (10-20 $\mu$ m). In the coarser size fractions galena is intergrown with other sulphides, particularly sphalerite. The grain size of galena is commonly around 10 $\mu$ m.

Zinc sulphate was observed in one agglomerate in the -63+38 $\mu$ m size fraction.

**No carbonate was observed** Average values for Ca, Mg, and C in this sample are 0.04wt%, 0.37wt%, and 3.05wt% (Appendix 1, Table A1.1). These values are higher than the corresponding values for sample 3753498 (0.02 wt%, 0.12 wt%, and 1.49 wt%) but still suggest a low carbonate content. No carbonate was observed in the mineralogical study.

The results of trace element analysis of selected size fractions are included in Appendix 1 (Table A1.2). Values for all of the elements analysed are <500ppm. Values for Cu are slightly higher in this sample than in sample 3753498.

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## Implications

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The physical characteristics and mineralogy of the clay sample 3753497 point to two factors that are likely to have an adverse effect on processing. The first is the high proportion of fine grained material present which may cause agglomeration problems. The second is the presence of up to 60% of the Zn as a Zn-aluminosilicate which will probably not respond to conventional flotation.



## **APPENDIX 1**

**Results of chemical analysis -  
major and trace elements**

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Table A1.1 Results of major element analysis for all size fractions (wt%).

	Ca	Si	Al	K	Mg	C	S	Pb	Zn	Fe
<b>3753497</b>										
+2mm	0.10	6.03	4.22	0.36	0.33	3.17	25.00	2.28	19.30	17.70
-2mm+1mm	0.07	6.02	3.94	0.40	0.45	2.89	24.40	2.16	22.10	16.90
-1000+500um	0.03	11.50	7.24	0.96	0.39	4.23	12.70	2.29	21.60	5.86
-500+212um	0.03	12.00	7.27	1.01	0.39	4.54	11.10	2.70	23.50	4.23
-212+106um	0.01	12.80	6.16	0.71	0.37	3.48	10.40	3.64	21.90	3.45
-106+63um	0.03	13.50	5.76	0.76	0.39	3.45	9.65	3.05	22.00	3.28
-63+38um	0.03	14.20	6.00	1.00	0.40	3.14	10.40	2.95	24.40	3.26
CS1-3 (-38+20um)	0.06	11.60	3.25	0.24	0.28	0.73	16.70	2.31	34.00	2.77
CS4+5 (-20+10um)	0.03	14.40	5.88	0.65	0.32	1.53	11.60	1.02	26.10	1.87
-CS5 (-10um)	0.01	14.30	12.23	2.15	0.41	3.30	5.52	0.34	15.30	1.63
Mean	0.04	11.64	6.20	0.82	0.37	3.05	13.75	2.27	23.02	6.10
<del>3753498</del>										
<del>+2mm</del>	<del>0.02</del>	<del>10.60</del>	<del>3.40</del>	<del>0.82</del>	<del>0.07</del>	<del>0.87</del>	<del>29.90</del>	<del>0.11</del>	<del>22.10</del>	<del>26.80</del>
<del>-2mm+1mm</del>	<del>&lt;0.01</del>	<del>10.90</del>	<del>3.78</del>	<del>0.92</del>	<del>0.08</del>	<del>1.18</del>	<del>29.40</del>	<del>0.11</del>	<del>22.10</del>	<del>26.80</del>
<del>-1000+500um</del>	<del>0.03</del>	<del>10.80</del>	<del>3.75</del>	<del>0.93</del>	<del>0.10</del>	<del>1.30</del>	<del>28.50</del>	<del>0.09</del>	<del>21.60</del>	<del>19.80</del>
<del>-500+212um</del>	<del>&lt;0.01</del>	<del>9.35</del>	<del>3.08</del>	<del>0.71</del>	<del>0.09</del>	<del>1.24</del>	<del>30.40</del>	<del>0.12</del>	<del>21.90</del>	<del>20.90</del>
<del>-212+106um</del>	<del>&lt;0.01</del>	<del>11.70</del>	<del>4.11</del>	<del>1.00</del>	<del>0.40</del>	<del>1.35</del>	<del>27.40</del>	<del>0.11</del>	<del>21.90</del>	<del>21.90</del>
<del>-106+63um</del>	<del>0.01</del>	<del>13.10</del>	<del>4.00</del>	<del>1.14</del>	<del>0.12</del>	<del>1.41</del>	<del>25.90</del>	<del>0.12</del>	<del>21.90</del>	<del>20.70</del>
<del>-63+38um</del>	<del>&lt;0.01</del>	<del>13.70</del>	<del>4.50</del>	<del>1.16</del>	<del>0.09</del>	<del>1.74</del>	<del>22.40</del>	<del>0.13</del>	<del>21.90</del>	<del>18.10</del>
<del>-38um</del>	<del>&lt;0.01</del>	<del>17.50</del>	<del>6.71</del>	<del>1.58</del>	<del>0.29</del>	<del>2.80</del>	<del>14.10</del>	<del>0.10</del>	<del>21.90</del>	<del>11.40</del>
<del>Mean</del>	<del>0.02</del>	<del>12.20</del>	<del>4.50</del>	<del>1.00</del>	<del>0.12</del>	<del>1.47</del>	<del>26.27</del>	<del>0.11</del>	<del>21.90</del>	<del>18.10</del>

Table A1.2 Results of trace element analysis of selected size fractions

	Mn	Ni	Cu	As	Ag	Cd	Bi
<b>3753497</b>							
-1000+500um	19	108	98	140	17	205	1
-212+106um	19	112	130	96	16	195	1.5
-63+38um	18	100	130	56	16	205	1
<del>3753498</del>							
<del>-1000+500um</del>	<del>16</del>	<del>100</del>	<del>74</del>	<del>100</del>	<del>10</del>	<del>140</del>	<del>0.5</del>
<del>-212+106um</del>	<del>20</del>	<del>110</del>	<del>100</del>	<del>100</del>	<del>10</del>	<del>170</del>	<del>0.5</del>
<del>-63+38um</del>	<del>18</del>	<del>100</del>	<del>70</del>	<del>100</del>	<del>10</del>	<del>140</del>	<del>0.5</del>

## APPENDIX 2

### SEM Photomicrographs

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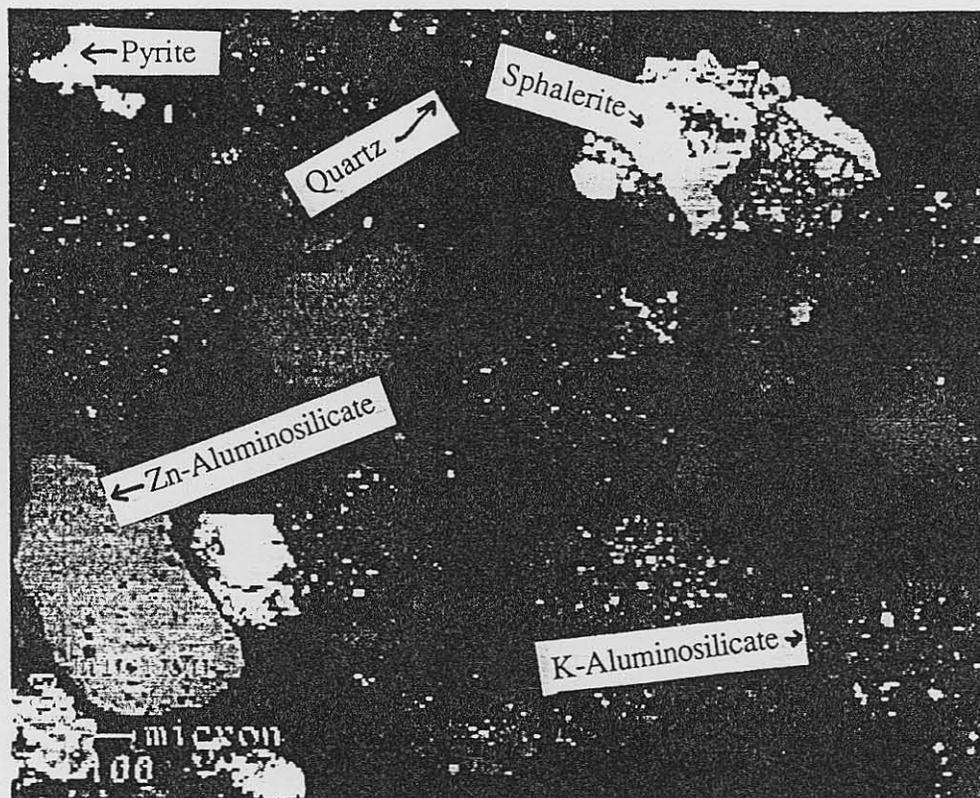


Figure 1: Sample 3753497. A representative field of view showing the main minerals present

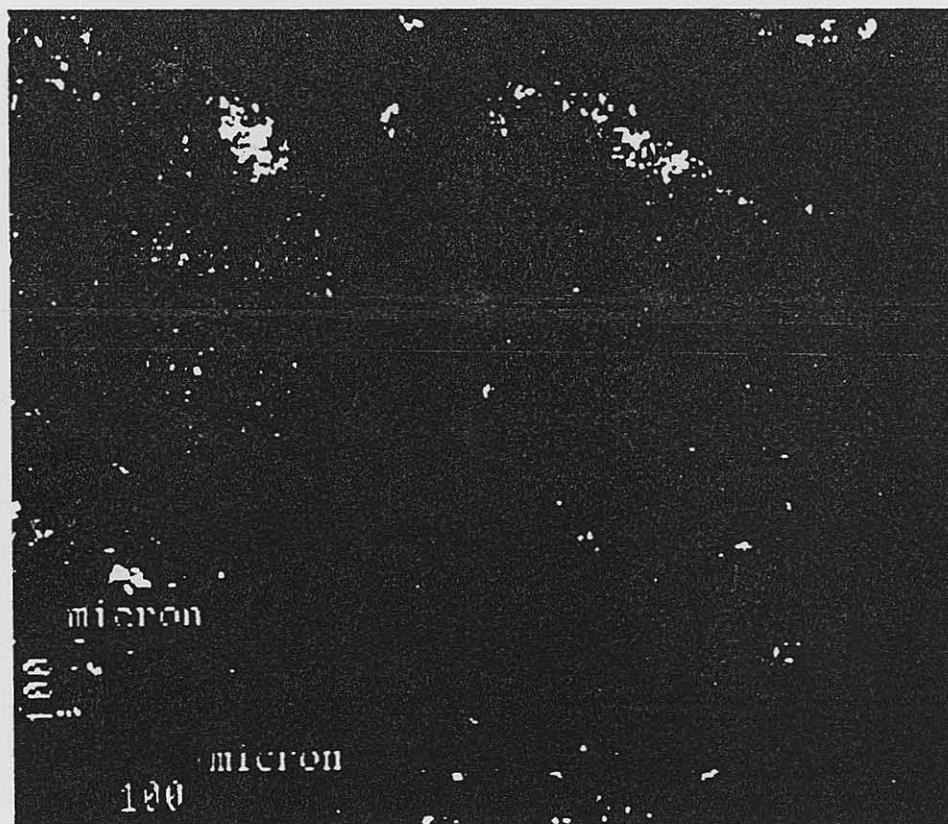


Figure 2: Sample 3753497. Zn-aluminosilicate. One large grain on the right of the photo and a number of smaller grains in the agglomerate on the left of the photo.

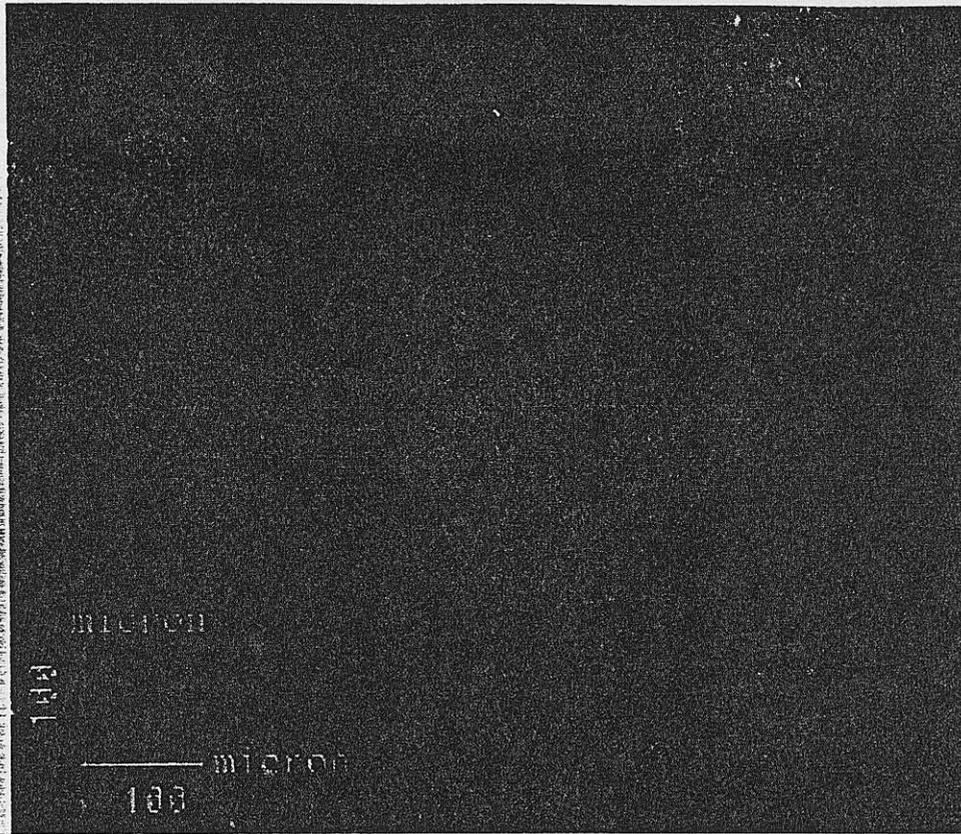


Figure 3: Sample 3753497. Mottled pyrite. The grain of pyrite (grey) at the centre of the field contains numerous tiny inclusions (paler grey) of zinc sulphide.

## APPENDIX 3

Summary of mineralogical information  
and XRD reports from La Trobe University  
and AMDEL

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SUMMARY OF MINERALOGICAL INFORMATION FOR  
SAMPLES 3753497 AND 3753498

3753497

**-1000+500 $\mu$ m (Assay: 21.6%Zn, 2.29%Pb, 5.86%Fe, 12.7%S.)**

XRD: sphalerite, quartz, fraipontite, galena, muscovite/sericite, chlorite

SEM: K-aluminosilicate, quartz, Zn-aluminosilicate, pyrite, sphalerite, galena, chlorite

**-500+212 $\mu$ m (Assay: 23.5%Zn, 2.70%Pb, 4.23%Fe, 11.1%S)**

XRD: sphalerite, quartz, fraipontite, galena, muscovite/sericite

SEM: K-aluminosilicate, quartz, Zn-aluminosilicate, pyrite, sphalerite, galena

**-212+106 $\mu$ m (Assay: 21.9%Zn, 3.64%Pb, 3.45%Fe, 10.4%S)**

XRD sphalerite, quartz, fraipontite, galena, muscovite/sericite

SEM K-aluminosilicate, quartz, Zn-aluminosilicate, sphalerite, pyrite, galena

**-63+38 $\mu$ m (Assay: 24.4%Zn, 2.95%Pb, 3.26%Fe, 10.4%S)**

XRD quartz, sphalerite, fraipontite, galena, muscovite/sericite, smectite

SEM K-aluminosilicate, quartz, Zn-aluminosilicate, sphalerite, pyrite, galena, zinc sulphate

**CS4+CS5 (-20+10 $\mu$ m approx.) (Assay: 26.1%Zn, 1.02%Pb, 1.87%Fe, 11.6%S)**

XRD quartz, sphalerite, fraipontite, galena, muscovite/sericite

SEM K-aluminosilicate, quartz, sphalerite, Zn-aluminosilicate, pyrite, galena



Amdel Limited  
A.C.N. 008 127 802

Mineral Services Laboratory  
31 Flemington Street  
Frewville SA 5063  
AUSTRALIA

PO Box 338  
Torrensville SA 5031  
AUSTRALIA

Telephone: (08) 372 2700  
Facsimile: (08) 379 6623  
Telex: AA82520

932245

31 August 1993

Ms Carol Halsall  
CRA-ATD  
1 Research Avenue  
BUNDOORA VIC 3083

REPORT G52/94  
MINERALOGY OF ZN-BEARING ORE SAMPLES

YOUR REFERENCE: Letter dated 9/8/93  
SAMPLE IDENTIFICATION: G1966-G2001  
MATERIAL: 6 pulverised samples  
DATE RECEIVED: 11 August 1993  
WORK REQUIRED: Identification of minerals present  
Investigation and Report by: Michael Till

Dr Keith J Henley  
Manager, Mineral Services Laboratory

*The results contained in this report relate only to the sample(s) submitted for testing.  
Amdel Ltd accepts no responsibilities for the representivity of the sample(s) submitted.*

hk

## MINERALOGY OF ZN-BEARING ORE SAMPLES

### 1. INTRODUCTION

Six samples were received from Carol Halsall of CRA-ATD, Melbourne with a request for identification of the minerals present.

### 2. PROCEDURE

The samples were analysed by X-ray diffraction.

### 3. RESULTS

The minerals are listed according to the semi-quantitative abundances given below.

	G1966	G1968	G1970	G1997	G1999	G2001
Sphalerite	D	D	D	CD	CD	A
Quartz	A	A	A	A	A-SD	CD
7Å minerals	A	A	A	-	?Tr	Tr
Muscovite	A	A	A	A	A	A
Pyrite	Tr-A	Tr	Tr	CD	CD	CD
Galena	Tr	?Tr	Tr	-	-	-

The 7Å minerals include members of the chlorite, kandite and serpentine groups. Three XRD peaks which are free of mica interference are given for the respective minerals.

Mineral	7Å Peak	3.5Å Peak	2.65Å Peak
Chlorite (ferroan clinocllore)	7.10	3.55	2.66
Kaolinite	7.14	3.57	-
Lizardite	7.4	3.67	2.66
Lizardite, aluminian	7.25	3.62	2.66
Baumite	7.23	3.59	2.68
Fraipontite	7.00	3.52	2.63

The XRD peaks observed in samples G1966, G1958 and G1970 are as follows:

7Å - 7.09 and possibly 7.19 and 7.34

3.5Å - 3.55 (main) and 3.59 and 3.56, and possibly 3.62

2.65Å - 2.655 (central point of moderately broad peak)

Chlorite is considered to be present in G1966 and probably G1968 and G1970. Kaolinite is probably present in all three samples. Fraipontite cannot be confirmed as being present. It is possible that a serpentine mineral is present that is intermediate in composition between fraipontite and aluminian lizardite, or between baumite (a Mg, Mn, Fe, Zn, Al serpentine with ~7% ZnO) and fraipontite.

The mica detected in these samples is a moderately well-crystalline 2 M<sub>1</sub> type. Illite was not detected, but the presence of muscovite would obscure the presence of even a relatively moderate proportion of illite. There is a possibility of a smectite mineral in G1970 and possibly G1966 and G1968. Again, the presence of a chlorite peak in this region to some extent obscures the presence of smectite (also the detection limit for smectite in a bulk sample can be as much as 10 to 20%). Zinc phosphate minerals were not detected (detection limit may be 1 to 2% in these samples).

#### Semi-quantitative Abbreviations

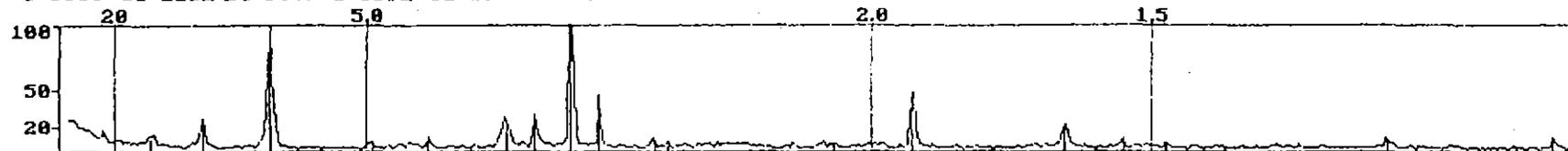
- D = Dominant. Used for the component apparently most abundant, regardless of its probable percentage level.
- CD = Co-dominant. Used for two (or more) predominating components, both or all of which are judged to be present in roughly equal amounts.
- SD = Sub-dominant. The next most abundant component(s) providing its percentage level is judged above about 20.
- A = Accessory. Components judged to be present between the levels of roughly 5 and 20%.
- Tr = Trace. Components judged to be below about 5%.

3753497 -1000+500nm

IDENTIFIED PHASES

5-0566 33-1161 14-0366 5-0592 31-0966 26-0911

Intensities: Linear



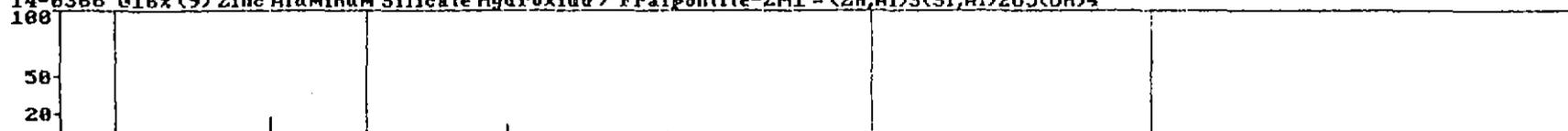
5-0566 (83%) \*Zinc Sulfide / Sphalerite, syn = ZnS



33-1161 (12%) \*Silicon Oxide / Quartz, syn = SiO2



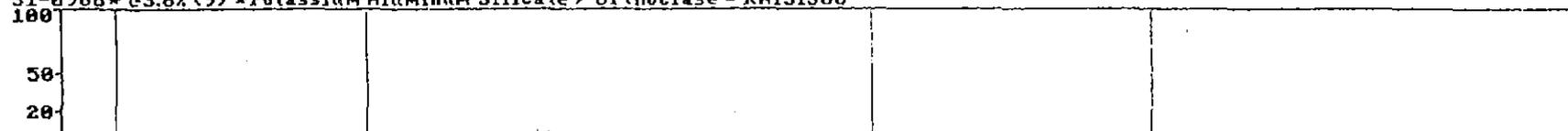
14-0366 (9%) Zinc Aluminum Silicate Hydroxide / Fraipontite-2M1 = (Zn,Al)3(Si,Al)2O5(OH)4



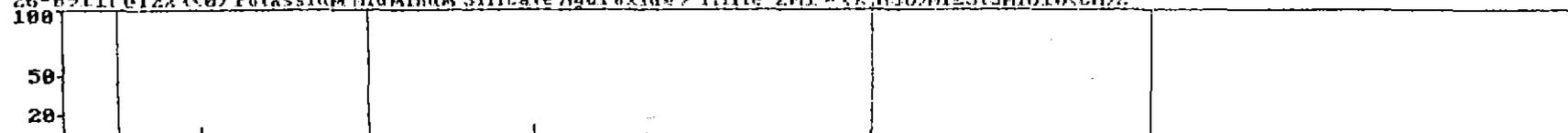
5-0592 (8%) \*Lead Sulfide / Galena, syn = PbS



31-0966 (9%) \*Potassium Aluminum Silicate / Orthoclase = KAlSi3O8

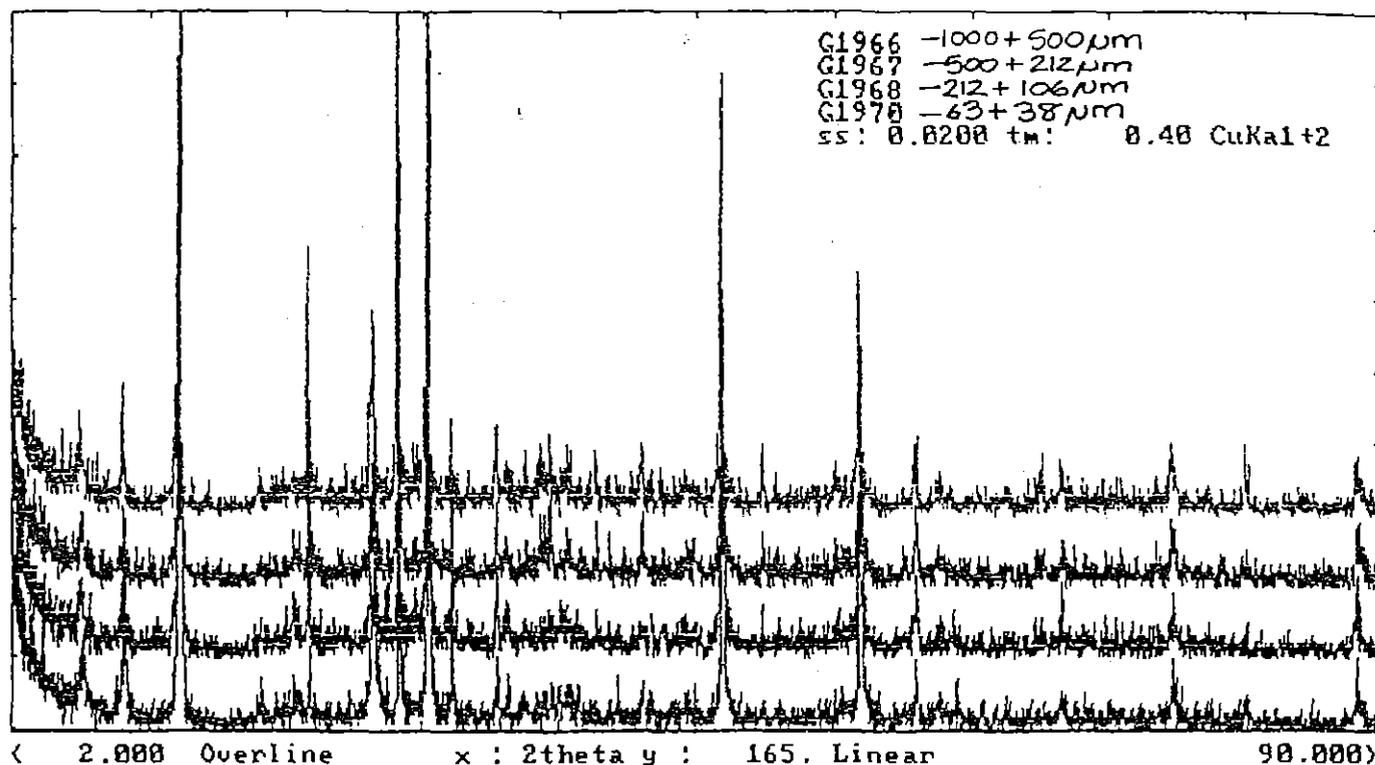


26-0911 (8%) \*Potassium Aluminum Silicate Hydroxide / Illite-2M1 = (K,H3O)0.125(Si3Al)0.10(OH)2



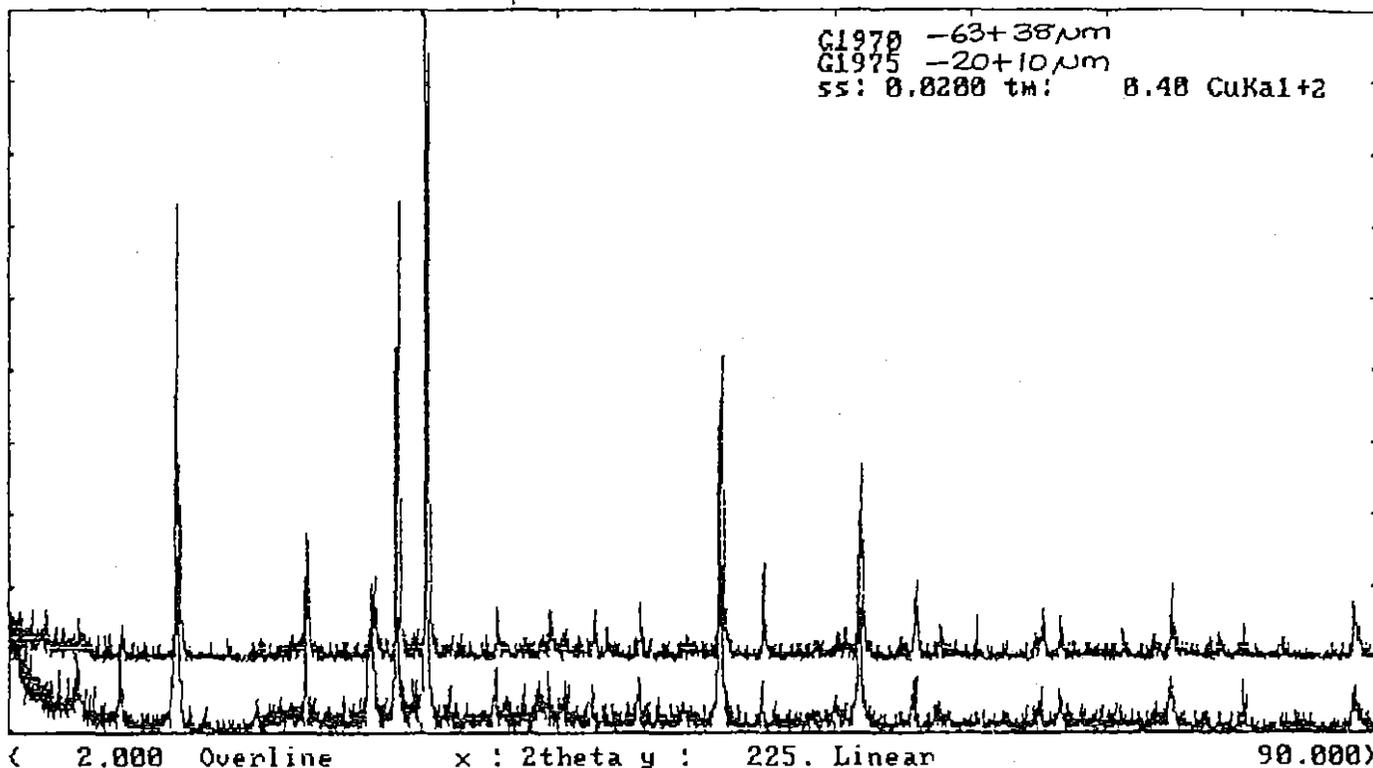
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3753497



?help Zoom Match File Clear Back. Null K a2 Peaks Smoo. Comp. Wfile -> F

932250



?help Zoom Hatch File Clear Back. Null K a2 Peaks Smoo. Comp. Wfile -> F

APPENDIX 7:

SPECIALISED GEOCHEMICAL STUDIES:

APPENDIX 7:

Multi-element geochemistry of high-zinc air-core samples

GRIEVES PROSPECT: MULTI-ELEMENT GEOCHEMISTRY OF HIGH-ZINC AIR-CORE SAMPLES																	
Only includes samples from holes ZG1 to ZG103																	
Results in ppm unless shown otherwise																	
HOLE	DFROM	DTO	SAMPNO	Cu	Pb	Zn	Ag	Fe%	Mn	Al	As	Ba	Bi	Ca	Cd	Co	
ZG36	10.0	12.0	3523432	8	11100	56500	3	6.52	1420	34800	-25	171	-10	110000	73	7	
ZG36	12.0	12.2	3523433	9	20400	90000	6	8.27	2180	30500	-25	147	-10	106000	103	6	
ZG40	8.0	9.8	3523449	15	2500	12900	1	2.52	34	49700	33	132	-10	14400	17	26	
ZG51	50.0	52.0	3523556	2	26	12900	-1	26.92	9700	4860	33	17	-10	72100	-5	11	
ZG54	6.0	8.0	3523562	28	21900	258000	26	3.06	16	58000	71	52	-10	354	267	17	
ZG54	10.0	12.0	3523564	14	11000	269000	22	9.82	27	58800	69	16	-10	248	266	21	
ZG54	12.0	14.0	3523566	270	31600	181000	41	4.64	25	104000	125	155	-10	211	172	16	
ZG54	14.0	16.0	3523566	44	7700	56100	2	1.9	37	135000	141	123	-10	282	33	25	
ZG54	16.0	18.0	3523567	20	760	23000	-1	2.23	48	88200	186	145	-10	244	5	41	
ZG54	18.0	20.0	3523568	32	1300	10200	-1	1.65	38	96500	78	210	-10	273	5	61	
ZG54	20.0	22.0	3523569	20	251	15300	-1	1.56	42	85200	113	193	-10	277	-5	55	
ZG55	2.0	4.0	3523578	24	1700	17900	12	1.6	52	84000	60	192	-10	445	13	61	
ZG55	4.0	6.0	3523579	31	1100	13900	1	1.88	72	150000	40	251	-10	1290	7	53	
ZG55	12.0	14.0	3523583	6	131	15300	-1	31.6	8900	10000	-25	40	-10	18000	-5	41	
ZG55	14.0	16.0	3523584	11	156	11200	-1	22.43	6600	19400	25	74	-10	46300	-5	39	
ZG74	4.0	6.0	3523683	24	670	13400	1	4.39	501	109000	-25	380	-10	2200	-5	22	
ZG74	6.0	8.0	3523684	29	750	26000	1	12	1082	89000	-25	307	-10	3950	5	44	
ZG74	8.0	10.0	3523685	19	257	26000	1	15.32	1794	53400	-25	276	-10	4160	-5	49	
ZG74	10.0	12.0	3523686	28	840	39300	1	11.84	1431	87600	-25	334	-10	4680	-5	53	
ZG74	12.0	14.0	3523687	170	2150	42600	5	18.46	2615	43700	65	192	-10	5280	10	50	
ZG74	14.0	14.5	3523688	29	990	30900	1	19.33	1761	45300	-25	180	-10	4130	-5	38	
ZG75	12.0	14.0	3523695	20	236	34400	-1	3.18	676	36500	40	107	-10	90200	-5	27	
ZG84	6.0	8.0	3523731	30	3600	15400	2	4.87	105	47300	66	197	-10	52400	12	29	
ZG92	2.0	4.0	3523787	34	15200	12900	5	9.97	51	92500	498	44	-10	11300	44	58	
ZG92	4.0	6.0	3523788	41	13100	10600	5	10.66	62	112000	319	42	-10	15600	29	34	

Multi-element geochemistry of high-zinc air-core samples

GRIEVES PROSPECT: MULTI-ELEMENT GEOCHEMISTRY OF HIGH-ZINC AIR-CORE SAMPLES																
Only includes samples from holes ZG1 to ZG103																
Results in ppm unless shown otherwise																
HOLE	DFROM	DTO	SAMPNO	Cr	K	Mg	Mo	Na	Ni	P	Sb	V	S%	C%	Au	Sn
ZG36	10.0	12.0	3523432	45	16600	42900	-10	302	37	219	-1	38	1.3	7.6	0.022	5
ZG36	12.0	12.2	3523433	27	14000	33000	-10	236	40	203	-1	32	1.3	7.9	0.008	-3
ZG40	8.0	9.8	3523449	200	19400	4040	-10	368	59	-100	-1	71	3.6	13.3	0.008	9
ZG51	50.0	52.0	3523556	20	1630	34700	-10	89	43	896	-1	14	3	10	-0.008	5
ZG54	6.0	8.0	3523562	142	5520	1330	-10	301	114	486	12	208	18.6	4.35	-0.008	11
ZG54	10.0	12.0	3523564	133	1750	5620	-10	154	222	256	12	188	15.3	3.3	-0.008	12
ZG54	12.0	14.0	3523565	116	10800	7140	-10	435	128	371	2	170	8.05	2.25	-0.008	6
ZG54	14.0	16.0	3523566	186	38000	5080	-10	1540	62	269	-1	189	5.2	2.75	-0.008	4
ZG54	16.0	18.0	3523567	201	27900	3870	-10	1520	157	160	-1	173	4.1	3	-0.008	4
ZG54	18.0	20.0	3523568	159	26800	4020	-10	1250	176	115	-1	95	2.6	1.4	-0.008	6
ZG54	20.0	22.0	3523569	171	22000	3190	-10	1360	177	123	-1	110	2.75	1.5	-0.008	6
ZG55	2.0	4.0	3523578	126	21400	3430	-10	692	150	541	-1	121	3.25	10.2	-0.008	7
ZG55	4.0	6.0	3523579	145	37000	6270	-10	1020	152	699	-1	127	2.9	3.7	0.01	7
ZG55	12.0	14.0	3523583	112	3400	5940	-10	143	83	676	-1	17	1.95	6.9	-0.008	-3
ZG55	14.0	16.0	3523584	98	6280	22500	-10	209	77	604	-1	27	1.8	6.75	-0.008	-3
ZG74	4.0	6.0	3523683	91	37100	6040	-10	1390	56	526	-1	95	1.5	2.4	0.05	9
ZG74	6.0	8.0	3523684	108	29700	4850	-10	1120	114	587	-1	82	1.95	3.7	-0.008	8
ZG74	8.0	10.0	3523685	84	27700	4140	-10	976	84	662	-1	72	0.88	4.55	-0.008	6
ZG74	10.0	12.0	3523686	88	32900	5050	-10	1150	88	753	-1	82	2.95	4.1	-0.008	8
ZG74	12.0	14.0	3523687	95	20200	3720	-10	793	133	862	6	73	2.55	4.75	-0.008	-3
ZG74	14.0	14.5	3523688	120	18400	3350	-10	670	102	842	-1	78	1.6	4.5	-0.008	4
ZG75	12.0	14.0	3523695	141	12200	9710	-10	559	76	261	1	41	3	8.15	-0.008	4
ZG84	6.0	8.0	3523731	115	20000	23600	-10	268	70	223	10	69	7	13.2	-0.008	5
ZG92	2.0	4.0	3523787	151	23500	6020	-10	362	178	408	17	96	10.3	7.9	-0.008	11
ZG92	4.0	6.0	3523788	131	29200	9910	-10	395	124	1230	6	83	11.1	5.45	-0.008	-3



932254

Phone (09)4587999

52 Murray Road, Welshpool, W.A. 6106

Fax (09) 4582922

**ANALYTICAL REPORT No.** 104165.10.03621

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:

Administration Officer  
CRA Exploration Pty Limited  
PO Box 8093  
Northland Centre  
Preston VIC 3072

ORDER No.

PROJECT

77113

DATE RECEIVED

RESULTS REQUIRED

09/08/93

ASAP

No. OF PAGES  
OF RESULTS

DATE  
REPORTED

No.  
OF COPIES

TOTAL No.  
OF SAMPLES

1

19/08/93

1

3

SAMPLE NUMBERS

SAMPLE DESCRIPTION

ELEMENT/METHOD

3753725/3753727

Prep : GP033

C/DM612

3753725/3753727

Prep :

TDC/DM618

3753725/3753727

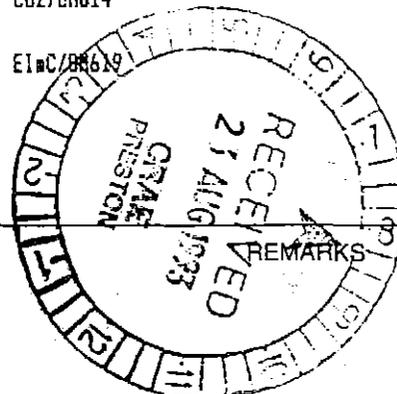
Prep :

CO2/DM614

3753725/3753727

Prep :

ElmC/DM619



RESULTS  
TO

R Parkinson  
CRA Exploration Pty Limited  
PO Box 8093  
Northland Centre  
Preston VIC 3072

RESULTS  
TO

Information Systems  
CRA Exploration Pty Ltd  
PO Box 3709  
Manuka ACT 2603

RESULTS  
TO

[Empty box for results recipient]

Very little organic C  
in residual clays.

*[Signature]*

AUTHORISED OFFICER

932255

### ANALYTICAL DATA

SAMPLE PREFIX

REPORT No.

REPORT DATE

CLIENT ORDER No.

PAGE

104165.10.03621

19/08/93

77113

1 OF 1

TUBE No.	SAMPLE No.	C	TDC	CO2	CE1mC				
1	3753725	2.450	0.080	1.85	1.84	MYRTLE ROAD CUTTING.			
2	3753726	14.100	1.450	1.94	12.35	GRIEVES QUARRY 48400N			
3	3753727	5.800	<0.005	5.57	4.35	OLD MINE WORKINGS 47900N			
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
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17									
18									
19									
20									
21									
22									
23	DETECTION	0.005	0.005	0.02	0.05				
24	UNITS	%	%	%	%				
25	METHOD	DM612	DM618	DM614	DM619				

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

AUTHORISED OFFICER D. Hall

APPENDIX 8:

PETROLOGICAL REPORTS FOR DIAMOND CORE

AND ROCK SAMPLES



**CRA EXPLORATION PTY. LIMITED**

(INC. IN N.S.W.)  
ACN 000 057 125

29 BELL STREET PRESTON VICTORIA 3072. AUSTRALIA.

UNIT 1, 23 BELL STREET, PRESTON, VICTORIA 3072. AUSTRALIA

P.O. BOX 8093  
NORTHLAND CENTRE  
PHONE : (03) 480 1866  
FAX : (03) 480 1868  
NORTHLAND CENTRE 3072  
TELEPHONE: 480 1866  
A.C.N 000 057 125  
932257

26th July 1993

Mr W. Fander,  
Central Mineralogical Services,  
8 Bradshaw Ave,  
CRAEERS S.A. 5152

**SAMPLES SUBMITTED FOR PETROLOGICAL EXAMINATION**

Dear Wally,

Please find enclosed seven drill core and one rock samples that I would like thin-sectioned for petrological examination. Drill core specimens are from a carbonate-hosted Zn prospect in Tasmania for which you have recieved several samples over the past few months. The rock sample is a totally unrelated specimen from an ultramafic body in western Tasmania, included here to save on paperwork!

Unfortunately core recovery was very poor, so samples are a bit small. In general, the core was leached, vuggy and siderite? altered. Some sections were totally decomposed to a carbonaceous clay. Sulphide mineralisation was not seen, although as you will know from previous samples the sphalerite is not conspicuous, especially when fine grained.

Please provide a mineralogical, lithological and textural description for each sample, including photomicrographs if relevant. Could you please return the sections and offcuts to me for our reference collection?

Thankyou for your help.

Yours sincerely,

**ROBERT PARKINSON**  
(Project Geologist)

DPo 77112

932258



## Central Mineralogical Services

8 Bradshaw Avenue, Crafers, S.A. 5152  
Telephone (08) 370 9779 Fax (08) 370 9788  
International: Telephone + 618 370 9779 Fax + 618 370 9788

9 September 1993

Mr. R. Parkinson  
CRA Exploration Pty. Ltd.  
PO Box 8093  
NORTHLAND CENTRE VIC 3072

### REPORT CMS 93/8/3

YOUR REFERENCE: DPO 77112  
DATE RECEIVED: August 1993  
SAMPLE NO'S: As per report  
SUBMITTED BY: R. Parkinson  
WORK REQUESTED: Petrography



*H.W. Fander*  
**H.W. Fander, M.Sc.**

323 - Thought to be rhodocrosite, but  
is haen staining the ankerte pink.

No oolitic CO<sub>2</sub> identified - Strange?

REPORT CMS 93/8/3D.P.O. 77112

Eight rock samples were received for petrographic study; thin sections were prepared, and offcuts were subjected to carbonate stain tests to aid interpretation.

The first six rocks are carbonates, the seventh is a carbonaceous siltstone, and the unrelated sample is a curious serpentine rock.

Of the carbonates, only 499 appears to be primary and unaltered, and is termed an algal limestone; all the others are sideritised or ankeritised. Traces of sphalerite were detected in 322, associated with replacive pyrite.

CLASSIFICATION: Limestone (?Algal)

932260

COMPOSITION: Dominantly very fine-grained calcite (stain test positive) as minute spherical, ovoid, lensoid to elongate bodies separated by clear calcite. Incorporating larger lenses of brownish ankerite.

FABRIC: Very fine-grained, uniform, with preferred orientation of small calcite bodies. Occasional small radiating bodies of calcite, possibly coralline or bryozoal. Occasional coarse calcite.

MINOR MINERALS: Scattered small clastic quartz grains. Ankeritic lenses are darker, denser, textureless.

INTERPRETATION/COMMENTS: Microstructures suggest a limestone of essentially organic origin, mainly ?algal with incorporated other fossils. The ankerite bodies are perhaps representative of impure carbonate infill material.

---

SAMPLE NO: 3753500

(T.S. 63606 )

CLASSIFICATION: Siderite Rock.

COMPOSITION: Essentially monomineralic but texturally variable; dense, fine-grained layered and concretionary patches, and quite porous networks of siderite crystals.

FABRIC: The rock has the fabric of a breccia, (possibly a reef-breccia) and the porosity may be due to the volume reduction accompanying the conversion of calcite to siderite.

MINOR MINERALS: A few irregular patches of chalcedonic silica. Thin interstitial films of ?carbonaceous matter.

INTERPRETATION/COMMENTS: Thought to have been a limestone or limestone breccia which was completely altered to siderite.

**CLASSIFICATION:** Porous Siderite Rock.

**COMPOSITION:** Virtually monomineralic, composed of microcrystalline siderite, brownish due to incipient oxidation, with many ovoid to subspherical voids containing delicate networks of fine siderite.

**FABRIC:** Structureless. Voids are non-diagnostic, with fine boxwork-like networks which could be after another carbonate (or possibly sphalerite?).

**MINOR MINERALS:** Sporadic thin films of carbonaceous matter.

**INTERPRETATION/COMMENTS:** The siderite is very probably replacive, and the original rock was most likely another carbonate. If the voids represent sphalerite, then this was probably an Fe-poor variety and the mineralisation may have been "Mississippi-Valley" style. Very speculative!

---

**SAMPLE NO:** 3753721

(T.S. 63608 )

**CLASSIFICATION:** Ankerite Rock.

**COMPOSITION:** Consists almost entirely of well-crystallised ankerite (carbonate stain test); crystals have rims of iron-stained ankerite.

**FABRIC:** Random crystalline fabric. A few poorly preserved curved textures suggest the former presence of fossil fragments.

**MINOR MINERALS:** Thin branching veinlets of ultrafine pyrite.

**INTERPRETATION/COMMENTS:** The original rock may have been a fossiliferous limestone which was replaced by ankerite.

**SAMPLE NO:** 375322

(T.S. 63609 )

Page 3

932262

**CLASSIFICATION:** Weakly Mineralised Siderite Rock.

**COMPOSITION:** Finely crystallised siderite is the dominant constituent, with small irregular voids throughout. Parts of the rock have been replaced by fine pyrite accompanied by a trace of colourless sphalerite.

**FABRIC:** Uniform, featureless, with average grain size of 0.1 mm. No relict textures. Pyrite as vague lensoid aggregates with linear distribution.

**MINOR MINERALS:** Thin intergranular carbonaceous films. Siderite veinlets apparently cutting the pyrite patches, i.e. younger.

**INTERPRETATION/COMMENTS:** The original rock was probably a carbonate (limestone/dolostone) which was sideritised, then incipiently replaced by sulphides.

---

**SAMPLE NO:** 375323

(T.S. 63610 )

**CLASSIFICATION:** Ankerite Rock.

**COMPOSITION:** Consists entirely of well-crystallised ankerite, with zones of coarser, recrystallised pink ankerite.

**FABRIC:** Uniform, with typical subhedral interlocking textures. Coarser ankerite shows growth-zoning.

**MINOR MINERALS:** Traces of ultrafine earthy hematite pigmenting the coarse ankerite.

**INTERPRETATION/COMMENTS:** Evidence of recrystallisation and possible infilling of voids suggests that the original rock was a carbonate.

CLASSIFICATION: Carbonaceous Siltstone.

COMPOSITION: Closely-packed, silt-sized, subangular to subrounded quartz grains, with very minor interstitial illite-sericite and thin intergranular films of carbonaceous matter.

FABRIC: Very uniform, with very closely-sized/sorted grains at the upper limit of the silt range. Weakly bedded due to parallel lines of carbon.

MINOR MINERALS: Occasional feldspar and chert grains. Detrital heavy-mineral grains (leucoxene, zircon, tourmaline). A few muscovite flakes.

INTERPRETATION/COMMENTS: A conventional, featureless, indurated clastic sediment.

---

SAMPLE NO: 3528497

(T.S. 63612 )

CLASSIFICATION: Serpentine Rock.

COMPOSITION: Dominantly composed of a serpentine mineral, probably lizardite, in the form of thin concentric layers, "amorphous" and cryptocrystalline material, with lenses of chlorite.

FABRIC: No relict igneous textures. Thin layering suggests deposition from fluids. Chlorite lenses represent recrystallised serpentine.

MINOR MINERALS: Thin veinlets/films of Fe/Mn oxides, parallel to layering and filling crosscutting microfractures.

INTERPRETATION/COMMENTS: An unusual rock. Does not appear to represent a serpentinised ultramafic, though perhaps derived from it and redeposited. Field data needed to assist interpretation.

932264



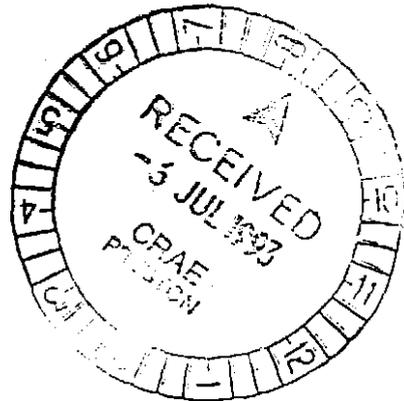
## Central Mineralogical Services

8 Bradshaw Avenue, Crafers, S.A. 5152  
Telephone (08) 370 9779 Fax (08) 370 9788  
International: Telephone + 618 370 9779 Fax + 618 370 9788

1 July 1993

Mr. R. Parkinson  
CRA Exploration Pty. Ltd.  
PO Box 8093  
NORTHLAND CENTRE VIC 3072

REPORT CMS 93/6/7



YOUR REFERENCE: DPO 77105  
DATE RECEIVED: 22 June 1993  
SAMPLE NO'S 3528498-500  
SUBMITTED BY: R. Parkinson  
WORK REQUESTED: Petrology Mineragraphy

*H.W. Fander*  
H.W. Fander, M.Sc.

## SAMPLE REPORT (Mineralogy, Petrology, Ore Microscopy)

Job No: CMS 93/6/7                      Date Received: 22.6.93

Reference: DPO 77105

Sample No. 3528498

Nature of Sample: Hand Specimen

DESCRIPTION                      P. SECTION NO. 63562

## IDENTIFICATION

3528498

Massive Sulphides

a. Hand Specimen: Massive sulphides.

b. Microscopic:

This consists mainly of massive, very pale to colourless, often clear sphalerite, with large and small bulbous, spheroidal masses of galena and sphalerite; there are late stage patches and veinlets of *chalcopyrite* cutting the other sulphides. There is very little gangue, and appears to be a carbonaceous/bituminous substance forming curved zones or shells on colloform masses.

The sphalerite shows colloform, fibrous-radiating textures, defined by thin lines of fine voids. The spheroidal masses have very distinct colloform textures, consisting of very thin radiating-fibrous pyrite and/or galena in all proportions; the cores of these aggregates often consist of random, microgranular intergrowths of sphalerite with galena and/or pyrite. It is suspected that the original zinc sulphide was low temperature colloform wurtzite, whose textures dictated the growth of the other sulphides when they crystallised. The Fe content is believed to be very low (<2%).

The photomicrographs (all at 135x magnification) show various textures and intergrowths between the sulphides.

## SAMPLE REPORT (Mineralogy, Petrology, Ore Microscopy)

Job No: CMS 93/6/7

Date Received: 22.6.93

Reference: DPO 77105

Sample No. 3528499

Nature of Sample: Hand Specimen

DESCRIPTION

T &amp; P SECTION NO. 63563

## IDENTIFICATION

3528499

Mineralised Siderite  
Rock

a. **Hand Specimen:** Grey-brown, microcrystalline brecciated rock.

b. **Microscopic:**

This is a mineralised siderite rock, brecciated and veined by siderite.

The rock consists of closely-packed small siderite crystals with interstitial black organic (carbonaceous) matter, traversed by pygmatic veinlets of carbonaceous matter; there are sporadic areas of porosity, possibly caused by the reduction in volume accompanying the conversion of another carbonate (calcite, dolomite) to siderite. This porosity provided access to fluids which deposited the sulphides.

The rock was brecciated, and veined by siderite which is cream-beige in colour because carbonaceous matter is absent.

The evidence suggests that the original carbonate rock was sideritised and then mineralised.

Sulphides occur as small scattered irregular grains of galena and colourless sphalerite, separately and as intergrowths, forming patches up to 500 $\mu$  in size, but most grains are in the 5 $\mu$  - 50 $\mu$  range. The sulphides are mostly associated with porous portions of the rock but some occur as veinlets. Thus the sulphides postdate the crystallisation of the carbonate.

## SAMPLE REPORT (Mineralogy, Petrology, Ore Microscopy)

Job No: CMS 93/6/7

Date Received: 22.6.93

Reference: DPO 77105

Sample No. 3528500

Nature of Sample: Hand Specimen

DESCRIPTION

T SECTION NO. 63564

## IDENTIFICATION

3528500

Mineralised Siderite  
Rock

a. Hand Specimen: Brown, crystalline rock.

b. Microscopic:

This is a weakly mineralised siderite rock.

The rock consists almost entirely of siderite crystals, and small voids throughout; there are subparallel and branching pygmatic veinlets of black carbonaceous matter but little or no carbon between siderite grains, unlike 499. Also, there is little evidence of brecciation.

Small amounts of fine, colourless sphalerite occur throughout the rock, interstitially to the siderite crystals, as irregular grains generally  $<50\mu$  in size. Traces of pyrite are also present.

The pervasive porosity of the rock is thought to have been caused by the conversion of a lighter carbonate to the denser siderite, which effects a reduction in volume, providing access to solutions.

As with 498 and 499, the sphalerite has a very low Fe content, suggesting a low temperature of formation. A Mississippi Valley style of mineralisation is suggested.

## PHOTOMICROGRAPHS

This series of photomicrographs, of sulphide textures in sample 3528498, was taken at a magnification of 270x.

### Photo 1

Cores and shells of brown organic (?bituminous) matter in sphalerite with concentric textures.

### Photo 2

Delicate colloform-banded textures and fibrous-radiating textures of pyrite (pale yellow) and galena (pale grey) in a sphalerite host.

### Photo 3

Fibrous-radiating textures, and possible shrinkage-cracks filled with galena; sphalerite host.

### Photo 4

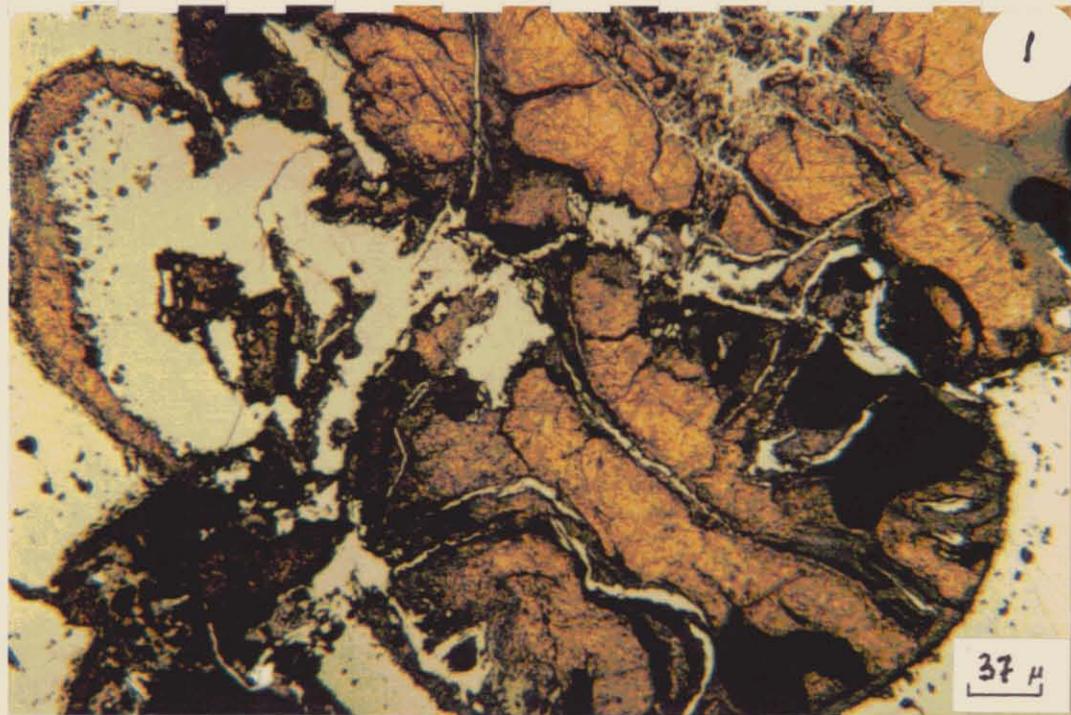
A composite fibrous-radiating body with ?shrinkage-cracks; note larger veinlike body of galena, possibly occupying larger shrinkage feature.

### Photo 5

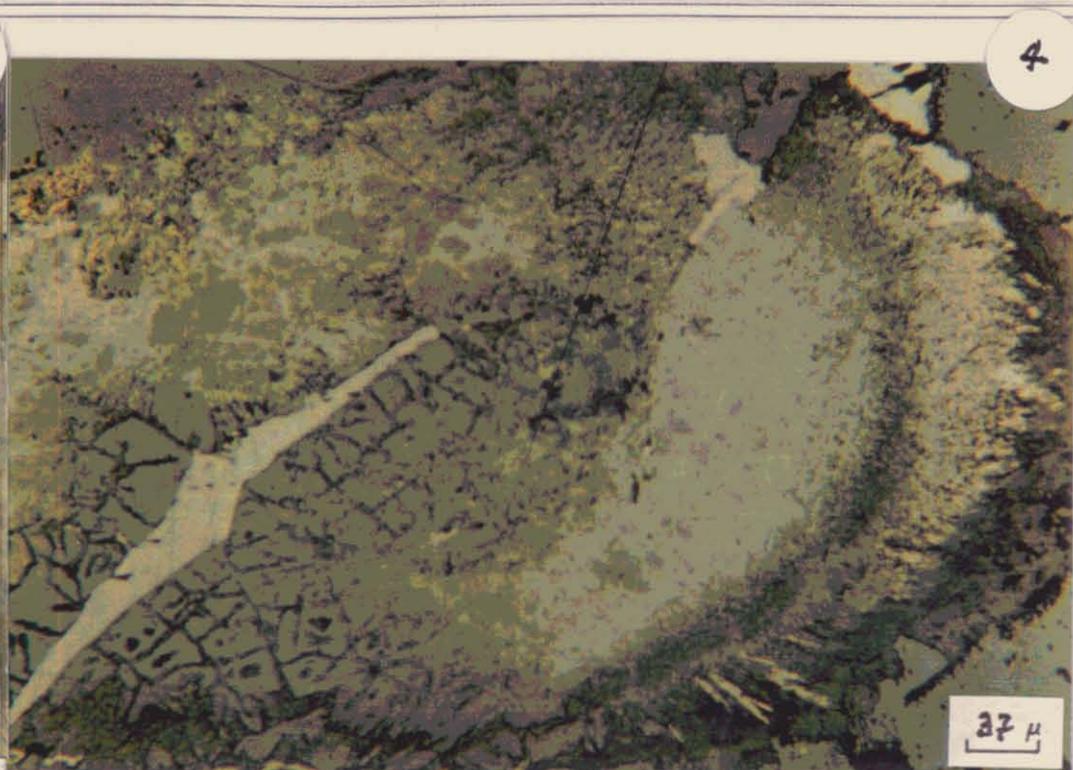
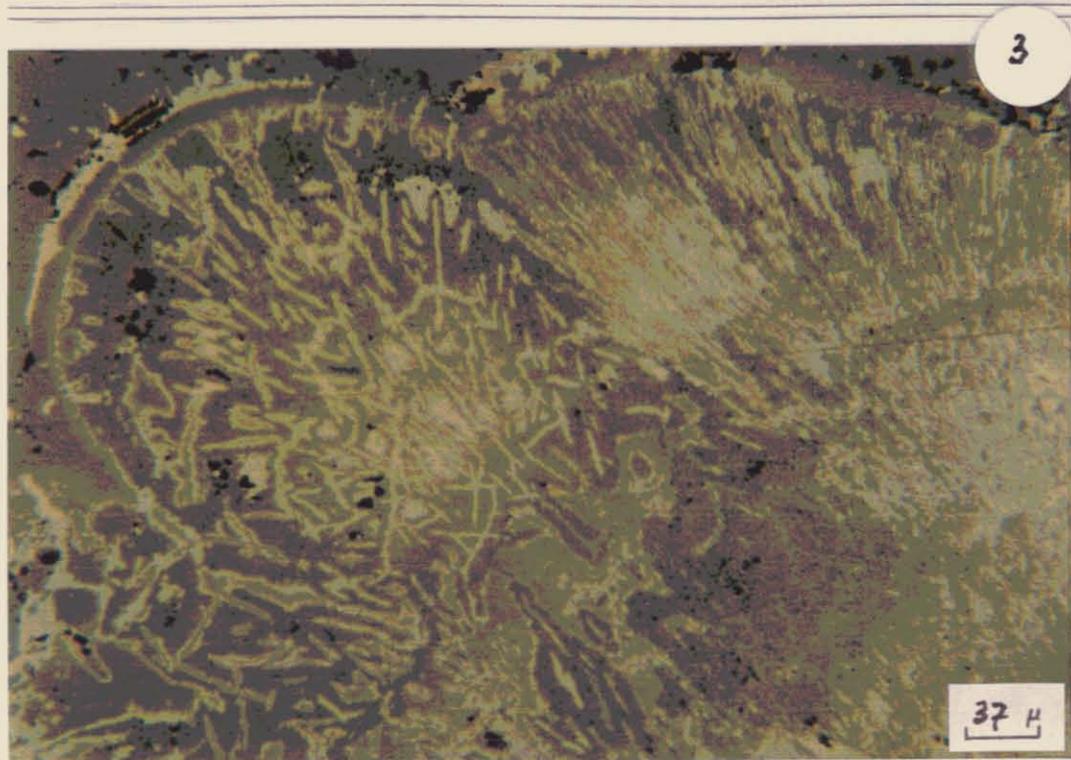
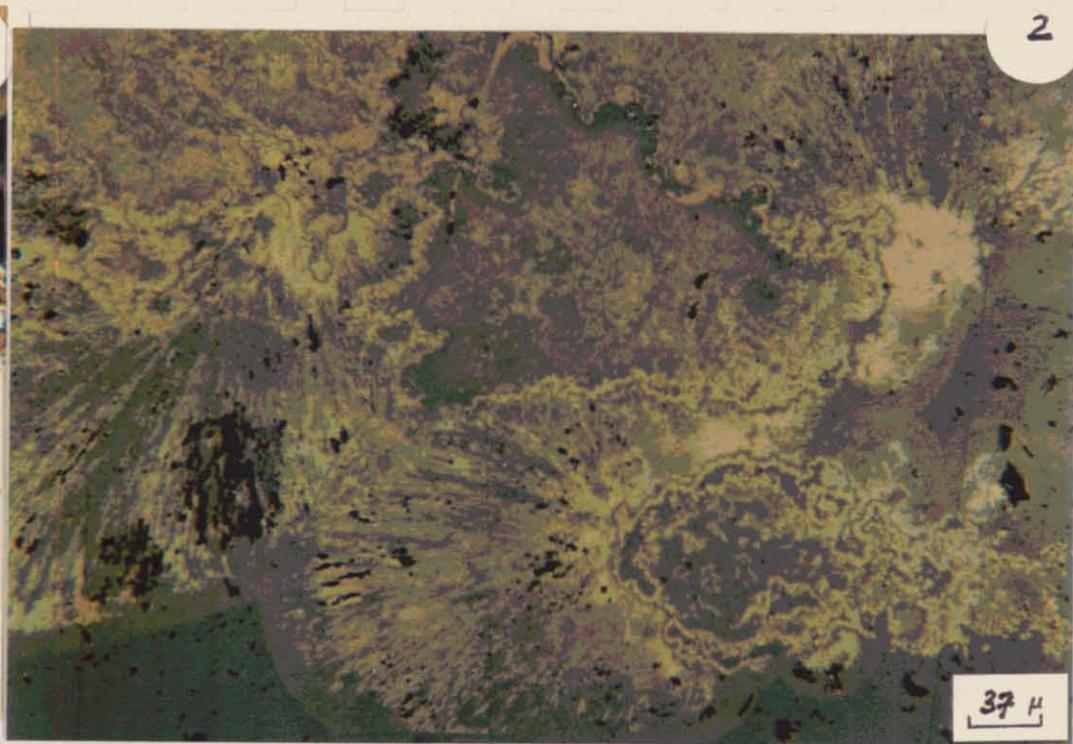
Typical composite fibrous-radiating body, with extremely finely intergrown pyrite and galena as well as coarser galena filling cracks; the galena and pyrite fibres are thought to have followed pre-existing low-temperature wurtzite textures.

### Photo 6

A fibrous-radiating composite sulphide body with late-stage chalcopyrite and chalcopyrite-galena-sphalerite veins.



932269



932270

