THE LITHOGEOCHEMICAL AND MINERALOGICAL SETTING OF TURBIDITE HOSTED ARSENIC-GOLD DEPOSITS IN THE LOWER PALAEOZOIC OF SCOTLAND.

by

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PLATES

LIST OF PLATES

PLATE 1 Historical Gold Mining Activity in Scotland

1a) TOP

Location: Helmsdale, Northeast Scotland
Description: View of the shanty gold mining town of Baile-an-Or (bridge of gold) during the Scottish Gold Rush, circa 1869.

1b) MIDDLE

Location: Helmsdale, Northeast Scotland
Description: Alluvial gold panning in the Strath Kildonnan area, circa 1869.

1c) BOTTOM

Location: Leadhills, Southern Scotland.
Description: Alluvial gold extraction in the Leadhills area, circa 1910. Gold panning was a traditional weekend activity with the lead miners and their families and provided a beneficial source of extra income. Note the use of sluice boxes and the mining activity in the background.

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PLATE 2 Polished sections of mineralised breccias from the Glendinning deposit.

2a) TOP LEFT

Location: Glendinning Borehole No. 3 (148.07-148.24m)
Sample: CXD1566
Section: G6030
Plate Type: Plane Polarised (Reflected light, air)
Field of View: 1.74mm

Description: Angular, brecciated siltstone fragment (bottom left corner) cemented by vuggy quartz and sulphides.

2b) TOP RIGHT

Location: Glendinning Borehole No. 3 (148.07-148.24m)
Sample: CXD1566
Section: G6030
Plate Type: Plane Polarised (Reflected light, air)
Field of View: 0.88mm

Description: Brecciated siltstone fragments cemented by vuggy quartz and sulphides. Sharp, angular contacts occur at margins of breccia clasts which also exhibit a variety of 'pull-apart' textures. Greywacke siltstone has undergone partial argillic alteration with feldspar and some rock fragments replaced by clay minerals (which also fill any remaining pores). Note extensive arsenopyritisation of breccia margins.

2c) BOTTOM LEFT

Location: Glendinning Borehole No. 3 (148.07-148.24m)
Sample: CXD1566
Section: G6030
Plate Type: Plane Polarised (Reflected light, air)
Field of View: 1.74mm

Description: Clast supported, siltstone breccia cemented by vuggy quartz and sulphides. Note clast size, shape and alignment, and absence of clay matrix. Within the siltstone any distinction between primary clay cements and altered grains is obscured due to compaction. All grains in this plate other than quartz and opaques have been argillized. Note the relationship between quartz matrix and sulphides.

2d) BOTTOM RIGHT

Location: Glendinning Borehole No. 3 (148.07-148.24m)
Sample: CXD1566
Section: G6030
Plate Type: Plane Polarised (Reflected light, air)
Field of View: 0.88mm

Description: Hydrothermal altered and partially replaced angular siltstone breccia fragments surrounded by coarse grained vuggy quartz, fine grained arsenopyrite rhombs and larger euhedral pyrite. Note arsenopyritisation of clast margins and irregular, mosaic-like texture of quartz grains forming the matrix to the breccia clasts.

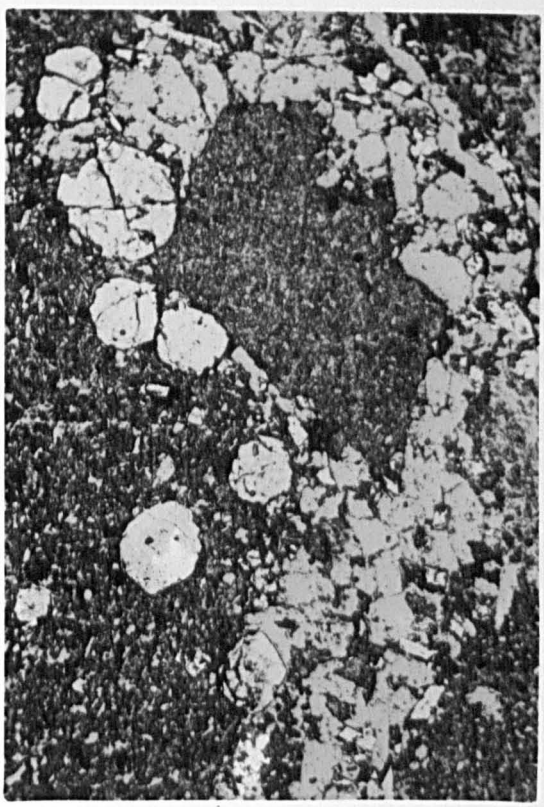


PLATE 3 Polished sections of disseminated sulphide mineralisation from the Glendinning deposit.

3a) TOP LEFT

Location: Glendinning Borehole No. 3 (178.64-178.69m)
Sample: CXD1568
Section: G6032
Plate Type: Plane Polarised (Reflected light, air)
Field of View: 0.50mm

Description: Anhedral pyrite and euhedral rhombs of arsenopyrite randomly disseminated within a medium grained greywacke sandstone. Note the association of arsenopyrite with and nucleating upon pre- existing pyrite, the homogenous internal structure of the arsenopyrite crystals and the lack of any apparent zoning.

3b) TOP RIGHT

Location: Glendinning Borehole No. 3 (178.64-178.69m)
Sample: CXD1568
Section: G6032
Plate Type: Plane Polarised (Reflected light, air)
Field of View: 1.74mm

Description: Small quartz-ankerite veinlet cross-cutting a medium grained carbonate-rich greywacke. Note the arsenopyritisation of the veinlet wallrocks and the variation in grain size between greywacke and vein hosted arsenopyrite crystals and arsenopyrite nucleation on wallrock- fracture contact. Arsenopyritisation is interpreted to have occurred coeval with vein formation and prior to quartz deposition.

3c) BOTTOM LEFT

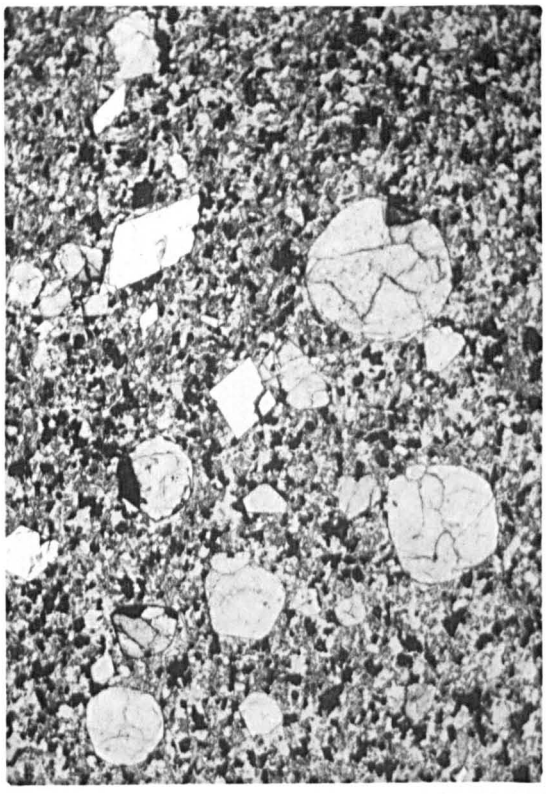
Location: Glendinning Borehole No. 3 (178.64-178.69m)
Sample: CXD1568
Section: G6032
Plate Type: Plane Polarised (Reflected light, air)
Field of View: 1.74mm

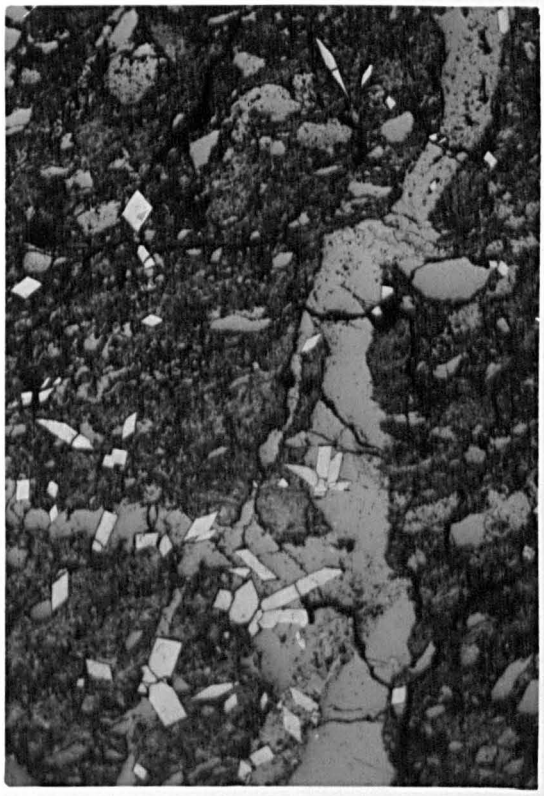
Description: Fine grained siltstone crosscut by fractures infilled by anhedral masses of arsenopyrite associated with extensive arsenopyritisation of fracture margins. Note the growth of notably coarser, individual arsenopyrite crystals within the siltstone adjacent to the fractures.

3d) BOTTOM RIGHT

Location: Glendinning Borehole No. 3 (178.64-178.69m)
Sample: CXD1568
Section: G6032
Plate Type: Plane Polarised (Reflected light, air)
Field of View: 1.74mm

Description: Coarse grained hydrothermally altered greywacke sandstone containing disseminated arsenopyrite rhombs (white) and laths intimately associated with anhedral pyrite (pale grey).





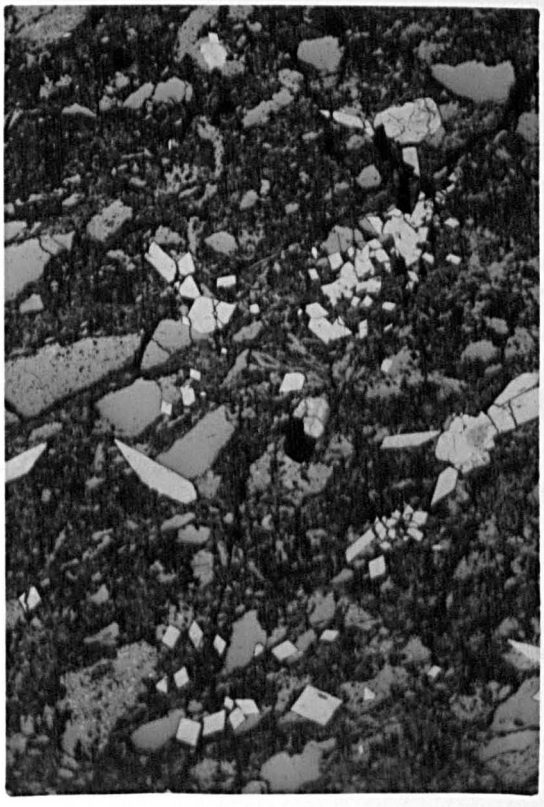


PLATE 4 — Polished sections of microprobe analysis grid within arsenopyrite crystals from the Talnotry deposit.

4a) TOP LEFT

Location: Talnotry (Quartz-Arsenopyrite vein)
Sample: TAL1
Section: 6549
Plate Type: Plane Polarised (Reflected light, air)
Field of View: 0.50mm

Description: Magnified view of central area of plate 4c displaying the location of electron microprobe analysis sites within a single microchemical mapping grid. Each analysis spot is approximately 2 microns in diameter.

4b) TOP RIGHT

Location: Talnotry (Quartz-Arsenopyrite vein)
Sample: TAL1
Section: 6549
Plate Type: Plane Polarised (Reflected light, air)
Field of View: 1.74mm

Description: Brecciated anhedral arsenopyrite with a quartz-ankerite vein 40cm diameter.

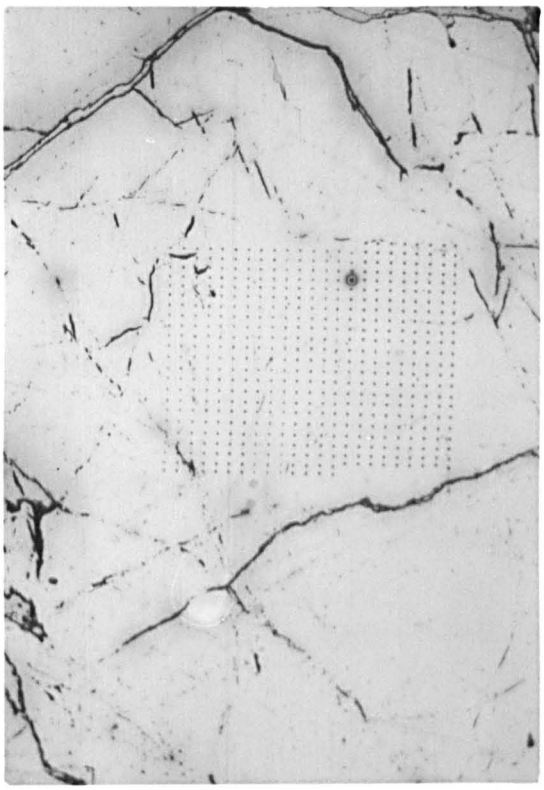
4c) BOTTOM LEFT

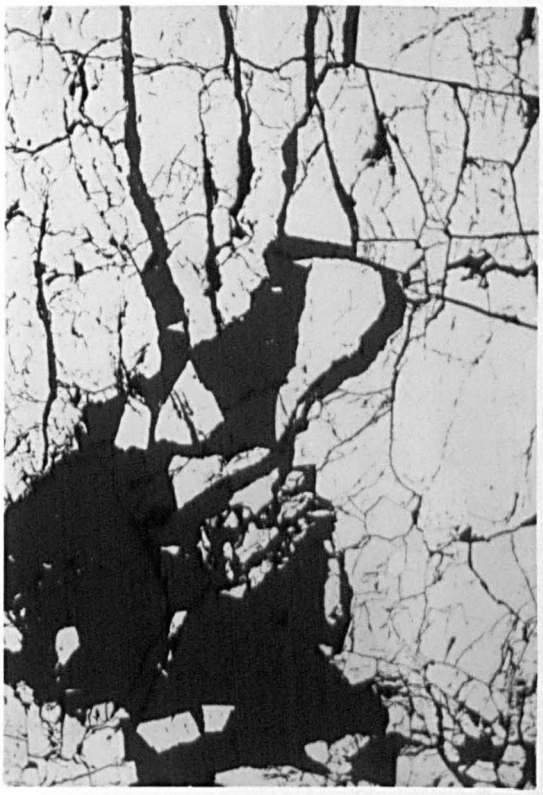
Location: Talnotry (Quartz-Arsenopyrite vein)
Sample: TAL1
Section: 6549
Plate Type: Plane Polarised (Reflected light, air)
Field of View: 0.88mm
Description: Enlargement of bottom left corner of plate 4b. Anhedral, relatively massive arsenopyrite vein mineralisation. Note the location of the microprobe analysis grid (just visible in the central portion of the plate).

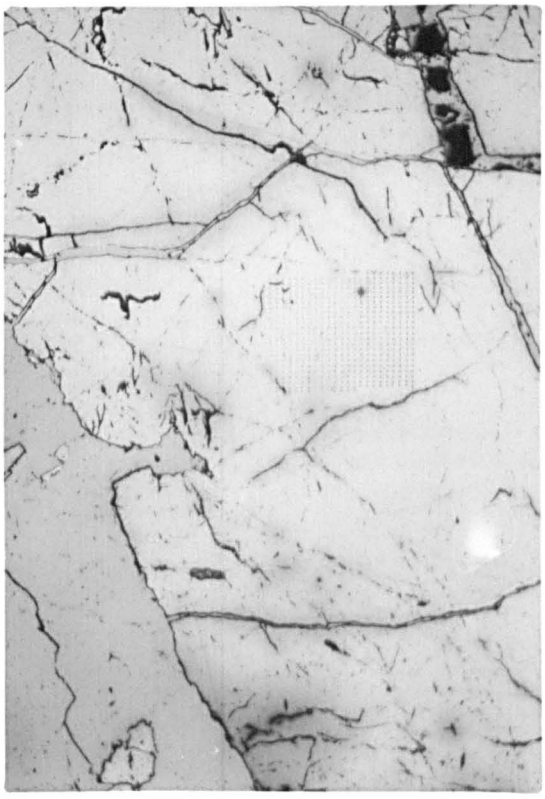
4d) BOTTOM RIGHT

Location: Talnotry (Quartz-Arsenopyrite vein)
Sample: TAL1
Section: 6549
Plate Type: Plane Polarised (Reflected light, air)
Field of View: 0.35mm

Description: Enlarged view of area in central part of plate 4a. Microchemical mapping grid (sample spacing approximately 10x20 microns).







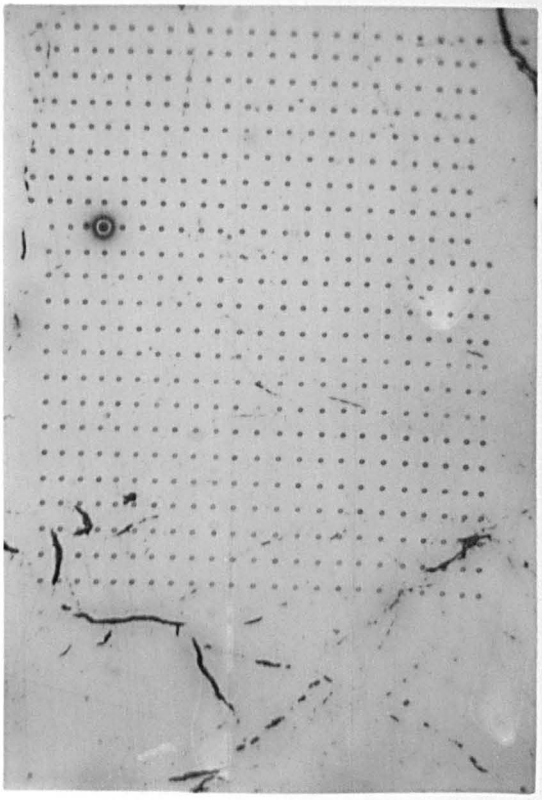


PLATE 5 — Polished sections of microprobe analysis grid within arsenopyrite crystals from the Cairngarroch Bay deposit.

5a) TOP LEFT

Location:	Cairngarroch Bay (grid ref: 10451 54950)
Sample:	PDMIN4
Section:	6512
Plate Type:	Reflected light (plane polarised, air)
Field of View:	0.45mm
Description:	Detailed inset of arsenopyrite crystal located in the central portion of plate 5c. Note the electron microprobe analysis sites within the microchemical mapping grid. Each analysis spot is approximately 2 microns in diameter.

5b) TOP RIGHT

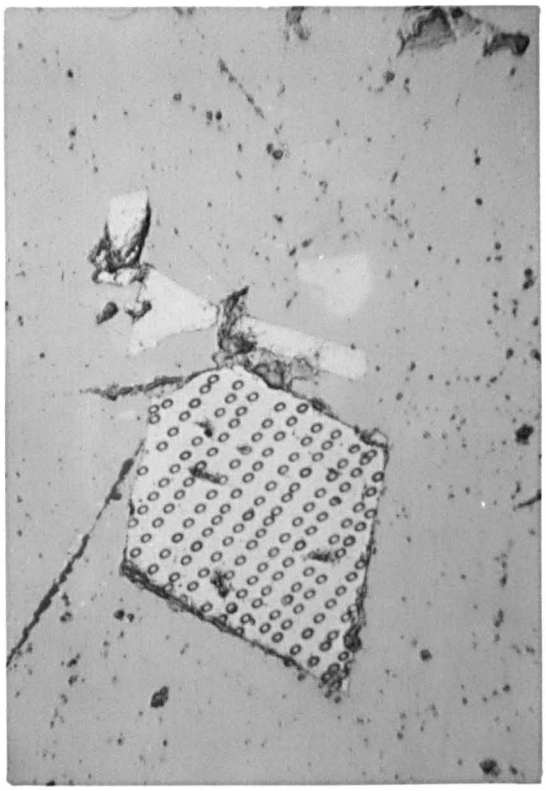
Location:	Cairngarroch Bay (grid ref: 10451 54950)
Sample:	PDMIN1
Section:	6509
Plate Type:	Reflected light (plane polarised, air)
Field of View:	1.74mm
Description:	Arsenopyrite quartz-carbonate vein mineralisation detailing general area of arsenopyrite samples used in microgeochemical mapping studies.

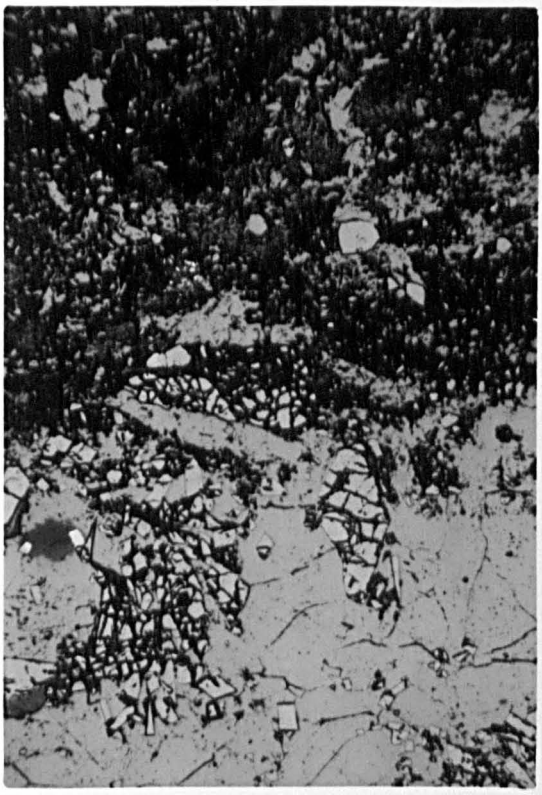
5c) BOTTOM LEFT

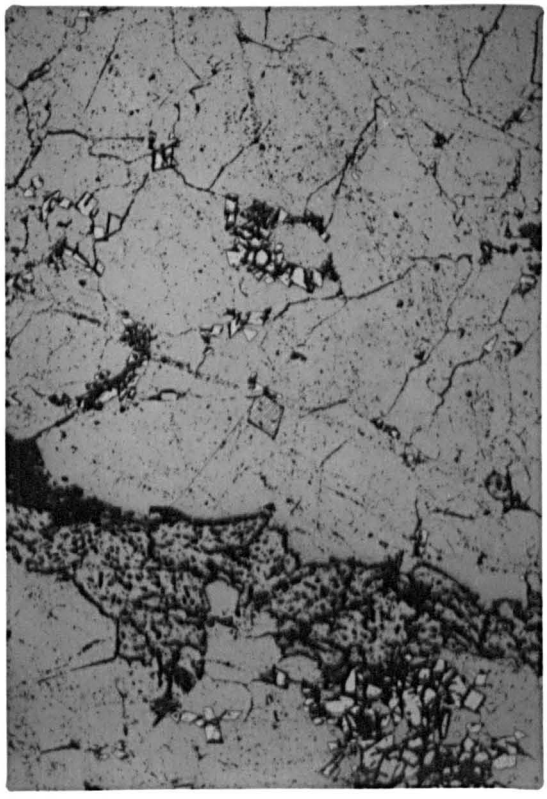
Location:	Cairngarroch Bay (grid ref: 10451 54950)
Sample:	PDMIN4
Section:	6512
Plate Type:	Reflected light (plane polarised, air)
Field of View:	1.74mm
Description:	Arsenopyrite quartz-carbonate vein mineralisation detailing the position of a single arsenopyrite crystal used in microgeochemical mapping studies.

5d) BOTTOM RIGHT

Location:	Cairngarroch Bay (grid ref: 10451 54950)
Sample:	PDMIN2
Section:	6510
Plate Type:	Reflected light (plane polarised, air)
Field of View:	1.74mm
Description:	Relatively massive arsenopyrite-quartz vein mineralisation within the central portion of the Cairngarroch vein. Note the highly fractured, jigsaw-like nature of the sulphides.







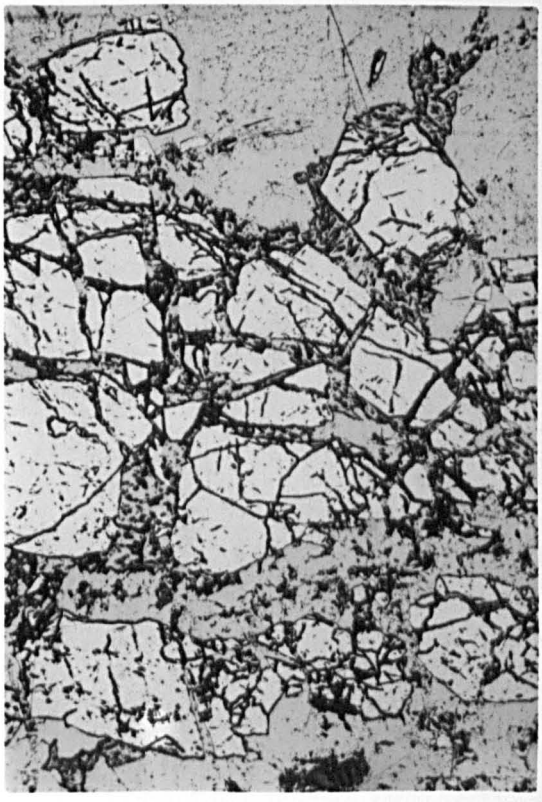


PLATE 6 Polished sections of vein and wallrock hosted arsenopyrite mineralisation from the Glendinning deposit.

6a + 6c) TOP LEFT and BOTTOM LEFT

Location: Glendinning Borehole 2 (100.23-100.30m)
Sample: CXD1559
Section: 6023
Plate Type: Reflected light (plane polarised, air)
Field of View: 0.88mm and 1.74mm

Description: Arsenopyrite star resulting from the interference of arsenopyrite crystals growing in random orientation within the immediate wallrocks to small quartz veinlet. As only minor quantities of arsenopyrite accompany the vein quartz it is inferred that two phases of arsenopyrite deposition are present, with the first phase associated with the initial fracture event and pervasive hydrothermal alteration. Note the strong spatial control over arsenopyritisation exerted by the fracture. In addition, nucleation of arsenopyrite occurs preferentially upon or within areas of pre-existing pyrite.

6b) TOP RIGHT

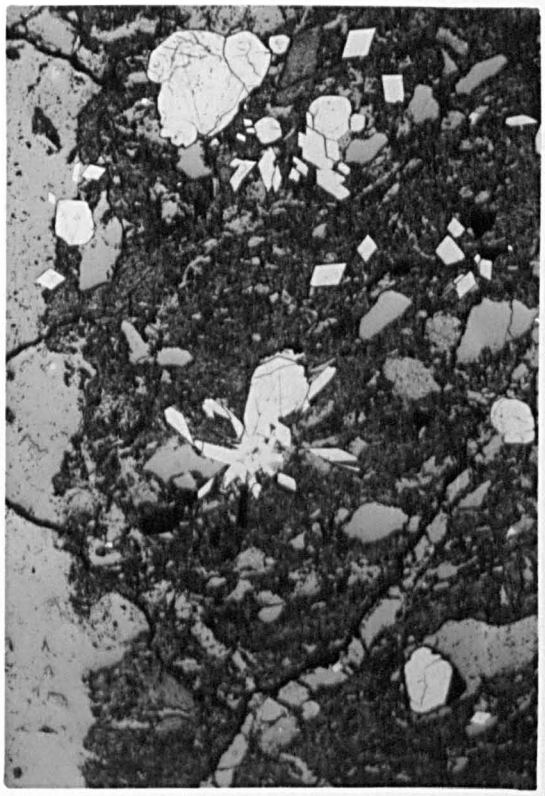
Location: Glendinning Borehole 2 (100.23-100.30m)
Sample: CXD1559
Section: 6023
Plate Type: Reflected light (plane polarised, air)
Field of View: 1.74mm

Description: Hydrothermally altered, sericitised greywacke sandstone at margin of 1cm wide quartz - ankerite - arsenopyrite vein. Note that all but the largest rock fragments and quartz grains have been destroyed/ replaced by intense alteration. Note arsenopyritisation association with pre-existing pyrite.

6d) BOTTOM RIGHT

Location: Glendinning Borehole 2 (100.23-100.30m)
Sample: CXD1559
Section: 6023
Plate Type: Reflected light (plane polarised, air)
Field of View: 0.45mm

Description: Large subhedral pyrite grain displaying core of extremely fine grained inclusions (producing a 'speckled' effect) rimmed by relatively homogenous arsenical pyrite (as defined by microprobe EDS study). A single small arsenopyrite inclusion was located within this rim zone (small white elongate lath in SE corner of grain) however its irregular margins suggest partial assimilation by the pyrite crystal.



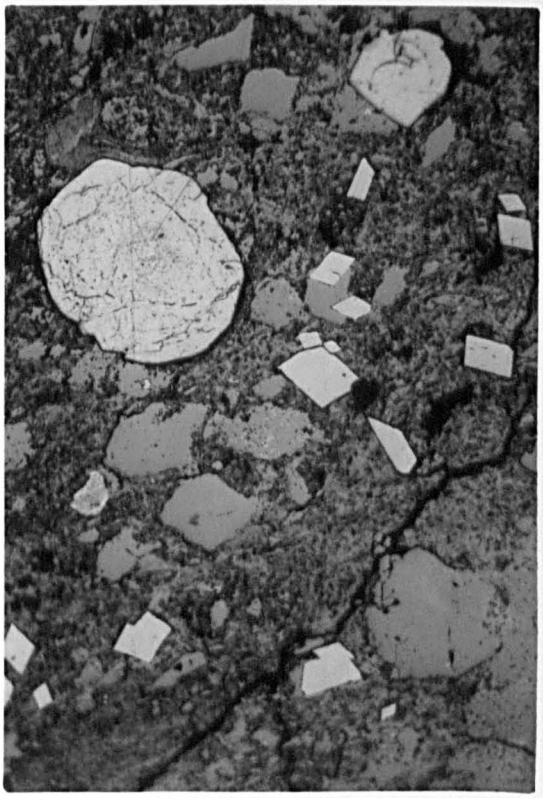


PLATE 7 Polished sections of various sulphide assemblages from the Glendinning deposit

7a) TOP LEFT

Location: Glendinning (Main spoil heap)
Sample: GLN3
Section: 6556
Plate Type: Reflected light (plane polarised, air)
Field of View: 0.88mm

Description: Fine grained anhedral sphalerite filling interstices within coarse grained vein quartz.

7b) TOP RIGHT

Location: Glendinning (Main spoil heap)
Sample: GLN1
Section: 6554
Plate Type: Reflected light (plane polarised, air)
Field of View: 0.88mm

Description: Complex anhedral sulphosalt (light grey) composed predominantly of Sb-Cu-As-S containing small inclusions of Sb-As-Fe-S rich phase (dark grey).

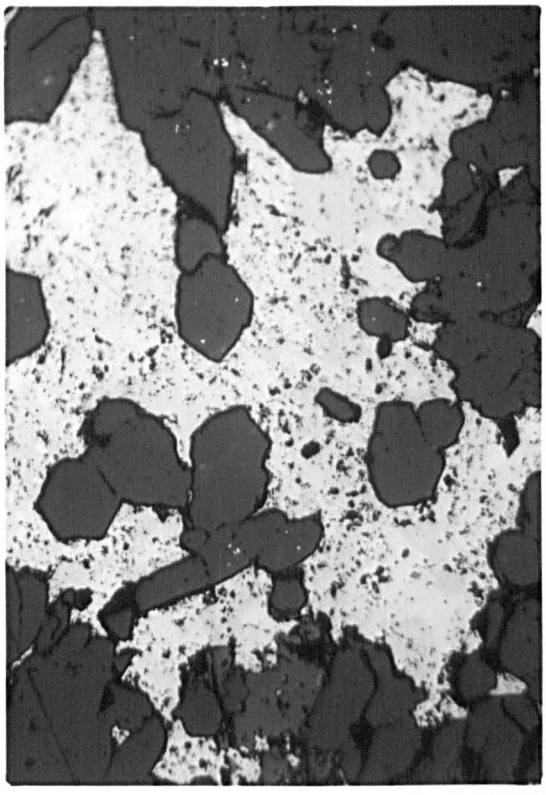
7c) BOTTOM LEFT

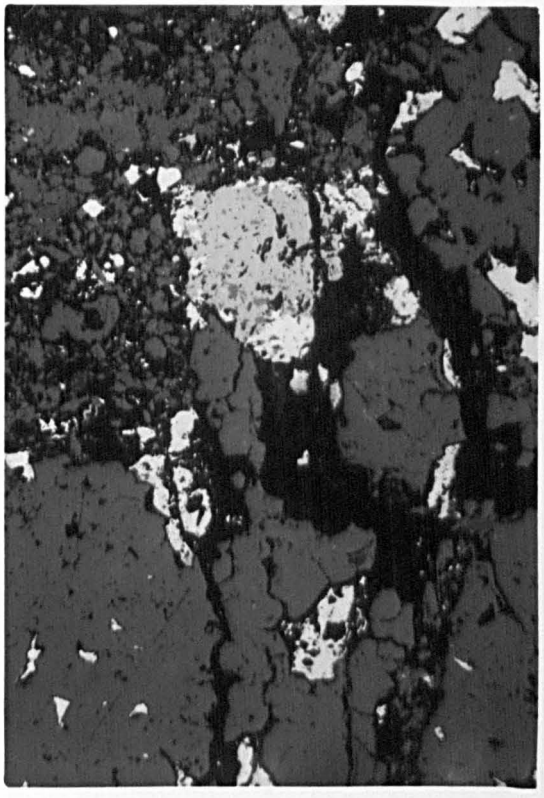
Location: Glendinning (Main spoil heap)
Sample: GLN2
Section: 6555
Plate Type: Reflected light (plane polarised, air)
Field of View: 1.74mm

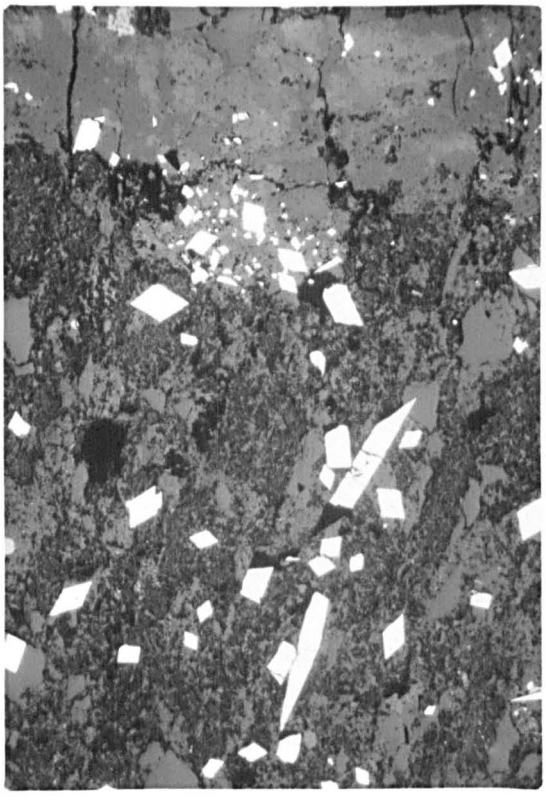
Description: Intensely altered sericitic greywacke crosscut by quartz-ankerite-arsenopyrite vein. Note intensity of sulphidation of wallrocks and the variation in grain size between disseminated and vein-hosted arsenopyrite.

7d) BOTTOM RIGHT

Location: Glendinning (Main spoil heap)
Sample: GLN4
Section: 6557
Plate Type: Reflected light (plane polarised, air)
Field of View: 0.45mm
Description: Arsenopyrite star resulting from the interference of arsenopyrite crystals growing in a random orientation, nucleated upon a small pyrite crystal.







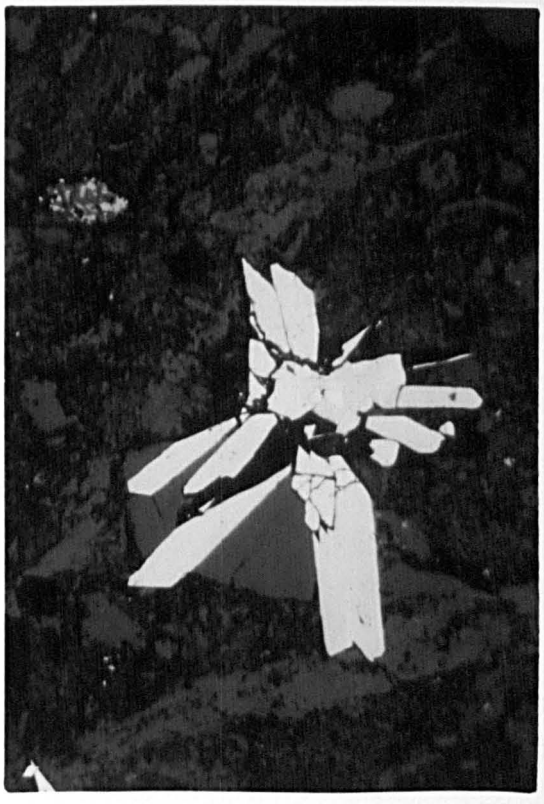


PLATE 8 — Polished sections of fine grained and massive varieties of stibnite mineralisation from the Glendinning deposit.

8a) TOP LEFT

Location: Glendinning (Main sorting floor)
Sample: GLEN5
Section: 6558
Plate Type: Reflected light (plane polarised, air)
Field of View: 0.45mm

Description: Detailed view of quartz-ankerite-stibnite vein, typifying the stibnite ore of this deposit. Bladed crystals of stibnite replace ankerite and occur together with sphalerite and boulangerite, a lead antimony sulphide. Stibnite exhibits 120 degree triple junctions and equidimensional grain sizes. Sparse disseminations of arsenopyrite and pyrite occur locally (to the right of the picture) and are interpreted as mechanically included particles from an earlier phase of mineralisation.

8c) BOTTOM LEFT

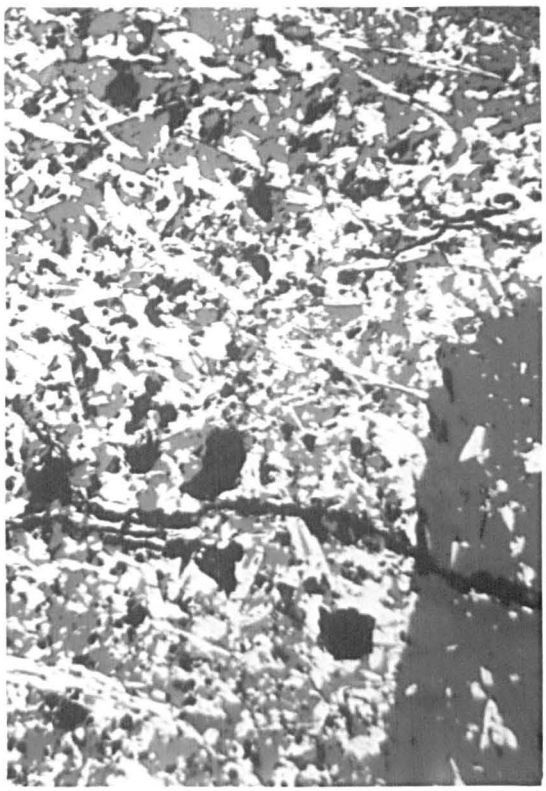
Location: Glendinning (Main sorting floor)
Sample: GLEN5
Section: 6558
Plate Type: Reflected light (plane polarised, air)
Field of View: 1.74mm

Description: Cross-section of quartz-ankerite-stibnite vein. Note the conspicuous pressure lamellae, strong bireflectance and reflection pleochroism. Characteristic pressure lamellae can form as a result of even minor deformation of the ore.

8b + 8d) TOP RIGHT and BOTTOM RIGHT

Location: Glendinning (Main sorting floor)
Sample: GLEN12
Section: 6510
Plate Type: Reflected light (Cross + plane polarised, air) Field of View: 1.74mm

Description: View of massive anhedral stibnite crystals containing quartz and ankerite inclusions. The massive, coarse grained stibnite formed part of a band 4cm wide infilling voids within a tectonic breccia. Stibnite is sparsely distributed in the Glendinning drillcore and in opposition to arsenopyrite appears to be constrained to within the vein/fracture system.



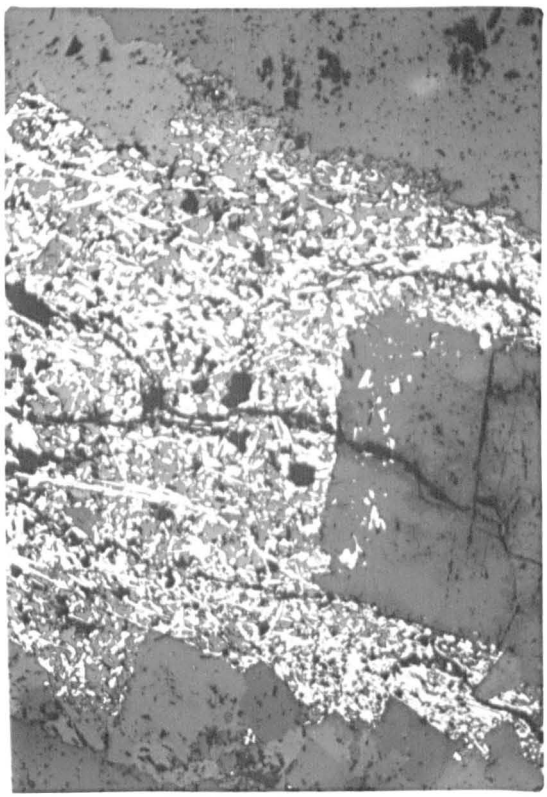


PLATE 9 — SEM study of clay minerals associated with As-Sb-Au mineralisation in the Glendinning deposit.

9a) TOP

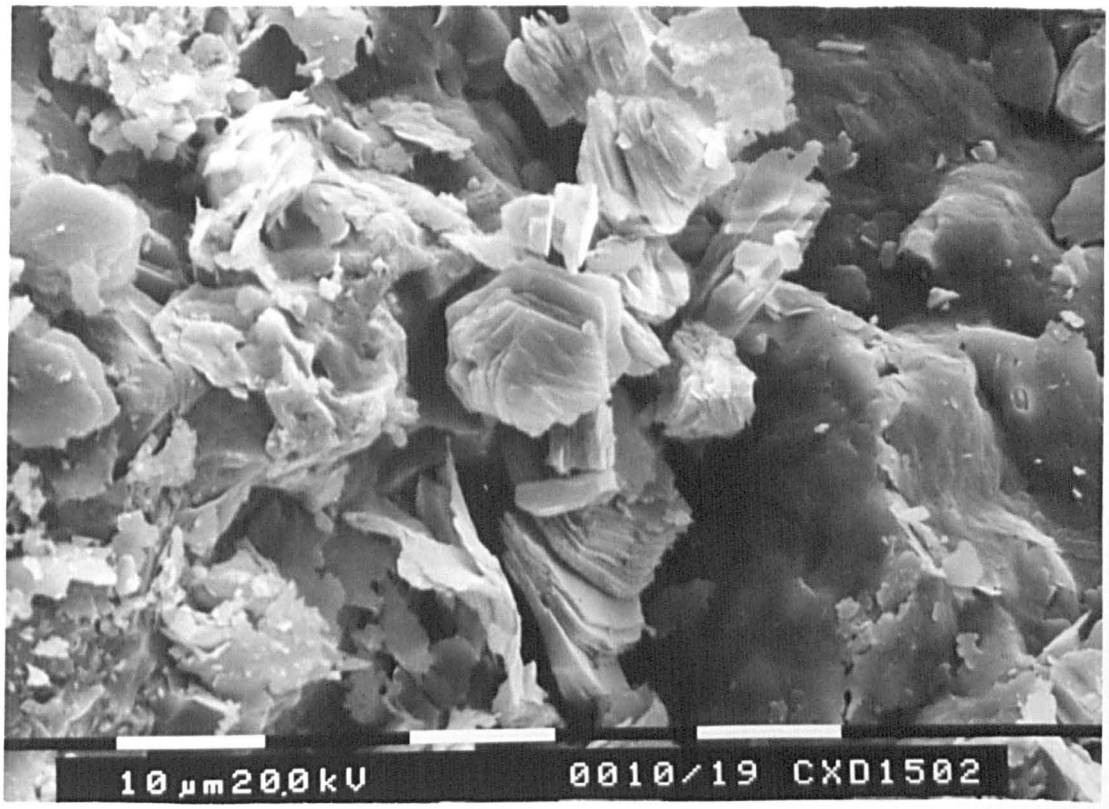
Location: Glendinning Borehole 1 (65.82-65.87m)
Sample: CXD1502
Plate Type: SEM photomicrograph.
Field of View: 100 microns

Description: Small quartz-arsenopyrite vein in Glendinning drillcore, the central portion of which is lined by dickite (a high temperature kaolinite polymorph) which forms a characteristic series of staked platelets ('book texture') nucleating upon a large quartz grain.

9b) BOTTOM

Location: Glendinning Borehole 1 (65.82-65.87m)
Sample: CXD1502
Plate Type: SEM photomicrograph.
Field of View: 100 microns

Description: Sheared portion of vein described in plate 9a. Note the disorientated array of dickite platelets now smeared over the fracture surface. Although dickite was formed very early in the mineralising episode it has been subjected to both compaction and shearing and as such very few stack remain intact.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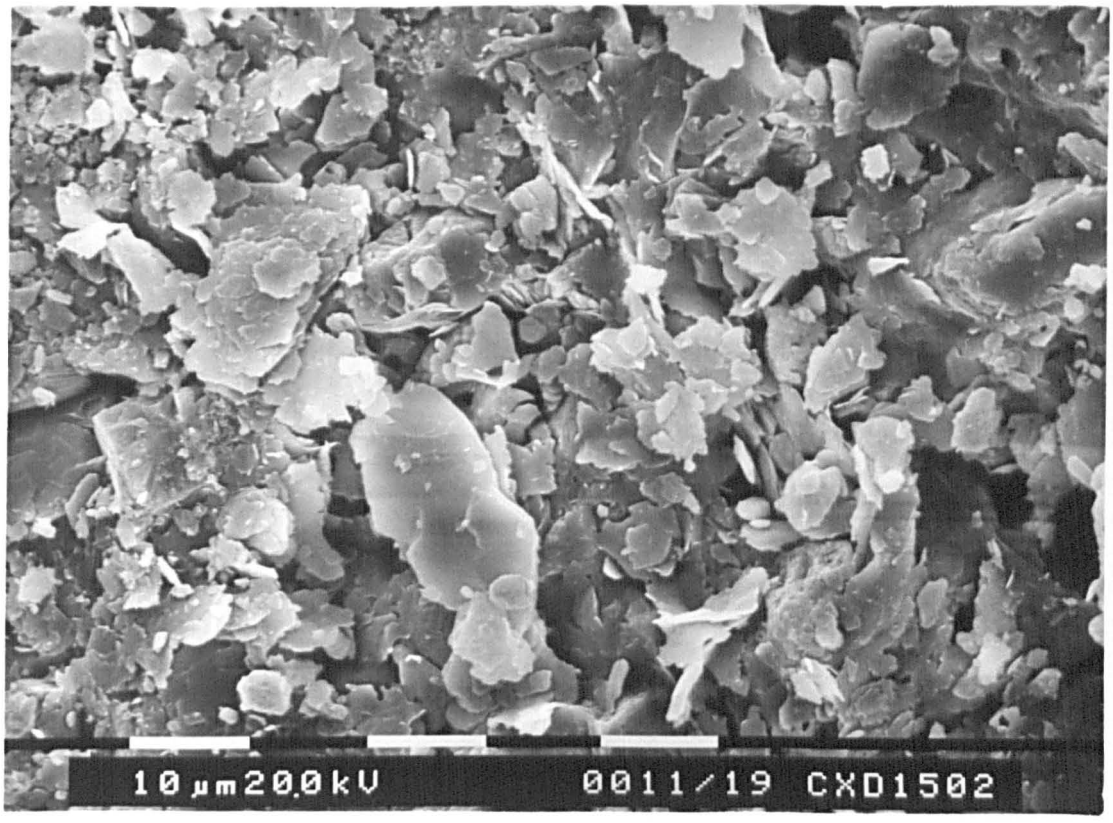
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0011/19 CXD1502

PLATE 10 Backscatter SEM study of stratiform pyrite and pyrite-magnetite assemblages within greywackes from the Glendinning deposit.

10a) TOP LEFT

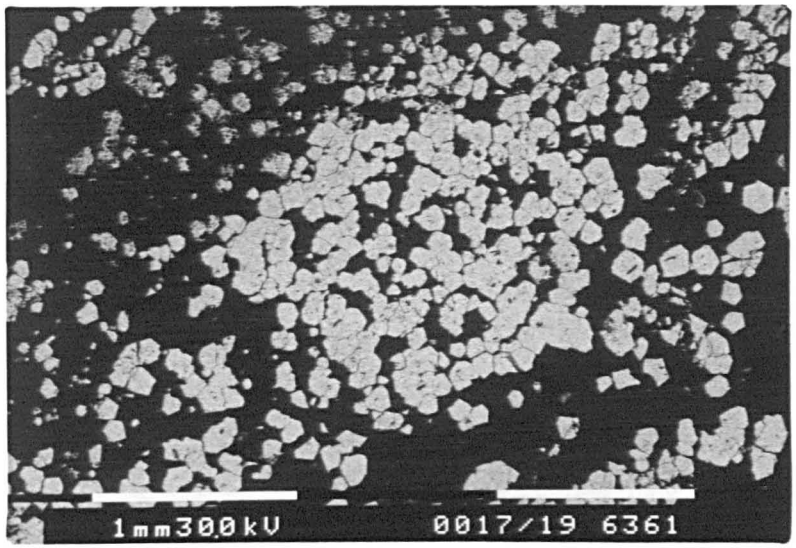
Location:	Glendinning Borehole 3 (48.68-48.77m)
Sample:	CXD1585
Section:	6361
Plate Type:	SEM Backscatter photomicrograph.
Field of View:	0.8mm
Description:	Enlarged view of of bottom left corner of plate 10c. Variety of complex internal structures within subhedral pyrite crystals. Note the thin pyrite rims/overgrowths on grains.

10b + 10d) TOP RIGHT and BOTTOM RIGHT

Location:	Glendinning Borehole 3 (48.68-48.77m)
Sample:	CXD1585
Section:	6361
Plate Type:	SEM Backscatter photomicrograph.
Field of View:	4mm
Description:	Single pyrite grain displaying complex skeletal internal structure formed by irregular myrmeketitic-like intergrowths of magnetite in pyrite. This texture is interpreted as formed by the partial sulphidation/reduction of detrital magnetite grains. A complete spectrum of alteration types has been observed ranging from virtually fresh detrital magnetite through to grains similar to that displayed in this plate. Where the alteration process has been most intense, little if any magnetite will remain. (NB detrital magnetite was identified by its subrounded to subangular shape, blue-grey colour (in reflected light) low reflectivity, isotropic character, internal ilmenite lamellae and lack of sulphur EDS peaks on the SEM).

10c) BOTTOM LEFT

Location:	Glendinning Borehole 3 (48.68-48.77m)
Sample:	CXD1585
Section:	6361
Plate Type:	SEM Backscatter photomicrograph.
Field of View:	0.4mm
Description:	Cluster of pyrite anhedra within a medium grained greywacke sandstone. Relict skeletal texture present in successive bands of pyrite throughout the drillcore studied to date, suggests that a large proportion of the pyrite formed as an alteration product from pre-existing detrital magnetite, during hydrothermal alteration/ reduction of the sediments.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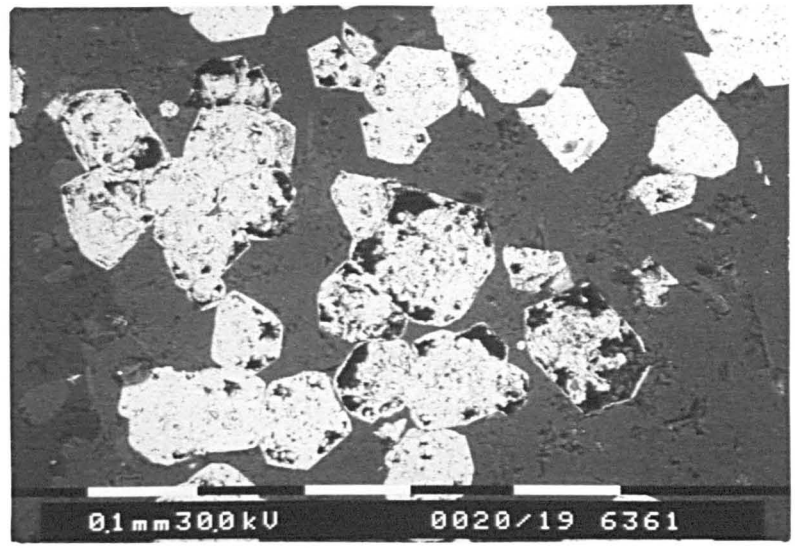
0017/19 6361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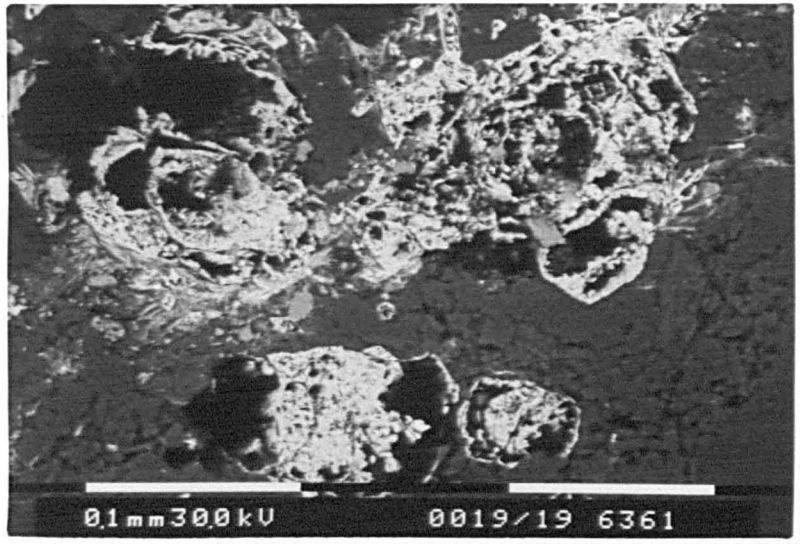
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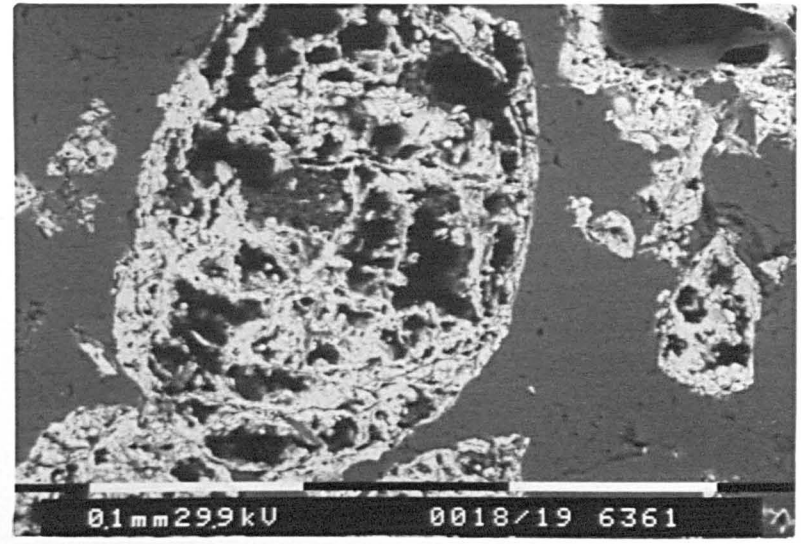
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0018/19 6361

PLATE 11 Backscatter SEM study of sulphide assemblages from the Glendinning deposit.

11a) TOP LEFT

Location:	Glendinning Borehole 2 (48.68-48.77m)
Sample:	6361
Section:	CXD1585
Plate Type:	SEM backscatter photomicrograph.
Field of View:	1.4mm
Description:	Detailed enlargement of siltstone clasts viewed in Plate 11c. Matrix to the breccia clast comprised >99% arsenopyrite and pyrite. Note the absence of quartz-carbonate cements, angular nature of clast, intense and pervasive arsenopyritisation of irregular clast margins.

11b) TOP RIGHT

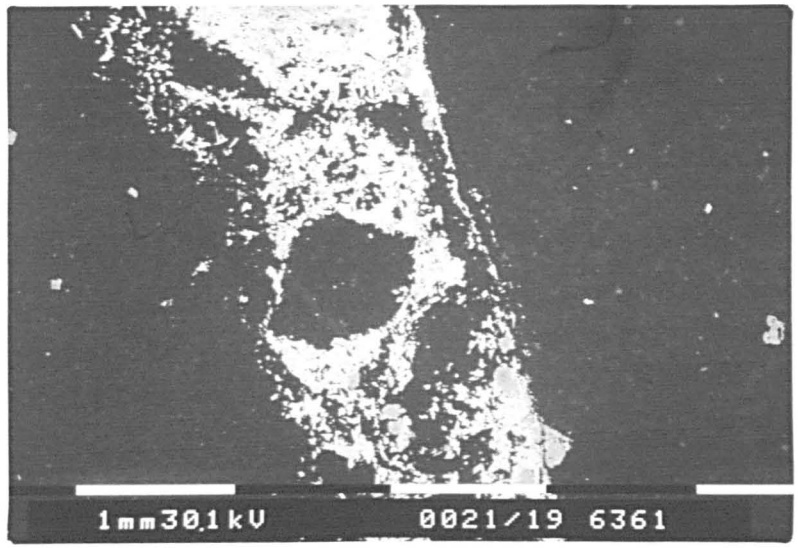
Location:	Glendinning Borehole 2 (44.25-44.30m)
Sample:	6024
Section:	CXD1560
Plate Type:	SEM backscatter photomicrograph.
Field of View:	100 microns
Description:	Detailed enlargement of inclusion rich euhedral pyrite grain described in detailed within Plate 11d.

11c) BOTTOM LEFT

Location:	Glendinning Borehole 2 (48.68-48.77m)
Sample:	6361
Section:	CXD1585
Plate Type:	SEM backscatter photomicrograph.
Field of View:	5.0mm
Description:	Arsenopyrite-quartz veinlet crosscutting medium grained siltstone. Angular siltstone clasts present within the veinlet. Note extensive arsenopyritisation of wallrock in the immediate vicinity of the veinlet.

11d) BOTTOM RIGHT

Location:	Glendinning Borehole 2 (44.25-44.30m)
Sample:	6024
Section:	CXD1560
Plate Type:	SEM backscatter photomicrograph.
Field of View:	0.4mm
Description:	Anhedral pyrite grain containing a fractured inclusion-rich (Sb-Cu-As-S and Sb-As-Fe-S sulphosalts) core enveloped by more massive pyrite (Note the arsenic rich nature of pyrite margins demonstrated by microprobe mapping).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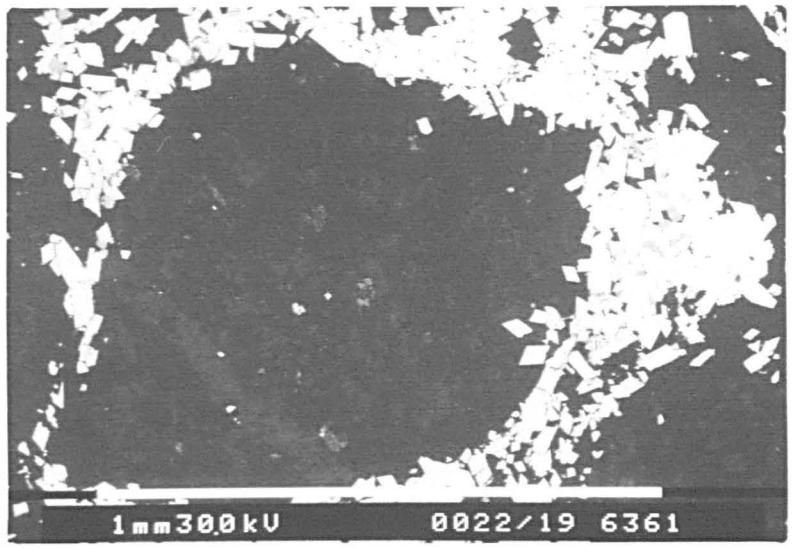
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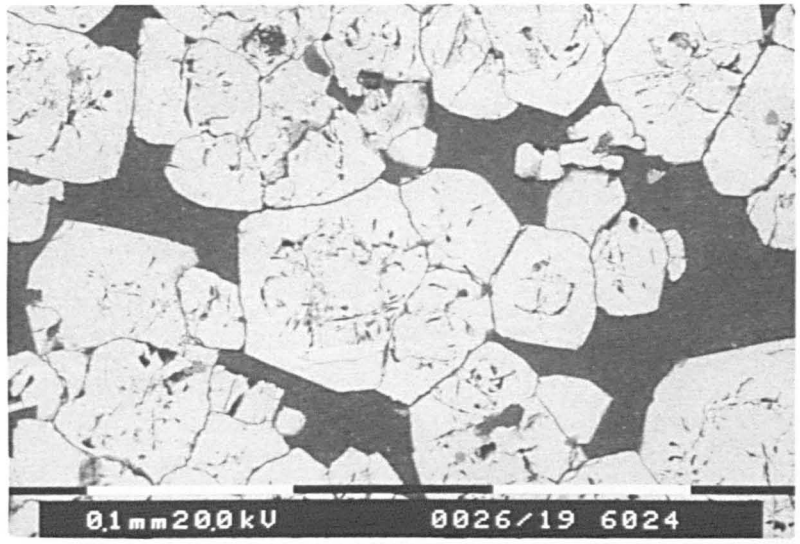
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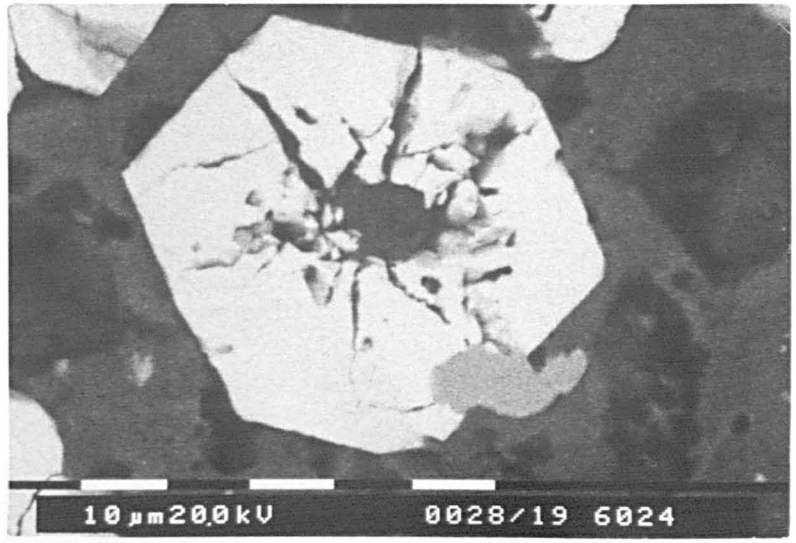
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PLATE 12 — Backscatter SEM study of sulphide hosted gold inclusions and veinlets from the Glendinning deposit.

12a) TOP LEFT

Location: Glendinning Borehole 2 (48.68-48.77m)
Sample: CXD1585
Section: 6361
Plate Type: SEM photomicrograph
Field of View: 100 microns

Description: Complex euhedral arsenopyrite grain (grey) containing inclusions of pyrite (dark grey) and crosscut by a small veinlet of native gold (white) 1 micron in width.

12b) TOP RIGHT

Location: Glendinning Borehole 3 (145.17-145.24m)
Sample: CXD1565
Section: 6029
Plate Type: SEM photomicrograph
Field of View: 100 microns

Description: Complex grain of galena (grey) containing inclusions of lead-antimony sulphosalts (dark grey) and electrum (white). Chemical composition of individual phases identified by energy dispersive (EDS) spectrometry (See appendix 3 for further details). Note the triangular cleavage pits characteristic of galena and embayment contact between inclusions and galena.

12c) BOTTOM LEFT

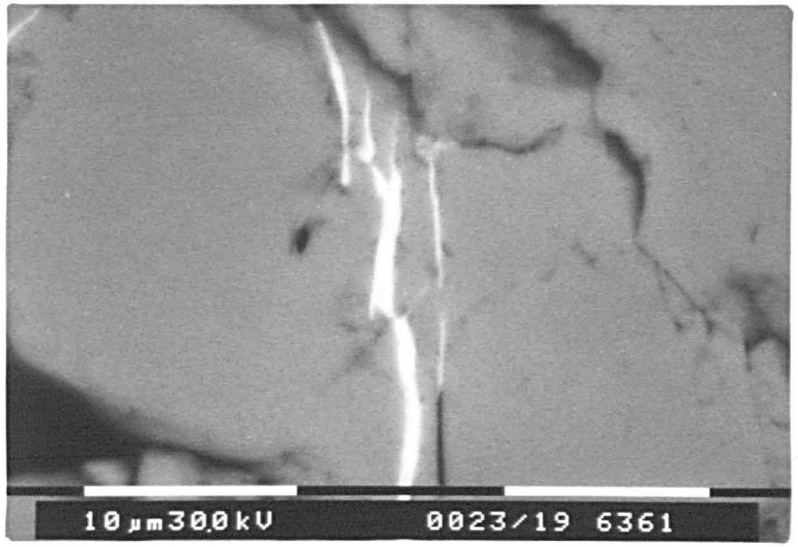
Location: Glendinning Borehole 2 (48.68-48.77m)
Sample: CXD1585
Section: 6361
Plate Type: SEM photomicrograph
Field of View: 35 microns

Description: Detailed enlargement of network of interstitial fracture filling electrum veinlets, ~0.1-1 microns in width.

12d) BOTTOM RIGHT

Location: Glendinning Borehole 2 (48.68-48.77m)
Sample: CXD1585
Section: 6361
Plate Type: SEM photomicrograph
Field of View: 100 microns

Description: Complex intergrowth of arsenopyrite (dark grey) and pyrite with native gold filling interstices. This sample defines the largest gold grain observed in the Glendinning deposit to date (12x20 microns diameter).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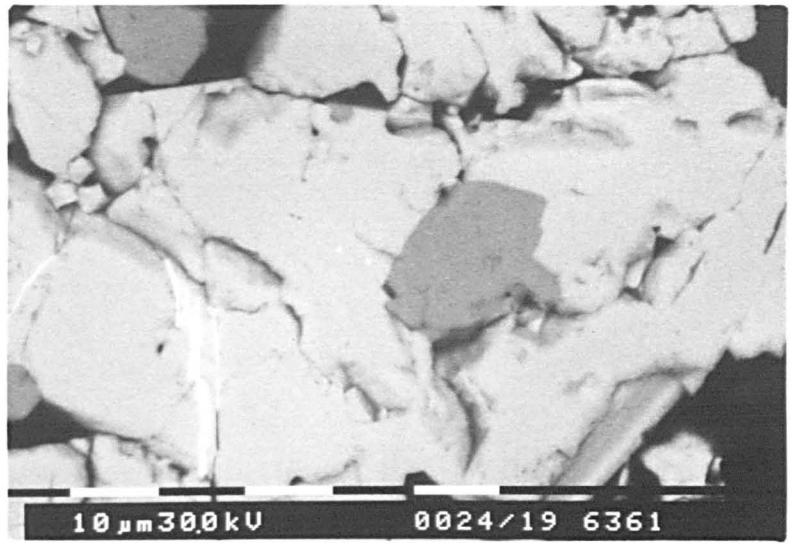
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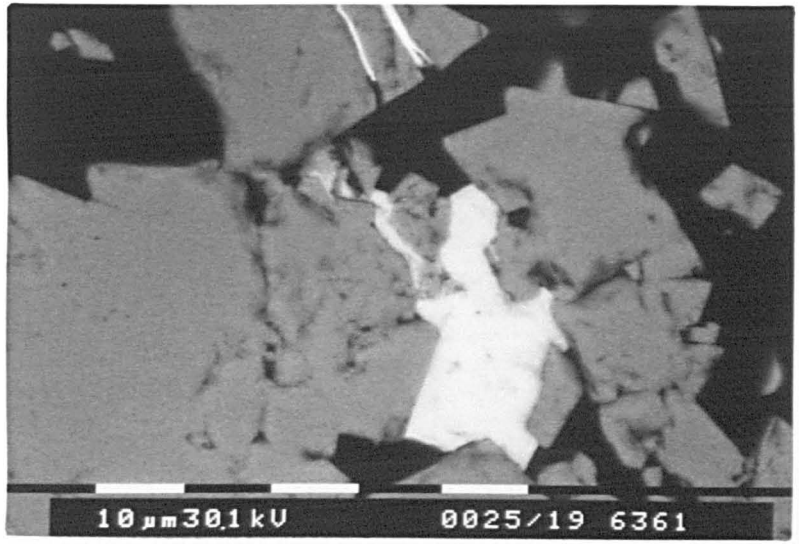
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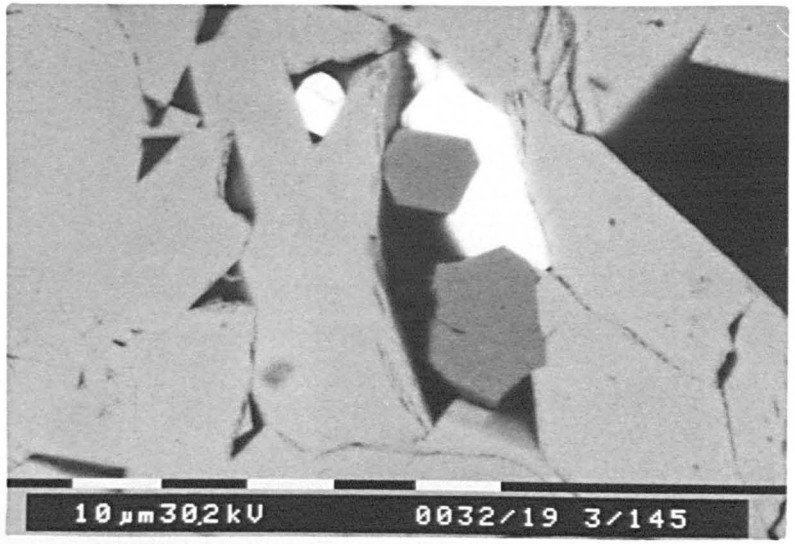
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PLATE 13 Thin sections of lamprophyres and coeval igneous rocks in the Southern Uplands.

13a) TOP LEFT

Location: Portencorkrie (Grid Ref : 20900,53515)
Sample: SU1
Plate Type: Thin Section Photomicrograph (plane polarised)
Field of View: Length of scale bar = 500 microns

Description: Portencorkrie granite composed of predominantly quartz (clear) and feldspar (dusty) the latter including approximately equal amounts of plagioclase and microperthite together with chloritised biotite laths containing common sphene granules and fine grained opaques (?pyrite).

13b) TOP RIGHT

Location: New Mains (Grid Ref : 28853,57610)
Sample: SU2
Plate Type: Thin Section Photomicrograph (plane polarised)
Field of View: Length of scale bar = 500 microns

Description: Granophyric Spessartite composed of randomly orientated, panidiomorphic hornblende euhedra (often with pale green rims) and pseudomorphs of chlorite replacing pyroxene, set in a background of plagioclase and minor interstitial clear quartz.

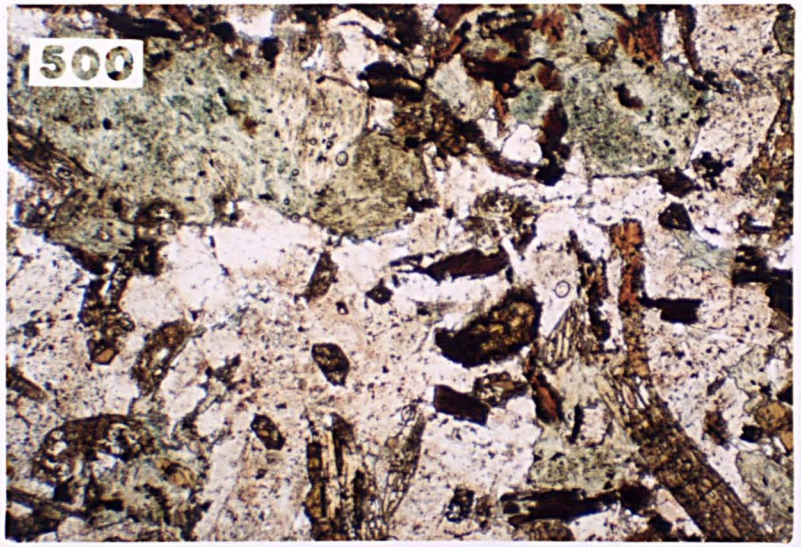
13c) BOTTOM LEFT

Location: Castle Hill Point Bay (Grid Ref : 28527,55272)
Sample: SU3
Plate Type: Thin Section Photomicrograph (plane polarised)
Field of View: Length of Scale bar = 500 microns

Description: Hornblende Lamprophyre (spessartite) composed of euhedral laths of hornblende peripherally altered to chlorite together with chlorite pseudomorphs after clinopyroxene, set in a background of cloudy (sericitised) plagioclase feldspars.

13d) BOTTOM RIGHT

Location: Cairn Fell, Portencorkrie (Grid Ref : 21065,53607)
Sample: SU4
Plate Type: Thin Section Photomicrograph (plane polarised)
Field of View: Length of Scale bar = 500 microns
Description: Hornblende Lamprophyre (thermally metamorphosed) composed of phenocrysts of hornblende (some conspicuously zoned) clinopyroxene (extensively altered to green hornblende) plus occasional large biotite laths. The feldspar groundmass contains numerous small ragged biotites of probable metamorphic origin.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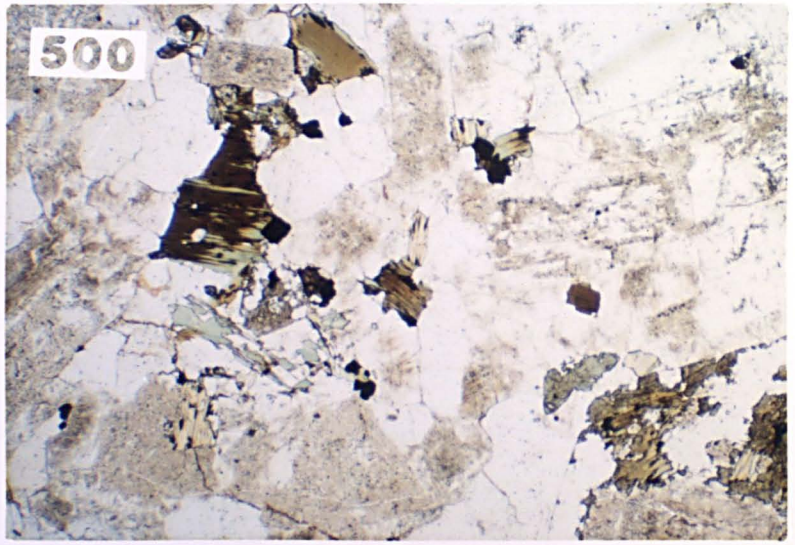
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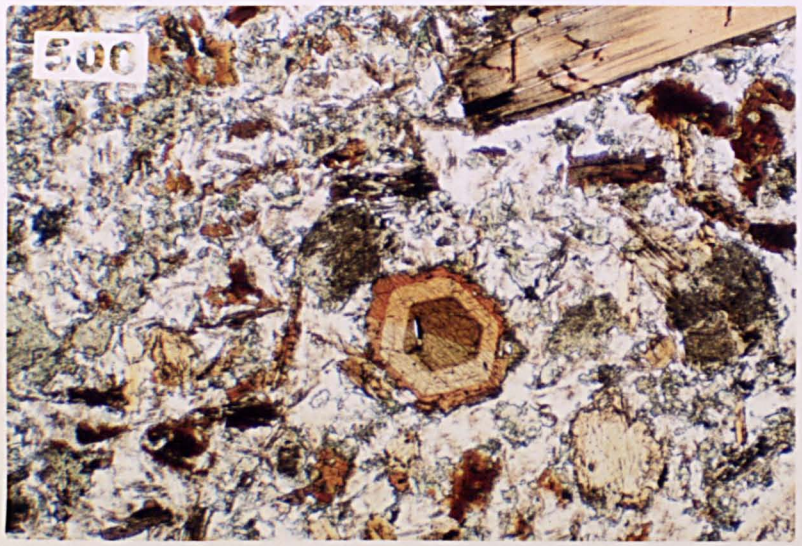
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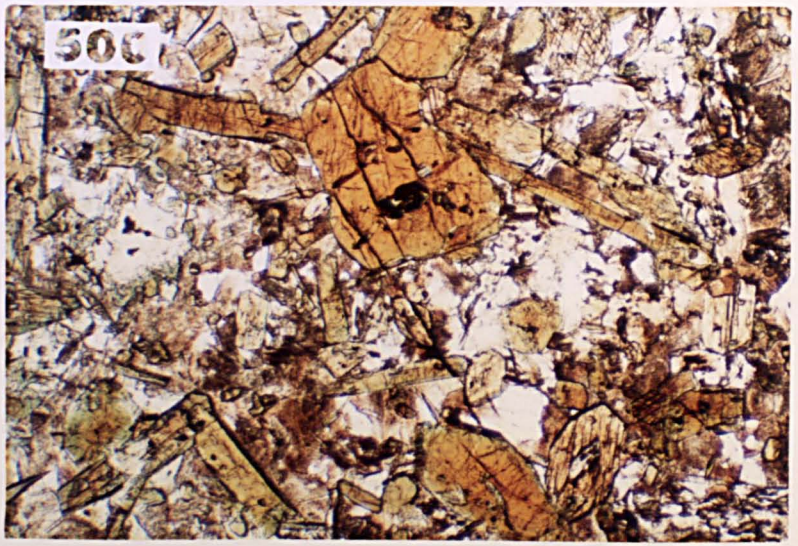
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PLATE 14 Thin sections of arsenopyrite bearing biotite granite from the Glenhead area, Loch Doon.

14a + 14c) TOP LEFT and BOTTOM LEFT

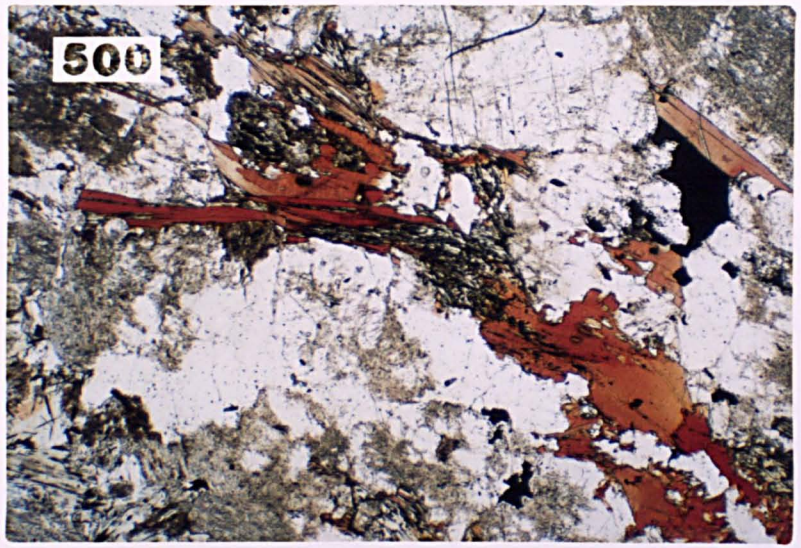
Location: Glenhead, Loch Doon
Section: 2947
Plate Type: Thin Section Photomicrograph (cross+plane polarised)
Field of View: Length of Scale Bar = 500 microns

Description: The Loch Doon pyroxene-biotite granite is composed predominantly of feldspar (dusty) and interstitial quartz together with twinned/elongate prisms of clinopyroxene (a diopsidic augite) enclosed by or associated with large platelets of brown biotite. Plagioclase feldspar (40%) is more abundant than alkalii feldspar and often zoned. Minor sulphides (predominantly pyrrhotite) are disseminated throughout this sample which has been subjected to minor sericitisation. Subhedral grains of sphene are common as an accessory phase.

14b + 14d) TOP RIGHT and BOTTOM RIGHT

Location: Glenhead, Loch Doon
Section: 2949
Plate Type: Thin Section Photomicrograph (plane polarised)
Field of View: Length of Scale Bar = 500 microns

Description: Strongly sericitised with most of the original feldspar mineralogy highly altered. An increased presence of sulphides, predominantly pyrrhotite forming subhedral grains at the margins of plagioclase laths. Minor arsenopyrite is often found in association with and as overgrowths upon pyrrhotite. Crosscutting microfractures appear to impose a localised control upon the extent of hydrothermal alteration.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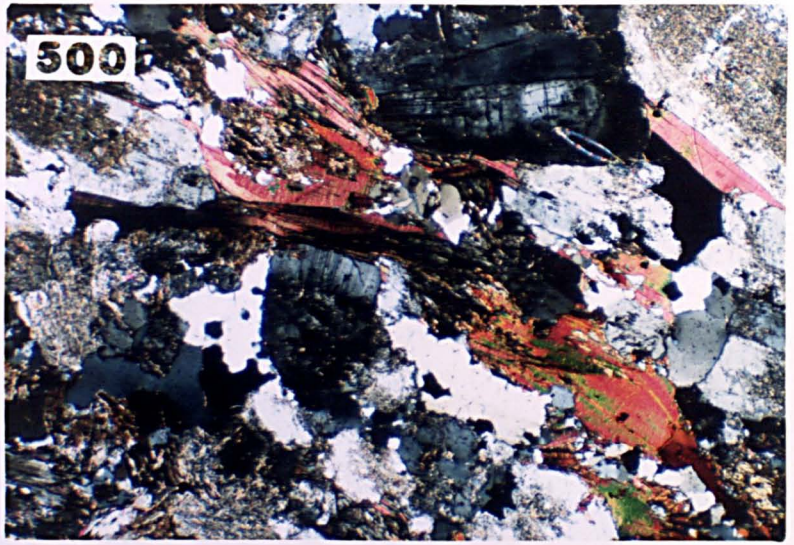
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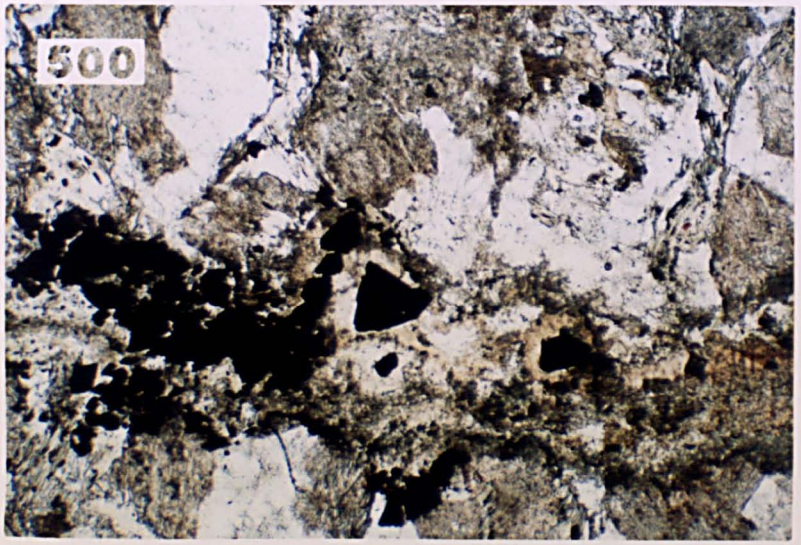
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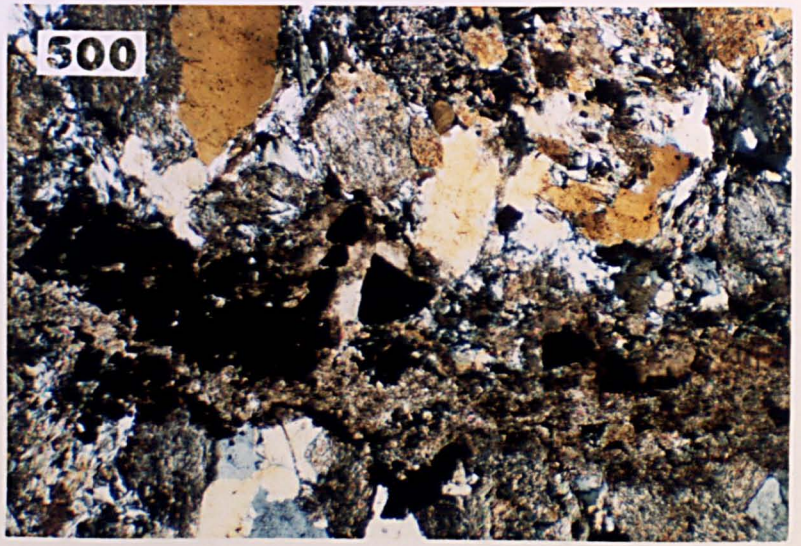
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PLATE 15 — Thin sections demonstrating sedimentary textures in mineralised core samples from the Glendinning deposit.

15a) TOP LEFT

Location: Glendinning Borehole 3 (178.64-178.69)
Sample: CXD1568
Section: 6032
Plate Type: Thin Section photomicrograph (plane polarised)
Field of View: Length of Scale Bar = 500 microns

Description: Mudstone-siltstone lenses and flames cross- cutting a medium grained sericitised greywacke, indicating loading of a wet sediment. Note the association of the mudstone lithology and presence of anhedral pyrite.

15b) TOP RIGHT

Location: Glendinning Borehole 3 (57.85-57.95)
Sample: CXD1570
Section: 6034
Plate Type: Thin Section photomicrograph (plane polarised)
Field of View: Length of Scale Bar = 500 microns

Description: Stratiform anhedral pyrite crystals forming bedding parallel sites for arsenopyrite nucleation. Arsenopyrite deposition is constrained by the grain size of the host sediments and as such occurs predominantly within sandier, more permeable horizons.

15c) BOTTOM LEFT

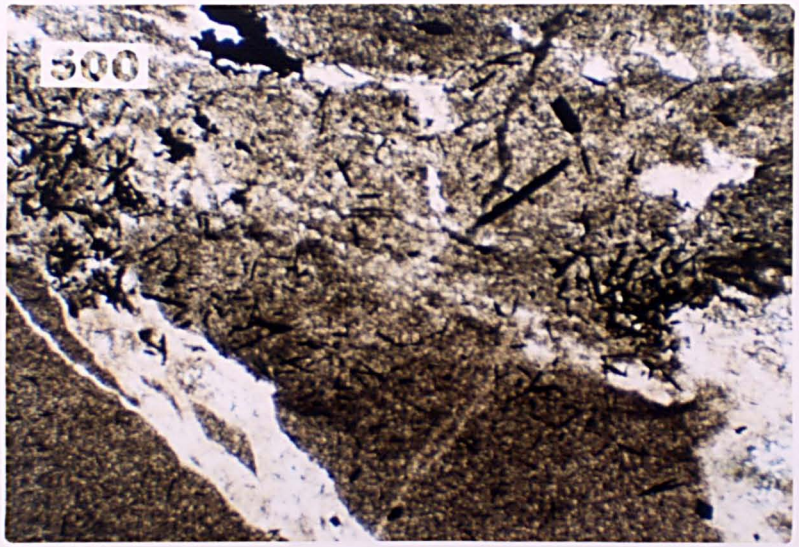
Location: Glendinning Borehole 2 (57.42-57.47)
Sample: CXD1563
Section: 6027
Plate Type: Thin Section photomicrograph (plane polarised)
Field of View: Length of Scale Bar = 500 microns

Description: Brecciated clasts of fine grained greywacke. Arsenopyrite deposition is located at the margins of the two dominant fractures present in the plate, predominantly within the more coarser grained (?permeable) horizons.

15d) BOTTOM RIGHT

Location: Glendinning Borehole 3 (178.64-178.69)
Sample: CXD1568
Section: 6032
Plate Type: Thin Section photomicrograph (plane polarised)
Field of View: Length of Scale Bar = 500 microns

Description: Complex interlaminated mudstone, siltstone and sandstone, with graded sandy layers showing compaction into underlying silts and muds. Tongue-like projections of graded sandy bed penetrate the top of silty horizon and lead to the development of a primitive dewatering cleavage.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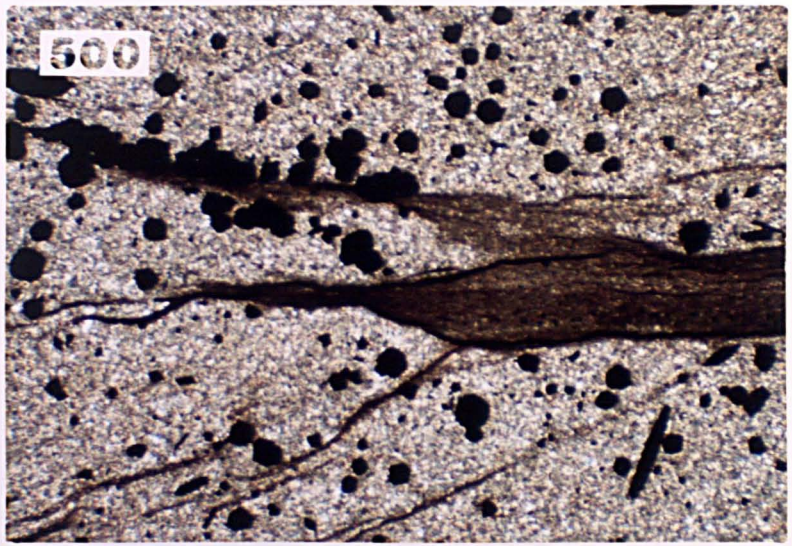
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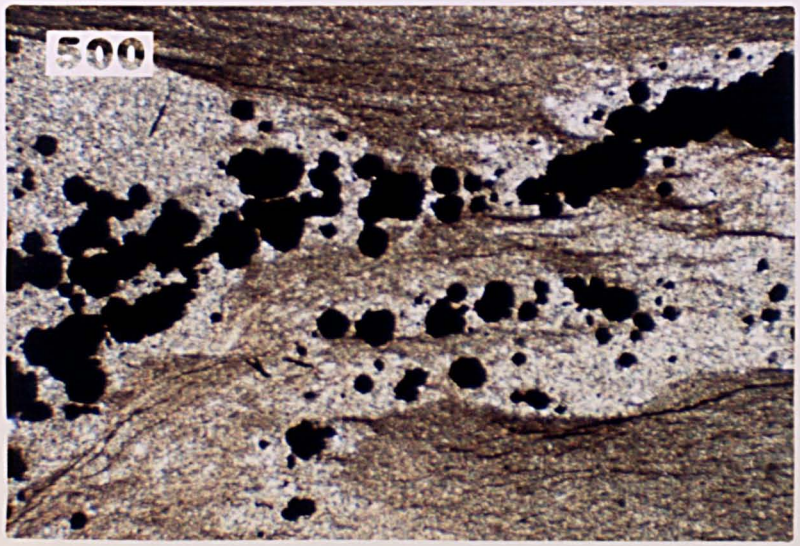
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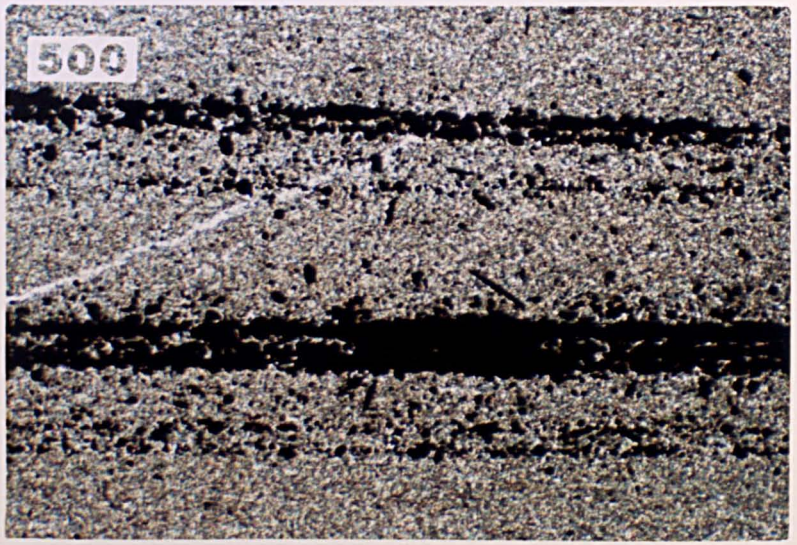
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PLATE 16 Thin section study of Glendinning Breccias: Part 1

16a + 16c) TOP LEFT and BOTTOM LEFT

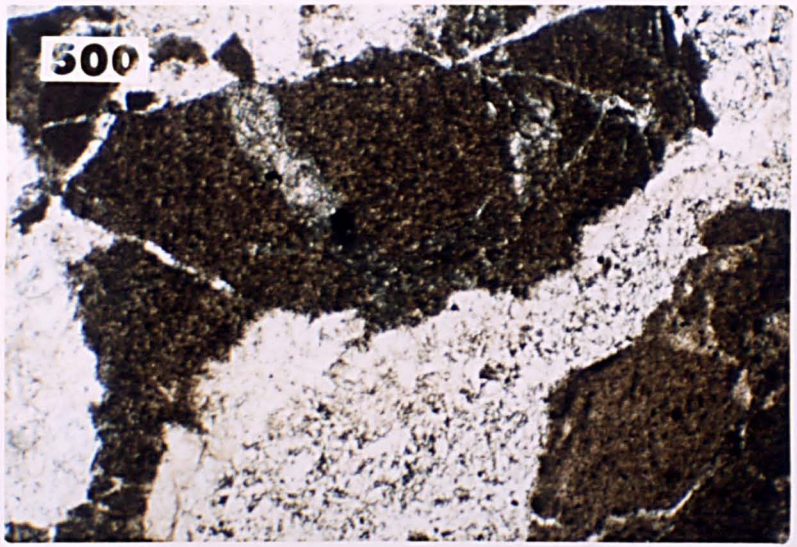
Location:	Glendinning Borehole 3
Sample:	CXD1528
Section:	5857
Plate Type:	Transmitted light (cross+plane polarised)
Field of View:	Length of scale bar = 500 microns

Description: Monolithic 'interformational' breccia exhibiting a variety of 'pull-apart' textures including 'exploded' clasts, surrounded by a matrix of vuggy quartz and ankerite.

16b + 16d) TOP RIGHT and BOTTOM RIGHT

Location:	Glendinning Borehole 3
Sample:	CXD1528
Section:	5857
Plate Type:	Transmitted light (cross+plane polarised)
Field of View:	Length of scale bar = 500 microns

Description: Monolithic, polyphase breccia, containing typical greywacke clasts and re-cemented greywacke breccia clasts. All clasts have been subjected to a varying degree of sericitisation and hydrothermal alteration.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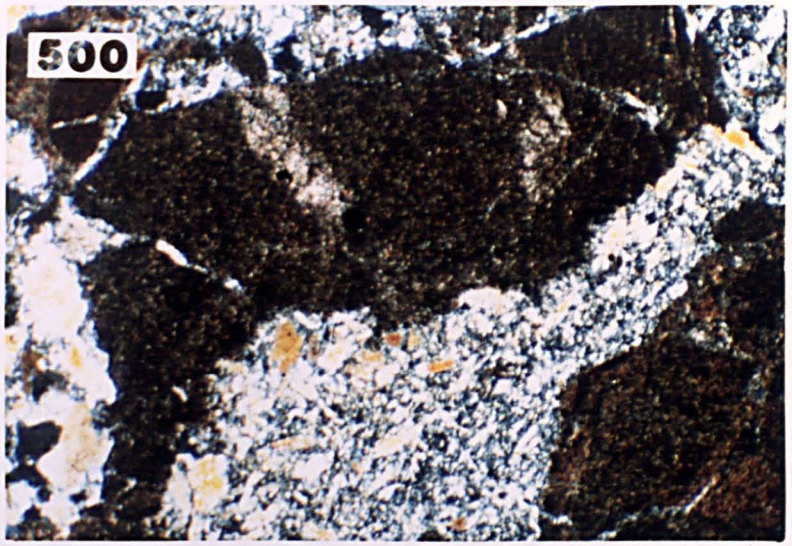
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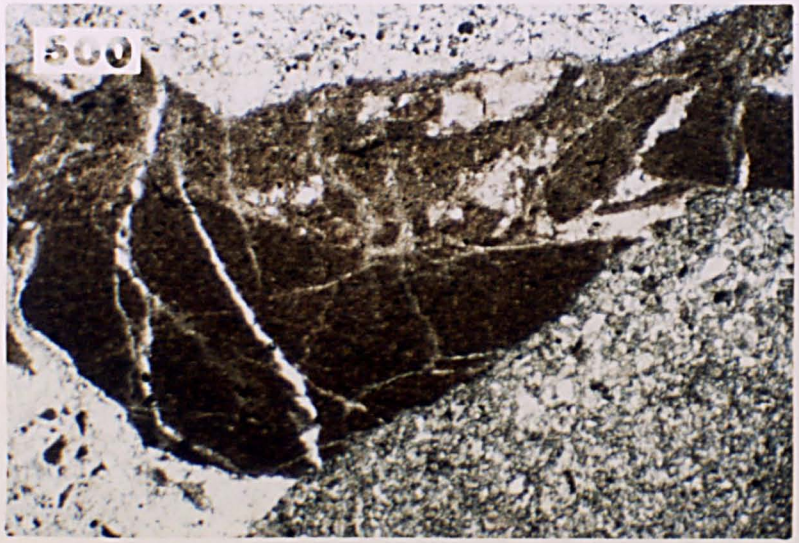
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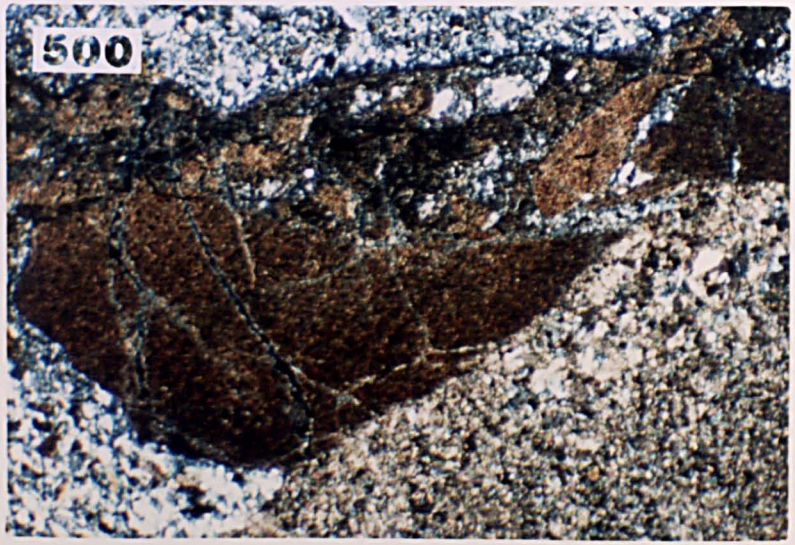
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PLATE 17 Thin section study of Glendinning Breccias: Part 2

17a + 17c) TOP LEFT and BOTTOM LEFT

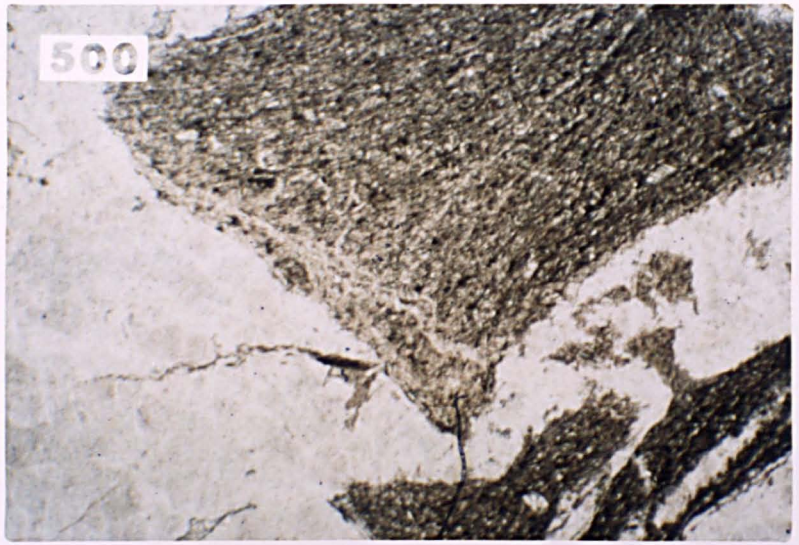
Location:	Glendinning Borehole 3
Sample:	CXD1528
Section:	5857
Plate Type:	Transmitted light (cross+plane polarised)
Field of View:	Length of scale bar = 500 microns

Description: Monolithic 'interformational' breccia exhibiting 'pull-apart' textures enclosed within a matrix of vuggy quartz. Note the absence of any form of clay matrix to the reported 'debris flow' clasts.

17b + 17d) TOP RIGHT and BOTTOM RIGHT

Location:	Glendinning Borehole 3
Sample:	CXD1529
Section:	5858
Plate Type:	Transmitted light (cross+plane polarised)
Field of View:	Length of scale bar = 500 microns

Description: Monolithic breccia, containing tightly folded greywacke siltstone/sandstone clast, providing evidence for a syn/post deformational mineralising event (associated with brecciation). Here again the clasts have been subjected to a varying degree of sericitisation and hydrothermal alteration.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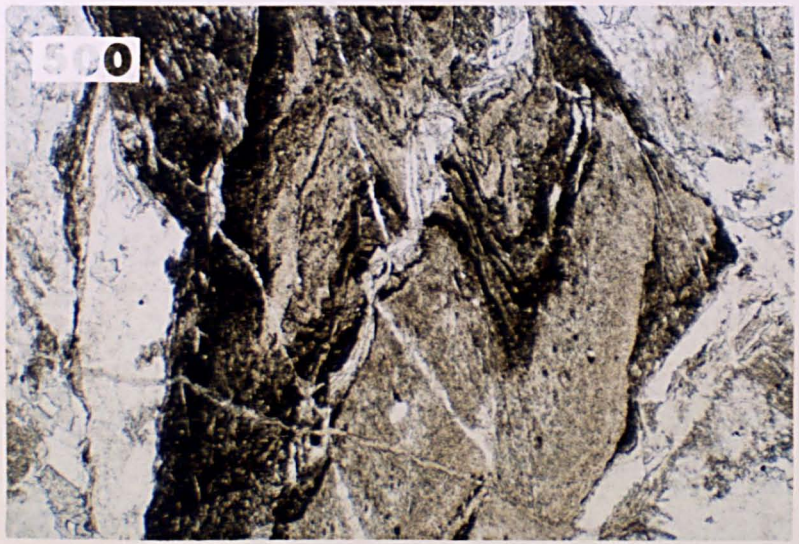
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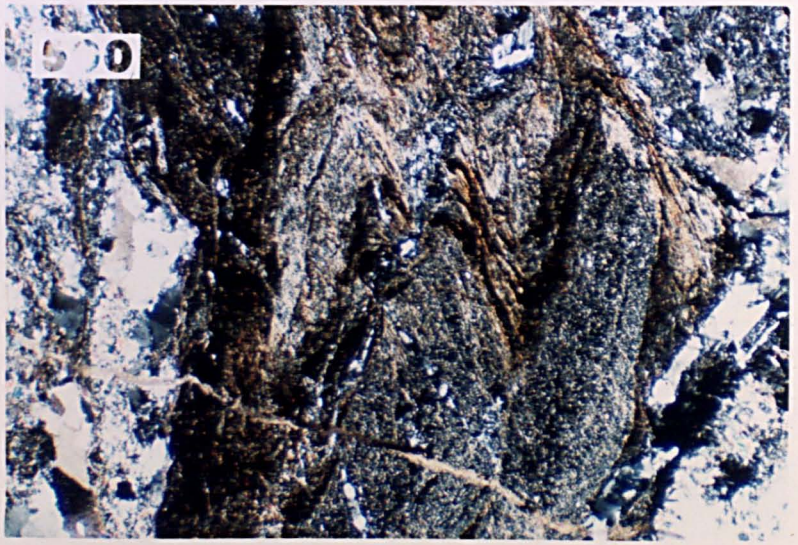
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PLATE 18 Thin section study of Glendinning Breccias: Part 3

18a + 18c) TOP LEFT and BOTTOM LEFT

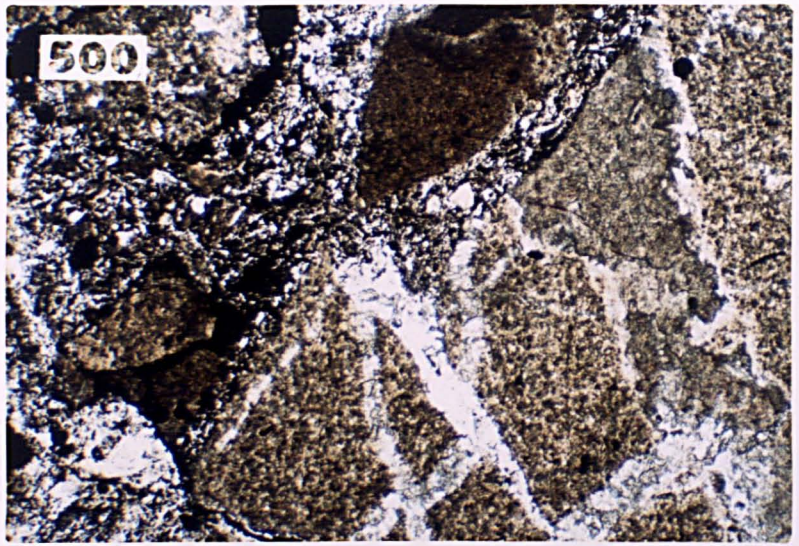
Location:	Glendinning Borehole 3 (139.63-139.74)
Sample:	CXD1521
Section:	5867
Plate Type:	Transmitted light (cross+plane polarised)
Field of View:	Length of scale bar = 500 microns

Description: Monolithic breccia exhibiting 'exploded' clasts enveloped within a matrix of vuggy quartz and sulphides. Note the absence of any form of clay matrix and the clast-supported nature of the breccia. The initiation of arsenopyrite deposition on and within clasts occurred immediately following brecciation and prior to infilling quartz precipitation.

18b + 18d) BOTTOM LEFT and BOTTOM RIGHT

Location:	Glendinning Borehole 3 (139.63-139.74)
Sample:	CXD1521
Section:	5867
Plate Type:	Transmitted light (cross+plane polarised)
Field of View:	Length of scale bar = 500 microns

Description: Monolithic breccia displaying intense sericitisation. Note the pull-apart nature of the breccia clasts indicative of in-situ brecciation and the sulphidation of clast margins.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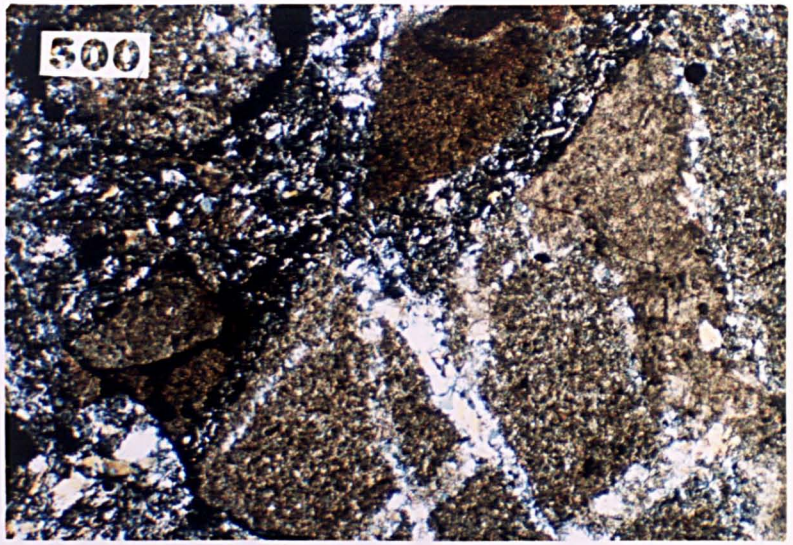
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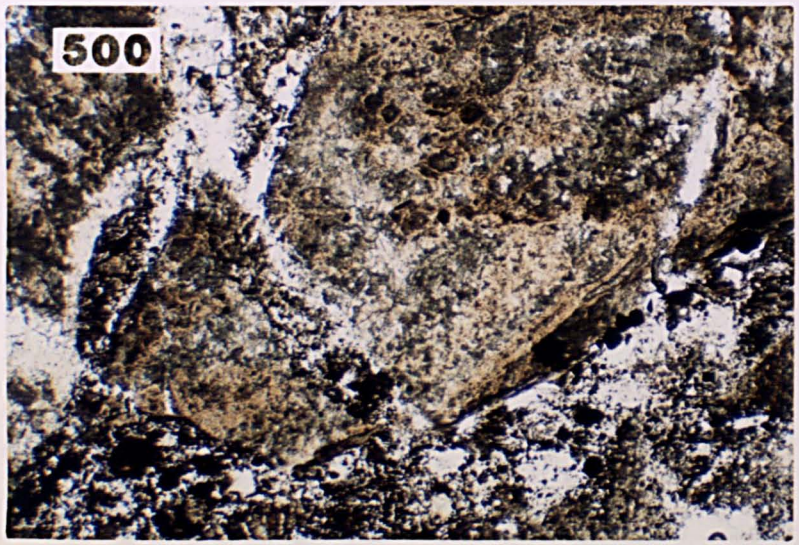
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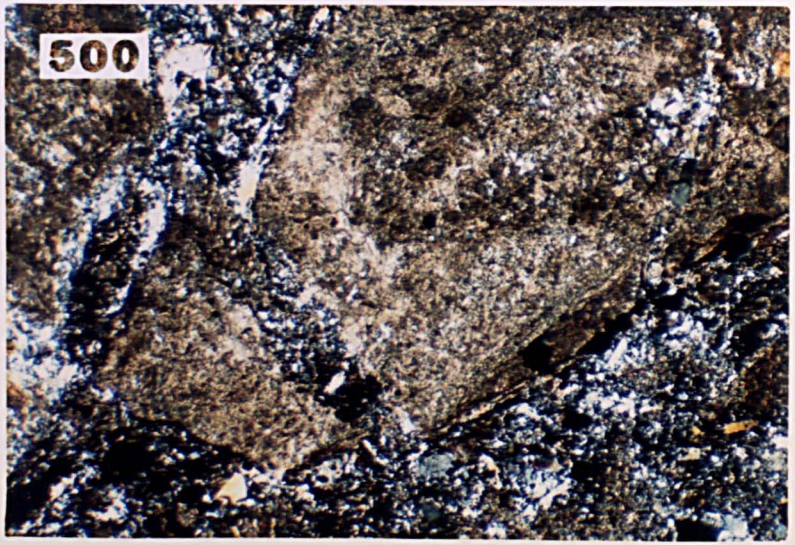
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PLATE 19 Thin sections of Glendinning Vein-Wallrock Relationships.

19a + 19c) TOP LEFT and BOTTOM LEFT

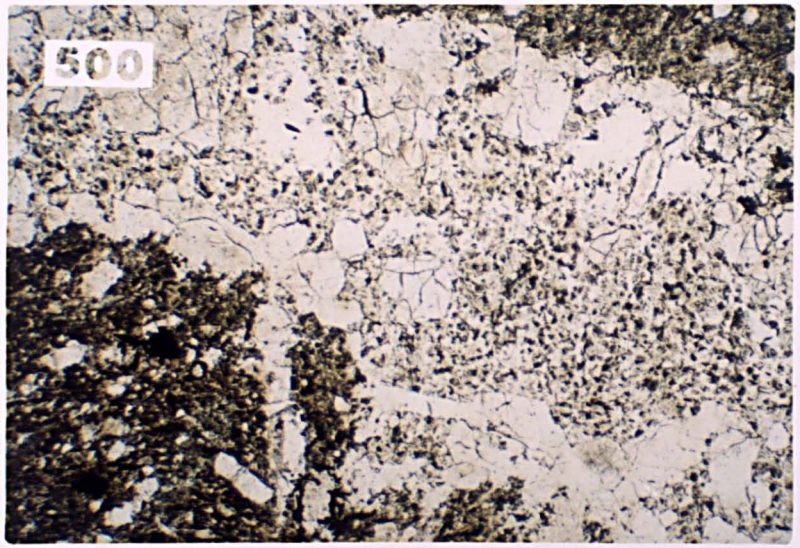
Location:	Glendinning Borehole 1 (65.83-65.87)
Sample:	CXD1502
Section:	5849
Plate Type:	Thin Section Photomicrograph (cross+plane polarised)
Field of View:	Length of Scale Bar = 500 microns

Description: Complex cross-cutting quartz ankerite vein (1-2.5mm in diameter) containing a core of dickite (fine grained platelets exhibiting low interference colours) a high temperature polymorph of kaolinite, in close association with arsenopyrite mineralisation.

19c + 19d) TOP RIGHT and BOTTOM RIGHT

Location:	Glendinning Borehole 1 (54.86-54.94)
Sample:	CXD1575
Section:	6357
Plate Type:	Thin Section Photomicrograph (plane polarised)
Field of View:	Length of Scale Bar = 500 microns

Description: Coarse grained hydrothermally altered greywacke at the margin of a relatively large quartz-ankerite-arsenopyrite vein (8-12mm in diameter). Note the arsenopyrite rosette nucleated on the wallrock margin and the pervasive arsenopyritisation of the altered greywacke.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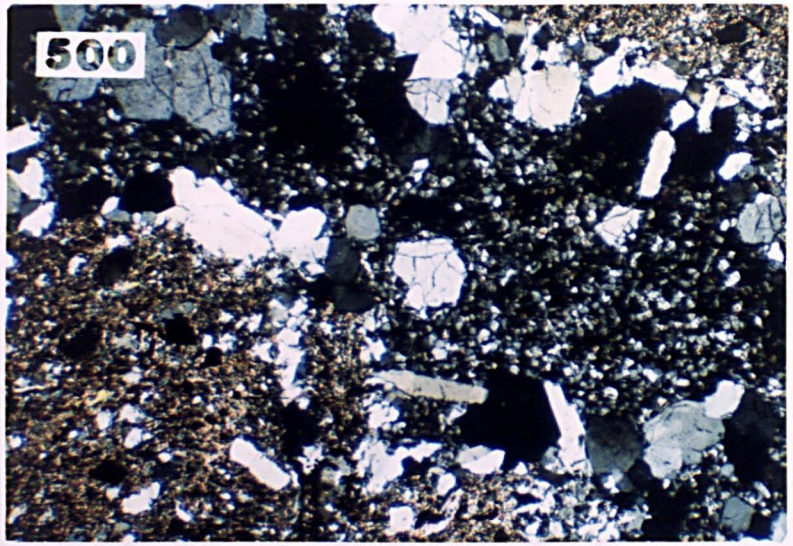
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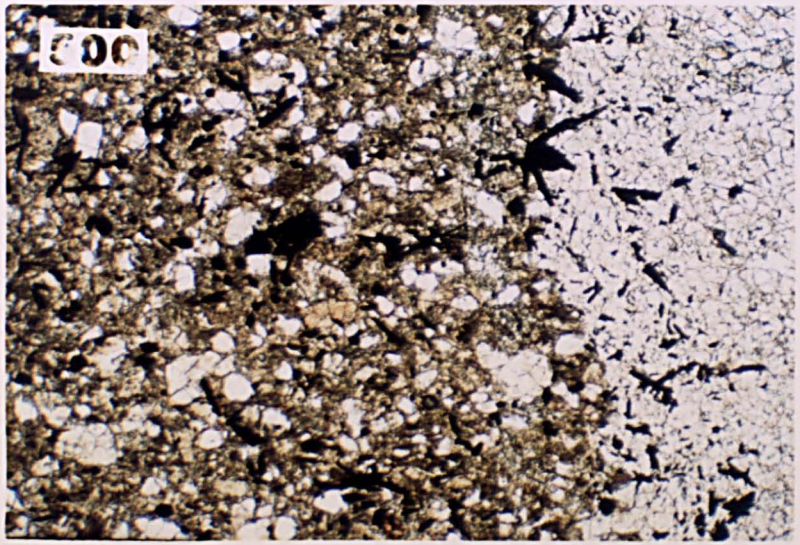
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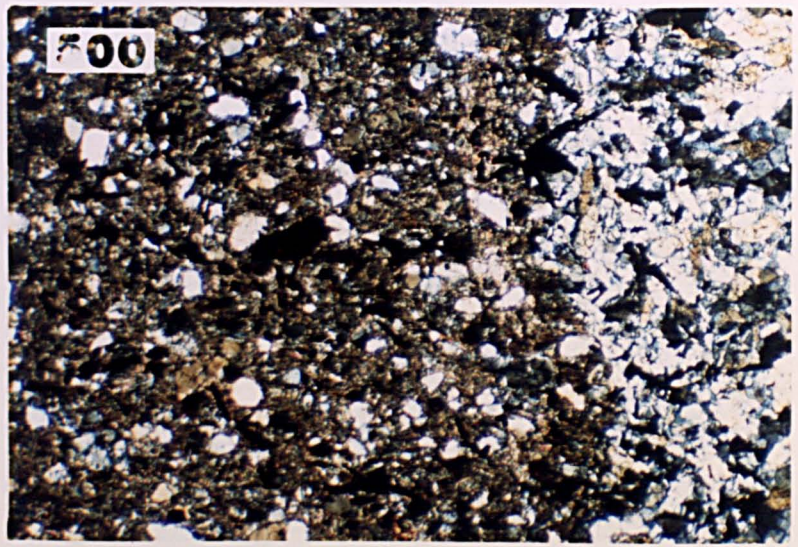
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PLATE 20 Thin sections of typical unmineralised greywacke from the Glendinning study area.

20a + 20c) TOP LEFT and BOTTOM LEFT

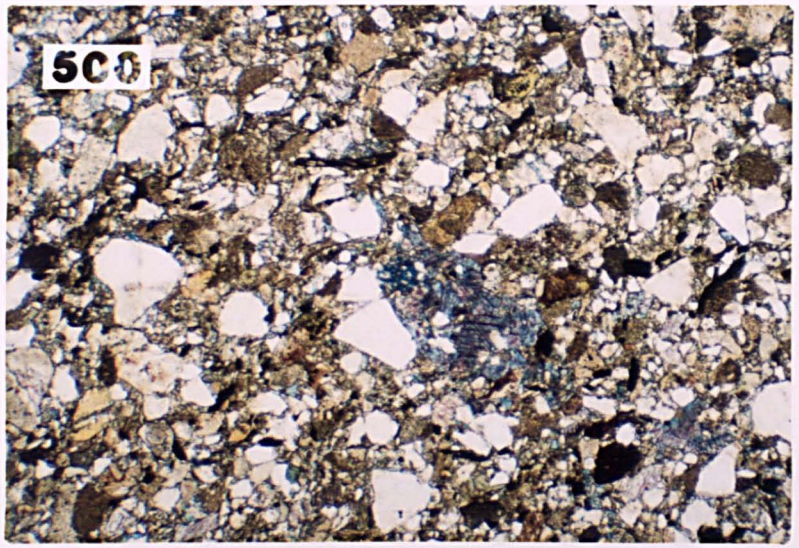
Location: Midhill, Glendinning (Grid Ref: 33828 60798).
Sample: DJR 857
Section: 6503
Plate Type: Thin Section Photomicrograph (cross+plane polarised)
Field of View: Length of Scale Bar = 500 microns

Description: Typical turbidite sandstone from the Glendinning study area. Rock fragments include mono- and poly-crystalline quartz together with composite metamorphic fragments. Silurian turbidites can contain up to 20% CaO (wt%) the greatest proportion of which is present in the form of the fine grained carbonate rich matrix, however large fragments of calcite (limestone) of probable biogenic/detrital origin occur sporadically throughout the section.

20b + 20d) BOTTOM RIGHT

Location: Midhill, Glendinning (Grid Ref: 33828 60798).
Sample: DJR 857
Section: 6503
Plate Type: Thin Section Photomicrograph (plane polarised)
Field of View: Length of Scale Bar = 200 microns

Description: Detailed enlargement of a section of plate 20c. Chemical staining of the carbonate phases in this section reveals (in plane polarised light) the presence of ferroan calcite (purple) non-ferroan calcite (pink-mauve) and ferroan dolomite (bright blue). Fine grained ferroan dolomite is present within the matrix throughout much of the section and formed as a direct result of diagenetic alteration of calcite by magnesium-rich fluids. All primary inter- granular porosity is infilled by detrital/ authigenic clay complexes and quartz-dolomite cements, as are a series of hairline fractures cross-cutting the section. These features indicate that the greywacke has acted as a low temperature aquifer through which slightly alkaline fluid has flowed.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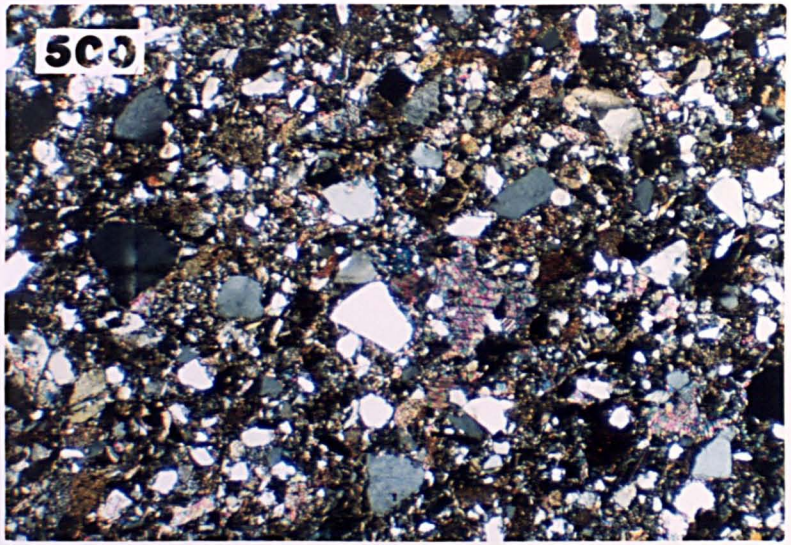
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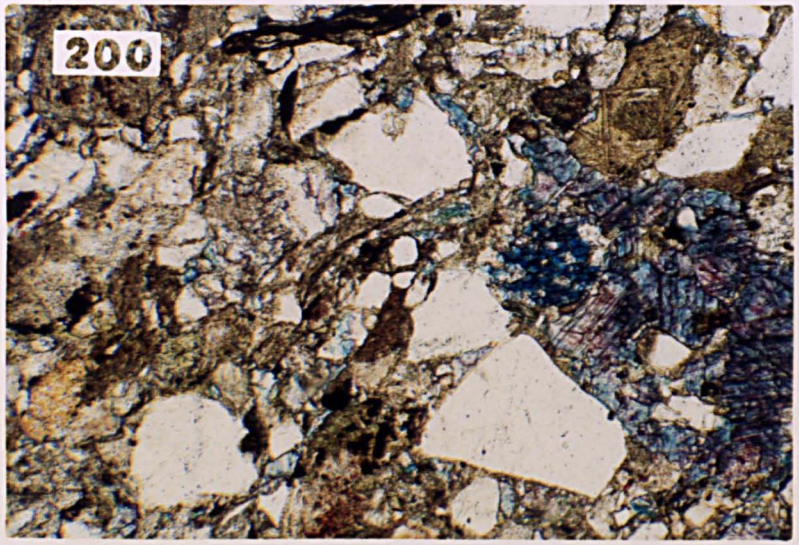
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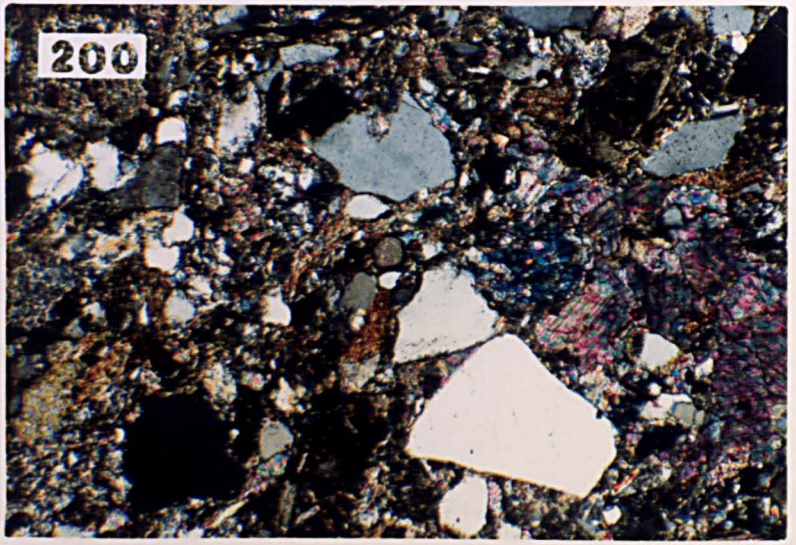
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PLATE 21 Thin sections of granodiorite hosted arsenopyrite mineralisation within the Knipe deposit.

21a + 21c) TOP LEFT and BOTTOM LEFT

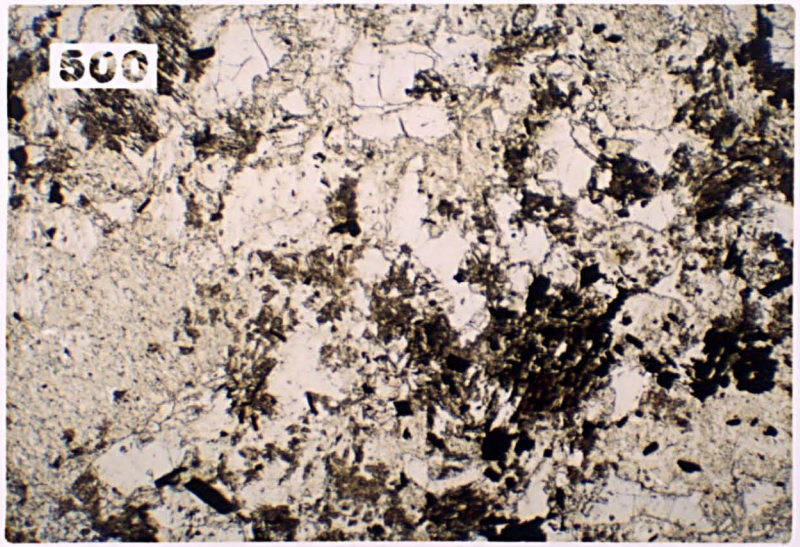
Location:	The Knipe Antimony Mine, Hare Hill.
Sample:	PDK2
Section:	6517
Plate Type:	Thin Section Photomicrograph (Cross+Plane polarised)
Field of View:	Length of Scale Bar = 500 microns

Description: Sericitised granodiorite forming the wallrock to stibnite-quartz vein mineralisation. The granodiorite is composed of quartz (clear and relatively unstrained) feldspar (mainly plagioclase), biotite and hornblende. The feldspars are irregularly sericitised and in some cases completely altered. Biotite exhibits marginal alteration to chlorite and occurs as randomly orientated tabular laths associated with actinolitic hornblende.

21b + 21d) TOP RIGHT and BOTTOM RIGHT

Location:	The Knipe Antimony Mine, Hare Hill.
Sample:	PDK2
Section:	6517
Plate Type:	Thin Section Photomicrograph (Cross+Plane polarised)
Field of View:	Length of Scale Bar = 500 microns

Description: Wallrock to stibnite-quartz vein mineralisation composed of highly altered, sericitised granodiorite cross-cut by a 2mm wide quartz - ankerite vein. The intensity of hydrothermal alteration appears to be controlled by the extent/ proximity to microfractures. Sulphidation and arsenopyritisation occur preferentially within the altered wallrocks adjacent to the vein system.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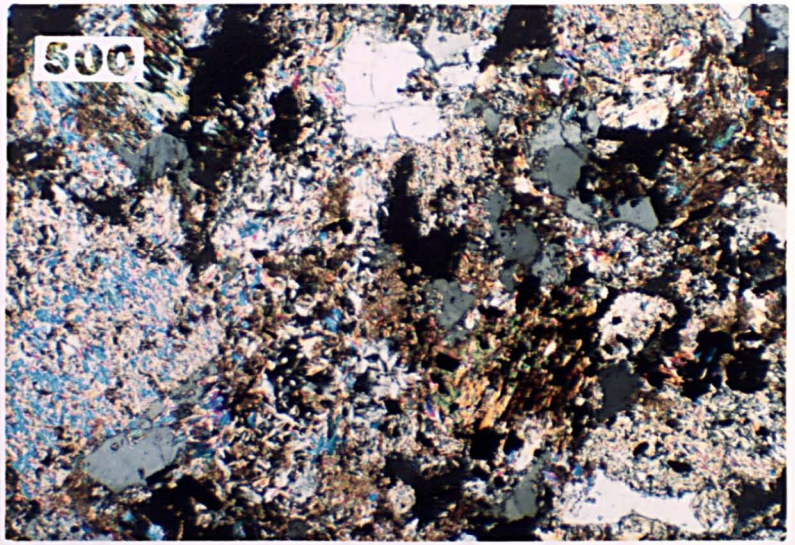
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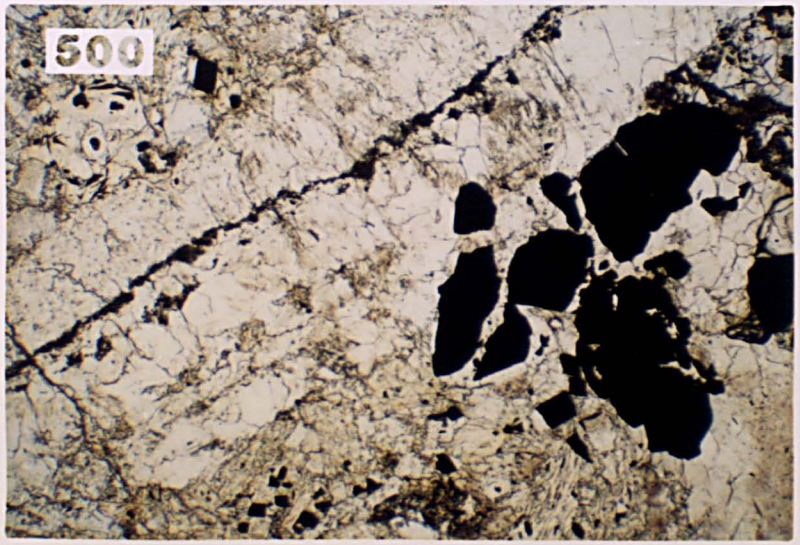
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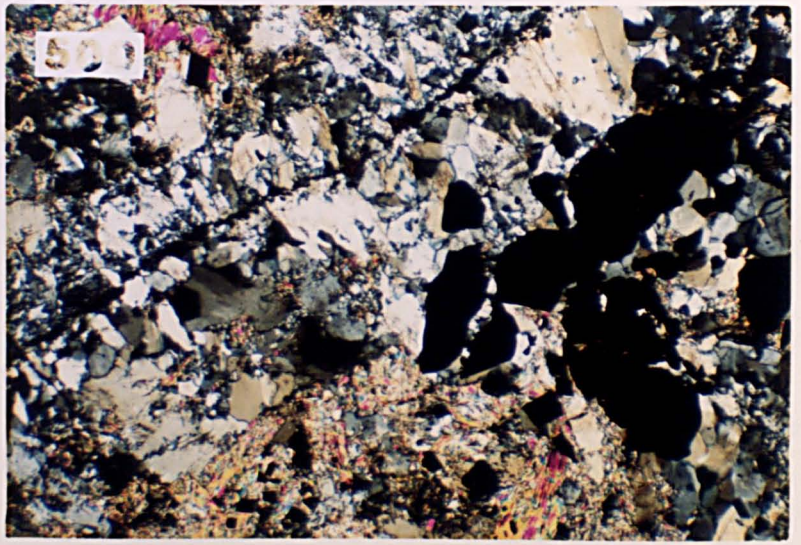


PLATE 22 Thin section of vein and disseminated arsenopyrite - pyrite mineralisation within the Cairngarroch Bay deposit.

22a + 22c) TOP LEFT and BOTTOM LEFT

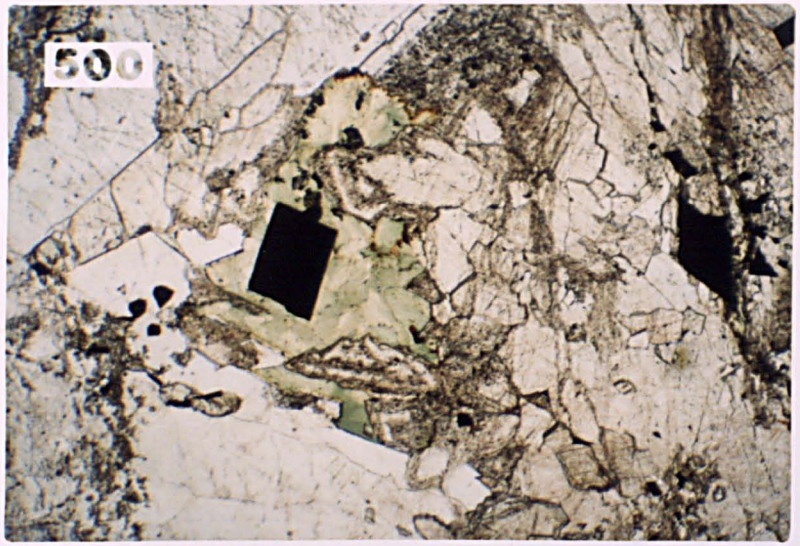
Location:	Cairngarroch Bay (Grid Ref: 10461 54974)
Sample:	PDW184m
Section:	LTR 2.5c
Plate Type:	Thin Section Photomicrograph (Cross+Plane polarised)
Field of View:	Length of Scale Bar = 500 microns

Description: Altered granodiorite and hornfels greywacke cross-cut by a complex quartz-tremolite/actinolite-dolomite-chlorite- calcite-arsenopyrite vein. Within the highly altered wallrock calcite replaces sericitised feldspar and muscovite has undergone partial alteration to chlorite. See plate 32b.

22b + 22d) TOP RIGHT and BOTTOM RIGHT

Location:	Cairngarroch Bay (Grid Ref: 10461 54974)
Sample:	PDW184m
Section:	LTR 2.5c
Plate Type:	Thin Section Photomicrograph (Cross+Plane polarised)
Field of View:	Length of Scale Bar = 500 microns

Description: Quartz-Carbonate vein containing randomly distributed euhedral arsenopyrite crystals. Note intense arsenopyritisation and silicification of wallrock. Refer to plate 33 for description of sample sites.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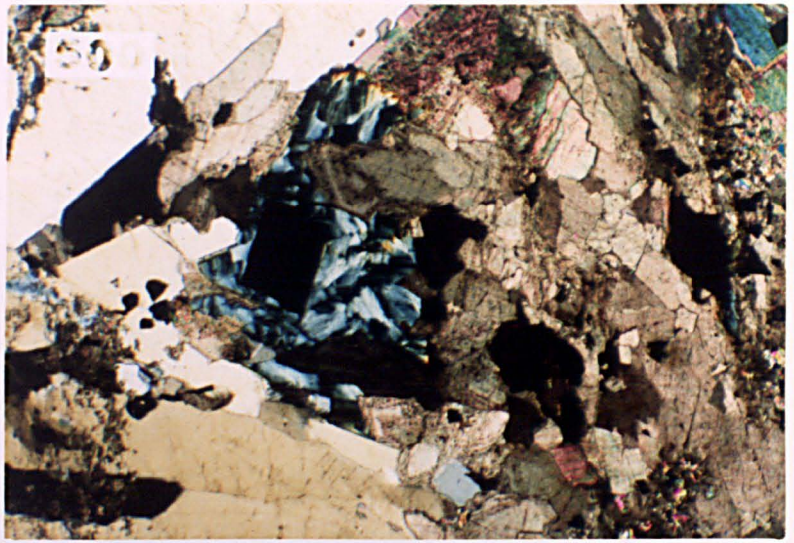
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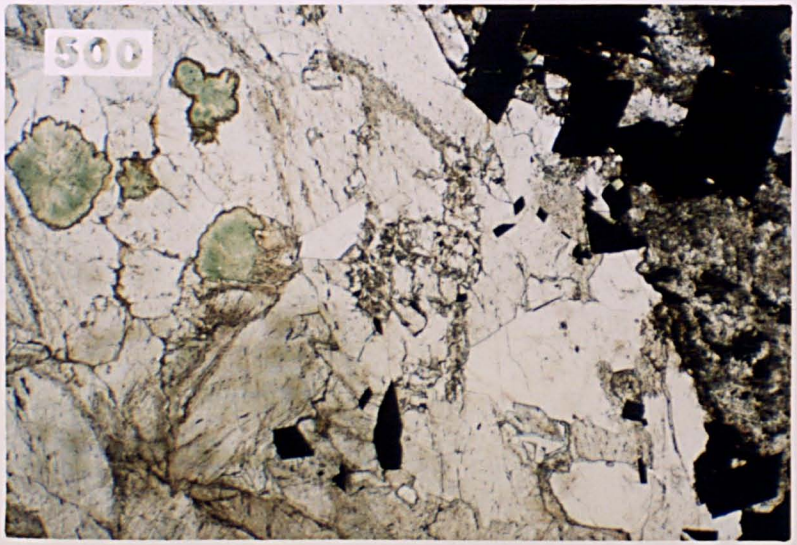
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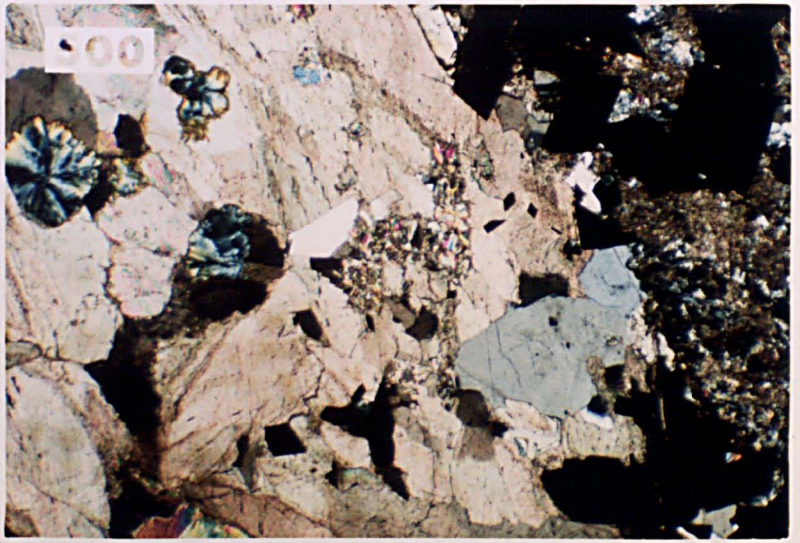
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PLATE 23 The Leadhills Mining District.

23a) TOP

Location: The Leadhills Mining District.

Description: The Leadhills mining district viewed from the southeast. Note the scar on the hillside left as a result of mining activity and the remnants of large spoil heaps.

23b) MIDDLE

Location: The Leadhills Mining District.

Description: Detailed view of the disused lead workings and spoil heaps at Leadhills.

23c) BOTTOM

Location: The Leadhills Mining District.

Description: Entrance to the Susannah vein crosscut and the last sampling site of the Leadhills underground traverse.

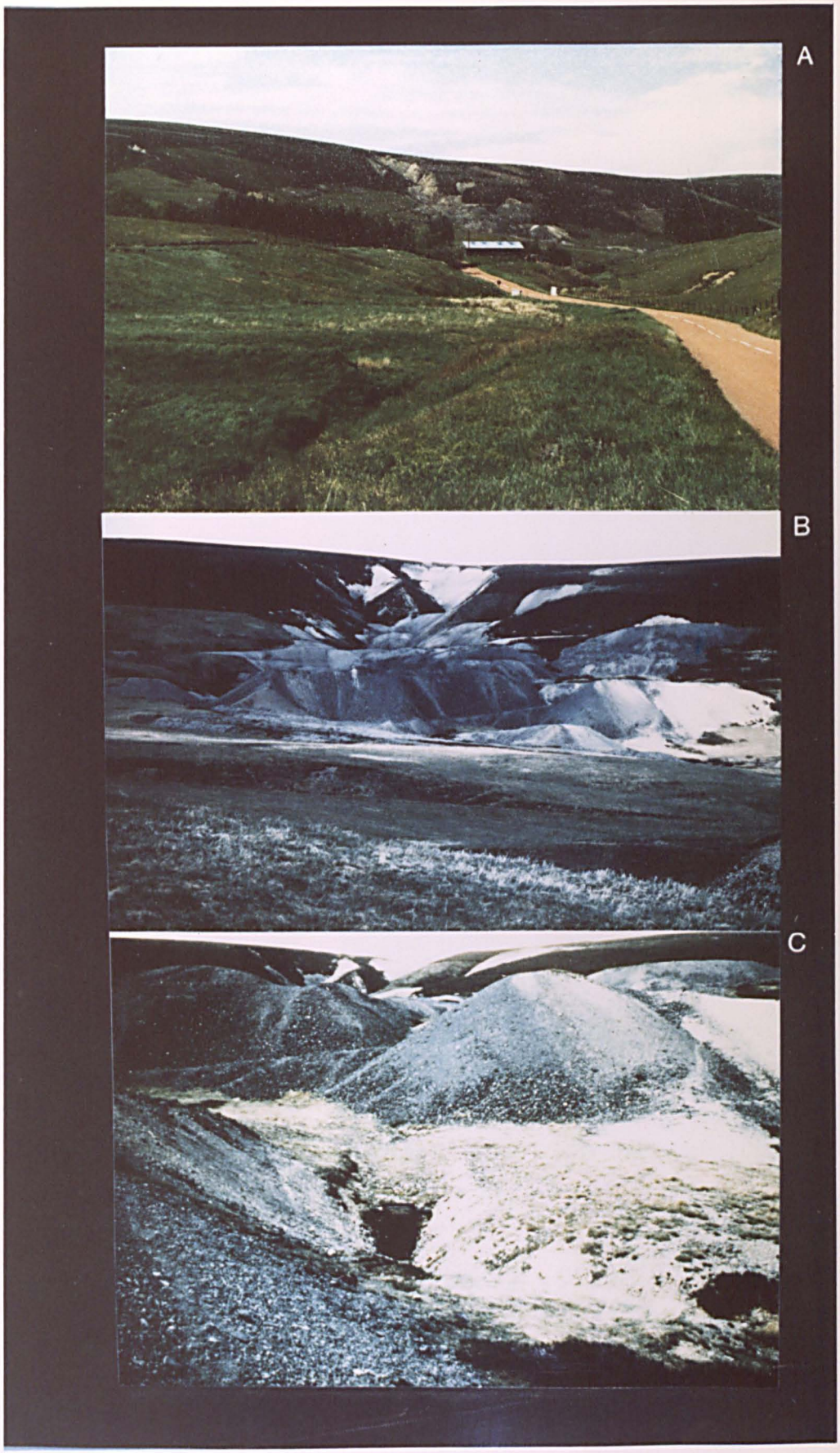
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PLATE 24 — BGS drilling program at Glendinning, Winter 1980.

24a) TOP

Location: Glendinning

Description: The Glendinning mine area viewed from the north, directly above the main top level adit entrance (situated immediately below the fence line in the bottom third of the picture). Note the remnants of sorting floors, mine buildings and shaft in the central portion of the picture (landrover for scale).

24b) BOTTOM

Location: Glendinning Borehole 3 (Grid Ref: 33143 59669)

Description: Encore Ltd mobile drilling rig at the site of BGS borehole 3 (elevation ~317.1m, inclination 60°, azimuth 104°, bottom hole depth 197.82m)


A
B

PLATE 25 The Glendinning Mine Area.

25a) TOP

Location: Glendinning

Description: The Glendinning mine area viewed from the south. Note the entrance to the top level adit in the upper portion of the photo (associated with a small sorting floor); the larger main sorting area containing the foundations of mine buildings and remnants of the main shaft (10m to the right of the landrover).

25b) MIDDLE

Location: Glendinning

Description: Enlarged view of the entrance to the Toplevel adit of the Louisa Antimony mine. Note the outcrop of mineralised/oxidised fault breccia in the roof of the adit, 1m left of the figure.

25c) BOTTOM

Location: Glendinning

Description: Enlarged section of plate 25b displaying the only surface expression of the Glendinning mineralisation. The brecciated ochreous greywacke exhibits careous weathering resulting in a series of boxwork-like textures. Bright yellow secondary antimony oxides (mainly stibiconite) have been identified from this location (by XRD) together with the presence of dickite within veins and coating fracture surfaces. Samples of this breccia are highly anomalous in As, Sb, Cu, Pb, Zn, Co, Ni and Hg.

A
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C

PLATE 26 Glendinning Regional Study Area : Topography.

26a) TOP

Location: Jamestown, Glendinning

Description: View from Glenshanna Burn west towards Hog Hill (summit 334m) in the left of the picture the lower flanks of Muckle Knowe (summit 361m) on the right. Note the lowlying topography and relative lack of exposure. The Barn at the center of the picture (located at 33000 59700) was used as a core store by BGS during their 1980 drilling program.

26b) MIDDLE

Location: A7 Langholm-Hawick Road (Grid Ref: 33700 59100)

Description: View from the eastern flank of Brieryshaw Hill looking north to Stibbiegill Knowe and Meikledale Burn (the lower reaches of Swin Gill).

26c) BOTTOM

Location: Fiddleton (Grid Ref: 33890 59600)

Description: Eastern flank of Upper Hill looking towards Crude Hill in the foreground and Whin Fell in the background. Note the well rounded, relatively low lying topography characteristic of the Glendinning study area.


A
B
C

PLATE 27 — Glendinning regional study area: Typical Sampling Locations.

27a) TOP

Location: Lymiecleuch (33850 60300)

Description: Narrow road cutting along minor road linking Teviothead with Merrylaw (viewed from the southwest).

27b) MIDDLE

Location: Lymiecleuch (33850 60300)

27c) BOTTOM

Location: Black Syke, tributary of Corlaw Burn, NNE of Glendinning.

Description: Outcrop within forestry cutting, exposing thinly interbedded greywacke sandstones and mudstones (bouma C/D units). Note the intense secondary iron and manganese staining and the presence of dickite on fracture surfaces. This outcrop yielded highly anomalous arsenic and associated trace element values and represents the surface expression of the extension to the Glendinning deposit, 1km NNE of the Lousisa Mine area.

A
B
C

PLATE 28 — Glendinning regional study area : Penecontemporaneous Structures.

28a) TOP

Location: Langholm Quarry (Grid Ref: 33450 58625)

Description: Base of 0.4m thick, massive greywacke sandstone unit displaying a spectacular development of abundant load structures, including flute and groove casts and a variety of prod, scour and other load structures. These structures together with the absence of convolute bedding, indicate that differential loading took place essentially without lateral translation, and therefore on a relatively stable and gently-sloping sea floor.

28b) MIDDLE

Location: Langholm Quarry (Grid Ref: 33450 58625)

Description: Detailed enlargement of a series of flute moulds, mainly of the triangular and bulbous categories (cf. Dzulynski and Walton, 1965). These moulds are generally arranged in diagonal rows to form an imbricate or 'scaly' pattern. Cuspate and straight longitudinal ridges were also noted, together with of small symmetrical prod and skip marks, most probably caused by pebbles of 2-3mm in diameter.

28c) BOTTOM

Location: Langholm Quarry (Grid Ref: 33450 58625)

Description: Relatively large (8-12cm in length) unidirectional flute and groove moulds, located in outcrop on the overturned limb of a F2 fold.


A
B
C

PLATE 29 Rams Cleuch Study Area.

29a) TOP

Location: Rams Cleuch Study Area.

Description: Rams Cleuch soil sampling grid viewed from Rams Cleuch north-east towards Yadgair Edge. The soil sampling grid extended from the tree line northwards to the visible horizon. Note the small gully cross-cutting the hillside. This gully is formed by Thorny Cleuch a small tributary of Rams Cleuch and follows the approximate line of the Rams Cleuch Breccia Zone.

29b) MIDDLE

Location: Thorney Cleuch (33550 60250)

Description: Upper reaches of Thorny Cleuch, within the gully identified in plate 29a. Greywacke sandstones and mudstones in this area outcrop within 1-1.5m of the surface and are covered for the most part by a thin peat and residual soil cover. The wallrocks to this gully were found to be composed of an oxidised, partially silicified greywacke breccia (exhibiting irregular careous weathering) and clay gouge. Rare, irregular yellow patches of stibiconite (a secondary alteration product of stibnite) were identified in outcrop. Note position and size of hammer for scale.

29c) BOTTOM

Location: Thorney Cleuch (33550 60250)
Sample: DJR 936

Description: Detailed inset of outcropping mineralised breccia adjacent to the hammer in plate 29b. Note the brown, ochreous weathering products of the sulphidic greywacke and the size of individual breccia clasts (<10cm).


A
B
C

PLATE 30 Rams Cleuch and Swin Gill Overburden Sampling Grids.

30a) TOP

Location: Rams Cleuch Soil Grid (Grid 1)

Description: The Rams Cleuch study area viewed from the northeast towards Eweslees Knowe. The approximate site of the soil grid is defined by the box superimposed over the photo (grid dimensions 200 x 200m). Note the shallow NNE-SSW trending gully cross-cutting the central portion of the grid. For a detailed overview of the sampling grid and surrounding area refer to figure 90a.

30b) MIDDLE

Location: Swin Gill Soil Grid (Grid 2)

Description: The north-western corner of the Swin Gill study area viewed from Craigy Edge (grid ref: 33580 59570). The approximate site of the soil grid is defined by the box superimposed over the photo (grid dimensions 300 x 500m). For a detailed overview of the sampling grid and surrounding area refer to figure 90b.

30c) BOTTOM

Location: Swin Gill Soil Grid (Grid 2)

Description: The south-west corner of the Swin Gill study area viewed from Craigy Edge (grid ref: 33580 59570). Note the position of the base station 10m due north of the sheepfold.

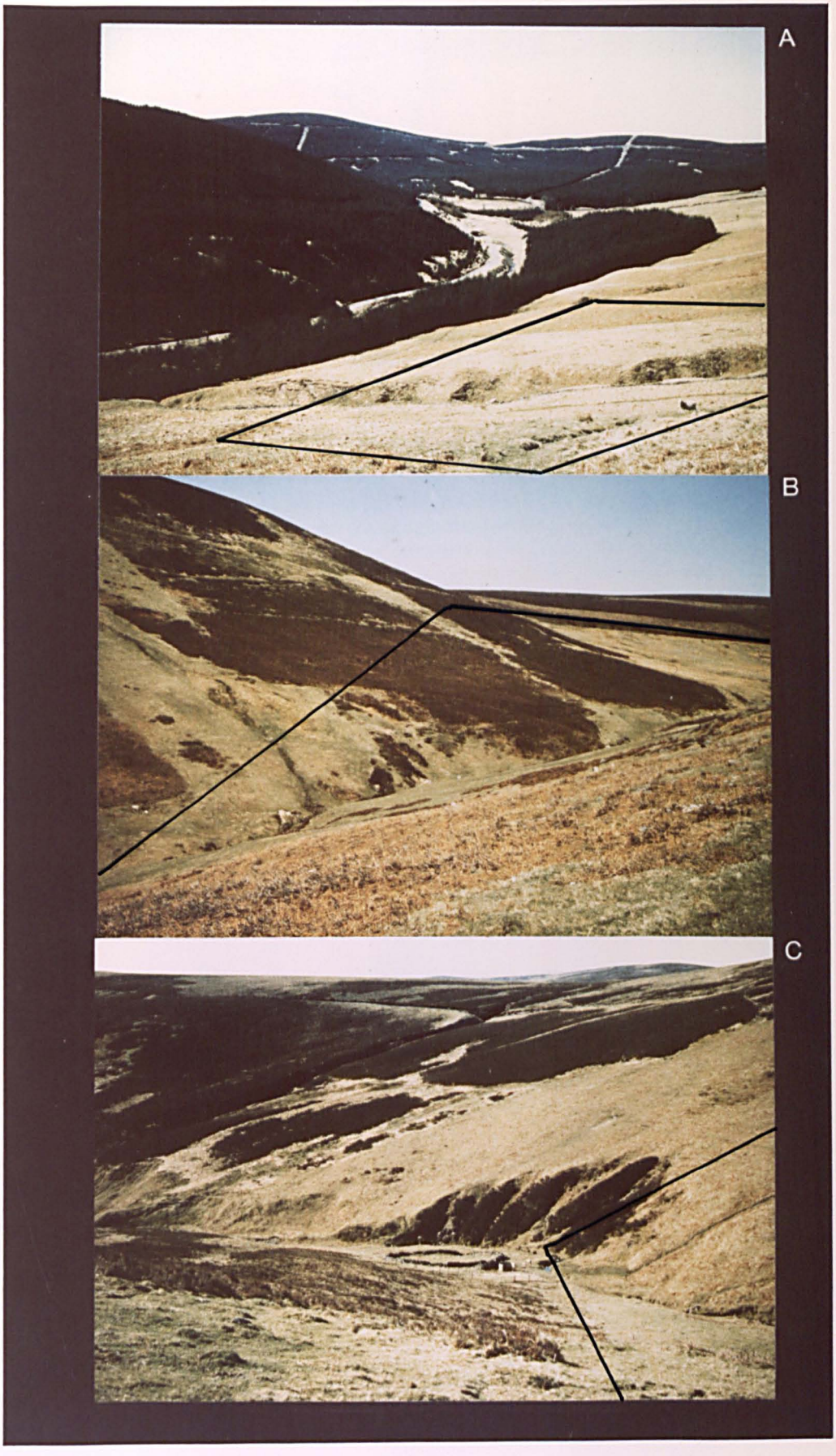
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PLATE 31 — Corsewall Conglomerate, Corsewall Point, Rhinns of Galloway.

31a) TOP

Location: Corsewall Point (Grid Ref: 19800 57250)

Description: General view of the matrix supported Corsewall Conglomerate. Individual units (2-6m thick) at this location consist of conglomerate interbedded with sandstone. Well rounded boulders up to 0.5m in diameter are chaotically arranged within a matrix of coarse sand (2-10mm). Bedding is predominantly planar, with sharp, erosional bases and gradational upper contacts. These sediments are interpreted as proximal turbidites deposited within an upper fan or fan channel setting.

31b) MIDDLE

Location: Corsewall Point (Grid Ref: 19800 57250)

Description: Detailed inset of Plate 31a. Note the diversity of rock types present including igneous, metamorphic and sedimentary clasts:
Igneous Clasts:- Hornblende-albite granite, quartz-porphyry, quartz-keratophyre, pink rhyolite, diorite, hornblende-diorite, vesicular basalt.
Metamorphic Clasts:- Hornblende granulite. Sedimentary Clasts:- Greywacke, chert, shale.

31c) BOTTOM

Location: Corsewall Point (Grid Ref : 19800 57250)

Description: Single hornblende-albite granite clast set within a massive fining upwards turbidite sandstone. Stratigraphy at this location is uninverted, and the sediments young to the northwest.

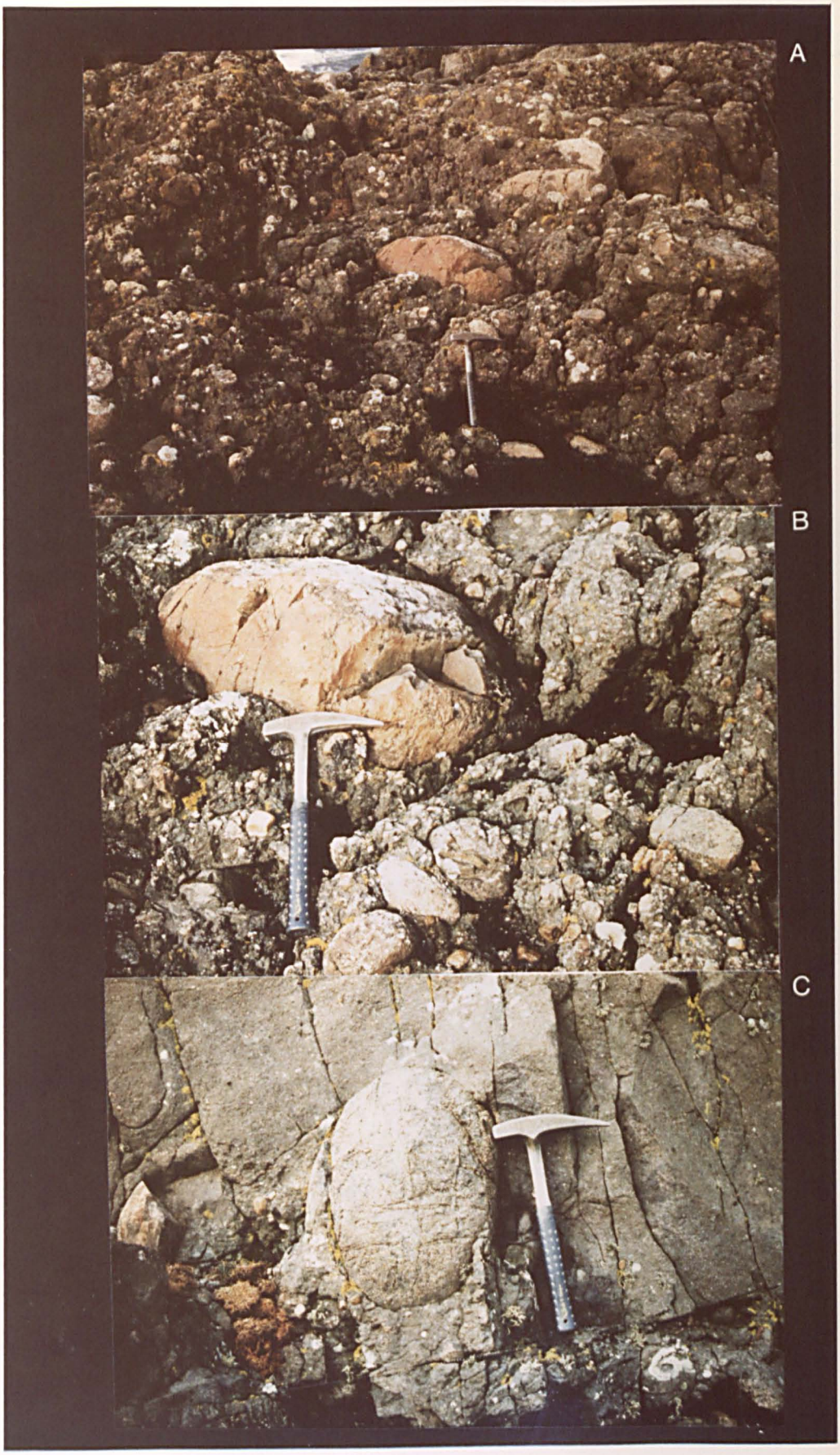
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PLATE 32 Cairngarroch Bay Study Area, Rhinns of Galloway

32a) TOP

Location: Cairnmon Fell (Grid Ref: 10480 54900)

Description: View from Cairnmon Fell northwest towards Cairngarroch Bay. The main intrusive complex within Cairngarroch Bay gives rise to a relatively smooth sloping hillside, whereas the horfelsed turbidites at the margins of the complex develop more rugged craggy exposures. Arsenopyrite mineralisation was located at the northern contact margin of the igneous complex.

32b) MIDDLE

Location: Cairngarroch Bay (Grid Ref: 10450 54950)

Description: Southern contact margin of hornfelsed greywackes (foreground) with the Cairngarroch igneous complex (centre and background).

32c) BOTTOM

Location: Cairngarroch Bay (Grid Ref: 10461 54974)

Description: Altered hornfelsed greywacke demonstrating bleaching effects associated with hydrothermal As-bearing fluids. Note the pervasive nature of the alteration and the controls provided by the joint/fracture system.


A
B
C

PLATE 33 Cairngarroch Bay Arsenopyrite Vein.

33a) TOP

Location: Cairngarroch Bay (Grid Ref: 10451 54950)

Description: Location of a 0.5m wide quartz-arsenopyrite vein discovered by the author. The vein (see position of hammer) trends N 5 E and cross-cuts the junction between hornfels and the Cairngarroch igneous complex.

33b) MIDDLE

Location: Cairngarroch Bay (Grid Ref: 10451 54950)

Description: Detailed close-up of the Cairngarroch Quartz- Arsenopyrite vein immediately to the left of the compass, together with silicified, brecciated and sulphide impregnated host rocks.

33c) BOTTOM

Location: Cairngarroch Bay (Grid Ref: 10451 54950)

Description: Inset of plate 33b. Note the dark sulphide rich bands present in silicified wallrock adjacent to the complex quartz-carbonate-arsenopyrite vein. Refer to plates 5 and 22 for detailed mineralogy of the vein.

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PLATE 34 Tongerhie Cu-As deposit, Southwest Scotland.

34a) TOP

Location: Tongerhie (Grid Ref : 24380 53470)

Description: Historical mine workings - N-S trending cutting leading from the shoreline inland to a small shaft and adit.

34b) MIDDLE

Location: Tongerhie (Grid Ref : 24380 53470)

Description: Remnants of a second shaft and small sorting floor, approximately 40m north of the cutting detailed in plate 34a. Note hammer for scale.

34c) BOTTOM

Location: Tongerhie (Grid Ref : 24380 53470)

Description: View of wallrocks to the main N-S trending cutting detailed in plate 34a. Note the extensive,low-angle quartz-carbonate veining containing traces of chalcopyrite and associated brecciation.

A
B
C

PLATE 35 Tweed Bridge Interformational Study area.

35a) TOP

Location: Tweed Bridge (Grid Ref: NT 0977 2434)

Description: Geochemical sampling area for inter-unit studies. The sediments of this area consist of coarse to medium grained greywackes (beds 0.4-3.8m thick) interbedded with siltstones and mudstones (<1m in thickness). Detailed inter-unit sampling was carried out upon the massive turbidite unit observed through the arch of the Tweed bridge.

35b) MIDDLE

Location: Tweed Bridge (Grid Ref: NT 0977 2434)

Description: Enlarged view of the Tweed Bridge turbidite unit, which displays a virtually complete fining upwards bouma sequence A/B/C/E. This unit was sampled at 15cm intervals across its width. At each site approximately 0.7-1.0kg of fresh, unveined rock chips (<3cm) were collected for inter-unit geochemical studies.

35c) BOTTOM

Location: Tweed Bridge (Grid Ref: NT 0977 2434)

Description: Detailed inset of the base of the Tweed Bridge turbidite unit. Note the coarse grained nature of the base of the bed (containing granules 2-4mm in diameter) and the effects of loading and dewatering on the underlying sediments. The base of this unit was sampled at 5m intervals across a strike/outcrop length of 30m.

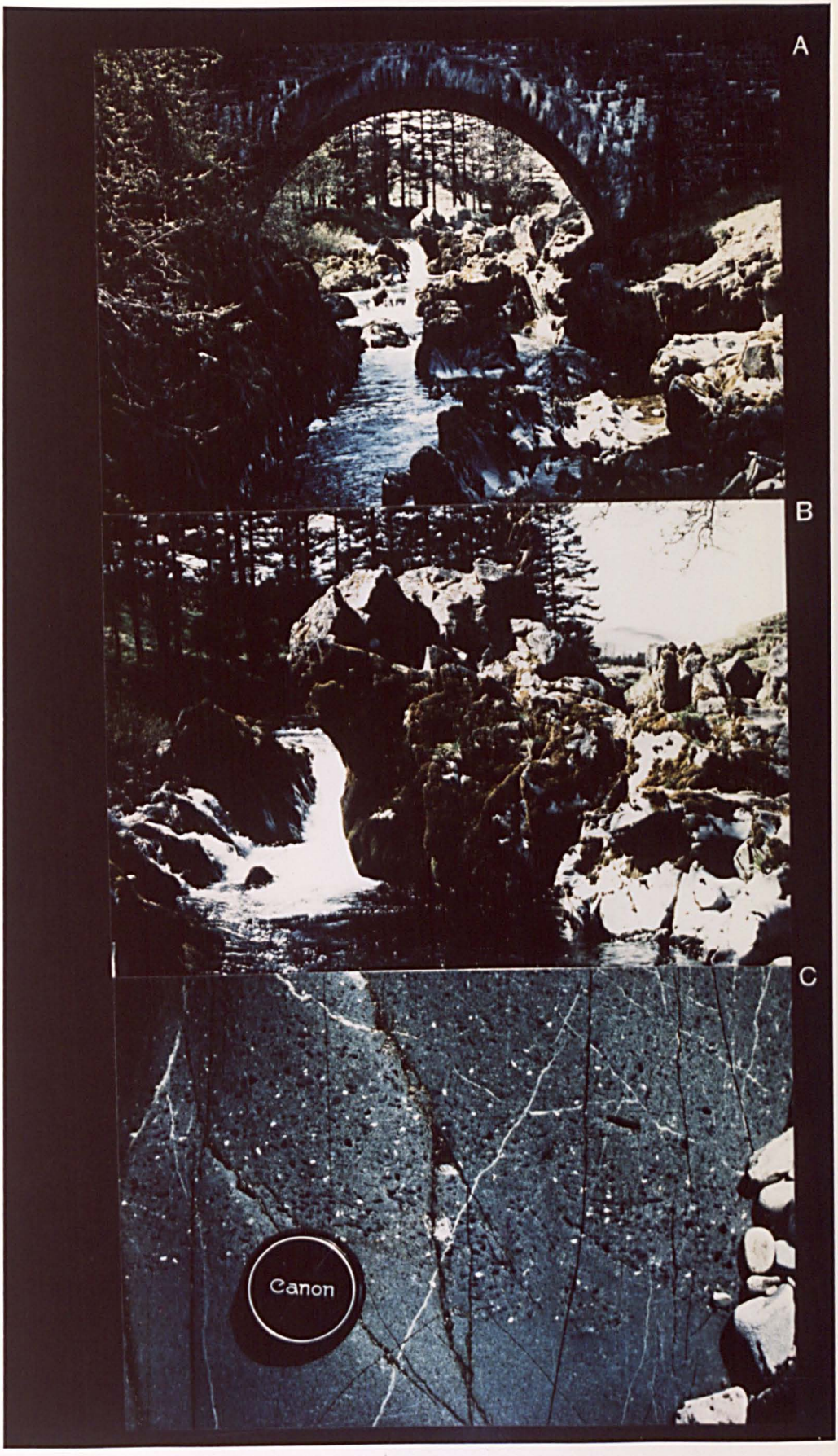
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PLATE 36 Arsenopyrite hosted Gold Inclusions.

36a) TOP

Location: Ashanti Gold Mine
Sample: Ash1
Plate Type: Reflected light photomicrograph (plane polarised)
Field of View: 0.5mm
Description: Euhedral rhombs of arsenopyrite (white) 200 microns in length intimately associated with anhedral pyrite (pale yellow). Note the bright yellow inclusions of native gold (2-5 microns in diameter) located within the arsenopyrite crystals.

36b) BOTTOM

Location: Ashanti Gold Mine
Sample: Ash2
Plate Type: Reflected light photomicrograph (plane polarised)
Field of View: 0.5mm
Description: Euhedral rhomb of arsenopyrite (white) 300 microns in length intimately associated with anhedral pyrite (pale yellow). Note the single gold filled fracture (bottom centre) crosscutting the arsenopyrite crystal. Within the Ashanti and many other similar deposits, gold is frequently found at arsenopyrite-pyrite contacts or occluded within the sulphide phases. It is extremely rare to detect the presence of free gold within the gangue matrix.

NB. Photomicrographs of Ashanti ore samples were provided by Dr B Aktin, Department of Geology, Nottingham University.

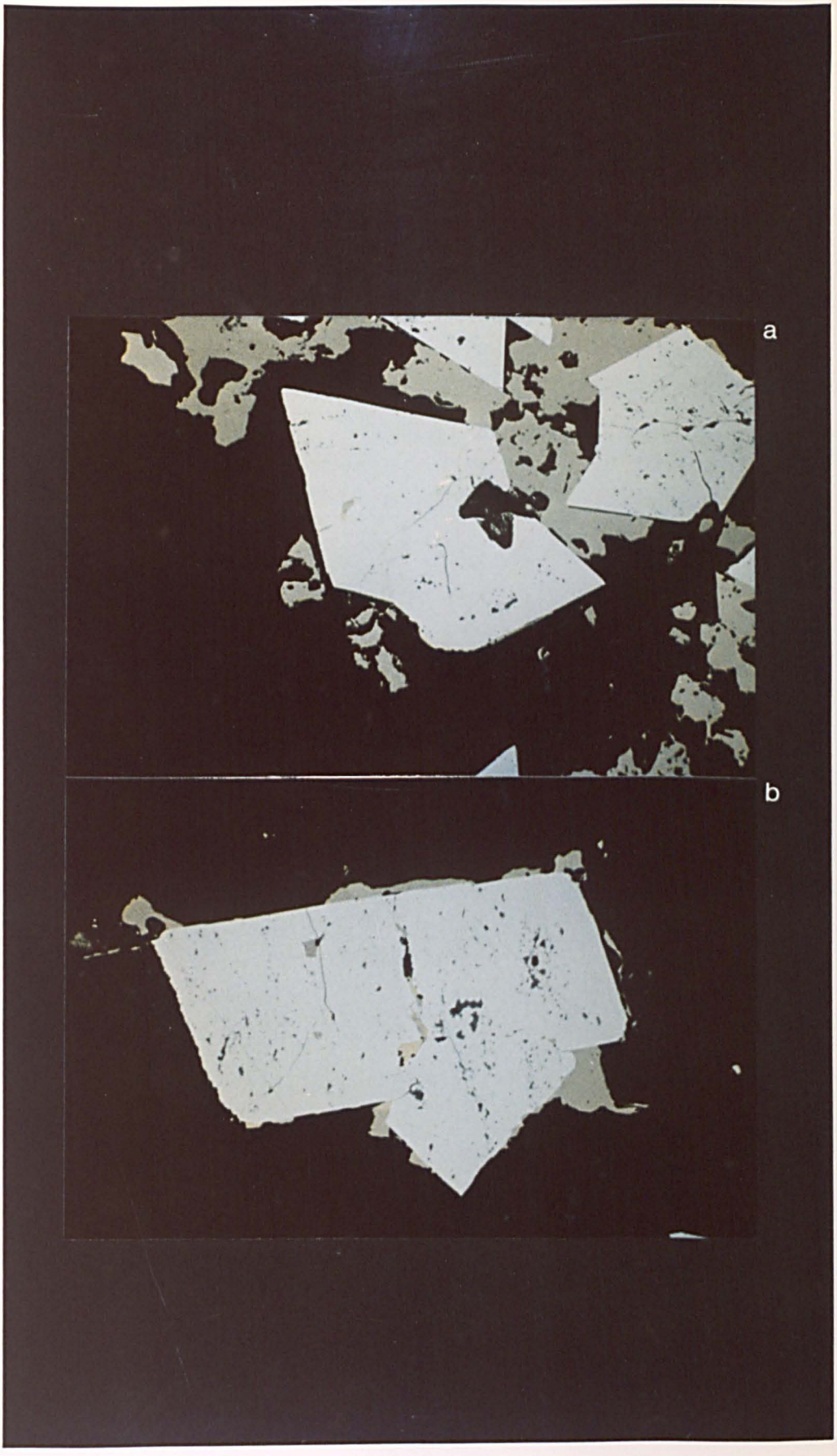

a
b

PLATE 37 XRF Sample Preparation Equipment, Geology Department, Nottingham University.

37a) TOP

Location: Geochemistry Laboratory, Department of Geology, Nottingham University.

Description: Pressed powder pellet production line. Equipment from left to right as follows: Oven, PVP dispenser (binder) Methanol (cleaner), mould, dies and extractor, Hydraulic press. This equipment was used to prepare over 2,700 pressed powder pellets of rock and soil samples during the tenure of this Ph.D.

37b) BOTTOM

Location: Geochemistry Laboratory, Department of Geology, Nottingham University.

Description: Fused Bead production line. Equipment from left to right as follows: Hot plates, ceramic pots and manual bead press, high temperature bunsen with crucible holder and furnace.

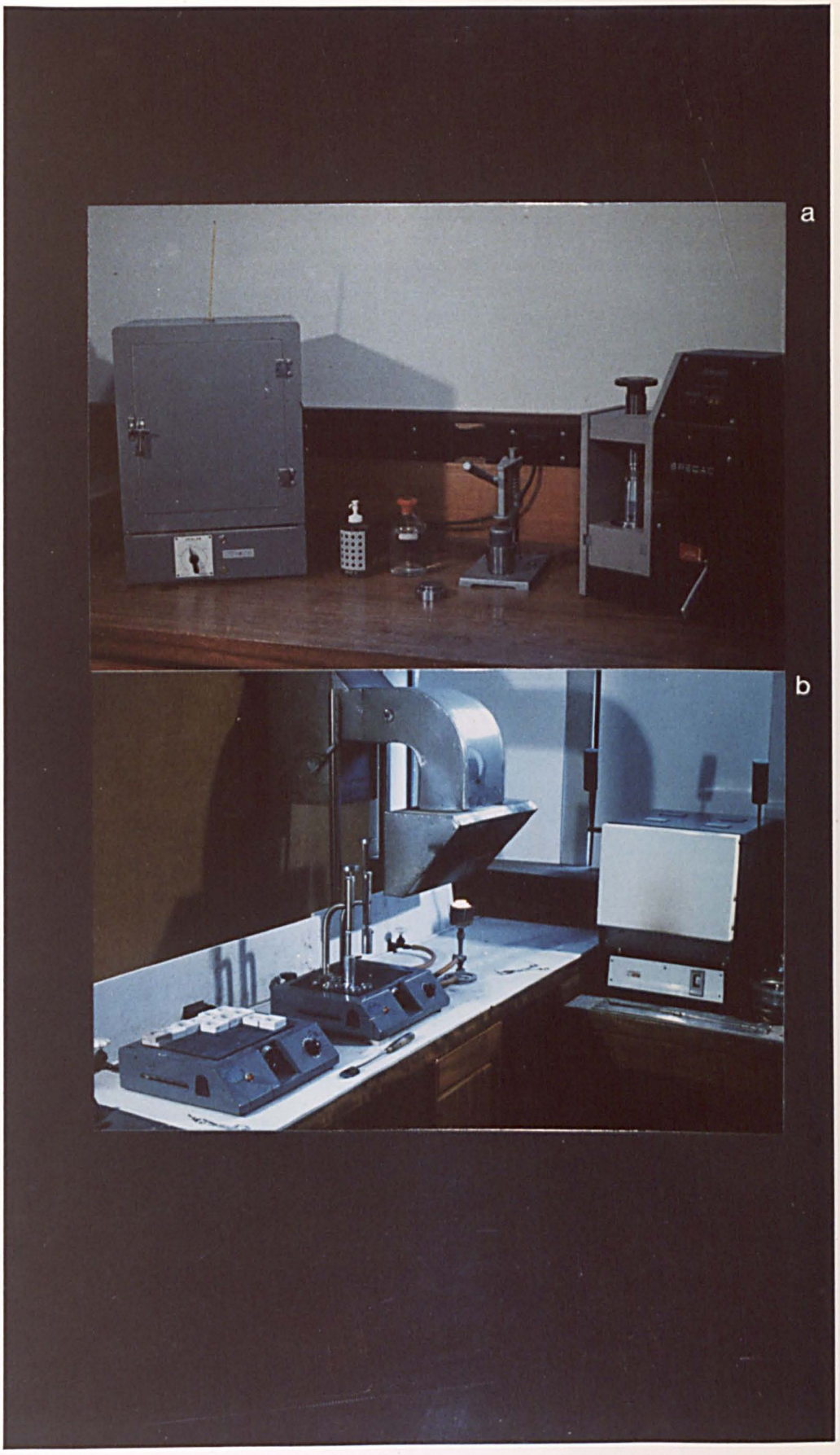
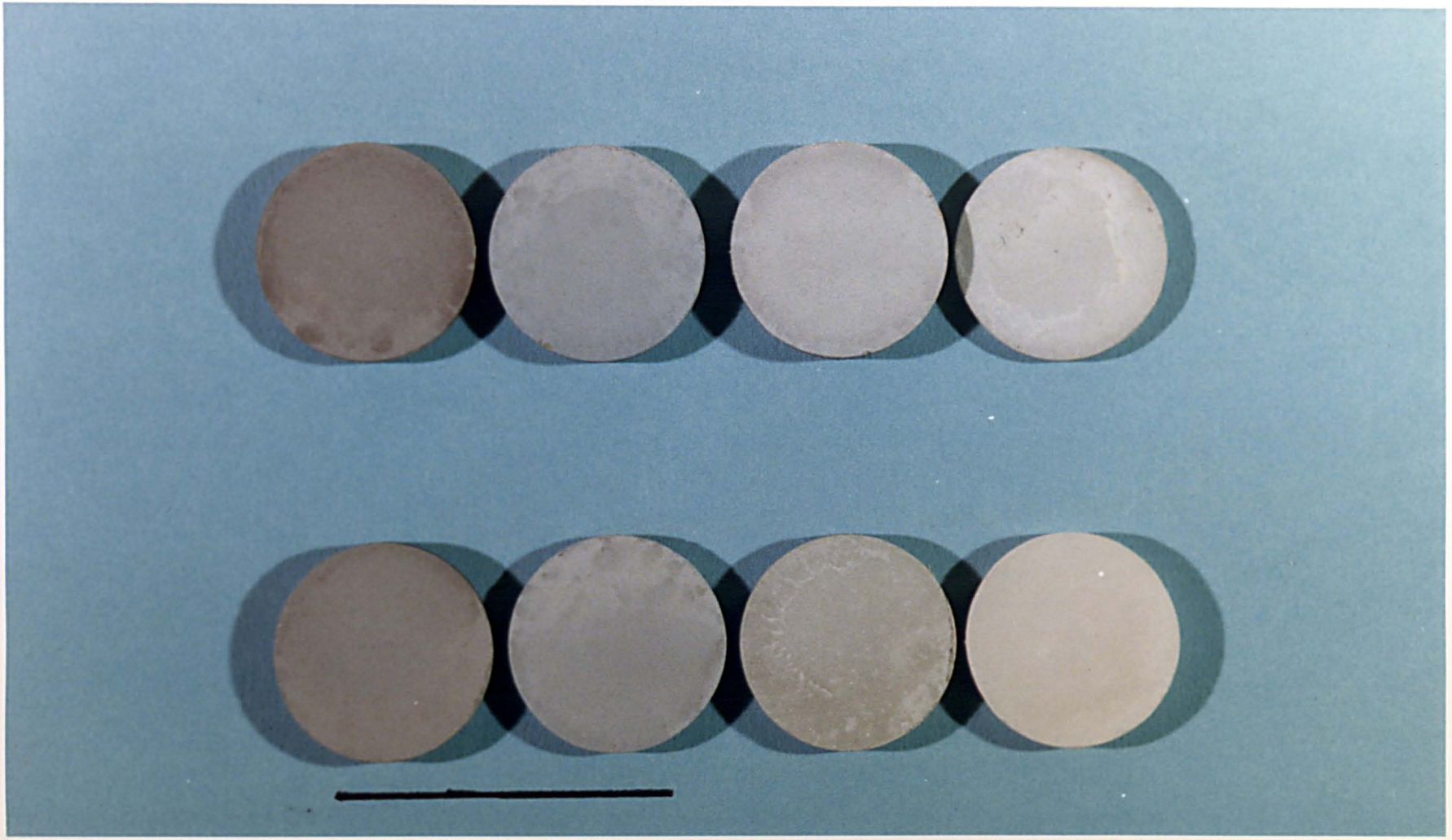

a
b

PLATE 38

XRF Pressed Powder Pellets illustrating a Diffusive Colour Index (DCI).

Location: Glenshanna Burn Traverse, Glendinning.

Description: Two columns of XRF pellets derived from mudstone (left) and greywacke (right) sampled from interbedded lithologies at sites located 500, 350, 200 an 50m from the Glendinning deposit. Note the progressive change in colour related to hydrothermal alteration, as we move from the bottom of each column (the 500m site) towards the Glendinning deposit. The bleaching effect may also be observed, with care in hand specimen in the field and as such lead to the development of a diffusive colour index (DCI) as a guide to hydrothermal activity (and As-Sb-Au mineralisation) in this terraine.



TABLES

LIST OF TABLES

The enclosed tables have been subdivided into four sections:

1 - General
2 - Summary Statistics
3 - Multivariate Statistics
4 - Chemical Analyses

1 - General

2 - Summary Statistics

3 - Multivariate Statistics

4 - Chemical Analyses

Table 1.00 : History of the Scottish Goldfields

100 AD	Two Roman roads intersect at Elvanfoot, in close proximity to the Leadhills area, and it is quite likely that the ancient underground workings intersected by Bowes (1600) are of Roman origin.
500-600 AD	Celtic rings and ornaments fashioned from local gold (Antiquarian Museum, Edinburgh).
1153	The earliest record of gold in Scotland occurs in the form of a grant to the Abbey of Dunfermline, from David the First of Fife donating one fifth of all the gold that " he accrue ".
1239	Earliest record of alluvial gold production in Elvan Valley.
1245	Discovery of gold at Durness, in the north-west of Sutherland by Gilbert de Moravia.
1502	Discovery of a 27oz gold nugget (the Hopetoun nugget) on Crawford Moor.
1511	First Crown licence for minerals issued to Sir James Pettigrew. Extraction suspended following death of James IV (killed at the battle of Flodden).
1516	Exploration and minor gold production during the Regencies, before James V came of age. One hundred and thirteen ounces of Scottish gold were used by the goldsmith John Mossman to make the crowns for James V and his queen.
1524	All gold production transferred to the Royal Mint in Edinburgh (Cunzie House) to be struck into coins.
1525	Price of gold fixed at 7 pounds an ounce.
1526	43 year exploitation lease granted to a consortium of German and Dutch mining experts (Jeachim Hochstetter, Gerard Sterk, Antony de Nikets and others).
1531	German migrant workers used in gold exploitation and subsequent production exported to Germany. Dutchmen returned to Holland.
1535	Royal commission set up to investigate the gold workings, and instead defined a royalty payment of 7% to be made to the Crown.
1538	John Mossman placed in charge of the Crawford Moor Workings.
1539	Introduction of French "miners" from Lorraine. Famous Scottish 'Bonnet' pieces struck from Crawford Moor gold. Price of gold dropped to 6 pounds and eight shillings an ounce with respective fall in workers wage to six shillings and eight pence per ounce.
1554	Death of James V after his defeat at Solway Moss. Gold workings abandoned and French miners returned home.
1542-1567	During the Regency and reign of Queen Mary, English miners were brought north, but due to the intense political unrest in this area at this time, little work was undertaken.
1567-1603	Successful operations by a Dutch mining engineer Cornelius De Vois in the Crawford Moor region with all gold at first shipped to England. Once this was discovered by James VI he decreed that a 10% royalty payment was required by the Scottish crown and that all gold production must be sold to the Royal Mint in Edinburgh. One hundred and twenty men were employed in the Leadhills area. Bevis Bulmer, on the recommendation of Queen Elizabeth, was granted a royal patent to search for gold anywhere in Scotland, 1578-92. 300 men employed by Bevis Bulmer at Leadhills for three summers, yielded a total production in excess of 15,000oz. Although these investigations centred upon the Leadhills area, he also met with considerable success in Ettrick Forest with workings in the vicinity of Glengaber Water, approximately 2 km west of St. Marys Loch (due north of the Glendinning study area). Nuggets of 5 and 6oz in weight were found in Longcleuch Burn. George Bowes was actively exploring underground during this period and employed 120 local workers and 22 skilled English miners. Due to the absence of rock exposure, he employed the methods of costeaning and hushing (the release of large quantities of water along pre-dug channels) to remove the overburden and uncover outcrops of vein mineralisation.

	Rumour of gold-bearing vein discovered on Longcleuch Water.
	James VI presented the King of France with a gold bowl, "sufficient to hold a English gallon" filled with gold 20 pound coins as a token of their friendship.
1576	Edict of Privy Council prohibited export of Scottish gold.
1603	Bevis Bulmer knighted by James VI of Scotland.
1608	Discovery of the Hilderstone silver vein, near Linlithgow.
1619	Treatise on the History of Gold Mining in Scotland by Stephen Atkinson.
1622	Alluvial gold mining at Leadhills uneconomic and production halted.
1750	German exploration at Torbockhill, near Annan. Auriferous pyrite identified from their discarded workings early in the 1900's.
1772	Gold diggers on Crawford Moor scarcely able to make a living.
1852	Minor Scottish Gold Rush, Loch Lomond.
1861	Comparison of Scottish and New Zealand Goldfields by Lauder Lindsay.
1863	Discovery of alluvial gold in Moffatdale (The Scotsman, 10-8-63).
1868	Major Scottish Gold Rush, Helmsdale.
	Gold valued at 3 pounds and seventeen shillings an ounce.
1875	John Taylor, manager of Wanlockhead Lead Mines, supervised a systematic attempt to exploit the alluvial gravels or gold. Gold abundance was noted to increase in the vicinity of lead veins.
1898	Alluvial gold panned by Leadhills miners used to produce a ring presented to Mary, Princess of Teck, on the occasion of her marrage to Prince George, who later became King George V.
1904	Traces of gold located in pyrite-pyrrhotite rich Lewisian gneiss, near Dornie, Loch Duich, Ross-shire.
1970-1989+	Stream sediment and panned concentrate geochemical surveys by the British Geological Survey located gold in over 100 streams draining the Southern Uplands.
	Modern gold exploration techniques applied in this area by a number of major companies.
	Ph.D Research projects undetaken upon the nature and genesis of gold deposits in the Southern Uplands.

NB. The name Crawford Moor is pervasive throughout the literature relating to Scottish mining and gold exploration and is used to describe the broad area of gold workings/discoveries extending at least from Crawford to Wanlockhead, and it was often applied to any area of alluvial gold mineralisation south of the Southern Uplands fault from Selkirk to Carsphain. At least 30 individual sites of actual or reputed gold production exist in this area (Langlands, 1983).

XRD ANALYTICAL DATA

TABLE 1.01

Sample No.	CXD1500	CXD1551	CXD1552	CXD2001
Depth	61.92-62.00m	126.60-126.66m	165.40-165.55m	79.38-79.42m
Lithology	Greywacke	Greywacke	Mudstone	Mudstone
WHOLE ROCK				
Illite/Mica	20-25	15-20	15-20	15-20
Chlorite	1-2	<1	<1	<1
Kaolinite/dickite	<1	10-15	<1	<1
Quartz	55-60	45-50	55-60	50-55
K-Feldspar	1-2	<1	tr	tr
Plagioclase	1-2	<1	tr	tr
Calcite	-	-	-	-
Ankerite (Fe Dolomite)	15-20	20-25	20-25	20-25
Siderite	-	-	-	-
Anhydrite	-	-	-	-
Pyrite	<1	<1	-	-
CLAY FRACTION				
Total Illite	65-70	45-50	25-30	40-45
Illite-Smectite (as % total illite)	5-10	<5	20-25	-
Smectite (as % illite-smectite)	<10	<10	<10	-
Chlorite	2-5	1-2	2-5	30-35
Dickite	20-25	40-45	60-65	20-25
Quartz	2-5	5-10	5-10	1-2
K-Feldspar	-	-	-	<1
Plagioclase	1-2	1-2	<1	<1

Glendinning Lithogeochemical 'Grey-Scale' Mapping Intervals.

TABLE 1.02

Greywacke:

Element	Percentiles 50%	75%	90%	95%
Si	58.50	60.00	61.50	63.00
Al	13.50	15.00	16.00	17.50
Ti	0.80	0.90	0.95	1.05
Fe	5.80	6.30	7.00	7.70
Mg	4.25	4.80	5.20	5.40
Ca	7.00	8.80	10.20	11.20
Na	1.50	1.65	1.85	1.95
K	2.10	2.35	2.60	3.00
Mn	0.09	0.11	0.15	0.17
P	0.17	0.18	0.19	0.20
As	3	6	8	12
Ba	245	285	350	420
Cl	25	33	53	70
Co	25	28	30	35
Cr	135	145	165	190
Cu	23	27	35	42
Ga	13	15	17	18
La	32	35	39	42
Ni	55	62	72	80
Nb	14	15	16	17
Pb	10	14	16	22
Rb	65	73	85	105
Sr	115	140	160	180
Sb	2	4	6	10
S	15	35	85	175
Th	8	10	12	14
V	95	105	115	120
Y	30	33	36	39
Zn	60	70	80	90
Zr	200	210	250	280
Tl	2	4	6	8

Shale:

Element	Percentiles 50%	75%	90%	95%
Si	57.00	59.00	60.50	62.50
Al	18.50	19.00	19.70	20.50
Ti	1.05	1.10	1.14	1.18
Fe	8.30	9.30	9.70	10.00
Mg	5.45	5.75	6.05	6.30
Ca	1.00	2.50	4.80	6.50
Na	0.50	1.00	1.20	1.50
K	3.50	3.90	4.30	4.50
Mn	0.07	0.08	0.11	0.14
P	0.17	0.19	0.21	0.23
As	4	8	17	25
Ba	340	430	460	530
Cl	2	4	15	25
Co	28	31	33	36
Cr	152	162	168	177
Cu	37	47	57	70
Ga	20	22	24	26
La	39	42	47	49
Ni	94	104	114	124
Nb	16	17	18	19
Pb	12	15	30	40
Rb	132	146	152	165
Sr	45	66	95	120
Sb	2	4	6	8
S	10	30	45	100
Th	11	14	16	18
V	143	153	160	170
Y	30	35	40	43
Zn	100	110	115	125
Zr	175	188	220	238
Tl	2	4	6	8

Sulphur Isotopes

TABLE 1.03

Sample No.	Location	Mineralogy	Textures	Contaninants	$\delta^{34}S$
GLEN1	Glendinning	Arsenopyrite	Disseminated	Pyrite (<1%)	0.042
GLEN2	Glendinning	Pyrite	Disseminated	Pure	-2.813
GLEN4	Glendinning	Stibnite	Microcrystalline	Pure	-2.555
GLEN5	Glendinning	Stibnite	Massive	Pure	-2.809
GLEN6	Glendinning	Sphalerite	Granular	Pure	-2.743
CLON6a	Clontibret	Stibnite	Massive	Pure	-6.729
CLON6b	Clontibret	Stibnite	Massive	Pure	-3.950
KNIPE1	The Knipe	Stibnite	Acicular	Pure	-3.412

Table : International Standard Sedimentary REE Analyses (after Taylor, 1985).

TABLE 1.04

Element	PAAS	NASC	ES	Ch
La	38.00	32.00	41.50	0.328
Ce	80.00	73.00	81.30	0.865
Pr	8.90	7.90	10.40	0.123
Nd	32.00	33.00	40.10	0.630
Sm	5.60	5.70	7.30	0.203
Eu	1.10	1.24	1.52	0.077
Gd	4.70	5.20	6.03	0.276
Tb	0.77	0.85	1.05	nd
Dy	4.40	5.80	nd	0.343
Ho	1.00	1.04	1.20	0.078
Er	2.90	3.40	3.55	0.225
Tm	0.40	0.50	0.56	nd
Yb	2.80	3.10	3.29	0.220
Lu	0.43	0.48	0.58	0.034

PAAS - Post Archean Average Shale (Nance and Taylor, 1976)
NASC - North American Shale Composite (Haskin et al, 1968)
ES - European Shale Composite (Haskin and Haskin, 1966)
Ch - Chondrite (Nakamura, 1978)

nd - not determined.

Table : Phanerozoic and Archean Greywacke REE Analyses (after Taylor, 1985).

TABLE 1.05

Phanerozoic

	Quartz Poor		Quartz Intermediate		Quartz Rich	
	M227	M285	MK64	T82	P39803	MK97
La	10.00	6.80	25.00	25.10	35.80	43.00
Ce	18.00	15.00	53.00	53.60	69.10	83.00
Pr	2.20	2.00	5.80	6.81	nd	12.00
Nd	10.00	8.20	22.00	25.90	45.00	42.00
Sm	2.80	2.20	4.50	4.82	8.09	7.10
Eu	0.97	1.10	0.90	1.04	1.31	1.00
Gd	3.40	2.60	3.50	3.74	nd	5.60
Tb	0.52	0.39	0.60	0.59	0.64	0.88
Dy	3.10	2.70	3.60	3.46	nd	4.70
Ho	0.79	0.59	0.80	0.64	nd	1.00
Er	2.20	1.90	2.20	1.72	nd	2.90
Tm	nd	nd	nd	nd	nd	nd
Yb	2.30	1.80	2.00	1.68	2.85	2.90
Lu	nd	nd	nd	nd	0.48	nd

Archean

	DD9	YK2	KH44	C28	G21
La	nd	18.00	17.00	22.00	25.00
Ce	32.60	41.00	33.00	45.00	41.00
Pr	nd	4.70	4.40	nd	5.80
Nd	14.80	19.00	17.00	17.20	25.00
Sm	2.68	3.90	3.10	3.10	4.40
Eu	0.78	1.10	1.10	0.80	1.28
Gd	2.24	3.00	3.20	2.60	4.10
Tb	nd	nd	0.49	0.40	0.54
Dy	1.74	2.40	3.10	2.30	nd
Ho	nd	nd	0.64	0.49	0.54
Er	0.91	1.20	1.80	0.93	1.50
Tm	nd	nd	nd	nd	0.24
Yb	0.84	1.00	1.60	1.27	1.40
Lu	0.14	nd	nd	0.19	0.28

DD9 - Knife Lake Group, Superior Province (Arth and Hanson, 1975)
YK2 - Walsh Formation, Slave Province (Jenner,1981)
KH44- Kalgoolie District, Australia (Nance, 1977)
C28 - Belvue Road Formation, Fig Tree Group, S. Africa (Condie, 1970)
G21 - South Pass Greenstone Belt, Wyoming (Dickinson, 1981)

TABLE : A Comparison of the Oxidation State of Iron in Mineralised and Unmineralised samples from the Glendinning Area.

TABLE 1.06

Sample No.	FeO %	Fe^{2+} %	Fe_2O_3 %	Fe^{3+} %	ΣFe %	Fe^{2+}/Fe^{3+}	Fe^{2+}/Fe
Greywacke							
DJR 1	2.82	2.19	6.03	2.02	4.21	1.08	0.52
DJR 3	3.45	2.68	6.03	1.53	4.21	1.75	0.63
DJR 4	4.39	3.41	7.11	1.53	4.97	2.22	0.68
DJR 11	2.75	2.14	4.95	1.32	3.46	1.62	0.61
DJR 13	2.85	2.21	4.85	1.17	3.38	1.88	0.65
DJR 18	3.55	2.76	5.12	0.82	3.58	3.36	0.77
DJR 33	3.68	2.86	5.61	1.08	3.92	2.64	0.72
DJR 53	2.69	2.09	4.99	1.40	3.49	1.49	0.60
DJR 54	3.18	2.47	4.63	0.77	3.24	3.20	0.76
DJR 58	2.71	2.10	4.89	1.32	3.42	1.59	0.61
Shale							
DJR 1001	3.80	2.95	7.54	2.32	5.27	1.27	0.56
DJR 1003	3.93	3.05	7.14	1.94	4.99	1.57	0.61
DJR 1004	4.96	3.85	8.66	2.20	6.05	1.75	0.63
DJR 1011	3.77	2.93	6.55	1.65	4.58	1.77	0.64
DJR 1013	5.99	4.66	9.24	1.80	6.46	2.58	0.72
DJR 1018	5.76	4.41	8.64	1.63	6.04	2.70	0.73
DJR 1033	1.75	1.36	7.10	3.61	4.97	0.37	0.27
DJR 1053	3.14	2.44	7.48	2.79	5.23	0.87	0.46
DJR 1054	3.00	2.33	7.25	2.74	5.07	0.85	0.45
DJR 1058	3.60	2.80	8.04	2.82	5.62	0.99	0.49
Mineralisation							
CXD 1001	2.39	1.86	6.09	2.39	4.25	0.78	0.43
CXD 1011	1.29	1.00	4.59	2.21	3.21	0.45	0.31
CXD 1081	4.14	3.22	5.66	0.73	3.95	4.41	0.64
CXD 1091	4.36	3.39	7.14	1.60	4.99	2.12	0.68
CXD 1101	3.04	2.36	5.85	1.71	4.07	1.38	0.58
CXD 1111	3.42	2.66	5.99	1.53	4.19	1.73	0.63
CXD 1121	4.35	3.38	5.58	0.52	3.90	6.50	0.87
CXD 1131	3.66	2.84	5.51	1.01	3.85	2.81	0.74
CXD 1141	4.57	3.55	6.32	0.87	4.42	4.08	0.80
CXD 1151	3.66	2.84	5.17	0.77	3.61	3.69	0.78

FeO content determined by Titration.

Fe_2O_3 content determined by XRF.

ENRICHMENT FACTORS (%) : GLENDINNING MINERALISATION.

TABLE 1.07

VAR./ID.	Minimum	Mean	Maximum
SiO2	13.37	0.76	29.40
Al2O3	31.34	26.10	8.50
TiO2	47.80	-0.34	-9.50
Fe2O3	18.98	-9.73	-30.40
MgO	-55.00	-22.40	-7.30
CaO	30.00	-3.98	-43.70
Na2O	-100.00	-87.30	-60.70
K2O	179.00	52.70	23.00
MnO	-100.00	-14.00	-45.00
P2O5	-70.00	-11.10	-16.60
As	6900.00	88270.00	40000.00
Ba	137.50	1102.00	488.00
Cl	0.00	16.40	49.30
Co	5.00	10.60	24.00
Cr	24.48	-0.20	-13.30
Cu	85.00	40.70	47.00
Ga	0.00	25.60	8.30
La	16.60	19.40	3.60
Ni	91.60	22.30	316.00
Nb	50.00	-3.30	-83.20
Pb	5900.00	377.70	3140.00
Rb	193.00	67.90	35.30
Sr	144.00	25.30	71.60
Sb	0.00	4957.00	1640.00
S	0.00	6827.00	843.00
Th	0.00	11.70	150.00
V	9.40	16.60	88.00
Y	0.00	-6.60	-35.90
Zn	0.00	-31.90	1025.00

Table : SUMMARY OF ANALYTICAL LABORATORIES AND ASSAY TECHNIQUES.

TABLE 1.08

	Group No.	Sample Type	Technique	Laboratory.
Gold 1	1	Mineralisation	MIBK+AA	O'Neil Labs., Eire.
Gold 2	2	Mineralisation	Fire Assay	O'Neil Labs., Eire.
Gold 3	3	Greywacke	MIBK+AA	O'Neil Labs., Eire.
Gold 4	4	Soils	Fire Assay INAA	McMaster Reactor Centre.
Gold 5	5	Glendinning Core	"	McMaster Reactor Centre.
Gold 6	6	Greywacke	"	McMaster Reactor Centre.
Gold 7	7	Mineralisation	"	McMaster Reactor Centre.
Gold 8	8	Glendinning Core	MIBK+AA	Geomet Laboratories, Ltd.

Table : An Inter-laboratory Study of Gold Analysis Techniques.

TABLE 1.09

Gold Geochemistry	(ppb)	Technique			
Sample No.	Location	MIBK	INAA	Fire Assay	NA/BGS
PDMIN 1	Cairngarroch Bay	91		50	
PDMIN 2	Cairngarroch Bay	275	230	245	
PDMIN 3	Cairngarroch Bay	254	-	163	
PDMIN 4	Cairngarroch Bay	460	-	458	
PDMIN 5	Cairngarroch Bay	6	-	-	
T1	Tongerhie	31	-	64	
T2	Tongerhie	42	21	55	
T4	Tongerhie	<5	2	-	
T5	Tongerhie	105	100	147	
KN1	The Knipe	2450	2300	2907	
KN3	The Knipe	1460	-	1756	
CXD 1101	Glendinning	80	24	96	
CXD 1111	Glendinning	6	-	-	
CXD 1141	Glendinning	<5	-	-	
TALAS 1	Talnotry	82	110	101	
PDTAL 1	Talnotry	67	-	-	
DAD	BGS InternalStandard	4270	-	4653	4600

MIBK - MIBK solvent extraction+Atomic Absorption, O'Neil-McHugh Labs Ltd.
INAA - Neutron Activation Analysis, McMaster University Reactor Centre.
Fire Assay - Fire Assay Analysis (gravimetric) O'Neil-McHugh Labs Ltd.
NA/BGS - Neutron Activation Analysis, Harwell Neuclear Reactor Centre.

Table : Soil Geochemistry : Glendinning northeast Extension (Rams Cleuch As-Sb-Au Vein Mineralisation). TABLE 1.10a/b

	Sample No.	Au (ppb)	Au (ppb)
Group 4	PDS 101		2
	PDS 102		6
	PDS 103		3
	PDS 104		3
	PDS 105		2
	PDS 107		<1
	PDS 108		1
	PDS 109		8
	PDS 110		20
	PDS 112		1
	PDS 114		<4
	PDS 115		2
	PDS 116		<1
	PDS 117		<1
	PDS 184		<1

Table : Lithogeochemistry : Glendinning Mineralised Drillcore.

Group5	CXD 1005		25
	CXD 1011		15
	CXD 1030		10
	CXD 1051		29
	CXD 1052		<5
	CXD 1062	100	110
	CXD 1066	60	46
	CXD 1068		49
	CXD 1069	160	150
	CXD 1073		6
	CXD 1076		13
	CXD 1085		16
	CXD 1086		4
	CXD 1088		64
	CXD 1090	380	450
	CXD 1091	260	280
	CXD 1092	120	100
	CXD 1096	80	90
	CXD 1097		35
	CXD 1099	260	260
	CXD 1100	240	240
	CXD 1101	100	24
	CXD 1102	60	7
	CXD 1131	360	290
	CXD 1132	740	680
	CXD 1133	280	300
	CXD 1134	0	36
	CXD 1137		7
	CXD 1138	120	110

Table : Lithogeochemistry : Glendinning Mineralised Drillcore (cont).

TABLE 1.10b-e

		Au (ppb)
	CXD 1139	2
	CXD 1151	2
	CXD 1155	30
	CXD 1156	49
	CXD 1157	20
	CXD 1161	14
	CXD 1163	4
	CXD 1165	16
	CXD 1166	10
	CXD 1168	24

Table : Lithogeochemistry : Glendinning Greywacke Background.

Group6	DJR 001	2
	DJR 011	<1
	DJR 018	3
	DJR 053	<1
	DJR 054	4
	DJR 058	4
	DJR 1001	7
	DJR 1003	2
	DJR 1004	5
	DJR 1011	7
	DJR 1013	<1

Table : Lithogeochemistry : Southern Uplands Greywacke Background.

Group7	N237	<1
	N250	5
	S615	4
	S618	<1

Table : Lithogeochemistry : Southern Uplands Mineralisation.

Group7	K10	140	The Knipe.
	K328	2	The Knipe.
	KN1	2300	The Knipe.
	PDMIN2	230	Cairngarroch
	T2	21	Talnotry.
	T4	2	Talnotry.
	T5	100	Talnotry.
	TALASP1	110	Talnotry.

Glendinning Borehole No 2: Gold Geochemistry (MIBK Solvent Extraction).

TABLE 1.11

Sample No	Gold (ppm)	Silver (ppm)	Arsenic (ppm)
CXD 1129	< 0.05	1	3300
CXD 1130	0.16	1	2600
CXD 1131	0.36	1	3000
CXD 1132	0.74	1	2900
CXD 1133	0.28	1	6000
CXD 1134	< 0.05	1	4400
CXD 1135	< 0.05	1	3900
CXD 1136	< 0.05	1	6100
CXD 1137	< 0.05	1	4000
CXD 1138	0.12	1	26600
CXD 1139	< 0.05	1	4500
CXD 1155	< 0.05	1	2200
CXD 1156	< 0.05	1	4200
CXD 1157	< 0.05	1	9000
CXD 1158	< 0.05	1	14500
CXD 1159	0.12	1	16900
CXD 1160	< 0.05	1	4800
CXD 1161	< 0.05	1	52
CXD 1162	< 0.05	1	2400
CXD 1163	< 0.05	1	4400
CXD 1164	< 0.05	1	730
CXD 1165	< 0.05	1	5600
CXD 1166	< 0.05	1	4300
CXD 1167	< 0.05	1	7000
CXD 1168	< 0.05	1	1500

Glendinning Borehole No 3: Gold Geochemistry (MIBK Solvent Extraction).

TABLE 1.12

Sample No	Gold (ppm)	Silver (ppm)	Arsenic (ppm)
CXD 1061	< 0.05	1	7400
CXD 1062	0.10	2	8800
CXD 1063	0.08	2	15200
CXD 1064	0.14	1	22300
CXD 1065	0.10	1	14000
CXD 1066	0.06	1	10800
CXD 1067	< 0.05	1	6400
CXD 1068	< 0.05	1	9300
CXD 1069	0.16	1	11600
CXD 1070	0.16	2	13300
CXD 1071	0.28	2	15500
CXD 1072	0.24	1	18600
CXD 1073	< 0.05	1	805
CXD 1074	< 0.05	1	1200
CXD 1075	< 0.05	1	1500
CXD 1076	< 0.05	1	2800
CXD 1077	< 0.05	1	6600
CXD 1085	< 0.05	1	4000
CXD 1086	< 0.05	1	1000
CXD 1087	0.08	1	6100
CXD 1088	0.06	1	5900
CXD 1089	0.08	1	7900
CXD 1090	0.38	1	6400
CXD 1091	0.26	1	17000
CXD 1092	0.12	1	6000
CXD 1093	0.38	1	7100
CXD 1094	0.06	1	1600
CXD 1095	0.14	1	4700
CXD 1096	0.08	1	10000
CXD 1097	< 0.05	1	2100
CXD 1098	0.08	1	8900
CXD 1099	0.26	1	13900
CXD 1100	0.24	1	12600
CXD 1101	0.10	1	7400
CXD 1102	0.06	1	2300

TABLE 1.13

SAMPLE No.	INTERSECTION (Metres)	Au (Weighted Average) (ppm)	GENERALISED LITHOLOGY
CXD			
Borehole 2			
1130-1133	6.53	0.432	Breccia Vein, Siltstone
Borehole 3			
1062-1066	7.90	0.092	Interformational Breccia
1069-1072	8.63	0.202	Siltstone, Sandstone
1090-1093	5.82	0.289	Interformational Breccia
1099-1100	2.38	0.244	Interformational Breccia, Siltstone

TABLE 1.14

ID. / VAR.	As	Sb		As	Sb
70500	5	0	71118	0	0
70514	21	0	71119	0	0
70515	0	0	71120	0	0
70516	0	0	71121	0	0
70519	0	0	71123	1	0
70670	0	0	71124	0	0
71495	0	1	71125	0	0
71665	82	0	71126	0	0
71669	10	3	71127	0	1
71674	9	0	71128	0	0
72326	2	0	71132	0	0
72329	0	1	71153	0	2
72338	3	1	71157	0	0
72352	11	0	71159	0	0
72355	4	2	71160	3	2
72359	2	0	71161	0	0
72806	0	0	71162	5	0
73237	2	2	NX-1207	10	3
73239	0	0	NX-1208	2	2
73492	1	0	NX-1209	6	3
73493	0	2	NX-1210	4	0
73533	0	0	NX-1212	5	0
74253	1	0	NX-1213	0	1
74254	16	3	NX-1214	13	2
NX-1421	4	0	NX-1215	6	0
NX-1422	8	2	NX-1216	2	3
NX-1424	10	0	NX-1217	12	4
NX-1433	9	0	NX-1218	4	1
1443	9	0	NX-1219	3	0
20723	0	0	NX-1220	4	0
20724	2	2	NX-1221	4	0
71076	0	0	NX-1222	0	2
71077	0	0	NX-1223	2	0
71078	0	0	NX-1225	6	0
71079	1	25	NX-1226	0	0
71082	0	0	NX-1227	3	0
71096	0	0	NX-1228	0	2
71099	0	0	NX-1229	8	2
71100	0	0	NX-1230	4	1
71101	0	0	NX-1231	2	0
71102	0	0	NX-1232	8	2
71103	0	0	NX-1233	6	0
71104	0	0	NX-1234	2	4
71105	4	0	NX-1236A	4	2
71109	0	0	NX-1236B	1	0
71110	0	0	NX-1238	3	0
71111	0	0	NX-1310	21	5
71112	0	1	NX-1311	7	0
71113	0	2	NX-1228B	0	0
71114	0	0	NX-1235	2	2
71116	3	0	NX-1237	2	1
71117	0	0	71158	0	0
			73277	15	0

Probe Mapping Studies : Grid Boundaries

ASP1	ASP2	ASP3	ASP4	ASP5	ASP6
(185,445)	(142,295)	(420,162)	(7184,8278)	(9414,5122)	(708,952)
(200,445)	(184,295)	(492,166)	(7202,8273)	(9545,5022)	(715,810)
(205,438)	(174,278)	(498,148)	(7198,8242)	(9550,4980)	(614,848)
(210,426)	(132,278)	(426,144)	(7180,8256)	(9420,4980)	n=97
(210,382)	n=25	n=35	n=56	n=323	
(195,348)					
(187,315)					
n=72					

ASP7	ASP8	ASP9	ASP10	ASP11	ASP12
(628,144)	(480,455)	(1613,8111)	(5229,8593)	(1121,9303)	(692,438)
(665,118)	(526,432)	(1713,8111)	(5942,8593)	(1230,9300)	(724,403)
(629,070)	(510,405)	(1713,7981)	(5957,8578)	(1280,9250)	(692,360)
n=49	(464,428)	(1613,7981)	(5957,8556)	(1307,9141)	(665,403)
	n=61	n=194	(5942,8541)	(1200,9141)	n=64
			(5922,8541)	(1134,9180)	
			(5907,8556)	n=254	
			(5907,8578)		
			n=74		

ASP13	ASP14	ASP15	PYTE1
(1412,1495)	(655,5075)	(761,879)	(7226,4968)
(1438,1480)	(690,5018)	(830,840)	(7507,4968)
(1468,1400)	(655,4965)	(810,770)	(7507,4677)
(1365,1360)	(625,5018)	(738,810)	(7226,4677)
(1348,1465)	n=108	n=102	n=177
n=144			

TABLE 1.15

F TESTS	Marchburn Afton			Marchburn Blackcraig			Marchburn Scar			Marchburn Shinnel			Marchburn Pyroxenous			Marchburn Intermediate			Marchburn Hawick		
Variable	F Statistic	95%	99%	F Statistic	95%	99%	F Statistic	95%	99%	F Statistic	95%	99%	F Statistic	95%	99%	F Statistic	95%	99%	F Statistic	95%	99%
SiO2	1.096	S	S	1.932	D	D	1.459	S	S	1.568	D	S	1.802	D	S	1.505	S	S	1.652	D	S
Al2O3	1.509	D	S	1.092	S	S	1.131	S	S	1.760	D	S	1.148	S	S	2.368	D	D	1.553	D	S
TiO2	1.845	D	D	3.133	D	D	4.847	D	D	4.249	D	D	4.279	D	D	1.612	D	S	4.828	D	D
Fe2O3	2.562	D	D	3.702	D	D	2.961	D	D	1.482	S	S	2.387	D	D	1.625	D	S	2.856	D	D
MgO	6.353	D	D	5.910	D	D	4.310	D	D	2.726	D	D	6.914	D	D	4.636	D	D	9.327	D	D
CaO	1.575	D	S	4.867	D	D	2.249	D	D	1.052	S	S	3.312	D	D	1.184	S	S	2.333	D	D
Na2O	2.091	D	D	5.966	D	D	1.970	D	D	2.237	D	D	3.058	D	D	1.059	S	S	3.100	D	D
K2O	1.168	S	S	1.593	D	S	1.023	S	S	1.061	S	S	1.321	S	S	2.241	D	D	1.272	S	S
MnO	4.156	D	D	5.658	D	D	5.758	D	D	2.609	D	D	2.423	D	D	1.155	S	S	2.654	D	D
P2O5	3.741	D	D	8.572	D	D	5.564	D	D	2.505	D	D	9.805	D	D	3.757	D	D	22.442	D	D
Total	1.055	S	S	1.621	D	S	1.502	S	S	1.141	S	S	1.615	D	S	2.381	D	D	1.244	S	S
As	2.046	D	D	3.491	D	D	1.377	S	S	3.320	D	D	1.921	D	S	7.178	D	D	5.204	D	D
Ba	1.113	S	S	1.616	D	S	1.040	S	S	1.798	D	S	1.737	D	S	2.004	D	D	4.059	D	D
Co	1.729	D	D	1.776	D	S	1.249	S	S	2.733	D	D	1.681	D	S	3.436	D	D	1.507	D	S
Cr	12.030	D	D	2.603	D	D	7.192	D	D	3.156	D	D	8.770	D	D	7.120	D	D	52.059	D	D
Cu	6.014	D	D	4.916	D	D	6.865	D	D	1.105	S	S	2.866	D	D	2.051	D	D	1.598	D	S
Ga	1.455	S	S	1.253	S	S	1.285	S	S	2.029	D	S	1.246	S	S	2.739	D	D	1.920	D	D
La	1.537	D	S	1.558	D	S	4.266	D	D	2.699	D	D	5.234	D	D	1.032	S	S	2.185	D	D
Ni	16.282	D	D	28.576	D	D	5.837	D	D	7.366	D	D	67.876	D	D	5.276	D	D	52.574	D	D
Nb	1.762	D	D	2.114	D	D	4.722	D	D	1.407	S	S	5.031	D	D	1.956	D	D	3.478	D	D
Pb	4.761	D	D	2.713	D	D	1.794	D	S	1.017	S	S	1.744	D	S	2.698	D	D	1.367	S	S
Rb	1.155	S	S	1.017	S	S	1.317	S	S	1.050	S	S	1.093	S	S	4.780	D	D	2.237	D	D
Sr	1.977	D	D	20.684	D	D	2.698	D	D	5.141	D	D	2.452	D	D	2.431	D	D	16.575	D	D
Sb	5.247	D	D	1.358	S	S	1.345	S	S	1.061	S	S	1.805	D	S	1.016	S	S	28.756	D	D
S	6.003	D	D	1.829	D	D	3.564	D	D	6.416	D	D	21.222	D	D	8.359	D	S	52.539	D	D
Th	1.111	S	S	1.383	S	S	1.018	S	S	1.152	S	S	1.988	D	D	1.290	S	S	1.450	D	S
V	2.932	D	D	2.321	D	D	1.831	D	D	2.035	D	D	1.715	D	S	1.427	S	S	6.344	D	D
Y	1.289	S	S	2.168	D	D	2.477	D	D	1.136	S	S	2.037	D	D	4.739	D	D	3.862	D	D
Zn	3.100	D	D	1.596	D	S	1.213	S	S	1.470	S	S	2.413	D	D	3.041	D	D	1.278	S	S
Zr	4.058	D	D	1.225	S	S	1.688	D	S	9.265	D	D	1.829	D	S	6.615	D	D	2.824	D	D
K/Na	16.984	D	D	1.308	S	S	1.409	S	S	4.390	D	D	1.598	S	S	392.469	D	D	846.387	D	D
Al/Si	1.817	D	D	1.465	S	S	1.583	D	S	2.259	D	D	1.174	S	S	2.677	D	D	1.485	D	S
Mg+Fe	5.065	D	D	5.343	D	D	4.276	D	D	2.024	D	D	5.767	D	D	3.613	D	D	6.348	D	D
Fe/Mg	1.872	D	D	4.687	D	D	5.356	D	D	1.397	S	S	4.387	D	D	5.283	D	D	1.077	S	S
Al/Ca+Na	8.601	D	D	1.096	S	S	2.548	D	D	3.431	D	D	1.226	S	S	229.332	D	D	32.790	D	D
La/Y	1.761	D	D	1.903	D	D	1.941	D	D	2.434	D	D	2.306	D	D	1.186	S	S	1.939	D	D
Nb/Y	2.053	D	D	2.222	D	D	1.688	D	S	1.019	S	S	3.428	D	D	1.098	S	S	1.090	S	S
Nb/P	1.247	S	S	2.359	D	D	1.273	S	S	1.344	S	S	1.965	D	D	1.421	S	S	17.230	D	D
Rb/Sr	5.775	D	D	1.678	D	S	1.188	S	S	5.733	D	D	2.804	D	D	19.882	D	D	37.339	D	D
Ni/Co	6.293	D	D	29.824	D	D	2.555	D	D	2.662	D	D	10.611	D	D	3.933	D	D	22.550	D	D
Cu/Co	1.199	S	S	2.456	D	D	28.140	D	D	4.358	D	D	1.836	D	S	1.503	S	S	1.031	S	S
Zn/Co	10.193	D	D	1.010	S	S	1.585	D	S	3.431	D	D	1.134	S	S	2.293	D	D	1.080	S	S
Zr/Nb	2.997	D	D	1.032	S	S	1.760	D	S	8.045	D	D	3.052	D	D	8.351	D	D	4.737	D	D
K/K+Na	1.293	S	S	1.351	S	S	1.034	S	S	1.293	S	S	1.084	S	S	2.142	D	D	1.195	S	S
Na+K	2.632	D	D	6.361	D	D	2.565	D	D	2.627	D	D	6.552	D	D	1.255	S	S	3.205	D	D

TABLE 1.16a

F TESTS	Afton Blackcraig			Afton Scar			Afton Shinnel			Afton Pyroxenous			Afton Intermediate			Afton Hawick		
Variable	F Statistic	95%	99%	F Statistic	95%	99%	F Statistic	95%	99%	F Statistic	95%	99%	F Statistic	95%	99%	F Statistic	95%	99%
SiO2	1.762	D	D	1.331	D	S	1.719	D	D	1.644	D	D	1.650	D	D	1.507	D	D
Al2O3	1.648	D	D	1.334	D	S	1.166	S	S	1.732	D	D	1.570	D	D	1.029	S	S
TiO2	1.698	D	D	2.628	D	D	2.303	D	D	2.320	D	D	1.144	S	S	2.617	D	D
Fe2O3	1.445	D	S	1.156	S	S	1.729	D	D	1.073	S	S	1.577	D	D	1.115	S	S
MgO	1.075	S	S	1.474	D	S	2.330	D	D	1.088	S	S	1.370	D	S	1.468	D	D
CaO	3.089	D	D	1.428	D	S	1.657	D	D	2.103	D	D	1.330	D	S	3.675	D	D
Na2O	2.854	D	D	1.061	S	S	1.070	S	S	1.463	D	S	1.974	D	D	1.483	D	D
K2O	1.364	D	S	1.142	S	S	1.101	S	S	1.131	S	S	2.618	D	D	1.089	S	S
MnO	1.361	D	S	1.385	D	S	1.593	D	D	1.715	D	D	4.799	D	D	1.566	D	D
P2O5	2.291	D	D	1.487	D	D	1.493	D	D	2.621	D	D	1.004	S	S	5.998	D	D
Total	1.710	D	D	1.424	D	S	1.082	S	S	1.531	D	S	2.257	D	D	1.180	S	S
As	7.143	D	D	1.486	D	D	6.792	D	D	3.930	D	D	3.509	D	D	2.544	D	D
Ba	1.452	D	S	1.070	S	S	1.616	D	D	1.561	D	D	2.230	D	D	3.647	D	D
Co	3.072	D	D	1.385	D	S	1.580	D	D	1.029	S	S	1.987	D	D	2.606	D	D
Cr	4.622	D	D	1.673	D	D	3.812	D	D	1.372	S	S	1.690	D	D	4.327	D	D
Cu	1.223	S	S	41.282	D	D	5.442	D	D	2.099	D	D	2.933	D	D	3.764	D	D
Ga	1.822	D	D	1.132	S	S	1.395	D	S	1.812	D	D	1.883	D	D	1.320	D	D
La	1.014	S	S	2.775	D	D	1.755	D	D	3.404	D	D	1.490	D	D	1.421	D	D
Ni	1.755	D	D	2.789	D	D	2.210	D	D	4.169	D	D	3.086	D	D	3.229	D	D
Nb	1.200	S	S	2.680	D	D	1.252	S	S	2.855	D	D	1.110	S	S	6.129	D	D
Pb	12.913	D	D	8.541	D	D	4.682	D	D	8.303	D	D	1.764	D	D	3.483	D	D
Rb	1.175	S	S	1.140	S	S	1.100	S	S	1.057	S	S	4.139	D	D	1.937	D	D
Sr	10.460	D	D	1.365	D	S	2.600	D	D	1.240	S	S	1.229	S	S	8.382	D	D
Sb	7.126	D	D	7.055	D	D	4.944	D	D	9.471	D	D	5.162	D	D	5.481	D	D
S	3.282	D	D	1.684	D	D	1.069	S	S	3.535	D	D	1.392	D	S	8.752	D	D
Th	1.536	D	D	1.131	S	S	1.279	S	S	2.209	D	D	1.433	D	S	1.305	D	D
V	1.263	S	S	1.601	D	D	1.441	D	S	1.710	D	D	2.055	D	D	2.163	D	D
Y	2.794	D	D	3.192	D	D	1.134	S	S	2.625	D	D	3.678	D	D	2.997	D	D
Zn	4.948	D	D	3.762	D	D	4.557	D	D	7.481	D	D	1.019	S	S	2.426	D	D
Zr	3.312	D	D	6.850	D	D	2.283	D	D	2.218	D	D	1.630	D	D	1.437	D	D
K/Na	12.981	D	D	12.055	D	D	3.869	D	D	10.629	D	D	23.108	D	D	49.834	D	D
Al/Si	1.240	S	S	1.148	S	S	1.244	S	S	1.547	D	S	1.473	D	S	1.224	D	S
Mg+Fe	1.055	S	S	1.184	S	S	2.502	D	D	1.139	S	S	1.402	D	S	1.253	D	S
Fe/Mg	2.503	D	D	2.861	D	D	1.340	D	S	2.343	D	D	9.892	D	D	1.739	D	D
Al/Ca+Na	7.844	D	D	3.376	D	D	2.507	D	D	7.018	D	D	26.664	D	D	3.813	D	D
La/Y	1.081	S	S	1.102	S	S	1.383	D	S	1.309	S	S	1.484	D	D	1.101	S	S
Nb/Y	1.082	S	S	1.216	S	S	2.015	D	D	1.670	D	D	2.254	D	D	2.238	D	D
Nb/P	2.941	D	D	1.022	S	S	1.078	S	S	2.449	D	D	1.140	S	S	13.822	D	D
Rb/Sr	9.693	D	D	6.862	D	D	1.007	S	S	16.193	D	D	3.443	D	D	6.465	D	D
Ni/Co	4.739	D	D	2.463	D	D	2.364	D	D	1.686	D	D	1.600	D	D	3.583	D	D
Cu/Co	2.048	D	D	33.749	D	D	5.226	D	D	1.531	D	S	1.253	S	S	1.237	D	S
Zn/Co	10.294	D	D	6.432	D	D	2.971	D	D	8.987	D	D	4.446	D	D	9.437	D	D
Zr/Nb	2.903	D	D	1.702	D	D	2.685	D	D	1.019	S	S	2.787	D	D	1.581	D	D
K/K+Na	1.747	D	D	1.336	D	S	1.000	S	S	1.402	S	S	1.656	D	D	1.082	S	S
Na+K	2.417	D	D	1.026	S	S	1.002	S	S	2.489	D	D	3.304	D	D	1.218	D	S

Formation	No.
Marchburn	44
Afton	154
Blackcraig	61
Scar	100
Shinnel	71
Pyroxenous	43
Intermediate	79
Hawick	305
Total	857

TABLE 1.16b

TABLE 1.16c

F TESTS	Blackcraig Scar			Blackcraig Shinnel			Blackcraig Pyroxenous			Blackcraig Intermediate			Blackcraig Hawick		
Variable	F Statistic	95%	99%	F Statistic	95%	99%	F Statistic	95%	99%	F Statistic	95%	99%	F Statistic	95%	99%
SiO2	1.324	S	S	3.029	D	D	1.072	S	S	2.908	D	D	1.169	S	S
Al2O3	1.235	S	S	1.922	D	D	1.051	S	S	2.587	D	D	1.696	D	D
TiO2	1.547	D	S	1.356	S	S	1.366	S	S	1.943	D	D	1.541	D	D
Fe2O3	1.250	S	S	2.498	D	D	1.551	D	S	2.279	D	D	1.296	D	S
MgO	1.371	S	S	2.168	D	D	1.170	S	S	1.275	S	S	1.578	D	D
CaO	2.164	D	D	5.119	D	D	1.469	S	S	4.110	D	D	11.354	D	D
Na2O	3.029	D	D	2.667	D	D	1.951	D	D	5.634	D	D	1.925	D	D
K2O	1.558	D	S	1.502	D	S	1.206	S	S	3.570	D	D	1.252	S	S
MnO	1.018	S	S	2.169	D	D	2.335	D	D	6.533	D	D	2.132	D	D
P2O5	1.541	D	S	3.422	D	D	1.144	S	S	2.282	D	D	2.618	D	D
Total	2.434	D	D	1.849	D	D	2.617	D	D	3.859	D	D	2.017	D	D
As	4.806	D	D	1.052	S	S	1.817	D	D	25.062	D	D	18.168	D	D
Ba	1.554	D	S	1.113	S	S	1.075	S	S	3.238	D	D	2.512	D	D
Co	2.218	D	D	4.855	D	D	2.985	D	D	6.103	D	D	1.179	S	S
Cr	2.763	D	D	1.212	S	S	3.369	D	D	2.735	D	D	20.000	D	D
Cu	33.747	D	D	4.448	D	D	1.715	D	S	2.397	D	D	3.077	D	D
Ga	1.611	D	D	2.543	D	D	1.006	S	S	3.432	D	D	2.405	D	D
La	2.738	D	D	1.732	D	D	3.359	D	D	1.510	D	S	1.402	D	S
Ni	4.895	D	D	3.880	D	D	2.375	D	D	5.416	D	D	1.840	D	D
Nb	2.234	D	D	1.502	D	S	2.380	D	D	1.081	S	S	7.352	D	D
Pb	1.512	D	S	2.758	D	D	1.555	D	S	7.320	D	D	3.707	D	D
Rb	1.340	S	S	1.068	S	S	1.112	S	S	4.864	D	D	2.276	D	D
Sr	7.665	D	D	4.023	D	D	8.434	D	D	8.508	D	D	1.248	S	S
Sb	1.010	S	S	1.441	D	S	1.329	S	S	1.380	S	S	39.055	D	D
S	1.949	D	D	3.508	D	D	11.604	D	D	4.570	D	D	28.726	D	D
Th	1.358	S	S	1.201	S	S	1.438	S	S	1.072	S	S	2.005	D	D
V	1.268	S	S	1.141	S	S	1.353	S	S	1.627	D	D	2.733	D	D
Y	1.143	S	S	2.462	D	D	1.064	S	S	10.274	D	D	8.372	D	D
Zn	1.315	S	S	1.086	S	S	1.512	D	S	4.854	D	D	2.039	D	D
Zr	2.068	D	D	7.561	D	D	1.493	D	S	5.399	D	D	2.305	D	D
K/Na	1.077	S	S	3.355	D	D	1.221	S	S	299.970	D	D	646.905	D	D
Al/Si	1.081	S	S	1.542	D	S	1.248	S	S	1.827	D	D	1.014	S	S
Mg+Fe	1.249	S	S	2.639	D	D	1.079	S	S	1.479	D	S	1.188	S	S
Fe/Mg	1.143	S	S	3.354	D	D	1.068	S	S	24.760	D	D	4.352	D	D
Al/Ca+Na	2.324	D	D	3.129	D	D	1.118	S	S	209.150	D	D	29.905	D	D
La/Y	1.020	S	S	1.279	S	S	1.212	S	S	1.604	D	D	1.019	S	S
Nb/Y	1.317	S	S	2.180	D	D	1.543	D	S	2.439	D	D	2.423	D	D
Nb/P	3.005	D	D	3.170	D	D	1.201	S	S	3.352	D	D	40.653	D	D
Rb/Sr	1.413	D	S	9.621	D	D	1.671	D	S	33.368	D	D	62.667	D	D
Ni/Co	11.671	D	D	11.205	D	D	2.811	D	D	7.583	D	D	1.323	D	S
Cu/Co	69.102	D	D	10.701	D	D	1.337	S	S	1.634	D	D	2.533	D	D
Zn/Co	1.600	D	D	3.465	D	D	1.145	S	S	2.315	D	D	1.091	S	S
Zr/Nb	1.705	D	D	7.793	D	D	2.957	D	D	8.089	D	D	4.589	D	D
K/K+Na	1.307	S	S	1.747	D	D	1.246	S	S	2.893	D	D	1.614	D	D
Na+K	2.480	D	D	2.421	D	D	1.030	S	S	7.985	D	D	1.985	D	D

F TESTS	Scar Shinnel			Scar Pyroxenous			Scar Intermediate			Scar Hawick			Shinnel Pyroxenous			Shinnel Intermediate			Shinnel Hawick		
Variable	F Statistic	95%	99%	F Statistic	95%	99%	F Statistic	95%	99%	F Statistic	95%	99%	F Statistic	95%	99%	F Statistic	95%	99%	F Statistic	95%	99%
SiO2	2.288	D	D	1.235	S	S	2.196	D	D	1.132	S	S	2.826	D	D	1.042	S	S	2.591	D	D
Al2O3	1.556	D	S	1.299	S	S	2.094	D	D	1.373	D	S	2.020	D	D	1.346	S	S	1.133	S	S
TiO2	1.141	S	S	1.133	S	S	3.007	D	D	1.004	S	S	1.007	S	S	2.635	D	D	1.136	S	S
Fe2O3	1.998	D	D	1.240	S	S	1.823	D	D	1.037	S	S	1.611	D	S	1.096	S	S	1.927	D	D
MgO	1.581	D	S	1.604	D	S	1.076	S	S	2.164	D	D	2.536	D	D	1.701	D	D	3.421	D	D
CaO	2.366	D	D	1.473	S	S	1.900	D	D	5.248	D	D	3.484	D	D	1.245	S	S	2.218	D	D
Na2O	1.136	S	S	1.552	D	S	1.860	D	D	1.574	D	D	1.367	S	S	2.112	D	D	1.386	D	S
K2O	1.037	S	S	1.292	S	S	2.292	D	D	1.244	S	S	1.245	S	S	2.377	D	D	1.200	S	S
MnO	2.207	D	D	2.376	D	D	6.649	D	D	2.170	D	D	1.076	S	S	3.012	D	D	1.017	S	S
P2O5	2.221	D	D	1.762	D	D	1.481	D	S	4.034	D	D	3.914	D	D	1.500	D	S	8.957	D	D
Total	1.316	S	S	1.075	S	S	1.585	D	S	1.207	S	S	1.415	S	S	2.087	D	D	1.091	S	S
As	4.570	D	D	2.644	D	D	5.215	D	D	3.780	D	D	1.728	D	S	23.832	D	D	17.277	D	D
Ba	1.729	D	D	1.670	D	S	2.084	D	D	3.902	D	D	1.035	S	S	3.603	D	D	2.257	D	D
Co	2.189	D	D	1.346	S	S	2.751	D	D	1.882	D	D	1.626	D	S	1.257	S	S	4.119	D	D
Cr	2.279	D	D	1.220	S	S	1.010	S	S	7.239	D	D	2.779	D	D	2.256	D	D	16.497	D	D
Cu	7.586	D	D	19.672	D	D	14.076	D	D	10.967	D	D	2.593	D	D	1.856	D	D	1.446	D	D
Ga	1.579	D	S	1.601	D	S	2.131	D	D	1.493	D	D	2.528	D	D	1.350	S	S	1.057	S	S
La	1.581	D	S	1.227	S	S	4.135	D	D	1.953	D	D	1.939	D	D	2.616	D	D	1.235	S	S
Ni	1.262	S	S	11.628	D	D	1.106	S	S	9.007	D	D	9.215	D	D	1.396	D	S	7.138	D	D
Nb	3.356	D	D	1.065	S	S	2.414	D	D	16.425	D	D	3.575	D	D	1.390	S	S	4.895	D	D
Pb	1.824	D	D	1.029	S	S	4.841	D	D	2.452	D	D	1.774	D	D	2.654	D	D	1.344	D	S
Rb	1.254	S	S	1.205	S	S	3.630	D	D	1.699	D	D	1.041	S	S	4.553	D	D	2.130	D	D
Sr	1.905	D	D	1.100	S	S	1.110	S	S	6.142	D	D	2.096	D	D	2.115	D	D	3.224	D	D
Sb	1.427	D	S	1.342	S	S	1.367	S	S	38.667	D	D	1.916	D	D	1.044	S	S	27.095	D	D
S	1.800	D	D	5.954	D	D	2.345	D	D	14.740	D	D	3.308	D	D	1.303	S	S	8.188	D	D
Th	1.131	S	S	1.953	D	D	1.267	S	S	1.476	D	D	1.726	D	S	1.120	S	S	1.670	D	D
V	1.111	S	S	1.068	S	S	1.283	S	S	3.465	D	D	1.186	S	S	1.426	D	S	3.118	D	D
Y	2.814	D	D	1.216	S	S	11.739	D	D	9.567	D	D	2.313	D	D	4.172	D	D	3.400	D	D
Zn	1.211	S	S	1.988	D	D	3.691	D	D	1.551	D	D	1.642	D	S	4.470	D	D	1.878	D	D
Zr	15.640	D	D	3.088	D	D	11.166	D	D	4.767	D	D	5.065	D	D	1.401	D	S	3.281	D	D
K/Na	3.116	D	D	1.134	S	S	278.574	D	D	600.764	D	D	2.747	D	D	89.404	D	D	192.806	D	D
Al/Si	1.428	D	S	1.348	S	S	1.691	D	D	1.066	S	S	1.924	D	D	1.185	S	S	1.522	D	D
Mg+Fe	2.113	D	D	1.349	S	S	1.184	S	S	1.485	D	D	2.849	D	D	1.785	D	D	3.136	D	D
Fe/Mg	3.833	D	D	1.221	S	S	28.297	D	D	4.974	D	D	3.140	D	D	7.383	D	D	1.298	D	S
Al/Ca+Na	1.347	S	S	2.079	D	D	90.009	D	D	12.870	D	D	2.799	D	D	66.846	D	D	9.558	D	D
La/Y	1.254	S	S	1.188	S	S	1.636	D	D	1.001	S	S	1.056	S	S	2.052	D	D	1.255	S	S
Nb/Y	1.656	D	D	2.031	D	D	1.853	D	D	1.840	D	D	3.364	D	D	1.119	S	S	1.111	S	S
Nb/P	1.055	S	S	2.502	D	D	1.116	S	S	13.530	D	D	2.640	D	D	1.057	S	S	12.822	D	D
Rb/Sr	6.811	D	D	2.360	D	D	23.622	D	D	44.362	D	D	16.074	D	D	3.468	D	D	6.513	D	D
Ni/Co	1.042	S	S	4.152	D	D	1.539	D	S	8.824	D	D	3.987	D	D	1.478	D	S	8.472	D	D
Cu/Co	6.458	D	D	51.677	D	D	42.297	D	D	27.282	D	D	8.003	D	D	6.550	D	D	4.225	D	D
Zn/Co	2.165	D	D	1.397	S	S	1.447	D	S	1.467	D	D	3.025	D	D	1.496	D	S	3.176	D	D
Zr/Nb	4.570	D	D	1.734	D	D	4.744	D	D	2.691	D	D	2.636	D	D	1.038	S	S	1.698	D	D
K/K+Na	1.336	S	S	1.049	S	S	2.214	D	D	1.235	S	S	1.401	S	S	1.656	D	D	1.082	S	S
Na+K	1.024	S	S	2.554	D	D	3.220	D	D	1.249	S	S	2.494	D	D	3.298	D	D	1.220	S	S

TABLE 1.16d

TABLE 1.16d

Variable	Pyroxenous Intermediate F Statistic	95%	99%	Pyroxenous Hawick F Statistic	95%	99%	Intermediate Hawick F Statistic	95%	99%
SiO2	2.712	D	D	1.091	S	S	2.487	D	D
Al2O3	2.719	D	D	1.783	D	D	1.525	D	D
TiO2	2.654	D	D	1.128	S	S	2.995	D	D
Fe2O3	1.469	S	S	1.197	S	S	1.758	D	D
MgO	1.491	S	S	1.349	S	S	2.012	D	D
CaO	2.797	D	D	7.728	D	D	2.762	D	D
Na2O	2.888	D	D	1.014	S	S	2.927	D	D
K2O	2.960	D	D	1.038	S	S	2.851	D	D
MnO	2.798	D	D	1.095	S	S	3.064	D	D
P2O5	2.610	D	D	2.289	D	D	5.973	D	D
Total	1.474	S	S	1.298	S	S	1.913	D	D
As	13.790	D	D	9.997	D	D	1.379	D	S
Ba	3.481	D	D	2.336	D	D	8.132	D	D
Co	2.044	D	D	2.532	D	D	5.177	D	D
Cr	1.232	S	S	5.936	D	D	7.312	D	D
Cu	1.398	S	S	1.794	D	D	1.283	D	S
Ga	3.411	D	D	2.391	D	D	1.427	D	S
La	5.073	D	D	2.395	D	D	2.118	D	D
Ni	12.864	D	D	1.291	S	S	9.964	D	D
Nb	2.572	D	D	17.500	D	D	6.803	D	D
Pb	4.707	D	D	2.384	D	D	1.974	D	D
Rb	4.374	D	D	2.047	D	D	2.137	D	D
Sr	1.009	S	S	6.758	D	D	6.818	D	D
Sb	1.835	D	D	51.909	D	D	28.292	D	D
S	2.539	D	D	2.476	D	D	6.286	D	D
Th	1.541	D	S	2.883	D	D	1.871	D	D
V	1.202	S	S	3.699	D	D	4.446	D	D
Y	9.652	D	D	7.865	D	D	1.227	S	S
Zn	7.339	D	D	3.084	D	D	2.380	D	D
Zr	3.616	D	D	1.544	D	S	2.342	D	D
K/Na	245.609	D	D	529.672	D	D	2.157	D	D
Al/Si	2.280	D	D	1.265	S	S	1.803	D	D
Mg+Fe	1.597	D	S	1.101	S	S	1.757	D	D
Fe/Mg	23.178	D	D	4.074	D	D	5.689	D	D
Al/Ca+Na	187.132	D	D	26.757	D	D	6.994	D	D
La/Y	1.943	D	D	1.189	S	S	1.635	D	D
Nb/Y	3.763	D	D	3.737	D	D	1.007	S	S
Nb/P	2.791	D	D	33.851	D	D	12.127	D	D
Rb/Sr	55.746	D	D	104.693	D	D	1.878	D	D
Ni/Co	2.698	D	D	2.125	D	D	5.734	D	D
Cu/Co	1.222	S	S	1.894	D	D	1.550	D	D
Zn/Co	2.021	D	D	1.050	S	S	2.123	D	D
Zr/Nb	2.736	D	D	1.552	D	S	1.763	D	D
K/K+Na	2.321	D	D	1.295	S	S	1.793	D	D
Na+K	8.224	D	D	2.044	D	D	4.023	D	D

Formation	No.
Marchburn	44
Afton	154
Blackcraig	61
Scar	100
Shinnel	71
Pyroxenous	43
Intermediate	79
Hawick	305
Total	857

TABLE 1.17a+b

Principal Component Analysis: Rams Cleuch Soil Grid

E_Vector 1		E_Vector 2		E_Vector 3	
Variable	Value	Variable	Value	Variable	Value
V	-0.345	NA20	-0.345	RB	-0.349
K20	-0.336	MG0	-0.330	GA	-0.257
NI	-0.303	SI02	-0.273	K20	-0.231
GA	-0.292	BA	-0.211	V	-0.188
AL203	-0.291	NI	-0.207	FE203	-0.145
CU	-0.285	AL203	-0.159	TL	-0.011
RB	-0.251	ZN	-0.130	S	0.026
ZN	-0.246	CO	-0.105	AL203	0.043
FE203	-0.227	TL	-0.080	SI02	0.062
SR	-0.211	CU	-0.068	CO	0.098
BA	-0.191	GA	-0.048	SR	0.114
CO	-0.144	K20	-0.016	MG0	0.169
SB	-0.141	V	0.017	NA20	0.204
AS	-0.083	RB	0.041	CU	0.216
MG0	-0.058	SR	0.046	NI	0.220
PB	-0.036	FE203	0.249	ZN	0.269
TL	-0.028	SB	0.286	SB	0.282
S	0.136	S	0.345	BA	0.287
NA20	0.217	PB	0.367	PB	0.365
SI02	0.225	AS	0.377	AS	0.374

Principal Component Analysis : Swin Gill Soil Grid

E_Vector 1		E_Vector 2		E_Vector 3	
Variable	Value	Variable	Value	Variable	Value
Na2O	-0.129	As	-0.454	K2O	-0.480
Co	0.045	Pb	-0.394	Sb	-0.240
Pb	0.167	Rb	-0.246	Cu	-0.152
S	0.169	Sb	-0.224	Rb	-0.122
Sb	0.208	S	-0.207	Ni	0.006
K2O	0.233	K2O	-0.153	Co	0.014
As	0.248	Co	-0.113	MgO	0.104
Rb	0.262	Cu	0.013	As	0.189
MgO	0.295	Zn	0.088	Na2O	0.237
Ba	0.314	Ba	0.137	Zn	0.292
Zn	0.401	Ni	0.303	Ba	0.298
Ni	0.409	Na2O	0.353	Pb	0.432
Cu	0.425	MgO	0.541	S	0.458

Principal Component Analysis: Marchburn Formation

E-Vector 1		E-Vector 2		E-Vector 3	
Variable	Value	Variable	Value	Variable	Value
NI	-0.264	SI02	-0.215	CAO	-0.336
CR	-0.255	CAO	-0.189	SR	-0.265
MGO	-0.252	RB	-0.084	LA	-0.223
FE203	-0.230	K20	-0.060	TOTAL	-0.204
V	-0.204	NI	-0.045	MNO	-0.203
CU	-0.193	CR	-0.014	P205	-0.169
TI02	-0.153	TOTAL	0.012	CO	-0.167
S	-0.139	BA	0.027	TH	-0.162
CAO	-0.135	PB	0.044	CR	-0.121
AS	-0.090	S	0.056	NA20	-0.119
SB	-0.054	TH	0.057	NI	-0.101
CO	-0.031	ZR	0.080	MGO	-0.098
MNO	-0.022	AS	0.084	CU	-0.081
GA	0.080	LA	0.087	ZN	-0.061
K20	0.092	NA20	0.089	V	-0.040
ZN	0.113	MNO	0.104	BA	-0.022
TOTAL	0.115	SR	0.111	Y	0.012
RB	0.128	MGO	0.153	NB	0.032
PB	0.152	P205	0.153	SI02	0.032
Y	0.154	Y	0.168	ZR	0.052
TH	0.154	CU	0.181	PB	0.071
P205	0.191	NB	0.181	GA	0.080
AL203	0.199	SB	0.189	SB	0.104
SR	0.216	AL203	0.213	FE203	0.109
BA	0.217	CO	0.257	TI02	0.147
LA	0.226	FE203	0.273	AL203	0.185
NB	0.228	ZN	0.304	AS	0.214
SI02	0.246	V	0.317	S	0.251
NA20	0.247	TI02	0.336	K20	0.405
ZR	0.273	GA	0.419	RB	0.417

TABLE 1.18

Principal Component Analysis : Afton Formation

E_Vector 1		E_Vector 2		E_Vector 3	
Variable	Value	Variable	Value	Variable	Value
SI02	-0.802	RB	-0.428	NI	-0.345
TOTAL	-0.093	K20	-0.322	CAO	-0.312
AS	-0.077	AS	-0.273	CR	-0.271
CAO	-0.038	ZN	-0.247	MGO	-0.248
S	-0.018	PB	-0.208	RB	-0.224
PB	0.006	AL203	-0.207	K20	-0.147
SB	0.008	TOTAL	-0.202	TH	-0.146
NA20	0.016	GA	-0.191	ZR	-0.114
CO	0.022	NB	-0.182	SB	-0.093
SR	0.046	SB	-0.178	MNO	-0.082
ZN	0.088	BA	-0.162	AS	-0.011
MNO	0.115	CU	-0.084	NB	0.011
NI	0.147	LA	-0.083	PB	0.033
CR	0.153	CO	-0.062	GA	0.050
BA	0.156	S	-0.038	FE203	0.055
RB	0.158	NI	0.019	LA	0.073
TH	0.167	TH	0.032	Y	0.074
K20	0.192	Y	0.049	V	0.074
MGO	0.195	CAO	0.085	TI02	0.090
ZR	0.223	SI02	0.085	CU	0.114
P205	0.228	NA20	0.105	ZN	0.125
CU	0.228	ZR	0.122	TOTAL	0.133
AL203	0.233	SR	0.133	S	0.141
LA	0.252	P205	0.135	CO	0.150
V	0.264	MNO	0.147	BA	0.150
GA	0.272	MGO	0.154	SR	0.174
NB	0.284	FE203	0.157	P205	0.181
Y	0.284	TI02	0.189	AL203	0.188
TI02	0.290	CR	0.212	SI02	0.210
FE203	0.310	V	0.270	NA20	0.493

TABLE 1.19

Principal Component Analysis: Blackcraig Formation

E_Vector 1		E_Vector 2		E_Vector 3	
Variable	Value	Variable	Value	Variable	Value
AL203	-0.303	SI02	-0.298	NI	-0.415
CU	-0.276	BA	-0.250	CO	-0.330
NB	-0.272	K20	-0.207	CR	-0.319
RB	-0.262	LA	-0.176	MGO	-0.254
ZR	-0.248	RB	-0.170	NB	-0.089
LA	-0.246	ZR	-0.159	PB	-0.042
P205	-0.240	NB	-0.095	TH	-0.032
K20	-0.235	TOTAL	-0.093	ZR	-0.028
PB	-0.213	TH	-0.084	AL203	-0.022
S	-0.207	PB	-0.077	BA	-0.020
ZN	-0.205	CR	-0.050	NA20	0.001
GA	-0.201	P205	-0.047	CU	0.009
BA	-0.199	AL203	-0.001	TI02	0.019
Y	-0.198	SB	0.055	GA	0.026
NI	-0.176	Y	0.073	AS	0.042
AS	-0.168	S	0.084	V	0.044
MGO	-0.140	NA20	0.091	LA	0.065
CO	-0.131	CO	0.110	P205	0.070
TH	-0.081	AS	0.116	RB	0.113
FE203	-0.079	SR	0.125	K20	0.129
TI02	-0.035	NI	0.139	SI02	0.129
MNO	-0.010	CU	0.142	CAO	0.139
SR	-0.004	ZN	0.146	FE203	0.143
TOTAL	-0.001	CAO	0.150	ZN	0.147
SB	0.021	GA	0.196	S	0.155
V	0.033	MNO	0.252	MNO	0.193
CR	0.044	MGO	0.282	SB	0.224
CAO	0.160	TI02	0.324	Y	0.297
NA20	0.172	FE203	0.346	SR	0.300
SI02	0.190	V	0.361	TOTAL	0.361

TABLE 1.20

Principal Component Analysis: Scar Formation

E_Vector 1		E_Vector 2		E_Vector 3	
Variable	Value	Variable	Value	Variable	Value
V	-0.361	NA20	-0.302	AL203	-0.400
FE203	-0.338	CAO	-0.226	RB	-0.396
P205	-0.314	MNO	-0.176	K20	-0.349
GA	-0.281	TOTAL	-0.162	BA	-0.246
TI02	-0.264	S	-0.162	PB	-0.236
SR	-0.261	CO	-0.121	GA	-0.223
MNO	-0.260	P205	-0.070	S	-0.215
MGO	-0.253	V	-0.070	CU	-0.196
CAO	-0.192	AL203	-0.069	LA	-0.161
ZN	-0.160	GA	-0.069	SR	-0.161
CR	-0.134	PB	-0.040	TOTAL	-0.144
Y	-0.127	SR	-0.020	CO	-0.139
CO	-0.121	ZN	-0.018	ZN	-0.121
BA	-0.120	FE203	-0.012	AS	-0.067
AL203	-0.099	AS	0.001	SB	-0.041
NI	-0.077	SI02	0.018	V	-0.008
PB	-0.062	SB	0.120	Y	-0.008
RB	-0.055	CU	0.129	NA20	-0.003
K20	-0.050	MGO	0.145	NB	0.009
CU	-0.002	Y	0.150	SI02	0.011
ZR	0.002	RB	0.155	TH	0.011
S	0.012	BA	0.181	P205	0.053
AS	0.019	TH	0.182	ZR	0.076
NB	0.035	K20	0.193	NI	0.103
TH	0.045	TI02	0.218	TI02	0.106
NA20	0.046	LA	0.250	MGO	0.114
TOTAL	0.046	CR	0.281	CAO	0.128
SB	0.063	NB	0.281	FE203	0.167
LA	0.064	ZR	0.362	MNO	0.206
SI02	0.371	NI	0.364	CR	0.253

TABLE 1.21

Principal Component Analysis: Shinnel Formation

E_Vector 1		E_Vector 2		E_Vector 3	
Variable	Value	Variable	Value	Variable	Value
CAO	-0.150	ZN	-0.249	NB	-0.472
SR	-0.112	CU	-0.216	ZR	-0.314
S	-0.041	AS	-0.203	NA20	-0.234
ZR	0.010	K20	-0.184	TH	-0.214
NA20	0.034	RB	-0.154	ZN	-0.206
MNO	0.036	NI	-0.153	Y	-0.204
PB	0.075	BA	-0.152	GA	-0.164
NB	0.084	FE203	-0.086	LA	-0.100
CO	0.112	V	-0.052	RB	-0.090
AS	0.121	MNO	-0.043	AL203	-0.068
CR	0.123	PB	-0.026	K20	-0.016
CU	0.126	GA	-0.002	MNO	0.001
TH	0.150	S	0.000	BA	0.015
ZN	0.171	AL203	0.004	FE203	0.023
SI02	0.176	MGO	0.018	AS	0.039
LA	0.177	TH	0.021	CU	0.054
BA	0.191	CAO	0.026	PB	0.092
Y	0.196	Y	0.065	NI	0.112
P205	0.197	TI02	0.076	TI02	0.119
MGO	0.201	NB	0.180	CO	0.121
TOTAL	0.206	SR	0.200	MGO	0.154
K20	0.252	P205	0.208	S	0.165
NI	0.256	CR	0.229	V	0.169
GA	0.262	TOTAL	0.234	SI02	0.175
TI02	0.265	LA	0.234	CR	0.198
V	0.267	CO	0.269	SR	0.207
RB	0.268	SI02	0.327	TOTAL	0.217
AL203	0.285	ZR	0.340	CAO	0.251
FE203	0.286	NA20	0.380	P205	0.288

TABLE 1.22

Principal Component Analysis: Pyroxenous Formation

E_Vector 1		E_Vector 2		E_Vector 3	
Variable	Value	Variable	Value	Variable	Value
V	-0.371	K20	-0.324	CR	-0.254
GA	-0.324	RB	-0.255	CAO	-0.230
ZN	-0.316	AS	-0.230	Y	-0.221
FE203	-0.313	Y	-0.214	ZR	-0.197
TI02	-0.282	SB	-0.202	SR	-0.172
P205	-0.281	TH	-0.156	FE203	-0.169
CU	-0.235	CAO	-0.146	MNO	-0.165
MGO	-0.208	BA	-0.144	TI02	-0.147
MNO	-0.158	MNO	-0.125	NA20	-0.131
SR	-0.139	FE203	-0.074	PB	-0.099
CAO	-0.115	SR	-0.055	S	-0.099
AS	-0.074	P205	-0.045	SI02	-0.096
SB	-0.069	NB	-0.042	V	-0.068
AL203	-0.062	SI02	0.010	NB	-0.065
Y	-0.040	TI02	0.032	AS	-0.059
LA	-0.039	ZN	0.089	ZN	-0.046
RB	-0.034	V	0.090	SR	-0.007
CO	-0.014	GA	0.092	TOTAL	-0.001
CR	-0.009	ZR	0.135	LA	0.061
K20	-0.006	NI	0.140	P205	0.074
TH	-0.002	TOTAL	0.144	NI	0.077
BA	0.004	CR	0.154	CU	0.085
ZR	0.017	MGO	0.177	GA	0.089
PB	0.022	CU	0.182	TH	0.139
NI	0.036	S	0.193	MGO	0.155
S	0.041	LA	0.231	BA	0.252
NA20	0.109	AL203	0.244	CO	0.275
NB	0.145	PB	0.248	K20	0.323
TOTAL	0.193	NA20	0.308	RB	0.387
SI02	0.385	CO	0.337	AL203	0.396

TABLE 1.23

Principal Component Analysis: Intermediate Formation

E_Vector 1		E_Vector 2		E_Vector 3	
Variable	Value	Variable	Value	Variable	Value
GA	-0.318	V	-0.264	Y	-0.387
FE203	-0.272	FE203	-0.250	TI02	-0.312
ZN	-0.255	MGO	-0.229	NI	-0.299
K20	-0.252	CAO	-0.229	CO	-0.236
BA	-0.245	P205	-0.196	V	-0.236
V	-0.242	TI02	-0.187	MNO	-0.227
RB	-0.232	MNO	-0.119	P205	-0.188
CU	-0.223	NA20	-0.087	AL203	-0.182
TI02	-0.205	CR	-0.075	FE203	-0.168
P205	-0.202	S	-0.063	AS	-0.162
PB	-0.190	SR	-0.048	ZR	-0.160
SR	-0.185	ZN	0.005	TOTAL	-0.103
S	-0.179	CU	0.026	LA	-0.103
AL203	-0.176	SB	0.027	CR	-0.097
SB	-0.144	NI	0.035	SI02	-0.065
Y	-0.129	AS	0.051	CU	-0.042
MGO	-0.122	CO	0.077	NB	-0.024
NB	-0.115	GA	0.079	GA	-0.006
MNO	-0.103	Y	0.132	SB	0.045
LA	-0.102	PB	0.137	TH	0.106
TH	-0.096	BA	0.143	K20	0.107
NI	-0.081	ZR	0.159	RB	0.107
NA20	-0.070	TH	0.187	BA	0.117
AS	-0.068	SI02	0.205	S	0.138
CR	0.005	AL203	0.239	ZN	0.148
CAO	0.008	TOTAL	0.248	CAO	0.155
ZR	0.069	NB	0.279	NA20	0.160
TOTAL	0.126	K20	0.293	PB	0.212
CO	0.167	RB	0.306	SR	0.239
SI02	0.303	LA	0.315	MGO	0.260

TABLE 1.24

Principal Component Analysis: Hawick Formation

E_Vector 1		E_Vector 2		E_Vector 3	
Variable	Value	Variable	Value	Variable	Value
CAO	-0.274	ZR	-0.392	NB	-0.319
SR	-0.202	SI02	-0.316	CU	-0.299
MNO	-0.097	P205	-0.276	MNO	-0.296
NA20	-0.075	CR	-0.236	AL203	-0.178
SB	-0.009	CO	-0.228	ZN	-0.172
S	0.057	TOTAL	-0.142	Y	-0.169
PB	0.059	TI02	-0.138	SI02	-0.158
CO	0.060	SB	-0.117	TOTAL	-0.146
MGO	0.071	LA	-0.099	K20	-0.112
LA	0.079	Y	-0.091	RB	-0.111
ZR	0.084	AL203	-0.082	BA	-0.049
NB	0.107	NB	-0.075	AS	-0.024
P205	0.120	MNO	-0.068	S	-0.011
SI02	0.130	NA20	-0.023	SB	-0.004
CR	0.141	TH	0.011	CAO	0.011
CU	0.142	V	0.050	ZR	0.015
BA	0.148	GA	0.076	PB	0.050
AS	0.152	FE203	0.082	NI	0.103
TH	0.158	CU	0.088	TH	0.115
ZN	0.190	CAO	0.117	P205	0.119
Y	0.199	SR	0.138	SR	0.119
TOTAL	0.228	RB	0.153	FE203	0.123
GA	0.251	K20	0.155	GA	0.125
AL203	0.252	ZN	0.158	TI02	0.140
K20	0.255	NI	0.159	NA20	0.148
NI	0.255	AS	0.192	V	0.169
RB	0.265	PB	0.212	LA	0.231
V	0.270	BA	0.229	CR	0.295
TI02	0.273	MGO	0.248	CO	0.301
FE203	0.283	S	0.299	MGO	0.408

TABLE 1.25

Principal Component Analysis: Glendinning Mineralised Mudstone

E_Vector 1		E_Vector 2		E_Vector 3	
Variable	Value	Variable	Value	Variable	Value
TI02	-0.319	MGO	-0.393	FE203	-0.323
V	-0.300	ZN	-0.322	ZN	-0.280
K20	-0.290	NA20	-0.306	CU	-0.275
AL203	-0.283	Tl	-0.206	NA20	-0.182
GA	-0.282	FE203	-0.205	MNO	-0.159
RB	-0.263	CAO	-0.178	SI02	-0.155
NI	-0.258	NB	-0.162	NI	-0.123
CR	-0.242	LA	-0.117	Tl	-0.118
NB	-0.230	P205	-0.087	LA	-0.084
SB	-0.201	TH	-0.074	SB	-0.073
Y	-0.193	SB	-0.073	ZR	-0.063
LA	-0.172	TI02	-0.048	CR	-0.059
PB	-0.150	BA	-0.029	BA	-0.057
CU	-0.146	V	-0.009	TI02	-0.055
Tl	-0.108	Y	0.032	NB	-0.034
FE203	-0.099	GA	0.044	V	-0.001
P205	-0.084	MNO	0.046	TH	0.055
ZR	-0.067	SR	0.068	AL203	0.070
NA20	-0.044	ZR	0.070	MGO	0.075
ZN	-0.032	K20	0.092	Y	0.086
MGO	0.023	S	0.092	K20	0.149
TH	0.043	PB	0.106	P205	0.159
SR	0.052	CR	0.115	RB	0.160
CO	0.074	RB	0.136	GA	0.162
AS	0.081	CU	0.144	AS	0.187
S	0.113	NI	0.169	S	0.227
BA	0.123	AL203	0.171	PB	0.237
SI02	0.149	CO	0.303	CO	0.267
CAO	0.150	SI02	0.325	SR	0.347
MNO	0.189	AS	0.340	CAO	0.380

TABLE 1.26

Principal Component Analysis: Glendinning Mineralised Siltstone

E_Vector 1		E_Vector 2		E_Vector 3	
Variable	Value	Variable	Value	Variable	Value
MNO	-0.232	P205	-0.354	NA20	-0.284
CAO	-0.229	ZR	-0.242	SI02	-0.214
MGO	-0.206	Y	-0.214	ZR	-0.149
NA20	-0.081	ZN	-0.211	ZN	-0.131
ZN	-0.080	CAO	-0.206	TI02	-0.111
FE203	-0.079	FE203	-0.196	AL203	-0.089
BA	-0.022	MGO	-0.196	TH	-0.084
Tl	0.003	TI02	-0.195	CR	-0.083
AS	0.014	SR	-0.194	NB	-0.077
P205	0.023	MNO	-0.162	P205	-0.038
SI02	0.024	NI	-0.141	V	0.000
CO	0.043	NB	-0.125	K20	0.015
TH	0.048	K20	-0.112	CO	0.042
ZR	0.056	NA20	-0.103	GA	0.060
SR	0.072	BA	-0.102	RB	0.065
PB	0.080	TH	-0.093	LA	0.075
CU	0.097	Tl	-0.093	Tl	0.080
S	0.107	AL203	-0.075	FE203	0.090
SB	0.148	V	-0.023	Y	0.091
Y	0.161	RB	-0.020	S	0.101
NI	0.190	LA	-0.018	BA	0.124
LA	0.224	CR	-0.016	NI	0.178
NB	0.244	GA	0.016	MGO	0.187
GA	0.263	PB	0.020	CU	0.204
TI02	0.285	SB	0.153	AS	0.244
K20	0.285	CU	0.167	CAO	0.256
CR	0.291	CO	0.251	MNO	0.266
RB	0.297	S	0.262	PB	0.370
AL203	0.304	AS	0.310	SR	0.374
V	0.311	SI02	0.358	SB	0.381

TABLE 1.27

Principal Component Analysis: Glendinning Mineralised Greywacke

E_Vector 1		E_Vector 2		E_Vector 3	
Variable	Value	Variable	Value	Variable	Value
CAO	-0.287	AS	-0.283	Tl	-0.197
MNO	-0.277	SI02	-0.268	FE203	-0.187
MGO	-0.230	ZN	-0.166	K20	-0.162
P205	-0.168	PB	-0.162	RB	-0.128
FE203	-0.138	SB	-0.129	GA	-0.125
NA20	-0.120	CO	-0.117	AL203	-0.108
Y	-0.093	S	-0.113	CU	-0.108
ZR	-0.061	NI	-0.071	MGO	-0.098
TH	-0.058	CU	-0.068	MNO	-0.078
SR	0.018	NA20	-0.061	PB	-0.066
Tl	0.035	ZR	-0.014	AS	-0.054
NB	0.099	BA	-0.011	V	-0.049
CR	0.100	MNO	0.020	CAO	-0.017
SB	0.139	GA	0.040	S	0.006
K20	0.143	FE203	0.048	BA	0.019
BA	0.147	CR	0.050	LA	0.031
SI02	0.170	MGO	0.056	ZN	0.086
LA	0.174	CAO	0.067	NB	0.096
TI02	0.175	Tl	0.090	SR	0.133
PB	0.181	Y	0.091	NI	0.139
RB	0.186	LA	0.153	SI02	0.150
ZN	0.188	TH	0.189	P205	0.171
CO	0.191	V	0.243	TI02	0.188
NI	0.197	SR	0.245	Y	0.197
CU	0.207	P205	0.267	SB	0.198
AL203	0.223	AL203	0.278	TH	0.216
S	0.234	TI02	0.283	NA20	0.252
AS	0.242	RB	0.304	CO	0.298
V	0.252	NB	0.320	CR	0.395
GA	0.289	K20	0.352	ZR	0.453

TABLE 1.28

Principal Component Analysis: Glendinning Mineralised Breccias

E_Vector 1		E_Vector 2		E_Vector 3	
Variable	Value	Variable	Value	Variable	Value
TI02	-0.238	ZN	-0.312	Tl	-0.446
NB	-0.238	CAO	-0.184	PB	-0.420
AL203	-0.237	NA20	-0.156	SR	-0.335
K20	-0.227	ZR	-0.123	ZR	-0.158
CR	-0.223	TH	-0.116	TH	-0.138
V	-0.223	P205	-0.100	NI	-0.093
Y	-0.220	BA	-0.038	LA	-0.092
MNO	-0.216	MNO	-0.036	AL203	-0.067
RB	-0.216	NB	-0.020	SI02	-0.066
GA	-0.209	K20	-0.010	NB	-0.063
P205	-0.204	Tl	-0.004	Y	-0.005
LA	-0.203	MGO	0.000	TI02	0.001
ZR	-0.196	SR	0.000	SB	0.011
BA	-0.192	Y	0.007	CR	0.022
CAO	-0.191	SI02	0.009	GA	0.033
NI	-0.186	AL203	0.056	V	0.047
SR	-0.183	TI02	0.072	S	0.065
TH	-0.180	RB	0.087	AS	0.073
MGO	-0.153	LA	0.123	K20	0.106
NA20	-0.133	CR	0.126	RB	0.109
ZN	-0.109	CO	0.134	P205	0.113
PB	-0.088	V	0.143	NA20	0.127
CU	-0.073	FE203	0.190	CAO	0.153
AS	-0.040	GA	0.202	BA	0.156
Tl	-0.039	PB	0.234	MGO	0.165
SB	0.072	NI	0.238	FE203	0.186
S	0.087	S	0.263	MNO	0.191
FE203	0.103	CU	0.280	CO	0.196
CO	0.208	SB	0.421	ZN	0.232
SI02	0.242	AS	0.448	CU	0.362

TABLE 1.29

Principal Component Analysis: Leadhills Mineralisation

E_Vector 1		E_Vector 2		E_Vector 3	
Variable	Value	Variable	Value	Variable	Value
SR	-0.324	TI02	-0.364	PB	-0.413
NA20	-0.315	FE203	-0.356	S	-0.396
P205	-0.209	V	-0.346	LA	-0.260
CAO	-0.133	MGO	-0.326	CU	-0.200
CR	-0.097	CR	-0.318	SB	-0.187
MGO	-0.063	MNO	-0.252	P205	-0.181
MNO	-0.049	ZR	-0.209	CAO	-0.150
TI02	-0.027	PB	-0.191	ZN	-0.107
GA	0.002	CO	-0.175	MNO	-0.067
CO	0.027	ZN	-0.174	SR	-0.067
ZR	0.031	P205	-0.138	NA20	-0.057
FE203	0.042	CU	-0.116	V	-0.005
SI02	0.057	NI	-0.103	SI02	-0.003
PB	0.087	GA	-0.102	Y	0.002
V	0.094	LA	-0.077	AS	0.018
AS	0.118	BA	-0.024	CO	0.037
S	0.128	CAO	-0.013	NI	0.040
LA	0.133	AS	0.000	BA	0.048
SB	0.177	SR	0.002	RB	0.053
ZN	0.187	S	0.010	CR	0.057
NI	0.191	Y	0.032	MGO	0.105
Y	0.211	AL203	0.034	K20	0.107
CU	0.279	RB	0.070	FE203	0.151
AL203	0.290	K20	0.082	TI02	0.167
BA	0.320	SB	0.097	AL203	0.171
K20	0.339	NA20	0.103	ZR	0.239
RB	0.341	SI02	0.336	GA	0.526

TABLE 1.30

Principal Component Analysis: Clontibret Mineralisation

E_Vector 1		E_Vector 2		E_Vector 3	
Variable	Value	Variable	Value	Variable	Value
AL203	-0.282	TOTAL	-0.263	LOI	-0.427
ZR	-0.279	MNO	-0.197	CU	-0.351
FEO	-0.257	P205	-0.148	Y	-0.253
NI	-0.251	NA20	-0.142	SB	-0.204
P205	-0.249	SI02	-0.132	NA20	-0.202
MGO	-0.235	FEO	-0.116	MGO	-0.168
NB	-0.202	MGO	-0.092	PB	-0.154
NA20	-0.194	LOI	-0.067	FEO	-0.119
TI02	-0.179	CO2	-0.029	P205	-0.099
TOTAL	-0.171	CAO	0.000	NI	-0.072
RB	-0.167	Y	0.017	V	-0.066
CR	-0.154	SB	0.021	AL203	-0.061
MNO	-0.137	TI02	0.072	TI02	-0.061
K20	-0.134	ZR	0.086	CR	-0.057
LOI	-0.086	AL203	0.090	CO	-0.055
CO	-0.067	PB	0.094	ZN	-0.051
CAO	-0.056	AS	0.104	NB	-0.041
V	-0.049	NB	0.113	FE203	-0.037
CO2	-0.034	BA	0.144	MNO	-0.028
SR	-0.007	NI	0.147	BA	-0.007
ZN	0.064	SR	0.158	ZR	0.025
CU	0.076	CU	0.159	Au	0.030
Au	0.093	RB	0.242	AS	0.035
FE203	0.137	K20	0.250	SI02	0.082
AS	0.183	CR	0.256	TOTAL	0.124
Y	0.192	FE203	0.287	K20	0.131
SB	0.233	ZN	0.292	RB	0.161
PB	0.240	Au	0.306	SR	0.294
SI02	0.250	CO	0.314	CAO	0.363
BA	0.253	V	0.329	CO2	0.391

TABLE 1.31

Petrography of core specimens, BH1

Sample Number (CXD)	Depth (m)	PTS No	Name	Mineral Constituents Major	Minor	Comments
1537	31.75-31.79	5859	Sandstone	Qz Hm	Pl Tm RF Zc	Matrix consists of chlorite, clay minerals, muscovite, sericite and hematite; original biotite altered to hematite; veinlets contain dolomite
1538	36.50-36.56	5860	Sandstone	Qz Hm	St Py RF	Turbid matrix consists of clay minerals, muscovite, sericite, hematite, trace chlorite; veinlets contain hematite; stibnite on fracture surfaces
1577	47.54-47.62	6359	Siltstone	Qz Hm	Py	Intensely altered; replacement by carbonate and hematite; disseminated pyrite largely replaced by hematite
1539	50.02-50.08		Siltstone	Qz	Py Dk	Dickite abundant along fracture surfaces; trace of disseminated pyrite
1575	54.86-54.94	6357	Sandstone	Qz Hm	Tm RF Py	Matrix strongly altered with traces of hematite, biotite, muscovite and carbonate; minor disseminated pyrite; calcite in veinlets
1500	61.91-62.00		Sandstone	Qz	Py Ap St	Veinlets contain pyrite, arsenopyrite, quartz and dolomite; trace of stibnite on fracture surfaces
1501	62.60-62.64		Breccia	Qz	Ap Py St RF Cy	Specimen from possible fault zone; strong alteration to dickite; trace disseminated pyrite and arsenopyrite; stibnite on fracture surfaces
1502	64.04-64.10		Breccia	Qz	RF Cy	As for CXD 1501 except no apparent sulphide mineralisation
1503	64.26-64.31		Breccia	Qz	RF Py Ap	As for CXD 1501 but no stibnite apparent
1504	65.19-65.22		Breccia	Qz	RF Do Cy Py Ap	Alteration less intense than CXD 1501-1503; disseminated pyrite and arsenopyrite
1505	75.42-75.49	5852	Sandstone	Qz	RF Pl PF Py Tm Zc	Feldspar clasts strongly sericitised; matrix consists of clay minerals, sericite, muscovite shreds, chlorite and amorphous iron oxide; traces of disseminated pyrite
1506	76.94-76.97	5853	Sandstone	Qz	RF Pl Do Py Tm Zc	Feldspar clasts strongly sericitised; matrix consists of clay minerals, sericite, muscovite shreds, dolomite, traces of chlorite and amorphous iron oxide; trace of disseminated pyrite
1507	79.16-79.22	5861	Mudstone		Py	Trace of disseminated globular pyrite
1576	83.56-83.75	6358	Siltstone	Qz	Do	Turbid matrix largely comprised of dolomite; veins contain pyrite and tetrahedrite (confirmed by XRD: Ph 6460); finely disseminated pyrite also present; trace of stibnite on fracture surfaces

Petrography of core specimens, BH2

Sample Number (CXD)	Depth (m)	PTS No	Name	Mineral Constituents Major	Minor	Comments
1592	42.09-42.27					Dark grey sulphide in quartz veinlets identified as tetrahedrite and tennantite by XRD analysis (Ph 6477)
1545	44.20-44.23		Mudstone		Py Ap St	Non-laminated; traversed by at least two generations of veinlets (i) contains traces of pyrite and arsenopyrite (ii) intersects type (i) and contains minute crystals of pyrite; stibnite on fracture surfaces
1560	44.25-44.30	6024	Mudstone		Py Ap Hm Do	Strong sericitisation; stratiform pyrite and arsenopyrite concentrated in narrow bands parallel to original bedding; distinctive red colouration due to late-stage veins of dolomite and hematite (confirmed by XRD, Ph 6416, 6417)
1546	44.30-44.32		Sandstone	Qz	Py Ap St	Contains "flames" of mudstone; single traversing vein contains pyrite and arsenopyrite; trace of stibnite on fracture surfaces
1536	46.17-46.25		Mudstone		Py Ap St	Pyrite and arsenopyrite in bands parallel to original bedding; trace of stibnite on fracture surfaces
1561	46.25-46.29	6025	Mudstone		Py Ap	Strongly sericitised; stratiform pyrite and arsenopyrite exhibit slight hematatic alteration
1585	48.68-48.77	6361	Breccia	Qz HF	Do Hm Dk	Fragments of mudstone or siltstone contain patches of hematite (Ph 6485) possibly replacing pyrite; matrix of quartz and trace dolomite; veins contain quartz and dickite; traces of pyrite altered to hematite; stibnite on fracture surfaces
1548	48.97-49.00		Sandstone	Qz	Do Py Ap St	Masked alteration associated with intense quartz-carbonate veining; sparsely disseminated pyrite and arsenopyrite; trace of stibnite on fracture surfaces
1562	49.11-49.18	6026	Breccia	Qz HF	Hm	Coarse sandstone fragments set in a quartz matrix; fragments contain abundant aggregates of prismatic crystals of hematite probably replacing arsenopyrite (XRF scan indicated major Fe)
1589	54.96-55.04					Red veins identified as hematite plus a mica mineral by XRD analysis (Ph 6475)
1590	55.30-55.37					Red mineral identified by XRD analysis as hematite plus mica mineral (Ph 6476)
1549	56.12-56.14		Mudstone		Py St Hm	Reddish hematitic alteration obscures much of the mineralogy; pyrite sparsely disseminated; trace of stibnite on fracture surfaces
1563	57.42-57.47	6027	Siltstone	Qz Ap Py	Do Dk Ap Py	Abundant disseminated arsenopyrite with subordinate globular pyrite; complex vein network; infilling minerals are quartz, dolomite, dickite and traces of pyrite and arsenopyrite

TABLE 1.33a

(continued)

Sample Number (CXD)	Depth (m)	PtS No	Name	Mineral Constituents Major	Minor	Comments
1550	59.08-59.17		Breccia	Qz RF Do	Py Ap	Sandstone or siltstone fragments set in a quartz-dolomite matrix; finely disseminated pyrite and arsenopyrite
1564	60.14-60.20	6028	Sandstone	Qz	Do Py Ap	Strong sericitisation; disseminated pyrite with subordinate arsenopyrite; veinlets contain dolomite with trace pyrite
1573	68.13-68.23					Grey sulphides in veinlets identified as galena plus tetrahedrite (Ph 6454)
1588	74.94-74.99					Grey sulphide in veinlets identified as chalcopyrite (Ph 6474)
1558	98.57-98.62	6022	Breccia	RF Qz Do	Py Ap	Rock fragments consist of mudstone, siltstone and sandstone and all contain disseminated pyrite and arsenopyrite; quartz-dolomite matrix contains disseminated pyrite arsenopyrite; fine, sinuous veinlets contain traces of pyrite and arsenopyrite
1559	100.23-100.30	6023; 6023A	Siltstone	Qz Do	Py Hm (Ap)	Fabric masked by intense carbonate alteration; where alteration is most intense, arsenopyrite is almost completely replaced by hematite and dolomite; pyrite appears to have suffered little or no alteration
1567	112.87-112.97	6031	Mudstone	Do	Py Ap	Nature of original rock difficult to evaluate as carbonate is alteration intense; banded pyrite and arsenopyrite probably stratiform

TABLE 1.33b

Petrography of core specimens, BH3

Sample Number (CXD)	Depth (m)	PTS No	Name	Mineral Constituents Major	Minor	Comments
1542	19.42					Small green flakes from vein identified by XRD analysis as a dioctahedral mica mineral (Ph 6324)
1584	36.28-36.38					Grey sulphide in veinlets identified by XRD analysis as bournonite (Ph 6461)
1580	45.69-45.77					Dark grey sulphide in vein identified by XRD analysis as bournonite (Ph 6458)
1569	49.05-49.13	6033	Sandstone	Qz	RF Do Py Zc	Quartz and undifferentiated rock fragments set in a matrix of clay minerals, sericite, dolomite and a trace of chlorite; disseminated pyrite; two generations of veining: (i) dolomite with traces of pyrite, and (ii) quartz; the quartz veins cross-cut and postdate the dolomite veins
1508	55.5				Ar	Clear tabular crystal from a late-stage fracture identified by XRD analysis as aragonite (Ph 6313)
1570	57.85-57.95	6034	Breccia	RF Qz Do	Py	Fragments of sandstone and mudstone strongly altered to sericite and chlorite; matrix consists of quartz and dolomite; a fine network of quartz-carbonate veins have provided localised sites for strong carbonate alteration; trace of globular pyrite in matrix; greenish mineral associated with altered rock fragments identified by XRD analysis as a dioctahedral mica mineral (Ph 6407)
1509	64.78-68.85		Mudstone		Py Ap St	Specimen very friable; abundant disseminated pyrite and arseno-pyrite; trace of stibnite on fracture surfaces
1593	65.93-66.05	6362	Mudstone		Py Qz Do	Discrete patches of disseminated pyrite; quartz-dolomite veins containing traces of pyrite
1543	66.78-66.83		Sandstone	Qz	St	Fine acicular stibnite on fracture surfaces confirmed by XRD analysis (Ph 6322)
1510	67.92-68.02		Mudstone		St	Stibnite blooms on fracture surfaces confirmed by XRD analysis (Ph 6320)
1511	70.36-70.42		Mudstone		Py St	Blooms of stibnite on fracture surfaces; trace of disseminated pyrite
1544	79.38-79.42		Breccia	RF Qz Do	Ap Py	Siltstone or sandstone fragments set in a quartz-carbonate matrix; although the rock is strongly sheared stratiform arsenopyrite with subordinate pyrite are still recognisable
1512	80.87-80.90	5854; 5854A	Siltstone	Qz	Zc Py Ap	Occasional zircon grains present in matrix; arsenopyrite and pyrite in bands; trace of stibnite on fracture surfaces; two generations of veining: (i) dolomite with traces of pyrite and (ii) quartz with traces of dolomite and arsenopyrite; the quartz veins cross-cut the dolomite veins

TABLE 1.34a

(continued)

Sample Number (CXD)	Depth (m)	PTS No	Name	Mineral Constituents		Comments
				Major	Minor	
1513	83.35-83.41		Mudstone		Ap	Despite shearing, bands of arsenopyrite with traces of pyrite are roughly parallel to the original bedding
1514	86.93-87.02	5863	Sandstone	Qz	Py Ap RF Do Dk	Despite obliteration of most primary features by shearing, bands of arsenopyrite and pyrite lying roughly parallel to the original bedding can still be seen; two generations of veining, (i) dolomite veins and (ii) later veins containing quartz, dolomite and dickite; veins are devoid of sulphide minerals
1582	90.92-91.17				Bn Ap Sp	Grey sulphides identified by XRD analysis as bournonite, arsenopyrite and a trace of sphalerite (Ph 6457; 6473)
1583	92.35-92.49	6360	Breccia	RF Qz	Py Ap Do Sp	Fragments of sandstone or siltstone containing traces of disseminated pyrite and arsenopyrite; matrix consists of coarse crystalline quartz with a trace of dolomite; veins contain coarse platy dolomite with a trace of pyrite and cross cutting quartz veins containing pyrite, arsenopyrite and sphalerite; confirmed by XRD analysis (Ph 6459)
1515	103.83-103.91		Mudstone		Ap Py Bn St	Arsenopyrite and pyrite in bands parallel to original bedding; trace of bournonite in veins and stibnite on fracture surfaces
1516	106.19-106.26	5855	Mudstone		Ap Py Qz Do Dk St	Arsenopyrite is disseminated in varying amounts through the rock; differential distribution of disseminated arsenopyrite; however, together with minor pyrite it is also concentrated in a band running parallel to the original bedding; veinlets contain quartz, dolomite and dickite (confirmed by XRD analysis; Ph 6318); stibnite blooms on fracture surfaces
1517	109.23-109.31	5864	Sandstone	Qz	Py Ap St RF Pl Tm Zc	Sparse distribution of disseminated pyrite and arsenopyrite; stibnite on fracture surfaces; two generations of veining, (i) dolomite veins (ii) late veins of quartz with traces of dolomite and pyrite
1518	128.49-128.61	5865	Sandstone	Qz	Py Bn RF Pl Tm Zc	Finely disseminated pyrite; narrow dolomitic vein contains tiny crystals of bournonite
1519	134.73-134.79	5866	Breccia	Qz Do RF	Dk Py	Fragments of mudstone, sandstone and quartz set in a matrix containing quartz, carbonate, dickite and abundant disseminated pyrite; narrow quartz-carbonate veins contain minor amounts of pyrite
1520	137.49-137.56		Breccia	Qz Do RF	Dk Py	Similar to specimen CXD 1519; dickite identified by XRD analysis (Ph 6318)
1521	139.63-139.74	5867	Breccia	Qz Do RF	Py Ap Dk	Similar to CXD 1519 except that a trace of arsenopyrite is present while dickite is uncommon
1573	143.62-143.67		Sandstone	Qz	RF Do Bn Br Py	Associated with a thin brecciated zone; a dolomite rich vein contains bournonite and baryte, confirmed by XRD analysis (Ph 6386); trace of disseminated pyrite

TABLE 1.34b

(continued)

Sample Number (CXD)	Depth (m)	PTS No	Name	Mineral Constituents		Comments
				Major	Minor	
1522	145.05-145.11	5868	Mudstone		Py Ap Bn Do	Pyrite and arsenopyrite occur in bands parallel to the original bedding whereas bournonite (Ph 6323) is confined to fracture surfaces; the veinlets present are composed of dolomite, with traces of pyrite and arsenopyrite
1565	145.17-145.24	6029	Mudstone		Py Ap Do	Pyrite and arsenopyrite occur in two distinctive bands about 1 mm wide which lie parallel to the original bedding, and also in minor amounts in dolomite-rich veinlets
1566	148.07-148.24	6030	Breccia	RF Qz Ap	Py	Fragments consist of sericitised mudstone or siltstone which contain globular pyrite and bands of pyrite roughly parallel to the original bedding; matrix contains quartz and arsenopyrite in roughly equal proportions together with traces of dolomite and pyrite; veinlets are comprised of dolomite with traces of pyrite
1523	157.63-157.69	5869	Mudstone		Py Ap Qz Do Cp Br Gl	Finely disseminated pyrite and arsenopyrite with rare flecks of chalcopyrite; complex network of veining; infilling minerals include dolomite, baryte, quartz and traces of pyrite and galena
1522	165.40-165.55	6021	Mudstone		Py Qz Do Gl	Microscopic pyrite located along limbs and crests of small folds; veins contain quartz, dolomite and galena (confirmed by XRD analysis, Ph 6387)
1524	165.75-165.80	5870	Siltstone	Qz	Py Do Gl St	Trace of disseminated pyrite; dolomite-quartz veins contain small crystals of galena; stibnite blooms on fracture surfaces
1571	166.64-166.81	6096	Siltstone	Qz	Py Hm St	Finely disseminated pyrite with concentrations in narrow zones parallel to the original bedding; hair veinlets contain hematitic dust; stibnite on fracture surfaces
1525	168.01					Tiny black crystals in a dolomite vein identified by XRD analysis as bournonite (Ph 6312)
1553	168.44-168.48		Mudstone		Py Ap	Abundant disseminated arsenopyrite with stringers of globular pyrite
1572	168.62-168.73	6035	Siltstone	Qz	Py Ap	Pyrite and arsenopyrite occur in bands parallel to the original bedding; arsenopyrite is the dominant sulphide; globular pyrite has formed around the arsenopyrite crystal boundaries
1581	169.60-169.66					Black sulphide in dolomite veinlet is bournonite (Ph 6456)
1526	175.27-175.30	5871	Sandstone	Qz	Pl Tm Zo RF Py Hm	Finely disseminated pyrite altering to hematite; two generations of veining, (i) dolomite-quartz veins with subhedral to euhedral crystals of pyrite and (ii) later quartz veins devoid of sulphide minerals

TABLE 1.34d

(continued)

Sample Number (CXD)	Depth (m)	PTS No	Name	Mineral Constituents Major	Minor	Comments
1527	176.82-176.92	5856	Breccia	RF Qz Py	Do Dk	Rock fragments are predominantly mudstone, strongly sericitised and carrying abundant disseminated pyrite; the quartz-dolomite matrix contains areas of massive pyrite seemingly confined to certain zones; trace of dickite in matrix; complex network of quartz and dolomite veins
1528	177.08-177.15	5857	Breccia	RF Qz	Ap Py Do	Similar to specimen CXD 1527 except that traces of disseminated arsenopyrite occur in some of the rock fragments whereas the zones of massive pyrite are absent
1530	177.70-177.75		Breccia	RF Qz	Ap Py Do	Trace of disseminated pyrite and arsenopyrite in a quartz-dolomite matrix
1529	177.76-177.81		Breccia	RF Qz Py	Do Dk	Similar to specimen CXD 1527
1568	178.64-178.69	6032	Siltstone	Qz	Py Ap Do	Incorporates irregular flame-shaped masses of mudstone which contain isolated crystals of arsenopyrite and pyrite; arsenopyrite and pyrite are disseminated throughout the siltstone; veinlets contain dolomite with a trace of pyrite
1531	193.12-193.20		Sandstone	Qz	RF Hm	Abundant, bronze-coloured flaky mineral identified as hematite which appears to be replacing biotite
1532	194.88-194.98		Mudstone		Py St	Finely laminated; sparse dissemination of pyrite; stibnite blooms on fracture surfaces

Petrography of core specimens, BH4

Sample Number (CXD)	Depth (m)	PTS NO	Name	Mineral Constituents Major	Minor	Comments
1540	26.92-26.96	5873	Sandstone	Qz	Pl Py Ap St RF	Minor disseminated arsenopyrite and pyrite; veinlets contain dolomite and hematite; stibnite on fracture surfaces
1533	27.50-27.55		Breccia	Qz RF	Py Ap Sp Sm At	Very friable rock with abundant pyrite and arsenopyrite in matrix; from the crushed sample the following were identified by XRD analysis: sphalerite (Ph 6306, 6310); semseyite (Ph 6308, 6309, 6311); arsenopyrite (Ph 6281); apatite (Ph 6317) and quartz (Ph 6307)
1574	27.62-27.67	6356	Sandstone	Qz	Py Ap St Gl Do	Matrix consists of clay minerals, carbonate, a trace of chlorite, shreds of muscovite and minor biotite; disseminated pyrite and arsenopyrite; quartz-carbonate veins contain pyrite, arsenopyrite and galena; stibnite blooms on fracture surfaces
1541	29.41-29.50	5874	Sandstone	Qz	Pl Zc RF Py Ap Bn	Disseminated pyrite; pyrite, arsenopyrite and trace of bournonite in quartz-carbonate veins
1534	29.53-29.56		Sandstone	Qz	Py Ap	Comments as for CXD 1541 but no bournonite detected
1535	33.17-33.22	5875	Sandstone	Qz		Disseminated arsenopyrite and minor pyrite; veinlets contain quartz, dolomite and traces of chlorite and hematite but no sulphides

TABLE 1.35

Southern Uplands Greywacke Lithogeochemical Anomalies

TABLE 1.36

ID. / VAR.	East	North	Na2O	As	Sb
As > 11ppm					
N610	26682	61238	2.81	16	2
AX-131	23525	59069	2.57	14	0
AX-133	23653	58150	2.72	19	0
A181	26461	60436	1.81	12	22
A188	26427	60501	1.86	15	0
W387	25460	59840	2.46	25	2
N397	26778	61141	1.99	13	0
E404	27330	60568	1.73	16	0
A463	26399	60561	0.78	15	6
N486	26782	61141	0.10	17	1
DTIA-103	25454	58667	3.09	19	0
DTIA-104	25452	58668	2.47	17	0
L527	28543	60759	2.57	15	3
L562	28626	61360	2.86	11	0
AX-96	31755	61810	2.81	13	0
S-70118	36037	66743	0.11	38	3
S-70124	36080	66699	0.00	51	3
S-70128	36231	66522	2.02	19	5
PDW101	19603	56528	2.19	14	3
PDW170	20148	55261	3.76	15	8
PDW176	20250	55110	2.24	14	2
PDW182	20435	54963	0.80	38	118
PDW186	20468	54923	2.94	21	0
PDW188	20461	54900	2.57	15	2
PDW193	20488	54828	2.17	34	0
PDW195	20520	54810	2.38	11	1
PDW197	20555	54769	1.78	28	0
PDW217	20699	54406	1.84	24	4
PDW242	20988	53823	1.43	13	5
PDW268	21257	53140	1.59	11	1
GY181	23878	54711	2.36	23	1
Sb > 5ppm					
A181	26461	60436	1.81	12	22
N250	26752	61079	1.77	5	8
N262	26770	61119	1.97	9	7
A305	26412	60351	1.61	8	7
PDW170	20148	55261	3.76	15	8
PDW182	20435	54963	0.80	38	118
PDW277	21440	53034	1.78	0	9
PDW278	21454	53029	1.92	0	7
PDW288	24679	55003	2.76	0	7
PDW293	24839	54928	1.66	0	7
PDW311	24821	54412	1.69	4	9
PDW335	24829	53838	1.27	0	8
PDW342	24838	53682	0.15	7	8
GY189	23680	54242	1.65	0	7
Na < 0.5 Wt%					
N486	26782	61141	0.10	17	1
S-70118	36037	66743	0.11	38	3
S-70124	36080	66699	0.00	51	3
S-70131	36865	65875	0.07	4	0
PDW342	24838	53682	0.15	7	8

Glendinning Greywacke Lithogeochemical Anomalies TABLE 1.37

ID. / VAR.	East	North	Na20	As	Sb
(As > 11ppm)					
DJR-908	34198	59945	1.64	13	0
DJR-951	33635	59510	1.29	12	0
DJR-952	33655	59507	1.51	12	0
DJR-063	33140	59686	0.10	33	26
DJR-064	33140	59686	0.05	23	31
DJR-065	33140	59686	0.06	13	22
DJR-066	33140	59686	0.05	25	29
DJR-784	33562	60236	0.76	36	14
DJR-785	33551	60259	0.17	23	24
DJR-786	33553	60251	0.44	20	9
DJR-788	33555	60223	0.31	24	14
DJR-863	33176	59734	0.50	65	17
DJR-903	33830	59881	1.12	19	23
DJR-946	33505	59580	0.79	24	55
DJR-947	33545	59568	1.47	39	0
Sb > 10ppm					
DJR-900	33843	59780	1.89	5	12
DJR-053	33114	59659	0.67	5	11
DJR-063	33140	59686	0.10	33	26
DJR-064	33140	59686	0.05	23	31
DJR-065	33140	59686	0.06	13	22
DJR-066	33140	59686	0.05	25	29
DJR-704	34276	60483	1.03	8	16
DJR-784	33562	60236	0.76	36	14
DJR-785	33551	60259	0.17	23	24
DJR-787	33555	60240	0.25	11	17
DJR-788	33555	60223	0.31	24	14
DJR-809	33473	60031	1.06	11	13
DJR-863	33176	59734	0.50	65	17
DJR-903	33830	59881	1.12	19	23
DJR-946	33505	59580	0.79	24	55
Na < 0.5%					
DJR-033.	33093	59586	0.41	0	0
DJR-049	32960	59390	0.35	0	6
DJR-063	33140	59686	0.10	33	26
DJR-064	33140	59686	0.05	23	31
DJR-065	33140	59686	0.06	13	22
DJR-066	33140	59686	0.05	25	29
DJR-766	34544	61072	0.09	11	0
DJR-785	33551	60259	0.17	23	24
DJR-786	33553	60251	0.44	20	9
DJR-787	33555	60240	0.25	11	17
DJR-788	33555	60223	0.31	24	14
DJR-858	33820	60850	0.38	4	0
DJR-863	33176	59734	0.50	65	17
DJR-888	33060	60312	0.27	5	0

TABLE 1.38

Glendinning Mudstone Lithogeochemical Anomalies

ID. / VAR.	East	North	Na2O	As	Sb
As > 20ppm					
DJR-1021	33156	59321	0.46	30	2
DJR-1023	33219	59355	1.03	145	25
DJR-1031	33114	59628	0.84	22	0
DJR-1048	32911	59478	0.19	36	0
DJR-1053	33114	59659	0.20	23	16
DJR-1056	33102	59678	1.05	24	0
DJR-1702	34361	60352	1.15	13	0
DJR-1761	33686	59544	1.08	24	0
DJR-1784	33562	60236	0.34	24	3
DJR-1802	33538	59963	0.88	26	0
DJR-1811	34325	60248	1.10	47	4
DJR-1815	34270	60270	0.53	91	0
DJR-1817	34235	60294	1.13	31	0
DJR-1830	34160	60394	1.00	21	0
DJR-1864	33205	59726	1.13	22	0
DJR-1908	34198	59945	1.20	42	4
DJR-1910	34205	60012	0.13	21	2
DJR-1943	33830	59463	0.33	20	5
Sb > 10ppm					
DJR-1023	33219	59355	1.03	145	25
DJR-1053	33114	59659	0.20	23	16
DJR-1704	34276	60483	1.12	15	12
DJR-1900	33843	59780	1.38	4	19
DJR-1903	33830	59881	1.06	18	16
DJR-1942	33564	60052	0.75	16	12
Na2O < 0.4%					
DJR-1011	33321	59542	0.00	4	5
DJR-1033	33093	59586	0.31	4	0
DJR-1037	33055	59550	0.37	3	0
DJR-1048	32911	59478	0.19	36	0
DJR-1053	33114	59659	0.20	23	16
DJR-1766	34544	61072	0.19	14	0
DJR-1784	33562	60236	0.34	24	3
DJR-1874	33242	59935	0.39	10	2
DJR-1888	33060	60312	0.12	4	0
DJR-1909	34210	59995	0.34	7	0
DJR-1910	34205	60012	0.13	21	2
DJR-1921	33416	60286	0.29	4	0
DJR-1943	33830	59463	0.33	20	5

TABLE 1.39

Table : Glendinning Region Multi-Element Lithogeochemical Anomaly Sites

Location	Abrev.	As	Sb	Cu	Pb	Zn	Na (-)	Zn (-)
Glendinning Deposit	(G)	g/m	g		m		g/m	g
Black Syke	(BS)	g/m	g				g	g
Rams Cleuch	(RC)	g/m	g		m		g/m	
Swin Gill	(SG)	g	g			g		g
Wisp Hill	(WH)	g	g/m	g	g	g		
Philhope Loch	(PL)				g	g	g	
Cat Rig	(CR)				g	g		
Greatmoor Hill	(GH)		g			g		
Rashigrain	(R)		g			g		
The Shoulder	(TS)	m		m	m	m		
Stibbiegill Head	(SH)	m		m	m	m	m	
Stennies Water	(S)	m					m	
Linhope Burn	(LB)	m					m	
Phaup Burn	(PB)	m			m			m
Meggat Water	(MW)						m	m
Upper Stennies Water	(US)						m	m

Threshold Values	As ppm	Sb ppm	Cu ppm	Pb ppm	Zn ppm	Na %	Zn ppm
Greywacke	16	10	50	25	100	0.5	40
Mudstone	20	10	70	40	125	0.5	65

Key

g - Greywacke Anomaly Site
m - Mudstone Anomaly Site
g/m - Greywake and Mudstone Anomaly Site

Modified K-Means Cluster Analysis : Seed Points

Formation	Marchburn	Afton	Blackcraig	Scar	Shinnel	Pyroxen.	Interm.	Hawick	Mineral.
VAR. / ID.	Seed-1	Seed-2	Seed-3	Seed-4	Seed-5	Seed-6	Seed-7	Seed-8	Seed-9
SiO2	57.66	65.30	60.49	59.77	67.06	60.36	67.11	58.48	59.26
Al2O3	12.04	12.79	11.17	13.12	11.29	12.15	13.06	14.49	17.07
TiO2	1.52	1.91	1.30	0.91	0.93	0.93	0.89	0.85	0.79
Fe2O3	9.94	7.09	9.32	7.62	5.92	7.88	5.75	5.87	5.22
MgO	6.54	3.61	4.85	5.97	3.64	5.47	4.03	4.37	3.54
CaO	3.00	1.45	4.15	3.62	2.64	3.98	1.84	7.36	7.72
Na2O	2.88	2.06	2.70	2.85	2.20	2.45	2.11	1.65	0.25
K2O	1.33	1.84	10.90	1.59	1.63	1.74	2.18	2.21	3.03
MnO	0.15	0.10	0.15	0.12	0.09	0.13	0.08	0.10	0.09
P2O5	0.24	0.18	0.15	0.19	0.17	0.20	0.18	0.18	0.17
Total	95.31	95.80	95.37	95.76	95.59	95.31	97.24	95.59	95.72
As	1	3	1	2	0	1	1	2	100
Ba	398	434	286	510	377	478	540	314	369
Co	30	22	23	27	21	29	37	27	32
Cr	297	161	169	255	170	204	178	137	150
Cu	29	20	25	28	16	26	15	26	31
Ga	16	14	15	15	12	15	13	14	17
La	20	33	15	21	27	27	35	32	38
Ni	12	61	49	91	54	63	63	58	75
Nb	14	17	10	10	14	11	14	14	13
Pb	11	13	11	15	12	14	16	15	118
Rb	31	50	26	41	43	47	62	72	108
Sr	250	127	207	318	123	347	141	135	149
Sb	0	1	0	0	1	0	0	1	18
S	849	589	1119	813	322	436	200	93	2800
Th	5	9	5	6	7	6	8	8	9
V	197	114	189	144	98	147	94	102	111
Y	26	26	29	21	24	23	27	31	30
Zn	74	63	73	66	46	62	57	67	90
Zr	152	250	139	153	260	213	283	215	192

TABLE 1.40

INDEX TO THE SOUTHERN SCOTLAND REGIONAL GEOCHEMICAL DATABASE. TABLE 1.41

OCTOBER 1982 - OCTOBER 1989.

THE XRF LABORATORY,
DEPARTMENT OF GEOLOGY,
NOTTINGHAM UNIVERSITY.

DEPARTMENT OF APPLIED GEOLOGY,
THE UNIVERSITY OF STRATHCLYDE,
GLASGOW.

Filename	Data	Location	Discription	Type	No. of Samples	
ASP1.RAW	MPA:	Glendinning	Arsenopyrite	Breccia hosted	Grid 1.	72
ASP2.RAW	MPA:	Glendinning	Arsenopyrite	Breccia hosted	Grid 2.	26
ASP3.RAW	MPA:	Glendinning	Arsenopyrite	Breccia hosted	Grid 3.	35
ASP4.RAW	MPA:	Glendinning	Arsenopyrite	Vein	Grid 4.	56
ASP5.RAW	MPA:	Glendinning	Arsenopyrite	Stratiform	Grid 5.	323
ASP6.RAW	MPA:	Glendinning	Arsenopyrite	Stratiform	Grid 6.	97
ASP7.RAW	MPA:	The Knipe	Arsenopyrite	Wallrock	Grid 7.	49
ASP8.RAW	MPA:	The Knipe	Arsenopyrite	Vein	Grid 8.	61
ASP9.RAW	MPA:	Talnotry	Arsenopyrite	Vein	Grid 10.	194
ASP10.RAW	MPA:	Cairngarroch	Arsenopyrite	Vein	Total	565
ASP11.RAW	MPA:	Cairngarroch	Arsenopyrite	Vein	Grid 11.	254
ASP12.RAW	MPA:	Cairngarroch	Arsenopyrite	Vein	Grid 12.	64
ASP13.RAW	MPA:	Cairngarroch	Arsenopyrite	Vein	Grid 13.	144
ASP15.RAW	MPA:	Clontibret	Arsenopyrite	Vein		32
ASP16.RAW	MPA:	Clontibret	Arsenopyrite	Wallrock		102
ASP17.RAW	MPA:	Clontibret	Arsenopyrite	Wallrock		69
ASP18.RAW	MPA:	Clontibret	Arsenopyrite	Wallrock		50
AU1.RAW	MPA:	Glendinning	Arsenopyrite	Gold Anomaly Data		16
PYTE1.RAW	MPA:	Glendinning	Pyrite	Stratiform	Grid 16.	177
PYTE2.RAW	MPA:	Glendinning	Pyrite	Vein		29
STIB1.RAW	MPA:	Glendinning	Stibnite	Massive		6
STIB2.RAW	MPA:	Glendinning	Stibnite	Veinlet (+arsenopyrite)		7
STIB3.RAW	MPA:	Clontibret	Stibnite	Inclusions in ASP16		7
SPTE1.RAW	MPA:	Glendinning	Sphalerite	Vein		12
TET1.RAW	MPA:	Glendinning	Tetrahedrite	Vein		7
BEAD1.RAW	XRF:	Glendinning	Fused Bead	Greywacke data.		10
BEAD2.RAW	XRF:	Glendinning	Fused Bead	Mudstone data.		10
BEAD3.RAW	XRF:	Glendinning	Fused Bead	Mineralisation.		20
BEAD4.RAW	XRF:	Regional	Fused Bead	Greywacke data.		190
B1.RAW	XRF:	S.Uplands	Fused Bead	Formation 1		24
B3.RAW	XRF:	S.Uplands	Fused Bead	Formation 3		24
B5.RAW	XRF:	S.Uplands	Fused Bead	Formation 5		8
B7.RAW	XRF:	S.Uplands	Fused Bead	Formation 7		38
B9.RAW	XRF:	S.Uplands	Fused Bead	Formation 9		23
B11.RAW	XRF:	S.Uplands	Fused Bead	Formation 11		24
B13.RAW	XRF:	S.Uplands	Fused Bead	Formation 13		20
DUP1.RAW	XRF:	Glendinning	Duplicates -	Tema subsamples.		5
DUP2.RAW	XRF:	Glendinning	Duplicates -	Tema subsamples.		5
GOLD.RAW	PAN:	S.Uplands	Pan Concentrate	Gold Localities.		110
GOLD1.RAW	AA :	S.Uplands	Gold Assays O'Neil Labs	MIBK extraction.		19
GOLD2.RAW	AA :	Glendinning	Gold Assays Geomet Labs	MIBK extraction.		61
GOLD3.RAW	NAA:	Soils	Gold Assays McMaster	Fire assay+INAA.		15
GOLD4.RAW	NAA:	Core	Gold Assays McMaster	Fire assay+INAA.		39
GOLD5.RAW	NAA:	Greywacke	Gold Assays McMaster	Fire assay+INAA.		11
GOLD6.RAW	NAA:	S.Uplands	Gold Assays McMaster	Fire assay+INAA.		8
GRD1.RAW	XRF:	Rams Cleuch	Soil Grid 1.			195
GRD2.RAW	XRF:	Swin Gill	Soil Grid 2.			300
GWKE1.RAW	XRF:	Glendinning	Regional Exploration	Greywackes.		306
GWKE4.RAW	XRF:	S.Uplands	Regional Suite.			699
GWKE8.RAW	XRF:	S.Uplands	Formation 1	Marchburn.		44
GWKE9.RAW	XRF:	S.Uplands	Formation 3	Afton.		154
GWKE10.RAW	XRF:	S.Uplands	Formation 5	Blackcraig.		61
GWKE11.RAW	XRF:	S.Uplands	Formation 7	Scar.		100
GWKE12.RAW	XRF:	S.Uplands	Formation 9	Shinnel.		71

GWKE13.RAW XRF:	S.Uplands	Formation 11	Pyroxenous.	43
GWKE14.RAW XRF:	S.Uplands	Formation 13	Intermediate.	79
GWKE15.RAW XRF:	S.Uplands	Formation 15	Garnetiferous.	11
GWKE16.RAW XRF:	S.Uplands	Formation 17	Glen Trool (Quartzose).	4
GWKE17.RAW XRF:	S.Uplands	Formation 19	Epidotitic (Pipeline).	12
GWKE18.RAW XRF:	S.Uplands	Formation 21	Upper Calcareous (B6).	47
GWKE19.RAW XRF:	S.Uplands	Formation 23	Lower Calcareous (B5).	258
GWKE20.RAW XRF:	S.Uplands	Formation 00	Unassigned.	101
GWKE22.RAW XRF:	S.Uplands	West Coast Traverse.		279
GWKE23.RAW XRF:	Tweedsmuir	Inter-Unit Studies.		20
GWKE2A.RAW XRF:	Tweedsmuir	Inter-Outcrop Studies.		12
GWKE2B.RAW XRF:	Tweedsmuir	Basal Formation Studies.		8
GWKE24.RAW XRF:	Regional	Additional element Studies.		98
GWKE25.RAW XRF:	Kirkudbright	Lower Silurian (B5).		11
GWKE26.RAW XRF:	Kirkudbright	Upper Silurian (B6).		12
GWKE27.RAW XRF:	Kirkudbright	Mapping Studies.		26
GWKE28.RAW XRF:	Glendinning	Additional element Studies (Core).		19
GWKE29.RAW XRF:	Glendinning	Additional element Studies (Gwke).		10
GWKE30.RAW XRF:	Glendinning	Additional element Studies (Mudstone).		10
GWKE31.RAW XRF:	Tweedsmuir	Multi-Unit Studies.		20
GWKE32.RAW XRF:	Wigtownshire	Mapping Studies (East).		76
GWKE33.RAW XRF:	Wigtownshire	Mapping Studies (West).		94
GWKE34.RAW XRF:	Selkirk	Upper Calcareous (B6).		6
GWKE40.RAW XRF:	Longford Down	Traverse.		297
GWKE41.RAW XRF:	Longford Down	Formation 1	Aghamore.	7
GWKE42.RAW XRF:	Longford Down	Formation 2	Lackan.	9
GWKE43.RAW XRF:	Longford Down	Formation 3	Finnalayhta	56
GWKE44.RAW XRF:	Longford Down	Formation 4	Coronea.	40
GWKE45.RAW XRF:	Longford Down	Formation 5	Cornhill.	3
GWKE46.RAW XRF:	Longford Down	Formation 6	Carrickateane.	7
GWKE47.RAW XRF:	Longford Down	Formation 7	Glen Lodge.	4
GWKE48.RAW XRF:	Longford Down	Formation 8	Red Island.	10
GWKE49.RAW XRF:	Longford Down	Formation 9	Slieve Glah.	3
GWKE50.RAW XRF:	Longford Down	Formation10	Hawick Equivalent.	76
GWKE51.RAW XRF:	Longford Down	Formation11	Slieve na Calliagh Area.	7
FOR1.RAW XRF:	S.Uplands	Ratio data Formation 1		44
FOR3.RAW XRF:	S.Uplands	Ratio data Formation 3		154
FOR5.RAW XRF:	S.Uplands	Ratio data Formation 5		57
FOR7.RAW XRF:	S.Uplands	Ratio data Formation 7		100
FOR9.RAW XRF:	S.Uplands	Ratio data Formation 9		62
FOR11.RAW XRF:	S.Uplands	Ratio data Formation 11		43
FOR13.RAW XRF:	S.Uplands	Ratio data Formation 13		79
FOR15.RAW XRF:	S.Uplands	Ratio data Formation 15		11
FOR17.RAW XRF:	S.Uplands	Ratio data Formation 17		4
FOR19.RAW XRF:	S.Uplands	Ratio data Formation 19		12
FOR21.RAW XRF:	S.Uplands	Ratio data Formation 21		47
FOR23.RAW XRF:	S.Uplands	Ratio data Formation 23		258
FOR25.RAW XRF:	S.Uplands	Ratio data Unclassified		101
FORM1.RAW XRF:	Glendinning	Ratio data Mineralised Core		170
PCD8.RAW XRF:	S.Uplands	Marchburn Formation:	Point Count Data	44
PCD9.RAW XRF:	S.Uplands	Afton Formation:	Point Count Data	154
PCD10.RAW XRF:	S.Uplands	Blackcraig Formation:	Point Count Data	61
PCD11.RAW XRF:	S.Uplands	Scar Formation:	Point Count Data	100
PCD12.RAW XRF:	S.Uplands	Shinnel Formation:	Point Count Data	71
PCD13.RAW XRF:	S.Uplands	Pyroxenous Formation:	Point Count Data	12
PCD15.RAW :	S.Uplands	Petrographic Traverse:	Point Count Data	75
GCD8.RAW XRF:	S.Uplands	Marchburn Formation:	Granule Count Data	44
GCD9.RAW XRF:	S.Uplands	Afton Formation:	Granule Count Data	154
GCD10.RAW XRF:	S.Uplands	Blackcraig Formation:	Granule Count Data	61
GCD11.RAW XRF:	S.Uplands	Scar Formation:	Granule Count Data	100
GCD12.RAW XRF:	S.Uplands	Shinnel Formation:	Granule Count Data	71
LEAD1.RAW AA :	Leadhills	Riofinex Core Samples	Hole No. 1	68
LEAD2.RAW AA :	Leadhills	Riofinex Core Samples	Hole No. 2	50
LAMP1.RAW XRF :	S.Uplands	Lamprophre	As+Sb Geochemistry	98
MED1.RAW XRF:	Glendinning	Mineralised Multi-Element Data.		15
MED2.RAW XRF:	Tweedsmuir	Greywacke Multi-Element Data		20
MINE1.RAW XRF:	Glendinning	Mineralised Core Samples (BGS).		167
MINA1.RAW XRF:	Glendinning	Subset 3	Hole No.1.	32
MINB1.RAW XRF:	Glendinning	Subset 4	Hole No.2.	43
MINC1.RAW XRF:	Glendinning	Subset 5	Hole No.3.	80
MIND1.RAW XRF:	Glendinning	Subset 6	Hole No.4.	11
MINF1.RAW XRF:	Glendinning	Subset 7	Breccia hosted Mineralisation.	28
MING1.RAW XRF:	Glendinning	Subset 8	Greywacke hosted Mineralisation.	42

MINS1.RAW XRF:	Glendinning	Subset 9	Siltstone hosted Mineralisation.	61
MINM1.RAW XRF:	Glendinning	Subset10	Mudstone hosted Mineralisation.	20
MINE2.RAW XRF:	Clontibret	Mineralised Suite	Greywacke (JM's).	23
MINE3.RAW XRF:	Clontibret	Mineralised Suite	Greywacke (PD's).	10
MINE4.RAW XRF:	Leadhills	Mineralised Suite	Greywacke.	28
MINE5.RAW XRF:	Cairngarroch	Mineralised Suite	Vein and Wallrock.	6
MINE6.RAW XRF:	Tongerhie	Mineralised Suite	Vein and Wallrock.	4
MINE7.RAW XRF:	General	Mineralised Suite	Vein and Wallrock.	6
MUD1.RAW XRF:	Glendinning	Exploration	Mudstone Suite.	197
PAN1.RAW XRF:	Glendinning	Exploration	BGS Pan Concentrates.	52
NORM1.RAW ICP:	S.Uplands	Chondrite	Normalised REE Data.	228
NORM2.RAW ICP:	S.Uplands	Shale(NASC)	Normalised REE Data.	228
NORM4.RAW ICP:	Glendinning	Chondrite	Normalised REE Data.	10
NORM5.RAW ICP:	Glendinning	Shale(NASC)	Normalised REE Data.	10
NORM7.RAW ICP:	Mineralised	Chondrite	Normalised REE Data.	15
NORM8.RAW ICP:	Mineralised	Shale(NASC)	Normalised REE Data.	15
NORM10.RAW ICP:	Tweedsmuir	Chondrite	Normalised REE Data.	20
NORM11.RAW ICP:	Tweedsmuir	Shale(NASC)	Normalised REE Data.	20
REES.RAW ICP:	S.Uplands	Sedimentary	REE Study Greywacke.	228
REEG.RAW ICP:	Glendinning	Sedimentary	REE Study Greywacke.	10
REEM.RAW ICP:	Glendinning	Mineralised	REE Study Greywacke.	15
REET.RAW ICP:	Tweedsmuir	Interbed	REE Study Greywacke.	20
REE1.RAW ICP:	S.Uplands	Marchburn	REE Study Greywacke.	24
REE3.RAW ICP:	S.Uplands	Afton	REE Study Greywacke.	24
REE5.RAW ICP:	S.Uplands	Blackcraig	REE Study Greywacke.	6
REE7.RAW ICP:	S.Uplands	Scar	REE Study Greywacke.	36
REE9.RAW ICP:	S.Uplands	Schinnel	REE Study Greywacke.	21
REE11.RAW ICP:	S.Uplands	Pyroxenous	REE Study Greywacke.	25
REE13.RAW ICP:	S.Uplands	Intermediate	REE Study Greywacke.	23
REE15.RAW ICP:	S.Uplands	Garnetiferous	REE Study Greywacke.	12
STD1.RAW ICP:	Standard	Duplicates.		12
STD2.RAW ICP:	Standard	Duplicates.		28

SUMMARY:

MPA: Electron Microprobe Analysis:-

Arsenopyrite	1743
Pyrite	206
Stibnite	20
Sphalerite	12
Tetrahedrite	7
Gold Inclusions	16
Total.....	2004

XRF: X-Ray Fluorescence Spectrometry:-

Pressed Powder Pellet	Greywacke	1847
	Mudstone	197
	Core	167
	Soil	495
	Mineralisation	84
	Total.....	2790
Fused Bead	Greywacke	200
	Mudstone	10
	Core	10
	Total.....	220

ICP: Inductively Coupled Plasma:-

Greywacke	213
Mineralisation	15
Total.....	228

Summary:

The Southern Scotland Regional Geochemical Database (SSRGD) contains over 100,000 elemental determinations and in excess of 30,000 caculated values including ratios, totals, norms, formula units and atomic proportions.

1.42 : Rams Cleuch and Swin Gill Soil Geochemistry Contour Levels

Percentile	Threshold	0	50	75	90	95	100
Element							
SiO2	(%)	52	60	62	64	66	72
Al2O3	(%)	15	17	18.5	19.2	20	22
Fe2O3	(%)	2.5	8	8.5	9	9.5	12
MgO	(%)	1	2	2.4	2.8	3.2	4
Na2O	(%)	0	0.5	0.7	0.8	0.9	1.1
K2O	(%)	1.9	2.8	3.0	3.2	3.75	4.6
As	(ppm)	0	4	6	8	11	27
Ba	(ppm)	200	340	360	400	460	600
Cu	(ppm)	0	20	23	26	30	60
Co	(ppm)	0	14	17	20	23	100
Ga	(ppm)	0	18	19	20	22	27
Ni	(ppm)	0	50	58	66	80	120
Pb	(ppm)	0	20	25	30	40	100
Rb	(ppm)	50	110	116	122	128	160
S	(ppm)	200	775	875	1000	1200	3400
Sb	(ppm)	0	4	6	8	10	20
Sr	(ppm)	25	50	60	75	95	145
V	(ppm)	65	115	122	128	138	185
Zn	(ppm)	15	70	80	90	110	135
Tl	(ppm)	0	1	2	3	4	12
Eigenvector 2		-4	0	0.5	1.5	2.5	8
Eigenvector 3		-4	0	1	2	3	7

Table 1.43 Components of the Southern Uplands Composite Geochemical Traverse.

Traverse Position	Formation Name	Rhyns Strike Equivalent	No. of Samples
001-044	Marchburn	(Corsewell)	44
045-199	Afton	(Kirkcolm)	154
200-260	Blackcraig		61
261-360	Scar	(Portpatrick:Acid)	100
361-432	Shinnel	(Portpatrick:Basic)	71
433-476	Pyroxenous	(Kilfillan)	43
477-556	Intermediate	(Queensbury)	79
557-568	Garnetiferous		11
569-573	Glen Trool		4
574-586	Epidotic		12
587-895	Hawich		306

Table 1.44 - General relationships between chemical elements and their host minerals (modified after Rose 1979)

Element	Abbrev.	Atomic Number	Atomic Wt.	Chemical Association	Mobility	U.Mafic	Mafic	Granite	Sdst.	Shale	Soil	Main Host Mineral
Antimony	Sb	51	121.75	Chalcophile	High	0.1	0.1	0.2	1.0	2	2	Stibnite, tetrahedrite
Arsenic	As	33	74.92	Chalcophile	High	1.0	1.5	2.1	1.2	12	3	Arsenopyrite, sulpharsenides
Barium	Ba	56	137.34	Lithophile	Intermed.	0.4	330	840	170	550	300	Barite (K-feldspar)
Bismuth	Bi	83	208.98	Chalcophile	Low	1.2	0.05	0.3	0.3	1.0	0.8	Sb/As sulphides
Cadmium	Cd	48	112.40	Chalcophile	High	-	0.2	0.1	-	0.3	0.1	Sphalerite
Chromium	Cr	24	52.00	Lithophile	Low	2980	170	4.1	35	90	43	Chromite ($FeCr_2O_4$)
Cobalt	Co	27	58.93	Chalcophile	Intermed.	110	48	1.0	0.33	19	10	Ni-sulphides, Mafic minerals
Copper	Cu	29	63.54	Chalcophile	Intermed.	42	72	12	10	42	15	Chalcopyrite, Mafic minerals
Cold	Au	79	196.97	Siderophile	Low	0.0032	0.0032	0.0023	0.0005	0.004	0.002	Native gold, (sulphides)
Iron	Fe	26	55.84	Siderophile	Intermed.	94300	86500	14200	9800	47000	21000	Pyrite-magnetite, Mafic mins.
Lead	Pb	82	207.19	Chalcophile	Low	1	4	18	10	25	17	Galena (mica, K-feldspar)
Manganese	Mn	25	54.94	Lithophile	Intermed.	1040	1500	390	-	850	320	Mn-oxides, Mafic Minerals
Mercury	Hg	80	200.59	Chalcophile	High	0.004	0.01	0.04	0.03	0.02	0.056	Cinnabar (sulphides)
Molybdenum	Mo	42	95.94	Siderophile	High	0.3	1.5	1.3	0.2	2.6	2.5	Molybdenite (Fe-oxides)
Nickel	Ni	28	58.71	Siderophile	Low	2000	130	4.5	2	68	17	Ni-Fe Sulphide, Mafic Minerals
Niobium	Nb	41	92.91	Lithophile	Low	1	20	20	-	20	15	Pyrochlore, Ti Minerals
Phosphorus	P	15	30.97	Lithophile	Intermed.	220	1100	600	170	700	300	Apatite, Ca-phosphates
Potassium	K	19	39.10	Lithophile	High	34000	8300	42000	10700	26600	11000	K-feldspars, Micas
Lanthanum	La	57	138.91	Lithophile	Low	4	17	55	7	39	33	Monazite ($(La,Th)PO_4$)
Rubidium	Rb	37	85.47	Lithophile	Low	0.14	32	276	40	143	35	K-feldspars, Micas
Strontium	Sr	38	87.62	Lithophile	Low	5.8	465	100	20	300	47	Follows Ca and Ba
Sulphur	S	16	32.06	Chalcophile	High	300	300	300	840	2400	<2000	Sulphides
Thorium	Th	90	232.04	Lithophile	Low	0.004	2.7	20	5.5	12	13	Monazite ($(La,Th)PO_4$)
Vanadium	V	23	50.94	Lithophile	Low	40	250	44	20	130	57	Mafic minerals
Yttrium	Y	39	88.91	Lithophile	Low	5	17	41	7	39	33	Monazite ($(Y,Th)PO_4$)
Zinc	Zn	30	65.37	Chalcophile	Intermed.	58	94	51	40	100	36	Sphalerite, Mafic Minerals
Zirconium	Zr	40	91.22	Lithophile	Low	45	140	175	220	160	270	Zircon

All concentrations are quoted in terms of ppm.

Table 1.45 Southern Uplands Regional Data Set : Point Source Maps Percentile Class Intervals.

	25%	50%	75%	90%	95%	100%
SiO_2	57.00	60.00	64.00	68.00	70.00	90.00
Al_2O_3	11.00	12.50	13.50	15.00	16.00	22.00
TiO_2	0.78	0.88	1.00	1.25	1.40	2.50
Fe_2O_3	5.30	6.30	7.50	8.80	9.50	14.00
MgO	3.50	4.20	5.00	6.40	7.50	15.00
CaO	1.75	3.10	5.50	9.15	11.55	25.00
Na_2O	1.50	1.85	2.40	3.00	3.30	6.00
K_2O	1.50	1.85	2.20	2.52	2.85	5.00
MnO	0.08	0.09	0.11	0.14	0.16	0.50
P_2O_5	0.15	0.17	0.18	0.21	0.25	0.60
As	1	4	8	12	16	60
Ba	200	300	400	600	750	3000
Co	14	20	28	35	38	75
Cr	100	140	200	260	350	1100
Cu	8	15	20	25	40	300
Ga	11	13	15	17	19	25
La	22	26	31	37	42	80
Ni	40	50	65	86	140	350
Nb	7	10	12	14	17	100
Pb	5	10	13	17	20	100
Rb	38	50	62	75	85	150
Sr	70	115	190	330	400	1400
Sb	1	3	5	7	10	100
S	75	150	300	600	1200	16000
Th	5	7	9	11	13	22
V	85	100	130	180	200	300
Y	21	24	27	31	35	75
Zn	42	50	60	70	90	300
Zr	160	195	240	295	325	700

Table 1.46 : A Glossary of Historical Mineral Deposits in the Southern Uplands of Scotland.

No. Mine	Location	Grid Ref.	Ore	Orientation	Width	Length	Host
1 - Auchencairn	Kirkcudbright	NX 819484	Barite, Mal	ENE	-	-	CS
2 - Auchenfad	Auchencairn	NX 808500	Haematite		-	-	
3 - Auchenleck	Auchencairn	NX 778519	Haematite		-	-	-
4 - Bargaly	Palnure Burn	NX 466681	Gal	N-S	6ft	250ft	SG
5 - Barlocco	Galloway Forest	NX 788474	Barite, Mal	WNW	5ft	700ft	SG
6 - Blackcraig	Newton Stewart	NX 448644	Gal, Sph, Cp	NNE	-	600ft	SG *
7 - Cairnsmore	Cairnsmore Viaduct	NX 463634	Barite, Gal	NNW	-	-	SG
8 - Carsphairn	Carsphairn	NX 526924	Haematite	WNW	-	-	SG
9 - Chain Burn	Creetown	NX 504610	Gal	WNW	-	-	SG
10 -Coldstream	Coldstream Burn	NX 389697	Gal	NNW	-	-	SG
11 - Colvend	Whitelock	NX 868528	Cp, Mal, Az	NE	4ft	-	F+SG
12 - Craigencallie	Craigencallie	NX 547687	Cp, Py	WNW	-	-	SG
13 - Craigend	Auchenfad	NX 539765	Haematite	-	-	-	SG
14 - Craignell	Clatteringshaws	NX 539765	Cp, Sph	NNE	1.5ft	-	SG
15 - Craigshinnie	Craigshinnie	NX 585793	Gal	-	-	-	SG
16 - Culcronchie	Culcronchie Burn	NX 505635	Cp	E-W	-	-	SG
17 - Dallash	Palnure Burn	NX 473692	Gal, Sph	NW	7ft	-	SG
18 - Dalwick	Dalwick	NT 169342	Gal	-	-	-	SG
19 - Dromore	Dromore Station	NX 535622	Gal, Sph, Cp	NNW	4ft	-	SG
20 - Drumruck	Doon of Culreoch	NX 682636	Cp	WNW	2.5ft	-	F+SG
21 - Dumbetha	Peebles	NT 345332	Gal	-	-	-	-
22 - Ellemford	Ellemford	NT 729601	Cp	-	-	-	-
23 - Englishmans	Creetown	NX 486588	Gal	-	-	-	SG
24 - Enrick	Mine Hill Wood	NX 621551	Cp, Mal	E-W	6ft	3000ft	SG
25 - Gilkeracleuch	Drake Law Hill	NS 910220	Gal	-	-	-	OG
26 - Glendowran	Leadhills	NS 883205	Gal	-	-	-	OG
27 - Glendinning	Glenshanna Burn	NY 312965	Stib, Asp,	NNE	2ft	350ft	SG
28 - Graddock Burn	Cairnsmore	NX 468634	Gal	-	-	-	-
29 - Glengaber	St. Marys Loch	NT 214238	Gold	Alluvial Gold		-	-
30 - Glenlee Hill	Dalry	NX 595794	Gal		-	-	-
31 - Glenrath	Glenrath Hope Burn	NT 218325	Cp	-	-	-	-
32 - Grieston	Grieston Hill	NT 304353	Gal	-	-	-	-
33 - Heron Bog	Peebles	NT 189341	Gal	-	-	-	SG
34 - Hestan Island	Rough Firth	NX 838505	Cp, Mal	-	-	-	SG
35 - Knipe	New Cumnock	NS 658104	Stib, Asp	N-S	1.5ft	50ft	GR
36 - Kenmure	Kenmure Castle	NX 635764	Gal	-	-	-	SG
37 - Kings Laggan	Kings Laggan Farm	NX 562577	Cp, Gal, Sp	NNW	-	-	-
38 - Knockibae	New Luce	NY 188664	Gal, Sph	NE	3ft	-	OG
38 - Langholm	Langholm	NY 305823	Gal	-	-	-	-
40 - Lauchentyre	Lauchentyre	NX 558571	Cp, Sph, Ba	NW	-	-	-
41 - Lauder mines	Lauder	-	Cp	-	-	-	-
42 - Little Bennan	Little Bennan Hill	NX 558621	Gal	-	-	-	-
43 - Leadhills	Leadhills District	NS 81	Gal, Cp,	Alluvial Gold	-	-	OG
44 - Long Cleuch	Leadhills	NS 908179	Gal, Cp	-	-	-	OG
45 - Marchwell	Marchwell	NX 628788	Gal	-	-	-	SG
46 - Moffat	Moffat	NT 090111	Cp	-	-	-	-
47 - Newholm	Newholm	NT 081477	Ga	-	-	-	-
48 - Noblehouse	Noblehouse	NT 190502	Heamatite	-	-	-	-
49 - Palnure	Palnure Viaduct	NX 455637	Gal	NW	4ft	40ft	SG
50 - Pibble Gulch	Dromore Station	NX 517615	Gal, Sph	NNW	-	-	SG
51 - Pibble	Pibble Hall	NX 527607	Gal, Sph, Cp, Pi		4ft	150ft	SG
52 - Pipers Cove	Douglas Hall	NX 890546	Cp	-	-	-	-
53 - Port o'Warren	Dalbeattie	NX 854524	Cp, Bi, Pi	NW	4ft	500ft	SG
54 - Pulran Burn	Pulran Burn	NX 522749	Cp	-	-	-	-
55 - Rascarrel	Airds	NX 818484	Cp, Barite	ENE	-	-	SG
56 - Rusko	Mickle Bennan	NX 551614	Gal, Cp, Sph	ENE	1ft	350ft	SG
57 - Silver Holes	West Linton	NT 145532	Gal	-	-	-	SG
58 - Silver Ridge	River Cree	NX 378729	Gal, Cp, Sph	NW	5ft	-	OG
59 - Talnotry	Palnure Burn	NX 477702	Asp,Cp, Nic	-	-	-	D
60 - Tonderghie	Burrow Head	NX 443345	Cp, Mal	ENE	10ft	-	F+SG
61 - Wanlockhead	Wanlockhead	NS 81	Gal, Cpy,	Alluvial Gold	-	-	OG
62 - Waulk Mill	Kirkowan	NX 334601	Cp	N-S	2ft	-	SG
63 - Wood of Cree	Coldstrean Burn	NX 386695	Gal, Sph	NNW	15ft	150ft	SG *
64 - Woodhead	Carsphairn	NX 531936	Gal, Sph, Cp	WNW	14ft	1850ft	OG

KEY : Host Lithologies/Wallrock: CS - Carboniferous Sandstone SG - Silurian Greywacke OG - Ordovicician Greywacke
F - Felsite Dyke GR - Granite/Granodiorite D - Dolerite

Ore Minerals: Asp- Arsenopyrite Az - Azurite Bi - Native Bismuth
Cp - Chalcopyrite Gal - Galena Ba - Barite
Mal - Malachite Ni - Niccolite Pi - Pitchblende
Sph - Sphalerite Stib- Stibnite (NB. * = Shatter Belt)

Table 1.47 Heavy mineral component of Ordovician Greywacke Formations (after Floyd, 1975).

Part 1 : Total Number of grains of each mineral identified within 25 thin sections from each formation.

Formation	Marchburn	Afton	Blackcraig	Shinnel	Scar
Apatite	35	21	12	44	23
Garnet	1	55	18	29	269
Glaucophane	0	0	0	0	54
Picotite	34	27	15	8	80
Rutile	1	1	0	0	0
Sphene	5	4	11	6	15
Tourmaline	1	1	0	10	0
Zircon	12	82	25	90	37
Chlorite	6	50	5	22	3

Part 2 : Percentage of specimens containing each mineral within each formation.

Formation	Marchburn	Afton	Blackcraig	Shinnel	Scar
Apatite	56	68	44	80	44
Garnet	4	76	44	40	100
Glaucophane	0	0	0	0	40
Picotite	84	64	36	24	92
Rutile	4	4	0	0	0
Sphene	12	8	32	20	36
Tourmaline	4	4	0	36	-
Zircon	20	86	60	84	80
Chlorite	20	72	20	60	12

Table 1.48 Comparison of Ordovician Greywacke granule and point count data (after Floyd, 1975).

Part 1 : Mean Granule Count Data (NB. Granules = Particles > 1mm in diameter)

Nithsdale Area (Floyd, 1975)

Formation	Marchburn	Afton	Blackcraig	Shinnel	Scar	
Quartz	16.5	52.7	30.1	56.1	25.1	
Feldspar	9.5	8.1	8.1	7.1	12.8	
Coarse Basic	4.9	0.7	8.5	0.0	1.8	
Spilite	11.8	4.9	14.2	2.7	14.9	
Andesite	10.6	3.4	8.4	2.2	6.1	
Coarse Acid	5.6	4.9	4.3	5.2	5.3	
Fine Acid	28.9	14.7	14.6	9.1	21.6	
Metamorphic	2.0	5.0	5.5	8.5	3.7	
Sedimentary	10.5	5.6	6.3	9.1	8.7	n = 51

Rhyns of Galloway (Kelling, 1962)

Formation	Corsewell	Kirkcolm	Galdenoch	Portpatrick	PortpatrickAcid	
Basic Quartz	15.3	25.4	16.3	17.8	7.1	
Feldspar	8.0	4.2	5.0	9.8	4.7	
Coarse Basic	10.1	3.6	5.7	2.5	3.0	
Spilite	23.0	16.3	27.8	13.5	15.3	
Andesite	1.2	0.7	2.8	3.0	27.3	
Coarse Acid	14.0	6.6	5.3	12.4	5.8	
Fine Acid	21.0	19.0	18.0	29.0	18.0	
Metamorphic	2.8	12.9	7.2	2.9	3.6	
Sedimentary	4.5	11.1	11.7	9.4	14.5	n = 74

Table 1.48 Comparison of Ordovician Greywacke granule and point count data (after Floyd, 1975).

Part 2 : Mean Point Count Data.

Nithsdale Area (Floyd, 1975)

Formation	Marchburn	Afton	Blackcraig	Shinnel	Scar
Quartz	14.9	48.3	33.4	56.7	20.3
Feldspar	44.3	14.1	15.8	14.9	49.5
Basic	7.1	4.4	13.6	2.0	4.3
Acid	3.5	0.9	2.6	1.2	2.3
Metamorphic	1.0	2.7	4.2	0.7	1.4
Sedimentary	1.6	1.4	1.3	2.0	1.5
Ferromags.	1.5	0.2	6.1	0.2	1.7
Matrix	26.1	28.0	23.0	22.3	19.0

n = 15

Rhyns of Galloway (Kelling, 1962)

Formation	Corsewell	Kirkcolm	Galdenoch	Portpatrick	Portpatrick Acid
Basic Quartz	16.6	29.6	26.2	17.2	8.6
Feldspar	17.5	11.1	9.7	18.6	30.9
Basic	17.7	9.0	10.2	14.6	29.4
Acid	17.4	13.3	13.2	15.5	5.5
Metamorphic	0.8	4.8	2.8	1.6	0.6
Sedimentary	1.1	5.0	1.8	3.6	2.3
Ferromags.	10.3	0.6	7.8	3.5	13.4
Matrix	18.3	26.8	28.0	25.4	9.3

n = 74

Table 1.49 : Southern Uplands Greywacke Classification.

The classification of Southern Uplands Greywacke Formations presented below result from direct comparison with discrimination diagrams defined by Blatt et al (1972) and Crook (1974).

Formation	Fe/Mg Content	Quartz Content	Rock Classification
Marchburn	Highly Fe-rich	Quartz intermediate	Greywacke
Afton	Fe-rich	Quartz intermediate/rich	Greywacke/lithic Sandstone
Blackcraig	Fe-rich	Quartz intermediate	Greywacke
Scar	Fe-rich	Quartz intermediate	Greywacke
Shinnel	Fe-rich	Quartz intermediate	Greywacke
Pyroxenous	Fe-rich	Quartz intermediate	Greywacke
Intermediate	Fe-rich	Quartz intermediate/rich	Greywacke/lithic Sandstone
Hawick	Fe-rich	Quartz rich	Greywacke/lithic Sandstone

Table 1.50 : Microprobe Mapping Studies : Grid Size and Sampling Density.

No.	Location	Sulphide	File Name	Grid Size (microns)	No. of Samples	Sampling Density
1	- Glendinning	Arsenopyrite	(ASP1)	25 x 130	72	45.1
2	- Glendinning	Arsenopyrite	(ASP2)	52 x 18	25	37.4
3	- Glendinning	Arsenopyrite	(ASP3)	78 x 22	35	49.0
4	- Glendinning	Arsenopyrite	(ASP4)	22 x 36	56	14.1
5	- Glendinning	Arsenopyrite	(ASP5)	165 x 232	323	118.5
6	- Glendinning	Arsenopyrite	(ASP6)	100 x 142	97	146.4
7	- The Knipe	Arsenopyrite	(ASP7)	36 x 74	49	54.4
8	- The Knipe	Arsenopyrite	(ASP8)	62 x 50	61	50.0
9	- Talnotry	Arsenopyrite	(ASP9)	100 x 130	194	67.0
10	- Cairngarroch	Arsenopyrite	(ASP10)	50 x 50	74	33.8
11	- Cairngarroch	Arsenopyrite	(ASP11)	186 x 160	254	136.2
12	- Cairngarroch	Arsenopyrite	(ASP12)	60 x 45	64	42.3
13	- Cairngarroch	Arsenopyrite	(ASP13)	120 x 135	144	112.5
14	- Clontibret	Arsenopyrite	(ASP14)	65 x 110	108	66.2
15	- Clontibret	Arsenopyrite	(ASP15)	90 x 110	102	97.0
16	- Glendinning	Pyrite	(PYTE1)	280 x 290	184	44.1

NB. Sampling Density units = No of sq microns per sample (ie area / No. of Samples)

Table 1.51 : History of alluvial gold production in the Gold Mines River Area, southeast Ireland.

1770	Earliest prospecting in this area by schoolmaster J. Dunaghoo.
1785	Discovery of 0.25oz gold nugget by John Byrne in the Aughatinavought (now the Gold Mines River).
1795	Rumours of aluvial gold led to a minor gold rush in September, with over 300 diggers producing approximately 2500 oz in the first six weeks. 15th October: Government ordered Kildare Militia to take possession of the deposits.
1796	Appointment of Messrs. Mills, King and Weaver as directors in charge of mining (streaming) operations.
1797	Act of Parliament to legalise the mining operations recieved Royal asscent.
1798	Outbreak of the Irish Rebellion (26th May) when many workers deserted to join the rebels. Operations suspended.
1800	Exploitation resumed in conjunction with a systematic search for the bedrock source of the alluvial deposits. 12,800 metres of trenches were dug and a 320m adit driven.
1803	Government production ceased, local people returned to the site.
1844	Mining Company of Ireland displayed a 4 oz gold nugget from this area at the Royal Dublin Society Exhibition.
1856	Discovery of a 24 oz nugget (subsequent history unknown).
1862	Carysfort Mining Company granted exploration rights. Exposed quartz veins examined, shafts were sunk and considerable costeaning undertaken, however little gold was located.
1876-80	Minor exploitation by Mr F. Acheson.
1921-24	Crown lease awarded to Messrs. Hume and McDonagh who carried out substantial prospecting work in the area.
1934-35	The first Saorstat Eireann lease for the Gold Mines area was granted to Messrs. Comyn and Briscoe.
1936-38	Wicklow Mines Ltd formed, then voluntarily liquidated in 1938.
1955-63	Croghan Mineral Company formed to continue and expand the mining operations. These operations met with little success and exploration rights expired in March, 1963.
1980+	Recent exploration by a number of Exploration Companies.

Table 1.52 Average Abundance of Chemical Elements (ppm) in the main types of Igneous and Sedimentary Rocks of the Lithosphere (from Rosler et al 1972).

VAR. / ID.	Ultrabasic	Basic	Basic	Syenite	Syenite	Diorite	High Ca Acid	Low Ca Acid	Granite
Ag	0.06	0.05	0.11	0.10	0.01	0.07	0.05	0.04	0.05
Al	20000	4500	78000	87600	88000	88500	82000	72000	77000
As	1.0	0.5	2.0	2.0	1.4	2.4	1.9	1.5	1.5
Au	0.001	0.001	0.004	0.004	0.001	0.000	0.004	0.004	0.004
B	3	1	5	5	9	15	9	10	15
Ba	0.4	1.0	330.0	300.0	1600.0	650.0	420.0	840.0	830.0
Be	0.1	0.2	1.0	0.4	1.0	1.8	2.0	3.0	5.5
Bi	0.100	0.001	0.007	0.007	0.000	0.010	0.000	0.010	0.010
Br	1.0	0.5	3.6	3.0	2.7	4.5	4.5	1.3	1.7
Ca	25000	7000	76000	67200	18000	46500	25300	5100	15800
Cd	0.10	0.05	0.22	0.19	0.13	0.00	0.13	0.13	0.10
Ce	0.10	0.00	48.00	4.50	161.00	0.00	81.00	92.00	100.00
Cl	85	50	60	50	520	100	130	200	240
Co	150	200	48	45	1	10	7	1	5
Cr	1600	2000	170	200	2	50	22	4	25
Cs	0.1	0.1	1.1	1.0	0.6	0.0	2.0	4.0	5.0
Cu	10	20	87	100	5	35	30	10	20
Er	0.1	0.0	2.1	2.0	7.0	0.0	3.5	4.0	4.0
Eu	0.1	0.0	0.8	1.0	2.8	0.0	1.4	1.6	1.5
F	100	100	400	370	1200	500	520	850	800
Fe	94300	98500	86500	85600	36700	58500	29600	14200	27000
Ga	1.5	1.5	17.0	18.0	30.0	20.0	17.0	17.0	20.0
Gd	0.1	0.0	5.3	5.0	18.0	0.0	8.8	10.0	9.0
Ge	1.5	1.0	1.3	1.5	1.0	1.5	1.3	1.3	1.4
Hf	0.6	0.1	2.0	1.0	11.0	1.0	2.3	3.9	1.0
Hg	0.01	0.01	0.09	0.09	0.01	0.00	0.08	0.08	0.08
Ho	0.1	0.0	1.1	1.0	3.5	0.0	1.8	2.0	2.0
I	0.50	0.01	0.50	0.50	0.50	0.30	0.50	0.50	0.40
In	0.01	0.01	0.22	0.22	0.01	0.00	0.01	0.26	0.26
K	40	300	8300	8300	48000	23000	25200	42000	33400
La	0	0	15	27	70	0	45	55	60
Li	0	0	17	15	28	20	24	40	40
Lu	0.1	0.0	0.6	0.6	2.1	0.0	1.1	1.2	1.0
Mg	204000	259000	46000	45000	5800	21800	9400	1600	5600
Mn	1620	1500	1500	2000	850	1200	540	390	600
Mo	0.3	0.2	1.5	1.4	0.6	0.9	1.0	1.3	1.0
N	6	6	20	18	30	22	20	20	20
Na	4200	5700	18000	19400	40400	30000	28400	25800	27700
Nb	16	1	19	20	35	20	20	11	20
Nd	0	0	20	20	65	0	33	37	46
Ni	2000	2000	130	160	4	55	15	4	8
P	220	170	1100	1400	800	1600	920	600	700
Pb	1.0	0.1	6.0	8.0	12.0	15.0	15.0	19.0	20.0
Pd	0.12	0.12	0.02	0.02	0.00	0.00	0.00	0.00	0.01
Pr	0.1	0.0	4.6	4.0	15.0	0.0	7.7	8.8	12.0
Rb	0.2	2.0	30.0	45.0	110.0	100.0	110.0	170.0	200.0
S	300	100	300	300	300	200	300	300	400
Sb	0.1	0.1	0.2	1.0	0.0	0.2	0.2	0.2	0.3
Sc	15	5	30	24	3	2	14	7	3
Se	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Si	202000	190000	230000	240000	291000	260000	314000	347000	32300
Sm	0.1	0.0	5.3	5.0	18.0	0.0	8.8	10.0	9.0
Sn	0.5	0.5	1.5	1.5	0.1	0.0	1.5	3.0	3.0
Sr	1	10	465	440	200	800	440	100	300
Ta	1.00	0.02	1.10	0.48	2.10	0.70	3.60	4.20	3.50
Tb	0.1	0.0	8.0	0.8	2.8	0.0	1.4	1.6	2.5
Th	0.004	0.005	4.000	3.000	13.000	7.000	8.500	17.000	18.000
Ti	300	300	13800	9000	3500	8000	3400	1200	2300
Tl	0.06	0.01	0.21	0.20	1.40	0.50	0.72	2.30	1.50

TABLE 1.53

Table 1.53 The Clarke Values (ppm) according to data from Several authors (after Rosler et al. 1972).

VAR.	Clarke and Washington (1927)	Fersman (1933)	Goldschmidt (1937)	Vinogradov (1949)	Vinogradov (1962)	Taylor (1964)
Ag	0.00	0.10	0.02	0.10	0.07	0.07
Al	75100	74500	81300	88000	80500	82300
Ar	0	4	0	0	0	0
As	0.0	5.0	5.0	5.0	1.7	1.8
Au	0.000	0.005	0.001	0.005	0.004	0.004
B	10	50	10	3	12	10
Ba	470	500	430	500	650	425
Be	10	4	6	6	3	2
Bi	0.0	0.1	0.2	0.2	0.0	0.2
Br	0.0	10.0	2.5	1.6	2.1	2.5
C	870	3500	320	1000	230	200
Ca	33900	32500	36300	36000	29600	41500
Cd	0	5	0	5	0	0
Ce	0	29	41	45	70	60
Cl	1900	2000	480	450	170	130
Co	100	20	40	30	18	25
Cr	330	300	20	200	83	100
Cs	0	10	3	7	3	3
Cu	100	100	70	100	47	55
Dy	0.0	7.5	4.5	4.5	5.0	3.0
Er	0.0	6.5	2.5	4.0	3.3	2.8
Eu	0.0	0.2	1.1	1.2	1.3	1.2
F	270	800	800	270	660	625
Fe	47000	42000	50000	51000	46500	56300
Ga	0	1	15	15	19	15
Gd	0.0	7.5	6.4	10.0	8.0	5.4
Ge	0.0	4.0	7.0	7.0	1.4	1.5
H	8800	10000	0	1500	0	0
He	0.00	0.01	0.00	0.00	0.00	0.00
Hf	30.0	4.0	4.5	3.2	1.0	3.0
Hg	0.00	0.05	0.50	0.07	0.08	0.08
Ho	0.00	1.00	1.15	1.30	1.70	1.20
I	0.0	10.0	0.3	0.5	0.4	0.5
In	0.00	0.10	0.10	0.10	0.25	0.10
Ir	0.000	0.010	0.001	0.001	0.000	0.000
K	24000	23500	25900	26000	25000	20900
Kr	0	0	0	0	0	0
La	0.0	6.5	18.3	18.0	29.0	30.0
Li	40	50	65	65	32	20
Lu	0.00	1.70	0.75	1.00	0.80	0.50
Mg	19400	23500	20900	21000	18700	23300
Mn	800	1000	1000	900	1000	950
Mo	0.0	10.0	2.3	3.0	1.1	1.5
N	300	400	0	100	19	20

Na	26400	24000	28300	26400	25000	23600
Nb	0	0	20	10	20	20
Nd	0.0	17.0	23.9	25.0	37.0	28.0
Ne	0.000	0.005	0.000	0.000	0.000	75.000
Ni	180	200	100	80	58	46400
O	495200	491300	466000	470000	470000	0
Os	0.00	0.05	0.00	0.05	0.00	1050.00
P	1200	1200	1200	800	930	0
Pa	0	0	0	0	0	12
Pb	20	16	16	16	16	0
Pd	0.000	0.050	0.010	0.010	0.013	0.000
Po	0.00	0.05	0.00	0.00	0.00	8.20
Pr	0.00	4.50	5.53	7.00	9.00	0.00
Pt	0.000	0.200	0.005	0.005	0.000	0.000
Ra	0	0	0	0	0	90
Rb	0	80	280	300	150	90
Re	0.000	0.001	0.001	0.001	7.000	0.000
Rh	0.000	0.010	0.001	0.001	0.000	0.000
Rn	0	0	0	0	0	0
Ru	0.000	0.050	0.000	0.005	0.000	0.000
S	480	1000	520	500	470	260
Sb	0.0	0.5	1.0	0.4	0.5	0.2
Sc	0	6	5	6	10	22
Se	0.00	0.80	0.09	0.60	0.05	0.05
Si	257500	260000	277200	276000	295000	281500
Sm	0.00	7.00	6.47	7.00	8.00	6.00
Sn	0	80	40	40	2	2
Sr	170	350	150	400	340	375
Ta	0.00	0.24	2.10	2.00	2.50	2.00
Tb	0.00	1.00	0.91	1.50	4.30	0.90
Tc	0	0	0	0	0	0
Te	0.00	0.01	0.00	0.01	0.00	0.00
Th	20.0	10.0	11.5	8.0	13.0	9.6
Ti	5800	6100	4400	6000	4500	5700
Tl	0.0	0.1	0.3	3.0	1.0	0.4
Tm	0.0	1.0	0.2	0.8	0.3	0.5
U	80.0	4.0	4.0	3.0	2.5	2.7
V	160	200	150	150	90	135
W	50	70	1	1	1	1
Xe	0	0	0	0	0	0
Y	0.0	50.0	28.1	28.0	29.0	33.0
Yb	0.00	8.00	2.66	3.00	0.33	3.00
Zn	40	200	80	50	83	70
Zr	230	250	220	200	170	165

Table 1.54 Background Gold Abundances in Different Rock Types (from Wilton 1985)

Mean Au (ppb)	Rock Type	Reference
	MAFIC ROCKS	
0.78	Mafic/ultramafic	Kwong and Crockett, 1978
1.75	Mafic volcanics	Kwong and Crockett, 1978
3.20	Gabbro	Sighinolfi and Gorgoni, 1977
4.2	Diabase	Gavrilenko et al., 1976
5.4	Metagabbros	Gavrilenko et al., 1976
6.8	Diabase	Ivensen et al., 1974
4.2	Basalt	Ivensen et al., 1974
6.5	Gabbro	Scherbakov et. al. 1963
4.0	Gabbro	Tilling et al., 1973
5.4	Basalt	Tilling et al., 1973
11.4	Ultramafics	Boyle, 1979
23.0	Gabbro	Boyle, 1979
1.6	Lamprophyres	Boyle, 1979
17.0	Basalt	Boyle, 1979
17.9	Ultramafics	Saager et al., 1982
6.9	Basalts	Saager et al., 1982
5.7	Ultramafics	Saager et al., 1982
0.5	Mafic Volcanics	Saager et al., 1982
8.2	Dunite	Jones, 1969
5.4	Gabbro	Jones, 1969
3.2	Basalt	Jones, 1969
12.0	Kimberlites	Paul et. al., 1979
18.2	Diabases	Stephenson and Ehmann, 1971
	FELSIC ROCKS	
0.5	Alkali monzodiorite	Tilling et al., 1973
0.6	Quartz monzodiorite	Tilling et al., 1973
2.6	Granoodiorite	Tilling et al., 1973
2.6	Diorite and tonalite	Tilling et al., 1973
<1	Rhyolite/Rhyodacite	Tilling et al., 1973
7.1	Granite	Ivensen et al., 1974
5	Alaskite	Ivensen et al., 1974
3.6	Granodiorite	Ivensen et al., 1974
1.5	Aplite	Ivensen et al., 1974
6.2	Granitic Intrusives	Ivensen et al., 1974
2.8	Granite	Jones, 1969
3.5	Diorite	Jones, 1969
12.0	Rhyolite	Jones, 1969
4.0	Diorite	Davletov et. al, 1970
7.1	Hornblende granite	Davletov et. al., 1970
3.3	Leucocratic granite	Davletov et. al, 1970
11.4	Granite	Boyle, 1979
7.5	Granodiorite	Boyle, 1979
3.7	Rhyolite	Boyle, 1979
2.8	Granite	Scherbakov et. al., 1963
3.5	Diorite	Scherbakov et. al., 1963
1.9	Quartz diorite	Scherbakov et. al., 1963
0.3	Quartz monzonite	Scherbakov et. a.l, 1963
6.1	Feldspar porphry	Scherbakov et. al., 1963
1.5	Felsic Intrusives	Kwong and Crockett, 1978
	METAMORPHIC ROCKS	
31.7	Quartzites	Boyle, 1979
2.2	Slates	Boyle, 1979
3.1	Gneiss	Boyle, 1979
7.1	Amphibolites	Boyle, 1979
18.6	Schists	Boyle, 1979
3.8	Tuffs	Boyle, 1979
10.9	Metamorphic Rock	Boyle, 1979
200	Sulphidic quartzite	Gavrilenko et al., 1979
0.5	Biotite gneiss	Gavrilenko et al., 1979
3.2	Garnet gneiss	Gavrilenko et al., 1979
16.0	Aluminous gneiss	Gavrilenko et al., 1979
0.6	Paragneiss	Stephenson and Ehmann, 1971
0.3	Metavolcanics	Stephenson and Ehmann, 1971
3.9	Amphibolite	Pchelintseva, 1971
4.9	Metabasites	Pchelintseva, 1971
8.3	Argillite	Jones, 1969
1.2	Phyllite	Jones, 1969
5.0	Schist	Jones, 1969
1.8	Gneiss	Jones, 1969
5.0	Metasediments	Glasson and Keays, 1978
14.5	Slates	Glasson and Keays, 1978
22.4	Slates	Glasson and Keays, 1978

Table 1.56 Scottish Lamprophyre Geochemistry TABLE 1.56

Sample No.	As ppm	Sb ppm	Au ppb
70514	21	0	156
71665	82	0	523
71669	10	3	78
72352	11	0	32
73277	15	0	97
74254	16	3	130
NX-1424	10	0	49
NX-1207	10	3	22
NX-1214	13	2	50
NX-1217	12	4	84
NX-1310	21	5	175

TABLE 1.58

ATLAS	SAMPLE	EAST	NORTH	TYPE	COMMENTS
CLYD	270606	13908	65512	POSITIVE	GOLD
CLYD	270829	12678	67302	POSITIVE	1 GRAIN OF GOLD
CLYD	271415	20609	67850	POSITIVE	2 GRAINS OF GOLD
CLYD	273042	18603	67293	POSITIVE	1 GRAIN OF GOLD
CLYD	273205	17252	62810	POSITIVE	1 SPECK OF GOLD
CLYD	273241	17234	62752	POSITIVE	1 SPECK OF GOLD
CLYD	273260	17613	64800	POSITIVE	1 GRAIN OF GOLD
CLYD	274044	12144	65765	POSITIVE	RARE GOLD
CLYD	274656	21048	67812	POSITIVE	2 GRAINS OF GOLD
CLYD	275540	22690	58920	POSITIVE	SPARSE GOLD
CLYD	275546	22690	58910	POSITIVE	GOLD
CLYD	276161	23682	62120	POSITIVE	GOLD
CLYD	276308	24899	60708	POSITIVE	FEW GRAINS OF GQLD
CLYD	276365	24611	60799	POSITIVE	2 GRAINS OF GOLD
CLYD	276386	25299	59340	POSITIVE	MINOR GOLD
CLYD	276511	25581	601?1	POSITIVE	1 GRAIN OF GOLD
CLYD	276581	25692	596?5	POSITIVE	1 GRAIN OF GOLD
CLYD	276713	25221	59920	POSITIVE	1 GRAIN OF GOLD
CLYD	276718	25178	60245	POSITIVE	VERY MINOR GOLD
CLYD	276794	25075	60260	POSITIVE	MINOR GOLD
CLYD	276905	25079	60702	POSITIVE	1 GRAIN OF GOLD
CLYD	277122	25333	61208	POSITIVE	GOLD
CLYD	277152	26321	60045	POSITIVE	1 GRAIN OF GOLD
CLYD	277169	26495	59952	POSITIVE	1 GRAIN OF GOLD
CLYD	277309	24305	58944	POSITIVE	FEW GRAINS OF GOLD
CLYD	277330	24250	58949	POSITIVE	1 GRAIN OF GOLD
CLYD	277381	24608	61460	POSITIVE	MINOR GOLD
CLYD	277742	26514	61467	POSITIVE	GOLD
CLYD	278333	25750	61722	POSITIVE	1 GRAIN OF GOLD
CLYD	279255	24180	59989	POSITIVE	1 GRAIN OF GOLD
CLYD	279279	24210	59951	POSITIVE	1 GRAIN OF GOLD
CLYD	278989	24238	58060	POSITIVE	1 GRAIN OF GOLD
CLYD	280454	27060	60278	POSITIVE	FEW GRAINS OF GOLD
CLYD	272477	19047	62660	POS8IBLE	METALLIC YELLOW MINERAL
CLYD	275285	22679	67127	POSSIBLE	FINE GRAINED YELLOW MINERAL
CLYD	276514	25607	60149	POSSIBLE	1 GRAIN, POSSIBLY GOLD
CLYD	272704	25112	60540	POSSIBLE	POSSIBLE GOLD
CLYD	277079	22195	65203	POSSIBLE	PALE YELLOW MINERAL
CLYD	277129	25062	61188	POSSIBLE	SOFT SILVER/GOLD MINERAL
CLYD	277149	26115	59735	POSSIBLE	FEW FLAKES, POSSIBLY GOLD
CLYD	278850	23245	59746	POSSIBLE	1 GRAIN, POSSIBLY GOLD
CLYD	279245	24259	60022	POSSIBLE	FEW GRAINS, POSSIBLY GOLD
CLYD	280481	27173	60350	POSSIBLE	POSSIBLE GOLD
BORD	340270	29560	62817	POSITIVE	GOLD
BORD	343476	33341	64952	POSITIVE	SPARSE GOLD
BORD	343571	28499	61059	POSITIVE	1+ GRAINS OF 80LD
BORD	343877	33835	64574	POSITIVE	1 GRAIN OF GOLD
BORD	343997	28325	61432	POSITIVE	1 SMALL GRAIN OF GOLD
BORD	343999	28345	60620	POSITIVE	1 COARSE GRAIN (2mm) OF GOLD
BORD	344249	34649	65148	POSITIVE	GOLD
BORD	344732	27730	56762	POSITIVE	1 GRAIN OF GOLD
BORD	345065	35945	66015	POSITIVE	1 GRAIN OF GOLD
BORD	345072	37320	67083	POSITIVE.	GOLD
BORD	345138	29860	59148	POSITIVE	2 8RAINS OF GOLD
BORD	345199	30018	58882	POSITIVE'	1 GRAIN OF GOLD
BORD	345201	36282	66402	POSITIVE	4 GRAINS OF GOLD
BORD	345241	36356	66560	POSITIVE	1 GRAIN OF 80LD
BORD	345247	36440	66519	POSITlVE	GOLD
BORD	345268	36230	66504	POSITIVE	1 GRAIN OF GOLD
BORD	345271	36218	66435	POSITIVE	GOLD
BORD	345299	37691	65901	POSITIVE	?ABUNDANT GOLD
BORD	345379	30165	61025	POSITIVE	1 GRAIN OF GOLD

TABLE 1.58

BORD	345400	29052	61104	POSlTIVE 1 GRAIN OF GOLD
BORD	345406	35428	66118	POSITIVE 1 GRAIN OF GOLD
BORD	345476	36028	66621	POSITIVE 1 GRAIN OF GOLD
BORD	345489	36681	66845	POSITIVE 1 GRAIN OF GOLD
BORD	345525	29579	60240	POSITIVE 1 FINE GRAIN OF GOLD
BORD	345540	29439	60660	POSITIVE 1 FINE GRAIN OF GOLD
BORD	345584	29330	60381	POSITIVE 1 FINE GRAIN OF GOLD
BORD	345637	37380	66861	POSITIVE 1 GRAIN OF GOLD
BORD	345771	28565	61026	POSITIVE 2 GRAINS OF GOLD
BORD	346068	36584	66382	POSITIVE GOLD
BORD	346746	30809	62016	POSITIVE 1 GRAIN (0.2mm) OF GOLD
BORD	346751	31988	59832	POSITIVE 1 GRAIN OF GOLD
BORD	346921	31008	61508	POSITIVE 1 VERY SMALL GRAIN OF GOLD
BORD	346942	32177	62345	POSITIVE 1 SMALL GRAIN OF GOLD
BORD	346960	32026	62470	POSITIVE 1 0.9mm GRAIN OF GOLD
BORD	347112	32025	58778	POSITIVE 1 GRAIN OF GOLD
BORD	347243	38552	64992	POSITIVE GOLD
BORD	347320	31331	61702	POSITIVE MINOR FINE GOLD
BORD	347323	31530	62036	POSITIVE 1 GRAIN, 0.5mm, OF GOLD
BORD	347339	31380	61839	POSITIVE 2 GRAINS OF GOLD
BORD	347367	30564	61657	POSITIVE 1 GRAIN OF GOLD, 1mm
BORD	347373	31949	62131	POSITIVE 1 FINE GRAIN OF GOLD
BORD	347503	29851	62010	POSITIVE 1 COARSE GRAIN OF GOLD
BORD	347516	30521	61483	POSITIVE 1 GRAIN OF GOLD, 0.4mm
BORD	347521	30301	61573	POSITIVE 1 COARSE GRAIN, MORE FINE
BORD	347537	29753	62105	POSITIVE 1 COARSE GRAIN OF GOLD
BORD	347580	30523	61589	POSITIVE 1 GRAIN, 0.5mm, OF GOLD
BORD	347597	30197	61781	POSITIVE 1 COARSE ANGULAR GRAIN OF GOLD
BORD	347599	30069	62017	POSITIVE 1 SMALL GRAIN OF GOLD
BORD	347725	33019	62391	POSITIVE 1 COARSE GRAIN OF GOLD
BORD	348309	33678	62499	POSITIVE 1 VERY FINE 8RAIN OF GOLD
BORD	348315	33940	63033	POSITIVE 1 FlNE GRAIN OF GOLD
BORD	348332	33411	63050	POSITIVE 1 GRAIN OF GOLD, 0.6mm
BORD	348356	33880	62883	POSITlVE 1 COARSE GRAIN, 1mm
BORD	348360	34175	63340	POSITIVE 1 FINE GRAIN, 0.2Mm
BORD	348385	33610	62417	POSITIVE 1 VERY FINE GRAIN OF GOLD
BORD	348531	33682	60958	POSITIVE 1 GRAIN OF GOLD, 0.5mm
BORD	348556	33931	61050	POSITIVE 1 FINE GRAIN OF GOLD
BORD	349195	32259	61525	POSITIVE 1 FINE 8RAIN OF GOLD
BORD	349397	30901	57678	POSITIVE 1 GRAIN OF GOLD, 1.5mm
BORD	349519	31650	57871	POSITIVE 1 GRAIN OF GOLD
BORD	290842	32192	57570	POSITIVE 1 GRAIN OF GOLD
BORD	342558	29105	58464	POSSIBLE SEVERAL GRAINS
BORD	342902	29658	55573	PQSSIBLE POSSIBLE GOLD
BORD	343113	29107	56670	POS8IBLE FEW GRAINS OF POSSIBLE GOLD
BORD	343287	31239	66075	POSSIBLE GOLDEN COLOURED MINERAL
BORD	343490	33151	64963	PO8SIBLE POSSIBLE GOLD
BORD	343561	28570	60959	POSSIBLE 1 GRAIN, POSSIBLY GOLD
BORD	343722	27555	60784	POS8IBLE 1 GRAIN,,POSSIBLY GOLD
BORD	344751	27239	55646	POSSIBLE 1 GRAIN, POSSIBLY GOLD
BORD	345009	35648	66078	POSSIBLE POSSIBLE GOLD
BORD	345364	29058	61120	POS8IBLE 1 GRAIN, PO8SIBLY GOLD
BORD	345546	29768	61653	POSSIBLE 1 MINOR GRAIN, POSS. GOLD
BORD	345806	35762	65372	POS8IBLE POS8IBLE GOLD
BORD	345818	35740	65338	POSSIBLE PO8SIBLE GOLD
BORD	345825	35911	65368	POSSIBLE POSSIBLE GOLD
BORD	345842	35936	65494	POSSIBLE 1 GRAIN, POSSIBLY GOLD
BORD	346156	33932	58415	POSSIBLE VERY FINE BRIGHT MINERAL
BORD	347165	31880	61941	POSSIBLE DENSE GOLD FLAKES
BORD	347928	31855	61470	POSSIBLE 1 VERY FINE HEAVY GRAIN
BORD	349557	32319	58319	POSSIBLE 2 GRAINS, POSSIBLY GOLD
BORD	291603	35658	63320	POSSIBLE GOLD COLOURED BALL

Table 1.59 Provenance Studies of Southern Uplands Greywackes

Formation	(Synonym)	Terrain	Clast Mineralogy
Marchburn	Corsewall	Volcanic	Acid/inter/basic lavas
Afton	Kirkcolm	Cratonic	Low grade metamorphics
Blackcraig	Galdenoch	Volcanic	Pyroxene andesite
Scar	Portpatrick (B)	Volcanic	Andesite
Shinnel	Portpatrick (A)	Cratonic	Quartzose
Pyroxenous	Kilfillan	Volcanic	Detrital Pyroxenes
Intermediate	Queensbery	Cratonic	Quartzose
Hawick		Cratonic	Carbonate rich, Quartzose
Riccarton		Cratonic	Carbonate rich, Quartzose

(A) - Acid Group
(B) - Basic Group

The Scar Formation is synonymous with the Gowna Group in the Longford Down (Morris, 1983) whereas the Shinnel formation is synonymous with the Glenwhargen Formation (Floyd and Trench, 1989).

For full details of greywacke petrography refer to table 1.55.

Table 1.60 Average Trace Element Content of Greywackes from Various Tectonic Settings, after Bhatia and Crook (1986)

	Oceanic Island Arc (O)	Continental Island Arc (C)	Active Continental Margin (A)	Passive Margin (P)
Co (ppm)	18	12	10	5
Cr (ppm)	37	51	26	39
Ga (ppm)	17	13	14	9
La (ppm)	8.72	24.4	33.0	33.5
Nb (ppm)	2.0	8.5	10.7	7.9
Pb (ppm)	6.9	15.1	24.0	16.0
Sr (ppm)	637	250	141	66
Th (ppm)	2.27	11.1	18.8	16.7
V (ppm)	131	89	48	31
Zn (ppm)	89	74	52	26
Zr (ppm)	96	229	179	298
Y (ppm)	19.5	24.2	24.9	27.3
La/Y	0.48	1.02	1.33	1.31
Rb/Sr	0.05	0.65	0.89	1.19

Notes:

Ti, Cr, Nb and Co values in Southern Uplands greywackes exceed those defined by Bhatia and Crook (1986).

TABLE 1.61

Plate tectonic classification of continental margins and oceanic basins

Tectonic setting	Dominant depositional basin(s)	Nature of crust adjacent to basin	Provenance type	Moden example
Oceanic island arc	Forearc, back-arc	Ocianic island arc or island arc partly formed on thin continental crust.	Undissected magmatic arc	Western North-Pacific Aleutians; Lesser Antiles; Marianas
Continental island arc	Apical inter-arc back-arc, forearc	Island arc formed on well developed continental crust or on thin continental margin.	Dissected magmatic arc-recycled orogen	Havre Trough; Puerto Rico shelf; Cascades - W.U.S.A. Sea of Japan
Active continental margin	Retro-arc foreland; marginal basins oblique-slip basins (sags, pull-aparts).	Thick continental margin; crystalline basement	Uplifted basement	N.Chile, Peru; S.California borderland
Passive margins	Major peri-cratonic depocentres on trailing edges	Normal continental crust	Recycled and collision orogons	Bengal-Nicobar Fan and Nicobar Basin
	Rifted continental margin (miogeoclines) and abyssal plains).	Extended continental crust	Craton-interior	Atlantic Ocean

Table 1.62 Average Trace Element Content of Greywackes from the Southern Uplands

Formation	Key	No of Samples	Petrofacies
Marchburn	(M)	n= 44	Volcanic
Afton	(A)	n=154	Cratonic
Blackcraig	(B)	n= 61	Volcanic
Scar	(Sc)	n=100	Volcanic
Shinnel	(Sh)	n= 71	Cratonic
Pyroxenous	(P)	n= 63	Volcanic
Intermediate	(I)	n= 79	Cratonic
Hawick	(H)	n=306	Cratonic

Element	Formations							
(ppm)	M	A	B	Sc	Sh	P	I	H
Co	29.5	21.2	24.4	26.6	19.9	28.8	36.3	26.6
Cr	323	166	188	255	172	210	178	142
Ga	15.5	14.3	15.0	15.3	11.7	14.6	12.9	13.7
La	21.9	33.4	14.7	20.9	27.2	26.6	34.8	32.3
Nb	13.7	16.5	10.3	10.0	14.3	10.8	14.1	13.9
Pb	11.8	13.1	11.3	14.7	12.1	13.7	16.1	14.6
Sr	264	133	206	320	128	343	149	121
Th	4.9	9.2	4.8	6.4	7.6	6.3	7.9	8.5
V	196	113	188	145	96	148	97	100
Zn	73	62	72	66	46	61	56	66
Zr	152	252	138	153	268	213	288	212
Y	26.1	25.9	28.8	20.6	24.0	23.3	27.7	31.8
La/Y	0.83	1.32	0.51	1.03	1.14	1.15	1.28	1.02
RB/Sr	0.15	0.33	0.13	0.15	0.43	0.15	0.59	0.74

Table 1.63 Tectonic Setting Discrimination based upon Trace Element contents defined by Bhatia and Crook (1986)

Formation	Key	No of Samples
Marchburn	(M)	n= 44
Afton	(A)	n=154
Blackcraig	(B)	n= 61
Scar	(Sc)	n=100
Shinnel	(Sh)	n= 71
Pyroxenous	(P)	n= 63
Intermediate	(I)	n= 79
Hawick	(H)	n=306

Element	Formations							
	M	A	B	Sc	Sh	P	I	H
Co	O	O	O	O	O	O	O	O
Cr	H	H	H	H	H	H	H	H
Ga	O/C/A	O/C/A	O/C/A	O/C/A	O/C/A	O/C/A	O/C/A	O/C/A
La	C	A	O	C	C	C	A/P	A/P
Nb	H/A	A	A	A	A	A	A	A
Pb	O/C	C/P	O/C	C/P	C/P	C/P	C/P	C/P
Sr	O/C	A	C/A	O/C	A	O/C	A	A
Th	O	C	O	O/C	O/C	O/C	O/C	O/C
V	O	O	O	O	C	O	C	C
Zn	A	A	C	A	A	A	A	A
Zr	O	A	C	A	A	A	A	A
Y	C/A	C/A	P	O	C/A	C/A	P	P
La/Y	O/C	C/A	O	C	C	C	C/A	C
Rb/Sr	O	C	O	O	C	O	C	A

Key: Tectonic Setting

O - Oceanic Island Arc

C - Continental Island Arc

A - Active Continental Margin

P - Passive Margin

H - Higher levels than defined by Bhatia and Crook (1986).

Table 1.64 MEAN COMPOSITIONS OF PETROGRAPHIC FORMATIONS FROM THE SOUTHERN UPLANDS OF SCOTLAND

	FORMATION							
	M	A	B	Sc	Sh	P	I	H
SiO2	57.4	65.03	60.38	59.70	67.05	60.55	66.64	58.89
Al2O3	12.07	12.76	11.27	13.22	11.02	12.08	13.25	14.23
TiO2	1.51	1.08	1.31	0.91	0.94	0.94	0.91	0.84
Fe2O3	9.87	7.10	9.30	7.62	5.79	7.93	5.87	5.96
MgO	6.61	3.7	4.92	5.97	3.57	5.41	3.96	4.37
CaO	3.49	1.89	4.00	3.57	3.25	3.98	2.05	7.40
Na2O	2.86	2.01	2.72	2.83	2.16	2.43	2.04	1.55
K2O	1.26	1.87	1.11	1.62	1.64	1.76	2.21	2.21
MnO	0.16	0.10	0.15	0.12	0.10	0.13	0.09	0.11
P2O5	0.24	0.18	0.15	0.19	0.19	0.20	0.19	0.18
As	2	3	1	2	1	1	2.5	3.5
Ba	383	442	302	528	384	486	549	280
Co	29	21	24	26	19	28	36	26
Cr	323	166	188	255	172	210	178	142
Ga	15	14	15	15	11	14	12	13
La	21	33	14	20	27	26	34	32
Ni	125	63	51	92	54	63	66	58
Nb	13	16	10	10	14	10	14	13
Pb	11	13	11	14	12	13	16	14
Rb	30	50	26	41	42	47	63	71
Sr	264	133	206	320	128	343	149	121
Sb	0.4	0.8	0.3	0.3	0.5	0.3	0.4	2.0
S	981	592	1121	832	361	441	218	47
Th	4.9	9.2	4.8	6.4	7.6	6.3	7.9	8.5
V	196	113	188	145	96	148	97	100
Y	26	25	28	20	24	23	27	31
Zn	73	62	72	66	46	61	56	66
Zr	152	252	138	153	268	213	288	212

For Key see Table 1.62.

Table 1.65 Comparison of Mean Compositions of Greywacke Petrographic Formations from the Southern Uplands

SiO2	Volcanic derived greywackes lower than Cratonic (<62% except for the Hawick Group due to increase in CaO)
Al2O3	No systematic variation
TiO2	Ordovician volcanic greywackes 0.3-0.5% higher than cratonic greywackes.
Fe2O3	Volcanic 2-3% higher than juxtaposed cratonic greywackes with overall Fe decrease in time.
MgO	Volcanic 1.5-3.0% higher than cratonic
CaO	Volcanic 1.0-2.0% higher than juxtaposed cratonic
Na2O	Volcanic 0.8% higher than cratonic.
K2O	Volcanic 0.5% lower than cratonic.
MnO	Volcanic 0.05% higher than cratonic.
P2O5	No Systematic variation but high content in Marchburn.
As	Volcanic 1ppm lower than cratonic.
Ba	No systematic variation.
Co	Volcanic 5-8ppm higher than juxtaposed cratonic.
Cr	Volcanic 30-150ppm higher than cratonic, with v.high contents in the Marchburn Formation.
Ga	Volcanic 3-4ppm higher than cratonic.
La	Volcanic 10-15ppm lower than cratonic.
Ni	Volcanic 40-60ppm higher than cratonic with v.high content in Marchburn Formation.
Nb	Volcanics 4ppm lower than cratonic.
Pb	No systematic variation.
Rb	Volcanic 20-30ppm lower than cratonic.
Sr	Volcanic 130-200ppm higher than cratonic.
Sb	Volcanic 0.4-1.6ppm lower than cratonic.
S	Volcanic 200-500ppm higher than juxtaposed cratonic.
Th	Volcanic 2-4ppm lower than juxtaposed cratonic.
V	Volcanic 50-80ppm higher than juxtaposed cratonic.
Y	No systematic variation.
Zn	Volcanic 10-20ppm higher than juxtaposed cratonic.
Zr	Volcanic 75-100ppm lower than juxtaposed cratonic.

Table 1.66 The Origin of the Glendinning Breccias

Characteristics	Sedimentary Breccia	Hydraulic Breccia	Glendinning Breccia
Model	Debris Flow	Fractured Wallrock	?
Clasts			
1. Mud supported Clasts	Yes	No	No
2. Quartz-Carbonate veining	Possible	Yes	Yes
3. Mineralised veining	Unlikely	Yes	Yes
4. Marginal arsenopyrite	No	Yes	Yes
5. Pervasive arsenopyrite	No	Yes	Yes
6. Variable clast alteration	No	Yes	Yes
7. Quartz Cement	Microcryst.	Drucy	Drucy.
8. Formed syn-mineralisation	Possible	Yes	Yes
9. Angular Clasts	Possible	Yes	Yes
10. Angular-Subangular	Yes	Yes	Yes
11. Rounded	Yes	Possible	No
12. Wide Size Range	Yes	Possible	No
13. Mudstone cleavage	Possible	Yes	Yes
14. Polylithic	Yes	Local	Local
15. Clast size range	>20cm	Variable	<10cm
Matrix/Cement			
16. Mud matrix	Yes	No	No
17. Drucy cavity infilling cement	No	Yes	Yes
Additional Features			
18. Bed thickness	>4m	Variable	<4m
19. Surface outcrop	Yes	Yes	Fault
20. Proximity to vein system	Unlikely	Yes	Yes
21. Contacts	Erosive	Tectonic	Tectonic
22. Bedding: Strike extension	Yes	No	No
23. Fault: Strike extension	No	Yes	Yes
24. Proximity to synestral wrench fault zone.	Marginal	Yes	Yes

. *Qualitative detrital composition of principal petrofacies in the Northern Belt and northern part of the Central Belt*

	Meta-clast petrofacies (MCP)	*Galdenoch petrofacies* (GnP)	*Basic clast petrofacies* (BCP)	*Acid clast petrofacies* (ACP)	*Pyroxenous petrofacies* (PP)	*Intermediate petrofacies* (IP)
Detrital components Common	Quartz Schist–musc.–garnet garnet–talc graphite andalusite Cataclasite Meta-quartzite/phyllite Chert	Hornblende Augite Epidote Quartz Plag/Kspar Spilite Felsic igneous detritus Musc/biotite	Clinopyroxene (augite) Hornblende Plagioclase Microphyric andesite (phenocrysts = plagioclase pyroxene, hornblende)	Quartz Plagioclase Kspar Granite/micro granite Quartz porph. Rhyolite/felsite } variable	Quartz (igneous) Feldspar (plag)	Quartz (igneous & meta) Granite/microgranite Kspar/plag. Quartzite (-mica, biotite) Qz &/or plag. porph.
Frequent	Feldspar (plag; Kspar) Biotite Rhyolite/felsite Spilite	Andesite Apatite	Epiodosite/epidote Quartzite/cataclasite Rhyolite/felsite (Quartz) Biotite	Andesite Hornblende Clinopyroxene } variable	Granite Epidote Augite Hornblende Spilite/variolite Serpentinite Qz. porph Metaqzite Chert Plag ± hblde microphyric diorite/qz-diorite	Felsite/rhyolite Cataclastic microgranite Cataclasite
Minor	Microgranite Granophyre Qz &/or felds porph. Arkose Hornfels Zircon Garnet Spinel Tourmaline Apatite (Glaucophane)	Chlorite Phyllite Garnet schist	Glaucophane (schist) Spilite Microgranite -diorite -gabbro Granophyre Musc. schist Spinel (chromite) Granulite detritus (mesoperthite, rutilated quartz) (Quartz) Kspar, Garnet Allanite Apatite Hornfels Sphene, Zircon Serpentinite	Diorite Spilite Cataclasite Musc. schist Epidosite/epidote Rutilated quartz Limestone Spinel Sphene Zircon Allanite	Epidote Arkose Limestone Mica Zircon Tourmaline Sphene Spinel Allanite	Biotite microgranite Biotite/mica Augite Zircon Tourmaline Spinel Sphene Garnet
Characteristic components	Quartz, metamorphic and felsic igneous detritus	Andesitic mineral and lithic fragments + variable quartz and felsic igneous detritus	Andesitic mineral and lithic fragments; blueschist detritus	Quartz, felsic igneous intrusive and extrusive detritus	Felsic igneous lithic and mineral fragments + variable amounts of andesitic detritus	Felsic igneous lithic and mineral fragments
Inferred source terrain	Mixed metamorphic + felsic igneous continental terrain	Andesitic volcanic arc and part of plutonic root zone	Andesitic volcanic arc (Plinian type)	Arc massif: plutonic root zone and metamorphic envelope + volcanic edifice	Arc massif: plutonic root zone + remnant volcanic edifice	Arc massif: plutonic root zone
Associated subfacies	MCP subfacies: (i) 'Barren' (cf. Barren Division, Kirkcolm Group, Kelling 1961): metamorphic detritus relatively scarce, felsic mineral and lithic detritus proportionately more abundant	(ii) Quartz, plagioclase quartz/plag porphyry, epidosite dominant type (Morris 1979*a*)	(i) Plagioclase ± plagioclase porphyry rich types (Glen Lodge Fm: Morris 1979*a*)		*Garnetiferous petrofacies* (after Garnetiferous Group, Walton 1955): Outcrops southeast of IP, composed of essentially same components as IP plus appreciable amounts of garnet	
			Shinnel Fm. petrofacies/'Portayew Rocks': see text for description			
Named after	Meta-clast division, Kirkcolm Group (Kelling 1961)	Galdenoch Group (Kelling 1961)	Basic Clast Division, Portpatrick Group (Kelling 1961)	Acid Clast Division, Portpatrick Group (Kelling 1961)	Pyroxenous Group (Walton 1955)	Intermediate Group (Walton 1955)
Other Lithostratigraphic units	Lochryan Rocks (Lower): Welsh (1964) Coronea & Finnalaghta Fms (metaclast): Morris (1979*a*) Afton Fm: Floyd (1982) ? Abington Fm: Hepworth *et al.* (1981) Kirkcolm Fm (Barrhill): Stone *et al.* (this issue)	Cairnerzean Grp: Welsh (1964) Blackcraig Fm: Floyd (1982) (Carrickateane Fm: Morris 1979*a*, 1983) Galdenoch Fm (Barrhill): Stone *et al.* (this issue)	Glenwhan Rocks: Welsh (1964) Oldtown Psammitic Fm: Oliver (1978) Red Island Fm: Sanders & Morris (1978), Morris (1979*a*, 1983) Scar Fm: Floyd (1982) Elvan Fm: Hepworth *et al.* (1981) Rockport Fm: Craig (1984)	Boreland Rocks: Welsh (1964) Grey Pt. Fm: Craig (1984) Ballygreany Fm: Morris *et al.* (1986)	Kilfillian Fm: Gordon (1962) Craignell Fm (basic): Cook & Weir (1980) Tassan Grp: Morris *et al.* (1986)	Garheugh Fm: Gordon (1962) Craignell Fm (lithic): Cook & Weir (1980) Tassan Grp: Morris *et al.* (1986)

Northern Belt Median Fault (NBMF)

Northern/Central Belts Boundary Fault (NCBF)

The compositional lists are derived from descriptions of lithostratigraphic units representative of each facies and are not necessarily exhaustive. Qualitative frequencies of individual components within any petrofacies may vary temporally and spatially.

Table 1.68 Discriminant Diagrams

	X Axis	Y Axis	Author/Source
1.	SiO_2	Na_2O+K_2O	Lebas (1983)
2.	SiO_2	MgO	Bhatia (1983)
3.	SiO_2	CaO	Bhatia (1983)
4.	SiO_2	Na_2O	Bhatia (1983)
5.	SiO_2	TiO_2	Bhatia (1983)
6.	SiO_2	Fe_2O_3	Bhatia (1983)
7.	SiO_2	Rb	Bhatia (1983)
8.	SiO_2	Sr	Bhatia (1983)
9.	Fe_2O_3+MgO	TiO_2	Bhatia (1983)
10.	Fe_2O_3+MgO	Al_2O_3/SiO_2	Bhatia (1983)
11.	Fe_2O_3+MgO	K_2O/Na_2O	Bhatia (1983)
12.	Fe_2O_3+MgO	$Al_2O_3/CaO+Na_2O$	Bhatia (1983)
13.	CaO	Sr	Caby (1977)
14.	Th	La	Bhatia (1985)
15.	K_2O/K_2O+Na_2O	K_2O+Na_2O	Cathelineau (1983)
16.	Fe_2O_3/MgO	Cr	Ricci (1976)
17.	K_2O	Rb	Rock (1985)
18.	MgO	Sr	Rock (1985)
19.	Fe_2O_3/MgO	SiO_2	Clayton (1982)
20.	Fe_2O_3/MgO	Zr	Clayton (1982)
21.	Cr	V	Rock (1985)
22.	Ni	Cr	Clayton (1982)
23.	Zr	Y	Clayton (1982)
24.	Y	CaO	Lambert & Holland (1982)
25.	Sr	Y	Lambert & Holland (1982)
26.	Zr	TiO_2	Pierce (1982)
27.	La/Y	Nb/Y	Bell (Pers.Com '84)
28.	La/Y	Zr/Y	Bell (Pers.Com '84)
29.	La/Y	Nb/P_2Os	Bell (Pers.Com '84)
30.	La/Y	Cr	Bell (Pers.Com '84)
31.	La/Y	Sr	Bell (Pers.Com '84)
32.	Nb/P_2Os	Sr	Bell (Pers.Com '84)
33.	Cr	Sr	Bell (Pers.Com '84)

Triangular Diagrams:

	X	Y	Z	
1.	Mg+Fe	Na_2O	K_2O	Blatt (1972) and Crook (1974)
2.	Co	Zr/10	Th	Bhatia (1985)
3.	La	Y	Zr	(This Thesis)

Table 1.69 SWIN GILL GEOCHEMICAL STRUCTURES

Structure No	Element Association	Sodium(Na)
1.	As, SiO_2, (-)Na, Sr	depletion
2.	All except Cu, Pb and Sr	enrichment
3.	As, Ba, Pb, Rb, Sr, S, Zn	depletion
4.	As Pb S, (-)Na, As x Mg,EV-2	depletion
5.	All except Sb, S, Si	depletion
6.	All except Co, Ni, Zn	enrichment
7.	Ba Co Cu Rb S Ni Zn	
8.	All except Sb Rb	
9.	Ba Co Rb Zn Na Mg	
10.	As, Ba, Pb, Rb, Sr, S, Zn	enrichment
11.	As, Ba, Pb, Sr (-)Na	depletion
12.	Sb, Co, Cu, Pb, V, (-)Na	depletion
13.	Sb Cu	

TABLE 1.69

Swin Gill Geochemical Soil Anomalies

Element	Abbrev.	NNE-SSW Anomaly No.									NW-SE Anomaly No.			
		1	2	3	4	5	6	7	8	9	10	11	12	13
Arsenic	(As)	*	*	*	*	*	*		*		*	*		
Antimony	(Sb)		*	*			*						*	*
Barium	(Ba)		*	*		*	*	*	*	*	*	*		
Cobalt	(Co)		*	*		*		*	*	*			*	
Copper	(Cu)			*		*	*	*	*				*	*
Lead	(Pb)			*	*	*	*		*		*	*		
Gallium	(Ga)		*	*										
Rubidium	(Rb)		*	*		*	*	*	*	*	*		*	
Strontium	(Sr)	*		*		*	*		*	*	*	*	*	
Sulphur	(S)		*	*	*		*	*			*			
Vanadium	(V)		*	*		*	*		*	*			*	
Nickel	(Ni)		*	*		*		*	*			*		
Zinc	(Zn)		*	*		*		*		*	*			
Silica	(Si)	*	*	*			*		*	*		*		
Sodium +	(Na)		*				*			*	*			
Sodium -	(Na)	*		*	*	*						*	*	
Magnesium	(Mg)		*	*		*		*		*				
Aluminium	(Al)		*	*		*	*			*		*		
Potassium	(K)		*	*		*	*		*			*	*	
Iron	(Fe			*		*	*						*	
K/Na		*	*	*		*	*					*		
As/Na			*	*			*		*			*		
Sb/Na			*	*		*	*						*	*
As*Mg		*	*	*	*	*	*		*		*	*		
EV2		*	*	*	*	*	*		*		*		*	
EV3			*	*			*						*	

* - Element Anomaly located within a geochemical lineament (refer to figure 90b for the location of study area and figure 99 for the lineament position within the soil grid)

Table 1.70 Microprobe Analysis Raster Study

The average chemical composition of core and rim zones from a single gold-bearing arsenopyrite crystal from the Clontibret deposit was determined by raster beam microprobe analysis of a 50 micron grid area in order to test the validity of the point-source gold analyses within the crystal. The analytical results of this study are presented below:

Element	Core %Element	Rim %Element
Fe	34.807	34.803
Co	0.000	0.000
Ni	0.000	0.014
Cu	0.000	0.000
Zn	0.000	0.000
As	42.839	43.455
S	22.672	21.653
Sb	0.539	0.196
Au	0.044	0.000
Ag	0.041	0.023
Total	100.897	100.143

TABLE 2.01

Microprobe Analyses: Glendinning Arsenopyrite (ASP1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Fe	34.14	36.26	35.48	2.12	0.38	-0.72	-24.30	35.48	1.08
As	40.71	45.51	43.11	4.80	1.16	-0.29	5.15	43.10	2.69
S	20.75	23.95	22.33	3.20	0.71	0.27	2.06	22.32	3.17
Sb	0.01	0.74	0.22	0.72	0.21	0.84	2.19	0.13	95.38
Ni	0.00	0.17	0.03	0.17	0.03	1.89	7.58	0.07	125.45
Hg	0.19	0.52	0.35	0.32	0.08	0.04	2.04	0.34	24.09
Au	0.00	0.15	0.03	0.15	0.03	1.17	3.68	0.11	116.17
Total	98.58	102.63	101.55	4.05	0.68	-2.84	153.86	101.55	0.67
As%Aspy	27.93	31.97	30.11	4.04	0.97	-0.30	2.64	30.10	3.21
Fe%Aspy	32.85	33.60	33.24	0.75	0.18	-2.75	985.14	33.24	0.54
S%Aspy	34.74	38.38	36.43	3.64	0.91	0.33	-1.49	36.42	2.50
AsForm	0.84	0.96	0.90	0.12	0.03	-0.26	0.52	0.90	3.21
FeForm	0.99	1.01	1.00	0.02	0.01	-3.83	1426.48	1.00	0.54
SForm	1.04	1.15	1.09	0.11	0.03	0.33	-3.51	1.09	2.50

n = 70

Microprobe Analyses: Glendinning Arsenopyrite (ASP2)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Fe	31.90	35.23	34.34	3.33	0.68	-1.73	8.78	34.33	1.98
As	36.91	45.44	42.64	8.53	1.60	-1.72	8.09	42.61	3.75
S	20.73	23.13	21.97	2.40	0.58	-0.09	3.03	21.97	2.63
Sb	0.04	0.41	0.24	0.37	0.10	-0.31	2.61	0.21	40.26
Ni	0.00	0.07	0.02	0.07	0.02	1.11	3.28	0.08	125.03
Hg	0.00	1.05	0.38	1.05	0.18	1.54	8.60	0.38	48.81
Au	0.00	0.12	0.03	0.12	0.04	1.07	3.31	0.15	121.90
Total	92.70	102.16	99.62	9.46	2.01	-2.13	12.77	99.60	2.02
As%Aspy	27.65	31.97	30.37	4.32	0.94	-0.89	5.19	30.36	3.10
Fe%Aspy	32.14	33.90	32.82	1.77	0.34	1.30	-20.94	32.82	1.03
S%Aspy	34.90	38.60	36.58	3.71	0.91	0.45	0.80	36.57	2.48
AsForm	0.83	0.96	0.91	0.13	0.03	-0.88	4.88	0.91	3.10
FeForm	0.96	1.02	0.98	0.05	0.01	0.61	0.00	0.98	1.03
SForm	1.05	1.16	1.10	0.11	0.03	0.40	3.77	1.10	2.48

n = 26

TABLE 2.02

Microprobe Analyses: Glendinning Arsenopyrite (ASP3)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Fe	32.40	35.76	35.02	3.36	0.61	-2.54	-3.80	35.01	1.74
As	41.30	45.15	43.54	3.84	1.00	-0.47	3.13	43.53	2.31
S	20.22	23.05	21.92	2.84	0.62	-0.85	5.24	21.92	2.85
Sb	0.00	0.45	0.15	0.45	0.11	0.63	2.86	0.12	72.01
Ni	0.00	0.08	0.01	0.08	0.02	2.28	7.80	0.19	187.89
Hg	0.15	0.56	0.35	0.41	0.08	-0.24	3.23	0.34	24.23
Au	0.00	0.10	0.02	0.10	0.03	1.31	3.24	0.09	144.44
Total	94.50	102.62	101.02	8.12	1.43	-2.83	0.00	101.01	1.42
As%Aspy	28.97	32.62	30.67	3.66	0.76	0.06	5.48	30.66	2.49
Fe%Aspy	32.71	33.49	33.08	0.78	0.18	1.41	-508.02	33.08	0.54
S%Aspy	34.21	37.44	36.08	3.22	0.68	-0.28	7.30	36.07	1.89
AsForm	0.87	0.98	0.92	0.11	0.02	0.11	2.77	0.92	2.49
FeForm	0.98	1.00	0.99	0.02	0.01	0.79	-297.44	0.99	0.54
SForm	1.03	1.12	1.08	0.10	0.02	-0.29	11.46	1.08	1.89

n = 35

TABLE 2.03

TABLE 2.04

Microprobe Analyses: Glendinning Arsenopyrite (ASP4)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Fe	32.89	35.38	34.36	2.49	0.48	-0.90	-15.26	34.36	1.38
As	39.88	46.36	43.24	6.48	1.37	0.09	2.93	43.22	3.17
S	20.57	23.91	21.79	3.34	0.78	0.47	2.58	21.77	3.59
Sb	0.00	0.49	0.14	0.49	0.13	1.10	3.48	0.11	88.55
Ni	0.00	0.07	0.02	0.07	0.02	0.52	2.93	0.03	69.11
Au	0.00	0.07	0.01	0.07	0.01	3.19	12.72	0.54	289.83
Ag	0.01	0.06	0.04	0.05	0.01	0.15	2.16	0.03	39.61
Total	97.12	101.87	99.60	4.74	1.06	-0.32	-26.28	99.59	1.06
As%Aspy	28.17	33.01	30.81	4.84	1.02	-0.05	3.99	30.79	3.33
Fe%Aspy	31.83	33.58	32.83	1.74	0.47	-0.23	-36.01	32.83	1.44
S%Aspy	34.22	38.96	36.26	4.74	1.07	0.08	2.33	36.24	2.96
AsForm	0.85	0.99	0.92	0.15	0.03	-0.03	2.77	0.92	3.33
FeForm	0.96	1.01	0.99	0.05	0.01	0.09	-79.01	0.99	1.44
SForm	1.03	1.17	1.09	0.14	0.03	0.05	3.66	1.09	2.96

n = 56

Microprobe Analyses: Glendinning Arsenopyrite (ASP5)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Fe	30.19	36.32	33.46	6.12	1.09	-0.06	5.76	33.44	3.25
As	38.84	46.08	43.25	7.24	1.27	-0.31	7.33	43.23	2.94
S	18.40	26.11	22.42	7.71	1.08	-0.43	3.66	22.39	4.83
Sb	0.00	0.73	0.14	0.73	0.12	1.80	7.51	0.12	79.79
Ni	0.00	1.30	0.13	1.30	0.21	2.98	13.29	0.12	160.04
Hg	0.00	0.85	0.33	0.85	0.12	-0.02	7.53	0.35	35.19
Au	0.00	2.96	0.10	2.96	0.34	5.70	37.44	0.11	336.60
Total	93.07	103.58	99.83	10.51	1.39	-1.50	77.97	99.82	1.39
As%Aspy	26.25	33.28	30.70	7.03	1.11	-0.30	7.36	30.68	3.63
Fe%Aspy	29.49	33.90	31.85	4.40	0.86	0.49	-6.76	31.84	2.71
S%Aspy	33.44	41.23	37.16	7.79	1.49	-0.41	2.36	37.13	4.01
AsForm	0.79	1.00	0.92	0.21	0.03	-0.25	4.24	0.92	3.63
FeForm	0.88	1.02	0.96	0.13	0.03	0.27	8.96	0.96	2.72
SForm	1.00	1.24	1.11	0.23	0.04	-0.37	0.97	1.11	4.00

n = 323

TABLE 2.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP6)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Fe	30.38	36.01	33.46	5.63	1.17	0.00	2.03	33.44	3.50
As	39.19	45.29	43.31	6.10	1.13	-0.94	2.55	43.30	2.60
S	21.18	24.22	22.45	3.03	0.64	0.23	3.79	22.44	2.85
Sb	0.00	0.74	0.12	0.74	0.11	2.52	13.36	0.12	86.26
Ni	0.00	0.84	0.12	0.84	0.17	2.13	8.05	0.12	144.08
Hg	0.00	1.49	0.34	1.49	0.16	4.13	32.04	0.33	46.46
Au	0.00	2.37	0.07	2.37	0.26	7.62	65.76	0.15	396.29
Total	94.92	102.26	99.87	7.35	1.39	-0.84	8.66	99.86	1.40
As%Aspy	28.44	32.86	30.72	4.42	0.97	-0.30	4.99	30.70	3.14
Fe%Aspy	29.64	33.58	31.82	3.95	0.77	0.00	4.27	31.81	2.43
S%Aspy	35.50	39.39	37.20	3.90	0.82	0.31	-3.31	37.19	2.22
AsForm	0.85	0.99	0.92	0.13	0.03	-0.30	3.80	0.92	3.14
FeForm	0.89	1.01	0.95	0.12	0.02	0.07	1.68	0.95	2.43
SForm	1.06	1.18	1.12	0.12	0.02	0.34	0.00	1.12	2.22

n = 96

TABLE 2.06

Microprobe Analyses: The Knipe Arsenopyrite (ASP7)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Fe	33.76	36.49	35.07	2.72	0.59	0.12	-21.74	35.06	1.68
As	35.85	41.48	38.97	5.62	1.45	-0.08	1.91	38.95	3.71
S	22.00	25.72	23.64	3.73	1.06	0.07	1.89	23.61	4.47
Sb	0.05	0.86	0.34	0.81	0.21	0.48	2.33	0.26	63.27
Ni	0.00	0.05	0.01	0.05	0.01	1.70	5.08	0.04	139.02
Hg	0.18	0.66	0.42	0.48	0.09	0.13	2.86	0.40	22.64
Cu	0.00	0.08	0.03	0.08	0.02	0.32	2.06	0.04	73.27
Au	0.00	0.18	0.02	0.18	0.03	2.81	12.49	0.11	175.44
Ag	0.00	0.06	0.02	0.06	0.02	0.53	2.74	0.02	68.62
Total	96.41	99.77	98.51	3.36	0.81	-1.94	231.79	98.51	0.82
As%Aspy	24.79	29.69	27.52	4.91	1.31	-0.07	2.05	27.49	4.78
Fe%Aspy	32.15	33.78	33.20	1.64	0.32	-0.24	-97.89	33.20	0.97
S%Aspy	36.89	41.55	38.97	4.66	1.24	0.07	1.96	38.95	3.19
AsForm	0.74	0.89	0.83	0.15	0.04	-0.06	1.64	0.82	4.78
FeForm	0.96	1.01	1.00	0.05	0.01	-1.36	85.00	1.00	0.97
SForm	1.11	1.25	1.17	0.14	0.04	0.09	1.28	1.17	3.19

n = 49

TABLE 2.07

TABLE 2.08

Microprobe Analyses: The Knipe Arsenopyrite (ASP8)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Fe	32.63	35.26	34.10	2.64	0.65	0.18	-14.56	34.09	1.90
As	38.99	44.65	43.01	5.66	1.37	-1.06	4.95	42.99	3.19
S	19.36	23.45	20.77	4.10	1.02	0.85	2.66	20.75	4.92
Sb	0.00	0.69	0.19	0.69	0.15	1.34	5.31	0.13	75.91
Hg	0.17	0.61	0.38	0.44	0.09	0.11	2.79	0.37	24.78
Ni	0.00	0.06	0.02	0.06	0.01	0.56	3.33	0.02	56.46
Cu	0.00	0.10	0.04	0.10	0.02	0.13	2.55	0.04	51.08
Au	0.00	0.11	0.03	0.11	0.03	0.78	2.24	0.15	113.47
Ag	0.00	0.06	0.03	0.06	0.01	0.12	2.13	0.02	57.49
Total	96.91	99.88	98.58	2.97	0.68	-1.21	306.40	98.58	0.69
As%Aspy	27.54	32.99	31.26	5.44	1.38	-0.93	3.18	31.23	4.40
Fe%Aspy	32.62	34.03	33.22	1.41	0.27	0.00	-135.71	33.22	0.83
S%Aspy	33.51	38.72	35.25	5.20	1.26	0.88	2.64	35.23	3.58
AsForm	0.83	0.99	0.94	0.16	0.04	-0.92	2.81	0.94	4.40
FeForm	0.98	1.02	1.00	0.04	0.01	-1.95	527.43	1.00	0.83
SForm	1.01	1.16	1.06	0.16	0.04	0.88	2.51	1.06	3.58

n = 61

Microprobe Analyses: Talnotry Arsenopyrite (ASP9)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Fe	32.44	35.56	34.77	3.12	0.48	-2.16	9.26	34.77	1.39
As	40.65	46.75	45.18	6.11	1.09	-1.00	5.03	45.17	2.41
S	20.07	21.52	20.69	1.45	0.29	0.49	0.00	20.69	1.40
Ni	0.00	0.05	0.01	0.05	0.01	1.18	3.58	0.08	125.53
Sb	0.00	0.09	0.04	0.09	0.02	0.38	3.03	0.03	49.76
Cu	0.00	0.09	0.02	0.09	0.02	0.80	3.32	0.05	83.88
Zn	0.00	0.10	0.03	0.10	0.02	0.45	2.44	0.04	77.50
Au	0.00	0.14	0.02	0.14	0.02	1.41	5.33	0.10	117.35
Ag	0.00	0.03	0.00	0.03	0.01	2.00	6.53	0.15	177.28
Total	94.82	102.80	100.77	7.98	1.29	-1.30	0.00	100.76	1.28
As%Aspy	30.35	33.31	32.20	2.96	0.55	-0.76	36.10	32.20	1.71
Fe%Aspy	31.91	34.18	33.25	2.27	0.40	-1.34	174.90	33.25	1.21
S%Aspy	33.62	36.80	34.47	3.19	0.49	1.32	34.44	34.47	1.43
AsForm	0.91	1.00	0.97	0.09	0.02	-0.83	39.12	0.97	1.71
FeForm	0.96	1.03	1.00	0.07	0.01	0.00	-11.66	1.00	1.20
SForm	1.01	1.10	1.03	0.10	0.01	0.97	70.75	1.03	1.43

n = 194

TABLE 2.09

Microprobe Analyses: Cairngarroch Arsenopyrite (ASP10)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Fe	32.43	36.15	35.01	3.72	0.46	-0.56	-99.98	35.00	1.32
As	39.52	45.22	43.28	5.70	0.82	-0.68	26.59	43.27	1.90
S	18.65	24.87	22.14	6.23	0.57	-0.59	9.78	22.13	2.56
Sb	0.00	0.10	0.03	0.10	0.02	0.56	2.51	0.04	81.53
Ni	0.00	0.10	0.00	0.10	0.01	4.70	42.33	0.34	249.33
Au	0.00	0.87	0.05	0.87	0.05	6.23	90.28	0.09	106.62
Ag	0.00	0.07	0.03	0.07	0.01	0.09	3.08	0.03	40.40
Total	96.85	102.66	100.54	5.81	0.95	-1.78	280.55	100.54	0.94
As%Aspy	28.47	32.92	30.47	4.45	0.59	0.08	4.21	30.47	1.93
Fe%Aspy	30.50	35.13	33.06	4.64	0.43	-1.20	22.55	33.06	1.29
S%Aspy	32.43	40.38	36.42	7.95	0.70	-0.50	49.32	36.41	1.93
AsForm	0.85	0.99	0.91	0.13	0.02	0.15	0.00	0.91	1.93
FeForm	0.92	1.05	0.99	0.14	0.01	0.06	-99.12	0.99	1.29
SForm	0.97	1.21	1.09	0.24	0.02	-0.13	9.71	1.09	1.93

n = 565

TABLE 2.10

Microprobe Analyses: Cairngarroch Arsenopyrite (ASP11)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Fe	33.75	35.95	35.10	2.20	0.38	-0.14	-97.13	35.10	1.10
As	41.09	45.02	43.46	3.93	0.81	-0.48	-14.12	43.46	1.86
S	18.65	23.37	22.01	4.72	0.52	-1.34	10.98	22.00	2.37
Sb	0.00	0.10	0.03	0.10	0.02	0.44	2.38	0.04	72.11
Ni	0.00	0.04	0.00	0.04	0.01	3.04	12.40	0.40	258.23
Au	0.00	0.87	0.05	0.87	0.07	7.33	88.01	0.09	134.25
Ag	0.00	0.07	0.03	0.07	0.01	-0.01	3.14	0.03	39.45
Total	97.40	102.66	100.69	5.26	0.93	1.55	-297.87	100.69	0.93
As%Aspy	29.18	32.43	30.60	3.25	0.55	-0.21	16.51	30.59	1.80
Fe%Aspy	32.06	35.13	33.15	3.07	0.39	1.16	-73.86	33.15	1.19
S%Aspy	32.43	37.99	36.20	5.55	0.63	-1.04	41.84	36.20	1.74
AsForm	0.88	0.97	0.92	0.10	0.02	-0.35	9.67	0.92	1.80
FeForm	0.96	1.05	0.99	0.09	0.01	-0.65	256.50	0.99	1.19
SForm	0.97	1.14	1.09	0.17	0.02	-0.65	7.64	1.09	1.73

n = 254

TABLE 2.11

Microprobe Analyses: Cairngarroch Arsenopyrite (ASP12)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Fe	32.72	35.75	34.72	3.03	0.52	-1.40	27.61	34.71	1.51
As	41.69	45.01	43.44	3.32	0.86	-0.42	3.72	43.43	1.99
S	19.53	24.87	21.90	5.34	0.74	0.71	9.00	21.89	3.40
Sb	0.00	0.08	0.01	0.08	0.02	1.57	5.58	0.05	127.75
Ni	0.00	0.10	0.00	0.10	0.01	5.50	37.17	0.42	324.79
Au	0.00	0.15	0.06	0.15	0.04	0.14	2.03	0.07	67.97
Ag	0.00	0.07	0.03	0.07	0.01	0.33	2.83	0.03	41.99
Total	98.02	101.85	100.17	3.82	1.04	-1.26	113.59	100.17	1.04
As%Aspy	29.04	32.92	30.76	3.88	0.64	0.42	10.63	30.75	2.09
Fe%Aspy	30.50	33.68	32.97	3.18	0.56	-2.21	21.27	32.97	1.69
S%Aspy	33.39	40.38	36.23	7.00	0.94	1.28	9.26	36.22	2.59
AsForm	0.87	0.99	0.92	0.12	0.02	0.53	-3.58	0.92	2.09
FeForm	0.92	1.01	0.99	0.10	0.02	-2.00	-9.41	0.99	1.69
SForm	1.00	1.21	1.09	0.21	0.03	1.32	5.46	1.09	2.59

n = 64

TABLE 2.12

Microprobe Analyses: Cairngarroch Arsenopyrite (ASP13)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Fe	33.79	36.15	35.06	2.36	0.46	-0.25	-11.48	35.06	1.31
As	41.27	44.20	43.09	2.93	0.63	-0.38	-6.50	43.09	1.46
S	21.22	23.52	22.35	2.30	0.40	-0.41	-2.58	22.35	1.77
Sb	0.00	0.09	0.03	0.09	0.02	0.45	2.18	0.05	83.52
Ni	0.00	0.03	0.00	0.03	0.01	2.09	6.39	0.26	200.41
Au	0.00	0.20	0.05	0.20	0.04	0.73	3.27	0.08	84.77
Ag	0.00	0.06	0.03	0.06	0.01	0.11	2.94	0.03	39.93
Total	98.25	102.17	100.61	3.92	0.88	0.18	-107.53	100.61	0.88
As%Aspy	29.26	31.41	30.26	2.14	0.44	0.47	-41.00	30.26	1.45
Fe%Aspy	32.20	33.80	33.03	1.60	0.33	-0.22	-43.83	33.03	0.99
S%Aspy	35.70	38.26	36.67	2.56	0.43	0.98	-101.80	36.67	1.18
AsForm	0.88	0.94	0.91	0.06	0.01	0.10	0.00	0.91	1.45
FeForm	0.97	1.01	0.99	0.05	0.01	1.02	-209.19	0.99	0.99
SForm	1.07	1.15	1.10	0.08	0.01	0.55	34.39	1.10	1.18

n = 144

TABLE 2.13

Microprobe Analyses: Clontibret Arsenopyrite (ASP15)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Fe	31.08	35.26	34.33	4.18	0.80	-2.32	6.49	34.32	2.33
As	40.95	45.40	44.21	4.45	0.81	-2.14	12.50	44.20	1.83
S	20.02	22.67	21.46	2.65	0.55	0.18	2.81	21.46	2.59
Sb	0.02	4.84	0.33	4.82	0.87	4.63	24.25	0.11	267.13
Co	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ni	0.00	0.05	0.01	0.05	0.01	0.94	2.85	0.06	111.70
Cu	0.00	0.01	0.00	0.01	0.00	3.62	14.16	0.76	393.78
Zn	0.00	0.05	0.01	0.05	0.02	0.84	2.56	0.09	115.98
Au	0.00	0.17	0.05	0.17	0.05	0.60	2.21	0.13	95.72
Ag	0.00	0.01	0.00	0.01	0.00	4.95	26.81	0.49	401.80
Total	97.12	101.72	100.41	4.60	1.00	-2.11	34.30	100.40	0.99
As%Aspy	30.01	32.32	31.43	2.31	0.58	-0.99	4.84	31.42	1.83
Fe%Aspy	31.06	33.17	32.73	2.11	0.40	-2.46	-31.75	32.73	1.22
S%Aspy	34.74	36.92	35.65	2.19	0.55	0.53	17.12	35.65	1.55
AsForm	0.90	0.97	0.94	0.07	0.02	-0.92	8.55	0.94	1.83
FeForm	0.93	1.00	0.98	0.06	0.01	-1.98	-50.05	0.98	1.22
SForm	1.04	1.11	1.07	0.07	0.02	0.83	-13.51	1.07	1.55

n = 32

TABLE 2.14

Microprobe Analyses: Clontibret Arsenopyrite (ASP16)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Fe	33.22	35.01	34.23	1.79	0.39	-0.26	-10.74	34.23	1.15
As	42.36	45.71	44.02	3.35	0.70	0.37	8.36	44.01	1.60
S	20.73	22.92	21.91	2.18	0.47	-0.21	-1.33	21.91	2.14
Sb	0.00	0.54	0.20	0.53	0.13	0.27	2.75	0.14	62.83
Co	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ni	0.00	0.06	0.02	0.06	0.01	0.25	2.62	0.02	55.98
Cu	0.00	0.03	0.00	0.03	0.00	4.49	23.45	0.69	414.93
Zn	0.00	0.02	0.00	0.02	0.00	2.97	11.01	0.44	279.39
Au	0.00	0.32	0.07	0.32	0.08	1.38	3.71	0.07	120.83
Ag	0.00	0.02	0.00	0.02	0.01	1.36	3.63	0.09	140.90
Total	24.00	101.81	99.70	77.81	7.65	-9.75	97.04	99.04	7.67
As%Aspy	30.13	32.53	31.15	2.40	0.59	0.65	-15.19	31.14	1.88
Fe%Aspy	31.77	32.95	32.49	1.18	0.22	0.00	-117.47	32.49	0.66
S%Aspy	34.87	37.36	36.23	2.49	0.57	-0.55	23.75	36.22	1.58
AsForm	0.90	0.98	0.93	0.07	0.02	0.53	-7.65	0.93	1.88
FeForm	0.95	0.99	0.97	0.04	0.01	2.25	-281.10	0.97	0.66
SForm	1.05	1.12	1.09	0.07	0.02	-0.29	-16.83	1.09	1.58

n = 101

TABLE 2.15

Microprobe Analyses: Clontibret Arsenopyrite (ASP17)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Fe	31.67	34.93	33.97	3.26	0.46	-1.48	-34.59	33.97	1.35
As	41.81	46.15	44.87	4.34	0.79	-1.25	5.22	44.86	1.77
S	20.56	23.28	21.47	2.73	0.54	1.49	8.76	21.46	2.54
Sb	0.02	0.48	0.10	0.46	0.09	2.54	9.48	0.07	98.31
Co	0.00	0.47	0.01	0.47	0.06	8.12	67.01	0.99	830.66
Ni	0.00	2.11	0.09	2.11	0.25	7.63	61.52	0.05	294.00
Cu	0.00	0.06	0.00	0.06	0.01	5.83	40.63	0.39	360.26
Zn	0.00	0.04	0.00	0.04	0.01	3.12	12.35	0.36	278.55
Au	0.00	0.19	0.05	0.19	0.04	0.85	3.09	0.05	82.18
Ag	0.00	0.03	0.01	0.03	0.01	1.24	3.52	0.04	125.13
Total	99.13	101.70	100.55	2.58	0.63	-3.50	1424.94	100.55	0.63
As%Aspy	29.34	32.79	31.87	3.46	0.70	-1.49	-2.16	31.86	2.19
Fe%Aspy	30.61	32.89	32.36	2.28	0.30	-3.71	212.16	32.36	0.94
S%Aspy	34.60	37.96	35.62	3.35	0.66	1.72	10.86	35.62	1.85
AsForm	0.88	0.98	0.96	0.10	0.02	-1.48	-5.09	0.96	2.19
FeForm	0.92	0.99	0.97	0.07	0.01	-2.12	-145.13	0.97	0.93
SForm	1.04	1.14	1.07	0.10	0.02	1.70	6.40	1.07	1.85

n = 69

TABLE 2.16

Microprobe Analyses: Clontibret Arsenopyrite (ASP18)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Fe	33.48	35.02	34.18	1.54	0.33	-0.22	-107.83	34.18	0.97
As	41.99	45.77	44.01	3.78	0.75	-0.34	3.26	44.00	1.71
S	21.03	23.10	21.90	2.06	0.48	0.09	8.72	21.89	2.18
Sb	0.02	0.48	0.18	0.47	0.11	0.80	3.31	0.15	59.99
Co	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ni	0.00	0.11	0.03	0.11	0.02	1.65	7.09	0.03	65.39
Cu	0.00	0.04	0.00	0.04	0.01	4.27	20.68	0.51	359.89
Zn	0.00	0.02	0.00	0.02	0.00	4.10	19.01	0.61	382.13
Au	0.00	0.16	0.04	0.16	0.04	1.14	4.32	0.07	94.60
Ag	0.00	0.02	0.00	0.02	0.01	1.29	3.61	0.09	135.90
Total	98.75	101.49	100.35	2.73	0.60	-1.76	251.86	100.35	0.60
As%Aspy	29.74	32.52	31.17	2.78	0.63	-0.16	3.21	31.16	2.04
Fe%Aspy	31.99	33.14	32.47	1.15	0.21	1.72	-397.14	32.47	0.65
S%Aspy	35.20	37.86	36.23	2.66	0.60	0.37	4.02	36.23	1.66
AsForm	0.89	0.98	0.94	0.08	0.02	-0.20	5.66	0.93	2.04
FeForm	0.96	0.99	0.97	0.03	0.01	2.44	-469.27	0.97	0.65
SForm	1.06	1.14	1.09	0.08	0.02	0.42	0.00	1.09	1.66

n = 50

TABLE 2.17

TABLE 2.18

Microprobe Analyses: Glendinning Gold-rich Arsenopyrite (AU1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Fe	29.41	34.42	32.81	5.00	1.37	-0.83	3.27	32.79	4.19
As	40.51	46.08	42.95	5.57	1.58	0.34	1.64	42.92	3.68
S	20.78	23.94	22.60	3.17	0.83	-0.43	2.61	22.59	3.65
Co	0.00	0.24	0.02	0.24	0.06	3.50	13.52	0.74	350.90
Ni	0.00	1.54	0.23	1.54	0.38	2.72	9.79	0.15	167.83
Sb	0.04	0.20	0.10	0.16	0.04	0.56	3.17	0.09	41.76
Hg	0.21	0.85	0.34	0.64	0.15	2.70	10.20	0.32	42.75
Au	0.59	11.38	3.82	10.79	3.43	1.13	2.85	2.63	89.96
Total	98.91	109.17	102.87	10.26	3.12	0.88	3.08	102.82	3.03

n = 16

Microprobe Analyses: Glendinning Pyrite (PYTE1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Fe	37.15	48.00	40.96	10.85	2.70	1.30	3.99	40.89	5.98
S	50.95	61.85	58.04	10.90	2.45	-1.35	4.15	57.99	4.22
Sb	0.00	0.08	0.04	0.08	0.02	0.13	2.84	0.04	40.99
Hg	0.50	0.79	0.65	0.29	0.06	0.14	2.62	0.64	9.36
Au	0.00	0.09	0.03	0.09	0.02	0.14	2.43	0.04	57.49
Ag	0.00	0.02	0.00	0.02	0.00	4.37	22.30	0.56	370.32
Cd	0.00	0.59	0.10	0.59	0.07	3.12	17.71	0.09	74.41
Total	99.66	100.25	99.82	0.59	0.11	-54.32	797.75	99.82	0.11

TABLE 2.19

TABLE 2.20

Microprobe Analyses: Glendinning Pyrite (PYTE2)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Fe	42.87	46.47	45.04	3.61	0.87	-0.81	3.67	45.03	1.94
S	50.36	54.21	51.81	3.85	0.89	0.43	-3.47	51.80	1.71
Co	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ni	0.00	0.28	0.05	0.28	0.06	2.65	11.66	0.06	118.21
Cu	0.00	0.17	0.04	0.17	0.04	1.47	5.49	0.07	104.55
As	0.33	5.39	3.29	5.06	1.28	-0.41	3.00	2.90	38.76
Se	0.00	0.03	0.01	0.03	0.01	0.08	1.69	0.02	74.11
Cd	0.00	1.87	0.17	1.87	0.34	4.50	22.91	0.10	206.56
Sb	0.00	0.20	0.03	0.20	0.04	2.38	8.95	0.07	128.56
Hg	0.00	1.09	0.85	1.09	0.19	-3.34	16.34	0.88	21.89
Au	0.00	0.20	0.03	0.20	0.04	2.08	8.39	0.13	130.06
Total	97.30	103.04	101.35	5.74	1.32	-1.94	11.22	101.34	1.30

n = 29

TABLE 2.21

Microprobe Analyses: Glendinning Stibnite (STIB1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Sb	70.25	71.36	70.85	1.11	0.40	1.28	-446.94	70.85	0.57
S	27.13	27.52	27.33	0.39	0.14	3.41	-1239.31	27.33	0.53
Fe	0.00	0.05	0.02	0.05	0.02	0.91	2.22	0.06	131.18
Co	0.00	0.02	0.00	0.02	0.01	0.86	1.92	0.24	158.85
Ni	0.00	0.02	0.01	0.02	0.01	0.09	1.62	0.05	90.81
Cu	0.00	0.02	0.01	0.02	0.01	0.71	1.50	0.25	154.92
Zn	0.02	0.12	0.06	0.11	0.04	0.74	2.25	0.05	69.72
As	0.00	0.31	0.08	0.31	0.12	1.42	3.41	0.15	159.02
Au	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ag	0.00	0.02	0.00	0.02	0.01	1.69	3.99	0.19	205.83
Total	98.00	98.79	98.36	0.80	0.27	0.00	-8192.00	98.36	0.28

n = 6

TABLE 2.22

Microprobe Analyses: Glendinning Stibnite (STIB2)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Sb	64.73	68.44	66.88	3.72	1.52	-0.25	2.07	66.87	2.27
S	25.72	27.22	26.44	1.50	0.61	0.09	0.00	26.43	2.29
Fe	0.33	2.48	1.13	2.14	0.90	0.45	1.45	0.83	79.82
Co	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ni	0.10	0.15	0.13	0.04	0.02	-0.31	1.18	0.13	16.65
Cu	0.12	0.18	0.14	0.06	0.02	0.60	2.25	0.14	14.35
Zn	0.11	0.21	0.17	0.10	0.03	-0.56	2.76	0.17	18.82
As	2.56	4.72	3.35	2.16	0.88	0.46	1.62	3.25	26.43
Au	0.06	0.10	0.08	0.03	0.01	0.62	1.92	0.07	18.45
Ag	0.03	0.06	0.04	0.02	0.01	0.74	2.55	0.04	18.63
Total	97.44	99.19	98.36	1.75	0.67	-1.06	436.72	98.36	0.68

n = 7

TABLE 2.24

Microprobe Analyses: Glendinning Sphalerites (SPTE1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Zn	65.09	66.29	65.73	1.21	0.42	-0.98	-155.95	65.73	0.64
S	32.12	32.88	32.68	0.76	0.20	-2.33	0.00	32.68	0.60
Fe	0.07	0.54	0.26	0.47	0.16	0.42	1.75	0.21	62.22
Cu	0.00	0.59	0.16	0.59	0.20	1.10	2.74	0.23	122.14
As	0.00	0.09	0.02	0.09	0.03	1.28	2.90	0.35	173.82
Sb	0.02	0.33	0.10	0.32	0.10	1.48	3.70	0.07	102.64
Cd	0.00	0.69	0.25	0.69	0.20	1.08	3.30	0.26	78.29
Ag	0.00	0.16	0.05	0.16	0.05	0.88	2.56	0.14	113.08
Pb	0.10	0.83	0.30	0.73	0.22	1.36	3.90	0.25	71.50
Total	98.56	101.46	99.46	2.90	0.80	0.00	185.18	99.45	0.80

n = 12

Microprobe Analyses: Glendinning Tetrahedrite (TET1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Cu	38.23	41.45	39.83	3.23	1.09	-0.02	-0.48	39.81	2.74
As	13.94	15.74	14.99	1.81	0.63	-0.40	2.42	14.97	4.21
S	26.64	27.39	27.01	0.75	0.27	0.00	0.00	27.01	1.01
Zn	7.66	8.45	8.10	0.79	0.26	-0.44	2.51	8.10	3.15
Sb	7.03	9.50	8.45	2.47	0.88	-0.32	2.00	8.41	10.38
Fe	0.13	2.44	1.05	2.31	0.97	0.49	1.50	0.65	92.09
Ag	0.10	0.62	0.25	0.52	0.17	1.73	4.56	0.21	69.92
Cd	0.00	0.33	0.14	0.33	0.14	0.30	1.49	0.26	100.04
Tl	0.00	0.25	0.16	0.25	0.09	-0.92	2.79	0.23	53.27
Pb	0.04	0.64	0.30	0.60	0.18	0.58	3.16	0.24	60.07
Total	98.88	101.68	100.28	2.79	0.86	-0.25	160.31	100.27	0.86

n = 7

TABLE 2.25

TABLE 2.26

XRF Analyses: Glendinning Greywacke (BEAD1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	55.98	68.20	60.77	12.22	4.15	0.53	1.89	60.65	6.83
Al2O3	8.90	14.02	11.04	5.12	1.79	0.54	1.96	10.91	16.25
TiO2	0.63	0.89	0.75	0.26	0.10	0.44	1.63	0.75	13.38
Fe2O3	1.10	2.90	1.86	1.80	0.53	0.33	2.72	1.79	28.67
FeO	2.69	4.39	3.21	1.70	0.56	0.91	2.86	3.17	17.40
MgO	2.83	4.47	3.38	1.64	0.43	1.59	5.41	3.36	12.74
CaO	0.18	10.74	6.41	10.56	2.98	-0.60	3.16	4.74	46.42
Na2O	0.34	2.55	1.83	2.21	0.70	-1.19	3.21	1.61	38.36
K2O	1.05	2.43	1.62	1.38	0.42	0.59	2.51	1.57	25.79
MnO	0.03	0.11	0.07	0.08	0.02	-0.33	2.72	0.07	31.00
P2O5	0.14	0.20	0.16	0.06	0.02	1.21	3.41	0.16	12.40
CO2	0.81	11.16	6.44	10.35	3.71	-0.09	1.92	5.00	57.52
LOI	0.09	5.33	2.03	5.24	1.65	1.06	2.85	1.38	81.13
Total	98.51	100.02	99.58	1.51	0.44	-1.70	1035.63	99.57	0.44

n = 10

XRF Analyses: Glendinning Mudstone (BEAD2)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	51.42	65.19	56.57	13.77	4.71	0.68	2.17	56.40	8.32
Al2O3	12.78	17.80	15.85	5.02	1.58	-0.61	2.47	15.77	9.95
TiO2	0.77	0.99	0.93	0.22	0.07	-1.51	4.48	0.93	7.17
Fe2O3	2.24	6.22	3.74	3.98	1.22	0.78	2.77	3.57	32.62
FeO	0.30	5.99	3.62	5.69	1.74	-0.40	2.56	2.92	48.03
MgO	2.51	6.24	4.29	3.73	1.19	0.38	2.11	4.15	27.70
CaO	0.09	8.67	3.31	8.58	2.84	0.61	2.12	1.91	85.71
Na2O	0.04	1.68	1.02	1.64	0.60	-0.65	1.76	0.68	59.18
K2O	2.19	3.91	3.20	1.72	0.58	-0.67	2.01	3.15	18.08
MnO	0.04	0.14	0.08	0.10	0.03	0.91	2.51	0.07	45.24
P2O5	0.12	0.22	0.18	0.10	0.03	-0.91	2.57	0.18	17.34
CO2	1.87	12.40	4.01	10.53	3.32	1.86	5.18	3.25	82.97
LOI	0.84	4.66	2.50	3.82	1.25	0.20	2.02	2.19	49.84
Total	98.58	100.46	99.29	1.88	0.57	4.04	-1156.72	99.29	0.57

n = 10

TABLE 2.27

TABLE 2.28

XRF Analyses: Glendinning Mineralisation (BEAD3)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	48.49	80.86	56.67	32.37	8.63	1.37	4.26	56.12	15.23
Al2O3	5.86	16.75	12.81	10.89	2.39	-0.94	5.13	12.55	18.69
TiO2	0.30	0.95	0.75	0.65	0.14	-1.59	6.86	0.73	18.59
Fe2O3	0.75	5.26	2.15	4.52	1.30	1.19	3.66	1.84	60.41
FeO	0.44	4.57	2.99	4.13	1.03	-0.80	3.47	2.71	34.31
MgO	0.19	4.38	3.29	4.19	1.13	-1.32	4.09	2.87	34.33
CaO	0.50	8.32	6.06	7.82	2.16	-1.18	3.43	5.33	35.58
Na2O	0.00	2.03	0.30	2.03	0.52	2.61	8.47	0.30	175.20
K2O	1.10	4.21	2.92	3.11	0.86	-0.26	2.28	2.78	29.63
MnO	0.01	0.10	0.07	0.09	0.02	-1.01	3.98	0.06	31.59
P2O5	0.01	0.20	0.15	0.19	0.05	-1.53	5.17	0.13	31.22
CO2	0.68	12.87	7.64	12.19	3.41	-0.41	2.40	6.45	44.63
LOI	0.39	6.29	2.83	5.90	1.85	0.61	2.20	2.22	65.46
Total	95.17	100.89	97.79	5.72	1.70	0.25	-8.52	97.77	1.74

n = 19

XRF Analyses: Regional Greywackes (BEAD4)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	51.78	87.62	66.46	35.84	6.73	0.29	2.49	66.12	10.12
Al2O3	4.95	16.32	12.15	11.37	2.15	-0.33	2.50	11.95	17.71
TiO2	0.21	1.71	0.88	1.50	0.20	1.12	5.78	0.86	22.34
Fe2O3	-0.32	6.40	1.51	6.72	0.87	1.63	8.57	1.30	57.34
FeO	1.89	7.75	4.28	5.86	1.09	0.49	3.22	4.15	25.55
MgO	1.18	8.38	3.77	7.20	1.37	0.52	3.23	3.51	36.48
CaO	0.14	10.88	2.51	10.74	1.56	1.37	7.23	2.03	61.91
Na2O	0.30	5.39	2.89	5.09	0.89	0.01	2.95	2.73	30.80
K2O	0.47	3.05	1.53	2.58	0.46	0.35	3.19	1.46	29.83
MnO	0.03	0.34	0.08	0.31	0.03	2.32	17.70	0.08	40.42
P2O5	0.03	0.37	0.16	0.34	0.04	1.16	6.27	0.16	27.02
CO2	0.00	5.22	1.26	5.22	1.12	1.26	4.37	0.93	88.88
LOI	-0.47	8.56	2.23	9.03	1.19	1.49	7.86	1.95	53.34
Total	96.65	110.81	99.72	14.16	1.06	7.77	-101.49	99.71	1.07

n = 193

TABLE 2.29

TABLE 2.30

XRF Analyses: Marchburn Formation (B1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	51.78	66.66	59.57	14.88	4.09	-0.31	2.08	59.44	6.86
Al2O3	9.88	15.12	13.56	5.24	1.29	-1.11	3.83	13.49	9.54
TiO2	0.87	1.71	1.19	0.84	0.21	0.84	3.04	1.17	17.57
Fe2O3	0.53	3.93	2.25	3.40	0.95	0.14	1.94	2.03	42.11
FeO	3.86	7.75	5.36	3.89	1.09	0.53	2.30	5.26	20.31
MgO	2.74	8.38	4.89	5.64	1.75	0.54	1.80	4.61	35.81
CaO	1.14	10.88	3.24	9.74	2.34	2.06	6.72	2.73	72.03
Na2O	1.96	5.39	3.75	3.43	0.78	-0.06	3.23	3.67	20.92
K2O	0.47	1.98	1.26	1.51	0.40	-0.07	2.28	1.20	31.45
MnO	0.07	0.34	0.12	0.27	0.05	3.55	16.34	0.11	41.70
P2O5	0.14	0.37	0.22	0.23	0.06	1.18	3.60	0.21	27.00
CO2	0.10	3.25	1.14	3.15	0.93	0.73	2.40	0.75	81.32
LOI	0.69	6.92	2.82	6.23	1.31	1.01	5.05	2.53	46.55
Total	96.65	100.04	99.37	3.39	0.67	-3.05	-338.89	99.37	0.68

n = 24

TABLE 2.31

XRF Analyses: Afton Formation (B3)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	62.22	87.62	70.17	25.40	5.41	1.38	5.53	69.98	7.71
Al2O3	4.95	13.52	11.12	8.57	1.84	-1.48	6.38	10.93	16.53
TiO2	0.21	1.03	0.83	0.82	0.18	-1.75	6.54	0.80	22.15
Fe2O3	0.16	2.11	0.97	1.95	0.53	0.63	2.78	0.82	54.25
FeO	1.89	5.61	4.25	3.72	0.89	-0.72	3.42	4.14	20.87
MgO	1.18	4.40	2.92	3.22	0.83	-0.12	2.26	2.79	28.50
CaO	0.14	6.27	1.84	6.13	1.78	1.19	3.34	1.13	96.69
Na2O	0.30	3.04	2.14	2.74	0.73	-1.05	3.46	1.94	33.85
K2O	0.96	2.10	1.52	1.14	0.33	0.28	2.17	1.48	21.72
MnO	0.04	0.17	0.07	0.13	0.03	1.82	7.88	0.07	37.93
P2O5	0.03	0.24	0.14	0.21	0.04	-0.06	4.27	0.14	30.14
CO2	0.08	4.15	1.68	4.07	1.26	0.54	2.29	1.10	74.61
LOI	0.29	8.56	2.05	8.27	1.69	2.55	10.28	1.61	82.67
Total	98.71	100.43	99.70	1.71	0.39	-9.10	1531.89	99.70	0.39

n = 24

XRF Analyses: Blackcraig Formation (B5)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	56.14	70.41	60.85	14.27	4.94	0.85	2.62	60.68	8.12
Al2O3	12.47	15.97	13.98	3.50	1.23	0.32	2.11	13.93	8.83
TiO2	0.88	1.40	1.16	0.52	0.17	-0.48	2.37	1.15	14.46
Fe2O3	0.73	2.64	1.95	1.91	0.73	-0.62	1.94	1.79	37.45
FeO	4.32	7.06	5.91	2.74	0.91	-0.32	2.28	5.84	15.40
MgO	2.57	6.48	4.42	3.91	1.42	0.27	1.73	4.22	32.03
CaO	0.63	4.03	2.73	3.40	1.01	-0.98	3.56	2.45	36.99
Na2O	2.22	4.01	3.18	1.79	0.55	-0.10	2.56	3.13	17.38
K2O	1.03	2.53	1.47	1.50	0.48	1.44	3.93	1.41	32.99
MnO	0.06	0.13	0.11	0.07	0.02	-1.44	4.42	0.10	19.44
P2O5	0.12	0.29	0.16	0.17	0.06	1.91	5.23	0.15	34.90
CO2	0.12	1.19	0.50	1.07	0.33	1.09	3.42	0.42	65.49
LOI	2.14	3.63	2.78	1.49	0.63	0.45	1.33	2.72	22.75
Total	98.53	99.83	99.19	1.30	0.48	-1.41	806.29	99.19	0.48

n = 8

TABLE 2.32

TABLE 2.33

XRF Analyses: Scar Formation (B7)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	55.65	76.28	61.80	20.63	3.77	1.42	6.97	61.69	6.10
Al2O3	9.52	16.32	14.17	6.80	1.23	-1.42	6.60	14.11	8.70
TiO2	0.57	0.98	0.80	0.41	0.09	-0.52	2.62	0.80	11.57
Fe2O3	0.32	3.26	1.57	3.58	0.69	-0.07	4.21	1.46	44.04
FeO	3.37	5.81	4.65	2.44	0.63	-0.12	1.96	4.61	13.56
MgO	1.30	6.37	4.72	5.07	0.86	-1.54	8.24	4.61	18.16
CaO	0.49	6.04	3.35	5.55	1.15	-0.09	3.32	3.09	34.42
Na2O	2.37	5.16	3.55	2.79	0.58	0.54	3.33	3.50	16.41
K2O	0.70	3.05	1.58	2.35	0.43	0.94	5.04	1.53	27.10
MnO	0.04	0.13	0.09	0.09	0.02	-0.34	3.10	0.09	20.90
P2O5	0.11	0.25	0.17	0.14	0.03	0.05	2.62	0.17	19.79
CO2	0.12	5.08	0.95	4.96	1.02	2.33	8.84	0.64	106.77
LOI	0.26	4.42	2.45	4.16	0.72	-0.27	4.84	2.29	29.38
Total	97.75	110.81	99.86	13.06	2.02	4.53	18.17	99.84	2.02

n = 38

XRF Analyses: Shinnel Formation (B9)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	62.22	80.40	71.95	18.18	5.04	-0.03	2.08	71.78	7.00
Al2O3	7.37	13.36	10.02	5.99	1.41	0.12	3.15	9.93	14.05
TiO2	0.58	0.99	0.80	0.41	0.11	-0.14	2.86	0.80	13.07
Fe2O3	0.24	1.63	0.82	1.39	0.34	0.14	2.84	0.74	41.80
FeO	2.27	4.85	3.65	2.58	0.74	-0.27	2.16	3.58	20.19
MgO	1.36	4.02	2.67	2.66	0.86	-0.07	1.62	2.52	32.20
CaO	0.65	5.97	2.20	5.32	1.23	1.54	5.15	1.94	56.16
Na2O	1.30	3.62	2.47	2.32	0.54	-0.09	3.25	2.41	21.88
K2O	0.56	1.97	1.26	1.41	0.41	-0.18	1.92	1.19	32.43
MnO	0.03	0.18	0.07	0.15	0.03	2.49	9.93	0.06	45.79
P2O5	0.09	0.22	0.15	0.13	0.04	0.62	2.24	0.14	27.18
CO2	0.32	4.98	2.04	4.66	1.26	0.73	2.71	1.66	62.02
LOI	0.58	5.95	1.68	5.37	1.14	2.35	9.48	1.43	68.02
Total	99.39	100.21	99.78	0.81	0.27	-27.39	33281.52	99.78	0.27

n = 23

TABLE 2.34

XRF Analyses: Pyroxenous Formation (B11)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	58.98	67.48	63.53	8.50	2.37	-0.11	2.33	63.49	3.74
Al2O3	11.49	14.35	12.82	2.86	0.72	0.23	2.67	12.80	5.61
TiO2	0.71	0.97	0.83	0.26	0.06	0.30	2.39	0.83	7.64
Fe2O3	0.56	4.97	1.93	4.40	0.81	2.08	9.44	1.80	42.00
FeO	2.47	5.91	4.42	3.44	0.77	-0.07	3.41	4.36	17.44
MgO	3.62	6.77	4.47	3.15	0.64	1.89	8.00	4.44	14.27
CaO	1.10	4.95	3.34	3.85	1.00	-0.34	2.47	3.16	29.87
Na2O	2.30	4.23	3.13	1.93	0.46	0.39	3.46	3.10	14.61
K2O	0.83	2.63	1.63	1.80	0.44	0.12	2.86	1.57	27.01
MnO	0.08	0.14	0.10	0.06	0.02	1.42	4.09	0.09	19.05
P2O5	0.15	0.23	0.18	0.08	0.02	0.79	3.00	0.18	11.17
CO2	0.25	2.30	1.15	2.05	0.56	0.09	2.05	1.00	48.37
LOI	0.83	3.68	2.08	2.85	0.90	0.40	2.03	1.90	43.15
Total	98.35	100.13	99.62	1.78	0.41	-3.87	1232.49	99.62	0.41

n = 24

TABLE 2.35

TABLE 2.36

XRF Analyses: Intermediate Formation (B13)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	63.82	79.96	72.75	16.14	3.84	-0.23	2.99	72.66	5.27
Al2O3	7.56	13.96	10.36	6.40	1.46	0.17	3.59	10.26	14.06
TiO2	0.60	1.02	0.78	0.42	0.12	0.33	1.87	0.77	15.57
Fe2O3	0.38	2.35	1.20	1.97	0.48	0.51	2.91	1.11	39.58
FeO	2.45	5.02	3.23	2.57	0.55	1.74	6.90	3.19	17.00
MgO	1.62	3.87	2.81	2.25	0.68	-0.31	2.29	2.73	24.01
CaO	0.33	3.40	1.54	3.07	0.78	0.71	2.97	1.35	50.77
Na2O	1.50	4.09	2.27	2.59	0.63	1.18	4.58	2.20	27.59
K2O	1.05	2.48	1.86	1.43	0.44	-0.49	2.18	1.80	23.55
MnO	0.03	0.11	0.06	0.08	0.02	1.65	5.34	0.05	34.82
P2O5	0.11	0.23	0.15	0.12	0.03	1.27	4.39	0.14	20.21
CO2	0.07	2.92	1.34	2.85	0.90	0.27	1.84	0.94	67.36
LOI	-0.47	2.67	1.46	3.14	0.81	-0.42	2.69	1.38	55.52
Total	98.93	100.27	99.80	1.34	0.29	-22.06	14970.75	99.80	0.29

n = 20

XRF Analyses: Glendinning Duplicates (DUP1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	56.46	57.61	57.11	1.15	0.52	0.00	-127.95	57.11	0.91
Al2O3	14.27	14.83	14.61	0.56	0.25	-0.39	-12.32	14.61	1.72
TiO2	0.81	0.83	0.82	0.02	0.01	-1.16	58.18	0.82	1.09
Fe2O3	5.92	5.97	5.94	0.05	0.02	-12.87	9191.32	5.94	0.32
MgO	4.53	4.80	4.68	0.27	0.10	-0.35	-3.42	4.68	2.20
CaO	7.86	8.21	8.01	0.35	0.14	0.40	17.17	8.01	1.71
Na2O	1.59	1.63	1.61	0.04	0.02	0.00	56.01	1.61	0.95
K2O	2.51	2.54	2.53	0.03	0.01	1.91	-1512.97	2.53	0.56
MnO	0.08	0.09	0.09	0.01	0.00	-1.50	3.24	0.09	5.08
P2O5	0.17	0.17	0.17	0.00	0.00	0.00	0.00	0.17	0.04
As	3.00	6.00	5.00	3.00	1.22	-0.91	2.50	4.86	24.49
Ba	327.00	357.00	341.20	30.00	13.27	0.20	0.62	340.99	3.89
Cl	0.00	34.00	14.40	34.00	14.93	0.21	1.52	6.48	103.66
Co	14.00	23.00	19.40	9.00	3.36	-0.78	2.51	19.14	17.33
Cr	120.00	133.00	127.80	13.00	5.07	-0.66	2.12	127.72	3.97
Cu	26.00	32.00	28.60	6.00	2.30	0.41	2.07	28.53	8.05
Ga	14.00	15.00	14.80	1.00	0.45	-1.49	2.44	14.79	3.02
La	27.00	33.00	29.20	6.00	2.28	1.00	2.69	29.13	7.81
Ni	61.00	64.00	63.00	3.00	1.22	-0.88	0.00	62.99	1.94
Nb	13.00	15.00	14.00	2.00	0.71	0.00	2.54	13.99	5.05
Pb	23.00	26.00	24.20	3.00	1.30	0.36	1.62	24.17	5.39
Rb	80.00	83.00	81.40	3.00	1.14	0.35	7.40	81.39	1.40
Sr	155.00	163.00	159.40	8.00	3.21	-0.19	0.00	159.37	2.01
Sb	0.00	1.00	0.20	1.00	0.45	1.50	3.25	1.00	223.61
S	279.00	310.00	292.40	31.00	12.82	0.31	1.78	292.18	4.38
Th	7.00	13.00	10.20	6.00	2.77	0.01	1.32	9.89	27.20
V	103.00	109.00	104.40	6.00	2.61	1.40	4.33	104.37	2.50
Y	31.00	33.00	32.20	2.00	0.84	-0.37	2.39	32.19	2.60
Zn	71.00	84.00	77.00	13.00	4.90	0.24	2.10	76.88	6.36
Zr	173.00	182.00	176.60	9.00	3.36	0.81	-3.13	176.57	1.90
Tl	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

n = 5

TABLE 2.37

XRF Analyses: Glendinning Duplicates (DUP2)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	56.85	57.58	57.18	0.73	0.27	0.00	597.38	57.18	0.47
Al2O3	13.21	13.43	13.32	0.22	0.10	-1.55	290.06	13.32	0.72
TiO2	0.82	0.84	0.83	0.02	0.01	-0.85	0.00	0.83	1.01
Fe2O3	5.17	5.37	5.27	0.20	0.08	-0.20	0.00	5.27	1.42
MgO	4.25	4.44	4.35	0.19	0.07	-0.26	-8.37	4.35	1.59
CaO	9.92	10.58	10.30	0.66	0.26	-0.47	0.00	10.30	2.56
Na2O	1.74	1.85	1.79	0.11	0.05	0.30	2.15	1.79	2.87
K2O	2.26	2.31	2.28	0.05	0.02	1.23	-196.10	2.28	0.82
MnO	0.12	0.14	0.13	0.02	0.01	0.00	2.69	0.13	5.44
P2O5	0.19	0.20	0.20	0.01	0.00	-1.53	7.27	0.20	2.26
As	3.00	8.00	5.60	5.00	1.82	-0.18	2.27	5.33	32.44
Ba	272.00	306.00	290.40	34.00	12.74	-0.33	2.07	290.17	4.39
Cl	9.00	34.00	18.00	25.00	9.46	1.09	2.82	16.34	52.56
Co	18.00	26.00	22.00	8.00	3.08	0.06	1.84	21.83	14.01
Cr	125.00	139.00	132.40	14.00	5.03	-0.26	2.66	132.32	3.80
Cu	21.00	25.00	23.20	4.00	1.48	-0.37	2.22	23.16	6.39
Ga	13.00	14.00	13.40	1.00	0.55	0.40	1.22	13.39	4.09
La	27.00	41.00	35.00	14.00	5.70	-0.27	1.78	34.61	16.29
Ni	49.00	52.00	50.20	3.00	1.30	0.36	0.00	50.19	2.60
Nb	12.00	16.00	14.00	4.00	1.58	0.00	1.70	13.93	11.29
Pb	8.00	16.00	12.00	8.00	2.83	0.00	2.50	11.72	23.57
Rb	74.00	77.00	75.20	3.00	1.30	0.35	4.32	75.19	1.73
Sr	151.00	159.00	155.80	8.00	3.11	-0.65	6.38	155.77	2.00
Sb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S	0.00	18.00	3.60	18.00	8.05	1.50	3.25	1.78	223.61
Th	8.00	12.00	10.40	4.00	1.67	-0.34	1.85	10.29	16.09
V	100.00	110.00	105.60	10.00	3.85	-0.40	2.51	105.54	3.64
Y	35.00	37.00	35.80	2.00	0.84	0.35	1.59	35.79	2.34
Zn	13.00	58.00	47.20	45.00	19.28	-1.44	3.17	41.63	40.85
Zr	211.00	223.00	216.60	12.00	5.13	0.27	2.31	216.55	2.37
Tl	0.00	2.00	0.40	2.00	0.89	1.50	3.25	1.15	223.61

n = 5

TABLE 2.38

MIBK Analyses: Southern Uplands (GOLD1).

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Au(ppb)	0.00	4270.00	509.47	4270.00	1101.18	2.56	8.60	48.63	216.14
Au*(ppb)	0.00	4635.00	568.53	4635.00	1230.15	2.44	7.85	43.51	216.38

n = 19

TABLE 2.39

AA Analyses: Glendinning Mineralised Core Samples (GOLD2) .

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
As(ppm)	52.00	47700.00	7917.82	47648.00	7700.56	2.66	13.19	5126.66	97.26
Ag(ppm)	1.00	2.00	1.10	1.00	0.30	2.70	8.28	1.07	27.34
Au(ppb)	0.00	740.00	88.53	740.00	136.89	2.33	10.01	10.32	154.63

n = 61

TABLE 2.40

XRF + NAA Analyses: Rams Cleuch Soil Geochemistry (GOLD3)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	52.83	62.70	58.85	9.87	2.54	-0.82	3.37	58.79	4.32
Al2O3	16.55	21.23	18.27	4.68	1.47	0.58	2.20	18.22	8.04
Fe2O3	7.25	11.47	8.84	4.22	1.09	0.59	3.22	8.78	12.34
MgO	1.07	2.70	1.95	1.63	0.55	-0.26	1.66	1.87	28.43
Na2O	0.26	0.76	0.56	0.50	0.15	-0.25	2.01	0.54	27.23
K2O	2.61	4.17	3.08	1.56	0.44	1.30	3.72	3.06	14.25
As	3.00	26.00	5.69	23.00	5.57	3.30	12.59	4.67	97.94
Ba	286.00	410.00	333.50	124.00	30.99	1.17	3.98	332.23	9.29
Co	6.00	24.00	14.81	18.00	5.33	-0.10	2.00	13.79	36.00
Cu	12.00	42.00	20.44	30.00	7.48	1.43	5.32	19.36	36.61
Ga	17.00	23.00	19.56	6.00	1.71	0.22	2.38	19.49	8.75
Ni	30.00	74.00	50.25	44.00	14.43	-0.06	1.82	48.18	28.72
Pb	17.00	77.00	25.25	60.00	14.14	3.34	12.80	23.38	55.98
Rb	99.00	146.00	117.75	47.00	13.66	0.51	2.64	117.03	11.60
Sr	36.00	119.00	63.50	83.00	27.29	0.88	2.35	58.74	42.98
V	110.00	162.00	126.81	52.00	13.27	1.12	4.17	126.20	10.47
Zn	31.00	134.00	70.13	103.00	24.94	0.74	3.91	66.03	35.57
Tl	0.00	1.00	0.06	1.00	0.25	3.61	14.07	1.00	400.00
Sb	0.00	14.00	4.38	14.00	3.90	1.13	3.62	3.42	89.06
S	661.00	1307.00	838.19	646.00	152.33	1.85	6.72	827.13	18.17
Au(ppb)	0.00	20.00	3.69	20.00	5.39	1.99	6.34	2.33	146.11

n = 16

TABLE 2.41

INAA Analyses: Glendinning Core Samples (GOLD4).

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Au(ppb)	0.00	680.00	92.74	680.00	144.27	2.38	8.85	31.34	155.55

n = 39

TABLE 2.42

INAA Analyses: Glendinning Regional Greywacke (GOLD5).

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Au(ppb)	0.00	7.00	3.09	7.00	2.59	0.22	1.86	2.66	83.69

n = 11

TABLE 2.43

INAA Analyses: Southern Uplands Mineralisation (GOLD6).

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Au(ppb)	0.00	2300.00	363.13	2298.00	786.51	2.22	6.03	53.63	216.59

n = 8

TABLE 2.44

TABLE 2.45

XRF Analyses: Rams Cleuch Soil Grid (GRD1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	52.33	71.50	60.34	19.17	2.60	0.43	4.39	60.28	4.32
Al2O3	15.03	23.50	17.88	8.47	1.35	0.82	4.66	17.83	7.58
Fe2O3	2.51	11.69	8.13	9.18	1.32	-0.92	5.67	8.00	16.18
MgO	1.05	4.00	2.10	2.95	0.58	0.48	3.11	2.02	27.68
Na2O	0.25	1.02	0.68	0.77	0.15	-0.34	3.06	0.66	22.31
K2O	1.90	4.60	2.86	2.70	0.41	0.96	5.13	2.83	14.42
As	0.00	27.00	4.76	27.00	3.48	3.50	19.30	4.08	73.04
Ba	218.00	551.00	342.78	333.00	53.66	1.54	5.93	339.06	15.65
Co	0.00	88.00	17.16	88.00	8.52	3.40	27.14	15.46	49.62
Cu	6.00	56.00	19.56	50.00	7.08	1.23	6.12	18.40	36.22
Ga	13.00	27.00	18.97	14.00	2.02	0.68	4.92	18.87	10.65
Ni	15.00	121.00	50.47	106.00	17.30	0.76	4.33	47.55	34.29
Pb	13.00	101.00	23.28	88.00	10.02	4.03	25.48	22.04	43.03
Rb	54.00	162.00	111.36	108.00	17.43	-0.13	3.76	109.92	15.65
Sr	27.00	144.00	55.10	117.00	20.00	1.63	5.87	52.21	36.30
V	67.00	183.00	117.45	116.00	14.80	0.51	5.83	116.53	12.60
Zn	19.00	134.00	72.42	115.00	20.80	0.36	3.28	69.28	28.73
Tl	0.00	11.00	0.32	11.00	1.27	5.71	40.26	1.09	394.19
Sb	0.00	20.00	4.10	20.00	3.35	1.82	8.62	3.28	81.67
S	222.00	3382.00	807.22	3160.00	310.26	3.16	26.56	757.71	38.44

n = 195

XRF Analyses: Swin Gill Soil Grid (GRD2)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	47.21	69.31	60.77	22.10	2.49	-0.39	6.09	60.72	4.10
Al2O3	8.75	21.02	16.57	12.27	1.64	-0.64	5.60	16.48	9.88
Fe2O3	1.71	14.38	7.59	12.67	1.87	-0.69	4.59	7.29	24.64
MgO	0.76	4.18	2.13	3.42	0.60	0.47	3.00	2.05	28.22
Na2O	0.26	1.21	0.77	0.95	0.18	-0.07	2.82	0.74	23.13
K2O	1.85	4.11	2.70	2.26	0.27	0.34	5.62	2.69	10.06
As	0.00	65.00	7.82	65.00	7.44	2.89	18.06	5.40	95.06
Ba	222.00	1561.00	384.47	1339.00	152.80	2.82	16.05	363.67	39.74
Co	0.00	350.00	21.75	350.00	26.73	8.46	91.49	17.13	122.91
Cu	0.00	68.00	13.81	68.00	7.38	1.50	11.95	11.53	53.41
Ga	11.00	24.00	18.83	13.00	1.63	-0.45	5.47	18.76	8.63
Ni	6.00	85.00	34.73	79.00	14.82	0.50	2.96	31.38	42.67
Pb	10.00	122.00	30.10	112.00	13.99	3.16	18.44	27.94	46.47
Rb	47.00	148.00	102.13	101.00	15.27	0.03	3.54	100.95	14.95
Sr	24.00	183.00	41.66	159.00	13.15	5.15	50.02	40.33	31.56
V	37.00	141.00	111.69	104.00	14.05	-1.45	8.80	110.59	12.58
Zn	13.00	254.00	65.95	241.00	32.53	1.29	6.75	58.54	49.32
Tl	0.00	3.00	0.04	3.00	0.29	7.35	60.89	1.01	652.96
Sb	0.00	34.00	2.31	34.00	3.04	4.37	42.31	2.01	131.84
S	0.00	5312.00	716.23	5312.00	466.78	4.57	39.77	609.40	65.17

n = 294

TABLE 2.46

XRF Analyses: Glendinning Greywacke Exploration Suite (GWKE1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	46.19	87.84	58.89	41.65	2.97	2.70	31.83	58.82	5.04
Al2O3	6.86	21.31	14.23	14.45	1.83	0.35	4.84	14.11	12.86
TiO2	0.23	1.16	0.84	0.93	0.12	-0.31	4.88	0.83	14.72
Fe2O3	2.95	12.09	5.96	9.14	0.96	1.43	8.75	5.89	16.14
MgO	0.80	6.79	4.37	5.99	0.77	-1.06	6.89	4.28	17.57
CaO	0.02	24.36	7.40	24.34	3.41	0.45	5.59	5.94	46.08
Na2O	0.05	4.30	1.55	4.25	0.42	-0.59	11.66	1.44	26.87
K2O	0.39	4.12	2.21	3.73	0.41	0.79	6.34	2.17	18.64
MnO	0.03	0.33	0.11	0.30	0.03	2.14	11.40	0.10	32.07
P2O5	0.10	0.24	0.18	0.14	0.02	-0.93	8.09	0.18	8.82
Total	90.91	100.03	95.74	9.12	1.59	-0.13	15.23	95.73	1.66
As	0.00	65.00	3.40	65.00	6.35	5.04	38.43	2.25	186.81
Ba	56.00	912.00	280.81	856.00	86.03	2.21	13.06	270.02	30.64
Cl	0.00	146.00	30.01	146.00	22.01	1.45	6.78	20.41	73.36
Co	11.00	66.00	26.62	55.00	5.36	1.72	12.78	26.13	20.15
Cr	49.00	292.00	142.18	243.00	28.14	1.75	9.98	139.68	19.79
Cu	7.00	70.00	24.08	63.00	9.46	1.25	5.47	22.41	39.30
Ga	6.00	24.00	13.74	18.00	2.08	0.90	5.87	13.59	15.14
La	12.00	56.00	32.32	44.00	5.91	0.33	3.93	31.77	18.28
Ni	12.00	100.00	58.92	88.00	11.21	0.59	4.88	57.82	19.02
Nb	4.00	107.00	13.95	103.00	5.78	13.81	221.54	13.57	41.42
Pb	0.00	53.00	14.68	53.00	5.78	3.66	20.19	13.94	39.35
Rb	15.00	136.00	71.50	121.00	16.19	1.04	6.09	69.70	22.64
Sr	9.00	263.00	120.86	254.00	38.60	0.02	3.37	113.37	31.94
Sb	0.00	55.00	1.88	55.00	5.33	5.50	42.32	1.51	284.25
S	0.00	2755.00	47.60	2755.00	170.66	13.47	209.61	13.27	358.50
Th	0.00	22.00	8.51	22.00	3.54	0.33	3.95	7.63	41.57
V	27.00	149.00	99.88	122.00	14.48	-0.17	6.11	98.71	14.50
Y	0.00	64.00	31.85	64.00	6.12	0.42	8.22	31.08	19.21
Zn	0.00	165.00	66.63	165.00	15.93	1.04	9.23	64.27	23.91
Zr	68.00	578.00	212.21	510.00	45.73	2.47	18.26	207.97	21.55
Tl	0.00	17.00	0.34	17.00	1.32	7.84	88.55	1.10	387.37

n = 306

TABLE 2.47

XRF Analyses: Upper Silurian Greywackes (GWKE2)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	52.01	87.84	58.98	35.83	4.64	4.73	30.19	58.83	7.87
Al2O3	6.86	20.43	14.38	13.57	2.04	-0.29	6.11	14.22	14.22
TiO2	0.23	1.14	0.84	0.91	0.14	-1.29	8.53	0.82	16.64
Fe2O3	2.95	8.09	5.86	5.14	0.98	0.32	3.86	5.77	16.76
MgO	0.80	5.83	4.31	5.03	0.86	-1.84	7.76	4.17	19.88
CaO	0.02	14.55	7.21	14.53	2.93	-0.51	3.82	5.65	40.63
Na2O	0.71	2.20	1.62	1.49	0.29	-1.11	4.60	1.59	17.64
K2O	0.39	3.53	2.21	3.14	0.45	-0.59	7.56	2.14	20.57
MnO	0.03	0.18	0.10	0.15	0.03	0.92	3.89	0.10	31.82
P2O5	0.12	0.20	0.18	0.08	0.01	-1.22	6.33	0.18	8.18
Total	91.27	100.03	95.68	8.76	1.64	0.49	0.00	95.67	1.72
As	0.00	39.00	3.75	39.00	7.24	2.95	13.03	2.13	193.16
Ba	56.00	594.00	314.65	538.00	95.04	0.28	3.82	298.18	30.21
Cl	0.00	116.00	29.13	116.00	22.80	1.41	6.02	18.66	78.26
Co	17.00	66.00	27.63	49.00	7.35	3.01	15.82	26.93	26.58
Cr	49.00	205.00	136.17	156.00	23.75	-0.45	5.85	133.77	17.44
Cu	10.00	70.00	26.25	60.00	10.32	1.57	7.51	24.52	39.31
Ga	6.00	20.00	14.00	14.00	2.11	-0.28	6.61	13.82	15.10
La	12.00	45.00	32.10	33.00	6.44	-0.51	4.00	31.35	20.05
Ni	12.00	90.00	57.21	78.00	12.93	-0.16	5.35	55.38	22.60
Nb	4.00	34.00	14.27	30.00	3.54	2.93	20.83	13.88	24.83
Pb	8.00	30.00	14.42	22.00	4.75	1.58	5.14	13.81	32.90
Rb	15.00	128.00	71.94	113.00	17.55	0.44	5.87	69.47	24.40
Sr	9.00	214.00	132.15	205.00	42.99	-0.70	3.12	121.15	32.53
Sb	0.00	55.00	2.38	55.00	8.32	5.33	32.77	1.50	348.90
S	0.00	2755.00	141.58	2755.00	389.12	6.06	40.82	42.60	274.85
Th	0.00	15.00	8.08	15.00	3.41	-0.17	3.04	7.19	42.24
V	27.00	140.00	101.44	113.00	17.67	-1.13	7.67	99.36	17.41
Y	9.00	48.00	30.19	39.00	5.83	-0.17	6.26	29.53	19.32
Zn	18.00	165.00	69.81	147.00	22.80	1.77	8.55	66.54	32.66
Zr	68.00	319.00	206.62	251.00	42.31	0.28	4.96	201.95	20.48
Tl	0.00	5.00	0.31	5.00	0.96	3.37	14.24	1.11	312.25

n = 52

TABLE 2.48

XRF Analyses: Lower Silurian Greywacke (GWKE3)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	46.19	70.30	59.01	24.11	2.50	-0.11	5.66	58.96	4.24
Al2O3	10.75	21.31	14.28	10.56	1.77	0.88	4.50	14.18	12.40
TiO2	0.45	1.20	0.84	0.75	0.12	0.25	3.24	0.83	13.95
Fe2O3	4.12	12.09	5.98	7.97	0.97	1.64	9.53	5.91	16.18
MgO	0.78	6.32	4.36	5.54	0.76	-1.25	7.34	4.27	17.51
CaO	0.01	24.36	7.26	24.35	3.34	0.27	5.18	5.76	45.92
Na2O	0.09	4.30	1.56	4.21	0.41	-0.17	12.98	1.47	26.23
K2O	1.27	4.12	2.21	2.85	0.40	1.19	5.94	2.17	18.27
MnO	0.04	0.33	0.11	0.29	0.03	2.43	13.30	0.10	31.57
P2O5	0.09	0.24	0.18	0.15	0.02	-1.09	10.11	0.18	8.91
Total	90.91	101.22	95.79	10.31	1.62	-0.24	30.71	95.78	1.69
As	0.00	326.00	4.28	326.00	21.09	14.28	216.79	2.24	492.62
Ba	158.00	912.00	274.98	754.00	82.73	2.81	17.59	265.65	30.08
Cl	0.00	146.00	30.67	146.00	21.65	1.49	7.13	21.87	70.61
Co	16.00	45.00	26.65	29.00	4.69	0.82	4.67	26.25	17.61
Cr	63.00	292.00	144.01	229.00	28.31	2.14	10.36	141.68	19.66
Cu	7.00	61.00	23.83	54.00	9.35	1.13	4.54	22.16	39.24
Ga	9.00	24.00	13.70	15.00	2.07	1.18	5.93	13.55	15.08
La	19.00	56.00	32.55	37.00	5.71	0.62	3.77	32.07	17.54
Ni	30.00	100.00	59.31	70.00	10.93	0.82	4.34	58.35	18.43
Nb	7.00	107.00	13.95	100.00	6.15	13.80	209.35	13.57	44.11
Pb	0.00	53.00	14.81	53.00	6.01	3.76	20.35	14.04	40.54
Rb	19.00	136.00	71.29	117.00	15.87	1.22	6.24	69.64	22.27
Sr	25.00	263.00	118.52	238.00	37.29	0.19	3.73	111.81	31.46
Sb	0.00	73.00	1.66	73.00	5.50	9.37	114.98	1.47	331.84
S	0.00	509.00	29.29	509.00	49.77	5.13	41.14	10.99	169.93
Th	0.00	22.00	8.63	22.00	3.55	0.39	4.11	7.77	41.17
V	43.00	149.00	100.10	106.00	13.36	0.36	4.98	99.20	13.35
Y	0.00	64.00	32.33	64.00	6.07	0.52	8.89	31.56	18.77
Zn	0.00	130.00	66.40	130.00	14.78	0.21	6.09	64.03	22.26
Zr	101.00	578.00	215.19	477.00	45.35	3.07	21.03	211.43	21.08
Tl	0.00	17.00	0.35	17.00	1.38	7.95	87.13	1.11	396.53

n = 252

TABLE 2.49

XRF Analyses: Regional Greywacke Suite (GWKE4)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	48.00	87.98	63.35	39.98	5.11	0.29	3.68	63.14	8.06
Al2O3	3.97	21.95	12.43	17.98	2.01	0.30	4.66	12.27	16.17
TiO2	0.26	3.87	1.05	3.61	0.27	2.42	21.52	1.02	25.49
Fe2O3	3.10	13.20	7.25	10.10	1.66	0.43	3.78	7.05	22.92
MgO	0.38	11.97	4.52	11.59	1.61	0.76	4.60	4.23	35.51
CaO	0.05	17.48	2.91	17.43	2.14	2.02	10.33	2.23	73.71
Na2O	0.00	4.83	2.34	4.83	0.66	0.22	4.07	2.23	28.03
K2O	0.36	5.32	1.73	4.96	0.59	1.00	7.04	1.63	33.92
MnO	0.03	0.51	0.11	0.48	0.05	3.38	23.76	0.11	41.71
P2O5	0.04	1.25	0.19	1.21	0.07	7.71	111.59	0.18	34.90
Total	88.88	101.43	95.87	12.55	1.76	0.11	-18.30	95.86	1.84
As	0.00	58.00	2.28	58.00	4.79	6.34	57.63	1.79	209.77
Ba	140.00	2042.00	456.42	1902.00	201.41	2.24	11.97	422.44	44.13
Co	7.00	76.00	25.74	69.00	10.76	0.80	3.69	23.60	41.80
Cr	6.00	1117.00	197.41	1111.00	105.88	3.09	20.17	176.86	53.63
Cu	2.00	330.00	22.34	328.00	15.50	11.79	225.05	19.95	69.38
Ga	7.00	24.00	14.01	17.00	2.25	-0.12	3.69	13.82	16.05
La	0.00	166.00	27.72	166.00	11.02	3.14	38.32	25.58	39.77
Ni	5.00	372.00	69.70	367.00	38.74	2.72	15.09	61.88	55.57
Nb	3.00	36.00	13.62	33.00	3.55	0.58	5.39	13.15	26.08
Pb	4.00	125.00	13.74	121.00	7.96	7.91	95.13	12.70	57.96
Rb	12.00	183.00	45.97	171.00	17.49	1.64	11.87	42.86	38.04
Sr	26.00	2588.00	205.43	2562.00	162.78	5.43	69.44	165.99	79.24
Sb	0.00	22.00	0.54	22.00	1.60	6.29	64.50	1.17	295.80
S	0.00	16078.00	608.27	16078.00	927.84	7.94	116.20	145.82	152.54
Th	0.00	63.00	7.28	63.00	3.87	4.42	63.57	6.36	53.08
V	28.00	330.00	129.15	302.00	43.37	1.00	4.40	122.45	33.58
Y	11.00	73.00	25.40	62.00	5.18	2.76	23.18	24.96	20.38
Zn	11.00	329.00	61.94	318.00	19.36	4.72	59.69	59.58	31.26
Zr	21.00	709.00	222.98	688.00	76.50	1.02	6.51	210.18	34.31

n = 699

TABLE 2.50

XRF Analyses: Marchburn Formation (GWKE8)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	50.07	65.01	57.47	14.94	3.82	0.00	2.28	57.35	6.66
Al2O3	7.93	15.28	12.07	7.35	1.47	-0.16	3.13	11.98	12.17
TiO2	1.07	2.22	1.51	1.15	0.27	0.63	2.97	1.49	17.84
Fe2O3	7.30	13.20	9.87	5.90	1.63	0.59	2.44	9.74	16.48
MgO	2.23	11.97	6.61	9.74	2.35	0.57	2.59	6.21	35.50
CaO	1.44	14.43	3.49	12.99	2.23	3.17	15.00	3.09	64.06
Na2O	1.45	4.83	2.86	3.38	0.73	0.63	3.43	2.77	25.71
K2O	0.36	2.60	1.26	2.24	0.46	0.39	3.11	1.17	36.71
MnO	0.11	0.50	0.16	0.39	0.06	5.07	31.44	0.15	35.79
P2O5	0.14	0.45	0.24	0.31	0.08	1.23	3.84	0.23	32.06
Total	90.48	98.43	95.54	7.95	1.42	-0.99	28.53	95.53	1.49
As	0.00	16.00	1.84	16.00	2.79	3.15	16.19	1.71	151.37
Ba	140.00	907.00	383.09	767.00	173.61	1.16	4.16	349.31	45.32
Co	18.00	44.00	29.52	26.00	6.59	0.17	2.39	28.79	22.32
Cr	143.00	905.00	323.70	762.00	203.04	1.59	4.87	278.17	62.72
Cu	13.00	87.00	29.86	74.00	11.97	2.43	12.91	28.04	40.07
Ga	11.00	19.00	15.52	8.00	1.50	-0.73	3.98	15.45	9.67
La	6.00	44.00	21.93	38.00	8.75	0.62	2.98	20.21	39.88
Ni	46.00	372.00	125.66	326.00	81.33	1.23	3.94	104.62	64.72
Nb	8.00	21.00	13.75	13.00	3.10	-0.26	2.48	13.38	22.57
Pb	5.00	33.00	11.82	28.00	4.95	1.84	8.73	10.98	41.86
Rb	12.00	58.00	30.18	46.00	10.82	0.37	2.38	28.25	35.86
Sr	88.00	857.00	264.93	769.00	156.88	1.77	6.51	230.89	59.22
Sb	0.00	4.00	0.41	4.00	1.00	2.26	6.85	1.16	243.41
S	0.00	5216.00	981.00	5216.00	1236.75	1.53	5.18	152.32	126.07
Th	0.00	13.00	4.93	13.00	2.94	0.37	3.05	4.16	59.54
V	132.00	275.00	195.95	143.00	36.48	0.30	2.40	192.66	18.62
Y	20.00	31.00	26.16	11.00	3.11	-0.21	2.20	25.97	11.89
Zn	49.00	107.00	73.55	58.00	14.10	0.28	2.35	72.23	19.17
Zr	100.00	197.00	151.68	97.00	27.23	-0.21	1.83	149.18	17.95

n = 44

TABLE 2.51

XRF Analyses: Afton Formation (GWKE9)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	56.34	87.98	65.03	31.64	3.65	1.87	12.52	64.93	5.62
Al2O3	3.97	19.16	12.76	15.19	1.80	-0.31	6.29	12.62	14.13
TiO2	0.26	1.55	1.08	1.29	0.20	-0.29	4.01	1.06	18.38
Fe2O3	3.10	9.74	7.10	6.64	1.02	-0.59	4.47	7.02	14.31
MgO	1.47	6.23	3.70	4.76	0.93	0.65	3.31	3.59	25.15
CaO	0.21	12.52	1.89	12.31	1.78	2.89	14.06	1.40	94.03
Na2O	0.10	4.02	2.01	3.92	0.51	0.39	6.14	1.93	25.27
K2O	0.74	3.30	1.87	2.56	0.43	0.35	3.79	1.82	22.97
MnO	0.05	0.26	0.10	0.21	0.03	2.41	13.02	0.10	27.82
P2O5	0.05	0.41	0.18	0.36	0.04	1.93	11.87	0.17	22.21
Total	93.24	99.75	95.72	6.51	1.46	0.24	60.24	95.71	1.53
As	0.00	25.00	3.06	25.00	3.99	2.69	11.59	2.28	130.32
Ba	180.00	1484.00	442.81	1304.00	164.57	3.58	20.39	423.19	37.16
Co	10.00	56.00	21.27	46.00	8.67	1.45	4.72	19.86	40.75
Cr	39.00	537.00	166.69	498.00	58.54	2.56	14.76	158.62	35.12
Cu	5.00	36.00	19.75	31.00	4.88	0.11	4.22	19.07	24.71
Ga	8.00	21.00	14.03	13.00	1.81	-0.03	4.67	13.91	12.91
La	15.00	58.00	33.04	43.00	7.05	0.69	4.40	32.31	21.35
Ni	22.00	213.00	63.74	191.00	20.16	3.58	26.92	61.28	31.62
Nb	6.00	21.00	16.49	15.00	2.34	-0.71	4.88	16.31	14.18
Pb	4.00	125.00	13.13	121.00	10.80	7.94	78.68	11.70	82.22
Rb	20.00	87.00	50.32	67.00	11.63	0.30	3.36	48.94	23.11
Sr	26.00	1027.00	133.85	1001.00	111.57	5.02	34.70	115.20	83.35
Sb	0.00	22.00	0.79	22.00	2.28	6.00	51.13	1.23	290.29
S	0.00	3833.00	592.80	3833.00	504.76	3.03	16.85	389.59	85.15
Th	1.00	19.00	9.21	18.00	3.10	-0.08	3.31	8.51	33.59
V	28.00	203.00	113.73	175.00	21.30	0.39	6.35	111.58	18.73
Y	11.00	36.00	25.97	25.00	3.53	-0.46	4.91	25.71	13.60
Zn	28.00	329.00	62.42	301.00	24.83	8.11	87.66	60.10	39.78
Zr	47.00	444.00	252.51	397.00	54.86	0.54	5.11	246.13	21.72

n = 154

TABLE 2.52

XRF Analyses: Blackcraig Formation (GWKE10)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	51.06	67.72	60.38	16.66	2.75	-0.37	4.83	60.32	4.56
Al2O3	9.07	15.42	11.27	6.35	1.40	1.04	3.74	11.19	12.46
TiO2	0.88	1.61	1.31	0.73	0.15	-0.51	3.33	1.30	11.70
Fe2O3	6.85	11.42	9.30	4.57	0.85	-0.15	3.83	9.26	9.09
MgO	3.24	8.34	4.92	5.10	0.97	1.37	6.19	4.83	19.64
CaO	0.72	6.47	4.00	5.75	1.01	-0.13	3.86	3.84	25.34
Na2O	1.63	3.47	2.72	1.84	0.30	-0.90	6.08	2.70	11.05
K2O	0.49	2.79	1.11	2.30	0.37	2.04	9.42	1.06	33.19
MnO	0.09	0.28	0.15	0.19	0.02	2.44	17.27	0.15	16.14
P2O5	0.11	0.31	0.15	0.20	0.03	4.10	26.85	0.15	17.62
Total	90.42	96.95	95.29	6.53	1.12	-1.28	-42.27	95.29	1.17
As	0.00	7.00	1.33	7.00	1.49	1.43	5.82	1.50	112.31
Ba	173.00	1120.00	302.48	947.00	136.57	4.42	25.04	286.67	45.15
Co	14.00	41.00	24.39	27.00	4.94	0.55	4.22	23.90	20.27
Cr	119.00	1117.00	188.08	998.00	125.85	6.78	50.34	175.06	66.91
Cu	16.00	44.00	25.15	28.00	5.40	1.48	5.81	24.65	21.46
Ga	12.00	18.00	15.00	6.00	1.34	0.13	2.76	14.94	8.94
La	0.00	44.00	14.69	44.00	7.01	1.78	8.12	13.18	47.70
Ni	31.00	129.00	51.20	98.00	15.21	3.24	16.17	49.66	29.72
Nb	7.00	18.00	10.33	11.00	2.13	1.60	5.89	10.14	20.67
Pb	5.00	21.00	11.33	16.00	3.00	0.60	4.09	10.93	26.52
Rb	12.00	65.00	26.43	53.00	10.73	2.20	7.86	24.89	40.60
Sr	121.00	281.00	206.18	160.00	34.50	0.08	3.03	203.26	16.73
Sb	0.00	4.00	0.26	4.00	0.85	3.51	14.52	1.08	325.75
S	0.00	5555.00	1121.70	5555.00	914.49	2.35	11.45	660.66	81.53
Th	0.00	11.00	4.79	11.00	2.50	0.13	2.75	4.11	52.17
V	109.00	224.00	188.41	115.00	23.94	-1.20	4.49	186.70	12.71
Y	25.00	36.00	28.85	11.00	2.11	0.71	4.15	28.78	7.32
Zn	40.00	106.00	72.61	66.00	11.16	0.29	4.91	71.74	15.37
Zr	103.00	268.00	138.30	165.00	30.14	2.51	10.28	135.78	21.80

n = 61

TABLE 2.53

XRF Analyses: Scar Formation (GWKE11)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	53.47	76.17	59.70	22.70	3.17	1.49	9.55	59.63	5.30
Al2O3	9.82	18.64	13.22	8.82	1.56	0.31	3.26	13.13	11.81
TiO2	0.59	1.22	0.91	0.63	0.12	0.39	3.28	0.91	13.43
Fe2O3	4.17	10.34	7.62	6.17	0.94	-0.38	4.55	7.56	12.40
MgO	1.81	9.53	5.97	7.72	1.13	-0.40	5.02	5.84	18.95
CaO	0.24	8.80	3.57	8.56	1.49	0.90	5.11	3.23	41.75
Na2O	1.41	4.16	2.83	2.75	0.52	0.35	2.77	2.78	18.52
K2O	0.69	2.93	1.62	2.24	0.46	0.42	3.54	1.55	28.29
MnO	0.03	0.17	0.12	0.14	0.02	-0.62	4.69	0.12	19.57
P2O5	0.07	0.26	0.19	0.19	0.03	-0.31	3.68	0.18	17.17
Total	89.90	99.88	95.75	9.98	1.75	-0.19	-17.59	95.74	1.82
As	0.00	19.00	1.59	19.00	3.27	3.54	16.93	1.53	205.62
Ba	254.00	1295.00	528.18	1041.00	170.23	1.29	6.07	504.07	32.23
Co	12.00	49.00	26.63	37.00	7.36	0.46	2.99	25.62	27.65
Cr	62.00	476.00	255.34	414.00	75.71	0.41	2.95	243.80	29.65
Cu	2.00	330.00	31.62	328.00	31.35	8.73	83.73	27.57	99.15
Ga	8.00	18.00	15.30	10.00	1.70	-0.88	5.18	15.20	11.13
La	11.00	32.00	20.95	21.00	4.23	-0.05	2.93	20.50	20.21
Ni	21.00	168.00	92.05	147.00	33.66	0.75	2.55	86.30	36.57
Nb	7.00	15.00	9.98	8.00	1.43	0.39	3.72	9.88	14.31
Pb	6.00	28.00	14.75	22.00	3.69	0.56	4.55	14.28	25.04
Rb	19.00	79.00	41.96	60.00	12.42	0.61	3.55	40.16	29.60
Sr	65.00	532.00	320.04	467.00	95.50	-0.30	2.81	302.55	29.84
Sb	0.00	4.00	0.30	4.00	0.86	2.94	10.84	1.10	286.23
S	0.00	3436.00	832.24	3436.00	655.07	1.59	5.89	564.15	78.71
Th	0.00	15.00	6.46	15.00	2.91	0.33	3.43	5.67	45.06
V	60.00	226.00	145.11	166.00	26.96	0.26	3.61	142.56	18.58
Y	15.00	25.00	20.57	10.00	1.98	-0.10	2.87	20.47	9.61
Zn	34.00	131.00	65.89	97.00	12.80	1.74	10.43	64.78	19.43
Zr	117.00	222.00	153.07	105.00	20.96	0.77	3.66	151.71	13.69

n = 100

TABLE 2.54

XRF Analyses: Shinnel Formation (GWKE12)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	55.50	77.05	67.05	21.55	4.79	-0.26	2.38	66.88	7.14
Al2O3	6.07	14.88	11.02	8.81	1.95	-0.25	2.78	10.84	17.67
TiO2	0.66	1.37	0.94	0.71	0.13	0.77	4.32	0.93	14.01
Fe2O3	3.18	8.43	5.79	5.25	1.34	0.13	2.14	5.64	23.06
MgO	1.17	6.84	3.57	5.67	1.42	0.22	1.77	3.28	39.83
CaO	0.39	12.27	3.25	11.88	2.29	1.74	6.28	2.64	70.50
Na2O	0.99	3.47	2.16	2.48	0.49	0.40	3.85	2.11	22.71
K2O	0.68	2.85	1.64	2.17	0.45	0.10	3.05	1.57	27.51
MnO	0.05	0.24	0.10	0.19	0.04	2.13	8.79	0.09	36.12
P2O5	0.11	0.42	0.19	0.31	0.05	2.00	9.72	0.18	25.81
Total	88.88	99.21	95.71	10.33	1.52	-1.05	9.22	95.70	1.59
As	0.00	5.00	1.52	5.00	1.53	0.41	1.78	1.66	100.54
Ba	181.00	933.00	384.99	752.00	129.46	1.72	7.28	367.19	33.63
Co	7.00	48.00	19.93	41.00	10.89	0.89	2.45	17.40	54.66
Cr	66.00	687.00	172.96	621.00	114.30	1.86	7.67	145.47	66.08
Cu	4.00	93.00	16.73	89.00	11.38	4.47	29.77	14.68	68.03
Ga	8.00	17.00	11.77	9.00	2.14	0.19	2.56	11.58	18.17
La	16.00	51.00	27.17	35.00	5.32	1.14	7.15	26.69	19.59
Ni	18.00	155.00	54.42	137.00	29.97	1.14	3.87	47.44	55.06
Nb	9.00	21.00	14.31	12.00	2.62	0.14	2.37	14.07	18.28
Pb	6.00	41.00	12.10	35.00	4.99	3.09	17.44	11.41	41.24
Rb	21.00	77.00	42.76	56.00	11.09	0.31	3.37	41.30	25.93
Sr	50.00	358.00	127.86	308.00	69.19	1.34	4.48	112.90	54.11
Sb	0.00	5.00	0.54	5.00	1.03	2.06	7.25	1.17	191.67
S	0.00	2596.00	361.86	2596.00	488.24	2.65	11.36	68.66	134.93
Th	2.00	16.00	7.65	14.00	2.74	0.40	3.28	7.12	35.78
V	57.00	180.00	96.63	123.00	25.57	0.72	3.24	93.49	26.46
Y	17.00	33.00	24.01	16.00	3.31	0.38	2.84	23.79	13.80
Zn	25.00	81.00	45.90	56.00	11.63	0.77	3.97	44.51	25.34
Zr	150.00	709.00	268.61	559.00	82.89	2.51	13.27	258.88	30.86

n = 71

TABLE 2.55

XRF Analyses: Pyroxenous Formation (GWKE13)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	53.36	70.61	60.55	17.25	2.85	0.64	5.79	60.49	4.71
Al2O3	9.41	15.43	12.08	6.02	1.37	-0.05	2.43	12.01	11.34
TiO2	0.54	1.27	0.94	0.73	0.13	0.15	4.73	0.94	13.82
Fe2O3	4.96	10.89	7.93	5.93	1.05	-0.01	4.10	7.86	13.28
MgO	3.82	7.91	5.41	4.09	0.89	0.82	3.63	5.34	16.50
CaO	1.24	6.19	3.98	4.95	1.23	-0.16	2.19	3.77	30.82
Na2O	1.64	3.92	2.43	2.28	0.42	1.23	5.49	2.40	17.30
K2O	0.88	2.62	1.74	1.74	0.40	-0.12	2.88	1.69	23.14
MnO	0.07	0.26	0.13	0.19	0.04	1.44	6.02	0.13	27.96
P2O5	0.13	0.26	0.20	0.13	0.02	-0.17	3.91	0.20	12.18
Total	91.47	99.91	95.41	8.44	1.81	-0.04	10.95	95.39	1.90
As	0.00	8.00	1.35	8.00	2.01	1.56	4.84	1.53	149.05
Ba	309.00	1035.00	486.53	726.00	131.72	1.75	8.03	471.92	27.07
Co	16.00	42.00	28.81	26.00	8.54	-0.07	1.50	27.50	29.65
Cr	109.00	481.00	210.79	372.00	68.56	1.74	7.30	201.82	32.52
Cu	7.00	41.00	25.72	34.00	7.07	-0.34	3.23	24.55	27.48
Ga	10.00	18.00	14.63	8.00	1.35	-0.60	4.99	14.56	9.20
La	20.00	35.00	26.65	15.00	3.82	0.12	2.40	26.38	14.34
Ni	46.00	92.00	63.28	46.00	9.87	0.66	3.95	62.55	15.60
Nb	8.00	14.00	10.88	6.00	1.38	0.37	2.77	10.80	12.71
Pb	8.00	29.00	13.67	21.00	3.75	1.48	7.53	13.23	27.40
Rb	26.00	73.00	47.63	47.00	11.31	-0.01	2.83	46.22	23.75
Sr	192.00	734.00	343.07	542.00	100.18	1.41	6.61	330.49	29.20
Sb	0.00	3.00	0.30	3.00	0.74	2.30	7.03	1.09	245.14
S	0.00	1136.00	441.19	1136.00	268.46	0.59	3.33	246.61	60.85
Th	2.00	11.00	6.26	9.00	2.08	0.37	3.09	5.89	33.29
V	74.00	211.00	148.28	137.00	27.85	-0.15	2.99	145.54	18.79
Y	19.00	29.00	23.33	10.00	2.18	0.16	2.77	23.23	9.34
Zn	41.00	86.00	61.81	45.00	9.08	0.18	3.56	61.15	14.68
Zr	161.00	381.00	213.16	220.00	36.83	2.49	11.50	210.62	17.28

n = 43

TABLE 2.56

XRF Analyses: Intermediate Formation (GWKE14)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	50.47	77.78	66.64	27.31	4.69	-0.76	5.05	66.47	7.04
Al2O3	8.30	18.82	13.25	10.52	2.26	0.45	3.05	13.07	17.05
TiO2	0.55	2.11	0.91	1.56	0.21	2.28	14.06	0.89	23.29
Fe2O3	3.75	13.11	5.87	9.36	1.28	2.24	14.47	5.75	21.73
MgO	0.56	6.02	3.96	5.46	1.09	-0.62	3.36	3.76	27.52
CaO	0.14	13.56	2.05	13.42	2.05	3.20	16.20	1.43	100.15
Na2O	0.00	3.82	2.04	3.82	0.71	-0.15	4.36	1.86	35.02
K2O	0.78	4.96	2.21	4.18	0.69	1.40	6.74	2.11	31.39
MnO	0.04	0.51	0.09	0.47	0.06	4.98	31.86	0.08	65.92
P2O5	0.10	0.41	0.19	0.31	0.04	2.19	14.55	0.18	20.86
Total	90.75	101.43	97.22	10.68	2.20	-0.88	-3.52	97.19	2.26
As	0.00	51.00	2.53	51.00	7.47	5.07	30.05	1.62	294.90
Ba	185.00	1380.00	549.91	1195.00	245.74	1.10	4.54	500.55	44.69
Co	13.00	76.00	36.32	63.00	12.21	0.51	4.45	34.13	33.63
Cr	64.00	489.00	178.96	425.00	76.09	1.25	5.60	164.67	42.52
Cu	7.00	49.00	15.80	42.00	8.36	2.23	8.32	14.30	52.90
Ga	7.00	22.00	12.95	15.00	2.49	0.90	5.41	12.72	19.19
La	17.00	61.00	34.85	44.00	8.61	0.77	3.96	33.84	24.71
Ni	19.00	240.00	66.67	221.00	35.41	2.45	12.29	59.57	53.10
Nb	9.00	21.00	14.15	12.00	2.22	0.18	3.72	13.98	15.68
Pb	7.00	65.00	16.19	58.00	8.13	4.57	26.16	15.19	50.20
Rb	30.00	183.00	63.14	153.00	23.66	2.60	12.49	59.93	37.48
Sr	27.00	475.00	149.78	448.00	100.62	1.45	4.61	123.88	67.18
Sb	0.00	5.00	0.38	5.00	1.00	2.78	10.29	1.13	264.36
S	0.00	2684.00	218.70	2684.00	427.77	3.23	16.29	11.10	195.60
Th	2.00	15.00	7.92	13.00	2.59	0.38	3.18	7.48	32.63
V	51.00	313.00	97.01	262.00	30.54	4.59	32.97	93.99	31.48
Y	20.00	73.00	27.75	53.00	6.77	3.91	26.40	27.17	24.40
Zn	24.00	214.00	56.66	190.00	24.59	3.44	22.38	53.01	43.40
Zr	149.00	607.00	288.11	458.00	70.04	2.02	10.56	280.97	24.31

n = 79

TABLE 2.57

XRF Analyses: Garnetiferous Formation (GWKE15)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	65.43	73.52	69.08	8.09	1.95	0.55	6.06	69.05	2.82
Al2O3	9.17	12.42	10.83	3.25	1.07	0.05	1.75	10.78	9.87
TiO2	0.79	1.55	1.05	0.76	0.20	1.38	4.75	1.04	18.83
Fe2O3	5.06	7.36	6.10	2.30	0.56	0.43	4.27	6.08	9.15
MgO	2.95	4.33	3.67	1.38	0.41	0.10	2.46	3.65	11.05
CaO	0.54	3.79	1.59	3.25	0.89	1.35	4.42	1.40	56.31
Na2O	1.24	1.93	1.52	0.69	0.20	0.36	2.64	1.51	13.22
K2O	1.35	2.36	1.89	1.01	0.33	-0.44	2.01	1.86	17.41
MnO	0.08	0.13	0.09	0.05	0.02	0.98	3.12	0.09	17.40
P2O5	0.13	0.18	0.15	0.05	0.01	0.51	3.13	0.15	8.83
Total	93.85	98.44	95.98	4.59	1.33	-0.06	-12.54	95.97	1.38
As	0.00	5.00	1.64	5.00	1.80	0.57	2.06	1.75	110.25
Ba	302.00	425.00	374.00	123.00	39.56	-0.44	2.29	372.02	10.58
Co	11.00	49.00	19.91	38.00	12.67	1.64	3.97	17.50	63.63
Cr	107.00	271.00	158.09	164.00	43.01	1.67	5.52	153.70	27.21
Cu	6.00	23.00	12.00	17.00	5.90	0.66	2.14	10.77	49.16
Ga	9.00	13.00	12.00	4.00	1.18	-1.52	4.82	11.94	9.86
La	19.00	46.00	30.64	27.00	8.27	0.61	2.39	29.67	27.01
Ni	45.00	69.00	55.09	24.00	7.23	0.51	2.37	54.67	13.13
Nb	13.00	18.00	15.27	5.00	1.56	0.19	1.93	15.20	10.18
Pb	9.00	19.00	11.91	10.00	2.88	1.33	4.35	11.63	24.18
Rb	36.00	70.00	52.18	34.00	11.20	-0.15	2.02	51.03	21.46
Sr	50.00	100.00	69.82	50.00	16.36	0.61	2.11	68.17	23.43
Sb	0.00	2.00	0.36	2.00	0.81	1.65	3.72	1.13	222.49
S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Th	3.00	9.00	6.27	6.00	1.95	-0.06	2.01	5.97	31.15
V	68.00	133.00	91.73	65.00	19.61	0.85	2.81	89.97	21.37
Y	23.00	39.00	29.36	16.00	5.95	0.61	1.98	28.84	20.28
Zn	60.00	77.00	68.27	17.00	5.46	-0.12	1.94	68.07	8.00
Zr	208.00	542.00	312.18	334.00	85.19	1.79	6.14	303.54	27.29

n = 11

TABLE 2.58

XRF Analyses: Glen Trool Formation (GWKE16)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	70.28	73.35	71.95	3.07	1.26	-0.48	11.14	71.94	1.76
Al2O3	12.37	15.06	13.46	2.69	1.29	0.34	1.44	13.41	9.61
TiO2	0.84	1.00	0.90	0.16	0.07	0.64	1.82	0.90	8.16
Fe2O3	4.71	5.48	5.16	0.77	0.38	-0.24	1.35	5.15	7.32
MgO	1.80	2.42	2.14	0.62	0.26	-0.42	1.91	2.13	12.17
CaO	0.76	1.40	1.07	0.64	0.33	0.03	1.08	1.03	30.54
Na2O	1.85	2.52	2.10	0.67	0.29	0.92	2.19	2.08	14.00
K2O	1.46	1.90	1.70	0.44	0.18	-0.28	2.00	1.69	10.66
MnO	0.05	0.08	0.06	0.03	0.01	0.65	2.10	0.06	20.13
P2O5	0.16	0.22	0.19	0.06	0.02	0.32	1.92	0.19	13.33
Total	98.35	99.34	98.72	0.99	0.45	0.00	1396.65	98.72	0.46
As	0.00	15.00	5.75	15.00	6.65	0.72	1.95	3.66	115.69
Ba	358.00	404.00	389.75	46.00	21.79	-0.97	2.07	389.28	5.59
Co	42.00	51.00	46.75	9.00	3.77	-0.21	1.83	46.63	8.07
Cr	70.00	93.00	80.00	23.00	9.63	0.50	2.00	79.58	12.03
Cu	13.00	16.00	14.25	3.00	1.26	0.65	2.09	14.21	8.83
Ga	11.00	13.00	11.75	2.00	0.96	0.49	1.63	11.72	8.15
La	31.00	35.00	33.00	4.00	1.83	0.00	1.36	32.96	5.53
Ni	22.00	27.00	25.00	5.00	2.45	-0.31	1.41	24.91	9.80
Nb	15.00	17.00	16.25	2.00	0.96	-0.49	1.59	16.23	5.89
Pb	9.00	15.00	12.75	6.00	2.63	-0.83	2.10	12.52	20.63
Rb	39.00	48.00	44.50	9.00	3.87	-0.80	2.12	44.37	8.70
Sr	65.00	81.00	72.75	16.00	6.85	0.10	1.68	72.51	9.42
Sb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S	603.00	1364.00	942.75	761.00	359.93	0.20	1.32	891.32	38.18
Th	2.00	6.00	4.25	4.00	1.71	-0.43	1.85	3.94	40.18
V	75.00	86.00	79.75	11.00	4.65	0.50	1.92	79.65	5.83
Y	21.00	22.00	21.50	1.00	0.58	0.00	1.00	21.49	2.69
Zn	38.00	48.00	43.75	10.00	5.06	-0.17	1.22	43.53	11.56
Zr	253.00	342.00	287.00	89.00	39.44	0.73	1.97	285.07	13.74

n = 4

XRF Analyses: Epidotitic Formation (GWKE17)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	68.78	75.10	70.44	6.32	1.80	1.44	8.25	70.42	2.55
Al2O3	10.74	13.45	12.49	2.71	0.76	-0.88	3.31	12.46	6.10
TiO2	0.77	1.26	1.10	0.49	0.14	-0.96	3.76	1.09	12.56
Fe2O3	4.89	6.66	6.03	1.77	0.48	-1.06	3.64	6.02	8.03
MgO	2.55	4.07	3.56	1.52	0.44	-0.76	3.34	3.54	12.34
CaO	1.06	1.65	1.32	0.59	0.20	0.38	1.79	1.30	15.10
Na2O	1.74	2.43	2.07	0.69	0.19	0.39	2.52	2.06	9.35
K2O	0.81	1.86	1.41	1.05	0.31	-0.58	2.44	1.37	22.20
MnO	0.07	0.17	0.09	0.10	0.03	2.16	7.19	0.09	28.29
P2O5	0.12	0.22	0.19	0.10	0.02	-1.77	6.45	0.18	12.79
Total	97.47	99.47	98.69	2.00	0.54	0.00	0.00	98.69	0.55
As	0.00	2.00	0.17	2.00	0.58	3.02	10.09	1.06	346.41
Ba	248.00	477.00	381.83	229.00	65.82	-0.71	3.07	376.00	17.24
Co	38.00	58.00	47.17	20.00	6.86	-0.13	1.74	46.70	14.54
Cr	119.00	204.00	149.00	85.00	22.49	1.16	4.13	147.57	15.09
Cu	6.00	84.00	24.08	78.00	26.44	1.38	3.31	15.55	109.76
Ga	9.00	13.00	11.42	4.00	1.08	-0.90	3.25	11.37	9.49
La	22.00	81.00	41.17	59.00	16.47	1.23	3.85	38.63	40.02
Ni	47.00	64.00	56.42	17.00	5.21	-0.27	2.17	56.19	9.24
Nb	11.00	16.00	14.17	5.00	1.34	-0.79	3.90	14.11	9.44
Pb	10.00	16.00	13.50	6.00	2.07	-0.71	2.30	13.34	15.31
Rb	24.00	50.00	39.50	26.00	7.69	-0.63	2.58	38.73	19.48
Sr	83.00	129.00	107.75	46.00	13.22	-0.14	2.41	106.99	12.27
Sb	0.00	1.00	0.08	1.00	0.29	3.02	10.09	1.00	346.41
S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Th	1.00	9.00	5.58	8.00	2.02	-0.51	3.70	5.05	36.19
V	95.00	129.00	109.92	34.00	10.23	0.21	2.17	109.48	9.31
Y	25.00	70.00	36.42	45.00	13.99	1.47	3.89	34.50	38.42
Zn	40.00	63.00	56.25	23.00	6.50	-1.36	4.28	55.86	11.55
Zr	141.00	376.00	287.33	235.00	57.66	-1.18	4.77	280.56	20.07

n = 12

TABLE 2.60

XRF Analyses: Upper Calcareous Formation (GWKE18)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	52.01	64.90	58.46	12.89	2.28	0.44	5.10	58.42	3.90
Al2O3	11.35	20.43	14.54	9.08	1.77	0.88	4.36	14.44	12.15
TiO2	0.63	1.14	0.85	0.51	0.11	0.46	3.11	0.84	13.12
Fe2O3	4.63	8.09	5.88	3.46	0.88	0.93	3.22	5.82	14.92
MgO	1.91	5.83	4.37	3.92	0.72	-1.20	5.10	4.30	16.49
CaO	0.23	14.55	7.34	14.32	2.83	-0.43	3.99	6.24	38.50
Na2O	0.71	2.20	1.65	1.49	0.26	-1.08	5.26	1.62	15.69
K2O	1.57	3.09	2.23	1.52	0.33	0.50	3.56	2.21	14.95
MnO	0.06	0.18	0.10	0.12	0.03	1.07	3.58	0.10	30.61
P2O5	0.15	0.20	0.18	0.05	0.01	-0.24	2.52	0.18	6.91
Total	91.27	99.73	95.61	8.46	1.60	0.35	-5.10	95.60	1.67
As	0.00	13.00	2.40	13.00	3.84	1.56	4.20	1.87	159.60
Ba	154.00	594.00	314.13	440.00	86.43	0.74	3.80	302.97	27.52
Cl	0.00	116.00	30.66	116.00	23.01	1.42	5.92	20.90	75.06
Co	17.00	42.00	26.53	25.00	4.57	0.80	4.61	26.16	17.22
Cr	102.00	205.00	137.47	103.00	20.45	0.62	4.06	136.02	14.88
Cu	10.00	46.00	25.96	36.00	8.29	0.41	2.54	24.64	31.95
Ga	11.00	18.00	14.09	7.00	1.64	0.70	3.54	14.00	11.64
La	17.00	45.00	32.51	28.00	5.86	-0.08	3.30	31.96	18.01
Ni	37.00	85.00	57.70	48.00	10.73	0.58	3.48	56.75	18.60
Nb	10.00	34.00	14.45	24.00	3.40	4.13	24.57	14.18	23.53
Pb	9.00	30.00	14.68	21.00	4.72	1.68	5.26	14.09	32.17
Rb	47.00	112.00	72.26	65.00	14.01	0.99	4.18	71.02	19.39
Sr	47.00	214.00	134.68	167.00	39.68	-0.49	2.66	127.60	29.46
Sb	0.00	12.00	0.98	12.00	2.22	3.23	14.89	1.35	226.96
S	0.00	763.00	90.66	763.00	125.87	3.47	18.46	38.44	138.84
Th	0.00	15.00	8.09	15.00	3.28	-0.27	3.23	7.26	40.60
V	72.00	134.00	102.28	62.00	13.56	0.17	2.80	101.39	13.26
Y	22.00	48.00	30.62	26.00	5.14	1.04	4.69	30.23	16.77
Zn	36.00	135.00	68.34	99.00	16.50	1.54	7.32	66.62	24.14
Zr	161.00	319.00	209.51	158.00	37.50	1.20	4.07	206.55	17.90
Tl	0.00	3.00	0.23	3.00	0.73	3.02	10.79	1.08	311.35

n = 47

TABLE 2.61

XRF Analyses: Lower Calcareous Formation (GWKE19)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	46.19	87.84	58.97	41.65	3.08	2.79	32.33	58.89	5.23
Al2O3	6.86	21.31	14.18	14.45	1.84	0.27	4.89	14.06	12.97
TiO2	0.23	1.16	0.83	0.93	0.12	-0.40	5.03	0.82	14.98
Fe2O3	2.95	12.09	5.98	9.14	0.98	1.48	9.29	5.90	16.36
MgO	0.80	6.79	4.37	5.99	0.78	-1.04	7.08	4.28	17.81
CaO	0.02	24.36	7.40	24.34	3.51	0.53	5.60	5.88	47.47
Na2O	0.05	4.30	1.53	4.25	0.44	-0.48	11.18	1.40	28.56
K2O	0.39	4.12	2.21	3.73	0.42	0.81	6.43	2.16	19.22
MnO	0.03	0.33	0.11	0.30	0.04	2.26	12.10	0.10	32.34
P2O5	0.10	0.24	0.18	0.14	0.02	-1.00	8.12	0.18	9.12
Total	90.91	100.03	95.77	9.12	1.59	-0.25	20.23	95.75	1.66
As	0.00	65.00	3.59	65.00	6.70	4.97	36.08	2.35	186.58
Ba	56.00	912.00	274.79	856.00	84.90	2.57	15.95	264.41	30.89
Cl	0.00	146.00	29.88	146.00	21.91	1.45	6.93	20.28	73.34
Co	11.00	66.00	26.62	55.00	5.51	1.81	13.27	26.11	20.69
Cr	49.00	292.00	143.14	243.00	29.27	1.76	9.71	140.46	20.45
Cu	7.00	70.00	23.77	63.00	9.64	1.37	5.88	22.05	40.57
Ga	6.00	24.00	13.68	18.00	2.15	0.95	5.95	13.52	15.70
La	12.00	56.00	32.30	44.00	5.94	0.39	4.04	31.75	18.38
Ni	12.00	100.00	59.17	88.00	11.31	0.58	5.07	58.05	19.11
Nb	4.00	107.00	13.86	103.00	6.12	13.68	208.94	13.46	44.19
Pb	0.00	53.00	14.70	53.00	5.97	3.79	20.71	13.93	40.58
Rb	15.00	136.00	71.43	121.00	16.57	1.05	6.20	69.53	23.20
Sr	9.00	263.00	118.13	254.00	37.85	0.11	3.73	110.76	32.04
Sb	0.00	55.00	2.05	55.00	5.72	5.19	37.39	1.54	279.28
S	0.00	2755.00	39.06	2755.00	176.60	14.28	218.72	10.81	452.16
Th	0.00	22.00	8.60	22.00	3.58	0.39	3.98	7.71	41.66
V	27.00	149.00	99.49	122.00	14.63	-0.21	6.53	98.28	14.70
Y	0.00	64.00	32.11	64.00	6.25	0.32	8.54	31.27	19.48
Zn	0.00	165.00	66.37	165.00	15.85	0.93	9.59	63.90	23.88
Zr	68.00	578.00	212.83	510.00	47.16	2.55	18.77	208.35	22.16
Tl	0.00	17.00	0.36	17.00	1.40	7.63	81.74	1.11	388.29

n = 258

TABLE 2.62

XRF Analyses: Southern Uplands (Unassigned) (GWKE20)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	52.18	75.91	63.62	23.73	4.20	0.12	3.34	63.48	6.60
Al2O3	6.54	21.95	12.61	15.41	2.26	0.95	5.84	12.42	17.95
TiO2	0.63	1.54	1.00	0.91	0.17	0.49	3.16	0.98	17.44
Fe2O3	4.69	12.27	7.01	7.58	1.26	0.67	5.25	6.90	17.94
MgO	0.38	7.80	4.26	7.42	1.46	0.20	2.65	3.97	34.35
CaO	0.05	17.48	2.60	17.43	2.23	3.32	21.08	1.92	85.98
Na2O	0.00	4.33	2.34	4.33	0.66	0.14	4.46	2.27	27.98
K2O	0.66	4.26	1.87	3.60	0.56	0.72	5.51	1.79	29.83
MnO	0.04	0.47	0.12	0.43	0.06	3.60	18.33	0.11	54.33
P2O5	0.05	0.42	0.19	0.37	0.05	1.62	8.70	0.18	26.90
Total	90.13	99.44	95.61	9.31	1.74	-0.39	3.57	95.60	1.82
As	0.00	58.00	2.87	58.00	6.58	6.36	51.02	1.96	229.21
Ba	205.00	1397.00	512.99	1192.00	217.61	1.34	4.93	474.70	42.42
Co	10.00	47.00	23.11	37.00	9.19	0.52	2.10	21.37	39.76
Cr	71.00	730.00	189.06	659.00	90.87	2.39	14.12	172.09	48.06
Cu	7.00	53.00	20.35	46.00	7.55	1.72	7.32	19.20	37.13
Ga	10.00	24.00	14.21	14.00	2.36	0.70	4.85	14.02	16.64
La	4.00	53.00	29.03	49.00	9.03	0.40	4.08	27.40	31.09
Ni	18.00	218.00	69.98	200.00	36.35	1.68	6.63	62.23	51.95
Nb	8.00	22.00	14.65	14.00	3.17	0.06	2.23	14.30	21.61
Pb	6.00	112.00	15.33	106.00	11.51	6.36	51.68	13.71	75.07
Rb	18.00	118.00	48.78	100.00	15.60	0.90	5.93	46.31	31.98
Sr	40.00	959.00	217.38	919.00	167.33	1.94	7.56	170.62	76.98
Sb	0.00	9.00	0.64	9.00	1.55	3.17	13.98	1.20	241.31
S	0.00	16078.00	598.70	16078.00	1710.59	7.74	68.54	130.72	285.72
Th	0.00	17.00	7.27	17.00	3.09	0.23	3.44	6.50	42.54
V	61.00	238.00	117.81	177.00	29.26	1.10	5.49	114.48	24.83
Y	17.00	36.00	25.00	19.00	3.84	0.48	3.17	24.71	15.38
Zn	11.00	158.00	61.50	147.00	18.37	1.65	10.15	58.90	29.87
Zr	114.00	346.00	234.44	232.00	53.52	-0.15	2.63	227.85	22.83

n = 101

TABLE 2.63

XRF Analyses: Southern Uplands Coastal Traverse (GWKE22)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	48.49	73.05	61.11	24.56	4.31	0.00	3.22	60.96	7.05
Al2O3	8.17	19.85	12.75	11.68	1.87	0.39	3.93	12.62	14.68
TiO2	0.57	2.17	1.06	1.60	0.28	1.16	4.42	1.03	25.98
Fe2O3	3.76	11.75	7.39	7.99	1.61	0.39	2.79	7.22	21.79
MgO	1.89	14.51	5.32	12.62	2.10	1.05	4.17	4.95	39.55
CaO	0.25	14.43	2.87	14.18	2.45	1.68	5.97	2.05	85.63
Na2O	0.62	5.72	2.32	5.10	0.67	1.13	5.71	2.23	29.11
K2O	0.34	4.60	2.21	4.26	0.65	0.47	3.68	2.11	29.50
MnO	0.04	0.31	0.11	0.27	0.04	1.17	5.74	0.11	33.86
P2O5	0.11	0.62	0.20	0.50	0.06	2.75	15.39	0.19	29.75
Total	93.52	96.99	95.34	3.47	0.97	0.27	-143.24	95.33	1.02
As	0.00	38.85	3.91	38.85	4.45	4.33	28.28	2.88	113.81
Ba	184.24	2017.06	528.08	1832.82	265.12	2.11	9.47	478.19	50.20
Co	7.96	46.00	18.59	38.04	6.02	1.29	5.90	17.72	32.40
Cr	12.15	886.77	192.43	874.62	117.41	2.72	12.80	168.65	61.01
Cu	2.00	80.23	23.33	78.23	12.84	1.43	6.37	20.08	55.04
Ga	9.49	23.18	15.13	13.69	2.58	0.34	2.77	14.91	17.03
La	5.62	81.31	28.58	75.69	10.29	1.03	6.09	26.74	36.02
Ni	2.92	362.00	76.80	359.08	52.05	2.44	10.65	64.18	67.77
Nb	5.12	24.41	13.14	19.28	4.01	0.38	2.40	12.53	30.51
Pb	5.16	135.82	13.22	130.65	8.48	11.00	158.18	12.27	64.12
Rb	15.00	131.14	56.41	116.14	20.47	0.63	3.89	52.61	36.28
Sr	33.92	1433.58	230.10	1399.66	189.31	2.27	10.98	176.03	82.27
Sb	0.00	118.94	1.58	118.94	7.24	15.39	249.87	1.27	457.27
S	0.00	5090.56	437.58	5090.56	747.25	2.87	13.41	31.76	170.77
Th	0.00	21.32	8.31	21.32	3.45	0.36	3.83	7.45	41.47
V	56.00	279.45	129.80	223.45	49.68	0.85	2.77	121.26	38.27
Y	13.19	36.29	23.67	23.11	3.89	0.14	3.06	23.35	16.41
Zn	6.44	230.49	61.14	224.05	20.22	2.38	20.46	58.01	33.07
Zr	81.72	523.00	206.23	441.28	72.88	0.80	4.09	193.93	35.34

n = 279

TABLE 2.64

XRF Analyses: Tweedsmuir Interformational Studies (GWKE23)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	55.30	59.55	57.08	4.25	1.16	0.09	2.48	57.07	2.03
Al2O3	12.08	14.17	12.95	2.09	0.55	0.17	3.02	12.94	4.28
TiO2	0.92	1.22	1.00	0.30	0.07	1.27	4.90	1.00	7.18
Fe2O3	7.44	9.23	8.33	1.79	0.51	-0.11	2.11	8.31	6.16
MgO	5.63	9.42	6.81	3.79	1.05	0.99	3.05	6.74	15.39
CaO	2.08	7.40	4.62	5.32	1.43	-0.25	2.39	4.38	30.98
Na2O	1.71	2.42	2.10	0.71	0.17	-0.02	3.31	2.09	7.94
K2O	1.26	2.48	1.86	1.22	0.36	0.01	1.84	1.83	19.31
MnO	0.11	0.20	0.15	0.09	0.02	0.63	3.68	0.14	14.12
P2O5	0.18	0.27	0.21	0.09	0.02	0.88	3.61	0.21	10.42
Total	93.56	96.86	95.11	3.30	0.93	0.50	-94.88	95.10	0.98
As	0.00	7.00	0.40	7.00	1.57	4.00	17.33	1.10	392.36
Ba	284.00	784.00	493.75	500.00	148.66	0.53	2.20	473.40	30.11
Co	10.00	34.00	25.70	24.00	4.90	-1.52	6.45	25.09	19.07
Cr	175.00	252.00	206.30	77.00	21.82	0.38	2.23	205.22	10.57
Cu	40.00	48.00	44.30	8.00	2.30	-0.08	2.19	44.24	5.18
Ga	14.00	17.00	15.65	3.00	0.81	0.10	2.42	15.63	5.19
La	20.00	33.00	27.00	13.00	3.31	-0.21	2.59	26.80	12.25
Ni	56.00	71.00	64.35	15.00	4.04	-0.26	2.29	64.23	6.28
Nb	9.00	11.00	10.25	2.00	0.72	-0.39	2.10	10.23	6.99
Pb	7.00	18.00	12.85	11.00	2.72	-0.05	2.60	12.56	21.17
Rb	34.00	65.00	46.50	31.00	8.22	0.25	2.48	45.81	17.67
Sr	252.00	555.00	408.95	303.00	100.89	0.08	1.56	396.90	24.67
Sb	0.00	5.00	1.75	5.00	1.65	0.41	1.94	1.77	94.31
S	20.00	648.00	301.85	628.00	185.48	0.60	2.17	239.36	61.45
Th	2.00	9.00	4.90	7.00	1.80	0.65	2.78	4.59	36.81
V	163.00	209.00	187.25	46.00	12.86	-0.12	2.18	186.83	6.87
Y	20.00	25.00	22.05	5.00	1.32	0.61	2.51	22.01	5.97
Zn	50.00	71.00	63.05	21.00	4.39	-0.93	5.28	62.90	6.97
Zr	181.00	279.00	205.70	98.00	22.35	1.93	7.01	204.67	10.87

n = 20

TABLE 2.65

XRF Analyses: Tweedsmuir Inter-Outcrop Studies (GWKE2A)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	55.30	59.55	57.06	4.25	1.25	0.38	0.00	57.05	2.19
Al2O3	12.08	14.17	13.12	2.09	0.56	-0.07	2.79	13.11	4.29
TiO2	0.92	1.09	1.00	0.17	0.06	-0.01	1.87	1.00	5.51
Fe2O3	7.44	9.09	8.37	1.65	0.49	-0.40	2.23	8.36	5.90
MgO	5.63	8.49	6.90	2.86	0.96	0.35	1.78	6.84	13.94
CaO	2.08	6.07	4.41	3.99	1.30	-0.62	2.09	4.20	29.39
Na2O	1.91	2.42	2.17	0.51	0.15	0.29	2.42	2.16	6.89
K2O	1.26	2.25	1.75	0.99	0.35	0.16	1.66	1.72	19.85
MnO	0.12	0.16	0.14	0.04	0.01	-0.01	2.42	0.14	8.63
P2O5	0.19	0.24	0.21	0.05	0.02	0.02	1.68	0.21	8.30
Total	93.56	96.86	95.12	3.30	1.13	0.30	-35.36	95.12	1.18
As	0.00	1.00	0.08	1.00	0.29	3.02	10.09	1.00	346.41
Ba	284.00	630.00	436.50	346.00	111.57	0.41	1.89	423.81	25.56
Co	22.00	29.00	26.83	7.00	2.44	-0.78	2.17	26.73	9.11
Cr	175.00	252.00	204.42	77.00	22.80	0.68	2.71	203.29	11.15
Cu	40.00	47.00	43.83	7.00	2.12	-0.31	2.22	43.79	4.85
Ga	14.00	17.00	15.42	3.00	0.79	0.28	2.77	15.40	5.14
La	20.00	33.00	27.33	13.00	3.70	-0.59	2.61	27.09	13.54
Ni	58.00	68.00	64.58	10.00	3.63	-0.52	1.78	64.49	5.62
Nb	9.00	11.00	10.08	2.00	0.79	-0.14	1.73	10.05	7.86
Pb	10.00	18.00	13.08	8.00	2.19	0.75	3.18	12.92	16.76
Rb	34.00	54.00	43.75	20.00	7.69	0.14	1.47	43.13	17.57
Sr	252.00	542.00	378.08	290.00	93.40	0.56	2.26	367.99	24.70
Sb	0.00	5.00	1.92	5.00	1.78	0.33	1.81	1.88	92.96
S	20.00	648.00	258.58	628.00	177.08	0.92	3.14	196.05	68.48
Th	2.00	8.00	4.25	6.00	1.60	0.96	3.62	4.00	37.71
V	168.00	206.00	187.00	38.00	12.78	-0.10	1.69	186.60	6.84
Y	20.00	25.00	22.08	5.00	1.44	0.61	2.55	22.04	6.54
Zn	59.00	71.00	63.92	12.00	3.40	0.54	2.72	63.84	5.31
Zr	181.00	242.00	204.92	61.00	16.17	0.73	3.47	204.35	7.89

n = 12

TABLE 2.66

XRF Analyses: Tweedsmuir Basal-formation Studies (GWKE2B)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	55.43	58.34	57.11	2.91	1.08	-0.66	1.89	57.10	1.90
Al2O3	12.09	13.47	12.70	1.38	0.47	0.27	1.91	12.69	3.69
TiO2	0.92	1.22	1.01	0.30	0.10	1.37	3.82	1.01	9.52
Fe2O3	7.54	9.23	8.26	1.69	0.57	0.28	2.22	8.25	6.87
MgO	5.81	9.42	6.67	3.61	1.22	1.62	4.31	6.59	18.31
CaO	2.25	7.40	4.94	5.15	1.65	-0.21	2.20	4.66	33.44
Na2O	1.71	2.15	1.99	0.44	0.14	-0.92	3.18	1.99	6.97
K2O	1.58	2.48	2.02	0.90	0.33	-0.10	1.79	2.00	16.41
MnO	0.11	0.20	0.16	0.09	0.03	-0.28	3.01	0.16	16.54
P2O5	0.18	0.27	0.21	0.09	0.03	1.28	3.72	0.21	13.65
Total	93.92	95.74	95.08	1.82	0.59	-0.74	171.25	95.08	0.62
As	0.00	7.00	0.88	7.00	2.47	2.27	6.14	1.28	282.84
Ba	373.00	784.00	579.63	411.00	162.40	-0.02	1.54	558.87	28.02
Co	10.00	34.00	24.00	24.00	7.09	-0.68	3.19	22.81	29.55
Cr	176.00	233.00	209.13	57.00	21.44	-0.09	1.69	208.15	10.25
Cu	41.00	48.00	45.00	7.00	2.51	-0.12	1.92	44.94	5.57
Ga	15.00	17.00	16.00	2.00	0.76	0.00	2.00	15.98	4.72
La	23.00	32.00	26.50	9.00	2.78	0.77	3.06	26.38	10.48
Ni	56.00	71.00	64.00	15.00	4.84	0.02	2.35	63.84	7.56
Nb	10.00	11.00	10.50	1.00	0.53	0.00	1.00	10.49	5.09
Pb	7.00	17.00	12.50	10.00	3.51	-0.17	1.73	12.03	28.04
Rb	41.00	65.00	50.63	24.00	7.61	0.67	2.62	50.15	15.04
Sr	306.00	555.00	455.25	249.00	99.19	-0.69	1.88	444.57	21.79
Sb	0.00	4.00	1.50	4.00	1.51	0.40	1.86	1.62	100.79
S	182.00	647.00	366.75	465.00	189.94	0.24	1.42	322.91	51.79
Th	4.00	9.00	5.88	5.00	1.73	0.56	2.28	5.66	29.39
V	163.00	209.00	187.63	46.00	13.86	-0.15	2.79	187.17	7.38
Y	21.00	24.00	22.00	3.00	1.20	0.54	1.76	21.97	5.43
Zn	50.00	69.00	61.75	19.00	5.57	-1.02	3.75	61.51	9.03
Zr	183.00	279.00	206.88	96.00	30.70	1.84	5.07	205.15	14.84

n = 8

TABLE 2.67

XRF Analyses: Additional Trace Element Studies (GWKE24)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Ag	0.00	5.00	0.71	5.00	1.24	1.55	4.28	1.26	172.93
Bi	0.00	2.00	0.04	2.00	0.28	6.78	47.02	1.01	696.38
Br	0.00	9.00	0.21	9.00	1.19	6.18	41.63	1.06	557.63
Cd	0.00	6.00	0.65	6.00	1.49	2.03	5.61	1.25	228.61
Ce	24.00	262.00	65.32	238.00	33.01	4.13	24.22	60.65	50.54
Cs	0.00	59.00	9.71	59.00	13.21	1.96	6.21	4.68	135.99
Hf	2.00	16.00	6.65	14.00	2.19	1.19	5.78	6.32	32.95
Mo	0.00	11.00	0.51	11.00	1.25	6.22	51.34	1.08	245.75
Se	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sc	5.00	38.00	22.00	33.00	5.32	0.57	5.03	21.32	24.20
Sn	0.00	3.00	0.08	3.00	0.47	5.69	34.11	1.03	574.67
Ta	0.00	5.00	1.06	5.00	1.66	1.20	2.97	1.44	156.52
Te	0.00	5.00	0.16	5.00	0.74	4.76	25.89	1.06	454.40
Th	0.00	14.00	7.85	14.00	2.85	0.12	2.77	7.27	36.34
Tl	0.00	2.00	0.02	2.00	0.20	9.75	96.01	1.01	989.95
U	0.00	3.00	0.83	3.00	1.08	0.69	1.80	1.33	131.19
V	46.00	226.00	120.21	180.00	32.36	0.71	3.81	116.02	26.92
W	0.00	951.00	121.90	951.00	122.01	3.39	22.99	55.99	100.10

n = 98

TABLE 2.68

XRF Analyses: Kirkudbright - Lower Silurian (GWKE25)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	55.25	60.97	57.78	5.72	1.59	0.61	2.61	57.76	2.75
Al2O3	10.67	14.42	12.77	3.75	1.10	-0.30	2.36	12.72	8.65
TiO2	0.81	0.97	0.89	0.16	0.06	-0.01	1.44	0.89	6.57
Fe2O3	5.31	7.24	6.22	1.93	0.64	0.08	1.66	6.19	10.21
MgO	3.44	7.99	5.41	4.55	1.50	0.30	1.68	5.22	27.74
CaO	4.03	12.12	7.92	8.09	2.44	0.33	2.12	7.57	30.76
Na2O	1.02	1.86	1.55	0.84	0.24	-0.84	3.18	1.53	15.39
K2O	1.90	3.08	2.30	1.18	0.40	1.12	3.03	2.27	17.40
MnO	0.08	0.17	0.12	0.09	0.03	0.45	2.15	0.11	25.17
P2O5	0.16	0.21	0.19	0.05	0.01	0.00	2.94	0.18	7.10
Total	93.72	96.65	95.14	2.93	1.02	0.27	0.00	95.14	1.07
As	0.00	3.00	0.50	3.00	1.17	1.79	4.20	1.20	233.55
Ba	212.00	296.00	247.25	84.00	25.87	0.70	2.59	246.06	10.46
Co	12.00	20.00	16.25	8.00	2.14	-0.22	2.77	16.12	13.15
Cr	124.00	218.00	150.08	94.00	24.19	1.95	6.36	148.56	16.12
Cu	5.00	31.00	15.25	26.00	7.88	0.70	2.58	13.44	51.64
Ga	12.00	16.00	13.42	4.00	1.16	0.93	3.19	13.37	8.68
La	16.00	34.00	25.75	18.00	5.19	-0.22	2.33	25.24	20.15
Ni	38.00	63.00	53.58	25.00	7.42	-0.76	2.73	53.07	13.84
Nb	12.00	13.00	12.67	1.00	0.49	-0.71	1.58	12.66	3.89
Pb	6.00	17.00	9.67	11.00	3.20	0.89	3.27	9.22	33.11
Rb	48.00	80.00	60.92	32.00	10.35	0.74	2.32	60.16	16.99
Sr	53.00	174.00	99.58	121.00	43.50	0.29	1.77	90.74	43.68
Sb	0.00	7.00	3.50	7.00	2.15	0.34	2.22	3.07	61.52
S	0.00	464.00	43.25	464.00	133.44	2.94	9.81	2.33	308.54
Th	5.00	10.00	8.25	5.00	1.66	-0.54	2.33	8.08	20.10
V	79.00	109.00	95.25	30.00	9.28	-0.29	2.13	94.82	9.75
Y	22.00	28.00	25.17	6.00	1.75	-0.16	2.30	25.11	6.95
Zn	40.00	71.00	55.58	31.00	8.62	-0.30	2.78	54.94	15.50
Zr	175.00	301.00	207.17	126.00	35.31	1.65	5.21	204.77	17.04

n = 12

TABLE 2.69

XRF Analyses: Kirkudbright - Upper Silurian (GWKE26)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	54.37	60.47	57.47	6.10	1.87	-0.09	2.14	57.44	3.25
Al2O3	10.65	13.44	11.77	2.79	0.99	0.53	1.93	11.74	8.37
TiO2	0.67	1.00	0.85	0.33	0.10	0.03	2.07	0.84	12.22
Fe2O3	4.67	7.02	5.79	2.35	0.70	-0.21	2.37	5.75	12.16
MgO	3.87	7.62	5.36	3.75	1.48	0.36	1.49	5.18	27.71
CaO	5.78	17.99	10.10	12.21	4.11	0.74	2.13	9.42	40.67
Na2O	1.19	1.88	1.63	0.69	0.18	-1.09	4.41	1.63	10.94
K2O	1.67	2.92	2.13	1.25	0.35	1.07	3.45	2.11	16.22
MnO	0.10	0.20	0.13	0.10	0.03	1.56	4.99	0.13	21.23
P2O5	0.16	0.21	0.18	0.05	0.02	0.20	1.67	0.18	9.34
Total	94.23	96.86	95.42	2.63	0.83	0.25	-39.83	95.42	0.87
As	0.00	3.00	0.25	3.00	0.87	3.02	10.09	1.10	346.41
Ba	209.00	294.00	268.25	85.00	24.64	-1.12	3.71	267.13	9.18
Co	12.00	33.00	16.50	21.00	5.62	2.26	7.50	15.87	34.04
Cr	113.00	219.00	156.17	106.00	36.62	0.45	1.76	152.39	23.45
Cu	2.00	21.00	13.42	19.00	5.58	-0.84	2.62	11.61	41.62
Ga	11.00	14.00	12.50	3.00	0.80	0.00	2.64	12.48	6.38
La	19.00	34.00	26.50	15.00	4.23	-0.06	2.33	26.18	15.97
Ni	43.00	51.00	48.17	8.00	2.76	-0.64	2.14	48.09	5.73
Nb	10.00	13.00	12.17	3.00	1.03	-0.86	2.53	12.12	8.46
Pb	6.00	16.00	10.33	10.00	2.71	0.58	3.01	10.02	26.21
Rb	42.00	69.00	53.25	27.00	8.06	0.71	2.69	52.72	15.13
Sr	53.00	273.00	129.83	220.00	76.02	0.80	2.12	112.10	58.55
Sb	0.00	9.00	1.50	9.00	2.65	2.08	6.50	1.53	176.38
S	0.00	200.00	21.50	200.00	58.63	2.66	8.55	2.18	272.71
Th	4.00	11.00	8.17	7.00	2.17	-0.73	2.32	7.85	26.54
V	76.00	116.00	90.92	40.00	12.51	0.46	2.27	90.15	13.76
Y	23.00	28.00	25.08	5.00	1.83	0.43	1.93	25.02	7.30
Zn	40.00	54.00	47.25	14.00	4.39	0.15	1.88	47.06	9.30
Zr	158.00	291.00	212.17	133.00	48.22	0.32	1.62	207.25	22.73

n = 12

TABLE 2.70

XRF Analyses: Kirkudbright Mapping Studies (GWKE27)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	54.14	60.97	57.56	6.83	1.81	-0.03	0.60	57.54	3.15
Al2O3	10.65	14.42	12.17	3.77	1.15	0.28	1.90	12.11	9.49
TiO2	0.67	1.00	0.86	0.33	0.09	-0.27	2.23	0.85	10.75
Fe2O3	4.67	7.24	5.93	2.57	0.71	-0.01	2.17	5.89	11.97
MgO	3.44	7.99	5.27	4.55	1.46	0.46	1.66	5.08	27.72
CaO	4.03	17.99	9.32	13.96	3.59	0.86	2.84	8.71	38.56
Na2O	1.02	1.88	1.59	0.86	0.20	-1.07	4.13	1.58	12.75
K2O	1.67	3.08	2.20	1.41	0.37	1.23	3.75	2.18	16.64
MnO	0.08	0.20	0.12	0.12	0.03	0.80	3.58	0.12	23.05
P2O5	0.16	0.21	0.18	0.05	0.01	0.20	2.09	0.18	8.11
Total	93.72	96.86	95.20	3.14	0.93	0.66	-116.93	95.20	0.97
As	0.00	3.00	0.35	3.00	0.98	2.41	6.80	1.14	282.37
Ba	208.00	296.00	254.08	88.00	28.91	-0.10	1.80	252.47	11.38
Co	9.00	33.00	16.08	24.00	4.24	2.30	11.03	15.64	26.39
Cr	113.00	219.00	151.46	106.00	29.89	1.05	3.09	148.90	19.73
Cu	2.00	31.00	14.31	29.00	6.52	0.45	3.45	12.58	45.59
Ga	10.00	16.00	12.85	6.00	1.19	0.30	4.28	12.79	9.26
La	16.00	34.00	25.85	18.00	4.62	-0.11	2.40	25.43	17.87
Ni	38.00	63.00	51.19	25.00	6.15	0.12	2.56	50.84	12.02
Nb	10.00	13.00	12.35	3.00	0.85	-1.12	3.50	12.32	6.85
Pb	6.00	17.00	9.85	11.00	2.87	0.80	3.27	9.47	29.11
Rb	42.00	80.00	56.85	38.00	9.52	0.92	3.27	56.13	16.75
Sr	53.00	273.00	119.35	220.00	62.56	0.86	2.85	105.14	52.42
Sb	0.00	9.00	2.58	9.00	2.48	0.88	3.17	2.25	96.42
S	0.00	464.00	31.69	464.00	97.53	3.73	16.44	2.46	307.73
Th	4.00	11.00	8.23	7.00	1.86	-0.68	2.51	7.99	22.61
V	76.00	116.00	92.19	40.00	11.08	0.17	2.12	91.55	12.02
Y	22.00	28.00	25.04	6.00	1.73	0.22	2.11	24.98	6.92
Zn	40.00	71.00	51.12	31.00	7.78	0.56	2.85	50.56	15.23
Zr	158.00	301.00	207.38	143.00	40.78	0.85	2.76	203.82	19.67

n = 26

TABLE 2.71

XRF Analyses: Glendinning Aditional Trace Element Studies (GWKE28)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Ag	0.00	4.00	0.89	4.00	1.37	1.12	2.68	1.33	153.13
Bi	0.00	2.00	0.21	2.00	0.63	2.57	7.62	1.08	299.54
Br	0.00	9.00	1.11	9.00	2.58	2.27	6.79	1.37	233.40
Cd	0.00	4.00	0.21	4.00	0.92	4.01	17.06	1.08	435.89
Ce	53.00	262.00	100.05	209.00	58.89	2.08	6.02	89.76	58.86
Cs	9.00	59.00	32.53	50.00	13.46	0.24	2.89	29.42	41.39
Hf	2.00	11.00	5.74	9.00	1.88	0.70	4.97	5.43	32.79
Mo	0.00	11.00	1.68	11.00	2.40	3.24	13.27	1.44	142.79
Se	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sc	5.00	27.00	21.05	22.00	4.85	-1.90	7.38	20.13	23.03
Sn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ta	0.00	4.00	0.89	4.00	1.41	1.04	2.42	1.38	157.60
Te	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Th	2.00	13.00	8.89	11.00	2.85	-0.57	2.93	8.29	32.00
Tl	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U	0.00	3.00	1.58	3.00	1.17	-0.41	1.69	1.75	74.09
V	46.00	153.00	113.42	107.00	24.18	-0.81	4.54	110.34	21.32
W	43.00	951.00	186.11	908.00	207.14	2.85	11.01	132.87	111.30

n = 19

TABLE 2.72

XRF Analyses: Glendinning Additional Trace Element Studies (GWKE29)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Ag	0.00	5.00	1.50	5.00	1.78	0.69	2.29	1.68	118.63
Bi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Br	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ce	40.00	70.00	53.20	30.00	7.93	0.60	3.52	52.68	14.90
Cs	3.00	12.00	7.00	9.00	2.71	0.32	2.44	6.50	38.69
Hf	4.00	8.00	6.30	4.00	1.25	-0.59	2.18	6.18	19.87
Mo	0.00	1.00	0.10	1.00	0.32	2.67	8.11	1.00	316.23
Se	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sc	19.00	24.00	20.30	5.00	1.64	1.26	3.56	20.24	8.06
Sn	0.00	3.00	0.30	3.00	0.95	2.67	8.11	1.12	316.23
Ta	0.00	2.00	0.40	2.00	0.84	1.50	3.25	1.15	210.82
Te	0.00	3.00	0.30	3.00	0.95	2.67	8.11	1.12	316.23
Th	4.00	12.00	8.40	8.00	2.50	0.01	2.30	8.03	29.80
Tl	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U	0.00	2.00	0.60	2.00	0.97	0.87	1.76	1.23	161.02
V	76.00	119.00	92.70	43.00	14.06	0.55	2.26	91.78	15.16
W	85.00	234.00	151.50	149.00	48.42	0.31	2.02	144.51	31.96

n = 10

TABLE 2.73

XRF Analyses: Glendinning Additional Element Study (GWKE30)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Ag	0.00	2.00	0.40	2.00	0.70	1.40	3.61	1.07	174.80
Bi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Br	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cd	0.00	4.00	0.80	4.00	1.69	1.50	3.25	1.32	210.82
Ce	60.00	81.00	71.10	21.00	6.12	-0.53	2.81	70.85	8.61
Cs	7.00	23.00	12.40	16.00	5.21	0.93	2.61	11.55	42.02
Hf	5.00	8.00	6.40	3.00	1.26	0.24	1.51	6.29	19.76
Mo	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Se	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sc	22.00	30.00	25.30	8.00	2.75	0.31	1.87	25.17	10.87
Sn	0.00	3.00	0.50	3.00	1.08	1.67	4.05	1.20	216.02
Ta	0.00	5.00	1.80	5.00	2.15	0.55	1.65	1.82	119.44
Te	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Th	8.00	14.00	10.90	6.00	2.02	0.14	1.70	10.73	18.58
Tl	0.00	2.00	0.20	2.00	0.63	2.67	8.11	1.07	316.23
U	0.00	3.00	1.40	3.00	1.26	-0.11	1.40	1.64	90.35
V	96.00	152.00	132.60	56.00	16.95	-0.87	3.20	131.53	12.78
W	15.00	76.00	39.20	61.00	16.90	0.73	3.43	35.94	43.12

n = 10

TABLE 2.74

XRF Analses: Tweedsmuir Multi-Unit Studies (GWKE31)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	60.76	69.55	65.07	8.79	2.78	0.23	1.99	65.02	4.28
Al2O3	9.94	15.72	12.76	5.78	1.82	0.19	1.79	12.63	14.23
TiO2	0.59	0.93	0.78	0.34	0.09	-0.51	2.74	0.78	10.91
Fe2O3	3.82	7.09	5.52	3.27	0.79	-0.15	2.70	5.47	14.38
MgO	2.79	4.87	3.97	2.08	0.58	-0.32	2.32	3.93	14.50
CaO	1.20	9.04	3.04	7.84	1.97	1.67	5.41	2.60	64.65
Na2O	1.59	2.29	1.89	0.70	0.20	0.48	2.21	1.88	10.84
K2O	1.67	3.69	2.74	2.02	0.56	0.21	2.09	2.69	20.53
MnO	0.05	0.11	0.08	0.06	0.01	0.99	4.39	0.07	17.57
P2O5	0.16	0.24	0.20	0.08	0.02	0.52	2.69	0.19	10.43
Total	93.87	98.38	96.05	4.51	0.98	-0.87	155.18	96.04	1.02
As	0.00	3.00	0.25	3.00	0.72	3.14	12.18	1.06	286.54
Ba	394.00	787.00	587.90	393.00	113.10	0.24	2.00	577.60	19.24
Co	0.00	24.00	15.60	24.00	4.89	-1.28	6.59	14.03	31.36
Cr	134.00	379.00	197.75	245.00	62.44	1.44	4.72	189.97	31.57
Cu	16.00	32.00	22.25	16.00	4.93	0.58	2.14	21.76	22.16
Ga	10.00	18.00	13.05	8.00	2.31	0.41	2.28	12.86	17.66
La	26.00	42.00	33.45	16.00	3.97	0.09	3.13	33.22	11.86
Ni	61.00	99.00	76.95	38.00	9.94	0.66	2.90	76.36	12.92
Nb	11.00	16.00	13.75	5.00	1.45	0.02	2.17	13.68	10.52
Pb	11.00	19.00	15.25	8.00	2.36	0.09	1.97	15.08	15.47
Rb	42.00	103.00	70.90	61.00	17.23	0.41	2.03	68.96	24.31
Sr	123.00	213.00	156.35	90.00	25.04	0.27	2.43	154.46	16.02
Sb	0.00	4.00	1.35	4.00	1.46	0.41	1.51	1.54	108.21
S	336.00	4915.00	1160.35	4579.00	1069.81	2.40	8.75	888.94	92.20
Th	3.00	11.00	7.40	8.00	2.11	-0.17	2.25	7.08	28.55
V	59.00	99.00	79.35	40.00	11.44	-0.09	1.99	78.55	14.42
Y	22.00	30.00	25.70	8.00	2.15	0.14	2.28	25.61	8.38
Zn	37.00	77.00	52.20	40.00	10.04	0.69	3.00	51.33	19.23
Zr	202.00	349.00	259.90	147.00	37.98	0.55	3.16	257.34	14.61

n = 20

TABLE 2.75

XRF Analyses: Wigtownshire (East) Mapping Study (GWKE32)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	50.25	65.67	58.27	15.42	2.68	-0.13	4.65	58.21	4.59
Al2O3	9.53	18.35	11.96	8.82	1.37	1.39	7.91	11.89	11.47
TiO2	0.62	1.23	0.81	0.61	0.12	1.50	5.50	0.80	14.52
Fe2O3	4.15	7.92	5.41	3.77	0.77	1.06	4.68	5.36	14.22
MgO	3.59	12.44	5.22	8.85	1.56	2.34	9.44	5.05	29.91
CaO	0.52	16.38	9.62	15.86	3.45	-0.17	3.03	8.72	35.82
Na2O	0.15	3.79	1.64	3.64	0.44	1.99	12.62	1.57	26.91
K2O	0.52	3.25	2.14	2.73	0.42	-0.44	5.88	2.09	19.39
MnO	0.07	0.19	0.10	0.12	0.02	1.77	6.28	0.09	25.13
P2O5	0.13	0.64	0.19	0.51	0.07	5.36	34.59	0.18	34.89
Total	93.52	97.01	95.35	3.49	1.06	-1.06	154.64	95.35	1.11
As	0.00	9.00	0.67	9.00	1.69	3.18	13.35	1.20	253.01
Ba	152.00	3183.00	314.35	3031.00	374.80	6.56	49.46	260.98	119.23
Co	9.00	39.00	15.97	30.00	4.55	2.55	12.40	15.48	28.51
Cr	65.00	544.00	169.38	479.00	75.73	3.22	14.69	159.22	44.71
Cu	0.00	109.00	10.15	109.00	15.60	4.07	24.19	5.34	153.65
Ga	11.00	18.00	13.57	7.00	1.48	0.69	2.89	13.49	10.91
La	14.00	46.00	26.28	32.00	6.00	0.64	4.00	25.62	22.82
Ni	37.00	353.00	61.33	316.00	43.52	5.47	34.12	56.02	70.96
Nb	8.00	18.00	13.07	10.00	1.70	0.20	4.85	12.96	12.99
Pb	6.00	15.00	10.06	9.00	1.97	0.12	2.63	9.86	19.60
Rb	23.00	93.00	62.24	70.00	12.04	-0.57	4.39	60.87	19.34
Sr	31.00	456.00	147.03	425.00	83.08	1.21	5.67	123.79	56.51
Sb	0.00	9.00	2.35	9.00	2.30	0.87	3.20	2.10	98.08
S	0.00	1034.00	20.71	1034.00	126.83	7.40	58.58	1.43	612.45
Th	4.00	21.00	8.94	17.00	2.54	1.36	8.90	8.61	28.45
V	63.00	208.00	91.76	145.00	19.55	3.51	19.70	90.26	21.30
Y	15.00	36.00	25.69	21.00	2.94	-0.40	6.68	25.52	11.46
Zn	29.00	67.00	50.33	38.00	7.74	-0.27	3.21	49.71	15.37
Zr	138.00	489.00	217.11	351.00	57.35	2.17	9.57	211.19	26.42

n = 72

TABLE 2.76

XRF Analyses: Wigtownshire (West) Mapping Study (GWKE33)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	51.22	78.62	62.97	27.40	5.29	0.16	2.80	62.75	8.40
Al2O3	6.23	15.39	10.55	9.16	1.74	0.35	3.06	10.41	16.51
TiO2	0.51	1.62	0.85	1.11	0.18	1.06	6.09	0.83	20.91
Fe2O3	3.51	10.63	5.88	7.12	1.30	1.12	4.54	5.76	22.06
MgO	1.21	8.89	4.31	7.68	1.40	0.58	4.17	4.07	32.42
CaO	0.31	17.10	6.55	16.79	5.00	0.42	1.75	4.33	76.25
Na2O	1.15	3.81	2.03	2.66	0.58	1.32	4.29	1.96	28.59
K2O	0.78	2.96	1.92	2.18	0.43	0.05	3.16	1.87	22.33
MnO	0.07	0.29	0.11	0.22	0.03	2.07	11.18	0.11	29.30
P2O5	0.10	0.36	0.18	0.26	0.04	1.42	7.79	0.18	22.16
Total	93.53	97.00	95.34	3.47	1.03	1.17	-176.18	95.34	1.08
As	0.00	23.00	2.41	23.00	2.96	3.87	26.26	2.08	122.72
Ba	160.00	877.00	375.49	717.00	173.04	0.95	3.40	340.01	46.08
Co	5.00	45.00	14.98	40.00	5.54	2.04	11.01	14.14	36.98
Cr	69.00	538.00	226.88	469.00	106.93	0.95	3.16	204.58	47.13
Cu	2.00	65.00	16.31	63.00	10.86	1.54	6.91	12.75	66.61
Ga	7.00	17.00	11.93	10.00	2.09	0.07	2.73	11.74	17.49
La	18.00	41.00	28.77	23.00	5.12	0.27	2.23	28.32	17.79
Ni	11.00	203.00	62.74	192.00	32.74	1.76	7.53	55.79	52.17
Nb	7.00	17.00	11.64	10.00	1.84	0.14	3.10	11.49	15.78
Pb	4.00	23.00	11.51	19.00	3.81	0.93	4.06	10.92	33.09
Rb	22.00	90.00	48.64	68.00	11.85	0.38	3.82	47.17	24.36
Sr	50.00	460.00	177.64	410.00	88.57	1.04	4.25	156.89	49.86
Sb	0.00	7.00	1.62	7.00	1.78	0.81	2.77	1.70	110.00
S	0.00	4213.00	236.52	4213.00	557.54	4.59	29.83	10.59	235.73
Th	0.00	12.00	6.56	12.00	2.55	-0.17	2.70	5.95	38.80
V	50.00	268.00	101.16	218.00	32.36	1.95	9.51	97.00	31.99
Y	14.00	33.00	23.80	19.00	3.44	-0.21	3.00	23.54	14.47
Zn	18.00	80.00	46.70	62.00	12.87	0.13	3.08	44.79	27.56
Zr	95.00	428.00	211.54	333.00	61.92	0.76	3.75	202.96	29.27

n = 94

TABLE 2.77

XRF Analyses: Selkirk Studies (GWKE34)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	57.41	61.20	59.47	3.79	1.66	-0.43	2.30	59.45	2.78
Al2O3	9.40	11.67	10.52	2.27	0.96	0.12	1.45	10.49	9.15
TiO2	0.76	1.12	0.92	0.36	0.15	0.13	1.29	0.91	16.57
Fe2O3	5.20	6.63	5.94	1.43	0.56	0.02	1.58	5.92	9.43
MgO	4.11	4.78	4.40	0.67	0.24	0.41	2.14	4.39	5.48
CaO	6.79	14.84	10.48	8.05	2.65	0.38	2.69	10.20	25.26
Na2O	1.47	1.76	1.63	0.29	0.10	-0.52	2.52	1.63	6.01
K2O	1.69	2.42	2.03	0.73	0.27	0.15	1.78	2.02	13.27
MnO	0.07	0.11	0.08	0.04	0.02	0.93	2.67	0.08	18.07
P2O5	0.16	0.21	0.19	0.05	0.02	0.00	1.27	0.18	11.21
Total	93.74	97.00	95.66	3.26	1.33	-0.35	-7.33	95.65	1.39
As	0.00	6.00	2.50	6.00	2.35	0.25	1.85	2.29	93.81
Ba	193.00	276.00	225.50	83.00	28.20	0.88	2.92	224.11	12.51
Co	13.00	19.00	15.33	6.00	2.16	0.71	2.39	15.21	14.09
Cr	120.00	283.00	191.83	163.00	64.89	0.22	1.60	182.64	33.83
Cu	12.00	25.00	18.17	13.00	4.79	0.08	1.82	17.63	26.38
Ga	12.00	13.00	12.50	1.00	0.55	0.00	1.00	12.49	4.38
La	25.00	30.00	28.33	5.00	1.86	-0.94	2.74	28.28	6.57
Ni	43.00	58.00	48.83	15.00	5.31	0.76	2.57	48.60	10.87
Nb	12.00	16.00	14.17	4.00	1.47	-0.31	1.85	14.10	10.39
Pb	10.00	36.00	15.50	26.00	10.09	1.75	4.13	13.76	65.13
Rb	50.00	68.00	59.33	18.00	7.23	-0.21	1.50	58.96	12.18
Sr	118.00	189.00	158.33	71.00	25.10	-0.41	2.26	156.57	15.85
Sb	0.00	2.00	0.83	2.00	0.98	0.33	1.32	1.26	117.98
S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Th	6.00	14.00	10.50	8.00	3.02	-0.38	1.85	10.09	28.73
V	81.00	113.00	97.00	32.00	14.82	-0.01	1.11	96.05	15.28
Y	28.00	33.00	30.83	5.00	1.94	-0.47	1.73	30.78	6.29
Zn	51.00	64.00	59.17	13.00	4.88	-0.69	2.23	58.99	8.24
Zr	203.00	437.00	292.83	234.00	93.16	0.44	1.83	280.96	31.81

n = 6

TABLE 2.78

XRF Analyses: Longford Down Traverse (GWKE40)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	45.69	86.30	61.80	40.61	6.31	0.55	3.51	61.49	10.21
Al2O3	7.74	22.48	14.17	14.74	2.48	0.02	2.99	13.95	17.48
TiO2	0.16	1.69	0.88	1.53	0.29	0.51	2.60	0.83	33.41
Fe2O3	0.71	9.89	6.19	9.18	1.79	-0.31	2.52	5.86	29.00
MgO	0.19	12.50	3.88	12.31	1.45	0.77	6.94	3.54	37.52
CaO	0.03	21.26	4.19	21.23	4.63	1.10	3.27	1.77	110.42
Na2O	0.00	4.57	2.11	4.57	0.65	0.55	3.82	2.03	30.65
K2O	0.56	4.22	2.11	3.66	0.57	0.31	4.20	2.03	26.95
MnO	0.01	0.50	0.11	0.49	0.05	3.42	21.28	0.10	50.79
P2O5	0.03	0.57	0.18	0.54	0.05	2.28	17.76	0.17	30.35
Total	82.85	101.52	95.61	18.67	3.30	-0.69	7.08	95.55	3.45
As	0.00	55.00	2.75	55.00	5.19	6.32	53.40	2.05	188.60
Ba	151.00	4969.00	509.79	4818.00	413.21	5.59	52.24	429.34	81.05
Co	0.00	34.00	15.25	34.00	4.92	-0.09	3.69	14.22	32.28
Cr	10.00	590.00	162.08	580.00	81.64	1.50	7.54	141.83	50.37
Cu	0.00	84.00	20.26	84.00	9.83	2.07	13.09	18.05	48.54
Ga	5.00	21.00	14.03	16.00	2.43	-0.36	3.36	13.79	17.35
La	0.00	59.00	27.00	59.00	8.23	0.54	3.85	25.63	30.47
Ni	3.00	227.00	60.38	224.00	32.07	1.39	7.23	51.31	53.12
Nb	5.00	21.00	13.15	16.00	3.67	0.37	2.30	12.64	27.91
Pb	6.00	398.00	15.42	392.00	23.13	15.39	253.73	13.49	150.05
Rb	14.00	124.00	55.61	110.00	15.87	0.63	5.44	53.22	28.54
Sr	37.00	858.00	179.31	821.00	136.24	1.95	7.37	143.21	75.98
Sb	0.00	14.00	0.70	14.00	1.46	4.42	33.41	1.23	206.98
S	6.00	9568.00	314.31	9562.00	834.78	8.06	77.81	127.81	265.59
Th	0.00	22.00	7.05	22.00	3.14	0.44	4.52	6.23	44.56
V	14.00	242.00	102.84	228.00	34.88	0.71	3.79	96.81	33.92
Y	10.00	34.00	24.99	24.00	4.03	-0.57	3.70	24.63	16.13
Zn	4.00	151.00	62.52	147.00	22.82	0.65	4.85	57.82	36.50
Zr	103.00	435.00	214.56	332.00	58.41	0.60	3.11	206.88	27.22

n = 297

TABLE 2.79

XRF Analyses: Aghamore Formation (GWKE41)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	66.30	75.39	71.51	9.09	3.10	-0.38	2.24	71.45	4.33
Al2O3	13.17	16.19	15.19	3.02	1.05	-1.02	2.93	15.15	6.92
TiO2	0.35	0.89	0.61	0.54	0.20	0.03	1.73	0.59	31.94
Fe2O3	0.97	6.76	4.47	5.79	2.13	-0.43	1.94	3.84	47.65
MgO	0.41	3.01	1.63	2.60	1.08	0.14	1.38	1.28	66.23
CaO	0.12	1.04	0.40	0.92	0.35	0.93	2.37	0.30	87.30
Na2O	1.86	3.01	2.47	1.15	0.37	-0.23	2.47	2.44	14.83
K2O	1.17	3.41	2.38	2.24	0.71	-0.30	2.51	2.27	30.05
MnO	0.01	0.15	0.09	0.14	0.04	-0.70	3.10	0.07	47.44
P2O5	0.06	0.15	0.10	0.09	0.04	0.25	1.64	0.09	36.50
Total	96.93	99.76	98.84	2.83	0.90	-1.95	-66.75	98.84	0.91
As	0.00	21.00	6.14	21.00	6.82	1.70	4.53	4.37	110.98
Ba	339.00	1099.00	530.86	760.00	265.58	1.62	4.17	489.66	50.03
Co	0.00	14.00	9.43	14.00	5.16	-0.93	2.53	7.47	54.72
Cr	35.00	97.00	59.86	62.00	21.77	0.68	2.18	56.72	36.37
Cu	5.00	32.00	20.43	27.00	9.03	-0.47	2.33	17.94	44.22
Ga	11.00	16.00	13.00	5.00	2.00	0.41	1.60	12.87	15.38
La	19.00	42.00	30.57	23.00	8.18	0.33	2.04	29.64	26.77
Ni	6.00	34.00	17.57	28.00	11.04	0.47	1.66	14.64	62.85
Nb	11.00	14.00	12.43	3.00	1.27	0.17	1.53	12.37	10.24
Pb	7.00	15.00	10.71	8.00	2.56	0.28	2.44	10.45	23.93
Rb	32.00	78.00	57.86	46.00	13.84	-0.60	3.25	56.18	23.92
Sr	74.00	146.00	98.29	72.00	30.24	0.73	1.81	94.68	30.76
Sb	0.00	3.00	1.14	3.00	1.21	0.32	1.61	1.43	106.31
S	35.00	940.00	206.14	905.00	326.51	1.97	5.00	104.01	158.39
Th	6.00	15.00	8.57	9.00	3.10	1.37	3.79	8.18	36.18
V	52.00	106.00	81.00	54.00	20.96	-0.13	1.72	78.53	25.88
Y	19.00	28.00	24.00	9.00	2.94	-0.42	2.37	23.84	12.27
Zn	4.00	70.00	34.71	66.00	24.76	0.25	1.55	25.15	71.32
Zr	113.00	214.00	163.29	101.00	32.84	0.03	2.31	160.37	20.11

n = 7

TABLE 2.80

XRF Analyses: Lackan Formation (GWKE42)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	61.07	86.30	70.01	25.23	7.68	1.04	3.28	69.65	10.97
Al2O3	7.74	22.48	16.17	14.74	4.02	-0.61	3.66	15.63	24.89
TiO2	0.35	1.34	0.83	0.99	0.38	0.19	1.41	0.75	46.29
Fe2O3	0.71	8.19	4.76	7.48	2.84	-0.23	1.55	3.66	59.70
MgO	0.19	3.79	1.64	3.60	1.43	0.57	1.61	1.08	87.09
CaO	0.03	1.88	0.51	1.85	0.55	1.85	5.47	0.30	108.28
Na2O	0.00	3.31	2.10	3.31	1.02	-0.90	3.03	2.07	48.60
K2O	1.28	3.32	2.23	2.04	0.60	0.32	2.63	2.15	26.79
MnO	0.01	0.18	0.09	0.17	0.05	-0.08	2.05	0.07	59.98
P2O5	0.03	0.25	0.14	0.22	0.07	-0.25	2.16	0.12	49.91
Total	94.30	99.44	98.48	5.14	1.64	-2.16	11.15	98.47	1.67
As	2.00	42.00	8.89	40.00	12.70	2.27	6.54	5.16	142.91
Ba	342.00	4969.00	1294.56	4627.00	1611.14	1.61	4.04	783.19	124.46
Co	3.00	16.00	10.56	13.00	4.90	-0.32	1.66	9.25	46.44
Cr	13.00	140.00	76.11	127.00	52.03	0.08	1.37	55.69	68.35
Cu	6.00	79.00	23.22	73.00	21.76	2.11	6.15	17.91	93.72
Ga	5.00	15.00	11.78	10.00	3.93	-0.85	2.13	11.01	33.37
La	11.00	43.00	27.67	32.00	12.25	0.00	1.56	24.96	44.27
Ni	8.00	69.00	26.11	61.00	20.07	1.05	3.21	20.21	76.85
Nb	8.00	17.00	12.56	9.00	3.32	-0.22	1.71	12.13	26.45
Pb	8.00	398.00	54.22	390.00	128.94	2.47	7.12	16.40	237.80
Rb	31.00	62.00	49.22	31.00	8.45	-0.82	3.83	48.48	17.17
Sr	60.00	159.00	102.89	99.00	33.76	0.56	2.16	98.19	32.81
Sb	0.00	4.00	1.33	4.00	1.32	0.73	2.79	1.47	99.22
S	16.00	928.00	276.67	912.00	323.21	1.05	2.64	137.31	116.82
Th	2.00	10.00	4.89	8.00	2.62	0.79	2.48	4.32	53.58
V	14.00	149.00	83.67	135.00	47.56	0.07	1.62	68.36	56.84
Y	10.00	31.00	21.78	21.00	6.89	-0.38	2.08	20.64	31.63
Zn	11.00	82.00	50.44	71.00	27.55	-0.24	1.55	41.39	54.62
Zr	112.00	238.00	182.33	126.00	38.61	-0.10	2.63	178.46	21.18

n = 9

TABLE 2.81

XRF Analyses: Finnalayhta Formation (GWKE43)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	53.08	75.66	64.24	22.58	4.09	-0.26	4.54	64.11	6.37
Al2O3	12.16	19.91	16.07	7.75	1.66	-0.16	2.82	15.99	10.32
TiO2	0.41	1.69	1.21	1.28	0.27	-1.08	4.23	1.17	21.97
Fe2O3	3.58	9.69	7.53	6.11	1.16	-1.18	4.98	7.42	15.48
MgO	1.14	6.21	3.48	5.07	0.98	0.39	4.13	3.33	28.07
CaO	0.17	14.87	0.90	14.70	2.01	6.25	43.68	0.51	223.79
Na2O	1.14	3.18	2.08	2.04	0.37	0.73	4.18	2.05	17.79
K2O	0.74	4.22	2.07	3.48	0.49	0.99	9.27	2.01	23.64
MnO	0.03	0.19	0.10	0.16	0.03	0.50	5.05	0.10	25.93
P2O5	0.10	0.42	0.19	0.32	0.04	2.66	15.88	0.18	23.23
Total	91.80	100.11	97.86	8.31	1.82	-1.32	9.02	97.84	1.86
As	0.00	10.00	2.86	10.00	2.21	0.79	4.00	2.44	77.38
Ba	286.00	1522.00	528.02	1236.00	239.23	2.77	10.36	494.95	45.31
Co	6.00	24.00	16.89	18.00	3.53	-0.68	3.86	16.45	20.90
Cr	34.00	316.00	172.86	282.00	56.32	-0.20	3.76	160.74	32.58
Cu	6.00	55.00	24.57	49.00	9.52	1.00	5.56	22.69	38.73
Ga	8.00	20.00	15.52	12.00	1.93	-0.90	6.17	15.38	12.41
La	16.00	59.00	33.27	43.00	8.00	0.55	4.74	32.31	24.05
Ni	8.00	103.00	69.30	95.00	20.88	-1.38	4.79	63.51	30.12
Nb	10.00	21.00	17.39	11.00	2.66	-0.84	3.02	17.17	15.30
Pb	7.00	49.00	15.13	42.00	7.72	2.77	11.78	13.89	51.03
Rb	14.00	89.00	53.25	75.00	11.72	-0.42	5.96	51.61	22.00
Sr	38.00	722.00	120.11	684.00	121.45	3.92	18.63	97.29	101.12
Sb	0.00	3.00	0.66	3.00	0.98	1.07	2.68	1.22	147.95
S	11.00	1912.00	284.02	1901.00	320.46	3.10	14.79	168.21	112.83
Th	3.00	22.00	7.39	19.00	3.29	2.02	9.64	6.81	44.50
V	71.00	242.00	119.95	171.00	28.62	2.09	9.37	117.19	23.86
Y	16.00	33.00	27.52	17.00	3.60	-1.43	5.07	27.25	13.09
Zn	24.00	151.00	83.59	127.00	26.67	0.60	3.81	79.22	31.91
Zr	147.00	435.00	260.46	288.00	61.44	0.03	3.10	252.89	23.59

n = 56

TABLE 2.82

XRF Analyses: Coronea Formation (GWKE44)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	53.93	68.79	63.10	14.86	3.66	-0.54	2.56	62.99	5.80
Al2O3	13.18	20.98	16.24	7.80	1.70	0.60	3.44	16.15	10.48
TiO2	0.87	1.58	1.17	0.71	0.16	0.61	2.91	1.16	14.12
Fe2O3	6.75	9.89	8.00	3.14	0.74	0.83	3.04	7.97	9.19
MgO	2.60	8.21	3.69	5.61	1.19	1.90	6.93	3.54	32.28
CaO	0.18	8.82	0.95	8.64	1.50	4.11	21.07	0.57	158.00
Na2O	1.37	3.80	2.25	2.43	0.62	1.22	3.37	2.17	27.74
K2O	0.56	3.32	2.00	2.76	0.64	-0.60	3.17	1.86	32.25
MnO	0.09	0.50	0.13	0.41	0.08	3.54	15.20	0.12	61.78
P2O5	0.13	0.57	0.19	0.44	0.07	4.79	27.88	0.19	34.13
Total	89.30	99.91	97.71	10.61	2.26	-1.75	9.04	97.68	2.31
As	0.00	7.00	1.70	7.00	1.88	1.16	3.72	1.68	110.81
Ba	169.00	1180.00	457.95	1011.00	157.87	2.35	12.36	436.37	34.47
Co	13.00	24.00	18.30	11.00	2.74	0.42	2.29	18.10	14.96
Cr	121.00	370.00	182.23	249.00	55.97	1.64	5.58	175.45	30.71
Cu	8.00	84.00	22.40	76.00	12.11	3.51	18.21	20.47	54.07
Ga	14.00	21.00	15.90	7.00	1.52	1.33	5.45	15.83	9.53
La	0.00	40.00	29.35	40.00	7.91	-1.19	5.78	27.02	26.96
Ni	52.00	154.00	69.97	102.00	20.41	2.43	9.17	67.85	29.17
Nb	10.00	21.00	16.75	11.00	2.47	-0.49	2.94	16.56	14.73
Pb	6.00	17.00	11.05	11.00	2.53	0.26	2.71	10.76	22.91
Rb	15.00	100.00	52.78	85.00	16.95	-0.05	3.85	49.50	32.12
Sr	48.00	606.00	102.68	558.00	103.72	3.51	16.00	82.19	101.02
Sb	0.00	3.00	0.95	3.00	1.13	0.53	1.66	1.37	119.07
Y	17.00	34.00	27.03	17.00	3.36	-0.97	4.56	26.82	12.42
Zn	63.00	109.00	80.75	46.00	10.37	1.02	3.61	80.14	12.84
Zr	153.00	376.00	234.02	223.00	53.95	0.21	2.47	227.88	23.05

n = 40

TBLE 2.83

XRF Analyses: Cornhill Formation (GWKE45)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	62.19	73.17	67.46	10.98	5.50	0.14	1.47	67.31	8.16
Al2O3	13.51	16.78	15.40	3.27	1.69	-0.50	1.50	15.34	11.00
TiO2	0.80	1.30	1.08	0.50	0.25	-0.37	1.50	1.06	23.61
Fe2O3	6.31	7.99	6.95	1.68	0.91	0.66	1.50	6.91	13.11
MgO	1.99	3.07	2.70	1.08	0.62	-0.71	1.50	2.65	22.78
CaO	0.18	0.31	0.25	0.13	0.07	-0.27	1.50	0.24	26.23
Na2O	1.41	2.30	1.94	0.89	0.47	-0.58	1.50	1.90	24.16
K2O	1.82	2.07	1.98	0.25	0.14	-0.67	1.46	1.97	6.91
MnO	0.06	0.48	0.26	0.42	0.21	0.23	1.50	0.19	82.31
P2O5	0.14	0.20	0.17	0.06	0.03	0.00	1.50	0.17	17.65
Total	96.00	99.56	98.18	3.56	1.91	-0.69	10.82	98.17	1.95
As	2.00	12.00	5.67	10.00	5.51	0.68	1.50	4.16	97.19
Ba	405.00	459.00	439.67	54.00	30.09	-0.69	1.48	438.96	6.84
Co	15.00	25.00	19.67	10.00	5.03	0.24	1.50	19.24	25.59
Cr	120.00	166.00	143.00	46.00	23.00	0.00	1.50	141.76	16.08
Cu	22.00	30.00	26.33	8.00	4.04	-0.29	1.50	26.12	15.35
Ga	13.00	15.00	14.33	2.00	1.15	-0.71	1.49	14.30	8.06
La	21.00	50.00	32.33	29.00	15.50	0.63	1.50	30.11	47.95
Ni	52.00	72.00	65.33	20.00	11.55	-0.71	1.50	64.60	17.67
Nb	14.00	19.00	17.00	5.00	2.65	-0.60	1.50	16.85	15.56
Pb	8.00	13.00	10.33	5.00	2.52	0.24	1.50	10.13	24.35
Rb	54.00	59.00	57.00	5.00	2.65	-0.60	1.56	56.96	4.64
Sr	37.00	78.00	56.33	41.00	20.60	0.21	1.50	53.81	36.57
Sb	2.00	3.00	2.33	1.00	0.58	0.71	1.50	2.29	24.74
S	31.00	210.00	105.00	179.00	93.44	0.54	1.50	78.39	88.99
Th	6.00	8.00	6.67	2.00	1.15	0.71	1.50	6.60	17.32
V	101.00	126.00	112.00	25.00	12.77	0.41	1.50	111.53	11.40
Y	21.00	29.00	25.67	8.00	4.16	-0.53	1.50	25.43	16.22
Zn	75.00	89.00	79.67	14.00	8.08	0.71	1.50	79.40	10.15
Zr	151.00	253.00	210.33	102.00	53.00	-0.52	1.50	205.45	25.20

n = 3

TABLE 2.84

XRF Analyses: Carrickateane Formation (GWKE46)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	56.85	62.40	58.63	5.55	1.83	1.32	3.39	58.61	3.12
Al2O3	14.80	16.17	15.36	1.37	0.60	0.24	1.19	15.35	3.87
TiO2	0.78	0.93	0.84	0.15	0.05	0.45	2.11	0.84	6.11
Fe2O3	7.74	8.70	8.14	0.96	0.35	0.31	1.81	8.14	4.28
MgO	4.92	5.96	5.64	1.04	0.38	-1.05	2.77	5.63	6.76
CaO	3.13	5.73	4.24	2.60	0.89	0.37	2.22	4.16	20.90
Na2O	2.00	3.53	2.75	1.53	0.51	0.01	2.10	2.71	18.48
K2O	0.93	2.07	1.68	1.14	0.40	-0.89	2.63	1.63	23.92
MnO	0.12	0.23	0.15	0.11	0.04	1.59	4.31	0.15	23.50
P2O5	0.17	0.23	0.21	0.06	0.02	-1.11	3.13	0.21	10.01
Total	95.95	99.83	97.66	3.88	1.29	0.51	15.55	97.65	1.33
As	0.00	2.00	0.57	2.00	0.98	0.95	1.90	1.22	170.78
Ba	304.00	816.00	514.14	512.00	161.42	0.77	2.98	493.77	31.40
Co	16.00	22.00	20.71	6.00	2.21	-1.60	4.09	20.60	10.69
Cr	149.00	269.00	212.71	120.00	39.68	-0.18	2.24	209.38	18.65
Cu	21.00	32.00	27.43	11.00	3.31	-0.82	3.49	27.24	12.07
Ga	14.00	17.00	16.14	3.00	1.07	-1.17	3.39	16.11	6.62
La	17.00	25.00	20.43	8.00	3.15	0.33	1.44	20.22	15.44
Ni	39.00	67.00	53.71	28.00	10.24	0.01	1.74	52.86	19.07
Nb	7.00	9.00	7.86	2.00	0.90	0.27	1.49	7.81	11.45
Pb	12.00	18.00	14.29	6.00	2.43	0.55	1.70	14.12	17.01
Rb	23.00	54.00	41.57	31.00	10.41	-0.75	2.50	40.24	25.03
Sr	316.00	416.00	346.29	100.00	34.04	1.34	3.60	344.95	9.83
Sb	0.00	2.00	0.71	2.00	0.95	0.59	1.55	1.22	133.17
S	131.00	394.00	272.43	263.00	98.22	-0.28	1.77	254.86	36.05
Th	1.00	5.00	3.29	4.00	1.38	-0.55	2.11	2.94	42.00
V	157.00	199.00	175.57	42.00	14.88	0.33	1.90	175.04	8.47
Y	20.00	24.00	21.57	4.00	1.27	0.88	3.08	21.54	5.90
Zn	64.00	75.00	67.43	11.00	4.04	1.11	2.65	67.33	5.98
Zr	119.00	134.00	127.14	15.00	5.08	-0.29	2.22	127.06	4.00

n = 7

TABLE 2.85

XRF Analyses: Glen Lodge Formation (GWKE47)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	51.84	66.61	59.88	14.77	6.08	-0.36	2.02	59.64	10.16
Al2O3	14.05	15.64	15.07	1.59	0.71	-0.92	2.13	15.06	4.68
TiO2	0.81	0.93	0.87	0.12	0.05	0.15	1.81	0.87	5.83
Fe2O3	7.14	8.46	7.87	1.32	0.55	-0.41	1.94	7.86	7.02
MgO	4.88	7.27	6.09	2.39	1.02	-0.03	1.70	6.02	16.73
CaO	0.68	8.07	2.72	7.39	3.57	1.14	2.32	1.57	131.29
Na2O	1.79	2.73	2.21	0.94	0.39	0.45	2.03	2.18	17.62
K2O	1.41	2.00	1.74	0.59	0.24	-0.44	2.00	1.72	14.10
MnO	0.10	0.33	0.21	0.23	0.10	0.35	1.96	0.19	46.53
P2O5	0.15	0.19	0.18	0.04	0.02	-0.96	2.15	0.18	10.66
Total	94.26	98.33	96.82	4.07	1.88	-0.70	2.29	96.80	1.94
As	0.00	2.00	0.50	2.00	1.00	1.15	2.33	1.19	200.00
Ba	350.00	517.00	401.50	167.00	77.55	1.10	2.30	396.46	19.31
Co	20.00	34.00	24.50	14.00	6.61	0.90	2.09	23.90	26.97
Cr	206.00	371.00	293.00	165.00	68.33	-0.22	1.92	286.66	23.32
Cu	15.00	36.00	26.00	21.00	9.70	-0.10	1.34	24.54	37.29
Ga	14.00	16.00	14.75	2.00	0.96	0.49	1.62	14.73	6.49
La	11.00	26.00	19.00	15.00	6.48	-0.21	1.66	18.08	34.11
Ni	56.00	151.00	109.00	95.00	41.04	-0.38	1.75	102.20	37.66
Nb	8.00	12.00	10.00	4.00	1.63	0.00	2.00	9.90	16.33
Pb	8.00	15.00	11.25	7.00	2.99	0.24	1.74	10.95	26.54
Rb	39.00	55.00	46.25	16.00	6.70	0.36	1.90	45.89	14.49
Sr	123.00	217.00	167.00	94.00	49.99	0.04	1.05	161.32	29.93
Sb	0.00	3.00	1.00	3.00	1.41	0.82	2.00	1.32	141.42
S	36.00	587.00	246.25	551.00	245.63	0.71	1.94	154.09	99.75
Th	1.00	7.00	3.25	6.00	2.87	0.49	1.63	2.30	88.38
V	125.00	194.00	147.50	69.00	31.71	1.01	2.21	145.20	21.50
Y	20.00	22.00	20.50	2.00	1.00	1.15	2.33	20.48	4.88
Zn	63.00	119.00	77.50	56.00	27.68	1.15	2.33	74.44	35.72
Zr	114.00	191.00	156.50	77.00	31.98	-0.41	1.99	153.86	20.44

n = 4

TABLE 2.86

XRF Analyses: Red Island Formation (GWKE48)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	55.66	62.03	58.26	6.37	1.84	0.39	3.41	58.23	3.17
Al2O3	12.94	16.43	14.66	3.49	1.16	0.28	1.93	14.62	7.95
TiO2	0.69	1.00	0.79	0.31	0.10	1.04	2.73	0.78	13.11
Fe2O3	6.66	8.80	7.69	2.14	0.65	-0.06	2.23	7.66	8.49
MgO	4.72	7.13	5.91	2.41	0.79	0.07	1.76	5.86	13.42
CaO	2.02	8.34	4.52	6.32	1.58	1.17	4.99	4.29	34.99
Na2O	2.16	3.63	2.54	1.47	0.42	1.81	5.53	2.51	16.73
K2O	0.97	2.63	1.79	1.66	0.47	-0.01	2.88	1.73	26.09
MnO	0.11	0.19	0.13	0.08	0.02	1.80	5.62	0.13	16.64
P2O5	0.13	0.24	0.18	0.11	0.03	0.77	3.55	0.17	16.77
Total	94.07	99.23	96.46	5.16	1.73	0.03	-2.22	96.45	1.79
As	0.00	5.00	2.20	5.00	2.10	0.10	1.45	2.12	95.35
Ba	415.00	751.00	549.60	336.00	93.04	0.86	3.41	542.94	16.93
Co	16.00	27.00	21.70	11.00	3.50	-0.15	2.12	21.44	16.12
Cr	207.00	563.00	332.80	356.00	110.70	0.85	2.73	317.86	33.26
Cu	19.00	31.00	25.60	12.00	3.31	-0.46	2.98	25.40	12.92
Ga	14.00	17.00	15.20	3.00	1.14	0.08	1.50	15.16	7.47
La	12.00	23.00	17.00	11.00	3.71	0.52	2.28	16.65	21.83
Ni	55.00	135.00	96.10	80.00	25.21	-0.14	1.96	92.90	26.23
Nb	7.00	13.00	8.80	6.00	1.99	1.45	3.39	8.63	22.60
Pb	10.00	16.00	12.00	6.00	1.83	1.15	3.27	11.89	15.21
Rb	26.00	61.00	44.60	35.00	11.71	-0.16	2.24	43.09	26.26
Sr	166.00	669.00	378.00	503.00	134.99	0.60	3.58	355.85	35.71
Sb	0.00	3.00	1.50	3.00	1.18	-0.21	1.64	1.64	78.57
S	60.00	1428.00	303.80	1368.00	422.76	2.15	6.24	175.64	139.16
Th	0.00	6.00	2.20	6.00	2.10	0.56	2.19	2.01	95.35
V	136.00	185.00	165.10	49.00	15.26	-0.41	2.37	164.45	9.24
Y	17.00	23.00	20.10	6.00	1.85	0.29	2.50	20.02	9.22
Zn	44.00	76.00	63.50	32.00	9.34	-0.58	3.07	62.83	14.70
Zr	125.00	235.00	153.60	110.00	34.61	1.52	4.08	150.64	22.53

n = 10

TABLE 2.87

XRF Analyses: Slieve Glah Formation (GWKE49)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	53.46	72.48	61.44	19.02	9.87	0.52	1.50	60.93	16.07
Al2O3	13.94	18.46	15.50	4.52	2.57	0.70	1.50	15.36	16.57
TiO2	0.16	1.02	0.68	0.86	0.46	-0.60	1.50	0.52	67.31
Fe2O3	1.22	8.04	5.76	6.82	3.93	-0.71	1.50	4.29	68.27
MgO	0.43	6.09	4.00	5.66	3.11	-0.68	1.50	2.43	77.66
CaO	0.20	5.92	2.40	5.72	3.08	0.64	1.50	1.08	128.60
Na2O	2.35	3.88	2.88	1.53	0.86	0.70	1.50	2.80	29.96
K2O	1.15	2.71	1.68	1.56	0.89	0.71	1.50	1.54	53.10
MnO	0.03	0.12	0.09	0.09	0.05	-0.67	1.50	0.07	56.92
P2O5	0.05	0.23	0.15	0.18	0.09	-0.48	1.50	0.13	60.60
Total	91.83	99.62	94.58	7.79	4.37	0.69	1.67	94.51	4.62
As	0.00	6.00	2.00	6.00	3.46	0.71	1.50	1.82	173.21
Ba	189.00	337.00	265.00	148.00	74.08	-0.10	1.50	257.80	27.96
Co	0.00	20.00	13.00	20.00	11.27	-0.70	1.50	7.24	86.69
Cr	10.00	362.00	184.00	352.00	176.03	0.04	1.50	86.69	95.67
Cu	0.00	28.00	16.00	28.00	14.42	-0.47	1.50	8.24	90.14
Ga	14.00	19.00	16.33	5.00	2.52	0.24	1.50	16.21	15.41
La	15.00	27.00	20.67	12.00	6.03	0.20	1.50	20.08	29.17
Ni	3.00	109.00	57.67	106.00	53.08	-0.11	1.50	27.12	92.04
Nb	9.00	13.00	11.33	4.00	2.08	-0.53	1.50	11.20	18.37
Pb	12.00	23.00	17.00	11.00	5.57	0.32	1.50	16.41	32.75
Rb	30.00	124.00	62.00	94.00	53.70	0.71	1.50	49.19	86.62
Sr	134.00	344.00	209.67	210.00	116.65	0.69	1.50	190.93	55.63
Sb	0.00	3.00	1.67	3.00	1.53	-0.38	1.50	1.82	91.65
S	24.00	118.00	55.67	94.00	53.98	0.71	1.50	41.37	96.98
Th	1.00	15.00	6.67	14.00	7.37	0.58	1.50	3.91	110.57
V	14.00	163.00	105.67	149.00	80.21	-0.64	1.50	68.36	75.91
Y	12.00	26.00	20.00	14.00	7.21	-0.47	1.50	19.00	36.06
Zn	23.00	65.00	50.00	42.00	23.43	-0.69	1.50	45.26	46.86
Zr	103.00	248.00	171.67	145.00	72.80	0.19	1.50	161.20	42.41

n = 3

TABLE 2.88

XRF Analyses: Hawick Formation Equivalent (GWKE50)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	48.13	77.45	57.15	29.32	4.79	2.14	9.62	56.97	8.39
Al2O3	7.93	16.84	11.80	8.91	1.77	0.45	4.07	11.67	15.00
TiO2	0.44	0.95	0.69	0.51	0.09	-0.18	3.76	0.69	13.12
Fe2O3	2.88	6.43	4.77	3.55	0.67	-0.22	3.85	4.72	13.98
MgO	1.61	5.59	3.94	3.98	0.61	-1.10	5.99	3.89	15.57
CaO	0.19	19.10	10.01	18.91	3.05	-0.29	4.67	9.19	30.44
Na2O	1.15	2.74	1.53	1.59	0.23	2.23	12.22	1.52	14.71
K2O	1.33	3.54	2.08	2.21	0.40	1.34	6.11	2.04	19.36
MnO	0.04	0.24	0.09	0.20	0.03	2.68	12.41	0.09	33.27
P2O5	0.12	0.19	0.16	0.07	0.02	-0.47	2.97	0.16	9.55
Total	82.85	99.23	92.23	16.38	2.85	0.09	3.48	92.18	3.09
As	0.00	55.00	3.43	55.00	8.02	4.76	27.45	2.02	233.40
Ba	151.00	661.00	252.79	510.00	95.28	2.09	7.74	239.78	37.69
Co	6.00	26.00	13.14	20.00	3.24	1.19	6.43	12.78	24.65
Cr	98.00	249.00	135.96	151.00	24.31	1.90	9.06	134.11	17.88
Cu	4.00	31.00	15.55	27.00	6.25	0.24	2.50	14.16	40.19
Ga	8.00	18.00	12.38	10.00	1.93	0.42	3.75	12.23	15.60
La	12.00	35.00	22.89	23.00	4.57	0.09	2.90	22.43	19.94
Ni	19.00	74.00	49.38	55.00	9.89	-0.35	4.31	48.25	20.03
Nb	8.00	16.00	11.93	8.00	1.46	-0.01	3.39	11.84	12.26
Pb	9.00	47.00	14.89	38.00	5.68	3.48	17.04	14.24	38.15
Rb	39.00	117.00	62.08	78.00	14.52	1.78	7.38	60.66	23.39
Sr	45.00	285.00	147.72	240.00	40.42	0.05	4.32	141.40	27.36
Sb	0.00	14.00	0.79	14.00	2.30	4.07	20.49	1.22	291.29
S	29.00	9568.00	288.47	9539.00	1377.73	6.03	38.05	61.22	477.59
Th	4.00	14.00	8.61	10.00	2.33	0.01	2.50	8.27	27.04
V	46.00	104.00	77.72	58.00	10.86	-0.35	4.23	76.92	13.98
Y	18.00	33.00	25.76	15.00	2.68	-0.14	4.32	25.62	10.39
Zn	19.00	85.00	51.79	66.00	12.27	-0.59	4.37	49.98	23.68
Zr	154.00	297.00	202.64	143.00	29.51	0.79	4.03	200.62	14.56

n = 76

TABLE 2.89

XRF Analyses: Slieve na Calliagh Formation (GWKE51)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	54.52	61.01	57.71	6.49	2.26	0.13	2.20	57.67	3.91
Al2O3	10.31	17.43	13.35	7.12	2.62	0.21	1.78	13.13	19.59
TiO2	0.63	1.01	0.78	0.38	0.13	0.70	2.49	0.77	16.82
Fe2O3	4.22	8.12	5.73	3.90	1.48	0.53	1.78	5.58	25.83
MgO	3.03	5.29	4.13	2.26	0.78	0.09	1.94	4.06	18.80
CaO	0.26	11.38	7.45	11.12	4.11	-0.83	2.25	4.96	55.18
Na2O	1.39	2.79	1.70	1.40	0.49	1.93	4.94	1.66	28.52
K2O	1.72	2.64	2.13	0.92	0.33	0.55	1.98	2.11	15.51
MnO	0.06	0.13	0.09	0.07	0.02	1.01	3.05	0.08	26.82
P2O5	0.15	0.21	0.17	0.06	0.02	0.94	2.52	0.17	12.34
Total	87.72	96.50	93.23	8.78	2.87	-0.96	3.20	93.19	3.08
As	0.00	33.00	5.71	33.00	12.09	2.00	5.07	2.35	211.63
Ba	209.00	385.00	254.29	176.00	63.13	1.42	3.71	248.62	24.82
Co	9.00	25.00	14.29	16.00	5.59	1.01	2.89	13.48	39.12
Cr	116.00	248.00	154.14	132.00	49.05	1.08	2.82	148.40	31.82
Cu	2.00	26.00	11.57	24.00	8.79	0.56	1.99	8.51	75.97
Ga	12.00	17.00	13.43	5.00	1.99	0.87	2.31	13.31	14.80
La	16.00	32.00	22.71	16.00	5.25	0.67	2.54	22.22	23.12
Ni	33.00	173.00	70.57	140.00	47.84	1.61	4.20	60.94	67.79
Nb	11.00	13.00	12.14	2.00	0.90	-0.27	1.48	12.11	7.41
Pb	10.00	14.00	12.14	4.00	1.35	-0.27	2.12	12.08	11.08
Rb	49.00	80.00	61.43	31.00	10.45	0.73	2.46	60.71	17.02
Sr	45.00	169.00	113.00	124.00	41.51	-0.37	2.21	104.92	36.73
Sb	0.00	4.00	0.57	4.00	1.51	2.04	5.17	1.22	264.58
S	27.00	157.00	56.86	130.00	46.33	1.70	4.32	46.68	81.49
Th	8.00	11.00	9.43	3.00	1.13	-0.18	1.74	9.37	12.03
V	69.00	116.00	85.57	47.00	16.36	0.78	2.73	84.32	19.12
Y	22.00	27.00	24.43	5.00	1.90	0.43	1.87	24.37	7.79
Zn	43.00	150.00	83.57	107.00	34.50	0.91	3.13	78.02	41.28
Zr	165.00	254.00	201.14	89.00	34.45	0.76	1.91	198.78	17.13

n = 7

TABLE 2.90

XRF Analyses: Marchburn Formation + Ratio's (FOR1).

TABLE 2.91

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	50.07	65.01	57.47	14.94	3.82	0.00	2.28	57.35	6.66
Al2O3	7.93	15.28	12.07	7.35	1.47	-0.16	3.13	11.98	12.17
TiO2	1.07	2.22	1.51	1.15	0.27	0.63	2.97	1.49	17.84
Fe2O3	7.30	13.20	9.87	5.90	1.63	0.59	2.44	9.74	16.48
MgO	2.23	11.97	6.61	9.74	2.35	0.57	2.59	6.21	35.50
CaO	1.44	14.43	3.49	12.99	2.23	3.17	15.00	3.09	64.06
Na2O	1.45	4.83	2.86	3.38	0.73	0.63	3.43	2.77	25.71
K2O	0.36	2.60	1.26	2.24	0.46	0.39	3.11	1.17	36.71
MnO	0.11	0.50	0.16	0.39	0.06	5.07	31.44	0.15	35.79
P2O5	0.14	0.45	0.24	0.31	0.08	1.23	3.84	0.23	32.06
Total	90.48	98.43	95.54	7.95	1.42	-0.99	28.53	95.53	1.49
As	0.00	16.00	1.84	16.00	2.79	3.15	16.19	1.71	151.37
Ba	140.00	907.00	383.09	767.00	173.61	1.16	4.16	349.31	45.32
Co	18.00	44.00	29.52	26.00	6.59	0.17	2.39	28.79	22.32
Cr	143.00	905.00	323.70	762.00	203.04	1.59	4.87	278.17	62.72
Cu	13.00	87.00	29.86	74.00	11.97	2.43	12.91	28.04	40.07
Ga	11.00	19.00	15.52	8.00	1.50	-0.73	3.98	15.45	9.67
La	6.00	44.00	21.93	38.00	8.75	0.62	2.98	20.21	39.88
Ni	46.00	372.00	125.66	326.00	81.33	1.23	3.94	104.62	64.72
Nb	8.00	21.00	13.75	13.00	3.10	-0.26	2.48	13.38	22.57
Pb	5.00	33.00	11.82	28.00	4.95	1.84	8.73	10.98	41.86
Rb	12.00	58.00	30.18	46.00	10.82	0.37	2.38	28.25	35.86
Sr	88.00	857.00	264.93	769.00	156.88	1.77	6.51	230.89	59.22
Sb	0.00	4.00	0.41	4.00	1.00	2.26	6.85	1.16	243.41
S	0.00	5216.00	981.00	5216.00	1236.75	1.53	5.18	152.32	126.07
Th	0.00	13.00	4.93	13.00	2.94	0.37	3.05	4.16	59.54
V	132.00	275.00	195.95	143.00	36.48	0.30	2.40	192.66	18.62
Y	20.00	31.00	26.16	11.00	3.11	-0.21	2.20	25.97	11.89
Zn	49.00	107.00	73.55	58.00	14.10	0.28	2.35	72.23	19.17
Zr	100.00	197.00	151.68	97.00	27.23	-0.21	1.83	149.18	17.95
K/Na	0.14	1.02	0.47	0.87	0.20	0.50	2.93	0.42	42.08
Al/Si	0.15	0.26	0.21	0.11	0.02	-0.31	2.18	0.21	11.60
Fe+Mg	11.00	25.07	16.48	14.07	3.74	0.70	2.61	16.09	22.70
Fe/Mg	0.92	4.38	1.63	3.46	0.54	2.92	16.00	1.57	33.19
Al/Ca+Na	0.50	3.34	2.04	2.84	0.53	-0.43	4.04	1.96	25.79
La/Y	0.30	1.62	0.83	1.32	0.31	0.45	2.59	0.78	36.81
Nb/Y	0.30	0.85	0.53	0.55	0.10	0.10	4.23	0.51	19.50
Nb/P	32.56	86.67	60.78	54.11	14.05	-0.15	2.49	59.06	23.11
Rb/Sr	0.02	0.53	0.15	0.51	0.09	2.04	8.59	0.12	64.41
Ni/Co	1.20	12.40	4.32	11.20	2.61	1.12	3.97	3.63	60.41
Cu/Co	0.34	2.81	1.04	2.46	0.40	1.86	9.95	0.97	38.36
Zn/Co	1.46	4.42	2.59	2.96	0.68	0.69	3.00	2.51	26.41
Zr/Nb	8.47	15.42	11.25	6.95	1.52	0.90	3.79	11.15	13.55
K/K+Na	12.59	50.44	30.61	37.85	9.03	-0.06	2.29	29.18	29.50
K+Na	1.81	6.00	4.12	4.19	0.87	-0.15	3.17	4.02	21.04

n = 44

XRF Analyses: Blackcraig Formation + Ratio's (FOR5).

TABLE 2.92

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	51.06	67.72	60.38	16.66	2.75	-0.37	4.83	60.32	4.56
Al2O3	9.07	15.42	11.27	6.35	1.40	1.04	3.74	11.19	12.46
TiO2	0.88	1.61	1.31	0.73	0.15	-0.51	3.33	1.30	11.70
Fe2O3	6.85	11.42	9.30	4.57	0.85	-0.15	3.83	9.26	9.09
MgO	3.24	8.34	4.92	5.10	0.97	1.37	6.19	4.83	19.64
CaO	0.72	6.47	4.00	5.75	1.01	-0.13	3.86	3.84	25.34
Na2O	1.63	3.47	2.72	1.84	0.30	-0.90	6.08	2.70	11.05
K2O	0.49	2.79	1.11	2.30	0.37	2.04	9.42	1.06	33.19
MnO	0.09	0.28	0.15	0.19	0.02	2.44	17.27	0.15	16.14
P2O5	0.11	0.31	0.15	0.20	0.03	4.10	26.85	0.15	17.62
Total	90.42	96.95	95.29	6.53	1.12	-1.28	-42.27	95.29	1.17
As	0.00	7.00	1.33	7.00	1.49	1.43	5.82	1.50	112.31
Ba	173.00	1120.00	302.48	947.00	136.57	4.42	25.04	286.67	45.15
Co	14.00	41.00	24.39	27.00	4.94	0.55	4.22	23.90	20.27
Cr	119.00	1117.00	188.08	998.00	125.85	6.78	50.34	175.06	66.91
Cu	16.00	44.00	25.15	28.00	5.40	1.48	5.81	24.65	21.46
Ga	12.00	18.00	15.00	6.00	1.34	0.13	2.76	14.94	8.94
La	0.00	44.00	14.69	44.00	7.01	1.78	8.12	13.18	47.70
Ni	31.00	129.00	51.20	98.00	15.21	3.24	16.17	49.66	29.72
Nb	7.00	18.00	10.33	11.00	2.13	1.60	5.89	10.14	20.67
Pb	5.00	21.00	11.33	16.00	3.00	0.60	4.09	10.93	26.52
Rb	12.00	65.00	26.43	53.00	10.73	2.20	7.86	24.89	40.60
Sr	121.00	281.00	206.18	160.00	34.50	0.08	3.03	203.26	16.73
Sb	0.00	4.00	0.26	4.00	0.85	3.51	14.52	1.08	325.75
S	0.00	5555.00	1121.70	5555.00	914.49	2.35	11.45	660.66	81.53
Th	0.00	11.00	4.79	11.00	2.50	0.13	2.75	4.11	52.17
V	109.00	224.00	188.41	115.00	23.94	-1.20	4.49	186.70	12.71
Y	25.00	36.00	28.85	11.00	2.11	0.71	4.15	28.78	7.32
Zn	40.00	106.00	72.61	66.00	11.16	0.29	4.91	71.74	15.37
Zr	103.00	268.00	138.30	165.00	30.14	2.51	10.28	135.78	21.80
K/Na	0.19	1.71	0.42	1.52	0.22	3.81	20.52	0.39	52.94
Al/Si	0.14	0.28	0.19	0.15	0.03	1.08	4.07	0.19	15.73
Fe+Mg	10.09	18.33	14.22	8.24	1.62	0.21	3.52	14.13	11.38
Fe/Mg	1.13	2.51	1.93	1.38	0.25	-0.77	4.38	1.92	12.93
Al/Ca+Na	1.12	4.40	1.75	3.28	0.55	2.37	10.74	1.69	31.45
La/Y	0.00	1.38	0.51	1.38	0.22	1.54	7.54	0.48	44.01
Nb/Y	0.24	0.59	0.36	0.34	0.07	1.71	6.18	0.35	19.20
Nb/P	52.94	100.00	70.31	47.06	9.15	0.86	3.61	69.75	13.01
Rb/Sr	0.06	0.48	0.13	0.42	0.07	2.92	12.74	0.12	53.90
Ni/Co	1.37	3.91	2.12	2.54	0.48	1.42	5.60	2.08	22.51
Cu/Co	0.54	2.33	1.06	1.80	0.25	2.08	11.91	1.03	24.06
Zn/Co	1.74	5.53	3.07	3.79	0.68	0.96	5.53	3.00	22.19
Zr/Nb	10.21	17.18	13.48	6.97	1.55	0.07	2.89	13.39	11.49
K/K+Na	16.24	63.12	28.59	46.88	7.77	2.10	9.33	27.75	27.18
K+Na	3.00	4.64	3.83	1.64	0.34	0.21	3.04	3.81	8.98

n = 61

XRF Analyses: Scar Formation + Ratio's (FOR7)

TABLE 2.94

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	53.47	76.17	59.70	22.70	3.17	1.49	9.55	59.63	5.30
Al2O3	9.82	18.64	13.22	8.82	1.56	0.31	3.26	13.13	11.81
TiO2	0.59	1.22	0.91	0.63	0.12	0.39	3.28	0.91	13.43
Fe2O3	4.17	10.34	7.62	6.17	0.94	-0.38	4.55	7.56	12.40
MgO	1.81	9.53	5.97	7.72	1.13	-0.40	5.02	5.84	18.95
CaO	0.24	8.80	3.57	8.56	1.49	0.90	5.11	3.23	41.75
Na2O	1.41	4.16	2.83	2.75	0.52	0.35	2.77	2.78	18.52
K2O	0.69	2.93	1.62	2.24	0.46	0.42	3.54	1.55	28.29
MnO	0.03	0.17	0.12	0.14	0.02	-0.62	4.69	0.12	19.57
P2O5	0.07	0.26	0.19	0.19	0.03	-0.31	3.68	0.18	17.17
Total	89.90	99.88	95.75	9.98	1.75	-0.19	-17.59	95.74	1.82
As	0.00	19.00	1.59	19.00	3.27	3.54	16.93	1.53	205.62
Ba	254.00	1295.00	528.18	1041.00	170.23	1.29	6.07	504.07	32.23
Co	12.00	49.00	26.63	37.00	7.36	0.46	2.99	25.62	27.65
Cr	62.00	476.00	255.34	414.00	75.71	0.41	2.95	243.80	29.65
Cu	2.00	330.00	31.62	328.00	31.35	8.73	83.73	27.57	99.15
Ga	8.00	18.00	15.30	10.00	1.70	-0.88	5.18	15.20	11.13
La	11.00	32.00	20.95	21.00	4.23	-0.05	2.93	20.50	20.21
Ni	21.00	168.00	92.05	147.00	33.66	0.75	2.55	86.30	36.57
Nb	7.00	15.00	9.98	8.00	1.43	0.39	3.72	9.88	14.31
Pb	6.00	28.00	14.75	22.00	3.69	0.56	4.55	14.28	25.04
Rb	19.00	79.00	41.96	60.00	12.42	0.61	3.55	40.16	29.60
Sr	65.00	532.00	320.04	467.00	95.50	-0.30	2.81	302.55	29.84
Sb	0.00	4.00	0.30	4.00	0.86	2.94	10.84	1.10	286.23
S	0.00	3436.00	832.24	3436.00	655.07	1.59	5.89	564.15	78.71
Th	0.00	15.00	6.46	15.00	2.91	0.33	3.43	5.67	45.06
V	60.00	226.00	145.11	166.00	26.96	0.26	3.61	142.56	18.58
Y	15.00	25.00	20.57	10.00	1.98	-0.10	2.87	20.47	9.61
Zn	34.00	131.00	65.89	97.00	12.80	1.74	10.43	64.78	19.43
Zr	117.00	222.00	153.07	105.00	20.96	0.77	3.66	151.71	13.69
K/Na	0.20	1.44	0.60	1.24	0.23	0.69	3.78	0.56	38.52
Al/Si	0.14	0.30	0.22	0.16	0.03	-0.12	2.83	0.22	13.80
Fe+Mg	5.98	17.39	13.59	11.41	1.81	-1.13	5.92	13.45	13.31
Fe/Mg	0.82	2.30	1.31	1.48	0.23	1.11	5.96	1.29	17.82
Al/Ca+Na	1.05	8.32	2.22	7.27	0.84	4.08	29.26	2.12	37.79
La/Y	0.46	1.52	1.03	1.07	0.22	-0.14	2.87	1.00	21.48
Nb/Y	0.33	0.75	0.49	0.42	0.08	0.65	3.73	0.48	16.13
Nb/P	33.33	171.43	55.20	138.10	15.85	4.05	30.20	53.61	28.72
Rb/Sr	0.05	0.56	0.15	0.51	0.09	3.29	15.33	0.13	58.42
Ni/Co	0.43	9.13	3.72	8.70	1.63	0.76	3.35	3.37	43.85
Cu/Co	0.08	22.00	1.32	21.92	2.11	9.50	93.56	1.08	160.02
Zn/Co	0.69	6.69	2.66	5.99	0.86	1.22	6.70	2.53	32.44
Zr/Nb	12.00	24.63	15.48	12.63	2.02	1.30	6.64	15.36	13.07
K/K+Na	16.95	59.01	36.40	42.05	8.88	-0.11	2.66	35.23	24.40
K+Na	2.62	5.60	4.45	2.98	0.54	-0.48	4.01	4.41	12.17

n = 100

XRF Analyses: Shinnel Formation + Ratio's (FOR9)

TABLE 2.95

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	55.50	77.05	67.05	21.55	4.79	-0.26	2.38	66.88	7.14
Al2O3	6.07	14.88	11.02	8.81	1.95	-0.25	2.78	10.84	17.67
TiO2	0.66	1.37	0.94	0.71	0.13	0.77	4.32	0.93	14.01
Fe2O3	3.18	8.43	5.79	5.25	1.34	0.13	2.14	5.64	23.06
MgO	1.17	6.84	3.57	5.67	1.42	0.22	1.77	3.28	39.83
CaO	0.39	12.27	3.25	11.88	2.29	1.74	6.28	2.64	70.50
Na2O	0.99	3.47	2.16	2.48	0.49	0.40	3.85	2.11	22.71
K2O	0.68	2.85	1.64	2.17	0.45	0.10	3.05	1.57	27.51
MnO	0.05	0.24	0.10	0.19	0.04	2.13	8.79	0.09	36.12
P2O5	0.11	0.42	0.19	0.31	0.05	2.00	9.72	0.18	25.81
Total	88.88	99.21	95.71	10.33	1.52	-1.05	9.22	95.70	1.59
As	0.00	5.00	1.52	5.00	1.53	0.41	1.78	1.66	100.54
Ba	181.00	933.00	384.99	752.00	129.46	1.72	7.28	367.19	33.63
Co	7.00	48.00	19.93	41.00	10.89	0.89	2.45	17.40	54.66
Cr	66.00	687.00	172.96	621.00	114.30	1.86	7.67	145.47	66.08
Cu	4.00	93.00	16.73	89.00	11.38	4.47	29.77	14.68	68.03
Ga	8.00	17.00	11.77	9.00	2.14	0.19	2.56	11.58	18.17
La	16.00	51.00	27.17	35.00	5.32	1.14	7.15	26.69	19.59
Ni	18.00	155.00	54.42	137.00	29.97	1.14	3.87	47.44	55.06
Nb	9.00	21.00	14.31	12.00	2.62	0.14	2.37	14.07	18.28
Pb	6.00	41.00	12.10	35.00	4.99	3.09	17.44	11.41	41.24
Rb	21.00	77.00	42.76	56.00	11.09	0.31	3.37	41.30	25.93
Sr	50.00	358.00	127.86	308.00	69.19	1.34	4.48	112.90	54.11
Sb	0.00	5.00	0.54	5.00	1.03	2.06	7.25	1.17	191.67
S	0.00	2596.00	361.86	2596.00	488.24	2.65	11.36	68.66	134.93
Th	2.00	16.00	7.65	14.00	2.74	0.40	3.28	7.12	35.78
V	57.00	180.00	96.63	123.00	25.57	0.72	3.24	93.49	26.46
Y	17.00	33.00	24.01	16.00	3.31	0.38	2.84	23.79	13.80
Zn	25.00	81.00	45.90	56.00	11.63	0.77	3.97	44.51	25.34
Zr	150.00	709.00	268.61	559.00	82.89	2.51	13.27	258.88	30.86
K/Na	0.22	2.53	0.82	2.30	0.41	2.07	8.73	0.75	49.86
Al/Si	0.08	0.25	0.17	0.16	0.04	0.08	2.59	0.16	22.05
Fe+Mg	4.35	15.27	9.36	10.92	2.63	0.13	1.89	8.98	28.09
Fe/Mg	0.95	2.72	1.78	1.76	0.46	0.28	2.04	1.72	25.78
Al/Ca+Na	0.58	6.25	2.35	5.67	0.97	1.10	6.01	2.15	41.53
La/Y	0.74	1.65	1.14	0.91	0.20	0.06	2.64	1.12	17.29
Nb/Y	0.41	0.85	0.60	0.44	0.10	0.31	2.51	0.59	16.91
Nb/P	45.45	109.09	79.63	63.64	16.28	-0.02	2.35	77.91	20.45
Rb/Sr	0.08	1.00	0.43	0.92	0.22	0.60	2.57	0.37	52.66
Ni/Co	0.52	8.85	3.09	8.33	1.60	1.51	6.23	2.73	51.78
Cu/Co	0.25	7.15	0.99	6.90	0.83	5.83	43.84	0.84	83.94
Zn/Co	0.77	6.00	2.87	5.23	1.27	0.21	2.33	2.56	44.17
Zr/Nb	11.54	35.45	18.85	23.91	4.32	1.00	4.72	18.40	22.94
K/K+Na	18.28	71.63	43.01	53.35	10.27	0.30	3.80	41.74	23.87
K+Na	2.62	5.16	3.80	2.54	0.53	0.22	3.04	3.76	14.07

n = 71

XRF Analyses: Pyroxenous Formation + Ratio's (FOR11)

TABLE 2.96

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	53.36	70.61	60.55	17.25	2.85	0.64	5.79	60.49	4.71
Al2O3	9.41	15.43	12.08	6.02	1.37	-0.05	2.43	12.01	11.34
TiO2	0.54	1.27	0.94	0.73	0.13	0.15	4.73	0.94	13.82
Fe2O3	4.96	10.89	7.93	5.93	1.05	-0.01	4.10	7.86	13.28
MgO	3.82	7.91	5.41	4.09	0.89	0.82	3.63	5.34	16.50
CaO	1.24	6.19	3.98	4.95	1.23	-0.16	2.19	3.77	30.82
Na2O	1.64	3.92	2.43	2.28	0.42	1.23	5.49	2.40	17.30
K2O	0.88	2.62	1.74	1.74	0.40	-0.12	2.88	1.69	23.14
MnO	0.07	0.26	0.13	0.19	0.04	1.44	6.02	0.13	27.96
P2O5	0.13	0.26	0.20	0.13	0.02	-0.17	3.91	0.20	12.18
Total	91.47	99.91	95.41	8.44	1.81	-0.04	10.95	95.39	1.90
As	0.00	8.00	1.35	8.00	2.01	1.56	4.84	1.53	149.05
Ba	309.00	1035.00	486.53	726.00	131.72	1.75	8.03	471.92	27.07
Co	16.00	42.00	28.81	26.00	8.54	-0.07	1.50	27.50	29.65
Cr	109.00	481.00	210.79	372.00	68.56	1.74	7.30	201.82	32.52
Cu	7.00	41.00	25.72	34.00	7.07	-0.34	3.23	24.55	27.48
Ga	10.00	18.00	14.63	8.00	1.35	-0.60	4.99	14.56	9.20
La	20.00	35.00	26.65	15.00	3.82	0.12	2.40	26.38	14.34
Ni	46.00	92.00	63.28	46.00	9.87	0.66	3.95	62.55	15.60
Nb	8.00	14.00	10.88	6.00	1.38	0.37	2.77	10.80	12.71
Pb	8.00	29.00	13.67	21.00	3.75	1.48	7.53	13.23	27.40
Rb	26.00	73.00	47.63	47.00	11.31	-0.01	2.83	46.22	23.75
Sr	192.00	734.00	343.07	542.00	100.18	1.41	6.61	330.49	29.20
Sb	0.00	3.00	0.30	3.00	0.74	2.30	7.03	1.09	245.14
S	0.00	1136.00	441.19	1136.00	268.46	0.59	3.33	246.61	60.85
Th	2.00	11.00	6.26	9.00	2.08	0.37	3.09	5.89	33.29
V	74.00	211.00	148.28	137.00	27.85	-0.15	2.99	145.54	18.79
Y	19.00	29.00	23.33	10.00	2.18	0.16	2.77	23.23	9.34
Zn	41.00	86.00	61.81	45.00	9.08	0.18	3.56	61.15	14.68
Zr	161.00	381.00	213.16	220.00	36.83	2.49	11.50	210.62	17.28
K/Na	0.22	1.34	0.75	1.11	0.25	0.01	2.75	0.71	32.90
Al/Si	0.15	0.26	0.20	0.12	0.03	-0.02	2.39	0.20	13.20
Fe+Mg	8.78	16.87	13.34	8.09	1.56	-0.17	3.55	13.25	11.68
Fe/Mg	1.01	2.20	1.49	1.18	0.26	0.41	3.13	1.47	17.33
Al/Ca+Na	1.14	4.20	1.98	3.06	0.58	1.48	6.29	1.91	29.44
La/Y	0.84	1.70	1.15	0.86	0.20	0.55	2.84	1.14	17.56
Nb/Y	0.37	0.59	0.47	0.22	0.06	0.49	2.90	0.46	11.82
Nb/P	34.62	82.35	55.60	47.74	10.02	0.44	3.62	54.72	18.02
Rb/Sr	0.06	0.30	0.15	0.24	0.06	0.76	3.18	0.14	37.37
Ni/Co	1.18	4.31	2.40	3.13	0.80	0.55	2.24	2.27	33.39
Cu/Co	0.27	1.47	0.95	1.20	0.29	-0.30	2.51	0.89	31.04
Zn/Co	1.08	3.74	2.34	2.66	0.73	0.22	1.81	2.22	31.21
Zr/Nb	15.45	29.31	19.67	13.85	2.66	1.16	5.33	19.50	13.54
K/K+Na	18.33	57.18	41.78	38.84	8.67	-0.76	3.41	40.73	20.76
K+Na	3.34	4.96	4.17	1.62	0.34	-0.04	2.97	4.16	8.12

n = 43

XRF Analyses: Intermediate Formation + Ratio's (FOR13)

TABLE 2.97

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	50.47	77.78	66.64	27.31	4.69	-0.76	5.05	66.47	7.04
Al2O3	8.30	18.82	13.25	10.52	2.26	0.45	3.05	13.07	17.05
TiO2	0.55	2.11	0.91	1.56	0.21	2.28	14.06	0.89	23.29
Fe2O3	3.75	13.11	5.87	9.36	1.28	2.24	14.47	5.75	21.73
MgO	0.56	6.02	3.96	5.46	1.09	-0.62	3.36	3.76	27.52
CaO	0.14	13.56	2.05	13.42	2.05	3.20	16.20	1.43	100.15
Na2O	0.00	3.82	2.04	3.82	0.71	-0.15	4.36	1.86	35.02
K2O	0.78	4.96	2.21	4.18	0.69	1.40	6.74	2.11	31.39
MnO	0.04	0.51	0.09	0.47	0.06	4.98	31.86	0.08	65.92
P2O5	0.10	0.41	0.19	0.31	0.04	2.19	14.55	0.18	20.86
Total	90.75	101.43	97.22	10.68	2.20	-0.88	-3.52	97.19	2.26
As	0.00	51.00	2.53	51.00	7.47	5.07	30.05	1.62	294.90
Ba	185.00	1380.00	549.91	1195.00	245.74	1.10	4.54	500.55	44.69
Co	13.00	76.00	36.32	63.00	12.21	0.51	4.45	34.13	33.63
Cr	64.00	489.00	178.96	425.00	76.09	1.25	5.60	164.67	42.52
Cu	7.00	49.00	15.80	42.00	8.36	2.23	8.32	14.30	52.90
Ga	7.00	22.00	12.95	15.00	2.49	0.90	5.41	12.72	19.19
La	17.00	61.00	34.85	44.00	8.61	0.77	3.96	33.84	24.71
Ni	19.00	240.00	66.67	221.00	35.41	2.45	12.29	59.57	53.10
Nb	9.00	21.00	14.15	12.00	2.22	0.18	3.72	13.98	15.68
Pb	7.00	65.00	16.19	58.00	8.13	4.57	26.16	15.19	50.20
Rb	30.00	183.00	63.14	153.00	23.66	2.60	12.49	59.93	37.48
Sr	27.00	475.00	149.78	448.00	100.62	1.45	4.61	123.88	67.18
Sb	0.00	5.00	0.38	5.00	1.00	2.78	10.29	1.13	264.36
S	0.00	2684.00	218.70	2684.00	427.77	3.23	16.29	11.10	195.60
Th	2.00	15.00	7.92	13.00	2.59	0.38	3.18	7.48	32.63
V	51.00	313.00	97.01	262.00	30.54	4.59	32.97	93.99	31.48
Y	20.00	73.00	27.75	53.00	6.77	3.91	26.40	27.17	24.40
Zn	24.00	214.00	56.66	190.00	24.59	3.44	22.38	53.01	43.40
Zr	149.00	607.00	288.11	458.00	70.04	2.02	10.56	280.97	24.31
K/Na	0.00	33.71	1.68	33.71	3.88	7.46	60.73	1.12	231.56
Al/Si	0.11	0.31	0.20	0.20	0.04	0.44	3.22	0.20	19.91
Fe+Mg	5.35	18.35	9.83	13.00	1.97	0.83	6.37	9.64	20.02
Fe/Mg	0.96	11.66	1.68	10.70	1.25	6.75	53.86	1.53	74.04
Al/Ca+Na	0.82	72.38	4.73	71.56	7.97	7.90	67.48	3.57	168.43
La/Y	0.47	2.03	1.28	1.56	0.28	-0.05	3.36	1.25	22.05
Nb/Y	0.19	0.85	0.53	0.66	0.11	0.07	4.15	0.51	20.39
Nb/P	26.83	114.29	77.94	87.46	16.74	-0.32	3.22	75.92	21.48
Rb/Sr	0.09	2.96	0.59	2.88	0.42	2.80	15.08	0.48	71.21
Ni/Co	0.25	6.14	2.12	5.89	1.32	1.14	3.96	1.75	62.15
Cu/Co	0.09	1.53	0.50	1.44	0.32	1.23	3.58	0.42	64.68
Zn/Co	0.37	6.69	1.79	6.32	1.04	1.96	8.78	1.55	58.01
Zr/Nb	11.33	37.94	20.51	26.60	4.41	1.57	6.85	20.10	21.48
K/K+Na	20.42	100.00	52.62	79.58	13.22	1.32	6.15	51.12	25.12
K+Na	1.39	7.39	4.25	6.00	0.97	0.36	4.18	4.13	22.85

n = 79

XRF Analyses: Garnetiferous Formation + Ratio's (FOR15)

TABLE 2.98

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	65.43	73.52	69.08	8.09	1.95	0.55	6.06	69.05	2.82
Al2O3	9.17	12.42	10.83	3.25	1.07	0.05	1.75	10.78	9.87
TiO2	0.79	1.55	1.05	0.76	0.20	1.38	4.75	1.04	18.83
Fe2O3	5.06	7.36	6.10	2.30	0.56	0.43	4.27	6.08	9.15
MgO	2.95	4.33	3.67	1.38	0.41	0.10	2.46	3.65	11.05
CaO	0.54	3.79	1.59	3.25	0.89	1.35	4.42	1.40	56.31
Na2O	1.24	1.93	1.52	0.69	0.20	0.36	2.64	1.51	13.22
K2O	1.35	2.36	1.89	1.01	0.33	-0.44	2.01	1.86	17.41
MnO	0.08	0.13	0.09	0.05	0.02	0.98	3.12	0.09	17.40
P2O5	0.13	0.18	0.15	0.05	0.01	0.51	3.13	0.15	8.83
Total	93.85	98.44	95.98	4.59	1.33	-0.06	-12.54	95.97	1.38
As	0.00	5.00	1.64	5.00	1.80	0.57	2.06	1.75	110.25
Ba	302.00	425.00	374.00	123.00	39.56	-0.44	2.29	372.02	10.58
Co	11.00	49.00	19.91	38.00	12.67	1.64	3.97	17.50	63.63
Cr	107.00	271.00	158.09	164.00	43.01	1.67	5.52	153.70	27.21
Cu	6.00	23.00	12.00	17.00	5.90	0.66	2.14	10.77	49.16
Ga	9.00	13.00	12.00	4.00	1.18	-1.52	4.82	11.94	9.86
La	19.00	46.00	30.64	27.00	8.27	0.61	2.39	29.67	27.01
Ni	45.00	69.00	55.09	24.00	7.23	0.51	2.37	54.67	13.13
Nb	13.00	18.00	15.27	5.00	1.56	0.19	1.93	15.20	10.18
Pb	9.00	19.00	11.91	10.00	2.88	1.33	4.35	11.63	24.18
Rb	36.00	70.00	52.18	34.00	11.20	-0.15	2.02	51.03	21.46
Sr	50.00	100.00	69.82	50.00	16.36	0.61	2.11	68.17	23.43
Sb	0.00	2.00	0.36	2.00	0.81	1.65	3.72	1.13	222.49
S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Th	3.00	9.00	6.27	6.00	1.95	-0.06	2.01	5.97	31.15
V	68.00	133.00	91.73	65.00	19.61	0.85	2.81	89.97	21.37
Y	23.00	39.00	29.36	16.00	5.95	0.61	1.98	28.84	20.28
Zn	60.00	77.00	68.27	17.00	5.46	-0.12	1.94	68.07	8.00
Zr	208.00	542.00	312.18	334.00	85.19	1.79	6.14	303.54	27.29
K/Na	0.70	1.90	1.28	1.20	0.33	-0.01	2.70	1.23	26.05
Al/Si	0.13	0.18	0.16	0.05	0.02	-0.07	1.86	0.16	10.69
Fe+Mg	8.01	10.88	9.77	2.87	0.80	-0.84	3.23	9.74	8.22
Fe/Mg	1.40	2.09	1.67	0.69	0.18	0.71	3.86	1.67	10.90
Al/Ca+Na	2.11	6.98	3.76	4.87	1.28	1.38	4.87	3.59	33.92
La/Y	0.83	1.39	1.04	0.56	0.17	0.66	2.59	1.03	16.30
Nb/Y	0.41	0.62	0.53	0.21	0.07	-0.45	2.09	0.53	12.45
Nb/P	82.35	107.69	100.23	25.34	8.53	-0.86	2.53	99.88	8.51
Rb/Sr	0.36	1.28	0.80	0.92	0.27	-0.18	2.68	0.75	33.34
Ni/Co	1.18	6.27	3.40	5.09	1.32	0.31	3.76	3.12	38.95
Cu/Co	0.24	2.09	0.72	1.85	0.51	1.92	5.88	0.62	70.20
Zn/Co	1.45	5.92	4.26	4.47	1.56	-0.89	2.50	3.89	36.52
Zr/Nb	14.86	30.11	20.26	15.25	3.84	1.44	5.23	19.97	18.95
K/K+Na	41.16	65.56	55.18	24.40	6.88	-0.66	2.77	54.76	12.47
K+Na	2.95	3.81	3.41	0.86	0.27	-0.12	1.99	3.40	7.99

n = 11

XRF Analyses: Glen Trool Formation + Ratio's (FOR17)

TABLE 2.99

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	70.28	73.35	71.95	3.07	1.26	-0.48	11.14	71.94	1.76
Al2O3	12.37	15.06	13.46	2.69	1.29	0.34	1.44	13.41	9.61
TiO2	0.84	1.00	0.90	0.16	0.07	0.64	1.82	0.90	8.16
Fe2O3	4.71	5.48	5.16	0.77	0.38	-0.24	1.35	5.15	7.32
MgO	1.80	2.42	2.14	0.62	0.26	-0.42	1.91	2.13	12.17
CaO	0.76	1.40	1.07	0.64	0.33	0.03	1.08	1.03	30.54
Na2O	1.85	2.52	2.10	0.67	0.29	0.92	2.19	2.08	14.00
K2O	1.46	1.90	1.70	0.44	0.18	-0.28	2.00	1.69	10.66
MnO	0.05	0.08	0.06	0.03	0.01	0.65	2.10	0.06	20.13
P2O5	0.16	0.22	0.19	0.06	0.02	0.32	1.92	0.19	13.33
Total	98.35	99.34	98.72	0.99	0.45	0.00	1396.65	98.72	0.46
As	0.00	15.00	5.75	15.00	6.65	0.72	1.95	3.66	115.69
Ba	358.00	404.00	389.75	46.00	21.79	-0.97	2.07	389.28	5.59
Co	42.00	51.00	46.75	9.00	3.77	-0.21	1.83	46.63	8.07
Cr	70.00	93.00	80.00	23.00	9.63	0.50	2.00	79.58	12.03
Cu	13.00	16.00	14.25	3.00	1.26	0.65	2.09	14.21	8.83
Ga	11.00	13.00	11.75	2.00	0.96	0.49	1.63	11.72	8.15
La	31.00	35.00	33.00	4.00	1.83	0.00	1.36	32.96	5.53
Ni	22.00	27.00	25.00	5.00	2.45	-0.31	1.41	24.91	9.80
Nb	15.00	17.00	16.25	2.00	0.96	-0.49	1.59	16.23	5.89
Pb	9.00	15.00	12.75	6.00	2.63	-0.83	2.10	12.52	20.63
Rb	39.00	48.00	44.50	9.00	3.87	-0.80	2.12	44.37	8.70
Sr	65.00	81.00	72.75	16.00	6.85	0.10	1.68	72.51	9.42
Sb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S	603.00	1364.00	942.75	761.00	359.93	0.20	1.32	891.32	38.18
Th	2.00	6.00	4.25	4.00	1.71	-0.43	1.85	3.94	40.18
V	75.00	86.00	79.75	11.00	4.65	0.50	1.92	79.65	5.83
Y	21.00	22.00	21.50	1.00	0.58	0.00	1.00	21.49	2.69
Zn	38.00	48.00	43.75	10.00	5.06	-0.17	1.22	43.53	11.56
Zr	253.00	342.00	287.00	89.00	39.44	0.73	1.97	285.07	13.74
K/Na	0.72	0.93	0.82	0.21	0.10	0.19	1.41	0.81	11.84
Al/Si	0.17	0.21	0.19	0.04	0.02	0.45	1.58	0.19	11.19
Fe+Mg	6.51	7.90	7.30	1.39	0.63	-0.36	1.55	7.28	8.60
Fe/Mg	2.26	2.62	2.42	0.35	0.15	0.46	1.84	2.41	6.24
Al/Ca+Na	3.61	5.09	4.33	1.49	0.68	0.08	1.39	4.29	15.62
La/Y	1.48	1.59	1.53	0.11	0.05	-0.05	2.63	1.53	3.11
Nb/Y	0.71	0.77	0.76	0.06	0.03	-1.05	2.28	0.76	3.69
Nb/P	77.27	94.44	87.42	17.17	8.22	-0.33	1.43	87.12	9.40
Rb/Sr	0.56	0.69	0.61	0.14	0.06	0.60	2.00	0.61	9.32
Ni/Co	0.47	0.59	0.54	0.12	0.05	-0.38	1.71	0.53	9.47
Cu/Co	0.25	0.35	0.31	0.09	0.04	-0.30	1.51	0.30	13.70
Zn/Co	0.75	1.04	0.94	0.30	0.13	-1.00	2.23	0.93	14.20
Zr/Nb	16.56	20.12	17.62	3.56	1.67	1.12	2.30	17.57	9.49
K/K+Na	41.83	48.18	44.80	6.35	2.91	0.15	1.31	44.73	6.50
K+Na	3.49	4.42	3.79	0.93	0.43	1.04	2.24	3.77	11.27

n = 4

XRF Analyses: Epidotitic Formation + Ratio's (FOR19)

TABLE 2.100

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	68.78	75.10	70.44	6.32	1.80	1.44	8.25	70.42	2.55
Al2O3	10.74	13.45	12.49	2.71	0.76	-0.88	3.31	12.46	6.10
TiO2	0.77	1.26	1.10	0.49	0.14	-0.96	3.76	1.09	12.56
Fe2O3	4.89	6.66	6.03	1.77	0.48	-1.06	3.64	6.02	8.03
MgO	2.55	4.07	3.56	1.52	0.44	-0.76	3.34	3.54	12.34
CaO	1.06	1.65	1.32	0.59	0.20	0.38	1.79	1.30	15.10
Na2O	1.74	2.43	2.07	0.69	0.19	0.39	2.52	2.06	9.35
K2O	0.81	1.86	1.41	1.05	0.31	-0.58	2.44	1.37	22.20
MnO	0.07	0.17	0.09	0.10	0.03	2.16	7.19	0.09	28.29
P2O5	0.12	0.22	0.19	0.10	0.02	-1.77	6.45	0.18	12.79
Total	97.47	99.47	98.69	2.00	0.54	0.00	0.00	98.69	0.55
As	0.00	2.00	0.17	2.00	0.58	3.02	10.09	1.06	346.41
Ba	248.00	477.00	381.83	229.00	65.82	-0.71	3.07	376.00	17.24
Co	38.00	58.00	47.17	20.00	6.86	-0.13	1.74	46.70	14.54
Cr	119.00	204.00	149.00	85.00	22.49	1.16	4.13	147.57	15.09
Cu	6.00	84.00	24.08	78.00	26.44	1.38	3.31	15.55	109.76
Ga	9.00	13.00	11.42	4.00	1.08	-0.90	3.25	11.37	9.49
La	22.00	81.00	41.17	59.00	16.47	1.23	3.85	38.63	40.02
Ni	47.00	64.00	56.42	17.00	5.21	-0.27	2.17	56.19	9.24
Nb	11.00	16.00	14.17	5.00	1.34	-0.79	3.90	14.11	9.44
Pb	10.00	16.00	13.50	6.00	2.07	-0.71	2.30	13.34	15.31
Rb	24.00	50.00	39.50	26.00	7.69	-0.63	2.58	38.73	19.48
Sr	83.00	129.00	107.75	46.00	13.22	-0.14	2.41	106.99	12.27
Sb	0.00	1.00	0.08	1.00	0.29	3.02	10.09	1.00	346.41
S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Th	1.00	9.00	5.58	8.00	2.02	-0.51	3.70	5.05	36.19
V	95.00	129.00	109.92	34.00	10.23	0.21	2.17	109.48	9.31
Y	25.00	70.00	36.42	45.00	13.99	1.47	3.89	34.50	38.42
Zn	40.00	63.00	56.25	23.00	6.50	-1.36	4.28	55.86	11.55
Zr	141.00	376.00	287.33	235.00	57.66	-1.18	4.77	280.56	20.07
K/Na	0.41	0.97	0.69	0.56	0.18	-0.03	2.03	0.67	25.59
Al/Si	0.14	0.19	0.18	0.05	0.01	-1.10	3.86	0.18	8.05
Fe+Mg	7.44	10.54	9.60	3.10	0.86	-1.30	4.25	9.56	8.99
Fe/Mg	1.53	1.94	1.71	0.41	0.15	0.43	1.84	1.70	8.52
Al/Ca+Na	3.19	4.50	3.71	1.31	0.36	0.78	3.01	3.69	9.83
La/Y	0.85	1.33	1.13	0.49	0.16	-0.52	2.14	1.12	13.91
Nb/Y	0.20	0.62	0.43	0.42	0.12	-0.43	2.49	0.41	28.41
Nb/P	68.18	91.67	76.56	23.48	7.30	0.61	2.48	76.25	9.54
Rb/Sr	0.24	0.54	0.37	0.30	0.09	0.04	2.16	0.36	24.70
Ni/Co	0.94	1.64	1.22	0.70	0.22	0.30	2.05	1.20	18.25
Cu/Co	0.11	1.62	0.51	1.51	0.54	1.20	2.63	0.33	105.74
Zn/Co	0.73	1.56	1.22	0.84	0.23	-0.39	3.10	1.20	18.64
Zr/Nb	12.82	26.86	20.20	14.04	3.59	-0.14	3.14	19.89	17.79
K/K+Na	29.14	49.27	40.12	20.13	6.35	-0.33	2.05	39.63	15.84
K+Na	2.78	3.89	3.47	1.11	0.35	-0.70	2.69	3.45	10.06

n = 12

XRF Analyses: Upper Calcareous Formation + Ratio's (FOR21)

TABLE 2.101

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	52.01	64.90	58.46	12.89	2.28	0.44	5.10	58.42	3.90
Al2O3	11.35	20.43	14.54	9.08	1.77	0.88	4.36	14.44	12.15
TiO2	0.63	1.14	0.85	0.51	0.11	0.46	3.11	0.84	13.12
Fe2O3	4.63	8.09	5.88	3.46	0.88	0.93	3.22	5.82	14.92
MgO	1.91	5.83	4.37	3.92	0.72	-1.20	5.10	4.30	16.49
CaO	0.23	14.55	7.34	14.32	2.83	-0.43	3.99	6.24	38.50
Na2O	0.71	2.20	1.65	1.49	0.26	-1.08	5.26	1.62	15.69
K2O	1.57	3.09	2.23	1.52	0.33	0.50	3.56	2.21	14.95
MnO	0.06	0.18	0.10	0.12	0.03	1.07	3.58	0.10	30.61
P2O5	0.15	0.20	0.18	0.05	0.01	-0.24	2.52	0.18	6.91
Total	91.27	99.73	95.61	8.46	1.60	0.35	-5.10	95.60	1.67
As	0.00	13.00	2.40	13.00	3.84	1.56	4.20	1.87	159.60
Ba	154.00	594.00	314.13	440.00	86.43	0.74	3.80	302.97	27.52
Cl	0.00	116.00	30.66	116.00	23.01	1.42	5.92	20.90	75.06
Co	17.00	42.00	26.53	25.00	4.57	0.80	4.61	26.16	17.22
Cr	102.00	205.00	137.47	103.00	20.45	0.62	4.06	136.02	14.88
Cu	10.00	46.00	25.96	36.00	8.29	0.41	2.54	24.64	31.95
Ga	11.00	18.00	14.09	7.00	1.64	0.70	3.54	14.00	11.64
La	17.00	45.00	32.51	28.00	5.86	-0.08	3.30	31.96	18.01
Ni	37.00	85.00	57.70	48.00	10.73	0.58	3.48	56.75	18.60
Nb	10.00	34.00	14.45	24.00	3.40	4.13	24.57	14.18	23.53
Pb	9.00	30.00	14.68	21.00	4.72	1.68	5.26	14.09	32.17
Rb	47.00	112.00	72.26	65.00	14.01	0.99	4.18	71.02	19.39
Sr	47.00	214.00	134.68	167.00	39.68	-0.49	2.66	127.60	29.46
Sb	0.00	12.00	0.98	12.00	2.22	3.23	14.89	1.35	226.96
S	0.00	763.00	90.66	763.00	125.87	3.47	18.46	38.44	138.84
Th	0.00	15.00	8.09	15.00	3.28	-0.27	3.23	7.26	40.60
V	72.00	134.00	102.28	62.00	13.56	0.17	2.80	101.39	13.26
Y	22.00	48.00	30.62	26.00	5.14	1.04	4.69	30.23	16.77
Zn	36.00	135.00	68.34	99.00	16.50	1.54	7.32	66.62	24.14
Zr	161.00	319.00	209.51	158.00	37.50	1.20	4.07	206.55	17.90
Tl	0.00	3.00	0.23	3.00	0.73	3.02	10.79	1.08	311.35
K/Na	0.91	2.55	1.40	1.63	0.39	1.30	4.36	1.36	27.57
Al/Si	0.20	0.32	0.25	0.12	0.03	0.58	2.97	0.25	10.31
Fe+Mg	7.67	13.48	10.25	5.81	1.35	0.32	2.97	10.17	13.16
Fe/Mg	1.04	3.06	1.38	2.02	0.35	3.18	14.60	1.35	24.99
Al/Ca+Na	0.70	12.12	2.13	11.42	2.03	3.49	15.65	1.73	95.29
La/Y	0.55	1.76	1.09	1.21	0.25	0.21	2.79	1.06	23.39
Nb/Y	0.37	0.85	0.48	0.48	0.08	2.08	9.53	0.47	17.74
Nb/P	61.11	212.50	80.87	151.39	22.10	4.65	28.13	79.06	27.33
Rb/Sr	0.25	2.20	0.63	1.95	0.38	2.03	7.66	0.56	60.09
Ni/Co	1.35	3.38	2.22	2.02	0.48	0.50	2.83	2.17	21.62
Cu/Co	0.34	1.63	1.01	1.28	0.35	0.14	2.04	0.94	34.54
Zn/Co	1.56	6.75	2.66	5.19	0.89	2.23	10.57	2.55	33.54
Zr/Nb	9.38	24.23	14.81	14.85	2.82	0.98	4.60	14.57	19.04
K/K+Na	47.77	71.83	57.47	24.05	5.94	0.66	2.69	57.18	10.34
K+Na	2.52	4.53	3.88	2.01	0.38	-1.09	5.17	3.86	9.72

n = 47

XRF Analyses: Lower Calcareous Formation + Ratio's (FOR23)

TABLE 2.102

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	46.19	87.84	58.97	41.65	3.08	2.79	32.33	58.89	5.23
Al2O3	6.86	21.31	14.18	14.45	1.84	0.27	4.89	14.06	12.97
TiO2	0.23	1.16	0.83	0.93	0.12	-0.40	5.03	0.82	14.98
Fe2O3	2.95	12.09	5.98	9.14	0.98	1.48	9.29	5.90	16.36
MgO	0.80	6.79	4.37	5.99	0.78	-1.04	7.08	4.28	17.81
CaO	0.02	24.36	7.40	24.34	3.51	0.53	5.60	5.88	47.47
Na2O	0.05	4.30	1.53	4.25	0.44	-0.48	11.18	1.40	28.56
K2O	0.39	4.12	2.21	3.73	0.42	0.81	6.43	2.16	19.22
MnO	0.03	0.33	0.11	0.30	0.04	2.26	12.10	0.10	32.34
P2O5	0.10	0.24	0.18	0.14	0.02	-1.00	8.12	0.18	9.12
Total	90.91	100.03	95.77	9.12	1.59	-0.25	20.23	95.75	1.66
As	0.00	65.00	3.59	65.00	6.70	4.97	36.08	2.33	186.58
Ba	56.00	912.00	274.79	856.00	84.90	2.57	15.95	264.41	30.89
Cl	0.00	146.00	29.88	146.00	21.91	1.45	6.93	20.28	73.34
Co	11.00	66.00	26.62	55.00	5.51	1.81	13.27	26.11	20.69
Cr	49.00	292.00	143.14	243.00	29.27	1.76	9.71	140.46	20.45
Cu	7.00	70.00	23.77	63.00	9.64	1.37	5.88	22.05	40.57
Ga	6.00	24.00	13.68	18.00	2.15	0.95	5.95	13.52	15.70
La	12.00	56.00	32.30	44.00	5.94	0.39	4.04	31.75	18.38
Ni	12.00	100.00	59.17	88.00	11.31	0.58	5.07	58.05	19.11
Nb	4.00	107.00	13.86	103.00	6.12	13.68	208.94	13.46	44.19
Pb	0.00	53.00	14.70	53.00	5.97	3.79	20.71	13.93	40.58
Rb	15.00	136.00	71.43	121.00	16.57	1.05	6.20	69.53	23.20
Sr	9.00	263.00	118.13	254.00	37.85	0.11	3.73	110.76	32.04
Sb	0.00	55.00	2.05	55.00	5.72	5.19	37.39	1.54	279.28
S	0.00	2755.00	39.06	2755.00	176.60	14.28	218.72	10.81	452.16
Th	0.00	22.00	8.60	22.00	3.58	0.39	3.98	7.71	41.66
V	27.00	149.00	99.49	122.00	14.63	-0.21	6.53	98.28	14.70
Y	0.00	64.00	32.11	64.00	6.25	0.32	8.54	31.27	19.48
Zn	0.00	165.00	66.37	165.00	15.85	0.93	9.59	63.90	23.88
Zr	68.00	578.00	212.83	510.00	47.16	2.55	18.77	208.35	22.16
Tl	0.00	17.00	0.36	17.00	1.40	7.63	81.74	1.11	388.29
K/Na	0.49	64.60	2.44	64.11	6.19	7.63	65.22	1.54	253.38
Al/Si	0.08	0.33	0.24	0.26	0.03	-0.04	6.23	0.24	12.59
Fe+Mg	3.75	18.41	10.35	14.66	1.51	0.61	6.77	10.24	14.59
Fe/Mg	0.86	7.79	1.43	6.93	0.55	7.49	76.97	1.38	38.40
Al/Ca+Na	0.35	26.72	2.37	26.37	3.16	4.93	31.03	1.75	133.18
La/Y	0.00	1.67	1.02	1.67	0.21	-0.02	4.58	1.00	20.90
Nb/Y	0.00	1.67	0.43	1.67	0.11	5.62	66.60	0.43	25.34
Nb/P	33.33	1070.00	78.06	1036.67	62.71	15.42	244.48	74.34	80.34
Rb/Sr	0.15	4.76	0.74	4.61	0.60	3.98	22.81	0.63	80.62
Ni/Co	0.28	4.00	2.30	3.72	0.56	0.17	3.73	2.22	24.41
Cu/Co	0.18	2.90	0.93	2.72	0.41	1.27	5.93	0.84	44.48
Zn/Co	0.00	4.63	2.57	4.63	0.67	0.03	3.93	2.48	26.29
Zr/Nb	5.40	37.43	15.83	32.03	3.38	1.23	8.93	15.48	21.37
K/K+Na	33.05	98.48	59.29	65.42	10.41	1.55	6.26	58.49	17.56
K+Na	1.18	6.69	3.74	5.51	0.50	-0.76	12.20	3.70	13.34

n = 258

XRF Analyses: Glendinning Mineralised Core + Ratio's (FORM1)

TABLE 2.103

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	52.37	81.40	59.41	29.03	4.62	2.35	9.58	59.25	7.77
Al2O3	9.01	23.14	18.01	14.13	2.64	-0.84	4.27	17.79	14.65
TiO2	0.34	1.05	0.81	0.71	0.12	-1.35	6.44	0.80	14.40
Fe2O3	3.51	8.42	5.39	4.91	0.77	0.71	4.37	5.33	14.39
MgO	0.36	5.86	3.38	5.50	0.76	-0.63	5.91	3.26	22.54
CaO	0.26	13.71	6.99	13.45	2.03	-0.77	4.76	6.45	28.99
Na2O	0.00	1.69	0.20	1.69	0.27	3.75	17.89	0.14	132.20
K2O	1.09	5.07	3.36	3.98	0.76	-0.59	3.37	3.26	22.67
MnO	0.00	0.18	0.09	0.18	0.02	-0.64	9.06	0.09	22.93
P2O5	0.03	0.20	0.16	0.17	0.03	-2.04	8.30	0.16	16.40
Total	92.24	102.64	97.79	10.40	1.56	0.33	-60.16	97.78	1.59
As	7.00	25994.00	2766.64	25987.00	4315.27	2.50	10.15	692.40	155.98
Ba	133.00	5363.00	386.44	5230.00	420.29	10.10	117.72	338.66	108.76
Cl	0.00	218.00	35.43	218.00	28.70	2.18	12.15	23.69	81.01
Co	0.00	73.00	33.21	73.00	10.98	0.90	5.32	31.17	33.06
Cr	61.00	253.00	142.35	192.00	22.74	-0.08	7.25	140.36	15.98
Cu	13.00	103.00	34.01	90.00	13.31	1.66	8.62	31.76	39.14
Ga	6.00	26.00	17.29	20.00	3.79	-0.30	3.17	16.82	21.92
La	14.00	58.00	38.77	44.00	7.11	-0.22	3.76	38.06	18.33
Ni	23.00	416.00	72.15	393.00	31.88	7.38	80.89	68.37	44.18
Nb	6.00	18.00	13.54	12.00	2.06	-1.08	5.51	13.35	15.21
Pb	6.00	1717.00	70.23	1711.00	171.78	7.66	66.29	36.21	244.60
Rb	44.00	184.00	119.72	140.00	27.82	-0.33	2.96	116.05	23.24
Sr	22.00	405.00	151.38	383.00	55.92	0.94	5.78	140.77	36.94
Sb	3.00	956.00	77.89	953.00	91.69	6.68	59.29	57.24	117.72
S	6.00	26000.00	3334.81	25994.00	4208.18	2.59	11.97	1243.63	126.19
Th	0.00	55.00	9.54	55.00	5.10	5.02	43.13	8.62	53.46
V	51.00	163.00	116.88	112.00	20.64	-0.62	3.77	114.80	17.66
Y	10.00	41.00	29.85	31.00	3.78	-1.32	8.55	29.56	12.65
Zn	0.00	1846.00	45.72	1846.00	149.40	10.86	127.58	26.49	326.75
Zr	69.00	361.00	177.45	292.00	35.21	0.88	7.89	173.96	19.84
Tl	0.00	7.00	0.49	7.00	1.24	2.98	12.38	1.17	253.30
K/Na	0.00	77.50	27.70	77.50	13.75	0.48	4.04	22.72	49.64
Al/Si	0.12	0.42	0.31	0.30	0.05	-1.04	4.84	0.30	17.66
Fe+Mg	5.33	13.07	8.77	7.74	1.23	0.46	4.50	8.68	14.01
Fe/Mg	1.09	23.39	1.83	22.30	1.92	9.49	100.71	1.64	105.00
Al/Ca+Na	0.80	31.94	3.09	31.13	3.00	6.73	57.68	2.65	97.00
La/Y	0.76	1.97	1.31	1.20	0.22	0.20	3.13	1.29	16.59
Nb/Y	0.21	0.70	0.46	0.49	0.06	-0.09	6.45	0.45	12.38
Nb/P	46.67	233.33	86.61	186.67	18.73	3.49	25.30	85.07	21.63
Rb/Sr	0.25	2.32	0.89	2.07	0.36	1.34	5.09	0.82	40.52
Ni/Co	0.00	5.79	2.33	5.79	0.94	0.75	4.72	2.14	40.57
Cu/Co	0.00	3.69	1.09	3.69	0.49	1.74	9.86	1.00	45.24
Zn/Co	0.00	26.62	1.37	26.62	2.86	7.73	66.68	0.85	208.97
Zr/Nb	9.12	30.08	13.27	20.97	2.75	2.03	10.95	13.03	20.73
K/K+Na	56.06	100.00	94.42	43.94	7.19	-3.84	18.32	94.07	7.62
K+Na	1.13	5.16	3.56	4.03	0.75	-0.81	4.02	3.46	21.15

n = 170

Leadhills Mineralised Core (Riofinex Ltd: Hole No.1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Cu	52.00	530.00	123.53	478.00	96.72	2.80	10.97	104.04	78.29
Pb	6.00	91.00	33.90	85.00	17.14	0.81	3.52	29.61	50.55
Zn	22.00	360.00	92.07	338.00	49.52	2.70	14.46	82.31	53.78
Bi	0.00	2.00	0.19	2.00	0.43	2.11	6.72	1.01	226.07
As	0.00	50.00	21.99	50.00	14.64	0.25	1.93	15.84	66.58
Ag	0.00	2.00	1.01	2.00	0.37	0.18	7.54	1.05	36.09
Au (ppm)	0.00	2.75	0.04	2.75	0.33	8.06	65.93	0.98	804.11

n = 68

TABLE 2.104

Leadhills Mineralised Core (Riofinex: Hole No. 2)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Cu	55.00	715.00	185.62	660.00	151.09	1.96	6.68	146.23	81.40
Pb	15.00	9760.00	675.78	9745.00	1969.06	4.01	18.47	89.24	291.38
Zn	35.00	1240.00	166.26	1205.00	188.42	3.99	22.41	118.96	113.33
Bi	0.00	3.00	0.32	3.00	0.71	2.53	9.15	1.06	222.68
As	0.00	45.00	12.94	45.00	11.39	1.17	3.85	8.19	88.01
Ag	0.00	4.00	1.12	4.00	0.72	2.16	8.85	1.11	64.13
Au (ppm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

n = 50

XRF+ICP Analyses: Glendinning Mineralisation (MED1)

TABLE 2.106

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	54.41	73.48	59.76	19.07	4.60	1.79	6.31	59.61	7.70
Al2O3	14.58	23.14	17.69	8.56	2.26	0.58	3.36	17.56	12.75
TiO2	0.65	1.00	0.81	0.35	0.09	0.10	2.70	0.80	11.61
Fe2O3	3.51	6.13	5.00	2.62	0.67	-0.35	2.96	4.95	13.37
MgO	2.10	4.02	3.42	1.92	0.56	-1.18	3.53	3.37	16.22
CaO	3.34	8.60	7.21	5.26	1.45	-1.37	4.30	7.04	20.10
Na2O	0.08	1.69	0.33	1.61	0.54	2.14	5.63	0.17	166.87
K2O	2.18	4.71	3.26	2.53	0.76	0.14	2.02	3.17	23.44
MnO	0.05	0.11	0.09	0.06	0.01	-0.71	4.06	0.08	16.49
P2O5	0.12	0.20	0.17	0.08	0.02	-0.56	3.15	0.17	12.52
Total	95.90	101.86	97.73	5.96	1.38	1.86	20.46	97.72	1.41
As	41.00	15320.00	2575.93	15279.00	3985.64	2.35	8.09	867.78	154.73
Ba	189.00	388.00	290.80	199.00	61.78	-0.17	1.72	284.36	21.25
Cl	0.00	72.00	34.13	72.00	19.01	-0.04	2.78	25.03	55.71
Co	18.00	48.00	33.60	30.00	8.46	0.08	2.41	32.56	25.17
Cr	113.00	253.00	146.33	140.00	32.34	2.51	9.19	143.76	22.10
Cu	14.00	46.00	30.53	32.00	9.37	-0.18	2.39	29.00	30.69
Ga	12.00	22.00	16.40	10.00	2.92	0.41	2.39	16.16	17.82
Ni	35.00	102.00	65.00	67.00	17.61	0.36	2.62	62.76	27.09
Nb	11.00	17.00	13.47	6.00	1.68	0.43	2.72	13.37	12.51
Pb	13.00	99.00	52.80	86.00	32.93	-0.07	1.30	40.82	62.37
Rb	73.00	169.00	115.53	96.00	28.77	0.32	2.46	112.19	24.90
Sr	72.00	278.00	171.00	206.00	55.06	0.23	2.65	162.15	32.20
Sb	10.00	105.00	56.60	95.00	31.37	0.27	1.74	47.09	55.42
S	8.00	6198.00	2525.20	6190.00	1994.86	0.45	2.16	1070.52	79.00
Th	6.00	12.00	9.00	6.00	2.27	0.15	1.46	8.73	25.20
V	90.00	155.00	112.93	65.00	17.89	0.71	3.02	111.67	15.85
Zn	16.00	62.00	27.47	46.00	14.74	1.51	4.05	24.75	53.66
Zr	154.00	361.00	192.40	207.00	54.06	2.20	7.41	187.05	28.10
Tl	0.00	3.00	0.33	3.00	0.90	2.35	6.83	1.13	269.92
La	16.89	43.47	28.28	26.58	6.68	0.43	3.20	27.55	23.62
Ce	40.83	101.37	60.76	60.54	18.34	0.87	2.66	58.44	30.18
Pr	4.14	8.84	6.58	4.70	1.16	-0.20	3.08	6.48	17.65
Nd	17.14	31.90	25.10	14.76	3.97	-0.32	2.48	24.79	15.81
Sm	3.66	5.86	4.93	2.20	0.67	-0.38	2.21	4.88	13.60
Eu	0.80	2.61	1.21	1.81	0.43	2.50	9.16	1.16	35.19
Gd	2.90	5.83	4.51	2.93	0.81	-0.31	2.55	4.44	17.86
Dy	2.40	4.70	3.86	2.30	0.57	-1.02	3.95	3.82	14.87
Ho	0.49	0.91	0.76	0.42	0.11	-1.10	3.93	0.75	14.14
Er	1.39	2.67	2.17	1.28	0.32	-0.92	3.37	2.14	14.96
Yb	1.60	2.54	2.19	0.94	0.26	-1.01	3.07	2.18	12.06
Lu	0.27	0.42	0.35	0.15	0.05	-0.20	2.29	0.34	13.69
Y	24.00	34.00	28.93	10.00	2.99	-0.12	2.01	28.79	10.32

n = 15

XRF+ICP Analyses: Tweedsmuir Greywacke (MED2)

TABLE 2.107

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	55.30	59.55	57.08	4.25	1.16	0.09	2.48	57.07	2.03
Al2O3	12.08	14.17	12.95	2.09	0.55	0.17	3.02	12.94	4.28
TiO2	0.92	1.22	1.00	0.30	0.07	1.27	4.90	1.00	7.18
Fe2O3	7.44	9.23	8.33	1.79	0.51	-0.11	2.11	8.31	6.16
MgO	5.63	9.42	6.81	3.79	1.05	0.99	3.05	6.74	15.39
CaO	2.08	7.40	4.62	5.32	1.43	-0.25	2.39	4.38	30.98
Na2O	1.71	2.42	2.10	0.71	0.17	-0.02	3.31	2.09	7.94
K2O	1.26	2.48	1.86	1.22	0.36	0.01	1.84	1.83	19.31
MnO	0.11	0.20	0.15	0.09	0.02	0.63	3.68	0.14	14.12
P2O5	0.18	0.27	0.21	0.09	0.02	0.88	3.61	0.21	10.42
Total	93.56	96.86	95.11	3.30	0.93	0.50	-94.88	95.10	0.98
As	0.00	7.00	0.40	7.00	1.57	4.00	17.33	1.10	392.36
Ba	284.00	784.00	493.75	500.00	148.66	0.53	2.20	473.40	30.11
Co	10.00	34.00	25.70	24.00	4.90	-1.52	6.45	25.09	19.07
Cr	175.00	252.00	206.30	77.00	21.82	0.38	2.23	205.22	10.57
Cu	40.00	48.00	44.30	8.00	2.30	-0.08	2.19	44.24	5.18
Ga	14.00	17.00	15.65	3.00	0.81	0.10	2.42	15.63	5.19
Ni	56.00	71.00	64.35	15.00	4.04	-0.26	2.29	64.23	6.28
Nb	9.00	11.00	10.25	2.00	0.72	-0.39	2.10	10.23	6.99
Pb	7.00	18.00	12.85	11.00	2.72	-0.05	2.60	12.56	21.17
Rb	34.00	65.00	46.50	31.00	8.22	0.25	2.48	45.81	17.67
Sr	252.00	555.00	408.95	303.00	100.89	0.08	1.56	396.90	24.67
Sb	0.00	5.00	1.75	5.00	1.65	0.41	1.94	1.77	94.31
S	20.00	648.00	301.85	628.00	185.48	0.60	2.17	239.36	61.45
Th	2.00	9.00	4.90	7.00	1.80	0.65	2.78	4.59	36.81
V	163.00	209.00	187.25	46.00	12.86	-0.12	2.18	186.83	6.87
Zn	50.00	71.00	63.05	21.00	4.39	-0.93	5.28	62.90	6.97
Zr	181.00	279.00	205.70	98.00	22.35	1.93	7.01	204.67	10.87
La	16.99	21.30	19.40	4.31	1.22	-0.27	2.06	19.36	6.30
Ce	41.81	47.67	45.34	5.86	1.79	-0.62	2.35	45.30	3.96
Pr	5.53	7.25	6.26	1.72	0.41	1.03	4.28	6.25	6.51
Nd	21.89	24.87	23.54	2.98	0.87	-0.27	1.83	23.52	3.69
Sm	4.20	4.86	4.59	0.66	0.18	-0.26	1.98	4.59	3.89
Eu	1.14	1.32	1.24	0.18	0.05	-0.45	2.18	1.24	4.21
Gd	1.42	4.19	3.71	2.77	0.72	-2.30	7.23	3.61	19.44
Dy	3.17	3.56	3.34	0.39	0.13	0.30	1.69	3.34	3.87
Ho	0.65	0.97	0.82	0.32	0.08	0.08	2.73	0.82	9.76
Er	0.05	2.00	1.66	1.95	0.55	-2.23	6.61	1.38	33.02
Yb	1.69	2.05	1.84	0.36	0.08	0.41	3.31	1.84	4.54
Lu	0.25	0.29	0.27	0.04	0.01	0.64	2.35	0.27	4.12
Y	17.20	19.73	18.50	2.53	0.77	-0.08	1.47	18.48	4.17

n = 20

XRF Analyses: Glendinning Mineralised Core (MINE1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	52.37	81.40	59.41	29.03	4.62	2.35	9.58	59.25	7.77
Al2O3	9.01	23.14	18.01	14.13	2.64	-0.84	4.27	17.79	14.65
TiO2	0.34	1.05	0.81	0.71	0.12	-1.35	6.44	0.80	14.40
Fe2O3	3.51	8.42	5.39	4.91	0.77	0.71	4.37	5.33	14.39
MgO	0.36	5.86	3.38	5.50	0.76	-0.63	5.91	3.26	22.54
CaO	0.26	13.71	6.99	13.45	2.03	-0.77	4.76	6.45	28.99
Na2O	0.00	1.69	0.20	1.69	0.27	3.75	17.89	0.14	132.20
K2O	1.09	5.07	3.36	3.98	0.76	-0.59	3.37	3.26	22.67
MnO	0.00	0.18	0.09	0.18	0.02	-0.64	9.06	0.09	22.93
P2O5	0.03	0.20	0.16	0.17	0.03	-2.04	8.30	0.16	16.40
Total	92.24	102.64	97.79	10.40	1.56	0.33	-60.16	97.78	1.59
As	7.00	25994.00	2766.64	25987.00	4315.27	2.50	10.15	692.40	155.98
Ba	133.00	5363.00	386.44	5230.00	420.29	10.10	117.72	338.66	108.76
Cl	0.00	218.00	35.43	218.00	28.70	2.18	12.15	23.69	81.01
Co	0.00	73.00	33.21	73.00	10.98	0.90	5.32	31.17	33.06
Cr	61.00	253.00	142.35	192.00	22.74	-0.08	7.25	140.36	15.98
Cu	13.00	103.00	34.01	90.00	13.31	1.66	8.62	31.76	39.14
Ga	6.00	26.00	17.29	20.00	3.79	-0.30	3.17	16.82	21.92
La	14.00	58.00	38.77	44.00	7.11	-0.22	3.76	38.06	18.33
Ni	23.00	416.00	72.15	393.00	31.88	7.38	80.89	68.37	44.18
Nb	6.00	18.00	13.54	12.00	2.06	-1.08	5.51	13.35	15.21
Pb	6.00	1717.00	70.23	1711.00	171.78	7.66	66.29	36.21	244.60
Rb	44.00	184.00	119.72	140.00	27.82	-0.33	2.96	116.05	23.24
Sr	22.00	405.00	151.38	383.00	55.92	0.94	5.78	140.77	36.94
Sb	3.00	956.00	77.89	953.00	91.69	6.68	59.29	57.24	117.72
S	6.00	26000.00	3334.81	25994.00	4208.18	2.59	11.97	1243.63	126.19
Th	0.00	55.00	9.54	55.00	5.10	5.02	43.13	8.62	53.46
V	51.00	163.00	116.88	112.00	20.64	-0.62	3.77	114.80	17.66
Y	10.00	41.00	29.85	31.00	3.78	-1.32	8.55	29.56	12.65
Zn	0.00	1846.00	45.72	1846.00	149.40	10.86	127.58	26.49	326.75
Zr	69.00	361.00	177.45	292.00	35.21	0.88	7.89	173.96	19.84
Tl	0.00	7.00	0.49	7.00	1.24	2.98	12.38	1.17	253.30

n = 170

XRF Analyses: Glendinning Hole No.1 (MINA1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	55.69	65.10	58.68	9.41	2.24	1.20	4.27	58.64	3.81
Al2O3	13.13	22.65	18.31	9.52	2.41	-0.26	2.50	18.15	13.15
TiO2	0.71	0.97	0.82	0.26	0.06	0.45	2.90	0.82	7.92
Fe2O3	3.61	6.69	5.20	3.08	0.57	-0.20	4.70	5.17	10.97
MgO	1.11	3.93	3.01	2.82	0.64	-1.14	4.12	2.92	21.41
CaO	2.82	10.70	7.81	7.88	1.76	-0.87	3.60	7.57	22.56
Na2O	0.00	1.69	0.32	1.69	0.45	2.21	6.54	0.21	137.38
K2O	2.01	5.07	3.31	3.06	0.69	0.28	3.03	3.24	20.99
MnO	0.06	0.12	0.09	0.06	0.01	-0.50	3.50	0.09	15.05
P2O5	0.08	0.20	0.17	0.12	0.02	-2.87	14.44	0.17	11.59
Total	94.65	100.92	97.73	6.27	1.49	0.20	0.00	97.72	1.52
As	14.00	7501.00	714.56	7487.00	1481.12	3.36	15.06	190.29	207.28
Ba	258.00	1142.00	385.59	884.00	152.85	3.96	20.08	368.93	39.64
Cl	0.00	218.00	33.25	218.00	39.67	3.44	16.11	20.11	119.32
Co	15.00	60.00	30.16	45.00	9.21	0.92	4.73	28.86	30.54
Cr	125.00	175.00	143.16	50.00	13.52	0.58	2.76	142.55	9.45
Cu	13.00	103.00	33.75	90.00	17.68	2.09	8.67	30.42	52.40
Ga	10.00	21.00	15.78	11.00	2.57	-0.18	2.95	15.57	16.31
La	28.00	58.00	37.44	30.00	6.94	1.01	3.84	36.86	18.54
Ni	29.00	117.00	71.44	88.00	20.42	-0.02	2.84	68.29	28.58
Nb	12.00	18.00	14.41	6.00	1.50	0.74	2.78	14.33	10.41
Pb	6.00	184.00	34.97	178.00	49.28	1.97	5.46	19.03	140.92
Rb	63.00	184.00	112.00	121.00	25.50	0.47	3.69	109.19	22.77
Sr	66.00	405.00	155.22	339.00	74.87	1.93	6.70	142.20	48.23
Sb	6.00	143.00	42.88	137.00	26.77	1.46	7.18	34.56	62.44
S	8.00	7551.00	997.69	7543.00	1671.89	2.35	8.64	264.31	167.58
Th	2.00	37.00	11.16	35.00	5.70	3.03	14.62	10.15	51.12
V	89.00	147.00	114.34	58.00	14.84	0.11	2.40	113.41	12.98
Y	27.00	41.00	30.00	14.00	2.77	2.05	8.84	29.89	9.24
Zn	11.00	62.00	33.50	51.00	12.54	0.23	2.71	30.97	37.45
Zr	150.00	296.00	186.78	146.00	30.04	1.81	6.68	184.76	16.08
Tl	0.00	5.00	0.56	5.00	1.27	2.12	6.49	1.22	225.50

n = 32

TABLE 2.109

XRF Analyses: Glendinning Hole No.2 (MINB1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	53.98	81.40	60.95	27.42	6.59	1.81	5.51	60.64	10.81
Al2O3	9.90	22.90	17.78	13.00	3.02	-1.07	4.02	17.48	16.97
TiO2	0.34	1.02	0.77	0.68	0.13	-1.29	5.03	0.76	17.39
Fe2O3	3.51	8.42	5.18	4.91	0.77	1.51	9.04	5.13	14.83
MgO	0.36	4.31	3.20	3.95	0.86	-1.85	6.20	2.96	26.89
CaO	0.26	9.44	6.55	9.18	2.16	-1.40	4.44	5.75	32.97
Na2O	0.04	0.25	0.11	0.21	0.05	1.23	4.55	0.10	41.47
K2O	1.28	4.81	3.31	3.53	0.86	-0.62	2.81	3.18	25.83
MnO	0.00	0.11	0.08	0.11	0.02	-1.78	6.08	0.09	31.23
P2O5	0.03	0.20	0.15	0.17	0.04	-1.52	5.21	0.14	23.95
Total	94.67	102.64	98.08	7.97	1.69	0.29	4.10	98.07	1.72
As	77.00	25994.00	3193.37	25917.00	4730.30	3.21	14.64	1387.12	148.13
Ba	133.00	1706.00	320.35	1573.00	230.78	5.20	31.75	288.39	72.04
Cl	0.00	121.00	42.19	121.00	30.45	0.65	2.95	26.66	72.18
Co	0.00	73.00	34.91	73.00	13.12	0.91	5.54	31.38	37.60
Cr	61.00	253.00	137.33	192.00	29.61	0.77	7.75	134.11	21.56
Cu	14.00	96.00	33.91	82.00	15.30	1.85	7.68	31.27	45.11
Ga	6.00	26.00	17.12	20.00	4.36	-0.52	2.93	16.46	25.47
La	14.00	50.00	37.35	36.00	7.62	-0.97	4.20	36.39	20.41
Ni	23.00	118.00	63.02	95.00	20.74	0.45	3.13	59.58	32.91
Nb	6.00	16.00	12.70	10.00	2.12	-1.41	5.38	12.48	16.71
Pb	12.00	128.00	41.63	116.00	33.35	1.20	3.25	31.49	80.12
Rb	51.00	164.00	118.81	113.00	28.67	-0.56	2.65	114.82	24.13
Sr	22.00	213.00	127.33	191.00	38.12	-0.71	4.01	119.00	29.94
Sb	24.00	169.00	52.79	145.00	28.31	2.40	9.25	47.93	53.63
S	428.00	12029.00	3613.16	11601.00	2607.93	1.25	4.29	2803.67	72.18
Th	1.00	55.00	9.26	54.00	7.69	4.99	30.59	7.82	83.09
V	51.00	154.00	114.72	103.00	23.43	-0.79	3.64	111.90	20.42
Y	10.00	33.00	27.44	23.00	4.31	-2.24	8.88	26.97	15.69
Zn	5.00	44.00	23.60	39.00	8.07	-0.30	3.57	21.72	34.17
Zr	69.00	361.00	167.74	292.00	42.85	1.83	11.38	162.85	25.55
Tl	0.00	3.00	0.28	3.00	0.70	2.50	8.28	1.08	251.27

n = 43

TABLE 2.110

XRF Analyses: Glendinning Hole No.3 (MINC1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	53.41	74.68	59.01	21.27	3.97	2.17	8.09	58.89	6.74
Al2O3	9.01	23.14	18.07	14.13	2.62	-0.65	0.15	17.86	14.50
TiO2	0.39	1.02	0.82	0.63	0.11	-1.49	6.81	0.81	13.71
Fe2O3	4.00	6.72	5.38	2.72	0.67	0.20	2.26	5.34	12.50
MgO	2.08	5.00	3.47	2.92	0.57	-0.14	3.13	3.42	16.48
CaO	3.32	10.45	7.15	7.13	1.59	-0.25	2.62	6.96	22.26
Na2O	0.02	1.45	0.16	1.43	0.16	6.61	53.41	0.13	101.47
K2O	1.09	4.93	3.44	3.84	0.77	-0.86	3.89	3.34	22.30
MnO	0.05	0.12	0.08	0.07	0.01	-0.29	3.13	0.08	17.69
P2O5	0.08	0.20	0.16	0.12	0.02	-1.58	5.49	0.16	13.94
Total	94.57	100.74	97.75	6.17	1.40	0.00	-25.65	97.74	1.43
As	7.00	20332.00	3568.59	20325.00	4703.83	1.65	5.18	947.05	131.81
Ba	153.00	5363.00	435.91	5210.00	577.74	7.92	67.84	363.48	132.54
Cl	0.00	109.00	32.78	109.00	20.80	0.86	4.00	24.58	63.46
Co	14.00	72.00	34.25	58.00	9.89	0.99	4.77	32.93	28.87
Cr	70.00	191.00	145.10	121.00	22.15	-0.69	4.31	143.21	15.27
Cu	13.00	60.00	34.41	47.00	11.13	0.26	2.62	32.53	32.33
Ga	7.00	26.00	18.13	19.00	3.80	-0.45	3.22	17.67	20.95
La	21.00	57.00	39.94	36.00	6.91	-0.05	3.33	39.32	17.29
Ni	40.00	416.00	77.75	376.00	40.94	7.14	59.80	73.56	52.65
Nb	6.00	17.00	13.52	11.00	1.97	-1.02	5.28	13.36	14.60
Pb	9.00	1276.00	82.79	1267.00	160.62	6.16	43.15	48.50	194.01
Rb	44.00	184.00	125.71	140.00	28.25	-0.62	3.39	121.92	22.47
Sr	91.00	297.00	176.06	206.00	42.14	0.40	3.19	171.05	23.94
Sb	3.00	651.00	92.65	648.00	77.01	4.82	35.74	72.93	83.11
S	62.00	26000.00	4512.71	25938.00	5289.40	2.10	7.93	2031.10	117.21
Th	0.00	14.00	8.94	14.00	2.67	-0.44	3.38	8.44	29.86
V	59.00	163.00	118.91	104.00	21.44	-0.44	3.12	116.79	18.03
Y	19.00	37.00	30.92	18.00	3.34	-1.14	5.47	30.72	10.81
Zn	0.00	1846.00	50.89	1846.00	204.57	8.60	76.00	22.99	402.01
Zr	85.00	251.00	177.05	166.00	31.17	-0.06	4.50	174.11	17.60
Tl	0.00	7.00	0.52	7.00	1.41	3.06	12.28	1.18	267.62

n = 80

TABLE 2.111

XRF Analyses: Glendinning Hole No. 4 (MIND1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	52.37	62.12	56.79	9.75	2.84	0.22	2.45	56.72	5.00
Al2O3	11.05	19.42	17.45	8.37	2.44	-1.72	5.35	17.26	14.00
TiO2	0.45	1.01	0.82	0.56	0.14	-1.67	5.90	0.81	17.00
Fe2O3	4.02	7.76	6.17	3.74	1.02	-0.31	3.26	6.09	16.52
MgO	3.11	5.86	4.51	2.75	0.86	-0.15	2.22	4.43	19.03
CaO	4.68	13.71	6.96	9.03	2.40	2.19	7.01	6.69	34.45
Na2O	0.04	0.83	0.29	0.79	0.32	0.99	2.07	0.17	111.48
K2O	1.75	3.95	3.23	2.20	0.65	-1.06	3.35	3.15	20.15
MnO	0.07	0.18	0.10	0.11	0.03	1.94	6.17	0.09	31.91
P2O5	0.14	0.18	0.17	0.04	0.01	-1.26	3.62	0.17	7.44
Total	92.24	98.47	96.47	6.23	1.71	-1.42	4.57	96.46	1.77
As	9.00	13923.00	2184.27	13914.00	4077.99	2.42	7.60	359.08	186.70
Ba	165.00	386.00	288.73	221.00	54.39	-0.63	4.13	283.36	18.84
Cl	18.00	106.00	45.64	88.00	31.14	1.31	3.16	38.46	68.23
Co	13.00	39.00	24.00	26.00	8.57	0.05	1.97	22.51	35.70
Cr	82.00	151.00	136.73	69.00	19.37	-2.25	7.09	135.12	14.17
Cu	23.00	44.00	33.18	21.00	7.40	0.35	1.82	32.45	22.30
Ga	9.00	24.00	16.55	15.00	3.75	-0.06	3.59	16.12	22.67
La	26.00	48.00	40.09	22.00	7.26	-0.86	2.47	39.41	18.11
Ni	41.00	86.00	68.18	45.00	13.56	-0.52	2.54	66.82	19.88
Nb	7.00	17.00	13.45	10.00	2.66	-1.22	4.24	13.15	19.77
Pb	11.00	1717.00	211.27	1706.00	501.07	2.81	8.98	59.74	237.17
Rb	55.00	141.00	108.00	86.00	23.13	-0.94	3.63	105.24	21.41
Sr	67.00	118.00	86.18	51.00	14.88	0.88	2.92	85.10	17.26
Sb	50.00	956.00	192.55	906.00	255.59	2.75	8.78	133.96	132.74
S	34.00	7244.00	1678.09	7210.00	2177.55	1.61	4.86	582.46	129.76
Th	0.00	15.00	9.36	15.00	4.20	-0.70	3.50	8.05	44.87
V	58.00	136.00	116.09	78.00	21.69	-1.84	5.84	113.59	18.68
Y	26.00	34.00	29.18	8.00	2.27	0.57	2.89	29.10	7.79
Zn	21.00	692.00	118.82	671.00	191.73	2.76	8.81	69.56	161.37
Zr	114.00	198.00	169.91	84.00	23.32	-1.11	4.07	168.25	13.73
Tl	0.00	5.00	1.00	5.00	1.61	1.50	4.33	1.40	161.25

n = 11

TABLE 2.112

XRF Analyses: Glendinning Mineralised Breccia (MINF1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	54.41	81.40	63.27	26.99	7.90	1.06	2.77	62.83	12.48
Al2O3	9.01	22.41	17.30	13.40	4.23	-0.70	2.13	16.71	24.47
TiO2	0.34	0.95	0.72	0.61	0.18	-0.79	2.33	0.70	25.35
Fe2O3	3.61	8.42	5.23	4.81	0.98	1.12	5.32	5.15	18.76
MgO	0.36	3.82	2.78	3.46	0.83	-1.71	5.52	2.53	29.99
CaO	0.26	9.83	6.00	9.57	2.23	-0.94	3.91	5.08	37.15
Na2O	0.02	0.19	0.09	0.17	0.04	0.48	2.57	0.08	45.89
K2O	1.09	4.17	2.90	3.08	0.98	-0.57	1.83	2.70	33.90
MnO	0.00	0.11	0.07	0.11	0.03	-1.32	4.38	0.09	37.70
P2O5	0.03	0.19	0.13	0.16	0.04	-0.69	2.66	0.12	31.32
Total	95.36	100.74	98.49	5.38	1.18	-0.64	35.60	98.49	1.20
As	63.00	20332.00	5933.75	20269.00	5097.98	1.24	3.96	3541.99	85.91
Ba	133.00	434.00	267.96	301.00	77.91	0.12	2.26	256.45	29.08
Cl	0.00	218.00	40.79	218.00	42.09	2.67	12.32	20.53	103.20
Co	15.00	73.00	40.89	58.00	15.45	0.36	2.52	37.93	37.77
Cr	61.00	183.00	131.36	122.00	35.16	-0.48	2.08	126.08	26.77
Cu	14.00	54.00	33.79	40.00	12.02	0.12	1.94	31.58	35.57
Ga	8.00	26.00	16.61	18.00	4.76	-0.16	2.11	15.88	28.64
La	14.00	58.00	37.46	44.00	11.64	-0.16	2.31	35.46	31.07
Ni	23.00	91.00	63.50	68.00	19.59	-0.34	1.92	60.09	30.86
Nb	6.00	18.00	12.46	12.00	3.28	-0.77	2.48	11.95	26.34
Pb	11.00	184.00	67.29	173.00	49.83	0.73	2.57	48.85	74.05
Rb	44.00	154.00	107.25	110.00	34.55	-0.37	1.83	100.95	32.22
Sr	22.00	405.00	166.39	383.00	87.62	0.85	3.96	141.31	52.66
Sb	29.00	170.00	86.75	141.00	43.35	0.41	1.96	76.09	49.97
S	23.00	26000.00	7406.68	25977.00	6674.27	1.53	4.68	4481.32	90.11
Th	1.00	21.00	8.36	20.00	4.16	0.82	4.37	7.23	49.73
V	51.00	153.00	108.82	102.00	31.49	-0.43	2.02	103.69	28.94
Y	10.00	41.00	27.36	31.00	6.34	-0.81	4.01	26.45	23.19
Zn	0.00	40.00	15.93	40.00	10.15	0.73	2.91	12.53	63.72
Zr	69.00	296.00	157.96	227.00	48.12	0.53	4.10	150.66	30.46
Tl	0.00	5.00	0.29	5.00	1.08	3.68	15.27	1.10	379.33

n = 28

TABLE 2.113

XRF Analyses: Glendinning Mineralised Greywacke (MING1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	52.37	73.48	59.26	21.11	3.96	1.56	6.22	59.14	6.68
Al2O3	11.05	21.39	17.08	10.34	2.24	-0.47	3.04	16.92	13.14
TiO2	0.45	0.94	0.79	0.49	0.08	-1.74	9.63	0.78	9.90
Fe2O3	3.51	6.68	5.24	3.17	0.67	-0.29	3.11	5.20	12.84
MgO	2.08	5.86	3.54	3.78	0.73	0.37	4.61	3.47	20.62
CaO	3.32	13.71	7.72	10.39	1.96	0.05	4.28	7.45	25.38
Na2O	0.04	1.63	0.25	1.59	0.37	2.78	9.53	0.15	146.22
K2O	1.75	4.66	3.03	2.91	0.66	0.34	2.89	2.96	21.89
MnO	0.05	0.18	0.09	0.13	0.02	1.52	10.07	0.09	22.49
P2O5	0.11	0.20	0.17	0.09	0.02	-1.03	4.19	0.17	12.29
Total	92.24	101.86	97.17	9.62	1.72	-0.03	11.58	97.16	1.77
As	7.00	17800.00	2907.48	17793.00	4681.52	1.96	5.68	550.00	161.02
Ba	165.00	1119.00	369.19	954.00	161.72	2.53	12.14	344.31	43.80
Cl	7.00	105.00	35.88	98.00	23.29	1.46	4.89	29.76	64.90
Co	13.00	72.00	31.62	59.00	9.91	1.28	8.10	30.15	31.35
Cr	82.00	253.00	150.17	171.00	24.11	1.36	10.23	148.36	16.06
Cu	13.00	63.00	30.83	50.00	11.78	0.92	3.46	28.81	38.21
Ga	9.00	26.00	16.50	17.00	3.72	0.68	3.71	16.10	22.57
La	26.00	47.00	37.62	21.00	5.91	-0.20	1.79	37.15	15.71
Ni	29.00	416.00	75.05	387.00	55.91	5.56	34.57	67.84	74.50
Nb	7.00	16.00	12.88	9.00	1.52	-1.07	6.74	12.78	11.78
Pb	6.00	1717.00	118.10	1711.00	317.88	4.32	20.40	40.78	269.17
Rb	55.00	169.00	107.62	114.00	25.32	0.28	3.10	104.63	23.53
Sr	66.00	278.00	149.00	212.00	53.03	0.43	2.48	139.73	35.59
Sb	3.00	956.00	88.86	953.00	146.78	5.08	30.48	50.37	165.19
S	14.00	17580.00	2800.90	17566.00	3410.93	2.21	9.51	979.69	121.78
Th	0.00	15.00	9.14	15.00	3.00	-0.71	4.05	8.45	32.82
V	58.00	147.00	111.00	89.00	17.57	-0.19	3.75	109.54	15.83
Y	23.00	35.00	29.60	12.00	2.38	-0.24	3.36	29.50	8.04
Zn	7.00	1846.00	89.71	1839.00	296.28	5.34	31.28	31.66	330.24
Zr	114.00	361.00	191.62	247.00	41.49	1.62	7.82	187.77	21.65
Tl	0.00	7.00	0.76	7.00	1.62	2.41	8.58	1.28	212.64

n = 42

TABLE 2.114

XRF Analyses: Glendinning Mineralised Siltstone (MINS1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	54.81	68.64	58.39	13.83	2.63	1.87	8.04	58.33	4.50
Al2O3	11.72	23.14	18.18	11.42	2.06	-0.07	3.80	18.06	11.33
TiO2	0.54	1.02	0.82	0.48	0.08	-0.31	3.95	0.82	10.32
Fe2O3	4.29	6.72	5.41	2.43	0.58	0.50	2.53	5.38	10.75
MgO	1.72	4.96	3.52	3.24	0.53	-0.62	5.16	3.48	15.17
CaO	2.59	10.70	7.43	8.11	1.59	-0.68	4.09	7.22	21.38
Na2O	0.00	1.69	0.19	1.69	0.24	4.85	28.89	0.15	124.76
K2O	1.55	4.71	3.51	3.16	0.58	-0.60	4.05	3.46	16.63
MnO	0.04	0.12	0.09	0.08	0.01	-0.69	4.74	0.08	17.30
P2O5	0.09	0.19	0.16	0.10	0.02	-2.02	8.30	0.16	11.31
Total	94.65	102.64	97.71	7.99	1.45	0.33	22.17	97.70	1.49
As	14.00	25994.00	2249.15	25980.00	3964.40	3.91	22.49	570.42	176.26
Ba	179.00	5363.00	454.05	5184.00	672.30	6.65	48.37	360.75	148.07
Cl	0.00	121.00	35.74	121.00	23.04	1.19	4.78	28.39	64.48
Co	0.00	50.00	30.66	50.00	8.50	-0.43	4.85	28.59	27.73
Cr	106.00	191.00	139.57	85.00	15.86	0.61	3.86	138.71	11.36
Cu	15.00	96.00	35.49	81.00	13.64	1.61	7.77	33.28	38.44
Ga	6.00	24.00	17.51	18.00	3.47	-0.78	3.95	17.10	19.80
La	30.00	54.00	39.28	24.00	5.87	0.41	2.69	38.85	14.95
Ni	29.00	117.00	69.90	88.00	17.55	0.25	3.70	67.60	25.10
Nb	11.00	17.00	13.74	6.00	1.49	0.27	2.52	13.66	10.87
Pb	9.00	160.00	41.92	151.00	36.37	1.17	3.53	29.36	86.77
Rb	57.00	179.00	124.87	122.00	23.20	-0.31	3.32	122.53	18.58
Sr	72.00	297.00	154.64	225.00	39.39	0.73	4.91	149.74	25.47
Sb	9.00	156.00	59.33	147.00	30.84	0.91	3.46	51.59	51.98
S	8.00	12029.00	2867.13	12021.00	2895.02	1.31	4.25	1360.45	100.97
Th	0.00	55.00	9.49	55.00	6.50	5.68	40.97	8.47	68.43
V	85.00	163.00	118.20	78.00	17.08	0.19	2.77	116.98	14.45
Y	23.00	37.00	30.51	14.00	2.90	0.03	2.49	30.37	9.51
Zn	12.00	83.00	31.56	71.00	15.76	1.15	3.86	28.25	49.93
Zr	105.00	250.00	175.98	145.00	21.16	-0.06	5.87	174.67	12.03
Tl	0.00	6.00	0.43	6.00	1.07	3.10	14.02	1.14	251.45

n = 61

TABLE 2.115

XRF Analyses: Glendinning Mineralised Mudstone (MINM1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	53.81	65.10	57.60	11.29	2.69	0.95	4.20	57.54	4.68
Al2O3	15.90	22.90	19.71	7.00	1.74	-0.15	2.92	19.63	8.82
TiO2	0.68	1.02	0.89	0.34	0.08	-0.62	3.71	0.89	8.88
Fe2O3	4.36	7.76	5.77	3.40	0.90	0.77	2.95	5.70	15.53
MgO	1.11	5.49	3.42	4.38	0.99	-0.04	3.69	3.25	29.07
CaO	2.82	8.60	6.59	5.78	1.39	-1.13	4.04	6.41	21.03
Na2O	0.08	0.76	0.18	0.68	0.15	3.20	13.13	0.15	84.34
K2O	2.79	5.07	4.08	2.28	0.55	-0.65	3.33	4.04	13.39
MnO	0.06	0.12	0.09	0.06	0.01	0.22	3.20	0.09	16.11
P2O5	0.15	0.19	0.17	0.04	0.01	0.20	3.45	0.17	6.04
Total	96.15	100.92	98.48	4.77	1.39	0.05	28.60	98.47	1.41
As	27.00	2959.00	531.45	2932.00	678.15	2.44	9.27	267.94	127.60
Ba	271.00	1142.00	424.45	871.00	184.63	3.13	12.72	401.61	43.50
Cl	0.00	117.00	25.65	117.00	25.98	2.27	8.79	14.96	101.30
Co	19.00	60.00	30.70	41.00	8.44	2.05	8.42	29.81	27.50
Cr	124.00	179.00	147.75	55.00	12.64	0.43	3.91	147.24	8.56
Cu	14.00	103.00	38.35	89.00	19.78	1.84	6.93	34.58	51.57
Ga	13.00	23.00	19.35	10.00	2.91	-0.45	2.37	19.13	15.02
La	29.00	47.00	40.85	18.00	4.85	-0.79	2.92	40.55	11.87
Ni	40.00	118.00	84.70	78.00	18.42	-0.58	3.66	82.44	21.75
Nb	11.00	17.00	14.75	6.00	1.80	-0.61	2.50	14.64	12.22
Pb	8.00	135.00	42.85	127.00	39.91	1.01	2.65	28.10	93.14
Rb	95.00	184.00	142.25	89.00	21.70	-0.45	2.86	140.56	15.26
Sr	67.00	268.00	146.95	201.00	53.19	0.54	3.13	137.66	36.19
Sb	15.00	152.00	77.30	137.00	44.91	0.39	1.58	64.41	58.10
S	20.00	8333.00	1191.25	8313.00	1910.45	2.90	11.07	489.26	160.37
Th	6.00	37.00	11.50	31.00	6.27	3.55	15.21	10.65	54.52
V	90.00	153.00	131.45	63.00	13.56	-1.25	5.63	130.71	10.32
Y	25.00	36.00	30.65	11.00	2.87	0.05	2.37	30.52	9.37
Zn	15.00	100.00	36.95	85.00	25.21	1.59	4.16	31.33	68.22
Zr	145.00	202.00	168.15	57.00	16.05	0.67	2.75	167.45	9.55
Tl	0.00	5.00	0.70	5.00	1.42	1.91	5.54	1.25	202.56

n = 20

TABLE 2.116

XRF Analyses: Clontibret Mineralised Greywacke (MINE2)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	55.40	87.74	60.49	32.34	7.05	2.85	11.00	60.16	11.66
Al2O3	1.01	15.37	12.80	14.36	3.57	-2.29	7.36	11.60	27.87
TiO2	0.04	0.91	0.61	0.87	0.30	-1.17	2.62	0.46	48.55
Fe2O3	0.18	4.47	1.06	4.29	1.02	2.09	6.98	0.76	96.54
FeO	0.00	6.50	4.17	6.50	1.65	-0.98	3.36	3.80	39.60
MgO	1.35	5.92	3.93	4.57	1.29	-0.41	2.25	3.68	32.85
CaO	2.52	4.88	3.41	2.36	0.68	0.51	2.38	3.34	19.94
Na2O	0.00	3.73	1.78	3.73	1.29	-0.10	1.64	1.05	72.42
K2O	0.10	3.04	2.01	2.94	0.75	-0.55	3.01	1.76	37.08
MnO	0.05	0.13	0.09	0.08	0.02	0.25	2.62	0.09	22.23
P2O5	0.01	0.17	0.12	0.16	0.05	-1.35	3.29	0.10	39.91
LOI	0.00	3.14	1.43	3.14	0.96	0.18	2.10	1.05	67.16
CO2	0.83	10.15	6.55	9.32	2.36	-0.40	2.62	5.94	36.09
Total	89.08	100.40	98.69	11.32	2.92	-2.30	8.14	98.65	2.96
Au (ppm)	0.00	36.00	2.90	36.00	8.40	3.23	12.36	0.46	289.62
As	9.00	10187.00	926.94	10178.00	2378.67	3.06	11.63	88.63	256.62
Ba	24.00	635.00	436.70	611.00	141.41	-1.61	5.40	382.40	32.38
Bi	0.00	111.00	10.70	111.00	26.54	2.88	10.49	2.36	248.18
Co	4.00	42.00	17.65	38.00	7.14	1.36	7.32	16.25	40.44
Cr	30.00	371.00	191.00	341.00	62.65	0.15	5.80	176.91	32.80
Cu	12.00	43.00	24.87	31.00	7.69	0.34	2.91	23.69	30.94
Ni	11.00	145.00	107.22	134.00	31.00	-1.69	5.68	98.15	28.91
Nb	0.00	15.00	7.22	15.00	2.83	0.06	3.19	6.59	39.18
Pb	5.00	1322.00	117.35	1317.00	304.41	3.22	12.41	24.19	259.41
Rb	0.00	95.00	55.91	95.00	24.68	-0.70	3.19	41.11	44.15
Sb	14.00	61470.00	3373.00	61456.00	12984.01	4.17	19.07	139.20	384.94
Sn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sr	106.00	253.00	176.57	147.00	33.88	0.17	3.02	173.38	19.19
V	5.00	371.00	136.91	366.00	62.11	2.06	10.67	118.03	45.37
W	0.00	19.00	2.70	19.00	4.43	2.39	9.05	2.01	164.17
Y	1.00	85.00	15.43	84.00	15.53	4.13	19.16	12.28	100.63
Zn	14.00	1693.00	132.39	1679.00	346.06	4.25	19.66	51.78	261.39
Zr	11.00	176.00	121.61	165.00	38.58	-1.99	6.50	106.21	31.73

n = 23

TABLE 2.117

XRF Analyses: Clontibret Mineralised Greywacke (MINE3)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	54.13	59.75	57.69	5.62	1.58	-1.00	4.41	57.67	2.73
Al2O3	12.56	21.07	16.98	8.51	2.49	-0.08	2.44	16.81	14.68
TiO2	0.44	0.86	0.74	0.42	0.15	-1.19	2.88	0.72	20.16
Fe2O3	4.61	7.75	6.31	3.14	1.06	-0.22	2.18	6.22	16.81
MgO	2.87	7.02	4.87	4.15	1.13	0.19	3.00	4.74	23.28
CaO	1.87	9.97	4.63	8.10	2.55	1.03	2.97	4.09	55.08
Na2O	0.11	3.29	1.39	3.18	1.31	0.47	1.50	0.77	94.45
K2O	1.60	4.12	2.84	2.52	0.80	-0.11	2.12	2.73	28.23
MnO	0.07	0.28	0.14	0.21	0.06	1.27	3.97	0.13	42.61
P2O5	0.04	0.17	0.13	0.13	0.05	-0.91	2.24	0.11	40.31
Total	92.48	97.86	95.70	5.38	1.81	-0.79	5.49	95.68	1.89
As	15.00	11862.00	3288.30	11847.00	4853.98	1.09	2.46	485.68	147.61
Ba	347.00	662.00	540.70	315.00	106.07	-0.71	2.31	530.14	19.62
Cl	0.00	26.00	9.40	26.00	12.29	0.48	1.31	3.52	130.70
Co	24.00	33.00	28.00	9.00	3.40	0.38	1.49	27.82	12.14
Cr	187.00	305.00	253.50	118.00	37.99	-0.26	2.10	250.83	14.99
Cu	20.00	35.00	28.50	15.00	4.84	-0.22	2.02	28.11	16.97
Ga	14.00	18.00	15.60	4.00	1.35	0.49	2.02	15.55	8.65
La	16.00	33.00	24.50	17.00	5.04	0.14	2.46	24.02	20.57
Ni	78.00	139.00	117.60	61.00	20.67	-1.21	2.93	115.67	17.58
Nb	6.00	10.00	8.20	4.00	1.32	-0.69	2.42	8.10	16.06
Pb	5.00	622.00	131.20	617.00	232.43	1.52	3.42	32.68	177.16
Rb	41.00	96.00	65.20	55.00	19.63	0.17	1.60	62.51	30.11
Sr	130.00	457.00	214.90	327.00	110.25	1.31	3.35	195.35	51.30
Sb	42.00	10495.00	1765.80	10453.00	3516.92	1.86	4.91	288.18	199.17
S	77.00	10225.00	2484.00	10148.00	3591.08	1.36	3.30	752.22	144.57
Th	0.00	10.00	3.40	10.00	3.63	0.81	2.37	2.55	106.68
V	103.00	169.00	136.70	66.00	17.58	-0.08	3.23	135.65	12.86
Y	13.00	23.00	20.00	10.00	3.30	-1.11	2.99	19.72	16.50
Zn	29.00	2341.00	641.60	2312.00	940.69	0.97	2.08	168.88	146.62
Zr	89.00	146.00	129.60	57.00	19.71	-1.26	3.10	128.04	15.21
Tl	0.00	3.00	0.30	3.00	0.95	2.67	8.11	1.12	316.23

n = 10

XRF Analyses: Leadhills Mineralised Greywacke (MINE4)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	50.06	56.80	53.56	6.74	2.29	-0.03	1.57	53.51	4.27
Al2O3	16.42	21.95	19.11	5.53	1.26	-0.12	2.94	19.07	6.57
TiO2	0.93	1.40	1.13	0.47	0.14	0.49	1.99	1.13	12.22
Fe2O3	5.90	11.15	9.27	5.25	1.07	-1.06	4.85	9.20	11.51
MgO	3.20	7.12	5.61	3.92	1.01	-0.62	2.86	5.51	17.95
CaO	0.15	1.51	0.41	1.36	0.28	2.42	9.81	0.35	67.51
Na2O	0.37	3.63	1.35	3.26	0.99	0.99	2.66	1.05	73.28
K2O	0.48	4.51	2.32	4.03	0.98	0.42	2.82	2.10	42.36
MnO	0.04	0.33	0.14	0.29	0.05	1.83	9.08	0.13	36.37
P2O5	0.09	0.35	0.19	0.26	0.07	0.65	2.41	0.17	38.11
Total	88.48	97.84	93.09	9.36	2.50	0.14	0.00	93.06	2.68
As	0.00	26.00	7.36	26.00	5.81	1.43	5.33	5.61	78.93
Ba	324.00	1114.00	677.29	790.00	202.81	0.12	2.45	646.02	29.94
Cl	0.00	13.00	0.82	13.00	3.04	3.43	13.03	1.19	370.52
Co	18.00	44.00	30.11	26.00	7.83	0.41	2.06	29.15	26.00
Cr	184.00	283.00	233.14	99.00	26.08	0.14	2.30	231.74	11.19
Cu	16.00	105.00	51.54	89.00	19.73	0.39	3.64	47.44	38.28
Ga	0.00	29.00	17.71	29.00	9.22	-1.03	2.95	12.28	52.03
La	17.00	52.00	30.71	35.00	7.96	0.59	3.18	29.75	25.92
Ni	71.00	192.00	107.68	121.00	28.34	1.24	4.15	104.55	26.31
Nb	8.00	15.00	10.75	7.00	1.73	0.65	2.74	10.62	16.14
Pb	54.00	5448.00	1392.14	5394.00	1463.41	1.39	3.89	790.10	105.12
Rb	22.00	148.00	73.00	126.00	31.01	0.58	3.01	66.37	42.48
Sr	43.00	241.00	123.50	198.00	54.06	0.35	2.17	111.56	43.77
Sb	0.00	11.00	1.21	11.00	2.53	2.61	9.74	1.44	208.29
S	0.00	10019.00	391.82	10019.00	1888.46	4.99	25.94	4.54	481.97
Th	0.00	15.00	5.86	15.00	4.11	0.11	2.32	4.46	70.12
V	148.00	239.00	184.14	91.00	19.39	0.70	3.68	183.19	10.53
Y	18.00	35.00	25.18	17.00	4.10	0.24	2.55	24.86	16.29
Zn	308.00	1922.00	1102.43	1614.00	495.35	0.14	1.92	979.79	44.93
Zr	129.00	174.00	151.25	45.00	9.82	-0.14	3.22	150.94	6.49
Tl	0.00	1.00	0.04	1.00	0.19	5.00	26.04	1.00	529.15

n = 28

TABLE 2.119

XRF Analyses: Cairngarroch Mineralised Greywacke (MINE5)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	58.02	89.32	76.75	31.30	10.37	-0.88	3.07	76.10	13.52
Al2O3	1.22	17.68	5.43	16.46	6.10	1.65	3.97	3.71	112.49
TiO2	0.09	0.70	0.23	0.61	0.23	1.70	4.05	0.18	100.14
Fe2O3	1.04	4.55	3.08	3.51	1.23	-0.49	2.44	2.81	39.94
MgO	1.29	4.36	2.73	3.07	1.00	0.31	2.74	2.56	36.66
CaO	2.11	9.76	5.74	7.65	2.55	0.22	2.51	5.21	44.34
Na2O	0.00	2.64	0.46	2.64	1.07	1.79	4.20	0.11	232.19
K2O	0.52	2.86	1.26	2.34	0.83	1.40	3.58	1.09	65.59
MnO	0.02	0.08	0.05	0.06	0.02	-0.77	2.99	0.05	35.91
P2O5	0.03	0.19	0.07	0.16	0.06	1.67	4.00	0.06	85.24
Total	93.85	96.99	95.80	3.14	1.20	-0.47	-21.89	95.79	1.26
As	12.00	2764.00	994.83	2752.00	1106.64	0.70	1.97	286.99	111.24
Ba	83.00	1239.00	387.67	1156.00	452.38	1.28	3.15	228.08	116.69
Co	3.00	10.00	5.00	7.00	2.68	1.22	3.06	4.53	53.67
Cr	33.00	63.00	47.33	30.00	12.50	0.18	1.38	45.96	26.41
Cu	7.00	515.00	151.50	508.00	200.01	1.14	2.78	57.45	132.02
Ga	3.00	18.00	6.83	15.00	5.56	1.65	3.97	5.65	81.44
La	6.00	29.00	11.17	23.00	9.02	1.57	3.74	9.22	80.78
Ni	2.00	19.00	10.33	17.00	6.68	0.06	1.50	8.07	64.68
Nb	2.00	12.00	5.17	10.00	3.49	1.46	3.71	4.44	67.51
Pb	9.00	211.00	55.83	202.00	78.15	1.59	3.80	29.57	139.98
Rb	15.00	73.00	33.50	58.00	20.32	1.41	3.61	29.62	60.64
Sr	98.00	282.00	214.67	184.00	64.52	-0.96	2.92	203.94	30.06
Sb	10.00	249.00	83.00	239.00	93.82	0.98	2.58	43.08	113.04
S	515.00	6556.00	3139.83	6041.00	2185.85	0.28	2.14	2324.77	69.62
Th	0.00	26.00	7.50	26.00	10.43	1.08	2.55	3.37	139.01
V	9.00	99.00	29.83	90.00	34.31	1.69	4.03	20.51	115.01
Y	6.00	21.00	10.33	15.00	5.47	1.45	3.62	9.44	52.89
Zn	0.00	40.00	14.00	40.00	14.85	0.81	2.64	6.98	106.04
Zr	25.00	181.00	60.33	156.00	59.90	1.68	4.02	45.85	99.29

n = 6

TABLE 2.120

XRF Analyses: Tongerhie Mineralised Greywacke (MINE6)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	53.51	58.41	56.34	4.90	2.16	-0.47	1.96	56.31	3.84
Al2O3	8.20	15.85	12.91	7.65	3.62	-0.48	1.62	12.49	28.04
TiO2	0.37	0.81	0.64	0.44	0.21	-0.37	1.47	0.61	33.53
Fe2O3	3.93	4.91	4.32	0.98	0.41	0.74	2.14	4.31	9.59
MgO	3.44	7.45	4.91	4.01	1.90	0.58	1.74	4.66	38.62
CaO	8.74	20.33	13.24	11.59	5.29	0.58	1.76	12.51	39.93
Na2O	0.28	0.72	0.50	0.44	0.19	0.07	1.67	0.47	38.10
K2O	1.80	3.51	2.57	1.71	0.75	0.32	1.65	2.48	29.18
MnO	0.10	0.28	0.17	0.18	0.08	0.74	1.96	0.15	48.10
P2O5	0.10	0.17	0.14	0.07	0.03	-0.66	1.90	0.14	21.72
Total	95.18	96.54	95.74	1.36	0.59	-0.93	700.76	95.73	0.62
As	16.00	196.00	69.25	180.00	85.80	1.06	2.25	40.00	123.89
Ba	116.00	237.00	192.25	121.00	54.24	-0.78	1.99	185.43	28.21
Co	11.00	19.00	15.25	8.00	3.50	-0.19	1.59	14.93	22.95
Cr	65.00	144.00	107.75	79.00	36.72	-0.17	1.35	102.69	34.08
Cu	0.00	31.00	15.00	31.00	12.68	0.14	2.00	8.98	84.50
Ga	8.00	23.00	14.00	15.00	6.38	0.75	2.12	13.02	45.55
La	24.00	32.00	27.50	8.00	3.42	0.43	1.84	27.34	12.42
Ni	17.00	34.00	27.00	17.00	7.26	-0.63	2.00	26.16	26.88
Nb	9.00	13.00	11.50	4.00	1.73	-0.89	2.19	11.39	15.06
Pb	6.00	10.00	8.25	4.00	1.71	-0.43	1.85	8.11	20.70
Rb	39.00	84.00	61.75	45.00	18.82	-0.04	1.82	59.47	30.48
Sr	119.00	202.00	149.00	83.00	37.59	0.80	2.00	145.75	25.23
Sb	3.00	19.00	8.75	16.00	7.14	0.88	2.11	6.91	81.55
S	70.00	691.00	295.00	621.00	281.29	0.79	1.99	204.61	95.35
Th	4.00	10.00	6.25	6.00	2.63	0.83	2.10	5.89	42.08
V	49.00	94.00	74.50	45.00	18.91	-0.51	1.98	72.49	25.39
Y	22.00	28.00	25.25	6.00	2.75	-0.19	1.40	25.14	10.91
Zn	11.00	31.00	20.50	20.00	8.35	0.19	1.86	19.17	40.72
Zr	79.00	212.00	151.50	133.00	59.16	-0.25	1.54	141.67	39.05

n = 4

TABLE 2.121

XRF Analyses: Miscellaneous Mineralisation (MINE7)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	56.40	80.51	65.38	24.11	8.26	1.04	3.05	64.97	12.64
Al2O3	0.11	26.41	15.10	26.30	9.43	-0.39	2.18	7.38	62.40
TiO2	0.08	0.82	0.51	0.74	0.28	-0.26	2.14	0.41	53.96
Fe2O3	2.74	14.13	6.29	11.39	4.38	1.00	2.69	5.24	69.59
MgO	0.00	2.48	1.36	2.48	1.02	-0.12	1.39	1.33	75.26
CaO	0.04	3.54	0.86	3.50	1.37	1.50	3.57	0.28	160.04
Na2O	0.00	7.02	1.19	7.02	2.86	1.79	4.20	0.47	240.83
K2O	0.36	5.36	2.70	5.00	2.24	0.11	1.28	1.70	82.90
MnO	0.00	0.12	0.03	0.12	0.05	1.38	3.37	0.21	156.35
P2O5	0.02	0.17	0.09	0.15	0.05	0.00	2.10	0.08	55.20
Total	78.11	98.80	93.52	20.69	7.71	-1.62	3.88	93.23	8.25
As	10.00	108510.00	20783.00	108500.00	43062.04	1.77	4.17	1720.08	207.20
Ba	51.00	612.00	325.67	561.00	221.34	0.27	1.64	247.89	67.96
Co	6.00	91.00	46.33	85.00	31.73	0.11	1.81	33.74	68.49
Cr	27.00	261.00	82.50	234.00	93.70	1.37	3.26	53.65	113.58
Cu	33.00	13443.00	2407.17	13410.00	5412.49	1.78	4.18	209.44	224.85
Ga	0.00	23.00	13.50	23.00	8.41	-0.37	2.24	9.77	62.28
La	0.00	41.00	18.67	41.00	14.11	0.28	2.33	11.99	75.58
Ni	5.00	2736.00	476.00	2731.00	1107.41	1.79	4.20	34.10	232.65
Nb	3.00	11.00	8.17	8.00	2.79	-1.10	3.14	7.58	34.12
Pb	12.00	94792.00	16306.00	94780.00	38467.64	1.79	4.19	199.93	235.91
Rb	14.00	148.00	98.00	134.00	53.78	-0.58	1.84	77.05	54.88
Sr	0.00	406.00	88.83	406.00	158.05	1.66	3.95	21.90	177.91
Sb	8.00	206.00	129.00	198.00	93.31	-0.55	1.46	73.07	72.34
S	158.00	35820.00	16886.17	35662.00	13435.93	0.33	1.78	7993.35	79.57
Th	0.00	101.00	19.83	101.00	39.85	1.77	4.17	5.44	200.93
V	24.00	203.00	95.00	179.00	71.94	0.35	1.73	69.64	75.73
Y	0.00	24.00	12.17	24.00	10.61	-0.12	1.46	6.71	87.20
Zn	34.00	6116.00	1103.33	6082.00	2457.62	1.78	4.19	143.95	222.75
Zr	29.00	215.00	115.00	186.00	62.93	0.27	2.41	97.64	54.72

n = 6

TABLE 2.122

XRF Analyses: Glendinning Regional Mudstone (MUD1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	47.36	66.01	58.02	18.65	2.59	-0.04	4.89	57.96	4.46
Al2O3	11.68	21.86	18.40	10.18	1.53	-0.98	4.88	18.33	8.32
TiO2	0.58	1.23	1.05	0.65	0.10	-1.37	6.26	1.04	9.66
Fe2O3	4.37	10.50	8.41	6.13	1.19	-0.79	3.52	8.32	14.11
MgO	1.06	6.89	5.34	5.83	0.97	-1.83	7.39	5.21	18.16
CaO	0.00	22.88	2.27	22.88	2.95	2.90	16.56	0.96	129.94
Na2O	0.00	2.08	1.01	2.08	0.34	-0.26	3.91	0.94	33.27
K2O	2.01	4.87	3.62	2.86	0.56	-0.46	3.22	3.57	15.57
MnO	0.03	0.39	0.09	0.36	0.04	4.12	30.56	0.08	41.07
P2O5	0.10	0.25	0.18	0.15	0.02	-0.19	4.77	0.18	11.07
Total	89.13	101.74	98.39	12.61	1.66	-1.72	-12.65	98.38	1.69
As	0.00	145.00	8.32	145.00	13.81	6.36	56.58	4.84	165.96
Ba	212.00	1076.00	410.60	864.00	92.92	2.77	18.20	402.15	22.63
Cl	0.00	74.00	5.10	74.00	11.17	3.43	17.90	2.13	219.08
Co	13.00	76.00	29.30	63.00	6.08	2.62	20.10	28.77	20.75
Cr	100.00	188.00	153.35	88.00	14.37	-0.37	3.44	152.65	9.37
Cu	5.00	109.00	40.01	104.00	17.91	0.64	4.60	35.26	44.76
Ga	7.00	36.00	20.55	29.00	3.29	-0.08	6.30	20.26	16.00
La	28.00	56.00	39.83	28.00	5.59	0.32	2.79	39.44	14.03
Ni	0.00	222.00	96.52	222.00	20.44	0.42	11.20	92.96	21.18
Nb	10.00	23.00	17.13	13.00	1.60	-0.85	6.26	17.05	9.32
Pb	5.00	209.00	17.57	204.00	19.29	6.23	54.59	14.22	109.75
Rb	64.00	182.00	131.72	118.00	24.49	-0.45	3.06	129.19	18.60
Sr	20.00	278.00	60.01	258.00	32.76	2.45	13.02	53.77	54.60
Sb	0.00	25.00	1.31	25.00	3.35	4.03	22.32	1.40	255.82
S	0.00	592.00	34.86	592.00	71.42	5.79	40.79	15.00	204.90
Th	0.00	30.00	10.95	30.00	4.68	0.02	3.59	9.62	42.74
V	96.00	185.00	143.44	89.00	17.55	-0.26	2.84	142.33	12.23
Y	21.00	57.00	34.04	36.00	5.54	1.51	6.57	33.63	16.28
Zn	18.00	718.00	104.53	700.00	48.24	10.46	134.34	99.94	46.15
Zr	99.00	262.00	184.60	163.00	24.52	0.83	4.83	183.04	13.29
Tl	0.00	7.00	0.46	7.00	1.10	2.87	12.59	1.16	239.04

n = 197

TABLE 2.123

XRF Analyses: BGS Pan Concentrates - Glendinning Extension.

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
Sb	11.00	43.00	19.23	32.00	9.19	1.23	3.32	17.52	47.79
Sn	0.00	37.00	5.63	37.00	8.12	2.14	7.33	3.10	144.18
Pb	8.00	774.00	73.92	766.00	132.86	4.03	19.43	41.25	179.73
Zn	53.00	1137.00	147.54	1084.00	159.31	4.94	30.26	118.14	107.98
Cu	0.00	330.00	60.19	330.00	74.87	2.30	8.07	27.70	124.39
Ni	22.00	93.00	49.33	71.00	16.54	0.78	3.06	46.79	33.54
Fe	3.70	28.80	12.23	25.10	6.42	0.74	2.69	10.68	52.48

n = 52

TABLE 2.124

ICP Analyses: S.Uplands REE (Chondrite Normalised) (NORM1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	25.53	132.71	70.79	107.18	18.86	0.52	3.43	68.29	26.64
Ce	23.68	117.19	58.82	93.51	16.04	0.85	3.95	56.76	27.28
Pr	15.67	76.80	47.21	61.13	10.05	-0.07	3.52	46.04	21.29
Nd	14.19	57.30	35.85	43.11	7.08	0.09	3.52	35.11	19.75
Sm	8.03	33.14	21.85	25.11	3.78	0.12	3.75	21.51	17.28
Eu	5.48	33.93	14.93	28.45	2.80	1.42	12.27	14.68	18.74
Gd	5.14	29.25	14.55	24.11	2.88	0.55	5.99	14.25	19.82
Dy	3.11	16.33	10.12	13.22	1.75	0.27	4.36	9.97	17.25
Ho	2.69	13.40	9.27	10.71	1.61	-0.10	3.56	9.11	17.36
Er	0.21	13.22	8.44	13.01	1.69	-0.77	6.66	8.16	20.05
Yb	2.42	14.31	8.73	11.89	1.48	0.11	5.22	8.60	16.90
Lu	3.01	15.34	8.78	12.33	1.61	0.74	5.17	8.63	18.36

n = 226

TABLE 2.125

TABLE 2.126

ICP Analyses: S.Uplands REE (NASC Normalised) (NORM2)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	0.26	4.57	0.74	4.31	0.32	7.67	91.95	0.71	43.02
Ce	0.28	4.72	0.71	4.44	0.33	8.24	100.24	0.68	45.78
Pr	0.24	3.55	0.75	3.31	0.24	6.68	78.75	0.72	32.55
Nd	0.27	3.54	0.70	3.27	0.23	8.07	99.90	0.68	33.32
Sm	0.29	3.89	0.79	3.60	0.25	8.80	111.83	0.77	31.03
Eu	0.34	4.44	0.94	4.10	0.29	7.99	95.17	0.92	30.72
Gd	0.27	3.61	0.78	3.34	0.24	7.12	83.46	0.76	30.82
Dy	0.18	2.27	0.60	2.09	0.15	5.93	66.23	0.59	25.02
Ho	0.20	2.36	0.70	2.16	0.16	4.52	48.32	0.69	23.22
Er	0.01	2.00	0.56	1.99	0.15	3.69	42.70	0.54	25.99
Yb	0.17	2.10	0.63	1.93	0.14	4.80	51.29	0.61	22.88
Lu	0.21	2.21	0.63	2.00	0.16	4.90	49.25	0.61	24.84

n = 228

ICP Analyses: Glendinning REE (Chondrite Normalised) (NORM4)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	61.46	89.54	74.08	28.08	9.97	0.42	1.87	73.50	13.45
Ce	47.28	65.46	55.44	18.18	6.96	0.22	1.55	55.06	12.55
Pr	42.87	59.38	49.52	16.51	6.42	0.48	1.77	49.16	12.96
Nd	32.91	46.22	37.70	13.31	5.06	0.57	1.76	37.41	13.41
Sm	20.60	28.45	23.22	7.85	2.89	0.79	2.13	23.06	12.46
Eu	11.12	16.06	13.49	4.94	1.63	0.36	1.95	13.40	12.11
Gd	13.27	19.09	15.53	5.82	2.07	0.86	2.33	15.41	13.35
Dy	9.87	14.01	11.31	4.14	1.39	0.99	2.73	11.24	12.33
Ho	8.21	12.03	9.79	3.82	1.28	0.65	2.25	9.72	13.06
Er	8.32	11.68	9.52	3.36	1.20	1.01	2.53	9.46	12.57
Yb	8.64	11.27	9.42	2.63	0.99	1.11	2.62	9.38	10.53
Lu	8.42	11.06	9.40	2.64	0.97	0.71	1.96	9.35	10.32

n = 10

TABLE 2.127

ICP Analyses: Glendinning REE (NASC Normalised) (NORM5)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	0.63	0.92	0.76	0.29	0.10	0.43	1.92	0.75	13.39
Ce	0.56	0.78	0.66	0.22	0.08	0.22	1.54	0.65	12.57
Pr	0.67	0.92	0.77	0.25	0.10	0.46	1.73	0.77	12.85
Nd	0.63	0.88	0.72	0.25	0.10	0.55	1.72	0.72	13.31
Sm	0.73	1.01	0.83	0.28	0.10	0.75	2.08	0.82	12.58
Eu	0.69	1.00	0.84	0.31	0.10	0.41	1.99	0.83	12.20
Gd	0.70	1.01	0.82	0.31	0.11	0.85	2.34	0.82	13.41
Dy	0.58	0.83	0.67	0.25	0.08	1.00	2.80	0.66	12.47
Ho	0.62	0.90	0.73	0.28	0.10	0.64	2.21	0.73	13.09
Er	0.55	0.77	0.63	0.22	0.08	0.98	2.54	0.62	12.42
Yb	0.61	0.80	0.67	0.19	0.07	1.08	2.57	0.67	10.70
Lu	0.60	0.77	0.67	0.17	0.07	0.57	1.84	0.66	10.07

n = 10

TABLE 2.128

TABLE 2.129

ICP Analyses: Glendining Mineralisation REE (Chondrite Norm) (NORM7)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	51.48	132.53	86.22	81.05	20.37	0.43	3.21	83.98	23.62
Ce	47.20	117.19	70.25	69.99	21.20	0.87	2.66	67.56	30.18
Pr	33.62	71.86	53.50	38.24	9.44	-0.21	3.08	52.67	17.64
Nd	27.20	50.64	39.85	23.44	6.30	-0.32	2.48	39.35	15.81
Sm	18.05	28.85	24.27	10.80	3.30	-0.38	2.20	24.05	13.60
Eu	10.33	33.93	15.69	23.60	5.53	2.51	9.20	15.06	35.23
Gd	10.50	21.13	16.36	10.63	2.92	-0.31	2.55	16.09	17.86
Dy	6.99	13.71	11.26	6.72	1.68	-1.01	3.94	11.12	14.90
Ho	6.23	11.73	9.78	5.50	1.39	-1.12	4.01	9.67	14.24
Er	6.16	11.89	9.62	5.73	1.45	-0.91	3.38	9.51	15.02
Yb	7.25	11.54	9.97	4.29	1.21	-1.02	3.09	9.90	12.09
Lu	7.83	12.43	10.20	4.60	1.44	-0.22	2.30	10.10	14.08

n = 15

TABLE 2.130

ICP Analyses: Glendinning Mineralisation REE (NASC Norms) (NORM8)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	0.53	1.36	0.88	0.83	0.21	0.44	3.21	0.86	23.67
Ce	0.56	1.39	0.83	0.83	0.25	0.87	2.66	0.80	30.12
Pr	0.52	1.12	0.83	0.60	0.15	-0.22	3.10	0.82	17.78
Nd	0.52	0.97	0.76	0.45	0.12	-0.31	2.50	0.75	15.78
Sm	0.64	1.03	0.86	0.39	0.12	-0.39	2.24	0.86	13.59
Eu	0.65	2.10	0.97	1.45	0.34	2.50	9.12	0.94	35.08
Gd	0.56	1.12	0.87	0.56	0.15	-0.31	2.58	0.86	17.66
Dy	0.41	0.81	0.66	0.40	0.10	-1.00	3.91	0.66	15.06
Ho	0.47	0.88	0.73	0.41	0.10	-1.05	3.86	0.73	14.31
Er	0.41	0.79	0.64	0.38	0.10	-0.87	3.27	0.63	15.14
Yb	0.52	0.82	0.71	0.30	0.08	-0.97	2.97	0.70	12.00
Lu	0.56	0.87	0.72	0.31	0.10	-0.28	2.32	0.71	13.62

n = 15

TABLE 2.131

ICP Analyses: Tweedsmuir REE (Chondrite Norm) (NORM10)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	51.80	64.94	59.14	13.14	3.73	-0.27	2.07	59.02	6.30
Ce	48.33	55.11	52.41	6.78	2.07	-0.61	2.16	52.37	3.95
Pr	45.00	58.92	50.89	13.92	3.30	1.04	4.??	50.79	6.48
Nd	34.75	39.48	37.36	4.73	1.38	-0.26	1.84	37.34	3.69
Sm	20.67	23.96	22.64	3.29	0.89	-0.26	2.22	22.62	3.93
Eu	14.75	17.19	16.14	2.44	0.69	-0.43	2.47	16.12	4.30
Gd	5.14	15.19	13.44	10.05	2.61	-2.30	7.24	13.07	19.44
Dy	9.25	10.39	9.74	1.14	0.38	0.30	2.25	9.73	3.92
Ho	8.35	12.47	10.51	4.12	1.03	0.08	2.73	10.46	9.78
Er	0.21	8.87	7.37	8.66	2.43	-2.23	6.62	6.10	33.00
Yb	7.68	9.34	8.36	1.66	0.38	0.45	3.43	8.35	4.58
Lu	7.51	8.64	7.90	1.13	0.32	0.90	3.23	7.90	4.04

n = 20

ICP Analyses: Tweedsmuir REE Study (NASC Norm) (NORM11)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	0.53	0.67	0.61	0.14	0.04	-0.20	2.03	0.60	6.50
Ce	0.57	0.65	0.62	0.08	0.02	-0.59	2.13	0.62	3.89
Pr	0.70	0.92	0.79	0.22	0.05	1.05	4.20	0.79	6.56
Nd	0.66	0.75	0.71	0.09	0.03	-0.21	1.86	0.71	3.86
Sm	0.74	0.85	0.81	0.11	0.03	-0.24	2.24	0.81	3.86
Eu	0.92	1.06	1.00	0.14	0.04	-0.53	2.36	1.00	4.12
Gd	0.27	0.81	0.71	0.54	0.14	-2.31	7.26	0.69	19.57
Dy	0.54	0.61	0.57	0.07	0.02	0.35	2.74	0.57	3.81
Ho	0.62	0.93	0.79	0.31	0.08	-0.02	2.73	0.78	9.83
Er	0.01	0.59	0.49	0.58	0.16	-2.23	6.63	0.40	33.30
Yb	0.55	0.66	0.59	0.11	0.03	0.50	4.01	0.59	4.41
Lu	0.52	0.60	0.56	0.08	0.02	0.64	2.63	0.56	3.97

n = 20

TABLE 2.132

ICP Analyses: S.Uplands Regional Greywacke REE Study (REES)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	8.37	43.53	23.21	35.16	6.17	0.53	3.44	22.39	26.61
Ce	20.48	98.37	50.84	77.89	13.80	0.83	3.86	49.08	27.15
Pr	1.93	9.45	5.81	7.52	1.23	-0.07	3.53	5.66	21.24
Nd	8.94	36.10	22.59	27.16	4.45	0.09	3.54	22.13	19.71
Sm	1.63	6.73	4.44	5.10	0.77	0.12	3.77	4.37	17.24
Eu	0.42	2.61	1.15	2.19	0.22	1.39	12.22	1.13	18.70
Gd	1.42	8.07	4.01	6.65	0.79	0.55	6.01	3.93	19.78
Tb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dy	1.07	5.60	3.47	4.53	0.60	0.28	4.36	3.42	17.21
Ho	0.21	1.04	0.72	0.83	0.13	-0.11	3.56	0.71	17.30
Er	0.05	2.97	1.90	2.92	0.38	-0.77	6.68	1.84	20.01
Tm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yb	0.53	3.15	1.92	2.62	0.32	0.11	5.26	1.89	16.88
Lu	0.10	0.52	0.30	0.42	0.05	0.74	5.20	0.29	18.45

n = 227

TABLE 2.133

ICP Analyses: Glendinning Greywacke REE Study (REEG)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	20.16	29.37	24.30	9.21	3.27	0.42	1.87	24.11	13.46
Ce	40.89	56.62	47.96	15.73	6.02	0.22	1.54	47.62	12.55
Pr	5.27	7.30	6.09	2.03	0.79	0.48	1.77	6.05	12.95
Nd	20.73	29.12	23.75	8.39	3.19	0.57	1.76	23.57	13.42
Sm	4.18	5.78	4.71	1.60	0.59	0.79	2.14	4.68	12.48
Eu	0.86	1.24	1.04	0.38	0.13	0.41	1.97	1.03	12.06
Gd	3.66	5.27	4.29	1.61	0.57	0.86	2.33	4.25	13.35
Tb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dy	3.38	4.81	3.88	1.43	0.48	0.99	2.72	3.85	12.42
Ho	0.64	0.94	0.76	0.30	0.10	0.64	2.26	0.76	13.21
Er	1.87	2.63	2.14	0.76	0.27	1.01	2.55	2.13	12.61
Tm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yb	1.90	2.48	2.07	0.58	0.22	1.11	2.62	2.06	10.55
Lu	0.29	0.37	0.32	0.08	0.03	0.67	1.89	0.32	9.99

n = 10

TABLE 2.134

ICP Analyses: Glendinning Mineralisation REE Study (REEM)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	16.89	43.47	28.28	26.58	6.68	0.43	3.20	27.55	23.62
Ce	40.83	97.37	60.50	56.54	17.72	0.78	2.38	58.29	29.29
Pr	4.14	8.84	6.58	4.70	1.16	-0.20	3.08	6.48	17.65
Nd	17.14	31.90	25.10	14.76	3.97	-0.32	2.48	24.79	15.81
Sm	3.66	5.86	4.93	2.20	0.67	-0.38	2.21	4.88	13.60
Eu	0.80	2.61	1.21	1.81	0.43	2.50	9.16	1.16	35.19
Gd	2.90	5.83	4.51	2.93	0.81	-0.31	2.55	4.44	17.86
Tb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dy	2.40	4.70	3.86	2.30	0.57	-1.02	3.95	3.82	14.87
Ho	0.49	0.91	0.76	0.42	0.11	-1.10	3.93	0.75	14.14
Er	1.39	2.67	2.17	1.28	0.32	-0.92	3.37	2.14	14.96
Tm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yb	1.60	2.54	2.19	0.94	0.26	-1.01	3.07	2.18	12.06
Lu	0.27	0.42	0.35	0.15	0.05	-0.20	2.29	0.34	13.69

n = 15

TABLE 2.135

ICP Analyses: Tweedsmuir Interformational REE Study (REET)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	16.99	21.30	19.40	4.31	1.22	-0.27	2.06	19.36	6.30
Ce	41.81	47.67	45.34	5.86	1.79	-0.62	2.35	45.30	3.96
Pr	5.53	7.25	6.26	1.72	0.41	1.03	4.28	6.25	6.51
Nd	21.89	24.87	23.54	2.98	0.87	-0.27	1.83	23.52	3.69
Sm	4.20	4.86	4.59	0.66	0.18	-0.26	1.98	4.59	3.89
Eu	1.14	1.32	1.24	0.18	0.05	-0.45	2.18	1.24	4.21
Gd	1.42	4.19	3.71	2.77	0.72	-2.30	7.23	3.61	19.44
Tb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dy	3.17	3.56	3.34	0.39	0.13	0.30	1.69	3.34	3.87
Ho	0.65	0.97	0.82	0.32	0.08	0.08	2.73	0.82	9.76
Er	0.05	2.00	1.66	1.95	0.55	-2.23	6.61	1.38	33.02
Tm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yb	1.69	2.05	1.84	0.36	0.08	0.41	3.31	1.84	4.54
Lu	0.25	0.29	0.27	0.04	0.01	0.64	2.35	0.27	4.12

n = 20

TABLE 2.136

ICP Analyses: Marchburn Formation REE Study (REE1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	9.67	36.62	20.95	26.95	5.77	0.66	3.75	20.21	27.53
Ce	23.83	87.66	46.28	63.83	13.92	1.11	4.53	44.47	30.09
Pr	2.58	7.19	5.25	4.61	1.11	-0.75	3.10	5.11	21.17
Nd	9.92	31.39	21.26	21.47	4.67	-0.23	3.21	20.72	21.95
Sm	2.57	6.26	4.41	3.69	0.75	0.14	4.17	4.35	17.01
Eu	0.85	1.72	1.28	0.87	0.19	0.43	3.99	1.27	14.81
Gd	2.92	6.04	4.29	3.12	0.68	0.82	3.99	4.24	15.77
Tb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dy	2.93	5.60	3.90	2.67	0.62	0.80	3.35	3.86	15.99
Ho	0.56	1.04	0.80	0.48	0.13	0.08	2.07	0.79	16.22
Er	1.57	2.61	2.13	1.04	0.28	-0.01	2.13	2.11	13.01
Tm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yb	1.67	2.63	2.11	0.96	0.28	0.48	2.24	2.09	13.11
Lu	0.26	0.42	0.33	0.16	0.04	0.36	2.30	0.32	12.90

n = 24

TABLE 2.137

TABLE 2.138

ICP Analyses: Afton Formation REE Study (REE3)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	15.56	43.53	27.60	27.97	6.33	0.40	3.14	26.90	22.92
Ce	34.46	98.10	61.16	63.64	15.89	0.55	2.64	59.25	25.98
Pr	4.51	9.45	7.05	4.94	1.31	0.02	2.21	6.93	18.58
Nd	16.29	36.10	26.97	19.81	5.22	-0.12	2.22	26.46	19.36
Sm	3.09	6.73	5.07	3.64	0.96	-0.14	2.26	4.98	18.89
Eu	0.75	1.85	1.22	1.10	0.25	0.33	3.38	1.19	20.60
Gd	2.55	5.50	4.41	2.95	0.79	-0.73	2.69	4.33	17.95
Tb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dy	2.26	4.72	3.70	2.46	0.60	-0.62	2.85	3.65	16.15
Ho	0.47	0.93	0.74	0.46	0.12	-0.35	2.42	0.73	16.39
Er	1.26	2.49	2.03	1.23	0.34	-0.87	2.94	2.00	16.60
Tm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yb	1.38	2.62	1.95	1.24	0.28	0.11	3.13	1.93	14.17
Lu	0.20	0.38	0.30	0.18	0.04	-0.16	2.87	0.30	14.14

n = 24

ICP Analyses: Blackcraig Formation REE Study (REE5)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	12.31	28.12	18.36	15.81	6.46	0.51	1.76	17.47	35.16
Ce	29.55	60.34	40.68	30.79	12.85	0.52	1.73	39.08	31.60
Pr	2.70	7.45	4.70	4.75	1.71	0.61	2.16	4.45	36.41
Nd	14.10	28.02	18.79	13.92	4.82	1.30	3.47	18.35	25.62
Sm	3.53	5.22	4.21	1.69	0.62	0.59	2.14	4.17	14.81
Eu	1.14	1.56	1.28	0.42	0.16	0.92	2.49	1.27	12.45
Gd	3.85	8.07	4.88	4.22	1.59	1.68	4.01	4.71	32.55
Tb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dy	3.91	4.63	4.22	0.72	0.32	0.34	1.47	4.21	7.49
Ho	0.81	0.92	0.88	0.11	0.04	-0.69	2.25	0.88	4.63
Er	2.20	2.94	2.45	0.74	0.28	0.84	2.49	2.44	11.49
Tm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yb	2.09	2.88	2.49	0.79	0.31	0.07	1.52	2.47	12.48
Lu	0.30	0.50	0.40	0.20	0.08	0.11	1.45	0.39	20.17

n = 6

TABLE 2.139

ICP Analyses: Scar Formation REE Study (REE7)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	12.02	37.77	20.11	25.75	5.76	0.89	3.77	19.37	28.63
Ce	26.99	77.26	43.61	50.27	10.91	0.81	3.86	42.36	25.01
Pr	3.22	5.97	4.69	2.75	0.74	0.31	2.28	4.64	15.69
Nd	14.59	26.90	18.78	12.31	2.61	1.05	4.14	18.62	13.89
Sm	3.13	4.77	3.77	1.64	0.39	0.54	2.81	3.75	10.28
Eu	0.85	1.46	1.09	0.61	0.13	0.63	3.82	1.08	11.55
Gd	2.96	4.96	3.45	2.00	0.39	1.72	7.26	3.43	11.36
Tb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dy	2.06	3.35	2.93	1.29	0.24	-1.02	5.66	2.92	8.33
Ho	0.49	0.78	0.65	0.29	0.07	0.02	2.60	0.64	10.27
Er	1.07	1.91	1.61	0.84	0.14	-1.24	7.03	1.60	8.99
Tm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yb	1.40	1.89	1.68	0.49	0.12	-0.36	2.76	1.67	7.35
Lu	0.21	0.33	0.26	0.12	0.03	0.33	3.00	0.26	10.27

n = 36

TABLE 2.140

ICP Analyses: Shinnel Formation REE Study (REE9)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	16.75	33.25	24.19	16.50	4.77	0.28	2.06	23.74	19.73
Ce	34.09	73.28	52.24	39.19	11.82	0.40	1.99	51.00	22.63
Pr	4.22	7.39	5.81	3.17	0.79	0.11	2.87	5.76	13.52
Nd	15.60	28.76	22.01	13.16	2.82	-0.02	3.77	21.83	12.80
Sm	2.98	5.55	4.23	2.57	0.56	0.14	3.59	4.20	13.31
Eu	0.67	1.36	1.02	0.69	0.15	-0.14	3.52	1.01	14.80
Gd	2.46	6.03	3.82	3.57	0.76	0.91	4.74	3.75	19.96
Tb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dy	2.12	4.46	3.25	2.34	0.51	-0.09	3.87	3.21	15.65
Ho	0.42	0.85	0.65	0.43	0.10	-0.53	3.40	0.64	15.77
Er	1.12	2.42	1.80	1.30	0.29	-0.49	3.77	1.78	16.12
Tm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yb	1.02	2.36	1.81	1.34	0.33	-0.55	3.38	1.78	18.35
Lu	0.18	0.40	0.29	0.22	0.05	0.27	3.44	0.28	19.00

n = 21

TABLE 2.141

TABLE 2.142

ICP Analyses: Pyroxenous Formation REE Study (REE11)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	13.26	30.62	22.82	17.36	4.52	-0.20	2.38	22.36	19.80
Ce	31.48	67.41	50.30	35.93	10.28	0.00	2.03	49.26	20.43
Pr	3.66	7.29	5.83	3.63	0.81	-0.87	3.80	5.77	13.88
Nd	16.54	28.43	22.88	11.89	2.60	-0.36	3.84	22.73	11.35
Sm	3.28	5.73	4.44	2.45	0.51	-0.25	4.30	4.41	11.45
Eu	0.88	1.36	1.18	0.48	0.12	-0.72	3.46	1.17	10.54
Gd	3.08	5.36	4.08	2.28	0.54	0.71	3.69	4.05	13.34
Tb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dy	2.71	4.15	3.37	1.44	0.32	0.11	3.22	3.35	9.51
Ho	0.49	0.92	0.71	0.43	0.11	0.22	2.46	0.70	15.75
Er	1.41	2.07	1.85	0.66	0.17	-1.16	3.83	1.84	9.31
Tm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yb	1.59	2.24	1.87	0.65	0.15	0.33	3.12	1.86	8.02
Lu	0.17	0.34	0.28	0.17	0.04	-1.14	4.08	0.27	14.83

n = 25

ICP Analyses: Intermediate Formation REE Study (REE13)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	14.28	38.62	26.06	24.34	5.71	0.42	3.20	25.46	21.91
Ce	30.84	84.28	57.75	53.44	12.79	0.22	2.79	56.36	22.15
Pr	5.22	8.10	6.32	2.88	0.80	0.75	2.78	6.28	12.66
Nd	18.00	32.38	24.51	14.38	3.34	0.35	2.99	24.29	13.64
Sm	3.62	5.85	4.69	2.23	0.58	-0.04	2.39	4.65	12.44
Eu	0.87	1.63	1.14	0.76	0.20	0.77	3.13	1.13	17.58
Gd	2.82	5.05	4.08	2.23	0.55	-0.10	2.64	4.04	13.46
Tb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dy	2.72	4.20	3.49	1.48	0.39	-0.20	2.28	3.47	11.19
Ho	0.55	0.86	0.70	0.31	0.09	-0.10	2.26	0.70	12.54
Er	1.06	2.35	1.92	1.29	0.26	-1.39	6.27	1.90	13.72
Tm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yb	1.05	2.43	1.94	1.38	0.28	-1.29	5.84	1.91	14.33
Lu	0.26	0.44	0.31	0.18	0.05	1.48	4.55	0.31	15.75

n = 23

TABLE 2.143

TABLE 2.144

ICP Analyses: Garnetiferous Formation REE Study (REE15)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	16.14	40.39	26.71	24.25	6.70	0.38	2.84	25.94	25.09
Ce	33.60	81.56	56.38	47.96	14.01	0.21	2.32	54.76	24.84
Pr	4.31	8.40	6.56	4.09	1.08	-0.36	2.93	6.47	16.47
Nd	17.35	31.81	25.15	14.46	4.05	-0.38	2.61	24.83	16.12
Sm	3.63	6.06	4.90	2.43	0.80	-0.17	2.12	4.84	16.22
Eu	0.82	1.44	1.11	0.62	0.17	0.28	2.86	1.10	15.05
Gd	2.81	5.75	4.38	2.94	0.83	-0.16	2.57	4.30	19.03
Tb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dy	3.00	5.29	3.88	2.29	0.72	0.97	2.80	3.83	18.45
Ho	0.57	1.03	0.76	0.46	0.14	0.69	2.50	0.75	18.45
Er	1.28	2.97	2.13	1.69	0.45	0.19	2.88	2.08	21.28
Tm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yb	1.04	3.15	2.10	2.11	0.51	0.09	3.75	2.04	24.44
Lu	0.26	0.52	0.33	0.26	0.08	1.28	4.00	0.33	22.48

n = 12

ICP Analyses: Standard KC1O Duplicates (STD1)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	2.42	5.23	3.58	2.81	0.82	0.69	2.54	3.49	22.99
Ce	8.25	13.85	10.32	5.60	2.02	0.69	1.90	10.15	19.61
Pr	0.71	2.28	1.67	1.57	0.51	-0.91	2.79	1.58	30.36
Nd	5.17	6.45	5.74	1.28	0.42	0.37	1.77	5.73	7.38
Sm	1.33	1.58	1.46	0.25	0.09	0.01	1.89	1.45	5.84
Eu	0.64	0.80	0.70	0.16	0.05	0.85	2.56	0.70	7.24
Gd	1.19	2.03	1.56	0.84	0.21	0.44	4.00	1.55	13.18
Dy	1.58	1.75	1.68	0.17	0.04	-0.59	3.94	1.68	2.67
Ho	0.34	0.52	0.42	0.18	0.07	0.31	1.46	0.41	16.81
Er	0.32	0.94	0.76	0.62	0.16	-1.79	5.87	0.74	21.12
Yb	0.92	1.27	1.04	0.35	0.09	1.17	4.79	1.03	8.78
Lu	0.13	0.20	0.16	0.07	0.02	0.81	2.18	0.15	14.85
Y	9.40	13.13	10.86	3.73	1.49	0.28	1.37	10.77	13.73

n = 12

TABLE 2.145

ICP Analyses: Standard 1005 Duplicates (STD2)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
La	18.55	30.26	24.01	11.71	2.96	0.09	2.10	23.84	12.34
Ce	41.63	68.28	52.99	26.65	8.95	0.51	1.60	52.29	16.89
Pr	3.79	6.88	5.51	3.09	0.78	-0.42	2.60	5.45	14.07
Nd	19.60	23.73	22.13	4.13	0.86	-0.79	3.49	22.12	3.87
Sm	3.48	4.70	3.96	1.22	0.20	1.49	9.24	3.96	4.94
Eu	1.02	1.52	1.21	0.50	0.09	1.30	6.56	1.21	7.43
Gd	2.72	4.06	3.36	1.34	0.25	0.50	4.44	3.35	7.56
Dy	2.37	2.94	2.64	0.57	0.13	-0.07	2.79	2.64	5.06
Ho	0.54	0.91	0.69	0.37	0.10	0.45	2.38	0.68	14.09
Er	1.27	1.62	1.44	0.35	0.08	0.02	2.56	1.44	5.60
Yb	1.31	1.91	1.49	0.60	0.11	1.99	10.34	1.49	7.09
Lu	0.18	0.27	0.23	0.09	0.02	0.04	3.43	0.23	8.31
Y	13.09	21.56	16.38	8.47	2.44	0.66	1.96	16.22	14.89

n = 28

TABLE 2.146

Marchburn Formation : Geochemistry and Petrography.

TABLE 2.147

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	50.07	62.13	56.32	12.06	3.92	0.10	1.90	56.19	6.96
Al2O3	10.08	13.11	11.62	3.03	1.07	-0.14	1.65	11.57	9.19
TiO2	1.21	2.22	1.64	1.01	0.31	0.31	2.19	1.61	18.93
Fe2O3	8.97	13.20	10.94	4.23	1.46	0.24	1.59	10.85	13.33
MgO	4.28	11.83	7.57	7.55	2.59	0.14	1.84	7.15	34.26
CaO	1.44	7.03	3.34	5.59	1.71	0.94	2.95	2.99	51.13
Na2O	1.88	4.72	2.71	2.84	0.82	1.45	4.42	2.62	30.14
K2O	0.68	1.75	1.22	1.07	0.33	0.06	2.20	1.17	27.01
MnO	0.14	0.50	0.19	0.36	0.10	2.78	8.89	0.18	52.39
P2O5	0.16	0.43	0.23	0.27	0.08	1.82	5.61	0.22	32.55
Total	94.11	97.00	95.77	2.89	0.92	-0.75	110.02	95.77	0.96
As	0.00	5.00	1.91	5.00	1.87	0.33	1.67	1.87	97.87
Ba	157.00	541.00	315.55	384.00	118.41	0.94	2.90	297.47	37.52
Co	18.00	39.00	28.36	21.00	5.63	-0.07	2.95	27.83	19.84
Cr	155.00	853.00	382.91	698.00	200.47	1.08	3.74	340.49	52.35
Cu	13.00	87.00	35.45	74.00	19.45	1.66	5.77	31.52	54.86
Ga	14.00	17.00	15.73	3.00	0.90	-0.30	2.51	15.70	5.75
La	6.00	42.00	20.91	36.00	9.59	0.57	3.42	18.73	45.85
Ni	50.00	336.00	148.36	286.00	83.30	0.98	3.29	129.14	56.14
Nb	8.00	17.00	12.82	9.00	3.37	-0.44	1.56	12.37	26.30
Pb	6.00	17.00	10.18	11.00	3.31	0.63	2.77	9.71	32.52
Rb	16.00	41.00	27.18	25.00	8.23	0.33	2.09	26.05	30.28
Sr	122.00	404.00	226.91	282.00	95.96	0.64	2.13	209.80	42.29
Sb	0.00	2.00	0.18	2.00	0.60	2.85	9.10	1.07	331.66
S	0.00	5216.00	1401.91	5216.00	1502.48	1.48	4.82	446.57	107.17
Th	0.00	10.00	4.82	10.00	2.68	0.10	2.96	4.21	55.55
V	143.00	275.00	217.45	132.00	37.32	-0.37	2.66	214.32	17.16
Y	20.00	30.00	25.82	10.00	2.82	-0.62	2.75	25.67	10.93
Zn	57.00	79.00	70.45	22.00	7.61	-0.60	2.36	70.06	10.80
Zr	100.00	180.00	142.27	80.00	23.88	-0.10	2.14	140.39	16.78
Quartz	46.00	222.00	113.82	176.00	60.76	0.37	1.77	98.94	53.38
Feldspar	287.00	654.00	447.18	367.00	94.61	0.65	3.65	438.35	21.16
Basic	2.00	222.00	103.18	220.00	68.45	0.19	2.08	66.65	66.34
Acid	0.00	64.00	25.18	64.00	19.41	0.66	2.63	16.41	77.06
Metamorphic	0.00	59.00	14.45	59.00	18.02	1.44	4.34	6.37	124.66
Sedimentary	0.00	88.00	23.55	88.00	26.18	1.47	4.31	12.51	111.18
Ferromagnesian	0.00	70.00	17.73	70.00	27.72	1.04	2.26	3.85	156.35
Matrix	99.00	306.00	254.91	207.00	57.00	-1.97	6.31	245.99	22.36

n = 11

Afton Formation : Geochemistry and Petrography

TABLE 2.148

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	62.27	74.45	66.00	12.18	2.67	1.45	5.28	65.95	4.04
Al2O3	9.91	15.01	12.24	5.10	1.23	0.05	2.61	12.18	10.04
TiO2	0.72	1.44	1.11	0.72	0.19	-0.08	2.22	1.09	16.71
Fe2O3	4.66	8.38	7.06	3.72	0.95	-0.81	3.38	6.99	13.42
MgO	2.18	4.91	3.44	2.73	0.63	-0.12	2.95	3.38	18.23
CaO	0.56	3.40	1.40	2.84	0.76	1.29	3.69	1.24	54.30
Na2O	1.58	3.31	2.10	1.73	0.39	1.19	4.33	2.07	18.77
K2O	1.17	2.43	1.73	1.26	0.29	-0.11	2.81	1.71	16.79
MnO	0.07	0.13	0.09	0.06	0.01	0.37	2.76	0.09	15.52
P2O5	0.13	0.27	0.17	0.14	0.03	1.63	7.14	0.17	15.70
Total	93.64	97.00	95.36	3.36	1.02	0.36	-77.11	95.35	1.07
As	0.00	15.00	2.34	15.00	3.20	2.85	11.26	1.94	136.53
Ba	297.00	525.00	394.26	228.00	56.58	0.35	2.74	390.36	14.35
Co	10.00	27.00	17.17	17.00	3.57	1.09	5.10	16.84	20.78
Cr	97.00	247.00	162.66	150.00	31.52	0.23	3.21	159.63	19.38
Cu	13.00	24.00	19.06	11.00	3.07	-0.06	1.95	18.81	16.10
Ga	9.00	16.00	13.60	7.00	1.42	-1.21	4.68	13.52	10.43
La	24.00	48.00	32.34	24.00	5.75	0.80	3.13	31.88	17.79
Ni	29.00	74.00	59.94	45.00	11.24	-0.73	3.09	58.76	18.76
Nb	12.00	20.00	16.40	8.00	1.94	-0.04	2.35	16.29	11.85
Pb	4.00	21.00	10.83	17.00	3.67	0.46	3.12	10.21	33.93
Rb	31.00	66.00	46.11	35.00	8.37	0.15	2.73	45.36	18.16
Sr	63.00	202.00	110.31	139.00	35.16	1.27	4.05	105.67	31.87
Sb	0.00	4.00	0.20	4.00	0.76	4.16	20.00	1.06	379.63
S	0.00	1361.00	565.37	1361.00	333.10	0.47	2.63	409.72	58.92
Th	5.00	15.00	9.63	10.00	2.57	0.42	2.20	9.30	26.67
V	82.00	146.00	113.34	64.00	16.20	-0.07	2.40	112.19	14.30
Y	20.00	36.00	26.14	16.00	3.32	0.69	3.73	25.95	12.69
Zn	35.00	95.00	58.63	60.00	10.46	0.55	6.01	57.72	17.84
Zr	154.00	410.00	261.00	256.00	52.76	0.68	3.63	256.01	20.22
Quartz	336.00	607.00	477.77	271.00	57.36	0.04	2.97	474.37	12.01
Feldspar	33.00	291.00	135.97	258.00	62.86	0.52	2.85	120.96	46.23
Basic	6.00	133.00	48.29	127.00	33.40	0.71	2.68	36.36	69.17
Acid	0.00	52.00	8.97	52.00	10.65	2.32	9.21	5.21	118.69
Metam.	0.00	83.00	30.34	83.00	17.26	0.93	4.05	24.81	56.89
Sedim.	1.00	65.00	16.60	64.00	16.01	1.58	4.83	10.80	96.42
Ferromag	0.00	14.00	2.34	14.00	2.95	2.28	9.00	1.94	125.91
Matrix	145.00	420.00	280.03	275.00	74.70	0.13	2.35	269.90	26.67

n = 35

TABLE 2.149

Blackcraig Formation : Geochemistry and Petrography

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	58.78	66.33	61.32	7.55	2.15	1.45	4.65	61.29	3.48
Al2O3	9.07	11.77	10.67	2.70	0.80	-0.62	2.96	10.65	7.49
TiO2	0.88	1.61	1.31	0.73	0.20	-0.88	3.96	1.30	15.08
Fe2O3	7.88	10.10	9.19	2.22	0.73	-0.54	2.11	9.17	7.96
MgO	3.87	5.99	4.81	2.12	0.68	0.10	2.29	4.76	14.13
CaO	2.26	5.04	3.86	2.78	0.91	-0.41	2.00	3.75	23.53
Na2O	2.60	2.89	2.75	0.29	0.08	-0.15	2.80	2.75	3.03
K2O	0.66	1.33	0.95	0.67	0.21	0.42	2.36	0.93	21.73
MnO	0.12	0.16	0.14	0.04	0.02	-0.35	1.69	0.14	10.45
P2O5	0.11	0.16	0.14	0.05	0.02	-0.24	2.79	0.14	11.06
Total	94.00	96.66	95.14	2.66	1.11	0.87	-26.42	95.14	1.17
As	0.00	3.00	0.89	3.00	1.17	0.72	1.98	1.32	131.25
Ba	188.00	329.00	251.78	141.00	43.89	0.30	2.20	248.42	17.43
Co	20.00	26.00	23.33	6.00	1.73	-0.39	2.87	23.27	7.42
Cr	159.00	1117.00	277.11	958.00	315.21	2.47	7.10	211.39	113.75
Cu	16.00	25.00	21.89	9.00	2.89	-0.90	2.95	21.70	13.21
Ga	13.00	16.00	15.00	3.00	1.00	-0.80	2.81	14.97	6.67
La	5.00	19.00	13.44	14.00	3.94	-0.86	3.64	12.74	29.31
Ni	42.00	57.00	48.33	15.00	4.82	0.39	2.17	48.12	9.98
Nb	8.00	12.00	9.56	4.00	1.33	0.55	2.32	9.48	13.95
Pb	5.00	14.00	9.78	9.00	2.95	-0.27	2.15	9.33	30.16
Rb	16.00	27.00	21.89	11.00	4.04	-0.13	1.49	21.55	18.48
Sr	173.00	229.00	196.22	56.00	17.82	0.59	2.41	195.52	9.08
Sb	0.00	1.00	0.11	1.00	0.33	2.47	7.12	1.00	300.00
S	0.00	1313.00	765.22	1313.00	454.49	-0.35	2.05	365.24	59.39
Th	1.00	9.00	4.33	8.00	2.69	0.56	1.97	3.57	62.14
V	128.00	211.00	188.89	83.00	25.46	-1.64	4.75	187.08	13.48
Y	25.00	31.00	28.67	6.00	1.87	-0.58	2.87	28.61	6.53
Zn	40.00	76.00	65.22	36.00	11.50	-1.26	3.55	64.14	17.63
Zr	103.00	162.00	130.67	59.00	18.74	0.04	2.23	129.46	14.34
Quartz	282.00	416.00	344.78	134.00	48.85	0.12	1.63	341.70	14.17
Feldspar	101.00	308.00	174.56	207.00	77.37	0.97	2.37	161.70	44.32
Basic	21.00	206.00	108.78	185.00	61.59	-0.05	2.06	87.18	56.62
Acid	2.00	41.00	16.11	39.00	12.88	0.63	2.51	10.65	79.94
Metam.	8.00	105.00	53.67	97.00	33.73	0.09	1.80	41.14	62.85
Sedim.	0.00	39.00	11.11	39.00	11.88	1.47	4.51	6.62	106.91
Ferromag	18.00	122.00	53.00	104.00	32.53	0.94	3.22	44.87	61.37
Matrix	172.00	306.00	238.00	134.00	45.53	0.18	1.91	234.12	19.13

n = 9

TABLE 2.150

Scar Formation : Geochemistry and Petrography

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	57.70	64.58	60.18	6.88	1.79	0.59	3.07	60.15	2.98
Al2O3	10.30	13.43	12.11	3.13	0.91	-0.43	2.29	12.08	7.48
TiO2	0.77	1.17	0.95	0.40	0.13	0.35	2.13	0.94	13.13
Fe2O3	6.70	9.34	7.84	2.64	0.64	0.27	3.06	7.82	8.22
MgO	4.66	7.25	6.32	2.59	0.79	-0.71	2.63	6.27	12.46
CaO	1.62	5.33	3.51	3.71	0.97	-0.08	2.37	3.37	27.55
Na2O	2.39	3.42	2.74	1.03	0.37	0.88	2.16	2.72	13.58
K2O	0.84	1.93	1.48	1.09	0.32	-0.58	2.61	1.45	21.54
MnO	0.10	0.14	0.12	0.04	0.01	-0.50	2.62	0.12	9.89
P2O5	0.14	0.24	0.18	0.10	0.03	0.22	2.52	0.18	14.71
Total	93.58	96.99	95.44	3.41	1.05	-0.24	0.00	95.43	1.10
As	0.00	15.00	1.29	15.00	3.65	3.37	13.17	1.36	282.29
Ba	257.00	744.00	514.59	487.00	141.04	-0.13	2.32	494.51	27.41
Co	16.00	27.00	22.76	11.00	3.11	-0.48	2.55	22.55	13.67
Cr	200.00	416.00	305.06	216.00	61.42	0.25	2.12	299.25	20.13
Cu	20.00	33.00	26.71	13.00	3.87	-0.02	2.14	26.44	14.49
Ga	13.00	16.00	14.59	3.00	1.12	-0.23	1.76	14.55	7.69
La	12.00	27.00	20.65	15.00	4.08	-0.45	2.26	20.23	19.74
Ni	66.00	168.00	107.76	102.00	31.90	0.56	1.88	103.58	29.60
Nb	8.00	12.00	10.06	4.00	1.14	-0.37	2.27	10.00	11.37
Pb	6.00	25.00	13.94	19.00	3.67	1.18	7.08	13.49	26.29
Rb	23.00	49.00	36.12	26.00	7.88	0.06	2.10	35.28	21.82
Sr	181.00	507.00	329.35	326.00	82.28	0.38	2.94	319.60	24.98
Sb	0.00	4.00	0.41	4.00	1.18	2.48	7.34	1.16	285.54
S	166.00	1251.00	574.94	1085.00	320.31	0.48	2.16	488.74	55.71
Th	3.00	15.00	8.35	12.00	3.37	0.49	2.87	7.68	40.36
V	110.00	168.00	140.82	58.00	17.56	-0.15	1.98	139.77	12.47
Y	17.00	24.00	20.65	7.00	1.62	-0.32	3.81	20.59	7.84
Zn	41.00	109.00	66.65	68.00	13.64	1.39	7.12	65.44	20.47
Zr	130.00	197.00	160.94	67.00	22.56	0.41	1.68	159.49	14.02
Quartz	128.00	266.00	194.53	138.00	45.02	0.23	1.73	189.64	23.14
Feldspar	157.00	726.00	467.06	569.00	148.20	-0.51	2.82	438.69	31.73
Basic	8.00	188.00	55.12	180.00	41.63	1.87	7.22	42.23	75.53
Acid	0.00	79.00	24.71	79.00	23.97	0.80	2.58	12.24	97.02
Metam.	0.00	57.00	16.94	57.00	17.44	1.14	3.36	8.73	102.97
Sedim.	0.00	36.00	17.00	36.00	11.27	-0.13	1.87	11.43	66.29
Ferromag	0.00	74.00	24.06	74.00	23.51	1.11	2.95	13.54	97.73
Matrix	78.00	366.00	179.41	288.00	75.11	0.88	3.46	165.64	41.86

n = 17

TABLE 2.151

Shinnel Formation : Geochemistry and Petrography

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean	%CV
SiO2	60.08	77.05	68.68	16.97	5.00	-0.11	1.96	68.51	7.28
Al2O3	6.07	12.02	9.54	5.95	1.64	-0.54	2.62	9.39	17.24
TiO2	0.66	1.37	0.95	0.71	0.20	0.36	2.61	0.93	21.51
Fe2O3	3.63	8.31	5.75	4.68	1.55	0.11	1.63	5.56	27.02
MgO	1.63	5.42	3.36	3.79	1.46	0.22	1.36	3.06	43.55
CaO	1.02	8.45	3.21	7.43	2.35	1.62	4.14	2.67	73.20
Na2O	1.69	2.93	2.14	1.24	0.34	0.83	3.33	2.12	15.82
K2O	0.93	2.01	1.41	1.08	0.32	0.13	2.19	1.38	22.86
MnO	0.05	0.24	0.10	0.19	0.05	2.00	6.94	0.10	44.08
P2O5	0.11	0.42	0.18	0.31	0.08	2.07	6.76	0.17	44.00
Total	93.78	96.68	95.32	2.90	0.95	0.00	-22.63	95.32	1.00
As	0.00	5.00	2.38	5.00	1.56	-0.12	2.03	2.19	65.28
Ba	185.00	588.00	341.31	403.00	104.06	0.78	3.59	327.41	30.49
Co	8.00	18.00	12.77	10.00	3.47	0.29	1.63	12.34	27.16
Cr	68.00	296.00	148.46	228.00	84.36	0.52	1.70	127.71	56.82
Cu	6.00	23.00	13.08	17.00	4.73	0.73	2.83	12.33	36.20
Ga	8.00	13.00	10.69	5.00	1.84	-0.11	1.67	10.54	17.24
La	16.00	51.00	27.46	35.00	8.60	1.40	5.55	26.38	31.31
Ni	18.00	71.00	40.77	53.00	16.50	0.35	1.96	37.65	40.48
Nb	11.00	21.00	14.08	10.00	2.93	1.04	3.31	13.82	20.80
Pb	8.00	41.00	12.46	33.00	8.78	2.93	10.10	11.07	70.46
Rb	24.00	52.00	36.15	28.00	8.56	0.40	2.22	35.24	23.68
Sr	56.00	205.00	116.31	149.00	45.17	0.50	2.21	108.41	38.84
Sb	0.00	3.00	0.85	3.00	1.21	0.88	2.11	1.32	143.50
S	0.00	2343.00	416.62	2343.00	636.82	2.28	7.65	50.81	152.85
Th	4.00	16.00	8.31	12.00	2.95	1.18	4.69	7.87	35.57
V	57.00	156.00	94.92	99.00	32.34	0.39	1.95	89.94	34.07
Y	17.00	33.00	23.31	16.00	4.53	0.46	2.62	22.91	19.46
Zn	29.00	66.00	43.38	37.00	11.84	0.51	2.10	41.96	27.28
Zr	150.00	511.00	252.00	361.00	92.71	1.69	5.77	239.48	36.79
Quartz	374.00	728.00	550.38	354.00	143.66	-0.07	1.20	532.46	26.10
Feldspar	53.00	336.00	171.00	283.00	109.92	0.46	1.55	139.18	64.28
Basic	2.00	73.00	21.92	71.00	21.36	1.14	3.51	12.26	97.43
Acid	0.00	69.00	14.08	69.00	18.89	2.01	6.60	6.39	134.21
Metam.	0.00	20.00	7.31	20.00	6.94	0.49	1.98	4.48	95.03
Sedim.	0.00	45.00	17.08	45.00	16.05	0.73	2.04	9.88	93.98
Ferromag	0.00	11.00	1.92	11.00	3.52	1.82	4.84	1.66	183.19
Matrix	154.00	274.00	216.31	120.00	42.37	-0.21	1.74	212.28	19.59

n = 13

HAWICK FORMATION : MAJOR ELEMENT NORMALISED DATA (No CaO)

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean
SiO2	58.81	87.83	66.71	29.02	2.58	1.35	18.43	66.67
Al2O3	6.86	21.67	16.07	14.81	1.48	-0.32	8.51	16.00
TiO2	0.23	1.24	0.94	1.01	0.11	-1.16	9.74	0.94
Fe2O3	2.95	12.37	6.73	9.42	0.87	1.27	9.75	6.68
MgO	0.80	9.31	4.95	8.51	0.85	-0.99	9.88	4.85
Na2O	0.06	4.53	1.76	4.47	0.47	-0.93	9.62	1.63
K2O	0.39	5.55	2.50	5.16	0.42	1.33	13.50	2.46
MnO	0.03	0.35	0.12	0.32	0.04	1.82	8.66	0.12
P2O5	0.11	0.25	0.21	0.14	0.02	-1.51	10.87	0.20

n = 305

TABLE 2.152

TABLE 2.153

Cratonic Greywacke

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean
SiO2	50.47	87.98	65.92	37.51	4.31	0.40	5.38	65.78
Al2O3	3.97	19.16	12.48	15.19	2.13	-0.01	4.21	12.29
TiO2	0.26	2.11	1.00	1.85	0.20	0.65	5.54	0.98
Fe2O3	3.10	13.11	6.47	10.01	1.32	0.14	4.33	6.33
MgO	0.56	6.84	3.74	6.28	1.11	0.09	2.62	3.56
CaO	0.14	13.56	2.25	13.42	2.05	2.50	11.01	1.63
Na2O	0.00	4.02	2.05	4.02	0.57	0.10	5.36	1.95
K2O	0.68	4.96	1.90	4.28	0.55	1.22	7.82	1.83
MnO	0.04	0.51	0.10	0.47	0.04	4.88	42.21	0.09
P2O5	0.05	0.42	0.18	0.37	0.04	2.02	11.82	0.18
Total	88.88	101.43	96.11	12.55	1.81	-0.02	17.89	96.09
As	0.00	51.00	2.56	51.00	4.83	5.65	46.83	1.94
Ba	180.00	1484.00	457.14	1304.00	191.47	2.29	10.44	427.65
Co	7.00	76.00	24.87	69.00	12.26	0.99	3.87	22.17
Cr	39.00	687.00	171.34	648.00	79.15	2.14	11.17	156.97
Cu	4.00	93.00	18.02	89.00	7.95	3.35	29.14	16.64
Ga	7.00	22.00	13.22	15.00	2.27	0.13	3.98	13.02
La	15.00	61.00	32.14	46.00	7.67	0.86	4.46	31.27
Ni	18.00	240.00	62.33	222.00	27.49	2.39	14.59	57.30
Nb	6.00	21.00	15.38	15.00	2.63	-0.22	2.97	15.14
Pb	4.00	125.00	13.68	121.00	9.16	7.48	80.08	12.45
Rb	20.00	183.00	51.88	163.00	17.16	2.60	18.03	49.58
Sr	26.00	1027.00	136.59	1001.00	100.32	3.98	27.95	116.84
Sb	0.00	22.00	0.62	22.00	1.78	6.79	72.52	1.19
S	0.00	3833.00	441.64	3833.00	506.85	2.65	13.79	103.04
Th	1.00	19.00	8.51	18.00	2.97	0.19	3.14	7.89
V	28.00	313.00	105.39	285.00	26.30	1.86	15.45	102.40
Y	11.00	73.00	25.97	62.00	4.73	3.32	34.18	25.61
Zn	24.00	329.00	57.06	305.00	23.28	6.30	68.97	54.23
Zr	47.00	709.00	265.52	662.00	67.76	1.91	12.08	257.77
K/Na	0.00	33.71	1.17	33.71	2.09	13.19	199.22	0.93
Al/Si	0.05	0.34	0.19	0.29	0.04	0.07	4.23	0.19
Mg+Fe	4.35	18.35	10.21	14.00	2.09	-0.19	3.40	9.98
Fe/Mg	0.91	11.66	1.86	10.75	0.74	7.79	103.05	1.78
Al/Ca+Na	0.58	72.38	3.68	71.81	4.30	13.59	216.35	3.13
La/Y	0.47	2.17	1.25	1.69	0.24	0.31	3.94	1.22
Nb/Y	0.19	0.85	0.60	0.66	0.10	-0.46	3.53	0.59
Nb/P	26.83	141.67	87.44	114.84	18.22	-0.34	3.03	85.31
Rb/Sr	0.03	2.96	0.50	2.94	0.29	2.73	20.01	0.42
Ni/Co	0.25	8.85	2.94	8.60	1.35	0.59	4.41	2.59
Cu/Co	0.09	7.15	0.88	7.06	0.55	4.87	55.65	0.75
Zn/Co	0.37	27.42	2.81	27.05	1.86	7.68	101.83	2.45
Zr/Nb	7.83	37.94	17.49	30.10	4.25	1.37	6.34	17.03
K/K+Na	15.55	100.00	48.29	84.45	11.58	0.83	5.86	46.91
Na+K	1.04	7.39	3.96	6.35	0.70	0.66	6.86	3.89

n = 304

Volcanic Greywacke

Summary Statistics:

VAR. / STAT.	Min	Max	Mean	Range	St.Dev	Skew	Kurt	G.Mean
SiO2	50.07	76.17	59.62	26.10	3.30	0.30	5.73	59.53
Al2O3	7.93	18.64	12.34	10.71	1.66	0.33	2.96	12.23
TiO2	0.54	2.22	1.12	1.68	0.29	0.89	3.65	1.09
Fe2O3	4.17	13.20	8.49	9.03	1.43	0.58	4.19	8.37
MgO	1.81	11.97	5.73	10.16	1.48	1.15	5.81	5.55
CaO	0.24	14.43	3.73	14.19	1.52	1.86	12.99	3.43
Na2O	1.41	4.83	2.74	3.42	0.53	0.70	4.34	2.69
K2O	0.36	2.93	1.45	2.57	0.49	0.44	2 97	1.37
MnO	0.03	0.50	0.14	0.47	0.04	4.07	40.61	0.13
P2O5	0.07	0.45	0.19	0.38	0.05	1.85	9.21	0.18
Total	89.90	99.91	95.54	10.01	1.57	-0.55	21.05	95.53
As	0.00	19.00	1.53	19.00	2.63	3.64	20.66	1.55
Ba	140.00	1295.00	439.70	1155.00	181.98	1.22	5.27	406.42
Co	12.00	49.00	26.97	37.00	7.15	0.41	2.60	26.03
Cr	62.00	1117.00	243.20	1055.00	127.54	3.31	18.47	222.63
Cu	2.00	330.00	28.69	328.00	21.04	11.98	171.15	26.36
Ga	8.00	19.00	15.15	11.00	1.54	-0.56	4.48	15.07
La	0.00	44.00	20.57	44.00	7.09	0.29	3.48	19.16
Ni	21.00	372.00	82.98	351.00	48.51	2.51	11.66	73.72
Nb	7.00	21.00	10.89	14.00	2.41	1.23	4.52	10.66
Pb	5.00	33.00	13.20	28.00	4.07	0.96	5.84	12.60
Rb	12.00	79.00	37.03	67.00	14.05	0.51	2.71	34.37
Sr	65.00	857.00	286.25	792.00	112.36	1.09	5.72	265.54
Sb	0.00	4.00	0.31	4.00	0.86	2.87	10.44	1.10
S	0.00	5555.00	862.03	5555.00	839.07	2.25	10.53	402.78
Th	0.00	15.00	5.74	15.00	2.78	0.29	3.37	4.99
V	60.00	275.00	165.33	215.00	36.18	0.22	2.90	161.27
Y	15.00	36.00	24.08	21.00	4.08	0.28	2.22	23.74
Zn	34.00	131.00	68.19	97.00	12.79	0.93	5.82	67.05
Zr	100.00	381.00	159.61	281.00	37.37	1.54	7.80	155.80
K/Na	0.14	1.71	0.56	1.57	0.25	1.03	4.48	0.51
Al/Si	0.14	0.30	0.21	0.16	0.03	0.16	2.50	0.21
Mg+Fe	5.98	25.07	14.21	19.09	2.45	1.27	7.53	14.02
Fe/Mg	0.82	4.38	1.55	3.55	0.40	1.61	11.38	1.51
Al/Ca+Na	0.50	8.32	2.03	7.82	0.70	3.40	28.07	1.94
La/Y	0.00	1.70	0.89	1.70	0.33	-0.14	2.25	0.82
Nb/Y	0.24	0.85	0.46	0.61	0.10	0.36	3.24	0.45
Nb/P	32.56	171.43	59.97	138.87	14.54	1.91	15.69	58.40
Rb/Sr	0.02	0.56	0.14	0.54	0.08	2.82	13.44	0.13
Ni/Co	0.43	12.40	3.21	11.97	1.78	1.77	7.15	2.83
Cu/Co	0.08	22.00	1.14	21.92	1.37	14.38	219.80	1.01
Zn/Co	0.69	6.69	2.69	5.99	0.80	0.82	5.26	2.58
Zr/Nb	8.47	29.31	14.96	20.84	3.29	0.83	4.22	14.62
K/K+Na	12.59	63.12	34.39	50.53	9.76	0.21	2.48	32.95
Na+K	1.81	6.00	4.19	4.19	0.60	-0.08	4.00	4.15

n = 248

F Test

This program compares the Variance of two data sets and classifies them as similar or different.

TABLE 2.155

Group (1) n=248 Volcanic Greywacke
Group (2) n=304 Cratonic Greywacke

Variable	F Statistic	95% Level	99% Level
East	2.013	Different	Different
North	1.835	Different	Different
SiO2	1.701	Different	Different
Al2O3	1.633	Different	Different
TiO2	2.050	Different	Different
Fe2O3	1.163	Different	Different
MgO	1.768	Different	Different
CaO	1.819	Different	Different
Na2O	1.154	Different	Different
K2O	1.252	Different	Different
MnO	1.197	Different	Different
P2O5	1.467	Different	Different
Total	1.328	Different	Different
As	3.376	Different	Different
Ba	1.107	Different	Different
Co	2.941	Different	Different
Cr	2.596	Different	Different
Cu	7.015	Different	Different
Ga	2.155	Different	Different
La	1.171	Different	Different
Ni	3.113	Different	Different
Nb	1.190	Different	Different
Pb	5.082	Different	Different
Rb	1.492	Different	Different
Sr	1.254	Different	Different
Sb	4.263	Different	Different
S	2.741	Different	Different
Th	1.137	Different	Different
V	1.892	Different	Different
Y	1.345	Different	Different
Zn	3.311	Different	Different
Zr	3.287	Different	Different
K/Na	67.476	Different	Different
Al/Si	1.441	Different	Different
Mg+Fe	1.372	Different	Different
Fe/Mg	3.399	Different	Different
Al/Ca+Na	37.175	Different	Different
La/Y	1.857	Different	Different
Nb/Y	1.046	Different	Different
Nb/P	1.569	Different	Different
Rb/Sr	13.519	Different	Different
Ni/Co	1.721	Different	Different
Cu/Co	6.125	Different	Different
Zn/Co	5.385	Different	Different
Zr/Nb	1.673	Different	Different
K/K+Na	1.407	Different	Different
Na+K	1.359	Different	Different

Student T Test

This program tests the hypothesis that the two data sets do not result from the same parent population. TABLE 2.156
(NB. assuming normal distribution and equal variances)

Group (1) n=248 Volcanic Greywacke
Group (2) n=304 Cratonic Greywacke

Variable	Mean (1)	Mean (2)	T Statistic	Confidence
East	27917.012	28829.494	3.569	99%
North	61140.367	61425.059	1.734	90%
SiO2	59.622	65.921	18.939	99%
Al2O3	12.339	12.484	0.873	0%
TiO2	1.122	1.004	5.538	99%
Fe2O3	8.486	6.474	17.145	99%
MgO	5.727	3.740	18.052	99%
CaO	3.731	2.251	9.441	99%
Na2O	2.738	2.054	14.542	99%
K2O	1.452	1.903	9.983	99%
MnO	0.136	0.097	11.500	99%
P2O5	0.188	0.182	1.687	90%
Total	95.542	96.109	3.877	99%
As	1.528	2.563	3.029	99%
Ba	439.702	457.138	1.088	0%
Co	26.972	24.865	2.395	95%
Cr	243.202	171.342	8.097	99%
Cu	28.694	18.016	8.163	99%
Ga	15.149	13.220	11.407	99%
La	20.573	32.138	18.224	99%
Ni	82.976	62.326	6.288	99%
Nb	10.891	15.375	20.704	99%
Pb	13.202	13.684	0.770	0%
Rb	37.032	51.885	10.956	99%
Sr	286.250	136.592	16.516	99%
Sb	0.310	0.622	2.526	95%
S	862.028	441.645	7.262	99%
Th	5.742	8.513	11.221	99%
V	165.331	105.395	22.502	99%
Y	24.077	25.974	4.985	99%
Zn	68.194	57.063	6.744	99%
Zr	159.609	265.523	22.031	99%
K/Na	0.561	1.167	4.549	99%
Al/Si	0.208	0.191	5.573	99%
Mg+Fe	14.214	10.213	20.692	99%
Fe/Mg	1.554	1.863	5.922	99%
Al/Ca+Na	2.032	3.678	5.964	99%
La/Y	0.886	1.246	14.565	99%
Nb/Y	0.459	0.600	16.552	99%
Nb/P	59.974	87.435	19.254	99%
Rb/Sr	0.144	0.496	18.445	99%
Ni/Co	3.207	2.944	1.968	95%
Cu/Co	1.141	0.885	2.983	99%
Zn/Co	2.692	2.810	0.926	0%
Zr/Nb	14.961	17.488	7.673	99%
K/K+Na	34.386	48.285	15.042	99%
Na+K	4.190	3.957	4.172	99%

Chi-squared Test

This is used to test that the data is normally distributed.

TABLE 2.157

Cratonic Greywacke
n=304

Variable	Chi Squared	80%	90%	95%	99%
East	53.316	------	------	------	------
North	168.026	------	------	------	------
SiO2	7.447	------	------	------	------
Al2O3	5.711	------	------	------	Normal
TiO2	13.816	------	------	------	------
Fe2O3	0.895	Normal	Normal	Normal	Normal
MgO	0.868	Normal	Normal	Normal	Normal
CaO	59.132	------	------	------	------
Na2O	16.711	------	------	------	------
K2O	9.658	------	------	------	------
MnO	62.658	------	------	------	------
P2O5	59.921	------	------	------	------
Total	1.658	------	Normal	Normal	Normal
As	327.158	------	------	------	------
Ba	91.289	------	------	------	------
Co	17.447	------	------	------	------
Cr	21.500	------	------	------	------
Cu	43.974	------	------	------	------
Ga	13.763	------	------	------	------
La	13.447	------	------	------	------
Ni	37.289	------	------	------	------
Nb	11.447	------	------	------	------
Pb	189.974	------	------	------	------
Rb	18.816	------	------	------	------
Sr	161.184	------	------	------	------
Sb	471.763	------	------	------	------
S	18.500	------	------	------	------
Th	3.237	------	------	Normal	Normal
V	6.658	------	------	------	------
Y	34.026	------	------	------	------
Zn	66.947	------	------	------	------
Zr	23.474	------	------	------	------
K/Na	402.211	------	------	------	------
Al/Si	3.132	------	------	Normal	Normal
Mg+Fe	11.421	------	------	------	------
Fe/Mg	29.079	------	------	------	------
Al/Ca+Na	295.053	------	------	------	------
La/Y	2.921	------	------	Normal	Normal
Nb/Y	2.921	------	------	Normal	Normal
Nb/P	8.579	------	------	------	------
Rb/Sr	11.763	------	------	------	------
Ni/Co	2.342	------	Normal	Normal	Normal
Cu/Co	17.763	------	------	------	------
Zn/Co	37.632	------	------	------	------
Zr/Nb	5.289	------	------	------	Normal
K/K+Na	10.395	------	------	------	------
Na+K	15.237	------	------	------	------

Chi-squared Test

This is used to test that the data is normally distributed.

TABLE 2.158

Volcanic Greywacke
n=248

Variable	Chi Squared	80%	90%	95%	99%
East	51.516	------	------	------	------
North	79.968	------	------	------	------
SiO2	8.161	------	------	------	------
Al2O3	3.226	------	------	Normal	Normal
TiO2	7.258	------	------	------	------
Fe2O3	1.774	------	Normal	Normal	Normal
MgO	10.871	------	------	------	------
CaO	6.677	------	------	------	------
Na2O	3.968	------	------	------	Normal
K2O	2.935	------	------	Normal	Normal
MnO	41.065	------	------	------	------
P2O5	27.645	------	------	------	------
Total	1.903	------	Normal	Normal	Normal
As	201.677	------	------	------	------
Ba	4.032	------	------	------	Normal
Co	3.935	------	------	------	Normal
Cr	71.065	------	------	------	------
Cu	205.903	------	------	------	------
Ga	12.935	------	------	------	------
La	1.194	Normal	Normal	Normal	Normal
Ni	74.968	------	------	------	------
Nb	6.419	------	------	------	Normal
Pb	5.258	------	------	------	Normal
Rb	8.968	------	------	------	------
Sr	4.097	------	------	------	Normal
Sb	509.290	------	------	------	------
S	28.871	------	------	------	------
Th	8.065	------	------	------	------
V	5.065	------	------	------	Normal
Y	36.000	------	------	------	------
Zn	6.484	------	------	------	Normal
Zr	13.774	------	------	------	------
K/Na	5.742	------	------	------	Normal
Al/Si	5.548	------	------	------	Normal
Mg+Fe	19.000	------	------	------	------
Fe/Mg	12.484	------	------	------	------
Al/Ca+Na	18.161	------	------	------	------
La/Y	12.226	------	------	------	------
Nb/Y	2.871	------	------	Normal	Normal
Nb/P	7.355	------	------	------	------
Rb/Sr	74.742	------	------	------	------
Ni/Co	13.194	------	------	------	------
Cu/Co	278.806	------	------	------	------
Zn/Co	3.226	------	------	Normal	Normal
Zr/Nb	5.226	------	------	------	Normal
K/K+Na	3.194	------	------	Normal	Normal
Na+K	2.355	------	Normal	Normal	Normal

Cratonic Greywacke

Summary Statistics:

VAR. / STAT.	25%	50%	75%
East	26560.00	27712.00	30395.00
North	60266.00	60821.00	61643.00
SiO2	63.36	65.37	68.64
Al2O3	11.03	12.50	13.73
TiO2	0.88	0.99	1.11
Fe2O3	5.60	6.55	7.45
MgO	2.95	3.71	4.53
CaO	0.96	1.66	2.78
Na2O	1.75	2.03	2.30
K2O	1.56	1.87	2.19
MnO	0.08	0.09	0.11
P2O5	0.16	0.17	0.20
Total	94.84	95.93	97.05
As	0.00	2.00	3.00
Ba	348.00	406.00	495.00
Co	16.00	20.00	34.00
Cr	122.00	156.00	199.00
Cu	13.00	18.00	21.00
Ga	12.00	13.00	15.00
La	27.00	31.00	36.00
Ni	47.00	61.00	73.00
Nb	14.00	16.00	17.00
Pb	10.00	12.00	15.00
Rb	41.00	50.00	60.00
Sr	83.00	106.00	154.00
Sb	0.00	0.00	0.00
S	28.00	341.00	607.00
Th	7.00	8.00	10.00
V	89.00	105.00	118.00
Y	23.00	26.00	28.00
Zn	46.00	54.00	65.00
Zr	226.00	257.00	292.00
K/Na	0.69	0.89	1.21
Al/Si	0.17	0.19	0.21
Mg+Fe	9.06	10.43	11.49
Fe/Mg	1.44	1.82	2.20
Al/Ca+Na	2.41	3.25	4.12
La/Y	1.08	1.23	1.38
Nb/Y	0.54	0.60	0.67
Nb/P	76.19	88.89	100.00
Rb/Sr	0.29	0.45	0.62
Ni/Co	1.94	3.00	3.81
Cu/Co	0.50	0.89	1.16
Zn/Co	1.76	2.67	3.59
Zr/Nb	14.41	16.87	19.87
K/K+Na	40.88	47.15	54.77
Na+K	3.56	3.89	4.28

n = 304

Volcanic Greywacke

Summary Statistics:

25%	50%	75%
26306.00	27460.00	29902.00
60483.00	60784.00	61793.00
57.73	59.85	61.56
11.08	12.31	13.43
0.89	1.02	1.31
7.51	8.39	9.30
4.76	5.45	6.38
2.76	3.62	4.45
2.38	2.68	3.00
1.04	1.42	1.78
0.12	0.13	0.15
0.15	0.18	0.21
94.51	95.73	96.60
0.00	0.00	2.00
302.00	398.00	541.00
22.00	26.00	32.00
168.00	209.00	271.00
23.00	26.00	31.00
14.00	15.00	16.00
15.00	21.00	25.00
53.00	67.00	92.00
9.00	10.00	12.00
10.00	13.00	15.00
25.00	37.00	46.00
200.00	266.00	351.00
0.00	0.00	0.00
313.00	637.00	1152.00
4.00	6.00	7.00
137.00	164.00	191.00
21.00	23.00	27.00
60.00	68.00	74.00
132.00	152.00	180.00
0.37	0.51	0.71
0.18	0.21	0.23
12.76	14.09	14.98
1.24	1.49	1.84
1.58	1.92	2.35
0.60	0.91	1.14
0.38	0.46	0.53
52.00	60.00	66.67
0.10	0.13	0.16
1.95	2.55	3.91
0.89	1.05	1.22
2.06	2.64	3.18
12.90	14.36	16.78
26.82	33.59	41.67
3.81	4.19	4.55

n = 248

Clearwater Greywacke Geochemistry

Summary Statistics:

25%	50%	75%
33177.00	33560.00	33955.00
59671.00	60117.00	60443.00
57.41	58.75	60.27
13.13	14.04	15.16
0.76	0.84	0.91
5.32	5.84	6.42
4.02	4.42	4.82
5.23	7.61	9.33
1.45	1.62	1.77
1.97	2.17	2.38
0.09	0.10	0.12
0.17	0.18	0.19
94.68	95.81	96.72
0.00	2.00	4.00
222.00	262.00	314.00
23.00	26.00	29.00
128.00	138.00	151.00
18.00	23.00	27.00
12.00	14.00	15.00
29.00	32.00	35.00
52.00	58.00	64.00
12.00	14.00	15.00
12.00	13.00	15.00
61.00	69.00	78.00
93.00	122.00	147.00
0.00	0.00	2.00
4.00	18.00	41.00
6.00	8.00	10.00
91.00	99.00	108.00
28.00	31.00	35.00
57.00	65.00	73.00
187.00	204.00	227.00
1.13	1.30	1.64
0.22	0.24	0.26
9.28	10.25	11.16
1.24	1.31	1.41
1.21	1.51	2.13
0.88	1.00	1.17
0.39	0.43	0.47
68.42	73.68	80.00
0.44	0.56	0.80
1.91	2.24	2.61
0.67	0.88	1.15
2.11	2.50	2.97
13.43	15.31	17.27
53.09	56.51	62.14
3.57	3.83	4.02

n = 305

TABLE 2.159

Glendinning Greywacke Geochemistry

TABLE 3.00

Correlation Coefficients:

	East	North	SiO2	Al2O3	TiO2	Fe2O3	MgO	CaO	Na2O	K2O
East	1.00									
North	0.68	1.00								
SiO2	-0.12	-0.04	1.00							
Al2O3	0.17	0.14	0.17	1.00						
TiO2	0.16	0.09	0.16	0.73	1.00					
Fe2O3	0.18	0.18	-0.01	0.77	0.74	1.00				
MgO	0.10	0.08	-0.23	0.13	0.40	0.47	1.00			
CaO	-0.06	-0.07	-0.66	-0.73	-0.72	-0.62	-0.22	1.00		
Na2O	0.05	-0.07	0.26	-0.11	0.07	-0.28	0.06	-0.20	1.00	
K2O	0.19	0.18	-0.18	0.74	0.53	0.72	0.26	-0.38	-0.32	1.00
MnO	0.14	0.13	-0.27	0.00	-0.13	-0.04	-0.24	0.23	-0.19	0.05
P2O5	0.09	0.08	0.19	0.32	0.70	0.27	0.18	-0.41	0.22	0.13
Total	0.08	0.10	0.56	0.66	0.46	0.53	0.11	-0.62	-0.03	0.47
As	0.01	0.00	0.03	0.13	-0.02	0.16	-0.13	0.00	-0.47	0.15
Ba	0.29	0.05	-0.17	0.43	0.36	0.49	0.24	-0.23	-0.09	0.49
Co	-0.02	-0.17	0.35	0.15	0.24	0.12	-0.06	-0.31	0.09	-0.08
Cr	-0.10	-0.07	0.11	0.15	0.54	0.19	0.14	-0.24	0.06	0.05
Cu	0.18	0.07	-0.22	0.31	0.22	0.34	0.19	-0.10	-0.18	0.39
Ga	0.07	0.00	-0.02	0.74	0.59	0.72	0.39	-0.56	0.04	0.74
La	-0.01	-0.04	0.03	0.40	0.43	0.33	0.09	-0.34	0.14	0.25
Ni	0.04	0.12	-0.05	0.73	0.65	0.82	0.38	-0.53	-0.32	0.74
Nb	0.14	-0.01	0.02	0.33	0.04	0.15	-0.07	-0.20	0.37	0.20
Pb	0.06	0.09	-0.13	0.14	0.06	0.24	0.03	0.01	-0.18	0.14
Rb	0.16	0.12	-0.10	0.73	0.56	0.76	0.35	-0.47	-0.23	0.93
Sr	-0.01	-0.17	-0.47	-0.60	-0.49	-0.58	-0.11	0.71	0.14	-0.49
Sb	-0.07	-0.10	0.20	-0.15	-0.29	0.00	-0.21	0.06	-0.50	-0.05
S	0.00	-0.14	-0.06	0.01	-0.01	-0.01	-0.03	0.06	-0.05	0.04
Th	0.20	0.19	0.05	0.40	0.36	0.29	0.06	-0.29	0.09	0.35
V	0.24	0.14	-0.09	0.69	0.86	0.76	0.46	-0.53	-0.09	0.71
Y	0.31	0.27	-0.01	0.43	0.42	0.37	0.14	-0.33	0.19	0.31
Zn	0.24	0.16	-0.10	0.58	0.50	0.63	0.34	-0.41	-0.06	0.62
Zr	-0.06	-0.10	0.19	0.13	0.34	-0.01	-0.09	-0.21	0.42	-0.14
K/Na	-0.05	-0.01	-0.29	-0.07	-0.18	0.11	-0.03	0.32	-0.56	0.30
Al/Si	0.23	0.16	-0.15	0.94	0.65	0.78	0.19	-0.51	-0.23	0.82
Mg+Fe	0.17	0.16	-0.12	0.57	0.68	0.89	0.82	-0.52	-0.15	0.60
Fe/Mg	0.06	0.06	0.26	0.39	0.09	0.20	-0.62	-0.20	-0.29	0.25
Al/Ca+Na	0.00	0.11	0.34	0.62	0.50	0.59	0.01	-0.62	-0.24	0.46
La/Y	-0.28	-0.31	0.12	-0.02	0.01	-0.03	-0.04	-0.05	-0.01	-0.07
Nb/Y	-0.07	-0.26	0.06	0.17	-0.07	0.04	-0.07	-0.10	0.24	0.10
Nb/P	0.11	0.00	0.00	0.21	-0.13	0.04	-0.13	-0.09	0.35	0.11
Rb/Sr	0.03	0.14	0.25	0.63	0.51	0.70	0.19	-0.61	-0.29	0.65
Ni/Co	-0.01	0.16	-0.28	0.34	0.23	0.47	0.31	-0.10	-0.37	0.57
Cu/Co	0.12	0.07	-0.32	0.16	0.06	0.20	0.16	0.08	-0.21	0.34
Zn/Co	0.18	0.21	-0.28	0.33	0.20	0.40	0.29	-0.10	-0.13	0.52
Zr/Nb	-0.20	-0.04	0.24	-0.33	0.04	-0.34	-0.17	0.07	0.15	-0.48
K/K+Na	0.04	0.12	-0.33	0.42	0.14	0.53	0.07	0.02	-0.88	0.65
Na+K	0.21	0.09	0.06	0.54	0.51	0.37	0.27	-0.50	0.59	0.58

Number of Samples = 305

	MnO	P2O5	Total	As	Ba	Co	Cr	Cu	Ga	La
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO	1.00									
P2O5	-0.13	1.00								
Total	-0.16	0.25	1.00							
As	0.15	-0.14	0.15	1.00						
Ba	0.04	0.07	0.23	0.11	1.00					
Co	-0.20	0.16	0.22	0.04	0.06	1.00				
Cr	-0.21	0.53	0.13	-0.07	-0.04	0.27	1.00			
Cu	0.13	0.08	0.11	0.13	0.34	-0.06	-0.12	1.00		
Ga	-0.11	0.19	0.49	0.04	0.43	0.07	0.08	0.38	1.00	
La	-0.08	0.28	0.17	-0.02	0.11	0.25	0.36	0.04	0.40	1.00
Ni	-0.09	0.30	0.44	0.05	0.42	0.07	0.19	0.42	0.69	0.32
Nb	0.06	-0.14	0.20	-0.05	0.12	0.06	-0.07	0.07	0.46	0.34
Pb	-0.01	-0.02	0.09	0.12	0.16	0.07	-0.02	0.00	0.10	0.03
Rb	-0.01	0.15	0.49	0.14	0.50	-0.01	0.02	0.44	0.81	0.27
Sr	0.08	-0.21	-0.57	-0.15	-0.14	-0.13	-0.13	-0.13	-0.45	-0.22
Sb	0.16	-0.35	0.08	0.59	-0.11	0.02	-0.22	0.02	-0.13	-0.18
S	-0.02	-0.08	0.00	0.40	0.31	0.35	0.03	0.07	0.02	0.03
Th	0.00	0.23	0.27	0.05	0.22	0.07	0.20	0.12	0.35	0.25
V	-0.13	0.52	0.39	0.03	0.48	0.15	0.42	0.36	0.64	0.41
Y	0.21	0.25	0.23	-0.02	0.28	-0.02	0.11	0.25	0.36	0.37
Zn	-0.06	0.20	0.35	0.08	0.45	0.18	0.06	0.43	0.60	0.25
Zr	-0.12	0.34	0.10	-0.14	-0.11	0.33	0.62	-0.20	0.12	0.45
K/Na	0.22	-0.34	0.04	0.39	-0.02	-0.21	-0.16	-0.02	0.01	-0.12
Al/Si	0.08	0.23	0.49	0.15	0.50	0.04	0.09	0.41	0.75	0.37
Mg+Fe	-0.15	0.26	0.40	0.04	0.44	0.05	0.20	0.32	0.67	0.26
Fe/Mg	0.21	0.03	0.31	0.36	0.06	0.14	-0.05	0.03	0.09	0.11
Al/Ca+Na	-0.04	0.15	0.48	0.18	0.23	0.22	0.13	0.14	0.44	0.27
La/Y	-0.25	0.04	0.03	0.01	-0.14	0.31	0.19	-0.18	0.04	0.55
Nb/Y	-0.10	-0.18	0.16	-0.05	0.01	0.18	-0.08	-0.03	0.35	0.18
Nb/P	0.08	-0.32	0.13	-0.03	0.06	0.01	-0.17	0.00	0.36	0.26
Rb/Sr	-0.10	0.12	0.53	0.12	0.30	0.17	0.11	0.26	0.58	0.26
Ni/Co	0.07	0.02	0.16	0.12	0.25	-0.66	-0.09	0.32	0.41	0.01
Cu/Co	0.19	-0.02	-0.01	0.16	0.27	-0.44	-0.23	0.90	0.26	-0.09
Zn/Co	0.06	0.02	0.15	0.03	0.30	-0.53	-0.16	0.37	0.40	0.00
Zr/Nb	-0.17	0.26	-0.16	-0.08	-0.33	0.22	0.54	-0.37	-0.43	0.04
K/K+Na	0.23	-0.18	0.22	0.46	0.27	-0.13	-0.06	0.26	0.30	0.02
Na+K	-0.12	0.31	0.38	-0.28	0.33	0.01	0.09	0.18	0.66	0.34

Number of Samples = 305

Critical Value (5%) = 0.113
Critical Value (1%) = 0.148

	Ni	Nb	Pb	Rb	Sr	Sb	S	Th	V	Y
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO										
P2O5										
Total										
As										
Ba										
Co										
Cr										
Cu										
Ga										
La										
Ni	1.00									
Nb	0.03	1.00								
Pb	0.16	0.01	1.00							
Rb	0.77	0.29	0.09	1.00						
Sr	-0.52	-0.08	0.00	-0.49	1.00					
Sb	-0.10	-0.10	-0.03	-0.01	-0.14	1.00				
S	-0.05	-0.01	0.10	0.01	0.12	0.00	1.00			
Th	0.25	0.29	0.00	0.33	-0.19	-0.12	0.04	1.00		
V	0.73	-0.01	0.15	0.68	-0.41	-0.26	0.07	0.38	1.00	
Y	0.30	0.43	0.04	0.32	-0.27	-0.21	-0.02	0.33	0.32	1.00
Zn	0.61	0.24	0.26	0.65	-0.34	-0.16	0.34	0.28	0.63	0.33
Zr	-0.12	0.53	-0.05	-0.10	-0.02	-0.28	0.03	0.28	0.12	0.31
K/Na	0.05	-0.05	0.11	0.22	-0.07	0.50	-0.01	-0.06	-0.07	-0.13
Al/Si	0.75	0.32	0.20	0.78	-0.46	-0.16	0.04	0.38	0.72	0.42
Mg+Fe	0.73	0.06	0.17	0.67	-0.44	-0.11	-0.02	0.22	0.73	0.31
Fe/Mg	0.16	0.14	0.17	0.17	-0.28	0.32	0.01	0.15	0.05	0.08
Al/Ca+Na	0.51	0.11	0.11	0.51	-0.56	0.09	-0.04	0.26	0.42	0.14
La/Y	0.01	-0.05	-0.06	-0.05	-0.06	0.05	0.04	-0.12	0.04	-0.41
Nb/Y	-0.04	0.75	-0.04	0.21	-0.04	0.01	0.00	0.05	-0.09	-0.10
Nb/P	-0.08	0.97	0.01	0.19	-0.01	-0.03	0.00	0.23	-0.16	0.34
Rb/Sr	0.65	0.14	0.09	0.72	-0.73	0.09	-0.06	0.28	0.54	0.18
Ni/Co	0.63	-0.05	0.06	0.55	-0.26	0.04	-0.12	0.09	0.36	0.17
Cu/Co	0.29	0.02	-0.05	0.36	-0.03	0.05	0.01	0.06	0.21	0.20
Zn/Co	0.42	0.14	0.17	0.51	-0.17	-0.09	0.03	0.15	0.37	0.24
Zr/Nb	-0.36	-0.33	-0.10	-0.55	0.12	-0.12	0.03	-0.01	-0.13	-0.16
K/K+Na	0.53	-0.07	0.22	0.56	-0.29	0.38	0.06	0.09	0.30	0.04
Na+K	0.36	0.49	-0.04	0.60	-0.29	-0.48	-0.01	0.37	0.53	0.43

Number of Samples = 305

	Zn	Zr	K/Na	Al/Si	Mg+Fe	Fe/Mg	Al/Ca+Na	La/Y	Nb/Y	Nb/P
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO										
P2O5										
Total										
As										
Ba										
Co										
Cr										
Cu										
Ga										
La										
Ni										
Nb										
Pb										
Rb										
Sr										
Sb										
S										
Th										
V										
Y										
Zn	1.00									
Zr	0.00	1.00								
K/Na	-0.05	-0.26	1.00							
Al/Si	0.63	0.02	0.04	1.00						
Mg+Fe	0.59	-0.05	0.06	0.60	1.00					
Fe/Mg	0.08	0.01	0.16	0.33	-0.19	1.00				
Al/Ca+Na	0.35	0.04	0.04	0.51	0.38	0.50	1.00			
La/Y	-0.08	0.12	0.01	-0.05	-0.04	0.04	0.12	1.00		
Nb/Y	0.11	0.35	0.04	0.15	-0.01	0.09	0.09	0.40	1.00	
Nb/P	0.15	0.46	0.00	0.21	-0.04	0.13	0.04	-0.05	0.72	1.00
Rb/Sr	0.47	-0.03	0.13	0.57	0.55	0.25	0.84	0.09	0.12	0.06
Ni/Co	0.34	-0.36	0.31	0.44	0.47	0.02	0.18	-0.22	-0.17	-0.08
Cu/Co	0.30	-0.30	0.09	0.29	0.21	-0.03	0.01	-0.28	-0.09	-0.01
Zn/Co	0.71	-0.23	0.13	0.43	0.41	-0.01	0.12	-0.27	-0.03	0.10
Zr/Nb	-0.38	0.52	-0.21	-0.44	-0.31	-0.12	-0.15	0.15	-0.32	-0.29
K/K+Na	0.30	-0.32	0.62	0.55	0.38	0.31	0.34	-0.05	-0.06	-0.08
Na+K	0.47	0.25	-0.23	0.50	0.38	-0.04	0.18	-0.07	0.29	0.39

Number of Samples = 305

	Rb/Sr	Ni/Co	Cu/Co	Zn/Co	Zr/Nb	K/K+Na	Na+K
Rb/Sr	1.00						
Ni/Co	0.33	1.00					
Cu/Co	0.13	0.54	1.00				
Zn/Co	0.25	0.74	0.54	1.00			
Zr/Nb	-0.27	-0.43	-0.40	-0.45	1.00		
K/K+Na	0.44	0.53	0.27	0.33	-0.34	1.00	
Na+K	0.30	0.17	0.11	0.33	-0.28	-0.21	1.00

TABLE 3.01

Marchburn Formation : Geochemistry and petrography.

Correlation Coefficients:

	East	North	SiO2	Al2O3	TiO2	Fe2O3	MgO	CaO	Na2O	K2O
East	1.00									
North	0.98	1.00								
SiO2	-0.11	-0.07	1.00							
Al2O3	0.41	0.49	0.23	1.00						
TiO2	0.01	0.09	-0.59	0.28	1.00					
Fe2O3	-0.19	-0.19	-0.84	-0.17	0.79	1.00				
MgO	-0.42	-0.46	-0.82	-0.46	0.45	0.83	1.00			
CaO	0.40	0.29	-0.30	-0.55	-0.47	-0.13	0.07	1.00		
Na2O	0.02	0.12	0.70	0.53	-0.13	-0.65	-0.70	-0.49	1.00	
K2O	0.17	0.08	-0.23	-0.27	-0.01	0.32	0.09	0.36	-0.61	1.00
MnO	-0.09	-0.02	0.38	0.34	-0.04	-0.38	-0.34	-0.36	0.79	-0.57
P2O5	0.35	0.31	0.44	-0.13	-0.54	-0.59	-0.64	0.48	0.23	0.36
Total	-0.62	-0.60	0.74	0.02	-0.34	-0.37	-0.30	-0.55	0.43	-0.12
As	0.57	0.51	-0.19	0.26	0.07	0.17	-0.20	0.28	-0.34	0.78
Ba	-0.17	-0.26	0.28	-0.35	-0.59	-0.37	-0.22	0.40	-0.12	0.51
Co	-0.02	-0.05	-0.81	-0.26	0.58	0.79	0.66	0.16	-0.49	0.40
Cr	0.02	-0.05	-0.83	-0.50	0.32	0.64	0.80	0.42	-0.69	0.08
Cu	0.30	0.25	-0.84	-0.24	0.33	0.51	0.65	0.49	-0.59	-0.04
Ga	0.28	0.37	-0.11	0.63	0.75	0.41	-0.13	-0.57	0.17	0.16
La	0.04	0.07	0.54	0.15	-0.32	-0.65	-0.49	-0.06	0.62	-0.52
Ni	-0.02	-0.08	-0.83	-0.42	0.34	0.67	0.84	0.31	-0.68	0.05
Nb	0.33	0.42	0.51	0.66	-0.06	-0.52	-0.75	-0.26	0.70	-0.20
Pb	0.25	0.22	0.54	0.65	-0.44	-0.59	-0.63	-0.15	0.43	-0.06
Rb	0.21	0.12	0.12	0.05	-0.18	0.05	-0.19	0.11	-0.40	0.82
Sr	0.05	0.01	0.69	-0.12	-0.72	-0.82	-0.69	0.30	0.47	0.01
Sb	-0.64	-0.63	-0.19	-0.40	0.23	0.51	0.54	-0.26	-0.34	0.10
S	0.35	0.29	-0.05	0.48	-0.11	-0.03	-0.11	0.05	-0.28	0.22
Th	-0.06	-0.05	0.33	-0.03	-0.05	-0.29	-0.31	-0.12	0.47	-0.04
V	-0.19	-0.15	-0.78	-0.14	0.78	0.80	0.69	-0.09	-0.26	0.01
Y	0.05	0.12	0.61	0.14	-0.28	-0.58	-0.60	-0.09	0.45	-0.21
Zn	-0.52	-0.43	-0.12	0.15	0.34	0.23	0.35	-0.46	0.12	-0.54
Zr	0.22	0.28	0.75	0.41	-0.22	-0.62	-0.87	-0.23	0.71	0.03
Quartz	-0.36	-0.32	0.05	0.06	0.29	0.22	0.17	-0.45	-0.11	0.09
Feldspar	0.14	0.19	0.52	0.46	-0.18	-0.51	-0.56	-0.24	0.65	-0.50
Basic	-0.12	-0.21	-0.65	-0.47	0.11	0.45	0.65	0.40	-0.55	0.27
Acid	0.27	0.28	0.55	0.21	-0.22	-0.41	-0.59	-0.20	0.36	0.06
Metam.	0.24	0.25	-0.49	0.19	0.47	0.43	0.30	-0.05	-0.24	0.28
Sedim.	0.28	0.15	0.10	-0.46	-0.58	-0.29	-0.23	0.74	-0.36	0.70
Ferromag	-0.84	-0.87	-0.17	-0.51	-0.12	0.27	0.57	-0.03	-0.32	-0.02
Matrix	0.40	0.46	-0.12	0.07	0.12	0.08	-0.08	0.15	-0.03	-0.01

	MnO	P2O5	Total	As	Ba	Co	Cr	Cu	Ga	La
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO	1.00									
P2O5	0.22	1.00								
Total	0.41	0.13	1.00							
As	-0.39	0.34	-0.31	1.00						
Ba	-0.15	0.63	0.27	0.19	1.00					
Co	-0.20	-0.27	-0.51	0.26	-0.09	1.00				
Cr	-0.31	-0.39	-0.61	-0.13	-0.25	0.65	1.00			
Cu	-0.29	-0.30	-0.79	-0.05	-0.30	0.46	0.87	1.00		
Ga	0.09	-0.17	-0.07	0.46	-0.51	0.24	-0.22	-0.17	1.00	
La	0.71	0.46	0.35	-0.48	0.14	-0.57	-0.27	-0.14	-0.25	1.00
Ni	-0.33	-0.53	-0.57	-0.14	-0.32	0.64	0.98	0.84	-0.19	-0.36
Nb	0.37	0.40	0.14	0.22	0.03	-0.47	-0.83	-0.50	0.38	0.31
Pb	0.30	0.26	0.32	0.33	0.23	-0.50	-0.61	-0.49	0.05	0.26
Rb	-0.48	0.27	0.15	0.76	0.38	0.00	-0.19	-0.31	0.22	-0.38
Sr	0.42	0.86	0.40	-0.05	0.68	-0.48	-0.49	-0.48	-0.42	0.68
Sb	-0.05	-0.31	0.40	-0.16	-0.21	0.16	0.17	-0.04	0.10	-0.27
S	-0.37	-0.15	-0.16	0.53	0.02	-0.20	-0.08	0.06	0.13	-0.23
Th	0.63	0.51	0.33	-0.24	0.36	0.02	-0.14	-0.24	-0.02	0.67
V	0.06	-0.40	-0.42	-0.05	-0.34	0.85	0.59	0.49	0.33	-0.31
Y	-0.01	0.35	0.24	-0.14	0.19	-0.69	-0.70	-0.43	-0.06	0.31
Zn	0.07	-0.56	0.12	-0.47	-0.32	-0.12	-0.10	0.06	0.05	-0.04
Zr	0.46	0.70	0.44	0.20	0.28	-0.49	-0.84	-0.71	0.31	0.51
Quartz	-0.39	-0.32	0.21	-0.19	0.18	-0.09	-0.17	-0.13	0.10	-0.15
Feldspar	0.70	0.25	0.33	-0.10	-0.27	-0.51	-0.42	-0.35	0.18	0.61
Basic	-0.32	-0.24	-0.45	-0.05	0.26	0.72	0.74	0.56	-0.39	-0.34
Acid	0.02	0.15	0.20	0.08	-0.01	-0.26	-0.31	-0.49	0.15	0.08
Metam.	-0.26	-0.20	-0.43	0.22	0.04	0.48	0.21	0.36	0.25	-0.34
Sedim.	-0.34	0.74	-0.08	0.45	0.78	0.01	0.04	-0.02	-0.42	0.03
Ferromag	-0.17	-0.37	0.30	-0.30	0.18	0.17	0.17	-0.06	-0.41	-0.34
Matrix	-0.06	0.07	-0.27	0.26	-0.50	-0.07	-0.07	0.13	0.32	-0.22

	Ni	Nb	Pb	Rb	Sr	Sb	S	Th	V	Y
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO										
P2O5										
Total										
As										
Ba										
Co										
Cr										
Cu										
Ga										
La										
Ni	1.00									
Nb	-0.84	1.00								
Pb	-0.55	0.49	1.00							
Rb	-0.16	-0.10	0.36	1.00						
Sr	-0.60	0.36	0.42	0.07	1.00					
Sb	0.19	-0.38	-0.42	0.03	-0.36	1.00				
S	-0.01	0.05	0.66	0.56	-0.17	-0.25	1.00			
Th	-0.22	0.10	0.02	-0.13	0.60	-0.23	-0.52	1.00		
V	0.56	-0.30	-0.59	-0.39	-0.53	0.31	-0.36	0.05	1.00	
Y	-0.74	0.71	0.09	-0.16	0.38	-0.21	-0.16	-0.02	-0.51	1.00
Zn	-0.05	0.20	-0.19	-0.58	-0.40	0.37	-0.10	-0.35	0.29	0.31
Zr	-0.91	0.81	0.45	0.16	0.67	-0.28	-0.14	0.51	-0.43	0.61
Quartz	-0.12	0.03	-0.22	0.07	-0.27	0.06	0.00	-0.01	-0.03	0.37
Feldspar	-0.45	0.45	0.57	-0.15	0.42	-0.06	0.13	0.19	-0.26	0.11
Basic	0.75	-0.70	-0.38	-0.05	-0.23	-0.13	-0.09	0.09	0.47	-0.61
Acid	-0.28	0.07	0.29	0.37	0.24	-0.43	0.06	0.25	-0.50	0.08
Metam.	0.25	0.02	-0.26	0.00	-0.42	-0.27	-0.03	0.07	0.36	-0.08
Sedim.	-0.06	-0.16	0.10	0.58	0.58	-0.27	0.11	0.23	-0.37	0.00
Ferromag	0.20	-0.42	-0.19	-0.11	-0.16	0.63	-0.09	-0.33	0.23	-0.20
Matrix	-0.08	0.32	-0.22	-0.09	-0.26	0.25	-0.12	-0.45	0.02	0.27

	Zn	Zr	Quartz	Feldspar	Basic	Acid	Metam.	Sedim.	Ferromag	Matrix
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO										
P2O5										
Total										
As										
Ba										
Co										
Cr										
Cu										
Ga										
La										
Ni										
Nb										
Pb										
Rb										
Sr										
Sb										
S										
Th										
V										
Y										
Zn	1.00									
Zr	-0.20	1.00								
Quartz	0.43	-0.01	1.00							
Feldspar	-0.02	0.49	-0.56	1.00						
Basic	-0.20	-0.67	0.07	-0.68	1.00					
Acid	-0.61	0.36	-0.02	0.16	-0.17	1.00				
Metam.	0.06	-0.16	0.51	-0.70	0.48	-0.14	1.00			
Sedim.	-0.74	0.17	-0.17	-0.24	0.27	0.18	-0.04	1.00		
Ferromag	0.48	-0.49	0.08	-0.20	0.25	-0.48	-0.31	-0.14	1.00	
Matrix	0.11	0.09	-0.34	0.13	-0.49	-0.19	-0.05	-0.19	-0.22	1.00

TABLE 3.02

Afton Formation : Geochemistry and Petrography

Correlation Coefficients:

	East	North	SiO2	Al2O3	TiO2	Fe2O3	MgO	CaO	Na2O	K2O
East	1.00									
North	0.33	1.00								
SiO2	0.22	0.10	1.00							
Al2O3	-0.39	0.23	-0.58	1.00						
TiO2	-0.02	-0.05	-0.58	0.29	1.00					
Fe2O3	-0.10	-0.11	-0.80	0.33	0.86	1.00				
MgO	0.01	-0.14	-0.73	0.20	0.27	0.54	1.00			
CaO	0.37	-0.21	-0.21	-0.25	-0.20	-0.04	0.51	1.00		
Na2O	-0.42	0.18	0.17	0.18	-0.16	-0.18	-0.38	-0.50	1.00	
K2O	-0.19	0.01	-0.58	0.66	0.13	0.26	0.43	0.36	-0.29	1.00
MnO	-0.25	-0.09	-0.39	0.02	0.61	0.69	0.21	-0.12	0.19	-0.08
P2O5	-0.06	-0.03	-0.47	0.12	0.59	0.61	0.25	-0.03	0.18	-0.06
Total	0.05	0.25	0.35	0.25	-0.18	-0.28	-0.12	0.04	0.17	0.25
As	-0.20	0.02	0.14	0.15	-0.36	-0.32	-0.03	-0.22	-0.05	0.07
Ba	-0.39	-0.15	-0.55	0.38	0.35	0.46	0.37	0.12	0.06	0.57
Co	0.14	0.14	-0.47	0.17	0.43	0.59	0.24	0.03	0.02	0.16
Cr	0.25	0.17	-0.46	0.10	0.66	0.63	0.44	0.15	-0.40	0.18
Cu	0.09	0.05	-0.57	0.34	0.65	0.65	0.34	-0.18	-0.12	0.06
Ga	-0.38	0.01	-0.71	0.73	0.47	0.57	0.34	-0.06	0.14	0.60
La	-0.11	-0.03	-0.40	0.34	0.54	0.49	0.28	-0.15	0.03	0.20
Ni	-0.01	0.28	-0.63	0.50	0.33	0.51	0.69	0.24	-0.33	0.63
Nb	-0.22	-0.02	-0.70	0.58	0.78	0.68	0.35	-0.08	-0.15	0.46
Pb	0.28	-0.07	-0.05	-0.21	0.16	0.17	0.14	0.29	-0.27	0.22
Rb	-0.11	0.02	-0.47	0.59	-0.06	0.08	0.44	0.42	-0.36	0.95
Sr	-0.24	-0.05	-0.10	-0.04	-0.10	0.05	0.04	0.24	0.46	0.03
Sb	0.28	-0.04	-0.10	0.12	-0.05	0.01	0.09	0.08	-0.20	0.06
S	0.44	0.08	-0.02	-0.03	-0.08	-0.17	-0.04	0.22	0.07	-0.19
Th	0.08	-0.12	-0.24	0.04	0.49	0.39	0.34	0.10	-0.19	0.16
V	0.04	0.01	-0.59	0.18	0.93	0.85	0.32	-0.15	-0.17	-0.02
Y	0.03	-0.22	-0.45	0.08	0.69	0.63	0.17	-0.09	-0.22	0.13
Zn	0.25	0.14	-0.66	0.33	0.50	0.63	0.56	0.25	-0.39	0.40
Zr	0.21	-0.10	-0.41	0.04	0.81	0.61	0.25	0.07	-0.36	0.07
Quartz	0.04	-0.45	0.37	-0.54	0.10	-0.11	-0.36	-0.03	-0.06	-0.42
Feldspar	-0.24	-0.03	-0.16	0.25	-0.32	-0.15	0.10	0.11	0.34	0.13
Basic	0.32	-0.04	0.04	-0.29	0.28	0.20	-0.03	0.07	-0.05	-0.27
Acid	-0.31	0.03	0.28	0.04	-0.39	-0.46	-0.21	-0.04	0.10	0.06
Metam.	-0.01	0.00	0.09	-0.06	-0.22	-0.12	-0.11	0.17	-0.02	-0.03
Sedim.	0.21	0.25	0.20	-0.08	-0.17	-0.29	-0.03	0.13	0.01	-0.17
Ferromag	0.05	-0.16	0.15	-0.37	0.14	0.06	-0.11	0.00	-0.03	-0.35
Matrix	0.02	0.32	-0.27	0.38	0.20	0.27	0.27	-0.16	-0.22	0.38

	MnO	P2O5	Total	As	Ba	Co	Cr	Cu	Ga	La
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO	1.00									
P2O5	0.67	1.00								
Total	-0.12	-0.18	1.00							
As	-0.25	-0.16	0.00	1.00						
Ba	0.41	0.38	0.02	-0.06	1.00					
Co	0.47	0.50	-0.14	-0.29	0.34	1.00				
Cr	0.41	0.32	-0.09	-0.18	0.26	0.29	1.00			
Cu	0.35	0.60	-0.30	0.00	0.23	0.48	0.40	1.00		
Ga	0.35	0.30	0.06	-0.05	0.63	0.37	0.34	0.35	1.00	
La	0.26	0.37	0.06	-0.06	0.32	0.24	0.35	0.43	0.38	1.00
Ni	0.09	0.04	0.15	-0.01	0.36	0.28	0.58	0.27	0.47	0.35
Nb	0.34	0.53	-0.11	-0.21	0.51	0.22	0.48	0.57	0.58	0.53
Pb	0.05	0.04	0.06	-0.29	0.22	0.14	0.45	0.00	0.10	0.16
Rb	-0.29	-0.22	0.26	0.23	0.42	-0.02	0.13	-0.02	0.49	0.16
Sr	0.40	0.39	0.11	-0.30	0.29	0.29	-0.11	-0.09	0.17	0.00
Sb	-0.31	-0.19	-0.07	0.01	-0.24	-0.18	-0.04	-0.02	0.08	-0.26
S	-0.31	0.04	-0.15	-0.22	-0.36	-0.11	-0.02	0.12	-0.17	-0.13
Th	0.35	0.25	0.13	-0.09	0.18	0.17	0.41	0.26	0.18	0.50
V	0.62	0.63	-0.34	-0.35	0.26	0.42	0.74	0.66	0.38	0.43
Y	0.38	0.42	-0.37	-0.26	0.39	0.29	0.32	0.52	0.43	0.35
Zn	0.24	0.30	-0.14	-0.24	0.26	0.38	0.68	0.50	0.32	0.46
Zr	0.32	0.39	-0.22	-0.33	0.16	0.11	0.72	0.48	0.20	0.29
Quartz	0.02	0.01	-0.16	-0.36	-0.27	-0.17	-0.15	-0.20	-0.53	-0.26
Feldspar	-0.05	0.02	-0.01	0.19	0.13	-0.07	-0.20	-0.06	0.28	-0.15
Basic	0.30	0.34	-0.06	-0.20	0.10	0.22	0.41	0.24	-0.12	0.01
Acid	-0.15	-0.42	0.15	0.40	-0.06	-0.36	-0.19	-0.42	0.07	-0.23
Metam.	-0.11	-0.21	0.03	-0.18	-0.22	0.17	-0.08	-0.16	-0.11	-0.16
Sedim.	-0.08	-0.14	0.14	0.12	-0.21	-0.17	0.10	-0.15	-0.10	-0.06
Ferromag	0.17	0.21	-0.15	-0.07	-0.22	-0.04	0.27	0.16	-0.18	-0.12
Matrix	-0.05	-0.04	0.10	0.17	0.17	0.13	0.11	0.22	0.26	0.40

	Ni	Nb	Pb	Rb	Sr	Sb	S	Th	V	Y
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO										
P2O5										
Total										
As										
Ba										
Co										
Cr										
Cu										
Ga										
La										
Ni	1.00									
Nb	0.43	1.00								
Pb	0.22	0.08	1.00							
Rb	0.62	0.32	0.21	1.00						
Sr	-0.14	-0.13	0.12	-0.09	1.00					
Sb	0.02	-0.10	0.00	0.15	-0.32	1.00				
S	-0.18	-0.06	0.02	-0.12	0.03	0.46	1.00			
Th	0.30	0.37	0.21	0.14	-0.09	-0.19	-0.14	1.00		
V	0.33	0.69	0.15	-0.17	-0.01	-0.01	0.02	0.36	1.00	
Y	0.06	0.56	0.23	0.01	-0.09	0.13	-0.05	0.24	0.62	1.00
Zn	0.58	0.53	0.33	0.36	-0.08	0.11	0.11	0.20	0.59	0.31
Zr	0.26	0.68	0.26	-0.02	-0.21	-0.01	0.12	0.40	0.81	0.56
Quartz	-0.49	-0.07	-0.04	-0.49	-0.09	-0.17	0.06	0.10	0.04	0.08
Feldspar	-0.03	-0.21	-0.13	0.21	0.36	0.38	0.18	-0.24	-0.21	-0.11
Basic	-0.07	0.06	0.09	-0.34	0.15	-0.24	0.16	0.16	0.37	0.17
Acid	-0.09	-0.37	-0.06	0.14	0.07	-0.06	-0.20	-0.17	-0.41	-0.29
Metam.	0.05	-0.23	-0.07	-0.03	0.17	-0.13	0.02	-0.02	-0.15	-0.37
Sedim.	-0.09	-0.16	-0.08	-0.07	0.04	-0.20	0.09	-0.10	-0.06	-0.24
Ferromag	-0.24	-0.06	0.25	-0.36	0.25	-0.22	0.11	0.01	0.26	0.03
Matrix	0.45	0.34	0.13	0.38	-0.37	0.01	-0.28	0.10	0.07	0.14

	Zn	Zr	Quartz	Feldspar	Basic	Acid	Metam.	Sedim.	Ferromag	Matrix
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO										
P2O5										
Total										
As										
Ba										
Co										
Cr										
Cu										
Ga										
La										
Ni										
Nb										
Pb										
Rb										
Sr										
Sb										
S										
Th										
V										
Y										
Zn	1.00									
Zr	0.47	1.00								
Quartz	-0.37	0.30	1.00							
Feldspar	-0.06	-0.36	-0.46	1.00						
Basic	0.10	0.40	0.34	-0.33	1.00					
Acid	-0.47	-0.36	-0.24	0.40	-0.33	1.00				
Metam.	-0.01	-0.23	0.10	0.02	-0.02	-0.08	1.00			
Sedim.	0.06	0.02	-0.28	0.06	0.09	0.32	-0.10	1.00		
Ferromag	-0.02	0.35	0.31	-0.19	0.44	-0.09	0.08	0.23	1.00	
Matrix	0.34	-0.02	-0.46	-0.40	-0.41	-0.19	-0.28	-0.12	-0.36	1.00

TABLE 3.03

Blackcraig Formation : Geochemistry and Petrography

Correlation Coefficients:

	East	North	SiO2	Al2O3	TiO2	Fe2O3	MgO	CaO	Na2O	K2O
East	1.00									
North	0.70	1.00								
SiO2	-0.40	-0.38	1.00							
Al2O3	0.38	0.41	-0.75	1.00						
TiO2	0.57	0.44	-0.87	0.73	1.00					
Fe2O3	0.27	0.54	-0.81	0.77	0.68	1.00				
MgO	0.25	0.42	-0.62	0.87	0.50	0.87	1.00			
CaO	-0.22	-0.31	-0.44	0.13	0.44	0.13	-0.14	1.00		
Na2O	0.34	0.54	0.21	0.21	0.06	-0.02	0.09	-0.29	1.00	
K2O	-0.29	-0.55	0.72	-0.85	-0.74	-0.93	-0.87	-0.13	-0.20	1.00
MnO	-0.38	-0.06	-0.50	0.51	0.32	0.75	0.68	0.31	-0.23	-0.70
P2O5	0.54	0.33	-0.71	0.68	0.92	0.59	0.45	0.51	0.12	-0.70
Total	-0.27	-0.06	0.09	0.44	0.02	0.26	0.46	0.12	0.40	-0.45
As	0.38	0.47	-0.43	0.07	0.45	0.26	0.00	-0.08	0.12	-0.22
Ba	-0.55	-0.63	0.82	-0.83	-0.83	-0.93	-0.83	-0.11	-0.15	0.93
Co	0.26	-0.13	-0.12	0.12	-0.06	0.19	0.36	-0.24	-0.33	0.01
Cr	-0.09	-0.11	0.87	-0.76	-0.81	-0.66	-0.52	-0.65	0.10	0.68
Cu	0.41	0.38	-0.69	0.92	0.82	0.61	0.68	0.19	0.28	-0.79
Ga	0.36	0.48	-0.73	0.83	0.63	0.57	0.58	0.25	0.24	-0.60
La	0.51	0.33	-0.38	0.21	0.41	0.35	0.30	-0.23	-0.40	-0.30
Ni	0.13	0.10	0.02	-0.30	-0.09	0.13	-0.07	0.10	-0.33	0.05
Nb	0.16	-0.07	-0.30	0.29	0.59	0.06	0.00	0.44	-0.12	-0.27
Pb	0.18	-0.20	0.09	-0.05	0.20	-0.35	-0.39	0.58	0.24	0.20
Rb	-0.23	-0.59	0.48	-0.60	-0.54	-0.86	-0.78	0.13	-0.21	0.91
Sr	0.02	-0.17	-0.35	0.30	0.60	0.24	0.14	0.53	-0.26	-0.41
Sb	-0.09	-0.18	0.04	-0.20	0.15	-0.39	-0.50	0.23	-0.12	0.24
S	0.33	0.42	-0.70	0.64	0.63	0.59	0.46	0.46	-0.10	-0.57
Th	-0.14	-0.62	0.35	-0.54	-0.43	-0.73	-0.61	-0.10	-0.47	0.82
V	0.34	0.35	-0.79	0.87	0.91	0.69	0.61	0.46	0.21	-0.82
Y	0.51	0.43	-0.70	0.74	0.93	0.65	0.53	0.37	0.30	-0.80
Zn	0.08	-0.17	-0.28	0.44	0.29	0.18	0.29	0.44	-0.27	-0.22
Zr	0.62	0.25	-0.64	0.51	0.84	0.36	0.23	0.46	-0.10	-0.43
Quartz	-0.28	0.03	0.47	-0.18	-0.26	-0.04	0.02	-0.38	0.51	-0.12
Feldspar	0.48	0.01	-0.56	0.40	0.35	0.23	0.29	0.17	-0.30	-0.04
Basic	-0.44	0.24	0.16	0.06	-0.17	0.14	0.14	-0.21	0.31	-0.28
Acid	-0.41	-0.27	0.65	-0.59	-0.76	-0.46	-0.35	-0.36	-0.35	0.53
Metam.	-0.35	0.01	0.73	-0.63	-0.63	-0.62	-0.65	-0.17	0.44	0.52
Sedim.	0.91	0.79	-0.18	0.26	0.28	0.18	0.24	-0.54	0.50	-0.18
Ferromag	-0.36	-0.72	-0.19	-0.01	0.00	-0.19	-0.19	0.67	-0.62	0.31
Matrix	0.48	0.01	-0.32	0.00	0.53	0.14	-0.04	0.28	-0.35	-0.12

	MnO	P2O5	Total	As	Ba	Co	Cr	Cu	Ga	La
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO	1.00									
P2O5	0.29	1.00								
Total	0.50	0.27	1.00							
As	-0.04	0.13	-0.61	1.00						
Ba	-0.55	-0.78	-0.24	-0.31	1.00					
Co	0.13	0.02	-0.03	-0.29	-0.22	1.00				
Cr	-0.60	-0.69	-0.18	-0.29	0.65	0.15	1.00			
Cu	0.36	0.76	0.36	0.22	-0.74	-0.14	-0.77	1.00		
Ga	0.25	0.49	0.16	0.21	-0.60	-0.14	-0.76	0.78	1.00	
La	-0.06	0.34	-0.36	0.20	-0.42	0.25	-0.02	0.25	0.03	1.00
Ni	0.01	0.09	-0.07	-0.30	-0.11	0.45	0.32	-0.47	-0.39	0.31
Nb	-0.01	0.64	0.09	0.04	-0.20	-0.41	-0.43	0.57	0.19	0.42
Pb	-0.34	0.46	0.24	-0.34	0.12	-0.13	-0.09	0.08	0.00	-0.28
Rb	-0.65	-0.51	-0.40	-0.24	0.83	-0.01	0.37	-0.55	-0.28	-0.39
Sr	0.30	0.71	0.24	-0.06	-0.33	-0.21	-0.47	0.50	0.04	0.41
Sb	-0.36	0.03	-0.38	0.36	0.34	-0.72	-0.13	0.14	0.00	0.15
S	0.24	0.64	0.17	-0.09	-0.59	-0.08	-0.61	0.57	0.74	0.37
Th	-0.56	-0.50	-0.62	-0.03	0.70	0.19	0.35	-0.46	-0.37	0.00
V	0.48	0.87	0.35	0.26	-0.79	-0.19	-0.89	0.94	0.76	0.15
Y	0.37	0.94	0.30	0.32	-0.82	-0.12	-0.72	0.85	0.53	0.24
Zn	0.14	0.51	0.43	-0.67	-0.23	0.24	-0.32	0.37	0.33	0.25
Zr	-0.02	0.89	-0.04	0.11	-0.57	0.04	-0.54	0.63	0.41	0.57
Quartz	0.22	-0.20	0.42	0.07	0.06	-0.22	0.31	-0.11	-0.45	-0.34
Feldspar	-0.04	0.29	-0.28	0.01	-0.32	0.66	-0.36	0.24	0.46	0.21
Basic	0.28	-0.27	0.31	0.12	0.04	-0.70	-0.02	0.12	0.13	-0.19
Acid	-0.29	-0.65	-0.08	-0.53	0.61	0.04	0.73	-0.66	-0.55	0.17
Metam.	-0.47	-0.57	0.02	-0.10	0.66	-0.63	0.57	-0.53	-0.33	-0.52
Sedim.	-0.46	0.19	-0.28	0.39	-0.40	0.22	0.16	0.25	0.31	0.39
Ferromag	0.12	0.05	-0.06	-0.37	0.26	0.22	-0.35	-0.07	0.10	-0.21
Matrix	-0.09	0.62	-0.27	0.12	-0.33	0.30	-0.11	0.11	-0.23	0.64

	Ni	Nb	Pb	Rb	Sr	Sb	S	Th	V	Y
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO										
P2O5										
Total										
As										
Ba										
Co										
Cr										
Cu										
Ga										
La										
Ni	1.00									
Nb	-0.21	1.00								
Pb	0.12	0.42	1.00							
Rb	-0.11	-0.15	0.37	1.00						
Sr	0.01	0.91	0.36	-0.33	1.00					
Sb	-0.49	0.69	0.16	0.29	0.44	1.00				
S	0.20	0.41	0.18	-0.34	0.37	-0.02	1.00			
Th	-0.17	-0.06	0.04	0.84	-0.21	0.37	-0.46	1.00		
V	-0.32	0.58	0.21	-0.56	0.58	0.12	0.64	-0.56	1.00	
Y	-0.14	0.58	0.30	-0.63	0.63	0.07	0.50	-0.60	0.93	1.00
Zn	0.25	0.47	0.47	0.00	0.51	-0.11	0.69	-0.11	0.37	0.27
Zr	0.14	0.76	0.48	-0.24	0.72	0.25	0.67	-0.17	0.68	0.75
Quartz	-0.17	-0.19	-0.18	-0.38	-0.05	-0.13	-0.63	-0.37	-0.13	0.03
Feldspar	0.09	-0.10	0.11	0.21	-0.12	-0.29	0.36	0.31	0.22	0.14
Basic	-0.40	0.01	-0.46	-0.38	-0.05	0.24	0.00	-0.45	0.07	-0.06
Acid	0.39	-0.19	-0.24	0.29	-0.20	0.00	-0.17	0.29	-0.76	-0.78
Metam.	-0.07	-0.24	0.12	0.37	-0.41	0.24	-0.34	0.03	-0.52	-0.51
Sedim.	0.04	-0.15	-0.08	-0.21	-0.33	-0.19	0.15	-0.13	0.10	0.24
Ferromag	0.00	0.14	0.36	0.58	0.19	0.09	0.19	0.50	0.04	-0.15
Matrix	0.50	0.53	0.36	-0.15	0.64	0.12	0.20	0.06	0.21	0.45

	Zn	Zr	Quartz	Feldspar	Basic	Acid	Metam.	Sedim.	Ferromag	Matrix
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO										
P2O5										
Total										
As										
Ba										
Co										
Cr										
Cu										
Ga										
La										
Ni										
Nb										
Pb										
Rb										
Sr										
Sb										
S										
Th										
V										
Y										
Zn	1.00									
Zr	0.60	1.00								
Quartz	-0.56	-0.50	1.00							
Feldspar	0.39	0.42	-0.75	1.00						
Basic	-0.32	-0.43	0.49	-0.75	1.00					
Acid	0.09	-0.42	-0.03	-0.35	0.19	1.00				
Metam.	-0.40	-0.57	0.36	-0.68	0.50	0.44	1.00			
Sedim.	-0.16	0.26	-0.12	0.32	-0.21	-0.22	-0.10	1.00		
Ferromag	0.52	0.18	-0.62	0.53	-0.49	-0.03	-0.31	-0.58	1.00	
Matrix	0.31	0.75	-0.25	0.26	-0.63	-0.16	-0.52	0.14	0.10	1.00

TABLE 3.04

Scar Formation : Geochemistry and Petrography

Correlation Coefficients:

	East	North	SiO2	Al2O3	TiO2	Fe2O3	MgO	CaO	Na2O	K2O
East	1.00									
North	0.65	1.00								
SiO2	-0.29	0.07	1.00							
Al2O3	-0.34	-0.04	-0.32	1.00						
TiO2	0.10	0.11	-0.51	0.31	1.00					
Fe2O3	0.16	0.22	-0.45	0.33	0.87	1.00				
MgO	0.48	0.09	-0.75	0.20	0.27	0.27	1.00			
CaO	0.04	-0.43	-0.36	-0.32	-0.13	-0.13	0.19	1.00		
Na2O	-0.35	0.12	0.34	0.40	-0.16	-0.03	-0.59	-0.28	1.00	
K2O	0.32	-0.02	-0.36	-0.20	-0.03	-0.24	0.53	0.21	-0.77	1.00
MnO	0.33	0.35	-0.45	0.17	0.50	0.57	0.44	0.21	-0.25	0.14
P2O5	0.15	-0.17	-0.60	0.05	0.58	0.55	0.53	0.50	-0.31	0.05
Total	-0.30	-0.06	0.19	0.50	0.10	0.27	-0.01	0.06	0.30	-0.32
As	0.75	0.52	0.06	-0.26	-0.31	-0.11	0.32	0.02	-0.16	0.08
Ba	0.42	-0.05	-0.44	-0.25	0.00	-0.18	0.57	0.12	-0.77	0.91
Co	0.07	-0.18	-0.53	0.05	0.59	0.56	0.32	0.51	-0.15	-0.01
Cr	0.19	-0.22	-0.08	-0.29	0.32	0.26	0.19	0.05	-0.46	0.10
Cu	0.14	-0.18	-0.83	0.27	0.67	0.58	0.62	0.35	-0.33	0.24
Ga	0.38	0.08	-0.51	0.17	0.33	0.38	0.34	0.22	0.00	-0.09
La	-0.22	-0.52	-0.21	0.15	0.16	0.08	0.33	-0.08	-0.44	0.20
Ni	0.55	-0.18	-0.59	-0.31	0.15	0.12	0.65	0.39	-0.52	0.37
Nb	0.26	-0.13	-0.52	0.02	0.31	0.16	0.44	0.37	-0.20	0.10
Pb	0.23	-0.04	0.07	-0.12	-0.45	-0.21	0.29	0.26	-0.16	0.00
Rb	0.24	-0.04	-0.33	-0.05	-0.03	-0.21	0.55	0.10	-0.72	0.97
Sr	0.56	0.15	-0.60	-0.15	0.52	0.41	0.45	0.09	-0.46	0.40
Sb	0.32	0.27	0.08	0.00	-0.33	-0.22	0.07	-0.13	0.07	-0.11
S	-0.58	0.06	0.52	0.19	-0.11	-0.05	-0.41	-0.40	0.34	-0.46
Th	-0.52	-0.23	0.36	-0.18	0.01	0.00	-0.18	-0.10	-0.30	0.08
V	-0.06	0.03	-0.28	0.09	0.74	0.66	0.16	-0.02	-0.41	0.14
Y	0.33	0.20	-0.50	0.06	0.34	0.26	0.37	0.18	-0.30	0.27
Zn	-0.35	-0.50	-0.17	0.35	0.05	0.12	0.21	0.15	-0.14	0.00
Zr	0.06	-0.30	-0.23	-0.34	0.43	0.30	0.26	0.35	-0.64	0.25
Quartz	-0.43	-0.14	0.36	0.31	-0.18	-0.22	-0.07	-0.43	0.30	-0.23
Feldspar	0.54	0.49	-0.23	0.03	0.22	0.42	0.35	-0.24	-0.18	0.07
Basic	-0.37	-0.42	-0.19	0.21	0.32	0.05	0.15	0.08	-0.22	0.27
Acid	-0.36	-0.35	0.17	0.01	0.08	-0.16	-0.22	0.26	-0.19	0.25
Metam.	-0.43	-0.01	0.57	-0.05	-0.23	-0.27	-0.67	-0.23	0.20	-0.15
Sedim.	0.09	0.47	0.21	0.10	-0.28	-0.21	0.02	-0.44	0.24	-0.16
Ferromag	-0.23	-0.30	-0.05	-0.22	-0.11	-0.21	-0.05	0.63	0.01	0.14
Matrix	-0.22	-0.41	-0.15	-0.13	0.04	0.01	0.13	0.29	-0.08	-0.25

	MnO	P2O5	Total	As	Ba	Co	Cr	Cu	Ga	La
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO	1.00									
P2O5	0.34	1.00								
Total	0.29	0.21	1.00							
As	0.02	0.04	-0.01	1.00						
Ba	0.09	0.00	-0.53	0.08	1.00					
Co	0.43	0.79	0.24	-0.24	0.02	1.00				
Cr	0.14	0.18	-0.12	-0.12	0.31	0.28	1.00			
Cu	0.42	0.81	0.01	-0.17	0.28	0.70	0.15	1.00		
Ga	0.34	0.37	0.00	0.25	0.02	0.40	0.15	0.27	1.00	
La	-0.06	0.12	-0.07	-0.15	0.34	-0.09	0.52	0.20	0.09	1.00
Ni	0.02	0.52	-0.39	0.33	0.58	0.40	0.45	0.50	0.46	0.33
Nb	0.43	0.48	-0.09	0.00	0.21	0.57	0.10	0.54	0.51	0.03
Pb	-0.12	0.19	0.24	0.75	-0.04	-0.14	-0.23	-0.07	0.13	0.15
Rb	0.13	0.03	-0.20	0.09	0.86	-0.07	0.06	0.22	-0.05	0.32
Sr	0.38	0.34	-0.46	0.12	0.55	0.20	0.41	0.56	0.38	0.35
Sb	-0.33	-0.21	-0.12	0.64	-0.10	-0.55	-0.13	-0.37	0.09	0.07
S	-0.22	-0.24	0.31	-0.30	-0.55	-0.17	-0.10	-0.42	-0.42	-0.08
Th	-0.06	-0.04	0.16	-0.39	-0.05	0.00	0.13	-0.24	-0.42	0.19
V	0.46	0.38	0.11	-0.40	0.09	0.41	0.47	0.45	-0.11	0.20
Y	0.54	0.09	-0.16	-0.14	0.38	0.32	0.52	0.26	0.26	0.11
Zn	0.03	0.19	0.35	-0.22	0.11	0.38	0.31	0.23	0.16	0.55
Zr	0.28	0.44	-0.07	-0.24	0.32	0.53	0.82	0.29	0.20	0.43
Quartz	-0.29	-0.21	0.29	-0.25	-0.30	-0.26	-0.18	-0.27	-0.34	-0.05
Feldspar	0.47	-0.04	-0.08	0.34	0.27	0.00	0.33	0.19	0.02	0.16
Basic	-0.23	0.44	0.13	-0.27	0.10	0.16	0.01	0.32	-0.01	0.46
Acid	0.08	-0.01	0.31	-0.31	-0.02	-0.01	0.04	-0.15	-0.04	0.17
Metam.	-0.35	-0.55	0.03	-0.22	-0.29	-0.51	-0.11	-0.58	-0.53	-0.05
Sedim.	-0.17	-0.17	-0.09	0.30	-0.17	-0.42	-0.42	-0.10	-0.40	-0.26
Ferromag	-0.08	0.39	0.18	-0.19	-0.04	0.35	-0.09	0.21	-0.26	-0.13
Matrix	-0.18	0.48	-0.09	-0.10	-0.20	0.32	0.07	0.18	0.33	0.14

	Ni	Nb	Pb	Rb	Sr	Sb	S	Th	V	Y
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO										
P2O5										
Total										
As										
Ba										
Co										
Cr										
Cu										
Ga										
La										
Ni	1.00									
Nb	0.49	1.00								
Pb	0.28	0.05	1.00							
Rb	0.31	0.05	0.08	1.00						
Sr	0.60	0.31	-0.13	0.37	1.00					
Sb	0.08	-0.39	0.43	-0.10	-0.02	1.00				
S	-0.68	-0.48	-0.18	-0.40	-0.70	0.00	1.00			
Th	-0.34	-0.35	-0.13	0.11	-0.42	-0.29	0.65	1.00		
V	-0.08	-0.09	-0.50	0.10	0.30	-0.30	0.21	0.42	1.00	
Y	0.21	0.18	-0.47	0.18	0.43	-0.02	-0.11	-0.12	0.51	1.00
Zn	0.14	0.13	0.19	0.10	-0.13	-0.26	0.17	0.22	0.14	0.15
Zr	0.41	0.21	-0.23	0.19	0.32	-0.28	-0.01	0.43	0.64	0.53
Quartz	-0.33	-0.08	-0.09	-0.15	-0.62	-0.08	0.47	0.29	-0.22	-0.41
Feldspar	0.20	-0.02	0.05	0.07	0.52	0.11	-0.21	-0.30	0.28	0.47
Basic	0.11	-0.06	0.00	0.36	0.13	-0.01	0.03	0.28	0.23	-0.16
Acid	-0.30	-0.07	-0.16	0.26	-0.11	-0.07	0.04	0.36	0.22	0.05
Metam.	-0.69	-0.72	-0.26	-0.18	-0.37	0.30	0.53	0.37	0.19	-0.02
Sedim.	-0.28	-0.16	0.19	-0.12	-0.20	0.20	0.33	-0.14	-0.24	-0.29
Ferromag	0.08	-0.06	0.02	0.09	-0.06	-0.15	-0.03	0.11	0.02	0.01
Matrix	0.31	0.38	0.20	-0.25	-0.20	-0.09	0.16	0.25	-0.10	-0.25

	Zn	Zr	Quartz	Feldspar	Basic	Acid	Metam.	Sedim.	Ferromag	Matrix
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO										
P2O5										
Total										
As										
Ba										
Co										
Cr										
Cu										
Ga										
La										
Ni										
Nb										
Pb										
Rb										
Sr										
Sb										
S										
Th										
V										
Y										
Zn	1.00									
Zr	0.35	1.00								
Quartz	-0.10	-0.27	1.00							
Feldspar	0.11	0.05	-0.44	1.00						
Basic	0.17	0.24	0.08	-0.46	1.00					
Acid	0.03	0.30	0.00	-0.50	0.55	1.00				
Metam.	-0.11	-0.09	-0.03	-0.15	0.09	0.45	1.00			
Sedim.	-0.31	-0.57	0.32	0.17	-0.24	-0.55	-0.02	1.00		
Ferromag	0.00	0.15	-0.14	-0.32	0.45	0.34	0.07	-0.17	1.00	
Matrix	0.12	0.30	0.29	-0.55	0.22	-0.08	-0.39	-0.04	0.03	1.00

Shinnel Formation : Geochemistry and Petrography

TABLE 3.05

Correlation Coefficients:

	East	North	SiO2	Al2O3	TiO2	Fe2O3	MgO	CaO	Na2O	K2O
East	1.00									
North	0.93	1.00								
SiO2	-0.36	-0.17	1.00							
Al2O3	0.20	0.02	-0.69	1.00						
TiO2	0.14	0.13	-0.26	0.39	1.00					
Fe2O3	0.55	0.40	-0.85	0.69	0.58	1.00				
MgO	0.62	0.40	-0.89	0.61	0.33	0.93	1.00			
CaO	-0.24	-0.24	-0.33	-0.21	-0.41	-0.11	0.00	1.00		
Na2O	0.48	0.41	-0.49	0.75	0.35	0.65	0.57	-0.25	1.00	
K2O	-0.07	-0.24	-0.75	0.79	0.03	0.54	0.57	0.19	0.45	1.00
MnO	0.03	0.03	-0.64	0.19	-0.19	0.25	0.33	0.82	0.10	0.47
P2O5	-0.32	-0.29	-0.28	0.44	0.68	0.34	0.06	-0.01	0.18	0.23
Total	-0.14	-0.11	-0.05	0.32	0.15	0.08	-0.06	0.12	0.62	0.19
As	-0.04	-0.03	-0.20	-0.30	-0.50	0.02	0.18	0.46	-0.20	0.18
Ba	0.31	0.23	-0.75	0.62	0.35	0.82	0.78	-0.08	0.55	0.71
Co	0.12	-0.04	-0.83	0.67	0.50	0.75	0.67	0.17	0.34	0.63
Cr	0.62	0.42	-0.85	0.50	0.31	0.89	0.97	0.03	0.49	0.52
Cu	-0.21	-0.29	-0.68	0.38	0.16	0.41	0.42	0.48	0.07	0.66
Ga	0.36	0.18	-0.92	0.85	0.36	0.90	0.88	0.05	0.73	0.80
La	-0.33	-0.29	-0.03	0.38	0.66	0.21	-0.08	-0.26	0.26	0.09
Ni	0.40	0.12	-0.87	0.67	0.18	0.78	0.89	0.11	0.51	0.64
Nb	-0.49	-0.38	0.39	0.07	0.47	-0.24	-0.51	-0.35	-0.11	-0.25
Pb	0.25	-0.24	-0.03	0.07	0.04	0.21	0.13	-0.13	0.21	0.26
Rb	-0.27	-0.45	-0.58	0.76	-0.05	0.31	0.35	0.18	0.30	0.94
Sr	0.2	0.16	-0.79	0.25	0.04	0.64	0.68	0.55	0.28	0.56
Sb	0.18	0.08	0.07	-0.23	-0.27	-0.11	0.09	-0.17	-0.47	-0.19
S	-0.14	-0.16	0.03	-0.57	-0.36	-0.24	-0.12	0.72	-0.37	-0.25
Th	-0.21	-0.15	-0.16	0.22	0.79	0.41	0.11	-0.22	0.06	0.04
V	0.54	0.39	-0.86	0.58	0.52	0.97	0.94	-0.02	0.58	0.54
Y	-0.03	-0.03	-0.13	0.29	0.46	0.28	0.03	-0.03	0.34	-0.03
Zn	-0.02	-0.02	-0.25	0.51	0.37	0.53	0.32	-0.40	0.56	0.37
Zr	-0.19	-0.16	0.07	0.28	0.84	0.26	-0.05	-0.51	0.16	-0.10
Quartz	-0.49	-0.27	0.87	-0.52	-0.11	-0.81	-0.93	-0.23	-0.55	-0.63
Feldspar	0.75	0.54	-0.73	0.44	0.22	0.82	0.94	-0.04	0.59	0.39
Basic	-0.44	-0.57	-0.58	0.29	-0.02	0.25	0.31	0.61	-0.04	0.71
Acid	-0.24	-0.28	-0.39	0.24	0.18	0.44	0.37	0.12	0.17	0.52
Metam.	-0.01	0.06	-0.14	-0.13	-0.30	-0.12	-0.06	0.51	-0.20	-0.01
Sedim.	-0.14	-0.20	-0.45	-0.18	-0.01	0.19	0.27	0.75	-0.29	0.21
Ferromag	-0.42	-0.37	-0.14	0.35	-0.02	-0.12	-0.21	0.21	-0.07	0.52
Matrix	0.14	0.03	-0.38	0.43	-0.24	0.26	0.33	0.14	0.42	0.41

	MnO	P2O5	Total	As	Ba	Co	Cr	Cu	Ga	La
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO	1.00									
P2O5	0.14	1.00								
Total	0.11	0.31	1.00							
As	0.34	-0.42	-0.27	1.00						
Ba	0.26	0.16	-0.01	0.37	1.00					
Co	0.40	0.61	0.00	0.06	0.68	1.00				
Cr	0.31	-0.05	-0.14	0.31	0.81	0.63	1.00			
Cu	0.63	0.33	-0.08	0.46	0.63	0.75	0.48	1.00		
Ga	0.43	0.36	0.25	0.07	0.82	0.78	0.80	0.54	1.00	
La	-0.20	0.87	0.43	-0.41	0.11	0.47	-0.15	0.18	0.23	1.00
Ni	0.35	0.15	0.00	0.18	0.63	0.75	0.82	0.48	0.87	0.05
Nb	-0.42	0.65	0.16	-0.56	-0.28	0.09	-0.54	-0.05	-0.27	0.78
Pb	-0.18	0.09	0.37	0.25	0.30	-0.08	0.10	-0.07	0.24	0.17
Rb	0.37	0.26	0.18	0.02	0.48	0.54	0.27	0.58	0.63	0.15
Sr	0.64	0.05	0.06	0.66	0.74	0.63	0.74	0.71	0.66	-0.10
Sb	-0.12	-0.43	-0.82	0.12	-0.17	-0.21	0.11	-0.11	-0.21	-0.52
S	0.26	-0.28	0.08	0.48	-0.25	-0.12	-0.02	0.08	-0.26	-0.33
Th	-0.11	0.81	0.09	-0.37	0.23	0.41	0.05	0.13	0.23	0.63
V	0.32	0.21	0.02	0.19	0.87	0.71	0.95	0.51	0.86	0.09
Y	-0.13	0.63	0.48	-0.30	0.06	0.43	-0.02	0.05	0.24	0.72
Zn	-0.23	0.45	0.36	0.02	0.56	0.35	0.25	0.07	0.54	0.54
Zr	-0.44	0.80	0.19	-0.57	0.08	0.37	-0.11	-0.02	0.11	0.87
Quartz	-0.45	0.05	-0.10	-0.38	-0.73	-0.59	-0.92	-0.47	-0.85	0.14
Feldspar	0.20	-0.20	-0.02	0.23	0.68	0.45	0.95	0.23	0.73	-0.25
Basic	0.62	0.27	0.14	0.28	0.35	0.45	0.28	0.66	0.45	-0.01
Acid	0.17	0.28	0.26	0.24	0.48	0.25	0.33	0.26	0.48	0.15
Metam.	0.59	0.17	-0.12	0.18	-0.19	0.16	-0.14	0.16	0.01	-0.04
Sedim.	0.64	0.06	-0.07	0.33	0.11	0.22	0.31	0.45	0.17	-0.29
Ferromag	0.32	0.32	0.08	-0.22	0.11	0.23	-0.24	0.35	0.09	0.13
Matrix	0.24	0.02	0.26	0.31	0.29	0.37	0.29	0.32	0.49	0.21

	Ni	Nb	Pb	Rb	Sr	Sb	S	Th	V	Y
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO										
P2O5										
Total										
As										
Ba										
Co										
Cr										
Cu										
Ga										
La										
Ni	1.00									
Nb	-0.39	1.00								
Pb	0.07	-0.16	1.00							
Rb	0.52	-0.07	0.14	1.00						
Sr	0.61	-0.52	0.21	0.32	1.00					
Sb	0.07	-0.25	-0.25	-0.16	-0.25	1.00				
S	-0.07	-0.31	0.03	-0.28	0.39	-0.16	1.00			
Th	0.01	0.53	0.29	0.00	0.03	-0.26	-0.22	1.00		
V	0.76	-0.36	0.20	0.28	0.74	-0.09	-0.12	0.31	1.00	
Y	0.12	0.59	0.05	-0.03	0.10	-0.57	0.10	0.48	0.14	1.00
Zn	0.30	0.20	0.70	0.25	0.22	-0.38	-0.33	0.53	0.42	0.50
Zr	-0.03	0.79	0.11	-0.05	-0.26	-0.34	-0.40	0.82	0.13	0.62
Quartz	-0.88	0.64	-0.27	-0.40	-0.80	0.01	-0.11	0.07	-0.86	-0.01
Feldspar	0.79	-0.63	0.12	0.14	0.63	0.08	0.02	-0.07	0.87	-0.03
Basic	0.40	-0.26	0.31	0.69	0.55	-0.16	0.26	0.20	0.32	-0.13
Acid	0.29	-0.27	0.87	0.39	0.46	-0.21	0.05	0.43	0.45	-0.02
Metam.	0.12	-0.18	-0.32	0.01	0.15	0.02	0.09	-0.15	-0.15	-0.15
Sedim.	0.19	-0.41	0.11	0.11	0.56	0.04	0.60	0.16	0.31	-0.17
Ferromag	-0.16	0.25	-0.21	0.65	-0.01	-0.30	-0.24	0.15	-0.14	-0.03
Matrix	0.53	-0.14	0.08	0.36	0.35	-0.06	-0.07	-0.40	0.22	0.26

	Zn	Zr	Quartz	Feldspar	Basic	Acid	Metam.	Sedim.	Ferromag	Matrix
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO										
P2O5										
Total										
As										
Ba										
Co										
Cr										
Cu										
Ga										
La										
Ni										
Nb										
Pb										
Rb										
Sr										
Sb										
S										
Th										
V										
Y										
Zn	1.00									
Zr	0.50	1.00								
Quartz	-0.29	0.24	1.00							
Feldspar	0.22	-0.18	-0.90	1.00						
Basic	0.06	-0.15	-0.44	0.13	1.00					
Acid	0.57	0.10	-0.48	0.25	0.66	1.00				
Metam.	-0.29	-0.23	0.01	-0.17	0.13	-0.16	1.00			
Sedim.	-0.29	-0.29	-0.38	0.20	0.74	0.47	0.15	1.00		
Ferromag	-0.09	0.06	0.24	-0.38	0.44	0.04	0.12	0.08	1.00	
Matrix	0.29	-0.19	-0.49	0.27	0.01	0.03	0.19	-0.23	-0.19	1.00

Principal Component Analysis:

Rams Cleuch Soil Grid (1)

TABLE 3.06

VAR. / ID.	E.Vect-1	E.Vect-2	E.Vect-3
SI02	0.225	-0.273	0.062
AL203	-0.291	-0.159	0.043
FE203	-0.227	0.249	-0.145
MG0	-0.058	-0.330	0.169
NA20	0.217	-0.345	0.204
K20	-0.336	-0.016	-0.231
AS	-0.083	0.377	0.374
BA	-0.191	-0.211	0.287
CO	-0.144	-0.105	0.098
CU	-0.285	-0.068	0.216
GA	-0.292	-0.048	-0.257
NI	-0.303	-0.207	0.220
PB	-0.036	0.567	0.365
RB	-0.251	0.041	-0.349
SR	-0.211	0.046	0.114
V	-0.345	0.017	-0.188
ZN	-0.246	-0.130	0.269
TL	-0.028	-0.080	-0.011
SB	-0.141	0.286	0.282
S	0.136	0.345	0.026
E	6.550	2.770	2.690
%E	32.752	13.860	13.480
C%E	32.750	46.620	60.100

Swin Gill Soil Grid (2)

VAR. / ID.	E.Vect-1	E.Vect-2	E.Vect-3
MgO	0.295	0.541	0.104
Na2O	-0.129	0.353	0.237
K2O	0.233	-0.153	-0.480
As	0.248	-0.454	0.189
Ba	0.314	0.137	0.298
Co	0.045	-0.113	0.014
Cu	0.425	0.013	-0.152
Ni	0.409	0.303	0.006
Pb	0.167	-0.394	0.432
Rb	0.262	-0.246	-0.122
Zn	0.401	0.088	0.292
Sb	0.208	-0.224	-0.240
S	0.169	-0.207	0.458
E	4.120	2.250	2.160
%E	31.690	17.370	16.660
C%E	31.690	49.070	65.730

KEY

E - Eigenvalues
%E - Eigenvalues % of variation
C%E - Cumulative % of variation

Principal Component Analysis:

Marchburn Formation

TABLE 3.07

VAR. / ID.	E.Vect-1	E.Vect-2	E.Vect-3
SI02	0.246	-0.215	0.032
AL203	0.199	0.213	0.185
TI02	-0.153	0.336	0.147
FE203	-0.230	0.273	0.109
MGO	-0.252	0.153	-0.098
CAO	-0.135	-0.189	-0.336
NA20	0.247	0.089	-0.119
K20	0.092	-0.060	0.405
MNO	-0.022	0.104	-0.203
P205	0.191	0.153	-0.169
TOTAL	0.115	0.012	-0.204
AS	-0.090	0.084	0.214
BA	0.217	0.027	-0.022
CO	-0.031	0.257	-0.167
CR	-0.255	-0.014	-0.121
CU	-0.193	0.181	-0.081
GA	0.080	0.419	0.080
LA	0.226	0.087	-0.223
NI	-0.264	-0.045	-0.101
NB	0.228	0.181	0.032
PB	0.152	0.044	0.071
RB	0.128	-0.084	0.417
SR	0.216	0.111	-0.265
SB	-0.054	0.189	0.104
S	-0.139	0.056	0.251
TH	0.154	0.057	-0.162
V	-0.204	0.317	-0.040
Y	0.154	0.168	0.012
ZN	0.113	0.304	-0.061
ZR	0.273	0.080	0.052
E	10.870	3.890	2.620
%E	36.260	12.970	8.740
C%E	36.260	49.240	57.970

KEY

E - Eigenvalues
%E - Eigenvalues % of variation
C%E - Cumulative % of variation

Principal Component Analysis :

Afton Formation

TABLE 3.08

VAR. / ID.	E.Vect-1	E.Vect-2	E.Vect-3
SI02	-0.802	0.085	0.210
AL203	0.233	-0.207	0.188
TI02	0.290	0.189	0.090
FE203	0.310	0.157	0.055
MGO	0.195	0.154	-0.248
CAO	-0.038	0.085	-0.312
NA20	0.016	0.105	0.493
K20	0.192	-0.322	-0.147
MNO	0.115	0.147	-0.082
P205	0.228	0.135	0.181
TOTAL	-0.093	-0.202	0.133
AS	-0.077	-0.273	-0.011
BA	0.156	-0.162	0.150
CO	0.022	-0.062	0.150
CR	0.153	0.212	-0.271
CU	0.228	-0.084	0.114
GA	0.272	-0.191	0.050
LA	0.252	-0.083	0.073
NI	0.147	0.019	-0.345
NB	0.284	-0.182	0.011
PB	0.006	-0.208	0.033
RB	0.158	-0.428	-0.224
SR	0.046	0.133	0.174
SB	0.008	-0.178	-0.093
S	-0.018	-0.038	0.141
TH	0.167	0.032	-0.146
V	0.264	0.270	0.074
Y	0.284	0.049	0.074
ZN	0.088	-0.247	0.125
ZR	0.223	0.122	-0.114
E	7.200	2.890	2.690
%E	24.010	9.630	8.980
C%E	24.010	33.650	42.630

KEY

E - Eigenvalues
%E - Eigenvalues % of variation
C%E - Cumulative % of variation

Principal Component Analysis:

Blackcraig Formation

TABLE 3.09

VAR. / ID.	E.Vect-1	E.Vect-2	E.Vect-3
SI02	0.190	-0.298	0.129
AL203	-0.303	-0.001	-0.022
TI02	-0.035	0.324	0.019
FE203	-0.079	0.346	0.143
MGO	-0.140	0.282	-0.254
CAO	0.160	0.150	0.139
NA20	0.172	0.091	0.001
K20	-0.235	-0.207	0.129
MNO	-0.010	0.252	0.193
P205	-0.240	-0.047	0.070
TOTAL	-0.001	-0.093	0.361
AS	-0.168	0.116	0.042
BA	-0.199	-0.250	-0.020
CO	-0.131	0.110	-0.330
CR	0.044	-0.050	-0.319
CU	-0.276	0.142	0.009
GA	-0.201	0.196	0.026
LA	-0.246	-0.176	0.065
NI	-0.176	0.139	-0.415
NB	-0.272	-0.095	-0.089
PB	-0.213	-0.077	-0.042
RB	-0.262	-0.170	0.113
SR	-0.004	0.125	0.300
SB	0.021	0.055	0.224
S	-0.207	0.084	0.155
TH	-0.081	-0.084	-0.032
V	0.033	0.361	0.044
Y	-0.198	0.073	0.297
ZN	-0.205	0.146	0.147
ZR	-0.248	-0.159	-0.028
E	8.860	6.040	2.400
%E	29.540	20.140	8.000
C%E	29.540	49.680	57.680

KEY

E - Eigenvalues
%E - Eigenvalues % of variation
C%E - Cumulative % of variation

Principal Component Analysis:

Scar Formation

TABLE 3.10

VAR. / ID.	E.Vect-1	E.Vect-2	E.Vect-3
SI02	0.371	0.018	0.011
AL203	-0.099	-0.069	-0.400
TI02	-0.264	0.218	0.106
FE203	-0.338	-0.012	0.167
MGO	-0.253	0.145	0.114
CAO	-0.192	-0.226	0.128
NA20	0.046	-0.302	-0.003
K20	-0.050	0.193	-0.349
MNO	-0.260	-0.176	0.206
P205	-0.314	-0.070	0.053
TOTAL	0.046	-0.162	-0.144
AS	0.019	0.001	-0.067
BA	-0.120	0.181	-0.246
CO	-0.121	-0.121	-0.139
CR	-0.134	0.281	0.253
CU	-0.002	0.129	-0.196
GA	-0.281	-0.069	-0.223
LA	0.064	0.250	-0.161
NI	-0.077	0.364	0.103
NB	0.035	0.281	0.009
PB	-0.062	-0.040	-0.236
RB	-0.055	0.155	-0.396
SR	-0.261	-0.020	-0.161
SB	0.063	0.120	-0.041
S	0.012	-0.162	-0.215
TH	0.045	0.182	0.011
V	-0.361	-0.070	-0.008
Y	-0.127	0.150	-0.008
ZN	-0.160	-0.018	-0.121
ZR	0.002	0.362	0.076
E	5.730	4.130	3.870
%E	19.110	14.360	12.900
C%E	19.110	33.480	46.390

KEY

E - Eigenvalues
%E - Eigenvalues % of variation
C%E - Cumulative % of variation

Principal Component Analysis:

Shinnel Formation

TABLE 3.11

VAR. / ID.	E.Vect-1	E.Vect-2	E.Vect-3
SI02	0.176	0.327	0.175
AL203	0.285	0.004	-0.068
TI02	0.265	0.076	0.119
FE203	0.286	-0.086	0.023
MGO	0.201	0.018	0.154
CAO	-0.150	0.026	0.251
NA20	0.034	0.380	-0.234
K20	0.252	-0.184	-0.016
MNO	0.036	-0.043	0.001
P205	0.197	0.208	0.288
TOTAL	0.206	0.234	0.217
AS	0.121	-0.203	0.039
BA	0.191	-0.152	0.015
CO	0.112	0.269	0.121
CR	0.123	0.229	0.198
CU	0.126	-0.216	0.054
GA	0.262	-0.002	-0.164
LA	0.177	0.234	-0.100
NI	0.256	-0.153	0.112
NB	0.084	0.180	-0.472
PB	0.075	-0.026	0.092
RB	0.268	-0.154	-0.090
SR	-0.112	0.200	0.207
SB	-1.000	-1.000	-1.000
S	-0.041	0.000	0.165
TH	0.150	0.021	-0.214
V	0.267	-0.052	0.169
Y	0.196	0.065	-0.204
ZN	0.171	-0.249	-0.206
ZR	0.010	0.340	-0.314
E	10.760	3.600	2.670
%E	37.130	12.440	9.220
C%E	37.130	49.560	58.790

KEY

E - Eigenvalues
%E - Eigenvalues % of variation
C%E - Cumulative % of variation

Principal Component Analysis:

Pyroxenous Formation

TABLE 3.12

VAR. / ID.	E.Vect-1	E.Vect-2	E.Vect-3
SI02	0.385	0.010	-0.096
AL203	-0.062	0.244	0.396
TI02	-0.282	0.032	-0.147
FE203	-0.313	-0.074	-0.169
MGO	-0.208	0.177	0.155
CAO	-0.115	-0.146	-0.230
NA20	0.109	0.308	-0.131
K20	-0.006	-0.324	0.323
MNO	-0.158	-0.125	-0.165
P205	-0.281	-0.045	0.074
TOTAL	0.193	0.144	-0.001
AS	-0.074	-0.230	-0.059
BA	0.004	-0.144	0.252
CO	-0.014	0.337	0.275
CR	-0.009	0.154	-0.254
CU	-0.235	0.182	0.085
GA	-0.324	0.092	0.089
LA	-0.039	0.231	0.061
NI	0.036	0.140	0.077
NB	0.145	-0.042	-0.065
PB	0.022	0.248	-0.099
RB	-0.034	-0.255	0.387
SR	-0.139	-0.055	-0.007
SB	-0.069	-0.202	-0.172
S	0.041	0.193	-0.099
TH	-0.002	-0.156	0.139
V	-0.371	0.090	-0.068
Y	-0.040	-0.214	-0.221
ZN	-0.316	0.089	-0.046
ZR	0.017	0.135	-0.197
E	5.480	4.400	3.580
%E	18.260	14.680	11.940
C%E	18.260	32.950	44.890

KEY

E - Eigenvalues
%E - Eigenvalues % of variation
C%E - Cumulative % of variation

Principal Component Analysis:

Intermediate Formation

TABLE 3.13

VAR. / ID.	E.Vect-1	E.Vect-2	E.Vect-3
SI02	0.303	0.205	-0.065
AL203	-0.176	0.239	-0.182
TI02	-0.205	-0.187	-0.312
FE203	-0.272	-0.250	-0.168
MGO	-0.122	-0.229	0.260
CAO	0.008	-0.229	0.155
NA20	-0.070	-0.087	0.160
K20	-0.252	0.293	0.107
MNO	-0.103	-0.119	-0.227
P205	-0.202	-0.196	-0.188
TOTAL	0.126	0.248	-0.103
AS	-0.068	0.051	-0.162
BA	-0.245	0.143	0.117
CO	0.167	0.077	-0.236
CR	0.005	-0.075	-0.097
CU	-0.223	0.026	-0.042
GA	-0.318	0.079	-0.006
LA	-0.102	0.315	-0.103
NI	-0.081	0.035	-0.299
NB	-0.115	0.279	-0.024
PB	-0.190	0.137	0.212
RB	-0.232	0.306	0.107
SR	-0.185	-0.048	0.239
SB	-0.144	0.027	0.045
S	-0.179	-0.063	0.138
TH	-0.096	0.187	0.106
V	-0.242	-0.264	-0.236
Y	-0.129	0.132	-0.387
ZN	-0.255	0.005	0.148
ZR	0.069	0.159	-0.160
E	6.660	4.560	2.810
%E	22.220	15.200	9.380
C%E	22.220	37.430	46.810

KEY

E - Eigenvalues
%E - Eigenvalues % of variation
C%E - Cumulative % of variation

Principal Component Analysis:

Hawick Formation

TABLE 3.14

VAR. / ID.	E.Vect-1	E.Vect-2	E.Vect-3
SI02	0.130	-0.316	-0.158
AL203	0.252	-0.082	-0.178
TI02	0.273	-0.138	0.140
FE203	0.283	0.082	0.123
MGO	0.071	0.248	0.408
CAO	-0.274	0.117	0.011
NA20	-0.075	-0.023	0.148
K20	0.255	0.155	-0.112
MNO	-0.097	-0.068	-0.296
P205	0.120	-0.276	0.119
TOTAL	0.228	-0.142	-0.146
AS	0.152	0.192	-0.024
BA	0.148	0.229	-0.049
CO	0.060	-0.228	0.301
CR	0.141	-0.236	0.295
CU	0.142	0.088	-0.299
GA	0.251	0.076	0.125
LA	0.079	-0.099	0.231
NI	0.255	0.159	0.103
NB	0.107	-0.075	-0.319
PB	0.059	0.212	0.050
RB	0.265	0.153	-0.111
SR	-0.202	0.138	0.119
SB	-0.009	-0.117	-0.004
S	0.057	0.299	-0.011
TH	0.158	0.011	0.115
V	0.270	0.050	0.169
Y	0.199	-0.091	-0.169
ZN	0.190	0.158	-0.172
ZR	0.084	-0.392	0.015
E	10.380	3.630	2.310
%E	34.600	12.100	7.720
C%E	34.600	46.700	54.420

KEY

E - Eigenvalues
%E - Eigenvalues % of variation
C%E - Cumulative % of variation

Principal Component Analysis: Clontibret Mineralisation

TABLE 3.15

VAR. / ID.	E.Vect-1	E.Vect-2	E.Vect-3
SI02	0.250	-0.132	0.082
AL203	-0.282	0.090	-0.061
TI02	-0.179	0.072	-0.061
FE203	0.137	0.287	-0.037
FEO	-0.257	-0.116	-0.119
MGO	-0.235	-0.092	-0.168
CAO	-0.056	0.000	0.363
NA20	-0.194	-0.142	-0.202
K20	-0.134	0.250	0.131
MNO	-0.137	-0.197	-0.028
P205	-0.249	-0.148	-0.099
LOI	-0.086	-0.067	-0.427
CO2	-0.034	-0.029	0.391
TOTAL	-0.171	-0.263	0.124
Au	0.093	0.306	0.030
AS	0.183	0.104	0.035
BA	0.253	0.144	-0.007
CO	-0.067	0.314	-0.055
CR	-0.154	0.256	-0.057
CU	0.076	0.159	-0.351
NI	-0.251	0.147	-0.072
NB	-0.202	0.113	-0.041
PB	0.240	0.094	-0.154
RB	-0.167	0.242	0.161
SB	0.233	0.021	-0.204
SR	-0.007	0.158	0.294
V	-0.049	0.329	-0.066
Y	0.192	0.017	-0.253
ZN	0.064	0.292	-0.051
ZR	-0.279	0.086	0.025
E	10.630	8.090	3.730
%E	35.440	26.990	12.460
C%E	35.440	62.430	74.900

KEY

E - Eigenvalues
%E - Eigenvalues % of variation
C%E - Cumulative % of variation

Principal Component Analysis: Leadhills Mineralisation

TABLE 3.16

VAR. / ID.	E.Vect-1	E.Vect-2	E.Vect-3
SI02	0.057	0.336	-0.003
AL203	0.290	0.034	0.171
TI02	-0.027	-0.364	0.167
FE203	0.042	-0.356	0.151
MGO	-0.063	-0.326	0.105
CAO	-0.133	-0.013	-0.150
NA20	-0.315	0.103	-0.057
K20	0.339	0.082	0.107
MNO	-0.049	-0.252	-0.067
P205	-0.209	-0.138	-0.181
AS	0.118	0.000	0.018
BA	0.320	-0.024	0.048
CO	0.027	-0.175	0.037
CR	-0.097	-0.318	0.057
CU	0.279	-0.116	-0.200
GA	0.002	-0.102	0.526
LA	0.133	-0.077	-0.260
NI	0.191	-0.103	0.040
PB	0.087	-0.191	-0.413
RB	0.341	0.070	0.053
SR	-0.324	0.002	-0.067
SB	0.177	0.097	-0.187
S	0.128	0.010	-0.396
V	0.094	-0.346	-0.005
Y	0.211	0.032	0.002
ZN	0.187	-0.174	-0.107
ZR	0.031	-0.209	0.239
E	7.690	5.520	2.620
%E	28.500	20.530	9.700
C%E	28.500	49.030	58.740

KEY

E - Eigenvalues
%E - Eigenvalues % of variation
C%E - Cumulative % of variation

Principal Component Analysis:

Glendinning Mineralised Greywackes

TABLE 3.17

VAR. / ID.	E.Vect-1	E.Vect-2	E.Vect-3
SI02	0.170	-0.268	0.150
AL203	0.223	0.278	-0.108
TI02	0.175	0.283	0.188
FE203	-0.138	0.048	-0.187
MGO	-0.230	0.056	-0.098
CAO	-0.287	0.067	-0.017
NA20	-0.120	-0.061	0.252
K20	0.143	0.352	-0.162
MNO	-0.277	0.020	-0.078
P205	-0.168	0.267	0.171
AS	0.242	-0.283	-0.054
BA	0.147	-0.011	0.019
CO	0.191	-0.117	0.298
CR	0.100	0.050	0.395
CU	0.207	-0.068	-0.108
GA	0.289	0.040	-0.125
LA	0.174	0.153	0.031
NI	0.197	-0.071	0.139
NB	0.099	0.320	0.096
PB	0.181	-0.162	-0.066
RB	0.186	0.304	-0.128
SR	0.018	0.245	0.133
SB	0.139	-0.129	0.198
S	0.234	-0.113	0.006
TH	-0.058	0.189	0.216
V	0.252	0.243	-0.049
Y	-0.093	0.091	0.197
ZN	0.188	-0.166	0.086
ZR	-0.061	-0.014	0.453
Tl	0.035	0.090	-0.197
E	9.130	5.230	3.390
%E	30.430	17.450	11.300
C%E	30.430	47.880	59.190

KEY

E - Eigenvalues
%E - Eigenvalues % of variation
C%E - Cumulative % of variation

Principal Component Analysis:

Glendinning Mineralised Breccias

TABLE 3.18

VAR. / ID.	E.Vect-1	E.Vect-2	E.Vect-3
SI02	0.242	0.009	-0.066
AL203	-0.237	0.056	-0.067
TI02	-0.238	0.072	0.001
FE203	0.103	0.190	0.186
MGO	-0.153	0.000	0.165
CAO	-0.191	-0.184	0.153
NA20	-0.133	-0.156	0.127
K20	-0.227	-0.010	0.106
MNO	-0.216	-0.036	0.191
P205	-0.204	-0.100	0.113
AS	-0.040	0.448	0.073
BA	-0.192	-0.038	0.156
CO	0.208	0.134	0.196
CR	-0.223	0.126	0.022
CU	-0.073	0.280	0.362
GA	-0.209	0.202	0.033
LA	-0.203	0.123	-0.092
NI	-0.186	0.238	-0.093
NB	-0.238	-0.020	-0.063
PB	-0.088	0.234	-0.420
RB	-0.216	0.087	0.109
SR	-0.183	0.000	-0.335
SB	0.072	0.421	0.011
S	0.087	0.263	0.065
TH	-0.180	-0.116	-0.138
V	-0.223	0.143	0.047
Y	-0.220	0.007	-0.005
ZN	-0.109	-0.312	0.232
ZR	-0.196	-0.123	-0.158
Tl	-0.039	-0.004	-0.446
E	16.260	3.940	2.050
%E	54.210	13.150	6.850
C%E	54.210	67.360	74.210

KEY

E - Eigenvalues
%E - Eigenvalues % of variation
C%E - Cumulative % of variation

Principal Component Analysis:

Glendinning Mineralised Mudstone

TABLE 3.19

VAR. / ID.	E.Vect-1	E.Vect-2	E.Vect-3
SI02	0.149	0.325	-0.155
AL203	-0.283	0.171	0.070
TI02	-0.319	-0.048	-0.055
FE203	-0.099	-0.205	-0.323
MGO	0.023	-0.393	0.075
CAO	0.150	-0.178	0.380
NA20	-0.044	-0.306	-0.182
K20	-0.290	0.092	0.149
MNO	0.189	0.046	-0.159
P205	-0.084	-0.087	0.159
AS	0.081	0.340	0.187
BA	0.123	-0.029	-0.057
CO	0.074	0.303	0.267
CR	-0.242	0.115	-0.059
CU	-0.146	0.144	-0.275
GA	-0.282	0.044	0.162
LA	-0.172	-0.117	-0.084
NI	-0.258	0.169	-0.123
NB	-0.230	-0.162	-0.034
PB	-0.150	0.106	0.237
RB	-0.263	0.136	0.160
SR	0.052	0.068	0.347
SB	-0.201	-0.073	-0.073
S	0.113	0.092	0.227
TH	0.043	-0.074	0.055
V	-0.300	-0.009	-0.001
Y	-0.193	0.032	0.086
ZN	-0.032	-0.322	-0.280
ZR	-0.067	0.070	-0.063
Tl	-0.108	-0.206	-0.118
E	8.500	4.520	3.710
%E	28.360	15.070	12.380
C%E	28.360	43.430	55.810

KEY

E - Eigenvalues
%E - Eigenvalues % of variation
C%E - Cumulative % of variation

Principal Component Analysis:

Glendinning Mineralised Siltstones

TABLE 3.20

VAR. / ID.	E.Vect-1	E.Vect-2	E.Vect-3
SI02	0.024	0.358	-0.214
AL203	0.304	-0.075	-0.089
TI02	0.285	-0.195	-0.111
FE203	-0.079	-0.196	0.090
MGO	-0.206	-0.196	0.187
CAO	-0.229	-0.206	0.256
NA20	-0.081	-0.103	-0.284
K20	0.285	-0.112	0.015
MNO	-0.232	-0.162	0.266
P205	0.023	-0.354	-0.038
AS	0.014	0.310	0.244
BA	-0.022	-0.102	0.124
CO	0.043	0.251	0.042
CR	0.291	-0.016	-0.083
CU	0.097	0.167	0.204
GA	0.263	0.016	0.060
LA	0.224	-0.018	0.075
NI	0.190	-0.141	0.178
NB	0.244	-0.125	-0.077
PB	0.080	0.020	0.370
RB	0.297	-0.020	0.065
SR	0.072	-0.194	0.374
SB	0.148	0.153	0.381
S	0.107	0.262	0.101
TH	0.048	-0.093	-0.084
V	0.311	-0.023	0.000
Y	0.161	-0.214	0.091
ZN	-0.080	-0.211	-0.131
ZR	0.056	-0.242	-0.149
Tl	0.003	-0.093	0.080
E	8.760	5.220	2.510
%E	29.210	17.400	8.370
C%E	29.210	46.620	54.990

KEY

E - Eigenvalues
%E - Eigenvalues % of variation
C%E - Cumulative % of variation

Table 3.21 Discriminant Analysis : Southern Uplands Greywacke Formations

Discrimination Units	Unit-1	Unit-2	DV1	DV2	DI	MAHAL	HOTEL	F ratio	Variables	Misclass	No.Gp1	No.Gp2	Comments
Glendinning Studies:													
Hawick M : Hawick G	MUD1	GLEND	66.35	53.92	60.14	12.43	-187.6	46.06	29	5.6	197	295	
Hawick M : Miner. M	MUD1	MINM1	25.36	-30.47	-2.55	55.83	1013.8	122.60	29	2.4	197	20	
Hawick G : Miner. G	GLEND	MING1	9.23	-3.27	2.98	12.51	461.5	230.00	2	6.1	295	42	Na+K Only
Hawick G : Miner. G	GLEN	MING1	14.25	2.30	8.28	11.94	440.6	440.00	1	5.2	295	42	Na Only
Hawick G : Miner. G	GLEN	MING1	3.28	-13.66	-5.18	16.94	624.8	87.70	7	4.0	295	42	**
Hawick G : Miner. G	GLEN	MING1	14.49	-24.03	-4.76	38.53	1420.7	40.40	31	1.7	295	42	Total Set
Regional Studies:													
Marchburn: Afton	F1	F3	47.45	8.92	28.18	38.53	1289.9	36.15	29	1.1	44	140	
Afton: Blackcraig	F3	F5	-13.67	-50.83	-32.26	37.17	1505.1	42.70	29	2.6	140	57	
Blackcraig: Scar	F5	F7	148.49	94.33	121.41	54.16	1959.3	53.00	29	5.1	57	99	
Scar: Shinnel	F7	F9	25.91	6.09	16.00	19.82	755.9	20.60	29	2.5	99	62	
Shinnel: Pyroxenous	F9	F11	-33.72	-48.48	-41.10	14.76	374.9	9.00	29	3.8	62	43	
Pyrox.: Intermediate	F11	F13	27.90	10.20	19.05	17.69	492.7	12.50	29	4.9	43	79	
Intermediate: Hawick	F13	GLEN	83.57	44.55	64.06	39.01	2333.2	70.80	29	7.2	79	295	

DV1 = Discriminant Value of Group 1

DV2 = Discriminant Value of Group 2

DI = Discriminant Index

** Group of Elements included Na, K, As, Co, Ni, Pb and Zn.

MAHAL = Mahalanobis D^2

HOTEL = Hotelling t^2

MISCL= Number of Samples Misclassified (ie Assigned to the wrong group)

Cratonic Greywacke

Correlation Coefficients:

TABLE 3.22

	East	North	SiO2	Al2O3	TiO2	Fe2O3	MgO	CaO	Na2O	K2O
East	1.00									
North	0.91	1.00								
SiO2	0.04	-0.04	1.00							
Al2O3	0.14	0.18	-0.40	1.00						
TiO2	-0.20	-0.06	-0.42	0.23	1.00					
Fe2O3	-0.27	-0.10	-0.72	0.31	0.75	1.00				
MgO	0.12	0.10	-0.64	0.08	0.12	0.47	1.00			
CaO	0.03	-0.02	-0.30	-0.36	-0.26	-0.17	0.21	1.00		
Na2O	-0.06	-0.09	-0.02	0.09	0.06	0.08	0.02	-0.22	1.00	
K2O	0.19	0.14	-0.36	0.58	-0.04	0.11	0.19	-0.09	-0.23	1.00
MnO	-0.02	0.02	-0.32	0.04	0.24	0.25	0.05	0.33	-0.10	-0.04
P2O5	0.04	0.00	-0.27	0.13	0.38	0.27	0.15	0.04	0.25	0.05
Total	0.20	0.07	0.46	0.31	-0.26	-0.36	-0.15	-0.13	0.12	0.13
As	0.00	0.09	-0.05	0.07	-0.11	0.04	-0.08	0.07	-0.29	0.14
Ba	0.19	0.17	-0.30	0.40	0.04	0.19	0.24	-0.23	0.23	0.63
Co	0.44	0.35	0.15	0.37	-0.17	-0.19	0.11	-0.11	0.10	0.02
Cr	0.06	0.04	-0.29	-0.05	0.12	0.24	0.55	0.10	-0.11	0.03
Cu	-0.11	-0.01	-0.36	0.35	0.30	0.37	0.14	-0.04	-0.01	0.19
Ga	-0.16	-0.08	-0.65	0.68	0.47	0.69	0.31	-0.26	0.19	0.51
La	0.10	0.10	-0.15	0.51	0.25	0.17	0.03	-0.31	-0.01	0.43
Ni	0.11	0.15	-0.37	0.30	0.10	0.29	0.44	-0.04	-0.25	0.29
Nb	-0.32	-0.20	-0.11	0.36	0.54	0.30	-0.21	-0.34	-0.10	0.25
Pb	0.12	0.11	-0.05	0.11	-0.12	-0.03	0.14	-0.05	0.04	0.20
Rb	0.25	0.18	-0.30	0.62	-0.08	0.06	0.15	-0.11	-0.24	0.94
Sr	-0.01	-0.04	-0.36	0.04	-0.11	0.16	0.31	0.23	0.40	0.12
Sb	-0.06	-0.01	-0.09	0.04	0.00	0.08	-0.07	0.00	-0.13	0.15
S	-0.23	-0.14	-0.21	0.01	0.11	0.23	0.08	0.12	0.02	-0.06
Th	-0.13	-0.06	-0.19	0.12	0.29	0.26	0.09	-0.13	-0.10	0.24
V	-0.14	-0.02	-0.67	0.23	0.76	0.86	0.47	-0.03	0.16	-0.02
Y	0.21	0.22	-0.18	0.34	0.38	0.29	-0.04	-0.16	-0.09	0.29
Zn	-0.04	0.04	-0.32	0.31	0.25	0.37	0.17	-0.16	0.07	0.22
Zr	0.21	0.13	0.10	0.03	0.31	-0.09	-0.01	-0.06	-0.11	0.02
K/Na	0.18	0.17	-0.01	0.16	-0.10	-0.13	-0.06	0.09	-0.43	0.17
Al/Si	0.11	0.17	-0.64	0.96	0.31	0.47	0.26	-0.22	0.07	0.60
Mg+Fe	-0.11	-0.01	-0.79	0.24	0.54	0.88	0.83	0.00	0.06	0.17
Fe/Mg	-0.12	-0.01	0.17	0.18	0.24	0.10	-0.60	-0.26	-0.13	-0.01
Al/Ca+Na	0.15	0.19	0.08	0.36	0.08	0.07	-0.22	-0.30	-0.28	0.22
La/Y	-0.04	-0.04	0.02	0.32	-0.03	-0.05	0.01	-0.24	0.04	0.23
Nb/Y	-0.46	-0.36	0.13	0.05	0.14	-0.03	-0.26	-0.19	-0.07	-0.02
Nb/P	-0.29	-0.15	0.16	0.08	0.08	0.00	-0.30	-0.25	-0.33	0.08
Rb/Sr	0.21	0.21	0.19	0.32	0.00	-0.10	-0.26	-0.29	-0.54	0.37
Ni/Co	-0.29	-0.19	-0.32	-0.19	0.14	0.29	0.24	0.12	-0.28	0.16
Cu/Co	-0.31	-0.21	-0.16	-0.08	0.19	0.19	-0.11	0.02	-0.08	0.04
Zn/Co	-0.28	-0.19	-0.09	-0.13	0.15	0.18	-0.13	-0.06	-0.02	0.03
Zr/Nb	0.47	0.31	0.13	-0.18	-0.07	-0.28	0.17	0.20	-0.05	-0.12
K/K+Na	0.17	0.17	-0.19	0.29	-0.12	-0.01	0.10	0.11	-0.80	0.70
Na+K	0.10	0.04	-0.31	0.53	0.02	0.16	0.16	-0.25	0.63	0.61

Number of Samples = 304

	MnO	P2O5	Total	As	Ba	Co	Cr	Cu	Ga	La
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO	1.00									
P2O5	0.20	1.00								
Total	-0.12	0.02	1.00							
As	0.13	-0.06	-0.03	1.00						
Ba	0.00	0.29	0.06	0.05	1.00					
Co	-0.09	0.02	0.61	-0.03	0.05	1.00				
Cr	0.02	-0.05	-0.14	-0.01	0.04	0.09	1.00			
Cu	0.18	0.19	-0.03	0.07	0.25	-0.02	0.02	1.00		
Ga	0.14	0.19	-0.07	0.02	0.44	-0.02	0.04	0.43	1.00	
La	0.00	0.33	0.20	0.00	0.44	0.19	-0.08	0.18	0.39	1.00
Ni	0.02	-0.01	-0.08	0.24	0.17	0.16	0.68	0.09	0.26	0.08
Nb	-0.07	0.24	-0.04	-0.04	0.10	-0.20	-0.19	0.22	0.42	0.46
Pb	-0.06	0.03	0.06	0.24	0.23	0.11	0.05	0.14	0.11	0.09
Rb	-0.07	0.00	0.22	0.12	0.53	0.14	-0.03	0.23	0.51	0.45
Sr	0.21	0.34	-0.07	-0.01	0.52	-0.04	0.06	0.11	0.25	0.13
Sb	0.13	-0.08	-0.13	0.31	0.04	-0.17	-0.02	0.04	0.05	-0.07
S	0.06	0.03	-0.13	0.12	-0.05	-0.11	0.00	0.25	0.15	-0.08
Th	-0.03	0.20	-0.14	0.05	0.13	-0.25	0.06	0.13	0.24	0.33
V	0.34	0.35	-0.30	-0.06	0.16	-0.04	0.34	0.44	0.57	0.13
Y	0.13	0.36	0.09	0.29	0.26	0.17	0.04	0.16	0.31	0.48
Zn	-0.01	0.14	-0.07	0.22	0.17	0.03	-0.04	0.34	0.44	0.22
Zr	-0.06	0.31	0.14	-0.09	0.02	0.17	0.23	-0.14	-0.10	0.34
K/Na	0.53	-0.09	0.05	0.19	-0.01	0.00	-0.04	0.14	-0.01	0.09
Al/Si	0.13	0.18	0.11	0.09	0.43	0.26	0.03	0.41	0.78	0.47
Mg+Fe	0.18	0.25	-0.31	-0.02	0.25	-0.06	0.44	0.31	0.60	0.12
Fe/Mg	0.16	0.06	0.01	0.46	-0.04	-0.08	-0.24	0.09	0.07	0.12
Al/Ca+Na	0.10	0.02	0.20	0.57	0.12	0.21	-0.01	0.06	0.14	0.24
La/Y	-0.07	0.08	0.21	-0.14	0.27	0.14	-0.14	0.06	0.18	0.74
Nb/Y	-0.15	-0.11	-0.04	-0.14	-0.16	-0.28	-0.25	0.02	0.08	0.00
Nb/P	-0.17	-0.66	-0.07	0.04	-0.23	-0.18	-0.13	0.01	0.14	0.03
Rb/Sr	-0.15	-0.19	0.20	0.36	-0.06	0.17	-0.09	0.06	0.08	0.17
Ni/Co	0.05	-0.10	-0.52	0.15	0.00	-0.66	0.45	0.04	0.11	-0.17
Cu/Co	0.09	0.08	-0.35	0.09	0.12	-0.59	-0.11	0.70	0.14	-0.02
Zn/Co	0.01	0.03	-0.35	0.25	-0.01	-0.56	-0.16	0.13	0.11	-0.05
Zr/Nb	-0.03	0.14	0.16	-0.04	-0.02	0.33	0.40	-0.28	-0.38	0.05
K/K+Na	0.11	-0.16	0.02	0.37	0.20	-0.03	0.09	0.10	0.16	0.23
Na+K	-0.11	0.24	0.21	-0.12	0.69	0.10	-0.07	0.15	0.56	0.33

Number of Samples = 304

Critical Value (5%) = 0.113
Critical Value (1%) = 0.148

	Ni	Nb	Pb	Rb	Sr	Sb	S	Th	V	Y
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO										
P2O5										
Total										
As										
Ba										
Co										
Cr										
Cu										
Ga										
La										
Ni	1.00									
Nb	-0.05	1.00								
Pb	0.09	0.04	1.00							
Rb	0.22	0.26	0.23	1.00						
Sr	-0.01	-0.21	0.08	0.07	1.00					
Sb	0.01	0.06	0.02	0.13	-0.08	1.00				
S	-0.03	0.10	0.12	-0.03	0.07	0.11	1.00			
Th	0.08	0.40	0.02	0.22	-0.02	0.04	0.01	1.00		
V	0.26	0.12	-0.05	-0.05	0.22	-0.01	0.25	0.14	1.00	
Y	0.26	0.34	0.03	0.30	0.01	0.02	-0.02	0.21	0.28	1.00
Zn	0.03	0.30	0.67	0.27	0.04	0.11	0.26	0.13	0.29	0.16
Zr	0.06	0.39	-0.01	0.04	-0.12	-0.10	-0.15	0.22	-0.01	0.38
K/Na	0.05	-0.05	0.02	0.20	-0.01	0.04	-0.04	0.01	-0.10	-0.03
Al/Si	0.35	0.33	0.11	0.63	0.15	0.07	0.09	0.16	0.39	0.33
Mg+Fe	0.42	0.08	0.05	0.12	0.26	0.01	0.19	0.21	0.79	0.16
Fe/Mg	0.09	0.25	-0.09	-0.03	-0.19	0.14	0.00	0.03	0.04	0.51
Al/Ca+Na	0.42	0.10	0.01	0.23	-0.17	0.09	-0.08	0.04	0.01	0.60
La/Y	-0.06	0.21	0.06	0.25	0.11	-0.09	-0.09	0.16	-0.08	-0.19
Nb/Y	-0.20	0.61	-0.01	-0.03	-0.25	0.06	0.08	0.16	-0.19	-0.46
Nb/P	-0.05	0.50	0.00	0.16	-0.44	0.13	0.07	0.11	-0.18	-0.07
Rb/Sr	0.27	0.24	0.06	0.43	-0.54	0.15	-0.14	0.11	-0.21	0.36
Ni/Co	0.52	0.09	-0.06	0.01	-0.02	0.16	0.06	0.26	0.16	-0.02
Cu/Co	-0.11	0.24	0.03	-0.01	0.03	0.13	0.18	0.22	0.16	0.00
Zn/Co	-0.17	0.28	0.52	-0.01	-0.02	0.19	0.20	0.18	0.04	0.00
Zr/Nb	0.12	-0.30	-0.01	-0.10	0.03	-0.13	-0.22	-0.04	-0.08	0.18
K/K+Na	0.36	0.14	0.07	0.66	-0.15	0.17	-0.09	0.17	-0.16	0.21
Na+K	0.02	0.12	0.19	0.55	0.42	0.01	-0.04	0.11	0.12	0.15

	Zn	Zr	K/Na	Al/Si	Mg+Fe	Fe/Mg	Al/Ca+Na	La/Y	Nb/Y	Nb/P
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO										
P2O5										
Total										
As										
Ba										
Co										
Cr										
Cu										
Ga										
La										
Ni										
Nb										
Pb										
Rb										
Sr										
Sb										
S										
Th										
V										
Y										
Zn	1.00									
Zr	-0.08	1.00								
K/Na	-0.06	-0.01	1.00							
Al/Si	0.37	-0.02	0.15	1.00						
Mg+Fe	0.33	-0.06	-0.12	0.43	1.00					
Fe/Mg	-0.01	0.00	-0.01	0.10	-0.25	1.00				
Al/Ca+Na	0.00	0.06	0.12	0.28	-0.07	0.79	1.00			
La/Y	0.09	0.06	0.11	0.27	-0.03	-0.12	-0.03	1.00		
Nb/Y	0.09	0.01	-0.05	0.01	-0.15	0.02	-0.17	0.34	1.00	
Nb/P	0.11	-0.04	0.06	0.03	-0.16	0.14	0.05	0.07	0.54	1.00
Rb/Sr	0.06	0.10	0.16	0.23	-0.20	0.45	0.66	0.01	0.06	0.36
Ni/Co	-0.04	-0.09	0.02	-0.07	0.31	0.02	0.02	-0.20	0.10	0.16
Cu/Co	0.16	-0.18	0.03	-0.01	0.06	0.16	-0.06	-0.06	0.18	0.12
Zn/Co	0.69	-0.14	-0.05	-0.07	0.05	0.14	-0.06	-0.09	0.24	0.20
Zr/Nb	-0.27	0.74	0.02	-0.20	-0.09	-0.18	0.00	-0.09	-0.44	-0.39
K/K+Na	0.03	0.05	0.52	0.32	0.05	0.11	0.39	0.11	0.00	0.24
Na+K	0.23	-0.08	-0.21	0.53	0.18	-0.11	-0.05	0.22	-0.08	-0.20

Number of Samples = 304

	Rb/Sr	Ni/Co	Cu/Co	Zn/Co	Zr/Nb	K/K+Na	Na+K
Nb/P							
Rb/Sr	1.00						
Ni/Co	0.03	1.00					
Cu/Co	-0.01	0.40	1.00				
Zn/Co	-0.01	0.33	0.47	1.00			
Zr/Nb	-0.07	-0.15	-0.35	-0.33	1.00		
K/K+Na	0.59	0.28	0.05	0.00	-0.02	1.00	
Na+K	-0.15	-0.11	-0.03	0.01	-0.13	-0.10	1.00

Volcanic Greywacke

Correlation Coefficients:

TABLE 3.23

	East	North	SiO2	Al2O3	TiO2	Fe2O3	MgO	CaO	Na2O	K2O
East	1.00									
North	0.89	1.00								
SiO2	0.08	0.00	1.00							
Al2O3	0.13	0.01	-0.18	1.00						
TiO2	-0.33	0.00	-0.44	-0.28	1.00					
Fe2O3	-0.28	-0.01	-0.61	-0.30	0.86	1.00				
MgO	0.03	0.06	-0.72	0.07	0.27	0.42	1.00			
CaO	-0.01	-0.01	-0.25	-0.37	-0.02	0.11	0.03	1.00		
Na2O	-0.03	0.04	0.18	0.25	-0.07	-0.17	-0.24	-0.22	1.00	
K2O	0.26	0.06	0.03	0.44	-0.41	-0.35	-0.02	-0.27	-0.32	1.00
MnO	-0.23	-0.08	-0.32	-0.27	0.45	0.53	0.11	0.27	0.07	-0.29
P2O5	0.22	0.22	-0.28	0.28	0.10	0.07	0.16	0.03	0.16	0.18
Total	0.08	0.08	0.41	0.29	-0.16	-0.17	-0.12	0.02	0.29	0.05
As	-0.08	-0.10	-0.18	0.08	0.08	0.12	0.07	-0.02	-0.12	0.05
Ba	0.31	0.12	0.03	0.45	-0.44	-0.39	0.05	-0.27	-0.03	0.72
Co	0.06	0.02	-0.24	0.41	0.07	0.05	0.26	-0.04	0.04	-0.02
Cr	-0.06	-0.02	-0.36	-0.19	0.21	0.27	0.58	0.16	-0.29	-0.12
Cu	-0.01	-0.03	-0.20	0.35	0.07	-0.01	0.12	-0.04	-0.13	0.09
Ga	0.00	0.03	-0.57	0.53	0.22	0.30	0.27	-0.07	0.23	0.09
La	0.37	0.22	0.11	0.39	-0.28	-0.37	-0.07	-0.25	0.03	0.41
Ni	-0.04	0.01	-0.48	-0.02	0.23	0.25	0.74	0.09	-0.33	0.01
Nb	0.09	0.23	-0.02	0.15	0.37	0.11	-0.04	-0.28	0.09	0.04
Pb	0.17	0.04	0.08	0.47	-0.35	-0.38	-0.09	-0.04	0.18	0.22
Rb	0.32	0.08	0.01	0.55	-0.47	-0.42	-0.04	-0.25	-0.31	0.95
Sr	0.39	0.23	-0.07	0.34	-0.37	-0.27	0.01	0.08	0.22	0.34
Sb	-0.02	-0.02	-0.04	-0.04	0.11	0.13	0.08	-0.09	-0.08	0.00
S	-0.29	-0.19	-0.21	0.15	0.23	0.31	0.05	0.01	-0.09	-0.02
Th	0.17	0.06	0.13	0.06	-0.23	-0.21	-0.09	-0.21	-0.02	0.33
V	-0.33	-0.08	-0.62	-0.21	0.83	0.[illegible]	0.35	0.22	-0.09	-0.42
Y	-0.17	0.11	-0.05	-0.32	0.60	0.[illegible]	-0.21	0.02	0.01	-0.29
Zn	-0.21	-0.09	-0.36	0.23	0.36	0.16	0.07	-0.01	0.11	-0.13
Zr	0.54	0.36	0.19	0.15	-0.21	-0.28	-0.14	-0.17	-0.16	0.33
K/Na	0.23	0.04	-0.03	0.27	-0.29	-0.22	0.02	-0.13	-0.62	0.91
Al/Si	0.08	0.00	-0.51	0.94	-0.09	-0.05	0.31	-0.24	0.14	0.38
Mg+Fe	-0.14	0.03	-0.79	-0.13	0.66	0.84	0.85	0.08	-0.24	-0.22
Fe/Mg	-0.27	-0.08	0.34	-0.32	0.35	0.27	-0.70	0.04	0.04	-0.23
Al/Ca+Na	0.06	-0.02	0.06	0.64	-0.09	-0.22	0.04	-0.72	-0.10	0.44
La/Y	0.36	0.11	0.14	0.45	-0.50	-0.55	0.02	-0.22	0.01	0.45
Nb/Y	0.18	0.11	0.06	0.36	-0.09	-0.29	0.11	-0.29	0.05	0.23
Nb/P	-0.18	-0.04	0.32	-0.11	0.23	-0.01	-0.27	-0.29	-0.11	-0.15
Rb/Sr	-0.10	-0.14	0.17	0.25	-0.06	-0.19	-0.16	-0.35	-0.39	0.42
Ni/Co	-0.04	-0.02	-0.27	-0.14	0.09	0.10	0.56	0.04	-0.31	0.07
Cu/Co	0.00	-0.02	-0.01	0.23	0.01	-0.10	-0.04	-0.09	-0.12	0.09
Zn/Co	-0.17	-0.08	0.09	-0.19	0.08	0.08	-0.25	0.02	0.00	-0.03
Zr/Nb	0.46	0.15	0.17	0.04	-0.52	-0.37	-0.10	0.06	-0.19	0.29
K/K+Na	0.24	0.04	-0.03	0.26	-0.32	-0.24	0.06	-0.15	-0.64	0.92
Na+K	0.19	0.09	0.18	0.59	-0.41	-0.44	-0.23	-0.41	0.62	0.55

Number of Samples = 248

Critical Value (5%) = 0.138
Critical Value (1%) = 0.181

	MnO	P2O5	Total	As	Ba	Co	Cr	Cu	Ga	La
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO	1.00									
P2O5	0.15	1.00								
Total	-0.07	0.11	1.00							
As	-0.03	-0.03	-0.15	1.00						
Ba	-0.30	0.31	0.11	-0.12	1.00					
Co	0.00	0.32	0.21	-0.11	0.12	1.00				
Cr	0.06	-0.02	-0.11	0.03	-0.11	0.10	1.00			
Cu	-0.14	-0.05	0.02	0.06	0.01	0.04	0.18	1.00		
Ga	0.12	0.33	-0.02	0.18	0.11	0.26	-0.06	0.29	1.00	
La	-0.10	0.51	0.11	-0.06	0.46	0.18	-0.07	0.12	0.11	1.00
Ni	0.01	0.04	-0.08	0.07	0.02	0.16	0.77	0.22	0.01	-0.03
Nb	0.07	0.52	0.04	0.02	0.11	0.13	-0.06	0.03	0.15	0.43
Pb	-0.24	0.18	0.25	-0.02	0.33	0.18	-0.14	0.23	0.22	0.31
Rb	-0.32	0.18	0.04	0.09	0.68	0.08	-0.16	0.10	0.13	0.46
Sr	-0.06	0.49	0.18	-0.17	0.55	0.18	-0.16	-0.03	0.33	0.44
Sb	0.01	-0.07	-0.03	0.18	-0.06	-0.15	0.10	0.23	0.07	-0.02
S	0.06	-0.15	0.04	0.12	-0.15	0.01	0.06	0.13	0.20	-0.14
Th	-0.13	0.15	-0.10	-0.08	0.33	-0.18	-0.06	-0.01	-0.03	0.31
V	0.53	0.11	-0.18	0.02	-0.41	0.20	0.20	0.10	0.36	-0.35
Y	0.32	-0.05	-0.12	0.03	-0.35	-0.16	-0.18	-0.07	0.12	-0.16
Zn	0.19	0.21	-0.06	0.23	-0.08	0.12	-0.11	0.12	0.47	0.02
Zr	-0.19	0.33	0.01	-0.08	0.32	0.12	-0.09	0.02	-0.05	0.66
K/Na	-0.21	0.13	-0.06	0.08	0.58	-0.01	-0.01	0.14	-0.02	0.37
Al/Si	-0.13	0.34	0.10	0.14	0.38	0.45	-0.04	0.37	0.66	0.30
Mg+Fe	0.37	0.14	-0.17	0.11	-0.20	0.19	0.50	0.07	0.34	-0.26
Fe/Mg	0.26	-0.14	0.01	-0.02	-0.33	-0.18	-0.34	-0.15	-0.16	-0.21
Al/Ca+Na	-0.38	-0.02	0.03	0.18	0.35	0.15	-0.03	0.51	0.20	0.35
La/Y	-0.23	0.40	0.14	-0.06	0.52	0.22	0.00	0.14	0.02	0.89
Nb/Y	-0.19	0.48	0.13	0.00	0.34	0.23	0.07	0.07	0.01	0.49
Nb/P	-0.13	-0.54	-0.06	0.05	-0.24	-0.23	-0.04	0.35	-0.19	-0.12
Rb/Sr	-0.28	-0.19	-0.06	0.28	0.07	0.02	0.00	0.26	-0.18	0.14
Ni/Co	-0.07	-0.09	-0.14	0.11	0.03	-0.28	0.67	0.26	-0.14	-0.04
Cu/Co	-0.17	-0.15	-0.01	0.08	-0.02	-0.21	0.09	0.95	0.15	0.09
Zn/Co	0.05	-0.18	-0.16	0.21	-0.14	-0.78	-0.18	0.08	-0.01	-0.10
Zr/Nb	-0.22	-0.06	-0.04	-0.09	0.23	0.04	-0.05	-0.01	-0.13	0.32
K/K+Na	-0.25	0.10	-0.08	0.09	0.58	-0.01	0.02	0.13	-0.03	0.34
Na+K	-0.18	0.29	0.30	-0.07	0.56	0.02	-0.36	-0.04	0.27	0.36

Number of Samples = 248

Critical Value (5%) = 0.138
Critical Value (1%) = 0.181

	Ni	Nb	Pb	Rb	Sr	Sb	S	Th	V	Y
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO										
P2O5										
Total										
As										
Ba										
Co										
Cr										
Cu										
Ga										
La										
Ni	1.00									
Nb	0.05	1.00								
Pb	-0.09	0.11	1.00							
Rb	-0.03	0.04	0.28	1.00						
Sr	-0.12	0.09	0.36	0.37	1.00					
Sb	0.11	0.01	0.05	-0.03	-0.05	1.00				
S	0.04	0.01	0.07	-0.01	-0.21	0.01	1.00			
Th	-0.07	0.06	0.06	0.30	0.22	-0.02	-0.15	1.00		
V	0.13	0.06	-0.27	-0.45	-0.20	0.05	0.26	-0.27	1.00	
Y	-0.26	0.36	-0.26	-0.34	-0.23	0.08	0.17	-0.16	0.48	1.00
Zn	-0.10	0.23	0.13	-0.09	0.03	0.09	0.18	0.02	0.40	0.38
Zr	-0.11	0.43	0.22	0.40	0.25	-0.03	-0.23	0.26	-0.31	0.00
K/Na	0.10	0.06	0.12	0.87	0.21	0.03	0.01	0.30	-0.30	-0.21
Al/Si	0.14	0.14	0.38	0.48	0.32	-0.03	0.22	0.00	0.04	-0.27
Mg+Fe	0.59	0.04	-0.27	-0.27	-0.15	0.12	0.21	-0.19	0.72	0.18
Fe/Mg	-0.45	0.13	-0.23	-0.26	-0.26	0.01	0.11	-0.10	0.22	0.56
Al/Ca+Na	0.10	0.25	0.19	0.49	-0.08	0.15	0.09	0.18	-0.26	-0.16
La/Y	0.06	0.18	0.37	0.52	0.43	-0.05	-0.19	0.31	-0.51	-0.57
Nb/Y	0.25	0.68	0.29	0.28	0.21	-0.05	-0.11	0.16	-0.32	-0.43
Nb/P	-0.03	0.35	-0.05	-0.16	-0.48	0.15	0.15	-0.10	-0.05	0.38
Rb/Sr	0.09	0.12	-0.02	0.46	-0.47	0.04	0.13	0.06	-0.26	-0.08
Ni/Co	0.87	0.02	-0.10	-0.01	-0.17	0.18	0.01	0.04	-0.08	-0.26
Cu/Co	0.11	0.02	0.18	0.08	-0.10	0.28	0.08	0.06	-0.03	-0.03
Zn/Co	-0.23	0.03	-0.02	-0.09	-0.17	0.23	0.15	0.15	-0.02	0.33
Zr/Nb	-0.17	-0.42	0.14	0.36	0.22	-0.05	-0.24	0.23	-0.33	-0.32
K/K+Na	0.12	0.02	0.11	0.88	0.19	0.04	0.00	0.28	-0.32	-0.25
Na+K	-0.28	0.11	0.33	0.51	0.48	-0.07	-0.10	0.25	-0.42	-0.23

Number of Samples = 248

	Zn	Zr	K/Na	Al/Si	Mg+Fe	Fe/Mg	Al/Ca+Na	La/Y	Nb/Y	Nb/P
East										
North										
SiO2										
Al2O3										
TiO2										
Fe2O3										
MgO										
CaO										
Na2O										
K2O										
MnO										
P2O5										
Total										
As										
Ba										
Co										
Cr										
Cu										
Ga										
La										
Ni										
Nb										
Pb										
Rb										
Sr										
Sb										
S										
Th										
V										
Y										
Zn	1.00									
Zr	-0.07	1.00								
K/Na	-0.13	0.38	1.00							
Al/Si	0.32	0.06	0.25	1.00						
Mg+Fe	0.25	-0.25	-0.12	0.16	1.00					
Fe/Mg	0.16	-0.07	-0.14	-0.39	-0.27	1.00				
Al/Ca+Na	0.09	0.23	0.40	0.54	-0.10	-0.16	1.00			
La/Y	-0.16	0.54	0.38	0.34	-0.31	-0.41	0.37	1.00		
Nb/Y	-0.09	0.39	0.20	0.30	-0.11	-0.28	0.36	0.58	1.00	
Nb/P	0.02	0.03	-0.07	-0.20	-0.17	0.30	0.38	-0.24	0.10	1.00
Rb/Sr	0.00	0.19	0.50	0.18	-0.20	0.14	0.64	0.16	0.20	0.41
Ni/Co	-0.19	-0.10	0.14	-0.04	0.39	-0.42	0.13	0.06	0.22	0.12
Cu/Co	0.05	0.04	0.14	0.20	-0.08	-0.05	0.52	0.10	0.04	0.46
Zn/Co	0.46	-0.10	-0.01	-0.21	-0.11	0.26	-0.02	-0.22	-0.22	0.25
Zr/Nb	-0.24	0.62	0.31	-0.03	-0.27	-0.19	0.02	0.42	-0.19	-0.33
K/K+Na	-0.15	0.37	0.98	0.25	-0.10	-0.18	0.40	0.39	0.20	-0.07
Na+K	-0.01	0.13	0.20	0.44	-0.40	-0.16	0.27	0.38	0.24	-0.22

Number of Samples = 248

	Rb/Sr	Ni/Co	Cu/Co	Zn/Co	Zr/Nb	K/K+Na	Na+K
Rb/Sr	1.00						
Ni/Co	0.15	1.00					
Cu/Co	0.31	0.28	1.00				
Zn/Co	0.07	0.11	0.28	1.00			
Zr/Nb	0.05	-0.14	0.01	-0.14	1.00		
K/K+Na	0.52	0.17	0.13	-0.03	0.33	1.00	
Na+K	0.00	-0.22	-0.04	-0.02	0.07	0.20	1.00

TABLE 3.24

Rams Cleuch (Grid 1) Soil Geochemistry

Correlation Coefficients:

	East	North	SiO2	Al2O3	Fe2O3	MgO	Na2O	K2O	As	Ba
East	1.00									
North	-0.05	1.00								
SiO2	-0.12	0.04	1.00							
Al2O3	0.23	0.06	-0.16	1.00						
Fe2O3	0.10	-0.21	-0.70	0.16	1.00					
MgO	-0.10	0.21	-0.07	0.05	-0.05	1.00				
Na2O	-0.18	-0.05	0.64	-0.28	-0.58	0.23	1.00			
K2O	0.14	-0.17	-0.47	0.68	0.46	0.01	-0.58	1.00		
As	-0.13	-0.04	-0.23	-0.01	0.24	-0.09	-0.24	-0.07	1.00	
Ba	0.07	0.11	-0.18	0.58	-0.04	0.38	0.02	0.26	0.11	1.00
Co	0.13	-0.45	-0.13	0.12	0.20	0.15	0.02	0.20	0.09	0.20
Cu	0.10	-0.17	-0.32	0.52	0.33	0.28	-0.24	0.48	0.29	0.42
Ga	0.16	-0.10	-0.38	0.53	0.38	0.09	-0.50	0.79	-0.07	0.21
Ni	0.13	-0.05	-0.34	0.65	0.26	0.45	-0.11	0.57	0.11	0.62
Pb	-0.09	0.04	-0.14	-0.02	0.07	-0.16	-0.17	-0.12	0.85	0.13
Rb	0.09	-0.41	-0.33	0.36	0.46	-0.11	-0.50	0.81	-0.08	0.02
Sr	0.20	-0.23	-0.13	0.62	0.13	-0.41	-0.22	0.44	0.18	0.36
V	0.17	-0.17	-0.49	0.61	0.62	0.04	-0.56	0.84	0.07	0.24
Zn	0.09	-0.14	-0.35	0.41	0.28	0.49	-0.03	0.32	0.29	0.55
Tl	-0.10	-0.04	0.05	0.07	0.02	0.02	0.02	0.06	-0.05	0.02
Sb	0.06	0.08	-0.27	0.24	0.21	-0.16	-0.33	0.15	0.59	0.13
S	-0.04	0.05	-0.32	-0.45	0.01	-0.20	-0.13	-0.26	0.14	-0.21

	Co	Cu	Ga	Ni	Pb	Rb	Sr	V	Zn	Tl
East										
North										
SiO2										
Al2O3										
Fe2O3										
MgO										
Na2O										
K2O										
As										
Ba										
Co	1.00									
Cu	0.34	1.00								
Ga	0.18	0.36	1.00							
Ni	0.35	0.73	0.41	1.00						
Pb	0.00	0.12	-0.14	0.04	1.00					
Rb	0.22	0.23	0.74	0.20	-0.12	1.00				
Sr	0.14	0.43	0.23	0.48	0.17	0.19	1.00			
V	0.28	0.51	0.81	0.54	-0.04	0.76	0.37	1.00		
Zn	0.39	0.57	0.33	0.72	0.20	0.21	0.18	0.43	1.00	
Tl	-0.02	0.06	0.04	0.10	-0.06	0.03	0.12	0.06	0.02	1.00
Sb	0.07	0.41	0.04	0.26	0.45	-0.04	0.39	0.18	0.20	-0.02
S	-0.22	-0.37	-0.28	-0.39	0.25	-0.16	-0.24	-0.33	-0.22	-0.10

Number of Samples = 195

Critical Value (5%) = 0.159
Critical Value (1%) = 0.208

TABLE 3.25

Swin Gill (Grid 2) Soil Geochemistry

Correlation Coefficients:

	East	North	SiO2	Al2O3	Fe2O3	MgO	Na2O	K2O	As	Ba
East	1.00									
North	0.01	1.00								
SiO2	-0.06	-0.09	1.00							
Al2O3	-0.08	-0.32	0.31	1.00						
Fe2O3	0.11	-0.10	-0.56	0.02	1.00					
MgO	0.09	-0.12	-0.21	0.42	0.22	1.00				
Na2O	0.09	0.21	0.29	-0.21	-0.28	0.28	1.00			
K2O	-0.15	-0.16	0.07	0.53	0.23	0.07	-0.46	1.00		
As	0.00	-0.20	-0.29	-0.06	0.39	-0.07	-0.31	0.19	1.00	
Ba	0.07	-0.21	-0.21	0.37	0.13	0.46	-0.04	-0.09	0.19	1.00
Co	-0.05	-0.05	-0.10	-0.05	0.09	-0.02	-0.07	0.04	0.12	0.05
Cu	0.09	-0.28	-0.27	0.44	0.53	0.47	-0.29	0.51	0.37	0.39
Ga	-0.15	-0.02	0.19	0.37	0.16	-0.01	-0.11	0.47	0.12	-0.18
Ni	0.09	-0.13	-0.31	0.53	0.36	0.79	-0.08	0.30	0.10	0.61
Pb	0.07	-0.08	-0.29	-0.27	0.16	-0.06	-0.06	-0.11	0.77	0.28
Rb	0.06	-0.28	0.03	0.36	0.34	0.04	-0.18	0.48	0.40	0.21
Sr	0.01	-0.11	0.14	0.48	-0.01	0.14	-0.12	0.21	0.14	0.48
V	-0.05	-0.34	0.01	0.53	0.58	0.27	-0.21	0.55	0.21	0.13
Zn	0.18	-0.21	-0.41	0.31	0.40	0.63	-0.03	0.06	0.43	0.69
Tl	-0.01	-0.05	-0.01	0.11	0.01	0.13	-0.02	0.04	0.01	0.10
Sb	-0.09	-0.52	0.04	0.31	0.11	-0.03	-0.30	0.37	0.30	0.11
S	0.00	0.20	-0.43	-0.58	-0.27	-0.28	0.00	-0.47	0.10	0.03

	Co	Cu	Ga	Ni	Pb	Rb	Sr	V	Zn	Tl
East										
North										
SiO2										
Al2O3										
Fe2O3										
MgO										
Na2O										
K2O										
As										
Ba										
Co	1.00									
Cu	0.06	1.00								
Ga	0.00	0.12	1.00							
Ni	0.01	0.76	-0.05	1.00						
Pb	0.09	0.15	-0.11	0.02	1.00					
Rb	0.07	0.35	0.49	0.14	0.30	1.00				
Sr	0.02	0.47	0.02	0.43	0.11	0.23	1.00			
V	0.00	0.47	0.55	0.32	-0.10	0.57	0.10	1.00		
Zn	0.04	0.56	-0.05	0.71	0.44	0.37	0.30	0.27	1.00	
Tl	0.08	0.11	0.02	0.14	0.02	0.06	0.13	0.03	0.09	1.00
Sb	0.04	0.48	0.13	0.19	0.11	0.23	0.45	0.25	0.08	0.00
S	-0.01	-0.39	-0.44	-0.33	0.43	-0.29	-0.22	-0.65	-0.05	-0.07

Number of Samples = 294

Critical Value (5%) = 0.138
Critical Value (1%) = 0.181

TABLE 4.01

Microprobe Analyses: Glendinning Arsenopyrite (ASP1) Part 1

VAR. / ID.	1	2	3	4	5	6	7	8	9	10
Lab No.	71	72	73	74	75	76	77	78	79	80
X	8210	8210	8210	8210	8210	8210	8205	8205	8205	8205
Y	427	422	407	402	397	383	371	376	386	391
Fe	35.461	35.298	35.361	35.567	35.536	34.986	35.359	34.981	35.688	36.138
As	44.164	44.228	44.719	42.655	42.747	45.496	44.202	44.443	42.896	42.215
S	21.913	21.637	21.463	22.990	22.093	21.262	21.926	21.627	22.757	23.310
Sb	0.046	0.087	0.066	0.108	0.209	0.076	0.078	0.118	0.108	0.085
Ni	0.031	0.005	0.055	0.020	0.010	0.038	0.014	0.000	0.007	0.078
Hg	0.428	0.376	0.284	0.293	0.409	0.250	0.441	0.233	0.471	0.354
Au	0.082	0.000	0.083	0.040	0.000	0.000	0.047	0.000	0.001	0.000
Total	102.125	101.631	102.031	101.673	101.004	102.108	102.067	101.402	101.928	102.180
As%Aspy	30.840	31.070	31.370	29.560	30.030	31.970	30.880	31.280	29.750	29.020
Fe%Aspy	33.220	33.260	33.270	33.060	33.490	32.980	33.140	33.030	33.200	33.330
S%Aspy	35.760	35.520	35.180	37.230	36.270	34.920	35.800	35.570	36.880	37.450
AsForm	0.925	0.932	0.941	0.887	0.901	0.959	0.927	0.938	0.893	0.871
FeForm	0.997	0.998	0.998	0.992	1.005	0.989	0.994	0.991	0.996	1.000
SForm	1.073	1.066	1.055	1.117	1.088	1.048	1.074	1.067	1.106	1.123

Microprobe Analyses: Glendinning Arsenopyrite (ASP1) Part 2

VAR. / ID.	11	12	13	14	15	16	17	18	20	21
Lab No.	81	83	84	85	86	87	88	89	90	91
X	8205	8205	8205	8205	8205	8200	8200	8200	8200	8200
Y	406	415	425	429	433	365	370	375	380	385
Fe	34.731	34.837	34.997	35.539	35.324	35.537	35.086	35.616	36.263	35.645
As	44.418	40.787	44.138	43.819	44.254	45.512	42.971	42.911	42.645	44.394
S	21.488	22.720	21.783	21.909	21.679	21.260	22.117	22.743	22.772	21.719
Sb	0.101	0.544	0.016	0.076	0.024	0.027	0.019	0.123	0.147	0.049
Ni	0.171	0.070	0.007	0.000	0.000	0.000	0.000	0.030	0.000	0.077
Hg	0.404	0.459	0.229	0.297	0.315	0.295	0.318	0.453	0.389	0.280
Au	0.051	0.000	0.000	0.000	0.077	0.000	0.028	0.000	0.057	0.034
Total	101.364	99.417	101.170	101.640	101.673	102.631	100.539	101.876	102.273	102.198
As%Aspy	31.350	28.880	31.060	30.680	31.060	31.830	30.290	29.770	29.460	31.000
Fe%Aspy	32.890	33.100	33.040	33.370	33.260	33.340	33.180	33.150	33.600	33.390
S%Aspy	35.440	37.600	35.820	35.840	35.560	34.740	36.440	36.880	36.760	35.440
AsForm	0.941	0.867	0.932	0.920	0.932	0.955	0.909	0.893	0.884	0.930
FeForm	0.987	0.993	0.991	1.001	0.998	1.000	0.996	0.995	1.008	1.002
SForm	1.063	1.128	1.075	1.075	1.067	1.042	1.093	1.106	1.103	1.063

TABLE 4.01

Microprobe Analyses: Glendinning Arsenopyrite (ASP1) Part 3

VAR. / ID.	22	23	24	25	26	27	28	29	30	31
Lab No.	92	93	94	95	96	97	98	99	100	101
X	8200	8200	8200	8200	8200	8200	8200	8200	8200	8200
Y	390	395	400	405	410	425	430	435	440	445
Fe	35.390	35.417	36.230	35.598	35.073	35.070	35.539	35.674	35.276	35.327
As	44.108	44.490	40.738	41.400	40.712	43.883	43.567	44.276	43.980	44.689
S	21.920	21.755	23.951	23.530	23.218	21.967	21.851	21.565	21.736	21.288
Sb	0.057	0.086	0.544	0.440	0.566	0.098	0.027	0.068	0.014	0.023
Ni	0.000	0.079	0.036	0.000	0.067	0.026	0.014	0.000	0.047	0.003
Hg	0.284	0.253	0.387	0.496	0.211	0.297	0.348	0.386	0.246	0.407
Au	0.010	0.067	0.025	0.104	0.000	0.027	0.054	0.022	0.000	0.000
Total	101.769	102.147	101.911	101.568	99.847	101.368	101.400	101.991	101.299	101.737
As%Aspy	30.860	31.090	27.930	28.620	28.560	30.800	30.580	31.020	30.920	31.470
Fe%Aspy	33.210	33.200	33.320	33.020	33.010	33.020	33.460	33.530	33.260	33.370
S%Aspy	35.830	35.530	38.380	38.020	38.070	36.030	35.840	35.310	35.710	35.030
AsForm	0.926	0.933	0.838	0.859	0.857	0.924	0.918	0.931	0.928	0.944
FeForm	0.996	0.996	1.000	0.991	0.990	0.991	1.004	1.006	0.998	1.001
SForm	1.075	1.066	1.151	1.141	1.142	1.081	1.075	1.059	1.071	1.051

TABLE 4.01

Microprobe Analyses: Glendinning Arsenopyrite (ASP1) Part 4

VAR. / ID.	32	33	34	35	36	37	38	39	40	41
Lab No.	102	103	104	105	106	107	108	109	110	111
X	8195	8195	8195	8195	8195	8195	8195	8195	8195	8195
Y	348	358	363	378	383	388	393	398	403	423
Fe	35.582	35.450	35.482	35.668	35.761	35.755	35.609	35.991	35.691	35.518
As	43.745	44.028	43.419	42.548	41.698	41.761	41.467	41.404	41.566	42.952
S	21.976	22.269	22.027	22.908	23.191	23.515	23.302	23.338	22.970	22.466
Sb	0.076	0.040	0.038	0.487	0.484	0.539	0.611	0.638	0.667	0.613
Ni	0.000	0.000	0.014	0.039	0.097	0.012	0.037	0.005	0.000	0.013
Hg	0.253	0.376	0.358	0.486	0.428	0.503	0.353	0.516	0.289	0.463
Au	0.082	0.034	0.000	0.000	0.014	0.107	0.011	0.017	0.000	0.055
Total	101.714	102.197	101.338	102.136	101.673	102.192	101.390	101.909	101.183	102.080
As%Aspy	30.590	30.620	30.430	29.450	28.870	28.750	28.750	28.590	28.940	29.890
Fe%Aspy	33.380	33.070	33.360	33.120	33.210	33.020	33.120	33.340	33.340	33.160
S%Aspy	35.910	36.190	36.080	37.060	37.520	37.830	37.750	37.660	37.370	36.530
AsForm	0.918	0.919	0.913	0.884	0.866	0.863	0.863	0.858	0.868	0.897
FeForm	1.002	0.992	1.001	0.994	0.996	0.991	0.994	1.000	1.000	0.995
SForm	1.077	1.086	1.082	1.112	1.126	1.135	1.133	1.130	1.121	1.096

TABLE 4.01

TABLE 4.01

Microprobe Analyses: Glendinning Arsenopyrite (ASP1) Part 5

VAR. / ID.	42	43	44	45	46	47	48	49	50	51
Lab No.	112	113	114	115	116	117	119	120	121	122
X	8195	8195	8195	8195	8195	8195	8185	8185	8185	8185
Y	428	433	438	443	448	435	314	319	324	329
Fe	35.307	35.533	35.515	35.549	35.789	35.473	35.291	35.577	35.977	35.018
As	43.658	43.660	43.638	44.036	42.201	44.209	44.049	43.599	43.062	42.882
S	22.213	21.944	22.087	21.779	22.702	21.820	21.637	21.791	22.285	22.614
Sb	0.024	0.105	0.143	0.089	0.337	0.060	0.024	0.054	0.182	0.272
Ni	0.051	0.000	0.000	0.024	0.009	0.000	0.000	0.041	0.000	0.000
Hg	0.191	0.369	0.242	0.403	0.391	0.331	0.229	0.406	0.293	0.303
Au	0.000	0.023	0.035	0.000	0.012	0.097	0.015	0.021	0.061	0.041
Total	101.444	101.634	101.660	101.880	101.441	101.990	101.245	101.489	101.860	101.130
As%Aspy	30.510	30.570	30.500	30.830	29.380	30.920	31.010	30.600	29.980	29.990
Fe%Aspy	33.100	33.370	33.300	33.380	33.430	33.280	33.330	33.490	33.600	32.850
S%Aspy	36.280	35.910	36.070	35.630	36.940	35.660	35.590	35.740	36.250	36.960
AsForm	0.915	0.917	0.915	0.925	0.882	0.928	0.930	0.918	0.900	0.900
FeForm	0.993	1.001	0.999	1.002	1.003	0.998	1.000	1.005	1.008	0.986
SForm	1.088	1.077	1.082	1.069	1.108	1.070	1.068	1.072	1.087	1.109

TABLE 4.01

Microprobe Analyses: Glendinning Arsenopyrite (ASP1) Part 6

VAR. / ID.	52	53	54	55	56	57	58	59	60	61
Lab No.	123	124	125	126	127	128	129	130	131	132
X	8185	8185	8185	8185	8185	8185	8185	8185	8185	8185
Y	334	339	344	349	354	359	364	369	379	384
Fe	35.194	35.220	35.969	35.312	35.967	35.555	35.738	36.170	35.889	35.569
As	42.112	41.974	42.135	41.765	42.718	42.221	41.322	41.191	42.047	41.675
S	22.425	23.079	23.415	22.883	22.828	22.817	23.439	23.663	22.927	23.240
Sb	0.411	0.737	0.333	0.326	0.448	0.347	0.535	0.524	0.537	0.541
Ni	0.032	0.036	0.000	0.034	0.041	0.115	0.045	0.007	0.061	0.009
Hg	0.456	0.238	0.421	0.303	0.357	0.218	0.458	0.343	0.441	0.343
Au	0.080	0.000	0.093	0.052	0.101	0.147	0.016	0.048	0.000	0.027
Total	100.710	101.284	102.366	100.675	102.460	101.420	101.553	101.946	101.902	101.404
As%Aspy	29.610	29.200	28.960	29.210	29.500	29.370	28.580	28.310	29.130	28.900
Fe%Aspy	33.200	32.870	33.160	33.130	33.320	33.180	33.150	33.350	33.350	33.090
S%Aspy	36.850	37.520	37.600	37.400	36.840	37.100	37.880	38.010	37.120	37.670
AsForm	0.888	0.876	0.869	0.876	0.885	0.881	0.858	0.849	0.874	0.867
FeForm	0.996	0.986	0.995	0.994	1.000	0.996	0.995	1.001	1.001	0.993
SForm	1.105	1.126	1.128	1.122	1.105	1.113	1.136	1.140	1.114	1.130

Microprobe Analyses: Glendinning Arsenopyrite (ASP1) Part 7

VAR. / ID.	62	63	64	65	66	67	68	69	70	71
Lab No.	133	134	135	136	137	138	139	140	141	142
X	8185	8185	8185	8185	8185	8185	8185	8185	8185	8185
Y	399	414	419	424	429	434	439	444	454	454
Fe	35.805	35.036	35.839	34.141	36.094	35.202	35.326	35.706	35.105	34.796
As	43.431	43.682	43.119	43.163	42.502	43.141	44.173	43.468	44.044	43.032
S	22.155	22.262	22.361	20.746	22.824	22.074	21.516	21.861	21.403	22.120
Sb	0.280	0.098	0.225	0.053	0.411	0.119	0.063	0.079	0.073	0.045
Ni	0.004	0.037	0.004	0.010	0.078	0.000	0.031	0.000	0.037	0.010
Hg	0.273	0.307	0.225	0.427	0.337	0.406	0.379	0.344	0.365	0.205
Au	0.000	0.000	0.028	0.037	0.013	0.001	0.000	0.000	0.029	0.000
Total	101.948	101.422	101.801	98.577	102.259	100.943	101.488	101.458	101.056	100.208
As%Aspy	30.260	30.560	30.010	31.350	29.360	30.340	31.090	30.480	31.150	30.410
Fe%Aspy	33.470	32.880	33.460	33.270	33.450	33.210	33.360	33.580	33.310	32.980
S%Aspy	36.070	36.400	36.370	35.220	36.850	36.280	35.390	35.820	35.380	36.530
AsForm	0.908	0.917	0.900	0.941	0.881	0.910	0.933	0.914	0.935	0.912
FeForm	1.004	0.987	1.004	0.998	1.004	0.996	1.001	1.008	0.999	0.989
SForm	1.082	1.092	1.091	1.057	1.105	1.088	1.062	1.075	1.061	1.096

TABLE 4.01

TABLE 4.02

Microprobe Analyses: Glendinning Arsenopyrite (ASP2) Part 1

VAR. / ID.	72	73	74	75	76	77	78	79	80	81
Lab No.	80	81	82	83	84	85	86	87	88	2
X	158	153	148	143	179	171	166	161	156	145
Y	293	293	293	293	290	290	290	290	290	290
Fe	33.990	34.358	33.872	34.877	34.601	34.262	34.185	33.720	34.003	31.900
As	42.921	42.388	42.781	43.066	44.187	43.814	42.847	42.137	42.669	41.673
S	21.804	22.197	21.495	22.046	21.234	21.211	22.108	21.911	21.855	20.733
Sb	0.198	0.254	0.148	0.215	0.233	0.274	0.353	0.243	0.208	0.274
Ni	0.000	0.000	0.001	0.008	0.022	0.008	0.045	0.038	0.048	0.000
Hg	1.054	0.459	0.560	0.362	0.416	0.272	0.509	0.168	0.415	0.134
Au	0.055	0.033	0.124	0.000	0.000	0.046	0.044	0.000	0.030	0.063
Total	100.022	99.689	98.981	100.574	100.693	99.887	100.091	98.217	99.228	94.777
As%Aspy	30.656	30.128	30.822	30.403	31.439	31.375	30.420	30.351	30.539	31.293
Fe%Aspy	32.566	32.758	32.738	33.032	33.022	32.915	32.558	32.585	32.647	32.137
S%Aspy	36.392	36.869	36.192	36.369	35.304	35.495	36.681	36.881	36.556	36.385
AsForm	0.920	0.904	0.925	0.912	0.943	0.941	0.913	0.910	0.916	0.939
FeForm	0.977	0.983	0.982	0.991	0.991	0.988	0.977	0.978	0.979	0.964
SForm	1.092	1.106	1.086	1.091	1.059	1.065	1.100	1.106	1.097	1.092

Microprobe Analyses: Glendinning Arsenopyrite (ASP2) Part 2

VAR. / ID.	84	85	86	87	88	89	90	91	92	93
Lab No.	3	4	5	6	7	8	9	10	11	12
X	171	166	161	156	151	146	141	136	171	166
Y	284	284	284	284	284	284	284	284	280	280
Fe	34.960	34.527	34.905	34.328	33.567	33.968	34.240	33.734	34.836	34.591
As	43.392	43.085	42.774	42.260	41.113	40.033	44.563	36.908	45.437	43.797
S	22.022	22.237	22.129	22.446	22.778	23.134	21.096	21.931	21.223	21.751
Sb	0.318	0.355	0.255	0.315	0.407	0.300	0.067	0.064	0.167	0.312
Ni	0.030	0.000	0.041	0.007	0.000	0.016	0.000	0.000	0.074	0.003
Hg	0.431	0.281	0.332	0.407	0.389	0.480	0.371	0.000	0.412	0.261
Au	0.000	0.013	0.105	0.000	0.077	0.000	0.052	0.066	0.013	0.001
Total	101.153	100.498	100.541	99.763	98.331	97.931	100.389	92.703	102.162	100.716
As%Aspy	30.528	30.408	30.189	29.950	29.412	28.583	31.831	27.651	31.970	30.990
Fe%Aspy	32.994	32.687	33.049	32.631	32.210	32.536	32.811	33.904	32.876	32.835
S%Aspy	36.204	36.673	36.497	37.170	38.078	38.603	35.214	38.400	34.895	35.963
AsForm	0.916	0.912	0.906	0.899	0.882	0.858	0.955	0.830	0.959	0.930
FeForm	0.990	0.981	0.992	0.979	0.966	0.976	0.984	1.017	0.986	0.985
SForm	1.086	1.100	1.095	1.115	1.142	1.158	1.056	1.152	1.047	1.079

TABLE 4.02

Microprobe Analyses: Glendinning Arsenopyrite (ASP2) Part 3

VAR. / ID.	94	95	96	97	98	99
Lab No.	13	14	15	16	17	18
X	161	156	151	146	141	136
Y	280	280	280	280	280	280
Fe	34.824	35.230	34.865	34.495	35.090	34.953
As	42.862	43.616	41.897	42.609	42.142	43.682
S	21.861	22.014	22.946	22.427	22.662	22.030
Sb	0.181	0.156	0.273	0.212	0.399	0.042
Ni	0.024	0.020	0.049	0.000	0.000	0.000
Hg	0.253	0.383	0.345	0.270	0.427	0.418
Au	0.000	0.000	0.000	0.000	0.042	0.000
Total	100.005	101.419	100.375	100.013	100.762	101.125
As%Aspy	30.420	30.592	29.371	30.109	29.554	30.712
Fe%Aspy	33.153	33.146	32.791	32.698	33.011	32.966
S%Aspy	36.258	36.078	37.591	37.034	37.141	36.195
AsForm	0.913	0.918	0.881	0.903	0.887	0.921
FeForm	0.995	0.994	0.984	0.981	0.990	0.989
SForm	1.088	1.082	1.128	1.111	1.114	1.086

TABLE 4.02

TABLE 4.03

Microprobe Analyses: Glendinning Arsenopyrite (ASP3) Part 1

VAR. / ID.	100	101	102	103	104	105	106	107	108	109
Lab No.	20	22	23	24	25	26	27	28	29	30
X	489	469	464	459	454	449	444	439	434	429
Y	162	162	162	161	160	159	159	159	159	158
Fe	35.376	34.548	34.829	35.244	32.403	35.135	35.445	35.254	35.339	35.225
As	44.216	44.636	44.784	44.320	41.304	44.149	44.169	44.056	44.174	43.069
S	21.612	21.484	21.416	22.162	20.449	22.033	21.921	21.837	21.900	21.956
Sb	0.049	0.000	0.034	0.052	0.029	0.040	0.048	0.051	0.027	0.177
Ni	0.000	0.007	0.000	0.000	0.000	0.000	0.043	0.000	0.000	0.022
Hg	0.363	0.151	0.439	0.233	0.298	0.438	0.356	0.284	0.558	0.195
Au	0.075	0.010	0.000	0.006	0.018	0.092	0.086	0.000	0.000	0.031
Total	101.691	100.836	101.502	102.017	94.501	101.887	102.068	101.482	101.998	100.675
As%Aspy	31.058	31.599	31.598	30.885	31.128	30.876	30.846	30.913	30.895	30.362
Fe%Aspy	33.332	32.808	32.962	32.942	32.759	32.961	33.206	33.184	33.153	33.309
S%Aspy	35.473	35.540	35.308	36.090	36.012	36.006	35.775	35.808	35.794	36.166
AsForm	0.932	0.948	0.948	0.927	0.934	0.926	0.925	0.927	0.927	0.911
FeForm	1.000	0.984	0.989	0.988	0.983	0.989	0.996	0.996	0.995	0.999
SForm	1.064	1.066	1.059	1.083	1.080	1.080	1.073	1.074	1.074	1.085

Microprobe Analyses: Glendinning Arsenopyrite (ASP3) Part 2

VAR. / ID.	110	111	112	113	114	115	116	117	118	119
Lab No.	31	32	34	35	36	37	38	39	40	41
X	424	494	484	479	474	469	464	459	455	450
Y	157	157	157	157	157	157	157	157	157	155
Fe	35.347	35.761	35.082	35.475	35.406	35.035	35.556	35.322	35.272	35.194
As	42.994	41.688	41.994	43.288	43.256	43.193	43.774	43.093	42.894	43.150
S	22.400	23.054	22.716	22.479	22.465	22.322	22.337	22.599	22.381	22.449
Sb	0.194	0.446	0.374	0.177	0.128	0.240	0.178	0.269	0.139	0.218
Ni	0.000	0.001	0.011	0.027	0.000	0.000	0.000	0.000	0.083	0.022
Hg	0.352	0.290	0.450	0.325	0.239	0.421	0.369	0.318	0.410	0.386
Au	0.010	0.000	0.000	0.087	0.000	0.000	0.000	0.070	0.097	0.000
Total	101.297	101.240	100.627	101.858	101.494	101.211	102.214	101.671	101.276	101.419
As%Aspy	30.063	28.966	29.460	30.122	30.163	30.275	30.418	30.010	30.019	30.146
Fe%Aspy	33.153	33.333	33.013	33.114	33.114	32.943	33.141	32.994	33.113	32.988
S%Aspy	36.600	37.436	37.238	36.555	36.604	36.567	36.270	36.777	36.605	36.652
AsForm	0.902	0.869	0.884	0.904	0.905	0.908	0.913	0.900	0.901	0.904
FeForm	0.995	1.000	0.990	0.993	0.993	0.988	0.994	0.990	0.993	0.990
SForm	1.098	1.123	1.117	1.097	1.098	1.097	1.088	1.103	1.098	1.100

TABLE 4.03

Microprobe Analyses: Glendinning Arsenopyrite (ASP3) Part 3

VAR. / ID.	120	121	122	123	124	125	126	127	128	129
Lab No.	42	43	44	45	46	47	48	49	50	51
X	445	440	435	430	493	481	475	470	465	460
Y	154	153	152	151	151	151	150	150	150	151
Fe	35.102	35.240	35.107	35.276	34.479	34.984	35.053	35.135	33.971	35.372
As	43.264	42.518	43.640	41.800	41.813	44.444	43.550	44.501	45.048	45.145
S	22.186	22.413	22.072	22.754	21.563	21.501	21.253	21.472	20.216	21.513
Sb	0.287	0.303	0.186	0.239	0.022	0.087	0.036	0.070	0.073	0.126
Ni	0.000	0.009	0.000	0.000	0.000	0.012	0.000	0.000	0.059	0.044
Hg	0.400	0.382	0.465	0.406	0.390	0.343	0.346	0.329	0.272	0.394
Au	0.000	0.037	0.016	0.000	0.000	0.005	0.037	0.002	0.001	0.000
Total	101.239	100.902	101.486	100.475	98.267	101.376	100.275	101.509	99.640	102.594
As%Aspy	30.356	29.831	30.601	29.314	30.164	31.340	31.019	31.346	32.623	31.540
Fe%Aspy	33.037	33.169	33.023	33.186	33.369	33.094	33.490	33.198	33.002	33.147
S%Aspy	36.375	36.748	36.170	37.290	36.353	35.429	35.374	35.340	34.212	35.120
AsForm	0.911	0.895	0.918	0.879	0.905	0.940	0.931	0.940	0.979	0.946
FeForm	0.991	0.995	0.991	0.996	1.001	0.993	1.005	0.996	0.990	0.994
SForm	1.091	1.102	1.085	1.119	1.091	1.063	1.061	1.060	1.026	1.054

TABLE 4.03

Microprobe Analyses: Glendinning Arsenopyrite (ASP3) Part 4

VAR. / ID.	130	131	132	133	134
Lab No.	52	53	54	55	56
X	455	450	444	436	431
Y	150	149	149	149	148
Fe	35.189	34.491	33.788	34.983	35.239
As	44.973	44.132	44.070	43.671	43.121
S	22.011	21.709	20.793	21.847	22.083
Sb	0.219	0.221	0.258	0.191	0.137
Ni	0.000	0.007	0.000	0.000	0.014
Hg	0.195	0.418	0.295	0.380	0.345
Au	0.033	0.044	0.000	0.008	0.003
Total	102.620	101.022	99.204	101.080	100.942
As%Aspy	31.266	31.202	31.874	30.773	30.320
Fe%Aspy	32.818	32.712	32.784	33.069	33.238
S%Aspy	35.760	35.863	35.147	35.973	36.283
AsForm	0.938	0.936	0.956	0.923	0.910
FeForm	0.984	0.981	0.984	0.992	0.997
SForm	1.073	1.076	1.054	1.079	1.089

TABLE 4.03

Microprobe Analyses: Glendinning Arsenopyrite (ASP4) Part 1

VAR. / ID.	1631	1636	1637	1638	1639	1640	1641	1642	1643	1644
Lab No.	1	6	7	8	9	10	11	12	13	14
X	1104	2138	2041	2036	2031	2026	2021	2016	2011	2008
Y	235	6896	6787	6787	6787	6787	6787	6787	6787	6785
Fe	34.833	34.217	34.713	34.474	34.870	35.381	34.611	34.660	34.045	33.463
As	42.603	41.863	42.668	43.431	40.910	39.881	42.375	42.843	43.033	43.946
S	21.648	23.251	21.135	21.860	22.185	23.074	23.447	22.073	23.189	22.018
Sb	0.060	0.447	0.049	0.140	0.374	0.425	0.486	0.032	0.034	0.033
Ni	0.035	0.047	0.012	0.042	0.018	0.038	0.023	0.039	0.014	0.035
Au	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.055	0.000
Ag	0.029	0.030	0.028	0.038	0.032	0.028	0.034	0.021	0.049	0.043
Total	99.208	99.855	98.605	99.985	98.389	98.827	100.976	99.678	100.419	99.538
As%Aspy	30.426	29.387	30.765	30.818	29.262	28.166	29.438	30.384	30.096	31.304
Fe%Aspy	33.371	32.221	33.576	32.815	33.458	33.520	32.254	32.973	31.940	31.976
S%Aspy	36.130	38.142	35.612	36.249	37.083	38.082	38.064	36.581	37.898	36.652
AsForm	0.913	0.882	0.923	0.925	0.878	0.845	0.883	0.912	0.903	0.939
FeForm	1.001	0.967	1.007	0.985	1.004	1.006	0.968	0.989	0.958	0.959
SForm	1.084	1.144	1.068	1.087	1.112	1.143	1.142	1.097	1.137	1.100

TABLE 4.04

Microprobe Analyses: Glendinning Arsenopyrite (ASP4) Part 2

VAR. / ID.	1645	1646	1648	1649	1650	1655	1658	1661	1662	1663
Lab No.	15	16	18	19	20	25	28	31	32	33
X	1746	1742	1622	1618	1613	1304	3023	3002	2996	2990
Y	6606	6610	6451	6451	6451	6392	7606	7606	7606	7606
Fe	34.144	33.000	34.354	34.202	34.205	32.893	33.475	34.582	34.492	34.311
As	41.421	42.610	42.672	44.302	41.336	44.272	42.261	44.000	42.412	43.301
S	21.708	21.452	21.280	21.537	23.913	21.461	22.825	22.148	21.999	21.812
Sb	0.035	0.031	0.060	0.019	0.441	0.033	0.096	0.019	0.000	0.059
Ni	0.000	0.008	0.000	0.011	0.000	0.007	0.000	0.029	0.012	0.037
Au	0.000	0.000	0.000	0.000	0.012	0.000	0.000	0.000	0.000	0.000
Ag	0.041	0.021	0.021	0.027	0.055	0.053	0.030	0.055	0.050	0.027
Total	97.349	97.122	98.387	100.098	99.962	98.719	98.687	100.833	98.965	99.547
As%Aspy	30.015	31.090	30.802	31.519	28.822	31.939	30.061	30.935	30.264	30.841
Fe%Aspy	33.190	32.300	33.265	32.642	31.994	31.833	31.942	32.615	33.016	32.782
S%Aspy	36.759	36.578	35.896	35.807	38.965	36.181	37.941	36.389	36.684	36.304
AsForm	0.900	0.933	0.924	0.946	0.865	0.958	0.902	0.928	0.908	0.925
FeForm	0.996	0.969	0.998	0.979	0.960	0.955	0.958	0.979	0.991	0.984
SForm	1.103	1.097	1.077	1.074	1.169	1.085	1.138	1.092	1.100	1.089

TABLE 4.04

Microprobe Analyses: Glendinning Arsenopyrite (ASP4) Part 3

VAR. / ID.	1664	1667	1668	1669	1670	1671	1672	1677	1678	1679
Lab No.	34	37	38	39	40	41	42	47	48	49
X	2985	7198	7198	7198	7198	7198	7198	7191	7191	7191
Y	7611	8246	8251	8256	8261	8266	8271	8270	8265	8260
Fe	34.821	33.422	34.460	34.660	34.248	34.417	34.001	34.351	34.249	34.750
As	42.435	44.852	42.337	43.067	43.595	40.530	42.775	42.754	43.443	42.241
S	22.889	20.943	21.387	21.590	22.251	22.610	22.519	22.097	22.190	21.856
Sb	0.387	0.067	0.174	0.137	0.181	0.181	0.186	0.234	0.171	0.159
Ni	0.046	0.021	0.018	0.061	0.044	0.034	0.000	0.031	0.042	0.015
Au	0.000	0.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ag	0.044	0.013	0.042	0.027	0.058	0.042	0.043	0.059	0.039	0.040
Total	100.622	99.355	98.418	99.542	100.377	97.814	99.524	99.526	100.134	99.061
As%Aspy	29.683	32.333	30.524	30.719	30.757	29.008	30.304	30.387	30.718	30.156
Fe%Aspy	32.674	32.320	33.328	33.164	32.412	33.044	32.313	32.751	32.486	33.279
S%Aspy	37.415	35.281	36.033	35.988	36.685	37.816	37.281	36.701	36.666	36.462
AsForm	0.891	0.970	0.916	0.922	0.923	0.870	0.909	0.912	0.922	0.905
FeForm	0.980	0.970	1.000	0.995	0.973	0.991	0.970	0.983	0.975	0.998
SForm	1.122	1.058	1.081	1.080	1.100	1.135	1.118	1.101	1.100	1.094

TABLE 4.04

Microprobe Analyses: Glendinning Arsenopyrite (ASP4) Part 4

VAR. / ID.	1680	1681	1683	1684	1685	1686	1687	1688	1691	1694
Lab No.	50	51	53	54	55	56	57	58	61	64
X	7191	7191	7187	7187	7187	7187	7187	7187	7184	7184
Y	8255	8250	8251	8256	8261	8266	8271	8276	8276	8261
Fe	34.256	34.441	34.030	34.567	34.529	34.344	34.611	34.251	33.596	34.811
As	43.870	42.760	43.731	41.793	43.368	43.071	41.453	43.610	44.303	43.128
S	21.454	21.090	21.405	21.519	21.796	22.359	22.086	22.253	22.135	22.384
Sb	0.165	0.161	0.133	0.163	0.143	0.227	0.221	0.184	0.056	0.259
Ni	0.016	0.020	0.005	0.014	0.055	0.007	0.025	0.009	0.036	0.025
Au	0.074	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.033	0.000
Ag	0.050	0.015	0.027	0.031	0.027	0.059	0.065	0.038	0.017	0.055
Total	99.885	98.487	99.331	98.087	99.918	100.067	98.461	100.345	100.176	100.662
As%Aspy	31.304	30.900	31.347	30.156	30.802	30.421	29.671	30.774	31.376	30.294
Fe%Aspy	32.790	33.387	32.722	33.458	32.897	32.540	33.233	32.423	31.917	32.801
S%Aspy	35.774	35.615	35.855	36.285	36.175	36.905	36.943	36.696	36.633	36.743
AsForm	0.939	0.927	0.941	0.905	0.924	0.913	0.890	0.923	0.941	0.909
FeForm	0.984	1.002	0.982	1.004	0.987	0.976	0.997	0.973	0.958	0.984
SForm	1.073	1.069	1.076	1.089	1.085	1.107	1.108	1.101	1.099	1.102

TABLE 4.04

Microprobe Analyses: Glendinning Arsenopyrite (ASP4) Part 5

VAR. / ID.	1695	1696	1697	1698	1699	1700	1701	1702	1703	1705
Lab No.	65	66	67	68	69	70	71	72	73	75
X	7184	7184	7204	7204	7204	7204	7202	1565	1715	1713
Y	8256	8251	8261	8266	8271	8276	8273	8262	8111	7981
Fe	35.088	34.082	34.199	34.376	34.608	33.950	34.646	34.215	34.464	34.654
As	41.929	44.519	42.192	42.628	44.093	43.172	43.130	45.830	45.221	45.778
S	22.064	20.839	21.142	21.482	21.928	20.800	22.098	20.658	20.941	20.573
Sb	0.225	0.009	0.123	0.259	0.240	0.043	0.266	0.041	0.047	0.032
Ni	0.071	0.035	0.021	0.003	0.032	0.021	0.035	0.023	0.030	0.014
Au	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ag	0.040	0.020	0.039	0.043	0.012	0.043	0.024	0.015	0.013	0.026
Total	99.417	99.504	97.716	98.791	100.913	98.029	100.199	100.782	100.716	101.077
As%Aspy	29.776	32.028	30.662	30.638	31.061	31.420	30.487	32.720	32.194	32.606
Fe%Aspy	33.426	32.891	33.339	33.143	32.703	33.145	32.852	32.768	32.913	33.111
S%Aspy	36.616	35.034	35.904	36.080	36.097	35.375	36.502	34.465	34.839	34.243
AsForm	0.893	0.961	0.920	0.919	0.932	0.943	0.915	0.982	0.966	0.978
FeForm	1.003	0.987	1.000	0.994	0.981	0.994	0.986	0.983	0.988	0.993
SForm	1.099	1.051	1.077	1.082	1.083	1.061	1.095	1.034	1.045	1.027

TABLE 4.04

TABLE 4.04

Microprobe Analyses: Glendinning Arsenopyrite (ASP4) Part 6

VAR. / ID.	1706	1707	1708	1709	1711	1712
Lab No.	76	77	78	79	81	82
X	1713	1713	1713	1713	1713	1713
Y	7987	7992	7997	8002	8012	8017
Fe	34.675	34.257	35.064	34.649	34.969	34.581
As	45.084	46.360	45.588	45.079	44.587	45.143
S	20.676	20.569	21.099	20.814	20.796	20.673
Sb	0.066	0.030	0.052	0.053	0.037	0.000
Ni	0.037	0.029	0.025	0.004	0.018	0.004
Au	0.043	0.002	0.000	0.000	0.000	0.019
Ag	0.037	0.011	0.039	0.029	0.052	0.020
Total	100.618	101.258	101.867	100.628	100.459	100.440
As%Aspy	32.192	33.009	32.099	32.140	31.808	32.275
Fe%Aspy	33.214	32.720	33.119	33.139	33.465	33.166
S%Aspy	34.501	34.225	34.717	34.679	34.669	34.540
AsForm	0.966	0.990	0.963	0.964	0.954	0.968
FeForm	0.997	0.982	0.994	0.994	1.004	0.995
SForm	1.035	1.027	1.041	1.040	1.040	1.036

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 1

VAR. / ID.	135	136	137	138	139	140	141	142	143	144
Lab No.	1	2	3	5	6	7	8	9	10	11
X	5114	5111	5103	5002	5007	5012	5017	5022	5039	5044
Y	9415	9415	9415	9418	9418	9418	9418	9418	9418	9418
Fe	34.320	34.485	34.226	32.804	32.492	34.564	34.811	33.700	34.224	33.783
As	44.895	45.337	43.918	41.789	41.736	45.186	44.443	44.135	44.230	45.206
S	20.261	20.475	20.884	18.903	18.398	20.306	20.527	19.635	20.110	20.262
Sb	0.012	0.049	0.065	0.036	0.057	0.037	0.051	0.011	0.069	0.041
Ni	0.340	0.442	0.000	0.073	0.091	0.078	0.115	0.150	0.129	0.241
Hg	0.295	0.311	0.848	0.324	0.260	0.421	0.215	0.347	0.305	0.248
Au	0.013	0.052	0.054	0.000	0.037	0.436	0.000	0.000	0.091	0.080
Total	100.136	101.151	99.995	93.929	93.071	101.028	100.162	97.978	99.158	99.861
As%Aspy	32.336	32.343	31.593	32.095	32.460	32.403	31.889	32.559	32.170	32.680
Fe%Aspy	33.160	33.002	33.028	33.797	33.899	33.249	33.507	33.350	33.391	32.761
S%Aspy	34.103	34.134	35.107	33.927	33.438	34.028	34.419	33.849	34.180	34.229
AsForm	0.970	0.970	0.948	0.963	0.974	0.972	0.957	0.977	0.965	0.980
FeForm	0.995	0.990	0.991	1.014	1.017	0.998	1.005	1.000	1.002	0.983
SForm	1.023	1.024	1.053	1.018	1.003	1.021	1.033	1.015	1.025	1.027

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 2

VAR. / ID.	145	146	147	148	149	150	151	152	153	154
Lab No.	12	13	14	15	16	17	18	19	20	21
X	5049	5054	5059	5064	5069	5074	5084	5096	5101	5106
Y	9418	9418	9418	9418	9418	9418	9418	9418	9418	9418
Fe	34.828	33.926	34.391	34.512	34.958	36.317	34.561	33.058	34.210	34.571
As	45.224	45.098	45.590	45.139	45.520	44.954	43.771	40.417	45.695	45.249
S	20.229	20.022	20.018	20.540	20.516	21.708	20.495	20.526	20.130	20.094
Sb	0.025	0.045	0.050	0.003	0.063	0.041	0.078	0.060	0.064	0.052
Ni	0.283	0.103	0.114	0.115	0.055	0.150	0.332	0.173	0.204	0.218
Hg	0.408	0.000	0.325	0.347	0.456	0.343	0.382	0.298	0.261	0.351
Au	0.000	0.023	0.010	0.048	0.015	0.072	0.000	0.000	0.378	0.013
Total	100.997	99.217	100.498	100.704	101.583	103.585	99.619	94.532	100.942	100.548
As%Aspy	32.362	32.783	32.845	32.304	32.366	31.052	31.571	30.366	32.834	32.547
Fe%Aspy	33.432	33.083	33.236	33.132	33.343	33.651	33.440	33.318	32.975	33.357
S%Aspy	33.828	34.012	33.702	34.351	34.089	35.040	34.545	36.039	33.802	33.775
AsForm	0.971	0.984	0.985	0.969	0.971	0.932	0.947	0.911	0.985	0.976
FeForm	1.003	0.993	0.997	0.994	1.000	1.010	1.003	0.999	0.989	1.001
SForm	1.015	1.020	1.011	1.031	1.023	1.051	1.036	1.081	1.014	1.013

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 3

VAR. / ID.	155	156	157	158	159	160	161	162	163	164
Lab No.	22	23	24	25	26	27	28	29	30	31
X	5111	4988	4993	4998	5003	5008	5013	5018	5023	5028
Y	9418	9425	9425	9425	9425	9425	9425	9425	9425	9425
Fe	34.356	34.171	34.088	34.705	35.330	35.455	35.187	35.259	34.159	35.487
As	45.939	43.352	44.173	44.401	44.122	43.959	44.608	44.236	43.372	44.449
S	20.307	19.970	19.893	20.845	21.236	21.652	21.136	21.381	21.370	21.130
Sb	0.035	0.015	0.000	0.023	0.071	0.050	0.119	0.115	0.079	0.062
Ni	0.000	0.057	0.218	0.336	0.029	0.009	0.000	0.087	0.051	0.000
Hg	0.000	0.308	0.305	0.170	0.301	0.138	0.403	0.346	0.279	0.000
Au	0.005	0.000	0.000	0.000	0.000	0.000	0.037	0.259	0.008	0.000
Total	100.642	97.873	98.677	100.480	101.089	101.263	101.490	101.683	99.318	101.128
As%Aspy	32.930	31.864	32.295	31.676	31.218	30.911	31.539	31.172	31.124	31.420
Fe%Aspy	33.036	33.691	33.431	33.212	33.533	33.444	33.372	33.330	32.882	33.650
S%Aspy	34.017	34.300	33.987	34.751	35.112	35.579	34.921	35.209	35.836	34.904
AsForm	0.988	0.956	0.969	0.950	0.937	0.927	0.946	0.935	0.934	0.943
FeForm	0.991	1.011	1.003	0.996	1.006	1.003	1.001	1.000	0.987	1.010
SForm	1.020	1.029	1.020	1.043	1.053	1.067	1.048	1.056	1.075	1.047

TABLE 4.05

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 4

VAR. / ID.	165	166	167	168	169	170	171	172	173	174
Lab No.	32	33	34	35	36	37	38	39	40	41
X	5034	5039	5044	5049	5054	5059	5064	5069	5074	5079
Y	9425	9425	9425	9425	9425	9425	9425	9425	9425	9425
Fe	35.108	34.673	35.952	35.367	35.391	35.145	35.715	35.712	35.286	34.781
As	43.714	44.538	44.652	44.283	44.060	44.618	44.601	44.674	44.992	44.360
S	20.905	21.222	21.294	21.392	21.538	21.385	21.272	21.162	20.881	21.172
Sb	0.060	0.000	0.054	0.066	0.093	0.159	0.072	0.078	0.048	0.056
Ni	0.001	0.059	0.006	0.055	0.018	0.100	0.000	0.046	0.000	0.159
Hg	0.358	0.337	0.441	0.326	0.397	0.317	0.259	0.320	0.000	0.292
Au	0.000	0.011	0.000	0.042	0.000	0.041	0.531	0.122	0.000	0.057
Total	100.146	100.840	102.399	101.531	101.497	101.765	102.450	102.114	101.207	100.877
As%Aspy	31.261	31.621	31.259	31.193	31.007	31.400	31.285	31.393	31.875	31.492
Fe%Aspy	33.680	33.023	33.762	33.419	33.411	33.178	33.606	33.664	33.534	33.123
S%Aspy	34.936	35.210	34.835	35.213	35.421	35.169	34.868	34.751	34.570	35.124
AsForm	0.938	0.949	0.938	0.936	0.930	0.942	0.939	0.942	0.956	0.945
FeForm	1.010	0.991	1.013	1.003	1.002	0.995	1.008	1.010	1.006	0.994
SForm	1.048	1.056	1.045	1.056	1.063	1.055	1.046	1.043	1.037	1.054

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 5

VAR. / ID.	175	176	177	178	179	180	181	182	183	184
Lab No.	42	43	44	45	46	47	48	49	50	51
X	5084	5089	5094	5099	5104	4984	4989	4994	4999	5004
Y	9425	9425	9425	9425	9425	9430	9430	9430	9430	9430
Fe	32.598	35.148	34.627	34.423	34.741	34.415	34.216	34.828	34.798	34.297
As	43.010	44.128	44.728	44.477	43.805	44.799	44.556	43.852	42.461	44.677
S	20.813	21.504	20.976	21.037	21.225	20.599	20.667	21.621	21.873	21.315
Sb	0.096	0.088	0.039	0.067	0.093	0.078	0.062	0.040	0.155	0.085
Ni	0.094	0.049	0.227	0.185	0.497	0.171	0.297	0.025	0.068	0.371
Hg	0.199	0.438	0.414	0.407	0.228	0.347	0.360	0.279	0.361	0.411
Au	0.040	0.002	0.017	0.030	0.004	0.297	0.092	0.207	0.000	0.000
Total	96.850	101.357	101.028	100.626	100.593	100.706	100.250	100.852	99.716	101.156
As%Aspy	31.708	31.118	31.796	31.712	31.115	32.089	31.977	31.027	30.206	31.647
Fe%Aspy	32.238	33.248	33.021	32.923	33.102	33.068	32.941	33.056	33.207	32.589
S%Aspy	35.856	35.436	34.846	35.051	35.231	34.479	34.661	35.748	36.362	35.283
AsForm	0.951	0.933	0.954	0.951	0.933	0.963	0.959	0.931	0.906	0.949
FeForm	0.967	0.998	0.991	0.988	0.993	0.992	0.988	0.992	0.996	0.978
SForm	1.076	1.063	1.045	1.051	1.057	1.034	1.040	1.072	1.091	1.059

TABLE 4.05

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 6

VAR. / ID.	185	186	187	188	189	190	191	192	193	194
Lab No.	52	54	55	56	57	58	59	3	4	5
X	5009	5019	5024	5038	5043	5048	5053	5068	5073	5078
Y	9430	9430	9430	9430	9430	9430	9430	9430	9430	9430
Fe	35.531	35.731	35.231	33.978	35.340	35.741	34.915	33.717	34.323	32.064
As	44.681	44.656	44.585	42.896	44.419	44.403	44.526	43.541	43.859	43.881
S	21.315	21.242	21.114	20.996	21.461	21.142	21.415	22.668	22.092	22.180
Sb	0.052	0.084	0.645	0.086	0.093	0.085	0.063	0.117	0.043	0.045
Ni	0.269	0.053	0.030	0.050	0.030	0.044	0.026	0.042	0.000	0.141
Hg	0.423	0.369	0.362	0.420	0.276	0.314	0.536	0.367	0.849	0.265
Au	0.038	0.000	0.008	0.000	0.000	0.477	0.000	0.057	1.038	0.000
Total	102.309	102.135	101.975	98.426	101.619	102.206	101.481	100.509	102.204	98.576
As%Aspy	31.311	31.341	31.451	31.126	31.242	31.234	31.427	30.657	30.829	31.562
Fe%Aspy	33.400	33.640	33.339	33.073	33.344	33.726	33.058	31.846	32.364	30.937
S%Aspy	34.905	34.839	34.806	35.602	35.274	34.754	35.322	37.297	36.288	37.280
AsForm	0.939	0.940	0.943	0.934	0.937	0.937	0.943	0.920	0.925	0.947
FeForm	1.002	1.009	1.000	0.992	1.000	1.012	0.992	0.955	0.971	0.928
SForm	1.047	1.045	1.044	1.068	1.058	1.043	1.060	1.119	1.089	1.118

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 7

VAR. / ID.	195	196	197	198	199	200	201	202	203	204
Lab No.	6	7	8	9	10	11	15	16	17	18
X	5083	5088	5093	5098	4978	4983	5003	5008	5013	5018
Y	9430	9430	9430	9430	9438	9438	9438	9438	9438	9438
Fe	33.274	32.495	34.103	32.441	32.765	32.167	33.440	35.035	33.813	33.813
As	42.692	43.947	43.630	43.704	45.536	45.076	43.327	40.645	43.399	43.152
S	22.419	22.216	22.328	22.545	21.192	21.324	22.720	24.570	22.624	22.649
Sb	0.192	0.108	0.147	0.123	0.029	0.045	0.100	0.120	0.063	0.091
Ni	0.001	0.172	0.047	0.505	0.301	0.205	0.109	0.227	0.131	1.043
Hg	0.283	0.271	0.414	0.234	0.341	0.344	0.432	0.365	0.532	0.305
Au	0.022	0.037	0.055	0.073	0.048	0.038	0.000	0.022	0.000	0.375
Total	98.883	99.246	100.724	99.625	100.212	99.199	100.128	100.984	100.562	101.428
As%Aspy	30.505	31.423	30.751	31.053	32.629	32.548	30.589	27.922	30.556	30.159
Fe%Aspy	31.894	31.168	32.243	30.920	31.494	31.158	31.670	32.286	31.935	31.701
S%Aspy	37.435	37.121	36.776	37.433	35.485	35.982	37.485	39.443	37.224	36.991
AsForm	0.915	0.943	0.923	0.932	0.979	0.976	0.918	0.838	0.917	0.905
FeForm	0.957	0.935	0.967	0.928	0.945	0.935	0.950	0.969	0.958	0.951
SForm	1.123	1.114	1.103	1.123	1.065	1.079	1.125	1.183	1.117	1.110

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 8

VAR. / ID.	205	206	207	208	209	210	211	212	213	214
Lab No.	19	20	21	22	23	24	25	26	27	28
X	5023	5029	5045	5050	5055	5060	5070	5075	5080	5085
Y	9438	9438	9438	9438	9438	9438	9438	9438	9438	9438
Fe	33.225	34.202	32.921	34.284	33.315	33.465	32.849	34.072	32.373	33.800
As	43.571	42.124	44.009	44.218	40.737	43.895	43.239	42.615	42.981	41.615
S	22.422	23.449	22.173	22.226	24.321	21.860	22.652	22.858	22.040	22.600
Sb	0.083	0.107	0.035	0.059	0.107	0.085	0.129	0.210	0.117	0.045
Ni	0.196	0.000	0.010	0.000	0.013	0.887	0.000	0.017	0.015	0.119
Hg	0.464	0.407	0.387	0.243	0.242	0.153	0.365	0.411	0.303	0.215
Au	0.000	0.197	0.044	0.247	0.000	0.000	0.041	0.000	0.000	0.000
Total	99.961	100.486	99.579	101.277	98.735	100.345	99.275	100.183	97.829	98.394
As%Aspy	30.899	29.438	31.394	31.059	28.600	31.107	30.782	30.002	31.119	29.719
Fe%Aspy	31.607	32.063	31.503	32.304	31.376	31.813	31.370	32.178	31.442	32.380
S%Aspy	37.158	38.294	36.963	36.482	39.902	36.201	37.684	37.606	37.291	37.716
AsForm	0.927	0.883	0.942	0.932	0.858	0.933	0.924	0.900	0.934	0.892
FeForm	0.948	0.962	0.945	0.969	0.941	0.954	0.941	0.965	0.943	0.971
SForm	1.115	1.149	1.109	1.094	1.197	1.086	1.130	1.128	1.119	1.132

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 9

VAR. / ID.	215	216	217	218	219	220	221	222	223	224
Lab No.	30	31	32	33	35	36	37	38	39	40
X	5095	4972	4977	4982	5002	5007	5012	5017	5022	5032
Y	9438	9446	9446	9446	9446	9446	9446	9446	9446	9446
Fe	34.270	33.032	32.438	32.132	32.442	32.674	33.746	34.432	33.412	33.924
As	43.441	44.686	43.566	43.985	42.340	41.738	41.700	42.616	41.073	42.533
S	22.444	21.815	21.475	22.070	22.317	22.527	23.348	23.208	23.771	23.169
Sb	0.232	0.094	0.077	0.092	0.125	0.291	0.448	0.084	0.319	0.000
Ni	0.120	0.110	0.352	0.047	0.012	0.195	0.057	0.226	0.310	0.831
Hg	0.364	0.350	0.805	0.210	0.455	0.296	0.376	0.000	0.360	0.274
Au	0.000	0.000	0.172	0.036	0.017	0.581	0.000	0.003	0.009	0.168
Total	100.871	100.087	98.885	98.572	97.708	98.302	99.675	100.569	99.254	100.899
As%Aspy	30.529	31.849	31.541	31.673	30.619	30.034	29.362	29.722	28.889	29.658
Fe%Aspy	32.308	31.582	31.503	31.038	31.472	31.539	31.875	32.214	31.525	31.732
S%Aspy	36.860	36.334	36.332	37.138	37.715	37.880	38.418	37.825	39.072	37.754
AsForm	0.916	0.956	0.946	0.950	0.919	0.901	0.881	0.892	0.867	0.890
FeForm	0.969	0.947	0.945	0.931	0.944	0.946	0.956	0.966	0.946	0.952
SForm	1.106	1.090	1.090	1.114	1.132	1.136	1.153	1.135	1.172	1.133

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 10

VAR. / ID.	225	226	227	228	229	230	231	232	233	234
Lab No.	41	43	44	47	49	50	53	54	55	56
X	5037	5054	5059	5074	5084	5089	4976	4981	4986	4991
Y	9446	9446	9446	9446	9446	9446	9454	9454	9454	9454
Fe	33.381	33.487	34.286	33.158	33.008	34.246	33.551	33.866	32.809	33.876
As	42.229	43.747	44.288	42.720	43.041	43.559	44.057	42.331	42.735	43.162
S	23.335	22.562	22.430	22.701	23.079	22.639	22.257	23.157	23.226	22.769
Sb	0.257	0.068	0.043	0.228	0.162	0.150	0.050	0.184	0.066	0.250
Ni	0.000	0.000	0.043	0.294	0.110	0.101	0.102	0.000	0.000	0.000
Hg	0.261	0.381	0.390	0.333	0.346	0.265	0.480	0.519	0.358	0.479
Au	0.000	0.282	0.000	0.020	0.000	0.200	0.058	0.022	0.000	0.081
Total	99.463	100.527	101.480	99.454	99.746	101.160	100.555	100.079	99.194	100.617
As%Aspy	29.782	30.876	30.987	30.320	30.392	30.504	31.149	29.771	30.266	30.358
Fe%Aspy	31.580	31.705	32.180	31.569	31.265	32.171	31.821	31.950	31.170	31.962
S%Aspy	38.458	37.213	36.674	37.651	38.082	37.048	36.773	38.058	38.440	37.424
AsForm	0.893	0.926	0.930	0.910	0.912	0.915	0.934	0.893	0.908	0.911
FeForm	0.947	0.951	0.965	0.947	0.938	0.965	0.955	0.959	0.935	0.959
SForm	1.154	1.116	1.100	1.130	1.143	1.112	1.103	1.142	1.153	1.123

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 11

VAR. / ID.	235	236	237	238	239	240	241	242	243	244
Lab No.	57	59	60	61	62	63	64	65	66	67
X	4996	5006	5011	5016	5021	5026	5031	5036	5041	5060
Y	9454	9454	9454	9454	9454	9454	9454	9454	9454	9454
Fe	33.226	32.106	33.846	32.273	32.121	33.305	32.847	31.812	32.916	33.870
As	42.714	42.645	42.514	41.481	42.267	41.812	41.981	42.678	41.872	42.615
S	22.929	23.220	23.273	23.841	23.423	23.558	23.686	23.325	23.428	23.362
Sb	0.150	0.114	0.114	0.203	0.181	0.373	0.187	0.191	0.413	0.068
Ni	0.000	0.051	0.000	0.737	1.195	0.056	1.300	0.697	1.220	0.000
Hg	0.327	0.461	0.302	0.000	0.234	0.413	0.426	0.393	0.290	0.377
Au	0.030	0.236	0.009	0.000	0.055	0.015	0.012	0.032	0.076	0.023
Total	99.376	98.833	100.058	98.535	99.476	99.532	100.439	99.128	100.215	100.315
As%Aspy	30.274	30.380	29.837	29.304	29.800	29.445	29.289	30.263	29.338	29.835
Fe%Aspy	31.590	30.682	31.864	30.584	30.379	31.462	30.742	30.260	30.938	31.809
S%Aspy	37.976	38.656	38.168	39.359	38.591	38.769	38.617	38.651	38.360	38.222
AsForm	0.908	0.911	0.895	0.879	0.894	0.883	0.879	0.908	0.880	0.895
FeForm	0.948	0.920	0.956	0.918	0.911	0.944	0.922	0.908	0.928	0.954
SForm	1.139	1.160	1.145	1.181	1.158	1.163	1.158	1.160	1.151	1.147

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 12

VAR. / ID.	245	246	247	248	249	250	251	252	253	254
Lab No.	68	70	71	72	73	74	75	76	78	79
X	5065	5075	5080	4961	4966	4971	4976	4981	4990	4995
Y	9454	9454	9454	9462	9462	9462	9462	9462	9462	9462
Fe	34.464	34.350	32.898	31.958	31.956	34.038	33.465	32.668	34.824	33.317
As	44.172	42.339	44.007	43.684	43.623	43.445	42.897	41.992	40.816	42.680
S	22.350	23.358	22.156	21.238	21.872	22.776	23.020	21.917	24.295	22.990
Sb	0.083	0.000	0.059	0.070	0.089	0.070	0.131	0.119	0.163	0.206
Ni	0.006	0.037	0.194	0.087	0.067	0.045	0.056	0.071	0.029	0.000
Hg	0.000	0.321	0.282	0.269	0.275	0.315	0.324	0.328	0.391	0.296
Au	0.042	0.000	0.059	0.000	0.000	0.063	0.000	0.073	0.010	0.017
Total	101.117	100.405	99.655	97.306	97.882	100.752	99.893	97.168	100.528	99.506
As%Aspy	30.953	29.573	31.361	32.017	31.646	30.472	30.240	30.574	28.228	30.196
Fe%Aspy	32.396	32.185	31.449	31.421	31.098	32.026	31.646	31.907	32.308	31.621
S%Aspy	36.599	38.126	36.897	36.375	37.079	37.332	37.922	37.291	39.265	38.011
AsForm	0.929	0.887	0.941	0.961	0.949	0.914	0.907	0.917	0.847	0.906
FeForm	0.972	0.966	0.943	0.943	0.933	0.961	0.949	0.957	0.969	0.949
SForm	1.098	1.144	1.107	1.091	1.112	1.120	1.138	1.119	1.178	1.140

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 13

VAR. / ID.	255	256	257	258	259	260	261	262	263	264
Lab No.	81	82	83	85	86	87	88	89	91	93
X	5005	5010	5015	5025	5030	5035	5040	5045	5055	4959
Y	9462	9462	9462	9462	9462	9462	9462	9462	9462	9470
Fe	32.646	33.901	32.229	32.365	32.815	30.195	34.741	31.173	33.370	32.680
As	42.247	43.046	42.462	41.879	42.129	43.104	41.547	41.786	42.911	44.545
S	23.377	22.716	23.111	23.692	22.994	22.483	23.893	23.146	22.282	22.100
Sb	0.209	0.264	0.338	0.116	0.255	0.265	0.375	0.162	0.127	0.047
Ni	0.195	0.018	0.338	0.017	1.048	0.726	0.000	1.068	0.040	0.087
Hg	0.393	0.353	0.275	0.327	0.268	0.250	0.000	0.240	0.259	0.263
Au	0.014	1.610	0.026	0.000	0.000	0.000	0.039	0.055	0.029	0.024
Total	99.081	101.908	98.779	98.396	99.509	97.023	100.595	97.630	99.018	99.746
As%Aspy	29.920	30.200	30.232	29.728	29.778	31.387	28.806	30.005	30.655	31.755
Fe%Aspy	31.015	31.905	30.781	30.819	31.114	29.494	32.312	30.027	31.979	31.252
S%Aspy	38.689	37.243	38.452	39.301	37.981	38.258	38.712	38.839	37.198	36.817
AsForm	0.898	0.906	0.907	0.892	0.893	0.942	0.864	0.900	0.920	0.953
FeForm	0.930	0.957	0.923	0.925	0.933	0.885	0.969	0.901	0.959	0.938
SForm	1.161	1.117	1.154	1.179	1.139	1.148	1.161	1.165	1.116	1.105

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 14

VAR. / ID.	265	266	267	268	269	270	271	272	273	274
Lab No.	94	95	96	97	99	100	101	102	103	104
X	4964	4969	4974	4979	4989	4994	4999	5004	5011	5016
Y	9470	9470	9470	9470	9470	9470	9470	9470	9470	9470
Fe	33.709	34.298	33.793	32.115	32.421	32.846	33.232	34.460	33.278	35.209
As	43.972	40.559	43.182	44.892	42.193	41.879	41.814	43.744	40.514	43.148
S	21.952	24.172	22.782	22.102	23.042	22.358	23.382	22.727	24.079	23.278
Sb	0.000	0.140	0.480	0.106	0.190	0.119	0.249	0.210	0.297	0.077
Ni	0.077	0.031	0.024	0.042	0.124	0.131	0.015	0.035	0.104	0.036
Hg	0.393	0.229	0.355	0.313	0.249	0.474	0.395	0.393	0.478	0.405
Au	0.110	0.017	0.018	0.000	0.000	0.000	0.045	0.036	0.015	0.065
Total	100.213	99.446	100.634	99.570	98.219	97.807	99.132	101.605	98.765	102.218
As%Aspy	31.235	28.309	30.363	32.098	30.160	30.215	29.577	30.502	28.546	29.748
Fe%Aspy	32.121	32.113	31.875	30.803	31.088	31.789	31.534	32.233	31.454	32.563
S%Aspy	36.440	39.426	37.435	36.930	38.489	37.695	38.651	37.033	39.648	37.504
AsForm	0.937	0.849	0.911	0.963	0.905	0.906	0.887	0.915	0.856	0.892
FeForm	0.964	0.963	0.956	0.924	0.933	0.954	0.946	0.967	0.944	0.977
SForm	1.093	1.183	1.123	1.108	1.155	1.131	1.160	1.111	1.189	1.125

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 15

VAR. / ID.	275	276	277	278	279	280	281	282	283	284
Lab No.	105	106	107	108	110	111	112	113	114	115
X	5021	5026	5031	5036	5046	5051	5056	5061	4963	4968
Y	9470	9470	9470	9470	9470	9470	9470	9470	9478	9478
Fe	33.300	35.605	32.443	34.464	33.833	31.024	34.298	31.877	33.582	32.007
As	40.831	38.842	43.302	41.789	43.356	43.919	43.376	44.463	42.197	41.131
S	24.550	26.106	22.955	23.894	22.857	22.051	23.459	21.742	23.615	23.461
Sb	0.339	0.238	0.141	0.314	0.131	0.053	0.063	0.060	0.734	0.130
Ni	0.072	0.029	0.240	0.448	0.489	0.443	0.066	0.028	0.484	0.000
Hg	0.401	0.445	0.319	0.389	0.406	0.423	0.306	0.310	0.383	0.396
Au	0.000	0.016	0.000	0.078	0.044	0.038	0.000	0.039	0.047	0.000
Total	99.493	101.281	99.400	101.376	101.116	97.951	101.568	98.519	101.042	97.125
As%Aspy	28.489	26.251	30.715	28.860	30.313	31.863	30.030	32.165	29.373	29.565
Fe%Aspy	31.168	32.279	30.871	31.928	31.732	30.193	31.853	30.934	31.358	30.862
S%Aspy	40.029	41.230	38.051	38.562	37.345	37.385	37.953	36.755	38.414	39.409
AsForm	0.855	0.788	0.922	0.866	0.909	0.956	0.901	0.965	0.881	0.887
FeForm	0.935	0.968	0.926	0.958	0.952	0.906	0.956	0.928	0.941	0.926
SForm	1.201	1.237	1.141	1.157	1.120	1.122	1.139	1.103	1.152	1.182

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 16

VAR. / ID.	285	286	287	288	289	290	291	292	293	294
Lab No.	116	117	118	119	120	121	122	123	124	125
X	4973	4979	4999	5004	5009	5014	5019	5024	5029	5034
Y	9478	9478	9478	9478	9478	9478	9478	9470	9478	9478
Fe	34.555	32.474	33.812	33.155	34.441	33.114	34.920	33.453	33.871	32.527
As	42.446	43.001	43.150	41.003	41.865	42.424	41.534	41.176	43.140	42.031
S	23.554	21.898	23.076	23.557	23.518	23.292	24.191	24.178	22.919	23.738
Sb	0.000	0.072	0.149	0.313	0.137	0.218	0.082	0.375	0.186	0.323
Ni	0.129	0.000	0.756	0.028	0.021	0.041	0.053	0.009	0.229	0.049
Hg	0.417	0.328	0.281	0.358	0.000	0.433	0.382	0.413	0.399	0.396
Au	0.034	0.018	0.000	0.003	0.068	0.014	0.070	0.000	0.005	0.034
Total	101.135	97.791	101.224	98.417	100.050	99.536	101.232	99.603	100.749	99.098
As%Aspy	29.441	31.181	30.050	29.103	29.243	29.954	28.605	28.805	30.233	29.691
Fe%Aspy	32.151	31.587	31.587	31.567	32.272	31.364	32.262	31.393	31.842	30.823
S%Aspy	38.177	37.106	37.554	39.072	38.389	38.432	38.934	39.526	37.534	39.187
AsForm	0.883	0.935	0.901	0.873	0.877	0.899	0.858	0.864	0.907	0.891
FeForm	0.965	0.948	0.948	0.947	0.968	0.941	0.968	0.942	0.955	0.925
SForm	1.145	1.113	1.127	1.172	1.152	1.153	1.168	1.186	1.126	1.176

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 17

VAR. / ID.	295	296	297	298	299	300	301	302	303	304
Lab No.	126	128	129	130	131	134	135	136	137	138
X	5039	5049	5054	5059	4945	4981	4995	5000	5005	5010
Y	9478	9478	9478	9478	9486	9486	9486	9486	9486	9486
Fe	34.482	33.447	32.926	33.933	31.263	33.541	32.783	34.151	33.149	33.128
As	40.962	42.993	42.502	44.186	44.436	42.620	41.257	43.129	40.784	42.024
S	24.324	22.313	23.283	22.191	22.098	23.072	23.941	23.157	24.297	23.220
Sb	0.320	0.009	0.118	0.042	0.083	0.289	0.259	0.076	0.103	0.248
Ni	0.091	0.034	0.100	0.011	0.364	0.000	0.009	0.021	0.077	0.000
Hg	0.363	0.265	0.219	0.253	0.269	0.296	0.333	0.402	0.336	0.339
Au	0.046	0.111	1.514	0.051	0.000	0.041	0.000	0.263	0.062	0.064
Total	100.588	99.172	100.662	100.667	98.513	99.859	98.582	101.199	98.808	99.023
As%Aspy	28.342	30.667	29.944	31.179	32.054	30.049	29.162	30.080	28.652	29.798
Fe%Aspy	32.005	32.004	31.118	32.120	30.252	31.723	31.084	31.951	31.240	31.511
S%Aspy	39.330	37.193	38.333	36.592	37.250	38.014	39.545	37.742	39.889	38.476
AsForm	0.850	0.920	0.898	0.935	0.962	0.901	0.875	0.902	0.860	0.894
FeForm	0.960	0.960	0.934	0.964	0.908	0.952	0.933	0.959	0.937	0.945
SForm	1.180	1.116	1.150	1.098	1.117	1.140	1.186	1.132	1.197	1.154

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 18

VAR. / ID.	305	306	307	308	309	310	311	312	313	314
Lab No.	139	140	141	142	143	147	148	149	150	153
X	5015	5020	5025	5035	5052	4948	4953	4958	4963	4997
Y	9486	9486	9486	9486	9486	9494	9494	9494	9494	9494
Fe	32.691	33.641	31.850	33.758	32.788	32.881	33.733	32.677	35.425	32.114
As	42.628	42.727	43.710	43.337	44.488	43.033	43.154	43.127	39.816	40.514
S	24.165	23.491	22.412	22.867	22.378	22.707	22.703	22.921	25.208	23.692
Sb	0.112	0.133	0.092	0.050	0.121	0.059	0.161	0.199	0.107	0.203
Ni	0.094	0.184	0.489	0.110	0.021	0.014	0.193	0.014	0.000	0.042
Hg	0.374	0.346	0.591	0.359	0.241	0.425	0.387	0.444	0.260	0.281
Au	0.000	0.023	0.048	0.000	0.000	0.050	0.000	0.032	0.004	2.066
Total	100.064	100.545	99.192	100.481	100.037	99.169	100.331	99.414	100.820	98.912
As%Aspy	29.751	29.836	31.282	30.441	31.561	30.642	30.401	30.621	27.195	28.933
Fe%Aspy	30.607	31.513	30.577	31.809	31.203	31.408	31.878	31.123	32.458	30.765
S%Aspy	39.412	38.333	37.483	37.536	37.099	37.785	37.375	38.030	40.235	39.539
AsForm	0.893	0.895	0.938	0.913	0.947	0.919	0.912	0.919	0.816	0.868
FeForm	0.918	0.945	0.917	0.954	0.936	0.942	0.956	0.934	0.974	0.923
SForm	1.182	1.150	1.125	1.126	1.113	1.133	1.121	1.141	1.207	1.186

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 19

VAR. / ID.	315	316	317	318	319	320	321	322	323	324
Lab No.	154	155	156	157	158	159	160	161	162	163
X	5002	5007	5012	5017	5022	5032	5042	5048	4924	4929
Y	9494	9494	9494	9494	9494	9494	9494	9494	9502	9502
Fe	34.506	32.855	34.232	33.958	34.636	32.992	34.164	32.199	33.001	31.205
As	41.835	42.179	42.664	41.535	43.243	42.712	43.539	44.206	45.258	45.000
S	23.351	23.438	23.212	23.919	23.157	23.248	22.578	22.203	21.380	21.097
Sb	0.442	0.237	0.666	0.206	0.134	0.098	0.132	0.000	0.078	0.029
Ni	0.000	0.027	0.000	0.030	0.033	0.168	0.185	0.082	0.120	0.069
Hg	0.451	0.514	0.296	0.383	0.378	0.353	0.156	0.213	0.527	0.424
Au	0.030	0.030	0.036	0.000	0.000	0.088	0.019	0.019	0.084	0.245
Total	100.615	99.280	101.106	100.031	101.581	99.659	100.773	98.922	100.448	98.069
As%Aspy	29.226	29.828	29.760	28.986	30.012	30.135	30.551	31.694	32.346	32.963
Fe%Aspy	32.337	31.168	32.031	31.790	32.246	31.225	32.158	30.968	31.639	30.663
S%Aspy	38.121	38.733	37.837	39.008	37.557	38.330	37.022	37.200	35.708	36.113
AsForm	0.877	0.895	0.893	0.870	0.900	0.904	0.916	0.951	0.970	0.989
FeForm	0.970	0.935	0.961	0.954	0.967	0.937	0.965	0.929	0.949	0.920
SForm	1.144	1.162	1.135	1.170	1.127	1.150	1.111	1.116	1.071	1.083

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 20

VAR. / ID.	325	326	327	328	329	330	331	332	333	334
Lab No.	164	165	166	167	168	170	171	172	173	174
X	4934	4939	4944	4949	4954	4964	4969	4974	4979	4984
Y	9502	9502	9502	9502	9502	9502	9502	9502	9502	9502
Fe	33.619	31.445	33.528	31.535	34.180	33.114	32.684	33.869	32.120	33.225
As	43.097	42.123	42.512	42.546	42.008	42.201	41.936	41.515	41.359	42.694
S	22.917	23.503	22.990	23.007	23.419	22.992	23.834	22.631	23.525	22.689
Sb	0.055	0.205	0.212	0.208	0.356	0.291	0.280	0.193	0.185	0.000
Ni	0.167	0.033	0.512	0.037	0.020	0.076	0.047	0.014	0.071	0.000
Hg	0.331	0.390	0.483	0.360	0.274	0.343	0.287	0.221	0.243	0.306
Au	0.062	0.133	0.025	0.035	0.035	0.072	0.000	0.000	0.010	0.010
Total	100.248	97.832	100.262	97.728	100.292	99.089	99.068	98.443	97.513	98.924
As%Aspy	30.319	30.176	29.899	30.623	29.387	29.976	29.571	29.642	29.601	30.408
Fe%Aspy	31.727	30.218	31.632	30.448	32.076	31.553	30.916	32.440	30.838	31.744
S%Aspy	37.676	39.345	37.785	38.697	38.285	38.165	39.274	37.761	39.346	37.764
AsForm	0.910	0.905	0.897	0.919	0.882	0.899	0.887	0.889	0.888	0.912
FeForm	0.952	0.906	0.949	0.913	0.962	0.947	0.928	0.973	0.925	0.952
SForm	1.130	1.180	1.133	1.161	1.149	1.145	1.178	1.133	1.180	1.133

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 21

VAR. / ID.	335	336	337	338	339	340	341	342	343	344
Lab No.	176	177	178	179	180	181	182	183	184	185
X	4999	5004	5009	5016	5021	5026	5031	5036	5041	4918
Y	9502	9502	9502	9502	9502	9502	9502	9502	9502	9510
Fe	33.763	32.243	33.997	32.314	33.669	31.043	34.423	32.642	32.235	31.672
As	41.832	41.504	42.894	41.858	42.152	42.451	44.299	42.644	42.114	44.553
S	23.643	23.711	23.199	23.618	23.350	22.249	22.287	23.102	22.043	21.397
Sb	0.328	0.239	0.160	0.158	0.124	0.113	0.131	0.064	0.035	0.601
Ni	0.000	0.022	0.010	0.082	0.189	0.003	0.026	0.048	0.355	0.330
Hg	0.000	0.318	0.000	0.287	0.390	0.425	0.315	0.434	0.325	0.338
Au	0.006	0.052	0.000	0.046	2.004	0.065	0.000	0.040	0.006	0.039
Total	99.572	98.089	100.260	98.363	101.878	96.349	101.481	98.974	97.113	98.930
As%Aspy	29.340	29.545	30.033	29.745	29.455	31.135	31.024	30.309	30.636	32.291
Fe%Aspy	31.766	30.789	31.931	30.803	31.560	30.542	32.339	31.122	31.456	30.793
S%Aspy	38.751	39.443	37.958	39.220	38.129	38.134	36.475	38.371	37.472	36.240
AsForm	0.880	0.886	0.901	0.892	0.884	0.934	0.931	0.909	0.919	0.969
FeForm	0.953	0.924	0.958	0.924	0.947	0.916	0.970	0.934	0.944	0.924
SForm	1.163	1.183	1.139	1.177	1.144	1.144	1.094	1.151	1.124	1.087

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 22

VAR. / ID.	345	346	347	348	349	350	351	352	353	354
Lab No.	186	187	188	189	190	193	194	195	196	198
X	4923	4928	4933	4938	4943	4958	4964	4969	4974	4984
Y	9510	9510	9510	9510	9510	9510	9510	9510	9510	9510
Fe	32.367	31.733	33.105	32.550	33.728	31.881	33.059	31.049	33.496	34.105
As	45.037	43.450	43.979	42.651	43.496	40.721	42.525	41.486	40.469	41.589
S	21.485	22.680	22.317	23.229	22.323	23.550	23.450	23.177	23.546	23.447
Sb	0.063	0.042	0.216	0.296	0.194	0.189	0.298	0.327	0.401	0.495
Ni	0.000	0.162	0.052	0.000	0.064	0.201	0.000	0.116	0.103	0.042
Hg	0.333	0.000	0.294	0.368	0.310	0.359	0.322	0.234	0.271	0.405
Au	0.003	0.016	0.000	0.000	0.029	0.039	0.000	0.020	0.152	0.013
Total	99.288	98.083	99.963	99.094	100.144	96.940	99.654	96.409	98.438	100.096
As%Aspy	32.441	31.201	31.224	30.267	30.797	29.287	29.952	30.118	28.709	29.155
Fe%Aspy	31.275	30.568	31.529	30.986	32.035	30.758	31.236	30.238	31.876	32.072
S%Aspy	36.165	38.059	37.027	38.521	36.936	39.580	38.598	39.321	39.034	38.411
AsForm	0.973	0.936	0.937	0.908	0.924	0.879	0.899	0.904	0.861	0.875
FeForm	0.938	0.917	0.946	0.930	0.961	0.923	0.937	0.907	0.956	0.962
SForm	1.085	1.142	1.111	1.156	1.108	1.187	1.158	1.180	1.171	1.152

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 23

VAR. / ID.	355	356	357	358	359	360	361	362	363	364
Lab No.	199	201	202	203	204	205	206	208	209	210
X	4989	5010	5017	5022	5027	5032	5037	4914	4919	4924
Y	9510	9510	9510	9510	9510	9510	9510	9518	9518	9518
Fe	32.657	31.222	32.993	32.367	33.758	32.311	33.986	32.514	31.571	33.768
As	42.298	44.872	41.886	43.235	43.256	43.725	44.495	44.887	44.408	42.909
S	22.978	21.576	22.223	22.348	22.389	22.404	22.089	21.258	22.185	22.921
Sb	0.092	0.056	0.105	0.178	0.518	0.090	0.093	0.058	0.059	0.359
Ni	0.191	0.000	0.010	0.079	0.000	0.026	0.004	0.015	0.209	0.016
Hg	0.216	0.315	0.409	0.341	0.375	0.279	0.282	0.414	0.305	0.403
Au	0.000	0.387	0.031	0.021	0.003	0.004	0.000	0.001	0.000	0.076
Total	98.432	98.428	97.657	98.569	100.299	98.839	100.949	99.147	98.737	100.452
As%Aspy	30.173	32.640	30.282	31.054	30.608	31.318	31.363	32.435	31.944	30.177
Fe%Aspy	31.250	30.466	31.997	31.186	32.044	31.044	32.135	31.517	30.464	31.857
S%Aspy	38.305	36.676	37.545	37.511	37.022	37.499	36.384	35.896	37.292	37.670
AsForm	0.905	0.979	0.909	0.932	0.918	0.939	0.941	0.973	0.958	0.905
FeForm	0.938	0.914	0.960	0.936	0.961	0.931	0.964	0.946	0.914	0.956
SForm	1.149	1.100	1.126	1.125	1.111	1.125	1.092	1.077	1.119	1.130

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 24

VAR. / ID.	365	366	367	368	369	370	371	372	373	374
Lab No.	211	212	213	214	215	216	217	218	219	220
X	4929	4934	4939	4944	4949	4954	4959	4964	4969	4974
Y	9518	9518	9518	9518	9518	9518	9518	9518	9518	9518
Fe	31.864	33.559	32.425	33.659	31.974	33.212	32.045	32.266	31.969	34.092
As	43.389	43.667	44.066	43.525	42.714	42.071	42.257	44.234	42.889	42.146
S	22.375	22.241	22.187	22.624	22.827	23.108	23.141	22.224	22.825	23.283
Sb	0.259	0.158	0.161	0.230	0.273	0.257	0.219	0.133	0.208	0.371
Ni	0.000	0.049	0.043	0.047	0.000	0.000	0.000	0.065	0.000	0.000
Hg	0.000	0.222	0.273	0.200	0.344	0.458	0.331	0.373	0.373	0.356
Au	0.025	0.000	0.000	0.051	0.000	0.036	0.000	0.000	0.045	0.078
Total	97.912	99.896	99.155	100.336	98.132	99.142	97.993	99.295	98.309	100.326
As%Aspy	31.308	30.991	31.551	30.686	30.675	29.845	30.274	31.651	30.767	29.539
Fe%Aspy	30.842	31.950	31.143	31.833	30.803	31.605	30.797	30.971	30.764	32.053
S%Aspy	37.728	36.887	37.123	37.273	38.309	38.307	38.743	37.161	38.264	38.134
AsForm	0.939	0.930	0.947	0.921	0.920	0.895	0.908	0.950	0.923	0.886
FeForm	0.925	0.959	0.934	0.955	0.924	0.948	0.924	0.929	0.923	0.962
SForm	1.132	1.107	1.114	1.118	1.149	1.149	1.162	1.115	1.148	1.144

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 25

VAR. / ID.	375	376	377	378	379	380	381	382	383	384
Lab No.	221	222	223	224	225	226	227	228	229	230
X	4979	4984	4989	4994	5000	5010	5015	5020	5025	5029
Y	9518	9518	9518	9518	9518	9518	9518	9518	9518	9518
Fe	32.005	34.159	32.647	34.659	32.618	34.352	33.250	34.332	33.008	33.436
As	42.267	43.183	42.088	41.406	40.921	42.036	43.677	41.922	44.472	44.267
S	23.139	22.346	22.625	23.387	23.189	24.143	22.622	23.257	21.967	21.875
Sb	0.268	0.195	0.153	0.117	0.241	0.142	0.185	0.251	0.000	0.078
Ni	0.000	0.054	0.017	0.000	0.000	0.061	0.000	0.051	0.094	0.103
Hg	0.796	0.390	0.209	0.398	0.315	0.401	0.319	0.255	0.395	0.313
Au	0.038	0.063	0.000	0.000	0.014	0.000	0.037	0.000	0.014	0.026
Total	98.513	100.390	97.739	99.967	97.298	101.135	100.090	100.068	99.950	100.093
As%Aspy	30.245	30.500	30.291	29.001	29.410	29.020	30.891	29.390	31.685	31.497
Fe%Aspy	30.722	32.364	31.518	32.565	31.448	31.813	31.546	32.287	31.547	31.913
S%Aspy	38.693	36.882	38.051	38.279	38.947	38.950	37.389	38.102	36.574	36.372
AsForm	0.907	0.915	0.909	0.870	0.882	0.871	0.927	0.882	0.951	0.945
FeForm	0.922	0.971	0.946	0.977	0.943	0.954	0.946	0.969	0.946	0.957
SForm	1.161	1.107	1.142	1.148	1.168	1.168	1.122	1.143	1.097	1.091

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 26

VAR. / ID.	385	386	387	388	389	390	391	392	393	394
Lab No.	231	232	233	234	235	237	238	239	240	241
X	4905	4910	4915	4921	4926	4936	4941	4946	4951	4956
Y	9526	9526	9526	9526	9526	9526	9526	9526	9526	9526
Fe	32.531	33.020	31.741	34.071	32.437	32.770	34.285	32.761	34.584	32.720
As	44.636	45.055	43.130	44.556	44.538	42.739	43.459	41.759	42.174	44.441
S	21.527	21.241	21.369	21.677	21.498	22.849	22.587	23.550	23.510	22.137
Sb	0.049	0.045	0.134	0.101	0.083	0.344	0.303	0.132	0.156	0.131
Ni	0.131	0.060	0.361	0.000	0.491	0.027	0.065	0.223	0.008	0.053
Hg	0.383	0.339	0.301	0.000	0.342	0.427	0.159	0.471	0.346	0.345
Au	0.586	0.091	0.011	0.008	0.033	0.005	0.000	0.476	0.039	0.054
Total	99.843	99.851	97.047	100.413	99.422	99.161	100.858	9.372	100.817	99.881
As%Aspy	32.079	32.355	31.642	31.604	32.017	30.419	30.484	29.520	29.337	31.662
Fe%Aspy	31.362	31.809	31.238	32.419	31.280	31.288	32.261	31.066	32.272	31.271
S%Aspy	36.154	35.646	36.636	35.931	36.115	38.003	37.024	38.903	38.217	36.856
AsForm	0.962	0.971	0.949	0.948	0.961	0.913	0.914	0.886	0.880	0.950
FeForm	0.941	0.954	0.937	0.973	0.938	0.939	0.968	0.932	0.968	0.938
SForm	1.085	1.069	1.099	1.078	1.084	1.140	1.111	1.167	1.146	1.106

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 27

VAR. / ID.	395	396	397	398	399	400	401	402	403	404
Lab No.	242	234	244	245	246	247	248	250	251	253
X	4961	4966	4973	4978	4983	4989	4994	5014	5019	4905
Y	9526	9526	9526	9526	9526	9526	9526	9526	9526	9534
Fe	34.527	32.880	32.579	31.927	33.803	32.668	34.024	33.596	32.579	31.013
As	43.113	43.373	43.554	43.341	42.719	43.123	43.772	43.746	42.847	45.017
S	23.033	22.487	22.327	22.469	23.249	22.785	22.187	22.007	22.727	22.329
Sb	0.114	0.218	0.102	0.090	0.093	0.073	0.161	0.113	0.071	0.092
Ni	0.000	0.018	0.032	0.378	0.160	0.354	0.000	0.027	0.059	0.113
Hg	0.000	0.304	0.404	0.370	0.338	0.407	0.466	0.379	0.419	0.259
Au	0.014	0.060	0.030	0.073	0.000	0.097	0.017	0.000	0.003	2.295
Total	100.801	99.340	99.028	98.648	100.362	99.507	100.627	99.868	98.705	101.118
As%Aspy	30.080	30.910	31.177	31.096	29.919	30.611	30.925	31.139	30.619	32.162
Fe%Aspy	32.314	31.433	31.284	30.728	31.758	31.107	32.246	32.079	31.231	29.722
S%Aspy	37.553	37.449	37.348	37.672	38.051	37.796	36.631	36.607	37.953	37.279
AsForm	0.902	0.927	0.935	0.933	0.898	0.918	0.928	0.934	0.919	0.965
FeForm	0.969	0.943	0.938	0.922	0.953	0.933	0.967	0.962	0.937	0.892
SForm	1.127	1.123	1.120	1.130	1.141	1.134	1.099	1.098	1.139	1.118

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 28

VAR. / ID.	405	406	407	408	409	410	411	412	413	414
Lab No.	254	255	256	257	258	260	261	262	263	264
X	4910	4915	4920	4925	4930	4940	4945	4950	4955	4960
Y	9534	9534	9534	9534	9534	9534	9534	9534	9534	9534
Fe	33.661	32.066	33.801	32.559	33.965	33.718	32.607	34.695	32.346	34.927
As	45.460	45.947	43.211	43.969	43.836	43.758	42.034	42.951	44.590	43.509
S	21.437	21.002	22.451	22.252	22.397	22.371	22.672	22.989	22.002	22.952
Sb	0.121	0.103	0.114	0.109	0.065	0.078	0.202	0.275	0.435	0.086
Ni	0.274	0.409	0.005	0.232	0.000	0.118	0.000	0.002	0.000	0.000
Hg	0.330	0.202	0.273	0.423	0.426	0.385	0.332	0.384	0.340	0.260
Au	0.043	0.034	1.992	0.000	0.045	0.020	0.000	0.033	0.054	0.044
Total	101.326	99.763	101.847	99.544	100.734	100.448	97.847	101.329	99.767	101.778
As%Aspy	32.179	33.123	30.440	31.369	30.881	30.899	30.239	29.922	31.893	30.180
Fe%Aspy	31.962	31.010	31.941	31.160	32.097	31.939	31.467	32.424	31.035	32.500
S%Aspy	35.460	35.381	36.959	37.099	36.870	36.915	38.115	37.426	36.775	37.205
AsForm	0.965	0.994	0.913	0.941	0.926	0.927	0.907	0.898	0.957	0.905
FeForm	0.959	0.930	0.958	0.935	0.963	0.958	0.944	0.973	0.931	0.975
SForm	1.064	1.061	1.108	1.113	1.106	1.107	1.143	1.127	1.107	1.114

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 29

VAR. / ID.	415	416	417	418	419	420	421	422	423	424
Lab No.	265	266	267	268	270	273	274	276	277	278
X	4965	4970	4975	4980	4990	5010	4892	4908	4913	4918
Y	9534	9534	9534	9534	9534	9534	9542	9542	9542	9542
Fe	32.713	34.570	33.520	34.195	34.704	33.106	32.510	34.139	32.459	33.383
As	42.350	42.956	43.680	42.815	43.268	42.556	44.444	44.950	45.028	45.068
S	23.815	22.767	22.185	22.730	22.857	23.257	21.075	21.818	21.522	21.495
Sb	0.073	0.000	0.114	0.262	0.143	0.127	0.036	0.352	0.065	0.059
Ni	0.070	0.000	0.027	0.072	0.000	0.000	0.300	0.115	0.307	0.293
Hg	0.288	0.360	0.370	0.450	0.460	0.416	0.393	0.326	0.204	0.345
Au	0.077	0.013	0.020	0.116	0.016	0.037	0.042	0.000	0.005	0.063
Total	99.386	100.666	99.916	100.640	101.448	99.499	98.800	101.700	99.590	100.706
As%Aspy	29.791	30.108	31.036	30.095	30.152	30.062	32.236	31.607	32.307	32.044
Fe%Aspy	30.869	32.504	31.949	32.243	32.441	31.371	31.631	32.201	31.241	31.840
S%Aspy	39.149	37.291	36.836	37.336	37.222	38.392	35.721	35.851	36.086	35.715
AsForm	0.894	0.903	0.931	0.903	0.905	0.902	0.967	0.948	0.969	0.961
FeForm	0.926	0.975	0.959	0.967	0.973	0.941	0.949	0.966	0.937	0.955
SForm	1.174	1.119	1.105	1.120	1.117	1.152	1.072	1.076	1.083	1.071

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 30

VAR. / ID.	425	426	427	428	429	430	431	432	433	434
Lab No.	279	280	281	282	283	284	285	286	287	289
X	4923	4928	4933	4938	4943	4948	4953	4958	4963	4973
Y	9542	9542	9542	9542	9542	9542	9542	9542	9542	9542
Fe	31.716	34.469	32.661	33.578	33.133	34.987	32.453	33.750	32.952	32.839
As	44.525	44.555	44.793	45.293	43.189	43.053	43.890	43.447	42.994	42.431
S	21.732	21.775	22.054	21.900	22.823	23.024	22.222	22.639	22.930	23.382
Sb	0.070	0.100	0.076	0.062	0.161	0.222	0.116	0.182	0.179	0.125
Ni	0.317	0.010	0.013	0.127	0.045	0.013	0.003	0.000	0.703	0.061
Hg	0.211	0.335	0.314	0.392	0.472	0.462	0.263	0.213	0.282	0.372
Au	2.368	0.030	0.000	0.000	0.000	0.040	0.035	0.033	0.037	0.037
Total	100.939	101.274	99.911	101.352	99.823	101.801	98.982	100.264	100.077	99.247
As%Aspy	31.967	31.401	31.921	31.928	30.565	29.871	31.453	30.633	30.297	30.001
Fe%Aspy	30.546	32.588	31.223	31.752	31.455	32.563	31.198	31.921	31.149	31.147
S%Aspy	36.462	35.863	36.727	36.076	37.745	37.330	37.215	37.301	37.760	38.634
AsForm	0.959	0.942	0.958	0.958	0.917	0.896	0.944	0.919	0.909	0.900
FeForm	0.916	0.978	0.937	0.953	0.944	0.977	0.936	0.958	0.934	0.934
SForm	1.094	1.076	1.102	1.082	1.132	1.120	1.117	1.119	1.133	1.159

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 31

VAR. / ID.	435	436	437	438	439	440	441	442	443	444
Lab No.	290	291	292	293	294	297	298	299	300	301
X	4978	4982	4987	4992	4997	4906	4911	4916	4921	4926
Y	9542	9542	9542	9542	9542	9550	9550	9550	9550	9550
Fe	34.314	33.611	34.274	32.698	34.361	32.781	33.506	31.903	32.815	32.304
As	43.552	43.466	43.535	41.769	41.127	44.839	43.966	45.272	44.486	46.080
S	22.919	22.806	22.790	23.866	23.945	21.826	22.606	21.461	22.002	20.777
Sb	0.164	0.211	0.167	0.160	0.129	0.094	0.085	0.023	0.077	0.053
Ni	0.016	0.000	0.000	0.033	0.069	0.000	0.007	0.000	0.078	0.061
Hg	0.472	0.301	0.376	0.419	0.263	0.336	0.344	0.396	0.267	0.362
Au	0.000	0.021	0.048	0.019	2.964	0.000	0.033	0.000	0.046	0.611
Total	101.437	100.416	101.190	98.964	102.858	99.876	100.547	99.055	99.771	100.248
As%Aspy	30.363	30.589	30.438	29.476	28.448	32.028	30.975	32.715	31.734	33.284
Fe%Aspy	32.091	31.730	32.145	30.953	31.883	31.410	31.666	30.926	31.401	31.301
S%Aspy	37.339	37.505	37.235	39.357	38.705	36.431	37.217	36.241	36.677	35.070
AsForm	0.911	0.918	0.913	0.884	0.853	0.961	0.929	0.982	0.952	0.998
FeForm	0.963	0.952	0.964	0.929	0.956	0.942	0.950	0.928	0.942	0.939
SForm	1.120	1.125	1.117	1.181	1.161	1.093	1.117	1.087	1.100	1.052

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 32

VAR. / ID.	445	446	447	448	449	450	451	452	453	454
Lab No.	302	303	304	305	306	307	308	309	310	311
X	4931	4936	4941	4946	4951	4956	4961	4971	4976	4981
Y	9550	9550	9550	9550	9550	9550	9550	9550	9550	9550
Fe	33.069	32.145	33.446	32.995	33.701	32.840	35.531	32.732	34.574	33.693
As	42.707	45.467	45.971	43.700	44.656	42.686	41.869	42.593	43.765	43.512
S	20.938	21.173	21.111	22.345	22.020	23.280	23.572	23.103	22.717	22.692
Sb	0.151	0.118	0.032	0.108	0.078	0.241	0.000	0.084	0.121	0.195
Ni	0.134	0.138	0.554	0.142	0.551	0.000	0.023	0.006	0.011	0.028
Hg	0.379	0.308	0.264	0.301	0.220	0.426	0.306	0.445	0.266	0.376
Au	0.027	0.057	0.000	0.043	0.054	0.012	0.093	0.000	0.041	0.000
Total	97.405	99.406	101.378	99.634	101.280	99.485	101.394	98.963	101.495	100.496
As%Aspy	31.307	32.840	32.604	31.091	31.409	30.177	28.916	30.269	30.512	30.635
Fe%Aspy	32.519	31.145	31.821	31.490	31.797	31.143	32.917	31.204	32.335	31.822
S%Aspy	35.869	35.737	34.989	37.151	36.193	38.459	38.043	38.367	37.011	37.335
AsForm	0.939	0.985	0.978	0.933	0.942	0.905	0.868	0.908	0.915	0.919
FeForm	0.976	0.934	0.955	0.945	0.954	0.934	0.988	0.936	0.970	0.955
SForm	1.076	1.072	1.050	1.115	1.086	1.154	1.141	1.151	1.110	1.120

TABLE 4.05

TABLE 4.05

Microprobe Analyses: Glendinning Arsenopyrite (ASP5) Part 33

VAR. / ID.	455	456	457
Lab No.	312	313	314
X	4986	4991	4996
Y	9550	9550	9550
Fe	34.292	32.909	33.901
As	43.333	42.798	42.178
S	22.584	22.971	23.477
Sb	0.166	0.143	0.109
Ni	0.000	0.000	0.019
Hg	0.313	0.382	0.338
Au	0.017	0.019	0.000
Total	100.705	99.222	100.022
As%Aspy	30.444	30.383	29.550
Fe%Aspy	32.319	31.340	31.861
S%Aspy	37.078	38.108	38.437
AsForm	0.913	0.911	0.887
FeForm	0.970	0.940	0.956
SForm	1.112	1.143	1.153

TABLE 4.06

Microprobe Analyses: Glendinning Arsenopyrite (ASP6) Part 1

VAR. / ID.	720	721	722	723	724	725	726	727	728	729
Lab No.	319	320	321	322	324	325	326	327	328	329
X	840	845	850	855	838	858	863	868	873	833
Y	637	637	637	637	647	647	647	647	647	657
Fe	31.887	31.929	31.494	33.582	32.551	31.770	33.094	32.020	32.293	31.307
As	44.791	44.246	43.053	43.374	44.262	42.793	43.550	44.241	44.694	45.288
S	21.262	21.184	22.081	22.219	21.682	21.883	22.327	21.966	21.279	21.490
Sb	0.000	0.059	0.081	0.046	0.100	0.742	0.061	0.027	0.043	0.088
Ni	0.181	0.138	0.042	0.353	0.025	0.018	0.175	0.000	0.210	0.153
Hg	0.355	0.352	0.182	0.254	0.392	0.315	0.404	0.273	0.339	0.157
Au	0.011	0.048	0.000	0.018	0.050	0.032	0.004	0.000	0.000	0.024
Total	98.487	97.956	96.933	99.846	99.062	97.553	99.615	98.527	98.858	98.507
As%Aspy	32.547	32.310	31.409	30.778	31.877	31.200	30.989	31.910	32.349	32.860
Fe%Aspy	31.082	31.277	30.821	31.966	31.447	31.072	31.590	30.981	31.354	30.472
S%Aspy	36.104	36.149	37.645	36.844	36.490	37.284	37.127	37.024	35.992	36.438
AsForm	0.976	0.969	0.942	0.923	0.956	0.936	0.930	0.957	0.970	0.986
FeForm	0.933	0.938	0.925	0.959	0.943	0.932	0.948	0.929	0.941	0.914
SForm	1.083	1.084	1.129	1.105	1.095	1.118	1.114	1.111	1.080	1.093

Microprobe Analyses: Glendinning Arsenopyrite (ASP6) Part 2

VAR. / ID.	730	731	732	733	735	736	737	738	739	740
Lab No.	330	331	332	334	335	336	337	338	339	340
X	838	843	848	858	863	868	873	832	837	842
Y	657	657	657	657	657	657	656	664	664	664
Fe	33.125	31.990	34.380	34.361	32.704	34.646	32.623	32.799	32.414	33.644
As	43.719	44.137	42.619	42.885	43.225	43.981	43.792	44.733	43.755	44.077
S	22.292	21.960	22.759	22.541	22.986	22.424	22.343	21.739	21.922	22.443
Sb	0.134	0.068	0.215	0.182	0.072	0.069	0.091	0.099	0.067	0.000
Ni	0.260	0.218	0.033	0.037	0.028	0.006	0.000	0.314	0.052	0.043
Hg	0.351	0.339	0.428	0.222	0.382	0.063	0.298	0.330	0.421	0.380
Au	0.089	0.102	0.328	0.000	0.000	0.007	0.079	0.000	0.042	0.018
Total	99.970	98.814	100.762	100.228	99.397	101.196	99.226	100.014	98.673	100.605
As%Aspy	31.044	31.787	29.933	30.223	30.649	30.770	31.288	31.925	31.536	31.071
Fe%Aspy	31.553	30.905	32.391	32.484	31.107	32.515	31.267	31.401	31.339	31.815
S%Aspy	36.991	36.958	37.354	37.123	38.087	36.661	37.304	36.256	36.923	36.971
AsForm	0.931	0.954	0.898	0.907	0.919	0.923	0.939	0.958	0.946	0.932
FeForm	0.947	0.927	0.972	0.975	0.933	0.975	0.938	0.942	0.940	0.954
SForm	1.110	1.109	1.121	1.114	1.143	1.100	1.119	1.088	1.108	1.109

TABLE 4.06

Microprobe Analyses: Glendinning Arsenopyrite (ASP6) Part 3

VAR. / ID.	741	742	743	744	745	746	747	748	749	750
Lab No.	341	342	343	344	346	347	348	349	350	353
X	847	852	858	868	829	834	839	844	849	871
Y	664	664	663	663	673	673	673	673	673	673
Fe	33.144	33.894	32.932	33.682	33.667	32.152	33.637	32.177	33.937	31.867
As	43.688	42.145	43.873	43.861	44.703	43.629	45.257	42.626	43.258	43.331
S	22.461	23.507	22.948	22.251	23.133	22.297	21.363	23.024	22.580	22.524
Sb	0.185	0.264	0.138	0.000	0.043	0.037	0.422	0.228	0.186	0.155
Ni	0.005	0.370	0.370	0.021	0.083	0.032	0.000	0.000	0.000	0.363
Hg	0.333	0.288	0.289	0.239	0.390	0.345	0.214	0.335	0.313	0.493
Au	0.037	0.000	0.085	0.000	0.042	0.003	0.000	0.028	0.000	0.005
Total	99.853	100.468	100.635	100.054	102.061	98.495	100.893	98.418	100.274	98.738
As%Aspy	31.007	29.413	30.815	31.072	30.997	31.375	32.179	30.475	30.510	31.071
Fe%Aspy	31.556	31.732	31.029	32.009	31.315	31.016	32.083	30.860	32.109	30.653
S%Aspy	37.253	38.338	37.666	36.837	37.484	37.470	35.496	38.467	37.217	37.743
AsForm	0.930	0.882	0.924	0.932	0.930	0.941	0.965	0.914	0.915	0.932
FeForm	0.947	0.952	0.931	0.960	0.939	0.930	0.962	0.926	0.963	0.920
SForm	1.118	1.150	1.130	1.105	1.125	1.124	1.065	1.154	1.117	1.132

TABLE 4.06

Microprobe Analyses: Glendinning Arsenopyrite (ASP6) Part 4

VAR. / ID.	751	752	753	754	755	756	757	758	759	760
Lab No.	354	355	365	357	358	359	361	362	363	364
X	876	881	893	898	903	908	826	843	848	853
Y	673	673	673	673	673	673	683	683	683	683
Fe	33.137	31.626	33.707	32.664	33.663	31.837	32.208	33.082	32.119	33.943
As	42.843	43.710	44.096	43.506	45.017	45.051	44.932	43.805	43.041	41.237
S	22.423	22.189	22.240	22.647	21.491	21.292	21.435	22.586	22.925	24.219
Sb	0.183	0.050	0.147	0.022	0.079	0.047	0.063	0.103	0.074	0.268
Ni	0.179	0.100	0.000	0.008	0.000	0.259	0.232	0.159	0.004	0.017
Hg	0.276	0.368	0.304	0.192	0.396	0.356	0.334	0.320	0.355	0.327
Au	0.106	0.231	0.000	0.069	0.040	0.000	0.040	0.000	0.000	0.000
Total	99.147	98.274	100.494	99.108	100.686	98.842	99.244	100.055	98.518	100.011
As%Aspy	30.563	31.589	31.166	30.994	32.016	32.644	32.394	30.991	30.769	28.701
Fe%Aspy	31.711	30.660	31.958	31.216	32.116	30.946	31.150	31.396	30.802	31.691
S%Aspy	37.381	37.474	36.732	37.703	35.718	36.054	36.114	37.340	38.298	39.392
AsForm	0.917	0.948	0.935	0.930	0.961	0.979	0.972	0.930	0.923	0.861
FeForm	0.951	0.920	0.959	0.937	0.964	0.928	0.934	0.942	0.924	0.951
SForm	1.121	1.124	1.102	1.131	1.071	1.082	1.083	1.120	1.149	1.182

TABLE 4.06

Microprobe Analyses: Glendinning Arsenopyrite (ASP6) Part 5

VAR. / ID.	761	762	763	764	765	766	767	768	769	770
Lab No.	365	366	367	368	369	370	371	372	373	374
X	865	876	881	886	891	896	901	906	911	916
Y	683	683	683	683	683	683	683	683	683	683
Fe	32.589	32.724	32.776	33.947	32.408	33.876	33.042	34.261	32.557	34.206
As	42.959	39.401	42.813	42.294	42.732	45.060	43.635	42.817	43.698	44.232
S	22.390	23.203	23.119	23.609	23.202	21.915	22.265	22.915	22.304	21.984
Sb	0.209	0.066	0.182	0.263	0.162	0.088	0.079	0.112	0.061	0.055
Ni	0.000	0.248	0.028	0.000	0.554	0.026	0.041	0.000	0.061	0.054
Hg	0.332	0.337	0.410	0.000	0.360	0.276	0.354	0.330	0.511	0.329
Au	0.000	0.033	0.032	0.049	0.000	0.000	0.051	0.838	0.006	0.000
Total	98.479	96.012	99.360	100.162	99.418	101.241	99.467	101.273	99.198	100.860
As%Aspy	30.850	28.548	30.338	29.538	30.228	31.753	31.114	29.976	31.257	31.212
Fe%Aspy	31.394	31.806	31.156	31.804	30.752	32.023	31.605	32.176	31.240	32.378
S%Aspy	37.574	39.287	38.284	38.532	38.354	36.089	37.100	37.490	37.283	36.251
AsForm	0.925	0.856	0.910	0.886	0.907	0.953	0.933	0.899	0.938	0.936
FeForm	0.942	0.954	0.935	0.954	0.923	0.961	0.948	0.965	0.937	0.971
SForm	1.127	1.179	1.148	1.156	1.151	1.083	1.113	1.125	1.118	1.087

TABLE 4.06