

| BHID | FROM | TO | STRAT | ROCKTP | RCOLOUR | FRCOMP | FRSIZE | FRSORT | FRSHAP | MAVOL | MACOMP | LCGRAD | LCSTYL |
|--------|-------|-------|-------|----------|---------|--------|--------|--------|--------|-------|--------|--------|--------|
| MCD020 | 0 | 13 | | HA | CmBn | | | | | | | S | C |
| MCD020 | 13 | 30 | | HA | GyCm | | | | | | | S | C |
| MCD020 | 30 | 32.9 | | Ba/HA | LGy | | | | | | | S | C |
| MCD020 | 32.9 | 37.3 | | HA | Gy | SeSi | 2-30 | P | sA-sR | 30 | SiSe | | F |
| MCD020 | 37.3 | 45.4 | | HA-lv | Gy | SiSe | 2-50 | P | A-sR | 20 | SiSe | | |
| MCD020 | 45.4 | 46.7 | | Cv | | | | | | | | | |
| MCD020 | 46.7 | 47.5 | | HA | LGy | | | | | | | S | |
| MCD020 | 47.5 | 48.8 | | Ba | Wh | | | | | | | S | |
| MCD020 | 48.8 | 49.9 | | Q | LGy | | | | | | | | F |
| MCD020 | 49.9 | 53.9 | | YD-lv/bv | Gy-GyGn | D,HA | 1-100 | P | A-sR | 20 | av | S | C |
| MCD020 | 53.9 | 54.15 | | MPy | Bn | MPy | 1-30 | P | A-sR | 20 | MPy | S | C |
| MCD020 | 54.15 | 58.8 | | YD-lv/bv | Gy-GyGn | D,HA | 1-100 | P | A-sR | 20 | av | | F |
| MCD020 | 58.8 | 77.8 | | D-bv/HA | Gy-Cm | D | 30-200 | P | A | 20 | SiSe | G1 | C |
| MCD020 | 77.8 | 80.9 | | D/HA | Gy | | | | | | | G1 | C |
| MCD020 | 80.9 | 86.5 | | D-bv/HA | Gy-Cm | D,HA | 30-200 | P | A | 10 | SiSe | G1 | C |
| MCD020 | 86.5 | 89.4 | | D-l | GyGn | | | | | | | G1 | C |
| MCD020 | 89.4 | 100.6 | | D-bv/HA | Gy | D,HA | 20-300 | P | A | 10 | SiSe | | |

**HELLYER PROJECT LOGGING
CODES**

LITHOLOGY SECTION

STRATIGRAPHY

| | |
|-------------------------------------|-----|
| Upper Rhyolitic Sequence | URS |
| Que River Shale | QRS |
| Hellyer (Upper) Basalt | PLS |
| Hangingwall Volcaniclastic Sequence | HVS |
| Hellyer Mineralised Sequence | HMS |
| Feldspar Phyrlic Andesite | FPS |
| Lower Basalt | LBS |
| Stringer Envelope Zone | SEZ |
| Stringer Zone | STZ |

ROCK TYPE

Composition Prefix

| | |
|--------------------------------------|------|
| Andesite | A |
| Basalt | B |
| Barite | Ba |
| Base Metal Sulphide | BMS |
| Chert | Ch |
| Dacite | D |
| Disseminated Base Metal Sulphide | DBS |
| Feldspar Phyrlic Andesite | FP |
| Glassy silica – colloform pyrite ore | GSP |
| Highly Altered (no primary textures) | HA |
| Massive Chalcopryrite | MCPy |
| Massive Pyrite | Mpy |
| No Core | NC |
| Polymict | Y |
| Pumice | Pu |
| “Quellite” | Q |
| Rhyolite | R |
| Sandstone | Ss |
| Shale | Sh |
| Vein | Vn |

Volcanic Texture Suffix

| | |
|---------------------------------|-----|
| Ash volcaniclastic (0-2mm) | av |
| Breccia volcaniclastic (>64mm) | bv |
| Lapilli volcaniclastic (2-64mm) | lv |
| Fine (2-16mm) | flv |
| Medium (16-32mm) | mlv |
| Coarse (32-64mm) | clv |
| Lava | l |
| Pillow Lava | pl |
| Variolitic pillow lava | vp |

COLOUR

Prefix

D=Dark
L=Light
B=Bright

| | |
|------------|----|
| Black | Bk |
| Brown | Br |
| Green | Gn |
| Grey | Gy |
| Orange | Or |
| Pink | Pk |
| Polychrome | Pc |
| Purple | Pu |
| Red | Rd |
| White | Wh |
| Yellow | Yw |

VOLCANICLASTIC FRAGMENTS

Composition

As per rock type compositional prefix codes

Size

Size range in mm e.g. 10-50

Sorting

| | |
|-------------------|---|
| Well Sorted | W |
| Moderately Sorted | M |
| Poorly Sorted | P |

Shape

| | |
|-------------|----|
| Angular | A |
| Sub-angular | sA |
| Sub-roundes | sR |
| Rounded | R |

CRYSTALS

Composition of any crystal component

VOLCANICLASTIC MATRIX

Composition

As per mineral code or:
Ash av

| | |
|---------|---|
| Crystal | X |
| Glassy | G |
| Lithic | L |
| Vitric | V |

Volume

Matrix volume in %

LOWER CONTACT

Gradation

| | |
|-----------------------|----|
| Sharp but not faulted | S |
| Faulted | F |
| Gradational up to 1m | G1 |
| 1-10m | G2 |
| Over 10m | G3 |

Style

| | |
|----------------|---|
| Conformable | C |
| Interfingering | F |
| Irregular | I |

ALTERATION SECTION

TEXTURE

| | |
|----------------------|----|
| Disseminated | D |
| Fragments | F |
| Interpillow | IP |
| Local | L |
| Matrix | M |
| Nodular | N |
| Pervasive | P |
| Pillow Margins | PM |
| Rim | R |
| Stockwork | K |
| Structure controlled | S |
| Veins | V |

INTENSITY

As per standard intensity coding 1-5

MINERALOGY

| | |
|-----------|----|
| Albite | Ab |
| Biotite | Bt |
| Carbonate | CO |
| Chlorite | Cl |
| Clay | Cy |
| Epidote | Ep |
| Feldspar | Fd |

| | |
|------------|-----|
| Fuchsite | Fu |
| Hematite | Ht |
| Illite | Il |
| K-Feldspar | Kfd |
| Limonite | Li |
| Magnetite | Mt |
| Pyrite | Py |
| Pyrrhotite | Po |
| Quartz | Qz |
| Sericite | Se |
| Silica | Si |
| Talc | Ta |
| Tremolite | Tr |
| Tourmaline | Tm |

VEINING SECTION

INTENSITY

As per standard intensity coding 1-5

WIDTH

Thickness range of veins in mm

MINERALOGY

As per mineralogy codes used for alteration and mineralisation

MINERALISATION SECTION

TEXTURE

| | |
|---------------------|----|
| Banded | Bn |
| Brecciated | Br |
| Colloform | Cm |
| Disseminated | Ds |
| Euhedral | Eu |
| Fragmental | Fr |
| Framboidal | Fb |
| Inter-pillow | IP |
| Joint plane coating | JP |
| Massive | Ma |
| Nodular | No |
| Pillow margin | Pm |
| Patches | Pa |
| Recrystallised | Rx |
| Reworked | Rw |

| | |
|-------------------|----|
| Sheared | Sh |
| Shrinkage shadows | Ss |
| Veins | Vn |
| Vein selvage | VS |
| Boxwork veining | Bx |

MINERALOGY

Mineralogy prefix, percentage suffix (Tr for trace)

| | |
|--------------|----|
| Arsenopyrite | As |
| Barite | Ba |
| Chalcopyrite | Cp |
| Galena | Ga |
| Pyrite | Py |
| Pyrrhotite | Po |
| Sphalerite | Sp |
| Gangue | Ga |

FAULTS SECTION

BASE

Downhole depth to bottom of fault

DOWNHOLE WIDTH

Downhole thickness of fault in cm

CORE AXIS ANGLE

Angle to core axis

STYLE

| | |
|--------------|----|
| Brecciated | Br |
| Cavernous | Cv |
| Puggy | Pu |
| Rehealed | Rh |
| Slickensided | Sl |
| Carbonate | CO |
| Chlorite | Cl |
| Quartz | Si |
| Rubble | Ru |
| Sericite | Se |
| Shear | Sh |

FABRIC SECTION

TYPE

| | |
|---------|----|
| Bedding | Bd |
|---------|----|

| | |
|-------------------|----|
| Clast alignment | CA |
| Cleavage | Cl |
| Flow Banding | FB |
| Shearing | Sh |
| Sulphide banding | SB |
| Vesicle alignment | VA |

FACING

| | |
|-----------------|---|
| Facing uphole | U |
| Facing downhole | D |

WEATHERING

Type prefix, standard intensity coding suffix

| | |
|----------|---|
| Leached | L |
| Oxidised | O |

INTENSITY CODING

| | |
|---|----------|
| 1 | Trace |
| 2 | Weak |
| 3 | Moderate |
| 4 | Strong |
| 5 | Intense |

GRAPHIC LOG

As per attached symbols from "Volcanic Textures" by McPhie, Doyle and Allen.

SYMBOLS FOR COHERENT TEXTURES

- single line symbols for low to moderate phenocryst abundance
- double line symbols for abundant phenocrysts
- smaller symbols for fine grained phenocrysts
- larger symbols for coarse grained phenocrysts
- additional "+" symbol for coarse, phenocryst-rich granitoid texture

| | |
|--|---|
| | basalt, poorly to moderately porphyritic basalt |
| | phenocryst-rich basalt |
| | andesite, poorly to moderately porphyritic andesite |
| | phenocryst-rich andesite |
| | dacite, poorly to moderately porphyritic dacite |
| | phenocryst-rich dacite |
| | fine, poorly to moderately porphyritic rhyolite |
| | coarse, poorly to moderately porphyritic rhyolite |
| | coarse, phenocryst-rich rhyolite |
| | coarse rhyolitic porphyry |
| | flow foliation |
| | spherulites, lithophysae, alteration spots, nodular devitrification texture |

SYMBOLS FOR VOLCANICLASTIC TEXTURES

- closer spaced symbols for dominant grain size and grain type

| | |
|------|--|
| | pumice or relict pumice |
| | angular, juvenile lava clasts |
| | fiamme/ vitriclast or relict vitriclast |
| | accretionary lapilli |
| | angular, polymict lithic clasts |
| | rounded, polymict lithic clasts |
| | mudstone intraclast |
| | sand-size particles, granular texture |
| | mud-size particles |
| | distinct planar stratification |
| | diffuse planar stratification |
| | cross bedding |
| | micro-cross lamination |
| e.g. | |
| | pumice clasts in sand matrix |
| | angular polymict lithic clasts and mudstone intraclasts in sand matrix |

SYMBOLS FOR JUVENILE-CLAST-RICH DEPOSITS

| | | | |
|--|---|--|---|
| | jigsaw-fit texture of fine, moderately porphyritic rhyolite | | pumice-clast-rich deposit, coarse, moderately porphyritic rhyolitic composition |
| | jigsaw-fit texture of coarse, moderately porphyritic rhyolite | | pumice-clast-rich deposit, coarse, phenocryst-rich rhyolitic composition |
| | jigsaw-fit texture of coarse phenocryst-rich andesite | | pumice-clast-rich deposit, coarse, moderately porphyritic dacitic composition |