LOGGING CODES MASTER

REGOLITH UNITS

Code	Description		
	Surficial unconsolidated regolith		
R	residual units		
T	transported units		
	Lateritic Duricrusts		
DF	ferruginous duricrusts		
DO	other duricrusts		
	Lateritic weathering horizons		
LM	Mottled zone		
LP	Pallid zone		
LU	Upper saprolite, strongly weathered		
LL	Lower saprolite, moderately weathered		
LW	Saprock, weakly weathered		
LV	Very weakly weathered rock		

COLOUR
(Include one Intensity and up to two Hues)

Intensity

Code	Description
l	Light (Pale)
m	Medium
d	Dark

Hue:Colour

Code	Colour
bk	Black
br	Brown
bl	Blue
pu	Purple
rd	Red
pk	Pink
ye	Yellow
or	Orange
gn	Green
gy	Grey
wt	White
kh	Khaki

GRAIN SIZE

Code	Size
a	not visible in 10x lense
vf	<0.2 mm
f	0.2- 0.5 mm
m	0.5- 2.0mm
c	2.0- 4.0 mm
vc	>4.0 mm

FABRIC TYPE
(Include both Intensity and type)

Intensity

Code	Description	
n	Massive	
r	Relict fabric, strength unknown	
v	Very weak	<10% recrystallisation
w	Weak	10- 30% recrystallisation
m	Moderate	30- 60% recrystallisation
s	Strong	60- 90% recrystallisation
i	Intense	>90% recrystallisation

Type

Code	Description
s	Foliation (foliated fabric, undiff.)
sh	Schistosity (pure shear fabric)
sc	ShearFabric (Simple shear fabric)
ln	Lineated
lm	Laminated
rc	Recrystallised
br	Brecciated
bd	Bedding

LITHOLOGY- Unconsolidated sediments

Code	Description	Code	Description
RS	Soils, residual, undifferentiated	TL	Transported lacustrine sediments, undifferentiated
RSC	Lithic scree	TLE	Evaporitic sediments
RSR	residual soil with lithic fragments	TLC	Clays
RSS	residual soil, sandy	TLS	Running sands
RSL	residual soil, loam		
RSP	pisolithic loams over lateritic duricrust		
TS	Transported clastic sediments, undiff.	TG	Gravels, undifferentiated
TSG	Colluvium - local (coarse)	TGQ	Gravels, predominantly quartz grit
TSS	Colluvium - sands	TGP	Gravel, pisolithic with clay, silt and sand
TSC	Colluvium - distal (fine clay and silt)	TGL	Gravel, with lithic fragments
TSA	Alluvium		
TSD	Desert dunes		
TSE	Eolian sands		

LITHOLOGY- Intense regolith overprints only

Code	Description	Code	Description
DC	Calcrete (only if 100% destruction of precursor)		
DS	Silcrete (only if 100% destruction of precursor)		
DF	Ironstone, undifferentiated		
DG	Gossan		
DLM	Lateritic duricrust, massive	LX	Solution cavity- Collapse Breccia Fill
DLX	Lateritic duricrust, fragmental		
DLP*	Lateritic duricrust, pisolitic- consolidated		
DLN*	Lateritic duricrust, nodular - consolidated	LC	Saprolitic clays**
	*L= loose		** use only as a last resort!!

**NB: Regolith is defined as the weathering overprint on lithology.

Where weathering is intense and precursor destroyed use "LC" in Lithology as a last resort.

LITHOLOGY- Felsic Field

F — acid rocks, undifferentiated

Felsic Volcanic Rocks

Code	Description
FV	Felsic volcanic, undifferentiated
FVL	Lava, undifferentiated
FVL*	Lava, porphyritic
FVLA	Lava, amygdaloidal
FVA	Agglomerate, pyroclastic breccia
FVP	Lapillistone (2- 64mm)
FVT	Tuff (<20mm, undifferentiated)
FVT*	Tuff, crystal * = phenocrysts as below
FVTC	Tuff, cherty
FVTW	Tuff, ash fall
FVTW*	Tuff, ash flow with phenocrysts
FVTI	Ignimbrite, composite pyroclastic flow

(* = q,f,a,k,p,h,x,b,m: quartz,feldspar undiff; sodic,
potassic,plag,hornblende,pyroxene, biotite, muscovite phenocrysts)

Felsic Intrusive Rocks (med- c grained)

Code	Description
G	Granitoid, undifferentiated
GR	Granite
GD	Granodiorite
GZ	Monzodiorite
GM	Monzonite
GS	Syenite
GT	Tonalite
GE	Diorite

Felsic Intrusive Rocks (fine grained)

Code	Description	Code	Description
FI*	Felsic Intrusive, undifferentiated	FP	Felsic, vc grained (pegmatite)
FIQ	Quartz porphyry	FPG	granitic
FIF	Feldspar porphyry	FPGB	*, bt bearing
FIQF	Quartz feldspar porphyry	FPGM	*, muscovite bearing
FIL	Aplite	FPGL	*, lith minerals
	(* phenocrystic phases as per felsic field)		

Andesitic Field

I — intermediate rock, undifferentiated

Andesitic volcanics

Code	Description
IV	Andesitic volcanics, undifferentiated
IVL	Lava, undifferentiated
IVL*	Lava, porphyritic
IVLA	Lava, amygdaloidal
IVA	Agglomerate, pyroclastic breccia
IVP	Lapillistone (20- 64mm)
IVT	Tuff (<20mm, undifferentiated)
IVT*	Tuff, crystal
IVTC	Tuff, cherty
IVTW	Tuff, ash fall
IVTW*	Tuff, ash flow with phenocrysts
IVTI	Ignimbrite, composite pyroclastic flow

(* phenocrystic phases as per felsic field)

Intermediate Intrusive Rocks

Code	Description
II*	Intermediate Intrusives, Undifferentiated
IIH	Hornblende porphyry
IIF*	Feldspar porphyry
IIP	Intermediate pegmatite

(* phenocrystic phases as per felsic field)

Mafic Rocks

M — Mafic undifferentiated

Mafic Intrusives

Code	Description
MO	Mafic intrusive, undifferentiated
MOD	Dolerite
MOG	Gabbro
MON	Norite
MOGN	Gabbro Norite
MOGQ	Quartz Gabbro
MOGG	Granophyre
MOGZ	Monzo Gabbro
MOT	Troctolite
MOA	Anorthosite
MOP	Mafic pegmatite

(* l= leuco, s= meso, m= melano- cratic)

Mafic volcanics

Code	Description
MV	Mafic volcanic, undifferentiated
MVT	Tholeiitic lava
MVTP	Tholeiitic lava, pillowed
MVTV	Tholeiitic lava, vesicular
MVTX	Tholeiitic vent breccia, flow top or pillow breccia
MVTT	Tholeiitic tuff, ash fall
MVK	Komatiitic basalt undiff.
MVKX	Komatiitic basalt, pyroxene spinifex
MVKV	Komatiitic basalt, variolic textured
MVKAC	actinolite- chlorite schist after hi mag basalt

Ultramafic Rocks

U — Ultramafic undifferentiated

Ultramafic Intrusives

Code	Description
UP	Ultramafic Intrusives, undifferentiated
UPD	Peridotite
UPN*	Dunite
UPX*	Pyroxenite
UPO*	Wehr-; Hartzburg-; Lherzo-
UPH	Hornblendite
	(* = o,c,w,n: opx,cpx,webst.

Ultramafic Volcanics

Code	Description
UK	Ultramafic volcanic, undifferentiated
UKX	Spinifex Textured, undifferentiated
UKXC	Chilled flow top breccia (A1 zone)
UKXF	Fine grained feathery texture (A2 zone)
UKXB	Coarse grained bladed texture (A3 zone)
UKC	Cumulate, undifferentiated
UKCB	B1 zone- aligned hopper olivine
UKCO	Orthocumulate olivine
UKCM	Mesocumulate olivine
UKCA	Adcumulate olivine
UKCOS	Olivine-sulphide cumulate
UKCS	Sulphide cumulate

Metamorphic equivalents (low CO2, inc. MgO)

Code	Description
UKAC	Tremolite-Chlorite rock
UKACS	Trem-Chlor- Serp rock
UKS	Serpentinite

Metamorphic equivalents (high CO2, inc. MgO)

Code	Description
UKTAC	Talc-Trem-Chlorite(+/- Carb) rock
UKTC	Talc Chlorite
UKTS	Talc- Serp rock
UKTM	Talc-Magnesite rock
UKTD	Talc-Dolomite rock

Sedimentary Rocks

Chemical Sediments

Code	Description
C	chemical sed., undifferentiated
CH	Chert
CB	Calcareous Rocks (>50% Carb), undifferentiated
CBC	Limestone
CBD	Dolomite
CBM	Marl
CE	Evaporitic rocks, undifferentiated
CES	Sulphates
CEH	Halides
CI	Banded iron formation, undiff.
CIF	Ferruginous iron formation
CIC	Carbonate iron formation
CIS	Sulphide iron formation
CIJ	Jasperitic iron formation
CIA	Amphibole iron formation

Clastic Sediments

Code	Description
S	Clastic sediment, undifferentiated
SC	Conglomerate, undifferentiated
SCP	Conglomerate, polymictic
SCB	Conglomerate, clf cobble dominated
SCT	Conglomerate, glacial origin
SCO*	Oligomictic, clasts as below
	(*=gr,ap,ip,mo,av,iv,mv,uk,up,s,q as appropriate)
SA	Sandstone, undifferentiated
SAQ	Quartzite
SAK	Arkose
SAL	Lithic rock, undifferentiated
SAC	Calcite Bearing
SAD	Dolomite Bearing
SAV*	volcaniclastic sand, *provenance indicated below
	(*f, i, m, u, l: felsic, intermediate, mafic, ultramafic, lithic undiff.)
SL	Silts, undifferentiated
SLC	Calcite Bearing Silt
SLD	Dolomite Bearing Silt
SLV*	volcaniclastic silt, *provenance indicated below
	(*f, i, m, u, l: felsic, intermediate, mafic, ultramafic, lithic undiff.)
SH	Shales, undifferentiated
SHB	Black Shale
SHS	Sulphidic Shale
SHSY	Pyritic Sulphidic Shale
SHSO	Pyrrhotitic Black Shale
SHC	Calcite Bearing Shale
SHD	Dolomite Bearing Shale

Clastic Sediments, Organic

Code	Description
SO	sediments, organic
SOL	lignite
SOS	spongolite
SOF	fossiliferous sediments
SB	Sedimentary breccia
SW	Greywacke, undifferentiated
ST	Composite turbidite succession
SA/SL	Sub-metre scale interbedded sand/silt

Use the COMMENTS column to note actual percentage of veining and mineralisation, note anything unusual, excessive water flows, drilling problems geological contacts etc. NB. If a particular rock does not fit easily into the Lithology codes or there are some unusual features about the rock, assign the closest code and add suffix '&' to denote that extra comments are recorded in the COMMENTS column. You then must use COMMENTS to describe the unusual features of the rock.

METAMORPHIC AND OTHER ROCKS OF UNKNOWN OR OBSCURE AFFINITY

Code	Description	Code	Description
XGR	Granulite, undifferentiated	XM	Amphibolite, Undifferentiated
XGR*	Felsic Granulite	XMA	hb-fs rock
XGRM*	Mafic Granulite	XMH	Hornblendite
XGRC*	Charnokite	XMG	hb-fs-gn rock
XGR#	# = o (opx), c (cpx), gn (garnet)	XMHG	hb-gn rock
XGN	Gneiss, undifferentiated	XS	Schists, undifferentiated
XGNF*	Felsic Gneiss	XSF	felsic, undiff.
XGNM*	Mafic Gneiss	XSF#	feldspar- *- #
XGNG*	Granitic Gneiss	XSQF#	quartz-feldspar- *- #
XGNR*	Granodioritic Gneiss	XSC#	chlorite
XGNT*	Tonalitic Gneiss	XSB#	biotite
XGNM*	Migmatite		

* = a augen, b biotite, gn garnet, h hornblende etc

(*= c chlorite, b biotite, m muscovite, s sericite)
(# = gn garnet, st staurolite, cd corderite, hn hornblende, a andalucite, k kyanite)

Code	Description
XP	Psammite
XPE	Psammo- Pelite
XE	Pelite

Skarns

Code	Description
XK	Skarns, undifferentiated
XKH	Hornfels
XKHM	Hornfelsed Mafic
XKHA	Hornfelsed Arenite
XKHH	Hornfelsed Argillite
XKG	Garnet Skarn
XKHG	Hornblende Garnet
XKPG	Pyroxene Garnet
XCS	Calc silicate rocks

OTHER ROCKS

Alkaline

Code	Description
KC	Carbonatite
KK	Kimberlite
KL	Lamprophyre

Tectonites

Code	Description
YF	fault gouge
YM	Mylonite
YMQ	Quartz Mylonite
YMS	Sericite Mylonite
YMQF	Quartx-Feldspar Mylonite

Mineralisation & Alteration (where 100% of the rock mass)

Code	Description
ZS	Sulphide, undifferentiated
ZPY	Pyrite
ZPO	Pyrrhotite
ZPP	Pyrite- Pyrrhotite
ZPN	Pyrrhotite- Pentlandite
ZMP	Millerite- Pyrite
ZSG	Sphalerite- Galena
ZCL	Chalcocite
ZCP	Chalcopyrite

Voids, core loss and culture

Code	Description
W	void, undifferentiated
WS	stope
WL	core loss
WB	backfill
WM	mullock

Veining (where 100% of interval)

Code	Description
V	Veining
	with vein minerals in "Veining" fields

WEATHERING
(Is implicit in the Regolith codes, as listed below)

Code	Description
5	Oxidised
4	Moderately Oxidised
3	Slightly Oxidised
2	Very slightly Oxidised
1	Unoxidised
0	Fresh

VEINING

Described by the vein min. assemblage, volume and texture, as listed in the attached sheet.
Common vein assemblages (Chalice and Higginsville) include:

Code	Description
q	quartz
qc	quartz calcite
qp	quartz pyrite
qa	quartz albite
qaa	quartz albite arsenopyrite
qx	quartz axinite
qfd	quartz feldspar diopside
qf	quartz feldspar
qfb	quartz feldspar biotite
cc	calcite

Percentage: volume as logged

Texture

Code	Description
mas	massive
lam	laminated
coc	cockade
com	comb
shr	shear
crx	cryptocrystalline
rcx	recrytallised

ALTERATION
Intensity — Logged by mineral phase, in order of decreasing percentage. Use regolith codes first if multiple events.
Use sulphide phases as well as in mineralisation. Full list of mineral codes in master list

Code	Description
1	Weak — 0- 20% replacement
2	Moderate — 20- 60% replacement
3	Strong — 60-100% replacement

Type

Code	Description
rhp	Hardpan
rfe	Iron (undiff, regolith related)
rgo	Goethite (regolith related)
rhe	Hematite (regolith related)
rmn	Manganese (regolith related)
rsi	Silica (regolith related)
rcb	Carbonate (regolith related)
rja	Jarosite (regolith related)
rka	Kaolinite (regolith related)
he	Hematite
go	Goethite
mg	Magnetite

Code	Description	Code	Description
si	Silica	ep	Epidote
kf	K Feldspar	tl	Talc
ab	Albite	sr	Serpentine
ac	Actinolite	tm	Tremolite
dp	Diopside	ms	Magnesite
hb	Hornblende	rg	Rodingite
sh	Sphene/ Titanite	su	Saussurite
se	Sericite	fu	Fuchsite
ch	Chlorite	py	Pyrite
mu	Muscovite	po	Pyrrhotite
bi	Biotite	as	Arsenopyrite
ph	Phlogopite	mo	Molybdenite
ka	Kaolinite	cp	Chalcopyrite
cb	Carbonate	sp	Sphalerite
cc	Calcite	gn	Galena
ak	Ankerite		
do	Dolomite		

MINERALISATION
Described by the mineral and % of that mineral in rock; 3 minerals max.
Then by mineralisation style

Mineral

Code	Description
car	Carnotite
pi	Pitchblende
ur	Uraninite
cof	Coffinite
au	Gold
py	Pyrite
cp	Chalcopyrite
sp	Sphalerite
gn	Galena
pn	Pentlandite
po	Pyrrhotite
as	Arsenopyrite
mo	Molybdenite
ja	Jarosite
mr	Millerite
vl	Violarite
bn	Bornite

And other minerals as per the standard list.

Style

Code	Description
gos	Gossanous
mas	Massive
mtx	Matrix (40- 80%, magmatic)
ds	Disser (5- 40%, magmatic)
cld	Cloud (1-5%, magmatic)
vn	Vein
st	Stringer/ stockwork
vr	Vein and selvedge
vs	Vein selvedge only
rp	Replacement
lam	Laminated/banded
rm	Remobilised
bx	Brecciated
bx	Brecciated

Percentage — as logged >= 0.5%; trace= 0.2%

Magmatic (for cof, sf columns): sf — Oxidised sulphide, undifferentiated "

SAMPLE QUALITY - RC and Aircore Drilling

Code	Description
g	good quality sample
m	moderate qualitysample
p	poor quality sample

WATER RETURN - RC and Aircore Drilling

Code	Description
d	Dry Sample
m	Damp Sample
w	Wet Sample
f	High Water Flow

SAMPLE RECOVERY - RC and Aircore Drilling

Code	Description
%	As logged, in increments of 10