Gold-in-calcrete: A continental to profile scale study of regolith carbonates and their association with gold mineralisation

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Appendix 1

Regolith-landform unit (RLU) mapping codes

Summary table of RLU mapping codes as defined by Pain *et al.* (2007)

REGOLITH TYPES		
TRANSPORTED REGOLITH		
A		Alluvial sediments
	AC	Channel deposits
	AO	Overbank deposits
I		Aeolian sediments
	IS	Aeolian sand
	IL	Loess
	IP	Parna
C		Colluvial sediments
	CM	Mass movement
	CH	Sheet flow deposit
	CF	Fanglomerate
E		Evaporite
	EH	Halite
	EG	Gypsum
L		Lacustrine sediments
G		Glacial sediments
V		Volcanic sediments
	VT	Tephra
F		Fill
O		Coastal sediments
	OB	Beach sediments
	OE	Estuarine sediments
	OC	Coral
	OM	Marine sediments
***IN-SITU* REGOLITH**		
W		Weathered bedrock
R		Residual material
S		Saprolite
	SC	Completely weathered bedrock
	SV	Very highly weathered bedrock
	SH	Highly weathered bedrock
	SM	Moderately weathered bedrock
	SS	Slightly weathered bedrock

LANDFORMS	
a	alluvial landforms
ah	alluvial channel
ap	alluvial plain
af	flood plain
aa	anastomatic plain
ab	bar plain
ac	covered plain
am	meander plain
ao	floodout
at	alluvial terrace
al	terraced land
aw	alluvial swamp
u	dunefield
ul	longitudinal dunefield
f	fan
fa	alluvial fan
fc	colluvial fan
fs	sheet-flood fan
p	plain
pd	depositional plain
pl	lacustrine plain
pp	playa plain
ps	sandplain
g	glacial landforms
gd	depositional glacial landforms
ge	erosional glacial landforms
d	delta
c	coastal lands
cb	beach ridge plain
cc	chenier plain
cr	coral reef
cm	marine plain
ct	tidal flat
cd	coastal dunes
cp	coastal plain
cc	beach
e	erosional landforms
ep	erosional plain
ei	pediment
ea	pediplain
en	peneplain
ec	etchplain
er	rise
eu	residual rises
el	low hills
eh	hills
em	mountains
ee	escarpment
ed	drainage depression
k	karst
l	plateau
v	volcanic landform
vc	caldera
vv	cone
vl	lava plain
va	ash plain
vf	lava flow
vp	lava plateau
m	made land

Appendix 2

Tunkillia assay results

Assay results from samples collected along the three transects at Tunkillia, as provided by Amdel Ltd.

Scheme codes refer to analytical method:

IC3M	HF / multi acid digest, ICP-MS (trace elements)
IC3R	HF / multi acid digest, ICP-MS (REE)
IC4	Alkaline fusion ICP-OES (Major elements)
FA3	Graphite furnace AAS

IDENT	Au	Au Rpt	Ag	As	Bi	Cd	Cs	Ce	Co	Cu	Ga	In	La	Mo	Ni	Pb	Rb	Sb
UNITS	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	FA3	FA3	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M
DET LIMIT	1	1	0.1	0.5	0.1	0.1	0.1	0.5	0.2	0.5	0.1	0.05	0.5	0.1	2	0.5	0.1	0.5
Transect 2																		
T2/01	16	--	0.1	3.5	0.1	<0.1	1.5	27	8	18	8.5	<0.05	15	0.7	15	10.5	31	<0.5
T2/02	11	--	<0.1	2.5	0.1	<0.1	1.6	29.5	6.5	18.5	8.5	<0.05	14	0.5	16	10.5	34.5	<0.5
T2/03	12	12	0.1	2.5	<0.1	<0.1	1.5	25.5	7	18.5	8.5	<0.05	14.5	0.4	16	9	32	<0.5
T2/04	13	--	<0.1	2.5	<0.1	<0.1	1.3	21.5	6	19.5	7.5	<0.05	13	0.4	14	8	29.5	<0.5
T2/05	14	--	<0.1	2.5	<0.1	<0.1	1.5	22.5	6.5	19.5	8.5	<0.05	14	0.4	16	8.5	31.5	<0.5
T2/06	16	--	<0.1	1.5	<0.1	<0.1	1.1	16	4.3	13.5	6.5	<0.05	10	0.4	11	6.5	26	<0.5
T2/07	10	--	<0.1	2	<0.1	<0.1	1	20	3.8	16.5	5.5	<0.05	12	0.4	10	6.5	23.5	<0.5
T2/08	20	--	<0.1	2.5	<0.1	<0.1	1.1	17	4.3	17.5	6.5	<0.05	10	0.4	12	6.5	25	<0.5
T2/09	18	--	0.1	2.5	0.2	<0.1	2.1	28.5	6.5	21.5	12	<0.05	17.5	0.5	19	10.5	41	<0.5
T2/10	24	--	0.1	2.5	0.1	<0.1	1.2	19	4.4	16	6.5	<0.05	11.5	0.4	12	7.5	26.5	<0.5
T2/11	23	--	0.1	2.5	0.1	<0.1	1.3	20	4.4	16.5	7	<0.05	11	0.4	12	7.5	28	<0.5
T2/12	8	--	<0.1	2.5	<0.1	<0.1	1.4	19	4.5	15.5	7.5	<0.05	11.5	0.4	13	7	29	<0.5
T2/13	3	--	<0.1	2	<0.1	<0.1	1.2	17.5	3.6	14.5	7	<0.05	10	0.4	10	7	26	<0.5
Transect 3																		
T3/01	2	--	<0.1	2	<0.1	0.2	1	21	7	14.5	5.5	<0.05	19.5	0.3	17	5	17.5	<0.5
T3/02	4	--	<0.1	3	<0.1	0.1	0.7	15.5	5.5	32	3.4	<0.05	9	0.3	19	3.5	12.5	<0.5
T3/03	5	4	<0.1	2.5	<0.1	0.1	0.8	15.5	7	15.5	4.6	<0.05	9.5	0.3	16	4.5	16.5	<0.5
T3/04	3	--	<0.1	2	<0.1	0.2	1	16.5	8	15.5	5	<0.05	11	0.3	16	5	18.5	<0.5
T3/05	2	--	<0.1	3.5	<0.1	0.1	0.9	15	5.5	15.5	5	<0.05	10.5	0.3	16	5	17.5	<0.5
T3/06	2	--	<0.1	3	<0.1	0.1	0.9	20	5.5	15	5.5	<0.05	14.5	0.3	15	5.5	18	<0.5
T3/07	3	--	<0.1	1.5	<0.1	0.1	1.3	20	6	15	7.5	<0.05	15.5	0.4	16	7	26	<0.5
T3/08	12	--	<0.1	3	<0.1	0.1	0.5	11.5	6.5	18	2.7	<0.05	7.5	0.3	17	3	10	<0.5
T3/09	3	--	<0.1	2.5	<0.1	<0.1	1.5	19	4.3	13	8	<0.05	14	0.4	13	7	28.5	<0.5
T3/10	<1	--	<0.1	2.5	<0.1	<0.1	1.2	18	4.2	13.5	7	<0.05	11.5	0.4	11	7	27.5	<0.5
T3/11	25	--	<0.1	2.5	<0.1	0.1	0.9	17	6.5	14	5	<0.05	11.5	0.3	14	4.5	19	<0.5
T3/12	26	--	<0.1	2	<0.1	<0.1	1.3	19	4.1	14	7	<0.05	11.5	0.4	12	7	27	<0.5
T3/13	16	--	<0.1	2	<0.1	0.2	1	19.5	8	16	5.5	<0.05	12.5	0.3	15	5	19	<0.5
T3/14	4	--	<0.1	2.5	<0.1	0.2	0.8	18.5	7.5	14	4.6	<0.05	14.5	0.3	14	5	16	<0.5
T3/15	9	--	<0.1	2	0.1	0.2	1.1	17	9	21	5	<0.05	15.5	0.2	20	7.5	18.5	<0.5
Transect 1																		
T1/01	1	--	<0.1	1.5	<0.1	<0.1	0.7	8	1.8	12	3.3	<0.05	5	0.4	6	3.5	12	<0.5
T1/02	2	--	<0.1	2.5	<0.1	<0.1	0.8	10.5	3.9	22.5	3.6	<0.05	6.5	0.3	9	3.5	13	<0.5
T1/03	3	--	<0.1	2	<0.1	<0.1	0.8	10	2.5	10.5	3.6	<0.05	5.5	0.3	7	4	14	<0.5
T1/04	11	--	<0.1	2.5	0.1	<0.1	0.5	7	1.5	24.5	2.7	<0.05	4	0.3	5	3	10.5	<0.5
T1/05	13	--	<0.1	1.5	<0.1	<0.1	0.7	11	2.2	8.5	3.9	<0.05	6.5	0.3	7	4	14	<0.5
T1/06	9	--	<0.1	2.5	<0.1	<0.1	0.8	10	2.6	18.5	3.9	<0.05	6	0.3	8	4	14.5	<0.5
T1/07	16	--	<0.1	1	<0.1	<0.1	0.5	8.5	2.8	11.5	2.7	<0.05	5	0.2	8	3	11	<0.5
T1/08	12	--	<0.1	2.5	<0.1	<0.1	0.8	13	3.2	14.5	4.2	<0.05	7.5	0.3	9	4.5	16	<0.5
T1/09	7	--	0.1	1.5	<0.1	<0.1	1	13	2.8	10.5	5	<0.05	7.5	0.5	8	5.5	18	<0.5
T1/10	17	--	<0.1	2	<0.1	<0.1	0.8	12	3.3	13.5	4.1	<0.05	7	0.4	10	4.5	16.5	<0.5
T1/11	26	--	<0.1	2.5	<0.1	<0.1	1.1	14.5	4.1	15.5	5.5	<0.05	8.5	0.4	11	5.5	19	<0.5
T1/12 NODS	46	--	<0.1	3	<0.1	0.1	0.8	14	5.5	26	3.8	<0.05	8.5	0.3	15	4	14.5	<0.5
T1/12 CALC	125	--	0.1	3.5	<0.1	0.1	0.5	12	7	26	2.6	<0.05	7	0.4	18	2.5	9	<0.5
T1/13	28	--	0.1	2.5	0.1	<0.1	1.7	21.5	4.4	17.5	8.5	<0.05	11.5	0.5	11	8.5	28.5	<0.5
T1/14	24	--	0.2	5	0.2	<0.1	1.9	22.5	4.9	18	14	<0.05	11.5	0.9	14	14	28.5	<0.5
T1/15	53	--	<0.1	2.5	<0.1	<0.1	0.6	10	3.2	15	3.1	<0.05	5.5	0.3	10	4	11.5	<0.5

IDENT	Se	Sr	Te	Th	Tl	U	W	Y	Zn	Dy	Er	Eu	Gd	Ho	Lu	Nd	Pr	Sm	Tb
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3R	IC3R	IC3R	IC3R	IC3R	IC3R	IC3R	IC3R	IC3R	IC3R
DET LIMIT	0.5	0.1	0.2	0.02	0.1	0.02	0.1	0.05	0.5	0.02	0.05	0.02	0.05	0.02	0.02	0.02	0.05	0.02	0.02
Transect 2																			
T2/01	1.5	130	<0.2	5.5	0.2	0.96	1	17.5	28	3.1	1.65	0.83	4	0.53	0.23	19	4.4	3.8	0.46
T2/02	1.5	78	<0.2	7.5	0.2	0.8	0.6	14	31	2.6	1.4	0.7	3.3	0.45	0.2	16	3.8	3.2	0.4
T2/03	2	115	<0.2	4.9	0.2	0.82	0.4	16.5	29	2.8	1.5	0.73	3.6	0.48	0.2	17	4	3.4	0.41
T2/04	2	140	<0.2	4.4	0.2	0.73	0.4	13	25.5	2.2	1.2	0.64	2.9	0.38	0.17	14.5	3.5	2.9	0.34
T2/05	1.5	130	<0.2	5	0.2	0.71	0.4	13.5	28.5	2.3	1.25	0.63	3	0.39	0.17	14.5	3.5	2.9	0.35
T2/06	1.5	96	<0.2	3.7	0.2	0.56	0.3	9	27	1.6	0.85	0.44	2	0.28	0.12	10	2.5	2	0.23
T2/07	2	78	<0.2	4.6	0.1	0.55	0.3	8	22	1.45	0.8	0.42	1.9	0.25	0.12	11	2.7	2	0.22
T2/08	1.5	150	<0.2	4.2	0.2	0.65	0.3	8.5	23.5	1.55	0.85	0.44	2	0.27	0.12	10	2.4	1.95	0.23
T2/09	1	110	<0.2	7	0.3	0.7	0.5	13	42.5	2.4	1.3	0.66	3	0.41	0.18	16	3.9	3.1	0.36
T2/10	1.5	135	<0.2	4.2	0.2	0.6	0.3	10	26	1.7	0.9	0.48	2.2	0.29	0.13	11.5	2.8	2.2	0.25
T2/11	1	98	<0.2	4.4	0.2	0.58	0.4	9.5	28	1.65	0.9	0.48	2.1	0.29	0.13	11	2.7	2.2	0.25
T2/12	1.5	125	<0.2	4.8	0.2	0.51	0.4	9	26.5	1.6	0.9	0.48	2.1	0.28	0.13	11	2.7	2.1	0.24
T2/13	1.5	70	<0.2	4	0.2	0.49	0.4	7.5	24	1.4	0.75	0.41	1.7	0.23	0.11	9.5	2.3	1.75	0.2
Transect 3																			
T3/01	2.5	410	<0.2	3.1	0.1	0.48	0.3	23	18	3.2	1.8	0.82	4.5	0.58	0.22	20.5	4.6	4	0.5
T3/02	2.5	600	0.5	2.1	<0.1	0.52	0.2	10.5	13.5	1.55	0.95	0.39	1.95	0.29	0.13	9	2.1	1.75	0.23
T3/03	2	390	0.5	2.7	0.1	0.56	0.2	10.5	16	1.65	0.9	0.44	2.1	0.29	0.13	9.5	2.2	1.9	0.24
T3/04	2	330	<0.2	2.7	0.1	0.41	0.2	12.5	17.5	1.85	1	0.48	2.3	0.33	0.14	10.5	2.6	2.1	0.27
T3/05	2	430	0.3	2.4	0.1	0.58	0.2	11.5	17	1.8	1	0.5	2.3	0.32	0.13	10.5	2.5	2.1	0.27
T3/06	2.5	330	0.4	3.4	0.1	0.48	0.2	14.5	16.5	2.2	1.2	0.59	3	0.39	0.16	14	3.3	2.7	0.34
T3/07	1.5	260	0.2	4	0.2	0.48	0.3	14.5	26	2.3	1.25	0.63	3.1	0.4	0.17	14.5	3.4	2.8	0.35
T3/08	3	600	0.5	1.35	<0.1	0.37	0.2	10	10	1.4	0.8	0.39	1.85	0.26	0.11	8	1.85	1.65	0.21
T3/09	1.5	130	<0.2	4.5	0.2	0.47	0.3	12.5	24.5	2	1.05	0.57	2.7	0.35	0.15	13.5	3.1	2.6	0.31
T3/10	2	130	<0.2	4.1	0.2	0.47	0.3	10.5	22.5	1.75	1	0.5	2.3	0.31	0.14	11	2.6	2.2	0.27
T3/11	2.5	270	0.3	2.8	0.1	0.46	0.2	13	18	1.95	1.05	0.53	2.7	0.34	0.14	12.5	2.8	2.4	0.3
T3/12	1	92	<0.2	4.1	0.2	0.48	0.3	9.5	26	1.75	0.95	0.49	2.2	0.3	0.14	11	2.6	2.2	0.27
T3/13	1	440	0.4	2.8	0.1	0.42	0.2	14	20	2.1	1.2	0.57	2.8	0.38	0.16	13	3	2.6	0.32
T3/14	2	340	0.2	2.5	0.1	0.41	0.2	17.5	19.5	2.6	1.4	0.66	3.4	0.47	0.18	15	3.4	3	0.39
T3/15	1.5	410	0.2	2.8	0.1	0.54	0.2	17	22	2.3	1.3	0.69	3.2	0.44	0.18	15.5	3.5	3	0.37
Transect 1																			
T1/01	2	30.5	<0.2	1.9	<0.1	0.41	0.5	3.7	12.5	0.66	0.4	0.18	0.75	0.11	0.06	4	1	0.76	0.09
T1/02	2	250	<0.2	2.1	<0.1	0.46	0.4	7	11	1.05	0.6	0.29	1.35	0.19	0.09	6.5	1.55	1.25	0.15
T1/03	2.5	115	<0.2	2.3	<0.1	0.47	0.3	5.5	11.5	0.9	0.5	0.24	1.15	0.15	0.08	5.5	1.3	1.05	0.13
T1/04	2	54	<0.2	1.85	<0.1	0.32	0.3	3.4	9.5	0.6	0.35	0.16	0.75	0.11	0.05	3.7	0.95	0.73	0.09
T1/05	2	90	<0.2	2.8	<0.1	0.48	0.3	4.9	12	0.88	0.5	0.24	1.1	0.14	0.07	5.5	1.4	1.1	0.12
T1/06	2.5	94	<0.2	2.4	<0.1	0.37	0.3	5.5	13	0.92	0.5	0.24	1.1	0.16	0.08	5.5	1.4	1.1	0.13
T1/07	1	290	<0.2	1.9	<0.1	0.41	0.1	4.8	9	0.8	0.45	0.22	0.95	0.13	0.07	4.6	1.15	0.91	0.11
T1/08	2.5	210	<0.2	2.8	0.1	0.47	0.3	6.5	15	1.1	0.65	0.29	1.35	0.19	0.09	7	1.7	1.35	0.16
T1/09	1.5	45	<0.2	3	0.1	0.41	0.3	6	17	1.1	0.6	0.29	1.35	0.19	0.09	6.5	1.65	1.3	0.16
T1/10	2	390	<0.2	2.7	0.1	0.4	0.3	6	15.5	1.05	0.6	0.29	1.3	0.18	0.09	6.5	1.6	1.25	0.15
T1/11	1.5	220	<0.2	3.2	0.1	0.64	0.3	7	19.5	1.2	0.7	0.35	1.55	0.22	0.1	7.5	1.9	1.5	0.18
T1/12 NODS	2.5	450	0.3	2.3	<0.1	0.41	0.2	10.5	16	1.55	0.9	0.4	1.95	0.27	0.12	8.5	2	1.7	0.22
T1/12 CALC	2.5	700	0.4	1.65	<0.1	0.49	0.3	9	9.5	1.3	0.75	0.34	1.6	0.23	0.11	7	1.7	1.4	0.18
T1/13	1.5	48.5	<0.2	5.5	0.2	0.57	0.4	9	26.5	1.65	0.95	0.43	1.95	0.28	0.14	10	2.6	2	0.23
T1/14	1.5	40.5	<0.2	12	0.2	0.89	0.8	10	29	1.9	1.1	0.49	2.2	0.34	0.18	10.5	2.7	2.2	0.27
T1/15	2	750	0.3	1.95	<0.1	0.45	0.2	6	9.5	0.92	0.55	0.27	1.1	0.16	0.08	5	1.25	0.99	0.13

IDENT	**Tm**	**Yb**	**Al2O3**	**CaO**	**K2O**	**Fe2O3**	**MgO**	**MnO**	**Na2O**	**P2O5**	**SiO2**	**TiO2**	**Zr**	**Sc**	**Ba**	**Cr**	**V**	**LOI**
UNITS	ppm	ppm	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	%
SCHEME	IC3R	IC3R	IC4	IC4	IC4	IC4	IC4	IC4	IC4	IC4	IC4	IC4	IC4	IC4	IC4	IC4	IC4	GRAV7
DET LIMIT	0.05	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.005	20	5	20	20	20	0.01A
Transect 2																		
T2/01	0.2	1.55	5.97	6.76	0.94	2.21	1.05	0.02	0.35	0.02	68.2	0.32	190	<5	220	20	40	10.6
T2/02	0.2	1.35	6.6	2.2	1.1	2.4	0.9	0.02	0.2	0.04	77.6	0.31	210	<5	210	30	30	6.29
T2/03	0.2	1.35	5.97	6.31	0.98	2.21	1	0.02	0.18	0.03	70.5	0.305	200	<5	210	30	30	9.91
T2/04	0.15	1.15	5.58	6.62	0.96	1.96	0.91	0.02	0.31	0.03	72	0.3	180	<5	230	20	30	9.94
T2/05	0.15	1.15	6.28	6.2	1.05	2.2	1.32	0.02	0.36	0.02	71	0.315	220	<5	220	20	30	10.5
T2/06	0.1	0.8	4.78	4.08	0.86	1.77	0.71	0.01	0.19	0.02	78.3	0.255	190	<5	190	20	20	6.91
T2/07	0.1	0.8	4.04	3.84	0.73	1.75	0.51	0.01	0.16	0.02	80.6	0.265	160	<5	180	20	20	6.03
T2/08	0.1	0.85	4.42	7.95	0.76	1.7	0.78	0.02	0.19	0.02	71.2	0.27	140	<5	190	20	30	10.3
T2/09	0.2	1.25	8.21	4.02	1.24	2.94	1.32	0.03	0.22	0.03	71	0.4	170	6	190	30	40	9.47
T2/10	0.1	0.85	4.93	9.07	0.84	1.93	0.68	0.02	0.1	0.03	70.3	0.3	180	<5	180	20	30	10.6
T2/11	0.1	0.9	5.41	6.55	0.85	2.09	0.66	0.02	0.1	0.02	72.9	0.315	190	<5	180	30	30	9.17
T2/12	0.1	0.85	5.78	5.56	0.94	2.22	0.97	0.02	0.21	0.03	73.7	0.31	150	<5	180	30	30	9.11
T2/13	0.1	0.75	4.99	3.48	0.82	1.93	0.47	0.02	0.09	0.03	79.1	0.305	230	<5	180	20	30	6.3
Transect 3																		
T3/01	0.2	1.45	3.86	34.1	0.5	1.35	1.05	0.01	0.1	0.05	24.7	0.2	80	<5	160	<20	<20	32.6
T3/02	0.15	0.9	2.54	37.6	0.37	0.97	2.46	<0.01	0.15	0.06	19.5	0.14	80	<5	160	<20	<20	35.9
T3/03	0.1	0.85	3.41	33.9	0.46	1.26	0.86	0.01	0.07	0.06	27.3	0.19	150	<5	170	<20	<20	31.5
T3/04	0.15	0.95	3.81	33.8	0.56	1.41	0.89	0.02	0.14	0.05	28	0.215	80	<5	190	<20	<20	31.5
T3/05	0.15	0.9	3.63	32.6	0.47	1.34	0.85	0.01	0.08	0.04	29	0.19	110	<5	200	<20	<20	30.8
T3/06	0.15	1.05	3.52	33.3	0.52	1.58	0.83	0.01	0.09	0.05	27.2	0.19	120	<5	190	<20	<20	31.3
T3/07	0.15	1.1	5.48	20.7	0.73	1.97	0.96	0.02	0.19	0.05	46.9	0.255	160	<5	190	20	20	22.4
T3/08	0.1	0.7	2	42.9	0.32	0.82	1.26	<0.01	0.11	0.07	14	0.135	100	<5	190	<20	<20	38.2
T3/09	0.15	1	6.12	12	0.88	2.43	0.7	0.02	0.1	0.03	63.4	0.33	180	<5	200	20	30	13.8
T3/10	0.15	0.95	5.19	9.47	0.87	2.07	0.65	0.01	0.13	0.02	69.2	0.28	160	<5	200	20	30	11.2
T3/11	0.15	0.9	3.7	30.1	0.54	1.43	0.68	0.02	0.08	0.05	36	0.2	160	<5	190	<20	<20	27.5
T3/12	0.15	0.95	5.47	6.32	0.88	2.27	0.57	0.02	0.12	0.02	73.8	0.33	200	<5	190	30	30	8.83
T3/13	0.15	1.05	4.14	29.4	0.57	1.54	1.01	0.02	0.13	0.07	35.8	0.235	140	<5	190	20	<20	27.7
T3/14	0.2	1.2	3.55	35.6	0.45	1.31	0.78	0.02	0.07	0.04	26.7	0.18	120	<5	170	<20	<20	31.7
T3/15	0.15	1.1	3.89	34.1	0.48	1.47	1.27	0.01	0.16	0.06	25.5	0.195	120	<5	180	<20	<20	32.4
Transect 1																		
T1/01	0.05	0.4	2.56	0.74	0.28	1.14	0.21	<0.01	0.03	0.01	89.8	0.175	150	<5	120	20	<20	2.5
T1/02	0.1	0.6	2.78	12.4	0.31	1.15	0.54	<0.01	0.12	0.02	68.2	0.195	160	<5	170	<20	<20	12.7
T1/03	0.05	0.5	2.79	4.12	0.36	1.19	0.46	<0.01	0.07	0.02	82.9	0.19	190	<5	140	<20	<20	5.64
T1/04	<0.05	0.35	2.13	1.63	0.29	0.98	0.28	<0.01	0.05	0.02	89	0.15	110	<5	100	<20	<20	3.33
T1/05	0.05	0.5	3.19	2.37	0.37	1.25	0.53	<0.01	0.08	0.02	84.6	0.21	170	<5	140	<20	20	4.51
T1/06	0.05	0.55	3.11	3.47	0.4	1.3	0.41	<0.01	0.05	<0.01	84.2	0.2	230	<5	120	<20	<20	5.37
T1/07	0.05	0.45	2.1	9.67	0.36	0.85	0.88	<0.01	0.11	0.01	73.5	0.16	170	<5	140	<20	<20	10.3
T1/08	0.1	0.65	3.31	6.84	0.49	1.35	0.72	<0.01	0.09	0.02	76.6	0.215	200	<5	140	<20	20	8.55
T1/09	0.1	0.6	3.85	0.74	0.42	1.61	0.28	0.01	0.05	0.01	87.3	0.245	230	<5	120	<20	20	3.2
T1/10	0.1	0.6	3.21	12.2	0.47	1.31	1.16	<0.01	0.14	<0.01	66.6	0.2	200	<5	170	<20	<20	13.3
T1/11	0.1	0.7	3.91	8.52	0.47	1.51	0.89	<0.01	0.22	0.02	72	0.225	200	<5	170	<20	20	11
T1/12 NODS	0.1	0.85	2.78	26.8	0.36	1.12	1.02	0.01	0.07	0.05	40.9	0.18	110	<5	190	<20	<20	26.1
T1/12 CALC	0.1	0.7	1.89	39.4	0.25	0.75	1.45	<0.01	0.07	0.05	18.3	0.12	90	<5	190	<20	<20	36.1
T1/13	0.15	0.95	6.47	0.36	0.64	2.66	0.41	0.02	0.14	0.02	81.5	0.37	240	<5	140	30	40	4.45
T1/14	0.15	1.2	7.53	0.44	0.6	4.21	0.37	0.02	0.06	0.04	77.7	0.57	260	6	170	40	70	5.35
T1/15	0.05	0.55	2.25	22.4	0.33	1.01	1.69	<0.01	0.14	0.03	48.8	0.15	170	<5	260	<20	<20	22.2

Appendix 3

White Dam sample description and petrological notes

Completed profile morphology sheets as defined by McDonald & Isbell (1990).

Notes and additional microphotographs form petrological observations of the White Dam samples. Terminology is that described by Bullock et al. (1985) and Stoops (2003).

Abbreviations used in descriptions:

FOV	Field of view
XPL	Crossed polarisers
PPL	Plane polarised light

WHITE DAM 1 (TRENCH 1).

PROFILE MORPHOLOGY

Layer Sample 651	Horizon 601	Depth Upper 602	Depth Lower 603	Bdry Dist. 646	Bdry Shape 647	Colour Matrix (M) Hue 604	Matrix (M) Val. Ch. 05 06	Matrix (D) Hue 658	Matrix (D) Val. Ch. 59 60	Mottle Abund. 608	Mottle Size 609	Mottle Cont. 610	Mottle Primary Hue 652	Primary Val. Ch. 53 54	Secondary Hue 655	Secondary Val. Ch. 56 57	Stick 664	Plas. Deg. 665	Plas. Type 666	Carb. Abund. 661	Carb. Form 662	Carb. Size 663	Gypsum Abund. 670	Gypsum Form 671	Gypsum Size 672	Coarse Fragments Abund. 614	Size 615	Shape 616	Lith. 617	Dist. 619	Root Size 644	Root Abund. 645	pH 642	Effer. 641	
1	A1	0	18	S	S	5YR	4/6	5YR	5/6																									N	
2	B1	18	42	S	S	5YR	3/4	5YR	4/4																									S	
3	B2	42	76	G	S	5YR	4/6	5YR	5/6	3	3	D	5YR	7/4																				H	
4	BK	76	(90)	D	S	5YR	4/4	5YR	5/6	3	2	D	5YR	7/6																				H	
5	BK	(90)	150	S	S	5YR	4/4	5YR	5/6	3	2	D	5YR	7/4						3	T	3												H	mottles + rhizomorphs.
6	2B2	150	198	G	S	5YR	4/4	5YR	5/6																	4	1	S						N	Clay with coarse poorly sorted qtz sand
7	2BK	198	235	A	S	5YR	4/6	5YR	5/6	2										2	S	3												N	clay with distinct nodules.
8	2B3	235	260	D	S	5YR	4/4	5YR	5/6																	5	1	S						N	Some large 1-3cm lithic fragments - qtz - Feldspar + CO3
9	C	260	275	-	S																														
10	C	295	315	-	S																														

▲ 701 (See text)

612 TEXTURE (1–10): KS, S, FS, LKS, LS, LFS, CKS, CS, CFS, KSL, SL, FSL, L, ZL, KSCL, SCL, FSCL, CLKS, CLS, CLFS, CL, ZCL, LC, LMC, MC, MHC, HC

613 TEXTURE QUALIFIER (1–10): -, +, A, I

620 STRUCTURE (Larger peds) Grade: G, V, W, M, S

621 Size mm: 1 < 2, 2 < 5, 3 < 10, 4 < 20, 5 < 50, 6 < 100, 7 < 200, 8 < 500, 9 > 500

622 Type: PL, PR, CO, AB, SB, PO, LE, GR, CA, CL, FR

667 STRUCTURE (Smaller peds) Grade (1–10): G, V, W, M, S — X marked in column 4, row M

668 Size mm: 1 < 2, 2 < 5, 3 < 10, 4 < 20, 5 < 50, 6 < 100, 7 < 200, 8 < 500, 9 > 500 — X marked in column 4, row 3

669 Type: PL, PR, CO, AB, SB, PO, LE, GR, CA — X marked in column 4, row AB

632 CONSISTENCE: 0, 1, 2, 3, 4, 5, 6, 7

637 SEGREGATIONS Abundance % (1–10): 0 0, 1 < 2, 2 < 10, 3 < 20, 4 < 50, 5 > 50

638 Nature: U, M, N, F, A, S, Z, H, G, L, E, O

639 Form: C, N, X, S, V, T, L, U

640 Size mm: 1 < 2, 2 < 6, 3 < 20, 4 < 60, 5 > 60

633 PANS Cementation (1–10): 0, 1, 2, 3, 4

634 Type: K, L, R, D, F, N, I, E, M, T, C, A, V, O

635 Continuity: C, D, B

636 Structure: V, S, P, N, L, R

624 FABRIC (1–10): E, G, S, R

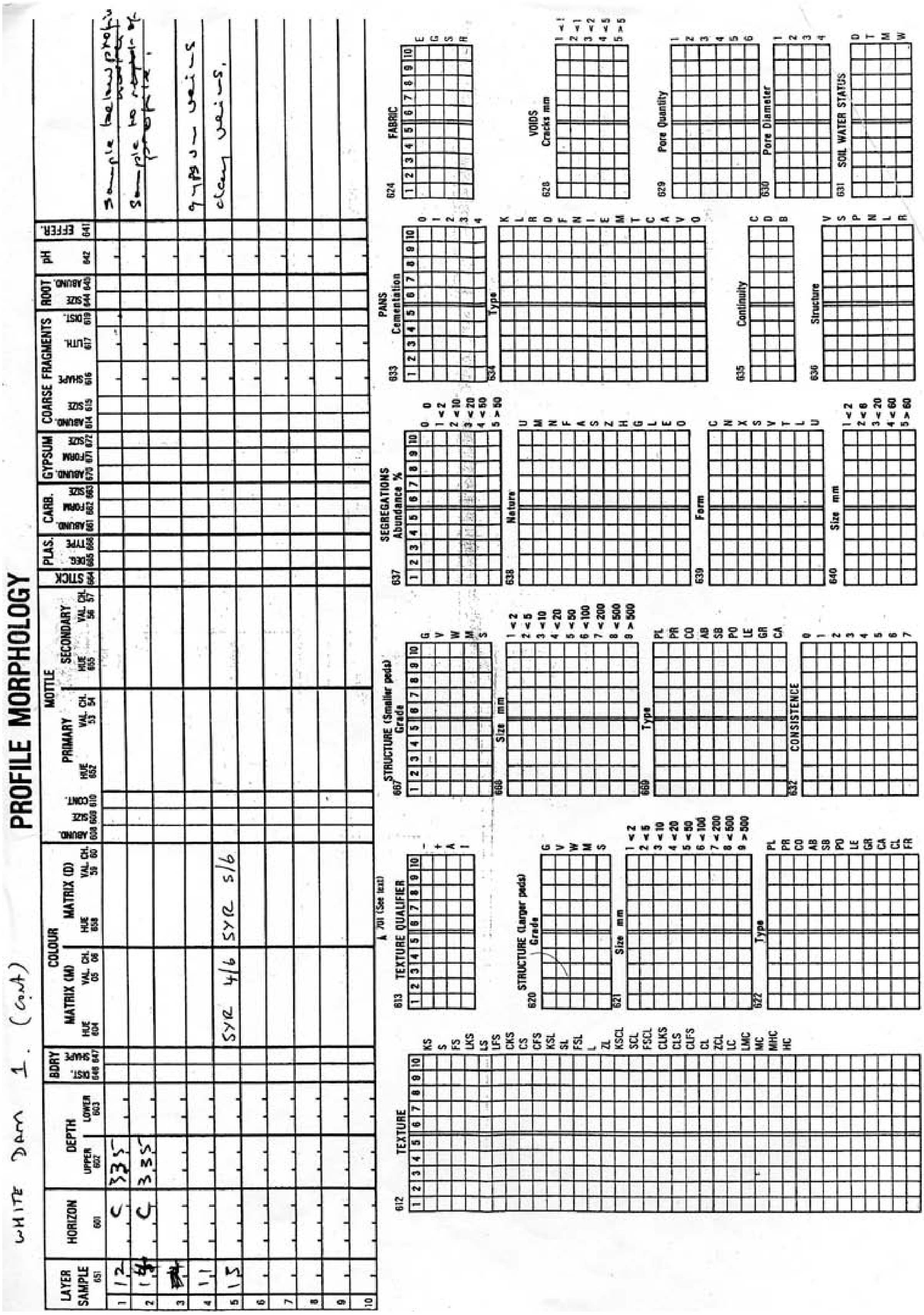
628 VOIDS Cracks mm: 1 < 1, 2 < 1, 3 < 2, 4 < 5, 5 > 5

629 Pore Quantity: 1, 2, 3, 4, 5, 6

630 Pore Diameter: 1, 2, 3, 4

631 SOIL WATER STATUS: D, T, M, W

Profile 1.



WHITE DAM 1. (cont)

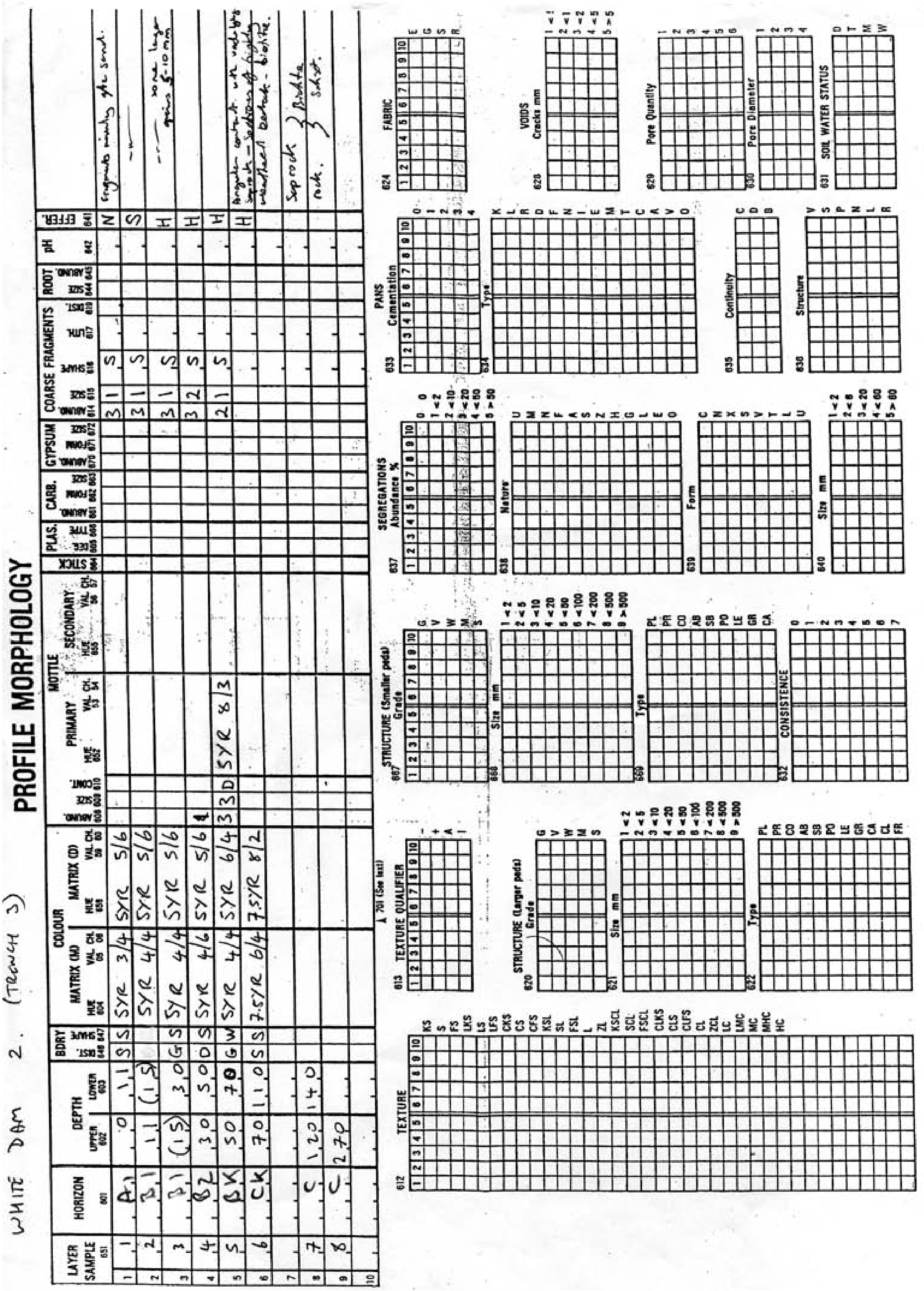
PROFILE MORPHOLOGY

Layer Sample 651	Horizon 601	Depth Upper 602	Depth Lower 603	Colour Matrix (M) Hue 604	Val. 05 / Ch. 06	Colour Matrix (D) Hue 658	Val. 59 / Ch. 60	
1 — 12	C	335						Sample below profile ~~sample~~
2 — 14	C	335						Sample to represent profile.
3 — [illegible]								
4 — 11								gypsum veins
5 — 13				5YR	4/6	5YR	5/6	clay veins.
6								
7								
8								
9								
10								

Other column headings on the form (left blank): BDRY (Dist. 646, Shape 647); MOTTLE (Abund. 608, Size 609, Cont. 610; Primary Hue 652, Val. 53, Ch. 54; Secondary Hue 655, Val. 56, Ch. 57); STICK 664; PLAS. (Deg. 665, Type 666); CARB. (Abund. 661, Form 662, Size 663); GYPSUM (Abund. 670, Form 671, Size 672); COARSE FRAGMENTS (Abund. 614, Size 615, Shape 616, Lith. 617, Dist. 619); ROOT (Size 644, Abund. 645); pH 642; EFFER. 641.

Coding grids on the form (left blank): 612 TEXTURE; 613 TEXTURE QUALIFIER (701 (See text)); 620 STRUCTURE (Larger peds) Grade; 621 Size mm; 622 Type; 667 STRUCTURE (Smaller peds) Grade; 668 Size mm; 669 Type; 632 CONSISTENCE; 637 SEGREGATIONS Abundance %; 638 Nature; 639 Form; 640 Size mm; 633 PANS Cementation; 634 Type; 635 Continuity; 636 Structure; 624 FABRIC; 628 VOIDS Cracks mm; 629 Pore Quantity; 630 Pore Diameter; 631 SOIL WATER STATUS.

Profile 1 (Continued)



PROFILE MORPHOLOGY

WHITE DAM 2. (TRENCH 3)

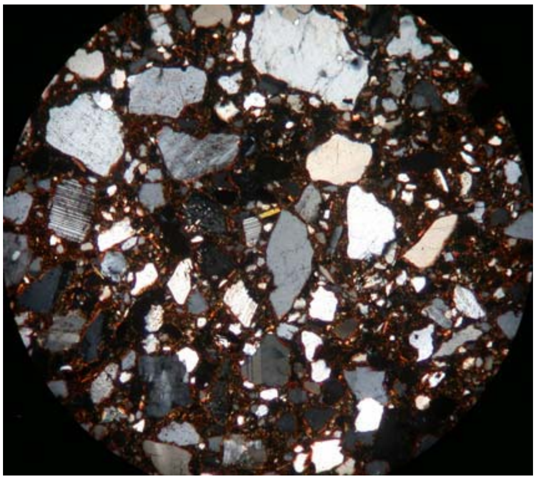
Layer sample	Horizon	Depth upper	Depth lower	Bdry dist.	Bdry shape	Matrix (M)	Matrix (D)	Mottle	Coarse fragments abund.	Size	Shape	Effer.	Remarks
1	A1	0	11	S	S	5YR 3/4	5YR 5/6		3	1	S	N	fragments mainly ghe sand.
2	B1	11	(15)	S		5YR 4/4	5YR 5/6		3	1	S	S	—
3	B1	(15)	30	G	S	5YR 4/4	5YR 5/6		3	1	S	H	— some large grains 5-10 mm
4	B2	30	50	D	S	5YR 4/6	5YR 5/6	4	3	2	S	H	
5	BK	50	70	G	W	5YR 4/4	5YR 6/4	3 3 D 5YR 8/3	2	1	S	H	Angular contact with weathered saprock — saprock of highly weathered bedrock - biotite.
6	CK	70	110	S	S	7.5YR 6/4	7.5YR 8/2					H	
7	C	120	140										Saprock } Biotite
8	C	270											rock } Schist.

Profile 2.

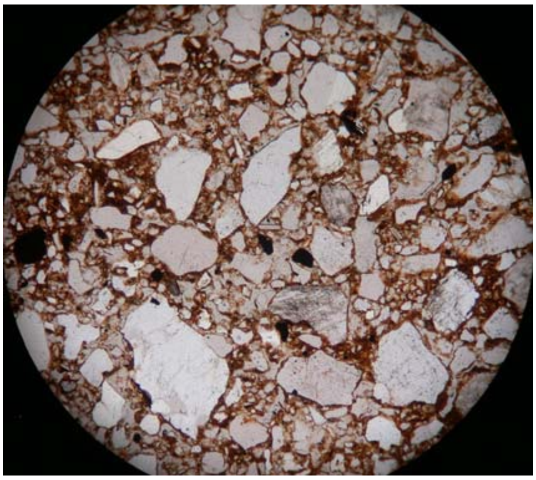
White Dam Profile 1 thin section descriptions

Sample Name: **WD1-01** horizon: A1 Date 15/1/07

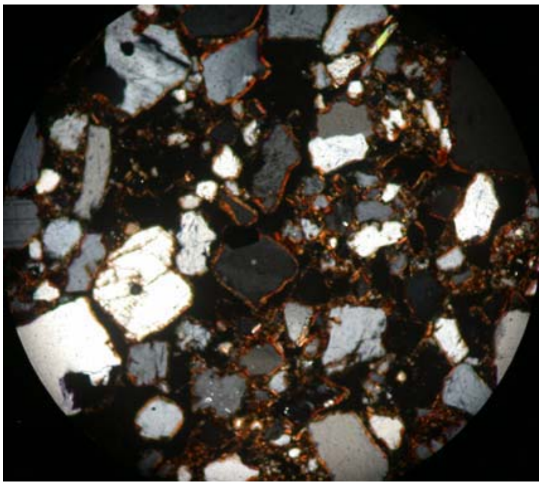
General comments	Overview photos 1 & 2.
Related distribution	Mainly gefuric with some chitonic features (chito-gefuric). Photo 3.
Peds	No peds defined (apedal).
Voids	Inter-aggregate, compound packing. Limited number ~2%.
Coatings (grains, aggregates & voids)	Majority of individual grains have a thin “typic” clay veneer, thickness approximately 2 units @ 40X completely surround’s most grains. Photo 4. Voids and small aggregates are clear of any coatings Photo 5 (note coatings on the smaller grains).
Groundmass	None.
Grains	General: poorly sorted, sub angular shape, most with clay coatings. Majority of larger grains ~ 1 mm diameter with many smaller grains present. Occasional quartz aggregates (lithic fragments). Quartz ~ 85 – 90% of grains. Feldspars: Plagioclase ~ 5%, generally about 0.5 mm diameter, sub-angular to sub-rounded, several grains show extensive weathering. Sanidine (K-feldspar) ~2% appears a dirty grey colour in PPL with most grains having small intergrowths (poikiloblastic) and are highly weathered (photo 6). Other minerals: < 1% total. Micas, Biotite and muscovite small acicular grains 2nd order colour // extinction. Pyroxene, Ortho and Clino (~ 0.2 mm). Opaque minerals: ~ 5% generally about 0.2 mm diameter, various shapes but mostly sub-rounded (most likely organic material).

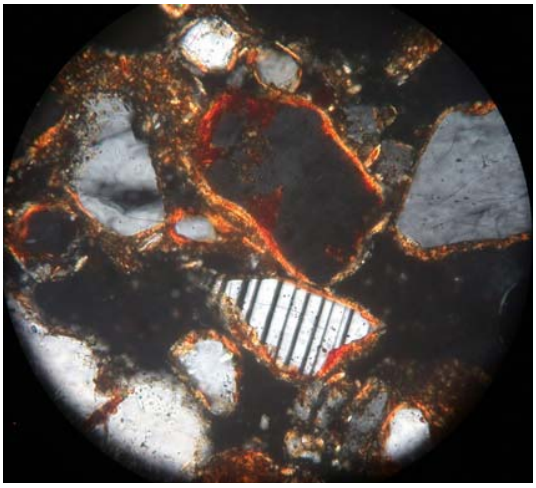


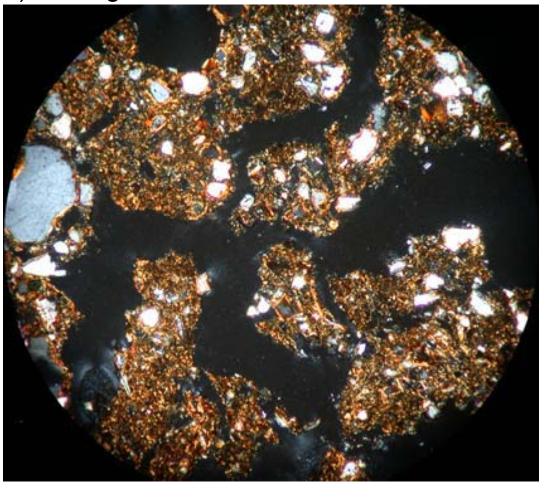
1) Overview, XPL FOV 4 mm

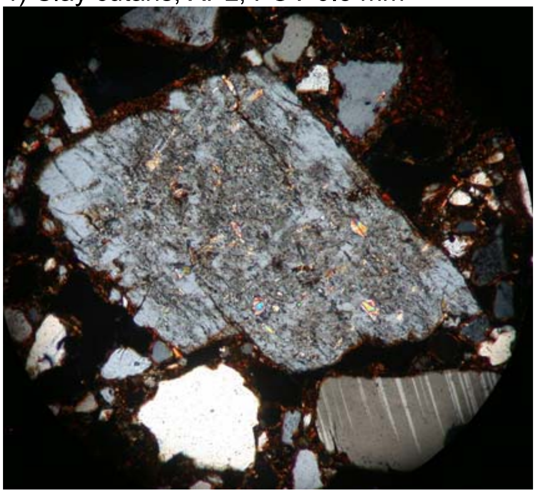


2) Overview, PPL, FOV 4 mm


3) Chito-gefuric distribution, XPL, FOV 2 mm


4) Clay cutans, XPL, FOV 0.5 mm

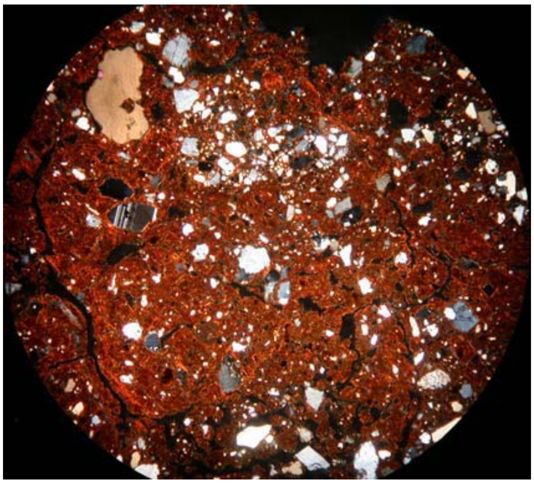

5) No cutans on voids, XPL, FOV 2 mm

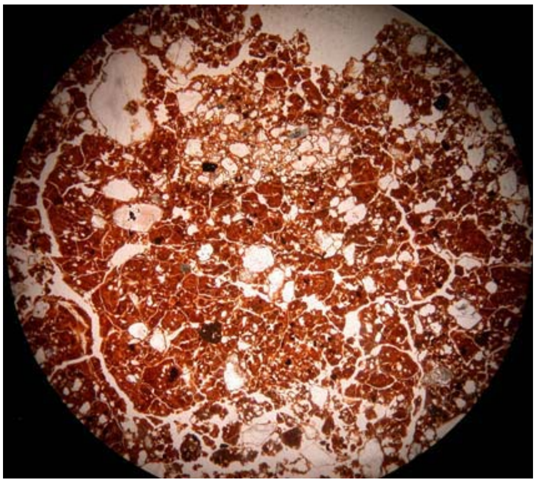

6) K-feldspar poikioblastic texture, XPL, FOV 2 mm

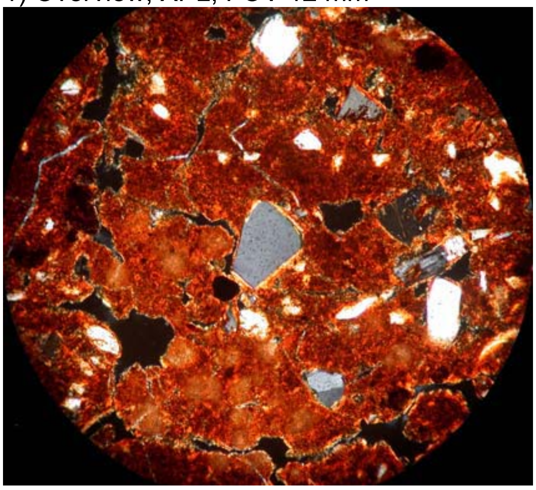
Sample Name: **WD1-02** horizon: B1 Date 15/1/07

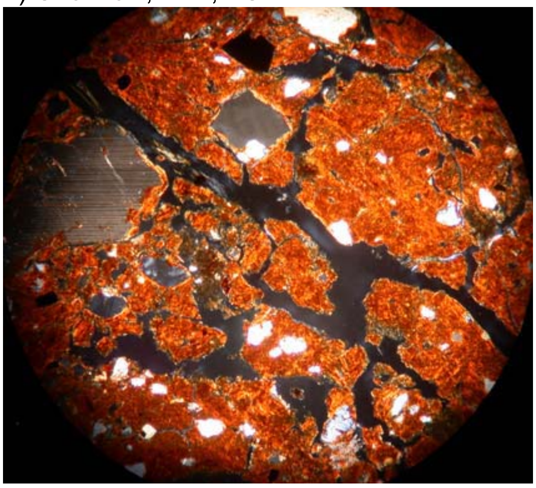
General comments	Overview photos 1 & 2. Clays appear with high relief, whereas the grains are low relief.
Related distribution	Double space porphyric, grains spread out within a clay matrix, grains only occasionally touching.
Peds	Angular blocky.
Voids	Generally inter-aggregate that are mainly channels, occasional vughs present within peds.
Coatings (grains, aggregates & voids)	Grains: majority have little if any coating, photo 3 is one exception. Some areas of the slide appear to have higher proportion of grains with coatings than others. Voids: very few, if any channels or voids within aggregates show any coatings. Photo 4 of inter-aggregate voids.
Groundmass	Monostriated with occasional alignment of clays. No relationship between the few striations and grains or voids.
Grains	General: Poorly sorted, angular to sub-angular shape, average size ~ 0.5 mm. Several

Grains (cont.)	if not most of the grains show signs of weathering with undulating surfaces. Quartz ~25-30%, occasional larger grains. Feldspars: Sanidine < 1%, similar texture to that described in WD1_01. Plagioclase ~5% Photo 5 of large grain ~0.8 mm in length, highly weathered. Occasional opaques, < 1%, generally small round grains /organic material ~0.1 mm in diameter. Other Minerals: Zircon, occasional small ~0.5 mm, high birefringent grains. Garnet, one large ~2 mm, highly weathered, isotropic (black) in XPL (photo 6).

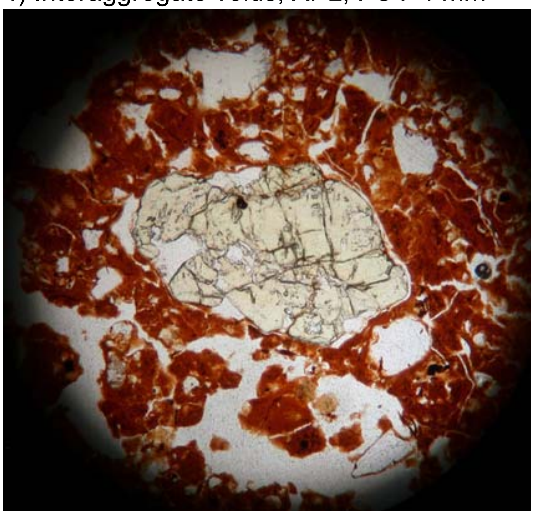

1) Overview, XPL, FOV 12 mm


2) Overview, PPL, FOV 12 mm


3) Minimal cutans, XPL, FOV 2 mm

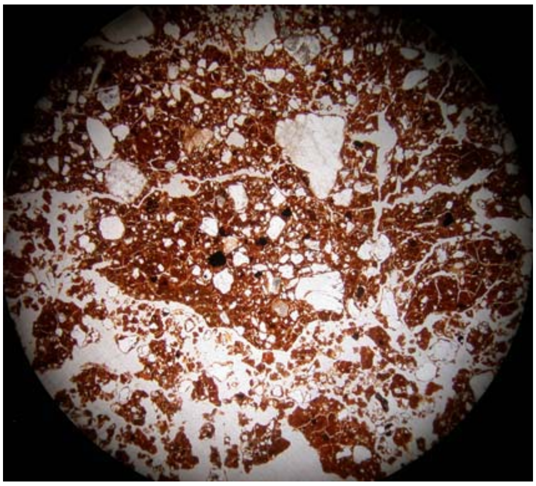

4) Interaggregate voids, XPL, FOV 4 mm


5) Plagioclase aggregate, XPL, FOV 2 mm

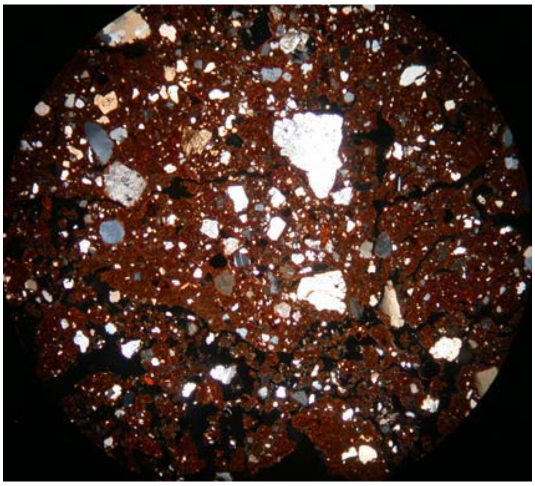

6) Garnet, PPL, FOV 4 mm

Sample Name: **WD1-03** horizon: B2 Date 20/1/07

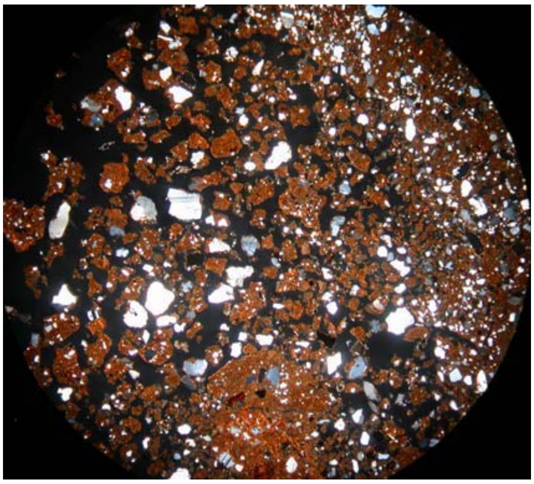
General comments	Overview photos 1 & 2.
Related distribution	Single spaced porphyric, grains randomly situated within clay matrix.
Peds	Not readily defined (weakly developed) angular blocky. Peds are very loosely bound as observed around the edges of larger peds (photo 3) main ped is towards the right of photo.
Voids	More intra-aggregate, with voids not really forming the edges of peds. Generally channel type voids, although could be planes, going by the description in Stoops (2003).
Coatings (grains, aggregates & voids)	Very thin coatings on several grains, especially loose grains outside main matrix. Grains within matrix do not have such an obvious coating in most cases (photo 4) although at 10X it does appear that most grains have a very thin veneer. Voids are generally free from any coatings, although a thin veneer was observed in places.
Groundmass	Possibly a crystallitic b fabric, matrix appears more crystalline than previous slides. Groundmass does not appear as fine. It also appears less cohesive as shown in photo 3. Photo 5 of groundmass.
Grains	Average grain size ~0.1 mm sub-rounded to sub-angular shaped. Quartz ~90%. Feldspars: Plagioclase ~5%, typical feldspar lath shape, many grains are highly weathered Sanidine < 2% difficult to distinguish from quartz. Calcite small crystals observed on edge of some small aggregates, photo 6. Other grains < 1%. Hornblende? Single grain ~0.2 mm (20 units @ 10X) green colour in PPL, pleochroic, also green in XPL with inclined extinction ~20°. Some high birefringent grains, generally very small ~0.05 mm, most likely zircon. Opaques, occasional grains, generally rounded and solid, but occasional blotchy appearance (possible Fe oxides), photo 7.



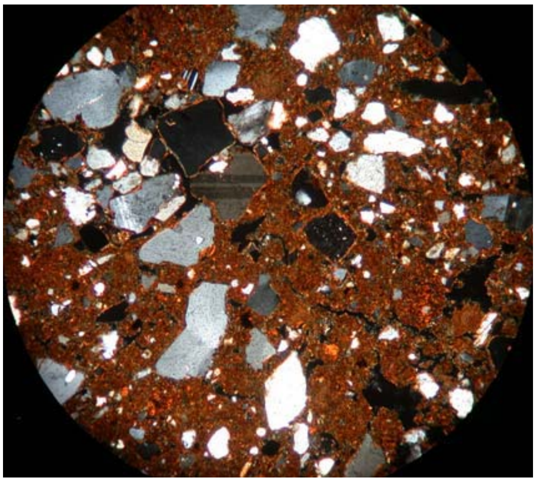
1) Overview, PPL, FOV 12 mm



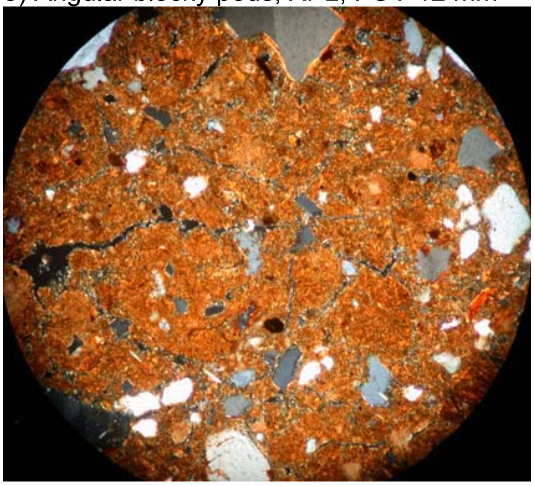
2) Overview, XPL, FOV 12 mm



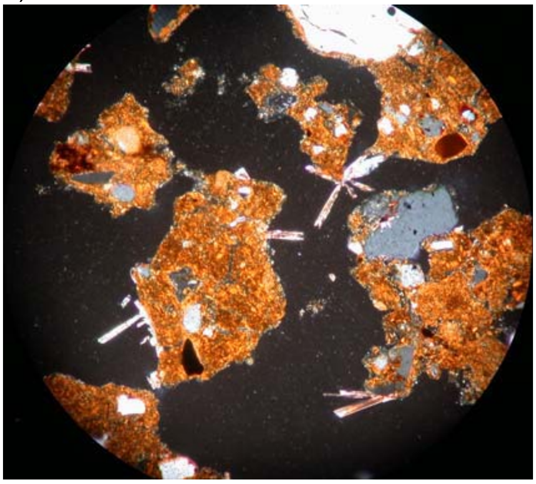
3) Angular blocky peds, XPL, FOV 12 mm



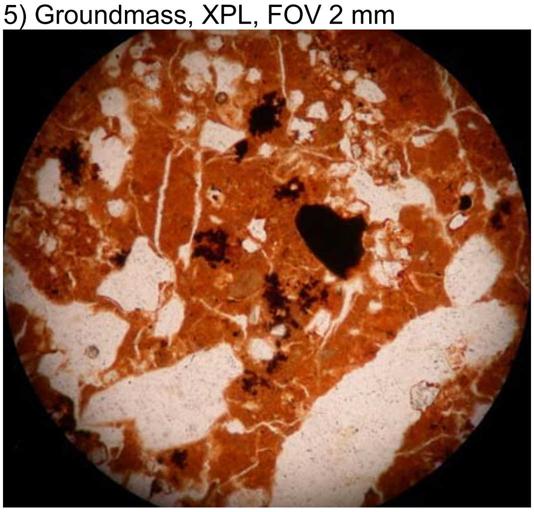
4) Minor cutans, XPL, FOV 4 mm



5) Groundmass, XPL, FOV 2 mm



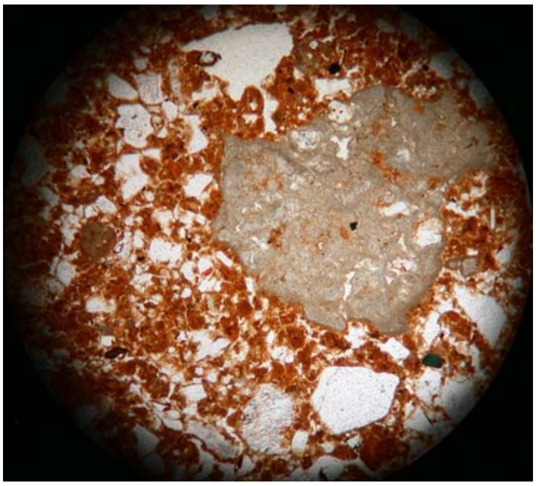
6) Calcite crystals, XPL, FOV 2 mm



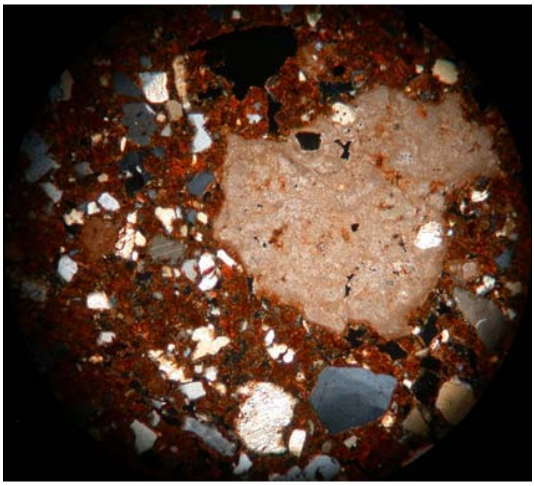
7) Blotchy opaques, PPL, FOV 2 mm

Sample Name: **WD1-05** horizon: Bk Date 21/1/07

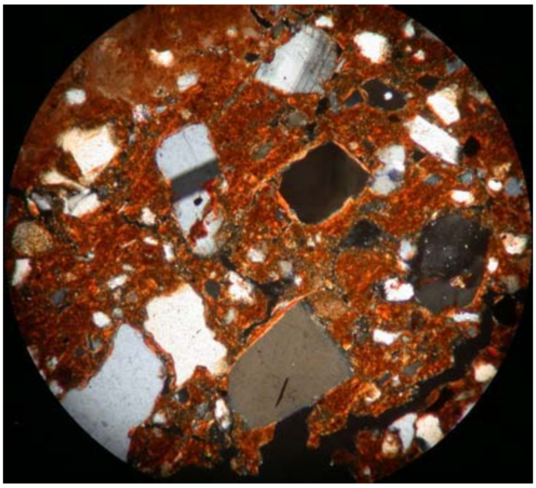
General comments	Overview photos 1 & 2 with calcite rich clay ped?
Related distribution	Very fine grains in clay matrix – single space porphyric, random grain orientation Calcite rich aggregates (peds?) and clay mixtures. Tendency for fewer grains in these areas.
Peds	Sub-angular blocky – not clearly defined (unless you define separate peds on slide without direct association of surrounding material).
Voids	Limited number of voids on this slide. Where present, they appear to be inter-aggregate channels/ chambers.
Coatings (grains, aggregates & voids)	Most grains and aggregates have a partial coating, some grains complete. Coatings are hypo, external in most cases, but occasional grains show possible internal hypo coatings (photo 3). No coatings were identified around voids.
Groundmass	Crystallitic b fabric with random orientation. Calcite rich aggregates present, Photo 4 shows voids within one of these calcite aggregates (indicates that the calcite may have precipitated within the voids).
Grains	Grains are generally finer in this specimen with an average size of ~ 0.1 mm, similar to WD1_03 but higher proportion of grains to groundmass. Grains are sub-rounded to sub-angular. Quartz ~90% mostly sub-rounded. Feldspars: Plagioclase ~5% typical lath shape (sub-angular). Most grains highly weathered. Sanidine < 1%, not as obvious on this sample (or I'm not recognising it from quartz). Occasional opaques, rounded shape, most likely organics. Other minerals < 1%. Hornblende, occasional very small grains. Zircon. Muscovite, (possibly biotite) occasional grains.



1) Overview, PPL, FOV 4 mm



2) Overview, XPL, FOV 4 mm

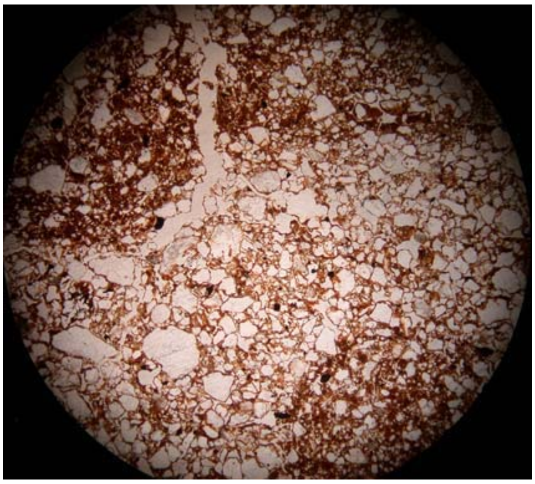


3) Partial cutans, XPL, FOV 2 mm

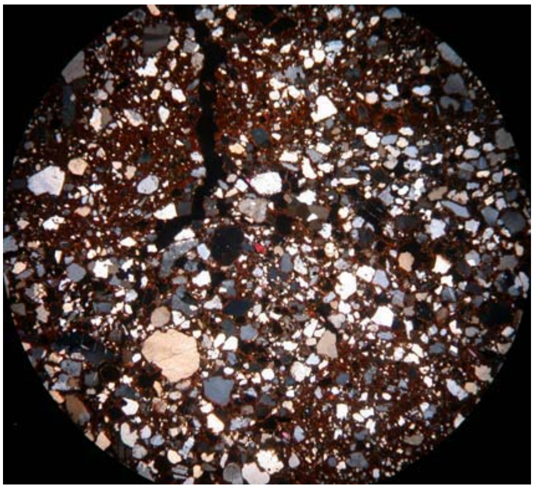
4) Calcite filling void, XPL, FOV 2 mm

Sample Name: **WD1-06** horizon: 2B2 Date 21/1/07

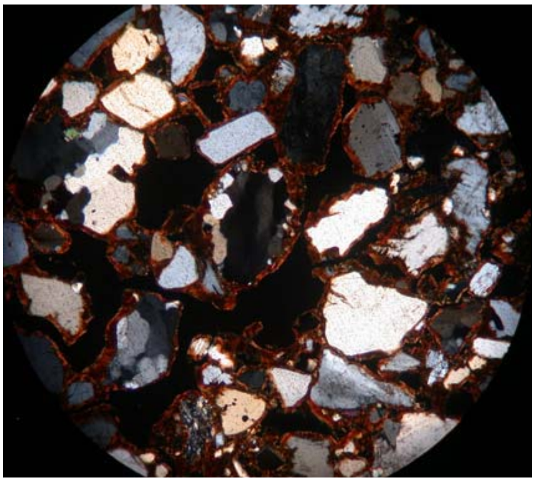
General comments	Overview photos 1 & 2. Less clay matrix on this specimen, clays are also a deeper red colour than above samples.
Related distribution	Very fine grains with coatings extending to clay matrix in places. Combination of single spaced porphyric and mixed gefuric/ chitonic like distribution.
Peds	Moderately developed sub-angular peds, some well developed at edges of main aggregates.
Voids	Some intra-aggregates especially in gefuric distributions. Possibly complex packing voids. Photo 3 consists of single grains and small aggregates bound by coatings (good example of grain coatings). Also inter-aggregate channels between peds (photo 4)
Coatings (grains, aggregates & voids)	Most grains have an external hypo coating especially those in gefuric areas (see voids). Coatings are less obvious in more clay rich areas, but still present on a high proportion of grains. Voids tend to have no coating except where grains or small aggregates form the void boundary.
Groundmass	Generally random orientation where clay rich mixture is observed. Occasional areas of striation alignment (photo 5), clay filled void.
Grains	Most grains at ~0.2 mm (10 units @ 5X) or less, sub-rounded shape. Quartz ~90% sub-rounded. Feldspars: Plagioclase ~5%, slightly more angular, moderately to highly weathered. Sanidine ~ 2% more angular than quartz, moderately to highly weathered. Opaques < 1% most are small (~ 0.1 mm) and sub-angular some larger grains ~0.4 mm. Some opaques have the blotchy appearance has observed in WD1-03. Other minerals < 1%. Actinolite, largish grain ~0.75 mm, pleochroic, light/ pale green in PPL, blue in XPL, extinction angle ~ 10° with weathering rind. Muscovite, aggregate mottled // extinction (photo 6), high birefringence. Also present as acicular grains as observed on previous slides. Hornblende, very fine grains ~ 0.1 mm. Garnet, isotropic, pale green/grey in PPL. Zircons ~0.1 mm.



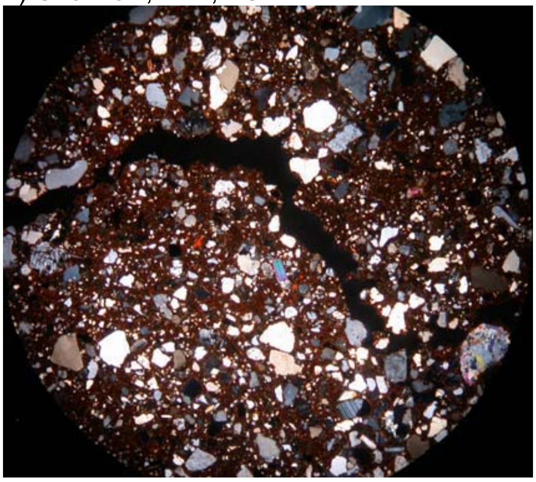
1) Overview, PPL, FOV 12 mm



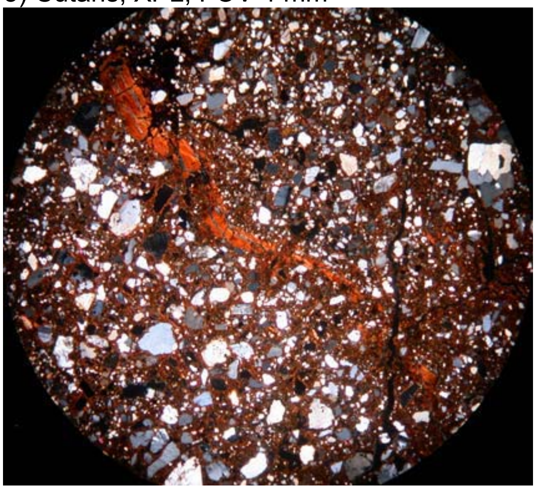
2) Overview, XPL, FOV 12 mm



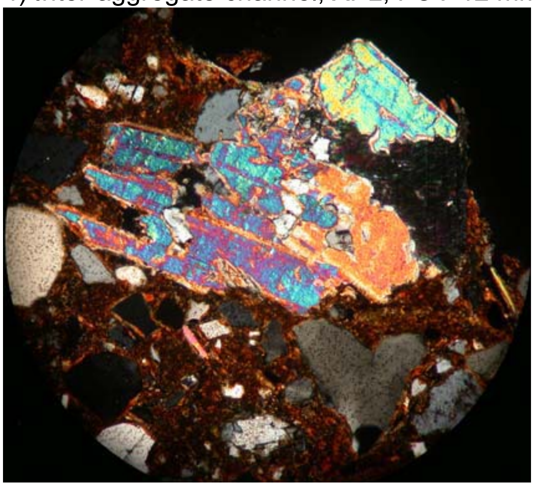
3) Cutans, XPL, FOV 4 mm



4) Inter-aggregate channel, XPL, FOV 12 mm



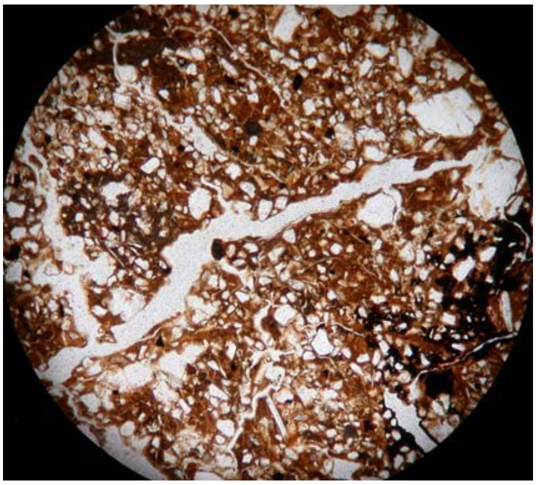
5) Striation clay alignment, XPL, FOV 12 mm

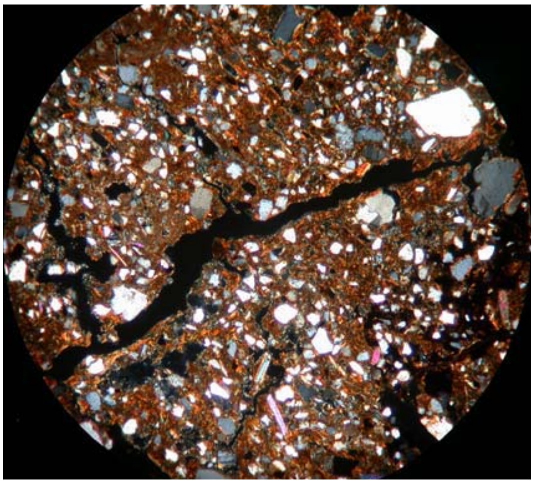


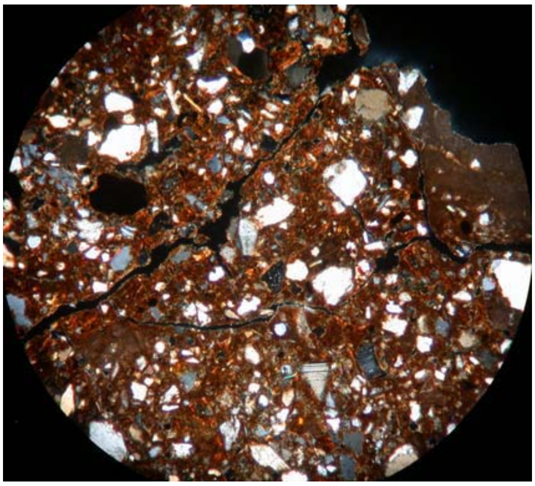
6) Muscovite, XPL, FOV 2 mm

Sample Name: **WD1-07** horizon: 2Bk Date 21/1/07

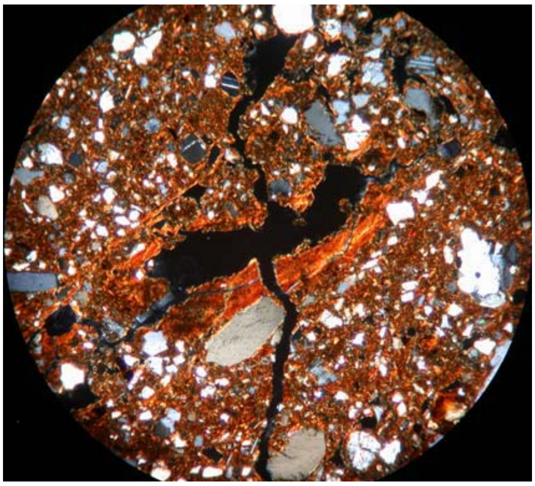
General comments	Overview photos 1 & 2. Poorly sorted grains in groundmass matrix, lot of calcite rich clay/ aggregates on this slide.
Related distribution	Single spaced porphyric.
Peds	Sub-angular blocky, moderate to strongly developed.
Voids	Inter-aggregate voids channels/ chambers, some channels show clay alignment // with the channel (photo 3). Photo 4 of a chamber, this one is very large ~1.2 mm long, with clay alignment (clay filling). Occasional areas of intra-aggregate voids, photo 5 of four such voids (this is an exception to most of the slide). Note also clay alignment around the voids.
Coatings (grains, aggregates & voids)	Voids tend to have no direct coatings, although clay appears to have a good alignment around many voids (see above). Grains: only a partial coating on some larger grains, not uniform property on this specimen. Where present it is hypo external.
Groundmass	Crystallitic b fabric groundmass with areas of high calcite content (photo 6). Striations are commonly present // to channels (porostriated).
Grains	Poorly sorted ~0.2 mm, some > 0.4 mm. Generally sub-angular shape. Quartz. Feldspars: Plagioclase ~ 5% generally lath shape, most moderate to highly weathered. Sanidine < 2%, similar shape and condition to plagioclase. Micas, biotite/muscovite < 2% (more prominent on this slide) often as acicular grains ~0.3 mm in length. Generally appears to be more muscovite than biotite. Opaque: generally sub-rounded, although some small "hexagonal" shaped (~ 0.05 mm), also some areas of blotchy appearance as in earlier samples. Others < 1%. Actinolite (weathered) similar to that observed in WD1_06. Orthopyroxene small ~ 0.1 mm, pleochroic green in PPL purple colour with // ext. in XPL. Hornblende green in PPL and pleochroic ~0.1mm, green in XPL ~10° extinction angle.


1) Overview, PPL, FOV 4 mm

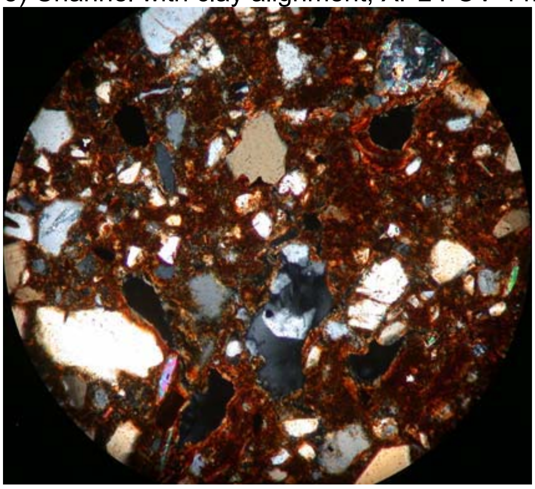

2) Overview, XPL, FOV 4 mm



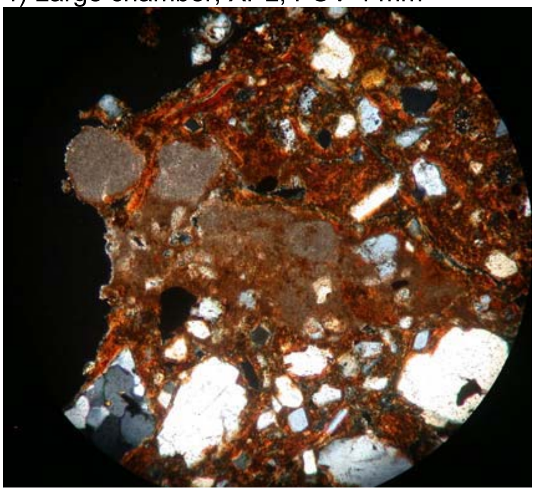
3) Channel with clay alignment, XPL FOV 4 mm



4) Large chamber, XPL, FOV 4 mm



5) Inter-aggregate voids, XPL, FOV 2 mm

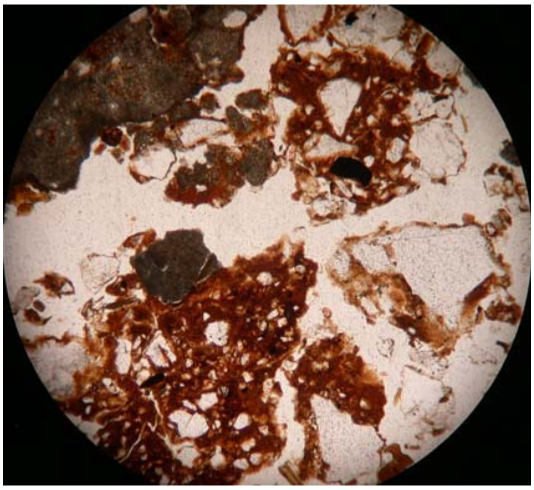


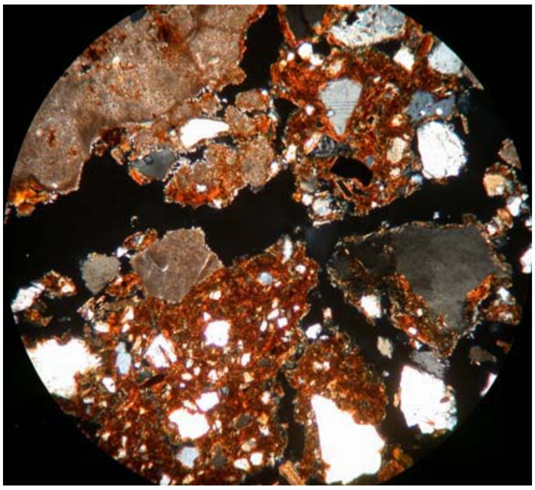
6) Crystallitic b fabric, XPL, FOV 2 mm

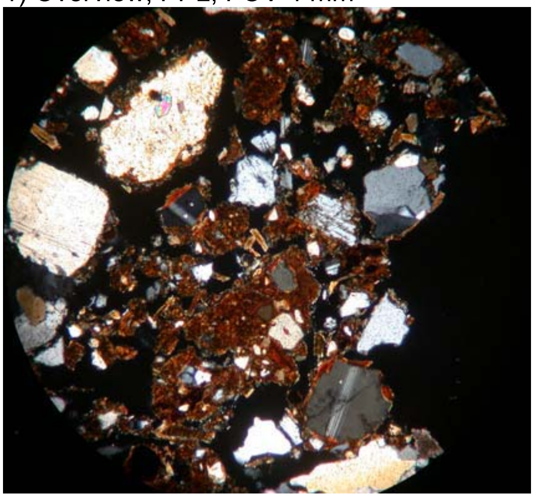
Sample Name: **WD1-08** horizon: 2B3 Date 23/1/07

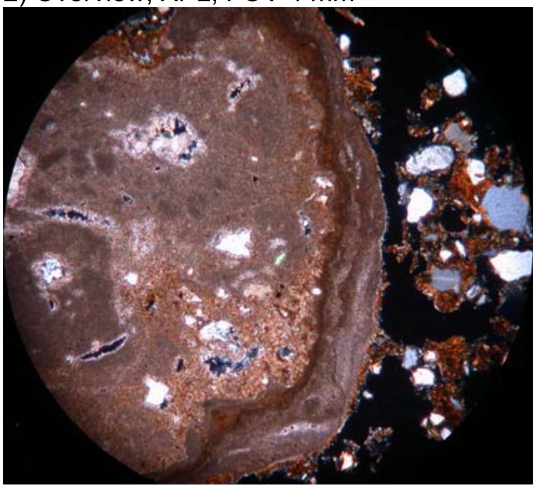
General comments	Overview photos 1 & 2. Peds appear better formed and distinct. Clay content reduced compared with other specimens. High amount of lithic fragments present.
Related distribution	Single spaced porphyric.
Peds	Sub-angular blocky peds, strongly developed. Some peds exist as single lithic fragments.
Voids	Mainly inter-aggregate channels with some chambers. Occasional intra-aggregate voids, but most of these look like they are due to formation of new peds (i.e. new channels / chambers).
Coatings (grains, aggregates & voids)	Most grains and lithic fragments have at least a partial clay coating of hypo external type. This is particularly true of the larger grains (photo 3). Voids are generally clear of any coatings apart from when a grain or lithic fragment forms part of the void boundary. Some of the calcite aggregates have laminated capping (photo 4).
Groundmass	The groundmass is randomly orientated with occasional areas of alignment (striations), but only on a very small scale. Some crystallitic b fabric (calcite rich peds and aggregates) also present.
Grains	Poorly sorted with some large (up to ~ 6 mm) lithic fragments (photo 5).

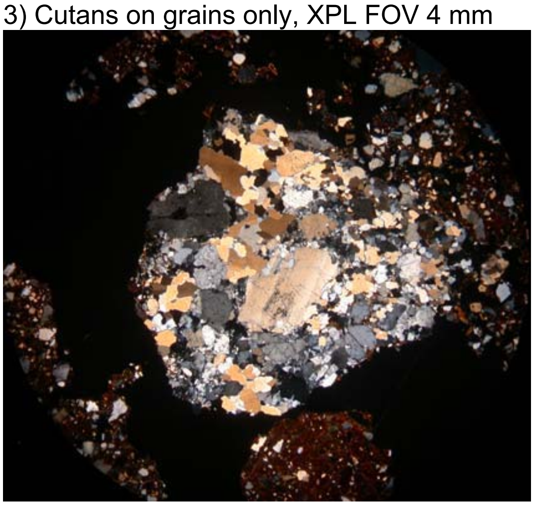
Grains (cont.)	Shapes range from rounded, particularly the smaller grains to sub-angular. Quartz ~ 90%. Feldspars: Plagioclase ~ 5% usual sub-angular shapes. Sanidine < 1% (appears less frequently on this slide). Biotite: ~ 1% some larger grains ~ 1mm in length (photo 6). Opaques: < 1% generally small ~ 0.1 mm sub-rounded shape. Other minerals < 1%. Hornblende ~0.2 mm. Microcline, highly weathered small grain. Muscovite.

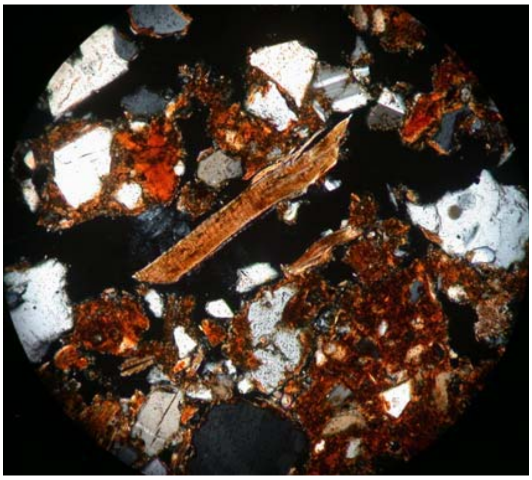

1) Overview, PPL, FOV 4 mm


2) Overview, XPL, FOV 4 mm


3) Cutans on grains only, XPL FOV 4 mm

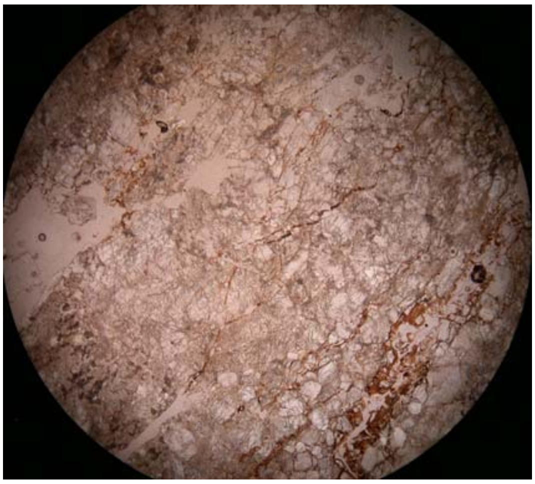

4) Laminated calcite capping, XPL, FOV 4 mm

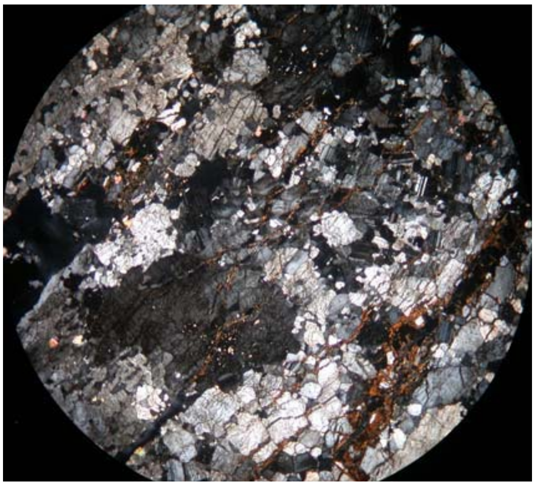

5) Lithic fragment, XPL, FOV 12 mm

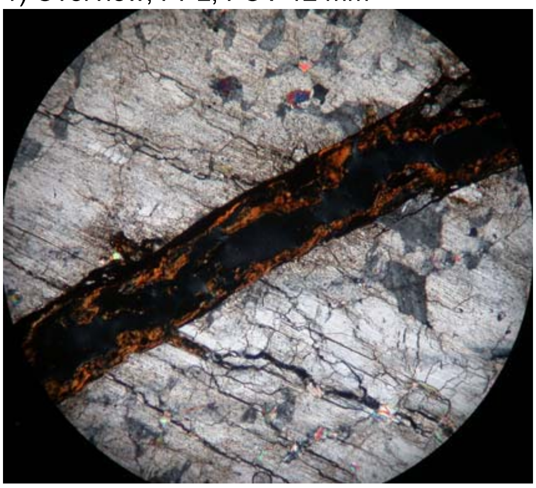

6) Biotite grain, XPL, FOV 2 mm

Sample Name: **WD1-09, WD1-10 & WD1-12** horizon: Saprolith Date 4/2/07

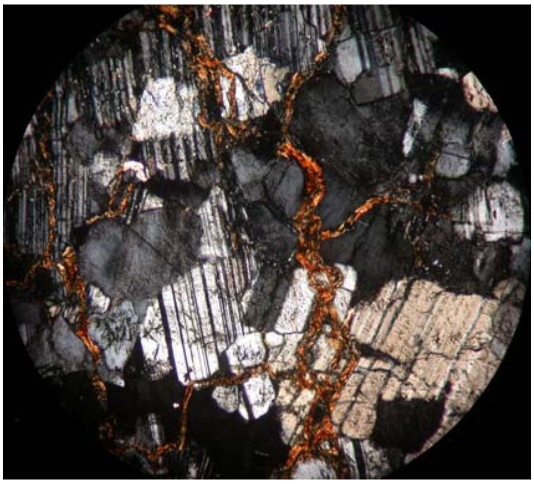
General comments	Overview photos 1 & 2. Highly weathered rock, no soil structures or textures present. Photos 3 & 4 are of a fracture lined by clay and organic material, possibly from an old plant root. Sample WD1-10 is located ~ 30 cm below and is similar to WD1-09. WD1-12 is the same material, but is less weathered and grains are less fractured.
Grains	All grains are fractured and weathered, many fractures have clay infillings (Photo 5). Sample consists of 90 - 95% coarse grain feldspars and ~ 5% quartz. Photo 6 of fractured quartz grain. Plagioclase, ~ 85-90%. Sanidine ~ 5 %. Microcline < 2%. Other minerals < 1%. Biotite, located in a few areas only, usually as small aggregates, Some small <0.2mm grains within feldspars, high birefringence, // extinction, possibly mottled (mica?), slightly pleochroic.


1) Overview, PPL, FOV 12 mm


2) Overview, XPL, FOV 12 mm


3) Small fracture, XPL FOV 4 mm


4) Small fracture, PPL, FOV 4 mm

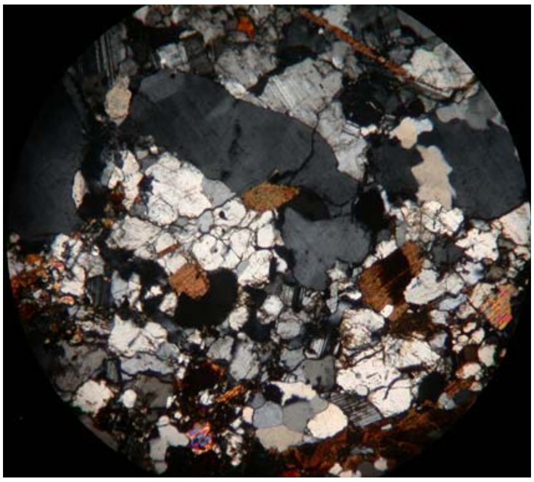

5) Fractured plagioclase clay filling, XPL, FOV 2mm

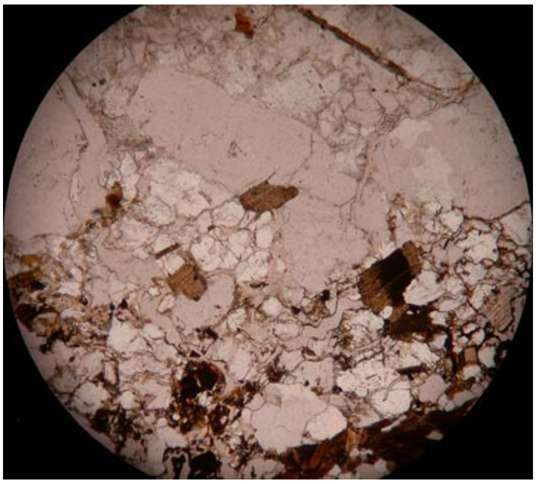

6) fractured quartz, XPL, FOV 4 mm

Sample Name: **WD1-14** horizon: Saprolith Date 4/2/07

Sample located ~ 1 m north of main profile at 3.35m depth.

General comments	Generally fine grained, slight alignment of micas. Biotite Gneiss (Similar to WD3-06 to WD3-08). Overview photos 1 & 2. Some larger grains have weathering fractures.
Grains	Primarily quartz grains, ranging from ~ 0.2 to 3 mm in size, mainly less than ~ 0.5 mm. Quartz 75%. Biotite ~10%. Feldspars, Plagioclase ~ 10%. Sanidine ~ 5%.

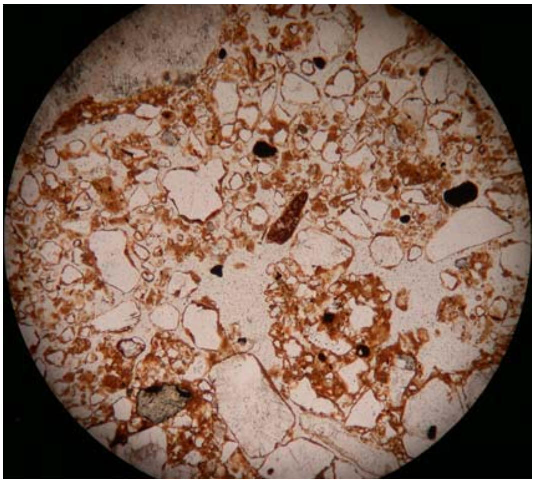

1) Overview, XPL, FOV 4 mm


2) Overview, PPL, FOV 4 mm

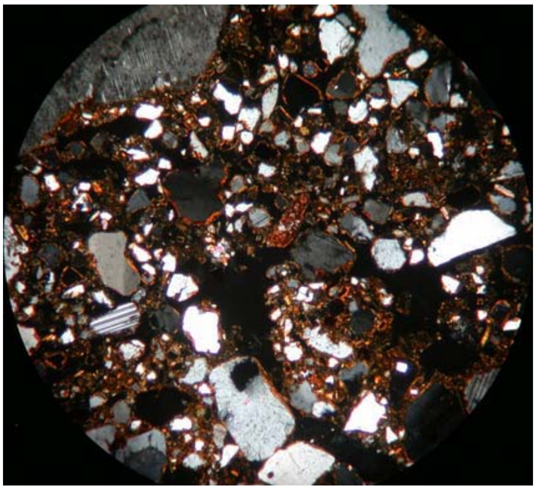
White Dam Profile 2 thin section descriptions

Sample Name: **WD3-01** horizon: A1 Date 28/1/07

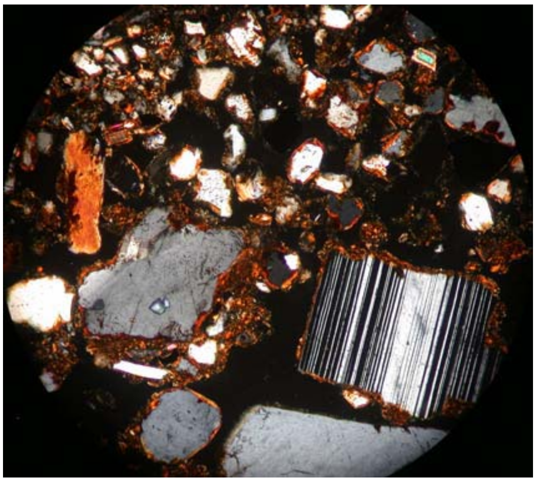
General comments	General photos 1 & 2 Note large garnet in bottom left corner.
Related distribution	Mainly gefuric with areas of chitonic.
Peds	None defined, apedal.
Voids	Inter-aggregate, complex packing voids. Voids between touching grains and small aggregates.
Coatings (grains, aggregates & voids)	Most grains have a reasonably uniform (typic) thin coating (Photo 3). No coatings observed on voids or small aggregates. Some large opaques (organic) fragments also have thin coatings (Photo 4).
Groundmass	None.
Grains	Very poorly sorted with grains up to ~7 mm in diameter. Grains are sub-angular to sub-rounded. Quartz ~ 90%. Feldspars: Plagioclase ~ 5% Most grains sub-angular and highly weathered. Sanidine ~ 2% highly weathered sub-angular. Opaques, 5 – 10% some very large grains up to ~ 2 mm (Photo 4). Other minerals < 1%. Garnets, rounded. Clinopyroxene, green pleochroic PPL, purplish colour inclined extinction XPL ~0.1 mm. Occasional micas, muscovite and biotite. Hornblende Green, pleochroic PPL Green XPL.

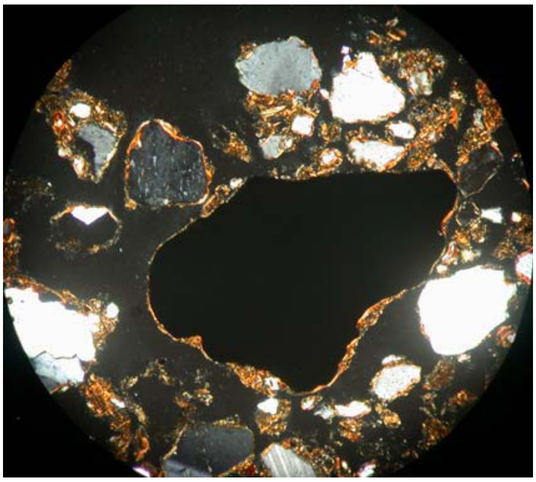


1) Overview, PPL, FOV 4 mm



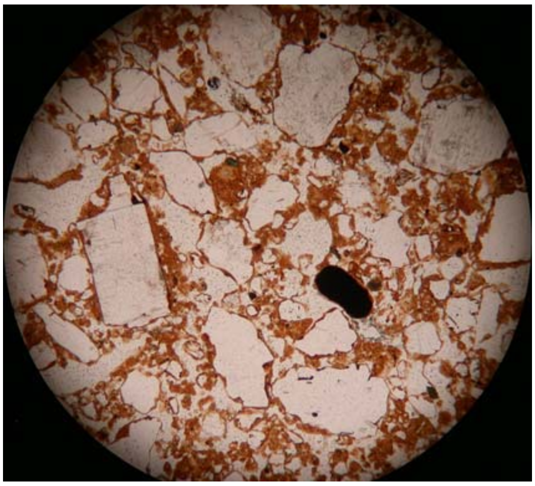
2) Overview, XPL, FOV 4 mm

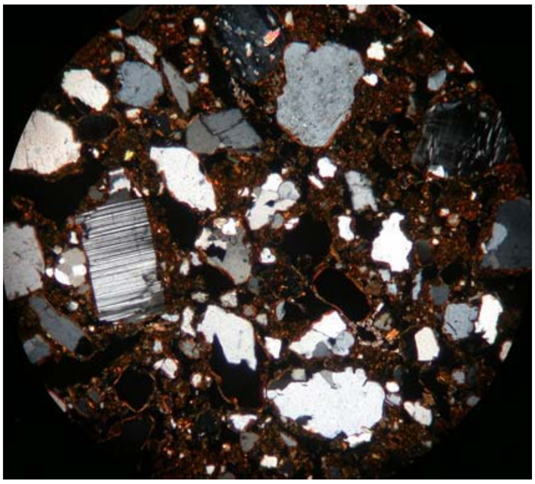

3) Grain cutans, XPL FOV 2 mm

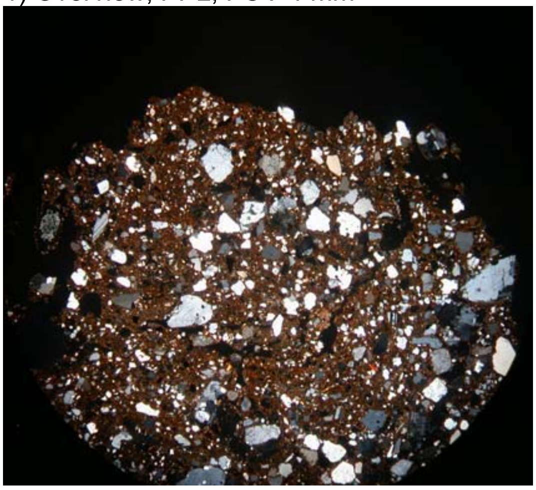

4) Cutans on organic material, XPL, FOV 2 mm

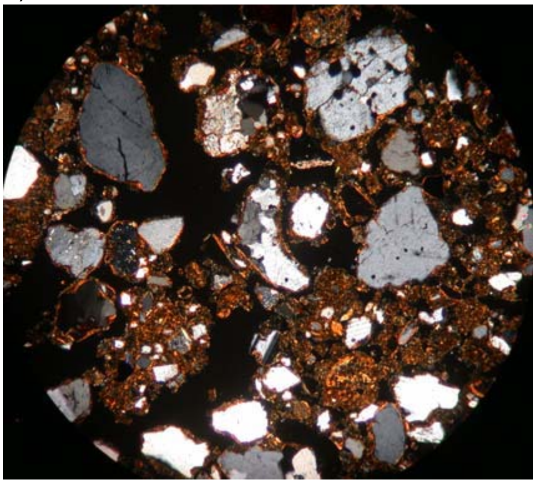
Sample Name: **WD3-03** horizon: B1 Date 28/1/07

General comments	Overview photos 1 & 2, some small peds.
Related distribution	Chito-gefuric relative distribution.
Peds	Moderate to strongly developed, angular blocky peds (photo 3).
Voids	Inter-aggregate in the form of small channels as in photo 3, and intra-aggregates or between grains and small aggregates as complex packing voids.
Coatings (grains, aggregates & voids)	Most individual grains have a (typic) uniform clay coating, aggregates and voids are free of any coatings (photo 4).
Groundmass	Groundmass is sparse, but where present contains high proportion of very fine grains. Clays are randomly orientated, possibly crystallitic b fabric. Some areas of calcite rich groundmass.
Grains	Grains are generally small ~0.5 mm with occasional larger grains and small aggregates, sub-angular to sub-rounded. Quartz ~ 90% generally sub-rounded. Feldspars: Plagioclase ~ 5% sub-angular with some very highly weathered grains. Sanidine < 2% similar to above. Opaques, ~ 2% most likely organic, most between 0.1 & 0.5 mm and rounded shape. Other minerals. Micas, muscovite and biotite. Hornblende green pleochroic in PPL green in XPL.


1) Overview, PPL, FOV 4 mm


2) Overview, XPL, FOV 4 mm

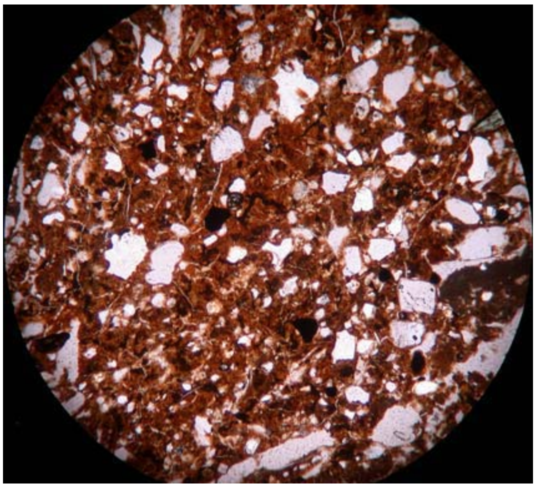

3) Angular-blocky peds, inter-aggregate voids, XPL FOV 12mm

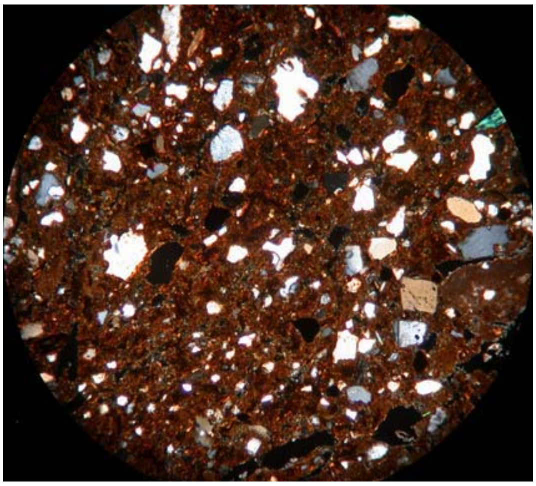

4) Typic clay cutans, XPL, FOV 4 mm

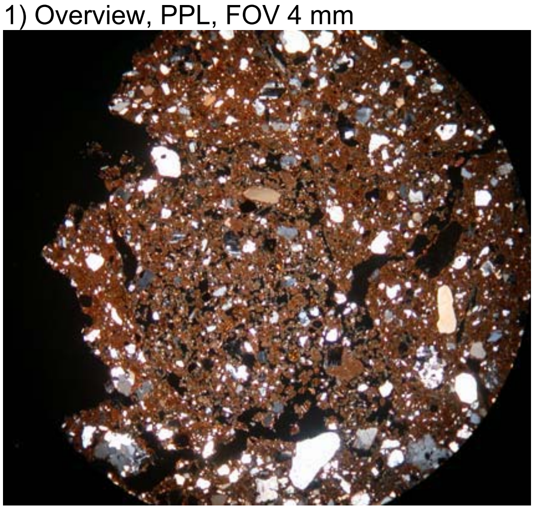
Sample Name: **WD3-04** horizon: B2 Date 3/2/07

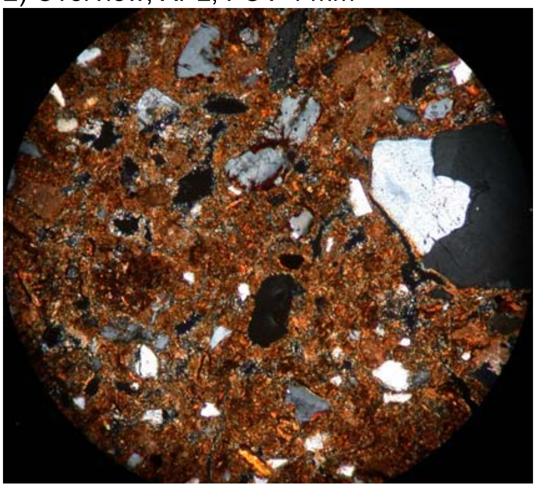
General comments	Overview photos 1 & 2, consist of fine grains in a clay matrix.
Related distribution	Single spaced porphyric.
Peds	Angular blocky, poorly defined, very loosely bound, especially around edges (photo 3).
Voids	High number of intra-aggregate voids, generally sub-angular shape and smallish ~0.2 mm. Some inter-aggregate channels and chambers.
Coatings (grains, aggregates & voids)	Larger grains have thin clay coatings, but majority of smaller grains free from any coatings (Photo 4). Where coatings are present they cover 80 – 100% of the grain. Voids and aggregates (excluding small lithic fragments) have no coatings.
Groundmass	Groundmass loosely bound with no preferred orientation. Some calcite rich areas.
Grains	Grains are poorly sorted and range from ~0.05 to ~ 2 mm. Most are sub-angular to angular shape.

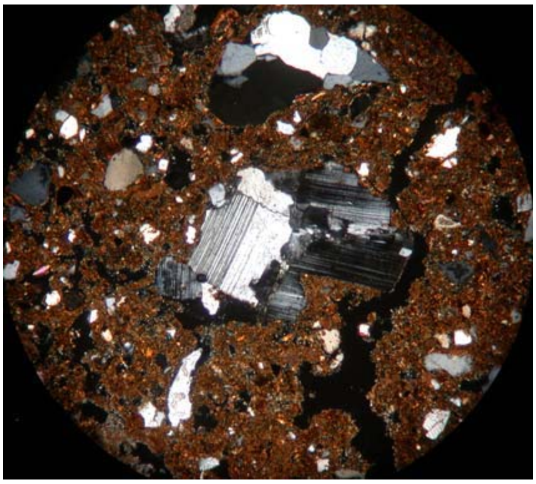
Grains (cont.)	Mainly Quartz ~ 90% with Feldspars. Plagioclase ~ 2% (less than observed on earlier slides) Generally small ~0.4 mm or less, sub-angular, with most grains showing evidence of weathering. Some areas of larger (~ 0.6 mm) aggregates also present (Photo 5). Sanidine < 2% similar to plagioclase in size and shape, highly weathered. Opaques ~ 2% most are between ~0.1 to 0.2 mm and sub-rounded. One particularly large ~ 3 mm diameter opaque, possibly plant root has a calcite rich coating, with laminations. (Photos 6 – 8). Other minerals < 1%. Orthopyroxene, pinkish green pleochroic in PPL and blue with // extinction in XPL, euhedral shape. Micas, muscovite and biotite, usually small grains ~0.1 mm in length. Microcline, one or two grains identified by cross hatch extinction pattern. Hornblende, small ~ 0.1 mm green, pleochroic in PPL green in XPL.

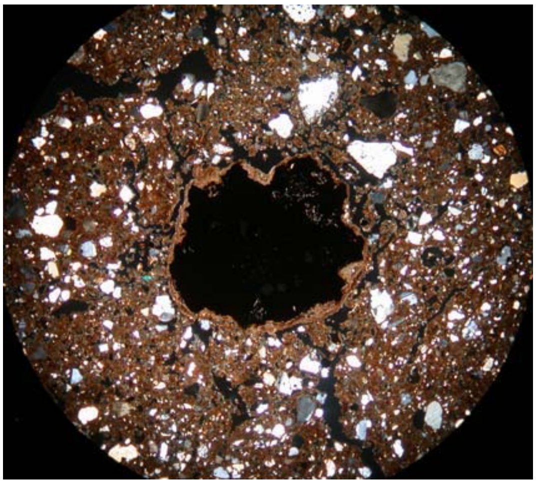

1) Overview, PPL, FOV 4 mm

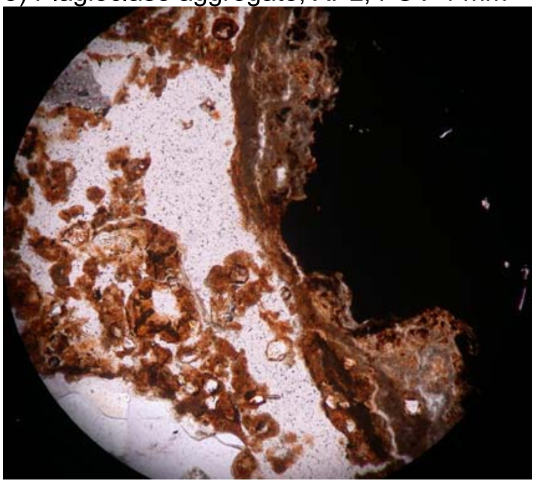

2) Overview, XPL, FOV 4 mm

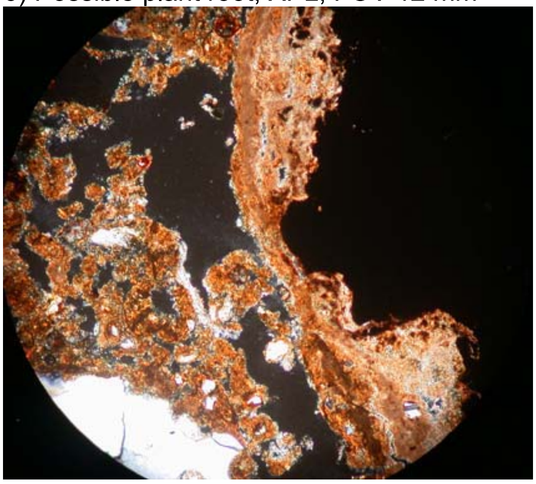

3) Angular blocky loose peds, XPL FOV 12 mm


4) Minimal clay cutans, XPL, FOV 2 mm


5) Plagioclase aggregate, XPL, FOV 4 mm


6) Possible plant root, XPL, FOV 12 mm

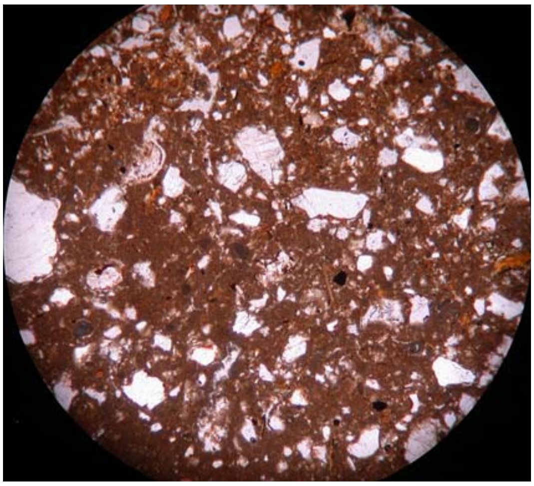

7) Calcite coating around root, XPL, FOV 2 mm

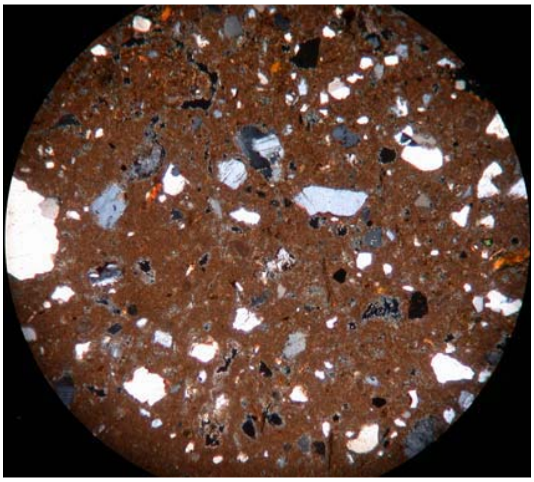

8) Calcite coating around root, XPL, FOV 2 mm

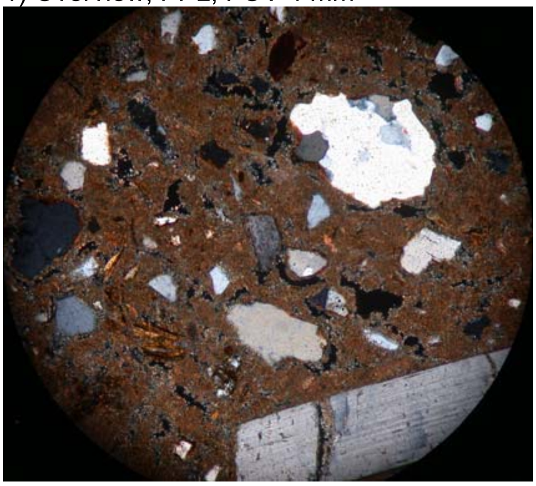
Sample Name: **WD3-05** horizon: Bk Date 3/2/07

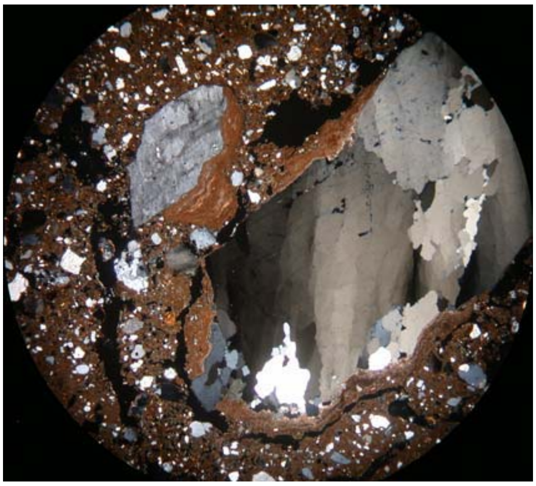
General comments	Overview photos 1 & 2. Fine grain with higher calcite content within matrix.
Related distribution	Single spaced porphyric.
Peds	Angular blocky, poorly defined.
Voids	Mostly inter-aggregate channels with some chambers. Some intra-aggregate voids ~0.2 mm in diameter, mostly rounded shape.
Coatings (grains, aggregates & voids)	Grain coatings are sparse, where present they exist as thin and often only cover ~50% of the grain. Photo 3 is a very clean plagioclase grain and some very thin coatings around some of the smaller grains. Many of the grains, particularly the larger ones have a calcite coating that is thicker than typical clay coatings. One very large quartz and feldspar grain show calcite like capping that is ~ 0.3 mm thick (Photo 4 & 5). Voids and aggregates have no coatings.
Groundmass	Crystallitic b fabric, mainly calcite. No preferential orientations.
Grains	Most grains are less than ~ 0.3 mm and sub-rounded to sub-angular shape. Mostly Quartz ~ 90%.

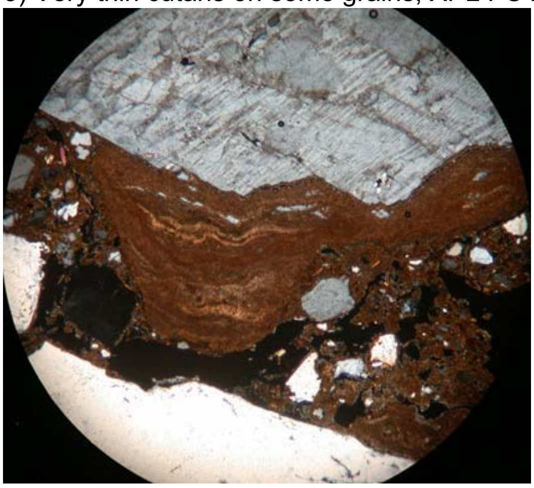
Grains (cont.)	Feldspars: Plagioclase ~ 2% most are small < 0.2 mm and highly weathered. Sanidine < 2% highly weathered and small grains similar to plag. Micas, (mostly biotite) ~ 1% smallish acicular grains ~ 0.1 mm in length. Some larger aggregates also present. Opaques < 2% small ~ 0.1 mm generally rounded shape. Other minerals < 1%. Hornblende pleochroic, and green in PPL, green colour in XPL with inclined extinction. Clinopyroxene, purple coloured inclined extinction.


1) Overview, PPL, FOV 4 mm


2) Overview, XPL, FOV 4 mm

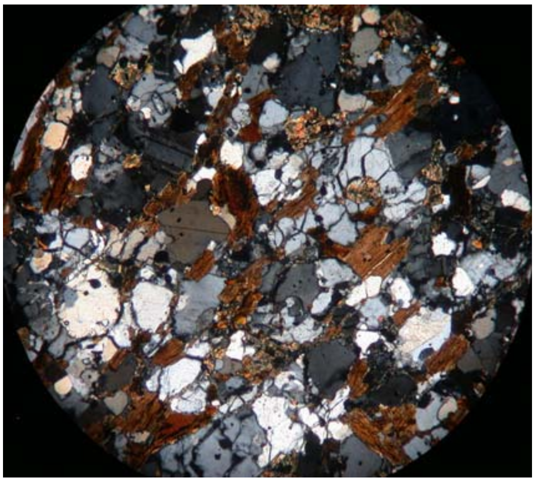

3) Very thin cutans on some grains, XPL FOV 2 mm

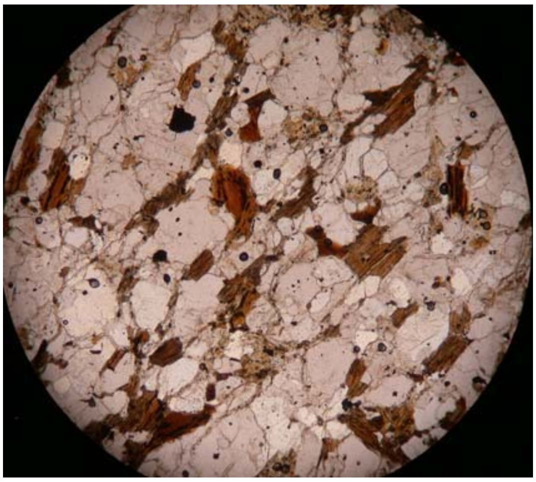

4) Calcite capping, XPL, FOV 12 mm

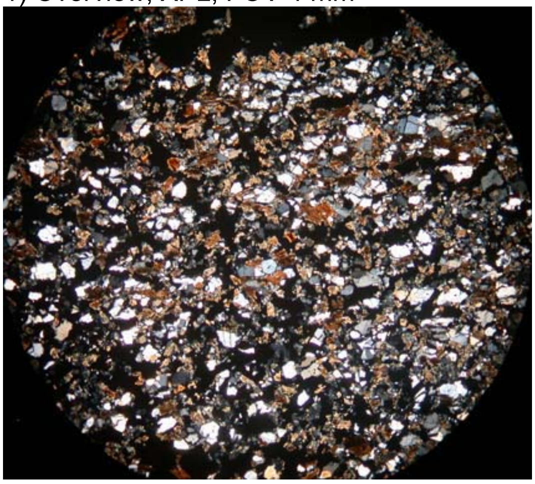

5) Calcite capping, XPL, FOV 4 mm

Sample Name: **WD3-06** horizon: Saprolith Date 4/2/07

General comments	Biotite gneiss, highly weathered, overview photos 1 & 2. The biotite is slightly aligned. Grains are generally spread out (possibly due to slide prep) (Photo 3). No evidence of root penetration and only minor amounts of clay, even though this sample is at the top of the saprolith (Sample prepared from weathered rock sample and may not represent the true weathering features of the horizon).
Grains	Grain composition and sizes similar to WD1-14. Sizes range from ~0.2 to 3 mm, mainly less than 0.5 mm. Quartz ~ 75%. Biotite ~15%. Feldspars: Plagioclase 7%. Sanidine < 5%.

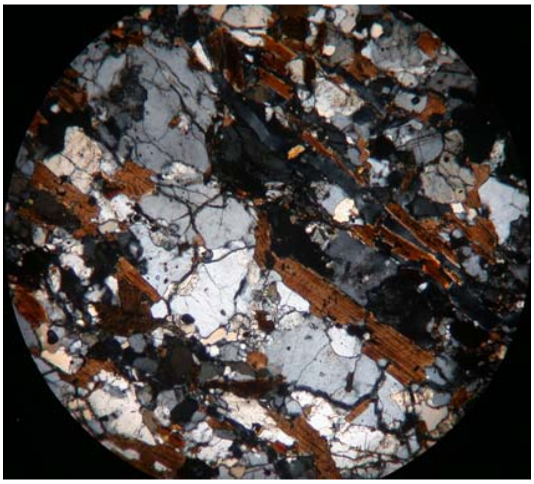

1) Overview, XPL, FOV 4 mm

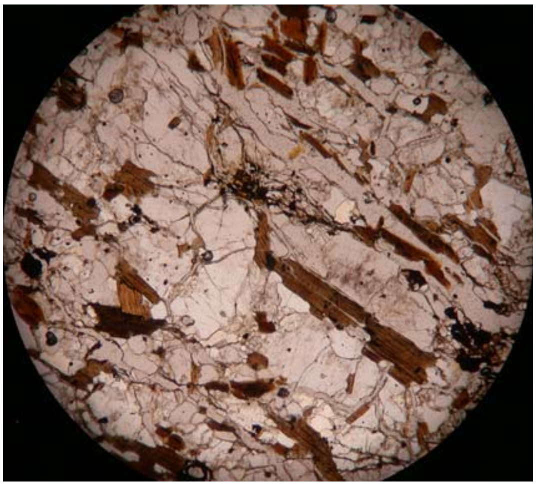

2) Overview, PPL, FOV 4 mm

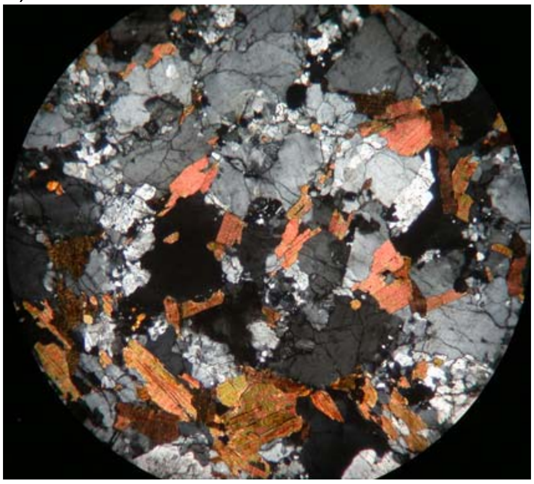

3) Spread of grains, XPL FOV 12 mm

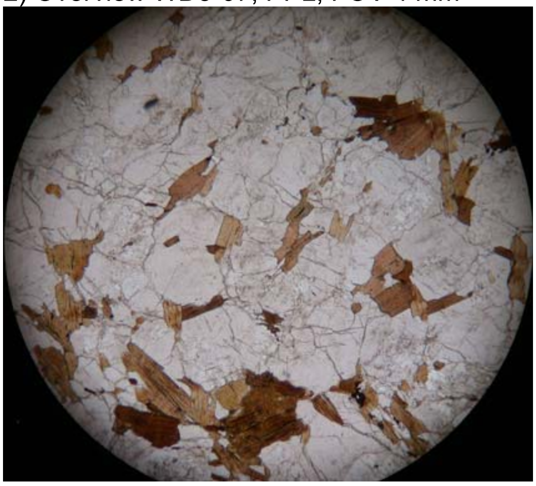
Sample Name: **WD3-07 & WD3-08** horizon: Saprolith Date 4/2/07

General Comments	Same as WD3-06, but more consolidated. Overview photos 1 & 2. Biotite grains are moderately aligned. Sample is moderately weathered (note the gneiss samples are not as weathered as the pegmatite). WD3-08 is the same rock type but less weathered and the biotite is slightly less aligned. Overview photos 3 & 4.
Grains	Grain composition and sizes similar to WD3-06. Sizes range from ~0.2 to 3 mm, mainly less than 0.5 mm. Quartz ~ 75%. Biotite ~15%. Feldspars: Plagioclase 7%. Sanidine < 5%.


1) Overview WD3-07, XPL, FOV 4 mm


2) Overview WD3-07, PPL, FOV 4 mm


3) Overview WD3-08, XPL FOV 4 mm


4) Overview WD3-08, XPL, FOV 4 mm

Appendix 4

White Dam XRD reports

CSIRO Land and Water XRD analysis report of the White Dam clay fractions

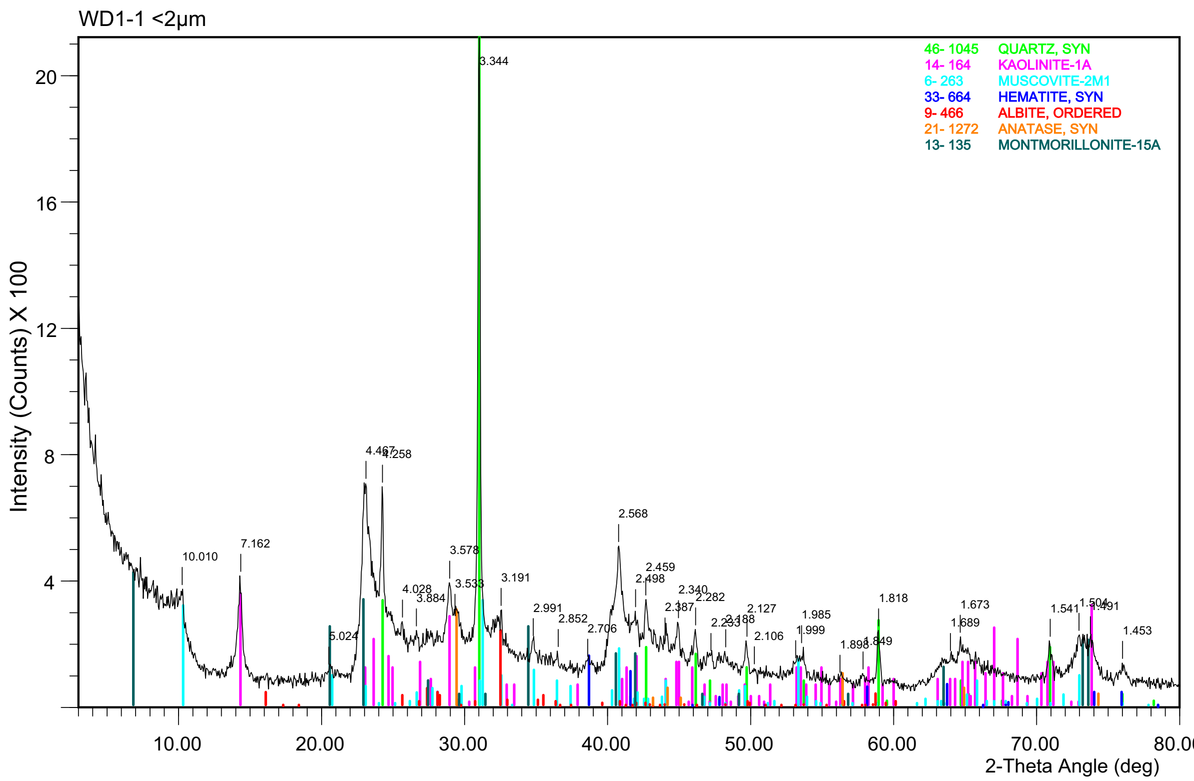
Sample Preparation

The air dried samples were ground in an agate mortar and pestle before being lightly pressed into aluminium sample holders to achieve random orientation of the mineral particles for XRD analysis. XRD patterns were recorded with a Philips PW1710 microprocessor-controlled diffractometer using Co Kα radiation, 1° divergence slit, and graphite monochromator. The diffraction patterns were recorded in steps of 0.05° 2θ with a 3.0 second counting time per step, and logged to data files on an IBM-compatible PC for analysis using the XPLOT data analysis program.

Results

Sample	Mineralogical Composition
WD1-1	Co-dominant smectite (likely randomly interstratified) and illite (muscovite), minor kaolin and quartz, trace hematite, albite and anatase
WD1-2	Dominant smectite, sub-dominant illite, minor kaolin, trace quartz, hematite and anatase
WD1-3	Dominant smectite, sub-dominant illite, minor kaolin, trace quartz, calcite, hematite, anatase and albite
WD1-4	Dominant smectite, sub-dominant illite, minor kaolin, trace quartz, calcite, hematite, anatase and albite
WD1-5	Dominant smectite, sub-dominant illite, minor kaolin, trace quartz, hematite, anatase and albite
WD1-6	Dominant smectite, sub-dominant illite, minor kaolin, trace quartz, hematite, anatase and albite
WD1-7	Dominant smectite, sub-dominant illite, minor kaolin, trace quartz, hematite, anatase and albite
WD1-8	Dominant smectite, sub-dominant illite, minor kaolin, trace quartz, hematite, anatase and albite
WD1-9	Dominant smectite, sub-dominant illite, minor kaolin, trace quartz, hematite, anatase, calcite and albite
WD1-10	Dominant smectite, sub-dominant kaolin, minor illite, trace quartz, hematite, anatase and albite
WD1-12	Co-dominant smectite and kaolin, minor illite, trace quartz, hematite, anatase and albite
WD1-14	Co-dominant smectite and kaolin, minor illite, trace quartz, hematite, anatase and albite
WD3-1	Co-dominant smectite and illite, minor kaolin, trace quartz, hematite, anatase, microcline and albite
WD3-2	Co-dominant smectite and illite, minor kaolin, trace quartz, hematite, anatase, and albite
WD3-3	Co-dominant smectite and illite, minor kaolin, trace quartz, hematite, anatase, and albite
WD3-4	Co-dominant smectite and illite, minor kaolin and calcite, trace quartz, hematite, anatase, and albite
WD3-5	Co-dominant smectite and illite, sub-dominant calcite, minor kaolin, trace quartz, hematite and anatase
WD3-6	Co-dominant smectite, illite and calcite, minor kaolin, trace quartz and anatase
WD3-7	Dominant smectite (not interstratified), minor kaolin, trace illite, quartz, goethite and anatase
WD3-8	Co-dominant smectite, illite (phlogopite) and kaolin, trace quartz, albite and microcline

*Dominant (>60%), co-dominant (sum of phases >60%), sub-dominant (20-60%), minor (5-20%), trace (<5%).



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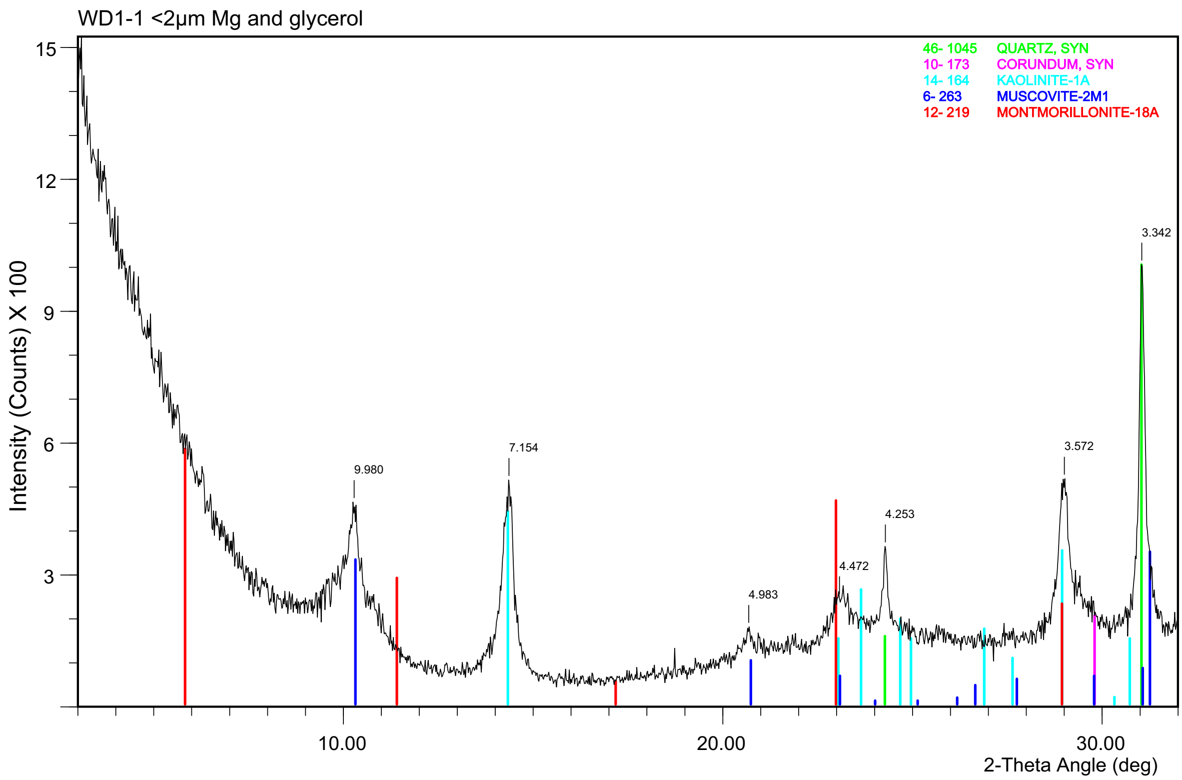
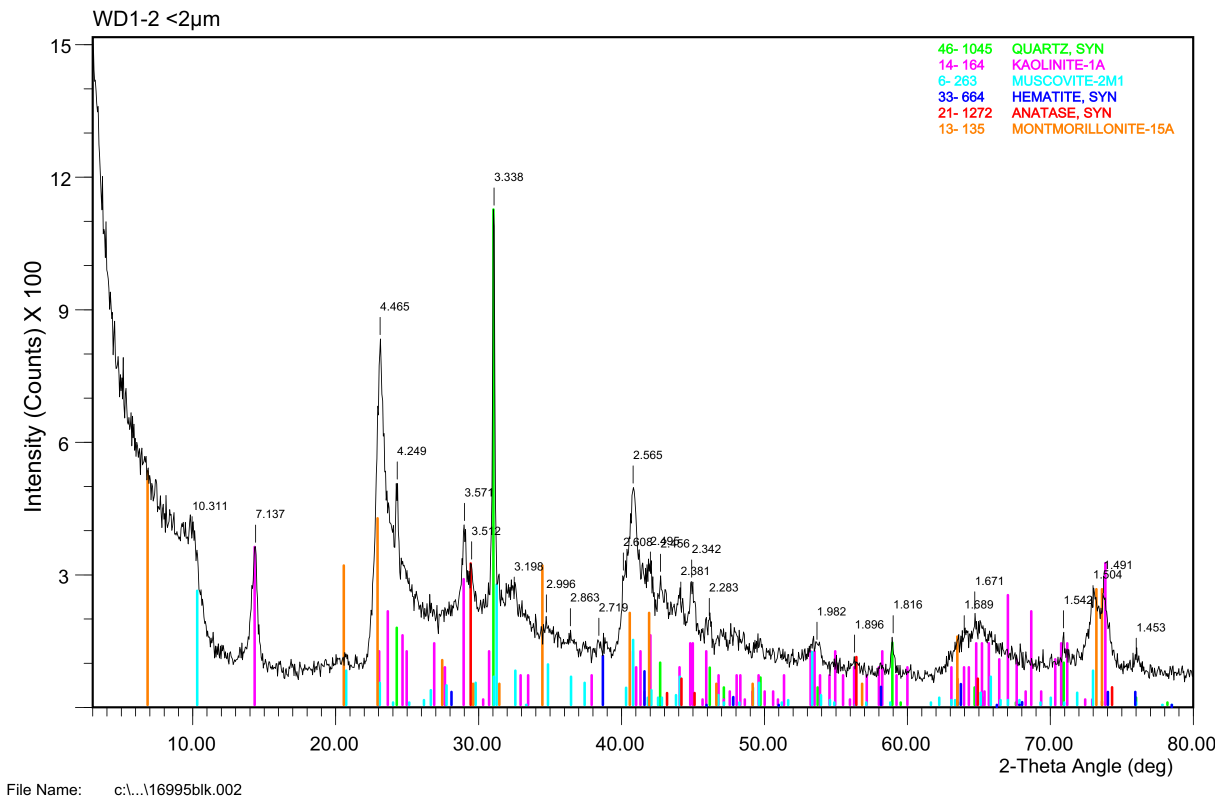
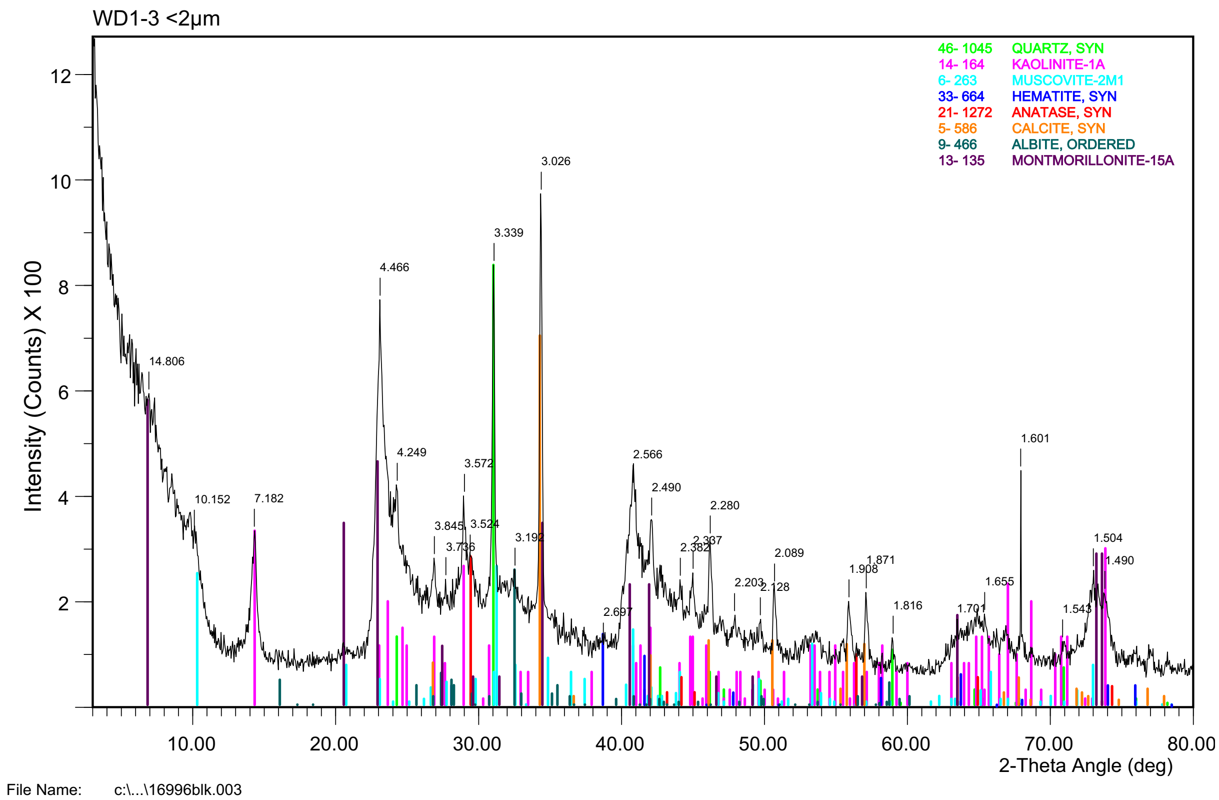
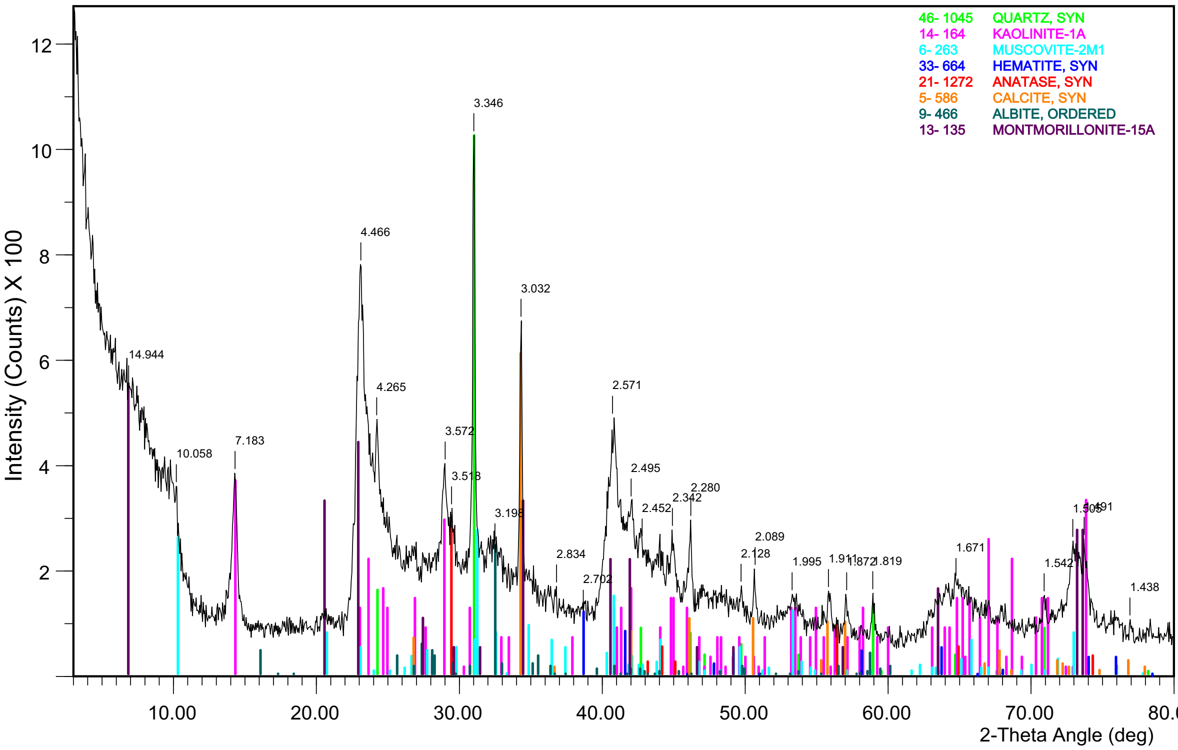


File Name: c:\...\wd1-1mgl.001


WD1-2 <2µm
46- 1045 QUARTZ, SYN
14- 164 KAOLINITE-1A
6- 263 MUSCOVITE-2M1
33- 664 HEMATITE, SYN
21- 1272 ANATASE, SYN
13- 135 MONTMORILLONITE-15A
Intensity (Counts) X 100
2-Theta Angle (deg)
File Name: c:\...\16995blk.002


WD1-3 <2µm
46- 1045 QUARTZ, SYN
14- 164 KAOLINITE-1A
6- 263 MUSCOVITE-2M1
33- 664 HEMATITE, SYN
21- 1272 ANATASE, SYN
5- 586 CALCITE, SYN
9- 466 ALBITE, ORDERED
13- 135 MONTMORILLONITE-15A
Intensity (Counts) X 100
2-Theta Angle (deg)
File Name: c:\...\16996blk.003

WD1-4 <2µm



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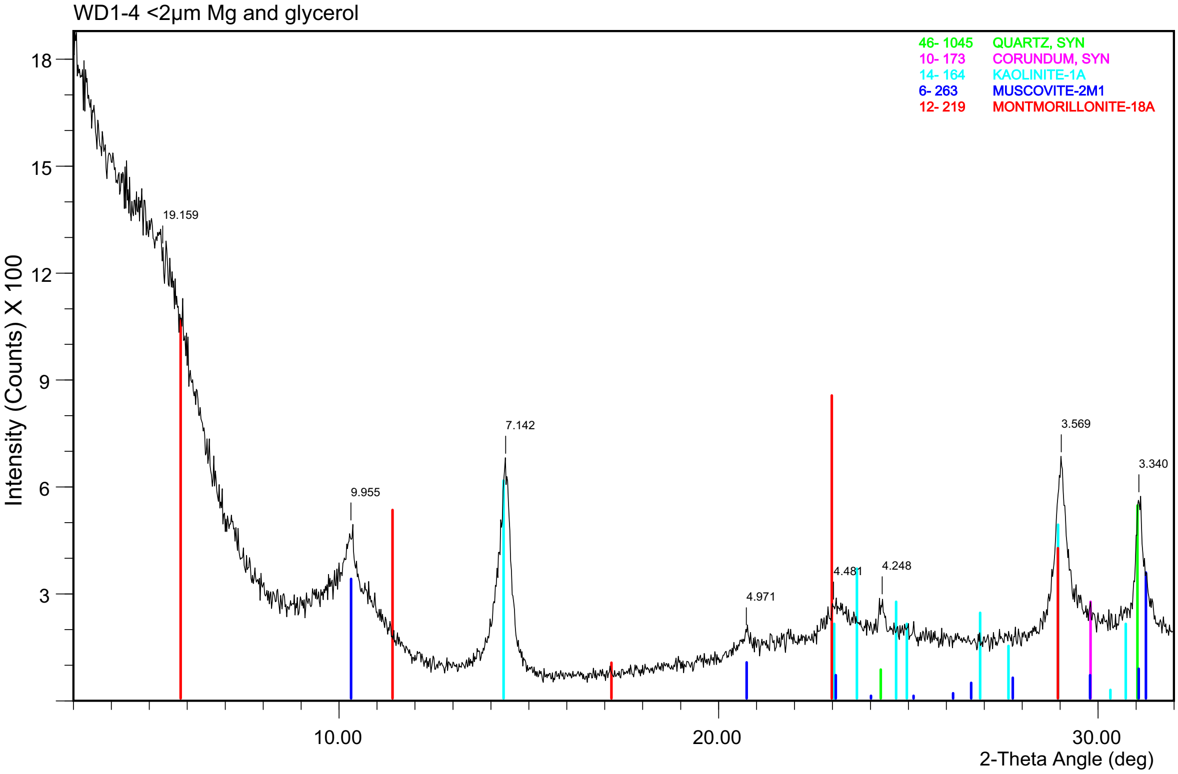
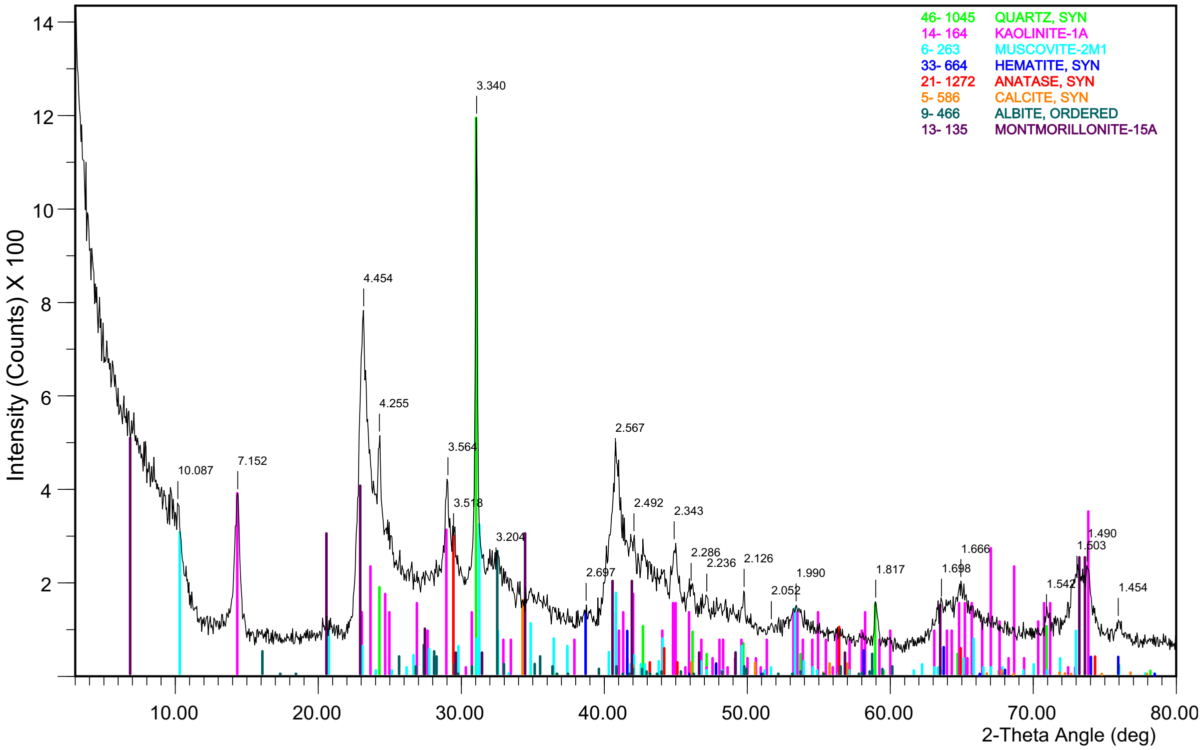
WD1-4 <2µm Mg and glycerol



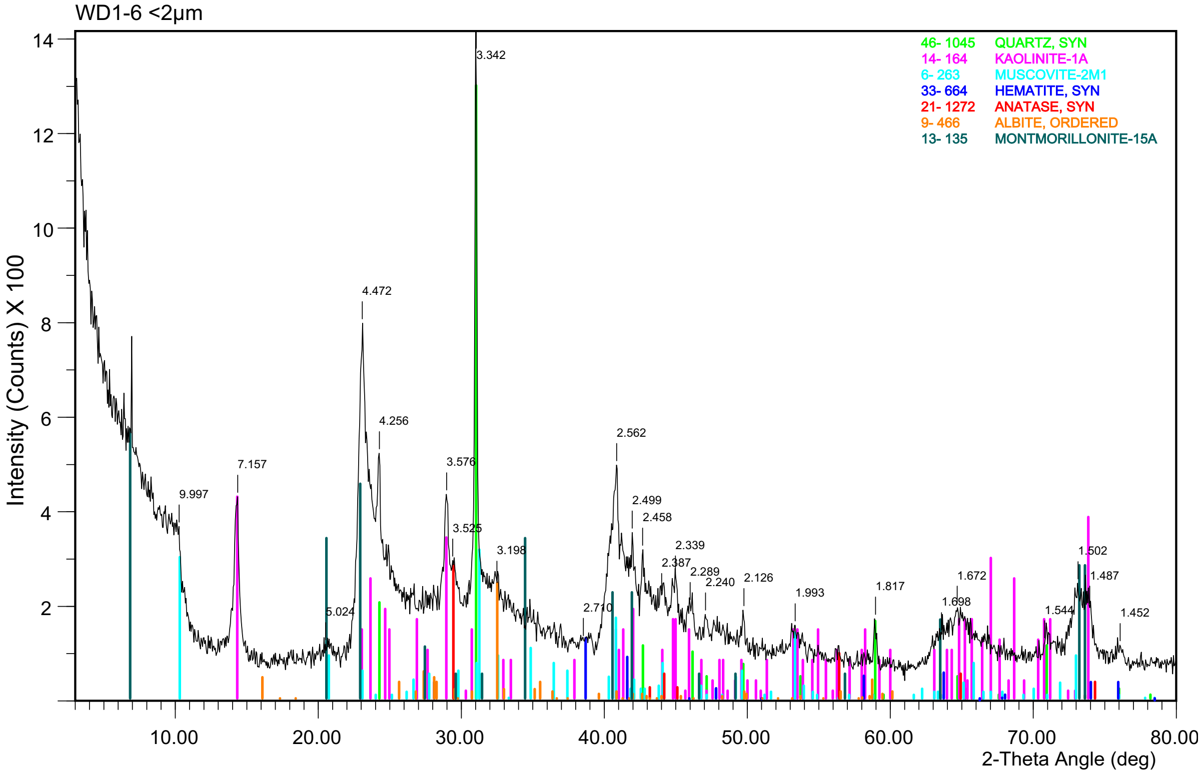
File Name: c:\...\wd1-4mgl.002

WD1-5 <2µm



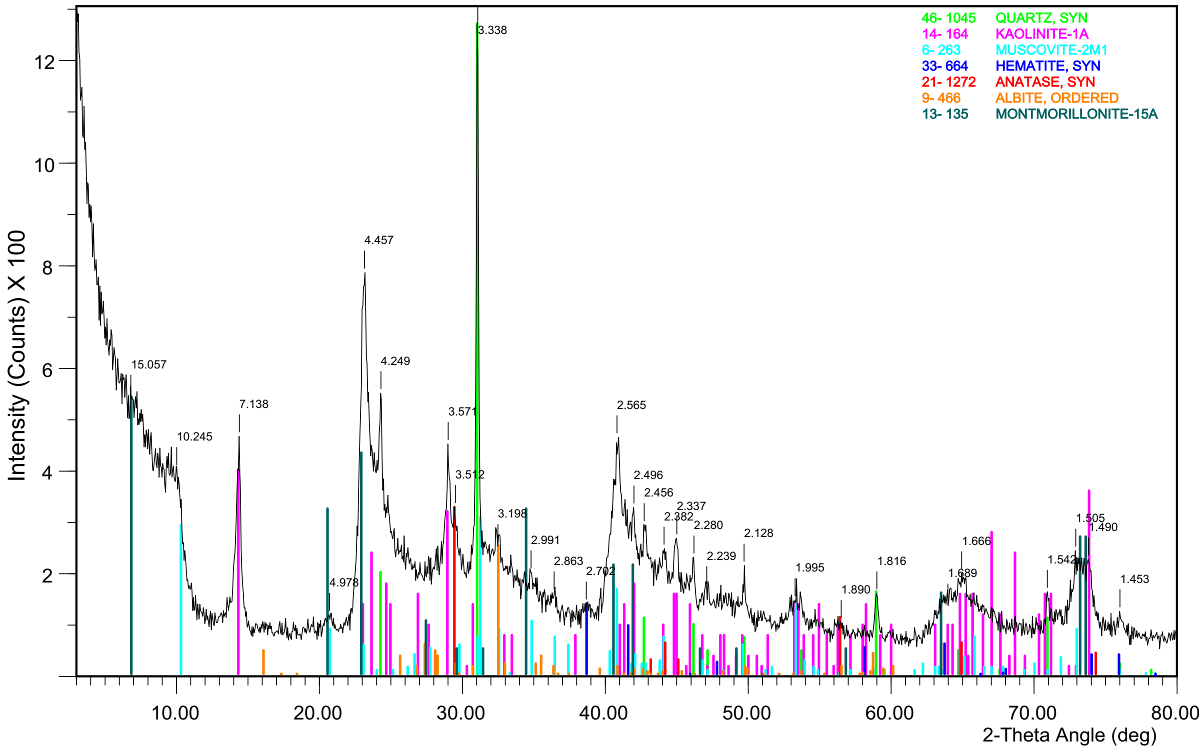
File Name: c:\...\16998blk.005

WD1-6 <2µm



File Name: c:\...\16999blk.006

WD1-7 <2μm



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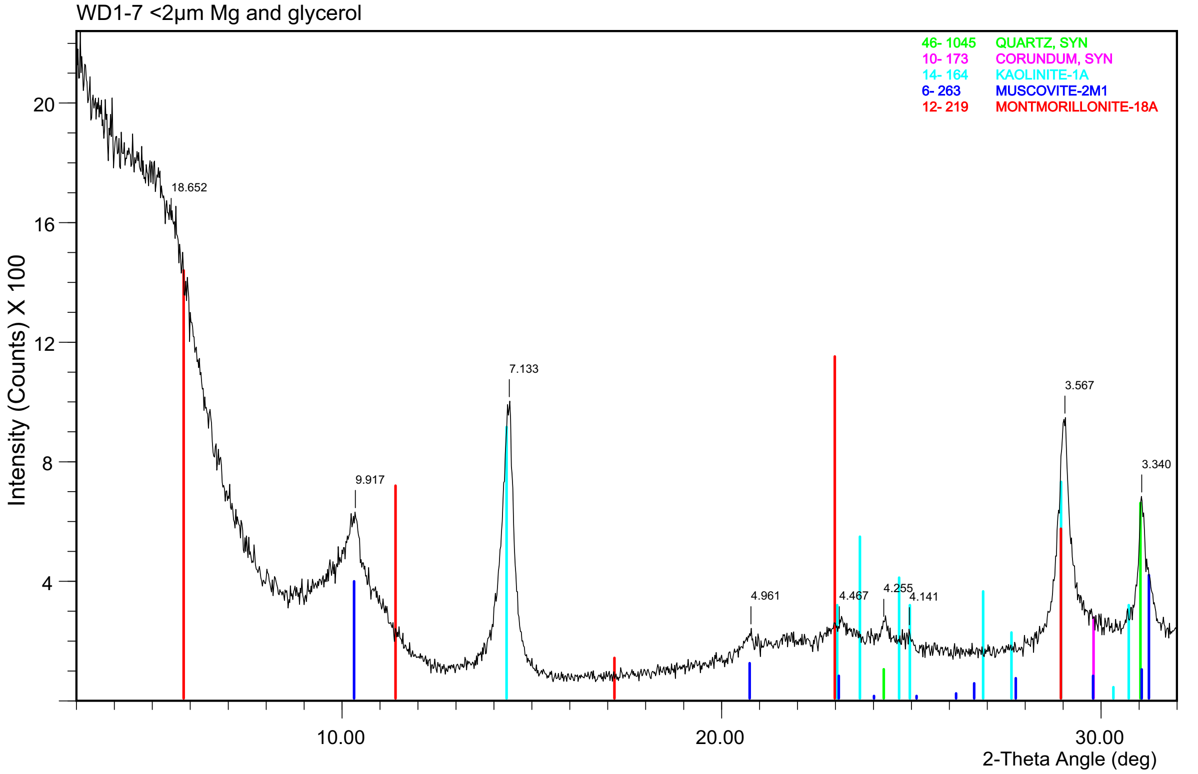
WD1-7 <2μm Mg and glycerol



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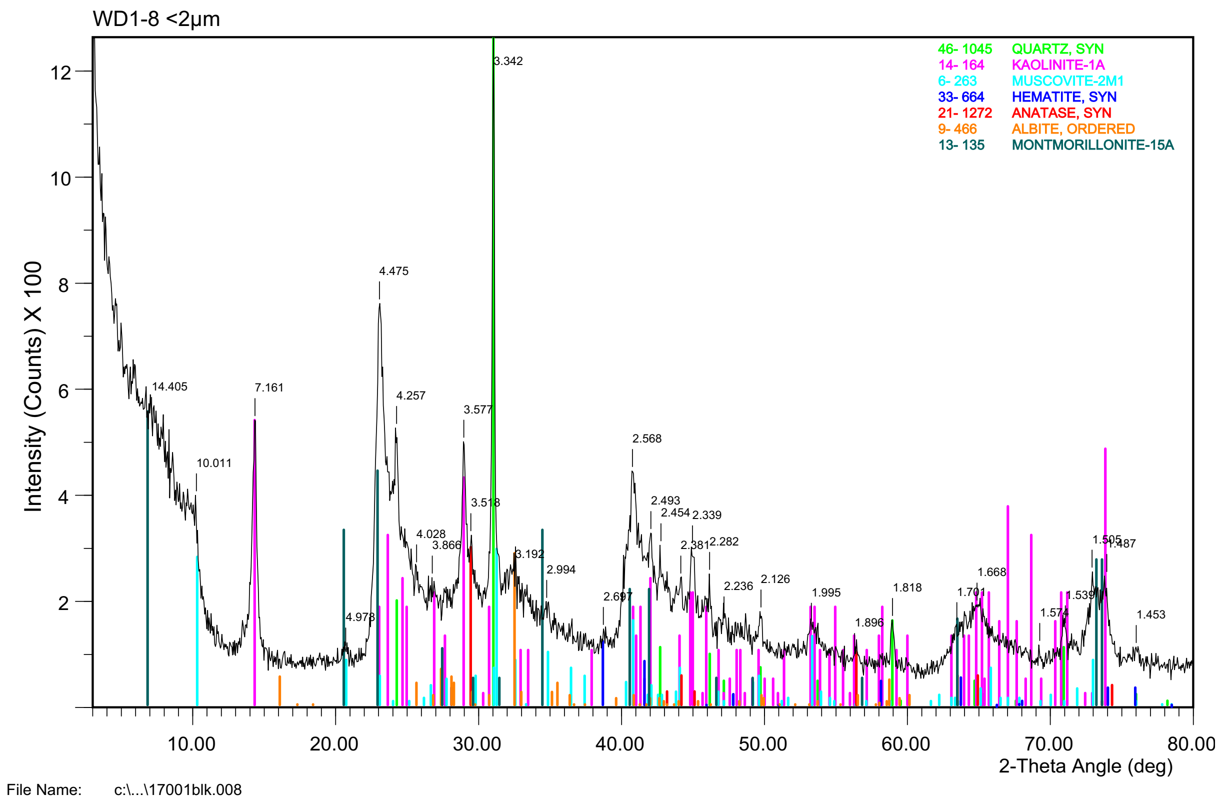
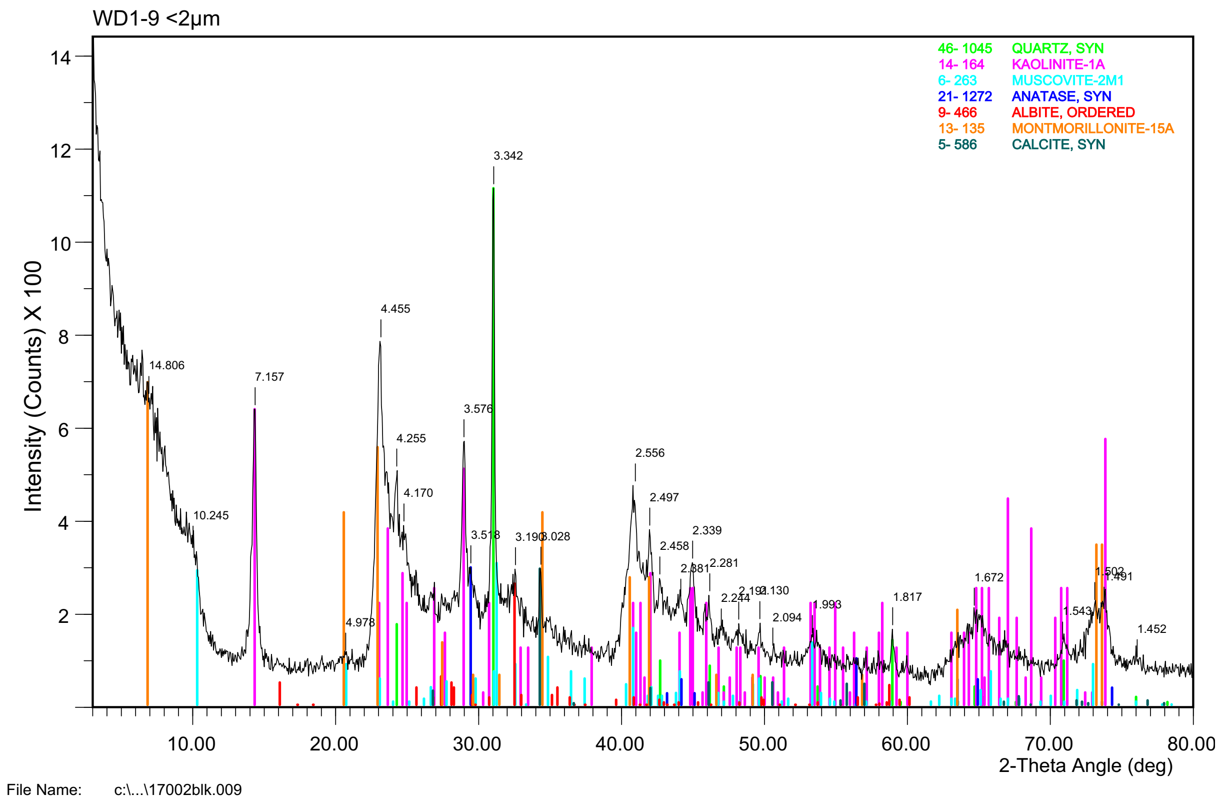
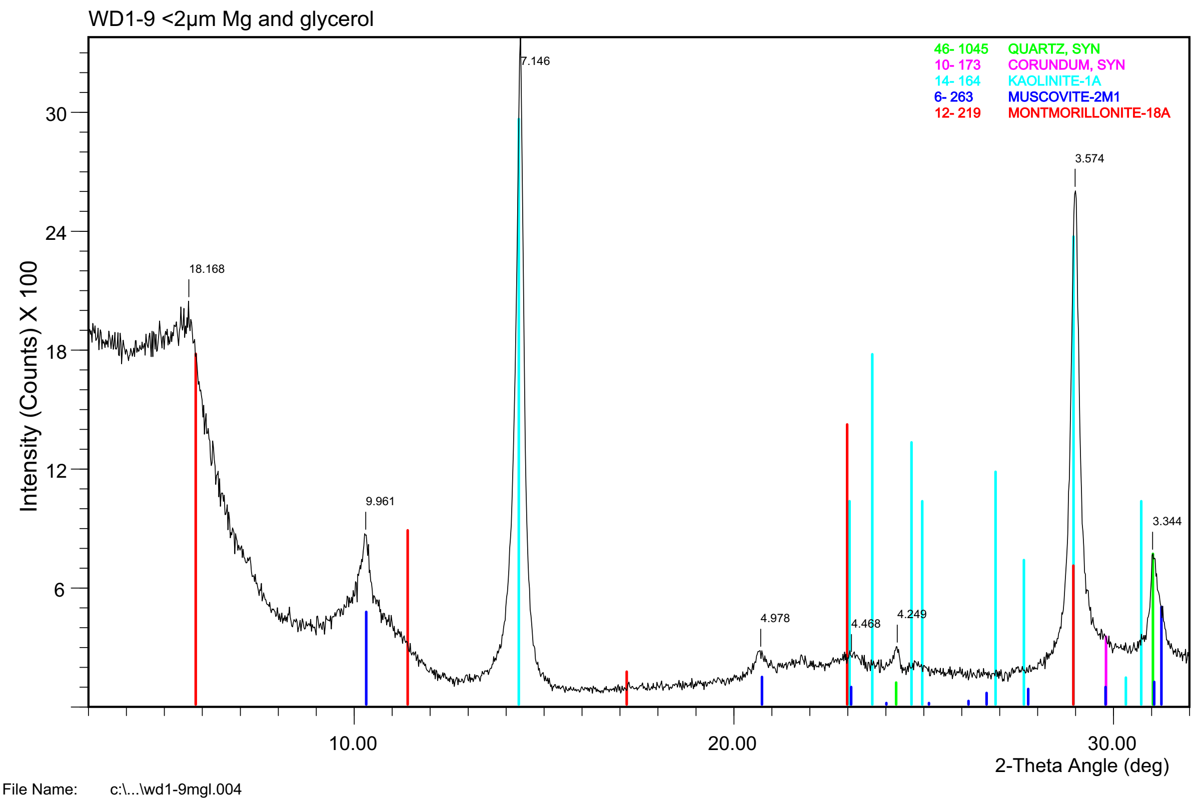
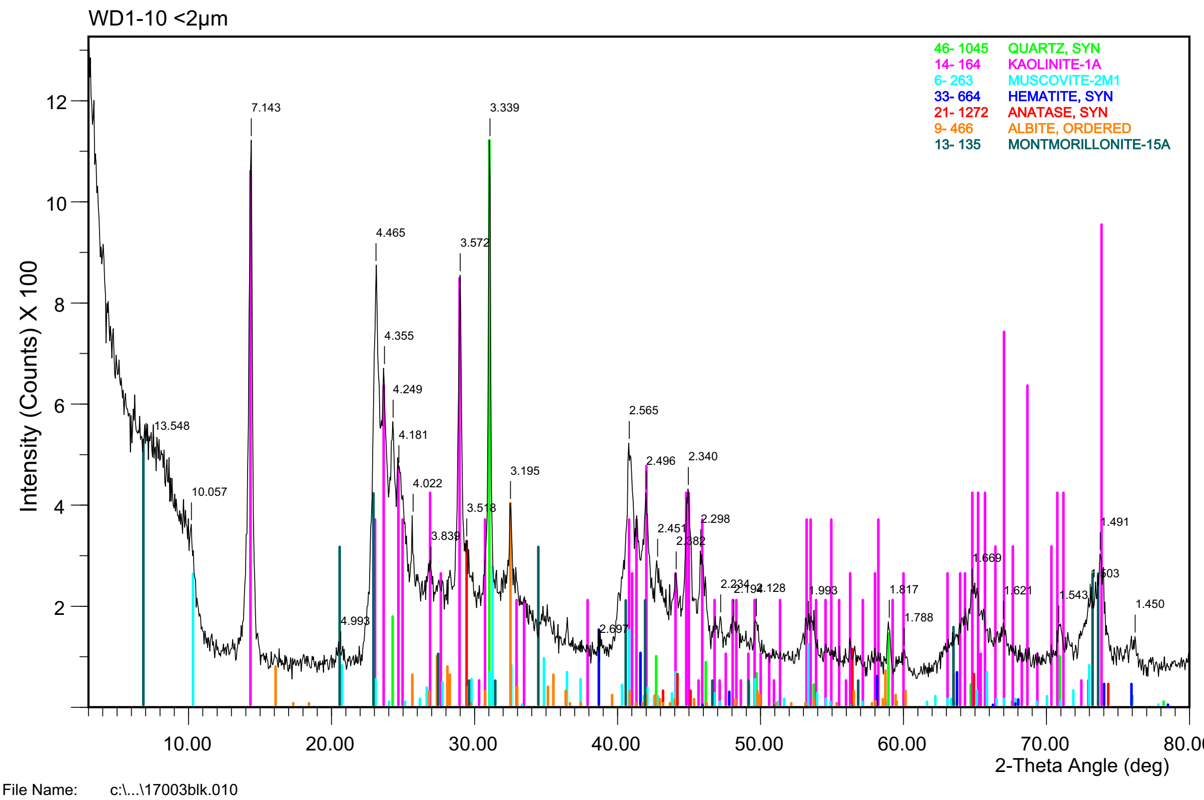
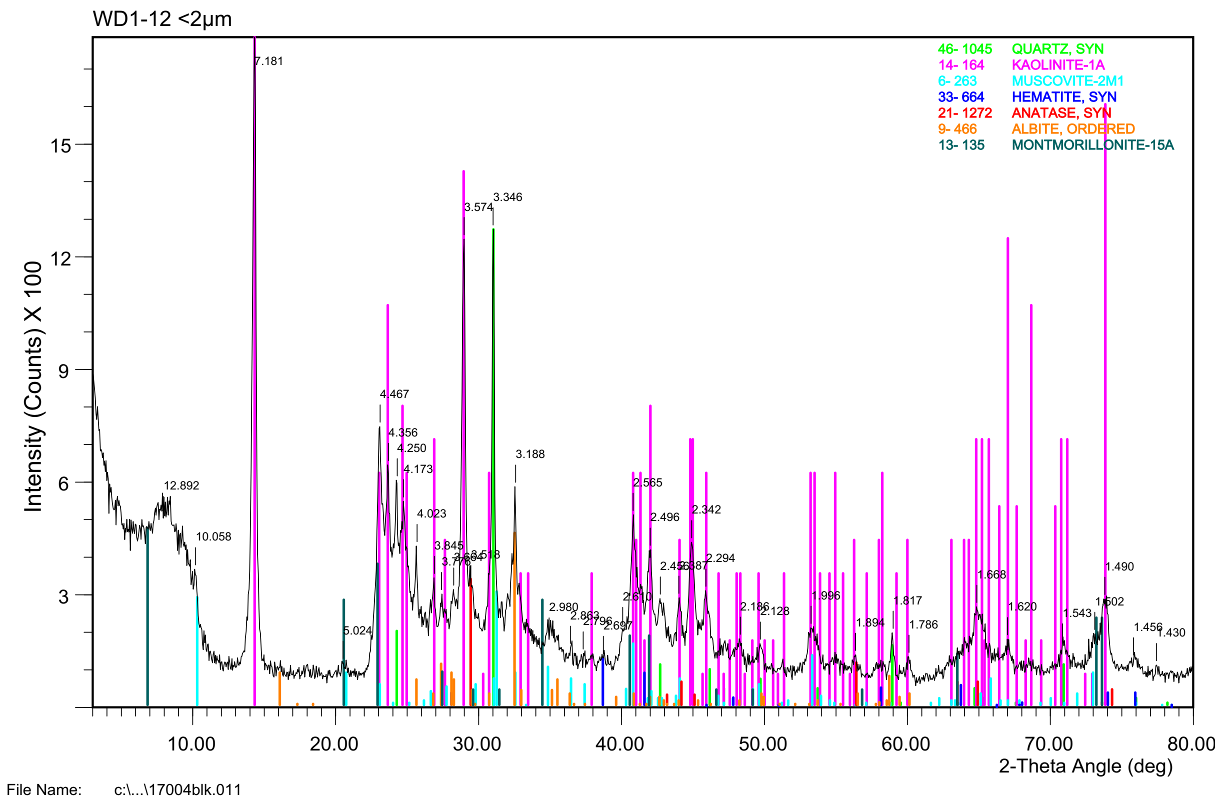
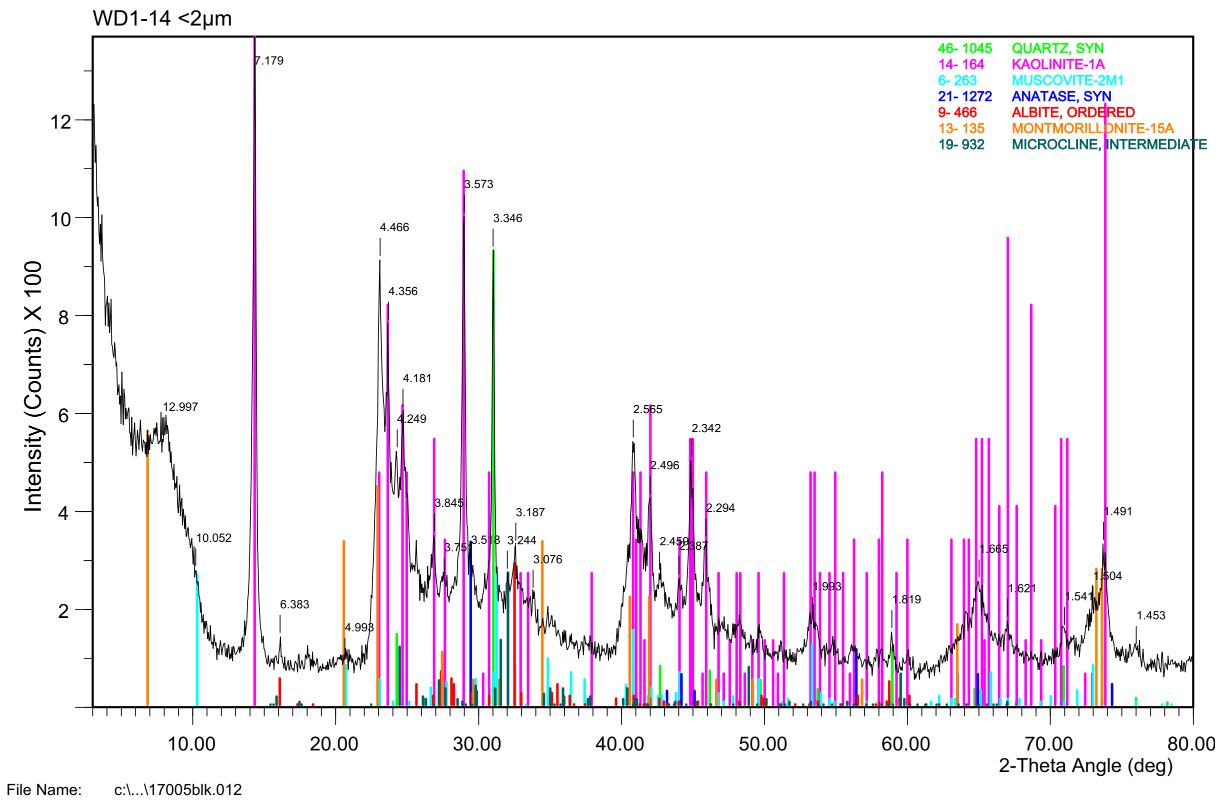

WD1-8 <2µm
46- 1045 QUARTZ, SYN
14- 164 KAOLINITE-1A
6- 263 MUSCOVITE-2M1
33- 664 HEMATITE, SYN
21- 1272 ANATASE, SYN
9- 466 ALBITE, ORDERED
13- 135 MONTMORILLONITE-15A
Intensity (Counts) X 100
2-Theta Angle (deg)
File Name: c:\...\17001blk.008

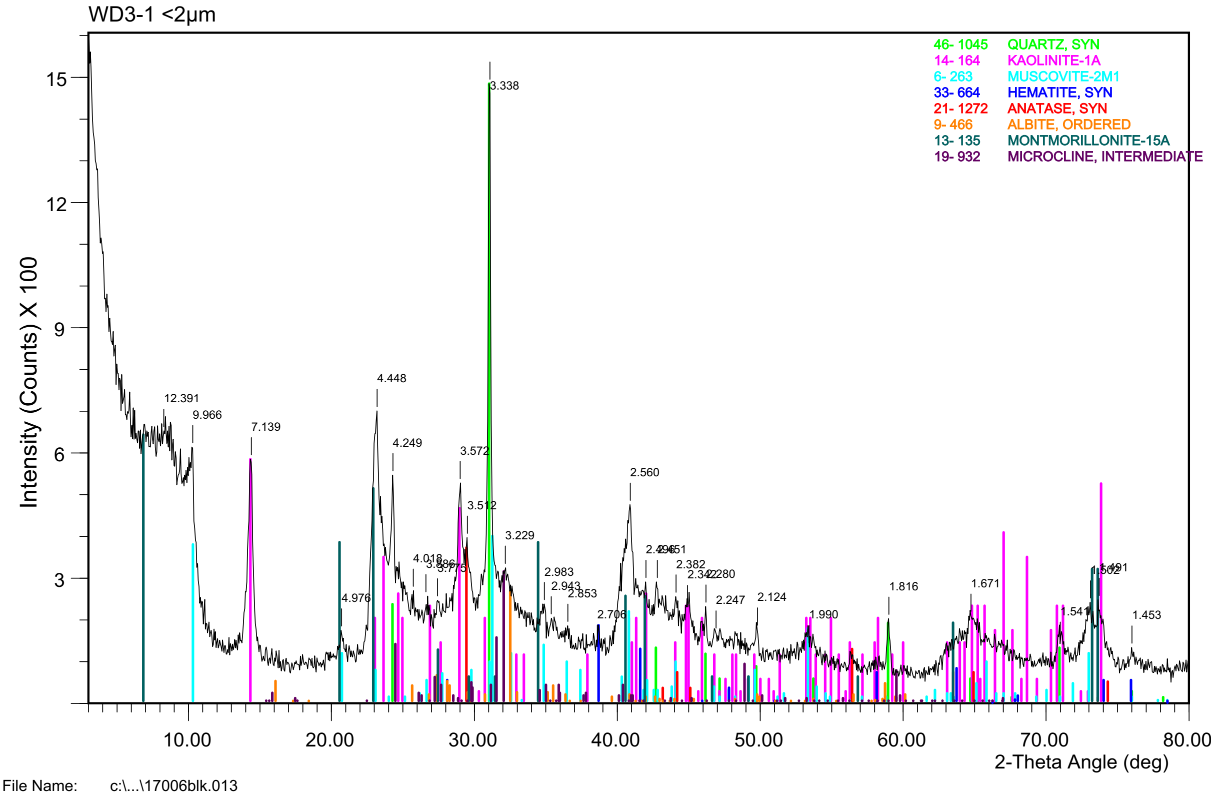

WD1-9 <2µm
46- 1045 QUARTZ, SYN
14- 164 KAOLINITE-1A
6- 263 MUSCOVITE-2M1
21- 1272 ANATASE, SYN
9- 466 ALBITE, ORDERED
13- 135 MONTMORILLONITE-15A
5- 586 CALCITE, SYN
Intensity (Counts) X 100
2-Theta Angle (deg)
File Name: c:\...\17002blk.009

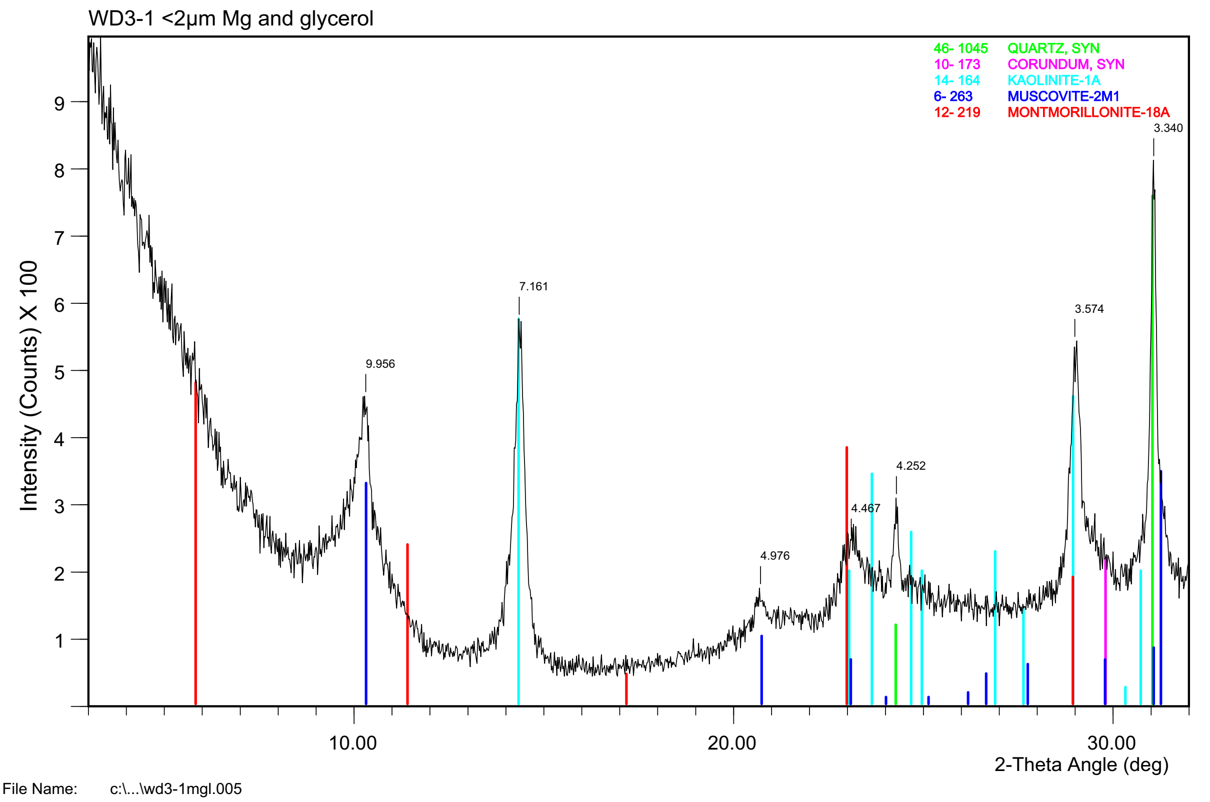

WD1-9 <2µm Mg and glycerol
46- 1045 QUARTZ, SYN
10- 173 CORUNDUM, SYN
14- 164 KAOLINITE-1A
6- 263 MUSCOVITE-2M1
12- 219 MONTMORILLONITE-18A
Intensity (Counts) X 100
2-Theta Angle (deg)
File Name: c:\...\wd1-9mgl.004


WD1-10 <2µm
46- 1045 QUARTZ, SYN
14- 164 KAOLINITE-1A
6- 263 MUSCOVITE-2M1
33- 664 HEMATITE, SYN
21- 1272 ANATASE, SYN
9- 466 ALBITE, ORDERED
13- 135 MONTMORILLONITE-15A
Intensity (Counts) X 100
2-Theta Angle (deg)
File Name: c:\...\17003blk.010

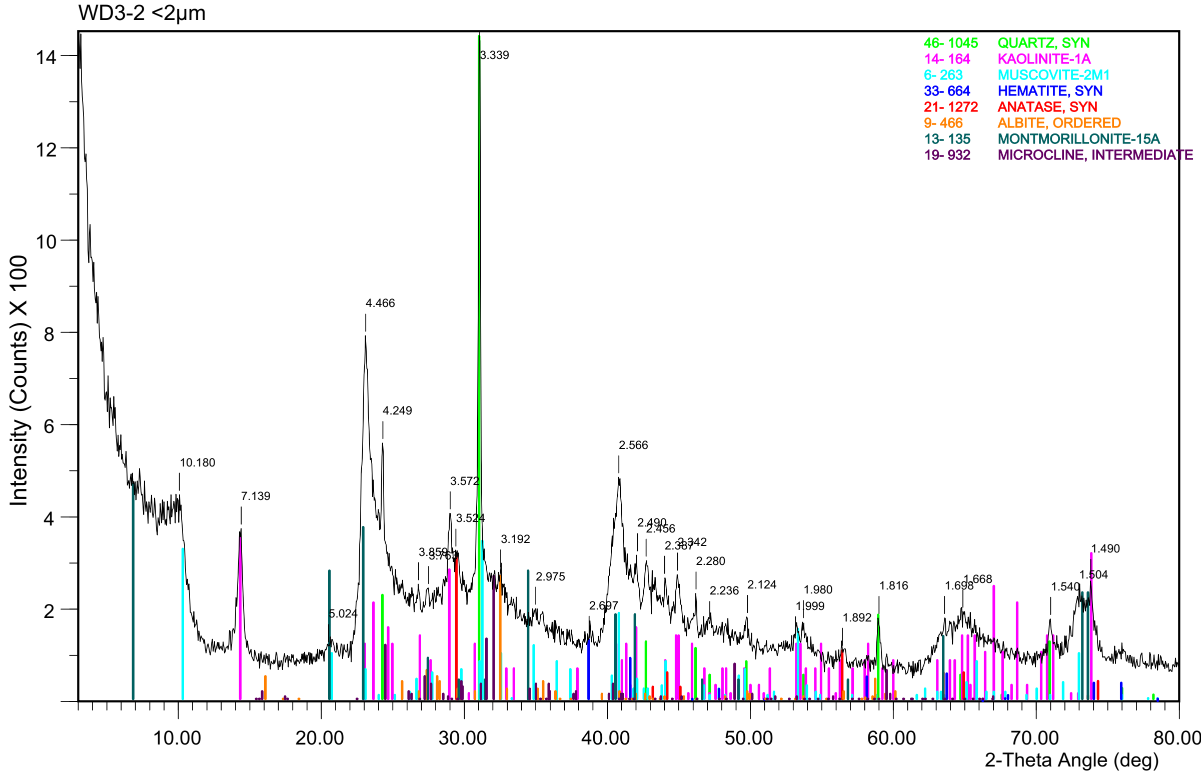

WD1-12 <2µm
Intensity (Counts) X 100
2-Theta Angle (deg)
46- 1045 QUARTZ, SYN
14- 164 KAOLINITE-1A
6- 263 MUSCOVITE-2M1
33- 664 HEMATITE, SYN
21- 1272 ANATASE, SYN
9- 466 ALBITE, ORDERED
13- 135 MONTMORILLONITE-15A
File Name: c:\...\17004blk.011


WD1-14 <2µm
Intensity (Counts) X 100
2-Theta Angle (deg)
46- 1045 QUARTZ, SYN
14- 164 KAOLINITE-1A
6- 263 MUSCOVITE-2M1
21- 1272 ANATASE, SYN
9- 466 ALBITE, ORDERED
13- 135 MONTMORILLONITE-15A
19- 932 MICROCLINE, INTERMEDIATE
File Name: c:\...\17005blk.012


WD3-1 <2µm
46- 1045 QUARTZ, SYN
14- 164 KAOLINITE-1A
6- 263 MUSCOVITE-2M1
33- 664 HEMATITE, SYN
21- 1272 ANATASE, SYN
9- 466 ALBITE, ORDERED
13- 135 MONTMORILLONITE-15A
19- 932 MICROCLINE, INTERMEDIATE
Intensity (Counts) X 100
2-Theta Angle (deg)
File Name: c:\...\17006blk.013

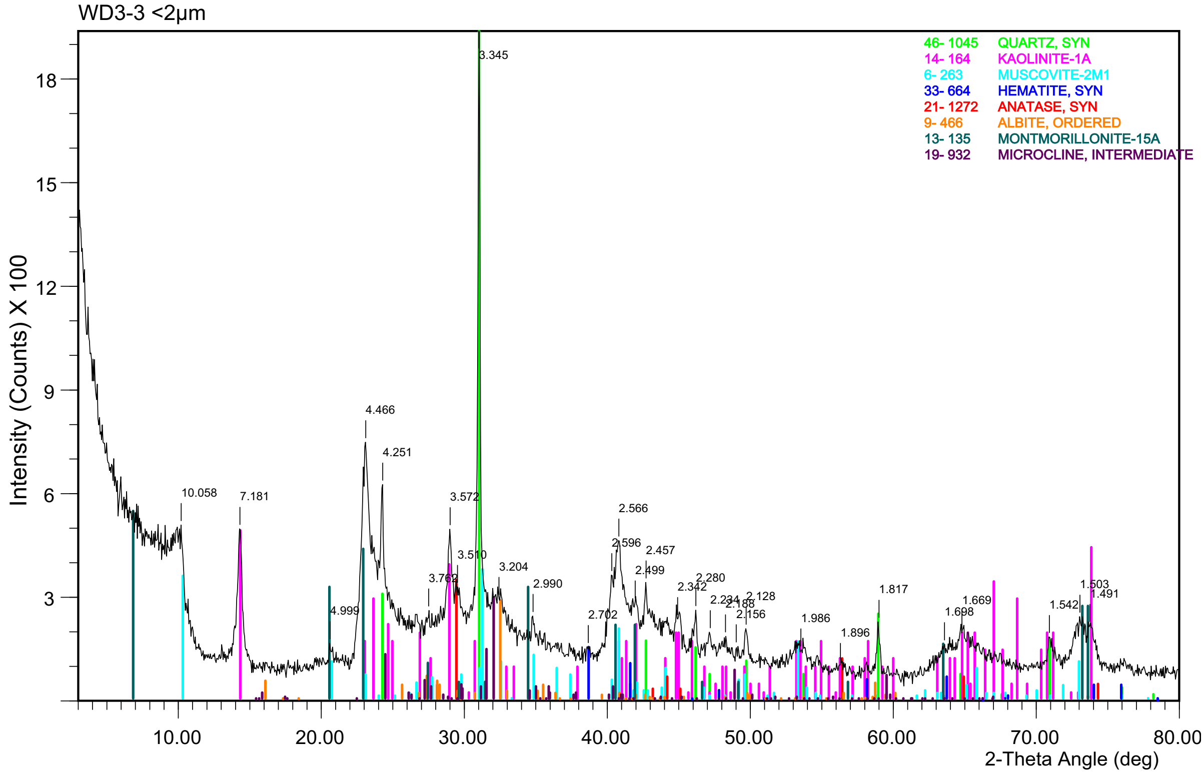

WD3-1 <2µm Mg and glycerol
46- 1045 QUARTZ, SYN
10- 173 CORUNDUM, SYN
14- 164 KAOLINITE-1A
6- 263 MUSCOVITE-2M1
12- 219 MONTMORILLONITE-18A
Intensity (Counts) X 100
2-Theta Angle (deg)
File Name: c:\...\wd3-1mgl.005

WD3-2 <2µm



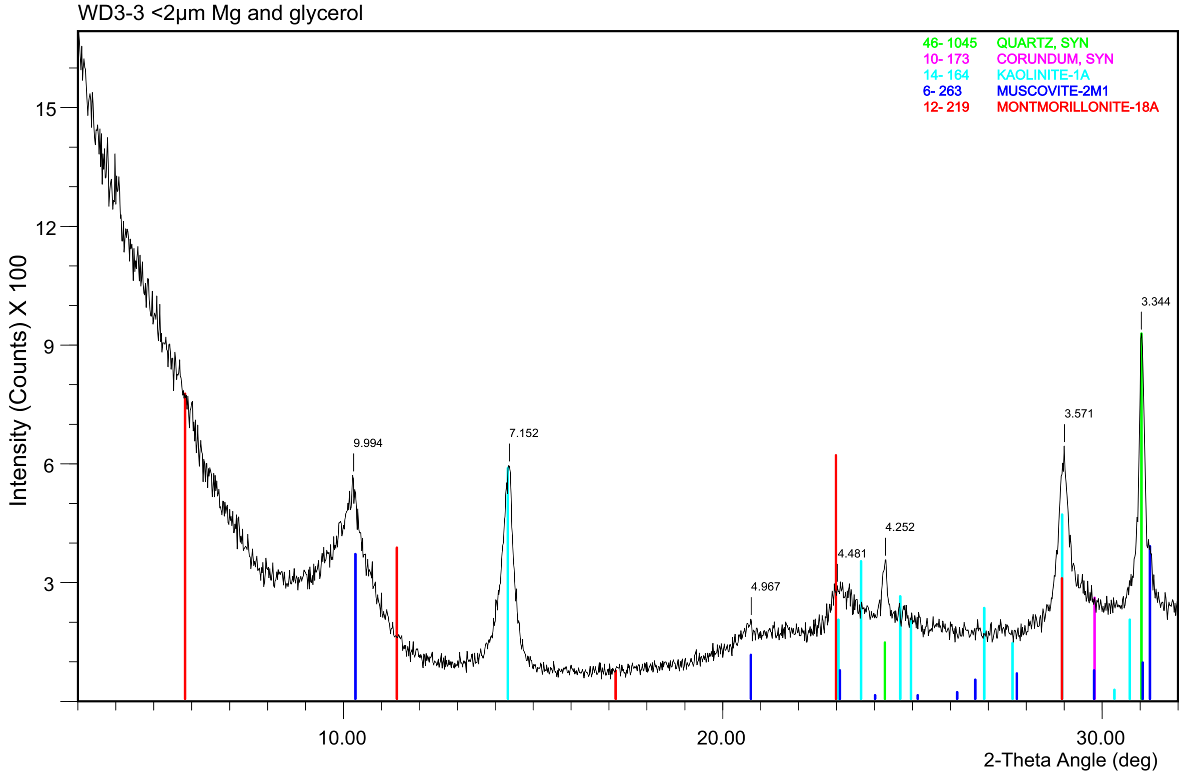
File Name: c:\...\17007blk.014

WD3-3 <2µm



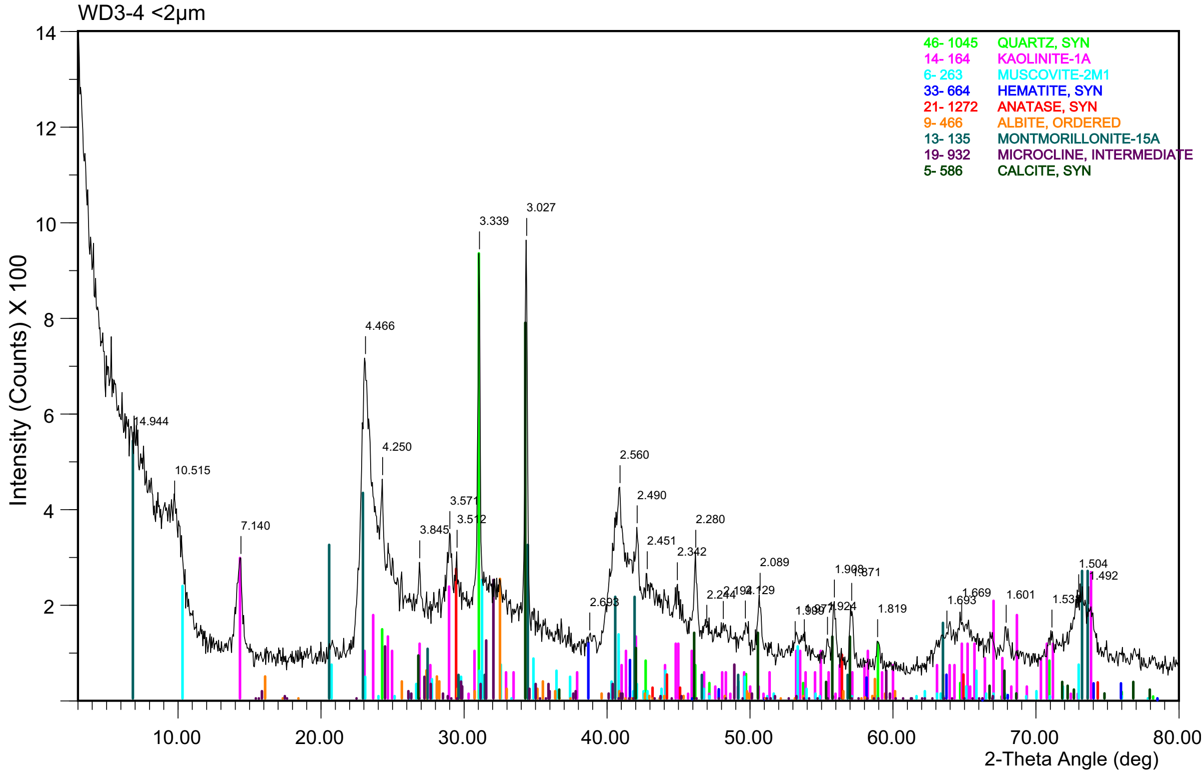
File Name: c:\...\17008blk.015

WD3-3 <2μm Mg and glycerol

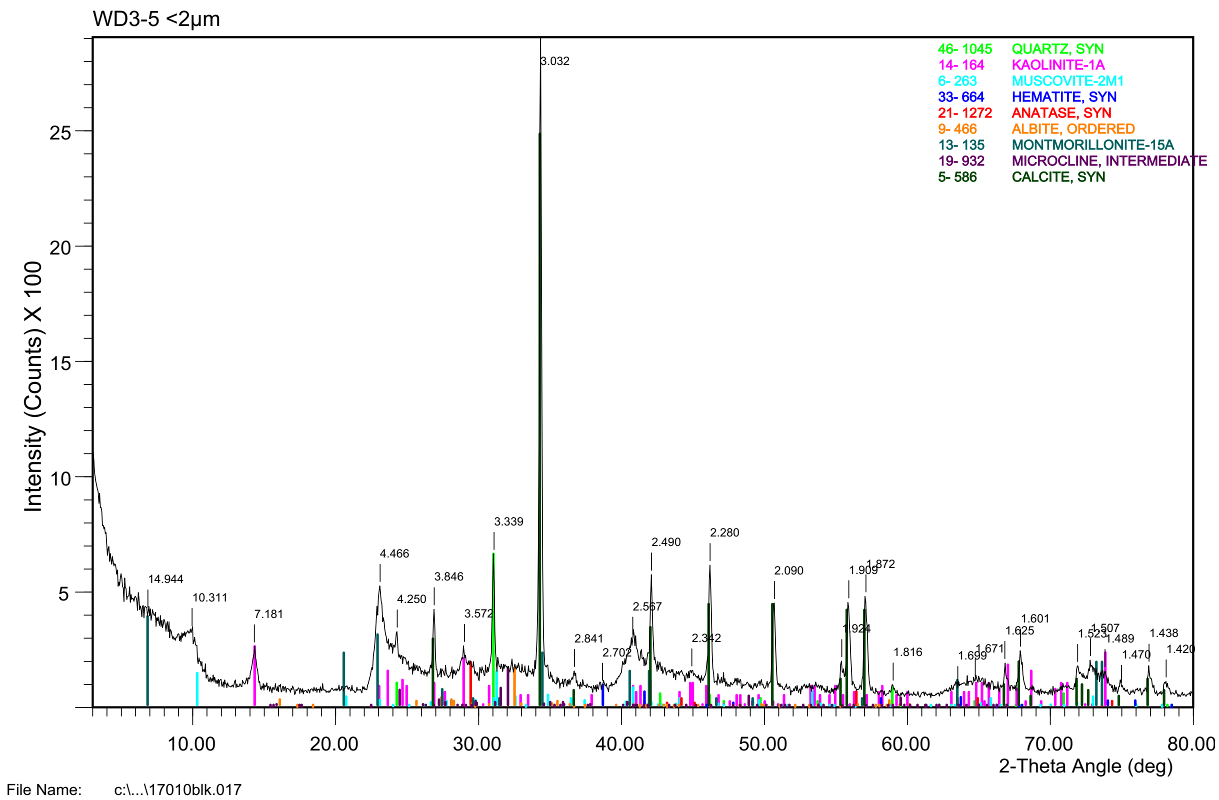


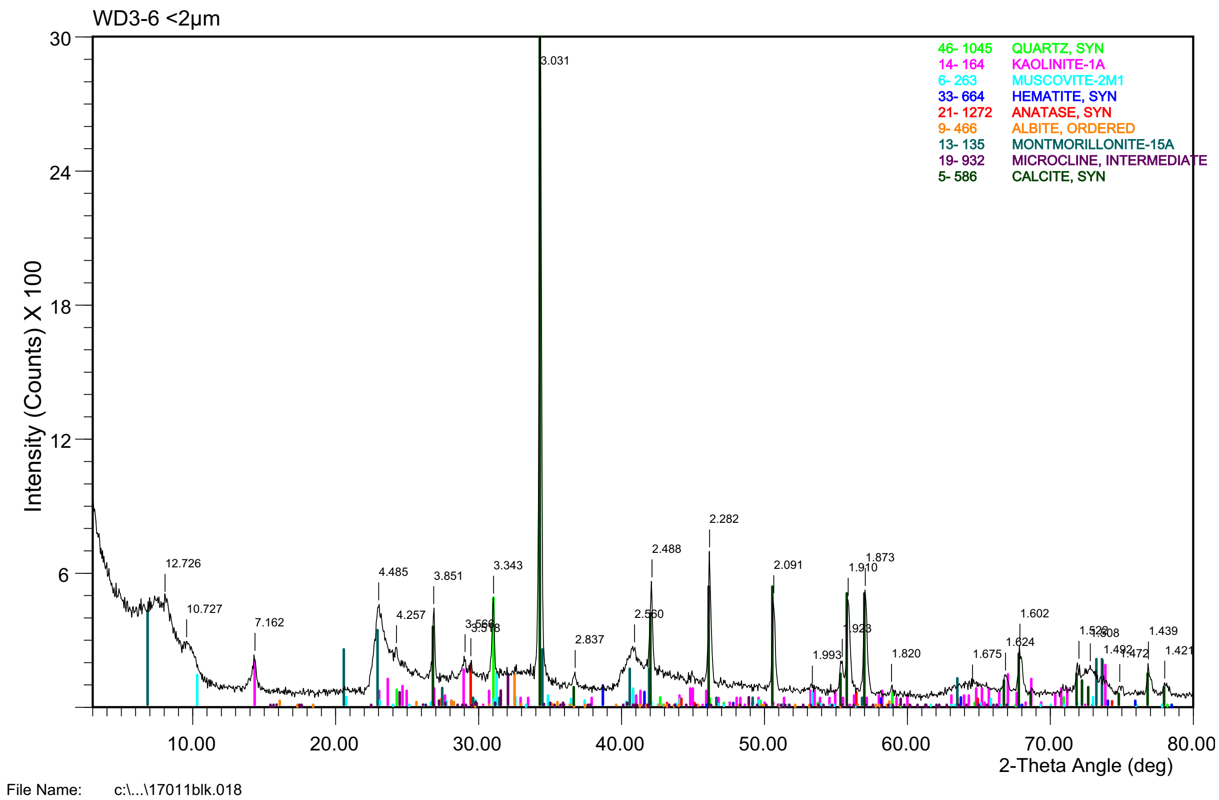
File Name: c:\...\wd3-3mgl.006

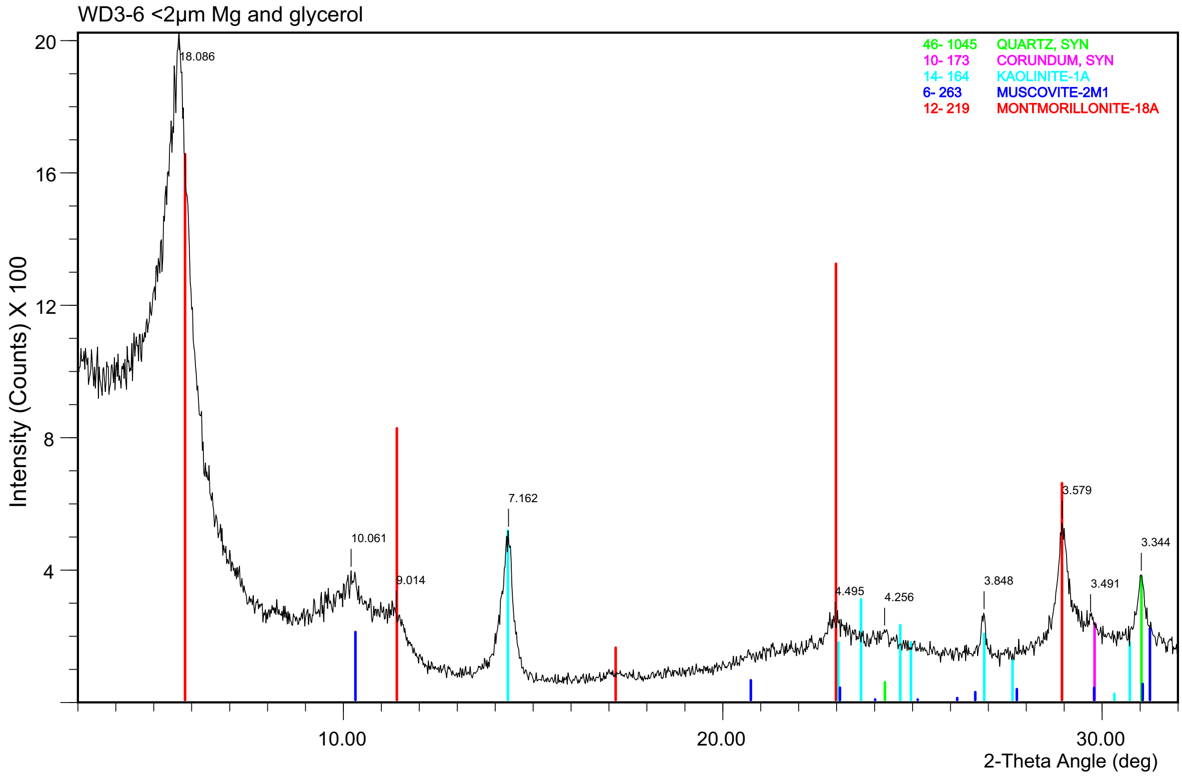
WD3-4 <2μm



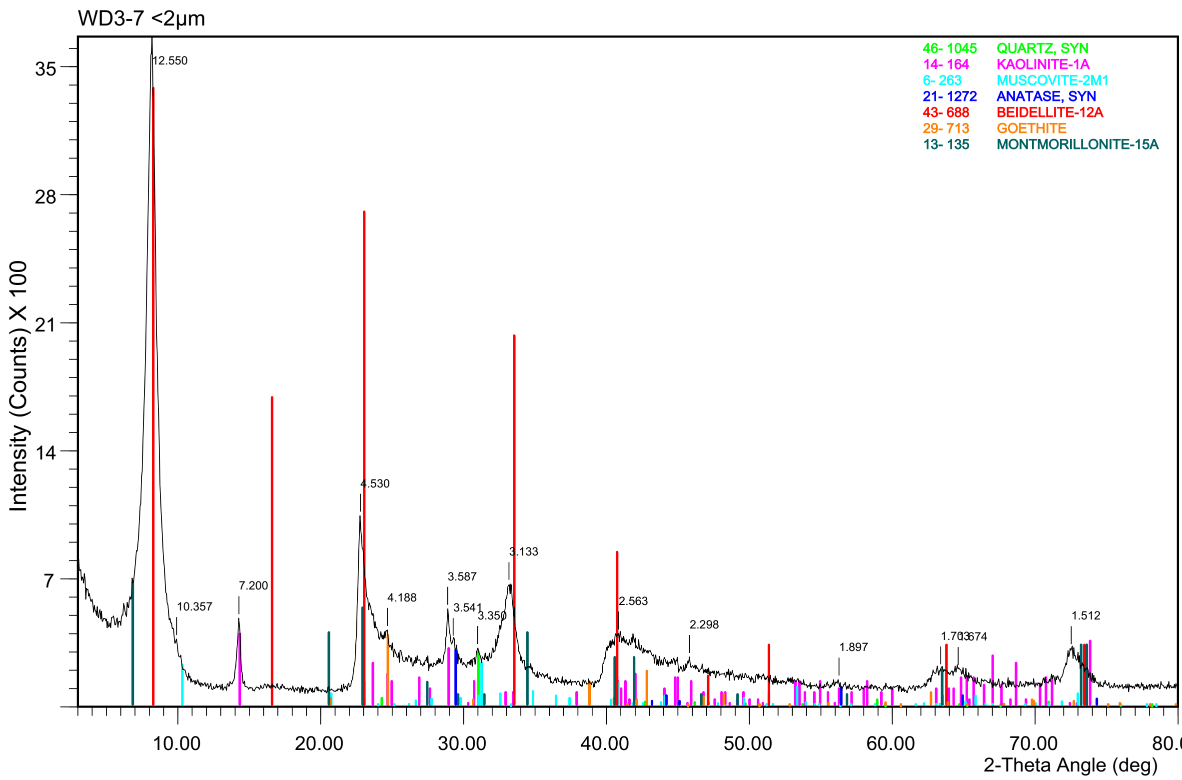
File Name: c:\...\17009blk.016


WD3-5 <2µm
Intensity (Counts) X 100
2-Theta Angle (deg)
46- 1045 QUARTZ, SYN
14- 164 KAOLINITE-1A
6- 263 MUSCOVITE-2M1
33- 664 HEMATITE, SYN
21- 1272 ANATASE, SYN
9- 466 ALBITE, ORDERED
13- 135 MONTMORILLONITE-15A
19- 932 MICROCLINE, INTERMEDIATE
5- 586 CALCITE, SYN
File Name: c:\...\17010blk.017

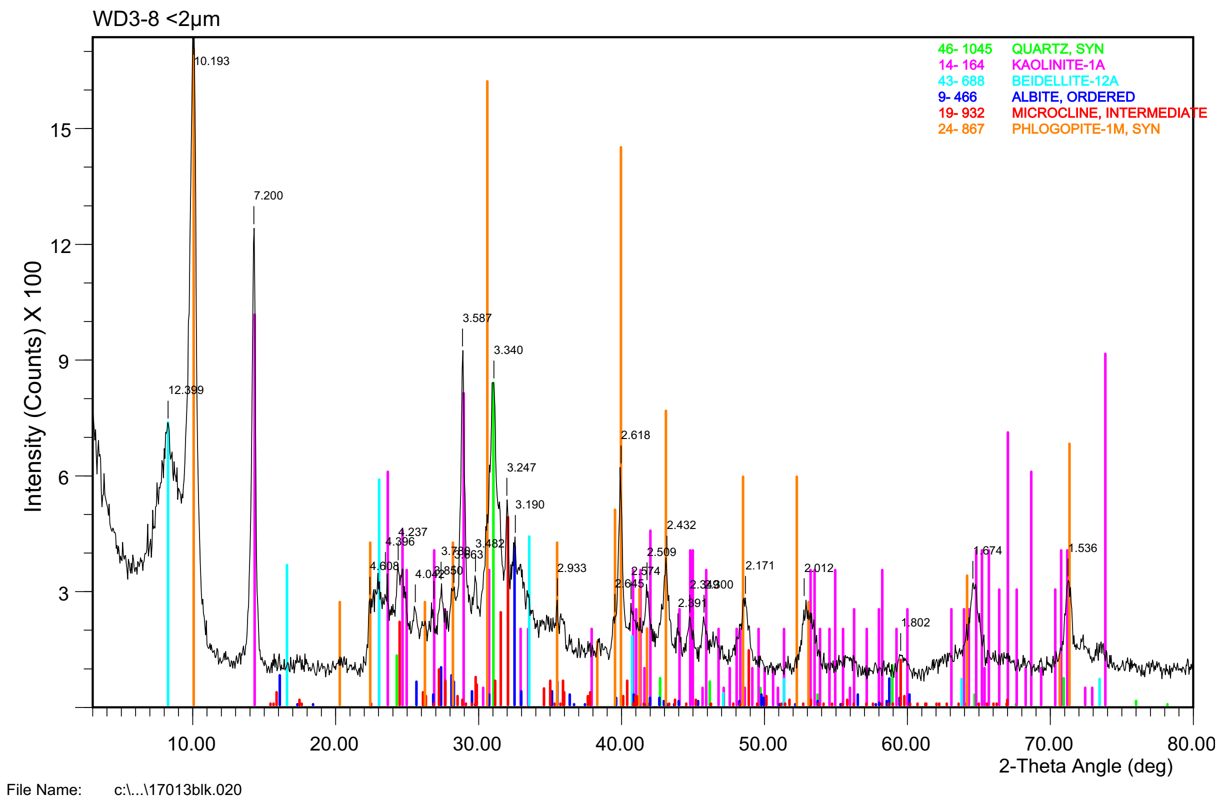

WD3-6 <2µm
Intensity (Counts) X 100
2-Theta Angle (deg)
46- 1045 QUARTZ, SYN
14- 164 KAOLINITE-1A
6- 263 MUSCOVITE-2M1
33- 664 HEMATITE, SYN
21- 1272 ANATASE, SYN
9- 466 ALBITE, ORDERED
13- 135 MONTMORILLONITE-15A
19- 932 MICROCLINE, INTERMEDIATE
5- 586 CALCITE, SYN
File Name: c:\...\17011blk.018



File Name: c:\...\wd3-6mgl.007



File Name: c:\...\17012blk.019


WD3-8 <2μm
Intensity (Counts) X 100
2-Theta Angle (deg)
46- 1045 QUARTZ, SYN
14- 164 KAOLINITE-1A
43- 688 BEIDELLITE-12A
9- 466 ALBITE, ORDERED
19- 932 MICROCLINE, INTERMEDIATE
24- 867 PHLOGOPITE-1M, SYN
10.193
7.200
12.399
3.587
3.340
2.618
3.247
3.190
2.432
2.509
2.171
2.012
1.674
1.536
1.802
2.933
File Name: c:\...\17013blk.020

Appendix 5

Bulk density and calcimetry results from White Dam samples

Table of results used to determine average bulk density and $CaCO_3$ of the White Dam profile samples.

Bulk density

Profile 1

Sample no.	Dry soil mass (g)	dry soil with wax (g)	Apparent H_2O weight gain (g)	Weight of wax coating (g)	Bulk Density	Sample No.	Average Bulk Density
WD1-01/a	12.10	14.50	8.02	2.40	2.29	WD1-01	2.12
WD1-01/b	19.23	20.73	11.55	1.50	1.95		
WD1-02/a	6.19	6.66	4.26	0.47	1.66	WD1-02	1.71
WD1-02/b	8.57	9.39	5.79	0.82	1.76		
WD1-03/a	15.03	17.63	9.74	2.60	2.22	WD1-03	1.95
WD1-03/b	17.44	18.46	11.55	1.02	1.68		
WD1-04/a	21.13	22.24	12.79	1.11	1.83	WD1-04	1.83
WD1-04/b	15.43	16.24	9.41	0.81	1.82		
WD1-05/a	22.33	24.71	12.67	2.38	2.24	WD1-05	2.24
WD1-05/b	20.79	22.85	11.63	2.06	2.24		
WD1-06/a	16.32	17.33	8.55	1.01	2.20	WD1-06	2.09
WD1-06/b	18.01	18.71	9.88	0.70	1.98		
WD1-07/a	18.68	20.23	9.71	1.55	2.35	WD1-07	2.38
WD1-07/b	16.76	18.33	8.76	1.57	2.40		
WD1-08/a	17.42	19.48	10.12	2.06	2.24	WD1-08	2.16
WD1-08/b	12.32	13.25	6.95	0.93	2.09		
WD1-09/a	30.92	31.68	13.79	0.76	2.39	WD1-09	2.40
WD1-09/b	33.50	34.01	14.49	0.51	2.41		
WD1-10/a	22.37	23.00	10.25	0.63	2.35	WD1-10	2.34
WD1-10/b	18.32	18.90	8.51	0.58	2.33		
WD1-12/a	33.74	35.20	16.25	1.46	2.31	WD1-12	2.37
WD1-12/b	29.46	30.50	13.31	1.04	2.43		
WD1-14/a	50.35	51.52	21.88	1.17	2.45	WD1-14	2.47
WD1-14/b	27.82	29.01	12.55	1.19	2.48		

Profile 2

Sample no.	Dry soil mass (g)	dry soil with wax (g)	Apparent H_2O weight gain (g)	Weight of wax coating (g)	Bulk Density	Sample No.	Average Bulk Density
WD3-01/a	22.41	25.48	13.49	3.07	2.24	WD3-01	2.24
WD3-01/b	20.90	23.44	12.22	2.54	2.24		
WD3-02/a	16.79	18.42	10.56	1.63	1.93	WD3-02	1.80
WD3-02/b	12.96	13.79	8.74	0.83	1.66		
WD3-03/a	28.22	31.49	16.87	3.27	2.15	WD3-03	2.17
WD3-03/b	12.81	15.42	8.80	2.61	2.20		
WD3-04/a	29.56	33.79	18.52	4.23	2.16	WD3-04	2.11
WD3-04/b	22.14	25.30	14.31	3.16	2.07		
WD3-05/a	14.88	16.98	9.21	2.10	2.18	WD3-05	2.16
WD3-05/b	28.28	32.68	18.28	4.40	2.13		
WD3-06/a	21.06	24.95	14.26	3.89	2.14	WD3-06	2.26
WD3-06/b	41.42	44.55	20.93	3.13	2.38		
WD3-07/a	60.94	62.62	25.77	1.68	2.55	WD3-07	2.54
WD3-07/b	34.14	35.82	15.47	1.68	2.52		
WD3-08/a	26.96	27.72	11.41	0.76	2.56	WD3-08	2.55
WD3-08/b	36.48	37.60	15.60	1.12	2.55		

Calcimetry

The standard was ran a total of 6 times at various times during sample analysis. Average values of 0.0506 g and 8.5 ml, which equates to 5.95 g/ml were used in calculating the $CaCO_3$% of the samples (See Section 3.5.4).

Sample	Mass of sample (g)	Volume of CO_2 (ml) produced	%CaC03
Standard	0.0509	8.3	96.91
Standard	0.0505	8.1	95.33
Standard	0.0509	9.0	105.09
Standard	0.0502	8.4	99.45
Standard	0.0509	8.6	100.42
Standard	0.0503	8.7	102.80
Average	**0.0506**	**8.5**	

Profile 1

Sample	Mass of sample (g)	Volume of CO_2 (ml) produced	%CaC03	Average %
WD1-01	5.1499	0.4	0.05	0.04
WD1-01	5.2890	0.3	0.03	
WD1-01	5.1682	0.4	0.05	
WD1-02	5.0263	1.6	0.19	0.11
WD1-02	5.0423	0.6	0.07	
WD1-02	5.0248	0.6	0.07	
WD1-03	0.6516	10.6	9.67	9.75
WD1-03	0.6652	11.0	9.83	
WD1-03	0.7077	11.6	9.74	
WD1-04	0.5150	7.5	8.66	8.68
WD1-04	0.5227	7.6	8.64	
WD1-04	0.5567	8.2	8.75	
WD1-05	1.0152	9.2	5.39	5.20
WD1-05	0.9980	8.6	5.12	
WD1-05	1.0517	9.0	5.09	
WD1-06	2.9705	4.0	0.80	0.78
WD1-06	3.0102	3.7	0.73	
WD1-06	3.0126	4.1	0.81	
WD1-07	0.5094	5.1	5.95	5.93
WD1-07	0.5725	5.4	5.61	
WD1-07	0.5425	5.7	6.24	
WD1-08	1.0024	7.7	4.57	4.46
WD1-08	1.0060	7.2	4.25	
WD1-08	1.0150	7.8	4.57	
WD1-09	0.5178	9.6	11.02	11.35
WD1-09	0.5060	9.8	11.51	
WD1-09	0.5060	9.8	11.51	
WD1-10	2.5113	7.8	1.85	1.88
WD1-10	2.5138	7.8	1.84	
WD1-10	2.5486	8.4	1.96	

Profile 2

Sample	Mass of sample (g)	Volume of CO_2 (ml) produced	%CaC03	Average %
WD3-01	4.9651	0.0	0.00	0
WD3-02	4.7077	1.4	0.18	0.23
WD3-02	4.8616	2.0	0.24	
WD3-02	4.7767	2.2	0.27	
WD3-03	2.7274	10.0	2.18	2.24
WD3-03	2.6979	10.4	2.29	
WD3-03	2.7375	10.4	2.26	
WD3-04	0.9892	15.4	9.25	9.13
WD3-04	0.9701	15.2	9.31	
WD3-04	0.9983	14.8	8.81	
WD3-05	0.5395	16.6	18.29	18.60
WD3-05	0.5429	17.2	18.83	
WD3-05	0.5471	17.2	18.68	
WD3-06	0.5054	15.0	17.64	17.46
WD3-06	0.5110	14.9	17.33	
WD3-06	0.5122	15.0	17.41	
WD3-07	2.0789	1.0	0.29	0.32
WD3-07	2.5169	1.4	0.33	
WD3-07	2.5075	1.4	0.33	
WD3-08	4.9912	0.0	0.00	0

Appendix 6

White Dam assay reports

Assay data for the White Dam samples.

Table 1: Bulk sample (ICP-OES /ICP-MS & FAA) assays as determined by Amdel Ltd.

Table 2: Size fraction (INAA) assays as determined by Becquerel Laboratories.

Table 1: Bulk sample assay results

Scheme codes refer to analytical method:

IC3M	HF / multi acid digest, ICP-MS (trace elements)
IC3R	HF / multi acid digest, ICP-MS (REE)
IC4	Alkaline fusion ICP-OES (Major elements)
FA1	Graphite furnace AAS

IDENT	Ag	As	Bi	Cd	Cs	Ce	Co	Cu	Ga	In	La	Mo	Ni	Pb	Rb
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M
DET LIMIT	0.1	0.5	0.1	0.1	0.1	0.5	0.2	0.5	0.1	0.05	0.5	0.1	2	0.5	0.1
Profile 1															
WD1-01	<0.1	2.0	0.2	<0.1	1.7	70	7.0	76.0	13.5	<0.05	36.0	0.9	11	11.5	54.0
WD1-02	0.2	5.5	0.3	<0.1	3.9	62	12.0	68.0	21.5	0.05	30.5	1.0	23	14.5	74.0
WD1-03	<0.1	9.5	0.2	<0.1	3.0	58	9.5	60.0	17.0	0.05	29.0	1.0	20	12.5	58.0
WD1-04	<0.1	8.5	0.2	<0.1	2.9	68	9.5	46.5	16.5	0.05	34.0	2.3	18	13.0	56.0
WD1-05	<0.1	5.5	0.2	<0.1	2.5	72	9.5	39.0	15.5	<0.05	36.0	2.2	16	12.5	56.0
WD1-06	<0.1	4.0	0.2	<0.1	2.0	62	7.5	32.5	14.5	<0.05	31.0	2.9	13	13.0	62.0
WD1-07	0.1	5.0	0.2	<0.1	2.5	76	9.0	34.5	15.5	<0.05	38.0	2.7	15	12.0	56.0
WD1-08	<0.1	3.5	0.3	<0.1	1.7	70	8.5	74.0	13.0	<0.05	37.0	2.8	10	11.5	78.0
WD1-09	<0.1	2.5	0.2	<0.1	0.9	41	2.1	150.0	18.0	<0.05	23.0	1.4	5	9.0	56.0
WD1-10	<0.1	2.0	<0.1	<0.1	0.7	31	1.1	185.0	20.5	<0.05	16.0	1.9	5	6.5	48.5
WD1-12	0.1	2.0	<0.1	<0.1	1.2	24	1.8	320.0	21.0	<0.05	12.0	1.9	6	6.5	52.0
WD1-14	0.2	2.5	0.4	<0.1	2.2	300	6.0	550.0	26.0	<0.05	170.0	2.3	20	9.5	90.0
Profile 2															
WD3-01	0.2	2.5	0.2	<0.1	1.7	88	49.0	185.0	17.0	<0.05	36.0	2.6	13	12.5	56.0
WD3-02	0.1	3.0	0.2	<0.1	1.8	64	9.0	115.0	16.5	<0.05	32.0	2.1	14	9.5	58.0
WD3-03	0.1	4.5	0.2	<0.1	2.2	78	13.0	160.0	17.5	<0.05	36.0	2.0	17	10.5	64.0
WD3-04	0.1	6.5	0.2	<0.1	2.6	68	16.0	195.0	17.5	<0.05	36.0	2.3	19	10.5	60.0
WD3-05	0.1	7.0	0.2	<0.1	2.0	68	14.5	270.0	14.0	<0.05	36.0	3.2	17	8.5	46.5
WD3-06	0.1	9.0	0.1	<0.1	1.7	115	56.0	1050.0	14.5	0.05	68.0	4.2	19	8.0	54.0
WD3-07	0.2	6.0	<0.1	<0.1	2.7	90	14.5	1950.0	22.5	<0.05	46.0	3.4	22	5.0	135.0
WD3-08	0.3	2.0	0.1	<0.1	3.8	105	4.3	600.0	24.5	<0.05	54.0	7.0	9	6.0	290.0

Table 1: Bulk sample assay results (continued)

IDENT	Sb	Se	Sr	Te	Th	Tl	U	W	Y	Zn	Dy	Er	Eu	Gd	Ho	Lu
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3M	IC3R	IC3R	IC3R	IC3R	IC3R	IC3R
DET LIMIT	0.5	0.5	0.1	0.2	0.02	0.1	0.02	0.1	0.05	0.5	0.02	0.05	0.02	0.05	0.02	0.02
Profile 1																
WD1-01	<0.5	<0.5	105	0.9	11.5	0.4	1.65	0.9	14.0	48.0	2.9	1.45	1.15	4.4	0.52	0.22
WD1-02	<0.5	<0.5	125	1.5	11.5	0.5	1.30	1.2	19.5	72.0	3.5	2.00	1.25	4.7	0.67	0.30
WD1-03	<0.5	0.5	210	1.4	9.5	0.4	1.40	1.0	17.0	58.0	3.0	1.70	1.15	4.1	0.58	0.26
WD1-04	<0.5	<0.5	210	0.3	11.5	0.4	1.80	1.1	18.5	64.0	3.4	1.85	1.35	4.7	0.62	0.28
WD1-05	<0.5	<0.5	175	<0.2	11.5	0.4	2.00	0.9	17.5	66.0	3.3	1.75	1.40	4.7	0.61	0.25
WD1-06	<0.5	<0.5	120	0.3	10.5	0.4	2.00	0.8	15.5	48.0	3.0	1.60	1.20	4.2	0.55	0.22
WD1-07	<0.5	0.5	175	1.5	11.5	0.4	2.50	0.9	18.5	49.5	3.5	1.80	1.30	5.0	0.63	0.26
WD1-08	<0.5	0.5	195	<0.2	8.5	0.6	2.50	0.7	20.5	52.0	4.0	2.10	1.55	5.5	0.72	0.29
WD1-09	<0.5	2.0	180	<0.2	1.8	0.7	0.90	0.4	22.5	28.0	4.7	2.20	1.25	4.9	0.79	0.26
WD1-10	<0.5	1.0	110	<0.2	0.7	0.7	0.82	0.3	19.5	23.0	4.3	2.00	0.87	3.8	0.75	0.23
WD1-12	<0.5	1.0	115	<0.2	0.7	0.7	0.99	0.4	21.0	26.0	4.5	2.20	0.87	3.7	0.80	0.25
WD1-14	<0.5	2.0	175	0.3	24.0	0.9	4.50	0.5	27.5	34.5	8.0	2.50	3.20	17.0	1.05	0.34
Profile 2																
WD3-01	<0.5	<0.5	100	<0.2	10.5	0.5	2.90	0.7	19.0	64.0	3.6	2.00	1.35	4.7	0.68	0.30
WD3-02	<0.5	<0.5	96	0.5	10.0	0.4	1.60	0.6	18.5	54.0	3.4	1.90	1.20	4.3	0.64	0.29
WD3-03	<0.5	<0.5	120	0.6	11.5	0.5	1.95	0.8	21.5	64.0	3.8	2.20	1.25	4.8	0.72	0.32
WD3-04	<0.5	<0.5	165	<0.2	10.0	0.5	1.85	0.8	21.5	66.0	3.7	2.10	1.35	4.8	0.72	0.32
WD3-05	<0.5	0.5	220	<0.2	10.0	0.4	2.00	0.7	22.0	68.0	3.6	2.10	1.25	4.7	0.70	0.32
WD3-06	<0.5	0.5	260	<0.2	12.5	0.6	4.10	0.5	36.0	125.0	6.0	3.50	1.90	7.0	1.15	0.51
WD3-07	<0.5	1.0	160	<0.2	23.5	1.2	4.70	0.5	105.0	250.0	11.0	8.50	2.00	8.5	2.60	1.25
WD3-08	<0.5	0.5	135	<0.2	20.5	2.0	7.50	0.3	17.0	175.0	3.4	1.80	2.00	5.5	0.61	0.29

Table 1: Bulk sample assay results (continued)

IDENT	Eu	Gd	Ho	Lu	Nd	Pr	Sm	Tb	Tm	Yb	Al2O3	CaO	K2O	Fe2O3	MgO
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%	%
SCHEME	IC3R	IC3R	IC3R	IC3R	IC3R	IC3R	IC3R	IC3R	IC3R	IC3R	IC4	IC4	IC4	IC4	IC4
DET LIMIT	0.02	0.05	0.02	0.02	0.02	0.05	0.02	0.02	0.05	0.05	0.01	0.01	0.01	0.01	0.01
Profile 1															
WD1-01	1.15	4.4	0.52	0.22	29.5	7.5	6.0	0.57	0.20	1.50	10.60	0.82	1.71	5.12	0.62
WD1-02	1.25	4.7	0.67	0.30	27.0	7.0	6.0	0.67	0.30	2.00	16.10	0.70	2.09	7.19	1.74
WD1-03	1.15	4.1	0.58	0.26	25.0	6.5	5.0	0.58	0.25	1.80	13.50	6.52	1.62	5.64	1.65
WD1-04	1.35	4.7	0.62	0.28	28.5	7.0	6.0	0.66	0.25	1.90	12.90	5.53	1.57	5.38	1.50
WD1-05	1.40	4.7	0.61	0.25	31.0	7.5	6.5	0.66	0.25	1.70	12.50	3.86	1.63	4.82	1.19
WD1-06	1.20	4.2	0.55	0.22	26.0	6.5	5.5	0.59	0.20	1.55	11.70	1.40	1.85	4.46	0.95
WD1-07	1.30	5.0	0.63	0.26	33.0	8.0	7.0	0.66	0.25	1.75	11.20	5.30	1.54	4.95	1.25
WD1-08	1.55	5.5	0.72	0.29	32.0	8.0	7.0	0.77	0.30	2.00	9.82	5.89	2.66	3.14	0.74
WD1-09	1.25	4.9	0.79	0.26	24.0	5.5	6.0	0.85	0.25	1.90	16.90	4.81	3.91	1.38	0.41
WD1-10	0.87	3.8	0.75	0.23	17.5	4.2	4.6	0.74	0.25	1.75	18.40	0.85	4.33	1.20	0.26
WD1-12	0.87	3.7	0.80	0.25	15.0	3.4	4.1	0.75	0.30	1.90	18.80	0.73	4.16	1.89	0.45
WD1-14	3.20	17.0	1.05	0.34	115.0	31.0	25.0	1.95	0.30	2.00	15.50	0.93	2.99	3.08	1.08
Profile 2															
WD3-01	1.35	4.7	0.68	0.30	29.5	7.5	6.0	0.68	0.30	2.00	11.40	0.70	1.86	5.16	0.69
WD3-02	1.20	4.3	0.64	0.29	27.0	6.5	5.5	0.63	0.30	1.95	11.50	0.82	1.95	5.18	0.79
WD3-03	1.25	4.8	0.72	0.32	30.0	7.5	6.0	0.70	0.30	2.30	12.30	1.98	1.93	5.53	1.08
WD3-04	1.35	4.8	0.72	0.32	29.5	7.5	6.0	0.69	0.30	2.30	12.10	5.38	1.80	5.59	1.42
WD3-05	1.25	4.7	0.70	0.32	28.5	7.0	5.5	0.66	0.30	2.20	10.10	12.40	1.68	4.83	1.27
WD3-06	1.90	7.0	1.15	0.51	44.0	11.0	8.5	1.05	0.50	3.50	10.10	13.40	1.95	4.21	1.24
WD3-07	2.00	8.5	2.60	1.25	38.5	9.5	8.0	1.60	1.20	8.50	14.40	2.36	4.50	4.84	1.68
WD3-08	2.00	5.5	0.61	0.29	41.5	10.5	7.0	0.69	0.25	1.80	16.20	0.60	9.68	3.76	1.70

Table 1: Bulk sample assay results (continued)

IDENT	MgO	MnO	Na2O	P2O5	SiO2	TiO2	Zr	Sc	Ba	Cr	V	LOI	Au	Au Rpt
UNITS	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm
SCHEME	IC4	IC4	IC4	IC4	IC4	IC4	IC4	IC4	IC4	IC4	IC4	GRAV7	FA1	FA1
DET LIMIT	0.01	0.01	0.01	0.01	0.01	0.005	20	5	20	20	20	0.01A	0.01	0.01
Profile 1														
WD1-01	0.62	0.09	2.36	0.07	74.3	0.635	170	6	410	50	70	3.84	0.050	--
WD1-02	1.74	0.08	1.44	0.07	58.4	0.755	150	12	320	60	100	10.00	0.060	--
WD1-03	1.65	0.09	1.72	0.08	54.5	0.665	150	10	360	50	110	13.00	0.060	--
WD1-04	1.50	0.06	1.84	0.09	58.2	0.595	150	8	700	50	100	11.00	0.040	--
WD1-05	1.19	0.06	2.11	0.07	63.1	0.600	150	8	650	40	80	9.12	0.040	--
WD1-06	0.95	0.07	2.31	0.05	70.9	0.490	160	6	480	30	60	5.53	0.050	--
WD1-07	1.25	0.05	1.92	0.07	62.0	0.575	160	8	400	40	80	9.85	0.070	--
WD1-08	0.74	0.07	1.74	0.10	66.3	0.330	130	<5	1050	20	50	7.71	0.190	--
WD1-09	0.41	0.01	6.11	0.08	59.0	0.115	20	<5	750	<20	<20	5.82	0.450	--
WD1-10	0.26	<0.01	7.06	0.07	64.3	0.080	<20	<5	650	<20	<20	1.97	0.420	--
WD1-12	0.45	0.01	6.85	0.10	63.2	0.155	20	6	600	<20	30	2.45	3.220	3.2
WD1-14	1.08	0.03	5.24	0.12	66.1	0.440	250	8	550	40	60	3.18	0.780	--
Profile 2														
WD3-01	0.69	0.64	3.09	0.08	70.4	0.575	200	6	1050	20	100	3.99	0.030	--
WD3-02	0.79	0.09	2.95	0.06	70.0	0.540	150	6	490	40	70	4.63	0.060	--
WD3-03	1.08	0.15	2.65	0.08	64.8	0.550	180	8	550	50	90	7.10	0.110	--
WD3-04	1.42	0.13	1.95	0.09	58.8	0.560	150	8	550	60	100	10.60	0.120	--
WD3-05	1.27	0.11	2.05	0.11	51.2	0.480	150	6	700	40	90	14.40	0.100	--
WD3-06	1.24	0.55	2.83	0.09	50.1	0.425	130	6	1550	30	160	13.60	0.140	--
WD3-07	1.68	0.09	4.27	0.05	62.5	0.595	160	10	1550	70	190	3.35	0.300	--
WD3-08	1.70	0.06	2.87	0.05	61.2	0.660	200	12	2200	70	120	1.88	0.140	--

Table 2: Size fraction assay results

A sample size of 10 – 15 g was considered a minimum for INAA, but the total available material was less than this for many samples. The entire sample was shipped for analysis if below this limit. The result of this was elevated detection limits. Negative values mean less than detection limit.

The letters next to sample names refer to the size fraction:

A = fine earth

B = clay (< 2 µm)

C = silt (2 – 20 µm)

D = fine sand (20 – 53 µm)

E = medium sand (53 – 125 µm)

F = coarse sand (125 – 2,000 µm)

Profile 1

Sam. #	Wt grams	Sb ppm	As ppm	Ba ppm	Br ppm	Ca %	Ce ppm	Cs ppm	Cr ppm	Co ppm	Eu ppm	Au ppb	Hf ppm	Ir ppb	Fe %	La ppm	Lu ppm	Hg ppm	Mo ppm
WD1-01 A	14.91	0.3	2	340	2	-1	73	-3	45	7	1.3	33	6	-20	3.4	38	0.47	-1	-5
WD1-01 B	5.59	0.6	6	330	3	-1	98	7	69	21	2.0	62	5	-20	5.4	43	0.52	-1	5
WD1-01 C	6.84	0.6	5	470	4	-1	100	6	72	20	1.5	130	6	-20	4.7	45	0.58	-1	-5
WD1-01 D	6.15	0.4	2	350	-1	-1	130	-3	50	6	1.9	14	24	-20	2.8	61	0.95	-1	-5
WD1-01 E	13.75	0.3	2	290	-1	-1	90	-3	43	-5	1.3	15	6	-20	3.3	48	0.67	-1	-5
WD1-01 F	24.28	-0.2	-2	390	-1	-1	37	-3	31	-5	0.9	16	4	-20	2.9	27	0.36	-1	-5
WD1-02 A	21.93	0.4	5	240	12	-1	61	4	54	12	1.4	71	5	-20	4.3	35	0.43	-1	-5
WD1-02 B	7.54	0.4	6	190	6	-1	54	6	66	12	1.1	65	4	-20	5.3	27	0.38	-1	-5
WD1-02 C	3.28	0.6	6	500	28	-1	150	6	70	76	2.1	290	6	-20	4.4	44	0.58	-1	-5
WD1-02 D	1.67	0.6	4	390	1	-1	150	-3	59	13	1.9	10	27	-20	2.9	75	1.00	-1	-5
WD1-02 E	4.76	0.3	-2	300	2	-1	100	-3	40	5	1.1	-5	6	-20	3.1	47	0.64	-1	-5
WD1-02 F	13.63	-0.2	-2	430	2	-1	41	-3	32	-5	0.7	-5	3	-20	3.0	23	0.32	-1	-5
WD1-03 A	17.12	0.3	10	380	20	4	60	-3	44	10	1.2	62	4	-20	3.7	31	0.45	-1	-5
WD1-03 B	6.09	0.5	12	260	9	3	61	6	64	8	1.4	60	3	-20	5.2	29	0.42	-1	-5
WD1-03 C	5.11	0.6	11	550	22	6	110	5	57	38	1.8	350	5	-20	3.9	39	0.56	-1	-5
WD1-03 D	1.62	0.4	6	820	3	1	170	-3	58	30	1.5	220	27	-20	2.8	75	1.00	-1	-5
WD1-03 E	6.37	0.3	4	490	3	-1	100	-3	38	6	1.3	5	5	-20	3.2	48	0.76	-1	7
WD1-03 F	17.79	-0.2	2	580	1	-1	42	-3	29	-5	0.9	-5	4	-20	2.8	23	0.36	-1	-5
WD1-04 A	12.36	0.4	8	730	14	3	69	-3	46	11	1.4	30	5	-20	3.6	34	0.46	-1	-5
WD1-04 B	6.65	0.4	10	350	5	2	76	6	64	12	1.5	52	4	-20	5.1	32	0.42	-1	-5
WD1-04 C	4.97	0.5	10	840	8	5	90	4	55	21	2.0	71	5	-20	3.4	44	0.58	-1	-5
WD1-04 D	3.30	0.4	5	1200	2	-1	140	-3	44	18	1.8	-5	26	-20	2.4	64	1.00	-1	-5
WD1-04 E	7.87	0.3	3	930	1	-1	100	-3	32	6	1.2	-5	5	-20	2.8	47	0.71	-1	-5
WD1-04 F	19.53	-0.2	2	1300	1	2	38	-3	26	-5	0.9	-5	3	-20	2.5	23	0.65	-1	-5
WD1-05 A	21.84	0.3	5	660	13	2	66	-3	41	9	1.3	24	5	-20	3.3	33	0.48	-1	-5
WD1-05 B	5.61	0.4	8	250	6	-1	83	5	65	12	1.3	60	4	-20	5.3	32	0.42	-1	-5
WD1-05 C	4.40	0.5	8	620	6	2	98	5	65	28	1.7	56	5	-20	3.9	47	0.61	-1	-5
WD1-05 D	3.70	0.5	4	660	2	-1	160	-3	48	17	2.3	6	29	-20	2.6	73	1.10	-1	-5
WD1-05 E	10.84	0.3	2	490	-1	-1	97	-3	32	6	1.4	-5	6	-20	2.5	49	0.66	-1	-5
WD1-05 F	16.71	-0.2	-2	830	1	2	33	-3	22	-5	1.0	17	3	-20	2.0	21	0.35	-1	-5
WD1-06 A	19.44	0.3	4	460	10	1	69	-3	37	9	1.4	23	5	-20	3.1	36	0.42	-1	-5
WD1-06 B	5.74	0.4	7	240	2	-1	97	6	68	12	1.9	43	4	-20	5.5	39	0.52	-1	-5
WD1-06 C	4.16	0.5	7	690	2	1	120	6	73	33	2.7	150	6	-20	4.4	57	0.72	-1	-5
WD1-06 D	2.80	0.5	4	760	-1	-1	170	-3	50	19	2.0	23	29	-20	2.6	77	1.20	-1	-5
WD1-06 E	7.33	0.3	-2	560	1	-1	110	-3	37	9	1.4	-5	6	-20	3.0	56	0.78	-1	-5
WD1-06 F	15.62	0.2	-2	620	-1	-1	34	-3	21	-5	0.8	-5	3	-20	1.8	20	0.44	-1	-5
WD1-07 A	21.60	0.3	5	450	10	3	74	-3	43	8	1.4	52	6	-20	3.3	40	0.56	-1	-5
WD1-07 B	5.42	0.5	7	230	2	-1	90	5	67	10	1.5	82	4	-20	5.2	36	0.43	-1	-5
WD1-07 C	5.33	0.5	7	880	3	4	110	5	66	26	2.5	290	6	-20	3.9	53	0.62	-1	7
WD1-07 D	4.50	0.4	3	530	-1	-1	180	-3	49	13	2.6	18	31	-20	2.4	83	1.20	-1	-5
WD1-07 E	12.21	0.2	2	370	-1	-1	100	-3	29	6	1.4	6	5	-20	2.3	52	0.68	-1	-5
WD1-07 F	16.05	-0.2	-2	820	-1	-1	47	-3	24	-5	0.9	6	3	-20	2.2	27	0.42	-1	-5
WD1-08 A	15.24	0.3	4	940	3	3	100	-3	46	10	1.7	240	5	-20	3.7	49	0.53	-1	-5
WD1-08 B	5.94	0.4	6	250	1	-1	110	6	70	11	2.0	140	4	-20	5.3	45	0.52	-1	-5
WD1-08 C	4.19	0.6	8	3100	2	-1	190	6	74	30	3.2	972	7	-20	4.5	88	0.89	-1	-5
WD1-08 D	2.55	0.5	3	680	-1	-1	190	-3	45	13	2.6	130	27	-20	2.4	92	1.50	-1	-5
WD1-08 E	6.42	-0.2	2	780	-1	-1	130	-3	42	8	1.7	170	5	-20	3.2	58	0.82	-1	-5
WD1-08 F	15.33	-0.2	-2	1200	-1	1	67	-3	25	-5	0.9	140	3	-20	2.5	36	0.38	-1	-5
WD1-09 A	19.51	-0.2	3	570	8	4	63	-3	17	-5	1.7	682	2	-20	1.7	34	0.92	-1	-5
WD1-09 B	5.28	0.4	6	320	2	2	130	6	64	12	2.0	270	4	-20	5.4	53	0.59	-1	-5
WD1-09 C	5.06	0.3	5	1200	4	12	150	3	32	12	4.6	1880	2	-20	2.8	73	2.50	-1	-5
WD1-09 D	1.04	-0.2	3	730	-1	2	160	-3	47	13	3.5	542	8	-20	1.7	73	6.30	-1	-5
WD1-09 E	5.87	-0.2	2	730	1	2	80	-3	15	-5	1.9	480	3	-20	1.5	37	2.80	-1	-5
WD1-09 F	15.68	-0.2	-2	790	2	3	46	-3	-10	-5	1.4	1130	-1	-20	0.6	25	0.59	-1	-5
WD1-10 A	19.50	-0.2	-2	520	3	1	72	-3	-10	-5	2.3	641	1	-20	1.0	39	1.30	-1	-5
WD1-10 B	4.87	0.3	4	390	1	-1	180	4	60	7	3.8	300	3	-20	5.1	67	0.84	-1	-5
WD1-10 C	2.83	-0.2	5	750	-1	-1	260	4	33	-5	10.0	1600	-1	-20	3.6	104	6.44	-1	-13
WD1-10 D	2.33	-0.2	4	620	-1	-1	120	-3	32	-5	5.3	1130	1	-20	1.7	53	11.20	-1	-12
WD1-10 E	6.15	-0.2	2	620	-1	1	78	-3	16	-5	2.0	260	1	-20	1.2	36	3.50	-1	-5
WD1-10 F	18.61	-0.2	-2	590	-1	-1	54	-3	-10	-5	1.1	643	-1	-20	0.4	29	0.33	-1	-5
WD1-14 A	13.74	-0.2	2	550	2	-1	220	-3	43	-5	3.2	877	13	-20	1.9	125	1.10	-1	-5
WD1-14 B	3.95	0.2	4	570	-1	-1	329	4	62	8	4.7	200	22	-20	5.6	148	0.76	-1	-5
WD1-14 C	2.81	-0.2	4	1100	-1	-1	562	5	110	11	6.7	1090	37	-20	4.9	287	3.10	-1	-13
WD1-14 D	3.80	-0.2	-2	650	-1	-1	869	-3	80	-5	10.0	420	36	-20	2.3	464	5.24	-2	-14
WD1-14 E	11.89	-0.2	-2	590	-1	-1	200	4	86	11	2.4	645	8	-20	2.8	115	1.40	-1	-5
WD1-14 F	17.53	-0.2	-2	370	-1	-1	130	-3	15	-5	1.7	634	6	-20	0.8	74	0.41	-1	-5

	Nd	Ni	Rb	Sm	Sc	Se	Ag	Na	Sr	Ta	Tb	Th	W	U	Yb	Zn	Zr
Sam. #	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
WD1-01 A	27	-100	58	6.6	8	-5	-5	1.70	-500	2	0.8	13.0	-4	2.2	3.0	97	-500
WD1-01 B	36	-100	130	8.0	20	-5	-5	1.00	-500	-1	0.8	15.0	-4	2.8	3.2	150	-500
WD1-01 C	34	-100	140	7.7	17	-5	-5	0.95	-500	2	0.8	16.0	-4	3.7	3.3	130	-500
WD1-01 D	44	-100	65	10.0	9	-5	-5	1.00	-500	1	1.2	24.0	-4	4.8	5.5	83	830
WD1-01 E	32	-100	47	7.8	5	-5	-5	1.50	-500	1	1.1	16.0	-4	3.4	4.1	62	-500
WD1-01 F	16	-100	45	4.0	3	-5	-5	2.60	-500	2	0.7	6.9	-4	1.4	2.5	96	-500
WD1-02 A	23	-100	88	6.4	14	-5	-5	1.00	-500	-1	1.1	12.0	-4	1.8	2.8	150	-500
WD1-02 B	26	-100	110	4.9	19	-5	-5	1.40	-500	-1	1.0	10.0	-4	2.1	2.2	150	-500
WD1-02 C	41	-100	130	8.2	16	-5	-5	1.00	-500	-1	1.3	16.0	-4	2.4	3.6	91	-500
WD1-02 D	65	-100	57	12.0	7	-5	-5	1.20	-500	2	1.8	28.0	-4	4.5	6.5	-50	590
WD1-02 E	40	-100	51	7.7	4	-5	-5	1.50	-500	2	1.1	16.0	-4	3.2	3.9	54	-500
WD1-02 F	16	-100	49	3.7	3	-5	-5	2.70	-500	-1	-0.5	7.1	-4	2.0	2.1	52	-500
WD1-03 A	27	-100	65	5.8	11	-5	-5	1.30	-500	-1	0.6	10.0	-4	1.3	2.8	110	-500
WD1-03 B	27	-100	96	5.8	19	-5	-5	0.67	-500	-1	0.8	11.0	-4	1.7	2.4	120	-500
WD1-03 C	39	-100	110	8.3	14	-5	-5	0.48	-500	-1	1.1	13.0	-4	2.7	3.3	84	-500
WD1-03 D	61	-100	65	12.0	8	-5	-5	1.00	-500	2	1.6	27.0	-4	4.7	6.5	-50	660
WD1-03 E	37	-100	38	7.9	4	-5	-5	1.30	-500	2	1.4	17.0	-4	3.5	4.7	-50	-500
WD1-03 F	16	100	45	3.9	3	-5	-5	2.60	-500	1	0.5	7.3	-4	1.8	2.4	-50	-500
WD1-04 A	27	-100	75	6.3	10	-5	-5	1.30	-500	-1	0.9	12.0	-4	2.3	2.9	90	-500
WD1-04 B	27	-100	100	6.5	19	-5	-5	1.00	-500	1	0.6	12.0	-4	2.3	2.6	120	-500
WD1-04 C	43	-100	110	8.9	13	-5	-5	0.60	-500	-1	1.3	14.0	-4	3.1	3.5	79	-500
WD1-04 D	50	-100	61	11.0	7	-5	-5	0.99	-500	2	1.3	25.0	-4	5.5	6.0	-50	1100
WD1-04 E	39	-100	39	8.1	4	-5	-5	1.30	-500	1	1.3	17.0	-4	3.0	4.2	52	-500
WD1-04 F	16	-100	42	4.2	3	-5	-5	2.50	-500	-1	0.9	6.7	-4	1.9	4.0	51	-500
WD1-05 A	25	-100	67	6.2	10	-5	-5	1.50	-500	-1	1.0	12.0	-4	2.4	3.0	92	-500
WD1-05 B	29	-100	120	6.2	20	-5	-5	0.96	-500	-1	0.9	13.0	-4	2.9	2.5	140	-500
WD1-05 C	40	-100	120	9.1	15	-5	-5	0.67	-500	2	1.3	16.0	-4	4.1	3.6	87	-500
WD1-05 D	60	-100	72	12.0	7	-5	-5	1.00	-500	1	1.7	29.0	-4	6.1	6.6	62	1000
WD1-05 E	36	-100	42	8.0	4	-5	-5	1.40	-500	1	1.3	17.0	-4	3.3	4.0	-50	-500
WD1-05 F	15	-100	50	3.9	3	-5	-5	2.60	-500	1	0.6	6.4	-4	1.6	2.3	58	-500
WD1-06 A	28	-100	73	6.4	9	-5	-5	1.70	-500	2	0.9	11.0	-4	2.4	2.7	100	-500
WD1-06 B	38	-100	110	7.9	21	-5	-5	1.00	-500	-1	1.2	14.0	-4	3.7	3.1	140	-500
WD1-06 C	54	-100	140	12.0	17	-5	-5	0.76	-500	1	1.6	19.0	-4	5.8	4.3	110	-500
WD1-06 D	67	-100	86	13.0	8	-5	-5	1.10	-500	2	1.7	30.0	-4	6.2	7.0	72	1200
WD1-06 E	41	-100	37	9.3	5	-5	-5	1.40	-500	1	1.3	19.0	-4	3.7	4.7	-50	-500
WD1-06 F	17	-100	57	3.6	3	-5	-5	2.60	-500	-1	0.8	6.4	-4	1.7	2.8	-50	-500
WD1-07 A	26	-100	75	7.0	10	-5	-5	1.50	-500	1	1.0	13.0	-4	3.4	3.6	100	-500
WD1-07 B	25	-100	110	7.1	19	-5	-5	1.40	-500	1	1.1	13.0	-4	2.8	2.6	130	-500
WD1-07 C	51	-100	130	11.0	16	-5	-5	0.64	-500	1	1.5	17.0	-4	5.1	4.0	73	-500
WD1-07 D	66	-100	67	14.0	8	-5	-5	0.98	-500	2	2.0	31.0	-4	6.7	7.1	-50	1000
WD1-07 E	36	-100	51	8.6	4	-5	-5	1.30	-500	2	1.1	18.0	-4	3.3	4.2	-50	-500
WD1-07 F	16	-100	37	4.5	3	-5	-5	2.80	-500	2	0.7	8.9	-4	2.3	2.6	52	-500
WD1-08 A	39	-100	82	9.1	11	-5	-5	1.40	-500	1	1.2	15.0	-4	4.5	3.4	81	-500
WD1-08 B	45	-100	120	9.0	20	-5	-5	1.30	-500	1	1.4	15.0	-4	4.7	3.1	110	-500
WD1-08 C	79	-100	160	17.0	18	-5	-5	0.79	-500	2	2.3	23.0	-4	6.8	5.5	93	510
WD1-08 D	78	-100	72	15.0	8	-5	-5	1.20	-500	2	2.4	28.0	-4	8.2	8.4	-50	830
WD1-08 E	44	-100	68	10.0	6	-5	-5	1.60	-500	-1	1.3	18.0	-4	4.3	4.9	-50	-500
WD1-08 F	24	-100	57	5.7	3	-5	-5	2.30	-500	1	0.7	10.0	-4	3.3	2.5	-50	-500
WD1-09 A	28	-100	85	8.5	7	-5	-5	3.50	-500	-1	1.9	4.0	-4	4.1	6.6	84	-500
WD1-09 B	54	-100	110	12.0	21	-5	-5	0.86	-500	-1	2.1	13.0	-4	5.5	3.7	120	-500
WD1-09 C	70	-100	92	25.0	13	-5	-5	0.99	-500	-1	7.6	7.1	-4	14.0	17.0	64	-500
WD1-09 D	68	-100	84	21.0	7	-5	-5	3.60	-500	2	10.0	10.0	5	11.0	45.0	-50	-500
WD1-09 E	34	-100	97	10.0	6	-5	-5	4.10	-500	2	3.0	5.0	-4	4.7	18.0	65	-500
WD1-09 F	22	-100	91	5.8	2	-5	-5	5.15	-500	-1	0.9	1.5	-4	2.1	4.1	50	-500
WD1-10 A	37	-100	73	12.0	5	-5	-5	5.00	-500	-1	2.8	1.4	-4	4.9	10.0	86	-500
WD1-10 B	87	-100	95	24.0	23	-5	-5	1.50	-500	1	3.5	10.0	-4	8.0	5.9	130	-500
WD1-10 C	120	-100	130	55.0	19	-5	-5	2.10	-500	2	19.0	3.9	-4	31.0	46.0	69	-500
WD1-10 D	51	-100	120	26.0	8	-5	-5	4.60	-500	1	15.0	1.5	-4	16.0	72.0	69	-500
WD1-10 E	29	-100	130	11.0	6	-5	-5	5.17	-500	1	4.0	1.3	-4	5.5	23.0	-50	-500
WD1-10 F	25	-100	78	6.8	2	-5	-5	5.61	-500	-1	1.0	1.3	-4	1.6	2.4	-50	-500
WD1-14 A	70	180	110	19.0	11	-5	-5	4.40	-500	2	2.6	20.0	-4	4.9	7.4	110	590
WD1-14 B	120	-100	93	27.0	23	-5	-5	1.60	-500	2	2.6	36.0	-4	10.0	4.8	130	540
WD1-14 C	180	-100	200	44.0	29	-11	-5	1.90	-500	5	6.6	45.0	-4	21.0	18.0	86	1100
WD1-14 D	290	-220	120	71.2	20	-10	-5	3.50	-500	5	11.0	77.0	7	19.0	33.0	120	1300
WD1-14 E	66	-100	190	16.0	18	-5	-5	3.70	-500	3	2.4	18.0	-4	4.9	9.0	110	-500
WD1-14 F	45	-100	49	11.0	5	-5	-5	5.06	-500	1	1.1	11.0	-4	2.8	2.8	73	-500

Profile 2

Sam. #	Wt grams	Sb ppm	As ppm	Ba ppm	Br ppm	Ca %	Ce ppm	Cs ppm	Cr ppm	Co ppm	Eu ppm	Au ppb	Hf ppm	Ir ppb	Fe %	La ppm	Lu ppm	Hg ppm	Mo ppm
WD3-01 A	22.69	0.3	2	480	2	-1	71	-3	43	8	1.3	12	6	-20	3.6	38	0.48	-1	-5
WD3-01 B	6.82	0.6	6	350	2	-1	100	6	76	21	1.8	41	5	-20	5.9	45	0.62	-1	-5
WD3-01 C	5.55	0.6	6	370	4	-1	120	6	72	21	1.6	72	5	-20	5.3	51	0.67	-1	-5
WD3-01 D	5.16	0.5	4	410	2	-1	150	-3	55	7	1.9	-5	28	-20	3.2	68	1.10	-1	-5
WD3-01 E	12.82	0.4	3	350	-1	-1	110	-3	51	-5	1.6	-5	6	-20	3.9	55	0.78	-1	-5
WD3-01 F	23.20	0.3	-2	550	-1	-1	57	-3	37	-5	0.9	-5	3	-20	3.2	32	0.30	-1	-5
WD3-02 A	23.79	0.3	3	450	3	-1	70	-3	40	8	1.2	31	5	-20	3.4	38	0.44	-1	-5
WD3-02 B	6.38	0.4	5	220	3	-1	78	6	73	17	1.3	61	4	-20	5.7	37	0.56	-1	-5
WD3-02 C	5.20	0.5	6	370	7	-1	110	6	76	30	1.7	98	5	-20	5.3	53	0.67	-1	-5
WD3-02 D	3.90	0.5	3	360	-1	-1	130	-3	50	8	1.8	9	25	-20	3.1	65	1.00	-1	-5
WD3-02 E	9.87	0.3	2	390	-1	-1	100	-3	48	-5	1.3	-5	6	-20	3.6	50	0.69	-1	-5
WD3-02 F	15.21	0.3	-2	560	-1	-1	51	-3	38	6	0.9	-5	3	-20	3.5	29	0.31	-1	-5
WD3-03 A	23.84	0.3	4	440	5	2	68	-3	44	9	1.3	94	5	-20	3.7	37	0.44	-1	-5
WD3-03 B	5.37	0.4	7	260	6	-1	70	5	68	14	1.3	150	4	-20	5.6	32	0.53	-1	-5
WD3-03 C	5.30	0.6	8	400	15	-1	120	6	74	33	1.8	330	5	-20	5.3	55	0.66	-1	-5
WD3-03 D	2.90	0.5	5	420	2	-1	150	-3	54	8	1.9	22	26	-20	3.1	69	1.00	-1	-5
WD3-03 E	9.57	0.3	3	390	1	-1	100	-3	47	6	1.4	7	6	-20	3.7	50	0.67	-1	-5
WD3-03 F	21.02	-0.2	-2	550	-1	-1	41	-3	31	-5	0.8	12	3	-20	2.9	24	0.30	-1	-5
WD3-04 A	12.57	0.5	7	570	9	4	73	-3	46	14	1.4	110	5	-20	3.7	36	0.51	-1	-5
WD3-04 B	5.81	0.4	8	240	7	3	70	5	62	12	1.5	180	3	-20	5.1	33	0.52	-1	-5
WD3-04 C	6.70	0.4	10	550	16	5	110	6	64	36	1.6	220	4	-20	4.7	47	0.65	-1	-5
WD3-04 D	3.51	0.4	6	660	3	1	160	-3	48	12	2.0	27	27	-20	2.8	71	1.10	-1	-5
WD3-04 E	7.66	0.3	4	470	2	-1	100	-3	44	6	1.4	17	6	-20	3.4	48	0.67	-1	-5
WD3-04 F	20.89	-0.2	-2	650	-1	-1	45	-3	28	10	0.8	11	3	-20	2.6	25	0.32	-1	-5
WD3-05 A	19.62	0.3	8	680	9	7	74	-3	41	10	1.3	89	5	-20	3.2	38	0.48	-1	-5
WD3-05 B	7.09	0.4	9	410	8	8	71	4	50	13	1.5	140	3	-20	4.2	33	0.49	-1	-5
WD3-05 C	6.88	0.3	9	970	14	14	100	4	50	23	1.7	180	3	-20	3.1	50	0.62	-1	-5
WD3-05 D	4.72	0.5	7	980	4	5	150	-3	47	8	1.9	35	23	-20	2.6	70	1.10	-1	-5
WD3-05 E	9.02	0.2	4	830	2	3	97	-3	44	6	1.4	27	5	-20	3.2	47	0.63	-1	-5
WD3-05 F	18.63	-0.2	3	810	2	2	59	-3	28	7	0.9	26	3	-20	2.5	30	0.31	-1	-5
WD3-06 A	19.16	-0.2	8	920	8	6	110	-3	44	12	1.8	170	5	-20	2.9	58	0.47	-1	-5
WD3-06 B	5.77	0.3	9	440	7	10	84	-3	67	18	1.6	340	4	-20	4.8	39	0.58	-1	-5
WD3-06 C	5.85	0.2	12	1300	11	15	180	-3	67	24	2.4	150	3	-20	4.2	92	0.80	-1	-5
WD3-06 D	4.83	0.3	10	830	4	5	220	-3	62	12	3.0	50	24	-20	3.2	105	1.20	-1	-5
WD3-06 E	9.97	-0.2	7	1000	2	3	170	-3	74	14	2.0	70	4	-20	3.9	83	0.59	-1	-5
WD3-06 F	20.58	-0.2	4	1000	2	2	110	-3	27	8	1.5	130	3	-20	2.0	60	0.29	-1	-5
WD3-07 A	18.47	-0.2	5	1700	1	1	86	3	74	14	1.6	230	5	-20	3.4	45	0.93	-1	-5
WD3-07 B	1.22	-0.2	5	370	-1	-1	318	-3	160	36	5.7	350	6	-20	11.1	178	4.00	-1	-5
WD3-07 C	1.90	-0.4	15	1100	-2	-1	493	4	160	26	10.0	180	7	-20	7.8	247	8.79	-1	-19
WD3-07 D	2.91	-0.2	7	1500	-1	-1	130	-3	82	10	2.4	55	24	-20	2.9	60	3.40	-1	-5
WD3-07 E	13.42	-0.2	5	1300	-1	1	64	6	130	21	1.1	120	4	-20	5.0	30	0.47	-1	-5
WD3-07 F	12.91	-0.2	2	1700	-1	-1	71	-3	54	11	0.9	320	4	-20	2.6	34	0.31	-1	-5
WD3-08 A	15.87	-0.2	-2	2200	1	-1	100	5	75	-5	1.4	70	7	-20	2.6	49	0.37	-1	6
WD3-08 B	0.25	-0.5	-2	940	-3	-3	614	10	270	18	5.9	54	8	-20	10.1	319	0.92	-5	-30
WD3-08 C	1.08	-0.2	5	1200	-1	-1	327	9	210	12	3.8	100	7	-20	7.3	173	0.83	-1	34
WD3-08 D	1.74	-0.2	2	2200	-1	-1	160	4	98	-5	2.2	34	27	-20	3.0	84	1.60	-1	22
WD3-08 E	6.38	-0.2	-2	1700	-1	-1	76	8	160	8	1.2	38	6	-20	5.1	35	0.36	-1	-5
WD3-08 F	20.16	-0.2	-2	2200	-1	-1	90	-3	55	-5	1.3	60	6	-20	2.0	45	0.28	-1	-5

Sam. #	Nd ppm	Ni ppm	Rb ppm	Sm ppm	Sc ppm	Se ppm	Ag ppm	Na ppm	Sr ppm	Ta ppm	Tb ppm	Th ppm	W ppm	U ppm	Yb ppm	Zn ppm	Zr ppm
WD3-01 A	28	-100	63	6.3	8	-5	-5	2.30	-500	2	1.1	12.0	-4	2.8	3.0	79	-500
WD3-01 B	43	-100	150	8.6	23	-5	-5	1.20	-500	-1	1.1	15.0	5	2.5	4.0	150	-500
WD3-01 C	42	-100	140	8.5	20	-5	-5	0.85	-500	2	1.2	17.0	-4	3.7	3.9	150	-500
WD3-01 D	58	-100	80	11.0	10	-5	-5	1.10	-500	-1	2.0	27.0	-4	5.7	6.3	59	1000
WD3-01 E	42	-100	57	9.2	6	-5	-5	1.60	-500	2	1.2	20.0	-4	3.4	4.7	-50	-500
WD3-01 F	22	-100	41	4.7	4	-5	-5	3.30	-500	1	-0.5	11.0	-4	1.4	1.9	-50	-500
WD3-02 A	27	-100	68	6.2	9	-5	-5	2.10	-500	-1	0.9	11.0	-4	2.3	2.7	83	-500
WD3-02 B	34	-100	130	6.5	22	-5	-5	1.40	-500	-1	0.9	13.0	4	2.5	3.2	160	-500
WD3-02 C	44	-100	140	8.2	20	-5	-5	0.92	-500	1	1.1	16.0	-4	3.4	4.0	140	-500
WD3-02 D	48	-100	77	10.0	10	-5	-5	1.20	-500	2	1.4	24.0	-4	5.3	5.8	73	930
WD3-02 E	39	-100	48	8.2	6	-5	-5	1.60	-500	2	1.1	17.0	-4	3.4	4.1	50	-500
WD3-02 F	22	-100	45	4.4	4	-5	-5	3.50	-500	2	-0.5	9.0	-4	2.3	2.0	57	-500
WD3-03 A	26	-100	70	6.2	10	-5	-5	1.80	-500	-1	0.9	11.0	-4	2.2	2.8	99	-500
WD3-03 B	29	-100	120	5.9	21	-5	-5	1.30	-500	-1	1.0	12.0	-4	1.5	3.1	140	-500
WD3-03 C	42	-100	150	8.5	20	-5	-5	0.95	-500	-1	1.1	17.0	-4	4.1	4.0	130	-500
WD3-03 D	49	-100	76	11.0	10	-5	-5	1.20	-500	2	1.6	25.0	4	5.9	6.0	71	1000
WD3-03 E	37	-100	49	8.1	6	-5	-5	1.60	-500	1	1.1	17.0	-4	3.1	4.1	-50	-500
WD3-03 F	17	-100	40	3.9	3	-5	-5	3.40	-500	1	0.7	6.5	-4	2.0	1.9	-50	-500
WD3-04 A	30	-100	69	6.5	11	-5	-5	1.40	-500	-1	0.9	11.0	-4	2.4	3.0	74	-500
WD3-04 B	31	-100	100	6.5	20	-5	-5	0.64	-500	-1	1.0	11.0	-4	2.0	3.1	120	-500
WD3-04 C	40	-100	110	8.6	17	-5	-5	0.38	-500	1	1.1	14.0	-4	2.2	3.9	110	-500
WD3-04 D	60	-100	70	11.0	9	-5	-5	1.10	-500	2	1.6	25.0	-4	5.7	6.3	58	950
WD3-04 E	40	-100	48	7.8	5	-5	-5	1.60	-500	1	1.0	17.0	-4	3.6	4.0	-50	-500
WD3-04 F	18	-100	42	4.0	3	-5	-5	3.40	-500	1	0.6	6.9	-4	2.0	2.1	-50	-500
WD3-05 A	28	-100	58	6.4	9	-5	-5	1.50	-500	1	1.1	11.0	-4	2.7	3.0	75	-500
WD3-05 B	30	-100	76	6.4	16	-5	-5	0.94	-500	-1	0.8	10.0	-4	2.2	2.8	97	-500
WD3-05 C	44	-100	77	8.6	11	-5	-5	0.37	-500	-1	1.4	13.0	-4	4.3	3.6	92	-500
WD3-05 D	52	-100	66	11.0	8	-5	-5	1.20	-500	2	1.7	24.0	-4	6.5	6.0	70	700
WD3-05 E	36	-100	63	7.5	5	-5	-5	1.70	-500	2	1.0	16.0	-4	3.3	3.7	57	-500
WD3-05 F	24	-100	51	4.8	3	-5	-5	3.20	-500	-1	0.6	7.4	-4	2.1	2.0	-50	-500
WD3-06 A	44	-100	83	8.9	9	-5	-5	2.20	-500	-1	1.2	14.0	-4	4.0	3.0	140	-500
WD3-06 B	35	-100	69	7.3	23	-5	-5	0.92	-500	-1	1.5	13.0	4	3.4	3.2	160	-500
WD3-06 C	67	-100	91	14.0	16	-5	-5	0.50	-500	1	1.9	22.0	-4	7.1	5.1	190	-500
WD3-06 D	75	-100	93	16.0	11	-5	-5	2.00	-500	2	2.2	34.0	-4	11.0	7.3	140	850
WD3-06 E	62	-100	130	12.0	7	-5	-5	2.30	-500	2	1.4	23.0	-4	7.1	3.9	210	-500
WD3-06 F	37	-100	79	7.9	3	-5	-5	3.50	-500	1	0.9	9.4	-4	3.0	2.1	110	-500
WD3-07 A	32	-100	200	7.5	13	-5	-5	3.00	-500	1	1.4	18.0	-4	6.7	5.6	280	-500
WD3-07 B	130	-250	-30	29.0	100	-5	-11	2.30	-500	4	7.1	63.7	15	18.0	26.0	340	-500
WD3-07 C	180	-100	230	42.0	44	-5	-5	1.80	-500	4	11.0	93.5	-4	34.0	49.0	480	780
WD3-07 D	45	-100	160	12.0	13	-5	-5	3.20	-500	2	3.0	56.5	-4	16.0	18.0	200	870
WD3-07 E	27	-100	280	5.1	12	-5	-5	2.60	-500	2	0.9	18.0	-4	7.7	2.7	410	-500
WD3-07 F	30	-100	200	5.5	6	-5	-5	3.20	-500	-1	0.6	11.0	-4	3.9	1.9	240	-500
WD3-08 A	34	-100	300	6.8	15	-5	-5	2.50	-500	-1	0.8	25.0	-4	10.0	2.2	150	-500
WD3-08 B	280	-350	360	45.0	44	-12	-17	3.60	-500	4	6.3	206.0	-4	71.3	6.6	280	-500
WD3-08 C	130	-100	360	23.0	36	7	-5	1.40	-500	2	3.0	123.0	6	42.0	5.2	180	-500
WD3-08 D	70	-100	250	12.0	18	-5	-5	2.60	-500	4	1.9	44.0	4	18.0	10.0	91	510
WD3-08 E	30	-100	420	5.1	29	-5	-5	1.90	-500	2	0.7	24.0	-4	9.3	2.3	280	-500
WD3-08 F	32	-100	270	5.9	11	-5	-5	2.50	-500	-1	-0.5	20.0	-4	7.4	1.6	140	-500

Appendix 7

White Dam mass balance results

Mass balance results for profile 2 calculated using Zr as the immobile element and WD3-08 as the parent material.

Table layout:

Element concentration

Enrichment factor $C_{El,w}/C_{El,p}$

where: *C* is concentration of element (*EL*) in the weathered (*w*) and parent (*p*) samples

Transport function $\tau_{EL,w,\varepsilon(Zr)}$

where: τ is the transport function of element (*EL*) in the weathered (*w*) sample based on volume (strain) changes calculated from Zr as the immobile element. A positive τ represents a percentage gain, negative τ a percentage loss (-1 equivalent to 100% loss), and 0 no change.

Mass gain or loss, for a 1 cm^2 column through the soil horizon or depth represented by sample.

Major Elements

Sample Horizon	WD3-01 (A1)	WD3-02 (B1)	WD3-03 (B1)	WD3-04 (B2)	WD3-05 (Bk)	WD3-06 (Ck)	WD3-07 (C)	WD3-08	Total (mg/cm2)
Al %	6.03	6.09	6.51	6.40	5.35	5.35	7.62	8.57	
$C_{Al,w}/C_{Al,p}$	0.70	0.71	0.76	0.75	0.62	0.62	0.89	1.00	
$\tau_{AL,w,\varepsilon(Zr)}$	-0.30	-0.05	-0.16	-0.00	-0.17	-0.04	0.11		
$m_{Al,flux}$(mg/cm^2)	-6,260.01	-247.05	-3,929.10	-111.71	-4,676.82	-2,059.53	5,798.18		-11,486.04
Ca %	0.50	0.59	1.42	3.85	8.86	9.58	1.69	0.43	
$C_{Ca,w}/C_{Ca,p}$	1.17	1.37	3.30	8.97	20.67	22.33	3.93	1.00	
$\tau_{Ca,w,\varepsilon(Zr)}$	0.17	0.82	2.67	10.96	26.56	33.36	3.92		
$m_{Ca,flux}$ (mg/cm^2)	176.12	189.91	3,351.23	14,874.88	36,816.90	84,151.18	10,222.80		149,783.03
K %	1.54	1.62	1.60	1.49	1.39	1.62	3.74	8.04	
$C_{K,w}/C_{K,p}$	0.19	0.20	0.20	0.19	0.17	0.20	0.46	1.00	
$\tau_{K,w,\varepsilon(Zr)}$	-0.81	-0.73	-0.78	-0.75	-0.77	-0.69	-0.42		
$m_{K,flux}$ (mg/cm^2)	-15,994.43	-3,165.17	-18,329.25	-19,131.32	-19,964.54	-32,615.09	-20,485.13		-129,684.95
Mg %	0.42	0.48	0.65	0.86	0.77	0.75	1.01	1.03	
$C_{Mg,w}/C_{Mg,p}$	0.41	0.46	0.64	0.84	0.75	0.73	0.99	1.00	
$\tau_{Mg,w,\varepsilon(Zr)}$	-0.59	-0.38	-0.29	0.11	-0.00	0.12	0.24		
$m_{Mg,flux}$ (mg/cm^2)	-1,500.62	-210.01	-883.46	369.07	-13.00	736.63	1,467.89		-33.49
Fe %	3.61	3.62	3.87	3.91	3.38	2.94	3.39	2.63	
$C_{Fe,w}/C_{Fe,p}$	1.37	1.38	1.47	1.49	1.28	1.12	1.29	1.00	
$\tau_{Fe,w,\varepsilon(Zr)}$	0.37	0.84	0.63	0.98	0.71	0.72	0.61		
$m_{Fe,flux}$ (mg/cm^2)	2,412.60	1,185.25	4,886.66	8,177.63	6,059.22	11,176.73	9,747.17		43,645.25
Mn %	0.50	0.07	0.12	0.10	0.09	0.43	0.07	0.05	
$C_{Mn,w}/C_{Mn,p}$	10.67	1.50	2.50	2.17	1.83	9.17	1.50	1.00	
$\tau_{Mn,w,\varepsilon(Zr)}$	9.67	1.00	1.78	1.89	1.44	13.10	0.88		
$m_{Mn,flux}$ (mg/cm^2)	1,106.83	25.03	242.07	277.88	216.98	3,581.30	247.46		5,697.56
Na %	2.29	2.19	1.97	1.45	1.52	2.10	3.17	2.13	
$C_{Na,w}/C_{Na,p}$	1.08	1.03	0.92	0.68	0.71	0.99	1.49	1.00	
$\tau_{Na,w,\varepsilon(Zr)}$	0.08	0.37	0.03	-0.09	-0.05	0.52	0.86		
$m_{Na,flux}$ (mg/cm^2)	402.16	424.86	161.84	-634.15	-327.77	6,475.09	11,140.89		17,642.93
P %	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
$C_{P,w}/C_{P,p}$	1.60	1.20	1.60	1.80	2.20	1.80	1.00	1.00	
$\tau_{P,w,\varepsilon(Zr)}$	0.60	0.60	0.78	1.40	1.93	1.77	0.25		
$m_{P,flux}$ (mg/cm^2)	3.23	0.71	4.97	9.67	13.64	22.71	3.32		58.24
Si %	32.90	32.72	30.29	27.48	23.93	23.42	29.21	28.60	
$C_{Si,w}/C_{Si,p}$	1.15	1.14	1.06	0.96	0.84	0.82	1.02	1.00	
$\tau_{Si,w,\varepsilon(Zr)}$	0.15	0.53	0.18	0.28	0.12	0.26	0.28		
$m_{Si,flux}$ (mg/cm^2)	10,595.18	8,088.67	14,791.48	25,450.74	10,677.25	43,648.25	48,143.20		161,394.75
Ti %	0.34	0.32	0.33	0.34	0.29	0.25	0.36	0.40	
$C_{Ti,w}/C_{Ti,p}$	0.87	0.82	0.83	0.85	0.73	0.64	0.90	1.00	
$\tau_{Ti,w,\varepsilon(Zr)}$	-0.13	0.09	-0.07	0.13	-0.03	-0.01	0.13		
$m_{Ti,flux}$ (mg/cm^2)	-125.51	19.37	-85.85	164.43	-38.75	-21.69	305.45		217.44

Trace Elements

Sample Horizon	WD3-01 (A1)	WD3-02 (B1)	WD3-03 (B1)	WD3-04 (B2)	WD3-05 (Bk)	WD3-06 (Ck)	WD3-07 (C)	WD3-08	Total (mg/cm2)
Ag ppm	0.20	0.10	0.10	0.10	0.10	0.10	0.20	0.30	
$C_{Ag,w}/C_{Agl,p}$	0.67	0.33	0.33	0.33	0.33	0.33	0.67	1.00	
$\tau_{Ag,w,\varepsilon(Zr)}$	-0.33	-0.56	-0.63	-0.56	-0.56	-0.49	-0.17		
$m_{Ag,flux}$ (mg/cm^2)	-0.02	-0.01	-0.06	-0.05	-0.05	-0.09	-0.03		-0.31
As ppm	2.50	3.00	4.50	6.50	7.00	9.00	6.00	2.00	
$C_{As,w}/C_{As,p}$	1.25	1.50	2.25	3.25	3.50	4.50	3.00	1.00	
$\tau_{As,w,\varepsilon(Zr)}$	0.25	1.00	1.50	3.33	3.67	5.92	2.75		
$m_{As,flux}$ (mg/cm^2)	0.12	0.11	0.88	2.11	2.37	6.97	3.35		15.91
Au ppm	0.03	0.06	0.11	0.12	0.10	0.14	0.30	0.14	
$C_{Au,w}/C_{Au,p}$	0.21	0.43	0.79	0.86	0.71	1.00	2.14	1.00	
$\tau_{Au,w,\varepsilon(Zr)}$	-0.79	-0.43	-0.13	0.14	-0.05	0.54	1.68		
$m_{Au,flux}$ (mg/cm^2)	-0.03	-0.00	-0.01	0.01	-0.00	0.04	0.14		0.16
Ba ppm	1,050.00	490.00	550.00	550.00	700.00	1,550.00	1,550.00	2,200.00	
$C_{Ba,w}/C_{Ba,p}$	0.48	0.22	0.25	0.25	0.32	0.70	0.70	1.00	
$\tau_{Ba,w,\varepsilon(Zr)}$	-0.52	-0.70	-0.72	-0.67	-0.58	0.08	-0.12		
$m_{Ba,flux}$ (mg/cm^2)	-283.35	-83.30	-465.58	-464.32	-409.47	108.59	-159.75		-1,757.18
Bi ppm	0.20	0.20	0.20	0.20	0.20	0.10	<0.1	0.10	
$C_{Bi,w}/C_{Bi,p}$	2.00	2.00	2.00	2.00	2.00	1.00		1.00	
$\tau_{Bi,w,\varepsilon(Zr)}$	1.00	1.67	1.22	1.67	1.67	0.54			
$m_{Bi,flux}$ (mg/cm^2)	0.02	0.01	0.04	0.05	0.05	0.03			0.21
Co ppm	49.00	9.00	13.00	16.00	14.50	56.00	14.50	4.30	
$C_{Co,w}/C_{Co,p}$	11.40	2.09	3.02	3.72	3.37	13.02	3.37	1.00	
$\tau_{Co,w,\varepsilon(Zr)}$	10.40	1.79	2.36	3.96	3.50	19.04	3.22		
$m_{Co,flux}$ (mg/cm^2)	11.01	0.41	2.97	5.39	4.86	48.14	8.41		81.21
Cr ppm	20.00	40.00	50.00	60.00	40.00	30.00	70.00	70.00	
$C_{Cr,w}/C_{Cr,p}$	0.29	0.57	0.71	0.86	0.57	0.43	1.00	1.00	
$\tau_{Cr,w,\varepsilon(Zr)}$	-0.71	-0.24	-0.21	0.14	-0.24	-0.34	0.25		
$m_{Cr,flux}$ (mg/cm^2)	-12.32	-0.90	-4.23	3.17	-5.39	-14.03	10.65		-23.05
Cs ppm	1.70	1.80	2.20	2.60	2.00	1.70	2.70	3.80	
$C_{Cs,w}/C_{Cs,p}$	0.45	0.47	0.58	0.68	0.53	0.45	0.71	1.00	
$\tau_{Cs,w,\varepsilon(Zr)}$	-0.55	-0.37	-0.36	-0.09	-0.30	-0.31	-0.11		
$m_{Cs,flux}$ (mg/cm^2)	-0.52	-0.08	-0.40	-0.11	-0.37	-0.70	-0.26		-2.42
Cu ppm	185.00	115.00	160.00	195.00	270.00	1,050.00	1,950.00	600.00	
$C_{Cu,w}/C_{Cu,p}$	0.31	0.19	0.27	0.33	0.45	1.75	3.25	1.00	
$\tau_{Cu,w,\varepsilon(Zr)}$	-0.69	-0.74	-0.70	-0.57	-0.40	1.69	3.06		
$m_{Cu,flux}$ (mg/cm^2)	-102.25	-24.06	-123.72	-107.64	-77.58	597.23	1,118.27		1,280.25
Ga ppm	17.00	16.50	17.50	17.50	14.00	14.50	22.50	24.50	
$C_{Ga,w}/C_{Ga,p}$	0.69	0.67	0.71	0.71	0.57	0.59	0.92	1.00	
$\tau_{Ga,w,\varepsilon(Zr)}$	-0.31	-0.10	-0.21	-0.05	-0.24	-0.09	0.15		
$m_{Ga,flux}$ (mg/cm^2)	-1.85	-0.13	-1.48	-0.37	-1.89	-1.29	2.21		-4.80
Mo ppm	2.60	2.10	2.00	2.30	3.20	4.20	3.40	7.00	
$C_{Mo,w}/C_{Mo,p}$	0.37	0.30	0.29	0.33	0.46	0.60	0.49	1.00	
$\tau_{Mo,w,\varepsilon(Zr)}$	-0.63	-0.60	-0.68	-0.56	-0.39	-0.08	-0.39		
$m_{Mo,flux}$ (mg/cm^2)	-1.08	-0.23	-1.40	-1.25	-0.88	-0.32	-1.67		-6.83

Sample Horizon	WD3-01 (A1)	WD3-02 (B1)	WD3-03 (B1)	WD3-04 (B2)	WD3-05 (Bk)	WD3-06 (Ck)	WD3-07 (C)	WD3-08	Total (mg/cm2)
Ni ppm	13.00	14.00	17.00	19.00	17.00	19.00	22.00	9.00	
$C_{Ni,w}/C_{Ni,p}$	1.44	1.56	1.89	2.11	1.89	2.11	2.44	1.00	
$\tau_{Ni,w,\varepsilon(Zr)}$	0.44	1.07	1.10	1.81	1.52	2.25	2.06		
$m_{Ni,flux}$ (mg/cm^2)	0.99	0.52	2.90	5.17	4.42	11.90	11.26		37.15
Pb ppm	12.50	9.50	10.50	10.50	8.50	8.00	5.00	6.00	
$C_{Pb,w}/C_{Pb,p}$	2.08	1.58	1.75	1.75	1.42	1.33	0.83	1.00	
$\tau_{Pb,w,\varepsilon(Zr)}$	1.08	1.11	0.94	1.33	0.89	1.05	0.04		
$m_{Pb,flux}$ (mg/cm^2)	1.60	0.36	1.66	2.53	1.72	3.71	0.15		11.74
Rb ppm	56.00	58.00	64.00	60.00	46.50	54.00	135.00	290.00	
$C_{Rb,w}/C_{Rb,p}$	0.19	0.20	0.22	0.21	0.16	0.19	0.47	1.00	
$\tau_{Rb,w,\varepsilon(Zr)}$	-0.81	-0.73	-0.75	-0.72	-0.79	-0.71	-0.42		
$m_{Rb,flux}$ (mg/cm^2)	-57.66	-11.45	-64.14	-66.48	-73.70	-121.71	-73.79		-468.93
Sc ppm	6.00	6.00	8.00	8.00	6.00	6.00	10.00	12.00	
$C_{Sc,w}/C_{Sc,p}$	0.50	0.50	0.67	0.67	0.50	0.50	0.83	1.00	
$\tau_{Sc,w,\varepsilon(Zr)}$	-0.50	-0.33	-0.26	-0.11	-0.33	-0.23	0.04		
$m_{Sc,flux}$ (mg/cm^2)	-1.48	-0.22	-0.91	-0.42	-1.29	-1.63	0.30		-5.65
Sr ppm	100.00	96.00	120.00	165.00	220.00	260.00	160.00	135.00	
$C_{Sr,w}/C_{Sr,p}$	0.74	0.71	0.89	1.22	1.63	1.93	1.19	1.00	
$\tau_{Sr,w,\varepsilon(Zr)}$	-0.26	-0.05	-0.01	0.63	1.17	1.96	0.48		
$m_{Sr,flux}$ (mg/cm^2)	-8.62	-0.38	-0.49	26.91	51.18	155.87	39.56		264.03
Th ppm	10.50	10.00	11.50	10.00	10.00	12.50	23.50	20.50	
$C_{Th,w}/C_{Th,p}$	0.51	0.49	0.56	0.49	0.49	0.61	1.15	1.00	
$\tau_{Th,w,\varepsilon(Zr)}$	-0.49	-0.35	-0.38	-0.35	-0.35	-0.06	0.43		
$m_{Th,flux}$ (mg/cm^2)	-2.46	-0.39	-2.26	-2.27	-2.32	-0.75	5.40		-5.04
Tl ppm	0.50	0.40	0.50	0.50	0.40	0.60	1.20	2.00	
$C_{Tl,w}/C_{Tl,p}$	0.25	0.20	0.25	0.25	0.20	0.30	0.60	1.00	
$\tau_{Tl,w,\varepsilon(Zr)}$	-0.75	-0.73	-0.72	-0.67	-0.73	-0.54	-0.25		
$m_{Tl,flux}$ (mg/cm^2)	-0.37	-0.08	-0.42	-0.42	-0.47	-0.63	-0.30		-2.71
U ppm	2.90	1.60	1.95	1.85	2.00	4.10	4.70	7.50	
$C_{U,w}/C_{U,p}$	0.39	0.21	0.26	0.25	0.27	0.55	0.63	1.00	
$\tau_{U,w,\varepsilon(Zr)}$	-0.61	-0.72	-0.71	-0.67	-0.64	-0.16	-0.22		
$m_{U,flux}$ (mg/cm^2)	-1.13	-0.29	-1.56	-1.59	-1.56	-0.70	-0.99		-7.83
V ppm	100.00	70.00	90.00	100.00	90.00	160.00	190.00	120.00	
$C_{V,w}/C_{V,p}$	0.83	0.58	0.75	0.83	0.75	1.33	1.58	1.00	
$\tau_{V,w,\varepsilon(Zr)}$	-0.17	-0.22	-0.17	0.11	0.00	1.05	0.98		
$m_{V,flux}$ (mg/cm^2)	-4.93	-1.44	-5.86	4.22	0.00	74.20	71.51		137.71
W ppm	0.70	0.60	0.80	0.80	0.70	0.50	0.50	0.30	
$C_{W,w}/C_{W,p}$	2.33	2.00	2.67	2.67	2.33	1.67	1.67	1.00	
$\tau_{W,w,\varepsilon(Zr)}$	1.33	1.67	1.96	2.56	2.11	1.56	1.08		
$m_{W,flux}$ (mg/cm^2)	0.10	0.03	0.17	0.24	0.20	0.28	0.20		1.22
Y ppm	19.00	18.50	21.50	21.50	22.00	36.00	105.00	17.00	
$C_{Y,w}/C_{Y,p}$	1.12	1.09	1.26	1.26	1.29	2.12	6.18	1.00	
$\tau_{Y,w,\varepsilon(Zr)}$	0.12	0.45	0.41	0.69	0.73	2.26	6.72		
$m_{Y,flux}$ (mg/cm^2)	0.49	0.41	2.02	3.69	3.99	22.58	69.53		102.71
Zn ppm	64.00	54.00	64.00	66.00	68.00	125.00	250.00	175.00	
$C_{Zn,w}/C_{Zn,p}$	0.37	0.31	0.37	0.38	0.39	0.71	1.43	1.00	
$\tau_{Zn,w,\varepsilon(Zr)}$	-0.63	-0.59	-0.59	-0.50	-0.48	0.10	0.79		
$m_{Zn,flux}$ (mg/cm^2)	-27.35	-5.55	-30.44	-27.54	-27.26	10.18	83.68		-24.28

Rare Earth Elements (next page)

Sample Horizon	WD3-01 (A1)	WD3-02 (B1)	WD3-03 (B1)	WD3-04 (B2)	WD3-05 (Bk)	WD3-06 (Ck)	WD3-07 (C)	WD3-08	Total (mg/cm2)
La ppm	36.00	32.00	36.00	36.00	36.00	68.00	46.00	54.00	
$C_{La,w}/C_{La,p}$	0.67	0.59	0.67	0.67	0.67	1.26	0.85	1.00	
$\tau_{La,w,\varepsilon(Zr)}$	-0.33	-0.21	-0.26	-0.11	-0.11	0.94	0.06		
$m_{La,flux}$ (mg/cm^2)	-4.44	-0.61	-4.10	-1.90	-1.94	29.77	2.13		18.91
Ce ppm	88.00	64.00	78.00	68.00	68.00	115.00	90.00	105.00	
$C_{Ce,w}/C_{Ce,p}$	0.84	0.61	0.74	0.65	0.65	1.10	0.86	1.00	
$\tau_{Ce,w,\varepsilon(Zr)}$	-0.16	-0.19	-0.17	-0.14	-0.14	0.68	0.07		
$m_{Ce,flux}$ (mg/cm^2)	-4.19	-1.06	-5.37	-4.54	-4.63	42.30	4.56		27.08
Pr ppm	7.50	6.50	7.50	7.50	7.00	11.00	9.50	10.50	
$C_{Pr,w}/C_{Pr,p}$	0.71	0.62	0.71	0.71	0.67	1.05	0.90	1.00	
$\tau_{Pr,w,\varepsilon(Zr)}$	-0.29	-0.17	-0.21	-0.05	-0.11	0.61	0.13		
$m_{Pr,flux}$ (mg/cm^2)	-0.74	-0.10	-0.63	-0.16	-0.38	3.78	0.84		2.61
Nd ppm	29.50	27.00	30.00	29.50	28.50	44.00	38.50	41.50	
$C_{Nd,w}/C_{Nd,p}$	0.71	0.65	0.72	0.71	0.69	1.06	0.93	1.00	
$\tau_{Nd,w,\varepsilon(Zr)}$	-0.29	-0.13	-0.20	-0.05	-0.08	0.63	0.16		
$m_{Nd,flux}$ (mg/cm^2)	-2.96	-0.30	-2.39	-0.69	-1.13	15.41	4.03		11.97
Sm ppm	6.00	5.50	6.00	6.00	5.50	8.50	8.00	7.00	
$C_{Sm,w}/C_{Sm,p}$	0.86	0.79	0.86	0.86	0.79	1.21	1.14	1.00	
$\tau_{Sm,w,\varepsilon(Zr)}$	-0.14	0.05	-0.05	0.14	0.05	0.87	0.43		
$m_{Sm,flux}$ (mg/cm^2)	-0.25	0.02	-0.10	0.32	0.11	3.57	1.83		5.50
Eu ppm	1.35	1.20	1.25	1.35	1.25	1.90	2.00	2.00	
$C_{Eu,w}/C_{Eu,p}$	0.68	0.60	0.63	0.68	0.63	0.95	1.00	1.00	
$\tau_{Eu,w,\varepsilon(Zr)}$	-0.33	-0.20	-0.31	-0.10	-0.17	0.46	0.25		
$m_{Eu,flux}$ (mg/cm^2)	-0.16	-0.02	-0.18	-0.06	-0.11	0.54	0.30		0.32
Gd ppm	4.70	4.30	4.80	4.80	4.70	7.00	8.50	5.50	
$C_{Gd,w}/C_{Gd,p}$	0.85	0.78	0.87	0.87	0.85	1.27	1.55	1.00	
$\tau_{Gd,w,\varepsilon(Zr)}$	-0.15	0.04	-0.03	0.16	0.14	0.96	0.93		
$m_{Gd,flux}$ (mg/cm^2)	-0.20	0.01	-0.05	0.28	0.25	3.10	3.12		6.52
Tb ppm	0.68	0.63	0.70	0.69	0.66	1.05	1.60	0.69	
$C_{Tb,w}/C_{Tb,p}$	0.99	0.91	1.01	1.00	0.96	1.52	2.32	1.00	
$\tau_{Tb,w,\varepsilon(Zr)}$	-0.01	0.22	0.13	0.33	0.28	1.34	1.90		
$m_{Tb,flux}$ (mg/cm^2)	-0.00	0.01	0.03	0.07	0.06	0.54	0.80		1.51
Dy ppm	3.60	3.40	3.80	3.70	3.60	6.00	11.00	3.40	
$C_{Dy,w}/C_{Dy,p}$	1.06	1.00	1.12	1.09	1.06	1.76	3.24	1.00	
$\tau_{Dy,w,\varepsilon(Zr)}$	0.06	0.33	0.24	0.45	0.41	1.71	3.04		
$m_{Dy,flux}$ (mg/cm^2)	0.05	0.06	0.24	0.49	0.45	3.43	6.30		11.02
Ho ppm	0.68	0.64	0.72	0.72	0.70	1.15	2.60	0.61	
$C_{Ho,w}/C_{Ho,p}$	1.11	1.05	1.18	1.18	1.15	1.89	4.26	1.00	
$\tau_{Ho,w,\varepsilon(Zr)}$	0.11	0.40	0.31	0.57	0.53	1.90	4.33		
$m_{Ho,flux}$ (mg/cm^2)	0.02	0.01	0.06	0.11	0.10	0.68	1.61		2.59
Er ppm	2.00	1.90	2.20	2.10	2.10	3.50	8.50	1.80	
$C_{Er,w}/C_{Er,p}$	1.11	1.06	1.22	1.17	1.17	1.94	4.72	1.00	
$\tau_{Er,w,\varepsilon(Zr)}$	0.11	0.41	0.36	0.56	0.56	1.99	4.90		
$m_{Er,flux}$ (mg/cm^2)	0.05	0.04	0.19	0.32	0.32	2.11	5.37		8.40
Tm ppm	0.30	0.30	0.30	0.30	0.30	0.50	1.20	0.25	
$C_{Tm,w}/C_{Tm,p}$	1.20	1.20	1.20	1.20	1.20	2.00	4.80	1.00	
$\tau_{Tm,w,\varepsilon(Zr)}$	0.20	0.60	0.33	0.60	0.60	2.08	5.00		
$m_{Tm,flux}$ (mg/cm^2)	0.01	0.01	0.02	0.05	0.05	0.31	0.76		1.21
Yb ppm	2.00	1.95	2.30	2.30	2.20	3.50	8.50	1.80	
$C_{Yb,w}/C_{Yb,p}$	1.11	1.08	1.28	1.28	1.22	1.94	4.72	1.00	
$\tau_{Yb,w,\varepsilon(Zr)}$	0.11	0.44	0.42	0.70	0.63	1.99	4.90		
$m_{Yb,flux}$ (mg/cm^2)	0.05	0.04	0.22	0.40	0.37	2.11	5.37		8.56
Lu ppm	0.30	0.29	0.32	0.32	0.32	0.51	1.25	0.29	
$C_{Lu,w}/C_{Lu,p}$	1.03	1.00	1.10	1.10	1.10	1.76	4.31	1.00	
$\tau_{Lu,w,\varepsilon(Zr)}$	0.03	0.33	0.23	0.47	0.47	1.71	4.39		
$m_{Lu,flux}$ (mg/cm^2)	0.00	0.01	0.02	0.04	0.04	0.29	0.77		1.18