

APPENDIX 7. Chemical and other analyses of GHN samples from bench 9, trench LFG-006. Data from other samples from GHN are in the project database. Blank space indicates no data.

Sample	GHN-KMD-0013	GHN-KMD-0015	GHN-KMD-0016	GHN-KMD-0017	GHN-KMD-0018	GHN-KMD-0019	GHN-KMD-0026	GHN-VTM-0194
description	Unit O	Unit R	Unit S	Unit I	Unit J	Unit O	Unit M	Unit I
Major elements (%)								
SiO ₂	63.68	63.83	61.88	61.34	70.45	61.78	69.83	61.99
TiO ₂	0.6	0.7	0.79	0.61	0.36	0.81	0.32	0.55
Al ₂ O ₃	14.59	14.36	14.44	14.37	12.95	14.94	12.81	13.18
FeOT	5.66	5.20	5.01	5.48	3.16	4.86	3.52	4.81
MnO	0.07	0.37	0.31	0.08	0.22	0.32	0.15	0.13
MgO	1.46	2.05	2.83	1.51	1.23	3.14	0.76	1.51
CaO	1.17	1.38	2.97	1.15	0.81	3.59	0.5	1.27
Na ₂ O	2.42	2.49	3.36	2.5	1.29	3.48	2.59	2.28
K ₂ O	3.68	4.07	3.12	3.49	4.81	2.92	4.26	3.52
P ₂ O ₅	0.23	0.25	0.29	0.23	0.08	0.26	0.13	0.27
S	0.06	0.05		1.68		0.04	0.03	1.36
SO ₄	0.23	0.17		1.22		0.05	0.12	1.24
C	0.05	0.16		0.03	0	0.24	0.05	0.08
LOI	4.81	3.7	3.42	7.4	4.2	4.3	3.53	8.05
Total oxides	99.28	99.3		101.64		101.22	98.94	100.52
Total S	0.29	0.22		2.9		0.09	0.15	2.6
Trace elements (ppm)								
As								6.6
Ba	1015	1564	1174	1186	712	1065	609	778
Rb	99	102	76	118	149	73	127	112
Sr	367	421	579	183	197	668	191	161
Pb	158.5	117.4	186.2	125.2	154	154	81	93
Th	9.82	10.34	7.82	13.39	10.45	8	13	12
U	3.59	1.65	2.52	3.98	4.31	3	5	4
Zr	176	160	164	132	240	182	242	149
Nb	17	14	15	13	32	13	26	12
Y	27.4	20.7	16.3	15.3	38	17	49	17
Sc				9.5		10	4	9
V	110	106	126	116	51	91	36	77
Ni	21	25	49	4	0	59	19	25
Cu	133	95	59	92	105	54	40	56
Zn	486	387	451	109	502	320	180	108
Ga	37.3	31.7	35.1	21.2	39	20	23	20
Cr	92	116	88	86	76	81	27	52
Co	50	39	39	32	58			
F	1193	1376	993	1507	1217	1032	753	1511
La				52		42	52	51
Ce				98		83	110	95
Nd				14		36.9	51	40.2
Sm						6.5		6.6
Eu						1.72		1.26

Gd						5.13		5.18
Yb						1.16		1.05
Lu						0.92		0.92
Other parameters								
Paste pH	2.49	4.92	5.74	2.19	3.5	5.84	3.8	2.34
Paste Conductivity	4.24	1.88	2.46	3.63	7.98	1.89	0.94	3.42
Paste Redox								799
Paste TDS	2.12	0.94	1.23	1.82	3.99	0.95	0.47	
Moisture Content	13.67	9.91	9.18	14.97	7.27	10.05	12.7	14.03
NAG pH	6.06	6.78	8.36	2.43	3.88	7.89		2.42
NAG value	0	0	0	25.6	0.5	0		29.74
AP	3.293	2.471	1.819	13.205	1.707	4.94		12.92
NP	5.466	10.93	31.84	0.729	0	46.42		0
Ne tNP	2.173	8.459	30.02	-12.476	-1.71	41.48		-12.92
NPAP	1.66	4.423	17.504	0.055	0	9.4		0
Slake Durability Index	96.77	95.71	95.64	89.29	95.17	97.61	96.59	
Friction Angle (degrees)	40.7	46.9	43.2	43.2	42.7	47.3	42.7	
Residual Friction Angle (degrees)	39.7	43.7	39.3	39.3	37.6	42.2	42	
Cohesion Intercept	28.9		6.7	6.7	0		3.7	
Friction Angle UBC laboratory			40.2		40			
Residual Friction Angle UBC			34.8		34			
QMWI	6	6		5	1	1	1	5
Point Load Index	2.74	4.3	3.38	0.61	6.7	2.96	3.7	
Specific Gravity	2.72	2.66	2.8	2.65	2.65	2.75	2.67	
LL	37.81	33.12	28.11	37.5	30.93	29.55	30.03	
PL	23.5	19.76	20.94	23.5	17.55	22.86	19.02	
PI	14.31	13.36	7.17	14	13.4	6.69	11.01	
SWI	3	2	2	4	3	2	2	4
Mineralogy								
Quartz	30	30	24	32	39	24	35	31
K-feldspar	20	20	22	3	25	18	29	22
Plagioclase	16	15	22	21	4	24	15	14
Epidote	0.2	0.1	12		0.4	7	0.5	2.6
Calcite	0.04	1.4	0.01	0.1		2	0.5	0.6
Pyrite	0.1	0.1	0.2	3	0.4	0.1	0.1	2.3
Fe Oxides	5	5	0.5	0.6	1.7	2	4	2.7
Goethite	0.2	0.1	0.04		0.1			
Hematite	0.3	0.06	0.3		0.1			
Gypsum								
Authentic Gypsum	0.4	0.5	0.5	0.5	0.6	0.16	0.3	1.7

Detritial Gypsum	0.6	0.2	0.5	1	0.6	0.08	0.3	0.1
Molybdenite	0.01							
Biotite	0.01							
Fluorite					0.01			
Apatite	0.6	0.6	0.7	0.4	0.2	0.6	0.3	0.6
Total Clay	26	26	17	33	26	21	15	22
Kaolonite	1	2	1	1	1	1	1	1
Chlorite	3	5	7	4	3	8	2	4
Illite	20	16	4	25	19	9	10	15
Smectite	2	3	5	3	3	3	2	2
Copiapite	0.01	0.14		0.06	0.06			0
Jarosite	0	0.01	0	4	1.4	0	0	0.5
Sphalerite	0.03			0.01				
Rutile	0.3	0.5	0.7	0.6	0.3	0.7	0.1	0.5
Zircon		0.03	0.03	0.03	0.04	0.03	0.04	0.03
Rhodochrosite								
Location								
UTM easting (m)	453711.1	453722.7	453725.1	453695.9	453698.1	453726.6	453728.7	453695.3
UTM northing (m)	4062142	4062142	4062141	4062143	4062143	4062144	4062141	4062143
Elevation (ft)	9734.113	9735.76	9736.107	9730.946	9730.53	9738.55	9736.127	9732.86
Distance from edge of GHN (ft)	52	90	98	2	10	63	110	0
Particle size								
Gravel %	50.6	63.12	74.83	37.21	61.71	53.25	61.18	
Sand %	39.4	29.07	19.59	40.89	33.59	37.82	28.83	
Silt %	8.8	6.4	4.7	21.86	4.7	7.1	6.6	
Clay %	1.1	1.4	0.88	0.04	0	1.8	3.3	
Fines %	9.9	7.8	5.58	21.9	4.7	8.9	9.9	
Total particle size	99.9	99.99	100	100	100	99.97	99.91	
D10	0.075	0.17	0.425		0.5	0.114	0.075	
D30	2	3.23	7.2		3.6	2.43	2.7	
D50	4.94	13.7			8.2	6.08	10.4	
D60	7.92	25.8	47		12.6	10.6	19.1	
Lithology								
Total rock fragments %	80	79	85	76	90	88	95	91
Rhyolite (Amalia Tuff) %	25	0	0	17	35	0	60	85
Andesite %	75	100	100	83	65	100	40	15
Intrusive %								
Alteration								
QSP %	30	25	25	50	20	10	40	75
Propylitic %	5	12	20	2	8	25	1	1
Argillic %	3	3		20				

Sample	GHN-VTM-0195	GHN-VTM-0196	GHN-VTM-0197	GHN-VTM-0198	GHN-VTM-0199	GHN-VTM-0200	GHN-VTM-0201	GHN-VTM-0202
description	Unit J	19unitJ	19unitN	19unitN	19unitN	19unitN	19unitN	19unitN
Major elements (%)								
SiO ₂	62.5	59.7	61.22	66.79	67.28	71.77	64.84	65.92
TiO ₂	0.6	0.8	0.71	0.43	0.43	0.28	0.44	0.51
Al ₂ O ₃	13.42	14.09	14.47	13.39	13.37	14.04	13.72	13.3
FeOT	5.1	6.69	4.91	4.09	4.31	2.72	4.45	4.64
MnO	0.23	0.47	0.37	0.28	0.28	0.15	0.2	0.24
MgO	2.16	2.44	2.44	1.22	1.23	0.54	1.34	1.56
CaO	1.43	0.98	2.17	0.9	0.89	0.33	0.66	1.25
Na ₂ O	2.22	2.46	2.57	2.2	2.06	2.45	2.02	2.17
K ₂ O	3.93	3.48	3.59	4.34	4.02	4.81	4.02	3.84
P ₂ O ₅	0.29	0.34	0.27	0.18	0.19	0.07	0.21	0.19
S	0	0.06	0.02	0.04	0.08	0.05	0.25	0.2
SO ₄	0.6	0.52	0.54	0.25	0.21	0.15	0.4	0.35
C	0.02	0.03	0.07	0.04	0.04	0.03	0.03	0.04
LOI	5.23	5.71	5.35	4.01	4.11	2.68	5.06	4.47
Total oxides	98.29	98.51	99.22	98.57	98.93	100.53	98.09	99.33
Total S	0.6	0.58	0.56	0.29	0.29	0.2	0.65	0.55
Trace elements (ppm)								
As	5	2.9	1.4	2.5	4.7	3		3.1
Ba	1030	1278	1057	712	853	429	953	858
Rb	112	104	98	129	128	138	126	122
Sr	401	359	411	275	246	117	229	279
Pb	115	93	79	100	145	68	85	134
Th	10	10	8	13	13	14	11	11
U	3	1	3	4	3	5	5	4
Zr	202.5	177	184	236	216	255	198	206
Nb	16.6	13	14	24	21	29	18	19
Y	25.5	20.5	30	45	43	52	37	32
Sc	7.5	10.5	9	5	6	3	6	6
V	70	94	75	50	55	22	61	66
Ni	42	59	50	28	29	14	23	32
Cu	102	158.5	102	102	91	40	95	76
Zn	392	536.3	515	303	350	113	245	288
Ga	20	19	20	22	21	25	22	21
Cr	62	82	61	39	42	21	44	47
Co								
F	971		1048	1031	1076	767	1110	973
La	39	39	46	56	53	102	87	51
Ce	97	85	104	115	114	269	163	110
Nd	9.8	37.3	59.1	57.1	53.6	137.3	76	50
Sm	6.5	6.7	11	11.3	10.6	27.3		9.7
Eu	1.24	1.68	1.99	1.15	1.29	1.09		1.16
Gd	5.24	6.08	9.27	9.37	8.82	15.32		7.67
Yb	1.42	1.34	1.86	2.29	2.14	2.61		1.86

Lu	1.08	0.98	1.38	1.75	1.64	1.92		1.41
Other parameters								
Paste pH	2.62	3.57	3.46	3.58	3.4	3.32	3.28	3.62
Paste Conductivity	6.91	12.35	9.97	3.43	1.791	2.94	2.77	1.621
Paste Redox	801	719	726	712	742	755		766
Paste TDS							1.39	
Moisture Content								
NAG pH	3.53		6.62	6.24	6.42	5.68	3.25	3.63
NAG value	0.24		0	0	0	0	2.37	0
AP	1.03	2.4	2.13	2.54	2.75	2.59	5.98	4.26
NP	0	0	16.49	3.48	4.88	0.32	0.65	5.945
Ne tNP	-1.03	-2.4	14.363	0.935	2.13	-2.272	-5.328	1.69
NPAP	0	0	7.743	1.368	1.775	0.123	0.109	1.39554
Slake Durability Index								
Friction Angle (degrees)								
Residual Friction Angle (degrees)								
Cohesion Intercept								
Friction Angle UBC laboratory								
Residual Friction Angle UBC								
QMWI	6	6	6	6	6	6	7	6
Point Load Index								
Specific Gravity								
LL								
PL								
PI								
SWI	4	4	3	3	3	3	3	3
Mineralogy								
Quartz	31	28	26	33	34	28	33	32
K-feldspar	20	18	20	29	25	34	21	24
Plagioclase	14	17	16	12	11	27	12	12
Epidote	0.5		0.6	2	2	0.01	1	3.8
Calcite	0.2	0.2	0.5	0.4	0.4	0.2	0.3	0.4
Pyrite		0.1	0.04	0.1	0.1	0.1	0.5	0.4
Fe Oxides	4	3	4	4	4	0.7	3.5	3.6
Goethite	0.1		0.06	0.09	0.1		0.1	
Hematite	0.2		0.4	0.2	0.1		0.06	
Gypsum								

Authentic Gypsum	0.5	0.5	0.9	0.14	0.4	0.4	0.5	0.002
Detrital Gypsum	1.1	1	1.6	0.06	0.6	0.02	0.5	1.6
Molybdenite								
Biotite								0.9
Fluorite								
Apatite	0.7	0.6	0.6	0.4	0.5	0.1	0.5	0.5
Total Clay	26	30	28	19	22	10	25	20.7
Kaolonite	2	2	3	1	1	1	1	0.9
Chlorite	5	7	6	3	3	1	3	4
Illite	16	19	17	13	15	4	19	13
Smectite	3	2	2	2	3	4	2	2.8
Copiapite	0.1	0.2	0.15	0.02	0	0	0.07	0
Jarosite	1.4	0.7	0.01	0.01	0	0.3	1	0
Sphalerite								
Rutile	0.4	0.6	0.5	0.3	0.3	0.2	0.3	0.4
Zircon	0.04	0.03	0.03	0.04	0.04	0.04	0.04	0.04
Rhodochrosite								
Location								
UTM easting (m)	453696.8	453698.3	453699.8	453701.4	453702.9	453704.4	453708.8	453705.9
UTM northing (m)	4062143	4062143	4062143	4062143	4062142	4062142	4062145	4062142
Elevation (ft)	9734.1	9734.3	9734.51	9734.726	9734.943	9735.16	9735.478	9735.376
Distance from edge of GHN (ft)	5	10	15	20	25	30	6	35
Particle size								
Gravel %								
Sand %								
Silt %								
Clay %								
Fines %								
Total particle size								
D10								
D30								
D50								
D60								
Lithology								
Total rock fragments %	91							
Rhyolite (Amalia Tuff) %	75	86	90	85	90	86		89
Andesite %	25	0	8	30	60	60		45
Intrusive %		100	90	70	35	40		55
Alteration			2		5			
QSP %	30							

Propylitic %	5	20	40	40	45	40		40
Argillic %		8	8	5	3	1		5

Sample	GHN-VTM-0203	GHN-VTM-0204	GHN-VTM-0205	GHN-VTM-0206	GHN-VTM-0207	GHN-VTM-0208	GHN-VTM-0209	GHN-VTM-0210
description	19unitN	17unitO	17unitO	17unitO	17unitO	16unitK	17unitO	17unitO
Major elements (%)								
SiO ₂	66.12	60.17	62.2	62.13	65.97	67.14	64.37	64.4
TiO ₂	0.49	0.72	0.67	0.71	0.55	0.72	0.72	0.7
Al ₂ O ₃	13.21	14.77	14.25	14.64	13.84	14.56	14.41	14.26
FeOT	4.7	6.11	6.49	6.18	4.79	4.72	4.9	4.6
MnO	0.37	0.59	0.38	0.85	0.57	0.29	0.43	0.45
MgO	1.42	2.28	1.9	2.13	1.58	2.48	2.3	2.14
CaO	0.95	1.04	0.5	0.95	0.64	2.74	2.31	2.11
Na ₂ O	1.82	2.33	2.26	2.86	2.59	3.52	3.42	3.32
K ₂ O	4.31	3.54	3.3	3.33	3.9	3.68	3.34	3.54
P ₂ O ₅	0.19	0.34	0.26	0.29	0.22	0.25	0.29	0.27
S	0.13	0.02	0.04	0.05	0.01	0.02	0.02	0.05
SO ₄	0.33	0.31	0.3	0.14	0.15	0.18	0.13	0.11
C	0.03	0.03	0.04	0.03	0.03	0.04	0.04	0.03
LOI	4.43	5.47	5.59	4.88	4.12	2.87	3.23	3.3
Total oxides	99.08	98.33	98.99	99.81	99.53	103.68	100.54	99.86
Total S	0.46	0.33	0.34	0.19	0.16	0.2	0.15	0.16
Trace elements (ppm)								
As		4.3	2.8	3	3.3	0.6	0.7	
Ba	927	1245	1031	1125	938	1294	1117	1118
Rb	144	111	107	100	106		84	88
Sr	221	351	259	380	291		553	544
Pb	163	198	236	115	160		128	133
Th	12	12	10	10	12		9	9
U	2	4	5	3	4		4	4
Zr	205	175	178	184	209		187	187
Nb	18	13	15	13	19		14	15
Y	31	24	28	30	38		43	46
Sc	6	9	7	10	6		9	9
V	31	82	81	82	60		91	82
Ni	31	51	38	58	40		59	60
Cu	76	139	173	180	116		127	99
Zn	294	497	392	571	449		724	798
Ga	21	21	20	20	22		21	19
Cr	47	71	62	64	48		62	60
Co								
F	1156	1305	1438	1323	964	1012	1025	955
La	46	57	50	56	54	63	73	78
Ce	101	125	112	144	130	122	140	135
Nd	45	58	54.1	67.1	59.3	59	66.4	64
Sm		10.5	10.7	13	11.5	11	13	

Eu		1.96	1.59	2.13	1.64	2.01	2.29	
Gd		8.57	8.75	10.64	9.41	10	13.29	
Yb		1.78	1.71	2.23	2.01	2.25	2.86	
Lu		1.12	1.13	1.39	1.51	1.35	1.78	
Other parameters								
Paste pH	3.66	3.54	3.7	3.69	4.13	4.32	4.5	4.63
Paste Conductivity	1.99	1.52	4.35	1.732	2.44	3.11	2.92	2.89
Paste Redox	757	769	749	727	715	701	697	694
Paste TDS								
Moisture Content								
NAG pH	5.96	6.08	4.92	6.26	6.54	7.68	7.05	5.54
NAG value	0	0	0	0	0	0	0	0
AP	2.77	2.69	2.08	1.87	1.56	0.59	0.64	0.8
NP	4.26	3.64	1.53	5.72	3.09	11.89	12.24	11.37
Ne tNP	1.494	0.951	-0.552	3.845	1.534	11.301	11.598	10.57
NPAP	1.539	1.354	0.735	3.056	1.983	20.154	19.122	14.213
Slake Durability Index								
Friction Angle (degrees)								
Residual Friction Angle (degrees)								
Cohesion Intercept								
Friction Angle UBC laboratory								
Residual Friction Angle UBC								
QMWI		6	6	1	1	6	1	
Point Load Index								
Specific Gravity								
LL								
PL								
PI								
SWI	3	2	2	2	2	2	2	2
Mineralogy								
Quartz	33	27	31	27	31	27	27	27
K-feldspar	26	18	13	18	23	27	23	25
Plagioclase	9	15	16	19	16	21	23	21
Epidote			0.01			9.8	7	7
Calcite	0.2	0.2	0.01	0.5	0.3	0.4	0.4	0.4

Pyrite	0.2		0.1	0.1				0.1
Fe Oxides	5	7	7	8	5	1.3	3	2
Goethite								
Hematite								
Gypsum	1.5		0.7					
Authentic Gypsum	1	0.4	0.3	0.3	0.5	0.2	0.01	
Detritial Gypsum	0.5	1	0.4	0.4	0.2	0.01	0.6	0.2
Molybdenite								
Biotite			0.01				0.01	
Fluorite								
Apatite	0.3	0.5	0.4	0.7	0.3	0.6	0.7	0.7
Total Clay	24	31	30	26	24	12.3	17	16
Kaolonite	1	1	1	2	1	0.9	2	2
Chlorite	3	6	5	5	4	6	6	6
Illite	16	21	22	17	14	2.6	7	6
Smectite	4	3	2	2	5	2.8	2	2
Copiapite	0	0	0	0	0	0	0	0
Jarosite	0	0	0.8	0	0	0	0	0
Sphalerite								
Rutile	0.3	0.5	0.4	0.4	0.3	0.7	0.6	0.6
Zircon	0.04	0.03	0.03	0.04	0.03		0.03	0.04
Rhodochrosite			0.5					
Location								
UTM easting (m)	453705.9	453707.4	453708.9	453710.5	453712	453713.8	453715.3	453715.4
UTM northing (m)	4062142	4062142	4062142	4062142	4062142	4062142	4062141	4062142
Elevation (ft)	9735.376	9735.593	9733.81	9734.026	9734.243	9734.503	9734.72	9734.72
Distance from edge of GHN (ft)	35	40	45	50	55	61	66	66
Particle size								
Gravel %								
Sand %								
Silt %								
Clay %								
Fines %								
Total particle size								
D10								
D30								
D50								
D60								
Lithology								
Total rock fragments %			86	85	88	91	92	
Rhyolite (Amalia Tuff)		86	0	10	15	10	0	

%								
Andesite %		0	100	90	80	90	100	
Intrusive %		100			5			
Alteration								
QSP %			45	25	30	35	30	
Propylitic %		30	5	4	3	8	8	
Argillic %		4						

Sample	GHN-VTM-0211	GHN-VTM-0212	GHN-VTM-0213	GHN-VTM-0214	GHN-VTM-0215	GHN-VTM-0216	GHN-VTM-0217
description	17unitO	17unitO	17unitO	17unitO	15unitR	15unitS	17unitM
Major elements (%)							
SiO ₂	62.37	63.65	62.95	62.57	63.84	62.94	69.51
TiO ₂	0.73	0.73	0.73	0.8	0.73	0.74	0.41
Al ₂ O ₃	14.65	14.56	14.66	15.24	14.46	14.52	12.92
FeOT	4.56	4.86	4.82	5.16	5.11	4.85	3.67
MnO	0.37	0.47	0.47	0.41	0.57	0.44	0.16
MgO	2.6	2.62	2.45	2.73	2.39	2.53	0.94
CaO	3	2.74	2.45	2.77	2.07	2.53	1.32
Na ₂ O	3.48	3.29	3.18	3.75	3.2	3.44	2.43
K ₂ O	3.27	3.32	3.57	3.11	3.29	3.33	4.32
P ₂ O ₅	0.3	0.3	0.3	0.31	0.29	0.3	0.16
S	0.02	0.03	0.01	0.01	0.02	0.02	0.05
SO ₄	0.12	0.15	0.12	0.03	0.06	0.04	0.04
C	0.13	0.06	0.12	0.14	0.06	0.1	0.06
LOI	3.54	3.34	3.7	3.69	3.6	3.52	2.52
Total oxides	99.73	100.62	100.01	101.22	100.13	99.77	98.91
Total S	0.14	0.18	0.13	0.04	0.08	0.06	0.09
Trace elements (ppm)							
As	1.6	2.1	2.6	1.7	1.5	1.8	1.3
Ba	1173	1137	1206	1123	1148	1091	705
Rb	83	85	86	73	79	79	127
Sr	619	600	588	653	538	565	278
Pb	180	153	141	88	106	241	60.5
Th	9	8	9	9	9	9	11
U	4	2	3	3	1	2	5
Zr	180	178	175	187	183	183	234.5
Nb	12	12	12	13	13	13	24
Y	22	24	28	25	28	44	44
Sc	9	9	9	9	9	10	5
V	84	90	78	91	79	82	48
Ni	54	63	58	61	57	67	25.5
Cu	68	112	78	71	121	183	34
Zn	462	700	588	468	560	1033	184
Ga	19	20	20	21	20	20	22
Cr	69	71	65	73	65	63	34
Co							

F	894	1072	921.5	854.5	783	1083	992
La	49	47	55	51	53	67	46
Ce	91	93	114	107	113	134	103
Nd	43.8	41.2	52.7	51.5	51.2	63.8	46
Sm	7.6	41.2	9.6	9.2	9.3	12.7	9
Eu	1.8	1.79	2.14	2.97	1.96	2.25	1.01
Gd	6.54	6.56	8.66	7.93	8.15	12.15	7.56
Yb	1.62	1.62	2.01	1.78	1.9	3	1.99
Lu	1.06	1.05	1.21	1.2	1.21	1.75	1.53
Other parameters							
Paste pH	7.92	5.28	8.36	8.98	9.6	9.43	9.56
Paste Conductivity	1.523	2.01	3.83	2.55	1.734	1.939	1.66
Paste Redox	576	701	557	526	498	503	582
Paste TDS							
Moisture Content							
NAG pH	8.9	8.65	8.94	8.48	7.89	9.29	8.68
NAG value	0	0	0	0	0	0	0
AP	1.36	0.82	1.56	1.03	1.34	1.39	0.26
NP	34.48	22.04	33.311	48.805	22.071	33.538	4.55
Ne tNP	33.12	21.221	31.75	47.78	20.73	32.15	4.29
NPAP	25.353	26.879	21.35321	47.3835	16.4709	24.12806	17.49
Slake Durability Index							
Friction Angle (degrees)							
Residual Friction Angle (degrees)							
Cohesion Intercept							
Friction Angle UBC laboratory							
Residual Friction Angle UBC							
QMWI	1	1	1	1	1	1	1
Point Load Index							
Specific Gravity							
LL							
PL							
PI							
SWI	2	2	2	2	2	2	2
Mineralogy							

Quartz	24	26	25	21	27	24	34
K-feldspar	23	23	23	24	22	27	30
Plagioclase	23	21	21	25	21	23	13
Epidote	10	9	5	6	6	8	3
Calcite	1	0.5	1	1	0.6	1	0.6
Pyrite		0.1	0.01				0.1
Fe Oxides	1	2	3	2.9	3	3	3
Goethite							
Hematite							
Gypsum							
Authentic Gypsum	0.01	0.01	0.01	0.01	0.15	0.02	0.01
Detritial Gypsum	0.6	0.3	0.6	0.7	0.15	0.2	0.3
Molybdenite							
Biotite							
Fluorite							
Apatite	0.7	0.7	0.7	0.7	0.7	0.7	0.4
Total Clay	15	17	20	17	18		
Kaolonite	1	2	2	1	1	1	
Chlorite	7	7	6	5	6	5	2
Illite	5	6	10	1	8		8
Smectite	2	2	2	10	3	7	5
Copiapite	0	0	0	0	0	0	0
Jarosite	0	0	0	0	0	0	0
Sphalerite							
Rutile	0.7	0.7	0.6	0.7	0.7	0.6	0.3
Zircon	0.03	0.03	0.03	0.04	0.03	0.03	0.04
Rhodochrosite							0.01
Location							
UTM easting (m)	453716.9	453718.4	453719.9	453721.4	453722.6	453724.2	453725.7
UTM northing (m)	4062142	4062142	4062142	4062142	4062141	4062141	4062141
Elevation (ft)	9734.937	9735.153	9735.37	9735.587	9735.76	9735.977	9736.2
Distance from edge of GHN (ft)	71	76	81	86	90	95	100
Particle size							
Gravel %							
Sand %							
Silt %							
Clay %							
Fines %							
Total particle size							
D10							
D30							
D50							
D60							

Lithology							
Total rock fragments %	89	92	86	85	83	85	91
Rhyolite (Amalia Tuff) %	5	0	0	5	5	15	60
Andesite %	95	100	100	95	95	85	40
Intrusive %							
Alteration							
QSP %	35	25	20	20	25	30	35
Propylitic %	7	9	12	6	10	10	2
Argillic %							