APPENDIX 3 (IN SITU TEST LOCATION AND CRITERIA FOR SELECTING VIABLE TEST, SAMPLE FIELD AND LABORATORY DESCRIPTION, MINERALOGY AND CHEMISTRY)

IN SITU TEST LOCATION AND CRITERIA FOR SELECTION VIABE TEST

Location	Sample Name		UTMnorthing	UTMeasting	Field Measured Cohesion using laboratory friction angle with low normal stress (kPa)	Comments	Accepted or rejected test baed on max. particle size less than 1/5 the shear box size
Middle rock pile	MID-AAF-0001-1	MID-AAF-0001	4060686.00	454294.00	20.59	Unknown (1ft shear box)	Rejected
	MID-AAF-0002-1	MID-AAF-0002	4060694.00	454395.00	14.99	Unknown (1ft shear box)	Rejected
	MID-AAF-0002-2	MID-AAF-0002	na	na	6.07	Unknown (1ft shear box)	Rejected
	MID-AAF-0003-1	MID-AAF-0002	4060694.00	454395.00	7.35	Unknown (1ft shear box)	Rejected
	MID-VTM-0002-1	MID-VTM-0002	4060899.00	454232.00	0.45	5 inch particle size (2ft shear box)	Accepted
Pit Alteration Scar	QPS-AAF-0001-1	QPS-AAF-0001	4062571.00	454144.00	17.09	Unknown (1 ft shear box)	Rejected
	QPS-AAF-0001-2	QPS-AAF-0003	4062571.00	454144.00	28.51	5 inch particle size (1ft shear box)	Rejected
	QPS-AAF-0001-3	QPS-AAF-0005	4062571.00	454144.00	23.90	2 inch particle size (1ft shear box)	Accepted
	QPS-AAF-0008-1	QPS-AAF-0008	4062528.00	454138.00	24.95	6 inch particle size (2 ft shear box)	Rejected
	QPS-AAF-0009-1	QPS-AAF-0009	4062528.00	454138.00	34.87	Unknown (1 ft shear box)	Rejected

	QPS-VTM-0001-1	QPS-VTM-0001	4062568.00	454122.00	9.41	3.5 inch particle size (2 ft shear box)	Accepted
	QPS-AAF-0020-1	QPS-AAF-0020	4062582.00	454135.00	13.96	5.2 inch particle size (2 ft shear box)	Rejected
	QPS-AAF-0022-1	QPS-AAF-0022	4062582.00	454135.00	40.62	10 inch particle size (2 ft shear box	Rejected
Spring Gulch rock pile	SPR-AAF-0001-1	SPR-AAF-0001	4062313.00	455245.00	8.10	3.5 inch particle size (2 ft shear box)	Accepted
	SPR-AAF-0001-2	SPR-AAF-0003	4062313.00	455245.00	12.77	4 inch particle size (2 ft shear box)	Accepted
	SPR-VTM-0005-1	SPR-VTM-0005	4062367.00	455255.00	0.00	5 inch particle size (1 ft shear box)	Rejected
	SPR-VTM-0008-1	SPR-VTM-0008	4062287.00	455257.00	18.61	4 inch particle size (1 ft shear box)	Rejected
	SPR-VTM-0008-2	SPR-ATM-0010	4062287.00	455257.00	4.35	6 inch particle size (1 ft shear box)	Rejected
	SPR-VTM-0012-1	SPR-VTM-0012	4062735.00	454439.00	12.68	1 inch particle size (1 ft shear box)	Accepted
	SPR-VTM-0012-2	SPR-VTM-0014	4062735.00	454439.00	3.96	1inch particle size (1 ft shear box)	Accepted
	SPR-VTM-0012-3	SPR-VTM-0017	4062735.00	454439.00	0.00	1 inch particle size (1 ft shear box)	Accepted
	SPR-VTM-0019-1	SPR-VTM-0019	4062735.00	454440.00	14.51	0.5 inch particle size (1 ft size box)	Accepted
	SPR-VTM-0019-2	SPR-VTM-0021	4062735.00	454440.00	16.80	1 inch particle size (1 ft shear box)	Accepted

Sugar Shack South	SSS-VTM-0600-1	SSS-VTM-0600	4060712.00	454120.00	1.87	1 inch particle size (1 ft shear box0	Accepted
	SSS-VTM-0601-1	SSS-VTM-0601	4060712.00	454110.00	0.00	4 inch particle size (1 ft shear box)	Rejected
	SSS-AAF-0001-1	SSS-AAF-0001	4060898.00	454131.00	6.73	3.5 inch particle size (2 ft shear box)	Accepted
	SSS-AAF-0001-2	SSS-AAF-0004	4060898.00	454131.00	0.00	7.5 inch particle size (2 ft shear box failed test)	Rejected
	SSS-AAF-0005-1	SSS-AAF-0005	4060901.00	454132.00	17.20	1 inch particle size (2ft shear box)	Accepted
	SSS-AAF-0005-2	SSS-AAF-0007	4060901.00	454132.00	4.10	9 inch particle size (2 ft shear box)	Rejected
	SSS-AAF-0009-1	SSS-AAF-0009	4060902.00	454132.00	2.01	4 inch particle size (2 ft shear box)	Accepted
	SSS-AAF-0009-2	SSS-AAF-0013	4060902.00	454132.00	1.54	6 inch particle size (2 ft shear box)	Rejected
Sugar Shack West	SSW-AAF-0001-1	SSW-AAF-0001	4060616.00	453672.00	14.90	Unknow (1 ft shear box)	Rejected
	SSW-AAF-0002-1	SSW-AAF-0002	4060617.00	453672.00	0.00	3 inch particle size (1 ft shear box)	Rejected
	SSW-AAF-0002-2	SSW-AAF-0105	4060617.00	453672.00	14.88	3 inch particle size (1 ft shear box)	Rejected
	SSW-AAF-0002-3	SSW-AAF-0108	4060617.00	453672.00	0.00	3 inch particle size (1 ft shear box)	Rejected

	SSW-AAF-0004-1	SSW-AAF-0004	4060616.00	453677.00	8.65	1 inch particle size (1 ft shear box)	Accepted
	SSW-AAF-0005-1	SSW-AAF-0005	4060554.00	453699.00	25.86	4 inch particle size (2 ft shear box)	Accepted
	SSW-AAF-0007-1	SSW-AAF-0007	4060551.00	453687.00	13.16	4 inch particle size (2 ft shear box)	Accepted
	SSW-VTM-0600-1	SSW-VTM-0600	4060829.00	453963.00	19.29	1 inch particle size (1 ft shear box0	Accepted
	SSW-VTM-0600-2	SSW-VTM-0001	4060829.00	453963.00	13.64	1 inch particle size (1 ft shear box0	Accepted
	SSW-VTM-0600-3	SSW-VTM-0004	4060578.00	453691.00	2.23	1 inch particle size (1 ft shear box0	Accepted
	SSW-VTM-0016-1	SSW-VTM-0016	4060491.00	453841.00	9.34	11 inch particle size (2 ft shear box)	Rejected
	SSW-VTM-0016-2	SSW-VTM-0019	4060491.00	453841.00	0.00	7 inch particle size (2 ft shear box)	Rejected
	SSW-VTM-0023-1	SSW-VTM-0023	4060499.00	453838.00	2.09	7 inch particle size (2 ft shear box)	Rejected
	SSW-VTM-0026-1	SSW-VTM-0026	4060592.00	453832.00	0.32	3 inch particle size (2ft shear box)	Accepted
	SSW-VTM-0026-2	SSW-VTM-0028	4060592.00	453832.00	2.66	7 inch particle size (2 ft shear box)	Rejected
	SSW-VTM-0030-1	SSW-VTM-0030	4060588.00	453831.00	12.18	4.5 inch particle size (2 ft shear box)	Rejected
	SSW-VTM-0030-2	SSW-VTM-0030	4060588.00	453831.00	0.00	6.5 inch particle size (2 ft shear box)	Rejected

Debris Flows	MIN-AAF-0001-1	MIN-AAF-0001	4059911.00	452374.00	31.39	5 inch particle size (2ft shear box)	Accepted
	MIN-AAF-0004-1	MIN-AAF-0004	4059912.00	452374.00	25.72	5.5 inch particle size (2ft shear box)	Rejected
	MIN-AAF-0010-1	MIN-AAF-0012	4059925.00	452366.00	39.83	5.5 inch particle size (2ft shear box)	Rejected
	MIN-AAF-0012-1	MIN-AAF-13	4059922.00	452363.00	46.11	5 inch particle size (2ft shear box)	Accepted
	MIN-AAF-0015-1	MIN-AAF-0015	4059925.00	452366.00	25.52	7 inch particle size (2 ft shear box)	Rejected

FIELD AND LABORATORY DESCRIPTION OF SAMPLES TESTED IN SITU (party written communication, 5/08/2007)

Location	In situ id	Bucket Sample_id	field description	color	grain size	alteration	Water content	Structure	Plasticity	Grain angularity	Sorting
Middle Rock Pile	MIDAAF0001-1	MIDAAF0001	well graded soil	yellow brown	gravel with fines	QSP of Amalia and prophyry	moist	massive	nonplastic	angular	poor
	MIDAAF0002-1	MIDAAF0002	well graded rocky soil	yellow brown	gravel with fines	QSP of Amalia and prophyry	dry	massive	nonplastic	angular	poor
	MIDAAF003-1	MIDAAF0003	well graded rocky soil	brown	gravel with fines	QSP		massive	nonplastic	angular	poor
	MIDVTM0002-1	MIDVTM0002		yellow brown	boulders to clay	QSP	moist	massive	medium	angular	poor
Debris Flow	MINAAF0001	MINAAF0001		tan	gravelly sand with boulders and fines	QSP	dry	massive	nonplastic	subangular to subrounded	poor
	MINAAF0004	MINAAF0004		tan	gravelly sand with boulders and fines	QSP	dry	massive	nonplastic	subangular to subrounded	poor
	MINAAF0010-1	MINAAF0012	well graded debris flow	light brown	cobbles to clay	QSP	dry	lensed	nonplastic	angullar to subngulr	poor
	MINAAF0012-1	MINAAF0013	well graded debris flow	light brown	cobbles to clay	QSP	dry	layered	nonplastic	angullar to subngular	poor

	MINAAF0015-1	MINAAF0015	well graded debris flow	light brown	cobbles to clay	QSP	dry	layered	nonplastic	angullar to subngular	poor
Pit Alteration Scars	QPSAAF0001-1	QPSAAF0001	clayey gravel	brown	clayey gravel	QSP	damp	stratified	high	subangular	poor
	QPSAAF0001-2	QPSAAF0003	clayey gravel	brown	clayey gravel	QSP	damp	stratified	high	subangular	poor
	QPSAAF001-3	QPSAAF0005	brown rocky clayey gravel	brown	clayey gravel with cobbles	QSP	damp	stratified	high	subangular	poor
	QPSAAF008-1	QPSAAF0008	colluvium with jarosite, gypsum on rock fragments	yellow brown	clayey gravel with cobbles	QSP	moist	stratified	medium	angular	poor
	QPSAAF009-1	QPSAAF0009	colluvium with jarosite, gypsum on rock fragments	yellow brown	clayey gravel with cobbles	QSP	moist	stratified	medium	angular	poor
	QPSAAF0020-1	QPSAAF0020	well graded GWGC	yellow brown	large rocks to clay	QSP	moist	layered	high	angular to subangular	poor to moderat
	QPSAAF0021-1	QPSAAF0021	well graded GWGC	yellow brown	large rocks to clay	QSP	moist	layered	high	angular to subangular	poor to moderat
	QPSVTM0001-1	QPSVTM0001	well graded GWGC	brown	large rocks to clay	QSP	damp	layered	medium	angular to subangular	poor to moderat
Spring Gulch Rock Pile	SPRAAF0001-1	SPRAAF0001		brown to brown gray	GPGC cobbles to fines	propyllitic	moist	matrix supported	moderate	angular	poor

	SPRAAF0001-2	SPRAAF0003	matrix supported	brwon	cobbles to fines	prop	moist	plastic	plastic	angular	poor
	SPRVTM0005-1	SPRVTM0005	rocky soil	dark gray	gravel with fines, cobbles	argillic	moist	massive	nonplastic	angular	poor
	SPRVTM0008-1	SPRVTM0008	loose rocky soilwith grass roots	dark gray	gravel with fines, cobbles	argillic, calcite, chlorite	moist	massive	nonplastic	angular	poor
	SPRVTM0008-2	SPRVTM0010	loose rocky soil with grass roots	dark gray	gravel with fines, cobbles	argillic, calcite, chlorite	moist	massive	nonplastic	angular	poor
	SPRVTM0012-1	SPRVTM0012	weathered rocky soil	gray and brown	clayey gravel with cobbles	QSP	moist	massive	medium	angular	poor
	SPRVTM0012-2	SPRVTM0014	weathered rocky soil	gray	clayey gravel with cobbles	QSP	moist	massive	medium	angular	poor
	SPRVTM0012-3	SPRVTM0017	weathered rocky soil	dark gray	clayey gravel with cobbles	QSP	moist	massive	high	angular	poor
	SPRVTM0019-1	SPRVTM0019	rocky clayey soil	gray with brown	clayey gravel with cobbles	QSP	moist	massive	medium	angular	poor
	SPRVTM0019-2	SPRVTM0021	rocky clayey soil	gray with brown	clayey gravel with cobbles	QSP	moist	massive	medium	angular	poor
Sugar Shack South	SSSAAF0001-1	SSSAAF0001	rocky	light brown	cobbles with fines	QSP	moist	stratified	medium	angular	poor
	SSSAAF0001-2	SSSAAF0004		light brown	cobbles with fines	QSP	moist	stratified	medium	angular	poor

	SSSAAF0005-1	SSSAAF0005		orange brown	cobbles with fines	QSP		stratified	medium	angular	poor
	SSAAF0005-2	SSSAAF0007		orange brown	cobbles with fines	QSP	moist	stratified	medium	angular	poor
	SSSAAF0009-1	SSSAAF009		gray with some brown	cobbles with fines	QSP	moist	stratified	well	angular	poor
	SSSAAF0009-2	SSSAAF0013		yellow gray	cobbles with fines	QSP	moist	stratified	medium	angular	poor
	SSSAAF0600-1	SSSVTM0600	rocky soil	brown gray	gravel with fines, cobbles	argillic, some chlorite	moist	massive	nonplastic	angular	poor
	SSSAAF0601-1	SSSVTM0601	loose rock pile material	brown	gravel with fines, cobbles	argillic, some chlorite	moist	massive	nonplastic	angular	poor
Sugar Shack West	SSWAAF0001-1	SSWAAF0001	well graded soil	brown	gravey sand	QSP	moist	stratified	nonplastic	angular	poor
	SSWAAF0002-1	SSWAAF0002	select clay lense	white gray	clayey gravel	QSP	moist	massive	high	angular	moderate
	SSWAAF0004-1	SSWAAF0004	granular soil	brown and gray	gravel with fines		moist	massive	nonplastic	angular	poor
	SSWAAF0005-1	SSWAAF0005	well graded	brown	cobbles to clay	QSP	damp	layered	Some plastic	angular to subangular	poor
	SSWAAF0007-1	SSWAAF0007	well graded	brown	cobbles to clay	QSP	dry	layered	minor	angular	poor
	SSWAAF0002-2	SSWAAF1007	well graded soil	brown	gravey sand	QSP	moist	massive	nonplastic	angular	poor

	SSWAAF0002-3	SSWAAF1008	granular	brown	gravel sand	QSP	moist	massive	nonplastic	angular	poor
	SSWVTM0600-1	SSWVTM0600	rocky soii with clay lenses	brown	gravel with fines	QSP acid generating	moist	massive	low	angular	poor
	SSWVTM0600-2	SSWVTM0001	rocky soil with clay lenses	brown	gravel with fines and cobbles	QSP acid generating	moist	massive	low	angular	poor
	SSWVTM0600-3	SSWVTM0004	crust at surface of hoodoo, up to 3 inches thick	brown and tan gray	gravelly sand with cobbles and fines	QSP, weathered	moist	stratified	medium	angular	poor
	SSWVTM0016-1	SSWVTM0016		dark gray with some yellow	cobbles to clay	QSP	moist	stratified	medium	angular	poor
	SSWVTM0016-2	SSWVTM0019	layered, dipping 15 degrees on north wall	dark olive gray to brown with some yellow orange	cobbles to clay	QSP	moist	stratified	medium	angular	poor
	SSWVTM0023-1	SSWVTM0023	layered, dipping 15 degrees on north wall	gray with some yellow orange	cobbles to clay	QSP	moist	stratified	medium	angular	poor
	SSWVTM0026-1	SSWVTM0026		yellow orange	cobbles to clay	QSP	moist	massive	low	angular	poor
	SSWVTM0026-2	SSWVTM0028		yellow orange	cobbles to clay	QSP	moist	massive	low	angular	poor
	SSWVTM0030-1	SSWVTM0030		yellow brown	cobbles to clay	QSP	moist	massive	medium	angular	poor
	SSWVTM0030-2	SSWVTM0032		orange brown	cobbles to clay	QSP	moist	massive	medium	angular	poor

Location	In situ id	Bucket Sample_id	general appearance	Cementation	Cement minerals	Consistency	lithology	USCS_Texture	SWI
Middle Rock Pile	MIDAAF0001-1	MIDAAF0001	top 6 inches is loose material, below that is denser	moderate		firm	Amalia, andesite, volcaniclastic, porphyry	GP	4
	MIDAAF0002-1	MIDAAF0002	plastic clumps of gray clay sample as MID-VTM-0001	moderate		firm	Amalia, andesite, volcaniclastic, porphyry	SP	4
	MIDAAF003-1	MIDAAF0003	mixture of gray clay and large cobbles/boulders, appears to have more clay and is denser than upper two samples tested	moderate		firm	Amalia, andesite, volcaniclastic, apite porphyry	SP	4
	MIDVTM0002-1	MIDVTM0002	pockets of gray plastic clay	moderate	gypsum, clay	soft	Amalia	GM	4
Debris Flow	MINAAF0001	MINAAF0001	2 ft boulders, lots of roots	poor		soft	Amalia, andesite, porphyryr	GP	3
	MINAAF0004	MINAAF0004	2 ft boulders, lots of roots, pockets of plastic clay	weak	clay, gypsum	soft	Amalia, andesite, porphyryr	GP-GC	3

	MINAAF0010-1	MINAAF0012	dip of beds deg S, dip of slope 15 deg S	moderate		dense	andesite, porphyry, Amalia	GP	4
	MINAAF0012-1	MINAAF0013		moderate		firm	andesite, porphyry, Amalia	GP	4
	MINAAF0015-1	MINAAF0015	beds dip 20 degree S	moderate		firm	andesite, porphyry, Amalia	SP	4
Pit Alteration Scars	QPSAAF0001-1	QPSAAF0001	roots	well	clay	firm	andesite, porphyry	GP-GC	4
	QPSAAF0001-2	QPSAAF0003	roots in block	well	clay	firm	andesite, porphyry	GP-GC	4
	QPSAAF001-3	QPSAAF0005		well	clay	firm	andesite, porphyry	GP-GC	4
	QPSAAF008-1	QPSAAF0008	upwards fining sequence, more ngulr than QPS-AAF-0001	well	clay	firm	andesite, Amalia	GP-GC	5
	QPSAAF009-1	QPSAAF0009	upwards fining sequence, more ngulr than QPS-AAF-0001	well	clay	firm	andesite, Amalia	GP-GC	5
	QPSAAF0020-1	QPSAAF0020	clay lenses are wetter than sand lenses	moderate	gypsum, clay	soft	andesite, Amalia	GP	5

	QPSAAF0021-1	QPSAAF0021	clay lenses are wetter than sand lenses	moderate	gypsum, clay	soft	andesite, Amalia	GP	5
	QPSVTM0001-1	QPSVTM0001	clay lenses are wetter than sand lenses	moderate	gypsum, clay	soft	andesite, Amalia	GP	5
Spring Gulch Rock Pile	SPRAAF0001-1	SPRAAF0001		poor	calcite, clay	firm	andesite, porphyry	GP	2
	SPRAAF0001-2	SPRAAF0003		poor	calcite clay	firm		GP	2
	SPRVTM0005-1	SPRVTM0005	fresh pyrite, calcite, some plastic clay	none		soft	andesite, porphyry	GP-GM	2
	SPRVTM0008-1	SPRVTM0008		none		soft	andesite, porphyry	GP-GM	2
	SPRVTM0008-2	SPRVTM0010		none		soft	andesite, porphyry	GP-GM	2
	SPRVTM0012-1	SPRVTM0012	some pyrite in porphyry fragments	well	clay, gypsum	firm	andesite, porphyry, Amalia	GP-GM	4

	SPRVTM0012-2	SPRVTM0014	some pyrite in porphyry fragments, more cobbles than SPR-VTM-0012	well	clay, gypsum	firm	andesite, porphyry, Amalia	GP-GM	4
	SPRVTM0012-3	SPRVTM0017	some pyrite in porphyry fragments, more cobbles than SPR-VTM-0012	well	clay, gypsum	firm	andesite, porphyry, Amalia	GP-GM	4
	SPRVTM0019-1	SPRVTM0019	some pyrite in porphyry fragments, more cobbles than SPR-VTM-0012	well	clay, gypsum	firm	andesite, porphyry, Amalia	GP-GC	4
	SPRVTM0019-2	SPRVTM0021	some pyrite in porphyry fragments, less cobbles than SPR-VTM-0012, similar to SPR-VTM-0019	well	clay, gypsum	firm	andesite, porphyry, Amalia	GP-GC	4
Sugar Shack South	SSSAAF0001-1	SSSAAF0001		weak	gyp	soft	andesite, Amalia	GP-GC	3
	SSSAAF0001-2	SSSAAF0004		moderate	gyp	soft	andesite	GP	3
	SSSAAF0005-1	SSSAAF0005		moderate	gyp	firm	andesite, Amalia	GP	3
	SSAAF0005-2	SSSAAF0007		moderate		firm	andesite, Amalia	GP	3
	SSSAAF0009-1	SSSAAF0009		none		soft	andesite, Amalia	GP-GC	3
	SSSAAF0009-2	SSSAAF0013		none		soft	andesite, Amalia	GP-GC	3

	SSSAAF0600-1	SSSVTM0600		poor		soft	andesite, porphyry	GP-GC	2
	SSSAAF0601-1	SSSVTM0601	very coarse material held mostly by matric suction	none		soft	andesite, porphyry, Amalia	GP-GC	2
Sugar Shack West	SSWAAF0001-1	SSWAAF0001		poor	clay	firm	Amalia, andesite, volcaniclastic, apite porphyry	GM	4
	SSWAAF0002-1	SSWAAF0002		well	clay	firm		GP	4
	SSWAAF0004-1	SSWAAF0004				firm	andesite, porphyry, Amalia	GP	3
	SSWAAF0005-1	SSWAAF0005	beds dip 35 degrees W, some zones of plastic clay	some		dense	andesite, Amalia	GP	4
	SSWAAF0007-1	SSWAAF0007		some		dense	andesite and amalia	SP	4
	SSWAAF0002-2	SSWAAF1007		poor		soft	Amalia, andesite, apite porphyry	GP	3
	SSWAAF0002-3	SSWAAF1008		poor		firm	andesite, porphyry, Amalia	GP	3
	SSWVTM0600-1	SSWVTM0600		moderate	clay, gypsum	firm	Amalia, andesite, porphyry	GP	4

	SSWVTM0600-2	SSWVTM0001		moderate	clay, gypsum	firm	Amalia, andesite, porphyry	GP	4
	SSWVTM0600-3	SSWVTM0012	dip 30-35 degrees, pocket penetrometer .25 ton/ft2, pckets of plastic clay	well	gypsum, clay?	firm	Amalia, andesite	GP	4
	SSWVTM0016-1	SSWVTM0016		moderate	gypsum	firm	andesite, Amalia	GP	3
	SSWVTM0016-2	SSWVTM0019		moderate	gypsum	soft	andesite	GP	3
	SSWVTM0023-1	SSWVTM0023		moderate	gypsum	soft	andesite	GP	3
	SSWVTM0026-1	SSWVTM0026		weak	gypsum	firm	andesite, Amalia	GP	3
	SSWVTM0026-2	SSWVTM0028		weak	gypsum	firm	andesite, Amalia	GP	3
	SSWVTM0030-1	SSWVTM0030		weak	gypsum	firm	andesite, Amalia	GP	3
	SSWVTM0030-2	SSWVTM0032		weak	gypsum	firm	andesite, Amalia	GP	3

MINERALOGY RESULTS

In situ sample	In situ test id	Cohesion (kPa)	Quartz	K-spar/orthoclase	Plagioclase	Illite	Chlorite	Smectite	Kaolinte	Epidote	Fe oxides	Rutile	Apatite
MID-VTM-0002	MID-VTM-0002-1	0.45	48	17	2	20	1	2	1		4	0.2	0.1
MIN-AAF-0001	MIN-AAF-0001-1	31.39	46	13	3	23		8	2	0.0001	2	0.3	0.1
MIN-AAF-0013	MIN-AAF-0012-1	46.11	50	19	4	13		1	10		1	0.3	0.0001
QPS-AAF-0005	QPS-AAF-0001-3	23.90	30	10	16	12	0	21	2		0.3	0.6	0.2
QPS-VTM-0001	QPS-VTM-0001-1	9.41	33	12	16	25	3	3	1	0.0001	4	0.4	0.5
SPR-AAF-0001	SPR-AAF-0001-1	8.10	24	16	28	2	7	12	1	5	2	0.7	0.8
SPR-AAF-0003	SPR-AAF-0001-2	12.77	22	18	27	2	5	16	1	1.5	4	0.7	0.8
SPR-VTM-0012	SPR-VTM-0012-1	12.68	56	11	0.8	26		2	2	0.0001	0.7	0.1	
SPR-VTM-0014	SPR-VTM-0012-2	3.96											
SPR-VTM-0017	SPR-VTM-0012-3	0.00	49	18		24		5	2		0.3	0.3	
SPR-VTM-0019	SPR-VTM-0019-1	14.51	52	21		20		3	2		0.8	0.1	
SPR-VTM-0021	SPR-VTM-0019-2	16.80	51	22		20		4	2		0.5	0.2	
SSS-AAF-0001	SSS-AAF-0001-1	6.73	28	18	7	15	3	19	3		1	0.6	0.6
SSS-AAF-0005	SSS-AAF-0005-1	17.20	35	4	5	17	1	29	1		3	0.6	0.6
SSS-AAF-0009	SSS-AAF-0009-1	2.01	47	15	1	23		7	1		1	0.3	0.3
SSS-VTM-0600	SSS-VTM-0600-1	1.87	36	17	13	18	2	1	7		4	0.4	0.7
SSW-AAF-1009	SSW-AAF-0004-1	8.65	30	16		16	5	2	2	5	1	0.6	0.5
SSW-AAF-0005	SSW-AAF-0005-1	25.86	33	11	18	25	0.4	3	1		4	0.6	0.3
SSW-AAF-0007	SSW-AAF-0007-1	13.16	29	26	8	2	1	21	4	2	1	0.6	0.6
SSW-VTM-0600	SSW-VTM-0600-1	19.29	56	3	1	17		1	14		2	0.1	
SSW-VTM-0001	SSW-VTM-0600-2	13.64	44	29		2		2	16		2	0.3	2
SSW-VTM-0004	SSW-VTM-0600-3	2.23	49	10		25		6	1		1	0.3	0.2
SSW-VTM-0027	SSW-VTM-0026-1	0.32	30	16	8	23	6	2	2	5	3	0.5	0.6
SSW-VTM-0030	SSW-VTM-0030-1	12.18	31	8	13	23	5	2	1	7	1	0.6	0.7

In situ sample	In situ test id	Cohesion (kPa)	Pyrite	Calcite	Gypsum	Detrit gypsum	Auth gypsum	Zircon	Fluorite	Jarosite	Pyrite+Calcite+Epidote	Gypsum+Jarosite+Fe oxide	Gypsum+Jarosite
MID-VTM-0002	MID-VTM-0002-1	0.45	2	0.1		0.07	0.6	0.06		2	2.1	6	2
											0	0	0
MIN-AAF-0001	MIN-AAF-0001-1	31.39	0.0001	0.1		0.1		0.04		2	0.1002	4	2
MIN-AAF-0013	MIN-AAF-0012-1	46.11	0.0001	0.3			0.0001	0.06		1	0.3001	2	1
											0	0	0
QPS-AAF-0005	QPS-AAF-0001-3	23.90	2	0.4		1	0.7	0.03		4	2.4	4.3	4
QPS-VTM-0001	QPS-VTM-0001-1	9.41	0.2	0.4		1.1	0.06	0.03		0.34	0.6001	4.34	0.34
SPR-AAF-0001	SPR-AAF-0001-1	8.10	0.5	0.4			0.6	0.03		0.0001	5.9	2.0001	0.0001
SPR-AAF-0003	SPR-AAF-0001-2	12.77	0.5	0.4			1.3	0.03			2.4	4	0
SPR-VTM-0012	SPR-VTM-0012-1	12.68	0.3	0.1		0.04		0.06	0.01	0.6	0.4001	1.3	0.6
SPR-VTM-0014	SPR-VTM-0012-2	3.96									0	0	0
SPR-VTM-0017	SPR-VTM-0012-3	0.00	0.9	0.1	0.02			0.04	0.02	1	1	1.32	1.02
SPR-VTM-0019	SPR-VTM-0019-1	14.51	0.3	0.1			0.02	0.06		0.6	0.4	1.4	0.6
SPR-VTM-0021	SPR-VTM-0019-2	16.80	0.2	0.1			0.02	0.06			0.3	0.5	0
											0	0	0
SSS-AAF-0001	SSS-AAF-0001-1	6.73	0.5	0.2	2					2	0.7	5	4
SSS-AAF-0005	SSS-AAF-0005-1	17.20	0.4	0.1		1.2	0.01	0.04		2	0.5	5	2
SSS-AAF-0009	SSS-AAF-0009-1	2.01	0.5	0.4	0.7			0.04		2	0.9	3.7	2.7
SSS-VTM-0600	SSS-VTM-0600-1	1.87	0.2	0.2	0.5			0.04		0.6	0.4	5.1	1.1
											0	0	0
SSW-AAF-1009	SSW-AAF-0004-1	8.65	0.8	0.3	3.5			0.03		2	6.1	6.5	5.5
SSW-AAF-0005	SSW-AAF-0005-1	25.86	0.2	0.2	0.3			0.03	0.0001	3	0.4	7.3	3.3
SSW-AAF-0007	SSW-AAF-0007-1	13.16	1	0.4	2			0.03		2	3.4	5	4
SSW-VTM-0600	SSW-VTM-0600-1	19.29	1	0.1		1.3		0.04		4	1.1	6	4
SSW-VTM-0001	SSW-VTM-0600-2	13.64	1.5	0.0001	0.5						1.5001	2.5	0.5
SSW-VTM-0004	SSW-VTM-0600-3	2.23	0.5	0.4	1			0.04		5.5	0.9	7.5	6.5
SSW-VTM-0027	SSW-VTM-0026-1	0.32	0.5	0.4		1.4	0.9	0.03		0.7	5.9	3.7	0.7
SSW-VTM-0030	SSW-VTM-0030-1	12.18	1	0.6		2.6	0.5	0.03		3.5	8.6	4.5	3.5

CHEMISTRY RESULTS

In situ Test id	In situ sample id	Cohesion (kPa)	SiO2	TiO2	Al2O3	Fe2O3T	FeOT	FeO	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	S	SO4	C	LOI
MID-VTM-0002-1	MID-VTM-0002	0.45	73.35	0.14	11.05	2.62	2.38	1.24	1.26	0.05	0.43	0.57	0.31	4.82	0.04	1.01	0.53	0.02	3.98
QPS-AAF-0001-3	QPS-AAF-0005	23.90	61.85	0.599	14.31	4.84	4.4	2.57	2.01	0.049	1.54	1.44	1.82	3.65	0.23	0.02	1.17	0.03	8.03
QPS-VTM-0001-1	QPS-VTM-0001	9.41	63.62	0.61	14.26	4.58	4.16	2.4	1.94	0.04	1.4	1	1.85	3.6	0.24	0.13	0.75	0.05	6.27
SPR-AAF-0001-1	SPR-AAF-0001	8.10	62	0.78	14.42	5.5	5	3	2.2	0.11	3.69	2.18	3.38	2.77	0.33	0.29	0.12	0.04	2.96
SPR-AAF-0001-2	SPR-AAF-0003	12.77	60.25	0.79	14.42	5.82	5.29	3.21	2.29	0.13	3.31	1.86	3.2	3.04	0.35	0.29	0.27	0.05	4.24
SPR-VTM-0012-1	SPR-VTM-0012	12.68	80.11	0.145	11.66	0.308	0.77	-0.32	0.66	0.009	0.23	0.02	0.14	3.48	0.035	0.15	0.11	0.03	2.64
SPR-VTM-0012-2	SPR-VTM-0014	3.96	77.69	0.15	11.55	0.9	0.82	0.08	0.81	0.01	0.27	0.02	0.36	4	0.03				2.44
SPR-VTM-0012-3	SPR-VTM-0017	0.00	76.17	0.293	12.85	1.397	1.27	0.35	1.01	0.015	0.51	0.01	0.14	4.23	0.028	0.46	0.21	0.03	3.23
SPR-VTM-0019-1	SPR-VTM-0019	14.51	76.81	0.14	11.53	1.31	1.19	0.35	0.93	0.01	0.37	0.01	0.16	4.14	0.03	0.14	0.12	0.02	2.77
SPR-VTM-0019-2	SPR-VTM-0021	16.80	76.77	0.15	11.8	1.09	0.99	0.19	0.88	0.02	0.37	0.01	0.11	4.29	0.03	0.13	0.11	0.01	2.71
SSS-AAF-0001-1	SSS-AAF-0001	6.73	59.44	0.64	14.29	6.34	5.76	3.56	2.42	0.06	2.28	1.85	1.33	3.67	0.27	0.28	0.83	0.02	6.79
SSS-AAF-0005-1	SSS-AAF-0005	17.20	64.12	0.64	14.46	5.69	5.17	3.12	2.26	0.041	2.03	0.76	0.67	3.59	0.23	0.19	0.78	0.03	6.4
SSS-AAF-0009-1	SSS-AAF-0009	2.01	73.62	0.313	12.62	1.62	1.47	0.51	1.06	0.025	0.72	0.45	0.58	4.11	0.034	0.26	0.45	0.025	4.08
SSS-VTM-0600-1	SSS-VTM-0600	1.87	67.31	0.526	14.75	4.444	4.04	2.28	1.94	0.132	1.25	0.82	1.5	4.1	0.225	0.11	0.1	0.06	4.2
SSW-AAF-0004-1	SSW-AAF-1009	8.65	62.28	0.579	13.71	4.862	4.42	2.61	1.99	0.064	1.83	1.99	1.93	3.9	0.233	0.5	1.19	0.03	6.9
SSW-AAF-0005-1	SSW-AAF-0005	25.86	60.01	0.56	13.63	5.3	4.82	2.9	2.11	0.06	1.86	1.85	2.28	3.67	0.25	0.12	1.34	0.04	7.63
SSW-AAF-0007-1	SSW-AAF-0007	13.16	64.77	0.57	13.76	4.58	4.16	2.42	1.92	0.05	1.69	1.14	1.67	3.83	0.24	0.79	0.61	0.04	5.37
SSW-VTM-0600-1	SSW-VTM-0600	19.29	72.85	0.199	11.17	2.629	2.39	1.24	1.27	0.047	0.59	0.77	0.21	4.1	0.04	0.47	1.07	0.02	5.89
SSW-VTM-0600-2	SSW-VTM-0001	13.64	68.4	0.34	11.54	3.619	3.29	1.88	1.55	0.091	0.84	1.34	0.8	3.59	0.932	0.24	1.63	0.02	7.86
SSW-VTM-0600-3	SSW-VTM-0004	2.23	70.156	0.241	11.344	2.935	2.669	1.44	1.35	0.04	0.549	0.804	0.227	4.124	0.048	0.34	1.1	0.03	6.48
SSW-VTM-0026-1	SSW-VTM-0027	0.32	62.29	0.647	14.59	5.874	5.34	3.24	2.31	0.103	2.26	1.45	1.52	3.69	0.272	0.35	0.71	0.04	5.84
SSW-VTM-0030-1	SSW-VTM-0030	12.18	62.14	0.628	14.47	5.467	4.97	2.98	2.19	0.087	1.78	2.09	1.88	3.66	0.263	0.64	0.71	0.07	5.8
MIN-AAF-0001-1	MIN-AAF-0001	31.39	73.34	0.391	12.82	3.014	2.74	1.42	1.45	0.021	0.66	0.1	0.39	4.29	0.114	0	0.38	0.23	4.27
MIN-AAF-0012-1	MIN-AAF-0013	46.11	74.83	0.33	12.12	1.74	1.58	0.61	1.07	0.02	0.5	0.04	0.53	4.28	0.07	0.01	0.23	0.07	3.2