APPENDIX 2: SAMPLE LOCATIONS AND DESCRIPTIONS

Sample locations, descriptions, and select petrographic descriptions for those samples collected and analyzed for elemental/isotopic geochemistry. Representative samples were point counted using a Swift Point Counter with a target of 1000 counts per thin section and a step interval of two. Microscopic textures and point counted modes directly follow field descriptions for this subset. Samples are listed in the order they were collected. Northing and Easting correspond to UTM Zone 11 T and the map datum is NAD 27 CONUS.

****** ERROR NOTICE: THE NORTHING AND EASTING VALUES LISTED BELOW ARE TRANSPOSED ******

Sample ID: MB00-1 **Petrologic Type:** Tad_1 **Map Type:** Thc
Northing: 456539 **Easting:** 4611169
Description: Vesicular, dark gray matrix with abundant small plagioclase phenocrysts (up to 3 mm).

Sample ID: MB00-2, 3 **Petrologic Type:** Thc **Map Type:** Thc
Northing: 456372 **Easting:** 4611475
Description: Rhyolite, massive with gray/purple altered matrix. Abundant feldspars. Appears to be upper part of flow, cut by dike of similar material. MB00-3 is fresher sample of the same.

Sample ID: MB00-5 **Petrologic Type:** Tpr **Map Type:** Tpr
Northing: 456173 **Easting:** 4611864
Description: Abundant feldspar and amphibole, no xenoliths. Some dark brown/golden feldspar present? Further east along ridge, this outcrop connects to a definite dike of xenolith-rich Tpr. The dike trends N5W at its chilled contact with a Thc lava flow. Xenoliths are dark green mafic material and up to ~10 cm. Abundant rounded feldspars are also present

Sample ID: MB00-6 **Petrologic Type:** Tad_1 **Map Type:** Thc
Northing: 455606 **Easting:** 4612602
Description: From massive zone of rubbly outcrop. Vesicular in places with stretched vesicles. Fine grained gray matrix with abundant feldspar crystals and also mafic minerals (olivine/pyroxene) present. Very fresh.

Sample ID: MB00-7 **Petrologic Type:** Ta **Map Type:** Thc
Northing: 455548 **Easting:** 4612610
Description: Extremely fine grained dark matrix, sampled from approximately 2 m down section/below potential vent. "Vent" characterized by extremely scoriaceous (small), vesicular and oxidized material. Even massive blocks appear oxidized.

Sample ID: MB00-8 **Petrologic Type:** Thc **Map Type:** Thc
Northing: 454927 **Easting:** 4612880
Description: Sample is massive fine grained gray/blue matrix. Small (1-2 mm) crystals of feldspar, quartz, and mafic mineral (pyroxene?). No flow banding and no large equant feldspars.

Sample ID: MB00-9 **Petrologic Type:** Thc **Map Type:** Thc
Northing: 454983 **Easting:** 4613020
Description: Sample is flow banded, equant feldspar-rich silicic lava flow.

Sample ID: MB00-10 **Petrologic Type:** Twsc **Map Type:** Twsc
Northing: 454910 **Easting:** 4613135
Description: Sample of upper platy intermediate flow from massive portion underlying vesicular zone. Dark gray, fine-grained matrix. Small equant (1-2 mm) plagioclase crystals present in sample, otherwise void of crystals.

Sample ID: MB00-11 **Petrologic Type:** Tba **Map Type:** Thc
Northing: 454865 **Easting:** 46113197
Description: From upper mafic lava flow. Abundant in microphenocrysts of plagioclase, gray dark matrix. Trachytic texture and possible olivine. Flow 5-6 m thick.

Sample ID: MB00-12 **Petrologic Type:** Tba **Map Type:** Thc
Northing: 454850 **Easting:** 4613207
Description: Trachytic plagioclase microphenocrysts in dark gray matrix; olivine also present.

Sample ID: MB00-13 **Petrologic Type:** Tba **Map Type:** Thc
Northing: 454851 **Easting:** 4613247
Description: Course ground, plagioclase-phyric mafic lava flow. At least the third flow, possibly basal. Gray, open-textured matrix, abundant alteration, lots of plagioclase crystals (up to 1 cm long). Possible olivine.

Sample ID: MB00-15A **Petrologic Type:** Tpr **Map Type:** Tsi
Northing: 454679 **Easting:** 4612908
Description: Northeast vitrophyre/chilled margin of dike. Real fresh. Abundant equant feldspars and quartz in dark black, glassy matrix. Xenoliths of basalt and green material present within the chilled zone. Crystals of feldspar up to 0.5 cm long.

Sample ID: MB00-16 **Petrologic Type:** Tad_1 **Map Type:** Thc
Northing: 464148 **Easting:** 4614200
Description: Gray, fine-grained matrix. Almost appears to be slightly open textured. 1-2 mm plagioclase/feldspar microphenocrysts in the matrix.. No visible mafic minerals. Sample taken from blocky material near base of exposure. Entire outcrop is spheroidally weathered. Vesicles are also present throughout the outcrop and are found up to 10 cm in length.

Sample ID: MB00-17 **Petrologic Type:** Tad_1 **Map Type:** Thc
Northing: 464148 **Easting:** 4614200
Description: Sample taken from upper unit. Fine grained and glassy compared to lower sample (MB00-16). Black-gray matrix with abundant feldspars.

Sample ID: MB00-18 **Petrologic Type:** Tpr **Map Type:** Tpr
Northing: 462074 **Easting:** 4613975
Description: Abundant feldspar crystals up to 1.5 cm long and 1 cm wide. Amphibole present as small laths (0.4 cm) and abundant quartz crystals (~2 cm) are also present. Small biotite crystals appear to be present (<1cm). All found in a glassy gray matrix. Overall, very coarse-grained. Hypocrystalline phaneritic matrix. Inequigranular crystals. Rounded quartz, sieved and resorbed plagioclase, zoned plagioclase (oscillatory), rounded amphibole, poikilitic biotite and opx in plagioclase and zircon in orthopyroxene. Plagioclase + orthopyroxene + quartz clots. Plagioclase composition ranges from An_9 to An_{67}. Biotite up to 1.25 mm, sanidine and anorthoclase (microcline?) up to 1 mm, plagioclase up to 2 mm, hornblende up to 2 mm, hypersthene, clinopyroxene, zircon, apatite, quartz, up to 2 mm.
Mode: Plag 13.58%; oxides 1.16%; potassium feldspar 2.50%; orthopyroxene 1.33%; clinopyroxene 0.58%; zircon 0.41%; apatite 0.25%; quartz 4.25%; biotite 2.41%; amphibole 1.08%; clots and resorbed plagioclase 18.67%; matrix 53.75%.

Sample ID: MB00-20 **Petrologic Type:** Tp_1 **Map Type:** Tgl
Northing: 462775 **Easting:** 4614605
Description: **Welded-ash flow.** Pink matrix with large flattened pumice fragments (4+ cm long). Glassy/rock fragments abundant; gray in color. Feldspars present (1-2 mm). Outcrop is ~2 m thick.

Sample ID: MB00-21B **Petrologic Type:** Tp_2 **Map Type:** Ttuf
Northing: 462704 **Easting:** 4614424
Description: Bedded fall deposits from ~4 m thick exposure. Underlies MB00-20. Medium grained, indurated glass shards. Pumiceous shards are present and are dominantly clear. <2% darker glass. Lying directly below is a coarse, crystal-rich zone that is present to the base of the exposure.

Sample ID: MB00-22 **Petrologic Type:** Tpr **Map Type:** Tpr
Northing: 462412 **Easting:** 4612636
Description: From margin of Tpr lava flow. Glassy matrix (frothy) that alternates to zones of more massive, rocky matrix. Also appears to be altered.

Sample ID: MB00-23 **Petrologic Type:** Tp_1 **Map Type:** Tgl
Northing: 462452 **Easting:** 4615107
Description: Welded ash flow. Massive light gray matrix, conchoidally fracture in places. Fiamme-rich and small feldspars (1-2 mm) are also present.

Sample ID: MB00-24 **Petrologic Type:** Tad_1 **Map Type:** Thc
Northing: 462424 **Easting:** 4615127
Description: Very dark glassy matrix with microphenocrysts of plagioclase. Appear to be some pyroxenes.

Sample ID: MB00-26A **Petrologic Type:** Tad_2 **Map Type:** Twsc
Northing: 454596 **Easting:** 4623796
Description: Dark, fine-grained matrix from block in an overall very platy outcrop. Aphyric with sparse plagioclase phenocrysts and maybe pyroxene in the groundmass.

Sample ID: MB00-26B **Petrologic Type:** Tad_2 **Map Type:** Twsc
Northing: 454596 **Easting:** 4623796
Description: Pink, very fine-grained matrix. Some feldspars and maybe altered mafic crystals. Seems to be coarser-grained than MB00-26B. Sample collected from oxidized breccia that overlies 26A lava flow.

Sample ID: MB00-27 **Petrologic Type:** Tp_1 **Map Type:** Tgl
Northing: 456235 **Easting:** 4622454
Description: Welded ash flow. Light gray/white matrix with abundant large pumice shards (up to 4+ cm). Quartz and abundant feldspar crystals (2-3 mm).

Sample ID: MB00-28 **Petrologic Type:** Tpr **Map Type:** Tsi
Northing: 454534 **Easting:** 4623632
Description: ~3 m thick Tpr dike that trends 8-10º. Light gray to pink/purple matrix with abundant feldspar (2-3 mm and less), biotite (1-2 mm), and quartz (1-2 mm).

Sample ID: MB00-29 **Petrologic Type:** Twsc **Map Type:** Twsc
Northing: 454184 **Easting:** 4623801
Description: Extremely fine grained groundmass. Dark gray to black with some small (<1 mm) feldspars in the matrix. Occasional, sparse slightly large feldspars (1-2 mm wide) are also present.

Sample ID: MB00-30B **Petrologic Type:** Tba **Map Type:** Tsb
Northing: 453783 **Easting:** 4624034
Description: Upper most exposed mafic lava flow. Coarse grained, dark gray matrix with abundant alteration. ~1cm plagioclase phenocrysts present but the flow is not plagioclase-phyric. Numerous amygdaloidal quartz/chalcedony filled vesicles. Small feldspar laths present in matrix.

Sample ID: MB00-31 **Petrologic Type:** Tad_2 **Map Type:** Twsc
Northing: 453219 **Easting:** 4624512
Description: Dark gray/blue with slight tinge of red matrix. Sparse feldspars (1-2 mm). Also appears that pyroxene or biotite is present. Overall outcrop is ~10 m thick.

Sample ID: MB00-32B **Petrologic Type:** Tcm **Map Type:** Tcm
Northing: 475284 **Easting:** 4626584
Description: Basal vitrophyre of Mahogany Pass lava flow. Dark black vitrophyric matrix with white to light gray feldspars and quartz. Perlitic fracture in places and slight pervasive, devitrification. Perlitic fracturing, holohyaline matrix. Rounded and embayed quartz (± reaction rims), embayed sanidine, rounded/resorbed/sieved plagioclase. Plagioclase + cpx + oxide clots up to 2 mm. Granitoid xenoliths with kinked (twinning) plagioclase also present. Plagioclase phenocryst composition= An_{11}; plagioclase from clots= An_{60}. Augite, hypersthene, plagioclase up to 1 mm, quartz up to 0.5 mm, sanidine up to 0.7 mm, apatite, oxides, and zircon.
Mode: plag 1.41%; oxides 0.41%; sanidine 1.66%; hypersthene 0.08%; augite 0.25%; zircon 0.25%; apatite 0.33%; quartz 2.25%; clots + xenoliths 9.91%; void 10.41%; matrix 73.00%.

Sample ID: MB00-33 **Petrologic Type:** Tom **Map Type:** Tom
Northing: 469083 **Easting:** 4638444
Description: Blue/gray to white spotty matrix with abundant 1-3 mm feldspars. Slight hint of an open texture in the matrix. <2 mm quartz and oxidized mafic minerals also present. Spherulitic, hypocrystalline matrix, with some resorbed plagioclase. Poikilitic zircon in orthopyroxene. Also, some pyroxene is highly altered. Quartz up to 1.5 mm, plagioclase up to 0.75 mm, sanidine up to 2 mm, orthopyroxene up to 0.5 mm, clinopyroxene up to 0.5 mm, oxides up to 0.5 mm, apatite and zircon.
Mode: Plag 0.50%; oxide 0.91%; sanidine 8.58%; orthopyroxene 1.46%; clinopyroxene 0.08 %; quartz 2.75%; zircon 0.25%; apatite 0.41%; void 2.83%; matrix 82.91%.

Sample ID: MB00-35 **Petrologic Type:** Tom **Map Type:** Tom
Northing: 467954 **Easting:** 4638094
Description: Material is dark gray, find grained with abundant feldspars. ~2-5 cm mafic xenoliths are also present.

Sample ID: MB00-36B **Petrologic Type:** Tom **Map Type:** Tom
Northing: 468450 **Easting:** 4637062
Description: Pink to light purple banded coarse matrix with abundant feldspars. Some quartz appears to be present also.

Sample ID: MB00-37 **Petrologic Type:** Tom **Map Type:** Tom
Northing: 468472 **Easting:** 4636691
Description: Dark gray-black vitrophyre. Abundant 1-3 mm feldspars and flow banding is also present in matrix. Vitrophyre of lava flow.

Sample ID: MB00-38D **Petrologic Type:** Tp_2 **Map Type:** Tom
Northing: 468546 **Easting:** 4636597
Description: From at least 5 m thick exposure of tuff. MB00-38D is from upper, fine-grained (fining upward) non-laminated zone. Abundant gray glass.

Sample ID: MB00-41 **Petrologic Type:** Tom **Map Type:** Tom
Northing: 468822 **Easting:** 4635586
Description: Highly welded ash flow. Flow banded matrix with mafic xenocrysts. Abundant 1-2 mm feldspars. While present, xenoliths are much less abundant than ~12 m downsection in the same flow.

Sample ID: MB00-42 **Petrologic Type:** Tp_1 **Map Type:** Tgl
Northing: 462879 **Easting:** 4632110
Description: Welded ash flow. At least 3 m thick outcrop. Light gray matrix with abundant devitrified fiamme. Abundant 1-3 mm feldspar crystals.

Sample ID: MB00-44 **Petrologic Type:** Tad_2 **Map Type:** Twsc
Northing: 460814 **Easting:** 4635614
Description: Sampled massive zone in rubbly outcrop. Gray, very fine-grained matrix. Conchoidal fracture in places. 1-3 mm feldspars are present but sparse.

Sample ID: MB00-45 **Petrologic Type:** Tad_2 **Map Type:** Twsc
Northing: 461000 **Easting:** 4636921
Description: Very fine-grained gray to purple matrix. Lots of alteration in vesicles. Some 1-3 mm feldspars and the overall outcrop is extremely platy. Platy jointing is vertical in some cases.

Sample ID: MB00-46 **Petrologic Type:** Tp_1 **Map Type:** Tgl
Northing: 452842 **Easting:** 4631002
Description: From welded ash-flow outcrop that is at least 30 m thick. Gray-green platy breaking matrix. Abundant 2-5 cm fiamme and 1-3 mm feldspars.

Sample ID: MB00-47 **Petrologic Type:** Tba **Map Type:** Twsc
Northing: 453183 **Easting:** 4630664
Description: Lowermost exposed mafic lava flow in valley. Dark gray, open-textured matrix with abundant orange alteration. Plagioclase and olivine present, no discrete phenocrysts of either.

Sample ID: MB01-1 **Petrologic Type:** Tarc **Map Type:** Tarc
Northing: 449632 **Easting:** 4617566
Description: Fine to medium grained matrix. Abundant <2 mm plagioclase microphenocrysts and no noticeable mafic crystals. Outcrop has slight columnar jointing and pahoehoe flow-tops in places and is a small knob that directly overlies metamorphic basement.

Sample ID: MB01-2 **Petrologic Type:** Tarc **Map Type:** Tarc
Northing: 450151 **Easting:** 4617302
Description: Fine-grained, sugary dark gray matrix. Sparse <1 mm plagioclase crystals. Very fresh matrix. Blocky flow with brown weathering rind, overlies metamorphic basement.

Sample ID: MB01-4 **Petrologic Type:** Tarc **Map Type:** Tarc
Northing: 450510 **Easting:** 4617135
Description: Within package of four flows, sampled from autoinjection coming through upper flow-top breccia. Very fine-grained blue-gray platy matrix. No vesicles present, weathers to brown. Flow appears to be 20 – 30 m thick.

Sample ID: MB01-5 **Petrologic Type:** Tarc **Map Type:** Tarc
Northing: 450604 **Easting:** 4616873
Description: Above flow top breccia of underlying lava flow. Extremely fine-grained sugary texture and conchoidal weathering. Very platy and weathers blue-brown.

Sample ID: MB01-6A **Petrologic Type:** Tba **Map Type:** Thc
Northing: 450844 **Easting:** 4616690
Description: 1.5 - 3 m high vertical spires of monolithologic breccia. Glassy and dark, aphyric material in matrix and also lighter, ash-like material present also. Tephra deposits locally exposed also. Highly oxidized tephra in places and oxidized scoriaceous material is abundant. Appears to be eroded mafic vent. From knob within spires, fine-medium grained dark matrix with slight open-texture. Plagioclase microphenocrysts also present in places. Hypocrystalline, intersertal matrix. Subophitic cpx + plag, resorbed/sieved plag, some with rims, olivine with cpx (?) rims. Plagioclase up to 0.6 mm, some of these are rounded. Olivine up to 0.25 mm, oxides, clinopyroxene up to 0.2 mm, and apatite (in matrix). Plagioclase composition ranges from An_{25} to An_{45}.
Mode: Plag 38.67%; oxides 6.33%; clinopyroxene 13.99%; olivine 3.83%; matrix 36.67%.

Sample ID: MB01-8 **Petrologic Type:** Tba **Map Type:** Thc
Northing: 451111 **Easting:** 4616443
Description: Dense, black/gray massive matrix. Abundant plagioclase crystals. Lava flow overlies tuffs exposed in a landslide scarp, appears that the tuffaceous material was baked by flow.

Sample ID: MB01-9 **Petrologic Type:** Tba **Map Type:** Thc
Northing: 451159 **Easting:** 4616397
Description: Dark gray matrix with slight open texture. Abundant plagioclase microphenocrysts that are up to 0.5 mm long. Slight columnar jointing present.

Sample ID: MB01-10 **Petrologic Type:** Ta **Map Type:** Thc
Northing: 451265 **Easting:** 4616351
Description: Reddish-black platy weathering outcrop. Light gray, slightly open-textured matrix with abundant vesicles. Plagioclase microphenocrysts present.

Sample ID: MB01-12 **Petrologic Type:** Tb **Map Type:** Thc
Northing: 451323 **Easting:** 4616329
Description: Mafic lava flow that overlies baked tuffaceous material and siliceous sinter. ~3 - 4 m thick with tortoise shell fracturing. Dark gray/blue very sugary fine-grained matrix. Abundant plagioclase laths (1 - 3 mm) and red/black ophiomottling. Holocrystalline, ophitic to subophitic clinopyroxene and plagioclase. One large resorbed plagioclase (up to2 mm) present; composition is An_{65}. Plagioclase up to 2 mm (composition varies between An_{46} to An_{60}), olivine up to 0.5 mm, oxides, clinopyroxene, apatite and "clay" in matrix.
Mode: Plag 56.83%; oxides 7.25%; olivine 14.50%; clinopyroxene 15.83%; resorbed plag crystal 1.16%; matrix 4.42%.

Sample ID: MB01-13 **Petrologic Type:** Tb **Map Type:** Thc
Northing: 451406 **Easting:** 4616233
Description: Medium-grained, slightly open textured matrix. Plagioclase microphenocrysts (~1 mm) are abundant.

Sample ID: MB01-14 **Petrologic Type:** Twsc **Map Type:** Twsc
Northing: 451401 **Easting:** 4616036
Description: From platy massive, interior portion of lava flow. Abundant 1 - 3 mm feldspar laths in a very fine-grained dark gray matrix. Brown/red rusty weathering rind. Pink and flow-banded near the top of the lava flow.

Sample ID: MB01-15 **Petrologic Type:** Twsc **Map Type:** Twsc
Northing: 451415 **Easting:** 4615976
Description: Platy, but not oxidized outcrop. Abundant plagioclase laths present (1 - 2) mm in a very fine-grained blue/gray matrix. Sampled above highly oxidized zone.

Sample ID: MB01-16 **Petrologic Type:** Tarc **Map Type:** Tarc
Northing: 451256 **Easting:** 4615493
Description: Block to platy weathering outcrop. Highly brecciated in places also with numerous cobble sized glassy clasts present in the breccia. Very fine-grained and banded matrix from sampled material.

Sample ID: MB01-17 **Petrologic Type:** Tb **Map Type:** Thc
Northing: 450868 **Easting:** 4615494
Description: Mafic dike. Trends 65°. Sugary, open-textured matrix that is plagioclase and olivine rich. Dike terminates at mound of brecciated and highly oxidized material suggesting an eroded vent.

Sample ID: MB01-18 **Petrologic Type:** Tarc **Map Type:** Tarc
Northing: 450931 **Easting:** 4615665
Description: Very fine-grained black matrix with abundant plagioclase microphenocrysts. Conchoidal fracture also. Sampled from four clasts within a monolithologic breccia. In this breccia, some clasts are oxidized, some are not. Breccia appears to be upper breccia of lava flow.

Sample ID: MB01-19 **Petrologic Type:** Tarc **Map Type:** Tarc
Northing: 450979 **Easting:** 4615829
Description: Aphanitic dense gray matrix. Feldspar microphenocrysts also present and the matrix fractures conchoidally.

Sample ID: MB01-20 **Petrologic Type:** Tarc **Map Type:** Tarc
Northing: 451089 **Easting:** 4615776
Description: Exposure of platy weathering intermediate unit. Sample from a blockier zone, medium gray matrix with abundant orange alteration. Sparse, reddish plagioclase crystals that are up to 3 mm long are also present.

Sample ID: MB01-21 **Petrologic Type:** Tarc **Map Type:** Tarc
Northing: 451336 **Easting:** 4615481
Description: Contact between Tba dike and Tarc lava flow. Sample is from within a Tarc breccia. Extremely aphyric black, dense matrix. Sparse plagioclase also present.

Sample ID: MB01-22 **Petrologic Type:** Tba **Map Type:** Tmi
Northing: 451336 **Easting:** 4615481
Description: Tba dike that trends 10°. Fine-grained, blue matrix with abundant plagioclase crystals (~1 mm).

Sample ID: MB01-23 **Petrologic Type:** Tba **Map Type:** Thc
Northing: 452556 **Easting:** 4615837
Description: Fine-grained vesicular dark gray matrix. Slight alteration appears present.

Sample ID: MB01-24 **Petrologic Type:** Tb **Map Type:** Thc
Northing: 452668 **Easting:** 4615722
Description: Plagioclase-phyric basalt flow. Plagioclase laths up to 0.5 cm long with some olivine also. Gray matrix. Lava flow dips to the east/northeast at 20°.

Sample ID: MB01-25 **Petrologic Type:** Tba **Map Type:** Tmi
Northing: 452204 **Easting:** 4615387
Description: Mafic stock that resembles Chocolate Mountain. Massive, very fine-grained sugary matrix with plagioclase microphenocrysts between 1 - 2 mm. Columnar jointing present in places and another similar stock is exposed locally (this is the southernmost of the pair). Hypocrystalline, slightly altered matrix (calcite present). Subophitic plagioclase + clinopyroxene. Plagioclase up to 0.5 mm, clinopyroxene (Ti-augite?) up to 0.25 mm, oxides up to 0.1 mm, olivine up to 0.5 mm, apatite (in matrix).
Mode: Plag 37.75%; oxides 8.00%; clinopyroxene 12.33%; olivine 3.83%; matrix 38.08%.

Sample ID: MB01-26 **Petrologic Type:** Tom **Map Type:** Tcm
Northing: 473596 **Easting:** 4630042
Description: Stratigraphically (and topographically) highest unit exposed in the Calico Mountains. Sampled from summit of Capitol Peak. Gray/pink matrix with abundant feldspars and opaline quartz (blue sheen present). Orange mafics (pyroxene) also present in hand sample. Appears to be slightly altered.

Sample ID: MB01-27 **Petrologic Type:** Tom **Map Type:** Tom
Northing: 474243 **Easting:** 4631219
Description: From lava flow exposed below MB01-26. Glassy vitrophyric matrix with numerous 1 - 3 mm feldspar phenocrysts. Slightly devitrified, hypocrystalline matrix. Resorbed quartz and sanidine, poikilitic oxides in zircon. Sanidine up to 3 mm, quartz up to 1 mm, clinopyroxene up to 0.4 mm, orthopyroxene up to 1.5 mm, clinopyroxene up to 0.4 mm, zircon up to 0.1 mm, oxides and apatite.
Mode: Plag 0.08%; Oxide 1.25%; Sanidine 10.58%; orthopyroxene 1.33%; clinopyroxene 0.83%; quartz 3.08%; zircon 0.16%; apatite 0.33%; void 3.66%; matrix 78.66%.

Sample ID: MB01-28A **Petrologic Type:** Tcm **Map Type:** Tom
Northing: 474014 **Easting:** 4631060
Description: From upper portion of Capitol Peak ash flow. Highly oxidized and welded matrix with abundant feldspar and quartz. Sparse mafics also present.

Sample ID: MB01-28B **Petrologic Type:** Tcm **Map Type:** Tcm
Northing: 474014 **Easting:** 4631060
Description: Banded, but similar to MB01-28B. Gray/blue altered matrix with abundant feldspar and mafic (basalt/andesite) lithic fragments.

Sample ID: MB01-31 **Petrologic Type:** Tcm **Map Type:** Tcm
Northing: 474210 **Easting:** 4628834
Description: Highly welded, rheomorphic ash flow. Very fine-grained gray matrix, abundant green mafic xenoliths as well as rounded <1 cm feldspars.

Sample ID: MB01-32 **Petrologic Type:** Tcm **Map Type:** Tcm
Northing: 474210 **Easting:** 4628834
Description: Extremely fine-grained matrix with abundant orange stained feldspars. Quartz phenocrysts also present. Devitrified pyroclastic (shards present) matrix. Clots of plag + orthopyroxene, rims of chlorophaeite (+ oxide?) along the clots, sieved sanidine. Plagioclase up to 1.2 mm, sanidine up to 0.6 mm, clinopyroxene up to 0.2 mm, oxides up to 0.21 mm, olivine (xenocryst) up to 0.2 mm, orthopyroxene up to 0.15 mm, mafic xenolith up to 0.25 mm, apatite.
Mode: Plag 1.00%; oxides 0.58%; sanidine 0.25%; orthopyroxene 1.92%; clinopyroxene 0.16%; mafic xenolith 0.16%; clots 0.83%; void 0.16%; matrix 94.91%.

Sample ID: MB01-33 **Petrologic Type:** Tba **Map Type:** Tcm
Northing: 474210 **Easting:** 4628834
Description: Dark black conchoidally breaking matrix. Sparse plagioclase microphenocrysts also present. Overall, outcrop has a blocky to rubbly appearance. This is exposed in a saddle stratigraphically underlying MB01-32/34. Pilotaxitic, holocrystalline matrix. Resorbed plagioclase, mafic xenoliths (very fine-grained olv + cpx + plag), olivine rimmed by pyroxene, swallowtail olivine (iddingsitized). Plagioclase up to 0.35 mm, clinopyroxene up to 0.11 mm, olivine up to 0.52 mm, orthopyroxene, apatite in matrix.
Mode: Plag 7.58%; oxides 0.91%; orthopyroxene 1.41%; clinopyroxene 1.08%; olivine 4.66%; xenolith/clot 0.16%; void 3.66%; matrix 80.50%.

Sample ID: MB01-34 **Petrologic Type:** Tcm **Map Type:** Tcm
Northing: 474210 **Easting:** 4628834
Description: Platy portion of silicic lava flow overlying lower vitrophyre. Gray/pink frothy matrix with abundant quartz and feldspar phenocrysts. From margin of flow.

Sample ID: MB01-35 **Petrologic Type:** Tcm **Map Type:** Tcm
Northing: 474210 **Easting:** 4628834
Description: Vitrophyre at top of eroded rhyolite dome (Hill 7502 on the Capitol Peak 1:24,000 quadrangle; Mahogany Pass rhyolite vent). Glassy, but slightly devitrified. Abundant feldspars present within vitrophyre. Locally present are 15 - 20 cm buff to white crystal-rich pumiceous clasts as well as concentric ridges of vertical fins of vitrophyre.

Sample ID: MB01-36 **Petrologic Type:** Tcm **Map Type:** Tcm
Northing: 474210 **Easting:** 4628834
Description: Capitol Peak ash flow exposure along the eastern range front. Gray, banded white matrix with abundant 1 - 4 cm mafic xenoliths (with 1 - 2 mm reaction rims) and < 2 cm rounded feldspars. Highly welded and rheomorphic.

Sample ID: MB01-38 **Petrologic Type:** Tcm **Map Type:** Tcm
Northing: 475254 **Easting:** 4633209
Description: Extremely fine-grained black matrix. Abundant feldspars and pyroxene crystals, slight layering in center of the outcrop. Lava flow.

Sample ID: MB01-39 **Petrologic Type:** Tcm **Map Type:** Tcm
Northing: 475373 **Easting:** 4633178
Description: Rhyolite dike that trends 350°. Extremely coarse-grained and light gray/blue matrix. Some mafic xenoliths present (< 1 cm) and abundant feldspar and quartz. Sampled near abandoned adit. Dike cuts intermediate lava flows and lava-like silicic ash flows.

Sample ID: MB01-40 **Petrologic Type:** Tcm **Map Type:** Tcm
Northing: 475572 **Easting:** 4633075
Description: Platy and highly deformed lava-like ash flow. Extreme rheomorphism and flow-folding. Dark burgundy to red matrix, abundant feldspars. Underlain by tuffaceous material.

Sample ID: MB01-41 **Petrologic Type:** Tad3 **Map Type:** Tcm
Northing: 475641 **Easting:** 4633053
Description: Very fine-grained glassy matrix with sparse feldspars.

Sample ID: MB01-43 **Petrologic Type:** Tad3 **Map Type:** Tcm
Northing: 475799 **Easting:** 4632976
Description: Very fine-grained black/gray matrix with sparse 1 - 3 mm feldspars. Slight yellow ophiomottling. Outcrop is mostly breccia.

Sample ID: MB01-44 **Petrologic Type:** Tad3 **Map Type:** Tcm
Northing: 475978 **Easting:** 4632952
Description: Very fine-grained massive dark gray matrix. Sparse 1 - 3 mm feldspars. Brecciated.

Sample ID: MB01-45 **Petrologic Type:** Tad3 **Map Type:** Tcm
Northing: 476030 **Easting:** 4632892
Description: Very fine-grained gray matrix, conchoidal fracture. Occasional feldspars. Highly oxidized upper breccia of lava flow. Pilotaxitic, hypocrystalline matrix. Mafic xenoliths up to 2 mm, resorbed plagioclase, plagioclase + clinopyroxene + oxide clots, orthopyroxene with clinopyroxene rims. Plagioclase up to 1 mm, clinopyroxene up to 0.25 mm, orthopyroxene up to 0.25 mm, oxides up to 0.5 mm. Apatite in groundmass.
Mode: Plag 12.08%; oxides 0.91%; orthopyroxene 0.25%; clinopyroxene 0.16%; mafic xenolith 1.16%; clots 0.25%; matrix 85.16%.

Sample ID: MB01-46A **Petrologic Type:** Kg **Map Type:** Kg
Northing: 476624 **Easting:** 4633793
Description: From highly eroded granitoid exposure cut by aplite dikes. Biotite hornblende granodiorite.

Sample ID: MB01-46B **Petrologic Type:** Kg **Map Type:** Kg
Northing: 476624 **Easting:** 4633793
Description: Fine-grained aplite dike, quartz and feldspar bearing.

Sample ID: MB01-46C **Petrologic Type:** Kg **Map Type:** Kg
Northing: 446624 **Easting:** 4633793
Description: Fine-grained aplite dike. Quartz, feldspar, and <2 mm garnets present.

Sample ID: MB01-47 **Petrologic Type:** Tad3 **Map Type:** Tcm
Northing: 476410 **Easting:** 4633444
Description: Very fine grained gray/blue matrix. Sparse (up to 2 mm) feldspars and small (< 1 mm) pyroxenes. Lava flow unconformably overlies granitoid basement. Pilotaxitic (feldspar), hypocrystalline, poikilitic oxides in orthopyroxene, resorbed plagioclase, plagioclase + oxide +

pyroxene clots. Plagioclase up to 1.1 mm, oxides up to 0.25 mm, orthopyroxene up to 0.51 mm, apatite in matrix.
Mode: Plagioclase 0.16%; oxides 1.08%; orthopyroxene 0.16%; clots 1.00%; matrix 97.58%.

Sample ID: MB01-48 **Petrologic Type:** Tad3 **Map Type:** Tcm
Northing: 476280 **Easting:** 4633384
Description: From breccia of lava flow directly overlying MB01-47. Very fine grained blue gray glassy matrix with sparse 1 - 3 mm feldspars.

Sample ID: MB01-49 **Petrologic Type:** Tcm **Map Type:** Tcm
Northing: 476164 **Easting:** 4633328
Description: Blue/dark gray matrix with abundant green and brown mafic xenoliths. Feldspars present also. Appears to be a highly welded ash flow.

Sample ID: MB01-50 **Petrologic Type:** Tcm **Map Type:** Tcm
Northing: 476168 **Easting:** 4632858
Description: Highly welded, lava-like ash flow. Very fine-grained glassy matrix with abundant feldspars and mafic xenoliths (green/brown). Slight banding in places also within glassy zone. This grades upward into a more massive, but rubbly crystalline zone. Complex textures in thin section. Vitrophric, Pilotaxitic, hyalopilitic, mingling (dark/light vitrophyric zones)?. Resorbed plagioclase, pyroxene ± oxide ± plagioclase clots, mafic xenoliths (resemble Ta lava flows), cpx rimmed by opx. Plagioclase up to 2 mm, oxides up to 0.1 mm, orthopyroxene up to 0.9 mm, olivine up to 0.5 mm, clinopyroxene up to 1 mm, apatite in matrix.
Mode: Plag 6.91%; oxides 1.33%; clinopyroxene 2.00%; orthopyroxene 0.66%; clots 2.33%; xenolith 0.75%; matrix 86.25%.

Sample ID: MB01-51 **Petrologic Type:** Tct **Map Type:** Tct
Northing: 471151 **Easting:** 4614714
Description: Coyote Mountain ash flow. Pale gray to green altered matrix. Some quartz and orange mafics. Highly welded and lava-like.

Sample ID: MB01-53 **Petrologic Type:** Tct **Map Type:** Tct
Northing: 470622 **Easting:** 4614161
Description: Black, very fine-grained glassy matrix with abundant feldspars and small 1-2 mm black pyroxenes. Underlies Coyote Mountain ash flow.

Sample ID: MB01-54A **Petrologic Type:** Tct **Map Type:** Tct
Northing: 470826 **Easting:** 4614029
Description: Fall deposits that underlie Coyote Mountain ash flow. Frothy gray pumiceous matrix with abundant 1-3 mm feldspars.

Sample ID: MB01-54B **Petrologic Type:** Tct **Map Type:** Tct
Northing: 470826 **Easting:** 4614029
Description: Basal vitrophyre of Coyote Mountain ash flow. Welded, with abundant banding. Extremely folded in places at the meter scale. Grades directly into underlying fall. Axiolitic matrix with banding in places. Resorbed and sieved plagioclase, embayed sanidine, and pyroxene + plagioclase clots present. Plagioclase up to 2 mm, oxides up to 0.25 mm, clinopyroxene (Ti-augite?) up to 0.3 mm, orthopyroxene up to 0.22 mm, sanidine up to 0.5 mm, zircon, and apatite.
Mode: Plag 3.33%; oxides 0.83%; sanidine 1.83%; orthopyroxene 0.08%; clinopyroxene 0.16%; zircon 0.16%; clots 1.83%; void 1.75%; matrix 90.00%.

Sample ID: MB01-55 **Petrologic Type:** Tct **Map Type:** Tct
Northing: 471604 **Easting:** 4614374
Description: Block and ash deposits. Frothy white ashy matrix with abundant 30-60+ cm blocks of highly vesiculated material.

Sample ID: MB01-56 **Petrologic Type:** Tct **Map Type:** Tct
Northing: 471990 **Easting:** 4615070
Description: Coyote Mountain ash flow at the summit of Coyote Mountain. Flow banded with abundant feldspars. Purple/gray lava-like matrix that is devitrified in places. Sparse orange mafics.

Sample ID: MB01-57 **Petrologic Type:** Tct **Map Type:** Tct
Northing: 472268 **Easting:** 4616925
Description: Very vesiculated and open-textured lava flow. Abundant stretched vesicles and 8-9 mm feldspars. Underlies Coyote Mountain ash flow.

Sample ID: MB01-58 **Petrologic Type:** Tct **Map Type:** Tct
Northing: 472358 **Easting:** 4617079
Description: Very fine-grained massive blue/gray matrix. Platy weathering in places and slightly altered. Sparse 1-2 mm feldspars and small (<1 mm) pyroxenes. Felty, hypocrystalline matrix. Sieved/embayed/resorbed plagioclase, sieved sanidine, plag + pyroxene + oxide clots ± potassium feldspar. Plagioclase up to 0.7 mm, oxides up to 0.25 mm, potassium feldspar up to 1.25 mm, orthopyroxene up to 0.4 mm, clinopyroxene up to 0.7 mm, apatite in matrix.
Mode: Plag 2.16%; oxides 3.08%; potassium feldspar 0.08%; orthopyroxene 0.33%; clinopyroxene 0.58%; clots 2.75%; matrix 91.00%.

Sample ID: MB01-59 **Petrologic Type:** Ta **Map Type:** Tct
Northing: 472424 **Easting:** 4617277
Description: Sampled from Hill 6648 from the Coyote Mountain 1:24,000 quadrangle. Pervasively oxidized vesiculated blocks and smaller tephra abundant and indicate that this was a vent (shield volcano). Sample is from a highly oxidized bomb with a more vesiculated core. Frothy, open-textured red matrix abundant 1-4 mm feldspar microphenocrysts. Appear that flow-lobes emanate from high also.

Sample ID: MB01-60A **Petrologic Type:** Tct **Map Type:** Tct
Northing: 471094 **Easting:** 4615936
Description: Coyote Mountain ash flow. Near base of flow, brecciated zone. Platy with gray, fine-grained matrix. Abundant feldspars and sparse orange mafics.

Sample ID: MB01-60B **Petrologic Type:** Tct **Map Type:** Tct
Northing: 471094 **Easting:** 4615936
Description: Sampled from stratigraphically lower portion of outcrop. Oxidized, but also blue/gray matrix in places. Trachytic texture in some places evident by feldspar alignment. Further down-section the outcrop grades into vitrophyre and then less welded, ashy material.

Sample ID: MB01-62 **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 469804 **Easting:** 4619910
Description: From an exposure that caps and drapes topography. Similar exposures are widespread nearby. Outcrop is ~2-3 m thick overall. Sampled from lower vitrophyric zone. Glassy matrix with abundant 1-3 mm feldspars.
Sample ID: MB01-63 **Petrologic Type:** Tad2 **Map Type:** Twsc
Northing: 457511 **Easting:** 4624938
Description: Dense, dark gray/black matrix with conchoidal weathering. Sparse 1-2 mm feldspars. Lowermost exposed flow on Staunton Ridge. Pilotaxitic, hypocrystalline, and intersertal matrix. Sieved/embayed plagioclase. Plagioclase up to 1.55 mm, oxides up to 0.35 mm, clinopyroxene up to 0.55 mm, orthopyroxene up to 0.5 mm, olivine (partially replaced by opx?) up to 0.6 mm.
Mode: Plag 7.50%; oxides 1.42%; orthopyroxene 2.41%; clinopyroxene 4.91%; olivine 1.66%; matrix 82.08%.

Sample ID: MB01-64 **Petrologic Type:** Tad2 **Map Type:** Twsc
Northing: 457476 **Easting:** 4625002
Description: Dark gray/black sugary matrix. Orange alteration in spots. Platy weathering and abundant 1-2 mm feldspars. First flow above MB01-63, lava flows represented by MB01-65, 67, 68, and 69 all lie up-section.

Sample ID: MB01-65 **Petrologic Type:** Tad2 **Map Type:** Twsc
Northing: 457374 **Easting:** 4625110
Description: Black dark/gray matrix with abundant stretched vesicles. Some sparse <1 mm feldspars. May lie within package of multiple thin flows (aside from those sampled).

Sample ID: MB01-67 **Petrologic Type:** Tad2 **Map Type:** Twsc
Northing: 457261 **Easting:** 4625340
Description: Very fine-grained matrix, conchoidal fracture in places. Less feldspar than underlying flows, but occasional 1-2 mm crystals are present.

Sample ID: MB01-68 **Petrologic Type:** Tad2 **Map Type:** Twsc
Northing: 457209 **Easting:** 4625562
Description: Very fine-grained matrix with sparse 1-3 mm feldspars. Groundmass appears to be very glassy. Upper zone is more oxidized and brecciated than underlying vesicle dominated flow-tops. Flow is at least 15 m thick.

Sample ID: MB01-69 **Petrologic Type:** Tad2 **Map Type:** Twsc
Northing: 457176 **Easting:** 4625848
Description: From lava flow capping Staunton Ridge. Very fine-grained glassy matrix from upper vesiculated breccia. Some vesicles are stretched. Abundant 1-3 mm feldspars.

Sample ID: MB01-70 **Petrologic Type:** Tp1 **Map Type:** Tgl
Northing: 457340 **Easting:** 4627145
Description: ~5 m thick exposure of welded tuff. White ashy matrix with abundant 1-2 mm feldspars and devitrified pumice. Lithic fragments up to 5 cm are present in some locations.

Sample ID: MB01-71 **Petrologic Type:** Tad2 **Map Type:** Twsc
Northing: 457047 **Easting:** 4627211
Description: Directly underlies MB01-70. Dark gray/black glassy matrix with orange alteration in places. <1 mm feldspar microphenocrysts are present.

Sample ID: MB01-73 **Petrologic Type:** Tem **Map Type:** Tem
Northing: 455793 **Easting:** 4626275
Description: From a fresh portion of a rhyolite lava flow that is highly altered in places (bleached, kaolinite? rich). Blue matrix with abundant, mostly clear 1-3 mm feldspars. Devitrified, hypocrystalline flow banded matrix. Hiatel porphyritic. Resorbed plagioclase, some plag + pyroxene clots. Oxides up to 0.65 mm, sanidine <0.2 mm, plagioclase up to 1 mm (porphyritic), orthopyroxene up to 0.25 mm, zircon up to 0.15 mm, apatite. Plagioclase composition is ~An_{14}.
Mode: Plag 3.50%; oxides 1.91%; sanidine 8.25%; orthopyroxene 0.17%; zircon 0.25%; apatite 0.08%; clots 0.833%; matrix 85.00%.

Sample ID: MB01-75 **Petrologic Type:** **N/A** **Map Type:** Smt
Northing: 477976 **Easting:** 4617922
Description: "Swisher Mountain tuff." Sample taken from highly welded ash flow near vitrophyric base. Pink/purple oxidized flow-banded matrix. Abundant 1-5 mm feldspars.

Sample ID: MB01-76 **Petrologic Type:** Tcm **Map Type:** Tcm
Northing: 475462 **Easting:** 4624446
Description: Rhyolite lava flow in the southern Calico Mountains. Mahogany Pass-like rhyolite. Purple/pink matrix with orange alteration. Abundant 1-3 mm feldspars and quartz.

Sample ID: MB01-77 **Petrologic Type:** Tcm **Map Type:** Tcm
Northing: 475751 **Easting:** 4623480
Description: Thick, platy weathering exposure of rhyolite; like MB01-76. Horizontal jointing in places that all seems to dip away from a highly columnar, vertically jointed zone. This could just be variations along a distal flow lobe, or it could be a potential vent region. Sample collected from very platy zone. Pink matrix with abundant 1-4 mm feldspars and quartz.

Sample ID: MB01-78 **Petrologic Type:** Ta **Map Type:** Tcm
Northing: 475342 **Easting:** 4623425
Description: Ta lava flow that is directly underlying thick rhyolite. Upper portion of the flow is highly vesiculated and the flow appears to be at least 10 m thick. Very fine-grained dark gray matrix with slight open texture and abundant 1-3 mm feldspars. Flow dips to the northeast at ~10°. Below this lies 6-7 more similar lava flows that are highly vesiculated. Intersertal, diktytaxitic in spots, holocrystalline matrix. Subophitic plagioclase and clinopyroxene. Resorbed/sieved plagioclase, glomeroporphyritic plagioclase and olivine. Groundmass plagioclase ranges from An_{22} to An_{28}. Plagioclase up to 2 mm, olivine (iddingsitized) up to 0.5 mm, clinopyroxene up to 0.3 mm, oxides up to 0.1 mm, apatite in matrix, and orthopyroxene with clinopyroxene rims.
Mode: Plag 38.50%; oxides 1.83%; clinopyroxene 16.92%; olivine 2.42%; resorbed plag 0.83%; glomeroporphyritic clots 1.67%; void 5.50%; matrix 32.42.

Sample ID: MB01-79 **Petrologic Type:** Tcm **Map Type:** Tcm
Northing: 474705 **Easting:** 4623436
Description: From Tcm lava flow down-dropped to the west along inferred normal fault. Fault lies between this location and the basal lava flow underlying MB01-78. Dark glassy matrix with abundant 1-3 mm feldspars. Vitrophyre.

Sample ID: MB01-81 **Petrologic Type:** Ta **Map Type:** Tgl
Northing: 465040 **Easting:** 4624849
Description: Section of lava flows exposed where Black Ridge is cut by the North Fork of the Little Humboldt river. Samples MB01-81 to 85 are part of this section. Capping flow on Black Ridge. Very fine grained gray matrix. Abundant <1 mm feldspars. Flow is 1-3 m thick.

Sample ID: MB01-83 **Petrologic Type:** Ta **Map Type:** Tgl
Northing: 465106 **Easting:** 4625037
Description: Very fine-grained gray, but slightly oxidized matrix. Slightly vesicular also. Abundant <2 mm feldspars.

Sample ID: MB01-84 **Petrologic Type:** Thc **Map Type:** Thc
Northing: 465142 **Easting:** 4625118
Description: Very fine-grained reddish-oxidized matrix. Abundant 1-3 mm feldspars and pyroxenes? Flow is much thicker than those above and below and is close to 20 m thick.

Sample ID: MB01-85 **Petrologic Type:** Ta **Map Type:** Tgl
Northing: 465130 **Easting:** 4625168
Description: Very fine-grained sugary matrix. Platy interior. Abundant feldspar microphenocrysts up to 2 mm. Basal flow exposed along Forest Service road 531. Diktytaxitic, intersertal, vesicular, subophitic plagioclase and clinopyroxene, resorbed/sieved plagioclase. Plag up to 1.25 mm (resorbed plag are phenocrysts), clinopyroxene up to 1.5 mm, orthopyroxene up to 0.1 mm, oxides up to 0.25 mm. Plagioclase + pyroxene + oxide in matrix.
Mode: Plag 37.90%; oxides 4.01%; orthopyroxene 3.36%; clinopyroxene 10.48%; void 2.19%; matrix 42.04%.

Sample ID: MB01-86A **Petrologic Type:** Tpr **Map Type:** Tpr
Northing: 458740 **Easting:** 4616852
Description: Tpr lava flow. Crystal-rich upper vitrophyre. Abundant 0.5-1 cm feldspars, quartz, and amphibole. Frothy flow top locally present.

Sample ID: MB01-87 **Petrologic Type:** Tba **Map Type:** Thc
Northing: 458740 **Easting:** 4616852
Description: Light gray, vesicular matrix. Abundant feldspars up to 0.6 cm long. Appears to overlie Tpr lava flow and dips to the east at 10°.

Sample ID: MB01-88 **Petrologic Type:** Tpr **Map Type:** Tsi
Northing: 455180 **Easting:** 4612097
Description: Tpr hypabyssal body southeast of Hinkey Summit. Very fine-grained gray-glassy matrix with abundant feldspars (up to 2 cm), quartz (1-5 mm), amphibole (up to 0.5 cm), and biotite (up to 4 mm).

Sample ID: MB01-90 **Petrologic Type:** N/A **Map Type:** Smt
Northing: 479273 **Easting:** 4615469
Description: "Swisher Mountain tuff." Thick cliff and canyon-forming unit exposed at Greeley Crossing along the North Fork of the Little Humboldt River. Abundant vertical jointing throughout entire exposure. Upper portion of the outcrop appears to have more flow-banding. Sample taken from massive, crystalline portion of flow. Banded dark pink/purple matrix. Extremely crystal rich, dominated by large (up to 5 mm) feldspars. Highly welded if it is an ash flow (lava-like).

Sample ID: MB01-91 **Petrologic Type:** N/A **Map Type:** Smt
Northing: 479570 **Easting:** 4615104
Description: Exposure of vitrophyre. Radial pattern to exposure with vertical columnar jointing defining the radiating pattern. Looks like a plug based on the jointing and circular outcrop pattern. Glassy, black vitrophyre with abundant feldspars (<4 mm).

Sample ID: MB02-1 **Petrologic Type:** Tarc **Map Type:** Tarc
Northing: 452783 **Easting:** 4613390
Description: Very fine grained gray matrix with green/yellow alteration. Stretched thin vesicles and sporadic 1-3 mm plagioclase laths are also present. Great ramp structures also present and suggest flow to the northeast (85º bearing)

Sample ID: MB02-2 **Petrologic Type:** Tarc **Map Type:** Tarc
Northing: 452731 **Easting:** 4613020
Description: Sampled from lava flow sitting topographically above potential vent area. At vent area, tan matrix, lahar like with mafic/intermediate blocks lying in matrix. Also abundant pervasively oxidized Scoriaceous clasts in the vicinity of this spot. MB02-2 lava flow is platy and has a gray, very fine-grained matrix with sparse visible crystals (plagioclase). Green alteration also present.

Sample ID: MB02-3 **Petrologic Type:** Tba **Map Type:** Thc
Northing: 452556 **Easting:** 4613154
Description: Dark blue-gray matrix with abundant orange alteration/mottling. Looks like aphyric to intermediate-plagioclase bearing Steens Basalt. This lava flow caps a small triangular knob and is separated from the underling Tarc package by a thin tuffaceous layer.

Sample ID: MB02-4 **Petrologic Type:** Tbr **Map Type:** Tpr
Northing: 452567 **Easting:** 4613429
Description: Frothy, flow-banded rhyolite dike. Relatively aphyric in places but also zones of extremely open-textured rock. This dike is ~6 m wide and cuts through and bakes the Tarc package. The dike trends 23-24º. In close proximity to this dike are thinner mafic dikes that trend the same way and appear to reflect a zone of dike intrusion/faulting.

Sample ID: MB02-5 **Petrologic Type:** Tarc **Map Type:** Tarc
Northing: 452911 **Easting:** 4613350
Description: Dark gray, aphyric, and very fresh matrix. Sampled from thicker, massive portion of flow.

Sample ID: MB02-6 **Petrologic Type:** Tarc **Map Type:** Tarc
Northing: 453026 **Easting:** 4613645
Description: Fine-grained, gray-blue matrix with spars 1-2 mm feldspars. Some green-yellow alteration also present. Sampled from thick exposure of Tarc that extends towards FS road 084.

Sample ID: MB02-7 **Petrologic Type:** Tarc **Map Type:** Tarc
Northing: 453285 **Easting:** 4611913
Description: Extremely platy outcrop with abundant ramp structures and vertical parting planes. Fine-grained gray-blue matrix with green alteration in places. Sparse 1-2 mm feldspars. Underlies exposure of numerous flows of more mafic material

Sample ID: MB02-8A **Petrologic Type:** Tba **Map Type:** Thc
Northing: 452967 **Easting:** 4612048
Description: Fine-grained gray matrix with abundant plagioclase crystals (3-5 mm long). Alteration present within vesicles (white zeolite or calcite?). Basal flow/flow unit in package here, separated by upper flow(s) by tuffaceous material similar to that found in conjunction with Tba at Hinkey Summit.

Sample ID: MB02-9A **Petrologic Type:** Tba **Map Type:** Thc
Northing: 452967 **Easting:** 4612048
Description: Fine-grained gray matrix with abundant plagioclase crystals (3-5 mm long). Alteration present within vesicles (white zeolite or calcite?). Fresher than MB02-8A.

Sample ID: MB02-9A **Petrologic Type:** Tb **Map Type:** Thc
Northing: 452980 **Easting:** 4612818
Description: At pyramidal knob. Basal unit is fine-grained, crystalline mafic unit. Abundant 1-4 mm plagioclase crystals are present and occasionally, larger laths (> 5 mm) are also found. Splotchy weathering similar to mafic flows exposed along western SC margin north of Granite Peak (MB01-12). Overlain by MB02-9B.

Sample ID: MB02-11 **Petrologic Type:** Tba **Map Type:** Tmi
Northing: 453083 **Easting:** 4616512
Description: Dike and vent-area of Tba. Very fine-grained dark gray matrix with sparse feldspars (similar to Chocolate Mountain). Pervasive oxidization in places away from central core and bombs also present. Other Chocolate Mountain-like (smaller) plugs also present in the vicinity. Dike trends 305-310º.

Sample ID: MB02-12 **Petrologic Type:** Tba **Map Type:** Thc
Northing: 453383 **Easting:** 4616705
Description: Medium grained, orange-gray matrix with some <0.5 cm vesicles. Small laths of feldspar present, hard to see any mafics. Very jointed outcrops with rubbly base. Appears to be two thin (2-3 m) flows.

Sample ID: MB02-13 **Petrologic Type:** Tpr **Map Type:** Tsi
Northing: 453475 **Easting:** 4616734
Description: Tpr dike that trends 335º. Amphibole and biotite present, but much finer grained than intrusive bodies exposed near/at Hinkey Summit. Sample taken from vitrophyre along west side of the dike. Extremely feldspar-rich (~4 mm euhedral crystals) and also quartz bearing (<2 mm crystals).

Sample ID: MB02-14 **Petrologic Type:** Tad_1 **Map Type:** Thc
Northing: 453846 **Easting:** 4616653
Description: Blocky, gray, very fine grained matrix. Spheroidally weathering present also. Abundant feldspar crystals up to 0.5 cm long, some appear to be sieved. Pyroxene (<2 mm) also present.

Sample ID: MB02-15 **Petrologic Type:** Thc **Map Type:** Thc
Northing: 453857 **Easting:** 4616471
Description: At least 25 m thick flow of platy weathering silicic unit. Pink to gray/purple, very fine-grained matrix. Yellow/orange mottling present. Sparse (<3 mm) feldspars also evident. Appears to be stratigraphically below MB02-14, though there could be a fault separating the two units.

Sample ID: MB02-16 **Petrologic Type:** Twsc **Map Type:** Twsc
Northing: 453755 **Easting:** 4615900
Description: Very fine-grained black matrix with light gray splotches. Sample taken from blocky float above darker brecciated zone that appears to be a basal flow breccia. Above this breccia, this material grades into a very platy more massive core. In some places, outcrop is vitrophyric. Diktytaxitic, hypocrystalline, felty matrix. Resorbed/sieved plagioclase. Plagioclase up to 2.4 mm (phenocrysts), clinopyroxene up to 0.1 mm, orthopyroxene up to 0.15 mm, oxides up to 0.25 mm.
Mode: Plag 10.58%; oxides 0.75%; orthopyroxene 2.25%; clinopyroxene 5.83%; resorbed plag 0.83%; matrix 79.75%.

Sample ID: MB02-17A **Petrologic Type:** Tp_2 **Map Type:** Ttuf
Northing: 457280 **Easting:** 4618593
Description: Fall deposits underlying Tpr lava flow in the western Goosey Lake Depression. Entire outcrop of tephra is ~3 m thick and basal zone appears to be water affected. This sample was collected from near the base of the outcrop. Very fine-grained platy sheets.

Sample ID: MB02-18 **Petrologic Type:** Tpr **Map Type:** Tpr
Northing: 457063 **Easting:** 4618642
Description: Topographically up along rhyolite flow front. Very fine-grained white-pink matrix with abundant 1-3 mm feldspar, quartz, and biotite crystals. Also reddish (altered?) mafic crystals (amphibole/biotite?). Much finer grained than the Tpr exposed at and around Hinkey Summit as well as the southern margin Tpr lava flow.

Sample ID: MB02-19 **Petrologic Type:** Tpr **Map Type:** Tpr
Northing: 456953 **Easting:** 4618371
Description: Sample taken from basal vitrophyre of Tpr lava flow. More feldspar-rich and abundant perlitic fractures. Smoky quartz also present, feldspar is more altered. Vitrophyre is ~9-13 m thick. Vitrophyric matrix with trachytic feldspars, slight flow banding. Rounded quartz and amphibole that has undergone dehydration. Porphyritic plagioclase and quartz. Also appears to be clots of plagioclase and potassium feldspar up to 2.5 mm (granitoid?). Biotite up to 1 mm, sanidine up to 2 mm, quartz up to 2 mm, plagioclase up to 0.75 mm, amphibole up to 1.5 mm, zircon up to 0.15 mm, oxides, and apatite.
Mode: Plag 8.79%; oxides 0.71%; sanidine 5.92%; quartz 6.37%; biotite 1.97%; amphibole 0.35%; zircon 0.44%; matrix 75.40%.

Sample ID: MB02-20 **Petrologic Type:** Tpr **Map Type:** Tpr
Northing: 462031 **Easting:** 4610451
Description: Lower vitrophyre of Tpr lava flow. Gray, perlitic matrix with white to yellow feldspars and abundant amphiboles. Basal monolithologic breccia in places.

Sample ID: MB02-21 **Petrologic Type:** Tad_1 **Map Type:** Thc
Northing: 463122 **Easting:** 4610990
Description: Sampled from middle portion of at least three ~4 m thick Tad_1 lava flows. Very fine-grained glassy black matrix, slight blue alteration. Abundant feldspar crystals.

Sample ID: MB02-22 **Petrologic Type:** Tad_1 **Map Type:** Thc
Northing: 462928 **Easting:** 4611883
Description: Very-fine grained glassy black matrix, abundant 1-3 mm feldspars. Same material as MB02-22, sample taken from a stratigraphically lower part of this Tad_1 section.

Sample ID: MB02-23 **Petrologic Type:** Tbr **Map Type:** Tpr
Northing: 457684 **Easting:** 4614188
Description: Small ridge top covered with obsidian debris (true obsidian, not vitrophyre). Gray, subalkaline obsidian. Very fresh material with an occasional feldspar crystal. Extremely thin weathering rind. Unlike other locations across the SC where obsidian is found as rounded cobbles, the obsidian at this location is dominated by thin (~1 cm thick) and long (~5-6 cm) needles.

Sample ID: MB02-24 **Petrologic Type:** Tp_1 **Map Type:** Tgl
Northing: 457484 **Easting:** 4613942
Description: Welded ash flow with sparse ~1 cm long fiamme. Light gray/tan matrix with feldspars and opalescent quartz.

Sample ID: MB02-25 **Petrologic Type:** Tad_1 **Map Type:** Thc
Northing: 457414 **Easting:** 4613782
Description: Very fine-grained black glassy matrix with abundant 1-2 mm feldspars. Orange oxidation rind and yellow/green mottling in places.

Sample ID: MB02-26 **Petrologic Type:** Thc **Map Type:** Thc
Northing: 457310 **Easting:** 4613672
Description: Medium-grained light gray matrix. Abundant 1-3 mm feldspars and small, 1-2 mm mafic minerals are also present. Slight trachytic texture, this silicic unit overlies intermediate package.

Sample ID: MB02-27 **Petrologic Type:** Thc **Map Type:** Thc
Northing: 457041 **Easting:** 4613397
Description: Vesicular, very fine-grained gray/blue matrix with sparse 1-2 mm feldspars and some <1 mm mafic minerals. Sample from a platy zone of the Thc lava flow where it ramps up into the upper flow-top breccia.

Sample ID: MB02-28 **Petrologic Type:** Tad_1 **Map Type:** Thc
Northing: 456937 **Easting:** 4613084
Description: Medium to fine-grained gray matrix. Abundant large (0.5 x 0.5 cm) feldspars that exhibit disequilibrium textures. Stretched vesicles also present throughout the unit.

Sample ID: MB02-30 **Petrologic Type:** Tbr **Map Type:** Tpr
Northing: 456443 **Easting:** 4613788
Description: Flow banded rhyolite with darker, vitrophyric base. Abundant green to red/brown rotated xenoliths also present within the outcrop. Sits stratigraphically above MB02-27. Crystal poor.

Sample ID: MB02-31A **Petrologic Type:** Tem **Map Type:** Tem
Northing: 458677 **Easting:** 4632328
Description: Frothy, dark gray/pink pervasively oxidized and tack-welded agglutinate. Abundant 1-2 mm glassy zones and 1-3 mm feldspars. Cobble to boulder sized pervasively oxidized clasts of similar material in close proximity. Welded, devitrified matrix. Zones present where welding is more pronounced. Again, this is a near-vent pyroclastic deposit, not an ash flow. Embayed plagioclase. Plagioclase up to 1 mm, abundant 0.5 mm small laths also. Oxides <1 mm (usually 0.1 mm and dendritic), sanidine <0.1 mm, clinopyroxene up to 0.75 mm.
Mode: Plag 1.91%; oxides 9.59%; sanidine 0.25%; clinopyroxene 0.41%; resorbed plag 0.16%; vid 29.58%; matrix 67.16%.

Sample ID: MB02-31B **Petrologic Type:** Tem **Map Type:** Tem
Northing: 458677 **Easting:** 4632328
Description: Highly oxidized breccia with large (1-5 cm) clasts of pervasively oxidized pumice and dark glassy vitrophyre. Near vent spatter/agglutinate.

Sample ID: MB02-32 **Petrologic Type:** Tad_2 **Map Type:** Twsc
Northing: 458646 **Easting:** 4632364
Description: Pink to light gray fine-grained matrix. White-green mottling present. Relatively aphyric with sparse <1 mm mafic minerals and some feldspar.

Sample ID: MB02-33 **Petrologic Type:** Tad_2 **Map Type:** Twsc
Northing: 458646 **Easting:** 4632364
Description: Gray, fine-grained matrix. Fresher rock than MB02-32, crystal poor.

Sample ID: MB02-34 **Petrologic Type:** Tem **Map Type:** Tem
Northing: 456111 **Easting:** 4634694
Description: Light blue-pinkish gray matrix with reddish flow banding. Abundant orange mafic crystals and 2-3 mm white feldspars. Silicification and argillic alteration is present locally.

Sample ID: MB02-35 **Petrologic Type:** Tad_2 **Map Type:** Twsc
Northing: 456709 **Easting:** 4634488
Description: Very fine-grained gray to blue matrix with dark feldspars. Underlies MB02-34/36.

Sample ID: MB02-36 **Petrologic Type:** Tem **Map Type:** Tem
Northing: 457064 **Easting:** 4634391
Description: Dark pink-purple fine grained matrix with orange mafic crystals and abundant 2-3 mm feldspars. Not as fresh as MB02-35.

Sample ID: MB02-37 **Petrologic Type:** Tem **Map Type:** Tem
Northing: 457140 **Easting:** 4634282
Description: Glassy, black matrix with abundant feldspars. Likely upper vitrophyre of MB02-34/36 lava flow.

Sample ID: MB02-38A **Petrologic Type:** Tp_1 **Map Type:** Tgl
Northing: 457140 **Easting:** 4634282
Description: Basalt portion of Tp_1 welded ash flow. Abundant blue pumice fragments, not all smeared out and ~ 2 mm thick.

Sample ID: MB02-38B **Petrologic Type:** Tp_1 **Map Type:** Tgl
Northing: 457140 **Easting:** 4634282
Description: Upper portion of Tp_1 welded ash flow. Abundant ~4 cm long fiamme, slight green alteration, and abundant 2-3 mm clear feldspars. Entire outcrop is ~3 m thick and is the stratigraphically youngest unit that is locally exposed.

Sample ID: MB02-39 **Petrologic Type:** Tem **Map Type:** Tem
Northing: 457957 **Easting:** 4634218
Description: Same material as MB02-34/36, but fresher. Gray-blue matrix with small 2-3 mm white to clear feldspars and abundant 1-2 mm orange mafic crystals.

Sample ID: MB02-40 **Petrologic Type:** Tem **Map Type:** Tem
Northing: 458273 **Easting:** 4633901
Description: Sample taken from rounded cores of weathered outcrop. Very fine-grained white matrix, some pink flow banding. Sparse <1 mm feldspars and small mafic crystals also. From zone of Tem mapped as an intrusive body

Sample ID: MB02-41 **Petrologic Type:** Tem **Map Type:** Tem
Northing: 459726 **Easting:** 4632826
Description: Pink-gray, fine-grained, flow-banded matrix. Abundant equant 2-3 mm white to clear feldspars and 2-3 mm orange mafic crystals.

Sample ID: MB02-42 **Petrologic Type:** Tem **Map Type:** Tem
Northing: 459686 **Easting:** 4632782
Description: Sample taken from rounded cores of weathered outcrop. Abundant orange alteration throughout the white to purple fine grained matrix. Some sparse feldspars (<1 mm) and mafic crystals (<1 mm).

Sample ID: MB02-43 **Petrologic Type:** Tad_1 **Map Type:** Thc
Northing: 462886 **Easting:** 4607610
Description: From summit of Coal Pit peak. Very fine-grained black matrix with abundant, large crystals. Lots of vesicle fill also. Crystals are ~1-5 mm in size, appear to be feldspars. Intersertal, holocrystalline matrix. Sieved/resorbed plagioclase (some oscillatory zoned in clots), resorbed/rounded sanidine, resorbed microcline, clinopyroxene rimmed by orthopyroxene, orthopyroxene rimmed by clinopyroxene, clinopyroxene + orthopyroxene + plagioclase + oxide clots, quartzite? xenolith (~ 2 mm wide). Plagioclase up to 2 mm (in clots and as phenocrysts), sanidine/k-spar up to 2 mm, olivine, up to 0.25 mm, oxides up to 0.1 mm, orthopyroxene (hy) up to 0.75 mm, clinopyroxene, clots up to 1.2 mm.
Mode: Plag 8.92%; oxide 0.08% olivine 0.75%; orthopyroxene 1.08%; clinopyroxene 4.50%; resorbed plag/k-spar 4.25%; clots 13.67%.

Sample ID: MB02-44 **Petrologic Type:** Tpr **Map Type:** Tpr
Northing: 462103 **Easting:** 4607365
Description: Gray, frothy matrix with abundant quartz, feldspar, and amphibole. Spotty orange alteration also present. Quartz = Feldspar > Amphibole. The amphibole has obvious red-brown oxidation rinds and overall, this material looks just like the Tpr intrusive bodies exposed at Hinkey Summit.

Sample ID: MB02-45 **Petrologic Type:** Tad_1 **Map Type:** Thc
Northing: 461242 **Easting:** 4607284
Description: Very-fine grained gray matrix, fairly fresh. Some xenoliths that appear to be granitic/gneissic. Abundant ~ 3 mm feldspars, some appear resorbed.

Sample ID: MB02-46 **Petrologic Type:** Thc **Map Type:** Thc
Northing: 459051 **Easting:** 4605818
Description: Blocky and very fresh with a pink, fine-grained flow-banded matrix. Abundant < 1 mm quartz and feldspar crystals, and occasional <5 mm green xenoliths.

Sample ID: MB02-47 **Petrologic Type:** Thc **Map Type:** Thc
Northing: 459245 **Easting:** 4605978
Description: Devitrified, flow-banded, light pink frothy matrix. Slightly altered. Abundant < 1 mm quartz and larger 1-3 mm feldspars. Quartz > feldspars. Flow banding is very distinguishing.

Sample ID: MB02-50 **Petrologic Type:** Tbr **Map Type:** Tpr
Northing: 464983 **Easting:** 4622524
Description: Obsidian clasts. Abundant cobble-sized clasts of subalkaline obsidian, very fresh. Collected from post-SC pavement overlying Tcst.

Sample ID: MB02-55 **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 463995 **Easting:** 4621788
Description: Poorly welded ash flow. Sampled from basal portion of 20-30 m thick cliff. Basalt portion seems to be coarser grained than upper surface. Abundant large (4-5+ cm) tan/white pumices in zones and much smaller (<2 mm) pumice is also present. Very crystal-rich with abundant 2-3 mm feldspars. Lithic fragments appear to be 2-3 mm black vitrophyric glass and some pieces of flow banded rhyolite (Tem/Thc). Small, < 1 mm brown glass shards also present. Plagioclase and sanidine up to 2.5 mm, pigeonite up to 1.2 mm, orthopyroxene (hypersthene?) up to 1.1 mm, oxides up to 0.38 mm, plagioclase + oxide + pigeonite + zircon clots, apatite, blocky glass shards up to 1 mm and bubble wall shards up to 2 mm. Some plagioclase is resorbed, slight

devitrification, poikilitic cpx in plagioclase, welded.
Mode: Plag 1.50%; oxide 0.25%; sanidine 1.66%; pigeonite 0.16%; orthopyroxene 0.67%; blocky glass shards 4.67%; clots 20.25%; matrix 70.67%.

Sample ID: MB02-57A **Petrologic Type:** Tp_2 **Map Type:** Tgl
Northing: 463695 **Easting:** 4618521
Description: Gray/buff, very-fine grained ash. Abundant < 1 mm glass shards, some bubble-wall type. Horizon is ~20-30 cm thick and overlies silt.

Sample ID: MB02-57B **Petrologic Type:** Tp_2 **Map Type:** Tgl
Northing: 463695 **Easting:** 4618521
Description: 0.9 to ~1.6 m thick bluish fine-grained ash. Glassier at the base of the horizon, bubble wall shards and pumice are present also. Coarser grained than MB02-57A, very fresh and pure. Overlies buff-colored lacustrine strata.

Sample ID: MB02-58A **Petrologic Type:** Tp_2 **Map Type:** Tgl
Northing: 463508 **Easting:** 4618595
Description: Gray, frothy, fine to medium-grained ash. Abundant bubble-wall shards, > 90% glass.

Sample ID: MB02-58B **Petrologic Type:** Tp_2 **Map Type:** Tgl
Northing: 463508 **Easting:** 4618595
Description: Gray, coarser grained lapilli-ash sized fall deposits. Abundant < 4 mm pumiceous shards.

Sample ID: MB02-58C **Petrologic Type:** Tp_2 **Map Type:** Tgl
Northing: 463508 **Easting:** 4618595
Description: Fine-grained, water affected (ripple-like textures) ash. More sand/lithic rich than MB02-58A, B. Laminated.

Sample ID: MB02-59 **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 461879 **Easting:** 4621227
Description: Vitrophyre from upper portion of welded ash-flow. Abundant 2 x 3 mm equant feldspars, some 1-2 mm vitrophyric lithic fragments, and pumice. Welding has masked individual glass shards.

Sample ID: MB02-60 **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 461933 **Easting:** 4621158
Description: White and frothy, welded material that seems to underlie the black/glassy basal vitrophyre. Likely welded fall precursor to overlying Tcst ash flow. White, frothy matrix, with abundant 1-2 mm feldspars and <1 mm oxidized mafic crystals?

Sample ID: MB02-61 **Petrologic Type:** Tbr **Map Type:** Tpr
Northing: 454363 **Easting:** 4610200
Description: Intrusive body of Tbr. Sample taken from ~1.5 m thick column. White/gray, aphyric matrix with some banding. Devitrification along banding and some spars mafic (< 1 mm) crystals in places. Intruding phyllite.

Sample ID: MB02-62 **Petrologic Type:** Tba **Map Type:** Thc
Northing: 453622 **Easting:** 4614814
Description: Highly altered mafic lava flow in rubbly exposure along the S side of Lye Creek. Extremely plagioclase-rich, with a massive, fine-grained matrix. Plagioclase laths are 0.8-1 cm long. Orange staining and alteration are present, likely water affected.

Sample ID: MB02-63A **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 461855 **Easting:** 4622466
Description: Pumice clasts from Tcst ash flow.

Sample ID: MB02-63B **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 461855 **Easting:** 4622466
Description: Black, basal vitrophyre. Highly welded, abundant 1-2 mm feldspars, lithic fragments, and some small 2-3 mm stretched pumice. Overlies welded-fall deposits.

Sample ID: MB02-64 **Petrologic Type:** Ta **Map Type:** Thc
Northing: 459254 **Easting:** 4621572
Description: Very fine-grained black/tan mottled sugary matrix. Abundant >1 cm vesicles, some stretched. Sparse <1 mm feldspars, but fairly crystal poor.

Sample ID: MB02-65 **Petrologic Type:** Tpr **Map Type:** Tpr
Northing: 453634 **Easting:** 4620910
Description: White/gray, very fine-grained matrix with slight open textured nature (vesicular flow top). 1-3 mm quartz crystals are abundant, in addition to fresh 3-5 mm feldspars. Appears to be also a population of <3 mm oxidized mafic crystals.

Sample ID: MB02-66 **Petrologic Type:** Ta **Map Type:** Tgl
Northing: 453944 **Easting:** 4621698
Description: Very fine-grained gray/blue sugary matrix, with light yellow alteration. Sparse 1-2 mm feldspar laths and >0.5 cm stretched vesicles. Underlies MB02-65 material.

Sample ID: MB02-67 **Petrologic Type:** Tp_2 **Map Type:** Tgl
Northing: 453986 **Easting:** 4621844
Description: Gray, welded ash flow with 3-4 mm fiamme and sparse < 2mm feldspars. Outcrop appears to be youngest stratigraphically exposed material in the vicinity.

Sample ID: MB02-68 **Petrologic Type:** Tpr **Map Type:** Tpr
Northing: 454690 **Easting:** 4622143
Description: White/blue open-textured matrix, with abundant quartz and feldspar crystals (~1-3 mm). Mafic mineral also present, likely biotite or amphibole. Fairly fresh overall

Sample ID: MB02-69 **Petrologic Type:** Tp_1 **Map Type:** Ttuf
Northing: 455291 **Easting:** 4621744
Description: 3-4 m thick fall deposit. Appears to stratigraphically underlie laharic deposits and vitrophyre of western margin Tpr lava flow. Ash sized bubble junction/wall shards, gray to dark gray. Large 2 mm - 1 cm white/tan pumice also present.

Sample ID: MB02-71 **Petrologic Type:** Tbr **Map Type:** Tpr
Northing: 456159 **Easting:** 4615605
Description: From massive block of flow-banded rhyolite. White-gray fine-grained matrix with <1 mm crystals of quartz and feldspar. Purple/reddish oxidized and embayed xenoliths are also present; appear to be more mafic. Spherulitic, devitrified matrix. Holocrystalline. Oxides up to 0.35 mm, zircon up to 0.25 mm, biotite up to 0.15 mm, plagioclase up to 0.2 mm, sanidine, apatite.
Mode: Plag 3.58%; oxides 2.08%; sanidine 1.00%; zircon 0.50%; apatite 0.16%; biotite 0.16%; matrix 92.50%.

Sample ID: MB02-72 **Petrologic Type:** Tad_1 **Map Type:** Thc
Northing: 455938 **Easting:** 4615341
Description: Very fine-grained, conchoidally fracturing black matrix. Abundant vesicles and yellow-green alteration. Abundant <1.5 mm feldspar laths. Part of a package of thin Tad_1 lava flows that lie below MB02-72 and above the Thc exposed at Lye Creek turn-off.

Sample ID: MB02-73 **Petrologic Type:** Tpr **Map Type:** Tsi
Northing: 455824 **Easting:** 4615220
Description: Tpr dike, trends 10º. Gray, very fine-grained matrix with vitrophyre at margins. Abundant 1-3 mm quartz crystals and white feldspars. No apparent/obvious fresh mafic crystals.

Sample ID: MB02-74 **Petrologic Type:** Tp_r **Map Type:** Tsi
Northing: 458079 **Easting:** 4606549
Description: Tpr dike in Tom Basin. Trends 330º and is 7-8 m thick. Gray, slightly open-textured matrix with abundant feldspars (up to 0.4 mm), 1-3 mm quartz crystals, biotite books (1-3 mm), and amphibole (~2 mm).

Sample ID: MB02-75 **Petrologic Type:** Tarc **Map Type:** Tarc
Northing: 458137 **Easting:** 4605998
Description: From lower flow of a series of at least ten (conservatively) 4-5 m thick flows. Very fine-grained gray/black sugary textured matrix with abundant yellow/green mottling. No apparent crystals. Below this lies a basal flow breccia that overlies Kg.

Sample ID: MB02-76 **Petrologic Type:** Tarc **Map Type:** Tarc
Northing: 458016 **Easting:** 4605331
Description: May be a Tarc dike. Very fine-grained dark gray aphyric matrix. Extremely oxidized breccia present locally.

Sample ID: MB02-77 **Petrologic Type:** Kg **Map Type:** Kg
Northing: 458050 **Easting:** 4605315
Description: Granitoid. Appears to be some slight lineation and N-S jointing in rounded, highly weathered outcrops. Feldspar and quartz also present.

Sample ID: MB03-1 **Petrologic Type:** Tem **Map Type:** Tem
Northing: 465250 **Easting:** 4634949
Description: Gray to purple very fine-grained matrix. Abundant >2 mm mafic crystals and small feldspars (~2 mm). Dark, glassy upper vitrophyre also locally exposed.

Sample ID: MB03-2A **Petrologic Type:** Tpr **Map Type:** Tpr
Northing: 453933 **Easting:** 4617754
Description: Vitrophyre from Tpr lava flow. Glassy, perlitic matrix with abundant feldspars (up to 0.7 cm) and quartz.

Sample ID: MB03-3 **Petrologic Type:** Tpr **Map Type:** Tsi
Northing: 452547 **Easting:** 4619048
Description: Tpr dike. ~4.5-6 m thick, trends N-S. Other dikes locally present. Abundant quartz, feldspar, and biotite. Green xenoliths also present.

Sample ID: MB03-5 **Petrologic Type:** Twsc **Map Type:** Twsc
Northing: 452465 **Easting:** 4618630
Description: Vitrophyre with abundant 2-3 mm feldspars. Perlitic fracture in places. Twsc vent region.

Sample ID: MB03-7 **Petrologic Type:** Tba **Map Type:** Thc
Northing: 452365 **Easting:** 4618393
Description: Very fine-grained platy dark gray matrix. Crystal poor. Abundant scoria float, scoria mounds, and bombs locally present also. Vent may/may not be related.

Sample ID: MB03-8 **Petrologic Type:** Ta **Map Type:** Thc
Northing: 452202 **Easting:** 4617999
Description: Very fine-grained platy andesite. Sparse, <3 mm feldspars with a gray-blue matrix. Abundant stretched vesicles, platy massive interior, and ramp structures.

Sample ID: MB03-9 **Petrologic Type:** Twsc **Map Type:** Twsc
Northing: 451770 **Easting:** 4617579
Description: Open textured gray matrix, with alteration. Sparse <0.7 mm feldspar laths. Overall, the sampled flow has an oxidized upper breccia and a more massive, platy interior that ramps into the breccia.

Sample ID: MB03-10A **Petrologic Type:** Tom **Map Type:** Tom
Northing: 465783 **Easting:** 4636455
Description: Welded, frothy near vent tuffaceous material (near vent carapace). Abundant glass shards that are <1 mm.

Sample ID: MB03-10B **Petrologic Type:** Tom **Map Type:** Tom
Northing: 465783 **Easting:** 4636455
Description: Banded devitrified rhyolite from within the carapace. Abundant 2-3 mm phenocrysts of feldspar and quartz. Massive core of vent (vertically dipping partially eroded plug). Devitrified spherulitic, hypocrystalline matrix. Microphenocrysts of quartz and altered pyroxene in matrix. Plagioclase up to 1.2 mm, quartz up to 2.3 mm, zircon and apatite <0.1 mm, sanidine (seriticized?), oxides, and brown glass shards.
Mode: Plag 0.83%; oxides 0.50%; sanidine 1.75%; quartz 2.00%; zircon 0.16%; void 19.91%; matrix 74.83%.

Sample ID: MB03-11 **Petrologic Type:** Tp_1 **Map Type:** Tgl
Northing: 465667 **Easting:** 4635360
Description: Welded ash-flow. Gray to light green devitrified matrix, with large (>10 cm) flattened pumice throughout. Smaller flattened lithic fragments also present. Abundant 1-3 mm feldspar crystals. Outcrop is 12-15 m thick.

Sample ID: MB03-12A **Petrologic Type:** Tp_1 **Map Type:** Tgl
Northing: 465582 **Easting:** 4635216
Description: At base of welded ash-flow. Glassy, highly welded pumice fall. Perlitic fracture in places.

Sample ID: MB03-13 **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 465752 **Easting:** 4631433
Description: From blocky portion of upper exposure. White open-textured/frothy matrix with abundant feldspars (up to 0.8 cm). Some feldspar crystals appear rounded and mafic crystals (pyroxene?) also present. Highly welded Tcst (lava-like).

Sample ID: MB03-15 **Petrologic Type:** Tem **Map Type:** Tem
Northing: 462064 **Easting:** 4630928
Description: Pervasively oxidized purple, flow banded matrix. ~ 5-10% <3 mm feldspars and possibly ~2 mm pyroxenes (oxidized mafic minerals). Platy zone (joint) trends 230º. Tem lobe that flowed south into the Goosey Lake depression.

Sample ID: MB03-16 **Petrologic Type:** Ta **Map Type:** Tgl
Northing: 462181 **Easting:** 4630576
Description: Uppermost Ta lava flow that underlies Tem. Aphyric, open textured gray matrix. Pervasive mottling, aphyric with some white (calcite or zeolite?) alteration in places.

Sample ID: MB03-17 **Petrologic Type:** Ta **Map Type:** Tgl
Northing: 462272 **Easting:** 4630171
Description: Very fine-grained black matrix. Abundant dark pink/purple vesicles (>1 cm) and sparse (<1 %) feldspars that are <2 mm.

Sample ID: MB03-18 **Petrologic Type:** Tem **Map Type:** Tem
Northing: 462218 **Easting:** 4629820
Description: From block in basal portion of lowest topographically exposed Tem lava flow (locally). Pink banded matrix with sheared vesicles. Sparse 1-3 mm feldspars and small 1-4 mm oxidized mafic minerals.

Sample ID: MB03-19 **Petrologic Type:** Tba **Map Type:** Tsb
Northing: 449551 **Easting:** 4630256
Description: Very fine-grained sugary matrix. Highly jointed. Some sparse <2 mm feldspars.

Sample ID: MB03-20 **Petrologic Type:** Tba **Map Type:** Tmi
Northing: 449105 **Easting:** 4630375
Description: Dike trending 266º and is ~3-4 m thick. Fine-grained sugary gray matrix. No visible phenocrysts.

Sample ID: MB03-21A **Petrologic Type:** Twsc **Map Type:** Twsc
Northing: 448626 **Easting:** 4630508
Description: Upper frothy zone of lava flow. Pink massive matrix, locally flow-banded. Phenocrysts of quartz and feldspar (1-3 mm) and some biotite flakes. Highly altered (kaolinite).

Sample ID: MB03-21B **Petrologic Type:** Twsc **Map Type:** Twsc
Northing: 448626 **Easting:** 4630565
Description: Upper vitrophyre of same material. Perlitic fracture, bluish devitrification of glass.

Sample ID: MB03-23 **Petrologic Type:** Tp_1 **Map Type:** Tgl
Northing: 464357 **Easting:** 4625037
Description: Welded ash-flow. Light gray-green matrix with >2 cm stretched pumice. Devitrified throughout the outcrop, which is ~4-5 m thick.

Sample ID: MB03-24 **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 460195 **Easting:** 4626015
Description: Highly welded Tcst. Pink to grayish massive matrix with abundant 1-2 mm feldspar crystals. Seems to be upper welded zone of thicker exposure.

Sample ID: MB03-25 **Petrologic Type:** Ta **Map Type:** Tgl
Northing: 462669 **Easting:** 4627440
Description: Dark gray, very fine-grained matrix that is open textured in places. Sparse, <2 mm feldspars.

Sample ID: MB03-26A **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 462850 **Easting:** 4627544
Description: Tcst. Very fine grained, white highly welded matrix. Sparse stretched pumice and 1-3 mm feldspar crystals. Upper sample in a succession of samples from an ~15-17 m thick Tcst outcrop. Holyhyaline, slightly devitrified and welded. Pigeonite + clinopyroxene + oxide + zircon clots up to 1 mm and 1 mm and smaller blocky glass shards. Plagioclase up to 1.35 mm, pigeonite up to 0.35 mm, sanidine up to 0.65 mm, anorthoclase up to 1.75 mm, and oxides up to 0.25 mm. Trace apatite and zircon. Some plagioclase is resorbed.
Mode: plag 1.16%; resorbed plag 2.00%; oxides 0.33%; sanidine 1.33%; anorthoclase 0.42%; zircon 0.41%; apatite 0.16%; clots 1.00%; glass 93.17%.

Sample ID: MB03-26B **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 462850 **Easting:** 4627544
Description: From blocky upper part of glassy zone. Less pumice than below, abundant feldspar crystals, sparse lithic fragments. Tree mold aligned with pumice (northward directed flow).

Sample ID: MB03-26C **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 462850 **Easting:** 4627544
Description: From spheroidal zone; highly welded and very glassy. Sparse lithic fragments. Abundant green 1-2 cm pumice clasts.

Sample ID: MB03-26D **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 462850 **Easting:** 4627544
Description: Welded platy material, smaller/thinner plates (weather to 5-7 cm thick plates). Pumice present, ~1cm long and glass shards appear aligned.

Sample ID: MB03-26E **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 462850 **Easting:** 4627544
Description: Lower, more massive platy material. Plate thickness increasing, abundant ~1 cm long pumices. Lithic fragments increasing.

Sample ID: MB03-26F **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 462850 **Easting:** 4627544
Description: Lowermost exposure. Non-welded, massive lapilli tuff. Pumice from 0.5 to > 3 cm and abundant 2-3 mm feldspars and rounded glassy lithic fragments. No bedded; massive and pitted outcrop (case-hardened in places). This part of the outcrop is at least 6 m thick.

Sample ID: MB03-27 **Petrologic Type:** Tp_1 **Map Type:** Tgl
Northing: 462116 **Easting:** 4626623
Description: Welded ash-flow. Gray-green matrix with abundant stretched pumices (devitrified; up to ~2 cm). Abundant clear feldspar laths, from 1-3 mm. Creates surface in this portion of the depression.

Sample ID: MB03-28A **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 460582 **Easting:** 4625695
Description: Rounded frothy glassy clasts from Tcst at Table Mountain. Clasts are up to ~10-12 cm thick. Abundant feldspars from Tcst matrix, euhedral and ~3-5 mm. Stretched pumice and up to 6 mm glassy black lithic fragments are also present. Poorly welded Tcst.

Sample ID: MB03-28B **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 460582 **Easting:** 4625695
Description: Glassy and welded upper platy zone, capping Table Mountain. Abundant feldspar crystals (<4 mm), stretched small pumice, and <1 cm glassy lithic fragments also present.

ample ID: MB03-30A **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 468928 **Easting:** 4628166
Description: Extremely crystal rich Tcst, at upper-well exposed portion of at least 30 m thick outcrop. Feldspars are ~2-3 mm, large blocky vitrophyric lithic fragments are also present. Green-yellow devitrification throughout exposure. Welded.

Sample ID: MB03-30B **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 468910 **Easting:** 4628166
Description: Welded, but not as welded as MB03-30A. Visible pumiceous and bubble-wall shards, sparse 2-3 mm feldspars. Up to 0.5 cm black vitrophyric lithic fragments also. Larger, frothy pumice is also present.

Sample ID: MB03-30C **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 468910 **Easting:** 4628166
Description: Extremely glassy vitrophyric material, with flattened pumices (up to 1 cm; green). Spheroidally weathering also present. Feldspars (2-3 mm) and blocky vitrophyric lithic fragments present as well.

Sample ID: MB03-31 **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 466804 **Easting:** 4629589
Description: From lower blocky zone underneath lithophysael zone in a Tcst outcrop. Welded, crystal-rich tuff; feldspars are up to 3.5 cm. >1 cm pumice clasts (some stretched, some not) also present. Grading into vitrophyre below.

Sample ID: MB03-32 **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 466789 **Easting:** 4629521
Description: Welded clast-rich lapilli tuff. Abundant 1-3 mm feldspars present like other Tcst exposures.

Sample ID: MB03-33 **Petrologic Type:** Tcm **Map Type:** Tcm
Northing: 475304 **Easting:** 4620116
Description: Very fine-grained, massive matrix with abundant 1-2 mm phenocrysts of feldspar and quartz. Also some small, <1 mm flecks of pyroxene. Devitrified matrix in places, whiter when fresh.

Sample ID: MB03-34 **Petrologic Type:** Ta **Map Type:** Tcm
Northing: 474860 **Easting:** 4620195
Description: Purple, oxidized conchoidally fracturing matrix. Abundant stretched vesicles in places, some portions of the flow are more massive. Sparse 1-4 mm feldspars and slightly larger crystalline vesicle fill. Appears to be at least 30 m more of similar lava flows exposed downsection.

Sample ID: MB03-35 **Petrologic Type:** Tct **Map Type:** Tct
Northing: 474722 **Easting:** 4619077
Description: Gray-purple matrix with some voids, highly welded (lava-like). Abundant, randomly oriented feldspars up to 0.5 cm. Distinctive columnar jointing present, is exposed from down at the N. Fork Little Humboldt river up to this location and appears to be present across the river. Approximately 60-90 m thick here. Open textured and no sign of welding (highly devitrified). Zoned and resorbed plagioclase, some appears structurally disturbed (kinked twins). Resorbed anorthoclase (microcline?). Oxide + plagioclase + clinopyroxene + zircon clots, some highly altered. Clinopyroxene up to 0.17 mm, orthopyroxene up to 1 mm, plagioclase up to 2.75 mm, sanidine up to 1 mm, anorthoclase up to 1.5 mm, apatite, and zircon up to 0.15 mm (associated with clots primarily).
Mode: Plag 4.12%; oxides 0.88%; potassium feldspar 1.27%; orthopyroxene 0.58%; clinopyroxene 0.58%; apatite 0.09%; zircon 0.18%; voids 14.42%; matrix 77.82%. Opx, plag, and zircon primarily associated with clots.

Sample ID: MB03-36A **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 470782 **Easting:** 4608204
Description: Tcst. Laminated and frothy, purple matrix. Abundant fiamme up to 2 mm. Some 1-2 mm dark vitrophyric clasts (lithic fragments?) as well as abundant 1-2 mm equant and lath-like feldspars. Overlies MB03-36B and overall, is the uppermost exposed ash-flow here.

Sample ID: MB03-36B **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 470496 **Easting:** 4608413
Description: From block of lower vitrophyre below lithophysael zone. Glassy, welded dark matrix with abundant 1-3 mm feldspars. Some blocky vitrophyric clasts (lithic fragments?) and up to 2 mm fiamme. 1-2 mm equant feldspar crystals also present.

Sample ID: MB03-37A **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 470424 **Easting:** 4608190
Description: From upper 3 m of ~9m thick Tcst package. Pumice-rich, with large ~5-6 cm glassy lithic fragments. Grades into welded and platy upper zone. Base coarser than upper portion. Overall, appears to be two separate Tcst flow units (with accompanying fall) exposed at this location.

Sample ID: MB03-37B **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 470424 **Easting:** 4608190
Description: From what appears to be underlying basal surge deposit. ~3 m of low angle, bedded surge. Anti-dunal structures present and cross-bedding in places. Also scoured by overlying ash flow.

Sample ID: MB03-37C **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 470424 **Easting:** 4608190
Description: Fall deposit. From fall deposit that lies directly below/is the base of underlying ash flow (#2; the lowermost exposed). Grayish fall deposit that overlies limonitic tuffaceous sand.

Sample ID: MB03-40 **Petrologic Type:** Tad_1 **Map Type:** Thc
Northing: 469281 **Easting:** 4608540
Description: From massive zone within a flow foliated/jointed lava flow. Abundant ramping in places. Very fine-grained conchoidal black matrix with gray-green mottling. Sparse 1-4 mm feldspars. Underlies sediment package exposed in Hardscrabble Basin.

Sample ID: MB03-41 **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 471582 **Easting:** 4604139
Description: Cliff-forming Tcst flow unit that caps Hardscrabble basin section. Highly welded, crystal-rich ash flow. Massive purple matrix with fiamme up to 1 cm. Feldspar crystals range from 1-3 mm. Forms distinct cliff/bench.

Sample ID: MB03-42 **Petrologic Type:** Tct **Map Type:** Tct
Northing: 473405 **Easting:** 4612328
Description: In Charlie Young goat corral region. Sedimentary package appears to overlie highly welded ash flows. From outcrop on the west side of Charlie Young canyon. Highly flow-banded, purple-gray matrix with 1-2 mm feldspars and small (~1 mm) oxidized mafic minerals. In places, 0.6 m long gas escape pipes are also present. Highly welded, lava-like ash flow.

Sample ID: MB03-43 **Petrologic Type:** Tct **Map Type:** Tct
Northing: 473581 **Easting:** 4612058
Description: Flow-banded silicic lava flow. Abundant ~1 mm quartz and feldspar, as well as up to 2 mm oxidized mafic crystals. Appears to ramp up and onlap MB03-42 (Coyote Mt. derived units), likely source of origin is Zymns Butte.

Sample ID: MB03-44 **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 473777 **Easting:** 4611129
Description: Tcst ash flow. Non-welded massive base (~3 m) that grades up into a welded and platy zone. Abundant pumiceous/bubble wall/junction gray shards that range from lapilli to ash size. Abundant <1 mm feldspars and 1-2 mm black lithic fragments. Up to 1 cm white/tan pumice clasts also present. Appears to have filled in a topographic low.

Sample ID: MB03-45 **Petrologic Type:** Tct **Map Type:** Tct
Northing: 476386 **Easting:** 4612278
Description: From the summit of Zymns Butte. Monolithologic silicic unit. Appears to be a rhyolite dome that has been eroded; abundant vertical jointing throughout the hill and frothy, open-textured rock in places. Sample from upper, frothy material from near summit. Abundant 1-3 mm feldspars and small <1 mm quartz phenocrysts. Also 1-2 mm oxidized mafic crystals. Similar to MB03-43. Devitrified, hypocrystalline matrix. Inequigranular crystals. Rounded quartz, some with reaction rims. Resorbed and rounded plagioclase, altered mafic minerals (opx?). Plagioclase up to 2.1 mm, quartz up to 0.85 mm, oxides up to 0.25 mm, orthopyroxene (altered) up to 0.45 mm, anorthoclase up to 0.75 mm, apatite, and zircon up to 0.5mm (seems to be associated with opx).
Mode: Plag 2.50%; oxides 1.00%; potassium feldspar 0.66%; orthopyroxene 0.25 %; zircon 0.33%; apatite 0.33%; quartz 0.41%; void 7.33%; matrix 87.16%.

Sample ID: MB03-46 **Petrologic Type:** Tct **Map Type:** Tct
Northing: 467727 **Easting:** 4613957
Description: On high ridge of Black (Cloister), just north of summit. Eroded silicic dome at high, sample is from outflow. Massive blue-gray matrix. Abundant 1-2 mm feldspars and some <1.5 mm mafic crystals, possibly biotite. Banded and devitrified, holocrystalline matrix. Resorbed and sieved plagioclase, some highly zoned (oscillatory). Plagioclase + orthopyroxene + oxide clots also present. Plagioclase up to 2 mm, altered clinopyroxene up to 0.6 mm, oxides up to 0.35 mm, altered orthopyroxene up to 1.05 mm, zircon up to 0.6 mm, biotite (phlogopite?) up to 0.4 mm, and apatite.
Mode: Plag 0.17%; oxides 0.96%; orthopyroxene o.26%; clinopyroxene 0.08%; zircon 0.08%; clots 5.98%; matrix 92.44%.

Sample ID: MB03-47 **Petrologic Type:** Tct **Map Type:** Tct
Northing: 467540 **Easting:** 4614361
Description: Extremely jointed and platy silicic lava flow. Massive light blue-gray matrix with abundant feldspars, up to 3 mm (flow-aligned in places). Also some <1 mm mafic crystals also present. Outcrop is at least 60 m thick.

Sample ID: MB03-48 **Petrologic Type:** Ta **Map Type:** Thc
Northing: 467517 **Easting:** 4614887
Description: ~12 m thick Ta lava flow that overlies a package of thinner intermediate lava flows. These overlie MB03-47. Platy jointing in places and large (~3 m) spheroidally weathering zones. Vesicular upper flow zone. Fine-grained, vesicular matrix, vesicles are stretched up to ~1 cm. Abundant feldspar crystals, ~2 mm.

Sample ID: MB03-49 **Petrologic Type:** Tad_1 **Map Type:** Thc
Northing: 467458 **Easting:** 4614834
Description: ~3 m thick lava flow that directly overlies MB03-47. Fine-grained vesicular matrix with abundant <1.5 mm feldspars.

Sample ID: MB03-50 **Petrologic Type:** Tad_1 **Map Type:** Thc
Northing: 468240 **Easting:** 4614355
Description: Platy weathering gray matrix. Some light colored mottles and sparse (<5%) feldspars. Appears to underlie MB03-47.

Sample ID: MB03-51 **Petrologic Type:** Tct **Map Type:** Tct
Northing: 469220 **Easting:** 4614135
Description: Clast from thick (>60 m) zone of breccia. This appears to be the basal unit exposed here and also looks like Tct ash flows overlie/onlap this material. Clast is cobble sized and has a black, glassy very fine-grained matrix. Some small vesicles and sparse, <1.5 mm feldspars. Resembles heterologic breccia associated with Tarc lava flows in and around Hinkey Summit.

Sample ID: MB03-52 **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 470424 **Easting:** 4608190
Description: Massive. Light blue matrix with some degree of banding. Abundant ~2 mm white to yellow feldspars an some sparse <1 mm mafic crystals.

Sample ID: MB03-53 **Petrologic Type:** Tarc **Map Type:** Tarc
Northing: 449387 **Easting:** 4607346
Description: Dark and massive sugary matrix. Small <1 mm feldspars in matrix and >1 mm phenocrysts are present. Conchoidal fracture overall and parts of the flow are highly jointed. From Tarc lava flow that is near the contact with Trms.

Sample ID: MB03-54 **Petrologic Type:** Tpr **Map Type:** Tsi
Northing: 455848 **Easting:** 4610821
Description: On top of hill just east of Indian Creek. Hill ringed by Tpr intrusive that intrude Trms and Tarc. Sample is from vitrophyre of Tpr intrusive body. Black perlitic matrix with abundant ~3 mm feldspars. Also >4 mm amphibole phenocrysts present. From afar, this hill resembles an eroded rhyolite dome but no evidence of local eruptive activity.

Sample ID: MB03-55 **Petrologic Type:** Tarc **Map Type:** Tarc
Northing: 455693 **Easting:** 4610671
Description: From high point of hill. Heterologic Tarc breccia cut by Tpr intrusive bodies. Sampled breccia clasts. Very fine-grained black glassy matrix. Round cobble-sized clast, like MB03-51. Some small <1 mm feldspar crystals also present.

Sample ID: MB03-56 **Petrologic Type:** Tarc **Map Type:** Tarc
Northing: 455261 **Easting:** 4610434
Description: From within Trms section, come across ~0.2 m blocks of mafic material that appear to weather out of hillside. Likely dike. White matrix with interlocking 304 mm laths of pyroxene/amphibole. Abundant feldspar also; apparent sub-ophitic texture.

Sample ID: MB03-57 **Petrologic Type:** Tpr **Map Type:** Tsi
Northing: 454305 **Easting:** 4622512
Description: Along ridge south of Buckskin Mountain. Encounter shallow intrusive bodies of Tpr that trend roughly north/south. In some places they are definitely dikes, in others, they appear to be eroded necks. Massive blue-gray matrix with abundant and fresh 1-3 mm feldspar crystals. 1-3 mm quartz phenocrysts and <2 mm biotite crystals are also present. Feldspar = quartz > biotite.

Sample ID: JK04-2A **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 463622 **Easting:** 4622630
Description: Tcst exposure that is at least 20 m thick. JK04-2A collected from plated of welded Tcst above cliff. Uppermost exposed material. Gray matrix with dark blocky vitrophyric lithics.

Sample ID: JK04-2B **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 463588 **Easting:** 4622532
Description: From main body of Tcst exposure. Gray matrix, with dark blocky vitrophyric lithic fragments, unwelded.

Sample ID: JK04-2C **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 463588 **Easting:** 4622532
Description: From platy, extremely welded zone underlying JK04-2C. Material is identical to MB03-26A

Sample ID: JK04-2D **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 463588 **Easting:** 4622532
Description: From extremely welded zone underlying JK04-2C. Material is identical to MB03-26B

Sample ID: JK04-2E **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 463588 **Easting:** 4622532
Description: From spheroidally weathering, highly welded zone that underlies JK04-2C. Material is identical to MB03-36C.

Sample ID: JK04-3A **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 463421 **Easting:** 4623082
Description: Samples from Tcst ash flow directly overlying bedded fall and sediment. 3A is the platy, highly welded Tcst ash flow.

Sample ID: JK04-3B **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 463421 **Easting:** 4623082
Description: This was sampled from ~0.6 m of crystal rich basal surge. Directly underlies Tcst flow unit. In places, incredible scours into underlying bedded fall deposits as well as load/flame structures indicating local effect of standing water.

Sample ID: JK04-4 **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 469707 **Easting:** 4634534
Description: From upper plate of a welded, crystal-rich, ~12m thick Tcst outcrop. Abundant 2-3 mm white feldspars and altered pyroxenes. Fiamme present also in an altered purplish matrix.

Sample ID: JK04-5 **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 469803 **Easting:** 4634504
Description: Vitrophyre of JK04-4 ash flow. Abundant 2-4 mm feldspars and perlitic fracturing glassy matrix. Near base of exposure.

Sample ID: JK04-6 **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 470154 **Easting:** 4633522
Description: Further downsection from JK04-5 and through talus slope. Very fine-grained, highly welded, platy Tcst. Some conchoidal weathering in places also. Associated with vitrophyre.

Sample ID: JK04-7B **Petrologic Type:** Tcst **Map Type:** Tgl
Northing: 462422 **Easting:** 4624496
Description: Directly across (to the north) from Cold Springs Butte to ridge of Tcst. Outcrop is at least 15 m thick. 2-5 cm Tp_1 lithic fragments are exposed nearby and some fiamme are imbricated indicating northward directed flow. Sampled poorly welded interior of outcrop from ~1 m up from base of ~30 m thick zone of similar material. Abundant dark 1-2 mm vitrophyric clasts, 1-3 mm feldspars and 1-10 mm white pumice that is compacted. This poorly welded zone is where the imbrication and lithic fragments are exposed.