

MAZAMA II-1 NOTES

- 489'-497' DEBRIS FLOW: Light brown, tan, angular clasts ash matrix, lithic blocks up to 10 cm across, lithic blocks predominately red scoria, basalt, and pumice fragments
- 497-501' ASH FLOW: Light tan, abundant clay alteration - ie. devitrified, lapilli sized fragments common in clay altered ash matrix.
- 501'-596' DEBRIS FLOW: Brown, blocks and lapilli sized clasts in sand sized matrix. Lava blocks greater than 10 cm in size and variably vesicular.
- 596'-609' PALOGNITE LITHIC TUFF SEQUENCE: Light yellow brown, devitrified ash and sand matrix with lapilli sized clasts. Appears to be clast supported. Upper zone shows an oxidized flow top and possible water reworking.
- 609'-626' BASALT: Gray, variably vesicular lava. Basal and flow top breccia is present.
- 626'-637' BASALT: Gray, variably vesicular lava flow - with flow top rubble zone and basal breccia.
- 637'-657' BASALT: Gray, with local red brown internal flow breccia zone. Flow is vesicular with possible thermally baked red brown soil horizon at 636'-637'.
- 657'-700' PALOGNITE LITHIC TUFF: Upper reddish oxidized zone possibly reworked by water. Tuff is predominately very light brown, tan. Abundant lapilli sized fragments in palognite/ash matrix.
- 700'-718' CINDER DEPOSIT: Reddish brown, minor blocks of cinder up to 10 cm in size in devitrified matrix. Local basal rubble zone from 713'-718'.
- 718'-748' BASALT: Gray, variably vesicular. Fractures predominately coated with submm white coating of clay mineral(?). Rare-occasional fractures coated with soft gray black layer of clay mineral.

- 748'-793' PALOGNITE LITHIC TUFF SEQUENCE: Orange brown - light yellow brown, scoriaceous, well cemented with a unidentified fine grain crystalline material (zeolite?). Locally the scoria and lithic fragments are lightly welded. From 763.5'-768.5' a grading is observed from poorly sorted lapilli (< 1 cm) and ash to moderately sorted fine lapilli (<0.5cm) and ash, with depth. Lithic fragments are predominantly basalt. Bedding and bedding features are observed with depth. Rare irregular vugs with a coating of micro druse morphology (square-tabular), clear zeolite @ 764'.
- 793'-811' CRYSTAL LITHIC TUFF: Gray- light gray, lithic fragments predominantly basalt, lithic fragments greater than 5 cm. Possible welding(?) with depth, ash matrix generally altered to clay. Thin basaltic lava flow, 18" thick from 794'-795.5'.
- 811'-840' BASALT LAVA FLOW: Gray, flow banded, variably vesicular. Upper flow top rubble zone from 811'-817'. Vesicles coated with dark brown green clay/colloid which is overlain by submm coating of light gray clay. Local minor zeolite occurs on light gray clay. One observed vesicle possibly contains trace sulfide (sample collected).
- 840'-860' FLOW BRECCIA ZONE: Possible flow boundary between 848'-856.5'.
- 860'-887.5' BASALT: Glassy, gray - dark gray, fractured and brecciated. Tectonic brecciation increases below 881'. Green brown clay alteration is commonly present on the faces of the breccia fragments.
- 887.5'-888' SOIL HORIZON(?): Rock shows brick red thermal alteration.
- 888'-893' BASALT: Light gray - light brown, vesiculated.
- 893'-898' MAFIC TUFF: Light brown, unsorted.
- 898'-980.5' BASALT: Gray, locally orange gray, aphanitic

flow banded, predominantly fresh. Local intense zones of vesiculation, and common flow breccia. Fracture related brecciation occurs at 979.5'-981.5'. Common light gray coating of clay mineral on vesicle and fracture surfaces. Light gray clay mineral shows local botryoidal form. Local fracture brecciated zones with minor hematite followed by minor light green smectite(?). From 904'-912' a local zone with local very soft reddish brown submm clusters of an unidentified mineral (dark gray to brown streak).

- 980'-1055'      BASALT: Red gray, variably vesicular, microporphyritic with microcrystals of augite + olivine + plagioclase laths. Local flow breccia increasingly welded with depth. Very fine disseminated hematite stain. Minor blue gray clay mineral coating on vesicle surfaces.
- 1055'-1122'      BASALT: Glassy to microporphyritic, grades from glass rich to glass poor with depth. Commonly rubbly with flow breccias. Microphenocrysts range from fresh to hematite altered.
- 1122'-2479'      BASALT: Thick continuous lava flow or sill.
- 1122'-1175'      Upper Rubble Flow Top: Common flow breccia, variably vesicular. At 1175' rock begins to produce competent core. Predominantly glassy.
- 1175'-1300'      Basalt: Light gray, commonly flow banded, glassy to microcrystalline with sucrosic texture. Porphyritic with crystals submm in size of anhedral pyroxene and opaque mafic mineral (magnetite?). Opaque mafics appear to be a primary phase mineral. Grades gradually to a microholocrystalline rock by 1300'.
- 1300'              Basalt: Light gray, mottled and flow banded, predominantly flow banded rock with sucrosic texture.
- 1340'              a/a: Rare trace calcite and bladed zeolite i.e. helundinite in flat

vugs. Sample taken.

- 2169' Basalt: Light gray, porphyritic with microcrystals of black opaque mineral and green gray pyroxene and olivine, moderately flow banded. Rock is fresh.
- 2428' Basalt: Light gray, fresh, porphyritic, olivine and pyroxene phenocrysts, flow banded. Variable submm coating of zeolite on fracture surfaces.
- 2479' Basal Breccia Fragments: variably vesicular, grading to dark to medium gray.
- 2479'-2633' INTERCALATED BASALT LAVA FLOWS: medium - dark gray, variably vesiculated, predominately fresh.
- 2539' a/a: Brown orange - brown collidal clay in vesicles, rare trace oxidation of Fe along vug surfaces.
- 2609' a/a: Smectite- collidal alteration, rock faces predominantly unaltered, local rare iron alteration. No clay alteration of groundmass.
- 2609'-2626' a/a: Yellow brown collidal clay on fracture surfaces of rubble zone.
- 2633'-2642' FLOW TOP: Thermally oxidized flow top. Red gray, rubbly, clast supported, abundant lapilli sized fragments, local flow breccia.
- 2642'-2648' BASALT LAVA: Gray - brown gray, variably vesicular, common hematite oxidation coating of vesicles.
- 2648'-2649' FLOW BRECCIA

2649'-2682' BASALTIC LAVA FLOW

>2650' Progressive reddish Fe oxidation alteration along fracture surface and fracture surfaces. With depth alteration occurs in groundmass.

2682'-2696' BASALTIC LAVA FLOW

2696'-2705' BASALTIC LAVA FLOW

2705'-2727' BASALTIC LAVA FLOW

2727'-2740' SCORIACEOUS ZONE: Orange brown oxidize zone. Vesiculated scoria rubble.

2740'-2767' BASALTIC LAVA FLOW: Flow grades to red oxidized rubble.

2767'-2782' BASALTIC LAVA FLOW

2782'-2800' BASALTIC LAVA FLOW

2800'-2835' BASALTIC LAVA FLOW: Horizontal planes of vesicles. Rock is fresh. Very minor hematite alteration of groundmass and vesicle surfaces. No significant alteration. Very variable thin submm coating of clay precursor. (Note: The indication is that the rock has "alot" of water moving through it, but no alteration beyond the hematite alteration.) Baked Flow Top Rubble from 2800' - 2815' which grades into a gray lava from 2815'-2835'. At 2827' minor hematite alteration & a trace zeolite precursor occurs on fracture surfaces.

2835'-2843.5' BASALTIC LAVA FLOW: Thermally oxidized lava flow top from 2835'-2839'.