SO33 72DK1

2

Rock Type: Trachyte, Massive	Basalt, Alkalic (?) flow (scoriaceous)
Color: Very pale brown (5YR 5/2) (weathers medium yellowish orange (10YR 7/6))	Moderate yellowish-brown (10YR 5/4)
Texture: Aphyric, subtrachytic, (in part diktytaxitic)	→ -do-
Phenocrysts: rare Sanidine (?) ± 2mm; " Amphiboles (?) <1%, ±1mm; " Biotite (?) ± 0.5mm	→ -do-
Groundmass: Sanidine (?), Amphibole (?), Biotite (?), glass (?), opaques (?) (not determined)	→ -do-
Vesicles: (open spaces – diktytaxitic texture)	
%: ± 5%	≠ varies greatly (± 30%)
Size: ± 0.5mm (individual cells) (usually grouped and interconnected)	± 2mm
Shape: clusters of angular openings	≠ Oval to irregular elongate
filling: lined or stuffed with biotite flakes	lined with phillipsite (?), calcite, Mn-oxide (very nice euhedra in some cases)
Alteration: moderate to extensive (Oxidation, hydration, zeolitization, smectitization)	→ -do- Extensive to virtually complete
Remarks: generally subrounded (water-worked to subangular pebble-to-large cobble-size clasts incorporated in volcanogenic breccias)	→ -do-
may be a trap rock (larger grain sizes of crystal components, diktytaxitic open spaces lined with deuteric biotite); amphiboles completely altered (oxidized) in more altered specimens; some free clasts; serve as substrate for encrustation of ferromanganese oxide (compact, ± 2mm thick, arborescent surface topography; phosphorite deposits locally between substrate and crust ± 15mm thick, beddet.	≠ (probably part of a subaerial basalt flow) → -do-

3

Unit Type:	Volcanogenic Conglomerate I	4 → -do-, II
Color:	± Pale brown (5YR 5/2)	Moderate yellowish-brown (10YR 5/4)
Texture:	Clastic	→ -do-, ± 70%
Matrix:	Trachyte clasts ± 60%	→ (Basalt clasts) phosphorite fragments ± 10%
Cement:	calcite ± 4% Phillipsite(?) ± 3% francolite(?) ± 3%	≠ → ± 20%
	(Open Space) ± 30%	≠
Average grain size:	(enormous variation)	→ -do-
	(range: sand through small cobbles)	→ (fine gravel through pebble-size)
" grain shape:	Angular to Subrounded	→ angular to subrounded
Sorting:	extremely poorly sorted	→ -do-
porosity:	open-textured	± 50%
permeability:	80+%	± 20%
Alteration:	moderate; (zeolitization, phosphorization of chalk cement)	extensive; (phosphorization of chalk cement; minor zeolitization)
Remarks:	cobble to boulder-size clasts probably dislodged from outcrop by dredge; most pieces display extensive evidence of reworking by water currents (wave-action?) deposit is loosely but firmly cemented near top, increasingly dense below, cemented with phosphorite; appears to have been a beach or stream deposit prior to submergence (zeolitization subsequent to submergence?); serves as substrate for arborescent cuspate ± 1mm-thick deposit of ferromanganese oxide	→ -do- → many pieces of basalt are extensively weathered (subaerial) becoming [illegible] in country → -do- → -do- some pieces are overlain by burrowed (or) phosphorized chalk upon which is deposited [illegible] warty, (± 15 mm-thick) ferromanganese [illegible]

	5	6
Rock Type:	Phosphorite	chalk, foraminiferal (?) phosphorized
Color:	Moderate yellowish-brown (10YR 5/4) to light yellowish-brown (10YR 6/4)	white (N 9)
Texture:	micro-granular	-do-, but coarser
Matrix: / Cement:	apatite (francolite ?) have merged and become one-in-same	-do-, not distinguishable (probably mixed calcite and francolite)
Average grainsize:	< 0.005 mm	< ± 0.010 ?
" " shape:	probably shortacicular	probably equigranular
Sorting:	uniformly fine-grained	-do-
porosity:	nil	≠ ± 50 %
permeability:	nil	≠ ± 50 %
Alteration:	Complete (phosphorization of original calcitic/sideritic foraminiferal test material and cement, oxidation of $FeCO_3$ (?) component to $Fe(OH)_3$, yielding brown color)	Extensive to moderate (phosphorization of orig. calcitic foraminiferal test component, oxidation of siderite component (very slight) grades directly into hard dense phosphorite
Remarks:	Forms a layer varying from millimeters to centimeters in thickness directly underlying ± 1 mm - 2 cm-thick dendritic (internal structure), one-generation coarsely botryoidal, finely nodose (supertopography) ferromanganese oxide deposit and directly overlies vesicular basalt; also serves as cement for volcanogenic conglomerates I & II, especially II.	-do- remarkably fine-grained, even-textured; grades directly into dense brown phosphorite, remarkable in that the chalk is beneath the phosphorite, in turn capped by Mn-Oxide deposit; the chalk has the appearance of magnesite derived from serpentine.