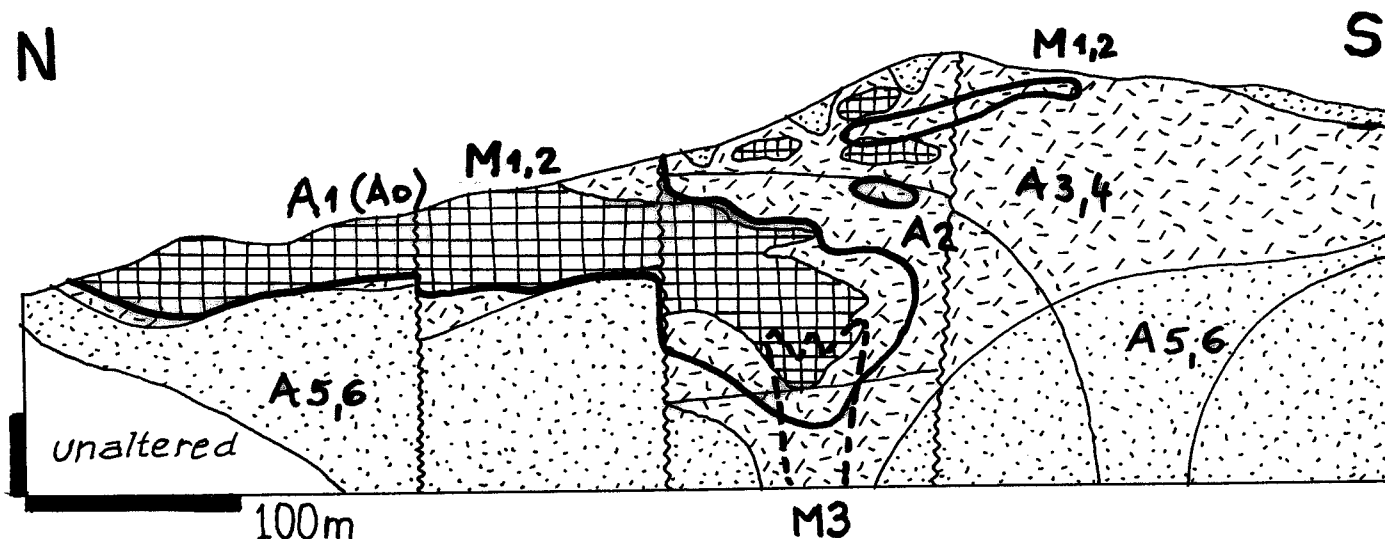


2494.1 PIERINA (Huaraz) acid sulfate Au-Ag 1: ores



Pierina cross-section; Laznicka (2000) after Volkert et al. (1999)

LT 2494.1 LEGEND

Unit No	Unit Description
M1	Mi-PI dispersed (invisible) gold in Fe oxides, quartz, relict pyrite in hypogene oxidized, previously quartz-alunite altered (acid sulfate alteration) porous residual vuggy silica after rhyodacite pyroclastics >> andesite
M2	14.7 Ma; relicts of earlier mineralization stage preserved as kernels in M1: vuggy silica with alunite, native sulfur, pyrite, enargite, covellite, younger barite; variable but mainly low Au content
M3	Sulfides in presumed fluid feeder structure in the footwall: veins and mineralized fractures with pyrite, enargite, sfalerite in fractured silicified tuff
Alteration assemblages (determined by PIMA in the field; not megascopically recognizable)	
A0	Late steam alteration effects superimposed on earlier alterations
A1	Residual vuggy silica (principal host to Au), recrystallized from original host by magmatic steam, followed by alunite removal during hypogene leaching and silicification
A2	Quartz-alunite (dickite, pyrophyllite)
A3	Dickite (alunite, kaolinite, pyrophyllite, silica)
A4	Pyrophyllite (dickite, kaolinite, silica, sericite)
A5	Kaolinite, smectite, sericite, pyrite
A6	Propylitic + clays (chlorite, kaolinite, smectite)

LT 2494.1 SAMPLE DESCRIPTION

Unit No	Sample Description	Sample No
M1	Gold in vuggy silica overprinted by the latest steam alteration and leaching	1,2,5,6
	--ditto, alunite powder released by leaching	3
	Auriferous low-iron vuggy silica, some late stage crystallized barite fills voids	7-9
	Mainly hypogene goethite-rich high-grade (~10 g/t Au) brecciated vuggy silica; samples 10,11 have late-stage barite	10-13
	"Standard ore" (~ 4 g/t Au) in brecciated vuggy silica with moderate hypogene Fe hydroxides in matrix and along fractures	14-20