



GEOMEC

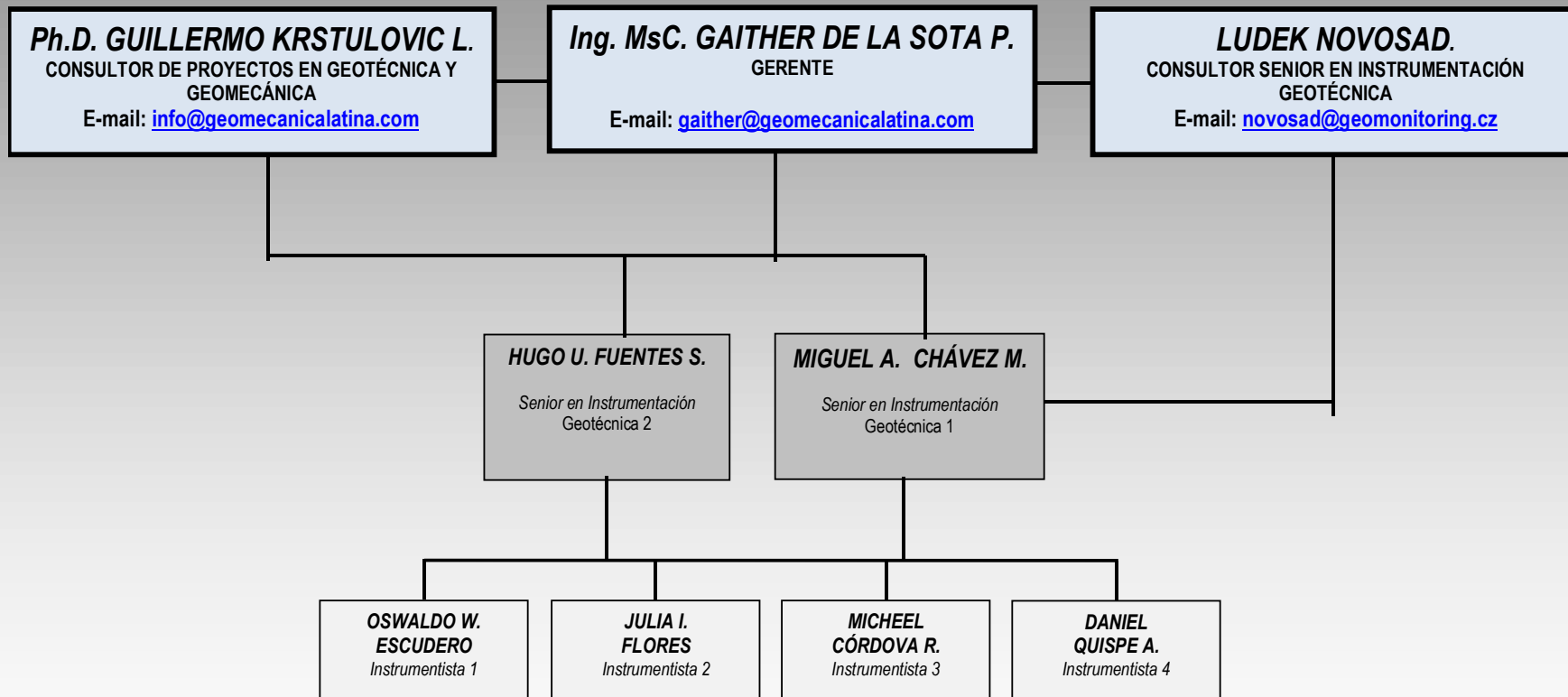
EMPRESA DEL GRUPO

GEOMECANICA  *LATINA S.A.*



***GEOTECHNICAL INSTRUMENTATION,
GEOTECHNICAL CONSULTANTS,
GEOMECHANICS CONSULTANTS.***

GEOMECÁNICA LATINA S.A. (GEOMEC)



Colleagues



Geotechnical Instrumentation in Peru

- 1) Hydropower project in Quiteracsa II
- 2) Piezometers installation in deep boreholes - Toqepala Mine

Miguel A. Chávez Mauricio, Geomecánica Latina S.A., Lima, Peru

Ludek Novosad, Geomonitoring s.r.o., Prague, Czech Republic



EMPRESA DEL GRUPO



Quiteracsa surroundings Huascarán



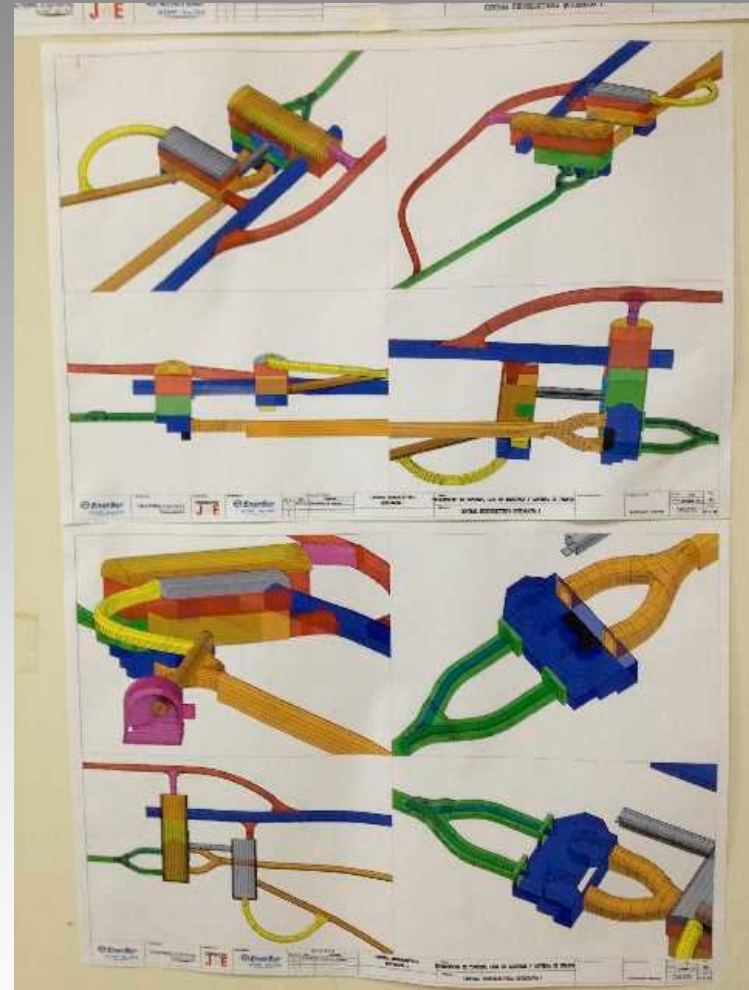
Quiteracsa surroundings Huallanca



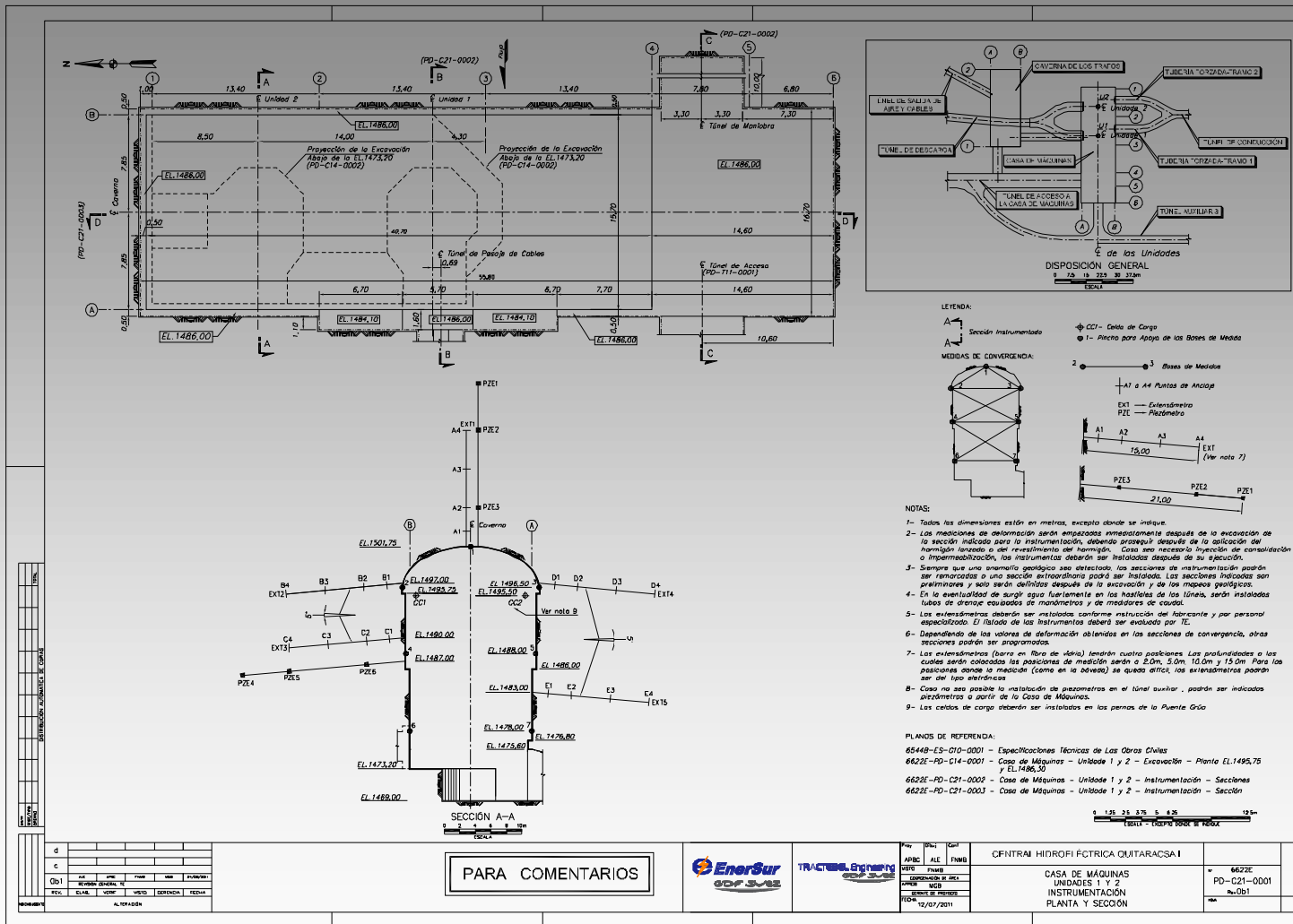
Quiteracsa tunnel entry



Quiteracsa tunnel visualization



One of the profiles



PARA COMENTARIOS

		GENTRA HIDROFOTRICA QUITARACA I CASA DE MÁQUINAS UNIDADES 1 Y 2 INSTRUMENTACIÓN PLANTA Y SECCIÓN	662E PD-C21-0001 No. 01
--	--	--	-------------------------------

Installed instruments in the power house

- 15 4-level A-6 extensometers
- 60 VW displacement transducers
- 15 VW multi-level piezometers
- 4 load cells
- 12 Multiplexers
- 2 Micro-1000 dataloggers

Extensometer subhorizontal



Extensometer overhead



Extensometer transducer installation



Prepared for overhead grouting



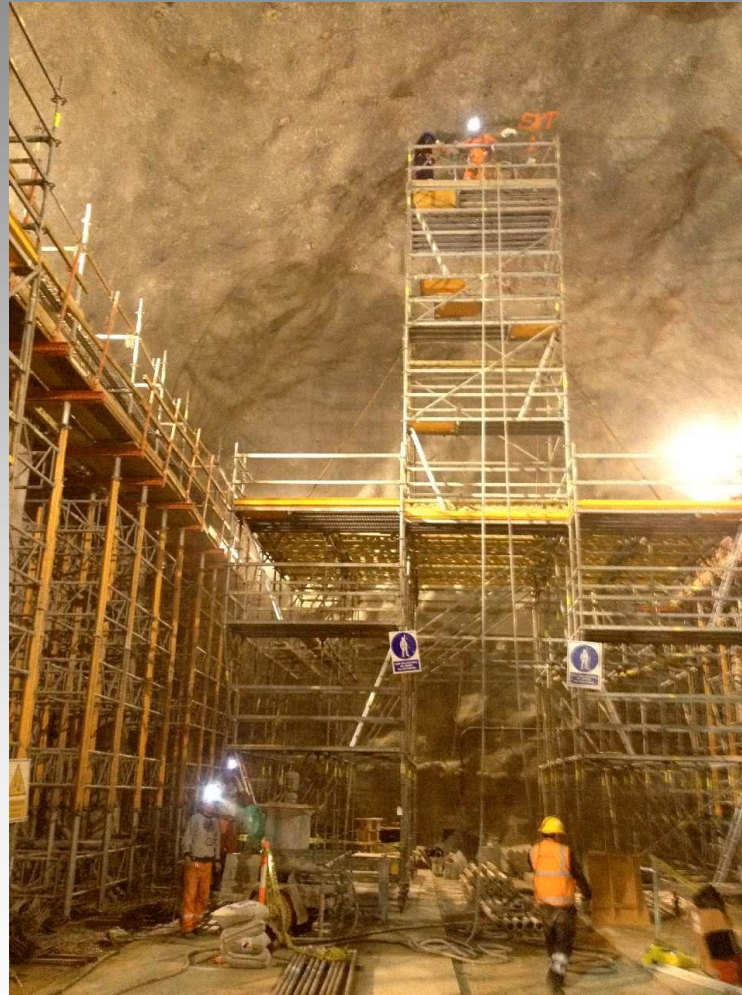
Multi level piezometers



MLP prepared for overhead grouting



Extensometer and multilevel piezometers grouting



Toquepala porphyry copper mine



- 2.5 kms diameter on the top
- 900 m deep
- copper, molybdenum, rhenium, silver and minor gold and zinc

Piezometers installation

- 560 meters deep borehole
- 10° inclined from vertical
- 4” borehole diameter
- borehole protective casing pull out during grouting
- fully grouted piezometers installation
- 3 piezometers to depths 530, 360 and 190 m

Grouting pipes



Piezometers installation



Thank you...

