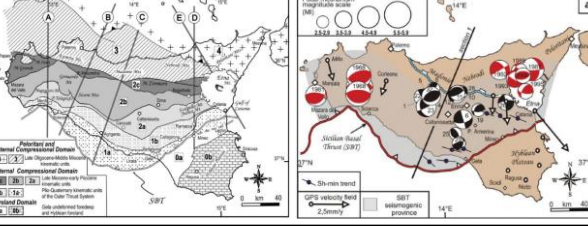
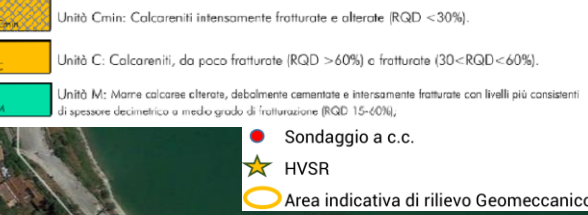
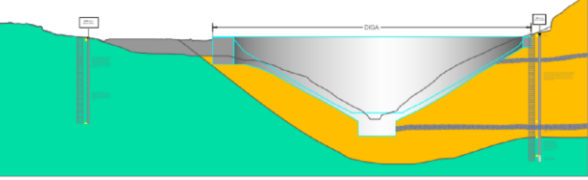


FEATURE OF TECHNICAL SERVICE

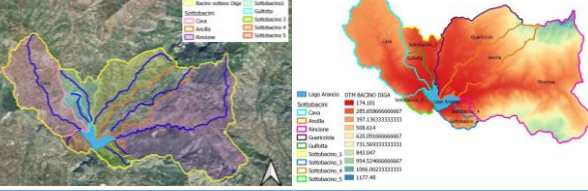
Subject	Re-evaluation of the seismic safety of the dam and ancillary works, including investigations on reinforced concrete structures and laboratory tests, drafting of the dam hydrological-hydraulic study, drafting of the technical and economic feasibility design of extraordinary maintenance of the discharges of the Arancio dam, managed by Regione Siciliana, located on the Carboj river in the territory of the Comune di Sambuca di Sicilia (AG).
Carried out by	SGAI Srl di E. Forlani & C. group leader envoy of A.T.I. (34%)
Client	Regione Siciliana
Service length	2020-2021
Value of works	€ 6.200.000,00 (S.05)



Geology, Geotechnics and Seismotectonic study



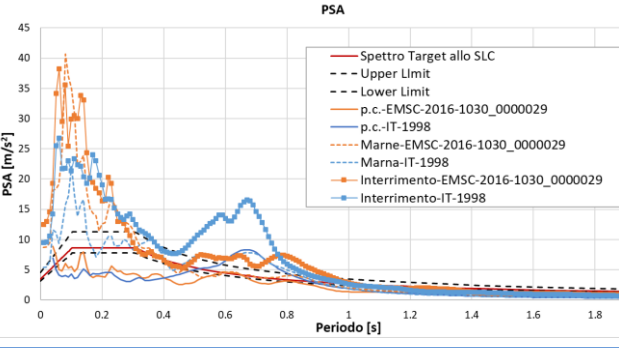
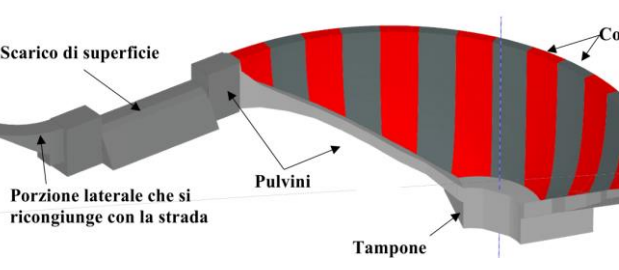
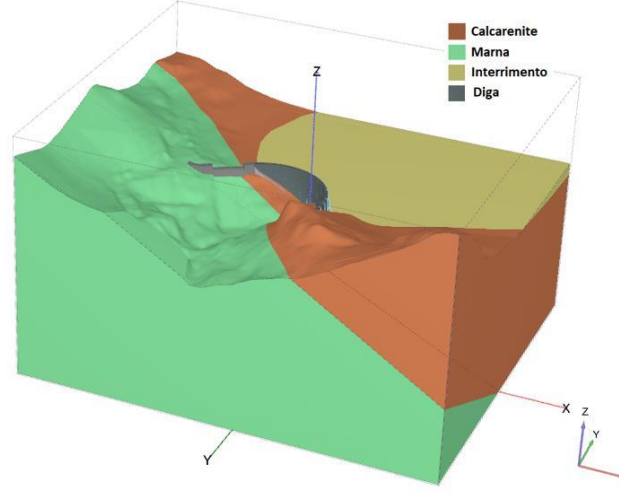
Hydrological-hydraulic study



RESERVOIR FEATURES

The dam, in simple concrete, is a double-curved vault non-overflowing, set on a reinforced concrete pier cap. Maximum retained height 41,60m, Crowning quote 181,00masl, Crowning development 137,70m, Maximum reservoir heigh 180,00masl, Liquid mirror surface (at maximum reservoir heigh) 3,702km², Reservoir total volume (pursuant to D.M. n° 44 of 24/03/82) 38,40x10⁹m³, catchment area surface directly subtended 136,0km².

SEISMIC REVALUATION OF THE DAM BODY - GEOTECHNICAL AND STRUCTURAL MODELING



ARANCIO DAM - METHODOLOGICAL APPROACH

I. Re-evaluation of the dam and ancillary works seismic safety - The activities and operations concerning the verifications are: recognition and verification of existing documentation, supplementary surveys and reconstruction of any consistency drawings, definition of the investigation plan, execution of investigations and laboratory tests, construction supervision, supervision and control during the execution of the investigations, drafting of the geological study, drafting of the geotechnical study, seismotectonic study, execution of seismic checks, overall judgment on seismic safety, definition of the interventions to improve/adapt the stability conditions of the dam, examination of the alternatives of seismic improvement/adaptation of ancillary works.

II. Dam hydrological-hydraulic study - Reassessment of the hydrological-hydraulic safety of the restraint system, re-elaborating the study already prepared by the pro tempore Operator, updating it to the current legislation and to the observations of the Hydraulic Office of the General Direction of the Dams, in order to identify the maximum regulation heigh that can be reached by the dam and the contextual verification of the dam's net heigh difference.

III. Technical and economic feasibility design - Definition of the extraordinary maintenance interventions of the Arancio dam discharges, in the light of the results of the previous seismic safety reassessment studies and of the hydrological-hydraulic study carried out in the dam.



ANCILLARY WORKS

The reassessment of seismic safety was also carried out on: surface discharge, bottom drain tunnel (and access to the control room), offshoot tunnel (and access to the control room), masonry works (vulnerability checks), house guard, workshop place and generator place.

