

**COMPARISON BETWEEN ACTUAL TEST MEASUREMENTS  
AND ANALYSIS ON THE BUGEY PCPV**

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**ABSTRACT**

Comparison between actual test measurements before and after prestressing, at pressure and temperature tests, and the theoretical results of the structural analysis of the Bugey prestressed concrete reactor pressure vessel.

Description of the way of dealing with the considerable amount of data monitored by the instrumentation embedded in the vessel.

**Q** F. SCOTTO, Italy

1. In the light of your experience and with particular reference to the field of triaxial tests carried out by your organization which is your up-to-date opinion about the method, followed if I am not wrong in your country, to do reference for the check of the state of stresses to the "Caquot intrinsic curve" criteria ?
2. I will be grateful to you to have your opinion about the philosophy followed in your country to grout the tendons after the experience of Bugey ?

**A** P. LAUNAY, France

1. Bugey has been designed with the "Caquot intrinsic curve" : in 1965 our triaxial tests were not begun. Since then a code of practice has been published in France for pressure vessels for gas reactors. It still refers to permissible stresses on plane. As I mentioned in my paper H 1/3 one has to be very careful to take in account a substantial increase of permissible stresses due to the triaxial condition specially when one of the principal stresses approaches the zero value or a possible tension.
2. Bugey has convinced us that tendons can be correctly protected against corrosion by grouting provided extreme care is taken when carrying the operation : cleanness of the wires, correct level of grouting pressure, special precautions for vertical tendons, etc.

**Q** R. S. TAYLOR, U. K.

Can Mr. Launay comment on the correlation between the results of previous model tests, and the results of the Bugey proof pressure test ?

**A** P. LAUNAY, France

I would refer to model no. 2 which was already different in the level of prestressing with model no. 1. As far as pressure is concerned correlation seems to be good as a first approach but we have still to inventariate the numerous data we are getting from Bugey to compare them with the predicted ones and with the measured ones on the model. There is no doubt that we shall face differences as far as thermal stresses are concerned.

**Q** M. BENDER, U. S. A.

Do you consider the methods for determining cooling requirements for concrete vessels adequate for the purpose in view of the cover cooling observed on the Bugey vessel ?

**A** P. LAUNAY, France

Being responsible for the concrete vessel we had to calculate the structure to

face a given temperature crossfall of 35°C.

Determining the cooling system was done by others but the results I have shown should not induce too rapidly to conclude that the cooling system is over dimensioned as

1. the maximum temperature crossfall must not be reached with only one circuit operating (and two were operated at the time of the pressure test).
2. the temperature of the Rhine river may be increased of as much as 7°C compared with the one prevailing at the moment where the test has been carried out.
3. the insulation material eventually may be working better than expected.