Pressure Testing Instruction

REGIONAL RUSUMO FALLS HYDROELECTRIC PROJECT

RUSUMO POWER COMPANY LIMITED (RPCL)

Nile Equatorial Lakes Subsidiary Action Program Coordination Unit (NELSAP-CU)
Preparation

The final tests for the spiral case welding works must be performed. The permission for the pressure test has to be given in prior.

All the stiffeners and other equipment, which are not necessary, shall be removed for the pressure test. Test Ring shall be mounted at the stay ring and test cover shall be mounted at the spiral inlet flange as per Drawing.RU-CP2-HIP300-DWG-MTUR-GA-9100

Test cover shall be equipped with the devices as mentioned in the testing arrangement Drawing.

- Pressure Pump/ Pressure Testing Kit
- 2 Pressure Relief valve, 1 for pressure test & other for concreting
- Air vent
- Filling and Draining connection

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Page 2 of 4

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In general, the test pressure is 50% above the maximum static head plus water hammer. According to Hydraulic Transient Report, the Maximum pressure rise is 4.3 bar. So, the Test pressure of 6.45 bar is to be considered.

Before starting the pressure test, all connections at the spiral case, which will be embedded in the concrete, must be installed. The spiral case must be filled with water and totally vented.

Pressure increasing speed is specified in Pressure diagram. Pressure increasing during pressure test shall be performed step by step. After each pressure step, pressure shall be held for duration of 15 minutes. During this time, inspection shall be done to control leakage or abnormal effect (cracking, distortion etc....). Record the result of inspection in the erection protocol of spiral case pressure test in the form field “Remarks” (see RU-CP2-HIP300-DWG-MTUR-PT-9111 Protocol).

The pressure is then released by 50% by means of the drain valve in order to relieve the spiral case stress. After another step by holding the pressure **60 minutes (at test pressure 6.45 bar)**, increase the pressure up to the next step. Generally, there are 5 or 6 steps up to the maximum pressure. The pressure diagram is given especially for this project. Deformation of the spiral case shall monitored during the pressure test. For this purpose install 3 horizontal and 1 vertical dial gauges on each of the 4 spiral axes, one horizontal, at top and bottom of the pressure test ring and third horizontal. The vertical dial gauge is installed on the upper flange of the stay ring. The dial gauges shall be fitted on supports independent of the spiral case and pressure test ring. Record the results in the erection protocol of spiral case pressure test (see RU-CP2-HIP300-DWG-MTUR-PT-9111 Protocol)

For concreting the spiral case, the pressure must be held at 1.7 bar.

Twice a day, read the values on the pressure gauges and adjust the pressure when it varies by +/- 10% from the original value. The hydrostatic pressure in the spiral case can be released after complete hardening of concrete but it has to hold min. 10 days after reaching the final concreting level.