DESIGN DESCRIPTION & CONTROL PHILOSOPHY
FOR
DRAINAGE SYSTEM

REGIONAL RUSUMO FALLS
HYDROELECTRIC PROJECT

RUSUMO POWER COMPANY LIMITED (RPCL)

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

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1. DRAINAGE SYSTEM

1.1 INTRODUCTION

Drainage system is common for powerhouse, and is designed to collect the drainage water from all water discharges, outlets, returns, leakages from the equipment's and seepages. The wasted water from head cover drain and leakage water from all floors of power house is collecting in the drainage pit through the oil water separator pit. The water from the drainage sump further discharged to the tailrace above flood level at EL. 1301.10 m.

This document is to be read in conjunction with ANDRITZ HYDRO drawing no.: RU-CP2-HIP300-DWG-MDRA-FD-0010.

1.2 DESCRIPTION

Drainage system is common for powerhouse and is designed to collect the drainage / waste water from the following sources:

- Head Cover Drain from Unit -1, Unit -2 & Unit -3.
- Shaft Seal Leakage from Unit -1, Unit -2 & Unit -3.
- Power House Floor Drains.
- Cooling Water Filters Flushing Pipe.
- Seepage.

The automatically operated drainage system is required for drainage of all water discharge, outlets, returns, effluents / drainage leakages from equipment and any seepage from rock surrounding the powerhouse etc into the drainage Pit.

The water from the drainage pit shall be pumped to the tail race above flood level at EL. 1301.10 m.

Two nos. submersible pump motor set (0LSL 10AP001, 0LSL 10AP002) shall be provided for pumping out the water from the drainage Pit to the tailrace above flood level. The pumping equipment shall comprise pump motor sets along with non-return valves, butterfly valves, and instrumentation like pressure gauge, pressure switch and water level switches.

To control the auto operation of pumps, a set of level switches are provided in the drainage pit to give signals for auto operation through control panel. Pressure indicators are provided in the discharge line of each pump, which shall provide local indication of low pressure. The
changeover of pump motor set from main to standby shall be initiated based on the feedback from the level switches or through the motor contactor.

1.3 CONTROL SYSTEM

A local control & indication panel for Drainage system is provided. Following controls & indications shall be provided:

a. The switchgear and controls shall be suitable for automatic and manual operation of pumps.

b. Local manual control of pump motor sets shall imply manual control from the panel.

c. The switchgear and controls shall comprise direct on line motor starters, relays, protection, single phase prevention device, auto / manual selector switch, push buttons, indicating lamps etc.

d. The selector switches shall be provided for mode change over auto / manual operation and pump main to stand by role etc.

e. Start / stop push buttons.

f. Emergency stop push button switch.

g. The motors shall be suitable for 400 V ± 10%, 3 phase, 50 Hz AC supply.

h. Remote control of the drainage system shall be provided from the central control room.