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DAM AND POWERPLANT SUMP
WATER LEVEL INDICATOR

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Dam and Powerplant Sump Water Level Indicator

The following describes a simple water level indicator applied at Glen Canyon Powerplant which may be useful at other Bureau of Reclamation installations:

Closed Line System for Liquid Level Indication

The sump pumps in the bottom of the dam at Glen Canyon had been controlled by float switches. The float switches were replaced by probe operated relays.

Sump water level indication at the pump control panels was desirable in order to check water level without going down the 200 steps to the sump.

Since a source of compressed air was not readily available in the dam, a 'closed line' system

(without air purging the pipe) was installed, and a 'bell' shaped extension was added to the bottom of the pipe in the sump. The large diameter of the 'bell' compared to the rest of the line confines the change in water level inside the pipe (due to the increasing pressure of the water) to the "bell" and error of the system is thus minimized. The low water level must be below the bottom of the bell to allow the air charge to be maintained.

Advantages of such a system are that there are no moving parts involved except the pressure gage and such a system is easily installed.

A sketch of the system is shown on the following page.