

Marsh Instrumentation Ltd.

ICE PLUG MONITORING SYSTEM



The **Marsh Ice Plug Monitoring System** is a self-contained unit designed to electronically and visually monitor process of forming ice plug in Nuclear, food and petrochemical industries. Ice plug is an efficient method of providing isolation on liquid filled (e.g. water, heavy water) pipes to perform maintenance and repair works. Ice plugs are formed by surrounding a pipe in liquid nitrogen (at a temperature of approximately -196 C) to freeze the contents of the pipe into a solid block that will prevent flow of the contents.



Electronic monitoring uses thermocouples installed in various locations at and near the ice plug to monitor the temperature. Visual monitoring uses colour/infrared cameras and remote monitors to observe the ice plug and frosting on the pipe.

In some cases, particularly where there is a pipe weld within close proximity of the ice plug location, the pipe temperature is monitored and controlled using electric heaters to prevent low temperatures from affecting the integrity of the weld.

Marsh IPM 03 is a self-contained mobile panel unit, 72 inches high, 40 inches wide and 26 inches deep. The unit has Video Recorder, Process Recorder, Heater Control and Alarm Systems with the following features:

- ❖ Three channels of video monitoring / recording.
- ❖ Local camera test jack / fourth channel of video monitoring/recording.
- ❖ Four channels of temperature monitoring / recording.
- ❖ Two channels of temperature control.
- ❖ UPS to maintain video and process recording during loss of power.
- ❖ Auto-dialer for remote annunciation of alarms over plant telephone system.
- ❖ Upper section has two 19" racks for equipment mounting.



Why Remote Monitoring?

- Less Radiation Exposure
- Increased Safety
- Continues Monitoring – 24 / 7
- Data Analysis for During & After Freeze
- Minimum Setup Time – Emergency Situation
- Cost Savings

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