

Remote Monitoring

of Nuclear Power Plants in Illinois

IEMA Remote Monitoring System

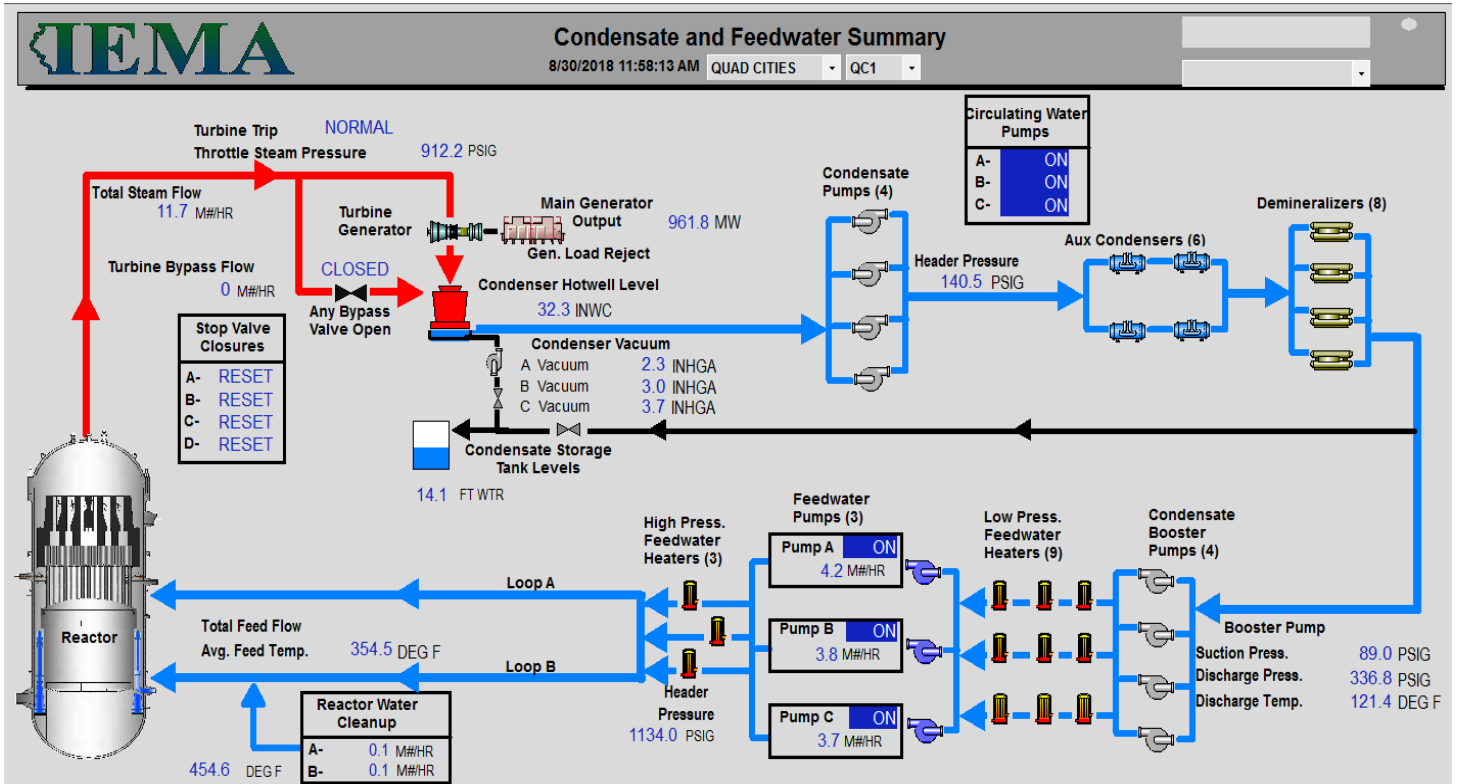
The Illinois Emergency Management Agency (IEMA) is responsible for conducting real-time environmental and radiological monitoring of seven nuclear power plant sites in Illinois which include 11 commercial nuclear reactors and three permanently shut down nuclear facilities. The IEMA Remote Monitoring System (RMS) is an advanced, integrated, computer-based system that continually monitors selected plant operational parameters at each facility and is capable of identifying and measuring the presence of radioactive materials in the surrounding environment. The one-of-a-kind RMS consists of three separate subsystems: the Reactor Data Link (RDL), the Gaseous Effluent Monitoring System (GEMS), and Gamma Detection Network (GDN).

Data from the RMS is collected and monitored 24/7. IEMA has developed software to continually monitor and analyze the RMS data and provide notification of unusual occurrences to on-call IEMA personnel.



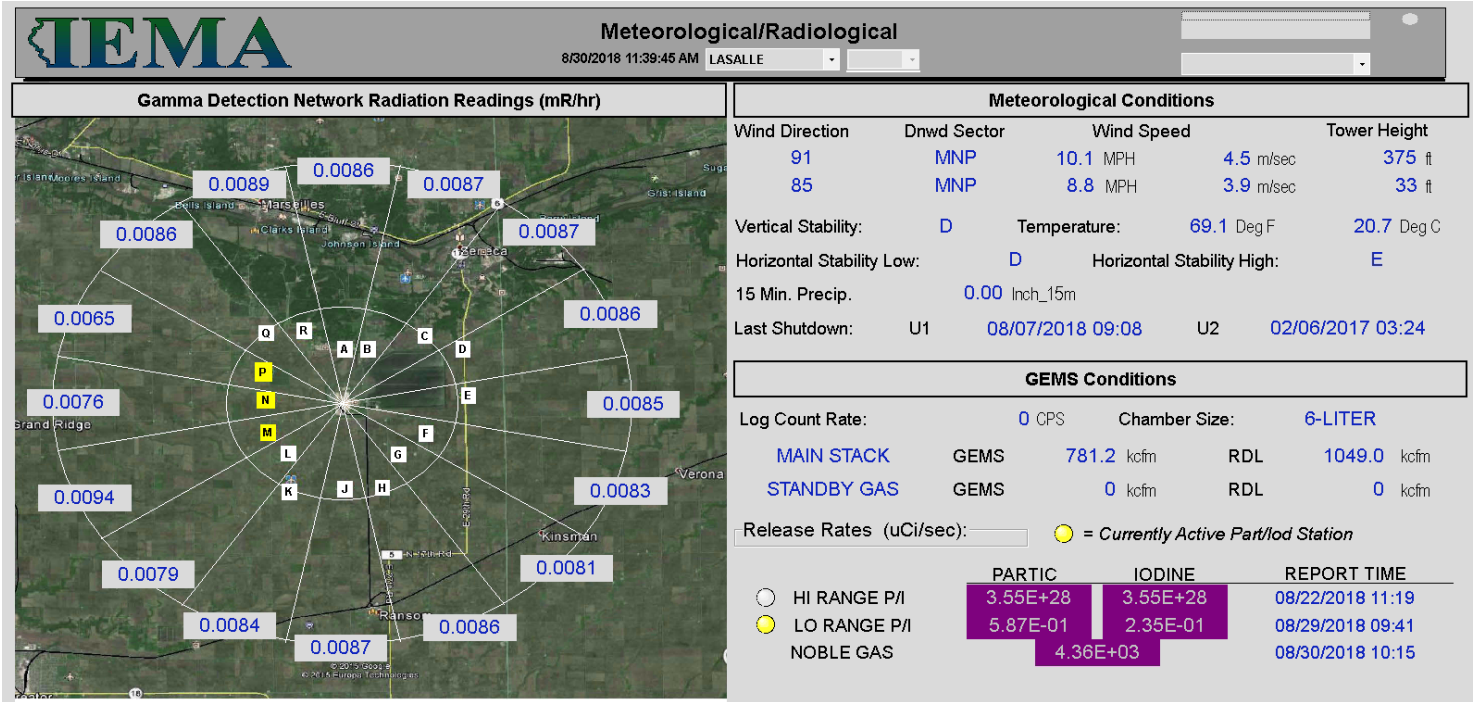
Reactor Data Link (RDL)

The Reactor Data Link (RDL) receives over 1000 key parameters every minute from each of the eleven operating reactors in Illinois. This data is sent by Exelon to Springfield computers and includes reactor power levels, pressures, temperatures, breaker positions, logic states, meteorological data, radiation levels, and other vital Station Data. Shown below is a Quad Cities Summary Screen.



Gamma Detection Network (GDN)

The Gamma Detection Network (GDN) is a network of detectors placed radially around each of the nuclear power plants to detect gamma radiation levels in the environment. Sixteen detectors surround each nuclear plant site at approximately 2-5 miles from the plant. Each sensor is capable of detecting gamma radiation in the range of small background levels up to 10 R/hr. Shown below is an analytical display for the LaSalle Nuclear Station with meteorological and GDN radiation information that is utilized by the Health Physics Specialist in the Radiological Emergency Assessment Center (REAC) to evaluate environmental impacts of a release.

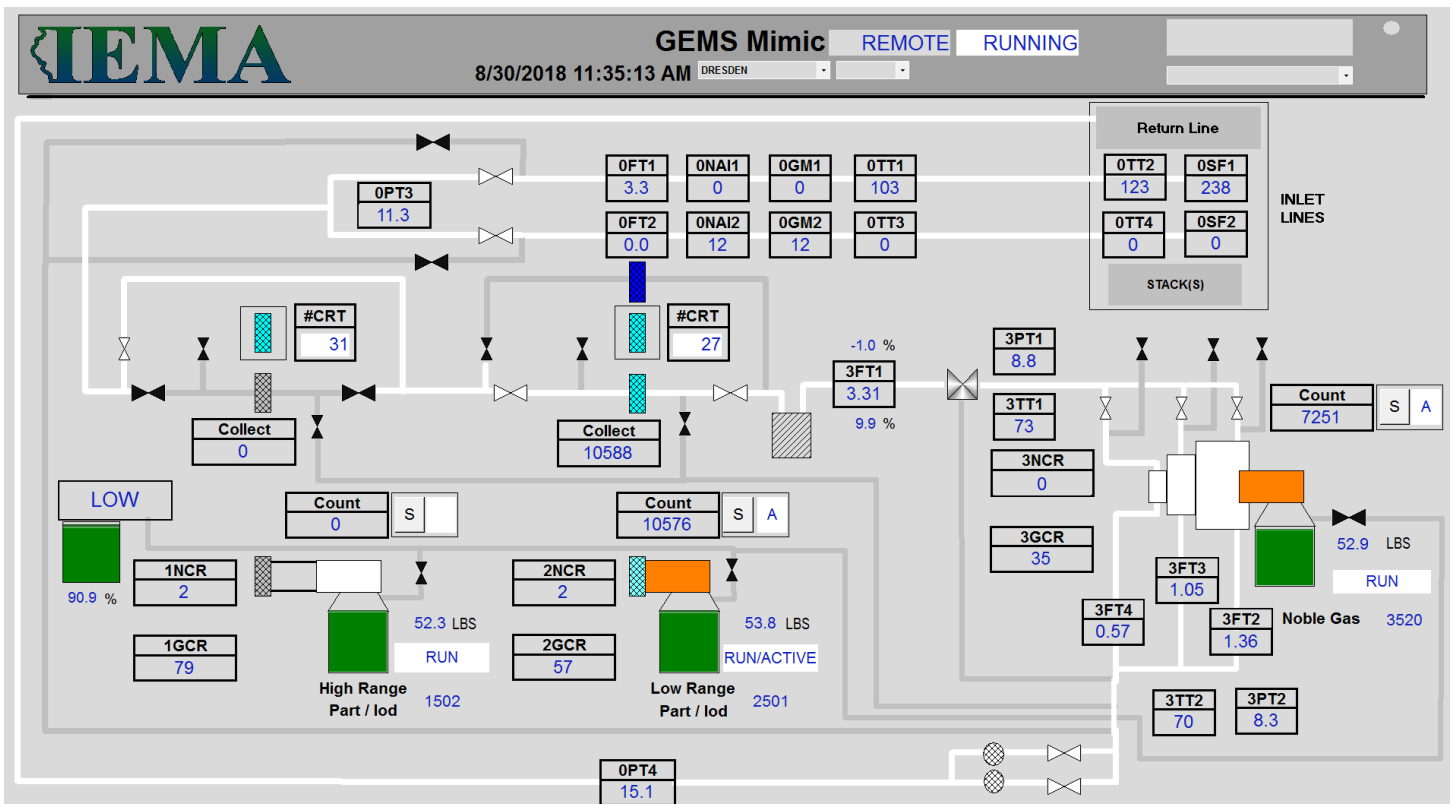




Typical IEMA GDN Field Installation

The Gaseous Effluent Monitoring System

The Gaseous Effluent Monitoring System (GEMS) provides automatic, on-line, continuous sampling of each nuclear power plant effluent stack(s). The GEMS measures and identifies particulates, noble gases, and iodines over a wide range of concentrations, from background levels to releases under emergency conditions. The GEMS can be controlled remotely during nuclear power plant emergencies to provide flexibility in sampling. The screen shown below details the remote operation data for the Dresden Nuclear Station GEMS Equipment.



The GEMS equipment shown in the pictures below were designed, built, installed, and are maintained by IEMA personnel.

