NUCLEAR POWER PLANT RADIATION MONITORING SYSTEM

Model ~ TA-RMS

FEATURES:

- Creates a System Wide Detection Monitoring Hierarchy
- Accommodates complete range of detectors & monitors including air, stack, liquid effluent, & particulate
- Alpha, Beta, Gamma, Noble Gas, Tritium, Neutron
- Two way communication with the control room CPU /Server
- FM-9W-Hub incorporates 20 or more discrete counters.
- Operator display and controls: clear & accurate easy to understand & use
- System changes do not require programmer
- Real-time, In-line, continuous monitoring
- Fail safe alarms, modular design
- Location specific alarms & settings
- Data archive & retrieval
- Report generation
- IP 65

Technical Associates provides standard and custom designed radiation monitoring equipment to the nuclear power plants globally.

The United States, Canada, United Kingdom, Sweden, France, Korea, Japan, China, to name a few.

TA Digital RMS Radiation Monitoring Instrumentation for Nuclear Power Plants is a complete line of radiation monitors including but not limited to:

- Noble Gas monitors
- Off-line and In-line Liquid Effluent Monitors
- Particulate & Iodine Monitors
- Area, CAMs Stack Monitors, & Atmosphere monitors
- Accident and Post-Accident monitors.

DESCRIPTION:

The TA-RMS System is a multi-function, real-time, distributed, radiation detection system that monitors changes in radiation fields and radioactivity in and around a nuclear power plant.

Multi-Detector systems such as Area Monitor systems, Perimeter Monitors or even a Sorting Table style Trash or Laundry monitors feed their detector pulses directly into the FM-9W-Hub, a local RMS computer & Ethernet port with 20 or more built-in counters.

TA RMS operates as an Ethernet system with central control in the plant control room. TA RMS communicates with a wide variety of detectors and sub-systems & accomplishes diverse measurement and control tasks.

SYSTEM WIDE MONITORING HIERARCHY:

- Facility Wide
- Building Specific
- Individual Area or Lab

TECHNICAL ASSOCIATES
OVERHOFF TECHNOLOGY
7051 Eton Ave., Canoga Park, CA 91303
818-883-7043 (Phone) 818-883-6103 (Fax)
tagold@nwc.net WWW.TECH-ASSOCIATES.COM
NUCLEAR POWER PLANT RADIATION MONITORING SYSTEM

Model ~ TA-RMS

DESCRIPTION SPECIFICS:

The TA-RMS System provides a single monitoring solution for multiple systems within a Nuclear Power Plant. An advanced built-in, computer network centered on the FM-9W-Hub which serve as an Ethernet node that communicates with the control room CPU /server.

Powerful, self-contained, multi-channel Stack detector-systems

Simpler systems including single channel Air Monitors as well as some stand-alone Area Monitors have fully-addressable, two-way USB-ports that communicate with the control room CPU /server.

Large numbers of Gamma & Neutron Area Monitor Detectors disbursed throughout most plants have local pre-amps, line-drivers and high-voltage-supplies; feed their pulses into the FM-9W-Hub, a specialized computer, containing 20 or more simultaneous & independent counters. The FM-9W-Hub analyzes these detector signals, and sends back signals to trip the local alarms as needed.

CENTRAL CONTROL: The control room CPU /server has authority and capability to change:

- Local Alarm Settings
- Baseline Zero Settings
- Counting Time Constants
- Calibration Factors & Other Parameters

OPTIONS:

- Acknowledge Local Alarms
- Activate Solenoid Check Sources

DETECTOR TYPES:

<table>
<thead>
<tr>
<th>Noble Gas Monitors</th>
<th>Off-Line &amp; In-Line Liquid Monitors</th>
<th>Particulate &amp; Iodine Monitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gamma Area Monitors</td>
<td>Neutron Area Monitors</td>
<td>Perimeter Monitors</td>
</tr>
<tr>
<td>Accident Monitors</td>
<td>Post-Accident Monitors</td>
<td>N-16 Leak Monitors</td>
</tr>
<tr>
<td>Tritium Monitors</td>
<td>Alpha Beta Gamma</td>
<td>CAMs Stack Monitors &amp; More</td>
</tr>
</tbody>
</table>

SOFTWARE DESCRIPTION:

Reporting

TA-RMS Overview Software is straight forward, robust, easy to use, & accomplishes a wide variety of measurement & control tasks. Status Reporting & readings of all RMS detectors up-the-line to the Control Room CPU /server console. High capacity hard drive, & CD-writer make it easy to archive data for later analysis.

Data Analysis, Display, Hard-Drive, Hard-Copy, & Data Archive

TA-RMS Overview Software provides for each data collection channel, the net counts are automatically converted to suitable engineering units. For Example: Air & Stack monitors typically read out in uCi on the filter or in concentration units, such as uCi/ml or Bq/m² or other units of users choosing.

This real time information can activate door-locks, effluent-control-valves as well as triggering the alarms. Also, all data is saved to the hard drive in spreadsheet format. Historical data is easily displayed on-screen (and/or printed out on the included printer) in tabular format, showing quantitative information. Data is recorded frequently so time-resolution is excellent.

System Flexibility

Addition of new detectors as well as new calculations or functions can be made easily by user.
NUCLEAR POWER PLANT RADIATION MONITORING SYSTEM

Model ~ TA-RMS

HARDWARE DESCRIPTION:

Model **TA-RMS** is a multi-function, real-time, distributed, detection system. The electronics are microprocessor with color LCD display. Plug in modules allow change or addition of functions at a later date, & allow rapid repair by module replacement in the field.

The modular system is covered by both TA’s unique exchange warranty system & the full one year warranty.

**TA-RMS SYSTEM INCLUDES:**

- High Capacity Memory
- High Speed Processor
- 17” LCD Monitors, Keyboard, Mouse
- Data Storage & Archive
- Full Graphics Printer
- Ethernet & USB ports
- **Options:** Solenoid check sources

**Data Analysis, Control, Display, Archiving, optional Report Generation**

The **FM-9W-Hub** sets Count Times, Alarm Trigger Levels, Alarm Mode (Latching or Non-Latching) & Other Parameters.

All data is automatically displayed, archived & available for graph / trend plotting. **FM-9W-Hub** & the detectors become a complete, user-friendly, 20+ channel, Area-Monitor System capable of handling GM, Scintillation, Proportional, Ion Chambers, & Solid State Detectors for Beta-Gamma and Neutron monitoring.

**Data Transmission**

For Ethernet based RMS systems with more than 20 Area Monitor Detectors & for systems including other detectors such as Air & Stack Monitors, Liquid Effluent Monitors, etc., the **FM-9W-Hub** serves as an Ethernet node which allows two way data flow to the main **TA-RMS** CPU /server and operators console, **even over very long distances**.
NUCLEAR POWER PLANT RADIATION MONITORING SYSTEM

Model ~ TA-RMS

Sample Central Control Room & Distributed Radiation Monitoring System

TECHNICAL ASSOCIATES
OVERHOFF TECHNOLOGY
7051 Eton Ave., Canoga Park, CA 91303
818-883-7043 (Phone) 818-883-6103 (Fax)
tagold@nwc.net WWW.TECH-ASSOCIATES.COM
SAMPLE
LOCAL CONTROL ROOM
&
LOCAL PORTION OF THE DISTRIBUTED RADIATION MONITORING SYSTEM