

Monitors for Radioactivity in Air

DOE AMUG

April 2006

Historical Perspective

- Radiation monitors for more than 50 years!
- A couple of “older” models...



Types of Monitors

- Alpha in air monitors
- Beta in air monitors
- Environmental monitors
 - *With HPGe detectors for isotopic analysis*
- Moving filter monitors
- Moving monitors (portable systems)

- Separate Air Quality Group
- EPA compliance monitors
- Particulate monitors
- Hazardous gases

AMS-4

Beta in Air Monitor

- Remote Heads
- Particulate, Iodine, Noble Gas measurements
- In-Line for stack sampling
- Radial Entry for ambient air
- Noble Gas
- Very portable with attached pump module
- Also used for installed monitoring
- Wireless communications for ease of use during hot jobs or outages



Alpha-7A and L

Alpha in Air Monitor

- PC-based alpha in air monitor
- Equations updated once per second
- Measures 8 isotopes simultaneously
- Separate alarms for each isotope
- Smart remote detector heads
- Easily networked
- New software 2.0.0.3
- New ORTEC detector



FHT59C

- Moving filter monitor designed for low maintenance
- Very reliable mechanism
 - *EPA compliance monitor*
- Up to 1 year between filter changes
- Advance 1/day = 3 years to a new roll of filter paper
- Continuous monitoring using an alpha beta proportional detector
- Integrated into monitoring networks



- Noble gas monitor using two large area proportional detectors and anticoincidence
- 900 ml active volume chamber
- Lead shielding for use in higher background areas
 - *Up to 10 mR/h*
- Calibration for Kr-85 or Xe-133
- MDA's 0.5 kBq/m³ and 1 kBq/m³
- Range is up to 3.7×10⁸ Bq/m³
- Workplace or stack gas monitoring
- PC-based electronics
- Remote data access (networking)

FHT59SI

- Environmental monitoring
- Alpha and Beta aerosols
- $0.05/0.3 \text{ Bq/m}^3$ to $0.5 \times 10^6 \text{ Bq/m}^3$
- Moving filter mechanism
- Solid state alpha beta detector
- PC-based electronics
- $8 \text{ m}^3/\text{h}$ sample rate
- Data collection with remote capabilities



Communications

- RS232 or RS-485
- Ethernet communications
- Wireless communications
- GSM cell phones
- Satellite communications

Networking Software

- ViewPoint software
- Data Collection
- Data Archival
- Customized Displays
- Multiple communications pathways
- Easy Networking
- Works with many different types of instruments
- Configurable displays tailored to the facility
- Released in Q4 of 2004

Questions?

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