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# DOE AMUG Update

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PLM, Environmental Monitors

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# AGENDA

- What is the Environmental Monitoring product line?
- Problems Resolved (and Not)
- Obsolescence Strategy
  - S/PING
  - RMS II

# Products

## ■ What is this product line?

### • Air Monitors

- For the work place (personnel protection)
- For low level environmental monitoring (Erlangen)

### • Area Monitors

- RMS-3, FHT 6020 and RadEye for work place monitoring (personnel protection)
- FHZ621GL and FHT191N for environmental monitoring (Erlangen)
- Systems with interlocks to prevent access into high radiation areas

### • Sample Counters

- HandECount - Work place (portable, battery powered, quick answers)
- Laboratory (Erlangen products) true low level counters (lots of lead shielding)
- Single or multiple counting channels



# Resolved Product Issues

- RMS-3 – serial communications network issue
- When more than eight RMS-3's were used in an RS-485 network, individual RMS-3's would drop off the network or reset to default parameters.
- No problems noted with RMS-3 monitors used on Ethernet networks
- Found a code conflict with the temperature routine and deleted it.
- This resolves the communications issue but there is no longer a temperature reported by the RMS-3
- New software is being released



# Resolved Product Issues

- DA1-1 and DA1-6 dead-time issues
- Spare DA1-6 boards sent to Savannah River reported zero dead time but were also found to be non-linear.
- Found slight differences in the components used but testing also high-lighted a design problem with the amplifier circuit on the DA1-1 and DA1-6 boards
- Changed two resistors and added a jumper to the board (as described in MI2530)
- Design change applies to all DA1-1 and DA1-6 variants. Suggested upgrade at annual calibration.



# Resolved Product Issues

- Alpha-7 Server Upgrade to version 2.0.0.4
- Fixed latching alarm logic to handle multiple latched conditions.
- Fixed Eberlogger to log simultaneous status condition changes.
- Set smart head logic to recognize and load spectrum parameters from radial head every time an MCA is connected.
- Fixed DAC unity logic to compensate for flow unit changes.
- Added user configurable relay logic and registry settings.
- Changed parameter handling algorithm to eliminate oscillations.
- Added air gap to calibration software printout.
- Spectrum Channel 212 is logged correctly.
- Added user configurable spectrum and coefficient logging features.
- Fixed region of interest code.
- Added auto spectrum reset logic and registry settings.

# Hardware Changes

- Alpha-7A and Alpha-7L
  - Various detectors available – 3 main suppliers
    - Updated the filter to detector distance value used
  - Changed the wiring harness slightly to improve grounding
  - New single board computer being used
  - USB ports are being added (prototype available soon)



# Unresolved Product Issues

- **DA1-8 – drift with very high integrated doses**
  - During calibration of A DA1-8 to dose rates higher than 10,000 R/h, testing a new quadratic calibration method, it was noted that the detector drifted.
  - This drift effect has been confirmed for high dose applications
  - Currently investigating a solution.
- **HandECount – drifting over time**
  - Several HEC's at a nuclear power plant failed a source check after several months. Control carts showed that the efficiency on several units had drifted lower over time.
  - Same issue was encountered at SRS and other facilities.
- **Alpha-7A – new hardware configuration, testing at LRRRI**
  - Testing is planned at LRRRI but not yet scheduled.
  - Reinvestigating INEEL report of RFI problem



# Obsolescence Issues

- Santa Fe Ceased Manufacturing in 2007
  - Installed Systems (SPING, PING)
    - Are no longer being manufactured.
    - Some spare parts are available from the service department
  - Installed area monitors (RMS II)
    - Are no longer being manufactured.
    - DA1-x detectors are still available
    - IB-x interface boxes and ECx-x display modules are not
  - Many products moved to Erlangen (Germany) or Beenham (UK)
  - Many other products were not – eliminating any possibility of spare parts for them.



# Complete Product Listing

- Beenham Environmental
  - Mini 900 series monitors
  - Mini 920 monitors
  - Mini Alarms
  
- “Santa Fe” Environmental
  - Alpha-7A air monitor
  - Alpha-7L air monitor
  - AMS-4 air monitor
  - HandECount sample counter
  - RMS-3 area monitor
  
- Erlangen Environmental
  - FHT 6020 area monitor
  - FHZ 621GL intelligent probe
  - FH59 series air monitors
  - FHT770 series sample counters
  - Several other variants
  - RadEye PRD
  
- Software/Hardware Networking
  - ViewPoint and Plug-ins

# Questions

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