Personnel Contamination
Monitors
Radiation Measurement Instrumentation
for HPs – Special Session

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Agenda

- What are Personnel Contamination Monitors and where are they used?
- How do they operate?
- What major changes have they undergone over the years?
- What are the current ‘state of the art’ features?
- What does the future hold for such equipment?
- Closing remarks
What are Personnel Contamination Monitors?

- Large automated devices to screen for low levels of radioactive contamination (i.e. \(~5000 \text{ dpm/100 cm}^2 \beta/\gamma\) )
- Used in medical, research, and nuclear utilities
- Developed to replace ‘manual-frisking’ via Pancake meters or other portable surface contamination equipment
How do they operate?

- Multiple detectors in close proximity to the desired surfaces to be screened
- Electronics operated in pulse mode
- Variable coverage capabilities depending on risk levels
- Automatic logging and display of results for user and RP follow-up
Examples
The evolution of Personnel Contamination Monitors

- Early models used bulky analog electronics
- Limited software capabilities and measurement geometry
- Intensive maintenance required
- Few detectors used to provide ‘body coverage’
Major changes over the years

- Increased use of powerful PC electronics
- Availability and use of better materials for detector construction
- Dominance of sealed and flow proportional counters
- Reliability has increased
- Sophisticated algorithms to trend background and re-calculate counting times based on pre-determined statistical criteria
Current features

- User friendly software
- LAN based and Wireless networking
- Radon “Rejection” capabilities
- Quick replacement of damaged detectors
What does the future hold?

- Development of newer detection media (Beta plastic scintillator)
- Obsolescence of separate portal monitors?
- Drastic reduction in both monitor and detector ‘dead’ zones
- User specific ‘default’ parameters available
- “As Found, As Left” calibration certificates
Conclusions

- Use of personnel contamination monitors has increased dramatically
- Only viable way to screen for low levels of surface contamination on large populations
- More vendors = competition = more choices
- Challenge your assumptions
- Review your source term
- Work with your maintenance staff and vendors
Who the heck is this guy??

Questions?

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