

CSG Midwest

Radiation Specialist Training Evaluation

**Ohio Department of Health
Bureau of Radiation Protection**

November 2007

CSG Midwest Radiation Specialist Training Evaluation

Background and Objectives

- Radiation Specialists serve as an on-scene radiation resource
 - Pending the availability of State or Federal radiation resources
- Enhancement of Haz Mat Technician capabilities
 - Function as Radiation Specialists
 - Functional and qualified to operate in a First Responder environment
- Cross-discipline training can be challenging
 - BRP staff have had HAZ MAT Technician training, but may not be the best choice for the overturned tanker

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Observations

- 3 day, 2-phase concept is a good one
 - Class Tuesday through Thursday; travel Monday and Friday
- Instructors well qualified, able to address questions
- Demonstrations
 - Irradiated table salt scintillation, “M&M” decay curve, Ba-133m generator detection, and alpha cloud chamber
 - Some worked, some didn't work
 - Regardless of outcome, added value by drawing the students into the concepts

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Observations (Cont.)

- Slides, Manuals, Handouts
 - Slides and course manual didn't match
 - Handouts and "Take-away Items" were good
 - Laminated cards with units, conversion factors, rules of thumb
 - CD with some useful software
 - Pocket References
 - Homework and Exams were challenging and well thought out

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Observations (Cont.)

- Sense of Scale
 - Is this a large amount or a small amount? Is this an immediate danger? How hazardous is this compared to a “commonly accepted” hazard?
 - In my experience, this is one of the most important concepts to establish - Sense of scale was not stressed

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Observations (Cont.)

- Theory vs. Practicality
 - Theory is necessary to provide a sound basis, but
 - First responders are practical individuals and the need for theory is not always apparent or directly useful
 - Some theory portions could have been eliminated or reduced
 - e.g., binding energy, mass decrement, intra-nuclear forces, activity vs. mass
 - Student comments during sessions demonstrated the desire to apply theory to practical issues

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Observations (cont.)

- Some concepts introduced out of logical sequence
 - e.g., radiation interactions prior to discussion of the types of decay
- On occasion, discussions were held without clear resolution
 - e.g., use of a NaI detector as a dose rate instrument; linear/non-linear, threshold/no-threshold biological response
- Day 3 contained some useful thumb rules and simple equations

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Summary

- Good
 - 3 day, 2-phase concept
 - Handouts and take-away items
 - Instructors well qualified
 - Demonstrations, homework, and exams
 - Day 3 contained some useful thumb rules and simple equations

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Summary (Cont.)

- Needing Improvement
 - Slides and course manual didn't match
 - Difficult balance between theory and practicality
 - Concepts occasionally presented "out of sequence"
 - Some discussions not completely resolved
 - Sense of scale not stressed

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Recommendation

Question - Would you recommend that CSG arrange to have a similar session conducted in the Midwest for the benefit of our states? And, if so, why? If not, why not?

- **Yes**, I recommend that CSG Midwest arrange to conduct a ***similar*** session for our states
 - Not the *same* session, but a refinement of the pilot training session

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Rationale

- The training objective is a valid one
 - Radiation field support capabilities should be more readily available in all areas of the country
- This was a pilot effort, changes can be made
- Some concerns may be related to evaluator bias
- Other issues may be addressed in Phase 2, this is an evaluation of Phase 1 only

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Rationale (Cont.)

- The concepts and information provided are technically correct, the instructors are competent, the handouts are good
- This program needs some additional work to put it into a final state of readiness and once there, it should become a valuable training asset

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Questions??