

Dynamic Alpha Particle Source

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Radiation and Protection Group, RP-2

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Dynamic Alpha Particle Source

Problem:

Evaluation of Continuous Air Monitors (CAM) in the presence of a plutonium aerosol is time intensive, expensive, and requires a specialized facility.

Solution:

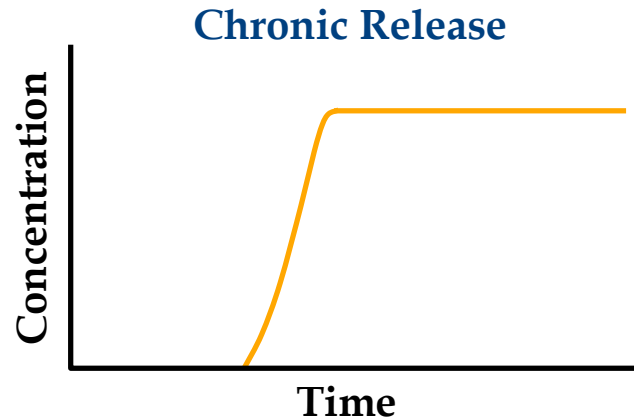
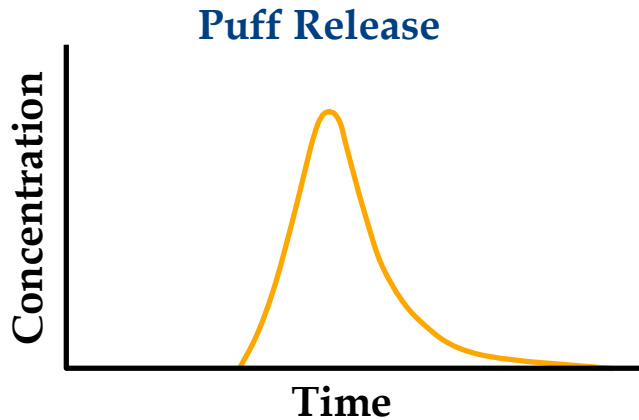
The Radiation and Protection Group RP-2 at Los Alamos National Laboratory has designed and begun evaluation of a Dynamic Alpha Particle Source (DAPS) intended to replicate the presence of a plutonium aerosol cloud.

Dynamic Alpha Particle Source

Principles of Operation

Designed to dynamically introduce radioactivity, with the appropriate alpha spectrum.

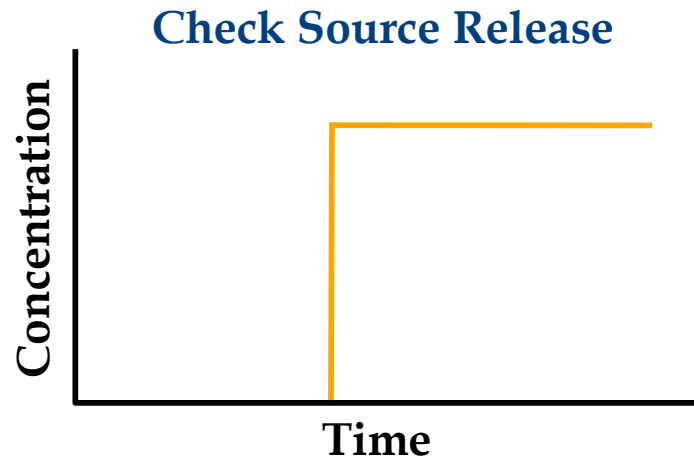
- Puff Release
- Chronic Release



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Current Evaluation Techniques

- Check Source
- Pu-239 Aerosol Generation



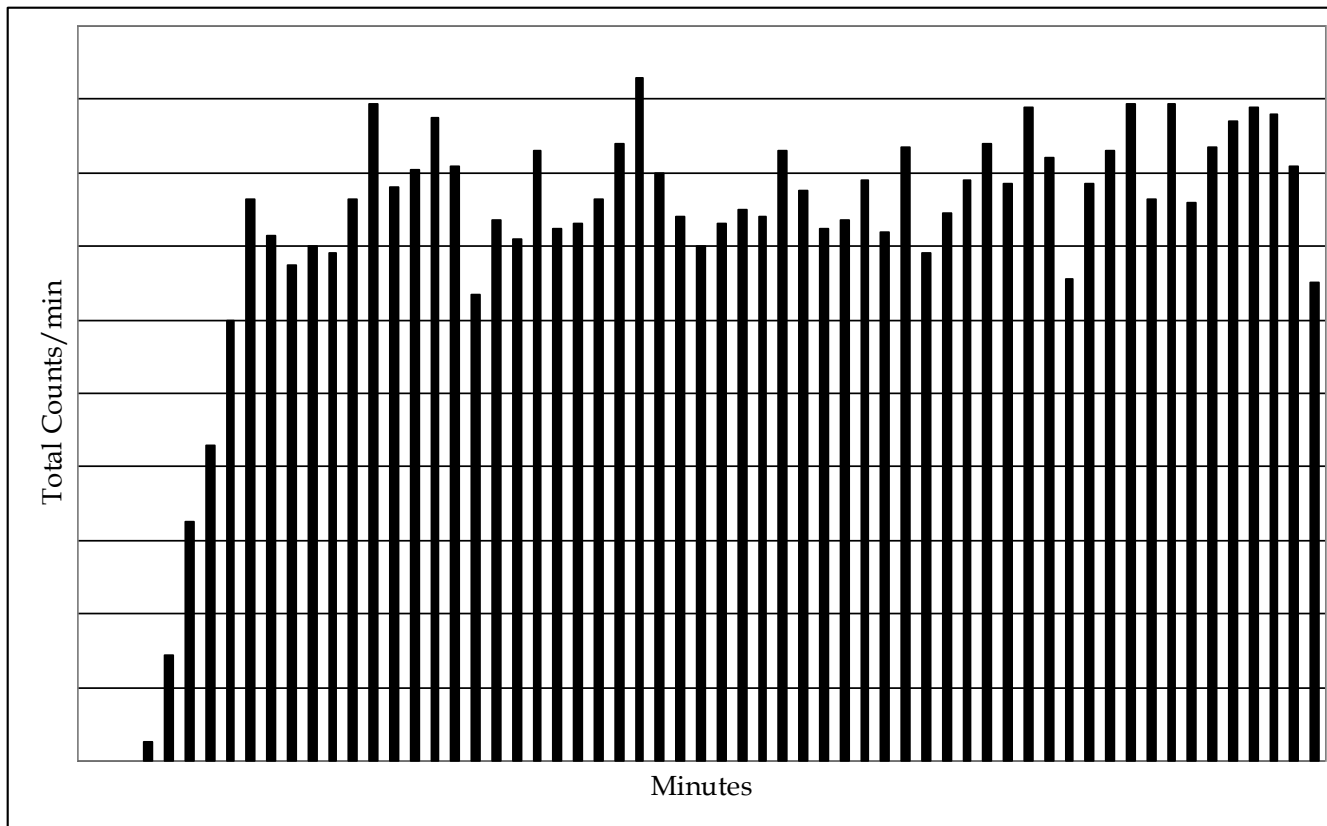
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Advantages of DAPS Unit

- **Adaptable for use in a number of different CAMs**
- **Provides non-specialized in-house testing**
- **Low cost: ~\$2,000 (Pu aerosol ~\$10,000 per test)**
- **Control of CAM for multiple test scenarios**
- **Repeatability**
- **Simulation of realistic plutonium aerosol spectrum**
- **Supports iterative development/evaluation of CAMs**

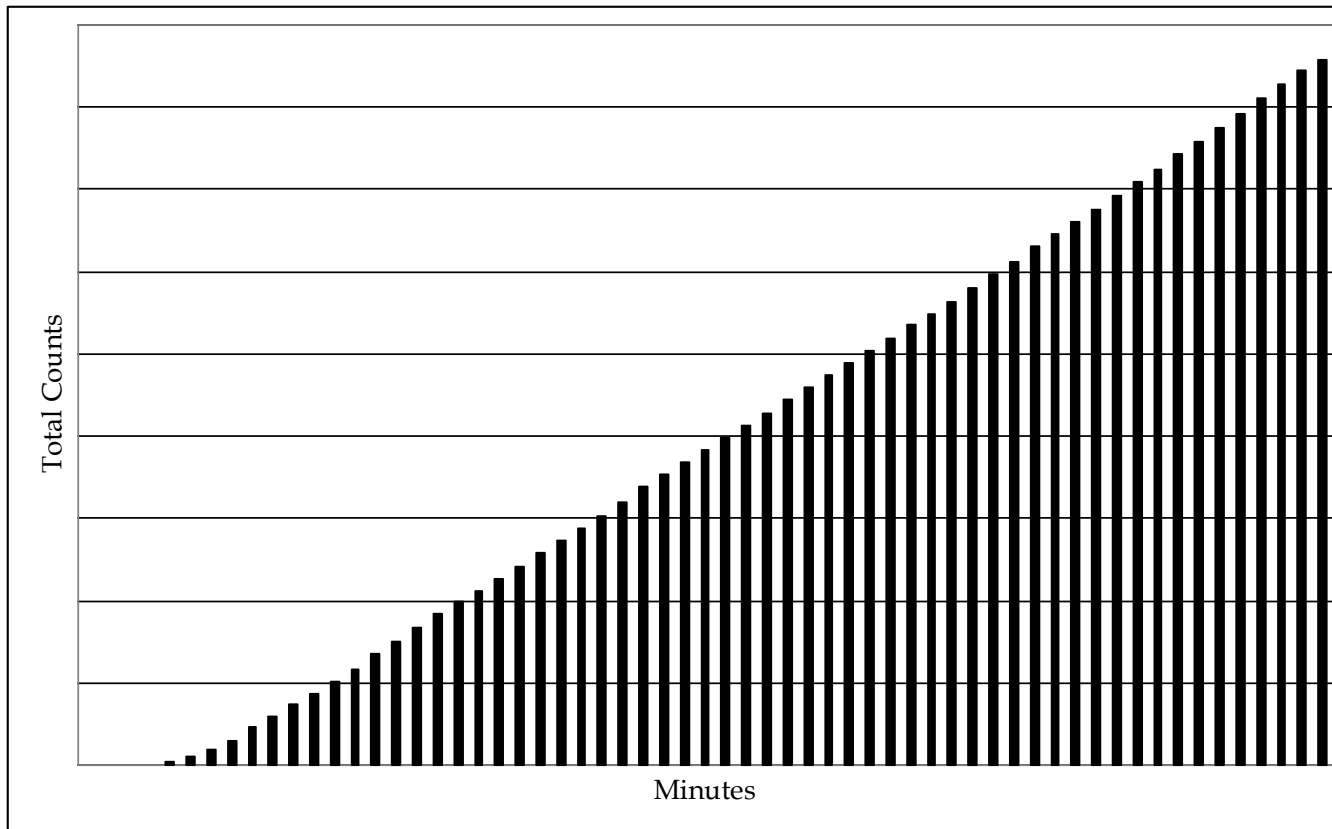
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Chronic Release Data (Activity)



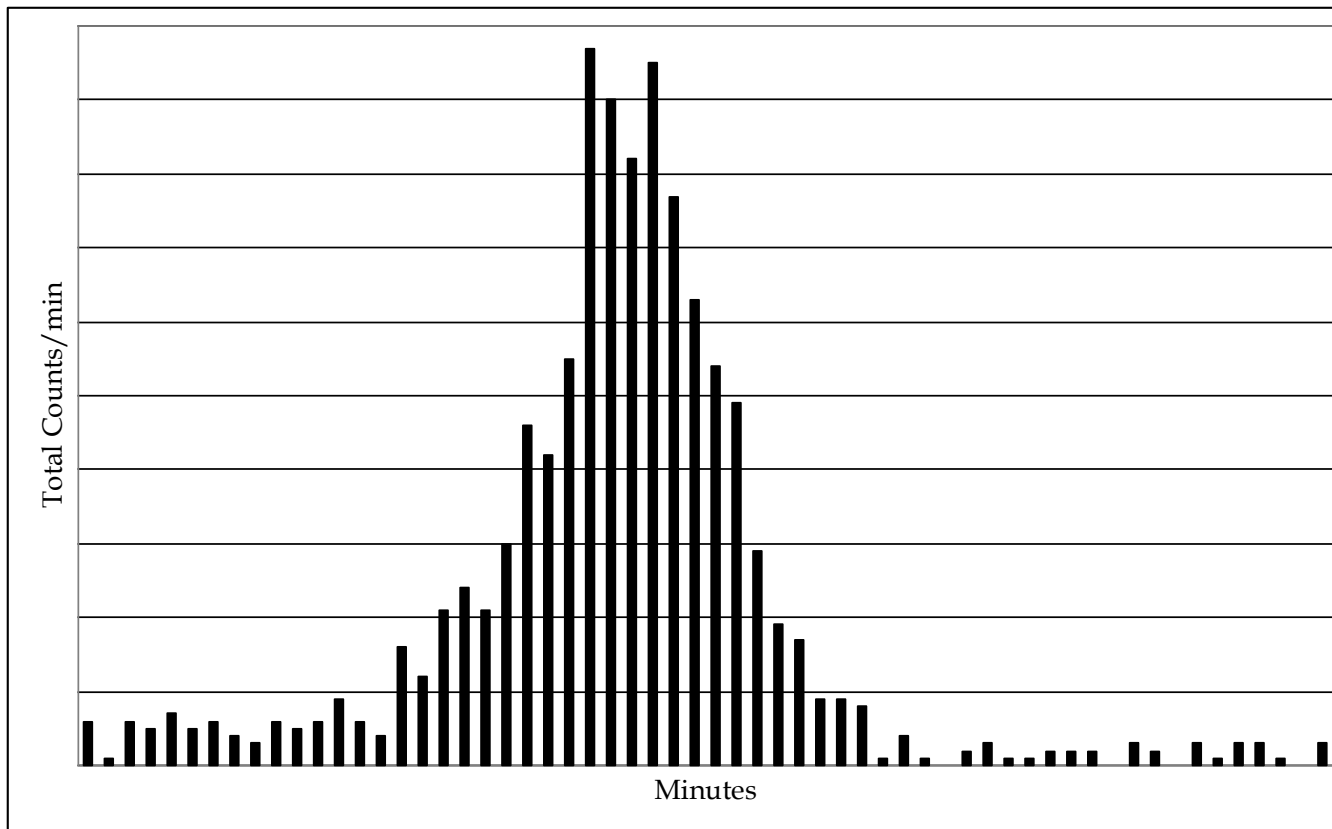
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Chronic Release Data (Integrated Total Counts)



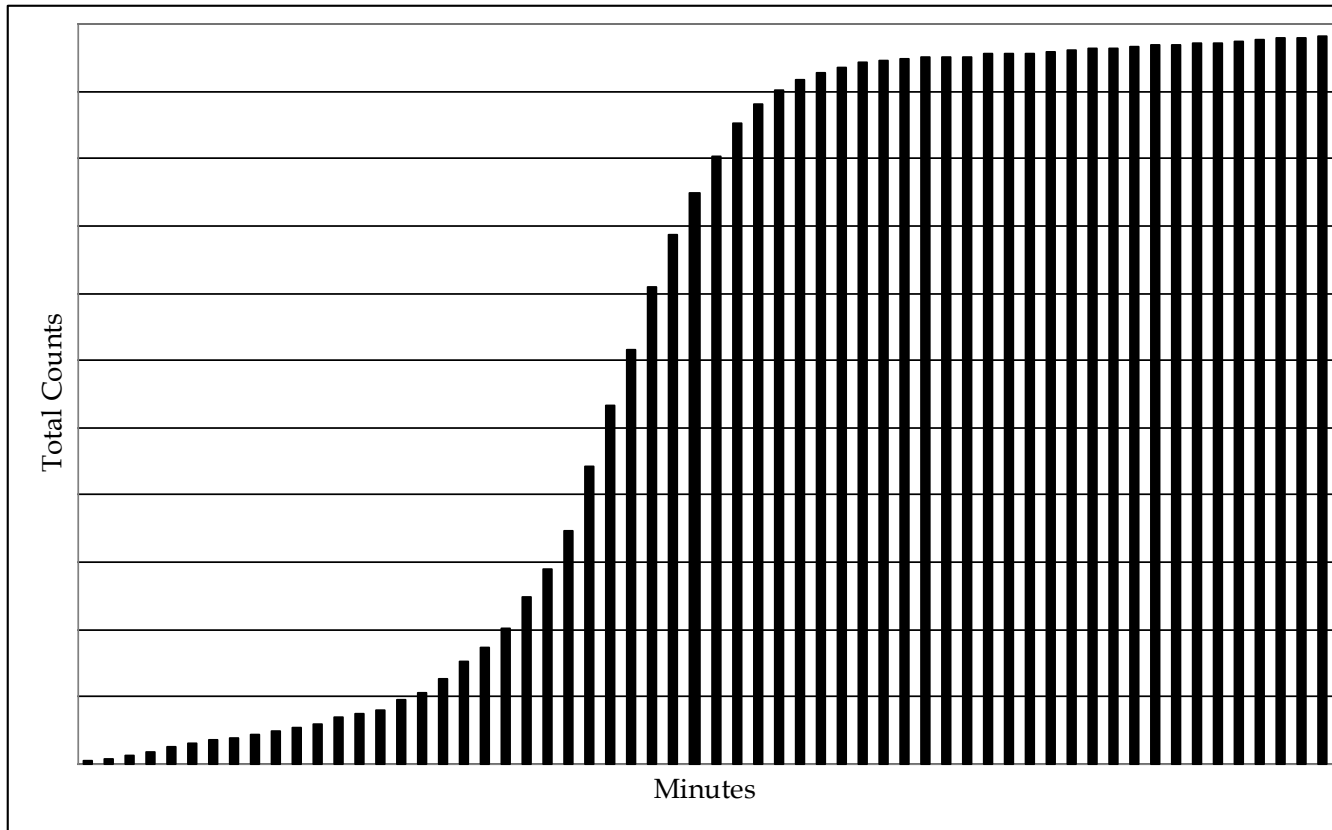
Dynamic Alpha Particle Source

Puff Release Data (Activity)



Dynamic Alpha Particle Source

Puff Release Data (Integrated Total Counts)



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Questions?