

# When is Nuclear Accident Dosimetry Required?

- 10 CFR 835.1304(a) states “Installations possessing sufficient quantities of fissile material to potentially constitute a critical mass, such that the excessive exposure of individuals to radiation from a nuclear accident is possible, shall provide nuclear accident dosimetry for those individuals”.
- Two conditions: “potentially constitute a critical mass” and “excessive exposure of individuals”
- Guidance Review:
  - DOE G 441.1-1B, section 6.4.3 states “Acceptable methods for implementing a NAD program are described in ANSI N13.3, Dosimetry for Criticality Accidents (1969/1988)”
  - ANSI N13.3, section 4.2 states “A dosimetry system shall be established when there is a risk of accidental criticality. As a general rule, a criticality accident dosimetry system should be established for operations for which guidance from American National Standards on criticality safety and criticality alarms is to be employed.
  - ANSI 8.3 (1997/2003), Criticality Accident Alarm Systems, section 4.2.2 states “A criticality alarm system meeting the requirements of this standard shall be installed in areas where personnel would be subject to an excessive radiation dose”.
  - ANSI 8.3 (1997/2003) also defines “excessive radiation dose as any dose to personnel corresponding to an absorbed dose from neutrons and gamma rays equal to or greater than 12 rad in free air”.
- Benchmarking results – NADs required at facilities that are required to have CASs
  - ANL, LANL, ORNL, SRNL (& SRS), INL (BEA), INL (CWI)

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- Discussion:
  - Does any other site use other “requirements” for implementing NAD?
  - If so, what are they?
  - Has any site had discussions with regulatory agencies regarding the site level requirements?
  - Has any other site discontinued the NAD program if CAS systems are not required?