ANS Issues a Response to an Inquiry on ANS-1-2000 (R2024), Conduct of Critical Experiment
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The ANS Standards Committee received an inquiry on ANS-1-2000(R2024). The inquiry and response are provided below.

Inquiry

Is it the intent of this standard to require each automatic safety device to remove enough reactivity to result in the assembly being subcritical by at least one dollar?

Response

Yes. Each safety device shall be capable of shutting down the assembly (i.e., assembly shutdown). Accordingly, each safety device shall be capable of removing sufficient reactivity to render the assembly subcritical by at least one dollar.

The definition in Section 2.3 is provided specifically for application in the body of the standard.

> ***assembly shutdown***. The state of the assembly when it is subcritical by at least one dollar.

That application occurs in Section 4.5:

> *Each critical assembly shall be provided with at least two safety devices that are actuated automatically at a preset radiation level and that can be actuated manually.* ***Each device shall be capable of shutting down the assembly****. These devices shall also be capable of removing reactivity more rapidly than it can be added by any anticipated operation. The safety devices shall be able to perform their safety function independent of the assembly control system.*

Sections 4.5, 4.6, and 4.7 are inter-related

> ***4.6*** *At least two neutron or gamma-ray detectors together with associated electronic and mechanical components shall be capable of independently initiating a scram of the critical assembly at a preset radiation level. These systems shall be able to perform their safety function independent of the assembly control system.*
>
> ***4.7*** *Loss of actuating power to any critical assembly safety device shall produce a scram.*

Responses issued to inquiries on ANS standards are published in ANS's magazine, *Nuclear News*, and are available on the ANS website on the Responses to Inquiries webpage. Individuals wishing to submit an inquiry on an ANS standard are asked to provide a completed inquiry submittal form to standards@ans.org.