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Criticality Safety Controls for 55-Gallon Drums with a Mass Limit of 200 grams Pu-239

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Disclaimer

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Interdepartmental letterhead
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HAZARDS CONTROL DEPARTMENT
Criticality Safety Section

August 8, 2003
CSAM03-167

TO: Stephanie Goodwin, L-623

FROM: Shang-Chih Philip Chou

SUBJECT: Criticality Safety Controls for 55-Gallon Drums with a Mass Limit of 200 grams Pu-239

The following 200-gram Pu drum criticality safety controls are applicable to RHWM drum storage operations:

Mass (Fissile/Pu)

Each 55-gallon drum or its equivalent shall be limited to 200 gram Pu or Pu equivalent.

Moderation

Hydrogen materials with a hydrogen density greater than that (0.133 g H/cc) of polyethylene and paraffin are not allowed. Hydrogen materials with a hydrogen density no greater than that of polyethylene and paraffin are allowed with unlimited amounts.

Interaction

- A spacing of 30" (76 cm) is required between arrays.
- 200-gram Pu drums shall be placed in arrays for 200-gram Pu drums only. (No mingling of 200-gram Pu drums with other drums not meeting the drum controls associated with the 200-gram limit.)

Reflection

No beryllium and carbon/graphite (other than the 50-gram waiver amount) is allowed. (Note: Nat-U exceeding the waiver amount is allowed when its U-235 content is included in the fissile mass limit of 200 grams.)

Geometry

- Drum Geometry: Only 55-gallon drum or its equivalent shall be used.
- Array Geometry: 55-gallon drums are allowed for 2-high stacking. Steel waste boxes may be stacked 3-high if constraint.

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