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INFORMATION NOTICE 2018-05
LONG-TERM FISSILE MATERIAL ACCUMULATION DUE TO UNANALYZED OR IMPROPERLY ANALYZED CONDITIONS AT FUEL CYCLE FACILITIES

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OVERVIEW

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ADDRESSEES

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Facilities licensed under:

- Title 10 of the Code of Federal Regulations (10 CFR) Part 70, "Domestic licensing of special nuclear material"
- Holders or applicants of a construction permit or operating license for production facilities, including the production of medical isotopes.
- 10 CFR Part 40, "Domestic licensing of source material" (no criticality hazards but may be useful)

DESCRIPTION OF CIRCUMSTANCES

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- NRC staff identified recent operating experience involving unanticipated, long-term accumulation of fissile material in uncontrolled geometry systems due to improper analysis of credible plant conditions.

  - July 2017 - unexpected fissile material in desiccant filters
  - Information Notice (IN) 2015-08
    - Unexpected fissile solution in a junction box
    - Catch tray piles that exceeded height limits
  - IN 2016-13
    - Accumulation of fissile material in excess of established criticality safety limits in a scrubber

REGULATORY BACKGROUND

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- Subpart H of 10 CFR Part 70
  - 10 CFR 70.61(b) requires that the risk of each credible high consequence event be limited such that its likelihood of occurrence is highly unlikely.
  - 10 CFR 70.61(d) requires that the risk of nuclear criticality accidents be limited by assuring that all nuclear processes will be subcritical under both normal and credible abnormal conditions.

DISCUSSION

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- Regulatory requirements necessitate that, through the ISA, a licensee evaluates all credible pathways that could potentially lead to a consequence of concern.
- Licensees encouraged to consider:
  - credible events or conditions whose likelihood has either been underestimated or not considered; and
  - analysis for areas perceived as low risk, which have no controls applied, may have unchallenged or unverified assumptions.

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QUESTIONS?