

# **Radioactive Materials: Security and Potential Consequences of Misuse**

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# What are the risks of a dirty bomb?



## Is there a Threat of Terrorist Using a Dirty Bomb?

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According to the NRC, there is a general threat that terrorists seek to use radioactive materials. Specifically, according to NRC's website,

“terrorists have been interested in acquiring radioactive and nuclear material for use in attacks”

(see: <https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/fs-dirty-bombs.html>)

# Are There Vulnerabilities to the Security of Radioactive Materials?

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- NRC has policies, procedures, requirements, and systems to secure radioactive materials
- However, every time GAO has reviewed these systems we have found significant gaps and vulnerabilities.
  - In 2012, we found vulnerabilities in the use of radioactive materials in medical facilities (GAO-12-925)
  - In 2014, we found vulnerabilities in the use of these materials at industrial facilities (GAO-14-293)
  - In 2016, we were able to get a genuine license for 1 of 3 fake businesses we set up (GAO-16-330).
  - In 2018, we found large numbers of imported shipments of radioactive material were permitted into the US without verifying they were legitimately licensed. (GAO-18-214)

## What Are the Potential Consequences of a Dirty Bomb?

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In our 2019 report (GAO-19-468), we found that there can be significant socio-economic consequences from a dirty bomb using quantities that are smaller than what NRC considers “risk significant.”

Specifically, a dirty bomb using a category 3 quantity of radioactive material can produce more than \$20 billion in socioeconomic impacts, and possibly several hundreds of deaths from evacuations.

# Consequences of a Dirty Bomb

## Category 1 Dirty Bomb

- \$30 billion in socioeconomic costs
- 195,000 evacuations
- 1,500 fatalities from evacuations
- 0 prompt fatalities from radiation

## Category 3 Dirty Bomb

- \$24 billion in socioeconomic costs
- 102,000 evacuations
- 800 fatalities from evacuations
- 0 prompt fatalities from radiation

## Conclusions

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- Our 2019 report found that socioeconomic effects and fatalities from subsequent evacuations are relevant criteria for assessing the consequences of an RDD.
- NRC's has decided not consider these criteria in assessing the consequence of an RDD but instead only considers whether a dirty bomb can produce prompt fatalities or deterministic health effects.
- As a result, NRC security requirements do not address the full risks presented by the danger that category 3 quantities of some radioactive material could be used in an RDD to cause significant socioeconomic consequences.



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# **FY2020 Senate Energy and Water Development Appropriations Bill (Report 116-102)**

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Directed GAO to address the following regarding alternatives:

- What barriers exist to greater use of non-radioisotopic alternatives and what can be done to reduce or eliminate these barriers? For example, to what extent do private companies bear the cost of disposing of radioactive material?
- What is the current status of Federal activities relating to alternative technologies, including NNSA's program for replacing radioactive materials, and NRC's potential role in the adoption of alternative technologies?



## Questions?

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