

Problem Setup:

(SAND2019-7334 O 1/3)

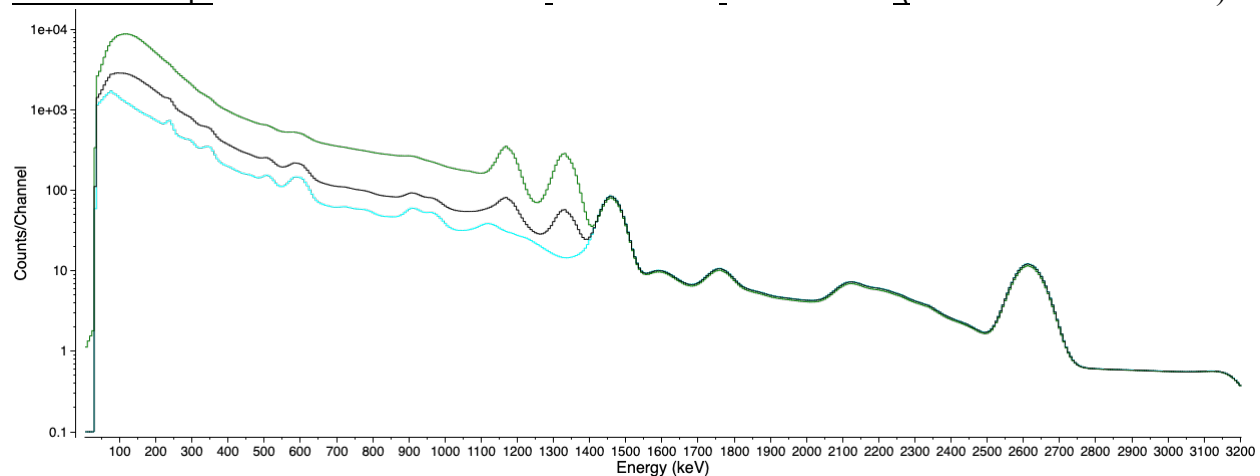


Figure 1 Spectrum provided. Green is near measurement, black is far, and teal is background.

Primary screening identified an intermodal cargo container with a radioactive source. In order to determine an approximate location within the shipping container hand scans were used to determine the source was nearest the rear of the container, and then an additional two spectral measurements were taken centered at the hand-scan hot-spot. The near measurement was on contact with the container, and the second one was 225 cm away from the container. A representative background is also provided.

Information that may be useful:

A 3x3 NaI detector was used to take measurements in “cargo_container_3x3NaI.n42”.

Questions:

- a) What isotope is present in the container?
 - b) How far inside the container is the source?
- (solution and method on next page)