Marks 6

- On the 6th of April 2011, after the earthquake and tsunami in Japan, levels of ^{131}I in seawater were recorded at 7.5×10^6 times the legal limit. The half-life of ^{131}I is 8.02 days. How long will it take for the radioactivity of the initially sampled seawater to fall back to the legal limit?

Answer:

Why is the ^{131}I nucleus unstable?

Write a balanced equation for a likely decay mechanism of ^{131}I.

Another significant seawater contaminant detected after the tsunami was ^{137}Cs, which has a half-life of 30 years. If you were exposed to equal concentrations of both isotopes for 1 hour, which isotope, ^{137}Cs or ^{131}I, would do more damage? Explain your reasoning.