

Marks
6

- In March 2011 after a tsunami flooded the Fukushima Daiichi nuclear power plant, three of the six reactors went into meltdown, and by 31 March had released large quantities of the nuclides detailed in the table below.

Radioisotope	Initial activity of quantity released (10^{15} Bq)	Half-life
^{131}I	511	8.02 days
^{137}Cs	13.6	30.17 years

Given that the only stable nuclide of iodine is ^{127}I , would you expect the primary decay mechanism for ^{131}I to be α , β^- , or β^+ decay? Briefly explain your reasoning.

Calculate the decay constant for ^{131}I .

Answer:

Calculate the initial mass of ^{131}I released.

Answer:

THIS QUESTION CONTINUES ON THE NEXT PAGE.