

Abstract ID: ***

Disposal of Cobalt-60 (Co-60) Teletherapy System in Medical Institution: Involvement of Stakeholders in Ensuring the Safety and Security of Radioactive Sources

Content

The Cobalt-60 (Co-60) teletherapy machine was invented by University of Saskatchewan medical physicist; Harald E. Johns in 1951 in Saskatoon, Canada and has been used widely for cancer treatment. Commonly applied for external beam radiotherapy procedure, this machine uses Co-60 with high specific activity that emits high-energy gamma rays to kill cancer cells. Based on the IAEA Code of Conduct on the Safety and Security of Radioactive Source, Co-60 assigned to Category 1, corresponding to security Level A and IAEA Nuclear Security Series. Once Cobalt-60 decays and the teletherapy are no longer functional, the unwanted teletherapy units and sources need to be properly disposed to prevent any radiological theft or accidents. During the disposal process of Co-60 teletherapy system at Queen Elizabeth Hospital II at Kota Kinabalu, Malaysia. There are three main processing categories which is before, during and after disposal. A dedicated committee are established to coordinate and identify the role of each government department or agency involved during this disposal activities to ensure the process are executed more efficiently, cost effectively, and align with current government policies as well as international practices. To dispose Co-60 teletherapy machine, advance approval are required to ensure the disposal process are complied with all requirements under Section 26 Control of Disposal of Radioactive Waste, Atomic Energy Licensing Act 1984 (Act 304) and others legislation in force. All the process involved during the disposal also must adhere with established Standard Operating Procedure (SOP). This inclusive disposal units and sources, packaging, transfer and transportation. After the disposal process completed, the information are requires to be updated inside government asset disposal records plus radioactive materials and licensing directory. In conclusion, the disposal process of Co-60 teletherapy machine at Queen Elizabeth Hospital II has successfully executed with the cooperation of all stakeholders and Co-60 radioactive waste was well disposed at National Radioactive Waste Management Center, Malaysia.

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Track Classification: (Insert)

Contribution Type: ~~Oral Presentation~~/Poster

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