

is in rare earths deposits, and may be extracted as a by-product. Accordingly, REE in uranium compounds can be used as an evidence of uranium origin.

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P38 THE USE OF NUCLEAR FORENSIC LIBRARY IN ORDER TO IDENTIFY UNKNOWN SEIZED NUCLEAR MATERIAL. BRAZILIAN'S PARTICIPATION IN THE GALAXY SERPENT EXERCISE

J.E.S. Sarkis^a, I.C.A.C. Bordon and R.C.B. Pestana

^a jesarkis@ipen.br

Nuclear and Energy Research Institute, São Paulo, Brazil

Nuclear fission is governed by very well known physical laws which, under certain circumstances, for instance: type of reactor, fuel and irradiation history, allow to preview with high degree of confidence, the production of energy, the build up of fission products and the transmutation of heavy metals. All these information, gathered in a nuclear forensic library (NFL), can be an important tool during the identification of a seized unknown sample, allowing to produce evidences concerning it's irradiation history, the type of reactor or even the origin of the sample. The usefulness of a nuclear forensic library depending on not only the quantity or quality of the available data, as well as the capacity of the investigators to identify, correlate, and interpret the main parameters identified, or measured, in the seized sample. In this paper it will be described the strategy adopted by the Brazilian's team during the Galaxy Serpent Exercise, coordinated by the Nuclear Forensics International Technical Working Group on nuclear forensics, where a NFL was used to identify an unknown sample. Our experience demonstrated the importance of the knowledge on nuclear reactions to select the main parameters to be considered during the evaluation. Then, the importance to use of simple isotopic correlations, to verify the consistency of the available information, before to use a more complex multivariate statistical techniques. Based on our investigation, the following questions were answered: Does Clio reactor belong to the NFL? Is it possible to identify which class of reactor belongs Clio? For the first question the answer is: Conclusive negative. For the second question the answer is: suggestive positive to be a BWR reactor.
