

PLUTONIUM ROUND ROBIN TEST

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Synopsis

The goal of nuclear forensics is to develop a preferred approach to illicit trafficking investigations. This approach must be widely understood and acceptable as credible. The principle objectives of the Round Robin Test are to prioritize the forensic techniques and methods, evaluate attribution capabilities, and examine the utility of database. The Plutonium Round Robin has made a tremendous contribution to fulfilling these goals through a collaborative learning experience that resulted from the outstanding efforts of the six participating international laboratories.

A prioritize list of techniques and methods has been developed based on this exercise. Future work will focus on a Highly Enriched Round Robin and extent to which the techniques and methods can be generalized. The Plutonium Round Robin demonstrated a rather high level of capability to determine the important characteristics of the materials and processes using analytical methods. When this capability to was combined with the appropriate knowledge and database, it resulted in a demonstrated capability to attribute the source of the materials to a specific nuclear fuel, reactor, and reprocessing facility. A number of shortfalls were also identified in our current capabilities. These included alternative dating techniques, Light Water Reactor discrimination techniques, and the lack of a comprehensive network of data/knowledge bases. The result of the Round Robin will be used to develop guidelines or a "recommended protocol" to be made available to the interested authorities and countries to use in real cases.

The poster will present a summary of the results of the Plutonium Round Robin and describe the plans the subsequent Highly Enriched Uranium Round Robin Test