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## **Populating a National Nuclear Forensic Library – Lessons Learned**

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This presentation will address a few of the myriad of issues that faced the US as we gathered data to populate the US'NNFL. Identifying the specific data, which ultimately lead to a Data Dictionary, is summarized (a full discussion is presented in a companion paper). Focusing on plutonium, this presentation will describe our initial efforts to utilize existing accountancy information, fuel fabrication data, and other readily available data sets. The presentation will go on to address some of the logistics involved in identifying, gaining access to, and reviewing the historical archives at our two production sites, HEW and SRS, and the eventual expansion to include production records at Rocky Flats and other locations. Finally, it will discuss the inclusion of reactor modeling calculations, and the rationale for the use of calculated isotopic vectors in vetting to supplement data based on historic measurements.

Given that the US had been producing and utilizing large quantities of nuclear materials for well over a half-century, many of the original records characterizing those materials are difficult to find. Many can only be found in long-term storage, at numerous locations, with a host of access restriction. Many exist in hard-copy only, as paper reports, computer output, laboratory notebooks, index cards, etc., while others exist on a variety of non-paper forms including microfiche, filmstrip, floppies, etc. Many have been destroyed. All were produced for purposes other than nuclear forensic characterization.

Once historic data is acquired, it must be compiled, and often converted to electronic format. The data must be reviewed for applicability, vetted for accuracy and completeness. Often, combining data from disparate sources was required for a more complete characterization, and in some cases, supplementing historic data is necessary to fully characterize plutonium produced.

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