

MFFF Digital Control System Vendors' Identification and Evaluation

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ABSTRACT

In March 1999, the Department of Energy (DOE) awarded Duke Cogema Stone & Webster, LLC the MOX (Mixed Oxide) Fuel Project contract. This project consists of converting 33 metric tones of surplus U.S. weapon-grade plutonium to commercial MOX fuel to be irradiated in commercial light water reactors by 2020. The Mixed Oxide Fuel Fabrication Facility (MFFF) will use proven MOX fuel fabrication and plutonium polishing processes used at the MELOX and La Hague URP/T4 facilities, respectively, with some minor adjustments to fit the specific purpose of transforming U.S. surplus plutonium to commercial MOX fuel.

In the heart of these processes seats a large-scale and highly automated control system, which is the driving force of the MFFF. This vital portion of the MOX Fuel Project will be contracted out to a control system integrator.

The large size control systems, risk considerations, and no domestic system integrators with experience in plutonium or nuclear fuel plants make the selection of system integrators not an easy task for Duke Cogema Stone & Webster (DCS). In addition, the MOX fuel project is federally funded, which means that the procurement of the control system is tied to the Federal Acquisition Requirements (FAR)

The objective of this project is to develop and test a methodology for screening and evaluation of control system vendors in support of the main DCS project. The team proposed and tested a methodology based on preparation of questionnaires, telephone interviews, on-site interviews, and data processing in the form of matrices summarizing questions to vendors, criteria for evaluation, and performance of a population of companies.

With the proposed method, an original population of 32 companies was reduced to a set of 18 companies. These 18 companies were then evaluated on the basis of 22 criteria. This evaluation yielded a first group of five companies as top performers, a second group of seven companies as average performers, and a third group of six companies as low performers. The methodology developed and tested in this project brings DCS an adequate way to screen and evaluate automatic control vendors.