U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Brookhaven National Laboratories (BNL)

<u>Information Sheet</u>: Significance Determination Process Tools for the Fuel Cycle Oversight Process,

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Background

In 2000, the NRC implemented a revised 10 CFR Part 70 for fuel cycle facilities to require Integrated Safety Analysis (ISAs) and resultant Items Relied On For Safety (IROFS). At that same time, the NRC staff also began considering a risk-informed Fuel Cycle Oversight Process (FCOP), using elements from the Reactor Oversight Process (ROP). The Commission directed the staff (SRM 00-0222) to proceed with the proposed new FCOP, with a caution that efforts not negatively impact implementation of the revised Part 70. The staff engaged stakeholders in public meetings in developing a new fuel cycle oversight process but in a March 18, 2002 memorandum to the Commission, the Executive Director for Operations (EDO) suggested deferring development of the new FCOP until after the licensees have completed ISAs and the NRC reviewed them.

The Office of Inspector General (OIG), in the OIG report "Audit of the NRC's Regulation of the Nuclear Fuel Cycle Facilities" (OIG-07-A-06), recommended that the staff fully implement a framework for the fuel cycle oversight consistent with a structured process, such as the ROP. In a February 13, 2007, memorandum in response to the audit, the Deputy Executive Director for Materials, Research, State and Compliance Programs, stated that as more experience is gained with the ISA process, appropriate enhancements will be made to the inspection and/or licensing procedures, to establish a more structured program, similar to the ROP. The memorandum also noted that because various fuel cycle facilities possess different operational characteristics, the ultimate structure of the FCOP would use more qualitative assessments of performance.

SECY 07-0191, "Implementation of the Risk-Informed and Performance-Based Plan," outlined plans to revise the FCOP to make it more risk-informed and performance-based.

In early 2009, the EDO directed the staff to undertake an effort to revise the FCOP to improve its degree of objectivity, predictability, transparency and consistency that incorporates risk informed and performance based tools. To fulfill this direction, the staff formed a Steering Committee of NRC senior manager's to provide guidance, provide feed back, identify policy issues, and to provide advice on technical, regulatory and policy issues.

Approach

The Office of Nuclear Regulatory Research (RES) contracted Brookhaven National Laboratories (BNL) to develop Significance Determination Process (SDP) tools and provide technical support to NRC staff in the development of the framework for the FCOP. The specific tasks the project includes are: evaluating Fuel Cycle Facility Inspection Findings, developing SDP Tools (e.g. process flow diagrams), developing technical basis for the SDP tools, and developing risk thresholds to help inspectors/risk analysts determine the significance of findings.

The products developed will form part of the framework for the FCOP that is being developed by NRC Staff.

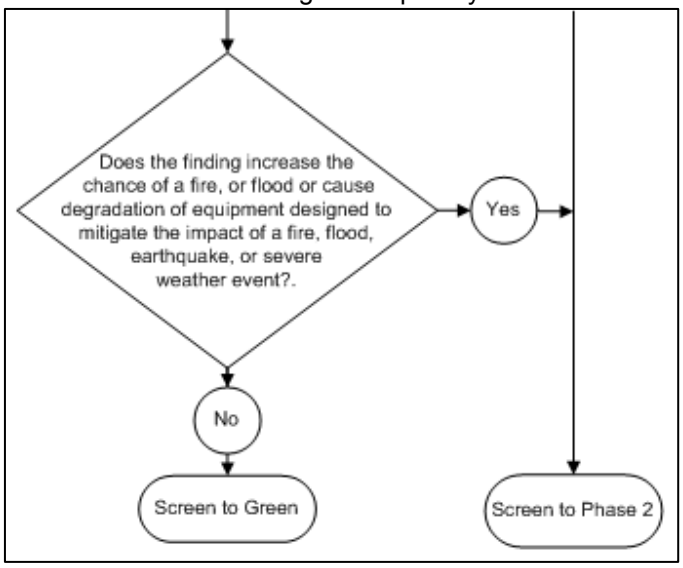

Figure 1: Sample Process flow from the FCOP Draft Appendix A: Criticality Safety and Chemical Process Safety, Phase 1, Fuel Cycle Significance Determination Process. The picture shows a section of the Criticality Safety: Phase 1 Flow Chart.

For More Information
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