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Subject: Green Alert: LOFT Fuel Rod Repackaging Project

Title: Lessons Learned From the LOFT Fuel Rod Repackaging Project

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Lessons Learned Statement: Application of Integrated Safety Management principles as well as reviewing lessons learned from other projects can help prevent injuries and lead to successful project completion.

Discussion of Activities: The Nuclear Material Disposition (NMD) Project has the responsibility for the disposition of the uranium metal and compounds classified as product material which remained at the Fernald Environmental Management Project (FEMP) following the halt of production in the late 1980's. One small grouping in this population was the Loss-of-Fluid Test (LOFT) fuel rods. These rods were excess from testing that were sent to the FEMP for recycling. In 1997, a Department of Energy (DOE) programmatic use was found for these fuel rods. The NMD project had just commenced repackaging operations when the Nuclear Regulatory Commission (NRC) canceled the Certificate of Compliance (COC) for the shipping package. A pending COC revision introduced several new design features requiring modification or remanufacturing of the boxes. The revised COC was issued in late August of 1998. By October 1998, Fluor Daniel Fernald (FDF) had an agreement with a supplier to provide two packages suitable for shipping the LOFT fuel rods. Additional regulatory requirements in the COC changed the scope of work for repackaging and shipping the fuel rods. During the redesign of the process, project planners incorporated lessons learned from process improvement initiatives established in the Waste Management Division. This resulted in the completion of the Standard Startup Review (SSR) with no findings, and the completion of repackaging and shipping activities on time with flawless execution.

Analysis: The most significant factors that contributed to the success of the NMD Project's LOFT Fuel Rod Repackaging were:

A dedicated team was assembled with representatives of NMD Project Operations, Radiological Control Technicians, Hoisting and Rigging, Heavy Equipment, Material Control and Accountability, Packaging Certification and Shipping Compliance, Nuclear Criticality Safety, and Quality Assurance. This team worked together through training, mockups and operations as a single, coordinated unit.

The operations team worked out all the problems with the process and procedures by objectively evaluating the mock-up, and repeatedly performing the operation. In the end, all aspects of the job were thoroughly practiced and all participants were familiar and confident in the process.

Other factors that enhanced the performance of the operating team included:

Incorporating process improvement suggestions from the original operations team.

The task order system process improvements.

Incorporating lessons learned and advice from the Independent Safety Review Committee (ISRC), specifically in the area of handling the rods.

Incorporating lessons learned and advice from the Technical Review Board (TRB).

Application of Integrated Safety Management principles. Roles and responsibilities for safety were clearly defined; the experience and skills of participating personnel were ensured to be commensurate with those responsibilities; safety requirements and standards were clearly established; hazards were mitigated through appropriate engineering and administrative controls; and startup authorization was generated through formal site processes, and with the proper level of management.

Preparations were continually evaluated by senior management, and readiness declared after all participants were convinced that the team was fully prepared. A focused and thorough SSR was completed over several days, with no findings.

Operations were conducted with full-time project management support and oversight in the field.

The operations team demonstrated flawless execution and dedication to performance excellence. The team members' attitudes toward safety in all aspects of the task were especially noteworthy.

Recommended Actions:

Use a dedicated team with clearly defined roles and responsibilities.

Thoroughly prepare for the project startup review by repeating and evaluating project operations.

Priority Descriptor: GREEN/Good Work Practice

Functional Categories (DOE): Packaging and Transportation

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