Department of Energy
Washington, DC 20585

April 24, 2024

The Honorable Joyce L. Connery
Chair, Defense Nuclear Facilities Safety Board
625 Indiana NW, Suite 700
Washington, DC 20004

Dear Chair Connery:

This letter is to document that the Department of Energy has completed Milestone 5.1.4 "Implement Best Practices and Process Enhancements Based on Results of Benchmarking Review," of the Department's Implementation Plan (IP) for Defense Nuclear Facilities Safety Board's Recommendation 2020-1, Nuclear Safety Requirements. The attached enclosure provides a summary of the activities currently in progress by the Program Offices.

The Department will continue to work towards completion of ongoing activities. Additionally, as the Secretary mentioned in her January 24th 2024, memo, the Department will remain engaged on this topic and support the Board's future activities including potential public hearings focused on aging infrastructure management.

If you or your staff have any questions, you may contact me at (301) 903-7440.

Sincerely,

Garrett Smith
Director, Office of Nuclear Safety
Office of Environment, Health, Safety, and Security
Responsible Manager, Recommendation 2020-1,
Nuclear Safety Requirements, Implementation Plan

Enclosure

Received by the Board 04.24.24

Department of Energy
National Nuclear Security Administration
Washington, DC 20585

April 18, 2024

MEMORANDUM FOR GARRETT SMITH
DIRECTOR
OFFICE OF NUCLEAR SAFETY
OFFICE OF ENVIRONMENT, HEALTH, SAFETY AND SECURITY

FROM: JESSICA KUNKLE
Jessica M. Kunkle
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Date: 2024.04.18 16:00:27 -04'00'
DEPUTY ASSOCIATE ADMINISTRATOR FOR INFRASTRUCTURE
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ROBERT SEIFERT
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OFFICE OF ENVIRONMENTAL MANAGEMENT

RICHARD VERHAAGEN
PERFORMANCE ASSURANCE AND RISK MANAGER,
OFFICE OF SAFETY AND SECURITY
OFFICE OF SCIENCE

SUBJECT: SUMMARY OF THE DEPARTMENT OF ENERGY ACTIONS TO SUPPORT IMPLEMENTATION OF BEST PRACTICES AND PROCESS ENHANCEMENTS BASED ON RESULTS OF "BENCHMARK REVIEW FINAL REPORT FOR AGING INFRASTRUCTURE MANAGEMENT"

The purpose of this letter is to document the Department of Energy's progress towards implementation of best practices and process enhancements based on results of "Benchmark Review Final Report for Aging Infrastructure Management."

In June 2022 the Department issued its "Implementation Plan (IP) for Defense Nuclear Facilities Safety Board's Recommendation 2020-1, *Nuclear Safety Requirements."* As committed to in the IP, the Offices of Environmental Management (EM), Science (SC), and the National Nuclear Security Administration (NNSA) jointly conducted a review to examine each Program Office's processes to identify, prioritize, and plan infrastructure investments, including safety related

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infrastructure, within the federal budgeting process to sustain operations and pursue long-term investment needs. The outcome of this effort was "Benchmark Review Final Report for Aging Infrastructure Management." This Benchmark Review identified common elements, best practices, and process enhancements for managing aging infrastructure to ensure continued safe operations for all infrastructure and adequate protection of workers, the public, and environment at all defense nuclear facilities. Milestone 5.1.4 of the IP commits that each Program Office responsible for defense nuclear facilities will use the final report to initiate action and implement accepted process enhancements.

The Offices of Environmental Management (EM), Science (SC), and the National Nuclear Security Administration (NNSA) are in various stages of evaluation and implementation of best practices and procedures identified in the Benchmarking report. The following provides a summary of work in progress by each of the Offices.

National Nuclear Security Administration

NNSA is currently implementing the nine best practices and five process enhancements that were detailed in Appendix B of the NNSA Benchmarking Report. The agency continues to investigate new and agile methods to address aging infrastructure and advance a suite of data-drive and risked-informed infrastructure tools to enhance infrastructure sustainment and modernization programs. NNSA is actively working Infrastructure Planning & Analysis activities, including updating the NNSA Real Property Asset Management guide and entering all active real property assets in BUILDER. NNSA has scheduled two Deep Dive meetings in Fiscal Year 2024 (SNL in June, and LLNL in July) to identify and discuss infrastructure risks, gaps, and solutions. NNSA will continue to coordinate closely with M&O partners to optimize project execution and infrastructure maintenance and sustainment activities. The NNSA best practices and process enhancement initiatives are at various levels of implementation and in progress.

Office of Environmental Management

EM is actively working towards several targets to improve tracking and ensure safe operation of EM's aging infrastructure. EM continues to work with the site field offices and Office of Management (MA) to improve FIMS data quality through the data validation process, as well as periodic data queries. The validation process and data queries have identified several opportunities for improvement in source data and information reporting. EM uses the validated FIMS data, captured in the yearend snapshot, in EM's MAP. That information is used along with input from field offices to identify needed infrastructure to support EM's mission. The MAP summarizes and visually represents what infrastructure and systems pose a risk to EM's mission due to aging infrastructure and a buildup of maintenance needs, while also providing out-year management options to mitigate the risk to the mission. One of the clearest ways that the MAP visually represents the status of site infrastructure, and systems is the use of wiring diagrams. Each site's wiring diagrams consist of utility systems that contribute to the site's mission and are color coded to represent the risk to mission the infrastructure or system poses. The MAP also includes Mission Dependency Index (MDI) summaries for each site that are based on the functionality provided by the asset against the condition of the asset amongst other metrics. In addition to the improvement of FIMS data and development of the MAP, EM plans to sponsor

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two deep dives in FY24, as well as develop a five-year schedule for sites to host deep dives. EM continues to support the Field with conduct of management oversight and maintains awareness of negative trends related to Structure, System, Component degradation that may warrant additional, focused oversight.

Office of Science

The Office of Science (SC) Pacific Northwest Site Office (PNSO) and the Pacific Northwest National Laboratory (PNNL) are in the process of reviewing the results of the benchmarking study as it applies to the 325 Radiochemical Processing Laboratory (RPL) – the only SC defense nuclear facility. The Laboratory's initial review indicates many of the best practices and process enhancements are in place. A specific example is the Nuclear Maintenance Management Program planning, scheduling, coordination and control of maintenance and repair activities for safe, efficient, and reliable operation of safety SSCs. PNNL employs a suite of procedures that meet this best practice at RPL.

The Site Office issued direction to the lab directing they determine applicability; confirm if the best practice or enhancement is in place; and whether PNNL could benefit and why or why not. The site office and the laboratory will collaborate on prioritization and implementation strategies using the results of that analysis to further SC's goal of improving infrastructure reliability and enhancing delivery of our missions. Once agreement is obtained, the Site Office and the Laboratory will develop an actionable plan that will align with the annual Laboratory Planning processes and DOE budget processes.

Department wide activities

The department has a series of best practices and process enhancements that are being implemented by all the offices. The department continues to leverage information through corporate database, FIMS, to identify risk to mission and standardize reporting. The DOE Systems Engineering programs have on-going activities to review readiness of systems supporting hazard category 1,2, and 3 nuclear facilities. DOE's Nuclear Maintenance Management Program develops plans, schedules, coordinates and controls maintenance and repair activities for safe, efficient and reliable operations of safety SSCs. DOE continues to evaluate and prioritizes the removal of obsolete or aging structures that are in shut-down to reduce cost, minimize risk, and maximize program opportunities. Safety experts are reviewing DOE Guide 443.1-1A, Section M, "Aging Degradation and Technical Obsolesces. The department is researching ways to expand the use of technology advancements to perform aging infrastructure checks, assessments, and surveys.

Received by the Board 04.24.24