Program Management Improvement Team: A Best Practice-based Approach to Process Improvement and Program Governance at the National Nuclear Security Administration

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• Semi-autonomous agency within the U.S. Department of Energy.
• Maintains and enhances the safety, security, reliability and performance of the U.S. nuclear weapons stockpile;
• Works to reduce global danger from weapons of mass destruction;
• Provides U.S. Navy with safe and effective nuclear propulsion; and
• Responds to nuclear and radiological emergencies
NA-50: NNSA Office of Safety, Infrastructure & Operations

- Responsible for maintaining, operating, and modernizing NNSA’s general purpose infrastructure – buildings, roads, power and water utilities, information systems and more
- Includes 6,000+ facilities located in seven states comprising over $50 billion in real property assets
- Annual budget approx. $1.5 billion
**NNSA INFRASTRUCTURE SNAPSHOT**

**MAINTAIN, OPERATE, AND MODERNIZE**

**A VAST AND COMPLEX ENTERPRISE**

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**THE CHALLENGE:** Aging and Declining Infrastructure

- **54%** Buildings over 40 years old
- **29%** Buildings over 60 years old
- **12%** Buildings no longer in use

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**Vision**

Safely operate and modernize our facilities to meet demands now and in the future.

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**Mission**

Maintain, Operate, and Modernize NNSA Infrastructure in a safe, secure, and cost-effective manner to enable program results.

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**Key Facts**

- **41,000** Laboratory & Plant Employees
- **2,540** Total lane miles of paved roads
- **8,000,000** Feet of fencing
- **2,160** Square miles of land area
- **38.5 Million** Square feet of facility space
- **0.5 Trillion BTUs** Annual energy consumption
- **15.2 Million ft³** Of Hazmat

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**Additional Information**

- Nearly the driving distance from DC to LA
- Enough to encode the DC Beltway 24 times
- Eleven laps around the equator
- Enough to power 250,000 homes
NNSA Infrastructure Challenges

- Annual Budget (funding & process)
- Aging & brittle facilities – many buildings 40+ years old, 30% date to Manhattan Project
- Years of deferred maintenance; risks & failures increasing
- # & range of facility characteristics + changing program requirements
- Multiple locations and contractors
- Contamination issues
New Best Practices Approach at NA-50

- Enterprise-wide rather than site-specific perspective
- Long range rather than annual planning horizon
- Focus on Program, Project and Portfolio Management (PPPM)
- Adoption of best-in-class tools and best practices
- Implementation of Enterprise Risk Management (ERM)
- Increased Emphasis on Safety and Sustainability
- Adoption of Agility as management philosophy
- Increased stakeholder engagement & teamwork
- Use of outside industry advisory team (PMIT)
Use of Best-in-class Technology

- Real Property Inventory systems for infrastructure and facilities identification and information
- BUILDER for facility condition assessments
- Mission Dependency Index (MDI) for risk and priority analysis
- Award winning G2 Program Management Information System
NA-50 Program Management Improvement Team (PMIT)

- Established in September 2015
- Small cadre of private industry PM experts
- To help enhance PPPM through feedback to NA-50 leadership & sharing of best practices
- Periodic meetings with NNSA and site leadership
- Intended to provide safe, no-fault opportunities to review experiences and enhance performance

Independent Reviews are a widely-recognized Best Practice
PMIT Results to Date: Mtg 1

- 2 day meeting, ORNL (Tennessee), 20 participants
- Presentations & discussions of NA-50 mission, plans, tools & systems
- Positive observations noted:
  - Strong leadership and teamwork – Standardization of processes
  - Impressive tools, including G2, BUILDER, MDI, AMP, MAP
  - Enterprise perspective related to multi-site planning, stakeholders, supply chain
  - Commitment to agile approaches and to advancing PPPM
- PMIT Suggestions:
  - Expand enterprise planning to strategic level
  - Consider long term strategy for G2
  - Strategize for dealing with PM on larger projects
PMIT at NNSA
Abba, Pells, Shepherd
UMD Project Management Symposium
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Slide 10

PMIT Results to Date: Meeting 2

- 2.5 day meeting, LLNL (California), 50+ participants
- Deep Dive planning meeting of NNSA & site leadership to review infrastructure status, issues, plans, needs
- Positive observations noted:
  - Active & visible engagement of NNSA and site leadership – Site support of NNSA goals & plans
  - Stakeholder participation in tool development & pilot projects – Emphasis on risks & safety
  - NNSA recognition and awards for site participants (individuals and teams) – Emphasis on sustainability
  - Visible emphasis on & discussion of project management – Open discussions among stakeholders
  - Implementation of enterprise level supply chain management – recognition of tool limitations
- PMIT Suggestions:
  - Expand enterprise supply chain management to more procurements/suppliers
  - Expand sustainability to include health & safety – Continue emphasis on data quality
  - Investigate additional tools – Consider use of six sigma technique for selected process improvements
  - Continue expanding planning horizon to entire facility life cycle
  - Consider the subjects of organizational resilience and sustainability
  - Consider value of site project management offices (PMOs)
Good Practices & Lessons Learned

• NNSA Good Practices (among others)
  – Enterprise-wide approaches to planning, prioritizing, budgeting
  – Enterprise supply chain management
  – Effective use of best-in-class software tools
  – Effective use of long-range and life-cycle planning
  – Emphasis on portfolio, program & project management across the NNSA enterprise

• PMIT Lessons Learned
  – Independence of PMIT promotes open discussion
  – Recognition of good practices reinforces positive changes
  – Documentation of meeting results provides bases for positive cross-complex communications and process improvements
Summary

• NNSA must keep US nuclear facilities operating safely and efficiently, while recapitalizing & modernizing
• Vast scope & tremendous challenges exist
• Revolutionary changes underway within NNSA (NA-50) employing best-in-class tools, agile approaches and PPPM best practices
• PMIT, based on previous positive experience, can contribute to successful NA50 & NNSA mission
Thank you!