May 31, 2005

The Honorable A. J. Eggenberger
Acting Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Avenue, NW
Suite 700
Washington, D.C. 20004

Dear Dr. Eggenberger:

The purpose of this letter is to describe our path forward for improving Quality Assurance (QA) at National Nuclear Security Administration (NNSA) facilities. The enclosed Roadmap for Nuclear Facility Quality Assurance Excellence will help us improve the effectiveness of the NNSA QA infrastructure for both safety systems and safety software. It provides us with an improved planning basis for effective QA.

The Roadmap identifies a series of actions, scheduled for completion in June 2006, to improve QA implementation. It also calls for completion of contractor QA effectiveness reviews by June 2007. It builds from, replaces and enhances the prior approach for NNSA actions as described in the Department's Quality Assurance Improvement Plan for Defense Nuclear Facilities, provided to you in November 2002. Further, it fully supports and extends NNSA commitments in the Department's Implementation Plan for Quality Assurance for Safety Software.

The Roadmap consists of three focus areas: 1) People, 2) Programs, and 3) Processes. Currently, there are 16 Mile markers in the Roadmap, each one representing an actionable plan with desired end state, milestones, and champions. The champions and team members are from NNSA Federal and contractor organizations.

The Roadmap effort is being closely coordinated with other Departmental and NNSA initiatives, such as the Implementation Plan for DNFSB Recommendation 2004-1, *Oversight of Complex, High-Hazard Nuclear Operations,* and NNSA Safety Professional Career Development Program. The Roadmap will be reviewed and updated periodically. We will provide updates to your staff as activities are completed and also as a part of our quarterly QA briefings. The Deputy Administrator for Defense Programs will serve as the approving official for updates to the Roadmap and will keep me apprised of the progress.

If there are any questions regarding the Roadmap, please have members of your staff contact Rabi Singh of the Office of Operations and Construction Management at (301) 903-5864.

Sincerely,
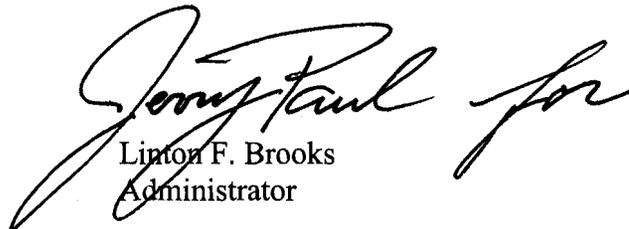
Linton F. Brooks
Administrator

Enclosure

cc w/enclosure:
M. Whitaker, DR-1
J. S. Shaw, EH-1

NNSA

National Nuclear Security Administration

Roadmap for
Nuclear Facility Quality Assurance Excellence

DISTRIBUTION:
All NNSA including M&O Contractors

Approved by: _____

Acting Deputy Administrator
for Defense Programs

Roadmap for Nuclear Facility Quality Assurance Excellence

Integrated/Effective Infrastructure for Safety System and Safety Software QA

Processes

Programs

People

Every Journey Needs a Plan and a Roadmap

Table of Contents

Mile Marker	Desired End State	Champions (Federal / Contractor)
People (The WHO)		
1	Clear Roles and Responsibilities	Rabi Singh, NNSA HQ / Tom Bargeloh, LANL
2	Knowledgeable Feds and Contractors in QA and Safety	Jim Mangeno, NNSA HQ / John Palmer, LLNL
3	Safety Culture	Dick Crowe, NNSA HQ / Chuck Moseley, BWXT Y12
Programs (The WHAT)		
4	Clear Requirements, Standards, and Guidance for QA	Paul Chimah, NNSA SC / Chuck Moseley, BWXT Y12
5	Clear Requirements, Standards, and Guidance for Safety Software QA	Sherry Hardgrave, YSO / Debra Williams, BWXT Y12
6	Clearly Defined QA Requirements (Rules, Orders, etc.) in the Contract	Nate Morley, NNSA SC / Keith Morrell, WSRC
7	Balanced Priorities (Safety and Quality, Operations, and Production)	Walt Lips, NNSA HQ / Dave Chaney, NNSA SC / Larry Pendexter, LLNL
8	Consistent Flowdown of QA Requirements from NNSA to M&O Contractors to Subcontractors and Vendors	C. T. Shen, YSO / Luis Soler, LLNL / Frank Denny, BWXT Y12 / Barbara Boyle, SNL
9	Integration of QA with ISM	Mike Marelli, NSO / Rick Kendall, NNSA HQ / Barbara Boyle, SNL
10	Safety Software QA is Institutionalized at Each Site	Sherry Hardgrave, YSO / Debra Williams, BWXT Y12
11	Clear Lists of Structures, Systems, and Components (SSCs) / Safety Software	Adeliza Cordis, LSO / Barbara Campbell, LLNL
Processes (The HOW)		
12	Management Assessments Effectively Self-Identify QA Issues	C. T. Shen, YSO / Vince Grosso, WSRC
13	Timely and Effective Corrective Action	Greg Baker, PXSO / Vince Grosso, WSRC
14	Sitewide Integrated Issues Management System	Rabi Singh, NNSA HQ / Diane McCarten, YSO / Carol Burditt, BWXT Y12
15	Effective Implementation of QA Programs and Procedures	Dan Osburn, LSO / Vince Grosso, WSRC
16	Effective Federal Oversight	Dave Chaney, NNSA SC/Mike Marelli, NSO/Kathy Brack, BWXT Pantex
--	Acronyms (last page)	

PEOPLE (The WHO – examples include roles and responsibilities, skills, knowledge, and culture)					
Desired End State	**Covered By**	**Applicability**	**Present State**	**Gap**	**Champions**
1. Clear Roles and Responsibilities Roles and responsibilities must be well defined and consistently implemented. To be consistent, processes must be used to implement roles and responsibilities at each level of the organization. For the Federal Employees, this will be at the FRAM and QAP level. Contractors will have equivalent documentation describing roles, responsibilities, and authorities. The Federal Employees and contractors have developed and implemented mechanisms that clearly describe how roles and responsibilities are executed. The Federal Employees and contractors have developed and implemented processes for updating roles and responsibilities documents.	2004-1 P450.4	Federal Employees/ Contractor	Roles and responsibilities are inconsistently defined and implemented. Implementing processes are either incomplete or non-existent.	Incomplete HQ and Site Office FRAMs and QAPs/Contractor QAPs, ISMSDs.	**Rabi Singh, NNSA/HQ (Federal lead)** **Tom Bargeloh, LANL (Contractor lead)** Kathy Brack, BWXT Pantex Paul Chimah, NNSA SC

Path Forward

1. Coordinate activities with 2004-1 implementation team and revise FRAMs, QAPs, ISMSDs and contractor roles and responsibilities documentation as needed.
2. NA-10 provide direction for the development, review, approval, implementation, and assessment of federal and contractor roles and responsibilities documentation.
3. Implement NA-10 direction regarding FRAMs, QAPs, and contractor roles and responsibilities documentation.
4. Assess implementation of FRAMs, QAPs, and contractor roles and responsibilities documentation.
5. Develop processes to update FRAMS, QAPs, and other documents containing roles and responsibilities.

Deliverables / Milestones	**Schedule**
Federal 1. Initial Site Office FRAMs reviewed and feedback obtained. 2. Revised NNSA HQ FRAM. 3. Revised Site Office FRAMs. 4. Approved NNSA QAP. 5. Revised Site Office QAPs. 6. Process developed for updating and integrating documents containing roles and responsibilities (FRAMs, QAPs, ISMSD). 7. NNSA peer team verify implementation of HQ/Site Office FRAMs/QAPs. Contractor 1. Survey industry standards for attributes of QA R2A2s. 2. Draft good practices for R2A2s in QAPs, ISMSDs including process for updating these documents. 3. Obtain workshop participants' comments. 4. Provide survey to contractors to evaluate performance against good practices. 5. Evaluate results of survey. 6. Plan and implement actions, as necessary.	Completed except LASO Completed 2/05 5/05 11/05 2/06 3/06 6/06 6/05 7/05 8/05 9/05 – 11/05 12/05 1/06 – 6/06

PEOPLE (The WHO – examples include roles and responsibilities, skills, knowledge, and culture)					
Desired End State	**Covered By**	**Applicability**	**Present State**	**Gap**	**Champions**
2. Knowledgeable Feds and Contractors in QA and Safety A highly skilled and experienced staff with competence commensurate with responsibilities is mandatory for successful completion of mission goals.	DNFSB 2004-1, DNFSB 2002-1, Chiles Commission, Safety Analysis Working Group/ EFCOG, NNSA Safety Professional Career Development Program, CAIB DOE P450.4.	Federal Employees/ Contractor	• Human Capital Management concerns exist that require management attention to assure that future workforce is right-sized and right skilled to the current and future workload, facilities and operations. • Senior management needs to be better informed on the projection of requirements for future workloads, facilities and operations. • Lack of consistent implementation of Technical Qualification Program (TQP). • Lack of consistent graded approach to TQP. • Lack of equivalent TQP for contractors. • Lack of "value added"/performance based testing. • Lack of certified training or clearinghouse for training (what training programs actually meet NNSA requirements?).	Imbalance between numbers of workers and skill set required for the current and future workload, facilities and operations and current cadre of subject matter experts at Federal Offices and M&O contractors.	**Jim Mangeno, NNSA (Federal lead)** **John Palmer, LLNL (Contractor lead)**
	Path Forward				
	1. Federal and contractor organizations establish processes to train/mentor replacement staff. Must include career planning. Develop the NNSA Safety Professional Career Development program consistent with the DOE Implementation of DNFSB Recommendation 2004-1 and Columbia Accident Investigation Board follow-up. 2. Review progress on TQP, Staffing summit, Knowledge Preservation (93-6), Chile's Review, 5480.20A review. Incorporate results into NNSA QA Roadmap effort. 3. Provide the NNSA Safety Professional Career Development program to EFCOG for potential application to contractor personnel. 4. Revise FRAMs to include assignments for recruiting and mentoring qualified staff. 5. Contractors establish programs for retention of corporate knowledge. 6. Inform Site Offices and Service Center of gaps in training and qualification; then identify when gaps will be addressed. 7. Identify NNSA and contractor staff-that-need QA/SQA training. 8. Ensure commitments in DNFSB 2004-1 Implementation Plan are addressed (IP commitment #16, structured training).				
	Deliverables / Milestones				**Schedule**

PEOPLE (The WHO – examples include roles and responsibilities, skills, knowledge, and culture)		
	Federal	
	1. Identification of staff requiring SQA training and qualification (DNFSB 2002-1).	Completed 11/04
	2. SQA initial training for NNSA employees has been provided (DNFSB 2002-1).	Completed 5/04
	3. SQA qualification for required staff (DNFSB 2002-1).	6/05
	4. Draft NNSA Safety Professional Career Development program, including QA elements, issued.	8/05
	5. Status report on implementation of Technical Qualification Program for QA/Safety at Sites.	9/06
	6. Verification that DNFSB 2004-1 Implementation Plan commitments have been addressed.	TBD
	7. QA/Safety professional qualification program implemented.	TBD
	Contractor	
	1. Proposal to EFCOG QA Subgroup on Training and Development Task Team to survey EFCOG members on qualification programs (begin with Quality Engineers, then expand to others).	Completed 4/05
	2. Complete survey and report to Workshop.	8/05
	3. Brief EFCOG on results.	11/05
	4. Review current Site Requests for Proposals for knowledge retention and recommend changes.	12/05

PEOPLE (The WHO – examples include roles and responsibilities, skills, knowledge, and culture)					
Desired End State	Covered By	Applicability	Present State	Gap	Champions
3. Safety Culture A safety culture encourages technical inquisitiveness. It is engrained in the work force as a 24/7 lifestyle. It is a people system not a paper system. To be effective, management must be the example and personally affirm the standard for safety and quality. Accountability must be built into the system. The principle must be integrated into all training and processes, not an "add on." The system must address both high consequence-low probability and low consequence-high probability events.	DNFSB 2004-1, the CAIB, Davis-Besse incident.	Federal Employees/ Contractor	NNSA senior management needs to reinforce sustained safety improvement.	Lack of clear expectations for safety culture.	**Dick Crowe, NNSA (Federal lead)** **Chuck Moseley, BWXT Y12 (Contractor lead)** Al MacDougall, SC

A healthy safety culture should level to fewer safety and quality assurance discrepancies, a positive trend in safety/QA metrics, and trust that there will be no retribution against (and possibly rewards for) people who identify issues.

Path Forward

1. Direct implementation of CAIB safety culture recommendations.
2. Develop a safety culture policy that is implemented at all levels with demonstrated and continuous safety attitude.
3. Begin assessing safety culture and provide feedback for continuous improvement.

Deliverables / Milestones	Schedule
1. Safety Culture Policy and implementation plan. 2. Safety culture assessments and feedback.	7/05 Beginning 7/06 and annually thereafter.

PROGRAMS (The WHAT – examples include resources, requirements and scope)					
Desired End State	**Covered By**	**Applicability**	**Present State**	**Gap**	**Champions**
4. **Clear requirements standards / guidance for QA** (See Mile Marker 6)	DNFSB 95-2 DOE P450.4	Federal Employees/ Contractor	Federal Employees and Contractors have inconsistent interpretations of DOE Orders and guidance.	Inconsistent applications exist.	**Paul Chimah, NNSA Service Center (Federal lead)** **Chuck Moseley, BWXT Y12 (Contractor lead)** John Palmer, LLNL

Path Forward
1. Issue survey to evaluate the quality of guidance, i.e., solicit feedback from complex on the guidance that exists or is needed.
2. Depending on survey results, identify any new needed guidance or revisions to existing documents.
3. Provide EH recommendations for revision to DOE O 414.1B/1C (draft) and guidance to clarify requirements for Feds and Contractors.
4. During annual QAP review process, evaluate needed changes to guidance as appropriate.

Deliverables / Milestones	**Schedule**
1. QA survey issued by Nancy Day.	Completed 11/04
2. Surveys returned.	Completed 12/04
3. Survey results reviewed at NNSA QA Workshop.	Completed 12/04
4. Need for additional guidance identified.	Completed 12/04
5. Recommendations provided to EH for revisions to DOE O414.1B/414.1C (draft).	Completed 1/05
6. Provide recommendations for revisions to directive system.	Completed 12/04
7. Redesign and re-survey NNSA complex upon issuance of anticipated DOE. requirements/guidance documents, e.g., DOE O414.1C, DOE Guides, QC-1 rev. 10.	8/05
8. Evaluate results of survey and take appropriate action to include providing supplemental NNSA guidance.	11/05
9. Annually review appropriate requirements, standards, and guidance.	Ongoing

PROGRAMS (The WHAT – examples include resources, requirements and scope)					
Desired End State	**Covered By**	**Applicability**	**Present State**	**Gap**	**Champions**
5. Clear requirements / standards and guidance for safety software QA (See Mile Marker 10)	DNFSB 2002-1 DOE P450.4	Federal Employees/ Contractor	No DOE Order or guidance exists for SQA. Draft Order 414.1C and associated guide are in RevCom for review and comment.	Inconsistent results due to the lack of SQA requirements.	**Sherry Hardgrave, YSO (Federal lead)** **Debra Williams, BWXT Y12 (Contractor lead)** Barbara Campbell, LLNL

Path Forward
1. Complete the review of DOE Order 414.1C and Guide.
2. Consider: Lessons learned from SQA assessments in the development of DOE Order 414.1C.
3. Review other industry standards for applicability.

Deliverables / Milestones	**Schedule**
1. DOE Order 414.1C review and comment.	Completed 12/04
2. DOE Guide 414.1-4 SQA Guide review and comment.	Completed 12/04
3. Technical objectives for software/SQA based on 10 CFR 830.	Completed 3/05
4. SQA standards in NNSA Safety Software Quality Good Practices Handbook (see Mile Marker #10).	8/05

PROGRAMS (The WHAT – examples include resources, requirements and scope)					
Desired End State	Covered By	Applicability	Present State	Gap	Champions
6. Incorporate QA requirements (rules, orders, etc.) in the contract (See Mile Marker 4)	DNFSB 95-2	Federal Employees/ Contractor	All QA requirements not defined in the contract.	Lack of all QA requirements in contract.	**Nate Morley, NNSA SC (Federal lead)** **Keith Morrell, WSRC (Contractor lead)**

Path Forward

1. Survey sites for core set of QA source documents and requirements in the contract.
2. Develop minimum core set of QA source documents and requirements based on survey results.
3. NNSA HQ to provide clear QA expectations to the Site Offices based on survey results.
4. Site Offices to provide clear QA expectations in contracts and annual performance objectives.

Deliverables / Milestones	Schedule
1. Survey on QA contract requirements.	Completed 11/04
2. Survey results to NNSA HQ.	Completed 12/04
3. Results of analysis.	Completed 2/05
4. Recommendation to NNSA HQ and input to Mile Marker #15 (Requirements, Standards, Guidance).	Completed 3/05
5. Present survey results and determine path forward at next workshop.	8/05

PROGRAMS (The WHAT – examples include resources, requirements and scope)					
Desired End State	**Covered By**	**Applicability**	**Present State**	**Gap**	**Champions**
7. **Balanced priorities (safety and quality, operations, and production)**	DNFSB 95-2 DOE P450.4	Federal Employees/ Contractor	The process for prioritizing and integrating safety and quality into operations and production planning decisions is not clearly defined. In particular, Program, Safety and Quality are not balanced in contract incentives.	NNSA decision-making processes address safety and quality incompletely or inconsistently.	**Walt Lips, NNSA HQ (Federal lead)** **Larry Pendexter, LLNL (Contractor lead)** **Dave Chaney, NNSA SC**

Path Forward
1. Present Roadmap to NNSA Management Council to obtain endorsement.
2. Incorporate Roadmap deliverables into NNSA Program Guidance Milestones.
3. Incorporate NNSA Site Office/contractor progress reports on Roadmap Mile Markers in NNSA Quarterly Program Reviews.
4. Develop process to balance priorities.
5. Compile list of QA performance objectives and/or incentives in Site contracts.
6. Present to NNSA-HQ Contract Improvement Team.
7. NNSA (NA-10) provide annual expectations to Sites.
8. Incorporate in NNSA Corporate Performance Evaluation Process (CPEP) for M&O's.

Deliverables / Milestones	**Schedule**
1. NNSA Management Council endorsement of Roadmap.	Completed 4/05
2. Process to balance priorities.	Completed (NAP-5), 4/05
3. Include Roadmap deliverables in NNSA Program Guide Milestones and CPEP.	Starting 7/05
4. Site Office/Contractor progress reports in Quarterly Program Reviews.	Starting 7/05
5. Review and Implement CPEP for 2005.	7/05 – 9/05

PROGRAMS (The WHAT – examples include resources, requirements and scope)					
Desired End State	Covered By	Applicability	Present State	Gap	Champions
8. **Consistent flow down of QA requirements from NNSA to M&O contractors to subcontractors and vendors**	DOE P450.4 DEAR clause ISM clause	Federal Employees/ Contractor	M&O contracts and subcontracts incompletely incorporate and flow down QA requirements.	Inadequate and/or inconsistent of requirements flow down.	**C.T. Shen, YSO (Federal lead)** **Luis Soler, LLNL (Contractor lead)** **Barbara Boyle, SNL** **Frank Denny, BWXT Y12**

Path Forward

1. Review the QAIP 3.3 assessments to see what they indicate about each site's QA procurement, design, construction documents to identify target areas for improvement.
2. Review the M&O contracting process for flow down of quality requirements.

Deliverables / Milestones	Schedule
1. Summary of identified weakness from QAIP 3.3 assessments presented to workshop.	Completed 12/04
2. Develop Summary Report and submit to R. Singh.	Completed 1/05 Completed 2/05
3. Review sample of prime contracts for QA flow down requirements for contractor and subcontractors.	Completed 3/05
4. Develop draft flow down criteria for procurement.	Completed 3/05
5. Present draft criteria/strategy at workshop.	Completed 4/05
6. Solicit review and comments.	8/05
7. Team meeting to develop roll out strategy.	9/05
8. Resolve comments and redraft criteria.	10/05
9. Present draft criteria and strategy for implementation to DNFSB.	11/05
10. Present draft criteria to NNSA senior management and solicit approval to go forward.	12/05
11. Implementation of criteria.	6/06
12. Peer review team verifies implementation.	9/06
13. Develop criteria for the flowdown of ISM DEAR clause requirements, if needed.	

PROGRAMS (The WHAT – examples include resources, requirements and scope)					
Desired End State	**Covered By**	**Applicability**	**Present State**	**Gap**	**Champions**
9. Integration of QA with ISM	DNFSB 2004-1 DOE P450.4	Contractor	Not fully integrated at all sites.	Implementation at the program level has not flowed down to the work activity level.	**Mike Marelli, NSO (Federal lead)** **Rick Kendall, NNSA** **Barbara Boyle, SNL (Contractor lead)** Craig Barnes, NTS Dave Torczon, LASO Paul Chimah, NNSA Svc. Ctr. Luis Soler, LLNL Mike Hillman, EH

Path Forward
Priority focus is on nuclear (Cat 1, 2, 3 and <Cat 3) facilities safety system related work control. A review of the most successful processes will be performed to identify key principles and attributes. Special attention will be given to improve the integration of QA criteria into work planning and control associated with nuclear facility credited safety Structures, Systems, and Components. Lessons learned will be integrated into an NNSA guidance document.

Deliverables / Milestones	**Schedule**
1. Identify principles and attributes of an effective Work Planning and Control program that integrates ISM Core Functions, Principles, and QA criteria.	6/05
2. Draft guide on work control for initial NNSA complex review.	7/05
3. A completed guide that incorporates NNSA comments.	8/05
4. Letter to Site Offices promulgating guide and HQ expectations.	9/05
5. Site Office verification of contractor integration of QA with ISM.	11/05 – 6/07

PROGRAMS (The WHAT – examples include resources, requirements and scope)					
Desired End State	**Covered By**	**Applicability**	**Present State**	**Gap**	**Champions**
10. Safety software quality assurance is institutionalized at each site (See Mile Marker 5)	DNFSB 2002-1	Federal Employees/ Contractor	Software quality assurance is not institutionalized at all sites.	Sites are at varying stages of development and implementation.	**Sherry Hardgrave, YSO (Federal lead)** **Debra Williams, BWXT Y12 (Contractor lead)** Keith Morrell, WSRC Barbara Campbell, LLNL Johnnie Nevarez, NNSA SC Dennis Adams, NNSA SC Cliff Ashley, RL/ORP Don Schilling, KCP

Path Forward	
1. Develop lessons learned from SQA assessments. 2. Determine actions to improve SQA assessment process for inclusion into Handbook. 3. Develop handbook on NNSA safety software quality. 4. Review DOE SQA Guide and determine if NNSA comments on original CRADs were incorporated; if not, determine need for clarification in the Handbook. 5. Develop training materials on Handbook and incorporate into Site training programs. 6. Train NNSA Federal Employees and Contractors on Handbook. 7. Assess Site programs for verification of implementation. 8. Update Handbook annually, if needed, based on lessons learned.	

Deliverables / Milestones	**Schedule**
1. Lessons learned finalized at Aug. 2004 NNSA QA workshop.	Completed 11/04
2. Develop NNSA Safety Software Quality Good Practices Handbook.	9/05
3. NNSA Workshop Handbook Training Session.	11/05
4. Assess Site programs for verification of implementation using peer review teams.	1/06 – 6/06

PROGRAMS (The WHAT – examples include resources, requirements and scope)					
Desired End State	**Covered By**	**Applicability**	**Present State**	**Gap**	**Champions**
11. Clear lists of Structures, Systems and Components (SSCs) / safety software (includes Design & Analysis software as defined in SQAIP)	DNFSB 2002-1 2000-2	Contractor	All sites have not submitted safety software lists to HQ. Lists to be validated.	Incomplete and unvalidated lists of safety software.	**Adeliza Cordis, LSO (Federal lead)** **Barbara Campbell, LLNL (Contractor lead)** Rick Kendall, NNSA HQ Site POCs: Site NNSA Contractor SRS Zweifel Morrell LANL Keithhold Peterson SNL Hamilton Royce PX Baker Ward Y12 Hardgrave Williams NV Sanchez French EM Ashley

Path Forward
Complete the SSC/lists of safety software. Validate and address identified gaps.

Deliverables / Milestones	**Schedule**
1. Validated SSC list.	Completed 9/04
2. Send out consolidated list of safety software and definitions (Barbara Campbell).	Completed 12/04
3. Y-12 Validation process (examples by D. Williams/Y12 send 12/04).	Completed 12/04
4. Each site contact reviews and responds.	Completed 2/05
5. Apply definitions consistently (SQAIP definitions, SQAS meeting).	Completed 3/05
6. Develop NNSA validation process.	Completed 3/05
7. Validate consolidated list of safety software.	6/05
8. Develop and implement process for configuration management of software lists.	12/05

PROCESSES (The HOW – examples include conduct of operations, corrective actions and implementation)					
Desired End State	**Covered By**	**Applicability**	**Present State**	**Gap**	**Champions**
12. Management assessments effectively self-identify QA issues	DNFSB 2002-1 2004-1	Contractor	Management assessments may not be identifying all significant issues.	Inconsistent rigor and comprehensiveness of self-assessments.	**C.T. Shen, YSO (Federal lead)** **Vince Grosso, WSRC (Contractor lead)** John Sanchez, NSO Sally Sullivan, BN Dave Torczon, LASO Greg Betzen, KCSO Vaughn Hooks, BWXT Y12 Luis Soler, LLNL

Path Forward
1. Develop/refine key attributes for effective contractor assessment mechanism and metrics.
2. Obtain final team review and consensus on the key attributes.
3. Develop Assessment Performance Baseline survey.
4. Distribute survey to baseline site assessment mechanism/metrics against key attributes.
5. Collect/analyze survey results. Determine baseline effectiveness against key attributes.
6. Peer review team develops recommendations to improve site assessment mechanisms.
7. Review recommendations with HQ sponsor, at next Workshop, then issue to Site Offices.
8. Site Offices implement changes as appropriate.
9. Conduct peer reviews to evaluate assessment effectiveness in identifying contractor QA issues.

Deliverables / Milestones	Schedule
1. Presentation of Y12 model at December 2004 QA Workshop.	Completed 12/04
2. Team formed to review model and develop best practices.	Completed 12/04
3. Develop Key Attributes of an effective contractor assessment mechanism (based on INPO and NNSA metrics).	6/05
4. Develop an Assessment Performance Baseline survey based on the Key Attributes.	7/05
5. Distribute survey to contacts at each site to baseline their assessment mechanism and metrics against the key attributes.	8/05
6. Analyze results of survey data to determine effectiveness of site contractor assessment mechanism against the key attributes.	9/05
7. Develop and review improvement recommendations at next Workshop.	10/05 10/05
8. Issue improvement recommendations for site contractor assessment mechanisms to each site.	3/06
9. Site office and contractors determine changes/revisions to their site assessment mechanisms and implement improvements.	6/06
10. Peer review team evaluates effectiveness of site assessment mechanism in identifying QA issues and reducing issues.	12/06

PROCESSES (The HOW – examples include conduct of operations, corrective actions and implementation)					
Desired End State	**Covered By**	**Applicability**	**Present State**	**Gap**	**Champions**
13. Timely and effective corrective action		Federal Employees/ Contractor	Some corrective actions are ineffective and/or delayed.	Processes are inconsistent and management is unaware of delays and implementation difficulties.	**Greg Baker, PXSO (Federal lead)** **Vince Grosso, WSRC (Contractor lead)** Barbara Boyle, SSO Dave Torczon, LASO Shirley Wilson, BWXT Y12 Amy Arceo, BN Kathy Brack, BWXT Pantex

Path Forward
1. Identify corrective action guidance documents (e.g. EFCOG white paper, others).
2. Sample Sites to identify good practices.
3. Analyze guidance documents and Site practices to determine good practices.

Deliverables / Milestones	**Schedule**
1. EFCOG white paper reviewed.	Completed 3/05
2. Site survey completed.	Completed 3/05
3. Draft NNSA expectations using INPO and EFCOG documents.	6/05
4. Present NNSA expectations for Corrective Action Process at next workshop.	8/05
5. NNSA HQ provide expectations to Site Offices and contractors based on good practices.	11/05
6. Peer review team evaluate effectiveness of corrective action program.	5/06

PROCESSES (The HOW – examples include conduct of operations, corrective actions and implementation)					
Desired End State	**Covered By**	**Applicability**	**Present State**	**Gap**	**Champions**
14. Sitewide integrated issues management system	Dr. Beckner memo dated 11/23/04	Federal Employees/ Contractor	Tracking systems not integrated at all sites.	Not all sites have integrated processes.	**Rabi Singh, NNSA-HQ & Diane McCarten, YSO (Federal leads)** **Carol Burditt, BWXT Y12 (Contractor lead)**

Path Forward
1. Develop and maintain an integrated issues management system.

Deliverables / Milestones	**Schedule**
1. YSO/BWXT Y12 presentation of concept at demo at 4th NNSA QA workshop.	Completed 8/04
2. YSO/BWXT Y12 demo of their integrated system at HQ (See NNSA QA website for description of YSO/BWXT Y12 integrated system).	Completed 11/04
3. NNSA Leadership Coalition presentation.	Completed 11/04
4. Workshop at Y12 to develop implementation plan/action.	Completed 1/05
5. Site Office implementation plans to NNSA.	Completed 1/05
6. Review progress and lessons learned with Mile Marker #13 in a workshop during EFCOG meeting.	Completed 4/05
7. Each Site Office and contractor has an integrated issues management system.	6/05
8. Peer team verification of integrated issues management system.	12/05

PROCESSES (The HOW – examples include conduct of operations, corrective actions and implementation)					
Desired End State	**Covered By**	**Applicability**	**Present State**	**Gap**	**Champions**
15. Effective implementation of QA programs and procedures		Federal Employees/ Contractor	Inconsistent implementation of procedures for design, procurement, fabrication, construction, and operation.	Lack of effective implementation of procedures/ programs.	**Dan Osburn, LSO (Federal lead)** **Vince Grosso, WSRC (Contractor lead)** **(See *)**

*Site POCs:

Site	NNSA	Contractor
SRS	Zweifel	Grosso
LANL	Torczon	Bargeloh
SNL	Dilley	Dickenson
PX	Baker	Brack
Y12	Glasman	Moseley
LLNL	Osburn	Palmer
KC	Betzen	Gillespie
NV	Marelli	Barnes

Path Forward

This Mile Marker will evaluate the implementation of other Mile Markers as well as the effectiveness of QA implementation at NNSA Site Offices and Contractor sites. Before the effectiveness of QA implementation can be ascertained, there must be reasonable assurances that the QA Programmatic requirements are adequately defined, tailored to each site, and documented from the institutional site level down through the activity levels at each site.. Also, there must be a process in place to assure on an ongoing basis that QA is effectively implemented at NNSA sites. .This is accomplished by the Contractors' management assessment, self-assessment, independent assessment, and other processes.. Effective Federal oversight verifies that Contractors are effectively implementing QA. .Other key Roadmap Mile Markers are addressing each of these requirements, but need to be verified.. As such, the path forward for this Mile Marker includes the following steps:

1. Develop expectations on what constitutes effective QA implementation for NNSA Complex at the Headquarters, Site Office, Contractor, and Subcontractor levels.
2. Evaluate desired end state products from other Mile Markers and incorporate attributes into Mile Marker 15 activities.
3. The Site Offices and contractors evaluate their QA Program against NNSA expectations, identify gaps, and use a graded approach to develop a plan to achieve the expectations.
4. Site Offices conduct assessments to evaluate key aspects of the contractor's QA performance.

Deliverables / Milestones	**Schedule**
1. Key Site contacts identified.	Completed 12/04
2. Complete development of Quality Assurance criteria that identifies what constitutes effective QA implementation within the NNSA Complex at the Headquarters, Site Office, Contractor, and Subcontractor levels.	12/05
3. Team evaluates deliverables from other Mile Markers.	06/06
4. Headquarters, Site Offices and Contractors each evaluate their QA Program(s) implementation.	09/06
5. Site Offices assess contractor QA program implementation.	06/07

PROCESSES (The HOW – examples include conduct of operations, corrective actions and implementation)					
Desired End State	**Covered By**	**Applicability**	**Present State**	**Gap**	**Champions**
16. **Effective Federal oversight**	DNFSB 2004-1 DOE O 226.1	Federal Employees	Federal oversight is not consistent among sites.	Federal oversight processes not fully developed and consistently implemented at all sites.	**Dave Chaney, NNSA SC & Mike Marelli, NSO (Federal lead)** **Kathy Brack, BWXT Pantex (Contractor lead)**
	Path Forward				
	See 2004-1 (Section 5.1.2)				
	Deliverables / Milestones				**Schedule**
	See 2004-1 (Section 5.1.2): • CRAD for Federal oversight; • Safety Oversight Manual (DOE Manual 226.1); • Verification of DOE Policy, Order, and Manual implementation; and • NNSA HQ assess Site Office QA program implementation consistent with DNFSB 2004-1 Implementation Plan.				6/05 6/06 11/07 In accordance with 2004-1 schedules.

Listing of Roadmap Acronyms

A – L	M - Z
BN - Bechtel Nevada	M&O - Management and Operating
BWXT Pantex - Pantex Operating Contractor	NAP - NNSA Policy
BWXT Y12 - Y12 Operating Contractor	NNSA - National Nuclear Security Administration
CAIB - Columbia Accident Investigation Board	NSO - Nevada Site Office
Cat - Category	NTS - Nevada Test Site
CFR - Code of Federal Regulations	POCs - Points of Contact
CPEP - Corporate Performance Evaluation Process	PXSO - Pantex Site Office
CRAD - Criteria, Review, and Approach Document	QA - Quality Assurance
DEAR - Department of Energy Acquisition Regulations	QAIP - Quality Assurance Improvement Plan
DNFSB - Defense Nuclear Facilities Safety Board	QAP - Quality Assurance Program
DOE - Department of Energy	R2A2s - Roles, Responsibilities, Accountabilities, and Authorities
EFCOG - Energy Facility Contractors Group	RL/ORP - Richland Office of River Protection
EH - DOE Office of Environment and Health	SC - Service Center
EM - DOE Office of Environmental Management	SNL - Sandia National Laboratories
FRAM - Functions, Responsibilities and Authorities Manual	SQA - Software Quality Assurance
HQ - Headquarters	SQAIP - Software Quality Assurance Implementation Plan
INPO - Institute of Nuclear Power Operations	SQAS - Software Quality Assurance Subcommittee
IP - Implementation Plan	SRS - Savannah River Site
ISM - Integrated Safety Management	SSCs - Structures, Systems, and Components
ISMSD - Integrated Safety Management System Description	SSO - Sandia Site Office
KCP - Kansas City Plant	TBD - To Be Determined
KCSO - Kansas City Site Office	TQP - Technical Qualification Program
LANL - Las Alamos National Laboratory	WSRC - Westinghouse Savannah River Company
LASO - Las Alamos Site Office	YSO - Y12 Site Office
LLNL - Lawrence Livermore National Laboratory	
LSO - Livermore Site Office	