

PROJECT EXECUTION PLAN

Project: Environmental Restoration Projects

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Number: PEP-EM-4028

Revision Number: 6

National Security Technologies LLC
Vision • Service • Partnership

National Security Technologies Project Execution Plan for Environmental Restoration Projects PEP-EM-4028 Revision 6

Instructions: This Project Execution Plan supersedes the following document:

Title: Project Execution Plan for Environmental Restoration Projects

Reference No.: PEP-EM-4028

Rev. No.: 5

This Project Execution Plan incorporates the following changes:

Change No.

Dated

This Project Execution Plan has undergone a complete revision to remove all references to the previous contractor.

Thomas A. Shield

Project Manager

Art P...

Environmental Restoration Manager Approval

6/5/07

Date

6/11/07

Date

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1.0 PROJECT DESCRIPTION

1.1 DEFINE WORK SCOPE

The National Security Technologies, LLC (NSTec) Environmental Restoration (ER) projects addressed in this Project Execution Plan (PEP) are each covered by a distinct and separate scope of work (SOW). Each SOW is developed for a U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office (NNSA/NSO) Environmental Restoration Sub-Project. Each SOW is subdivided into tasks that are executed separately. The projects and their work groups are described below. In nearly all cases, the non-contact work aspect of the project (i.e., project management, planning, estimating, cost and schedule controls, performance assurance, baseline maintenance, technical document preparation and coordination, and oversight of work execution) is conducted by the ER Project Team. The majority of the contact work aspect of the projects is performed by various support organizations. The hazards and hazard controls associated with their work is documented in the support organizations' execution plans and work control packages.

The SOW for the Industrial Sites Sub-Project consists of managing the field activities, post-closure monitoring, and other associated support activities related to the remediation and closure of the Industrial Sites. The Industrial Sites Sub-Project consists of approximately 1,000 Corrective Action Sites (CASs) grouped into approximately 200 Corrective Action Units (CAUs). The CAUs are located at the Nevada Test Site (NTS) and the Tonopah Test Range (TTR). Further details on the specific activities to be performed by the ER Project Team are provided in the *Fiscal Year (FY) 2007 Industrial Sites Sub-Project Task Plan*.

The SOW for the Soils Sub-Project consists of managing the remediation and associated support activities related to the Soils Site CAUs. Further details on the specific activities to be performed by the ER Project Team are provided in the *FY 2007 Soils Sub-Project Task Plan*.

Other work scope consists of responding to requests for proposal and managing the remediation of Defense Threat Reduction Administration (DTRA) *Federal Facilities Agreement and Consent Order* (FFACO) CAUs. These activities are funded by DTRA and are not included in ER task plans. The primary FY 2007 SOW is the closure of the Area 12 T-Tunnel and the Area 12 N-Tunnel. The specific activities will be compiled into work packages, Health and Safety Plans (HASPs), and Job Hazard Analyses (JHAs).

1.2 FACILITY REQUIREMENTS

None.

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2.0 PROJECT MANAGEMENT

2.1 PROJECT ORGANIZATION

2.1.1 Project Team and the Organizational Structure for the Project

The ER Project Team consists of the following key personnel:

<u>NSTec Position</u>	<u>Assigned Person</u>	<u>Telephone</u>
ER Manager	Annette Primrose	5-3615
Acting Soils Sites Project Manager	Annette Primrose	5-3615
Industrial Sites Project Manager	Thomas Thiele	5-6711
DTRA Project Manager	Timothy Echelard	5-3868
Field Operations Project Support Manager	Brian Konrad	5-1240
Technical Document Lead	Alissa Silvas	5-7186
Project Controls Lead	William Huffman	5-6027
Task Managers	Ronald (Brad) Jackson	5-0331
	Rebecca King	5-5804
	Michael Kruzic	5-7396
	David Nacht	5-5577
	Glenn Richardson	5-5361
	Dan Tobiason	5-6169
Environment, Safety, and Health (ES&H) Lead	Mario Vasquez	5-7490
Health Physicist	Douglas Frenette	5-3784
Field Technical Leads	Robert Baumert	5-5682
	Shaughn Burnison	5-9328
	Michael Casselbury	5-7222
	Michael Floyd	5-6653
<u>NNSA/NSO Position</u>	<u>Assigned Person</u>	<u>Telephone</u>
Federal ER Project Director	Janet Appenzeller-Wing	5-0461
Federal Industrial Sites Sub-Project Director	Kevin Cabble	5-5000
Federal Soils Sub-Project Director	John Jones	5-0532

Roles and Responsibilities

The **Project Manager** is responsible for the management of cost control and scheduling activities, ensuring the safety of operations, ensuring that project objectives are met, and reporting the overall progress to NNSA/NSO for their assigned projects.

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The **Field Operations Project Support Manager** is responsible for the overall management of field remediation projects for the ER Projects. The Field Operations Project Support Manager is responsible to each Project Manager and the ER Manager for ensuring the safe and efficient operation of field activities and for the overall coordination of resources from support organizations.

The **Technical Document Lead** is responsible for the assignment of Technical Leads to specific CAUs, technical training, technical document development, and client interface on technical issues. The Technical Document Lead reports directly to the Industrial Sites Project Manager.

ER Task Managers are responsible for project management oversight of assigned field remediation projects and are responsible to each Project Manager for the management of the cost and schedule activities related to their projects.

The **ES&H Lead** (or the safety professional assigned to a specific task) ensures that required documentation (e.g., HASP and JHA) has been completed as required. Other responsibilities include ensuring that permits have been secured where applicable (e.g., air monitoring) and conducting safety inspections of ongoing work activities.

The **Health Physicist** is responsible for supervising the Radiological Control Technicians. Issues involving, and the methods for controlling, radioactive contamination at a site, including preparation of Radiological Work Permits, are undertaken by the Health Physicist.

2.1.2 Key Supporting Organizations (Including Subcontracts)

The following NSTec organizations (either in a lead or support role) have responsibilities in the execution of work under ER Projects:

- Environmental Compliance
- Contractor Assurance
- NTS Waste Operations
- Industrial Hygiene
- Health Physics
- Nuclear Operations
- Construction
- Site Services
- Remote Sensing Laboratory
- Procurement
- Project Controls
- Engineering

In the execution of its projects, ER Projects interacts with NNSA/NSO through designated officials of NNSA/NSO within the ER Program. Interaction with State of Nevada regulatory officials occurs mostly through NNSA/NSO.

A professional service and construction subcontract exists with outside entities to provide support as needed. The appropriate NSTec organization provides oversight of all subcontractors, ensuring adherence to NSTec contract requirements with NNSA/NSO.

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2.1.3 Division of Responsibility and Delegation of Authority

The major responsibilities of the ER Project Team members are described in Section 2.1.1. In addition, Table 1 identifies project-related actions and decisions, along with the individuals responsible for implementation.

2.1.4 Project-Specific Training and Qualification Requirements

ER Project Team members who are responsible for field management activities are required to have the “40-Hour Occupational Safety and Health Administration (OSHA) Hazardous Worker Training,” the “8-Hour Annual OSHA Refresher,” and an annual medical clearance. Additional health and safety training requirements can be found in the individual’s training plan.

2.2 PROJECT BASELINE AND SCHEDULE

Two Task Agreement Plans (TAPs) have been developed and approved by the NNSA/NSO Sub-Project Directors. Each TAP includes a detailed basis of estimate (BOE), a bottoms-up estimate, and a resource-loaded schedule. All regulatory and performance objective (PO) milestones are included within the resource-loaded schedule. Scope and other changes to the approved TAP baseline are documented through the Baseline Change Request (BCR) process (Company Directive [CD] CD-0500.005, “Baseline Change Control”).

A detailed Life-Cycle Baseline (LCBL) has been created for each of the two NNSA/NSO Sub-Projects. These LCBLs are tracked within the Environmental Management Information System (EMIS) database. NSTec is responsible for inputting TAP budget, schedule, and milestone information into EMIS. The EMIS database is used by the Environmental Management (EM) NNSA/NSO system to monitor performance, control work, and approve BCRs. To ensure that ER NNSA/NSO personnel have current information, NSTec is responsible for updating the information within EMIS on a monthly basis.

2.2.1 Project Objectives and Deliverables (Scope)

A schedule of activities, milestones, and deliverable is maintained by and available from Project Controls. Significant activities, milestones, and deliverables are also included in the task plans.

2.2.2 Top Level Project Schedule and Milestones

Table 2 identifies the funding source, PO milestone date, and FY 2007 TAP for each CAU listed.

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TABLE 1. RESPONSIBILITY AND DECISION MATRIX FOR ER PROJECT TEAM

POSITION DECISION	ER MANAGER	PROJECT MANAGER	PROJECT ENGINEER	FIELD OPERATIONS PROJECT SUPPORT MANAGER	TASK MANAGER	ES&H LEAD	FIELD TECHNICAL LEAD	CONSTRUCTION SUPERINTENDENT	CONSTRUCTION SERVICES	PROJECT CONTROLS	SAFETY	ENGINEER
CHANGE IN SCOPE	A	R	C	R	R	I	C	C	I	I	I	I (Design)
CHANGE IN BUDGET	A	R	C	R	R		C	C		C		I (Design)
CHANGE IN SCHEDULE	A	R	C	R	R	I	C	C	C	C	I	I (Design)
ALLOCATE MANPOWER		A (ER) I (Other)	C	A (Const.)	C (ER) I (Other)	I	C	R		I		
CHANGE IN DESIGN		A	A	C/A	R	I	C/A	C	I	I	I	R
REPORT MAN-HOURS		A	I	C	R		R (Const.)	A		R		
SUBCONTRACT PROCUREMENT		A	R	C	R	I	C (ER) A (Other)	C	I	I	I	R (Const.)
MATERIALS PROCUREMENT		A (ER) I (Other)	R	I	R (ER) I (Other)	I	R (Const.)	C	I	I	I	R (Const.)
SAFETY INSPECTION		I	I	I	I	I Note: All Team Members are Responsible for Safety	I	I	I		R	

A = Approve

C = Consult

I = Inform

R = Responsible

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TABLE 2. PROJECT SCHEDULE AND MILESTONES

FUNDING SOURCE	CAU	ACTIVITY DESCRIPTION	PO DATE
EM	121	Submit Final Streamlined Approach for Environmental Restoration (SAFER) Plan	06/27/2007
EM	139	Submit Final Corrective Action Plan (CAP)	07/31/2007
EM	145	Submit Final CAP	11/16/2006
EM	151	Submit Final CAP	03/07/2007
EM	168	Submit Final Closure Report (CR)	12/30/2006
DP	300	Submit Final CR	09/06/2007
EM	408	Submit Final SAFER Plan	11/27/2006
EM	484	Submit Final CR	09/14/2007
DP	516	Submit Final CR	04/09/2007
EM	536	Submit Final CR	07/25/2007
EM	537	Submit Final CR	07/17/2007

2.2.3 Reporting Requirements/Frequency

Performance reporting is prepared and submitted monthly. Performance is measured against the budgeted cost of work scheduled, the budgeted cost of work performed, and the actual cost of work performed. These three parameters are used to calculate project schedule and cost variances. Project parameter analysis complies with CD-0500.004, "Cost and Schedule Analysis and Reporting." Specific schedule and cost variance percent and dollar values have been specified by the NNSA/NSO Sub-Project Directors and NSTec Management, variance reporting criteria are provided below.

Industrial Sites

NNSA/NSO Sub-Project Director: 10% or \$200,000 cumulative for Schedule and Cost
 NSTec Management: 10% and \$100,000 cumulative for Schedule and Cost

Soils

NNSA/NSO Sub-Project Director: 10% or \$10,000 monthly for Schedule and Cost
 10% cumulative for Schedule and Cost
 NSTec Management: 10% and \$100,000 cumulative for Schedule and Cost

The formats for all reporting are the same. The first section identifies the deviations from baseline conditions for CAUs that have resulted in the reportable variance. The second section identifies the impact the variance has on the project. The third section identifies the recovery plan for mitigating the variance.

2.2.4 Project Performance Metrics

The project performance metrics are identified in Sections 2.2.1, 2.2.2, and 2.2.3 of this plan. In addition, specific fee metrics are specified in PO MIS07A-11.

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2.3 COMMUNICATION PLAN

The Industrial Sites and Soils programs have been in existence for more than 10 years. During that time period strong business relationships have been forged between NSTec ER staff (see Section 2.1.1 for ER Project Team) and NNSA/NSO managers and staff. The strong business relationships have been formalized in a Project Zipper Plan. The Zipper Plan calls for each NSTec ER Task Manager to interface with their NNSA/NSO counterparts on their assigned tasks. The Zipper Plan requires that the NSTec ER Project Managers interface with the appropriate NNSA/NSO Sub-Project Directors as well as NNSA/NSO Task Managers, as required. Specific communication processes used by the NSTec ER Project Team are described below.

The primary duties and assignments for all NSTec ER work are specified within the BOE that is developed with the customer during the TAP process. Modifications to TAP requirements are discussed either in person or by telephone. The results of these conversations are documented by e-mail to ensure that program modifications are clearly understood by all parties. The NSTec ER Task Manager is then responsible for inputting the scope modification into a Trend (following Organization Instruction [OI] OI-0500.003, "Trend Programs"). The Trend is then submitted to the NSTec ER Project Manager who determines if the Trend will remain an internal Trend or be processed in a BCR. If it is decided that the Trend will be processed as a BCR (CD-0500.005, "Baseline Change Control"), the NSTec ER Project Manager discusses the impact of the Trend with the NNSA/NSO Sub-Project Director prior to submitting the BCR.

In addition, NSTec ER provides NNSA/NSO daily reports regarding fieldwork progress. Weekly summaries are also provided which include non-fieldwork activities. It is the responsibility of each NSTec ER Task Manager to provide via e-mail a weekly project status to the responsible NNSA/NSO Task Manager. The purposes of these reports are to document progress and inform the customer of issues so they can be resolved early.

To clearly delineate roles and responsibilities, a Field Management Plan (FMP) is developed for each field project. The FMP identifies the assigned NSTec and NNSA/NSO personnel to the field project. The FMP clearly indicates reporting hierarchy and clearly describes team members' responsibilities.

All major activities and milestone deliverables are formally transmitted to NNSA/NSO for their acceptance and approval. If requested, at the end of the FY, a year-end report will be presented to NNSA/NSO outlining the status of ER Projects and presenting the final cost report. The format and document tracking used by NSTec ER Projects conforms to CD-3500.007, "Correspondence Control."

2.4 PROJECT FILE MAINTENANCE

Working project files for each CAU are maintained by the assigned NSTec ER Task Manager. It is the responsibility of the assigned Task Manager to obtain final copies of any support organization (e.g., construction, engineering, waste management) documents to be included within the CAU project file. Upon completion of a CAU project, a final CAU project file will be developed and placed within the NSTec ER central filing area. The retention and organization of these files follow the requirements specified within CD-3500.008, "Records Management."

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2.5 PROJECT RISK ANALYSIS

2.5.1 Overall Project Risk Analysis

The project Hazard Analysis (see Appendix A) originally had a highest unmitigated risk of medium. However, through appropriate management controls, all risks were mitigated to low. A summary of the risk hazards and mitigation are presented below.

Site Radiological: The NSTec ER Projects routinely use sources to calibrate detection equipment, enter radiological areas, and generate low-level waste (LLW). The low risks associated with these activities are mitigated through training and Radiological Work Permits.

Occupational Safety & Health: The NSTec ER Projects conduct craft-supported activities (e.g., excavation, lifting loads, welding, noise conditions, confined spaces, biological hazards). These have been identified as low hazard activities based on low incident occurrence. The primary hazard is slip, trip, and fall incidents which are mitigated through awareness training.

Environmental Compliance: The chance of incorrectly classifying a waste was judged to be moderate risk. This risk is mitigated through staff training and teaming with support organizations.

2.5.2 Security Risk Analysis

Safeguards and security was evaluated by completing the “Security Activities Analysis,” Form FRM-1259, following the instructions in CD-3700.001, “Security Activities Analysis for Execution Plans.” The only security issue identified was the need for access into classified areas such as Area 27, TTR, and Area 6 Control Point to support remediation activities. A copy of the completed form is maintained by the Administrative Resources Department (ARD) Document Control.

The five Integrated Safety Management System core functions are used in planning and implementing NSTec ER activities.

2.5.3 Environment, Safety, and Health Analyses

The NSTec ER Projects provide support for a diverse set of projects. Restoration activities range from remediation of radiologically impacted soil to decontamination and decommissioning of nuclear rocket testing facilities. The specific hazards are documented within site-specific HASPs and supporting JHAs. The safety controls necessary to ensure worker safety are developed for each restoration activity. Additional ES&H requirements specific to restoration contact support work are addressed by the appropriate work control package process and are activity-specific.

Analysis to Support Project Execution

Because the NSTec ER Projects activities are so diverse, it has been determined that completion of the ES&H hazard assessment template is not necessary; the NSTec ER Projects site-specific ES&H documentation exceeds the analysis of the hazard assessment template.

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2.6 PRICE-ANDERSON AMENDMENTS ACT APPLICABILITY

Using the “Criteria for Price-Anderson Amendments Act Applicability,” Form FRM-0965, it was determined that the Price-Anderson Amendments Act (PAAA) applies to this project. Specific project activity documentation addresses PAAA applicability. A completed copy of Form FRM-0965 is included as Appendix B and a copy was forwarded to ARD Document Control.

2.7 OTHER REQUIRED ANALYSES

None required.

2.8 PROJECT AGREEMENTS (MEMORANDUMS OF UNDERSTANDING, ETC., AS REQUIRED)

The majority of the project activities are covered under the FFACO. The FFACO is a tri-party agreement among NNSA/NSO, the U.S. Department of Defense, and the Nevada Division of Environmental Protection. The agreement identifies CASs and CAUs and specifies how work is to be performed.

No Memoranda of Understanding, Memoranda of Agreement, and/or Interagency Support Agreements apply to the work described herein.

2.9 LESSONS LEARNED

Depending on the size and complexity of the task, the ER Project Team may prepare a summary memo file of any lessons learned. Formal lessons learned are submitted into the Contractor Assurance Lessons Learned Program as directed by the Project Manager, as applicable.

Feedback information is continuously collected from project team members during all phases of activities. Any identified issues are promptly addressed or referred to the Project Manager for resolution. The Project Manager, Task Manager, and ES&H personnel closely monitor adherence of personnel to safety requirements while assessing the progress of work activities. Any observed inadequacies are addressed and promptly corrected, and as appropriate, entered into the system as lessons learned.

Prior to initiating planning for project activities, the lessons learned webpage is utilized to identify any problems that other NSTec and NNSA/NSO organizations had while implementing similar work. Applicable lessons learned are then incorporated into project planning documents.

In addition, EM has assigned a Lessons Learned Coordinator to review internal and complex-wide lessons learned narratives and distribute them to EM projects. The distributed lessons learned are evaluated by NSTec ER staff and where appropriate are incorporated into NSTec ER work practices.

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3.0 PROJECT PERFORMANCE STANDARDS/COMPLIANCE

3.1 CUSTOMER ACCEPTANCE

Customer acceptance criteria are based on review of project documents and surveillance of field activities. Project documents such as CAPs, SAFER Plans, and CRs are evaluated against the formats provided in the FFACO for technical content. In addition, field surveillances are conducted by NNSA/NSO personnel to ensure that NSTec ER Projects are following NSTec safety documents, work packages, and other Real Estate/Operations Permit (REOP)-specified documents. Additional acceptance criteria are listed within NSTec ER's PO MIS07A-11

3.2 QUALITY ASSURANCE

Quality assurance requirements specified within referenced company-level documents are implemented by ER Projects. All work is of a commercial nature and is completed following industry standards and commercial codes. Adherence to applicable codes and standards are verified through planning documents, field inspections, and acceptance testing, where applicable. All construction testing and acceptance follow industry standards and are verified by NSTec Inspection. When appropriate, a Construction Quality Assurance Plan is prepared for those tasks requiring this activity.

The only project-unique quality assurance requirements are Title 10 Code of Federal Regulations (CFR) 830.120, *Nuclear Safety Management, Scope*, which becomes applicable when ER activities involve radioactive materials. As such, the ten quality assurance criteria specified in 10 CFR 830.120 are considered in the execution of work. The extent of applicability of each criterion would depend on the nature of the specific work activity. In general, personnel training, quality improvement, documents and records, inspection, management assessment, independent assessments, administrative controls for work processes, and procurement are a continuous and integral portion of all work activities. The extent of applicability of design criteria would depend on the specific work activity.

All work associated with this project must be completed according to Process Description (PD) PD-0001.002, "Quality Assurance Program," which outlines general requirements and describes the process for implementing, assessing, and documenting a quality program that is responsive to the *Work Smart Standards* and quality assurance requirements of NNSA/NSO. A Quality Assurance Plan has been developed and is attached as Appendix C. Based on an analysis of the ER Projects, a Quality Grad of **2** has been established.

3.3 ENVIRONMENTAL COMPLIANCE AND PROTECTION ISSUES

National Environmental Policy Act (NEPA) Checklists are prepared for each major field remediation activity by the ER Project Team. The NEPA Checklists are sent to NSTec Environmental Compliance for review and then formally transmitted to the NNSA/NSO ES&H Division for approval. The approved checklists are maintained by the NNSA/NSO ES&H Division and are used by NNSA/NSO as a prerequisite for final approval of the site-specific REOPs for work activities.

3.4 PROJECT SPECIFIC STANDARDS OR REQUIREMENTS

Project-specific standards or requirements are addressed in site-specific documents.

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4.0 FUNCTIONAL OPERATIONS PLANS

4.1 PROJECT CONTROL PLAN

The NSTec ER Projects will be controlled as specified in Table 3. As has been described in Section 2.2, the NSTec ER Projects performance is tracked and monitored by EM NNSA/NSO using EMIS. EMIS maintains its own Work Breakdown Structure (WBS), schedule, and milestone table. It is an EM NNSA/NSO requirement that the NSTec ER Projects manage and status all activities using EMIS. The items specified in Table 3 show how the information within EMIS meets the requirements of a Project Control Plan. The table identifies the project control requirements and details how the NSTec ER Projects implement these requirements.

TABLE 3. PROJECT CONTROL PLAN

PROJECT CONTROL TOOL	APPLICATION CRITERIA	APPLICATION ON PROJECT	SELECTION LOGIC	IMPLEMENTATION
WBS / Responsibility Assignment Matrix (RAM)	The project will establish a WBS that is compatible with the program WBS and extends to Level 8 Work Packages (WPs). WPs will be as short in duration as possible, have measurable completion criteria, and have a single individual accountable for completion (RAM).	A WBS and RAM will be utilized on the ER Projects.	Level 6 of the WBS breaks out the CAUs for the project. Level 7 of the WBS further delineates the type of CAU (CAP, Corrective Action Decision Document [CADD], or CR). Each Level 8 WP represents discrete deliverables within each of the CAUs for the total scope of ER.	The WBS and RAM are available in the NSTec ER TAP and within EMIS.
WBS Dictionary	All projects will maintain a WBS dictionary at a WBS level which meets the requirements of OI-0500.010. The scope documented in the WBS dictionary must be reconciled to the schedule and the original cost estimate.	The ER Projects have a detailed LCBL which includes a detailed WBS dictionary. In addition, on an annual basis ER submits detailed BOEs with the FY Task Plans. These are used for the WBS dictionary. The ER BCRs can be referenced for any changes to the BOE.	The Level 6 WBS effectively captures the scope of work for all CAUs that make up the project.	The WBS dictionary is completed when the FY Task Plans are sent to the customer for signature.
Earned Value (EV)	EV methods are established in the planning phase for each Level 8 WBS element and applied consistently through project completion. Appropriate methods are selected per OI-0500.005 (Performance Measurement).	Application on Project	Schedule percent complete will be the EV method for WPs in ER. EV will be derived for the project schedule on a weekly basis. A Level of Effort EV method will be applied to Project Management WPs.	During the development of the FY Task Plans and before approval, the EV methods are assigned.

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TABLE 3. PROJECT CONTROL PLAN (CONTINUED)

PROJECT CONTROL TOOL	APPLICATION CRITERIA	APPLICATION ON PROJECT	SELECTION LOGIC	IMPLEMENTATION
Change Control	Change Control for all NSTec Performance Measurement Baselines (PMBs) is done according to OI-0500.006.	Application on Project	Any changes that are required to the PBM will be documented through a BCR at WBS Level 5.	Implementation
Project Schedules	Level V, Detailed Execution Schedule, is established on capital projects \geq \$1 M and other projects that use functional resources or have multiple procurements.	ER will have a detailed resource-loaded schedule prepared in P3.	All ER Projects changes are entered into EMIS and must be approved by the customer.	As required by the Project Manager
Contingency Tracking	Projects that have Contractor Contingency that will be managed as part of the PMB will maintain a Contingency Log per OI-0500.004.	No contingency is included in the baseline for ER, as specified by the customer.	N/A	N/A
Trend Program	All projects will establish and maintain a Trend Program per OI-0500.003.	Review and approval of identified changes in work scope are documented in EMIS.	All ER Projects changes are entered into EMIS and must be approved by the customer.	There is no threshold; all PBM changes require NNSA/NSO signature.
Accruals	All projects will accrue costs for subcontracts and services for items $>$ 0.5% of the Project Budget at Completion (BAC). Accruals are made using guidance found in OI-0500.005.	The project will accrue significant costs for goods or services rendered that have not been paid in a given fiscal month.	Accruals will be done for good or services provided in excess of \$1,000.	Ongoing
Funds Management	Project commitments and actual costs will be tracked and recorded on a monthly basis at a minimum. The Funds Management process uses this information to ensure that funding amounts are not exceeded and that the project is funded at levels needed to accomplish the agreed-upon work scope. Specific methods for tracking cost and commitments are left to the project.	ER will use the company reporting systems to provide cost, commitment, and funding information.	Any unexpected or unknown events that occur during the execution of the approved work scope	Implemented during planning; when applicable, BCRs will be executed

PROJECT EXECUTION PLAN

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TABLE 3. PROJECT CONTROL PLAN (CONTINUED)

PROJECT CONTROL TOOL	APPLICATION CRITERIA	APPLICATION ON PROJECT	SELECTION LOGIC	IMPLEMENTATION
Functional Organization Work Control	Projects that use resources and services from Engineering, Construction, or other functional organizations will develop and document processes that will be used to monitor and control the work performed by those organizations. Interfaces and responsibilities will be set up according to OI-0500.012 and OI-0500.013 as applicable and will be designed to meet the needs of both the project and the functional organization and to minimize redundancy in control systems.	ER has a dedicated staff of Engineering and Construction personnel. Developing specific interfaces with the Engineering Project Controls and Construction Project Controls is not required. Note: If Requests for Engineering Work (REWs) are required, then work will proceed according to the applicable OIs.	N/A	N/A
Engineering Organization	N/A	N/A	N/A	N/A
Construction Organization	N/A	N/A	N/A	N/A
Other Organizations	N/A	N/A	N/A	N/A
Earned Value Management System (EVMS)	All projects will measure performance using NSTec's EVMS as described in OI-0500.005. Performance analysis and reporting will be done on at least a monthly basis according to OI-0500.011.	The project	Selection Logic	Implementation
Forecasting Costs	Project remaining costs (ETCs) and reporting will be done on a monthly basis according to OI-0500.011.	The project will measure performance using NSTec's EVMS to analyze and report performance monthly using standard NSTec cost/schedule status reports.	ETCs are entered for tasks with work remaining to be completed.	Performance Analysis and Reporting are done on a monthly basis.

4.2 DIAGNOSTICS PLAN

No diagnostics plan is required.

4.3 INFORMATION TECHNOLOGY PLAN

No information technology plan is required.

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4.4 SCIENTIFIC TECHNICAL INFORMATION PRODUCT

All NSTec ER CAU deliveries are subject to Scientific Technical Information Product (STIP) requirements specified in DOE O 241.1A. Included in the approved TAP for each NNSA/NSO project (in each CAU BOE, estimate, and schedule) are provisions to have STIP provide document reviews, and the review period is included in each CAU's resource-loaded schedule.

4.5 ENGINEERING PLAN

Engineering plans are developed for specific activities as required.

4.6 PROCUREMENT PLAN

Procurement plans are developed for specific activities as required.

4.7 CONSTRUCTION PLAN

Construction plans are developed for specific activities as required.

4.8 STARTUP PLAN

No start-up plan is required.

4.9 TURNOVER PLAN

No turnover plan is required.

4.10 OTHER

Other plans are developed as necessary to support specific NSTec ER activities.

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APPENDIX A. HAZARD ANALYSIS

HAZARD ANALYSIS

Activity/Project Summary (provide a summary description of the activity addressed in this HA): The Environmental Restoration program supports the Industrial Sites, Soils, and DTRA projects. The work scope includes characterization and remediation of environmentally impacted sites and facilities.

Hazard Analysis #:

Activity/Project Title: PEP for Environmental Restoration Projects; PEP-EM-4028 Rev.5

1. Applicable to Activity?	2. Hazard or Aspect	3a. Specific Applicability & Location	3b. Potential Consequences	4. Initial Risk Level & CASPER Risk Code	5. Regulatory Drivers and Mitigating Documents*	6. Mitigation/ Controls/ Approvals/ Permits/Training*	7. Residual Risk Level & CASPER Risk Code
Radiological							

*Subcontractors perform work to their equivalent procedures as identified in the procurement process.

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HAZARD ANALYSIS

Hazard Analysis #:

Activity/Project Title: **PEP for Environmental Restoration Projects; PEP-EM-4028 Rev.5**

1. Applicable to Activity?	2. Hazard or Aspect	3a. Specific Applicability & Location	3b. Potential Consequences	4. Initial Risk Level & CASPER Risk Code	5. Regulatory Drivers and Mitigating Documents*	6. Mitigation/ Controls/ Approvals/ Permits/Training*	7. Residual Risk Level & CASPER Risk Code
R 1. Yes	Use, storage, or transport of radioactive material, sealed radioactive sources, accelerators, or radiation generating devices (RGDs) Specify type, energy, emission rate, total activity or quantity.	Calibration sources for Electra and ISOCS stored in A23 Dorm D	Inadvertent radiological exposure to project staff	Risk Level: Medium CASPER Code: RD4F	10CFR835 NV/YMP RadCon Manual CD-0441.001 CD-0441.003 CD-0441.005 CD-0441.006 CD-0441.007 CD-0441.008 49 CFR CD-4000.02 CD-0441.010 CD-4500.003 CD-4500.007 CD-0441-009	Radiological Work Permit General Employee Radiological Training Source User Rad Worker I Rad Worker II NSTec/Site As Low As Reasonably Achievable Type 2 Work Package DOT Shipping Qualification Accelerator Safety Program On and Off-site Hazardous Material Shipment Prep Rad Material Program	Risk Level: Low CASPER Code: RD4F

*Subcontractors perform work to their equivalent procedures as identified in the procurement process.

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HAZARD ANALYSIS

Hazard Analysis #: _____ Activity/Project Title: **PEP for Environmental Restoration Projects; PEP-EM-4028 Rev.5**

1. Applicable to Activity?	2. Hazard or Aspect	3a. Specific Applicability & Location	3b. Potential Consequences	4. Initial Risk Level & CASPER Risk Code	5. Regulatory Drivers and Mitigating Documents*	6. Mitigation/ Controls/ Approvals/ Permits/Training*	7. Residual Risk Level & CASPER Risk Code
R 4. Yes	Entry into Radiological Controlled Areas.	Antisipate entries into posted radiological controlled areas at TTR (Soils Project), DTRA (A12 Tunnels and laydown yards), and Industrail Sites above listed CAUs	RWP not in place prior to entry. RWP not implemented correctly by site workers.	Risk Level: Medium CASPER Code: RD4F	CD-0441.008	General Employee Radiological Training	Risk Level: Low CASPER Code: RD4F
R 5. No	Design of new, or modifications to, systems, components, or structures used to handle, process, or store radioactive material, radioactive sources, or RGDs.			Risk Level: CASPER Code:	10CFR835 NV/YMP RadCon Manual		Risk Level: CASPER Code:
R 6. Yes	Creation of or entry into Contamination Areas, High Contamination Areas, Radiation Areas, and High Radiation Areas, and Airborne Radioactivity Areas.	Antisipate entries into posted radiological contamination areas at TTR (Soils Project), DTRA (A12 Tunnels and laydown yards), and Industrail Sites above listed CAUs	RWP not in place prior to entry. RWP not implemented correctly by site workers.	Risk Level: Medium CASPER Code: RD4F	10CFR835 NV/YMP RadCon Manual CD-0441.005 CD-0441.008	Radiological Work Permit General Employee Radiological Training Rad Worker I Rad Worker II Type 2 Work Package	Risk Level: Low CASPER Code: RD4F

Occupational Safety & Health

*Subcontractors perform work to their equivalent procedures as identified in the procurement process.

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HAZARD ANALYSIS

Hazard Analysis #: _____ Activity/Project Title: **PEP for Environmental Restoration Projects; PEP-EM-4028 Rev.5**

1. Applicable to Activity?	2. Hazard or Aspect	3a. Specific Applicability & Location	3b. Potential Consequences	4. Initial Risk Level & CASPER Risk Code	5. Regulatory Drivers and Mitigating Documents*	6. Mitigation/ Controls/ Approvals/ Permits/Training*	7. Residual Risk Level & CASPER Risk Code
S 7. Yes	Use of hoists or cranes.	Commonly used to support all Industrial Site, Soils, and DTRA Projects	In correct rigging or spotting could result in load being dropped and injuring site workers.	Risk Level: Medium CASPER Code: HS4P	CD-0444.070 CM-0444.001-073 CM-0444.001-071 CM-0444.001-072, 004, & 060	JHA PTHR Trained and Qualified Operators required equipment inspections Use of Engineering Controls and PPE	Risk Level: Low CASPER Code: HS4P
S 8. Yes	Welding, cutting, soldering, brazing, grinding, demolition or renovation, of building or construction materials (resulting in generation of dusts, mists, fumes, gases, or fibers).	Hot work is routinely performed in support of all Industrial Site,	An uncontrolled fire could injury workers and/or damage property.	Risk Level: Medium CASPER Code: HS4P	CM-0444.001-015 CM-0444.001-050 CM-0444.001-054 CM-0444.001-060 CM-0444.001-067 CM-0444.001-081 CM-0444.001-004 CD-0444-078 CD-0444.016	JHA PTHR Respirator Fit Test Respirator Training Hot Work Permit Medical Evaluation Use of Engineering Controls and PPE Housekeeping Fire Protection	Risk Level: Low CASPER Code: HS4P

*Subcontractors perform work to their equivalent procedures as identified in the procurement process.

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HAZARD ANALYSIS

Hazard Analysis #:

Activity/Project Title: **PEP for Environmental Restoration Projects; PEP-EM-4028 Rev.5**

1. Applicable to Activity?	2. Hazard or Aspect	3a. Specific Applicability & Location	3b. Potential Consequences	4. Initial Risk Level & CASPER Risk Code	5. Regulatory Drivers and Mitigating Documents*	6. Mitigation/ Controls/ Approvals/ Permits/Training*	7. Residual Risk Level & CASPER Risk Code
S 9. Yes	Respiratory Hazards Silica Asbestos Lead Beryllium Cadmium Diesel Particulate Matter Other (Specify)	The Industrial Sites project routinely performs work at Legacy Be sites.	Site workers could be exposed to Be	Risk Level: Medium CASPER Code: HS4P	CD-0444.078 CD-0444.101 CM-0444.001-012 CM-0444.001-015 CM-0444.001-079 CD-0444.016 CM-0444.001-004 CM-0444.001-060	JHA PTHR Respirator Fit Test Respirator Training Lead, Asbestos, Silica, Beryllium Awareness Medical Evaluation Beryllium Work Permit Use of Engineering Controls and PPE Hazard Communications Training	Risk Level: Low CASPER Code: HS4P

*Subcontractors perform work to their equivalent procedures as identified in the procurement process.

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HAZARD ANALYSIS

Hazard Analysis #:

Activity/Project Title: **PEP for Environmental Restoration Projects; PEP-EM-4028 Rev.5**

1. Applicable to Activity?	2. Hazard or Aspect	3a. Specific Applicability & Location	3b. Potential Consequences	4. Initial Risk Level & CASPER Risk Code	5. Regulatory Drivers and Mitigating Documents*	6. Mitigation/Controls/Approvals/Permits/Training*	7. Residual Risk Level & CASPER Risk Code
S 10. Yes	Storage or use of hazardous chemicals and other products (includes flammable or combustible liquids including aerosols).	ER projects routinely have chemicals and products stored or on-site to perform work.	Uncontrolled handling of chemical or products could result in workers being exposed to chemicals or having a chemical reaction.	Risk Level: Medium CASPER Code: HS4P	CM-0444.001-014 CM-0444.001-015 CM-0444.001-050 CM-0444.001-051 CM-0444.001-060, & 004 CD- 0442.012 OP-2100.006	JHA PTHR Hazard Communication Training Use of Engineering Controls and PPE Housekeeping Fire Protection Chemical Listing and MSDS Maintenance	Risk Level: Low CASPER Code: HS4P
S 11. Yes	Potential for noise in excess of 85 decibels, A-Weighted.	ER projects routinely require the use of heavy equipment. This equipment commonly exceeds 85 decibels.	Workers could have hearing loss if not protected.	Risk Level: Medium CASPER Code: HS4P	CD-0444.085 CM-0444.001-060 CM-0444.001-004	JHA PTHR Hearing Conservation Training Medical Evaluation Use of Engineering Controls and PPE	Risk Level: Low CASPER Code: HS4P
S 12. No	Work with non-ionizing radiation.			Risk Level: CASPER Code:	29CFR1910.97 ACGIH IEEE C95.1 ANSI C95.21 CM-0444.001-004	Use of Engineering Controls JHA/PTHR	Risk Level: CASPER Code:

*Subcontractors perform work to their equivalent procedures as identified in the procurement process.

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Last Revised: November 2006

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HAZARD ANALYSIS

Hazard Analysis #:

Activity/Project Title: **PEP for Environmental Restoration Projects; PEP-EM-4028 Rev.5**

1. Applicable to Activity?	2. Hazard or Aspect	3a. Specific Applicability & Location	3b. Potential Consequences	4. Initial Risk Level & CASPER Risk Code	5. Regulatory Drivers and Mitigating Documents*	6. Mitigation/ Controls/ Approvals/ Permits/Training*	7. Residual Risk Level & CASPER Risk Code
S 13. Yes	Work in confined spaces.	ER projects could require the entrance into a confined space to perform work	Workers could be exposed to low oxygen or hazardous gases	Risk Level: Medium CASPER Code: HS4P	CM-0444.001-021 CM-0444.001-064 CM-0444.001-065 CM-0444.001-215 CM-0444.001-004 CM-0444.001-060 CD-0444.016	JHA PTHR Confined Space Training Confined Space Entry Permit Respirator Fit Test Respirator Training Medical Evaluation Use of Engineering Controls and PPE	Risk Level: Low CASPER Code: HS4P
S 14. No	Potential for oxygen deficient (inert gases) or oxygen deficient atmosphere (except for confined spaces).			Risk Level: CASPER Code:	CM-0444.001-015 CM-0444.001-054 CM-0444.001-063 CM-0444.001-090, 004, & 060 CD-0444.016	JHA PTHR Respirator Fit Test Respirator Training Medical Evaluation Use of Engineering Controls and PPE Mandatory Monitoring	Risk Level: CASPER Code:

*Subcontractors perform work to their equivalent procedures as identified in the procurement process.

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HAZARD ANALYSIS

Hazard Analysis #:

Activity/Project Title: **PEP for Environmental Restoration Projects; PEP-EM-4028 Rev.5**

1. Applicable to Activity?	2. Hazard or Aspect	3a. Specific Applicability & Location	3b. Potential Consequences	4. Initial Risk Level & CASPER Risk Code	5. Regulatory Drivers and Mitigating Documents*	6. Mitigation/ Controls/ Approvals/ Permits/Training*	7. Residual Risk Level & CASPER Risk Code
S 15. Yes	Exposure to biological hazards or biological agents.	Workers could come in contact with biological hazards	Site workers could have allergic reaction to snake, insect, or spider bite	Risk Level: Medium CASPER Code: HS4P	CM-0444.001-069 CM-0444.001-004 CM-0444.001-060 CD-0444.016	JHA PTHR Hantavirus Awareness Training Respirator Fit Test Respirator Training Medical Evaluation Use of Engineering Controls and PPE	Risk Level: Low CASPER Code: HS4P
S 16. No	Operation of Class IIIB or Class IV lasers.			Risk Level: CASPER Code:	CM-0444.001-077 CM-0444.001-004 CM-0444.001-060 OP-A100.003	JHA PTHR Laser Permit Medical Evaluation Use of Engineering Controls and PPE	Risk Level: CASPER Code:

*Subcontractors perform work to their equivalent procedures as identified in the procurement process.

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HAZARD ANALYSIS

Hazard Analysis #: _____ Activity/Project Title: **PEP for Environmental Restoration Projects; PEP-EM-4028 Rev.5**

1. Applicable to Activity?	2. Hazard or Aspect	3a. Specific Applicability & Location	3b. Potential Consequences	4. Initial Risk Level & CASPER Risk Code	5. Regulatory Drivers and Mitigating Documents*	6. Mitigation/ Controls/ Approvals/ Permits/Training*	7. Residual Risk Level & CASPER Risk Code
S 17. Yes	Field and Office Hazards falling from work surface or into trench overhead clearance vehicular driving sharp objects slip/trip utility lines conveyors PPE use ergonomics	ER Projects routinely perform excavations, walking over irregular features, and around utilities.	Site workers could injury themselves tripping or falling over equipment/features.	Risk Level: Medium CASPER Code: HS4P	CM-0444.001-001 CM-0444.001-003 CM-0444.001-004 CM-0444.001-050, 060, 061, & 065 PY-0400.002	JHA PTHR Use of Engineering Controls and PPE Housekeeping Fire Protection General Safety Rules and Training Ladder and Driver Safety Training	Risk Level: Low CASPER Code: HS4P
Environmental Compliance							
E 1. No	New project or activity. (See CD-0442.002 for applicability.)			Risk Level: Medium CASPER Code: EN4S	10 CFR 1021 CD-0442.002	Signed NEPA checklist	Risk Level: CASPER Code:
E 2. Yes	Surface disturbing activities, demolition of buildings, or work in areas with known biological or cultural resources.	ER Projects routinely perform ground disturbing activities as well as D&D of NTS facilities.	Project activities could adversely impact cultural resources	Risk Level: Low CASPER Code: EN4S	CD-0442.002	Biological Pre-activity Survey Cultural Resource Survey	Risk Level: Low CASPER Code: EN4S

*Subcontractors perform work to their equivalent procedures as identified in the procurement process.

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HAZARD ANALYSIS

Hazard Analysis #: Activity/Project Title: PEP for Environmental Restoration Projects; PEP-EM-4028 Rev.5

1. Applicable to Activity?	2. Hazard or Aspect	3a. Specific Applicability & Location	3b. Potential Consequences	4. Initial Risk Level & CASPER Risk Code	5. Regulatory Drivers and Mitigating Documents*	6. Mitigation/ Controls/ Approvals/ Permits/Training*	7. Residual Risk Level & CASPER Risk Code
E 3. Yes	Generation of waste solid waste (food waste, construction debris, asbestos, petroleum-contaminated debris/soil, scrap metal) non-hazardous, regulated waste including medical waste, used oil, recyclable materials (includes lead batteries, and other items containing lead) hazardous waste universal waste PCBs radioactive waste mixed waste	ER Projects routinely generate Solid waste, non-hazardous regulated waste, hazardous waste, LLW, MLLW, PCBs, and universal waste	Incorrectly managing the waste could result in state and federal violations and fines.	Risk Level: Medium CASPER Code: EN4S	state and local solid waste regulations 40 CFR 260-280 40 CFR 761 CD-0442.006 CD-0442.010	Waste Management for the Generator Training Waste Management Plan	Risk Level: Low CASPER Code: EN4S
E 4. No	Receipt of waste, including solid waste wastewater/sewage used oil hazardous waste universal waste radioactive waste mixed waste			Risk Level: CASPER Code:	40 CFR 260-280 CD-0442.006 CD-0442.010	Natl Pollutant Discharge Elimination System Permit Discharge Permit RCRA Part B Permit Waste Management for the Generator Training 29CFR190.120 (HAZWOPER)	Risk Level: CASPER Code:

*Subcontractors perform work to their equivalent procedures as identified in the procurement process.

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HAZARD ANALYSIS

Hazard Analysis #:

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1. Applicable to Activity?	2. Hazard or Aspect	3a. Specific Applicability & Location	3b. Potential Consequences	4. Initial Risk Level & CASPER Risk Code	5. Regulatory Drivers and Mitigating Documents*	6. Mitigation/ Controls/ Approvals/ Permits/Training*	7. Residual Risk Level & CASPER Risk Code
E 5. No	Air emissions from: open burning surface disturbance chemical or biological releases explosives detonation fuel/VOC storage fuel burning equipment processes involving radionuclides radioactive waste.			Risk Level: CASPER Code:	state and local regulations 40 CFR 50-100 CD-0442.004	Air Quality Permit/Permit Modification Visible emission readings Recordkeeping and Reporting	Risk Level: CASPER Code:
E 6. No	Purchase or introduction of chemicals or products unique to this project,			Risk Level: CASPER Code:	state and local regulations 40 CFR 350-359 CD-0442.009 CD-0444.012	Entry into Hazardous Substance Inventory system (upon receipt) Requisition Compliance Review	Risk Level: CASPER Code:
E 7. Yes	Installation, and/or use of an underground or aboveground tank, or closure of an underground tank	ER Projects close both above and underground storage tanks.	Incorrectly closing a storage tank could violate state and federal regulations.	Risk Level: Medium CASPER Code: EN4S	state and local regulations 40 CFR 280 CD-0442.011 CD-0442.009 CD-0444.051	EPA Notification Secondary containment or other spill/overfill protection	Risk Level: Low CASPER Code: EN4S

*Subcontractors perform work to their equivalent procedures as identified in the procurement process.

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HAZARD ANALYSIS

Hazard Analysis #:

Activity/Project Title: **PEP for Environmental Restoration Projects; PEP-EM-4028 Rev.5**

1. Applicable to Activity?	2. Hazard or Aspect	3a. Specific Applicability & Location	3b. Potential Consequences	4. Initial Risk Level & CASPER Risk Code	5. Regulatory Drivers and Mitigating Documents*	6. Mitigation/ Controls/ Approvals/ Permits/Training*	7. Residual Risk Level & CASPER Risk Code
E 8. No	Construction or modification of a drinking water system.			Risk Level: CASPER Code:	state and local regulations 40 CFR 141 CD-0442.013	Public Water System Permit/Permit Modification Disinfection Monitoring Cross-connection control	Risk Level: CASPER Code:
E 9. No	Use of, construction of, or modification of waste water disposal system including, but not limited to, a sewage lagoon or septic tank.			Risk Level: CASPER Code:	40 CFR 100-149 state and local regulations CD-0442.005	Discharge Permit/Permit Modification Septic Tank Permit NPDES permit	Risk Level: CASPER Code:
Other							
O 1.				Risk Level: CASPER Code:			Risk Level: CASPER Code:
O 2.				Risk Level: CASPER Code:			Risk Level: CASPER Code:

*Subcontractors perform work to their equivalent procedures as identified in the procurement process.

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HAZARD ANALYSIS

Hazard Analysis #: _____ Activity/Project Title: **PEP for Environmental Restoration Projects; PEP-EM-4028 Rev.5**

1. Applicable to Activity?	2. Hazard or Aspect	3a. Specific Applicability & Location	3b. Potential Consequences	4. Initial Risk Level & CASPER Risk Code	5. Regulatory Drivers and Mitigating Documents*	6. Mitigation/ Controls/ Approvals/ Permits/Training*	7. Residual Risk Level & CASPER Risk Code
O 3.				Risk Level: CASPER Code:			Risk Level: CASPER Code:
O 4.				Risk Level: CASPER Code:			Risk Level: CASPER Code:

Identified hazards have been analyzed and appropriate mitigation and/or controls have been identified.

Responsible Manager:	Jeffrey L. Smith	<i>[Signature]</i>
Occupational Safety & Health:	Mario J. Vasquez	<i>[Signature]</i>
Environmental Services:	Chylla Rodas	5/7/07
Radiation Control Department:	Douglas Frenette	<i>[Signature]</i>

*Subcontractors perform work to their equivalent procedures as identified in the procurement process.

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APPENDIX B. PRICE-ANDERSON AMENDMENTS ACT ASSESSMENT

NSTec		08/31/06
Form	CRITERIA FOR PRICE-ANDERSON AMENDMENTS ACT APPLICABILITY	Rev. 0
FRM-0965		Page 1 of 4

This questionnaire completed by:

Name: Douglas Frenette

Print Name



Signature

Date: 4/16/07

Title: Radiological Controls Supervisor/ Health Physics

Print Title

Select one:

FEP SEP PEP

Number: PEP-EM-4026

Rev. 6

Title: PEP for Environmental Restoration Projects

Questions for Determination

Given the background and definitions on page 2, the following questions can be answered in order to determine if your facility, project, activity operation fall under the scope of the Price-Anderson Amendments Act (PAAA).

See Pages 3 and 4 for additional clarification.

Complete this form according to CD-2000.001 for Facility Executive Plans, CD-2000.002 for Support Execution Plans and CD-2000.003 for Project Execution Plans and their associated execution plan templates.

Applicability of 10 CFR 835

1. Is the activity defined as a DOE activity in accordance with 10 CFR 835, Radiation Protection?
 YES NO

Applicability of 10 CFR 830

2. Does the facility, activity, or operation involve an apparatus that is designed or used to sustain a nuclear chain reaction in a controlled manner? This includes critical and pulsed assemblies and research, test, and power reactors.
 YES NO
3. Does the facility, activity, operation involve assemblies designed to perform subcritical experiments that could potentially reach criticality?
 YES NO
4. Does the facility, activity, operation produce, process, or store radioactive liquid or solid waste, fissionable materials, or tritium?
 YES NO
5. Does the facility, activity, operation conduct separation operations of radioactive and/or fissionable materials?
 YES NO
6. Does the facility, activity, operation conduct irradiated materials inspections, fuel fabrication, decontamination, or recovery operations?
 YES NO
7. Does the facility, activity, operation conduct fuel enrichment operations?
 YES NO
8. Does the facility, activity, operation perform environmental remediation or waste management activities involving radioactive materials?
 YES NO
9. Does the facility, activity, operation involve radioactive and/or fissionable materials in such form and quantity that a nuclear hazard potentially exists to the employees or the general public? Note that a nuclear hazard means a source of danger (i.e., material, energy source, or operation) with the potential to cause illness, injury, or death to personnel or damage to a facility or to the environment (without regard for the likelihood or credibility of accident scenarios or consequence mitigation).
 YES NO
10. Does the facility, activity, or operation involve those activities related to design, manufacturer, and assembly of items for use with radioactive materials in such form or quantity that a nuclear hazard potentially exists even when no nuclear material is present? Note the PAAA does not specify any minimum for such a hazard.
 YES NO
11. Does the facility, activity, operation scope of effort involve activities that have the potential to cause radiological harm now or in the future?
 YES NO
12. Does the facility, activity, operation scope of effort have the potential to involve a "Nuclear Nexus?"
 YES NO

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APPENDIX C. QUALITY ASSURANCE PLAN

QUALITY GRADING FOR EXECUTION PLANS

Activity: ER Projects
Number: PEP-EM-4028

Criteria	Grade			
	1	2	3	4
1. PROGRAM		X		
2. Personnel Training and Qualification			X	
3. Quality Improvement			X	
4. Documents and Records			X	
5. Work Processes and Activities				X
6. Design			X	
7. Procurement				X
8. Inspection and Acceptance Testing			X	
9. Management Assessment			X	
10. Independent Assessment				X
11. Control of Software			X	

By: Jeffrey L. Smith  Date: 2/1/05

PROJECT EXECUTION PLAN

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QUALITY ASSURANCE PROGRAM

01-Feb-05

APPENDIX B - REQUIREMENTS: The requirements listed in this section apply to Quality Grade 2 and Mission Critical (MC) items and activities at BN that have major importance to quality. Additional quality requirements may be imposed on individual items and activities by Engineering, Quality Assurance or responsible managers to satisfy corrective action or quality improvement initiatives. The quality program requirements for R&D apparatus (items) and activities that do not utilize sufficient quantities of fissile material to potentially constitute a critical mass are listed in sections 12.1 through 12.11 of this appendix.

1.0 CRITERION 1 - PROGRAM

1.1 BN Executive Management assures that a Quality Assurance Program (QAP) is developed, documented, implemented and maintained. (Appendix B)

1.2 BN Executive Management establishes, supports, and promotes management processes, an organizational structure, functional responsibilities, levels of authority, and interfaces for those managing, performing, and assessing the work by: (Appendix B)

1.2.1. establishing the quality policy for BN

1.2.2. assuring the quality policy is appropriate to the BN purpose and that it: a. includes commitment to comply with requirements,
b. establishes a framework for quality objectives,
c. is communicated and understood, and
d. is reviewed for continuing suitability

1.2.3. assuring measurable quality objectives consistent with quality policy are established at relevant functions and levels;

1.2.4. providing evidence of commitment by communicating to all BN personnel the importance of meeting customer and regulatory requirements;

1.2.5. assuring Quality Assurance Program(QAP) planning for meeting requirements and quality objectives is performed;

1.2.6. assuring the QAP integrity is maintained for planned and implemented QAP changes;

1.2.7. appointing a management representative who has responsibility and authority for implementing and maintaining QAP processes, reporting QAP performance and need for improvement to top management;

1.2.8. assuring promotion of customer requirements awareness throughout BN;

1.2.9. assuring that responsibilities and authorities are defined and communicated;

1.2.10. assuring the availability of resources;

implementing actions to achieve planned results and continual improvement;

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1.2.11. assuring internal communication processes and performance are established regarding the QAP effectiveness;

1.2.12. implementing actions to achieve planned results and continual improvement;

1.2.13. monitoring, measuring and analyzing the process; and

1.2.14. empowering and making personnel accountable for their work to encourage and improve individual and organizational performance.

1.3. BN Executive Management establishes management processes, including planning, scheduling, and providing resources for the work by:
(Appendix B)

1.3.1. identifying the processes needed;

1.3.2. determining the process sequences and interactions;

1.3.3. determining criteria and methods to assure process effectivity;

1.3.4. assuring the availability of information and resources to support operation and monitoring of the processes;

1.3.5. assuring customer requirements are determined and met to enhance customer satisfaction.

1.4 BN Managers :
(Appendix B)

1.4.1. provide for the planning and accomplishment of activities affecting quality under suitably controlled conditions, including the use of appropriate equipment, suitable environmental conditions for accomplishing the activity, and assurance that prerequisites for the given activity have been satisfied.

1.4.2. where more than one organization is involved in the execution of activities, assure the responsibilities, interfaces, and authority of each organization are clearly defined and documented. This includes defining the external and internal interfaces between organizational units and documenting changes to those interfaces.

not be directly responsible for performing the work; and

1.4.3. institute processes, beginning with research and development and continuing throughout the life cycle of the activity, to identify, document, validate, control, and maintain customer requirements.

1.4.4. document and implement processes to identify performance metrics for their quality requirements, and for Mission Critical Operations and related processes and projects. Each manager utilizes metrics for corrective action and continuous improvement.

1.5 BN personnel performing work are responsible for achieving and maintaining the quality of their work; :
(Appendix B)

1.6. Specifically designated and qualified BN personnel who verify quality achievement: :
(Appendix B)

1.6.1. are not directly responsible for performing the work; and

1.6.2. have sufficient authority, direct access to management, organizational freedom, and access to the work being verified to perform their function.

2.0 CRITERION 2 - PERSONNEL TRAINING AND QUALIFICATION

2.1 BN managers assure their personnel are trained and qualified to be capable of performing

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their assigned work by:
(Appendix C)

2.1.1. determining necessary competence for personnel performing project work which is important to quality;

2.1.2. providing training or other actions to satisfy the need, and evaluating effectiveness of actions taken;
(This requirement does not apply to activities that require only SOC or knowledgeable personnel to perform.)

2.1.3. assuring that personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives;

2.1.4. assuring that individual personnel training plans are not limited to initial qualification but provide maintenance of proficiency and continuing training; and
(This requirement does not apply to activities that require only SOC or knowledgeable personnel to perform.)

2.1.5. maintaining appropriate records of education, training, skills, and experience.

2.2 All BN Managers using the services of qualified personnel identify any special physical characteristics needed in the performance of each activity, including the need for initial and subsequent physical examination.
(Appendix C)

2.3 BN may delegate qualification examination activities to an independent certifying agency, but retain responsibility for conformance of the examination and its administration.
(Appendix C)

2.4 QUALIFICATION REQUIREMENTS FOR PERSONNEL PERFORMING OR ACCEPTING INSPECTIONS, TESTS, AND ASSESSMENTS:
(Appendix C)

2.4.1. BN Managers designate those activities that require qualification of personnel and the minimum requirements for such personnel.

2.5 BN Managers assure inspections for acceptance of items and activities, including construction and maintenance are performed by qualified persons.
(Appendix C)

2.6 Applicable BN Managers requiring the use handling, storage, and shipping equipment assure operators of the equipment are experienced or trained in use of the equipment.
(Appendix C)

2.7 Appropriate BN Managers assure special processes that control or verify quality, such as those used in welding, heat-treating, calibration, and nondestructive examination, are performed by qualified personnel.
(Appendix C)

(Section C2 supports ISM Core Function 3 - 'Develop Controls')

3.0 CRITERION 3 - QUALITY IMPROVEMENT

3.1 BN Managers:
(Appendix C)

3.1.1. establish and/or implement processes to detect and prevent work-related problems;

3.1.2. monitor customer perception information to assure customer satisfaction

3.2 Nonconforming items are controlled according to Criterion 8. BN Managers identify the causes of nonconformances and work to prevent recurrence as a part of correcting the problem. .

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(Appendix C)

3.3 BN Managers identify the causes of problems/issues and work to prevent recurrence as a part of correcting the problem/issues, with corrective actions appropriate to the effects by:

(Appendix C)

- 3.3.1. reviewing nonconformances, problems and issues, including customer complaints applicable to their function;
- 3.3.2. determining the causes of nonconformances, problems and issues;
- 3.3.3. evaluating need for action to assure nonconformances, problems and issues do not recur;
- 3.3.4. determining and implementing action when needed;
- 3.3.5. creating and maintaining records of results of action taken; and
- 3.3.6. reviewing corrective actions taken.

3.4 BN Managers review item characteristics, process implementation and other quality-related information to identify items, services, and processes needing improvement.

(Appendix C)

(Section C3 supports ISM Core Function 5 - 'Feedback and Improvement')

4.0 CRITERION 4 - DOCUMENTS AND RECORDS

4.1 DOCUMENTS - BN Managers assure that documents are prepared, reviewed, approved, issued, used, and maintained to prescribe processes, activities, specify requirements, or establish design, as applicable to their organization's particular function in accordance with a controlled, documented system that defines the controls needed:

(Appendix C)

- 4.1.1. to approve documents for adequacy prior to issue;
- 4.1.2. to review and update as necessary and re-approve documents;
- 4.1.3. to assure that changes and the current revision status of documents are identified;
- 4.1.4. to assure that relevant versions of applicable documents are available at points of use;
- 4.1.5. to assure that documents remain legible and readily identifiable;
- 4.1.6. to assure that documents of external origin are identified and their distribution controlled, and
- 4.1.7. to prevent the unintended use of obsolete documents, and to apply suitable identification to them if they are retained for any purpose.

4.2 RECORDS - BN Managers assure that records are created and/or received which would demonstrate that an activity was performed in accordance with the applicable requirements, but need not be retained for the life of the item or system.

(Appendix C)

4.3 ADDITIONAL RECORDS REQUIREMENTS

BN Managers specify, prepare, review, approve and maintain records that:

(Appendix C)

- 4.3.1. describe the status, configuration and characteristics of items and services,
- 4.3.2. describe the performance of processes and represent objective evidence of quality,

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4.3.3. are legible, readily identifiable and retrievable.

4.4 PROCUREMENT, CONSTRUCTION, MAINTENANCE, INSPECTION, ACCEPTANCE TESTING, REPAIR, AND DISASSEMBLY RECORDS

that provide traceability to identify products or items and their origin are maintained.
(Appendix C)

4.5 RECORDS AUTHENTICATION

Records may be original, copies or electronic. Records are appropriately stamped, initialed, or signed, as well as dated, by authorized, personnel in order to be considered valid. Acceptable methods of authentication include statements of authenticity, handwritten signatures, electronic signatures, or any other means that assure traceability to a specific authenticating individual and organization and authentication date.
(Appendix C)

4.6 DESIGN DOCUMENTATION AND RECORDS

include final design documents, such as drawings and specifications, and revisions to those documents. They also include the calculations that support the final design.
(Appendix C)

4.7 RECORDS SYSTEM REQUIREMENTS

The BN Manager of Administrative Resources establishes a records system to provide for the identification, collection, indexing, filing, storing, maintenance, retrieval and disposal of records. Retention times of records and associated test materials and specimens are established to be consistent with the type of records, material and specimens involved.
(Appendix C)

(Section C-4 supports ISM Core Function 1 - 'Define Scope of Work'; 3 - 'Develop Controls, and 4 - 'Perform Work within Controls')

5.0 CRITERION 5 - WORK PROCESSES

5.1 GENERAL - All BN personnel perform work consistent with good work practices, administrative controls, and other hazard controls adopted to meet regulatory or contract requirements using approved instructions, or other appropriate means.
(Appendix D)

5.2 All BN personnel control items to assure their proper use.
(Appendix D)

5.3 All BN personnel maintain items to prevent their damage, loss, or deterioration.
(Appendix D)

5.4 CONTROL OF MEASURING AND TESTING EQUIPMENT (Appendix D)

5.4.1. If calibrated measuring and test equipment is required for a QG4 activity, BN managers assure that it has been calibrated in accordance with the requirements for QG3 M&TE.

5.4.2. When measuring and test equipment is found to be out of calibration, BN Managers take appropriate action on the equipment and any project affected.

5.5 LIMITED-LIFE MATERIALS AND COMPONENTS BN Managers assure that means for efficient identification, control, storage and disposal of limited-life materials is established.
(Appendix D)

5.6 GOVERNMENT PROPERTY (Appendix D)

5.6.1. All BN personnel exercise care with government property while it is under their control or being used by BN.

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5.6.2. BN Managers identify, verify, protect and safeguard government property provided for use or incorporation into BN projects or activities.

5.6.3. Government property that is lost, damaged or otherwise found to be unsuitable for use, is reported to the government.

(Section D5 supports all five of the ISM Core Functions)

5.7 GOVERNMENT-FURNISHED MATERIAL (Appendix D)

5.7.1. Material shipped interproject from one contractor's responsibility to another is provided as Government-Furnished Material. Such material is inspected only for quantity, completeness, proper type, and shipping and handling damage by the receiving contractor unless additional tests or inspections are required by design definition. The term Government-Furnished Material does not apply to material and items shipped from one BN project to another or from a subcontractor to a contractor

5.7.2. BN Managers assure NNSA is notified when a discrepancy involving Government-Furnished Material is suspected or discovered.

(Section D5 supports all five of the ISM Core Functions)

6.0 CRITERION 6 - DESIGN

6.1 BASIC DESIGN REQUIREMENTS

Specifically designated, qualified and authorized BN Managers, Project, Engineering, and/or Design personnel plan and control the design process for code items and systems using sound engineering principles and appropriate standards and determine:
(Appendix C)

6.1.1. the responsibilities and authorities for design and development;

6.1.2. the design and development stages;

6.1.3. the review, verification and analysis that are appropriate to each design and development stage;

6.1.4. The technical basis for 'use-as-is' or 'repair' disposition of nonconforming material is documented and included as part of the design definition

6.2 DESIGN BASES -

Specifically designated and qualified BN Engineering and/or Design personnel incorporate applicable requirements and design bases in design work and design changes.
(Appendix C)

6.3 DESIGN INTERFACES -

Specifically designated and qualified BN Engineering and/or Design personnel identify and control design interfaces.
(Appendix C)

6.4 DESIGN OUTPUT

Specifically designated and qualified BN Engineering and/or Design personnel verify or validate the adequacy of design output.
(Appendix C)

6.5 DESIGN VERIFICATION

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(Appendix C)

6.5.1. The BN Manager of the Design Authority (i.e. Engineering, Design, etc.) identifies and document the particular design verification method used. The results of design verification is documented with the identification of the verifier clearly indicated. Design verification is performed by any competent individual(s) or group(s) other than those who performed the original design but who may be from the same organization.

6.5.2. Characteristics verified are those that provide reasonable assurance that the item will perform its intended function. If a commercial grade item is modified or selected to requirements that are more restrictive than the supplier's published product description, the component part is represented as different from the commercial grade item in a manner traceable to a documented definition of the difference.

6.6 ADDITIONAL REQUIREMENTS

(Appendix C)

6.6.1. The BN Manager of the Design Authority (i.e. Engineering, Design, etc.) determines and documents the degree of control required by setting design requirement value and tolerance. The design authority specifies the required criteria for acceptance of tests and inspections used to confirm that design criteria are met.

6.6.2. Design requirements are not more restrictive than essential for intended function, reliability, interchangeability, life, and safety; and the allocation of tolerances is consistent with these requirements.

6.6.3. The BN Manager of the Design Authority (i.e. Engineering, Design, etc.) reduces design complexity while continuing to achieve required functionality and performance

6.7 DESIGN ANALYSES

Design analyses are sufficiently detailed such that a person technically qualified in the subject can review and understand the analyses and verify the adequacy of the results without recourse to the originator.

(Appendix C)

6.8 CHANGE CONTROL

(Appendix C)

6.8.1. The BN Manager of the Design Authority assures changes to design inputs, final designs, field changes, and temporary and permanent modifications to operating facilities are justified and subject to design control measures commensurate with those applied to the original design. These measures include evaluation of effects of those changes on the overall design and on any analyses upon which the design is based. The evaluation includes facility or system configurations that occur during operation, maintenance, test, surveillance, and inspection activities. The design organization approving the change demonstrates competence in the specific design area of interest and have an adequate understanding of the requirements and intent of the original design..

(Section C6 supports ISM Core Function 3 - 'Develop Controls')

7.0 CRITERION 7 - PROCUREMENT

7.1 BASIC PROCUREMENT REQUIREMENTS Specifically designated and qualified BN personnel procure items and services that meet established requirements and perform as specified. The procurement process includes provisions for the prevention of S/CI from entering the BN supply chain.

(Appendix D)

7.2 SUPPLIER EVALUATION, SELECTION, AND MONITORING The requirements for supplier evaluation do not apply to QG4 items and services.

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(Appendix D)

7.3 ACCEPTANCE OF PROCURED ITEMS, MATERIALS, AND SERVICES Specifically designated BN personnel establish and implement processes for the acceptance of procured items and services to assure that suppliers continue to provide acceptable items and services, including the prevention of S/CI from entering the BN supply chain.

(Appendix D)

7.4 METHOD OF ACCEPTANCE

QG4 procured items are by definition Commercial Grade. Prior to acceptance of a commercial grade item specifically designated and qualified BN personnel verify that:

- a. damage was not sustained during shipment;
- b. the item has satisfied the specified acceptance criteria (part number or catalog number);
- c. specified documentation, if applicable to the item, was received and is acceptable; and
- d. the item is not Suspect/Counterfeit

(Appendix D)

(Section D7 supports ISM Core Function 3 - 'Develop Controls' and 5 - 'Feedback and Improvement')

8.0 CRITERION 8 - INSPECTION AND ACCEPTANCE TESTING

8.1 GENERAL REQUIREMENTS FOR INSPECTION AND TESTING

(Appendix C)

8.1.1. When required by execution plans, work packages, or procurement documents, specifically designated BN personnel inspect and test specified items, services, and processes using established acceptance and performance criteria.

8.1.2. BN Managers of operational activities including startup, engineering, design, construction and maintenance assure administrative controls, such as hold points and status indicators, are used to preclude the bypassing of required inspections and tests. Any inadvertent use, installation or operation of items, services and processes, which have not passed the required inspections and tests, is prevented.

8.2 INSPECTION AND TESTING FOR ACCEPTANCE

(Appendix C)

8.2.1. INSPECTION AND TESTING OF PROJECTS AND ACTIVITIES

- a. Projects and activities are inspected and/or tested at appropriate stages of the project/activity's performance and/or construction process in accordance with planned acceptance criteria.
- b. Specifically designated and qualified BN personnel perform acceptance of inspection and testing of the projects and activities to verify that requirements of the planned acceptance criteria have been met.
- c. Evidence of conformance with the acceptance criteria is maintained. Records indicate the person(s) accepting and authorizing release or completion of the project/activity.
- d. Project/activity release or completion and turnover does not proceed until the project/activity has been satisfactorily completed, unless otherwise approved by a relevant authority and, where applicable, by the customer.

8.3 CONTROL OF NONCONFORMING ITEMS

(Appendix C)

8.3.1. BN personnel assure that items that do not conform to requirements are identified and controlled to prevent unintended use or delivery. The controls and related responsibilities and authorities for dealing with nonconforming items is defined in a documented procedure.

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- 8.3.2. Nonconforming items are controlled by one or more of the following ways:
- a. by taking action to eliminate the detected nonconformance;
 - b. by authorizing use, release or acceptance under concession by an authorized, competent authority and, where applicable, by the customer;
 - c. identification by legible marking, tagging, or other methods not detrimental to the item. Identification is on the item, the container, or the package containing the item.
 - d. When practicable, nonconforming items are segregated from conforming items.

8.3.3. Records of the nature of nonconformances and any subsequent actions taken are maintained.

8.3.4. When a nonconformance is corrected it is subject to verification to demonstrate conformance to the requirements.

8.4 MEASURING AND TESTING EQUIPMENT (Appendix C)

8.4.1. Measuring and test equipment (M&TE) is controlled in accordance with Criterion 5.

(Section C8 supports ISM Core Function 5 - 'Feedback and Improvement')

9.0 CRITERION 9 - MANAGEMENT ASSESSMENT

9.1 MANAGEMENT SELF-ASSESSMENT

All BN Managers assess their management processes and proactively identify and correct problems that hinder the organization from achieving its objectives.
(Appendix C)

9.2 MANAGEMENT ASSESSMENT REQUIREMENTS

BN managers consider the following in performing the assessments:

- a. Organizational knowledge of areas needing attention;
- b. Site- and complex-wide lessons learned or identified weaknesses;
- c. Safety issues identified by issues management tracking and trending;
- d. Results of previous assessment findings and the associated status of corrective actions; and
- e. The level of activity and the risk involved.

(Appendix C)

9.3 IDENTIFICATION AND CORRECTION OF ISSUES

Issues that hinder BN from achieving its objectives are identified and corrected in accordance with Criterion 3.

(Appendix C)

(Section C-9 supports ISM Core Function 5 - 'Feedback and Improvement')

10.0 CRITERION 10 - INDEPENDENT ASSESSMENT

10.1 INDEPENDENT ASSESSMENTS

When requested by Executive Management, specifically designated and qualified BN personnel and/or organizations plan, prepare and conduct independent assessments to measure item and service quality, to measure the adequacy of work performance, and to promote improvement in accordance with Criterion 3.

(Appendix D)

10.2 AUTHORITY FOR ASSESSORS

BN Executive Management establishes sufficient authority, and freedom from line management for the group performing independent assessments.

(Appendix D)

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10.3 QUALIFICATION OF PERSONNEL

BN Managers of organizations chartered to perform independent assessments and audits assure persons conducting independent assessments and audits are technically qualified and knowledgeable in the areas to be assessed or audited.
(Appendix D)

(Sections D9 & 10 support ISM Core Function 5 - 'Feedback and Improvement')

11.0 CRITERION 11 - CONTROL OF SOFTWARE

The requirements of section C.11 apply to Level □D□ Software. The term □software□ as used in this section includes firmware, documentation, data, and execution control statements (e.g. command files, job control language, etc.).

11.1 IMPLEMENTING PLANS AND PROCEDURES

BN Managers of items or activities that utilize software assure that implementing plans or procedures (IPs) for the control of developed or modified software are established in accordance with the requirements of this document. These requirements and the IPs comprise the Software Quality Assurance Program (SQAP) for BN. Implementing plans or procedures include sufficient information to meet the following requirements:
(Appendix C)

11.1.1. IPs identify the software items covered or reference a log or similar record where the items covered have been listed.

11.1.2. IPs contain a complete list of documents referenced elsewhere in the text of the plan or procedure

11.1.3. IPs provide for access, use and change control of software, and describe how and to whom authorization for access, use and change(s) to controlled software items is granted. However, information in IPs not be specific enough for an unauthorized person to gain access, use or make changes to controlled software.

11.1.4. IPs describe the portion(s) of the responsible department's organizational structure that influences and controls the quality of developed or modified software. This includes, if applicable, a description of each major element of the organization together with the roles and delegated responsibilities. The amount of organizational freedom and objectivity to evaluate and monitor the quality of the software, and to verify problem resolutions, is clearly defined.

11.1.5. IPs describe, if applicable:

- a. The portion(s) of the software life cycle covered by the IP,
- b. The tasks to be performed,
- c. The entry and exit criteria for each task, and
- d. The specific organizational element or person that is responsible for performing each task.

11.1.6. IPs identify applicable quality assurance and quality control tasks and describe the resources to be utilized to measure quality achievement.

11.2 TRAINING

IPs identify training necessary to meet their needs.
(Appendix C)

11.3 PROBLEM REPORTING AND CORRECTIVE ACTION

IPs:

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11.3.1. Describe the practices and procedures to be followed for reporting, tracking, and resolving problems or issues identified in both software items and the software development and maintenance process.

11.3.2. State the specific organizational responsibilities concerned with their implementation

11.4 RISK MANAGEMENT

IPs specify the methods and procedures employed to identify, assess, monitor, and control areas of risk arising during the portion of the software life cycle covered by the IP.

(Appendix C)

11.5 REQUIRED DOCUMENTATION

For developed or modified software, IPs identify the documents and records that govern the development, verification and/or validation, use and maintenance of software, and list which documents and records are to be reviewed or assessed for accuracy.

To assure that the implementation of the developed or modified software satisfies the technical requirements, the following documentation may be used:

(Appendix C)

11.5.1. Software Requirements Description (SRD) - (This requirement applies to all software.)The SRD specifies requirements for a particular software product, program, or set of programs that perform certain function in a specific environment. The SRD should also address basic issues of functionality, external interfaces, performance, attributes, and design constraints imposed during implementation. Each requirement should be identified and defined, so that its achievement can be objectively verified or validated.

11.5.2. Software Configuration Management Plan (SCMP) - The SCMP documents the software configuration management (SCM) activities that are to be accomplished, how they should be accomplished, who is responsible for specific tasks, the schedule of events, and what resources will be utilized. As a minimum, the IP address the SCM tasks that apply to the portion of the life cycle covered by the IP.

If applicable, the SCMP also defines the methods and facilities used to maintain, store, secure, and document controlled versions and related artifacts of the identified software during all phases of the software life cycle. This may be implemented in conjunction with a computer program library. Part of the plan may include documenting how the release and delivery of the product is managed. The plan can address SCM tasks over any portion of the product's development life cycle.

11.5.3. Verification and Validation Plans - Verification and/or validation processes are used to determine if developed or modified software products conform to their requirements, and whether the software products fulfill the intended use and user expectations. This includes analysis, evaluation, review, inspection, assessment, and testing of the software products and the processes that produced the products. In addition, the software testing, validation, and verification processes apply when integrating purchased or customer-supplied software products into the developed product.

The verification plan documents the verification tasks and the validation plan documents the validation tasks. If desired, the verification plan and validation plan may be packaged together in a single document. Each plan defines the verification and validation tasks and required inputs and outputs needed to maintain the appropriate software integrity level. It also provides a means of verifying the implementation of the requirements of the SRD in the design as expressed in the SDD and in the testing as expressed in the project's test documentation.

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11.5.4. User Documentation - For developed or modified software products, user documentation guides the users in installing, operating, managing, and maintaining (does not apply when modifying software source code) software products.

The user documentation describes the data control inputs, input sequences, options, program limitations, and all other essential information for the developed or modified software product. If applicable, all error messages should be identified and described. All corrective actions to correct the errors causing the error messages are described. The documentation is applicable to any portion of the embedded software with which the user interacts directly.

11.6 OTHER DOCUMENTATION

IPs identify other documents applicable to the software development project and software product that may be required. Other recommended documentation may include the following:

- a. Development process plan,
 - b. Software development standards description,
 - c. Software engineering methods/procedures/tools description,
 - d. Software project management plan,
 - e. Maintenance plan,
 - f. Software safety plans, and
 - g. Software integration plan.
- (Appendix C)

11.7 RECORDS COLLECTION, MAINTENANCE, AND RETENTION

IPs identify the documents and records to be retained in accordance with Criterion 4 of this QAPP.

(Appendix C)

11.8 MEDIA CONTROL

IPs state the methods and facilities to be used to:

(Appendix C)

11.8.1. Identify the media for each intermediate and deliverable computer work product and the documentation required to store the media, including when applicable the copy and restore process.

11.8.2. Protect computer program physical media from unauthorized access or inadvertent damage or degradation during all phases of the software life cycle. This may be provided as a part of the SCMP. If so, an appropriate reference is made thereto.

11.9 TOOLS, TECHNIQUES, AND METHODOLOGIES

IPs identify the software tools, techniques, and methods used to support SQA processes. For each, the IP states the intended use, applicability, or circumstances under which it is to be used or not to be used, and limitations.

(Appendix C)

11.10 STANDARDS, PRACTICES, CONVENTIONS, AND METRICS

(Appendix C)

11.10.1. IPs identify, when applicable, the standards, practices, conventions, statistical techniques to be used, quality requirements, and metrics to be applied. Product and process measures are included in the metrics used. IPs also state how conformance with these items is to be monitored and assured.

11.11 SOFTWARE REVIEWS

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11.11.1. IPs:

- a. Define the software reviews to be conducted. They may include management reviews, buyer-supplier reviews, technical reviews, inspections, walk-throughs, and audits/assessments;
- b. List the schedule for software reviews as they relate to the software project's schedule; and
- c. State how the software reviews are accomplished

11.12 SUPPLIER CONTROL

IPs state the provisions for assuring that software provided by suppliers meets established requirements. In addition, this section states the methods that will be used to assure that the software supplier receives adequate and complete requirements.

(Appendix C)

11.13 SOFTWARE TESTING

IPs identify all the tests not included in the software verification and/or validation plan for the software covered by the IP and state the methods to be used. If a separate test plan exists it is referenced.

(Appendix C)

11.14 MANAGEMENT SELF-ASSESSMENT

All BN Managers assess their management processes and proactively identify and correct problems that hinder the organization from achieving its objectives.

(Appendix C)

11.15 MANAGEMENT ASSESSMENT REQUIREMENTS

BN managers consider the following in performing the assessments:

- a. Organizational knowledge of areas needing attention;
- b. Site- and complex-wide lessons learned or identified weaknesses;
- c. Safety issues identified by issues management tracking and trending;
- d. Results of previous assessment findings and the associated status of corrective actions; and
- e. The level of activity and the risk involved.

(Appendix C)*

11.16 IDENTIFICATION AND CORRECTION OF ISSUES

Issues that hinder BN from achieving its objectives are identified and corrected in accordance with Criterion 3.

(Appendix C)

11.17 INDEPENDENT ASSESSMENTS

Specifically designated and qualified BN personnel and/or organizations plan, prepare and conduct independent assessments to measure item and service quality, to measure the adequacy of work performance, and to promote improvement in accordance with Criterion 3.

NOTE: The terms assessor and auditor are used interchangeably.

(Appendix C)

11.18 AUTHORITY FOR ASSESSORS

BN Executive Management establishes sufficient authority, and freedom from line management for the group performing independent assessments.

(Appendix C)