

NATIONAL SECURITY TECHNOLOGIES MANUAL	
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Foreword

This company manual (CM) establishes the singular process for controlling all *activity level work*, herein referred to as the Process, performed by or on-behalf of National Security Technologies, LLC (NSTec) personnel. It was developed to satisfy the intent as stated in Performance Objective OPS07A-25, Performance Target 2 of the Performance Evaluation Plan for the Performance Period from October 1, 2006 through September 30, 2007. This Process establishes and describes how the *Integrated Safety Management System* (ISMS) and Quality Assurance (QA) program are integrated for activity level work, while the electronic Facility and Operations Management Information System (e-FOM) implements ISMS at the *work authorization* process level.

Instead of re-writing existing instructions/procedural steps into this manual, this manual serves as a requirements map for one integrated process. For example, where the previous model allowed for several *hazard analysis* procedures, forms, and techniques, this new Process will identify the procedure(s) (i.e., tools) and requirements for performing a *hazard assessment*. Similarly, after identifying the appropriate tool to implement work control, one may select a *technical procedure* or a *work package* to implement controls in order to perform work safely and efficiently. Skill of the Worker (SOTW) has been redefined to be applied as an administrative hazard control rather than a work category. Project level construction has also been redefined to better match industry standards.

The Process was designed and developed with “on-ramps” and “off-ramps” to be flexible enough to accommodate the wide variety of work performed by or on behalf of NSTec. Irrespective of what kind of work is performed by NSTec, this single, integrated Process will be used to establish the controls required when performing activity level work.

The Process recognizes that *exceptions* and *exemptions* may be required. Accordingly, this manual allows exception through a controlled exceptions process. As long as adequate justification is provided and appropriate authorization obtained, an exception may be granted. In addition, it is recognized that not all work activities require documentation of ISMS or QA per Process requirements. This manual defines activity level work, and includes only related activities falling within the scope of the Process. An example of this would be a worker performing work at his/her computer. While many would consider this “working,” it would not qualify as activity level work as defined by this Process and therefore would automatically qualify as an exemption.

Finally, because this manual has an enterprise-wide effect, an accompanying Implementation Plan was developed to define the impact and state the scope of effort required to fully implement this Process. It is recognized that revising all affected governing documents is an on-going effort. As such, the approved Implementation Plan defines the actions, timelines, and priorities by which implementation will be achieved. As with all documents, the Implementation Plan is subject to change with appropriate review and approval.

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Chapter 1.0 Integrated Work Control Process

1.1 Purpose

This manual establishes the requirements and controls necessary to implement the Integrated Safety Management System (ISMS) and Quality Assurance (QA) requirements into a single integrated work control process for activity level work performed by, or on behalf of, properties and projects managed by National Security Technologies, LLC (NSTec).

1.2 Scope and Applicability

This manual implements the five core functions and eight (seven currently, one future expected) guiding principles of ISMS. This singular integrated work control process will herein be referred to as the Process.

This Process applies to all NSTec employees and personnel performing work on behalf of NSTec. This Process also provides the requirements on how subcontracted work must be controlled.

Only activities which qualify as activity level work, which is defined in this chapter, are applicable to this Process. *Emergency response* activities are exempt from this Process. Other activities may be excepted or exempted per the requirements of this Process.

Due to the complex nature of implementation, Implementation Plan PLN-NOPS.002, "NSTec Integrated Work Control Manual Implementation Plan" was developed and approved to allow a reasonable timeframe in which to fully implement the requirements of this Process. Specific implementation details can be found in the Implementation Plan itself, which will be maintained and revised separately, as required.

This Process does NOT apply to those employees assigned to work under the supervision of other entities, as described in Process Description PD-0001.001, "Integrated Safety Management System Description."

1.3 Definition of Activity Level Work

All NSTec work involving business and physical risks and controls is performed in accordance with the requirements and management approvals documented in e-FOM per Plan PLN-1014, "Risk and Work Configuration Management Plan." However, the requirements stated in this manual apply to activity level work, which is defined as follows:

NSTec activity level work is *any job, task, or sub-task (e.g., any activity, step, or action that is part of an instruction, procedure, process, sequence of steps, or evolution) performed in the field or on the floor where hazards are present that are either associated with the work or the work environment (regardless of who is performing the work or the organization with which they are affiliated).*

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This definition excludes common hazards that the workforce is routinely exposed to and accepts on a daily basis, such as those associated with an office environment or with the daily commute. (Reference *General Employee Safety and Security* [GESS])

The Applicability Screen in Section 1.7 is used to help determine if the work to be performed must be governed by this Process. Refer to Section 1.9 to determine if an exemption is applicable or to provide the requirements for requesting an exception to the Process.

1.4 **Organizational Structure and Responsibilities**

Roles and responsibilities must be defined and understood for *work planners*, work supervisors, responsible managers, approvers, workers, subcontractors, subject matter experts, and all other personnel involved in activity level work planning and control.

PD-0001.001, "Integrated Safety Management System," Process Description PD-0001.002, "Quality Assurance Program," and Management Plan MD-0001.01, "Management Description," provide a thorough representation of the NSTec organizational structure and approach to establishing and communicating roles and responsibilities. The NSTec President bears the overall responsibility for ensuring that safe and compliant work is performed under the Contract, and appropriately assigns tasks and delegates authority to NSTec responsible managers to fulfill this responsibility. Responsible management is responsible for the protection of the worker, the public, and the environment. Personal worker safety responsibility and accountability are NSTec corollaries to the Safety Management System (SMS) principle, and they support the system's effectiveness. Responsible management bears this responsibility at all levels, and together forms the "safety chain of responsibility." NSTec workers are defined as all NSTec employees and NSTec subcontractor employees. Responsible management includes NSTec workers who are assigned management or supervisory responsibility. The safety chain of responsibility extends down through the responsible management chain, to the workers of the organization, and the workers from other organizations who are assigned as support and subcontractor employees.

1.4.1 Organization

NSTec has a clearly defined organizational structure (See Figure 1) with roles and responsibilities as defined in MD-0001.01. NSTec's directives management system and flow-down process define management and worker roles, responsibilities, and authorities. These documents provide clear and unambiguous lines of authority and responsibility at all organizational and execution levels. Due to the scope of this Process, only the major responsibilities have been defined in this manual, as each performance document contains the applicable roles and responsibilities for the tasks being performed.

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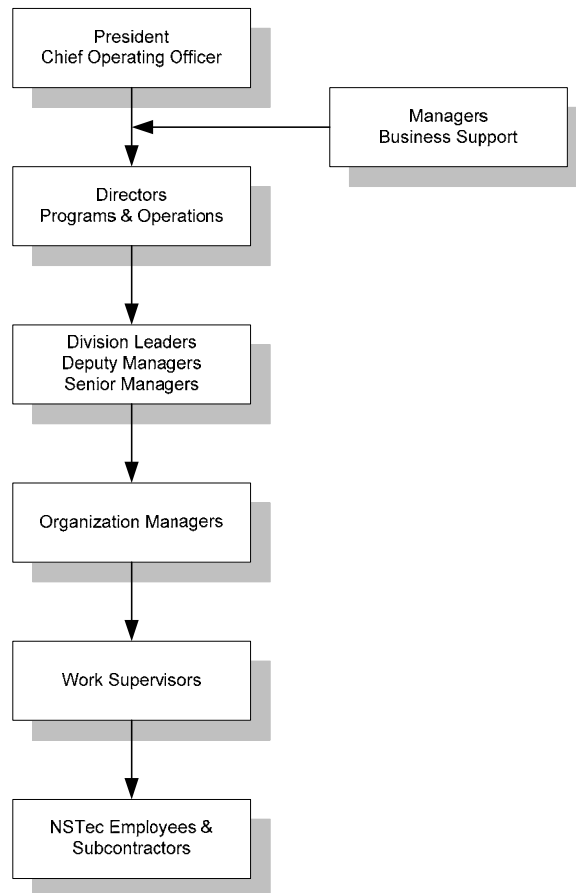


Figure 1 - NSTec Responsible Management Safety Chain of Responsibility

1.4.2 Responsibilities

[1] President, NSTec

- Ensures that all work, as governed by this Process, is followed.

[2] Chief Operating Officer

- Ensures that managers and supervisors in Executive Services, Directorates, and Divisions adhere to this Process.
- Conducts oversight activities, or ensures that they are conducted to verify that work is performed safely, efficiently, and in accordance with the requirements of this Process.
- Ensures that this Process is adequately funded and implemented.

[3] Responsible Managers and Supervisors

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- Use this Process to plan and perform work under their responsibility.
- Ensure that ISMS and QA requirements are followed.
- Ensure the appropriate work control document(s) are developed, revised, and maintained to perform work safely and efficiently.
- Provide adequate training for personnel who implement this Process, as well as for personnel executing the work.

[4] Workers

- Perform work in accordance with the requirements set forth by this Process.

1.5 Managing Work Interfaces

Different work management processes used by different organizations, or for different types or categories of work, must be designed and implemented such that the combined requirements (e.g., resources, integrated schedules, support, etc.), potential effects, and interdependencies of all work activities are effectively understood, analyzed, and coordinated by the affected organizations.

Adequate time should be allowed for work control training for Responsible Managers, work planners, safety professionals, work supervisors, hazards analysts, assessors, subject matter experts (SMEs), and others involved in work planning and control activities.

As the Prime M&O contractor to the NNSA/NSO, NSTec must support an array of customers without a direct contractual relationship, while executing contract requirements for NNSA/NSO in those business lines. Because of these circumstances, there exists the potential for conflicts to arise from differing approaches to safety management. To prevent these conflicts, NSTec implements requirements specified in Nevada Site Office Manual NSO M 412.X1D, "Real Estate/Operations Permit" (REOP). The REOP provides a mechanism to ensure that one entity is assigned safety coordination responsibility for real estate (*facilities*) and operations (*projects*) under NNSA/NSO purview, and provides for a clear assignment of responsibilities when different entities perform work in a common facility. NSTec's implementation of the REOP requirements is performed in accordance with Company Directive CD-A010.002, "Real Estate/Operations Permit Process."

The list below is not intended to be a comprehensive listing of all types of agreements, scopes of work, or other authorization mechanisms. The following are some of the mechanisms employed to define roles, responsibilities, and interfaces, to ensure that work is conducted safely and in compliance with applicable requirements:

- Authorization Agreements (Hazard Category 1 and 2) and Activity Agreements (Hazard Category 3) are established between NNSA/NSO and NSTec, addressing nuclear facility operations that define responsibilities and interfaces.
- Agreements described in Company Manual CM-2120.002, "Nevada Test Site Operations Manual," are established to define specific responsibilities and procedures for identifying, deconflicting, and scheduling all activities conducted on and, in some cases, in near proximity to the NTS.

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- Memoranda of Concurrence (MOC) state the tasks, roles, responsibilities, funding agreements, and duration of assignment. The MOC also authorizes and describes the methods for employee performance evaluation, training, and development. The MOC defines the agreement of roles and responsibilities, including facility-specific or project-specific expectation, for NSTec ESH&Q division personnel supporting (assigned to) either NSTec managers or NTS tenant organizations (TOs).
- Memoranda of Understanding (MOU) are established to define responsibilities for the safety of assigned workers, and this process is described in CD-0300.002.
- The Work for Others (WFO) Package, described in Company Directive CD-0010.001, "Work For Others," contains the documents that pertain to the WFO project. This includes, but is not limited to: a Statement of Work (SOW), Terms and Conditions, a WFO estimate, and "Review and Funds Transmittal Instructions," if applicable.

Regardless of the NSTec organization performing the work (as defined within this manual), the responsibilities and processes mentioned or described here shall be used to drive the interfaces to ensure that all involved and affected organizations and operations within a facility and/or work area are cognizant of the activity level work and are involved with work planning and deconfliction.

1.6 Integrated Work Control Process Map

The integrated work control Process is designed to control all activity level work at NSTec facilities and locations. To accommodate the diversity of work performed, the Process was designed to be flexible, allowing different entrance (on-ramps) and exit (off-ramps) points within its structure.

The concept of ISMS is seamlessly integrated into this Process as seen in Appendix 1, "Integration of ISM into the NSTec Activity Level Integrated Work Control Process," and Appendix 2, "NSTec Integrated Work Control Process Map for Activity Level Work," and subsequently in each chapter of this manual. Specific references are made to ISMS where each core function and guiding principle is applied.

1.6.1 Process Map

Appendix 2 provides a graphical representation of the Process used for all work. There is a higher-level process which governs the authorization of work as developed and managed in e-FOM. This e-FOM process is designed to establish the safety envelope at the facility and operations level, taking into account business and physical risks while authorizing work to be performed. Once it is determined that activity level work is to be performed, the Process described in this manual must be followed.

1.6.2 Applicability and Exceptions

The first step in the Process is the determination of whether the work is being performed or managed by NSTec personnel. If neither is the case, then this Process is not applicable, since that work will be governed by non-NSTec work control processes. As with any process, there will always be exceptions or exemptions. Section 1.9 of this manual addresses what may qualify as exceptions or exemptions, and how this process is handled.

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It will be the responsibility of the Facility Manager to determine if the activity level work performed by non-NSTec personnel falls within the facility safety envelope.

1.6.3 Emergencies [Chapters 4, 7, 8, 9; Core ISM Functions 1-5, Guiding Principles 1-8]

Emergencies can be defined into two distinct categories:

- Emergency Response and
- Emergency Work.

[1] Emergency Response

If an emergency exists, then it will be handled as an emergency response rather than through a methodical evaluation of scope and hazards. Emergency responses are performed by trained professionals following their internal emergency response procedures instead of this Process. All personnel are expected to follow the direction of the Incident Commander during an emergency.

Company Manual CM-2120.001, "Emergency Services And Operations Support Emergency Preparedness And Response Manual," provides guidance and requirements for the preparation for, response to, mitigation of, and recovery from the potential consequences of an emergency situation in all NSTec-managed buildings/facilities/areas/work locations, to ensure the safety and health of workers and the public, and the protection of property, environment, and security.

Potential situations at NSTec-managed facilities that may constitute an operational emergency or significant event, and may require shelter-in-place and/or evacuation, include natural phenomena (earthquakes, floods, windstorms); law enforcement-type events (civil disorders/riots, sabotage/malevolent acts); accidents or releases (aircraft, chemical, biological, radiological materials); external hazards; compromise/loss of classified material; accidental criticality; workplace accidents/mass casualty events; fires/explosions; suspicious packages; bomb threats; and power failures. Responses to these types of events (i.e., evacuation and/or shelter-in-place) are outlined in CM-2120.001, as well as in attachments to facility-specific Emergency Response Procedures (ERPs).

CM-2120.001 complies with the direction provided in NSTec Plan PLN-1004, "Emergency Management Plan," and applicable federal, state, and local laws, regulations, and ordinances. In addition, the manual provides full compliance with the National Incident Management System, based on Homeland Security Presidential Directive HSPD-5, "Management of Domestic Incidents."

[2] Emergency Work [Not performed by emergency responders]

Emergency work requires immediate action to prevent serious personal injury, environmental harm, security breaches, or property loss, and typically involves maintenance, construction, or operations. As such, "Emergency Work," as defined in this Process, deals with emergencies and the recovery from emergencies not classified as emergency responses. Once identified, emergency work is accepted per Chapter 4, executed per Chapter 7, and closed out per Chapter 8 with feedback provided per Chapter 9.

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1.6.4 Subcontracted Work [Chapter 10; Core ISM Functions 1-5, Guiding Principles 1-8]

Subcontracted work pertains to requesting, managing, and procuring products and/or services provided directly for NSTec or Work for Others (WFO) by a non-NSTec entity. Related work control requirements must be addressed in the approved contract. If the subcontractor has no acceptable work control process, then they may be required to perform their work under the requirements of this Process. This is a case-by-case decision and will be handled as described in Chapter 10.

1.6.5 Identification of Work Scope [Chapter 2; Core ISM Function 1, Guiding Principle 8]

In order to properly identify the hazards, requirements, and associated hazard controls, the work must be adequately scoped. Work components and processes must be defined in sufficient detail to enable the hazards, and the situations or circumstances in which they could cause harm, to be identified and analyzed. This is accomplished in Chapter 2. If this has already been accomplished, the next step is to request work.

1.6.6 Requesting Work [Chapter 3; Core ISM Function 1, Guiding Principle 2]

Some types of work, such as maintenance, must be formally requested. Chapter 3 details how construction, maintenance, and service work are requested, as well as how other (non-subcontracted) work is requested.

1.6.7 Accepting Work [Chapter 4; Guiding Principles 1-4, 7]

Chapter 4 provides guidance on how work is accepted by the organization(s) planning, scheduling, and executing the work. Approving the work is covered as part of planning the work in Chapter 5.

1.6.8 Planning Work [Chapter 5; Core ISM Functions 2-3, Guiding Principles 1-6, 8]

The work planning process of Chapter 5 implements the *graded approach* commensurate with the hazards identified, which can be a detailed and rigorous process. As such, training and qualification requirements of personnel planning work must be quantified. Efficiencies can be realized by utilizing the Skill of the Worker concept as an administrative hazard control. Since work performed at the NTS is very diverse, work is further broken down by work type and priority. One of the most important aspects of work control is an upfront and thorough hazard assessment, followed by a meaningful screening and evaluation process. When implemented judiciously, a good activity screening process may determine that some work, considered together with its related environment, is of such low hazard and complexity that few work controls are required (such as changing a light bulb). However, as the job complexities and work location hazards increase, then more appropriate and stringent controls must be adequately implemented. Another tool used to implement work control is the use of *Integrated Work Control Documents (IWDs)*. Examples of these documents include technical procedures, which are typically used for routine, repetitive work, and work packages typically used for unique maintenance and construction activities. Implementing *lessons learned* and feedback is an important part of the planning process so as to avoid repeating mistakes. Finally, work must be authorized by the applicable Facility Manager.

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1.6.9 Scheduling Work [Chapter 6; Guiding Principle 1-4, 7, 8]

Work activities require some level of prioritizing and scheduling. Various tools are available including task schedules, the Plan of the Day (POD), and Subpart B (NV-123B) used by the NTS Operations Coordination Center. Chapter 6 describes how work is scheduled.

1.6.10 Executing Work [Chapter 7; Core ISM Function 4, Guiding Principles 1-3, 5, 6, 8]

Personnel must have some level of training and qualification before executing work. The graded approach must be utilized depending on the work. For example, personnel performing work in a nuclear facility must be trained and qualified in accordance with the requirements stated in Company Directive CD-3100.720, "Nuclear Operations Training and Qualification." However, personnel performing low complexity work with low hazards may be able to rely on Skill of the Worker and require less training and/or documentation. In any case, controls must be implemented to address the hazards identified in the planning process. Good communication techniques, such as pre-job briefings, should be performed prior to work performance. Finally, work qualifying as emergency work or subcontract work must be executed as described in Chapters 7 and 10, respectively.

1.6.11 Closing Out Work [Chapter 8; Guiding Principles 1-3, 8]

Chapter 8 provides requirements for accepting completed work, as well as closing out emergency work.

1.6.12 Feedback and Improvement

[Chapter 9; Core ISM Function 5, Guiding Principles 1-3, 5, 6, 8]

One of the main core functions of ISMS is continuous feedback as described in Chapter 9. In fact, the creation of this Process is due to cumulative feedback gathered from past work. Tools such as post-job debriefings, lessons learned, and feedback allow each step of the Process to be improved, as required. Assessments also provide a valuable tool to determine areas of improvement in the Process.

1.7 Applicability Screening

As defined in Section 1.3 of this manual, many activities do not qualify as activity level work. If they do not, then the work control requirements stated in this manual do not apply. A graphical depiction of the logic to use in determining whether the work qualifies as activity level work can be found in Appendix 2. To determine if the work to be performed is subject to the requirements of this Process, the following questions must be answered:

- [1] Is the work being performed by NSTec personnel OR on behalf of NSTec (subcontracted)?

The purpose of this question is to screen out work that is not performed by NSTec personnel or work that NSTec is not managing. Some external work may be conducted at the NTS, but not under the auspices of NSTec. In such cases, authorization agreements and contracting controls would be in place between the work performer and NNSA/NSO, outside the purview of NSTec, and thus, not subject to the requirements of this Process.

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- [2] Does your work meet the definition of “activity level work” as defined by this manual?

The definition of activity level work must first be met in order to fall under the requirements of this manual. While all employees do what most people consider “work” for the company, not all work falls under the scope of work control. Thus, if it is not activity level work as defined in Section 1.3, then that work is not subject to the requirements of this Process.

- [3] Does your work qualify for an exception/exemption as described in Section 1.9 of this manual?

If the work meets any of the exceptions/exemptions as stated in Section 1.9, then it is not subject to the requirements of this Process. An exception to a requirement may be granted provided adequate justification is given and proper authorization received. Certain work may also qualify under an exemption from the Process.

- [4] Does your work qualify as an Emergency Response?

If a condition qualifies as an Emergency Response, the work control Process described in this manual does not apply.

1.8 **Quality Assurance Requirements**

NSTec is committed to implementing a program that will institutionalize the DOE Quality Management System. This program, implemented through contract clauses, requires contractors to ensure that the quality requirements are achieved and that their approach for implementing a Quality Assurance Program (QAP) is described.

PD-0001.002 describes the system used by NSTec to ensure that quality is integrated into all work performed. Requirements Document RD-3200.001, “Quality Assurance Requirement Document” (QARD), establishes, defines, and communicates the contractual requirements for the NSTec QAP.

This Process provides the attributes and requirements for effectively incorporating ISMS core functions, guiding principles, and QA criteria into activity level work planning and control processes. Incorporation of the attributes into work planning and control processes will help to ensure that ISM and QA requirements are met. The flow down of requirements within NSTec is graphically depicted in Figure 2 on the following page.

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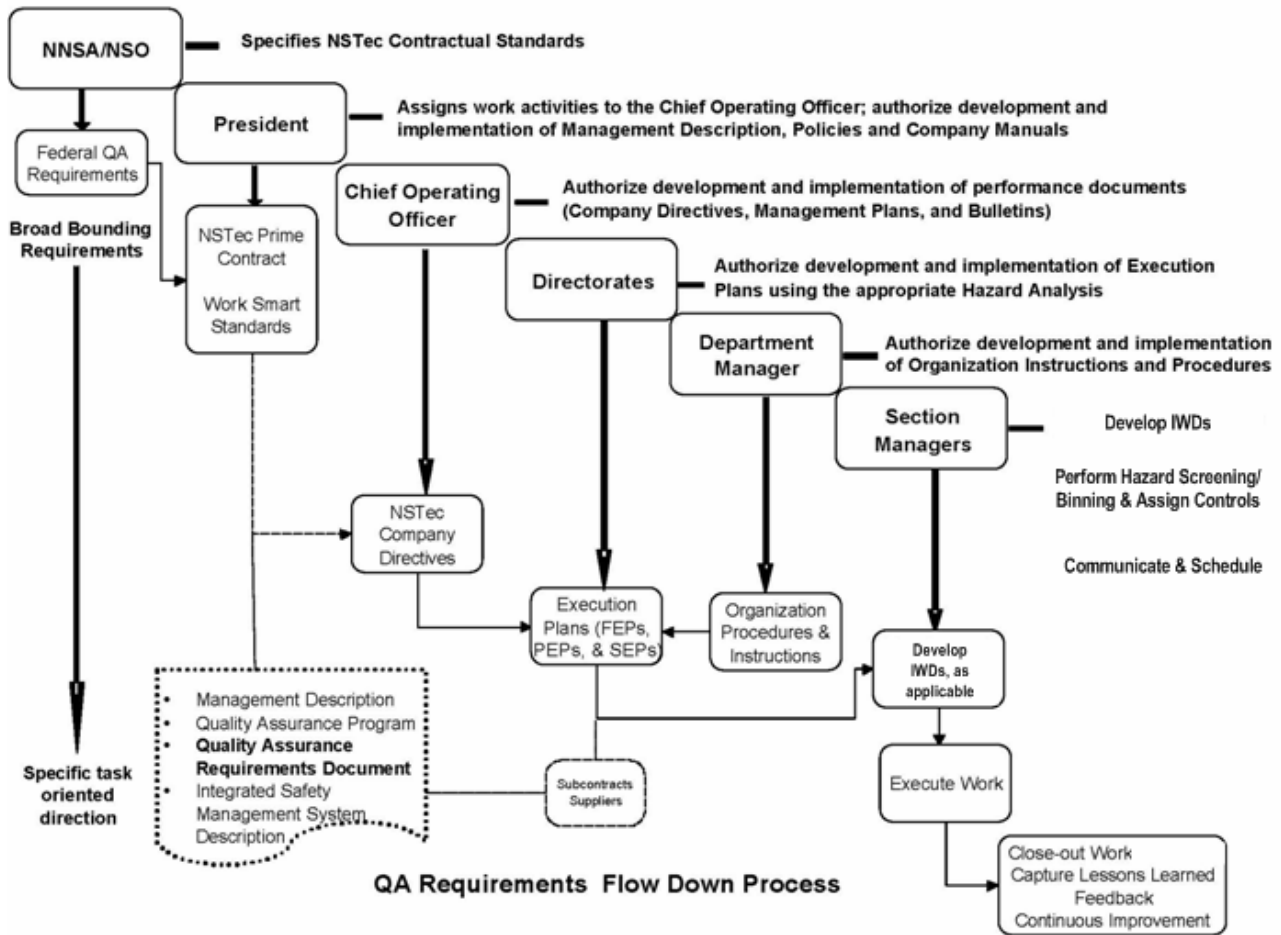


Figure 2 – Flow Down of QA Requirements and Performance Documents Hierarchy

1.9 Exception/Exemption Process

Because of the variety of work performed by NSTec, exceptions and/or exemptions to the Process may be required. It is the responsibility of the performing organization to determine if an exception is required and justified, and if so, to obtain proper authorization. As such, when a performing organization determines that an exception must be taken, careful selection and evaluation must be applied. This methodology is two fold: Exceptions and Exemptions.

1.9.1 Requesting Exceptions to Activity Level Work

An exception is the conscious and deliberate act of excepting or excluding something which would otherwise be included or required, as in a policy requirement, required work step, direction statement, programmatic rule, safety element, etc., from the Process requirements.

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Exceptions to the Process or a performance document that implements the Process must be evaluated, justified, and approved. When a performance document is referenced within the manual, both the program/document owner, or his/her manager, and the program owner of the Process must concur in approving the particular exception being sought.

Justification for an exception must be documented and approved by formal memorandum. The exceptions may be equivalent in nature, or be evaluated as equivalent, with respect to the requirement(s) being excepted. An example may be a technical or safety requirement (e.g., torque specification or fire watch) that would require prescribed elements to be in place that meet the initial intent of the rule/requirement being excepted. This is commonly referred to as a “technical or administrative equivalent.”

Evaluations must be performed, reviewed, and approved by the organizations/groups that normally are required to review and approve the exception.

1.9.2 Exemptions to Activity Level Work

An exemption would be the conscious and deliberate act in which, by evaluation and conclusion, it was determined that the work scope being evaluated would not apply to the rule/standard to which the work scope is being compared. In this case, an exemption is from the Process in total. However, for non-tenant work, standard notifications must be made to the appropriate Facility Manager.

Exemptions to an activity level work process are generally captured by the e-FOM process (safety envelope) and are defined as GESS activities. GESS is defined as common vulnerabilities and hazards that may be associated with an office or other low risk environment. The GESS matrix lists common risks/hazards and the associated mitigations which employees must be informed of and put into practice. Examples of work performed under GESS involve the use of general office equipment (e.g., shredders, paper cutters, copiers) and driving vehicles, both of which have engineered as well as administrative controls in place. All work performed under GESS requires that each employee, as an integrated part of their daily activities, identify and assess these common risks/hazards and follow safe work practices. Because this matrix may change, refer to the most current version of the GESS matrix which is maintained on the Environment, Safety, Health and Quality (ESH&Q) Division’s webpage on the NSTec intranet.

To aid in determining exemptions, several examples are listed below. This list is not intended to be all inclusive, nor is it intended to replace the approved GESS matrix.

- All activities identified on the current GESS matrix (UNLESS the GESS activity is being performed in a hazardous environment)
- Work being performed in non-hazardous environments and considered normal working environments with no hazard controls required for the operations

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- Routine operation and roadside repairs of automobiles, light duty trucks and emergency response vehicles. This would include minor work and service such as fueling, tire changes, minor engine/body repairs, battery testing/replacement, etc. (EXCEPT operation of lifts or working under suspended loads)
- Routine operation, repair, and service of office equipment, including computers, drives, scanners, fax machines, copiers, telephones, and other electronic office devices, and office furniture
- Routine operation, repair, and servicing of miscellaneous equipment, including security devices (excluding Tamper Indicating Devices), audio/video equipment, exercise equipment, minor snow removal, warehouse pickup/delivery/stocking, and commodity vendor services (vending machine filling and maintenance)
- Routine support services, including cafeteria services, housing/housekeeping services, janitorial services (EXCEPT in areas controlled for radiological purposes, areas which have Hantavirus concerns, or working at elevated heights or under suspended loads)
- Routine administrative and clerical services, including typing, filing, and classroom training
- On-the-job training (OJT) shall be controlled via the company training procedures and is thus exempt from this Process
- Routine performance of inspection, surveillances, or assessments, as long as work performers function in an observer capacity and are compliant with area administrative control (e.g., appropriate training, being on the POD, providing personal protective equipment [PPE], Radiological Work Permits, etc.)

1.9.3 Exceptions/Exemptions Not Allowed

Exceptions/exemptions that are typically NOT allowed include, but are not limited to:

- Work that may compromise contractual requirements between NSTec and DOE/NNSA/NSO
- Work that violates a law or regulation (e.g., any Code of Federal Regulations [CFR], Department of Energy Order, Nevada Site Office Order, etc.)
- Work that violates nuclear safety requirements such as those derived from a Documented Safety Analysis, Technical Safety Requirements (TSR), etc.
- Requirements prescribed by a tenant organization, while performing work within their REOP.

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Chapter 2.0 Identify Work

Core ISM Function 1, Guiding Principle 8

NOTE: It is assumed that the appropriate screening process has been performed in accordance with Chapter 1 and that some or all requirements defined by this Process apply.

2.1 Defining Scope of Work

The Integrated Work Control Process starts with identifying that activity level work will be performed. Once the need for work has been identified, the scope of work must be defined. This scope identifies the work to be performed and the boundaries to which it will be planned. The scope must have enough detail so that the work planner has the requisite information to adequately plan the work.

In identifying work, the following should be included in the work request, or scope of work in the technical procedure or work package:

- A statement of the purpose of the activity or work (objective and principal driver – why the activity is being performed) and general location (U1a, NLV C-3, JASPER, etc.)
- A description of the characteristics of the work activity, including the type of activity or work to be performed (maintenance, operations, construction, experimentation, geological, etc.), whether the work activity is repetitive or non-repetitive, simple or complex, compliance-based or authorization-based, etc.
- A definition of the start and end points for each activity
- A definition of activity boundaries
- A basic description of the major work steps, sub-steps, phases, or elements
- Identification of the principal types of hazards directly involved with the activity or expected to be encountered during performance of the activity
- A description of the interfaces between organizations and other activities occurring concurrently in the same location
- Other information which may be needed to complete the work safely and expeditiously (e.g., tools, equipment, etc.)

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Chapter 3.0 Request Activity Level Work

Core ISM Function 1, Guiding Principle 2

3.1 Determine the Type of Activity Level Work to be Requested

Most common requests for activity level work are related to facility maintenance, alterations, construction, and service work. Other typical types of activity level work that can be requested are related to subject matter experts (SMEs), specialized skills, engineering, industrial hygiene (IH), waste management, etc. It is the responsibility of each support organization to establish a work request process which will reside with the work control office.

For any work performed on a real property asset per U.S. Department of Energy Order DOE O 430.1B, "Real Property Asset Management," the work request must be processed through the Work Control Department and entered into the Computerized Maintenance Management System (CMMS).

3.2 Requesting Maintenance, Construction, and Alterations/Modifications

NOTE: Subcontract employees to NSTec are required to report all deficiencies, as described below, to their NSTec supervisor and/or the Subcontract Technical Representative (STR) upon discovery.

3.2.1 Properties Within Nevada

NSTec employees who identify a facility or infrastructure deficiency, or require facility or infrastructure maintenance or construction must notify the Facility Manager/Facility Owner (FM/FO), their supervisor, and/or the Customer Service Unit (CSU).

- [1] Notification of the FM/FO should be made first, to determine if the deficiency or needed facility maintenance in question has already been identified and reported such that a request for activity level work has been initiated.
- [2] Notification of supervision is necessary to inform other personnel in the organization or work areas that the identified deficiency or needed facility maintenance has been identified and communicated.
- [3] The CSU is a centralized area manned by qualified personnel who receive and initiate activity level work requests and recommend initial priorities for the activity level work. Further details and requirements are contained in Company Directive CD-4100.004, "Requesting Maintenance, Construction, Alterations, and Service Work."

3.2.2 Properties Outside Nevada

For properties outside Nevada, any NSTec employee who identifies a facility deficiency or requires facility maintenance should notify their supervisor and the FM/FO. Because of the various unique property agreements at each of the non-Nevada facilities, the FM/FO has differing protocols to follow for a given deficiency or facility maintenance. These protocols depend upon:

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- Contractual requirements within the leasing agreement
- Scope and magnitude of the deficiency
- Urgency and importance of the deficiency

3.3 **Requesting Other (Non-Subcontracted) Activity Level Work**

There are many opportunities to request activity level work from other organizations. Activity level work requests are typically due to the nature of a particular operation or to complete a scope of work requested by a customer.

3.3.1 When an organization determines that activity level work is needed and cannot be supported from within their organization, it shall perform the following:

- [1] Determine and contact the organization responsible for performance of the activity level work (request work).
- [2] If a request form is available by the supporting organization, complete the form and submit as required.
- [3] Provide sufficient details regarding the needed activity level work in accordance with the request. If no request process is available, provide the following:
 - [a] Provide a detailed scope of work, which may include
 - The mission-critical nature of the operation and the support's importance to that mission (priority)
 - The facility or job-site at which the work will be done, if not done within the work performer's facility
 - The applicable authorization bases (Real Estate Operating Permits [REOPs], Execution Plans) in order that the work planner may appropriately identify applicable safety-envelopes
 - Information on co-located operations or environments for the work planner to evaluate impacts on activities
 - Facility or job-site environment, safety, health, and security controls
 - [b] Acceptance criteria for completion
 - [c] Time base, due dates
 - [d] Point of contact and approving authority
 - [e] Source of funding
- [4] Determine in conjunction with the work performance organization whether the activity level work is captured under a recovery pool (baseline services document) funded to support the work, or whether the requestor is obligated to cover the costs.
- [5] Verify with the FM/FO and the Operations Manager that the scope of work may be performed within the facility's authorization bases (e.g., e-FOM, Nuclear Operation, REOP, etc.)

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Chapter 4.0 Accept Work

ISM Guiding Principles 1-4, 7

4.1 Training and Qualification for Personnel Accepting Work

It is up to each organization accepting activity level work to determine the training and qualification requirements. Typically, work is accepted by someone in a supervisory or managerial role, and the act of accepting work is related to their normal job duties. There is no other specific training for accepting work at this level.

4.2 Work Acceptance Process

The *work acceptance* process evaluates requests to determine whether the requested support is within the supporting organization's authorization basis (i.e. Real Estate Operating Permit [REOP], Execution Plan) and if they are necessary. For example, the work maybe simple enough that no integrated work control documents (IWDs) are required (See Section 5.8). However, if the work to be performed meets a certain threshold, systematic planning of the work will be required.

4.2.1 While no formal training is required to accept work, a person performing this duty must specifically obtain approval from management to accept work. Part of that authorization is given through the individual departments/facilities that operate at the NTS and remote sites. The following documents delineate the individual processes for some of those facilities:

- Company Directive CD-0441.002, "Radiological Work Restrictions for Individuals"
- Company Directive CD-A010.001, "Facility Manager/Facility Owner Program"
- Company Directive CD-A010.002, "Real Estate/Operations Permit Process"
- Company Directive CD-4000.004, "Skill of the Craft"
- Company Directive CD-0500.005, "Baseline Change Control"
- Company Directive CD-2000.001, "Facility Execution Plans"
- Company Directive CD-4000.002, "Work Package Process"
- Company Directive CD-2100.002, "Plan of the Day"
- Company Directive CD-NMNT.030, "Integrated Maintenance Work Control Program"
- Company Manual CM-2120.002, "Nevada Test Site Operations Manual"
- Company Manual CM-NMNT.001-001, "Nuclear Facility Maintenance Management Program Description"
- Company Manual CM-NMNT.001-002, "Nuclear Facility Maintenance Management Program Requirements"
- Company Manual CM-NMNT.001-003, "Nuclear Facility Maintenance Guide"
- Company Manual CM-0444.001-005, "Aviation Safety Program Administrator (ASPA) Oversight and Safety Responsibilities"

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- Company Manual CM-0444.001-001, “General Safety Rules”
- Company Manual CM-NMNT.001-030, “Nuclear Facility Integrated Maintenance Work Control Process”
- Organization Procedure OP-4800.006, “Davis-Bacon Work Determination”
- Organization Procedure OP-2110.006, “Construction Work Planning/Packaging”
- Process Description PD-4000.001, “Work Control/Authorization”
- Individual Project Execution Plans and Support Execution Plans

4.2.2 Once the work has been accepted, the work planning process begins.

4.3 **Approving Emergency Work**

Emergency work (i.e., not Emergency Response) is an activity or activities that are required to further mitigate the circumstances of an incident after immediate actions have been taken. Emergency work must be authorized after some finite considerations have been made regarding the severity and complexity of the incident.

A verbal emergency request is usually submitted while the work activities are evolving.

Performing immediate actions as part of the emergency work does not require a work package. Such actions are only performed when the situation is deemed an “emergency” and apply only to the work necessary to mitigate the situation until conditions are stabilized. When the scope of emergency work is completed, a work package is developed, reviewed, approved, and completed by appropriate emergency support personnel. The work package is then sent to the CSU to record and maintain facility/equipment history.

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Chapter 5.0 Plan Activity Level Work

Core ISM Functions 2-3, Guiding Principles 1-6, 8

5.1 Training and Qualification for Maintenance and Construction Work Planners

5.1.1 Personnel performing the role of a Maintenance or Construction work planner shall be trained and qualified to the appropriate qualification(s) as follows:

[1] WPQ0001, "Non-Nuclear Work Planner Qualification Program"

This qualification is intended for all personnel who perform the Roles and Responsibility of a Non-Nuclear Work Planner. It is a pre-requisite qualification for MNT0301, "Nuclear Operations Nuclear Work Planner Qualification Program."

[2] MNT0301, "Nuclear Operations Nuclear Work Planner Qualification Program"

This qualification is intended for all personnel who perform the Roles and Responsibility of a Nuclear Work Planner.

5.2 Training and Qualification for Non-Maintenance and Non-Construction Work Planners

5.2.1 Many organizations outside of Maintenance and Construction plan and perform activity level work. These organizations rely on their subject matter experts (SMEs) to perform work planning functions in their areas of expertise, as well as prepare the appropriate work control documents. As such, a non-Maintenance/Construction Work Planner shall, at a minimum, take course 1G000573, "Work Control – Work Planning Processes," and be current on individual training for their field as defined on their Training Requirements Questionnaire (TRQ). Personnel outside of Maintenance and Construction who meet these specific criteria are exempt from qualification WPQ0001.

5.3 Skill of the Worker Implementation

5.3.1 In the planning phase of work control, each scope of work must be analyzed based upon its overall complexity, the consequences of improper performance, and the frequency of performance. This Process designates Skill of the Worker (SOTW) as an administrative control that can be applied to any level of work to meet applicable hazard control requirements in the Job Hazard Assessment. Skill of the Worker is implemented in accordance with CD-4000.004, "Skill of the Craft."

5.4 Davis-Bacon Determination

5.4.1 A *Davis-Bacon determination* is performed to ensure that craftwork is assigned in accordance with applicable labor agreements, laws, and company policies and procedures. Organization Procedure OP-4800.006, "Work Determination," is written to the level of detail appropriate for all work sites and is intended to establish a standard for the rapid determination of routine and clearly defined work. It also provides for the resolution of unclear or unique situations through decision elevation. Included is a path for committee resolution of determinations that are unclear or "challenged" by trade unions.

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5.4.2 A Davis-Bacon determination is required to be performed on work orders for alterations and modifications to existing systems and equipment. Normally, it does not apply to corrective or *preventive maintenance* on existing systems or equipment, exact replacement of parts or entire systems, or to scheduled “upkeep” maintenance, such as routinely scheduled painting. However, vague areas may exist such as unscheduled upkeep maintenance. Because of the monetary liability involved in arriving at an incorrect Davis-Bacon determination and other requirements, a Davis-Bacon determination is required.

5.5 Work Planning and Prioritization

5.5.1 A graded approach is utilized to identify the level of rigor required to perform work. When planning activity level work, the work scope complexity, consequences of improper performance, and frequency that the work is performed determines the level of rigor. The graded approach takes into consideration the type of work and/or system (e.g., Safety-Class, Safety-Significant, or neither), and considers assumptions such as facility and equipment availability, operations, and applicable requirements/documentation (e.g., facility hazard analysis, health hazard analysis, Documented Safety Analysis [DSA], Technical Safety Requirements [TSR], Quality Assurance Requirements Document, etc.).

Regardless of the work being done, it is the responsibility of the planning team to systematically address or eliminate the hazards based on the worst case scenario (i.e., uncontrolled/unmitigated consequences), and to develop the integrated work control documents (IWDs) and controls based on this information.

Non-nuclear facilities performing operations activities and which fall under the requirements of Conduct of Operations shall plan work in accordance with CM-E000.001, “NSTec Conduct of Operations Manual.” Nuclear facilities performing operations activities which fall under the requirements of Conduct of Operations shall plan work in accordance with DM-NOPS.001, “Conduct of Operations.”

5.5.2 There are several levels of work planning approaches that can be selected as a result of this graded screening approach, which guides the planner to the IWD and training required. Specific knowledge for the following factors is considered when determining an appropriate level of work planning:

- Scope definition
- Work process flow
- Nature of the hazards
- Complexity/consequences/frequency
- Quality level

5.5.3 In general, the more complex the scope of work, the greater consequence of improper performance, and the lower the frequency of the work, the more rigor and analysis is required in the planning phase. Using the graded approach concept, a low-risk, simple activity requires a low level of planning and could be planned with minimal participation by the SMEs, while a high-risk, complicated, or large activity requires a higher level of planning and would require more participation and commitment.

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5.5.4 Work priority is managed to achieve integration among all necessary interfaces. The activity level work scheduling process has a formal work screening and validation process that:

- Determines work need and priority
- Identifies tentative work schedule
- Ensures that work is not duplicative
- Determines applicable work planning and control process methods based on the nature of the work

5.5.5 Work prioritization considers safety and mission impact. Safety impact includes both personnel safety (e.g., Occupational Safety and Health Administration [OSHA], radiological, and IH types of considerations) and facility safety (e.g., authorization basis assumptions concerning worker and public safety and environmental impact). The prioritization method should be effective in assigning meaningful work priorities so that jobs most important to safe and reliable facility operation are accomplished first.

5.6 Hazard Assessment Screening and Evaluation

5.6.1 Perform Hazard Assessment

The work to be performed must be characterized as completely as possible using the Job Hazard Assessment Checklist **before** performing the activity screening/binning assessment. All initial activity level work evolutions require completion of the Job Hazard Assessment Checklist. Characterization of the activity is an essential element in the first function of the Integrated Safety Management (ISM) process, "Define the scope of work." Project baseline descriptions and work authorization documents provide a level of description for activities and work being planned.

For a work activity, this process requires that additional characterization information be obtained and documented to develop the hazard profile and select the proper planning process. For all new scopes of work, it is expected that work planners and affected SMEs shall perform a complete walk-down of the entire work scope to obtain the hazard information. If the work has previously been performed, then it is the responsibility of the work planner to ensure that the previously assigned hazards, facility conditions, and controls are still adequate to safely perform the job. The type of characterization information that must be considered in a work activity planning process includes the following:

- The purpose and type of activity or work being performed
- The starting and ending points for the activity
- A description of the major work steps, phases, or elements
- Specific types of hazards directly involved with the activity or expected to be encountered, such as confined spaces, working at heights, chemicals, radiological concerns, etc.
- Required permits and regulatory documentation

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- Significant uncertainties that currently exist that could affect the performance of the activity
- The potential interfaces with other activities and/or concurrent activities in the same location
- History of the work activity performance, including historical records, process knowledge, etc.
- Review of feedback in history files of work instructions for same or similar activities
- Environmental or regulatory impacts that may occur as the result of the work
- Review of lessons learned about similar work and activities

NOTE: The examples found in Appendix 4, Appendix 5, and Appendix 6 are provided simply for illustrative purposes only. Official guidance can be found in the implementing documents described in this manual.

5.6.2 Using the input obtained from the hazard assessment, an activity screening/binning is performed using the Activity Screening Tool found in Appendix 3. Illustrative examples can be found in Appendix 4, Appendix 5, and Appendix 6. This screening is the first step in determining what type of IWD to use, recommended training rigor, and what level of planning is required.

The activity screening takes into account the following three variables:

- [1] Scope of Work Complexity – This variable takes into account how “easy” or “difficult” the **entire scope of work** is to perform. The scope of work typically will consist of many tasks, while the boundaries of the work scope (i.e., clear start and end points) must clearly be defined. Accordingly, it takes into account the different types of radiation/contamination areas, confined space areas, types of electrical work, nuclear facility work, work location conditions, etc. It is not just one task (i.e., operating a back hoe) but a consideration of the entire scope of work (i.e., operating a back hoe in a contamination area to recover an unexploded ordnance.)
- [2] Consequence of Improper Performance – This variable takes into account the undesired consequences of things that can happen if the work is improperly performed. When considering consequences, a much broader thought process must take place. “Consequences of improper performance” refers to the multitude of things that can be affected by the work if something goes wrong. It encompasses not only personal injury, but also equipment damage, environmental impact, operational impact, legal ramifications, and financial burdens including loss and fines. Also, this variable must be applied by **considering unmitigated consequences**. This keeps the actual hazards in focus. To determine where an activity falls in this section the work planner must be very familiar with the work and knowledgeable about the processes involved. As such, in addition to performing a thorough job walk-down and hazard assessment, the work planner must consult with the affected SMEs and discipline experts (IH, RadCon, Engineering, Safety, etc.) to discuss the work in detail. Finally, best professional judgment and reasonability must be applied for this variable. As an example, a minor injury may occur, such as a paper cut. In the most extreme condition, a

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fatality may occur. However, the probability of this consequence is highly unlikely so this level of thinking must be applied.

- [3] Frequency of Performance– This variable deals with the frequency that the work is performed. Frequency does NOT take into account when any one individual performs the work. For example, the work may be performed weekly, but one particular individual may not have actually performed the work for months. That is an issue called “proficiency,” and is addressed as part of the related training and qualification program.

5.6.3 Although one person may utilize the Activity Screening Tool, a table-top session with the responsible workers, supervision and SMEs is strongly recommended.

5.6.4 Human judgment and experience must be applied during and after the Activity Screening Tool is used. For example, the screening tool may recommend the use of a Type III work package, but recent experience obtained dictates that more rigorous controls be applied. As such, the work planner may decide to use a Type II work package instead of the Type III work package recommended by the activity screening tool. This more conservative application can be done at the work planner’s discretion, but documentation and concurrence with the affected SMEs is highly recommended.

However, if the work planner wishes to downgrade the activity screening suggestion (i.e., using the example above, selecting a Type IV work package instead of a Type III), then concurrence must be obtained from all affected disciplines, the workers and SMEs, and then completion of an exception per Section 1.9 is required.

The training recommendation in the far right column of the Activity Screening Tool in Appendix 3 is intended to serve only as a recommendation to help the planner chose the appropriate training for the work. It is not intended as a requirement. More appropriate analysis, such as use of the Systematic Approach to Training, may be required.

5.6.5 Company Manual CM-0444.001-004, “Job Hazard Analysis and Pre-Task Hazard Review” describes the singular method to perform a job hazard assessment.

Department Manual DM-NENG.002, “Hazard Analysis Methodology,” for Nuclear Safety describes the approach used to perform a hazard analysis required by Title 10 Code of Federal Regulations (CFR) 830, “Nuclear Safety Management,” Subpart B, “Safety Basis Requirements.” As such, this process is applicable to determining facility safety envelopes which are more appropriately addressed as part of the e-FOM process.

5.7 Identification of Hazard Controls

NOTE: The best overall control may be using a combination of the controls listed below.

5.7.1 All hazards identified on the Job Hazard Assessment Checklist must have an appropriate and corresponding control assigned. This information must be flowed down and captured in the appropriate IWD as described in Section 5.8.

5.7.2 Hazard controls should be applied in this order of consideration:

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- [1] Substitution or Elimination of the Hazard – Whenever there is concern about exposure to a hazard, the first consideration must be to eliminate or substitute a less hazardous material, process, or equipment for one that is more hazardous.
- [2] Engineering Control of the Hazard – The use of engineering methods to reduce exposure to hazards (e.g. ventilation, machine guarding, isolation, or source modification).
- [3] Administrative Control of the Hazard – This method uses management involvement, training of employees, rotation of personnel, air sampling, biological monitoring, and medical surveillance to protect individuals.
 - Skill of the Worker (Training & Qualification)
- [4] Use of Personal Protective Equipment (PPE) – When occupational safety and health hazards cannot be eliminated or reduced through substitution, engineering controls, or administrative procedures, the use of PPE is mandatory. Refer to Company Manual CM-0444.001-060, “Personal Protective Equipment,” for further instruction. PPE may be utilized to reduce exposures while evaluation of the feasibility of other controls is in progress, or while other controls are being developed and implemented.

5.8 Integrated Work Control Documents

5.8.1 Integrated Work Control Documents

Depending upon the type of activity level work to be performed, various IWDs can be utilized. Because of the diversity of work performed by NSTec, the process of selecting an appropriate IWD is designed to be flexible, depending on the nature of the work. For example, work involving *corrective maintenance* or construction activities may be governed by an appropriately scoped work package. However, work that is repetitive or routine in nature may be controlled by development of a technical procedure. Some examples of organizations that might use technical procedures include, but are not limited to, Nuclear Operations, IH, Radiological Control (RadCon), Engineering, Research & Development, and Preventative Maintenance.

It is up to the work planner, in conjunction with the work performers, their supervisors, and other affected SMEs, to select the most appropriate IWD. Regardless of what IWD is selected, the concept of ISMS must be built into each document by identifying the hazards and controls into each IWD.

The allowed IWDs for activity level work include work packages, technical procedures, and applicable documents used in *Project Level Construction* (Reference Section 5.8.4 for a listing of allowable documents). All other document types, such as organization procedures (OPs) and organization instructions (OIs) will not be allowed to control or authorize work unless an exception per Section 1.9 of this IWCM is approved. OPs and OIs used to provide programmatic or administrative work control requirements must be either revised to match the requirements of this Process or deleted.

All IWDs for Hazard Category 1, 2, or 3 nuclear facilities must be submitted for Unreviewed Safety Question (USQ) review in accordance with CD-NENG.019, “Unreviewed Safety Question Process.” Exceptions include routine maintenance

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activities, such as calibration, refurbishment or housekeeping as defined in CD-NENG.019.

5.8.2 Work Packages

A work package (WP) is a set of documents that contain the necessary instructions, permits, hazard assessment, hazard controls, and other authorizations to perform activity level work.

All work packages must be developed, revised, and maintained using CD-4000.002. Exceptions will also be handled per CD-4000.002.

Because of the varied nature of work performed, there are four types of work packages used. The activity screening/binning process in Section 5.6 is used to aid in determining the appropriate work package type to use. All work packages require a Job Hazard Assessment (JHA) checklist to be completed and the information flowed down into the work package. The information from the JHA checklist must be included in the Activity Level Work Instructions section (reference Figure 3) which must contain the following:

- Work steps containing the detail commensurate with the rigor of the work package type
- Special Requirements (signatures, hold points, permits, etc., as required)
- Identification of the hazards associated with each step
- Controls of the hazards associated with each step

Activity Level Work Instructions
(Inside Work Package)

<ul style="list-style-type: none"> • Work Steps • As detailed / required for the rigor of work identified 	<ul style="list-style-type: none"> • Special Requirements [Hold Points, Signatures, Permits, (as required)] 	<ul style="list-style-type: none"> • Hazard(s) 	<ul style="list-style-type: none"> • Control(s)
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Figure 3 – Suggested format for Activity Level Work Instructions

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If training and qualification requirements can be verified, then Skill of the Worker (SOTW) can be applied to any type of work package as an administrative control. This is done by the work planner, using best judgment, to write the appropriate level of detail for the SOTW tasks within the selected work package accordingly.

- [1] Type I – A potentially large compilation of documents used for the safe performance of work. A Type I WP is used for higher complexity and infrequently performed work, with moderate to high consequences of improper performance. The WP will undergo a revision if any changes in scope and/or hazards are noted within the authorization period. Type I work packages:
 - [a] Shall not exceed 60 days per authorization
 - [b] Contain detailed step-by-step instructions with a defined sequence of performance
 - [c] Require verification and/or hold points
 - [d] Require a pre-job briefing and a post-job debriefing
 - [e] Require a Job Hazard Assessment
 - [f] Require the highest level of review and approval
 - [g] Require activity level work instructions in the body which includes work steps, special requirements, hazards and controls
- [2] Type II – A compilation of documents used for the safe performance of work. A Type II WP is used for moderate to high complexity and moderate to infrequently performed work, with moderate to high consequences of improper performance. The WP will undergo a revision if any changes in scope and/or hazards are noted within the authorization period. Type II work packages:
 - [a] Shall not exceed 1 year per authorization
 - [b] Contain general step-by-step instructions
 - [c] May require verification and/or hold points
 - [d] Require a pre-job briefing and a post-job debriefing
 - [e] Require a Job Hazard Assessment
 - [f] Require activity level work instructions in the body which includes work steps, special requirements, hazards and controls
 - [g] Require a higher level of review and approval
- [3] Type III – A relatively small compilation of documents used for the safe performance of work. A Type III WP is used for moderate to low and frequently performed work, with moderate to low consequences of improper performance. The WP will undergo a revision if any changes in scope and/or hazards are noted within the authorization period. Type III work packages:
 - [a] Shall not to exceed 1 year per authorization
 - [b] Contain simple instructions
 - [c] Require a pre-job briefing and a post-job debriefing

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- [d] Require a Job Hazard Assessment
 - [e] Require activity level work instructions in the body which includes work steps, special requirements, hazards and controls
 - [f] Require a lower level of review and approval
- [4] Type IV – Typically a singular document used for the safe performance of work. Type IV work is used for minor work evolutions which involve the lowest risk, such as low complexity, low consequence, and frequently performed work. Type IV work packages:
- [a] Shall not exceed 2 years per authorization
 - [b] Contain a work ticket, work request, traveler or work order
 - [c] Require a Job Hazard Assessment
 - [d] Require activity level work instructions in the body which includes work steps, special requirements, hazards and controls
 - [e] Require the lowest level of review and approval
 - [f] Require an informal pre-job briefing

5.8.3 Technical Procedures

A technical procedure is a detailed set of work instructions which prescribe precisely how to accomplish the various technical works associated with operations, maintenance, and support of a facility or mission. The requirement to develop a procedure, or the extent of detail in a procedure, depends on the complexity of the scope of work, the consequences of improper performance, the experience and training of the expected user(s), and the frequency of performance.

Technical procedures are required to be used for operational activities in nuclear facilities in accordance with Department Manual DM-NOPS.001, "Conduct of Operations," and in accordance with CM-E000.001, "NSTec Conduct of Operations" for non-nuclear facilities. However, technical procedures can be used for any routine work, such as Preventive Maintenance, Laboratory Operations, RadCon and IH activities, Research & Development, Engineering, etc. At NSTec, technical procedures are developed, revised, and maintained in accordance with CD-2100.001. All technical procedures require completion of a *Job Hazard Assessment* (JHA) and the resulting controls built directly into the body of the procedure. The completed JHA shall be maintained in the approved procedure's history file.

Technical procedures focus primarily on accomplishing facility and activity level work. They are based upon design controls (specifications, drawings), operational controls (documented safety analysis reports, technical specifications), management controls (industrial safety, RadCon, training), and experience (Lessons Learned Programs and feedback from prior work). Technical procedures provide direction and information on how to accomplish the technical work associated with the full life cycle of performing work.

Alarm response procedures (ARPs) and emergency operating procedures (EOPs) delineate the steps to take when an abnormal or emergency condition exists. ARPs

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signal when operations approach established safety margins, allowing appropriate intervention prior to encountering conditions that are more serious. EOPs detail the responses when safety margins have been breached or seriously jeopardized. Both ARPs and EOPs are based upon systems design specifications, safety analyses, hazard analyses, process flow diagrams, and vulnerability studies.

Because of the varied nature of work performed, three categories of technical procedures can be used. The activity screening/binning process in Section 5.6 is used to aid in determining the appropriate technical procedure to use.

[1] Category I Technical Procedure (***In-Hand Use***).

[a] This category of procedures contains the most detailed instructions commensurate with the work being performed. This category of procedure should be selected when:

- (1) The activity being conducted is moderate to complex, and/or the procedure is performed infrequently
- (2) A performance error in the procedure could cause significant adverse impact on the environment, facility, equipment, operations, maintenance, or personnel.
- (3) The procedure contains hold points or Independent Verification (IV) steps that prevent adverse impacts to the environment, facility, equipment, operations, maintenance, and personnel. Exceptions to hold points and IV steps are used when:
 - The procedure is used frequently.
 - The hold points specifically establish the acceptable conditions at the beginning of the procedure (or instruction section).
 - The hold points restore previous conditions at the end of the section.

[b] Category I technical procedures must be:

- (1) Present at the job site and open to the applicable sections/steps during performance of the work
- (2) Issued each time they are to be performed or verified to be the most current revision of the procedure
- (3) Retained by the user when being performed, unless conditions do not allow this
- (4) Performed in a step-by-step sequence unless otherwise specified in the procedure (list items may be performed in any order unless specified)
- (5) Signed off for designated steps if any hold point is established
- (6) Identified as "IN-HAND USE" in the footer

[2] Category II Technical Procedure (***General Use***).

[a] This category of procedure should be selected when failure to comply in a step-by-step manner could result in a moderate health, safety, or environmental risk to the employee or the public, or could have an adverse

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impact on facility operations. They contain a moderate amount of detailed instructions commensurate with the work being performed.

[b] Category II technical procedures must:

- (1) Be available (but not necessarily open) in the local area where the procedure is being performed and referenced as necessary to correctly perform the procedure; unless the procedure is being performed by a trainee, or the supervisor has directed the procedure to be used as an In-Hand (i.e., Category I) procedure
- (2) Be performed in step-by-step sequence unless otherwise specified in the procedure
- (3) Be verified as the current revision of the procedure each time the procedure is performed
- (4) Have "GENERAL USE" printed in the Footer

[3] Category III Technical Procedure (***Reference Use***)

[a] This type of procedure should be selected if the procedure is performed frequently, the procedure can be performed from memory without referring to the procedure, the training, skill, and experience of the user are sufficient to perform the activity, and failure to comply would result in little or no risk to the employee or the public, or have little or no adverse impact on facility operations.

[b] A Category III technical procedures must:

- (1) Be performed in the sequence identified
- (2) Have "REFERENCE USE" printed in the footer of the document

[4] All technical procedures are valid for a maximum 2 year period after which a formal periodic review must take place to ensure all cited requirements are current. If a major revision occurs within the two year timeframe, then the next periodic revision is due two years after approval of the major revision.

5.8.4 Project Level Construction

When constructing a new structure or facility, or performing major renovation/remodel of an existing facility that will require a Real Estate/Operations Permit (REOP) and an appropriate Execution Plan, there are three distinct but related aspects to consider from a work control standpoint: Quality of design, Project level construction quality assurance, and performing construction safely. Construction is bound and graded to the appropriate quality levels in accordance with Requirements Document RD-3200.001, "Quality Assurance Requirements Document."

[1] Quality of Design

Construction performed by or on behalf of NSTec personnel must meet Title 10 Code of Federal Regulations (CFR) 830, Subpart A, "Quality Assurance Requirements" and must include the following:

[a] Design items and processes using sound engineering/scientific principles and appropriate standards.

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- [b] Incorporate applicable requirements and design bases in design work and design changes.
 - [c] Identify and control design interfaces.
 - [d] Verify or validate the adequacy of design products using individuals or groups other than those who performed the work.
 - [e] Verify or validate work before approval and implementation of the design.
- [2] Project Level Construction Quality Assurance (QA) Performance
- Construction performed by or on behalf of NSTec personnel must meet Title 10 Code of Federal Regulations Part 830, Subpart A, "Quality Assurance Requirements" and must include the following:
- [a] Perform work consistent with technical standards, administrative controls, and other hazard controls adopted to meet regulatory or contract requirements, using approved instructions, procedures, or other appropriate means.
 - [b] Identify and control items to ensure their proper use.
 - [c] Maintain items to prevent their damage, loss, or deterioration.
 - [d] Calibrate and maintain equipment used for process monitoring or data collection.
- [3] Performing Construction Safely

Work packages are not **required** for construction projects IF, and ONLY IF, other more appropriate mechanisms are used to ensure worker safety, such as design documents, QA plans, QA hold-points, safety inspections, etc. U.S. Department of Energy Guide DOE G 440.1-2, "Construction Safety Management Guide for use with DOE Order 440.1" provides guidance on how to implement U.S. Department of Energy Order DOE O 440.1A, "Worker Protection Management for DOE Federal & Contractor Employees." However, the responsible manager may chose to use work packages based on best professional judgment.

Also, smaller construction projects may utilize work packages to meet the requirements of the DOE orders and this Process, if it is more appropriate from a cost and schedule perspective.

The requirements which must be implemented prior to performing project level construction in lieu of a work package are determined using the activity screening/binning process described in Section 5.6. The alternative documents and methods must meet the same level of rigor as those that would be required if a work package were to be developed. These alternative actions require the following:

- [a] Prepare a project safety and health plan
- [b] Perform an ALARA design review for construction or modifications in accordance with Title 10 Code of Federal Regulations (CFR) 835, "Occupational Radiation Protection."

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- [c] Establish Construction Superintendent responsibilities
- [d] Perform a Job Hazard Assessment (JHA)
- [e] Provide training to employees
 - Worksite safety and health orientation
 - Phase-specific training
 - “Tool Box” safety training
- [f] Perform frequent inspections and hazard abatement
- [g] Comply with reporting, recordkeeping, and accident investigation requirements

5.9 Implementation of Lessons Learned and Feedback

Identify lessons learned that are applicable to the work being planned. Sources to consider include, but are not limited to:

- Accident investigations
- Assessments, audits, and appraisals
- Causal analysis
- Client feedback
- Corrective action and deficiency reports
- Field activities (field work package planning and post-work critiques)
- Emergency readiness assurance activities
- Good work practices
- Near misses
- Occurrence reports
- Operational readiness reviews
- Personal experiences/observations
- Process improvement initiatives
- Project planning and evaluation results
- Price-Anderson Amendments Act findings
- Root cause determinations
- Safety meetings.

The Lessons Learned program is a formal feedback process that exists to allow individuals involved with work planning and work performance to provide input for improving the work process. Feedback or suggestions should be solicited on all aspects of the work planning and control process, including the effectiveness/adequacy of work scope definition, identification and analysis of hazards, selection and use of

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controls, work package and work instructions, etc. Lessons learned are not expected to be specifically pointed out as such in the work authorization documents. Lessons learned are expected to be incorporated into the technical procedure and/or work package, in accordance with Company Directive CD-3200.013, "Lessons Learned Program," and in any combination of the following ways:

- Covered as a topic for a pre-job briefing
- Attached for review by those approving the work procedure and/or work package
- Incorporated into the hazard controls
- Incorporated directly into the work instructions.

5.10 Approving Integrated Work Documents

5.10.1 The process for development, review, and approval of the IWDs used to implement and accomplish the work is determined under control of the various governing directives.

5.10.2 Each project level construction activity document (i.e., QA plans, Safety Plans, Blueprints, Radiological Work Permits, etc.) is prepared by the functional department with subject matter expertise in the area covered by the particular document. Approval is per the current directives for each functional area and is typically beyond activity level work. For example, engineering drawings are prepared by the engineering department and approved per engineering procedures, etc.

5.11 Summary of Work Planning Process

A graphical summary of the work planning process is seen in Figure 4 below.

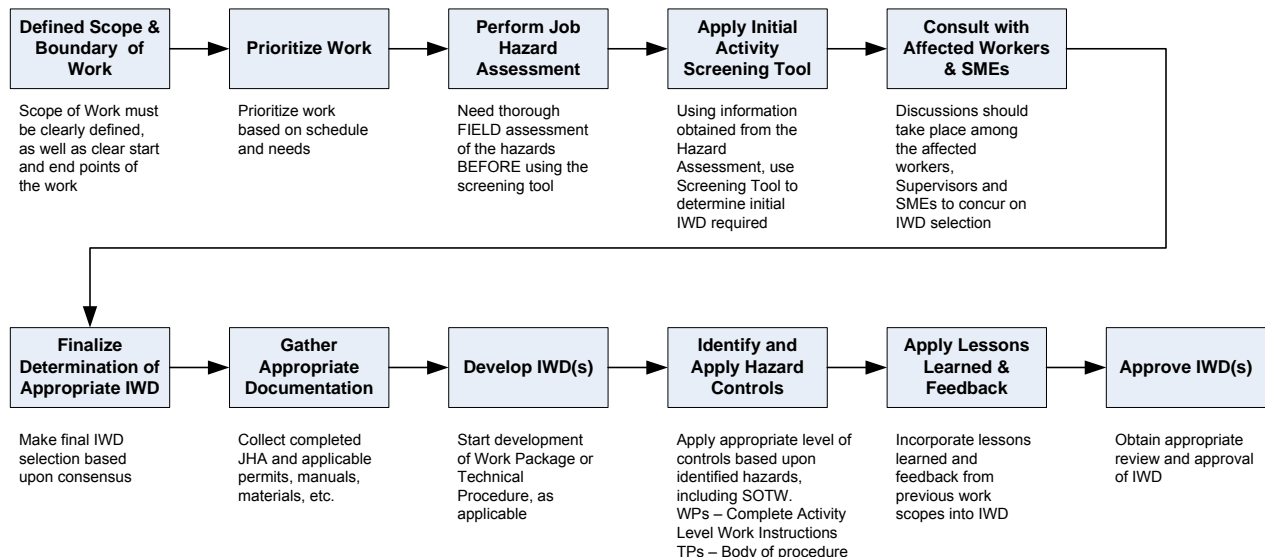


Figure 4 – Summary of Work Planning Process

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Chapter 6.0 Schedule Work

Guiding Principle 1-4, 7, 8

6.1 Basis for Scheduling Work

Scheduling is an integral part of the overall preparation for activity level work execution, and is an iterative process that is performed in conjunction with the preparation activities discussed in Chapter 5. This element of the Process requires varying degrees of formality and rigor based on the size and complexity of the work activity, the facility and/or job-site operations and safety bases, and the need to coordinate multiple organizations performing the work, as well as the operations affected by the work.

6.2 Training and Qualification for Work Schedulers

Personnel responsible for scheduling activity level work should require some degree of training and qualification. In general, the qualification rigor is commensurate with the complexity of the work activities, resourcing demands, scheduling systems used, and the importance of the work activities to missions and safety.

The responsible manager of the organization/operation scheduling the work activity is responsible for determining the qualification requirements, providing the resources for meeting those requirements, and ensuring that personnel successfully complete and maintain their qualifications in order to support this activity.

6.3 Scheduling by Priority

Regardless of the specific process, all scheduling adheres to a priority approach and hierarchy. In general, work activities (excluding emergency responses) that are performed in order to prevent serious personal injury, environmental harm, security breach, or property loss are considered as high (or equivalently categorized) priority. Work that is considered as non-mission-critical and which, if postponed due to lack of resources, does not present an unacceptable condition is considered low priority.

Organizations responsible for scheduling work may design a priority strategy that best suits their needs and those of the requestors. However, regardless of the scheduling tools used, they should provide for the flexibility necessary to respond to changing situations, so that work can be effectively reprioritized and/or rescheduled in response to unanticipated events to achieve optimum results.

6.4 Scheduling Methods

A single schedule should be developed that addresses all significant work activities to be performed within a facility or at a job-site, whether performed by NSTec, subcontractor, other NTS tenant organization personnel, or others authorized to conduct work on the NTS. The schedule must be updated routinely to reflect progress and current status, and to provide needed information to those responsible for planning and performing work. The individuals responsible for the work should also be responsible for reporting progress for purposes of updating the schedule, and they should be clearly identified on work planning/scheduling documents.

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Following are some primary tools used to initiate or perform the scheduling activity.

6.4.1 Nevada Test Site Air and Ground Activities Scheduling

The Facility Manager and Operations Managers should routinely review the NTS Operations Schedule located on the NSTec Intranet for awareness of the activities being conducted and consider the potential impacts to facility-based activities. In the event that conflicts arise, resolution is required among the NTS Operations Coordination Center (OCC), affected Real Estate/Operations Permit (REOP) Holders, FM/FOs, responsible managers, and others with decision-making authority and responsibility.

- [1] REOP Subpart B, Nevada Site Office Form NV (or NSO)-123B, "Nevada Test Site Operations Schedule"

Subpart B is part of an approved REOP authorization basis document, and is provided to the OCC by the REOP Holder or other authorized individual conducting work under the specific authorized (described in CM-2120.002). The Subpart B is used by the NTS OCC to develop the NTS Operations Schedule, which identifies and coordinates all NTS ground and air activities authorized by and related to specific approved REOPs.

This form is submitted with initial and revised REOPs. However, it may be updated separately from a REOP revision to account for recurrent scheduling within the REOP effective period, as long as the scope of scheduled activities reflected on the Subpart B is within the stated REOP's authorization basis.

- [2] NTS Operations Scheduling

The NTS Operations Schedule is developed with information provided by the Subpart(s) B according to the process described in Organization Instruction OI-2120.160, "Nevada Test Site Activity/Event Scheduling."

6.4.2 Facility Activity Level Work Scheduling

- [1] Form FRM-1060, Traveler

This form is an element of the work package and can be used as a cover sheet when technical procedures are used. The Traveler documents the Facility Manager/Facility Owner's authorization of the work scope and schedule to be performed by non-tenant personnel, as well as confirming that the planned activities fall within the facility safety basis.

- [2] Plan-of-the-Day

The Plan-of-the-Day (POD) process (described in CD-2100.002) is employed by the FM/FO to periodically communicate, schedule, and deconflict facility operations when multiple concurrent activities are present, when a change in hazards introduced to the work may adversely affect co-located worker progress, or as otherwise considered valuable to ensure the safe and efficient conduct of facility operations. Meetings should be held as frequently as necessary, and involve appropriate personnel from affected and support organizations and disciplines to ensure effective communication among affected organizations regarding job site and/or facility work priorities, status of ongoing work, current problems, upcoming work, work restrictions or interferences, etc.

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Tenants are required to frequently review their facility's POD posted in the Facility Data Warehouse, located on the NSTec Intranet to ensure that they are aware of the planned activities taking place in their building(s).

6.4.3 Project Scheduling

Project scheduling is a key tool, implemented through Primavera, to provide clear communication of project goals and direction, facilitate team discussions, determine impacts, and devise solutions. It can provide timely and useful work schedule, priority, and status information to each level of the project team.

The project scheduling process is provided in Organization Instruction OI-0500.007, "Project Scheduling."

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Chapter 7.0 Execute Work

ISM Core Function 4, Guiding Principles 1-4, 7, 8.

7.1 Training and Qualification for Work Performers

- 7.1.1 Training requirements include initial training given to the workers as part of their qualification program, continuing training that improves or updates job skills and knowledge, and on the job training where practical hands-on training is performed in the job environment.
- 7.1.2 Personnel performing work in nuclear facilities shall be trained and qualified as described by their Training and Qualification Programs, in accordance with the requirements stated in CD-3100.720.
- 7.1.3 Safety training is provided on a frequent basis through specific formal courses, monthly general safety briefings, and safety briefings specific to the work encountered by the craftworkers. The work-specific craft safety briefings are accomplished during the Pre-Job Briefing (PJB).
- 7.1.4 Subcontractor personnel who perform work on facility systems are required to be trained and qualified for the work they are to perform, as part of the subcontract (see Chapter 10 requirements). These personnel also receive general employee training and specific training in appropriate facility administration, safety, quality control (QC), and radiation protection procedures and practices.

7.2 Implementation of Hazard Controls

- 7.2.1 Workers are responsible for notifying supervision if there are any problems or concerns that arise prior to, during, or as a result of any work or work-related activity. If there is confusion, questions, or concerns about the work, or if the work cannot be performed safely as written, the workers must suspend work, take a "time out", or cease the activity, and notify responsible management for clarifications or further decisions. A formal "Stop Work Order" may be initiated by any worker that feels an unsafe condition exists, in accordance with Company Directive CD-3200.006, "Stop Work."
- 7.2.2 As stated in Chapter 5, Skill of the Worker (SOTW) is considered an administrative hazard control. Each activity level work scope is graded by its overall complexity, consequence of improper performance, and work frequency.
- 7.2.3 If work has been time delayed from the initial planning phase, it is up to the Job Supervisor/Foreman (JS/F) to determine if the scope of the work and/or the work conditions has changed. The JS/F must contact the appropriate work planner and SMEs if they require assistance in making this determination so that the hazard controls in the IWDs can be updated, as required.

7.3 Pre-Job Briefings

- 7.3.1 PJBs are a key component in the work process. All personnel must be properly briefed commensurate to the level of rigor prior to work execution. As the makeup of the work team changes, personnel joining the team must receive a thorough briefing that adequately describes the remaining portions of the job and the hazards identified in the IWDs.

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- 7.3.2 Personnel conducting the PJBs (such as Job Supervisor/Foreman [JS/F], Facility Managers, etc.) shall encourage active participation from personnel during the PJB.
- 7.3.3 The format for the PJB includes assembling all personnel associated with the work; conducting the meeting; discussing the job, associated hazards, and safety controls; and having the PJB documented on an appropriate form/checklist, as required.
- 7.3.4 When performing work under Type I, Type II, and Type III work packages, a PJB and formal documentation of the PJB is required. However, the level of briefing and documentation requirements will vary commensurate with the work package type.
- 7.3.5 When performing work under Type IV work package, a PJB is required and formal documentation is only required upon first performance or when conditions change.
- 7.3.6 When performing work using a Category I or II technical procedure, a PJB and formal documentation of the PJB is required.
- 7.3.7 When performing work using a Category III technical procedure, a PJB is required but formal documentation is only required upon first performance or when conditions change.
- 7.3.8 The PJB must be conducted in accordance with Company Directive CD-4000.003, "Pre-Job Briefings and Post-Job Debriefings," and should include:
- Scope of work to be performed
 - Co-located work and hazards
 - Hazards and hazard controls associated with the work
 - Precautions, limitations, initial conditions, and prerequisites
 - Conditions or configurations of structures, systems, and components (SSCs) or facility affected by the work
 - Tools, materials, and equipment needed and their application
 - Procedural compliance requirements
 - Taking, receiving, transmitting, and recording data
 - Permits, hold points, lockouts/tagouts (LO/TO) specified
 - Training requirements
 - Any lessons learned, including those from related past problems, unusual events, and occurrences
 - Communications and coordination with other groups
 - Provisions for housekeeping and final cleanup
 - Response to emergency situations
 - A final summary of the job or work activity, and any questions that require answering before the activity may proceed
- 7.4 **Performance of Emergency Work [Not Emergency Response]**
- 7.4.1 Emergency Work General Requirements

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- [1] Emergency work does not require integrated work control documents (IWDs) when initially responding to the declared emergency. It is performed as necessary to mitigate emergency condition(s) as determined by the responsible manager.
- [2] Emergency work shall be performed according to the fundamentals of the Integrated Safety Management System (ISMS), as described in PD-0001.001.
- [3] Once the emergency work is complete and the emergency condition mitigated, the required emergency work documentation is completed, including the following Job Hazard Assessment checklist.
- [4] After the scope of emergency work has been completed, the work is properly reviewed and documented in accordance with the appropriate IWD.
- [5] After the emergency is mitigated, any necessary follow-up and recovery work shall be performed under an IWD that has been prepared and approved in accordance with the requirements of this Process.

7.4.2 Emergency Work Procedural Responsibilities

- [1] The JS/F will conduct a PJB with all workers who will perform emergency work to ensure that the scope of emergency work, required actions, safety and health hazards, and mitigating controls are clearly understood.
- [2] Workers participate actively in any PJB.
- [3] JS/F and Workers execute the emergency work using available information and the applicable portions of the ISM System (hazard identification, analysis, etc.), as required.

Emergency work is performed in accordance with the following procedures:

- Company Directive CD-4000.002, "Work Package Process"
- Company Directive CD-4100.004, "Requesting Maintenance, Construction, Alterations, and Service Work"
- Company Manual CM-NMNT.001-003, "Nuclear Facility Maintenance Guide"
- Company Manual CM-NMNT.001-001, "Nuclear Facility Maintenance Management Program Description"
- Company Manual CM-NMNT.001-030, "Nuclear Facility Integrated Maintenance Work Control Process"
- Organization Instruction OI-4800.030, "Emergency/Urgent Work"

7.5 Performance of Operations Work

All NSTec managed facilities in the state of Nevada performing operations activities fall under the requirements of Conduct of Operations in accordance with Policy PY-E000.002, "Conduct of Operations." Company Directive CD-E000.001, "Implementation of Conduct of Operations in NSTec Facilities" specifies how Conduct of Operations is implemented for non-nuclear facilities and how compliance with the requirements is achieved. Nuclear facilities shall perform operations activities in accordance with Department Manual DM-NOPS.001, "Conduct of Operations."

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Chapter 8.0 Close Out Work

Guiding Principles 1-3, 8

8.1 Training and Qualification for Personnel Closing Out Work

Typically, work is closed out by someone in a Supervisory or Managerial role, and the act of closing out work is related to their normal job duties. There is no other specific training for closing out work at this level.

8.2 Acceptance and Closeout of Completed Work

8.2.1 Work packages must be accepted and closed per CD-4000.002.

Nuclear work packages may require review by a Quality Reviewer, depending on type or designation by responsible management.

8.2.2 Completion of the work governed by technical procedures must be performed per CD-2100.001.

8.2.3 At a minimum, all integrated work control documents (IWDs) and their related documents which have hold points, or require data completion, verification or signatures, must be completed per the guidance contained in the related IWD.

8.2.4 Post-Maintenance testing will be completed as described in the applicable IWD.

8.2.5 Prior to final completion, all work should be accepted by the responsible owner, user, or operator. For maintenance and repair work, the owner/user might be the Operations Manager, Shift Supervisor, Facility Manager, or Cognizant System Engineer.

Post-work acceptance activities should include verification that the:

- Work was performed correctly
- Outcome is acceptable/successful
- Systems and equipment affected by the work operate correctly and are restored to normal/desired operational status
- Work area has been restored, including packaging and removal of any wastes generated during the course of work, and is left in a clean and orderly condition.

8.3 Closing Out Emergency Work

8.3.1 Once the emergency is mitigated and the situation is stabilized, all emergency work is stopped and the sequence for activity level work per this manual is followed.

[1] The documentation for what transpired in the emergency is determined by Supervision.

[2] Feedback and lessons learned from the emergency are routed to the Planning Supervisor for incorporation into the follow-on activity level work planning.

8.3.2 CD-4000.002 provides direction to close out emergency work.

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Chapter 9.0 Feedback and Improvement

Core ISM Function 5, Guiding Principles 1-3, 5, 6, 8

9.1 Continuous Improvement

Feedback can be provided at all levels throughout the work planning and execution process. Implementing feedback effectively can foster safer, more effective work conducted within NSTec. This chapter provides an avenue to formalize input that will identify strengths and weaknesses in order to improve the processes.

9.2 Post-Job Debriefings

Post-Job Debriefings (PJDs) are conducted to obtain feedback, both good and bad, for use in making work process improvements. The PJD process is a formal, procedure-driven process that requires documentation of results and participation by appropriate workers and supervisors, and is performed in accordance with CD-4000.003.

Identification and elimination of performance weaknesses through PJDs leads to an upward spiral in performance that increases overall safety and health of the workers and protection of the environment, while improving efficiency and mission performance. The feedback obtained from the PJDs is not concerned with right or wrong, but with gaining information to improve the processes under discussion.

9.2.1 Criteria for conducting Post-Job Debriefings:

- [1] The PJD shall be available to allow any worker to provide feedback at any given opportunity. The following list of criteria applies to types of work for which the team shall complete a PJD:
 - [a] When new/special technology or techniques are used
 - [b] If the work resulted in a recordable, or other significant incident, such as regulatory noncompliance or environmental damage/harm
 - [c] If a worker was injured during the performance of work
 - [d] When the work is defined as emergency work in accordance with Chapter 4
 - [e] When requested by anyone involved in the performance of work
- [2] The Supervisor/Foreman shall conduct the PJD to the same level of briefing and documentation as described in Section 7.3.
- [3] The responsible manager shall review the PJD and evaluate if any lessons-learned or areas for improvement were identified. If lessons learned, recurring issues, or areas for improvement were identified, then the responsible manager shall submit this information to the responsible organization's Lessons Learned Point of Contact for inclusion into the Lessons Learned Program.
- [4] If the comments identified during the PJD can be corrected immediately, then the responsible manager shall ensure the comments are corrected in a timely manner and provide feedback back to the work team.

9.2.2 Instructions for completing the Form FRM-1063, "Pre-Job Briefing & Post Job-Debriefing Checklist," are found in CD-4000.003.

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9.3 Review and Implementation of Lessons Learned

Lessons learned are not expected to be specifically pointed out as such in the work authorization documents. Lessons learned are expected to be incorporated into the work procedure and/or work package in any combination of the following ways:

- Covered as a topic for a pre-job briefing
- Attached for review by those approving the completed technical procedure and/or work package
- Incorporated into the hazard controls
- Incorporated directly into the work step instructions

Identify lessons learned that are applicable to the work being planned from sources such as accident investigations; assessments, audits, and appraisals; causal analysis; client feedback; corrective action reports; deficiency reports; field activities (field work package planning and post-work critiques); emergency readiness assurance activities; good work practices; near misses; occurrence reports; operational readiness reviews; personal experiences/observations; process improvement initiatives; project planning; and evaluation results; Price-Anderson Amendments Act findings; root cause determinations; and safety meetings.

9.3.1 Criteria for conducting Lessons Learned:

This section is provided as an avenue to allow individuals to submit lessons learned from the work activity to the Lessons Learned Program. A background of the work should be given, followed by the lessons learned during the activity. Refer to the Lessons Learned web site under Daily Needs on the NSTec Intranet.

Lessons learned are ideas that are captured and shared to promote good practices or avoid adverse practices. To determine if lessons learned should be shared, ask if there is the potential for this deficiency, event, adverse condition or safety issue to affect or exist in other buildings, operations, activities or organizations. If the answer is “yes”, the lessons should be shared.

9.3.2 Instructions for completing Lessons Learned are identified in CD-3200.013.

9.4 Review and Implementation of Feedback

Feedback from the workers on the adequacy and effectiveness of the preventive measures and controls is critically important. Improvements essential to safety, security, or environmental compliance must be implemented if the work is to continue effectively.

Moderate-hazard and high-hazard/complex activities require a PJD after completion to close out the job and capture any lessons learned. The supervisor must document the PJD and the responsible manager should ensure that any lessons learned of value to future activities are communicated in a timely manner to affected workers, supervisors, and others that may be affected by the same behaviors or conditions.

When feedback is captured, the focus needs to be on two primary objectives:

- To ensure continuous improvement of the Process

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- To ensure structure, system, and component reliability based on causal and failure data

Workers and supervisors perform an analysis of work to ensure that issues, improvements, or lessons learned are identified and incorporated into subsequent work. Work reviews take on many forms, ranging from individual PJDs to analyzing all of the work performed by a group or facility within a specified period of time.

9.5

Assessments

NSTec recognizes that a rigorous and credible assessment program must be applied to this work control Process. Assessments on this Process must include elements that address:

- Performance measures and performance indicators
- Line and independent evaluations
- Project/program evaluations
- Compliance with applicable requirements
- Data collection, analysis, and corrective actions
- Continuous feedback and performance improvement

Accordingly, NSTec implements a wide range of formal self-assessment activities in compliance with Federal and State requirements, laws, and regulations, as well as informal self-assessment activities. Scheduling and performance of these self-assessments are based on hazards and risks at the facility level, with evaluation activities focused on facilities and activities that involve high hazards and risks to the workers, the public, and the environment. These self-assessment activities, when combined with performance measures, site data collection, analysis, and corrective action processes, promote continuous improvement. Effective self-assessments provide objective evidence of those areas in which management and workers need to improve their ability to perform the organizational mission and achieve management goals.

In addition to self-assessments, formal independent assessments (e.g., Performance Assurance assessments and Quality Assurance Audits) are scheduled, planned, conducted, reported, and followed-up in accordance with Company Directive CD-QA10.001, "Independent Assessment."

Additional assessments include Authorization Basis Implementation Review (ABIR), First-Line Supervisor Evaluation, Inspection, Management Assessment, Operational Readiness Review (ORR), Performance Evaluation Plan Contractor Self-Assessment, Process/Program Level Assessment, Quality Assurance Audit, Readiness Assessment (RA), Surveillance, Validation, Walk-Through, and Worker Evaluation. Assessments address management processes that affect work performance, such as planning, program support, training, and the performance of the Integrated Safety Management core functions. Assessors evaluate samples of effort and /or documentation that are representative and typical of performance, using accepted evaluation techniques.

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Chapter 10.0 Subcontracted Work

Core ISM Functions 1-5, Guiding Principles 1-8

10.1 Introduction to Subcontracted Activity Level Work

A subcontract is a procurement mechanism employed to support NSTec’s execution of scope by obtaining the materials and/or services, or perform a specified construction activity that has been determined cannot or will not be developed, provided, or performed by NSTec organizations or operations.

The subcontract is used to "flow-down" provisions in the NSTec Prime Contract to the Subcontractors. In this manner, all applicable scopes of work, technical requirements and quality requirements, including Work Control, are flowed down to the Subcontractor and their lower-tiers.

The Subcontractor is solely responsible for the means and methods for carrying out the work, and for the safety of its employees. The Subcontractor is responsible for the quality of work, material, and equipment supplied under the term of a Subcontract. Subcontractor management and employees are expected to learn from experience, prevent adverse operating incidents, and share good work practices and lessons learned. The Subcontract Technical Representative (STR) is required to incorporate the requirements of CD-3200.013 for all completed subcontract work.

An objective of the Integrated Work Control Process is to effectively integrate the Integrated Safety Management System (ISMS) and Quality Assurance (QA) into all subcontract activity level work performed on any NSTec- or NNSA/NSO-controlled property. This manual establishes and presents the single, integrated approach for meeting this objective.

10.2 Training and Qualification

10.2.1 Various training and qualification requirements and/or recommendations apply depending on the individual’s involvement with the subcontracting process and an organization’s implementation of the subcontracting process requirements. The following are sources for determining the requirements or recommendations:

- Controlled documents referenced in this document, and others as applicable
- NSTec Training Requirements Questionnaire, posted on the Training homepage on the NSTec Intranet
- Supply Chain Management organization and reference material
- Managers responsible for the scope of work supported by the subcontract

10.3 Requesting Subcontracted Services

10.3.1 Once a need is identified, the user and requesting organization(s) develop the Requisition Work Sheet (RWS) package in accordance with Company Directive CD-3400.001, “Requisitioning Process.”

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10.3.2 In order to ensure effective ISMS and QA integration, the proposer's Environment, Safety, Health and Quality (ESH&Q) manuals, plans, and procedures are reviewed by NSTec subject matter experts for adequacy of the subcontractor's procedures in meeting NSTec's requirements. If subcontractor controls are found to be lacking in a way that presents an unacceptable risk to the subcontractor and NSTec ESH&Q, the subcontractor will be required to adopt NSTec practices for the duration of the subcontract.

10.4 **Managing Subcontracted Work**

10.4.1 Post-award, the subcontractor may attend a pre-performance conference to ensure understanding of the ISMS and QA requirements and that these requirements shall be passed on to subcontractor workers.

NOTE: The ISMS and QA requirements are communicated via the Request for Proposal/Request for Quotation and subcontract processes, and thereby established as a subcontract requirement. This also is an excellent opportunity to again provide the requirements flow-down to emphasize and ensure that the vendor understands the importance of NSTec's commitment to the safety of all NSTec and NSTec subcontractor workers and the quality-compliant execution of the work.

10.4.2 All subcontracted work at the NTS and at other facilities and offices managed by NSTec will be performed in accordance with the terms and conditions of an approved subcontract. All subcontractor work packages will be reviewed and approved by the appropriate NSTec organizations, as determined by the scope of work and the potential and known hazards associated with the subcontracted work. Skill of the Worker may be used as an administrative control for evaluated hazards as described in the contract agreement between NSTec and the subcontractor receiving the award.

10.4.3 NSTec reserves the right to perform assessments of subcontractor-managed facilities and/or activities. The assessment results will be provided to the NSTec Subcontract Administrator and noncompliances will be managed in accordance with Company Directive CD-3200.017, "Issue Reporting." The subcontractor must promptly correct noncompliances.

10.4.4 The NSTec responsible manager selects and designates to the Procurement Representative (PR) a qualified employee who is to serve as the STR. It is imperative that the individuals selected to serve as STRs possess qualifications and experience commensurate with the duties, authorities, and responsibilities implicit in the role with which they are charged.

10.4.5 The STR/Technical Point of Contact (TPOC)

- [1] Has the permission of the responsible manager to utilize the services of all project team members to accomplish the goals of the project
- [2] Is the primary point of contact for the subcontractor on technical matters, and provides a single point of interface between the subcontractor and other NSTec organizations
- [3] Maintains free-flowing communications with the PR, especially concerning issues of subcontractor noncompliance and poor performance, and on commercial issues

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[4] Must be diligent in the execution of their responsibilities while adhering to their limited authority. The STR and TPOC Handbook, posted on the Supply Chain Management Reference Library Index on the NSTec Intranet, is a valuable resource to ensure that appropriate conduct is maintained.

10.4.6 Owing to the importance of subcontractor oversight and subcontract management in relation to mission critical operations and ESH&Q concerns, several organizations have developed controlled documents concerning the management and oversight of subcontractor activities, such as:

- Company Manual CM-NMNT.001-034, "Nuclear Facility Subcontractor Work Control"
- Company Directive CD-2300.023, "Supplier Evaluation and Qualification"
- Organization Procedure OP-0400.005, "Subcontracts"
- Organization Procedure OP-2113.001, "Subcontract Technical Representative"
- Organization Procedure OP-2113.002, "Subcontracts Management"
- Organization Instruction OI-0444.050, "Subcontractor S&H Qualification and Selection"
- Applicable forms.

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Chapter 11.0 Acronyms and Definitions

11.1 Work Control Acronyms

The following is a list of often used acronyms for activity level work purposes:

AHJ	Authority Having Jurisdiction
ALARA	As Low As Reasonably Achievable
CCD	Core Company Document
CFR	Code of Federal Regulations
DOE	Department of Energy
DSA	Documented Safety Analysis
ES&H	Environment Safety and Health
FHA	Fire Hazards Analysis
FIMS	Facility Information Management System
GESS	General Employee Safety and Security
HA	Hazard Analysis
HASP	Health and Safety Plan
HHE	Health Hazard Evaluation
ISMS	Integrated Safety Management System
IWD	Integrated Work Control Document
JHA	Job Hazard Assessment
LOTO	Lock Out Tag Out
MEL	Master Equipment List
MIP	Maintenance Implementation Plan
MSDS	Material Safety Data Sheet
M&TE	Measuring and Test Equipment
NFPA	National Fire Protection Association
NNSA	National Nuclear Security Administration
NSO	Nevada Site Office
NTS	Nevada Test Site
OJT	On-the-Job Training
ORPS	Occurrence Reporting and Processing System
PJB	Pre-Job Briefing
PJD	Post-Job Debriefing

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PM	Preventive Maintenance
PPE	Personal Protective Equipment
QA	Quality Assurance
SME	Subject Matter Expert
SOTW	Skill of the Worker
SSC	Structures, Systems, and Components
USQD	Unreviewed Safety Question Determination

11.2 Work Control Definitions

The following is a list of terms pertaining to the control of activity level work:

- 11.2.1 **Acceptance (of Work).** Activity level work that is accepted (i.e., “authorized”) prior to planning and executing the work. [For the purpose of this document]
- 11.2.2 **Activity Level Work.** NSTec activity level work is any job, task, or sub-task (e.g., any activity, step, or action that is part of an instruction, procedure, process, sequence of steps, or evolution) performed in the field or on the floor where hazards are present that are either associated with the work or the work environment (regardless of who is performing the work or the organization with which they are affiliated). The hazards involved could potentially and adversely affect worker health or safety (e.g., result in worker injury or sickness) if the worker is exposed to them, and include radiological, chemical, industrial, biological, and other types of hazards.
- This definition excludes common hazards that the public is routinely exposed to and accepts on a daily basis such as those associated with commuting to and from work and those associated with an office environment. Reference the official GESS maintained by ESH&Q division for a list of excluded activities.
[For the purpose of this document]
- 11.2.3 **Activity Screening/Binning.** The process used as a screening tool to aid in determining the document controls utilized when performing work. This screening includes analyzing a scope of work’s complexity, the consequences of improper performance, and frequency of performance. This screening suggests a document type to use, but human judgment must always be applied as a final check. For example, if the screening process suggests a Type III work package be utilized, but prior history of the work performance may lead the work planner to use a Type II work package instead. Lowering the requirement (in the example above, using a Type IV instead of the recommended Type III work package) would require an exception to this requirement. [For the purpose of this document]
- 11.2.4 **Authorization (of Work).** A contractor’s internally documented process or system that ensures work is properly authorized and assigned at the appropriate organizational levels prior to beginning the work. [For the purpose of this document]
- 11.2.5 **Conduct of Operations.** Denotes a philosophy for conducting operations that involve risks to personnel and/or the environment; it must be in place and accepted throughout each organization. [DOE O 5480.19]
- 11.2.6 **Construction.** Any combination of engineering, procurement, erection, installation, assembly, demolition, or fabrication activities involved in creating a new facility or to

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alter, add to, rehabilitate, dismantle, or remove an existing facility. Construction also includes the alteration and repair (including dredging, excavating, and painting) of buildings, structures, or other real property, as well as any construction, demolition, and excavation activities conducted as part of environmental restoration or remediation efforts. This does not involve the manufacture, production, finishing, alteration, repair, processing, or assembling of items categorized as personal property.

[For the purpose of this document]

- 11.2.7 **Corrective (Repair) Maintenance.** The repair of failed or malfunctioning equipment, systems, or facilities to restore the intended function or design condition. This maintenance does not result in a significant extension of the expected useful life.

[For the purpose of this document]

- 11.2.8 **Davis-Bacon Act “Covered Work.”** Facility and infrastructure alterations and modifications that exceed \$2000.00 in materials, required equipment, and craft labor, and other work which may fall under the construction labor agreement.

[For the purpose of this document]

- 11.2.9 **Davis-Bacon Act “Non-covered Work.”** Work that is considered maintenance (such as routine corrective or preventive maintenance on existing systems or equipment, exact replacement of parts or entire systems, and scheduled “upkeep” maintenance) and is paid according to the maintenance labor agreement.

[For the purpose of this document]

- 11.2.10 **Emergency Response.** An emergency response requires activation of the Emergency Response Organization. As such, emergency response activities are exempt from this Process. [For the purpose of this document]

- 11.2.11 **Emergency Work.** Mission essential/emergency work requiring immediate action to prevent serious personal injury, environmental harm, security breach, or property loss. Emergency work as defined by this Process is performed by Maintenance, Construction, or Operations personnel, NOT emergency responders.

[CD-4100.004; For the purpose of this document]

- 11.2.12 **Exception.** An exception is the conscious and deliberate act of excepting or excluding; something which would otherwise be included or required, as in a policy requirement, required work step, direction statement, programmatic rule, safety element, etc. from the manual or any of its requirements. [For the purpose of this document]

- 11.2.13 **Exemption.** An exemption would be the conscious and deliberate act in which, by evaluation and conclusion, it was determined that the work scope being evaluated would not apply to the rule/standard to which the work scope is being compared. In this case, an exemption is from the Process in total. [For the purpose of this document]

- 11.2.14 **Facility (facilities).** Land, buildings, and other structures, their functional systems and equipment, and other fixed systems and equipment installed therein, including site development features outside the plant, such as landscaping, roads, walks, and parking areas; outside lighting and communication systems; central utility plants; utilities supply and distribution systems; and other physical plant features. A building, utility, structure, or other land improvement associated with an operation or service and dedicated to a common function. [U.S. Department of Energy Guide DOE G 433.1-1, “Nuclear Facility Maintenance Management Program Guide for Use with DOE O 433.1”]

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- 11.2.15 **General Employee Safety and Security (GESS).** Common hazards and risks that may be associated with an office or other low risk environment. All work performed under GESS requires that each employee, as an integrated part of their daily activities, identify and assess these common risks/hazards and follow safe work practices. [PLN-1014]
- 11.2.16 **Graded Approach.** The process of assuring that the level of analysis, documentation, and actions used to comply with a requirement are commensurate with the relative importance to safety, safeguard, and security; the magnitude of any hazard involved; the life cycle stage of a facility; the programmatic mission of a facility; the particular characteristics of a facility; the relative importance of radiological and nonradiological hazards; and any other relevant factor. [RD-3200.001]
- 11.2.17 **Hazard.** A situation or source of danger (material, energy source, or operation) with the potential to cause illness, injury, or death to personnel or the public; damage to a facility or the environment; or adversely impact national security. [NSTec Glossary of Terms]
- 11.2.18 **Hazard Analysis.** The determination of material, system, process, and plant characteristics that can produce undesirable consequences, followed by the assessments of hazardous situations associated with a process or activity. Largely qualitative techniques are used to pinpoint weaknesses in design or operation of the facility that could lead to accidents. The Safety analysis report hazard analysis examines the complete spectrum of potential accidents that could expose members of the public, onsite workers, facility workers, and the environment to hazardous materials. [NSTec Glossary of Terms]
- 11.2.19 **Hazard Assessment.** A method of evaluating the level of risk associated with a hazard expressed in terms of an assigned hazard category of high, medium, low, or very low. Hazard assessments, using a graded approach, must be performed during the planning stages in order to perform an adequate activity screening/binning. [Title10 Code of Federal Regulations (CFR) 851, "Worker Safety and Health Program"]
- 11.2.20 **Health Hazard Evaluation (HHE).** A workplace evaluation to determine employee exposures to chemical, biological, and physical hazards, and to recommend procedures for reducing or eliminating those exposures. [For the purpose of this document]
- 11.2.21 **In-Hand.** Applicable to Category I technical procedures, "in-hand" means any of the following:
- Actually having the procedure in the worker's hand while performing work
 - Placed near the worker so it can be read (on a nearby table, chair, etc.) when both hands are required to perform work
 - Being read, step-by-step, to the worker by a co-worker while the worker is performing work
- [For the purpose of this document]
- 11.2.22 **Integrated Safety Management System (ISMS).** The integration of safety awareness and good practices into all aspects of work. Simply stated, work should be conducted in such a manner that protects workers and other people, and does not cause harm to the environment. Safety is viewed as an integral part of each—not a stand-alone program.

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ISMS must be built into all phases of activity level work, from the five core functions and the eight guiding principles. [For the purpose of this document]

- 11.2.23 **Integrated Work Control Document (IWD).** A procedurally required document used by personnel to perform activities such as operations, maintenance, inspections, testing, or other activity level work. These include work packages, technical procedures, and Project level construction documents. [For the purpose of this document]
- 11.2.24 **Job Hazard Assessment (JHA).** A method of evaluating the activities, hazards and related controls during the work planning stage. Prior to planning the work, the work planner, workers and affected subject matter experts are required to perform a thorough walk-down of the job site to assess the hazards. Once the hazards and controls are assessed, then that information is applied to the activity screening/binning tool to determine the level of Integrated Work Document to use. All information derived from the Hazard Assessment must be properly flowed down into the selected IWD using the graded approach. [For the purpose of this document]
- 11.2.25 **Lessons Learned.** A good work practice or innovative approach that is captured and shared to promote a repeated application. A lesson learned may also be an adverse work practice or experience that is captured and shared to avoid recurrence. [For the purpose of this document]
- 11.2.26 **Minor Maintenance.** Actions for deficiencies on facilities, equipment, or parts where ALL the conditions below are met.
- The component is not important to safety. If the component is important to safety, the portion or part being worked does not perform or affect safety or a safety function and is physically isolated.
 - The component or part does not perform an environmental qualification (EQ) function.
 - The integrity of the component will not be violated.
 - Material substitution will not be involved.
 - Disassembly of the component or part will not be required.
 - Welding will not be performed on a component or part of the component that is important to safety or seismically mounted.
 - Welding will not be performed on a pressure vessel.
 - Welding will not be performed on system piping.
 - A lockout/tagout (LO/TO) will not be required.
 - The work performed is of such a minor nature that a written procedure is not required. However, if a procedure exists, it may be used.
 - Documented post-maintenance testing will not be required.
 - The work is of such a simple nature that a detailed maintenance work package and job planning package are not required.

[DOE G 433.1-1]

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- 11.2.27 **Minor Work.** Work which has been analyzed to be of the lowest complexity, lowest consequence, and most frequently performed. This work is typically controlled with either a Type IV work package or Category III technical procedure. [For the purpose of this document]
- 11.2.28 **Predictive Maintenance (PdM).** The actions necessary to monitor; find trends; and analyze parameters, properties, and performance characteristics or signatures associated with SSCs, facilities, or pieces of equipment to discern whether a state or condition may be approaching that is indicative of deteriorating performance or impending failure, where the intended function of the SSCs, facilities, or pieces of equipment may be compromised. [DOE G 433.1-1]
- 11.2.29 **Preventive Maintenance (PM).** Includes all those planned, systematic, periodic, and seasonal maintenance actions taken to prevent SSC or facility failures, to maintain designed-in operating conditions, and to extend operating life. The PM process takes into account the inevitability of failures in any simple or complex piece of equipment, although the consequences of failures can be controlled by careful design and effective maintenance. [DOE G 433.1-1]
- 11.2.30 **Project Level Construction.** Construction on a new building or facility, or major modification/renovation of an existing facility that requires the development of a REOP and/or Execution Plan for the execution of the construction work. It does not require work packages if design documents, construction procedures, safety manuals, blueprints, QA plans, and hold points have been established, as appropriate, so that the construction activities can be undertaken safely and efficiently at the same level of rigor as the work package would have provided. [For the purpose of this document]
- 11.2.31 **Repair.** The restoration of failed or malfunctioning equipment, system, or facility to its intended function or design condition (see **Corrective Maintenance**). [DOE G 433.1-1]
- 11.2.32 **Responsible Manager/Management** – Any manager responsible for implementation of work. This can be a Line Manager, Project Manager, Facility Manager, etc. [For the purpose of this document]
- 11.2.33 **Skill of the Worker (SOTW).** A defined level of technical proficiency for a worker performing a particular job that is verifiable through some form of qualification or supervisory knowledge. [DOE G 433.1-1]. “Skill of the Craft” has traditionally been reserved for maintenance and construction craft. However, as used at the NTS, “Skill of the Worker” applies to ANY job classification, such as engineering, operators, administrative, craftworkers, technicians, etc. It is used as an administrative hazard control which may affect the detail of work instructions provided in IWDs. [For the purpose of this document]
- 11.2.34 **Task.** A well-defined unit of work having an identifiable beginning and end, which is a measurable component of the duties and responsibilities of a specific scope of work. More than one task defines a job’s scope of work. [For the purpose of this document]
- 11.2.35 **Technical Procedure.** A detailed set of stand-alone work instructions which prescribe precisely how to accomplish the various technical works associated with operations, maintenance and support of a facility or mission. Technical procedures are typically written for routine, repetitive work and can be used by any discipline (e.g., Operations, Maintenance, Engineering, Research & Development, RadCon, Industrial

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Hygiene/Industrial Safety, etc.). These procedures specify fixed tasks and define activities in a way that ensures operations are safe, efficient, and practiced within the appropriate margins of safety. Technical procedures, by definition, are designed to implement the concept of Integrated Safety Management. They do not include administrative nor emergency response procedures, nor do they require a work package to use. They are valid for a maximum two year period after which a periodic review is required, unless a major revision occurred within the two year timeframe. [DOE O 5480.19; U.S. Department of Energy Standard DOE-STD-1029-92, "Writer's Guide for Technical Procedures"]

The three categories of technical procedures are:

- [1] Category I Technical Procedure (In-Hand Use) – For the most hazardous, complex, and infrequent work
- [2] Category II Technical Procedure (General Use) – For moderate hazards, moderate complexity, and relatively infrequent work
- [3] Category III Technical Procedure (Reference Use) – For low hazard, low complexity, and the most frequently performed work which can be performed from memory.

11.2.36 **Work.** See **Activity Level Work**.

11.2.37 **Work for Others (WFO).** The performance of work for non-DOE entities by DOE contractor personnel and/or the utilization of DOE facilities that is not directly funded by DOE appropriations. WFO allows others to take advantage of DOE's immense and unique research, development, and manufacturing facilities on a full cost reimbursable basis. [CD-0010.001]

11.2.38 **Worker.** Anyone who performs assigned activity level work. Examples of workers include crafts, researchers and scientists, engineers, technicians, operators, maintenance and test personnel, etc. Workers can be contractor or subcontractor personnel who either normally work at the facility where the work is being performed, or who normally work elsewhere at the site or off site and are present at the facility to perform or support ongoing work activities. [NNSA Guide for Activity Level Work Planning and Control Processes, dated January 2006]

11.2.39 **Work Package (WP).** A set of documents which contain the necessary instructions, permits and other authorizations to perform activity level work. Because of the varied nature of work performed, there are four types of work packages used:

- [1] **Type I.** A potentially large compilation of documents used for the safe performance of work. A Type I WP is used for higher complexity and infrequently performed work, with moderate to high consequences of improper performance. The WP will undergo a revision if any changes in scope and/or hazards are noted within the authorization period. Type I work packages:
 - [a] Shall not exceed 60 days per authorization
 - [b] Contain detailed step-by-step instructions with a defined sequence of performance
 - [c] Require verification and/or hold points

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- [d] Require a pre-job briefing and a post-job debriefing
 - [e] Require a Job Hazard Assessment
 - [f] Require the highest level of review and approval
 - [g] Require activity level work instructions in the body which includes work steps, special requirements, hazards and controls
- [2] **Type II.** A compilation of documents used for the safe performance of work. A Type II WP is used for moderate to high complexity and moderate to infrequently performed work, with moderate to high consequences of improper performance. The WP will undergo a revision if any changes in scope and/or hazards are noted within the authorization period. Type II work packages:
- [a] Shall not exceed 1 year per authorization
 - [b] Contain general step-by-step instructions
 - [c] May require verification and/or hold points
 - [d] Require a pre-job briefing and a post-job debriefing
 - [e] Require a Job Hazard Assessment
 - [f] Require activity level work instructions in the body which includes work steps, special requirements, hazards and controls
 - [g] Require a higher level of review and approval
- [3] **Type III.** A relatively small compilation of documents used for the safe performance of work. A Type III WP is used for moderate to low and frequently performed work, with moderate to low consequences of improper performance. The WP will undergo a revision if any changes in scope and/or hazards are noted within the authorization period. Type III work packages:
- [a] Shall not to exceed 1 year per authorization
 - [b] Contain simple instructions
 - [c] Require a pre-job briefing and a post-job debriefing
 - [d] Require a Job Hazard Assessment
 - [e] Require activity level work instructions in the body which includes work steps, special requirements, hazards and controls
 - [f] Require a lower level of review and approval
- [4] **Type IV.** Typically a singular document used for the safe performance of work. Type IV work is used for minor work evolutions which involve the lowest risk, such as low complexity, low consequence, and frequently performed work. Type IV work packages:
- [a] Shall not exceed 2 years per authorization
 - [b] Contain a work ticket, work request, traveler, or work order
 - [c] Require an initial Job Hazard Assessment

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- [d] Require activity level work instructions in the body which includes work steps, special requirements, hazards and controls
- [e] Require the lowest level of review and approval
- [f] Require an informal pre-job briefing

11.2.40 **Work Planner.** A work planner is anyone who, as a part of planning activity level work, performs the following functions: ensures that the scope of work being performed is adequately defined; confirms that hazards associated with the work and the work environment have been identified and analyzed to determine the controls that must be implemented to ensure worker safety; determines applicable work process requirements (i.e., applies the appropriate graded approach for the work being planned); breaks down work activities into discrete steps; establishes acceptance criteria for work performed; develops technical work documents; identifies permit requirements, provides cost estimates, applies lessons learned, and provides input, as required, to the scheduling process (sequencing and timing, and resources such as personnel, tools, materials, support, training, etc.). Personnel performing Work Planner duties require formal training and qualification as directed in this manual. [NNSA Guide for Activity Level Work Planning and Control Processes, dated January 2006]

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Chapter 12.0 Drivers and References

12.1 Drivers

12.1.1 NSO O 412X3B, Work Control

12.1.2 NNSA, Activity Level Work Planning and Control Processes (January 2006)

12.2 References

12.2.1 10 CFR 830.122 (f) Criterion 6, Performance/Design

12.2.2 10 CFR 830 Subpart A, Quality Assurance Requirements (e) Criterion 5, Performance/Work Processes

12.2.3 10 CFR 835, Occupational Radiation Protection

12.2.4 10 CFR 851, Worker Safety and Health Program

12.2.5 DOE O 414.1C, Quality Assurance

12.2.6 DOE O 420.1, Facility Safety

12.2.7 DOE O 420.1-1, Non Reactor Nuclear Safety Design Criteria and Explosive Safety Criteria

12.2.8 DOE O 430.1B, Real Property Asset Management

12.2.9 DOE O 440.1 A, Worker Protection Management for DOE Federal & Contractor Employees

12.2.10 DOE O 5480.19, Conduct of Operations Requirements for DOE Facilities

12.2.11 DOE-STD-1029-92, Writers Guide for Technical Procedures

12.2.12 DOE-STD-3009-94, Preparation Guide for U.S. Department of Energy Non Reactor Nuclear Facility Safety Analysis

12.2.13 DOE G 433.1-1, Nuclear Facility Maintenance Management Program Guide

12.2.14 DOE G 440.1-2, Construction Safety Management Guide for use with DOE Order 440.1

12.2.15 HSPD-5, Management of Domestic Incidents

12.2.16 RD-3200.001, Quality Assurance Requirements Document (QARD)

12.2.17 MD-0001.01, Management Description

12.2.18 PD-0001.001, Integrated Safety Management System Description

12.2.19 PD-0001.002, Quality Assurance Program

12.2.20 PD-4000.001, Work Control/Authorization

12.2.21 PLN-1004, Emergency Management Plan

12.2.22 PLN-1014, Risk and Work Configuration Management

12.2.23 PLN-NOPS.002, Integrated Work Control Manual Implementation Plan

12.2.24 PY-E000.002, Conduct of Operations

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- 12.2.25 CM-0444.001-001, General Safety Rules
- 12.2.26 CM-0444.001-004, Job Hazard Analysis and Pre-Task Hazard Review
- 12.2.27 CM-0444.001-005, Aviation Safety Program Administrator (ASPA) Oversight and Safety Responsibilities
- 12.2.28 CM-0444.001-060, Personal Protective Equipment
- 12.2.29 CM-2120.001, Emergency Services and Operations Support Emergency Preparedness and Response Manual
- 12.2.30 CM-2120.002, Nevada Test Site Operations Manual
- 12.2.31 CM-E000.001, NSTec Conduct of Operations Manual
- 12.2.32 CM-NMNT.001-001, Nuclear Facility Maintenance Management Program Description
- 12.2.33 CM-NMNT.001-002, Nuclear Facility Maintenance Management Program Requirements
- 12.2.34 CM-NMNT.001-003, Nuclear Facility Maintenance Guide
- 12.2.35 CM-NMNT.001-030, Nuclear Facility Integrated Maintenance Work Control Process
- 12.2.36 CM-NMNT.001-034, Nuclear Facility Subcontractor Work Control
- 12.2.37 CD-A010.001, Facility Manager/Facility Owner Program
- 12.2.38 CD-A010.002, Real Estate/Operations Permit Process
- 12.2.39 CD-NENG.019, Unreviewed Safety Question Process
- 12.2.40 CD-NMNT.030, Integrated Maintenance Work Control Program
- 12.2.41 CD-QA10.001, Independent Assessment
- 12.2.42 CD-0010.001, Work For Others
- 12.2.43 CD-0300.002, Memorandum of Understanding
- 12.2.44 CD-0441.002, Radiological Work Restrictions for Individuals
- 12.2.45 CD-0500.005, Baseline Change Control
- 12.2.46 CD-2000.001, Facility Execution Plans
- 12.2.47 CD-2100.001, Contact Work Procedures
- 12.2.48 CD-2100.002, Plan of the Day
- 12.2.49 CD-2300.023, Supplier Evaluation and Qualification
- 12.2.50 CD-3100.720, Nuclear Operations Training and Qualification
- 12.2.51 CD-3200.006, Stop Work
- 12.2.52 CD-3200.013, Lessons Learned Program
- 12.2.53 CD-3200.017, Issue Reporting
- 12.2.54 CD-3400.001, Requisitioning Process
- 12.2.55 CD-4000.002, Work Package Process
- 12.2.56 CD-4000.003, Pre-Job Briefings and Post-Job Debriefings

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- 12.2.57 CD-4000.004, Skill of the Craft
- 12.2.58 CD-4100.004, Requesting Maintenance, Construction, Alterations, and Service Work
- 12.2.59 DM-NENG.002, Hazard Analysis Methodology
- 12.2.60 DM-NOPS.001, Conduct of Operations
- 12.2.61 OI-0444.050, Subcontractor S&H Qualification and Selection
- 12.2.62 OI-2120.160, Nevada Test Site Activity Event Scheduling
- 12.2.63 OI-0500.007, Project Scheduling
- 12.2.64 OI-4800.030, Emergency/Urgent Work
- 12.2.65 OP-0400.005, Subcontracts
- 12.2.66 OP-2110.006, Construction Work Planning/Packaging
- 12.2.67 OP-2113.001, Subcontract Technical Representative
- 12.2.68 OP-2113.002, Subcontracts Management
- 12.2.69 OP-4800.006, Work Determination
- 12.2.70 OPS07A-25, Performance Objective

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Chapter 13.0 Records Management

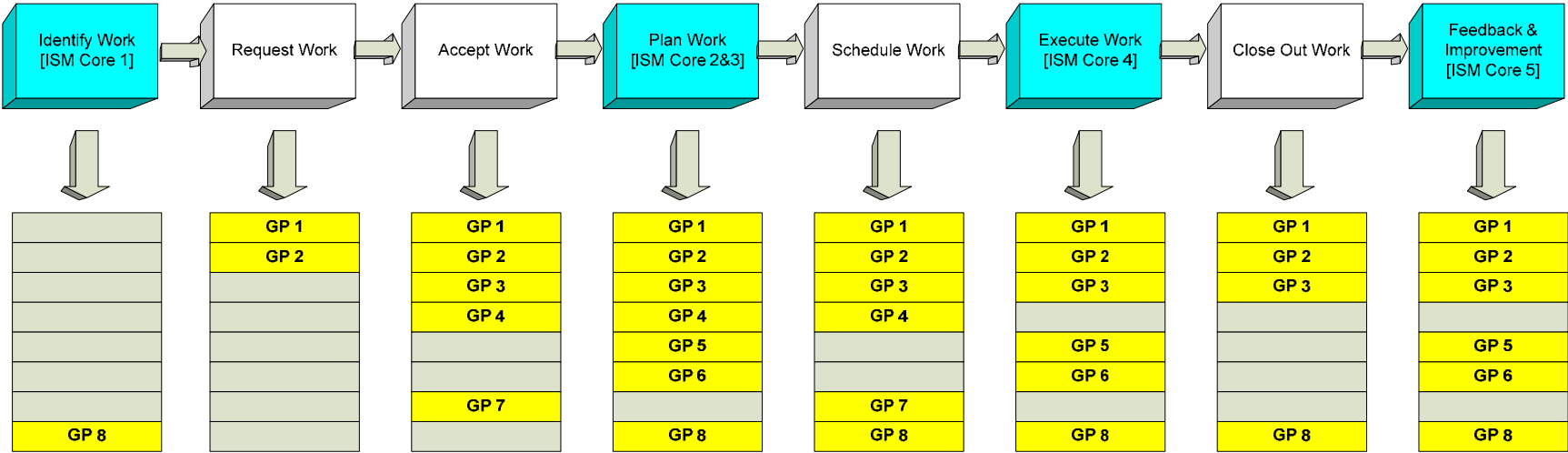
- 13.1 With the exception of the following record, all other records are generated and documented within the respective documents, as outlined throughout the chapters of this manual:

Record	Disposition Authority	Disposition Instructions	Office of Record
Exception Memorandum	ADM 18.35.b	Destroy 5 years after the date of completion of either a task or performance of an activity or action for which the documentation will have no future applicability for demonstrating an item's capability for safe operation. EPI – DO NOT DESTROY	Originating Organization

Appendix 1 - Implementation of ISM into the NSTec Activity Level Integrated Work Control Process

- Five Core ISM Functions**

 1. Define the Scope of Work
 2. Analyze the Hazards
 3. Develop and Implement Hazard Controls
 4. Perform Work Within Controls
 5. Provide Feedback and Continuous Improvement



- Eight ISM Guiding Principles**

 1. Line Management Responsibility for Safety
 2. Clear Roles & Responsibilities
 3. Competence Commensurate with Responsibilities
 4. Balance Priorities
 5. Identification of Safety Standards and Requirements
 6. Hazard Controls Tailored to Work Being Performed
 7. Operations Authorization
 8. Worker Involvement

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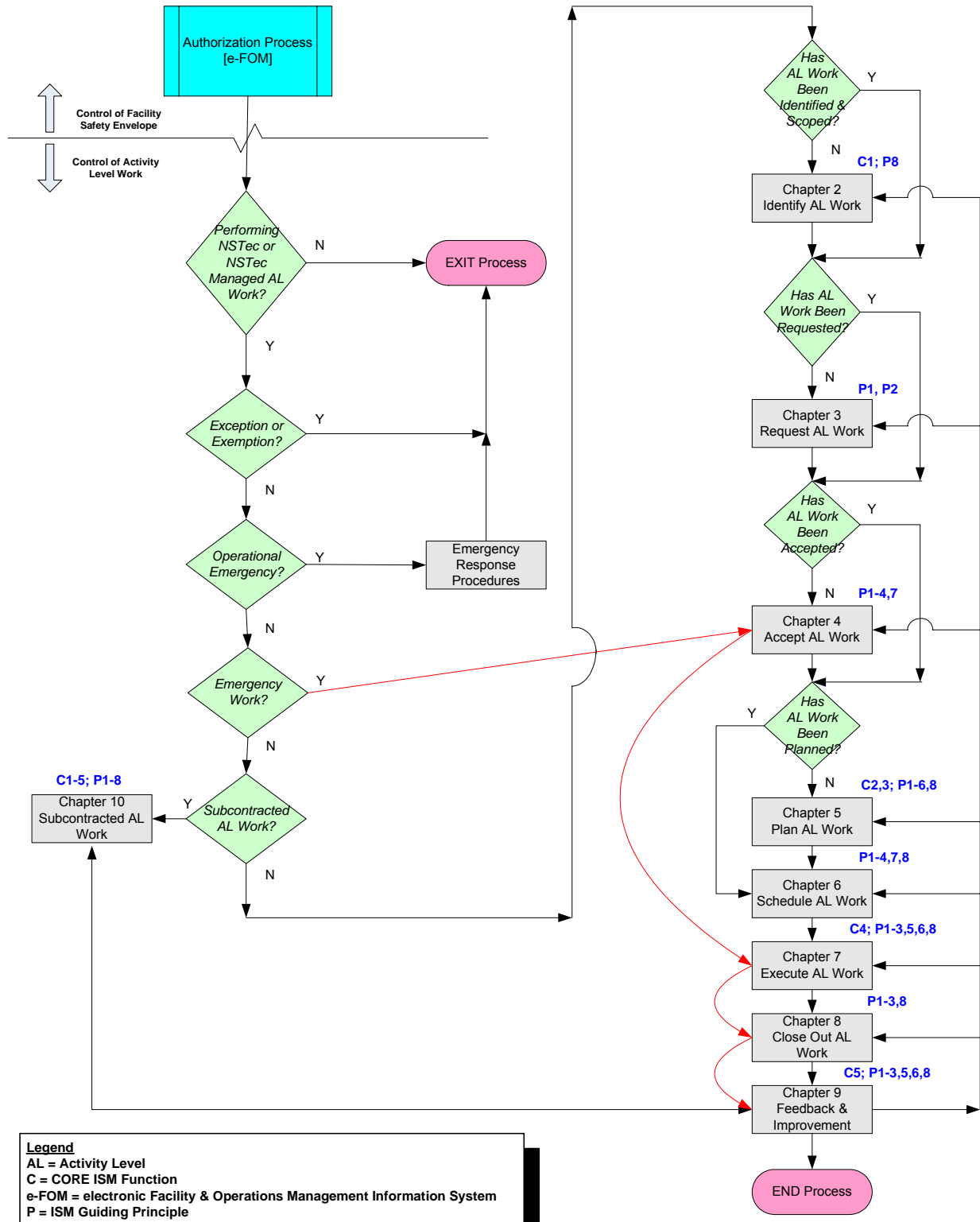
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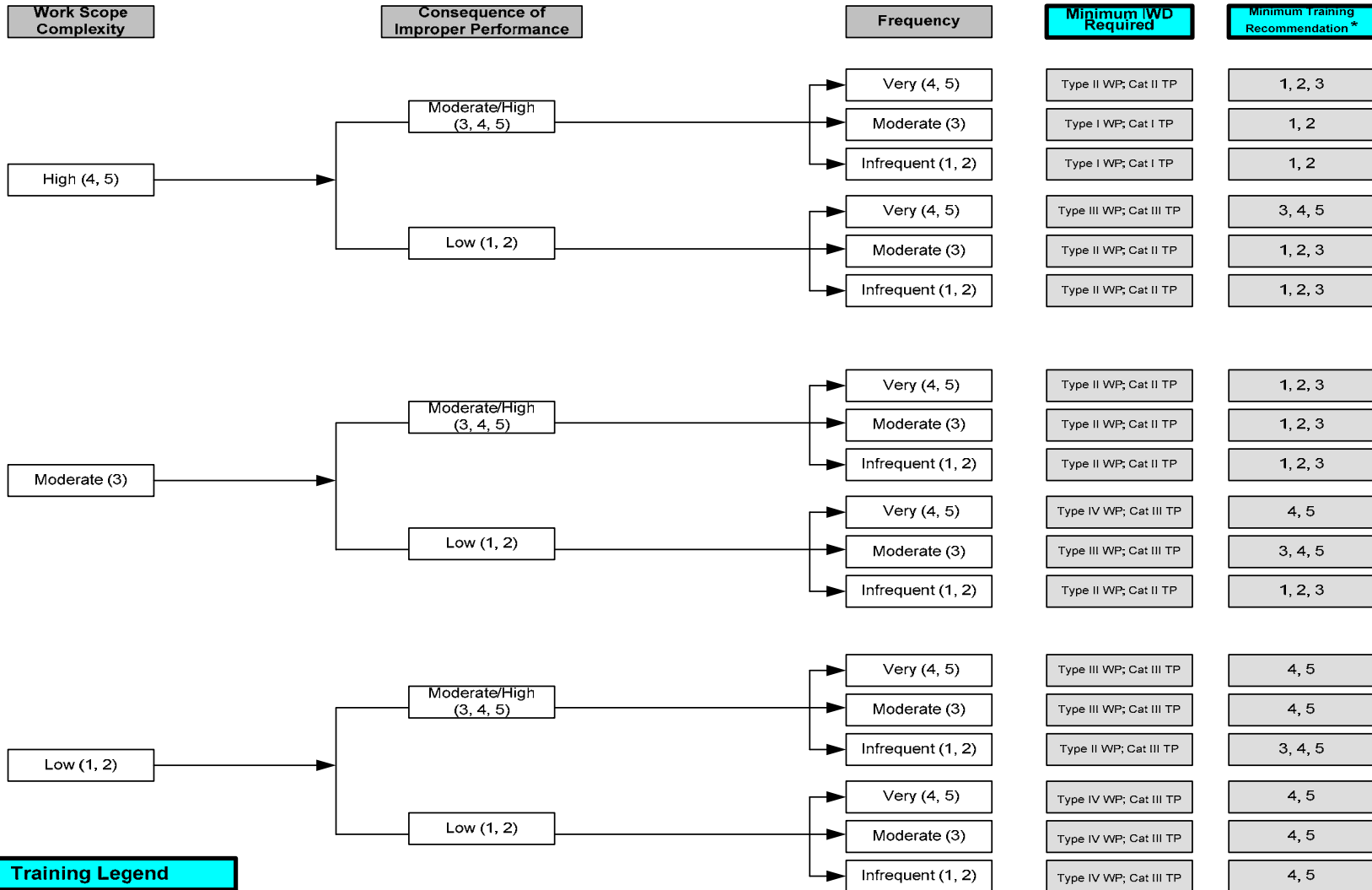
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Appendix 2 – NSTec Integrated Work Control Process Map for Activity Level Work



Appendix 3 – Activity Screening/Binning Tool



Training Legend
1 = OJT/Skills Evaluation
2 = Formal Classroom w Exam
3 = Classroom Briefing No Exam
4 = Crew/Shift/Pre-Job Briefing
5 = Minor Work (No Additional Trng)

Integrated Work Document (IWD) Legend
TP = Technical Procedure (Category I, II or III)
WP = Work Package (Type I, II, III, or IV)

* Not a requirement. Suggestion for Planning purposes only.

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Appendix 4 - Activity Binning/Screening Guidance

Each of the three sections is ranked from 1-5. The ranking number is assigned based upon an assessment of the **entire scope of work** being performed, the consequences of improper performance, and the frequency of work performance. Each section ranking number has a brief description of what the work planner should be thinking about when determining where a job fits. If in doubt, confer with another planner, the SMEs and affected disciplines (IH, RadCon, Safety, Engineering, etc.).

How COMPLEX is the Scope of Work to be performed? (i.e., this includes Work location factors such as types of Rad Areas, confined spaces, etc.)		What are the CONSEQUENCES of improper performance for this scope of work? (i.e., what specific undesired things can happen)		At what FREQUENCY is this Scope of Work performed? (Not how often any one individual performs the scope of work – that is “proficiency”)	
1	Very Easy - Very easy to perform: mental activity required is low, degree of work complexity is low.	1	Negligible – Consequences of improper performance are <u>negligible</u> - Improper performance would make no difference to the health and safety of the worker or to the operation of a system or process.	1	Rarely – Less than once per year.
2	Somewhat Easy - Somewhat easy to perform: mental activity required is low, degree of work complexity is medium.	2	Undesirable – Consequences of improper performance are <u>undesirable</u> – Improper performance may cause minor health and safety impacts, or impair the reliability of a system or a process.	2	Seldom – Once every 5 to 12 months.
3	Moderately Difficult - Moderately difficult to perform: mental activity required is medium, degree of work complexity is medium.	3	Serious – Consequences of improper performance are <u>serious</u> - Improper performance may cause serious health and safety impacts, or cause serious damage to the system or process.	3	Occasionally - Once every 3 weeks to 4 months.
4	Very Difficult - Very difficult to perform: mental activity required is medium, degree of work complexity is high.	4	Severe –Consequences of improper performance are <u>severe</u> - Improper performance may result in severe impact to worker health and safety, or cause severe damage to a system or process..	4	Often - Once every 1 to 2 weeks.
5	Extremely Difficult - Extremely difficult to perform: mental activity required is high, degree of work complexity is high.	5	Extremely Severe – Consequences of improper performance are extremely severe - a serious injury or site emergency may result.	5	Very Often – More frequently than once per week.

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Appendix 5 – Activity Binning/Screening Complexity Examples

Examples of Scope of work COMPLEXITY	
1 Very Easy	<p>Electrical Work – Removal of a panel or equipment cover for purposes of observation</p> <p>Environmental – Tasks which require no controls</p> <p>Laser Work - Operation of Class I or Class II lasers</p> <p>Industrial Hygiene - Changing sensors in multi-gas instruments;</p> <p>Radiological - No radiological hazards involved</p>
2 Somewhat Easy	<p>Electrical Work - 1) Electrical work with < 50 Volts (Arc Flash Cat -1 to Cat 1)</p> <p>Environmental - Work requiring a NEPA review; Generation of solid sanitary waste; Management of used oil, lead acid batteries, universal waste; Land clearing; Surface disturbance.</p> <p>General Work – Manual Lifting (Up to 50 pounds); General Sampling by SME</p> <p>Hazardous Material Work - Work with non-ionizing radiation</p> <p>Laser Work - Operation of Class IIIA lasers</p> <p>Industrial Hygiene - Non-permit required confined space entries, Taking asbestos samples by coring tool</p> <p>Radiological - Working with HAZ 1 & 2 sources or radioactive material.</p> <p>Underground Work - Underground or mining operations</p>
3 Moderate Difficulty	<p>Electrical – Working with ≥ 50 Volts; Task performed under Single-Point, Single-Source LOTO;</p> <p>Environmental – Work involving a RCRA storage area; Work affecting potential Air Quality Standards. Potential for spill of hazardous chemicals; Changes to waste water system (sewage lagoons or septic tanks); Generation of hazardous, radioactive, mixed, PCB >50ppm, or asbestos waste; Changes to drinking water systems.</p> <p>General Work – Welding, cutting, soldering, brazing, grinding, demolition or renovation, of building.</p> <p>Hazardous Material Work - Exposure to biological hazards or biological agents.</p> <p>Industrial Hygiene - Permit required confined space entries; Respirator fit testing;</p> <p>Laser Work - Operation of Class IIIB or Class IV lasers</p> <p>Nuclear Operations – Maintenance/Operation of Important to Safety (ITS) Structures, Systems or Components</p> <p>Radiological - Work in a Contamination Area. Work in a Radiation Area. Work with HAZ 3 sources.</p> <p>Transportation - Operation of vehicle requiring DOT license</p>

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Appendix 5 – Activity Binning/Screening Complexity Examples (Cont.)

Examples of Scope of Work COMPLEXITY	
4 Very Difficult	<p>Electrical Work – Energized electrical work; Arc Flash Cat 4; Any activity within the Prohibited Approach Boundary.</p> <p>Environmental - Work involving significant changes to site/facility hazardous material inventories; Large spills of unknown hazardous waste.</p> <p>General Work – Work in potential Unexploded Ordnance (UXO) area; Excavations & Blind Penetrations;</p> <p>Hazardous Material Work - BSL-2; Work with specialized PPE (Level C, B, and A protection); Respiratory Hazards: silica, asbestos, lead, beryllium, cadmium, diesel particulate matter, or other metals or chemicals (Requiring respiratory protection)</p> <p>Industrial Hygiene – Level B suit work</p> <p>Nuclear Operations – Maintenance/Operation Of Safety SIGNIFICANT Structures, Systems or Components</p> <p>Radiological - Work in a High Radiation Area or High Contamination Area. Work with HAZ 4 Sources or Special Nuclear Material</p> <p>Transportation - Operation of vehicle transporting Radioactive or Hazardous Materials (placarding, manifesting, etc.)</p>
5 Extremely Difficult	<p>Environmental –Work or activities involving hazardous waste operations or emergency response operations involving unknown hazardous materials at FFA/CO sites, or Resource, Conservation and Recovery Act-regulated sites; Emergency Response (Fire, Radiological, Hazardous, etc.)</p> <p>General Work – Explosive/Demolition work</p> <p>Hazardous Material Work - BSL-3; Work with unknown hazards; Potential IDLH work;</p> <p>Industrial Hygiene – Temperatures exceeding 100° F without acclimation; Level A suit use for work or emergency response.</p> <p>Nuclear Operations – Maintenance/Operation Of Safety-CLASS Structures, Systems or Components</p> <p>Radiological - Work in an Airborne Radioactivity Area. Work with HAZ 5 Sources. Glovebox work.</p>

Examples Only

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Appendix 6 – Activity Binning/Screening Consequences Examples

Examples of <u>CONSEQUENCES OF IMPROPER PERFORMANCE</u>	
1 Negligible	<p>Electrical – None</p> <p>Industrial Hygiene – Broken instrument</p> <p>Legal – No legal impact</p> <p>Mission/Financial/Equipment – No mission, financial or equipment impact</p> <p>Radiological – No radiological hazards involved.</p>
2 Undesirable	<p>Electrical – Mild shock, near miss.</p> <p>Legal – Minor legal impact</p> <p>Mission/Financial/Equipment – Minor mission, financial or equipment impact</p> <p>Industrial Hygiene – Loss of sample data; Invalid monitoring results</p> <p>Radiological – PPE Contamination. Loss of radioactive material.</p>
3 Serious	<p>Electrical – Shock, arc flash resulting in a burn, hazardous energy not controlled by authorized LOTO</p> <p>Legal – Serious legal impact such that company legal becomes involved.</p> <p>Mission/Financial/Equipment – Serious impact to mission, financial or equipment.</p> <p>Industrial Hygiene – Exceed the action level (AL) for a hazard</p> <p>Radiological - Personnel contamination. Equipment contamination.</p>
4 Severe	<p>Electrical – Shock resulting in hospitalization, severe burns to skin or eyes.</p> <p>Legal – Serious legal impact such that parent company legally becomes involved.</p> <p>Mission/Financial/Equipment – Severe impact to mission, financial or equipment; Jeopardizes the contract.</p> <p>Industrial Hygiene – Exceed a published Occupational Exposure Limit (OEL) for a hazard</p> <p>Radiological - Skin contamination. Exposure over administrative limits. Potential uptake of radioactive material.</p>
5 Extremely Severe	<p>Electrical Work - Death by electrocution; Arc Flash burns</p> <p>Legal – Public or governmental lawsuit</p> <p>Mission/Financial/Equipment – Highest level of impact to mission, financial or equipment; Loss of M&O Contract.</p> <p>Industrial Hygiene – Loss of consciousness, hospitalization due to an acute exposure to a hazardous substance</p> <p>Radiological – Off-site release; medical removal required; contaminated wound; Personnel exposure over federal limit; Confirmed uptake of radioactive material; Environmental release above some level; Nuclear Criticality.</p>