

**Independent Oversight Review of
the Nevada National Security Site
Implementation Verification Review
Processes**



March 2012

**Office of Safety and Emergency Evaluations
Office of Enforcement and Oversight
Office of Health, Safety and Security
U.S. Department of Energy**

Table of Contents

1.0 Purpose.....	1
2.0 Background.....	1
3.0 Scope.....	1
4.0 Results	2
5.0 Conclusions	11
6.0 Opportunities for Improvement	12
7.0 Follow-up Items.....	13
Appendix A: Supplemental Information.....	A-1
Appendix B: Documents Reviewed and Interviews	B-1

Acronyms

AMNS	Assistant Manager for National Security
AMSO	Assistant Manager for Site Operations
AMSS	Assistant Manager for Safety and Security
CAS	Contractor Assurance System
CFR	Code of Federal Regulations
CRAD	Criteria Review and Approach Document
DAF	Device Assembly Facility
DOE	U.S. Department of Energy
DSA	Documented Safety Analysis
FR	Facility Representative
FRA	Functions, Responsibilities, and Authorities
FY	Fiscal Year
HSS	Office of Health, Safety and Security
IVR	Implementation Verification Review
JASPER	Joint Actinide Shock Physics Experimental Research
JCO	Justification for Continued Operation
LOI	Line of Inquiry
MSA	Management Self-Assessment
NNSA	National Nuclear Security Administration
NNSS	Nevada National Security Site
NP	Noteworthy Practice
NSO	Nevada Site Office
NSTec	National Security Technologies, LLC
OFI	Opportunity for Improvement
ORR	Operational Readiness Review
SAC	Specific Administrative Control
SSC	Structure, System or Component
SSO	Safety System Oversight
SSOR	Safety System Oversight Representative
TSR	Technical Safety Requirement
USQ	Unreviewed Safety Question

Independent Oversight Review of the Nevada National Security Site Implementation Verification Review Processes

1.0 PURPOSE

This report documents the independent review of implementation verification review (IVR) processes at the Nevada National Security Site (NNSS) conducted by the Office of Enforcement and Oversight (Independent Oversight), which is within the Office of Health, Safety and Security (HSS). The review was performed by the HSS Office of Safety and Emergency Management Evaluations from February 6 to 15, 2012, and was carried out within the broader context of an ongoing program of assessments of the execution of IVRs at U.S. Department of Energy (DOE) sites with hazard category 1, 2, and 3 nuclear facilities. The overall purpose of these Independent Oversight reviews is to evaluate the processes and methods used for verifying and re-verifying the implementation of new or substantially revised safety basis hazard controls. The objective of this review was to evaluate the extent to which the site management and operating contractor, National Security Technologies, LLC (NSTec) and the Nevada Site Office (NSO) have developed and employed adequate IVR methods.

2.0 BACKGROUND

Subpart B of Title 10 Code of Federal Regulations (10 CFR) 830.201, *Performance of Work*, states, “A contractor must perform work in accordance with the safety basis for a hazard category 1, 2, or 3 DOE nuclear facility and, in particular, with the hazard controls that ensure adequate protection of workers, the public, and the environment.” In addition, 10 CFR 830, Subpart A, *Quality Assurance Requirements*, establishes requirements for conducting activities that may affect safety at these facilities, including performing work in accordance with hazard controls, using approved instructions or procedures, conducting tests and inspections of items and processes, and independently assessing the adequacy of work performance.

In February 2008, the Defense Nuclear Facilities Safety Board requested that DOE evaluate the need to conduct “independent validations on a recurring basis” to ensure that facility equipment, procedures, and personnel training related to safety basis controls have not degraded over time. In response, the Department conducted an evaluation that led to the conclusion that the existing requirements for implementation of safety controls and DOE policy for oversight of the implementation of nuclear safety requirements were appropriate. The evaluation also concluded that Departmental directives contained no explicit requirement to validate safety basis hazard controls, so the Department committed to develop guidance on the validation of safety controls and to add that guidance to its directives.

A DOE working group developed a “best practices guide” for the independent verification of safety basis controls. In November 2010, the guidance for performing IVRs was incorporated in DOE Guide 423.1-1A, *Implementation Guide for Use in Developing Technical Safety Requirements*, Appendix D, *Performance of Implementation Verification Reviews (IVRs) of Safety Basis Controls*.

3.0 SCOPE

At the NNSS, NSO provides onsite management, day-to-day oversight, and surveillance of NSTec, as well as support for accomplishing DOE and National Nuclear Security Administration (NNSA) strategic

and long-term general goals. For this review, Independent Oversight assessed the establishment and execution of both NSTec and NSO processes and activities for verifying the implementation of changes to safety basis hazard controls. This scope was consistent with completion of Objectives 1 and 2 in the HSS Criteria Review and Approach Document (CRAD) HSS CRAD 45-39, Rev. 1, *Implementation Verification Review of Safety Basis Hazard Controls: Inspection Criteria, Activities, and Lines of Inquiry*. The objectives were to determine whether NSTec and NSO have:

- Established processes that provide assurance that safety basis hazard controls are maintained and hazard control changes are correctly implemented
- Developed and implemented adequate methods for performing IVRs or similar reviews.

The assessment was accomplished by reviewing the documentation that establishes and governs the NSTec and NSO IVR processes (for example, work instructions, procedures, forms, and checklists) and interviewing key personnel responsible for developing and executing the associated practices.

4.0 RESULTS

Objective 1: Processes have been established that provide assurance that safety basis hazard controls are maintained and hazard control changes are correctly implemented.

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Independent Oversight reviewed the procedures and processes that NSTec has established to implement and maintain safety basis hazard controls at the NNS. The review was conducted to determine whether these processes and/or procedures include an independent IVR or similar process for examining the implementation of new or revised safety basis documents. The review also assessed these processes and procedures to determine whether they contain an adequate level of planning and formality for re-verification of safety basis hazard controls and for verification of the implementation of safety basis requirements prior to the startup or restart of facilities with new or revised safety basis documents.

Through CD-NENG.17, *Development and Control of Nuclear Safety Basis Documents*, NSTec has established an adequate process for developing and controlling safety basis changes for hazard category 1, 2, and 3 nuclear facilities. This procedure, which applies to developing or revising documented safety analyses (DSAs), technical safety requirements (TSRs), and justifications for continued operation (JCOs), requires the safety basis lead to initiate a safety basis implementation matrix for each safety control or safety analysis assumption that will require implementation. For revised documents, the implementation matrix is required only for the changes. For items that require implementation, the facility manager or program manager is responsible for developing a safety basis implementation plan addressing implementation of each control or assumption, including development, review, training, and verification. The changes become effective upon NNSA's authorization for operations when a readiness review is necessary or completion of the IVR when no readiness review is necessary.

Further instructions for implementing safety basis documentation are provided in CD-NENG.004, *Implementation of Safety Basis Documentation*, which provides details on the use of the safety basis implementation checklist. The checklist (FRM-1391) also has instructions to direct the implementation actions and record completion of those actions in the implementation matrix. Specific matrix sections are set aside for implementation actions by responsible managers, such as the operations manager, the health physics supervisor, and the cognizant system engineer. Actions include update of the linking document database, preparation of new or revised procedures, conduct of training needs analysis, and completion of

training. Overall, the checklist provides an adequate method for tracking completion of the implementation actions.

Development of the safety basis implementation matrix and checklist is meant to be supported by a linking document database, which is required by OP-NENG.024, *Linking Document Database*. This procedure defines the expectations for the linking document database (to meet 10 CFR 830 quality assurance requirements), which identifies controlled documents that implement safety basis controls. The procedure establishes an adequate process for developing and maintaining this tool, but an independent assessment conducted in fiscal year (FY) 2011 identified a lack of understanding and implementation of this internal requirement. The assessment revealed that some facilities have implemented databases that meet the procedural requirements, while others have not. To address this issue, NSTec developed a corrective action plan, with actions scheduled to be completed later this fiscal year.

To ensure the implementation of safety basis hazard controls, NSTec has developed an IVR procedure (OP-NOPS.007, *Independent Verification Review of Safety Basis Changes*) that includes an adequate level of planning and formality for IVR processes and addresses periodic re-verification of hazard control implementation (outside of the annual review, update, and implementation of safety basis revisions). The procedure applies to newly developed safety bases or changes to existing safety basis documents at the site's nuclear facilities. Activities that require readiness reviews are also within the scope of the procedure, and IVRs are to be performed to demonstrate that preparations for readiness reviews are complete. The IVR process is based on a graded approach for changes designated as either moderate or major. A moderate change includes minor or no TSR changes, JCOs, or minor changes in structure, system, or component (SSC) performance criteria. A major change involves a significant change to the safety basis or a change requiring a readiness review. The IVR major change process is used to confirm readiness prior to a readiness review and can be used to reduce the scope of the subsequent review.

The IVR procedure includes adequately detailed instructions for initial implementation of new safety basis controls, ongoing re-verification of control implementation, administrative preparations and planning for an IVR, performance of both moderate and major change IVRs, and completion of the final report for a major review. Initial IVRs are performed by personnel from the Compliance and Surety Division, an independent assessment group within the Nuclear Operations Directorate. The initial implementation instructions include a list of 13 items that the facility manager is to verify to ensure that the safety basis is fully implemented. Interviews and discussions with personnel conducting IVRs indicated that they are knowledgeable of the process and methods of performance.

OP-NOPS.007 also provides for periodic re-verification of safety basis control implementation, assigns responsibility to the facility manager, and indicates that the purpose of the reviews is to ensure that the controls are operable to perform as documented in the safety basis. The procedure requires re-verification of controls related to safety class SSCs every three years and those related to safety significant SSCs every five years. It also requires re-verification of the effectiveness of safety management programs every five years (allowing review of a subset of facilities with similar programs), though the assignment is given to the facility manager rather than a functional area manager. Although the procedure designates responsibility and assigns a periodicity for re-verification of controls related to SSCs and safety management programs, it does not address the re-verification of the implementation of specific administrative controls (SACs). (See Opportunities for Improvement, **OFI-1**.)

The IVR procedure includes an adequate set of overall objectives for the IVR process and sufficiently detailed instructions to support execution of the process. The moderate change process includes steps to indicate the level of the independence of the reviewer and is implemented using a structured checklist. The degree of independence of the reviewer is documented in the checklist and may range from completion by an individual from the line organization not involved in the change, a member of another

NSTec organization, or an independent reviewer. The categories of documents (for example, safety basis documents, TSRs, procedures, and conditions of approval) to be reviewed are listed, and blocks are provided to indicate whether the control was reviewed and adequately implemented (for example: Yes, No, or Not Applicable). The checklist includes a separate section to verify that training is complete (including a review of the training roster and training materials), and a list of reviewed documents is to be attached.

The process for review of major change involves a formal plan (prepared by the team leader) with a defined CRAD and lines of inquiry (LOIs), and the review is conducted by an independent team. The IVR procedure provides an adequate set of instructions for preparing the plan, conducting the review, and preparing the final report. For changes involving readiness reviews, the procedure requires that the IVR include performance observations, level-of-knowledge interviews, and emergency response drills. A procedure appendix provides a set of generic CRADs and LOIs, and a separate appendix provides a detailed example. The procedure also requires that the IVR team prepare a control/surveillance requirements matrix (FRM-2132) for a major change, though the form indicates that the facility manager is to sign it. The matrix lists the required control, frequency, and implementing procedure and step and includes blocks to sign upon verification of each control. Findings from the review are categorized using a two-part screening form to verify first whether the issue constitutes a finding, and second whether the finding must be addressed before or after implementation. At the completion of the review, a formal memorandum detailing the results of the IVR is issued to the Readiness Manager (the Compliance and Surety Division Manager), and once any identified pre-implementation findings are closed, the controls are declared effective by the Nuclear Operations Director. Though mostly complete, the procedure appendices do not provide guidance for verifying implementation of SACs. (See Opportunities for Improvement, **OPI-1**.)

NSTec has developed a plan and a suite of implementing procedures that provide a sound basis for implementing the readiness review process at the site. PLN-1086, *Readiness Review Overview*, provides a general description of the readiness review process (which complies with DOE Order 425.1D and additional guidance provided in the NSO procedure) and discusses the elements of the readiness review program. The readiness review implementing procedures adequately provide for the verification of safety basis control implementation. The procedure governing readiness planning and preparation includes provisions for the performance of an IVR for new or changed controls in the readiness review plan. Guidance in the procedure for developing a readiness review plan of action adequately addresses the confirmation that safety basis controls are implemented and allows the scope of the review to be reduced based on completion of an IVR. The procedure governing the conduct of the contractor readiness review also includes adequate guidance for developing the implementation plan (including selection of CRADs), conducting the review, and preparing the final report, but it does not mention the integration of IVR results.

The NSTec contractor assurance system (CAS) description (prepared to meet the requirements of DOE Order 226.1, *Implementation of Department of Energy Oversight Policy*, NA-1 SD 226.1A, *NNSA Line Oversight and Contractor Assurance System Supplemental Directive*, and 10 CFR 830) includes adequate methods to verify implementation of safety basis hazard controls through management assessments and independent assessments. Although the system description does not directly address nuclear safety assessments, it establishes a system of assessments using performance-adjusted risk prioritization, which includes nuclear safety as a functional area. The joint assessment schedule development procedure establishes an effective method for determining the needed assessments and integrating the assessment activities. The procedure has a detailed process for establishing the required assessments, based on the performance-adjusted risk prioritization, and determining the type of assessment, including both management and independent assessments. The planning, conducting, and reporting of both management and independent assessments are adequately governed by detailed procedures. Following the procedure,

management assessments, which are primarily the responsibility of functional and mission area responsible managers, are conducted using established criteria, scope, and methodology published in an assessment plan. The procedure establishes expectations for performance-based assessments and includes templates for both the plan and the report. Identified issues are to be entered in the tracking system, and the tracking numbers are to be referenced in the report. The responsibilities for the conduct of independent assessments and detailed methods for their performance and reporting are similarly well-documented in the independent assessment procedure. Independent assessments are managed by the management systems assessment manager within the Quality Performance and Improvement Division.

Nevada Site Office

Independent Oversight reviewed NSO processes to determine whether the processes adequately assess the contractor's implementation of new and revised safety basis documents and provide sufficient information to confirm the ongoing effectiveness of contractor processes for the implementation of safety basis requirements. The suite of NSO line oversight processes and procedures provides a suitable framework for ensuring that safety basis hazard controls have been correctly implemented and are being maintained. These include the site office functions, responsibilities, and authorities (FRA) procedure; the nuclear facility safety management procedure; the assessment and oversight processes; and the procedures defining the Facility Representative (FR) program and the safety system oversight representative (SSOR) program.

The site office FRA assigns the NSO manager the responsibility for oversight of nuclear safety, including approving startup and restart, reviewing DSAs, and preparing safety evaluation reports. The Nuclear Safety Team, which reports directly to the NSO manager, is tasked with leading and staffing safety basis review teams, as well as establishing readiness review teams to ensure implementation of TSRs and safety management programs. The FR program, which resides within the Assistant Manager for Site Operations (AMSO), is assigned to evaluate "continued effective implementation of approved DSAs and TSRs for nuclear facilities, including all associated controls and initial conditions." SSORs, who report to the Assistant Manager for Safety and Security (AMSS), are required to confirm that safety systems will perform as required by the safety basis documents.

Although the FRA does not specifically address the IVR process, it does assign responsibility for ensuring implementation of TSRs, continued effective implementation of DSAs and TSRs, and safety system oversight (SSO). The FRA refers to NSO O 421.X1D, *Nuclear Facility Safety Management*, as the implementing document for safety basis requirements. NSO O 421.X 1D states that the line management organizations are the primary NSO organizations responsible for verifying safety basis implementation and continued compliance reviews. The FRA does not include this as a functional assignment to the line organizations in appendix B; rather, it addresses line management responsibilities for TSR controls in appendix D, the section on contractor oversight. The NSO FRA also does not include DOE Guide 423.1.1 as a reference document. (See Opportunities for Improvement, **OFI-2**.)

The NSO nuclear facility safety management procedure is a comprehensive document that addresses the review and approval of DSAs, authorization agreements, readiness reviews, the unreviewed safety question (USQ) process, and the IVR process. Appendix A of the procedure includes a section on the IVR process and addresses both initial verification of new or significantly changed safety basis controls and periodic compliance reviews. It states that the preferred process for confirming adequate contractor implementation of significant changes to safety basis controls is the IVR. The senior nuclear safety advisor is responsible for determining when changes are significant enough to warrant an IVR by NSO. Expected outcomes of the IVR include verifying that safety basis controls (including SACs) are incorporated in facility documents, personnel are knowledgeable of the controls, the controls have been implemented, and key assumptions of the safety basis are protected. Regarding periodic compliance

reviews, the procedure recommends the use of IVRs and operational awareness oversight provided by SSORs and FRs. As discussed above, line management is assigned primary responsibility for verifying safety basis implementation and continued compliance. The procedure also includes a contractor requirements document that requires the contractor to develop and implement an IVR process to validate the implementation of all significant changes to safety basis documentation. (See Section 6, noteworthy practice **NP-1**.)

In addition to the IVR process, the nuclear facility safety management procedure describes the requirements for the readiness review process, safety basis review and approval, authorization agreements, and the USQ process. Appendix B addresses the readiness review process, which is intended as a supplement to DOE Order 425.1, and includes requirements for plans of action, implementation plans, pre-start finding classifications, preparation of final reports, use of a graded approach, training and qualification of readiness review teams, and line management verification of contractor readiness, including a startup and verification assessment and an NSO management self-assessment (MSA). The readiness review process is overseen by the Nuclear Safety Team, which reviews the startup notification reports prior to approval by the site office manager. Responsibilities for the readiness review team leader are defined, including the expectation of independence. Readiness review prerequisites are also addressed, including the approval and implementation of safety basis changes. It is noted that an IVR may be used to reduce the breadth and depth of the readiness review, but that the readiness review should verify a sampling of the safety basis controls. The NSO readiness process includes the requirement to perform a startup and verification assessment to confirm that the contractor's efforts were adequate to start up or restart the facility and that an adequate level of NNSA management and oversight is available. Additionally, it includes the requirement for NSO to conduct an MSA. Overall, the procedure adequately defines the NSO requirements for verifying readiness to start up or restart a nuclear facility.

The nuclear facility safety management procedure also assigns responsibilities for line management and the safety basis review team leader and members. Line management is responsible for ensuring that safety basis reviews are conducted and for coordinating review activities with the contractor and the safety basis review team leader. The senior nuclear safety advisor provides technical support to the NSO line organizations in the areas of safety basis reviews and readiness reviews. The safety basis team leader is assigned by the senior nuclear safety advisor and typically resides within the Nuclear Safety Team, which reports directly to the site office manager. The Nuclear Safety Team has no programmatic responsibilities and is independent of the work being reviewed. The safety basis team leader is responsible for preparing a review plan, assembling the team, conducting the review, resolving comments, and preparing and submitting the safety evaluation report, including any conditions of approval, to the NSO manager. The procedure requires the line management organization to track to closure any conditions of approval, including concurrence by the safety basis review team leader.

NSO's processes for line management oversight are addressed in NSO O 226.XD, *Assessment and Oversight*, which is the primary NSO mechanism for implementing DOE Order 226.1 and NA-1 SD 226.1A. The procedure describes the NSO line oversight model, which leverages the NSTec CAS to develop an integrated annual assessment implementation plan. The process uses a risk-informed approach to determine oversight priorities, focusing on high-risk/low-performing areas. The procedure states that 10 CFR 830 activities are to be considered high risk activities and receive transactional oversight from Federal staff. Federal line oversight consists of four areas: the CAS, operational awareness activities (including shadow assessments), formal site office assessments, and external independent assessments. Formal assessments include SSO assessments of nuclear facility safety systems, as well as functional area assessments, project reviews, and "for cause" reviews. Readiness reviews are also scheduled. The procedure provides a thorough description of the planning, execution, and trending and analysis phases of the assessment and oversight program. Separate appendices address operational awareness activities, development of the master assessment schedule, shadow assessments,

assessment planning, execution and reporting, corrective action plans, issues management, performance measures, feedback and improvement, and records. The annual assessment implementation plan documents the basis for planned assessment activities for the fiscal year, the risk rankings, and the master assessment schedule. Although the procedure references NA-1 SD 226.1A, it does not specifically address how nuclear safety oversight elements are addressed.

The re-verification of TSR controls is accomplished primarily through FRs' operational awareness activities and SSORs' formal assessments of active safety systems. The FR procedure is consistent with DOE-STD-1063-2011, *Facility Representatives*, and establishes roles and responsibilities for the FRs, including operational awareness surveillances and assessment activities. The FR program resides within the office of the AMSO. The primary duty of the FR is to monitor day-to-day operations, including the verification of authorization basis and TSR compliance, such as safety system alignment, administrative controls, and adherence to approved procedures. General guidance includes being alert to changes to safety systems, processes, and design features, as well as monitoring maintenance, surveillances, and in-service inspections. The FRs publish summaries of their activities in weekly summary reports. The assignment of FRs is formally documented in a letter from the NSO manager, which includes, for example, expectations that FRs be provided unfettered access to assigned facilities, promptly notified of occurrences, and given stop-work authority.

The NSO procedure on the SSO program adequately describes the duties and responsibilities for SSORs consistent with DOE Order 426.1, *Federal Technical Capability*. The NSO SSO program is applied to active safety class and safety significant SSCs as defined in DSAs, as well as other defense-in-depth systems designated by facility management. Additionally, the NSO procedure includes the requirements from NA-1 SD 226.1A to perform at least one formal safety system assessment for safety class systems every three years, for safety significant systems every five years, and for important-to-safety systems as needed to ensure operability of safety systems. The use of CRADs is required in conducting the formal assessments. The SSORs are also required to perform quarterly walkdowns of assigned safety systems and document them in the Nuclear Facilities Safety Team weekly reports. The procedure addresses the responsibilities of the NSO manager, SSOR supervisors, SSORs, and the SSO program manager, and includes a discussion of the relationship between the SSORs and other NSO staff. The designation of SSORs is formally documented in a memo from the NSO manager.

Objective 2: The contractor and site office have developed and implemented appropriate methods for performing IVRs or similar reviews.

Independent Oversight reviewed the NSTec and NSO IVR methods to determine whether they adequately address the implementation of safety basis hazard controls. The review also examined whether the review criteria and approaches are tailored to the hazard controls being verified and sufficient for the scope of the review, and whether the review activities are sufficiently well documented (per procedures) to support the conclusions of the review.

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NSTec has adequately implemented independent verification of changes to safety basis hazard controls ranging from minor annual updates to a new DSA and TSRs, as well as controls related to JCOs. Most of the recent safety basis changes have been moderate changes that were verified using the checklist process in the IVR procedure. Completed checklists for moderate changes document the reviews of revisions to affected procedures and verification of adequate personnel training. In a number of cases, the checklists document the conduct of a drill, walkdown (either in the field or tabletop) of procedures, and/or completion of interviews as part of the verification process. Sufficiently detailed memoranda provide

adequate summaries of the changes, descriptions of completed IVR activities, and justification for the declaration of implementation.

In FY 2011, two major changes to safety basis hazard controls were implemented at the site. One change involved a significant change to the DSA and TSRs at the Device Assembly Facility (DAF), and the other involved the implementation of new safety basis controls at the Joint Actinide Shock Physics Experimental Research (JASPER) facility. The change at DAF was executed in two phases, with one phase implementing controls for glovebox operations and the other phase addressing the remainder of the hazard controls. Implementation of the revised hazard controls was managed by a team led by the facility manager and included an adequate plan and a detailed implementation matrix as the primary means of identifying and tracking the changes. Notably, the plan identifies some controls that will not be implemented because of inoperable safety systems (which are addressed in two JCOs). Both of the IVRs for these changes were conducted as major change IVRs using prepared plans. The plans followed the format specified in the IVR procedure (which mirrors that used for management assessments) and identified, for example, the purpose of the review; the number of team members; the review scope and approach; criteria, review, and approaches; and LOIs for the review. Although the plans were complete, by procedure they do not receive formal review and approval prior to performing the IVR. (See Opportunities for Improvement, **OFI-3**.)

The initial IVR for glovebox operations covered the effectiveness of a specific set of TSR controls and a condition of approval in the safety evaluation report for the filtered ventilation JCO. The memorandum that declared effectiveness summarized the changes, discussed the flowdown of controls to specific procedures and the completion of training, and sufficiently justified the declaration of effectiveness. The formal IVR report is attached to the memorandum and adequately addresses execution of the IVR plan. The glovebox IVR did not address the changes to sections 6.2.4 and 6.2.7 of the TSR, which implement changes to hazard controls for the filtered ventilation system. The second IVR focused on the remaining changes from the annual safety basis revisions. The IVR report records the use of interviews to verify personnel knowledge of the changes, document reviews to verify implementation of surveillance and in-service inspection requirements, and appraisal of completed training. A completed controls/surveillance requirements matrix was included in the review documentation. The review identified one pre-implementation issue and four post-implementation issues. Design feature 6.2.4 is marked as out of scope for the review though the requirement was changed in the TSR revision. Together, the IVR documentation for the two reviews demonstrates completion of thorough, critical reviews of safety basis hazard control implementation. Nonetheless, although the safety basis implementation plan identified a few controls that would not be implemented based on the current safety system status and the IVR reviews did not verify that the associated controls were in place, the implementation memorandum did not identify and document that these controls were not verified and not effective. (See Opportunities for Improvement, **OFI-4**.)

NSTec also conducted an independent IVR for the implementation of the new JASPER DSA and TSRs. The IVR was conducted by a small, independent team during two separate periods in April and May 2011. The scope of the review was adequate for the implementation of a new set of TSRs. The objectives and review criteria followed the procedure, and the report refers to the use of CRADs and LOIs. The team used document reviews, interviews, and observations (some tabletops) to complete the review. In all, the team identified nine pre-implementation findings, one post-implementation finding, and 35 observations. An additional six findings were closed during the IVR. The report includes a brief discussion of the IVR team activities, and each issue is discussed in sufficient detail to convey the identified problem. The documentation is sufficient to support the issues and the conclusion, which was that the safety basis was not fully implemented. Interviews with NSTec personnel revealed that the IVR process was beneficial in preparing the facility for the following contractor and DOE readiness reviews.

Independent Oversight also reviewed the NSTec methods for performing re-verification IVRs. Some re-verification of safety basis hazard control implementation has been achieved through execution of the CAS. Through annual analysis of performance, review of required assessments, and consideration of discretionary reviews, responsible managers develop an integrated assessment for the upcoming fiscal year. During FY 2010 and 2011, management assessments were scheduled and conducted to verify implementation of hazard controls at several facilities and evaluate implementation of portions of safety management programs, such as criticality safety and fire protection. Assessments conducted in both fiscal years at the Radioactive Waste Management Complex addressed implementation of the TSRs and the in-service inspection program. Safety management program assessments included review of the flowdown of SACs to the criticality safety program (conducted in FY 2010) and reviews of fire protection program implementation and fire barrier maintenance and inspection. In addition to the management assessments, two independent assessments were completed in FY 2011; one focused on safety basis compliance and the other on execution of the criticality safety program. Overall, the assessments are well documented, and many used very good performance objectives and criteria tables to guide the review and discussion of results. Although a number of assessments have addressed re-verification of portions of the safety basis hazard controls at the site, two weaknesses were identified by Independent Oversight: no management assessments to re-verify controls at the DAF have been completed, and no recent reviews have examined SAC implementation in detail. (See Opportunities for Improvement, **OFI-5**.)

Although no recent reviews have addressed SAC implementation, a thorough, well-documented management assessment of SACs was performed in early FY 2012. The purpose of this assessment, which included all nuclear facilities, was to verify that SACs have been properly designed and maintained. The review used a detailed set of performance objectives and a criteria table to record the results of the review at each facility. The criteria addressed the development and discussion of SACs in the DSA, translation into the TSRs, and incorporation of the SACs into the linking document database. The review found a number of issues with the SACs but concluded that the issues did not detract from overall SAC effectiveness. This initial assessment did not examine SAC implementation at the facilities, but assessments of SAC implementation are scheduled during the remainder of the fiscal year.

During FY 2011, NSTec also completed vital safety system reviews for the active safety systems at its nuclear facilities. Independent Oversight reviewed a sample of the reports and found that they are well written and provide satisfactory documentation of the assessment strategy, areas reviewed, and findings. The reports provide evidence of detailed reviews of the material condition of the systems and document operational and maintenance issues affecting system performance (in one case the system was found to be inoperable). Most of the assessment reports include discussion of the flowdown of the TSR requirements to the implementing in-service inspection and surveillance procedures and work instructions, but the reports do not always indicate whether the procedures and work instructions were reviewed to ensure that they address the functional requirements identified in the current safety basis. In addition, several of the recent assessments were based on revision 6 to the TSRs, not revision 7 dated February 2011. (See Opportunities for Improvement, **OFI-5**.)

NSTec conducted a contractor operational readiness review (ORR) at JASPER in FY 2011. The readiness review was conducted by an experienced, independent team (including some outside consultants) and the plan of action and implementation plan included all the core requirements for safety basis hazard control implementation. The team adequately included JASPER-specific elements of the safety management programs in the review. The team observed a number of performance demonstrations and conducted document reviews and interviews and identified seven pre-start findings (three dealing with TSR implementation) and a number of post-start findings. The report is sufficiently detailed, provides evidence of a critical review, and supports the team's conclusion concerning the facility's readiness.

Nevada Site Office

NSO schedules external independent assessments, MSAs, joint assessments, oversight assessments and shadow assessments using an annual master assessment schedule that is integrated with the contractor's assessment schedule. Interviews with FRs and SSORs indicated that implementation of safety basis controls is confirmed primarily through the oversight of readiness reviews or through operational awareness activities and SSO assessments of SSCs. The FRs and SSORs are included in the technical qualification program and were found to be knowledgeable of the TSR controls and safety systems under their purview. The assessments scheduled and conducted during FY 2011 for the functional area of safety systems engineering included five oversight assessments of safety systems, two shadow assessments of safety management programs, and an oversight assessment of maintenance-related TSRs. Independent Oversight reviewed a sample of the completed safety system functional assessments and shadow assessments. The formal assessments included a written, approved plan with CRADs. The CRADs included safety function definition, configuration management, system maintenance, surveillance and testing, and conduct of operations by qualified personnel in accordance with approved procedures. The reports are thorough and well written, identify findings and opportunities for improvement, and contain sufficient justification to support the conclusions. Assessments scheduled for FY 2012 include a self-assessment of the NSO SSOR program and oversight assessments of six safety systems. Since there are 19 active safety systems (3 safety class, 10 safety significant, and 6 important to safety), the assessment schedule is consistent with the expectations for the review of safety class and safety significant SSCs as outlined in NA-1 SD 226.1A. The SSORs conducted a baseline assessment of passive design features in 2007, and their oversight process is well defined and executed.

NSO performed an assessment of DAF and Radioactive Waste Management Complex SACs in August 2009. This assessment was conducted using a set of criteria and guidelines provided by NNSA Headquarters, consisted primarily of document reviews, and identified several opportunities for improvement. One criterion, requiring that the safety classification of the SAC be consistent with its importance to safety, was not met. An external independent assessment of SACs is included in the FY 2012 master assessment schedule.

The NSO procedure on nuclear facility safety management states that an IVR is the preferred method to confirm adequate contractor implementation of significant changes to credited safety basis controls, whereas less-significant changes can be validated through a focused operational awareness activity. Independent Oversight reviewed NSO oversight documents for four of the eight IVRs conducted by the contractor in 2011; no documentation was provided for oversight of the other four IVRs. These oversight activities were documented as informal operational awareness in the FR's weekly reports. Some of the IVRs were conducted as a prerequisite for a readiness review, but at least one was for a DSA and TSR revision that was not subject to a readiness review. The changes to the DAF DSA (revision 3) and TSR (revision 7) represented a significant change to the safety basis, affecting more than 45 procedures. However, NSO did not conduct an independent IVR. In addition, the site office has not conducted an assessment of the contractor's IVR process, nor is an assessment of the contractor's IVR process currently scheduled for FY 2012. (See Opportunities for Improvement, **OFI-6**.)

Line management is involved in the safety basis implementation process, as evidenced by participation in readiness review teams, operational awareness assessments of IVRs, and coordination of DSA revisions. Examples of line management oversight include shadow assessments of the Barolo contractor ORR and an operational awareness report for the JASPER ORR.

Independent Oversight reviewed the documentation for readiness reviews conducted recently by NSO. The implementation plan for the JASPER ORR included prerequisites for initiating the ORR, CRADs developed from the NNSA plan of action, team composition, and reporting requirements. The CRADs

adequately addressed the implementation of new or revised safety basis controls. The implementation plan used a matrix to provide a crosswalk between the functional area CRADs and the core requirements included in the plans of action. The final report for the JASPER ORR is well written and provides evidence that each of the criteria in the CRADs was critically evaluated. The documentation provided evidence of thorough reviews and was sufficient to support the conclusions of the reviewers. NSO conducted an assessment of the startup and restart program in September 2010, which concluded that the program complied with DOE Order 425.1C, *Startup and Restart of Nuclear Facilities*. The scope of the assessment included startup notification reports, plans of actions, implementation plans, and final reports. One opportunity for improvement recommended that contractor ORR and readiness assessment final reports justify deviations from the implementation plans. NSO's processes to confirm readiness, including MSAs and startup and verification reports, were reviewed and found to be effective. Startup notification reports are reviewed and coordinated in accordance with NSO procedures.

The FRs provide daily oversight of contractor operations, including verifying facility operation within the established safety basis controls. FR activities are documented primarily in weekly reports. Independent Oversight's review of a small sample of weekly reports provided evidence of ongoing FR oversight of contractor IVRs, readiness review activities, safety basis compliance, and operations. The weekly reports address ongoing activities, including an evaluation of performance and any issues noted. A review of safety evaluation reports confirmed that the FRs are routinely included as members of the safety basis review teams, thus ensuring that they have up-to-date knowledge of changes to the safety basis controls. During interviews, the FRs exhibited a good understanding of the safety basis controls for their facilities and were knowledgeable of the processes for implementing TSR controls, including the use of IVRs.

5.0 CONCLUSIONS

National Security Technologies, LLC

NSTec has established an adequate process for developing and controlling safety basis changes, including the use of a safety basis implementation matrix and a checklist to manage implementation. The process is based on a graded approach that designates changes as either moderate or major. In addition to an IVR procedure, NSTec has developed a plan and a suite of implementing procedures that provide a sound basis for implementing the readiness review process at the site. Further, the NSTec CAS includes adequate methods to support verification of safety basis hazard control implementation through management assessments and independent assessments. While the IVR procedure designates responsibility and assigns a periodicity for re-verification of controls related to SSCs and safety management programs, it does not address the re-verification of the implementation of SACs.

NSTec has adequately implemented IVRs of changes to safety basis hazard controls resulting from minor annual updates, new and significantly revised DSAs and TSRs, and JCOs. Overall, the completed documentation for the IVRs, assessments, safety system reviews, and contractor readiness review demonstrate that the reviews were both thorough and critical. The reports are sufficiently detailed to provide an understanding of the implemented approach (including objectives and criteria) and support the team's conclusion concerning the facility's readiness. Nonetheless, some weaknesses in IVR process implementation were noted. Finally, no recent reviews have examined SAC implementation in detail, though assessments of SAC implementation are scheduled during the remainder of the fiscal year.

Nevada Site Office

In accordance with DOE and NNSA direction, NSO has established and implemented an adequate set of policies, procedures, and processes for oversight of nuclear safety at the NNSS. Roles and

responsibilities of site personnel are clearly delineated in the FRA and further defined in NSO procedures. The IVR process includes both initial verification of new or significantly modified safety basis controls and periodic compliance reviews. The re-verification of TSR controls is accomplished primarily through FRs' operational awareness activities and the SSORs' formal assessments of active safety systems. The oversight process utilized by the SSORs is well defined and executed.

NSO schedules external independent assessments, MSAs, joint assessments, oversight assessments, and shadow assessments using an annual master assessment schedule that is integrated with the contractor's assessment schedule. NSO has scheduled and completed oversight assessments of SSCs, shadow assessments, and safety management programs. Assessments scheduled for FY 2012 include a self-assessment of the NSO SSOR program, oversight assessments of six safety systems, and an external independent assessment of SACs. Independent Oversight also reviewed documentation associated with the JASPER ORR and found that NSO's processes to confirm readiness, including MSAs and startup and verification reports, were effective. The FRs document operational awareness activities, including oversight of IVRs, in weekly reports that adequately address ongoing activities. Although the site office IVR program is sound and addresses conduct of IVRs for both initial verification and re-verification of controls, the site office has not conducted an independent IVR of changes to safety basis hazard controls or an assessment of the contractor's IVR program in previous fiscal years.

6.0 OPPORTUNITIES FOR IMPROVEMENT

During the review, Independent Oversight identified several issues, which are characterized in accordance with NSO O 226.XD, *Assessment and Oversight*. NSO identifies "issues" as a generic term that includes findings and opportunities for improvement (OFIs). Findings are based on an identified non-compliance with an established requirement that requires corrective action or response, whereas OFIs represent an identified condition or practice that is not a violation of an established requirement but may indicate less than optimal performance. An OFI is also used to document issues, identified during an assessment, for which no obvious requirement can be cited, but which the assessment team believes should be raised to the attention of senior management. According to Independent Oversight protocols, OFIs "are suggestions offered by the Independent Oversight appraisal team that may assist line management in identifying options and potential solutions to various issues identified during the conduct of the appraisal." OFIs are not mandatory and do not require formal resolution by management through the corrective action process.

Independent Oversight also identified one noteworthy practice (NP) during the review.

Nevada Site Office

NP-1: The NSO nuclear facility safety management procedure includes a contractor requirements document that contains a requirement for the contractor to develop and implement an IVR process to validate the implementation of all significant changes to safety basis documentation.

During the review, Independent Oversight identified several issues representing OFIs for NSTec and NSO to consider for improving the expectations and implementation of the site's IVR processes.

National Security Technologies, LLC

OFI-1: Consider revising the IVR procedure to address re-verification of the implementation of SACs, including responsibility and periodicity for performing the reviews and guidance for reviewing implementation of SACs.

OFI-3: Consider revising the IVR procedure to ensure that the plans guiding the conduct of IVRs for major changes receive formal review and approval prior to performing the IVR

OFI-4: Ensure that the declaration of implementation of the latest revisions to the DSA and TSRs documents whether some controls were not verified to be implemented due to system inoperability, and provides the rationale for excluding the controls from the IVR.

OFI-5: Re-verify safety basis hazard control implementation, including SAC implementation and the technical adequacy of surveillance and in-service tests, at all nuclear facilities through the CAS.

Nevada Site Office

OFI-2: Review NSO 421.X1D and the NSO FRA to ensure that the responsibility for IVRs is properly aligned within the organizations.

OFI-6: Clarify expectations for site office performance of independent IVRs and for assessments of the contractor IVR process to ensure that the system remains effective.

7.0 FOLLOW-UP ITEMS

Independent Oversight will follow up on any corrective actions resulting from this assessment as part of its normal operational awareness activities under the site lead program.

Appendix A Supplemental Information

Dates of Review

Onsite Review: February 6-15, 2012

Office of Health, Safety and Security Management

Glenn S. Podonsky, Chief Health, Safety and Security Officer
William A. Eckroade, Principal Deputy Chief for Mission Support Operations
John S. Boulden III, Director, Office of Enforcement and Oversight
Thomas R. Staker, Deputy Director for Oversight
William E. Miller, Deputy Director, Office of Safety and Emergency Management Oversight

Quality Review Board

William Eckroade
John Boulden
Thomas Staker
William Miller
Michael Kilpatrick
George Armstrong
Robert Nelson

Independent Oversight Site Lead

William Macon, Jr.

Independent Oversight Reviewers

William Macon – Lead
David Odland
Terry Olberding

Appendix B

Documents Reviewed and Interviews

Documents Reviewed

- ACT-OMGR-2/11/2009-89376, Shadow Assessment Checklist to Ensure Adequacy of CORR, 10/22/09
- AMSS-PLN-2011-022, NNSA/NSO Assessment Plan for the Device Assembly Facility Fire Suppression System, 8/2011
- AMSS-PLN-2011-023, NNSA/NSO Assessment Plan for the Scram Safety System and Safe Shutdown Mechanisms of the Godiva, Planet, Comet, and Flat Top Critical Assembly Machines at CEF, 7/11
- ASM-AMNS-11.19.2009-214787, NSO Internal Independent Assessment for Startup of CEF and Barolo Subcritical Experiment, 4/26/10
- ASM-AMSO-11.19.2009-214833, Shadow Assessment Checklist for Startup and Verification, CORR for CEF, 2/16/09
- ASM-AMNS-2.23.2010-236233, NNSA/NSO Management Assessment Plan, Line Management Review of DOE core requirements for JASPER Facility Readiness Preparations, 6/11
- ASM-AMSS-10.26.2010-296359 NNSA/NSO Assessment Report for the SCRAM Safety System and Safe Shutdown Mechanisms of the Godiva, Planet, Comet, and Flat-Top Critical Assembly Machines at CEF, 9/11
- ASM-AMSS-10.26.2010-296360, NNSA/NSO Safety System Oversight Assessment Report for the Device Assembly Facility Radiography Safety System, 9/11
- ASRP-AMSO-7.12.2011-362235, MSA for the Joint Actinide Shock Physics Experimental Research Facility
- ASRP-AMSO-9.27.2011-382154, Review Maintenance-Related TSRs at Nuclear Facilities, 10/4/11
- CCD-QA09.001, Management Assessment Program, Rev. 3, ICN-1159, 4/11
- CCD-QA10.001, Independent Assessments and Surveillances, Rev. 1, 8/10 (ICN-1160, 4/11)
- CD-NENG.004, Implementation of Safety Basis Documentation, Rev. 2, ICN-1189, 9/11
- CD-NENG.022, Risk and Opportunity Assessment, Rev. 1, 9/11
- CD-NENG.17, Development and Control of Nuclear Safety Basis Documents, Rev. 4, 8/10
- CD-NOPS.001, Nuclear Criticality Safety Program, Rev. 2, 8/10
- CD-NOPS.011, Identifying Scope and Review Level, Rev. 0, 3/11
- CD-NOPS.013, Readiness Planning and Preparation, Rev. 0, 3/11
- CD-NOPS.014, Developing a Plan of Action (POA), Rev. 0, 3/11
- CD-NOPS.015, Preparing for Reviews, Rev. 0, 3/11
- CD-NOPS.016, Developing the Startup Plan, Rev. 0, 3/11
- CD-NOPS.017, Readiness Confirmation Process, Rev. 0, 3/11
- CD-NOPS.018, Declaration of Readiness, Rev. 0, 3/11
- CD-NOPS.019, Conduct of a Contractor Readiness Review and Support for a DOE Readiness Review, Rev. 0, 3/11
- CD-NOPS.021, Level 0 Readiness Reviews, Rev. 1, 11/11
- CD-W200.001, Joint Assessment Schedule (JAS) Development, Rev. 0, 8/10 (ICN-1130, 10/10)
- CEF Safety Basis Implementation Plan, Rev. 3, CN-1, 7/10
- COR-AMNS-12.29.2011-408222, Letter to Stephen Mellington from Stephen Younger, Subject: Nevada National Security Site (NNSS) Nuclear Startup Notification Report, 2nd Quarter, FY 2012, 12/29/11

- CORR-11-S100-01-FR, Final Report Contractor Readiness Review (CORR) Joint Actinide Shock Physics Experimental Research (JASPER) Facility, Rev. 0, 7/11
- DAF DSA & TSR Annual Update Safety Basis Implementation Assignments and Tracking, Rev. 5, 8/11
- DAF FR Weekly Report, 11/10/11- 11/16/11
- DAF FR Weekly Report, 11/24/11- 11/30/11
- DAF-JCO-09-01 Justification for Continued Operations with the Fire Suppression System (FSS) for All DAF Buildings with Known Vulnerabilities not Meeting DSA Performance Requirements Revision 6 (Implementation Matrix), Rev. 0, 2/1/12
- DAF-PLN-MG-023, Device Assembly Facility Documented Safety Analysis Revision 3 and Technical Safety Requirements Revision 7 Safety Basis Implementation Plan, Rev. 2, 9/11
- DAF-PLN-MG-09, Surveillance and In-Service Inspection Program Plan, Rev. 9, 10/09
- DOE/NNSA ORR Implementation Plan for the Joint Actinide Shock Physics Experimental Research Facility Restart NNSS, 7/12/11
- FR Weekly Highlight and Summary Report, 2/1/12
- FR Weekly Report, 2/8/12
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- FR Weekly Report, 8/11/11 – 8/17/11
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- FRG-1, Facility Representative Procedure, R3, 1/2/12
- FRM-1391, Safety Basis Implementation Checklist, Rev. 2, 3/11
- FRM-2068, Readiness Applicability and Review Level Determination, Rev. 2, 9/11
- FRM-2069, Readiness Activity Checklist, Rev. 1, 9/11
- FRM-2132, Controls/Surveillance Requirements Matrix for IVR, Rev. 0, 1/08
- FRM-2133, Implementation Verification Review Checklist, Rev. 0, 6/08
- FRM-2328, Part 1 Level 0 Readiness Assessment Checklist, Rev. 2, 9/11
- FRM-2328A, Part 2 Level 0 Readiness Assessment Checklist, Rev. 0, 9/11
- FRM-2329, Finding Categorization Pre/Post-Start Determination, Rev. 0, 3/11
- FY 2011 Annual Analysis Report Contractor Assurance System, 7/11
- FY 2011 Assessment Implementation Plan, NNSA, NSO
- FY 2012 Assessment Implementation Plan, NNSA, NSO
- GDE-NOPS.002, Planning the Development of Safety Basis Documents, Rev. 0, 6/11
- GDE-NOPS.003, Development of Safety Basis Documents for New Nuclear Facilities, Rev. 0, 6/11
- GDE-NOPS.004, Development of Changes to Safety Basis Documents, Rev. 0, 6/11
- GDE-NOPS.005, Evaluation of Major Modifications and Integration with Design Work, Rev. 0, 6/11
- GDE-NOPS.006, Review of Safety Basis Documents, Rev. 0, 6/11
- IA-11-W200-005, Report on the Independent Assessment of Safety Basis Compliance, 9/11
- IA-11-W200-012, Report of the Independent Assessment of the Nuclear Criticality Safety Program, 9/11
- Implementation Verification Review Report for the Joint Actinide Shock Physics Experimental Research (JASPER) Facility DSA/TSR (JAS-DSA.100, Rev. 1 and JAS-TSR.100, Rev. 1), 5/11
- Independent Verification Review Plan for Device Assembly Facility (DAF) Documented Safety Analysis (DSA), Revision 3, and Technical Safety Requirements (TSR) for Device Assembly Facility, “DAF-TSR-01,” Rev. 7, Glove box Operations, and Justification for Continued Operations with Inoperable HEPA Filtered Ventilation System, JCO-11-01, Rev. 2, no date
- Independent Verification Review Plan for Device Assembly Facility (DAF) Documented Safety Analysis (DSA), Revision 3, dated February 2011 and Technical Safety Requirements (TSR) for the Device Assembly Facility, “DAF-TSR-01,” Rev 7, 2/11

- IV-11-S100-01-IVR, Independent Verification Review Annual Update Device Assembly Facility Documented Safety Analysis Revision 3 and Technical Safety Requirements Revision 7, Rev. 0, 8/11
- JASPER Linking Document Database, Rev. 3, 8/11
- JNPO-WP-10-002, JNPO Activity Level Work Control Document, Rev. 1, CN-10-002, 5/11
- Letter from Mellington to Harrell, et al, Subject: NNSA Nevada Site Office Facility Representative Assignments and Site Office Manager Expectations, R1, 3/1/11
- Letter to Juzaitis from Mellington, Subject: Quarterly Nevada National Security Site Startup Notification Report, 2nd Quarter, FY 2012, 2/7/12
- Linking Document Database for OTSD-NSAF.100 and TSRT-NSAF.100, Rev. 1, 8/11
- MA-10-AD35-014, In-Service Inspection Program, 9/10
- MA-10-AD60-002, Technical Safety Requirement Evaluation for Criticality Safety and Fire Protection Safety Management Programs, 5/10
- MA-11-EN00-002, Management Assessment of the Fire Protection Program, Rev. 0, 8/11
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- MA-11-S530-001, Fire Protection Program, 11/10
- MA-11-S530-0014, In-Service Inspection Program (Plan), 9/11
- MA-11-S530-0014, In-Service Inspection Program, 9/11
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- National Security Technologies, LLC, Prime Contract Part III Section J, Appendix C, List of Applicable Laws, Regulations and DOE Directives, DE-AC52-06NA25946NNSA/NSO Startup and Verification Report for the Criticality Experiment Facility, 7/10
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- NSO O 421.X1D, Nuclear Facility Safety Management, 02/09/11
- NSO O 426.1A, Technical Qualification Program Plan, R1, 11/2/11
- NSO O 426.XB, Safety System Oversight Program, 02/14/11
- NST -SER-2011-003, Safety Evaluation Report, Addendum B for the NNSA Area 3 and 5 Radioactive Waste Facilities DSA, R5, Change Notice 2, and Transuranic R10, Change Notice 2, and Low-Level Waste TSRs, R7, Change Notice 2, 9/30/11
- NST-PLN-2010-014, NNSA/NSO Assessment Plan on the NSTec Startup/Restart Process, R0, 9/10
- NST-RPT- 2009-026, NNSA/NSO Safety Basis Safety Management Program Self-Assessment Report, 5/09
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- NST-RPT-2010-015, NNSA/NSO Assessment Report on the Nevada National Security Site Startup and Restart Program, 9/10
- NST-SER-2011-02, Safety Evaluation Report Addendum A for the Justification of Continued Operations, Revision 2, for Inoperable HEPA-Filtered Ventilation System, 5/11
- Operational Readiness Review Final Report for the Barolo Subcritical Experiments, Nevada Test Site, 7/8/10
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- OP-NENG.004, System Engineer Program, Rev. 3, 1/09 (ICN-1104, 4/10)

- OP-NENG.019, System Performance Monitoring, Rev. 2, 10/08
- OP-NENG.024, Linking Document Database, Rev. 3, 7/11
- OP-NENG.043, Performance Trending of Structures, Systems, and Components, Rev. 0, 4/11
- OP-NOPS.007, Independent Verification Review of Safety Basis Changes, Rev. 1, 3/11
- PC-0001.003, Contractor Assurance System Description, Rev. 0, 2/12
- PLN-1086, Readiness Review Overview, Rev. 0, 3/11
- PY-NOPS.005, Readiness Management, Rev. 0, 3/11
- S100-AD-11-0033, Interoffice Memorandum from Nuclear Operations Director, Subject: Declaration of Effective Controls for the Device Assembly Facility (DSA) Revision 3 and Technical Safety Requirements (TSR) Revision 7 (for Glovebox Operations Only) and Justification for Continued Operations (JCO) 11-01Revision 2 (with attachments), 5/11
- S100-AD-11-0062, Interoffice Memorandum from Nuclear Operations Director, Subject: Declaration of Effective Controls for Change Notice 4 to the Nuclear Onsite Transportation Document (with attachments), 8/11
- S100-BH-11-0006 Interoffice Memorandum from Nuclear Operations Director, Subject: Implementation Verification Review (IVR) for the Area 3 and 5 Radioactive Waste Facilities (RWF) Documented Safety Analysis (DSA), Revision 5, Change Notice 1 and Technical Safety Requirements (TSRs), Revision 7, Change Notice 1, to Support Disposal of Portsmouth Waste, 12/10
- S100-BH-11-0008 Interoffice Memorandum from Compliance and Surety, Subject: Implementation Verification Review (IVR) of the Device Assembly Facility (DAF) DAF-JCO-01, Revision 0, “Justification of Continued Operations (JCO) for Inoperable High-Efficiency Particulate Air (HEPA) Filtered Ventilation System,” 11/11
- S100-BH-12-0007 Interoffice Memorandum from Nuclear Operations Director, Subject: Implementation Verification Review (IVR) for the Area 3 and 5 Radioactive Waste Facilities (RWF) Documented Safety Analysis (DSA), Revision 5, Change Notice 3 and Technical Safety Requirements (TSRs), Revision 7, Change Notice 3, 1/12
- S100-BH-12-0008 Interoffice Memorandum from Nuclear Operations Director, Subject: Implementation Verification Review (IVR) for the Annual Update to Area 3 and 5 Radioactive Waste Facilities (RWF) Documented Safety Analysis (DSA), Revision 5, Change Notice (CN) 2 and Technical Safety Requirements (TSRs), Revision 7, Change Notice (CN) 2, 1/12
- Safety Evaluation Report, Addendum B, for the Nuclear On-Site Transportation Safety Document and Technical Safety Requirements, Revision 0, Change Notice 4, R1, 05/5/11
- SOP-BG-009, Joint Nevada Program Office (JNPO), Glovebox Project Operating Procedure, Rev. 0, 5/11
- TQP Records for FR for Underground Operations, including SO TQP Qualification evaluation form 6/17/10; TQP FAQ Standard for FR (GAP) Qualification Card 8/05; TQP GTB Qualification Card 10/1/06; TQP Underground Operations, FR Specific FAP Qualification Card 5/09
- TQP Records for DAF FR, including GTB Qualification Card, FR Qualification Card, Underground Ops
- TQP Records for FR for CEF/DAF, including GTB and GAP qualifications; FR Qualification Card; FR Facility Specific Qualification Card, and written exam
- TQP Records for Radiation Protection SSO, including GTB Qualification Card 4/06, GTB GAP Card 11/09, Rad protection Qualification Standard 9/6/05, and Site Specific Qualification Card 6/07
- TQP Records for SSO in Mechanical Systems, including GTB Qualification Card 2/5/08, Mechanical Systems Qualification Card 6/2007, and Site Specific Qualification Card 2/10
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- VSS-11-S340-008, Vital Safety System Assessment of the Device Assembly Facility Fire Suppression System, Rev. 0, 11/11
- VSS-11-S340-009, Vital Safety System Assessment of the Device Assembly Facility Glovebox Confinement System, Rev. 0, 9/11
- VSS-11-S340-016, Vital Safety System Assessment of the Visual Examination and Repackaging Building (VERB) Fire Protection System, Rev. 0, 9/11

Interviews

- Compliance and Surety Manager (Startup Manager)
- Compliance and Surety Senior Engineer (IVR Team Leader)
- DAF Engineering Manager
- DAF Facility Manager
- DAF Safety Lead
- Joint Assessment Schedule Coordinator
- NSO Assistant Manager for National Security (AMNS) On-Site Program Representative
- NSO AMNS Team Leader for Stockpile Stewardship
- NSO AMSO Senior Technical Adviser
- NSO AMSS Deputy Assistant Manager for Safety
- NSO Assistant Manager for Safety and Security
- NSO Criticality Safety Engineer
- NSO Facility Representative for DAF
- NSO Facility Representative for Hazardous Material Transportation, Construction Projects, OST, WFO and NPTEC
- NSO Facility Representative for JASPER
- NSO Facility Representative for the National Criticality Experiments Research Center
- NSO Facility Representative for Underground Operations
- NSO Facility Representative for Waste Management Operations
- NSO Facility Representative Group Leader
- NSO Nuclear Facility Safety Team Leader/SSO Program Manager
- NSO Nuclear Safety Specialist/Nuclear Safety Team
- NSO Performance & Assurance Group Leader
- NSO SSOR for Building Ventilation System and Radiography Safety System
- NSO SSOR for Fire Protection Systems
- NSO SSOR for Radiological Protection
- NSO Training and Qualification Manager
- Nuclear Safety Division Manager
- Quality Assurance Specialist
- Senior Quality Assurance Specialist (2)