

# **Sandia Site Office**

## **Corrective Action Plan**

*Safety Bases for Sandia National Laboratories  
Nuclear Facilities*

**Prepared by:**  
**Sandia Site Office**  
**February 15, 2005**

**SSO Safety Bases for Sandia National Laboratories Nuclear Facilities  
Corrective Action Plan**

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APPROVALS

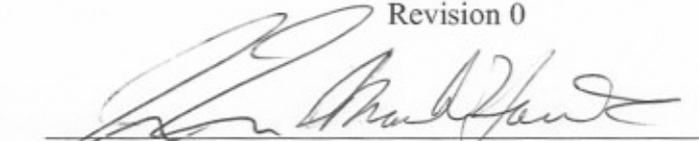
SANDIA SITE OFFICE CORRECTIVE ACTION PLAN

Safety Bases for Sandia National Laboratories

Nuclear Facilities

Revision 0

Prepared by:

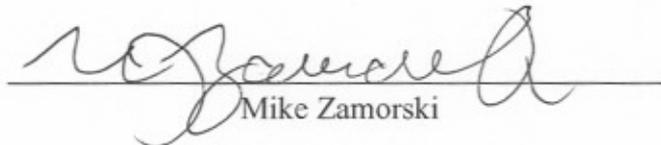
  
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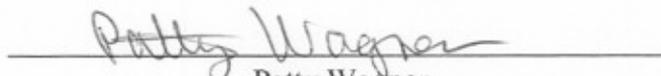
  
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# SSO Safety Bases for Sandia National Laboratories Nuclear Facilities *Corrective Action Plan*

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# SSO Safety Bases for Sandia National Laboratories Nuclear Facilities Corrective Action Plan

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## Acronyms

ACRR	Annular Core Research Reactor
AHCF	Auxiliary Hot Cell Facility
CAP	Corrective Action Plan
CDNS	Chief of Defense Nuclear Safety (for NNSA)
CFR	Code of Federal Regulations
DNFSB	Defense Nuclear Facilities Safety Board
DOD	Department of Defense
DOE	U.S. Department of Energy
DSA	Documented Safety Analysis
ES&H	Environment, Safety, and Health
GIF	Gamma Irradiation Facility
IET	Integrated Evaluation Team
KAFB	Kirtland Air Force Base
MNF	Manzano Nuclear Facility
MOU	Memorandum of Understanding
NF&SB	Nuclear Facilities and Safety Basis
NNSA	National Nuclear Security Administration
ORR	Operational Readiness Review
OST	On-Site Transportation
SARAH	Safety Analysis and Risk Assessment Handbook
SBRT	Safety Basis Review Team
SNL	Sandia National Laboratories
SNL/NM	Sandia National Laboratories, New Mexico
SPR	Sandia Pulse Reactor
SPR/CX	Sandia Pulse Reactor Critical Experiments
SSC	Structures, Systems and Components
SSO	Sandia Site Office
TA-V	Technical Area Five, or Tech Area V
USQ	Unreviewed Safety Question
VSS	Vital Safety System

# **SSO Safety Bases for Sandia National Laboratories Nuclear Facilities Corrective Action Plan**

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## **Executive Summary**

The Defense Nuclear Facilities Safety Board (DNFSB) visited the Sandia Site Office (SSO) and Sandia National Laboratories (SNL) in early August 2004 to review operational activities at the Auxiliary Hot Cell Facility (AHCF) located within Technical Area Five (TA-V). The DNFSB review consisted of documentation reviews, interviews with TA-V staff, and a facility walkdown. The DNFSB issued a report on September 27, 2004, documenting this visit to the Administrator, National Nuclear Security Administration (NA-1). The letter focused on inadequacies in safety basis at Sandia National Laboratories, New Mexico (SNL/NM); the attached staff issue report centered on perceived deficiencies in the safety basis for the Auxiliary Hot Cell Facility.

As part of the SSO self-assessment process, a detailed self-assessment of TA-V safety basis activities was scheduled for FY05. This planned self-assessment was rescheduled much earlier and the Independent Evaluation Team (IET) was formed to assist SSO with this task. SSO performed a preliminary self-assessment to identify opportunities for improvement, and areas for the IET to focus their attention. This self-assessment process also was used to address the DNFSB's comments received in their letter. The SSO corrective action plan (CAP) was developed as part of the SSO self-assessment process, and to address specific issues. It includes the corrective actions SSO will take to improve safety basis documents and processes.

Upon receipt of the DNFSB letter, the Sandia Site Office (SSO) developed an overarching plan to address the three requests from the letter. Details of the plan are discussed in the "Introduction" section. In addition to answering the DNFSB requests, this plan includes SSO actions in response to an NNSA HQ independent evaluation of SSO and SNL safety basis practices. The Independent Evaluation Team's (IET) concerns were similar to those of the DNFSB. The IET particularly felt that selection of a 3,000 m site boundary was not appropriate for SNL nuclear facilities. The IET issued its final report dated on January 12, 2005.

Sandia Site Office (SSO) and Sandia National Laboratories (SNL) evaluations of DNFSB/IET issues/observations concluded that the approved safety bases adequately identify hazards and controls, and the facilities are operated safely. However, safety basis documentation does not always explicitly demonstrate this adequacy. Also, opportunities exist for significant improvements in the development, review and approval of safety bases documents.

While the DNFSB staff report comments focused on the AHCF, corrective actions were developed to address similar issues at other SNL nuclear facilities when crosscutting issues were identified. Specific SNL actions focus on further developing procedures to adequately respond to SSO concerns regarding the development of safety basis documentation, and evaluating, in conjunction with SSO, conditions where safety-significant equipment may be upgraded to safety class designation. In

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addition, SSO has started revising its safety basis review and approval process. SSO actions will result in a more formal institutional process.

### **Conclusion**

Recent reviews conducted by the DNFSB, SSO, and the IET indicated a number of concerns related to safety basis review and approval. SSO acknowledges the identified weaknesses regarding safety basis review and approval processes and is committed to making significant improvements (e.g. completely revising the SSO procedure to include development of a Safety Analysis and Risk Assessment Handbook (SARAH) document, minority opinions, quick screenings of SNL submittals, 30%-60%-90% reviews, etc.). These improvement actions are captured in this plan.

### **SSO Position**

As part of the review for the Annular Core Research Reactor (ACRR) DSA, SSO has defined a 1,350 m site boundary, while exploring options to identify the long-term solution for ACRR as well as the other SNL nuclear facilities. SSO also has binned the issues identified by the DNFSB letter and the IET and has performed a causal analysis in order to develop a robust corrective action plan.

SSO has determined to allow operations to continue at the Gamma Irradiation Facility (GIF), the Manzano Nuclear Facility (MNF) and On-Site Transportation (OST) based on the results of the SSO safety basis screenings, IET review, and the low magnitude of hazards associated with the operations. This does not conclude that the safety basis documents are of the desired quality. The GIF DSA, after addressing inventory controls is adequate as confirmed by SSO and the IET. The MNF DSA must be revised to address specific issues related to MNF dependence on inventory controls. SSO received a draft of the OST DSA, but this document was considered lacking, and was returned to SNL for significant revisions to the scope and hazard analysis. The SSO interim position guidance for OST will be superceded upon approval of the revised OST DSA.

ACRR and the Sandia Pulse Reactor (SPR) currently are not operating, and will not operate until SSO completes review and approval of their respective DSA Annual Updates. SSO reviews for ACRR and SPR DSA Annual Updates are nearing completion, and the SSO Safety Basis Review Teams (SBRTs) will assure that the DSA's incorporate corrective actions and lessons learned from DNFSB and IET reviews. The Safety Evaluation Reports (SER) for SPR and ACRR will document this effort. SSO and SNL are committed to a complete revision of the AHCF DSA. SNL also plans changes to the hot cell design to mitigate spreading contamination. The physical design changes and completely revised DSA are expected to be complete in CY 2005. Operations for SPR/CX have been postponed indefinitely. SSO will reevaluate the SPR/CX DSA prior to any restart activities.

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## **1. Introduction**

The Defense Nuclear Facilities Safety Board (DNFSB) staff visited the Sandia Site Office and Sandia National Laboratories in early August 2004 to review operational activities at the Auxiliary Hot Cell Facility (AHCF) located within Technical Area Five (TA-V). The DNFSB review consisted of documentation reviews, discussions with TA-V staff, and a facility walkdown. The DNFSB issued a report on September 27, 2004, documenting this visit to the Administrator, National Nuclear Security Administration (NA-1). The letter focused on inadequacies in safety basis at Sandia National Laboratories, New Mexico (SNL/NM); the attached staff issue report centered on perceived deficiencies in the safety basis for the Auxiliary Hot Cell Facility.

As part of the SSO self-assessment process, a detailed self-assessment of TA-V safety basis activities was scheduled for FY05. This planned self-assessment was rescheduled much earlier and the Independent Evaluation Team (IET) was formed to assist SSO with this task. SSO performed a preliminary self-assessment to identify opportunities for improvement, and areas for the IET to focus their attention. This self-assessment process also was used to address the DNFSB's comments received in their letter. The SSO corrective action plan (CAP) was developed as part of the SSO self-assessment process, and to address specific issues. It includes the corrective actions SSO will take to improve safety basis documents and processes.

The trip report issued by the DNFSB staff contained several issues. The Sandia Site Office (SSO) transmitted the DNFSB report to Sandia National Laboratories (SNL) and requested SNL to review the letter and report, and develop a corrective action plan (CAP) to address the issues in the report. Causal factors and recommended actions developed by SNL will be provided separately from this plan.

### **1.1 Sandia Nuclear Facilities**

Tech Area V consists of four nuclear facilities collocated within a Protected Area fence line in the Southeast corner of Kirtland Air Force Base in Albuquerque, NM. The Annular Core Research Reactor (ACRR), the Sandia Pulsed Reactor (SPR), and SPR Critical Experiments (SPR/CX) are all category 2 nuclear facilities. The Gamma Irradiation Facility (GIF) and the Auxiliary Hot Cell Facility (AHCF) are category 3 nuclear facilities. All four nuclear facilities are used to support DOE and Department of Defense missions.

Other nuclear operations on the Sandia Site include the Manzano Nuclear Facility (MNF), a category 3 nuclear facility consisting of several bunkers in the Manzano Hills near TA-V used to store nuclear materials, and the "On-Site" transportation of nuclear materials.

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## 1.2 SSO Responses to Specific Requests in the September 27, 2004, DNFSB Letter

### First Requested Action From the DNFSB Letter –

*“The adequacy of safety bases for each currently operating nuclear facility at SNL-NM.*

The Sandia Site Office’s Action Plan identified a process to conduct a local review, or screening , of the Documented Safety Analyses (DSA) for all operating nuclear facilities in order to determine their adequacy. The screening activity was based on a set of criteria that was formally approved by SSO management on October 28, 2004 (Memo from S Goodrum to M. Hamilton, “Approval of Documented Safety Analysis Screening Criteria”). The results of the SSO screening activity indicated that the GIF and MNF DSAs were adequate, and the IET supported this conclusion. This does not conclude that the safety basis documents are of the desired quality. The GIF DSA, after addressing inventory controls is adequate as confirmed by SSO and the IET. The MNF DSA must be revised to address specific issues related to MNF dependence on inventory controls. SSO received a draft of the OST DSA, but this document was considered lacking, and was returned to SNL for significant revisions to the scope and hazard analysis. The interim position guidance will be superceded upon approval of the revised OST DSA.

The Screen activity did identify a gap in the Conditional DSA for Onsite Transportation (OST), concerning onsite transportation of Hazard Category 2 and 3 nuclear materials. This gap was corrected by the transmittal of an interim position to SNL (See memo from S. Goodrum, SSO to C. Schneeberger, SNL, dated November 4, 2004) regarding non-routine transfers. SSO received a draft of the OST DSA, but this document was considered lacking, and was returned to SNL for significant revisions to the scope and hazard analysis. The SSO interim position guidance for OST will be superceded upon approval of the revised OST DSA.

To gain additional insight into the status of the DSAs, SSO planned to bring in an independent review. SSO management formally requested that an Independent Evaluation Team (IET) be created to provide an impartial review of the condition of the safety bases at SNL/NM. This request was captured in formal correspondence to NNSA/HQ on October 15, 2004 (Memo from P Wagner to J. Paul, “Request for Technical Assistance”). Subsequently, a team of highly qualified individuals was formed and they conducted an on-site review December 7 through 10, 2004. The team generated the Criteria, Review and Approach documents by which to conduct the evaluation and issued its final report on January 12, 2005. The IET consisted of a Team Leader from NNSA HQ, six Authorization Basis experts from multiple sources, an advisor from DOE-EH, and a technical writer.

The results of the IET are documented in its report. Most notably, the report states, *“The team noted no unsafe operations during the course of the review.”* Additionally, the report states that the GIF and MNF operations *“do not appear to pose an undue risk to the public and workers;”* however, the

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report further judged that that DSAs do not sufficiently validate this. Also, the IET identified the following key findings:

- a. The DSAs for the ACRR and the AHCF must be redone.
- b. Better formal processes for authorization basis work must be established by SSO/SNL
- c. NNSA HQ must resolve the technical ambiguities of Table A-1 of STD 1027-92, Attachment 1.
- d. The current approach for controlling the exclusion area for TA-V is unacceptable. SSO must either establish control of the exclusion area or request an exemption from NNSA.
- e. The team confirmed the systemic weaknesses regarding authorization basis work noted in the DNFSB letter of September 27, 2004.
- f. SNL's plan to establish a "Corporate Safety Basis Team," if properly implemented, should result in significant improvement in safety basis work.

SSO Position – ACRR and SPR currently are not operating, and will not operate until SSO completes review and approval of their respective DSA Annual Updates. SSO currently is reviewing the DSA Annual Updates for ACRR and SPR, and the SSO SBRTs will address the DNFSB and IET issues. The Safety Evaluation Reports (SER) for SPRF and ACRR will document this resolution. SSO and SNL are committed to a complete revision of the AHCF DSA. SNL also plans changes involving hot cell design to mitigate spreading contamination. The physical design changes and completely revised DSA are expected to be complete in CY 2005. Operations for SPR/CX have been postponed indefinitely. SSO will reevaluate the SPR/CX DSA prior to any restart activities.

### **– Second Requested Action From the DNFSB Letter –**

*“Actions to be taken to ensure more effective closure of comments from future safety basis review teams.”*

The SSO Action Plan identified the performance of a preliminary self-assessment of the Site Office processes for review and approval of DSAs. The goal of this activity was to identify opportunities for improvement, and areas for the IET to focus its attention.

The preliminary self-assessment noted four general areas for improvement. SSO then developed a preliminary corrective action plan to address these areas. This plan was reviewed by the IET who identified weaknesses such as: no causal analysis was performed, the self assessment upon which it was based was limited in scope, and it did not address actions to deal with the issues pointed out in the DNFSB Staff Issue Report that was part of the September 27, 2004 letter. These preliminary corrective actions were reviewed as part of the causal analysis in developing the overall SSO

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corrective action plan contained in Section 8, and integrated accordingly. The process revisions will address behavioral issues within SSO to ensure procedures are followed, and technical decisions (e.g. DSA comment resolution) are properly documented and agreed to by SBRTs and SSO Management. SSO recognizes the need for cultural and behavioral shifts within the safety basis review and approval process, and addressing these identified weaknesses is a primary consideration in the upcoming selection of two critical positions, the *Senior Technical Safety Advisor*, and the *Assistant Manager for Nuclear Facilities and Safety Basis*.

SSO Position – The SSO Safety Basis Process needs improvement, including documenting effective closure of comments. Several planned changes to the safety basis review and approval process include: detailed documentation of comments, and the acceptability and technical rationale for their closure; developing a “quick screen” procedure to determine if SNL submittals meet SSO minimum quality and content expectations prior to in depth document reviews; formal phased “in-process” reviews (i.e. 30, 60, 90% reviews) to build in quality during development, vice into the final product; and increasing SSO management oversight of the review and approval process to ensure consistency in document quality and SSO staff performance.

### **– Third Requested Action From DNFSB Letter –**

*“Actions to be taken to ensure that adequate draft safety bases are submitted by the SNL-NM contractor in the future.”*

SSO continues to be a demanding customer with SNL. SSO has a Performance Evaluation Plan in place with SNL which is used to grade SNL’s performance and thus impacts the earned fee and contract term. Safety Basis, both nuclear and non-nuclear is a component of the overall annual grade for SNL’s performance. SSO has communicated to SNL the unsatisfactory status of their safety basis program via the FY03 and FY04 Performance Evaluation Reports. Over the past year, SNL has made improvements (e.g. new safety organization, resource commitments, heightened senior management involvement, etc.), and SSO continues to enforce expectations for SNL to continue making improvements.

The SSO corrective action plan indicates the need to provide better guidance and clarity of expectations, and enforcement mechanisms to SNL. As part of the major revision to the SSO safety basis review and approval procedure, SSO is committed to the development of a Safety Analysis and Risk Assessment Handbook (SARAH) document, minority opinions, 30%-60%-90% reviews, etc. based on benchmarking their effective use at other DOE Sites. Additionally, SSO will continue to formally communicate expectations when necessary. For example, when the letter of September 27, 2004 was received, the SSO Site Manager formally communicated the need for SNL management action and attention.

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SSO Position - SNL has a demonstrated history of less than acceptable performance in the area of Safety Basis. SSO will continue to hold SNL accountable with the FY05 Performance Evaluation Plan and will enhance the communication of expectations regarding the quality of safety basis documentation. Also, SSO is committed to rejecting inadequate products versus performing SNL work to revise safety basis documents to meet minimum acceptable levels.

### **Conclusion**

Recent reviews conducted by the DNFSB, SSO, and the IET indicated a number of concerns related to safety basis review and approval. SSO acknowledges the identified weaknesses regarding safety basis review and approval processes and is committed to making significant improvements. SSO also has binned the issues identified by the DNFSB letter and the IET and has performed a causal analysis in order to develop a robust corrective action plan. These improvement actions are captured in this plan.

### **SSO Position**

SSO has established a 1,350 m site boundary for TA-V nuclear facilities. SSO and SNL will continue exploring options to identify the long-term solution for all SNL nuclear facilities.

SSO has determined to allow operations to continue at the GIF, MNF and OST based on the results of the SSO safety basis screenings, IET review, and the low magnitude of hazards associated with the operations.

ACRR and SPR currently are not operating, and will not operate until SSO completes review and approval their respective DSA Annual Updates. SSO reviews for ACRR and SPR DSA Annual Updates are nearing completion, and the SSO SBRTs will assure that the DSA's incorporate corrective actions and lessons learned from DNFSB and IET reviews. The Safety Evaluation Reports (SER) for SPR and ACRR will document this effort. SSO and SNL are committed to a complete revision of the AHCF DSA. SSO is prepared to reject SNL document submittals of unacceptable quality that require significant rework. SNL also plans changes involving hot cell design to mitigate spreading contamination. The physical design changes and completely revised DSA are expected to be complete in CY 2005. Operations for SPR/CX have been postponed indefinitely. SSO will reevaluate the SPR/CX DSA prior to any restart activities.

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### 2. Corrective Action Methodology

A process based on DOE Order 414.1A, *Quality Assurance*, and on DOE Guide 450.4-1B, *Integrated Safety Management System Guide*, was used to develop the appropriate corrective actions to address the identified safety issues and areas of concern. This process is consistent with the following DOE guidelines and expectations:

- DOE implementation plan for Defense Nuclear Facility Safety Board (DNFSB) Recommendation 98-1, *Department of Energy Plan to Address and Resolve Safety Issues Identified by Internal Independent Oversight*;
- DOE/NNSA Sandia Site Office Procedure 0303.01, rev 0; *Defense Nuclear Facilities Safety Board Interface Procedure*;, dated February 05, 2004.

The key steps below define the process used to evaluate the DNFSB report and develop this CAP:

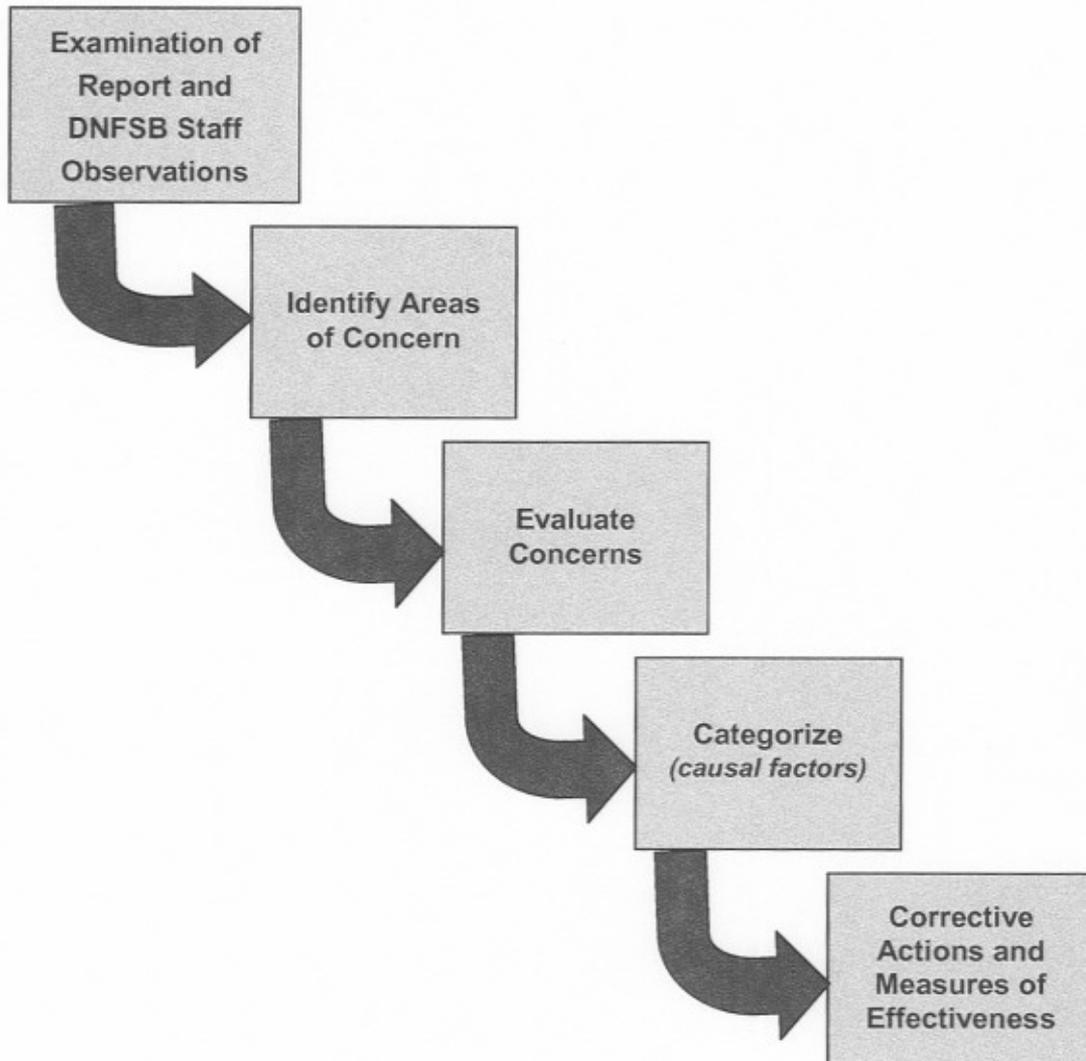
- Examination of the issues in the recent SSO self assessment to identify and capture the areas of concern.
- Examination of the issues in the DNFSB letter and associated trip report to identify and capture the areas of concern.
- Examination of the issues in the Integrated Evaluation Team (IET) final report to identify and capture the areas of concern.
- Determination of the causal factors for each identified program element or specified statement of concern, including the identification of management and systemic causal factors.
- Identification of performance expectations, and measures to monitor corrective action effectiveness, including near-term measures of performance.
- Performance of management review for acceptance of the corrective actions, completion date, and measures of effectiveness.

The key process steps are illustrated in Figure 2-1. The CAP is provided in Section 8, *Corrective Action Plan*.

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Figure 2-1. Corrective Action Methodology



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### 3. Corrective Action Plan Development

The corrective actions were evaluated to ensure that the specific statements of concern were addressed. Issues raised in the DNFSB letter and associated trip report, a recent SSO self assessment, and an Independent Evaluation Team (IET) report comprised the focus of the causal analysis.

To gain additional insight into the status of the DSAs, SSO management formally requested NA-1 assistance to support the creation of an Independent Evaluation Team (IET) to provide an impartial review of the condition of the safety bases at SNL/NM. This request was captured in formal correspondence from SSO to NA-2 on October 15, 2004 (Memo from P Wagner to J. Paul, "Request for Technical Assistance"). Subsequently, a team of highly qualified individuals was formed and they conducted an on-site review December 7 through 10, 2004. The team generated the Criteria, Review and Approach documents by which to conduct the evaluation and issued their final report on December 10, 2004. The IET was led by Emil Morrow, and included both Federal personnel from NNSA HQ, DOE-HQ/EH and other DOE Sites, and private consultants with extensive experience in Safety Basis guidance and documentation.

The corrective actions identified in Section 8, *Corrective Action Plan*, are those actions that are necessary to address identified weaknesses, resolve the safety issues, and prevent recurrence.

### 4. Corrective Action Plan Structure

The CAP structure for Section 8 is as follows:

**Identifier:** Issue number.

**Issue Statement Bin:** A synopsis of Observations as stated in the DNFSB Staff Report, and the IET Report.

**Issue Manager:** Individual responsible for closure, and for ensuring adequate resources are used to complete tasks associated with each action as scheduled.

**Discussion:** Summary of information relevant to the issue.

**Corrective Actions:** Table showing the issue number, description of corrective action, deliverable, responsible organization, planned completion date/status, and the measures to monitor corrective action effectiveness.

### 5. Review and Approval of Corrective Actions

The process used by SSO was comprehensive and consistent with DOE's methodology. The resulting corrective actions address the identified concerns and weaknesses; therefore resolving the concerns.

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### **6. Corrective Action Plan Status Reporting and Closure**

This CAP contains the information to be entered into the SSO deficiency tracking system known as SSO TA-V Commitment Issues Database (CID).

SSO will enter the issues and associated corrective actions into CID to monitor implementation progress. SNL's corrective actions, once developed, will be tracked and verified in accordance with the SNL ES&H Manual, Chapter 22a, Corrective Action Management using WEBSIMS.

### **7. Verification of Corrective Action Effectiveness**

SSO and SNL will develop and/or revise performance indicators to monitor effectiveness of corrective action implementation to ensure that performance is meeting expectations. In addition, SSO and SNL will perform assessments as appropriate that will focus on areas of corrective action implementation to ensure the effectiveness of corrective actions.

SSO will assess SNL's performance in field implementation of the scheduled corrective actions and ensure appropriate measures are in place to continually monitor performance. SSO will perform an assessment with sufficient scope to verify completion of the corrective actions, to ensure SNL's corrective actions are implemented in programs and operations, and to verify performance is meeting expectations. This action is listed in Section 8.2 as 05-SSO-DNFSB-8.

### **8. Corrective Action Plan**

SSO is fully committed to the safety and health of its employees and the public, and to the protection of the environment while accomplishing the Sandia Site mission. Implementation of the corrective actions identified in this CAP will help ensure safe operations, continuous feedback, and quality improvement within the SSO.

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### 8.1.1 Issue 1

**Identifier:** 05-SSO-DNFSB-01

**Issue Statement:** *Lack of Conservatism Regarding 3,000 m Site Boundary for TA-V Facilities*

Synopsis of Observations as stated in the DNFSB Staff Report, and the IET Report:

The selection of a 3,000 m radius to define a virtual site boundary is not consistent with DOE standards, and does not properly protect members of the public who have unfettered access to recreational areas within the 3,000 m radius. (DNFSB)

The boundary for evaluation of doses to the public (exclusion area boundary) should be set at a point over which DOE can exercise authority to remove personnel and property and that does not allow casual access by the public or an exemption for an alternative methodology approved by the NNSA Administrator should be obtained (SPR). (IET)

Evaluation of doses to transient and residential personnel within the exclusion area were not completed as required by RG 1.70 (SPR). (IET)

The IET recommends decreasing the site boundary to 1200m and reclassifying certain SSCs as safety class (ACRR). (IET)

**Issue Manager:** M. J. Zamorski

**Discussion:** SSO appreciates the DNFSB's concern, and recognizes the importance to appropriately apply RG 1.70 and DOE-STD-3009. The recent reviews identified that Air Force support personnel reside at the KAFB stables. Although similar to the continuously occupied locations at the KAFB munitions storage facility, and the KAFB fire station located within the TA-V exclusion area, the residence of this support person and family were unknown and not identified in the TA-V DSAs. This issue has highlighted the degree of control SSO and SNL have over the exclusion area. Restricting the area under which SSO and SNL must exercise control would reduce the boundary from the 3000 meters currently assumed in the TA-V DSAs.

For insight into the issue of defining a facility site boundary, the 10 CFR 830 and the applicable safe harbor methodology was referenced. 10CFR 830 is silent on site boundary definition, and it does not reference a process for determining a facility site boundary. For the ACRR and SPR, which are

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DOE reactors, 10 CFR 830, Subpart B, Appendix A notes that U.S. Nuclear Regulatory Commission, Regulatory Guide 1.70 (NRC Reg Guide 1.70), "Standard Format and Contents of Safety Analysis Reports for Nuclear Power Plants", may be used to prepare their DSAs. NRC Reg Guide 1.70 is considered a safe harbor methodology for DOE Reactors to implement the requirements of 10 CFR 830 Subpart B.

NRC Reg Guide 1.70 states, in section 2.1.1, "Site Location and Description" that:

"Site" means the contiguous real estate on which nuclear facilities are located and for which one or more licensees has the legal right to control access by individuals and to restrict land use for purposes of limiting the potential doses from radiation or radioactive material during normal operation of the facilities.

And

### 2.1.2 Exclusion Area Authority and Control

2.1.2.1 Authority. The application should include a specific description of the applicant's legal rights with respect to all areas that lie within the designated exclusion area. The description should establish, as required by paragraph 100.3(a) of Part 100, that the applicant has the authority to determine all activities, including exclusion and removal of personnel and property from the area. The status of mineral rights and easements within this area should be addressed.

If ownership of all land within the exclusion area has not been obtained by the applicant, those parcels of land not owned within the area should be clearly described by means of a scaled map of the exclusion area, and the status of proceedings to obtain ownership or the required authority over the land for the life of the plant should be specifically described. Minimum distance to and direction of exclusion area boundaries should be given for both present ownership and proposed ownership. If the exclusion area extends into a body of water, the application should specifically address the bases upon which it has been determined that the authority required by paragraph 100.3(a) of Part 100 is or will be held by the applicant."

The Reg Guide 1.70 passage cites definitions from Title 10 of the CFR, which is its governing regulation. 10 CFR 20.1003 defines the site boundary as:

"that line beyond which the land or property is not owned, leased, or otherwise controlled by the licensee."

Other Parts of the CFR cited in the Reg Guide 1.70 include 10 CFR 50.2 and 10 CFR 100.3. These regulations define the term Exclusion Area as:

"that area surrounding the reactor, in which the reactor licensee has the authority to determine all activities including exclusion or removal of personnel and property from the

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area. This area may be traversed by a highway, railroad, or waterway, provided these are not so close to the facility as to interfere with normal operations of the facility and provided appropriate and effective arrangements are made to control traffic on the highway, railroad, or waterway, in case of emergency, to protect the public health and safety. Residence within the exclusion area shall normally be prohibited. In any event, residents shall be subject to ready removal in case of necessity. Activities unrelated to operation of the reactor may be permitted in an exclusion area under appropriate limitations, provided that no significant hazards to the public health and safety will result.”

As noted above the requirements in 10 CFR 830 are silent on site boundary definition, however the guidance in DOE-STD-3009 defines the site boundary as:

“A well-marked boundary of the property over which the owner and operator can exercise control without the aid of outside authorities. For the purpose of implementing this Standard, the DOE site boundary is a geographic boundary within which public access is controlled and activities are governed by DOE and its contractors, and not by local authorities. A public road traversing a DOE site is considered to be within the DOE site boundary if, when necessary, DOE or the site contractor has the capability to control the road during accident or emergency conditions.”

As discussed in 10 CFR 830 Appendix A (A) the safe harbor methodologies are means of implementing requirements, but are not, nor do they create any new requirements as iterated in DOE Policy 450.2A.

The 10 CFR definitions of site boundary, and the exclusion area concept as coincident with the KAFB boundary is consistent with the DOE-STD-3009 definition. The DOE-STD-3009 definition acknowledges public thoroughfare as acceptable, if access controls and protective actions can be implemented during an emergency situation.

SNL is the only major NNSA facility located on a U.S. military installation. As such, the NNSA is effectively a tenant on Department of Defense owned land. Existing agreements, memoranda of understanding (MOU), and emergency plans provide for a close and cooperative operating relationship between KAFB, NNSA/SSO, and SNL. This decades-long close relationship and planning ensures the prompt notification of emergency responders, the effective communication of protective action recommendations, and the safety of onsite personnel and members of the workforce.

The IET observed a drill during their review, which demonstrated that SNL and KAFB have effective communication and control of the TA-V exclusion area. However, SNL is working through SSO with the Air Force to develop and implement more formal and rigorous means of exercising emergency procedures and refining the capability to implement protective actions for the site boundary.

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### SSO Current Position:

After extensive analysis of both the NRC and DOE requirements, and discussions within NNSA, the Sandia Site Office now defines a site boundary of 1,350 m for TA-V nuclear facilities. SSO believes this position is appropriate because of the following:

1. This entire area is on federal government owned and controlled land; some held by DOE and some by the Department of Defense (DOD).
2. "Local authorities" do not control access or govern activities within the site boundary. There is no direct authority exercised over this area by either city, county or state authorities.
3. This new site boundary does not include the golf course and riding stables, utilized by personnel who may be perceived to be "members of the public".
4. In the event of an emergency there are Memorandums of Understanding (MOU's) in place with the Air Force to exercise additional controls over the area within the boundary. During emergency drills, KAFB, SSO, and SNL have demonstrated they can prohibit access and require evacuation of personnel within this new boundary.

This position of the site boundary is a conservative revision to the previous boundary. The NNSA Chief of Defense Nuclear Safety and NNSA Central Technical Authority participated in the site boundary discussions, and concurred with the more conservative selection. . This new 1,350 m site boundary will require additional analysis by SNL in order to operate TA-V facilities. This analysis will include evaluating upgrades to existing safety systems to Safety Class (SC) designation and/or performing a "back-fit" analyses.

SSO has established this reduced site boundary, but has advised SNL that SSO will consider revising the site boundary with stronger unilateral agreements with the Air Force for control during emergencies. SSO has requested SNL to evaluate improved marking of the boundary, greater level of control over the area, and more rigorous testing of control in joint exercises with the Air Force. SNL also will review its assumptions and analytical methods for selection of the site boundary, and, based on the review, advise SSO if SNL believes a broader boundary can be defined.

*For ACRR, limits on plutonium in experiments, limits on fission product inventory based on reactor power history, and a commitment to study the feasibility of upgrading to safety class designation for some ACRR systems is part of the process to allow upcoming mission tests at the reduced site boundary.*

*SSO will allow continued operation of the GIF and MNF under the site boundary until revisions to their respective DSAs can be made based on revised analyses. Timeframes for revisions are being worked with SNL.*

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*SSO will develop a schedule by which all DSAs will be brought into compliance with expectations.*

*SSO will verify completion and closure of SNL corrective actions.*

A complete list of corrective actions, with deliverables, due dates, and measures of effectiveness are presented in tabular form in Section 8.2.

## SSO Safety Bases for Sandia National Laboratories Nuclear Facilities *Corrective Action Plan*

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### 8.1.2 Issue 2

**Identifier:** 05-SSO-DNFSB-02

**Issue Statement:** *Inadequate Hazard Identification and Control*

Synopsis of Observations as stated in the DNFSB Staff Report, and the IET Report:

The analysis of an accident involving the drop of a container while being hoisted from the high bay into the hot cell. (DNFSB)

A drop during a lifting operation in the high bay could be initiated by a seismic event. Hot Cell only built to PC2 requirements. . (DNFSB)

Hot Cell Ventilation not built to PC2 Requirements. . (DNFSB)

The DSA did not address the long-term radiological contamination of the hot cell. . (DNFSB)

The hazard analysis identified the presence of a natural gas line that passes through the facility. . (DNFSB)

The hazard analysis determined that a forklift or vehicle fire would result in serious worker injury or death. . (DNFSB)

The mid-bay is used by security forces as a storage facility and has accumulated a significant amount of combustible material. . (DNFSB)

The fire protection analysis identified a number of significant fire protection issues that did not appear to have been adequately resolved in the DSA. . (DNFSB)

Aircraft crashes were not thoroughly analyzed. . (DNFSB)

Operational hazards were not comprehensively addressed in the DSA. . (DNFSB)

Incomplete consideration of postulated accidents that may impact collocated or involved workers. (IET)

Aircraft Crash Accident

Fire accidents and fire protection (SPR)

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SSO and SNL should consider designating the ventilation system as an active system to allow the system to better perform its safety function. (SPR)

The adjacent storage vaults or areas were not analyzed in the SPRF SAR.

SNL and SSO should consider additional review and discussion to describe acceptable situations to use the jumper panel and whether conflicts could exist between the LCOs and use of the jumper panel.

It is necessary in the DSA to provide sufficient discussion and address completely how all the important assumptions will be maintained to insure validity of the analysis results (ACRR). (IET)

The hazard evaluation does not demonstrate comprehensive consideration of the spectrum of hazards associated with the waste (MNF). (IET)

Merely identifying that there are more severe initiating events does not relieve the DSA of the need to demonstrate that adequate controls are invoked for each external event (MNF). (IET)

The hazard evaluation only considered events in 2 of the 5 consequence bins (i.e. bins III and IV), so the full spectrum of risks is not addressed (MNF). (IET)

Issues related to selection of safety SSCs and TSRs are significant enough to warrant resolution in the MNF DSA rather than in the MNF SER (MNF). (IET)

### **Issue Manager: M. J. Zamorski**

**Discussion:** SSO identified and continues to communicate systemic weaknesses in SNL's Hazard Analysis process for both nuclear and non-nuclear safety basis documentation. In the past year, SNL has acknowledged this weakness and began to address these weaknesses at the corporate and local management level. The most notable changes include hiring additional experienced safety basis staff, and working with SSO to develop a more formal and explicit process for approving safety basis documentation. As a compensatory measure, the use of SNL corporate staff and consultants will enhance field/project/facility subject matter expertise, and this will continue during the upgrading process for the safety basis documentation development, review, and approval.

Causal factors associated with inadequate hazard control include:

- No strong connection between design engineers and safety basis professionals for hazards and consequence development;
- Not fully documenting SSO review/acceptance of SNL hazards identification, analysis, and proposed controls

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- SSO has not clearly conveyed/enforced expectations for SNL work related to hazard analysis;
- System Design Descriptions (SDDs) and the cognizant System Engineers are not used for hazard identification and controls development.

Specific corrective actions related to hazard identification and control include:

- Once SSO revises its safety basis processes/procedures (i.e. completion of Corrective Action 05-SSO-DNFSB-3.3), SSO will revise/reinforce contract guidance and clarify expectations for SNL regarding documentation of hazard identification and controls in DSAs.
- SSO will ensure engineering oversight SMEs (i.e. Fire Protection, Mechanical, I&C, etc.) are integrated into the planned revisions to the SSO safety basis review and approval process
- SSO will direct SNL to develop an implementation guide (e.g. SARAH) for DOE review and approval

These corrective actions, with deliverables, due dates, and measures of effectiveness are presented in tabular form in Section 8.2.

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### 8.1.3 Issue 3

**Identifier:** 05-SSO-DNFSB-03

**Issue Statement:** *SSO Weaknesses Regarding Review and Approval of Documented Safety Analyses*

Synopsis of Observations as stated in the DNFSB Staff Report, and the IET Report:

Because of the fundamental nature of the deficiencies identified in this safety basis (AHCF), the Board has concerns regarding the other safety bases currently approved for use at SNL-NM. (DNFSB)

More detailed documentation regarding the resolution of these comments would make it clear that all identified issues have been thoroughly considered and addressed (GIF). (IET)

The AHCF DSA and TSRs were found to not meet one or more of the criteria for each of the six safety approval bases in DOE-STD-1104-96...Base Information; Hazard and accident analyses, and; Safety management programs (AHCF). (IET)

The SSO review of the AHCF DSA and TSRs were lacking in several regards including the following:

1. Inappropriate use of Conditions of Approval.
2. Less than adequate documentation of the SSO evaluation of SNL responses to review documentation.
3. Inadequate description in the SER regarding how the SSO SBRT review was conducted and how the review conclusions were reached.
4. Lack of assignment of detailed roles and responsibilities for SBRT review team leads and review team members. (IET)

Areas for future improvement, that were identified for SSO procedures and mechanisms for the SSO review process....

1. Update an outdated SSO review and approval procedure.
2. Strengthen SSO management oversight of the review and approval process to ensure the consistency and adequacy of the reviews.
3. Increase the sharing of lessons learned and best management practices amongst the multiple SBRTs and the individual SBRT members.
4. Develop SSO simple but thorough initial screening criteria to evaluate the overall adequacy of safety basis documents prior to committing the SBRT to a full comprehensive review.
5. Develop a phased (e.g. 30%, 60%, 100%) safety basis review approach. (IET)

Better formal processes for authorization basis work must be established by SSO (SSO CAP). (IET)

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SSO should consider authorization agreements, where appropriate (SSO CAP). (IET)

SSO should develop a minority opinion process for SBRTs (SSO CAP). (IET)

### **Issue Manager: M. J. Zamorski**

**Discussion:** SSO shares the DNFSB's concern, and recognizes the importance of safety basis reviews to ensure facilities are accurately characterized and appropriate controls are established. Over the past two years, since the inception of the Sandia Site Office, SSO Management has worked hard to assemble nuclear operations and safety basis staffing with strong technical skills. To ensure technical diversity, some of the best personnel from within the NNSA were moved to SSO. Also, experienced personnel were recruited from other DOE Sites, and the commercial nuclear industry. Over 30% of the SSO Nuclear Facilities and Safety Basis (NF&SB) group have previous Nuclear Navy experience. The staff has increased from 7 to 13 since the inception of the Sandia Site Office in 2003.

Although adequate staffing and competencies have been assembled, SSO has been well aware for some time of the work that lies ahead. Establishing adequate staffing and competency levels was necessary prior to revising and institutionalizing the SSO safety basis review and approval process. SSO is now ready to take the additional steps to further formalize and institutionalize this process. SSO evaluated internal procedures, processes, and activities related to the Site Office review and approval of safety basis documents. The root cause of many of SSO problems was determined to be:

**MANAGEMENT PROBLEM: The SSO Safety Basis Review and Approval Process Lacks the Necessary Process Formality and Institutionalization to Ensure Quality Safety Basis Documentation.**

### **Contributing causes include:**

- Insufficient SSO oversight relative to safety management programs;
- SSO organizational structure not optimized for producing quality safety basis documents
  - Lack of integrated engineering and safety basis capability
  - Lack of healthy tension and positional parity between line management, and safety basis development and operations
- Perceived schedule pressure and SSO Management direction resulting in SBRTs forwarding documents for SSO Senior Management approval with lower standards;
- Previous SSO Management expectations encouraged "working" documents as submitted by SNL, vice rejecting;

## **SSO Safety Bases for Sandia National Laboratories Nuclear Facilities *Corrective Action Plan***

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- Lack of agreement within SSO on the interpretation of requirements;
- Implementing procedures not updated
- Slow resolution of assembling the needed safety basis staffing;

Corrective Actions focus on establishing consistency within SSO on interpretations of CFRs, DOE orders, and DOE standards requirements; integration of engineering design requirements and Vital Safety System (VSS) oversight during safety basis reviews; an organizational analysis to determine how best to optimize safety basis reviews and ensure safety basis issues are voiced to the SSO Manager accurately, and with equal weight, in context to mission.; and finally revise SSO procedures to capture processes and expectations determined through the previously listed corrective actions. The process revisions will address behavioral issues within SSO to ensure procedures are followed, and technical decisions (e.g. DSA comment resolution) are properly documented and agreed to by SBRTs and SSO Management.

A complete list of corrective actions, with deliverables, due dates, and measures of effectiveness are presented in tabular form in Section 8.2.

## SSO Safety Bases for Sandia National Laboratories Nuclear Facilities *Corrective Action Plan*

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### 8.1.4 Issue 4

**Identifier:** 05-SSO-DNFSB-04

**Issue Statement:** *Inadequate Design Requirements*

Synopsis of Observations as stated in the DNFSB Staff Report, and the IET Report:

The design of new facilities or major modifications is required to be based on the confinement of hazards. (DNFSB)

Facility structures are required to provide appropriate protection from expected natural phenomena events. (DNFSB)

The safety SSCs were identified and their design was discussed, however, an adequate explanation per DOE-STD-3009-94 of the impact of the design of the safety SSCs on the facility safety basis was lacking. (IET)

**Issue Manager:** M. J. Zamorski

**Discussion:** SSO agrees with the DNFSB and recognizes the need to include appropriate design requirements for engineering design and construction, and inclusion into safety basis documentation. SSO plans as part of the safety basis review and approval procedural and process revisions to periodically reevaluate decisions and interpretations affecting engineering design features in the current DSAs.

As part of an organizational analysis, SSO will determine how best to ensure adequate design requirements are incorporated within safety basis documentation. The outcome of this analysis will be included into planned revisions to the SSO safety basis review and approval procedures.

This section's causal factors and corrective actions were rolled up into "*SSO Weaknesses Regarding Review and Approval of Documented Safety Analyses.*"

For addition information regarding causal factors and corrective actions, please see Section 8.1.3

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### 8.1.5 Issue 5

**Identifier:** 05-SSO-DNFSB-05

**Issue Statement:** *Other DNFSB Issues Related to the Auxiliary Hot Cell Facility (AHCF)*

Synopsis of Observations as stated in the DNFSB Staff Report:

The TSR bases and derivations were ambiguous as to what they actually required. Confusion about the TSR requiring the development of specific campaign plans for each type of item to be processed at the AHCF. (DNFSB)

The threshold material quantity values for facility hazard categorization were incorrectly applied, resulting in the inappropriate categorization of the facility. – DOE STD 1027 (DNFSB)

Not possible, based upon the DSA, to determine the specific functional requirements and performance criteria that enable a control to prevent and/or mitigate a particular hazard scenario. (DNFSB)

The Board's staff concluded that the DSA does not meet the requirements and expectations set forth by DOE's STD 3009-94 CN2. (DNFSB)

The incomplete accident analysis in the DSA will not allow the development of effective Unreviewed Safety Question determinations for future changes – configuration management. (DNFSB)

**Issue Manager:** M. J. Zamorski

**Discussion:** SSO agrees with the DNFSB relative to a number of deficiencies identified for the AHCF DSA. Also, safety basis documentation must meet the requirements and expectations provided in DOE-STD-3009. SSO and SNL are committed to a complete revision of the AHCF DSA. SNL also is assessing a number of potential changes involving hot cell design to mitigate spreading contamination. The physical design changes and completely revised DSA are expected to be complete in CY 2005.

This section's causal factors and corrective actions were rolled up into "*SSO Weaknesses Regarding Review and Approval of Documented Safety Analyses.*"

For addition information regarding causal factors and corrective actions, please see Section 8.1.3

## SSO Safety Bases for Sandia National Laboratories Nuclear Facilities *Corrective Action Plan*

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### 8.1.6 Issue 6

**Identifier:** 05-SSO-DNFSB-O6

**Issue Statement:** *Classification of Structures, Systems and Components (SSCs) –*

Synopsis of Observations as stated in the IET Report:

The ACRR DSA assumed several SSCs, traditionally considered as SC, to be available and fully functional during the accident. However, the capabilities of these SSCs are not properly substantiated (ACRR). (IET)

**Issue Manager:** M. J. Zamorski

**Discussion:** SSO recognizes the need for proper categorization of SSCs, and to further evaluate the adequacy of existing Vital Safety Systems as part of an overall cost-benefit analysis for potential upgrade of safety systems and components. SSO plans as part of the safety basis review and approval procedural and process revisions to periodically reevaluate decisions related to SSCs in the current DSAs.

This section's causal factors and corrective actions were rolled up into "*SSO Weaknesses Regarding Review and Approval of Documented Safety Analyses.*"

For addition information regarding causal factors and corrective actions, please see Section 8.1.3

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### 8.1.7 Issue 7

**Identifier:** 05-SSO-DNFSB-07

**Issue Statement:** *Facility Hazard Categorization*

Synopsis of Observations as stated in the DNFSB Staff Report, and the IET Report:

The threshold material quantity values for facility hazard categorization were incorrectly applied, resulting in the inappropriate categorization of the facility. – DOE STD 1027 (DNFSB)

NNSA-HQ needs to provide guidance on the interpretation of this DOE-STD-1027 footnote and SNL needs to reevaluate the categorization (MNF). (IET)

In light of these discussions, it became apparent that guidance is needed from NNSA on the interpretation of DOE-STD-1027-92 regarding the use of values presented in Attachment 1, Table A.1 for U-233, U-235 and Pu-239 (GIF). (IET)

**Issue Manager:** M. J. Zamorski

**Discussion:** SSO shares the Independent Evaluation Team's concern, and recognizes the importance to review and reevaluate interpretations in safety basis documentation. This is especially true regarding Hazard Categorization for facilities with changing missions, etc. As with the Site Boundary, there were a number of reasons for the previous interpretation (e.g. a longstanding interpretation, honoring technical "precedence" without explicitly validating against newer requirements and interpretations, etc.). SSO plans as part of the safety basis review and approval procedural and process revisions to periodically reevaluate decisions and interpretations in the current DSAs.

Also, SSO is working with the CDNS to clarify/amplify guidance in DOE-STD-1027 related to threshold material quantities, and proper facility categorization related to relative quantities and forms of fissile materials.

## SSO Safety Bases for Sandia National Laboratories Nuclear Facilities Corrective Action Plan

### Corrective Action Plan

No	Description	Deliverable	Responsible Actionee	Planned Completion Date/Status	Performance Measurement/Effectiveness Verification
05-SSO-DNFSB-1.1	As part of 05-SSO-DNFSB- 3.3, SSO develop a process to periodically reevaluate interpretations and precedents in safety basis documentation.	Copy of applicable process/procedure.	SSO	04/30/05	SSO perform a self-assessment one year after implementation of new procedure.
05-SSO-DNFSB-1.2	Approve the ACRR DSA using the 3,000 m site boundary and compensatory measures listed as COAs to allow easy transition to a 1,350 m site boundary .	Copy of the approved SER.	SSO	<b>COMPLETED</b> 02/11/05	N/A
05-SSO-DNFSB-1.3	SSO issue a 1,350 m site boundary for TA-V facilities with comp measures employed.	Copy of SSO letter to SNL.	SSO	<b>COMPLETED</b> 01/21/05	N/A
05-SSO-DNFSB-1.4	Direct SNL to develop an integrated schedule to review impacts to DSAs for the new site boundary and provide updated DSAs	Copy of schedule	SSO	03/31/05	Compare performance with SNL schedule
05-SSO-DNFSB-2.1	After completion of corrective actions in Section 05-SSO-DNFSB-3, analyze the need for additional contract guidance and clarify expectations.	SSO letter and/or other contractual direction to SNL.	SSO	11/30/05	SSO will review SNL safety basis processes to ensure SNL implementation of SSO expectations.
05-SSO-DNFSB-2.2	As part of 05-SSO-DNFSB-3.3, Phase 1, ensure engineering oversight SMEs (e.g. Fire Protection, Mechanical, I&C, etc.) are integrated into the SSO safety basis review and approval process.	Copy of revised SSO Safety Basis Review and Approval Procedures and Supporting Documentation.	SSO	04/30/05	SSO perform a self-assessment one year after implementation of new procedure.
05-SSO-DNFSB-2.3	Direct SNL to develop an implementation guide (e.g. SARAH) for DOE review and approval.	SSO letter of direction to SNL	SSO	02/28/05	

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**Corrective Action Plan**

No	Description	Deliverable	Responsible Actionee	Planned Completion Date/Status	Performance Measurement/Effectiveness Verification
05-SSO-DNFSB-2.3a	SSO work with SNL to approve implementation guide.	SSO approved copy of implementation guide.	SSO	12/31/05	SSO perform an assessment one year after implementation of new guide. See 05-SSO-DNFSB-8
05-SSO-DNFSB-3.1	As part of 05-SSO-DNFSB-3.3 Phase 1, establish a process to develop consistent positions/interpretations within SSO for safety basis requirements (e.g. 10CFR830, DOE O 420.1, DOE-STD 1027, DOE-STD 3009, RG 1.70, etc.) including topics such as classification of SSCs, design requirements, facility hazard categorization, etc.	Copy of revised SSO Safety Basis Review and Approval Procedures and Supporting Documentation.	SSO	04/30/05	Establish if any additional contractual direction by SSO is required. Ensure additional corrective actions related to requirements interpretation for safety basis documents are evaluated and added as an addendum. SSO perform a self-assessment one year after implementation of new procedure.
05-SSO-DNFSB-3.2	Conduct an organizational analysis to optimize safety basis reviews and ensure safety basis issues are voiced to the SSO Manager accurately, and with equal weight, in context to mission.	Copy of organizational analysis.	SSO	06/30/05	NA
05-SSO-DNFSB-3.3	Revise and update SSO Safety Basis Review and Approval Procedure(s). Phase 1	Copy of revised SSO Safety Basis Review and Approval Procedures and supporting documentation for administrative processes to include results from actions 2.2 and 3.1	SSO	04/30/05	
05-SSO-DNFSB-3.3a	Revise and update SSO Safety Basis Review and Approval Procedure(s). Phase 2	Copy of revised SSO Safety Basis Review and Approval Procedures and supporting documentation to include results from action 3.2.	SSO	10/31/05	SSO perform a self-assessment one year after implementation of new procedure.

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No	Description	Deliverable	Responsible Actionee	Planned Completion Date/Status	Performance Measurement/Effectiveness Verification
05-SSO-DNFSB-3.4	Map revised SSO Safety Basis Review and Approval Procedure(s) to the SSO FRAM	SSO FRAM revised to include accurate roles and responsibilities for safety basis review and approval.	SSO	10/31/05	SSO perform a self-assessment one year after implementation of new procedure.
05-SSO-DNFSB-3.5	SSO perform a self-assessment per SSO self-assessment procedure to measure the effectiveness of 05-SSO-DNFSB-3.3 and 3.4.	Copy of self-assessment results.	SSO	09/30/06	N/A
05-SSO-DNFSB-3.6	SSO develop enhanced qualification requirements for Safety Basis Review Team Leaders	Revised qualification standard and qualification card	SSO	04/30/05	N/A
05-SSO-DNFSB-3.7	SSO evaluate the use of Authorization Agreements for SNL HAZ CAT 3 nuclear facilities.	Copy of evaluation results	SSO	10/31/05	
05-SSO-DNFSB-7.1	SSO provide a position paper to NNSA-regarding Facility Hazard categorization guidance in DOE -STD-1027.	Letter to CDNS.	SSO	04/30/05	N/A
05-SSO-DNFSB-8.1	SSO will assess SNL's performance in field implementation of the scheduled corrective actions and ensure appropriate measures are in place to continually monitor performance (ie. Performance Indicators). SSO will perform an assessment with sufficient scope to verify completion of the corrective actions, to ensure SNL's corrective actions are implemented in programs and operations, and to verify performance is meeting expectations.	Assessment report to SSO Manager.	SSO	12/31/06	N/A.

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No	Description	Deliverable	Responsible Actionee	Planned Completion Date/Status	Performance Measurement/Effectiveness Verification
05-SSO-DNFSB-9.1	SSO will review SNL progress and verify completion and closure of SNL corrective actions quarterly.	Status report to SSO Manager. PEP Quarterly Report	SSO	06/30/05 and quarterly thereafter.	Compare performance with SNL schedule and evaluate quality of actions related to process changes and implementation.