

**Office of Health, Safety and Security
Office of Enforcement and Oversight**

**Independent Oversight Review of the
Facility Centered Assessment of the
Los Alamos National Laboratory
Waste Disposition Project**



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**Office of Safety and Emergency Management Evaluations
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Table of Contents

1.0	Introduction.....	1
2.0	Background.....	1
3.0	Results.....	2
4.0	Conclusions.....	7
5.0	Findings	8
6.0	Items for Follow-Up	8
7.0	Opportunities for Improvement	9
	Appendix A – Supplemental Information.....	10

Acronyms

ANS	American National Standard
ANSI	American National Standards Institute
CRAD	Criteria, Review, and Approach Document
DNFSB	Defense Nuclear Facilities Safety Board
DOE	U.S. Department of Energy
ES&H	Environment, Safety, and Health
EWMO	Environmental and Waste Management Operations
FCA	Facility Centered Assessment
HSS	Office of Health, Safety and Security
ICAM	Issues and Corrective Action Management
IMRB	Institutional Management Review Board
IWD	Integrated Work Document
IWM	Integrated Work Management
LANL	Los Alamos National Laboratory
LASO	Los Alamos Site Office
NI	New Information
NNSA	National Nuclear Security Administration
PFITS	Performance Feedback and Improvement Tracking System
PPE	Personal Protective Equipment
RANT	Radioassay and Nondestructive Testing
RCT	Radiological Control Technician
RLWTF	Radioactive Liquid Waste Treatment Facility
RWP	Radiological Work Permit
SSO	Safety System Oversight
STO	Science and Technology Operations
TRU	Transuranic
WCRRF	Waste Characterization, Reduction, and Repackaging Facility
WDP	Waste Disposition Project
WI	Work Instruction

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1.0 INTRODUCTION

This report documents the results of the U.S. Department of Energy (DOE) Office of Health, Safety and Security (HSS) Independent Oversight review of the Facility Centered Assessment (FCA) of the Los Alamos National Laboratory (LANL) Waste Disposition Project (WDP), which includes the Radioassay and Nondestructive Testing (RANT) Facility; Waste Characterization, Reduction, and Repackaging Facility (WCRRF); and Area G transuranic (TRU) waste operations. This report was developed and approved in accordance with DOE O 227.1, *Independent Oversight Program*. The Independent Oversight review of the WDP FCA, conducted May 2-20, 2011, was led by the HSS Office of Safety and Emergency Management Evaluations, with the participation of subject matter experts from Los Alamos Site Office (LASO), National Nuclear Security Administration (NNSA) Headquarters and LASO Facility Representatives assigned to WDP.

FCAs are periodically conducted by the LANL Contractor Assurance Office Performance Feedback Organization at the direction of the LANL Director, under the sponsorship of the LANL Institutional Management Review Board (IMRB). The IMRB has directed that FCAs be performed every three years for each major Facility Operations Directorate to measure and improve the performance of LANL program and facility work; LANL personnel indicated that LANL had not always met that schedule because of schedule conflicts and budget constraints. The intent of an FCA is to provide a sitewide “snapshot” of the implementation of safety management programs and management processes within the assessed organizations.

The scope of the Independent Oversight review was to: (1) follow up on prior HSS inspection results from 2007 that are directly related to the scope of the FCA, and (2) evaluate the depth and breadth of the WDP FCA to provide input to LASO, in concert with NNSA, and to LANL regarding LANL activity-level work planning and control improvement actions. The overall scope of the FCA was coordinated among LASO, NNSA, LANL, and HSS and documented in the *LANL Environmental & Waste Management Operations (EWMO): Area G (TRU), RANT, WCRRF Assessment Plan*, dated February 22, 2011. The FCA included several LASO vital safety system assessments, one of which HSS conducted concurrently with LASO. The concurrent HSS vital safety system assessment will be documented in a separate report.

2.0 BACKGROUND

In 2007, as part of a LANL-wide integrated safety management inspection, HSS evaluated environment, safety, and health (ES&H) programs and work planning and control systems as applied to various LANL facilities and organizations. Within WDP (which was a part of EWMO at that time), the 2007 HSS inspection included a review of the implementation of the core functions of integrated safety management at WCRRF, RANT, and a number of G Area waste storage and processing domes through observations of ongoing facility operations and work activities; work area tours; technical discussions and interviews with managers, operators, and technical staff; review of interfaces with ES&H staff; and ES&H documentation reviews (e.g., plant standards, permits, safety analyses). Several findings applicable to the WDP facilities within the scope of this FCA were presented in the inspection report (issued in January 2008). The four findings specifically applicable to WDP – HSS Findings C-7, 8, 9, and 12 – addressed problems with radiological postings and surveys and monitoring of personnel, items, and areas; deficiencies in implementation of certain radiation protection requirements in the areas of procedure review and

approval, radiological personal protective equipment (PPE), radiological postings, and contamination control; problems with methods used to enroll workers in bioassay programs and prepare radiological work permits (RWPs); and deficiencies in the implementation of integrated work management (IWM) requirements. LANL developed a comprehensive corrective action plan, dated March 24, 2008, to address all findings from the HSS inspection and entered the actions into the Issues and Corrective Action Management (ICAM) system. This HSS review of the WDP FCA included an examination of the LANL evidence files that documented line management's actions to close the HSS findings from 2007 associated with WDP. In some cases, HSS also analyzed LANL's review and approval of the closed actions. During this review, HSS evaluated the effectiveness of the actions taken to address those findings, with consideration of the results of the FCA's performance-based work observations, interviews, and record reviews (e.g., assessments, problem identification systems).

On January 20, 2010, LASO issued a letter to LANL expressing concerns about worker safety associated with integrated work control in programmatic and research operations. The Defense Nuclear Facilities Safety Board (DNFSB) made similar observations in an earlier staff review of work planning and control practices at LANL. In response to these LASO and DNFSB concerns, LANL initiated a number of continuous improvement activities through mid-fiscal year 2011. LANL is conducting an independent IWM assessment, focusing on work planning and control, to assess the status of the LANL improvement activities and implementation of work planning and control at the activity level to be completed in the fall of 2011. The NNSA criteria, review, and approach documents (CRADs) will form the basis for that assessment. LASO's future actions will be based, in part, on the results of that assessment and LANL's actions in response to that assessment.

3.0 RESULTS

Conduct of the FCA

The LANL FCA process continues to be an effective, consolidated assessment mechanism for evaluating the overall performance and compliance status of critical LANL operations and facilities. Other than a few exceptions discussed below, the WDP FCA was well staffed with senior LANL and external specialists over a broad set of functional areas. Having representation from LANL institutional organizations was an effective way to identify institutional weaknesses that may contribute to performance concerns within WDP. The sub-teams examining LANL fire protection and lightning protection had some challenges in conducting and completing the assessment because of collateral duties, available time to devote to the FCA, and (in the case of fire protection) the sub-team's limited assessment experience.

The assessment plan was comprehensive and included CRADs to address each functional area, although some functional areas (i.e., fire protection, IWM, and conduct of maintenance) would have benefited from additional tailoring, streamlining, and use of lines of inquiry to better focus on implementation. These observations are similar to those made by the HSS team that reviewed the Science and Technology Operations (STO) FCA. (The short time between the STO FCA and the WDP FCA did not allow for needed improvements in the CRADs.) In addition, the HSS review team noted that the criticality safety CRADs should align with implemented programs; these CRADs should be revised on the basis of SD130, *Nuclear Criticality Program*, as it implements ANSI/ANS 8.19, *Administrative Practices for Nuclear Criticality Safety*, using DOE-STD-1158, *Self-Assessment Standard for DOE Contractor Criticality Safety Programs*, as a guide to development. In addition, the three CRADs for occupational safety and health provided only minimal details: two dealt with chemical exposure, and the third dealt with all other hazards by simply referring to a long list of LANL occupational safety and health program documents.

FCA planning activities included concise expectations concerning most assessment tools and products and adequate time for planning before the assessment. However, further improvement is needed in preparing the team members who were chosen for their subject matter expertise but have limited assessment experience. Additionally, because respirator and bioassay requirements for some WCRRF operations were not known or addressed before the FCA, only a few assessors were appropriately qualified to observe these activities. Most assessment activities were generally effective, appropriately balancing work observations, document reviews, and interviews. As in previous LANL FCAs, the WDP FCA emphasized work observations to evaluate actual performance in the field as a high priority, with over 40 work observations conducted during the assessment.

Consistent with the WDP FCA Assessment Plan, most groups of facilities and activities were adequately addressed. With few exceptions, the overall sample of work activities observed was sufficiently comprehensive to provide a sound basis for evaluating most functional areas. As HSS noted when reviewing the STO FCA, the maintenance CRADs focused primarily on administrative aspects of the maintenance program rather than on work performance; therefore, the assessment of this functional area at WDP did not fully meet the performance-based objectives of an FCA. In addition, although WDP has nuclear facilities with vital safety systems, the FCA conduct of maintenance functional area review did not cover any nuclear facility maintenance activities. WDP did perform some nuclear facility maintenance activities during this assessment (a dedicated facility maintenance workday at WCRRF), but only the Federal team shadow assessors covered these work activities. Also, the FCA fire protection team members observed only a limited number of work evolutions.

Most FCA team members accurately characterized the status of their functional areas on the assessment forms and appropriately characterized findings and observations, as well as observed noteworthy practices. For example, the added training and qualification support resources from central training, the additional support in the safety basis/criticality functional area, and the dedicated contractors working full time in the conduct of operations functional area allowed for more depth and breadth in this assessment than in the previous FCA. The FCA team leadership was effective in keeping the team focused and significantly contributed to the success of the assessment. The participation of HSS, NNSA Headquarters, and LASO subject matter experts, including LASO WDP Facility Representatives, as shadow assessors provided an effective mechanism for management oversight of the contractor. However, as further discussed below, the overall expectations for shadow assessors within the FCA process are not well defined.

The WDP Facility Operations Director and WDP Program Manager attended the daily meetings and seemed well informed about emergent issues. Both the FCA and the concurrent LASO safety system oversight (SSO) assessment gave WDP a real-time view of deficiencies that could affect the safety bases of nuclear facilities within the scope of this review. A number of deficiencies may have met the LANL definition of New Information (NI), but there was no evidence that WDP ever entered into the NI process as required by LANL Safety Basis Procedure SBP112-5, *New Information Process*, and the FCA team received limited feedback after presenting these deficiencies to WDP. As stated in the WDP FCA report, “several WDP safety system issues were identified that merited additional evaluation for operability and/or Documented Safety Analysis/Technical Surveillance Requirement compliance. The FCA team transmitted these items to WDP management by memorandum to ensure timely notification. WDP provided no follow-up information or documentation of evaluation except to say that a consensus of opinion determined there were no operability issues. The facility was not responsive to requests for information, and factual accuracy review results were not provided by the facility, so the FCA team is uncertain if appropriate technical evaluations were completed.” A March 23, 2011, LASO memo also expressed concerns that the existing implementation of the NI process may not adequately identify potential unreviewed safety questions. In addition, the FCA also identified the NI process as being incorrectly applied at WDP. During the FCA, there was no formal LANL process to document and

escalate issues to senior laboratory management in cases of disagreement between the FCA team and the assessed organizations that may be of immediate safety concern or calls into question the safety basis of a nuclear facility or activity. At the time of this HSS report, WDP FCA team leadership had briefed the LANL IMRB on the results of the FCA, but WDP line management had still not entered any of the safety-related issues into the NI process. Consequently, issues potentially challenging operability and/or the approved safety bases continue unresolved. Increased LANL management attention and LASO oversight in this area are warranted to ensure that newly discovered information related to nuclear safety bases is promptly and formally evaluated for potential technical safety requirement non-compliances, potential inadequacies in safety analyses, or potential unreviewed safety questions and to ensure that work is performed in accordance with the approved safety bases and, in particular, with the hazard controls that ensure adequate protection of workers, the public, and the environment as required by 10CFR830.201, *Performance of Work*. (See Finding 1)

The integration of HSS, NNSA Headquarters, and LASO oversight activities into FCAs continues to evolve, and integration of Federal staff in the WDP FCA worked well overall. Integrating multiple SSO safety system assessments with the WDP FCA presented some additional challenges, and although coordinating the reviews presented some difficulties, performing the reviews concurrently reduced the impact on the facilities, and the information shared between the reviews affected both positively. In the future, it is recommended that the number of SSO assessments be limited to only one or two to maintain sufficient depth and breadth in the reviews. Although LASO and LANL team members still appeared not to fully understand the actual role of Federal participants, the up-front involvement of LASO senior management during the overall FCA team orientation was effective in addressing team members' concerns and re-focusing the effort on LASO management's important priorities and expectations. As HSS noted when reviewing the STO FCA, Federal oversight personnel's practices have evolved beyond the current LASO work instruction, LASO Work Instruction (WI) 00 04, Revision 3, *Assessment Shadowing Activity Reporting*, for shadowing LANL assessments, especially for FCAs; the current LASO work instruction does not clearly define current LASO management's expectations for Federal participants in providing feedback to the contractor while overseeing an assessment and reinforcing the expected end product of the Federal oversight activity. Finally, the Independent Oversight review identified several challenges to the WDP FCA, and the FCA process in general, which are listed as opportunities for improvement in Section 7.0 of this report. HSS and LASO provided a more detailed evaluation of these areas to the LANL Contractor Assurance Organization as feedback to further improve the FCA process. That evaluation was provided in accordance with LASO WI 00 04, Revision 3, *Assessment Shadowing Activity Reporting*.

Follow-up on Selected HSS 2007 Inspection Findings

On March 24, 2008, LANL issued a comprehensive corrective action plan that addressed all findings from the HSS inspection. The following paragraphs summarize HSS input to the FCA with regard to closure of each of the findings selected for this review (HSS 2007 Findings C-7, C-8, C-9, and C-12). Detailed observations and conclusions from the HSS team's review of the selected 2007 findings were integrated into the results of the WDP FCA.

During the development of the corrective actions for HSS Findings C-7 and C-12, LANL determined that the causal analyses for C-7 and C-12 were very similar, so the corrective actions for these findings were combined. The HSS review of the combined corrective actions for both C-7 and C-12 is discussed below, as they apply to former EWMO facilities that were transferred to WDP: WCRRF, RANT, and TRU waste processing activities within G Area waste storage and processing domes.

HSS Finding C-7 : Radiological postings and surveys and monitoring of personnel, items, and areas at RC-1 and G Area are not sufficiently defined or implemented to ensure early detection and

to prevent the inadvertent spread of contamination to clean areas, as required by LANL Implementing Support Document ISD 121-1 and 10 CFR 835.

HSS Finding C-12 : EWMO has not ensured proper implementation of certain radiation protection requirements in the areas of procedure review and approval, radiological PPE, radiological postings, and contamination control as necessary to ensure adequate radiological safety, as required by LANL Implementing Support Document ISD 121-1 and DOE Policy 450.4, Safety Management System Policy.

The 2007 HSS inspection found that institutional radiological protection requirements had not always been followed or properly flowed down through procedures so that radiological controls are adequate, clearly defined, and effectively implemented. For example, the 2007 inspection documented various poor radiological control practices and instances where radiological requirements were not followed at the WDP facilities within the scope of this FCA. In response to these HSS findings, LANL developed a set of eight corrective actions and sub-actions and entered them into the LANL Performance Feedback and Improvement Tracking System (PFITS) under ICAM-V1.3.1-2007-6274. Most of these actions were appropriate to improve compliance with and flowdown of institutional radiological protection requirements. They included development and implementation of new procedures, policies, or requirements where warranted, such as requirements and guidelines for use of lead aprons, and better implementation of existing radiological controls.

Two examples of situations that directly contributed to the HSS findings in 2007 (failure to follow RWP and radiation protection institutional requirements) were again identified during this FCA. In the first example, the HSS report (issued in January 2008) stated:

The RWP covering bag on/bag off operations at WCRRF requires use of “a capture hood attached to a HEPA [high efficiency particulate air]-filtered air mover.” Although a portable HEPA-filtered air mover is used with an 8-inch suction hose, a capture hood is not attached. Neither workers nor the RCTs [radiological control technicians] have stopped work as a result of this requirement not being met. WCRRF and Radiation Control management is aware of the requirement and has condoned use of this configuration rather than obtaining a capture hood or working with each other to change the RWP requirement, indicating a potential problem with involved management’s conduct of operations expectations with respect to explicit compliance with requirements.

This RWP requirement is still in place and is still not followed in the field, indicating that this requirement has not been met by the workers or enforced by the RCTs or WCRRF management since 1997, even after being a basis for the original Finding C-7.

In the second example, the 2007 HSS team found that at WCRRF, respirators were checked for contamination only at the end of the shift, after being donned and doffed several times; however, ISD-121 requires treating respirators as contaminated after each use and not reusing contaminated respirators until surveyed. During this FCA, the same non-compliant practices were observed for most of the personnel in the area of bag-on/bag-off activities (only the respirators of workers directly involved with the activity were monitored). In the 2007 HSS inspection, this example was listed as supporting Finding C-8, but it is another example of an identified deficiency in compliance with requirements that was never addressed.

Since LANL has not addressed two important examples driving the original findings, the HSS team cannot conclude that LANL actions to address HSS Findings C-7 and C-12 were fully effective. (FCA Finding MGMT.4 HSS F-1 (C-7, C.12) INST)

HSS Finding C-8 : Methods used at LANL to enroll workers in bioassay programs and prepare radiological work permits are not sufficiently developed to ensure requirements are met and radiological controls are adequate, as required by LANL Implementing Support Document ISD 121-1 and DOE Policy 450.4, Safety Management System Policy.

The 2007 HSS inspection found that at the institutional level, methods used to enroll workers in a bioassay program were not adequate to ensure that workers are monitored for the correct isotopes and at the required frequencies. In addition, the RWP process did not provide sufficient procedural direction to ensure that institutional expectations were clearly defined and that resulting controls were adequate. In response to these HSS findings, LANL developed a set of five corrective actions and sub-actions and entered them into the LANL PFITS under ICAM-V1.3.1-2007-6275.

These actions were appropriate to improve the methods used to enroll workers in a bioassay program. Actions included development and implementation of a new web-based enrollment program, which was effective in ensuring proper bioassay program enrollment. LANL also effectively addressed most of the deficiencies associated with the RWP process and developed two user documents that, in combination, addressed the problem of inadequate guidance for RWP development.

Overall, these actions were effective in addressing and closing HSS Finding C-8.

HSS Finding C-9: EWMO facilities have not ensured that all activity level hazards are properly identified, analyzed and controlled, and conduct of operations expectations are met, as required by IMP- 300.4, Integrated Work Management for Work Activities, and the LANL Conduct of Operations Manual.

Several of the corrective actions for this finding were specific to the Radioactive Liquid Waste Treatment Facility (RLWTF); these were evaluated during the RLWTF FCA in 2010. In that FCA, the HSS team found that the actions to address those concerns were adequate and supported closure from the RLWTF perspective. In addition, continued effective implementation of the IWM process and conduct of operations at RLWTF was evident to the FCA team. Although specific FCA findings addressing some IWM implementation problems were identified, such as failure to walk down jobs prior to work release, the RLWTF FCA found no significant concerns or non-compliances in IWM or conduct of operations that would call into question the effectiveness of actions taken to address this HSS finding.

More generally, the 2007 HSS inspection found that institutional requirements for hazard analysis, such as use of the job hazard assessment tool or equivalent processes, were sometimes not followed, and that hazard grading criteria were not always properly or conservatively applied. The resulting lack of required subject matter expert involvement in work planning meant that hazards were not always properly identified and analyzed, and controls for work activities sometimes lacked technical justification and were poorly defined or inadequate. In response to these HSS findings, LANL developed a set of seven corrective actions and sub-actions and entered them into the LANL PFITS under ICAM-V1.3.1-2007-6276. Since then, WDP has made major changes in implementation of IWM and formality of operations. This FCA noted significant improvements in the day-to-day conduct of operations at the observed WDP facilities. The primary change related to these specific corrective actions is the transition from using integrated work documents (IWDs) as working documents to using technical procedures equivalent to IWDs, and compliance with procedures was acceptable (though some isolated deficiencies were noted). Although overall conduct of operations has improved because of this transition, much of this HSS finding focused on ensuring that hazard categorization of activities was appropriate and that no hazards were missed in the hazard analysis process.

One of the corrective actions appropriately reviewed all existing IWDs for the correct hazard categorization and missing hazards, and that review was adequate. However, to remain effective, the corrective actions should have ensured that all future IWDs or IWD equivalent documents (technical procedures) were designated with the appropriate hazard classification to ensure an appropriate level of hazard analysis, and that the justification for closure was based on the lack of findings by other reviews, not simply an analysis of improvements (or lack thereof) in processes. This FCA found numerous examples of improper hazard classification, and the problem of under-classification was generally worse during this FCA than in 2007. When the hazards of many operational activities are under-classified and the hazard analysis process is not applied in a comprehensive and integrated manner as required by LANL P 300, *Integrated Work Management*, hazards can be missed. Although LANL's near-term actions to review the IWDs in effect in 2007 were appropriate, they were not effective in ensuring a sustained solution to the problems of under-classification and inadequate hazard analysis of operational activities at WDP facilities.

Improvements in the day-to-day conduct of operations at WDP facilities were evident. However, LANL's actions within WDP to address and close HSS Finding C-9 were not effective in ensuring comprehensive and appropriate hazard analyses for moderate and high hazard activities within WDP. (FCA Finding MGMT.4 HSS F-2 (C-9) WDP)

4.0 CONCLUSIONS

The LANL FCA process was an effective, consolidated inspection mechanism for evaluating overall performance and compliance status within the WDP Facility Operations Directorate. Assessment activities were performed at the appropriate breadth and depth and with the right balance of work observations, document reviews, and interviews. The FCA team leadership significantly contributed to the success of the assessment. The participation of LASO and HSS as shadow assessors provided an effective mechanism for DOE oversight of the contractor. However, the FCA team determined that several WDP safety system issues identified during the FCA were not sufficiently evaluated for potential operability and/or documented safety analysis/technical safety requirement compliance, calling into question the effectiveness of the NI process. Issues concerning the implementation of the NI process were also identified in a March 23, 2011, memo from LASO, and more recently a subject of an August 26, 2011, follow-on memo from LASO to the contractor due to continuing concerns identified in the WDP FCA.

Based on the FCA, HSS determined that increased LANL management attention and LASO oversight in this area are warranted to ensure that newly discovered information related to nuclear safety bases is promptly and formally evaluated for potential technical safety requirement non-compliances, potential inadequacies in safety analyses, or potential unreviewed safety questions and to ensure that DOE-approved facility safety bases remain valid.

Many of LANL's actions addressing the selected findings from the 2007 inspection were adequate and support closure. However, a number of corrective actions addressing specific elements within HSS Findings C-7, 9, and 12 were not fully effective. Like the STO FCA, the WDP FCA found that processes for identifying and correcting deficiencies or inadequacies were ineffectively applied. Specifically, the WDP FCA found that causal analysis and identification of sustainable corrective actions were minimal; findings were closed with no explanation or without objective evidence; measures to evaluate effectiveness and to sustain performance improvement were largely absent; and mechanisms to perform periodic follow-on checks for permanency and reinforcement of corrective actions were minimal. Overall, the WDP FCA found that there was general lack of determination of extent of condition, or in identifying patterns across nuclear operations needing management attention. The HSS follow-up review

of selected 2007 HSS findings supports the conclusions of the WDP FCA in this area. The deficiencies were appropriately characterized and integrated into the overall results of the management element of the WDP FCA report, including issuance of new FCA findings addressing these deficiencies, and the report was entered into the LANL PFITS issues management system (PFITS 2010-1628). Increased LANL management attention and LASO oversight are warranted to ensure that LANL processes are effective in attaining and sustaining performance improvement across LANL.

HSS's participation with LASO in evaluating the FCA process promoted efficiency and effectiveness. With this process, HSS was able to independently observe the effectiveness of LANL and LASO processes, maintain operational awareness, and gain a detailed understanding of specific issues at the LANL site. In addition, the process was effective in supporting both the LANL assessment and LASO oversight efforts, while minimizing the impact on site operations and resources. Finally, the Independent Oversight review identified several challenges to the WDP FCA, and the FCA process in general, which are listed as opportunities for improvement in this report. HSS will continue to monitor LANL's actions by addressing selected concerns identified in sections 5.0 and 6.0, primarily through oversight of selected LASO assessments, future FCAs, and focused and targeted reviews coordinated through the HSS site lead program.

5.0 HSS FINDINGS

DOE O 227.1, *Independent Oversight Program*, states that timely and appropriate action to address the findings and other deficiencies identified in HSS Independent Oversight appraisal reports must be taken and corrective action plans must be developed and implemented for Independent Oversight appraisal findings. Cognizant DOE managers must use site- and program-specific issues management processes and systems developed in accordance with DOE O 226.1B, *Implementation of Department of Energy Oversight Policy*, dated 4-25-11, to manage these corrective action plans and track them to completion.

Finding 1: WDP has not sufficiently addressed safety issues raised by the WDP FCA and the concurrent LASO SSO assessment, resulting in ongoing nuclear facility conditions potentially challenging the operability of safety systems and/or the approved safety bases, which does not meet the requirements of 10 CFR 830.201, *Performance of Work*.

6.0 ITEMS FOR FOLLOW-UP

The following WDP FCA Findings have been specifically identified for HSS follow-up.

- MGMT.4 HSS F-1 (C-7, C.12) INST: Two examples directly contributing to HSS findings in 2007 of failure to follow RWP and radiation protection institutional requirements that had not been addressed. Without the Laboratory addressing two of the basic examples driving the original findings, the HSS team cannot conclude that LANL actions to address HSS Findings C-7 and C.12 were fully effective.
- MGMT.4 HSS F-2 (C-9) WDP: While improvements in the day-to-day conduct of operations at some WDP facilities were evident, LANL actions within WDP to complete and close HSS Finding C-9 were not effective in ensuring comprehensive and appropriate hazard analyses for moderate and high hazard activities within WDP.
- SB.5 F-5 WDP, SB-DO: NI Process as described by SBP112-5 is incorrectly applied at WDP. This situation was observed during the assessment and supported by the March 23, 2011, LASO memo regarding issues with the LANL Safety Basis New Information Process.

- IWM-ALW.4 F-1 WDP: WDP has graded the hazard level of many WDP operations non-conservatively and not in accordance with P300, *Integrated Work Management, Attachment B, Hazard Grading Table*.
- OPS.1 F-7 WDP: WDP has graded the hazard level of many WDP operations non-conservatively and not in accordance with P-300, *Integrated Work Management, Attachment B, Hazard Grading Table*. In addition, documented hazard analyses, as required by P300 and P315, *Conduct of Operations Manual*, were not documented or otherwise made available to the FCA team.

7.0 OPPORTUNITIES FOR IMPROVEMENT

This HSS independent review identified the following opportunities for improvement. These potential enhancements are not intended to be prescriptive or mandatory. Rather, they are offered to the site to be reviewed and evaluated by the responsible line management organizations and accepted, rejected, or modified as appropriate, in accordance with site-specific program objectives and priorities.

- Place more emphasis on improving and streamlining CRADs to ensure that the criteria are specific, assessable, and geared toward performance-based assessments.
- Allow more time between FCAs to benefit the continual improvement process by providing for appropriate analysis and incorporation of lessons learned. For example, the limited time between the end of the STO FCA and the start of the WDP FCA (less than four weeks) was insufficient for WDP to incorporate lessons learned from the STO FCA.
- Limit the number of SSO safety system assessments to be conducted as part of the FCA.
- Provide an orientation session specifically for personnel who were chosen for their subject matter expertise, but have little or no experience performing assessments similar to a FCA.
- Continue the up-front involvement of DOE/LASO senior management to provide direction and expectations for the FCA during orientation; address Federal personnel roles, responsibilities, and expectations; and answer questions.
- Ensure full FCA team integration with concurrent reviews. Examples include ensuring that the conduct of maintenance implementation review is effectively integrated into the IWM functional area and that the SSO safety system assessment is better coordinated with the conduct of engineering, conduct of maintenance, and safety basis functional areas.
- Establish a process to formally document and escalate issues to senior laboratory management during the conduct of the FCA in cases of disagreement between the FCA team and the assessed organizations that may be of immediate safety concern or calls into question the safety basis of a nuclear facility or activity.

Appendix A Supplemental Information

Dates of Review

Onsite Data Collection: May 2-20, 2011

Office of Health, Safety and Security Management

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

Quality Review Board

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

HSS Independent Oversight Site Lead for LANL

Robert Freeman

HSS Team Participants

Robert Freeman
Ed Stafford
Jeff Robinson